THE INTRACOASTAL WATERWAY PLAN FOR PALM BEACH COUNTY:
Charting a Course for the Future
A Master Plan Created by the Charrette Process

prepared by
Treasure Coast Regional Planning Council
for the Palm Beach Metropolitan Planning Organization

January 2009
FINAL
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NOTE TO READERS

The following is the Intracoastal Waterway Plan for Palm Beach County developed for the Palm Beach Metropolitan Planning Organization in a public process facilitated by the Treasure Coast Regional Planning Council. This plan was created with the guidance of a project steering committee and with public input generated during a public planning charrette conducted in May 2008.

The Palm Beach Metropolitan Planning Organization adopted Resolution MPO 4-10 on September 16, 2010 supporting the Intracoastal Waterway Plan for Palm Beach County.

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# Treasure Coast Regional Planning Council
## Indian River - St. Lucie - Martin - Palm Beach

**EXECUTIVE SUMMARY**.........................................................................................................................................................1

**FORMATION OF THE PLAN**...........................................................................................................................................................7

**HISTORICAL OVERVIEW: PROLOGUE FOR THE FUTURE**........................................................................................................21

**PUBLIC ACCESS**.............................................................................................................................................................................35

**PROTECTION OF NATURAL RESOURCES**.....................................................................................................................................69

**WATER-BASED TRANSPORTATION**........................................................................................................................................83

**RECREATIONAL OPPORTUNITIES AND ECO-TOURISM**............................................................................................................109

**MARINA VILLAGES AND WATERFRONT DESTINATIONS**.........................................................................................................119

**SUSTAINABLE ECONOMICS**.......................................................................................................................................................153

**IMPLEMENTATION**.........................................................................................................................................................................195

**CHARRETTE TEAM**.......................................................................................................................................................................203

**APPENDIX**..................................................................................................................................................................................205
The Intracoastal Waterway in Palm Beach County: Charting a Course for the Future

The Intracoastal Waterway (ICW) represents one of Palm Beach County’s most identifiable, complex, and asset-creating marine facilities. The roughly 43-mile long, multi-use “water highway” provides a desirable transportation route for recreational, freight, and commercial boating vessels as well as for manatees and marine life. It offers access to more than 1,000 waterway-related businesses, highly desirable homes and residential neighborhoods, and nodes of restaurant, retail, and entertainment destinations. The Intracoastal also provides numerous opportunities for recreational and eco-tourism activities ~ birding, fishing, canoeing, sailing ~ or a simple afternoon of picnicking on the water’s edge. In addition, the waterway connects 23 of the County’s 38 municipalities, underscoring its role as an important regional connector.

Recognizing the importance of an environmentally sound, competitive, and modern Intracoastal Waterway for the County’s long-term viability, Palm Beach County’s 2007 Strategic Economic Development Plan called for developing a regional economic waterway master plan that builds on its unique assets. Development of such a plan, which sets out a shared vision, common goals, and methods to achieve those goals, is consistent with similar initiatives in world-class communities, both in the U.S. and around the world (from Seattle and Vancouver to Toronto, Monaco, and London). The goal of those plans is to boost regional economies and quality of place by enhancing, linking together, and capitalizing on unique environmental and cultural assets. Reviews of these documents quickly indicate the broad nature of these efforts, addressing economics as well as land use, transportation, environmental systems, and other aspects of their respective waterways and waterfronts.

For Palm Beach County, a waterway master plan also reinforces another important county and state objective: to protect and retain working waterfronts, including those areas that house water-dependent activities such as marinas and the Port of Palm Beach. The broad range of issues related to working waterfronts and marine industries is addressed in this report.

The development of a master plan for the Palm Beach County portion of the ICW requires a multi-agency, multi-disciplinary effort, crossing nearly two dozen jurisdictional boundaries and numerous...
EXECUTIVE SUMMARY

regulatory and advisory agencies. Within Palm Beach County, the Intracoastal covers 43 miles, with coastline on both sides, and tens of thousands of individual properties. To initiate the effort, the Palm Beach Metropolitan Planning Organization (MPO), which is responsible for integrating all modes of transportation planning and programming, including water-based transportation as well as economics, environmental sustainability, and quality of life enhancement, initiated the study with support from the Florida Inland Navigation District (FIND), a special taxing district responsible for the continued management and maintenance of the waterway in Florida.

The MPO engaged the Treasure Coast Regional Planning Council (TCRPC) to develop the ICW Plan in conjunction with FIND along with Palm Beach County (particularly the Office of Economic Development and the Department of Environmental Resource Management), the Florida League of Cities’ Gold Coast Chapter, the Palm Beach County Business Development Board, and the Center for Urban and Environmental Solutions at Florida Atlantic University. Representatives of these different organizations comprised a steering committee, which guided the project’s due diligence as well as a highly participatory planning process led by TCRPC in 2008 to develop the plan.

The resulting Palm Beach County Intracoastal Waterway Master Plan detailed in this report sets forth a bold and comprehensive vision and implementation plan that, when realized, will transform the waterway into a world-class destination. It integrates continued ongoing environmental restoration and enhancement initiatives and calls for expanding economic, cultural, and recreational opportunities and strengthening transportation connections to improve the quality of life for residents of and visitors to Palm Beach County.

OVERVIEW OF THE PROCESS

The development of the vision and master plan began in the fall of 2007 with the establishment of a multi-agency steering committee comprised of agency representatives. After several months of due diligence and background review of on-going efforts throughout the County as well as waterway plans in other parts of the nation and world, the public planning process was initiated in the spring of 2008. More than 40 stakeholder interviews were conducted, followed by a seven-day public design charrette (a
series of highly interactive workshops) from May 9 through May 15, 2008 that enabled some 150 residents, property and business owners, and agency representatives to work side-by-side to understand the history, current features, challenges, and opportunities related to the waterway. Charrette participants were supported by a multi-disciplinary design team, who received public input during the initial public session as well as the public design studio, which was open from 9 AM until 9 PM for the balance of the week. The resulting ideas provided the basis for the development of this comprehensive blueprint, intended to guide decisions that shape development along and access to the Intracoastal for generations to come.

The master planning process began with understanding the waterway’s history, current role, and condition. Participants learned that a connected sheltered inland waterway located behind the barrier islands was created for economic reasons – to expedite the movement of goods (winter fruits and vegetables) north and settlers south as well as provide access to the land along the waterway. To do that, a series of primitive canals were dredged to connect existing natural waterbodies. Over time, those canals were expanded to today’s 10-foot deep and 125-foot wide Intracoastal channel, resulting in the current mix of waterway users (ranging from heavy freight and commercial ventures such as water taxis and charter cruises to recreational boaters and kayakers, and a migratory corridor for manatees).

Planning participants also learned that the waterway is fulfilling its role to provide access to the adjoining land. However, both the upland/waterway relationship as well as the use of the water has created instances of environmental distress, a condition that has begun to improve with major investments in remediation and enhancement. Today’s Intracoastal Waterway is lined by and links together a series of thriving cities and towns that emerged from the early agricultural settlements created when the waterway was first constructed, a broad range of water-dependent businesses and recreational uses, a variety of residential opportunities, spoil islands created from dredge material, and protected natural areas. Two key initiatives to improve the natural environment are the revised Lake Worth Lagoon Management Plan (designed to improve and monitor water quality, reduce the amount of suspended sediment, and restore habitat) and the Palm Beach County Manatee Protection Plan (developed to protect manatees and their habitat as well as increase public and boater awareness of manatee needs).

CORE PUBLIC THEMES

As outlined in the following chapters, the participants in the charrette identified six core areas, which have been used as organizing themes in the plan. These include:

- **Increasing public access to the waterway**, defined as locations offering unrestricted interaction with the water (for both large and small vessels, motorized and non-motorized, as well as those walking, fishing, wading, and swimming along the ICW).

- **Protecting natural resources**, particularly the natural areas along the waterway and the Lake Worth Lagoon (the largest natural area of the waterway and a major estuarine resource) as well as the other natural systems.

- **Expanding all forms of water-based transportation** (the foundation for the creation of the Intracoastal Waterway and still crucial to the future prosperity of water-based and dependent activities), with accommodation for a range of water vessels, including water taxis, ferries, and motorized and non-motorized watercraft.

- **Increasing and enhancing nature-based recreational and eco-tourism opportunities.**
EXECUTIVE SUMMARY

- Creating a system of marina “villages” and other key waterfront destinations along the waterway and interconnecting those destinations through improved water transportation (for example, via water taxis).

- Promoting sustainable economics, particularly in the marine, hospitality, and tourism-related industries.

In addition to chapters that correspond to the topics outlined above, the master plan contains two opening chapters outlining, respectively, the history of the Intracoastal Waterway in Palm Beach County and the process used to develop the plan.

KEY PUBLIC RECOMMENDATIONS

The ICW Plan for Palm Beach County is a multi-tiered, multi-agency document that embodies scores of different programs and projects. The general findings and recommendations for each of the core issue areas are presented at the conclusion of the respective chapters. The plan supports the continuation of many of the on-going programs underway presently, particularly those related to the protection of natural resources, recreation, environmental enhancement, and public access. In addition, this report recommends the following key programs, projects, and strategies:

- Create a “Working Waterfronts” Task Force to support marine industrial uses help develop supportive policies and regulations;

- Explore development of a Marine Industry Cluster;

- Establish a “Megayacht Mile” overlay from the Blue Heron Bridge, south through Riviera Beach into West Palm Beach;

- Create a workforce development program for the marine industries sector to support and expand the industry;

- Develop marine district overlay zones, in conjunction with working waterfront designations, to protect these areas, identify and better organize supporting ancillary uses, and promote their sustainability;

- Support on-going marina village efforts in Jupiter, Riviera Beach, West Palm Beach, Boynton Beach, and Delray Beach and further analyze the three marina village opportunities identified in this report (Palm Beach Gardens/North Palm Beach, Lake Worth, and Lantana), among others;

- Further analyze establishment of a County-wide water taxi service and high-speed ferry service;

- Require expanded public access to the ICW with new development and redevelopment;

- Identify street-end park opportunities with specialized regulations for their development and maintenance;

- Enhance ecotourism and nature-based recreation with a greenways/blueways mapping and information system, expanded...
EXECUTIVE SUMMARY

public access for spoil islands and other restoration efforts, and improved portage facilities for canoe/kayak users;

• Develop a County-wide plan to address sea level rise;

• Develop a stormwater utility addressing, at a minimum, properties within a half-mile east and west of the ICW; and

• Create a Palm Beach County Intracoastal Waterway Commission to oversee implementation of this plan, including marketing, management, and advocacy.

These programs, projects, and strategies are recommended for implementation over the next five to ten years. While some can be initiated immediately, others will require longer term interagency agreements and partnerships for their realization. With the continued discussion and adoption of this plan, Palm Beach County can select consensus projects to position them for funding with advanced planning and design. As components of a large-scale comprehensive master plan, these projects will be more competitive for regional, state, and federal funding, especially given the broad public participation embodied in the development of this plan.

NEXT STEPS

The ICW Plan is intended to be used as a shared vision statement that clearly depicts the desired future for the waterway and an agreed-upon detailed outline of goals and actions that can be used to guide private and public-sector decisions that impact the waterway itself and the land alongside it. A well-articulated, widely understood shared guiding vision and clear implementing action plan are all the more important for a resource that intersects 23 different municipalities and falls under the oversight of numerous local, state, and federal planning, regulatory, and permitting agencies. This multi-disciplinary, multi-agency approach is key for designing collaborative solutions that endure because they fairly balance what often seems like competing interests (for example, between economic and environmental priorities and the need for public access at a time when a push for private ownership of the land along the waterway is becoming more common). While some projects and programs identified in this master plan are within individual jurisdictions, many cross municipal boundaries and will require collaborative leadership for intergovernmental success. Continued inter-agency engagement will be critical for the plan’s successful implementation, especially between and among local governments and regulatory/permitting agencies.
The Palm Beach County Intracoastal Waterway Master Plan covers nearly 43 miles of coastline, travelling through 23 municipalities in eastern Palm Beach County. The master plan details the types of improvements and conditions prioritized by participants in the planning charrette to develop the vision for the future of the waterway.
The Intracoastal Waterway Plan for Palm Beach County grew out of months of due diligence review by the project steering committee, which led to a seven-day public planning charrette conducted in May 2008. More than 150 participants from all walks of life were engaged in a full-day public input session, followed by a week-long studio on-site. Additional public input was gathered during the studio, which was open to the public daily from 9 AM until 9 PM. The multidisciplinary charrette team was comprised of architects, engineers, planners, economists, designers, and others, who combined efforts to develop the vision, strategies, and recommendations contained in the Plan.

At the conclusion of the week, a presentation of “work in progress” was conducted, with residents, property and business owners, elected officials, agency and local government staff, and others in attendance. Public input continued throughout the development of the Plan.
FORMATION OF THE PLAN

The Initiation of the Plan Concept

The idea of an Intracoastal Waterway Plan for Palm Beach County emerged through the development of Palm Beach County’s 21st Century Strategic Economic Development Plan, which was adopted in March 2007. The Strategic Economic Development Plan is the guiding document by which the County hopes to achieve a number of significant objectives, such as effectively reinforcing its tax base, generating revenues with minimal increase in public services, building a global entrepreneurial climate, enhancing and accenting the natural and built environment, highlighting arts and culture, and generating smart transportation and land uses. The Intracoastal Waterway Plan is a signature project within the Quality of Place strategic direction of the County’s Plan. The Quality of Place strategic direction seeks to leverage the quality of the County’s arts and cultural cluster as a strategic asset to support economic growth and provide a competitive advantage. The following quote is taken from Palm Beach County’s Plan.

Palm Beach County has an opportunity to capitalize on its 43-mile stretch of the Intracoastal Waterway by creating a regional economic strategy that builds on its unique environmental assets. Examples abound throughout the world where cities have capitalized on environmental and cultural assets to drive their regional economies. They have done so by linking cultural facilities such as botanical gardens, museums, and zoos to easy and friendly transportation modalities that include trails, ferries, and water taxis. Such a system is feasible for PBC’s downtown venues along the Intracoastal Waterway. In addition, PBC’s working waterfront has created strong value adjacent to the Port of Palm Beach through proposals such as the construction of mega yacht slips, racing sloop repair facilities, marina docks, day trip gambling, the Lockheed Undersea Research plant, and environmental attractions such as Peanut Island.

Towards the goal of an Intracoastal Waterway Plan, the Palm Beach MPO initiated a public planning process that began in 2007. The Palm Beach MPO is responsible for integrating all modes of transportation planning and programming, including water-based transportation as well as economics, environmental sustainability, and quality of life enhancement.

Palm Beach County’s Strategic Economic Development Plan

PLANNING FACTORS:
1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase the accessibility and mobility options available to people and for freight.
5. Protect and enhance the environment, promote energy conservation, and improve quality of life.
6. Enhance the integration and connectivity of the transportation system, modes and between modes, for people and for freight.
7. Promote efficient system management and operations.
8. Emphasize the preservation of the existing transportation system.

Derived from the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the MPO operates with a broad set of planning factors as noted above from the agency’s website.

The navigational, operational, environmental, and planning characteristics of the Intracoastal Waterway are also directly overseen by the Florida Inland Navigational District (FIND), a special taxing district responsible for the continued management and maintenance of the waterway in Florida. Thus, the Palm Beach MPO and FIND partnered to enable this planning effort. The TCRPC was requested to organize and facilitate the process, which began with the formation of a multi-disciplinary, multi-agency steering committee, including the following:
FORMATION OF THE PLAN

TREASURE COAST REGIONAL PLANNING COUNCIL

Indian River - St. Lucie - Martin - Palm Beach

The steering committee conducted extensive due diligence to better understand the range of issues relevant to the Intracoastal. Local governments, redevelopment authorities, public agencies, and non-profit organizations educated the steering committee regarding various projects and programs related to the waterway. The committee also reviewed waterway plans from other parts of the nation and world. Through this background review, the steering committee determined the key areas for which additional technical insight would be necessary for plan development. The steering committee also acknowledged the broad approach that would be necessary for the plan to be successful, expanding the scope to cover economics, transportation, and land use as well as natural systems, eco-tourism, recreation, and public access. Ultimately, the committee recommended a planning charrette be conducted to gain public input and enable a multi-disciplinary process to develop the Intracoastal Waterway Plan.

The Process

The Intracoastal Waterway Plan for Palm Beach County grew out of months of due diligence, background review, and ultimately, a public, seven-day planning charrette held from May 9 – 15, 2008. This Waterway Plan represents the citizens’ vision and goals for the future of the Intracoastal, both with regards to activities on the waterway as well as those occurring on its upland. The charrette was held at Palm Beach Atlantic University in West Palm Beach and was well attended by a diverse cross-section of the community including residents, property owners, local business representatives, local governments, agencies, and various organizations. The charrette focused on the Intracoastal Waterway as well as the areas (both in-water and upland) located within a half-mile east and west of the channel centerline. Key issues addressed included public access, natural systems, transportation, land use, recreation and eco-tourism, and the economics of the waterway.

The project team for the development of the ICW Plan included the Treasure Coast Regional Planning Council (TCRPC) staff (Michael Busha, Marlene Brunot, Zachary Davis, Kim DeLaNeY, Wynsum Hatton, Michelle Hipps, Dana Little, Peter Merritt, and Greg Vaday) and a team of professionals that included Cambridge Systematics (Michael Williamson), Economic Research Associates (Tom Lavash and Alyssa Cohen), the Center for Urban and Environmental Solutions at Florida Atlantic University (Jim Murley), and urban designers Marcela Camblor, Daniel M. Cary, Steven Fett, and Jose Venegas.
The team assisted the citizens in studying the many challenges faced by the community and proposed specific solutions. The design team also relied heavily on input from various public agencies, including the Palm Beach MPO, Palm Beach County (particularly the Office of Economic Development and Departments of Environmental Resource Management and Parks and Recreation), local governments, and others.

During the week of the charrette, the design team arranged an open working studio at Palm Beach Atlantic University where the doors remained open to the public all week. Residents, business owners, agency representatives, and others regularly visited the studio and made useful comments and suggestions regarding the work in progress.

At the end of the charrette week, a presentation of Work-in-Progress was held on Thursday, May 15, 2008. Residents, property and business owners, local government and agency staff, and elected officials were present. Since that presentation, work has continued following the initial public workshop. A series of final presentations by TCRPC staff were held during 2009 where additional agency, citizen, and professional input was gathered for the completion of the Intracoastal Waterway Plan.

The Study Area: Existing Conditions

The Intracoastal Waterway in Palm Beach County travels a nearly 43-mile north/south corridor through the eastern edge of the County. Initially developed by interconnecting natural lakes and lagoons, today’s waterway is physically separated from the Atlantic Ocean by a series of barrier islands, with the...
interruption of four inlets cut through the land barrier that create saltwater feeds. To the west, the waterway is bound by uplands with the interruption of man-made canals designed for flood control, which introduce freshwater to the waterway. The Lake Worth Lagoon, Indian River Lagoon, and Loxahatchee River encompass the Intracoastal channel within their natural systems. The uplands on both sides of the Intracoastal include a wide range of land uses, from preservation areas, parks, and recreational facilities to residential neighborhoods and mixed-use downtowns to marine industrial uses and the Port of Palm Beach. To enable a comprehensive analysis of the Intracoastal Waterway, the steering committee recommended a study area which extended east and west a half-mile from the centerline of the Intracoastal. A map of this area is included in this chapter.

The eastern portion of Palm Beach County contains its highest population densities and commercial intensity. Accordingly, the roughly 43 square mile study area (less than 2% of the County’s land area) includes approximately 110,000 residents, or just below 10%. Of the 23 municipalities that abut the Intracoastal, seven maintain well-developed mixed-use downtowns that embrace the waterway, and the Port of Palm Beach is located directly on the water. The majority of private lands consist of mostly higher-valued residential development followed by

More than 120 participants attended the primary public session, with dozens more visiting the studio to provide additional public input during the week.
The ICW Study Area highlighted in yellow and green. The northern and southern ends of the study area are denoted by the orange lines.
commercial use, and a variety of public uses (e.g., conservation, recreation, open space).

Land values along the Intracoastal have continued to escalate over time, with continued pressure for mostly residential development until the market’s recent downturn. Rising land values combined with escalating property taxes have caused considerable conversion of commercial and industrial properties to residential, causing a loss of working waterfronts in Palm Beach County and throughout the state. Two factors provide a respite from these historic pressures, including the current real estate market and Florida’s recent adoption of Amendment 2 to provide property tax relief for marine industrial uses or “working waterfronts.” While Palm Beach County has adopted policies to discourage additional conversion of marine industrial lands via “no net loss” provisions, there remain 23 municipal governments with individual land use control over these waterfront properties.

**Participants’ Requests**

From May 9th through May 15th, the public, municipalities, and public agencies participated in a seven-day charrette process. The initial
public workshop and subsequent design sessions attracted more than 150 people. Participants discussed their ideas at tables facilitated by charrette team members and literally drew suggestions on study area maps at each table. At the end of the drawing session, a representative from each table presented their table’s ideas. A sample listing of the main ideas generated in the public session includes the following:

- increase public access to the water via parks, bridges, and river walks
- restore spoil islands and habitat areas and allow camping and public access
- construct more public fishing piers and river walks
- explore water taxi programs to interconnect marine destinations
- clean and enhance canals, especially the C-51 Canal
- add more canoe/kayak launch sites in ICW and portages in canal spillways
- connect natural areas to each other
- improve upland and water transit access waterway and marine destinations
- create a county-wide water taxi system with different kinds of taxi stops
- make boat ramps more efficient with staging docks and day docks
- expand waterway destinations, e.g., day docks,
spoil islands, restaurants
• remove derelict boats and clean waterway and explore mooring fields
• support marine industries with incentives and dredging ("Megayacht Mile")
• utilize bridge replacement to increase public access and fishing opportunities
• maintain clear views to the water
• encourage use of green buildings, sustainable development practices, and renewable resources
• expand educational programs about natural resources, history, and hydrology
• support marina villages and other marine destinations (e.g., Jupiter’s Riverwalk, proposed Lake Worth marina village)
• promote rebuilding of natural shoreline or plantings along existing sea walls

After the initial public workshop, the charrette team investigated and tested ideas. The public visited the studio and offered additional input. The Work-in-

Progress Presentation was held May 15 at Palm Beach Atlantic University where the team gathered more input. This Intracoastal Waterway Plan represents the collection, evaluation, and recommendations related to the ideas set forth during this process and the presentations that followed in 2009. The . A series of presentations will be conducted by TCRPC in 2009 to gather additional input and further refine the recommendations of this plan. Ultimately, the plan will be completed for adoption in 2009. Accordingly, this ICW represents the participants’ vision for the Intracoastal Waterway.
Charrette participants’ drawings from the Friday public session.
Charrette participants’ drawings from the Friday public session

Charrette participants working on their drawings.
Regulatory Framework and Overview

Development adjacent to the Waterway is subject to a broad range of plans and regulations originating at all levels of government. In the United States, unlike many countries that have parliamentary forms of government, our federal system of government allows for overlapping regulations by different levels of government. In the development of this plan, a regulatory review was conducted of the nearly forty regulatory, planning, and technical documents related to the ICW in Palm Beach County as well as the 23 local government comprehensive plans. A matrix listing these planning, regulatory, and other documents is included in the Appendix.

The regulatory framework requires that individual projects be reviewed independently for project-related impacts, and in some cases, how the project impacts will cumulatively impact protected resources. Experience in other areas indicates that an overall plan for the entire Intracoastal Waterway in Palm Beach County may expedite the review and approval of individual projects by demonstrating cumulative impacts and also providing for coordinated mitigation of project level impacts.

New development or redevelopment adjacent to the Waterway must demonstrate plan consistency and regulatory compliance with each relevant, binding authority at all levels of government. While arguably duplicative and inefficient, this intergovernmental review is inherent in our form of government that relies on federalism and home rule. This entire process can be further complicated by the intervention of third-party entities who disagree with the final agency decisions and have legal standing to bring administrative and judicial review of those decisions. These reviews can lead to delay and extra expense to proposed development projects adjacent to the Waterway.

The development of this conceptual plan considers the various planning, regulatory, and programmatic plans of the various agencies that govern or otherwise regulate development on and along the ICW in Palm Beach County. For the individual projects identified in this ICW Plan, references have been noted where applicable regarding regulatory implications for their implementation. As noted in Chapter 10: Implementation, this plan recommends creation of a Palm Beach County Intracoastal Waterway Commission to assist and oversee implementation of the plan, including management and marketing of the Waterway as well as advocacy of the plan. This entity would also be envisioned to shepherd multi-jurisdictional projects through the various regulatory processes, with the comprehensive and broad vision detailed in this ICW report.
Formation of the Plan

Review of Comparable Waterway Plans

As part of the due diligence leading to the charrette, a review of waterway plans from around the United States and internationally was conducted to identify programs and practices of relevance. Across the globe and throughout the United States, governmental and private entities are collaborating to restore existing development and facilitate new development adjacent to navigable waterways, both natural and man-made. A summary matrix listing the various plans is included in the Appendix.

In Europe and Great Britain, historic shipping canals have been rejuvenated by these new partnerships. The River Thames Waterway Plan 2006-2011 provides a good example of an historic waterway that is maintained by commercial shipping and provides amenities and access to billion dollar new developments along its reach. Typical of advanced efforts to undertake multiple purpose activities, the Thames Plan puts a premium on sustainability of its waterway, such that it is usable, accessible, and productive for future generations. The Thames Plan anticipates increased population along the waterway and focuses on improving the environmental quality of the waterway as new development and new infrastructure comes on line.

The British waterway initiatives are linked to their neighbors in the European Union (EU) through programs such as the Canal-Link Project in The North Sea. This effort pays special attention to the connections between the different waterways adjacent to the North Sea, seeking ways to create economic opportunities for tourism and recreation. In Europe, the EU has issued a comprehensive development plan for its member nations by setting positive incentives and breaking barriers in an effort to develop the inland waterways by linking them to land-based intermodal systems. These linkages are aimed at relieving traffic congestion and mastering energy use for sustainable development options. In the United States, there is growing interest in returning to the full, comprehensive use of our historic waterways to enhance our economies and individual communities. The Eire Canal National Heritage Corridor builds on enhancing the historic heritage of the historic communities that grew up along the canal. The Trinity River Corridor Project strives to connect the metropolitan Dallas by making the Trinity River part of the “front yard” of the communities adjacent to the river. River redevelopment plans have been prepared for the New River in Fort Lauderdale and the Miami River in Miami as well. Lessons learned from these international and national efforts can be summarized as follows:

• The plans strive to be sustainable over a long planning period (up to 50 years).
• The plans draw on the existing cultural and historic values inherent to the waterways.
• The plans view waterways as a mode of transportation serving adjacent developed areas.
• The plan maintain and enhance important environmental values existing within the waterways.
• The plans are important parts of integrated, economic development strategies that rely on government and private entities to closely collaborate towards agreed upon goals.

These broad themes were acknowledged as applicable in the development of this ICW report.
The importance of the Florida ICW to Palm Beach County’s history (and its future) is best summed up by the Florida Inland Navigation District (FIND) when announcing the completion of the waterway in the mid 1930s. “…. [The waterway] forges the last long link in the inland route from northern waters to southern Florida…. [The] joy of cruising to Palm Beach or Miami or still farther southward through the keys to Key West is no longer limited to those who own either big sea-going yachts or sturdy boats of exceptionally shallow draft…..” The extension of the waterway to Palm Beach in the 1890s along with the parallel arrival of Flagler’s East Coast Railway (both part of a national strategy to extend the country’s transportation networks to open up new lands for development) put Palm Beach and later West Palm Beach and other communities lining the waterway on the map as premier locations.

As with Flagler’s railway, the waterway (then called the East Coast Canal) was constructed and owned by private entrepreneurs who received from the state large tracts of land along the waterway as compensation. In 1927, the era of private ownership of the ICW (and the tolls charged by those private owners) ended, and FIND (created at that time by the Florida legislature) purchased the waterway and conveyed it to the U.S. government. FIND still maintains and invests in the 370-mile long waterway, which in 1965 was expanded to its current 10-foot depth and 125-foot width. Today, the construction of the waterway, which represents one of Florida’s largest public works projects, continues to create transportation and value for the communities along it and the residents, businesses, and natural environment that benefit from and depend upon it.
Overview

Imagining Palm Beach County (and Florida’s east coast) without the Atlantic ICW is like imagining that same area without tourism, fishing, boating, marinas, waterfront restaurants and sports, bird watching, nature walks, beautiful houses, and laid back old Florida places. Intertwined with the history of Henry Flagler’s Florida East Coast (FEC) Railway, the story of the Atlantic ICW in Florida is about transportation and real estate development. The ICW was designed to be a wide, safe, and sheltered inland waterway to expedite the movement of goods (winter fruits and vegetables) and early settlers and explorers traveling south. It also enabled better access to the land along the waterway, ultimately making those lands more valuable.

“The Waterway had its beginning nearly a century ago as the natural outgrowth of an effort to develop the almost connected chain of creeks, rivers, lakes, and sounds along Florida’s east coast into one continuous waterway.” (The Commission of the Florida Inland Navigation District – Announcing the Completion of the Florida ICW, Jacksonville to Miami, circa 1935)

In many ways, the development of the Intracoastal echoed Flagler’s construction of his railway. Similar to Flagler’s receiving land grants in exchange for developing the railway, between 1881 and 1912, the early entrepreneurs who built what was then called the East Coast Canal were granted large tracts of abutting state-owned land to aid in its construction (a part of a cash-short U.S. strategy to privatize its infrastructure). When developing those lands, many entrepreneurs consulted some of the best urban designers of the day, resulting in the creation of some of the most attractive and enduring towns and villages along Florida’s east coast. In the 1890s, the
storylines of two transportation efforts that would fundamentally shape the future development of Palm Beach County merged: the development of the County’s portion of the ICW (its marine highway) and the construction of the FEC Railway. In that decade, the East Coast Canal reached the Jupiter Inlet and began to push south, and Flagler arrived with his railway (often credited with putting Palm Beach on the map).

By the time the then five-foot deep and 50-foot wide ICW was completed in 1912, Palm Beach County’s 43-mile section was composed of 13 miles of man-made canals (the result of extensive cutting and dredging). Those canals linked (and, through their narrow, straight lines, stood in contrast to) 30 miles of natural flowing waterbodies composed of the rivers, lakes, and lagoons, which comprised the major east county estuaries. The 20-mile Lake Worth Lagoon, a major county estuarine resource located in the center of Palm Beach County, is the largest natural section of the ICW. Additional natural sections include Lake Rogers, Lake Wyman, Lake Boca Raton, and a small portion in northern Palm Beach County of the 156-mile Indian River Lagoon (an Estuary of National Significance) and what is today the Loxahatchee River-Lake Worth Creek Aquatic Preserve. Today’s ICW is maintained by the U.S. Army Corps of Engineers and the FIND (a Special State Taxing District) and is part of a 3,000-mile inland waterway running along the Atlantic and Gulf coasts and consisting of natural inlets, salt water rivers, bays, and sounds, and manmade canals.

**The Early Years: 1820s - 1870s ~**

**The Beginnings of the Florida East Coast Canal**

The initial discussions of creating a navigable Florida east coast inland waterway began in the early days of the country’s history when leaders turned their attention to improving public transportation through a connected system of canals, rivers, and roads. At that time, a large part of Florida’s east coast was composed of a series of long and narrow peninsulas along with islands that were parallel to the mainland but separated from it by salt and brackish water sounds and lagoons. The dredging of the artificial canals to create a continuous inland waterway for transportation purposes connected those waterbodies.

One of the first mentions of what would ultimately become the ICW goes back to the 1820s when Florida was still a U.S. territory. An Army surveyor recommended joining the Mosquito Lagoon (a part of the Indian River Lagoon) and the Indian River by way of the Haulover Canal (where travelers had to carry boats from one navigable place to another) on the north end of Merritt Island in Brevard County. A few years later, residents in the northern part of Florida proposed to Congress that a canal be cut to connect the Matanzas River (a saltwater bar-bounded estuary that provides the entry to St. Augustine’s port) located in St. Johns and Flagler counties with the Halifax River in the northern part of Volusia County. Another step came in the late 1820s when the Florida Territorial Legislative Council chartered the first of what would become a group of companies created to

![The Haulover Canal in Brevard County (image above from the Brevard County Historical Commission Photo Archive) would link the Mosquito Lagoon and the Indian River, which ended at the Jupiter Inlet (image below from Photographs from the Detroit Publishing Company, 1880-1920). Until an inlet (now called the Palm Beach Inlet) was later cut into Lake Worth, travelers had to use Hauovers in several places; one such place was south of Jupiter between today’s PGA Boulevard and North Palm Beach.](image)

**Treasure Coast Regional Planning Council**

Indian River - St. Lucie - Martin - Palm Beach

FINAL
construct canals on the east coast and in other areas of what was then the Florida Territory. It was not until the 1850s, however, that any digging began (the canal at a haulover between the Mosquito Lagoon and Indian River, a $5,000 initiative led by an engineer with the U.S. Army).

After the Civil War, the relatively new State of Florida took two steps that would shape the future development of the state’s east coast. In 1874, the same year that U.S. Army engineers started work on a channel connecting the St. Johns River and the Nassau Inlet, the legislature approved the private incorporation of canal companies. A few years later, the state decided to incentivize canal and railroad building by using a common practice of that time – granting large tracts of land (for right-of-way), instead of public funds, to private entrepreneurs willing to build the country’s burgeoning transportation network of canals, railways, and highways. As noted by William Crawford in A History of Florida’s East Coast Canal, companies building the canals were granted “alternate sections of state lands on either side of their proposed railroads or canals for a distance of six miles upon completion of each six-mile section.” That action firmly linked the ICW to the future development of the land adjacent to it.

The construction of an East Coast Canal was viewed as critical for shipping fruits and vegetables and encouraging settlers to move to the southern part of the state, primarily to farm. The result was the reverse of what we see today in real estate values: agricultural lands to the west (in Palm Beach County - its muck lands) were the most valuable, not the land along the soon to be railroad and ICW. In-town lots were often thrown in for free or for a great discount when agricultural lots were purchased. Beach lots were not considered valuable because nothing would grow there.

1881-1912: Canal Construction Takes Off and Palm Beach County Becomes a Destination

1880s: The Jupiter-Lake Worth Canal Link Gets the Okay

A new period of investments began in 1881 that focused on the creation of a protected east coast
north-south waterway. In that year, the Florida Coastline Canal and Transportation Company was incorporated as a private canal company, and the Florida legislature awarded the Canal Company the authority to start dredging a canal that would extend from the Matanzas River (extending 20 miles through St. Johns and Flagler Counties) to the Indian River. The legislature also granted the Canal Company “3,840 acres of state land for every mile of canal constructed and further gave the company the right to collect tolls,” Crawford notes. Ultimately, there were a total of six toll collection points between Jacksonville and Biscayne Bay, two of which were on Lake Worth. The Canal Company-maintained chains crossed the canal below the water surface, thus preventing passage until the toll was paid. The Canal Company was allowed to extend the canal further south to Lake Worth (1881), Biscayne Bay (1885), and ultimately Key West. As noted by Crawford in the Big Dig, in 1885 the state facilitated the extension by utilizing the Internal Improvement Fund to set aside large areas of reserve lands on both sides of the canal.

Eighteen eighty-six was an important year for future real estate development along the ICW, particularly in Palm Beach County. George L. Bradley joined a group of wealthy industrialists from the northeast who invested in the Canal Company. Bradley, the first treasurer of the American Telephone and Telegraph Company, was later involved in creating the Boston and Florida Atlantic Land Company, a new real estate development company that in 1892 purchased 100,000 acres from the Canal Company, giving it a much-needed cash infusion. The Land Company’s holdings generally bordered the canal and extended from Titusville to the north and Miami to the south. Flagler was eventually given an interest in the Land Company’s planned communities.

Prior to the arrival of the canal and railway, the early settlements in Palm Beach relied on steamboats for transportation. The Indian River Steamboat Company brought passengers and freight from Titusville south to Jupiter. After a rough overland freight wagon ride from Jupiter to Juno (a section that would later prove a challenge when constructing the East Coast Canal), travelers had to board another steamboat (the “Lake Worth”) to reach Palm Beach and points further south.

Throughout the decade, the principal settlements in what was then Dade County (of which today’s Broward and Palm Beach Counties were part) were on Lake Worth and Biscayne Bay. From 1890 to 1900, Juno (now known as Juno Beach) served as both the county seat as well as the transportation terminal linking northern Florida to its southern lands by way of the Indian River, and Jupiter to Lake Worth.

A ladder or bucket dredge (image above) was used to create canals connecting the east coast lagoons and rivers, ultimately ending at Biscayne Bay in today’s Miami-Dade County (image below). Photo from Florida Inland Navigation District.
In order to create a rail link from Jacksonville to the new county seat, a rail line was planned to make the 7.5 mile connection between Jupiter and Juno. In 1887, that led to the creation of the Jupiter and Lake Worth Railroad that traveled through the way stations of “Venus” and “Mars.” (Those town names, along with Jupiter as the beginning point and Juno as the end, resulted in its being called the Celestial Railroad.) As the southernmost railroad in the country, the Celestial gained some national recognition, but after a period of hauling materials for the construction of Flagler’s Royal Poinciana Hotel in Palm Beach, the railroad was later eclipsed when Flagler built his railway, leaving a few rail spikes that remain today in the beaches of Juno and Jupiter.

In 1889, a new standard emerged: the Canal Company was to maintain a canal from the St. Johns River to the Biscayne Bay that was not less than five feet deep at the mean low water and not less than 50 feet wide.

1890’s: The Canal Reaches Palm Beach and Flagler’s Railway

The 1890s began with the canal reaching what is today Palm Beach County. The 134 mile long-waterway from the Haulover Canal to the Jupiter Inlet (where the Loxahatchee River empties into the Atlantic Ocean) was completed in the fall of 1890. The push south of Lake Worth, which began in 1894, went fairly quickly because the route only had to connect a series of existing natural waterbodies. By 1895, the canal had been completed (through Lake Wyman and Lake Boca Raton) to the New River in what is now Fort Lauderdale. Dredge operators started at both the Lake Worth and New River ends, completing the work when they met. The stretch consisted of two sections: a fourteen-mile section through Lake Wyman and Lake Boca Raton to the Hillsboro River at the Hillsboro Inlet and a narrower section extending another ten miles to the New River Inlet at Fort Lauderdale. By 1910, the canal dredging had reached Key Biscayne, creating 77 miles of waterway between Juno and Miami.

Although the work began in 1891, the last mile of the final and very difficult eight-mile cut between Jupiter and Juno (what some called the Jupiter-to-Lake Worth divide) would not be completed until 1898. The Jupiter to Lake Worth cut, as described by Crawford in The Big Dig, involved some dredge cuts that were as much as 22 feet deep, resulting in so much dredge material that a temporary railway line
HISTORICAL OVERVIEW: PROLOGUE FOR THE FUTURE

had to be built. The dredging to create the final section extended along the watershed of Lake Worth Creek and cut through to Lake Worth, creating the barrier island that is now Juno Beach. It was the Jupiter to Lake Worth cut, Crawford notes, that finally made an unbroken inside water passage from Titusville to Key West possible, thereby providing easier access to areas along Florida’s southeast coast. That safe passage along with the parallel extension of Flagler’s railway opened up what some called the last frontier: southern Florida. It also linked three of Florida’s great waterbodies – the Indian River, Lake Worth Lagoon, and Biscayne Bay.

The 1890s was also when the future of the canal became linked to Henry Flagler through a mutually beneficial relationship. Flagler wanted to extend his railway further south (from Rockledge, the oldest city in Brevard County) but could not because the Canal Company had been granted most of the available land within six miles of the canal. (Originally Flagler planned to stop his railway at Palm Beach, but because of crop-freezing weather and urges from Miami, he decided to extend the railway south.) To solve the problem, Flagler proposed that in exchange for extending the railway 104 miles south of Rockledge, he would be granted a share of the Canal Company’s land grant. Recognizing the benefits of extending the railway further south (the Canal Company was in need of a cash infusion and the canal was used to haul supplies used in building the railway), in 1892 the Canal Company approved Flagler’s proposal, granting what ultimately became one-quarter of its land to Flagler. He, in turn, invested $500,000 in the Canal Company and served as its president from 1893 to 1896.

Henry Morrison Flagler. In Palm Beach, Henry Flagler’s (image above) railway met the East Coast Canal Company. Floridian James Colee (image below) was one of the Canal Company’s original incorporators and served as the company’s engineer. (Flagler image from the Henry Morrison Flagler Museum; Palm Beach, Florida)

It [the Florida ICW] provides a broad, deep, well-marked and sheltered passage down Florida’s picturesque east coast to the recreational rendezvous of the American Riviera. With this new facility for safe, speedy voyaging, Florida beckons more alluringly than ever to yachtsmen. We invite you to answer our call: Come to Florida in your own boat. Enjoy the romance, the glamour and the colorful gaieties of Florida life.

The Commission of the Florida Inland Navigation District – Announcing the Completion of the Florida ICW Jacksonville to Miami, circa 1935

The combination of a completed railway along with a fully navigable waterway extending the full length of Florida from St. Augustine to the Biscayne Bay were heralded at the time as vehicles to make Florida a desirable destination (praise that later proved to be correct during the 1920s’ Florida land boom).
1892, the Lake Worth Land Trust was established by Bradley and others and began to purchase land from the Canal Company, which needed more cash. The Lake Worth Land Trust purchased 2,200 acres of land from the company, including land in Palm Beach County.

Flagler’s railroad reached what he called the Lake Worth region in 1894, and Flagler decided to turn Palm Beach into a resort and West Palm Beach (originally called Westpalmbeach) into a commercial city where his workers could live. To create the latter, he purchased a strip of land from Lake Worth to Clear Lake for a sum of $45,000 and proceeded to lay out the city’s streets. One of those streets (Clematis) evolved into the downtown’s main street, connecting the historic Harvey and Clark Seaboard Train Station (to the west) to the ferry launch (to the east) that transported passengers to Palm Beach. In 1923, the well-known John Nolen prepared a plan for West Palm Beach.

Flagler’s first hotel in Palm Beach (1894) was the Royal Poinciana Hotel, which overlooked Lake Worth and began to attract the country’s wealthy elite. When the hotel was later expanded from approximately 540 to 1,100 rooms, it was considered the largest wooden structure in the world. Two years later, Flagler built the Palm Beach Inn on the beachfront of the Royal Poinciana – a location that later earned its name the Breakers (because guests requested rooms “by the breakers”). Flagler would also build his home, Whitehall, in Palm Beach, securing its status as one of the preferred winter resorts of the era’s wealthy population, many of whom would arrive via a cruise down the ICW.

