Water Taxi Feasibility Study

Final Report

Prepared for:

The City of Sarasota

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Contents

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Tables

Glossary of Terms

1. **ADA – Americans with Disabilities Act**
2. **Amenities – Shopping, Parks, Playgrounds, Rest Areas, etc.**
3. **County – The County of Sarasota**
4. **Dock/Docking Structure – Fixed wooden structure attached to a shoreline which overhangs the water.**
5. **Facilities – Restrooms (men, women, & family)**
6. **Floating Dock – Floating structure which is buoyantly stabilized on the water and rises and lowers with the tide.**
7. **Florida Department of Environmental Protection (FDEP)– State of Florida's lead government agency which is charged with the management, stewardship, and protection of Florida's air, water, and land.**
8. **Florida Fish and Wildlife Conservation Commission (FWC) – Government agency responsible for the conservation and management of Florida's fish, wildlife, and their habitats.**
9. **Gangway – Narrow passageway or walk which allow access to a boat or dock.**
10. **Intracoastal Waterway (ICW) – An inland waterway that runs along Florida's east and west coast.**
11. **Mooring – The parking of a vessel or area in which a vessel is moored.**
12. **Manatee Protection Plan (MPP) – County-specific document (approved by federal, state, and local governments) created to ensure the protection of manatees and their habitats.**
13. **Navigational Routes – Plotted route that directs ships, aircraft, etc. Independent of this report they are navigable waterways for ships and vessels.**
14. **Submerged Resources – In water vegetation or life such as mangroves, seagrasses, macroalgae, corals (hard & soft).**
15. **Unites States Army Corps of Engineers (USACE) –Federal entity created to oversee and deliver engineering services.**
16. **Sovereign Submerged Land (SSL) – Lease which allows permittee to legally place structures on land owned by the state.**
17. **Water Taxi – Water vehicle that takes pedestrian from one location to another.**

Executive Summary

The purpose of this water taxi feasibility study was to investigate alternative transportation options to reduce travel times between locations surrounding the Sarasota waterfront, as well as to improve tourist and local worker mobility during peak morning and evening travel periods. This alternative form of transportation also is anticipated to provide a scenic route and special attraction opportunity for travel around the waterfront. Three prime locations were investigated as having great potential for having appropriate infrastructure, navigable routes, points of interest, and ridership opportunities while also potentially reducing congestion caused by other forms of transportation at peak times. The three locations listed in order of most available existing infrastructure to least available are: O'Leary's Tiki Bar at Bayfront Park, Ken Thompson Park, and St. Armands Key (north side John Ringling Blvd.). Additional alternative locations were also considered at 10th Street and South Lido County Park, with 10th Street as another great option due to good existing infrastructure, navigational routes, and many surrounding points of interest.

Each of the following proposed locations will require the construction of either a new docking structure or the modification of an existing one to provide safe and effective use by a water taxi service. Due to various site conditions, costs of constructing the docking structures varies and is estimated to range from $93,000 to $170,000 per location and is outline in Table 2 (see page 6). This does not include the construction of any additional paved access walkways, patron shelters, or the costs associated with obtaining the federal, state, and local permits required for the construction. The following is a site-specific detail of this estimated cost analysis:

O'Leary's Tiki Bar at Bayfront Park: Existing docking infrastructure is in a dilapidated state. Restoration of the structure will be required prior to usage with modifications to possibly include additional fixed dock square footage, a floating dock structure, and gangway. Anticipated construction costs for the restoration of the existing dock may range between $70,000 to $80,000. The estimated cost for minor additions to the dock, which can be viewed on Figure 14 (see page 26) would be in the range of $72,000 to $88,000, plus the cost of a gangway (approximately $5,000). Permitting will require a modified Sovereign Submerged Land Lease (SSL) from the state with additional permits being required from the state's Department of Environmental Protection (DEP), local county government, and the federal governments US Army Corps of Engineers (USACE).

Ken Thompson Park: Site currently is devoid of a docking structure. Construction costs of a dock similar to the one represented in Figure 20 (see page 32) is estimated at appoximately $93,000 to $118,000. This price does not include that average gangway cost of approximately $5,000. Additional infrastructure will be required such as pedestrian seating and an asphalt walkway to provide adequate access and ADA compliance. A new state issued SSL lease will be required as well as local (County), state (DEP), and federal (USACE) permits must be obtained.

St. Armands Key: Site is currently devoid of a docking structure and sits in a pocket between a residential community and a multi-family condominium community. Challenges include City Ordinance Sec. 10-74 which prohibits the City Commission from issuing a permit which allows for the boarding or discharging of water taxi passengers within 500 ft of the mean high-water mark of residential single-family waterfront real property or privately owned property without the prior written permission of the said property owner. Additional constraints are associated with the "sufficient upland interest" in which the location is adjacent to a State Road right-of-way requiring an easement to be established to construct and maintain a dock. Despite these requirements a proposed docking structure (Figure 30, page 42) has been placed at a distance of 300 ft from the adjacent single-family community and 275 ft from the adjacent multi-family community. The estimated cost of a dock similar to the one represented in Figure 30 is approximately $135,750 to $169,500. Permit requirements would include securing permits from the city and USACE as well as an SSL lease and an Individual permit from DEP.

Travel times associated with a water taxi service were estimated based on the travel distance to the proposed docking locations along safe navigational routes at speeds running between 4.5 to 13 knots (5 to 15 miles per hour). These speeds were chosen due to various factors such as existing speed zones and other safety considerations necessary to operating a passenger vessel in busy inland waterways. While speeds greater than this are possible, operational speed of a vessel on any particular day and route will ultimately be determined by the vessel captain in consideration of many factors. Therefore, the times provided in Table 1 (below) are estimated time ranges which may vary based on these factors. Express routes between O'Leary's and Ken Thompson Park as well as Ken Thompson Park and 10th Street are included and may potentially be popular routes and time saving opportunities for commuters. These travel times do not include an approximate 1 to 5 minutes of additional time at each location which may be required to embark or disembark. While these estimated time frames are not always faster than other forms of transportation, they are not significantly slower than timeframes experienced during heavier traffic volumes and may be faster during times of peak traffic volume.

Location	O' Leary's	Ken Thompson	St. Armands	10th Street	South Lido
O' Leary's	—	13-30	21-25	10-25	15-30
Ken Thompson	13-30	—	21-35	10-23	19-25
St. Armands	21-25	21-35	—	20-25	25-30
10th Street	10-23	10-23	20-25	—	18-24
South Lido	15-30	19-25	25-30	18-24	—
Express Route from Ken Thompson	—	10-15	—	6-10	—

Table 1: Approximate travel times in minutes for water taxi navigation between stops.

LOCATION	LOW	HIGH	GANGWAY	EST. MAX TOTAL
O' Leary's	$70,000	$88,000	5,000	**$93,000**
Ken Thompson	$93,000	$118,000	5,000	**$123,000**
St. Armands	$135,750	$169,500	5,000	**$174,000**

Table 2: Cost estimate of dock design with gangway.

1.0 Introduction

J Foster Consulting, LLC, conducted a water taxi feasibility study on behalf of the City of Sarasota, concentrating on key target locations between Downtown Sarasota's Bayfront Park, St. Armands Key and the Ken Thompson Parkway. The purpose of this study was to investigate alternate transportation options to reduce travel times between locations surrounding Sarasota as well as to improve mobility during peak morning and evening travel periods. With yearly increases in Florida's population, and a projected 1% annual population growth rate within Sarasota County through 2045, daily vehicle and public transportation commutes are becoming more cumbersome and time consuming.[1] The segment of the John Ringling Causeway (Causeway) connecting mainland Sarasota to the barrier islands is one of the top 20 most unreliable segments of road in the Sarasota/Manatee County area during the peak season, regarding consistent duration to drive through the area. This location-specific problem encouraged the City to investigate alternative travel options. Such waterborne transportation provides another amenity: it provides a relaxed experience via a scenic route through some of the most beautiful areas in the vicinity of the City (Sarasota Bay) while also providing transportation in some of the busiest areas of the City, thereby saving citizens' time and relieving some of the traffic burden on the Causeway.

The success of an effective water taxi service for the City of Sarasota will depend on the accessibility of dock locations, supportive infrastructure, and a sustainable relationship between private operators and the local government to successfully navigate the market of travel demands for visitor/tourist and local worker commutes. This partnership will rely heavily on a private operator's ability to operate within a governed structure influenced by public action and investments. These actions should include, but may not be limited to, providing sufficient supporting facilities and services such as docking, sidewalks, seamless mobility hubs servicing surrounding points of interest, and the establishment of regulations and standard operating procedures. With the proper combination of public and private investment, the City of Sarasota could greatly benefit from integrating a local water taxi into its transportation repertoire.

2.0 Study Considerations and Overview of Findings

When examining the feasibility of the City's offering of a new form of alternative transportation to the public, it is apparent some factors will ultimately have to be decided by location constraints and budget. The scope of this waterborne transportation (water taxi) study is limited to the following criteria:

- Zoning, Laws, and Permitting Requirements;
- Possible Loading and Unloading Locations;
- Points of Interest;

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1 https://www.mympo.org/index.php?preview=1&option=com_dropfiles&format=&task=frontfile.download&catid=34&id=784&Itemid=1000000000000

- Environmental Parameters Such as Water Depths, Bathymetry, Submerged/Upland Natural Resources (Mangroves, Seagrass, Coral, Oysters, etc.);

- Navigational Routes, Infrastructure Limitations such a bridge clearance, Local Marine Traffic Issues, and;

- Vessel Options.

Zoning, Laws, and Permitting Requirements

Multiple regulatory agencies will be involved with authorizing and permitting a project which involves changing land use, construction or other alterations to the land, and operation of a commercial or municipal vessel carrying passengers. The regulatory agencies involved with a water taxi service located within the City of Sarasota include the local government (City of Sarasota), the state government (the Florida Department of Environmental Protection [FDEP]), and the federal government (the U.S. Army Corps of Engineers and the U.S. Coast Guard). In some cases, permitting of new structures or activities may also require consultation with the Florida Fish and Wildlife Conservation Commission (FWC) through either the state or federal permitting process, or if any alterations or additions to aids to navigation (navigational signs, etc.) are required. As long as the project and the associated vessels adhere to existing waterway speed limits and dock expansion into waterways is limited to include less than five slips, the project is not anticipated to adversely affect Sarasota County's Manatee Protection Plan or trigger further review of the project under that plan.

It should also be noted that the construction of a new dock for the purpose of operating a water taxi service would be considered a commercial activity which requires an SSL through the FDEP. Such leases are common at commercial marinas and similar facilities and would be implemented as part of the state's permitting process. Based on the current conceptual designs of docks to be constructed at the proposed sites, it is likely the total preempted area of State-owned SSL would be less than 3,000 square feet at each site. Structures of this size would be charged only the minimum annual lease fee. The current minimum annual fee for an SSL lease is $541 (subject to annual increases every March); however, 6% of revenue is additionally charged for such commercial leases.

The use of an existing commercial docking structure that already has a lease may also be a consideration for water taxi service. Any change to such a docking structure or lease boundary due to the new activity would require a lease modification from FDEP. One other possibility is the use of an existing seawall which has adequate space and water depths to support a water taxi vessel. Considering vessels only temporarily motor up to the seawall to pick up and drop off passengers in a touch-and-go scenario, so as to essentially remain "in navigation," no SSL lease or permitting of a structure should be required. Such a scenario may or may not be practical for serving regular business and customers, and such a seawall location may not be available for this type of use. Further detail concerning site-specific environmental regulatory requirements is included in the site-specific sections below.

There are currently some City of Sarasota ordinances that govern the operation of a water taxi within the city limits (City of Sarasota Code of Ordinances, Article IV, Sections 10-70 through 10-79). These ordinances require that a water taxi service receive a City permit which needs to be renewed (permits expire on September 30th annually). The issuance of such a permit requires the

vote of the City Commission. One of the restrictions on operation of a water taxi service is the prohibition of boarding and/or discharging of water taxi passengers within 500 feet (ft) of the mean high water mark of waterfront real property which is used for residential single-family purposes. This will be examined as a site-specific issue at one of the potential water taxi destinations described in this report. The remainder of the activities which are prohibited for the operation of a water taxi service within the City of Sarasota are as follows:

Sec. 10-78. – Prohibited acts.

(a) No water taxi shall, at any time, have in use loud speakers or any device to amplify sound, with the exception of an internal intercom system, for passenger pickup and discharge for safety-related purposes, or in the case of an emergency. A water taxi may sound horns for navigational and emergency purposes. Notwithstanding the foregoing, the city commission may, in its sole discretion, determine that the permit shall permit acts or conduct which would otherwise be in violation of this subsection. In the event the city commission so determines, the permit shall clearly state the specific conduct which shall be permitted and the dates and times upon which such conduct shall be permitted.

(b) No water taxi shall, at any time, except for safety-related purposes, illuminate by spotlight or any other means any of the sites or places of interest located along its route of operation including, but not limited to, residential dwellings, businesses or government buildings.

(c) No water taxi may board or discharge passengers along the sandy beach areas on the Gulf of Mexico or Sarasota Bay within the municipal limits of the city.

