

DRAFT PRELIMINARY ENGINEERING 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: February 2026

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.

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Authorized Signature

Aniruddha Gotmare, PE

Print/Type Name

Project Manager, Scalar Consulting Group, LLC

Title

Address

Address

Seal

PROFESSIONAL ENGINEER CERTIFICATION

PRELIMINARY ENGINEERING REPORT

Project: S.R. 789 (Longboat Key) Project Development and Environment (PD&E) Study

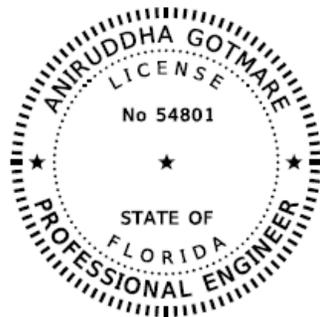
ETDM Number: 14382

Financial Project ID: 436676-1-22-01

Federal Aid Project Number: D120-032-B

This preliminary engineering report contains engineering information that fulfills the purpose and need for the S.R. 789 (Longboat Key) Project Development & Environment Study from North Shore Road to Coquina Park Entrance in Manatee, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Scalar Consulting Group LLC, and that I have prepared or approved the evaluation, findings, opinions, conclusions or technical advice for this project.



This item has been digitally signed and sealed by [\[Aniruddha Gotmare, P.E.\]](#) on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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1.0 PROJECT SUMMARY

1.1 Project Description

The Florida Department of Transportation (FDOT), District One, has conducted a Project Development and Environment (PD&E) Study to determine the rehabilitation or replacement of State Road (S.R.) 789 (Longboat Key) Bridge over Longboat Pass from North Shore Road to north of Coquina Park south entrance in Longboat Key and Bradenton Beach, Manatee County, Florida. The existing facility, which was built in 1957, is a two-lane bascule bridge with 5-foot sidewalks on both sides and no bicycle facilities. The existing vertical clearance is 17 feet with the bascule span in the closed position, and the bridge has a main channel width of 45.9 feet. The existing bridge exhibits several significant structural and operational deficiencies due to its age. The proposed bridge is an undivided, two-lane high level fixed bridge (78-feet high) with one 12-foot-wide shared use path (SUP) on the southbound side and one 8-foot-wide sidewalk on the northbound side. The total project length is approximately one mile, and the project limits are shown in **Figure 1-1**.

The project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process as project #14382. An ETDM Programming Screen Summary Report containing comments from the Environmental Technical Advisory Team (ETAT) was published on April 30, 2020. The ETAT evaluated the project's effects on various natural, physical, and social resources.

This PD&E Study documents the need for replacing the existing Longboat Key Bridge over Longboat Key Pass, and presents the procedures utilized to develop and evaluate a Preferred Alternative. Information relating to the engineering and environmental characteristics essential for the development of alternatives and analytical decisions was collected. The alternatives were analyzed using a variety of parameters with a matrix format. This process was followed to identify natural, physical, and socio-economic impacts, while providing the necessary future transportation improvements. The study includes solicited input from the public and local agencies. The PD&E Study satisfies the requirements of FDOT and follows the process for a Type 2 Categorical Exclusion (CE). The PD&E Study process was developed in compliance with the National Environmental Policy Act (NEPA), and other applicable federal and state regulations.

The S.R. 789 Bridge (also known as Longboat Pass Bridge or Longboat Key Bridge) serves as the only north-south connection from Longboat Key to Bradenton Beach and Anna Maria Island. The current Longboat Key Bridge (Structure Number 130057) was built in 1957 and underwent major rehabilitation in 2005, but due to the age of the bridge, it is in need of replacement.

Longboat Key Bridge crosses Longboat Pass, a navigable waterway and federal channel managed by the United States Coast Guard (USCG) and designated as sovereign submerged land (SSL) by the Florida Department of Environmental Protection (FDEP) which serves as a northwestern entry point from the Gulf of Mexico to Sarasota Bay. The bridge has a main channel width of 45.9 feet with a minimum vertical clearance of approximately 17 feet with the bascule span in the closed position. With the planned replacement of the Cortez Bridge to the north with a 65-foot vertical

clearance fixed bridge and the discontinued maintenance/dredging of the New Pass channel to the south, the Longboat Key Bridge would become the only viable access point for vessels with an air draft greater than 65 feet to enter or exit Sarasota Bay. **Figure 1-2** is a map of the project area in relation to these key areas.

Figure 1-1 Project Location Map



Project Location Map
 S.R. 789 (Longboat Key) PD&E Study
 From North Shore Road to Coquina Park Entrance
 FPID: 436676-1-22-01
 Manatee County

Image Source: APLUS
 Imagery Date: 2024

NORTH

0 0.07 0.15
 Miles

Figure 1-2 Project Area Map



1.2 Purpose & Need

The purpose of the project is to address structural integrity and operational deficiencies of the S.R. 789 (Longboat Key) Bridge [Structure Number 130057]. The ultimate goal of the project is to identify the optimal solution for a bridge structure in need of repair due to deteriorating conditions and to accommodate greater multi-modal transportation access. The project will evaluate alternatives for the reconstruction/rehabilitation, with consideration of bicycle and pedestrian facilities, of approximately 1 mile of roadway that provides a connection between nearby neighborhoods and recreational facilities (Longboat Key to Bradenton Beach). The need for the project is based on the following criteria:

Bridge Deficiencies: Address Structural Integrity

The S.R. 789 (Longboat Key) Bridge was rehabilitated in 2005; however, the original structure was built in 1957. Despite being close to seventy-years old, the S.R. 789 (Longboat Key) Bridge between North Shore Road and the entrance to Coquina Park needs to be repaired or replaced due to the age of the bridge.

Based on a February 2024 FDOT bridge inspection report, the Longboat Key Bridge received a sufficiency rating of 42 (on a scale of 0-100). Sufficiency rating is an overall rating of a bridge's fitness to remain in service. A bridge with a sufficiency rating of 80 or less is eligible for bridge rehabilitation funding. A sufficiency rating below 50.0 qualifies a bridge for replacement funds. The bridge conditions are as follows:

- Overall Condition: Fair
- Deck: Satisfactory
- Superstructure: Satisfactory
- Substructure: Fair
- Deck Geometry Appraisal: High priority of replacement
- Pier and abutment protection: In place but in a deteriorated condition
- River control devices and embankment protection: Widespread minor damage
- Recommended work: Structural repairs, including hydraulic replacements

Multi-modal Improvements: Improve Multi-modal Transportation Options

S.R. 789 (Longboat Key) serves as the primary connection from Longboat Key to Bradenton Beach and Anna Maria Island and is frequently used by bicyclists and pedestrians due to the adjacent parks and recreational facilities (Greer Island Park, Coquina Bayside Park / Boat Ramp, and Coquina Beach Park, Coquina Beach Trail, Longboat Key Trail Corridor, Leffis Key, and the Florida Gulf Coast Trail Shared-Use Non-motorized (SUN) Trail). While there are 5-foot-wide sidewalks on both sides of the bridge and a bicycle lane on each side of the roadway leading up to the bridge, there are no shoulders or dedicated bicycle facilities on the bridge itself. Due to the minimal sidewalk width, there are often conflicts between pedestrians and bicyclists.

Pedestrian and Bicycle Facilities

The corridor serves as a critical multi-modal connection linking Longboat Key, Bradenton Beach, and Anna Maria Island. Existing pedestrian and bicycle accommodations are discontinuous throughout the project limits. The proposed project aims to enhance multi-modal mobility and safety by evaluating reconstruction and/or rehabilitation alternatives that incorporate improved bicycle, pedestrian, and transit facilities along approximately 1-mile of S.R. 789 (Longboat Key). Considerations will include the integration of shared use paths, expanded sidewalks, and barrier-separated bicycle accommodations to ensure compliance with FDOT's Context-Based Design principles, while improving overall accessibility and user comfort.

Transit Facilities

Within the project area, several mobility-related features that contribute to the corridor's multi-modal function have been identified. Transit services include:

- Route 5 (Manatee County Area Transit - MCAT)
- Longboat Key Shuttle (reservation-based service)
- Anna Maria Island Trolley (fare-free, fixed-route service connecting major activity centers and beach destinations)

In addition to transit, the area supports multiple multi-use, hiking, and paddling trails, promoting intermodal connections between transit, recreational, and active transportation modes. The project will evaluate opportunities to enhance transit stop accessibility, intermodal connectivity, and user safety to align with FDOT's Mobility Performance Measures and multi-modal corridor objectives.

Safety: Improve Emergency Evacuation and Response Times

Serving as part of the emergency evacuation route network designated by the Florida Division of Emergency Management, S.R. 789 (Longboat Key) plays a critical role in facilitating traffic during emergency evacuation periods as the primary connection between Longboat Key, Bradenton Beach, and Anna Maria Island. The entire project corridor is located in Manatee County's Hurricane Storm Surge Category "A".

Planning Consistency

The proposed Longboat Key Bridge design project, identified under FDOT Financial Management (FM) Number 436676-2, is incorporated into the FDOT State Transportation Improvement Program (STIP) for Fiscal Year (FY) 2025/2026 – FY 2029/2030, ensuring alignment with statewide transportation priorities. At the regional level, the Sarasota/Manatee Metropolitan Planning Organization (MPO) has included the project in its FY 2025/2026 – FY 2029/2030 Transportation Improvement Program (TIP), designating it as an MPO Regional Bridge Priority. Furthermore, the Longboat Key Bridge project is identified in the Sarasota/Manatee MPO 2050 Long Range Transportation Plan (LRTP) as a Regional Bridge Priority, reflecting its long-term significance for regional mobility, emergency evacuation routes, and multi-modal connectivity.

1.3 Commitments

1. The most recent version of U.S. Fish and Wildlife Service's (USFWS) Standard Protection Measures for the Eastern Indigo Snake will be implemented during construction.
2. The National Marine Fisheries Service (NMFS) Vessel Strike Avoidance Measures, National Oceanic and Atmospheric Administration (NOAA) Fisheries Southeast Regional Office (SERO) will be utilized during construction.
3. The NMFS Protected Species Construction Conditions, NOAA Fisheries SERO will be utilized during construction.
4. The NMFS and USFWS Construction Special Provisions, Gulf Sturgeon Protection Guidelines will be utilized during construction.
5. The USFWS and Florida Fish and Wildlife Conservation Commission (FWC) Standard Manatee Construction Conditions for In-Water Work will be utilized during construction.
6. FDOT will provide mitigation for impacts to wood stork suitable foraging habitat (SFH) within the service area of a USFWS-approved wetland mitigation bank or wood stork conservation bank.
7. If the listing of the monarch butterfly is elevated by USFWS to threatened or endangered and the Preferred Alternative is located within the consultation area, FDOT commits to reinitiating consultation with the USFWS during the design and permitting phase to determine the appropriate survey methodology and to address USFWS regulations regarding the protection of the monarch butterfly.
8. Prior to construction, FWC's regional shorebird contact will be consulted to verify presence/absence of Active Breeding Sites and to determine whether avoidance measures are necessary.
9. A minimum buffer of 300 feet will be maintained between project activities and any FWC identified Active or Recent Breeding Sites, Critical Brood-rearing Sites, or Critical Roosting Sites. Buffers will be clearly posted with Regulatory Boundary signs, and personnel will be instructed to remain outside of posted areas.
10. All construction, staging, and site preparation activities within 300 feet of potential shorebird nesting habitat will be avoided during the breeding (February 15 – September 1) unless FWC confirms no active or recent breeding sites are present.
11. Surveys to update locations of seagrass will be conducted during the design phase, and permits will be acquired if there will be unavoidable impacts during construction.
12. Mangrove and seagrass mitigation requirements will be determined in consultation with NMFS during the design phase of the project.
13. Prior to demolition of Bridge 130057, bat exclusion must be completed to comply with Florida Administrative Code (F.A.C.) rule 68A-4.001 General Prohibitions; and rule 68A-9.010 Taking Nuisance Wildlife. Per the regulations, exclusion is not permitted during bat maternity season April 15 through August 15. Exclusion devices must be left up for a minimum of four nights and low temperature must be forecasted to remain above 50 degrees Fahrenheit during that time period.

1.4 Alternatives Analysis Summary

Initially, three Build alternatives were developed and presented at the Alternatives Public Workshop held on March 12 and March 14, 2024. These Build alternatives consist of:

1. Low-Level Bascule Bridge
2. Mid-Level Bascule Bridge
3. High-Level Fixed Bridge

The primary distinctions between the bascule bridge alternatives and the high-level fixed bridge alternative include the bridge type, vertical clearance, construction and maintenance costs, and ongoing maintenance requirements. Specifically, bascule bridges typically demand more frequent and intensive maintenance than fixed bridges due to movable mechanical components.

All three Build alternatives are proposed to be located immediately west of the existing Longboat Key Bridge, a siting choice intended to minimize impacts to utilities, residential properties, and adjacent land uses. This alignment also allows for continuity of operations during construction while reducing potential environmental and community disruptions.

Each of these alternatives is designed to improve safety, traffic flow, and multi-modal access while considering potential environmental and community impacts. The right-of-way (ROW) acquisition and alignment adjustments have been carefully evaluated to minimize impacts on surrounding facilities and infrastructure. All three alternatives have the same typical section. The differences relate to the bridge heights and movable or fixed span bridge designs.

Alternative 1: Low-Level Bascule Bridge

This alternative proposes replacing the existing Longboat Key Bridge with a bascule bridge providing a vertical clearance of 23 feet and a horizontal clearance of 90 feet between fenders. The bridge typical section includes two 12-foot-wide travel lanes, two 10-foot-wide outside shoulders, and two 12-foot-wide shared use paths to accommodate pedestrians and bicyclists. Alternative 1 would be constructed immediately west of the existing alignment. Implementation of this alternative would require 0.08 acres of ROW acquisition from the north side of the bridge at the Manatee County Marine Rescue Facility, which is county-owned property. Based upon a Long Range Estimate (LRE) prepared in 2024, the construction cost of Alternative 1 is estimated at \$112.2 million. This does not include cost to relocate utilities or annual maintenance costs and major repairs.

Alternative 2: Mid-Level Bascule Bridge

This alternative involves the replacement of the existing Longboat Key Bridge with a bascule bridge providing a vertical clearance of 36 feet and a horizontal clearance of 90 feet between fenders.

The typical section mirrors that of Alternative 1, consisting of two 12-foot-wide travel lanes, two 10-foot-wide outside shoulders, and two 12-foot-wide shared use paths to support multi-modal transportation. Alternative 2 is located west of the current alignment and similarly requires 0.08 acres of ROW acquisition from the north side of the bridge at the Manatee County Marine Rescue Facility. Based upon a 2024 LRE, the construction cost of Alternative 2 is estimated at \$112.9 million. This does not include cost to relocate utilities or annual maintenance costs and major repairs.

Alternative 3: High-Level Fixed Bridge

This alternative proposes the replacement of the existing Longboat Key Bridge with a fixed bridge featuring a vertical clearance of 78 feet and a horizontal clearance of 90 feet between fenders. The typical section includes two 12-foot-wide travel lanes, two 10-foot-wide outside shoulders, and two 12-foot-wide shared use paths. Alternative 3 would be situated west of the existing alignment. In addition to requiring 0.35 acres of ROW acquisition from the north side at the Manatee County Marine Rescue Facility, this alternative also involves intersection improvements and access management modifications at the north end of the bridge near the Coquina Beach entrance. Based upon a 2024 LRE, the construction cost of Alternative 3 is estimated at \$79.3 million. This does not include cost to relocate utilities or annual maintenance costs and major repairs.

Reduced Build Alternatives

Following the Alternatives Public Workshop and in response to public feedback and environmental considerations, three new Build alternatives were developed to minimize impacts while still achieving project objectives to provide bridge replacement alternatives. Public feedback included the desire for a reduced typical section width, and a horizontal alignment that would be further away from the residential condos (North Shore condos) adjacent to the approach of the bridge in the Town of Longboat Key (southern limits of project). These public comments were addressed through the reduction of the typical section, which also pushed the alignment further away (further east) of the residential condos. The reduced alternatives are intended to balance the need for improved multi-modal transportation, safety, and operational efficiency with minimized environmental and community impacts. As before, the typical sections are the same for each alternative: the reduced typical section consists of one 12-foot-wide protected SUP on the west side of the bridge, two 8-foot-wide outside shoulders, two 11-foot-wide travel lanes, and one barrier-protected 8-foot-wide sidewalk on the east side of the bridge. All reduced alternatives require ROW acquisition from the north side of the bridge at the Manatee County Marine Rescue Facility, which is county-owned property. The Reduced Build alternatives are described as follows:

Alternative 1 (Reduced): Low-Level Bascule Bridge

This alternative proposes the replacement of the existing Longboat Key Bridge with a low-level single leaf bascule bridge providing a vertical clearance of 23 feet and a horizontal clearance of 90 feet between fenders. Implementation of this alternative would require 0.01 acres of ROW acquisition from the north side of the bridge at the Manatee County Marine Rescue Facility, which is county-owned property. Based upon an LRE prepared in 2025, the construction cost of Alternative 1 is estimated at \$176 million. This does not include cost to relocated utilities or annual maintenance costs and major repairs.

Alternative 2 (Reduced): Mid-Level Bascule Bridge

This alternative involves replacing the existing bridge with a mid-level single leaf bascule bridge offering a vertical clearance of 36 feet and a horizontal clearance of 90 feet between fenders. Implementation of this alternative would require 0.01 acres of ROW acquisition from the north side of the bridge at the Manatee County Marine Rescue Facility, which is county-owned property. Based upon an LRE prepared in 2025, the construction cost of Alternative 2 is estimated at \$183.8 million. This does not include cost to relocated utilities or annual maintenance costs and major repairs.

Alternative 3 (Reduced): High-Level Fixed Bridge

This alternative entails the replacement of the existing bridge with a high-level fixed bridge providing a vertical clearance of 78 feet and a horizontal clearance of 90 feet between fenders. This alternative includes intersection and access management modifications at the north end of the bridge, specifically at the Coquina Beach entrance. Implementation of this alternative would require 0.23 acres of ROW acquisition from the north side of the bridge at the Manatee County Marine Rescue Facility, which is county-owned property. Based upon an LRE prepared in 2025, the construction cost of Alternative 3 is estimated at \$137.8 million. This does not include cost to relocated utilities or annual maintenance costs and major repairs.

Table 1-1 Summary of Alternatives

No-Build Alternative	Build Alternatives Presented at the Alternatives Public Workshop Alternative 1 – Low-Level Bascule Bridge Alternative 2 – Mid-Level Bascule Bridge Alternative 3 – High-Level Fixed Bridge	Build Alternatives (Reduced Typical Section) Developed After the Alternatives Public Workshop Alternative 1 – Low-Level Bascule Bridge Alternative 2 – Mid-Level Bascule Bridge Alternative 3 – High-Level Fixed Bridge
Typical Section: (2) 12-foot-wide travel lanes (2) 5-foot-wide sidewalks	Typical Section: (2) 12-foot-wide travel lanes (2) 12-foot-wide shoulders (2) 12-foot-wide shared use paths	Reduced Typical Section: (2) 11-foot-wide travel lanes (2) 8-foot-wide shoulders (1) 12-foot-wide protected shared use path - west side of the bridge (1) 8-foot-wide protected sidewalk – east side of the bridge

As part of the alternatives analysis, construction cost estimates were developed for both the No-Build and Build Alternatives. These estimates reflect the overall anticipated construction costs, including preliminary engineering, design, and typical construction contingencies. The reduced typical section alternatives result in lower construction costs due to narrower lane widths, and simplified bridge sections, while still meeting the project’s operational, safety, and multi-modal objectives.

The construction costs, along with engineering, environmental considerations, and other project factors, are summarized in the Alternatives Evaluation Matrix provided in **Section 5.5**. This matrix facilitates a comprehensive comparison of the alternatives and supports decision-making regarding the preferred bridge replacement option.

The estimated construction costs from August 2024 LREs are summarized as follows and provided in **Table 1-1**:

- No-Build Alternative – This alternative does not involve new construction. However, ongoing maintenance of the existing bridge is required. The current-year maintenance cost (excluding major rehabilitation or periodic major maintenance activities such as replacement of machinery, control systems, or pile jacketing) is approximately \$315,000 (using 2025 dollar estimates). Major repair and rehabilitation costs projected between 2024 and 2042 are estimated at approximately \$92.3 million total, based on the FDOT District One Maintenance Costs Spreadsheet (**Table 5-1**).
- Alternative 1: Low-Level Bascule Bridge (Reduced Typical Section) – Estimated construction cost: \$176 million (2025)
- Alternative 2: Mid-Level Bascule Bridge (Reduced Typical Section) – Estimated construction cost: \$183.8 million (2025)

- Alternative 3: High-Level Fixed Bridge (Reduced Typical Section) – Estimated construction cost: \$137.8 million (2025)

1.5 Description of Preferred Alternative

The Preferred Alternative, Alternative 3 (Reduced), aligns with the goals of the STIP, TIP, and LRTP. The Preferred Alternative meets the purpose and need for the project in several ways. The Preferred Alternative replaces the existing Longboat Key Bascule Bridge with a High-Level Fixed Bridge, Alternative 3 (Reduced). The new structure will be designed to current FDOT and American Association of State Highway and Transportation Officials (AASHTO) design standards, providing a long-term, low-maintenance solution to replace the aging and operationally deficient bascule bridge. In addition, the Preferred Alternative enhances multi-modal connectivity by including dedicated bicycle and pedestrian facilities on both sides of the bridge. The Preferred Alternative also enhances the reliability of the emergency evacuation route serving this area by eliminating bridge openings that currently restrict traffic flow during critical events.

The roadway typical section for the Preferred Alternative consists of a two-lane, undivided bridge configuration with one 11-foot-wide travel lane, an 8-foot-wide outside shoulder, and a barrier-protected 8-foot-wide sidewalk in the northbound direction and one 11-foot-wide travel lane, an 8-foot-wide outside shoulder, and a barrier-protected 12-foot-wide SUP in the southbound direction. This configuration ensures safe and efficient multi-modal mobility, meeting the FDOT Design Manual (FDM) criteria for bridge design, roadway geometry, and pedestrian/bicycle accommodations. The design supports both vehicular capacity and user comfort while maintaining compatibility with the surrounding coastal environment and community context. There are two anticipated design variations (lane width and shoulder width) for the Preferred Alternative. The proposed ROW is 145-feet on the south and 200-feet on the north, with 0.23 acres of ROW required from the north side of the bridge at the Manatee County Marine Rescue Facility, county-owned property. The target, design and posted speed are 35 miles per hour (MPH). **Figure 1-3**, **Figure 1-4** and **Figure 1-5** depict the Preferred Alternative typical sections for the roadway and bridges.

Given the constraints of the available ROW within the project corridor, the stormwater management system will consist of two primary components:

- **Southern End of Project:** A small dry swale will be constructed to treat runoff at the southern portion of the project. This swale will provide localized water quality treatment by facilitating sedimentation and nutrient uptake before stormwater is discharged to the receiving waters.
- **Northern End of Project:** A dry retention pond will be implemented at the northern end of the project to accommodate the required treatment volume. The pond will temporarily retain stormwater, allowing for sedimentation and nutrient removal before controlled discharge.

The existing Longboat Key Bridge will be used for Maintenance of Traffic (MOT) while the new bridge is being built west of the existing alignment. During the MOT, southbound traffic will first be shifted to the new southbound lanes of the new bridge, while northbound traffic remains on the existing bridge. Then the northbound portion of the new bridge will be built. Afterwards, northbound traffic will join southbound traffic on the new bridge. After the new bridge is completely finished, with both southbound and northbound traffic traveling on the new bridge, the existing bridge will be demolished. At this time, construction funding for the Preferred Alternative has not been programmed in the FDOT Five-Year Work Program.

A summary of all alternatives considered during this PD&E Study is provided in **Section 5**, while **Section 6** presents the detailed comparative analysis of the alternatives. The Preferred Alternative was formally presented to the public during the Public Hearing held on March 17, 2026 (virtual).

Figure 1-3 Preferred Alternative – S.R. 789 at Coquina Beach Entrance

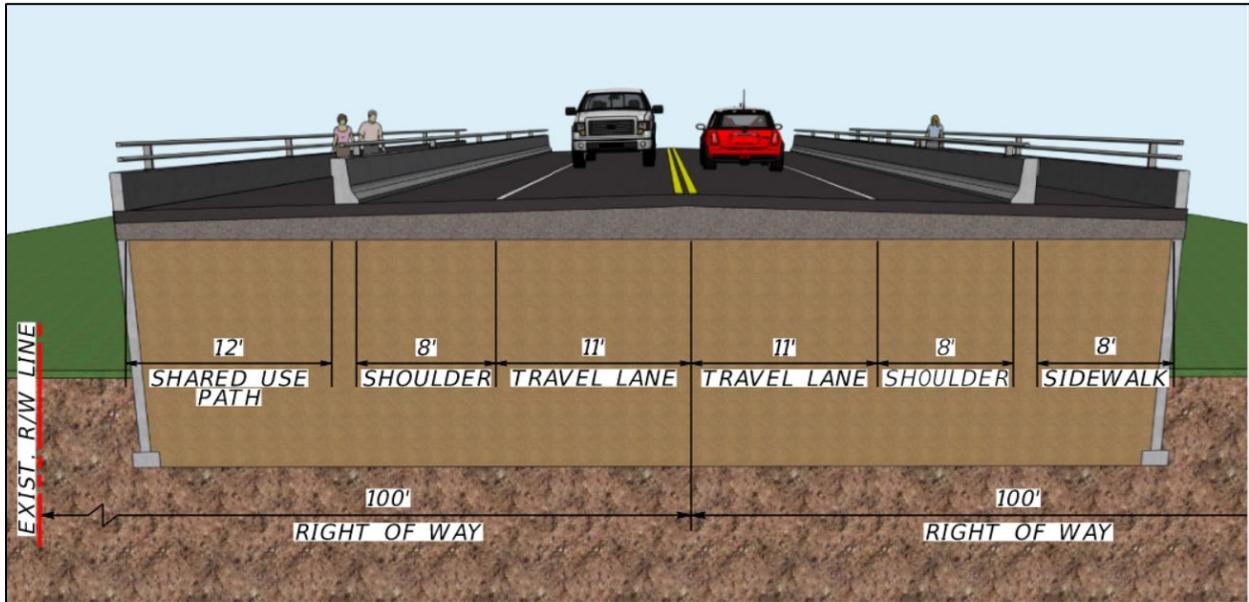
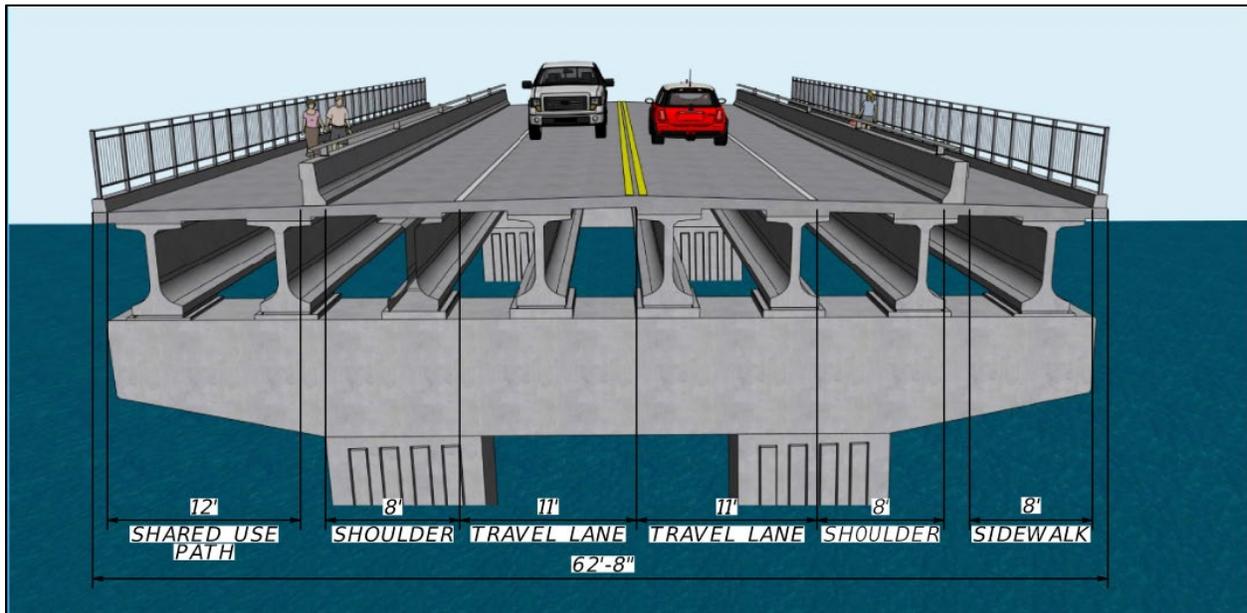
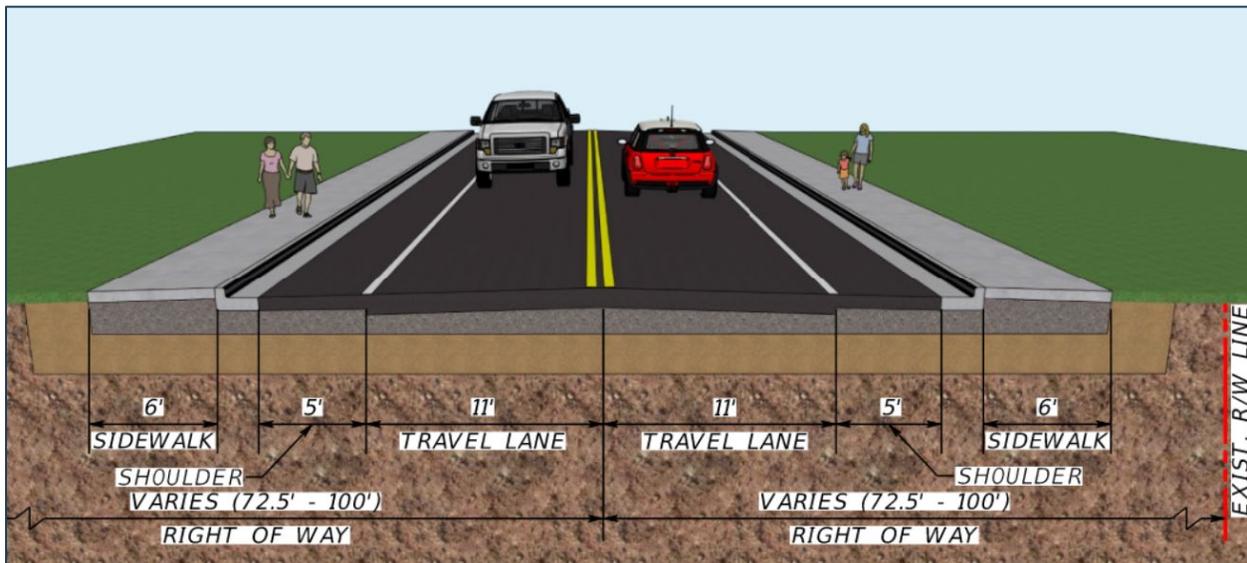


Figure 1-4 Preferred Alternative – S.R. 789 (Longboat Key) Bridge

Figure 1-5 Preferred Alternative – S.R. 789 at North Shore Road


An evaluation matrix comparing the No-Build Alternative to the Preferred Alternative is shown in **Table 1-2**. The evaluation matrix includes environmental effects, relocations, ROW needs, and project costs including ROW acquisition, wetland and listed species mitigation, design, and construction engineering and inspection. Construction costs are based on March 2025 unit costs and were estimated using the FDOT LRE provided in **Appendix C**.

Table 1-2 Evaluation Matrix for Preferred Alternative

Evaluation Criteria		'No-Build' Alternative	Alternative 1: Low Level Bascule Bridge	Alternative 2: Mid Level Bascule Bridge	Alternative 3: High Level Fixed Bridge	Reduced Typical Section ¹		
						Alternative 1: Low Level Bascule Bridge (Reduced)	Alternative 2: Mid Level Bascule Bridge (Reduced)	Alternative 3: High Level Fixed Bridge (Reduced)
BENEFITS	Addresses the age and existing conditions of the bridge							
	Provides improvements to bicycle and pedestrian facilities							
	Enhances safety for all users including emergency evacuation							
BRIDGE	Vertical Height above Mean High Water	17 feet	23 feet	36 feet	78 feet	23 feet	36 feet	78 feet
	Horizontal Width Between Fenders	50 feet	90 feet	90 feet	90 feet	90 feet	90 feet	90 feet
	Benefit to Marine Traffic	No change	Yes	Yes	Yes	Yes	Yes	Yes
	Estimated Life of Alternative (Years)	10	75	75	75	75	75	75
RIGHT-OF-WAY IMPACTS	Number of Residential and Business Parcels Potentially Impacted	0	0	0	0	0	0	0
	Right-of-Way Impacts (Acres)	0	0.08	0.08	0.35	0.01	0.01	0.23
	Additional Right-of-Way Required	0.00	0.08	0.08	0.35	0.01	0.01	0.23
UTILITY IMPACTS	Utilities Potentially Impacted (distribution, transmission)	No change	7 Utility/Agency Owners	7 Utility/Agency Owners	7 Utility/Agency Owners	7 Utility/Agency Owners	7 Utility/Agency Owners	7 Utility/Agency Owners
ENVIRONMENTAL	Potential Impacts to Threatened and Endangered Species	No change	Low	Low	Low	Low	Low	Low
	Potential Contamination Sites ² (medium/high risk)	No change	1	1	1	1	1	1
	Impacts to Wetlands ³ (acres)	No change	0.10	0.10	0.10	0.90	0.90	0.90
	Impacts to Seagrasses ³ (acres)	No change	0.22	0.22	0.22	0.15	0.15	0.15
	Section 4(f) Sites / Public Lands Potentially Impacted	No change	1	1	1	1	1	1
	Number of Historic Sites and Archaeological Sites Potentially Impacted	No change	0	0	0	0	0	0
	Number of Noise-sensitive Areas	No change	4	4	4	4	4	4
Aquatic Preserves / Outstanding Florida Waters (acres impacted)	No change	0/3.23	0/3.23	0/3.23	0/2.51	0/2.51	0/2.51	
COST	Design	\$0	\$7.5 million	\$7.5 million	\$4.5 million	\$7.5 million	\$7.5 million	\$4.5 million
	Right-of-Way Acquisition	\$0	\$0*	\$0*	\$0*	\$0*	\$0*	\$0*
	Construction	\$0	\$112.2 million**	\$112.9 million**	\$79.3 million**	\$176 million**	\$183.8 million**	\$137.8 million**
	Utility Relocation Costs	\$0	\$725,000	\$725,000	\$725,000	\$725,000	\$725,000	\$725,000
	Construction Engineering and Inspection (CEI)	\$0	\$13.5 million	\$13.5 million	\$9.5 million	\$21.1 million	\$22.1 million	\$16.5 million
	Total Project Costs (2024)	\$0	\$133.2 million***	\$133.9 million***	\$93.3 million***	n/a	n/a	n/a
	Total Project Costs (2025)	\$0	n/a	n/a	n/a	\$197.8 million***	\$228.3 million***	\$155.0 million***
*Right-of-way needed at Manatee County Marine Rescue								
**Costs to relocate utilities are not included.								
***Does not include annual maintenance costs and major repairs. The no-build alternative would involve increasingly expensive maintenance and repair projects causing continued disruption to traffic. Please note at the time of the Alternatives Public Workshop, the costs for Alternatives 1, 2, and 3 were provided in Year 2024. After the Alternatives Public Workshop, new costs (LRE's) were developed for Alternatives 1, 2, and 3 reduced, and are given in Year 2025.								
1. The Reduced Typical Section was developed after the Alternatives Public Workshop to address Public Involvement and Environmental concerns								
2. Asbestos-containing materials and metals-based coatings are present on the bridge and the bridge tender house flooring contains asbestos-containing materials.								
3. Environmental impacts performed prior to 2024 hurricane season.								

1.6 List of Technical Documents

The technical reports prepared in support of this study and their respective completion dates are listed in **Table 1-3**. These reports are included in the project file.

Table 1-3 Environmental Documentation

Document	Date
Public Involvement	
Advance Notification Package	January 2020
Public Involvement Plan	September 2024
Public Hearing Transcript	TBD
Comments and Coordination Report	TBD
Engineering	
Bridge Hydraulic Report	July 2022
Geotechnical Report	August 2024
Location Hydraulic Report	February 2026
Navigation Impact Report	May 2022
Pond Siting Report	February 2026
Project Traffic Analysis Report	January 2023
Typical Section Package	November 2025
Utility Assessment Package	February 2026
Vessel Survey Memorandum	April 2022
Environmental	
ETDM Summary Report	July 2020
Contamination Screening Evaluation Report	February 2026
Cultural Resource Assessment Survey	April 2025
Natural Resources Evaluation	February 2026
Noise Study Report	February 2026
Conceptual Stage Relocation Plan	N/A
Water Quality Impact Evaluation	January 2026
Sole Source Aquifer Documentation	N/A
Type 2 Categorical Exclusion	TBD
Section 4(f) Document	TBD

2.0 EXISTING CONDITIONS

2.1 Previous Planning Studies

Several previous planning studies were completed that provided guidance for evaluating bicycle/pedestrian and other multi-modal alternatives along the S.R. 789 corridor. Key studies include the Sarasota/Manatee Barrier Islands Traffic Study – Phase 1 (June 2017) and Phase 2 (October 2018), Financial Project ID (FPID) No. 440411-1-12-01.

- **Phase 1 (June 2017):** This study evaluated transportation options and mobility improvements for the barrier islands, including Longboat Key and Bradenton Beach. The study also emphasized the importance of investing in non-motorized transportation infrastructure, recommending substantial funding, including grants, for sidewalks, bicycle facilities, and multiuse trails along S.R. 789 and within Bradenton Beach.
- **Phase 2 (October 2018):** Building on the recommendations of Phase 1, Phase 2 focused on targeted roadway improvements along Longboat Key. Specific recommendations included completing discontinuous sidewalk sections along S.R. 789 from approximately 130 feet south of 13th Street South to the Longboat Key Bridge. These improvements were intended to enhance pedestrian safety, improve connectivity, and support multi-modal transportation along the corridor.

2.2 Existing Roadway Conditions

Existing conditions along the corridor reflect a mix of residential, recreational, and commercial land uses. Pedestrian and bicycle facilities are discontinuous in several locations, and the existing bridge exhibits operational and structural deficiencies that impact traffic flow and multi-modal safety. The corridor is also part of the emergency evacuation route network, which emphasizes the importance of maintaining reliable and safe passage during emergency events.

2.2.1 Roadway Typical Sections

The corridor is a two-lane, undivided arterial roadway with one lane in each direction. Lane widths along the existing bridge are approximately 12 feet, with shoulder widths varying from 4 to 10 feet, depending on the location. The roadway includes limited horizontal and vertical clearances at certain segments of the bridge, which contribute to operational constraints, particularly for larger vehicles and during peak travel periods. Existing pedestrian and bicycle facilities vary along the corridor and differ between the bridge approaches and the bridge structure itself. Approaching the Longboat Key Bridge on the southern end of the limits, there is a 6-foot-wide sidewalk provided on the west side, no sidewalk present on the east side, and bicycle lanes are provided on both sides of S.R. 789. Along the Longboat Key Bridge, 5-foot-wide sidewalks are present on both sides, but no dedicated bicycle lanes are provided on the bridge. The gaps in sidewalk facilities along the corridor emphasize the need for improvements to provide consistent and safe facilities for all users along S.R. 789 and across the Longboat Key Bridge. **Figures 2-1, Figure 2-3, and Figure 2-5**

provide photographs of the existing roadway and S.R. 789 Bridge. **Figure 2-2**, **Figure 2-4**, and **Figure 2-6** illustrate the existing S.R. 789 typical sections.

Figure 2-1 Existing S.R. 789 Photograph at Northern Limits



Figure 2-2 Existing S.R. 789 Roadway Typical Section at Northern Limits

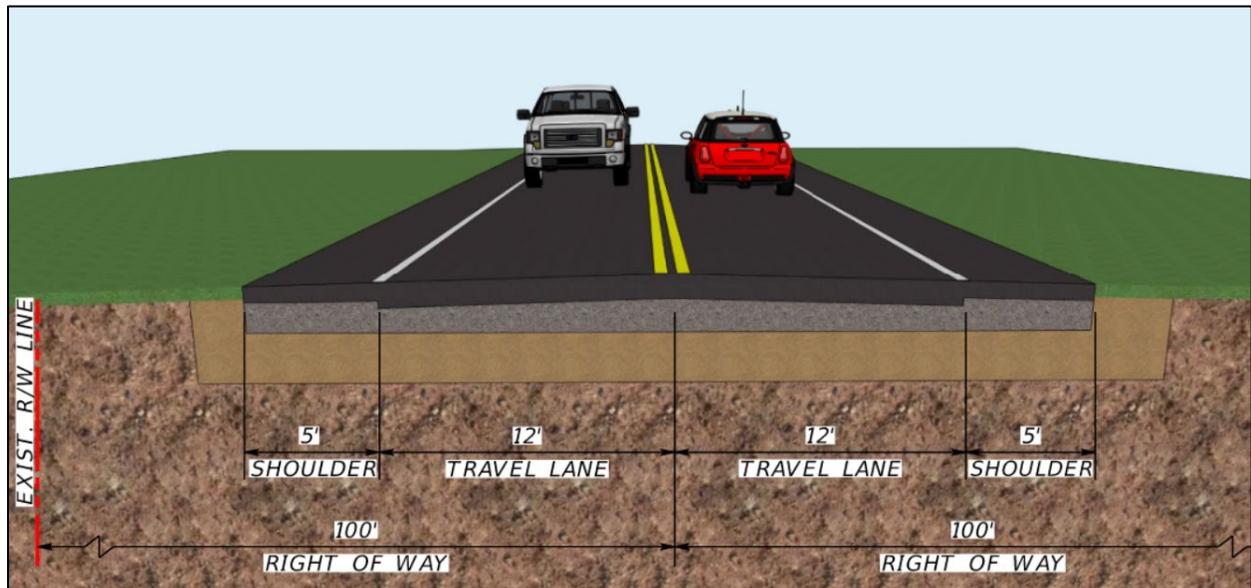


Figure 2-3 Existing S.R. 789 Bridge Photograph



Figure 2-4 Existing S.R. 789 Bridge Typical Section

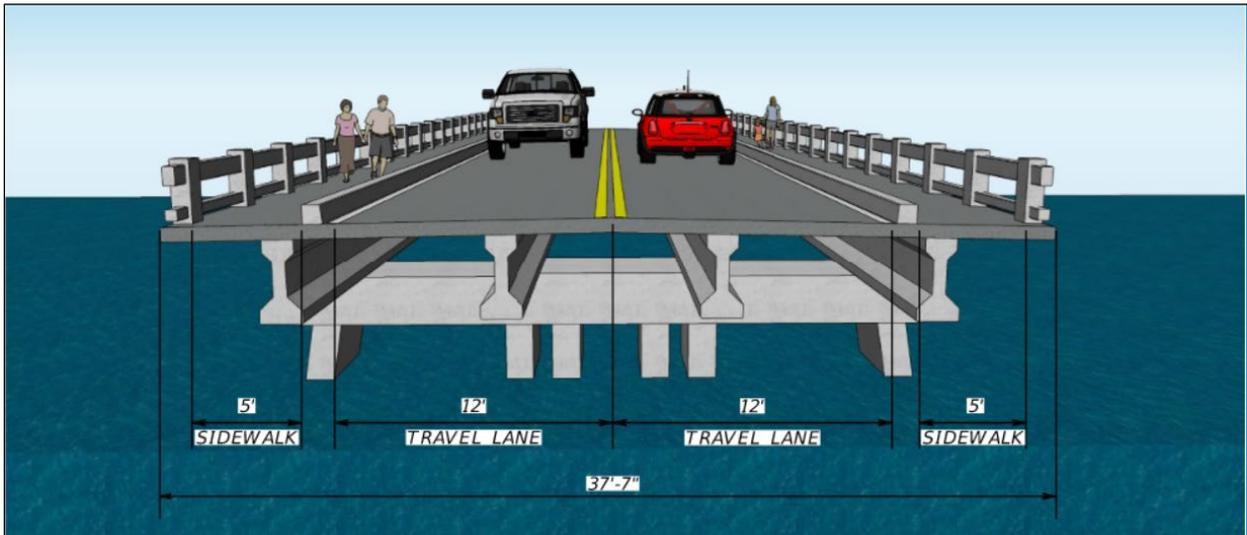
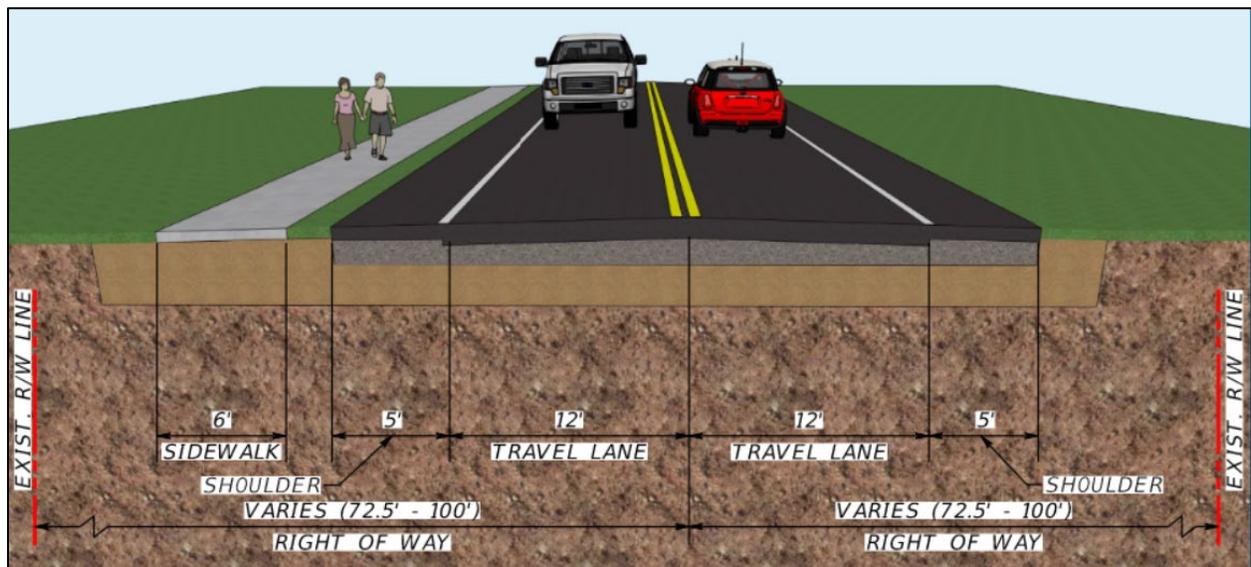


Figure 2-5 Existing S.R. 789 Photograph at Southern Limits



Figure 2-6 Existing S.R. 789 Roadway Typical Section at Southern Limits



2.2.2 Roadway Functional & Context Classifications

Within the project limits, S.R. 789 (Longboat Key), according to the FDOT Straight Line Diagram, Roadway Identification (ID) 13080000, is functionally classified as an urban major collector, serving as a key north-south corridor connecting Longboat Key, Bradenton Beach, and Anna Maria Island. The roadway not only accommodates local residential and visitor traffic but also serves as a designated hurricane evacuation route, playing a vital role in regional mobility and emergency response operations. The posted speed limit is 35 MPH. Based on the FDOT Context Classification Memo dated November 17, 2020, S.R. 789 within the study limits has a Context Classification of C3R. Context Classification C3R reflects a suburban context where careful management of driveways, intersections, and pedestrian crossings is essential to maintain safe and efficient operations.