Reinforcing his link to the development of the ICW, Flagler created the Model Land Company in 1885 to hold title to his Florida East Coast Railway state-granted lands, as well as lands (Crawford notes in The Big Dig) held by the Florida Canal Company and the Boston and Florida Land Company. A year later, the Model Development Company joined with the Canal Company, the Boston and Florida Land Development Company, and others to market their land holdings through the same real estate agent. Those land holdings in Palm Beach County included Boynton (now Boynton Beach) and Linton (now Delray Beach), which had their beginnings in 1894 when U.S. Congressman William S. Linton (Michigan), Civil War Major Nathan Boynton, and David Swinton traveled to the area on a sailboat via the newly dredged East Coast Canal to find a winter retreat from Michigan’s harsh winters.
from Michigan who came with their families and settled in the area. Flagler’s railway was to come a year later, followed by the completion of the hotel in 1897. The hotel attracted visitors to the growing community and provided an outlet for winter vegetables and fruits grown by local settlers for northern markets. To get travelers from the train station to the hotel using a mule-drawn surrey, Boynton constructed a shellrock road (later called Ocean Avenue) from the hotel to the East Coast Canal. A wooden hand-pull toll bridge was constructed at the canal. In 1911, the first bridge was completed over the East Coast Canal at Ocean Avenue, and by 1926 the South Lake Worth Inlet was opened to relieve water from the East Coast Canal by connecting Lake Worth to the ocean.

During that same period, Linton purchased land south of Boynton from the Model Development Company, the Lake Worth Trust, and others. He and the Model Land Company recorded his plan for what would be the town of Linton (another farming community) in 1896, the same year that Flagler’s railway reached Linton. The town was located on a higher dry prairie a short distance from a swampy area that locals called the morass – an area that was made deeper and wider to create a navigable portion of the East Coast Canal. The canal, along with the arrival of the railway, gave settlers a better transportation system for shipping winter crop fruits and vegetables to northern states. Before the canal, travelers had to use the Orange Grove Haulover. After a hard freeze destroyed crops in 1898, Linton defaulted on his land payment, leading settlers from Michigan to change the name of Linton to Delray (named for a Detroit neighborhood).

The 1890s also saw the U.S. government take over the responsibility of maintaining the Indian River portion of the canal between Titusville and Jupiter. Toward the end of the 1890s, the East Coast Canal experienced two historic events: the Canal Company granted rights for the first steamers to operate on the waterway and the waterway was used to ship munitions during the Spanish-American War.

1900-1912: Completion of the East Coast Canal

After several years of litigation and construction delays, the 370-mile long canal was completed in 1912 when the last section between St. Augustine and the St. Johns River was finally finished. The final cost was approximately $3.5 million. With that final land conveyance, the privately-owned Canal Company had received just over a million acres of public land (1,030,128 to be exact) for 268 miles of canal construction. As an incentive to complete the work, the Florida legislature provided that the Canal Company would not receive land grants for any sections of the canal completed after 1912.

Nineteen twelve also saw the official founding of what is now the City of Lake Worth (then called Jewel and later the Townsite of Lucerne). The result of another Canal Company real estate transaction, the area was a part of a much larger landholding called the Palm Beach Farms, a 234-square mile tract of land extending from West Palm Beach some 30 miles south to Boca Raton. According to Crawford, John Barrs, a friend of then-Broward County sheriff and later Florida Governor Napoleon Broward, subsequently purchased that area of land from the Canal Company.

Above, one of Boynton’s first bridges across the East Coast Canal was built in 1912. (Photo from the Boynton Beach City Library Archive)
Lake Worth quickly grew when real estate agents offered a free in-town lot for each five-to-ten acre tract of fruit and truck land purchased for the price of $250 in an area known as Greenacres City. The giveaway lots were so successful and the ICW location so desirable that, between April and December 1912, the small settlement increased from 38 to 308 permanent residents, resulting in the name “Wonder City”. As the town grew, many of its houses and public buildings, including what today is City Hall, were designed by the well-know architect G. Sherman Childs.

1913-1926: Florida Land from Boom to Bust and Private to Public Canal

In the 1920s, real estate development in Florida took off. Once only accessible to the rich or the focus of settlers interested in farming, Florida was now the focus of real estate speculators and middle class vacationers seeking a warmer home or warm place to vacation. Another Palm Beach link to the East Coast Canal materialized in 1925, shortly before the 1920s’ Florida land boom burst, when Harry Kelsey, a West Palm developer who had been buying land from the Boston and Atlantic Land Development Company, purchased the canal for $550,000 and invested in making improvements to the deteriorating and, in places, impassable canal.

By 1920, Mr. Kelsey had contracted with Dr. John Nolen, who also prepared a design plan for West Palm Beach, and the Olmsted brothers (the sons of Frederick Law Olmsted) to design Kelsey City in northern Palm Beach County. In 1923, the community incorporated making it the first planned municipality in the state. However, events of the 1920s (the bust of the Florida land boom and the

The fee schedule pictured above, effective as of December 1920, applied to the six sections of waterway (from Jacksonville to Miami) controlled by the Florida Coast Line Canal and Transportation Company until FIND purchased it in 1929. Image from Florida’s Big Dig, 2006.
1928 hurricane, which destroyed most of the city), and the 1930s (the stock market crash) led to City becoming defunct and the state nullifying its charter. In 1939, the city was officially renamed the Town of Lake Park. In the mid 1950s John D. MacArthur paid $5.5 million for 2,600 acres of land in northern Palm Beach County that had been owned originally by Kelsey. That land area included portions of today’s Lake Park, North Palm Beach, Palm Beach Gardens and Palm Beach Shores.

In 1925, the Town of Boca Raton was incorporated at the height of the Florida land boom as a mostly agricultural community. The original town was platted by Flagler and the Canal Company. The town council commissioned noted architect Addison Mizner, who had arrived in Palm Beach a few years earlier and designed many of the town’s buildings, including the Everglades Club overlooking Lake Worth, to plan a world-class resort community. His centerpiece on the Intracoastal, the Cloister Inn, was completed in 1926, the year the land boom ended, and continues today as the Boca Raton Resort and Club. Unfortunately, the development company that Mizner created in 1925 to transform Boca Raton soon came upon hard times when the speculative land boom that had begun in 1922 began to deflate. However, Mizner’s Mediterranean Revival style of architecture left a stamp on south Florida that remains today.

Even while the land boom was at its height, discussions that began as far back as 1913 were underway about turning over control of the canal over to the U.S. government. In 1922, the U.S. Corps of Engineers held four hearings, including one in West Palm Beach, which was attended by some 50 community leaders, to solicit views about a possible federal government takeover of the deteriorating privately-owned canal. By 1926, discussions of a federal takeover intensified with the collapse of the Florida land boom, which led to a dramatic drop in toll income and a rise in maintenance problems along the canal. Those factors exacerbated complaints about the failure to maintain the canal at the required 50-foot width and 5-foot depth. Nineteen twenty-six ended with a report to Congress recommending that the canal and necessary right-of-way be turned over to the federal government. Also suggested was widening the East Coast Canal to 75 feet and increasing its depth to eight feet, at an estimated cost of $4.2 million.

The early 1900s were also important for the Lake Worth Lagoon (named for William Worth, commander of the Eighth Infantry Regiment in the Second Seminole War). It was originally a fresh water lake with drainage from swampy areas along its western edge (an area that became the Lake Worth Creek as it approached the Loxahatchee River and Jupiter Inlet), and efforts to create an inlet began as early as the 1860s. Following Flagler’s enlargement of the inlet during the 1890s, 1915 saw the creation of the Lake Worth Inlet District and action by the Port of Palm Beach to create a permanent four feet deep inlet. Dredging in the early 1920s led to an inlet depth of 12 feet in 1920, 16 feet in 1923, and 18 feet in 1926. The same period also saw extension of the jetties.

During that time period, discussions were underway related to creating another inlet in the southern part of Lake Worth, leading in 1915 to the creation of the South Lake Worth Inlet District to construct and maintain an inlet connection from the southern end of the lake to the ocean. The intent was to improve
the declining water quality of the lake and to provide for shipping and transportation. In 1917, the South Lake Worth Inlet was created in what was later considered a failed effort to improve tidal circulation and provide flushing to the south end of the lagoon. The 1925 completion of the West Palm Beach spillway led to the inflow of needed freshwater and provided for the development of the west shore of the lagoon.

The 1920s also saw the creation of today’s Peanut Island, a spoil island that resulted from dredging. Today the 79-acre island is owned by the Florida Inland Navigation District, the Port of Palm Beach, and Palm Beach County and is home to the Palm Beach Maritime Museum. It has also been the focus of major habitat restoration and construction investments. Sites on the island help tell its history: John F. Kennedy's bunker (a reminder of the Cold War) and a U.S. Coast Guard ‘Ready’ House.

1927: Contemporary Times – The New Era of the Florida Inland Navigation District Begins

A new era began in 1927 when the U.S. Congress passed the Rivers and Harbors Act, thereby ending the privatization of the ICW which turned out not to be a profitable venture. That act assigned the federal government the role of constructing and maintaining the navigation channel of the ICW and authorized establishing and maintaining an inland waterway that in most parts was 75 feet wide and eight feet deep at mean low water. In response, the Florida legislature created the FIND, which was established as an independent special district.

The District was authorized to purchase the existing canal from its private owners and subsequently convey it to the U.S. government. FIND helps to acquire and maintain necessary rights-of-ways and land for dredged material management to the federal government. FIND is composed of twelve Florida east coast counties: Nassau, Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, and Miami-Dade. The district is governed by a twelve-member Board of Commissioners, one from each county in the district, who are appointed by the Governor.

Later, voters in the District approved a $1.8 million bond issue to purchase the Coast Line Canal and undertake the expanded right-of-way and spoil areas needed to enlarge and improve the waterway, including the smoothing of the canals’ sharp turns. By the end of 1929, title to the waterway had been transferred to the U.S. government. Use of the waterway was free (symbolized by dropping the toll

Historic Boca Raton is pictured in the image above, with the Boca Raton Hotel visible in the background.
chains), and the name officially became the ICW from Jacksonville to Miami, Florida.

In 1931, the Florida legislature authorized the District to expend funds for publicizing the completion of the waterway and promote its use to all types of watercraft. Palm Beach County’s D.H. Conkling (a founder of the Palm Beach Post and Commodore of the Palm Beach Yacht Club) served as the secretary of the district. The 1930s also saw expansion of the canal to a 100-foot channel with an eight-foot controlling depth in order to enhance the operation of both commercial and pleasure boat traffic. The expanded waterway was completed to Miami in 1935.

During World War II, it provided a safe, protected route for cargo ships that were being torpedoed by German submarines off the east coast of the U.S. By 1965, the section of the waterway from Jacksonville to Ft. Pierce was expanded to 12 feet deep and 125 feet wide, and from Ft. Pierce to Miami, 10 feet deep and 125 feet wide.

The Navigation District has continued to enhance the waterway. In the 1980s, for example, in coordination with the Army Corps of Engineers, Palm Beach County’s Department of Environmental Resources Management, and the State of Florida, it began a series of projects to inventory and improve existing spoil disposal sites, the majority of which were found to be unusable because of their small size or environmental sensitivity. Since that time, studies have been completed for six counties, including Palm Beach County. Major restoration activities have been initiated at several Palm Beach County spoil islands (created or expanded by depositing spoil from waterway dredging), including Peanut Island, Munyon Island, John’s Island, and the Snook Islands in the Lake Worth Lagoon. Those and other restoration

Pictured above, Peanut Island was created from the spoil that resulted from dredging the waterway.

In 1927, the Florida Legislature created the Florida Inland Navigational District to be the local sponsor of the ICW. Its first board of commissioners is pictured above.
In the 1930s, the waterway was expanded to 100 feet wide and eight feet deep, enabling it to accommodate larger vessels such as the steamer in the photo above.

efforts are detailed in the Natural Resources chapter of this report. In 1985, the Florida legislature created a District Assistance Program to help state, regional, and local governments with waterway improvement projects in the areas of navigation, waterway access facilities, boating safety, and recreation and environmental education. Through that program, the District has assisted 290 projects, contributing $32.2 million that led to $97.7 million in waterway improvements and related benefits.

The ICW has come a long way since it carried early settlers south and locally-grown produce north. In 2008, Palm Beach County had more than 38,000 registered vessels, including freight, commercial vessels, and recreational craft. Recreational vessels, which average one vessel for every 33 county residents and account for a $1.42 billion total economic output, generate more than 600,000 yearly boating trips. Those trips do not include hundreds more trips by visiting boats and commercial vessels that contribute another $503 million in total economic output. Boaters are supported by 1,000-plus businesses (40 percent of which are located on or adjacent to the waterway) that generate some $1.29 billion in estimated annual revenues. Details of the development patterns along the waterway, restoration efforts within the waterway, and access to and from the Intracoastal are detailed in the balance of this report.

Palm Beach County’s spoil islands (such as the Audubon-managed John’s Island shown above) have benefited from a variety of restoration activities (described in more detail in the Natural Resources chapter).

[Resource documents for this overview of the ICW in Palm Beach County include the following: Florida’s Inland Navigation District: History Background <www.aicw.org/history.htm>; A History of Florida’s East Coast Canal: The Atlantic ICW from Jacksonville to Miami by William Crawford, Jr.; Broward Legacy (published by the Broward County Historical Commission), Summer/Fall 1997; History of Island Estates and the Surrounding Waterways <www.aicw.org/islnd-estates.pdf>, assembled through resources provided by Catherine Wilson of the Flagler Beach Historical Museum and comments by the Florida Inland Navigation District, Gail Wadsworth, and several old time residents; and Florida’s Big Dig: The Atlantic ICW from Jacksonville to Miami 1881-1935 by William Crawford, Jr., copyright 2006.]

With nearly 40,000 registered boats in Palm Beach County today supported by more than 1,000 businesses, the ICW has come a long way since it carried early settlers south and winter fruits and vegetables north.
The Intracoastal Waterway in Palm Beach County offers many forms of public access, both on and along the water, and protected access to the water is considered by many to be a key quality of life factor. Access occurs in built forms, such as riverwalks and parks, as well as natural forms, such as preservation areas. The boating public, including both motorized and non-motorized vessels, can access the ICW from marinas, inlets and canals, and boat ramps. Other modes of access for strolling, bicycling, fishing, swimming, and other activities occur in parks, natural areas, sandy shorelines, and constructed riverwalks. In general, however, as land uses along the waterway have become more residential, the Intracoastal has become less accessible to users. This trend towards privatization along the waterway has become common in many parts of Florida and the nation, encouraging emphasis on protection of public waterfront lands. The protection, enhancement, and expansion of public access was also among the strongest recommendations by charrette participants in the development of the Intracoastal Report.

This chapter discusses the many forms of public access along the Intracoastal in Palm Beach County along with the different types of users. In addition to marinas and boat ramps, park and recreational areas, riverwalks and fishing piers, certain commercial uses are noted that provide public access for patrons. The chapter concludes with a series of findings and recommendations regarding public access, with strong emphasis on local government actions to protect, expand, and enhance public access through development conditions as well as with the creation of street-end parks. Expanded public access is also encouraged for natural areas where appropriate.
PUBLIC ACCESS

The Intracoastal is a unique amenity in Palm Beach County, providing access, recreational opportunity, and a beautiful backdrop for upland activities. As land uses along the waterway have tended towards residential development over time, access to the waterway for non-waterfront residents has become increasingly limited. Accordingly, increased public access to the Intracoastal was among the strongest recommendations by charrette participants. Public access is viewed as a key quality of life component as well as part of Palm Beach County’s.

In this report, public access is defined as location or facility that offers some type of interaction with the water without restriction on who may use the park. A few examples of public access are:

- public parks (active and passive)
- riverwalks and fishing piers
- causeways and recreational islands
- fishing and snorkeling locations along the Intracoastal
- boat ramps and canoe/kayak launches
- public marinas
- commercial uses located on the waterway such as restaurants and hotels

Public access along the Intracoastal takes many different forms in Palm Beach County, ranging from urban promenades (pictured above in West Palm Beach) or natural areas such as Munyon Island (pictured below), which has become a popular destination for kayakers.
This report differentiates between two types of public access to the ICW. The first is large-scale access for larger vessels such as sailboats, motorized recreational boats, and larger yachts and ships. The second form of access is smaller-scale, designed for non-motorized watercraft (e.g., canoes/kayaks), bicyclists, and pedestrians, and users seeking to wade or swim from a sandy beach (along the ICW, but not within it).

Examples of public access listed above all can be accessed by larger vessels, but not all can be accessed by kayakers or waders. Less than 10% of Palm Beach County’s 1.2 Million people live within a half-mile or walking distance of the ICW. Most of that 10% can access the ICW from their backyards, at the end of their residential street, or within walking distance of a waterfront park or other venue if available. The majority of Palm Beach County residents must drive or use transit to access the water. Furthermore, there are 38,000 registered boats creating a need for adequate public access to the waterway for larger vessels and motorized watercraft.

The number of boat ramps is expected to increase due to planned projects. However, the marinas allowing public access and working waterfront that supports the boating and marine industries are becoming more limited.

According to the Working Waterfronts report presented to the Florida Senate in 2004, the use of Florida’s waterfront for recreational boating activities have diminished over time due to the increased demand for residential waterfront condominiums. Over the past several decades, this demand has driven up property values, displacing working waterfront use and making waterfront property less available to governmental entities for preservation due to its high cost. Since the housing market peaked in 2007, the pressure for all forms of residential, including waterfront residential, has subsided, creating an opportunity for local governments to reconsider their approach to diversified waterfront uses. Further, in November 2008, Florida voters approved a “Working Waterfronts” amendment to the state’s constitution to limit property taxes on working marine waterfront uses, such that these properties will be taxed at their current (typically industrial) value rather than the potential highest-and-best-use value (typically higher density residential). These combined factors of reduced demand and tax relief create an opportunity to reconsider public access priorities for potential acquisition or expansion. Often, the best time to plan for the future is in a down market.

**Parks, Recreational Facilities, and Riverwalks**

As evidenced by its trademark motto, “Palm Beach County ~ The Best of Everything,” residents of and visitors to Palm Beach County enjoy a high quality of life. The County possesses natural beauty, well-designed towns and neighborhoods, and along with these, beautifully designed and well-located parks are perhaps a hallmark for the community. County residents have committed to financially support the acquisition of environmentally sensitive lands and development of well-amenityzed park and recreational facilities throughout the County, especially along the 43-mile Intracoastal. Park and recreational facilities should be provided for all walks of life. In Palm Beach County, they are provided by the County and its local governments as well as the
Public Access

State of Florida and other public entities. These facilities, especially those on the waterway, provide opportunities for festivals and public events such as Sunfest. Activities can range from quiet reflections to weddings and birthday celebrations. Parks can celebrate the waterway and create a focal point and identity for the community, or they can be tucked away to create respite from a busy urban area. Parks are excellent locations for public art and civic investment. They encourage tourism and help economic recruitment and development.

The planning field differentiates between active and passive parks. Active parks have more structured activities and can contain ball fields, tennis courts, or playgrounds. Active parks require more infrastructure investment such as lighting, parking, and restrooms and need to be actively managed. They tend to be larger in scale; host events such as fireworks and festivals; include program space such as amphitheatres; and are often regional in attraction.

In contrast, passive parks are often smaller-scale, usually offering fewer activities, requiring less infrastructure, and providing simpler, lower-cost amenities, such as picnic tables and pavilions. Passive parks can be large or small and be adorned or simple.

Either type of park can be rural or more urban in nature and range in size. Small-pocket parks, or street-end parks, can simply entail a 25-foot wide left-over strip of land or a single residential lot in a

These maps illustrate current parks (city, county, and state) as well as preservation lands along the Intracoastal Waterway in Palm Beach County. Clearly, there is a significant concentration in northern Palm Beach County, particularly north of the Lake Worth Inlet (from Peanut Island north into Jupiter/Tequesta ~ see map above left). In contrast, the population distribution of the county tends to favor the south County, creating a potential transportation network demand for users accessing these facilities.
neighborhood. Or, larger facilities can consume (or preserve) hundreds of thousands of acres. Facilities can be located on the edge of a community or can be the center of the town or neighborhood. Along the Intracoastal, and through the many communities that include the waterway, the County and local governments should provide for a wide range of park types to provide recreation for all ages and interests from the young baseball player to the older couple strolling through a quiet natural area. Palm Beach County’s current inventory of parks and natural lands are illustrated in this chapter.

Currently, there are 38 generally accessible waterfront parks along the ICW from Tequesta to Boca Raton, and they range in size from 1/2 to 300 acres. Of this waterfront park inventory, 12 are active parks, and 26 are passive. In addition to these, there are numerous pocket and street-end parks that are designed to serve the immediate neighborhoods in which they are located.

The larger active parks offer marine activities such as boat ramps, docks, and saltwater fishing. There are also non-marine-related activities at many of these waterfront parks, including ball fields, tennis courts, playgrounds, and pavilions.

The passive parks are usually located at the edge of residential neighborhoods, with direct views to the Intracoastal. Most do not provide motorized boat access, yet some include amenities such as fishing piers, canoe/kayak launches, walking trails, bike paths, and play areas.

The County proposes to expand its waterfront park facilities with major expansions planned for Jupiter Inlet Park (additional day docks and passive recreational facilities) and Bert Winters Park (expansion of boat ramp support amenities), as well as develop a passive natural facility north of Donald Ross Road (canoe/kayak launch facilities and passive amenities). Within the seven marina villages described in this plan, two in particular (Jupiter and West Palm Beach) propose significant expansion of public recreational space (mostly passive) along the waterway. With the significant limitations of publicly accessible recreational space along the Intracoastal, and likely reductions in public funding, these proposed facilities should be strongly safeguarded to ensure their development.

Design Principles for Parks

When designing parks, care should be given that the area has natural surveillance. Instead of depending on law enforcement to patrol a park, the easiest way to achieve monitoring of a park is by designing it so residents, workers, and patrons survey the park.

On the following page is an illustration of how a waterfront park can be incorporated into a community with natural surveillance by adjacent uses. The concepts illustrated in the image are for the waterfront portion of the Riviera Beach CRA, south of the Blue Heron Bridge, which focuses on Bicentennial Park. Note that all buildings surrounding the park have their fronts to the park. People entering and exiting the buildings cannot help but notice activities occurring in the park.
An untapped resource in many communities exists in the form of roadways that terminate at the ICW. These small, narrow public parcels create the opportunity for inexpensive street-end parks within neighborhoods. Allowing for typically passive recreational space along the waterway, the conversion of these underutilized rights-of-way enables natural surveillance by neighboring residents. Structures within these parks can utilize architectural details to create an identity for the neighborhood and reflect the architecture of the area.

Street-end parks can increase the quality of life for the surrounding community. They provide “shouting distance” parks for children as well as quiet respites for senior residents who may not be able to drive but can walk to the park. They can also increase property values by expanding a waterfront amenity to non-waterfront properties. From a design perspective, street-end parks also allow for streets to be terminated with architectural and/or landscape designs that enhance waterfront vistas for neighborhood residents and visitors. For street-end parks to be successful, local governments need to resist the urge for short-term revenue with the abandonment of these unique and valuable properties, and instead,

Street-end parks, and the buildings surrounding them, should be properly designed with buildings facing these parks. This building orientation will keep eyes on the park, provide natural surveillance, as well as maintain a measure of privacy for adjacent residential properties. Ideally, a building should have two fronts: one facing the park and the other facing the waterway much like a corner lot. Local governments should consider special land development and zoning regulations to encourage street-end parks and accompanying natural surveillance. Furthermore, with proper planning, oversight, landscaping, and maintenance, the park can become the responsibility of the neighborhood.

The Town of Lantana offers an excellent recent example of street-end development. The Town identified its unused roadway rights-of-way that
terminate at the water (identified in the aerial photo above with green stars). Subsequently, the Town approached neighborhood associations to determine which would be amenable to working with the municipality for the development of street-end parks on these underutilized parcels. Photos of the before and after conditions for one of these park facilities are included above.

Street-end parks can also accommodate more ambitious designs and improvements. Depending on available land area, a variety of uses can be incorporated into these facilities, such as the boathouse illustrated on the following page. Walking along the water's edge, the structure provides shade from the sun or shelter from the rain. The building illustrated could provide internal storage for canoes/kayaks or other small lightweight watercraft. If managed by a neighborhood or homeowner's association, a street-end park could provide recreational access with capital facilities funded by the association. Maintenance costs could be funded by annual assessments or user fees, depending on the services offered.

**Riverwalks and Bridges**

With populated barrier islands to the east and the mainland to the west, Palm Beach County has a
history of significant bridges crossing the ICW. While the County’s earliest bridges were low-scale, bascule bridges operated by bridge tenders, over time several of these bridges have been converted to higher-span fixed bridges. Palm Beach County currently has 18 bridges, and ten of these are controlled and maintained by FDOT.

Some of Palm Beach County’s most interesting urban waterfront access points have been created in conjunction with these bridges. Indiantown Road’s bridge in Jupiter provides a riverwalk that connects the lands below the bridge with the Town’s marina village north and south. The area provides a lighted festival plaza for special events, a fishing pier and public parking underneath the bridge, decorative pavers, lighting, landscaping, benches, and other public amenities. The bridge structure also includes decorative features and context-sensitive architecture for the bridge tender facility.

Boathouses and other public structures within neighborhood street-end parks offer opportunities for architectural creativity and significance, increasing surrounding property values and creating a community asset from otherwise unused land.

In West Palm Beach, the bridge and promenade to the water with a low-scale seawall to allow users to enjoy broad views of the water.

Flagler Drive in West Palm Beach hosts boat shows, exhibitions, festivals, and concerts. The low-scale seawall removes visual barriers to the water.
The Boynton Beach Boulevard bridge is an example of a successful riverwalk and bridge park with a marina village. Benches and other people-friendly amenities encourage people to enjoy the water and look at the mechanisms for the raising and lowering of the bridge. In the immediate vivinity, Boynton Beach’s marina village features residential units, restaurants, office, retail, and entertainment venues, boat slips, and docking facilities with expanded public access to the waterway.

The Atlantic Avenue bridge in Delray Beach is in close proximity to waterfront restaurants and

Veteran’s Park, which features lighted lawn bowling courts, shuffleboard courts, and a playground. A tree-lined, brick paved walkway connects below the bridge.

Local governments should maximize the potential of these bridges and surrounding areas for multi-use public access for its residents and visitors. They offer opportunities to increase public access by creating new “real estate” around this form of public infrastructure such as these.

Fishing is an age-old tradition in Palm Beach County, and residents and visitors fish recreationally as well as to supplement their diet. The County needs more fishing accessibility for all income levels but perhaps most importantly for those without boats. When designing and upgrading parks, local governments should create angler-friendly and pedestrian-friendly overpasses, underpasses, and bridge landings. Railings should be at a comfortable height for fishing.
and anglers and pedestrians should be shielded from motorized traffic. Receptacles for fishing lines and rubbish should be provided, for these will help protect the physical amenities as well as fisheries and other marine life. Other facilities such as restrooms, seating, and picnic areas should be provided where appropriate, and pedestrian-scale lighting and improvements should be emphasized. Designs should utilize and maximize potential of the “dead space” under bridges for sitting, picnicking, parking,
walking, fishing, and related activities. Local governments should work with permitting agencies, participate in project-specific design committees, and ideally work collaboratively at the county or regional level to maximize the public access potential of public rights-of-way and facilities along the waterfront.

Other Recreational Destinations

Recreational boaters and the general public look for destinations to enjoy the water, for most boaters do not want to cruise all day. Instead, many boaters want to dock, anchor, or beach their boats, using the vessel as transportation. While the shoreline is well-populated with commercial destinations, there are fewer recreational destinations along or within the Waterway. Given their limited number, the existing facilities and destinations are in high demand, with tens of thousands of boaters frequenting spoil islands, such as Peanut Island along with nearby sandbars outside the ICW and park properties. In comparison to its large population, Palm Beach County has only a few such facilities, and charrette participants emphasized their desire for existing facilities to be expanded, and new facilities to be developed.

Lake Worth’s Snook Island project in 2005 is an excellent example of how the environment and public can share benefits from a restoration project. In this example, existing, man-made dredge holes were filled to create islands adjacent to the Intracoastal channel, with native plantings and rock to establish habitat and water quality improvement. While the southernmost island will be accessible by riverwalk, the northern islands are only accessible by small watercraft and non-motorized watercraft. In this portion of the Lake Worth Lagoon, even spoil islands are somewhat limited, so the creation of these islands provides a double-benefit for the natural system as well as the recreational users.

Charrette participants recognized the potential access opportunities created by the Snook Island project and suggested primitive camping sites and educational kiosks be provided at restored spoil and natural islands. The image in this chapter shows Snook Island with simple camping facilities, constructed from renewable materials that would ideally represent the Intracoastal and its shoulders provide extensive fishing opportunities for Palm Beach County residents and visitors.

Located in the Lake Worth Lagoon near the Lake Worth municipal golf course, the Snook Island restoration project transformed existing dredge holes into an environmental amenity that also provides a series of ecologically interesting destinations for recreational users.
PUBLIC ACCESS

closed systems, negating any environmental impacts. The Lake Worth Bridge is in the background, enhanced with a pavilion and fishing facilities. Local governments, agencies, and organizations should work together to create more of these multi-purpose, multi-user public access destinations for users in and along the ICW.

To expand the inventory of public access facilities, local governments should utilize regulatory incentives to form partnerships with private sector developers and business owners. Potential incentives include land donations, public easements, construction, and maintenance of public access and waterfront facilities along the mainland and barrier islands in exchange for entitlements. For example, density increases can be given to a project, or local governments could offer expedited permitting when a project includes (and maintains) public access to the waterfront. The public access would also provide an amenity to the developer’s project, conferring increased value on individual properties within the project.

Additional access can be established via commercial concessions offered in conjunction with traditional marina and waterfront uses. For example, marinas offering water taxis, rentals of personal watercraft (e.g., jet skis, waverunners), motorized and non-motorized watercraft, fishing charters, picnic and fishing areas, and other frontline enjoyment activities could receive additional entitlement or tax rebating for these uses. Parks, playgrounds, and picnic facilities could be located in places people may fish, rent, or launch a boat, canoe, or kayak. Public pathways, bike routes, and transit systems should be designed to interconnect the waterfront and commercial destinations and neighborhoods.

Greenways, Trails, and Blueways

The promotion of eco-tourism was a strong recommendation by charrette participants, who noted the natural beauty of the undeveloped shorelines along the Intracoastal as well as islands within and along the waterway. Eco-tourism is a broad issue, which is discussed in several chapters of this report. With regards to public access, eco-tourism is addressed in this chapter with regards to greenways and trails, bike paths, and blueways. More discussion on this topic is available in Chapters V (Protection of Natural Resources) and VII (Eco-Tourism and Recreational Opportunities).

Eco-tourism is generally defined as a form of tourism to undisturbed areas high in natural beauty or biodiversity that strives to minimize ecological impact or damage. From a public access standpoint, the Intracoastal and its shoreline offer interesting and possibly expanded opportunities for eco-tourism within Palm Beach County. Within the State of Florida, and Palm Beach County in particular, there is growing enthusiasm for and interest in alternative modes of transportation ~ travel by foot, bike, and non-motorized watercraft ~ that provide transportation mobility with enhanced recreational

Areas such as Lake Worth's “Jewel Cove” represent untapped environmental resources for kayaking, fishing, and other recreational and eco-tourism activity along the ICW.
activity and reduced fossil fuel consumption. In natural settings, these alternative modes of transportation primarily occur via three types of facilities:

- **Greenways**, which are generally defined as scenic land trails or routes occurring through natural areas that include travel or recreational activities. Greenways are typically considered to be wider natural corridors composed of natural materials; however, greenway segments may require interconnections composed of hardened materials. Greenways can typically accommodate pedestrians, off-road bicyclists, and equestrians.

- **Trails**, which are typically defined as pathways constructed of various materials, including natural surfaces as well as boardwalks, asphalt, and stone, that are used for recreation, as alternative modes of non-motorized transportation, or both. Although the terms “greenway” and “trail” are often interchanged, trails are typically considered to be smaller (narrower) facilities than greenways and are more often comprised of hardened surfaces that are compliant with the Americans with Disabilities Act. Therefore trails typically can more easily accommodate on-road bicycles, strollers, and other wheeled vehicles as well as off-road users (e.g., hikers, off-road bicycles, equestrians).

- **Blueways**, which are waterborne trails for typically non-motorized watercraft, including canoes and kayaks, that rely on paddling in water for mobility.

Charrette participants were highly supportive of expanded modes of access to and along the Intracoastal that utilized these three types of facilities. In addition, participants articulated strong interest in interconnections between upland facilities (greenways and trails) and blueways. There are currently extensive efforts underway to create and enhance a network of greenways and blueways, with programs in various stages at the local, regional, state, and multi-state levels. These efforts are generally described below as they relate to public access.

**County Efforts**

Palm Beach County has maintained a long-standing commitment to the preservation and enhancement of natural lands and expanded recreational access within those lands. As a leader in a multi-agency, multi-jurisdictional effort, the County has facilitated the development of the Northeast Everglades Natural Area (NENA) project, which identifies and enhances extensive multi-user facilities (hiking, bicycling, equestrian, and paddling) through this area. Located predominately in northern Palm Beach County, the NENA plan stretches from Bridge Road in Martin County south to Southern Boulevard in Palm Beach County, and from Lake Okeechobee in western Palm Beach County east to the Atlantic Ocean, encompassing 165,000 acres of natural Florida lands and providing connectivity to the Intracoastal, especially in the Jupiter area. Numerous points of interest are included within the NENA plan, noted as follows:

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Canoes and kayaks have become popular on the Intracoastal, reflecting the growth of this national trend.
Projects such as Palm Beach County’s Northeast Everglades Natural Area (NENA) provide opportunities to integrate activity on the ICW with inland recreational and natural amenities for expanded eco-tourism and nature-based recreation.
Intracoastal provide multi-day, multi-user facilities, which will expand the natural access to these destinations as well as greatly expand the County's eco-tourism opportunities.

The County is also developing the South County Greenways and Trails Plan to identify non-motorized transportation and recreational trail opportunities south of Southern Boulevard (SR 80) to the Broward County line (map excerpt below). This plan will result in a map of existing and proposed greenways and urban trails that will offer recreational opportunities, non-motorized transportation options, and connectivity to regional activity centers along with an implementation strategy for future funding consideration. At a regional level, the plan will also identify connections with Broward County's Greenways Master Plan and the NENA plan for Northern Palm Beach County. Completion of the draft plan is anticipated in 2009.

At a larger scale, Palm Beach County actively participates in the development of the East Coast Greenway, a 3,000-mile multi-user facility that will ultimately provide a recreational connection between Key West and Calais, Maine. The County has generally identified its alignment for future planning purposes and, over time, anticipates designation of key segments, many of which will interconnect with the shoreline of the ICW.

The County's Greenway and Linked Open Space Map (on the following page) indicates the general opportunities for natural interconnections. This effort, along with other updated information, will be utilized as the Palm Beach MPO develops its Greenways and Trails Map in 2009. In addition, the charrette discussion yielded especially strong interest in the paddling trails component of the County's efforts, including locations along the ICW for canoeing and kayaking as well as interconnections to the interior upland. Initial location maps for this non-motorized activity have been developed as part of this report, based on available data. To further understand and develop this eco-friendly form of access to the Intracoastal and its environs, additional inventory, identification, and analysis of these facility components should be conducted.

Regional Greenways and Trails

The Treasure Coast Regional Greenways and Trails GIS Project is currently being developed, with TCRPC coordinating an inter-agency, multi-disciplinary working group. Palm Beach County’s portion of the Intracoastal will play a focal role in this regional system. This project will identify multi-county facilities through the four Treasure Coast
Counties (Palm Beach, Martin, St. Lucie, and Indian River) as well as the interconnections into surrounding counties. The component facilities are intended to address the needs of all user groups, including hiking, bicycling, equestrian, and paddling facilities. An early version of the Regional Greenways and Trails map is included on the following page. As the Intracoastal Waterway traverses the four Treasure Coast counties, it presents a strong opportunity for cross-county travel and heightened interest for users.

A feature of the regional network will be identified interconnections to key historic, cultural, environmental, and educational facilities, many of which lie along the Intracoastal’s shoreline. Emphasis has also been placed on utilizing the regional greenways and trails network to highlight heritage and cultural tourism, particularly within historic downtowns, which corresponds to the marina villages and potential water taxi network discussed in this Plan.

State Greenways and Trails

The Florida Department of Environmental Protection (FDEP) Recreational Trails Program administers state and federal funds to city, county, state, and federal governments and organizations for the development of recreational trails, trailheads, and trailside facilities. Within FDEP lies the State’s Office of Greenways and Trails (OGT), which coordinates the state’s planning efforts in this area. The OGT maintains a state-wide inventory of “opportunity linkages,” which represent local priorities and expectations as to greenway and trail alignments. Proposed facilities must be included on this map to receive certain types of state funding (e.g., Florida Forever funds).

In addition to the upland facilities, FDEP also developed and maintains the Florida Circumnavigational Saltwater Paddling Trail, which...
identifies canoe and kayak trails to explore Florida at the periphery of the mainland while remaining protected from open waters. The Trail begins at Big Lagoon State Park near Pensacola, follows the external contours of mainland Florida, and ends at Fort Clinch State Park near the Georgia border. The trail traverses 1,600 miles divided into 26 segments. Images of the paddling trail as well as the opportunity linkages are included in this chapter.

For purposes of public access, special emphasis should be placed on those desired facilities that provide interconnection to the Intracoastal, consistent with the priority expressed by charrette participants regarding public access.

**Multi-State Greenways**

The East Coast Greenway, as noted above, represents a nationally prominent effort to establish a 3,000-mile multi-user path connecting the U.S. eastern seaboard through thirteen states. The trail incorporates a variety of different methods: waterfront esplanades, abandoned railroad corridors, canal towpaths, and other corridors. The goal of the East Coast Greenway is to create a traffic-free greenway for its entire length. Currently, roughly 20% of the greenway is traffic-free and already being utilized. Various governmental entities manage the greenway and utilize consistent signage, and the East Coast Greenway Alliance, which organizes the project, monitors trail conditions throughout the facility. Within Palm Beach County, the Intracoastal Waterway can play a highly visible role in its parallel alignment to the greenway, and special emphasis can be placed on portions of the facility that enable users clear water views, lookouts, or resting stops along the water’s edge. This multi-state facility can significantly expand public access for non-motorized travels, both within the County and beyond.

**Integrating Greenway and Blueway Systems**

Charrette participants wanted to tie the various trail systems together and into the ICW. This could be achieved by sharing facilities; marketing and
Loxahatchee Basin canoe and kayak system
MacArthur Park and Peanut Island Loops

- Canoe & Kayak Launches
- Florida Saltwater Paddling Trail
- Kayak Trails
- Kayak Areas

McArthur and Peanut Island canoe and kayak system.
Southern Causeway to Snook Islands canoe and kayak system
Ocean Ridge Parks canoe and kayak system

Ocean Ridge Parks
- Canoe & Kayak Launches
- Kayak Trails
- Florida Saltwater Paddling Trail
- Kayak Areas
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developing the greenways and blueways as an interconnected system; making segments usable to different types of users such as hikers, bicyclists, and paddlers; and connecting the ICW to greenways with urban and natural trail segments. Various locations should be highlighted as interesting destinations (e.g., historic structures and geography, fishing sites, canoe and kayak launches) and visitor accommodations and amenities such as campsites, hotels, and laundry facilities. This data will be assembled at the regional level for major facilities, but additional data collection and analysis will be necessary at the local level within Palm Beach County to improve the depth of this concept. Popular ICW destinations such as Peanut Island, marina and water-related vendors and services, and linkages to water taxi services would provide a more “civilized” respite and should also be noted. Charrette participants also requested environmental education kiosks and tours along the Waterway, which could expand the advocacy base for the waterway’s restoration and enhancement.

Access for non-motorized watercraft, particularly canoes and kayaks, was a topic with much enthusiasm during the charrette. In addition to the provision of more launch locations for these users, participants also noted the need to enable improved crossing of spillway structures, which control the relationship of water levels between canals and the ICW. Also referred to as “control structures,” these provide a necessary water control function; however, they inhibit blueway access from the ICW to interior paddling trails through these canals. This disconnect also prevents access to upland greenways and trails, bifurcating the desired connections by users.

The East Coast Greenway is a 3,000-mile multi-use greenway and trail facility planned between Maine and the Florida Keys. Portions of the Greenway are aligned with the ICW along Florida’s east coast, including Palm Beach County.

The Office of Greenways and Trails, within FDEP, maintains a map of opportunity linkages for future user facilities (imaged above). Palm Beach County is the focus of the zoomed map on the left.
Spillways and other fixed structures in canals that connect many of the potential paddling trails inland currently prohibit connections, creating a need for portage. The C-51 canal already has an informal portage, evidenced by the “cow path” on the banks from canoes and kayaks being dragged up the bank and across the structure. The charrette team created a model portage that can be adapted and applied to other locations. Gently sloping steps allow paddlers to drag their vessels over land to the opposite side of the spillway.

When marketing the various greenways and blueways, it is important to create a consistent identity and signage system for users. Maps should be widely available to the public and posted at key locations throughout the trails, highlighting amenity locations as well as interconnections with other trail facilities. To build upon these systems, future greenway planning efforts to create greenways should connect, append, and enhance other greenway and blueway networks, filling in the gaps between stand-alone segments where possible.

**Boat Ramps and Public Marinas**

Boat ramps and public marinas serve as access points to the Intracoastal for those with and without boats. FIND data indicates Palm Beach County currently has a boater registration of roughly 38,000 vessels, most of which are below 25’ in length. For boaters that do not live on the water, there are three options to access the waterway: rent a wet or dry slip in a private marina, rent a wet or dry slip in a public marina, or use a boat ramp.

For a county of 1.2 million people, there is relatively limited public marina access along the ICW in Palm Beach County, with a current inventory of 37 public marinas that provide fuel, water, and other services. These facilities offer dry and wet slips for users on a monthly or annual basis. While marinas usually provide a wide range of services, many recreational boaters only need access to the water. Boat ramps provide that access; however, they need to be accessible landside and provide adequate infrastructure to launch smaller watercraft. Demand for both forms of boater access to the Intracoastal will continue to increase as the County’s population grows over time. A third form of boater facility along the Intracoastal is an anchorage or mooring field along the waterway, where users can anchor vessels or otherwise secure them to buoys. Currently, all the...
Public Access

County’s mooring fields are informal, which means these areas are available at no cost to users, but the mooring fields have limited security, surveillance, and operations. Long-term, formalized anchorages may provide a low-cost opportunity to increase available storage for boats as well as access to more traditional marine services such as pump-outs and other upland facilities or amenities.

In addition to motorized and larger vessels, there exists an access demand for non-motorized vessels, including canoes, kayaks, and other small boats. These forms of watercraft can be launched from a variety of formal and informal locations, including public launches integrated into public park facilities, or more simply, sandy beaches. Upland support facilities for this use include parking areas and typical park amenities. Similar to the growing demand for motorboat facilities, demand for non-motorized facilities will also grow with increased population.

This section describes the inventory, status, and recommendations related to public boating access to the ICW.

Boat Ramps

The TCRPC has identified boat ramps and the water access they provide as a regional issue. Currently there are fifteen boat ramps in Palm Beach County to accommodate more than 18,000 registered boat owners who indicate they trailer their boats. Parking at boat ramps limits their capacity, and often, users cannot find parking at these facilities. This creates hostility at the ramps and a spillover of trailer parking onto adjacent roadways.

Boat ramps are also important to marine businesses that are located inland. They allow access to the Intracoastal, Atlantic Ocean, and other water systems in Florida.