(d) No water taxi shall operate within a designated swimming area.

(e) No water taxi shall operate within the municipal limits of the city without having in full force and effect all insurance coverages required by this article or any other law, rule or regulation;

(f) No water taxi shall operate within the municipal limits of the city without having the permit posted in a conspicuous location.

(g) No water taxi shall be operated while occupied by more passengers than the number of passengers which the vessel was designed or designated by the manufacturer or the United States Coast Guard to carry;

(h) It shall be unlawful to operate a water taxi within the municipal limits of the city unless the vessel possesses and displays all applicable and required Coast Guard licenses.

(i) It shall be unlawful to operate a water taxi within the municipal limits of the city which is not in compliance with all applicable marine regulations of any and all governmental or regulatory bodies or agencies.

(j) No advertising of any nature whatsoever shall be placed upon any water taxi vessel other than to designate the vessel as a water taxi and exhibiting the company name or logo.

(k) It shall be unlawful to use an airboat as a water taxi in the municipal limits of the city.

It is anticipated that the public sector will invest in infrastructure while a private company will provide the water taxi vessel and operational requirements (*i.e.*, captain, deck hands, fueling, etc.). To evaluate acceptable vendors/operators, it will be important to have the equipment and qualifications to provide the water taxi service needed. Establishment of a partnership which will include an agreement that identifies all partners and establishes how daily duties, operation, costs, etc., are handled is necessary. The company that owns the vessel will need to be in good standing with appropriate business licensing, having currently employed U.S. Coast Guard-licensed captains, and ownership/use of **U.S. Coast Guard inspected- and State-registered vessels.** It is also important that the vessel operator have adequate insurance coverage. Required coverage required by City ordinance is as follows:

- ≥ $1,000,000 3rd party & passenger liability per vessel
- ≥ $50,000 3rd party property damage per occurrence
- Workers Compensation + Jones Act coverage for three or more employees

Possible Loading and Unloading Locations

This study investigates the feasibility of water taxi service at three primary loading and unloading locations: specific areas of Bayfront Park; Ken Thompson Park; and along the north side of State Road 789 (John Ringling Blvd.) just east of St. Armands Circle, as shown on the map in Figure 1 (see below). More detail on these locations is included in the site-specific sections of this report.

Figure 1: Primary locations map

Points of Interest

The three primary locations considered for proposed water taxi service are centrally located to the main hub of activities, businesses and interests along the City's waterfront. Each location is either a point of interest itself (such as the parks) or is in close proximity to major points of interest (such as the site located immediately east of St. Armands Key on the Causeway). These locations were specifically requested for study as water taxi loading/unloading locations by City of Sarasota staff. Other nearby points of interest in the project vicinity include hotels, shopping, restaurants, Sarasota Opera, Florida Studio Theater, Marie Selby Botanical Gardens, Mote Marine Laboratory, Burns Court Cinema, Save our Sea Birds, Sarasota Explores, fishing, boat charters, kayak rentals, bike rentals, bus stops, and Gulf beaches. Details on site-specific amenities and points of interest are provided in the sections pertaining to the specific sites.

Environmental Parameters

The three study locations all occur within portions of Sarasota Bay, which is a Class II Outstanding Florida Waterbody (OFW). The OFW designation means the waterbody has been designated to be of such importance so as to receive a higher degree of water quality protection as identified in Chapter 62-302, Florida Administrative Code. The Class II designation also shows that the waterbody is classified to a higher than typical water quality designation, which is potentially viable for shellfish harvesting and consumption; however, portions of this area of the waterbody have been designated as impaired due to bacteria occasionally being found in shellfish (Impaired Waterbody ID 1968B). Therefore, shellfish harvesting for consumption is prohibited in this area.

The study area is located with a portion of Sarasota Bay which generally has shallow water depths. The Federal Intracoastal Waterway (ICW) channel crosses through portions of the proposed navigational routes of the three study areas in order to provide safe and reliable navigation of vessels which typically navigate bay or intracoastal waters. Each of the three study locations have adjacent shorelines and water access with areas of sufficient water depth to support the safe navigation and ingress/egress of small vessels as long as those areas are carefully chosen. Route depths at some of the locations range between 6-8 ft while other potential docking locations occur in areas with shallower water depths. These depths are typically provided as a mean or average low and do not take into account lower than normal tides, which can reduce depths further. Water depths to provide adequate clearance over the bay bottom and any submerged seagrass found in some portions of the proposed routes also need to be taken into account as far as navigation is concerned. Typically, regulatory agencies require one foot of clearance between the deepest portion of the vessel and the submerged bottom or any submerged resources. This is also a good rule of thumb for safe operation of a vessel as that clearance distance typically prevents turbid water caused by the operation of a vessel's propeller. Conditions which cause a vessel's propeller to operate in close proximity to the bottom can be detrimental to the propeller or lower unit (if an outboard motor is used) due to potential impacts with the bottom or debris, or due to greater potential for sediment being pulled into the cooling system. Details on water depths/bathymetry and navigation within the project area are provided in Figure 2 (see page 12).

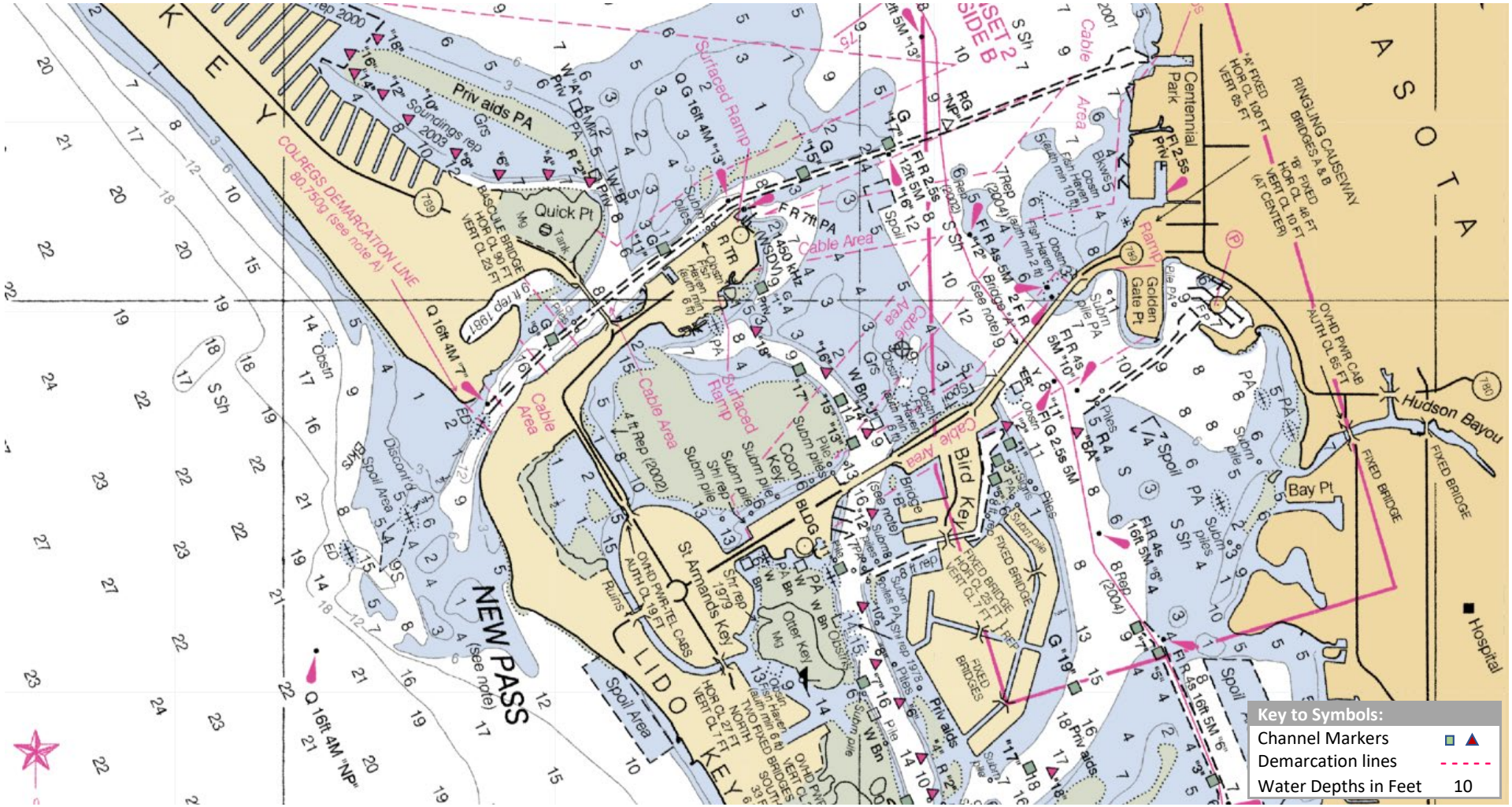


Figure 2: Water depths and navigation of Sarasota Bay from the National Ocean Service.

This portion of Sarasota Bay is full of natural resources including seagrass, rooted macroalgae, oysters, coral, mangrove trees, and the associated invertebrates, fish, dolphins and manatees that inhabit this type of subtropical bay community. The three study locations have areas where impacts to natural resources can be minimized. The Bayfront Park location has existing docks, and navigational channels which are nearly void of any natural resources. Therefore, it is the simplest location to avoid any ecological constraints. The other two locations include the presence of seagrass and other natural resources that will limit the design of vessels and dockage that can be used in the area for a water taxi service without incurring major impacts to these resources. Additional details on these resources and ecological constraints are provided in the site-specific sections.

Details on natural resources in the overall project vicinity are found in Figure 3 (see page 12). This figure also includes bathymetric contour lines which delineate the water depths in the vicinity of the project area similarly to what is shown on the navigational chart provided in Figure 2. Please note, the black contour line represented on the map in Figure 3 demarcates a water depth of four feet at mean low water. The blue contour lines (labeled as navigable channel) demarcate water depths greater than 4 ft at mean low water. Areas landward of the black contour line or opposite of the blue contours are shallower than four feet at mean low water and often include submerged natural resources. Such areas would either not be navigable on a regular basis or would be severely limited for navigational purposes. Seagrass and water depth information represented on the figures in this report were obtained from multiple government mapping data collections (see List of Resources on page 49) and were field-verified at the study locations.

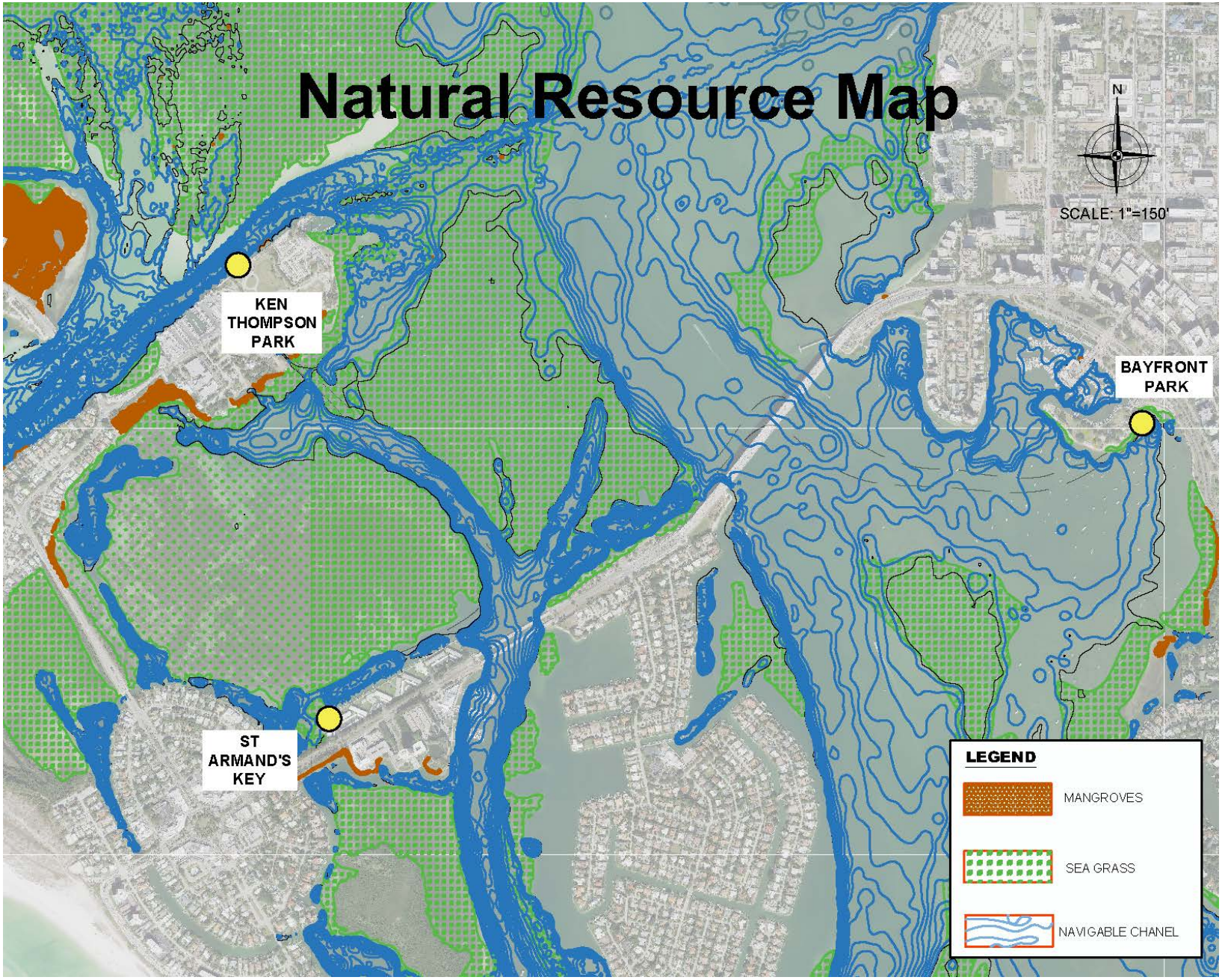


Figure 3: Natural resources map for project general vicinity

Navigational Routes

As illustrated in previous sections and figures of this report, appropriate water depths and navigational routes are imperative to providing a safe and reliable water taxi service. Due to the shallow nature of Sarasota Bay and abundant submerged natural resources such as seagrass, adequate and reliable existing navigational routes are somewhat constrained in this area. Fortunately, the three study sites are located in areas where adequate navigational routes currently exist. Marked navigational channels are used for the majority of the proposed travel routes between the three study locations which provides further reliability for transporting passengers between the locations on a regular basis while minimizing vessel piloting errors. As stated previously, final specific vessel and route selection will need to be made so that the two will be compatible with appropriate safety margins in order to be able to safely navigate during lower than normal tide conditions. Such conditions are often common during the winter months when strong fronts or storms with winds blowing from the north can push additional water out of Sarasota Bay during low tides due to the Bay's general north-south geographic orientation.

