

DRAFT NAVIGATION IMPACT REPORT

Florida Department of Transportation

District One

S.R. 789 (Longboat Key) PD&E Study

Limits of Project: From North Shore Road to Coquina Park Entrance

Manatee County, Florida

Financial Management Number: 436676-1-22-01

ETDM Number: 14382

Date: May 2022

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Federal Highway Administration and FDOT.

Navigation Impact Report

S.R. 789 (Longboat Key) from North Shore Rd to Coquina Park Entrance  
Project Development and Environment (PD&E) Study

Florida Department of Transportation  
District One

Financial Project Identification No.: 436676-1-22-01

Manatee County, Florida

ETDM Number: 14382

May 2022

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

## **TABLE OF CONTENTS**

<b>EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>PURPOSE OF REPORT .....</b>	<b>4</b>
<b>EXISTING AREA INFORMATION.....</b>	<b>4</b>
LONGBOAT PASS AND NAVIGATIONAL INFORMATION .....	5
<b>LONGBOAT KEY BASCULE BRIDGE EXISTING INFORMATION .....</b>	<b>6</b>
BRIDGE OPENINGS .....	6
BRIDGE EXISTING CONDITION .....	8
<b>LOCAL AREA PLAN CONSISTENCY .....</b>	<b>8</b>
<b>EMERGENCY AND MAINTENANCE USES.....</b>	<b>9</b>
<b>NAVIGATIONAL VESSELS AND USES .....</b>	<b>9</b>
FIELD SURVEY .....	10
FIELD SURVEY RESULTS .....	10
<b>MARINE FACILITIES WITHIN THE PROJECT AREA.....</b>	<b>11</b>
MARINA SURVEY .....	12
MARINA SURVEY RESULTS .....	12
<b>CONSTRUCTION IMPACTS .....</b>	<b>13</b>
<b>BENEFITS OF THE PROJECT .....</b>	<b>14</b>
<b>FIGURES .....</b>	<b>16</b>

### **APPENDICES**

**Appendix A – United States Coast Guard Correspondence**

**Appendix B – 2020 Bridge Inspection Report**

**Appendix C – Vessel Survey Technical Memorandum**

## **EXECUTIVE SUMMARY**

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study on the potential replacement of the Longboat Key Bridge (Bridge No. 130057). Longboat Key Bridge carries S.R. 789 (Gulf of Mexico Drive) over Longboat Pass in Manatee County, Florida. FDOT owns, operates, and maintains the current Longboat Key Bascule Bridge. This Navigation Impact Report has been prepared to document the existing navigational needs of the project area and evaluate the potential impacts on navigation due to the replacement of the bridge.

Longboat Pass serves as a northwestern entry point from the Gulf of Mexico to Sarasota Bay. This area primarily serves recreational water traffic with some commercial fishing and chartering services. The Longboat Key Bridge opens year-round with the number of openings per month ranging from 100 to 300 times a month. The Longboat Key channel falls under the jurisdiction of the United States Coast Guard (USCG). The USCG has a station located northwest of the bridge and other local emergency service providers patrol the waters in Sarasota Bay and in the Gulf of Mexico.

Additional points of entry into Sarasota Bay include the John Ringling Causeway Bridge to the south, New Pass Bridge to the south and Cortez Bridge to the north. The southern John Ringling Bridge is a fixed bridge with a 65-foot vertical clearance and the northern Cortez Bridge is currently a bascule bridge though it is planned to be replaced with a high-level fixed bridge with 65-foot vertical clearance. New Pass bridge channel is no longer being maintained/dredged by the USACE. With the planned replacement of Cortez bridge with a 65-foot vertical clearance fixed bridge and the discontinued maintenance of New Pass Bridge, Longboat Key Bridge would be the only point of entry in and out of Sarasota Bay for vessels with an air draft of 65 feet or greater.

Replacing the Longboat Key Bridge with either a fixed or movable bridge will provide improved pedestrian accommodations, eliminate the structural and operational deficiencies of the existing bridge, and improve the operational reliability compared to the existing bridge. The field work and analysis presented in this report have preliminarily determined the minimum movable bridge vertical clearance should be 36 feet. A 36-foot movable bridge vertical clearance will allow for up to 35% more vessels to transit the channel without a bridge opening than the existing movable bridge. The final movable bridge and fixed bridge heights will be determined after consultation and coordination with the USCG.

## **PURPOSE OF REPORT**

The Florida Department of Transportation District 1 (FDOT D1) is currently conducting a Project Development and Environment (PD&E) Study for the potential replacement and/or rehabilitation of the S.R. 789 (Longboat Key) Bridge (Structure Number 130057) over Longboat Key Pass in Manatee County, Florida. The project limits extend along S.R. 789 (Longboat Key) from North Shore Rd to Coquina Park Entrance in Manatee County. Figure 1 shows the location map for the PD&E. The alternatives under consideration for this PD&E study include a no-build alternative, fixed bridge alternatives and movable bridge alternatives.

The permitting improvement provisions found in the 2014 Memorandum of Understanding between the U.S. Coast Guard (USCG), the Federal Highway Administration (FHWA), the Federal Transit Administration, and the Federal Railroad Administration requires applicants with Department of Transportation funded projects prepare a navigation impact report to analyze the navigational impacts of the bridge design alternatives. Through communication with the United States Coast Guard (USCG) it was determined that this navigation impact report be prepared in accordance with the requirements of the USCG Bridge Permit Application Guide. Correspondence between the PD&E project team and the USCG are contained in Appendix A.

This Navigation Impact Report describes the current geographical and physical conditions, and waterway traffic at the location of the Longboat Key Bridge and how the conditions and traffic will be impacted by the potential bridge replacement. Impacts to waterway traffic due to the bridge being replaced are unavoidable, but steps will be taken to reduce the impact. There are currently two general bridge alternatives being considered for the bridge replacement: 1) fixed and 2) movable. The navigational requirements, existing infrastructure in the area, and physical features of the proposed bridge are all factors being considered when selecting the appropriate alternative. The proposed bridge must adequately accommodate existing waterway traffic and provide for the needs of pedestrian and vehicular traffic in the area.

## **EXISTING AREA INFORMATION**

The Sarasota Bay Estuarine System, shown in Figure 2, is located in southwest Florida, south of Tampa and north of Fort Myers. Sarasota Bay Estuarine System is listed as an Outstanding Florida Waters and as an Estuary of National Significance. The southern half of the bay is in Sarasota County and the northern half is in Manatee County. The western portion of Sarasota Bay is bounded by the Longboat Key Barrier Island, which is home to the Town of Longboat Key. The main roadway through the Longboat Key barrier island is S.R. 789 (Gulf of Mexico Drive). S.R. 789 connects the Town of Longboat Key to Bradenton Beach and Anna Maria Island to the north and to Lido Key and the City of Sarasota to the south. Pedestrians and bicyclists frequently use S.R. 789 and the bridge due to the adjacent parks and recreational facilities in the area.