Although more boat ramps and trailer parking are planned, these new facilities will likely become inadequate to accommodate Palm Beach County’s growing population. County and local governments should look for ways to provide more boat ramps and parking for trailers. The efficiency of these facilities can be expanded with more staging docks to relieve pressure on the ramps themselves. Boat ramps need to be easily accessible by land, designed to integrate into the surrounding area rather than negatively impact their environs, be convenient and safe, and provide ample trailer parking. Boat ramps should also provide angler amenities such as fish-cleaning tables, fishing line disposal,
Public Marinas

Over half of the County’s registered boaters house their vessels in wet and dry slips. There are currently 37 public marinas along the ICW. Marinas provide important goods and services to boaters and other non-boating marine users, including boat rentals, marine-oriented concessions (e.g., food, beverages, ice, bait and tackle), and potential water taxi access. Public marinas also provide fuel, boat repair and maintenance, dockage facilities, and towing. Some public marinas offer lodging and recreational amenities as well. The map on the previous page illustrates the current inventory of boat ramps and public marinas in Palm Beach County. As illustrated in this map, these facilities are distributed throughout the County, with clear concentrations near the four inlets to the Atlantic Ocean.

There are four significant potential expansions to the County’s inventory of public access points:

- Phil Foster Park in Riviera Beach may undergo an expansion with additional wet slips, boat ramps, trailer parking, designated anchorage with permanent mooring, and commercial activities such as jet ski rental and dive and charter boats.
- Jupiter Inlet Park, augmented with a recent County land purchase, is planned to have a canoe/kayak launch, thirty day-docks, concessions, and educational kiosks.
- Burt Reynolds Park in Jupiter is proposed to receive additional canoe/kayak launches, a dock master, and public dry storage.
- Bert Winters Park at Donald Ross Road in Juno Beach is slated to receive additional boat ramps, a dock master, concessions, and additional parking.

These new and expanded facilities will greatly improve public boater access to the Intracoastal; however, supply/demand relationships consistently change. Given the County’s projected growth over time, additional facilities will ultimately be necessary to maintain quality public access commensurate with public expectations.

Another consideration particular regarding public marinas is the co-location of marine industrial uses. With a blend of marine-oriented uses, marine-related districts can emerge where goods, services, infrastructure, and specialty equipment can be shared, producing efficiencies and cost-savings. Co-location of these facilities also produces synergistic use patterns, thereby reducing travel times between uses and demand on the roadway network. The closest example of this type of district is Broward County’s “Marina Mile,” which contains more than seventy marinas and marine-related businesses within a small geographic district. This district’s organization is furthered by the non-profit “Marina Mile 84 Association,” which catalogs member businesses for advocacy, marketing, and expanded economic development.

Finally, there are design considerations for public marinas, and particularly dry storage facilities, to
improve their visual and functional relationships with neighboring uses. Traditional architecture, genuine materials, building articulation, and improved landscaping are design features and methods that can reduce the visual impact of dry storage facilities, making them better neighbors aesthetically and financially with regards to taxable value. Carefully planned vehicle access and sufficient overflow parking will improve the function of these uses.

Mooring Fields

Mooring fields or “anchorages” are areas where vessels can be secured with anchors or buoys. Often, boaters secure larger or deeper-draft vessels (sailboats as well as motorcraft) in anchorage areas and utilize dinghies to access upland amenities. Unregulated anchorages occur naturally in shallow, sheltered shoulders, outside active channels. In addition, formalized, designated anchorages can be established in these or other locations and operated in conjunction with a marina or harbormaster.

Mooring fields provide attractive alternatives to wet or dry slip space, attracting many boaters who like the community feel or lower cost of these facilities versus traditional marina settings.

At the time of this report, there were four informal mooring fields in Palm Beach County, including North Palm Beach, the north of Munyon Island at the northern end of the Lake Worth Lagoon; Riviera Beach near Phil Foster Park and surrounding Peanut Island; and West Palm Beach south of the Lake Worth Inlet. These locations are identified in “Unregulated Moorings” map on the following page.

Mooring fields are inexpensive for users and can provide temporary anchorage for transient boaters or long-term storage for residents. However, unregulated moorings can damage or threaten sea grasses, oyster beds, and other marine life. The lack of pump-out for sewage from these vessels creates a major problem for the health of the waterway and can threaten humans. Furthermore, vessels in unregulated moorings are often not properly maintained and serviced, producing a concentration of leaky bilges and gas tanks. Unregulated mooring fields can also develop a concentration of derelict vessels, posing environmental and navigational hazards along the waterway. Regulatory agencies and non-profit organizations such as Lagoonkeepers.org

In this photo of the unregulated anchorage north of Peanut Island in Riviera Beach, several moored vessels are apparent in the foreground, including a rusting vessel that appears to be inoperable on the left.
This map indicates the general areas where unregulated moorings tend to occur in the ICW.
inventory derelict vessels and organize their removal; however, preventing derelict vessels through proactive management can be a more efficient and effective solution.

Charrette participants indicated a desire for formalized mooring fields along the Intracoastal, particularly to provide better quality but low-cost moorings with amenities, reduce environmental contaminants by encouraging regular bilge pump-outs and permanent buoy placement, and reducing the incidence of derelict vessels. Permanent moorings also provide secure anchorage in times of high winds or hurricanes, as these events tend to cause anchor dragging often through environmentally sensitive bottom-lands.

Formalized mooring fields are typically overseen by an on-site harbormaster who provides assistance to patrons, ensures regular pump-out of vessels, and manages the facility. Harbormasters provide an interface with law enforcement and environmental agencies for the identification and removal of derelict vessels and other interventions when necessary. Within the Treasure Coast region, designated anchorages exist in Stuart and Fort Pierce. Low daily, weekly, or monthly fees help regulate use at the fields, and some local governments time-limit moorings to discourage permanent residence and prohibit unregulated mooring. Fees cover services and amenities such as showers and lockers. Goods and fuel may also be offered, and dinghy docks with surveillance are standard amenities.

**Waterway Maintenance and Enhancement**

The ICW was originally constructed as a transit route that moved both freight and people. It is still used to move freight mostly to the Atlantic Ocean through the Lake Worth Inlet. Shipping freight is administered by the Port of Palm Beach in Riviera Beach. There are four inlets allowing access to the Atlantic Ocean: Jupiter, Lake Worth, Boynton Beach, and Boca Raton. Each inlet has different management approaches and geography (e.g., inlet width, water depth, neighboring uses, users). For example, the Jupiter Inlet serves more recreational vessels with a narrow, fast-moving water flow. Many recreational boaters utilize the surrounding inland waters and landmasses for swimming, fishing, and relaxing. On the other hand, the Lake Worth Inlet is wide, deep, and is utilized by international shipping lines with international companies and marine industries nearby.

The four inlets are administered by three different entities, the Jupiter Inlet District; Palm Beach County covering the Lake Worth Inlet and Boynton Beach Inlet; and the City of Boca Raton. There is on-going coordination among these management entities and FIND to achieve efficiencies and economies of scale. Further coordination of dredging activities among the county’s four inlets could enhance funding opportunities, allowing for greater sharing of costs and resources. Of special note is the recommendation for “Megayacht Mile” near the Lake Worth inlet in Riviera Beach and its associated inlet and channel deepening needs. While this concept and related projects are more fully described in Chapter IX (Economics of the Intracoastal), it nonetheless represents a sample project which could benefit from enhanced coordination amongst these entities.

**Smaller, Non-Motorized Vessels (Rowers and Paddlers) and People**

A surprisingly strong theme articulated by charrette participants was the desire to develop and enhance canoe/kayak activity in and along the Intracoastal, particularly for recreational and eco-tourism purposes. It is difficult to determine statistics for these smaller, non-motorized vessels and anglers, as owners of these vessels are not required to register their vessels, and not all anglers obtain fishing licenses. One can infer growth and popularity of paddling and fishing by the number of businesses, related industries, and interests in various organizations such as the West Palm Beach Fishing Club and the Palm Beach Pack & Paddle Club. Also,
state and national trends seem to indicate heightened awareness and enthusiasm for the natural recreational opportunities offered by human power versus fossil fuels. Two core issues related to smaller, non-motorized vessels are discussed in this section: Access and Safety. Other aspects of this topic are further explored in Chapter VII (Expand Recreational Opportunities and Eco-Tourism).

Access

Larger motorized vessels and sailboats require boat ramps or marina infrastructure to access the Intracoastal. High capital, operating, and maintenance costs for these vessels and their access points limit their availability to the general population. However, a low-slope sandy shoreline is all that is needed for canoes, kayaks, and people wading, swimming, snorkeling, and fishing to access the waterway. Canoe and kayak launches and walk-in access to the water costs less than facilities for motorized vessels. Although parking is required, it can occur on roadway shoulders or within multi-use parks. Other infrastructure costs for this form of access are also lower. A gentle sandy slope or steps into the water can easily be co-located with other facilities at public marinas, waterfront parks, and existing publicly-owned land that is not currently utilized for park space. Numerous alternative locations for smaller non-motorized access can relieve congestion and traffic at boat ramps.

When designing facilities for these users, care should be taken to ensure facilities and infrastructure are appropriate in scale and comfort. Low slopes, trails, or formal steps down to the water can be created and appear as amenity features, depending on their settings. The...
Waterfront public access can be enhanced with architecturally significant structures, such as the public boathouse illustrated above, which provides shaded seating on its upper level with storage for small, non-motorized watercraft within its lower level.

Steps to the water would invite anglers, swimmers, and paddlers into the water, such as those illustrated in the conceptual street-end park above.

Sandy shorelines, such as the sailing club image above, can also provide safe access for Intracoastal users.
KEY FINDINGS AND RECOMMENDATIONS

Public access has many forms in Palm Beach County, and there are many different types of users. The creation and expansion of larger-scale facilities, such as public marinas and larger natural and active park and recreational uses, are most appropriate for Palm Beach County to address at a county-scale. However, there are significant opportunities for municipalities to pursue and enhance public access. While some facilities are capital intensive, others, like greenways and street-end parks, entail minimal capital costs and can be advanced with regulatory incentives and progressive policy approaches. Below are the recommended approaches by which public access can be created and expanded in Palm Beach County.

Protect and Enhance Public Access to the Intracoastal for All Users

- Maximize public access to the Intracoastal within publicly owned properties.
- Ensure the access is genuinely public and not closed off to any segment of the population.
- Include/expand public access with land use changes, development approvals, and regulatory incentives.
- Support the development and expansion of waterfront parks to enhance quality of life, promote tourism, and further economic development.
- Encourage local governments to require minimum public access with development or redevelopment of waterfront properties, with dedication of land or public access easement prior to site plan approval or mitigate with comparable (or better) access via commonly-owned lands.
- Consider density bonuses or other entitlements in exchange for expanded public access.
- Encourage local governments to adopt “no net loss” policies to protect working waterfront.

Encourage Sustainable Development Patterns to Support Park and Recreational Facilities

- Utilize proper building placement and mix of uses to create safe parks with proper transitions between uses and natural surveillance (to create “eyes on the park”).
- Encourage local governments to adopt specialty zoning provisions adjacent to waterfront parks and street rights-of-way that terminate at the water such that buildings front adjacent non-residential uses.

Encourage Development and Maintenance of Street-End Parks

- Identify the public rights-of-way that terminate at the shoreline.
- Encourage local governments to adopt policies to prohibit the abandonment of waterfront rights-of-way.
- Consider adoption of special land development regulations to require neighboring homes and uses front these parks where possible.
- Encourage partnerships between local governments and neighborhood or homeowners’ associations that include these street-end park opportunities for financial assistance to develop the parks and provide regular maintenance.
**PUBLIC ACCESS**

- Develop model comprehensive plan policies and land development regulations for street-end park programs.

**Encourage Expanded Public Access Via Riverwalks and Intracoastal Bridges**

- Work with FDOT to maximize functional public access below bridges.
- Identify locations of integrated riverwalk networks.
- Develop model comprehensive plan policies to prioritize public access in conjunction with bridge renovation or replacement.
- Create minimum design standards for safe, human-scale, pedestrian and angler-friendly designs and furnishings to accompany bridge renovation or replacement.

**Support Establishment and Expansion of Greenways, Trails, and Blueways**

- Connect the ICW to greenways with urban and natural trail segments.
- Improve knowledge of paddling launch locations, paddling trails, and desirable paddling locations and destinations.
- Continue working with organizations to create and promote greenways, trails, and blueways.
- Help establish a public/private blueways users group, with public agencies, private suppliers, non-profits, and interested parties to further develop knowledge base, establish user network, and create advocacy coalition for creation and expansion of paddling facilities.
- Market the greenways and blueways as an interconnected system with interesting destinations.
- Create identity and consistent signage for greenways, trails, and blueways with cross-referencing between facilities and destinations.
- Explore creation of formal portage facilities on canal spillways and other impeding structures.
- Encourage canoers and kayakers to explore areas not accessible by motorized vehicles and to promote eco-tourism.
- Maximize interconnections between the East Coast Greenway and the Intracoastal Waterway that provide users clear water views,lookouts, and resting stops along the water’s edge.

**Continue to Protect, Maintain, and Expand Public Marinas and Boat Ramps**

- Create and expand boat ramp and public marina facilities with associated parking and amenities.
- Increase efficiency of boat ramps by adding staging docks at existing and planned facilities for in-water vessels to reduce demand on ramps.
- Discourage the displacement of boat ramps and conversion of public marinas to other non-public use.
- Design the boat ramps to minimize impacts with surrounding communities, particularly with regards to overflow parking and traffic circulation patterns.
- Provide angler facilities such as fish-cleaning tables, fishing line disposal, recycling, restrooms, and other appropriate facilities at boat ramps and in public marinas.
- Encourage development of marine districts around public marinas where appropriate to expand
synergistic uses and reduce vehicle miles traveled.

**Improve and Enhance Mooring Fields Adjacent to the Intracoastal**

- Develop a map and inventory of anchorage activity along the Intracoastal.
- Continue to evaluate establishment of designated anchorage in conjunction with marina renovations at Phil Foster Park.
- Expand access to pump-out and other facilities with mobile services that can occur on-water.

**Enhance Access and Amenities for Non-Motorized Use of the Intracoastal and its Environs**

- Inventory canoe and kayak launch locations, destinations, and paddling trails and determine appropriate locations for new launch locations.
- Maximize the potential of different users to the ICW including non-motorized and wading, fishing, swimming, snorkeling users by co-locating appropriate facilities at public access points.
- Assist with public awareness programs for water safety to reduce conflicts between types of vessels and users in the waterway.
PUBLIC ACCESS
The ICW is a navigational channel that was cut through the major estuarine waterbodies of eastern Palm Beach County in the early 1900s. The majority of natural systems associated with the Intracoastal are contained in the Indian River Lagoon, Loxahatchee River, and Lake Worth Lagoon, each of which is undergoing a variety of restoration and enhancement efforts. These waterbodies support important natural systems such as seagrass beds and mangrove communities, which are integral for the spawning of and nurseries for fish and marine life. In addition, these areas contain manatees and manatee habitat, which represent environmental priorities for Palm Beach County and the state. The ICW Plan supports the continued implementation of on-going projects and programs to restore and enhance these natural systems. In addition, the Plan addresses the issue of stormwater management and introduces concepts for improved stormwater treatment related to the Intracoastal. Finally, the effects of sea level rise are evaluated as they relate to the ICW, and a series of strategies are presented to address this issue along the waterway.
THE INTRACOASTAL WATERWAY

The Intracoastal Waterway is a navigational channel that was cut through the major estuarine waterbodies located in eastern Palm Beach County. The ICW enters Palm Beach County from Martin County to the north and passes through the Indian River Lagoon, Loxahatchee River, Lake Worth Creek, Lake Worth Lagoon, Lake Rogers, Lake Wyman, and Lake Boca Raton before exiting to Broward County in the south. The majority of the natural systems associated with the ICW in Palm Beach County are contained in the Indian River Lagoon, Loxahatchee River, and Lake Worth Lagoon. This chapter describes the existing natural systems associated with the major waterbodies traversed by the ICW in Palm Beach County.

Indian River Lagoon

The Indian River Lagoon is a 156-mile long estuary separating the barrier island from the mainland on the east coast of Florida. Only the southern 1.5 miles of this waterbody, extending from the Martin County line to the Jupiter inlet, lies within Palm Beach County. The Indian River Lagoon has been designated as an Estuary of National Significance in a very high likelihood that there will be at least a 3 to 5 feet rise in sea level during the next century. This report recommends following the Task Force’s recommendation to adopt a 50-year planning window to accommodate an anticipated rise in sea level of 1.5 feet over the next 50 years and 3 to 5 feet over the next 100 years.

The Intracoastal Plan recommends continued support for the existing management plans to improve water quality, restore estuarine habitats, and protect manatees. The report also recommends that Palm Beach County establish a stormwater utility to assist in improving water quality. Finally, the report recommends support for several programs to plan for sea level rise in Palm Beach County.

Overview of the Natural Systems

The Intracoastal Plan recommends continued support for the existing management plans to improve water quality, restore estuarine habitats, and protect manatees. The report also recommends that Palm Beach County establish a stormwater utility to assist in improving water quality. Finally, the report recommends support for several programs to plan for sea level rise in Palm Beach County.
the National Estuary Program because of its diverse natural resources, which are well-represented in the Palm Beach County portion of the lagoon. Extensive seagrass beds in the shallow waters and tidal swamp forests dominated by mangroves along the shoreline contribute to the lagoon serving as a major spawning and nursery ground for fish and marine life.

**Loxahatchee River**

The ICW extends less than a mile through the Loxahatchee River near the Jupiter Inlet. The main branch of the Loxahatchee River is the Northwest Fork, which is joined by the Southwest Fork and the North Fork before emptying into the Atlantic Ocean through the Jupiter Inlet. A portion of the Northwest Fork of the Loxahatchee River upstream from the ICW is designated as a National Wild and Scenic River because of its outstanding natural qualities. However, the ICW does pass through the Loxahatchee River – Lake Worth Creek Aquatic Preserve where it exits the Loxahatchee River to the south. Estuarine natural communities in this area include mangroves along the shoreline with submerged resources including tidal flats, seagrass beds and oyster bars.

**Lake Worth Lagoon**

The ICW passes through Lake Worth Lagoon, a 20-mile long estuary separating the barrier island from the mainland. This estuary is located centrally along the east coast of Palm Beach County. Similar to the Indian River Lagoon, Lake Worth Lagoon has important natural communities, including seagrass beds and mangrove forests, which support a variety of fish and wildlife. This estuary is equally important for providing recreational opportunities and is vital to commerce and maintaining the economy of the marine industries in Palm Beach County.

In predevelopment conditions in the early 1800s, Lake Worth was primarily a freshwater system without permanent connections to the ocean (Dames and Moore et al. 1990). The first major change to the system was in 1877 with the construction of an inlet, which changed Lake Worth into a brackish water lagoon system. During the 1890s a navigation channel was dredged from the north end of Lake Worth.
Lagoon to the Jupiter Inlet. This resulted in increased freshwater flows to the north end of the lagoon. The ICW was completed from the south end of Lake Worth Lagoon to Biscayne Bay in the early 1900s. Today the ICW runs the entire length of the lagoon.

In 1915 the Port of Palm Beach dredged the Lake Worth Inlet to 4 feet deep near the City of Riviera Beach. In 1925 the inlet was deepened to 16 feet. This inlet is now 400 feet wide and 35 feet deep. In 1917 the South Lake Worth Inlet was created near Boynton Beach to improve tidal circulation and provide flushing to the south end of the lagoon. This inlet is now 200 feet wide and 6 feet deep. Peanut Island along with other spoil islands were created from spoil dredged from the inlets and ICW.

The construction of the Earman River (C-17 Canal), West Palm Beach Canal (C-51 Canal) and Boynton Canal (C-16 Canal) resulted in additional freshwater flow into Lake Worth Lagoon. Along with the construction of these canals, the groundwater was lowered in the lands adjacent to and west of the lagoon. This allowed urbanization of the basins draining into the lagoon, which has altered the timing of stormwater flow into the estuary and caused more pollutants to enter the system.

Along with urbanization in the 1900s, most of the natural shoreline of Lake Worth has been altered by dredge and fill activities. At present, approximately 81 percent of the lagoon's shoreline is bulkheaded and only about 278 acres of mangroves remain along the shoreline. In addition, the Riviera Beach Power Plant discharges warm water into the lagoon. The warm water discharge point, just south of the Lake Worth Inlet, is one of the major attractants of manatees on the east coast of Florida. Heavy boat traffic in the coastal waterway threatens this endangered species.

Major Environmental Issues

Each of the waterbodies described above share a number of key environmental issues. Foremost among the factors impacting the ICW and adjacent water bodies is the quality and quantity of water entering the estuaries. Stormwater runoff has a major detrimental impact. The runoff contains heavy metals and hydrocarbons from roadways as well as fertilizers, herbicides, and pesticides from developed areas. Discharge from sewage treatment plants, leakage from faulty septic tanks, and sewage from boats have also added excess nutrients and pollutants to the estuaries.

Dredging is another major environmental issue because it can directly or indirectly impact estuarine natural communities. Dredging is needed to create, improve and maintain channels and docking facilities. However, dredging activities need to be carefully designed in terms of the source and deposition areas, the composition of the dredged material, and the construction technique to avoid adverse environmental impacts. Dredge and fill activities have the potential to eliminate littoral vegetation and mangroves from the shoreline. This may lead to erosion and all polluted runoff to enter the estuaries directly from waterfront property. The removal of seagrasses and mangroves by dredge and fill operations has contributed to degradation of a variety of estuarine resources, including fish and wildlife. Also, dredging may allow increased boating activity, which may contribute to a higher mortality rate in manatees.

Management Plans

Management plans to protect and restore natural systems have been developed for each of the major waterbodies described above. For example, the Indian River Lagoon National Estuary Program recently released the Indian River Lagoon Comprehensive Conservation and Management Plan Update 2008; the South Florida Water Management District developed the Restoration Plan for the Loxahatchee River in 2006; the South Florida Water Management District and the Florida Department of
Environmental Protection are currently working to update the Loxahatchee River National Wild and Scenic River Management Plan, which was last updated in 2000; and Palm Beach County and the Florida Department of Environmental Protection recently released the Lake Worth Lagoon Management Plan Revision in 2008. In addition to these plans targeting waterbodies, Palm Beach County recently adopted the Palm Beach County Manatee Protection Plan in 2006, which is specifically designed to protect manatees. These last two plans are discussed in more detail below because they are most relevant to the ICW in Palm Beach County.

Lake Worth Lagoon Management Plan Revision

In 1997 the FDEP and Palm Beach County formed a partnership to co-sponsor a consensus-building process designed to enhance and protect the Lake Worth Lagoon. This partnership resulted in the development of the Lake Worth Lagoon Management Plan in 1998. This plan was revised in 2008 (Palm Beach County & FDEP 2008). The mission and goals of the plan are: “To restore, conserve and manage the Lake Worth Lagoon ecosystem to a level of quality to obtain measurable and significant improvements to the Lagoon's water and sediment quality; to provide habitat for native plants, fish and wildlife, and aesthetic, recreational and economic benefits for the residents and visitors of Palm Beach County; and to encourage, develop and promote a partnership of public and private interests to manage the lagoon.”

The revised management plan is divided into the five broad areas to identify specific goals and objectives for restoring the lagoon, including: water and sediment quality program; habitat restoration enhancement and monitoring program; public use and outreach program; interagency planning and coordination; and funding. The revised management plan presents a comprehensive series of actions to assist with the implementation of the management plan. The following discussion focuses primarily on water and sediment quality and habitat protection sections of the plan.

Major Accomplishments and Challenges

In the nine years since its completion of the Lake Worth Lagoon Management Plan, many tangible components of the plan have been implemented. Significant progress has been made through stormwater treatment and habitat restoration projects. Through the Lake Worth Lagoon Partnership Grant (LWLPG) a total of 37 projects have been funded. Among those projects, 27 have been completed and the remaining projects are in various stages of implementation. Twenty-two stormwater treatment projects have been implemented within the LWL watershed treating more than 1,700 acres of runoff that previously discharged directly to the LWL. The use of pollution control devices, stormwater ponds, wetland treatment, and treatment swales has significantly reduced the amount of nutrients,
suspended solids and heavy metals entering the lagoon. A pollutant loading reduction study (PBCERM 2004a) was performed on six representative stormwater and septic retrofit projects in LWL. Based on the data, loading reductions were extrapolated to all stormwater and septic retrofit projects. It appears that substantial amounts of suspended solids and nutrients are being removed through innovative treatment technologies. Preliminary results indicate the removal of 1.6 million lbs of total suspended solids per year; 36,000 lbs of nitrogen per year; and 6,000 lbs of phosphorus per year.

In addition to the stormwater projects discussed above, 12 habitat enhancement and restoration projects have been implemented with LWLPG funds. Two septic to sewer projects have been completed to reduce septic loading to the LWL. The grant program has also funded one marina pump-out station. This project benefits the lagoon by reducing the occurrence of overboard discharges from vessel holding tanks.

Although the aforementioned projects have been developed through the LWLPG in cooperation with 15 agencies and municipal partners, several projects were also implemented by PBCERM using other funding sources. Combined with the grant funded projects, approximately 184 acres of habitat has been created or restored in the LWL: 67 acres of mangroves, 64 acres of potential submerged aquatic vegetation (SAV), 14 acres of artificial reef, and 39 acres of maritime hammock. Some of the most successful restoration projects are listed below:

- The Munyon Island restoration project removed 35 acres of exotic vegetation, created 20 acres of mangrove habitat and restored 25 acres of maritime hammock.
- The Peanut Island enhancement project removed over 60 acres of exotic vegetation, and excavated the sand spoils to create/restore upland and wetland habitats:
  - 4.5 acres of tidal channels and ponds,
  - 1.3 acres shallow-water reef and
  - 3.0 acres of  mangroves.
  - Created upland habitats include
  - 7.1 acres of maritime hammock,
  - 8 acres of beach dune and
  - 4 acres of coastal strand habitat.
  - Over 125,000 native plants have been planted to enhance the island.
- The Ocean Ridge Natural Area restoration project removed 5.0 acres of exotic vegetation, restored and created 7.0 acres of

mangrove wetlands, 0.6 acres of tidal ditches/ponds for SAV habitat, and 0.8 acres of transitional/coastal strand uplands.

- The Snook Island project added good quality wetland habitat (mangroves, oyster reefs, and seagrass recruitment areas) to the central part of the LWL. Four mangrove islands and three shoreline mangrove planters were constructed resulting in 10.1 acres of red mangrove habitat, 2.8 acres of spartina marsh, and 2.3 acres of oyster reefs. Approximately 57 acres of submerged habitat suitable for seagrass recruitment has been created.

- The John’s Island restoration project included the restoration of approximately 1.7 acres of existing mangroves, the creation of approximately 3.3 acres of red mangroves, and the enhancement of approximately 1.4 acres of maritime hammock.

- The C-51 Sediment Management project removed over 101,000 cubic yards of muck deposits up to 20’ tick from the bottom of the C-51 canal before it reached the lagoon. An estimated 480 tons of nitrogen and 52 tons of phosphorus were removed from the system. The project included the creation of a sediment trap upstream of the S-155 structure to reduce future sediment loads to the LWL.

Problems and Issues Affecting the Lake Worth Lagoon

Even with the success of the projects discussed above, there are many challenges still facing the lagoon. Population in Palm Beach County (PBC) has climbed approximately 30% since 1990 and is expected to reach 1.8 million by 2030 (Smith 2002). The population increases will likely further habitat loss, fishing and boating pressure from both recreational and commercial demands. Efforts to improve water quality in the LWL while accommodating future growth will have to be balanced with the competing social and economic needs of local communities. Another challenge facing the lagoon is its altered hydrology and the large-scale freshwater releases from regional canals. Although changes to the water management strategies for the LWL are planned as a result of the Comprehensive Everglades Restoration Plan (CERP), their direct or indirect effect to the health of the ecosystem is yet to be studied. The input of contaminants and toxins from urban and agricultural runoff, elevated loads of nutrients and suspended and dissolved organic matter, are all contributing factors to the environmental distress of this estuary. A new approach is required in the LWL. The restoration efforts should include consideration for best current and future uses of the lagoon, and must be supported by clearly defined funding and sound management strategies to implement future actions to protect and restore natural resources.

Water and Sediment Quality Program

The goal of the Water and Sediment quality program in the 1998 LWLMP was to reduce adverse impacts on lagoon salinity and decrease pollutant loadings in the system to acceptable levels. Current goals for this program are:

- Expand and implement a long term water quality ambient monitoring program in the LWL for baseline purposes and trend analysis.

- Increase focus on decreasing inputs of suspended materials, nutrients, and toxic substances from point and nonpoint sources.

- Identify and reduce anthropogenic loadings of fecal contaminants in the LWL.

With the projected growth forecasted in the next 30 years in PBC, maintaining and improving water and
sediment quality will require more effort every year in order to compensate for the increased pollution associated with growth. Most of the water quality gains have been attributed to wastewater treatment technologies, which have significantly reduced municipal sewage discharges in the lagoon. Point sources of pollution have been greatly reduced from the 1950s when an estimated 10 million gallons of raw sewage was discharged in the lagoon. By early 90s, approximately 2.4 million of gallons of secondarily treated sewage effluent were still discharged into the LWL watershed. These former discharges have been nearly eliminated with the exception of two package plants, emergency sewer discharges, and broken sewer mains. Nonpoint sources are now the primary source of pollution in the LWL. A total of 381 outfalls were identified within the lagoon in the Lake Worth Lagoon Natural Resources Inventory and Enhancement Study (PBCERM 1990). The various LWLPG projects implemented in the lagoon have offset to some degree the amount of pollutant loading from these sources, but with the drainage that the lagoon receives from its 450 square miles watershed, the impact of these projects cannot be fully evaluated.

Action plans targeted specifically to improve and monitor the Lagoon water quality (WQ), and to reduce wastewater (WW), stormwater (SW), and sediments (SE), are outlined below. Refer to the Lake Worth Lagoon Management Plan for a complete description of each action plan.

WQ-1 Implement Water Quality Monitoring Goals
WQ-2 Reduce the Occurrence of Municipal Sewer overflows
WQ-3 Install Additional Sewage Pump-out Facilities for Recreational Boaters and Live-aboard Vessels
WQ-4 Improve Fueling and Bilge-Pumping Practices Among Recreational Boaters
WW-1 Identify Septic and Municipal Wastewater Loading to Lake Worth Lagoon
WW-2 Provide Additional Sanitary Sewer Connections to Priority Areas
SW-1 Reduce Discharge of Freshwater and Total Suspended Solids
SW-2 Implement Best Management Practices on Golf Courses near the Lake Worth Lagoon
SW-3 Identify and Increase Stormwater Retrofit Projects
SW-4 Encourage Use of Best Management Practices
SE-1 Substrate Characterization
SE-2 C-51 Basin and Lake Worth Lagoon Sediment Sourcing Study
SE-3 Manage Sediments in Lake Worth Lagoon

Habitat Restoration Enhancement and Monitoring Program

The restoration and protection of diverse habitats within the LWL is crucial to the lagoon’s health. Goals for this program are:

• Restore, enhance, and create seagrass beds, oyster habitat, emergent mangrove wetlands, coastal hammock habitat, and protective upland buffer zones.

• Add riprap to vertical seawalls to reduce wave-generated sediment resuspension and provide additional hard bottom habitat.

• Construct artificial reefs that provide juvenile, intermediate and adult habitats required by the life cycle of estuarine and marine dependent fish and invertebrate species.

• Evaluate the status and protect sea turtles, manatees, and other endangered, threatened, and rare species, and species of special concern using the LWL.

Recent studies and surveys performed by ERM indicate that 1,626 acres of seagrass beds are currently present within this estuary. These studies
also identify approximately 278 acres of mangroves in the lagoon. Oyster reefs currently mapped or observed within the lagoon show a small but relatively healthy oyster population (~5 acres). Increasing and preserving the quantity, quality and diversity of these communities are the long-term goals of this management plan. The overall target within the next five years is to restore approximately of 125 acres of tidal marsh habitat, add a minimum of 16 acres of oyster reef habitat, and to protect and enhance the lagoon's existing mangrove and seagrass areas. Artificial reefs and land acquisitions are also planned as part of the overall restoration.

Action plans targeted specifically for Habitat Enhancement (HE) and Environmental Monitoring (EM) are outlined below. Refer to the Lake Worth Lagoon Management Plan for a complete description of each action plan.

HE-1 Expand Oyster Habitat
HE-2 Restore, Create and Protect Mangrove and Spartina Habitats
HE-3 Implement the Palm Beach County Manatee Protection Plan
HE-4 Develop a Seagrass Restoration Target
HE-5 Expand Reef Habitats
HE-6 Acquisition of Submerged lands in Lake Worth Lagoon

EM-1 Implement Sea Turtle Monitoring
EM-2 Develop a Fishery Monitoring Program
EM-3 Develop a Submerged Aquatic Vegetation (SAV) Monitoring Program
EM-4 Monitor Oyster Reef Habitats

Palm Beach County Manatee Protection Plan

In October 1989, the Florida Governor and Cabinet directed thirteen coastal counties, including Palm Beach County, to prepare a plan to protect manatees. The Florida subspecies of the West Indian Manatee (Trichecus manatus latirostris) is listed as federally endangered throughout its range and is protected by the Florida Manatee Sanctuary Act of 1978. In Palm Beach Country, manatees are found in all accessible freshwater, estuarine, and marine waterbodies, although their relative abundance may vary at specific locations and seasonally.

The main goal of the Palm Beach County Manatee Protection Plan (MPP) is to protect manatees and manatee habitat. The main objectives of the MPP are to implement management strategies and policies that will protect manatees and manatee habitat, promote and increase public awareness of manatees and manatee habitat, promote safe boating, and allow reasonable recreational and commercial use in the coastal zone in a manner consistent with the protection of manatees and manatee habitat.

One of the important components of the MPP is the Boat Facility Siting Plan (BFSP). The BFSP in the plan provides four categories defining Preferred, Conditional, Non-preferred, and Exclusionary locations for new boat facilities with more than two slips. Facilities within each category will be required to meet certain criteria to minimize impacts of manatees. Restrictions will be greatest in areas of highest risk to manatees (Non-preferred and Exclusionary locations) and least in areas of lowest risk (Preferred locations).
Geographic areas of particularly high abundance include the northern portion of Lake Worth Lagoon, Jupiter Sound, and Lake Wyman within Boca Raton. High abundance in these areas is likely due to the availability of seagrass foraging habitat and warm water refuges. The warm water discharge from the Florida Power and Light Riviera Plant near the Port of Palm Beach attracts high numbers of manatees and greatly influences the distribution of manatees in the winter.

The largest single cause of mortality (39%) documented in the County results from collisions with watercraft. Manatees are most likely to be struck by boats in areas where there is an overlap between high levels of manatee abundance and boat traffic. Watercraft-related mortalities were highest in the north Lake Worth Lagoon, Jupiter Sound, and the section of ICW between Delray Beach and Boca Raton.

The recommendations for plan implementation include the following eight priority initiatives to provide comprehensive protection for manatees in local waterways:

1. MPP Implementation – Incorporate approved boat facility siting policy into County and local Comprehensive Plans.
2. Manatee Protection Fund – A dedicated funding source has been established to implement the goals and objectives the MPP.
3. Undertake a Boater Speed Zone Compliance Study – A study will be conducted to determine current levels of compliance with boating speed zones and to identify times and locations of greatest non-compliance and reasons for non-compliance.
4. Law Enforcement – Initiate a number of measures to provide funding for staff, procure supplies, and increase law enforcement presence and efficiency on the waterways.
5. Education and Awareness – Develop and initiate a number of programs designed to raise public awareness of manatees, including improvements in manatee protection zone signage, creation of additional manatee educational kiosks and fliers, identify/utilize additional educational material distribution resources, and public service announcements.
6. Habitat Protection – Continue with existing and support future programs within the County to preserve, enhance, and restore manatee habitat and water quality.
7. Collect Current Data on Manatee Use and Boating Activity Patterns on County Waterways – Bimonthly aerial surveys will be conducted, as funding permits, to identify any changes that may have occurred in the seasonal and special distribution and relative abundance of manatees within Palm Beach County since the last surveys were conducted in the early 1990s.
8. Adaptive Management – The Palm Beach County Department of Environmental Resources Management will undertake a full assessment of plan performance every seven years to coincide with the required Evaluation and Appraisal Report process of amending the County’s Comprehensive Plan and, as necessary, revise the plan to improve performance.

Stormwater Utility

In May 2006, the Palm Beach County Board of County Commissioners requested the TCRPC develop an Urban Redevelopment Area (URA) redevelopment study and master plans. The study area encompasses approximately 25 square miles west of I-95 in central Palm Beach County, including unincorporated parts of Palm Beach County, the Towns of Cloud Lake, Glen Ridge, Lake Clark Shores, and Haverhill; Village of Palm Springs; and portions of the Cities of West Palm Beach, Lake
Worth and Greenacres. The Palm Beach County URA study and corridor master plans are efforts to forge a vision for urban redevelopment in central Palm Beach Country, to illustrate obstacles and opportunities for that redevelopment, and to provide recommendations and priorities for implementing the vision.

The study area is well west of the ICW, but drainage from this area can have a major effect on water quality in the ICW and coastal estuaries. The URA study recognized the proposed master plans for these corridors call for a denser mix of buildings fronting these corridors than currently exists, and intensification of the development program will make it difficult to accommodate building program, parking, and storm water management facilities all on individual parcels.

Individually-parceled and segregated storm water facilities will be difficult for small parcels and much more difficult for larger parcels that could dedicate space for both parking and storm water treatment. A better development pattern could be achieved by shifting the storm water treatment facilities away from areas that should be more intensely developed into areas where these facilities could be viewed as amenities.

The URA study noted that the ideal scenario for encouraging redevelopment and assuring the highest

In these images, a prototypical stormwater treatment concept is illustrated utilizing the City-owned West Palm Beach Golf Course. The existing condition is shown in the top left image. A simple intervention could be the addition of an oxbow (island) at the nexus of the canals to divert water flow, thereby slowing water flow rates and allowing particulates to settle prior to their entrance into the ICW.
standard for stormwater management would be for a master stormwater drainage or utility to be established that would provide this service on an area-wide or regional basis. Under this scenario, the utility would design and build a stormwater treatment system to meet the storm water retention and detention requirement of targeted redevelopment areas as well as adjacent neighborhoods needing improved drainage service.

The system could include existing drainage and surface water management components that are underutilized, or land could be acquired to provide new components. The utility model allows a system-wide evaluation that would include the opportunity to better utilize existing features and to consolidate new treatment areas into more efficient and manageable designs that would also provide higher levels of treatments.

Under this model, stormwater management facilities would be owned, operated, maintained and managed by the utility. Parcels receiving benefits would be charged a fee for service similar to the model currently used by Palm Beach County Water Utilities in providing water and wastewater service. The fee would assist in amortizing any debt the drainage district incurred in acquiring land, developing a master system, and maintaining the system.

There are many benefits to the utility model, including design efficiency, better management of stormwater, better land utilization, ancillary benefits, cost efficiencies, and improved property values and tax base. Perhaps the most important benefit to an area-wide utility approach is the smart and efficient management of stormwater for the water quality benefits that could accrue within the Lake Worth Lagoon. Under the parcel-by-parcel approach, retention systems are inefficiently sized and located and are managed by a large number of entities none of which have stormwater management as their first priority. It is questionable whether such systems are operated and maintained properly.

One of the key recommendations of the URA study is: Within the URA, the county should take responsibility for stormwater management, and provide such service via a master stormwater management system.
drainage district administered by the Palm Beach County Department of Water Utilities. Establishment and development of a master storm water drainage district and system will require the cooperation of several agencies at the county, state and federal levels. The stormwater utility concept should be supported as an additional mechanism for improving water quality and protecting natural resources in the ICW and coastal estuaries.

Sea Level Rise

Recent measurements from tidal gauges worldwide indicate that ocean levels are currently rising. Measurements along the United States coast indicate that sea level has risen at a rate of about 10 to 12 inches per century, but recent measurements suggest that sea level may rise at an accelerated rate in the future. The Miami-Dade County Climate Change Advisory Task Force recently issued a report indicating there is a very high likelihood that there will be at least a 3 to 5 feet rise in sea level during the next century. The report recommends that south Florida adopt a 50 year planning window to accommodate an anticipated rise in sea level of 1.5 feet over the next 50 years and 3 to 5 feet over the next 100 years.

As part of an ongoing program evaluating global climate change, the U.S. Environmental Protection Agency (EPA) initiated a nationwide project promoting planning for and awareness of sea level rise. As part of the EPA program, TCRPC conducted a study of sea level rise within the region, including Palm Beach County (TCRPC 2005). The study followed the general approach of other sea level rise planning studies sponsored by the EPA. The study used decision rules defined by a statewide approach for identifying likelihood of land use protection to characterize all uplands from 0 to 10 feet in elevation and within 1000 feet of shoreline into the following four general categories: protection almost certain; protection reasonably likely; protection unlikely; and no protection.

A total of 56,535 acres of uplands and 4,001 acres of wetlands were identified in the Palm Beach County portion of the study area. The “Protection Almost Certain” category accounts for about 93.0% of the uplands in the study area in Palm Beach County. The combination of the “Protection Almost Certain” and “Protection Reasonably Likely” categories accounts for 96.7% of the uplands mapped in this county. The county has no significant concentrations of areas classified as “Wetlands,” and there are little or no opportunities for the inland migration of wetlands in Palm Beach County.

The main areas of impact are expected on the barrier islands and areas east of the Intracoastal Waterway; shorelines of the Indian River Lagoon, Lake Worth

Florida’s low elevation creates vulnerability in the face of sea level rise, especially along coastal areas.


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KEY FINDINGS AND RECOMMENDATIONS

Palm Beach County has a number of excellent programs in place that are addressing the protection of natural resources in the waterbodies associated with the ICW. This report recommends continued support for these programs as follows:

Improve Water and Sediment Quality

• Support the Lake Worth Lagoon Management Plan Revision goals and recommended action plans to improving water quality and decrease the amount of suspended material in the lagoon and adjacent waterways.

Support Habitat Restoration Enhancement and Monitoring

• Support the Lake Worth Lagoon Management Plan Revision goals and recommended action plans for habitat enhancement and environmental monitoring in the lagoon.

Support Manatee Protection

• Support the Palm Beach County Manatee Protection Plan priority initiatives focusing on plan implementation, manatee protection fund, speed zone compliance study, law enforcement, education and awareness, habitat protection, monitoring boating activity patterns, and adaptive management.

Consider Development of Stormwater Utility

• Support the Palm Beach County Urban Redevelopment Area Planning study recommendation for the County to establish a stormwater utility administered by the Palm Beach County Department of Water Utilities.

Monitor and Plan for Sea level Rise

• Support a program to assess the impact of sea level rise on all existing infrastructure adjacent to the Intracoastal Waterway, including buildings, bridges, roads, docks, boat ramps, parking lots, seawalls, and water and sewer systems.
• Support a program to ensure that all new buildings and infrastructure proposed adjacent to the Intracoastal Waterway are designed to accommodate future sea level rise.
• Support a program to develop and implement new building standards and floor elevations for future development proposed adjacent to the Intracoastal Waterway.
• Support a program to design all new and upgraded seawalls to include environmentally friendly features to include mangroves, seagrasses and other natural resources adjacent to areas protected from sea level rise.
Water-based transportation is the foundation of the ICW. Usage of the waterway almost exclusively refers to some form of transportation whether it be for motorcraft or private kayaks, the migration of manatees, or the heavy industrial operations at the Port of Palm Beach. Public input during the charrette reaffirmed this with requests for increased and improved access via boat launch sites, development of water transit services, development of water-dependent destinations, expansion of vessel service amenities, further development of marine-related industries, and overall transportation corridor system preservation. These areas of interest were underpinned with the need for environmental protection and overall preservation of quality of life for surrounding communities.

