

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**for the**

**Beach Corridor Rapid Transit Project – Bay Crossing**  
**Miami-Dade County, Florida**

This Environmental Assessment and the supporting documentation referenced herein was prepared for the United States Coast Guard (as the Lead Federal Agency) and Miami-Dade County, in cooperation with the Federal Transit Administration, Florida Department of Transportation, State Historic Preservation Officer, United States Fish and Wildlife Service and National Marine Fisheries Service in accordance with the National Environmental Policy Act (NEPA) to comply with the laws, regulations and executive orders that apply to NEPA. This Environmental Assessment serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an Environmental Impact Statement or a Finding of No Significant Impact.

*Prepared for:*

**UNITED STATES COAST GUARD**

**and**

**MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION  
AND PUBLIC WORKS**



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## LIST OF ACRONYMS AND ABBREVIATIONS

AIWW	Atlantic Intracoastal Waterway	LRV	light rail vehicle
APE	area of potential effect	LWCFA	Land and Water Conservation Fund Act
APM	automated people mover	MALAA	may affect, likely to adversely affect
BCT	Broward County Transit	MANLAA	may affect, not likely to adversely affect
BRT	bus rapid transit	MOF	maintenance and operations facility
BMP	best management practice	mph	miles per hour
CBD	Central Business District	MSFCMA	Magnuson-Stevens Fishery Conservation Management Act
CCYL	coral colony yearly loss	NAAQS	National Ambient Air Quality Standards
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NMFS	National Marine Fisheries Service
CFR	Code of Federal Regulations	NOAA	National Oceanic and Atmospheric Association
CRAS	Cultural Resources Assessment Survey	NRCS	Natural Resources Conservation Service
CZMA	Coastal Zone Management Act	NRE	Natural Resources Evaluation
dB	decibels	NRHP	National Register of Historic Places
DFIRM	Digital Flood Insurance Rate Map	O&M	operations & maintenance
DTPW	Miami-Dade County Department of Transportation and Public Works	OFW	Outstanding Florida Water
EFH	essential fish habitat	PAG	Project Advisory Group
EO	Executive Order (Presidential)	PD&E	Project Development & Environment
EPA	U.S. Environmental Protection Agency	PIP	Public Involvement Plan
ERP	Environmental Resource Permit	RCRA	Resource Conservation and Recovery Act
ETDM EST	Efficient Transportation Decision Making Environmental Screening Tool	RER	Miami-Dade County Department of Regulatory and Economic Resources
FAA	Federal Aviation Administration	SAFM	South Atlantic Fishery Management Council
FCMP	Florida Coastal Management Program	SAR	Site Assessment Report
FDEP	Florida Department of Environmental Protection	SCE	Sociocultural Effects Evaluation
FDHR	Florida Department of Historic Resources	SCTL	Soil Cleanup Target Level
FDOT	Florida Department of Transportation	SFWMD	South Florida Water Management District
FEMA	Federal Emergency Management Agency	SHPO	State Historic Preservation Office
FHWA	Federal Highway Administration	SMART	Strategic Miami Area Rapid Transit
FLUCCS	Florida Land Use, Cover and Forms Classification System	SMP	Soil Management Plan
FMP	Fishery Management Plan	SRCO	Site Rehabilitation Completion Order
FTA	Federal Transit Administration	SSA	sole source aquifer
FWC	Florida Fish and Wildlife Conservation Commission	TPO	Transportation Planning Organization
GCTL	Groundwater Cleanup Target Level	USACE	U.S. Army Corps of Engineers
HAPC	Habitat Areas of Particular Concern	USCG	U.S. Coast Guard
LPA	locally preferred alternative	USDA	U.S. Department of Agriculture
LRT	light rail transit	USDOT	U.S. Department of Transportation
		USFWS	U.S. Fish and Wildlife Service
		UST	underground storage tank

## EXECUTIVE SUMMARY

In 2016, the Miami-Dade County Transportation Planning Organization (TPO) adopted the Strategic Miami Area Rapid Transit (SMART) Plan as the blueprint for developing premium transit services throughout Miami-Dade County. Subsequently, the Miami-Dade County Department of Transportation and Public Works (DTPW) initiated the Beach Corridor Rapid Transit Project, Project Development and Environment (PD&E) Study, in collaboration with the Florida Department of Transportation (FDOT) and the cities of Miami and Miami Beach. The PD&E Study resulted in the selection of a Locally Preferred Alternative (LPA) which was approved by the Miami-Dade County TPO on January 30, 2020. The LPA included three sections: the Beach Corridor Trunkline, also called the Bay Crossing, which extends from the existing Downtown Metromover Omni Extension in Miami along MacArthur Causeway to 5<sup>th</sup> Street in Miami Beach near Washington Avenue; the Miami Design District Extension, which is an extension of the existing Metromover in the median of Miami Avenue from NW 15<sup>th</sup> Street to NW 41<sup>st</sup> Street; and the Miami Beach Convention Center Extension along Washington Avenue from 5<sup>th</sup> Street to 17<sup>th</sup> Street.

This Environmental Assessment is for the Beach Corridor Trunkline, or Bay Crossing. The selected technology for the Bay Crossing Trunkline in the LPA is for elevated, rubber tire vehicles, which includes either Automated People Mover (APM) or Monorail on an elevated transit guideway. DTPW proposes to construct the elevated transit guideway adjacent to and south of MacArthur Causeway from Herald Plaza in Miami to the median of 5<sup>th</sup> Street in Miami Beach near Washington Avenue. Four new stations are proposed, Herald Plaza Station, Children's Museum Station on Watson Island, Lenox Avenue and 5<sup>th</sup> Street Station, and Washington Avenue and 5<sup>th</sup> Street Station. The Museum Metromover Station on mainland Miami is an existing station for the APM alternative only. The Bay Crossing includes three subareas, the West Bridge over the Atlantic Intracoastal Waterway (AIWW), MacArthur Causeway, and the East Bridge over Meloy Channel. The purpose of this project is to increase the person-throughput to the Beach Corridor's major origins and destinations via a rapid transit technology. The need for the project is the extensive population growth throughout the study area, resulting in ever-increasing traffic congestion and the demand for enhanced access to the area's employment centers, facilities and services.

Maintenance and Operations Facility (MOF) site identification and evaluation were developed based on the operations plan and fleet requirements. This analysis indicated that the MOF requirements of the APM or Monorail alternatives could be accommodated on a site of approximately three acres or less on Watson Island.

Numerous meetings with the public, elected officials, regulatory agencies and various City and County staff have occurred since 2017. A Project Advisory Group composed of affected community representatives was formed to provide input.

The laws, regulations and executive orders (authorities) that fall under the National Environmental Policy Act (NEPA) were evaluated along with existing environmental conditions (issues). The findings are summarized in the following table.

Summary of Findings	
Authority/Issue Evaluated	Finding/Comments
Land Use	No Effect, potentially beneficial
Air Quality	No Effect, potentially beneficial
Noise and Vibration	No Effect, Temporary Effects during Construction, Minimization measures to be developed during final design and implemented during construction.
Contamination	Potential Effect, Level II assessment will be conducted during final design to determine mitigation required during construction.

Summary of Findings	
Authority/Issue Evaluated	Finding/Comments
Water Quality and Drainage	Water Quality Certification provided by the State.
Sole Source Aquifer	Potential Effect, Coordination with EPA complete.
Coastal Zone Management	No Effect, Federal Coastal Zone Consistency received from the State.
Wetland and Benthic Resources/ Marine Protected Areas (FDEP)	Project Effect, Mitigation has been approved by State and Federal agencies.
Floodplains	No Effect
Wild and Scenic Rivers Act	Not Applicable
Coastal Barrier Resources Act	Not Applicable
Land and Water Conservation Fund Act	No Effect - Not Applicable
National Marine Sanctuaries Act	Not Applicable
Endangered and Threatened Species - USFWS	Potential Effect, USFWS concurred with effect determinations with implementation of minimization measures and commitments.
Endangered and Threatened Species - NMFS	Potential Effect, NMFS performed a Biological Opinion and concluded that the proposed project is likely to adversely affect, but will not destroy or adversely modify, Johnson's seagrass designated critical habitat. NMFS concurred with effect determinations for species other than Johnson's seagrass with implementation of minimization measures.
Essential Fish Habitat Fish and Wildlife Coordination Act	Potential Effect, Consultation with NMFS concluded with project commitments to minimize adverse effects.
Marine Mammals Protection Act	Not Applicable
Migratory Bird Treaty Act	No Effect
Bald and Golden Eagle Protection Act	Not Applicable
Invasive Species	No Effect
Historic and Archaeological Resources	No Adverse Effect determination made by SHPO
Section 4(f)	Not Applicable – No Effect
Recreation Areas	No Effect
Title VI/Environmental Justice	No Disproportionate Effects

The authorities or issues that had a potential for adverse effects were further evaluated and consultation with Federal and State agencies was conducted to avoid or minimize adverse effects. Mitigation measures and commitments were instituted as discussed below.

Noise impact analysis was completed following the FTA Transit Noise and Vibration Impact Assessment Manual (FTA 2006). Both APM and Monorail have rubber tire wheels on an elevated guideway. This technology will cause no moderate or severe noise impacts for schools, public parks, or residential areas. The FTA guidelines do not consider the anticipated noise levels to be a strong justification for mitigation and no mitigation measures are proposed. FTA daytime and nighttime construction noise level thresholds for 8-hour and 30-day average noise levels will be applied during construction.

Because the rubber tires and suspension systems of an APM or Monorail provide vibration isolation, no vibration impacts are projected; therefore, no vibration mitigation measures are necessary or proposed. FTA guidelines on allowable construction-induced vibration levels will be applied during construction. Minimization measures, such as monitoring noise and vibration levels, will be further evaluated during the final design phase and implemented during construction.

A Level I Contamination Screening Evaluation of the project was conducted to identify potential contamination from properties or operations located within the vicinity of the proposed project. Seven Medium and High rated sites with the potential to impact the project were identified. During the final design phase of this project, Level II assessment will be conducted on the Medium and High rated sites unless project design changes or updated contamination information shows that the site does not pose a risk of impacting the project. Site-specific Level II contamination assessment investigations, including soil and groundwater assessment, are recommended for any areas that have proposed dewatering or subsurface work activities occurring at, or adjacent to, Medium and High rated sites.

A total of 0.185 acres of paddle grass are anticipated to be impacted from installation of the foundations, barge spudding and shading from the project. DTPW is proposing two seagrass mitigation plans to satisfy differing State and Federal seagrass mitigation requirements. Seagrass mitigation to satisfy the State requirement for seagrass mitigation to occur within Biscayne Bay Aquatic Preserves is proposed at Matheson Hammock County Park. This plan is incorporated into the SFWMD Environmental Resource Permit. Targeted seagrass restoration of propeller scars/blowholes is proposed at shoal areas in Biscayne National Park to satisfy NMFS. This plan provides mitigation for impacts to EFH.

Impacts to hard coral, soft coral and sponges and the amount of mitigation required were estimated in coordination with NMFS using a Resource Equivalency Analysis (REA). Mitigation for coral and hardbottom impacts is proposed in two forms, relocation to a site within Biscayne Bay Aquatic Preserves prior to construction and outplanting of corals to offshore reefs from nursery stock. The relocated corals will be entered into the REA and thereby reduce the number of corals that need to be outplanted from nursery stock. In addition, as per a request from FWC, corals from the impact area may be donated to entities conducting coral restoration-related activities such as research, gene banking, and propagation.

The USFWS concurred that the project would have “no effect” on wading and shore birds and that the project “may affect, but is unlikely to adversely affect” the Florida bonneted bat, West Indian manatee, American alligator, American crocodile and Eastern indigo snake. The project will follow the *Standard Manatee Conditions for In-water Work*. NMFS concurred with the effects determination of “may affect, not likely to adversely affect” for fishes and sea turtles with implementation of the *Sea Turtle and Smalltooth Sawfish Construction Conditions*. They made a “not present” effect determination for the listed corals and Johnson’s seagrass. Regarding critical habitat, NMFS concluded that the proposed project is likely to adversely affect, but will not destroy or adversely modify, Johnson’s seagrass designated critical habitat.

The project has the potential to impact EFH, HAPC and managed species in the project area. Impacts to the estuarine water column and unvegetated bottoms (sand/shell or mud) are anticipated to be minimal. Impacts to Submerged Aquatic Vegetation (SAV) and hardbottom communities (coral) are anticipated to be more than minimal but less than substantial. Consultation was initiated with NMFS for EFH and they issued a letter with Conservation Recommendations. The project will comply with all of the Conservation Recommendations as detailed in the project commitments. The Biscayne National Park Seagrass Mitigation Plan compensates for loss of SAV. In addition, the coral and hardbottom mitigation was developed in coordination with NMFS and satisfies their requirements for hardbottom (coral) mitigation.



The project corridor is within the locally designated Ocean Beach Historic District in Miami Beach, which includes historic structures. The MacArthur Causeway is listed in the Florida Master Site File; however, the SHPO has determined that it is ineligible for listing in the National Register of Historic Places. The SHPO has concurred that the project would have no adverse effect on historic resources. Coordination will continue to ensure that the project is harmonious with the Ocean Beach Historic District.

The following summarizes the mitigation and minimization commitments that will be followed for this project.

- Impacts to seagrass will be mitigated through enhancement of scarred shoal areas at Matheson Hammock County Park and through restoration of propeller scars/blowholes at shoals in Biscayne National Park.
- Impacts to coral and hardbottom will be mitigated by outplanting coral from nurseries to offshore reefs and by relocating a portion of the coral in the impact area. The REA will be utilized as a tool to calculate the required mitigation.
- Barges used during construction will be limited to a five-foot draft.
- Ramp-up procedures will be used during pile installation. No in-water pile driving will occur at night.
- Temporary steel casings (or some form of containment) will be utilized around the drilled shafts and pile caps to avoid contamination to Biscayne Bay waters.
- Submerged small and medium boulder riprap along the causeway section of the project that needs to be removed for construction of the foundations will be moved to a similar, submerged habitat within the project corridor and not moved again during construction of this project.
- A pre-construction seagrass survey will be performed within two years of construction initiation. Two post-construction seagrass surveys will be performed, one immediately following construction completion and another one-year post-construction, to monitor recovery/persistence of seagrass beds. Seagrass surveys will be performed during the June 1 to September 30 seagrass growing season.
- The Watson Island Baywalk Park is a National Park Service Land and Water Conservation Fund (LWCF) Act site and, therefore, will not be used as a staging area or for the siting of an MOF.
- A survey for Florida bonneted bat will be conducted prior to construction following the latest survey guidelines from the USFWS in place at the time.
- The project will follow the *Standard Manatee Conditions for In-Water Work* (2011), the *Sea Turtle and Smalltooth Sawfish Construction Conditions* (2006) and the *Standard Protection Measures for the Eastern Indigo Snake* (2013) during construction.
- Best Management Practices for turbidity, erosion and sediment control will be utilized during construction to minimize impacts to the social, natural and physical environments and meet the no net increase in turbidity standards required for Biscayne Bay.
- The FTA manual states that elevated structure mass transit systems rarely cause vibration issues with building structures located more than 50 feet from the guideway support. If needed, locations that do not meet this criterion will be surveyed for ambient vibration levels at a later time as part of final engineering design.
- FTA daytime and nighttime construction noise level thresholds for 8-hour and 30-day average noise levels will be applied during construction. Also, FTA guidelines on allowable construction-induced vibration levels will be applied during construction. Minimization measures, such as monitoring noise and vibration levels, will be further evaluated during the final design phase and implemented during construction.



- Contamination sites with a High and Medium risk to the project will be reassessed during final design.
- The fixed guideway system will operate in exclusive right-of-way to ensure system speed and reliability and to avoid conflicts with automobile and pedestrian traffic.
- Coordination and consultation with regulatory agencies, including USCG, USACE, SHPO, USFWS, NMFS, SFWMD, FDEP, FWC and RER will continue during the design, permitting and construction phases of the project.
- During the design phase, consultation with SHPO and the City of Miami Beach will continue to ensure that the built structures are harmonious with the Ocean Beach Historic District.
- The project will be conducted in accordance with Title VI of the Civil Rights Act and EO 12898 regarding environmental justice to ensure that there are no disproportionate effects on low-income or minority populations.

# 1 Project Purpose and Need

## 1.1 Introduction and Background

In 2016, the Miami-Dade County Transportation Planning Organization (TPO) adopted the Strategic Miami Area Rapid Transit (SMART) Plan as the blueprint for developing rapid transit services throughout Miami-Dade County. Subsequently, the Miami-Dade County Department of Transportation and Public Works (DTPW) initiated the Beach Corridor Rapid Transit Project (Beach Corridor), Project Development and Environment (PD&E) Study in 2017, in collaboration with the Florida Department of Transportation (FDOT) and the cities of Miami and Miami Beach. The PD&E Study resulted in the selection of a Locally Preferred Alternative (LPA), which was approved by the Miami-Dade County TPO governing board on January 30, 2020 (Resolution 03-2020). The LPA included three sections: the Beach Corridor Trunkline, also called the Bay Crossing, which extends from the existing Downtown Metromover Omni Extension in Miami along the MacArthur Causeway to 5<sup>th</sup> Street in Miami Beach near Washington Avenue; the Miami Design District Extension, which is an extension of the existing Metromover in the median of Miami Avenue from NW 15<sup>th</sup> Street to NW 41<sup>st</sup> Street in the Design District; and the Miami Beach Convention Center Extension along Washington Avenue from 5<sup>th</sup> Street to 17<sup>th</sup> Street and then to the Miami Beach Convention Center. Each section has been shown to have logical termini and independent utility (see **Attachment A**). The LPA is shown in **Figure 1-1**.

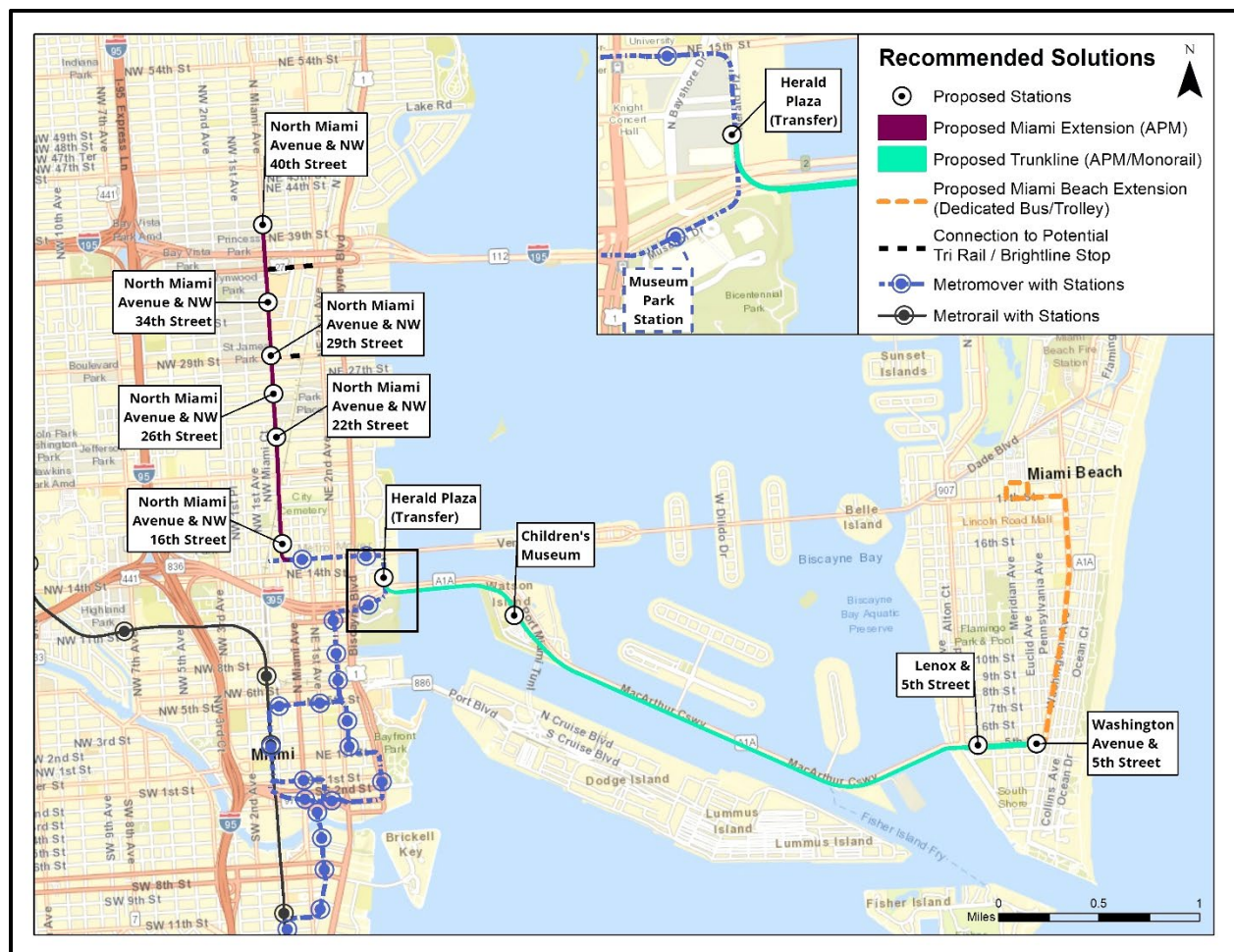


Figure 1-1 Locally Preferred Alternative

## 1.2 Project Description and Location

This Environmental Assessment is for the Beach Corridor Trunkline, or Bay Crossing, to satisfy National Environmental Policy Act (NEPA) requirements for two U.S. Coast Guard (USCG) bridge permits, one for the crossing over the Atlantic Intracoastal Waterway (AIWW) (Mile 1088.9) and one for the crossing over the Meloy Channel (Mile 0.44) in Miami-Dade County. The two permit applications may be combined into one to include the area adjacent to the Miami Channel along MacArthur Causeway. The selected technology in the LPA is for elevated, rubber tire vehicles, which includes either Automated People Mover (APM) or Monorail on an elevated transit guideway. DTPW proposes to construct the elevated transit guideway adjacent to and south of MacArthur Causeway from Herald Plaza in Miami to the median of 5<sup>th</sup> Street in Miami Beach near Washington Avenue, as shown on the location map in **Figure 1-2**. The Bay Crossing includes three subareas, the West Bridge over the AIWW, MacArthur Causeway, and the East Bridge over Meloy Channel. The Beach Corridor Bay Crossing Environmental Assessment also includes evaluation of a potential Maintenance and Operations Facility (MOF) on Watson Island, south of MacArthur Causeway. This Environmental Assessment is based on 30% plans for the LPA submitted to the USCG for the bridge permit applications. Additional documentation can be found in the Preliminary Engineering Report for the project based on the 15% concept plans.

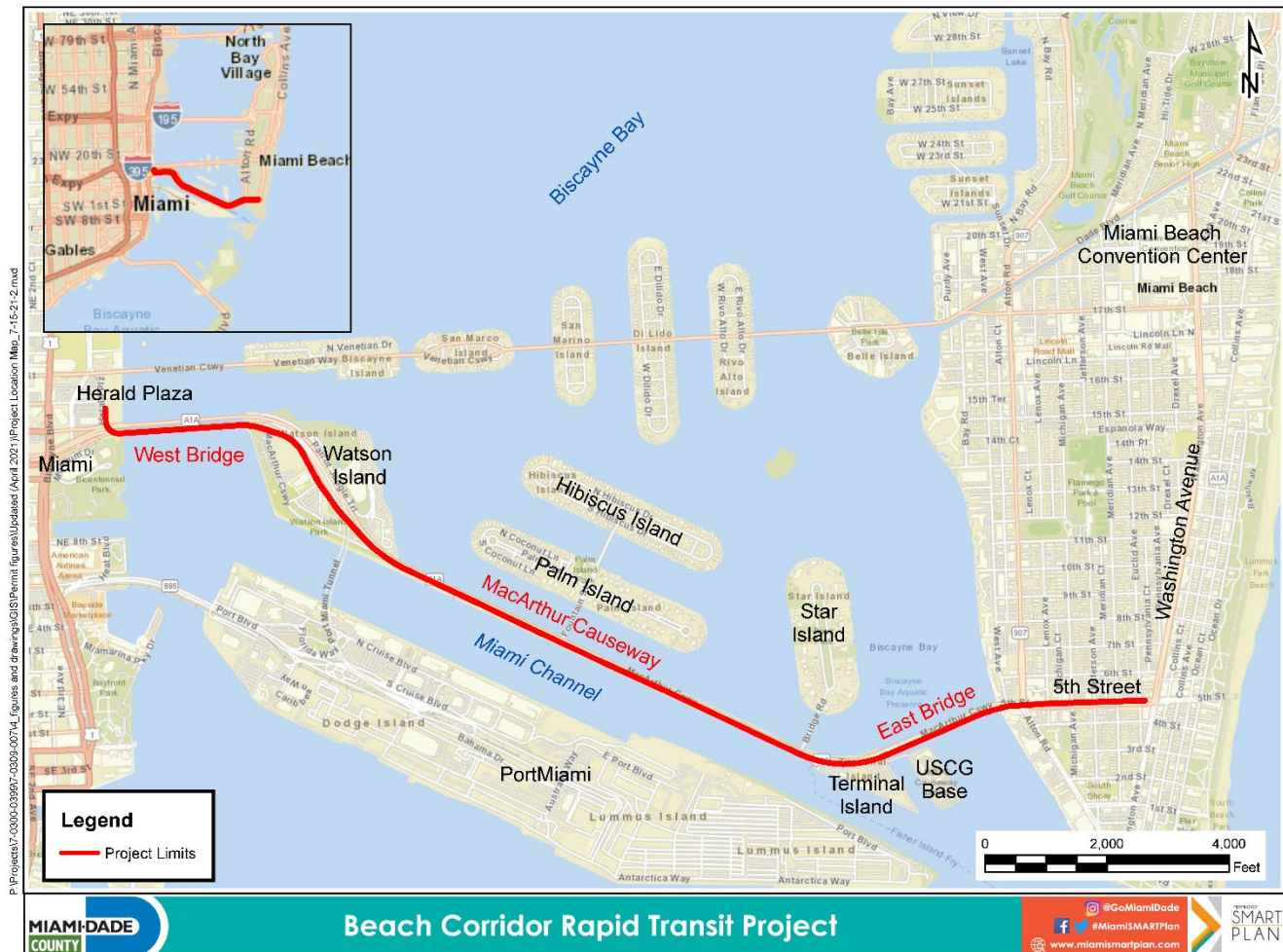


Figure 1-2 Bay Crossing Location Map



### 1.3 Purpose and Need

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The purpose of this project is to increase the person-throughput to the Beach Corridor's major origins and destinations via a rapid transit technology. The need for the project is the extensive population growth throughout the study area, resulting in ever-increasing traffic congestion and the demand for enhanced access to the area's employment, facilities and services.

The Beach Corridor traverses an area that is at the epicenter of population and economic growth within Miami-Dade County. The City of Miami Central Business District (CBD) area and Miami Beach have undergone rapid population and employment increases over the past decade, a trend that is projected to continue over the next 20 years. The population densities in the study area are among the highest in the nation, with the Miami CBD at 17,800 persons per square mile and Miami Beach at 11,500 persons per square mile, per the 2010 U.S. Census. The Miami CBD saw a dramatic 172% increase in population density over the last decade. The Miami Beach area includes major health facilities such as Mt. Sinai Medical Center, residential and retail uses, and major 24-hour hotels that provide service jobs for people residing throughout Miami-Dade County.

In addition to travel needs to accommodate future regional growth, tourism travel patterns exacerbate the existing roadway network conditions. Tourism travel patterns encompass visitors who are 'people not residing or working in the region'. These trips and patterns are outside of the typical commuter peak travel patterns. The region's appealing qualities, such as its temperate climate, attractive beaches, and convenient access to the Caribbean and Latin America, South Florida and Miami-Dade County has made the area an important tourist destination for both national and international visitors. The county hosts millions of annual visitors and seasonal residents. Visitors typically access the study area via tour bus, taxi, or rental car.

In 2018, Greater Miami and the Beaches attracted a record 16.5 million overnight visitors and an additional 6.8 million day trippers. Miami Beach and Downtown Miami are the two most popular locations for overnight stays, lodging nearly 50% of all 2018 Greater Miami area visitors with approximately 6.1 million and 1.6 million overnight guests, respectively. Additionally, the most visited attractions, according to the Greater Miami Chamber of Commerce, are in proximity to the Beach Corridor, including South Beach, the Beaches, Lincoln Road, Bayside Market Place, and Downtown Miami.

This high rate of tourism contributes significantly to the area's economy. Tourism generates additional demand for travel, produces additional trips within the area, and contributes to an overall increase in traffic congestion. Tourism related travel patterns are different from the regular weekday commute travel patterns. Hotels on Miami Beach are open 24 hours a day/7 days a week and service workers have shifts throughout the day. Weekend attractions are also more prevalent and less likely to follow commute patterns. As a result, the existing transportation infrastructure is unable to adequately accommodate the entirety of current and projected travel demand. The Greater Miami Convention and Visitor's Bureau website displays yearly visitor Industry Overview reports which include results of a yearly survey of 15,000 visitors. Data collected from questions administered on the Bureau's visitor survey highlight that traffic congestion is considered to be the top negative aspect of trips to Greater Miami and Miami Beach and it has been the top-ranked problem in each of their last eight annual visitor surveys.

### 1.4 Project Goals

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To meet the project's purpose and need, goals that would accommodate the high travel demand throughout the study area and provide relief to the extreme traffic congestion along the surface streets were established. The project goals are:

- Connect to and provide direct, convenient, and comfortable rapid-transit service via a new transit connection to the existing regional system in Miami to serve existing and future planned land uses which include additional residential and commercial uses in Downtown Miami as well as Miami Beach.
- Provide enhanced interconnections with Metrorail, Tri-Rail, Brightline, Metromover, and Metrobus routes; Broward County Transit (BCT) bus routes; Miami and Miami Beach circulators; jitneys; shuttles; taxis; transportation network companies, such as Uber and Lyft; and/or other supporting transportation services; and

- Promote pedestrian and bicycle friendly solutions in the corridors of the study area by incorporating bike share facilities at major transfer facilities and pedestrian infrastructure access to all new stations.

## 2 Alternatives Considered

### 2.1 Phased Development of Alternatives – Tier One and Tier Two

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Alternatives were developed in two project phases - Tier One, a transit technology screening, and Tier Two, Preliminary Engineering and Environmental Assessment.

The Tier One evaluation considered seven alternative technologies to provide rapid-transit connections between the Midtown Miami/Design District, Downtown Miami, and Miami Beach. Autonomous vehicle technology applications were included with each technology assessment.

In association with input received from the public, DTPW identified the following transit technologies (modes) for consideration in the Beach Corridor Tier One Evaluation:

- Automated Guideway Transit (Metromover or APM)
- Light Rail Transit /Streetcar (LRT)
- Heavy Rail Transit (Metrorail)
- Bus Rapid Transit (BRT)
- Aerial Cable Transit
- Monorail
- Personal Rapid Transit

The Tier One Evaluation included a summary of these transit technologies and modes, the development of representative alignments, public involvement and the evaluation of the potential modes with respect to transit performance, economic and community development, environmental effects, and cost/feasibility. To support the Tier One Evaluation of transit technologies, representative alignments were developed for each mode to demonstrate how the general characteristics of the technology would be applied to the study area. The purpose of the Tier One representative alignments was to provide enough specificity about the application of each mode to the corridor to allow for a comparative evaluation of the modes. Based on the results of the evaluation, three transit modes were eliminated from further analysis in the Tier Two Evaluation. They were:

- Heavy Rail Transit – due to potential large right of way impacts
- Aerial Cable Transit – due to low capacity and speed
- Personal Rapid Transit – due to low capacity and speed

The technologies to consider in Tier Two were those that could connect to the existing transit infrastructure in downtown. Based on the results of the Tier One analysis, DTPW determined that the following technologies had the potential to meet the project purpose and need and were advanced for further development in Tier Two.

- APM
- LRT
- Monorail
- BRT

## 2.2 No-Build Alternative

The No-Build Alternative assumes that existing bus/trolley transit service continues to operate in the study area with no additional improvements to speed, reliability or capacity.

## 2.3 Automated People Mover (APM) Alternative

### 2.3.1 TECHNOLOGICAL FEATURES

APM is a fully automated transportation system with driverless vehicles operating on fixed guideways and exclusive rights-of-way (elevated in urban areas or in tunnels at airports). APM trains operate on a two-rail guideway system with rubber tires on concrete or steel guideway. Miami's existing Metromover is an example of this system, featuring concrete columns that support a steel guideway. The existing vehicles have an overall body length of 39 feet, 8 inches, and body width of 9 feet, 4 inches. The minimum turning radius of the CX100 vehicle is 75 feet, and the maximum grade is 10%. The maximum operating speed of the existing Metromover is 25 miles per hour (mph), but newer vehicles are expected to be able to achieve speeds of 50 mph. In Downtown Miami, curves and stop spacing limit the Metromover to average operating speeds of 10 mph, but APM would be able to travel at or near the maximum operating speed for the Bay Crossing trunkline.

### 2.3.2 PROPOSED ALIGNMENT

The APM Alternative alignment is shown on **Figure 2-1**. In the Bay Crossing sub area (trunkline), the APM alternative would extend from the existing Downtown Metromover Omni Extension along MacArthur Causeway to 5<sup>th</sup> Street and Washington Avenue. The guideway structure would be elevated with a minimum of 16.5-foot clearance above the roadway and would be supported on oblong-shaped columns with a typical spacing of 130 feet and typical diameter of four to six feet. A rendering of the APM technology and a typical section across the Bay Crossing are depicted in **Figures 2-2** and **2-3**.

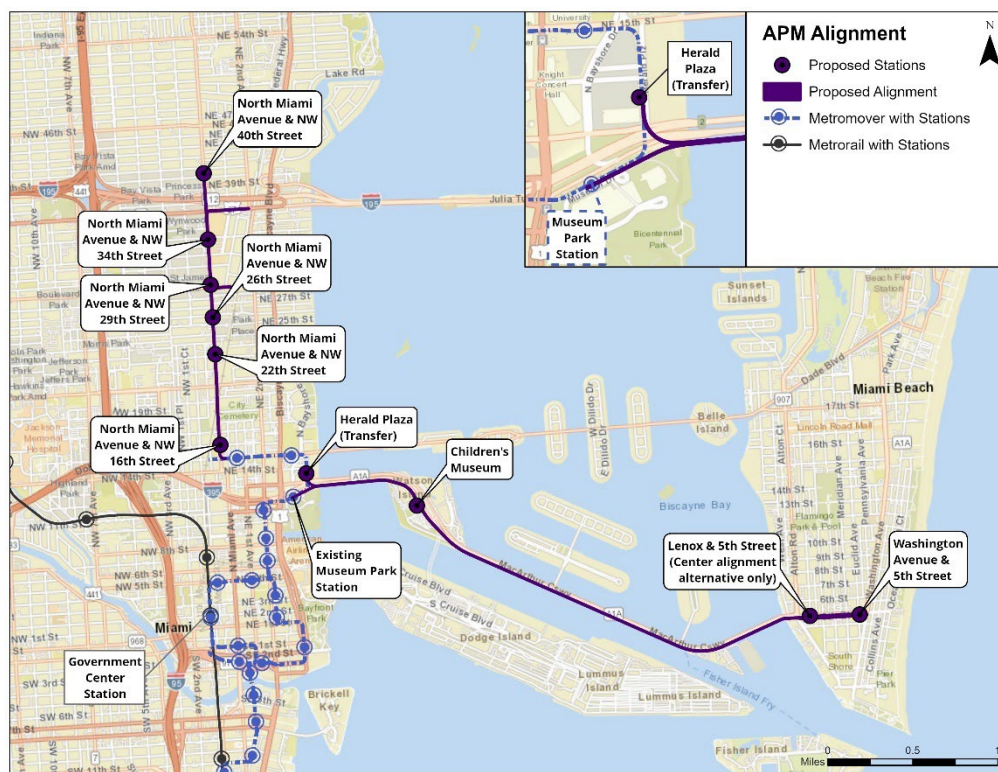


Figure 2-1 APM Alignment



Figure 2-2 APM Rendering

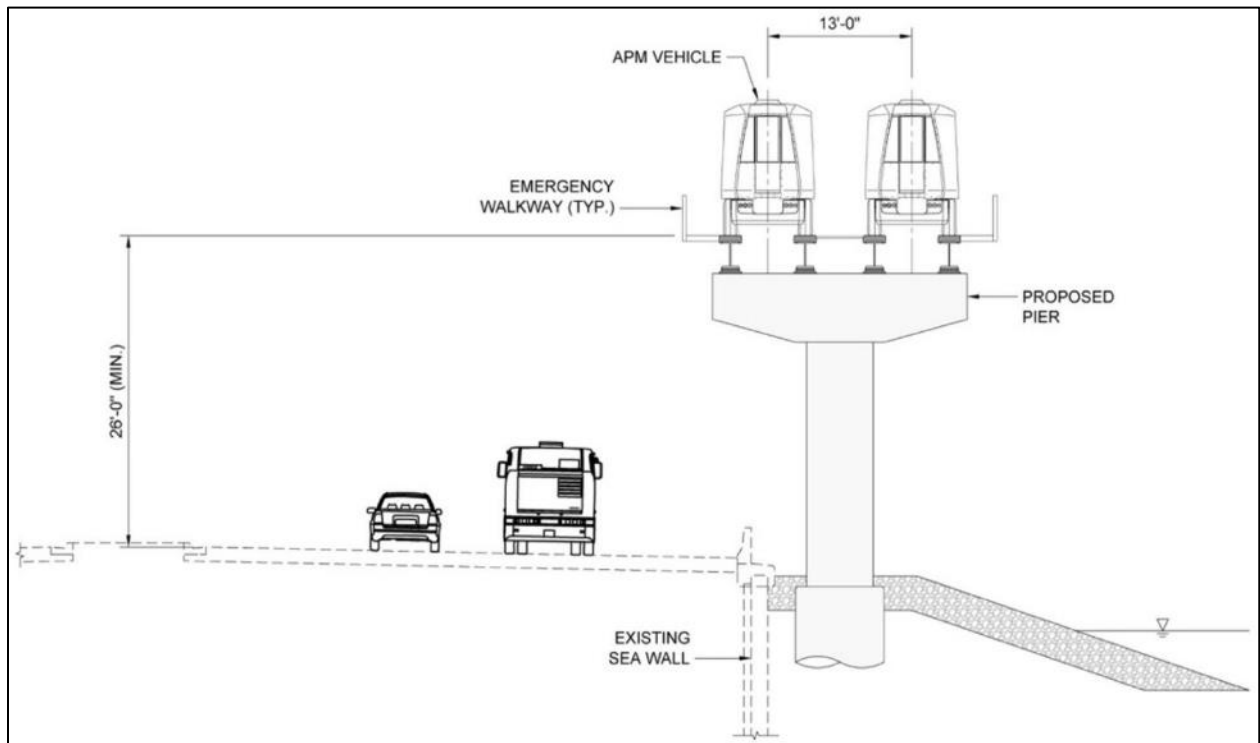


Figure 2-3 APM Bay Crossing Typical Section

The Museum Metromover Station is an existing station. New, elevated stations would be provided at the Herald Plaza, Children's Museum on Watson Island, at 5<sup>th</sup> Street and Lenox Avenue, and at 5<sup>th</sup> Street and Washington Avenue, where passengers could transfer to bus/trolley service in a dedicated bus lane extending along Washington Avenue to the Miami Beach Convention Center. A bus transit hub facility would be provided. The elevated station platforms would have approximate dimensions of 94 feet by 20



feet, typically supported by two columns. All proposed station locations included the enhancement of bicycle and pedestrian accessibility. A new maintenance facility of three acres or less would be required to accommodate the additional vehicles for the trunkline.

## 2.4 Light Rail Transit (LRT)

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### 2.4.1 TECHNOLOGICAL FEATURES

Light rail vehicle (LRV) technology features railcars that operate on steel wheels/rails with electric propulsion, level boarding, air-conditioning, passenger information systems, and double-leaf doors. LRV railcars are often characterized in terms of sections, units, and trainsets. Railcars that have articulated joints to allow them to navigate through tight-radius curves are comprised of several “sections” that are permanently joined together by the articulation. Modern railcars are articulated and may be comprised of three to seven sections. Railcars that can be joined together with mechanical and electrical couplings at either end of the railcar are individual “units” of a trainset. A trainset is a set of railcars that is coupled together into multiple units so that the lead car can provide the control of propulsion, breaking, door operations, etc. of all of the units in the trainset. A railcar that operates without coupling to other units is considered a single-unit train.

LRVs range from 8 to 10 feet in width and from 66-foot, three-section, single-unit trains (modern streetcar) to 400-foot, four-car trainsets in length. Trams, as implemented in Europe, are typically five- to seven-section, single-unit trains ranging from 98 to 155 feet in length. The vehicles also vary in their minimum turning radius and maximum grade capabilities and can be powered via an overhead contact, battery power, or embedded third-rail power system (the latter limited to trams comprised of at least five sections because of requirements for the length of the train).

Streetcars and trams are now offered with a variety of off-wire technologies, allowing them to operate off-wire in some segments with power supplied via on-board rechargeable batteries or in-ground power systems. The off-wire capability can be applied to avoid overhead obstacles such as low-clearance bridges, or in areas where overhead wires are not locally acceptable for visual/aesthetic reasons. These vehicles offer “hybrid” operation, so they can operate with power from an overhead wire in segments where off-wire is not required. The battery-drive systems have significant range of up to three miles. The in-ground systems have unlimited range but require a somewhat longer, tram-style vehicle to provide adequate spacing of the in-ground electrical relays. This allows the power system to be safely turned on while the train passes over the power source and off when the train is not present. For the Beach Corridor, a 40-meter vehicle that can be operated with an in-ground, off-wire power system on Washington Avenue and North Miami Avenue was assumed, consistent with previous Miami Beach streetcar proposals that assumed an off-wire system on Washington Avenue. The rest of the system will be powered with overhead wires.

### 2.4.2 PROPOSED ALIGNMENT

The LRT alignment was considered for the entire Beach Corridor to offer a one-seat ride from the Design District to the Miami Beach Convention Center area and is shown on **Figure 2-4**. The LRT Alternative would be comprised of a combination of at-grade and elevated segments. For the Bay Crossing, the alternative would extend from an at-grade station adjacent to the Museum Park Metromover station, continue east on a new elevated guideway structure on the south side of the MacArthur Causeway, with stations at the Children’s Museum and at 5<sup>th</sup> Street and Lenox Avenue, then transition to grade at the 5<sup>th</sup> Street and Washington Avenue intersection. The LRT alignment would then continue at grade on Washington Avenue to the Miami Beach Convention Center area. The Miami Design District Extension would be composed of both at-grade and elevated alignments. The consideration of all proposed station locations included the enhancement of bicycle and pedestrian accessibility.

The LRT alignment is elevated and the guideway structure would be at a minimum clearance of 16.5 feet above the roadway and would be supported on oblong-shaped columns with a typical spacing of 130 feet and typical diameter of four to six feet. The elevated stations would have approximate dimensions of 150 feet by 40 feet, typically supported by two columns. A new



maintenance facility of approximately 5.4 acres would be required to accommodate the entire alignment. A rendering of the LRT/Streetcar across the Bay is shown in **Figure 2-5** and the typical section is shown in **Figure 2-6**.



Figure 2-4 LRT Alignment



Figure 2-5 LRT Rendering

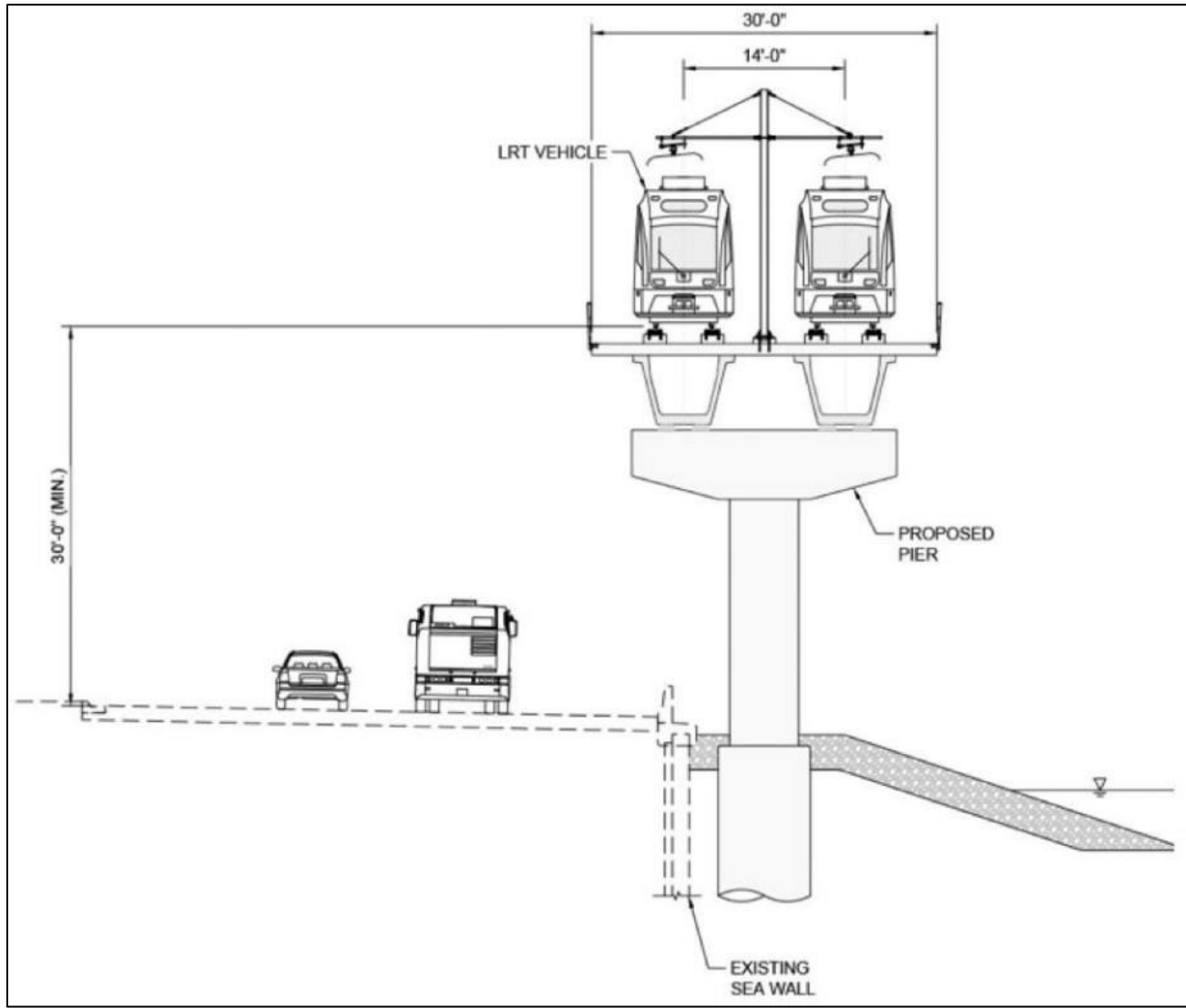


Figure 2-6 LRT Bay Crossing Typical Section

## 2.5 Monorail

### 2.5.1 TECHNOLOGICAL FEATURES

Monorail technology features rail cars that operate on concrete beam guideways with rubber drive wheels that run on the top of the beam with guide wheels running along the two sides. Traction power is supplied by a trolley wire mounted on the sides of the guideway beam and electricity is picked up by shoes on the vehicle. Monorail vehicles are 10 feet wide and roughly 35 feet to 45 feet long (can vary by manufacturer) and may be operated in two- to eight-car trainsets. Monorails have a minimum turning radius of 130 feet to 150 feet and can handle grades as steep as 10%. Similar to APM, modern Monorail systems are driverless and fully automated. Although some older Monorail systems are comprised solely of columns, monorail beams, and power rails, modern Monorail systems require additional structure to support a continuous emergency walkway along the alignment. Available Monorail technology can reach speeds of up to 50 mph and have superior aesthetics in terms of lighter vehicles and sleeker columns.

## 2.5.2 PROPOSED ALIGNMENT

The Monorail alignment is shown on **Figure 2-7**. For the Bay Crossing, the Monorail Alternative would extend from a new station at Herald Plaza offering a direct seamless connection to a Metromover platform within the same station house and continue east on a new elevated guideway structure along the south side of the MacArthur Causeway. The station at Herald Plaza has connectivity with the Omni Bus Terminal to facilitate transfers to and from existing and future bus routes. New stations would be provided at Herald Plaza, at the Children's Museum, at 5<sup>th</sup> Street and Lenox Avenue, and at 5<sup>th</sup> Street and Washington Avenue. The consideration of all proposed station locations included the enhancement of bicycle and pedestrian accessibility.

Under the Monorail alternative, passengers could transfer to bus/trolley service extending along Washington Avenue to the Miami Beach Convention Center. A bus/trolley transfer facility would be provided at the termini location. The guideway structure would be elevated with a minimum clearance of 16.5 feet above the roadway and would be supported on oblong-shaped columns with a typical spacing of 130 feet and typical diameter of four to six feet. The elevated station platforms would have approximate dimensions of 94 feet by 20 feet, typically supported by two columns. A new maintenance facility, of approximately 2.3 acres at a potential Watson Island location would be provided. A rendering of the Monorail is depicted on **Figure 2-8** and a typical section of the Bay Crossing is shown on **Figure 2-9**.

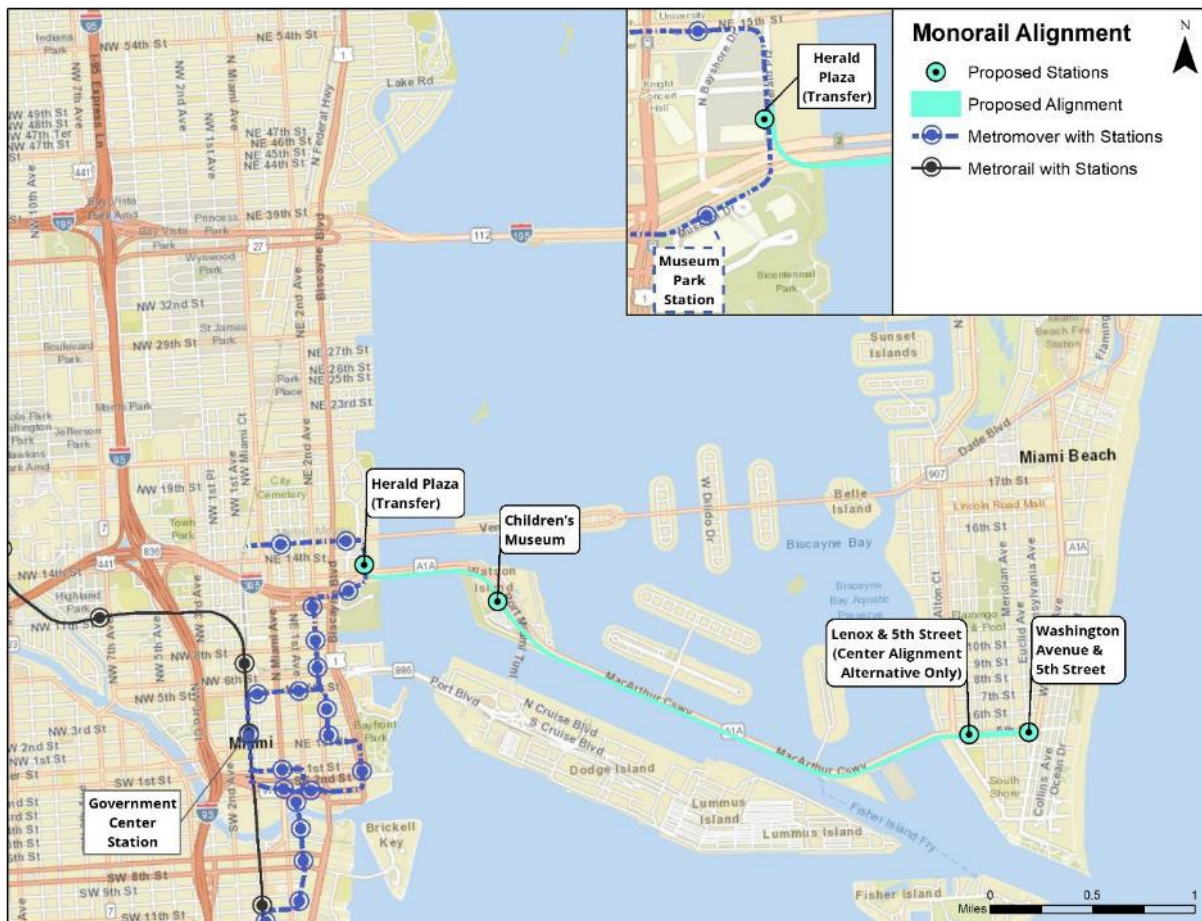


Figure 2-7 Monorail Alignment





Figure 2-8 Monorail Rendering

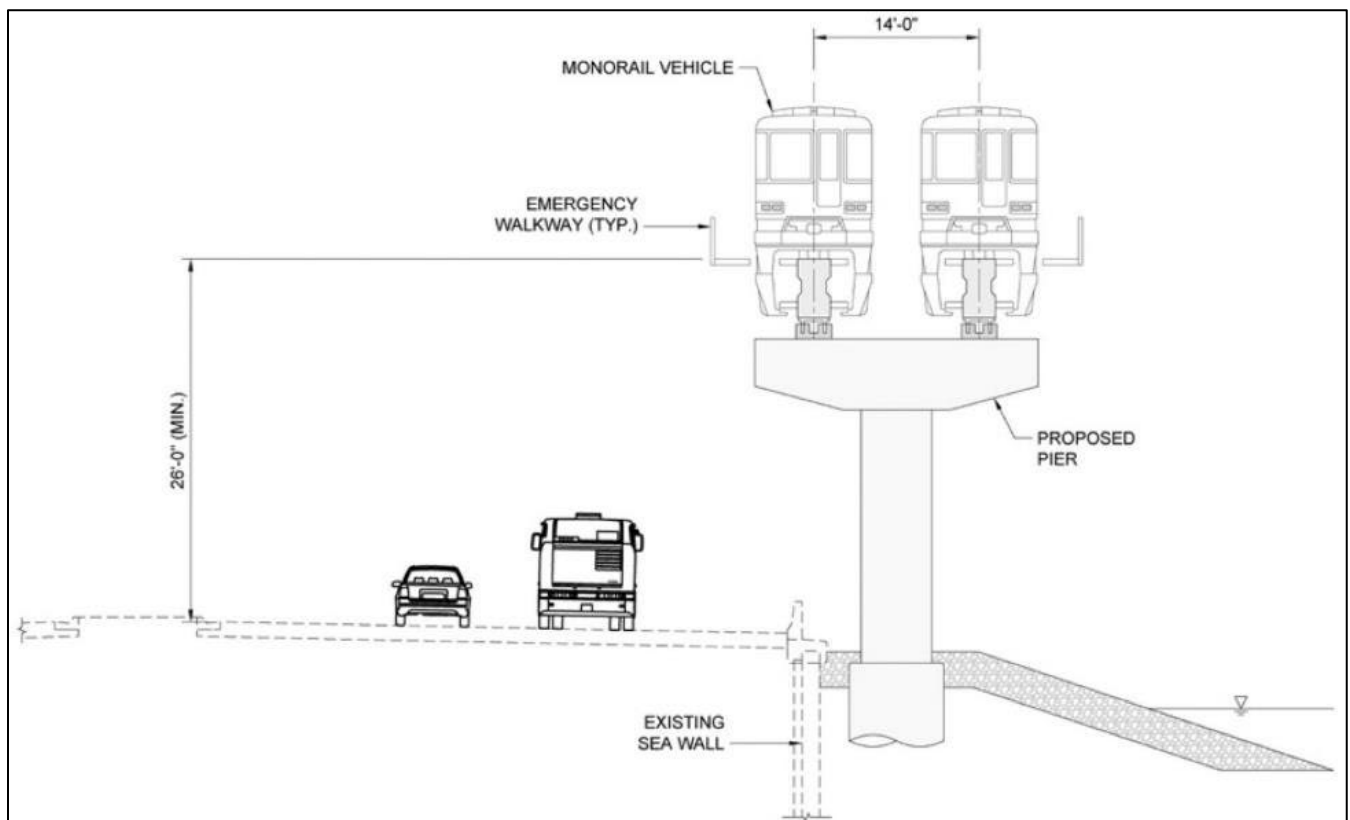


Figure 2-9 Monorail Bay Crossing Typical Section

## 2.6 Bus Rapid Transit (BRT)

### 2.6.1 TECHNOLOGICAL FEATURES

BRT typically features 60-foot articulated buses, raised platforms at stations for near-level boarding, station amenities such as off-board fare payment and real-time arrival information, and some level of priority for operations, such as bus-only lanes and transit signal priority. Some BRT projects feature a “busway,” with exclusive, transit-only operations. Some BRT vehicles feature left-sided doors to accommodate center-running alignments and center-platform stations. BRT vehicles may be traditional diesel-powered buses or may be powered with compressed natural gas or battery-electric propulsion systems. The bus batteries can be charged during short station stops (station charging) or during longer layovers at terminus stations/maintenance facilities (depot charging).

### 2.6.2 PROPOSED ALIGNMENT

BRT was originally considered for two Bay Crossing alignments, one across MacArthur Causeway and one across I-195/Julia Tuttle Causeway, as shown in **Figure 2-10**. The Julia Tuttle alignment was eliminated in a Bay Crossing alternatives analysis because the major origins and destinations associated with the Beach Corridor are on downtown Miami and south Miami Beach.