The combination of its functional classification and emergency evacuation designation emphasizes the need for improvements that maintain traffic flow, enhance safety, and accommodate multi-modal users while meeting FDOT design standards.

2.2.3 Access Management Classification

Based on FDOT access management data (KMZ file, 06/06/2023), S.R. 789 within the study limits is classified as Access Class 7 with a Context Classification of C3R.

- Access Class 7 is a higher-level access management designation intended for roadways that primarily serve through traffic while balancing the need for access to adjacent properties.
- Context Classification C3R reflects a suburban context where careful management of driveways, intersections, and pedestrian crossings is essential to maintain safe and efficient operations.

According to FDOT Access Management Guidebook 2023 - Table 12, the recommended minimum intersection spacing for Access Class 7 is 1,320 feet. Review of the corridor indicates that intersection spacing along S.R. 789 meets or exceeds this standard, demonstrating compliance with FDOT access management guidelines. This spacing supports efficient traffic flow, reduces potential conflict points, and enhances overall safety for motorists, pedestrians, and bicyclists. See **Table 2-1**.

Table 2-1 Access Management

Existing Opening	Existing Opening Type	Existing Spacing (feet)
North Shore Road	Full/T-intersection/unsignalized	-
S.R. 789/Coquina Park Entrance	Full/unsignalized	4,266

2.2.4 Right-of-Way

The existing ROW is 145-feet on the south side of the project limits and 200-feet on the north side of the project limits, based on the Manatee County Right-of-Way files. According to FDOT District One right-of-way maps dating from 1956 and 1959, the existing right-of-way of S.R. 789 within the Longboat Pass Channel varies between 600-feet to 1000-feet, meaning that the existing Longboat Key Bridge and proposed Longboat Key Bridge are well within the existing right-of-way. Longboat Pass is a federal channel managed by the USCG and is considered SSL by the FDEP Division of State Lands. Structure Number 130057 is authorized under SSL Easement No. 21136. The width of the SSL Easement is approximately 995 feet wide – measured on Geographic Information System (GIS). The existing bridge is approximately centered in the middle of this easement.

2.2.5 Adjacent Land Use

The corridor passes through a mix of residential, recreational, and environmentally sensitive areas, including parks and waterfront access points. Coastal wetlands, mangroves, and other sensitive habitats are present near the bridge approaches, requiring careful consideration during design and construction to minimize environmental impacts.

Existing land use within the study area was identified using the Florida Land Use Covers and Forms Classification System (FLUCFCS) GIS layer from the Southwest Florida Water Management District (SWFWMD). The majority of the existing land use adjacent to the Longboat Key Bridge consists of recreational, residential, and natural coastal areas. On the north (Bradenton Beach) side of the bridge, adjacent lands are primarily designated for recreational use, including Coquina Beach and Coquina Park, which provide public shoreline access and parking facilities. On the south (Longboat Key) side, existing land uses include high-density residential development along North Shore Road and portions of upland hardwood forest near the shoreline. The bridge corridor itself crosses over open water classified as Bays and Estuaries. See **Figure 2-7**.

The Town of Longboat Key Comprehensive Plan Future Land Use Map indicates that land uses adjacent to the project corridor are expected to include:

- **Open Space:** Parks, recreational areas, and natural preserves
- **General Commercial:** Small-scale commercial properties serving local residents and visitors
- **Medium/High-Density Tourist Resort/Commercial:** Hotels, resorts, and supporting commercial development
- **Medium/High-Density Residential:** Condominiums, multi-family residences, and single-family homes

There are no Planned Unit Developments (PUDs) within the project area. Based on ETDM documentation and local land use plans, the project is anticipated to accommodate existing and projected development without requiring major adjustments to surrounding land uses.

Figure 2-7 Existing Land Use Map



2.2.6 Pavement Type and Condition

Pavement conditions along the S.R. 789 corridor were evaluated through Pavement Condition Survey Reports prepared by the FDOT. These surveys assess roadway conditions based on cracking, rutting, and ride characteristics, providing a quantitative rating of pavement performance.

The most recent survey conducted in 2024 identified areas of pavement deficiency within the study limits, with some segments receiving ratings below 6.0. Historical data indicate that, for this corridor with a posted speed of 35 MPH, ride ratings were below 6.0 between Mile Post (MP) 4.950 and MP 6.647 during 2010 and 2011. In subsequent years, pavement ride ratings improved to above 6.0, reflecting maintenance and rehabilitation activities conducted during that period.

The pavement condition data indicates that, while the roadway is generally in fair to good condition, certain sections exhibit deficiencies that contribute to reduced ride quality and may affect safety and operational performance. These findings support the need for long-term improvements, particularly in conjunction with the proposed bridge replacement and corridor-wide enhancements for multi-modal access and safety.

Pavement condition evaluations are considered alongside structural assessments, traffic volumes, and multi-modal facility needs in the development of the Preferred Alternative and in determining appropriate maintenance and construction strategies.

2.2.7 Existing Design and Posted Speed

The design speed and posted speed of S.R. 789 is 35 MPH.

2.2.8 Horizontal Alignment

The information on the existing horizontal alignment of S.R. 789 was obtained from Straight Line Diagrams, original construction plans, as well as the latest topographic information. The corridor primarily consists of a tangential bridge over Longboat Pass with minor deflections leading to either approach of the bridge. The existing horizontal alignment has two curves as detailed in **Table 2-2**.

Table 2-2 Existing Horizontal Alignment

PC Sta.	PT Sta.	Degree of Curvature	Radius (feet)	Curve Length (feet)	Superelevation
226+39.26	229+77.18	7° 00' 00"	820.00	337.92	Normal Crown
256+24.26	263+05.38	1° 00' 00"	5748.00	681.12	Normal Crown

Criteria based on the FDM for horizontal curve length calls for a minimum curve length of 525 feet for a design speed of 35 MPH. The curve length for the horizontal curve on the southern approach of the bridge does not meet the FDM criteria. However, it is noted “when desirable horizontal curve length cannot be attained, provide the greatest attainable length possible, but not

less than 400 feet.” This condition is also not met for the southern horizontal curve. Minimum radius requirements for both existing horizontal curves greatly exceeds the FDM criteria of 402 feet.

2.2.9 Vertical Alignment

Based on as-built plans and LiDAR (Light Detection and Ranging) data from the NOAA, the existing elevation at the beginning of the project is 5.00 feet and increases to elevation 16.00 feet. The bridge remains level at 16.00 feet until it approaches the Longboat Pass where the bridge enters a 300-foot sag curve and then increases in elevation with a +3.00% grade. The bridge then enters a 1,000-foot crest curve reaching an elevation of 37.50 feet. As the bridge approaches Anna Maria Island, the elevation decreases with a -3.00% grade to return to ground elevation. The profile elevation varies between 5.39 feet and 5.63 feet to the end of the study limits.

The original construction plans (Job No. 1308-175, 1953) and LiDAR information from Manatee County GIS website (2019) were used to determine the location of the vertical curves. Outside the structural bridge limits the roadway is relatively flat with minimal to no grades, as S.R. 789 is primarily a flush shoulder roadway. The vertical profile on each end of the bridge ties back to the existing roadway with sag vertical curves. These curves were measured in computer-aided design and drafting following the LiDAR data obtained from Manatee County GIS website. Per the FDM 210.2.2, the minimum vertical curve length for this roadway is 105 and the minimum K value (rate of vertical curvature) is 49 and 47 for a sag curve and crest curve respectively. See **Table 2-3**.

Table 2-3 Bridge Vertical Alignment Summary

PVI	Crest/Sag	Grade In (%)	Grade Out (%)	Existing Vertical Curve Length (ft)	'K' Value (calculated)
N/A	Sag	Level *	(+) 3.000	500 *	166.67
70+92.25	Crest	(+) 3.000	(-) 3.000	1000	166.67
73+08.92	Sag	(-) 3.000	Level	300	100.00
N/A	Crest	Level	(+) 3.000 *	200 *	66.67
N/A	Sag	(+) 3.000 *	Level *	300 *	100.00

Stationing running North to South

N/A - Data not available from as-built plans

** - Data not available from as-built plans, measured using LiDAR information from Manatee County GIS website (2019)*

2.2.10 Multi-modal Facilities

S.R. 789 (Longboat Key) Bridge serves as the primary connection from Longboat Key to Bradenton Beach and Anna Maria Island and is frequently used by bicyclists and pedestrians due to the adjacent parks and recreational facilities (Greer Island Park, Coquina Bayside Park / Boat Ramp, and Coquina Beach Park, Coquina Beach Trail, Longboat Key Trail Corridor, Leffis Key, and the Florida Gulf Coast Trail SUN Trail). There are two 12-foot-wide travel lanes (one travel

lane northbound and one travel lane southbound) and 5-foot-wide sidewalks on both sides of the bridge. On the northbound and southbound approaches of the bridge, there is a bicycle lane on each side of the roadway. On the northbound approach, there is a 6-foot-wide sidewalk on the west side of S.R. 789 and on the southbound approach of the bridge, there are no sidewalk facilities. Additionally, there are no shoulders or dedicated bicycle facilities on the bridge itself. Pedestrian and bicycle accommodations are limited and discontinuous along the corridor. Sidewalks are often narrow, lack barrier protection, or terminate abruptly.

According to ETDM Summary Report No. 14382, both bicyclists and pedestrians were observed crossing the bridge during a field review of the project. Other mobility related features within the vicinity of the project corridor include: three bus transit routes (Manatee County Area Transit Route 05, the Anna Maria Island Trolley, and the Longboat Key Shuttle), two Office of Greenways and Trails (OGTs) hiking / multi-use trail opportunities (Coquina Beach Trail, Longboat Key Trail Corridor), and one OGT paddling trail opportunity (Florida Circumnavigational Saltwater Paddling Trail). There are no bus stops within the project limits.

2.2.11 Intersections

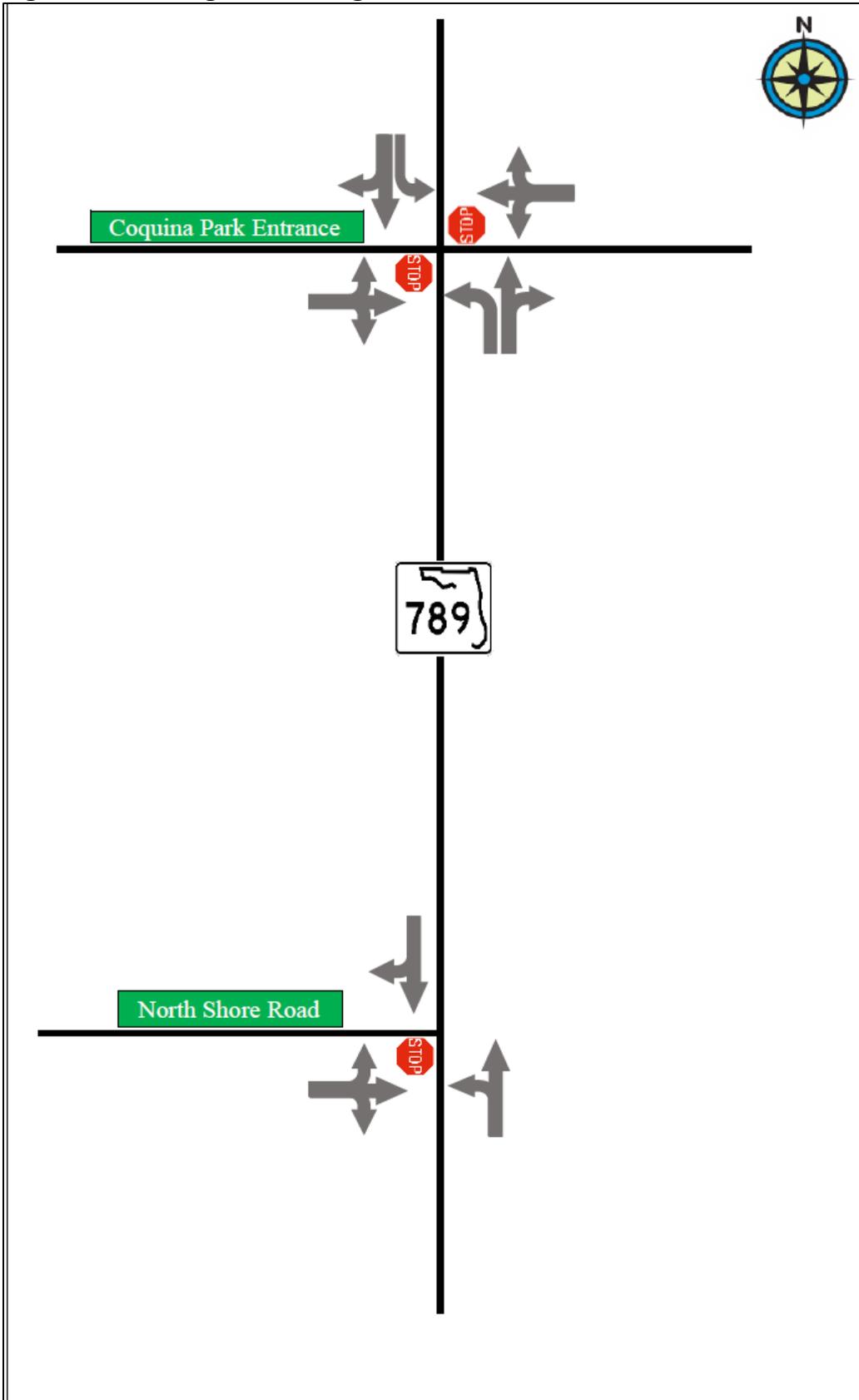
The corridor serves a mix of local and through traffic, including passenger vehicles, commercial deliveries, and emergency response vehicles. There are no signalized intersections within the project limits, and traffic is primarily controlled through stop signs and yield conditions at key intersections and driveways. Within the project limits, several major road crossings and intersections exist, which are summarized in **Table 2-4**. S.R. 789 is a two-lane, undivided arterial facility, carrying both local and through traffic, including vehicles, bicycles, and pedestrians.

Table 2-4 S.R. 789 Major Crossings and Intersections

Cross Road	Existing Configuration
North Shore Road	T-intersection
Coquina Park Entrance	T-intersection

The existing lane configuration for the two intersections within the project limits is shown in **Figure 2-8**.

Figure 2-8 Existing Lane Configuration



2.2.12 Physical or Operational Restrictions

There are no identified barriers or objects in the clear zone. The existing Longboat Key Bridge has 36-inch traffic railings along both sides of the bridge.

The existing Longboat Key Bridge does not meet current USCG minimum horizontal or vertical clearances for a bascule bridge, highlighting a primary operational limitation of the structure.

2.2.13 Traffic Data

Traffic Volumes and Operational Conditions

Traffic data for the study area were collected during January and February 2022 in accordance with the approved traffic analysis methodology for this project. Data collection included both continuous vehicle classification counts and turning movement counts, capturing peak and off-peak conditions as well as pedestrian and bicycle activity. The following data were collected:

Vehicle Classification Counts (VCCs):

- 72-hour bi-directional counts were conducted to capture hourly traffic patterns and vehicle type distributions. The location for this data collection was:
 1. S.R. 789 north of North Shore Road

Turning Movement Counts (TMCs):

- Four-hour turning movement counts were conducted during the AM and PM peak periods for both weekdays and weekends. Pedestrian and bicycle activity was also recorded at each intersection. Data collection locations included:
 1. S.R. 789 at North Shore Road
 2. S.R. 789 at Coquina Park Entrance

Between 10:00 AM – 3:00 PM on a Saturday, S.R. 789 at North Shore Road had 46 bicyclists and 32 pedestrians. During the same time frame, S.R. 789 at Coquina Park Entrance had 98 bicyclists and 8 pedestrians. There was no transit data collected.

Traffic Patterns:

Analysis of the traffic data indicated that weekends experience the heaviest daily traffic volumes, consistent with the recreational and tourism-oriented nature of the corridor. The weekend peak hours were identified as:

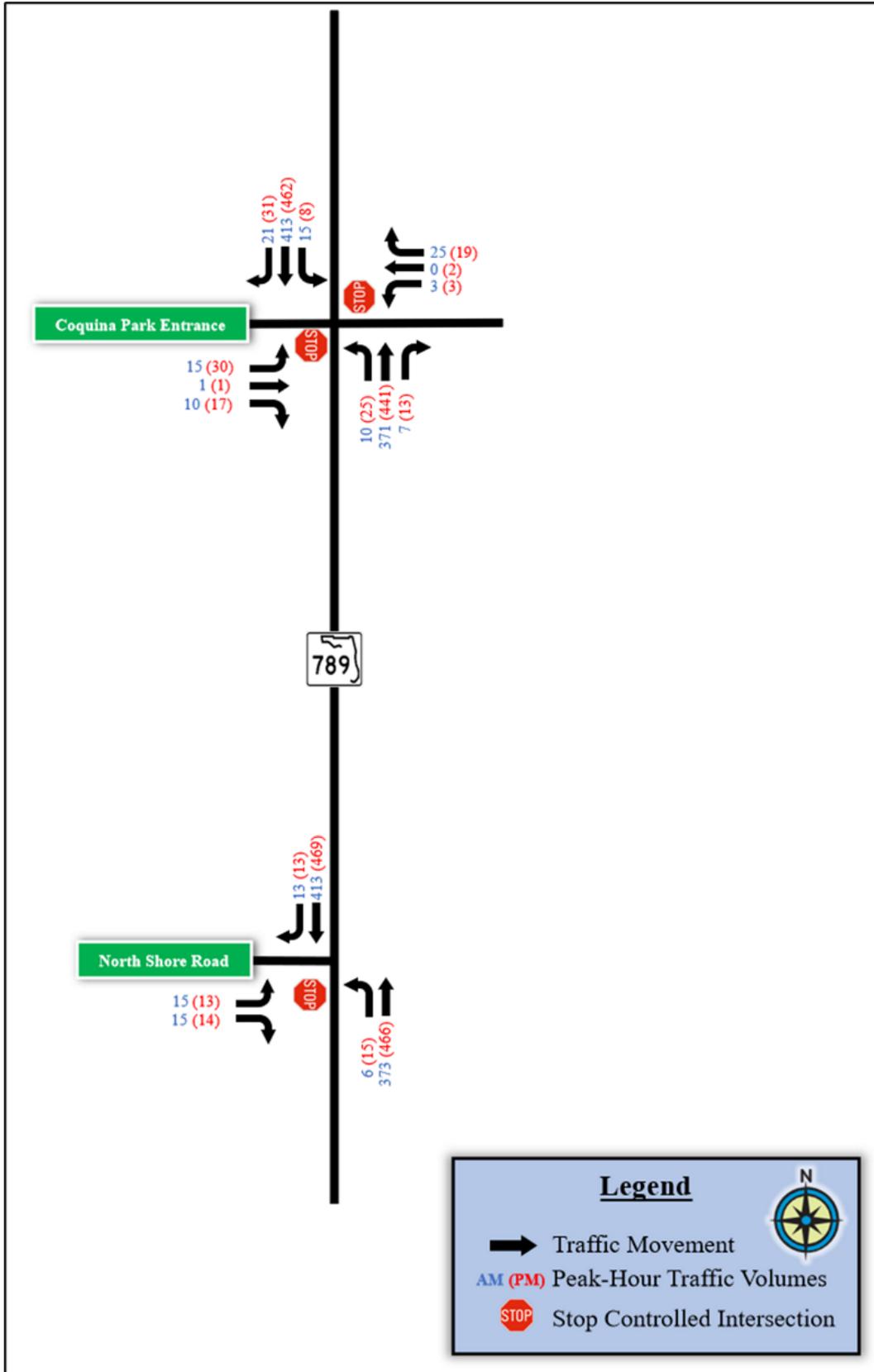
- AM peak hour: 10:45 a.m. – 11:45 a.m.
- PM peak hour: 1:30 p.m. – 2:30 p.m.

The collected TMCs, peak hour factors (PHFs), and heavy vehicle percentages (HVs%) were used as inputs for the existing conditions traffic operational analysis. Volumes were further adjusted using the 2021 FDOT Peak Season Factor Category Report for Beach Areas (Category 1303) to reflect seasonal variability.

Data Presentation:

The existing balanced TMCs for the AM and PM peak periods at the study intersections are illustrated in Figure 2-4. Detailed traffic count data, diagrams, and analysis are provided in the Project Traffic Analysis Report (PTAR) January 2023, included in the project file. This information served as the foundation for the traffic operations evaluation in the development of alternatives throughout the PD&E study. See **Figure 2-9**.

Figure 2-9 Existing Turning Movement Counts



Design traffic characteristics for the S.R. 789 (Longboat Key) corridor were developed using the traffic volumes collected for the project mainline. To ensure that the data accurately reflected seasonal travel patterns typical of the coastal and recreational nature of the project area, appropriate seasonal adjustment factors from the Florida Traffic Online (FTO) Web Application were applied to the collected daily traffic volumes. No axle correction factors were necessary for the 72-hour vehicle classification count.

Key traffic characteristics including peak-to-daily ratios (K factors measured), directional distribution factors (D factors measured), and daily truck percentages (T daily) were derived directly from the classification count data. These values are summarized in **Table 2-5**. In addition, historical Average Annual Daily Traffic (AADT) data from the Florida Traffic Online Web Application were reviewed using FDOT Count Station 135061 (S.R. 789/Longboat Key, southwest of Binnacle Point Drive). These historical traffic trends are summarized in **Table 2-6** and provide important context for validating the collected traffic data.

Based on the combined evaluation of collected and historical traffic data, the following design traffic characteristics were recommended:

- **K Factor:** A standard design K factor of 9.0% was selected for this project based on FDOT guidance and the observed peak-to-daily ratios.
- **Truck Factor (T):** An average daily truck percentage (T) of 4.7% was calculated using classification count data and historical traffic information.
- **Design Hour Truck Percentage (DHT):** In accordance with the FDOT Project Traffic Forecasting (PTF) Handbook, the DHT is defined as one-half of the daily truck percentage. Therefore, a DHT of 2.4% was recommended and applied in all future year traffic analyses.
- **Directional Distribution (D):** A recommended design D factor of 54.4% for the mainline was calculated using classification count data and historic traffic patterns. This factor represents the proportion of traffic traveling in the peak direction during the design hour.

Classification counts were not collected for side street approaches; therefore, existing peak hour truck percentages identified from the turning movement counts were applied for future intersection analyses.

All recommended design traffic factors were reviewed with and approved by the Department. Additional information, supporting calculations, and related documentation are provided in the PTAR January 2023.

Table 2-5 Existing Year (2022) Daily Volumes and Measured Design Traffic Factors

Location	Count Type	Count Dates	ADT	Peak Hour Volume	NB	SB	K	D	T (Daily)	Axle Adj.	Seasonal Adj.	Adjusted AADT
S.R. 789 North of Longboat Key Bridge	72-hour Classification	1/25/22 - 1/27/22	9,725	923	501	422	9.5%	54.2%	4.4%	1.00*	1.00**	9,800***

*No Axial Adjustment for the Vehicle Classification Counts

** 2021 FDOT Peak Season Factor Category Report for Beach Areas obtained from Florida Traffic Online Web Application

***The AADT volume is rounded using the rounding convention in the FDOT Project Traffic Forecasting Handbook.

Table 2-6 Historical AADT Volumes Report (Site 135061)

Year	AADT	K Factor*	D Factor	T Factor
2020	10,800	9.0	59.3	4.0
2019	10,500	9.0	59.6	5.2
2018	10,200	9.0	53.2	4.7
2017	9,700	9.0	52.7	5.3
2016	8,300	9.0	52.9	5.3
2015	8,300	9.0	52.9	5.3
2014	7,400	9.0	53.3	5.2
2013	8,600	9.0	53.5	3.6
2012	8,600	9.0	53.9	3.6
2011	7,500	9.0	54.5	6.8
	Average	9.0	54.6	4.9

*Starting with year 2011 is Standard K factor of 9.0%

Site 135061: S.R. 789/Longboat Key, SW of Binnacle Point Drive

Existing traffic volumes along S.R. 789 vary seasonally due to tourism and recreational activity. Average Daily Traffic (ADT) estimates indicate that the corridor experiences moderate to high traffic levels during peak tourist seasons, with typical peak hour congestion occurring in the southbound direction in the mornings and northbound direction in the evenings, which may be indicative of commuting patterns from north to south in the mornings and the reverse in the evenings. In addition, the heavier northbound travel in the evenings may be due to restaurant/tourist/recreation destinations located north of the project limits, in Bradenton Beach. The corridor also serves as a primary emergency evacuation route, highlighting the importance of maintaining efficient and reliable traffic flow under all conditions.

2.2.14 Roadway Operational Conditions

Segment Operational Analysis for Existing Conditions

Existing traffic operational analyses were conducted for both the AM and PM peak hours using the collected peak hour turning movement counts. The Level of Service (LOS) for the study segment was evaluated by comparing the adjusted traffic volumes with the Generalized Service Volume (GSV) thresholds provided in the FDOT 2020 Quality/Level of Service (Q/LOS) Handbook. To assess intersection performance, Synchro software and methodologies consistent with the Highway Capacity Manual (HCM), 6th Edition, were used to calculate average control delays and identify LOS outcomes for each intersection.

The LOS results reflect a qualitative measure of operating conditions, expressed using letter grades ranging from LOS A (free-flow, minimal delay) to LOS F (highly congested, long delays). These LOS designations allow for clear comparison against statewide performance expectations. In accordance with FDOT Policy Topic No. 000-525-006-c, the Department's target is to plan, design, and operate the State Highway System such that the automobile mode achieves at least LOS D during peak travel hours in urbanized areas.

For the segment analysis, the adjusted AADT for the S.R. 789 study corridor was compared to the LOS volume thresholds for the applicable facility type, as defined in the Q/LOS Handbook for uninterrupted flow, two-lane undivided roadways. The resulting comparison, summarized in **Table 2-7**, indicates that the project corridor is currently operating at LOS B under existing traffic conditions, which reflects stable flow conditions with minimal delay. The LOS threshold values used in this assessment are shown in **Table 2-8**.

Table 2-7 Existing Segment LOS Analysis

Segment	LOS Target	LOS Max Volume	2022 Adjusted AADT	2022 LOS
S.R. 789 between North Shore Road and the Entrance to Coquina Park	D	24,200	9,800	B

Table 2-8 LOS and AADT Volumes Thresholds for Uninterrupted Flow Highways

Road Type	Average Daily Volumes for Florida's Urbanized Area B	Average Daily Volumes for Florida's Urbanized Area C	Average Daily Volumes for Florida's Urbanized Area D	Average Daily Volumes for Florida's Urbanized Area E
2-Lane Undivided	11,700	18,000	24,200	32,600

Source: FDOT 2020 Quality / Level of Service (Q/LOS) Handbook, Generalized Annual Average Daily Volumes for Florida's Urbanized Areas

Intersection Operational Analysis for Existing Conditions

Intersection Level of Service (LOS) analyses were performed for the two study intersections, S.R. 789 at North Shore Road and S.R. 789 at the Coquina Park Entrance, to evaluate operational performance under existing conditions. The analyses were conducted for both the AM and PM peak hours using seasonally factored peak-hour turning movement counts and the existing intersection geometry. Peak Hour Factors (PHFs) and truck percentages obtained from the field-collected data were incorporated into the analysis to accurately represent existing traffic conditions.

Both study intersections operate under Two-Way Stop-Control (TWSC). As specified in the Highway Capacity Manual (HCM) methodology, overall intersection delay and LOS are not reported for TWSC intersections because only the stop-controlled approaches experience delay. Therefore, the LOS results provided represent the movement with the highest delay, which governs the operational performance for each intersection.

The operational analysis results are summarized in **Table 2-9**, which shows that both study intersections are currently operating at LOS D or better during the peak periods, consistent with FDOT’s acceptable LOS standard for State Highway System facilities in urbanized areas.

Detailed Synchro analysis reports and HCM outputs supporting this assessment are included in the January 2023 Project Traffic Analysis Report (PTAR), prepared under separate cover and available in the project file.

Table 2-9 Existing Intersection LOS Analysis Summary

Study Intersection	Control Type	AM Peak Hour Delay (sec) /Approach	LOS	PM Peak Hour Delay (sec) /Approach	LOS
S.R. 789 at North Shore Road	TWSC	14.6/EB	B	16.8/EB	C
S.R. 789 at Coquina Park Entrance	TWSC	19.2/EB	C	28.8/EB	D

** The results represent the highest approach delay*

2.2.15 Managed Lanes

There are no Managed Lanes, Express Lanes or Toll Lanes within the corridor.

2.2.16 Crash Data

Historical Crash Data Analysis

The five years of crash data (from January 2015 to December 2019) along S.R. 789 from the North Shore Road to Coquina Park Entrance were examined to determine frequency and type of crashes that had occurred along the corridor. The crash data is provided in the January 2023 PTAR under separate cover in the project file.

Corridor Wide Crash Statistics

Based on the crash data reviewed for the five-year analysis period from 2015 to 2019, a total of 13 crashes were documented within the project limits. These included one fatal crash, three injury crashes, and two crashes involving pedestrians or bicyclists. The single fatal crash involved a bicyclist traveling northbound on the Longboat Key Bridge. The crash occurred on a Friday at approximately 11:00 a.m. under dry roadway conditions. According to the crash report, the bicyclist lost balance, fell over the curb, and unintentionally entered the travel lane, where the bicyclist was struck by a trailer being towed by a passing vehicle. The review found no evidence of driver negligence, and the sequence of events suggests a loss-of-control incident initiated by the bicyclist.

One of the injury crashes involving a pedestrian occurred in the southbound direction on the Longboat Key Bridge within an active construction zone. The crash took place on a Wednesday at approximately 11:00 p.m. under dry conditions. Due to the construction, the southbound lane was closed, and the northbound lane was open to alternating traffic. The vehicle hit the leg of the pedestrian/worker who was standing in the middle of the roadway near other construction vehicles.

Table 2-10 summarizes the distribution of crashes by year and crash type for the entire study corridor, while **Table 2-11** categorizes crashes by severity and type. **Figure 2-10** illustrates the spatial distribution of the crash locations along the project limits.

Table 2-10 Crashes By Year and Crash Type

Crash Type	2015	2016	2017	2018	2019	Total
Rear End	3	0	0	1	1	5
Left Turn	0	1	1	0	0	2
Off Road	0	0	0	1	1	2
Bicycle	1	0	0	0	0	1
Pedestrian	0	0	0	0	1	1
Angle	0	0	0	0	1	1
Other	1	0	0	0	0	1
Total	5	1	1	2	4	13

Table 2-11 Crashes By Crash Severity and Crash Type

Crash Type	Fatality	Injury	Property Damage Only	Total
Rear End	0	2	3	5
Pedestrian	0	1	0	1
Bicycle	1	0	0	1
Other	0	0	1	1
Angle	0	0	1	1
Left Turn	0	0	2	2
Off Road	0	0	2	2
Total	1	3	9	13

Figure 2-10 Crash Locations



The crash data was analyzed to determine the predominant spot locations where crashes occurred during the five-year period. Based on the review of crash long forms (i.e., detailed crash reports), the rear end and left turn crashes were mainly due to stopped vehicles trying to turn into the side streets or driveways. It was noted that the crashes along the corridor were mostly caused by careless driving. It was also noted that several non-motorized users stay along the bridge to perform fishing recreational activities. Enhancing pedestrian and bicycle facilities and improving connectivity throughout the corridor may result in an overall safety enhancement in the future by both accommodating and separating both motorized and non-motorized modes of travel along the corridor.

2.2.17 Railroad Crossings

There are no railroad crossings in the study area.

2.2.18 Drainage

The project limits along S.R. 789, from North Shore Road to the Coquina Park Entrance, lie within the jurisdiction of SWFWMD and are part of the Sarasota Bay watershed, a region designated as an Outstanding Florida Water (OFW). The corridor is bordered by two Water Body Identification Numbers (WBIDs): WBID 1968B (Sarasota Bay North), which is impaired for bacteria, and WBID 1862 (Direct Runoff to Bay), which is unimpaired. There is currently no adopted Total Maximum Daily Load (TMDL) for these water bodies, and the area is not included in a Basin Management Action Plan (BMAP).

The existing bridge drainage system consists of deck scuppers that discharge stormwater runoff directly to Sarasota Bay. Runoff not captured by the scuppers drains toward the bridge approaches. On the northern approach, stormwater sheet flows to the adjacent ROW, where it infiltrates or eventually enters the bay. On the southern approach, runoff is collected by a closed storm sewer system that also discharges directly to the bay. There are no roadway stormwater management facilities such as ponds or treatment systems that are within the project limits. There are also no regulated floodways or cross drains. Additionally, no recurrent roadway flooding issues have been reported.

The project crosses two FEMA-mapped coastal floodplains associated with Sarasota Bay. The bridge crosses a Zone VE Floodplain (elevation 11.0') and the roadway crosses a Zone AE Floodplain (elevation 9.0'); however, this does not pose constraints to the proposed improvements. No portion of the project lies within a regulated floodway, and the FDOT Straight Line Diagram (SLD) indicates no existing cross drains within the project limits.

The seasonal high groundwater table (SHGWT) is shallow, occurring at approximately 1.0 to 2.5 feet below natural grade throughout most of the alignment. These groundwater conditions are consistent with low-lying coastal environments and will influence the design of foundations, drainage systems, and temporary construction measures.

A review of the SWFWMD ePermitting database was conducted to identify existing environmental resource permits adjacent to the corridor. **Table 2-12** provides a summary of these permits. **Figure 2-11**, the Existing Drainage Basin Map, illustrates the delineated north and south drainage basins within the project limits.

Table 2-12 Environmental Resource Permits

Application No.	Permit No.	Project Name	Issued Date
758068	43177211	S.R. 789 over Longboat Key Pass (Bridge 130057)	02-Feb-18
774396	43157871	FDOT - State Road 789 (Bradenton Beach) No. 13080-3502	14-Nov-18
845908	Exemption	Gulf of Mexico Dr. Roundabout at Broadway	11-May-22
39300	46180761	Conrad Beach Subdivision	18-Sep-98

Figure 2-11 Existing Drainage Basin Map



Existing Drainage Basin Map
S.R. 789 (Longboat Key) PD&E Study
From North Shore Road to Coquina Park Entrance
FPID No. 436676-1-22-01
Manatee County

Image Source: APLUS
Image Date: 2024



0 500 1,000
Feet

2.2.19 Lighting

Existing roadway lighting within the project limits is limited and is concentrated at the southern end of the corridor, specifically between North Shore Road and the beginning of the Longboat Key Bridge. In this segment, roadway illumination is provided by a combination of decorative and conventional lighting elements. Along the west side of S.R. 789 at the entrance to North Shore Road, there are decorative light poles consisting of single pole-top fixtures painted white, contributing to the aesthetic character of the surrounding area. In addition, there is one conventional cobra-head luminaire, painted black, located near the same intersection to provide functional roadway lighting.

Approaching the Longboat Key Bridge, lighting is supplemented by two High-Pressure Sodium (HPS) luminaires mounted on existing Florida Power & Light (FPL) utility poles positioned on both the east and west sides of S.R. 789. These luminaires utilize standard bracket arms and provide illumination for the transition area between the roadway and the bridge structure. No other dedicated roadway or pedestrian lighting is present within the remainder of the project limits.

All streetlighting within the study area is owned and maintained by FPL under an existing maintenance agreement with the Town of Longboat Key. As part of the future design phase, the adequacy of existing lighting, opportunities for upgraded lighting technology (e.g., LED conversion), and potential needs for additional lighting improvements will be evaluated in accordance with FDOT lighting standards, local agency coordination requirements, and documented in a Lighting Justification Report (LJR).

2.2.20 Utilities

Preliminary identification of utility owners within the S.R. 789 study corridor was completed through a comprehensive review of existing S.R. 789 construction plans, coordination efforts with utility owners, and information obtained from Sunshine 811's call center. This multi-step approach ensured that both aboveground and underground utilities were accurately documented early in the study process. **Table 2-13** lists the agencies identified through the Sunshine 811 call as having facilities within the limits of the project corridor extending from North Shore Road to the Coquina Park Entrance. No Utility Agency/Owner's (UAO's) indicated having an easement in the study limits.

Correspondence and sketches of the existing and planned utilities are compiled into a Utility Assessment Package (November 2025), prepared under separate cover and included in the project file. According to the UAP, a total of ten utility companies were initially identified within or adjacent to the project limits:

- Charter Communications / Spectrum
- Comcast
- Florida Power & Light (FPL) – Distribution
- Florida Power & Light (FPL) – Transmission
- Frontier Communications

- Longboat Key Utilities
- Manatee County Transportation
- Manatee County Utility Operations
- MCI
- TECO Peoples Gas

Follow-up coordination with each entity confirmed that two of these utilities, which are Spectrum (formerly Bright House Networks) and FPL Transmission, do not have active facilities within the project limits. The remaining eight utilities have facilities that may be affected by the proposed improvements and therefore have potential for conflict depending on final design, construction phasing, and required right-of-way.

Table 2-13 Utility Contacts

Utility Agency/Owner (UAO) Contacts	Existing Utility Summary
Charter Communications/Spectrum (formerly known as Bright House Networks) Utility Type: CATV Contact: James Fleming 941-748-3816 x2024051 james.fleming1@charter.com	No facilities within the limits of the study
Comcast Utility Type: CATV Contact: Kevin Miller 239-318-1411 Kevin_miller6@comcast.com	Underground facilities within the limits of the study corridor at North Shore Road that crosses from the west to the east side of S.R. 789 and run north for approximately 300 feet before exiting the project limits.
Florida Power & Light - Distribution Utility Type: Electric Contact: Brian Garver 941-723-4442 greg.coker@fpl.com	Aerial and subaqueous 13KV facilities within the limits of the study corridor with the aerial on both the east and west side of S.R. 789 and the subaqueous line on the east side of the bridge.
Florida Power & Light - Transmission Utility Type: Electric Contact: Ralph Diaz 561-904-3617 ralph.diaz@fpl.com	No facilities within the limits of the study
Frontier Communications Utility Type: CATV, Communication Lines Contact: Denise Hutton 941-906-6722 denise.hutton@fr.com	Underground copper and fiber facilities within the limits of the study corridor primarily running north along the east side of S.R. 789 with one line on the west side of S.R. 789 starting just north of the bridge at Coquina Beach Park.
Town of Longboat Key Utilities Utility Type: Wastewater, Water Contact: Juan Florensa 941-316-1988 jflorensa@longboatkey.org	16-inch and four-inch water main within the limits of the study corridor with the 16-inch WM on the east side of S.R. 789 starting at the south end of the project limits and ending just north of the bridge and the four-inch WM crossing to the east side of S.R. 789 at N Shore Rd and ending just south of the bridge.

Utility Agency/Owner (UAO) Contacts	Existing Utility Summary
Manatee County – Transportation mukunda.fopalakrishna@mymanatee.org	Manatee County Transportation has been unresponsive through the duration of the PD&E study with the initial contact notifications sent 6/30/2020 and a second notification on 1/8/2021.
Manatee County – Utility Operations Utility Type: Reclaimed Water, Sewer, Water Contact: Scott May 941-708-7450 X 7650 Scott.may@mymanatee.org	A 16-inch DIP WM, a two-inch WM, and a 1.5-inch PVC WM within the limits of the study corridor north of the bridge on both the east and west side of S.R. 789
MCI Utility Type: Communication Lines, Fiber Contact: Michael Krol 813-410-4803 michael.krol@verizon.com	Two two-inch HDPE lines within the limits of the study running north along the west side of S.R. 789 throughout the entirety of the project limits
TECO Peoples Gas Utility Type: Gas Contact: Anthony Baublitz 941-342-4025 afbaublitz@tecoenergy.com	A six-inch coated steel pipe running north and south along the west side of S.R. 789 that exits the project in both directions and is subaqueous for the duration of the bridge

2.2.21 Soils and Geotechnical Data

A review of the Bradenton Beach Quadrangle and the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey indicates that the project corridor is underlain by three mapped soil types:

- Canaveral fine sand, 0 to 5 percent slopes
- Canaveral sand, filled
- Canaveral sand, organic substratum

These soil units are typical of coastal barrier island environments and are generally characterized by loose to medium-dense sandy materials with limited cohesive properties. Field and desktop evaluations indicate that the predominant subsurface conditions along the alignment consist of fine sand to sand with minor silt content extending to depths of approximately 6.5 feet below natural grade.