This chapter provides an overview of water-based transportation along the Intracoastal Waterway in Palm Beach County. It identifies opportunities presented by the waterway, the users and the economics behind those users, and the relationships the ICW has with other water-based businesses as well as the region. The potential for water taxi service is analyzed extensively, with an overview of existing services, conceptual operating program, and an array of existing, pending, and recommended water taxi stops in Palm Beach County. High-speed ferry service from the Port of Palm Beach is also analyzed, and a series of recommendations are provided regarding waterborne transportation services, functions, and their relationship with the upland.
The ICW is a mixed-use transportation corridor in Palm Beach County used by commercial and recreational boaters sailing in large ships and small boats as well as freight carriers operating barges. The entire length of the corridor extends from north of Jacksonville south to Key West, a total of 370 miles. The portion of the ICW in Palm Beach County is 43 miles long. This federally-maintained waterway provides between 7 and 15 feet of water depth; however, ongoing dredging programs aim to keep the waterway north of Miami at its federally authorized depth of twelve feet.

Maintaining and preserving the ICW is critical for the future prosperity of water-based activities. It is important that the needs of all users be balanced and integrated – from recreational kayakers to water taxis to megayacht service facilities to large ships moving cargo through the Port of Palm Beach. Key opportunities for use of the ICW include the following:

- **Develop an Expanded Water Taxi System.** Water taxi service has the potential to improve regional mobility, especially for special events and weekend activities, by providing a quality of life enhancement for County residents and visitors. Water taxis could also complement on-going economic development activities, particularly within the marina villages along the waterway, and become integrated into land-based transit. This would enable County water taxis to become consistent with current water taxi services across Florida which primarily offer slow speed service focused on entertainment and tourism markets. Waterborne commuter service is intriguing as a mechanism to relieve landside congestion and provide new alternatives to commuters that live and work along the ICW; however, effective commuter service would be more difficult to develop, given the area’s linear geography and environmental constraints. Further market analysis is required to identify key routes and stations.

- **Develop High Speed Passenger Ferry Service.** There is potential for ferry service to traverse between the Palm Beach County area and destinations such as Ft. Lauderdale, Miami, Key West, and the Bahamas. The Port of Palm Beach has provided this type of service in the past, but high costs and low demand terminated the service. Additional market analysis should be completed to identify new service opportunities.

- **Support Port of Palm Beach Growth.** The Port has long been the industrial hub of the ICW in Palm Beach County. While the Port has expansion constraints, it continues to strive for growth opportunities. It is critical that the ICW be developed in a way as to not infringe on Port operations and growth.
• **Improve Megayacht Capacity.** Palm Beach County is home to a significant boating industry. However, it currently struggles to serve the largest of yachts due to waterway depth. An effective dredging program could provide the region with significant economic development opportunities in this industry.

The development of water-dependent activity centers throughout the corridor will be critical to the success of the above opportunities. Marine villages, waterside services, preservation of industrial lands, and landside connections will all drive the demand for and use of water services.

**Use of the Intracoastal Waterway**

The ICW is home to a variety of commercial and recreational users. According to the U.S. Army Corps of Engineers (USACE), in 2006 the Intracoastal carried 234,000 tons of cargo from Jacksonville to Miami including 227,000 tons of petroleum. The petroleum is often moved by barge on the waterway providing service to specific industrial hubs. The delivery of the fuel is usually to power plants along the waterway.

Recreational traffic is the most dominant user of the ICW, including personal watercraft (both motorized and non-motorized), water taxis, and excursion services, along with more limited megayacht traffic. Many marine industries, marinas, and yacht clubs along the waterway provide essential services to these recreational vessels. Charrette participants echoed a wish of the marine industry to broaden the ICW’s role in megayacht maintenance and servicing, coining the term “megayacht mile” for the mile-long stretch of upland near the Lake Worth inlet. This sentiment complements the on-going plans to expand deepwater access in this area near the Port of Palm Beach to reinforce ongoing investments in the megayacht service industry.

Currently, access of the largest of vessels is restricted by water depth. While deepwater access directly to the Port is available, deepwater access to other portions of the upland is greatly limited. Improvements in the water infrastructure will expand the range of vessels that can be served and expand the upland area megayachts can access, strengthening the overall marine industry in Palm Beach County. Vessels currently access facilities via a route outside the designated channel due to waterway conditions.

The user base of the Intracoastal is widely varied, including everything from small watercraft to large freight vessels accessing the Port of Palm Beach.

The Port of Palm Beach, the largest transportation hub along Palm Beach County’s portion of the ICW, is home to the majority of cargo moving along this corridor. Approximately four million tons of cargo moved through the Port in 2006. Other cargo services are limited to infrequent barge traffic serving specified customers. The Port is also home to limited passenger vessel operations providing gambling excursions. Although other passenger vessel services have existed in the past, they are no longer operating due to high operating costs and limited demand for the service.

Also frequent on the ICW are the smaller motor boats and non-motorized water craft, such as canoes and kayaks. In addition to the aesthetic beauty, fun, and relaxation these users receive, their use of the waterway contributes to the economic vitality and viability for water-based transportation.
Seven water taxi services were identified as on-going in Palm Beach County. Most provide leisure and entertainment excursions as opposed to high-speed transit services for commuters. For example, the Palm Beach Water Taxi provides shuttle service to events and attractions in Palm Beach County such as Peanut Island, Downtown West Palm Beach, and CityPlace. Water taxis also provide access to shopping, dining, and other entertainment venues. The Peanut Island Water Taxi is another service providing access to a recreational destination.

Ferry services usually provide high-speed passenger service to more distant destinations. This transportation option provides an alternative to the often overcrowded airports and highways for destinations that are accessible by boat. For example, the Key West Express, which operates out of Ft. Myers on Florida’s west coast, provides direct, roundtrip, high-speed service to Key West from Ft. Myers and Marco Island. To be successful, waterborne services must match or exceed the services provided by land-based transportation options. While there has been high-speed boat passenger service from Palm Beach County to the Bahamas in the past, this service is no longer available due to costs and lack of demand.

Another user of the waterway that must be accounted for when considering water-based transportation is the manatee. The presence of manatees slows the speed of all watercraft through speed zone restrictions that can hinder the flow of traffic on the waterway. This large water mammal should be considered in planning for water-based transportation, and maps identifying manatee zone speed restrictions are included in this section for reference (see Palm Beach County Manatee Protection Plan for more detail).

Finally, waterway conditions related to derelict vessels should be noted as an impediment to navigation on the waterway. Typically outside the channel, inoperable vessels exist throughout Palm Beach County, typically concentrated near unregulated moorings and in shallow areas. Ownership and removal of these vessels is difficult, rendering them a navigational hazard as well as environmental and aesthetic burden on the waterway.

Economic Impact of Water-Related Activities

The use of the ICW contributes to the County’s economy both commercially and recreationally. According to a 2006 study by FIND, there were 127 charter boat rentals and 30 Port tenants in Palm Beach County. The economic output for this commercial activity totaled $503.8 Million encompassing 3,660 jobs with total personal incomes equal to $161.9 Million. In addition to these job activities are the many dimensions of recreational boating activity. Palm Beach County has more than 38,000 registered boats, generating approximately 605,000 boating trips yearly. For 2006, FIND estimated the County’s economic output for recreational activity to be $1.42 Billion, including 12,510 jobs with total personal income of $512 million. Overall, FIND’s data indicates the ICW yields nearly $2 Billion in total economic output for Palm Beach County, with 16,505 jobs generating $688 Million in personal income attributed to waterborne
activity. This economic data speaks to the importance of this transportation corridor and to the need to keep it maintained. These and other economic analyses are comprehensively detailed in Chapter IX, Economics of the Intracoastal, located later in this report.

Impacts of Landside Infrastructure

The make-up of the communities bordering and in close proximity to the ICW plays a critical role in defining the demands placed upon the waterway. The establishment of marina villages and other commercial venues, marinas, dry docks, service facilities, eco-tourism destinations/parks, residential communities, and heavy industry in large part dictate the transportation services demanded along the ICW as well as the impacts of potential future uses. Development of a comprehensive water taxi system would require land and docks for stations and parking, transit connectivity, and sufficient density to attract riders who want to travel north or south to another activity center. Several water taxi services already exist in Palm Beach County but not to the extent that they can fully link all destinations on the entire 43 miles. The mobility of visitors and commuters along the ICW is directly related to the ability to conveniently access water-based transportation services. In addition, the marina villages and other destinations must have adequate land-based roadway and transit connections for the transportation system as a whole to function seamlessly.

Currently, land-based activity centers drive the economy of eastern Palm Beach County. When the marina villages described in this report are accessible both waterside and landside, they will have greater potential to generate economic growth and spending related to marine activities. As mentioned earlier, the overwhelming majority of marine-related jobs (12,510) are attributed to recreational boating in the County. Most of the direct and indirect spending associated with marine-related businesses happens at marina villages or en route to destinations accessed by water. Forging strong connections between water-based transportation, marina villages, and other marine destinations will strengthen the overall economy in Palm Beach County. The map above shows the density of marine-related industry located along the ICW in Palm Beach County.

It is important to understand the transportation impacts that will be generated by each component of the ICW plan. The creation of marina villages, growth of the port facility, increase in public access,
and continued restoration and preservation activities will continue to impact and challenge transportation alternatives as well as demand more from waterborne transportation. The ultimate purpose of this chapter is to lay out key transportation considerations as the plan takes shape. On an organizational note, access to the ICW is critical to the success of travel of the waterway. The ICW attracts many types of users to the waterway from kayaks to megayachts to commercial barges. While large ships and barges use the Lake Worth Inlet to access the Port of Palm Beach, recreational boaters use local marinas, boat ramps, and anchorages to gain the access they need to traverse the waterway. As noted in the introduction to this report, there were six main themes identified by charrette participants, which led to the report’s organization. Accordingly, boating facilities that correlate to commercial boating activity, including water taxis, ferries, and the Port of Palm Beach, are included in this chapter. The remaining facilities, including public marinas, public boat ramps, and canoe/kayak access points, are included in Chapter IV (Public Access).

**Water-Based Passenger Transportation**

The Intracoastal Waterway in Palm Beach County offers a rich opportunity for water-based passenger transportation. In addition to private vessels, there are two general forms of passenger transit: water taxis and ferries. Water taxis offer public transportation usually in an urban environment, but they can provide access to natural destinations as well. Operating schedules for water taxis can vary, with some operating on a demand basis (like traditional taxis) while others provide scheduled service at multiple stops (similar to traditional bus service). In North America, the terms water taxi and water bus are generally used synonymously. A boat service that shuttles passengers between two points and sometimes goes farther distances at higher speeds is typically referred to a ferry.

The following section provides an overview and analysis of water taxis and ferries and a summary of the types of services currently provided in Palm Beach County.

**Water Taxis**

Waterborne transportation services can offer an alternative to congested roadways, automobile parking constraints, crowded land-based transit, and an opportunity to travel leisurely and reach water destinations that are otherwise inaccessible. Florida is home to several water taxi services, each with its own niche market and varying level of success. Some of these include Palm Beach Water Taxi, Water Taxi of the Palm Beaches, Fort Lauderdale’s Water Bus, Jacksonville’s Marine Taxi, and New Smyrna Beach’s Water Taxi. Each of these services was generally reviewed and analyzed as part of this plan, and details relevant to each are summarized in the graphics in this section.

Development of a successful waterborne service requires consideration of many variables. Among the key guidelines to consider are the following:

- Identify the right technology
- Provide the ability to compare to other service initiatives
- Define a competitive service
- Identify and address key connectivity and accessibility issues
- Quantify the market demand
- Build regional support
- Differentiate services from other competing services
- Integrate service into regional transportation system

In addition to the general guidelines listed above that are applicable to all transit services, it is important to understand some of the conditions that facilitate more specifically the development of a successful water taxi service, as described below:
Water taxis, such as those pictured above, can function as a component of the overall transportation network in a community or region as well as offer economic enhancement as a tourist venue.

In areas like the northeast, with peninsulas and bays, high-speed, operating conditions, and high-density population patterns that congest traditional transportation networks, services like New Jersey’s Seastreak fast ferry service operate routinely as part of the transit network. SOURCE: http://www.seastreak.com

The geography of downtown Jacksonville lends itself well to its local water taxi operation, which ferries passengers among hotels, restaurants, and Jacksonville’s mixed-use Riverwalk project.

In central Florida, a multi-city water taxi operates between New Smyrna Beach and Inlet Harbor, offering mostly sightseeing tours of the area.

SOURCE: http://www.seastreak.com
Washington State’s Department of Transportation operates a far-reaching water ferry service, as indicated on the route map above, that provides significant service including connections into Canada.

SOURCE: http://www.wsdot.wa.gov/ferries

Based in Riviera Beach, the Palm Beach Water Taxi offers the most extensive water service currently in Palm Beach County, including water taxi service to Peanut Island and downtown West Palm Beach as well as sightseeing tours and charters. It is based in Riviera Beach at Sailfish Marina.

Operating out of Panama Hattie’s restaurant in North Palm Beach, the Water Taxi of the Palm Beaches offers primarily sightseeing tours on the ICW. This location is part of the “PGA 4 Corners” marina village recommended for the unique area where all four corners of the PGA/Intracoastal intersection are commercially properties.

Fort Lauderdale has maintained a water taxi operation for more than two decades, supported by its dense urban development pattern, seasonal influx of tourists, and consistent service schedule.
• **Captive Markets.** The most profitable services are located where there is market demand. This is true of any customer-oriented service and especially true with transit services. In the waterborne transportation environment, this is best provided by captive populations that have no other transportation alternative, such as island communities. This may also apply to transit destinations that are difficult to access by other forms of transportation such as accessing a waterfront event like Sunfest with limited upland parking and constrained roadways during the event.

• **Revenue Collection.** Another factor to consider is the collection of fare box revenues. Generally, fare box revenues from passenger-only commuter services do not cover operating costs. In many cases, a recovery of only 40 to 60 percent is typical of waterborne and other premium transit services like Bus Rapid Transit (BRT).

• **Multiple Sailings.** Multiple sailings are essential for customers. Commuters need flexibility in the scheduled sailings especially to accommodate work arrival and departure times. They need to have the assurance of knowing that if they miss one boat, there will be another one operating on a reliable schedule.

• **Direct Routes.** The most competitive passenger services are those that cut mileage and travel time. This provides the most direct route for the passenger and efficient movement of the vessel. Services that run parallel to established highway corridors struggle to provide equal or superior service.

• **Vessel Speed.** Most waterborne transportation services tend to run a mix of vessel types operating between 15 and 35 knots. Obviously, the faster the vessel, the more attractive the ride; however, the speed comes at a price. The faster vessels require a significant increase in capital and operating costs, and environmental constraints such as the presence of endangered species can require slower speed zones.

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Waterfront special events and festivals, such as West Palm Beach’s annual Sunfest which draws nearly 300,000 attendees for this week-long event, create strong markets for all forms of transit, including water taxis.

In downtown Delray Beach, Delray Beach Cruises (kiosk pictured above) offers sightseeing trips on the Intracoastal throughout the year. Their service is walking distance to historic downtown Delray Beach, which includes a wide array of residential, retail, restaurant, and hotel facilities as well as settings for public events and festivals.
• **Landside Connections** Strong landside connections are essential for successful service. For a waterborne transportation service to be effective, passengers must be able to get to and from the water and their final destination (landside) with ease. This greatly impacts the choice of potential riders for this type of service. In addition to the pedestrian quality of destinations, multi-modal access to water taxi stops is a factor. For Palm Beach County, the modes include vehicular, bicycle and pedestrian access, and a wide variety of existing and potential transit services (local trolley, community bus, regional bus, BRT, Tri-Rail, and potentially FEC corridor transit).

• **Quality of Destination.** For any transit service to be successful, the quality of destinations, including mix of uses, land development patterns, walkability, and personal safety, is a key factor in attracting users. Waterborne transportation requires destinations of sufficient critical mass to warrant access by taxi. If the variety of uses or experiences in a destination is too limited, the passenger service may only be successful for special events. This criterion was considered in the evaluation and recommendation of the marina villages described in this report.

• **Community and Environmental Impacts.** The management of community and environmental impacts for both land and water resources is an important consideration. Both must be considered and monitored continuously for waterborne transportation services to be responsive to the communities they serve.

• **Marketing & Promotions.** Transit systems require extensive marketing as well as promotional activities to raise awareness of the system and build ridership. The linear nature of Palm Beach County’s portion of the Intracoastal disperses water taxi services along 43 miles, although there are clear concentrations of service in some locations. Consolidation of information and common marketing are mechanisms that are advantageous for service providers as well as users, with an organizational entity necessary to accomplish these activities.

With the strong interest in water taxis expressed by charrette participants, a preliminary analysis was conducted to begin to identify a potential water taxi system in Palm Beach County. Today, there is a **Sea Fare Water Taxi (pictured above) provides daily service to Peanut Island (pictured below), which has become one of the County’s strongest recreational destinations since completion of the Island’s rehabilitation and enhancements in 2006.**
There currently are a limited number of commercial marine transportation services accessible to the general public in Palm Beach County. Most are limited to sightseeing tours, but a few offer limited water taxi-type services. By far, the most developed service area is in Riviera Beach, in close proximity to Peanut Island and the Port of Palm Beach. Additional operations are currently in place in Jupiter, North Palm Beach, Palm Beach Gardens, and Delray Beach. Each of these current facilities tends to provide sightseeing cruises on the Intracoastal as well as limited to/from travel during special events. The existing services are as follows:

- **Buzz Boat Water Taxi Service** operates on an as-needed basis primarily in northern and central Palm Beach County. It operates one boat with capacity for fourteen passengers and provides service for special events in coordination with event organizers. This service does not maintain a permanent facility but utilizes public and private dockage when available.

- **Manatee Queen**, operating at A1A Road in Jupiter, offers sightseeing cruises on the Intracoastal. It operates one boat with capacity for 49 passengers.

- **Water Taxi of the Palm Beaches** operates out of Panama Hattie’s restaurant at the intersection of PGA Boulevard and Ellison Wilson Road in North Palm Beach. Offering a variety of sightseeing tours on the ICW, this service operates up to four boats daily with a capacity of 27 passengers per boat.

- **Palm Beach Water Taxi**, operating out of Sailfish Marina on Lake Drive in Palm Beach Shores, provides the most extensive service currently available on the ICW, including daily, year-round shuttle service to Peanut Island and downtown West Palm Beach as well as a variety of sightseeing tours and charters. The company operates up to five boats with capacity ranging from twenty to 49 passengers per boat.

- **Peanut Island Water Taxi** operates out of the Riviera Beach Marina on East 13th Street in Riviera Beach, providing service between the Marina and Peanut Island. It operates on an as-needed basis with a boat capacity of 40 passengers.

- **Sea Fare Water Taxi**, also operating out of the Riviera Beach Marina, currently provides service to Peanut Island, with peak demand in the spring and summer months. This service operates two boats with capacity ranging from 45 to 49 passengers per vessel. This company provided multi-stop water taxi service in the past in the Riviera Beach area, from Phil Foster Park, Riviera Beach, and Peanut Island.

- **Delray Beach Cruises** operates out of Atlantic Plaza on Atlantic Avenue in downtown Delray Beach and offers sightseeing cruises. This service runs one boat with the largest capacity (150 passengers) of the current services in the County.

In addition to the existing water taxi operations, the Palm Beach Metropolitan Planning Organization (MPO) secured a $1 Million grant from the Florida Department of Transportation in 2007 to enable local governments to design and construct water taxi stops in Palm Beach County. Although the grant was initially limited to projects north of West Palm Beach, delays in permitting encouraged the MPO to expand...
Water Taxi Stop Locations:

Limited Network

- Jupiter
- Palm Beach Gardens
- Riviera Beach
- West Palm Beach
- Lake Worth
- Boynton Beach
- Delray Beach
- Boca Raton

- Existing
- Pending

Water Tax Stop Locations: Limited Network
the funds county-wide. To date, there are seven water taxi dock facilities in various stages of permitting, design, and construction pursuant to this grant, including several in Jupiter, Juno Beach, Riviera Beach, West Palm Beach, and Lake Worth. The map on the previous page illustrates the “Limited Network” of water taxi stop locations, including existing stops as well as pending stops funded through the MPO grant.

**Water Taxi Operational Analysis**

To analyze the potential for the development of a more extensive water taxi service in Palm Beach County, the area surrounding Peanut Island (Lake Worth Inlet, Riviera Beach) was utilized as a center point, given its current preponderance of services and Peanut Island as a key destination. The following set of service assumptions were established for a potential county-wide service, with a goal of ascertaining how far north and south an effective water-based service could function with Riviera Beach as the center point.

**Speed Assumptions:** Water taxi services tend to use slow-speed vessels, typically ranging from four to fifteen knots per hour. In addition to vessel operating speeds, waterway conditions also control service. The impact of wake wash on property and parked vessels is a critical factor, especially in narrow sections of the ICW. Also, manatee speed restrictions exist throughout the ICW in Palm Beach County, creating significant limitations for service. To analyze potential water taxi service in Palm Beach County, the matrix on the following page was developed, which shows a range of service characteristics for speeds ranging from three to fifteen-knot speeds.

The speed of any given service will be dependent on several factors, including: the type of vessel; the length of the route being served; proximity to “slow speed” zones; and the distance between stations. Local harbor services, such as those currently operated in Riviera Beach, with short shuttle services and smaller load capacities, will likely operate at slower speeds. However, a longer intercity service, with longer distances between stations, operations within the ICW channel, and larger load capacities, will likely operate at higher speeds. Determining the operating area of a service will therefore be impacted significantly by the type of service. On the following pages, maps illustrating the range of service given different headways are presented.

For purposes of this evaluation, the extent of the reach of a water taxi service is based on the assumptions of a longer haul operation. A ten- to fifteen-knot service, without station loading/unloading penalties, could reach ten to fifteen miles in an hour. In order to specifically calculate the exact reach of any given route would require travel time runs, vessel characteristics, and presence of slow speed zones. For local, short haul service, the five-knot service would be most likely serving approximately a five-mile service area or less in an hour.

**Service Penalty:** Service penalties are experienced with every additional stop. A five minute penalty was assumed for loading and unloading of passengers at each stop. In addition, each additional stop added five minutes to the overall trip length.

Based upon these operating assumptions, 30-minute and 60-minute routes were calculated based upon how far the boat could get in that amount of time with all the factors considered. As indicated in the matrix above, slow-speed vessels operating at typically five knots could cover five or six miles in 60 minutes of operation. Faster-speed vessels, conservatively assumed to operate at ten knots, could cover eleven or twelve miles in 60 minutes. The Operating Matrix above provides the breakdown of time, speed, and distances. This analysis did not address the necessary permitting that an operator would need to go through with the United States Coast Guard and others. It is simply meant to illustrate route parameters for a potential first phase of service.
Recommended Water Taxi Network

Given the operating parameters, headways, and taxi stop spacing available along the Intracoastal, a recommended network of water taxi stop locations was developed as illustrated in the map on the following page. This network includes existing water taxi services; pending water taxi docks per the MPO grant; and recommended new locations that coincide with the seven marina villages, public marinas, and other marine destinations along the waterway.

The operating assumptions indicate a higher speed vessel (operating at ten knots) would travel approximately eleven to twelve miles in 60 minutes. Using the conservative end of the range, the map below indicates the expected headways between taxi stop locations throughout the Intracoastal with the recommended network. Given the County's roadway and transit network, it is reasonable to assume this network could yield reasonable ridership for special events, during peak season, and perhaps for weekend events if well-organized and marketed.

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To analyze the potential for a County-wide water taxi service, an operating matrix was assembled to compare various service options given varying speed and distance. As indicated above, a slow-speed (5-knot) service should cover a 6-mile route in 60 minutes while a faster-speed (10-knot) service should cover eleven miles in the same timeframe.

### Water Taxi Operating Matrix

<table>
<thead>
<tr>
<th></th>
<th>3-KNOT SERVICE</th>
<th>5-KNOT SERVICE</th>
<th>10-KNOT SERVICE</th>
<th>15-KNOT SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trip Time</td>
<td>Knots per Hour</td>
<td>Miles per Hour</td>
<td>Miles per Minute</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>3.00</td>
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<td>0.06</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>3.00</td>
<td>3.5</td>
<td>0.06</td>
</tr>
</tbody>
</table>

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To analyze the potential for a County-wide water taxi service, an operating matrix was assembled to compare various service options given varying speed and distance. As indicated above, a slow-speed (5-knot) service should cover a 6-mile route in 60 minutes while a faster-speed (10-knot) service should cover eleven miles in the same timeframe.
The map above illustrates the recommended water taxi network (existing, pending, and recommended locations) along with the seven marina village locations. If a more extensive network of water taxi stop locations is developed, waterway-based service could be successful for special events, seasonal activity, and perhaps weekend activity throughout the year in Palm Beach County.
With operating speed assumptions of ten knots and other factors, it is estimated a 60-minute higher-speed service could cover approximately eleven to twelve miles. This map illustrates eleven-mile segments along the limited water taxi network (existing and pending water taxi stops) in Palm Beach County. Hour-long headways at this speed would enable travel between, for example, Lake Park and West Palm Beach or West Palm Beach and Boynton Beach.
As illustrated in the map above, a Water Taxi Recommended Network is illustrated, including existing water taxi stops, pending water taxi dock locations, and recommended new locations to coincide with upland development activity. The eleven-mile bars to the east of the land area indicate the estimated 60-minute headway for higher-speed vessels.
Just as is the case with an upland transit network, the success of waterborne transit hinges on many factors. Land use/transportation relationships exist at the nexus of all transit nodes with their surroundings. In addition to the proper north/south distribution of water taxi stops, planning for the water taxi system must consider the land use characteristics in which the stops are to be located. While many stops will be within the seven marina villages detailed in this report, there are a number of water taxi stop locations interspersed between these villages. A focus on transit-supportive development patterns, including mix of uses, building placement, and natural surveillance, among other factors, will enable each of these taxi stop locations to function more efficiently, effectively, and safely. A land use planning assessment of each water taxi stop location, including the seven marina villages, is detailed in Chapter VII: Marina Villages and Waterfront Destinations.

Another factor for successful waterborne transit will be its integration with the upland transportation network. Users of the water taxi network will arrive in various ways – by foot, bicycle, car, and transit. Pedestrian and bicycle traffic will naturally occur in walkable, mixed-use settings, such as the marina villages. Other water taxi stops are reasonably adjacent to neighborhoods that will generate bicycle and pedestrian activity. Vehicular access will be more difficult to manage. As land area is limited along the Intracoastal, vehicular parking demand is more difficult to manage. Marinas and many of the waterfront public parks experience peak demand on weekends, which parallels the peak times anticipated for water taxi use. Parking management strategies will be necessary to appropriately manage parking demand along the waterway for water taxi patrons.

Multi-modal interconnectivity with upland transit service offers a promising and efficient interface for a successful water taxi network in Palm Beach County. The MPO’s 2030 Long-Range Transportation Plan identifies the recommended transit network for the County in the transit portion of the Cost Feasible Plan. In addition to the County network, several municipalities also operate local trolley service, including West Palm Beach, Boynton Beach, and Delray Beach. When the transit and recommended water taxi networks are overlaid, it becomes evident that the Intracoastal, as well as the marina village projects, are well-serviced with multi-modal access, particularly in proximity to the marina villages and many of water taxi stops. The voracity of this potential multi-modal network (upland and waterborne), illustrated in the map on the following page, includes the potential premium transit, recommended water taxi network, and marina village locations. The Cost Feasible Transit Network Plan...
The above map illustrates the multi-modal transportation network possible with the premium transit components of the Palm Beach MPO’s Cost-Feasible Transit Network (2030), the marina villages, and the recommended network of water taxi stop locations.
adopted in the MPO’s 2030 Long-Range Transportation Plan is included for reference in this chapter.

Although a water taxi network is unlikely to attract commuters given the anticipated headways in comparison to the land-based transportation system, such a water taxi network with a variety of destinations could fulfill the County’s “Quality of Life” directive in its Strategic Economic Development Plan, enhancing the quality of life for residents and visitors as well as adding to the ambiance of Palm Beach County. The water taxi network could also enhance the economic success of the marina villages as well as the interspersed water taxi stop locations with increased activity and patronage.

**High Speed Ferries**

The subject of high-speed ferries is somewhat beyond the scope initially envisioned for the Intracoastal Study. As noted in the discussion of water taxi service, high-speed ferry service for the length of the Intracoastal is not feasible given the environmental constraints, slow speed zones, and operating conditions. However, high-speed ferry service is a reasonable transportation alternative to more distant locations such as Fort Lauderdale, Miami, the Florida Keys, or offshore islands like the Bahamas. While such a service would likely have only a limited relationship to the Intracoastal, it nonetheless could provide an economic and transportation enhancement for the County.

The Port of Palm Beach has provided high-speed service to the Bahamas in the past; however, service was discontinued due to operating costs and demand.
Inlets, Canals, and Rivers

Palm Beach County is home to four inlets; however only the Lake Worth Inlet (also known as the Palm Beach Inlet) is a federally maintained inlet. This means the USACE is responsible for the maintenance and navigability of this inlet. This inlet provides access to the Port of Palm Beach among other recreational destinations. The other three inlets, Jupiter Inlet, Boynton Inlet, and Boca Raton Inlet are primarily used by recreational boaters. These inlets are not regularly maintained by the USACE and conditions vary. Boaters without “local knowledge” are cautioned to avoid these inlets. Due to strong currents and changing wave action, many are very dangerous to navigate and in some cases are not navigable.

Canals and rivers in Palm Beach County provide boaters access to natural resources and carry little, if any, commercial traffic. These canals and rivers flow into the ICW providing recreational boaters connectivity to the waterway. These canals and rivers are monitored for environmental impacts of water flow and personal use of the waterway by environmental agencies. In addition, some have questioned or proposed expanded use of some of these to provide services such as inland marinas and dry docks, especially during bad weather. These interconnections are illustrated on the following page.

Port of Palm Beach

The Port of Palm Beach is the largest water-related transportation hub along the 43 miles of ICW in Palm Beach County. It is a multi-niche port housing break-bulk (lumber and steel), bulk and dry cargo (asphalt, cement, molasses, sugar, and fuel oil), containers (twenty foot equivalent units [TEUs]), and cruise (single-day) services. In Fiscal Year 2007, according to the Port of Palm Beach, it handled 109,113 tons of break bulk cargo; 1,933,345 tons of bulk and dry cargo; 257,507 TEUs; and 566,408 cruise passengers. All cargo and cruise passengers
pass through the ICW via the Lake Worth Inlet en route to the Port. The Port traffic is forecasted to grow by 3.5 percent annually through 2015.

The Port has constrained water, terminal, and landside access. A series of channel, turning basin, and berth improvements are planned, as illustrated on the following. A new warehouse is under construction to increase the storage capacity on land. Also, the South Gate project will provide a new gate complex, which will enhance port access and shift internal/external traffic for smoother flow. In addition, there are rail improvements planned, the inlet dredging project is moving forward, and the final segment of SR 710 is being studied to reconnect the east/west corridor with US 1. In addition, the possibility of an inland port in western Palm Beach County offers the potential for additional off-site storage for the Port, which is unable to expand at its current location in Riviera Beach due to agreements with the City of Riviera Beach.

The Intracoastal provides access to four ocean inlets in Palm Beach County, including Jupiter, Lake Worth (in Riviera Beach), Boynton Beach, and Boca Raton. To the west, the ICW also is interconnected to a series of canals and rivers, as indicated in the aerials above.
The Megayacht Industry

South Florida is home to one of the most well developed megayacht industries in the world. This is highlighted annually by a boat show that draws all major yacht manufacturers and serves as one of the largest economic stimulus activities for the region. While some of the largest yachting centers are located in Fort Lauderdale and Miami, Palm Beach also is home to a growing service and storage industry related to these 100-foot-plus luxury vessels. In order to serve this industry, appropriate waterside and landside infrastructure elements must be in place. From the waterside, minimum water depths and berthing areas are critical. In some areas, the current conditions of the ICW do not provide the appropriate depths. In addition, even when the channel itself provides the necessary depth, water from the channel to the berthing areas is not always sufficient. In this instance, it is typically the responsibility of the private service operators to maintain and deepen their access routes.

In Palm Beach County, the established megayacht service areas are located in close proximity to the Lake Worth Inlet, surrounding the Port of Palm Beach to the north and south. During the charrette, participants emphasized the opportunity to reconsider this area as “megayacht mile,” an intentional variation on Broward County’s “marina mile” which is the main source of competition for this industry niche. Due to ICW conditions in this area, vessels accessing the southern service centers are forced to use the eastern-most part of the waterway outside of the official channel, as illustrated in the image to the right. Businesses based in this
As illustrated on the map above, the success of a “megayacht mile” in Palm Beach County depends on deepened access routes for these 100+ foot boats to access the upland.

From an economic standpoint, maintaining and expanding yacht service facilities is critical. This industry caters to the wealthy – that is, those that are less impacted by downturns in the economy. The economics of the megayacht industry and its implications for the ICW and Palm Beach County are discussed in detail in Chapter IX (Sustainable Economics). Based on the findings in this study, this industry could provide significant contributions to the economy of the county and region if it is able to expand and become sustainable.
**KEY FINDINGS AND RECOMMENDATIONS**

This section details the key findings and recommendations developed as a result of the analysis of water-based transportation issues described in this chapter.

**Support and Establish a Water Taxi System**

- Conduct further analysis to determine potential demand, market, headways, operating speeds, and optimal water taxi stop spacing for system efficiency and effectiveness.
- Determine appropriate balance of origin and destination stations.
- Integrate water taxi stop locations within marina villages.
- Evaluate stand-alone water taxi stop locations.
- Promote transit-supportive land use activity at water taxi stop locations, including appropriate mix of uses, building placement, visibility, intermodal access, and natural surveillance.
- Promote coordination among water taxi operators regarding schedules, rates, and service characteristics, especially for special events.
- Coordinate water taxi stops with upland transit network where possible.
- Consider establishing water taxi organization to provide common marketing and promotions; standardized schedules, routes, and fees; and expanded awareness.
- Expand appropriate County and agency web-sites (e.g., interface within Tourist Development Council and Convention and Visitors Bureau sites to include descriptive overview of water taxi services and reference links to operators).

**Evaluate Potential for a New High-Speed Ferry Service**

- Analyze key routes for potential high-speed ferry service, including Fort Lauderdale, Miami, the Florida Keys, and the Bahamas.
- Encourage the Port of Palm Beach to solicit ferry service providers to develop new service at the Port.

**Increase the Number and Size of Boating Facilities** (cross-reference with Chapter IV Public Access)

- Maximize efficiency and effectiveness of existing public boating facilities.
- Add staging docks at boat ramps to increase utilization.
- Maintain operations of existing public marinas via incentives, public/private partnerships, and efficiency improvements.
- Expand public marinas where possible with additional wet slips and dry storage.
- Add day docks in public parks to expand access by boaters.
Expand and Strengthen the Marine Industry

- Develop better measures of marine industry in Palm Beach County.
- Protect existing marine industrial uses with incentives.
- Encourage County and local governments to adopt “no net loss” policy to protect existing marine industrial uses.
- Investigate potential for establishment of “megayacht mile” in Riviera Beach/West Palm Beach.
- Support dredging inlet and channel in Riviera Beach to support working waterfronts, particularly megayacht service providers.
- Encourage proper transitional land uses and patterns be established adjacent to working waterfronts to improve land use relationships.
- Support location of complementary technical and mechanical uses in upland areas to support working waterfronts.
- Integrate workforce housing proximate to working waterfronts to increase sustainability.

Support Expansion of the Port of Palm Beach

- Encourage completion of on-going projects, including warehouse construction.
- Continue to evaluate off-site freight distribution improvements, such as the Inland Port, to increase efficiency of Port operations.
- Support the dredging of the Lake Worth inlet and channel to improve Port operations.
- Continue to work with the City of Riviera Beach, FDOT, and Palm Beach MPO to refine landscaping and detailing of SR 710 expansion project.

Preserve Existing Public Marina and Marine Industrial Space (refer to Economics chapter)

- Support adoption of “no net loss” policy among local governments for protection of marine industrial uses.

Support the Removal of Derelict Vessels

- Encourage the identification of ownership, removal of derelict vessels, and proper fines for owners to improve navigation, reduce environmental hazards, and improve aesthetics of the Intracoastal.

Improve Inlet-Intracoastal Coordination for Dredging, Maintenance, Permitting, and Funding

- Identify maintenance and enhancement projects within five- and ten-year windows to derive opportunities for efficiencies and economies of scale among inlet and Intracoastal operations.
- Coordinate permitting and funding applications to create County-wide (or regional) approach to permitting and funding agencies for appropriate projects.
Recreational use of the Intracoastal occurs in many different forms. In addition to the boating activities that occur within the waterway (both motorized and non-motorized), the waterway and its environs attract other users that fish, swim, wade, snorkel, waterski, use personal watercraft, and simply walk along the water’s edge. While most of these non-boating activities occur outside the Intracoastal boundaries, they nonetheless are associated with the Intracoastal due to their proximity to the waterway.

The Intracoastal includes a variety of settings for recreational activities, including both natural and man-made areas, in-water locations as well as upland. Today’s Intracoastal exists as a man-made channel that traverses a series of natural water bodies, expanding the role of the waterway for eco-tourism and nature-based recreation. Therefore, the broad recreational usage of the waterway includes pedestrians strolling along the shoreline on wooden riverwalks as well as kayakers seeking access to environmental preserve areas along the waterway or venturing to spoil islands enhanced with native vegetation and oyster habitat.

Charrette participants were enthusiastic about the expansion of recreational activities in and along the ICW, placing particular emphasis on eco-tourism and nature-based recreation as areas for future program development and investment. Spoil islands, their restoration, and increased access for recreational users emerged as a strong point of consensus, with the successful Peanut Island and Snook Island projects as highlighted examples. In addition to discussion of these issues, this chapter also provides key findings and recommendations. Readers should also refer to Chapters IV (Public Access) and V (Protection of Natural Resources) for additional discussion of these issues.
RECREATIONAL OPPORTUNITIES AND ECO-TOURISM

In addition to the movement of freight, recreational activity along the Intracoastal is perhaps the most visible use of the waterway. Recreational activity takes many forms, including both motorized and non-motorized watercraft; personal watercraft; and individual use of the water by anglers, swimmers, waders, and sightseers. Recreational activity occurs in all types of environments, both man-made and natural, on the water as well as on land. By contrast, eco-tourism activities occur by definition in natural areas characterized by significant natural beauty or biodiversity. While most forms of eco-tourism can be defined as recreation, not all forms of recreation can be classified as eco-tourism. The Intracoastal itself is a man-made channel that was dug through a series of natural water bodies, providing access to eco-tourism destinations. During the charrette, participants emphasized a desire to expand both forms of activity on and along the Intracoastal. Recreational facilities are discussed at great length in Chapter IV (Public Access); therefore, this chapter focuses more generally on eco-tourism, including ecotourism destinations, appropriate recreational activities related to eco-tourism, and related recommendations. Additional details regarding eco-tourism are also contained in Chapter V (Protection of Natural Resources).

For the purposes of this report, “eco-tourism” is generally defined as a form of tourism in undisturbed areas with strong natural beauty or biodiversity that strives to minimize ecological impact or damage. Charrette participants were highly enthusiastic about the concept of eco-tourism, wanting to promote eco-tourism as a way to diversify the economy, expand public access to the ICW, and educate the public about the County’s natural resources.

The distinction between natural areas and man-made ones is set forth in the introduction to this chapter. Much interest was focused on spoil islands, like Peanut Island, as well as restoration projects like Snook Island. Although these facilities are man-made and technically may not fit into the definition of “eco-tourism,” islands such as these can become important and contributing components of the natural environment if enhanced to support native species and the well-being of a natural system. In the eyes of the general public, man-made spoil islands with proper vegetation and detailing are attractive destinations for fishing, hiking, swimming, and canoeing/kayaking in a manner that celebrates their biodiversity, whether it is emerging with new plantings or has been established over decades. For the
purposes of this report, eco-tourism will be used to include both naturally occurring features and as well as features that are and could be brought up to a standard to support native biodiversity and enhance natural systems.

Importance of Eco-tourism

Eco-tourism provides benefits to many different types of users and entities. Providing enhanced opportunities to enjoy and celebrate natural environments is a quality of life consideration for many residents and visitors to Palm Beach County. This access must be balanced such that the human appreciation of these systems does not overwhelm them. Eco-oriented visitors can augment the County’s ongoing tourism efforts, diversifying the local economic base by utilizing existing resources to attract visitor dollars. Educational efforts can easily be integrated into eco-tourism programs and settings, creating stewards and advocates with a broader knowledge base to further protection and enhancement activities. Building on national and international trends, environmentally-sensitive “green” technologies and industries in the County can complement eco-tourism development by providing hospitality, goods, and services that correspond to the mindset of these visitors. The combination of these approaches, with adequate balance and progressive planning, can enable Palm Beach County’s portion of the Intracoastal to become a unique destination within the State.

Eco-tourism has less impact on a site with activities...
RECREATIONAL OPPORTUNITIES AND ECO-TOURISM

such as camping, fishing, swimming, and observing. The facilities are generally designed minimize ecological impacts. In contrast, non-eco-tourism activities can create more impacts such as jet skiing destroying seagrasses, wakes created by fast boats with water skiers or hydro-sliders, or inappropriate intrusion into environmentally sensitive areas.

The Intracoastal provides access to a number of interesting eco-tourism sites. Many of the upland destinations are natural sites that have never been developed. Other sites, particularly spoil islands, have become eco-oriented destinations due to their natural systems, and they are only accessible by water. Most of the sites are publicly owned by various local, state, and federal agencies. The agencies have different rules regarding public access, and access is not permitted on all sites. For example, the USACE which controls Munyon Island does not allow overnight guests on its properties, thereby prohibiting camping activities.

The different sites along the waterway vary in function and features. Shoreline improvements provide erosion control and/or habitat for fisheries, seagrass, and oyster beds. Other inland areas provide stormwater filtering and/or habitat. Not all the sites may be suitable for eco-tourism. The County should work with the various agencies that own the land to identify sites appropriate for eco-tourism, work with the agencies to develop the sites, and help coordinate the efforts for promoting the sites. Wherever possible, appropriate eco-tourism sites should be incorporated with the multistate, state, regional, and local greenways and blueways efforts discussed in the Public Access Chapter.

Spoil Islands

Spoil islands in the ICW emerged in the early 1900s as depositories for dredged materials. Palm Beach County has completed numerous restoration projects on its spoil islands, establishing the county as a regional leader in this regard. A photo array of several County island restoration projects is depicted below. Several of these projects are discussed in this chapter to highlight their eco-tourism potential.