Additionally, safe navigational speed must be considered during operation of the taxi service to provide not only a safe and enjoyable experience for taxi patrons, but so that the vessel can traverse the route in a reasonable amount of time without exceeding waterway speed limits. The portion of the taxi route located in the vicinity of Bayfront Park and the larger open areas of Sarasota Bay near the Causeway Bridge allow vessels to operate on a plane at higher speeds. The other two locations are in areas designated as "Slow Speed Zones" pursuant to the Sarasota County Manatee Protection Plan. A Slow Speed Zone is defined by FWC as requiring that a vessel be fully off-plane and completely settled into the water. The vessel must proceed at a speed that is reasonable and prudent under the prevailing circumstances so as to avoid the creation of an excessive wake or other hazardous condition that endangers or is likely to endanger other vessels or persons using the waterway. Such operational speed will ultimately be determined by the specific vessel, captain, conditions, and location, rather than by the estimates made here by distance and speed calculations. The navigational routes shown in Figure 4 (see page 16) assume an average operational slow speed of 4.5 knots (approximately 5 miles per hour). Figure 5 (see page 17) is a map from the Sarasota County Manatee Protection Plan detailing the Slow Speed Zones within the project vicinity. It is estimated that at the proposed average 4.5-knot travel speed (slow speed for manatees), it will take approximately 30 minutes to travel between the Bayfront Park location and the St. Armands Circle location (one way). It is estimated that travel time between the St. Armands Circle location to Ken Thompson Park will be approximately 25-30 minutes (one way). An express route may be a possibility between Bayfront Park and Ken Thompson Park due to most of the route lying outside a slow speed zone. It is estimated that such a route could be traversed in approximately 10 minutes at a speed of 13 knots (15 miles per hour). It is likely the other routes could have travel time reduced by 5-10 minutes due to higher operating speeds outside the Slow Speed Zones. These travel times do not include an approximate 1-5 minutes of additional time at each location which may be required to embark or disembark. While these time frames are not always faster than other forms of transportation, they are not significantly slower than timeframes experienced during heavier traffic volumes, and may be faster during times of peak traffic volume.

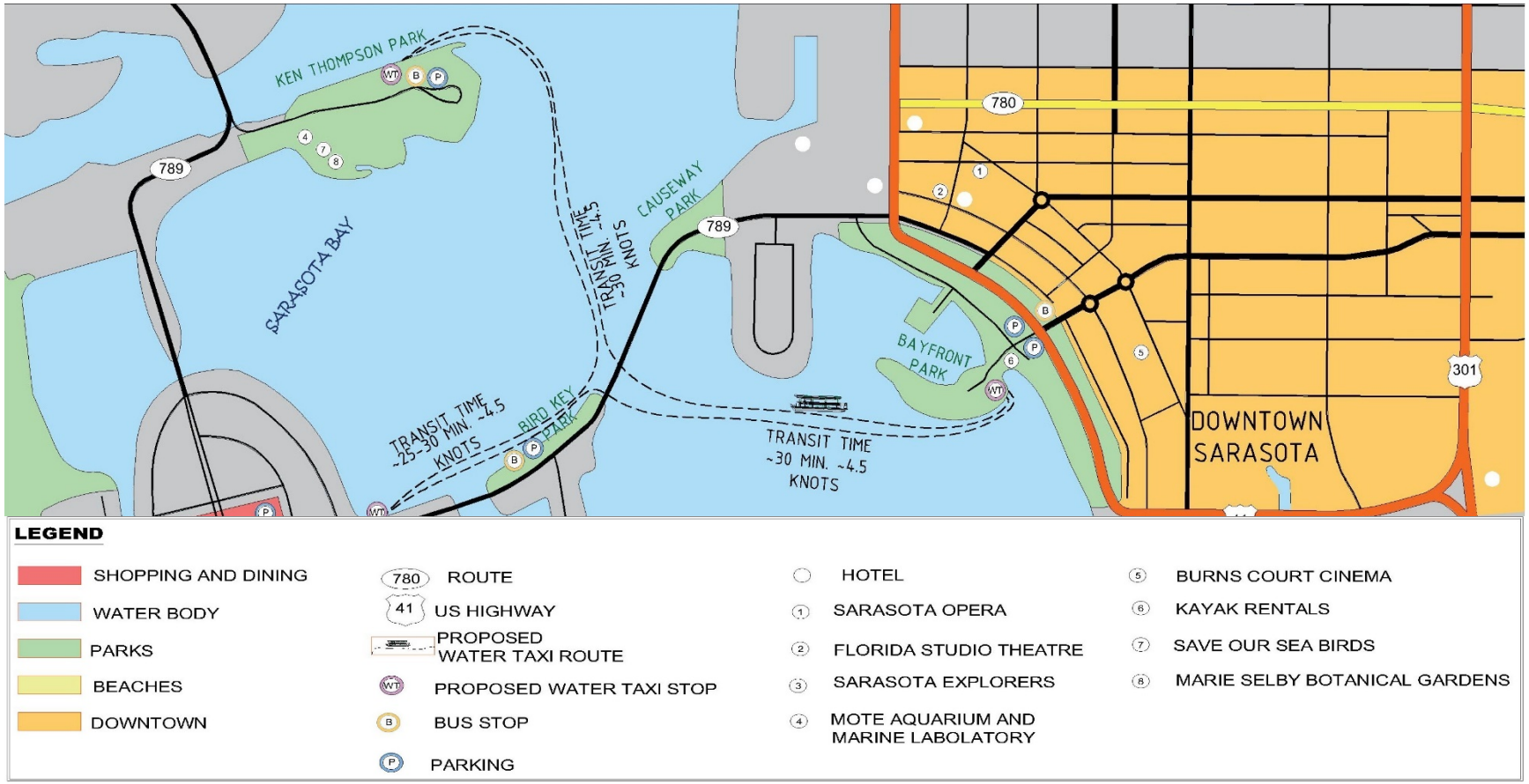


Figure 4: Proposed navigational route between the three study locations.

Location	O' Leary's	Ken Thompson	St. Armands	10th Street	South Lido
O' Leary's	—	13-30	21-25	10-25	15-30
Ken Thompson	13-30	—	21-35	10-23	19-25
St. Armands	21-25	21-35	—	20-25	25-30
10th Street	10-23	10-23	20-25	—	18-24
South Lido	15-30	19-25	25-30	18-24	—

Table 3: Estimated travel times and points of interest.

Express Route Location	Ken Thompson	10th Street
Ken Thompson	—	13-30
10th Street	13-30	—

Table 4: Estimated express routes between selected locations.

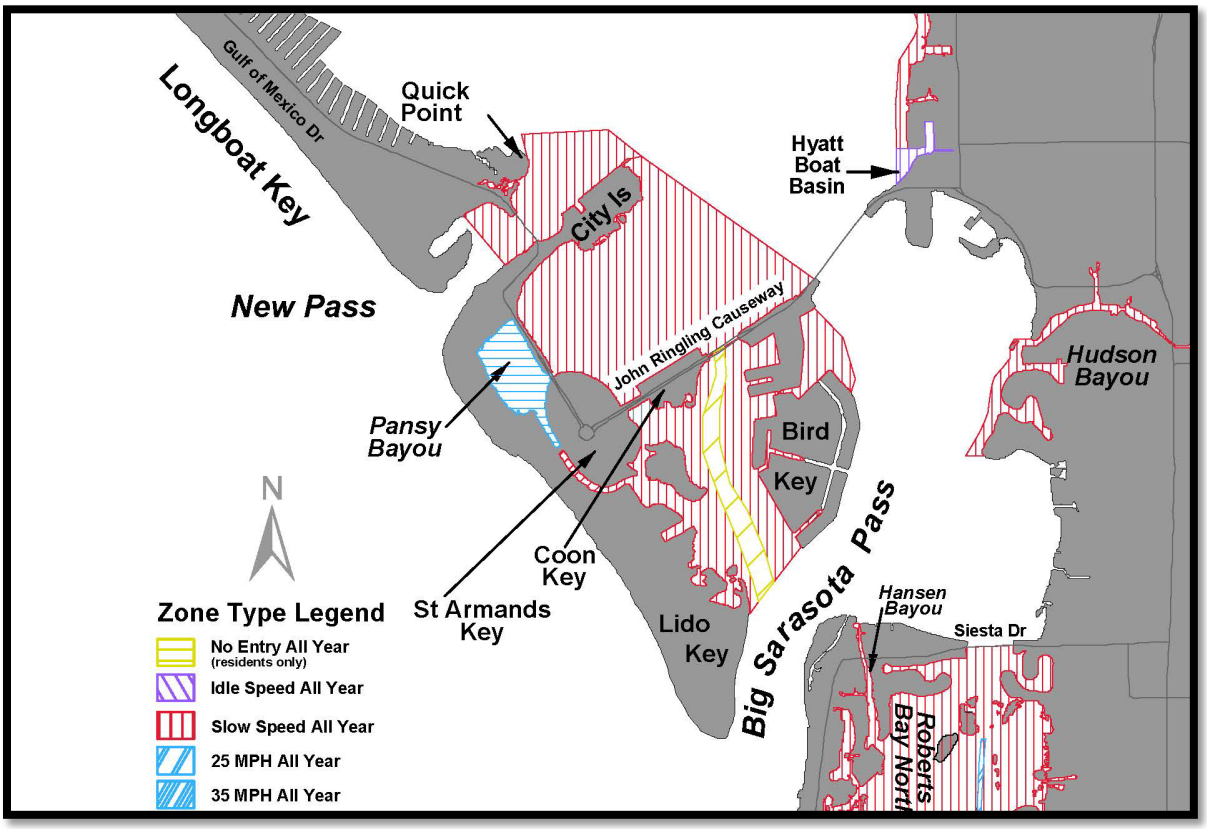


Figure 5: Slow Speed Zones as detailed in the 2011 Sarasota County Manatee Protection Plan.

Weather Constraints

Based on average Florida weather and data extracted from the National Weather Service (NWS), it is estimated that a water taxi in Sarasota could safely operate an average of 330 days a year due to weather constraints. This data is supported by the number of Small Craft Advisories (SCA) NWS has issued for the Sarasota Bay area over the course of 5 years. Data from January 2008 to April 2020 was provided by meteorologist Tony Hurt of NWS, and focuses on events such as Tropical Storm Warnings, Gale Warning Counts, Hurricane Warning Counts, and Marine Dense Fog Advisory Counts. Due to warnings requiring SCA issuance for each of these weather events, SCA numbers were used to calculate the number of fair-weather days a water taxi could potentially operate throughout the year. Figure 6 (see below) shows the average of 35 SCAs issued per year between 2015 – 2019. Please note, according to the information provided in the graph on Figure 6, this year (2020) has already had 23 SCAs as of the end of April.