Longboat Pass channel connects Sarasota Bay to the Gulf of Mexico. Spanning Longboat Pass channel is

the Longboat Key Bridge which provides unlimited vertical clearance for waterway traffic to and from the Gulf of Mexico. There are three other entrances into Sarasota Bay which include the Cortez Bridge (Bridge No. 130006) to the north, the John Ringling Bridge (Bridge No. 170176) to the south and New Pass Bridge (Bridge No. 170158) to the south. The USACE has indicated they do not plan on further maintenance of the New Pass Bridge Channel, including future dredging.

### **LONGBOAT PASS AND NAVIGATIONAL INFORMATION**

The bodies of water east and west of Longboat Pass, Sarasota Bay and the Gulf of Mexico respectively, are two locations of high boat traffic. The area's temperate climate provides for a yearlong boating season. The channel under the main span of the Longboat Key Bridge has a clear distance between the fenders of 45.9 feet. The existing navigable vertical clearance between bridge fenders is approximately 17 feet with the bascule span closed. The vertical clearance is unlimited with the bascule span in the fully open position. The Mean Low Water (MLW) is at an elevation of 0.0 feet (NGVD 29). Water depths within Longboat Pass vary from two (2) feet near the northern and southern shores to 30 feet in the navigational channel. The sandy channel bottom within the pass has historically shifted and there is a timber and rock jetty along the north shore of the pass. Figure 3 shows a portion of the National Oceanic and Atmospheric Administration's (NOAA) Nautical Chart 11425 for the area surrounding Longboat Pass. The navigational channel is currently marked with navigational lights on each end of the north and south fenders.

Longboat Pass, see Figure 4, is a tidally influenced waterway approximately 1200 feet wide at the Longboat Key Bridge. The waterway connects the Gulf of Mexico to Sarasota Bay. The water is tidal flowing east and west. The channel affords passage for water traffic entering and exiting the north end of Sarasota Bay. Currents run perpendicular to the alignment of the bridge. Currents set west during outgoing (ebb) with an average velocity of 1.6 knots and set east during incoming (flood) with an average velocity of 1.8 knots. Observed currents within the Inlet were robust throughout the entire survey. Average velocity of the tidal currents reported in the NOAA US Coast Pilot is 1.8 knots. Marking the navigational channel are lights, timber piles and buoys. These aids are well maintained and mark the channel from Sarasota Bay to Longboat Pass. Per NOAA the Longboat Pass channel continually changes at the entrance.

Along the western shoreline of the Longboat Key Barrier Island there are public access beaches, particularly north of Longboat Key Bridge, while the western shoreline of Longboat Key contains more residential neighborhoods, condominiums, and single-family homes. The eastern shoreline of Longboat Key, south of the Longboat Key Bridge, contains residential single-family homes with docks and jetties extending into the water. There are two small islands east of this shoreline, Jewfish Key and Sister Keys. The eastern shoreline of Ana Maria Island, north of the Longboat Key Bridge contains the Leffis Key Nature Preserve.

## **LONGBOAT KEY BASCULE BRIDGE EXISTING INFORMATION**

The S.R. 789 Longboat Pass Bridge (Bridge No. 130057) is a 44-span, 2,128 ft.-7 in. long bridge carrying two lane, two-way S.R. 789 (Gulf of Mexico Drive) traffic over Longboat Pass in Longboat Key, Manatee County, Florida. The S.R. 789 Longboat Key Bridge was constructed in 1957 and was reconstructed in 2005.

The existing bridge crosses Longboat Pass and has a clear distance between the fenders of 45.9 feet. Navigational lights are installed on the fenders and movable span. The existing minimum vertical clearance between bridge fenders is approximately 17.0 feet with the bascule span closed. The vertical clearance is unlimited with the bascule span in the fully open position. The Mean Low Water (MLW) is at an elevation of 0.0 feet (NGVD29).

The main span is a 74.5 ft. long single leaf bascule span (measured from trunnion to tip), flanked by two rolled-steel beam spans. The northern flanking span measures approximately 39 feet – 10.5 inches and the southern flanking span measures approximately 57 feet – 7.5 inches (see Figure 5). The remaining approach spans are all 48 feet long; 32 spans to the south and 9 spans to the north. The single leaf bascule span is carried by two steel riveted plate girders of varying depth, supported on Hopkins style cantilever trunnions, and opened by mechanical machinery supported on a Hopkins frame.

### **BRIDGE OPENINGS**

The tender house of the Longboat Pass Bridge is manned 24 hours a day, 7 days a week. The bridge tender may be contacted on (941) 355-7107 and on VHF-FM Channel 9. The bridge currently opens on demand, as needed when requested by a boater. The bridge tender's logbooks were obtained from January 2019 to September 2021. Exhibit 1 summarizes the total openings by month. There is a high number of openings due to sailboats with air drafts greater than 40 feet. Exhibit 2 summarizes the total openings for sailboats by month.

The average statistics over the time period include:

- Peak boat traffic months: March, April, and May
- Peak bridge opening months: March, April, and May
- Average number of total openings per day (peak months): 9
- Average number of openings for sailboats per day (peak months): 4