Peanut Island, located in Riviera Beach, is likely the best-known and most popular spoil island in Palm Beach County and perhaps the region. This island was created with dredged materials from the Lake Worth Inlet, which helped propel the Port of Palm Beach into an international shipping port. During the Kennedy presidential administration, bunker facilities were developed on the island, and over time, the...
Coast Guard used the island as well. Once public access became possible, visitors began using the island for boating and informal camping.

For nearly two decades, Peanut Island was the subject of potential restoration and enhancement by a variety of entities, including the Riviera Beach Community Redevelopment Agency, the Port of Palm Beach, Palm Beach County, and FIND. Active restoration designs began in the late 1990s, and by the early 2000s, the County’s DERM took the lead in the multi-year, $13 million project. Today, Peanut Island has grown from its original 10-acre footprint to an 80-acre island, offering a natural shoreline for boaters and swimmers, formal camping, snorkeling, volleyball, trails, and a boardwalk. Water taxis provide access to those without boats. The project also restored habitat, adding an environmentally-focused lagoon, oyster habitat off-shore, and native vegetation on the upland. In addition, to continue its important role in navigational assistance, accommodation for

Local kayakers and commercial eco-tourism ventures highlight Peanut Island as a highly desirable destination.

Peanut Island’s restoration projects include shoreline enhancement, native vegetation, and the creation of the inland cove (pictured above) for snorkeling and enjoying the marine setting.

Peanut Island’s inland cove is fed directly from the lagoon, as depicted in the photo above.

Boaters from Palm Beach County and the Region flock to Peanut Island on weekends, especially holiday weekends such as the scene pictured above.
future dredge materials was maintained on the island as well.

The Peanut Island project has proved to be a successful and popular destination as depicted in the images of the Island’s visitors. This is at least a partial indication of the demand for similar facilities in the area.

Further north in the Lake Worth Lagoon is Munyon Island, a recently completed restoration project. Originally a natural island, Munyon was expanded from 15 to 45 acres, with its wetlands filled with dredged material during the 1930s and 1960s. Wetlands and habitat have been restored with the excess dredge material being used to fill a dredge hole. Munyon Island is a popular destination for canoers, kayakers, and anglers. Initially, it was envisioned with camping facilities, but the USACE will not allow overnight guests.

The Intracoastal Waterway and the natural water bodies that surround it include dozens of natural and spoil islands. To expand the eco-tourism opportunities afforded by these facilities, special efforts should be undertaken to appropriately amenitize these islands when restoration projects are designed. In particular, charrette participants emphasized their desire for camping facilities, staging areas, and educational kiosks. Improvements such as these can be constructed with renewable materials, with light-imprint designs. Multi-stakeholder discussions should be conducted to identify and prioritize these opportunities.

**Dredge Hole Restoration**

Dredge holes are locations in the ICW where muck and sediment collect yet are too deep for sunlight to penetrate. No vegetation is able to grow in these holes, and therefore, the holes become “dead zones” in the waterway. Dredge holes offer the opportunity for environmental restoration and eco-tourism. Once the sediment can be capped, materials from dredging can be used to fill the hole. Rocks and native vegetation provide suitable habitat for oysters and fisheries. A sampling of dredge holes were inventoried and analyzed as part of the Lake Worth Lagoon restoration project (see map below).

The most recent dredge hole restoration project is Snook Island in Lake Worth. Initially formed by the dredging of fill material for the Lake Worth public golf course, the Snook Island project involved the
filling of these off-shore holes and subsequent creation of islands that provide new habitat in the Lagoon. This $18 million restoration project was completed by the County’s DERM with varied funding including FIND, FDEP, and Palm Beach County. Four mangrove islands and three shoreline mangrove planters were provided, and seagrasses and oyster beds have begun colonization. The mangroves will help prevent shoreline erosion. Current plans include an extension of a riverwalk from the old Lake Worth Bridge to the southernmost island, and charrette participants suggested further interconnections to other islands as well as rustic camping sites and educational kiosks.

Charrette participants encouraged the County to pursue other opportunities for using dredge holes to create eco-tourism opportunities. A strong opportunity for a subsequent restoration effort lies north of Snook Island in West Palm Beach. DERM has already begun design concepts for the South Cove restoration project, which is a highlighted component of West Palm Beach’s marina village. Several dredge holes exist in this area where sand was dredged to help in bridge construction. The plan is to cap the muck accumulated in the holes, fill, add rocks, and plant native vegetation. The beaches would be sandy and would offer eco-destinations for non-motorized vessels.

An expanded recreational role for Snook Island could include pedestrian connections to several islands via boardwalks and rustic camping sites (shown as wooden platforms in this image), several of which could be accessible only by canoe or kayak.
Education as a Part of Eco-tourism

Charrette participants noted the importance of environmental education as a component of eco-tourism. It is an opportunity to educate and create support for environmental efforts. By expanding the understanding of how protecting the natural environment will help protect the built environment and create improved quality of life, advocates and stewards for natural systems can be created.

Educational kiosks should be provided to explain how environmental detriments such as dredge holes and spoil islands became environmental benefits. A system of educational kiosks could be installed in key locations to create a self-guided eco-tour of the ICW.

Sustainable Technology

Charrette participants requested that ICW projects use sustainable and green technologies and designs. In the short-term, this will maximize the potential for eco-tourism and other tourist activity and minimize its impacts. In the long-term, sustainable materials and green technologies tend to produce energy savings as well. Charrette participants strongly emphasized their desire for Palm Beach County to position itself as a leader of sustainable planning and practices, a characteristic that will complement the County’s potential eco-tourism development. Examples discussed during the charrette included renewable materials, rustic camping sites on spoil islands, down-lighting to accomplish “dark skies,” and native landscape materials and xeriscape.
KEY FINDINGS AND RECOMMENDATIONS

Palm Beach County has a number of excellent, on-going programs that are addressing and enhancing eco-tourism and recreational opportunities in and along the Intracoastal. This report recommends continued support for these programs. In addition, the charrette noted the public’s strong desire for expanded eco-tourism amenities in conjunction with habitat restoration and enhancement projects, which may require special inter-agency discussions. Palm Beach County has a wide variety of stakeholder entities interested in eco-tourism, including a growing commercial base of these providers, and efforts should be undertaken to establish a broader dialogue related to this issue. The following specific recommendations are noted:

Support Habitat Restoration and Enhancement Projects

- Continue to support spoil island restoration projects like Peanut Island and Munyon Island to create habitat enhancement, fisheries, and public access where appropriate.
- Continue to support dredge hole restoration projects like Snook Island to create habitat enhancement, fisheries, and public access where appropriate.

Expand Eco-Tourism Amenities in Conjunction with Habitat Restoration and Enhancement Projects

- Initiate inter-agency dialogue with permitting and regulatory entities to explore appropriate camping, staging, public access, and informational amenities to be considered with habitat restoration and enhancement projects, particularly spoil island and dredge hole projects.
- Expand knowledge of light-imprint designs and renewable materials appropriate for environmentally sensitive areas.

Broden Eco-Tourism Marketing and Promotional Efforts

- Support the on-going eco-tourism efforts of the County’s Convention and Visitors Bureau.
- Develop inventory of eco-oriented commercial vendors in the County.
- Enhance existing public interfaces that provide information regarding eco-tourism destinations, on-going restoration efforts, agency information, and commercial vendors.

Position Palm Beach County as a Leader in Sustainability and Green Technology

- Require eco-tourism improvements be designed for sustainability and constructed with green technologies.

Expand Environmental Education Efforts

- Consider development of an environmental education kiosk series to be established in eco-tourism destinations.
The interface between the waterway and the upland is among the most important aspects of the usability, access, and celebration of the ICW. In addition to individual waterfront uses, this interaction can be captured in a series of marina villages along the ICW, which was a strong recommendation in the charrette. These key waterfront destinations vary in size, theme, and context, which is important to allow each to be successful individually. In addition to these villages, a series of key waterfront destinations can function as water taxi stops, providing additional connectivity between the upland, the waterway, and the transportation network. Collectively, these varied waterfront destinations represent a system of access and activity along the ICW that, with proper planning and connectivity, can provide great benefit to residents, business and property owners, and visitors to Palm Beach County.

This chapter provides a detailed overview of each of the eight marina villages identified in this report. Five projects were on-going efforts at the initiation of this analysis (Jupiter, Riviera Beach, West Palm Beach, Boynton Beach, and Delray Beach), and three additional marina village opportunities were identified during the charrette (Palm Beach Gardens/North Palm Beach, Lake Worth, and Lantana). Each of the eight is analyzed regarding current conditions, planned improvements, and regulatory condition. In addition, more than a dozen recommended water taxi stop locations are analyzed for access, ancillary development, and visibility. A series of key findings and recommendations are presented at the conclusion of this chapter.
MARINA VILLAGES AND WATERFRONT DESTINATIONS

The promotion of marina villages and a variety of waterfront destinations along the ICW was a strongly voiced desire during the charrette. This chapter provides an overview of the individual marina village projects, including project summaries, regulatory frameworks, and anticipated time frames for each. In addition, the chapter also describes those water taxi stop locations between the villages that provide compelling and supportive waterfront destinations.

Palm Beach County’s historic development pattern radiated from mostly train station depot towns along the FEC Corridor, generally within a quarter-mile of corresponding settlements along the ICW. These historic enclaves evolved into full-service municipalities over the past century, with most of these waterfront communities reaching initial peaks in the 1960s, before Palm Beach County’s westward development wave began. Subsequently, as sprawling land development patterns shifted new development capital towards western raw land, many waterfront communities with historic downtowns began to decline, losing investment and population to new inland settlements in Palm Beach County and other locations in the State of Florida. The State recognized this trend in the 1970s, with the adoption of initial growth management legislation, and by the 1980s, aggressive community redevelopment legislation was adopted into Florida Statutes. Most of the ICW “marina villages” identified in this report have embraced community redevelopment initiatives. Further, given the preponderance of existing development along the ICW today, it is likely that additional marina villages that emerge over time will likely correspond with redevelopment efforts.

The concept of creating an interconnected series of marina villages along the ICW in Palm Beach County emerged indirectly through the development of the 21st Century Palm Beach County Strategic Economic Development Plan. Lauded as an enhancement to the County’s “quality of place,” an ICW plan was envisioned to help highlight the various cultural and entertainment destinations along the waterway with some form of water-based transit.

With the inception of the ICW planning effort, there were five local government efforts well-underway that focused upon the creation of “marina villages.” These complex waterfront redevelopment projects were located in Jupiter, Riviera Beach, West Palm Beach, Boynton Beach, and Delray Beach. In addition to these, several additional “marina village” opportunities were identified during the charrette in Palm Beach Gardens/North Palm Beach (termed “PGA 4 Corners”), Lake Worth, and Lantana. Additional opportunities on the horizon could include Lake Park and Boca Raton. While each village is unique to its context, all strongly celebrate their relationship to the ICW as a defining feature. Each of the marina villages is a bit different from the others, and according to the economic experts on the charrette team, they need to remain so to avoid oversaturating the market. In this chapter, an overview of each marina village is presented from a planning standpoint, including key project features, land use characteristics, regulatory framework, and timeframe. Several on-going marina village efforts are also analyzed from an economic perspective in Chapter 9: Sustainable Economics.

The “marina villages” concept is complementary to...
As indicated in the map above, there are eight marina villages identified in this report, all of which are located along the ICW in Palm Beach County. Other marina villages may emerge over time, and the likely new marina village opportunities are identified in the narrative of this Report.
the notion of a County-wide water taxi system, and the taxi stop network extends beyond the boundaries of the eight villages. This chapter also includes identification and analysis of the various water taxi stops identified between the villages. Similar to upland transit, the land use/transportation relationship, easily characterized as “transit-oriented development” (TOD), is critical to the success of any transit network. Accordingly, each of the villages and each of the additional water taxi stop locations (existing, pending, and recommended) are analyzed for TOD characteristics. These lists are not exhaustive; rather, they simply represent the inventory of villages and taxi stop locations that appear appropriate given today’s knowledge. Over time, additional destinations will emerge, and each should be evaluated regarding land use and transportation, contextual relationship to its surroundings, and TOD characteristics.

All transportation networks are characterized in part by a dispersion of trip attractors and generators, and the voracity of key destinations are especially important for transit to be successful. Each of the eight “marina village” concepts appears to represent enough critical mass in terms of uses, activity, and variety to warrant multi-purpose trips for users (e.g., shopping, dining, entertainment, lodging). As the marina villages are located in activity centers, each has good walkability, is included in the County’s transit network, and some are serviced by local trolleys as well. Any of these eight villages could support at least a half-day of activities for patrons, which should enable them to be attractive for multi-modal access (via water taxis or other transit), potentially overnight stays where hotel uses are available, generating increased economic yield. Further, corresponding to the adage “the whole is greater than the sum of the parts,” a more complex and intricate system of origins and destinations along the waterway, with a reliable and interesting transit network, should also enable each major destination to be individually more successful as well.

Jupiter Riverwalk and Inlet Village:

Heritage and Eco-Tourism

Project Summary: The Jupiter marina village is generally located along the eastern shoreline of the ICW, from the Jupiter Inlet west and south to the Jupiter Ridge Natural Area. Jupiter has a rich archeological history with Seminole War battle sites and the Jupiter Lighthouse. Jupiter also offers eco-tourism opportunities, such as the Aquatic Preserves of the South Indian River, which runs from Vero Beach to Jupiter. The ICW in Jupiter is also designated as an Outstanding Water in Florida, and the Loxahatchee River is designated as a Wild and Scenic River. The Town has recently purchased Fullerton Island but has not identified a final plan for the island.

The village is highlighted by the Jupiter Riverwalk, a 2.5-mile multi-purpose recreational corridor that interconnects a variety of public and private venues. The Riverwalk consists of three distinct sections:

The Jupiter Riverwalk plan, illustrated above, includes three distinct sections: the Inlet Village Promenade, a Waterway Entertainment District, and a Natural Area Map (from the project website).
• a “Natural Area Section,” which extends along the Jupiter Ridge Natural Area from Ocean Way north for roughly one mile;

• a “Waterway Entertainment Section,” which runs both north and south of Indiantown Road, connecting a major civic plaza below Indiantown Road, urban entertainment venues, shopping, dining, public docks, and formal public access; and

• the “Inlet Village Promenade,” which interconnects those portions south of Indiantown Road to a planned mixed-use village district fronting the ICW and its nexus with the Jupiter Inlet. The Inlet Village district maintains direct views of the historic Jupiter Lighthouse and is planned to include a mix of hotel, retail, and marine-oriented uses along with an archeological/historical center and public gathering spaces.

The Riverwalk plan graphically illustrates the three sections of the Riverwalk as well as the other major destinations in the area. A unique feature of the Jupiter Riverwalk project is its proximity to the Atlantic Ocean. The eastern shoreline of the ICW is less than one mile from the shoreline of the Atlantic Ocean, allowing users easy pedestrian access through this portion of Jupiter to the ocean’s edge.

The Town of Jupiter envisions a water taxi operation within the Riverwalk and Inlet Village, interconnecting the project with other proximate destinations (e.g., Sawfish Bay Park, which is located along the western side of the ICW, the County’s pending Jupiter Inlet Park). Regarding an ICW water taxi, the Jupiter Riverwalk’s good variety of uses and relatively high critical mass indicate potential for several water taxi stops to bring patrons into the project from other origins within Palm Beach County. In addition to its waterfront destinations and amenities, Jupiter also has a number of significant archeological and historical assets, and the portion of ICW in Jupiter has been designated as an “Outstanding Waters of the State” as well as a portion of the “Wild and Scenic Loxahatchee River.” These characteristics add to the tourism draw and distinction quality of Jupiter’s Marina Village.

Regulatory Overview: In 1998, the Jupiter Town Council adopted the US1/Intracoastal Waterway Zoning District, which provides the regulatory framework for the Town to achieve an active, livable center with a focus on public access along the waterway. The area is designated in the Town’s Comprehensive Plan with a wide range of future land use designations, including residential, commercial, conservation, recreation, and specialty “Riverwalk” designations (see Jupiter future land use map in the Appendix). Especially important for implementation, the project area is included entirely within the Town’s existing Community Redevelopment Area.

Timeframe & Costs: The Jupiter Riverwalk is a multi-phase project...
that depends on public funding as well as private development for its completion. Three phases of the Riverwalk project have been constructed and are open to the public. These include a 1,500-foot section at Mangrove Bay along with a small parking lot; a 1,000-foot section at Jupiter Yacht Club that connects Coastal Way and the marina basin; and a 1,400-foot section from Jupiter Yacht Club north, which includes a public waterfront Events Plaza, fishing platform, and parking lot below the bridge. Each of these sections provides public access to a diverse variety of natural, urban, and retail conditions along the Riverwalk.

The timing of future Riverwalk phases depend upon public funding and private development applications. Total project costs are estimated by the Town to be in the $25-30 million range, and capital improvements include construction of Riverwalk sections, public plazas, recreational amenities, water taxi stops, public docks, canoe/kayak launches, public parking, and potentially a public marina. The Town has relied on private sector participation, and the Riverwalk has become an amenity for properties abutting the facility.

More information is available on the Town’s project website: http://www.jupiter.fl.us

Palm Beach Gardens and North Palm Beach

Sawfish Bay Park, located on the western side of the ICW, will include a water taxi stop funded through the MPO to complement the Riverwalk and Inlet Village project.

The Jupiter Riverwalk has created a sense of identity along the ICW, providing an amenity for adjacent properties. This is evidenced by the signage pictured above, which denotes the location of the residential project “on the Riverwalk” on its permanent signage.
PGA 4-Corners : Restaurant/Entertainment Node

Project Summary: In Palm Beach Gardens and North Palm Beach, a marina village opportunity was identified at the intersection of PGA Boulevard and the ICW. Identified with the working title “PGA 4 Corners” during the charrette, this area represents one of the few non-residential “intersections” along the ICW that has yet to be identified as a marina village by the local government. PGA 4 Corners is located just over five miles south of the southern terminus of the Jupiter Riverwalk project, with solidly residential or public recreational land uses along both sides of the waterway between these two villages. Between Jupiter and North Palm Beach (the interface of the Loxahatchee River and the northern end of the Lake Worth Lagoon), the waterway is very narrow, measuring only 250 feet from bank to bank, versus the “wide-water” views in the natural portions of the waterway. Therefore, the planning of these areas is more delicate, and care must be taken to expand the public vistas and access made available by this small-scale marina village opportunity.

Currently, the properties that constitute PGA 4 Corners are fully developed, including four restaurants - one at each corner of the intersection (Panama Hattie’s restaurant at the southeast corner; Waterway Café at the southwest corner; Seasons 52 at the northeast corner; and The River House at the northwest corner). While three of the restaurant corners are immediately surrounded by existing residential neighborhoods, the northwest corner offers roughly 50 acres of mixed-use, including additional restaurants, retail, office, multi-family residential, and a working marina (Soverel Marina), which was recently acquired by a new marina operator who plans to renovate the facility.

The PGA 4 Corners concept introduces an opportunity to infill the existing suburban context with strategically placed buildings to help create a walkable, mixed-use district. The plan maintains the

- At the southwest corner, on the site currently occupied by Waterway Café, the plan suggests a new L-shaped building along the

The four properties within PGA 4 Corners, highlighted in green in this aerial photo, represent an untapped opportunity to create a marina village in the City of Palm Beach Gardens and Village of North Palm Beach.

This diagram illustrates how infill buildings could help improve the area with properly-placed buildings, creating an attractive, walkable environment. The infill of these buildings could also yield revenue to improve the public realm with landscaping, pedestrian features, and improved public access.
southwestern corner that could contain residential units along the canal. Small mixed-use buildings with residential, office, or small retail uses are also shown on this site to help define the edge along PGA Boulevard.

- At the southeast corner, on the site currently occupied by Panama Hattie’s, there is a significant change in elevation – at least 20 feet - from the PGA Bridge to the Panama Hatties property. This change in grade allows for a parking deck to be constructed on site, with upper-level buildings that could contain retail, office, or residential uses, constructed at the grade of PGA Boulevard and Ellison Wilson Road, improving the edge relationship of this property with its street frontage. The existing restaurant uses could remain; however, the buildings could be reconstructed to accommodate the parking deck. A multi-deck parking structure would provide sufficient parking for both the restaurant as well as the additional new uses, which could capitalize the costs of the additional parking.

- At the northeast corner, on the site currently occupied by the newest restaurant, Seasons 52, the plan suggests the infill of two smaller buildings at the corner of PGA Boulevard and Ellison Wilson Road to establish an edge for this property, improving the aesthetics of the corner and creating a more comfortable condition for pedestrians. These buildings are proposed as predominantly residential with a small amount of office at the corner of PGA Boulevard and Ellison Wilson Road.

- At the northwest corner, on the site currently occupied by The River House restaurant at the Soverel Marina, the plan suggests the retention of the existing restaurant with the expansion of the existing marine uses. Along the ICW in Palm Beach County, working waterfront uses are in short supply, and participants in the charrette strongly voiced concerns about their continued depletion. To maintain this valuable asset, the plan suggests the retention of the current working waterfront uses on the property. This includes expanding the dry storage facility to house the nearly 150 boats that are kept around the grounds. The relocation of these boats into a new storage facility would free-up a significant portion of the site for redevelopment. The charrette proposal includes new residential uses, hotel suites, marine-related services and sundries, and the continuation of a public promenade along the basin that would connect into the riverwalk.

- The restaurants operating at each of the four corners currently maintain docking facilities for use by patrons. In addition, there is a water taxi currently operating at the southeast corner. With the PGA 4 Corners, water taxi stops could be expanded to each of the four corners with increased demand from redevelopment.

There are strategic improvements necessary within
the PGA 4 Corners for the public to gain improved access to the ICW. Interconnectivity between and among properties is a critical component for successful mixed-use settings. Accordingly, there are several interconnections that could be created to enhance the success of the PGA 4 Corners. It appears there is sufficient room to formally interconnect the northern properties with the southern properties below the bridge span. Patrons currently walk between the properties and, with formalization of this space, the properties could be better and more safely interconnected, with the most available room on the western side of the ICW. In addition, the PGA bridge touchdowns limit the ability for pedestrians to access these corner properties. To improve access, the bridge could be improved with tower staircases, leading from the potential riverwalks below, up and over the bridge. These tower features could improve the appearance of the bridge itself, and the added pedestrian circulation would improve pedestrian access to the ICW, strengthening the connection of the waterway to users in the area.

**Regulatory Overview:** The PGA 4 Corners concept is a new idea that emerged in the charrette. Discussions with several property owners indicated interest in furthering the concept. The properties currently are within two jurisdictions (three in the City of Palm
Beach Gardens with Panama Hattie’s restaurant in unincorporated Palm Beach County), but all are assigned Commercial future land use designations (see 4 Corners FLU map in the Appendix). There are a variety of regulatory mechanisms the City and County could utilize if they wish to pursue the PGA 4 Corners concept. These include development of a marina village master plan; creation of a specialty overlay zone (e.g., marine/waterfront overlay zone); establishment of a special district for land development; and financing to capture revenues generated through redevelopment to reinvest in public amenities for the district. It should be noted that for this project to be successful, careful regulation will be necessary to ensure buildings front the ICW as well as the roadway, and a high degree of architectural detail. Materials should be reflective of the waterfront location of the project.

**Timeframe:** The properties identified for potential redevelopment into the PGA 4 Corners concept are all privately owned; therefore, the implementation of this concept relies on private interest in the concept. If the City of Palm Beach Gardens and Palm Beach County want to establish the types of regulatory mechanisms suggested in this report to encourage and incentivize redevelopment, it is likely a twelve- to eighteen-month timeframe would be necessary to develop and refine a master plan, comprehensive plan amendments (if needed), overlay zone, and special district designation. The public amenities envisioned for this marina village could include pedestrian facilities, public plazas, riverwalk sections, and improved public dockage with water taxi docks. Cost estimates would require more detailed planning and financial analysis.

**Riviera Beach Marine District:**

**Redevelopment Mixed-Use Marina Village and Working Waterfront**

**Project Summary:** In October 2007, the TCRPC was requested to conduct a charrette for the Riviera Beach Community Redevelopment Agency’s (CRA) existing plan. For a variety of reasons, the implementation of the existing CRA plan (known as the Inlet Harbor Plan) had come to a halt. During the charrette, the portions of the Riviera Beach waterfront south of Blue Heron Boulevard were named “Marine District North,” and “Marine District South.” A major component of the CRA plan, and indeed a significant asset to the community, is the city-owned Riviera Beach Marina and adjacent Bicentennial Park, both of which are in the Marine District South area. Although the marina needs repair and Bicentennial Park has been neglected over time, together they represent an enormous opportunity for marine- and community-related redevelopment. The Citizens’ Master Plan developed during the 2007 charrette
MARINA VILLAGES AND WATERFRONT DESTINATIONS

Riviera Beach’s “Marine District North,” as illustrated above, highlighted public accessibility to the water as a key feature in this mixed-use urban redevelopment area. The image to the right illustrates the areas available for marine industrial uses (highlighted in purple).

illustrates a detailed plan for this area. Key features include a refurbished Bicentennial Park, a public promenade along the water’s edge facing Peanut Island, new wet and dry boat storage, marine-related services and retail, restaurants and shops, residential units, and structured parking. Linking the existing community to these amenities through existing public streets and vistas was paramount to the design of this area. Additionally, the design team looked to very compact, urban waterfronts found in Europe as precedent for combining this great variety of uses in a world-class manner.

The Marine District North area (from 17th Street north to 22nd Court) includes the new Moroso boat slips being developed by Palm Beach County as well as the Rybovich Marina. Like the Marine District South, a detailed plan was created to ensure compact, multi-use, urban redevelopment that ensured connectivity of streets and public accessibility to the water.

Regulatory Overview: The Riviera Beach marina village is within the City of Riviera Beach CRA area. Currently, the statutory CRA plan is being revised to reflect the findings and recommendations of the 2007 charrette, with adoption anticipated in 2009. Concurrently, the City is amending its comprehensive plan and Land Development Regulations as well to implement the 2007 charrette plan, with completion of these documents anticipated in 2009 as well (see Riviera Beach FLU map in the Appendix for current
designations). In all of the waterfront redevelopment scenarios created for Riviera Beach, there was a no-net-loss approach to working waterfront use. Instead, special emphasis has been placed on the addition of uses to the existing working waterfront designations and design them to be compatible.

**Timeframe:** The completion of the Riviera Beach marina village is a multi-year, multi-party effort that will occur with small and large projects. By 2009, all the City’s regulatory documents should be amended, including portions of the financing mechanisms, to allow the project to be implemented. Recently the CRA issued a Request for Qualifications (RFQ) for the redevelopment of the Riviera Beach Marina, the refurbishment of Bicentennial Park, and development of surrounding areas. The CRA is currently in negotiations to select an applicant for this effort. Ultimate buildout of the marina village plan will be dependent on the success of the project’s first phase (subject of the RFQ described above); the recovery of the residential and financial markets; and residual demand for new and redeveloped uses along the waterfront. These factors will likely require a twenty-year buildout for the project.

**West Palm Beach:**

**Waterfront Commons Public Celebration, Recreation, and Cultural Node**

**Project Summary:** The West Palm Beach City Commons project is one of the more ambitious public waterfront improvements along the ICW in Palm Beach County. It entails a significant reconstruction of the mile-long waterfront edge of the City that is envisioned to become a unique, world-class destination. As noted in the City’s description of the project, the Waterfront Commons is intended “to create a masterwork that is an ideal marriage of culture, art and design that will change the dynamic of our city forever.”

The focus of this marina village is enhanced public space along the water’s edge that would interconnect upland historic downtown West Palm Beach, which is already a successful, walkable, mixed-use setting, with an elaborate series of public amenities that capitalize on the wide-water views in this portion of the Lake Worth Lagoon. The core improvements would occur between Banyan Boulevard and Fern Street, with a promenade extending south to Okeechobee Boulevard. A marina village in West Palm Beach offers especially compelling opportunities for transit, as the City is currently a multi-modal hub, with Tri-Rail, Amtrak, Greyhound, Palm-Tran, an internal City trolley, and regularly scheduled water taxi service.

Key project components include the following:

- Creation of a vast “City Commons” public

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**West Palm Beach’s Waterfront Commons project envisions a substantial public space where Clematis Street terminates at the water’s edge, with a mile-long promenade interconnecting a variety of public spaces and access points along the ICW.**
plaza, with terracing, public pavilions, public plazas, limited concessions, and a “great lawn” as a setting for public events, festivals, and concerts.

• Reconfiguration of the four-lane Flagler Drive west to create a sizable green space on the water’s edge.

• Enabling a public vista of the waterfront’s mile-wide views from Clematis Street through the Centennial Park interactive water fountain by “uncorking the bottle” with the removal of the current public library building.

• Establishment of a mile-long public promenade along the ICW for pedestrians and bicyclists, with highly detailed landscaping, lighting, rest areas, public art and interconnections with upland parks and plazas.

• Flexible performance spaces.

• Extensive public art and carefully detailed landscaping areas and water gardens to create multi-sensory experiences for users.

• Installation of three new public day docks that could accommodate water taxis and public use, with one of the docks designed as “park space” over water to accommodate people and special events on the dock itself.

• Re-creating a public beach and addition of related recreational activities (e.g., canoe/kayak and paddleboat rentals, cabanas, sand sports).

• Creation of an environmentally-focused “South Cove” area with a pedestrian arboretum, Trinity Park (a passive park) and the potential addition of several man-made tidal islands and artificial reefs with dredge hole restoration similar to Snook Island.

**Regulatory Overview:** The West Palm Beach Waterfront Commons is entirely within the West Palm Beach City limits, and the project is identified in the City’s Downtown Master Plan, Comprehensive Plan, Downtown/City Center CRA Plan, and supported in the City’s pending land development regulations. The project entails substantial permitting with the various regulatory agencies to enable the modification of the sea wall, construction of the beach, dredge hole restoration.
and island creation, and dock construction. Additional coordination will be necessary with Palm Beach County, the Palm Beach MPO, and FDOT to enable the reconstruction of Flagler Drive.

**Timeframe:** The West Palm Beach Waterfront Commons is currently under construction. Two of the three City docks will be completed by February 2009. It is anticipated that the balance of the project will be substantially complete by December 31, 2009.

Total design and construction estimates for the project are $29.5 million. $20.5 million in funding has been appropriated through CRA bonds. In addition, the Waterfront Commons project has approximately an additional $9 million in grant awards or other funding from FDOT, FIND, SFWMD, MPO, and Show Management Group on behalf of the Palm Beach Boat Show.

More information is available on the City’s project website:
Located along the proposed promenade is the County’s South Cove Restoration Project, which would fill dredge holes to create islands similar to the highly successful Snook Island project in Lake Worth.

The proposed South Cove Restoration Project, illustrated in the images above and below, would create a new habitat in the Lagoon, replacing current dredge hole “dead zones” and creating an environmental amenity with access limited to canoes, kayaks, and small, shallow boats.

Fulfilling a very strong charrette sentiment, the proposed South Cove restoration project would replace an environmental negative (dredge holes) with an environmental positive (islands of native materials), creating a public amenity for recreation and eco-tourism that also provides immediate and direct environmental benefit for the Lagoon.
Lake Worth - Jewel Cove: Eco-Tourism and Public Recreation Node

Project Summary: Lake Worth was the location of the second new marina village identified in the charrette. While the other marina villages tend towards urban activity, Lake Worth and West Palm Beach tend towards a more recreational edge along the ICW. Uniquely, the City of Lake Worth controls most of the property fronting the ICW in the vicinity of the Lake Avenue Bridge, including the old Lake Worth Bridge (converted to fishing piers on both sides of the waterway) along with the Lake Worth Municipal Golf Course and Bryant Park. The public lands along the ICW under the City’s control are highlighted in green in the City of Lake Worth map. These areas are envisioned as a new marina village, “Jewel Cove,” carrying forward the City’s original name (Jewel) from the early 1900s.

Lake Worth is a community known for its somewhat bohemian downtown and culturally diverse community. The central spine of the core city, running east/west from Dixie Highway to the Lake Worth Bridge, contains a beautifully restored historic downtown with public buildings and plazas, bound by a pair of one-way streets (Lake Avenue runs eastbound while Lucerne Avenue runs westbound). Interestingly, Lake and Lucerne Avenues interconnect Palm Beach Community College (west of I-95), traverse through a heavily populated residential and mixed-use district, bound the historic downtown, and ultimately terminate at the Lake Worth Bridge, which provides a direct connection to public beach access and a public pool. The area is well-populated with bicyclists and pedestrians, and the fine grain of local streets combined with the urban pattern of buildings and spaces makes Lake Worth a highly pedestrian-friendly setting.

Lake Worth is also a community well-serviced by existing and planned transit. The Lake Worth Tri-Rail station is located on Lake Avenue, an FEC station is planned at Lake/Dixie Highway, and Dixie Highway, which carries Palm-Tran’s busiest bus route, parallels the ICW roughly a half-mile to the west. Until recent budget cuts, the City also historically operated a local trolley, which may be resuscitated in a form of expanded Palm-Tran service in the future to meet the City’s high transit needs. In sum, the easy interconnectivity for residents, downtown patrons, and college students to access both the ICW as well as the ocean is unparalleled in Palm Beach County.

During the charrette, it became clear the central core of the City of Lake Worth provided for a significant destination along the ICW. In addition to the City’s forward-thinking preservation of its considerable waterfront, the City also maintains portions of the original Lake Worth Bridge for public access and fishing. The waters off the coast have also become home to Snook Island, a component of the County-led restoration effort to restore the Lake Worth Lagoon. Completed in 2008, Snook Island is an environmental enhancement where off-shore dredge holes (created when the Lagoon was dredged to form the golf course) were filled, allowing the formation of islands, installation of rock materials for oyster habitat, and planting of native vegetation (chiefly mangroves). In this effort, Snook Islands have
converted dredge hole “dead zones” into an environmental amenity with habitat quality for the Lagoon as well as eco-tourism destination.

The presence of the Snook Island project and its success evolved into a marina village theme for Lake Worth as an eco-tourism and recreational jewel along the ICW, hence the name “Jewel Cove.” As highlighted in the photo to the right, the areas both north and south of the Lake Worth Bridge are recommended for improvement and expanded public access. Each of these areas is detailed below.

- At the northwest portion of the “Jewel Cove” marina village is the Lake Worth municipal golf course, abutted to the east by the Snook Island restoration project (highlighted in blue). The remnant portion of the old Lake Worth bridge is scheduled for restoration, with the addition of an elevated boardwalk to bring users around the end of the pier to the southernmost Snook Island.

As has been noted in this charrette report, there was very strong interest expressed by the public during the charrette regarding the expansion of opportunities for recreational access and eco-tourism. Accordingly, Snook Island is one of the typical restoration projects for which expanded public access is recommended. As illustrated in the images in this section, the ICW Plan recommends the installation of rustic camping platforms in appropriate locations on Snook Island, most of which would be accessible only by canoe or kayak. These platforms, which could be managed by the City or operated on a first-come/first-serve honor system, could be constructed of natural and renewable
materials in a “light imprint” design such that no impacts upon the environmental qualities of Snook Island would occur. In addition, the image indicates an opportunity to extend pedestrian access from the remnant bridge span, past the first Snook Island, to southerly portions of the islands.

- The southwest portion of “Jewel Cove” is comprised of Bryant Park, a significant City recreational facility that includes a band shell with seating, boat ramps, playground, heart trail, pavilions, and other active recreational amenities. This quadrant of the proposed marina village could easily include a water taxi stop location.

- The northeast portion of the “Jewel Cove” marina village is the remnant eastern portion of the Lake Worth Bridge span. Currently, the span provides for approximately 80 parking spaces and an informal public access point to the ICW. Given the extreme shortage of public lands along the ICW, the eastern bridge span seems highly underutilized, offering a redevelopment opportunity to the City.

As illustrated in the image on the following page, the recommended pattern for redevelopment on the eastern bridge remnant would allow for the beautification of the site with a formal civic plaza at the western end of the bridge. This location secures the most valuable and desired portion of the bridge permanently for the public. With a pavilion and appropriate landscaping, this potential Jewel Plaza could become a desired setting for weddings and other events, with an ICW backdrop allowing desired “mile-wide” views. Adjacent to the plaza is the recommended location for a commercial venture, which could be ground-leased by the City.

Recommended uses could include restaurant and waterfront-oriented retail (e.g., bait and tackle shop, leasing of canoes/kayaks). Given the informal nature of the area, it would be recommended as a casual, open-air structure, positioned like the plaza to maximize waterfront views, with corresponding public docking facilities. Lease revenues from the restaurant could be used to construct the civic plaza, install landscaping, and otherwise beautify the remnant bridge portion. A water taxi dock could also be integrated into this site, providing County-wide
The southeast portion of “Jewel Cove” includes the most limited improvements of the four quadrants in this marina village. As illustrated in the aerial sketch above, the land area between A1A and the water’s edge is very narrow, with an apparent dredge hole located offshore. The physical facilities recommended for this portion of Jewel Cove would be geared to promote eco-tourism and recreational activity, including a relatively small structure extending from the bridge pavilion with day docks; moderately-sized buildings constructed at the immediate corner of Lake Worth Bridge and A1A; creation of an island with native planting in place of the dredge hole; and limited development otherwise. If packaged and developed in a public/private approach with the City, uses in this quadrant could share parking located due north on the old bridge remnant.

Regulatory Overview: The Jewel Cove marina village concept reinforces much of the current City and County planning and enhancement activities currently underway within the area. The regulatory directives and enhancement activities on the western side of the waterway are self-evident. The City owns and maintains the uplands on the western edge of the waterway (Bryant Park and the City’s municipal golf course), both of which have recreational future land use and zoning designations. Within the waterbody, the Snook Island project, supported by a multitude of public agencies, has been completed with additional enhancements (such as the riverwalk connection) pending.

On the eastern side of the ICW, however, more extensive work will be necessary to adjust the regulatory provisions applicable to these properties and enable their redevelopment in the manner identified in this report. The current future land use and zoning designations on the western properties are mixed-use office and recreation (see Lake Worth future land use map in the Appendix), with private
ownership of the southeast property. Ownership and access for the southeast property will need to be addressed for the recommended island to be constructed (in place of the dredge hole). In addition, additional access and an interlocal agreement may be necessary to enable the City to permit commercial use on the bridge remnant.

Generally, given the scope and magnitude of the potential Jewel Cove marina village, special efforts will need to be spearheaded by the City to establish and maintain the public/public and public/private partnerships that will be necessary for the project’s implementation. In addition to the inter-agency cooperation that will be necessary (City, County, FDOT, FDEP, and other regulatory and permitting agencies), coordination with other stakeholder entities, such as environmental groups, the boating industry, and citizens for the successful redevelopment of the sites.

**Timeframe:** Some components of the Jewel Cove concept are already underway. Snook Island was recently completed, and plans are in motion to extend a riverwalk to the southern-most island. Bryant Park, on the southwestern quadrant, is already a nicely developed waterfront park with public amenities and event space. However, the concepts proposed for the eastern side of the ICW need further analysis for their implementation. The conversion of the old Lake Worth Bridge remnant to an improved recreational
facility with limited commercial utility may require modification to the terms of ownership. In addition, the proposed riverwalk below the bridge and construction of off-shore islands will likely require several years for a lead agency to design and permit these improvements.

Lantana - “The Public Point”
Old Florida Fishing Village

Project Summary: The third new marina village opportunity identified during the charrette is the Lantana “Public Point,” located at the western touchdown of the Lantana Bridge on the west side of the ICW. The tip of the actual peninsula of land is fully public, owned by the Town of Lantana and maintained as two heavily utilized public parks and boat ramps, with adjacent commercial, mixed-use, public, and residential uses to the west. The municipal website celebrates the Town’s “old fishing village” character, and the quaint scale of the core downtown area provides a distinct feel, unlike the other marina villages described in this plan. The scale of the area is most comparable to the Jupiter Inlet Village portion of the Jupiter marina village, at the extreme northern end of the marina villages described in this chapter.

As indicated in the Town’s Downtown Master Plan concept (above to right), the future plans for the area suggest a traditional urban pattern of streets and blocks, with enhanced public activity and historic preservation at the point. Key uses identified in the plan include:

- Enhancement to Bicentennial and Sportsman’s Parks, with a maritime museum, pavilions, gardens, boardwalks, and day docks;
- Historic preservation and renovations, including reconfiguration of the Old Key Lime Fish House and retention of existing historic structures;
- Focused efforts to retain the character of existing structures in the area, consistent with an “old fishing village” theme; and
- Mixed-use blocks to the west of the peninsula, on both sides of Dixie Highway, with a potential FEC passenger transit station abutting Dixie Highway.

In its Downtown Master Plan, the Town of Lantana proposes a mixed-use, traditional infill pattern west of the peninsula, with continued public waterfront access at the tip with Bicentennial and Sportsman’s Parks. The plan image is from the Town of Lantana website.

The old fishing village theme of Lantana’s marina village is well-represented by the thatched roof of the Old Key Lime Fish House. The roofline of the newer Moorings at Lantana (mixed-use development) is visible in the background.
MARINA VILLAGES AND WATERFRONT DESTINATIONS

The Lantana Bridge provides access to the barrier island, which should provide a convenient population of affluent patrons for Lantana’s ultimate redevelopment.

Beyond the Downtown Master Plan boundaries identified in the Town’s plan, the boundaries of a marina village in this location could easily extend west to US1, which is less than a third of a mile from the tip of the peninsula. The Lantana marina village could also extend north to include The Moorings, which is a relatively new mixed-use waterfront project, and south for several blocks.

Although a water taxi stop has not yet been identified in this location, the ongoing redevelopment efforts seem to position this area as a strong candidate for water taxi service. The mix of uses, urban building patterns, and good visibility through the park properties to the ICW are characteristics that should allow taxi service to operate successfully in this location. The neighborhoods are small-scale pedestrian-friendly, with improved walkability possible through redesigns and enhancements such as those suggested in the Downtown Master Plan. In addition, a potential future FEC transit station along Dixie Highway can provide enhanced multi-modal interconnectivity for the area, along with other transit, enabling easy access to and from this destination.

Regulatory Overview: The properties within and adjacent to the proposed Lantana marina village are a mix of public, commercial, residential, and mixed-use future land use designations (see Lantana future land use map in the Appendix). The “Public Point” is owned by the Town and maintained as a public park, with additional enhancements identified in the Town’s Downtown Master Plan. The Town has also developed Downtown Design Guidelines, intended to preserve the quaint scale, genuine architecture, and mix of uses promoted in the Downtown Master Plan. Continued redevelopment per the Town’s plan, as well as the evaluation of an extended marina village district, will require additional planning analysis, which may include amendments to the Town’s Comprehensive Plan and land development regulations.

Timeframe: The Town has already developed a Downtown Master Plan, which includes many improvements that will enhance the marina village. Consideration of these and other improvements (e.g., a water taxi dock, a broader redevelopment plan) will require consideration by the Town Council for their funding and implementation.

Visible in the aerial photo above is the relatively compact area west of the “public point” which is Lantana’s core downtown area, located within easy walking distance to the park properties at the tip of the peninsula.