Within the northern portion of the project, particularly north of Longboat Pass and extending approximately 550 feet beyond the pass toward the Coquina Park Entrance, subsurface investigations and existing records identify the presence of muck (A-8 material). This organic, highly compressible soil layer typically occurs between 3.5 and 6.5 feet below natural ground surface and may require special consideration during design due to its poor load-bearing capacity.

Groundwater conditions within the corridor are influenced by proximity to Sarasota Bay and the Gulf of Mexico. Soils data is provided in **Table 2-14**.

The USDA NRCS Soil Map illustrating the soil types found within the study area are provided in **Figure 2-12**. Additional geotechnical investigations, including subsurface exploration, laboratory

testing, and engineering recommendations which are provided in the Geotechnical Report prepared for the PD&E study and included in the project file.

Table 2-14 NRCS Soil Types within Study Area

Soil Name	Soil ID	Hydric Soils	Total Area (Acres)	Percent of Study Area
Waters of the Gulf of Mexico	1384560	N/A	63.96	40.38%
Estero Muck, Tidal, 0 to 1 Percent Slopes	3102924	Yes	2.69	1.70%
Canaveral Fine Sand, 0 to 5 Percent Slopes	1384130	No	53.03	33.48%
Canaveral Sand, Filled	1384131	No	20.17	12.73%
Canaveral Sand, Organic Substratum	1384077	No	14.65	9.25%
Beaches	1384087	N/A	3.89	2.46%
Total			131.39	100%

Figure 2-12 NRCS Soil Types within Study Area



2.2.22 Aesthetics Features

The project segment of S.R. 789 (Longboat Key) Bridge traverses Longboat Key and Bradenton Beach, both located in Manatee County, Florida. The corridor is bordered by the Gulf of Mexico to the west and Sarasota Bay to the east. In addition, S.R. 789 on the north side of Longboat Key Bridge is also a designated scenic highway, the Bradenton Beach Scenic Highway. This designation extends three miles north of the bridge along S.R. 789. The land use along the project corridor consists primarily of public/semi-public and residential uses.

There are several identified features related to aesthetics and recreation within the project vicinity. The corridor provides access to multiple parks and recreational facilities, including Coquina Bayside Park, Coquina Beach Park, and Greer Island Park.

The project area also includes opportunities for outdoor recreational trails, specifically: Coquina Beach Trail (hiking/multi-use), Longboat Key Trail Corridor (hiking/multi-use), and the Florida Circumnavigational Saltwater Paddling Trail (paddling).

The proposed project is generally consistent with existing land uses and the future land use vision for the corridor. The aesthetic character of the area is expected to be largely maintained; however, viewsheds may be altered due to changes in bridge height.

Landscaping along the south side of Longboat Key Bridge in the Town of Longboat Key is relatively dense, with the makeup of black mangroves and Australian Pines (an invasive species) while landscaping on the north side, adjacent to Coquina Beach, is sparse, also consisting of black mangroves, palm trees and Australian Pines. As stated in the NRE (November 2025) located in the project file, “black mangrove communities were observed at the southern tip of Greer Island, beneath and west of the existing bridge structure, as well as along both sides of the Longboat Key Bridge. Additional mangrove habitat consisting of red and white mangroves was observed east of the bridge within the southeast corner of Coquina Beach Park.”

Construction of a new Longboat Key Bridge is expected to require the removal of some landscaping along the west side of S.R. 789 on the south side of the bridge, though efforts will be made to minimize impacts to the greatest extent possible. Landscape on the east side will not be impacted except in the area where the alignment ties back to existing.

FDOT is responsible for maintenance of the bridge and landscaping within the project limits. Along the west side of S.R. 789 at the entrance to North Shore Road, there are decorative light poles, which will be maintained by the Town of Longboat Key. Any impacts to existing lighting will be documented in the Design phase and coordinated with FDOT, FPL, the Town of Longboat Key, and stakeholders. Aerial views of the existing Longboat Key Bridge and surrounding corridor are provided in **Figure 2-13** and **Figure 2-14**.

Figure 2-13 Aerial View of Longboat Key Bridge Looking Northwest



Figure 2-14 View of Longboat Key Bridge Looking Southwest



2.2.23 Traffic Signs

No overhead traffic signs are within study limits. Any signage along the corridor is related to regulatory signage (i.e., speed limit, STOP sign, etc.).

2.2.24 Noise Walls and Perimeter Walls

There are no noise or perimeter walls within the study limits.

2.2.25 Intelligent Transportation Systems (ITS)/Transportation System Management and Operations (TSM&O) Features

The existing TSM&O/ITS along this portion of S.R. 789 is limited to drawbridge operations which include advanced warning signs, traffic signals, crossbucks and a bridge tender building. The drawbridge opens based upon a boat signal 24 hours daily.

S.R. 789 Southbound Direction - Approaching the drawbridge traveling in the southbound direction: a static advanced drawbridge warning sign, a static drawbridge hours of operations sign, followed by a southbound lane overhead drawbridge traffic signal, a crossbuck arm that comes down to close the southbound travel lane when the drawbridge is raised, followed by a second dual crossbuck arms (on southbound lanes of bridge) that comes down to close both the southbound and northbound travel lanes when the drawbridge is raised, the drawbridge span, then across the drawbridge span is the bridge tender building, finally dual crossbuck arms which come down to close both the northbound and southbound travel lanes when the drawbridge is raised.

S.R. 789 Northbound Direction - Approaching the drawbridge traveling in the northbound direction: a static advanced drawbridge warning sign, a static drawbridge hours of operations sign, followed by a northbound lane overhead drawbridge traffic signal, immediately followed by dual crossbuck arms (one on each side of the bridge) which come down to close both the northbound and southbound travel lanes when the drawbridge is raised and lastly the drawbridge span.

As of the date of this draft report, an ongoing project is currently installing enhanced ITS technology for improved pedestrian safety along the bridge. This is reportedly a LiDAR and Fusion of Infrared Thermal Imaging technology. The LiDAR portion uses remote sensing that uses light pulses to measure distances to objects or surfaces. These objects are fused with Infrared Thermal imaging technology that capture images based on heat radiation emitted by objects or living beings. The intent of the technology is to detect pedestrians along the bridge span in between traffic signal/crossbuck arms. This imaging/heat sensing detection is fed back to a computer residing within the bridge tender house to help the bridge tender confirm no pedestrians are trapped prior to raising the bridge. This allows for improved pedestrian safety. This technology is confined to the bridge tender operations and is not part of an overall regional TSM&O/ITS.

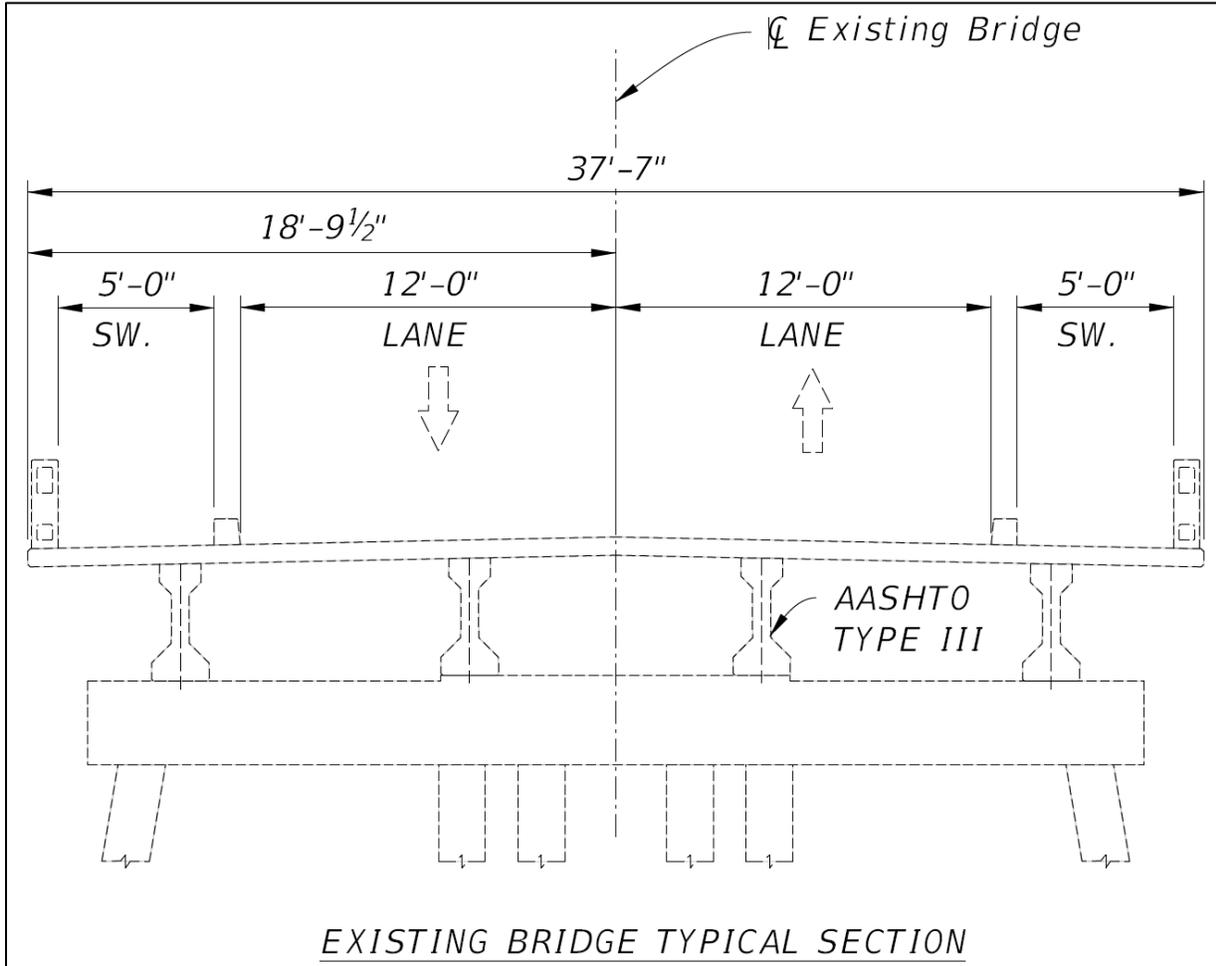
2.3 Existing Bridges and Structures

The S.R. 789 (Longboat Key) Bridge (Bridge No. 130057) is a 44-span structure with a total length of 2,128 feet 7 inches. The bridge carries two lanes of two-way traffic over Longboat Pass on Longboat Key in Manatee County, Florida.

2.3.1 Existing Bridge Typical Section

The existing bridge typical section is 37-feet, 7-inches. The typical section is provided in Figure 2-15.

Figure 2-15 Existing Bridge Typical Section



2.3.2 Type of Structure

The main span is an 81-foot single-leaf bascule span, flanked by two rolled-steel beam spans. The bascule span is supported by two steel riveted plate girders of varying depth, mounted on Hopkins-style cantilever trunnions, and operated by mechanical machinery on a Hopkins frame. The girders support five steel transverse floor beams (four rolled-steel wide-flange sections and one built-up riveted steel plate), which in turn support five longitudinal stringers carrying an open steel grid deck (see **Figure 2-16** for bascule span elevation).

The flanking spans adjacent to the bascule span each consist of five rolled-steel wide-flange beams, with the south approach span beams framing into a cross girder at the bascule pier. Both spans carry reinforced concrete decks, with the south flanking span measuring 40 feet 10 inches and the north flanking span 39 feet 10 inches.

The remaining 41 approach spans are 48 feet long and supported by four 3 feet 4 inches prestressed concrete beams. These spans rest on square prestressed concrete piles with reinforced concrete caps. Typical bents have four piles, with exterior piles battered, while 14 bents have six battered piles, and the end bents have seven piles each.

The bascule span piers consist of reinforced concrete open piers on concrete footings. Specifically, Bascule Pier 34 is supported by 60 – 18-inch square precast concrete piles, and Rest Pier 35 is supported by 15 – 18-inch square precast concrete piles.

Figure 2-16 Longboat Key Bridge – Bascule Span Elevation



Prior to 2014, 45 of the 138 intermediate bent piles on the S.R. 789 (Longboat Key) Bridge had non-cathodic protection pile jackets (used to repair and strengthen pilings). The installation date of the original pile jackets is unknown.

Historical maintenance records indicate:

- Around 1993, a bridge repair project installed 12 pile jackets, five of which replaced existing jackets.
- A 2004 bridge rehabilitation project installed an additional 28 pile jackets and replaced 25 existing jackets.

Figure 2-17 shows a typical view of a pile jacket.

Figure 2-17 Longboat Key Bridge – Typical pile bent configuration and view of pile jackets



A crutch bent was installed at Bent 35; the date of installation is unknown. The crutch bent was installed around 2014 to address rest pier displacement during installation of a directional bore for a utility.

2.3.3 Existing Conditions and Year of Construction

The S.R. 789 (Longboat Key) Bridge was constructed in 1957 and has had repairs completed since then. A significant bridge rehabilitation project was completed in 2005; work included approach span concrete repairs and new pile jackets, bascule span steel repairs and deck replacement, reconditioning of the Hopkins frame, drive and span lock machinery, and replacement of the electrical power and control systems.

FDOT conducts annual bridge inspections of the bridge. The February 2024 Bridge Inspection Report lists the bridge as containing fracture critical components and as functionally obsolete. The sufficiency rating for this bridge is 42 with a Health Index of 76.25. 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.

Based upon the US Department of Transportation scale as listed in the "Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges," structural elements rated

seven or higher (out of a highest value of nine) are generally in good condition and require only routine maintenance. Structural elements rated six or lower indicate a need for repairs. See **Table 2-15** for a summary of the ratings.

Table 2-145 Summary of Bridge Structural Ratings per Latest Inspection Report (February 2024)

Bridge No.	Deck	Superstructure	Substructure	Channel	Sufficiency Rating
130057	6 Satisfactory	6 Satisfactory	5 Fair	7 Minor Damage	42.0

The S.R. 789 (Longboat Key) Bridge exhibits several significant structural and operational deficiencies:

- **Concrete deterioration:** Concrete spalls with exposed reinforcing are present in beams, piles, and footers. The bascule pier and rest pier footers are exposed up to 6 feet 4 inches high in height.
- **Chloride intrusion and corrosion:** Testing conducted for the 2017 Bridge Condition Assessment Report indicates high levels of chloride intrusion and a high corrosion potential in the piles and bridge deck. Ground Penetrating Radar (GPR) testing revealed insufficient concrete cover, reducing the service life of these elements.
- **Crutch bents:** Steel H-piling and steel cap beam crutch bents were installed around the rest pier to isolate the bridge from movement. The piles are actively corroding, and the cross beams have up to 3/8-inch section loss.
- **Structural steel corrosion:** The bascule span structural steel exhibits areas of corrosion and section loss, with some areas previously painted over.
- **Mechanical and electrical systems:** Bridge machinery and electrical components are aged and worn, with gear teeth in fair condition. Corrosion is present on painted surfaces, and leaks were observed in the speed reducer, brakes, and electrical room, with water intrusion from the outside.

These deficiencies highlight the structural and functional limitations of the existing bridge, supporting the need for replacement of the existing Longboat Key Bridge.

2.3.4 Span Arrangement

The S.R. 789 (Longboat Key) Bridge comprises 44 spans with a total length of 2,128 feet 7 inches. The movable bascule span is 81 feet long and is flanked by rolled-steel beam spans, with the south span measuring approximately 40 feet 10 inches and the north span approximately 39 feet 10 inches. The remaining approach spans are uniform in length at 48 feet, consisting of 32 spans to the south and 9 spans to the north of the bascule span.

2.3.5 Vertical Alignments

The vertical profile of the S.R. 789 (Longboat Key) Bridge begins with a level south approach extending approximately 790 feet from the beginning of the bridge. This is followed by a 300-foot-long sag vertical curve, transitioning to a +3.0% grade over a 67-foot tangent section. The profile then rises along a 1,000-foot-long vertical crest curve, achieving a +3.0% grade on the southern approach and a -3.0% grade on the northern approach, centered at the bascule span open joint over the rest pier.

2.3.6 Horizontal and Vertical Clearances

Based on the February 2024 bridge inspection report, the existing horizontal clearance between the fender system of the bascule span is 45.9 feet. The existing navigable vertical clearance between bridge fenders is approximately 17 feet with the bascule span closed, while the vertical clearance is unlimited when the bascule span is fully open. The Mean High Water (MHW) elevation at this location is 1.2 feet.

For reference, the U.S. Coast Guard (USCG) minimum guide clearances are as follows:

- Horizontal clearance for a bascule bridge: 90 feet
- Vertical clearance above MHW at the face of the fender system for a bascule bridge: 21 feet
- Vertical clearance above MHW for a fixed or vertical lift bridge: 65 feet

2.3.7 Channel Data

The existing Longboat Key Bridge crosses Longboat Pass on a square alignment. The clear channel width between fenders is 45.9 feet, consistent with the latest bridge inspection report. With the bascule span closed, the vertical clearance above Mean High Water (MHW) is approximately 17 feet. When the bascule span is fully open, the bridge provides unlimited vertical clearance for vessels navigating the channel.

2.3.8 Bridge Openings

The tender house of the Longboat Key Bridge is manned 24 hours a day, 7 days a week. The bridge currently opens on demand, as needed when requested by a mariner. The bridge tender's logbooks were obtained from January 2019 to March 2020. **Figures 2-18 and 2-19** summarize the openings by month.

The average statistics for the bridge opening time frame include:

- Peak boat traffic month: March
- Peak bridge opening month: March
- Average number of boats per day: 7
- Average number of openings per day: 6

Figure 2-18 Number of Bridge Openings per Month

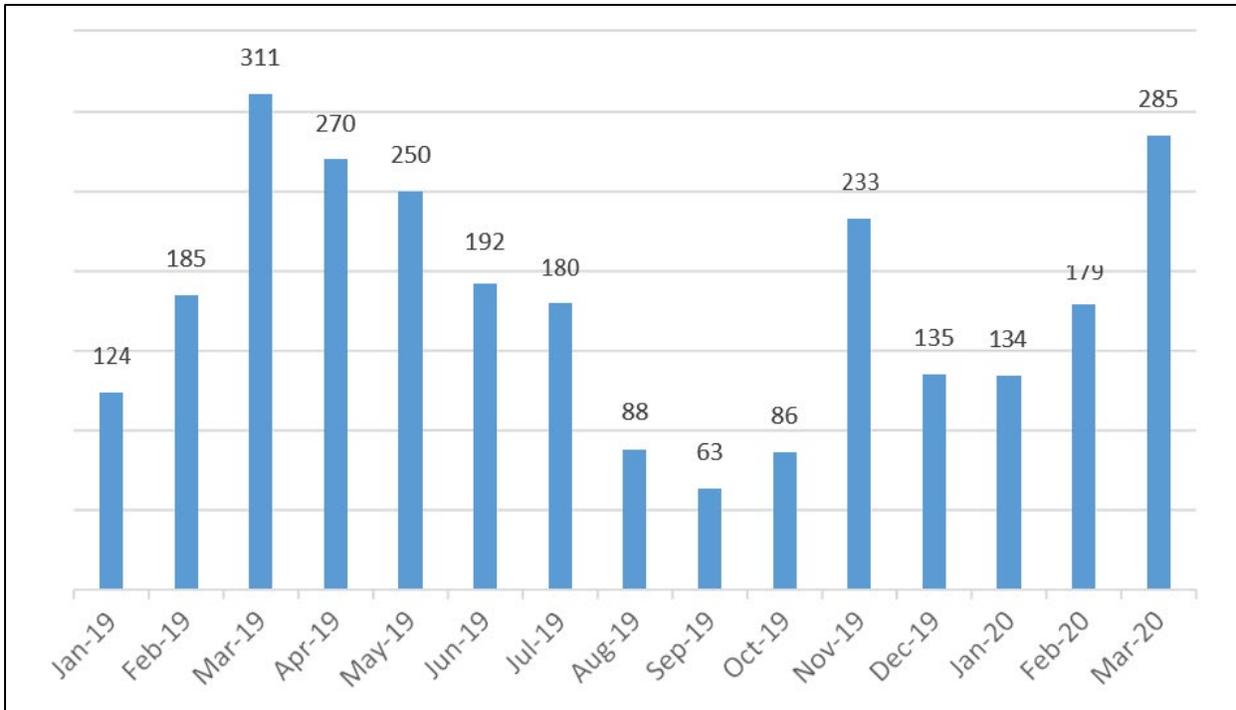
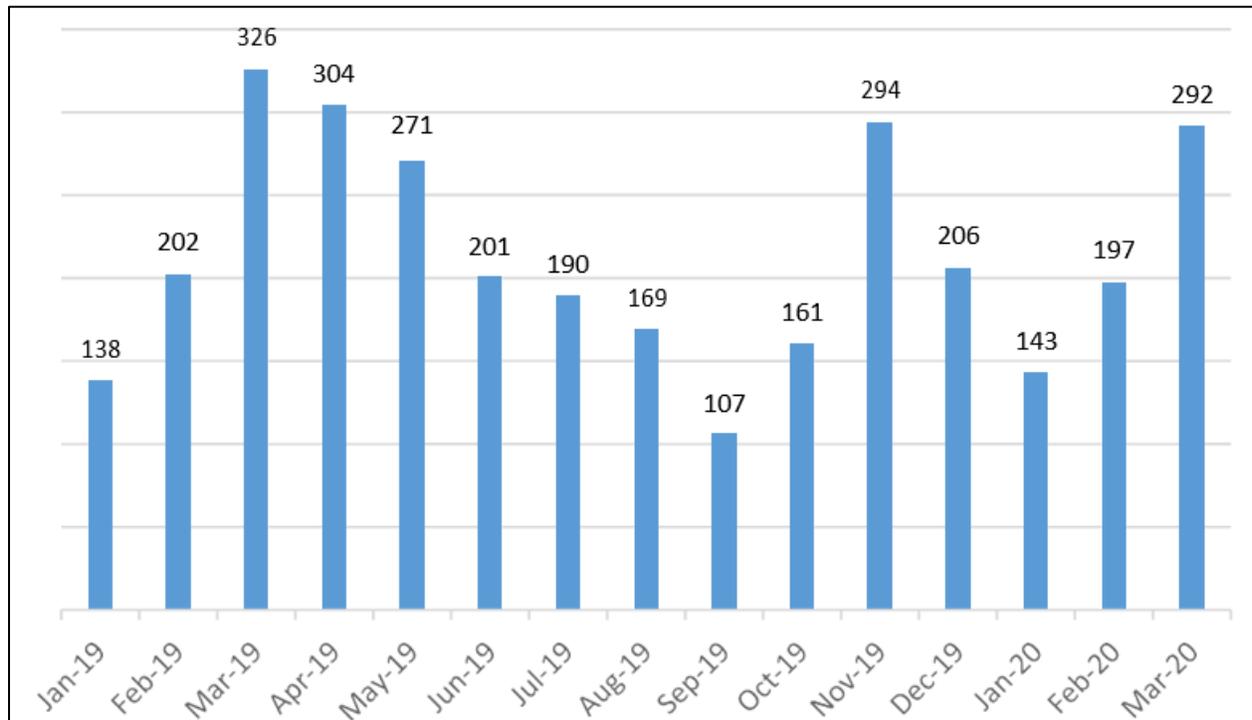


Figure 2-19 Number of Boats per Month



2.3.9 Ship Impact Data

The existing bridge superstructure exhibits no signs of damage due to vessel impact. A review of the most recent bridge inspection report did not note vessel impact as the cause of any deficiencies.

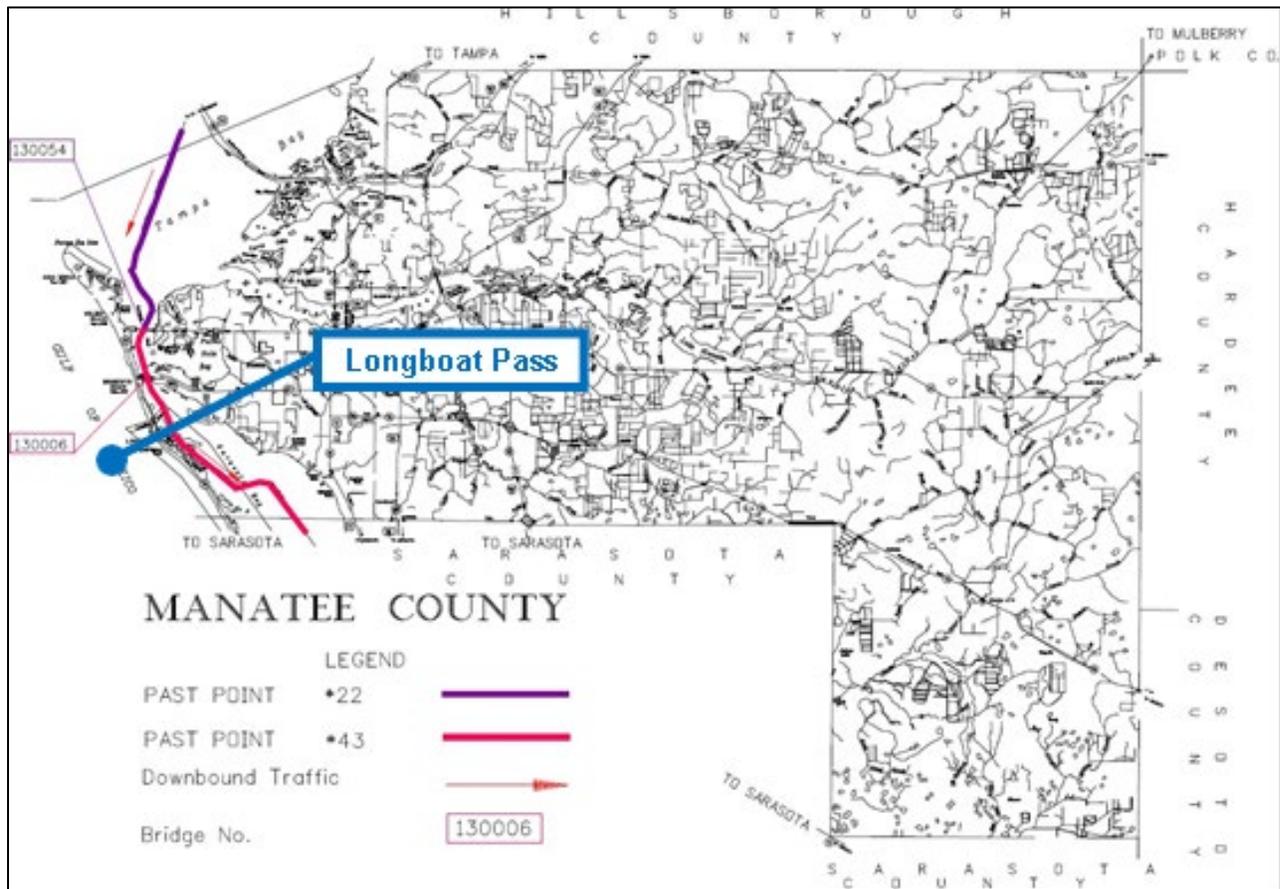
For a bridge at this location, the foundation elements must satisfy Vessel Collision requirements as noted in the AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications. FDOT has developed a Vessel Collision Risk Analysis Software that uses probabilistic methods to determine the chance that a stray vessel will impact the structure and cause it to fail. The program evaluates a series of design vessels and their speeds, as well as the strength of the bridge substructure components. A failure return period greater than 1,000 or 10,000 years is required, depending on the bridge's importance.

The United States Resources Support Center's Navigation Data Center (NDC) establishes and maintains a vessel database for all navigational waterborne traffic on behalf of the U.S. Army Corps of Engineers. The FDOT has used this information and created a "Bridges with Navigation Control" map. There is a total of 52 points on the map, and these points are labeled "Past Points." FDOT's selection of past points is based on the following two factors:

- Each major river/canal of every county should possess at least one past point.
- Moveable structures over water are optional past points.

Although Longboat Pass is not within the Gulf Intracoastal Waterway, the vessel traffic defined for Past Point 43 within the FDOT "Bridges with Navigation Control" map, should be used as part of a vessel collision analysis. The vessel collision analysis will be performed during the final design phase of this project. The analysis will consider anticipated scour depths, pier spacing, current velocity and vessel characteristics and trips. **Figure 2-20** shows the past point map that includes the location of Longboat Pass.

Figure 2-20 S.R. 789 (Longboat Key) Bridge Past Point Location



The Longboat Key Bridge was rehabilitated in 2005; however, the original structure was built in 1957. Despite being less than fifty-years old, the typical expected design life for transportation infrastructure is operationally deficient. Based on a February 2024 FDOT bridge inspection report, the Longboat Key Bridge is functionally obsolete and received a sufficiency rating of 42 (on a scale of 0-100). Sufficiency rating is an overall rating of a bridge's fitness to remain in service. A bridge with a sufficiency rating of 80 or less is eligible for bridge rehabilitation funding. A sufficiency rating below 50.0 qualifies a bridge for replacement funds. The bridge conditions are as follows:

- Overall Condition: Fair
- Deck: Satisfactory
- Superstructure: Satisfactory
- Substructure: Fair
- Deck Geometry Appraisal: basically, intolerable requiring a high priority of replacement
- Pier and abutment protection are in place but in a deteriorated condition
- River control devices and embankment protection have widespread minor damage
- Recommended work - other structural work, including hydraulic replacements.

2.4 Existing Environmental Features

The project area encompasses Longboat Pass, part of Sarasota Bay—a Class II Outstanding Florida Waterbody (OFW) and component of the National Estuary Program. The bridge crosses a federally maintained channel managed by the USCG and located on SSL authorized under Easement No. 21136. The area also lies within a unit of the Coastal Barrier Resources System and extends approximately 135 feet seaward of the Coastal Construction Control Line (CCCL). There are no designated Wild and Scenic Rivers or Aquatic Preserves within the project area.

Existing environmental features include the surface waters of Longboat Pass, adjacent beaches at Greer Island and Coquina Beach, and seagrass beds in the tidal embayment south of Greer Island, which provide suitable habitat for a variety of coastal and marine species. Native habitat types occur under and adjacent to the bridge, including sand dunes, seagrass beds, and mangroves. The project area is located within NMFS-designated proposed critical habitat for the green sea turtle (*Chelonia mydas*), USFWS-designated proposed critical habitat for the rufa red knot (*Calidris canutus rufa*), and nesting beach critical habitat for the loggerhead sea turtle (*Caretta caretta*). In addition, the area supports Essential Fish Habitat (EFH) for red drum, shrimp, spiny lobster, coastal migratory pelagics, reef fish, and stone crab under the jurisdiction of the Gulf of Mexico Fishery Management Council.

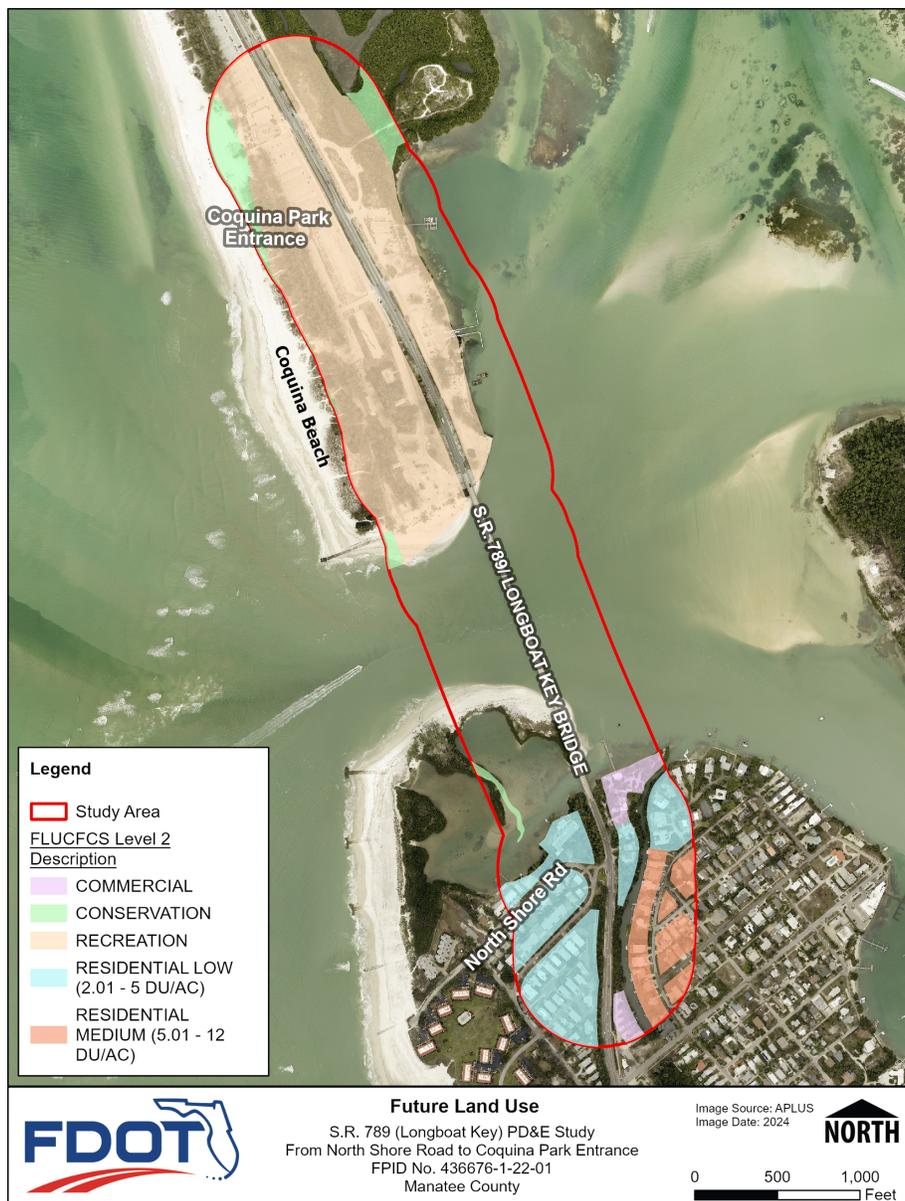
3.0 FUTURE CONDITIONS

3.1 Future Conditions Considerations

3.1.1 Future Land Use

The study area is predominantly surrounded by recreational, residential, and commercial uses. The Future Land Use Map for the Town of Longboat Key Comprehensive Plan identifies the study area as containing open space, general commercial, medium- and high-density tourist resort/commercial, and medium- and high-density residential land uses. The future land use data for Bradenton Beach comes from the local government’s comprehensive plan as compiled in the FGDL FLU_L2_2020 dataset. No significant changes to land use are anticipated in the foreseeable future. The Future Land Use Map is shown in **Figure 3-1**.

Figure 3-1 Future Land Use Map



3.1.2 Future Traffic Conditions

The PTAR (January 2023), prepared under separate cover and included in the project file, document the operational and safety analysis conducted for the PD&E study. The future years of analysis include both the opening year (2031) and design year (2051). The recommended annual growth of 1.7% was calculated by averaging the growth rates from three sources (3.29% from the historical AADT volumes trend analysis, 0.4% from the District One, D1 Regional Planning Model (D1RPM) v1.06, and 1.4% from the Bureau of Economic and Business Research (BEBR) population medium projection). The 2022 AADT is 9,800, indicating that the project segment operates at LOS B under the existing condition. See **Table 3-1**. For the No-Build condition, Opening Year (2031) AADT is 11,500 (LOS B) and Design Year (2051) AADT is 14,500 (LOS C).

Table 3-2 displays the results for the opening year intersection analysis, and **Table 3-3** shows the results for the design year intersection analysis. Both study intersections are anticipated to operate at an acceptable LOS D or better under No-Build condition through the opening year. In the design year, the S.R. 789 at North Shore Road intersection is projected to operate at LOS D or better in both the AM and PM peak hours. However, the intersection of S.R. 789 at Coquina Park Entrance was shown to operate at LOS E during the AM peak hour and LOS F in the PM peak hour. More specifically, in the PM peak hour the eastbound approach of this intersection was forecast to operate with an average delay of 117.1 seconds. Conversion of the eastbound approach at the Coquina Park Entrance intersection to a right-turn only may be considered to potentially improve traffic operations and safety. All the eastbound left turn traffic will be shifted using a route underneath the proposed bridge to go north. No further intersection evaluation was anticipated for this location in this PD&E study.

Based on the 95th percentile queue shown in the Synchro results, the existing turn lane storage lengths at the Coquina Park Entrance intersection (NBL 175 ft and SBL 350 ft) will be adequate through the design year. All Synchro reports can be found in the PTAR (January 2023), under separate cover in the project record.

Table 3-1 Existing (2022) Intersection LOS Analysis Summary

Study Intersection	Control Type	AM Peak Hour Delay (sec) /Approach	LOS	PM Peak Hour Delay (sec) /Approach	LOS
S.R. 789 at North Shore Road	TWSC	14.6/EB	B	16.8/EB	C
S.R. 789 at Coquina Park Entrance	TWSC	19.2/EB	C	28.8/EB	D

Table 3-2 Opening Year (2031) Intersection LOS Analysis Summary

Study Intersection	Control Type	AM Peak Hour Delay (sec) /Approach	LOS	PM Peak Hour Delay (sec) /Approach	LOS
S.R. 789 at North Shore Road	TWSC	16.4/EB	C	19.3/EB	C
S.R. 789 at Coquina Park Entrance	TWSC	22.3/EB	C	34.7/EB	D

Table 3-3 Design Year (2051) Intersection LOS Analysis Summary

Study Intersection	Control Type	AM Peak Hour Delay (sec) /Approach	LOS	PM Peak Hour Delay (sec) /Approach	LOS
S.R. 789 at North Shore Road	TWSC	23.0/EB	C	31.5/EB	D
S.R. 789 at Coquina Park Entrance	TWSC	38.5/EB	E	117.1/EB	F

4.0 DESIGN CONTROLS & CRITERIA

4.1 Design Controls and Criteria

Roadway design criteria is listed in **Table 4-1** and Structures design criteria is listed in **Table 4-2**. Please note the posted and design speed are 35 mph.

Table 4-1 Roadway Design Criteria for S.R. 789

Design Element		Value	Sources
Typical Section	Context Classification	C3R	Context Classification Memo
	Roadway Type	Low-Speed Un-Divided	Section 201.4 (FDM 2025)
	Design Vehicle	WB-62 FL	Section 201.6, Section 201.6.2 (FDM 2025)
	Design Period	20 years	Section 201.3 (FDM 2025)
	Access Classification	7	FDOT Access Management Classification Dataset
	Lane Widths (ft)	12	Table 210.2.1 (FDM 2025)
	Bike Lane Widths (ft)	7	Section 223.2.1.1 (FDM 2025)
	Sidewalk Width	6 feet and 8 feet	Table 222.2.1 (FDM 2025)
	Shared Use Path Width	Minimum 10 feet to 14 feet, with a standard width of 12-feet; 10-feet-wide may be used where there is limited R/W; Short 8-feet wide sections may be used in constrained conditions.	Section 224.4 (FDM 2025)
Horizontal	Shoulder Width	8 feet	Section 210.4, Table 210.4.1 (FDM 2025)
	Min. Stopping Sight Distance (ft)	250 feet (Grades 2% or less); 266 feet (5% down-grade)	Table 210.11.1 (FDM 2025)
	Max. Deflection without Curve (With Curb & Gutter)	2° 00' 00" for 40 mph or less	Section 210.8.1 (FDM 2025)
	Length of Curve - Desirable Length (ft) Based on Design Speed	525	Table 210.8.1 (FDM 2025)
	Length of Curve - Desirable Length (ft) Based on Deflection Angle	5° = 500 4° = 600 3° = 700 2° = 800 1° = 900	Table 210.8.1 (FDM 2025)
	Length of Curve - Min. (ft)	400	Table 210.8.1 (FDM 2025)
	Max. Superelevation (%)	5	Section 210.9 (FDM 2025)
	Max. Curvature (e=NC) (ft)	1,146	Table 210.9.2 (FDM 2025)
	Max. Curvature (e max=0.05) (ft)	389	Table 210.9.2 (FDM 2025)

Design Element		Value	Sources
Vertical	Min. Vertical Clearance for Roadway over Roadway (ft)	16.5	Table 260.6.1 (FDM 2025)
	Max. Grade (Flat Terrain) (%)	7	Table 210.10.1 (FDM 2025)
	Max. Grade for ADA (%)	5	FDM 222.2.1.3 (FDM 2025)
	Max. Change in Grade without Vertical Curve (%)	0.9	Table 210.10.2 (FDM 2025)
	Base Course Clearance Above Water Elevation (ft)	2	Section 210.10.3 (FDM 2025)
	Crest Curve - K Value	47	Table 210.10.3 (FDM 2025)
	Crest Curve - Min. Length (ft)	105	Table 210.10.4 (FDM 2025)
	Sag Curve - K Value	49	Table 210.10.3 (FDM 2025)
	Sag Curve - Min. Length (ft)	105	Table 210.10.4 (FDM 2025)

Table 4-2 Structures Design Criteria for S.R. 789

Design Element	Value	FDM (2025)
Bridge Lane Width	Same as approach roadway	Section 260.2
Bridge Shoulder Width (ft)	10 feet (for normal and high volume, undivided arterial/collector).	Section 260.3; Figure 260.1.2
Bridge Sidewalk / Shared-Use-Path Width (ft)	Minimum 10 feet to 14 feet, with a standard width of 12-feet; 10-foot-wide may be used where there is limited ROW; Short 5-foot wide sections may be used in constrained conditions.	Section 260.2.2
Bridge Cross Slope	2%; crowned section	Section 260.4
Bridge Width	Full bridge deck width per Figure 260.1.2 for undivided arterials and collectors	Section 260.9.1; Figures 260.1.1 thru 260.1.4
Minimum Bridge Vertical Clearance (Waterway)	Minimum 2 ft between design flood stage and low member of bridge superstructure; above splash zone; navigational clearance provided in accordance with FDM 260.8.1	Section 260.8.1

4.1.1 Context Classification

The project corridor is classified as C3R (Suburban Residential) in the current and proposed conditions.

4.1.2 Functional Classification

Within the project limits, S.R. 789 (Longboat Key) is functionally classified as an urban major collector, serving as a key north-south corridor connecting Longboat Key, Bradenton Beach, and Anna Maria Island. The roadway not only accommodates local residential and visitor traffic but also serves as a designated hurricane evacuation route, playing a vital role in regional mobility and emergency response operations.

4.1.3 Access Management

S.R. 789 within the study limits is designated as Access Class 7. Per **Table 4-3**, the minimum connection and intersection spacing standard for Access Class 7 facilities in an urban context is 1,320 feet. This standard is intended to maintain operational efficiency and safety by minimizing conflict points, supporting consistent speeds, and improving sight distances for all roadway users.

A review of the existing and proposed intersection configurations along S.R. 789 indicates that intersection spacing within the project corridor meets or exceeds Access Class 7 spacing requirements. This compliance ensures that the proposed improvements are consistent with FDOT’s Access Management Classification System and are compatible with the corridor’s functional and contextual designations.

In developing the Build Alternatives, adherence to Access Class 7 standards remains a guiding design principle and will remain Access Class 7 in the proposed condition. The proposed bridge replacement and approach roadway alignments maintain existing driveway and side street connections while optimizing access control to enhance safety, operations, and multi-modal compatibility. Additionally, the limited number of access points helps to support the corridor’s function as an evacuation route and improve traffic flow reliability during both normal and emergency conditions.

Table 4-3 Access Classification 7 Standards

Standard Facility Design Features	Access Classification 7
Median Treatment	Both restrictive and Non-Restrictive
Minimum Connection Spacing	125 feet
Minimum Directional Median Opening Spacing	Match Network Block Size
Minimum Full Median Opening Spacing	Match Network Block Size
Minimum Signal Spacing	1,320 feet

4.1.4 United States Coast Guard Clearances

The United States Coast Guard (USCG) regulates navigational clearances for bridge structures that cross navigable waterways in accordance with Title 33 of the Code of Federal Regulations (CFR), Part 118 – Bridge Lighting and Other Signals. These standards ensure that bridge designs maintain safe and efficient passage for both commercial and recreational marine traffic.