**NAVIGATION IMPACT REPORT**

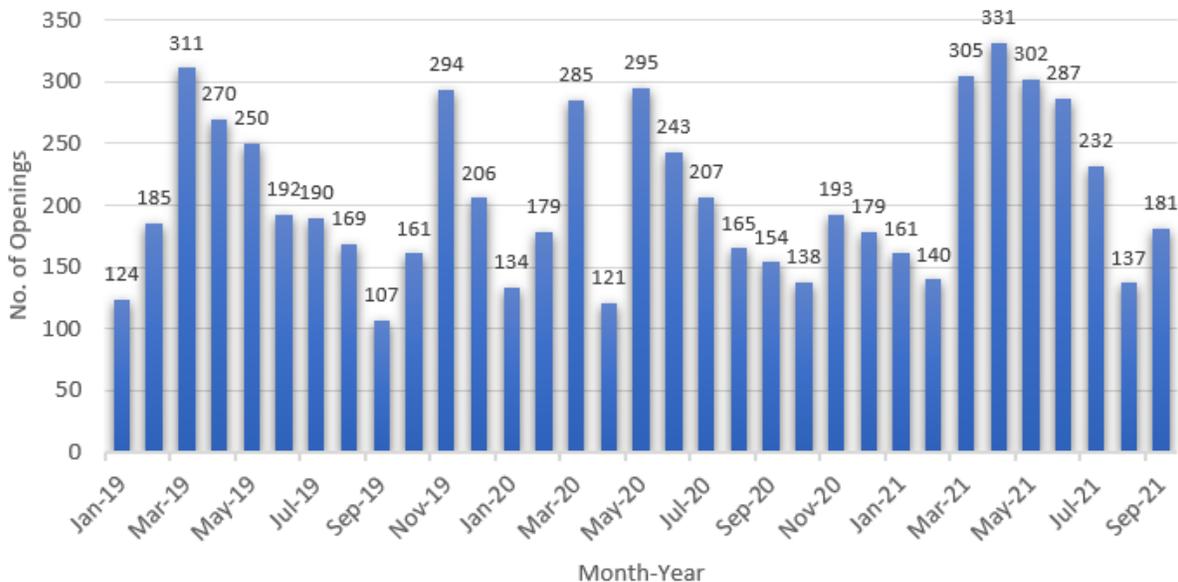


Exhibit 1 - Total Bridge Openings by Month

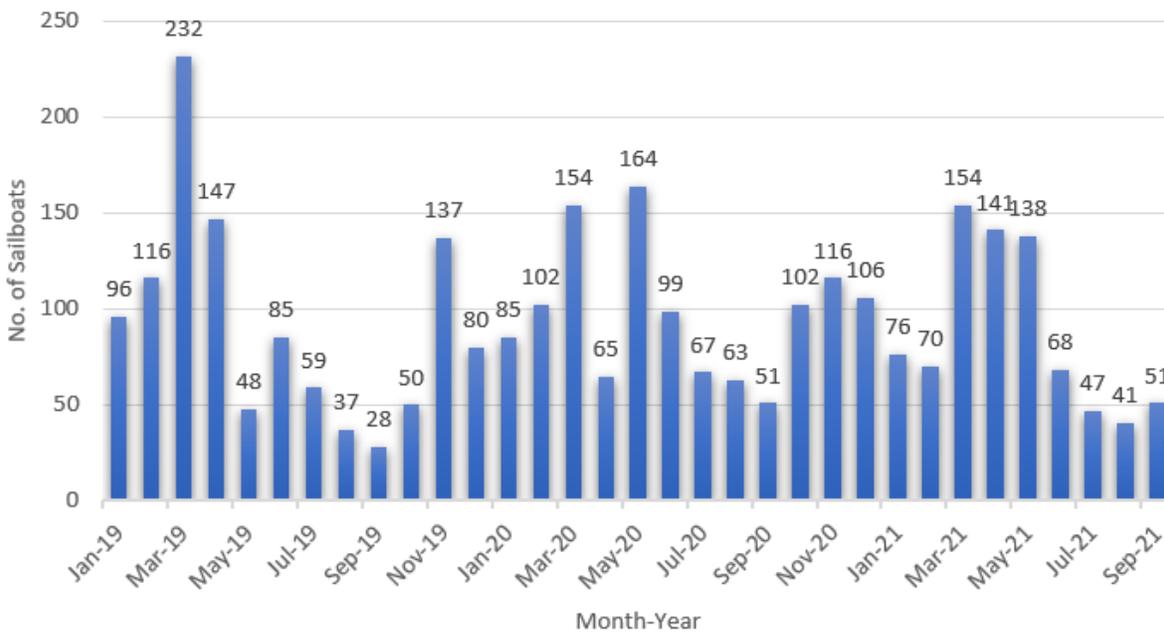


Exhibit 2 - Bridge Openings for Sailboats by Month

## **BRIDGE EXISTING CONDITION**

FDOT manages annual bridge condition inspections. The February 2020 Bridge Inspection Report lists the bridge as containing fracture critical components and as functionally obsolete. The sufficiency rating for this bridge is 43.6 with a Health Index of 76.94. The sufficiency rating (between 0 and 100%) indicates the bridge's ability to remain in service. The health index reflects the amount of repair necessary to bring the bridge to a non-deficient condition. The most recent inspection report is included in Appendix B. On a scale from zero (0) to nine (9), where 9 is Excellent, the most recent bridge inspection report rates the Deck 6 (Satisfactory), Superstructure 6 (Satisfactory), Substructure 5 (Fair), and Channel 7 (Minor Damage).

Significant deficiencies on the bridge include concrete spalls with exposed reinforcing in the beams, piles, and footers. The bascule pier and rest pier footers are exposed up to 6 ft.-4 in. high. According to testing completed by others for the 2017 Bridge Condition Assessment Report, the piles and bridge deck show high levels of chloride intrusion and high corrosion potential of reinforcement. In addition, ground penetrating radar (GPR) tests revealed insufficient concrete cover at these elements contributing to a reduction of their service life.

Crutch bents constructed of steel H-piling and steel cap beams have been installed around the rest pier. The inspection report noted that they were installed to isolate the bridge from movement should the rest pier exhibit movement in the future. The piles are actively corroding, and the cross beams have up to 3/8 inch loss of thickness due to corrosion.

The bascule span structural steel has areas of corrosion, with section loss in various locations, some of which have been painted over. The bridge mechanical and electrical systems are dated and worn. Gear teeth are in fair condition. Corrosion is present on painted surfaces. Leaks are present at the speed reducer and brakes. Water is leaking into the electrical room from the outside.

## **LOCAL AREA PLAN CONSISTENCY**

The replacement of the Longboat Key Bridge is included in the Sarasota/Manatee County 2045 Long Range Transportation Plan, adopted October 26, 2020. There are other transportation improvements identified in the LRTP including multimodal capacity improvements, however there are no future marine developments planned for the vicinity near the Longboat Key Bridge.

Through coordination with the USACE there are no current or planned marine/commercial developments under current review or known to be in the planning stages. The USACE has indicated they do not plan on further maintenance of the New Pass Bridge Channel, including future dredging.

## **EMERGENCY AND MAINTENANCE USES**

Sarasota Bay and Gulf of Mexico water adjacent to the project area is patrolled by several federal, county, and local emergency service providers. The US Coast Guard (USCG) primary point of entry/exit patrols into the Gulf of Mexico is the Longboat Pass Channel. They operate seven (7) vessels from a station located in the NE quadrant of Sarasota Bay, near the eastern end of the Cortez Bridge. The USCG performs a large number of operations including many life-saving rescues throughout the area.