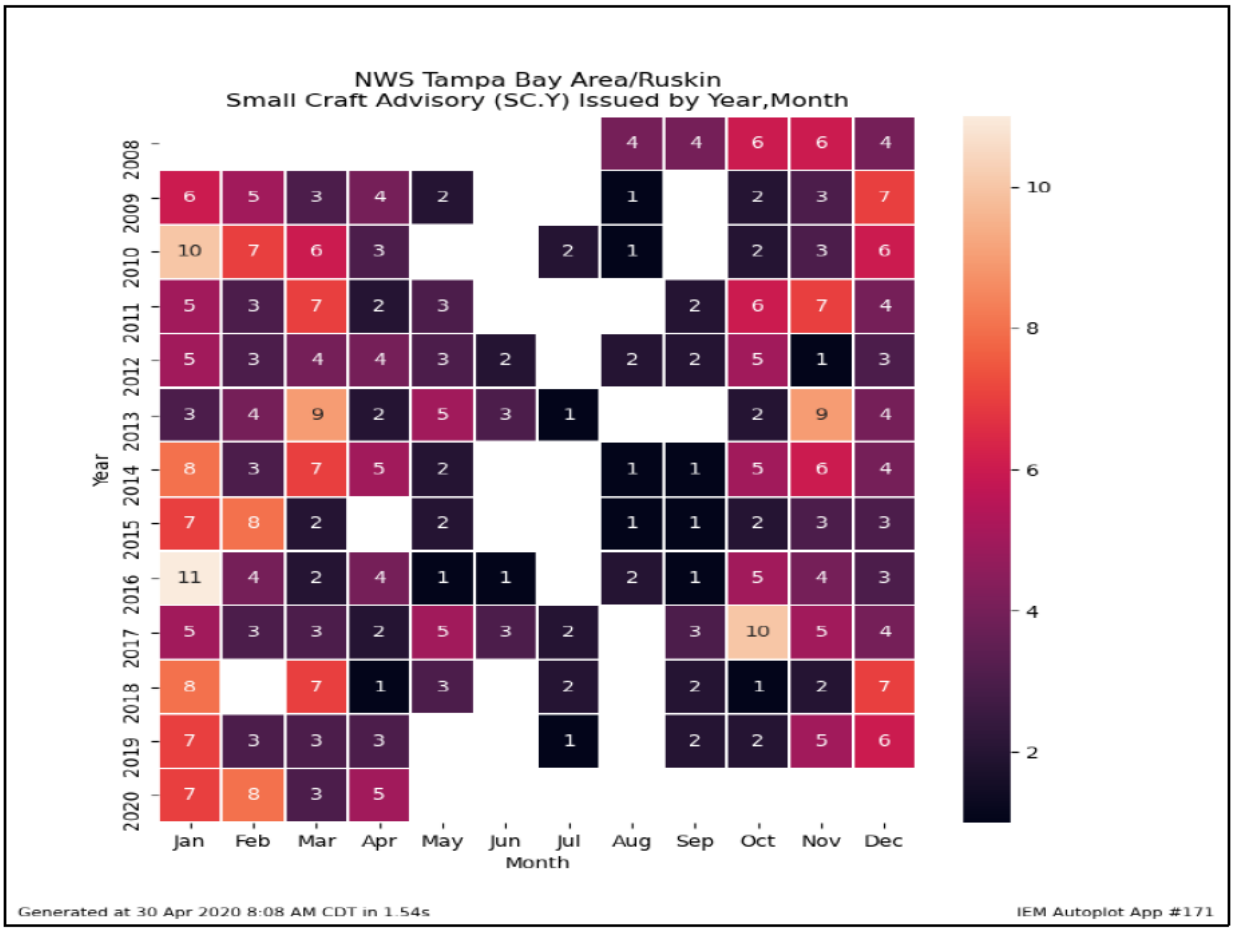


Figure 6: Small craft advisories issued in the area from January 2008 – April 2020.

Vessel Options

Based on the information provided in the bathymetric, submerged resources, and navigational routes sections, water depths within the proposed routes appear to currently be limited to a depth of 4-5 ft at mean low water. If an additional 1 ft of clearance is provided to account for lower than normal tides and as a safety buffer for operation, that would limit vessel drafts to approximately

three feet. Pontoon or multi-hull vessels are commonly used for inland water taxi services due to their typically wide and stable design which is preferable for carrying maximum numbers of passengers comfortably. Such vessel designs also typically have shallower drafts than single-hull vessels. The vessels shown in Figure 7 (see below) are vessels that are typically used in bay waters like those found in the project vicinity. Their size and draft are suitable for navigation along the proposed travel routes. These types of vessels can safely carry approximately 28 to 30 passengers. The similar vessel (Bahama Water Taxi) found on the left side of Figure 8 (see page 20) has a model that can carry up to 49 passengers with a 2-ft vessel draft. The larger vessel on the right side of Figure 8 (Allmand Boats) can carry up to 70 passengers with an approximate 2-ft vessel draft. The vessels shown in Figure 9 (see page 21) have capacity greater than 100 passengers. These vessels typically have a vessel draft exceeding 3 ft and therefore would likely be too large to be able to effectively navigate the smaller channels within the proposed travel routes.

Vessels which are designed to carry greater than 49 passengers are subject to more stringent U.S. Coast Guard safety standards, such as having multiple bulkheads and pumping systems. Such larger vessels are also more expensive, require larger engines and more fuel, and are more difficult to navigate in tight channels and docking facilities. Ultimately, the decision on the make and model of the vessel and associated passenger capacity will be made through a public/private partnership and resources available to those parties involved. Anticipated number of patrons, vessel navigation and docking capabilities, cruising comfort, and operational costs are all factors to be considered when evaluating what vessels would be best for providing this service.

Vessel Options

SPECS

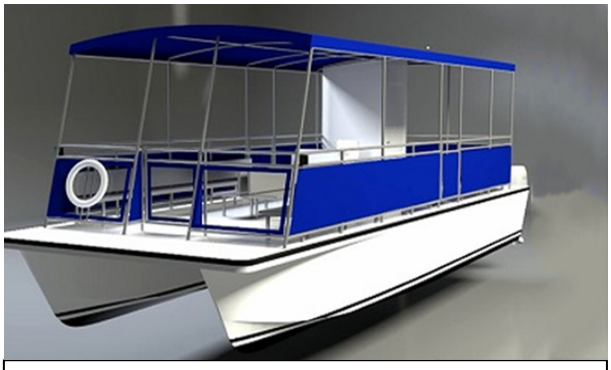
- Length: 10.3 m (33.8 ft)
- Draft: .3 m (.98 ft)
- Load Capacity:
  30 people max
- Price: $5,000 -10,000

SPECS

- Length: 8.5 m (28 ft)
- Draft: .85 m (2.8 ft)
- Load Capacity:
  28 people max
- Price: $68,500 - 82,500

Figure 7: Examples of typical vessel options suitable for current conditions.

Vessel Options



SPECS

- Length: 7.9 m – 11.6 m (26 – 38 ft)
- Load Capacity: 19- 40 people
- Price: $60,000 – 199,000

SPECS

- Length: 17 m (56 ft)
- Load Capacity: 70 people max
- Price: $589,880

Figure 8: Examples of larger vessels suitable for existing conditions.

Vessel Options

SPECS

- Length: 78 ft
- Load Capacity: 118 people
- Price: Unknown

SPECS

- Length: 64 ft
- Load Capacity: 160 people max
- Price: $495,000

Figure 9: Vessel examples considered likely too large for regular and safe navigation of proposed routes.

3.0 Possible Water Taxi Locations

As described in previous sections of this report, three locations have been chosen and examined through this study as having high potential for serving as water taxi pickup and drop off locations. These locations were chosen based on points of interest, and physical and environmental conditions. Criteria that were considered when looking at points of interest at a potential site included items such as nearby restaurants, facilities, transportation (buses/shuttles) Americans with Disabilities Act (ADA) accommodations, and pedestrian walkways. Criteria that were considered when looking at physical conditions included items such as nearby existing structures (*e.g.*, docks, seawalls), parking, bridges, navigational routes, transit times, and water depths. Finally, criteria that were considered when looking at environmental conditions included items such as seagrass, coral, mangroves, endangered/protected species (*e.g.*, manatees, smalltooth sawfish, sea turtles).

O'Leary's Tiki Bar Dock at Bayfront Park

The first and primary location to consider is near O'Leary's Tiki Bar at Bayfront Park on the mainland (east) side of Sarasota Bay. Some of the points of interest near that location are listed in Figure 10 (see page 22). This location is the site of a large marina facility, Marina Jacks, which offers boat and fishing charters, as well as slip rentals and a ship's store. Marina Jacks is one of the main locations for the annual Sarasota Boat Show. The site also includes a large public boat

mooring field with associated restroom and wash facilities located at Bayfront Park. J.D. Hamel Park, Gulfstream Park, Marie Selby Botanical Gardens, hotels, condominiums, numerous restaurants, and many other locations on the west side of downtown Sarasota are also located within just a short walk from Bayfront Park. Approximately 600 free (3-hour) parking spaces are also available at this park, making it one of the largest areas of available public parking in the waterfront area of the city. This site is also close to additional parking at the City garages at Palm Ave and State Street. Roundabouts are planned for the intersection at US 41 and Ringling Blvd as well as US 41 and Main Street, to improve connectivity for bicyclists and pedestrians between this site and downtown Sarasota.

BAYFRONT PARK

POINTS OF INTEREST

- Downtown
- Sunset Boat Club
- Restaurants (O' Leary's Tiki Bar)
- Steigerwaldt Playground & Splash pad
- Kayak/Canoe Rental
- Nature Walk/Bike Trail
- Public Parking

Figure 10: Bayfront Park points of interest.

Due to the presence of the marina and the mooring field near the park, water depths are typically deeper than four feet at mean low water. The area also has sparse coverage of submerged resources (*e.g.* seagrass, rooted macroalgae) which typically prefer shallower water. This allows safe and easy dockage and navigation of even larger vessels which traverse Sarasota Bay in this area.

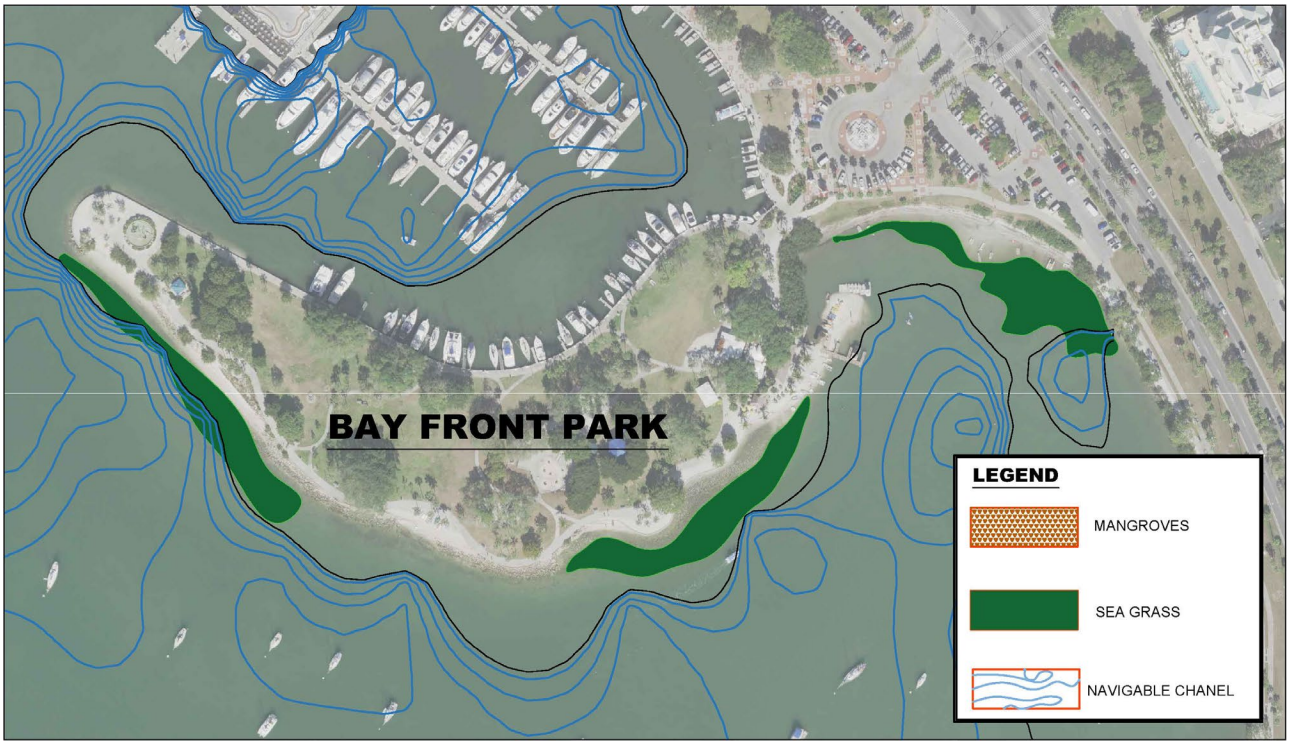


Figure 11: Natural resources and bathymetric contours at Bayfront Park.

Navigation is also aided by the Park's close proximity to the ICW channel just a short distance to the west. A distinct advantage of the site is that the City of Sarasota currently owns the dock just outside O'Leary's Tiki Bar (see Figure 12 on page 24) which already has an SSL lease for commercial docking at the site. As long as the proposed water taxi vessel can fit within the lease boundary and current use of the dock, the site will provide a turnkey location for a water taxi service coming to and from the dock. A boat slip which can dock the proposed water taxi vessel within the lease boundary will likely need to be properly marked, as patrons and other vessels may also make berth at the dock.