Boynton Beach - Mixed-Use Marina: Urban Working Waterfront and Entertainment Node

Project Summary: The Boynton Beach marina village has been a component of the City’s community redevelopment efforts for more than a decade. The Boynton Beach CRA Plan identifies a series of sub-districts within its broad 1,700 acre area. The City’s marina village is located on the western side of the ICW, between Boynton Beach Boulevard and Ocean Avenue, roughly 1.3 miles from the Boynton Beach inlet. This roughly thirty-acre area is well into its transformation into a mixed-use, family-friendly redevelopment node which capitalizes on its waterfront setting and access. Boynton Beach Boulevard includes I-95 access within one mile of the marina village, and Ocean Avenue provides a bridge crossing over the ICW to access the barrier island.
The key components of the Boynton Beach marina village include:

• Boynton Harbor Marina (formerly Two Georges Marina), which was purchased by the CRA along with an adjacent waterfront parcel. This public marina provides commercial dockage for fishing and diving, fuel docks, public plaza, marina facilities, a dive shop, public access to the ICW, and the critical opportunity for working waterfront uses to continue.

• The “Boynton Beach Promenade” project, a public, multi-agency restoration and enhancement effort that includes a significant restored mangrove preserve, stormwater enhancements, and an artistically shaded walkway to the water’s edge, seating, and passive recreational space as well as a special events venue.

• An upland environmental enhancement, Mangrove Park, which includes a stormwater retention pond, public park, and is adjacent to the mangrove preserve.

• A concentration of higher-density, multi-story mixed-use projects (some existing, some pending) which could provide several thousand residential units in the core area.

The Boynton Beach marina village includes fairly strong intermodal connectivity. The CRA operates a local trolley service with several routes, two of which utilize the marina village as a transfer location. The trolley, as well as Palm-Tran, offer connectivity to the Boynton Beach Tri-Rail station which is located several miles away. In addition, Ocean Avenue, at the southern edge of the marina village, is a potential future FEC passenger transit station, located only a few blocks from the marina village. The general area surrounding the marina village is in a state of flux, with several mixed-use redevelopment projects on hold given recent market fluctuations. When those projects are completed, the area will contain a significant population density within a relatively compact area. The roadway network is envisioned to become more urban in its appearance with taller buildings, streetscape improvements, and reconstruction (see CRA concept plan on next page).
Regulatory Overview: The entire Boynton Beach marina village project is within the boundaries of the Boynton Beach CRA, which is the lead agency for its implementation. The properties are currently designated “mixed-use” and “mixed-use core” in the City’s Comprehensive Plan, and zoning regulations permit development up to 150 feet in height and 80 dwelling units per acre, the highest permissible height and density among the seven marina villages.

Timeframe: The Boynton Beach marina project is well underway with a likely twenty-year build-out. The City’s forward-thinking acquisition of several key waterfront parcels ensures the project will contain significant public waterfront access as well as the working waterfront uses. With several private redevelopment projects recently completed, the market’s recovery will dictate the timing for the continued infill and redevelopment of private parcels to complete the urban envelope. As the development momentum moves west across Federal Highway, the Ocean Avenue parcel, which the CRA has identified as a TOD district in its Downtown Master Plan, could be catalyzed by progress on the FEC Corridor study. In this location, the CRA could partner with the property owner and/or other public agencies (e.g., FDOT, MPO) to construct a parking structure that could provide park-and-ride support for the City’s trolley, Palm-Tran, the future FEC passenger transit station, and the marina village.

More information is available at the Boynton Beach CRA’s website:

http://www.boyntonbeachcra.com/

Delray Beach: Waterfront “All America City” Urban Residential and Entertainment Node

Project Summary: Delray Beach is one of Florida’s pre-eminent redevelopment success stories, with a twenty-five history of award-winning infill and redevelopment in the City’s downtown area. Since 1985, the CRA has worked to rebuild neighborhoods, create a sustainable downtown, promote economic development, and preserve the heritage of Delray Beach. Implementing a master plan developed through the TCRPC charrette process, the City’s redevelopment efforts are broad and varied, with

Delray Beach offers a wide range of activities - retail, dining, lodging, arts, and entertainment - in its well-established downtown waterfront district. Waterfront dining in Delray Beach is pictured above.
programs and projects identified for the beach district, downtown core, and residential and mixed-use neighborhoods, both north and south of Atlantic Avenue, from I95 east to the Atlantic Ocean. Delray Beach’s renaissance is considerably advanced, and it has become a state-wide and national destination for a range of activities.

Regulatory Overview: All CRA plans, comprehensive plan policies, and land development regulations are in place and being

Timeframe: Redevelopment is underway with continued infill and redevelopment anticipated over time.

More information is available at the Delray Beach CRA’s website:

http://www.delraycra.org/

Other Key Waterfront Destinations

Interspersed between the marina villages are a series of water taxi locations, some existing and some recommended by this plan, which are considered key waterfront destinations in this report. This list is not meant to be static; rather, it is an inventory of what appears to constitute best water taxi stop locations given the public input and best available data at the time of this report. These destinations provide a mobility network to the waterway for pedestrians, bicyclists, vehicular, and transit users, enabling access to the waterborne taxi system that could interconnect the entire County. Some of these additional waterfront destinations are located within appropriate transit-supportive settings (e.g., downtown Delray Beach, downtown West Palm Beach), while others may require additional planning and design to ensure their safety and success as transit nodes. On the following page, the recommended network of water taxi stop locations is illustrated. The larger shaded areas highlight the marina villages while the interspersed taxi stop locations are denoted with varied symbols (according to their status as existing, pending, or recommended). Aerial photos of each of these stand-alone destinations are included in the Appendix.

In this section, each of individual water taxi stop locations is evaluated for its context, access, and likely functionality for transit service. As additional locations are identified over time, each should be analyzed in a similar manner to determine their appropriateness for transit use.

In the north County area, most of the water taxi stops are within the Jupiter marina village, except for Jupiter’s Sawfish Park (on the west side of the ICW) and two County parks in Juno Beach (Bert Winters Park on the east side of the ICW along Ellison Wilson Road and a proposed County park also on the east side, north of Donald Ross Road). Both of the

In the Town of Jupiter, Sawfish Bay Park offers an excellent opportunity for a water taxi stop as well as canoe/kayak launching and broad views of the Intracoastal.
The Recommended Network of water taxi stop locations includes marina villages as well as additional stand-alone water taxi stop locations. Outside the marina villages, for the interspersed stops to function safely and effectively as transit stops, careful consideration should be given to their planning and design, particularly with regards to a mix of uses and building orientation such that natural surveillance will occur in these settings.
other uses (residential, commercial) fronting the parks, neither of these settings will offer natural surveillance from a mix of uses in the vicinity of the likely water taxi stop locations. Daytime use of water taxi stops will occur concurrent with regular recreational use of these parks, offering natural safety and observation; however, after-hours use may warrant additional surveillance by municipal patrols.

Moving south along the waterway, the next stand-alone water taxi stop location is recommended within the Town of Lake Park. There are two possible locations within the Town where a water taxi stop could work; however, the Town’s small population and geography would likely warrant only one stop in this general area. The first stop to consider is the easiest to implement – the establishment of a water taxi stop at the Lake Park Marina. This municipal marina is located east of Federal Highway, at the end of Silver Beach Road, on the western shore of the waterway, and is easy walking distance from neighboring residential and commercial uses. Recently renovated, Lake Park Marina is an active marina with good visibility and natural surveillance from neighboring residential uses. The Marina is currently the subject of a redevelopment proposal, “The Wharf at Lake Park Marina,” that entails expanded marina uses as well as the addition of restaurant, retail, office, and hotel uses, which would improve the viability of this location as a water taxi stop location. The limitation in this location will be the marina’s limited parking, which is addressed by the redevelopment proposal, and additionally, users could access the site via foot, bike, or transit.

The second Lake Park location identified by charrette participants is Kelsey Park, a well-developed public waterfront park at the eastern end of Park Avenue. This park has good visibility from neighboring uses and Federal Highway, but no docking facilities presently. Park Avenue runs west, flanked by historic residential neighborhoods, to become the Town’s main street, which provides an interesting transit opportunity. During the charrette, participants suggested a trolley (or other form of transit) travelling a route from downtown Lake Park (potentially including interconnectivity with passenger transit service on the FEC rail corridor), east to a water taxi stop in Kelsey Park. As Lake Park’s redevelopment plans progress, this area could emerge as another marina village once a greater mix of uses and critical mass is achieved. These two possible water taxi stop locations are represented in Recommended Network of Water Taxi Stop Locations map.

In central Palm Beach County, the most active water taxi stops are located near Peanut Island. To the west of the island, Riviera Beach’s water taxi stop locations...
are located within the City’s marina village. To the east, Sailfish Marina’s existing water taxi stop is located within the Town of Palm Beach Shores, at an active, heavily-used, mixed-use marina.

Moving south into West Palm Beach, two park locations offer opportunities for water taxi service. The first is Osprey Park, a newer small neighborhood park located at the eastern end of 50th Street near the City’s historic Northwood district. This park has good visibility through to the ICW, and its amenities include a playground, pavilions, canoe/kayak launch, and passive features. It is embedded within a residential neighborhood, easy walking distance from several hundred homes, and has little parking. Water taxi service at this location could serve the surrounding residential neighborhoods as an origin station, but the volumes would be limited by the park’s upland access.

A second West Palm Beach location is Currie Park, a larger, active waterfront park located north of Palm Beach Lakes Boulevard. Currie Park includes the Palm Beach Maritime Museum, which operates a ferry to Peanut Island from this location, active recreational uses, and special events. Water taxi docks will also be installed as part of the park’s continuing renovation (the City’s conceptual park plan is included above). The park has good visibility and easy access for pedestrians, bicyclists, and vehicles. Expanded use of this site for water taxi service would provide access to the dense residential neighborhoods surrounding the park as well as enable access to special events at this location.

Delray Beach is already identified as a marine village in this report, known as a national model for successful urban downtown redevelopment. Within the core downtown, there is a water taxi operation currently in service that provides sightseeing cruises on the ICW. The ticketing for this service is located in a kiosk in Atlantic Plaza, a public waterfront plaza adjacent to Atlantic Avenue, which serves as Delray’s main street. This passive recreational setting includes pavilions, parking, and clear views through to the ICW. It is also easily accessed by pedestrians, vehicles, and transit, including the City’s trolley as well as a future FEC passenger transit station a few blocks away in the core downtown. Delray’s strong pedestrian character, intermodal service, and traditional urban form allow this water taxi stop location to function safely and effectively.
Two additional water taxi stop locations are recommended along the ICW in the vicinity of Delray Beach. The first is north of Delray in the Town of Gulfstream, north of Atlantic Avenue. This vacant property is owned by FIND and located on the western shoreline of the ICW. It is somewhat surrounded by existing residential and commercial development, limiting the visibility of the site. This site could potentially be utilized for limited service water taxi operations, especially for seasonal events, with stabilized parking on-site and dockage facilities while remaining available to FIND for spoil placement or other uses. The site’s location would provide easy access to destinations north and south. Ultimately, if the site becomes developable for recreational, public, or any other use, given the limited number of water taxi stops, it would be beneficial for the site to include a permanent stop as well as public access to the waterway.

Moving south past the existing Atlantic Avenue site, the next site identified by participants is at the western touchdown of the Linton Boulevard bridge over the ICW in Delray Beach. Property appraiser data indicates this vacant site is owned as a government spoil area with a land use designation for open space/conservation. Although difficult to access by vehicle, the site provides easy access surrounding residential neighborhoods. While the Gulfstream site is of sufficient size to accommodate parking, parking would be more limited at this Linton Boulevard site. It nonetheless possesses good visibility and non-motorized access. Leadership by local government will be necessary to gain formal public access on this site and potentially transform it into a more developed passive recreational facility with water taxi dockage.

The southern-most water taxi stop locations identified in this report are in Boca Raton, including the Gumbo Limbo Nature Center on the east side of the ICW; a currently vacant but potential park property at the intersection of North Federal Highway and the L-15 canal; Silver Palm Park at the southeast touchdown of the Palmetto Park Road bridge over the ICW; and the Boca Raton Hotel on El Camino Real.

The Gumbo Limbo water taxi stop could serve as a destination stop, bringing visitors to this unique recreational and educational facility. The park’s limited hours of operation would limit water taxi service hours, which should keep visibility of the service high with other users of the park. The second recommended location involves a recommendation from the City of Boca Raton’s North Federal Highway Plan (developed by TCRPC in 2005). The plan recommended construction of a park in
conjunction with a public/private redevelopment project at the southeast touchdown of the bridge over the L-51 canal (just north of Hidden Valley Road). If developed as a public park, a water taxi stop location could be integrated into the site, providing easy pedestrian access for nearby residential neighborhoods. The stop could also be serviced by transit on North Federal Highway, but the size of the property would likely limit on-site parking. Care should be taken to ensure new uses on the property front the park and will likely be residential given the size and location of the site, which would increase natural surveillance.

Further south in Boca Raton is another recommended water taxi stop at Silver Palm Park, which includes boat ramps, parking, and limited passive recreational amenities. The City has also acquired the roughly 2-acre property immediately north of the park (the former Wildflower restaurant property). This location could also provide easy pedestrian access for residents and would be accessible by transit, and with redevelopment of the northern piece, could also provide a mix of uses and parking to create a waterfront destination. The property is adjacent to Palmetto Park Road and North Federal Highway, both of which provide a mix of active uses, and the park is somewhat visible from these adjacent roadways. If planned appropriately, this node could evolve into a marina village with connectivity to surrounding commercial activities.

Finally, in southern Boca Raton, a water taxi stop is recommended at the Boca Raton Hotel, located on El Camino Real along the western side of the ICW. This upscale property includes dockage along the waterway, and charter services currently provide waterborne access for hotel guests. The dockage facilities are monitored by hotel staff, and a mix of uses exists on the site. Use of water taxi service at this location would likely be limited to hotel guests and patrons.

Architectural and Design Considerations

As each community further refines its vision for the marina villages, architectural and urban design expectations must be defined. Building heights and placement, building and parcel uses, parking quantities and location, and the detailing of public spaces should be clearly articulated and codified within each jurisdiction. The massing, uses, and architectural form of each village may be dramatically different from one community to the next, so it is important that each jurisdiction establishes what is appropriate for its area. That said, the following are critical elements that should be consistent for all marina villages:
Building Placement

All buildings have both fronts and backs, and under no circumstances should the front of one building be exposed to the back of another (typically this is where buildings are serviced). Buildings should always front and define public spaces, which can include streets, parks, paseos, promenades, and courtyards. When located on the water’s edge, buildings should be designed to front or otherwise meaningfully engage the waterway as well as the upland.

Parking Placement

Parking is and will continue to be essential in the marina villages. However, parking should not be the most prominent feature of a development site. Parking should be in close proximity to destinations but shielded by buildings and garden architecture wherever possible. Parking structures should be fully lined with habitable uses.

Building Height and Massing

Appropriate building height and massing will be defined by each jurisdiction. Proposed buildings should be contextually sensitive in their scale and size.

Public Access

Public access to waterfronts and marina villages should be paramount when designing these destinations. Wherever possible, these points of public access should be combined with upland public open spaces like plazas and squares.

Marine Amenities:

The redevelopment of marina village areas cannot usurp fundamental marine-related facilities. As stated earlier, any redevelopment efforts should add-to and enhance existing marine activities.

Architectural Style

Any architectural style deemed appropriate for a marina village should be applied in a manner true and consistent with the accepted compositional elements of that style. For example, the Florida Vernacular architectural style, and its traditional details, appropriate for a two- to three-story building but not a ten-story building.

Green Building Standards

There is a growing emphasis nationally and world-wide towards sustainable and green building standards which consume less energy, create lower impact upon their surroundings, integrate recycling of stormwater and other materials, and maximize the use of renewable materials. Efforts should be taken to maximize the green building composition of structures and designs within marina villages.
**KEY FINDINGS AND RECOMMENDATIONS**

The ICW study has identified a series of eight marina villages along the waterway with a number of interspersed waterfront destinations. Individually, these destinations provide economic opportunities, Intracoastal access, and quality of life enhancement for Palm Beach County residents and visitors. Collectively, they represent the opportunity for an interconnected series of waterfront destinations that could be interconnected both from the upland and water, creating the potential to further elevate Palm Beach County as a world-class destination. The following recommendations are intended to support and enhance the development of the marina villages and waterfront destinations for the ICW.

**Organize and Support a System of Marina Villages**

- Support the development of on-going marina village efforts in Jupiter, Riviera Beach, West Palm Beach, Boynton Beach, and Delray Beach.
- Encourage the analysis and development of appropriate marina villages in other locations, such as PGA 4 Corners (in Palm Beach Gardens/North Palm Beach), Lake Worth, and Lantana.
- Maintain differentiation between marina villages to prevent oversaturation of the market.
- As marina villages are established, develop common advertising and branding, particularly for villages with hospitality elements (within or nearby).
- Develop common elements within marina villages to enable identification as a “system” (e.g., signage, landscape materials, water taxi stops).
- Ensure marina villages maximize intermodal connectivity with all forms of upland transit as well as waterborne transit.
- Create incentives to retain “signature” waterfront uses and structures, such as transfers of development rights and public/private partnerships.

**Develop Design Standards for Waterfront Development within Marina Villages**

- Encourage mixed-use development to promote natural surveillance.
- Support proper building placement and transitions such that building fronts face other fronts.
- Require waterfront buildings to architecturally front or otherwise engage the waterway as well as the inland.
- Reduce the impact of parking, especially along the water’s edge.
- Promote buildings that are contextually sensitive to their surroundings with appropriate height and scale.
- Maintain and expand public access to and within marina villages.
- Develop building styles and uses that embrace and enhance working marine uses.
- Encourage the use of genuine architectural styles and materials.
- Promote sustainability and green building standards for structures and improvements.
Require Proper Land Use/Transportation Relationships for Individual Waterfront Destinations

- Consider transit-oriented development principles when locating and designing water taxi stop locations.
- Place special emphasis on natural surveillance of water taxi stops located in neighborhoods.
- Encourage residential units to front waterfront parks, especially those with water taxi stop locations.
MARINA VILLAGES AND WATERFRONT DESTINATIONS
The economic role of the Intracoastal Waterway in Palm Beach County, both on the waterway and along its shoreline, is of considerable focus in this analysis. The Intracoastal is a unique asset for Palm Beach County, providing broad and varied strengths for transportation, freight, boating, industry, and quality of life activities that can help differentiate, expand, and sustain the County’s economy. The development and expansion of marine-related businesses and services offers great potential for the County, especially in relation to the Port of Palm Beach and potential megayacht cluster. This section, therefore, provides a market analysis of long-term economic development potential along the ICW in Palm Beach County.

In addition to economic potentials for varying industrial job clusters at the macro level, the Intracoastal also offers nodal economic development opportunities at various marina village projects along the waterway. Accordingly, this chapter provides a micro analysis of the opportunities presented by five of the eight marina villages detailed in Chapter VIII (Marina Villages) of this report. While additional data is necessary to fully analyze the potential yields of these projects, they clearly offer significant job and revenue prospects for the individual local governments and Palm Beach County overall.

Key findings and recommendations regarding the economics of the waterway are presented at the conclusion of the chapter. A holistic approach is encouraged, acknowledging the need to balance the natural and built environment systems and the settlement patterns that have already been established in and around the ICW corridor. A public/private working waterfron commission is recommended to help oversee land use, transportation, and industry development, along with marine district overlays, workforce training, and expanding the understanding of the industry.
The economic opportunity presented by the ICW in Palm Beach County was the genesis for the creation of this plan. Around the nation and world, facilities such as this waterway are unique amenities, providing a range of activities for residents, business owners, and visitors that can sustain and expand regional economies. Accordingly, this section of the plan provides a market analysis of long-term economic development potentials along the ICW in Palm Beach County and provides a set of key findings and recommendations for enhancing the corridor’s overall economic development base.

This analysis also provides an economic snapshot of the Intracoastal at two distinct levels: the macro (corridor) and the micro (marina villages) level. At the larger level of analysis, the generalized findings will tie directly into generalized recommendations for improving the economic base of the 43-mile long corridor. At the micro level of analysis, the report examines the economic development potential at each of the primary marina villages and presents recommendations for enhancing their respective development potentials.

This section of the plan takes a holistic approach to the idea of economic development, recognizing this effort must be conducted within a larger systems framework that takes into account the natural and built environment systems and the settlement patterns that have already been established in and around the ICW corridor. Indeed, Palm Beach County’s Strategic Economic Development Plan, adopted in 2007, demonstrates economic development strategies in Palm Beach County must take a systems approach and must be evaluated holistically, recognizing interconnectedness and the power of collaboration. Settlement patterns and land uses must be planned simultaneously with options for multiple modalities…

According to the Palm Beach County Plan, the County has an opportunity to capitalize on its 43-mile stretch of the Intracoastal by creating a regional economic strategy that builds on its unique environmental assets. Globally, examples abound where cities have capitalized on environmental and cultural assets to drive their regional economies. They have done so by linking cultural facilities such as botanical gardens, museums, and zoos to easy and friendly transportation modalities, including trails, ferries, and water taxis. Such a system is feasible for downtown venues along the Intracoastal. In addition, the working waterfront has created strong value adjacent to the Port of Palm Beach through proposals such as the construction of megayacht slips, racing sloop repair facilities, marina docks, day trip gambling, the Lockheed Undersea Research plant, and environmental attractions such as Peanut Island.

"Economic development strategies in Palm Beach County must take a systems approach and must be evaluated holistically, recognizing interconnectedness and the power of collaboration. Settlement patterns and land uses must be planned simultaneously with options for multiple modalities..."
Running throughout the narrative is the underlying proposition of the importance of preserving the working waterfronts along the ICW corridor. This notion has been embraced by the Florida Legislature, which passed the Working Waterfronts Protection Act in 2005 that directs state agencies and local governments to take actions to protect and retain their working waterfronts (areas that house activities that are water-dependent such as marinas) and authorizes counties to set up property assessment deferral mechanisms for marinas. The legislation further directs local governments to amend their comprehensive plans to protect working waterfronts. Palm Beach County is working to develop policies specifically designed to protect and enhance its existing working waterfronts.

With the recent passage of Amendment 6 in 2008 (an amendment to Florida’s state constitution), working waterfront property such as marinas and boat repair facilities will be taxed based upon current use as opposed to “highest and best use.” This provision should help to promote the continued use of working waterfronts along the ICW corridor and in the State of Florida.

**Study Area**

For purposes of the economic analysis, the study area was defined to encompass approximately one-half mile on either side of the ICW for its entire length through Palm Beach County (or approximately 43 miles). This boundary was defined based on consideration of economic “zones of influence” that characterize economic development patterns and competitive economic factors when considering the impacts of the ICW on the County’s overall economy. Basically, the “economic” study area encompasses the County line on both the north and south, the Atlantic Ocean on the east, and I-95 on the west as reflected in map above. The study area is approximately 43 miles in length, has a diverse mix of public and private uses, comprises almost 53,000 acres and, significantly, includes working and recreational waterfront.

This portion of the report provides a market overview and preliminary analysis of the economic potentials along the Intracoastal by completing several key tasks:

- Preparing a demographic and economic profile that examines specific demographic indices that fuel growth in Palm Beach County, focusing on those factors relevant to the economic potential of the Intracoastal Waterway, including population, households, job formation (particularly in marine-related sectors), growth in tourism and visitor spending and the like;
Assembling a land use inventory based on available data and secondary information on real estate market conditions across specific land uses, including “marine-related”, focusing on the ICW as well as the four on-going marina villages efforts underway at the initiation of the study (Jupiter, Riviera Beach, West Palm Beach, and Boynton Beach); and

Translating demographic characteristics and market conditions into preliminary growth forecasts in those sectors of Palm Beach County’s economy relevant to the ICW.

Marina Villages

The study area contains eight marina villages that are the locus of prime development and redevelopment activities and provide nodes for transit purposes. These marina villages are the key areas in which focused development and redevelopment strategies will establish the groundwork for realizing significant economic development outcomes in terms of job creation and expansion of the tax base. The marina villages will also serve as destinations for local residents and visitors to Palm Beach County. Importantly, each of the marina villages is entirely unique in its conceptualization, development stage, and vision for ultimate build-out. Each of the eight villages is detailed in Chapter 8: Marina Villages and Destinations.

Future development at each of the marina villages will be tied to:

- Geography
- Local market conditions
- Varying economic strategies
- History and culture

This report also provides a snapshot of the magnitude of the catalytic effects at each of the primary marina villages. The metrics used to measure the potential catalytic outcomes include demand for “work-place” real estate (office, industrial, retail), job creation, and gross regional product.

As has been noted, each of the marina villages detailed in this report is of a different character, theme, and orientation. Five of the villages are focused upon in this report, including:

- Jupiter
- Palm Beach Gardens
- Riviera Beach
- West Palm Beach
- Boynton Beach

The marina villages in Lake Worth and Lantana are prime locations for enhanced recreation-based and eco-tourism opportunities. Their land use, planning, and regulatory characteristics are detailed in Chapter 8; however, they are not the subject of economic analysis in this chapter. Delray Beach is already 25 years into its successful redevelopment efforts, and therefore, it is not further analyzed in this chapter.

Demographic Findings

The report examines demographic and economic characteristics across a range of indices, focusing on those factors that fuel demand for real estate and economic growth in Palm Beach County. In particular, key demographic characteristics focused on are those that have relevance for growth in the ICW corridor as well as four of the on-going marina village efforts that have the greatest opportunity and investment demand to realize their marina-oriented potential, including Jupiter, Riviera Beach, West Palm Beach, and Boynton Beach. These findings are summarized below.

Population & Households

Palm Beach County

Palm Beach County’s population has increased at an average annual rate of 1.6 percent per year since 2000,
with the County’s population jumping by 128,600 new residents over the past seven years, to 1.21 million, according to the MPO. Assuming that current average annual growth rates continue, the MPO estimates that the County will add another 280,500 new residents by 2020, for a total population of almost 1.5 million. If current household size remains level, additional population growth will translate into 117,400 new households (i.e., housing units) by 2020.

**ICW Study Area**

By comparison, within the broad economic study area (I-95 east to the Atlantic Ocean), the estimated population is 426,500 in more than 180,000 households. Today, the ICW corridor accounts for more than 30 percent of the County’s total population. Growth forecasts for the study area are only available for the next five years, which suggest almost 40,000 new residents in 17,000 households (i.e., housing units) by 2012. In terms of new housing tenure, forecasts suggest that these new housing units will be distributed as follows: 11,000 for-sale units and 6,000 rental units.

**Marina Villages**

Today, the four subject marina village municipalities account for roughly 22 percent of the County’s total population, or 267,000 residents in 106,000 households. Since 2000, Jupiter has grown the fastest, and West Palm Beach gained the greatest number of new residents. According to the MPO, Jupiter is expected to grow by 33 percent by 2020 while West Palm is projected to add nearly 29,000 new residents.

In total, additional population growth and continued redevelopment initiatives in and around the four subject marina villages are expected to result in an increase in their share of the County’s population (to 23 percent) by 2020, with 337,500 residents in 142,000+ households. This would suggest that, over the next 13 years, the four marina villages will gain almost 71,000 new residents in 30,000 new households (i.e., housing units).

Interestingly, the projected compound average annual growth rate for each of the marina village municipalities is generally higher than that for the County as a whole, suggesting strong growth to these centers. Today, households in the four marina villages spend a combined $1.9 billion annually on consumer spending among various retail categories, groceries, and food and beverage. This accounts for almost 17 percent of the $11.5 billion in total consumer spending.

---

**Table 1: Regional Population Trends & Projections, 2000-2020**

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<tr>
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<td></td>
<td>Amount</td>
<td>%</td>
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<td></td>
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<td></td>
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<tr>
<td>Jupiter</td>
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<td>2.8%</td>
<td>2.8%</td>
<td>2.8%</td>
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<td>95,112</td>
<td>17,314</td>
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<tr>
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<td>113,362</td>
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<td>136,090</td>
<td>28,776</td>
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<td>8.9%</td>
<td>8.9%</td>
<td>9.1%</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

1/ Compound Annual Growth Rate

Source: Palm Beach County MPO, Economics Research Associates, 2008
across Palm Beach County. Notably, spending varies widely across the four municipalities—ranging from a low of $15,500 per year in Boynton Beach to a high of almost $25,000 per year in Jupiter. Average annual consumer spending equates to approximately $17,000 per household across the four marina villages.

**Employment**

Employment growth is a key barometer of demand for “workplace” real estate such as commercial office and retail, industrial, and visitor-service uses such as hotel/lodging. As such, TCRPC examined employment growth trends and forecasts for each of the geographies comprising the ICW study. Key findings are summarized below:

**Palm Beach County**

Palm Beach County contains 552,000 at-place jobs. Job growth in Palm Beach County surged during the economic boom between 2002 and 2007. In fact, the County has added more than 53,000 new jobs since 2000 across several key employment sectors, including Services, Retail Trade, and Construction.

MPO forecasts suggest that 114,400 new jobs will be created by 2020. If job growth materializes, this may translate into countywide demand for more than 34 million sq. ft. of “workplace” real estate such as office and industrial parks, and retail centers. However, this may not necessarily translate into net new construction, as existing vacant and/or underutilized real estate can be occupied by new employment.

The Florida Agency for Workforce Innovation (AWI) estimates that the greatest job growth through 2015 will occur in the Services sector, which is a wide-ranging category that includes professional and business services (such as legal and engineering), medical/health, education, lodging/hospitality, and arts/entertainment/recreation. By 2015, the AWI forecasts almost 86,000 new jobs in the Services sector alone. Specific data on employment in the ICW corridor are not available.

**Marina Villages**

Today, the municipalities that encompass the four subject marina villages contain almost 175,000 jobs, comprising 32 percent of the County total. Information on the type and distribution of these jobs is not available. The lion’s share of current employment — fully 94,000 jobs — is located in West Palm Beach. The other marina villages contain a smaller fair share of the County’s jobs ranging from four to six percent.
According to MPO forecasts (which prepares employment projections by Traffic Analysis Zone/TAZ), the four municipalities that encompass the four marina villages are expected to gain almost 47,700 new jobs by 2020. TCRPC estimates that these new jobs would demand roughly 14 million sq. ft. of workplace real estate. Again, this could be a combination of net new construction as well as occupancy of existing vacant space. These 47,700 new jobs in the municipalities encompassing the four marina villages will principally be distributed among the following industries:

- Services
- Wholesale & Retail Trade
- Finance/Insurance/Real Estate and
- Construction

Marine-related employment noted above includes 2,400+ jobs at the Port of Palm Beach. In 2006, Port employment was distributed across direct (1,468 jobs), induced (620) and indirect (339) categories. The map on the previous page illustrates the large diversity of marine-related businesses located along the length of the ICW upland corridor. TCRPC estimates there are approximately 400 marine-related firms along the ICW corridor.

The Marine Industries Association's 2007 Annual Report also reported that the marine industry adds approximately $800 million to the local economy on an annual basis, with a payroll in excess of $682 million. More detailed information is provided in the “Marine Industries” section that follows.

Reaching a more in-depth understanding of the marine industries will require a detailed examination of the constituent sectors that might be combined to form this industry cluster. Such an analysis would provide meaningful insight into the growth trends of the industry and provide a sound basis for establishing public policy to help enhance the development prospects of the marine industry cluster.
The map above indicates the extensive linear distribution of marine-related uses in Palm Beach County, with a visible concentration along the Intracoastal, especially near the Lake Worth Inlet, Port of Palm Beach, and adjacent area.
Visitor Profile

A critical element of Palm Beach County’s economy, as well as that of the Intracoastal corridor, is tourism and visitor services. The following characteristics of the visitor market, such as spending patterns and behavior, were examined as a means of understanding the potential impacts from visitors on future land use patterns and economic development initiatives in the ICW corridor.

The Tourist Development Council of Palm Beach County tracks visitor data and behavior/spending patterns for the County. In 2007, according to the Tourism Development Council, Palm Beach County attracted more than 4.7 million annual visitors, reflecting an increase of almost 186,000 new visitors since 2003. Other findings are illustrated as follows:

- The Tourism Development Council estimates that about half of the County’s annual visitors stay in hotels; party size averages 2.1 people who stay 3.3 days. The number of hotel guests has jumped by almost 10 percent since 2005.

- Visitation is further distributed between “leisure” and “conference/business.” Notably, the number of convention delegates and business visitors has increased over the past five years by more than 200,000, to an estimated 2.78 million conference/business visitors in 2007. Later sections of this chapter examine market characteristics of the County’s hotel supply to understand how this has translated into room-night demand.

- Visitors to Palm Beach County spent $1.6 billion on expenditures in 2007, resulting in average daily spending of $202 per visitor per day. Over half of visitor spending in on lodging and approximately one-quarter is on eating and drinking.

- Contrary to observations that suggest that the County draws a significant number of international visitors, fully 92 percent of overnight visitors to Palm Beach County are from the United States, with almost one–quarter of all visitors from Florida, and 31 percent from either the Southeast or the Midwest. Only eight percent (or 195,000) are from international origins.

- Visitors to Palm Beach County participate in a variety of activities. Most popular are eating at restaurants (94 percent), shopping (31 percent), and going to the beach (27 percent) of

<table>
<thead>
<tr>
<th>Table 4: Visitor Trends in Palm Beach County, 2003-2007</th>
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</thead>
<tbody>
<tr>
<td><strong>Visitors</strong></td>
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<tr>
<td>----------------</td>
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<tr>
<td>Visitors</td>
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<tr>
<td>Hotel Guests</td>
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<td>Average Party Size</td>
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<td>Average Length of Stay</td>
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<tr>
<td>Leisure Visitors</td>
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<tr>
<td>Conference/Business Visitors</td>
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</tbody>
</table>

Source: Tourist Development Council of Palm Beach County; Economics Research Associates, 2008
visitors. Almost 11 percent visited City Place. On the other hand, only 0.3 percent reported going to the Palm Beach Convention Center.

Real Estate Market Characteristics

A critical component of any land use strategy for the ICW includes a detailed understanding of recent and current market conditions across specific real estate sectors. For the ICW study, TCRPC examined market characteristics and trends for a range of uses, including: rental and for-sale housing; “workplace” uses such as commercial office and industrial; “marine-related” such as marinas and working waterways; and service uses that support the resident and visitor markets, such as retail, restaurants, and lodging/hospitality. To the extent that information was available, market conditions for each use were examined in Palm Beach County, the four subject marina villages, and the ICW corridor study area.

Several elements are key to understanding how future population and job growth will translate into development opportunities in the ICW study area as well as the four subject marina villages:

- the amount of net developable land as well as opportunities/sites for redevelopment;
- current (or future) zoning designations and densities; the availability of capital/financing to fund specific projects; and
- the role of the public sector in forging economic opportunities, such as the availability of tax increment financing or other incentives, provision of entitlements, business retention and recruitment strategies, etc.

This section profiles inventory and building permit activity, tenure and product distribution, absorption (leasing) activity, vacancy, pricing (rents and sales) trends, and other appropriate market performance characteristics and supply and demand factors as they affect overall development opportunities in the ICW corridor.

Housing

Palm Beach County
Reported building permit data suggests that Palm Beach County issued over 114,000 permits for new housing between 1997 and 2006, with an annual average of 11,400 permits per year. Roughly 68 percent of total permit activity was for single-family dwellings.

**Marina Villages**

Residential permit activity varies across the marina villages, ranging from 470 permits per year in Riviera Beach to upwards of 1,200 annual permits in West Palm Beach, which comprises fully 40 percent of all residential development across the four communities. In total, the four marina villages accounted for 27 percent of the County’s total building permit activity between 1997 and 2006. Permit data were not available for the ICW study area.

Based on 2000 Census data, the distribution by type of housing in Palm Beach County and the four marina villages indicates a fairly uniform pattern of residential development, in that the majority of housing stock (41 to 47 percent) is single-family detached.

**Office**

Demand for commercial office development is driven by employment patterns and growth in those job sectors that occupy office space. Office workers use a variety of space depending on local market characteristics and the type of business. For example, some office tenants are small and choose to locate in retail centers that command more foot traffic; others telecommute from home or work in industrial settings as part of “flex-tech” buildings that provide front-end office and back-end warehouse or light industrial.

---

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<tr>
<th>City / County</th>
<th>Number of Buildings</th>
<th>Total Rentable Building Area</th>
<th>Share of RBA in PB County</th>
<th>Vacancy Rate</th>
<th>Average Rental Rate</th>
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<td>366,936</td>
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<td>Jupiter</td>
<td>113</td>
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<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>Total</th>
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<tr>
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<td>71,499</td>
<td>(24,074)</td>
<td>370,755</td>
<td>202,132</td>
<td>30,755</td>
<td>(32,561)</td>
<td>618,506</td>
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<tr>
<td>Boynton Beach</td>
<td>(34,247)</td>
<td>52,468</td>
<td>238,346</td>
<td>20,309</td>
<td>100,376</td>
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<td>26,635</td>
<td>(21,241)</td>
<td>20,430</td>
<td>(39,584)</td>
<td>(663)</td>
<td>67,215</td>
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<tr>
<td>Jupiter</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>67,215</td>
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<td>9.0%</td>
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<td>Boynton Beach</td>
<td>6.1%</td>
<td>5.4%</td>
<td>7.4%</td>
<td>7.9%</td>
<td>4.8%</td>
<td>10.6%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Riviera Beach</td>
<td>4.4%</td>
<td>4.4%</td>
<td>8.0%</td>
<td>13.8%</td>
<td>8.2%</td>
<td>18.9%</td>
<td>9.6%</td>
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<tr>
<td>Jupiter</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>15.2%</td>
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<td>6.7%</td>
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<td>8.5%</td>
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Table 6: Office Market Characteristics, 2002-2007
Office employment is a key economic activity generator in many locations of Palm Beach County, including the ICW study area, because of the proximity/adjacency of the Intracoastal to primary office submarkets such as downtown West Palm Beach. Key findings of the office market and their relevance to the ICW study area are summarized below:

**Palm Beach County**

According to CoStar, the County’s office market is dominated by West Palm Beach, which contains 27 percent, or 12.5 million sq. ft., of the County’s total office inventory of 46.9 million sq. ft. Countywide leasing activity (“net absorption”) ~ a true barometer of the overall health of an office market ~ has averaged 560,000 sq. ft. per year since 2002. Vacancy rates over the past five years have fluctuated between eight and twelve percent. Based on current absorption, 10 years would be required to reach stabilization (i.e., to absorb the County’s existing 5.6 million sq. ft. of vacant office space).

**ICW Study Area**

Notably, the ICW study area contains almost 24 million sq. ft. of office space, fully half of the County’s total office inventory. Although leasing activity in the study area was negative in 2007 (reflecting the significant decline in the economy), overall absorption since 2002 has been strong, averaging 221,500 sq. ft. per year. Vacancy rates over the past five years have fluctuated between seven and eleven percent. Based on current absorption, fully 12 years would be required to reach stabilization, i.e., to absorb the existing 2.8 million sq. ft. of vacant office space located in the ICW study area.

**Marina Villages**

In combination, the remaining three marina villages contain significantly less office space and would be considered tertiary office submarkets. Boynton and Riviera Beach and Jupiter contain a total of 4.6 million sq. ft. of office space, accounting for about 10 percent of the County’s total office inventory. Leasing activity is low, averaging about 72,000 sq. ft. per year since 2002, and vacancies have fluctuated between five and fifteen percent over the past five years.

Based on current absorption patterns, approximately 8.8 years would be required to reach stabilization (i.e., to absorb the marina villages’ existing 633,000 sq. ft. of vacant office space).

**General Retail**

Retail uses require a concentration of disposable income (from nearby residents, employees and/or visitors); strong visibility and extensive frontage; adequate parking; a clear competitive role; and market identity. Moreover, supporting tenants often require anchor tenants (such as a grocery store) or have a clear marketing niche (such as a visitor destination) to generate traffic.

**Palm Beach County**

According to CoStar, Palm Beach County contains 69.8 million sq. ft. of retail space in 2,705 properties. The County’s relative affluence, strong growth, and role as a visitor destination have fueled significant growth in the retail sector. In fact, since 2002 leasing activity has been quite strong, averaging 946,000 sq. ft. per year. Moreover, the County’s retail market is effectively stabilized, with vacancy rates averaging only 2.6 percent per year since 2002.

**ICW Study Area**

The ICW corridor contains 27.9 million sq. ft., or 40 percent of the County’s retail inventory. Overall leasing activity in the study area since 2002 has been solid, averaging 266,000 sq. ft. per year, with substantial activity in 2005 and 2006. However, the weakening economy, tenant out-migration, and industry consolidations led to negative absorption of (100,000 sq. ft.)
in 2007. Despite the slowdown of leasing activity, vacancies in the study area remain very low, at a stabilized level of 2.8 percent per year since 2002.

**Marina Villages**

Similar to office space, West Palm Beach contains the lion’s share of retail space in Palm Beach County, with 19.4 million sq. ft. of space (28 percent) in almost 1,100 properties. The other three subject marina villages also contain a sizable amount of retail space -- 9.5 million sq. ft. in 365 centers. Retail leasing activity in the four marina villages has been strong, averaging 333,000 sq. ft. per year since 2002. Notably, Riviera Beach is the weakest of the four villages, with nominal leasing activity, due in part to the lack of new retail construction. Both Boynton and West Palm Beach accounted for the most active retail submarkets during this time, which includes new retail development in key locations such as Congress Avenue in Boynton Beach.