At the Longboat Pass location, the USCG minimum clearance guidelines for bridge structures are as follows:

- **Bascule Bridge Horizontal Clearance:** A minimum of 90 feet between the fender systems to accommodate safe two-way vessel navigation.
- **Bascule Bridge Vertical Clearance:** A minimum of 21 feet above Mean High Water (MHW) at the face of the fender system when the bridge is in the closed position.
- **Fixed or Vertical Lift Bridge Vertical Clearance:** A minimum of 65 feet above MHW to provide sufficient clearance for taller vessels without the need for movable bridge operations (78 feet height is based upon marine vessels using this channel, according to the 2022 Vessel Survey Technical Memorandum in the project file).

These clearance requirements are used as baseline design criteria for evaluating the Build Alternatives under consideration for the S.R. 789 (Longboat Key) Bridge PD&E Study.

The existing Longboat Key Bridge provides limited vertical clearance that requires frequent bascule openings to accommodate vessel traffic, resulting in periodic vehicular delays and operational inefficiencies. The proposed bridge replacement alternatives have therefore been developed in coordination with the USCG’s Office of Bridge Programs, ensuring that both horizontal and vertical clearance requirements are satisfied for navigational safety. See USCG meeting minutes in **Appendix D**. The minimum vertical navigational clearance of 23 feet is measured from Mean Sea Level (MSL Elevation = 1.06 feet (NAVD88)) including an additional 2-foot allowance for projected sea level rise, consistent with FDOT’s resilience planning criteria. See **Table 4-4**.

Table 4-4 Existing Bascule Bridge and Alternatives

Alternative	Minimum Vertical (feet)	Minimum Horizontal (feet)
No-Build Alternative - Existing Bascule	17.0	49.5
Alternative 1 - Low-Level Bascule (Reduced)	23.0	90.0
Alternative 2 - Mid-Level Bascule (Reduced)	36.0	90.0
Alternative 3 - Fixed Bridge (Reduced)	78.0	100.0*

- *Note: Minimum Vertical Clearance is measured from Mean Sea Level (MSL Elevation = 1.06 feet) + 2 feet (to account for sea level rise) to the lowest superstructure member over the navigable channel, without lifting the bascule bridge (Alternatives 1 & 2). Minimum Horizontal Clearance is measured between the fender systems at the adjacent piers.*
- ** Minimum Horizontal Clearance for Fixed Bridge is longer since the span length is 155 feet, which can accommodate 100 feet between fenders.*

Coastal bridges need to have minimum vertical clearance 1 foot above 100-year design wave crest elevation including the storm surge elevation and wind setup. The 100-year design wave crest elevation for the Longboat Key location is +15.1 feet (NAVD88).

Additional hydraulics parameters used in the development of alternatives are provided in the Bridge Hydraulics Report, provided in the project file.

4.1.5 Structural Design Specifications:

The governing codes for the design of Alternatives for the replacement of the Longboat Key Bridge (Bridge No. 130057), are as follows:

- FDOT Structures Design Guidelines, dated January 2025
- FDOT Structures Detailing Manual (SDM), dated January 2025
- AASHTO LRFD 9th Edition (2020), with all Interims
- AASHTO LRFD Movable Highway Bridge Design Specifications, 2nd Edition, with all Interims
- FDM, dated January 2025
- FDOT FY 2025-2026 Standard Plans for Road and Bridge Construction

4.1.6 Design Loads:

The structural design of the proposed bridge and its components shall consider all applicable loads and load combinations in accordance with the FDOT Structures Design Guidelines (SDG) and the AASHTO LRFD Bridge Design Specifications, as amended. These design standards ensure that the bridge is capable of safely supporting expected vehicular, pedestrian, wind, and environmental loads throughout its service life, while also maintaining compliance with FDOT's Seismic Design and Load Rating criteria.

4.2 Physical Constraints

As mentioned in **Section 2.2.12**, there are no identified barriers or objects in the clear zone. The existing Longboat Key Bridge has 36-inch traffic railings along both sides of the bridge.

The existing Longboat Key Bridge does not meet current USCG minimum horizontal or vertical clearances for a bascule bridge, highlighting a primary operational limitation of the structure.

4.3 Environmental Constraints

Within the existing ROW, environmental constraints predominantly include protected coastal resources including jurisdictional wetlands, submerged aquatic vegetation, and surface waters. This is described in **Section 7.2.4**. Potential contamination associated with the existing bridge structure is further described in **Section 7.2.8**. Beyond the existing ROW, protected conservation and recreational lands are described in **Section 2.4**. Noise-sensitive sites adjacent to the ROW include residential and recreational uses and are described in **Section 7.2.7**.

5.0 ALTERNATIVES ANALYSIS

The objective of the alternatives analysis process is to identify technically and environmentally sound alternatives that meet the purpose and need of the project, are acceptable to the community, minimize impacts on the environment, and are cost effective. The process results in the selection of a Preferred Alternative, which can be advanced to the design phase. This section summarizes the alternatives considered and the results of the alternatives evaluation.

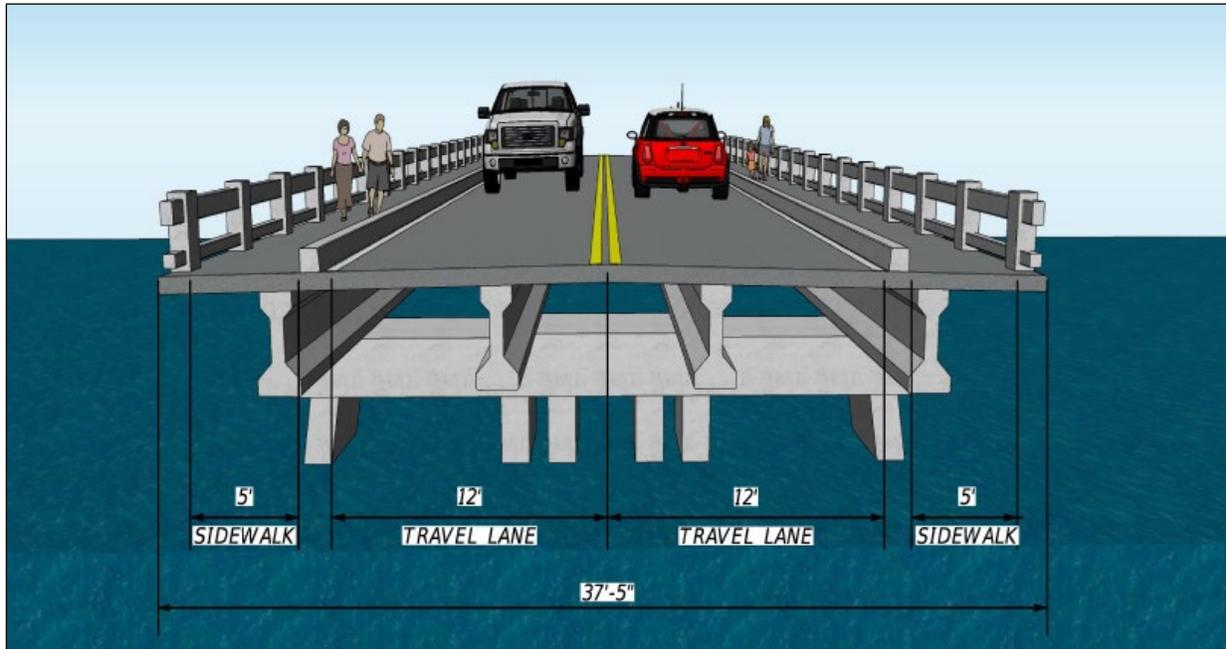
5.1 No-Build (No-Action) Alternative

Throughout this study, the No-Build Alternative (no-action) is also considered. It assumes that both normal and evacuation traffic volumes continue to increase in the future without capacity or operational improvements except for routine maintenance on the existing road. The No-Build Alternative maintains the existing roadway and bridge typical section as shown in **Figure 5-1** and maintains the bridge's 17-foot vertical clearance and 45.9 feet horizontal width between fenders. The No-Build condition assumed that the existing mainline and cross-street lane configurations remain unchanged. The No-Build Alternative requires maintenance and repairs of the existing Longboat Key Bridge.

Maintenance/repairs include installing cathodic protection pile jackets; repairing the concrete (sealing cracks, patching spalls, etc.) in the piles, pile caps, deck, beams, and traffic railing; repairing the fender system; repairing the drawbridge operational machinery; upgrading the drawbridge electrical systems; and repairing the bascule span steel in order to extend the service life by ten years. The No-Build (Repair) Alternative also includes the full replacement of the superstructure on six of the fixed spans, including the beams, deck, and traffic railing, and the installation of 10 crutch bents. The estimated repair costs are shown in **Table 5-1**.

The No-Build (Repair) Alternative requires closure of the bridge for approximately nine weeks to make the repairs. At the end of the ten-year period, an extensive rehabilitation or replacement of the bridge would be required. The No-Build (Repair) Alternative does not require stormwater management facilities (SMFs) since it does not alter the existing roadway or add additional capacity; therefore, no treatment of the runoff would occur. The existing bridge will remain in its current configuration and no additional travel lanes are proposed. The brush curbs will remain in place. Curbs of this type are known to launch errant vehicles, causing them to go over or through the bridge rail. The bridge rails are not designed to restrain an airborne vehicle. In addition, the No-Build (Repair) Alternative may not prevent the need to place weight restrictions on the bridge, meaning that heavy trucks could continue to be restricted.

The No-Build Alternative remains a viable alternative throughout the study process although it does not accomplish the purpose and need for this project.

Figure 5-1 No-Build Alternative – Existing Bridge Typical Section


The construction costs/overall estimated cost for the No-Build Alternative are as follows: No-Build Alternative – \$0 for construction, however the total anticipated repair costs to maintain the existing Longboat Key Bridge between 2025-2042 is estimated at over \$92 million present day cost.

Table 5-1 Costs to Maintain Existing Longboat Key Bridge 2025-2042

Year	Asset Maintenance	Bridge Tender & Weekly Machinery Greasing	Rehab Projects	Deck Replacement	Crutch Bent Replacement	Tender House Rehab	Bridge Fender System Replacement	Total
2025	\$39,800.00	\$275,000.00	\$6,287,839.60					
2026	\$39,800.00	\$275,000.00						
2027	\$39,800.00	\$275,000.00						
2028	\$39,800.00	\$275,000.00						
2029	\$39,800.00	\$275,000.00						
2030	\$39,800.00	\$275,000.00						
2031	\$39,800.00	\$275,000.00	\$7,733,249.59					
2032	\$39,800.00	\$275,000.00						
2033	\$39,800.00	\$275,000.00						
2034	\$39,800.00	\$275,000.00		\$34,436,381.96				
2035	\$39,800.00	\$275,000.00					\$15,889,555.00	
2036	\$39,800.00	\$275,000.00						
2037	\$39,800.00	\$275,000.00	\$9,510,921.56		\$1,040,982.00	\$80,000.00		
2038	\$39,800.00	\$275,000.00						
2039	\$39,800.00	\$275,000.00						
2040	\$39,800.00	\$275,000.00						
2041	\$39,800.00	\$275,000.00						
2042	\$39,800.00	\$275,000.00	\$11,697,233.87					
	\$716,400.00	\$4,950,000.00	\$35,229,244.62	\$34,436,381.96	\$1,040,982.00	\$80,000.00		\$92,342,563.58

5.1.1 Advantages of the No-Build Alternative

The primary advantage of the No-Build Alternative is that it does not directly require any capital or expenditure of federal/state transportation trust funds (besides maintenance). Other advantages include:

- No physical or social impacts;
- No additional ROW is needed;
- No impacts to existing utilities;
- No impacts to mangrove and seagrass and the species they support;
- Aligns with some public comments to keep the bridge in its current configuration.

5.1.2 Disadvantages of the No-Build Alternative

The disadvantages of the No-Build alternative include the following:

- Lacks consistency with the purpose and need for the project or with local transportation plans;
- The bridge would remain operationally deficient;
- The required repairs have a short service life (25 years);
- Significant maintenance costs will be required to keep the bridge maintained;
- Continued safety concerns associated with the substandard traffic railings;
- Continued safety concerns associated with vessels impacting the piles since the piles are not designed for ship impact;
- Continued concern for effective and reliable emergency evacuation and recovery should mechanical systems malfunction or vehicles become disabled, blocking the through lanes;
- Multi-modal improvements are not provided;
- Continued vehicular delay caused by the drawbridge openings;
- Continued delay as vessels wait for bridge to open;
- Continued vulnerability of the bridge to wave action in severe storms;
- No benefit of additional 40-foot horizontal guide clearance between fenders;
- Increased evacuation and emergency vehicle response times;
- No improvement in water quality in Sarasota Bay since stormwater will not be treated; and
- Increased vehicle emission pollutants due to higher levels of traffic congestion.

5.2 TSM&O Alternative

A Transportation Systems Management and Operations (TSM&O) Alternative generally provides short-term improvements that extend the service life of the facility. The TSM&O Alternatives include activities and strategies designed to optimize the performance and utilization of the existing infrastructure through implementation of systems, services, and projects to preserve the capacity and improve the security, safety, and reliability of the transportation system. TSM&O improvements include, but are not limited to, upgrades or additions to the existing facility, such as arterial traffic management systems, traffic incident management, work zone traffic management, road weather management, traveler information services, commercial vehicle operations, transit

priority signals systems, freight management, improved traffic signals and intersection geometries, sidewalks, bicycle facilities, signal timing, and improved access features. While these improvements may provide additional capacity and access control, the purpose of this project is to address the age of the existing bridge. Therefore, the TSM&O Alternative does not meet the purpose and need of the project. Transportation System Management and Operations (TSM&O) alternatives have not been considered for the project.

5.3 Multi-modal Alternatives

Adding multimodal accommodations alone does not meet the purpose and need of the project since it does not provide for a replacement of the Longboat Key Bridge due to the age and condition of this bridge. Multi-modal alternatives are a part of all the Build alternatives. Multi-modal alternatives include:

- A new barrier-protected 12-foot-wide SUP on the west side of the S.R. 789/Longboat Key Bridge and an 8-foot-wide sidewalk on the east side to accommodate bicyclists and pedestrians.
- At intersections, pedestrian features such as curb ramps meeting Americans with Disabilities (ADA) requirements and pedestrian signals will be implemented as part of the design phase to improve mobility as well as safety.

Multi-modal alternatives will address the existing multi-modal needs of the corridor, supporting the project's Purpose and Need as well as planning consistency. S.R. 789 (Longboat Key) serves as the primary connection from Longboat Key to Bradenton Beach and Anna Maria Island and is frequently used by bicyclists and pedestrians due to the adjacent parks and recreational facilities [Greer Island Park, Coquina Bayside Park / Boat Ramp, and Coquina Beach Park, Coquina Beach Trail, Longboat Key Trail Corridor, Leffis Key, and the Florida Gulf Coast Trail SUN Trail]. While there are 5-foot-wide sidewalks on both sides of the bridge and a bicycle lane on each side of the roadway leading up to the bridge, there are no shoulders or dedicated bicycle facilities on the bridge itself. Due to the minimal sidewalk width, there are often conflicts between pedestrians and bicyclists. A new 12-foot-wide SUP will provide a facility for bicyclists and pedestrians and help minimize the current conflict that exists between those users due to the constrained existing typical section.

Moreover, the provision of multi-modal alternatives aligns with local agency plans, including the 2045 Sarasota/Manatee MPO LRTP. Within the LRTP, Barrier Island Traffic Study Priority Projects lists S.R. 789/Gulf of Mexico Dr from Longboat Key Bridge to 27th St. N as a multi-modal capacity improvement. Additionally, a shared use trail on S.R. 789/Gulf of Mexico Dr within the Town of Longboat Key limits is listed as Priority Project #11. In the LRTP's Cost Feasible Plan, S.R. 789/Gulf Drive from Longboat Pass to 27th Street North is listed as a Complete Street project for Year 2030 construction. In the Transportation Element of the 2023 Manatee County Comprehensive Plan, Policy 5.0.2.2 of Objective 5.0.2 Multi-modal Transportation System states "Encourage transportation improvements for bicycle and pedestrian movement that will result in the development of bicycle and pedestrian networks coordinated with transportation

and transit improvements.” Goal 5.4 address providing a safe and convenient bikeway and pedestrian circulation system. Longboat Key is listed as an activity center in the Sarasota County Transit Development Plan Major Update (August 2019). In addition, comments received included, “provide Longboat Key with a single island-wide service regardless of the County boundary.” This shows that the provision of multi-modal alternatives complies with local planning documents applicable to the study area.

Existing transit routes were discussed previously in Section 2.2.10. A transit alternative would involve increasing the use of transit to reduce the number of vehicles, and thus congestion, along S.R. 789 across the Longboat Key Bridge. There are three bus transit routes [Manatee County Area Transit Route 05, the Anna Maria Island Trolley, and the Longboat Key Shuttle]. There was a request by Sarasota County Transit Agency (Breeze) to incorporate 12-foot-wide shoulders to accommodate future transit service in any Build Alternatives. While the 12-foot-wide shoulders were originally included in Alternatives 1, 2, and 3, they were later reduced to 8-foot-wide shoulders in response to public requests to reduce the roadway typical section. Therefore, Alternatives 1, 2, and 3 (Reduced) can accommodate transit vehicles in the roadway travel lane, but not along a separate shoulder. In conclusion, increased transit options would not meet the purpose and need for the project which is to address the age of the existing bridge.

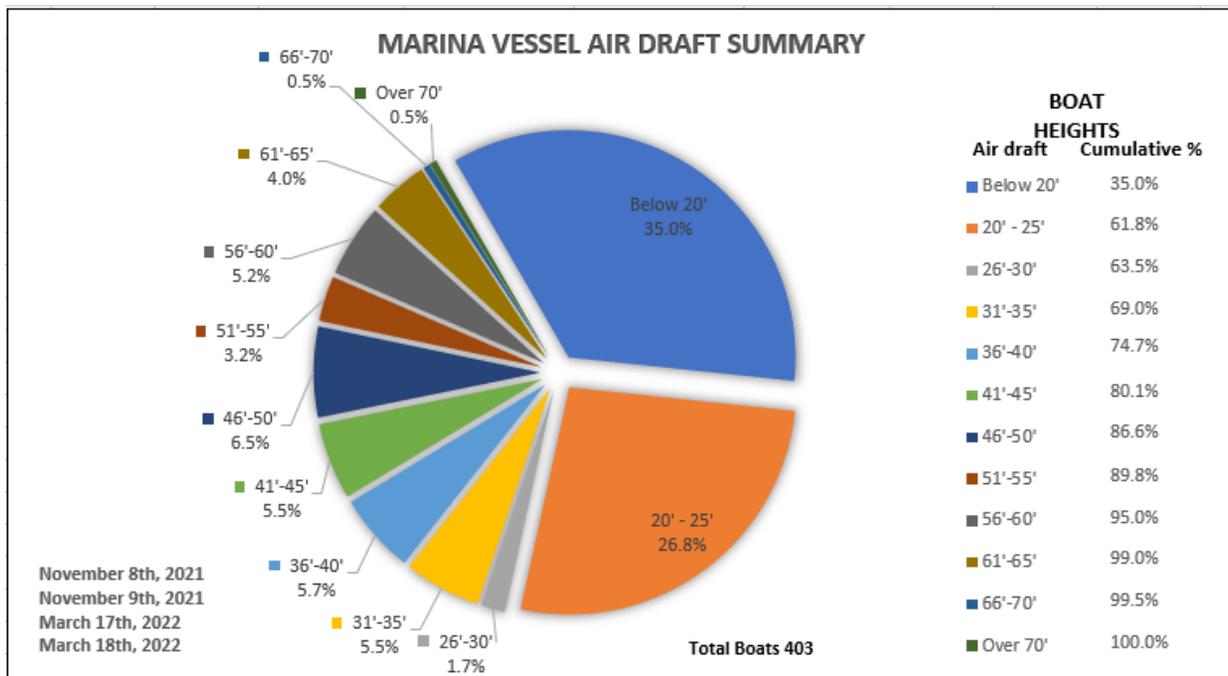
5.4 Build Alternatives

Build Alternatives were developed to provide replacement options for the Longboat Key Bridge, due to the age of the bridge. The development of Build Alternatives was based on several factors, including:

- Purpose and Need – The Purpose and Need is to address structural integrity and operational deficiencies of the S.R. 789 (Longboat Key) Bridge, as stated in the Advanced Notification Package for ETDM No. 14382, dated January 24, 2020 and the Screening Summary Report, published on April 30, 2020. All the Build Alternatives meet the study’s Purpose and Need.
- United States 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.
- Planning consistency – All the Build Alternatives are consistent with local plans and previous studies, which identify the need for increased mobility options, multi-modal improvements along S.R. 789, and improved hurricane evacuation options for coastal barrier islands.
- Previous bridge inspection reports detail the condition of the existing bridge and the need for rehabilitation or replacement. The Build Alternatives satisfy the needs mentioned in the bridge inspection reports.

- Vessel Survey Technical Memorandum, April 2022 (provided in the project file) – This memo identifies the need to provide vertical clearance of 78 feet for the tallest boat. See **Figure 5-2**.
- Navigation Impact Report, May 2022 (provided in the project file) – According to this report, with the planned replacement of Cortez Bridge with a 65-foot vertical clearance fixed bridge and the discontinued maintenance of the channel under New Pass Bridge further south, 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.
- The field work and analysis presented in this report have preliminarily determined the minimal 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. This was taken into consideration when developing the height of the bridge for the Build Alternatives.

Figure 5-2 Marina Air Draft Summary



Three general Build Alternatives were developed and evaluated to determine the most feasible and context-sensitive replacement option. All Build Alternatives used a design speed of 35 mph, posted speed of 35 mph, horizontal alignment to the west of the existing bridge, and navigational clearance to meet USCG requirements, providing sufficient horizontal and vertical clearance for safe vessel passage. The alternatives were presented to the public and agency stakeholders during the Alternatives Public Workshop and included the following bridge replacement options:

- Alternative 1: Low-Level Bascule Bridge (23-foot vertical clearance);
- Alternative 2: Mid-Level Bascule Bridge (36-foot vertical clearance); and
- Alternative 3: High-Level Fixed Bridge (78-foot vertical clearance).

The bridge typical sections for Alternatives 1, 2, and 3 are all the same. They include: two 12-foot-wide travel lanes, two 12-foot-wide outside shoulders, and two 12-foot-wide shared use paths to accommodate pedestrians and bicyclists. Alternative 1, 2, and 3 would be constructed immediately west of the existing alignment. Implementation of any alternative would require ROW acquisition from the north side of the bridge at the Manatee County Marine Rescue Facility, which is county-owned property. Each of these alternatives was designed to improve the operational, structural, and safety performance of the existing bridge while maintaining compatibility with the surrounding built and natural environments. The design development considered navigation requirements, multi-modal accommodations, environmental impacts, visual aesthetics, and public input.

Following the Alternatives Public Workshop, stakeholder feedback played a critical role in refining each alternative. A substantial number of comments were received from residents of the North Shore Condominiums and other community members expressing concerns about the proximity of the proposed bridge alignment to existing residential structures and the potential for increased visual and noise impacts. In response to these community concerns, FDOT District One undertook a refinement process to reduce the proposed typical section width, thereby reducing ROW impacts and visual intrusion while still meeting safety and operational standards. The revised (reduced) typical section includes the following modifications:

- **Shared Use Path (West Side):** 12-foot-wide SUP provided on the west side of the bridge structure (unchanged).
- **Shoulders:** Reduced from 10-feet to 8-feet-wide in both northbound and southbound directions.
- **Travel Lanes:** Reduced from 12-feet to 11-feet-wide in both northbound and southbound directions.
- **Sidewalk (East Side):** Replaced the originally proposed 12-foot SUP with an 8-foot-wide sidewalk to minimize the overall structure width.

These revisions resulted in a total reduction of 14 feet in the proposed bridge typical section, decreasing the overall width from 76 feet 8 inches to 62 feet 8 inches, as illustrated in **Figure 5-3**.

The refined typical section maintains compliance with FDOT design criteria and Context Classification C3R standards while responding to public feedback and environmental sensitivities.

This narrower cross-section reduces potential impacts to adjacent residential properties and minimizes shading effects on sensitive marine habitats, such as seagrasses and mangroves, located along the Longboat Pass shoreline.

Overall, the refinement process demonstrates FDOT's commitment to a context-sensitive and stakeholder-driven design approach, ensuring that the selected bridge replacement alternative balances transportation performance, safety, environmental protection, and community livability.

In conjunction with the refinement of the typical section, the horizontal alignment of the proposed bridge alternatives was adjusted to further respond to public concerns and minimize impacts on adjacent properties.

Specifically, the 12-foot-wide SUP is only proposed on the west side of the bridge, closer to the north gate of North Shore Condominiums. This adjustment shifts the western edge of the travel lanes 8 feet to the east, moving vehicular traffic farther away from the condominiums. The original build alternatives were approximately 60 feet from the North Shore Condominiums. With the reduced typical section and adjusted alignment, the proposed bridge now maintains a 70-foot setback, providing an additional 10 feet of separation from the residential structures. This refinement was made in direct response to feedback received from condominium residents regarding the proximity of the previously proposed alignments. By shifting the bridge alignment and narrowing the roadway section, the Study Team was able to balance operational and safety requirements with community concerns, enhancing visual and acoustic separation while maintaining compliance with FDOT design standards.

As a result of these adjustments, the three reduced-width Build Alternatives were finalized as follows:

- Alternative 1 (Reduced) – Low-Level Bascule Bridge
- Alternative 2 (Reduced) – Mid-Level Bascule Bridge
- Alternative 3 (Reduced) – High-Level Fixed Bridge

These refined alternatives reflect a context-sensitive approach that preserves multi-modal functionality, meets navigational requirements, and minimizes impacts on adjacent residential properties while addressing stakeholder input.

Alternative 1 (Reduced) - Low-Level Bascule Bridge

Alternative 1 (Reduced) proposes the replacement of the existing Longboat Key Bridge over Longboat Pass with a 23-foot vertical clearance low-level bascule bridge, 62 feet 8 inches in width, and with 90 feet of horizontal clearance between fenders to accommodate navigational requirements. Alternative 1 (Reduced) proposes replacing the existing Longboat Key Bridge approximately 21.5 feet west of the existing structure. This alternative maintains the function of the bridge as a key transportation link while addressing both vehicular and multi-modal user needs. See **Figure 5-3**.

Typical Section:

The proposed bridge typical section consists of:

- **West Side of Bridge:** One 12-foot-wide protected SUP for pedestrians and bicyclists.
- **Vehicular Travel Lanes:** Two 11-foot-wide travel lanes, one in each direction.

- **Outside Shoulders:** Two 8-foot-wide shoulders adjacent to the travel lanes.
- **East Side of Bridge:** One 8-foot-wide barrier-protected sidewalk for pedestrian use.

On the south approach, the 12-foot-wide SUP and 8-foot-wide sidewalk continue and transition into 6-foot-wide sidewalks near the North Shore Road intersection. On the north approach, the 12-foot-wide SUP connects seamlessly to the existing 6-foot-wide sidewalk at the Coquina Beach south entrance, while the 8-foot-wide sidewalk terminates at the north end of the Coquina Beach pedestrian crossing. This configuration improves multi-modal accessibility over the existing bridge, which has narrower sidewalks and lacks dedicated bicycle facilities.

Access and Connectivity:

This alternative maintains all existing driveway and side road connections at both ends of the bridge.

Right-of-Way Considerations:

The alternative requires 9,980 square feet (0.23 acres) of ROW on the north side of the bridge at the Manatee County Marine Rescue Facility, which is county-owned property. No residential or commercial relocations are required and no residential or commercial properties are impacted. This ROW impact does not affect the use of the existing properties.

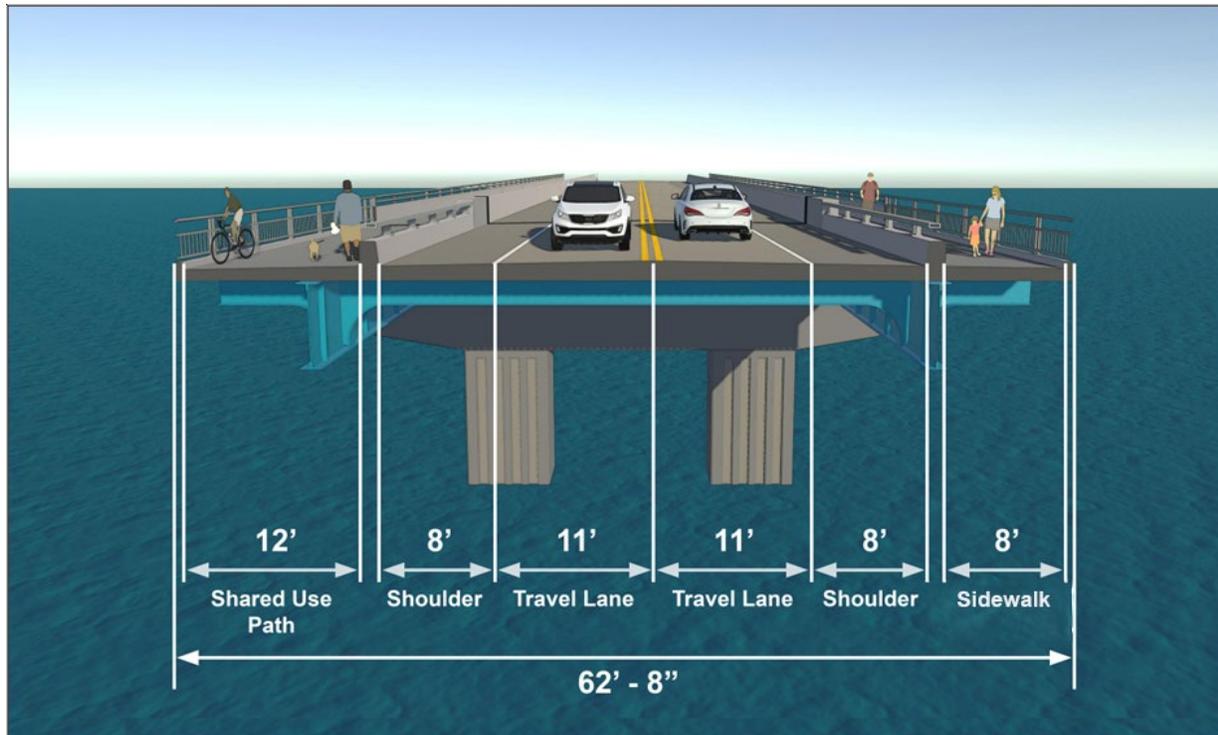
Navigation and Marine Operations:

The proposed 23-foot vertical clearance will allow nearly 62 percent of existing marine traffic to pass beneath the bridge without requiring an opening, while the remaining 38 percent of vessels would necessitate periodic bascule operation. The existing Longboat Key Bridge allows for 35 percent of marine traffic to pass underneath without a bridge opening. This represents 42 percent less bridge openings compared to the existing structure, improving traffic flow on S.R. 789 while maintaining safe navigational access for recreational and commercial vessels.

Summary of Benefits:

- Maintains essential vehicular and emergency evacuation connectivity;
- Provides enhanced multi-modal facilities, including a 12-foot-wide SUP and 8-foot-wide sidewalk;
- Reduces bridge openings and associated vehicular delays while supporting marine traffic needs;
- Avoids residential or commercial relocations; and
- Provides a durable and long-service bridge solution consistent with FDOT design standards.

This alternative reflects a context-sensitive design that balances community input, multi-modal needs, and navigational safety while maintaining compliance with FDOT and USCG criteria.

Figure 5-3 Alternative 1 (Reduced) – Low-Level Bascule Bridge Option


Vertical and Structural Design:

The minimum vertical navigational clearance of 23 feet is measured from Mean Sea Level (MSL Elevation = 1.06 feet (NAVD88)) with an additional 2-foot allowance for projected sea level rise, consistent with FDOT's resilience planning criteria.

The proposed profile accommodates this clearance through the following design characteristics:

- Fixed approaches to the drawbridge consist of spans supported by FIB girders of two different depths. The primary approach spans are 152'-8" long and utilize 72"-deep FIB girders, resulting in an overall structural depth of 82.5". The southernmost 764' of the bridge consists of 95'-6" spans supported by 36"-deep FIB girders, with a corresponding structural depth of 46.5". Reported structural depths are based on an 8.5" deck thickness with a 2" assumed haunch.
- This reduced structure depth minimizes exposure to the splash zone (defined as 12 feet above the maximum wave crest elevation of 15.10 feet).
- The bascule span has a maximum structural depth of 12 feet, forming a 135-foot single-leaf bascule over a 90-foot-wide navigational channel.
- The total bridge length is approximately 2,160 feet, reaching a maximum deck elevation of 40.82 feet in the closed position; thus, a 10.82-foot increase compared to the existing bridge elevation at the main channel (30 feet).

This profile provides enhanced navigational safety, increased resistance to storm surge and ship impact, and compliance with current FDOT and AASHTO LRFD design standards.

Vessel Navigation and Operations:

Based on the April 2022 Vessel Survey conducted by FDOT District One, approximately 62 percent of existing waterway users that currently require bridge openings would be able to pass beneath the new bridge without requiring the bascule to open. Although bridge openings will still be necessary for most vessel traffic, the reduced number of required openings will slightly improve vehicular traffic flow and reduce delays during peak boating periods.

Maintenance and Operations:

Maintenance and operating costs for Alternative 1 (Reduced) are estimated as follows:

- \$233.6 million in total maintenance cost (present day cost) for approximately 75 years (between 2030 and 2105).

These estimates were incorporated into the Life-Cycle Cost Analysis (LCCA) to evaluate the long-term financial implications relative to the other alternatives.

Advantages of the 23-foot Low-Level Bascule Bridge (West Alignment):

- Provides unrestricted access for all vessel types when opened.
- Improves overall safety and functionality, with wider shoulders, ADA-compliant sidewalks, shared use paths, and crash-tested barriers.
- Enhances resilience to storm surge and vessel impact through a stronger superstructure and improved fendering system.
- Increases horizontal clearance between fenders to support safer navigation through Longboat Pass.
- Provides a 12-foot-wide SUP and 8-foot-wide sidewalk, accommodating pedestrians, bicyclists, and recreational users such as anglers.
- Preserves visual capability with the existing bridge height, minimizing aesthetic impacts.
- Requires minimal ROW acquisition, limited to a small portion of park property north of the bridge.
- No residential or business relocations are required.
- Expected service life of approximately 75 years with proper maintenance.
- Allows construction of the new bridge offline, enabling continued traffic use of the existing bridge and avoiding major detours during construction.

Potential Disadvantages:

- Potential environmental impacts, including minor mangrove and seagrass disturbance during construction.
- Continued operating costs due to the need for bridge tender staffing and electrical/mechanical systems.
- Higher maintenance costs than a fixed bridge alternative, given the presence of movable components.

- Requires acquisition of SSL easement for fenders
- Utility impacts (for utilities mounted on the existing bridge)
- Proximity of replacement bridge to the North Shore Condominiums on the west side.

Alternative 2 (Reduced) - Mid-Level Bascule Bridge

Alternative 2 (Reduced) proposes replacing the existing Longboat Key Bridge over Longboat Pass with a 36-foot vertical clearance mid-level bascule bridge, 62 feet 8 inches in width, located approximately 21.5 feet west of the existing structure. It also provides 90 feet of horizontal clearance between fenders. This alternative is designed to improve vehicular operations, reduce bridge openings, and enhance multi-modal connectivity while maintaining navigational safety for marine traffic. See **Figure 5-4**.

Typical Section:

Similar to Build Alternative 1, the proposed reduced typical section includes:

- **West Side of Bridge:** One 12-foot-wide protected SUP for pedestrians and bicyclists.
- **Vehicular Travel Lanes:** Two 11-foot-wide travel lanes, one in each direction.
- **Outside Shoulders:** Two 8-foot-wide shoulders adjacent to the travel lanes.
- **East Side of Bridge:** One 8-foot-wide barrier-protected sidewalk for pedestrian use.

On the south approach, the 12-foot-wide SUP and 8-foot-wide sidewalk continue and transition into 6-foot-wide sidewalks near the North Shore Road intersection. On the north approach, the 12-foot-wide SUP connects seamlessly to the existing 6-foot-wide sidewalk at the Coquina Beach south entrance, while the 8-foot-wide sidewalk terminates at the north end of the Coquina Beach pedestrian crossing. This configuration improves multi-modal accessibility over the existing bridge, which has narrower sidewalks and lacks dedicated bicycle facilities.

Access and Connectivity:

This alternative maintains all existing driveway and side road connections at both ends of the bridge.

Right-of-Way Considerations:

The alternative requires 9,980 square feet (0.23 acres) of ROW on the north side of the bridge at the Manatee County Marine Rescue Facility, which is county-owned property. No residential or commercial relocations are required and no residential or commercial properties are impacted. This ROW impact does not affect the use of the property in any way.

Navigation and Marine Operations:

The proposed 36-foot vertical clearance significantly reduces the need for bridge openings. Based on traffic and vessel data, the existing Longboat Key Bridge allows for 35 percent of marine traffic to pass underneath without a bridge opening. The 36-foot vertical clearance would allow almost

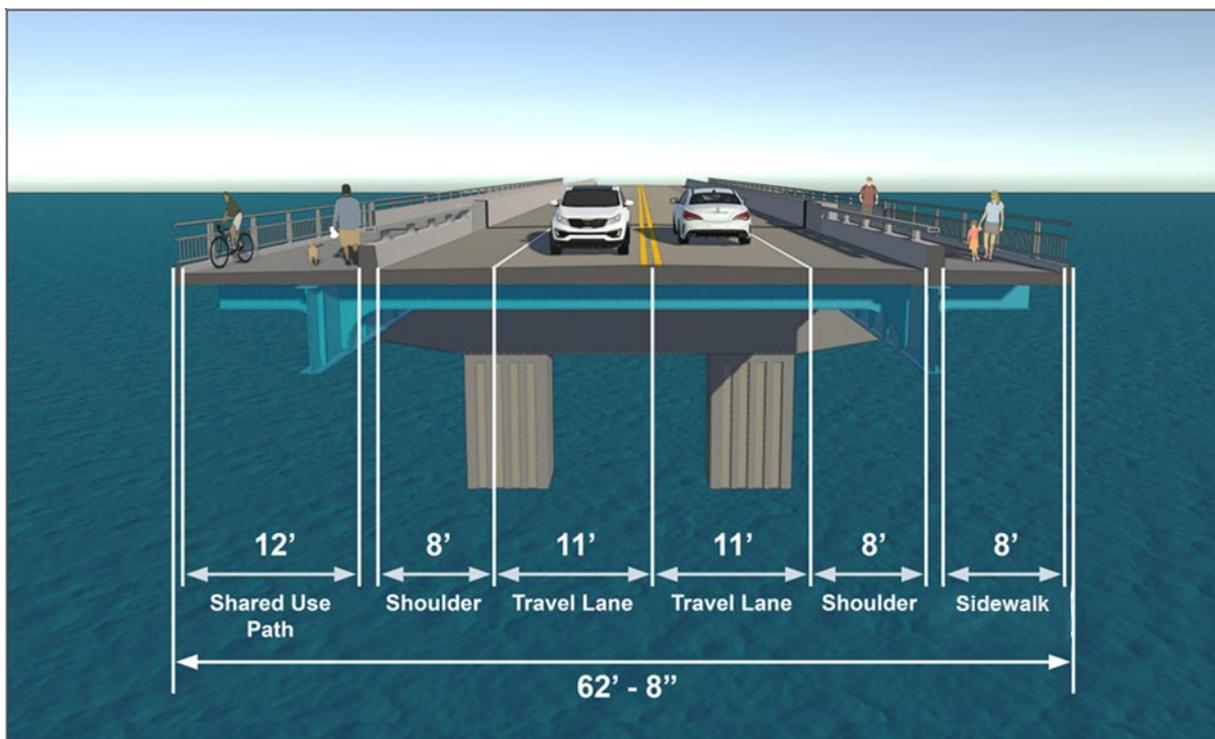
70 percent of marine vessels to pass underneath without a bridge opening, thus reducing the number of openings by approximately 54 percent compared to the existing bridge.

Summary of Benefits:

- Maintains essential vehicular and emergency evacuation connectivity;
- Provides enhanced multi-modal facilities, including a 12-foot-wide SUP and 8-foot-wide sidewalk;
- Reduces bridge openings and associated vehicular delays while supporting marine traffic needs;
- Avoids residential or commercial relocations; and
- Provides a durable and long-service bridge solution consistent with FDOT design standards.

This alternative reflects a context-sensitive design that balances community input, multi-modal needs, and navigational safety while maintaining compliance with FDOT and USCG criteria.

Figure 5-4 Alternative 2 (Reduced) – Mid-Level Bascule Bridge Option



Vertical and Structural Design:

The minimum vertical navigational clearance of 36 feet is measured from Mean Sea Level (MSL Elevation = 1.06 feet (NAVD88)) with an additional 2-foot allowance for projected sea level rise, consistent with FDOT's resilience planning criteria.

The proposed profile accommodates this clearance through the following design characteristics:

- Fixed approaches to the drawbridge consist of spans supported by FIB girders of two different depths. The primary approach spans are 152'-8" long and utilize 72"-deep FIB girders, resulting in an overall structural depth of 82.5". The southernmost 450'-5" of the bridge consists of 90'-1" spans supported by 36"-deep FIB girders, with a corresponding structural depth of 46.5". Reported structural depths are based on an 8.5" deck thickness with a 2" assumed haunch.
- This reduced structure depth minimizes exposure to the splash zone (defined as 12 feet above the maximum wave crest elevation of 15.10 feet).
- The bascule span has a maximum structural depth of 12 feet, forming a 135-foot single-leaf bascule over a 90-foot-wide navigational channel.
- The total bridge length is approximately 2,160 feet, reaching a maximum deck elevation of 53.82 feet in the closed position; thus, a 23.82-foot increase compared to the existing bridge elevation at the main channel (30 feet).

This profile provides enhanced navigational safety, increased resistance to storm surge and ship impact, and compliance with current FDOT and AASHTO LRFD design standards.

Vertical Clearance and Bridge Profile:

- **Minimum Vertical Clearance:** Measured from Mean Sea Level (MSL = 1.06 ft (NAVD88)) + 2 ft for anticipated sea level rise.
- **Navigational Clearance:** 36-foot vertical clearance over Longboat Pass.
- **Fixed Approach Structure Depth:** 6 feet for 152-foot-8-inch spans, reduced to 3 feet for the southernmost 450-foot-5-inch section to avoid the splash zone (max wave crest elevation = 15.10 ft).
- **Maximum Bascule Span Depth:** 12 feet
- **Bridge Length:** Approximately 2,160 feet
- **Maximum Deck Elevation:** 53.82 feet at the closed position, a 23.82-foot increase from the existing 30-foot main channel elevation.
- **Drawbridge Span:** Single leaf forming a 135-foot span over a 90-foot-wide navigational channel

Maintenance and Operations:

Maintenance and operating costs for Alternative 2 (Reduced) are estimated as follows:

- \$233.6 million in total maintenance cost (present day cost) for approximately 75 years (between 2030 and 2105).

These estimates were included in the Life Cycle Cost Analysis for comparative evaluation with other alternatives.

Advantages of the 36-foot Mid-Level Bascule Bridge (West Alignment):

- Provides unrestricted access for all vessel types when opened.
- Improves overall safety and functionality, with wider shoulders, ADA-compliant sidewalks, shared use paths, and crash-tested barriers.
- Enhances resilience to storm surge and vessel impact through a stronger superstructure and improved fendering system.
- Increases horizontal clearance between fenders to support safer navigation through Longboat Pass.
- Provides a 12-foot-wide SUP and 8-foot-wide sidewalk, accommodating pedestrians, bicyclists, and recreational users such as anglers.
- Preserves visual capability with the existing bridge height, minimizing aesthetic impacts.
- Requires minimal ROW acquisition, limited to a small portion of park property north of the bridge.
- No residential or business relocations are required.
- Expected service life of approximately 75 years with proper maintenance.
- Allows construction of the new bridge offline, enabling continued traffic use of the existing bridge and avoiding major detours during construction.