Onsite inspections revealed that the existing dock piles are deteriorating and weakening due to damage caused by shipworms (see Figure 13 on page 24) suggesting the dock is approaching the end of its useful lifespan. Replacement of this dock prior to accepting new vessels and business is recommended. The lifespan of a new dock may be 25 years. If the dock is repaired or replaced within its original footprint, it is exempt from the need for a permit from the State of Florida pursuant to 403.813(1)(d), Florida Statutes. Such repair or replacement should also qualify to be covered under the State Programmatic General Permit (SPGP V-R1) which would be considered federal approval as part of the state's exemption. If any changes are made to the size or configuration of the dock, new permits will be required from the State and the U.S. Army Corps of Engineers. A new SSL lease with a new survey drawing will be required in order to show any changes to structures within the lease boundary, as well as any changes to the lease boundary itself, if any are needed.

Figure 12: View of current dock at O' Leary's Bayfront Park.

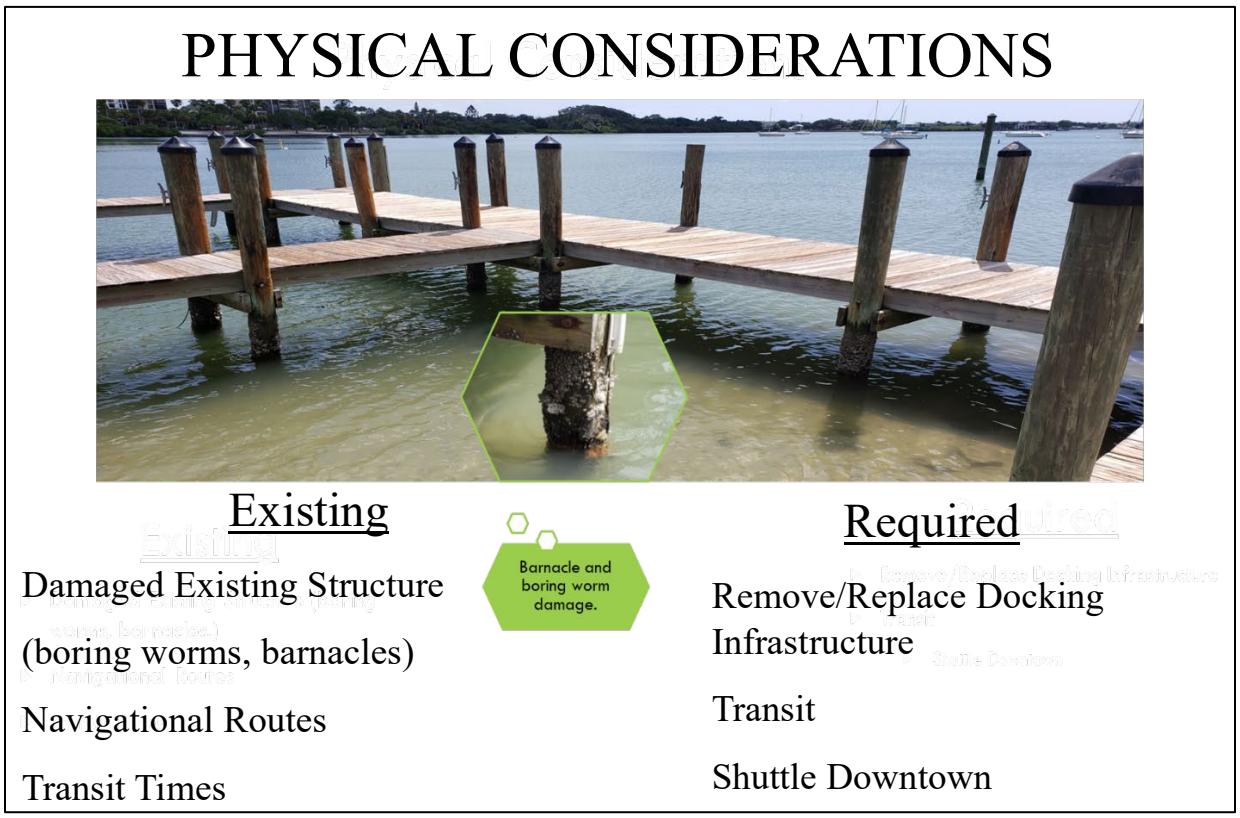


Figure 13: View of current conditions of the dock at O' Leary's at Bayfront Park.

An example of a minor dock addition consisting of a small floating platform attached to the existing dock via a gangway is represented in Figure 14 (see page 26). This modification would be a quite simple and inexpensive addition to the existing dock to allow for boarding, loading, and unloading of a water taxi vessel during all tide conditions while also providing consideration for ADA requirements. Figure 15 (see page 27) shows an example of floating dock access ramp design which meets ADA requirements. Such requirements include adequate widths (minimum 36-inch-wide clearance between ramp handrails for each travel direction), handrails, grab rails, gradual slopes, and landings (if needed, based on final design).

For this proposed modification, a City building permit inclusive of the Florida Building Code will be required. As discussed previously, such an addition to the existing dock structure would also require state and federal permits and an SSL lease modification. As no adverse impact to natural resources are anticipated, and given the existing conditions and the minor scope of the proposed changes, the new permit issuance and approval of lease modification should be fairly easily obtainable. Anticipated construction costs for this minor addition to the dock would be in the range of $72,000 to $88,000, plus the cost of a gangway (approximately $5,000). This does not include the replacement of the existing structure in-kind, the cost of which could range $70,000 to $80,000.

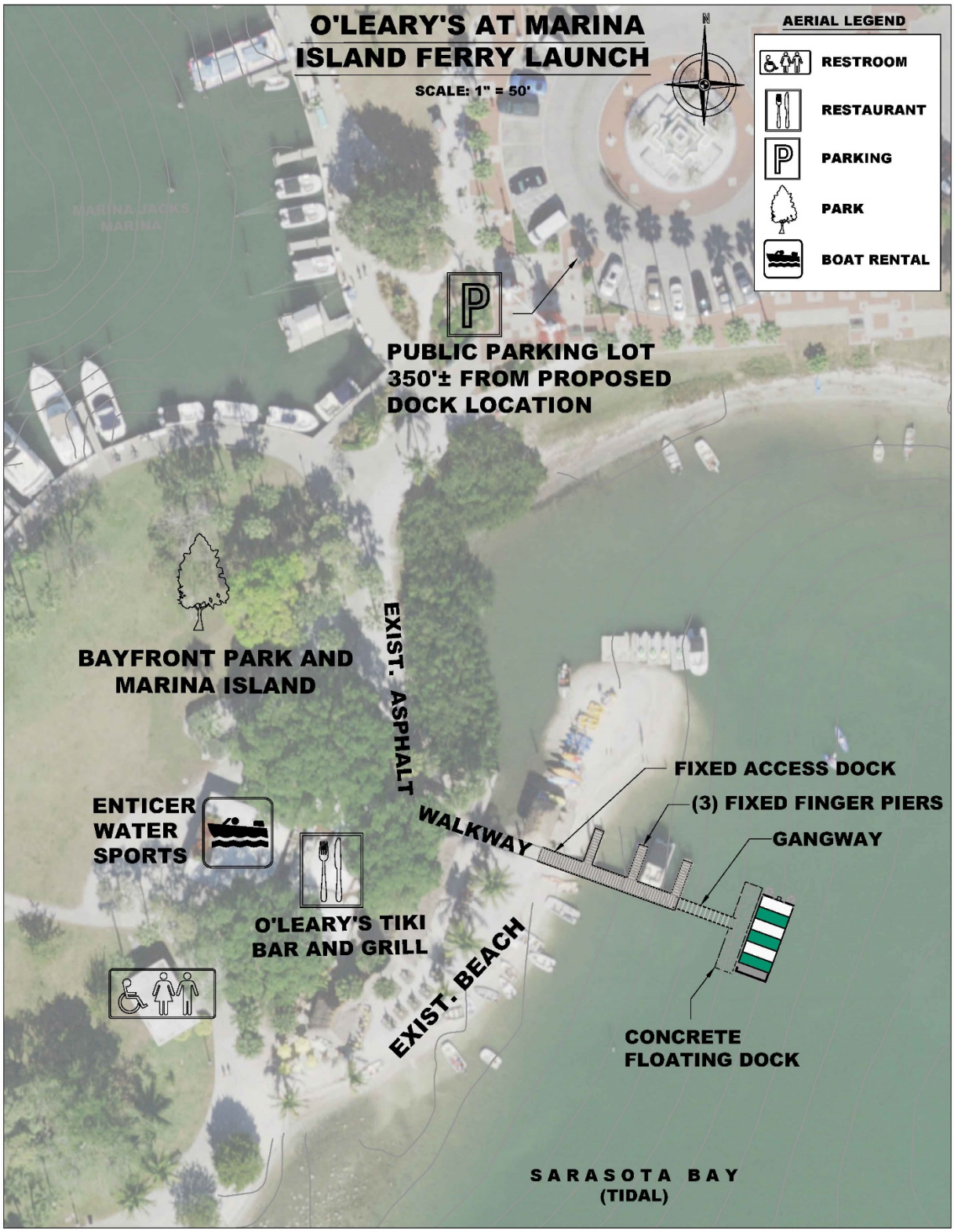


Figure 14: Existing O'Leary's dock with proposed gangway and floating platform to better facilitate water taxi service.

Figure 15 (see page 27) provides an additional representation of a special profile-view of the proposed dock modification with existing conditions in the background. The figure's mock-up of a possible water taxi vessel and patrons represented on the structure gives a "real world" feel of the proposed structure and service in place. As discussed previously, the other two study locations, St. Armands Key and Ken Thompson Park, could be easily accessed from this location by use of the ICW and smaller existing marked channels. The Bayfront Park location is outside any manatee zone speed restrictions due to deep and open water for navigation. Therefore, there are no concerns with navigation or potential adverse effects to threatened or endangered species at this location. Because there are no slow speed restrictions in this area, it is possible that a water taxi vessel could operate at higher speeds within larger open water areas and within the ICW for a portion of the travel time to the other two proposed locations. The manatee Slow Speed Zones would only affect the much smaller channels on the approach to the other two study locations. Therefore, potential travel times, especially to or from Bayfront Park, could be reduced from the estimated times represented in Figure 4 (see page 16).

Figure 15: Proposed floating dock addition profile-view mock-up with water taxi and patrons facing northeast (top) and southwest (bottom).

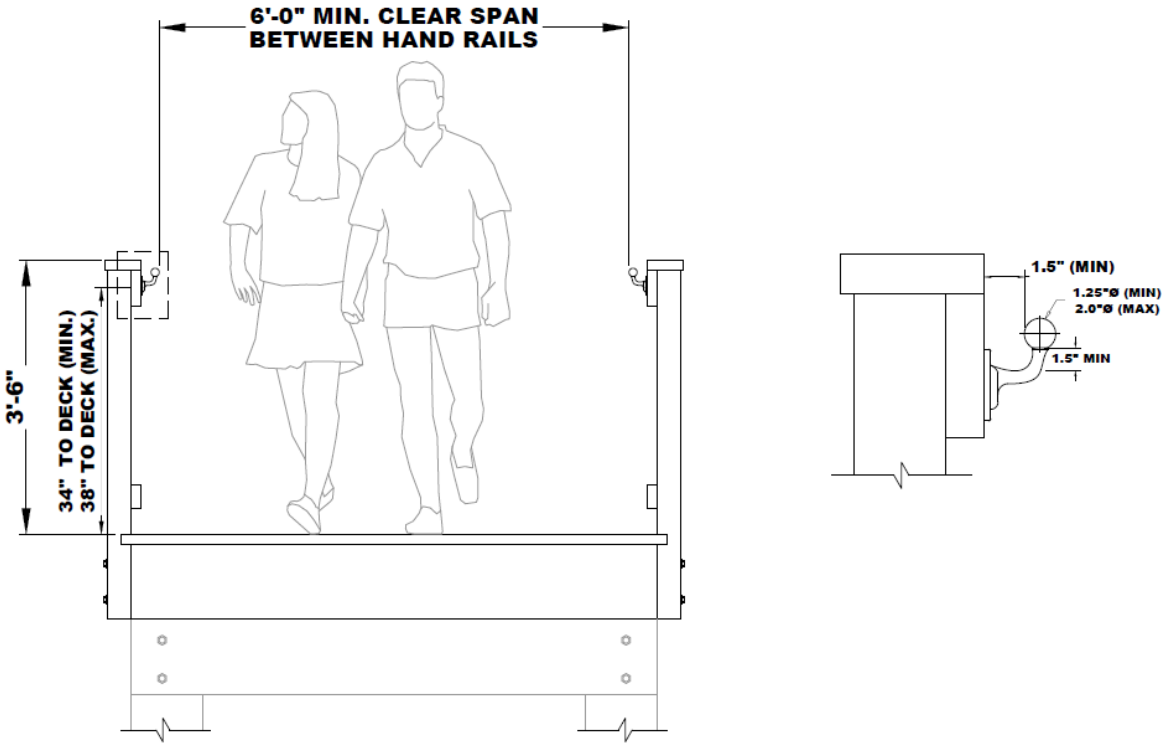


Figure 16: Detail showing ADA deck spacing and railing to accommodate two individuals.