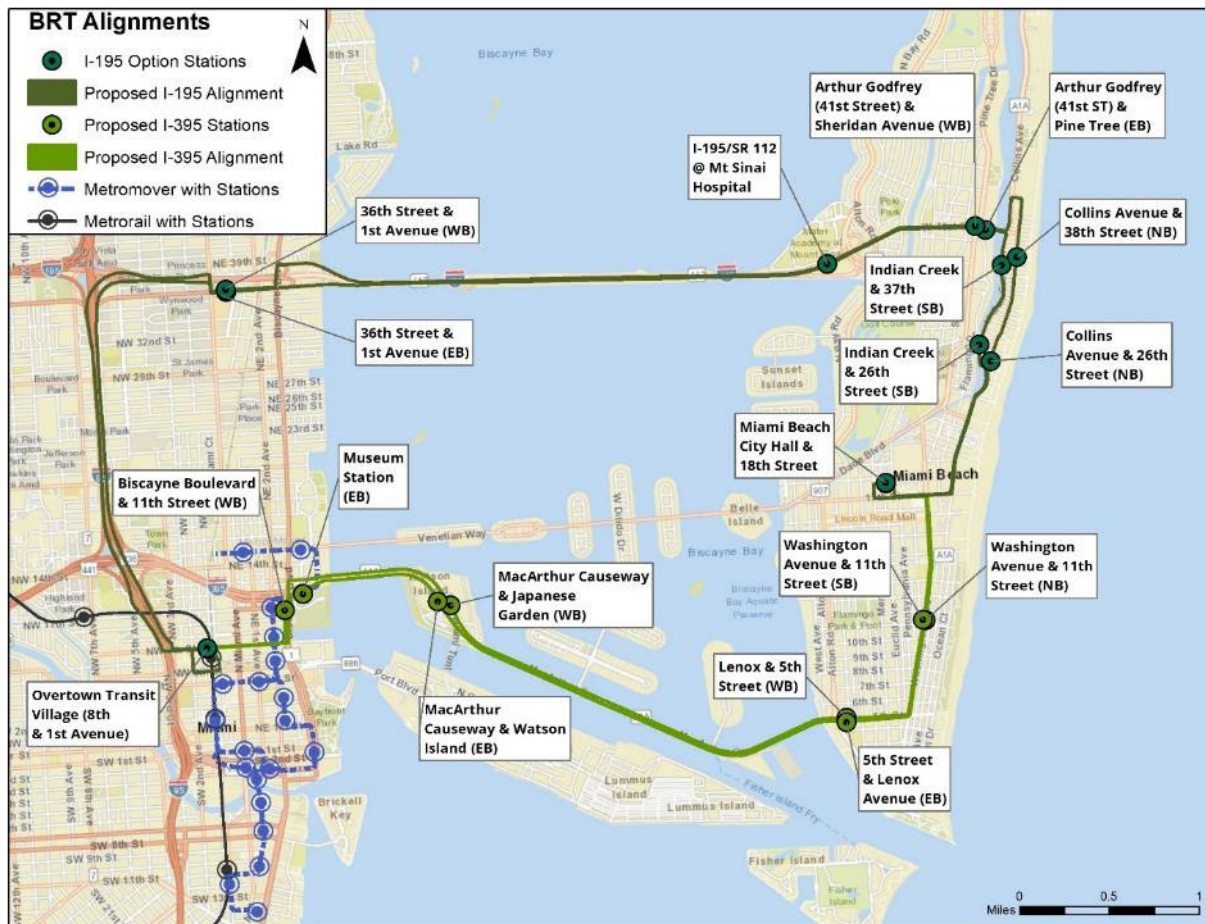


Figure 2-10 BRT Alignment

In addition, due to operational considerations for BRT and to comply with the definition of a BRT service, the BRT for the Bay Crossing would begin at Overtown Transit Village Station at 100 NW 6 St, Miami, and end at the Miami Beach Convention Center in Miami Beach. The BRT would operate in mixed flow on existing travel lanes from NW/NE 8<sup>th</sup> Street to Biscayne Boulevard and travel on dedicated bus lanes across MacArthur Causeway to Miami Beach. The proposed typical section would require the widening of the west and east bridges and MacArthur Causeway (**Figure 2-11**). BRT would be subject to highway design requirements and would be exacerbated at each end of the trunkline Bay Crossing where ramp structures would be necessary to connect the BRT to the surface roadway system. On the east side of the MacArthur Causeway the alternative continues east along 5<sup>th</sup> Street and north along Washington Avenue, utilizing dedicated bus lanes to the Miami Beach Convention Center (repurposing an existing travel lane in each direction).

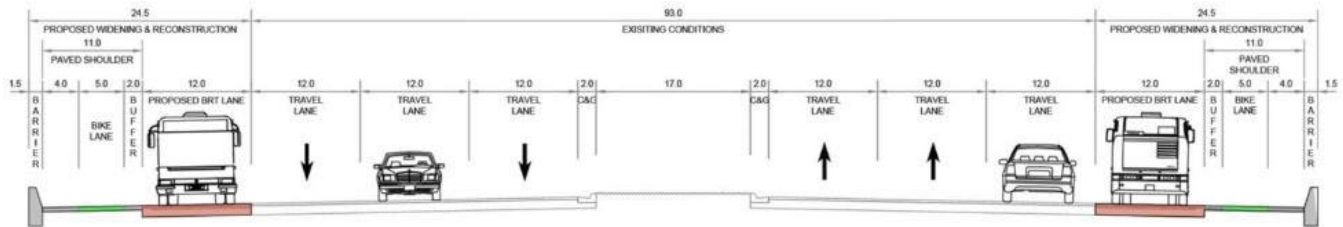


Figure 2-11 BRT Bay Crossing Typical Section

## 2.7 Maintenance and Operations Facilities (MOFs)

MOF site identification and evaluation were developed based on the operations plan and fleet requirements for each of the transit modes. Potential sites within the study area that would satisfy the site area requirements of the facility program were identified and evaluated with respect to the following:

- Hazardous Materials/Site Contamination
- Historic & Archaeological Site Impacts
- Proximity to Alignment
- Site Configuration/Operational Compatibility
- Acquisition Cost & Complexity
- Compatibility with Urban Context, Land Use & Zoning.

MOF program requirements were developed to identify the minimum site area required to meet the operating plan and fleet requirements for each rail alternative. Each of the rail transit modes was assumed to require siting and construction of a new facility to support system operations and vehicle maintenance/storage.

This analysis indicated that the MOF requirements of the APM or Monorail alternatives could be accommodated on a site of approximately three acres or less. Sites that meet the APM or Monorail criteria are available and in public ownership within the Bay Crossing sub-area on Watson Island.

Two approaches to the fleet for the LRT alternative were evaluated, with the more conservative fleet assumption requiring a site of approximately five acres. The larger site requirements for the LRT alternative are less readily available and there is no MOF site available for LRT on Watson Island, making this a fatal flaw for LRT as a Bay Crossing only alternative.

For BRT, which would run from Overtown Transit Village to Miami Beach Convention Center, it was assumed that additional buses acquired to support the BRT operation would be dispatched from, and maintained at, an existing DTPW bus facility. Due to operational considerations for BRT and to comply with the definition of a BRT service, the BRT alternative would not be limited to the Bay Crossing.

The capital costs of the alternatives include right-of-way acquisition costs for the MOF sites, and costs to construct and equip the MOF, including administrative, heavy maintenance and yard/yard track elements (support facilities). The facilities costs estimates for the APM and Monorail alternatives were based on the size of the existing Metromover Vehicle Maintenance Facility and current unit costs for industrial facilities. The facilities cost estimate for the LRT alternative was based on the upper end of the range of LRT MOF costs reported in the FTA historical cost database.

## 2.8 Bay Crossing Independent Utility

Although the PD&E Study for the Beach Corridor and the LPA included three sub-areas (as described in Section 1.1), the Bay Crossing trunkline offers independent utility as defined in NEPA. The Bay Crossing limits are from the existing Metromover Omni Extension Bus Terminal, (with a new station at Herald Plaza) in the City of Miami to a transit hub/stop at Washington Avenue and 5<sup>th</sup> Street in the City of Miami Beach. The logical termini for the project connects to major activity centers/destinations and existing transit. On the west end, it connects to Miami's central business district and on the east end it connects to Miami Beach's entertainment and employment district. The City of Miami Beach has designated exclusive transit lanes along 5<sup>th</sup> Street and Washington Avenue in their Transportation Master Plan. The City of Miami Beach also operates an extensive trolley system that would distribute/circulate trips from the Bay Crossing project termini to other parts of the city. The Bay Crossing project is approximately four miles long and of sufficient length to have independent utility.

Assuming no additional transportation improvements in the area are made, this project has independent utility as it connects two major activity centers across a body of water which constrains cross-city travel. As indicated in the travel market analysis, the cities of Miami and Miami Beach have the largest share of population and employment within Miami-Dade County. The project is independently significant as it can provide seamless accessibility between these two vibrant cities. Moreover, a premium transit enhancement across the bay would be less impactful to the environment than any traditional roadway enhancement.

The project would not restrict consideration of transit expansion plans in either City. Extensions to Midtown in Miami and Mid Beach in Miami Beach could continue with context sensitive technology that may or may not be similar to that of the Bay Crossing. Further confirmation of the Bay Crossing's independent utility is documented in the *Logical Termini-Independent Utility Report* prepared for the project and concurred with by FTA (**Attachment A**).

## 2.9 Comparative Alternatives Evaluation

To comparatively evaluate the ability of each alternative to meet the project purpose and need, three evaluation categories consistent with FTA guidance were identified as transit and multimodal performance, environmental effects, cost and feasibility.

These categories further relate to the purpose and need project goals in terms of travel demand to accommodate future growth, interconnections with existing transit and environmental impacts to existing and future land use. Within these categories, there are many potential measures of performance. As such, the evaluation focused on those measures that were expected to best differentiate among the alternatives. This was based on the preliminary results from the Tier One phase of evaluation, draft findings of the environmental investigations and analysis undertaken to support Tier Two. To further support the differentiation of alternatives, the evaluation criteria were categorized as either Primary or Secondary Measures. Secondary measures provide additional information within categories that are most differentiated by the primary measures. Criteria were rated on a scale ranging from lower performing to higher performing, where higher performance is always represented by the preferred project outcomes (for example, higher ridership or lower cost). The rating scale is provided below in **Figure 2-12**.


EVALUATION MEASURE RATINGS				
Lower Performing				Higher Performing
1	2	3	4	5

Figure 2-12 Rating Scale for Evaluation Measures

A list of the measures of performance considered in each category is provided below.

- **Transit and Multimodal Performance**

**Primary Measures**

- Ridership (Average Weekday Riders)
- Travel Time (Minutes)

**Secondary Measure**

- Passenger Capacity (Peak Hour Per Direction)

- **Environmental Effects**

**Primary Measures**

- Natural Resources
  - Wetlands and other surface waters
  - Protected species and habitat
  - Coastal resources
  - Floodplains
- Cultural Resources
  - Historic/archaeological resources
- Aesthetics & Visual
- Noise & Vibration
- Traffic Impacts

**Secondary Measure**

- Construction Impacts

- **Cost and Feasibility**

**Primary Measures**

- Capital Cost
- Operations & Maintenance Cost

**Secondary Measures**

- Lifecycle Cost (30-Year Present Value of Capital, Operations and Maintenance (O&M), and Major Maintenance Costs)
- Resiliency (to Impacts of Sea Level Rise)
- Time to Construct

## 2.10 Alternative Evaluation Matrix

The Bay Crossing Trunkline Evaluation Matrix is presented in **Table 2-1** below. A summary of the findings follows the matrix. The full Beach Corridor Rapid Transit Project analysis and evaluation matrix can be found in the *Preliminary Engineering Report*.



Table 2-1 BAY CROSSING TRUNKLINE EVALUATION MATRIX									
			APM		LRT		MONORAIL		BRT***
EVALUATION CRITERIA	Measures								
Ridership	2040 Daily Average		10,200 - 15,400		8,000 - 12,000		10,200 - 15,400		11,500-21,000
Travel Time	Minutes (One Way)		6		8		6		21
Passenger Capacity	Peak Hour Direction & 5 Minute Peak Headways		2,400		2,880		2,140		1,200
Natural Resources	Water, Habitat & Wildlife		Direct impacts to seagrass, coral, mangroves and other trees from foundations and barge spudding. Open-deck system allows rainwater to pass through.		Direct impacts to seagrass, coral, mangroves and other trees. Closed-deck system creates impervious area and requires collection and treatment of stormwater.		Direct impacts to seagrass, coral, mangroves and other trees from foundations and barge spudding. Open-deck system allows rainwater to pass through.		Widening MacArthur Causeway results in significant impacts to natural resources, including seagrass, coral and aquatic wildlife habitat.
Cultural Resources	Number of Listed/Eligible Historic & Archeological Resources		27		26		26		2
Aesthetics & Visual	Views and Streetscape		Elevated guideway structure and stations will impact views of channel, cruise terminals & buildings along 5th St.		Elevated guideway structure and stations will impact views of channel, cruise terminals, & buildings along 5th Street; Overhead contact system will cause additional impact as compared with APM and Monorail.		Elevated guideway structure and stations will impact views of channel, cruise terminals & buildings along 5th St.		Buses/stops will have limited impact on viewshed.
Noise & Vibration	Number and Severity of Impacts to Residential and Institutional Land Uses		Residential - 1 moderate/0 severe, Institutional - no impacts		Residential - 0 moderate/1 severe, Institutional - 0 moderate/1 severe. Steel wheels rather than rubber tires results in more noise than APM & Monorail.		No Impacts		Residential - 9 moderate/1 severe, Institutional - no impacts

Table 2-1 BAY CROSSING TRUNKLINE EVALUATION MATRIX							
		APM	LRT	MONORAIL	BRT***		
EVALUATION CRITERIA	Measures						
Traffic Impacts	Impact to Existing Traffic Lanes	No impact to at-grade through traffic due to elevated guideway. Impacts to left turn lanes at 5th Street intersections with Lenox, Michigan and Meridian Avenues.	No impact to at-grade through traffic due to elevated guideway. Impacts to left turn lanes at 5th Street intersections with Lenox, Michigan and Meridian Avenues.	No impact to at-grade through traffic due to elevated guideway. Impacts to left turn lanes at 5th Street intersections with Lenox, Michigan and Meridian Avenues.	Impact to existing traffic on arterial roads by dedicating lanes to transit.		
Construction Impacts	Traffic, Noise and Habitat	All rail modes will have similar construction impacts, including intermittent lane closures, navigational traffic impacts, noise and impacts to aquatic wildlife.	All rail modes will have similar construction impacts, including intermittent lane closures, navigational traffic impacts, noise and impacts to aquatic wildlife.	All rail modes will have similar construction impacts, including intermittent lane closures, navigational traffic impacts, noise and impacts to aquatic wildlife.	Widening MacArthur Causeway and dedicating transit lanes on arterial roads would cause major disruption to traffic, construction noise and destruction of habitat.		
Capital Cost	2019 Dollars	\$631,600,000	\$732,000,000 *	\$671,700,000	\$265,900,000		
Operations & Maintenance Cost	Annual Total In 2019 Dollars	\$9,858,800	\$7,096,600 **	\$7,228,600	\$5,500,000		
Life Cycle Cost	30 Year Discounted Capital O&M and Major Maintenance	\$840,000,000	\$833,000,000	\$820,000,000	\$499,000,000		
Resiliency	Mitigation of Sea Level Rise Impacts	Elevated guideway & stations provide mitigation of predicted sea level rise.	Elevated guideway & stations provide mitigation of predicted sea level rise.	Elevated guideway & stations provide mitigation of predicted sea level rise.	No mitigation of sea level rise risks.		
Time to Construct	Design-Bid-Build Delivery in Months	45 to 48	48 to 54	45 to 48	33 to 36		
<p>* LRT cost shown only for comparison purposes. Capital cost of each alternative includes a Maintenance &amp; Operations Facility (MOF) estimate for construction/ROW. However, for LRT, there is no adequate MOF site within the Trunkline. This is a fatal flaw resulting in the elimination of the LRT mode as a feasible Trunkline alternative. ** LRT Operations and Maintenance cost shown only for comparison purposes since there is no adequate MOF site within the Trunkline. This is a fatal flaw resulting in the elimination of the LRT mode as a feasible Trunkline alternative. ***BRT limits are from Overtown Transit Village Station to Miami Beach Convention Center. BRT is not feasible for Trunkline only due to operational considerations.</p>							

## 2.11 Evaluation Summary

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The key differentiators between the modal alternatives are as follows:

### Transit & Multimodal Performance:

- Rail options have similar ridership, capacity, speed and cost for Bay Crossing
- BRT option has longer travel time and lower capacity than the rail options
- LRT has the highest vehicle capacity and highest cost

### Environmental Effects:

- APM and Monorail modes are similar for the Bay Crossing
- BRT on widened MacArthur Causeway has greatest impact to natural resources
- LRT has more traffic, noise, environmental resources, and construction impacts of the rail options

### Cost & Feasibility:

- APM and Monorail costs are approximately equal with lower OPM costs for Monorail
- LRT costs are higher but in a similar range
- BRT has significantly lower cost

Overall, the key findings of the evaluation of alternatives are as follows:

- Rail modes are higher performing and have higher cost than BRT
- BRT service may not meet a rapid transit purpose and need
- LRT impacts are higher than APM/Monorail
- APM and Monorail have similar overall Bay Crossing performance

## 2.12 No-Build Alternative

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The no-build alternative will not meet the purpose and need of the project in that it will not increase the person throughput across MacArthur Causeway via rapid transit technology to the Beach Corridor's major origins and destinations. The no-build alternative would result in increased traffic congestion and not meet the current and projected travel demand generated both by residents and tourists. As a result, the no-build alternative will not allow for the desired economic growth in the project area.

## 2.13 Recommended Alternative

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The fixed-guideway modes offer similar transit performance for the Bay Crossing, with lower costs and impacts for the automated, rubber-tire modes (APM and Monorail) than for the LRT mode. The BRT alternatives, while lower cost, lack sufficient capacity to meet the project purpose and need, and present significant environmental impacts associated with the widening of the causeway. Therefore, an elevated, automated rubber tire rail transit system, APM or Monorail, was the recommended alternative for the Bay Crossing. This alternative was approved by the TPO as the LPA on January 30, 2020. The LPA is the single alternative carried forward for evaluation in this Environmental Assessment.

### 3 Affected Environment

#### 3.1 Physical Characteristics

##### 3.1.1 ENVIRONMENTAL SETTING AND SOILS

The Bay Crossing adjacent to MacArthur Causeway crosses North Biscayne Bay, a subtropical lagoon in Miami-Dade County, Florida. North Biscayne Bay, which includes the area from Dumbfoundling Bay south to Rickenbacker Causeway, is contained by urban areas on the mainland on its west side and urbanized barrier islands on its east side. Much of North Bay contains artificial spoil islands created from dredged limerock fill from surrounding areas, including MacArthur Causeway, Watson Island, Terminal Island, USCG Base Miami Beach and PortMiami on Dodge Island. The soils in the area of the Bay Crossing as mapped by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) are either Urban land or Water (**Figure 3-1**). Vegetation on land consists of landscaped trees and sod. The area south of the MacArthur Causeway section where the transit guideway is proposed contains riprap boulders that have recruited mangroves and native and exotic saltwater tolerant trees.

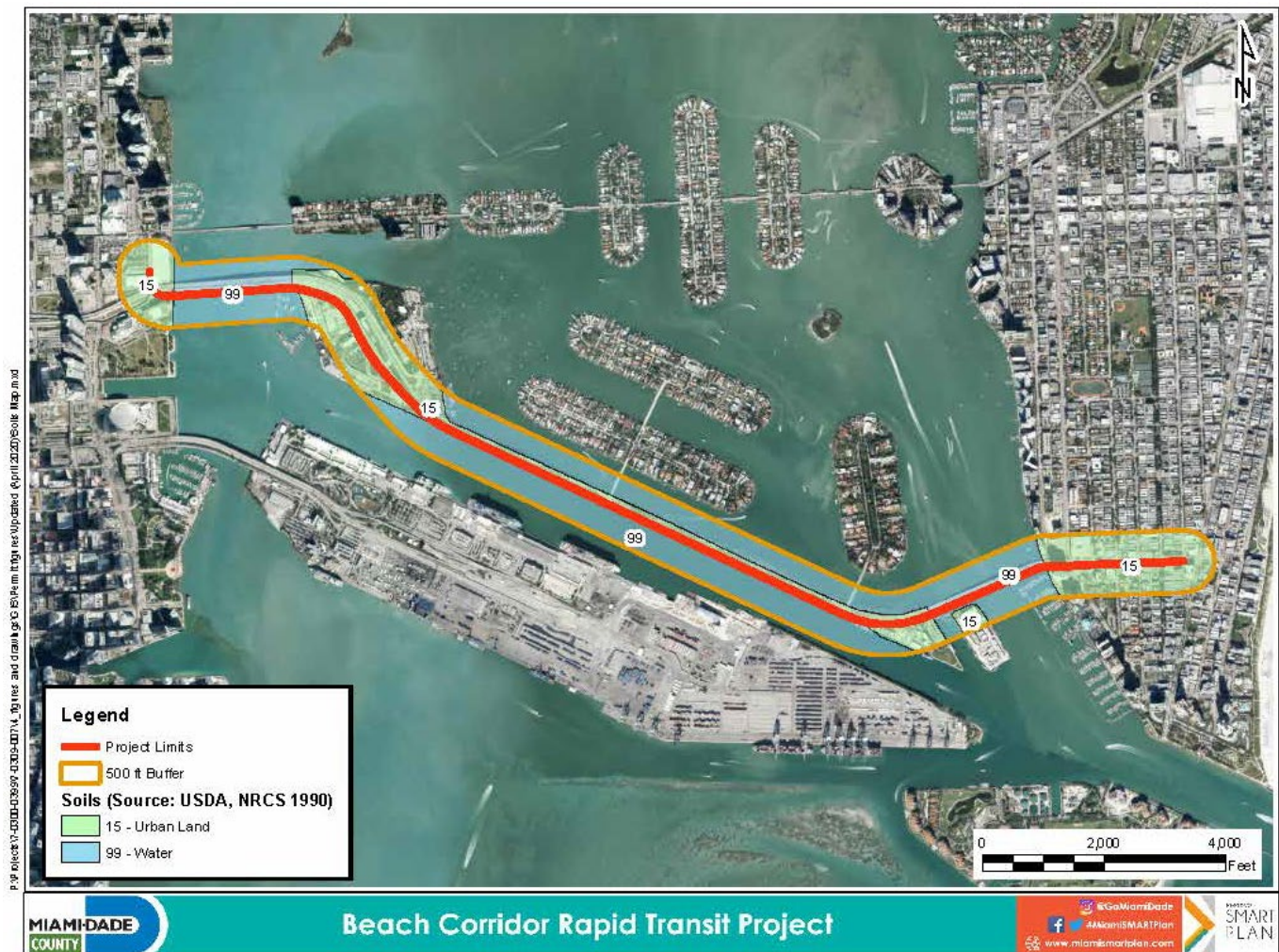


Figure 3-1 NRCS Soils Map



Biscayne Bay experiences semidiurnal tides with a tidal range of approximately two feet (<https://tidesandcurrents.noaa.gov/datums.html?id=8723214>). The Bay Crossing is adjacent to the PortMiami Channel which directly connects to the Atlantic Ocean via Government Cut. The freshwater input into Biscayne Bay in the area of the proposed project is mainly from the Miami River and stormwater runoff. Tidal current velocities through the Miami Channel and Government Cut can be up to six feet/second.

### 3.1.2 LAND USE

The existing land use from the South Florida Water Management District (SFWMD) 2015 Florida Land Use, Cover and Forms Classification System (FLUCCS, FDOT 1999) GIS data layer is shown in **Figure 3-2** with a 500-foot buffer. The land areas are urbanized and consist of multi-family dwelling units, commercial properties, institutional (Frost Museum of Science and Pérez Art Museum), military (USCG Base), and parks and zoos (Maurice A. Ferré Park). The majority of the area is classified as embayments opening directly to gulf or ocean. Although Watson Island is classified as commercial and services, Jungle Island and Baywalk Park and Boat Ramp are located north of MacArthur Causeway and the Miami Children's Museum is located south of MacArthur Causeway. Similarly, Terminal Island contains the landing for the Fisher Island Ferry, City of Miami Beach Service Facilities, a Florida Power and Light substation and a private marina. MacArthur Causeway itself and 5<sup>th</sup> Street are classified as roads and highways.

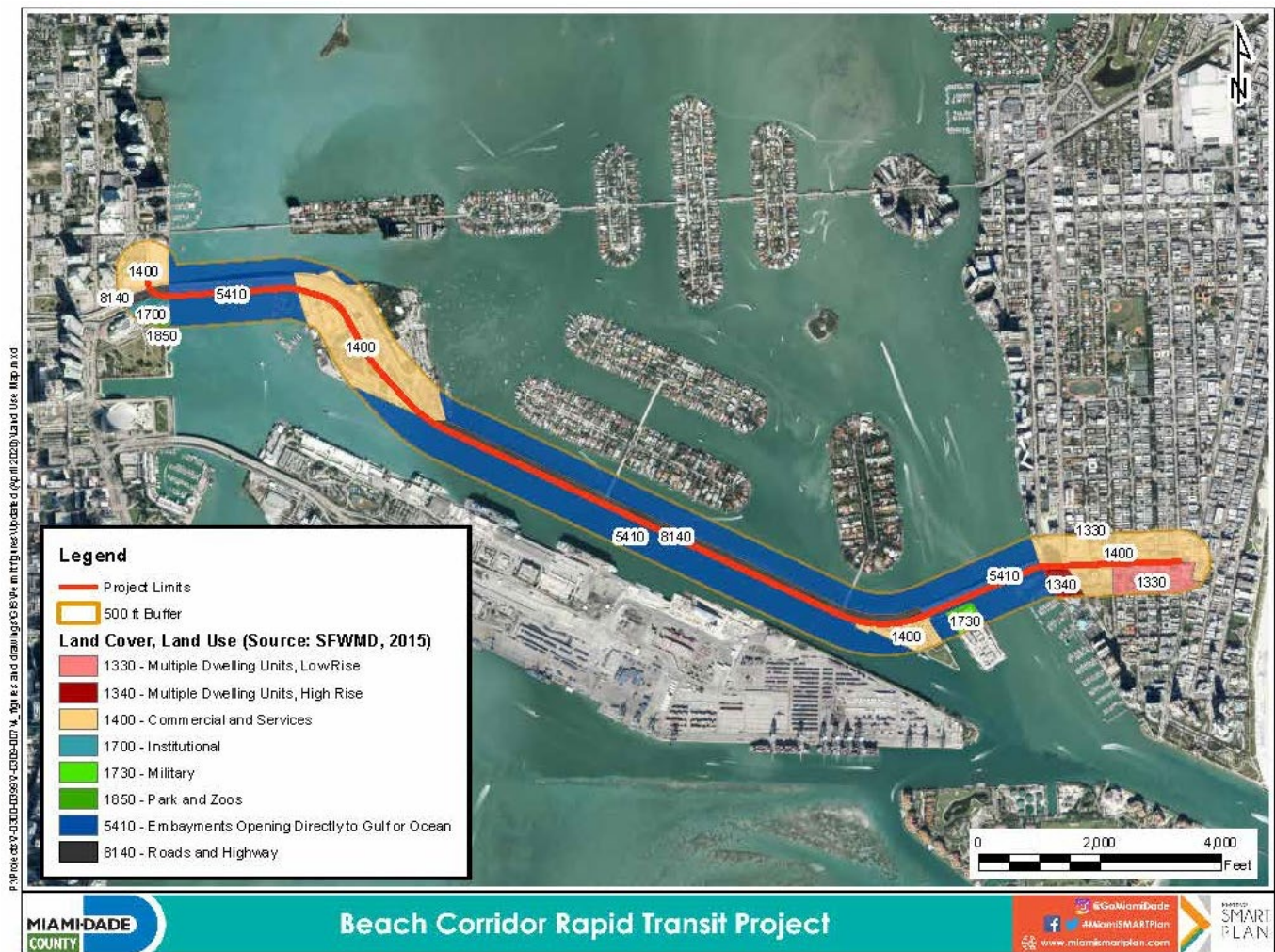


Figure 3-2 Land Use Map

The Adopted 2020 and 2030 Land Use Plan for Miami-Dade County substantially conforms to the future land use plans for the Cities of Miami and Miami Beach. Based on these future land use plans, the land uses along the corridor and in the surrounding areas are anticipated to remain relatively unchanged. The lands along the project corridor are already developed. This project will improve access to the many facilities and services that are present in downtown Miami and south Miami Beach and be beneficial to planned development activities and economic growth in these areas.

### 3.1.3 AIR QUALITY

The project corridor is located within the Southeast Florida Airshed. According to the US Environmental Protection Agency (EPA) Green Book, the project area is in attainment for all of the National Ambient Air Quality Standards (NAAQS) under the criteria provided in the Clean Air Act of 1967, as amended, including carbon monoxide and particulate matter. In addition, the mode of transit for the Bay Crossing LPA uses an electric vehicle and is, therefore, a clean technology that will not increase air pollutants. The project is anticipated to remove 4,000 to 7,000 cars/day from MacArthur Causeway which would reduce emissions and have a beneficial effect on air quality. Air quality will not be considered further in the Environmental Consequences section of this report.

### 3.1.4 NOISE AND VIBRATION

Noise is “unwanted sound” and by this definition, the perception of noise is a subjective process. Several factors affect the actual level and quality of sound (or noise) as perceived by the human ear and can generally be described in terms of loudness, pitch (or frequency), and time variation. The loudness, or magnitude, of noise determines its intensity and is measured in decibels (dB) that can range from below 40 dB (e.g., the rustling of leaves) to more than 100 dB (e.g., a rock concert). Pitch describes the character and frequency content of noise, such as the very low “rumbling” noise of stereo subwoofers or the very high-pitched noise of a piercing whistle. Finally, the time variation of noise sources can be characterized as continuous, such as with a building ventilation fan; intermittent, such as for trains passing by; or impulsive, such as pile-driving activities during construction.

Ground-borne vibration associated with vehicle movements is usually the result of uneven interactions between wheels and the road or rail surfaces. Examples of such interactions (and subsequent vibrations) include train wheels over a jointed rail, an untrue rail car wheel with “flats,” and a motor vehicle wheel hitting a pothole, a manhole cover, or any other uneven surface. Unlike noise, which travels in air, transit vibration travels along the surface of the ground.

A *Noise and Vibration Study Report (Attachment B)* was prepared for the Beach Corridor PD&E Study Limits. The criteria in the *Transit Noise and Vibration Impact Assessment Manual* (FTA, 2006) were used to assess existing ambient noise levels. Following are excerpts relevant to the Bay Crossing portion of the project.

Noise-sensitive receptors that may be affected by the project include multi-family residences, hotels/motels, and schools located near the project corridor. Noise monitoring was conducted at various sites to assess the existing noise conditions along the alignment. The Bay Crossing along the causeway does not have residential land uses within 500 feet of the alignment. Institutional land uses within 500 feet of the alignment include the Miami Children’s Museum, Jungle Island and Ichimura Miami Japan Garden on Watson Island. The areas on mainland Miami and 5<sup>th</sup> Street on Miami Beach contain multifamily residential, hotel and institutional land uses.

The primary source of existing noise along the proposed project corridor is from local traffic on surface roads. Ambient noise levels at Miami Children’s Museum were 71 to 72 dB and on 5<sup>th</sup> Street at Washington Avenue ranged from 66 to 70 dB.

Since no significant vibration sources exist along the proposed project corridor roadways, ambient vibration levels were not measured as part of this study. Typical large vehicle pass-bys from buses or heavy trucks along local roadways would be the only possible perceptible vibration source along most of the alignment and this is due to roadway roughness or unevenness caused by bumps, potholes, expansion joints, or roadway transitions. Furthermore, the FTA vibration impact criteria are not based upon the existing vibration levels measured at adjacent structures to the proposed alignment. They are based on the frequency of the

proposed transit service and the type of proposed transit vehicle only. No buildings with special ground-borne vibration concerns were identified.

### 3.1.5 CONTAMINATION

A Level I Contamination Screening Evaluation of the project was conducted to identify potential contamination from properties or operations located within the vicinity of the proposed project. The services were performed using procedures conforming to Part 2, Chapter 20 of the FDOT PD&E Manual.

A search of potentially contaminated sites was conducted using the FDOT Efficient Transportation Decision Making Environmental Screening Tool (ETDM EST), the Florida Department of Environmental Protection (FDEP) Map Direct tool which includes U.S. Environmental Protection Agency (USEPA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and National Priority Listing (NPL) sites and Miami-Dade County Environmental Considerations GIS mapping tool to identify properties within the project area and vicinity as having present or past contamination concerns, are under investigation, or are regulated by local, state or federal environmental regulatory agencies for contamination issues. A regulatory file review of selected sites identified within the search buffers was conducted using the FDEP OCULUS Database and the Miami-Dade County Online Records System.

A review of historical aerial photographs was conducted to ascertain land development patterns and assess the area for other potential contamination sources that may not have been identified in the public record. A field reconnaissance was conducted on April 11, 2019 to verify regulatory information reviewed and to identify potential other contamination sources within the vicinity of the project based upon visual observations.

## 3.2 Natural Environment

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### 3.2.1 WATER QUALITY AND DRAINAGE

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The proposed project is located in Biscayne Bay, a Florida Class III water, which is for fish consumption, recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife. Surface waters of the state are Class III waters. This project is in Biscayne Bay Aquatic Preserves; all Aquatic Preserves are Outstanding Florida Waters (OFW). The OFW designation carries with it the requirement that water quality cannot be degraded below ambient levels.

This project will require Water Quality Certification granted through a State permit, in this case the SFWMD Conceptual Environmental Resource Permit (ERP) that is being acquired for the Bay Crossing. The primary water quality concern is turbidity, which is the measure of the amount of light that is scattered by particles in the water when a light is shined through a water sample. Turbidity in estuarine waters can occur naturally, such as during a storm event, or from construction, when sediments are suspended in the water column due to soil-disturbing construction activities. Stormwater can also introduce pollutants from runoff.

A *Drainage Report* (**Attachment C**) was also prepared for the SFWMD Conceptual ERP. The purpose of the *Drainage Report* is to address water quality and attenuation requirements of the Bay Crossing. The project is located within the southern limits of the North Biscayne Bay Basin as defined by the SFWMD. The project traverses verified impaired waters for nutrients (chlorophyll-a) within Water Body ID (WBID) 3226H north of MacArthur Causeway and WBID 3226H3 south of MacArthur Causeway. The proposed track alignment will be an elevated, open-deck track and, therefore, stormwater will fall through the track rather than collect on the track. There will be a horizontal separation between the track and the MacArthur Causeway roadway and therefore stormwater will not drip from the track onto the State Highway System. There will be no increase in impervious area due to the track alignment and the increase in stormwater runoff will be negligible. The Children's Museum Station will be located on Watson



Island and will impact the west corner of one of two interconnected dry retention ponds. The ponds were permitted under the Miami Tunnel Project – Watson Island (ERP No. SI 13-0267159-004). Pond recovery is via two existing drainage wells, WW-6 and WW-3. Pond W-B will be reconfigured to account for the new station and the proposed transit guideway piers. In addition, the existing well in Pond W-A will need to be capped and replaced by a new well in the reconfigured pond. The reconfigured pond will contain the runoff from the 25-year/72-hour storm event within the confines of the reconfigured pond and meet the water quality requirements.

### 3.2.2 SOLE SOURCE AQUIFER

This project is located within the Biscayne Aquifer, a sole source aquifer (SSA). The EPA defines a sole source aquifer as one where the aquifer supplies at least 50% of the drinking water in its service area and there are no reasonably available drinking water sources should the aquifer become contaminated. The SSA program is authorized by Section 1424 of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 et. seq). No commitment for federal financial assistance may be provided for any project which may contaminate the aquifer through its recharge area so as to create a significant hazard to public health. Coordination with the EPA Ground Water Section is required for projects that involve new transit construction within an SSA.

### 3.2.3 COASTAL ZONE MANAGEMENT ACT

The Coastal Zone Management Act (CZMA) of 1972, as amended, and its implementing regulations (15 CFR Part 930), requires all projects located within the designated coastal zone of a state to be consistent with the State's federally approved coastal zone management program. The Florida Coastal Management Program (FCMP) was federally approved in 1981. The State of Florida's review of federal activities for consistency with the CZMA is coordinated by the FDEP, Office of Intergovernmental Programs, which serves as the lead agency and single point of contact for the FCMP.

### 3.2.4 WETLANDS/BENTHIC RESOURCES

Presidential Executive Order (EO) 11990, entitled *Protection of Wetlands*, establishes a national policy to "avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative". The U.S. Department of Transportation (USDOT) in implementing EO 11990 set forth its policy on wetlands in USDOT Order 5660.1A, *Preservation of the Nation's Wetlands*. A *Natural Resources Evaluation* (NRE) was prepared for the project, which includes a Wetland/Benthic Resources Evaluation, in accordance with Part 2, Chapter 9 of the FDOT PD&E Manual, Executive Order 11990 and USDOT Order 5660.1A. With the advancement of the project to permitting, the information included in the NRE regarding wetlands/benthic resources has been updated and refined. An *Environmental Permit Report* was prepared for submittal to the environmental regulatory agencies at the beginning of the permitting process for this project. Since then, there has been further refinement of the wetland and benthic resources information, including impact calculation and mitigation. The most up-to-date information is presented in this report.

This section presents the methods and results of the wetland, seagrass and benthic surveys that were conducted for the project. As mentioned above, the Beach Corridor Rapid Transit Project Bay Crossing is described in three segments, the west bridge, MacArthur Causeway (the causeway segment) and the east bridge.

#### 3.2.4.1 SEAGRASS

An underwater seagrass survey was conducted on September 17-21 and 26-28, 2018 during the optimal seagrass growing season. Transects were performed perpendicular to and south of the west and east bridges on SR A1A/MacArthur Causeway. The edges of seagrass beds were marked with buoys and their locations recorded with a sub-meter differential GPS unit. In addition, a reconnaissance survey was conducted south of the causeway segment.



Paddle grass (*Halophila decipiens*) was observed in four beds south of the existing west and east bridges. One seagrass bed (Bed 1), totaling 1.35 acres with 90% cover, was observed south of the west bridge (**Figure 3-3**). Three beds with 20 to 40% cover were observed south of the east bridge. From west to east, Bed 2 was 0.12 acres with 20% cover, Bed 3 was 0.41 acres with 40% cover and Bed 4 was 0.10 acres with 40% cover (**Figure 3-4**). No seagrass was observed south of the causeway and no other species (e.g., Johnson's seagrass) were observed.



Figure 3-3 West Bridge Seagrass Bed 1 (September 2018)



Figure 3-4 East Bridge Seagrass Beds 2, 3 and 4 (September 2018)

### 3.2.4.2 HARDBOTTOM AND CORAL

A detailed coral survey was conducted on August 6-9 and 13-15, 2019. Preliminary (30%) engineering design plans for the project indicated that drilled shafts and piers would be placed at 56 locations along the causeway. A representative 25% of the total number of pier locations (15 locations) was surveyed. At each location, each hard coral and soft coral in a 20 by 20-foot area were identified and measured for length, width, and height, as applicable. In addition, condition ratings, percent mortality and an estimate of percent lost biomass were recorded. Sponges were also identified by morphology.

There are two coral habitat types south of MacArthur Causeway: medium relief habitat on the large boulder riprap adjacent to the roadway and low relief hardbottom on the flats south of the riprap. A total of 2,891 hard coral and 108 soft coral were observed during the survey. The number of each species of hard coral on the riprap and hardbottom is shown in **Table 3-1** and the number of octocoral species in each habitat by size class is shown in **Table 3-2**.

	Riprap	Hardbottom	Total
<i>Colpophyllia natans</i>	5	0	5
<i>Dichocoenia stokesii</i>	1	1	2
<i>Diploria labyrinthiformis</i>	4	1	5
<i>Manicina areolata</i>	1	1	2
<i>Montastraea cavernosa</i>	1	1	2
<i>Oculina diffusa</i>	8	2	10
<i>Porites astreoides</i>	345	476	821

Table 3-1. Summary of Hard Coral by Habitat			
	Riprap	Hardbottom	Total
<i>Porites</i>	38	132	170
<i>Pseudodiploria clivosa</i>	9	5	14
<i>Pseudodiploria strigosa</i>	2	2	4
<i>Siderastrea radians</i>	383	1,267	1,650
<i>Siderastrea siderea</i>	36	161	197
<i>Solenastrea bourmoni</i>	0	7	7
<i>Stephanocoenia intersepta</i>	1	1	2
<b>Total</b>	<b>834</b>	<b>2,057</b>	<b>2,891</b>

Table 3-2. Summary of Octocoral by Habitat and Size Class					
Genus	Less than 10 cm Height		10 cm or Greater Height		Total
	Riprap	Hardbottom	Riprap	Hardbottom	
<i>Antillogorgia</i>	0	4	2	20	26
<i>Eunicea</i>	0	1	0	3	4
<i>Gorgonia</i>	1	0	7	5	13
<i>Muricea</i>	0	2	0	4	6
<i>Plexaura</i>	0	1	0	3	4
<i>Plexaurella</i>	0	3	1	17	21
<i>Pseudoplexaura</i>	1	4	3	25	33
<i>Pterogorgia</i>	0	1	0	0	1
<b>Total</b>	<b>2</b>	<b>16</b>	<b>13</b>	<b>77</b>	<b>108</b>

### 3.2.4.3 MANGROVES

Mangroves have recruited on the riprap south of MacArthur Causeway. These are individual mangroves or mangrove clusters rather than a mangrove forest. During an interagency field review on October 23, 2019, the SFWMD and National Marine Fisheries Service (NMFS) stated that the mangroves do not constitute wetlands because there is no soil and they are growing above the water line. Mangrove mitigation will, however, be required by Miami-Dade County Department of Regulatory and Environmental Resources (RER).

### 3.2.5 FLOODPLAINS

EO 11988, *Floodplain Management*, directs federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities".

According to Digital Flood Insurance Rate Maps (DFIRM) from the Federal Emergency Management Agency (FEMA), the Bay Crossing is located within Flood Zone AE, a designated Special Flood Hazard Area with flood depths greater than three feet. However, the installation of drill shafts, pile caps and piers is not considered an encroachment into the base floodplain by the

USCG. Thus, the proposed project will not affect flood heights or base floodplain limits. Additionally, the project will not increase flood risks or damage; and there will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.

### **3.2.6 WILD AND SCENIC RIVERS**

Based on databases for the National Wild and Scenic Rivers Act of 1968, as amended, there are no Wild and Scenic Rivers, Study Rivers or segments of Nationwide Rivers Inventory Rivers in the vicinity of the project. There are no Wild and Scenic Rivers in Miami-Dade County.

### **3.2.7 COASTAL BARRIER RESOURCES**

While the proposed project does connect to a coastal barrier island, it is neither in the vicinity of, nor connected to, a designated unit of the Coastal Barrier Resources System pursuant to the Coastal Barrier Resources Act of 1982, which was later amended by the Coastal Barrier Improvement Act of 1990.

### **3.2.8 LAND AND WATER CONSERVATION FUND**

Watson Island Baywalk Park and Boat Ramp, which is on the northeast side of MacArthur Causeway on Watson Island, is a Land and Water Conservation Fund Act site. Any conversion of a LWCF protected facility under 54 USC 200305(f) (formerly Section 6(f)(3) of the LWCFA) to a use other than public outdoor recreation would require providing replacement property that is not only equal or greater in fair market value to the converted site, but also is of reasonable equivalent usefulness. The transit guideway, Children's Museum station and a potential MOF are proposed south of MacArthur Causeway and no impact to or use of Watson Island Baywalk Park is anticipated by the project.

### **3.2.9 NATIONAL MARINE SANCTUARY ACT AND MARINE PROTECTED AREAS**

There are no National Marine Sanctuaries in the vicinity of the project. The proposed project crosses Biscayne Bay Aquatic Preserves, which is considered a State-managed Marine Protected Area by the NMFS. NMFS is an agency within the National Oceanic and Atmospheric Association (NOAA) under the U.S. Department of Commerce. The Biscayne Bay Aquatic Preserves is managed by FDEP. Extensive coordination with NMFS and FDEP staff occurred between August 2020 and May 2021 regarding the development of the seagrass and coral mitigation plans for this project (8/10/20, 11/2 - 4/20, 1/28/21, 2/3/21, 3/3/21, 3/12/21, 3/17/21, 3/25/21, 4/19/21, 5/14/21). Discussions in the seagrass and coral sections of this report address Marine Protected Areas.

### **3.2.10 ENDANGERED AND THREATENED SPECIES**

An Endangered Species Biological Assessment of the potential occurrence of protected species and habitat was conducted in accordance with Part 2, Chapter 16 of the FDOT PD&E Manual, Protected Species and Habitat, to ensure compliance with the Endangered Species Act (ESA) of 1973, as amended, and the Florida Endangered and Threatened Species Act, Section 379.2291, Florida Statutes (F.S.). The biological assessment was included in the NRE and is summarized in this report. Under the ESA, species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future.

Two federal agencies evaluate a project's effect on endangered and threatened species under the ESA, the U.S. Fish and Wildlife Service (USFWS) and NMFS. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife. The law requires federal agencies, in consultation with the USFWS and/or the NMFS, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also



prohibits any action that causes a "taking" of any listed species of endangered plants and animals. The Florida Fish and Wildlife Conservation Commission (FWC) regulates and manages State-listed fish and wildlife.

The likelihood of a species occurring in the project area was based on literature review and observed habitats in the project area during field reviews. A summary of listed species and their federal and State status is provided below in **Table 3-3**. The probability of occurrence was rated as High, Moderate or Low depending on the presence of preferred habitat in the project area and observations or records of occurrence.

Table 3-3. Listed Species Potentially Present in the Project Area				
Common Name	Scientific Name	Federal Status	State Status	Probability of Occurrence
<b>Birds</b>				
Rufa red knot	<i>Calidris canutus rufa</i>	T	T	Low
Piping plover	<i>Charadrius melodus*</i>	T	T	Low
Snowy plover	<i>Charadrius nivosus</i>	N	T	Low
Little blue heron	<i>Egretta caerulea</i>	N	T	Moderate
Tricolored heron	<i>Egretta tricolor</i>	N	T	Moderate
Reddish egret	<i>Egretta rufescens</i>	N	T	Moderate
Wood stork	<i>Mycteria americana</i>	T	T	Low
Roseate spoonbill	<i>Platalea ajaja</i>	N	T	Low
Least tern	<i>Sternula antillarum</i>	N	T	Moderate
<b>Fish</b>				
Smalltooth sawfish	<i>Pristis pectinata</i>	E	E	Moderate
<b>Invertebrates</b>				
Staghorn coral	<i>Acropora cervicornis</i>	T	T	Low
Elkhorn coral	<i>Acropora palmata</i>	T	T	Low
Pillar coral	<i>Dendrogyra cylindricus</i>	T	T	Low
Rough cactus coral	<i>Mycetophyllia ferox</i>	T	T	Low
Lobed star coral	<i>Orbicella annularis</i>	T	T	Moderate
Mountainous star coral	<i>Orbicella favolata</i>	T	T	Moderate
Boulder star coral	<i>Orbicella franksi</i>	T	T	Moderate
<b>Mammals</b>				
Florida bonneted bat	<i>Eumops floridanus*</i>	E	E	Moderate
West Indian manatee	<i>Trichechus manatus*</i>	T, CH	T	High
<b>Plants</b>				
Johnson's seagrass	<i>Halophila johnsonii</i>	T, CH	T	High
<b>Reptiles</b>				
American alligator	<i>Alligator mississippiensis</i>	SAT	T(S/A)	Low
Loggerhead sea turtle	<i>Caretta caretta</i>	T	T	Moderate
Green sea turtle	<i>Chelonia mydas</i>	T	T	Moderate
American crocodile	<i>Crocodylus acutus*</i>	T	T	Low

Table 3-3. Listed Species Potentially Present in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Probability of Occurrence
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E	E	Moderate
Eastern indigo snake	<i>Drymarchon couperi</i>	T	T	Low
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E	E	Moderate
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E	E	Low

**Notes:** Species: \* = Project falls within USFWS Consultation Area for this species

Status: E = Endangered, T = Threatened, SAT and T(S/A) = Threatened due to Similarity of Appearance to a listed species,

CH = Critical Habitat, N = Not Listed.

Probability of Occurrence: High = preferred habitat exists within project limits and species have been observed or reported in the project area; Moderate = some preferred habitat exists within the project limits and there is a potential for the species to be present, but it has not been observed in the project area; Low = preferred habitat is limited or lacking within the project limits and species have not been observed in the project area.

### 3.2.11 ESSENTIAL FISH HABITAT

An Essential Fish Habitat (EFH) Assessment was performed in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended in 1996 by the Sustainable Fisheries Act, and Part 2, Chapter 17 of the FDOT PD&E Manual as presented here. EFH are those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The MSFCMA mandated regional Fishery Management Councils to identify, describe, map and protect EFH in their region and create and amend Fishery Management Plans (FMPs) for EFH for either an individual species or an assemblage of species. This project is located within the South Atlantic Fishery Management Council (SAFMC). The FMPs are described in the *Final Habitat Plan for the South Atlantic Region* (SAFMC, 1998).

The identification of EFH in the project area was based on benthic surveys conducted during the seagrass growing season in 2018 and 2019. A list of managed species was developed in coordination with the NMFS.

EFH in the project area include submerged aquatic vegetation (seagrasses), live/hardbottom (sponges, hard coral and soft coral), unconsolidated bottom (sand/shell bottom and mud bottom) and estuarine water column. Habitat Areas of Particular Concern (HAPC) are subsets of EFH that are rare, particularly susceptible to human-induced degradation, especially ecologically important or located in an environmentally sensitive area. The seagrass beds in the project area are HAPC for members of the snapper-grouper complex and hardbottom habitat is HAPC for members of the snapper-grouper complex and spiny lobster. Biscayne Bay is a geographically designated HAPC for spiny lobster and coral.

Based on email communication with NMFS on August 5, 2019, a list of managed fishery species and life stages for each species with the potential to have EFH in the project area was developed. The following table (**Table 3-4**) details the life stages of managed species that may be present in the project area, the EFH present in the project area for each life stage and the HAPC present for each Fishery Management Plan (shrimp, snapper-grouper complex, spiny lobster and coral).

Table 3-4. Managed Species, EFH and HAPC Present in the Project Area

Common Name	Scientific Name	Life Stage	EFH	HAPC
<b>Shrimp Fishery Management Plan</b>				
White Shrimp	<i>Litopenaeus setiferus</i>	postlarvae/ juvenile	SAV	--None--
		subadults	SAV	

Table 3-4. Managed Species, EFH and HAPC Present in the Project Area				
Common Name	Scientific Name	Life Stage	EFH	HAPC
Brown Shrimp	<i>Farfantepenaeus aztecus</i>	postlarvae/ juvenile	SAV	
		subadults	mud bottoms	
Pink Shrimp	<i>Pandalus borealis</i>	postlarvae/ juvenile	SAV, sand/shell bottoms	
		subadults	SAV, sand/shell bottoms	
Snapper - Grouper Complex Fishery Management Plan				
Goliath Grouper	<i>Epinephelus itajara</i>	juvenile	SAV, lagoons, structure	nearshore hardbottom areas, seagrass habitat
Gag Grouper	<i>Mycteroperca microlepis</i>	larval	water column, SAV	
		juvenile	SAV	
Gray Snapper	<i>Lutjanus griseus</i>	postlarvae/ juvenile	SAV, mud	
		adult	hardbottom < 77m, SAV	
Mutton Snapper	<i>Lutjanus analis</i>	juvenile	SAV, sand, mud	
		adult	hardbottom, sand	
White Grunt	<i>Haemulon plumierii</i>	juvenile	hardbottom, SAV	
		adult	hardbottom, SAV	
Spiny Lobster Fishery Management Plan				
Spiny Lobster	<i>Panulirus argus</i>	juvenile	sponge, algae, coral, hardbottom	Biscayne Bay, hardbottom habitat
		adult	sponge, algae, coral hardbottom, crevices	
Coral, Coral Reef and Live/Hardbottom Habitat Fishery Management Plan				
Coral	Stony Corals, Octocorals	Not applicable	substrate is rough, hard, exposed and stable	Biscayne Bay

### 3.2.12 FISH AND WILDLIFE COORDINATION ACT

The Fish and Wildlife Coordination Act of 1934, as amended, provides the authority for USFWS and NMFS to evaluate impacts to fish and wildlife from Federal actions that affect any stream or other water body and provide recommendations to minimize or mitigate impacts. The consultation with NMFS for EFH was also conducted in compliance with the Fish and Wildlife Coordination Act. Please refer to the EFH sections of this report.

### 3.2.13 MARINE MAMMAL PROTECTION ACT

The Marine Mammal Protection Act of 1972 prohibits take of all marine mammals and is jointly administered by the USFWS and NMFS. As this project is located within an estuary in south Florida, the only marine mammals in the project area are West Indian manatee and dolphins. No take of dolphins is anticipated as they are able to move out of the construction zone and will not be



impacted by the project. The West Indian manatee is discussed in the Endangered and Threatened Species section of this report (Sections 3.2.9 and Section 4.3.5.1).

### 3.2.14 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act of 1918 is intended to ensure the sustainability of populations of protected migratory bird species. It prohibits the take of protected migratory bird species without prior authorization from the USFWS. Most birds are protected under the Migratory Bird Treaty Act. Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, was issued on January 10, 2001. The Executive Order directs federal agencies to work with the USFWS and other federal agencies to promote the conservation of migratory bird populations. The proposed project is not anticipated to result in the take of migratory bird species and will not be discussed further in this report.

### 3.2.15 BALD AND GOLDEN EAGLE PROTECTION ACT

Even though bald eagles are no longer a protected species under the Endangered Species Act, this law, originally passed in 1940, provides for the protection of the bald eagle and the golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S.C. 668(a); 50 CFR 22). Based on FWC's Eagle Nest Locator, there are no active or inactive eagle nests in the project area. Therefore, the take of eagles will not be further discussed in this report.

### 3.2.16 INVASIVE SPECIES

Executive Order 13112 of February 3, 1999, *Safeguarding the Nation from the Impacts of Invasive Species*, called upon executive departments and agencies to take steps to prevent the introduction and spread of invasive species, and to support efforts to eradicate and control invasive species that are established. EO 13112 also created a coordinating body, the National Invasive Species Council, to oversee implementation of the order. The proposed project is not anticipated to introduce invasive species or result in the spread of invasive species in the area.

## 3.3 Cultural Resources

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### 3.3.1 HISTORIC AND ARCHAEOLOGICAL RESOURCES

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, as implemented by 36 CFR Part 800, and the Florida Historical Resources Act (FHRA), Chapter 267, Florida Statutes, require lead agencies to take into account the effects of their undertakings on historic properties. Section 106 applies to all federally funded, licensed, permitted, or approved undertakings, regardless of the Class of Action (COA).

A *Cultural Resource Assessment Survey* (CRAS) was prepared for the Bay Crossing and Miami Design District Extension sections of the Beach Corridor. The Area of Potential Effects (APE) was defined to include the existing right-of-way for the subject roads within the project corridor. This APE was extended to the back or side property lines of parcels adjacent to the right-of-way, or a distance of 300 meters (984 feet) for the Bay Crossing to consider properties and their viewshed for elevated sections of the project area.

The purpose of the survey was to locate, identify, and bound any archaeological resources, historic structures, and potential districts within the project's APE and assess their potential for listing in the National Register of Historic Places (NRHP). This study was conducted to comply with Chapter 267 of the Florida Statutes and Rule Chapter 1A-46, Florida Administrative Code. All work was performed in accordance with Part 2, Chapter 8 of the FDOT PD&E Manual (revised January 2019), as well as the Florida Division of Historical Resources' (FDHR) recommendations for such projects, as stipulated in the FDHR's *Cultural Resource Management Standards & Operations Manual, Module Three: Guidelines for Use by Historic Preservation*

*Professionals.* The Principal Investigator for this project meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716-42). This study also complies with Public Law 113-287 (Title 54 U.S.C.), which incorporates the provisions of the NHPA of 1966, as amended, and the Archeological and Historic Preservation Act of 1979, as amended. The study also complies with the regulations for implementing NHPA Section 106 found in 36 CFR Part 800 (*Protection of Historic Properties*).

The archaeological survey consisted of a desktop analysis as testing within the APE was not possible due to urban development. There are no recorded archaeological sites within the APE. Similarly, the project APE does not overlap with archaeological conservation zones or areas of concerns related to archaeological resources. Therefore, archaeological resources will not be discussed further in this report.

A CRAS was also conducted for potential MOF sites, both for the Miami Extension alignment and on Watson Island for the Bay Crossing alignment. The two parcels on Watson Island evaluated as potential MOF sites are located south of MacArthur Causeway and are currently owned by the City of Miami, with the southernmost parcel containing the Miami Seaplane Base and the northernmost parcel is the newly developed location for the Yacht Haven at Island Gardens parking, restaurant, and ticketing sales buildings. Watson Island is man-made, was originally created by land reclamation in 1926 with material dredged from the ship channel to Port Miami and has expanded with regard to size and development over time. As Watson Island is a man-made island, there is no potential for prehistoric sites at either of these locations.

### 3.3.2 SECTION 4(f)

Section 4(f) of the Department of Transportation Act of 1966 applies to the use of land from publicly owned parks and recreation areas, wildlife and waterfowl refuges, and publicly or privately owned historic sites by the USDOT and its agencies, i.e., Federal Highway Administration (FHWA), Federal Aviation Administration (FAA), Federal Transit Administration (FTA), and Federal Railroad Administration (FRA). FHWA and FTA adopted rules under 23 Code of Federal Regulations (CFR) Part 774 to implement the requirements of the federal statutes. Currently, there is no FHWA or FTA funding for the proposed project. Therefore, Section 4(f) does not apply.

### 3.3.3 RECREATION AREAS

Watson Island Baywalk Park and Boat Ramp, which is on the northeast side of MacArthur Causeway on Watson Island, is a Land and Water Conservation Fund Act site and is discussed in Section 3.2.8. Other recreational facilities adjacent to the Bay Crossing include Watson Island Park southeast of MacArthur Causeway and Maurice A. Ferré Park, formerly Bicentennial Park, adjacent to the Museum Metromover Station in Miami. In addition, the project crosses the Florida Circumnavigational Saltwater Paddling Trail in two places. The trail coincides with the Atlantic Intracoastal Waterway at the west bridge and the alternate paddling trail coincides with Meloy Channel under the east bridge. No impacts to recreation areas are anticipated by the proposed project.

## 3.4 Environmental Justice

A *Sociocultural Effects Evaluation (SCE) Report (Attachment D)* for the Beach Corridor was prepared for the project in accordance with the FDOT Project Development and Environment (PD&E) Manual, Part 2, Chapter 4 (effective January 14, 2019). Social, economic, land use changes, mobility, aesthetic effects and relocation potential issues were evaluated. In addition, a comprehensive Public Involvement Plan (PIP) was implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&E Manual to solicit input from residents and business owners on potential project effects related to community cohesion and social interaction as well as potential solutions to ensure that both the social and transportation needs of the surrounding communities are addressed.

Title VI is a statute of the Civil Rights Act of 1964 that provides that "no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any

program or activity receiving Federal financial assistance." Additionally, the 1994 EO 12898, Federal Actions to address Environmental Justice in Minority Populations and Low-Income Populations, provides that "Each recipient of federal funds shall make achieving environmental justice part of its mission by identifying and addressing as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

A Title VI Analysis Report was prepared in September 2021 to document the analysis of potential effects on Title VI populations of four preliminary MOF sites for the Beach Corridor Rapid Transit Project (**Attachment D**). Potential effects that were evaluated included land use changes, visual impacts, air quality, noise and vibration, and the temporary effects of construction (i.e., temporary access change, dust, noise, and vibration caused by construction equipment) for two preliminary MOF sites on the Bay Crossing alignment and two preliminary MOF sites on the Miami Extension alignment.