Potential Disadvantages:

- Potential environmental impacts, including minor mangrove and seagrass disturbance during construction.
- Continued operating costs due to the need for bridge tender staffing and electrical/mechanical systems.
- Higher maintenance costs than a fixed bridge alternative, given the presence of movable components.
- Slightly steeper pedestrian crossing profile (max grade 4%) compared to existing bridge (3%)
- Requires acquisition of SSL easement for fenders
- Utility impacts (for utilities mounted on the existing bridge)
- Proximity of replacement bridge to the North Shore Condominiums on the west side.

Alternative 3 (Reduced) - High-Level Fixed Bridge

Alternative 3 (Reduced) proposes replacing the existing Longboat Key Bridge over Longboat Pass with a 78-foot vertical clearance high-level fixed bridge, 62 feet 8 inches in width, and provides 90 feet of horizontal clearance between fenders. Alternative 3 (Reduced) proposes replacing the existing Longboat Key Bridge approximately 21.5 feet west of the existing structure. This alternative eliminates the need for movable bridge operations, allowing continuous vehicular traffic flow and uninterrupted marine navigation beneath the structure. See **Figure 5-5**.

Typical Section:

The proposed reduced typical section for this high-level bridge includes:

- **West Side of Bridge:** One 12-foot-wide protected SUP for pedestrians and bicyclists.
- **Vehicular Travel Lanes:** Two 11-foot-wide travel lanes, one in each direction.
- **Outside Shoulders:** Two 8-foot-wide shoulders adjacent to the travel lanes.
- **East Side of Bridge:** One 8-foot-wide barrier-protected sidewalk for pedestrian use.

Access and Connectivity:

This alternative maintains all existing driveway and side road connections at both ends of the bridge.

Right-of-Way Considerations:

The alternative requires 9,980 square feet (0.23 acres) of ROW on the north side of the bridge at the Manatee County Marine Rescue Facility, which is county-owned property. No residential or commercial relocations are required and no residential or commercial properties are impacted. This ROW impact does not affect the use of the property in any way.

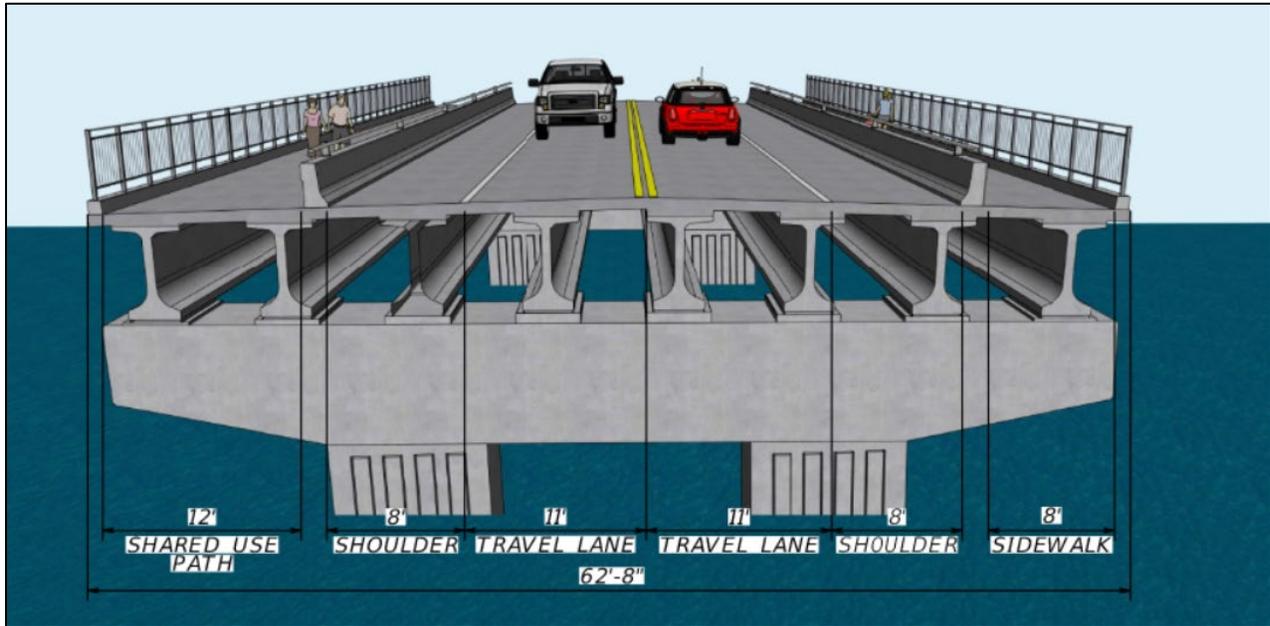
Navigation and Marine Operations:

With a 78-foot vertical clearance, 100 percent of marine traffic can safely pass beneath the bridge without requiring an opening, according to the 2022 Navigation Impact Report and on-site bridge survey. This eliminates operational delays associated with bascule openings and provides unrestricted access for recreational and commercial vessels, ensuring reliable navigational clearance well into the future.

Summary of Benefits:

- Provides uninterrupted vehicular and marine traffic, eliminating bridge openings entirely, thereby providing quicker emergency evacuation and response times;
- Maintains multi-modal access with upgraded pedestrian and bicycle facilities;
- Reduces long-term operating and maintenance costs relative to bascule bridge alternatives, as there are no movable components;
- Avoids residential or commercial relocations; and
- Ensures long-term structural durability, resilience, and compliance with FDOT and USCG design standards.

Overall, the High-Level Fixed Bridge alternative offers maximum navigational efficiency, minimal operational disruption, and improved safety for all users. It represents a long-term, low-maintenance solution that meets the project's purpose and need while accommodating multi-modal transportation and emergency evacuation requirements.

Figure 5-5 Alternative 3 (Reduced) – High-Level Fixed Bridge Option


The 78-foot High-Level Fixed Bridge Alternative (West Alignment) proposes to replace the existing Longboat Key Pass Bascule Bridge with a new fixed-span structure providing 78-foot vertical clearance over Longboat Pass. The new structure would be built 21-feet six-inches west of the existing bridge, utilizing the proposed two-lane typical section shown on **Figure 5-5**.

Both south and north roadway approaches maintain the existing two-lane roadway configuration. The bridge includes a 12-foot-wide SUP along the west side of the bridge and an 8-foot-wide sidewalk along the east side of the bridge. The 12-foot-wide SUP continues at the north end bridge and transitions to 8-foot-wide sidewalk at the south end. The 8-foot-wide sidewalk is continued at both ends of the proposed bridge.

Minimum Vertical Clearance is measured from Mean Sea Level (MSL Elevation = 1.06 feet (NAVD88)) + 2 feet (to account for sea level rise). The proposed profile accommodates a minimum 78-foot vertical navigational clearance over the existing Gulf Intracoastal Waterway. The fixed spans have a six-foot nine-inches structure depth (155-foot uniform span length). The full superstructure is outside the splash zone (12-feet above maximum wave crest elevation is 15.10 feet). The proposed bridge will be approximately 3,100 feet in length, and will reach a maximum deck elevation of 87.81 feet. This is a 57.81 feet increase from the existing 30.0 feet elevation at the main channel.

Based on data collected for the April 2022 Vessel Survey prepared by FDOT District One, this vertical clearance will allow 65% of the waterway users that currently require the existing bridge to open to pass under the replacement bridge.

Preliminary conceptual plan and profile sheets are included in **Appendix B**.

Maintenance and Life-Cycle Costs:

Maintenance and operating costs for Alternative 3 (Reduced) are estimated as follows:

- \$17.2 million in total maintenance cost for approximately 75 years (between 2030 and 2105).

Certain advantages would be associated with the implementation of the 78-foot High-Level Fixed-Bridge Alternative, including:

- Significant maintenance cost savings versus the low and mid-level bridges (\$216.4 million over 75 years).
- No operating (labor) costs since no bridge tender is required
- No drawbridge openings
- Improves overall safety and functionality, with wider shoulders, ADA-compliant sidewalks, shared use paths, and crash-tested barriers.
- Enhances resilience to storm surge and vessel impact through a stronger superstructure and improved fendering system.
- Increases horizontal clearance between fenders to support safer navigation through Longboat Pass.
- Provides a 12-foot-wide SUP and 8-foot-wide sidewalk, accommodating pedestrians, bicyclists, and recreational users such as anglers.
- Preserves visual capability with the existing bridge height, minimizing aesthetic impacts.
- Requires minimal ROW acquisition, limited to a small portion of park property north of the bridge.
- No residential or business relocations are required.
- Expected service life of approximately 75 years with proper maintenance.
- Allows construction of the new bridge offline, enabling continued traffic use of the existing bridge and avoiding major detours during construction.

The potential disadvantages of the 78-foot High-Level Fixed-Bridge Alternative include:

- Potential effects on the natural environment, including minor mangrove and seagrass impacts
- Greater visual impacts relative to the existing bridge height
- Steeper profile (4.5% grades) for pedestrians to cross bridge relative to existing bridge profile (1.5% and 2.5% grades), but still meets ADA standards without flat landings
- Requires acquisition of SSL easement for fenders
- Utility impacts (for utilities mounted on the existing bridge)
- Proximity of replacement bridge to the North Shore Condominiums on the west side.

Horizontal Alignments

As part of the evaluation of the two-lane bridge replacement alternatives, a single west alignment, positioned to the west of the existing Longboat Key Bridge, was analyzed for all three Build Alternatives. A horizontal alignment east of the existing Longboat Key Bridge was analyzed but dismissed due to utility and residential impacts. The elevation difference between the roadway and driveway/home connects would result in total takes of residential properties. The west alignment was selected to optimize construction sequencing and MOT while minimizing impacts to adjacent properties and the natural environment.

Key Features of the West Alignment:

- **Maintenance of Traffic:** By constructing the replacement bridge to the west of the existing structure, the existing bridge can remain open during construction, maintaining uninterrupted vehicular access along S.R. 789. This approach minimizes traffic disruptions and maintains the corridor’s critical role as a hurricane evacuation route.
- **Proximity to Adjacent Properties:** The west alignment (similar to the east alignment) brings the new bridge closer to adjacent residential properties than the existing bridge alignment.
- **Environmental Considerations:** Positioning the replacement bridge to the west minimizes impacts to existing shoreline features and sensitive aquatic habitats, such as mangroves and seagrass beds, by concentrating construction activities in a more controlled footprint.
- **Constructability:** The west alignment allows for efficient construction staging and minimizes interference with existing utilities, marine navigation, and local boat ramp access. It also facilitates a smoother transition from the approach roadways to the new bridge.

The west alignment was selected as the preferred horizontal alignment for all reduced Build Alternatives because it:

- FDOT owns the existing right-of-way for this alignment
- Supports continuous traffic operations during construction;
- Reduces potential impacts to adjacent properties;
- Minimizes environmental and navigational impacts; and
- Allows for a safe and efficient construction sequence.

This alignment, in combination with the reduced typical section, represents a context-sensitive approach that balances operational, environmental, and community considerations while meeting the project’s purpose and need.

5.4.1 Context Based Design

The project corridor was developed with Context Based Design principles in mind, which aim to provide safe and convenient access for all users, including pedestrians, bicyclists, motorists, and transit riders.

During the alternatives development process, the Sarasota County Transit Agency (Breeze) requested the incorporation of 12-foot-wide shoulders to accommodate potential future transit service within any of the Build Alternatives. Initially, Alternatives 1, 2, and 3 included these 12-foot-wide shoulders. However, in response to public feedback requesting a narrower roadway typical section, the shoulders were later reduced to 8 feet in width for all three reduced Build Alternatives.

This configuration balances multi-modal access, safety, and community input while maintaining the corridor's ability to accommodate future transit service within the travel lanes and supporting pedestrian and bicycle mobility.

5.4.2 Pedestrian and Bicycle Accommodation

All proposed Build Alternatives include enhanced facilities for pedestrians and bicyclists to improve safety, connectivity, and access along the Longboat Key corridor. The reduced typical section was designed to provide multi-modal accommodations consistent with Context-Based Design principles, supporting a variety of users including pedestrians, bicyclists, and recreational users.

As previously described, the proposed typical section includes: One 12-foot-wide protected SUP on the west side of the bridge and one 8-foot-wide barrier-protected sidewalk on the east side of the bridge, providing safe pedestrian access and separation from the travel lanes. Also proposed are two 8-foot-wide shoulders, which serve as a buffer between the travel lanes and the pedestrian/bicycle facilities, enhancing overall safety for non-motorized users.

These facilities improve connectivity to local points of interest, including parks, recreational areas, and residential neighborhoods, while providing safe and accessible routes for all users. The 12-foot-wide SUP and 8-foot-wide sidewalk represent a significant improvement over the existing bridge, which only provides narrow sidewalks (5-foot-wide) with no bicycle accommodations.

At the southern end of the project in the Town of Longboat Key, south of North Shore Road, there is an existing 6-foot-wide sidewalk on the west side of S.R. 789 that will transition to the 12-foot-wide SUP on the west side of the bridge. Along the east side of S.R. 789, there will be continuation of the existing 6-foot-wide sidewalk on the east side of S.R. 789 that will tie into the 8-foot-wide sidewalk along the east side of the bridge.

On the north side of the limits at Coquina Beach, there is an 8-foot-wide sidewalk along the west side of 789 north of the bridge, starting south of the southernmost park entrance and continuing north beyond the limits of the project. The 12-foot-wide SUP and 8-foot-wide sidewalk will continue to the new proposed intersection/entrance at the Manatee County Marine Rescue Center. The 12-foot-wide SUP will also tie into the existing pedestrian facilities at Coquina Beach on the west side of S.R. 789.

By incorporating these features, the proposed bridge replacement alternatives support multi-modal transportation, promote active transportation, and enhance pedestrian and bicyclist safety, in alignment with FDOT design standards and community priorities.

5.4.3 Traffic Operations and Safety

The engineering elements for traffic operations and safety are similar for each build alternative and are described in **Section 7.1.2** and **Section 7.1.7**. However, the vehicular traffic will not be required to stop and have potential back-ups with the high level fixed bridge preferred alternative in contrast to the bascule bridge alternatives. In addition, operations for marine traffic differ for each alternative based on vertical clearance and the type of bridge proposed (bascule versus high-level fixed). See **Sections 5.4.1, 5.4.2, and 5.4.3** for more detail.

5.4.4 Managed Lanes

Given the purpose and need for the project, managed lanes were not evaluated for the build alternatives.

5.4.5 Access Management

S.R. 789 within the project limits functions as an urban major collector, providing critical connectivity along Longboat Key. The roadway is classified under FDOT Access Management Class 7 with a context classification of C3R, according to the FDOT Access Management data (KMZ file, 06/06/2023).

Intersection Spacing Requirements:

- Access Class 7 Standard: 1,320 feet minimum spacing between intersections (Per FDM Table 201.4.2)
- Existing Conditions: Intersection spacing along S.R. 789 within the study limits meets or exceeds the minimum spacing requirements, ensuring safe and efficient traffic flow.

Access Management Considerations for Proposed Alternatives:

All proposed Build Alternatives maintain the existing access points and intersection spacing where feasible, while incorporating minor modifications at key locations such as the north end of the bridge near the Coquina Beach entrance to improve safety, traffic operations, and multi-modal access. These adjustments are designed to:

- Maintain safe vehicular operations along the corridor
- Minimize conflicts between turning movements and through traffic
- Enhance pedestrian and bicyclist safety near intersections and driveways
- Ensure continued compliance with FDOT Access Management standards

5.4.6 Interchanges on Interstate Highways

Given lack of interstates in the project area, interchanges were not evaluated for the build alternatives.

5.4.7 Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) were not evaluated as part of this PD&E study due to the project's purpose and need, which focuses on the rehabilitation or replacement of the aging Longboat Key Bridge. The project's primary objective is to address structural deficiencies,

operational limitations, and multi-modal accommodations, rather than optimize traffic flow through operational improvements.

Reasoning for Exclusion of ITS/TSM&O Alternatives:

- Transportation Systems Management & Operations (TSM&O) alternatives are designed to maximize the efficiency of existing roadway facilities without significant infrastructure replacement. Typical TSM&O strategies include:
 - Intersection operational improvements such as lengthening or adding turn lanes
 - Traffic signal phasing and timing adjustments
 - Access management measures, such as closing or modifying existing median openings
- While these strategies can improve traffic operations, they do not address the structural deficiencies or aging condition of the existing bridge, which is the primary need for this project.
- Future-year traffic volumes and multi-modal requirements cannot be accommodated solely through ITS or TSM&O strategies, making them insufficient to meet the project's purpose and need.

Because the focus of the study is on bridge rehabilitation or replacement, rather than traffic operations optimization, ITS and TSM&O alternatives were deemed inappropriate for this project and were not included in the evaluation of Build Alternatives.

5.4.8 Lane Repurposing

Lane repurposing was not considered for any build alternatives as the purpose and need is to rehabilitate or replace the existing Longboat Key Bridge.

5.4.9 Landscape

Landscaping features will be considered in the Design phase.

5.4.10 Lighting

Where applicable, Wildlife-Sensitive Conventional Lighting from the FDOT Approved Products List will be utilized. Lighting features will be considered in the Design phase.

5.4.11 Wildlife Crossings

Wildlife Crossings are not applicable to any of the build alternatives.

5.4.12 Permits

Permitting requirements are the same for all build alternatives. **Section 7.1.13** provides details on permitting requirements associated with the Preferred Alternative.

5.4.13 Stormwater Management

For all of the build alternatives, stormwater runoff from the proposed bridge will be collected through storm drain structures located at the bridge approaches and conveyed to stormwater management facilities within the project ROW. A dry retention pond will provide treatment for

the northern drainage basin, while a dry retention swale will serve the southern basin. Since the project's ultimate outfall discharges directly to the Gulf of Mexico, water quantity attenuation is not required. Water quality treatment for the project will be provided with the proposed stormwater management facilities in accordance with FDOT and FDEP requirements. Refer to the November 2025 Pond Siting Report located in the project file.

5.4.14 Sea Level Impact Protection (SLIP) Studies

Per the November 2025 Bridge Hydraulic Report on file, Section 3.4.1 of the FDOT Drainage Manual (2025) requires sea-level rise to be incorporated into the design of new bridge structures. The methodology is based on long-term historical trends from NOAA tidal stations, using straight-line regression extrapolation to estimate future conditions. The nearest appropriate NOAA long-term tidal gauge for this analysis is the Clearwater Beach, Florida station (Station ID: 8726724). The FDOT-required straight-line regression rate for this station is 4.22 millimeters per year, referenced to the NOAA Mean Sea Level (MSL) datum for the 1983–2001 tidal epoch. In accordance with FDOT guidance, sea-level rise was calculated from the midpoint of the tidal epoch (1992) and projected through the end of the proposed bridge's service life, which assumes a 75-year design life with construction completion in 2022. Applying these parameters results in a projected sea-level rise of approximately 1.45 feet, however an additional 2-foot allowance per FDOT's resilience planning criteria, has been incorporated into the hydraulic and elevation design of the Preferred Alternative to ensure long-term resiliency. A SLIP study will be conducted before the public hearing.

5.4.15 Water Quality

A Water Quality Impact Evaluation (WQIE) (January 2026) was prepared under separate cover and is included in the project file. Neither build alternative is expected to have significant impact on water quality or quantity. Water quality and stormwater issues will be mitigated through compliance with the design requirements of authorized regulatory agencies. To support water quality protection and regulatory compliance, the proposed drainage design incorporates dry detention stormwater treatment facilities to provide pollutant load reduction, attenuate runoff, and protect adjacent surface waters from construction and long-term operational impacts. These facilities will be designed to meet or exceed SWFWMD and FDEP water quality treatment requirements, ensuring compatibility with OFW criteria and supporting long-term watershed health.

5.4.16 Hydrology and Floodplains

There are no reported flooding issues within the project limits. The only FEMA floodplains the project crosses are associated with Sarasota Bay, with the roadway crossing an AE zone (EL 9.0 North American Vertical Datum (NAVD)) and the bridge crossing a VE zone (El 11.0 NAVD), but this should not impact the project due to coastal floodplains typically not requiring compensation. No portions of the project lie within a regulated floodway. The Location Hydraulic Report (November 2025) quantifies and evaluates any floodplain impacts. As stated in this report, "The proposed structure will perform hydraulically in a manner equal to or greater than the existing

structure, and backwater surface elevations are not expected to increase. Thus, there will be no significant adverse impacts on natural and beneficial floodplain values. There will be no significant change in flood risk, and there will not be a significant change in the potential for interruption or termination of emergency services or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.”

5.4.17 Utilities and Railroads

There are no railroads within the project limits. Eight existing utility providers are located within the corridor, seven on the east side and one on the west side of the proposed bridge alignment. These utilities represent a significant cost consideration in evaluating design alternatives because an eastern alignment would have high relocation expenses associated with the eastern utility adjustments. Therefore, the higher utility costs associated with building a new bridge east of the existing bridge favors a building a new bridge west of the existing bridge, or a “western alignment.”

Estimated relocation costs for utility providers, according to their Historical Item Average Costs, are as follows:

- Comcast: PVC conduit – approximately \$100 per foot
- Florida Power & Light (Distribution): approximately \$10,000 per pole
- Frontier Communications: PVC conduit – approximately \$100 per foot
- Longboat Key Utilities: cost information not provided
- Manatee County Utility Operations: PVC conduit – approximately \$100 per foot; 16" DIP – approximately \$500 per foot
- MCI: approximately \$16,500
- TECO gas line: approximately \$250 per foot for relocation of 6-inch steel pipe

5.4.18 Survey and Mapping

The Study Team used Lidar information from the County website since no survey information was available from FDOT.

5.4.19 Geotechnical Investigation

The soils throughout the alignment predominantly includes fine sand to sand with silt to depths around 6.5 feet. Muck (A-8) is reported to be present below the north end of the alignment, north of Longboat Pass, from about 550 feet north of the pass to the approximate end of the project alignment at the Coquina Park Entrance. The muck is reported to be from about 3.5 feet to 6.5 feet below natural grade. The seasonal high groundwater table (SHGWT) is reported to be as shallow as one to 2.5 feet below natural grade throughout most of the alignment. Details are provided in the Geotechnical Memo (August 2024), provided under separate cover and included in the project file.

5.4.20 Structures and Bridges

Build alternatives were evaluated for the replacement of the existing S.R. 789 Bridge over Longboat Key Pass and are detailed in Section 5.5.1 – 5.5.4. The type of bridge replacement alternatives analyzed differed (basculer bridge versus High-Level fixed bridge) however the proposed bridge typical sections are the same regardless of the build alternative. **Section 7.1.16** provides details on the bridges associated with the Preferred Alternative.

5.4.21 Perimeter Walls

There are no existing or planned perimeter walls for the build alternatives.

5.4.22 Transportation Management Plan

The engineering elements for transportation management plan are discussed with the Preferred Alternative in **Section 7.1.17**.

5.4.23 Constructability

The engineering elements for constructability are discussed with the Preferred Alternative in **Section 7.1.18**.

5.4.24 Construction Impacts

Construction of the build alternatives is not expected to have any significant impact to property access or safety considerations while construction of roadway and drainage improvements take place. Construction is not anticipated to adversely impact listed species with adherence to project commitments, construction precautions, and conservation measures. Also, construction is not expected to have any significant impact to water quality, noise, or air quality. The project will adhere to the FDOT Standard Specifications for Road and Bridge Construction along with implementation of Stormwater Runoff Control Concept and Best Management Practices to minimize or eliminate potential construction impacts.

5.5 Comparative Alternatives Evaluation

A Comparative Alternatives Evaluation Matrix (**Table 5-2**) serves as a critical analytical tool for systematically comparing the performance of proposed project alternatives, including the No-Build Alternative, across a consistent set of engineering, environmental, and social criteria.

The matrix provides a clear, objective framework for evaluating the advantages and disadvantages of each alternative, supporting data-driven decision-making and ensuring compliance with the National Environmental Policy Act (NEPA). Typical evaluation categories include:

- Right-of-Way Impacts: Need for property acquisition, potential relocation impacts, and associated costs
- Environmental Impacts: Effects on wetlands, protected species, floodplains, and other environmentally sensitive areas
- Community and Social Effects: Impacts on neighborhoods, recreational facilities, pedestrian and bicycle access, and local stakeholders

- Cost: Construction, maintenance, and life-cycle costs for each alternative

The matrix helps decision-makers select an alternative that optimally balances transportation needs, community priorities, environmental considerations, and long-term sustainability.

Table 5-2 Comparatives Alternatives Evaluation Matrix

Evaluation Criteria		'No-Build' Alternative	Alternative 1: Low Level Bascule Bridge	Alternative 2: Mid Level Bascule Bridge	Alternative 3: High Level Fixed Bridge	Reduced Typical Section ¹		
						Alternative 1: Low Level Bascule Bridge (Reduced)	Alternative 2: Mid Level Bascule Bridge (Reduced)	Alternative 3: High Level Fixed Bridge (Reduced)
BENEFITS	Addresses the age and existing conditions of the bridge							
	Provides improvements to bicycle and pedestrian facilities							
	Enhances safety for all users including emergency evacuation							
BRIDGE	Vertical Height above Mean High Water	17 feet	23 feet	36 feet	78 feet	23 feet	36 feet	78 feet
	Horizontal Width Between Fenders	50 feet	90 feet	90 feet	90 feet	90 feet	90 feet	90 feet
	Benefit to Marine Traffic	No change	Yes	Yes	Yes	Yes	Yes	Yes
	Estimated Life of Alternative (Years)	10	75	75	75	75	75	75
RIGHT-OF-WAY IMPACTS	Number of Residential and Business Parcels Potentially Impacted	0	0	0	0	0	0	0
	Right-of-Way Impacts (Acres)	0	0.08	0.08	0.35	0.01	0.01	0.23
	Additional Right-of-Way Required	0.00	0.08	0.08	0.35	0.01	0.01	0.23
UTILITY IMPACTS	Utilities Potentially Impacted (distribution, transmission)	No change	7 Utility/Agency Owners	7 Utility/Agency Owners	7 Utility/Agency Owners	7 Utility/Agency Owners	7 Utility/Agency Owners	7 Utility/Agency Owners
ENVIRONMENTAL	Potential Impacts to Threatened and Endangered Species	No change	Low	Low	Low	Low	Low	Low
	Potential Contamination Sites ² (medium/high risk)	No change	1	1	1	1	1	1
	Impacts to Wetlands ³ (acres)	No change	0.10	0.10	0.10	0.90	0.90	0.90
	Impacts to Seagrasses ³ (acres)	No change	0.22	0.22	0.22	0.15	0.15	0.15
	Section 4(f) Sites / Public Lands Potentially Impacted	No change	1	1	1	1	1	1
	Number of Historic Sites and Archaeological Sites Potentially Impacted	No change	0	0	0	0	0	0
	Number of Noise-sensitive Areas	No change	4	4	4	4	4	4
	Aquatic Preserves / Outstanding Florida Waters (acres impacted)	No change	0/3.23	0/3.23	0/3.23	0/2.51	0/2.51	0/2.51
COST	Design	\$0	\$7.5 million	\$7.5 million	\$4.5 million	\$7.5 million	\$7.5 million	\$4.5 million
	Right-of-Way Acquisition	\$0	\$0*	\$0*	\$0*	\$0*	\$0*	\$0*
	Construction	\$0	\$112.2 million**	\$112.9 million**	\$79.3 million**	\$176 million**	\$183.8 million**	\$137.8 million**
	Utility Relocation Costs	\$0	\$725,000	\$725,000	\$725,000	\$725,000	\$725,000	\$725,000
	Construction Engineering and Inspection (CEI)	\$0	\$13.5 million	\$13.5 million	\$9.5 million	\$21.1 million	\$22.1 million	\$16.5 million
	Total Project Costs (2024)	\$0	\$133.2 million***	\$133.9 million***	\$93.3 million***	n/a	n/a	n/a
	Total Project Costs (2025)	\$0	n/a	n/a	n/a	\$197.8 million***	\$228.3 million***	\$155.0 million***
	*Right-of-way needed at Manatee County Marine Rescue							
**Costs to relocate utilities are not included.								
***Does not include annual maintenance costs and major repairs. The no-build alternative would involve increasingly expensive maintenance and repair projects causing continued disruption to traffic. Please note at the time of the Alternatives Public Workshop, the costs for Alternatives 1, 2, and 3 were provided in Year 2024. After the Alternatives Public Workshop, new costs (LRE's) were developed for Alternatives 1, 2, and 3 reduced, and are given in Year 2025.								
1. The Reduced Typical Section was developed after the Alternatives Public Workshop to address Public Involvement and Environmental concerns								
2. Asbestos-containing materials and metals-based coatings are present on the bridge and the bridge tender house flooring contains asbestos-containing materials.								
3. Environmental impacts performed prior to 2024 hurricane season.								

5.6 Selection of the Preferred Alternative

The No Action (or ‘No-Build’) Alternative serves as the baseline for comparison with proposed Build Alternatives. Under this alternative, no improvements would be made to the Longboat Key Bridge.

Following the Alternatives Workshop and comment period, comprehensive engineering analyses, environmental studies, and interagency coordination occurred (see **Appendix E**). Both bascule bridge options (Alternative 1 Reduced and Alternative 2 reduced) were discarded due to the higher construction and long-term maintenance costs associated with movable bridge structures.

- Alternative 3 (Reduced), the High-Level Fixed Bridge, was selected as the Preferred Alternative for the following reasons:
 - **Meets the Purpose and Need:** Provides a durable, modern bridge that addresses structural deficiencies, improves multi-modal access, and enhances safety.
 - **Lowest Life-Cycle Costs:** Construction costs and maintenance requirements are lower than those of a bascule bridge.
 - **Lower Maintenance Costs:** The preferred results has an estimated \$17.2 million maintenance cost over 75 years, versus the low and mid-level bridges.
 - **Improved Hurricane Evacuation Response Times:** A fixed bridge eliminates delays associated with bascule bridge openings, providing uninterrupted vehicular movement during emergency evacuations.

The High-Level Fixed Bridge as the Preferred Alternative represents a long-term, low-maintenance, and safe solution that improves multi-modal transportation options, reduces operational disruptions for marine traffic, and meets the project’s structural, operational, and safety objectives.

6.0 AGENCY COORDINATION & PUBLIC INVOLVEMENT

6.1 Agency Coordination

This PD&E study was formally entered into the Programming Screen phase of the FDOT ETDM Environmental Screening Tool (EST) for agency review (ETDM Project No.: 14382). The Environmental Technical Advisory Team (ETAT), composed of representatives from federal, state, and local agencies, reviewed the submitted project information and provided input on potential environmental, social, and regulatory concerns.

The ETAT's comments were documented in the ETDM Programming Screen Summary Report, published on June 11, 2020, which identified a degree of effect for each environmental element.

These degrees of effect helped to:

- Scope the PD&E study appropriately
- Guide detailed environmental analysis
- Inform early project development decisions

All ETAT members were invited to participate in public meetings to ensure ongoing collaboration. In addition, local, state, and national interest groups or organizations with a direct or expressed interest in the project were identified. Throughout the study, as additional concerned public interest organizations were identified, they were also added to the contact list and included in project coordination efforts.

This comprehensive agency coordination process ensured that all relevant stakeholders had the opportunity to provide input, facilitated early identification of potential environmental or social constraints, and supported transparent and well-informed decision-making during the development of the Longboat Key Bridge replacement alternatives. During the PD&E Study, presentations were provided to the Town of Longboat Key Board of County Commissioners (BOCC), Manatee County BOCC, Island Transportation Planning Organization (ITPO) and the Sarasota/Manatee MPO.

Coordination with other key agencies is summarized below:

- FDOT and USCG coordination meeting on October 13, 2020, to discuss approach to the Navigation Impact Study and Impact Report.
- FDOT and USCG coordination meeting on August 23, 2021, to discuss conducting in-person boat surveys to receive approval from USCG for the proposed vertical clearance.
- FDOT and USCG coordination meeting on January 10, 2022, to provide a brief summary of data collection efforts and discuss delaying further vessel surveys until peak season resumes.

- FDOT and Manatee County meeting on March 7, 2023, to discuss concerns with the location of the proposed park entrance as it bypasses the Marine building. Manatee County also asked that the Artificial Reef Program be kept in mind when disposing of material.
- FDOT and Manatee County meeting on April 19, 2023, to discuss moving the proposed intersection to address concerns with allowing traffic to use the current gated road as a through road.
- FDOT and Manatee County meeting on September 25, 2025, to discuss the addition of an emergency signal at the entrance to the Manatee County Marine Rescue Center.

FDOT will send the project’s Natural Resources Evaluation (NRE) to the U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (EPA), National Marine Fisheries Service (NMFS), USACE, FWC, SWFWMD, FDEP, and Florida Department of Agricultural and Consumer Services (FDACS) for review and comments.

Agency meeting minutes are provided in **Appendix E**.

6.2 Public Involvement

6.2.1 Public Involvement Plan (PIP)

A Public Involvement Plan (PIP) (September 2020), which is included in the project file, was implemented as part of this PD&E study to ensure meaningful engagement with the community, stakeholders, and agencies throughout the project.

The PIP was implemented at the start of the PD&E phase and included:

- Identification of stakeholders, agencies, residents, and other interested parties for inclusion on the project mailing list
- A variety of outreach techniques to ensure broad public awareness and participation, including the establishment of a project website, distribution of newsletters, hosting an alternatives workshop, and conducting a formal public hearing
- Continuous opportunities for the public to provide input and feedback, which were documented and considered in the evaluation and selection of bridge alternatives

The PIP is maintained as part of the study file, and the following sections summarize the public involvement efforts conducted to support the development of the proposed roadway and bridge improvements. Public involvement in this study has been a key component in shaping project decisions, ensuring that the selected alternatives reflect both community priorities and engineering, environmental, and safety considerations.

6.2.2 Public Involvement Activities

Multiple notification methods were employed to maximize public awareness and participation:

- Four newsletters were prepared and mailed to the public in June 2020, March 2021, February 2024, and March 2026 respectively. These newsletters were also posted on the project website for easy access by the general public. A copy of Newsletter #1, #2, #3 and #4 is maintained in the project files as part of the Public Involvement Summary Report.
- Direct email notifications were sent to elected and appointed officials, key stakeholders, and local agency representatives to ensure they were informed of the study status and outreach opportunities.
- Mailed hard copies were sent to property owners located within a minimum 400-foot buffer along both sides of S.R. 789 to ensure nearby residents and businesses were aware of the study and engagement opportunities.

An online and live, in-person project kick-off meeting was conducted on March 16 – April 2, 2021 and March 23, 2021, respectively. The in-person component was held at the Harbourside Ballroom, located at 3000 Harbourside Ballroom, Longboat Key, Florida. The meeting served as an opportunity to present preliminary project information, explain study objectives, discuss the planning process, and outline opportunities for public involvement. Attendees were encouraged to ask questions, provide comments, and submit feedback regarding the study corridor, the existing bridge, and potential replacement alternatives.

Within 10 days of the meeting, 140 comments were received. These comments were categorized to capture key concerns and feedback from the public, and included:

- Traffic Concerns: Issues related to congestion, specifically at Coquina Beach and the bottleneck at the Bridge Street circle in Bradenton Beach.
- Safety Concerns: Focused on pedestrian and bicyclist safety when crossing the bridge and ensuring the proposed typical section includes adequate bike and pedestrian facilities.
- Bridge Height Concerns: Questions regarding boat clearance under a new bridge and concerns about accommodating larger vessels.
- Support for Project: General support for constructing a new bridge or implementing improvements.
- Non-support for Project: Opposition to a new bridge, citing concerns such as cost or perceived lack of need.
- Other Concerns: Including noise, environmental impacts, visual obstruction, privacy issues, requests for “no fishing” signage, ADA compliance (including motorized wheelchair access), and speeding concerns.

The feedback from the Kick-off Meeting provided early insight into public priorities, highlighted issues requiring further evaluation, and informed the development of Build Alternatives that balanced engineering feasibility, community preferences, and environmental considerations.

Subsequently, an online Alternatives Public Workshop was held on March 12, 2024 and an in-person Alternatives Public Workshop was held at Christ Church in Longboat Key on March 14, 2024.

Within 10 days of the workshop, 124 comments were received, summarized as follows:

- 34 individuals expressed support for one of the Build Alternatives
- 55 individuals expressed support for the No-Build (“Maintenance-Only”) Alternative
- 36 individuals did not state a preference for either alternative

In addition to these preferences, public comments addressed several key topics:

- Purpose and Need of the project
- Evaluation of No-Build versus Build Alternatives
- Bridge size, design, and alignment
- Bicycle and pedestrian accommodations
- Environmental impacts, including natural habitats and waterway considerations
- Aesthetic concerns and visual impacts
- Lighting and noise considerations
- Other issues, including recreational use of the existing bridge, requests for additional analysis, and inquiries about costs and funding

The feedback collected during the Alternatives Public Workshop played a critical role in refining the bridge replacement alternatives, ensuring that the selected Preferred Alternative would address both engineering requirements and community priorities. Detailed documentation of the workshop, including all public comments and responses, is included in the Public Involvement Summary Report, which is part of the project file.

All public meetings held during the study provided opportunities for the public to review project information, ask questions, and provide input regarding the proposed alternatives. Attendees were encouraged to submit written and emailed comments, which have been carefully documented and considered throughout the study process. A total of 288 written and emailed comments were received. The distribution of public preference is summarized as follows:

- Support for Build Alternatives: 74 people (25.7%)
- Support for the No-Build Alternative: 65 people (22.6%)
- No preference expressed for either alternative: 149 people (51.7%)

Analysis of the comments received reveals several key themes that have influenced the development and refinement of the project alternatives:

1. **Environmental Considerations:** Many respondents expressed concern regarding potential impacts to sensitive coastal habitats, wetlands, and local wildlife. These comments highlighted the importance of minimizing ecological impacts in the design and construction of any bridge alternative.
2. **Multi-modal Transportation and Safety:** Numerous participants emphasized the need to accommodate pedestrians, bicyclists, and other non-motorized users through the provision of protected sidewalks and shared use paths. Safety improvements for all users, particularly along the bridge and adjacent corridors, were a recurring theme.
3. **Community and Access Impacts:** Residents and stakeholders raised questions about property access, traffic circulation, and potential ROW impacts, particularly at the north end of the bridge near Coquina Beach. Feedback related to maintaining access to parks, recreation areas, and community facilities was carefully considered.
4. **Support for Project Goals:** While opinions differed regarding the Preferred Alternative, many respondents expressed general support for improving bridge safety, reliability, and operational efficiency, acknowledging the importance of maintaining this critical connection between Longboat Key, Bradenton Beach, and Anna Maria Island.

The public input received has been instrumental in guiding the development of the three Reduced Build Alternatives presented in this study. The feedback helped ensure that environmental impacts are minimized, multi-modal transportation needs are addressed, and community priorities are incorporated into the project design.

6.3 Public Hearing

To be completed after the public hearing.

7.0 PREFERRED ALTERNATIVE

The 78-foot High-Level fixed bridge (reduced width) was selected as the Preferred Alternative. This section includes a description of design features of the Preferred Alternative. Concept plans for the Preferred Alternative are attached in **Appendix C** of this report.

7.1 Engineering Details of the Preferred Alternative

7.1.1 Typical Sections

The roadway typical section for the Preferred Alternative generally consists of a two-lane undivided roadway with two 11-foot-wide travel lanes, two 8-foot-wide outside shoulders, an 8-foot-wide barrier-protected sidewalk on the northbound side, and a 12-foot-wide SUP on the southbound side. The typical section package for the study is included in **Appendix A** of this report. The Preferred Alternative consists of three distinct typical sections, described as follows:

1. Northbound Approach to the Bridge

- Undivided two-lane section with two 11-foot-wide travel lanes.
- 5-foot-wide paved outside shoulders adjacent to each travel lane.
- Curb and gutter outside of the shoulders.
- Six-foot-wide sidewalks provided on both sides of the roadway.

2. Bridge Typical Section

- Undivided two-lane section with 11-foot-wide travel lanes.
- 8-foot-wide outside shoulders in each direction.
- Northbound: 36-inch single-slope traffic railing separates the travel lane from an 8-foot-wide sidewalk; a 27-inch concrete parapet with pedestrian/bicycle railing is provided along the outer edge.
- Southbound: 36-inch single-slope traffic railing separates the travel lane from a 12-foot-wide shared use path; a 27-inch concrete parapet with pedestrian/bicycle railing is provided along the outer edge.

3. Southbound Approach to the Bridge

- Divided two-lane section with two 11-foot-wide travel lanes per direction.
- A 14.5-foot raised median separates northbound and southbound lanes, with curb and gutter in each direction.
- Each travel direction has an 8-foot outside shoulder.
- Northbound: Shoulder separated from an 8-foot-wide sidewalk by a 36-inch single-slope traffic railing.
- Southbound: Shoulder separated from a 12-foot-wide SUP by a 36-inch single-slope traffic railing.
- 27-inch concrete parapet with pedestrian/bicycle railing along the outside edge of each roadway direction.

No changes to the Coquina Park Entrance intersection are proposed with the bascule 'Build' Alternatives, however the Coquina Park Entrance is proposed to shift further north with a High-

Level fixed Bridge Alternative, in order to accommodate the touch-down point of the proposed bridge toward the northern extent of the project limits.

7.1.2 Access Management

S.R. 789 is classified by FDOT as Access Class 7. The current access classification is proposed to remain unchanged. The driveways to the south of the bridge are to be maintained with proposed construction tying into the existing. On the north side of the bridge, the access to Coquina Beach Park is to be shifted approximately 500 feet to the north where the proposed bridge will touch down back to existing grade. Driveway access for the Manatee County Marine Rescue is to remain as it is in the existing condition. In the proposed condition, traffic will be able to pass underneath the Longboat Key Bridge as they currently do in the existing condition, to allow access to both sides of the Coquina Beach Park.