**Industrial/Flex**

Demand for industrial park development is driven by employment patterns and growth in those job sectors that occupy industrial space. Key locational considerations include proximity to a qualified labor force, highway, rail and port access, and sufficiently large (horizontal) buildings and footprints. Industrial workers use a variety of space depending on local market characteristics and business mix. For example, some industrial tenants are small, “mom & pop” operations such as light assembly that may lease their premises in a free-standing warehouse in an industrial park. Larger manufacturing concerns might occupy a “build-to-suit” facility or campus providing opportunities for expansion. Other industrial tenants, such

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**Table 7: Retail Market Characteristics, 2002-2007**

<table>
<thead>
<tr>
<th>City / County</th>
<th>Number of Buildings</th>
<th>Total Rentable Area</th>
<th>Share of RBA in PB County</th>
<th>Vacancy Rate</th>
<th>Average Rental Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Palm Beach</td>
<td>1,080</td>
<td>15,996,003</td>
<td>27.8%</td>
<td>3.8%</td>
<td>$18.81/ft²/mm</td>
</tr>
<tr>
<td>Boynton Beach</td>
<td>247</td>
<td>6,286,937</td>
<td>9.0%</td>
<td>4.9%</td>
<td>$22.87/ft²/mm</td>
</tr>
<tr>
<td>Riviera Beach</td>
<td>27</td>
<td>502,124</td>
<td>0.7%</td>
<td>10.1%</td>
<td>$14.00/ft²/mm</td>
</tr>
<tr>
<td>Jupiter</td>
<td>93</td>
<td>2,797,928</td>
<td>4.0%</td>
<td>5.6%</td>
<td>$26.90/ft²/mm</td>
</tr>
<tr>
<td>Study Area 1/</td>
<td>1,521</td>
<td>27,905,811</td>
<td>40.0%</td>
<td>4.8%</td>
<td>$21.05/ft²/mm</td>
</tr>
<tr>
<td>Palm Beach County</td>
<td>2,705</td>
<td>69,787,650</td>
<td>4.7%</td>
<td>$20.39/ft²/mm</td>
<td></td>
</tr>
<tr>
<td>Broward County</td>
<td>5,803</td>
<td>104,386,496</td>
<td>4.0%</td>
<td>$19.55/ft²/mm</td>
<td></td>
</tr>
</tbody>
</table>

**Direct Net Absorption**

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Palm Beach</td>
<td>500,790</td>
<td>300,201</td>
<td>380,057</td>
<td>447,472</td>
<td>212,801</td>
<td>72,213</td>
</tr>
<tr>
<td>Boynton Beach</td>
<td>133,735</td>
<td>37,625</td>
<td>97,426</td>
<td>371,600</td>
<td>208,236</td>
<td>82,278</td>
</tr>
<tr>
<td>Riviera Beach</td>
<td>10,390</td>
<td>31,120</td>
<td>10,500</td>
<td>2,216</td>
<td>25,066</td>
<td>3,170</td>
</tr>
<tr>
<td>Jupiter</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Study Area 1/</td>
<td>101,148</td>
<td>182,131</td>
<td>160,657</td>
<td>725,450</td>
<td>695,320</td>
<td>67,617</td>
</tr>
<tr>
<td>Palm Beach County</td>
<td>657,848</td>
<td>301,601</td>
<td>2,390,566</td>
<td>1,340,006</td>
<td>747,579</td>
<td>177,494</td>
</tr>
<tr>
<td>Broward County</td>
<td>1,835,053</td>
<td>458,377</td>
<td>593,081</td>
<td>1,593,944</td>
<td>1,294,567</td>
<td>1,076,310</td>
</tr>
</tbody>
</table>

**End-of-Year Direct Vacancy Rate**

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>Avg. Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Palm Beach</td>
<td>0.7%</td>
<td>1.5%</td>
<td>1.9%</td>
<td>1.9%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Boynton Beach</td>
<td>0.4%</td>
<td>1.4%</td>
<td>2.0%</td>
<td>2.9%</td>
<td>2.9%</td>
<td>7.6%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Riviera Beach</td>
<td>-</td>
<td>2.2%</td>
<td>2.8%</td>
<td>3.0%</td>
<td>3.4%</td>
<td>8.4%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Jupiter</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Study Area 1/</td>
<td>1.1%</td>
<td>2.2%</td>
<td>2.7%</td>
<td>2.8%</td>
<td>3.8%</td>
<td>4.5%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Palm Beach County</td>
<td>0.9%</td>
<td>1.9%</td>
<td>2.1%</td>
<td>2.5%</td>
<td>3.4%</td>
<td>4.7%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Broward County</td>
<td>0.9%</td>
<td>2.3%</td>
<td>3.1%</td>
<td>3.2%</td>
<td>2.6%</td>
<td>3.1%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>
as contractors, might occupy “flex-tech” buildings that provide front-end office and back-end warehouse/storage operations.

**Palm Beach County**

According to CoStar, Palm Beach County’s industrial/flex inventory totals 59.6 million sq. ft. of space in almost 2,800 properties. Leasing activity has been strong, averaging 630,000 sq. ft. per year since 2002. The weakening economy in 2007 led to negative absorption of nearly one million sq. feet (989,000 sq. ft.), as industries consolidated or contracted. Nonetheless, the County’s industrial market is stabilized, with vacancy rates consistently below five percent since 2002. Based on current absorption patterns, roughly seven years would be required to reach stabilization (i.e., to absorb the existing 4.5 million sq. ft. of vacant industrial/flex space located in the County).

**ICW Study Area**

The ICW study area contains over half of the County’s total industrial space — 31.2 million sq. ft. of space. Overall leasing activity in the study area has been generally solid, averaging 150,000 sq. ft. per year since 2002. However, the weakening economy slowed leasing over the past two years, resulting in negative absorption over more than 600,000 sq. ft. Despite this slowdown, vacancies remain low, ranging from three to six percent since 2002. Based on current absorption patterns, 13+ years would be required to reach stabilization (i.e., to absorb the existing 2.1 million sq. ft. of vacant industrial/flex space located in the ICW study area).

**Marina Villages**

Because of excellent highway access, sufficient amounts of industrial-zoned land, and proximity to

---

**Table 8: Industrial/Flex Market Characteristics, 2002-2007**

<table>
<thead>
<tr>
<th>City / County</th>
<th>Number of Buildings</th>
<th>Total Rentable Building Area</th>
<th>Share of RBA in PB County</th>
<th>Vacancy Rate</th>
<th>Average Rental Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Palm Beach</td>
<td>1,069</td>
<td>18,209,195</td>
<td>30.0%</td>
<td>6.6%</td>
<td>$9.90/ft/month</td>
</tr>
<tr>
<td>Boynton Beach</td>
<td>224</td>
<td>6,540,878</td>
<td>9.3%</td>
<td>13.0%</td>
<td>$8.09/ft/month</td>
</tr>
<tr>
<td>Riviera Beach</td>
<td>297</td>
<td>9,256,576</td>
<td>15.5%</td>
<td>8.2%</td>
<td>$8.40/ft/month</td>
</tr>
<tr>
<td>Jupiter</td>
<td>154</td>
<td>3,881,914</td>
<td>6.5%</td>
<td>11.5%</td>
<td>$11.07/ft/month</td>
</tr>
<tr>
<td>Study Area 1/</td>
<td>1,741</td>
<td>31,151,823</td>
<td>52.3%</td>
<td>6.7%</td>
<td>$9.97/ft/month</td>
</tr>
<tr>
<td>Palm Beach County</td>
<td>2,781</td>
<td>59,558,117</td>
<td>7.6%</td>
<td>$9.95/ft/month</td>
<td></td>
</tr>
<tr>
<td>Broward County</td>
<td>6,426</td>
<td>141,761,681</td>
<td>5.3%</td>
<td>$8.74/ft/month</td>
<td></td>
</tr>
</tbody>
</table>

**Table 8: Industrial/Flex Market Characteristics, 2002-2007**

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**T R E A S U R E    C O A S T    R E G I O N A L    P L A N N I N G    C O U N C I L**

**I n d i a n R i v e r    -    S t .    L u c i e    -    M a r t i n    -    P a l m    B e a c h**

166
both the international airport and the Port of Palm Beach, the marina villages (particularly West Palm Beach and Riviera Beach) contain almost half of the County’s entire industrial/flex inventory, with 27.5 million sq. ft. of space. Industrial/flex leasing activity across the four marina villages since 2002 has averaged over 503,000 sq. ft. per year, with West Palm Beach capturing the lion’s share of leasing deals. Riviera Beach, on the other hand, has experienced uneven leasing patterns — from negative absorption of (246,000 sq. ft.) in 2007 to 471,000 sq. ft. in 2005. Based on current absorption patterns, approximately six years would be required to reach stabilization and absorption of the marina villages’ existing 3.1 million sq. ft. of vacant industrial/flex space.

Hotel/Lodging

Trends in the hotel/lodging market were examined for selected properties in Palm Beach County by analyzing market performance data provided by Smith Travel Research (STR), which tracks hotel market trends across the United States. STR tracks market performance for 77 properties containing 12,450 hotel rooms in Palm Beach County. Fully one-quarter of the County’s hotel rooms are located in West Palm Beach, and another 10 percent are located in Boca Raton/Highland Beach (Zip Code 33487). In terms of product type, 48 percent of the County’s hotel rooms are contained in “limited-service” properties while 52 percent are located in full-service properties. Full-service hotels are typically distinguished by the level of amenities, on-site dining, meeting/conference rooms, and other supporting services that are not in limited-service properties.

For this ICW Study, a sample survey was conducted which included 30 properties with 4,450 rooms in several communities across the County. Relevant findings are summarized below:

- Market performance of selected properties has fluctuated over the last six years. While supply (i.e., number of rooms) has increased because of new construction; demand has been uneven—ranging from a low of 63 percent in 2007 to a high of 73 percent in 2005.
- Current annual occupancies of 63 percent are insufficient to support new hotel development, as the capital markets seek minimum sustained annual occupancies of 70 to 72 percent before providing financing for new hotel construction. (Financing agreements for recent new construction were secured several years ago when the market was stronger).
- Other key barometers of market performance include average daily rate (ADR) and revenue per available room (REVPAR). The ADRs have increased at an average pace of 6.1 percent per year, and revenue per available room, which is the best measure of year-to-year growth because it considers simultaneous changes in both room rate and annual occupancy levels, has increased 5.5 percent per year since 2002.
- As noted previously in the visitor profile, the Palm Beach County Tourism Development Council estimates that about half of the County’s annual visitors, or 2.4 million, stay in hotels, with a party size that averages 2.1 people who stay 3.3 days.

Several of the properties illustrated in Table 9 are located in the ICW study area (and/or the five marina villages, particularly West Palm Beach). The degree to which additional hotel development can be supported by the marketplace in the ICW study area will be dictated by a range of factors, including: annual occupancies (sustained above 70 percent); growth in visitors, business travelers and convention delegates to Palm Beach County; state and national economic conditions; the availability of appropriately located, developable parcels with secured entitlements; proximity to on-site and nearby amenities such as shopping and dining; and distance to key demand

T R E A S U R E  C O A S T  R E G I O N A L  P L A N N I N G  C O U N C I L
I n d i a n  R i v e r  -  S t .  L u c i e  -  M a r t i n  -  P a l m  B e a c h

F I N A L
generators such as the convention center and leisure and recreational activities such as the beach and boating.

The Marine Industry in Palm Beach County

As part of the economic overview, a review and analysis of available documents providing information on the marine industry in Palm Beach County was conducted, including estimates of the economic impacts, employment, marinas and boatyards, vessel registrations and the like. In the review of this data, it should be noted that sources were limited, and in some cases, there were discrepancies between sources on estimates of similar activities. These sources included:

Table 9: Hotel Market Characteristics, 2002-2007

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Available Room Nights (Supply)</td>
<td>1,478,895</td>
<td>1,488,353</td>
<td>1,465,711</td>
<td>1,465,701</td>
<td>1,465,753</td>
<td>1,568,272</td>
<td>1.5%</td>
</tr>
<tr>
<td>Occupied Room Nights (Demand)</td>
<td>981,302</td>
<td>972,956</td>
<td>1,028,967</td>
<td>1,084,725</td>
<td>1,063,784</td>
<td>1,005,980</td>
<td>0.9%</td>
</tr>
<tr>
<td>Annual Occupancy (%)</td>
<td>65.1%</td>
<td>66.2%</td>
<td>71.6%</td>
<td>73.5%</td>
<td>89.6%</td>
<td>93.4%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Average Daily Rate</td>
<td>$148.25</td>
<td>$153.69</td>
<td>$158.31</td>
<td>$172.16</td>
<td>$190.63</td>
<td>$199.45</td>
<td>5.1%</td>
</tr>
<tr>
<td>Revenue/Available Room</td>
<td>$96.87</td>
<td>$101.94</td>
<td>$113.12</td>
<td>$125.72</td>
<td>$112.70</td>
<td>$129.48</td>
<td>5.6%</td>
</tr>
</tbody>
</table>

Year to Year % Growth

<table>
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<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Occupancy</td>
<td>-</td>
<td>1.8%</td>
<td>7.7%</td>
<td>2.2%</td>
<td>(4.5%)</td>
<td>(6.5%)</td>
<td></td>
</tr>
<tr>
<td>Average Daily Rate</td>
<td>-</td>
<td>3.7%</td>
<td>3.0%</td>
<td>3.8%</td>
<td>10.7%</td>
<td>4.7%</td>
<td></td>
</tr>
<tr>
<td>Revenue/Available Room</td>
<td>-</td>
<td>5.6%</td>
<td>11.0%</td>
<td>11.1%</td>
<td>5.5%</td>
<td>(4.7%)</td>
<td></td>
</tr>
</tbody>
</table>

Facility | Rooms | %
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Western Palm Beach Lakes</td>
<td>125</td>
<td>3.0%</td>
</tr>
<tr>
<td>Studio 6 West Palm Beach</td>
<td>137</td>
<td>3.1%</td>
</tr>
<tr>
<td>Courtyard West Palm Beach Airport</td>
<td>103</td>
<td>2.2%</td>
</tr>
<tr>
<td>Marriott West Palm Beach</td>
<td>352</td>
<td>7.5%</td>
</tr>
<tr>
<td>Super 8 West Palm Beach</td>
<td>100</td>
<td>2.2%</td>
</tr>
<tr>
<td>Luxury/Collection The Resort @ Singer Island</td>
<td>230</td>
<td>5.2%</td>
</tr>
<tr>
<td>Hilton Singer Island Oceanfront Resort</td>
<td>223</td>
<td>5.0%</td>
</tr>
<tr>
<td>Residence Inn West Palm Beach</td>
<td>76</td>
<td>1.8%</td>
</tr>
<tr>
<td>Days Inn West Palm Beach Airport North</td>
<td>219</td>
<td>4.9%</td>
</tr>
<tr>
<td>Red Roof Inn West Palm Beach</td>
<td>129</td>
<td>2.3%</td>
</tr>
<tr>
<td>Courtyard West Palm Beach</td>
<td>149</td>
<td>3.2%</td>
</tr>
<tr>
<td>Extended Stay Deluxe West Palm Beach</td>
<td>73</td>
<td>1.6%</td>
</tr>
<tr>
<td>InTown Suites Military Trail</td>
<td>121</td>
<td>2.7%</td>
</tr>
<tr>
<td>Hampton Inn Juno Beach</td>
<td>90</td>
<td>2.0%</td>
</tr>
<tr>
<td>Holiday Inn Express North Palm Beach</td>
<td>108</td>
<td>2.4%</td>
</tr>
<tr>
<td>Super 8 North Palm Beach</td>
<td>100</td>
<td>2.2%</td>
</tr>
<tr>
<td>Windsor Suites</td>
<td>90</td>
<td>2.0%</td>
</tr>
<tr>
<td>Best Western Inn of America</td>
<td>92</td>
<td>2.1%</td>
</tr>
<tr>
<td>Super 8 Lantana Boynton Beach Area</td>
<td>125</td>
<td>2.8%</td>
</tr>
<tr>
<td>Ritz-Carlton Palm Beach</td>
<td>203</td>
<td>5.5%</td>
</tr>
<tr>
<td>Motel 6 Lantana</td>
<td>154</td>
<td>3.6%</td>
</tr>
<tr>
<td>Comfort Inn &amp; Suites Lantana</td>
<td>90</td>
<td>1.3%</td>
</tr>
<tr>
<td>Comfort Inn Jupiter</td>
<td>69</td>
<td>1.6%</td>
</tr>
<tr>
<td>The Jupiter Beach Resort</td>
<td>108</td>
<td>2.8%</td>
</tr>
<tr>
<td>La Quinta Inns Jupiter</td>
<td>102</td>
<td>2.6%</td>
</tr>
<tr>
<td>The Breakers</td>
<td>500</td>
<td>12.4%</td>
</tr>
<tr>
<td>Fairfield Inn &amp; Suites Palm Beach</td>
<td>98</td>
<td>2.2%</td>
</tr>
<tr>
<td>The Chesterfield Hotel</td>
<td>58</td>
<td>1.2%</td>
</tr>
<tr>
<td>Brazilian Court Hotel</td>
<td>70</td>
<td>1.6%</td>
</tr>
<tr>
<td>Four Seasons Resort Palm Beach</td>
<td>210</td>
<td>4.7%</td>
</tr>
</tbody>
</table>

Total: 4,460
• 2007 Annual Report of the Marine Industries Association of Palm Beach County (MI-APBC);

• December 2006 Update of the Economic Analysis of the District’s Waterways from the Florida Inland Navigation District;

• Data from the Port of Palm Beach;

• April 2008 Economic Analysis of the Miami River Marine Industry from the Miami River Commission; and


To the degree possible, key findings are summarized below:

• As reported by the MIAPBC in their 2007 Annual Report, the marine industry has an annual direct economic impact of $1.9 billion in Palm Beach County.

• Statewide, boating contributes $14 billion annually to the state’s economy – nearly twice that of the citrus industry- and provides almost 153,000 jobs.

• As reported by the MIAPBC, there are over 1,000 marine-related businesses in Palm Beach County that provide 18,000+ jobs. Countywide, the marine industry adds approximately $800 million to the local economy on an annual basis, with a payroll in excess of $682 million.

• The services sector of the marine industry generates over $1 billion in business sales, $369 million in personal income, and provides 9,885 jobs. Manufacturing activities in the marine industry provide more than $320 million in sales, $100 million in personal income, and 2,490 jobs.

• County-wide, there are 110 acres of marinas and boatyards with a combined appraised value of $48 million. Palm Beach County has 2,800 boat slips in multiple marinas and boatyards with a total appraised value estimated at $87 million. The MIAPBC reports that boat slips in Palm Beach County are currently valued at $94,235 per slip, which is an increase of over 200 percent from a previous study commissioned in 1999.

• The results of a study conducted by the MIAPBC and the University of Florida found that the Palm Beach Boat Show provides the local economy with a $15 million annual boost and adds $59.2 million to the economy statewide. In its 22nd year, annual sales at the boat show reach $78 million, with $58.3 million by Florida companies and $13.9 million in sales by companies based in Palm Beach County.

• The Florida Inland Navigation District’s 2006 report states that if maintenance of Palm Beach County’s waterways were to cease, there would be an $824 million decline in marine-related sales, a $297 million decrease in personal income, and a loss of approximately 7,256 jobs.

• Based on “today’s standards”, the Navigation District estimates that if the County’s waterways were adequately maintained to their design depths, there would be a $227 million increase in marine-related sales, an increase of $80 million in personal income, and an increase of almost 2,000 jobs.

• As reported by the Florida Department of Highway Safety & Motor Vehicles, there are
42,700 registered marine vessels in Palm Beach County (2007), which reflects an increase of 4,150 additional vessels than were registered in 2000. On average, the number of registered vessels is increasing 1.5 percent per year.

- Approximately half of registered vessels in Palm Beach County are sized between 16 ft. and 26 ft. in length. While this vessel length experienced the largest absolute increase in the number of registered vessels (2,600 since 2000), the highest rate of growth is occurring among vessels greater than 110 ft. in length. These vessels, which are known as “mega yachts”, jumped from one registered vessel in 2000 to 12 registered vessels in 2007, an annual increase of 43 percent. In addition, there has also been a rapid increase in the number of vessels sized between 65 ft. and 110 ft., which increased an average of six percent per year since 2000.

**Working Waterfronts**

**Rybovich Boatyard & Marina**

The Rybovich Boatyard & Marina, which occupies a 13.87-acre parcel approximately 2 miles north of downtown West Palm Beach, is a major contributor to the county economy. TCRPC reviewed the Economic & Fiscal Impact Analysis prepared by Lambert Advisory, LLC in June 2007 on behalf of the marina. These findings suggest the following:

- Current operations include 2,900 linear feet of wet-slip dockage and 14,000 sq. ft. of offices and covered maintenance buildings. When full expansion is completed (estimated in late 2008/early 2009), the boatyard will contain 9,200 linear feet of wet-slip dockage (including 20 wet-slips capable of accommodating vessels 150 ft. to 225 ft.), and a 45,000 sq. ft. state-of-the-art yacht repair facility. Expansion will almost triple the labor force from 100 to 280 employees by 2010.

- Between 2006 and 2010, this expansion project can be expected to yield a cumulative total of $1 billion in Palm Beach County by supporting almost 1,500 jobs, contributing an estimated $300 million in labor wages and compensation. The facility will contribute an estimated $488 million to the gross domestic product (GDP) of Palm Beach County during this period, with the boatyard and associated impacts from business operations projected to contribute $20 million in state revenues and $23 million to local government revenues in Palm Beach County.
Lambert Advisory, LLC projects that total economic impacts generated by the boatyard expansion of $750 million to the City of West Palm Beach from 2006 to 2010. The project is expected to support 975 jobs and generate $200 million in labor wages and compensation. The City is also expected to benefit from $17 million in revenues over this period.

As mentioned earlier in this section, the passage of Amendment 6 will help to stabilize working waterfronts by requiring the local government property appraiser to tax these properties based upon current use characteristics and not on potential uses such as high-end residential. This property tax relief measure alone is not enough to support a flourishing working waterfront economy. Additional measures will be needed to lay the groundwork for a strong and vibrant commercial waterfront sector not least of which is public policy support of the marine industries cluster and its emerging related megayacht industry.

**Megayacht Industry**

A growing sector within the marine industries cluster is that of megayacht repair and retrofit. The highly specialized needs of this sub-cluster ~adequate water depth and waterfront access, industrial zoned upland facilities, skilled labor and related infrastructure ~ limits its growth to very few places in Florida or the nation for that matter. Palm Beach County has the capability to support the creation of a multi-faceted megayacht industry capable of supporting thousands of high-paying jobs.

Palm Beach County is in a unique position to help cultivate the growth of the megayacht industry because it has a readily skilled and adaptable workforce, prime waterfront access to this class of ships, and an already established level of private sector investment in facilities and infrastructure. The section with the highest concentration of marine industrial uses, from West Palm Beach to Riviera Beach, is illustrated to the right. This proposed “Megayacht Mile” would be a natural location to support a megayacht industry.
cluster. At its southernmost point, it would be anchored by the Rybovich Boatyard in West Palm Beach and at its northerly extent by the marine district in the City of Riviera Beach.

This corridor could grow into a megayacht hub with significant support industry spin-off potential in the following areas:

- Carpentry
- Metal fabrication
- Marine Electronics
- Boat Manufacturing
- Provisioning

Dredging to a depth of 17 feet for a little less than a mile would be an important measure of public support that would further enhance the County’s position as the locus for the megayacht industry. Additional public policy support, based on in-depth interviews and discussions with the Marine Industries Association, Rybovich and Viking Yacht representatives could also include:

- Supportive land-use policies to encourage marine industry cluster development at key locations within the ICW corridor;
- Incentives to encourage capital investment in the marine industry cluster and its support industries;
- Officially establishing a marine industries cluster in Palm Beach County; and
- Dredging to support the creation of a “megayacht mile” which would accommodate the needs of a super-yacht class of ships.

Riviera Beach CRA Charrette (January 2008), form the northern terminus of the megayacht corridor. The redevelopment potential of these areas is described more fully below.

Marine District

The City of Riviera Beach has a location and industry that many would envy: on the Intracoastal Waterway, a deepwater port with extremely short access to the Atlantic Ocean, beaches, a barrier island adjacent to the Town of Palm Beach, and world-class shopping nearby. The Marine District is east of Broadway Boulevard (US1) between 25th Street and 15th Street. Some of the existing businesses are Rybovich Yachts and Lockheed Martin. Palm Beach County is constructing a public boat ramp south of 19th Street.

Marine District North

The Citizens’ Master Plan recommends continuing Avenue C through the district to create better access and alleviate traffic on Broadway Boulevard (US1). A new parking garage will provide additional parking to
allow expansion of marine-related industries and future ancillary development. The parking garage will be lined with mixed-use buildings that can accommodate residential, retail, and commercial uses.

The Rybovich Boatyard and Marina properties dominate the northern part of the Marine District. The Citizens’ Master Plan calls for these properties to become a mixed-use marine industry area.

Marine District South

The southern portion of the marine district includes Viking Yachts, Bicentennial Park, the Riviera Beach Marina (including the Tiki restaurant), Newcomb Hall, Cracker Boy Boat Works, Spanish Courts, the Port of Palm Beach, and many smaller marine related activities. Additionally, there are many vacant or distressed parcels that have been purchased by Viking Yachts as "Master Developer" of the Inlet Harbor Plan. This area has been the focus of great attention over the years because of its amazing waterfront location, the industries already in place, the enormous redevelopment potential, and the number of public amenities. This area has also been the subject of passionate debate and controversy primarily due to the redevelopment methodology and the degree of public control over public amenities questioned in the Inlet Harbor Plan.

The redevelopment of Marine District South involves both public and private interests and their respective visions for reshaping this critical piece of the City’s CRA. The following Marina Villages section describes the scale and potential economic impact of this and other redevelopment proposals at each of the ICW corridor’s proposed marina villages.
Marine Industry Workforce Needs

A critical consideration of any efforts to enhance the emerging marine industry cluster and preserve working waterfronts is to understand the workforce needs of the marine industries. A recent study completed by the Center for Urban & Environmental Solutions, Marine Workforce Study for the Tri-County Region, June 2008 was designed to do just that. It sought to understand the present and future workforce needs of the marine industry. The key findings suggest:

- Almost half (45%) of small-medium businesses (5+ employees) have been in operation for 20 or more years. Of the sole proprietors (under 5 employees), 40 percent have been in business for less than 10 years.

- The majority of respondents were small-medium companies. There were 55 percent (127) small-medium companies and 45 percent (106) sole proprietors, totaling 233 total respondent businesses. This compares with a sample population split between small-medium (44%) and sole proprietors (56%).

- The largest proportion of businesses surveyed were involved with some aspect of repair or service, followed by sales.

- The majority of employees in the Tri-County marine industry work full time.

- About half (53%) of those employees that marine businesses are currently recruiting are trades and technical positions, particularly electrical technicians, boating systems technicians, carpenters/joiners, and boat yard laborers. Sales staff are also in demand. Two-thirds of the future positions that marine companies are looking to hire are trade and technical positions, followed by sales staff.
• The most important skills that the marine industry needs currently and in the future are technical skills, which consist of mechanics, welders, engineers, and electricians. Next highest needs are experienced employees, followed by workers with solid personal attributes, such as work ethic, honesty, and loyalty.

• Nearly three-quarters (73%) of those companies with five or more employees have difficulty finding qualified personnel. Only half (53%) of sole proprietors mentioned difficulty in recruiting personnel.

The study makes a number of key recommendations designed to enhance the skills and workforce readiness of marine industry employees. These recommendations are illustrated in the Key Findings section of this chapter.

Marine-Related Opportunities

The summary information of the marine industry in Palm Beach County presented in this overview sug-
suggests that it is a critical element of the County’s economy. That said, the availability and depth of data has not been sufficiently tracked over an extended period of time to sufficiently glean conclusions and identify key recommendations. For example, tracking the number of marine-related jobs (by North American Industry Classification System [NAICS] Code) over multiple years and by classifications is critical to understand trends in this sector. This will also assist in opportunities to more clearly define “marine clusters,” or groups of similar activities within sectors that could thus enable sound recommendations in land use policies along the ICW corridor. For example, while anecdotal information and a review of vessel registration data suggest that demand for marina slips is strong, more detailed feasibility studies — including facility surveys of occupancy levels/utilization, expansion plans and the like — are necessary to understand opportunities (and land use policies) related to marina expansion and access on the ICW.

Additionally, local governments should continue to recognize the importance of maintaining working waterfronts in their jurisdictions as significant contributors to the local economy. To that end, it is important to build upon the Florida Legislature’s work in establishing protections for working waterfronts.

### Working Waterfronts

The marine industry contributes significantly to Palm Beach County’s overall economy - $1.9 billion in annual direct economic impact and over 18,000+ jobs, as reported by the Marine Industries Association of Palm Beach County. By all accounts it is a critical component of Palm Beach County’s economy. The Working Waterfronts Protection Act passed by the Florida Legislature in 2005 recognizes the critical importance played by the marine industries and the commercial waterfronts they depend on for their continued survival. The legislation aimed to protect working waterfronts – commercial and recreational in nature, because:

**Commercial Waterfronts**

- Historical significance for Florida coastal cities.
- Marine industries account for an economic impact of $14 billion per year.
- Provide Floridians with 180,000 jobs.
- Bring more diversified economy to coastal communities.

**Recreational Waterfronts**

- Provide Floridians and tourists with access to the water.
- Florida has the highest amount of marine recreation in the US.
- Public boat ramps account for an economic impact of $1.3 billion per year.
- Provide Floridians with 25,000 jobs.
- Generate $128 million in state and local tax revenue.
It is also true that working waterfronts are confronted by numerous challenges, among which are the following driving forces behind working waterfront conversions:

- Rising coastal property values.
- High and unpredictable property taxes.
- Increase in regulation of commercial fishing to protect reduced fishery stocks.
- Confusing and time consuming regulatory processes for expanding or creating new working waterfronts.
- Rising fuel costs.

**Tax Analysis and Forecast**

To the extent practicable, land use and economic policies that enhance development, redevelopment, and high-wage job growth opportunities along the ICW system as a whole should be emphasized and more particularly, centered on the marina villages. At these core locations a catalyst of initial public sector investment should be able to leverage a significant amount of private sector investment. In the City of Boynton Downtown Vision & Master Plan, for example, an economic analysis was performed to summarize the key economic benefits accruing to the City from the implementation of specific public and private redevelopment initiatives throughout the downtown. The economic analysis examined the tax increment revenues that could potentially accrue to the City as a result of new private-sector investment and development. On a gross basis, the forecast concluded that full redevelopment (build-out) over the tax increment period of 15 years could generate potential bonding capacity of more than $43 million ($26.4 million from Boynton Beach and $16.8 million from Palm Beach County). While beyond the scope...

...PBC’s working waterfront has created strong value adjacent to the Port of Palm Beach through proposals such as the construction of megayacht slips, racing sloop repair facilities, marina docks, day trip gambling, the Lockheed Undersea Research plant, and environmental attractions such as Peanut Island.

**Palm Beach County Strategic Economic Development Plan**

The marine industry contributes significantly to Palm Beach County’s overall economy

Working Waterfronts Protection Act passed by the Florida Legislature in 2005 recognizes the critical importance played by the marine industries and the commercial waterfronts they depend on.
of this report, an analysis of the economic benefits – potential tax increment financing revenues generated by specific “prototype” redevelopment projects at each of the marina villages would provide an important tool to guide strategic public policy decisions necessary to attract private sector investment.

Marina Villages

There are eight marina villages identified in this Intracoastal report. Five were on-going local government efforts at the time this study was initiated, and three additional marina village opportunities were identified during the charrette. Chapter 8: Marina Villages and Waterfront Destinations includes an overview and planning, land use, and regulatory analysis for each of the eight villages.

It should be noted that each of the eight is unique, and the project orientations include economic development, working waterfronts, mixed-use downtowns, public festival spaces, recreational opportunities, and eco-tourism. Accordingly, with the differentiation of these projects, this chapter focuses on the five with the strongest development orientation and greatest demand for capital investment to realize their marina village potential. Each is examined from the perspective of its stage and scope of development and the economic benefits its build-out would potentially generate for its surrounding community, or in other words, its catalytic effect. The metrics used to measure the potential catalytic outcomes include demand for “workplace” real estate (office, industrial, retail), job creation, and gross regional product.

The five marina villages analyzed in this section are:

1. Jupiter
2. Palm Beach Gardens/North Palm Beach
3. Riviera Beach
4. West Palm Beach
5. Boynton Beach

Two of the remaining marina villages, located in Lake Worth and Lantana, represent strong and interesting opportunities for the creation of enhanced public and recreational waterfront destinations. However, they are not the subject of analysis in this chapter. Delray Beach, the eighth marina village, has been well-established as a destination with a 25-year history of successful redevelopment, and is therefore not analyzed in this chapter. The total estimated economic impact to Palm Beach County’s economy from the build-out of the five analyzed marina villages is included after the individual analyses.
The locations of the eight currently-identified marina villages are represented on the above map.
The “Riverwalk/Inlet Village” project is a multi-phase project that encompasses a multi-purpose recreational corridor (Riverwalk) and an Inlet Village promenade (Inlet Village) along the Jupiter Inlet. The Riverwalk portion of the project encompasses a 3.5 mile pedestrian, bicycle, and recreational corridor along the eastern shore of the Intracoastal Waterway and the south side of the Jupiter Inlet. Opportunities along the natural corridor include observation areas, docks, fishing opportunities, an entertainment district, a park, and other amenities. The Inlet Village portion of the project seeks to establish a compact, small-scale mixed-use development with entertainment and working waterfront features. The Village would be pedestrian-friendly, comprising unique and welcoming features and vistas.

Jupiter Riverwalk/Marina Village. The style and scope would be likened to a historical coastal village with authentic commercial and cultural venues. Development in the Inlet Village would be small-scale and one to three stories in height.

A significant amount of public sector investment, about $25 million, has been spent to date to help implement the Riverwalk/Inlet Village project. A good deal of infrastructure components, including boat docks, riverwalk, and seawalls have been constructed. From a development standpoint, the project is underway. A unique challenge to the Inlet Village portion of the project is to refine and articulate the vision for the Village and to communicate that unique vision to the private sector. Additionally, it will be important for the City to attract the right mix of private sector investment to achieve the authentic, small-scale working waterfront village it seeks to establish.
Jupiter Marina Village

Project Overview

Development Stage – Developing

Challenges
- Vision needs to be refined
- Communicating vision to the private sector
- Weak real estate market/economy

Opportunities
- Strong population growth
- Prime real estate
- Access to waterfront

Catalytic Potential - Medium

Jupiter Marina Village

Total Economic Benefit

<table>
<thead>
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<th>Impact Summary*</th>
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<tbody>
<tr>
<td>New Jobs</td>
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* Average annual estimates

1. Estimate of the annual increase in Palm Beach County’s Gross Regional Output

Table 12: Total Economic Benefit.

Assuming a $50 million investment to implement the Riverwalk/Inlet Village project over five years, the total economic benefit for the Jupiter Inlet Village project is illustrated in the table above.

Generalized future land use map for proposed “Four Corners” marina village in Palm Beach Gardens and North Palm Beach

The grand opening of the Riverwalk, pictured above, occurred in 2002.
Palm Beach Gardens/North Palm Beach

At the intersection of PGA Boulevard with the Intracoastal, charrette participants identified an opportunity to develop a new marina village opportunity. Given a working title of “PGA 4 Corners,” the project concept suggests a medium intensity, mixed-use redevelopment project geared to maintain and enhance a working waterfront/entertainment district with the addition of live-work destination at the four corners as represented in the images in this section. Anticipating retention of the existing uses on the four properties, the redevelopment concept could encompass a marina and marina-related activities, residential, commercial, hotel, and office uses as follows:

**Riverhouse (NW Corner)**
- Boat Barn: 75,000 square feet (+/-400 boats)
- 44 residential units
- 83 hotel rooms/suites
- 17,500 square feet of marine-related sales, retail, and sundries

**Waterway Café (SW Corner)**
- 4,000 square feet office
- 14 townhouse units
- 10,000 square feet restaurant expansion and marine-related services

**Seasons 52 (NE Corner)**
- 6,000 square feet office
- 14 residential units

**Panama Hattie’s (SE Corner)**
- 13,000 square feet of restaurant/patio dining
- 44 townhouse units

**Generalized location map for the recommended “Four Corners” marina village in Palm Beach Gardens / North Palm Beach**

**Total Economic Benefit**

Based upon the development program summarized below, the estimated total economic benefit for the Palm Beach Gardens/North Palm Beach Four Corners Marina Village is illustrated in Table 13.
SUSTAINABLE ECONOMICS

Palm Beach Gardens/North Palm Beach
Marina Village

Project Overview

Development Stage – Conceptual
(Concept developed during charrette)

Challenges
• Vision needs to be refined.
• Vision needs to be communicated and analyzed by property owners, City of Palm Beach Gardens and Palm Beach County, neighboring owners, and citizens
• Weak real estate market/economy

Opportunities
• Strong population growth
• Prime real estate
• PGA is regional entertainment/retail destination

Catalytic Potential - Medium

Generalized future land use map designations for PBG/NPB “Four Corners” marina village

Panama Hatties restaurant, at the southeast quadrant of the Four Corners marina village, currently hosts a water taxi service.

Impact Summary*

<table>
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<th>Personal Income</th>
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<td>105</td>
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¹. Estimate of the annual increase in Palm Beach County’s Gross Regional Output

Table 13: Palm Beach Gardens/North Palm Beach Total Economic Benefit.
Riviera Beach

The “Waterfront Village” concept reflects a watershed redevelopment project for the City of Riviera Beach. This marina village is generally located east of Broadway Boulevard (US1) between 23rd Street and 11th Street. This large-scale, mixed-use redevelopment project encompasses residential, hotel, conference, working waterfront, office, marina, park revitalization, and public market components in a small geographic area that is not easily replicable anywhere else in South Florida. The catalytic potential of this redevelopment project to enhance the City’s economic base is enormous.

In October 2007, at the request of the Riviera Beach Community Redevelopment Agency (CRA), TCRPC conducted a planning charrette to assist the community in a re-evaluation of its current CRA redevelopment plan. The resulting Citizens’ Master Plan and Charrette Report (adopted January 2008) provided an assessment of existing conditions and prospects for future redevelopment plans. One of the critical findings in the report is the community redevelopment area has prime and enviable real estate, including generous amounts of waterfront and a deep-water port with short access to the inlet. The marine district within the CRA has a thriving and expanding marine industry with both large and small businesses including Lockheed Martin, Rybovich, Viking Yachts, and others. The Port of Palm Beach is of regional and state interest, and imports and exports commodities including gasoline. The CRA area is surrounded by regional destinations including:

- water sports and fishing activities which operate from the public marina, with easy ocean access;
- Peanut Island, a Palm Beach County park located several hundred yards off-shore, which has become a regional recreational destination that has recently undergone a complete renovation and attracts thousands of visitors every weekend;
- Beachfront access along Singer Island, which is minutes away from the redevelopment area; and
- Convenient I-95 access, allowing quick connections to downtown West Palm Beach (only 4.5 miles to the south) and PGA Boulevard and the Gardens Mall (just 5 miles to the north).
Build-Out: Economic Benefits

The estimate of the potential economic benefits of the build-out at this marina village is limited to the redevelopment area shown in the map to the right, which represents approximately 61 acres. The Viking Yacht and Rybovich redevelopment proposals are the core pieces being analyzed.

The Viking Yacht redevelopment proposal at Marine District South is a phased plan of mixed use elements encompassing a redeveloped City Marina, with new docks and new dry-stack storage, “festival-style” retail and restaurants, a rehabilitated Newcomb Hall multi-purpose complex, and a public parking garage with marine related retail, working lofts and office all located on the waterfront of the Riviera Beach Marina. TCRPC reviewed the Economic & Fiscal Impact Analysis prepared by Devries Real Estate Counselors in August 2008 on behalf of the redevelopment project. These findings suggest the following:

• The project construction and related soft costs are expected to generate a one-time economic benefit of $548 million. This level of private sector investment could produce an overall economic impact of $685 million Countywide. Through project build-out, 500 construction jobs are anticipated with 400 permanent jobs created to support the proposed hotel and conference center, expanded marina, retail businesses and restaurants.

• The proposed construction of 638 condominium residences is expected to create a one-time fiscal benefit to the City of Riviera Beach of approximately $2.2 million from water and sewer connection fees. Total expected impact fees accruing to the City, Palm Beach County and School District are $8.2 million.

• Recurring fiscal benefits to the City of Riviera Beach from ad valorem and sales taxes are projected to reach $3 million and $1 million, respectively, at build-out.
These project benefits are predicated on an aggressive redevelopment scenario that is dissimilar to the TCRPC Citizens’ Master Plan in scale, density, and massing. The Riviera Beach Charrette forms the basis of the development program that is used to estimate the total economic benefit of the marina village development/redevelopment project.

The Rybovich marina redevelopment proposal, described earlier, aims to create a mixed-use marine industry area that will, it is hoped, accommodate megayachts in the 180- to 300-foot class. Rybovich hopes to invest approximately $150 million to retrofit its existing marina facilities in the Marine District North area to accommodate the needs of the super-yacht class of ships. The specialized repair and retrofit needs of this size of yacht, requires infrastructure, facilities, and ancillary development that will be increasingly difficult to meet at the Rybovich West Palm Beach boatyard. The average daily employment at the future expanded working waterfront facility in Riviera Beach is, according to Rybovich, expected to generate 2,500 to 3,000 jobs.

**Total Economic Benefit**

Based upon the development program below and the projected boatyard and marina operations, the Riviera Beach Marina Village project is estimated to yield the economic impacts illustrated in Table 14.

**Table 14: Riviera Beach Total Economic Benefit.**

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<td>New Jobs</td>
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- Housing – 1,614 dwelling units
- Retail – 422,000 square feet (marine-related uses/retail)
- Office/Industrial – 137,500 square feet (marine industry/boatyard operations)
- Hotel – 110 rooms

1. Estimate of the annual increase in Palm Beach County’s Gross Regional Output

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*Riviera Beach’s waterfront includes a substantial concentration of the County’s working waterfront uses.*
West Palm Beach

“Waterfront Commons” is a comprehensive public realm development project which aims to reconnect the City’s downtown with its mile-long waterfront. On the City’s project website, the City indicates it “intends to build a world-class amenity that will enhance the beauty and utility of the waterfront and create a spectacular civic space.” To date, local, state, and federal funding secured to help implement the project total more than $36 million. Of that total, approximately $5 million has already been spent to rebuild the City’s seawall along Lake Worth. The project is on a fast-track for implementation, and build-out of the first phase is anticipated by the end of 2009. Critical project elements include a highly flexible space known as the “Palm,” a grand-scale “City Commons,” the “Great Lawn” to host festivals and special events, the “Lake Pavilion,” the reconfiguration of Flagler Drive, and more. Programming at the Waterfront Commons includes performance space, market events, community events, and interactive facilities.

The transformative power of this project is high in that it:

1) re-establishes an important connection between the City’s downtown and its waterfront which was historically intact;
2) creates a destination for cultural tourism; and
3) establishes clearly articulated public realm space.

Total Economic Benefit

Based upon a $36 million capital investment to implement the project, the total economic benefit provided by the West Palm Beach Waterfront Commons project is illustrated in Table 15.
**Development Stage** – Implementation

**Challenges**
Tie-in to downtown West Palm Beach

**Opportunities**
- Transformative project.
- Re-establishes connection of downtown and waterfront
- Promotes/ enhances cultural tourism
- Built-in revenue sources

**Catalytic Potential** – High

**West Palm Beach Marina Village**

**Project Overview**

**Impact Summary***

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¹. Estimate of the annual increase in Palm Beach County’s Gross Regional Output

**Table 15: West Palm Beach Total Economic Benefit.**
Boynton Beach

The “Intracoastal Waterway” project reflects a long-standing desire on the part of the City of Boynton Beach and the Boynton Beach Community Redevelopment Agency to develop a true downtown, live-work destination. To this end, the public investments provided thus far to jump-start the overall development of this 30 acre+ mixed-use community have been significant and have stimulated significant subsequent private sector investment. In March 2006, for example the CRA purchased the Boynton Harbor Marina located on the Intracoastal waterway. The now public marina is a key anchor linking the downtown area to the water and provides a unique waterfront destination activity node. The CRA has purchased additional land along the waterfront to enhance public access, recreational opportunities and provide additional parking. Approximately $25 million in public sector investments have helped to attract over $100 million in private sector investment to date. CRA officials suggest hundreds of full-time jobs will be created at build-out.

The core elements of this waterfront redevelopment master plan include:

- Improving public access
- Creating a destination
- Improving infrastructure
- Preserving traditional marine industries
- Upgrading boater services
- Protecting the natural environment
Two major private sector developments have been implemented on east Boynton Beach Boulevard – the completed Marina Village project and the Promenade, which is currently under construction. These developments will add much-needed housing to this downtown core. Marina Village is slated to develop approximately 387 units and the Promenade is slated to develop 400 units. The City has an array of economic incentives to promote community revitalization of its downtown core including workforce housing and façade improvement programs.

Important challenges and opportunities are identified below which provide context for the continued development of the Boynton Beach Marina Village. Importantly, the City and CRA have focused on developing the marina village as a family-friendly mixed-use entertainment district. This clarity of vision will help to drive the implementation plan forward.
Total Economic Benefit

The potential economic benefits of the build-out at this marina village is limited to the redevelopment area indicated on the map on the preceding page, which represents approximately 42 acres. The estimated economic benefits (see Table 16) are based upon a proposed development program of 379 condominium units and 36,000 square feet of new commercial/retail facilities.