The LPA will provide new rapid transit facilities on existing rights-of-way and no residential displacements are anticipated for either the Bay Crossing or Miami Extension alignments or potential MOF sites. No population changes are anticipated as a result of the project. Public involvement has been conducted to ensure that the project meets the needs of the community and the populations that may be temporarily impacted by the project. The project will improve the ability of the resident populations to access important social, cultural and institutional facilities and community features.

Based on the above discussion and analysis, the Beach Corridor Rapid Transit Project is not anticipated to cause disproportionately high and adverse effects on any minority or low income populations in accordance with the provisions of EO 12898 and FHWA Order 6640.23a. The project will continue to be conducted in accordance with Title VI regulations to ensure that there are no disproportionate effects on low-income or minority populations.

## 4 Environmental Consequences

### 4.1 Laws Not Considered in this Section

Based on the discussions presented in Section 3.0, it has been determined that the following authorities under NEPA, as summarized in **Table 4-1**, are either not applicable to the LPA for the project or will not be affected by the project. The proposed project may have a beneficial effect in regard to some of these items. These items will not be discussed further in this section.

Table 4-1. Laws Not Considered in this Section	
Authority	Finding
Land Use	No Effect, potentially beneficial
Air Quality	No Effect, potentially beneficial
Floodplains	No Effect
Wild and Scenic Rivers Act	Not Applicable
Coastal Barrier Resources Act	Not Applicable
Land and Water Conservation Fund Act	No Effect - Not Applicable
National Marine Sanctuaries Act	Not Applicable
Marine Protected Areas	Discussed under Wetlands/Benthic Resources
Fish and Wildlife Coordination Act	Discussed under Essential Fish Habitat
Marine Mammals Protection Act	Discussed under Endangered and Threatened Species

Table 4-1. Laws Not Considered in this Section

Authority	Finding
Migratory Bird Treaty Act	No Effect
Bald and Golden Eagle Protection Act	Not Applicable
Invasive Species	No Effect
Section 4(f)	Not Applicable
Recreation Areas	No Effect

## 4.2 Physical Characteristics

### 4.2.1 NOISE AND VIBRATION

Noise impact analysis was completed following the FTA Transit Noise and Vibration Impact Assessment Manual (FTA 2006), which was the most recent version at the beginning of the PD&E Study. Noise impacts are rated as no impact, moderate impact or severe impact to specific receptors. Both APM and Monorail have rubber tire wheels on an elevated guideway. This technology will cause no moderate or severe noise impacts for schools, public parks, or residential areas; and is the least intrusive alternative. LRT, which has steel wheels on an elevated surface (for the Bay Crossing) results in moderate and severe noise impacts to both residential and institutional receptors. BRT may result in moderate residential impacts, but not institutional impacts and not severe impacts.

Vibration propagation for APM and Monorail would be due to rubber tire wheels rolling on a guideway, which would produce less vibration than LRT, which has steel wheels. Because the rubber tires and suspension systems of an APM or Monorail provide vibration isolation, it is unusual for them to cause ground-borne noise or vibration issues.

The FTA guidelines do not consider the anticipated noise levels to be a strong justification for mitigation and no mitigation measures are proposed. No vibration impacts are projected; therefore, no vibration mitigation measures are necessary or proposed. FTA daytime and nighttime construction noise level thresholds for 8-hour and 30-day average noise levels will be applied. Also, FTA guidelines on allowable construction-induced vibration levels will be applied as stated in Section III, Part C of the *Noise and Vibration Study Report* in **Attachment B**. Minimization measures, such as monitoring noise and vibration levels, will be further evaluated during the final design phase and implemented during construction.

### 4.2.2 CONTAMINATION

Based on the information discovered during the Level I Contamination Screening Evaluation, Degree of Concern ratings were assigned based on the contaminated sites' risk of impacting the project construction. The rating system is divided into four degrees of concern: High, Medium, Low and No Concern. The known presence of contamination may not necessarily represent a high cause for concern if the regulatory agencies are aware of the situation and corrective actions, where necessary, are either complete or are underway, and the contamination will not have a substantial impact on the proposed project.

The proposed project is located near several sites regulated under the Resource Conservation and Recovery Act (RCRA), State or County law regarding hazardous materials, substances or wastes. **Table 4-2** lists sites in close proximity to the project where a potential contamination impact to the project has been identified. The table includes any sites in proximity to the project that were used historically as gasoline stations and which have not been evaluated or assessed by regulatory agencies, have abandoned in place underground petroleum storage tanks, are currently operating gasoline stations, or have documented contamination on-site or in the adjacent right-of-way. No landfills were identified within 1,000 feet of the corridor. No CERCLA or Superfund sites were identified within one-half mile of the corridor.



Table 4-2. Contamination Sites with a Medium or High Risk to the Project

Site Name and Address	Direction and Distance from Corridor (Feet)	Site Information
Mansur Parking Area – Former Sun Terminal  120 MacArthur Causeway, Miami Beach	South adjacent to MacArthur Causeway on Terminal Island	This medium-rated site operates as a parking lot but was previously a terminal for marine cargo shipping since the 1950s. In 2013, the site was subdivided into two parcels which are under separate ownership. Petroleum soil contamination remains at this site on southern portion of the western parcel and has not been fully delineated. In 2019, the owner of the western parcel requested Interim Site Closure for the property while undertaking rehabilitation in preparation for future redevelopment of the site, but closure has not been approved by RER. Additional assessment may be required prior to construction in the vicinity of this site and design and construction restrictions may apply if the contamination is found to extend into the right-of-way. Contaminated media must be managed during construction, which includes implementing a Soil Management Plan (SMP), a health and safety plan, and other protective measures approved by the regulatory agencies.
OK Shamrock Corp.  524 Jefferson Ave., Miami Beach	North adjacent to 5 <sup>th</sup> Street alignment	This facility medium-rated site is currently operating as a Walgreens Pharmacy. The site formerly operated as a fuel station from the late 1950s through 1989. The facility utilized three 4,000-gallon underground storage tanks (USTs). A Discharge Reporting Form was submitted to FDEP on February 17, 1989 based on the discovery of free product in the groundwater during a tank removal inspection conducted by RER. A Site Rehabilitation Completion Order (SRCO) was issued to the facility on June 24, 2003 and no further assessment or cleanup was deemed necessary. In June 2016, Walgreens conducted Phase II activities at the site. The Phase II activities revealed the presence of petroleum contaminants in the groundwater samples collected in the southern portion of the site. Specifically; Methyl tert-Butyl Ether was reported above the Groundwater Cleanup Target Level (GCTL). Based on the Phase II findings, the property owner requested that the SRCO issued in June 2003 be rescinded. Sampling and analysis documented in an Interim Deliverable dated June 13, 2019 did not identify residual soil or groundwater contamination at the site. The Interim Deliverable recommended confirmatory groundwater sampling prior to the submittal of a Site Assessment Report (SAR) and was approved by RER. No further information regarding confirmation sampling of the site was found in the files reviewed. Additional assessment may be required prior to construction in the vicinity of this site and design and construction restrictions may apply if the contamination is found to extend into the right-of-way.
FL Dept. of Transportation – MacArthur Causeway	South adjacent to I-395/ MacArthur Causeway	This high-rated site is owned by the City of Miami's Department of Parks and Development and was previously owned by the FDOT. The site is adjacent north of the Perez Art Museum, and encompasses part of the public right-of-way adjacent to I-395. In October 1992, a contamination assessment revealed soil and groundwater contamination within the FDOT right-of-way, associated with former occupancy by a Belcher Oil Terminal tank farm on the park property. Groundwater analysis in 2004 demonstrated that

Table 4-2. Contamination Sites with a Medium or High Risk to the Project

Site Name and Address	Direction and Distance from Corridor (Feet)	Site Information
1191 Biscayne Blvd. / NE Bayshore Dr., Miami		groundwater impacts were below GCTLs and no additional assessment was performed until 2013, at which time soil analytical data showed remaining petroleum impacts in the soils. A 2015 Impact to Construction Report for the I-395 Reconstruction Project prepared by FDOT documented soil and groundwater sampling activities conducted in the area north of the MacArthur Causeway and south of NE 13th St., between Biscayne Blvd. and N. Bayshore Dr., as well as the area north of the MacArthur Causeway on the southwestern perimeter of the former Miami Herald property. Soil samples collected from these areas exceeded the Soil Cleanup Target Level (SCTL) for total recoverable petroleum hydrocarbons. Soil and groundwater samples were not collected from areas on the south side of the MacArthur Causeway. As of February 2019, no additional assessment had been conducted at the site. Additional assessment may be required in the right-of-way south of MacArthur Causeway prior to construction at this site, and design and construction restrictions may apply if contamination is discovered within the project area. Contaminated media must be managed during construction, which may include implementing a SMP, air monitoring, a health and safety plan, and other protective measures to be approved by the regulatory agencies.
Miami Herald Publishing Co / Resorts World Miami Brownfield Site  1 Herald Plaza, Miami	Potential station location north adjacent to APM and monorail alignments	The Herald Plaza (Resorts World Brownfield Site) is a contaminated former petroleum storage tank site and former small quantity generator of hazardous waste for the operation of printer facility and this site received a high risk rating. Contaminant plumes were depicted in the Year 6, Quarter 1 Quarterly Groundwater Monitoring Report for this site, dated April 2, 2019, but the contaminant plumes were not fully defined, and may extend beyond their current depicted boundaries. Construction in close proximity to this site will need to be coordinated closely with RER and a SMP must be approved by the regulatory agencies prior to any construction or other soil disturbance-related activities at the site for management of any contaminated soils. Dewatering in close proximity to this site will require an evaluation to demonstrate no impact to the existing groundwater contamination plume and shall be approved by the regulatory agencies.
Fleet Management Green Reuse Area / Miami Beach City – Fleet Management Facility	Contamination approximately 200 feet south of MacArthur Causeway	This high-rated site is a designated Brownfield Site and operates as the Miami Beach Fleet Management Facility, which includes a maintenance building and fueling station. Petroleum discharges were reported in 1989 and 1992. In August 2019 a SAR Addendum submitted to RER confirmed the presence of groundwater and soil contamination within multiple areas across the Site. Groundwater contamination extended to the northern boundary of the property within 200 feet of the proposed project alignment but an off-site assessment was conducted to delineate the plume in that direction. Assessment is ongoing for this site. Additional assessment may

Table 4-2. Contamination Sites with a Medium or High Risk to the Project

Site Name and Address	Direction and Distance from Corridor (Feet)	Site Information
140 MacArthur Causeway, Miami Beach		be required prior to construction in the vicinity of this site and design and construction restrictions may apply if contamination extends into the right-of-way. Contaminated media must be managed during construction, which may include implementing a SMP, air monitoring, a health and safety plan, and other protective measures to be approved by the regulatory agencies. Dewatering in close proximity to this site will require an evaluation to demonstrate no impact to the existing groundwater contamination plume and shall be approved by the regulatory agencies.
Sunshine 129  945 5 <sup>th</sup> Street, Miami Beach	North adjacent to 5 <sup>th</sup> Street alignment	This high-rated facility is an active fuel station that has two documented discharges of petroleum products. As of 2019, assessment at this site is ongoing and there are no reports in the files reviewed that show that contamination in on-site soil or groundwater is delineated. Additional assessment may be required prior to construction in the vicinity of this site and design and construction restrictions may apply if the contamination is found to extend into the right-of-way. Contaminated media must be managed during construction, which includes implementing a SMP, a health and safety plan, and other protective measures approved by the regulatory agencies. Dewatering in close proximity to this site will require an evaluation to demonstrate no impact to the existing groundwater contamination plume and shall be approved by the regulatory agencies.
Stan's Shell  845 5 <sup>th</sup> Street, Miami Beach	North adjacent to 5 <sup>th</sup> Street alignment	This high-rated site is currently operating as a gasoline station and in the assessment phase under the state-funded Petroleum Cleanup Preapproval Program. As contamination assessment is ongoing at this site, design and construction restrictions may apply if contaminants are found to extend into the right-of-way. Dewatering in close proximity to this site will require an evaluation to demonstrate no impact to the existing groundwater contamination plume and shall be approved by the regulatory agencies.

During the design phase of this project, Level II assessment may be conducted on the Medium and High rated sites identified above, unless project design changes or updated contamination information shows that a site does not pose a risk of impacting the project. The Level II assessment will further evaluate each Medium and High rated site in the context of updated information, changes in design, design details, and ROW acquisition requirements. Depending on the design and updated information available for each Medium and High rated site, a Level II assessment may include updated regulatory agency file review or sampling and testing of soil and groundwater to further ascertain the type, location, and potential involvement with contamination, as well as aid in further development of approaches to address contamination when found. Site-specific Level II contamination assessment investigations, including soil and groundwater assessment, are recommended for any areas that have proposed dewatering or subsurface work activities (e.g., pile foundations, drainage features) occurring at, or adjacent to, Medium and High rated sites.

## 4.3 Natural Environment

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### 4.3.1 WATER QUALITY CERTIFICATION AND DRAINAGE

Water Quality Certification is provided by the SFWMD Conceptual ERP included in **Attachment E**.

### 4.3.2 COASTAL ZONE CONSISTENCY

DTPW received federal coastal zone consistency from FDEP for the Beach Corridor on April 17, 2020 (**Attachment F**). As stated in the email from FDEP, final coastal zone consistency is determined during the State permitting process. The SFWMD Conceptual ERP is included in **Attachment E**, granting both water quality certification and coastal zone consistency.

### 4.3.3 SOLE SOURCE AQUIFER

DTPW received a letter from the EPA Region 4 Groundwater Section on June 5, 2020 indicating that the Beach Corridor project may cause a significant impact to the aquifer system when the bridge foundations are installed and/or construction dewatering is undertaken. However, with proper implementation of best management practices (BMPs), these potential impacts can be adequately reduced or properly mitigated. A list of BMPs from the FDOT's *Standard Specifications for Road and Bridge Construction* and from the *U.S. Bureau of Reclamation Engineering Geology Field Manual* was provided. The response letter can be found in **Attachment G**.

### 4.3.4 WETLANDS/BENTHIC RESOURCES

#### 4.3.4.1 SEAGRASS

A total of 0.185 acres of paddle grass are anticipated to be impacted from the project. Impacts to seagrass were estimated from 30% design plans and conceptual construction methodology. Seagrass impacts from installation of the foundations (drilled shafts and pile caps) were based on the area within a cofferdam at each pier location overlaid on the seagrass bed locations. Impacts from barge spudding during construction were based on two barges spudding down at each pier location near a seagrass bed seven times. A shading study was also conducted to analyze impacts from shading. All impacts were considered to be permanent.

Estimated impacts at the west bridge are shown in **Figure 4-1**. Bed 1 will be impacted directly by two cofferdams. It was estimated that Bed 1 would be impacted from barge spudding near six locations. Due to the east-west orientation and the proposed height of the west bridge, no impacts from shading were anticipated. Estimated impacts at the east bridge are shown in **Figure 4-2**. At the east bridge, Bed 2 would be impacted by one cofferdam and Bed 3 would be impacted by two cofferdams. The seagrass beds (Beds 2, 3 and 4) may be impacted from barge spudding at four pier locations. The east bridge is oriented southwest to northeast and is not as high as the west bridge. Therefore, shading impacts to Bed 2 were anticipated from the transit guideway. Because Bed 2 is small in size and has only 20% coverage of paddle grass, the total area of Bed 2 (0.12 acres) was included in the impact calculations.



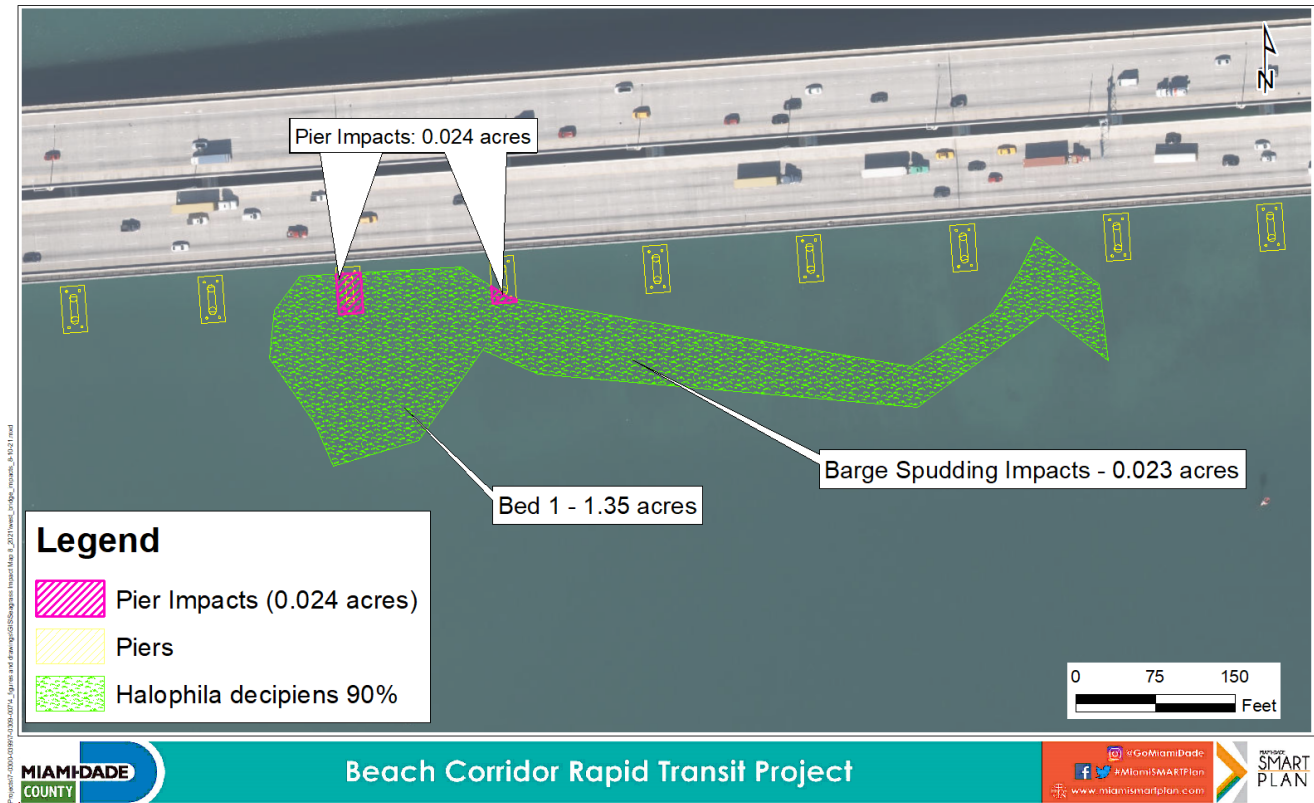


Figure 4-1 West Bridge Seagrass Impacts

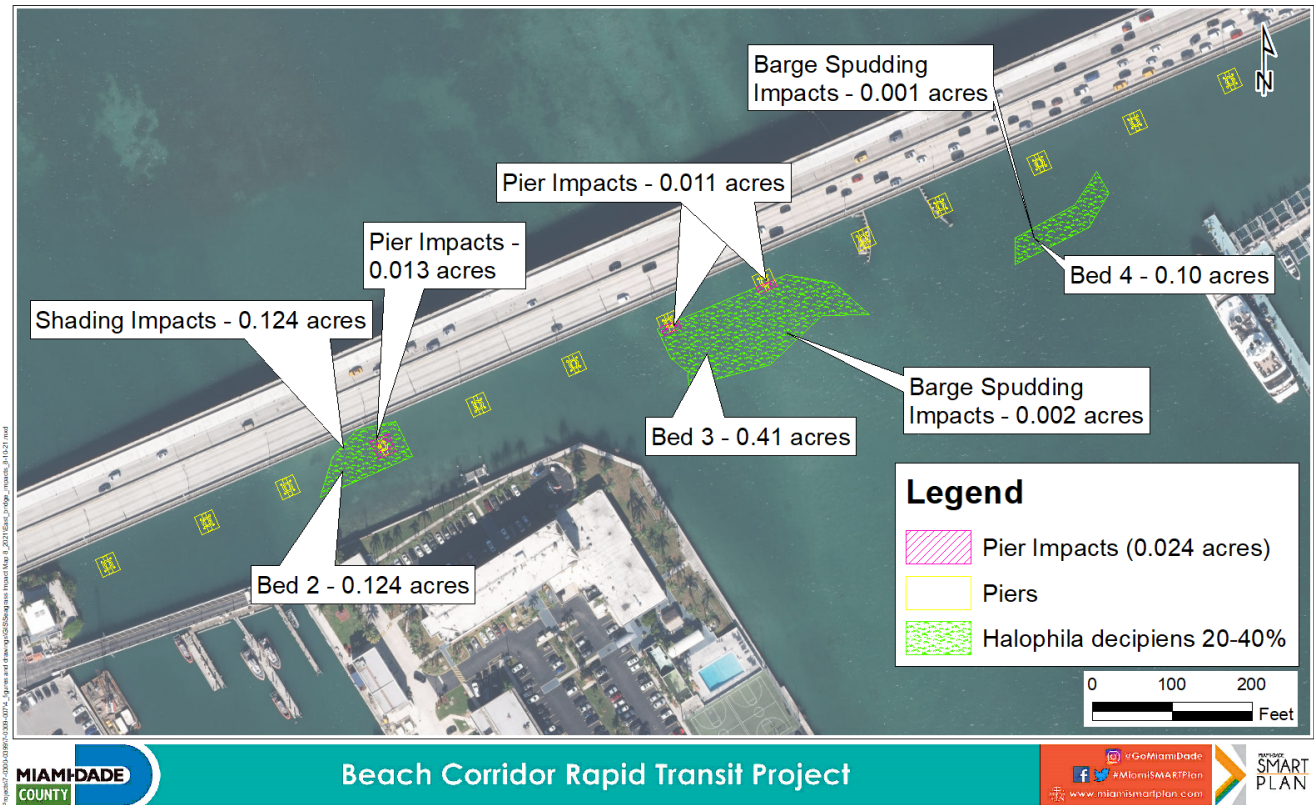


Figure 4-2 East Bridge Seagrass Impacts

## SEAGRASS MITIGATION

DTPW is proposing two seagrass mitigation plans to satisfy differing State and Federal seagrass mitigation requirements. Seagrass mitigation to satisfy the State requirement for seagrass mitigation to occur within Biscayne Bay Aquatic Preserves is proposed at Matheson Hammock County Park. Several meetings were held with the relevant Marine Protected Area representatives at FDEP between August 2020 and May 2021 to ensure that this plan was consistent with the goals and objectives of Biscayne Bay Aquatic Preserves. The Matheson Hammock County Park Seagrass Mitigation Plan is incorporated into the SFWMD ERP. The seagrass mitigation plan proposes preservation and enhancement of two shoal areas with severe propeller scarring and is provided in **Attachment H**. NMFS required targeted restoration of seagrass sites for mitigation rather than preservation/enhancement and suitable restoration sites within Biscayne Bay Aquatic Preserves were not available. Therefore, restoration of propeller scars/blowholes at shoal areas in Biscayne National Park is proposed to satisfy NMFS. The Biscayne National Park Seagrass Mitigation Plan is provided in **Attachment I**.

### 4.3.4.2 HARDBOTTOM AND CORAL

Impacts to hard coral, soft coral and sponges were extrapolated from the 2019 coral survey using a Resource Equivalency Analysis (REA) developed in coordination with NMFS. The REA tool allows calculation of the coral colony yearly loss (CCYL) based on inputs of species expected to be impacted by a project. For corals, it was estimated that 504 spawners, 5,132 brooders, and 393 branching corals of all size classes will be impacted. For octocorals and sponges, it was estimated that 2,846 organisms will be impacted. Per coordination with NMFS, sponges were grouped with octocorals because life history information is not as well defined for sponges. The results of the REA predicted a total loss of 8,875 corals from direct impacts; however, due to the low service value of the majority of organisms to be impacted, the CCYL was anticipated to be 6,996 organisms.

## CORAL/HARDBOTTOM MITIGATION

The amount of mitigation required to offset the impacts can then be calculated using the REA. To theoretically estimate mitigation at this time, outplanting of certain species of coral in specific years was entered into the REA. The REA is a working tool and will be updated as mitigation occurs. Mitigation for coral and hardbottom impacts is proposed in two forms, relocation to a site within Biscayne Bay Aquatic Preserves and outplanting of corals to offshore reefs from nursery stock. Prior to construction, relocation of corals from the impact area is proposed to minimize impacts to corals. The relocated corals will be entered into the REA and thereby reduce the number of corals that need to be outplanted from nursery stock. The Coral Relocation Plan, which includes the REA analysis of impacts by species and size class, is provided in **Attachment J**. In addition, as per a request from FWC, corals from the impact area may be donated to entities conducting coral restoration-related activities such as research, gene banking, and propagation.

### 4.3.5 ENDANGERED AND THREATENED SPECIES

#### 4.3.5.1 USFWS ENDANGERED AND THREATENED SPECIES

Eight federally listed species under the purview of the USFWS were evaluated to determine if the proposed project would adversely affect these species. Based on review of available data, in conjunction with field reconnaissance, the following effects determinations were made and submitted to USFWS (**Table 4-3**).

Table 4-3. Effect Determinations for USFWS Listed Species		
Species	Status	Effects Determination
<i>Calidris canutus rufa</i> (Rufa red knot)	T	No Effect
<i>Charadrius melodus</i> * (Piping plover)	T	No Effect
<i>Mycteria americana</i> (Wood stork)	T	No Effect
<i>Eumops floridanus</i> * (Florida bonneted bat)	E	MANLAA
<i>Trichechus manatus</i> * (West Indian manatee)	T, CH	MANLAA
<i>Alligator mississippiensis</i> (American alligator)	SAT	MANLAA
<i>Crocodylus acutus</i> * (American crocodile)	T	MANLAA
<i>Drymarchon couperi</i> (Eastern indigo snake)	T	MANLAA

**Notes:** Species: \* = Project falls within USFWS Consultation Area for this species.  
Status: E = Endangered, T = Threatened, SAT = Threatened due to Similarity of Appearance to a listed species, CH = Critical Habitat.  
Effects Determination: MANLAA = May affect, not likely to adversely affect

The USFWS concurred with the effects determinations by stamping the first page of the concurrence request letter on October 25, 2020. The stamped letter and the original letter to USFWS can be found in **Attachment K**.

#### 4.3.5.2 NMFS ENDANGERED AND THREATENED SPECIES

Fourteen federally listed species under the purview of NMFS were evaluated to determine if the proposed project would adversely affect these species. Based on review of available data, in conjunction with field and benthic surveys, the following effects determinations were made and submitted to NMFS (**Table 4-4**).

Table 4-4. Effect Determinations for NMFS Listed Species		
Species	Status	Effects Determination
<i>Pristis pectinata</i> (Smalltooth sawfish)	E	MANLAA
<i>Epinephelus striatus</i> (Nassau grouper)	T	MANLAA
<i>Manta birostris</i> (Giant manta ray)	T	MANLAA
<i>Acropora cervicornis</i> (Staghorn coral)	T	MANLAA
<i>Acropora palmata</i> (Elkhorn coral)	T	MANLAA

Table 4-4. Effect Determinations for NMFS Listed Species		
Species	Status	Effects Determination
<i>Dendrogyra cylindricus</i> (Pillar coral)	T	No Effect
<i>Mycetophyllia ferox</i> (Rough cactus coral)	T	No Effect
<i>Orbicella annularis</i> (Lobed star coral)	T	MANLAA
<i>Orbicella favolata</i> (Mountainous star coral)	T	MANLAA
<i>Orbicella franksi</i> (Boulder star coral)	T	MANLAA
<i>Caretta caretta</i> (Loggerhead sea turtle)	T	MANLAA
<i>Chelonia mydas</i> (Green sea turtle)	T	MANLAA
<i>Dermochelys coriacea</i> (Leatherback sea turtle)	E	MANLAA
<i>Eretmochelys imbricate</i> (Hawksbill sea turtle)	E	MANLAA
<i>Lepidochelys kempii</i> (Kemp's ridley sea turtle)	E	MANLAA
<i>Halophila johnsonii</i> (Johnson's seagrass)	T, CH	No Effect
Johnson's seagrass Critical Habitat	CH	MALAA

**Notes:** Status: E = Endangered, T = Threatened, CH = Critical Habitat

Effects Determination: MANLAA = May affect, Not Likely to Adversely Affect, MALAA = May Affect, Likely to Adversely Affect

Because a “May Affect, Likely to Adversely Affect” (MALAA) determination was made for Johnson's seagrass Critical Habitat, formal consultation with NMFS was initiated, requiring NMFS to perform a Biological Opinion for the listed species/critical habitat under their purview. The Biological Opinion, dated July 14, 2021, can be found in **Attachment L**. NMFS concurred with the effects determinations for fishes and sea turtles with implementation of the *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS 2006); however, they made a “Not Present” effect determination for the corals and Johnson's seagrass. The NMFS concluded that the proposed project is likely to adversely affect, but will not destroy or adversely modify, Johnson's seagrass designated critical habitat.

#### 4.3.6 ESSENTIAL FISH HABITAT

The project has the potential to impact EFH, HAPC and managed species in the project area. Impacts to the estuarine water column and unvegetated bottoms (sand/shell or mud) are anticipated to be minimal. Impacts to Submerged Aquatic Vegetation (SAV) and hardbottom communities are anticipated to be more than minimal but less than substantial based on the amount of SAV and live/hardbottom habitat in the project area. As discussed in the Wetlands section of this report, potential impacts to EFH/HAPC may occur from installation of the piers for the transitway and barge spudding during construction.



## CONSULTATION AND MITIGATION

Consultation with NMFS for EFH was initiated by the USCG and a letter with Conservation Recommendations was received on October 14, 2020 (**Attachment M**). The project will comply with all of the Conservation Recommendations as stated in a response to the October 14, 2020 letter. NMFS provided an EFH close-out letter for this phase of the project on December 16, 2021 (also in **Attachment M**). Several of the commitments made for the project are based on the Conservation Recommendations as detailed in Section 5 of this report. Coordination with NMFS will continue during the next phases of the project to clarify outstanding items in the EFH close-out letter.

### 4.3.7 MITIGATION MATRIX

A Mitigation Matrix that summarizes the mitigation for the project as detailed in Attachments H, I and J is provided in **Table 4-5**. The matrix includes a description of the mitigation measure, an evaluation of its anticipated benefits and effectiveness, implementation and monitoring plan, the responsible entity and the estimated completion date.

## 4.4 Cultural Resources

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### 4.4.1 NATIONAL HISTORIC PRESERVATION ACT

Originally, a desktop analysis of the Miami Design District Extension and Bay Crossing was performed for the Beach Corridor and submitted to the State Historic Preservation Officer (SHPO) by DTPW on December 20, 2018. A Cultural Resources Assessment Survey of eligibility recommendations was performed in December 2019 and an effects evaluation was performed in September 2020. The USCG submitted the Determination of Effects to SHPO on December 14, 2020 (**Attachment N**) and requested concurrence. The SHPO replied that the project has the potential to adversely affect the locally designated Ocean Beach Historic District. DTPW coordinated with the City of Miami Beach Chief of Historic Preservation and a response to SHPO was prepared and submitted in May 2021 (also in **Attachment N**). In a letter dated June 10, 2021, the SHPO then concurred that the proposed project will have no adverse effect to historic properties. This was based on a commitment to continued consultation regarding the design of the built transit structures.

The USCG also submitted a Cultural Resources Desktop Analysis for proposed maintenance facilities for the project, including those on Watson Island for the Bay Crossing (included in **Attachment N**). The SHPO concurred that the maintenance facilities would have no adverse effect to historic properties. Only one historic resource, MacArthur Causeway (8DA16540), intersects the maintenance facilities Study Area. The SHPO has concurred that MacArthur Causeway (8DA16540) is ineligible for listing in the NRHP. Therefore, the proposed maintenance yards on Watson Island have no potential to affect historic properties.

### 4.4.2 TRIBAL CONSULTATION

Coordination letters were sent to the five tribes with interest in south Florida on November 30, 2020. They include the Miccosukee Tribe of Indians of Florida, the Muscogee (Creek) Nation (Oklahoma), the Poarch Band of Creek Indians (Alabama), the Seminole Tribe of Florida and the Seminole Nation of Oklahoma. A draft of this Environmental Assessment and the original Cultural Resources Assessment Survey were also transmitted. No comments were received.

Table 4-5 Bay Crossing Mitigation Matrix for the Locally Preferred Alternative - Elevated, Automated, Rubber Tire Rail Transit (APM or Monorail).

Measure	Anticipated Benefit / Evaluating Effectiveness	Implementation and Monitoring	Responsibility	Estimated Completion Date
Preserve and enhance 18.89 acres of severely scarred shoal areas off Matheson Hammock County Park by installing Caution Seagrass Area buoys and signs around the area as well as educational signage on land.	Preservation and enhancement will offset impacts to 0.19 acres of seagrass impacts for the Bay Crossing transit guideway. The site and impacts to seagrass are in Biscayne Bay Aquatic Preserve. The shoal is poorly marked and severely scarred from boat traffic. Installation of buoys and signs will reduce future scarring and allow seagrasses to recover in the scars. Boater awareness of the shoal and benefits of seagrass to the environment will also be improved. This mitigation satisfies State of Florida (SFWMDC and FDEP) seagrass mitigation compliance.	Initially, the applicable permits for installation of Aids to Navigation will be acquired. Installation of the signs and buoys is proposed to occur concurrently with construction of the Bay Crossing. The site will be monitored annually between June 1 and September 30 for a period of five years.	Responsibility for construction and monitoring rests with DTPW as the permittee. DTPW may elect to contract the work out.	Estimated mitigation construction completion date is 2025. Time-zero monitoring will occur during the first seagrass growing season after the signs and buoys are installed, estimated in 2025. Estimated completion date of monitoring is 2030.
Impacts to hard coral, soft coral and sponges will be offset using a Resource Equivalency Analysis (REA), which estimates the amount of mitigation required to compensate for the lost value of the impact. Over several years, nursery-grown corals will be outplanted to coastal artificial coral reefs. In addition, a portion of the hard and soft corals from the impact area will be relocated to a similar site in Biscayne Bay prior to construction. The REA will be updated after each event until the mitigation is equivalent to the impact.	Using the REA ensures that the lost values and benefits from impacts to hardbottom will be fully compensated, because the REA accounts for time as well as species value. The success of the coral relocation or coral outplanting will be monitored during six events over a one year period: baseline (at time of event), one week, one month, three month, six month, one year. This mitigation plan satisfied both Federal (NMFS) and State (FWC) mitigation requirements.	Coral relocation will occur prior to construction of the Bay Crossing, estimated in 2023. Coral outplanting will occur over several years starting in 2023 and including 2024, 2025 and 2026 (depending on availability). The one year-six event monitoring schedule will be determined based on the date of each relocation or outplanting event.	Responsibility for construction and monitoring rests with DTPW as the permittee. DTPW may elect to contract the work out.	Completion date for the coral relocation is estimated in 2023. Completion date for the coral outplanting is estimated in 2026. Monitoring of the outplanted coral may extend into 2027.
Restoration of approximately one acre of propellar scars/blowholes within shoal areas in Biscayne National Park by filling to grade and installing bird stakes to provide fertilizer. Each feature will be mapped with a sub-meter GPS and entered into ArcGIS.	Restoration of damaged seagrass beds satisfies NMFS mitigation requirements for impacts to EFH under the Magnuson-Stevens Act. Bringing deep scars and blowholes up to grade allows seagrass to populate the area and is a proven restoration technique.	Biscayne National Park will be provided with funding to select the features to be restored, implement the restoration and conduct post-restoration monitoring. Time-zero monitoring will occur within one month of completion and annual monitoring will occur for the next four years or until the performance standards are met.	DTPW will provide funding to Biscayne National Park and continue coordination with NMFS.	Mitigation construction is estimated to be completed in 2025. Estimated completion date of monitoring is 2030.

## 4.5 Environmental Justice

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As described in Section 3.3 and documented in the SCE and MOF Title VI Analysis Report provided in **Attachment D**, Potential effects on Title VI populations within the Bay Crossing study area were evaluated. These effects included land use changes, visual impacts, air quality, noise and vibration, and the temporary effects of construction (i.e., temporary access change, dust, noise, and vibration caused by construction equipment).

While there are vulnerable populations and numerous social facilities in the vicinity of the project corridor, disproportionate adverse effects to Environmental Justice populations are not anticipated for the Bay Crossing alignment. The project will continue to be conducted in accordance with Title VI of the Civil Rights Act and EO 12898 regarding environmental justice to ensure that there are no disproportionate effects on low-income or minority populations.

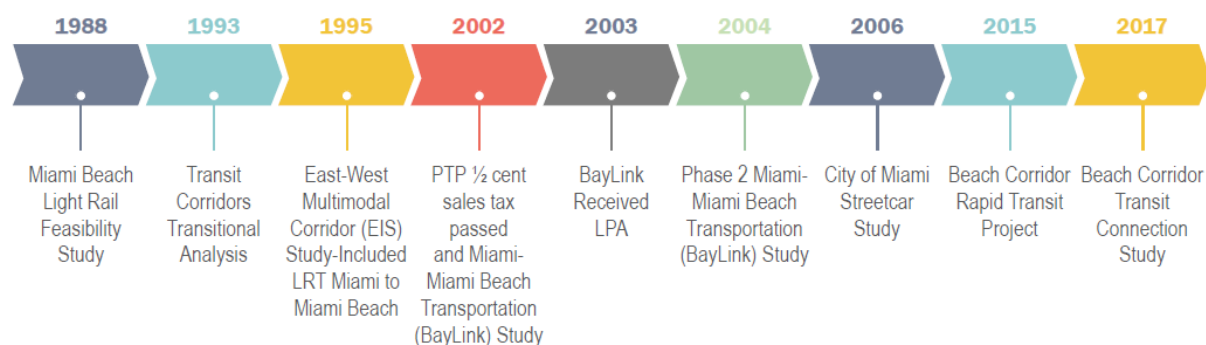
## 5 Summary of Mitigation and Minimization Measures, Commitments

- Impacts to seagrass will be mitigated through enhancement of scarred shoal areas at Matheson Hammock County Park and through restoration of propeller scars/blowholes at shoals in Biscayne National Park.
- Impacts to coral and hardbottom will be mitigated by out planting coral from nurseries to offshore reefs and by relocating a portion of the coral from the impact area. The REA will be utilized as a tool to calculate the required mitigation.
- Barges used during construction will be limited to a five-foot draft.
- Ramp-up procedures will be used during pile installation. No in-water pile driving will occur at night.
- Temporary steel casings (or some form of containment) will be utilized around the drilled shafts and pile caps to avoid contamination to Biscayne Bay waters.
- Submerged small and medium boulder riprap along the causeway section of the project that needs to be removed for construction of the foundations will be moved to a similar, submerged habitat within the project corridor and not moved again during construction of this project.
- A pre-construction seagrass survey will be performed within two years of construction initiation. Two post-construction seagrass surveys will be performed, one immediately following construction completion and another one-year post-construction, to monitor recovery/persistence of seagrass beds. Seagrass surveys will be performed during the June 1 to September 30 seagrass growing season.
- The Watson Island Baywalk Park is a National Park Service Land and Water Conservation Fund Act site and, therefore, will not be used as a staging area or for the siting of an MOF.
- A survey for Florida bonneted bat will be conducted prior to construction following the latest survey guidelines from the USFWS in place at the time.
- The project will follow the *Standard Manatee Conditions for In-Water Work* (2011), the *Sea Turtle and Smalltooth Sawfish Construction Conditions* (2006) and the *Standard Protection Measures for the Eastern Indigo Snake* (2013) during construction.
- Best Management Practices for turbidity, erosion and sediment control will be utilized during construction to minimize impacts to the social, natural and physical environments and meet the no net increase in turbidity standards required for Biscayne Bay.

- The FTA manual states that elevated structure mass transit systems rarely cause vibration issues with building structures located more than 50 feet from the guideway support. If needed, locations that do not meet this criterion will be surveyed for ambient vibration levels at a later time as part of final engineering design.
- FTA daytime and nighttime construction noise level thresholds for 8-hour and 30-day average noise levels will be applied during construction. Also, FTA guidelines on allowable construction-induced vibration levels will be applied during construction. Minimization measures, such as monitoring noise and vibration levels, will be further evaluated during the final design phase and implemented during construction.
- Contamination sites with a High and Medium risk to the project will be reassessed during final design.
- The fixed guideway system will operate in exclusive right-of-way to ensure system speed and reliability and to avoid conflicts with automobile and pedestrian traffic.
- Coordination and consultation with regulatory agencies, including USCG, USACE, SHPO, USFWS, NMFS, SFWMD, FDEP, FWC and RER will continue during the design, permitting and construction phases of the project.
- During the design phase, consultation with SHPO and the City of Miami Beach will continue to ensure that the built structures are harmonious with the Ocean Beach Historic District.
- The project will be conducted in accordance with Title VI of the Civil Rights Act and EO 12898 regarding environmental justice to ensure that there are no disproportionate effects on low-income or minority populations.

## 6 Cumulative Effects

A transit Bay Crossing from Miami to Miami Beach has been contemplated since 1988 and been the subject of many studies as detailed below in **Figure 6-1** and further detailed in the *Logical Termini-Independent Utility Report* in **Attachment A**. This is a unique project and another crossing of Biscayne Bay between the cities of Miami and Miami Beach is otherwise unforeseen. Minimization and mitigation measures are detailed in the preceding section. Therefore, this type of project is not expected to be proposed again and the implementation of this project will not have unacceptable cumulative impacts.



**Figure 6-1 Historical Timeline of Miami and Miami Beach Transit Connection.**

## 7 Coordination and Public Involvement

Numerous meetings with the public, elected officials, regulatory agencies and various City and County staff have occurred for the PD&E Study since it started in 2017. Meetings are detailed in **Attachment O**. A Project Advisory Group composed of affected community representatives was formed for Tier II of the PD&E Study. This group met to advise the PD&E Team regarding



concerns and considerations in development of alternatives before presenting them to the public. The following highlights the public meetings held to date.

- Tier I Kickoff Meeting-Miami 7/25/2017
- Tier I Kickoff Meeting – Miami Beach 7/27/2017
- Tier 2 Kickoff Meeting 12/17/2018
- Project Advisory Group Meeting #1 5/30/2019
- Project Alternatives Workshop #1 – Miami Beach 6/17/2019
- Project Alternatives Workshop #1 – Miami 6/20/2019
- Project Advisory Group Meeting #2 8/29/2019
- Project Alternatives Workshop #2 – Miami Beach 9/12/2019
- Project Alternatives Workshop #2 – Miami 9/16/2019
- Project Advisory Group Meeting #3 11/19/2019
- TPO Governing Board 1/30/2020

Completion of the PD&E Study was placed on hold to advance permitting for the Bay Crossing and the USCG is the lead federal agency for completion of the NEPA documentation. A final public meeting is planned for late 2021 or early 2022.

## 8 Conclusions

This Environmental Assessment evaluated the environmental consequences of the LPA for the Beach Corridor Rapid Transit Project – Bay Crossing Trunkline, as presented in the 30% plans. The LPA for the Bay Crossing is elevated, rubber tire vehicles (APM or Monorail) from the existing Downtown Metromover Omni Extension (Herald Plaza Station) across Biscayne Bay adjacent to and south of MacArthur Causeway to the 5<sup>th</sup> Street and Washington Avenue Station, with intermediate stops at Children’s Museum Station and 5<sup>th</sup> Street and Lenox Avenue. This report and the documentation contained here were performed to comply with the laws, regulations and executive orders pertaining to NEPA.

Impacts to seagrass, coral and hardbottom from construction of the project are anticipated. Two seagrass mitigation plans were developed to satisfy differing State (FDEP, SFWMD) and Federal (NMFS) requirements. Both a coral relocation plan and an outplanting mitigation plan were developed to satisfy NMFS, FDEP and FWC. Extensive coordination with the regulatory agencies occurred during the development of these plans. These plans are part of the compliance with the EFH Conservation Recommendations for the project. The project has made additional commitments to comply with the EFH Conservation Recommendations.

The USFWS concurred that the project would have “no effect” on wading and shore birds and that the project “may affect, but is unlikely to adversely affect” the Florida bonneted bat, West Indian manatee, American alligator, American crocodile and Eastern indigo snake. The project will follow the *Standard Manatee Conditions for In-water Work*. NMFS concurred with the effects determination of “may affect, not likely to adversely affect” for fishes and sea turtles with implementation of the *Sea Turtle and Smalltooth Sawfish Construction Conditions*. They made a “not present” effect determination for the listed corals and Johnson’s seagrass. Regarding critical habitat, NMFS concluded that the proposed project is likely to adversely affect, but will not destroy or adversely modify, Johnson’s seagrass designated critical habitat.

The SHPO has concurred that the project would have no adverse effect to historic properties. No comments were received from the five Indian tribes with interest in south Florida. A Title VI Analysis was conducted for the project. While there are vulnerable populations and numerous social facilities in the vicinity of the project corridor, disproportionate adverse effects to Environmental Justice populations are not anticipated for the Bay Crossing alignment. The project will continue to be conducted in accordance

with Title VI of the Civil Rights Act and EO 12898 regarding environmental justice to ensure that there are no disproportionate effects on low-income or minority populations.

Prior to construction and during the development of final plans and acquisition of construction permits, several factors will be further analyzed. The effect of contaminated sites on the project and dewatering activities will be evaluated in a Level II contamination assessment. Also, the potential for air quality, noise and vibration impacts and methods to minimize impacts will be further refined. In addition, final drainage designs will be developed. Water quality certification and coastal zone management consistency are provided by the SFWMD permit.

Based on the evaluations conducted for this Environmental Assessment, and the minimization and mitigation measures proposed, it is anticipated that the proposed project will not have a significant effect on the quality of the human environment. A Finding of No Significant Impact is, therefore, warranted.

## ATTACHMENT A | LOGICAL TERMINI-INDEPENDENT UTILITY REPORT

Draft | Logical Termini-Independent Utility Report

**Beach Corridor Rapid Transit Project  
Project Development and Environment (PD&E) Study**

**Prepared for:**

**MIAMI-DADE DEPARTMENT OF TRANSPORTATION AND  
PUBLIC WORKS**



**Prepared by:**

**Parsons Corporation**

November 2020



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# 1 BEACH CORRIDOR RAPID TRANSIT PROJECT- INDEPENDENT UTILITY TECHNICAL MEMORANDUM

## 1.1 PROJECT BACKGROUND

The Miami-Dade region has been studying alternatives to provide a transit connection between the cities of Miami and Miami Beach across Biscayne Bay using the MacArthur Causeway since 1988. Please see Figure 1 for a timeline of all studies on this connection and the below bullet points for summaries of each project in chronological order.

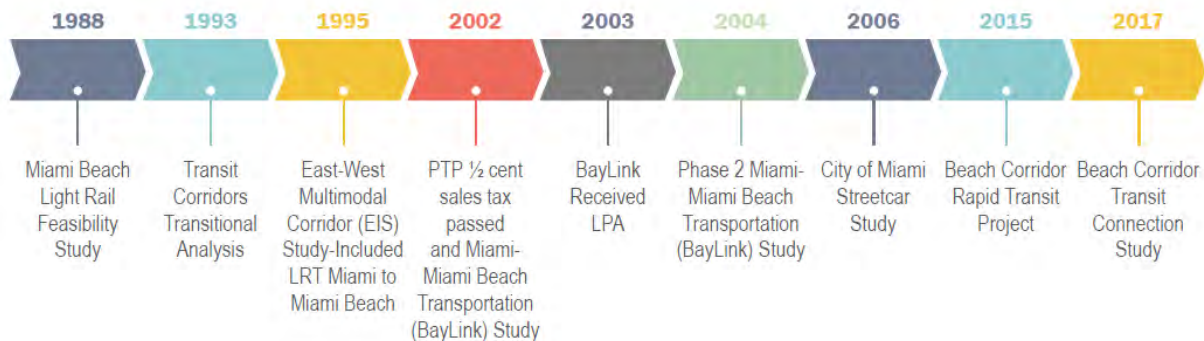


Figure 1 | Historical Timeline of Miami and Miami Beach Transit Connection

- 1988 Miami Beach Light Rail Transit (LRT) Feasibility Study. This study reviewed a proposed 8.6-mile link from the Bayside/Omni area in Miami to the Miami Beach Convention Center and then northward to W 63rd Street. The project was stopped due to opposition from residents north of the Miami Beach Convention Center (20th Street).
- 1995 East-West Multimodal Corridor (DEIS) Study. In this study, a Miami Beach Line would operate at-grade in the median of Biscayne Boulevard, cross Biscayne Bay on the south side of the causeway using the existing facility and use the median of Alton Road and Washington Avenue to reach the Miami Beach Convention Center. The project was not prioritized in the Long-Range Transportation Plan (LRTP) due to lack of funding.
- 2002-2004 Bay Link Studies. Miami-Dade's Metropolitan Planning Organization (MPO) Miami-Miami Beach (Bay Link) Transportation Corridor Alternatives Analysis / Draft Environmental Impact Study (DEIS) updated prior information, conducted analysis of new alternatives, and concluded that the most feasible options were LRT and Bus Rapid Transit (BRT). In 2004, the adopted Locally Preferred Alternative (LPA) was LRT through Downtown Miami, across MacArthur Causeway using the outside lanes, to Alton Rd and Washington Avenue, then north to the Miami Beach Convention Center. No project was advanced beyond the DEIS, due to lack of consensus on transit priorities in the LRTP.
- 2006 City of Miami Streetcar Study. City of Miami used local funds to complete an alternatives analysis study to implement a streetcar circulator that would connect two major employment and activity centers: Design District/Midtown area and Downtown Miami. As a result of city commission elections, newly elected officials did not support funding for operations and maintenance of the project, and it was put on hold. In 2017, Miami requested that its circulator project be incorporated into the overall Beach Corridor study.
- 2016-2017 City of Miami Beach Streetcar Project. Miami Beach used local funds to complete a streetcar circulator study connecting two major activity centers- the South Beach area to the Convention Center area (using Washington and Alton Rd medians). In response to questions posed by FTA, the City opined that their project would not preclude interoperable transit connections to the mainland. **The City's General Counsel opined that their project was consistent with 23 CFR 771.111(f) as an "operable segment" with "independent utility" since it could operate without**

regard to whether a mainland extension was built. As a result of commission elections, the new commission requested that the project be incorporated into the overall Beach Corridor study.

## 2 2017 BEACH CORRIDOR RAPID TRANSIT PROJECT DEVELOPMENT AND ENVIRONMENT STUDY AND LOCALLY PREFERRED ALTERNATIVE (LPA) IDENTIFICATION

### 2.1 STUDY AREA

Miami-Dade County commenced the Beach Corridor Rapid Transit PD&E Study over 3 years ago. To capture/study the comprehensive nature of travel between the mainland and Miami Beach, and to address the requests of the cities regarding incorporating their prior efforts, the study area was expanded to include the Trunkline (the east-west connection from Downtown Miami to Miami Beach crossing Biscayne Bay, previously known as the Baylink) as well as the two independent north-south transit alignments/circulators previously studied by the cities of Miami and Miami Beach (see bullets above). See Expanded Study Area Figure 2.

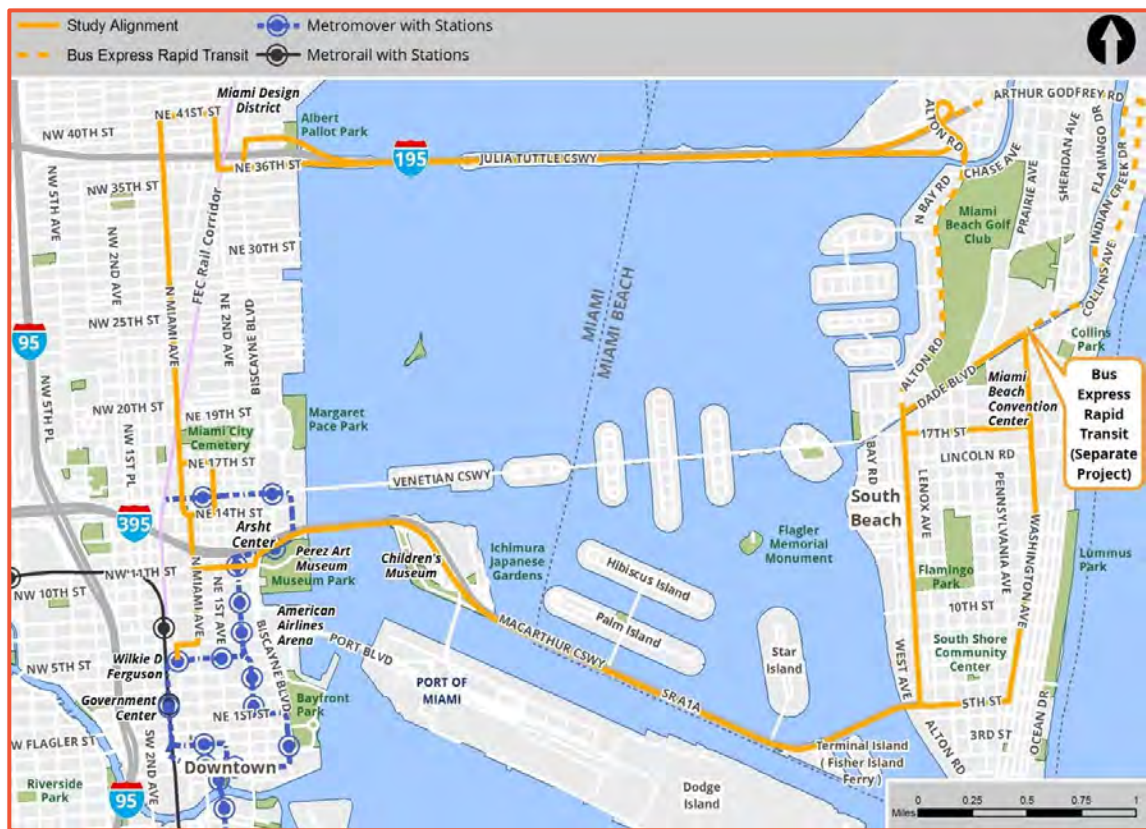


Figure 2 | Study Area

### 2.2 PROJECT PURPOSE AND NEED

The purpose and need for the on-going County comprehensive study is incorporated in all study documents and will be consistent in the Environmental Assessment document.

**“The purpose of this project is to increase the person-throughput to the Beach Corridor’s major origins and destinations via a rapid transit technology. The need for the project is the extensive population growth throughout the study area resulting in ever-increasing traffic congestion and the demand for enhanced access to the area’s employment, facilities, and services.**

The Beach Corridor traverses an area that is at the epicenter of population and economic growth within Miami-Dade County. The City of Miami Central Business District (CBD) area and Miami Beach have undergone rapid population and employment increases over the past decade, a trend that is projected to continue over the next 20 years. The population densities in the study area are among the highest in the nation, with the Miami CBD at 17,800 persons per square mile and Miami Beach at 11,500 persons per square mile, per the 2010 U.S. Census. The Miami CBD saw a dramatic 172 percent increase in population density over the last decade. The Miami Beach area includes major health facilities such as Mt. Sinai Medical Center, residential and retail uses, and major 24-hour hotels that provide service jobs for people residing throughout Miami Dade county.

In addition to travel needs to accommodate future regional growth, tourism travel patterns exacerbate the existing roadway network conditions. **Tourism travel patterns encompass visitors who are ‘people not residing or working in the region’.** These trips and patterns are outside of the typical commuter peak travel patterns. The **region’s appealing qualities, such as its temperate climate; attractive beaches; and convenient access to the Caribbean and Latin America, South Florida, and Miami-Dade County,** has made the area an important tourist destination for both national and international visitors. The county hosts millions of annual visitors and seasonal residents. Visitors typically access the study area via tour bus, taxi, or rental car.

In 2018, Greater Miami and the Beaches attracted a record 16.5 million overnight visitors and an additional 6.8 million-day trippers. Miami Beach and Downtown Miami are the two most popular locations for overnight stays, lodging nearly 50 percent of all 2018 Greater Miami area visitors with approximately 6.1 million and 1.6 million overnight guests, respectively. Additionally, the most-visited attractions, according to the Greater Miami Chamber, are in proximity to the Beach Corridor, including South Beach, the Beaches, Lincoln Road, Bayside Market Place, and Downtown Miami.

This high **rate of tourism contributes significantly to the area’s economy. Tourism generates additional demand for travel,** produces additional trips within the area, and contributes to an overall increase in traffic congestion. Tourism related travel patterns are different from the regular weekday commute travel patterns. Hotels on the Beach are open 24 hours a day/7 days a week and service workers have shifts throughout the day. Weekend attractions are also more prevalent and less likely to follow commute patterns. As a result, the existing transportation infrastructure is unable to adequately accommodate the entirety of current and projected travel demand. On the Greater Miami Convention and Visitor’s Bureau website, yearly visitor Industry Overview reports are found which includes results of a yearly survey they conduct of 15,000 visitors. Data collected from questions administered **on the Bureau’s Visitor Survey highlight that traffic congestion is considered the top negative aspect of trips to Greater Miami and Miami Beach and it has been the top-ranked problem in each of their last eight annual Visitor Surveys.”**

## 2.3 PROJECT GOALS

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**To meet the project’s purpose and need, goals were established that would accommodate the high travel demand throughout the study area and provide relief to the extreme traffic congestion along the surface streets. The project goals are:**

- Connect to and provide direct, convenient, and comfortable rapid-transit service via a new transit connection to the existing regional system in Miami to serve existing and future planned land uses which include additional residential and commercial uses in Downtown Miami as well as Miami Beach.
- Provide enhanced interconnections with Metrorail, Tri-Rail, Brightline, Metromover, and Metrobus routes; Broward County Transit (BCT) bus routes; Miami and Miami Beach circulators; jitneys; shuttles; taxis; transportation network companies (TNCs); and/or other supporting transportation services; and
- Promote pedestrian and bicycle friendly solutions in the corridors of the study area by incorporating bike share facilities at major transfer facilities and pedestrian infrastructure access to all new stations.



## 2.4 ALTERNATIVES ANALYSIS

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Alternatives were developed in two project phases—Tier One, a transit technology screening, and Tier Two, Preliminary Engineering and Environmental Assessment. The Tier One evaluation considered seven alternative technologies to provide rapid-transit connections between the Midtown Miami/Design District, Downtown Miami, and Miami Beach:

- Automated guideway transit (Metromover)
- Streetcar/light rail transit (LRT)
- Heavy rail transit (Metrorail)
- Bus rapid transit (BRT)
- Aerial cable transit
- Monorail
- Personal Rapid Transit

The Tier One Evaluation included a summary of these transit technologies and modes, the development of representative alignments, public involvement, and the evaluation of the potential modes with respect to transit performance, economic and community development, environmental effects, and cost/feasibility. Based on the evaluation, three transit modes were not recommended to advance for further analysis in the Tier Two Evaluation:

- Heavy Rail Transit – due to potential large right-of-way impacts in downtown
- Aerial Cable Transit – due to low capacity and speed
- Personal Rapid Transit – due to low capacity and speed

The following technologies had the potential to meet the project purpose and need and were advanced for further development in Tier Two.