Ken Thompson Park

The second study location in terms of suitability, is Ken Thompson Park on City Island on the west side of Sarasota Bay. The park is a 92-acre property owned by the City of Sarasota. Some of the points of interest in and around the park are listed in Figure 17 (see page 29). This location is also the site of Sarasota Sailing Squadron, WSRZ-FM Sarasota, Marine Max Marina, stores, and sales, various fishing charters, and includes multiple fishing piers on the north side of City Island in close proximity to where Sarasota Bay meets New Pass near the bridge to Longboat Key. Direct access for fishing, wading, and swimming in Sarasota Bay can be found on the south and east side of the park along its large, gently graded shoreline. This site has also served as a location for the Suncoast Boat Show in the past. The boat show has recently moved to the Marina Jacks location mentioned above. The Park has a plentiful number of available parking spaces and multiple bus stops which provide patrons with multiple easy modes of access to and from the park.

POINTS OF INTEREST

A- Mote Marine Laboratory & Aquarium

B- Save our Seabirds

C- Ken Thompson Boat Ramp

D- Nature Walk

E- Restaurants/Bar (Old Salty Dog & New Pass Grill and Bait Shop)

F- Sarasota Bay Explorers

Figure 17: Ken Thompson Park points of interest.

Although numerous docking structures exist at this location, none of the existing structures were considered ideal for use as a water taxi service dock. Some are presently occupied by other vessels or uses, or the size, location, or water depths measure less than ideal for this type of use. The main location of consideration for a possible water taxi dock and service is along the northern seawall of the park, adjacent to the existing fishing piers. As can be seen in Figure 18 (see page 30), no significant natural resources are located along this portion of the shoreline, and adequate water depths occur remarkably close to the seawall. Additionally, a portion of the ICW channel is located immediately to the north, which provides further ease of navigation. This location is in closer proximity to Mote Marine Laboratory and other businesses in the vicinity which passengers could visit while waiting for or after deboarding the water taxi.

The apparent disadvantages with this site are the potential for rougher seas and currents due to the close proximity of the Gulf of Mexico and New Pass to the west, and the close proximity of existing fishing piers and associated fishing activity in the area. This north side is also considered to be more of the "windward" side of City Island which is open to the large area of Sarasota Bay. Although vessels do regularly navigate through this area the wind force at this site can make for rougher conditions at times. Photographic views of this location are provided in Figures 21 and 22 (see page 30). The construction of a new commercial dock servicing a water taxi at this location would require an Individual Environmental Resource Permit (ERP) from FDEP, a U.S. Army Corps of Engineers permit, a City of Sarasota permit, and an SSL lease. Much like the Bayfront Park site, no impacts to natural resources are anticipated to occur, no dredging would be needed, and the dock would be fairly small in size to reach adequate water depths. Construction costs of a dock similar to the one represented in Figure 20 (see page 32) are estimated to be appoximately $93,000 to $118,000. An asphalt walkway has been included in the proposed drawing for the dock in order to better facilitate comfortable use of the dock and to meet ADA requirements.

Figure 18: Existing natural resources and water depths at the Ken Thompson Park location.

Figure 19: Ken Thompson Park amenities.

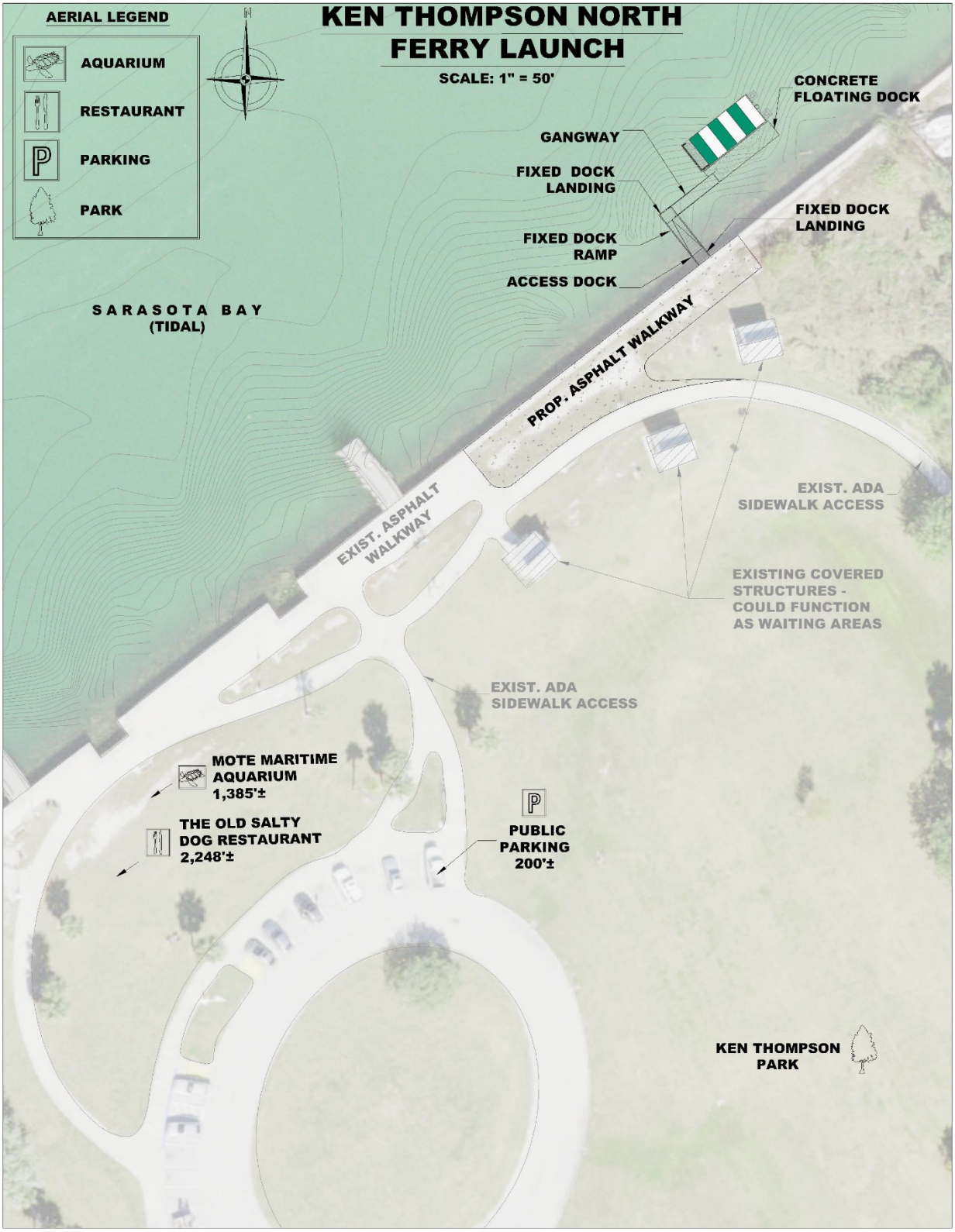


Figure 20: Proposed north dock location and configuration option at Ken Thompson Park.

Figure 21: Ken Thompson Park dock location on the north seawall (view east).

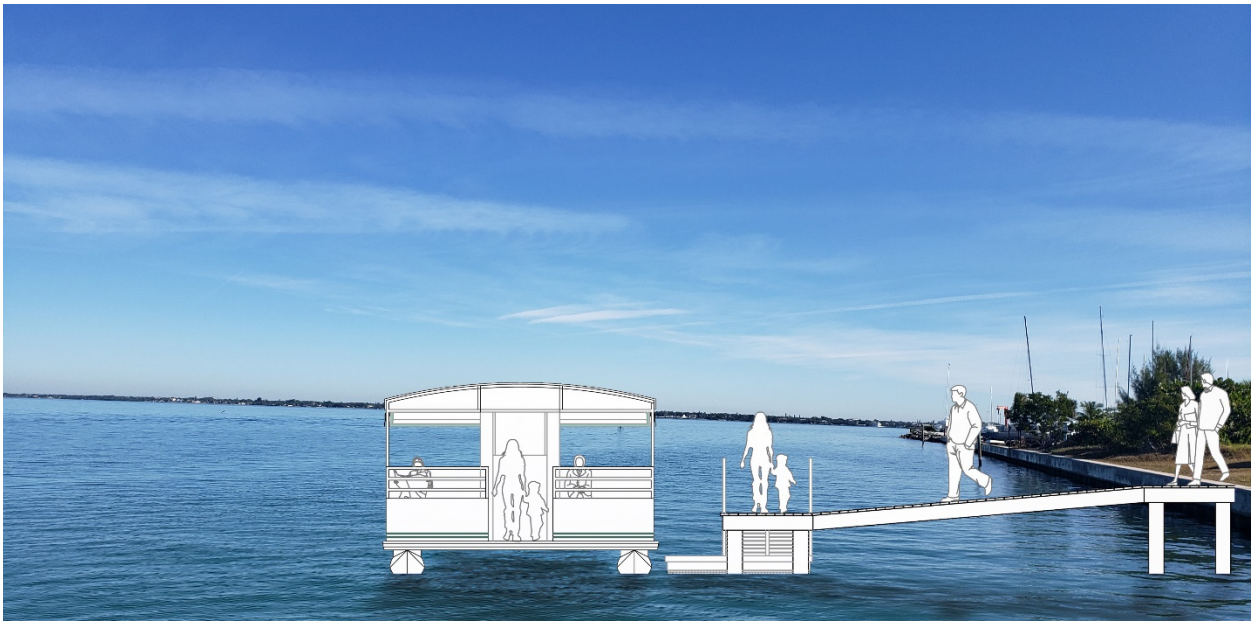


Figure 22: Proposed north seawall floating dock addition profile view mock-up with water taxi and patrons (view east).

An alternative dock loction may also be found located on the eastern shoreline of the park commencing from the road right-of-way of Ken Thompson Parkway and extending out into the Bay. This location is devoid of vegetation up to the water's edge and is currently used by visitors as a small watercraft loading and off-loading location. It is immediately adjacent to the road, parking, and a bus stop (see Figure 23 on page 35). The dock would commence just east of the parking lot and extend out into the Bay, beyond the shallow seagrass beds near the shoreline, to reach water depths suitable for navigation. An asphalt walkway has also been included in the proposed drawing for this dock in order to better facilitate comfortable use of the dock and to meet ADA requirements. The proposed dock structure extends out to the approximate three-foot contour at mean low water depth, which occurs over areas of submerged seagrasses. Therefore, given this design, only vessels with a maximum draft of 1.5 ft may be suitable for dockage and navigation here due to the Manatee Protection Plan requirement that vessels maintain a minimum of 1-ft of clearance between the deepest drafting portion of the vessel and any submerged resources. Seagrass location and water depth contours illustrating this condition are represented in Figure 24 (see page 36). As in previous figures which illustrate water depth contours, the black line represents the 4-ft at mean low water depth contour.

Two modifications could make this location more suitable: dredging a channel to provide the needed water depths or extending the length of the dock to deeper water depths. Dredging a channel at this location is considered to not be desirable and would not likely be permitted by state or federal agencies due to impacts to sovereign submerged lands and seagrass. If such an impact could be permitted, it would likely require an SSL lease for the dock and an easement for the dredge. Mitigation for seagrass impacts would also likely be required. Depending on currents and sediment transport conditions in the area, such a channel may require routine maintenance dredging which would impose an additional expense to the City and potential impacts to the environment. If a larger, deeper-draft vessel is needed for use at this location, the construction/use of a longer dock would be the recommended way of providing access for such a vessel. The construction of a new commercial dock for providing a water taxi service at this location would require an ERP from the Florida Department of Environmental Protection, as well as a U.S. Army Corps of Engineers permit and Sarasota County permit. An SSL lease from the State of Florida will also be required. Figure 25 (see page 37) provides a mock-up profile-view of the existing site with the dock and possible vessel and patrons.