In addition to the USCG, municipal emergency service providers operate and protect the waters within Sarasota Bay and the Gulf of Mexico. These providers include Town of Longboat Key Police and Fire Departments, Manatee County's Marine Rescue, Emergency Management, Sheriff and Fire Departments and Sarasota County's Emergency Management, Sheriff and Fire Departments. They communicate and work in conjunction with one another to provide the best service to the residents/visitors in the area. Each emergency service provider owns and operates their own fleet of vessels. These vessels range in size from jet skis, about 8 to 10 feet long, to 38-foot center console powerboats. The project team contacted representatives from the USCG and local emergency service providers and all indicated that a new bridge with a higher vertical clearance and wider channel would improve their ability to navigate Longboat Pass and provide faster response times.

The primary concern emergency service providers expressed was the anticipated impacts during construction, particularly if the bridge is closed either in the closed or open position. Emergency service providers want to be notified well in advance so they can make the necessary changes in their response and operations in case of emergencies. Operators also shared concerns regarding the impacts to hurricane/emergency evacuation routes. Longboat Key is a barrier island and Longboat Key Bridge provides the northern evacuation route for residents in the case of emergency. It is of critical importance that they are notified of any construction or other circumstances that may affect safe navigation of the channel. It is not expected that the proposed bridge would negatively alter the existing Longboat Key channel or its use for any of the USCG or municipal emergency service providers vessels, the only exceptions may be the brief construction activity limiting channel width or vertical clearance. These times will be temporary, and the contractor will seek approval prior to conducting any activities that may impact the channel.

## **NAVIGATIONAL VESSELS AND USES**

Sarasota Bay is a major location and destination for recreational water traffic. The majority of recreational vessels in this area are small personal boats with air drafts less than 20 feet and do not require a large vertical or horizontal clearance. These small recreational power boats include jet skis, cabin cruisers, center consoles, Jon boats, pontoon boats and bowriders. While the predominant recreational vessels in the area are these small personal power boats, the area also accommodates sailboats and catamarans with varying air drafts, some being greater than 65 feet.

To determine the type and size of waterway vessels that use the channel, field visits were conducted that

included surveys of the marinas in the project area and surveys of vessel traffic traveling under the Longboat Key Bridge and in the surrounding water. The geographic limits of the survey included Sarasota Bay and is bounded on the south by the John Ringling Bridge (Bridge No. 170176), on the east by the eastern shore of Sarasota Bay, on the north by the Cortez Bridge (Bridge No. 130006), and on the west by the Longboat Key Bridge. Figure 6 presents this surveyed area.

## FIELD SURVEY

The project team conducted field surveys of vessels in the Sarasota Bay area, both on water and at the Longboat Key Bridge. The primary purpose of these surveys was to capture vessel air drafts to assist in determining the future type, movable versus fixed, and clearance height of a replacement bridge. The methodology utilized and survey results are detailed in the Vessel Survey Technical Memorandum which is included in Appendix C.

The first survey conducted was on-water and performed on November 8th, 2021. A 20-foot pontoon boat was used for navigation, and the route began at Centennial Park positioned northeast of the John Ringling Bridge and continued northbound along the eastern shore of Sarasota Bay and finally extended around Sarasota Bay back to Centennial Park. The pontoon boat was very useful to penetrate through channels, canals and non-marina slips while looking for vessels with notable air drafts. Vessels with tall air drafts either moored or travelling in Sarasota Bay were asked questions regarding their vessels' air draft and their concerns about any potential impacts due to the possible replacement of the existing Longboat Key bridge. Figure 7 presents the on-water survey area.

On March 15th through March 17th, 2022 the project team visited the Longboat Key bridge to gather data about vessels navigating through Longboat Pass. Collected information included counting number of vessels, measuring air drafts (vessel height above the waterline), and classifying them by type and usage. Air drafts were collected by measuring vessels with a Nikon Hypsometer from the northwest shore of the Longboat Key channel, near Coquina Park. Contact was made with captains when possible by means of a handheld VHF radio transceiver. Captains were asked about their air drafts to corroborate accuracy of measurements. Photographs documenting vessels with notable air drafts were taken and are included in this report.

## FIELD SURVEY RESULTS

The on-water survey found multiple sailboats moored in the water in Sarasota Bay, and most had air drafts less than 60 feet. Most boats encountered during the on-water survey were center console power boats with air drafts less than 20 feet. There were a few vessels with high air drafts (greater than 64 feet). The first one was a catamaran with an air draft of 75 feet named *The Next Thing*, see Figure 8. This vessel was moored northeast of the Longboat Key Bridge. The other notable vessel at the time of this survey was another catamaran named *Enchanted*. *Enchanted* is a catamaran with an air draft of 73 feet, see Figure 9, and is a charter boat docked at a private residence immediately south of the Longboat Key Bridge. The owner/operator of this boat indicated that Longboat Pass was his primary means of entry to the Gulf of Mexico where he operates his business charters.

The on-site bridge survey counted and documented more than 260 vessels traversing the Longboat Pass Bridge. The primary information gathered consisted of number of vessels, vessel type, and air draft. As illustrated in Exhibit 3, nearly 92% of marine transit at the Longboat Key bridge consists of powerboats and pontoon boats with air drafts less than 20 feet. Most of the vessels that requested openings had air drafts ranging in heights between 20-30 feet and 51-65 feet, which represented about 7% of the total vessels counted. The tallest vessels recorded were the *Bold We Go* see Figure 10, and *Darcarys* see Figure 11, with air drafts of 71 and 78 feet respectively, representing 0.8% of the total count. No cargo ships, tugboats or barges were observed passing the channel at the time of survey. The on-site bridge survey data organized by air draft is shown below.