- Automated People Mover (APM)
- Light Rail Transit/Streetcar (LRT)
- Monorail
- Bus Rapid Transit (BRT)

The Tier Two alternatives included a No-Build (existing bus and trolley service routes in the study area without any speed or capacity improvements) and alignments for each of the technologies studied. Full corridor project alternatives were developed to better evaluate their relative performance. Elevated technologies (APM, Monorail) were not considered along Washington Avenue to the Convention Center in Miami Beach due to the potential negative impacts to the National Historic Register designation in this area.

1. APM Alternative: Extension of Omni Loop Metromover to Midtown/Design District and Bay Crossing/Trunkline; Bus/Trolley connections via Washington Avenue to Miami Beach Convention Center. The Metromover extension to Design District will be using the same vehicles as the existing Metromover vehicles. The Trunkline vehicles can be any APM vehicles. Below is the map for the proposed APM alternative and a rendering of the APM in the median of Miami Avenue.



Figure 3 | APM Alternative



Figure 4 | APM Alternative N. Miami Avenue, Miami

2. LRT Alternative: Continuous LRT system from Midtown/Design District to Bay Crossing/Trunkline to Miami Beach Convention Center. The Trunkline section of the LRT and a portion of the LRT on Miami Ave are elevated. Below is the map for the proposed LRT alternative and the rendering of the MacArthur Causeway and Miami Avenue sections.



Figure 5 | LRT Alternative



Figure 6 | LRT Alternative MacArthur Causeway



Figure 7 | LRT Alternative N. Miami Ave, Miami



3. Monorail Alternative: Monorail Bay Crossing/Trunkline with APM extension to Midtown/Design District and bus/trolley connections via Washington Avenue to Miami Beach Convention Center. Below is the map for the proposed Monorail alignment and the rendering for the MacArthur Causeway. The map and rendering for the Metromover Design District extension are provided under APM Alternative.



Figure 8 | Monorail Alternative



Figure 9 | Monorail Alternative MacArthur Causeway

4. BRT Alternatives: Continuous BRT system from Downtown to Miami Beach Convention Center, via Either I-395 and Washington Avenue OR I-195 and Collins Avenue. Widening of the Causeways would be needed to accommodate the BRT. Below is the map of the proposed BRT alternatives and the typical section for the MacArthur Causeway.





Figure 10 | BRT Alternative

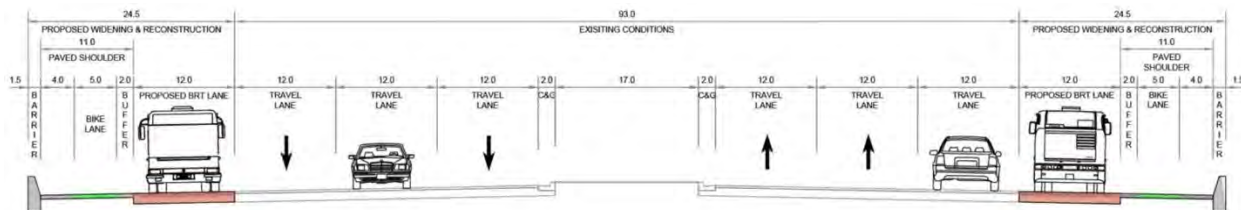


Figure 11 | BRT Alternative MacArthur Causeway Typical Section

## 2.5 EVALUATION MATRIX

To comparatively evaluate the ability of each alternative to meet the project purpose and need, the following three evaluation categories consistent with FTA guidance were identified:

- Transit and Multimodal Performance
- Environmental Effects
- Cost and Feasibility

Criteria were rated on scale ranging from lower performing (light green) to higher performing (dark green) as illustrated in Figure 3, where higher performance is always represented by the preferred project outcomes (for example, higher ridership, or lower cost).






Detailed Evaluation Results-Corridor Alternatives							
Total Project Elements:							
APM		Primary Mode: Extension of Omni Loop Metromover to Midtown and Bay Crossing Trunk Line - 5.4 miles ; in combination with Premium Bus connections via Washington Avenue to Miami Beach Convention Center - 1.6 miles					
LRT		Continuous LRT system from Design District to Midtown to Bay Crossing Trunk Line to Miami Beach Convention Center -7.0 miles					
Monorail		Primary Mode: Monorail Bay Crossing Trunk Line - 3.7 miles; in combination with APM extension to Midtown/Design District 1.7 miles and Premium Bus connections via Washington Avenue to Miami Beach Convention Center - 1.6 miles					
BRT		Continuous BRT system from Downtown to Miami Beach Convention Center, via I-395/Washington Avenue or I-195/Collins Avenue					
Evaluation Categories and Measures		APM	LRT/Streetcar	Monorail	BRT I-395 (MacArthur CSWY)	or	BRT I-195 (Julia Tuttle CSWY)
							
		5.4 miles/10 stations	7.0 miles/17 stations	3.7 miles/4 stations	6.6 Miles/11 Stations		10.8 miles/12 stations
TRANSIT AND MULTIMODAL PERFORMANCE							
Primary Measures	Ridership 2040	Average Weekday Ridership	27,900 - 41,900	24,800 - 37,200	27,900 - 41,900	11,500-21,400	11,500-21,400
	Travel Time	Minutes-End to End	22	24	22	21	23
	Interoperability/ Modal Integration	One-Seat Rides	To/from Downtown	From Midtown to Beach	Most Trip Pairs Require Transfer	From Downtown to Beach	From Downtown to Beach
Secondary Measure	Passenger Capacity	Peak Hour Per Direction (5 Minute Peak Headways) <b>**Capacity varies based on manufacturer and specifications</b>	2,400	2,880	2,140	1,200	1,200
			2 car train	single articulated train	2 car train	Articulated bus	Articulated bus
ENVIRONMENTAL EFFECTS							
Primary Measures	Natural Resources	Water Resources, Habitat and Animals	Direct impacts to seagrass, coral and mangrove; small increase in impervious surface	Direct impacts to seagrass, coral and mangrove; additional indirect (shading) impacts; greater increase in impervious surface	Direct impacts to seagrass, coral and mangroves	Significant impacts to coral. Permitting and mitigation would be challenging-significant risk to cost & duration of project.	Bridge widening on I-195 would result in seagrass impacts that would require permitting and mitigation.
	Cultural Resources	# of Listed/Eligible Historic/Archaeological Resources	34	144	33	2	0
	Aesthetics and Visual	Views and Streetscape	Elevated guideway / stations impact views and streetscape	Elevated guideway / stations impact views in Bay Crossing segment; less impact in at-grade segments	Elevated guideway / stations impact views and streetscape	Buses/stops will have limited impact on view shed	Buses/stops will have limited impact on view shed
	Noise and Vibration	Number and Severity of Impacts by Type of Property/Use	2 Moderate Residential Impacts	5 Moderate/24 Severe Residential Impacts, 3 Moderate/3 Severe Institutional Impacts	No Impacts	9 Moderate/1 Severe Residential Impacts	No Impacts
	Traffic Impacts	Impact to Existing Traffic Lanes	No impacts to at-grade traffic due to elevated guideway	At-grade segments impact traffic by dedicating lanes to transit	No impacts to at-grade traffic due to elevated guideway	Arterial segments impact traffic by dedicating lanes to transit	Arterial segments impact traffic by dedicating lanes to transit
Secondary Measure	Construction Impacts	Traffic, Noise and Habitat Impacts	Some intermittent lane closures, navigational impacts, noise and habitat impacts.	Long-Duration Lane Closures for Utility Relocation, Roadway Excavation, Track Installation and Paving	Some intermittent lane closures, navigational impacts, noise and habitat impacts.	Short-duration lane closures for pavement striping, signage and stop platform installation	Short-duration lane closures for pavement striping, signage and stop platform installation
COST AND FEASIBILITY							
Primary Measures	Capital Cost	Total 2019 \$	\$1,022,250,000	\$1,136,900,000	\$1,079,300,000	\$265,900,000	\$174,250,000
		Trunkline	APM	LRT	Monorail	N/A	N/A
		Beach Extension	Bus	LRT	Bus	N/A	N/A
		Midtown Extension	APM	LRT	APM	N/A	N/A
	Operations and Maintenance Cost	Annual Total (2019 \$)	\$19,100,000	\$17,600,000	\$16,500,000	\$5,500,000	\$6,100,000
Secondary Measures	Lifecycle Cost	30 Year Discounted Capital, O&M & Major Maintenance	\$1,444,000,000	\$1,506,000,000	\$1,440,000,000	\$499,000,000	\$392,000,000
	Resiliency	Mitigation of Sea Level Rise Impacts	Elevated guideway and stations provide mitigation of predicted sea level rise.	Limited opportunity to mitigate sea level rise outside of Bay Crossing	Elevated guideway and stations provide mitigation of predicted sea level rise.	No mitigation of sea level rise risks	No mitigation of sea level rise risks
	Time to Construct	Design-Bid-Build Delivery (Months)	48	54	48	33 - 36	33 - 36

Figure 12 | Evaluation Matrix



New vehicle costs were assumed in the development of capital cost estimates for all technologies. To serve the Trunkline anticipated ridership, an additional 10 Metromover or 8 Monorail vehicles would be required. DTPW recognizes that Buy America requirements will need to be met.

Capital cost estimates also included required maintenance facilities for all technologies. The current Metromover maintenance facility sits on  $\frac{3}{4}$  of an acre in downtown Miami and is constrained for space. Therefore, several potential sites are being further evaluated, along N. Miami Avenue (2 sites) and at Watson Island (1 site). The maintenance facility sites range in size from 1 to 3 acres. Watson Island is owned entirely by the City of Miami and has no residential uses. The only significant land use is the **Children's Museum**. Below is an image of the proposed station and maintenance facility on Watson Island. Along North Miami Avenue, the sites identified were industrial in nature (one is a cement plant) and adjacent areas are mostly industrial as well, although the N. Miami Avenue corridor is redeveloping.



Figure 13 | Watson Island proposed station and MOF facility

## 2.6 RIDERSHIP

2040 ridership estimates were derived using the Miami-Dade TPO STOPS model version 2.5 and are shown in Error! Reference source not found. below.

Table 1. 2040 Ridership Estimates

Technology	Bay Crossing / Trunkline (Herald/Museum Park-Beach)	Bay Crossing + Miami Extension + Beach Extension
APM (One-Seat Ride)	13,000 - 19,400	32,300 - 48,500
APM (Transfer)	10,200 - 15,400	27,900 - 41,900
Monorail	10,200 - 15,400	27,900 - 41,900

A one-seat ride opportunity from downtown Government Center to the Beach was analyzed based on operational upgrades to the existing Metromover systems currently underway. The APM would run express from Government Center to the new Herald Plaza station and then cross the Bay.

As a result of the evaluation process, two of the rail modes (APM and Monorail) are higher performing, have less environmental impacts, and lower cost for crossing the Trunkline. The LRT option has higher cost (larger maintenance facility needs), less ridership, increased impacts to the environment (seagrass, historic resources, noise, vibration), longer construction time, subject to flooding impacts, and more conflicts with traffic (crashes, increased travel time). BRT would require widening of the causeway (more environmental impacts) and would not be able to meet anticipated ridership levels.

## 2.7 LOCALLY PREFERRED ALTERNATIVE

On January 30, 2020, the Miami-Dade Transportation Planning Organization (TPO) unanimously endorsed the Locally Preferred Alternative (LPA) as shown in Error! Reference source not found.14. The LPA consists of an a) extension of the existing Metromover system north along N. Miami Avenue, b) elevated rubber tire technology (Automated People Mover or Monorail) along the Trunkline, and c) dedicated bus/trolley lanes within the existing right-of-way of Washington Avenue. Connections to the existing Metromover, and thereby connections to the regional system, would occur at a new Herald Plaza proposed station along the Metromover Omni Line. The Herald Plaza station would be a new facility, part of this project, in proximity to the Omni Bus Transfer Terminal and would provide transfer opportunities within the same building/footprint (Figure 15). The Omni Bus Terminal currently serves four bus routes from Miami Beach.

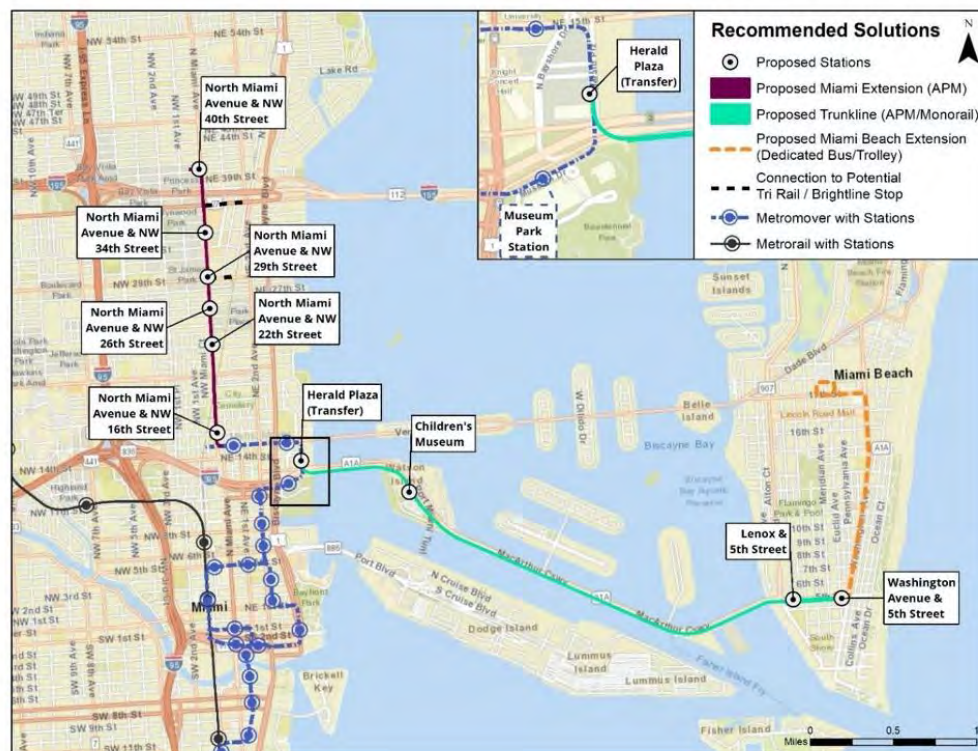


Figure 14 | Adopted LPA for the Beach Corridor



Figure 15 | Proposed Transfer Station between the Existing Metromover System and the Proposed APM/Monorail System

Subsequent to the LPA recommendation, the dedicated transit lanes along Washington Avenue from 5<sup>th</sup> Street to the Convention Center have been locally funded for design and construction to serve future express bus routes and the trolley/bus recommendation. No action is requested of FTA at this time for the Design District extension in Miami. DTPW wishes to move forward with the Trunkline project which is the main subject of this memorandum.

### 3 PURPOSE OF MEMORANDUM

In March 2020, DTPW informed FTA on the status of the project, as stated above. As an initial step, FTA recommended DTPW provide a written justification as to why DTPW feels the Trunkline satisfies logical termini requirements. The purpose of this memorandum is to justify that the Trunkline has independent utility and that 5<sup>th</sup> Street is a logical terminus for the Trunkline.

### 4 BASIS AND JUSTIFICATION FOR INDEPENDENT UTILITY AND LOGICAL TERMINI

23 CFR §771.111(f) states:

Any action evaluated under NEPA as a categorical exclusion (CE), environmental assessment (EA), or environmental impact statement (EIS) must meet the following three requirements:

*Connect logical termini and be of sufficient length to address environmental matters on a broad scope.*

The Federal Highway Administration, and by reference **FTA**, defines a project having “independent utility” as one that has “rational end points” for both a transportation improvement and a review of the environmental impacts of that improvement.



The County's Trunkline is 4 miles long, connects downtown to South Beach activity centers, and provides direct connection to the Metromover Omni line via a new proposed station at Herald Plaza. This new station is part of the project and representative images are shown in figures 15 and 16. The Trunkline limits are from the existing Metromover (APM) proposed Herald Plaza station in the City of Miami to a new transit hub/stop transfer on 5<sup>th</sup> Street in the City of Miami Beach. The logical termini (rational end points) for the Trunkline provide connections to major activity centers/destinations and existing transit.



Figure 16 | Proposed Herald Plaza station

On the west end, the Trunkline connects to Miami's central business district (CBD) via Metromover, several bus routes serving the Omni Transit Terminal, and an extensive multi-modal/regional network. Direct connection is proposed with a new Herald Plaza station on the Metromover system. Due to the urbanized character of the area, downtown land costs, the proximity of the Omni bus terminal, and direct transfer opportunities to the regional system, park and ride facilities were not contemplated at this location. This is also consistent with the parking provision at all the existing Metromover stations. The proposed stations will provide sufficient access for walk, bike, Transportation Network Companies (TNCs) such as Uber/Lyft, and various micro mobility modes (i.e. electric carts, scooters).

On the east end, the Trunkline connects to Miami Beach's world-famous, pedestrian-centric, entertainment and employment district, South Beach, and the City's extensive trolley system. A transit hub/stop transfer is proposed to access/connect from 5<sup>th</sup> Street to the exclusive bus/trolley lanes along Washington Avenue. Four bus bays are proposed for each side of the street for a total of eight bus bays that will serve Miami Beach trolleys and DTPW transit routes. Due to the urbanized character of South Beach and land costs, park and ride facilities were not contemplated at this location. Stations on the Miami Beach side will provide sufficient access for walk, bike, TNCs, and various micro mobility modes. Currently, the private property owner on the southeast corner of Washington and 5<sup>th</sup> Street is in discussions with DTPW for enhanced end of the line transfer opportunities in conjunction with their development. Images of the Beach end of the line are represented below.



Figure 17| Miami Beach end of line on 5th Street images



Figure 18| Miami Beach end of line on 5th Street images

To further support the logical termini discussion, below is a summary of key points from the 2019 Travel Market Analysis memorandum prepared for the Beach Corridor PD&E.

- The cities of Miami and Miami Beach have the largest share of population and employment within Miami-Dade County.



- Population and employment figures for the mainland (Miami CBD) area are estimated at 100,000 and 80,000 respectively (2010) and for South Beach area at 110,000 and 100,000 (2010), respectively. Visitor Bureau information (2018) indicates that 26,000 visitors per day travel to South Beach; 70% are overnight stays.
- A significant regional travel market demand exists between the mainland area and the South Beach area. An estimated ten percent of all trips in the County start or end in the study area.
- North-south demand on either side of the Causeway (within both the cities of Miami and Miami Beach), is more localized and would be adequately served by circulator services such as Metromover in Miami and local bus/trolley in Miami Beach.

In addition to the travel market results that confirm the need for a regional extension from the mainland to South Beach, STOPS model results from the PD&E study indicated that passenger mode access to the 5th Street termini in South Beach is approximately 85% walk, 10% transit transfer and 5% auto drop-off.

**“Project addresses environmental matters on a broad scope”**

The major environmental impacts for the entire Beach Corridor Rapid Transit Project occur within the Biscayne Bay Aquatic Preserve. The Trunkline straddles this preserve and terminates at the uplands on either side of the bay. Both of these end points are rational and create a project of sufficient length for addressing environmental impacts because the boundaries of the Trunkline incorporate all of the impacts to benthic and aquatic resources for the entire Beach Corridor Rapid Transit Project. The project has been carefully designed to provide public benefits through the promotion of the project goals, while avoiding and minimizing adverse effects to public safety, personal property and the environment.

Avoidance and minimization of adverse environmental impacts were developed during project development through both design modifications and selection of construction techniques. Through early agency coordination efforts, changes were made to the type and size of the foundations, the size and shape of the pile caps and selection of construction techniques to avoid and minimize impacts on the resources present. Up front mitigation planning was coordinated with all eventual environmental regulatory permitting agencies.

The selection of elevated rubber tire technology across the Bay, where project impacts are at pier locations, avoided the more traditional impacts from roadway enhancements. A roadway improvement project would impact more expansive coral and seagrass areas such that mitigation and permitting would be difficult to approve in an Outstanding Florida Water. As a result of the sea level rise analysis conducted in the PD&E, an elevated structure was more compatible with future sea level rise projections **(5' to 7') in the study area. Lastly, safety will be enhanced by providing an alternative mode of travel that will have consistent and reliable travel time between the barrier island and the mainland during evacuation events.**

*(1) Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and*

- The Beach Corridor Trunkline has independent utility and will be usable regardless of whether the city extensions are completed. The direct connection to the existing Metromover system at the new Herald Plaza station proposed as part of this project, will finally provide Miami Beach (its employment and entertainment areas) with the long desired direct access to the mainland regional transit system and Miami International Airport. An east west transit connection has been expressed in every study since 1988.
- On the City of Miami side, there is a robust network of existing DTPW routes and City of Miami trolleys that connects the proposed end-of-line station at Herald Plaza and the Design District. The route maps are provided in Attachment I.
- On the City of Miami Beach side, there is a robust network of existing DTPW routes and City of Miami Beach trolleys that serves the proposed end-of-line on 5<sup>th</sup> St. The route maps are provided in Attachment I.

- As noted previously, the dedicated lanes recommendation on Washington Avenue in Miami Beach will be implemented as part of the Beach Express South project, and is already moving forward with design and construction using state and local funds. The Beach Express Bus (South) project was adopted as part of the SMART Plan Bus Express Rapid Transit (BERT) network in 2016 based on the recommendation of the Short-Term Beach Connection Transit Study (see Final Report of the Study in Attachment II). The funded project can be found in the Transportation Improvement Program (TIP) (page 50 of 1526, <http://www.miamidadetpo.org/library/reports/tip/Final-Report/2021-transportation-improvement-program-final.pdf>), the FDOT State Transportation Improvement Program (STIP) (page 652 of 757, <https://fdotewp1.dot.state.fl.us/fmsupportapps/Documents/federal/stip/stip-dist-06.pdf>), and the Long-Range Transportation Plan (page 156 of 430, <http://www.miamidade2045lrtp.com/>). The typical section of Washington Ave is provided below:

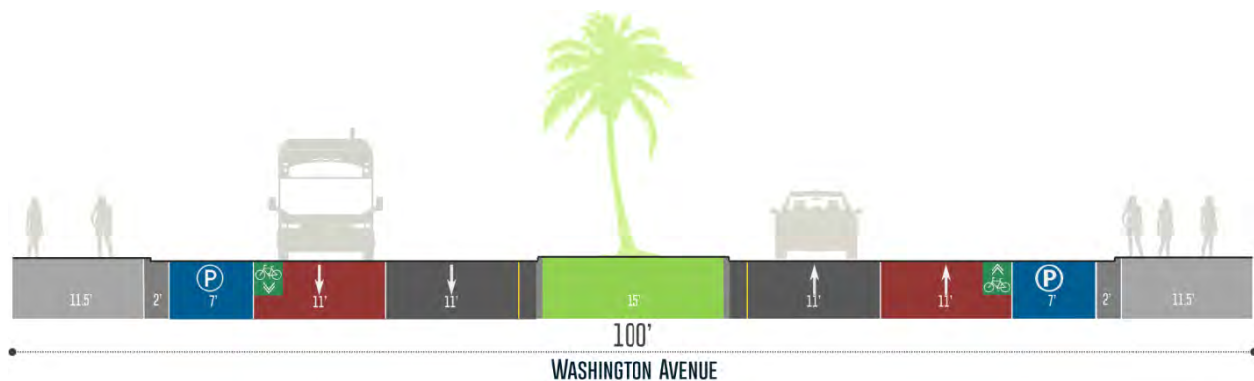


Figure 19 | Washington Avenue

(2) *Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.*

The Beach Corridor PD&E analyzed rail and bus alternatives within the entire study area. At grade and elevated technologies were studied for various alignments. The Trunkline project LPA consists of an elevated guideway that could accommodate a rubber tire transit technology (either Automated People Mover or Monorail). Impacts analyzed related to the guideway (pier locations) were the same regardless of the type of rubber tire vehicle employed. The Trunkline project can proceed without restricting the City of Miami option to extend the Metromover system north along Miami Avenue. The City of Miami Beach option of dedicated transit lanes on Washington Avenue to the Convention Center is already moving forward as a separate project.

## 5 CONCLUSIONS

To conclude, the Beach Corridor Trunkline meets the requirements as specified in 23 CFR

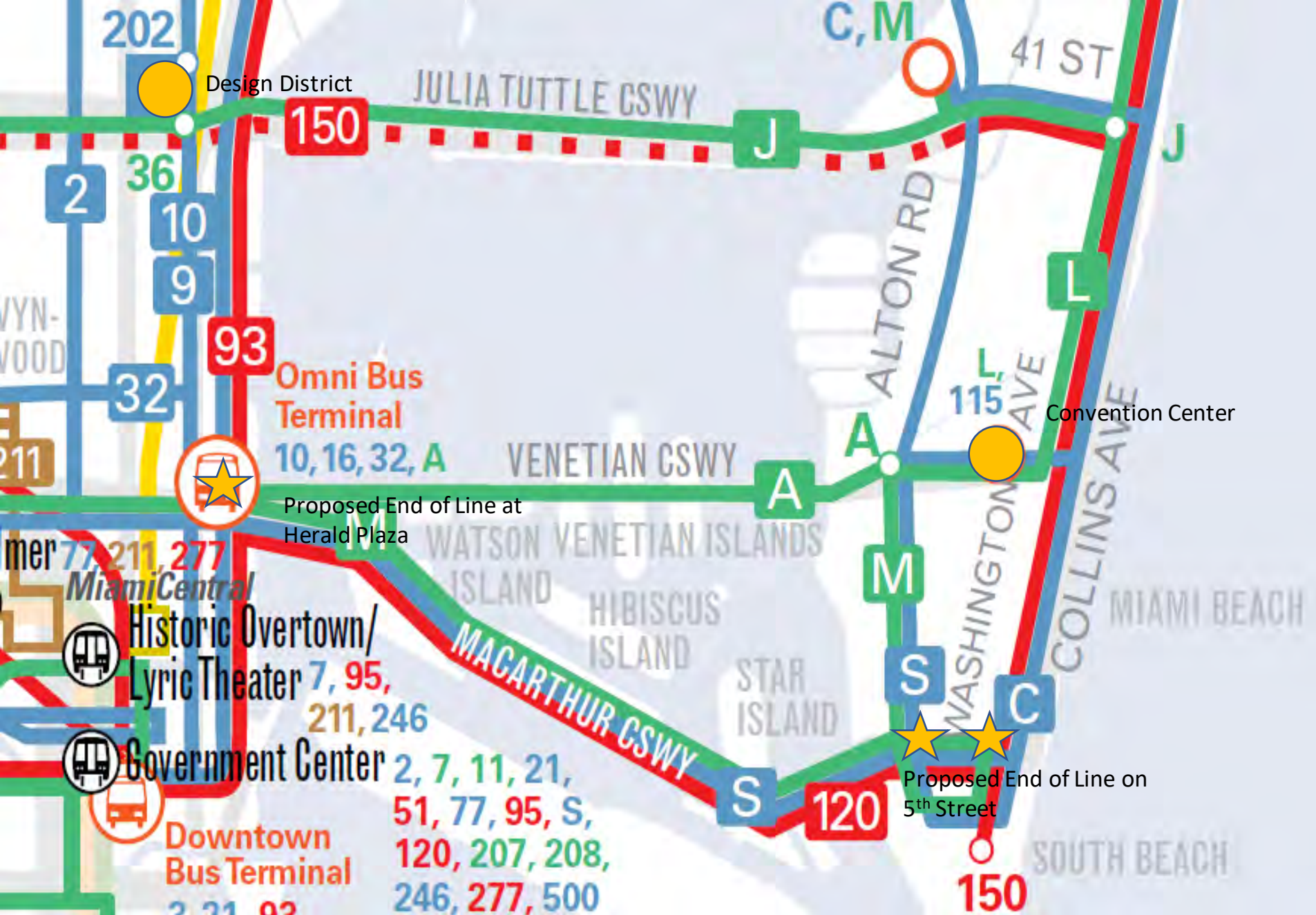
§771.111(f):

- (1) *The Trunkline connects logical termini and has sufficient length to address environmental matters with viable mitigation options that have been coordinated with permitting agencies.*
- (2) *The Trunkline would have its independent utility or independent significance and be usable and be a reasonable expenditure even if additional transportation improvements such as the Metromover extension along N. Miami Ave and the dedicated lanes along Washington Ave were not made; and*
- (3) *The Trunkline does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements in the area such as the Metromover extension along N. Miami Ave and the dedicated lanes along Washington Ave.*

The Trunkline has independent utility as it connects the two largest activity centers in the County that are currently experiencing travel constraints due to limited options for crossing the large body of water that separates them. It is independently significant as it can provide seamless, usable, accessibility between these two cities. A transit enhancement across the bay is less impactful to the environment than a roadway enhancement.



Attachment I

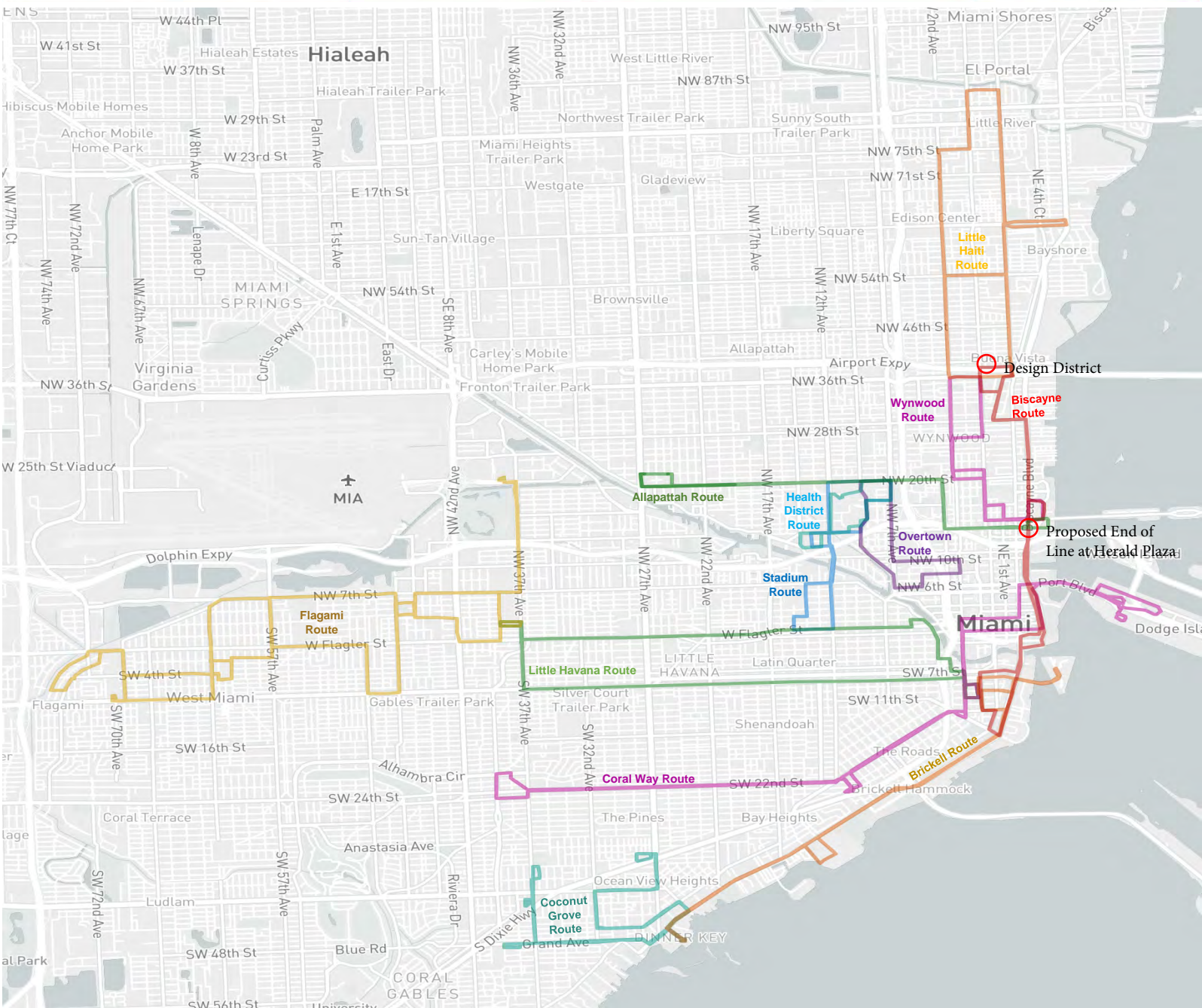


Beach Corridor Trunkline – Existing DTPW service



# Miami

# TROLLEY

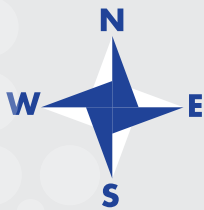


Route	Weekdays	Saturday	Sunday
Allapattah	6:30 AM to 7:00 PM	6:30 AM to 7:00 PM	No Service
Biscayne	6:30 AM to 11:00 PM	6:30 AM to 11:00 PM	8:00 AM to 8:00 PM
Brickell	6:30 AM to 11:00 PM	6:30 AM to 11:00 PM	8:00 AM to 8:00 PM
Coconut Grove	6:30 AM to 11:00 PM	6:30 AM to 11:00 PM	8:00 AM to 8:00 PM
Coral Way	6:30 AM to 11:00 PM	6:30 AM to 11:00 PM	8:00 AM to 8:00 PM
Flagami	6:30 AM to 11:00 PM	6:30 AM to 11:00 PM	No Service
Health District	6:30 AM to 11:00 PM	6:30 AM to 11:00 PM	No Service
Little Haiti	6:30 AM to 8:00 PM	6:30 AM to 8:00 PM	6:30 AM to 8:00 PM
Little Havana	6:30 AM to 11:00 PM	6:30 AM to 11:00 PM	8:00 AM to 8:00 PM
Overtown	6:30 AM to 7:00 PM	No Service	No Service
Stadium	6:30 AM to 11:00 PM	6:30 AM to 11:00 PM	No Service
Wynwood	6:30 AM to 11:00 PM	6:30 AM to 11:00 PM	No Service

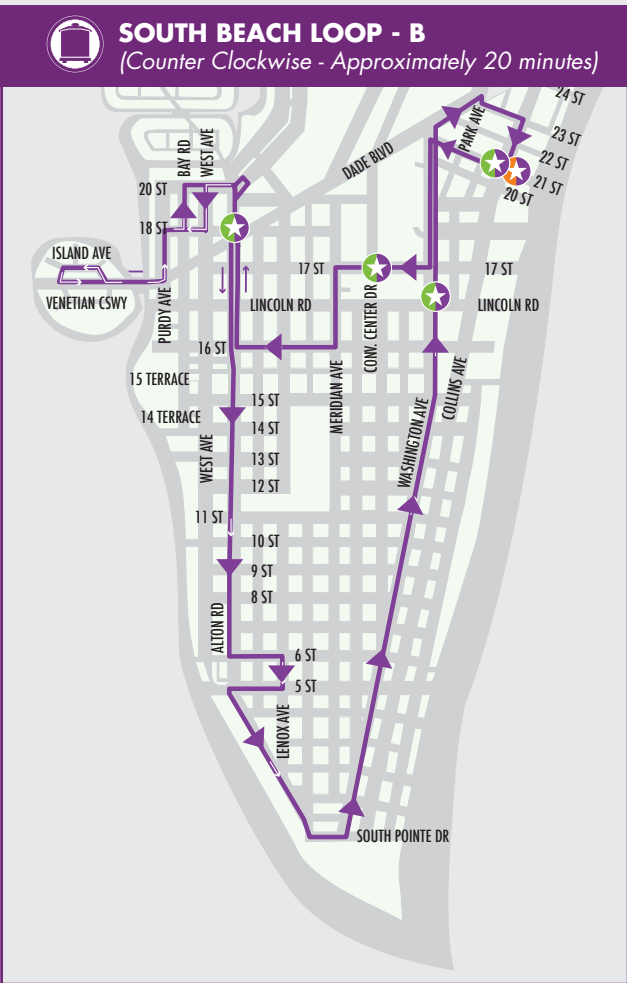
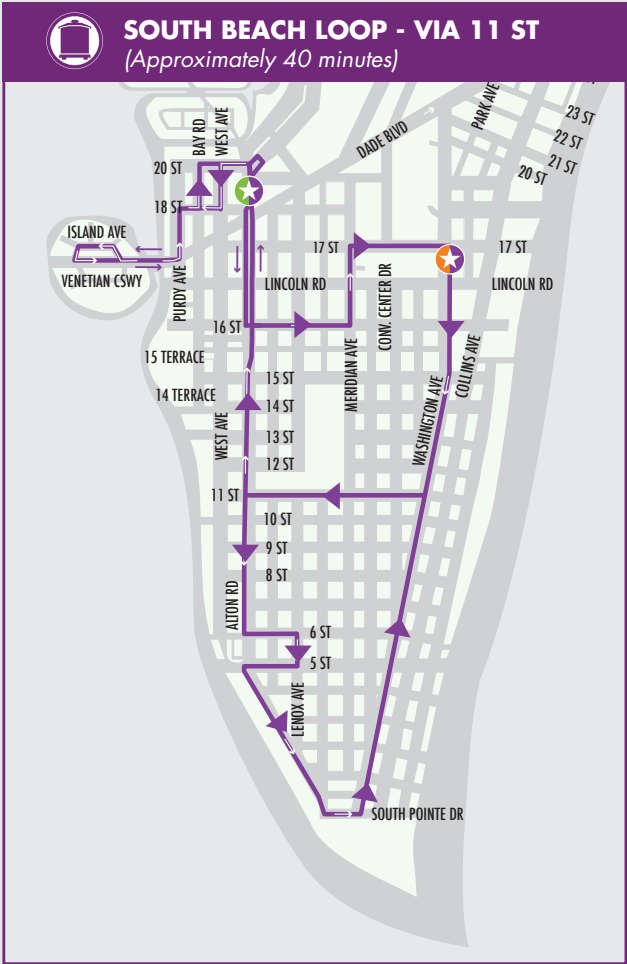
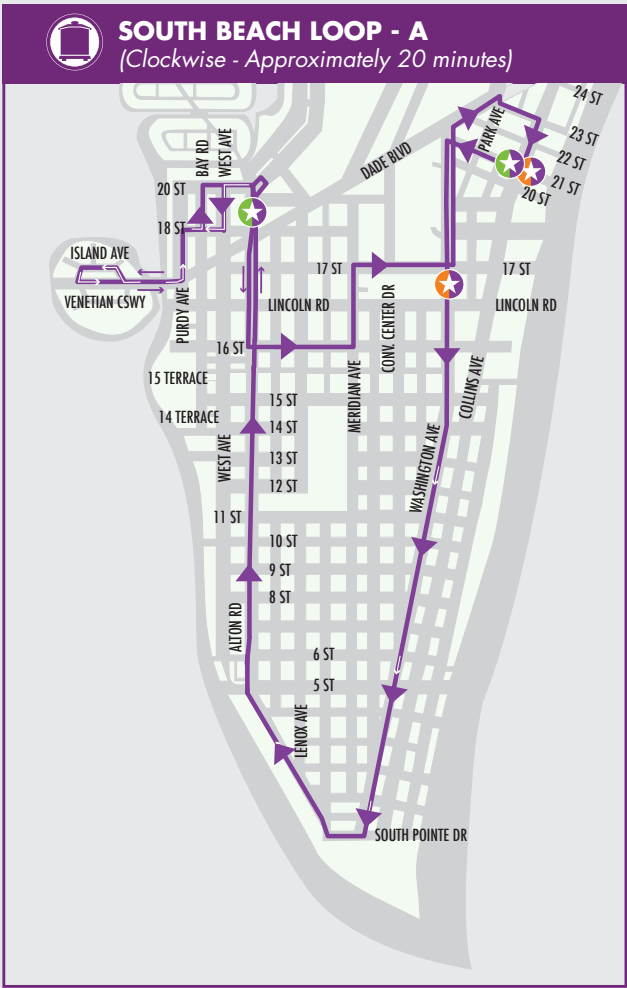


LEGEND

TRANSFER  
POINTS



Proposed End of Line on 5th St [See detailed route maps for South Beach Loops](#)



Attachment II





# SHORT-TERM BEACH CONNECTION TRANSIT STUDY

MIAMIBEACH



*Gannett Fleming*



# INTRODUCTION

## ■ SHORT-TERM BEACH CONNECTION TRANSIT STUDY

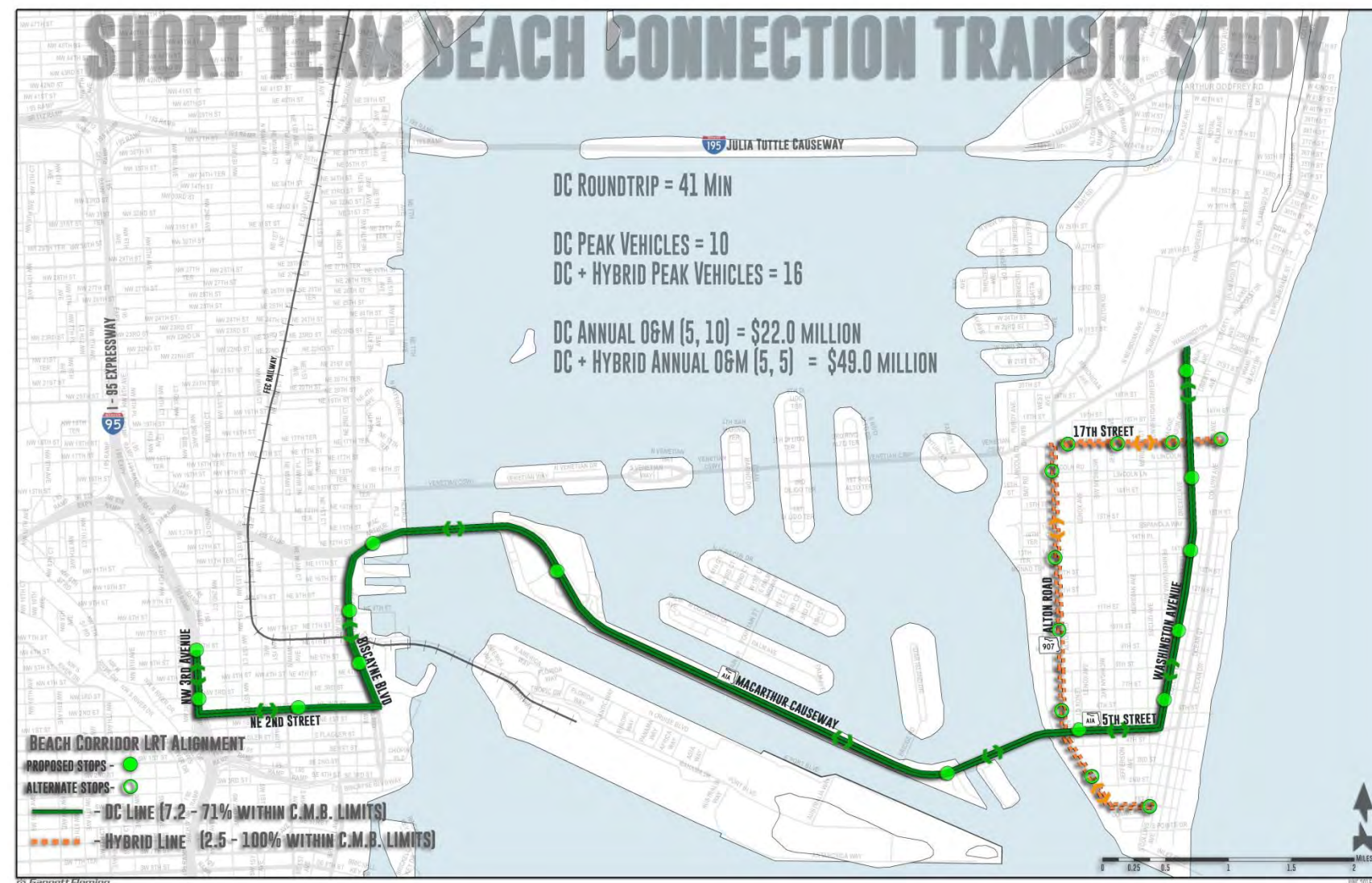
- In reviewing the *Beach Corridor Transit Connection Study*, the Miami-Dade MPO and the City of Miami Beach, in collaboration with MDT and FDOT, decided to evaluate interim improvement strategies for providing a cost effective premium regional transit connection between South Beach and Downtown Miami as a precursor to the proposed LRT/Modern Streetcar Line
- This study focuses on proposing an express bus route that will be part of an integrated sustainable transit system that may serve as a viable alternative to driving an automobile to/from the City of Miami Beach in order to improve mobility by increasing the people-carrying capacity of existing roadways
- The area of interest for this study is within South and Middle Beach between I-195/SR 112/ Julia Tuttle Causeway and SR A1A/MacArthur Causeway/5<sup>th</sup> Street





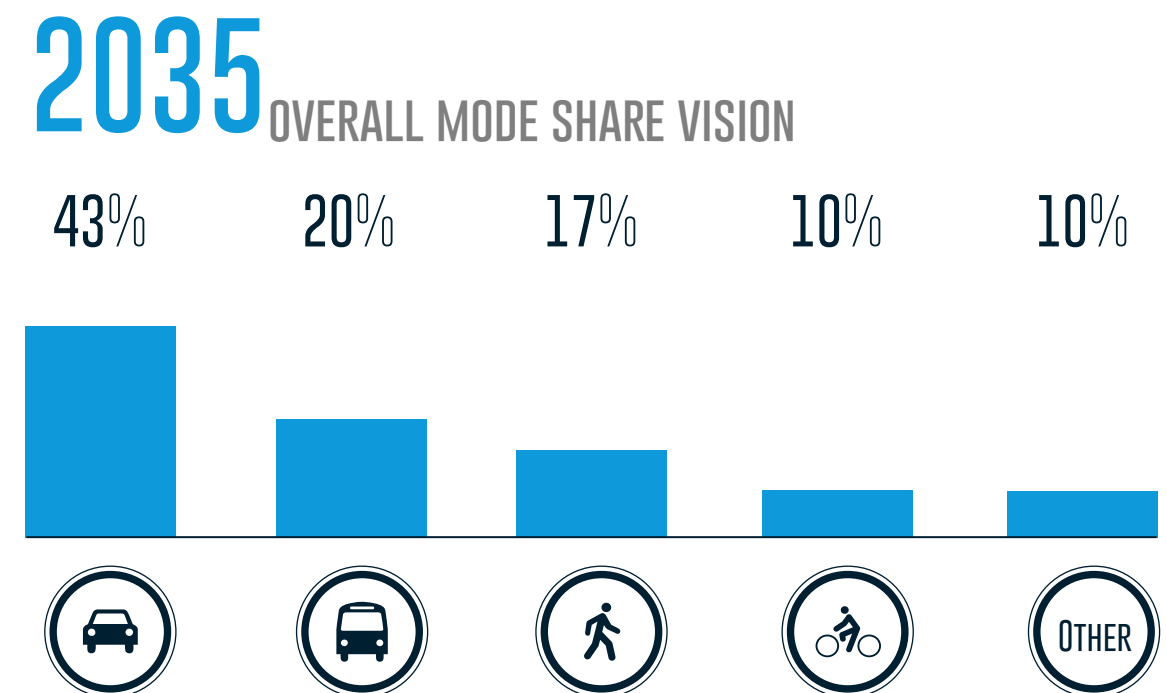
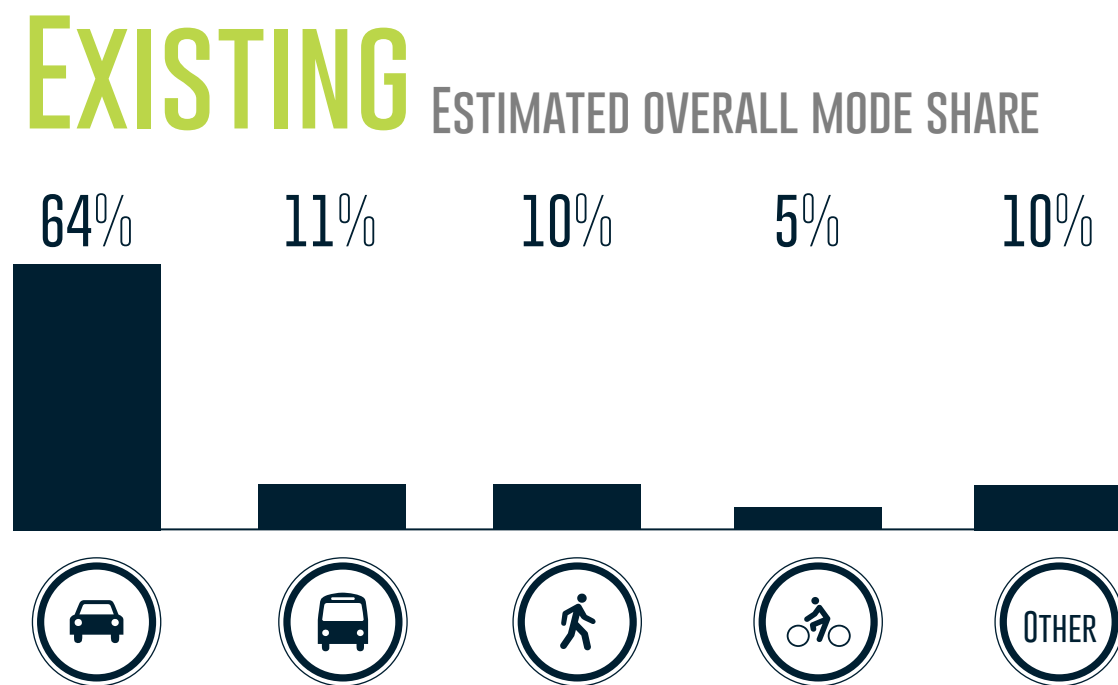
## ■ BEACH CORRIDOR TRANSIT CONNECTION STUDY

- Started in 2013 by the Miami-Dade MPO, MDT, DDA, FDOT, and the Cities of Miami and Miami Beach, this effort updated the 2004 Baylink Study in order to refine the Locally Preferred Alignment (LPA) for a Light Rail Transit (LRT)/Modern Streetcar in Miami
- Concluded in 2015, the “Direct Connect” (DC) Line was selected as the preferred alternative running from NW 3<sup>rd</sup> Avenue in Downtown Miami to Washington Avenue in Miami Beach (with a potential “Hybrid Line” running solely on Alton Road and 17<sup>th</sup> Street in the City of Miami Beach)



## ■ CITY OF MIAMI BEACH TRANSPORTATION MASTER PLAN

- In addition to the *Short-Term Beach Connection Transit Study*, the City of Miami Beach also initiated the *Transportation Master Plan* which establishes a long-term transportation vision for the City
- This effort adopts a city-wide modal priority that emphasizes pedestrians, bicycles, and transit over automobile travel and it establishes a more specific modal priority for each major transportation corridor



REPRESENTS A REDUCTION OF APPROXIMATELY **99.2**  
**METRIC TONS** OF GREEN-HOUSE GASES PER DAY



# EXISTING CONDITIONS

- **THE SHORT-TERM BEACH CONNECTION TRANSIT STUDY FOCUSED ON FIVE (5) MAJOR CORRIDORS**

1. I-195/SR 112/Julia Tuttle Causeway and NW 41<sup>st</sup> Street
2. SR A1A/MacArthur Causeway
3. SR A1A/5<sup>th</sup> Street
4. SR 907/Alton Road
5. Washington Avenue

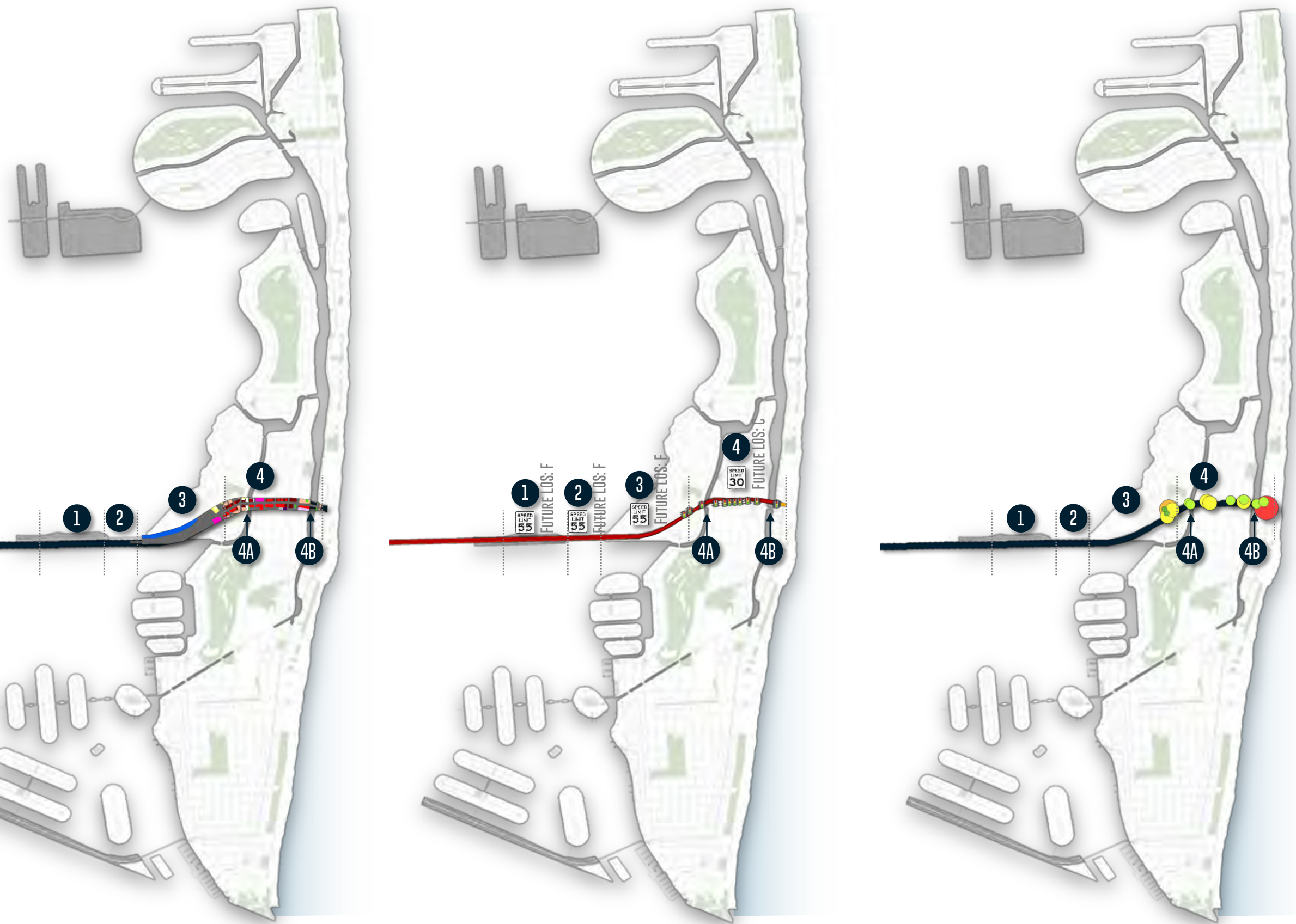
- **FOR THESE FIVE (5) CORRIDORS, AN EXISTING CONDITIONS ANALYSIS WAS PERFORMED AND INCLUDED REVIEWING EXISTING**

- Adjacent land use
- Traffic conditions
- Transportation infrastructure
- Local and regional transit services
- Cross-causeway travel market and ridership information
- Planned transportation improvements



# EXISTING CONDITIONS

## I-195/SR 112/JULIA TUTTLE CAUSEWAY



Source: City of Miami Beach  
Transportation Master Plan

4 DIFFERENT SEGMENTS

NUMBER OF TRANSIT ROUTES  
OPERATING ON THIS CORRIDOR: 5

117  
115  
113 (M))  
119 (S)  
150

NUMBER OF TRANSIT  
STOPS WITHIN THIS CORRIDOR: 28

MILES OF  
DEDICATED BIKE LANES: 0

AADT RANGE: 41,000 – 104,779

Signalized Intersections

DAILY LEVEL OF SERVICE LEGEND

C	E
D	F

INDIVIDUAL STOP RIDERSHIP  
(DAILY BOARDINGS) LEGEND

1 – 12	100 – 225
12 – 50	225 – 450
50 – 100	

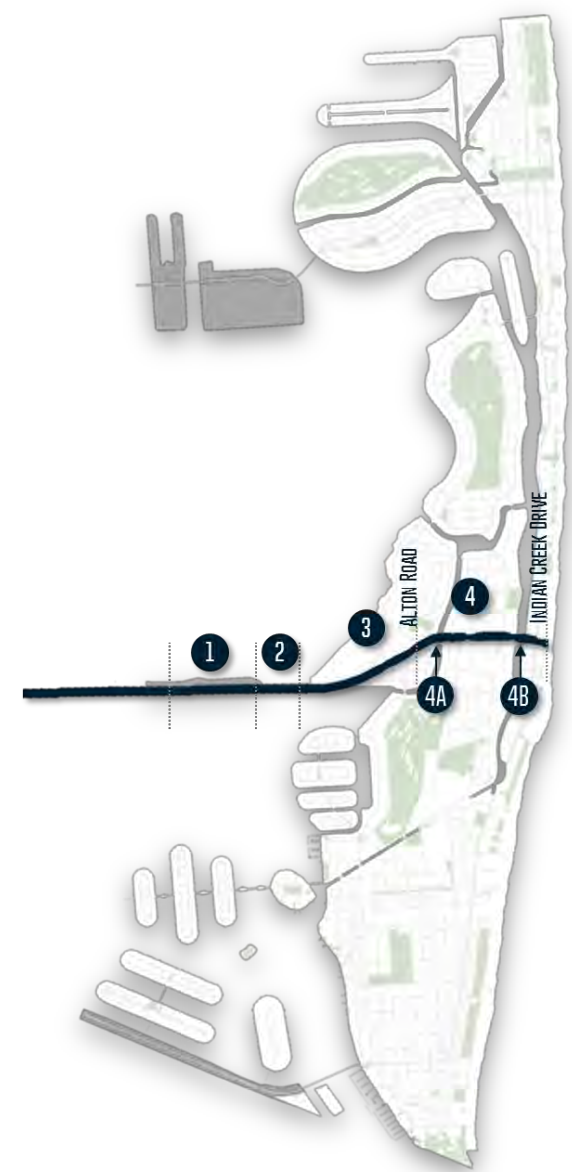
LAND USE LEGEND

Commercial	Office	Industrial	Parks	Medical	Religious	Single family	Multi-family	Hotels	Schools	Social service
------------	--------	------------	-------	---------	-----------	---------------	--------------	--------	---------	----------------