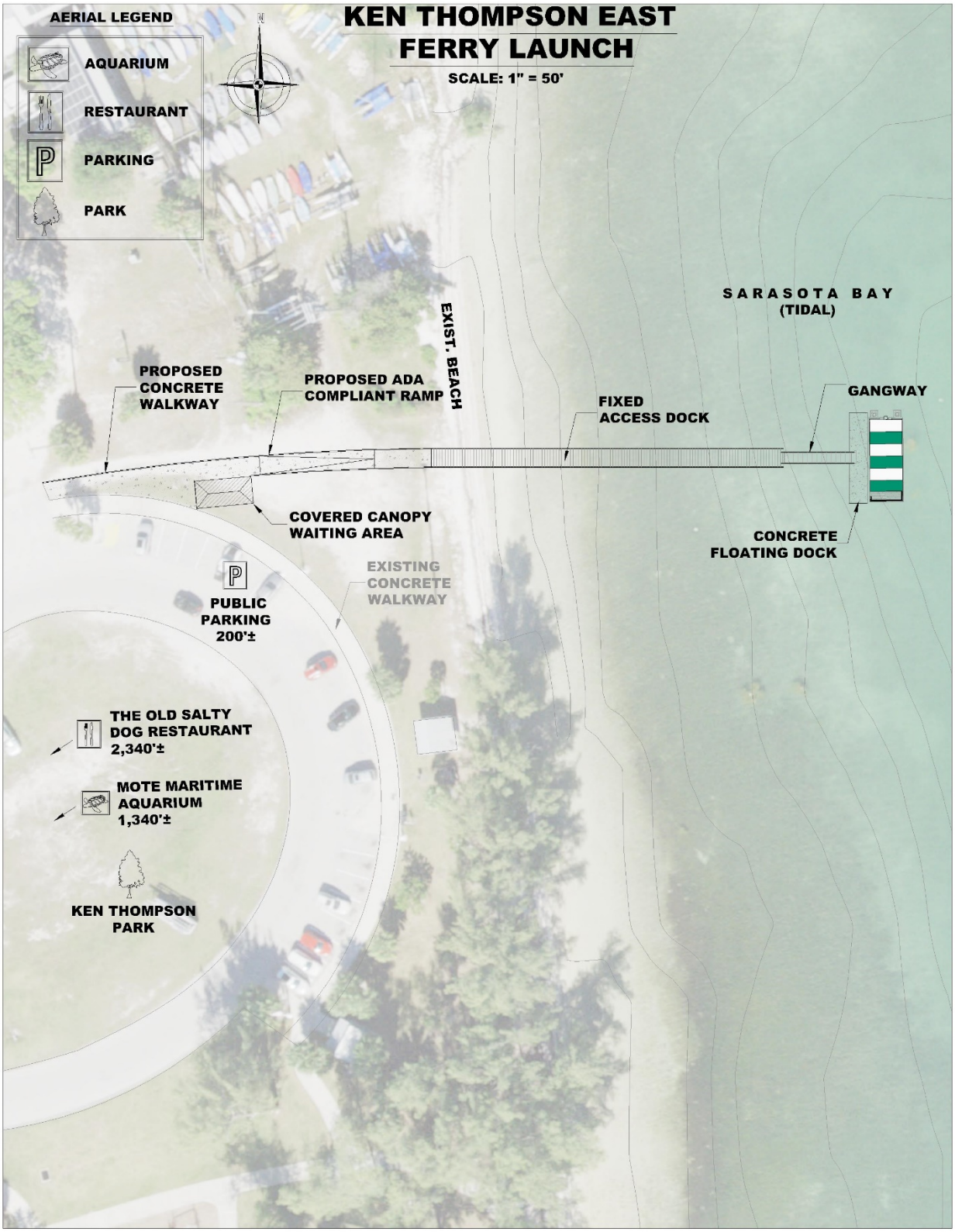


Figure 23: Ken Thompson Park – alternative dock location (east side of park).

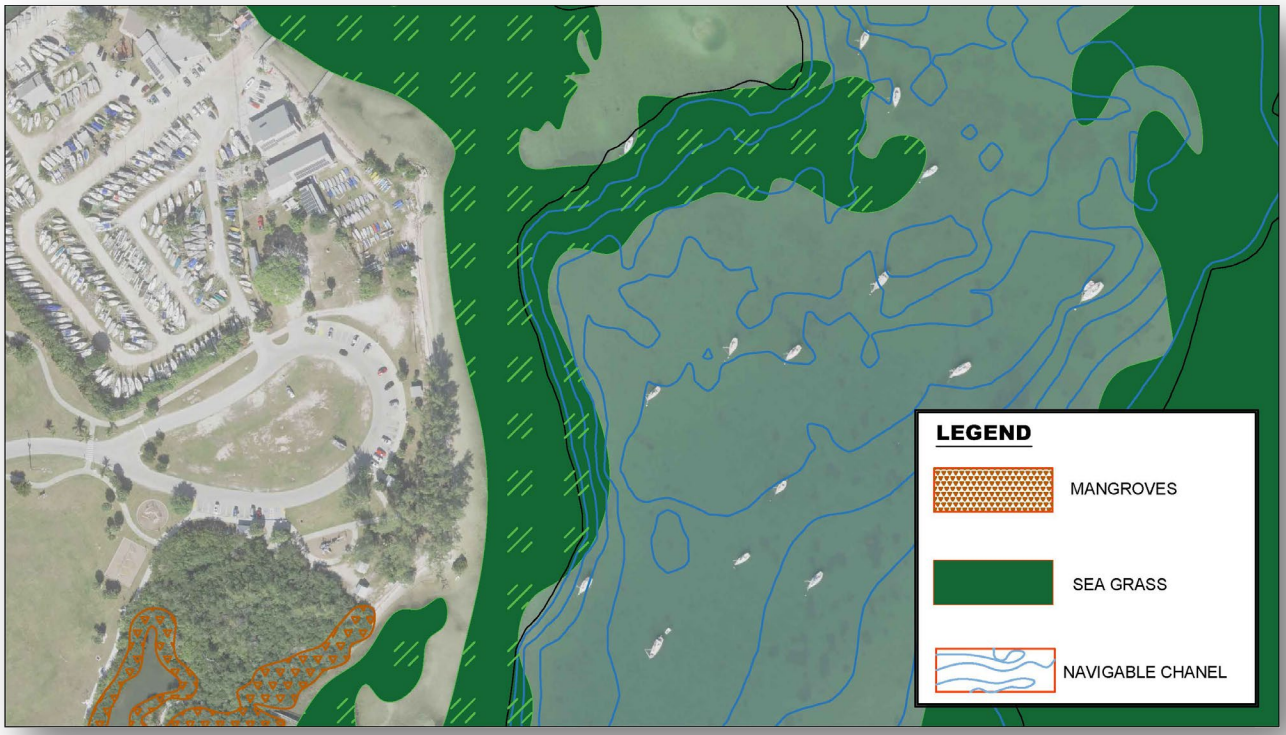


Figure 24: Ken Thompson Park - overview of natural resources and water depth contours.

The estimated construction cost of a docking structure like the one represented in Figure 23 is in the range of $180,250 to $232,000. This does not account for any potential dredging or lengthening of the dock. Another possible alternative to the proposed dock locations may also be available at the Ken Thompson Park location. The City of Sarasota owns the adjacent property to the north, which includes extensive existing docking facilities for Sarasota Sailing Squadron. This site or the commercial marina on the north side of City Island may have a suitable dock slip which could provide dockage for a water taxi service. Further exploration of this option is required and may require additional partnerships to make it work amicably for all parties involved.

Figure 25: Possible east dock configuration mock-up with patrons and vessel option (view facing north).

St. Armands Key

The third and final study location is a site located immediately to the east of St. Armands Key on the west side of Sarasota Bay. There is no space available for commercial docking sites on St. Armands Key. Therefore, the closest site possible for such a commercial dock to service a water taxi is just east of the key on the north side of State Road 789 (John Ringling Blvd.). At this location State Road 789 is a 4-lane divided highway on an earthen causeway historically constructed in Sarasota Bay to connect the coastal barrier islands (keys) with the mainland through a series of bridges, man-made islands, and earthen causeways.

This potential docking site is located approximately 0.32 miles (1,690 ft) east of the center of St. Armands Circle and all of the points of interest found there. Based on U.S. research studies, 0.25 miles (1,320 ft) is the acceptable travel distance for walking. However, research conducted by Dr. Yong Yang and Dr. Ana Diex-Roux, in their "Walking Distance by Trip Purpose and Population Subgroups" concluded that 65% of walking trips extend further than the baseline .25 miles (1,320 ft). Only 18% of walking trips exceeded a distance of 1 mile (5,280 ft). Based on these research statistics, the .26-mile (1,414-ft) walking distance from the north side of State Road 789 to St. Armands Key is within the reasonable threshold presumed acceptable for pedestrians to walk to a location. Existing amenities/safeguards to assist pedestrians in their walk to St Armands Key are sidewalks on both sides of the street and a bus stop located within view on the south side of the street. Several other bus stops are located nearby, and hundreds of public parking spaces are also accessible. Figure 26 (see page 38) lists some of the many points of interest that can be found just a short walk from this location.

Approximately .34 miles (1,800 ft) past St. Armands Key is Lido Key Beach. The north side of the road was chosen due to the City's recent removal of exotic and invasive trees and the site's minimum amount of other vegetation including mangroves that would be impacted by the construction of a docking facility and boarding area. The sidewalk at this location is also actively in construction to be widened to 10 ft. This location may also be a good location for a "mobility hub" which could include a bicycle share station, micro-transit pickup/drop-off, and/or a bus stop so that patrons have other options to transport to St. Armands Key or the beach. The ideal location on the north side also has an area of deep water, void of seagrass, which would allow the construction of a dock and easy navigation and mooring of a vessel with little or no impact to natural resources. Existing navigational channels occur on both the north and south side of State Road 789; however, the route to the south side requires navigation under a fixed bridge (Coon Key Bridge) which is approximately 10 ft high in the center. Some water taxi vessels may not be able to safely and reliably pass under his bridge, especially during times of higher than normal tides.

ST. ARMANDS KEY

POINTS OF INTEREST

- Clothing Boutiques
- Dog Park & Picnic Area
- St. Armand's Lutheran Church
- Salon/Spa
- Restaurants/Bar
- Jewelry Stores
- Parking – 354 Core & 385 Perimeter
- Local transit (buses & taxi)

Figure 26: St. Armands Circle points of interest.

ENVIRONMENTAL CONSIDERATIONS

- Natural Shoreline
- Shoreline recently cleared of exotic trees (Australian Pines)
- Seagrass East of site
- Minor amounts of scattered mangroves along the shoreline

Figure 27: St. Armands Key environmental considerations.

The main site constraint for a dock at this location is the current City Ordinance Sec. 10-74 which prohibits the City Commission from issuing a permit which allows for the boarding or discharging of water taxi passengers within 500 ft of the mean high-water mark of residential single-family waterfront real property or privately owned property without the prior written permission of the said property owner. This is illustrated in Figure 30 (see page 42). Due to this setback requirement, the proposed dock may be pushed into an area of shallow water depths which has extensive coverage of seagrass, making this location difficult to permit a dock suitable to sustain a water taxi service. While the potential to construct a longer dock, and/or dredge a navigational channel exists, these options are more expensive, incur far more environmental impacts to seagrass and the submerged bottom, and would require more maintenance in the future rather than a dock shifted closer to the residential development in the ideal location. Additionally, a dock proposed with this close proximity to the condominium complex to the east may potentially be considered to infringe on its view or other riparian rights.

A more ideal location is represented in Figure 30 (see page 42) showing a residential setback of 300 ft. This would align the dock with a deeper area of the waterfront at this location, avoid impacts to seagrass, allow for a smaller docking structure, and allow for easy navigation without dredging. A modification to the setback ordinance will be required to allow this along with signatures from the neighboring condominium complex granting permission to conduct the activity. The construction of a new commercial dock at this location will require an Individual ERP from FDEP, a U.S. Army Corps of Engineers permit, and a City permit. An SSL lease will also be required from the State of Florida.

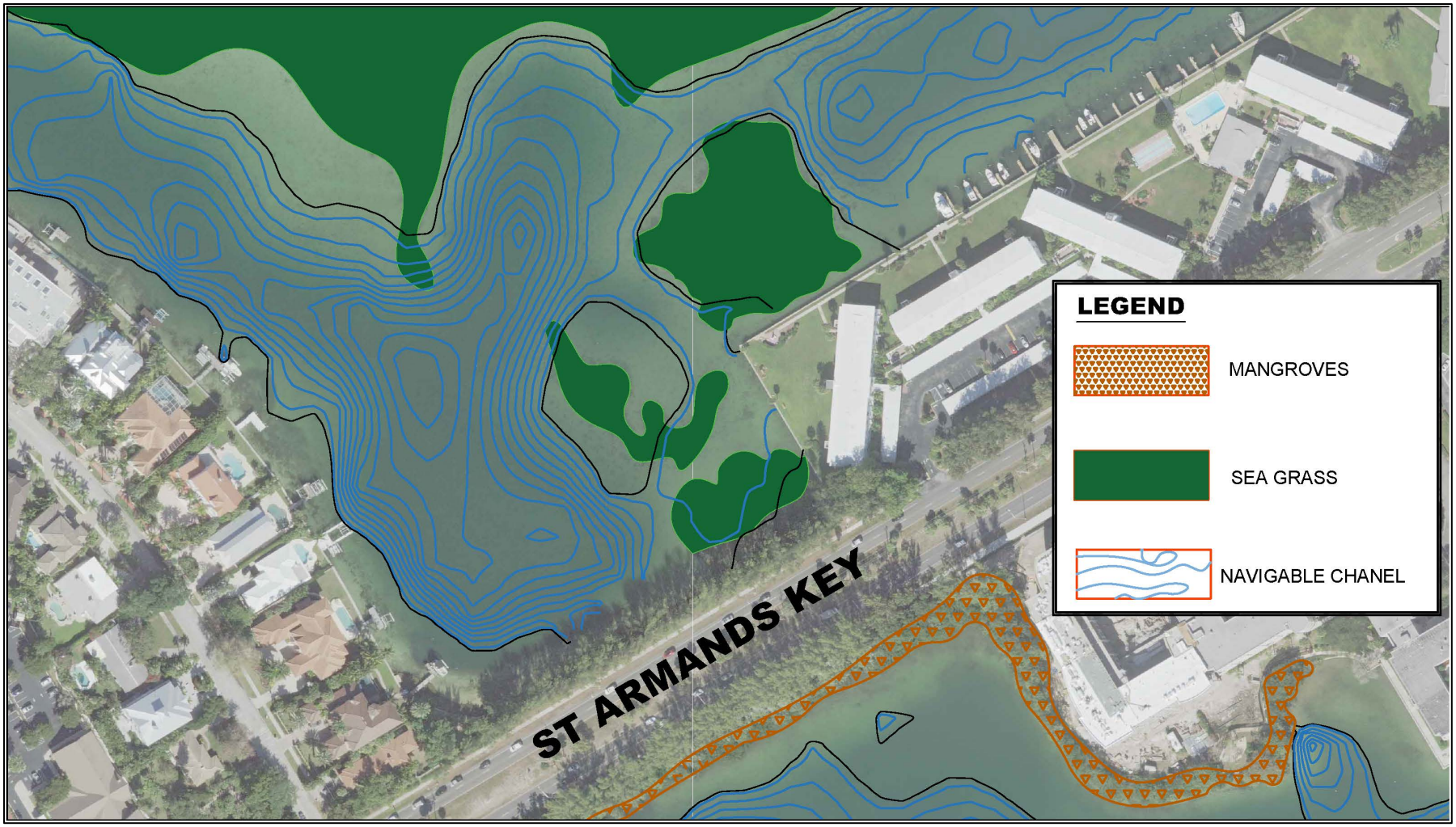


Figure 28: Site-specific seagrass and bathymetric contour map (note water depths shallower than -4 ft mean low water and coverage of seagrass in the eastern portion of the potential dock site).