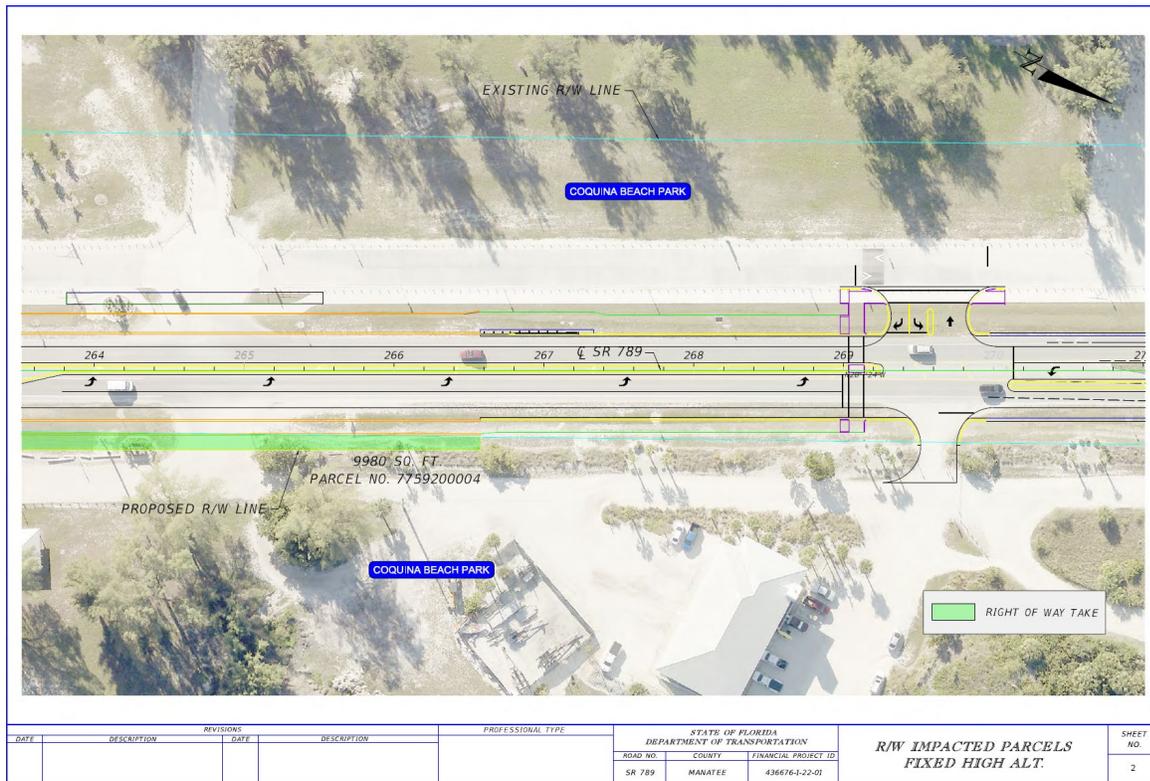
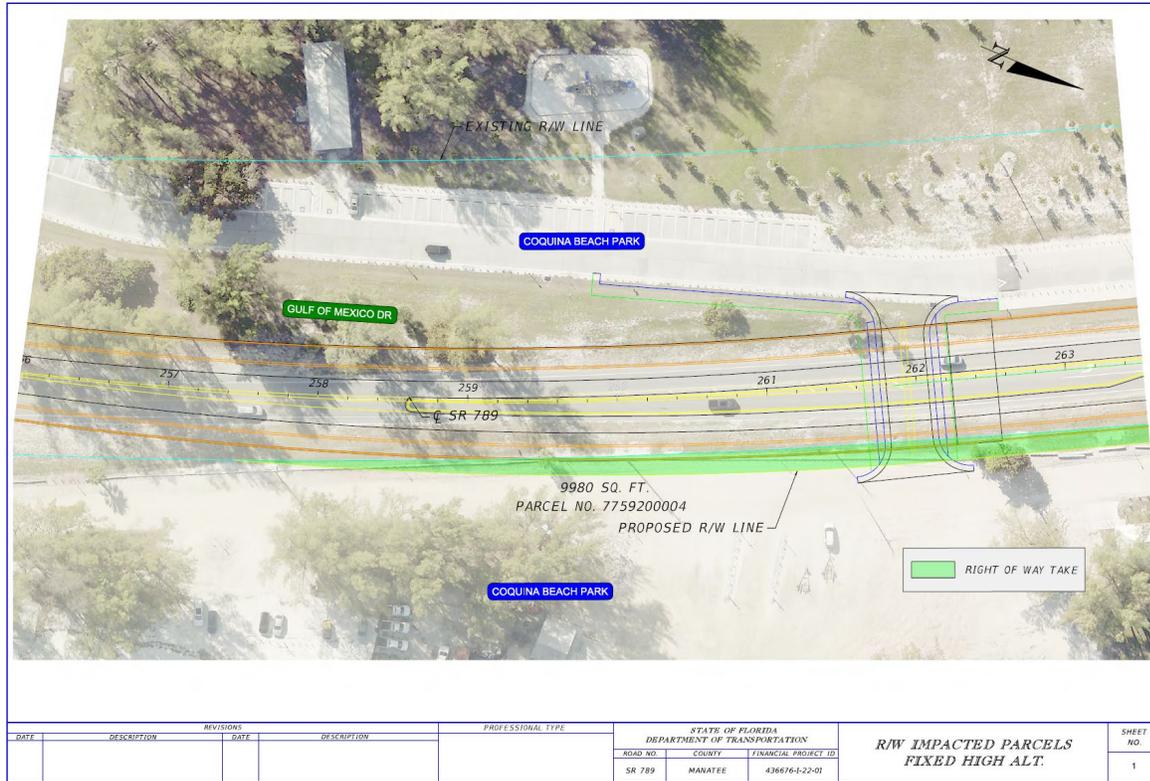
7.1.3 Right-of-Way

The proposed alignment generally remains within the existing S.R. 789 ROW, minimizing property impacts and ROW acquisition. The only exception occurs along the north end of Longboat Key on the east side of the alignment, where additional ROW is required to accommodate the Mechanically Stabilized Earth (MSE) wall and provide adequate space for inspection and maintenance access. The project will impact one parcel within the study area, a Manatee County owned property (**Table 7-1**). This parcel is currently under county ownership. FDOT will have to pay for the parcel or enter into an agreement with the county to acquire this parcel. Any construction or temporary easements affecting the parcel will be coordinated with the appropriate county authorities to minimize disruption and maintain continuity of county operations and services. This ROW impact area is illustrated in **Figure 7-1**.

Table 7-1 Affected Parcels

Affected Parcels		
Property Owner/ID	Size	Cost
Manatee County/7759200004	9,980 sq ft (0.23 acres)	Not applicable/County land

Figure 7-1 Preferred Alternative, High-Level Fixed, Right-of-Way Impact



7.1.4 Horizontal and Vertical Geometry

The horizontal and vertical geometry of the Preferred Alternative has been developed to meet FDM standards for a design speed of 35 MPH and context classification C3R (Suburban Residential). The alignment has been designed to provide safe, efficient, and comfortable travel for motorists, bicyclists, and pedestrians while minimizing impacts to existing ROW, adjacent properties, and environmental resources.

The horizontal alignment for the Preferred Alternative includes four normal-crowned ($Se = 0.02$) horizontal curves within the project limits, designed to achieve proper sight distance and lateral clearance. The geometric design balances the need for smooth transitions, structural efficiency, and visual aesthetics appropriate to the coastal setting. A summary of the key horizontal curves is provided in **Table 7-2**, and plan sheets depicting the proposed geometry are included in **Appendix C**.

The vertical geometry was designed to achieve a minimum 78-foot vertical clearance above Mean High Water (MHW) for marine navigation while maintaining acceptable roadway grades for vehicles, pedestrians, and bicyclists. Approach grades have been optimized to meet ADA accessibility and FDM criteria, ensuring that longitudinal slopes do not exceed 4.5% in pedestrian areas and that vertical curvature provides appropriate sight distance and driver comfort.

The preliminary profile for the Preferred Alternative was developed using available LiDAR data and will be finalized during the design phase using topographic information certified by a Florida Licensed Professional Surveyor and Mapper (PSM). The vertical profile was evaluated to ensure compatibility with existing roadway tie-ins, hydraulic requirements, and bridge structural depth.

Table 7-2 Proposed Horizontal Alignment

Curve No.	Baseline PI Station	Bearing Back	Bearing Ahead	Degree of Curvature	Radius	Length
1	227+04.85	N 02° 09' 37" E	N 21° 11' 23" W	04° 14' 39"	1,350.00 ft	541.01 ft
2	232+67.84	N 20° 48' 02" W	N 24° 34' 12" W	00° 38' 12"	9,000.00 ft	592.11 ft
3	238+29.37	N 24° 34' 12" W	N 21° 11' 23" W	00° 38' 12"	9,000.00 ft	531.01 ft
4	251+94.97	N 21° 11' 23" W	N 13° 40' 33" W	01° 18' 08"	4,400.00 ft	577.00 ft
5	258+35.48	N 13° 40' 33" W	N 28° 01' 24" W	02° 02' 47"	2,800.00 ft	701.14 ft

7.1.5 Design Variations and Design Exceptions

There are two anticipated design variations for lane width and shoulder width for the Preferred Alternative. Per FDOT direction provided by Kevin Engle on 8/1/2024, the Study Team was advised to use 11-foot-wide lanes on the proposed bridge although 12-foot-wide lanes are the standard. See **Table 4-1**. The shoulder width is 8-foot-wide, but it should be 10-foot-wide for normal and high volume roadways, according to FDM Figure 260.1.2. The reduced shoulder width is proposed to help reduce the typical section footprint.

7.1.6 Multi-modal Accommodations

The Preferred Alternative includes a 12-foot-wide SUP on the west side of the roadway and an 8-foot-wide sidewalk on the east side for the full length of the project, improving pedestrian and bicycle mobility throughout the corridor. No impacts to existing transit or truck routes are anticipated within the project limits. Overall, the project enhances multi-modal connectivity by providing continuous, full-width pedestrian and bicycle facilities along S.R. 789.

7.1.7 Intersection/Interchange Concepts and Signal Analysis

The concept plans depicting the intersection layouts and configurations for the Preferred Alternative are included in **Appendix C** of this report. These plans illustrate the proposed modifications to intersection geometry, access management, pedestrian connectivity, and multi-modal safety features along the S.R. 789 corridor within the project limits.

Under the Preferred Alternative, the existing driveway connection will be modified to a minor street stop proposed at approximately Station 270+00, adjacent to the Manatee County Beach Patrol facility on the east side of S.R. 789. Currently, only a single driveway provides access to the Beach Patrol facility. The proposed improvement moves a corresponding access point to Coquina Beach on the west side of S.R. 789, thereby creating a full unsignalized intersection to enhance circulation and operational efficiency.

To improve multi-modal connectivity and user safety, a new marked pedestrian crosswalk is proposed across the south leg of this intersection. The crosswalk will be designed in accordance with FDM Chapter 231, providing appropriate pavement markings, signage, and sight distance. The pedestrian crossing will connect the 12-foot-wide SUP on the west side of the bridge to the 8-foot-wide sidewalk on the east side, thereby facilitating safe access between Coquina Beach and the Manatee County Beach Patrol.

This new intersection will replace the existing full unsignalized intersection at the Coquina Beach South Entrance, which will be removed as a result of the high-level fixed bridge configuration. The elevated bridge structure precludes direct surface-level access to this location. To maintain vehicular and pedestrian connectivity between Coquina Beach and the Manatee County Beach Patrol, a new underbridge connection is proposed at approximately Station 262+00.

The proposed underbridge connection will provide safe access for maintenance vehicles, emergency response, and pedestrians, enhancing circulation between the two public facilities. This configuration also consolidates access points to improve traffic flow and reduce potential conflict points along S.R. 789, consistent with FDOT Access Management Class 7 standards. This will be the only way to access the Bayside Park/fishing area/boat ramp.

A signal warrant analysis was not performed at this stage, as traffic volumes and projected operational characteristics do not currently indicate the need for signalization, according to the PTAR (January 2023). The PTAR stated that a traffic signal was not warranted and if volumes grew large enough the intersection could accommodate signalization. However, the proposed design allows for future signalization should traffic or pedestrian volumes increase to meet the

criteria established in the Manual on Uniform Traffic Control Devices (MUTCD) and FDOT Traffic Engineering Manual.

The intersection and access management improvements incorporated into the Preferred Alternative are intended to enhance operational safety, maintain efficient traffic flow, and provide equitable access for all users, including pedestrians, bicyclists, beach patrons, emergency responders, and maintenance personnel.

7.1.8 Tolled Projects

This is not applicable to the project.

7.1.9 Intelligent Transportation System (ITS) and TSM&O Strategies

The following ITS/TSM&O strategies are to be included in the Preferred Alternative:

Bridge Conduit along the entire length of the new S.R. 789 Preferred Alternative High Level Fixed Span Bridge Reduced, include within the conduit 144 or higher SM Fiber Optic Cable (FOC), at both ends of bridge provide Splice Vaults and supporting FOC/ITS infrastructure.

Closed-Circuit Television (CCTV) cameras to monitor traffic conditions along bridge structure evacuation route. CCTV supporting communication - If no FOC is available, provide other forms of communication such as cellular dial up until 144 or higher SM FOC network connection can be provided as part of another project.

With the above limited ITS/TSM&O items to incorporate and this being an evacuation route, it is unlikely a Systems Engineering analysis would be required by FHWA.

In addition, other ITS/TSM&O strategies were discussed such as Arterial Dynamic Message Signs (ADMS) but it was decided at this time to have ADMS and other ITS/TSM&O strategies incorporated as part of another project.

7.1.10 Landscape

Landscaping features will be considered in the Design phase.

7.1.11 Lighting

Where applicable, Wildlife-Sensitive Conventional Lighting from the FDOT Approved Products List will be utilized. Lighting features will be considered in the Design phase.

7.1.12 Wildlife Crossings

This is not applicable to the project.

7.1.13 Permits

The implementation of the Preferred Alternative will require multiple federal and state environmental permits to ensure full compliance with applicable wetland, coastal, and navigational regulations prior to the commencement of construction activities. These permits are critical to ensure that project impacts are minimized, properly mitigated, and consistent with environmental protection standards.

At the federal level, several agencies will oversee and authorize activities within the project area:

- The USCG regulates the construction of bridges over navigable waters. In accordance with 33 CFR Parts 114–118, a USCG Bridge Permit will be required for the proposed bridge structure. As the lead federal permitting authority, the USCG will ensure that the bridge meets navigational clearance requirements and complies with the Coastal Zone Management Act of 1972 and the Coastal Barrier Resources Act of 1982.
- The USACE is anticipated to evaluate the project under Nationwide Permit 15 for USCG-approved bridges, which provides the necessary Section 10 and Section 404 authorization for USCG-approved bridge construction and associated in-water work.

At the state level, the project will require coordination and permits from the following agencies:

- The SWFWMD will require an Individual Environmental Resource Permit (ERP) to address dredge-and-fill activities, stormwater management, and other water resource impacts. The ERP is also expected to authorize the use of SSL where state-owned submerged lands are affected by the project.
- Because portions of the Preferred Alternative extend seaward of the CCCL, a CCCL Administrative Permit from the Florida Department of Environmental Protection (FDEP) will be required pursuant to Chapter 62B-33, Florida Administrative Code. This permit will address coastal construction considerations, including sea-turtle-friendly lighting, dune preservation, shoreline stability, and hurricane-resistant design criteria.
- Additionally, an FDEP National Pollutant Discharge Elimination System (NPDES) Construction Generic Permit will be required for any land-disturbing activities exceeding one acre. This permit ensures compliance with stormwater pollution prevention requirements, protecting water quality during the construction phase.

Overall, coordination with federal and state agencies throughout the permitting process will ensure that the project meets all regulatory requirements, protects natural resources, and mitigates environmental impacts to the greatest extent practicable.

7.1.14 Drainage and Stormwater Management Facilities

The Preferred Alternative has been designed to address stormwater management primarily for water quality treatment, as water quantity control is not a project design criterion. The stormwater management system will be designed to provide sufficient treatment volume to achieve 95% removal of nitrogen and phosphorus from stormwater runoff prior to discharge into the Gulf of Mexico, thereby protecting local water quality and marine ecosystems.

The required treatment volume for the system will be calculated based on runoff generated from newly constructed impervious areas associated with the project, including roadway surfaces, sidewalks, and other impervious infrastructure. These calculations will ensure that the stormwater management facilities are appropriately sized to meet regulatory water quality treatment requirements.

Given the constraints of the available ROW within the project corridor, the stormwater management system (proposed treatment is within the existing ROW) will consist of two primary components:

- Southern End of Project:** A small dry swale will be constructed to treat runoff at the southern portion of the project. This swale will provide localized water quality treatment by facilitating sedimentation and nutrient uptake before stormwater is discharged to the receiving waters.
- Northern End of Project:** A dry retention pond will be implemented at the northern end of the project to accommodate the required treatment volume. The pond will temporarily retain stormwater, allowing for sedimentation and nutrient removal before controlled discharge.

Figure 7-2 summarizes the available storage volumes within these on-site stormwater treatment facilities, illustrating the system’s capacity to meet the specified water quality treatment goals.

Overall, the proposed drainage and stormwater management facilities are designed to effectively mitigate potential water quality impacts from the project while complying with all applicable federal, state, and local stormwater regulations.

Figure 7-2 Pond Stage Storage

Maximum Storage Depth (SD) =	0.75	1.0 ft freeboard	
Water Table (MHW)	0.25		
Avg. Exist. Ground Elev. (ft) =	3.00		
Pond Bottom (ft) =	1.25		
Minimum EOP Elevation (ft) =	3.90		

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
3.00	Back of Maintenance Berm	3.03	NA
3.00	Front of Maintenance Berm	3.03	5.10
2.00	Available Treatment Volume	2.90	2.14
1.25	Pond Bottom	2.80	0.00

Using the Best Management Practices, BMPTrains model, the required treatment volume to achieve 95% removal of nitrogen and phosphorus is 2.14 acre-feet. The proposed dry facilities provide sufficient storage to meet this requirement. Detailed nutrient removal calculations are provided in the project’s Pond Siting Report.

Based on soil parameters obtained from the USDA Soil Survey, pond recovery is not anticipated to be an issue. During the design phase, once site-specific geotechnical data is available, pond recovery calculations will be performed to confirm this assumption. If recovery requirements cannot be met, underdrains may be incorporated into the final design.

7.1.15 Floodplain Analysis

The only FEMA floodplain the project crosses is associated with Sarasota Bay, crossing an AE zone (EL 11.0 North American Vertical Datum (NAVD)). The bridge is adjacent to a VE zone (EL 13.0 NAVD), but this should not impact on the project. Roadway widening may impact this floodplain, and compensation will be accounted for in the pond design. No portions of the project lie within a regulated floodway. The Location Hydraulic Report (November 2025) quantifies and evaluates floodplain impacts.

7.1.16 Bridge and Structure Analysis

The Preferred Alternative consists of a 78-foot High-Level Fixed Bridge designed to replace the existing Longboat Key Pass Bascule Bridge with a new fixed-span structure that meets current FDOT design criteria and USCG navigational requirements. The proposed bridge provides 78 feet of vertical clearance above the Gulf Intracoastal Waterway (GIWW), ensuring full accommodation of all existing and anticipated waterway users and eliminating the need for movable bridge operations. The new bridge will be constructed approximately 21 feet 6 inches west of the existing structure, allowing traffic to remain on the existing bascule bridge throughout construction and avoiding major traffic detours. The Preferred Alternative includes retaining walls instead of slope embankments to save right-of-way and construction cost. Sloped embankment would impact Coquina Beach Park and the condominiums.

The proposed structure utilizes the two-lane typical section presented in **Figure 5-5**. The bridge typical section includes two 11-foot-wide travel lanes, 8-foot-wide outside shoulders, a 12-foot-wide SUP on the west side, and an 8-foot-wide sidewalk on the east side. Both pedestrian and bicycle facilities are separated from traffic by crash-tested barrier protection. The resulting out-to-out width of the superstructure is 62 feet 8 inches.

The bridge superstructure consists of 20 simple spans, each 155 feet in length, resulting in a total bridge length of approximately 3,100 feet. The spans utilize Florida I-Beam (FIB) 72-inch prestressed concrete beams, selected for their structural efficiency, constructability, and suitability for long-span coastal applications. The proposed vertical profile accommodates the minimum 78-foot navigation clearance while maintaining the required roadway grades; the maximum roadway grade of approximately 4.5% meets ADA and FDOT requirements without necessitating flat landing areas on the sidewalk or SUP.

The reinforced concrete substructure consists of two-column piers with rectangular columns measuring 6 feet by 10 feet supporting rectangular pier caps measuring 6 feet by 7 feet.

Foundations for each pier will consist of 7-foot-thick pile caps supported by 24-inch prestressed concrete piles, designed to meet scour, vessel impact, and durability requirements for a coastal environment.

No utilities are anticipated to be attached to the new bridge structure, but utilities attached to the existing bridge will need to be relocated. Aesthetic treatments will be limited to architectural enhancements to the traffic and pedestrian railings and rustication of pier columns consistent with corridor context and FDOT aesthetic guidelines.

The existing bascule bridge is proposed to be removed. The construction cost of the Preferred Alternative is almost \$138 million for construction and \$154.5 million including Construction Engineering and Inspection (see **Table 7-3**).

7.1.17 Transportation Management Plan

The Transportation Management Plan outlines a phased construction approach designed to maintain two lanes of traffic at all times, thereby minimizing disruptions to motorists, adjacent properties, and overall corridor operations. Phase I will keep the existing two-lane traffic on its current alignment while crews construct a sufficient portion of the new southbound roadway and bridge to provide one operational southbound travel lane and associated shoulders for use in Phase II; this strategy ensures that early construction activities proceed without affecting current traffic operations. In Phase II, southbound traffic will be shifted onto the newly built southbound lane and bridge, allowing construction to advance on the remaining elements of the proposed bridge structure as well as the northbound roadway improvements. Phase III will then transition traffic onto the newly completed roadway and bridge to facilitate completion of the remaining northbound roadway work and the demolition and removal of the existing bascule bridge. Finally, Phase IV will focus on applying the final roadway friction course and installing the permanent pavement markings, completing the corridor's operational and safety enhancements.

Phasing details:

- **Phase I:** Keep existing two-lane traffic on its current alignment while constructing enough of the new southbound roadway and bridge to provide one southbound travel lane and shoulders for the next phase.
- **Phase II:** Shift southbound traffic onto the newly constructed southbound lane and bridge, allowing completion of the remaining proposed bridge structure and northbound roadway.
- **Phase III:** Move all traffic onto the newly completed roadway and bridge to finish the remaining northbound improvements and remove the existing bascule bridge.
- **Phase IV:** Complete the final roadway friction course and apply the permanent pavement markings.

7.1.18 Constructability

As described above for the S.R. 789 roadway and bridge segments where the new roadway footprint is along the existing alignment, Phase I will consist of traffic remaining on the existing two-lane roadway while the contractor builds the southbound lanes of the new bridge west of the existing bridge. Initial work on the stormwater pond should begin during this phase, and the majority of the pond excavation and embankment construction should be completed in Phase I, with only minor remaining work deferred to later phases.

Where necessary to prepare for Phase II transitions, temporary crossovers shall be constructed. During Phase II, southbound traffic will be shifted onto the newly constructed section to allow the contractor to complete the remaining bridge structure (eastern portion of the bridge) and roadway. Southbound traffic will be moved onto the newly constructed southbound bridge structure and embankment. Then the remaining bridge spans and structural elements will be completed. The new construction will tie into the existing roadway and bridge infrastructure as fully as possible.

Phase III will focus on completing the remaining northbound improvements and removal of the existing bascule bridge. In Phase III, all traffic will be shifted onto the newly constructed bridge sections. The existing bridge structure will be demolished. The remaining stormwater pond work will be completed, including final grading, stabilization, and functional tie-ins.

Phase IV will focus on completing the final roadway friction course and applying the permanent pavement markings. Temporary traffic control devices will remain in place as needed until final striping, delineation, and median construction are complete.

Subphases will be incorporated within each major phase to accommodate detailed intersection tie-in construction, maintain traffic operations, and safely sequence final roadway and structural connections.

7.1.19 Construction Impacts

Construction activities for the proposed project may cause minor short-term air quality, noise, water quality, traffic congestion, and visual impacts for nearby residents and the traveling public. The air quality effect will be temporary, localized, and will primarily be in the form of construction exhaust emissions and fugitive dust generated from equipment during project construction. Air pollution associated with the creation of airborne particles will be effectively controlled through the use of watering or the application of other controlled materials, and Best Management Practices to minimize or eliminate potential construction impacts.

The residences in the vicinity of the project are identified in the Highway Traffic Noise Chapter of the FDOT PD&E Manual as noise- and vibration-sensitive sites. Construction of the roadway improvements, with heavy equipment movement and other construction activities, is not expected to have a significant noise or vibration effect. Should unanticipated noise or vibration issues arise during the construction process, the Project Engineer, in coordination with a noise specialist and the contractor, will investigate additional methods of controlling these impacts.

Water quality impacts resulting from erosion and sedimentation will be controlled through the use of best management practices (BMP). All state water quality criteria will be met. Short-term construction related wetland impacts will be minimized with the use of BMPs such as the use of siltation barriers, dewatering structures, and containment devices to control turbid water discharges outside of construction limits. The project will adhere to the FDOT Standard Specifications for Road and Bridge Construction along with implementation of a Stormwater Runoff Control Concept.

MOT and sequence of construction will be planned and scheduled so as to minimize traffic delays throughout the project. Signage will be used as appropriate to provide pertinent information to the

traveling public. The local news media will be notified in advance of road closings and other construction related activities to allow for the planning of alternate routes. Access to local properties, businesses, and residences will be maintained to the extent practical through controlled construction scheduling and the implementation of the project's specific Traffic Control Plan(s). Aesthetic impacts will be temporary and could consist of the staging of construction equipment and materials.

7.1.20 Special Features

There are no special features in the project limits.

7.1.21 Utilities

Utility relocation is an important consideration for the Preferred Alternative, as the extent of required adjustments can have a significant impact on overall project costs, as discussed in **Section 5.4.17**. Within the project limits, TECO Peoples Gas maintains an existing 6-inch coated steel natural gas pipeline that runs north–south along the west side of S.R. 789. This pipeline extends beyond both limits of the project and remains subaqueous for the full length of the existing bridge. Based on FDOT Historical Item Average Costs, relocation of 6-inch steel pipe is estimated at approximately \$250 per linear foot. The Preferred Alternative requires approximately 2,900 linear feet of pipeline relocation, resulting in an estimated cost of \$725,000. Per the UAP Nov. 2025, there were no responses from the UAOs in regards to entering a utility work by highway contract agreement (UWHCA) with Manatee County. All UAOs were requested to provide a response. It is unknown at this time if this will be handled as a UWHCA, however, relocated utilities could be attached to the new bridge or be relocated subaqueous. The UAOs will determine this during the Design phase.

Available documentation has not confirmed whether all existing utilities within the corridor are located within recorded easements, public rights-of-way, or private property interests. Final responsibility for relocation costs will be determined during the Design phase upon completion of the Utility Coordination Process, which includes verification of easements, subsurface utility engineering (SUE) investigations, and review of compensable interest documentation consistent with FDOT Utility Accommodation Manual (UAM) requirements.

Table 2-13 provides a list of all UAOs with facilities within the project limits, including contact information, and references the Utility Assessment Package (UAP, November 2025), which was prepared under separate cover and is included in the project file.

7.1.22 Cost Estimates

More information regarding the Total Estimated Project Cost and LRE (March 2025) of the Preferred Alternative can be found in **Table 7-3** and in **Appendix D**.

Table 7-3 Total Estimated Project Cost (March 2025)

Evaluation Criteria	Preferred Alternative	No-Build Alternative
Right-of-Way Cost		
Right-of-Way Acquisition for Roadway	N/A (Manatee County)	\$0
Construction Cost		
Removal of Existing Structure	\$8,458,849	
Earthwork	\$1,319,265	
Roadway	\$1,878,923	\$0
Shoulders	\$661,513	
Drainage	\$1,295,690	\$0
Structures	\$81,620,826	\$0
Signing and Pavement Markings	\$17,746	\$0
Lighting	\$156,451	\$0
Total	\$86,950,412	
Mobilization and Maintenance of Traffic	\$23,041,859	\$0
Project Unknowns and Contingency	\$27,498,068	\$0
Total Construction Cost	\$110,142,271	\$0
Preliminary Estimate of Engineering Cost		
Design	\$4,500,000	\$0
Construction Engineering and Inspection (CEI)	\$9,794,499	\$0
Total Preliminary Estimate of Engineering Cost	\$14,294,499	\$0
Utility Relocation and Mitigation Cost		
Utility Relocation	\$725,000	\$0
Wetland Mitigation	TBD	\$0
Species Mitigation	TBD	\$0
Total Utility Relocation and Mitigation Cost	TBD	\$0
Total Project Costs	\$137,640,339*	\$0

* \$154 million including CEI

7.2 Summary of Environmental Impacts

7.2.1 Future Land Use

The Preferred Alternative is consistent with the Manatee County Comprehensive Plans and Future Land Use Maps (see **Figure 3-1**). The project area will continue to support recreation along with conservation and residential land uses. The project will maintain existing access to surrounding recreational uses.

7.2.2 Section 4(f)

Several publicly owned parks, recreation areas, and trails are located adjacent to the S.R. 789 (Longboat Key) corridor, including Coquina Beach Park, Coquina Bayside Park / Boat Ramp, Greer Island Park (Beer Can Island), and the Florida Circumnavigational Saltwater Paddling Trail. These resources are adjacent to or pass beneath the Longboat Key Bridge. See **Figure 7-3**.

Under the Preferred Alternative, the project will require a limited permanent ROW acquisition from the eastern edge of the Coquina Bayside Park / Boat Ramp totaling approximately 9,980 square feet (0.23 acres) to accommodate a maintenance easement associated with the proposed bridge and roadway improvements. The area of proposed acquisition consists of a narrow grassy strip located east of S.R. 789 adjacent to the roadway that does not contain designated park amenities and is not intended for public access or recreational use. The affected area does not support active or passive recreation, trails, shoreline access, or programmed park facilities. As a result, the permanent acquisition will not reduce public access, displace recreational activities, or diminish the functionality of Coquina Bayside Park / Boat Ramp. Accordingly, the proposed use is not expected to result in substantial harm to the activities, features, or attributes that qualify the park for protection under Section 4(f).

Public access to all park and recreation facilities will be maintained throughout construction and following project completion. Any temporary occupancies associated with the project are expected to be short-term, limited in scope, and will not adversely affect the activities, features, or attributes that qualify these resources for Section 4(f) protection. No project activities are anticipated to impact Coquina Beach Park, Greer Island Park, or the Florida Circumnavigational Saltwater Paddling Trail on either a temporary or permanent basis, and no proximity effects are expected to result in substantial impairment. Section 4(f) determinations are currently pending; however, based on the Preferred Alternative and avoidance measures, the anticipated findings are “programmatic” in accordance with Nationwide Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with Minor Involvements with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges for Coquina Bayside Park / Boat Ramp and “no use” for Coquina Beach Park, Greer Island Park, and the Florida Circumnavigational Saltwater Paddling Trail.

Land trails in the project area include the Coquina Beach Trail (existing SUN Trail), and the Longboat Key Trail (unfunded gap of the SUN Trail) but these resources qualify as “exceptions/exemptions” to Section 4(f) protection since their primary purpose is for transportation.

7.2.2.1 Section 6(f)

Coquina Beach Park contains land improved with Land and Water Conservation Fund (LWCF) assistance; however, the proposed project will not result in a Section 6(f) conversion, as no permanent or temporary use of LWCF-assisted land or facilities will occur and public recreational access and function will be fully maintained during and after construction.

Figure 7-3 Section 4(f) Properties



7.2.3 Cultural Resources

A Cultural Resource Assessment Survey (CRAS) was conducted in August 2024 for the proposed improvements and submitted to the State Historic Preservation Officer (SHPO). The CRAS, included under separate cover in the project file, identified one archaeological site and eleven historic resources within the Area of Potential Effects (APE). Background research and field survey results indicate no significant archaeological sites within the APE; Site 8MA02599 lacks sufficient information to determine eligibility for listing in the National Register of Historic Places (NRHP). Of the historic resources identified, most have been altered and are not considered significant examples of a particular type, period, or method of construction. The Longboat Key Bridge (8MA01807) remains ineligible for NRHP listing, while the ca. 1936 Frame Vernacular Mayers House (8MA01155) is NRHP-eligible under Criterion A. Project alternatives were designed to avoid adverse effects, and the CRAS recommended a “no adverse effect” determination for all NRHP-eligible properties. FDOT notified SHPO of this finding on April 15, 2025, and SHPO concurred on May 13, 2025.

7.2.4 Wetlands

For the Preferred Alternative, anticipated impacts include 0.11 acres of jurisdictional mangrove wetlands, consisting of 0.02 acres from pile installation and 0.09 acres from shading associated with the overhead bridge structure. Impacts to seagrass resources total 0.15 acres of continuous and discontinuous seagrass beds, with 0.01 acres from pile installation and 0.14 acres from shading. Additionally, 0.35 acres of surface waters, consisting of unconsolidated bottom and the water column within Longboat Pass and the tidal embayment south of Greer Island will be impacted by pile installation, and 1.34 acres will be affected by shading. A Uniform Mitigation Assessment Method (UMAM) analysis was conducted to evaluate functional losses associated with these impacts. The Preferred Alternative is estimated to result in 0.06 estuarine forested units of functional loss for mangrove wetlands, 0.05 functional units for seagrass habitat, and 0.63 functional units for surface waters, including the unconsolidated bottom and water column of Longboat Pass and the adjacent tidal embayment connected to Sarasota Bay.

The project study area is within the service areas of the Nature Coast Mitigation Bank and the Long Bar Pointe Mitigation Bank, both of which provide compensatory mitigation for estuarine forested (mangrove) wetlands. It is anticipated that seagrass mitigation will be accomplished via permittee-responsible mitigation through District One’s Skyway Wave Attenuation Devices (WADs) project. Details are provided in the NRE (November 2025), prepared under separate cover and included in the project file.

FDOT will continue to monitor wetland mitigation bank credit availability as the project proceeds to the design phase. FDOT will address all state and federal permitting requirements and provide appropriate compensatory wetland mitigation for final determination of jurisdictional wetland boundaries in future phases of this project. Wetland impacts resulting from the construction of this project will be mitigated pursuant to Section 373.4137, Florida Statutes (F.S.), to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. § 1344. Mitigation for this

project will be completed through the use of mitigation banks and any other mitigation options that satisfy state and federal requirements.

7.2.5 Protected Species and Habitat

The project study area was evaluated for potential occurrences of federal and state protected plant and animal species in accordance with Section 7 of the Endangered Species Act of 1973, as amended, and Chapters 5B-40 and 68A-27 of the F.A.C. The evaluation included literature and database reviews, as well as field assessments of the project study area to identify the potential occurrence of protected species and/or presence of federal-designated Critical Habitat (CH). The proposed project has potential to involve several state and/or federally listed protected species and their habitats. These species and their anticipated involvement are identified in the NRE (November 2025) provided under separate cover and included in the project file.

Based on evaluation of collected data and field reviews, the federal and state listed species in **Table 7-4** and **Table 7-5** were observed or were determined to have the potential to occur within or adjacent to the project area. An effect determination was made for each of these federal and state listed species based on an analysis of the potential impacts of the proposed project on each species. The project is located within the NMFS-designated proposed CH for the green sea turtle (*Chelonia mydas*) and the USFWS-designated proposed CH for the rufa red knot (*Calidris canatus rufa*). The project area also falls within USFWS-designated nesting beach CH for the loggerhead sea turtle. The Preferred Alternative will impact 0.01 acres of loggerhead sea turtle nesting beach CH, which is approximately 0.009% of the total terrestrial CH in Longboat Key. This impact represents a very small fraction of the designated CH for this species in the project vicinity and does not diminish the overall value of the CH as a whole for the conservation of the loggerhead sea turtle. Therefore, the Preferred Alternative “will not result in destruction or adverse modification” of CH for the loggerhead sea turtle.

Table 7-4 Federally Protected Species Impact Determinations

Project Effect Determinations	Federally Listed Species
No Effect	BIRDS
	Florida scrub-jay (<i>Aphelocoma coerulescens</i>)
	Eastern black rail (<i>Laterallus jamaicensis ssp.</i>)
	REPTILES
	American crocodile (<i>Crocodylus acutus</i>)
	PLANTS
	Pygmy fringe-tree (<i>Chionanthus pygmaeus</i>)

Project Effect Determinations	Federally Listed Species
No Effect	LICHENS
	Florida perforate cladonia (<i>Cladonia perforata</i>)
May Affect, Not Likely to Adversely Affect	BIRDS
	Wood stork (<i>Mycteria americana</i>)
	Piping plover (<i>Charadrius melodus</i>)
	Rufa red knot (<i>Calidris canatus rufa</i>)
	RETTILES
	Hawksbill sea turtle (<i>Eretmochelys imbricata</i>)
	Loggerhead sea turtle (<i>Caretta caretta</i>)
	Green sea turtle (<i>Chelonia mydas</i>)
	Leatherback sea turtle (<i>Dermochelys coriacea</i>)
	Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)
	Eastern indigo snake (<i>Drymarchon corais couperi</i>)
	FISH
	Gulf sturgeon (<i>Acipenser oxyrinchus desotoi</i>)
	Smalltooth sawfish (<i>Pristis pectinata</i>)
	Giant manta ray (<i>Mobula birostris</i>)
MAMMALS	
West Indian manatee (<i>Trichechus manatus</i>)	

Table 7-5 State Protected Species Impact Determinations

Project Effect Determinations	State Listed Species
No Adverse Effect Anticipated	BIRDS
	Black skimmer (<i>Rynchops niger</i>)
	Snowy plover (<i>Charadrius nivosus</i>)
	Least tern (<i>Sternula antillarum</i>)
	Little blue heron (<i>Egretta caerulea</i>)
	Reddish egret (<i>Egretta rufescens</i>)
	Tricolored heron (<i>Egretta tricolor</i>)
	Roseate spoonbill (<i>Platalea ajaja</i>)
	American oystercatcher (<i>Haematopus palliatus</i>)
	REPTILES
	Gopher tortoise (<i>Gopherus polyphemus</i>)
No Effect Anticipated	BIRDS
	Florida sandhill crane (<i>Grus canadensis pratensis</i>)
	PLANTS
	Sanibel lovegrass (<i>Eragrostis pectinacea</i> var.)
	Florida loosestrife (<i>Lythrum flagellare</i>)

7.2.6 Essential Fish Habitat

The proposed project is within the Gulf of Mexico Fishery Management Council’s (GMFMC) area of jurisdiction. EFH within the project area includes Longboat Pass, an inlet connecting estuarine waters within Anna Maria Sound and Sarasota Bay to marine waters of the Gulf of Mexico. Seagrasses and mangroves are present within the project study area, but no shellfish habitat is identified within the study area. All wetland impacts will be mitigated to achieve no net loss of wetland and EFH function. Due to the nature of the project, no populations of any of the fifty-five managed species listed by the GMFMC are expected to be adversely affected by the proposed project. The project is therefore anticipated to have “**minimal**” potential adverse effects on EFH.

7.2.7 Highway Traffic Noise

A Noise Study Report (August 2025) was conducted for the proposed improvements under separate cover and is included in the project file. According to the Noise Study Report, within the project limits, 56 receptors were evaluated using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM). The 56 receptors represent 31 residences and eight recreation uses. The results of the analysis indicate that future build, design year traffic noise levels with the Preferred Alternative are not predicted to approach, meet, or exceed the Noise Abatement Criteria (NAC) for any of the Activity Category B (residences) or Activity Category C (recreation) land uses. Additionally, when compared to existing traffic noise levels, the largest increase with the proposed alternative is 3.5 decibels on the A-weighted scale, or dB(A), an amount that is not considered a substantial increase. Since traffic noise levels are not predicted to approach, meet, or exceed the NAC, nor are they predicted to increase substantially, the consideration of noise abatement measures is not warranted.

7.2.8 Contamination

A Level-I contamination evaluation was completed for the project and a Contamination Screening Evaluation Report (CSER) (July 2025) was prepared under separate cover and is included in the project file. Two sites were investigated for facilities or operations that may present the potential for involvement with hazardous materials, and therefore may impact the proposed improvements for this project. One site (Longboat Key Bridge Tender Facility) was assigned a rating of High Risk, and the other (Coquina Beach Boat Launch) was assigned a rating of No Risk. Because of leaking polychlorinated biphenyls laden oil, asbestos containing material, and metal-based coatings have been confirmed on the bridge, the Risk Rating for the tender facility is **High Risk**. For the site rated No Risk, no further action is planned. This site has been evaluated and determined not to have any potential environmental risk to the study area at this time. See **Table 7-6**.

For the site rated High Risk, the Project Manager (PM) and the District Contamination Impact Coordinator (DCIC) will coordinate on further actions that must be taken to best address the contamination issues. This may include determining if the Florida Department of Environmental Protection (FDEP)/FDOT Memorandum of Understanding (MOU) applies to the site, conducting Level II activities or recommending Level III or remedial activities, notes on the plans, design modifications, and/or special provisions prior to or during construction.