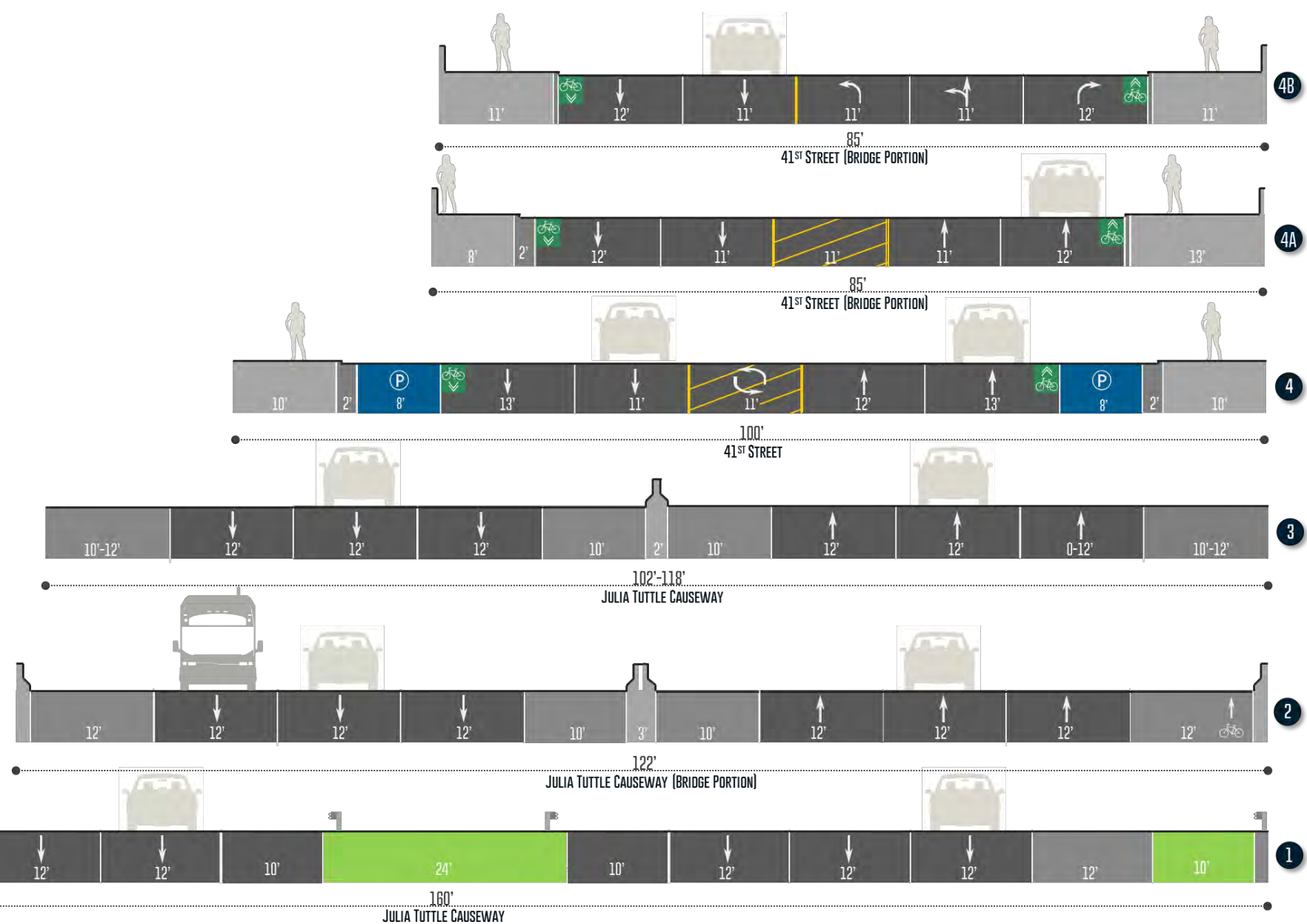
# EXISTING CONDITIONS

## I-195/SR 112/JULIA TUTTLE CAUSEWAY (2.3 MILES)

- Six-lane divided freeway with full width inside and outside paved shoulders for the entire corridor. Posted speed limit is primarily of 55 MPH



### EXISTING TYPICAL SECTION

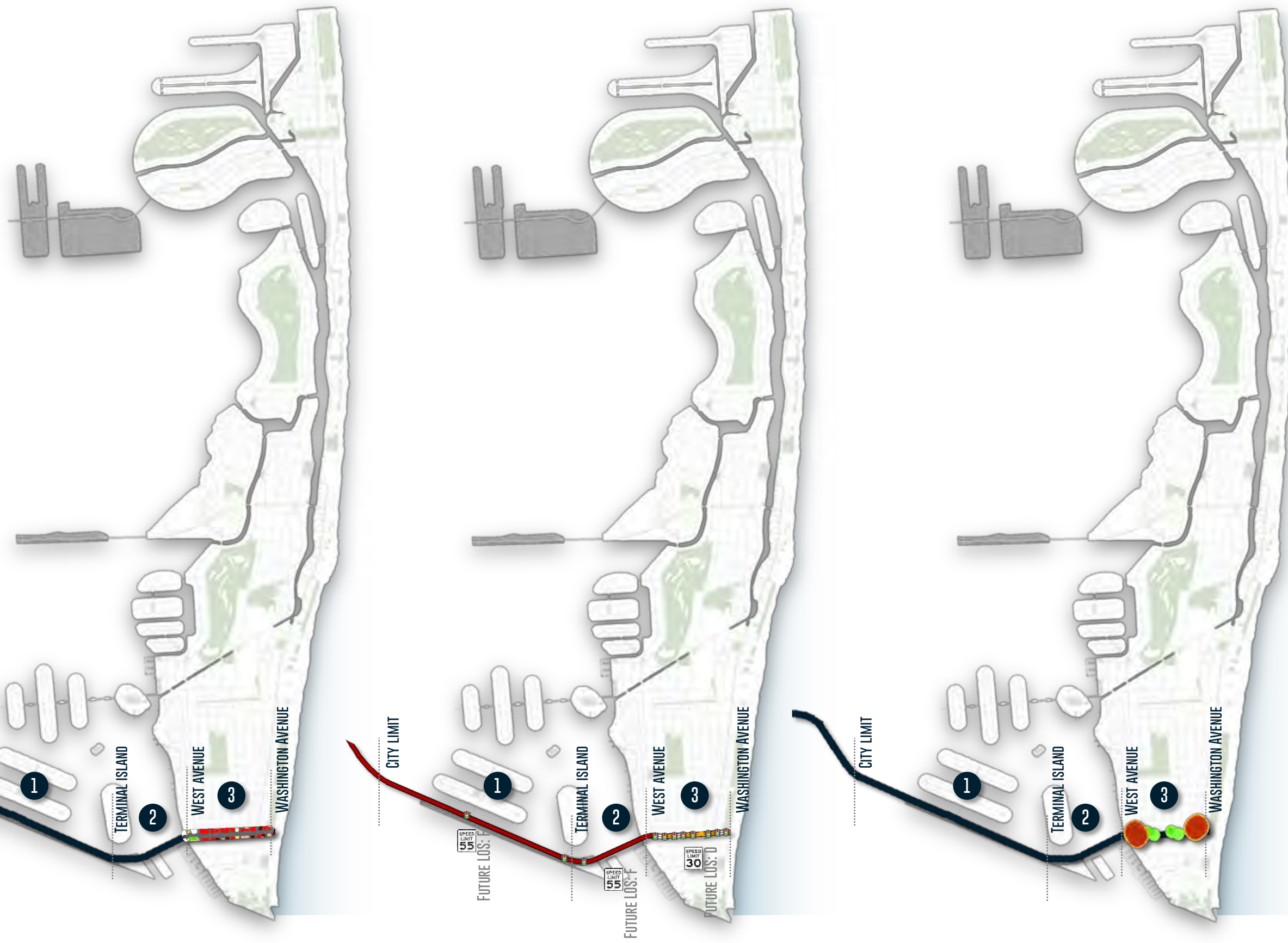


Source: City of Miami Beach Transportation Master Plan



# EXISTING CONDITIONS

## ■ SR A1A/MACARTHUR CAUSEWAY & SR A1A/5<sup>TH</sup> STREET



Source: City of Miami Beach  
Transportation Master Plan

**3** DIFFERENT SEGMENTS

NUMBER OF TRANSIT ROUTES  
OPERATING ON THIS CORRIDOR: **3**

103  
113 (M)  
119  
120

NUMBER OF TRANSIT  
STOPS WITHIN THIS CORRIDOR: **8**

MILES OF  
DEDICATED BIKE LANES: **2.3**

AADT RANGE: 19,000 – 34,700

Signalized Intersections

DAILY LEVEL OF SERVICE LEGEND

C	E
D	F

INDIVIDUAL STOP RIDERSHIP  
(DAILY BOARDINGS) LEGEND

1 – 12	100 – 225
12 – 50	225 – 450
50 – 100	

LAND USE LEGEND

Commercial	Office	Industrial	Parks	Medical	Religious	Single family	Multi-family	Hotels	Schools	Social service
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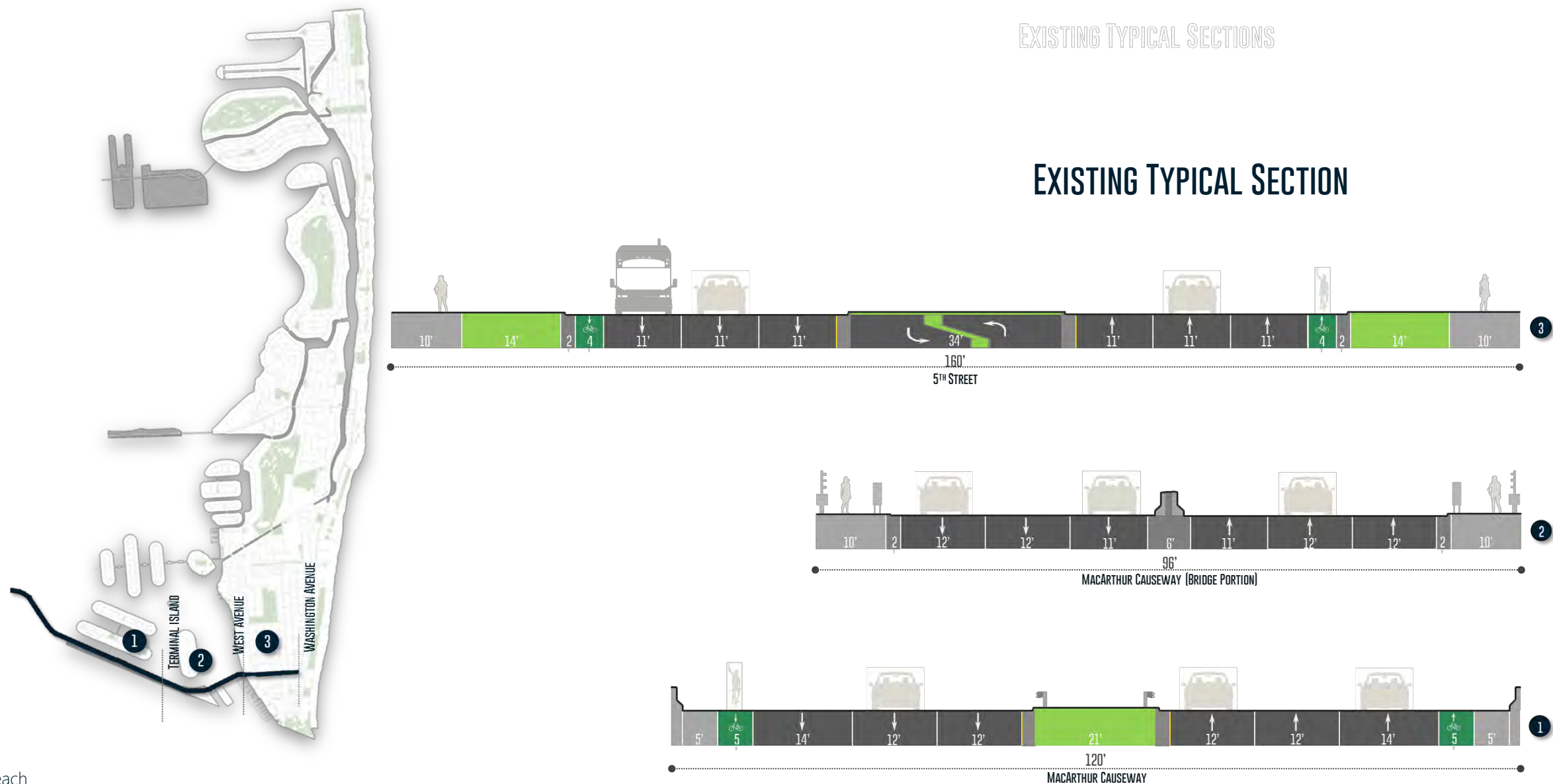
# EXISTING CONDITIONS

## ■ SR A1A/MACARTHUR CAUSEWAY (2.0 MILES)

- Six-lane divided arterial with outside paved shoulders for portions of the corridor. Posted speed limits are 50 and 40 MPH

## ■ SR A1A/5<sup>TH</sup> STREET (0.5 MILES)

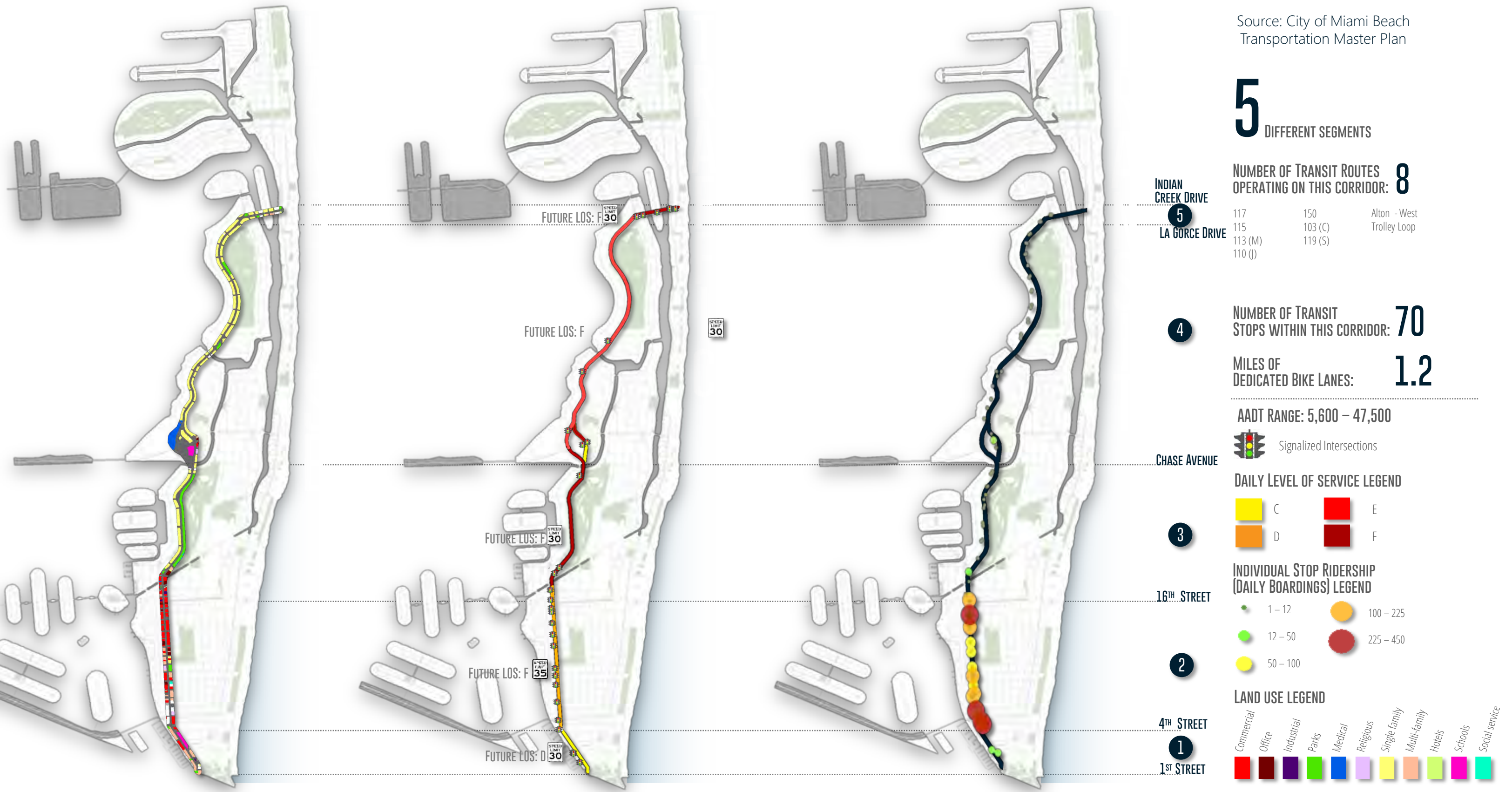
- Six-lane divided arterial with raised median and intermittent two-way left turn lanes. Posted speed limit of 35 MPH



Source: City of Miami Beach  
Transportation Master Plan

EXISTING CONDITIONS

■ SR 907/ALTON ROAD





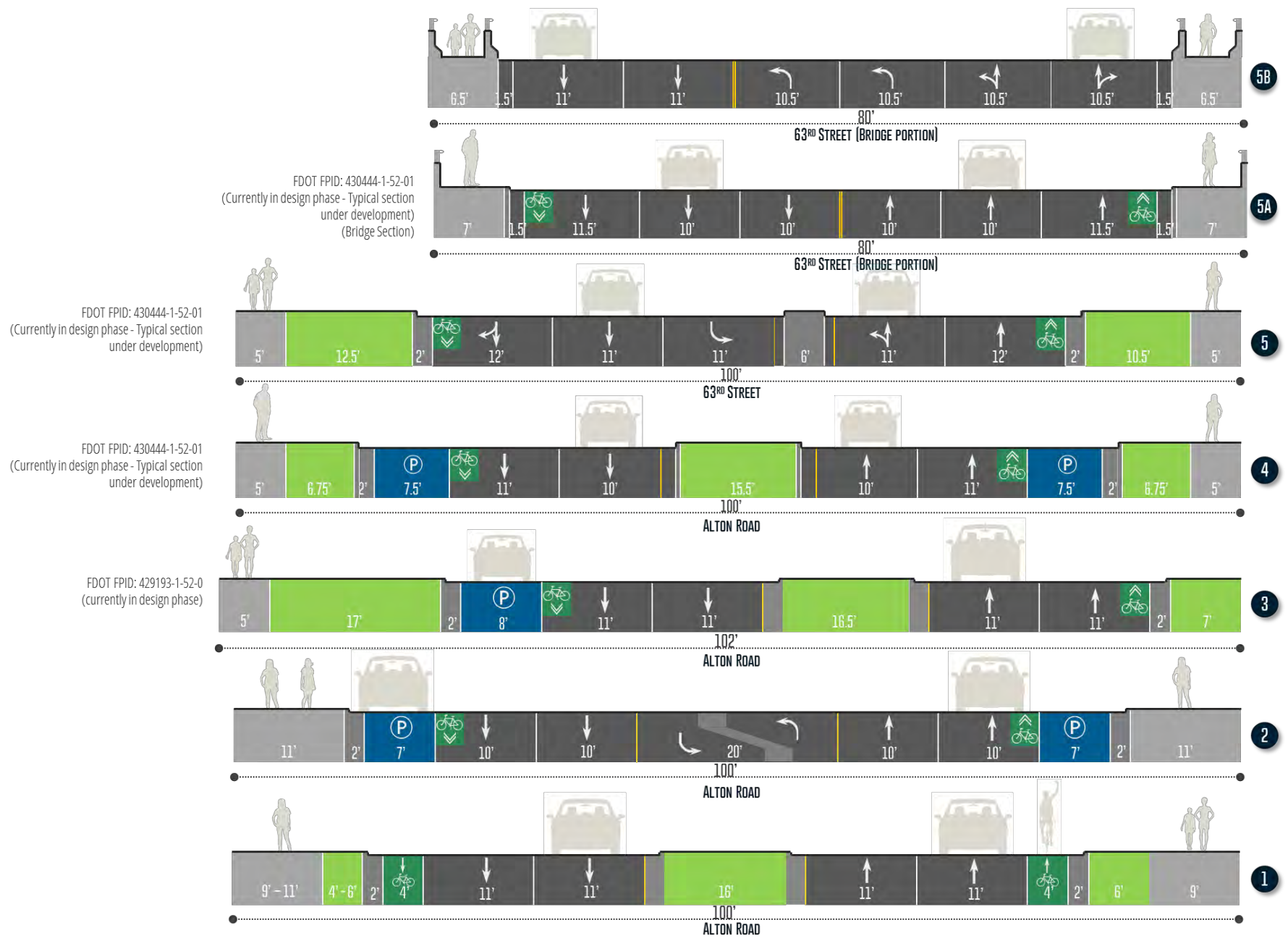
# EXISTING CONDITIONS

## ■ SR 907/ALTON ROAD (6.1 MILES)

- Four-lane divided arterial with intermittent two-way median left turn lanes and on-street parking lanes south of 17<sup>th</sup> Street. Four-lane divided arterial with raised median and southbound on-street parking lanes north of 17<sup>th</sup> Street. Posted speed limit of 30 MPH



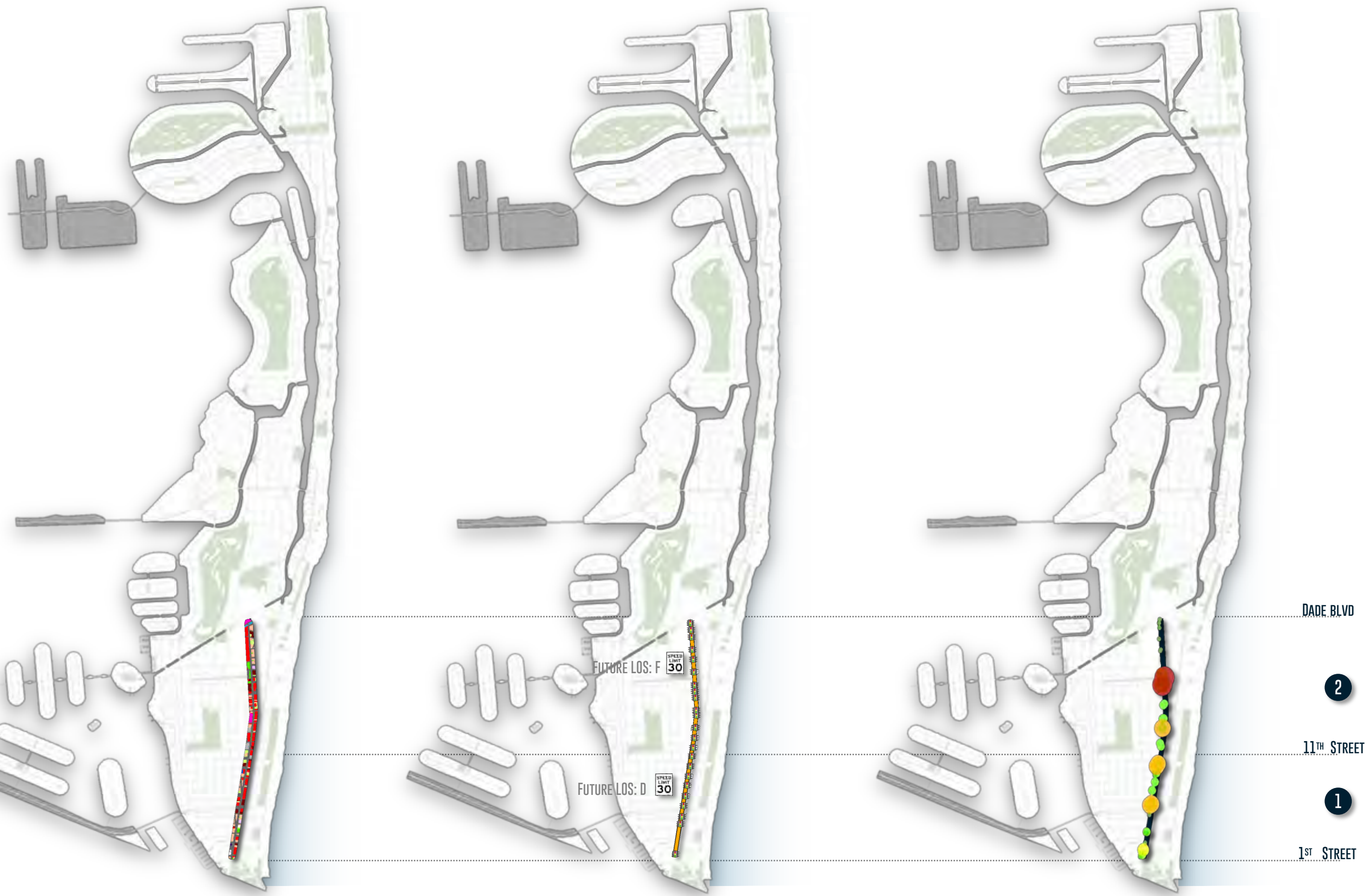
### EXISTING TYPICAL SECTION



Source: City of Miami Beach  
Transportation Master Plan

EXISTING CONDITIONS

■ WASHINGTON AVENUE



Source: City of Miami Beach  
Transportation Master Plan

2 DIFFERENT SEGMENTS

NUMBER OF TRANSIT ROUTES  
OPERATING ON THIS CORRIDOR: 5

117  
115  
150  
103 (c)  
119 (s)

NUMBER OF TRANSIT  
STOPS WITHIN THIS CORRIDOR: 37

MILES OF  
DEDICATED BIKE LANES: 0

AADT RANGE: 18,700

Signalized Intersections

DAILY LEVEL OF SERVICE LEGEND

C	E
D	F

INDIVIDUAL STOP RIDERSHIP  
(DAILY BOARDINGS) LEGEND

1 – 12	100 – 225
12 – 50	225 – 450
50 – 100	

LAND USE LEGEND

Commercial	Office	Industrial	Parks	Medical	Religious	Single family	Multi-family	Hotels	Schools	Social service
------------	--------	------------	-------	---------	-----------	---------------	--------------	--------	---------	----------------



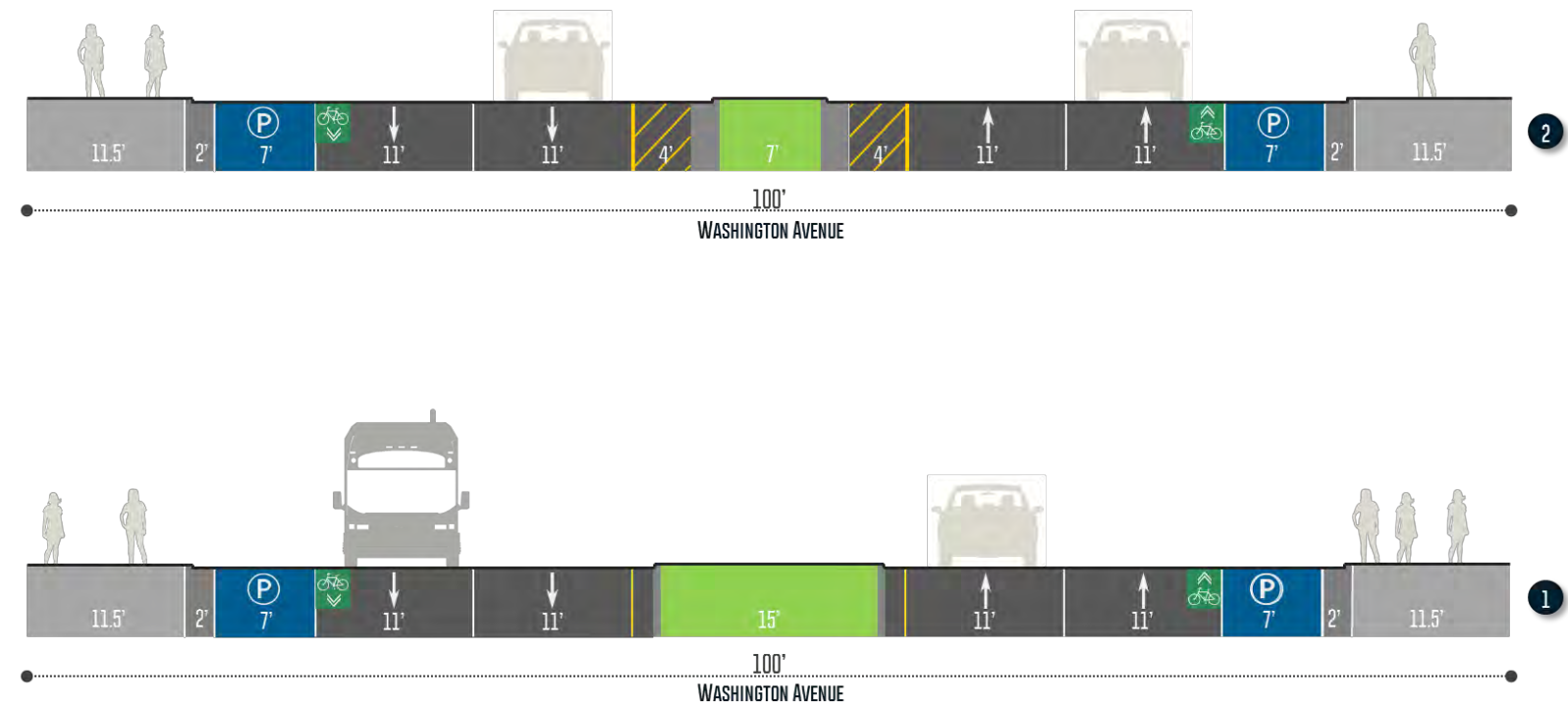
# EXISTING CONDITIONS

## ■ WASHINGTON AVENUE (2.2 MILES)

- Four-lane divided collector with raised median, intermittent two-way left turn lanes, and on-street parking lanes. Posted speed of 35 MPH



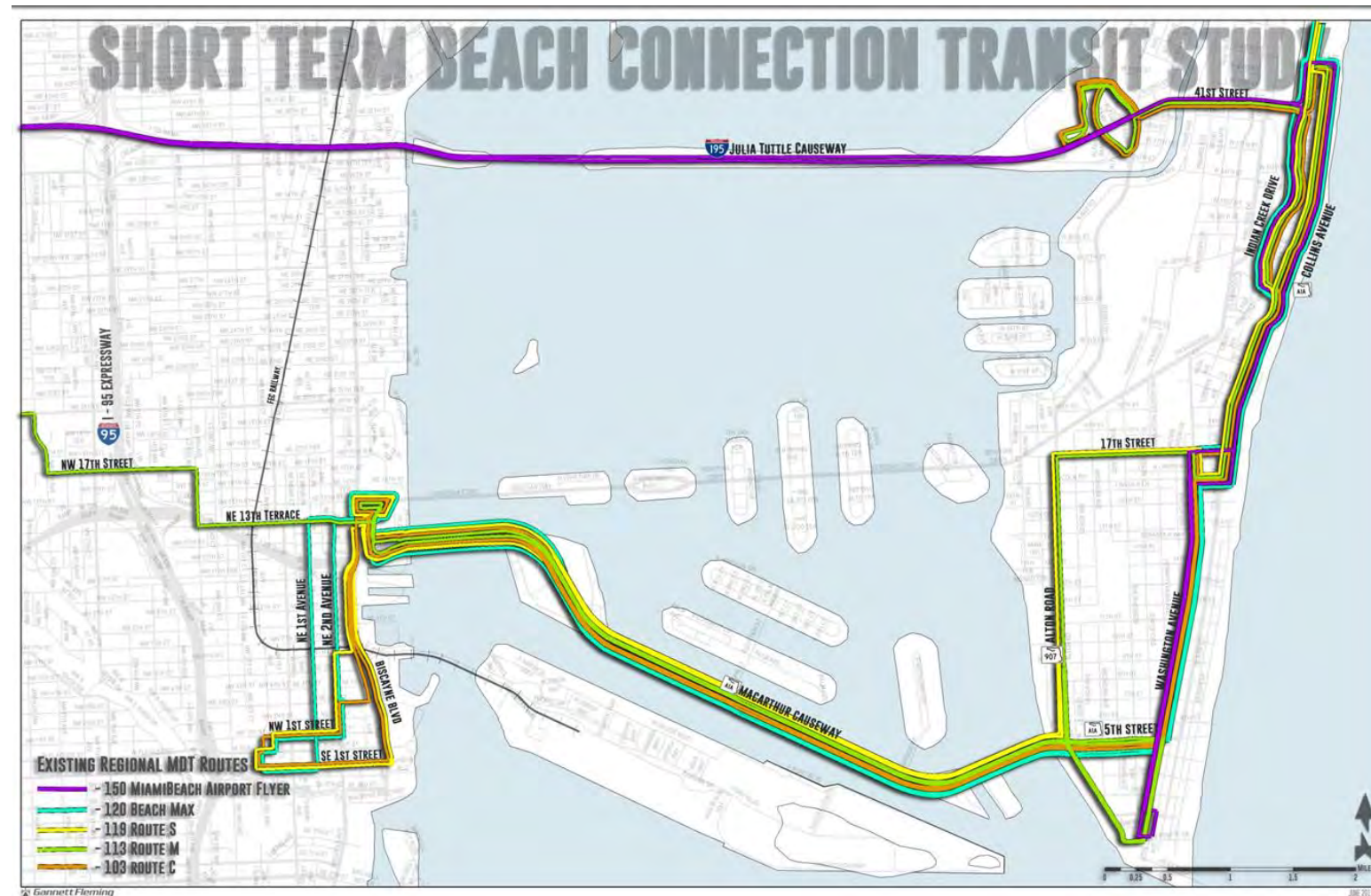
### EXISTING TYPICAL SECTION



# EXISTING CONDITIONS

## ■ REGIONAL TRANSIT

- Miami-Dade Transit (MDT) currently operates regional bus routes that serve Miami Beach and cross over one of the three (3) causeways connecting the City of Miami Beach with mainland Miami within the study area
  1. Route 150 (Miami Beach Airport Flyer)
  2. Route 120 (Beach MAX)
  3. Route 103 (C)
  4. Route 113 (M)
  5. Route 119 (S)

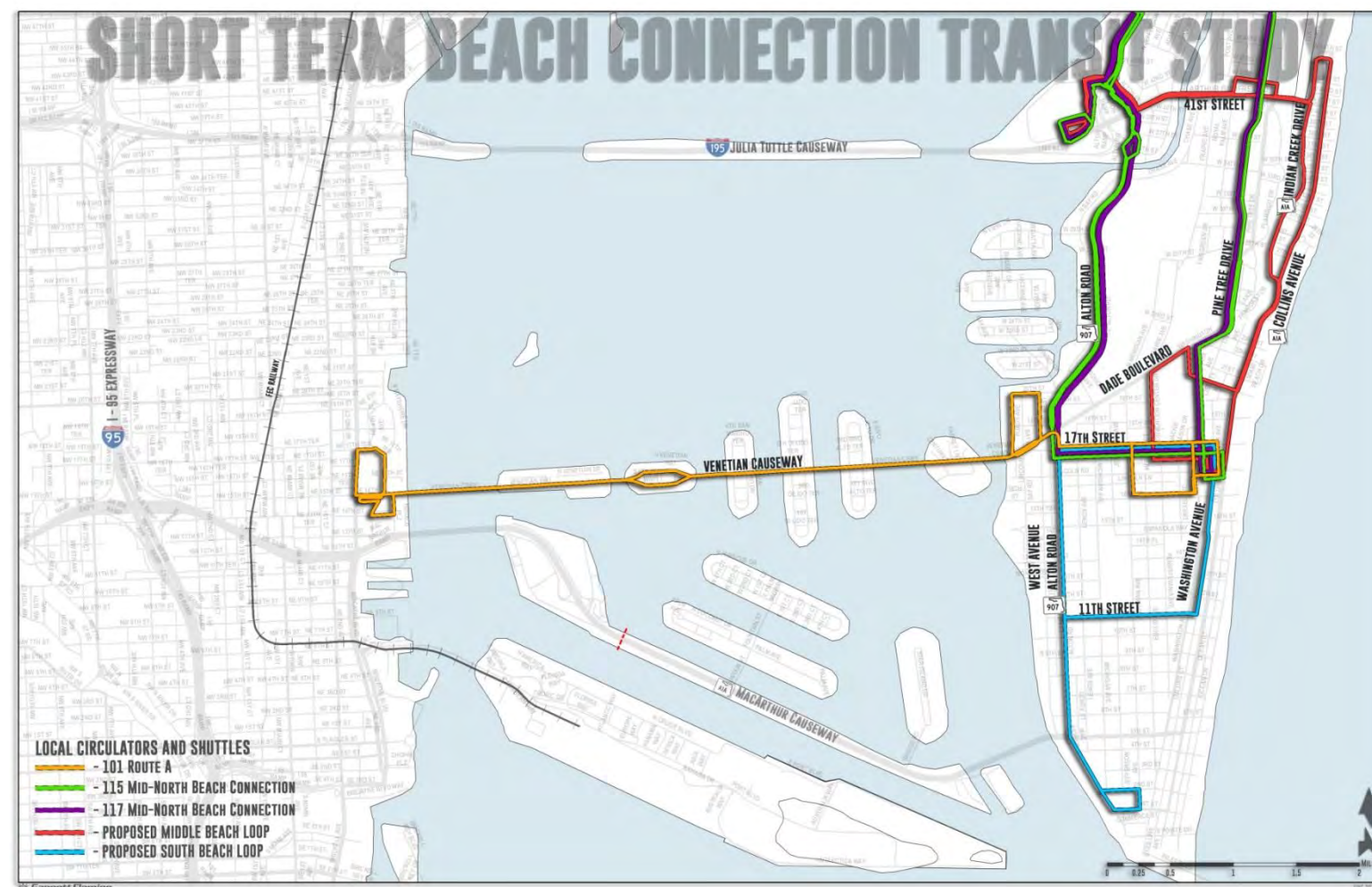




# EXISTING CONDITIONS

## ■ LOCAL TRANSIT

- MDT also operates a specialized local circulator route within South Beach
  1. Route 123 (South Beach Local)
- The City of Miami Beach is in the process of implementing a network of city-wide transit circulators, as a complementary service to MDT's regional transit, which include the:
  2. Alton West Trolley (AWT) Loop / South Beach Trolley Loop (implemented on February 2014)
  3. North Beach Trolley Loop (implemented on October 2014)
  4. Middle Beach Trolley Loop (planned for 2015 – 2020 as Priority 1 in the CMB TMP)
  5. Collins Link (planned for 2015 – 2020 as Priority 1 in the CMB TMP)





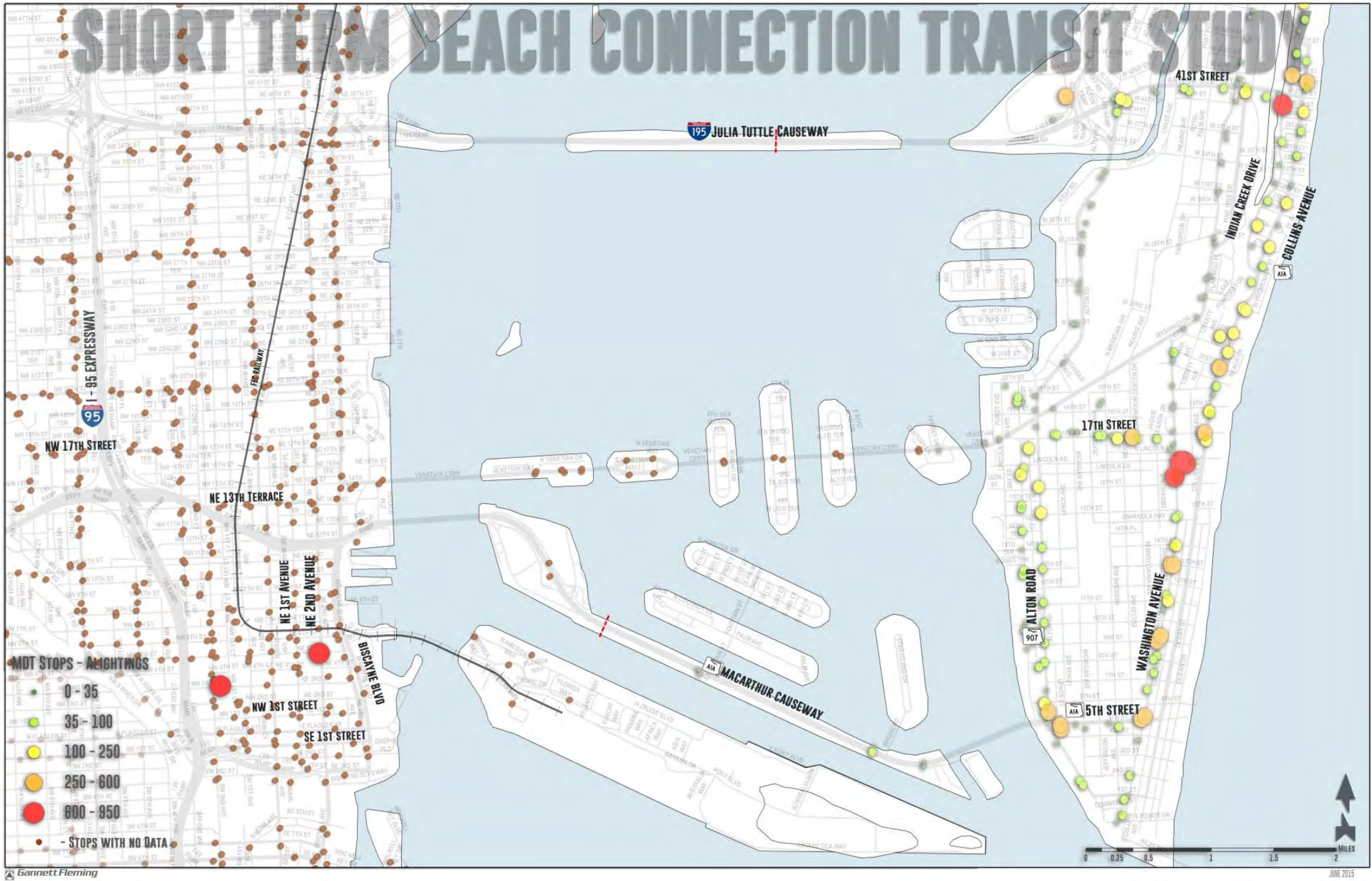
## ■ RIDERSHIP



EXISTING CONDITIONS

■ RIDERSHIP

MDT BUS STOPS ALIGHTINGS



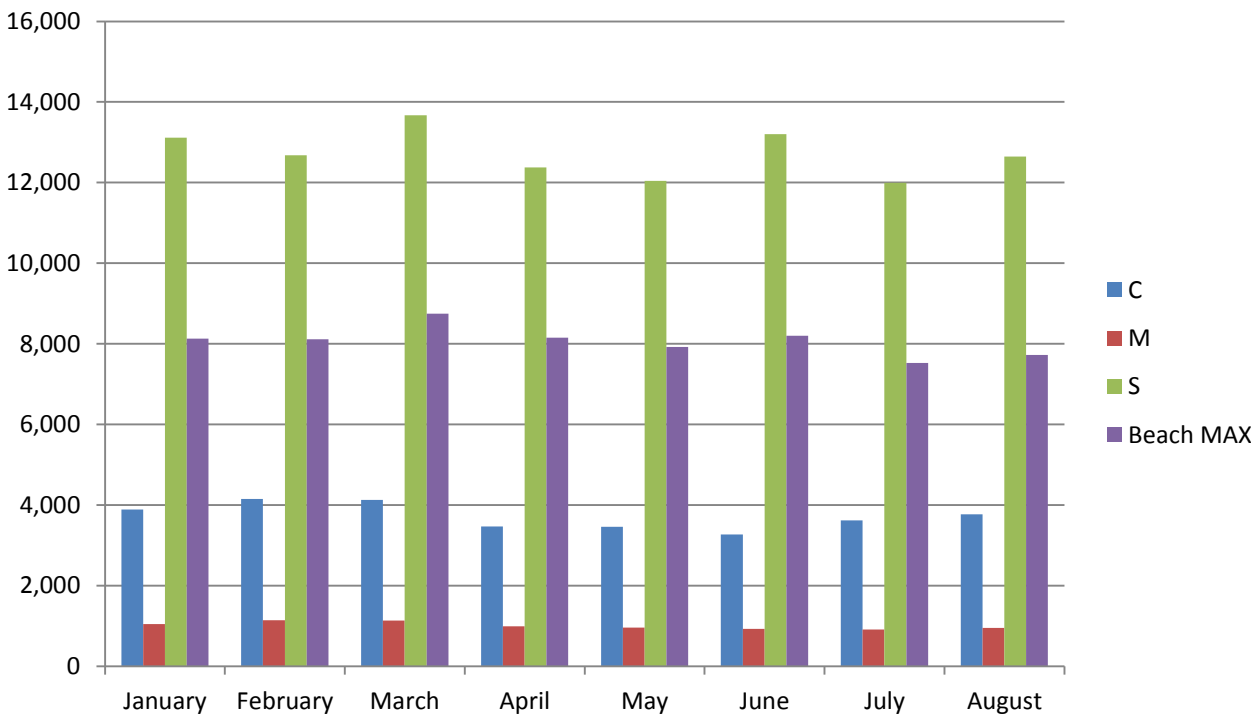
EXISTING CONDITIONS

■ RIDERSHIP

- Since the focus of this study is to provide a premium transit connection between the City of Miami Beach and Downtown Miami, the existing travel market and ridership information of the four (4) regional transit routes connecting Miami Beach and Miami were examined (i.e. excluding Route 150 (Miami Beach Airport Flyer) since this route mainly serves to connect the City with Miami International Airport)

AVERAGE DAILY BOARDING BY ROUTES (2015)

Route	August	July	June	May	April	March	February	January
C	3,764	3,615	3,270	3,461	3,466	4,127	4,145	3,886
M	950	907	926	960	989	1,134	1,137	1,042
S	12,644	11,998	13,201	12,043	12,373	13,672	12,675	13,111
Beach MAX	7,719	7,523	8,196	7,920	8,153	8,746	8,108	8,126
Total	25,077	24,043	25,593	24,384	24,981	27,679	26,065	26,165





## EXISTING CONDITIONS

### ■ TRAVEL MARKET

- The amount of current and future trips that have an origin and/or destination within the South Beach area were extracted from the most recent SERPM model to provide an order of magnitude understanding of the existing travel market size
  - 172,000 total daily trips between South Beach and mainland Miami
  - 20,000 (12%) of the 172,000 daily trips originate from South Beach
  - 74,000 (88%) of the 172,000 daily trips originate from the mainland
  - Route S (119) is the most utilized for trips performed between South Beach and Downtown Miami
  - Of MDT's Routes C, M, S, and Beach MAX:
    - 55% of bus riders originate their trip from Downtown Miami and go to/stay within South Beach
    - 67% of bus riders reside within mainland Miami
    - 61% of bus riders are commuting to work
    - 65% of bus riders use one of these routes on a daily basis
    - 87% of bus riders do not own a car





# ALTERNATIVE DEVELOPMENT

- **THE INITIAL PHASE OF THE BEACH CORRIDOR WILL IMPLEMENT A PREMIUM EXPRESS BUS SERVICE BETWEEN DOWNTOWN MIAMI AND SOUTH BEACH WITHIN APPROXIMATELY 1 YEAR AND WITH THE PURPOSE OF:**
  - Shifting transportation modal split within the City of Miami Beach from automobile travel to transit, bicycle, and pedestrian travel
  - Establishing Washington Avenue as the transit backbone of South Beach
  - Keeping the potential two-phased implementation of the LRT/Modern Streetcar Line operating in an exclusive Right of Way
  - Complementing existing and proposed MDT and City of Miami Beach transit services
  - Providing a direct transit service along mixed traffic lanes between South Beach and the Government Center

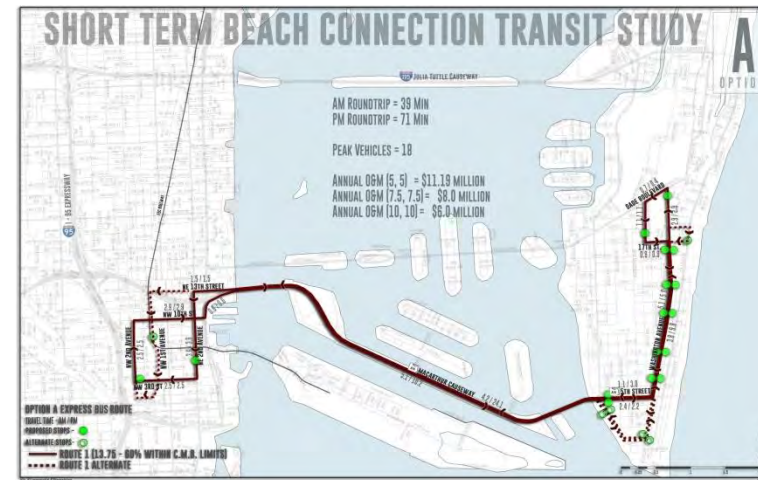




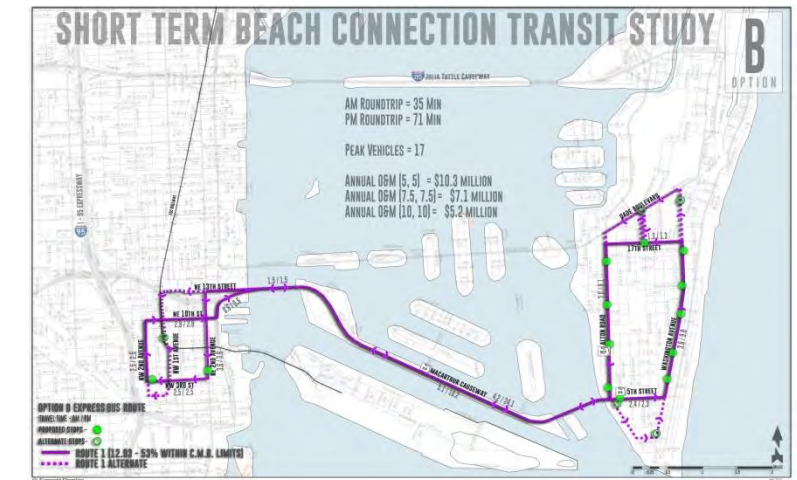
■ IN ORDER TO COMPLY WITH THE STUDY PURPOSE, **FIVE (5) ALTERNATIVES** WERE DEVELOPED USING THE FOLLOWING OPERATING PLAN AS CRITERIA

- Express Route Frequency
  - 5 minutes all day *OR*
  - 5 minutes during peak periods (6 hours) and 7.5 minutes during off-peak periods (13 hours)
- Express Route Service Length
  - Minimum of 19 hours per day from 5:00 AM to 12:00 AM (midnight)
- Express Route Service Days
  - Monday through Sunday (7-days per week) and 365 days per year
- Express Bus Fare
  - Full fare: \$2.65 (\$0.95 transfer fee)
  - Monthly passes of full fare: \$112.50
  - Discount fare: \$1.30 (\$0.45 transfer fee)
  - Monthly passes of discount fare: \$56.25

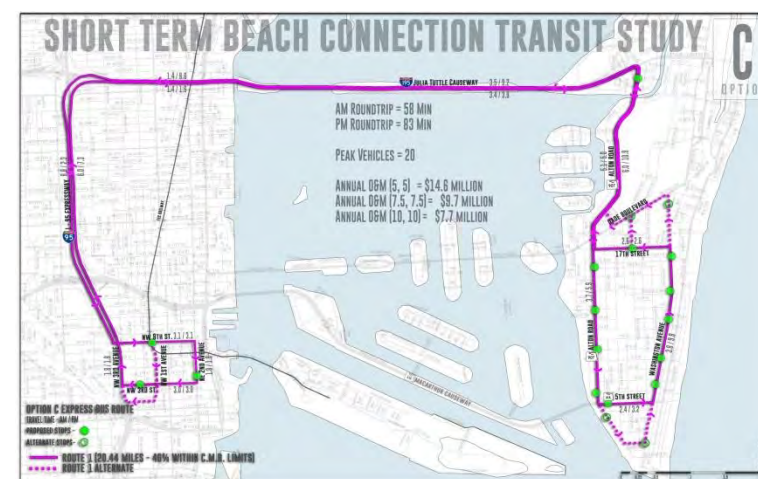
OPTION A: MACARTHUR CAUSEWAY SHUTTLE WITH SINGLE LINE ON WASHINGTON AVENUE



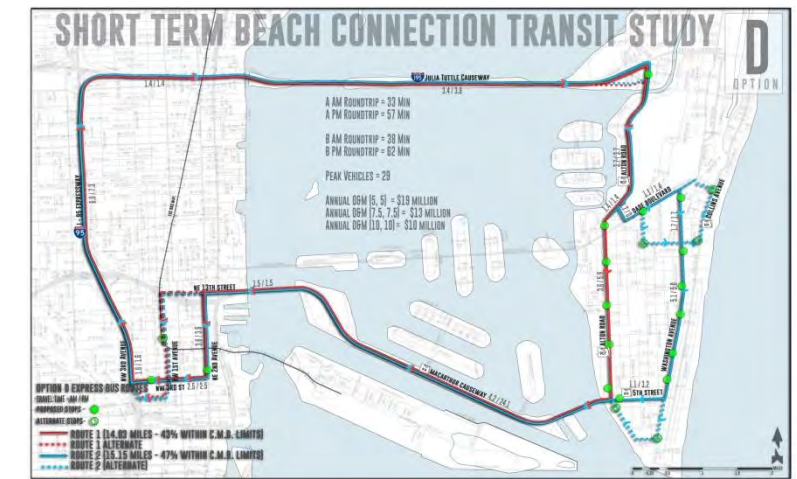
OPTION B: MACARTHUR CAUSEWAY SHUTTLE WITH ONE-WAY COUNTERCLOCKWISE BEACH LOOP



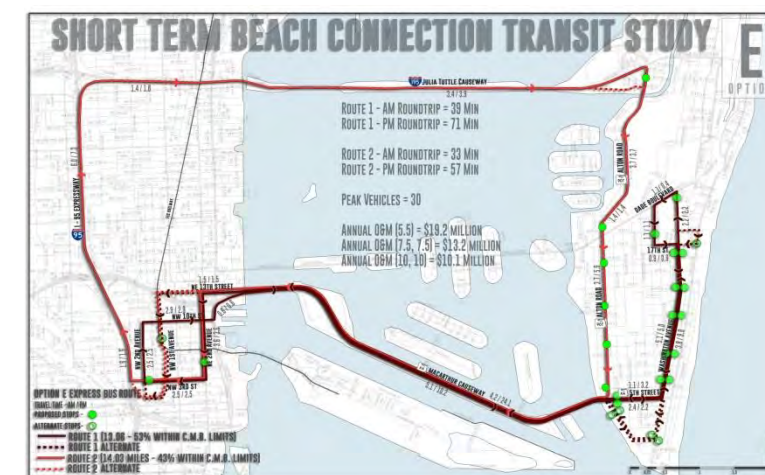
OPTION C: JULIA TUTTLE CAUSEWAY SHUTTLE WITH ONE-WAY COUNTERCLOCKWISE BEACH LOOP