Boynton Beach Marina Village

Project Overview

Development Stage – Developing

Challenges
- Tertiary office market
- Critical mass of downtown housing/residents is missing
- Excess office space inventory and slow absorption
- Lack of town center / City identity

Opportunities
- CRA/City economic incentive package
- Robust workforce housing program
- Significant public sector infrastructure investment program

Catalytic Potential – Medium / High

Impact Summary*

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1. Estimate of the annual increase in Palm Beach County’s Gross Regional Output

Table 16: Boynton Beach Total Economic Benefit.
The study has identified a number of key findings in the preceding analysis that examined the ICW corridor from a macro perspective and at the smaller unit of analysis – the marina village. Along the Intracoastal Waterway as a whole, the importance of preserving and enhancing the working waterfront as well as commercial and recreational uses was noted. Within the tighter focus area represented at each of the economically-focused marina villages, the analysis presented opportunities and challenges that would need to be addressed to realize each of the unique development/redevelopment visions proposed. Chief among these issues is striking the right balance between the desire for public access to the Intracoastal and the upland and water-dependent needs of marine industries at working waterfronts. The following recommendations are intended to support and enhance the economic development potential of the Intracoastal Waterway as a whole and the economic base surrounding the marina villages.

**Improve Understanding and Enhancement of the Marine Industries Cluster**

- Identify and examine key industry sectors that could comprise a marine-industries cluster.
- Initiate a county-wide effort to track the number and classifications of marine-related jobs (by North American Industry Classification System [NAICS] Code) over multiple years to develop a better understanding of this job sector.
- Encourage the marine industries be officially recognized and adopted as a cluster to be cultivated within Palm Beach County and the Region.
- Undertake a detailed marine industries cluster study to determine the strength and growth potential of the cluster.

**Support a Highly Skilled and Educated Marine Industries Workforce**

- Support regional workforce initiatives designed to assess marine industries workforce readiness and use that information to expand training opportunities for current and future employees.
- Consider creating a region-wide funding mechanism to support the development of specifically targeted marine industry job training programs.
- Develop incentives for marine industry job creation, including:
  - Hands-on internship and apprenticeship programs; and
  - Hands-on training workshops (on-site and off-site) to introduce potential employees to marine industry opportunities.

**Adopt "No Net Loss" Policy to Discourage Conversion from Marine Industry to Other Uses**

- Support continued efforts at the state, regional, and local level to preserve and enhance working waterfronts including:
  - Direct purchase of key waterfront property by a local government;
  - Sale of development rights to a local government or other non-profit entity, thereby reducing the property tax burden; and
Compilation of working waterfronts inventory in Palm Beach County and establishment a “no net loss policy,” which would prohibit the rezoning of such property to residential or other non-supportive use.

**Adopt Programs to Preserve & Enhance Working Waterfronts**

- Create a deferred property tax program for working waterfront property.
- Consider developing conditional permitting or rezoning options for working waterfront property. This would allow redevelopment only if it maintains or provides public access or retention/extension of specific waterfront uses.
- Create a new working waterfront zoning overlay or district which would add special provisions to the underlying zoning category.
- Explore the creation of a commission to coordinate and implement all public policy and strategic projects for key urban waterfront areas.
- Evaluate benefits of pursuing “working waterfronts” designation from State of Florida.

**Support a Megayacht Industry**

- Create a “megayacht mile” corridor along the Intracoastal Waterway in central Palm Beach County to facilitate the repair/outfitting of megayachts at key locations.
- Support dredging activities from Blue Heron Bridge to West Palm Beach to accommodate megayacht operations in and along the ICW corridor.

**Develop a Capital Improvements Program**

- Prioritize key capital investments along the Intracoastal Waterway that would generate the greatest economic and fiscal benefits for Palm Beach County and the local governing jurisdictions.
- Develop an Intracoastal Waterway capital improvements program to support the development of strategic projects.

**Form an ICW Management/Marketing Entity**

- Consider the creation of a “Palm Beach County Intracoastal Waterway Commission” to coordinate and implement all public policy and strategic projects for key urban waterfront areas. The “Commission” would also have primary responsibility for:
  - Developing a common marketing theme;
  - Promotion and communication;
  - Thematic signage and common amenity features;
  - Coordination with water taxi and upland transit networks;
  - Advocating for project funding and approval with various public and private entities; and
  - Special events coordination.
The Intracoastal Waterway Plan for Palm Beach County is a multi-tiered, multi-agency document that embodies scores of different programs and projects. Within each of the six topic chapters, a series of generalized findings and recommendations is set forth. There are many on-going programs and projects that are supported in the recommendations, particularly with regards to the protection of natural systems, recreation and environmental enhancement, and public access. In addition to these, this Implementation chapter highlights a series of key projects that should be prioritized in the next five to ten years.

The marine industry was of particular focus during the charrette, and accordingly, this report suggests special measures be taken to better understand the industry, assist with job creation, protect with marine industrial districts and/or “working waterfronts” designation, creation of a “megayacht mile” overlay, and establishment of a task force to commandeer these efforts. Participants also strongly emphasized a series of marina villages, complete with water taxi service to interconnect them, and a special marketing/management effort is recommended to aid in the development of these uses. Three of the marina village projects are new concepts identified through the charrette, and each needs special planning to further refine the projects. Increased public access to the ICW was a strong point of consensus, and this report recommends expanding public access via waterfront development and redevelopment, the creation of street-end parks, and enhanced public recreational amenities with environmental restoration efforts.

The implementation of this plan is a long-term undertaking that will require interagency agreement to develop appropriate partnerships, action plans, time frames, and funding. Thus, a County Intracoastal Waterway Commission is suggested to coordinate these efforts and assist with the realization of the plan. A county-wide effort is also critical to assist with the funding competitiveness of projects, to elevate them from local to regional in nature.
The Intracoastal Waterway Plan for Palm Beach County is a multi-tiered, multi-agency document that embodies scores of different programs and projects. Each of the six topic chapters contains a listing of generalized findings and recommendations. The plan supports the continuation of many of Palm Beach County's extensive, on-going programs related specifically to the protection of natural systems, recreation and environmental enhancement, and public access. This Implementation chapter highlights a series of key projects which should be prioritized in the next five to ten years. While some projects can be initiated immediately, others will require interagency agreement to develop appropriate partnerships, action plans, time frames, and funding. With the continued discussion and adoption of this plan, Palm Beach County can select consensus projects for advance planning and design such that they can be positioned for immediate action as funding opportunities present themselves. Individual projects will also be more competitive for regional, state, and national funding as they are components of a larger-scale plan, developed with the extensive public participation that granting agencies reward.

**Establish a “Working Waterfronts Task Force” to assemble and track marine industrial uses along the ICW and work with local governments to develop model Comprehensive Plan policies and land development regulations to protect working waterfronts. This commission should include participation by industry groups and the Business Development Board. Financial incentives such as deferred property tax programs or industrial land trusts should be explored as well as a state “working waterfronts” designation.**

<table>
<thead>
<tr>
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<td>Establish a “Working Waterfronts Task Force” to assemble and track marine industrial uses along the ICW and work with local governments to develop model Comprehensive Plan policies and land development regulations to protect working waterfronts. This commission should include participation by industry groups and the Business Development Board. Financial incentives such as deferred property tax programs or industrial land trusts should be explored as well as a state “working waterfronts” designation.</td>
<td>Palm Beach County EDO &amp; Planning&lt;br&gt;Local Governments (particularly Riviera Beach and West Palm Beach)&lt;br&gt;Collaborating entities: BDB, Marine Industries Association</td>
<td>1 – 2 Years</td>
</tr>
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</table>

**Explore a Marine Industry Cluster.** A set of key industry sectors should be identified and examined, including a County-wide effort to track the number and classifications of marine-related jobs (by North American Industry Classification System [NAICS] Code) over multiple years to develop a better understanding of this job sector. County and regional entities should be encouraged to officially recognize marine industries to be cultivated.

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<td>Explore a Marine Industry Cluster.</td>
<td>Palm Beach County EDO&lt;br&gt;Collaborating entities: TCRPC&lt;br&gt;BDB</td>
<td>2 – 5 Years</td>
</tr>
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</table>
Establish a “Megayacht Mile” overlay from the Blue Heron Bridge, south through Riviera Beach into West Palm Beach. This effort should be coordinated with the development of a marine industry cluster by the Palm Beach Economic Development Office. An inventory and assessment of existing and necessary working waterfront lands, uses, skills, and products should be developed for this area, and a funding program should be developed to identify capital improvements, industry incentives, recruitment, and training. This overlay should be amended into the Comprehensive Plans of Palm Beach County, Riviera Beach, and West Palm Beach and incorporated into the TCRPC Comprehensive Economic Development Strategy.

Create a Palm Beach County Intracoastal Waterway Commission to oversee implementation of this plan, including management and marketing of the waterway. This Commission should coordinate and assist in implementation of public policy and strategic projects for key waterfront areas, including benchmarking indicators over time. A common signage and marketing theme for the County’s marina villages should be developed, including thematic signage, common amenity features, coordinated water taxi services (e.g., stop locations, multi-modal interconnectivity with upland transit services), and special events coordination. This Commission should become an advocate for the funding and implementation of the recommendations of this plan.
**Implementation**

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<tr>
<td>Create a workforce development program for the marine industries sector to support and expand the industry. A regional assessment should be conducted to assess marine industries workforce readiness, and training programs should be developed for current and future employees. The program components should include development of hands-on internship and apprenticeship programs, hands-on training workshops (on-site and off-site) to introduce potential employees to marine industry opportunities, and coordination with local colleges and technical schools. The program should also evaluate creation of a region-wide funding mechanism to support the development of specifically targeted marine industry job training programs.</td>
<td>Palm Beach County Workforce Alliance Palm Beach County EDO Industry Groups Collaborating entities: Palm Beach EDO TCRPC</td>
<td>2 – 4 years</td>
</tr>
<tr>
<td>Develop marine district overlay zones, in conjunction with working waterfront designations, to identify supporting ancillary uses and promote their co-location with marine industrial uses. The County Economic Development Office should assist in identifying appropriate cluster industries (technical, mechanical, etc.) with synergetic products and services as well as supporting workforce housing.</td>
<td>Palm Beach County EDO Local Governments Collaborating entities: Marine Industries Association, BDB</td>
<td>1 – 2 Years</td>
</tr>
<tr>
<td>Conduct a planning analysis to further evaluate the Palm Beach Gardens/North Palm Beach “Four Corners” marina village concept. The City and Village should initiate a dialogue with property owners to gauge interest, timing, and potential for the concept along with identification of any necessary amendments to the City/Village comprehensive plans and land development regulations.</td>
<td>City of Palm Beach Gardens Village of North Palm Beach Collaborating entity: Palm Beach County</td>
<td>1 – 2 Years</td>
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<tr>
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<td>Conduct a planning analysis to further evaluate the Lake Worth “Jewel Cove” marina village concept. The City should review ownership restrictions associated with the old Lake Worth Bridge and develop a specialty zoning overlay to allow its redevelopment with limited concessions. The City should initiate a dialogue with the private owner (southeast quadrant) to gauge interest in the concept. Working with Palm Beach County DERM, the City should initiate discussions to install primitive camping facilities where appropriate on Snook Island and increase public access. The City should also investigate potential expanded canoe/kayak access along Bryant Park (southwest quadrant).</td>
<td>City of Lake Worth Palm Beach County DERM</td>
<td>1 – 2 Years</td>
</tr>
<tr>
<td>Conduct a planning analysis to further develop the Lantana Public Point. The City should consider locations for water taxi stops, upland support amenities, and integration with a potential FEC corridor station on Dixie Highway.</td>
<td>Town of Lantana</td>
<td>1 – 2 Years</td>
</tr>
<tr>
<td>Initiate a water taxi working group to explore County-wide water taxi service. This working group should include applicable local governments, transit providers, and water taxi operators. The water taxi “Recommended Network” map in this report should be further refined, with additional potential water taxi stop locations and land use data from local governments to identify transit nodes and multi-modal connections. Further analysis should be conducted to determine potential demand, market, headways, operating speeds, and optimal water taxi stop spacing. Local governments should specify transit-supportive criteria in land development regulations applicable to water taxi nodes. The recommendations of this group should be incorporated into the TCRPC Comprehensive Economic Development Strategy to enable federal funding.</td>
<td>MPO Local Governments Collaborating entities: US Coast Guard Palm Tran Tourist Development Council FDOT</td>
<td>1 – 3 Years</td>
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**IMPLEMENTATION**

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| **Explore a high-speed ferry service and “short sea shipping” to/from the Port of Palm Beach.** Analysis of key high-speed routes (e.g., Fort Lauderdale, Miami, the Florida Keys, and the Bahamas) as well as local potential shipping destinations should be conducted. In conjunction with the Palm Beach County Economic Development Office, the Port of Palm Beach should develop a request for service providers for these types of services to be initiated at the Port. This project would especially complement the on-going redevelopment effort in Riviera Beach. | Palm Beach County EDO  
Port of Palm Beach | 2 – 5 Years |
| **Develop a capital improvements program to develop the recommendations of this Intracoastal Waterway Master Plan.** Input should be obtained from local governments and agencies, and key capital investments that generate the greatest economic and fiscal benefits should be prioritized. This CIP should be incorporated as appropriate into the Palm Beach County and local government comprehensive plans, and key programs should be incorporated into the TCRPC Comprehensive Economic Development Strategy to improve competitiveness for federal funding. | Palm Beach County EDO as lead with DERM, Planning & Parks/Recreation; Palm Beach MPO; Local Governments  
Collaborating entities: TCRPC | 1 – 3 years |
| **Require expanded public access to the ICW with new development and redevelopment.** Local governments along the ICW should develop minimum public access requirements for new development and redevelopment, enabling direct public access to the waterway via publicly controlled easements or land dedications. Entitlements, including specifically increases in density, intensity, and building heights should be coupled with public access requirements. Special land development regulations should be adopted to ensure proper transitional relationships and urban design between private uses and public access points. | Palm Beach County & municipalities; develop through IPARC & League of Cities | 1 – 2 years |
### Identify street-end park opportunities and develop regulations to require their establishment and maintenance.

Given the diminishing amount of public waterfront property, local governments should develop street-end park programs including identification of rights-of-way that terminate at the ICW, Comprehensive Plan policies to require their preservation and prevent their abandonment, and locally appropriate land development regulations to require appropriate design and orientation of neighboring private uses, such that “eyes on the park” are created with buildings fronting the subject park properties.

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<td>Identify street-end park opportunities and develop regulations to require their establishment and maintenance.</td>
<td>Local Governments</td>
<td>1 year</td>
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### Develop a detailed greenways/blueways mapping and information system with identification of launches (both formal and informal), portage locations, parking areas, and support facilities should be developed.

A multi-disciplinary users group should be formed, ancillary to the MPO (Bicycle/Greenways/Pedestrian Advisory Committee) or PBC Parks/Recreation, including public agencies, local governments, private sector interests, non-profits, and citizens for broad information gathering and system development. Common signage and trail mapping information should be assembled and developed, linked into the Convention and Visitor's Bureau “Palm Beach County Naturally” advertising and marketing. Interconnections with the East Coast Greenway should be identified, prioritized, and marked accordingly.

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<td>Develop a detailed greenways/blueways mapping and information system with identification of launches (both formal and informal), portage locations, parking areas, and support facilities should be developed.</td>
<td>MPO or Palm Beach County Parks/Recreation as lead</td>
<td>1 - 2 Years</td>
</tr>
<tr>
<td></td>
<td>Collaborating agencies: SFWMD, FDEP, Chamber, TDC, PBC DERM, TCRPC, user groups</td>
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### Implementation

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<tr>
<td>Develop a public access program for spoil islands and other restoration efforts within and along the ICW. This program should include prototypical designs for primitive camping sites, canoe/kayak launch sites, trails, and educational signage and kiosks. A multi-disciplinary team should guide this effort, with participation from agencies, non-profits, user groups, and commercial interests.</td>
<td>Palm Beach County DERM &amp; Parks/Recreation, Local Governments, Collaborating entities: FDEP, USACE, SFWMD, non-profit organizations, user groups</td>
<td>2 – 5 Years</td>
</tr>
<tr>
<td>Install portage facilities where appropriate to expand access by non-motorized watercraft. Conflicts with control structures and low bridges should be identified, and a standard portage design should be developed, with participation by regulatory agencies, for installation at points of conflict.</td>
<td>Palm Beach County Parks/Recreation as lead with input from Blueways / Greenways Task Force, Collaborating agencies: SFWMD, FDEP, PBC DERM</td>
<td>2 - 5 years</td>
</tr>
<tr>
<td>Develop a County-wide plan to address sea level rise. Standards should be developed to establish minimum design criteria for all infrastructure and construction adjacent to the ICW. This plan should also include standards for new and upgraded seawalls with environmental enhancements.</td>
<td>Palm Beach County DERM, Local Governments, Collaborating entities: FDEP, PBC Planning &amp; Engineering</td>
<td>2 – 4 years</td>
</tr>
<tr>
<td>Develop a stormwater utility with a coverage area, at a minimum, inclusive of properties within a half-mile east and west of the ICW. This utility should be operated through the Palm Beach County Utilities Department with local government and agency coordination. In addition to stormwater treatment facilities, this utility should develop upland and in-water treatment facilities to slow and treat canal discharges prior to their entrance into the ICW.</td>
<td>Palm Beach County Utilities, Local Governments, Collaborating entities: SFWMD, FDEP, PBC DERM, Planning, and Engineering</td>
<td>2 – 5 years</td>
</tr>
</tbody>
</table>
CHARRETTE TEAM

Treasure Coast Regional Planning Council
Marlene Brunot, Regional Planner/ICR Coordinator
Zachary Davis, Regional Planner
Kim Delaney, Growth Management Coordinator
Wynsum Hatton, Planning Technician
Michelle Hips, Urban Designer
Dana Little, Urban Design Coordinator
Peter Merritt, PhD., Regional Ecologist
Greg Vaday, Economic Development Coordinator

Cambridge Systematics
Michael Williamson

Dan Cary and Associates
Dan Cary

Marcela Cambler and Associates
Marcela Camblor

Economics Research Associates
Alyssa Cohen
Tom Lavash

Planners and Urban Designers
Carlos Cruz, Urban Designer
Steven Fett, Urban Designer
Nancy Schneider, Planner
Jose Venegas, Urban Designer

TREASURE COAST REGIONAL PLANNING COUNCIL
Indian River - St. Lucie - Martin - Palm Beach

FINAL
On the following pages, a matrix is presented that summarizes the various regulatory plans affecting development along the ICW in Palm Beach County.
<table>
<thead>
<tr>
<th>Plan Name (acronym)</th>
<th>Responsible Agency</th>
<th>Adopted</th>
<th>General Areas of Applicability</th>
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<tr>
<td><strong>FEDERAL AGENCY PLANS</strong></td>
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<tr>
<td><strong>STATE AGENCY PLANS</strong></td>
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<tr>
<td>Statewide Boating Access Inventory (FWC)</td>
<td>FWC</td>
<td>ongoing</td>
<td>Inventory of marinas, boat ramps, and other boating facilities in Florida's 67 counties. (not yet available online as study is ongoing)</td>
<td></td>
</tr>
<tr>
<td>FIND Plans (Economic Analysis of the District's Waterways in PBC &amp; others)</td>
<td>FIND</td>
<td>2006</td>
<td>Purpose was to identify &amp; quantify regional economic impact of waterways operated, maintained or within FIND in PBC, using model IMPLAN. Also, economic impact of cessation of waterway maintenance was formulated.</td>
<td><a href="http://www.aiw.org/economic/palm-beach-executive-summary-report.pdf">http://www.aiw.org/economic/palm-beach-executive-summary-report.pdf</a></td>
</tr>
<tr>
<td>FDOT – Statewide Freight Plan &amp; others</td>
<td>FDOT</td>
<td>ongoing</td>
<td>Purpose of the Statewide Freight Plan is to establish a mechanism ensuring that local, regional, and state transportation planning integrate freight transportation. Cambridge Systematics, commissioned by FDOT Seaport, identified needs and program strategies.</td>
<td><a href="http://www.dot.state.fl.us/seaport/current.htm">http://www.dot.state.fl.us/seaport/current.htm</a></td>
</tr>
<tr>
<td>FDEP (may be included in part in PBC plans)</td>
<td></td>
<td></td>
<td>Refer to Indian River Lagoon Aquatic Preserve Management Plan (Jensen Beach to Jupiter Inlet), Loxahatchee River- Lake Worth Creek Aquatic Preserve Management Plan, and Jupiter Inlet District for Jupiter Inlet)</td>
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</tr>
<tr>
<td>Indian River Lagoon Aquatic Preserve Management Plan (Jensen Beach to Jupiter Inlet)</td>
<td>FDEP</td>
<td>1990</td>
<td>Focusing on the Hobe Sound to Jupiter Inlet section of the preserve, the main objective of the plan is to protect the lagoon’s natural resources for future generations. Current conditions and resources are assessed and goals are described.</td>
<td><a href="http://www.dep.state.fl.us/coastal/downloads/management_plans/aquatic/jensenbeachtojupiterinlet.pdf">http://www.dep.state.fl.us/coastal/downloads/management_plans/aquatic/jensenbeachtojupiterinlet.pdf</a></td>
</tr>
<tr>
<td>Review of MPO Long Range Transportation Plans and Regional Planning Activities and Products</td>
<td>FDOT</td>
<td>2005</td>
<td>This review by CUTR at USF summarizes the Florida MPO LRTP's goals, objectives, and planning priorities. The status of the regional transportation products is also assessed, and the preparation of a 20-year statewide transportation shortfall is discussed.</td>
<td><a href="http://www.cutr.usf.edu/research/access_m/pdf/Fin%20FTP%20Support%20Memo.pdf">http://www.cutr.usf.edu/research/access_m/pdf/Fin%20FTP%20Support%20Memo.pdf</a></td>
</tr>
<tr>
<td>Loxahatchee River- Lake Worth Creek Aquatic Preserve Management Plan</td>
<td>FDEP</td>
<td>1984</td>
<td>Objectives include managing the preserves to ensure maintenance of natural conditions, restore and enhance conditions in unnatural state, and review and comment on applications for use of state-owned submerged lands.</td>
<td><a href="http://www.dep.state.fl.us/coastal/downloads/management_plans/aquatic/loxahatcheeriver.pdf">http://www.dep.state.fl.us/coastal/downloads/management_plans/aquatic/loxahatcheeriver.pdf</a></td>
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<tr>
<td>COUNTY AGENCY PLANS</td>
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<tr>
<td>PBC Manatee Protection Plan</td>
<td>PBC ERM</td>
<td>2007</td>
<td>Objective is to improve manatee protection while considering the need for boater access. County waterways are categorized by risk of boat/manatee interaction.</td>
<td><a href="http://www.co.palm-beach.fl.us/erm/enhancement/manatees.asp">http://www.co.palm-beach.fl.us/erm/enhancement/manatees.asp</a></td>
</tr>
<tr>
<td>PBC Boating Needs Assessment Plan (product of PBC and Marine Industries)</td>
<td>PBC PRD</td>
<td>2002</td>
<td>Identified county public water access points, need for more boat ramps, docks and slips, and identifies potential sites and funding for more boating facilities for public water access county-wide.</td>
<td>[not available online]</td>
</tr>
<tr>
<td>Port of Palm Beach Plan</td>
<td>PBC</td>
<td>2005</td>
<td>Port will provide region's intermodal link to waterborne commerce with goals of economic improvement and respect of environment. Major concerns for Port include security, berthing capacity, stress on the water side &amp; increasing revenues.</td>
<td><a href="http://www.portofpalmbeach.com/home.htm">www.portofpalmbeach.com/home.htm</a></td>
</tr>
<tr>
<td>PB MPO – LRTP, Bicycle/Greenway/Pedestrian Plan, Freight Plan</td>
<td>PB MPO</td>
<td>2004-2005</td>
<td>The plan is multi-modal, including seaports and freight mobility as well as highways and public transportation. It is intended to be a tool for transportation planning, as it provides a continuing, cooperative, and comprehensive planning process for Palm Beach County.</td>
<td><a href="http://www.pbcgov.com/mpo/library/2030lrtp.htm">http://www.pbcgov.com/mpo/library/2030lrtp.htm</a></td>
</tr>
<tr>
<td>Boater Destination Plan (LW Lagoon/PBC in partnership with FIND)</td>
<td>PBC PRD</td>
<td>2002</td>
<td>Illustrates the current and proposed locations of boater destination sites: Harborview Park and Sawfish Bay Island, Juno Dunes, John D. MacArthur Beach State Park, Lake Worth Golf Course Island, Ocean Ridge Restoration Site, and Spanish River Park.</td>
<td>[not available online]</td>
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<tr>
<td>INLET DISTRICT PLANS</td>
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<tr>
<td>Operational plans by Port for PB inlet</td>
<td>Port of Palm Beach</td>
<td>2005</td>
<td>Conducted by the USACE over a period of three years, the study assess the costs and benefits of channel expansion in the federally-designated deep water channel and turning basins which serve the Port of Palm Beach.</td>
<td><a href="http://www.portofpalmbeach.com/feasibility_study.htm">http://www.portofpalmbeach.com/feasibility_study.htm</a></td>
</tr>
<tr>
<td>PBC for LW &amp; PB inlets</td>
<td>PBC</td>
<td>1915</td>
<td>Management of the inlet is being achieved through a Tri-Party Coalition, which will ensure beach placement of sand as well as maintain the inlet. The Port of Palm Beach, the inlet steward, is leading an open dialogue with the public, communities, and agencies.</td>
<td><a href="http://www.co.palm-beach.fl.us/erm/enhancement/Images/PDF_documents/history_inlets.pdf">http://www.co.palm-beach.fl.us/erm/enhancement/Images/PDF_documents/history_inlets.pdf</a></td>
</tr>
<tr>
<td>Boca for Boca inlet</td>
<td>City of Boca Raton</td>
<td>1972</td>
<td>The inlet, its jetties, and maintenance access easements were deeded to the City of Boca Raton with the stipulation that the inlet be kept navigable. Regular maintenance dredging occurs, transferring material to the downdrift beaches.</td>
<td><a href="http://www.co.palm-beach.fl.us/erm/enhancement/Images/PDF_documents/history_inlets.pdf">http://www.co.palm-beach.fl.us/erm/enhancement/Images/PDF_documents/history_inlets.pdf</a></td>
</tr>
<tr>
<td>PBC, Boynton &amp; Ocean Ridge for Boynton inlet (plan/analysis underway)</td>
<td>PBC, Boynton, Ocean Ridge</td>
<td>1996</td>
<td>Legislature created the South Lake Worth Inlet District in 1915. The inlet was necessary for shipping, transportation, and health/sanitation purposes. Currently, the county manages the inlet and sand transfer plant to mitigate for erosion.</td>
<td><a href="http://www.co.palm-beach.fl.us/erm/enhancement/Images/PDF_documents/history_inlets.pdf">http://www.co.palm-beach.fl.us/erm/enhancement/Images/PDF_documents/history_inlets.pdf</a></td>
</tr>
<tr>
<td>Jupiter Inlet District for Jupiter Inlet)</td>
<td></td>
<td>1992</td>
<td>Maintained by the Jupiter Inlet District, the inlet is a continuously improved natural inlet, where dredging of navigation channel and sand trap occurs annually. The FDEP and JID conducted a study of the inlet, resulting in an implementation plan and recommendations.</td>
<td><a href="http://bcs.dep.state.fl.us/bchmgmt/jupiter.pdf">http://bcs.dep.state.fl.us/bchmgmt/jupiter.pdf</a></td>
</tr>
<tr>
<td>MISCELLANEOUS AGENCY PLANS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast Everglades Natural Area (NENA) Plan</td>
<td>PBC ERM</td>
<td>2006</td>
<td>Envisioned to be a multi-modal trail (hiking to driving) linking existing &amp; future features ranging from Preserves to Nature Centers anticipated to cross the ICW at two locations.</td>
<td><a href="http://www.pbcgov.com/ERM/nena.asp">http://www.pbcgov.com/ERM/nena.asp</a></td>
</tr>
<tr>
<td>Greenway Plans (Miami UZA - RLRTP, Florida, East Coast Greenway) FY08 Unified Planning Work Program</td>
<td>PBMPO</td>
<td>2007</td>
<td>Purpose is to produce work products to serve several regulations set forth by the state and federal agencies with the intent of meeting such requirements. Intention is to inform federal, state modal agencies, as well as public officials and community leaders.</td>
<td><a href="http://www.pbcgov.com/mpo/pdf/UPWP08.pdf">http://www.pbcgov.com/mpo/pdf/UPWP08.pdf</a></td>
</tr>
</tbody>
</table>
## INTRACOASTAL WATERWAY PLAN FOR PALM BEACH COUNTY
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<tr>
<td><strong>FEDERAL AGENCY PLANS</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Indian River Lagoon National Estuary Program - Cooperative Conservation Management Plan &amp; others</td>
<td>multi-agency</td>
<td>1995-2002</td>
<td>Major objectives include ensuring resilience of natural conditions &amp; enhancing use conditions no longer considered natural</td>
<td><a href="http://www.inlriver.org">link</a></td>
</tr>
<tr>
<td><strong>STATE AGENCY PLANS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statewide Boating Access Inventory (SWA)</td>
<td>DOC</td>
<td>ongoing</td>
<td>Inventory of marinas, boat ramps, and other boating facilities in Florida's 67 counties.</td>
<td><a href="http://florida.marinas.org">link</a></td>
</tr>
<tr>
<td>FDEP Plans (Economic Analysis of the District's Waterways in PBC &amp; others)</td>
<td>FDEP</td>
<td>2003</td>
<td>Purpose was to identify &amp; quantify regional economic impact of waterways operated, maintained or within FDEP's jurisdiction. Also, impact of potential expenditures in waterway maintenance was assessed.</td>
<td><a href="http://www.dep.state.fl.us/dept/depjournal.htm">link</a></td>
</tr>
<tr>
<td>FDOT - Statewide Freight Plan &amp; others</td>
<td>FDOT</td>
<td>ongoing</td>
<td>Purpose of the Statewide Freight Plan is to maintain a transportation network that facilitates efficient movement of people and goods in Florida, including the nation's major rapid transit systems.</td>
<td><a href="http://www.dep.state.fl.us/dept/depjournal.htm">link</a></td>
</tr>
<tr>
<td>FDEP River Reuse Plan &amp; others</td>
<td>FDEP</td>
<td>2006</td>
<td>Refer to Indian River Lagoon Aquatic Reserve Management Plan (Sawgrass to Jupiter) New Holland River - Lake Worth River Aquatic Reserve Management Plan and Jupiter Inlet District of Jupiter Inlet</td>
<td><a href="http://www.dep.state.fl.us/dept/depjournal.htm">link</a></td>
</tr>
<tr>
<td>DCA - Working Watersheds &amp; others</td>
<td>DCA &amp; others</td>
<td>2005-2003</td>
<td>The Florida Legislature, in 2003 and 2006, passed legislation requiring local county governments to develop strategies and implement the Comprehensive Plan requirements for the preservation of natural and commercial working waterfronts.</td>
<td><a href="http://www.dep.state.fl.us/dept/depjournal.htm">link</a></td>
</tr>
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DRAFT for Review
December 7, 2007
### Intracoastal Waterway Plan for Palm Beach County
**Draft Planning Document Inventory**

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<thead>
<tr>
<th>Plan Title</th>
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<tbody>
<tr>
<td>Indian River-Lagoon Aquatic Preserve Management Plan (Jensen Beach to Jupiter Inlet)</td>
<td>FDEP</td>
<td>1993</td>
<td>Focusing on the Indian River Estuary, this plan describes the preservation, restoration, and enhancement of aquatic resources and habitats.</td>
<td><a href="http://www.dep.state.fl.us/coastal/hm/rpt/irrplan014.pdf">Document Link</a></td>
</tr>
<tr>
<td>Review of MPO Long Range Transportation Plans and Regional Planning Activities and Procedures</td>
<td>FDOT</td>
<td>2005</td>
<td>This review by CDOT at JSUB summarizes the region's transportation plans and identifies priorities for the next 20 years.</td>
<td><a href="http://www.fdot.gov/research/newsletters/wpcontent/uploads/2013/03/20130320_fdot_news.pdf">Document Link</a></td>
</tr>
<tr>
<td>Loxahatchee River - Lake Worth Creek Aquatic Preserve Management Plan</td>
<td>FDEP</td>
<td>1994</td>
<td>Objectives include managing the preserves to ensure the preservation of the unique ecosystems, restore and enhance habitats, and protect and enhance the quality of aquatic resources.</td>
<td><a href="http://www.dep.state.fl.us/coastal/hm/rpt/irrplan014.pdf">Document Link</a></td>
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### Regional Plans

<table>
<thead>
<tr>
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<th>Description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive Ecosystem Restoration Plan (CERP)</td>
<td>SFWMD &amp; JSUACE</td>
<td>2003</td>
<td>A comprehensive plan for ecosystem restoration and protection, including wetlands, estuaries, and coastal areas.</td>
<td><a href="http://www.evergladesconservation.org">Document Link</a></td>
</tr>
<tr>
<td>CERP Project Management Plan, North Palm Beach County, Part 1</td>
<td>SFWMD</td>
<td>2005</td>
<td>Purpose is to provide environmental, economic, and recreational benefits.</td>
<td><a href="http://www.evergladesconservation.org">Document Link</a></td>
</tr>
<tr>
<td>SFWMD - SWMM</td>
<td>SFWMD &amp; BSC</td>
<td>1991</td>
<td>Objectives include improving the management of surface water and stormwater in the Indian River Lagoon.</td>
<td><a href="http://www.dep.state.fl.us/coastal/hm/rpt/irrplan014.pdf">Document Link</a></td>
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**Draft for Review**
December 7, 2007
# INTRACOASTAL WATERWAY PLAN FOR PALM BEACH COUNTY

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<tr>
<td>21st Century PBC Strategic Economic Development Plan</td>
<td>PBC EDO</td>
<td>2007</td>
<td>Five Strategic Directives: Property Sustainability, Quality of Place Equity &amp; Education and Positioning</td>
<td><a href="#">pdf</a></td>
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<tr>
<td>PBC Water Quality Management Plan</td>
<td>PBC ERM</td>
<td>2007</td>
<td>Objectives of the new initiative: protecting and improving the quality of waterways</td>
<td><a href="#">pdf</a></td>
</tr>
<tr>
<td>PBC Boating Needs Assessment Plan</td>
<td>PBC PRD</td>
<td>2002</td>
<td>Identified county public access points, need for boating ramps, docks and slips and minor obstacles</td>
<td><a href="#">pdf</a></td>
</tr>
<tr>
<td>Port of Palm Beach Plan</td>
<td>PBC</td>
<td>2005</td>
<td>Port will develop projects related to waterway development with multiple goals: improvement and removal of environmental impacts, security, and increased revenues</td>
<td><a href="#">pdf</a></td>
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**APPENDIX 215**

**TREASURE COAST REGIONAL PLANNING COUNCIL**

Indian River - St. Lucie - Martin - Palm Beach

**FINAL**

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**INTRACOASTAL WATERWAY PLAN FOR PALM BEACH COUNTY**

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<td>PBC</td>
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**December 7, 2007**
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<tr>
<td>PB HPO - LR*&lt;br&gt;BrydeGreenwayPedestrian Path&lt;br&gt;Freight Park</td>
<td>PB HPO</td>
<td>2004-2005</td>
<td>The plan is multi-modal, including seaports and freight mobility as well as highways and public transportation. It is intended to be a tool for transit and parking and provides a permitting, regulatory, and comprehensive planning process for Palm Beach County.</td>
<td><a href="www.pbhpo.com/intracoastal2004.zip">www.pbhpo.com/intracoastal2004.zip</a></td>
</tr>
<tr>
<td>BTLA Development Plan&lt;br&gt;Northwest PBC&lt;br&gt;in partnership with PB BOC</td>
<td>PBC PBC</td>
<td>2002</td>
<td>Highlights the current and future development of coastal destination sites, including Palm Beach, Lake Worth, and Lantana. Includes marketing of the-Brooklet Park, Lake Worth Golf Course, and Palm Beach Island.</td>
<td>[not available online]</td>
</tr>
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</table>

**INLET DISTRICT PLANS**

<table>
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<tr>
<th>Plan Name (acronym)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Operational plans by Port for PB HPC</td>
<td>Port of Palm Beach</td>
<td>2035</td>
<td>Conducted by the JSVACE over a period of three years, the study assesses the costs and benefits of channel expansion in the federally-designated deep-water channel and harbor areas served by the Port of Palm Beach.</td>
<td><a href="www.jsvace.com">www.jsvace.com</a></td>
</tr>
<tr>
<td>PBC for Dunes &amp; PBI Inlets</td>
<td>PBC</td>
<td>1945</td>
<td>Management of the inlet is being achieved through a Tri-Party Coalition, which shall ensure proper maintenance of the inlet as well as the nature of the beach. The Port of Palm Beach and the City of Stuart are working to ensure the inlet is maintained.</td>
<td><a href="www.palmbeach.gov">www.palmbeach.gov</a></td>
</tr>
<tr>
<td>BCA for South Inlet</td>
<td>City of Stuart</td>
<td>1972</td>
<td>The inlet is utilized for fishing access and is managed by the City of Stuart with the stipulation that the inlet be kept navigable. Regular maintenance and dredging occurs to maintain the channel.</td>
<td><a href="www.cityofsouthstuart.com">www.cityofsouthstuart.com</a></td>
</tr>
</tbody>
</table>

DRAFT for Review<br>December '07, 2007
## INTRACOASTAL WATERWAY PLAN FOR PALM BEACH COUNTY
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<thead>
<tr>
<th>Agency/Region</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBC, Boynton Beach</td>
<td>1932</td>
<td>Maintained by the Jupiter Inlet District. The inlet is a continuously open natural inlet. Re-sanding of navigation channel and sand bar occurs annually. The FDEP and HCB conducted a study of the inlet resulting in an implementation plan and recommendations.</td>
</tr>
<tr>
<td>Palm Beach County</td>
<td>1935</td>
<td>Legislature created the South Lake Worth Inlet District in 1935. The inlet was necessary for shipping, transportation, and flood control purposes. Currently, the county manages the inlet and sand transfer plant for maintenance of a sand bar.</td>
</tr>
<tr>
<td>Jupiter Inlet District</td>
<td>2003</td>
<td>Proposed to be a multi-modal trail linking the Atlantic Ocean, Intracoastal Waterway, and Lake Worth. Features include a trailhead, interpretive signs, and a nature center.</td>
</tr>
<tr>
<td>St. Lucie County</td>
<td>2003</td>
<td>Proposed to be a multi-modal trail linking the Atlantic Ocean, Intracoastal Waterway, and Lake Worth. Features include a trailhead, interpretive signs, and a nature center.</td>
</tr>
</tbody>
</table>

### MISCELLANEOUS AGENCY PLANS

<table>
<thead>
<tr>
<th>Agency/Region</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCLP</td>
<td>2003</td>
<td>Intended to be a multi-modal trail linking the Atlantic Ocean, Intracoastal Waterway, and Lake Worth. Features include a trailhead, interpretive signs, and a nature center.</td>
</tr>
<tr>
<td>Miami-Dade County</td>
<td>2003</td>
<td>Intended to be a multi-modal trail linking the Atlantic Ocean, Intracoastal Waterway, and Lake Worth. Features include a trailhead, interpretive signs, and a nature center.</td>
</tr>
</tbody>
</table>

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<th>Plan Name (acronym)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CCL</td>
<td>Coral Link</td>
<td>County of Indian River, Martin, Palm Beach, and St. Lucie</td>
<td>2006</td>
<td>整体沿海地区的各种类型</td>
<td>[Coral Link link]</td>
</tr>
<tr>
<td>EVAB</td>
<td>Ecological Vision for the Bermuda Aquatic Preserve</td>
<td>Department of Environmental Protection</td>
<td>1997</td>
<td>沿海生物多样性保护区</td>
<td>[EVAB link]</td>
</tr>
<tr>
<td>CAC</td>
<td>Coastal Adaptation Climate Change</td>
<td>County of Indian River, Martin, Palm Beach, and St. Lucie</td>
<td>2007</td>
<td>沿海生态系统适应气候变化</td>
<td>[CAC link]</td>
</tr>
<tr>
<td>CRP</td>
<td>Coastal Resiliency Planning</td>
<td>Treasure Coast Regional Planning Council</td>
<td>2015</td>
<td>沿海地区恢复力规划</td>
<td>[CRP link]</td>
</tr>
<tr>
<td>CCE</td>
<td>Coastal Climate Change</td>
<td>County of Indian River, Martin, Palm Beach, and St. Lucie</td>
<td>2006</td>
<td>沿海气候变化</td>
<td>[CCE link]</td>
</tr>
<tr>
<td>TAC</td>
<td>Treasure Atlantic Coast</td>
<td>Treasure Coast Regional Planning Council</td>
<td>2006</td>
<td>沿海地区规划</td>
<td>[TAC link]</td>
</tr>
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<td>Date of Adoption</td>
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</tr>
<tr>
<td>Gulf Intracoastal Waterway (Texas)</td>
<td>DODT</td>
<td>2037</td>
<td>“GICW” focuses on reliable mobility, increased safety, water quality preservation, accelerated project delivery, and economic vitality of the Gulf Intracoastal Waterway.</td>
<td><a href="http://www.textragulfcoastline.org/">http://www.textragulfcoastline.org/</a></td>
<td></td>
</tr>
<tr>
<td>Manas River Greenway Action Plan (Miami, Fl.)</td>
<td>Manas River Commission</td>
<td>2034</td>
<td>The community feels that the river is a working river, a destination, a wildlife habitat, and an environmental resource. The river is a part of our heritage and our future.</td>
<td><a href="http://www.tp.org/plan_2006.html">http://www.tp.org/plan_2006.html</a></td>
<td></td>
</tr>
<tr>
<td>DeSoto New River Master Plan (Fort Lauderdale)</td>
<td>City of Fort Lauderdale</td>
<td>2037</td>
<td>DeSoto New RiverMaster Plan (Fort Lauderdale)</td>
<td>[<a href="http://www.hall">http://www.hall</a> County.org/DeSotoNewRiverMasterPlan/index.aspx](<a href="http://www.hall">http://www.hall</a> County.org/DeSotoNewRiverMasterPlan/index.aspx)</td>
<td></td>
</tr>
<tr>
<td>Trinity River Condo Project (Dallas, TX)</td>
<td>Trinity Project Office</td>
<td>2035</td>
<td>Trinity River Condo Project (Dallas, TX)</td>
<td><a href="http://www.trinitywater.org/download/Map%20of%20Project%20Maps.pdf">http://www.trinitywater.org/download/Map%20of%20Project%20Maps.pdf</a></td>
<td></td>
</tr>
<tr>
<td>Fort Lauderdale Water Taxi Plan (Fort Lauderdale, FL)</td>
<td>Water Transportation Alternatives, Inc.</td>
<td>2032</td>
<td>Fort Lauderdale Water Taxi Plan (Fort Lauderdale, FL)</td>
<td><a href="http://www.watertaxi.com/">http://www.watertaxi.com/</a></td>
<td></td>
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