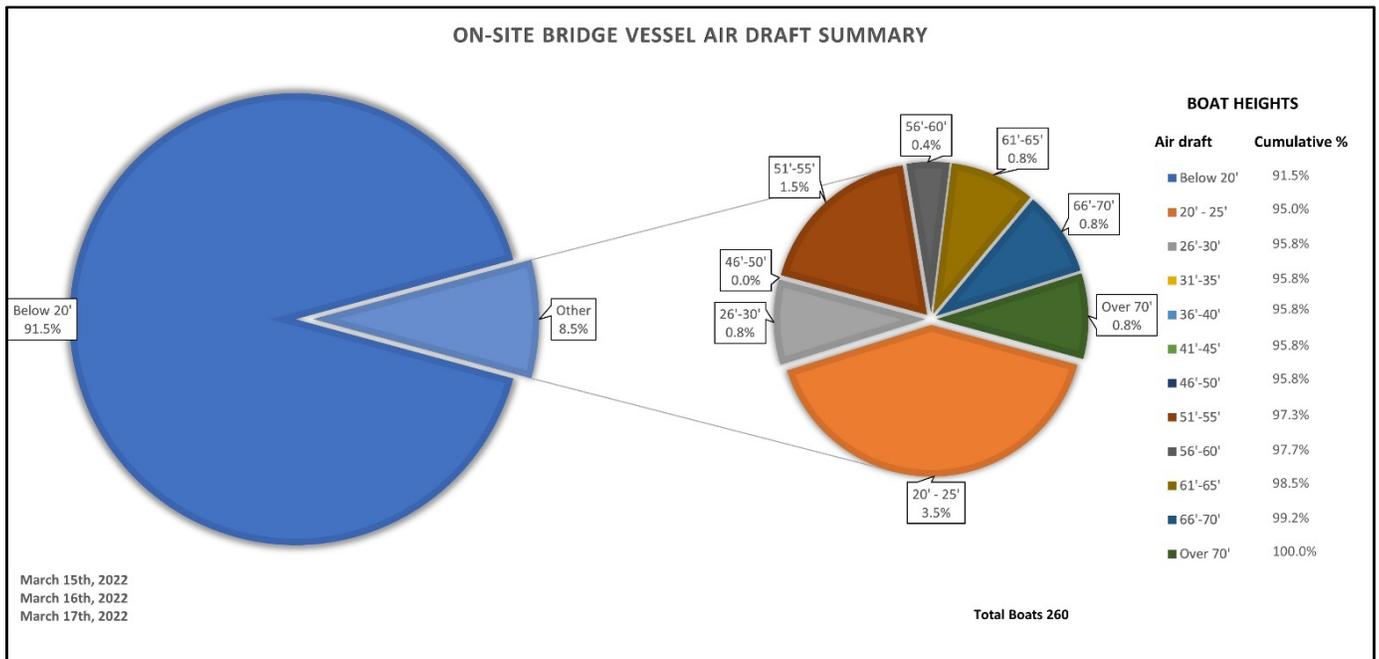


Exhibit 3- On Site Bridge Vessel Air Draft Summary

For more detailed information concerning the on-water survey and on-site bridge survey see the Vessel Survey Technical Memorandum contained in Appendix C.

### MARINE FACILITIES WITHIN THE PROJECT AREA

There are several marinas located in Sarasota Bay as the area is well known for its boater friendly atmosphere and boat traffic is very common throughout the area. The marinas in the project area vary in size and type of vessels served. The project team conducted marina site visits to speak with the dockmasters pertaining to their thoughts and concerns regarding the potential replacement of the Longboat Key Bridge. Additionally, the project team counted the number of vessels at the facilities and logged their air drafts. The survey team identified and visited 18 marinas in November 2021 and March 2022, all of which are identified in Figure 7 and listed in the Vessel Survey Technical Memorandum included in Appendix C.

**MARINA SURVEY**

To collect all the necessary information, project team needed to identify marina facilities within Sarasota Bay that are accessible by vessels passing through the Longboat Key pass. Before each field visit the project team initiated correspondence with each marina either through email or telephone. Out of the 18 identified marinas, 7 are located north of Longboat Key Pass and the other 11 are south of Longboat Key Pass. At each facility, marina managers and boat owners, if present, were asked relevant information about their boats and their concerns about the potential replacement of the Longboat Key bridge. Also, project team visited marinas with a measurement height device (Nikon Hypsometer) to measure air draft of every boat more efficiently.

**MARINA SURVEY RESULTS**

Marinas in the project area varied in size and type of vessels harbored. Many of the surveyed marinas were wet dock without dry dock boat storage. Most vessels docked at these marinas are recreational vessels that included powerboats and sailboats, as shown in Exhibit 4, boats with air drafts less than 25 feet accounted for 61.8% of total boats. Most marinas are capable of docking sailboats/catamarans of varying air drafts at their facilities, these vessels represent 37.3% of the collected data. Furthermore, eight (8) of them can dock sailboats with air drafts larger than 66 feet. Most notable from the marina survey is Longboat Key Club Moorings which can accommodate vessels with air drafts greater than 65 feet at the time of the surveys. Figure 7 shows the location of the marinas surveyed. Table 1 presents the boats with air drafts greater than 64 feet that were identified during the marina survey(s).

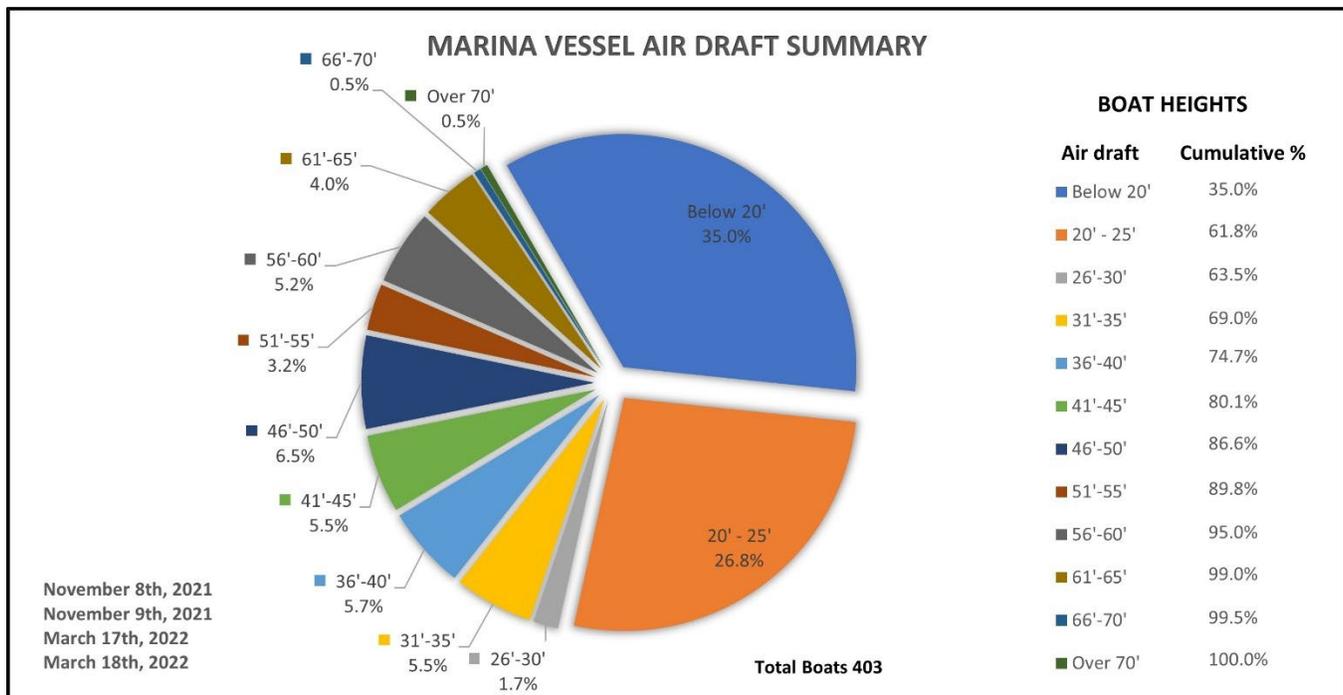


Exhibit 4 - Marina Air Draft Summary

<b>Boat Name</b>	<b>Vessel Type</b>	<b>Owner</b>	<b>Air Draft (ft)</b>
Encore II	Sailboat	Paul Horst	75
Pitch Perfect (Nordhavn 56MS)	Sailboat	Ernie Martinez	73
	Sailboat	John Henderson	65
Vela Navis	Sailboat	Mitch Schlitt	65
	Sailboat	John Wurdeman	64.5
Heart of Gold	Sailboat	Carl Arentzen	64.5
Serendipity	Sailboat	Mike Murphy	64.3