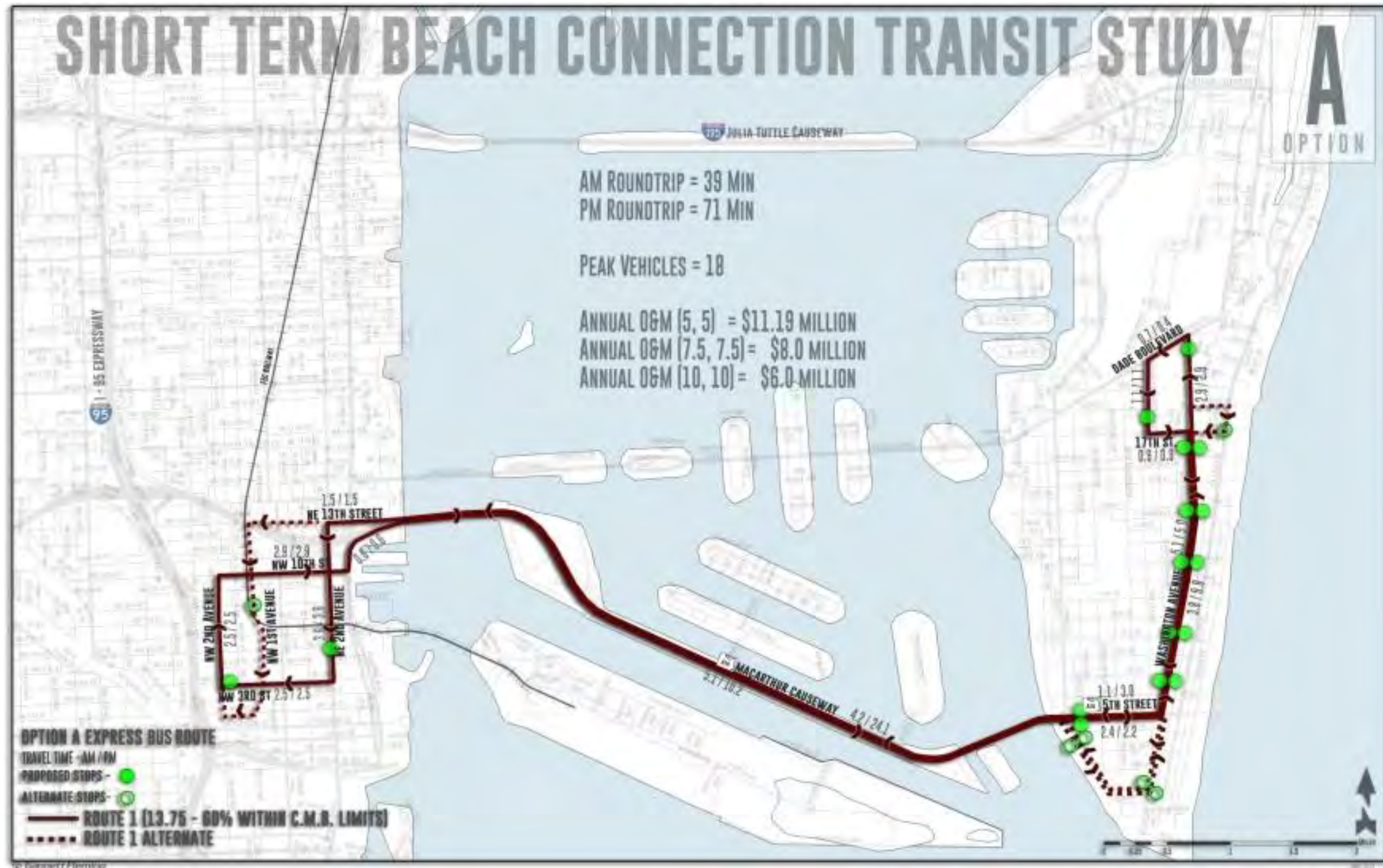
OPTION D: TWO-CAUSEWAY ONE-WAY CLOCKWISE LOOPS



OPTION E: OPTION A AND D HYBRID











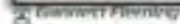












## ■ OPERATING AND MAINTENANCE COST ESTIMATE

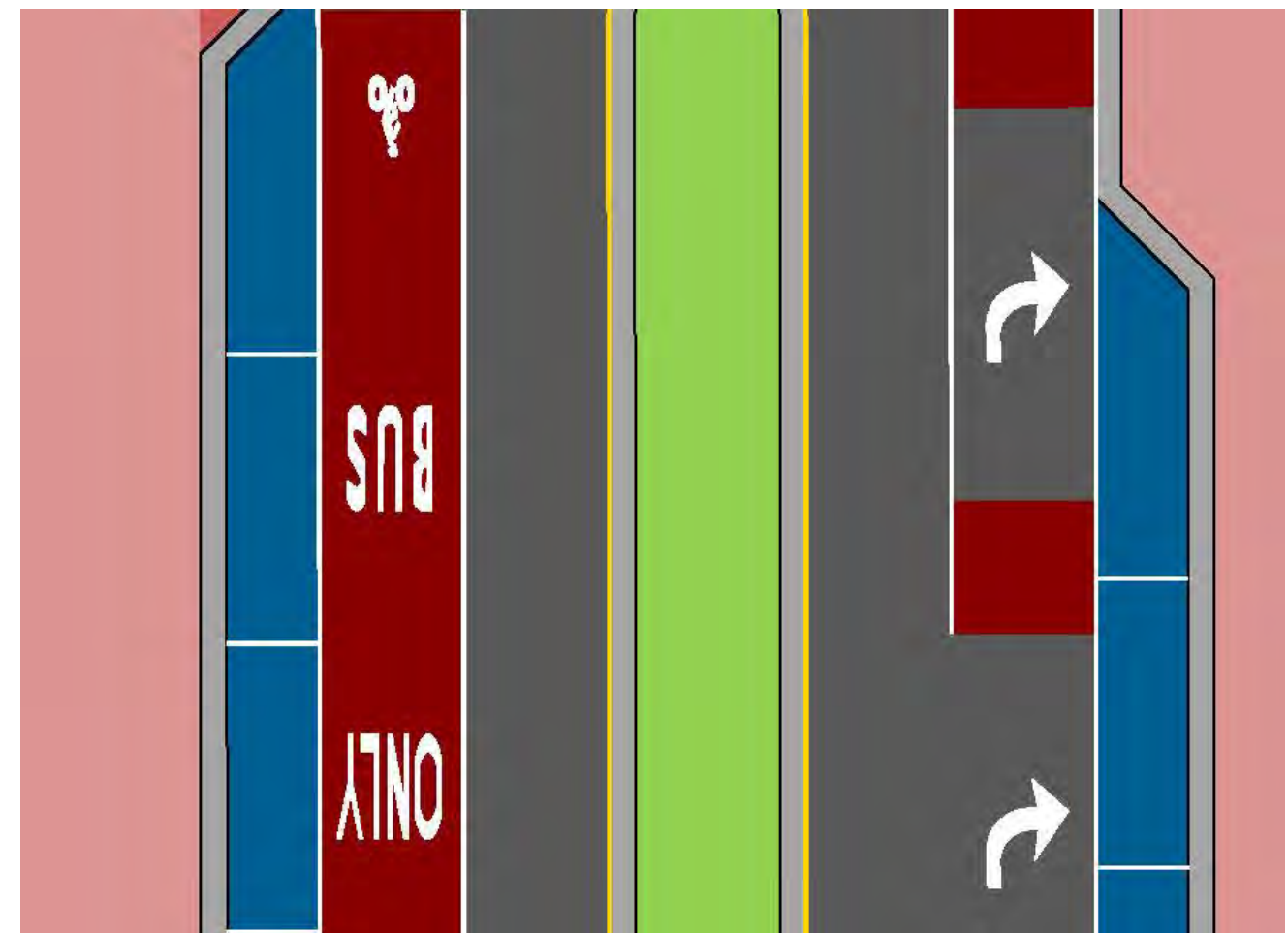
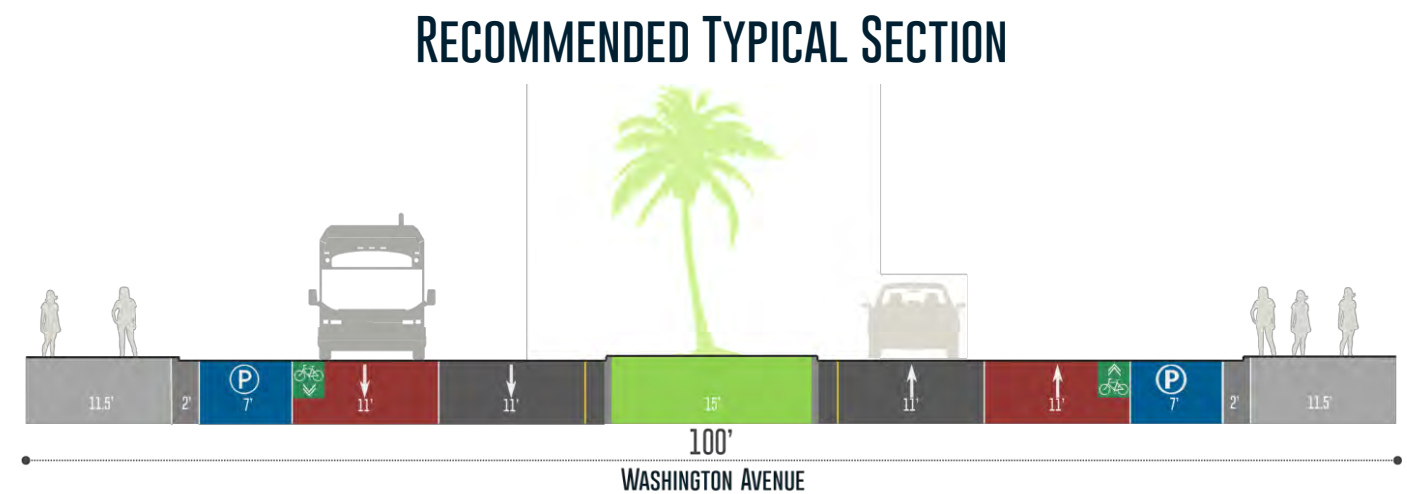
- O&M costs were estimated based on three (3) travel frequencies because the ideal travel frequency for this premium transit service lies between 5 minutes and 10 minutes
- These costs are subject to change if the chosen operating travel frequency is different from those used below

**O&M COST ESTIMATE (MILLIONS) BY TRAVEL  
FREQUENCY**

Option	Travel Frequency (min)		
	5	7.5	10
A	\$11.19 M	\$8.00 M	\$6.00 M
B	\$10.30 M	\$7.10 M	\$5.20 M
C	\$14.60 M	\$9.70 M	\$7.70 M
D	\$19.00 M	\$13.00 M	\$10.00 M
E	\$19.20 M	\$13.20 M	\$10.10 M

■ **ADDITIONALLY, TRANSIT PRIORITY FEATURES WERE EVALUATED AND RECOMMENDED AS PART OF THE PREMIUM TRANSIT SERVICE FOR ALL ALTERNATIVES**

- Running Ways
  - *Exclusive continuous transit lanes along Washington Avenue*
  - Queue jumper lanes at westbound SR A1A/5<sup>th</sup> Street and SR 907/Alton Road
- Services
  - Road Ranger service patrols along the exclusive transit lanes
- Stations
  - Curb extensions/bus stop bulb-outs along Washington Avenue
- Fare Collection
  - Automated Fare Collection (AFC)
- Vehicles
  - New diesel/electric hybrid or Compressed Natural Gas (CNG) articulated buses
- Advance Technology
  - Real-time passenger information
- Signalization
  - Transit Signal Priority (TSP)





## ■ TRANSIT PRIORITY FEATURES COST ESTIMATE

- Four (4) alternative asphalt coloring methods were considered as part of this analysis since each varies in cost and would be a new construction/aesthetic procedure to be implemented in the City of Miami Beach

### PROPOSED CAPITAL COST ESTIMATE

Asphalt Coloring Method	Infrastructure	Mobilization & MOT (20%)	Minor Drainage Improvements (5%)	Contingency (20%)	Total
Regular Paint	\$638,000	\$128,000	\$32,000	\$128,000	\$926,000
Durable Liquid Pavement Markings (DLPM)	\$1,703,000	\$341,000	\$86,000	\$341,000	\$2,471,000
Thermoplastic Paint	\$2,031,000	\$407,000	\$102,000	\$407,000	\$2,947,000
Colored Asphalt	\$597,000	\$120,000	\$30,000	\$120,000	\$867,000

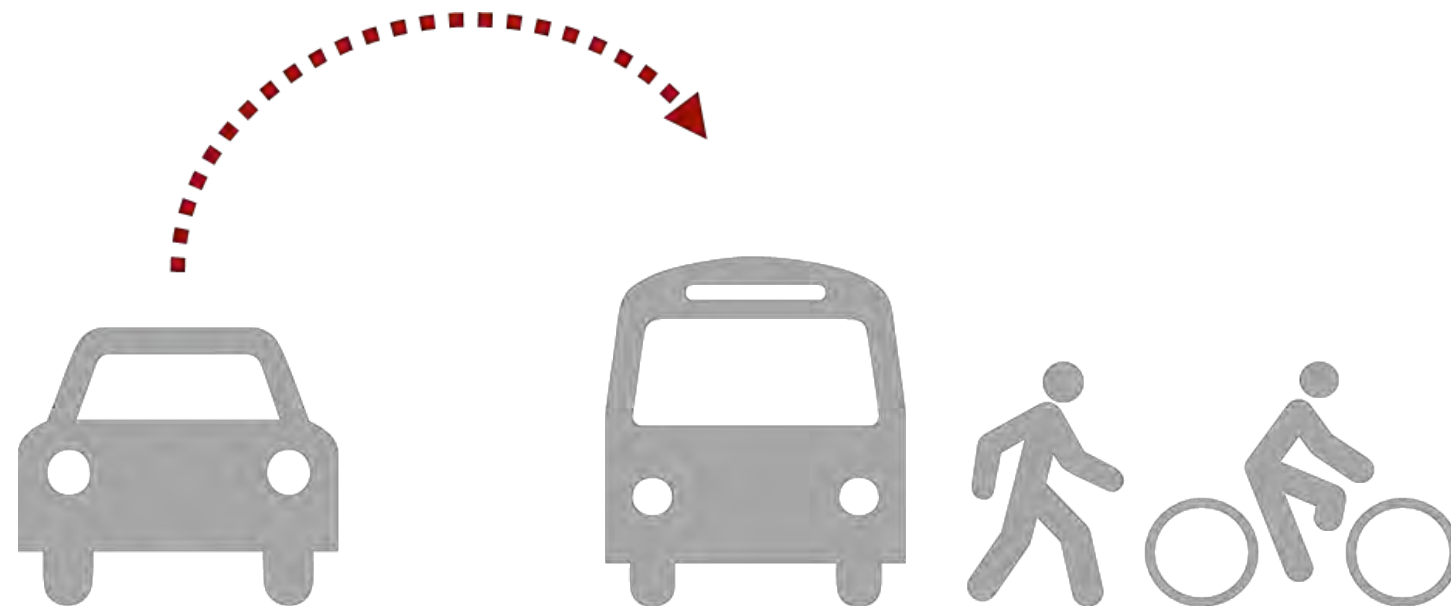
# ALTERNATIVE SELECTION

- **THE CRITERIA USED TO EVALUATE THE ALTERNATIVES INCLUDE**
  - Route length(s)
  - Directness of route(s)
  - Number of stops along the route(s)
  - Number of traffic signals along route(s)
  - Running way efficiency and reliability (transit travel time and variability of travel time)
  - Efficiency of route(s) in getting in/out of the core area of South Miami Beach and Downtown Miami CBD
  - Flexibility of service for different travel markets (in terms of frequency and span by time of day and day of week)
  - Level of duplication/compatibility with existing/planned bus routes
  - Service area coverage and activity centers served
  - Compatibility with proposed LRT/modern streetcar service
  - Compatibility with City's street plans
  - Cost effectiveness



## ■ TRAFFIC OPERATION ANALYSIS

- A detailed traffic operations analysis was performed along Washington Avenue for the five (5) alignment alternatives
- The results indicate that there will be some short-term adverse impacts to traffic along Washington Avenue associated with converting the existing outside general-use mixed traffic lanes into exclusive bus lanes in the northbound and southbound directions of the roadway
- The lane conversion, however, will provide *significant long-term improvements* to the City's mobility because a prominent mode shift from auto travel to transit, bicycle and pedestrian travel is expected
- It is important to highlight that the operational analyses for all options *do not include the potential benefit that the roadway network may experience as a result of this mode shift*





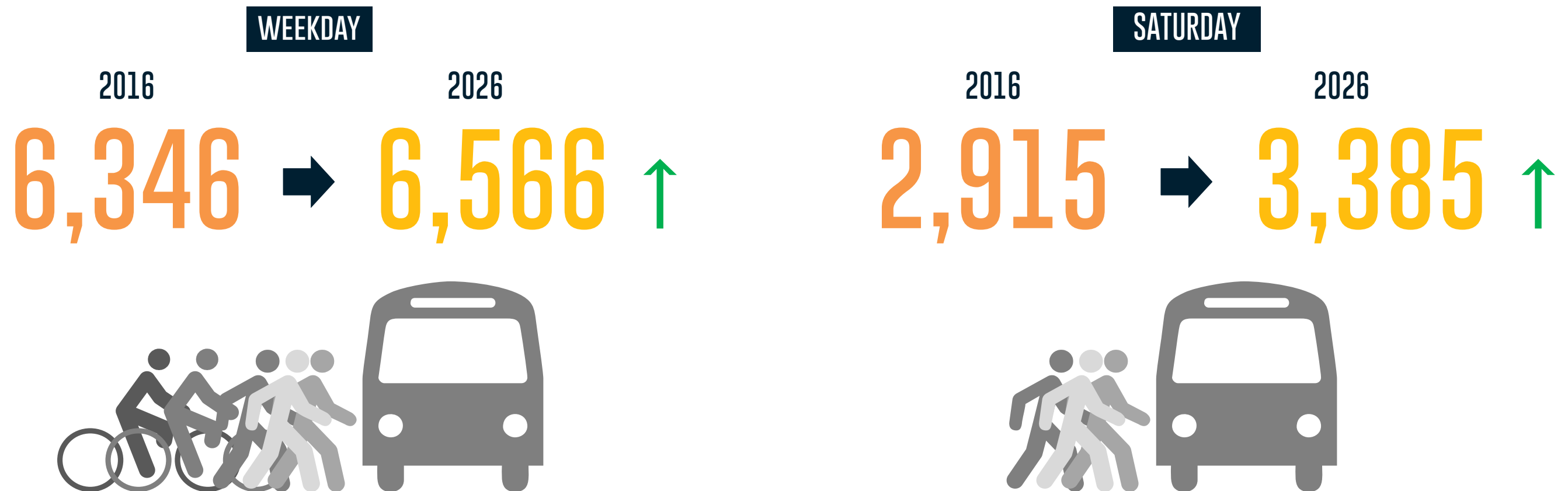
## ALTERNATIVE SELECTION

### ■ PREFERRED ALTERNATIVE

- Option A, the SR A1A/MacArthur Causeway shuttle with single line on Washington Avenue, was selected as the preferred alternative since it provides the following benefits:
  - Most direct
  - Least amount of stops (think premium transit!)
  - Least amount of signalized intersections traversed
  - *Approximately 45% less Transit travel times from Government Center to Lincoln Road*
  - Best precursor to the proposed LRT/Modern Streetcar Line

### ■ FUTURE RIDERSHIP

- A ridership analysis was performed to determine the future demand for the preferred alternative



## ALTERNATIVE SELECTION

### ■ PREDICTED CHANGE IN MODE SHIFT

- The mode split from people traveling between South Beach, Downtown Miami, and other areas outside of the study area is **predicted to shift** from automobile travel to bicycle and transit travel by **an average of 5.5%** (i.e. average change of the automobile mode)

#### PREDICTED CHANGE IN 2010 – 2040 MODE SPLIT

Origin	Destination	Home	Auto	Bike/Walk	Transit	School Bus
South Beach	Downtown	South Beach	-19% ↓	+ 19% ↑	-	-1% ↓
Downtown	South Beach	South Beach	-19% ↓	+ 18% ↑	+ 1% ↑	-1% ↓
South Beach	Downtown	Downtown	+ 1% ↑	-1% ↓	+ 1% ↑	-3% ↓
Downtown	South Beach	Downtown	+ 3% ↑	-	-2% ↓	-3% ↓
South Beach	Other	South Beach	-5% ↓	+ 3% ↑	+ 2% ↑	-
Other	South Beach	South Beach	-5% ↓	+ 3% ↑	+ 3% ↑	-
South Beach	Other	Other	-	+ 1% ↑	-1% ↓	-
Other	South Beach	Other	-	+ 1% ↑	-1% ↓	-
Average			-5.5% ↓	5.5% ↑	0.4% ↑	-1% ↓

## ALTERNATIVE SELECTION

### ■ PREDICTED CHANGE IN PERSON TRIPS

- The person trips performed on transit and bike are also predicted to significantly increase as compared to the automobile mode
- *The mode shift from automobiles to transit can result in an approximate of 7,720 more peak hour person trips increasing a roadway's people carry capacity without widening its typical section*

#### PREDICTED CHANGE IN 2010 – 2040 PERSON TRIPS

Origin	Destination	Home	Auto	Bike/Walk	Transit	School Bus
South Beach	Downtown	South Beach	+8% ↑	+225% ↑	+55% ↑	-80% ↓
Downtown	South Beach	South Beach	+11% ↑	+227% ↑	+59% ↑	-80% ↓
South Beach	Downtown	Downtown	+35% ↑	+20% ↑	+50% ↑	-100% ↓
Downtown	South Beach	Downtown	+60% ↑	+60% ↑	+36% ↑	-100% ↓
South Beach	Other	South Beach	+42% ↑	+260% ↑	+109% ↑	+23% ↑
Other	South Beach	South Beach	+41% ↑	+260% ↑	+111% ↑	+23% ↑
South Beach	Other	Other	-3% ↓	+121% ↑	-6% ↓	-33% ↓
Other	South Beach	Other	-3% ↓	+119% ↑	-11% ↓	-33% ↓
Average			+17.1% ↑	+102.5% ↑	+29.9% ↑	-15% ↓



- TRANSIT PRIORITY FEATURES COST ESTIMATE**
  - New vehicles, Transit Signal Prioritization (TSP), and real-time information equipment were estimated for the 20 new vehicles needed (i.e. with two (2) additional spare vehicles), 59 traffic signals crossed, and 16 bus stops served by Option A

PREFERRED ALTERNATIVE PROPOSED  
TECHNOLOGY COST ESTIMATE

Asphalt Coloring Method	Total Capital Cost	New Vehicles	TSP		Real-Time Information Equipment	Total
			Downtown (26 signals)	South Beach (33 signals)		
Regular Paint	\$926,000	\$20,000,000	\$780,000	\$990,000	\$400,000	\$23,096,000
Durable Liquid Pavement Markings (DLPM)	\$2,471,000	\$20,000,000	\$780,000	\$990,000	\$400,000	\$24,641,000
Thermoplastic Paint	\$2,947,000	\$20,000,000	\$780,000	\$990,000	\$400,000	\$25,117,000
Colored Asphalt	\$867,000	\$20,000,000	\$780,000	\$990,000	\$400,000	\$23,037,000

## ATTACHMENT B | NOISE AND VIBRATION STUDY REPORT

**Noise and Vibration Study Report  
for the  
Beach Corridor Rapid Transit Project  
Project Development and Environment (PD&E) Study**

**Prepared for:**

**MIAMI-DADE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS**



**Prepared by:**

**Parsons Corporation**

**November 2019; Revised April 2020**



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## LIST OF ACRONYMS

FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HVAC	Heating, Ventilation, and Air Conditioning
NEPA	National Environmental Policy Act
PPV	Peak Particle Velocity
RMS	Root Means Square
VdB	Vibration decibel



## I. INTRODUCTION

In 2016, the Miami-Dade County Transportation Planning Organization (TPO) adopted the Strategic Miami Area Rapid Transit (SMART) plan as the blueprint for developing premium transit services throughout Miami-Dade County. Subsequently the Miami-Dade County Department of Transportation and Public Works (DTPW) initiated the Beach Corridor Rapid Transit Project Development and Environment (PD&E) study in 2017, in collaboration with the Florida Department of Transportation (FDOT) and the cities of Miami and Miami Beach. This study analyzes the potential noise and vibration impacts for the premium transit alternatives being considered for the Beach Corridor Rapid Transit Project. The objectives of this analysis are to describe the existing noise and vibration environments along the Project corridor, describe the potential noise and vibration effects/changes that would result from implementing the different alternatives along the Project, and determine whether those changes would result in potential noise and vibration impacts per Federal Transit Administration (FTA) guidelines. All noise model files that encompass the analysis in this report have been digitally delivered to Miami-Dade County.

### A. STUDY AREA

The Beach Corridor study area (**Figure 1**) is located in the Cities of Miami and Miami Beach, Florida in Miami-Dade County in the east central region of the SMART Corridor Plan and is generally bounded by:

- I-195/Julia Tuttle Causeway on the north
- I-395/MacArthur Causeway on the south
- I-95 on the west
- Washington Avenue on the east

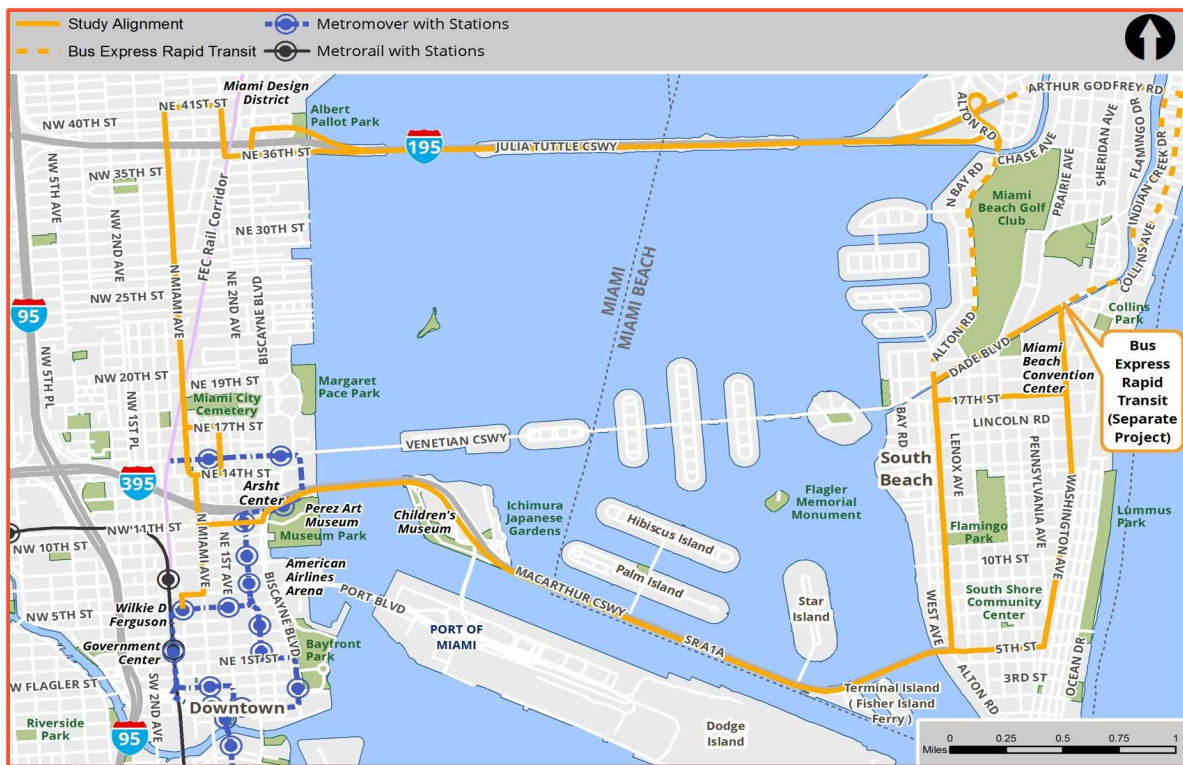


Figure 1 - Study Area

## B. PURPOSE AND NEED

The purpose of this project is to increase the person-throughput to the Beach Corridor's major origins and destinations via a rapid transit technology. The need for the project is based upon the extensive population growth throughout the study area resulting in ever-increasing traffic congestion and the demand for enhanced access to the area's many facilities and services. The following rapid transit technologies were assessed: Automated People Mover (APM), Monorail, Light Rail Transit (LRT), and Bus Rapid Transit (BRT) options.

The Beach Corridor traverses an area that is at the epicenter of population and economic growth within Miami-Dade County. The central business district (CBD) area and Miami Beach have undergone rapid population and employment increases over the past decade, a trend that is projected to continue over the next 20 years. The population densities in the study area are among the highest in the nation, with Downtown Miami (CBD) at 17,800 persons per square mile and Miami Beach at 11,500 persons per square mile, per the 2010 U.S. Census. Downtown Miami saw a dramatic 172 percent increase in population density over the last decade.

Due to the region's appealing qualities, such as its temperate climate; attractive beaches; and convenient access to the Caribbean and Latin America, South Florida, and Miami-Dade County, it has become an important tourist destination for both national and international visitors. The county hosts millions of annual visitors and seasonal residents. Visitors typically access the study area via tour bus, taxi, or rental car.

In 2018, Greater Miami and the Beaches attracted a record 16.5 million overnight visitors and an additional 6.8 million day trippers. Miami Beach and Downtown Miami are the two most popular locations for overnight stays, lodging nearly 50 percent of all 2018 area visitors with approximately 6.1 million and 1.6 million overnight guests, respectively. Additionally, four of the six most-visited attractions are in proximity to the Beach Corridor, including South Beach, the Beaches, Lincoln Road, Bayside Market Place, and Downtown Miami. This high rate of tourism generates additional demand for travel, produces additional trips within the area, and contributes to traffic and subsequently roadway congestion. The Greater Miami Convention and Visitor's Bureau 2018 Visitor Industry Overview indicated that traffic congestion is the top negative aspect of trips to Greater Miami and Miami Beach. Traffic congestion has been the top-ranked problem in each of the last eight annual surveys.

In order to meet the project's purpose and need, goals were established that would accommodate the high travel demand throughout the study area and provide relief to the extreme traffic congestion along the surface streets. The project goals include the following:

- Connect to and provide direct, convenient, and comfortable rapid-transit service to serve existing and future planned land uses;
- Provide enhanced interconnections with Metrorail, Tri-Rail, Brightline, Metromover, and Metrobus routes; Broward County Transit (BCT) bus routes; Miami and Miami Beach circulators; jitneys; shuttles; taxis; Transportation Network Companies (TNCs); and/or other supporting transportation services; and
- Promote pedestrian- and bicycle-friendly solutions in the corridors of the study area.

## C. PROJECT DESCRIPTION

The project corridor is characterized by:

- Mixed-use development, including areas of high residential and employment density;
- A diverse population with a higher-than-countywide minority percentage and a lower median household income than county and national levels;

- Limited transportation pathways, with high average daily traffic volumes and congestion on the expressways and major roadways;
- Land uses sensitive to noise and vibration effects.

The project is comprised of three sub-areas along this project corridor, featuring distinct segments of travel demand and origin/destination pairs that vary in their land use and environmental characteristics:

*The Midtown/Design District sub-area, a north–south corridor between the Design District/Midtown and downtown Miami.*

*The Bay Crossing sub-area*, an east–west corridor between Miami Beach and downtown Miami that would form the “trunk line” of the project. The travel demand in this corridor could be served directly via I-395/MacArthur Causeway, or less directly via I-95 and the Julia Tuttle Causeway (I-195).

*The Miami Beach sub-area* is a north-south corridor extending from Washington Avenue and 5th Street to the Miami Beach Convention Center.

An overview of these areas is shown in Figure 1.

## D. ALTERNATIVE TRANSIT MODES CONSIDERED

DTPW determined that the following transit mode technologies had the potential to meet the project purpose and need and would be advanced for further development in Tier Two.

- Automated People Mover (APM)
- Light Rail Transit/Streetcar (LRT)
- Monorail
- Bus Rapid Transit (BRT)

Further assessment resulted in the APM and monorail as the preferred alternatives; both are rubber tire vehicles on an elevated guideway. A detailed discussion of the alternatives analysis and evaluation is provided in the project’s Preliminary Engineering Report.

# II. NOISE AND VIBRATION

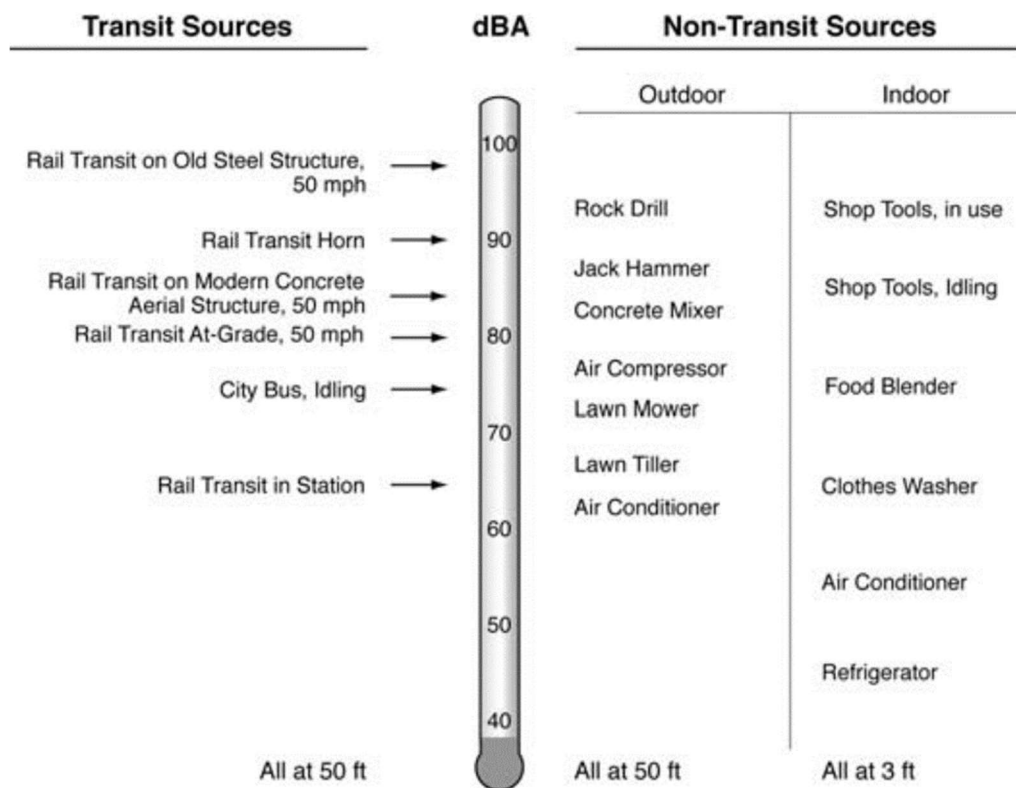
## A. NOISE

Noise is “unwanted sound” and by this definition, the perception of noise is a subjective process. Several factors affect the actual level and quality of sound (or noise) as perceived by the human ear and can generally be described in terms of loudness, pitch (or frequency), and time variation. The loudness, or magnitude, of noise determines its intensity and is measured in decibels (dB) that can range from below 40 dB (e.g., the rustling of leaves) to more than 100 dB (e.g., a rock concert). Pitch describes the character and frequency content of noise, such as the very low “rumbling” noise of stereo subwoofers or the very high-pitched noise of a piercing whistle. Finally, the time variation of noise sources can be characterized as continuous, such as with a building ventilation fan; intermittent, such as for trains passing by; or impulsive, such as pile-driving activities during construction.

Various sound levels are used to quantify noise from transit sources, including a sound’s loudness, duration, and tonal character. For example, the A-weighted decibel (dBA) is commonly used to describe the overall noise level because it more closely matches the human ear’s response to audible frequencies. Since the A-weighted decibel scale is logarithmic, a 10 dBA increase in a noise level is generally perceived as a doubling of loudness, while a 3 dBA increase in a noise level is just barely perceptible to the



human ear. Typical A-weighted sound levels from transit and other common sources are documented in the FTA's guidance manual on Transit Noise and Vibration Impact Assessment (2006), as shown on **Figure 2**. The 2006 guidance was the most recent at the start of this Beach Corridor study process.



**Figure 2 - Typical A-weighted Noise Levels**

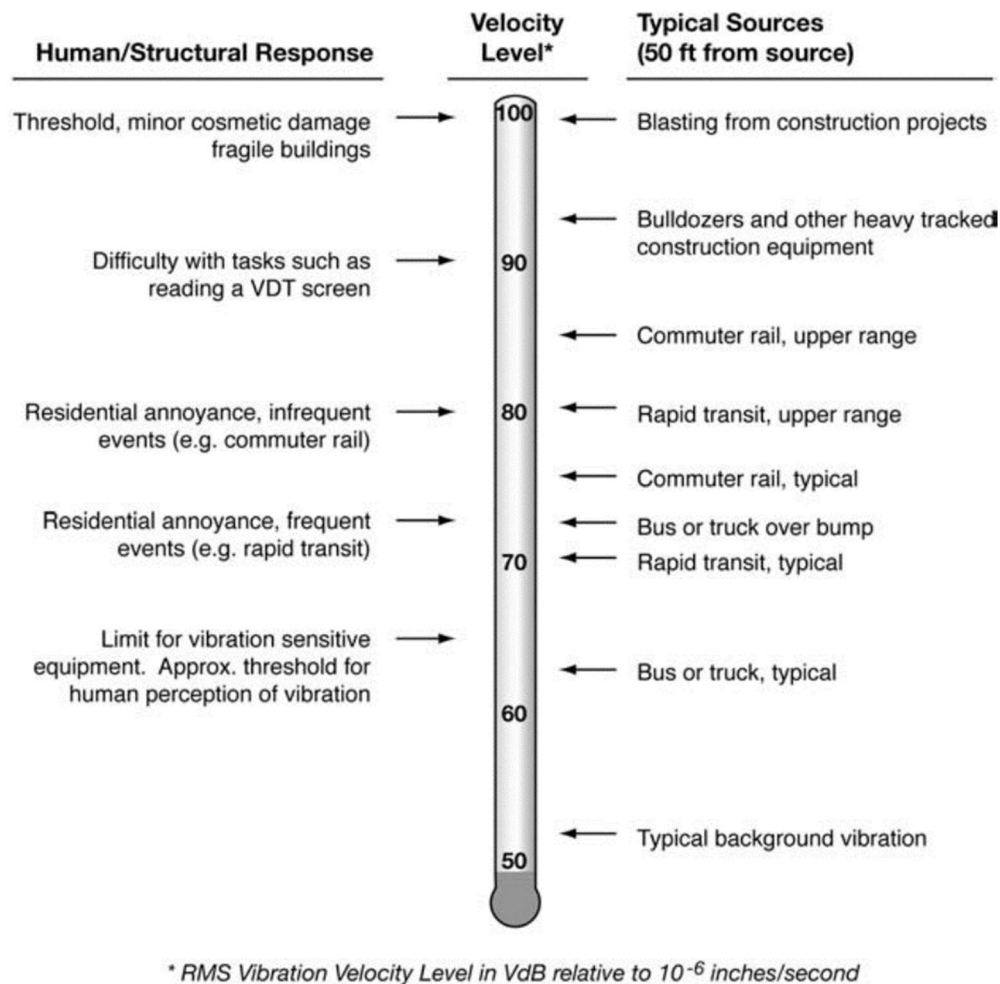
Several A-weighted noise descriptors are used to determine impacts from stationery and transit related sources, including:

- **Equivalent Sound Level (Leq):** Leq represents an average of the sound energy occurring over a specified period. In effect, Leq is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level (Leq[h]) is the energy average of A-weighted sound levels occurring during a one-hour period and is the basis for noise abatement criteria (NAC) used by FDOT and FHWA.
- **Maximum Sound Level (Lmax):** Lmax is the highest instantaneous sound level measured during a specified period.
- **Day-Night Level (Ldn):** Ldn is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

## B. VIBRATION

Ground-borne vibration associated with vehicle movements is usually the result of uneven interactions between wheels and the road or rail surfaces. Examples of such interactions (and subsequent vibrations) include train wheels over a jointed rail, an untrue rail car wheel with "flats," and a motor vehicle wheel hitting a pothole, a manhole cover, or any other uneven surface. Typical ground-borne vibration levels from transit and other common sources are shown on **Figure 3**. Unlike noise, which travels in air, transit vibration typically travels along the surface of the ground. Depending on the geological properties of the surrounding terrain and the type of building structure exposed to transit vibration, vibration propagation can be more or less efficient. Buildings with a

solid foundation set in bedrock are “coupled” more efficiently to the surrounding ground and experience relatively higher vibration levels than buildings located in sandier soil. Heavier buildings (such as masonry structures) are less susceptible to vibration than wood-frame buildings because they absorb more vibration energy.



**Figure 3 - Typical Ground-Borne Vibration Levels**

Vibration induced by passing vehicles can generally be discussed in terms of displacement, velocity, or acceleration. However, human responses and responses by monitoring instruments and other objects are most accurately described with velocity. Therefore, the vibration velocity level is used to assess vibration impacts from transit projects.

To describe the human response to vibration, the average vibration amplitude (called the root mean square [RMS] amplitude) is used to assess impacts. The RMS velocity level is expressed in inches per second (ips) or vibration velocity levels in decibels (VdB). All VdB vibration levels are referenced to one micro-inch per second (ips). Similar to noise decibels, vibration decibels are dimensionless because they are referenced to (i.e., divided by) a standard level (such as  $1 \times 10^{-6}$  ips in the United States). This convention allows compression of the scale over which vibration occurs, such as 40 to 100 VdB rather than 0.0001 ips to 0.1 ips.

### III. REGULATORY CONTEXT

This section presents the guidelines, criteria, and regulations used to assess noise and vibration impacts associated with the Project.

#### A. OPERATION NOISE IMPACT CRITERIA

The criteria in the *Transit Noise and Vibration Impact Assessment* (FTA, 2006) were used to assess existing ambient noise levels and future noise impacts from the project. The criteria are founded on well-documented research on community reaction to noise and are based on change in noise exposure using a sliding scale. The amount that transit projects are allowed to change the overall noise environment is reduced with increasing levels of existing noise.

The FTA Noise Impact Criteria applicable to three categories of land use are summarized in **Table 1** - Land Use Categories and Metrics for Transit Noise Impact Criteria.

**Table 1 - Land Use Categories and Metrics for Transit Noise Impact Criteria**

Land Use Category	Noise Metric, dBA	Description of Land Use Category
1	Outdoor $L_{eq}(h)^*$	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use.
2	Outdoor $L_{dn}$	Residences and buildings where people normally sleep. This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor $L_{eq}(h)^*$	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Buildings with interior spaces where quiet is important, such as medical offices, conference rooms, recording studios, and concert halls fall into this category. Places for meditation or study associated with cemeteries, monuments, and museums. Certain historical sites, parks, and recreational facilities are also included.

Note: \* -  $L_{eq}$  for the noisiest hour of transit-related activity during hours of noise sensitivity.

Source: FTA, 2006

$L_{dn}$  is used to characterize noise exposure for residential areas, hotels, and hospitals (Category 2). The maximum 1-hour  $L_{eq}$  during the period that the facility is in use is used for other noise-sensitive land uses such as schools, libraries, churches, and parks (Category 3). The noise impact criteria for human annoyance are based on comparison of the existing outdoor noise levels and the future outdoor noise levels from a proposed transit project. The criteria incorporate activity interference caused by the transit project alone and annoyance due to the change in the noise environment caused by the project. There are two levels of impact included in the FTA criteria, as shown in **Figure 4**- Noise Impact Criteria for Transit Projects. The interpretations of these two levels of impact are summarized as follows:

- **Severe Impact:** Project noise above the upper curve is considered to cause Severe Impact since a significant percentage of people would be highly annoyed by the new noise. This curve flattens out at 75 dB for Category 1 and 2 land use, a level associated with an unacceptable living environment.
- **Moderate Impact:** The change in the cumulative noise level is noticeable to most people, but it may not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation, such as the existing level,



predicted level of increase over existing noise levels, and the types and numbers of noise-sensitive land uses affected.

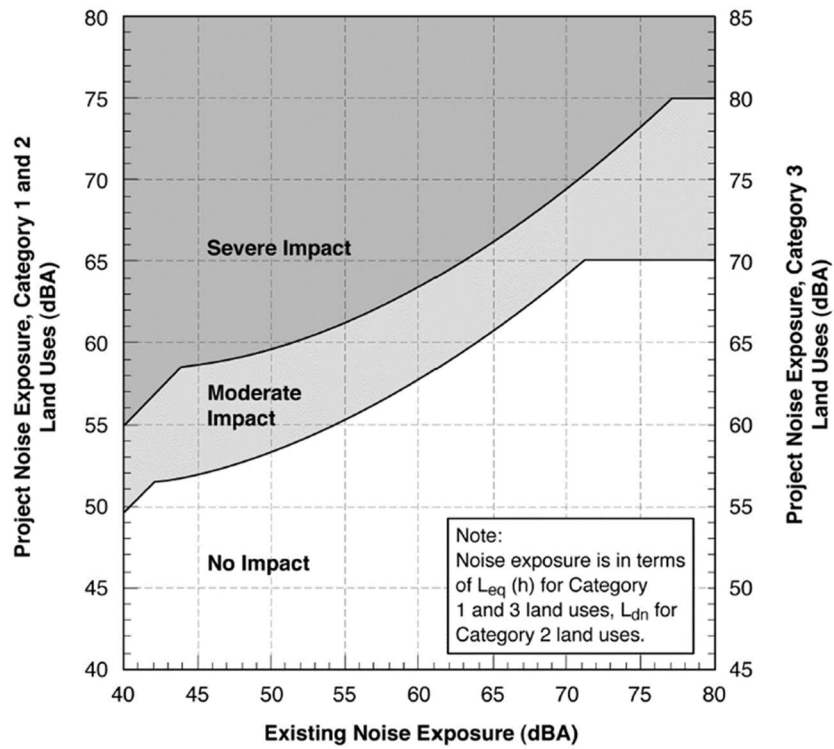
The horizontal axis in **Figure 4**, Noise Impact Criteria for Transit Projects, is the existing  $L_{dn}$  or  $L_{eq}$  without any project-related noise. The vertical axis on the left side is the  $L_{dn}$  at residential land uses and hotels caused by a project, whereas the vertical axis on the right side is the  $L_{eq}$  at schools, churches, and parks. Figure 4 illustrates that a project noise level with an  $L_{dn}$  of 61 dBA at a Category 2 receptor would be considered as “moderate impact,” if the existing  $L_{dn}$  of a selected residence is 65 dBA. If the project noise level reaches an  $L_{dn}$  of 67 dBA, the project noise level would be considered as “severe impact” to the Category 2 receptor.

Although the curves in Figure 4 are defined in terms of the project noise exposure and the existing noise exposure, it is important to emphasize that the increase in the *cumulative* noise – when the project noise is added to existing noise – is the basis for the criteria. Figure 4 shows the noise impact criteria for Category 1 and 2 land uses in terms of the allowable increase in the cumulative noise exposure.

**Figure 5**, Increase in Cumulative Noise Levels Allowed by Criteria, shows that the criterion for moderate impact allows a noise exposure increase of 10 dB, if the existing noise exposure is 42 dBA or less, but only a 1-dB increase when the existing noise exposure is 70 dBA. As the existing level of ambient noise increases, the allowable level of project noise increases, but the total allowable increase in community noise exposure is reduced. This reduction accounts for the unexpected result – project noise exposure levels that are less than the existing noise exposure can still cause moderate impact.

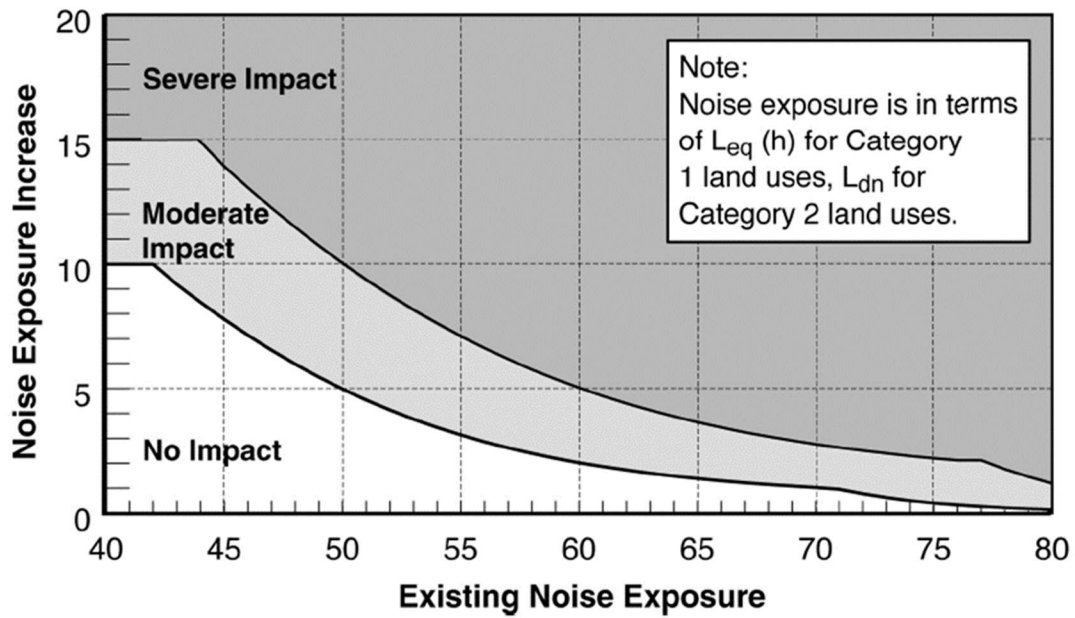
For residential land uses, the noise criteria are to be applied outside the building locations at noise-sensitive areas with frequent human use, including outdoor patios, decks, pools, and play areas. If none are present, the criteria should be applied near building doors and windows. For parks and other significant outdoor use areas, the criteria are to be applied at the property lines. However, for locations where land use activities are solely indoors, noise impact may be less significant if the outdoor-to-indoor reduction is greater than for typical buildings (approximately 25 dB with windows closed); thus, if it can be demonstrated that there will only be indoor activities, mitigation may not be needed.

A review of the land use by windshield survey and GIS did not reveal any “Special Buildings” that are very sensitive to noise and vibration within the project footprint and therefore, were not assessed for this project.



Source: FTA, 2006

Figure 4 - Noise Impact Criteria for Transit Projects



Source: FTA, 2006

Figure 5 - Increase in Cumulative Noise Levels Allowed by Criteria

## B. OPERATION VIBRATION IMPACT CRITERIA

The criteria in the Transit Noise and Vibration Impact Assessment (FTA, 2006) were used to evaluate vibration impacts from transit operations. The evaluation of vibration impacts can be divided into two categories: (1) human annoyance, and (2) building damage.

Generally, human annoyance criteria are used to assess potential impacts associated with operational vibration. However, building damage criteria are also used to estimate vibration impacts due to operation activities.

### 1. HUMAN ANNOYANCE CRITERIA

The ground-borne vibration impact criteria describe human response to vibration and potential interference in relation to the operation of vibration sensitive equipment. The criteria for acceptable ground-borne vibration are expressed in terms of RMS velocity levels in VdB. Table 2 Ground-Borne Vibration Impact Criteria for Human Annoyance presents the criteria for various land use categories as well as the frequency of events.

Sensitive receptors within the project boundary include residences, hotels, and hospitals. These areas fall under Category 2, places where people normally sleep, and Category 3, schools, churches, and parks with primarily daytime use. For several alternatives, the number of proposed operations is 264 trains per weekday, therefore, FTA classifies the proposed service under "Frequent Events." According to **Table 2**, the maximum vibration level cannot exceed 72 VdB for Category 2 land uses and 75 VdB for Category 3 land uses.

### 2. BUILDING DAMAGE CRITERIA

Vibration propagation for this project would be due to Rubber tire wheels rolling on rails, which would produce less vibration, than other mass transit systems, such as Light Rail Transit (LRT) which is steel wheel against rail. Because the rubber tires and suspension systems of an Automated People Mover (APM) or Monorail provide vibration isolation, it is unusual for them to cause ground-borne noise or vibration problems. It is extremely rare for vibration from APM operations to cause any sort of building damage, even minor cosmetic damage. However, there is sometimes concern about damage to fragile historic buildings located near the right-of-way. Even in these cases, damage is unlikely except when the track will be very close to the structure. Damage thresholds that apply to these structures are shown in **Table 3**.

Using the generalized vibration based curve graph and the appropriate curve adjustments as discussed in section 10.1 of the FTA Transit Noise and Vibration Impact Assessment Manual (FTA, 2006), APM with rubber wheels on elevated structures is not expected to exceed 65 VdB beyond 10 feet. For LRT traveling 25 mph at grade is not expected to exceed 72 VdB beyond 10 feet. There are no historic sites within 10 feet of the APM or LRT tracks.

**Table 2 - Ground-Borne Vibration Impact Criteria for Human Annoyance**

Land Use Category	Ground-Borne Vibration Impact Levels, VdB*		
	Frequent Events <sup>1</sup>	Occasional Events <sup>2</sup>	Infrequent Events <sup>3</sup>
<u>Category 1</u> : Buildings where vibration would interfere with interior operations.	65 VdB <sup>4</sup>	65 VdB <sup>4</sup>	65 VdB <sup>4</sup>
<u>Category 2</u> : Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
<u>Category 3</u> : Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

Notes:



1. "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
  2. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
  3. "Infrequent Events" is defined as more than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.
  4. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
- \* Root-mean-square velocity in decibels (VdB) re: 1 micro-inch per second.

Source: FTA, 2006.

**Table 3 - Ground-Borne Vibration Impact Criteria for Building Damage**

Building Category	PPV (in/sec)	Approximate L <sub>v</sub> †
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

† RMS velocity in decibels (VdB) re 1 micro-inch/second

Source: FTA, 2006.

## C. CONSTRUCTION NOISE VIBRATION IMPACT CRITERIA

### 1. CONSTRUCTION NOISE ORDINANCES

Construction impacts to sensitive neighborhoods, although temporary in nature, can significantly affect residents and/ or compromise building structures. This is recognized by most municipal governments who establish and enforce limits for construction noise disturbance. The following are brief descriptions of the construction noise and ordinances for the City of Miami and the City of Miami Beach:

- City of Miami:

Sec. 36-6. – Construction equipment.

- (a) Prohibition; definitions. Operating or permitting the operation of any tools or equipment used in construction, drilling, or demolition work such as pile drivers, steam shovels, pneumatic hammers, pumps, or other like equipment is prohibited:
  - (1) Between the hours of 6:00 p.m. and 8:00 a.m. the following day on weekdays, or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across and at a residential district boundary or within a noise sensitive zone, except for emergency work of public service utilities or by special permission issued pursuant to subsection (c).
  - (2) At any other time such that the sound level at or across a real property boundary exceeds a reading of 0.79 weighted average dBA for the daily period of operation. Such sound levels shall be measured with a sound level meter manufactured according to standards prescribed by the American National Standards Institute.

- City of Miami Beach:

Sec. 46-152: It shall be unlawful for any person to make, continue or cause to be made or continued any unreasonably loud, excessive, unnecessary or unusual noise. The following acts, among others, are declared to be unreasonably loud, excessive, unnecessary or unusual noises in violation of this section, but this enumeration shall not be deemed to be exclusive, namely noise sources from loudspeakers and horns to power tools. Temporary permits are by the City Manager in Sec 46-156; with construction activities being aloud for temporary noise permits between the hours of 7:30 a.m. and 6:30 p.m., and between the hours of 7:30 a.m. and 7:30 p.m.during daylight savings time, on any day.

Because the proposed Beach Corridor Project spans two the cities, compliance with each separate set of construction noise guidelines would require adherence with varying limits under different jurisdictions that would prove difficult and impractical. As a result, FTA daytime and nighttime construction noise level thresholds should be applied for the entire project. **Table 4** presents the recommended noise limits for the proposed project. These limits are for 8-hour average noise levels ( $L_{eq}$ ) at the property line of the nearest location to the construction site.

**Table 4: FTA Construction Noise Impact Criteria**

Land Use	8-hour $L_{eq}$ , dBA		$L_{dn}$ , dBA
	Day	Night	30-day Average
Residential	80	70	75 <sup>1</sup>
Commercial	85	85	80 <sup>2</sup>
Industrial	90	90	85 <sup>2</sup>
Notes: 1. In urban areas with very high ambient noise levels ( $L_{dn}>65$ ), $L_{dn}$ from construction operations should not exceed existing ambient +10 dB. 2. 24-hour $L_{eq}$ , not $L_{dn}$ . 3. Daytime hours are 7:00 a.m. to 10:00 p.m.; nighttime hours are 10:00 p.m. to 7:00 a.m.			

Source: FTA, 2006.

The FTA Transit Noise and Vibration Impact Assessment manual suggests 8-hour  $L_{eq}$  and 30-day averaged  $L_{dn}$  for consideration where construction noise is involved. **Table 4** may then be used as a general guide in interpreting the significance of the measured construction noise levels.

## 2. CONSTRUCTION VIBRATION ORDINANCES

Municipal guidelines on allowable construction-induced vibration levels were not identified either in the City of Miami, City of Miami Beach or Miami Dade County. Therefore, FTA guidelines, previously summarized in **Tables 2** and **3**, will be applied.

## IV. EXISTING CONDITIONS

This section describes the existing noise and vibration environment along the project corridor study area roadways and summarizes the monitoring results in two parts. The first part will discuss the existing noise environment and the latter will discuss vibration issues.

## 1. INVENTORY OF EXISTING NOISE/VIBRATION SITES

Characteristics of neighborhoods vary along the alignment. The alignment travels through primarily commercial land uses, including retail, restaurants and offices with multi-family residential land uses, hotels/motels, schools, and a museum.

Noise-sensitive receptors that may be affected by the project include multi-family residences, hotels/motels, and schools located near the project corridor. Noise monitoring was conducted at various sites to assess the existing noise conditions along the alignment.

The Midtown/Design District sub-area, a north-south corridor between the Design District/Midtown and downtown Miami. Characteristics of this area neighborhood are mix use, residential, and commercial land uses with commercial properties dominating the first row land use along the corridor except near NW 24th Street which has a mix use front row land use and two institutional land use near NE 28th Street and another near NW 20th Street (Aspira Art School).

The Bay Crossing sub-area, an east-west corridor between Miami Beach and downtown Miami that would form the “trunk line” of the project. The travel demand in this corridor could be served directly via I-395/MacArthur Causeway, or less directly via I-95 and the Julia Tuttle Causeway (I-195). The area along cause does not have institutional or residential land uses with 500 feet of the alignment, except for the Miami Children Museum on Watson Island

The Miami Beach sub-area is a north-south corridor extending from Washington Avenue and 5th Street to the Miami Beach Convention Center. Characteristics of this area neighborhood are mix use, residential, and commercial land uses with commercial properties dominating the first row land use along the corridor except for school near the Convention center (Touro College South) and a hotel along 5th Street (Urban the Hotel).

## 2. EXISTING ENVIRONMENT – NOISE

The primary source of existing noise along the proposed project corridor roadways is largely dominated by local traffic on surface roads, primarily Miami Avenue, Biscayne Boulevard, I-395 and I-195, as well as, local mass transit noise from the existing Metromover and Metrorail.

Noise measurements were taken at 21 locations along the corridor roadways. Locations were chosen based on the project's footprint. The primary objectives of the measurements are to evaluate the existing noise environment and use them in determining the appropriate impact criteria per FTA guidelines. Transit projects are allowed to change the overall noise environment in a community only to the extent established by FTA based on existing noise levels. The impact criteria published by FTA dictate the suitability and noise mitigation needs of a project.

Short-term noise measurements, each lasting 15 minutes in duration, were conducted at 13 measurement sites. Long-term noise measurements were conducted for a minimum of 24 hours at 8 locations. The Ldn levels at long-term measurement locations were calculated subsequently by applying nighttime-hour noise weightings to the measured data. Nighttime noise weightings are the addition of 10 dB from the hours of 10:00 p.m. through 7:00 a.m. At short-term locations, Ldn levels were estimated by comparing the short-term measured noise levels to results obtained from nearby long-term measurement locations that were in progress concurrently. The difference or delta between the measured short-term levels and the simultaneous nearby long-term 1-hour interval is applied to the calculated Ldn of the long-term measurement site to estimate the Ldn of the short-term site. The peak-hour noise level (Leq) for the short-term measurement sites were also estimated by applying the delta to the peak-hour noise level of the nearby long-term measurement site.

**Table 5** summarizes the short-term noise measurement results. Also included in Table 5 are the addresses and land use types for each of the measurement sites. **Table 6** summarizes long-term monitoring results and shows addresses and land use types of the monitoring locations. The short-term and long-term noise measurement locations are shown in **Figure 6**.