Table 7-6 Potential Contamination Sites

Facility Number	Facility Name	Facility Address/ Location	Facility ID	Distance from Project	Risk Rating
1	Longboat Pass Bridge Tender Facility	95 Gulf of Mexico Dr, Longboat Key	N/A	0 ft.	High
2	Coquina Beach Boat Launch	2651 Gulf Dr S, Bradenton Beach	2017197630	0 ft.	No

Appendix A

Typical Section Package

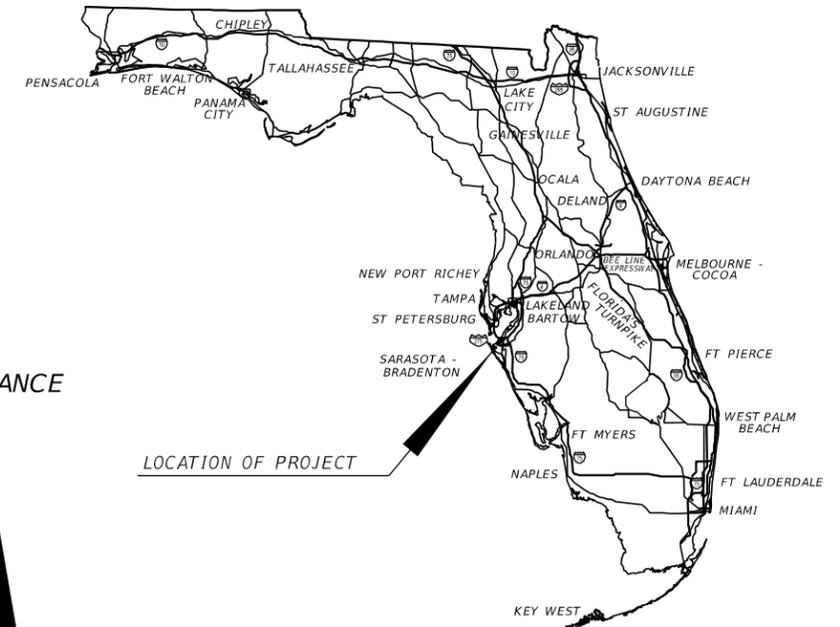
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

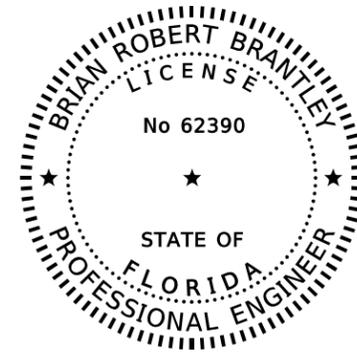
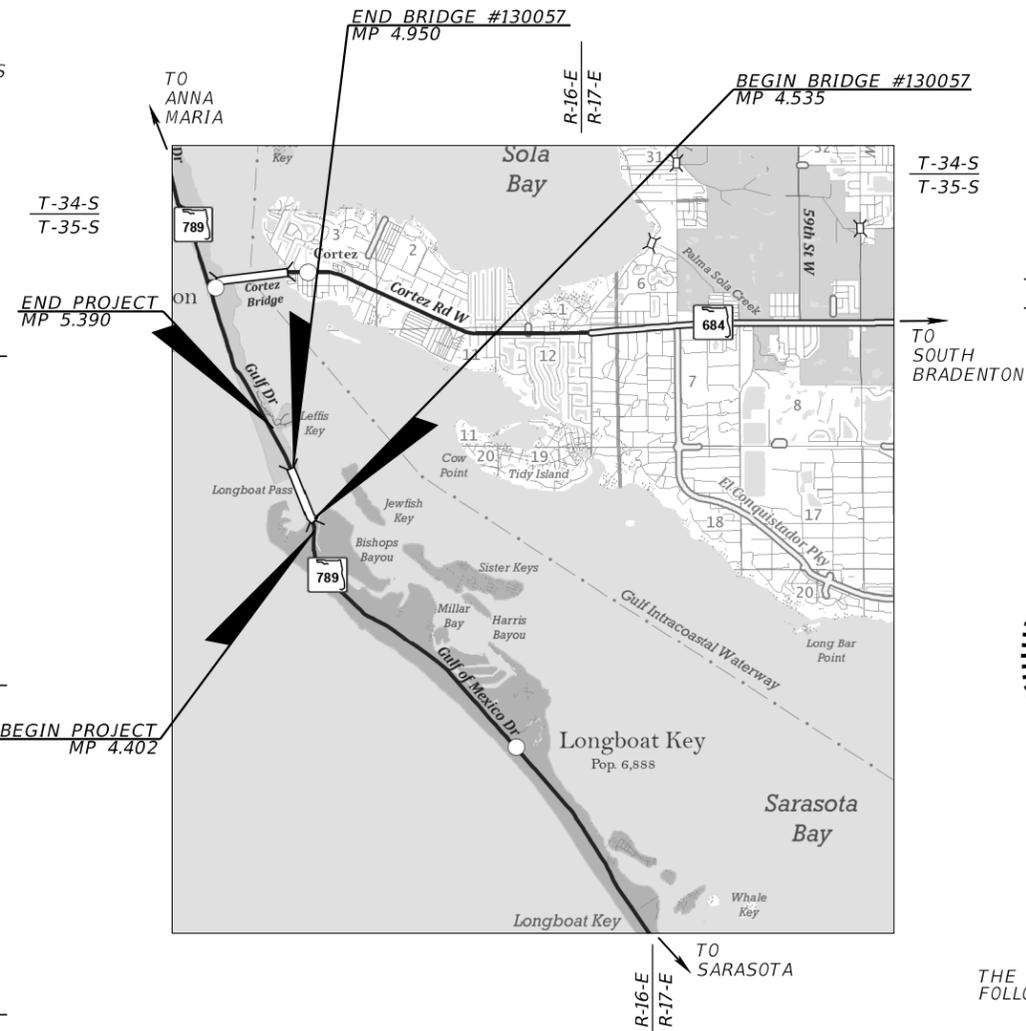
FINANCIAL PROJECT ID 436676-1-22-01
MANATEE COUNTY (13080)

STATE ROAD NO. 789 (LONGBOAT KEY)

RECONSTRUCT BRIDGE FROM NORTH SHORE ROAD TO COQUINA PARK ENTRANCE



FDOT DISTRICT DESIGN ENGINEER	FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER
CONCURRING WITH: TYPICAL SECTION ELEMENTS TARGET SPEED DESIGN & POSTED SPEEDS	CONCURRING WITH: TARGET SPEED DESIGN & POSTED SPEEDS
FDOT DISTRICT INTERMODAL SYSTEMS DEVELOPMENT MANAGER	FDOT DISTRICT STRUCTURES DESIGN ENGINEER
CONCURRING WITH: CONTEXT CLASSIFICATION TARGET SPEED	CONCURRING WITH: TYPICAL SECTION ELEMENTS TARGET SPEED
NOT USED	NOT USED
CONCURRING WITH:	CONCURRING WITH:
NOT USED	NOT USED
CONCURRING WITH:	CONCURRING WITH:



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

ON THE DATE ADJACENT TO THE SEAL

SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SCALAR CONSULTING GROUP INC.
12620 TELECOM DRIVE
TEMPLE TERRACE, FLORIDA 33637
BRIAN ROBERT BRANTLEY, P.E. NO.: 62390

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

INDEX OF SHEETS

SHEET NO	SHEET DESCRIPTION
1	COVER SHEET
2 - 6	TYPICAL SECTIONS

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL () C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN () C5 : URBAN CENTER
- (X) C3R : SUBURBAN RES. () C6 : URBAN CORE
- () N/A : L.A. FACILITY () N/A : FL GREENBOOK

FUNCTIONAL CLASSIFICATION

- () INTERSTATE (X) MAJOR COLLECTOR
- () FREEWAY/EXPWY. () MINOR COLLECTOR
- () PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

- () NATIONAL HIGHWAY SYSTEM
- () STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

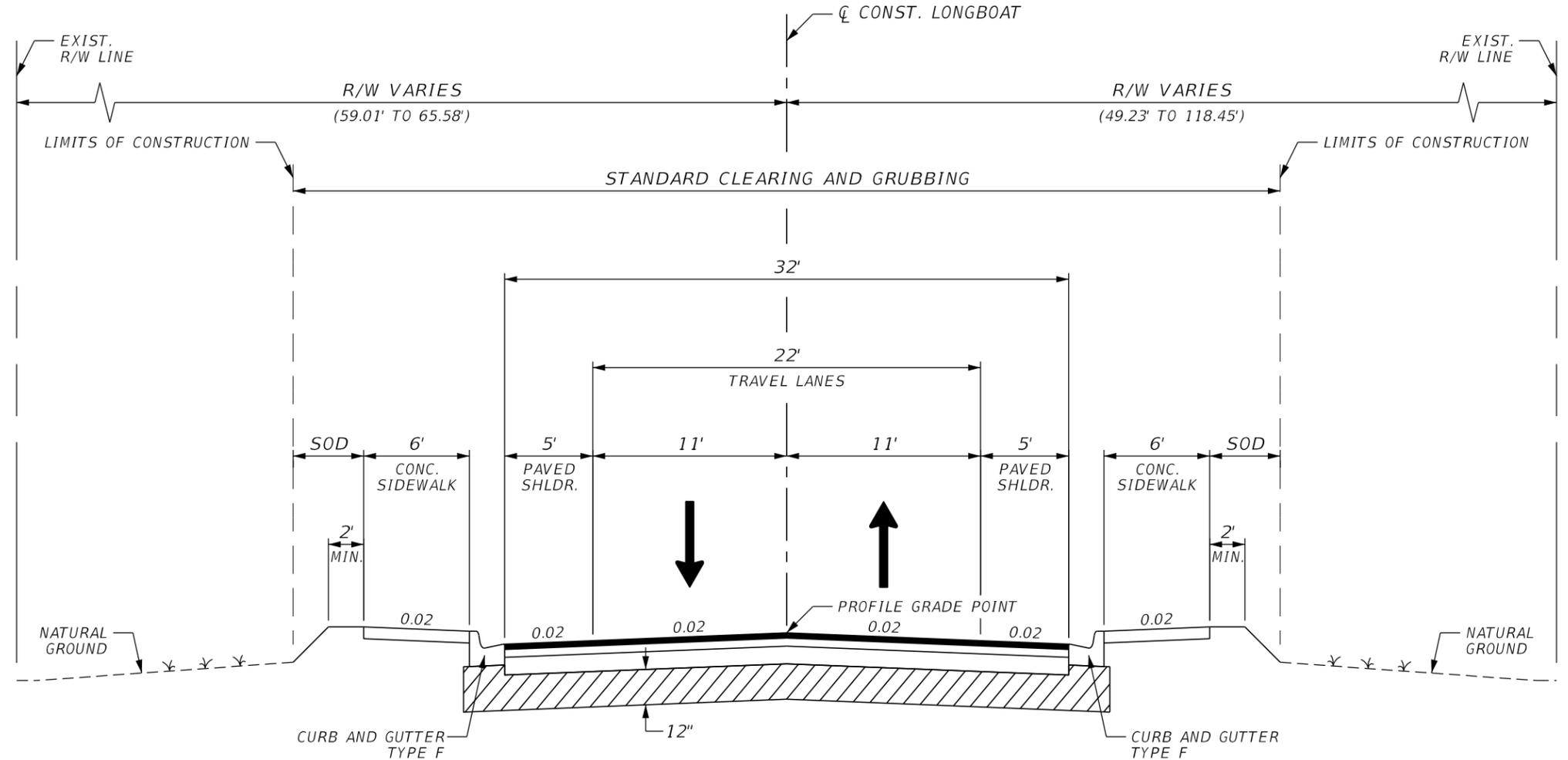
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- () 2 - RESTRICTIVE w/Service Roads
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- (X) 7 - BOTH MEDIAN TYPES

CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 1



**TYPICAL SECTION 1
MP 4.402 TO MP 4.535**

TRAFFIC DATA

CURRENT YEAR = 2025 AADT = 10,650
 ESTIMATED OPENING YEAR = 2031 AADT = 11,500
 ESTIMATED DESIGN YEAR = 2051 AADT = 14,500
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 DESIGN HOUR T = 2.4%
 TARGET SPEED = 35 MPH
 DESIGN SPEED = 35 MPH
 POSTED SPEED = 35 MPH

FINANCIAL PROJECT ID	SHEET NO.
436676-1-22-01	2

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL () C3C : SUBURBAN COMM.
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HIGHWAY SYSTEM

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- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

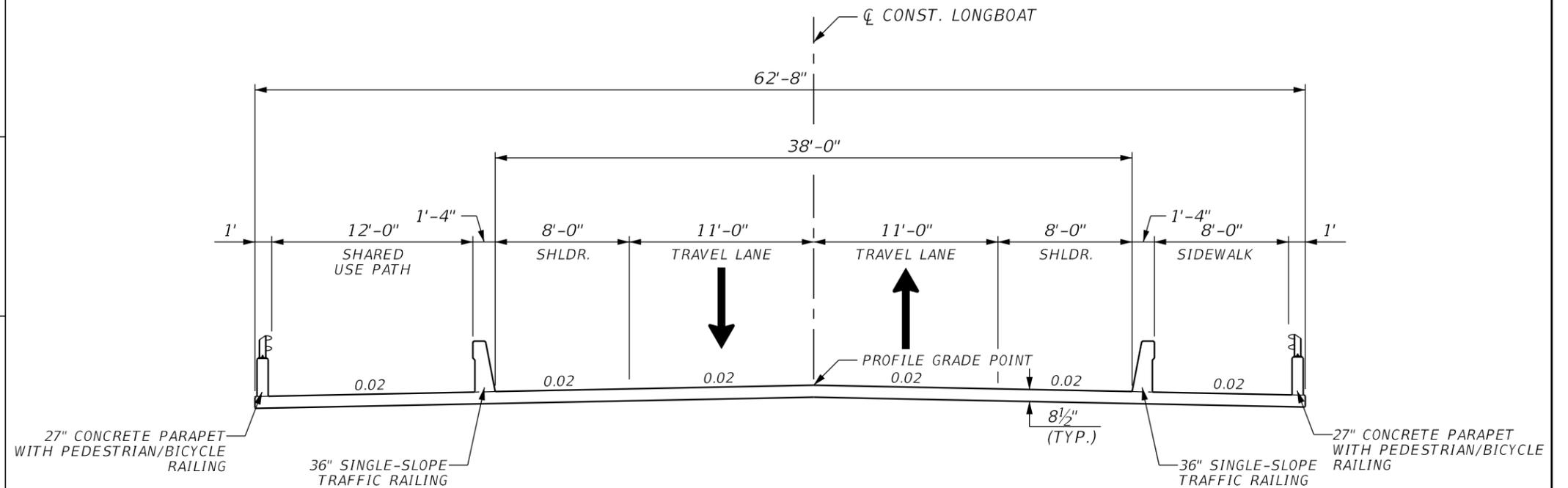
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CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
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POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 2



TYPICAL SECTION 2
MP 4.535 TO MP 5.122

TRAFFIC DATA

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 ESTIMATED OPENING YEAR = 2031 AADT = 11,500
 ESTIMATED DESIGN YEAR = 2051 AADT = 14,500
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FINANCIAL PROJECT ID	SHEET NO.
436676-1-22-01	3

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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FUNCTIONAL CLASSIFICATION

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- () FREEWAY/EXPWY. () MINOR COLLECTOR
- () PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

- () NATIONAL HIGHWAY SYSTEM
- () STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
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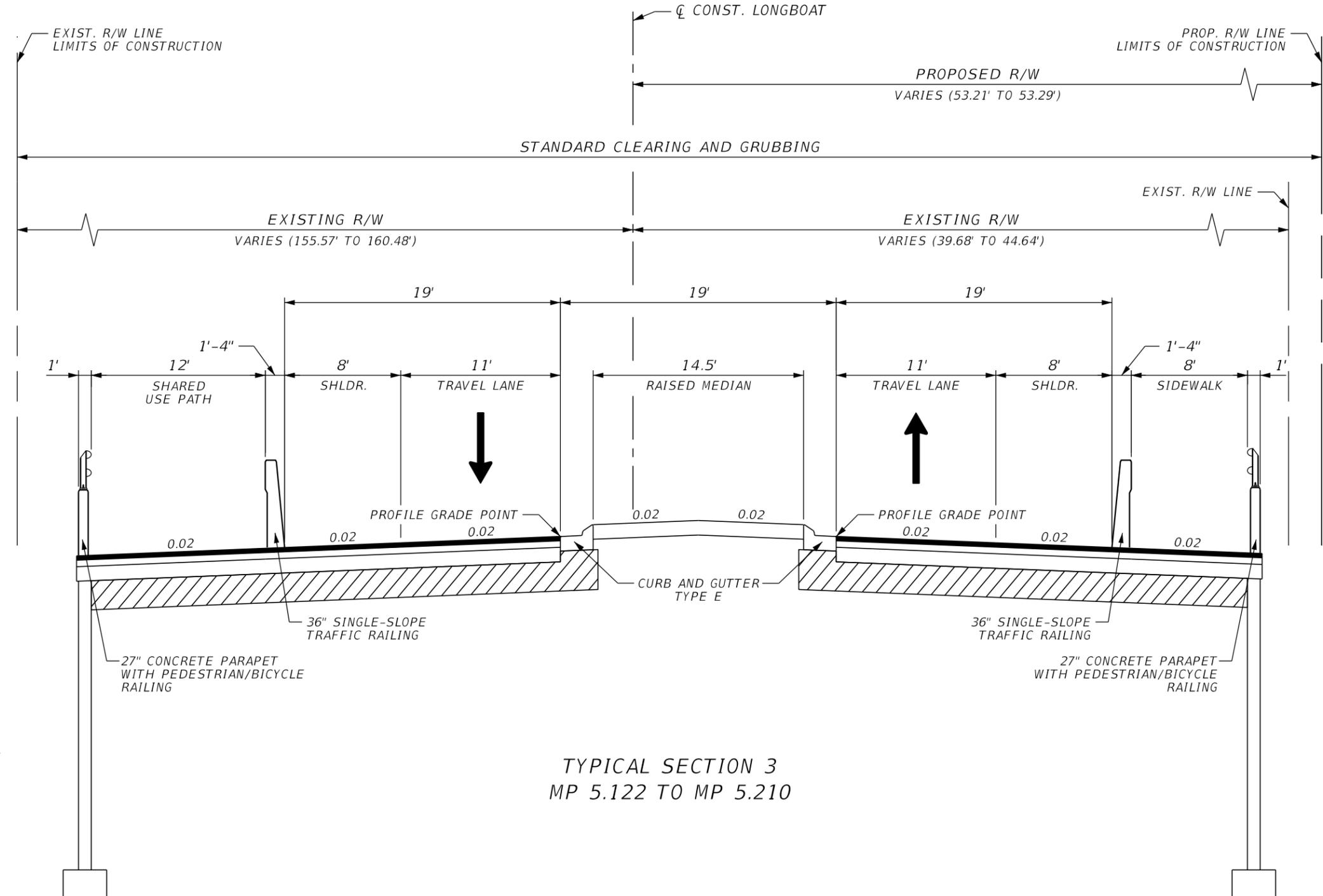
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CRITERIA

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- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 3



TYPICAL SECTION 3
MP 5.122 TO MP 5.210

TRAFFIC DATA

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FINANCIAL PROJECT ID	SHEET NO.
436676-1-22-01	4

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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- () PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

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- () STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

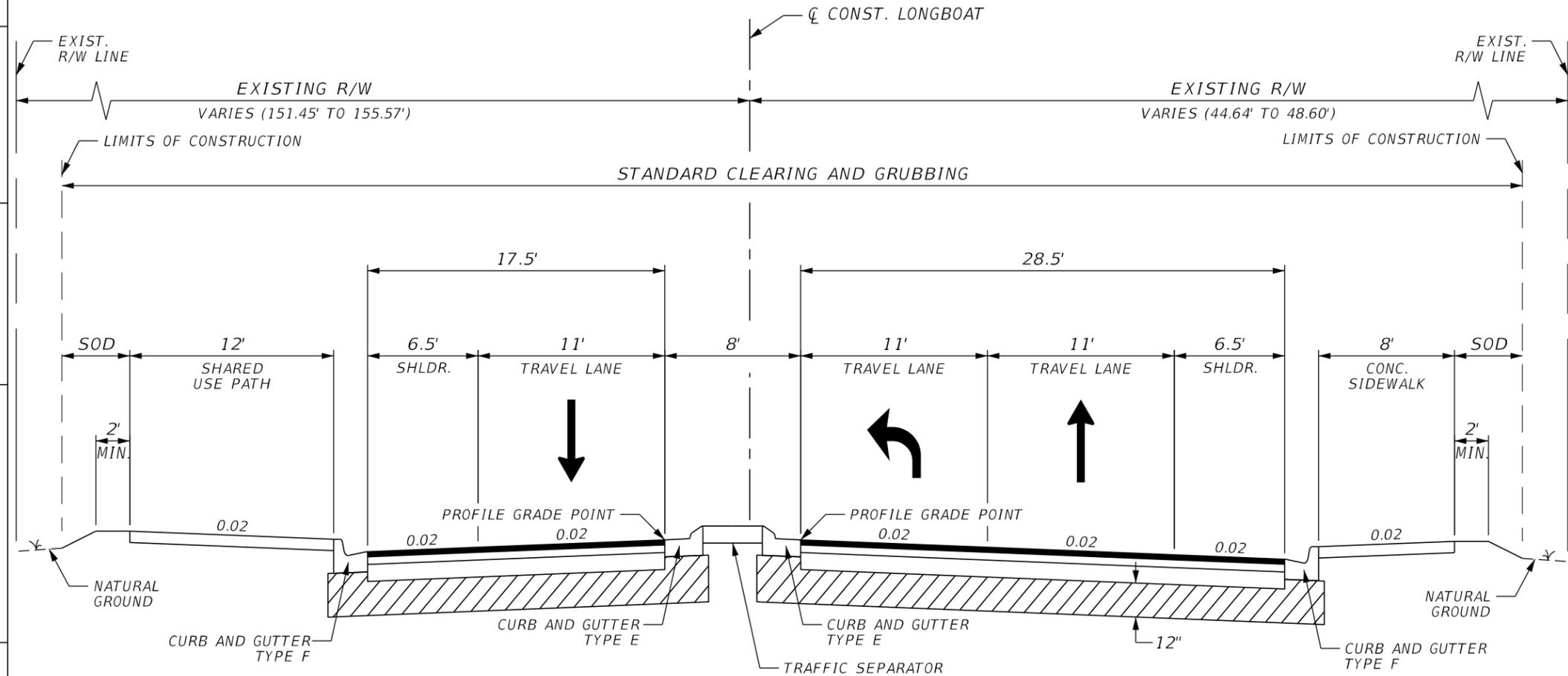
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- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 4



**TYPICAL SECTION 4
MP 5.210 TO MP 5.274**

TRAFFIC DATA

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FINANCIAL PROJECT ID	SHEET NO.
436676-1-22-01	5

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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- () PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

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- (X) STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

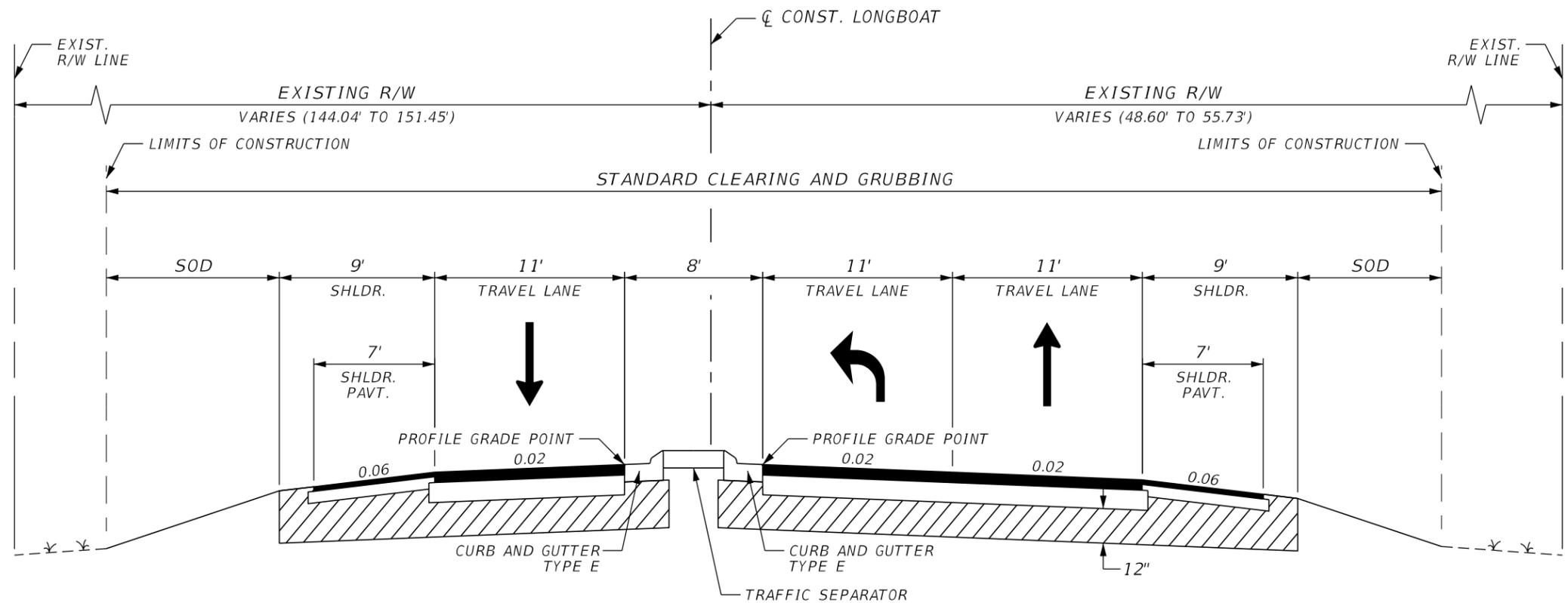
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POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 5



**TYPICAL SECTION 5
MP 5.274 TO MP 5.390**

TRAFFIC DATA

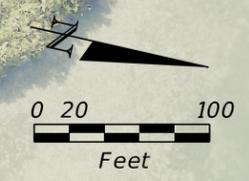
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FINANCIAL PROJECT ID	SHEET NO.
436676-1-22-01	6

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Appendix B

Concept Plans



BEGIN STUDY



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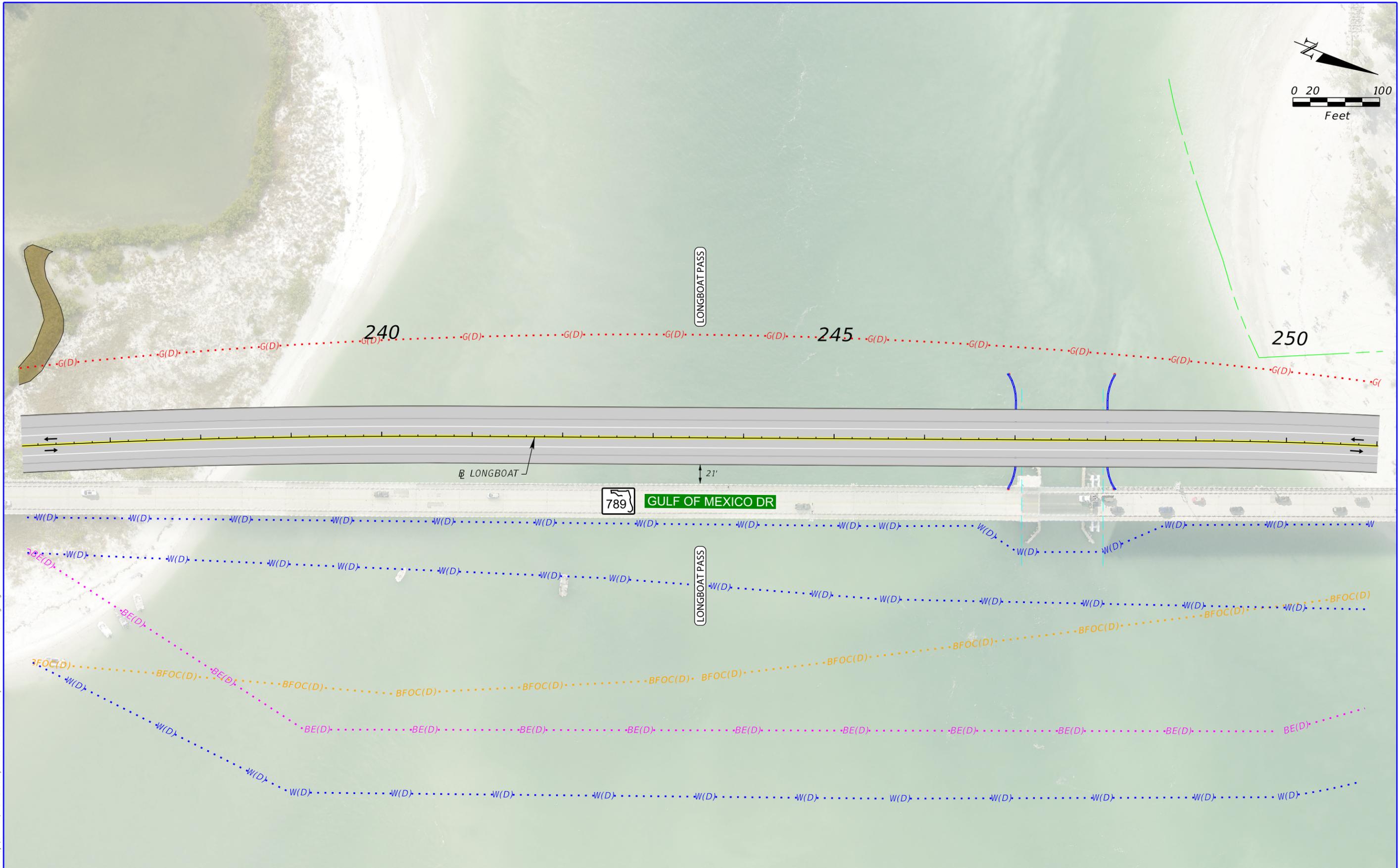
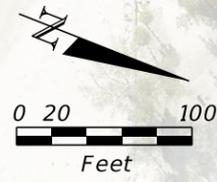
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	PROPOSED ROW		EXISTING MANGROVES		PROPOSED BRIDGE WITH FLUSH SHOULDERS AND SIDEWALKS
	PARCEL LINE		PROPOSED RETAINING WALL		
	STORMWATER MANAGEMENT FACILITY		EXISTING UTILITY		

SCALAR CONSULTING GROUP, LLC
 5713 CORPORATE WAY
 SUITE 200
 WEST PALM BEACH, FL 33407

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 789	MANATEE	436676-1-22-01

**PREFERRED ALTERNATIVE
HIGH-LEVEL FIXED**

SHEET NO.
 1



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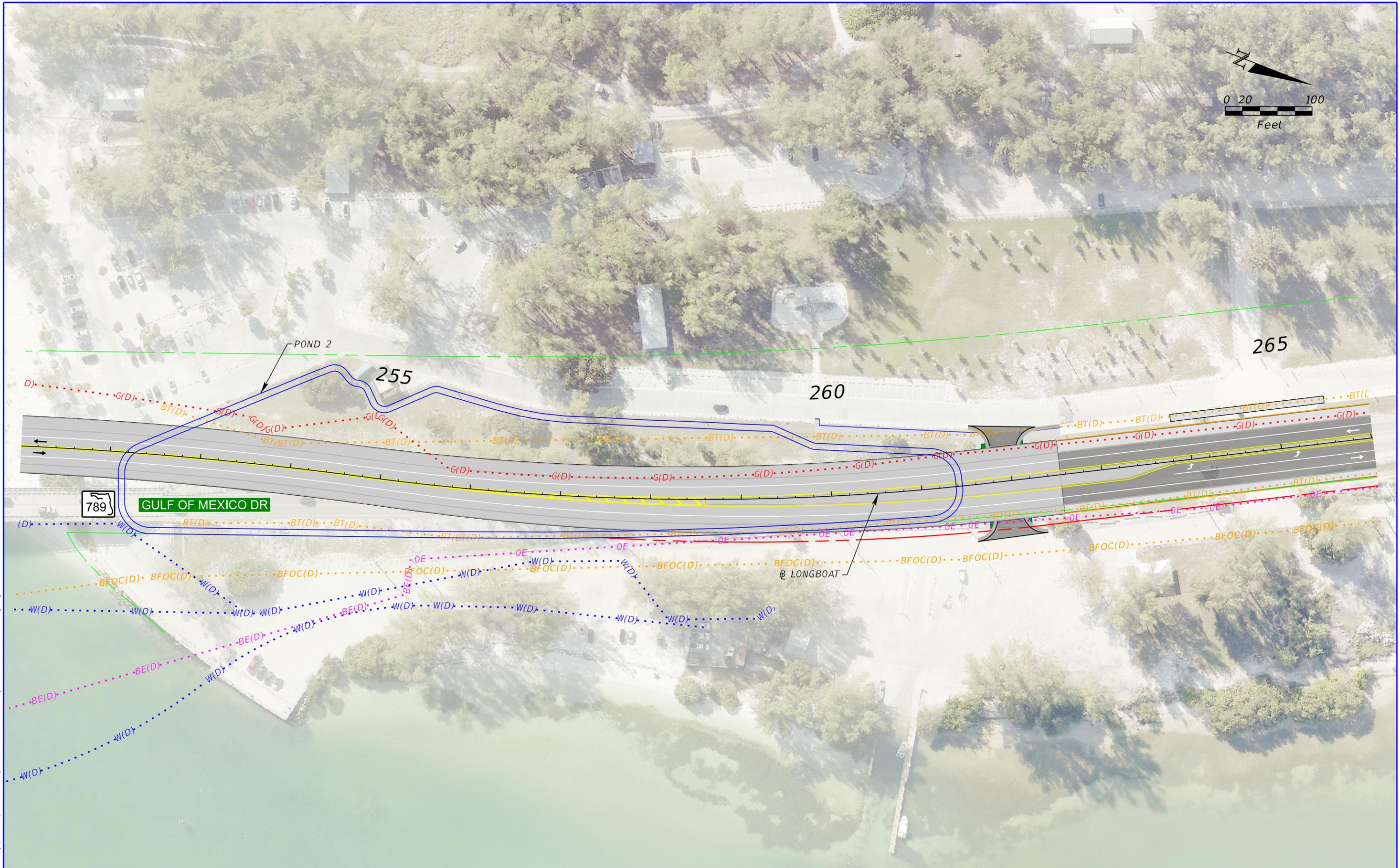
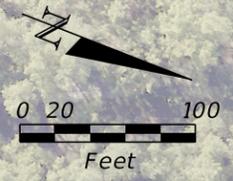
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	PROPOSED ROW		EXISTING MANGROVES		PROPOSED BRIDGE WITH FLUSH SHOULDERS AND SIDEWALKS
	PARCEL LINE		PROPOSED RETAINING WALL		EXISTING UTILITY

SCALAR CONSULTING GROUP, LLC
 5713 CORPORATE WAY
 SUITE 200
 WEST PALM BEACH, FL 33407

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 789	MANATEE	436676-1-22-01

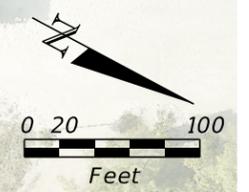
**PREFERRED ALTERNATIVE
HIGH-LEVEL FIXED**

SHEET NO.
2



8:24:03 PM kwtstein P:\FL2005.00 Longboat Key (SR 789) PD&E Study\4366761-2201\Roadway\PLANRD01 - Fixed Highway.dgn

<ul style="list-style-type: none"> --- EXISTING ROW --- PROPOSED ROW --- PARCEL LINE --- STORMWATER MANAGEMENT FACILITY 	<ul style="list-style-type: none"> EXISTING SEAGRASS EXISTING MANGROVES PROPOSED RETAINING WALL EXISTING UTILITY 	<ul style="list-style-type: none"> PROPOSED ROADWAY WITH BIKE LANES AND SIDEWALKS PROPOSED BRIDGE WITH FLUSH SHOULDERS AND SIDEWALKS 	<p>SCALAR CONSULTING GROUP, LLC 5713 CORPORATE WAY SUITE 200 WEST PALM BEACH, FL 33407</p>	<p style="text-align: center;">STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%;">ROAD NO.</th> <th style="width: 25%;">COUNTY</th> <th style="width: 50%;">FINANCIAL PROJECT ID</th> </tr> <tr> <td style="text-align: center;">SR 789</td> <td style="text-align: center;">MANATEE</td> <td style="text-align: center;">436676-1-22-01</td> </tr> </table>	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	SR 789	MANATEE	436676-1-22-01	<p style="text-align: center;">PREFERRED ALTERNATIVE HIGH-LEVEL FIXED</p>	<p style="text-align: center;">SHEET NO. 3</p>
ROAD NO.	COUNTY	FINANCIAL PROJECT ID										
SR 789	MANATEE	436676-1-22-01										



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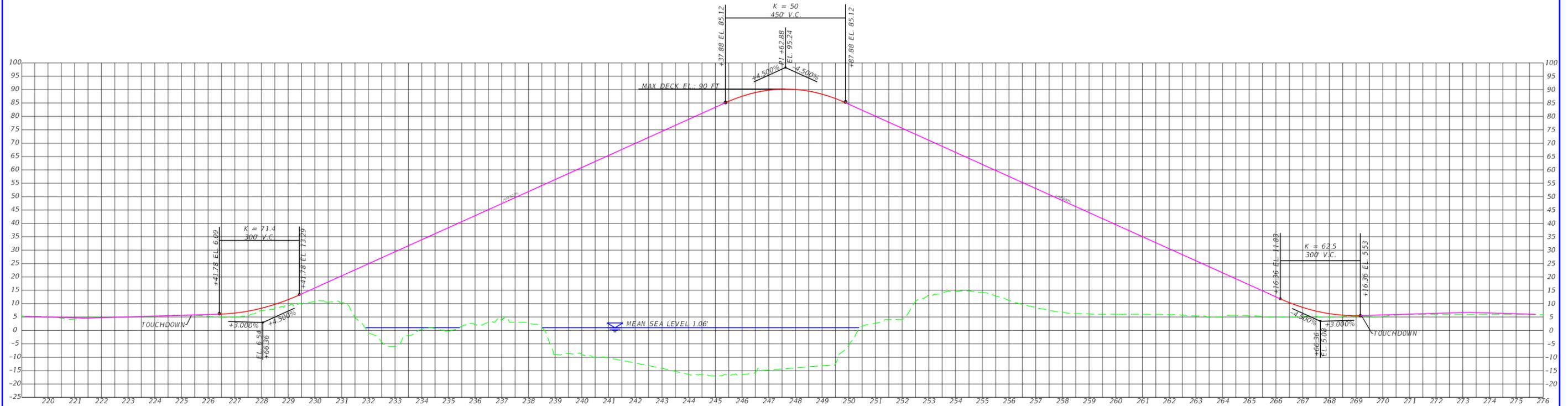
	EXISTING ROW		EXISTING SEAGRASS		PROPOSED ROADWAY WITH BIKE LANES AND SIDEWALKS
	PROPOSED ROW		EXISTING MANGROVES		PROPOSED BRIDGE WITH FLUSH SHOULDERS AND SIDEWALKS
	PARCEL LINE		PROPOSED RETAINING WALL		EXISTING UTILITY

SCALAR CONSULTING GROUP, LLC
 5713 CORPORATE WAY
 SUITE 200
 WEST PALM BEACH, FL 33407

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 789	MANATEE	436676-1-22-01

**PREFERRED ALTERNATIVE
HIGH-LEVEL FIXED**

SHEET NO.
4



REVISIONS				SCALAR CONSULTING GROUP, LLC 5713 CORPORATE WAY SUITE 200 WEST PALM BEACH, FL 33407	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PREFERRED ALTERNATIVE HIGH-LEVEL FIXED PROFILE	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 789	MANATEE	436676-1-22-01		

Appendix C

Long Range Estimates

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 436676-2-52-01

Letting Date: 01/2099

Description: SR 789 (LONGBOAT KEY) FROM NORTH SHORE RD TO COQUINA PARK ENT

District: 01 **County:** 13 MANATEE

Market Area: 10 **Units:** English

Contract Class: 4 **Lump Sum Project:** N

Design/Build: N **Project Length:** 0.710 MI

Project Manager: NEM-AEH-DJB

Version 26 Project Grand Total

\$176,007,528.22

Description: March 2025 Unit Cost Updates for Alternative 1A - Low Level Single Leaf Bascule - Copied from Version 21 - 3/10/25

Sequence: 1 MIS - Miscellaneous Construction

Net Length: 0.000 MI
0 LF

Description: Bridge No. 130057

SHOULDER COMPONENT

User Input Data

Description **Value**

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
515-1-2	PIPE HANDRAIL - GUIDERAIL, ALUMINUM	856.00	LF	\$75.36	\$64,508.16
Comment: handrails within bascule pier					

Shoulder Component Total \$64,508.16

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	Miscellaneous
Multiplier	1
Description	

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
649-21-1	STEEL MAST ARM ASSEMBLY, F&I, 30'	2.00	EA	\$63,457.25	\$126,914.50
Comment: for overhead movable bridge signals					

Signalizations Component Total \$126,914.50

BRIDGES COMPONENT

Bridge 130057

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Type	Misc/Rehab

Structure No.
Description

SR 789 OVER LONG BOAT PASS

130057

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	83,420.00	SF	\$101.62	\$8,477,140.40

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	140.00	CY	\$994.68	\$139,255.20
400-4-4	CONC CLASS IV, SUPERSTRUCTURE	3,648.00	CY	\$1,667.72	\$6,083,842.56
400-4-5	CONC CLASS IV, SUBSTRUCTURE	976.00	CY	\$1,866.22	\$1,821,430.72
400-4-6	CONC CLASS IV, COUNTERWEIGHT	250.00	CY	\$1,092.80	\$273,200.00
400-4-25	CONC CLASS IV, MASS, SUBSTRUCTURE	8,682.00	CY	\$1,429.71	\$12,412,742.22
400-4-104	CONC CLASS IV, SUPERSTRUCTURE, LT-WT	220.00	CY	\$1,425.00	\$313,500.00
400-7-1	BRIDGE DECK GROOVING	8,637.00	SY	\$9.32	\$80,496.84
400-9-1	BRIDGE DECK PLANING	8,637.00	SY	\$9.31	\$80,410.47
400-95-1	COFFERDAM, BASCULE PIER	1.00	EA	\$1,888,333.33	\$1,888,333.33
400-147	COMPOSITE NEOPRENE PADS	139.00	CF	\$1,414.84	\$196,662.76
415-1-4	REINF STEEL- SUPERSTRUCTURE	747,840.00	LB	\$1.63	\$1,218,979.20
415-1-5	REINF STEEL- SUBSTRUCTURE	1,931,709.00	LB	\$1.53	\$2,955,514.77
415-1-9	REINF STEEL- APPROACH SLABS	28,000.00	LB	\$1.25	\$35,000.00
450-2-36	PREST BEAMS: FLORIDA-I BEAM 36"	3,211.00	LF	\$446.06	\$1,432,298.66
450-2-72	PREST BEAMS: FLORIDA-I BEAM 72"	9,160.00	LF	\$512.63	\$4,695,690.80
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	115,800.00	LF	\$214.02	\$24,783,516.00
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	3,474.00	LF	\$435.37	\$1,512,475.38
458-1-11	BRIDGE DECK EXPANSION JNT,NEW,POURED	1,003.00	LF	\$75.46	\$75,686.38
460-2-5	STRUCT STEEL, BASCULE LEAVES	885,000.00	LB	\$6.48	\$5,734,800.00
460-6-2	LADDERS & PLATFORMS, REHAB	5,958.00	LB	\$27.50	\$163,845.00
460-71-2	METAL TRAF RAILING, STEEL POST AND RAIL	226.00	LF	\$1,164.81	\$263,247.06
465-1	MOV BRDG - MECH EQUIPMENT	1.00	LS	\$16,236,485.56	\$16,236,485.56
465-3-14	MOVABLE BRIDGE COUNTERWEIGHT, F&I,BUMPER	4.00	EA	\$4,718.40	\$18,873.60
465-3-17	MOVABLE BRIDGE COUNTERWEIGHT, F&I,BAL BL	1,600.00	EA	\$200.26	\$320,416.00
465-3-19	MOVABLE BRIDGE COUNTERWEIGHT, F&I,STEEL	400.00	TN	\$3,367.71	\$1,347,084.00
465-3-50	MOVABLE BRIDGE COUNTERWEIGHT, ADJ	2.00	EA	\$15,666.67	\$31,333.34
465-20	MOVABLE BRIDGE- PREV MAINT & ROUT REPAIR	700.00	DA	\$267.50	\$187,250.00

465-21	MOVABLE BRIDGE OPERATOR	700.00	DA	\$880.00	\$616,000.00
465-71-3	MOVABLE BRIDGE FUNCTIONAL CHECKOUT,PH C	1.00	LS	\$26,566.00	\$26,566.00
471-3-1	POLYMERIC FENDER SYSTEM, LE 40 KIP-FT	1.00	LS	\$500,000.00	\$500,000.00
504-1-10	RDWY FLOOR, STEEL, 5" ARMORED	5,400.00	SF	\$60.00	\$324,000.00
512-1	MOVABLE BRIDGE-CONTROL HOUSE, NEW	1.00	LS	\$1,500,000.00	\$1,500,000.00
512-71-1	MOVABLE BRIDGE PLUMBING SYSTEM, F&I	2.00	EA	\$66,000.00	\$132,000.00
515-2-311	PED/BICYCLE RAILING, ALUM,42" TYPE 1	226.00	LF	\$124.17	\$28,062.42
515-4-2	BULLET RAIL, DOUBLE RAIL	3,971.00	LF	\$51.59	\$204,863.89
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	3,971.00	LF	\$153.95	\$611,335.45
521-6-11	CONC PARAPET, PED/BIKE, 27"	3,971.00	LF	\$105.54	\$419,099.34
630-2-16	CONDUIT, F& I, EMBEDDED- BARR./RAILINGS	12,912.00	LF	\$17.48	\$225,701.76
635-3-13	JUNCTION BOX, FURNISH & INSTALL, EMBED	30.00	EA	\$918.80	\$27,564.00

Bridge EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
508-1-1	MOVABLE BRIDGE ELECTRICAL EQUIPMENT -NEW (F&I)	1.00	LS	\$5,000,000.00	\$5,000,000.00
Bridge 130057 Total					\$102,394,703.11
Bridges Component Total					\$102,394,703.11

MISCELLANEOUS COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
108-1	MONITOR EXISTING STRUCTURES- SETTL	1.00	LS	\$5,000.00	\$5,000.00
108-2	MONITOR EXISTING STRUCTURES- VIBRA	1.00	LS	\$5,000.00	\$5,000.00
108-3	MONITOR EXISTING STRUCTURES- GROUN	1.00	LS	\$5,000.00	\$5,000.00
400-1-30	CONC, CLASS I (SEAL)	1,993.00	CY	\$1,425.01	\$2,840,044.93
Comment: Bridge 130057					

EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-86	DELIVERY OF SALVAGEABLE MATERIAL TO FDOT	1.00	LS	\$500,000.00	\$500,000.00
Comment: delivery of salvageable mechanical/electrical equipment from existing bridge to FDOT					
Miscellaneous Component Total					\$3,355,044.93

Sequence 1 Total

\$105,941,170.70

Sequence: 2 NUU - New Construction, Undivided, Urban

Net Length: 0.379 MI
2,000 LF

Description: 1000 feet of roadway approach work for each side of bridge

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	47.00 / 47.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.379
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.32	AC	\$68,467.02	\$295,777.53
120-6	EMBANKMENT	41,236.41	CY	\$24.82	\$1,023,487.70
Earthwork Component Total					\$1,319,265.23

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	19.00 / 19.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	9,591.42	SY	\$22.63	\$217,053.83
285-709	OPTIONAL BASE,BASE GROUP 09	8,444.71	SY	\$23.72	\$200,308.52
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,161.15	TN	\$191.16	\$221,965.43
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	696.69	TN	\$208.08	\$144,967.26

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
102-2-200	SPECIAL DETOUR- TEMPORARY PAVEMENT	7,600.00	SY	\$31.45	\$239,020.00
102-2-300	SPECIAL DETOUR- TEMPORARY EARTHWORK/BASE	6,300.00	CY	\$99.93	\$629,559.00
102-71-15	TEMPORARY BARRIER, F&I, ANCHORED	1,000.00	LF	\$38.91	\$38,910.00
102-71-25	TEMPORARY BARRIER, REL, ANCHORED	1,000.00	LF	\$17.60	\$17,600.00
536-8-122	GUARDRA CONN TO RIGID BA, F&I, APP E3	2.00	EA	\$4,197.71	\$8,395.42