Table 1 – Vessels with Air Drafts > 64 feet

Interviewed marina dockmasters, managers and vessel owners agreed that the Longboat Key Bridge will come to be the only entrance for vessels with an air draft over 65 feet to access Sarasota Bay after Cortez Bridge is replaced with a high-level fixed bridge. Emphasis on this opinion was felt by marina facilities that harbor tall vessels from 65 feet air draft and above, particularly Longboat Key Club Moorings. Conversely, marinas that mainly dock vessels of smaller sizes such as power boats noted that a 65-foot clearance bridge will not cause any conflict or negative impacts with their business activities.

For more detailed information concerning the marina survey see the Vessel Survey Technical Memorandum contained in Appendix C.

## **CONSTRUCTION IMPACTS**

If the preferred alternative is either rehabilitation or replacement, construction and associated impacts to navigation will likely be unavoidable. Contractor notifications to mariners, and other innovative measures to limit these navigational impacts are presented in this report. Construction of a bridge replacement is estimated to take 24 to 36 months to complete. During the construction the contractor will be required to provide a 30-day advance notice to the USCG prior to the first day of project construction. Advance notice will also include any periods in which it will be necessary to restrict the movement of vessels through the area. The contractor will also be required to coordinate all the work impacting the waterway with the USCG. Any steps that may impact navigation of the Longboat Pass waterway will require prior approval of the USCG before work commences.

Public notices about the construction will be made before and during construction to notify boaters of the work being done around the bridge site. The use of advanced warning signs along the waterway to warn waterway users of the construction area will be recommended. Signs to inform users of any special instructions or rules regarding passage through the construction area will be prominently displayed.

Typical bridge construction methods will likely be utilized to construct the bridge, however strategies for limiting water traffic delay will be recommended. Based on the January 2019 to September 2021 bridge

tender logs it will be recommended that construction activities impacting the navigational channel utilize the periods of reduced waterway traffic of the channel. Limiting these activities to the lower traffic months will reduce the overall impact of any navigational delays. Barges will be utilized and the ability for them to mobilize away from the channel will be maintained throughout construction. The use of cofferdams, sheet piling, or other construction devices in the channel will be marked in accordance with USCG rules. Boaters typically required to give notice for a bridge opening will provide the same notice to the contractor to ensure the channel is free of obstructions.

## **BENEFITS OF THE PROJECT**

This PD&E Study is being conducted to evaluate the potential replacement and/or rehabilitation of the S.R. 789 (Longboat Key) Bridge (Structure Number 130057) over Longboat Key Pass in Manatee County, Florida. The two primary replacement alternatives are high-level fixed bridge or movable bridge alternatives. Each alternative would at a minimum meet the US Coast Guard minimum vertical and horizontal guide clearances for fixed and movable bridges. The USCG guide clearances above mean high water (MHW) elevation for fixed or vertical lift bridges is 65 feet and the minimum vertical clearance for bascule bridges above MHW is 21 feet. The USCG minimum guide horizontal clearance is 90 feet. The information contained in this report is to be used for coordination with the USCG during the PD&E phase and to identify any potential impacts to navigation for the potential replacement of the Longboat Key Bridge.

A new bridge at Longboat Key Pass will increase the navigational clearances and function more efficiently and safely. This is a benefit to both water, vehicular and pedestrian traffic. Replacement of the existing Longboat Key Pass Bridge will allow for existing structural and operational deficiencies identified in the bridge inspection reports to be addressed as well as add features that the current bridge is lacking, including improved pedestrian accommodations. New bridge alternatives should reduce the frequency of bridge operational outages and will increase the operational reliability compared to the existing bridge.

Based on the field and marina surveys performed as a part of this report the recommended minimum vertical clearance from MHW for a new movable bridge is 36 feet. A vertical clearance of 36 feet allows for nearly 70% of all marina vessels docked at the time of survey and 95% of all vessels surveyed during the on-site survey to pass under the bridge without requiring a bridge opening. This is an increase from only 35% of the vessels passing without a bridge opening. The vertical clearance of the new fixed bridge would need to be 76 feet to allow passage of all vessels identified during the survey. The recommended height of the fixed bridge will be decided after consultation with the USCG after their review of this report.

There are several sailboats with air drafts greater than 65 feet and these vessels enter/exit Sarasota Bay either through the Cortez Bridge at the north end of the Bay or through Longboat Key Pass. Many of these sailboats dock at Marinas in Sarasota, the most notable of which being Longboat Key Club Moorings. For more information on the types of vessels using the area see the Vessel Survey Technical

Memorandum included in Appendix C.

Longboat Key Club Moorings is the largest resort marina on the west coast of Florida. They are a deep-water marina with 291 slips with the ability to accommodate vessels up to 150 feet in length. The dockmaster at Longboat Key Club Moorings has noted that they routinely service sailboats and catamarans with air drafts greater than 65 feet and those vessels cannot enter the bay through the John Ringling Bridge at the south end of Sarasota Bay. The John Ringling Bridge is a high-level fixed bridge with a vertical clearance of 65 feet and is located at the southern end of Sarasota Bay. These tall boats must enter either through the Cortez Bridge or Longboat Key Pass Bridge, which are currently both movable bridges. The Cortez Bridge is currently a double leaf bascule bridge located on the northern end of Sarasota Bay, next to Bradenton Beach. Vessels looking to travel north from Sarasota Bay to the Gulf of Mexico currently have no air draft restrictions. FDOT plans to replace the existing movable bridge with a 65-foot vertical clearance fixed bridge. If this replacement happens the Longboat Key Bridge will be the only means of access for vessels with air drafts greater than 65 feet. The dockmaster at Longboat Key Club Moorings has indicated that based on the proposed change to the Cortez Bridge, changing Longboat Key Bridge to a high-level fixed bridge will negatively impact their ability to dock and service some of their existing customers. Additionally, the owners of these high air draft vessels as identified in Table 1 have expressed that replacing Longboat Key Pass Bridge with a high-level fixed bridge should take into consideration their vertical clearance requirements.