PHYSICAL CONSIDERATIONS

Existing

Established Infrastructure

Pedestrian Walks

Local Transportation (SCAT)

Facilities - Within Shopping Plaza

1700 ft (.32 miles) walk to center circle

Required

≥ 500 ft MHW from Single-family (Sec. 10-74)

Proposed docking infrastructure

> 160 ft to -3 ft (-4.56) NAVD

Maintenance dredge -3 MLW

Figure 29: St. Armands Key – existing site physical conditions facing south- west along the Causeway.

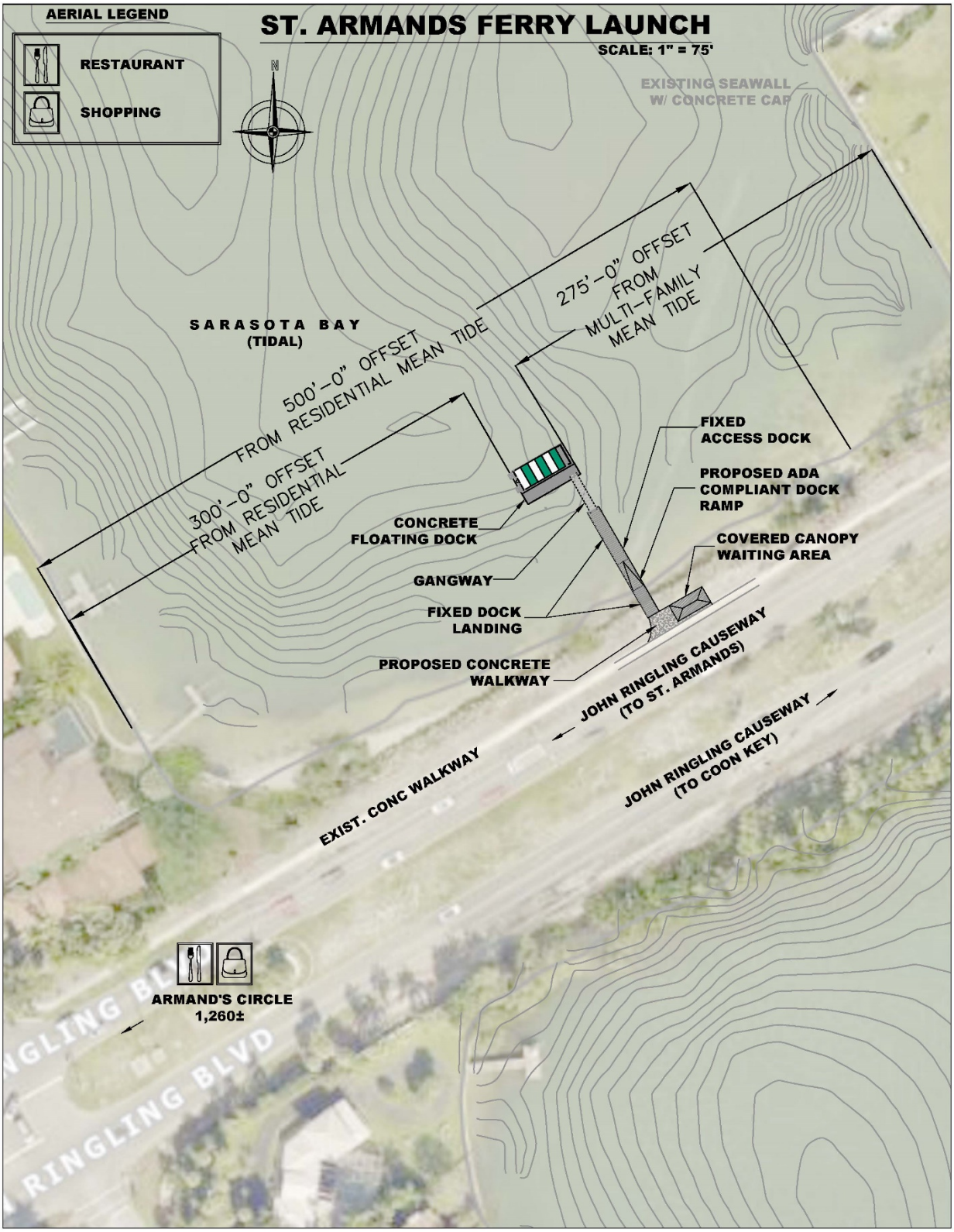


Figure 30: Armands Key – dock proposal with 300-ft and 500-ft residential setback as required per City ordinance.

An additional constraint associated with this site is the "sufficient upland interest." While the other two sites are proposed to be located on properties which are already owned by the City of Sarasota, this site is located on State Road right-of-way. Therefore, the FDOT will have to grant an easement at least 65 ft in width to the City in order to allow the construction and use of the dock at this site. This is required pursuant to FDOT rules and the state lands rules under Chapter 18-21, Florida Administrative Code.

Figure 31 (see below) shows a mock-up profile view of the proposed dock at this location with a water taxi vessel and patrons. The estimated cost of a dock similar to the one represented in Figures 30 is approximately $135,750 to $169,500.

Figure 31: Armands Key location – mock-up profile view of proposed dock with vessel and patrons (facing east/northeast).

4.0 Possible Future Landing Locations

While gathering research for the study, two additional sites were identified as suitable landing locations which could be added to the City's water taxi route.

10th Street (south seawall)

The first location for consideration is the 10th Street site (south seawall), located approximately 0.6 miles north of the John Ringling Causeway as shown in Figure 32 (see page 45). This City-

owned property includes the Van Wezel Performing Arts Hall, a major destination in the area. This property also is connected to the City-owned Centennial Park property immediately to the north. Both properties contain adequate existing public parking spaces, bus stops, facilities, and a public boat ramp with associated launching docks. Surrounding points of interest include: Holly Hall Beatrice Friedman Symphony Center, Sarasota Orchestra, Central Broadway Park, Friends of Sarasota County History Center, Art Center Sarasota, Sarasota Municipal Auditorium, Sarasota Lawn Bowling Club, Sarasota Garden Club, and Waterfront Park. This site could potentially provide dockage for a water taxi service immediately due to the presence of an existing dock and cut-out boat slip area. These docking areas are located within an existing boat basin that was previously excavated out of uplands and is not considered state-owned sovereign submerged lands. Therefore, an SSL lease would not be required for a water taxi service at this location. The basin at this location has adequate water depths for safe navigation of a water taxi vessel and has direct connection to the ICW channel for easy navigation to any of the other potential locations. Like Bayfront Park, this location does not have any slow speed restrictions, either at the respective location or along the travel routes. Consequently, travel times between these locations could be as short as 10 minutes or less. Also, proximity to Ken Thompson Park also allows for approximate travel times of less than 15 minutes from this location. Travel time to the St. Armands Key location is estimated to be similar in time as a trip from Bayfront Park (approximately 25 minutes or less depending on operating speeds).

If any of the existing docks or structures are modified or a new structure is constructed in the basin for the water taxi service, an ERP permit will be required from the Florida Department of Environmental Protection. Permitting will also be required from the U.S. Army Corps of Engineers. A distinct advantage of utilizing the existing dock or cut-out slip is that it will alleviate the requirement for state and federal permitting.

Figure 32: Potential site location – 10th Street site (near Van Wezel Performing Arts Hall).

South Lido County Park

The second possible loading/unloading site is Lido Beach at South Lido County Park (see Figure 33 on page 46). Owned by Sarasota County, this location is approximately 2.5 miles southwest of Bayfront Park and would provide a viable way for vacationers and residents to reach the beach and avoid traffic jams or lack of available parking. Travel time from Bayfront Park could be as little as 10 minutes due to the absence of Slow Speed Zones along the travel route. Travel time to Ken Thompson Park, St. Armands Key, or the proposed 10th Street site is estimated to be between 15 to 30 minutes depending on speed and conditions. The site does not currently support an existing dock. A new structure would be needed and would require permits from the County and City. Additionally, an ERP and a new SSL lease would be required from the state, along with a permit from the U.S. Army Corps of Engineers.

Figure 33: Second alternate location – South Lido County Park.

5.0 Conclusions

The three original study locations all appear to have good potential for being very serviceable water taxi docking locations, each having disadvantages and advantages. These sites were listed in this report from most ideal to least ideal as far as available infrastructure, physical and legal constraints are concerned. However, in order to provide a valuable and feasible water taxi service, multiple ideal sites are needed.

As previously stated, the Bayfront Park location has an existing dock, facilities, and site conditions to offer immediate use of a water taxi service. It is most likely that some repairs and/or modifications will need to be conducted to the existing dock prior to operation. The other two sites (Ken Thompson Park and St. Armands Key) do not have existing docks which could be used for these services unless one of the suitable existing docks near Ken Thompson Park (*e.g.*, Sarasota Sailing Squadron docks or the Marine Max Marina docks) are available. Accessibility and aesthetics at these alternative locations may prohibit functional operations of a water taxi service. The St. Armands Key location will be viable if the 500-ft residential setback restriction can be relieved, and the dock can be located in a more ideal location as shown in Figure 30 (see page 42). This site also contrasts with the other two sites because it is also located on a busy road right-of-way with no parking, shelters (a covered waiting area is included for this site as shown on Figure 30; see page 42), facilities, or other amenities in the immediate surrounding area.

It is most likely that all locations will require construction or modification of dock structures which will require local, state, and federal permits as well as SSL leases, as previously described. The

timeline to acquire all necessary permitting is estimated between to be 2 to 10 months from the date of application submittal. All of the sites do have existing reasonably navigable channels leading to and from them which is an advantage for waterborne transportation. Supplementary pros and cons for the sites are listed in Table 2 through 4 (see pages 44). The alternative location at 10th Street also ranks very similarly to the Bayfront Park location for ease of establishing a water taxi service there due to the available parking, facilities, access, and minor dock work required. The other alternative location at South Lido County Park is a prime location despite lack of available access and parking. This lack of other forms of transportation available, however, could make a water taxi a valuable means of providing access to the beach in this area.

Pros	Ken Thompson Park	Bayfront Park	St. Armands Park
Family-Oriented	✔	✔	
Amenities/Excursions	✔	✔	
Parking	✔	✔	✔
Local Transportation	✔	✔	✔
Dining	✔	✔	✔
Shopping			✔
Existing Dock Structure		✔	
Central to Downtown		✔	
Cons	**Ken Thompson Park**	**Bayfront Park**	**St. Armands Park**
No Existing Dock Structure	✔		✔
Submerged Resource Present			✔
Existing Boat Traffic	✔	✔	
No Amenities			✔

Table 5: Pros and Cons Matrix.

6.0 List of Resources

All American Marine. 2020. Web page address: www.allamericanmarine.com/vessels_gallery/passenger-vessels/

Allmand Boats, Inc. 2020. Web page address: https://allmandboats.com

Bahama Water Taxi. 2020. Web page address: www.bahamawatertaxi.com/

City of Sarasota. 2020. *The City of Sarasota website - City Charter, City Codes and Zoning Codes*. Web page address: https://www.sarasotafl.gov/government/city-auditor-and-clerk/records/city-codes-zoning-codes

Florida Department of Environmental Protection. 2020. *Map Direct.* Web page address: https://ca.dep.state.fl.us/mapdirect/

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