536-85-20	GUARDRAIL END TREAT- TRAILING ANCHORAGE	2.00 EA	\$1,836.26	\$3,672.52
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Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	51.00	EA	\$4.42	\$225.42
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.52	GM	\$1,457.86	\$2,215.95
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.38	GM	\$584.76	\$222.21
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.52	GM	\$5,636.03	\$8,566.77
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.38	GM	\$1,917.86	\$728.79

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	66.67	TN	\$435.30	\$29,021.45
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	2,000.00	LF	\$29.99	\$59,980.00
Roadway Component Total					\$1,822,412.57

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	24.25 / 20.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	12.00 / 8.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,000.06	LF	\$40.06	\$80,122.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,000.06	LF	\$40.06	\$80,122.40
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	4,444.59	SY	\$88.44	\$393,079.54

570-1-2	PERFORMANCE TURF, SOD	4,444.59 SY	\$6.85	\$30,445.44
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Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,000.13 LF	\$2.29	\$9,160.30
104-11	FLOATING TURBIDITY BARRIER	4,000.00 LF	\$14.89	\$59,560.00
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	94.70 LF	\$11.43	\$1,082.42
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,841.36	\$3,841.36
104-18	INLET PROTECTION SYSTEM	20.00 EA	\$167.13	\$3,342.60
107-1	LITTER REMOVAL	4.59 AC	\$69.50	\$319.00
107-2	MOWING	4.59 AC	\$95.30	\$437.43

Shoulder Component Total				\$661,512.90
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DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	14.00 EA	\$9,840.01	\$137,760.14
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00 EA	\$15,954.61	\$63,818.44
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00 EA	\$9,407.99	\$18,815.98
425-2-41	MANHOLES, P-7, <10'	2.00 EA	\$9,559.97	\$19,119.94
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	888.00 LF	\$163.94	\$145,578.72
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	80.00 LF	\$337.57	\$27,005.60
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,896.00 LF	\$453.46	\$859,760.16
430-524-100	STRAIGHT CONC ENDW 24", SINGLE, 0 ROUND	1.00 EA	\$7,483.15	\$7,483.15
430-548-100	STRAIGHT CONC ENDW 48", SINGLE, 0 ROUND	1.00 EA	\$14,533.36	\$14,533.36
570-1-1	PERFORMANCE TURF	115.16 SY	\$15.75	\$1,813.77

Drainage Component Total				\$1,295,689.26
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SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	8.00 EA	\$602.24	\$4,817.92
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00 EA	\$2,034.65	\$2,034.65
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00 EA	\$10,893.07	\$10,893.07

Signing Component Total				\$17,745.64
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LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
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Spacing				MAX
Pay Items				
Pay item	Description	Quantity	Unit	Unit Price
				Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,000.06	LF	\$12.61
				\$25,220.76
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	260.99	LF	\$28.75
				\$7,503.46
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	8.00	EA	\$1,117.47
				\$8,939.76
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,783.17	LF	\$4.22
				\$28,624.98
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	8.00	EA	\$843.98
				\$6,751.84
X-Items				
Pay item	Description	Quantity	Unit	Unit Price
				Extended Amount
715-61-321	LIGHT POLE CMPLT,STD,F&I, 40'MH,10'ARM L	8.00	EA	\$9,926.25
				\$79,410.00
	Subcomponent Total			\$156,450.80
	Lighting Component Total			\$156,450.80
<hr/>				
Sequence 2 Total				\$5,273,076.40
<hr/>				

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 436676-2-52-01

Letting Date: 01/2099

Description: SR 789 (LONGBOAT KEY) FROM NORTH SHORE RD TO COQUINA PARK ENT

District: 01 **County:** 13 MANATEE

Market Area: 10 **Units:** English

Contract Class: 4 **Lump Sum Project:** N

Design/Build: N **Project Length:** 0.710 MI

Project Manager: NEM-AEH-DJB

Version 26 Project Grand Total

\$176,007,528.22

Description: March 2025 Unit Cost Updates for Alternative 1A - Low Level Single Leaf Bascule - Copied from Version 21 - 3/10/25

Project Sequences Subtotal **\$111,214,247.10**

102-1	Maintenance of Traffic	15.00 %	\$16,682,137.06
101-1	Mobilization	10.00 %	\$12,789,638.42

Project Sequences Total **\$140,686,022.58**

Project Unknowns	25.00 %	\$35,171,505.64
Design/Build	0.00 %	\$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	\$150,000.00	\$150,000.00

Project Non-Bid Subtotal **\$150,000.00**

Version 26 Project Grand Total **\$176,007,528.22**

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 436676-2-52-01

Letting Date: 01/2099

Description: SR 789 (LONGBOAT KEY) FROM NORTH SHORE RD TO COQUINA PARK ENT

District: 01 **County:** 13 MANATEE **Market Area:** 10 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.710 MI

Project Manager: NEM-AEH-DJB

Version 24 Project Grand Total

\$183,791,611.40

Description: March 2025 Unit Cost Updates for Alternative 2A - Mid Level Single Leaf Bascule - Copied from Version 19 - 3/10/25

Sequence: 1 MIS - Miscellaneous Construction

Net Length: 0.000 MI
0 LF

Description: Bridge No. 130057

SHOULDER COMPONENT

User Input Data

Description **Value**

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
515-1-2	PIPE HANDRAIL - GUIDERAIL, ALUMINUM	856.00 LF	\$75.36	\$64,508.16
	Comment: handrails within bascule pier			

Shoulder Component Total \$64,508.16

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	Miscellaneous
Multiplier	1
Description	

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
649-21-1	STEEL MAST ARM ASSEMBLY, F&I, 30'	2.00 EA	\$63,457.25	\$126,914.50
	Comment: for overhead movable bridge signals			

Signalizations Component Total \$126,914.50

BRIDGES COMPONENT

Bridge 130057

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Type	Misc/Rehab

Structure No.
Description

SR 789 OVER LONG BOAT PASS

130057

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	83,420.00	SF	\$101.62	\$8,477,140.40

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	140.00	CY	\$994.68	\$139,255.20
400-4-4	CONC CLASS IV, SUPERSTRUCTURE	3,618.00	CY	\$1,667.72	\$6,033,810.96
400-4-5	CONC CLASS IV, SUBSTRUCTURE	1,157.00	CY	\$1,866.22	\$2,159,216.54
400-4-6	CONC CLASS IV, COUNTERWEIGHT	250.00	CY	\$1,092.80	\$273,200.00
400-4-25	CONC CLASS IV, MASS, SUBSTRUCTURE	9,484.00	CY	\$1,429.71	\$13,559,369.64
400-4-104	CONC CLASS IV, SUPERSTRUCTURE, LT-WT	220.00	CY	\$1,425.00	\$313,500.00
400-7-1	BRIDGE DECK GROOVING	8,602.00	SY	\$9.32	\$80,170.64
400-9-1	BRIDGE DECK PLANING	8,602.00	SY	\$9.31	\$80,084.62
400-95-1	COFFERDAM, BASCULE PIER	1.00	EA	\$1,888,333.33	\$1,888,333.33
400-147	COMPOSITE NEOPRENE PADS	181.00	CF	\$1,414.84	\$256,086.04
415-1-4	REINF STEEL- SUPERSTRUCTURE	741,690.00	LB	\$1.63	\$1,208,954.70
415-1-5	REINF STEEL- SUBSTRUCTURE	2,128,250.00	LB	\$1.53	\$3,256,222.50
415-1-9	REINF STEEL- APPROACH SLABS	28,000.00	LB	\$1.25	\$35,000.00
450-2-36	PREST BEAMS: FLORIDA-I BEAM 36"	2,703.00	LF	\$446.06	\$1,205,700.18
450-2-72	PREST BEAMS: FLORIDA-I BEAM 72"	9,160.00	LF	\$512.63	\$4,695,690.80
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	131,700.00	LF	\$214.02	\$28,186,434.00
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	3,519.00	LF	\$435.37	\$1,532,067.03
458-1-11	BRIDGE DECK EXPANSION JNT,NEW,POURED	940.00	LF	\$75.46	\$70,932.40
460-2-5	STRUCT STEEL, BASCULE LEAVES	885,000.00	LB	\$6.48	\$5,734,800.00
460-6-2	LADDERS & PLATFORMS, REHAB	5,958.00	LB	\$27.50	\$163,845.00
460-71-2	METAL TRAF RAILING, STEEL POST AND RAIL	226.00	LF	\$1,164.81	\$263,247.06
465-1	MOV BRDG - MECH EQUIPMENT	1.00	LS	\$16,236,485.56	\$16,236,485.56
465-3-14	MOVABLE BRIDGE COUNTERWEIGHT, F&I,BUMPER	2.00	EA	\$4,718.40	\$9,436.80
465-3-17	MOVABLE BRIDGE COUNTERWEIGHT, F&I,BAL BL	1,600.00	EA	\$200.26	\$320,416.00
465-3-19	MOVABLE BRIDGE COUNTERWEIGHT, F&I,STEEL	400.00	TN	\$3,367.71	\$1,347,084.00
465-3-50	MOVABLE BRIDGE COUNTERWEIGHT, ADJ	1.00	EA	\$15,666.67	\$15,666.67
465-20	MOVABLE BRIDGE- PREV MAINT & ROUT REPAIR	700.00	DA	\$267.50	\$187,250.00

465-21	MOVABLE BRIDGE OPERATOR	700.00	DA	\$880.00	\$616,000.00
465-71-3	MOVABLE BRIDGE FUNCTIONAL CHECKOUT,PH C	1.00	LS	\$26,566.00	\$26,566.00
471-3-1	POLYMERIC FENDER SYSTEM, LE 40 KIP-FT	1.00	LS	\$500,000.00	\$500,000.00
504-1-10	RDWY FLOOR, STEEL, 5" ARMORED	5,400.00	SF	\$60.00	\$324,000.00
512-1	MOVABLE BRIDGE-CONTROL HOUSE, NEW	1.00	LS	\$1,500,000.00	\$1,500,000.00
512-71-1	MOVABLE BRIDGE PLUMBING SYSTEM, F&I	2.00	EA	\$66,000.00	\$132,000.00
515-2-311	PED/BICYCLE RAILING, ALUM,42" TYPE 1	226.00	LF	\$124.17	\$28,062.42
515-4-2	BULLET RAIL, DOUBLE RAIL	3,954.00	LF	\$51.59	\$203,986.86
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	3,954.00	LF	\$153.95	\$608,718.30
521-6-11	CONC PARAPET, PED/BIKE, 27"	3,954.00	LF	\$105.54	\$417,305.16
630-2-16	CONDUIT, F& I, EMBEDDED- BARR./RAILINGS	11,682.00	LF	\$17.48	\$204,201.36
635-3-13	JUNCTION BOX, FURNISH & INSTALL, EMBED	30.00	EA	\$918.80	\$27,564.00

Bridge EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
508-1-1	MOVABLE BRIDGE ELECTRICAL EQUIPMENT -NEW (F&I)	1.00	LS	\$5,000,000.00	\$5,000,000.00
Bridge 130057 Total					\$107,317,804.17
Bridges Component Total					\$107,317,804.17

MISCELLANEOUS COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
108-1	MONITOR EXISTING STRUCTURES- SETTL	1.00	LS	\$5,000.00	\$5,000.00
108-2	MONITOR EXISTING STRUCTURES- VIBRA	1.00	LS	\$5,000.00	\$5,000.00
108-3	MONITOR EXISTING STRUCTURES- GROUN	1.00	LS	\$5,000.00	\$5,000.00
400-1-30	CONC, CLASS I (SEAL)	1,993.00	CY	\$1,425.01	\$2,840,044.93
Comment: Bridge 130057					

EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-86	DELIVERY OF SALVAGEABLE MATERIAL TO FDOT	1.00	LS	\$500,000.00	\$500,000.00
Comment: delivery of salvageable mechanical/electrical equipment from existing bridge to FDOT					
Miscellaneous Component Total					\$3,355,044.93

Sequence 1 Total

\$110,864,271.76

Sequence: 2 NUU - New Construction, Undivided, Urban

Net Length: 0.379 MI
2,000 LF

Description: 1000 feet of roadway approach work for each side of bridge

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	47.00 / 47.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.379
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.32	AC	\$68,467.02	\$295,777.53
120-6	EMBANKMENT	41,236.41	CY	\$24.82	\$1,023,487.70
Earthwork Component Total					\$1,319,265.23

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	19.00 / 19.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	9,591.42	SY	\$22.63	\$217,053.83
285-709	OPTIONAL BASE,BASE GROUP 09	8,444.71	SY	\$23.72	\$200,308.52
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,161.15	TN	\$191.16	\$221,965.43
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	696.69	TN	\$208.08	\$144,967.26

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
102-2-200	SPECIAL DETOUR- TEMPORARY PAVEMENT	7,600.00	SY	\$31.45	\$239,020.00
102-2-300	SPECIAL DETOUR- TEMPORARY EARTHWORK/BASE	6,300.00	CY	\$99.93	\$629,559.00
102-71-15	TEMPORARY BARRIER, F&I, ANCHORED	1,000.00	LF	\$38.91	\$38,910.00
102-71-25	TEMPORARY BARRIER, REL, ANCHORED	1,000.00	LF	\$17.60	\$17,600.00
536-8-122	GUARDRA CONN TO RIGID BA, F&I, APP E3	2.00	EA	\$4,197.71	\$8,395.42

536-85-20	GUARDRAIL END TREAT- TRAILING ANCHORAGE	2.00 EA	\$1,836.26	\$3,672.52
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Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	51.00	EA	\$4.42	\$225.42
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.52	GM	\$1,457.86	\$2,215.95
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.38	GM	\$584.76	\$222.21
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.52	GM	\$5,636.03	\$8,566.77
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.38	GM	\$1,917.86	\$728.79

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	66.67	TN	\$435.30	\$29,021.45
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	2,000.00	LF	\$29.99	\$59,980.00
Roadway Component Total					\$1,822,412.57

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	24.25 / 20.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	12.00 / 8.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,000.06	LF	\$40.06	\$80,122.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,000.06	LF	\$40.06	\$80,122.40
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	4,444.59	SY	\$88.44	\$393,079.54

570-1-2	PERFORMANCE TURF, SOD	4,444.59 SY	\$6.85	\$30,445.44
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Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,000.13 LF	\$2.29	\$9,160.30
104-11	FLOATING TURBIDITY BARRIER	4,000.00 LF	\$14.89	\$59,560.00
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	94.70 LF	\$11.43	\$1,082.42
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,841.36	\$3,841.36
104-18	INLET PROTECTION SYSTEM	20.00 EA	\$167.13	\$3,342.60
107-1	LITTER REMOVAL	4.59 AC	\$69.50	\$319.00
107-2	MOWING	4.59 AC	\$95.30	\$437.43

Shoulder Component Total				\$661,512.90
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DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	14.00 EA	\$9,840.01	\$137,760.14
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00 EA	\$15,954.61	\$63,818.44
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00 EA	\$9,407.99	\$18,815.98
425-2-41	MANHOLES, P-7, <10'	2.00 EA	\$9,559.97	\$19,119.94
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	888.00 LF	\$163.94	\$145,578.72
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	80.00 LF	\$337.57	\$27,005.60
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,896.00 LF	\$453.46	\$859,760.16
430-524-100	STRAIGHT CONC ENDW 24", SINGLE, 0 ROUND	1.00 EA	\$7,483.15	\$7,483.15
430-548-100	STRAIGHT CONC ENDW 48", SINGLE, 0 ROUND	1.00 EA	\$14,533.36	\$14,533.36
570-1-1	PERFORMANCE TURF	115.16 SY	\$15.75	\$1,813.77

Drainage Component Total				\$1,295,689.26
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SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	8.00 EA	\$602.24	\$4,817.92
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00 EA	\$2,034.65	\$2,034.65
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00 EA	\$10,893.07	\$10,893.07

Signing Component Total				\$17,745.64
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LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
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Spacing				MAX
Pay Items				
Pay item	Description	Quantity	Unit	Unit Price
				Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,000.06	LF	\$12.61
				\$25,220.76
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	260.99	LF	\$28.75
				\$7,503.46
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	8.00	EA	\$1,117.47
				\$8,939.76
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,783.17	LF	\$4.22
				\$28,624.98
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	8.00	EA	\$798.89
				\$6,391.12
X-Items				
Pay item	Description	Quantity	Unit	Unit Price
				Extended Amount
715-61-321	LIGHT POLE CMPLT,STD,F&I, 40'MH,10'ARM L	8.00	EA	\$9,926.25
				\$79,410.00
	Subcomponent Total			\$156,090.08
	Lighting Component Total			\$156,090.08
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Sequence 2 Total				\$5,272,715.68
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FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 436676-2-52-01

Letting Date: 01/2099

Description: SR 789 (LONGBOAT KEY) FROM NORTH SHORE RD TO COQUINA PARK ENT

District: 01 **County:** 13 MANATEE **Market Area:** 10 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.710 MI

Project Manager: NEM-AEH-DJB

Version 24 Project Grand Total

\$183,791,611.40

Description: March 2025 Unit Cost Updates for Alternative 2A - Mid Level Single Leaf Bascule - Copied from Version 19 - 3/10/25

Project Sequences Subtotal **\$116,136,987.44**

102-1	Maintenance of Traffic	15.00 %	\$17,420,548.12
101-1	Mobilization	10.00 %	\$13,355,753.56

Project Sequences Total **\$146,913,289.12**

Project Unknowns	25.00 %	\$36,728,322.28
Design/Build	0.00 %	\$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	\$150,000.00	\$150,000.00

Project Non-Bid Subtotal **\$150,000.00**

Version 24 Project Grand Total **\$183,791,611.40**

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 436676-2-52-01 **Letting Date:** 01/2099
Description: SR 789 (LONGBOAT KEY) FROM NORTH SHORE RD TO COQUINA PARK ENT
District: 01 **County:** 13 MANATEE **Market Area:** 10 **Units:** English
Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.710 MI
Project Manager: NEM-AEH-DJB

Version 22 Project Grand Total **\$137,640,338.99**
Description: March 2025 Unit Cost Update - Fixed Bridge Option - Copied from Version 17 - 3/10/25

Sequence: 1 MIS - Miscellaneous Construction **Net Length:** 0.000 MI
0 LF
Description: Bridge No. 130057

BRIDGES COMPONENT

Bridge 130057

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Type	Misc/Rehab
Structure No.	130057
Description	SR 789 OVER LONG BOAT PASS - FIXED BRIDGE ALTERNATIVE

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	83,240.00 SF	\$101.62	\$8,458,848.80

Bridge X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	170.40 CY	\$994.68	\$169,493.47
400-4-4	CONC CLASS IV, SUPERSTRUCTURE	6,139.00 CY	\$1,667.72	\$10,238,133.08
400-4-5	CONC CLASS IV, SUBSTRUCTURE	3,296.00 CY	\$1,866.22	\$6,151,061.12
400-4-25	CONC CLASS IV, MASS, SUBSTRUCTURE	6,660.00 CY	\$1,429.71	\$9,521,868.60
400-7-1	BRIDGE DECK GROOVING	14,187.00 SY	\$9.32	\$132,222.84
400-9-1	BRIDGE DECK PLANING	14,187.00 SY	\$9.31	\$132,080.97
400-147	COMPOSITE NEOPRENE PADS	159.00 CF	\$1,414.84	\$224,959.56
415-1-4	REINF STEEL- SUPERSTRUCTURE	1,258,495.00 LB	\$1.63	\$2,051,346.85
415-1-5	REINF STEEL- SUBSTRUCTURE	1,979,193.00 LB	\$1.53	\$3,028,165.29
415-1-9	REINF STEEL- APPROACH SLABS	34,200.00 LB	\$1.25	\$42,750.00
450-2-72	PREST BEAMS: FLORIDA-I BEAM 72"	23,100.00 LF	\$512.63	\$11,841,753.00
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	86,640.00 LF	\$214.02	\$18,542,692.80

455-143-5	TEST PILES-PREST CONCRETE,24" SQ	4,332.00 LF	\$435.37	\$1,886,022.84
458-1-11	BRIDGE DECK EXPANSION JNT,NEW,POURED	1,066.00 LF	\$75.46	\$80,440.36
471-3-1	POLYMERIC FENDER SYSTEM, LE 40 KIP-FT	1.00 LS	\$500,000.00	\$500,000.00
515-4-2	BULLET RAIL, DOUBLE RAIL	6,600.00 LF	\$51.59	\$340,494.00
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	6,600.00 LF	\$153.95	\$1,016,070.00
521-6-11	CONC PARAPET, PED/BIKE, 27"	6,600.00 LF	\$105.54	\$696,564.00
630-2-16	CONDUIT, F& I, EMBEDDED- BARR./RAILINGS	13,200.00 LF	\$17.48	\$230,736.00
635-3-13	JUNCTION BOX, FURNISH & INSTALL, EMBED	44.00 EA	\$918.80	\$40,427.20
Bridge 130057 Total				\$75,326,130.78
Bridges Component Total				\$75,326,130.78

RETAINING WALLS COMPONENT

X-Items				
Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	24,429.51 SF	\$48.03	\$1,173,349.37
548-13	RETAINING WALL SYSTEM,TEMP, EXC BAR.	26,514.00 SF	\$23.03	\$610,617.42
Retaining Walls Component Total				\$1,783,966.79

MISCELLANEOUS COMPONENT

X-Items				
Pay item	Description	Quantity Unit	Unit Price	Extended Amount
108-1	MONITOR EXISTING STRUCTURES- SETTLE	1.00 LS	\$5,000.00	\$5,000.00
108-2	MONITOR EXISTING STRUCTURES- VIBRA	1.00 LS	\$5,000.00	\$5,000.00
108-3	MONITOR EXISTING STRUCTURES- GROUN	1.00 LS	\$5,000.00	\$5,000.00
400-1-30	CONC, CLASS I (SEAL)	2,804.00 CY	\$1,425.01	\$3,995,728.04
EX-Items				
Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-86	DELIVERY OF SALVAGEABLE MATERIAL TO FDOT	1.00 LS	\$500,000.00	\$500,000.00
Comment: delivery of salvageable mechanical/electrical equipment from existing bridge to FDOT				
Miscellaneous Component Total				\$4,510,728.04

Sequence 1 Total **\$81,620,825.61**

Sequence: 2 NUU - New Construction, Undivided, Urban

Net Length: 0.379 MI
2,000 LF

Description: 1000 feet of roadway approach work for each side of bridge

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	47.00 / 47.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.379
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.32	AC	\$68,467.02	\$295,777.53
120-6	EMBANKMENT	41,236.41	CY	\$24.82	\$1,023,487.70
Earthwork Component Total					\$1,319,265.23

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	19.00 / 19.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	9,591.42	SY	\$22.63	\$217,053.83
285-709	OPTIONAL BASE,BASE GROUP 09	8,444.71	SY	\$23.72	\$200,308.52
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,161.15	TN	\$191.16	\$221,965.43
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	696.69	TN	\$208.08	\$144,967.26

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
102-2-200	SPECIAL DETOUR- TEMPORARY PAVEMENT	7,600.00	SY	\$31.45	\$239,020.00
102-2-300	SPECIAL DETOUR- TEMPORARY EARTHWORK/BASE	6,300.00	CY	\$99.93	\$629,559.00
102-71-15	TEMPORARY BARRIER, F&I, ANCHORED	2,000.00	LF	\$38.91	\$77,820.00
102-71-25	TEMPORARY BARRIER, REL, ANCHORED	2,000.00	LF	\$17.60	\$35,200.00
536-8-122	GUARDRA CONN TO RIGID BA, F&I, APP E3	2.00	EA	\$4,197.71	\$8,395.42

536-85-20	GUARDRAIL END TREAT- TRAILING ANCHORAGE	2.00 EA	\$1,836.26	\$3,672.52
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Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	51.00	EA	\$4.42	\$225.42
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.52	GM	\$1,457.86	\$2,215.95
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.38	GM	\$584.76	\$222.21
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.52	GM	\$5,636.03	\$8,566.77
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.38	GM	\$1,917.86	\$728.79

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	66.67	TN	\$435.30	\$29,021.45
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	2,000.00	LF	\$29.99	\$59,980.00
Roadway Component Total					\$1,878,922.57

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	24.25 / 20.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	12.00 / 8.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,000.06	LF	\$40.06	\$80,122.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,000.06	LF	\$40.06	\$80,122.40
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	4,444.59	SY	\$88.44	\$393,079.54

570-1-2	PERFORMANCE TURF, SOD	4,444.59 SY	\$6.85	\$30,445.44
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Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,000.13 LF	\$2.29	\$9,160.30
104-11	FLOATING TURBIDITY BARRIER	4,000.00 LF	\$14.89	\$59,560.00
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	94.70 LF	\$11.43	\$1,082.42
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,841.36	\$3,841.36
104-18	INLET PROTECTION SYSTEM	20.00 EA	\$167.13	\$3,342.60
107-1	LITTER REMOVAL	4.59 AC	\$69.50	\$319.00
107-2	MOWING	4.59 AC	\$95.30	\$437.43

Shoulder Component Total				\$661,512.90
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DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	14.00 EA	\$9,840.01	\$137,760.14
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00 EA	\$15,954.61	\$63,818.44
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00 EA	\$9,407.99	\$18,815.98
425-2-41	MANHOLES, P-7, <10'	2.00 EA	\$9,559.97	\$19,119.94
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	888.00 LF	\$163.94	\$145,578.72
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	80.00 LF	\$337.57	\$27,005.60
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,896.00 LF	\$453.46	\$859,760.16
430-524-100	STRAIGHT CONC ENDW 24", SINGLE, 0 ROUND	1.00 EA	\$7,483.15	\$7,483.15
430-548-100	STRAIGHT CONC ENDW 48", SINGLE, 0 ROUND	1.00 EA	\$14,533.36	\$14,533.36
570-1-1	PERFORMANCE TURF	115.16 SY	\$15.75	\$1,813.77

Drainage Component Total				\$1,295,689.26
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SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	8.00 EA	\$602.24	\$4,817.92
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00 EA	\$2,034.65	\$2,034.65
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00 EA	\$10,893.07	\$10,893.07

Signing Component Total				\$17,745.64
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LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
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Spacing				MAX
Pay Items				
Pay item	Description	Quantity	Unit	Unit Price
				Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,000.06	LF	\$12.61
				\$25,220.76
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	260.99	LF	\$28.75
				\$7,503.46
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	8.00	EA	\$1,117.47
				\$8,939.76
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,783.17	LF	\$4.22
				\$28,624.98
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	8.00	EA	\$843.98
				\$6,751.84
X-Items				
Pay item	Description	Quantity	Unit	Unit Price
				Extended Amount
715-61-321	LIGHT POLE CMPLT,STD,F&I, 40'MH,10'ARM L	8.00	EA	\$9,926.25
				\$79,410.00
	Subcomponent Total			\$156,450.80
	Lighting Component Total			\$156,450.80
Sequence 2 Total				\$5,329,586.40

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 436676-2-52-01

Letting Date: 01/2099

Description: SR 789 (LONGBOAT KEY) FROM NORTH SHORE RD TO COQUINA PARK ENT

District: 01 **County:** 13 MANATEE

Market Area: 10 **Units:** English

Contract Class: 4 **Lump Sum Project:** N

Design/Build: N **Project Length:** 0.710 MI

Project Manager: NEM-AEH-DJB

Version 22 Project Grand Total

\$137,640,338.99

Description: March 2025 Unit Cost Update - Fixed Bridge Option - Copied from Version 17 - 3/10/25

Project Sequences Subtotal **\$86,950,412.01**

102-1	Maintenance of Traffic	15.00 %	\$13,042,561.80
101-1	Mobilization	10.00 %	\$9,999,297.38

Project Sequences Total **\$109,992,271.19**

Project Unknowns	25.00 %	\$27,498,067.80
Design/Build	0.00 %	\$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	\$150,000.00	\$150,000.00

Project Non-Bid Subtotal **\$150,000.00**

Version 22 Project Grand Total **\$137,640,338.99**

Appendix D

USCG Meeting Minutes

Meeting Minutes

TO:	Patrick Bateman, PE, FDOT Project Manager Rudy Gotmare, PE, Scalar Project Manager	DATE:	October 13, 2020
FROM:	Alan Klevens, PE TranSystems – Movable Bridge Lead		
PROJECT:	FPID 436676-1-22-01 SR 789 (Longboat Key) PD&E Study from North Shore Road to Coquina Park Entrance	SUBJECT:	Navigation Impact Report USCG Coordination
COPY TO:	Claudio Fazio, PE, TranSystems	CIRCULATE TO:	File P310200005

On October 5, 2020, a Teams Meeting was held to discuss our team's approach to the Navigation Impact Study and Impact Report.

Meeting Attendees:

Patrick Bateman, PE, FDOT Project Manager
Lauren Peters, FDOT Environmental Project Manager
Marty Bridges, Bridge Management Specialist, USCG Seventh District
Rudy Gotmare, PE, Scalar Project Manager
John Scarlatos, Scalar
Alan Klevens, PE, TranSystems

The following items were discussed:

1. The PD&E includes evaluation of fixed and movable alternatives.
2. It was confirmed USCG is a Cooperating Agency.
3. Future Mean High Water elevation was discussed.
 - a. It was noted the MHW is calculated over a 19 year period
 - b. The 100-year flood calculations should take into account sea-level rise.
4. Alan Klevens had sent the team's proposed approach to the Navigation Impact Study Report on October 2, 2020.
 - a. The navigation Impact Study will follow the requirements of the USCG Bridge Permit Application Guide (BPAG)
 - b. The vessel survey for Cortez Bridge was completed over a 7 month period
 - c. Our vessel survey should include all marinas in Sarasota Bay accessible thru Longboat Pass, from south of the Cortez Bridge to the Ringling Bridge, and New Pass.
 - d. No survey of vessels passing thru Longboat Pass is needed. The survey of vessels at and serviced by the marinas will cover all vessels.
 - e. The Navigation Impact Report will only need to address impacts of the fixed bridge alternatives, as the movable alternatives will have less severe impacts to navigation.
5. Mr. Bateman requested the USCG publish a 30-day notice to mariners about the PD&E Study to replace the bridge.
6. The Public meetings schedule was discussed:
 - a. Public Kick-off Meeting: March 2021
 - b. Alternatives Public Meeting: March 2022
7. Mr. Bridges was asked to get back to the group about whether a single (winter) vessel survey would be sufficient, or two surveys should be conducted (winter and summer).
8. Mr. Bridges will review and comment on our Navigation Impact Study methodology memorandum.

Alan Klevens.

Meeting Minutes

Project: FPID No. 436676-1-22-01
SR 789 (Longboat Key) PD&E Study from North Shore Road to Coquina Park Entrance

Subject: USCG Coordination Meeting

Date and time: August 23, 2021 3:00 PM

Meeting place: Microsoft Teams Meeting **Minutes by:** Scalar Consulting Group Inc.

Attendees:

Marty Bridges – USCG; Martin.A.Bridges@uscg.mil
Patrick Bateman – FDOT District 1; patrick.bateman@dot.state.fl.us
Richard Oujevolk – FDOT District 1; richard.oujevolk@dot.state.fl.us
Lauren Peters – FDOT District 1; lauren.peters@fdot.state.fl.us
Aniruddha Gotmare – Scalar Consulting Group Inc.; agotmare@scalarinc.net
John Scarlatos – Scalar Consulting Group; jscarlatos@scalarinc.net
Alan Klevens – TranSystems; gaklevens@transystems.com
Eric Reid – TranSystems; ewreid@transystems.com

Notes:

Key points discussed are provided below.

Rudy gave a brief introduction about the project and that with other bridges such as Cortez being proposed as fixed, the Longboat Key Bridge will be the last movable bridge providing access to the bay. Ringling and SR 64 bridges are proposed as 65-ft clearance fixed bridges. A 65-ft fixed bridge for Longboat Key will restrict access to Sarasota Bay for boats with higher masts. Therefore, consideration for a fixed bridge may need to be higher than 65-ft based on boat survey data and info from the marinas. The goal is to maintain access for boats. This meeting was held as a follow-up to the USCG meeting held with the Department in October 2020.

Based on the last meeting with Marty (October 2020) a Navigation Impact Report will need to be prepared following the USCG guidelines.

New Pass Bridge (channel) is no longer maintained by the USCG.

The approach for identifying the tallest boat is to obtain bridge tender logs, information from Marinas, and survey the area. Marty mentioned following the USCG Bridge Permit Guide (BPG) and to advertise per requirements and get information out (including libraries, marinas, news outlets).

Marty indicated he will send Project Team previous boat survey forms/templates as an example of relevant information that needs to be collected.

Rudy pointed out that a kickoff meeting was held to obtain initial input from the public and over 100 surveys were received. Marty has requested to receive the completed questionnaires in addition to comment responses once approved/finalized by the Department.



Marty (USCG) has sent notice concerning the project to Mariners and has received no responses.

USCG does factor in sea-level rise but is not aware if there is an actual formula that is being applied.

The next key step is to identify and contact marinas via phone to gather initial information, including seasonality characteristics (when is high season for boats), of current boats in the area. Once the project team concludes work that can be performed via phone/internet they will conduct in-person boat surveys to collect data to identify what the highest boat is that is accessing the Sarasota Bay.

Once the boat survey and Navigation Impact Report is completed, USCG will provide a letter stating the proposed (still to be determined) vertical clearance will be accepted.

Meeting Minutes

Project: FPID No. 436676-1-22-01
SR 789 (Longboat Key) PD&E Study from North Shore Road to Coquina Park Entrance

Subject: USCG Coordination Meeting

Date and time: January 10, 2022 10:00 AM

Meeting place: GoTo Meeting

Minutes by: Scalar Consulting Group Inc.

Attendees:

Marty Bridges – USCG; Martin.A.Bridges@uscg.mil

Patrick Bateman – FDOT District 1; patrick.bateman@dot.state.fl.us

Richard Oujevolk – FDOT District 1; richard.oujevolk@dot.state.fl.us

Aniruddha Gotmare – Scalar Consulting Group Inc.; agotmare@scalarinc.net

John Scarlatos – Scalar Consulting Group; jscarlatos@scalarinc.net

Eric Reid – TranSystems; ewreid@transystems.com

Notes:

Key points discussed are provided below.

Eric provided a brief summary of data collection efforts conducted to date which was initiated in November 2021 and included the following:

- Identified and contacted Marinas
- Performed on water and marina vessel survey(s)
- Documented heights of boats exceeding 60-ft (7 identified)
- Compiled and analyzed 2019-2021 bridge tender logs

Bridge tender log data shows that the peak bridge openings occur in the months of March through May with approximately 300 openings per month, with close to half of those openings due to sailboats. It was agreed upon during the meeting to wait to conduct further vessel surveys until March 2022 in order to capture the peak season. The Navigation Impact Report is currently scheduled for completion in March 2022 and will be completed in April 2022 to allow for the additional vessel surveys to be conducted in March 2022.

Appendix E

Agency Coordination

Meeting Minutes

Project:	FPID No. 436676-1-22-01 SR 789 (Longboat Key) PD&E Study from North Shore Road to Coquina Park Entrance	
Subject:	Park Access Meeting with Manatee County	
Date and time:	March 7, 2023; 11:00 AM	
Meeting place:	Microsoft Teams Meeting	Minutes by: Scalar Consulting Group Inc.

Attendees:

Patrick Bateman – FDOT District 1; patrick.bateman@dot.state.fl.us
 Aniruddha Gotmare – Scalar Consulting Group Inc.; agotmare@scalarinc.net
 Brian Brantley – Scalar Consulting Group; bbrantley@scalarinc.net
 Kaley Witenstein - Scalar Consulting Group; kwitenstein@scalarinc.net
 Liza Click – Manatee County liza.click@mymanatee.org
 Carmine DeMilio – Manatee County carmine.demilio@mymanatee.org
 Michael Elswick – Manatee County Michael.elswick@mymanatee.org

Notes:

Key points discussed are provided below.

FDOT PM gave overview of project – currently in the PD&E study phase looking at replacing the Longboat Pass bridge. The project is not funded for design or construction soon.

Scalar is currently looking at the horizontal and vertical alignment of the bridge to determine best design. Based on preliminary evaluations, looking at developing the bridge to the west of the existing bridge to minimize impacts to utilities. High level fixed bridge and movable bridge alternatives are being evaluated, but no-build is always an option.

With the elevation of the bridge and a 4.5% slope, the tie in point on the north end of the bridge will be beyond the existing park entrance. At the existing entrance, there would be approximately a 10-foot vertical difference from the existing ground. Proposing to move the park entrance to the north.

Manatee County has concerns with the location of the proposed park entrance. The proposed entrance is a secured area for MSO and lifeguards, it is an access point for emergency vehicles, it is preferred to maintain minimal vehicular access.

In addition to the existing bridge underpass, another underpass is proposed to circulate the traffic to make the right turn to go north on Longboat, avoiding the need for left turns. The existing underpass is going to be maintained. Manatee County stated this area is used as a barge loading area, with an existing interlocal agreement (between the town of Longboat Key and Manatee County – potentially includes Bradenton Beach), this area cannot be developed without termination of the agreement.

Manatee County mentioned the Artificial Reef Program and requested this be kept in mind as an option when disposing of material.



The biggest concern with the proposed access point is bypassing the Marine building. Potentially move the intersection to the north, keeping a T intersection at the Marine building. Any access changes will need to be an Emergency Management decision. Liza mentioned lifeguard chief Joe Westerman as a contact person, Liza is to provide names to include in conversation for emergency management.

Scalar will further analyze alternatives for the access point, including having the major intersection further to the north.

Meeting Minutes

Project:	FPID No. 436676-1-22-01 SR 789 (Longboat Key) PD&E Study from North Shore Road to Coquina Park Entrance	
Subject:	Park Access Meeting with Manatee County	
Date and time:	April 19, 2023; 9:00 AM	
Meeting place:	Microsoft Teams Meeting	Minutes by: Scalar Consulting Group Inc.

Attendees:

Patrick Bateman – FDOT District 1; patrick.bateman@dot.state.fl.us
 Aniruddha Gotmare – Scalar Consulting Group Inc.; agotmare@scalarinc.net
 Brian Brantley – Scalar Consulting Group; bbrantley@scalarinc.net
 Kaley Witenstein - Scalar Consulting Group; kwitenstein@scalarinc.net
 Liza Click – Manatee County liza.click@mymanatee.org
 Tom Woodard - twoodard@cityofbradentonbeach.com
 Chief John Cosby – jcosby@cityofbradentonbeach.com
 Sgt Russ Schnering - russell.schnering@manateesherriff.com
 Michael Elswick – Manatee County Michael.elswick@mymanatee.org

Notes:

Key points discussed are provided below.

FDOT PM gave overview of project – currently in the PD&E study phase looking at replacing the Longboat Pass bridge. The project is not funded for design or construction soon.

Scalar is currently looking at the horizontal and vertical alignment of the bridge to determine best design. Based on preliminary evaluations, looking at developing the bridge to the west of the existing bridge to minimize impacts to utilities. High level fixed bridge and movable bridge alternatives are being evaluated.

With the elevation of the bridge and a 4.5% slope, the tie in point on the north end of the bridge will be beyond the existing park entrance. At the existing entrance, there would be approximately a 10-foot vertical difference from the existing ground. Proposing to move the park entrance to the north.

In addition to the existing bridge underpass, another underpass is proposed to circulate the traffic to make the right turn to go north on Longboat, avoiding the need for left turns. The existing underpass is going to be maintained.

Liza stated the main concern was allowing traffic to use the current gated road as a through road. Sgt Schnering mentioned it's a private drive as there are a lot of official operations out of that building and they do not need the public using that area. Chief Cosby agreed and brought up that the County has discussed eliminating the roundabout in the west side parking lot and creating an access road to reduce bottlenecking of traffic. Liza has confirmed the proposed removal of the roundabout has been completed.



Chief Cosby recommends moving the Scalar proposed intersection to the north, leaving the Marine Rescue Center driveway as is. Traffic can turn into the parking lot on the west side of Gulf Drive and go left, right or straight into the overflow parking. The green space in the park is to be used for overflow parking – adding 166 spaces.

The existing underpass or the proposed new underpass, will allow people to access the boat ramp on the south side of Gulf Drive. These will also allow emergency maintenance to cross under Gulf Drive, avoiding the main road traffic.

Leffis Key preserve belongs to the County, moving the intersection could potentially impact that space.

The PD&E team plans to conduct a field review in the near future, it was requested that the team stay in contact with Liza so they can coordinate and be out in the field too.

Meeting Minutes

Project: FPID No. 436676-1-22-01
SR 789 (Longboat Key) PD&E Study from North Shore Road to Coquina Park Entrance

Subject: Metropolitan Planning Organization (MPO) Meeting

Date and time: March 25, 2024; 9:00 AM

Meeting place: DoubleTree Hilton
8009 15th Street East
Sarasota, Florida 34243

Minutes by: Scalar Consulting Group Inc.

Attendees:

Patrick Bateman – FDOT District One; patrick.bateman@dot.state.fl.us

Daphne Spanos – Scalar Consulting Group; dspanos@scalarinc.net

Sarasota/Manatee MPO staff, Board of County Commissioners, consultants, and the public

Notes:

Key points discussed are provided below.

MPO

Longboat Key PD&E Study

- FDOT gave an overview of the study and the public feedback received at the Alternatives Public Workshop that was held on March 12th (online) and March 14, 2024 (in-person). Commissioner Kevin Van Ostenbridge, District Three – Manatee County asked about the access to the Manatee County Marine Rescue (on the Bradenton Beach side of the bridge) with the high level fixed bridge option. He stated that it will be challenging for rescue vehicles towing boats/trailers to exit the bridge northbound, then loop around to the Coquina Beach side and underneath the bridge to come back around and access the Marine Rescue. FDOT responded that they have had two meetings with the sheriff's office thus far to discuss the access options and are coordinating on this issue.

Action Items

- None

Meeting Minutes

Project:	FPID No. 436676-1-22-01 SR 789 (Longboat Key) PD&E Study from North Shore Road to Coquina Park Entrance	
Subject:	Coordination Meeting with Manatee County	
Date and time:	September 25, 2025; 4:00 PM	
Meeting place:	Microsoft Teams Meeting	Minutes by: Scalar Consulting Group Inc.

Attendees:

David Turley – FDOT District 1; david.turley@dot.state.fl.us
 Jimmy Vilce – FDOT District 1; jimmy.vilce@dot.state.fl.us
 Aniruddha Gotmare – Scalar Consulting Group Inc.; agotmare@scalarinc.net
 Brian Brantley – Scalar Consulting Group; bbrantley@scalarinc.net
 Predrag Milosavljevic – Scalar Consulting Group; pmilosavljevic@scalarinc.net
 Daphne Spanos - Scalar Consulting Group; dspanos@scalarinc.net
 Chet Brown – Manatee County Beach Patrol and Aquatic Safety; chet.brown@mymanatee.org
 Russell Schnering – Manatee County Sherriff; Russell.Schnering@manateesherriff.com
 Liza Click – Manatee County Parks Maintenance Supervisor; liza.click@mymanatee.org
 Aimie Johnson – Manatee County Michael.elswick@mymanatee.org

Notes:

Key points discussed are provided below.

The FDOT Project Manager gave an overview of project – currently in the PD&E study phase looking at replacing the Longboat Pass (Longboat Key) Bridge. The high-level fixed bridge is the preferred option.

The northbound left turn lane as the bridge tapers down to grade northbound at Coquina Beach was discussed. The left turn lane is approximately 520 feet long and should accommodate traffic demands, although during holidays or special events, additional traffic congestion in the entire beach area is expected.

Manatee County mentioned that they have an additional EMS ambulance that services this area 7 days a week. Manatee County requested that an emergency signal be provided at the entrance to the Manatee County Marine Rescue so the ambulance can access SR 789 during an emergency response. The PD&E Study Team will investigate providing an emergency signal here (Action Item).

Manatee County did not raise any other concerns with the access provided in the high-level fixed bridge design.

Action Item:

The PD&E Study Team will investigate providing an emergency signal at SR 789/Entrance to Manatee County Marine Rescue.