New Pass Bridge, located near the southwest end of Sarasota Bay is a single leaf movable bridge. The New Pass Bridge channel consistently fills with sediment decreasing the available drafts for boats, this condition requires persistent dredging by the US Army Corp of Engineers (USACE). Due to persistent nature of this sediment buildup in the New Pass Channel the USACE has indicated that they will no longer be dredging/maintaining this channel. Based on this information the existing Longboat Key Pass Bridge will soon become the only means of ingress and egress in and out of Sarasota Bay for vessels with air drafts greater than 65 feet.

This project is currently in the planning stage and there are still many factors that will be considered and evaluated before selecting a preferred alternative. Impacts to the environment, cost, and improving access for both water and land traffic will be considered during this phase. If a new bridge is selected as the preferred alternative it is expected that the benefits will improve navigation and connectivity in the area for the foreseeable future.

**FIGURES**



Figure 1 – Project Location Map

**NAVIGATION IMPACT REPORT**

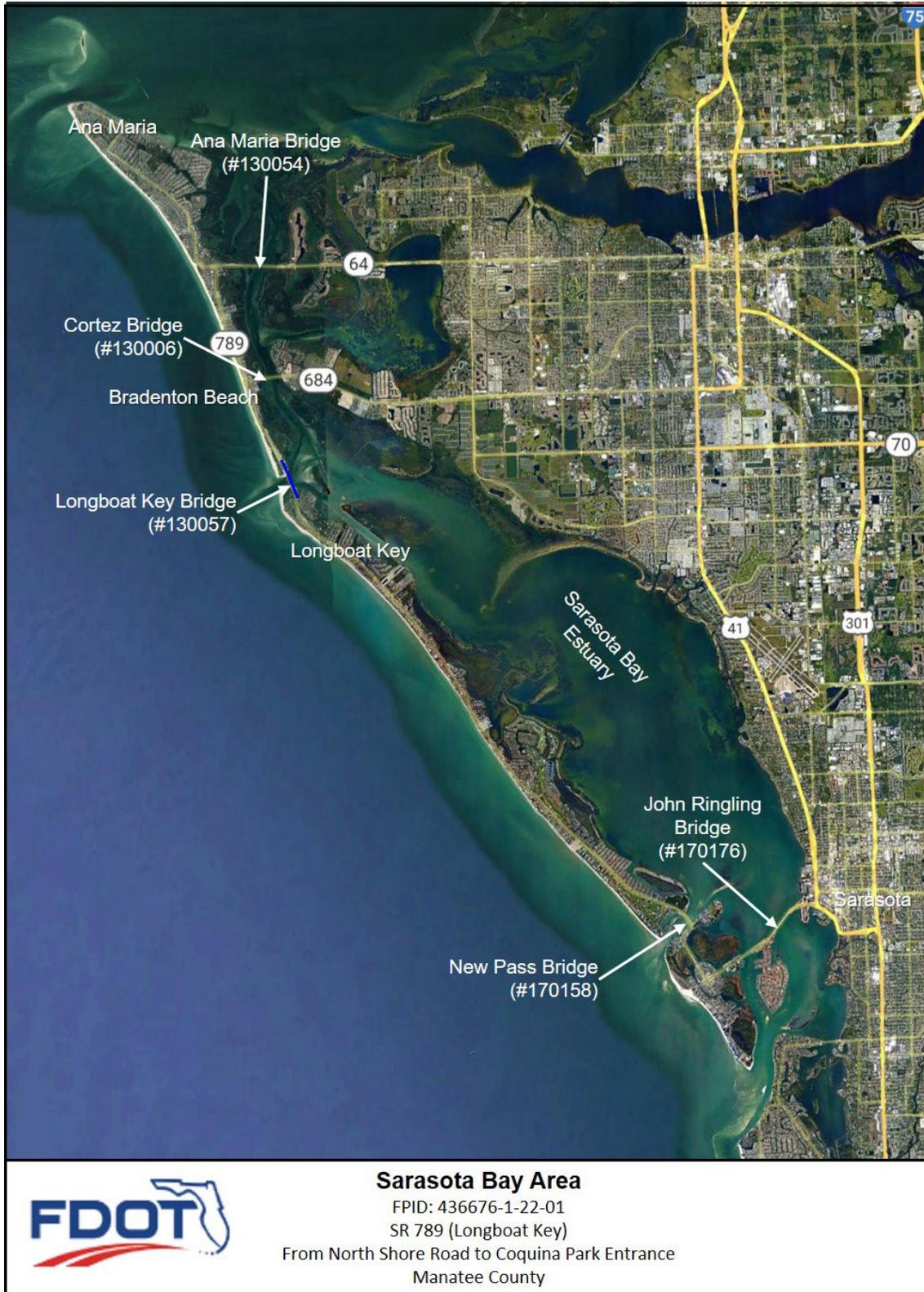


Figure 2 - Sarasota Bay Estuarine System

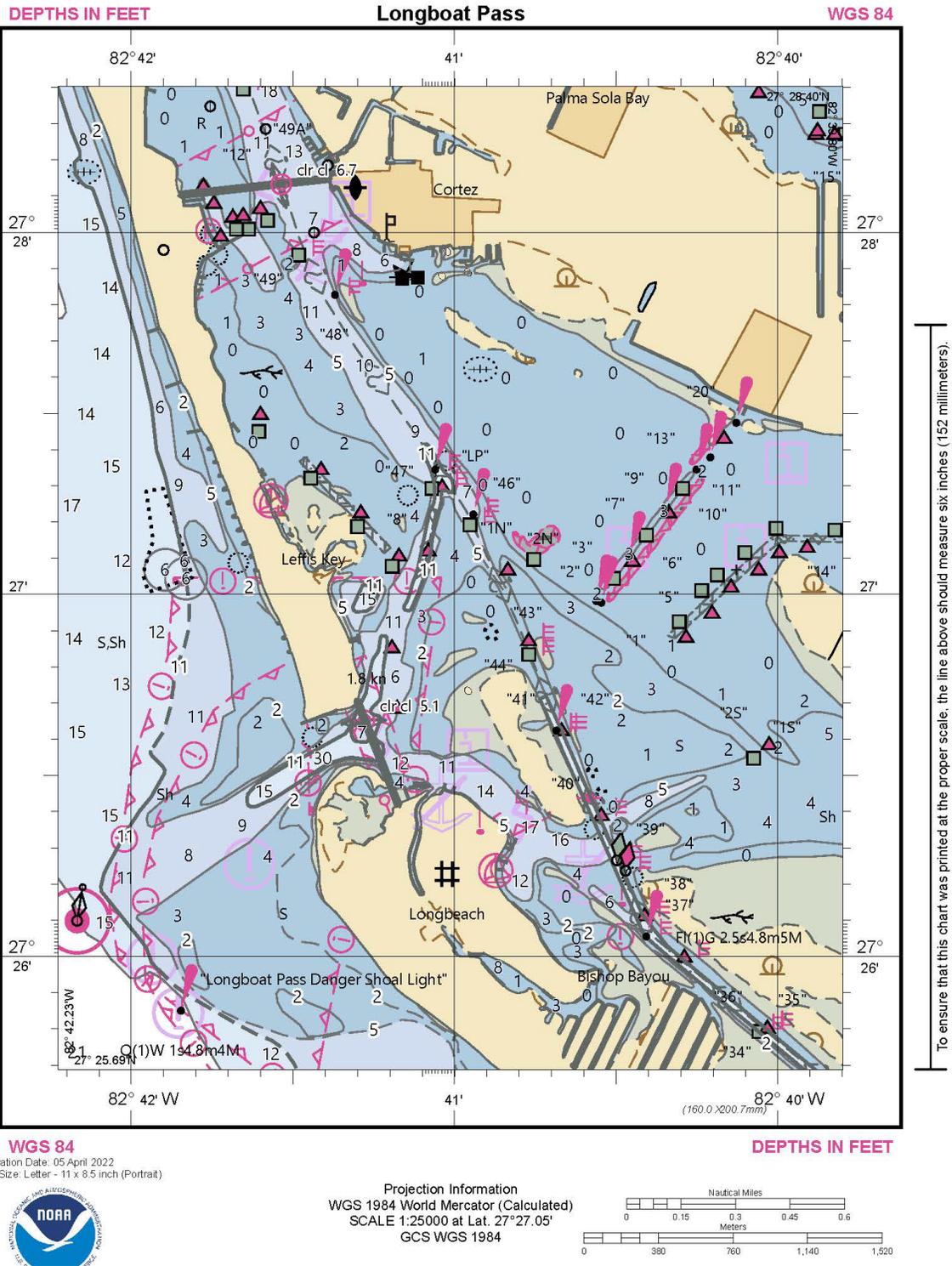


Figure 3 - Longboat Pass Navigation Map



Figure 4 - Aerial View of Longboat Pass Channel, Image from NOAA US Coastal Pilot 5



Figure 5 - Elevation View of Longboat Key Bridge Main Span

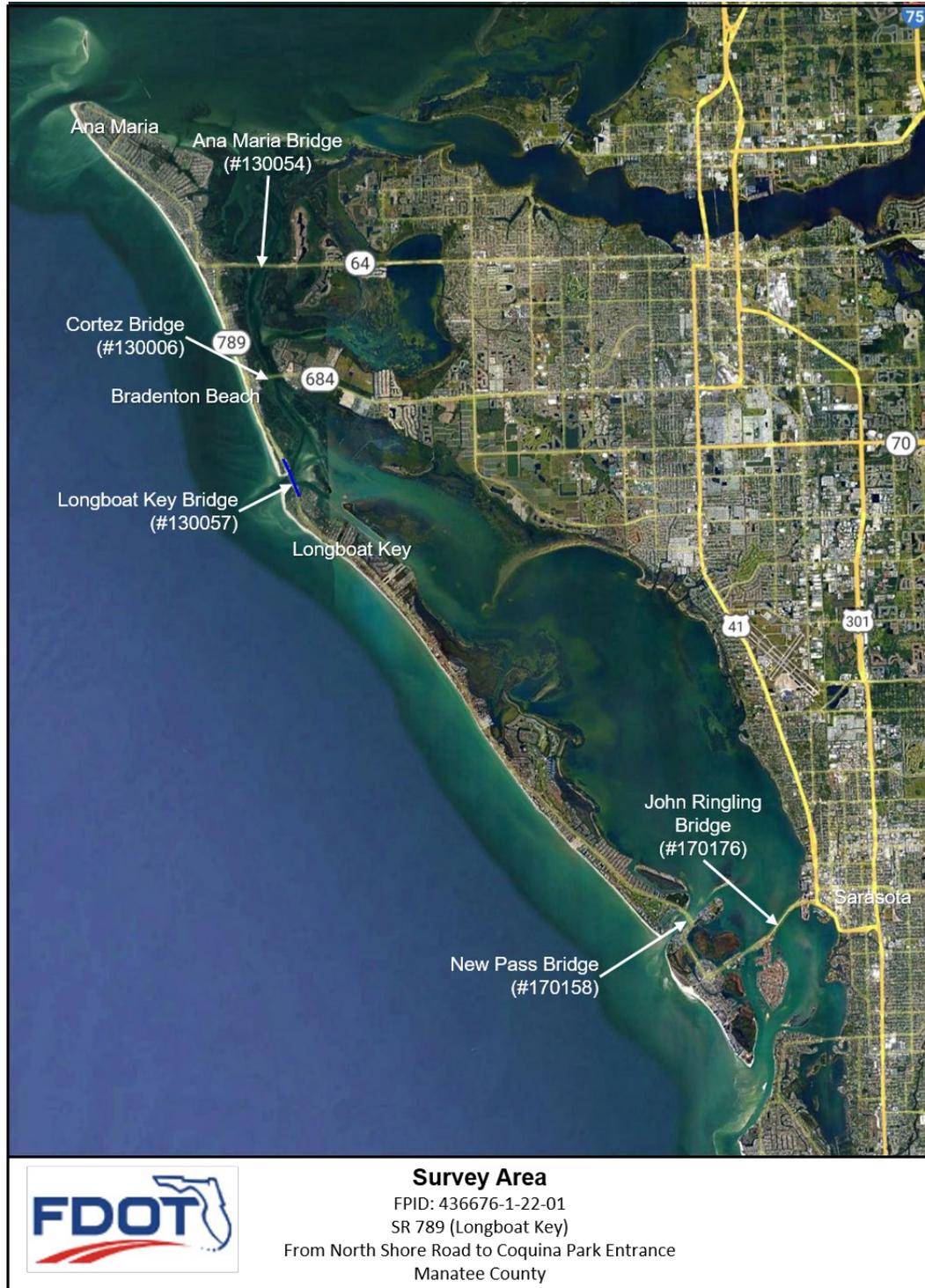


Figure 6 - Survey area



Figure 7 - On water survey map



Figure 7 - Marina Location Map



Figure 8 - The Next Thing moored NE of Longboat Key Bridge



Figure 9 - Enchanted Catamaran – Ultra Yacht Charters



Figure 10 - Bold We Go, after passing Longboat Key Bridge



Figure 11 - Darcarys, after passing Longboat Key Bridge