**Table 5 - Short-Term Noise Measurement Results**

Site No.	Location/Site Description	Land Use <sup>1</sup>	Date	Start Time	Measured Leq, dBA	Adjusted L <sub>dn</sub> , dBA	Adjusted Peak-Hour Leq, dBA	Adjusted to Long-Term Site
ST1	404 5th Street Facing 5th Street	Com	11/27/2018	3:00 PM	70	70	70	LT1
ST2	404 5th Street Facing Washington Avenue	Com	11/27/2018	3:00 PM	66	70	68	LT2
ST3	926 Lenox Avenue	SFR	11/28/2018	10:30 AM	59	62	62	LT4
ST4	1701 Michigan Avenue	SFR	11/28/2018	11:15 AM	69	72	70	LT3
ST5	17th Street (City Hall)	Gov	11/28/2018	11:15 AM	63	66	64	LT3
ST6	1801 Michigan Avenue	SFR	11/28/2018	12:45 PM	54	60	58	LT3
ST7	20 34th Terrace	SFR	11/29/2018	9:15 AM	63	67	65	LT7
ST8	3452 N Miami Avenue	Com	11/29/2018	9:00 AM	63	67	65	LT7
ST9	3445 Garden Avenue	SFR	11/29/2018	10:45 AM	57	59	59	LT6
ST10	Talmudic University 4000 Alton Road	SCH	11/29/2018	10:45 AM	61	61	61	LT6
ST11	Mount Sinai Hospital 4302 Alton Rd #540	Med	11/29/2018	12:15 PM	63	65	65	LT6
ST12	Miami Beach Golf Club	REC	11/30/2018	11:15 AM	68	72	70	LT8
ST13	2229 Bay Road	SFR	11/30/2018	11:15 AM	61	65	63	LT8
<p>Note:  SFR = Single Family Residence, MFR = Multiple Family Residence, Com = Commercial Property, REC = Recreational Property, Med = Medical Facility, and  Gov = Government Building</p>								

**Table 6 – Long-Term Noise Measurement Results**

<b>Site No.</b>	<b>Location/Site Description</b>	<b>Land Use<sup>1</sup></b>	<b>Date</b>	<b>Start Time</b>	<b>Measured L<sub>dn</sub>, dBA</b>	<b>Peak-Hour Leq, dBA</b>	<b>Time of Peak Hour</b>
LT1	404 5th Street Facing 5th Street 4th floor	Com	11/27/2018	10:30 AM	67	67	3PM, 4PM, and 7AM
LT2	405 5th Street Facing Washington Avenue 9th floor	Com	11/27/2018	11:00 AM	66	64	12PM to 2PM
LT3	1780 Lenox Avenue	SFR	11/27/2018	10:30 AM	64	62	6AM to 8AM
LT4	1215 Alton Road	SFR	11/27/2018	12:45 PM	64	64	3PM
LT5	Miami Children's Museum	Gov	11/28/2018	8:45 AM	72	71	9AM
LT6	4236 Alton Road	SFR	11/28/2018	2:10 PM	65	64	11AM and 2PM
LT7	14 3rd Street	MFR	11/28/2018	1:55 PM	73	71	5AM to 7AM
LT8	2152 Alton Road	SFR	11/29/2018	1:30 PM	72	70	3PM and 6PM

Note:

SFR = Single Family Residence, MFR = Multiple Family Residence, Com = Commercial Property, and Gov = Government Building

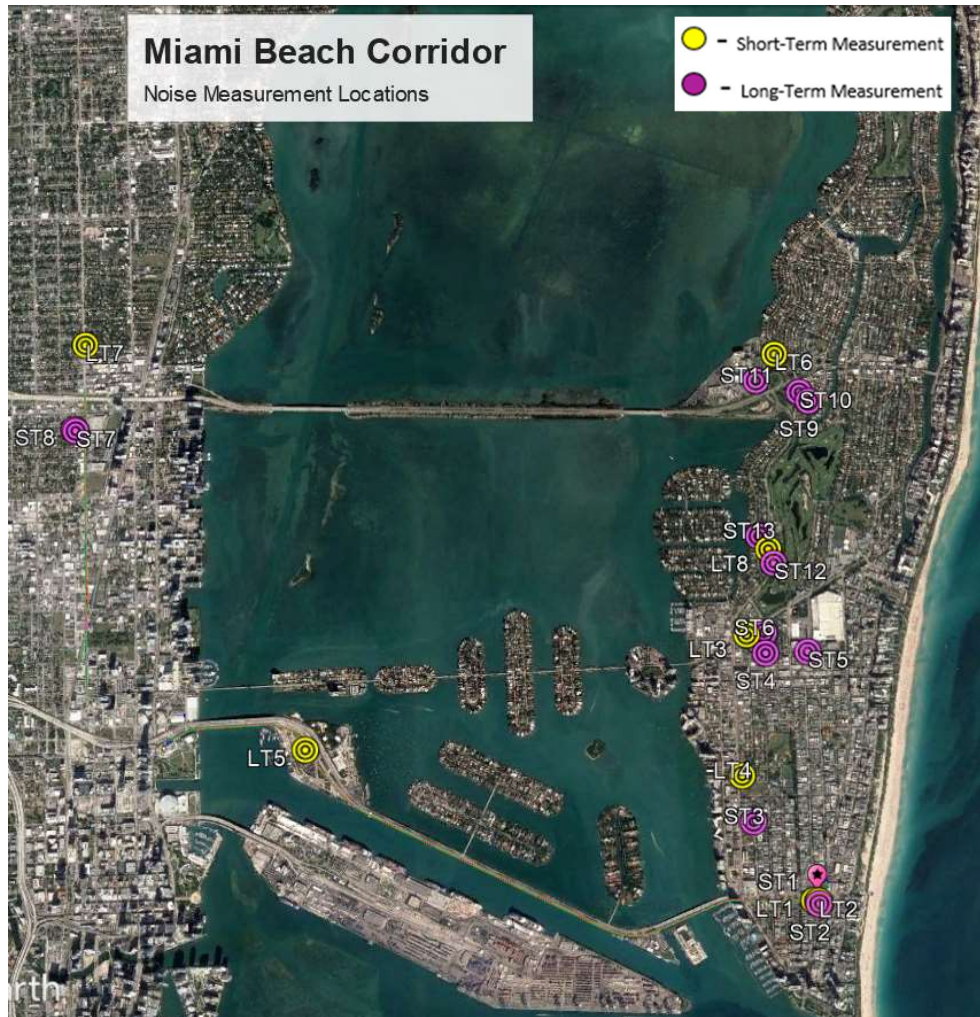


Figure 6 - Noise Measurement Locations

### 3. EXISTING ENVIRONMENT – VIBRATION

Since no significant vibration sources exist along the majority of the proposed project corridor roadways, ambient vibration levels were not measured as part of this study. Typical large vehicle pass-bys from buses or heavy trucks along local roadways would be the only possible perceptible vibration source along most of the alignment and this is due to roadway roughness or unevenness caused by bumps, pot holes, expansion joints, or roadway transitions. The FTA Vibration Impact Criteria were used to identify locations where potential impact may occur based on existing land use activities. Furthermore, the FTA vibration impact criteria are not based upon the existing vibration levels measured at adjacent structures to the proposed alignment. They are based on the frequency of the proposed transit service and the type of proposed transit vehicle only. If needed, locations that exceed these criteria will be surveyed for ambient vibration levels at a later time as part of final engineering design. No buildings with special ground-borne vibration concerns were identified.

Also, as noted in the FTA manual vibration screening section, rubber wheels APM's are unlikely to cause vibration impacts and no further analysis is required. However, using the FTA Ground Surface review curve and the -10 VdB adjustment factor for elevated structures, APM with rubber wheels on elevated structures are not expected to exceed 65 VdB beyond 10 feet. For LRT at grade is not expected to exceed 72 VdB beyond 10 feet when adjusted with a -6 VdB adjustment factor. Furthermore, FTA manual states that rubber tire mass transit systems do not cause vibration issues with building structures, unless there are discontinuity or spurs in the rail guide that could cause vibrations.



## 4. NOISE IMPACT ANALYSIS METHODOLOGY

### NOISE

An operational noise assessment was conducted using the 2007 FTA Noise Impact Assessment spreadsheet and procedures from the 2006 FTA Noise and Vibration guidance manual. Project-related noise levels were calculated using FTA reference sound levels for rail transit. Potentially noise-sensitive land uses were identified. Results of the assessment spreadsheet are in Appendix A.

### OPERATION PARAMETERS

As stated in the draft service plan, the fixed guideway system will operate in exclusive right-of-way to ensure system speed and reliability and to avoid conflicts with automobile and pedestrian traffic. The analysis was based on operations between 5 a.m. and 11 p.m., with a train arriving in each direction at each station every 5 minutes during peak operation hours and every 10 minutes during non-peak hours. Trains will achieve an average speed of 30 mph. **Table 7** shows the project train operation characteristics for alternative rail technologies.

Noise effects from the Project were determined by comparing the project-generated noise exposure level at each representative receptor in the corridor to the appropriate FTA criterion, given the land use and existing noise levels. If the project-generated noise is below the level for moderate impact, no impact will occur. If the noise level is between the level for moderate impact and severe impact, a moderate impact will occur. If the project noise level is equal to or above the severe impact level, a severe impact will occur.

**Table 7 - Projected Train Operating Characteristics**

All Technology Alternatives	
Total Number of Daily Trains	264
Number of Trains - Day	228
Number of Trains – Night	36
Number of Peak Hour Trains	24
Average Operating Speed (mph)	15 to 45

## V. IMPACTS

### 1. OPERATIONAL IMPACTS

#### Operation Noise

Noise Impact analysis was completed following the FTA Transit Noise and Vibration Impact Assessment Manual (FTA 2006) procedures for the preferred technologies APM and Monorail, as well as the LRT and BRT options.

The APM has rubber wheels and is on an elevated guideway. As shown in the project matrix, this technology will cause no severe noise impacts for schools, public parks, or residential area, and 2 moderate impacts to residential locations; and is one of the lesser intrusive rail technologies. Monorail is also rubber tire wheel technology and has no impacts. **Table 8** shows the residential and Institutional noise impacts for each alternative technology.

**Table 8 - Noise Impacts for each Alternative Technology**

	Residential Impact		Institutional Impact		Total
	Moderate	Severe	Moderate	Severe	
APM	2	0	0	0	2
Monorail	0	0	0	0	0
LRT	5	24	3	3	35
BRT (Option 1)	9	1	0	0	10
BRT (Option 2)	0	0	0	0	0

## 2. CONSTRUCTION IMPACTS

### Construction Noise

Construction noise varies greatly depending on the construction process, type and condition of equipment used, and layout of the construction site. Many of these factors are subject to the contractor's discretion. Projections of potential construction noise levels may vary from actual noise experienced during construction due to these factors.

Overall, construction noise levels are governed primarily by the noisiest pieces of equipment. The engine, which is usually diesel, is the dominant noise source for most construction equipment.

**Table 9** summarizes the available data on noise emission levels of construction equipment from FTA's Transit Noise and Vibration Impact Assessment and Parsons' recent experiences with major construction projects. It is worthwhile to note that actual noise levels experienced could vary significantly from the values provided; however, due to variation in manufacturer, manner of operation, or condition of equipment. Using typical sound emission levels in Table 9, and the estimated time duration of operation, an estimate of Leq can be calculated at various relevant distances for each stage of construction.

The calculation used to determine average construction noise exposure for each piece of equipment is based on the following equation:

$$Leq = L_{max} + 10 \log(UF) - 20 \log(D/50)$$

Where;

Leq is the 8-hour average noise level in A-weighted decibels, dBA,

Lmax is the maximum noise level at 50 feet in A-weighted decibels, dBA,

UF is the Usage Factor or the ratio of time equipment is in operation each hour,

D is the distance from the geometric center of construction site, feet.

The estimated construction noise levels for various construction phases in Table 9 were compared to FTA's suggested construction noise limits to identify any potential noise-impacted areas. Although the construction process undoubtedly affects the noise environment at certain areas, the noise impact would be temporary. The subsequent paragraphs analyze the construction noise impacts by construction stage:

- **Clear and Grub:** For the construction of dedicated lane, repurposed lanes, elevated guideway, platforms, clearing and grubbing would be performed.

- **Pavement Removal:** For the construction of dedicated lane, resurfacing lanes, pedestrian access, elevated guideway, and platforms, saw cutting of the existing pavement for removal would be performed.
- **Resurfacing Pavement:** For the construction of dedicated lane, resurfacing lanes, and pedestrian access, saw cutting of the existing pavement for removal would be performed.
- **Utility Relocation Sewers:** For the construction of dedicated lane and resurfacing lanes, sewer drainage replacement where necessary would be performed.
- **Structure Columns and platforms:** For the construction of columns for elevated guideway and platforms, drill and cast in place columns erections would be performed.

**Table 9 - Predicted Construction Equipment Noise Emission Levels**

No. of Items	Equipment Type	Maximum Equipment Noise Level at 50 ft, dBA	Hourly Equivalent Noise Levels at 50 ft, dBA <sup>1</sup>	Hourly Equivalent Noise Levels at 100 ft, dBA <sup>1</sup>
<b>Clear and Grub</b>				
1	Excavator	83	77	71
1	Backhoe	75	69	63
2	Medium Duty Dump Trucks	77	71	65
<b>Overall Leq(h)</b>			79	73
<b>Pavement Removal</b>				
1	Backhoe	75	69	63
1	Demo Saw	80	71	65
2	Medium Duty Dump Trucks	77	71	65
<b>Overall Leq(h)</b>			77	71
<b>Resurfacing Pavement</b>				
1	Grader	75	69	63
1	Roller	74	68	62
1	Ready Mix Trucks	81	70	69
1	Asphalt Paver	79	73	67
1	Asphalt Roller	78	72	66
2	Medium Duty Dump Trucks	77	71	65
<b>Overall Leq(h)</b>			79	74
<b>Utility Relocation Sewer</b>				
1	Backhoe	75	69	63
1	Front Loader	74	68	62
1	Trencher	80	72	66
2	Medium Duty Dump Trucks	77	71	65
<b>Overall Leq(h)</b>			77	71
<b>Structures Columns and Platforms</b>				
1	Backhoe	75	69	63
1	Crane	85	74	68
1	Concrete Pump	81	70	69
2	Medium Duty Dump Trucks	77	71	65
1	Ready Mix Trucks	81	70	64
<b>Overall Leq(h)</b>			79	74
Notes: Calculated construction noise levels assume that all equipment operates for four hours out of an eight hour day. Calculations also assume that all equipment are operated at full load no more than 50% of the time.				
1 - Predicted noise levels are from the center of the construction activity.				
Source: Parsons				



## VI. MITIGATION MEASURES

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### 1. OPERATIONAL MITIGATION MEASURES

#### Noise Mitigation Measures

The APM and Monorail have rubber wheels and are on an elevated guideway. These design features would reduce noise compared to other mass transit systems, such as LRT. As a result, there are only two moderate impacts for APM and they are along the plotted moderate impact line between moderate impact and no impact, thus, noise from the project would be below existing noise levels. The FTA guidelines do not consider this to be a strong justification for mitigation and, therefore, no mitigation measures are proposed.

Since the LRT is at grade, noise barriers were not considered feasible along Miami Avenue, Washington Avenue, and 5th Street in this area of the Project because access openings for driveways would need to be provided for the residences and businesses, which would negate the effectiveness of the noise barrier. Furthermore, there are also safety concerns, especially related to sight distance requirements for pedestrians and vehicles, therefore no mitigation measures are proposed.

With the BRT (Option 1) being at grade, noise barriers were not considered feasible along Collins Avenue, Arthur Godfrey Road, and NW 8th Street in this area of the Project because access openings for driveways would need to be provided for the residences and businesses, which would negate the effectiveness of the noise barrier. Furthermore, there are also safety concerns, especially related to sight lines for pedestrians and vehicles, therefore no mitigation measures are proposed.

Since no impacts are anticipated for BRT (Option 2), no mitigation measures are necessary or proposed.

#### Vibration Mitigation Measures

No vibration impacts are projected; therefore, no vibration mitigation measures are necessary or proposed.

### 2. CONSTRUCTION MITIGATION MEASURES

To minimize noise and vibration impacts at nearby sensitive receptor sites, construction activities would be conducted during daytime hours to the extent feasible. Nighttime construction could be unobtrusive and therefore preferable in some locations (e.g., in commercial districts where most businesses do not operate at night). Nighttime construction may also be necessary to avoid unacceptable disruptions to roadway traffic during daytime hours.

There are many measures that can be considered to reduce intrusion without placing unreasonable constraints on the construction process or substantially increasing costs. These measures include noise and vibration monitoring to ensure that contractors take all reasonable steps to minimize impacts when operating near sensitive areas; noise testing and inspections of equipment to ensure that all equipment on the site is in good condition and effectively muffled; and an active community liaison program. The community liaison program should keep residents informed about construction plans so they can plan around noise or vibration impacts; it should also provide a conduit for residents to express any concerns or complaints.

The following is a listing of procedures that have been shown to effectively minimize noise disturbances at sensitive areas during construction:

1. Use newer equipment with improved noise muffling and ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine covers, and engine vibration isolators intact and

operational. Newer equipment will generally be quieter in operation than older equipment. All construction equipment should be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding).

2. Perform all construction in a manner to minimize noise and vibration. Use construction methods or equipment that will provide the lowest level of noise and ground vibration impact near residences and consider alternative methods that are also suitable for the soil condition. The contractor should be required to select construction processes and techniques that create the lowest noise levels.
3. Perform noise monitoring during construction to demonstrate compliance with the noise limits. Independent monitoring should be performed to check compliance in particularly sensitive areas. Require contractors to modify and/or reschedule their construction activities if monitoring determines that maximum limits are exceeded at residential land uses.
4. Conduct truck loading, unloading, and hauling operations so that noise and vibration are kept to a minimum by carefully selecting routes to avoid going through residential neighborhoods to the greatest possible extent.
5. Design ingress and egress to and from the staging area to be on collector streets or higher street designations (preferred), and through routes for trucks will be designed to the extent feasible to minimize the potential for back-up alarm disturbances.
6. Turn off idling equipment.
7. Use temporary noise barriers, as necessary and practicable, to protect sensitive receptors against excessive noise from construction activities. Consider mitigation measures such as partial enclosures around continuously operating equipment or temporary barriers along construction boundaries.
8. Minimize construction activities within residential areas during evening, nighttime, weekend, and holiday periods. Note that permits may be required in some cities before construction can be performed in noise-sensitive areas.

The following is a listing of procedures that have been shown to minimize vibration disturbances at sensitive areas during construction:

1. When possible, limit the use of construction equipment that creates high vibration levels, such as vibratory rollers operating within 20 feet of commercial structures, within 26 feet of residential structures, and within 36 feet of sensitive land uses, such as historic properties, shall be limited.
2. Use alternative procedures of construction and select the proper combination of techniques that would generate the least overall vibration.
3. Require vibration monitoring during vibration-intensive activities.
4. Restrict the hours of vibration-intensive equipment usage such as vibratory rollers so that impacts to residents are minimal (e.g., weekdays during daytime hours only when most residents are away from home).
5. Conduct vibration monitoring at the nearest buildings (within approximately 30 feet of activity) during vibration-intensive construction activities.

A combination of the mitigation techniques for equipment noise and vibration control, as well as administrative measures, when properly implemented, would provide the most effective means of minimizing the impacts of construction activities. Application of these mitigation measures will reduce construction impacts; however, temporary increases in noise and vibration would likely exceed applicable limits at some locations.

## REFERENCES

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City of Miami, City Ordinance Code, Chapter 36. March 2020.

City of Miami Beach . City Ordinance Code, Chapter 46, 2006.

FTA, 2006. Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidance Manual, FTA-VA-90-1003-06. May.



Appendix A  
(FTA Spread Sheet Results)

# FTA Spread Sheet Results

## Category 2





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Noise Impact Assessment Spreadsheet  
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Receiver Parameters	Receiver: LT5
	Land Use Category: 2, Residential
	Existing Noise (Measured or Generic Value): 72 dBA

Noise Source Parameters		Source Type	Source 1
		Specific Source:	Fixed Guideway Automated Guideway Transit /Rubber Tire
Daytime hrs	Avg. Number of vehicles/train		4
	Speed (mph)		45
	Avg. Number of Events/hr		15.2
Nighttime hrs	Avg. Number of vehicles/train		4
	Speed (mph)		45
	Avg. Number of Events/hr		4
Distance	Distance from Source to Receiver (ft)		100
Adjustments	Number of Intervening Rows of Buildings		0
	Noise Barrier?		No

[illegible]

Distance to Impact Contours	
Dist to Mod. Impact Contour (Source 1):	29 ft
Dist to Sev. Impact Contour (Source 1):	12 ft

Source 1 Results

Leq(day): 54.8 dBA
Leq(night): 49.0 dBA
Ldn: 56.9 dBA

Figure 3-2 is a line graph titled "Noise Exposure Increase (dB) versus Existing Noise Exposure (dBA)". The y-axis represents "Noise Exposure Increase (dB)" and ranges from 0 to 20 in increments of 5. The x-axis represents "Existing Noise Exposure (dBA)" and ranges from 40 to 80 in increments of 5. There are two curves: a yellow curve labeled "Moderate Impact" and a red curve labeled "Severe Impact". Both curves show an increasing trend. A horizontal line at 0 dB is labeled "LTS". A blue diamond marker is placed on the "Severe Impact" curve at approximately 70 dBA on the x-axis and 1.5 dB on the y-axis.

Existing Noise Exposure (dBA)	Moderate Impact (dB)	Severe Impact (dB)
40	0	0
45	0	0
50	1	1
55	2	2
60	3	3
65	4	4
70	5	5
75	6	6
80	7	7



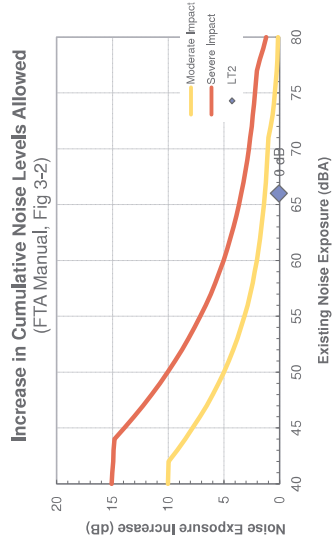
Receiver Parameters	Receiver: LT2
	Land Use Category: 2. Residential
	Existing Noise (Measured or Generic Value): 66 dBA

Noise Source Parameters		Source 1	
		Source Type:	Fixed Guideway Automated Guideway Transit /Rubber Tire
Daytime hrs	Avg. Number of vehicles/train		4
	Speed (mph)		15
	Avg. Number of Events/hr		15.2
Nighttime hrs	Avg. Number of vehicles/train		4
	Speed (mph)		15
	Avg. Number of Events/hr		4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings		100 0
Adjustments	Noise Barrier?		No

[illegible]

Source 1 Results

Leq(day): 45.3 dBA
Leq(night): 39.5 dBA
Ldn: 47.3 dBA



BRT Arthur Godfry  
Road

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: ST9
Land Use Category: 2, Residential
Existing Noise (Measured or Generic Value): 59 dBA

Noise Source Parameters
Number of Noise Sources: 1

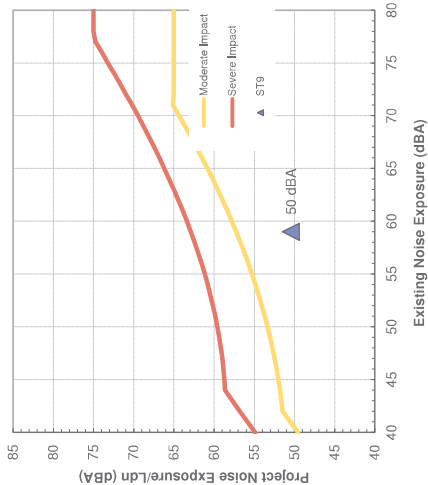
Noise Source Parameters	Source 1
Source Type: Highway/Transit	Buses (hybrid)
Daytime hrs	Speed (mph) 25
	Avg. Number of Events/hr 15.2
Nighttime hrs	Speed (mph) 25
	Avg. Number of Events/hr 4
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Ldn: 59 dBA
Total Project Ldn: 50 dBA
Total Noise Exposure: 60 dBA
Increase: 1 dB
Impact?: None

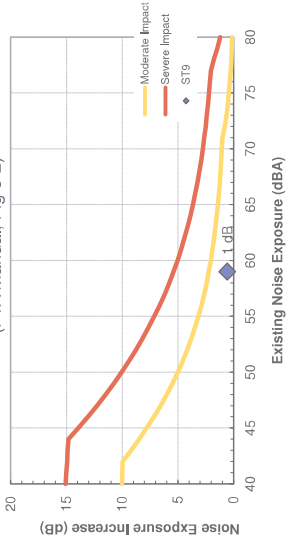
Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 35 ft
Dist to Sev. Impact Contour (Source 1): 15 ft

Source 1 Results
Leq(day): 48.4 dBA
Leq(night): 42.6 dBA
Ldn: 50.5 dBA

Noise Impact Criteria  
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed  
(FTA Manual, Fig 3-2)





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Receiver Parameters	Receiver: LT2
	Land Use Category: 2. Residential
	Existing Noise (Measured or Generic Value): 69 dBA

Noise Source Parameters	
Number of Noise Sources:	1

Noise Source Parameters		Source 1
	Source Type: Specific Source:	Highway/Transit Buses (hybrid)
Daytime hrs	Speed (mph)	25
	Avg. Number of Events/hr	15.2
Nighttime hrs	Speed (mph)	25
	Avg. Number of Events/hr	4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings	100 0
Adjustments	Noise Barrier?	No

[illegible]

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Receiver Parameters	Receiver: LT2
	Land Use Category: 2. Residential
	Existing Noise (Measured or Generic Value): 69 dBA

Noise Source Parameters	
Number of Noise Sources:	1

Noise Source Parameters		Source 1
	Source Type: Specific Source:	Highway/Transit Buses (hybrid)
Daytime hrs	Speed (mph)	25
	Avg. Number of Events/hr	15.2
Nighttime hrs	Speed (mph)	25
	Avg. Number of Events/hr	4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings	100 0
Adjustments	Noise Barrier?	No

[illegible]

Figure 1 is a line graph showing the relationship between Project Noise Exposure/Ldn (dBA) on the Y-axis and Existing Noise Exposure (dBA) on the X-axis. The Y-axis ranges from 40 to 85 dBA, and the X-axis ranges from 40 to 80 dBA. Two curves are plotted: a red line for 'Severe Impact' and a yellow line for 'Moderate Impact'. The 'Severe Impact' curve starts at approximately (40, 55) and rises to (75, 85). The 'Moderate Impact' curve starts at approximately (40, 50) and rises to (75, 85). A legend indicates that a blue triangle represents 'L72' and a blue square represents '50 dBA'.

Distance to Impact Contours	
Dist to Mod. Impact Contour (Source 1):	18 ft
Dist to Sev. Impact Contour (Source 1):	8 ft

Source 1 Results

Leq(day): 48.4 dBA
Leq(night): 42.6 dBA
Ldn: 50.5 dBA

Existing Noise Exposure (dBA)	Moderate Impact (dB Increase)	Severe Impact (dB Increase)	LT2 (dB Increase)
40	0	-	0
45	0	0	0
50	1	1	0
55	2	2	0
60	4	4	0
65	6	6	0
70	8	8	10
75	9	10	10
80	10	15	10

BRT I-195

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: ST11
Land Use Category: 2. Residential
Existing Noise (Measured or Generic Value): 65 dBA

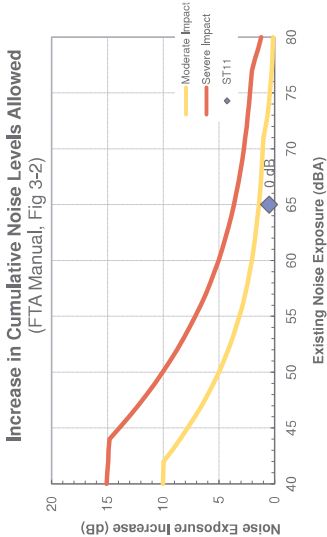
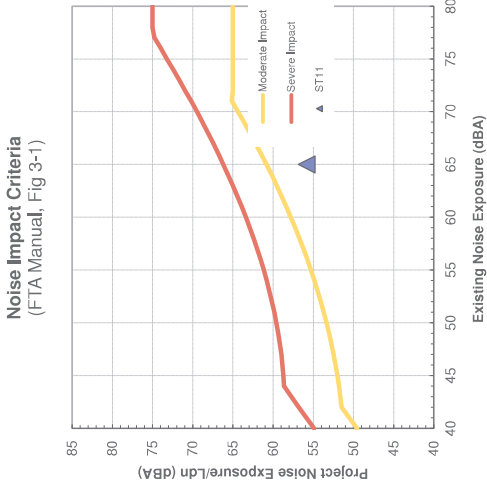
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type: Highway/Transit	Buses (hybrid)
Daytime hrs	Speed (mph) 45
	Avg. Number of Events/hr 15.2
Nighttime hrs	Speed (mph) 45
	Avg. Number of Events/hr 4
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Ldn: 65 dBA
Total Project Ldn: 56 dBA
Total Noise Exposure: 65 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 46 ft
Dist to Sev. Impact Contour (Source 1): 20 ft

Source 1 Results
Leq(day): 53.7 dBA
Leq(night): 47.9 dBA
Ldn: 55.8 dBA



BRT I-95

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT5
Land Use Category: 2. Residential
Existing Noise (Measured or Generic Value): 72 dBA

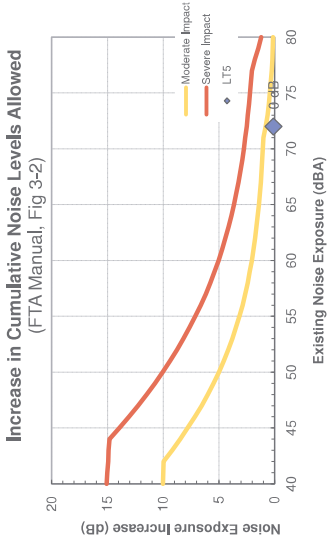
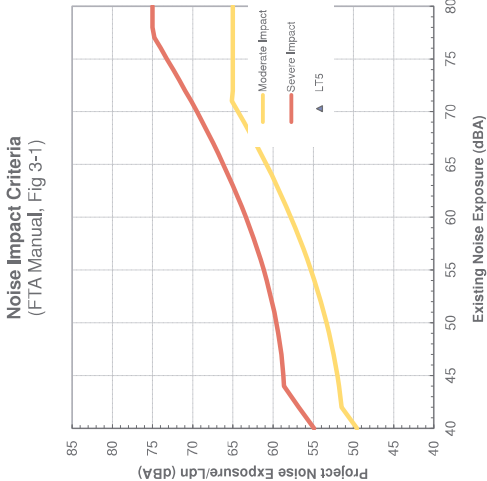
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type: Highway/Transit	Buses (hybrid)
Daytime hrs	Speed (mph) 45
	Avg. Number of Events/hr 15.2
Nighttime hrs	Speed (mph) 45
	Avg. Number of Events/hr 4
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Ldn: 72 dBA
Total Project Ldn: 56 dBA
Total Noise Exposure: 72 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 24 ft
Dist to Sev. Impact Contour (Source 1): 10 ft

Source 1 Results
Leq(day): 53.7 dBA
Leq(night): 47.9 dBA
Ldn: 55.8 dBA



BRT 5th Street

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT1
Land Use Category: 2. Residential
Existing Noise (Measured or Generic Value): 67 dBA

Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type: Highway/Transit	
Specific Source: Buses (hybrid)	
Daytime hrs	
Speed (mph)	25
Avg. Number of Events/hr	15.2
Nighttime hrs	
Speed (mph)	25
Avg. Number of Events/hr	4
Distance	
Distance from Source to Receiver (ft)	100
Number of Intervening Rows of Buildings	0
Adjustments	
Noise Barrier?	No


Project Results Summary

Existing Ldn: 67 dBA
Total Project Ldn: 50 dBA
Total Noise Exposure: 67 dBA
Increase: 0 dB
Impact?: None

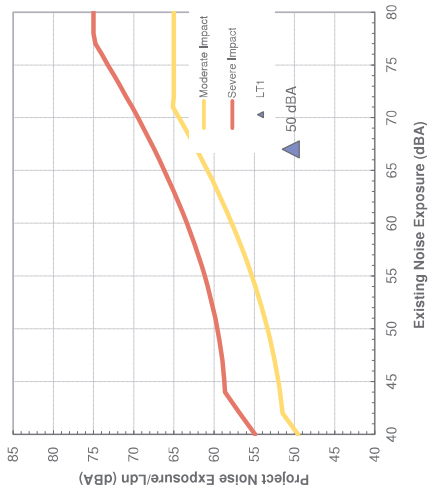
Distance to Impact Contours

Dist to Mod. Impact Contour (Source 1): 17 ft
Dist to Sev. Impact Contour (Source 1): 7 ft

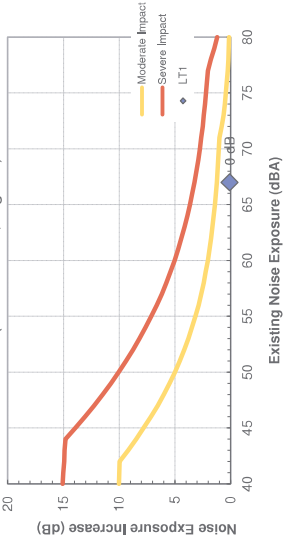
Source 1 Results

Leq(day): 48.4 dBA
Leq(night): 42.6 dBA
Ldn: 50.5 dBA

Noise Impact Criteria  
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed  
(FTA Manual, Fig 3-2)





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Project: Miami Corridor

Receiver Parameters	Receiver: ST8
	Land Use Category: 2. Residential
	Existing Noise (Measured or Generic Value): 67 dBA

Noise Source Parameters	
Number of Noise Sources:	1

Noise Source Parameters		Source 1
	Source Type: Specific Source:	Highway/Transit Buses (hybrid)
Daytime hrs	Speed (mph)	15
	Avg. Number of Events/hr	15.2
Nighttime hrs	Speed (mph)	15
	Avg. Number of Events/hr	4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings	100 0
Adjustments	Noise Barrier?	No

[illegible]

<b>Project Results Summary</b>	
Existing Ldn:	67 dBA
Total Project Ldn:	46 dBA
Total Noise Exposure:	67 dBA
Increase:	0 dB
Impact?:	None

Distance to Impact Contours	
Dist to Mod. Impact Contour (Source 1):	8 ft
Dist to Sev. Impact Contour (Source 1):	4 ft

Source 1 Results

Leq(day): 43.7 dBA
Leq(night): 37.9 dBA
Ldn: 45.8 dBA

Figure 3-2 is a line graph titled "Noise Exposure and Hearing Loss". The Y-axis is labeled "Noise Exposure Increase (dB)" and ranges from 0 to 20 in increments of 5. The X-axis is labeled "Existing Noise Exposure (dBA)" and ranges from 40 to 80 in increments of 5. There are two curves: a yellow curve labeled "Moderate Impact" and a red curve labeled "Severe Impact". Both curves show an increasing trend. The yellow curve starts at approximately (42, 10) and rises to (80, 18). The red curve starts at approximately (42, 15) and rises to (80, 20). A diamond marker is placed on the X-axis at 66 dBA, with a vertical line extending up to the red curve. A label "66 dBA" is placed next to the diamond marker.

Existing Noise Exposure (dBA)	Noise Exposure Increase (dB) - Moderate Impact	Noise Exposure Increase (dB) - Severe Impact
42	10	15
45	11	16
50	12	17
55	13	18
60	14	19
65	15	20
70	16	20
75	17	20
80	18	20

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Receiver Parameters	Receiver: LT5
	Land Use Category: 2. Residential
	Existing Noise (Measured or Generic Value): 72 dBA

Noise Source Parameters		Source 1
	Source Type: Specific Source:	Highway/Transit Buses (hybrid)
Daytime hrs	Speed (mph)	45
	Avg. Number of Events/hr	15.2
Nighttime hrs	Speed (mph)	45
	Avg. Number of Events/hr	4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings	100 0
Adjustments	Noise Barrier?	No

[illegible]

Distance to Impact Contours	
Dist to Mod. Impact Contour (Source 1): 24 ft	
Dist to Sev. Impact Contour (Source 1): 10 ft	

Source 1 Results

Leq(day): 53.7 dBA
Leq(night): 47.9 dBA
Ldn: 55.8 dBA

Figure 3-2 is a line graph titled "Noise Exposure Increase (dB) versus Existing Noise Exposure (dBA)". The Y-axis represents "Noise Exposure Increase (dB)" ranging from 0 to 20 in increments of 5. The X-axis represents "Existing Noise Exposure (dBA)" ranging from 40 to 80 in increments of 5. There are three data series: "Moderate Impact" (yellow line), "Severe Impact" (red line), and "L75" (black line with diamond markers). The "Moderate Impact" curve starts at 40 dBA with a 10 dB increase and rises to 80 dBA with a 20 dB increase. The "Severe Impact" curve starts at 45 dBA with a 15 dB increase and rises to 80 dBA with a 25 dB increase. The "L75" curve is a horizontal line at 0 dB increase for noise exposure up to 70 dBA, then rises to 20 dB at 80 dBA. A blue diamond marker is placed on the L75 curve at 70 dBA.

Existing Noise Exposure (dBA)	Moderate Impact (dB Increase)	Severe Impact (dB Increase)	L75 (dB Increase)
40	10	-	0
45	12	15	0
50	15	18	0
55	18	21	0
60	20	23	0
65	21	24	0
70	22	25	0
75	23	25	10
80	24	25	20

## LRT 5th Street

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT1
Land Use Category: 2. Residential
Existing Noise (Measured or Generic Value): 67 dBA

Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type: Fixed Guideway	
Specific Source: Rail Transit Vehicle	
Daytime hrs	
Avg. Number of Transit Vehicles/train	4
Speed (mph)	25
Avg. Number of Events/hr	15.2
Nighttime hrs	
Avg. Number of Transit Vehicles/train	4
Speed (mph)	25
Avg. Number of Events/hr	4
Distance	
Distance from Source to Receiver (ft)	100
Number of Intervening Rows of Buildings	0
Adjustments	
Noise Barrier?	No
Jointed Track?	No
Embedded Track?	Yes
Aerial Structure?	Yes


### Project Results Summary

Existing Ldn: 67 dBA
Total Project Ldn: 63 dBA
Total Noise Exposure: 68 dBA
Increase: 1 dB
Impact?: Moderate

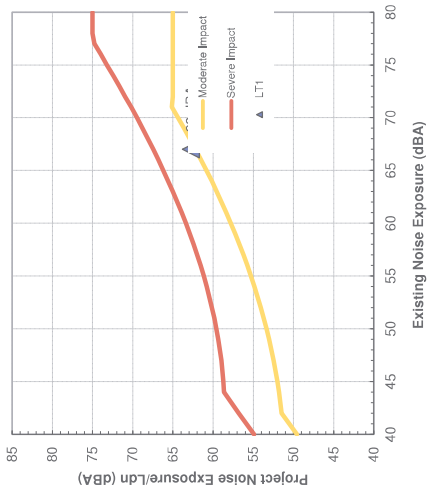
### Distance to Impact Contours

Dist to Mod. Impact Contour (Source 1): 110 ft
Dist to Sev. Impact Contour (Source 1): 49 ft

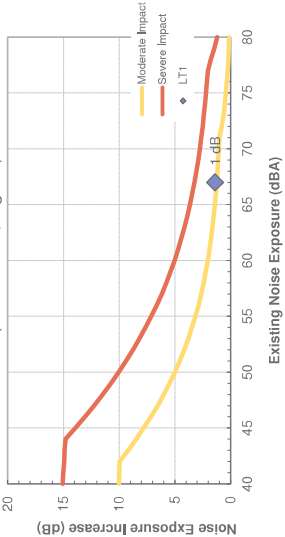
### Source 1 Results

Leq(day): 60.7 dBA
Leq(night): 54.9 dBA
Ldn: 62.8 dBA

Noise Impact Criteria  
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed  
(FTA Manual, Fig 3-2)



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Receiver Parameters	Receiver: L75
	Land Use Category: 2. Residential
	Existing Noise (Measured or Generic Value): 72 dBA

Noise Source Parameters		Source 1
	Source Type: Specific Source:	Fixed Guideway Rail Transit Vehicle
Daytime hrs	Avg. Number of Transit Vehicles/train	4
	Speed (mph)	45
	Avg. Number of Events/hr	15.2
Nighttime hrs	Avg. Number of Transit Vehicles/train	4
	Speed (mph)	45
	Avg. Number of Events/hr	4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings	100 0
Adjustments	Noise Barrier?	No
	Jointed Track?	No
	Embedded Track? Aerial Structure?	Yes Yes

[illegible]

Distance to Impact Contours	
Dist to Mod. Impact Contour (Source 1):	156 ft
Dist to Sev. Impact Contour (Source 1):	63 ft

Source 1 Results

Leq(day): 65.8 dBA
Leq(night): 60.0 dBA
Ldn: 67.9 dBA



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Receiver Parameters	Receiver: ST8
	Land Use Category: 2, Residential
	Existing Noise (Measured or Generic Value): 67 dBA

Noise Source Parameters	
Number of Noise Sources:	1

Noise Source Parameters		Source 1
	Source Type: Specific Source:	Fixed Guideway Rail Transit Vehicle
Daytime hrs	Avg. Number of Transit Vehicles/train	4
	Speed (mph)	25
	Avg. Number of Events/hr	15.2
Nighttime hrs	Avg. Number of Transit Vehicles/train	4
	Speed (mph)	25
	Avg. Number of Events/hr	4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings	100 0
Adjustments	Noise Barrier?	No
	Jointed Track?	No
	Embedded Track?	Yes
	Aerial Structure?	Yes

[illegible]

Figure 10 is a line graph showing the relationship between Project Noise Exposure (dB(A)) on the Y-axis and Existing Noise Exposure (dB(A)) on the X-axis. The Y-axis ranges from 40 to 85 dB(A) in increments of 5. The X-axis ranges from 40 to 80 dB(A) in increments of 5. Three curves are plotted, representing different impact levels:

- Severe Impact (Red line with circles):** This curve starts at approximately (40, 54) and rises to (75, 75).
- Moderate Impact (Yellow line with circles):** This curve starts at approximately (40, 50) and rises to (80, 85).
- STB (Blue line with triangles):** This curve starts at approximately (40, 50) and rises to (70, 65).

The graph illustrates that as the existing noise exposure increases, the project noise exposure required to maintain a specific impact level also increases. The STB curve represents a lower impact level compared to the Severe and Moderate Impact curves.

Distance to Impact Contours	
Dist to Mod. Impact Contour (Source 1):	110 ft
Dist to Sev. Impact Contour (Source 1):	49 ft

Source 1 Results

Leq(day): 60.7 dBA
Leq(night): 54.9 dBA
Ldn: 62.8 dBA

Figure 1 is a line graph showing the relationship between Existing Noise Exposure (dBA) on the x-axis and Noise Exposure Increase (dB) on the y-axis. The x-axis ranges from 40 to 80 dBA, and the y-axis ranges from 0 to 20 dB. Two curves are plotted: a yellow curve for 'Moderate Impact' and a red curve for 'Severe Impact'. Both curves show an increasing trend. A blue diamond marker labeled '1 dB' is placed on the yellow curve at approximately 65 dBA.

Existing Noise Exposure (dBA)	Moderate Impact (dB)	Severe Impact (dB)
40	0	0
45	0.5	1.5
50	1.5	3.5
55	2.5	5.5
60	4.0	7.5
65	6.0	10.0
70	8.5	13.0
75	11.0	16.0
80	13.0	18.0

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Receiver Parameters	Receiver: LT2
	Land Use Category: 2, Residential
	Existing Noise (Measured or Generic Value): 66 dBA

Noise Source Parameters	
Number of Noise Sources:	1

Noise Source Parameters		Source 1
	Source Type: Specific Source:	Fixed Guideway Rail Transit Vehicle
Daytime hrs	Avg. Number of Transit Vehicles/train	4
	Speed (mph)	25
	Avg. Number of Events/hr	15.2
Nighttime hrs	Avg. Number of Transit Vehicles/train	4
	Speed (mph)	25
	Avg. Number of Events/hr	4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings	100 0
Adjustments	Noise Barrier?	No
	Jointed Track?	No
	Embedded Track?	Yes
	Aerial Structure?	Yes

[illegible]

Figure 1 is a line graph showing the relationship between Project Noise Exposure (dB(A)) on the Y-axis and Existing Noise Exposure (dB(A)) on the X-axis. The Y-axis ranges from 45 to 85 dB(A) in increments of 5. The X-axis ranges from 40 to 80 dB(A) in increments of 5. Three curves are plotted: Severe Impact (red line), Moderate Impact (yellow line), and LT2 (grey line). The Severe Impact curve starts at approximately (40, 50) and rises to (75, 85). The Moderate Impact curve starts at approximately (40, 50) and rises to (75, 85). The LT2 curve is a horizontal line at approximately 65 dB(A). A blue triangle marks the intersection of the Severe and Moderate impact curves at approximately 65 dB(A) on the Y-axis and 66 dB(A) on the X-axis.

Distance to Impact Contours	
Dist to Mod. Impact Contour (Source 1):	122 ft
Dist to Sev. Impact Contour (Source 1):	54 ft

Source 1 Results

Leq(day): 60.7 dBA
Leq(night): 54.9 dBA
Ldn: 62.8 dBA

Figure 1 is a line graph titled "Noise Exposure and Hearing Loss". The Y-axis is labeled "Noise Exposure Increase (dB)" and ranges from 0 to 20 in increments of 5. The X-axis is labeled "Existing Noise Exposure (dBA)" and ranges from 40 to 80 in increments of 5. There are two curves: a yellow curve labeled "Moderate Impact" and a red curve labeled "Severe Impact". Both curves show an increasing trend. A vertical line is drawn at 65 dBA on the X-axis, with a diamond marker on the red curve at approximately 2 dB on the Y-axis.

Existing Noise Exposure (dBA)	Moderate Impact (dB)	Severe Impact (dB)
40	0	0
45	0	15
50	2	18
55	4	22
60	7	26
65	10	30
70	14	34
75	18	38
80	22	42

Monorail 5th Street

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT1
Land Use Category: 2. Residential
Existing Noise (Measured or Generic Value): 67 dBA

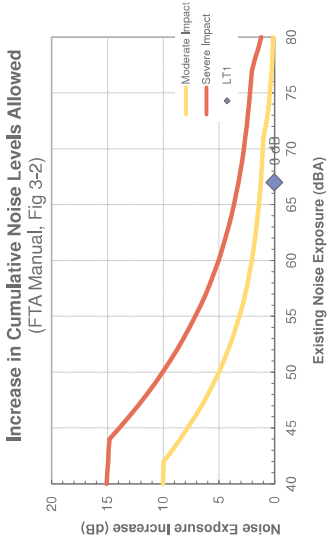
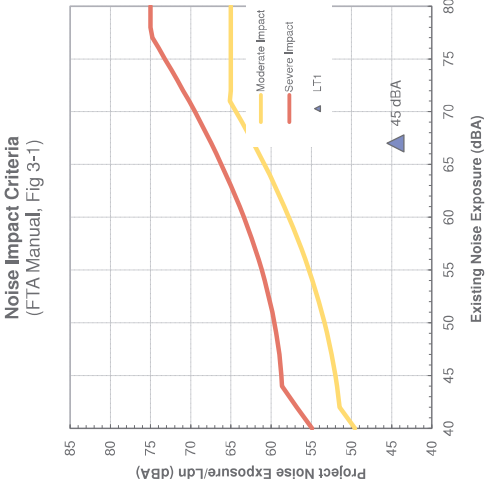
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
	Fixed Guideway
	Specific Source: Monorail
Daytime hrs	Avg. Number of Vehicles/train Speed (mph) Avg. Number of Events/hr
	3 25 15.2
Nighttime hrs	Avg. Number of Vehicles/train Speed (mph) Avg. Number of Events/hr
	3 25 4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings
	100 0
Adjustments	Noise Barrier?
	No


Project Results Summary
Existing Ldn: 67 dBA
Total Project Ldn: 45 dBA
Total Noise Exposure: 67 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 7 ft
Dist to Sev. Impact Contour (Source 1): 3 ft

Source 1 Results
Leq(day): 42.5 dBA
Leq(night): 36.7 dBA
Ldn: 44.5 dBA



# Monorail MacArthur Causeway

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Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT5
Land Use Category: 2, Residential
Existing Noise (Measured or Generic Value): 72 dBA

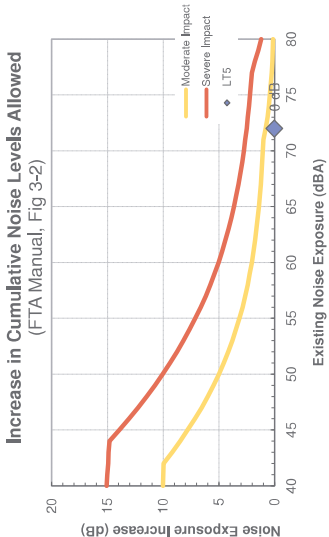
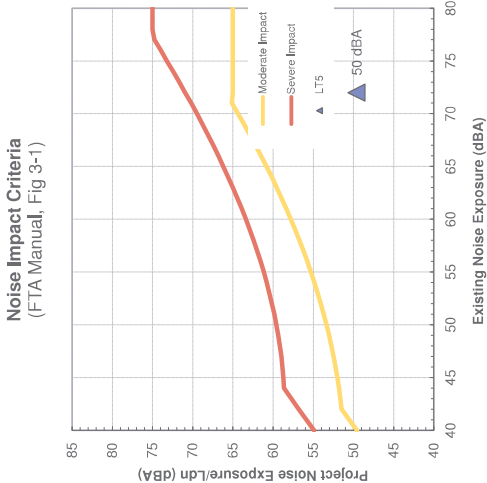
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type: Fixed Guideway	Monorail
Avg. Number of Vehicles/train	3
Speed (mph)	45
Avg. Number of Events/hr	15.2
Avg. Number of Vehicles/train	3
Speed (mph)	45
Avg. Number of Events/hr	4
Distance from Source to Receiver (ft)	100
Number of Intervening Rows of Buildings	0
Noise Barrier?	No


Project Results Summary
Existing Ldn: 72 dBA
Total Project Ldn: 50 dBA
Total Noise Exposure: 72 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 9 ft
Dist to Sev. Impact Contour (Source 1): 4 ft

Source 1 Results
Leq(day): 47.6 dBA
Leq(night): 41.8 dBA
Ldn: 49.6 dBA





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Noise Impact Assessment Spreadsheet  
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Receiver Parameters	Receiver:	LT2
	Land Use Category:	2, Residential
	Existing Noise (Measured or Generic Value):	66 dBA

Noise Source Parameters		Source 1
	Source Type: Specific Source:	Fixed Guideway Motorail
Daytime hrs	Avg. Number of Vehicles/train	3
	Speed (mph)	15
	Avg. Number of Events/hr	15.2
Nighttime hrs	Avg. Number of Vehicles/train	3
	Speed (mph)	15
	Avg. Number of Events/hr	4
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings	100 0
Adjustments	Noise Barrier?	No

[illegible]

Figure 1 is a line graph showing the relationship between Project Noise Exposure/Ldn (dBA) on the Y-axis and Existing Noise Exposure (dBA) on the X-axis. The Y-axis ranges from 40 to 85 dBA, and the X-axis ranges from 40 to 80 dBA. Two curves are plotted: a red line for 'Severe Impact' and a yellow line for 'Moderate Impact'. The 'Severe Impact' curve starts at approximately (40, 85) and decreases to about (75, 65). The 'Moderate Impact' curve starts at approximately (40, 50) and increases to about (75, 65). A blue triangle marker is placed on the 'Moderate Impact' curve at approximately (65, 65).

Distance to Impact Contours	
Dist to Mod. Impact Contour (Source 1):	4 ft
Dist to Sev. Impact Contour (Source 1):	2 ft

**Source 1 Results**

Leq(day): 38.0 dBA
Leq(night): 32.2 dBA
Ldn: 40.1 dBA

Figure 1 is a line graph titled 'Noise Exposure Increase (dB)' on the y-axis and 'Existing Noise Exposure (dBA)' on the x-axis. The y-axis ranges from 0 to 20 in increments of 5. The x-axis ranges from 40 to 80 in increments of 5. There are two curves: a yellow curve labeled 'Moderate Impact' and a red curve labeled 'Severe Impact'. Both curves show an increasing trend. The 'Moderate Impact' curve starts at approximately (42, 10) and rises to (80, 18). The 'Severe Impact' curve starts at approximately (42, 15) and rises to (80, 22). A diamond marker labeled 'LT2' is located at approximately (65, 10).

