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 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.

Palm Beach County recently finalized its Manatee Protection Plan, which includes identified speed zone restrictions (highlighted in the maps above) to protect this native species.

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
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.

Successful Waterborne Services Exist Today
Palm Beach Gardens

http://www.panama-hatties.com/

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.

Successful Waterborne Services Exist Today
Riviera Beach

http://watertaxi.homestead.com/ShuttleService.html

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.

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.
Water-Based Transportation

- **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.
variety of existing water taxi operations as well as a handful of water taxi stations that are pending or proposed. Both the current operations as well as the pending locations are discussed below and illustrated in the maps in this section.

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
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.
Water Taxi Operating Matrix

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<th>Service Speed (Knots)</th>
<th>Trip Time (Minutes)</th>
<th>Knots per Hour</th>
<th>Miles per Hour</th>
<th>Miles per Minute</th>
<th>Route Length</th>
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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.

**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.
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
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.
WATER-BASED TRANSPORTATION

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.

In the map above, existing high speed ferry services from Fort Myers and Marco Island are illustrated along with potential routes for new high speed ferry service from the Port of Palm Beach.
Other areas in the region such as Fort Lauderdale also provided high-speed service at one time but suspended the service due to costs and permitting issues. Currently, Miami, Fort Myers, and Marco Island provide seasonal high-speed ferry service to Key West. These service times are comparative with the automobile for length of trip providing a viable transportation alternative.

Charrette participants encouraged the MPO, County, Port and others to further investigate the potential re-establishment of high-speed ferry service to destinations such as South Florida, the Keys, and the Bahamas. The timing for such a service may be optimal, especially for service to the Bahamas as the Bahamian islands continue their economic recovery from recent tropical activity and ultimate buildout. In the map on the previous page, potential routes for new ferry service from the Port of Palm Beach to points in South Florida and the Bahamas are illustrated. It should be noted that new service establishment may require public participation to incentivize new operations.

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 necessary depth. 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 area.

The Port of Palm Beach has long-term improvements needed to enable expansion of its operation and allow access for deeper vessels.
area are working to solicit funding to help improve the waterway. The area shown in red illustrates the key areas of the megayacht service facilities. In addition to the waterside constraints, it is critical to preserve industrial lands along the waterfront. These facilities need to have reliable highway access to receive parts and fuel. An additional challenge facing this area is the proximity to recreational activities for yacht crews. Palm Beach County does not have a significant density of activity centers for multi-day periods, and consequently, many megayacht crews tend to spend their down time in locations like Miami. This makes shuttle services critical to access these regional areas.

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.