Existing Noise Exposure (dBA)	Noise Exposure Increase (dB) - Moderate Impact	Noise Exposure Increase (dB) - Severe Impact
42	10	15
45	11	16
50	12	17
55	13	18
60	14	19
65	15	20
70	16	21
75	17	22
80	18	22

# FTA Spread Sheet Results

## Category 3

APM 5<sup>th</sup> Street

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT1
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 67 dBA

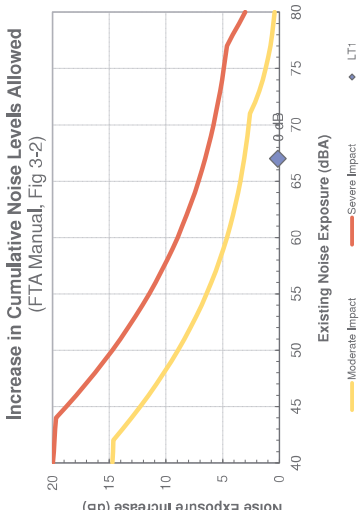
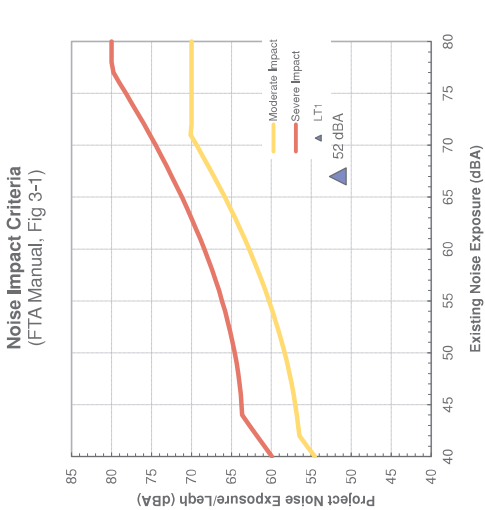
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type: Fixed Guideway	
Specific Source: Automated Guideway Transit /Rubber Tire	
Noisiest hr of Activity During Sensitive hrs	
Number of vehicles/train	4
Speed (mph)	25
Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Leqht: 67 dBA
Total Project Leqht: 52 dBA
Total Noise Exposure: 67 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 9 ft
Dist to Sev. Impact Contour (Source 1): 4 ft

Source 1 Results
Leqht: 51.7 dBA



APM McArthur  
Causeway

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Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT5
Land Use Category: 3: Institutional
Existing Noise (Measured or Generic Value): 71 dBA

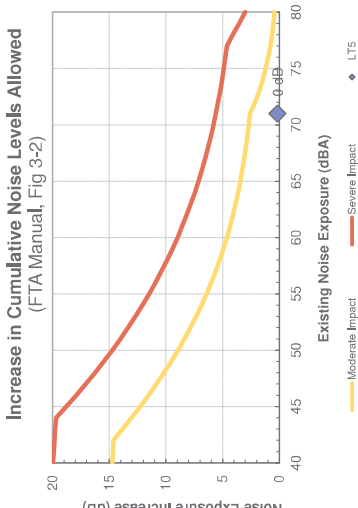
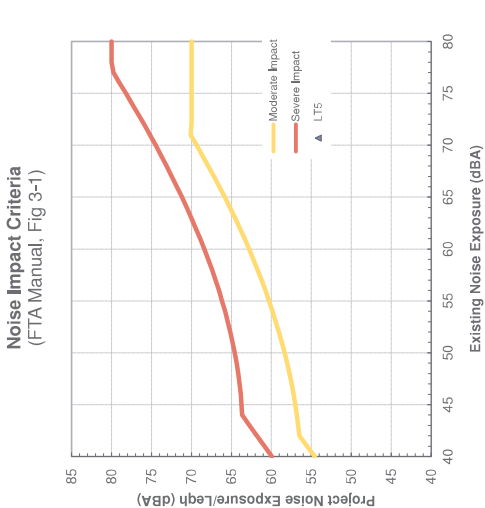
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
	Fixed Guideway
	Automated Guideway Transit /Rubber Tire
Noisiest hr of Activity During Sensitive hrs	Number of vehicles/train 4
	Speed (mph) 45
	Number of Events/hr 24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Leqht: 71 dBA
Total Project Leqht: 57 dBA
Total Noise Exposure: 71 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 13 ft
Dist to Sev. Impact Contour (Source 1): 6 ft

Source 1 Results
Leqht: 56.8 dBA





APM Miami Avenue

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: ST13
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 63 dBA

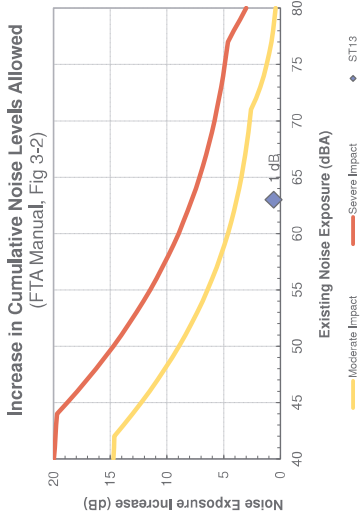
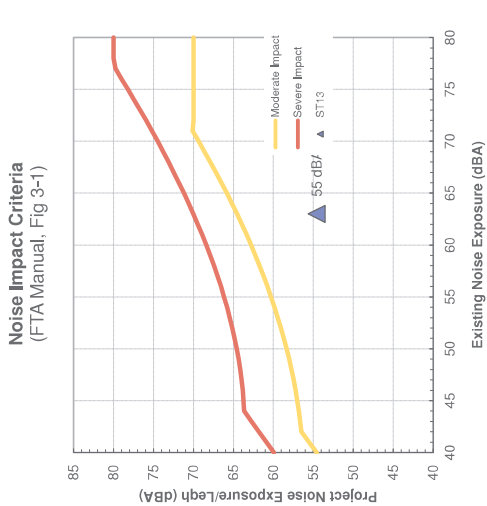
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
	Fixed Guideway
	Automated Guideway Transit /Rubber Tire
Noisiest hr of Activity During Sensitive hrs	Number of vehicles/train Speed (mph) Number of Events/hr
	4 35 24
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings Noise Barrier?
	100 0 No
Adjustments	


Project Results Summary
Existing Leqht: 63 dBA
Total Project Leqht: 55 dBA
Total Noise Exposure: 64 dBA
Increase: 1 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 22 ft
Dist to Sev. Impact Contour (Source 1): 9 ft

Source 1 Results
Leqht: 54.6 dBA



APM Washington Avenue

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Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT2
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 64 dBA

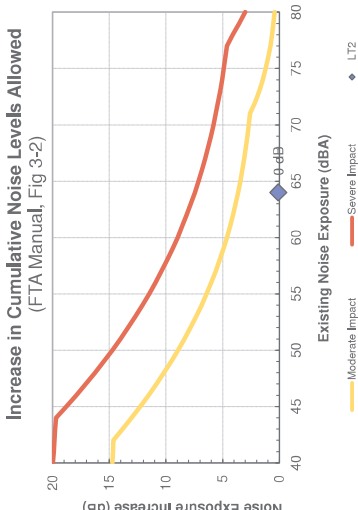
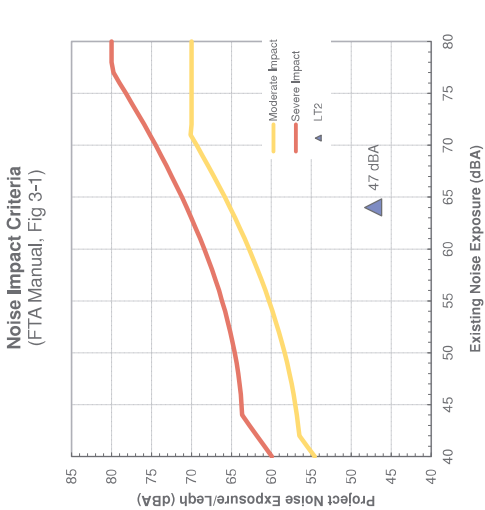
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type:	Fixed Guideway
Specific Source:	Automated Guideway Transit /Rubber Tire
Noisiest hr of Activity During Sensitive hrs	Number of vehicles/train Speed (mph) Number of Events/hr
	4 15 24
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings Noise Barrier?
	100 0 No
Adjustments	


Project Results Summary
Existing Leqht: 64 dBA
Total Project Leqht: 47 dBA
Total Noise Exposure: 64 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 6 ft
Dist to Sev. Impact Contour (Source 1): 3 ft

Source 1 Results
Leqht: 47.2 dBA



BRT Arthur Godfry Road

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Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: ST9
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 59 dBA

Noise Source Parameters
Number of Noise Sources: 1

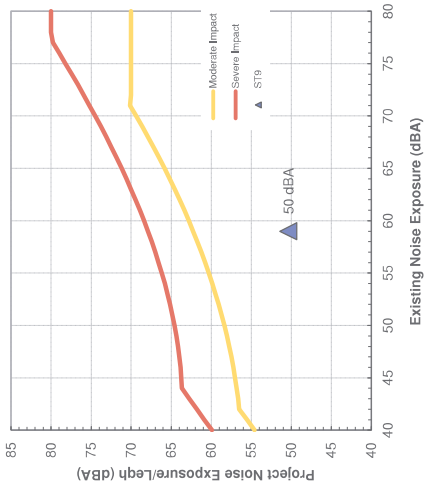
Noise Source Parameters	Source 1
Source Type: Highway/Transit	
Specific Source: Buses (hybrid)	
Noisiest hr of Activity During Sensitive hrs	
Speed (mph)	25
Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Leqht: 59 dBA
Total Project Leqht: 50 dBA
Total Noise Exposure: 60 dBA
Increase: 1 dB
Impact?: None

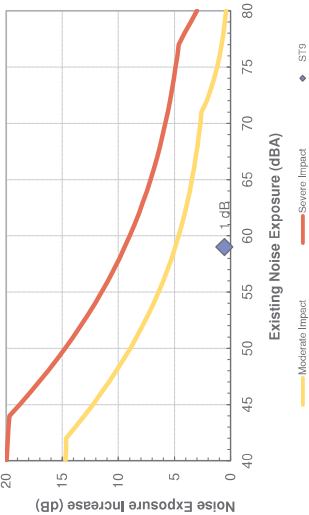
Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 16 ft
Dist to Sev. Impact Contour (Source 1): 7 ft

Source 1 Results
Leqht: 50.4 dBA

Noise Impact Criteria  
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed  
(FTA Manual, Fig 3-2)



BRT Collins Avenue

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: ST13
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 63 dBA

Noise Source Parameters
Number of Noise Sources: 1

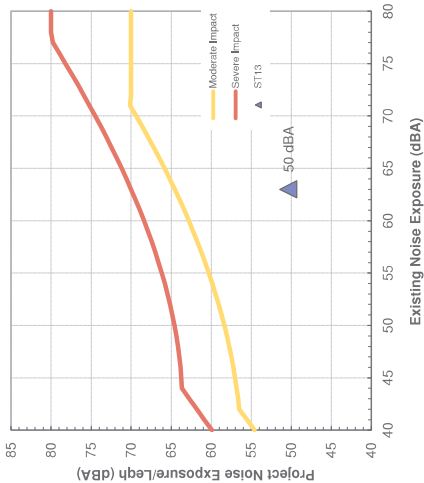
Noise Source Parameters	Source 1
Source Type: Highway/Transit	
Specific Source: Buses (hybrid)	
Noisiest hr of Activity During Sensitive hrs	
Speed (mph)	25
Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Leqht: 63 dBA
Total Project Leqht: 50 dBA
Total Noise Exposure: 63 dBA
Increase: 0 dB
Impact?: None

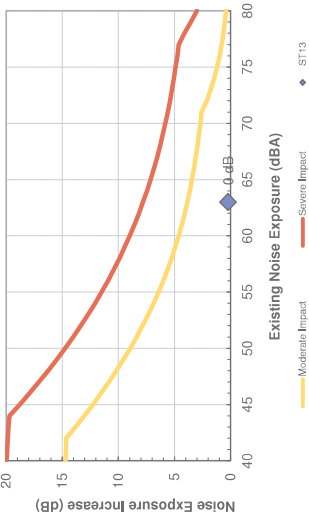
Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 11 ft
Dist to Sev. Impact Contour (Source 1): 5 ft

Source 1 Results
Leqht: 50.4 dBA

Noise Impact Criteria  
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed  
(FTA Manual, Fig 3-2)





BRT City Hall

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT2
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 64 dBA

Noise Source Parameters
Number of Noise Sources: 1

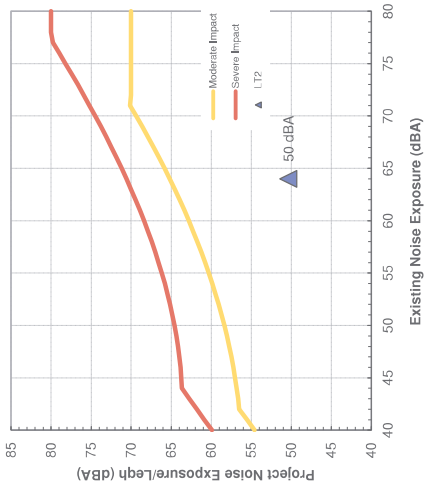
Noise Source Parameters	Source 1
Source Type: Highway/Transit	
Specific Source: Buses (hybrid)	
Noisiest hr of Activity During Sensitive hrs	
Speed (mph)	25
Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Leqht: 64 dBA
Total Project Leqht: 50 dBA
Total Noise Exposure: 64 dBA
Increase: 0 dB
Impact?: None

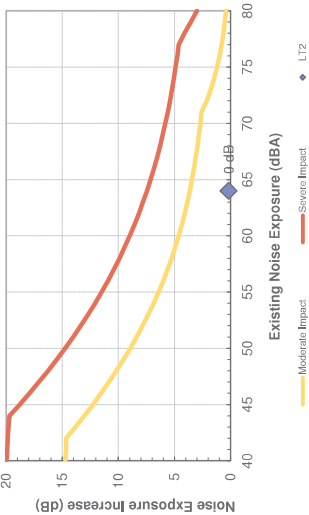
Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 10 ft
Dist to Sev. Impact Contour (Source 1): 4 ft

Source 1 Results
Leqht: 50.4 dBA

Noise Impact Criteria  
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed  
(FTA Manual, Fig 3-2)



Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: ST11
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 65 dBA

Noise Source Parameters
Number of Noise Sources: 1

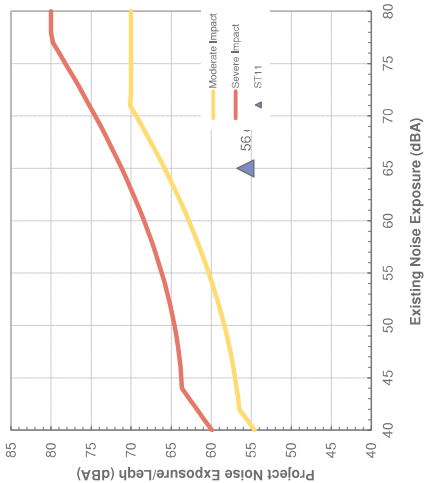
Noise Source Parameters	Source 1
Source Type: Highway/Transit	
Specific Source: Buses (hybrid)	
Noisiest hr of Activity During Sensitive hrs	
Speed (mph)	45
Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Leqht: 65 dBA
Total Project Leqht: 56 dBA
Total Noise Exposure: 65 dBA
Increase: 0 dB
Impact?: None

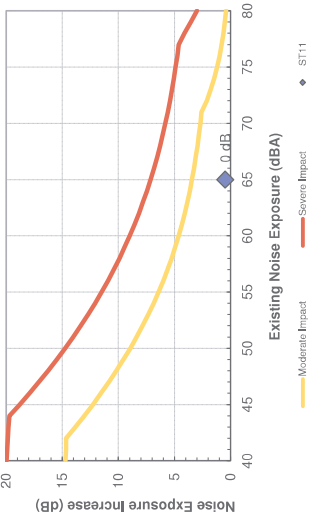
Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 21 ft
Dist to Sev. Impact Contour (Source 1): 9 ft

Source 1 Results
Leqht: 55.7 dBA

Noise Impact Criteria  
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed  
(FTA Manual, Fig 3-2)



BRT I-95

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT5
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 71 dBA

Noise Source Parameters
Number of Noise Sources: 1

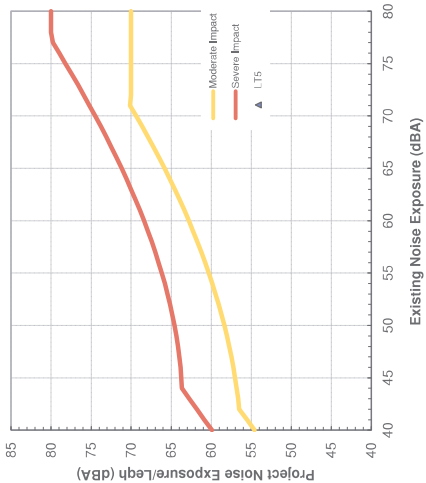
Noise Source Parameters	Source 1
Source Type: Highway/Transit	
Specific Source: Buses (hybrid)	
Noisiest hr of Activity During Sensitive hrs	
Speed (mph)	45
Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Leqht: 71 dBA
Total Project Leqht: 56 dBA
Total Noise Exposure: 71 dBA
Increase: 0 dB
Impact?: None

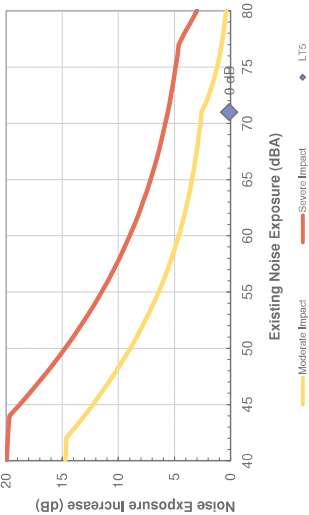
Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 11 ft
Dist to Sev. Impact Contour (Source 1): 5 ft

Source 1 Results
Leqht: 55.7 dBA

Noise Impact Criteria  
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed  
(FTA Manual, Fig 3-2)



## BRT 5<sup>th</sup> Street

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT1
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 67 dBA

Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type: Highway/Transit	
Specific Source: Buses (hybrid)	
Noisiest hr of Activity During Sensitive hrs	
Speed (mph)	25
Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


### Project Results Summary

Existing Leq <sub>h</sub> : 67 dBA
Total Project Leq <sub>h</sub> : 50 dBA
Total Noise Exposure: 67 dBA
Increase: 0 dB
Impact?: None

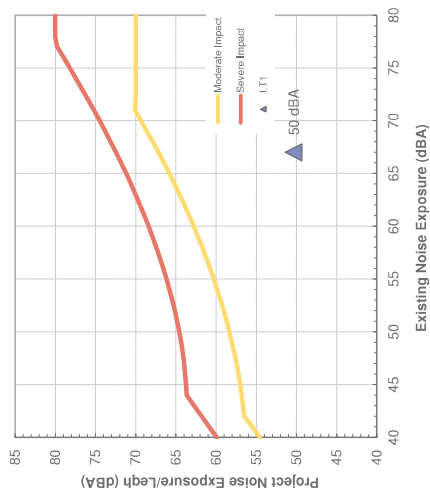
### Distance to Impact Contours

Dist to Mod. Impact Contour (Source 1): 8 ft
Dist to Sev. Impact Contour (Source 1): 3 ft

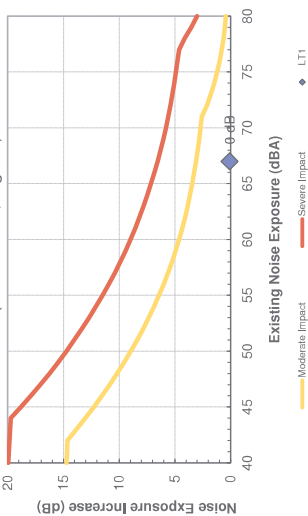
### Source 1 Results

Leq <sub>h</sub> : 50.4 dBA
-----------------------------

Noise Impact Criteria  
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed  
(FTA Manual, Fig 3-2)





BRT MacArthur Causeway

Federal Transit Administration  
Noise Impact Assessment Spreadsheet  
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Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LTS
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 71 dBA

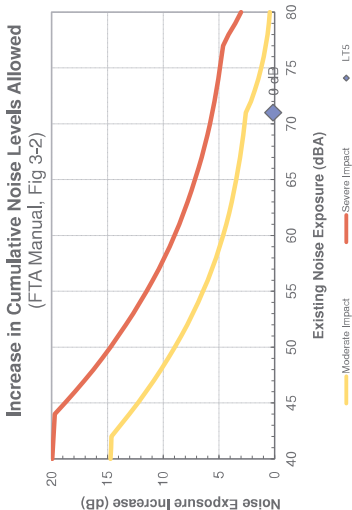
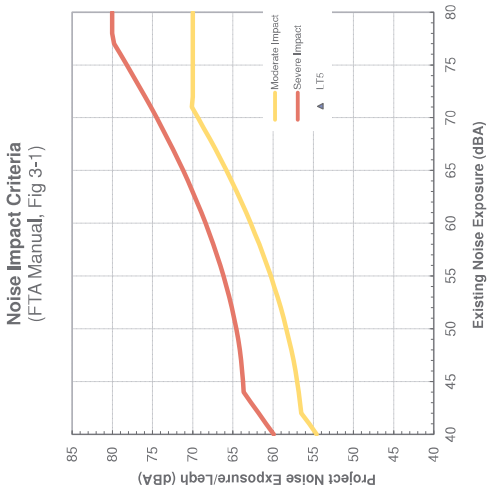
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type: Highway/Transit	
Specific Source: Buses (hybrid)	
Noisiest hr of Activity During Sensitive hrs	
Speed (mph)	45
Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No


Project Results Summary
Existing Leqht: 71 dBA
Total Project Leqht: 56 dBA
Total Noise Exposure: 71 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 11 ft
Dist to Sev. Impact Contour (Source 1): 5 ft

Source 1 Results
Leqht: 55.7 dBA



BRT 8<sup>th</sup> Street

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: ST8
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 63 dBA

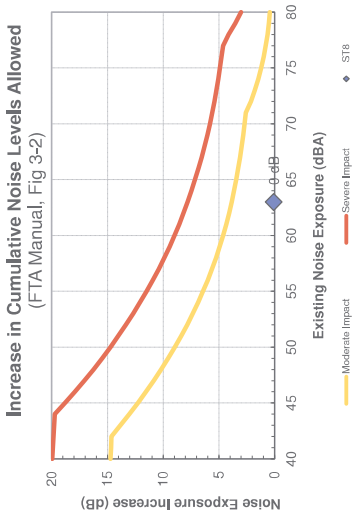
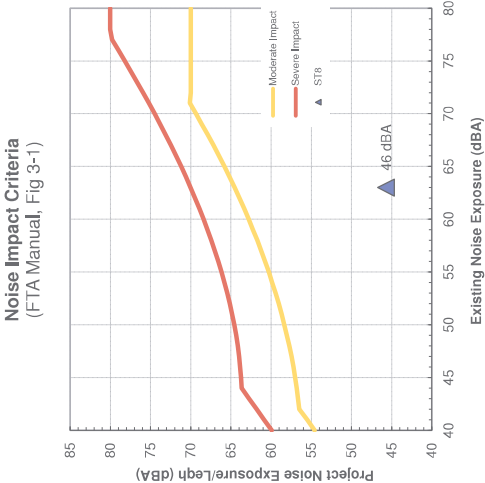
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type: Highway/Transit	
Specific Source: Buses (hybrid)	
Noisiest hr of Activity During Sensitive hrs	
Speed (mph)	15
Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) 100
Adjustments	Number of Intervening Rows of Buildings 0
	Noise Barrier? No


Project Results Summary
Existing Leq <sub>h</sub> : 63 dBA
Total Project Leq <sub>h</sub> : 46 dBA
Total Noise Exposure: 63 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 6 ft
Dist to Sev. Impact Contour (Source 1): 2 ft

Source 1 Results
Leq <sub>h</sub> : 45.7 dBA



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Project: Miami Corridor

Receiver Parameters	Receiver: LT1
	Land Use Category: 3. Institutional
	Existing Noise (Measured or Generic Value): 67 dBA

Noise Source Parameters	
Number of Noise Sources:	1

Noise Source Parameters		Source 1
	Source Type: Specific Source:	Fixed Guideway Rail Transit Vehicle
Noisiest hr of Activity During Sensitive hrs	Number of Transit Vehicles/train	4
	Speed (mph)	25
	Number of Events/hr	24
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings	100 0
Adjustments	Noise Barrier?	No
	Jointed Track?	No
	Embedded Track?	Yes
	Aerial Structure?	Yes

[illegible]

**Project Results Summary**

Existing Leq <sub>h</sub> :	67 dBA
Total Project Leq <sub>h</sub> :	63 dBA
Total Noise Exposure:	88 dBA
Increase:	1 dB
Impact?:	None

**Distance to Impact Contours**

Dist to Mod. Impact Contour (Source 1):	50 ft
Dist to Sev. Impact Contour (Source 1):	22 ft

**Source 1 Results**

Leq <sub>h</sub> :	62.7 dBA
--------------------	----------

The graph plots Noise Exposure Increase (dB) on the y-axis (0 to 20) against Existing Noise Exposure (dBA) on the x-axis (40 to 80). Three curves represent different impact levels: Severe Impact (red), Moderate Impact (yellow), and LT1 (blue diamonds). The Severe Impact curve starts at approximately 18 dB increase for 40 dBA and rises to 20 dB at 65 dBA. The Moderate Impact curve starts at approximately 15 dB increase for 40 dBA and rises to 20 dB at 75 dBA. The LT1 data point is located at approximately 66 dBA and 2 dB increase.

Existing Noise Exposure (dBA)	Severe Impact (dB Increase)	Moderate Impact (dB Increase)	LT1 (dB Increase)
40	18	15	-
45	16	13	-
50	14	11	-
55	12	9	-
60	10	7	-
65	8	5	-
66	-	-	2
70	-	3	-
75	-	1	-
80	-	0	-

# LRT MacArthur Causeway

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT5
Land Use Category: 3: Institutional
Existing Noise (Measured or Generic Value): 71 dBA

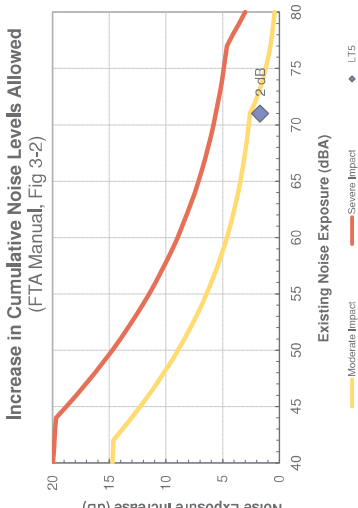
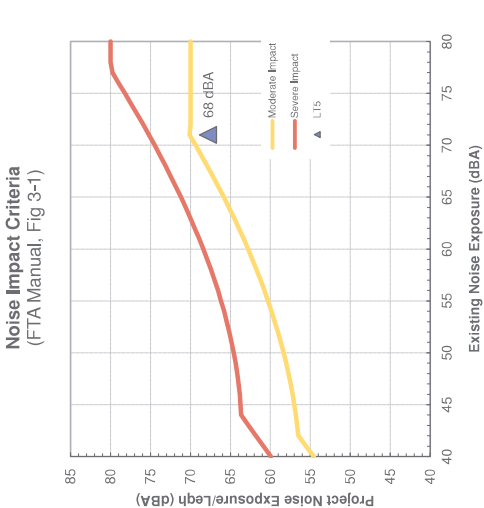
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type:	Fixed Guideway
Specific Source:	Rail Transit Vehicle
Noisiest hr of Activity During Sensitive hrs	Number of Transit Vehicles/train Speed (mph) Number of Events/hr
	4 45 24
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings
	100 0
Adjustments	Noise Barrier? Jointed Track? Embedded Track? Aerial Structure?
	No No Yes Yes


Project Results Summary
Existing Leqht: 71 dBA
Total Project Leqht: 68 dBA
Total Noise Exposure: 73 dBA
Increase: 2 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 70 ft
Dist to Sev. Impact Contour (Source 1): 32 ft

Source 1 Results
Leqht: 67.8 dBA





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Receiver Parameters	Receiver: ST8
	Land Use Category: 3. Institutional
	Existing Noise (Measured or Generic Value): 65 dBA

Noise Source Parameters		Source 1
	Source Type:	Fixed Guideway Rail Transit Vehicle
Noisiest hr of Activity During Sensitive hrs	Number of Transit Vehicles/train	4
	Speed (mph)	25
	Number of Events/hr	24
Distance	Distance from Source to Receiver (ft)	100
Adjustments	Number of Intervening Rows of Buildings	0
	Noise Barrier?	No
	Jointed Track?	No
	Embedded Track?	Yes
	Aerial Structure?	Yes

[illegible]

The graph plots Project Noise Exposure/Leq(h) (dBA) on the Y-axis (ranging from 40 to 85) against Existing Noise Exposure (dBA) on the X-axis (ranging from 40 to 80). Two lines represent different impact levels: Moderate Impact (yellow line) and Severe Impact (red line). Both lines show a positive correlation between existing and project noise exposure. The Severe Impact line is consistently higher than the Moderate Impact line. A blue triangle marker is placed on the Moderate Impact line at an existing noise exposure of approximately 63 dBA, with a label '63 dBA' next to it.

Existing Noise Exposure (dBA)	Moderate Impact (dBA)	Severe Impact (dBA)
40	53	58
45	55	60
50	58	63
55	62	67
60	66	71
63 (Marker)	68	73
65	70	75
70	74	79
75	78	83
80	82	87

# LRT Washington Avenue & Civic Center

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Noise Impact Assessment Spreadsheet  
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Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT2
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 64 dBA

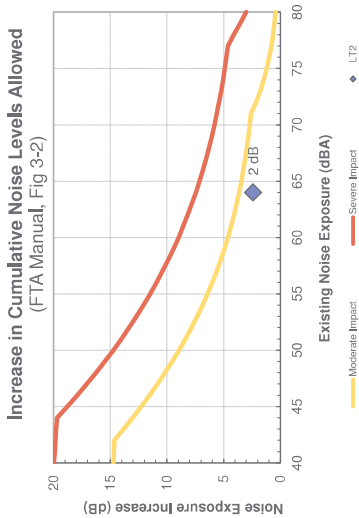
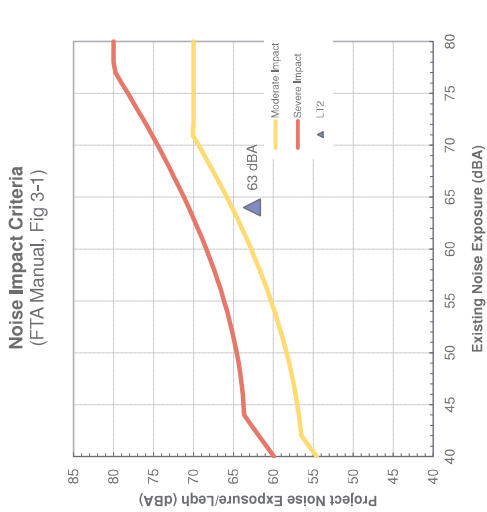
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
Source Type:	Fixed Guideway
Specific Source:	Rail Transit Vehicle
Noisiest hr of Activity During Sensitive hrs	Number of Transit Vehicles/train 4
	Speed (mph) 25
	Number of Events/hr 24
Distance	Distance from Source to Receiver (ft) 100
	Number of Intervening Rows of Buildings 0
Adjustments	Noise Barrier? No
	Jointed Track? No
	Embedded Track? Yes
	Aerial Structure? Yes


Project Results Summary
Existing Leqht: 64 dBA
Total Project Leqht: 63 dBA
Total Noise Exposure: 66 dBA
Increase: 2 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 68 ft
Dist to Sev. Impact Contour (Source 1): 30 ft

Source 1 Results
Leqht: 62.7 dBA



Monorail 5<sup>th</sup> Street

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT1
Land Use Category: 3. Institutional
Existing Noise (Measured or Generic Value): 67 dBA

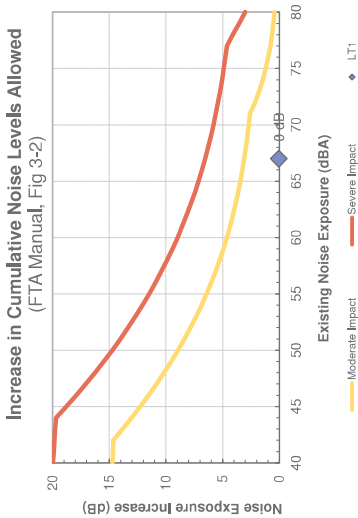
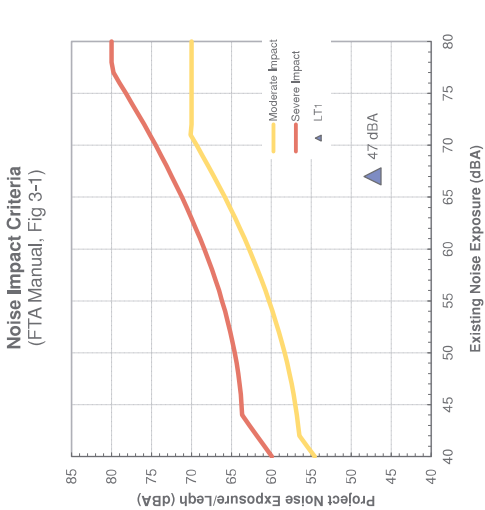
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
	Fixed Guideway
	Monorail
Noisiest hr of Activity During Sensitive hrs	Number of Vehicles/train Speed (mph) Number of Events/hr
	3 35 24
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings Noise Barrier?
Adjustments	100 0 No


Project Results Summary
Existing Leqht: 67 dBA
Total Project Leqht: 47 dBA
Total Noise Exposure: 67 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 5 ft
Dist to Sev. Impact Contour (Source 1): 2 ft

Source 1 Results
Leqht: 47.4 dBA



# Monorail MacArthur Causeway

Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT5
Land Use Category: 3: Institutional
Existing Noise (Measured or Generic Value): 71 dBA

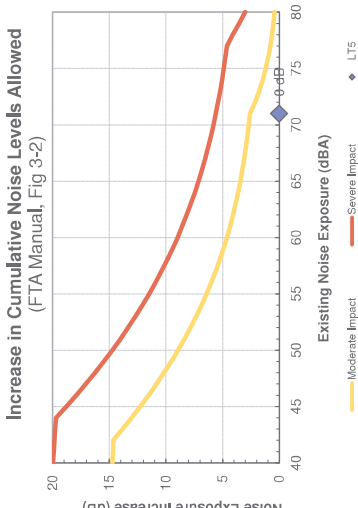
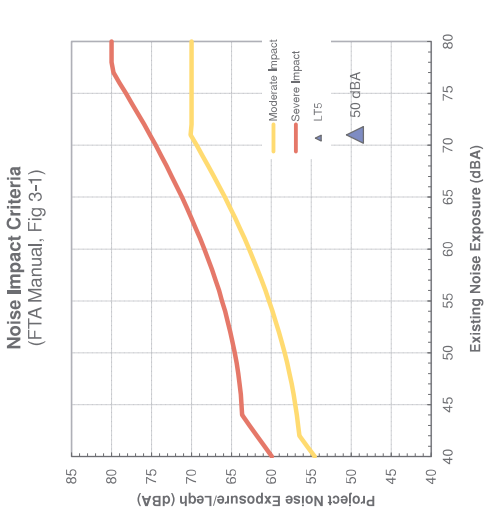
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
	Fixed Guideway
	Specific Source: Monorail
Noisiest hr of Activity During Sensitive hrs	Number of Vehicles/train Speed (mph) Number of Events/hr
	3 45 24
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings Noise Barrier?
	100 0 No
Adjustments	


Project Results Summary
Existing Leqht: 71 dBA
Total Project Leqht: 50 dBA
Total Noise Exposure: 71 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 4 ft
Dist to Sev. Impact Contour (Source 1): 2 ft

Source 1 Results
Leqht: 49.5 dBA





Monorail Washington  
Avenue

Federal Transit Administration  
Noise Impact Assessment Spreadsheet  
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Project: Miami Corridor
-------------------------

Receiver Parameters
Receiver: LT2
Land Use Category: 3: Institutional
Existing Noise (Measured or Generic Value): 64 dBA

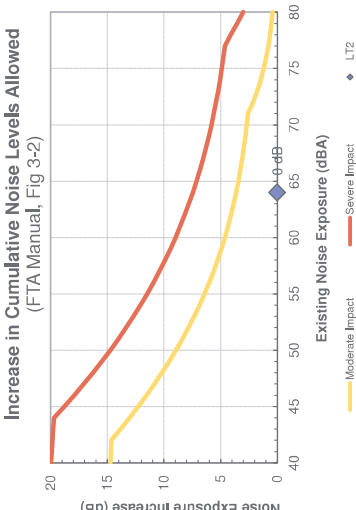
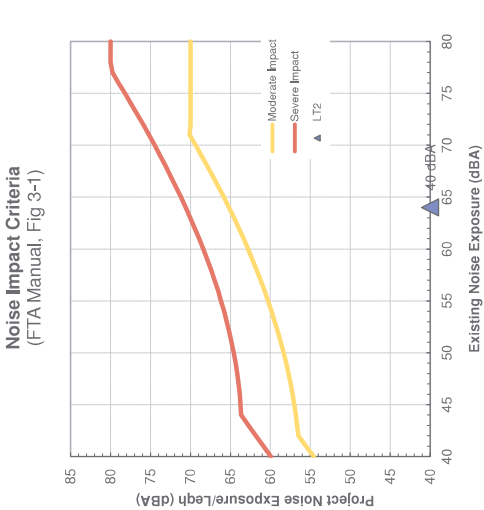
Noise Source Parameters
Number of Noise Sources: 1

Noise Source Parameters	Source 1
	Fixed Guideway
	Monorail
Noisiest hr of Activity During Sensitive hrs	Number of Vehicles/train Speed (mph) Number of Events/hr
	3 15 24
Distance	Distance from Source to Receiver (ft) Number of Intervening Rows of Buildings Noise Barrier?
Adjustments	100 0 No


Project Results Summary
Existing Leqht: 64 dBA
Total Project Leqht: 40 dBA
Total Noise Exposure: 64 dBA
Increase: 0 dB
Impact?: None

Distance to Impact Contours
Dist to Mod. Impact Contour (Source 1): 2 ft
Dist to Sev. Impact Contour (Source 1): 1 ft

Source 1 Results
Leqht: 40.0 dBA



ATTACHMENT C | DRAINAGE REPORT

# **DRAINAGE REPORT**

for the

## **Beach Corridor Rapid Transit Project**

**Prepared for:**

**MIAMI-DADE DEPARTMENT OF TRANSPORTATION AND  
PUBLIC WORKS**



**Prepared by:**

**Parsons Corporation**

November 2020

## **Professional Engineer Certificate**

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Parsons Transportation Group, Inc., a Florida corporation under Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes, Certificate of Authorization (CA) Number 1838, by the State of Florida, Department of Professional Regulation and Board of Professional Engineers and that I have prepared or approved the evaluation, findings, opinions and conclusions or technical advice hereby reported in this Drainage Design Report for :

The Final Location Hydraulic Report includes a summary of data collection efforts and assessments for Beach Corridor Rapid Transit Project PD&E Study in Miami-Dade County, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of civil engineering as applied through design standards and criteria set forth by the federal, state, and local regulatory agencies as well as professional judgment and experience.

The official record of this document has been electronically signed and sealed using Digital Signature as required by 61G15-23.004 F.A.C. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

This document has been digitally signed and sealed by:

### **Engineer of Record:**

---

Edward J. Kory, P.E.  
P.E. No. 53178  
201 East Pine Street, Suite 900  
Orlando, Florida 32801  
Certificate of Authorization No. 1838

---





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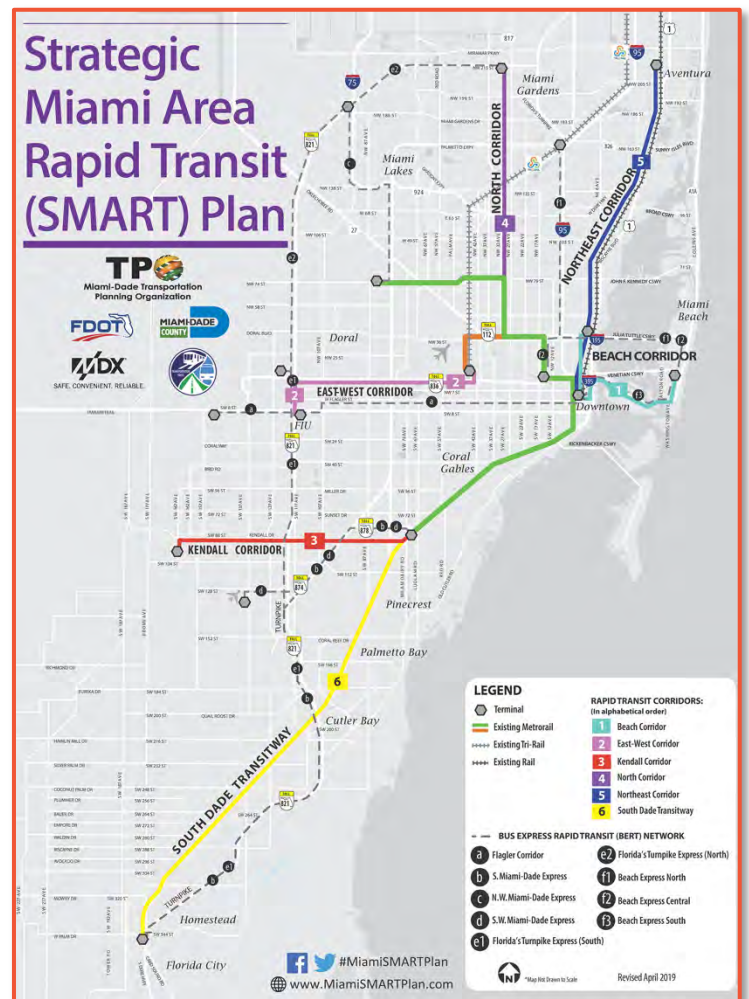
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## EXECUTIVE SUMMARY

In 2016, the Miami-Dade County Transportation Planning Organization (TPO) adopted the Strategic Miami Area Rapid Transit (SMART) plan as the blueprint for developing premium transit services throughout Miami-Dade County. The overall plan is illustrated in **Figure 1**. Subsequently the Miami-Dade County Department of Transportation and Public Works (DTPW) initiated the Beach Corridor Rapid Transit Project Development and Environment (PD&E) study in 2017, in collaboration with the Florida Department of Transportation (FDOT) and the cities of Miami and Miami Beach. The Preliminary Engineering Report (PER) summarizes the environmental analysis, engineering, public outreach, and evaluation results of the PD&E study. The PER identifies DTPW's Recommended Alternative and is intended to lead to the selection of a Locally Preferred Alternative (LPA) for the Beach Corridor by the Miami-Dade County TPO. It may further support entry into the Federal Transit Administration (FTA) project development process and an application for Capital Investment Grant, if DTPW elects to pursue the project as an FTA New Starts project.



**Figure 1: SMART Corridor Plan Map**

The Beach Corridor study area, shown on **Figure 2**, is located in the east central region of the SMART Corridor Plan and is generally bounded by:

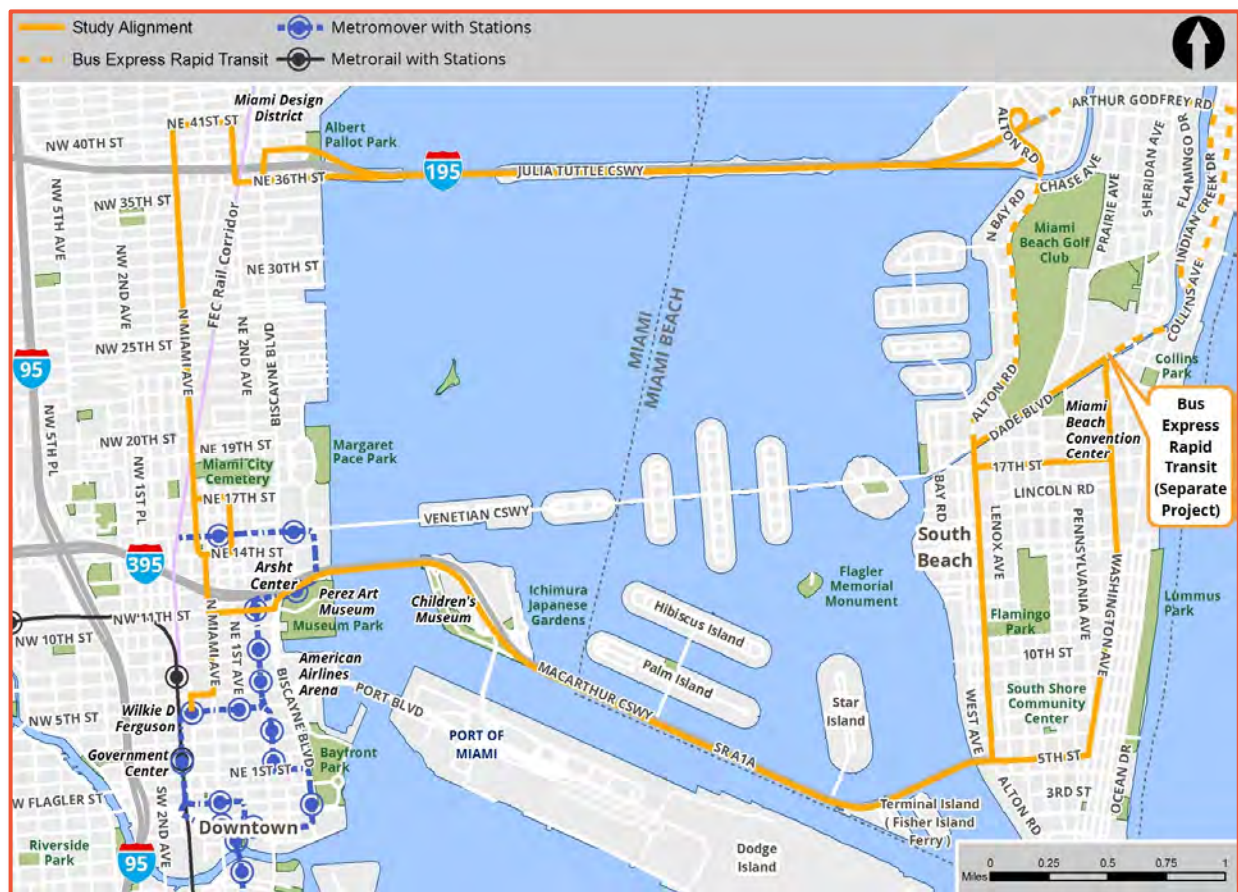
- I-195/Julia Tuttle Causeway on the north,
- I-395/MacArthur Causeway on the south,
- I-95 on the west, and
- A1A/Collins Avenue on the east.

The project is located within the southern limits of the North Biscayne Bay Basin as defined by the South Florida Water Management District (SFWMD). Biscayne Bay is considered an Outstanding Florida Water (OFW). The project traverses one Waterbody ID (WBID), which is located in the

Biscayne Bay Basin. WBID 3226H is verified as impaired for Nutrients on the current FDEP 303(d) list:

- WBID 3226H – ICWW (Miami-Dade County) – This WBID is listed as impaired for Nutrients (Chlorophyll-a). Biscayne Bay is an estuarine system.
- WBID 3226H3 – Port of Miami - This WBID is listed as impaired for Nutrients (Chlorophyll-a).

The Biscayne Aquifer, which exists at or near the ground surface in most of Miami-Dade County, is the principle water source for the surficial aquifer system in the region. The aquifer consists of sandstone and cavity-riddled limestone and increases in thickness from 30 feet or less in the western part of the county, to 80 feet or more in the eastern part where the project is located.



### Figure 2 Study Area

The purpose of this Drainage Report is to address water quality and attenuation requirements of the Bay Crossing. *The Bay Crossing sub-area*, an east–west corridor between Miami Beach and downtown Miami that would form the “trunk line” of the project.

The proposed track alignment will be an elevated open deck track. Stormwater runoff will fall through the track to the existing ground below. Therefore, water quality will not be impacted by this project. There will be no increase the impervious area due to the track alignment, therefore there will be no increase in stormwater runoff. Four Stations are proposed along the Bay Crossing. They are the Herald Plaza Station, Children's Museum Station, 5<sup>th</sup> Street and Lenox Avenue Station, and 5<sup>th</sup> Street and Washington Avenue Station.

The Herald Plaza Station and the Stations located on 5<sup>th</sup> Street will be constructed in an urban area over an existing impervious surface, therefore there will be no increase in runoff. Pre- and Post-Development basin analysis can be found in Appendix 2.

The Children's Museum Station will be located on Watson Island, adjacent to and will impact the west corner of one of two interconnected dry retention ponds. The ponds were permitted under the Miami Tunnel Project – Watson Island (ERP No. SI 13-0267159-004). Pond recovery is via two existing drainage wells, WW-6 and WW-3. The pond will be reconfigured to account for the new station. In addition, the existing well in Pond WA will need to be capped and replaced by a new well in the reconfigured pond. The reconfigured pond will contain the runoff from the 25-year/72-hour storm event within the confines of the reconfigured pond and meet the water quality requirements. Pre- and Post-Development basin analysis and water quality calculations can be found in Appendix 2.



## SECTION 1 PROJECT DESCRIPTION

The Miami-Dade County Department of Transportation and Public Works (DTPW) is conducting a Project Development and Environmental (PD&E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act. The Beach Corridor Rapid Transit project corridor is comprised of three sub-areas along this project corridor, featuring distinct segments of travel demand and origin/destination pairs and varying in their land use and environmental characteristics. The Beach Corridor Rapid Transit Project connects the Miami Design District to the Miami Beach Convention Center as defined the sub-areas listed below.

*The Bay Crossing sub-area*, an east–west corridor between Miami Beach and downtown Miami that would form the “trunk line” of the project. The travel demand in this corridor could be served directly via I-395/MacArthur Causeway.

*The Midtown/Design District sub-area*, a north–south corridor between the Design District/Midtown and downtown Miami.

*The Miami Beach sub-area* is a north-south corridor extending from Washington Avenue and 5th Street to the Miami Beach Convention Center.

## PURPOSE AND NEED

The purpose of this project is to increase the person-throughput to the Beach Corridor’s major origins and destinations via a rapid transit technology. The need for the project is based upon the extensive population growth throughout the study area resulting in ever-increasing traffic congestion and the demand for enhanced access to the area’s many facilities and services.

The Beach Corridor traverses an area that is at the epicenter of population and economic growth within Miami-Dade County. The central business district (CBD) area and Miami Beach have undergone rapid population and employment increases over the past decade, a trend that is projected to continue over the next 20 years. The population densities in the study area are among the highest in the nation, with Downtown Miami (CBD) at 17,800 persons per square mile and Miami Beach at 11,500 persons per square mile, per the 2010 U.S. Census. Downtown Miami saw a dramatic 172 percent increase in population density over the last decade.

Due to the region’s appealing qualities, such as its temperate climate; attractive beaches; and convenient access to the Caribbean and Latin America, South Florida, and Miami-Dade County, it has become an important tourist destination for both national and international visitors. The county hosts millions of annual visitors and seasonal residents. Visitors typically access the study area via tour bus, taxi, or rental car.

Miami Beach and Downtown Miami are the two most popular locations for overnight stays, lodging 60 percent of all 2012 visitors with approximately 5.8 million and 2.4 million overnight guests, respectively. Additionally, four of the six most-visited attractions are in close proximity to the Beach Corridor, including South Beach, the beaches, Lincoln Road, and Downtown Miami. The 2012 Visitor Industry Overview, a survey that reached 13.4 percent of all visitors that year, listed traffic congestion as the top negative aspect of trips to greater Miami. Traffic congestion has been the top-ranked problem in each of the last five annual surveys.

In order to meet the project's purpose and need, goals were established that would accommodate the high travel demand throughout the study area and provide relief to the extreme traffic congestion along the surface streets. The project goals include the following:

- Connect to and provide direct, convenient, and comfortable rapid-transit service to serve existing and future planned land uses;
- Provide enhanced interconnections with Metrorail, Tri-Rail, Brightline, Metromover, and Metrobus routes; Broward County Transit (BCT) bus routes; Miami and Miami Beach circulators; jitneys; shuttles; taxis; Transportation Network Companies (TNCs); and/or other supporting transportation services; and
- Promote pedestrian- and bicycle-friendly solutions in the corridors of the study area.

## **ALTERNATIVES CONSIDERED**

Alternatives were developed in two project phases—Tier One, a transit technology screening, and Tier Two, Preliminary Engineering and Environmental Assessment.

To support the Tier One Evaluation of transit technologies, representative alignments were developed for each mode to demonstrate how the general characteristics of the technology would be applied to the study area.

The purpose of the Tier One representative alignments was to provide enough specificity about the application of each mode to the corridor to allow for a comparative evaluation of the modes. Based on the results of the Tier One analysis, DTPW determined that the Automated Guideway Transit (AGT), Bus Rapid Transit (BRT), Light Rail Transit (LRT) and Monorail technologies had the potential to meet the project purpose and need and would be advanced for further development.

### **1.2.1 Build Alternatives**

#### *1.2.2.1 Automated Guideway Transit (AGT)*

Automated guideway transit (AGT) is a fully automated transportation system with driverless vehicles operating on fixed guideways and exclusive rights-of-way (elevated in urban areas or in tunnels at airports). AGT trains operate on a two-rail guideway system with either rubber tires on concrete or steel guideway or steel wheels on steel rail.

Typically, AGTs, regardless of the technology or manufacturer, are defined by the following characteristics:

- Driverless/fully automated
- Operate on fixed guideway (usually elevated)
- Vehicles have rubber tires on concrete or steel surface

Miami currently has an AGT system in place, which is known as the Metromover. The existing vehicles have an overall body length of 39 feet, 8 inches, and body width of 9 feet, 4 inches. The minimum turning radius of the CX100 vehicle is 75 feet, and the maximum grade is 10 percent. The maximum operating speed is 25 miles per hour, but newer vehicles are expected to be able to achieve speeds of 35 miles per hour. In Downtown Miami, curves and stop spacing limit the Metromover to average operating speeds of 10 miles per hour, but AGT would be able to travel at or near the maximum operating speed for the bay crossing segment of the alignment. Because the maximum operating speed of an AGT is lower than that of other rail modes operating on exclusive guideways, it is typically applied to relatively short corridors of 2–5 miles in length, with stop spacing of 0.25–0.5 miles.

#### 1.2.2.2 *Monorail*

Straddle monorail technology features railcars that operate on concrete beam guideways, with rubber drive wheels that run on the top of the beam and guide wheels running along the two sides. Traction power is supplied by a trolley wire mounted on the sides of the guideway beam, and electricity is picked up by shoes on the vehicle. Monorail vehicles are 10 feet wide and roughly 35–45 feet long (can vary by manufacturer) and may be operated in two- to eight-car trainsets. Monorails have a minimum turning radius of 130–150 feet and can handle grades as steep as 10 percent.

Monorails are operated on an exclusive guideway separated from vehicular traffic, typically via elevated structure supported by columns. The average length of a monorail system is about 10 miles with an average station spacing of 0.5–1 mile. Typical monorail systems are automated and operate at a top speed of 55 miles per hour.

## SECTION 2 FLOODPLAINS

The Federal Emergency Management Agency (FEMA) has developed a Flood Insurance Rate Map (FIRM) for the study area. The relevant FIRM panel numbers are 12086C0312L, 12086C0316L, 12086C0318L, 12086C0319L, and 12086C0317L, for Miami-Dade County, Florida dated September 11, 2009. Flood hazard areas identified on Florida Emergency Management Agency (FEMA) flood insurance rate maps are identified as Special Flood Hazard Areas (SFHAs), which are defined as areas that will be inundated by a flood event having a 1 percent chance of being equaled or exceeded in any given year. The 1-percent-annual-chance flood is also referred to as the base flood or 100-year flood. FEMA floodplain data was evaluated for the project using a 200-foot buffer of the project area. According to FEMA floodplain data, 199 acres, or 49 percent of the project buffer, are located within SFHA Flood Zone AE. FEMA defines Flood Zone AE as areas

subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. The remaining area is identified to be outside of the SFHAs and at a higher than the elevation of 0.2-percent-annual-chance flood.

Please refer to the Floodplain Map in Appendix 1 (**Figure 3**).

Minimal floodplain encroachment is anticipated with the proposed improvements to the project corridor. The major portion of the improvements will be constructed within the existing roadway footprint either at ground level or on grade separated structures over the existing roads. It is anticipated that the only impact to the existing flood zone is the fill associated with the construction of the proposed northeast corridor and beach corridor stations. The net encroachment into the floodplain should not adversely affect the conveyance, storage, water quality or adjacent lands.

In accordance with the 2019 FDOT's PD&E Manual, Part 2, Chapter 13, Floodplain Statements, the corridor has been evaluated to determine the impact of the proposed hydraulic modifications and estimated floodplain impact. The Recommended Alternative can best be described as – "Minimal Encroachments".

Minimal Encroachments – Minimal encroachments on a floodplain occur when there is floodplain involvement but the impacts on human life, transportation facilities, and natural and beneficial floodplain values are not significant and can be resolved with minimal efforts. Normally, these minimal efforts to address the impacts will consist of applying FDOT's drainage design standards and following the WMD's procedures to achieve results that will not increase or significantly change the flood elevations and/or limits.

## **SECTION 3 DRAINAGE DESIGN CRITERIA**

### **3.1 Overview**

This section outlines the Federal, State, and local stormwater quality and quantity criteria applicable to the proposed improvements of the I-395 corridor improvements project. This section also outlines the Federal, State, and local permitting requirements. The criteria and outlined in this section are derived from the applicable published regulations, permit design manuals, and design standards.

### **3.2 Stormwater Quality Criteria**

The Florida Department of Environmental Protection (FDEP), the South Florida Water Management District (SFWMD), and the Miami-Dade Department of Regulatory and Economic Resources (DRER) have jurisdiction over the stormwater quality criteria for the Beach Corridor Rapid Transit Project. The following subsections outline these requirements.



### 3.2.1 Florida Department of Environmental Protection (FDEP)

FDEP has set water quality requirements for systems using injection drainage wells. The rule states that the water quality volume calculation must include the detention time for stormwater before it enters the well, with a detention time of 90 seconds (sec) being preferred. The volume which corresponds to the 90-second criteria is defined using the rational equation

$$Q_{\text{rat}} = C i A$$

Where:      C = Weighted runoff coefficient  
              I = Rainfall intensity, inches per hour  
              A = Area, acres

And the required detention volume is determined by

$$V = Q \times 90 \text{ sec, in ft}^3$$

The FDEP is developing a stormwater quality rule that will govern all stormwater management systems in the state of Florida that will ultimately discharge to surface waters. These new principles will limit nitrogen and phosphorous discharges into State waterways to prevent algal growth and to satisfy the U.S. Environmental Protection Agency's (EPA) requirements for pollutant loading of discharged waters. This new rule is applicable to all rivers, lakes, canals, and retention ponds within the state of Florida. All projects to be permitted after the implementation of this new rule will be required to meet the standards set forth by the FDEP.

### 3.2.2 South Florida Water Management District (SFWMD)

The SFWMD requires that all projects meet State water quality standards, as set forth in Section 62-302, Florida Administrative Code (FAC). To assure that these criteria are met, the proposed improvements must meet the following volumetric retention/detention requirements, as described in the SFWMD Permit Volume IV:

- For wet detention systems, the first one-inch of runoff from the project or the total runoff from 2.5 inches times the percent impervious, whichever is greater, must be detained on site. A wet detention system is a system which maintains the control elevation below one foot from the seasonal high ground water elevation and does not bleed-down more than 0.5 inch of detention volume in 24 hours.
- Dry detention systems must only provide 75 percent of the required wet detention volume. Dry detention systems maintain the control elevation at or above 1 foot above the seasonal high ground water elevation.
- Retention systems are required to provide only 50 percent of the wet detention volume.
- For projects with more than 50 percent imperviousness, discharge to the receiving water bodies must be made through baffles, skimmers, or other mechanisms suitable of preventing oil and grease from discharging to/from the retention/detention areas.

Runoff from the project is discharged into the Biscayne Bay waters. Higher standards of protection are set for these waters since they are classified as Outstanding Florida

Waters (OFW) by FDEP because of their natural attributes. Discharge into OFWs shall have an additional level of treatment equal to 50 percent of the treatment criteria as per Section 62-25.025(9) from the Florida Administrative Code.

### 3.2.3 Department of Regulatory and Economic Resources (RER)

RER also requires that all projects meet the State water quality standards. To assure that this criterion is met, 100 percent of the first inch of runoff must be retained on site. This volume is equivalent to retaining 1 inch of runoff from the furthest hydrologic point in the project. The methodology for estimating this volume is outlined in DRER's Policy for Design of Drainage Structure, dated December 1989 as follows:

$$V = 60CiAT_t$$

Where: V = Required stormwater quality volume, cubic feet  
 C = Runoff coefficient; 0.3 for pervious areas and 0.95 for Impervious areas  
 A = Total tributary area, acre  
 T<sub>t</sub> = Duration of storm whose runoff is polluted and contaminated, minutes  
 T<sub>t</sub> = T<sub>1"</sub> + T<sub>c</sub>

Where: T<sub>1</sub> = Time to generate one inch of runoff, minutes

$$= \frac{2940F-0.11}{308.5 C - 60.5 (0.5895 + F-0.67)}$$

Where: F = Storm frequency, years  
 C = previously defined  
 T<sub>c</sub> = Time of concentration, minutes  
 I = Storm intensity, inches per hour

$$= \frac{308.5}{48.6F-0.11 + T_t (0.5895 + F-0.67)}$$

All values previously defined

For highway systems, RER requires that 1 inch of runoff is retained for a rainfall event with a 10-year frequency. RER also requires that the retained volume is infiltrated into the groundwater table in a period of 24 hours and does not allow bleeder mechanisms. Although a determination for detention systems is described within the SFWMD criteria, Miami-Dade RER does not allow for the use of detention systems, either wet or dry, for the purposes of water quality. Exfiltration trenches with the perforated pipe located at or above the seasonal high groundwater elevation are considered dry retention systems.

### 3.3 Stormwater Quantity Criteria

SFWMD and FDEP have jurisdiction over the stormwater quantity criteria for the Beach Corridor Rapid Transit Project. The following subsections outline these requirements.

### **3.3.1 South Florida Water Management District (SFWMD)**

The SFWMD requires that off-site discharge rate be limited to rates not causing adverse impacts to existing off-site properties, and:

- Historic discharge rates,
- Rates determined in previous SFWMD permit action, or
- Basin allowable discharge rates.

Collected runoff within the project limits is discharged into the Biscayne Bay for this project. The SFWMD requires that pre-development flows during a 25-year, 72-hour rainfall event are not increased during post-development conditions. The SFWMD also requires flood protection within the project as follows:

- Building finish floor elevation must be set at or above the 100-year flood elevation, as determined from the Federal Flood Insurance Rate Maps (FIRM) or 100-year, 72-hour rainfall event peak stages.
- Centerline of roadways must be set at or above the 5-year, 24-hour rainfall event peak stages or 2 feet above the seasonal high ground water elevation, whichever is greater.
- Parking lots served by French drains must be set at or above the 5-year, 1-hour rainfall event peak stages.

For project areas where there is no historical discharge rate and that discharge to a basin which has an unlimited discharge rate or that discharge to tidal waters, the SFWMD requires that predevelopment flows during a 25-year, 72-hour rainfall event are not increased during postdevelopment conditions.

The SFWMD also requires that provisions be made to replace or otherwise mitigate the loss of historical basin storage provided by the project.

### **3.3.2 Florida Department of Environmental Protection (FDEP)**

FDEP regulates the construction and operation of injection drainage wells within the state of Florida. The rules governing the use of injection wells are set forth in F.A.C. Section 62-528 and under this rule, injection wells for the purposes of stormwater management are classified as Class V wells. These wells may only discharge into a geological formation which contains water with more than 10,000 mg/L of dissolved solids. For this requirement, an assessment of the injection well depth and horizontal location must be adequately defined where the total dissolved solids exceed this limit.

Additionally, the Southeast District of FDEP requires that the stage at an injection well may not exceed an elevation greater than 6.44 ft-NAVD (8.00 ft-NGVD) when associated with a pump station. This restriction is to prevent vertical migration of injected water along the well casing.

### 3.4 Stormwater Management Systems Design Criteria

The Beach Corridor Rapid Transit Project has been developed to meet the most stringent stormwater quality and quantity criteria from agencies that maintain jurisdiction over the project area. The following subsections describe design parameters used for the different elements included in the proposed stormwater management systems.

#### 3.4.1 Retention Ponds

These ponds must be designed in accordance with the following design criteria and parameters:

1. Retain the greater of the SFWMD or RER stormwater quality volume, prior to off-site discharge. The retained volume must be infiltrated to the groundwater within 24-hours.
2. Bottom shall be at least 1 foot above the average October groundwater elevation. See figure W.C.2.2 (MDPWD Design Standard) for the average October groundwater elevation (Exhibit 6 of this report).
3. Discharge from the pond shall be through a control structure, and the post-development peak discharge rate shall not exceed the 25-year, 72-hour pre-development flow rates.
4. Maintain a minimum of 1 foot of free board during a 25-year, 72-hour storm event.
5. Containment berms shall not violate roadway stopping-sight distances and have a minimum top width of 15 feet.
6. A minimum length of French drain should be placed at the bottom of the retention/detention ponds and swales to allow a drawdown of retained/detained runoff volume.

#### 3.4.2 Drainage Wells

In Miami-Dade County, drainage wells are typically considered when the in situ soil hydraulic conductivity is insufficient to promote exfiltration, or when there is insufficient available land to locate exfiltration trenches. Drainage wells are considered by the DEP to be Class V, Group 5 wells, regulated under Section 62-528, FAC.

In general, the capacity of these wells within the City of Miami often ranges between 300 and 1000 gallons per minute (gpm) per foot of head. Additionally, a phenomenon known as mounding also has an effect on the capacity of an injection well. This phenomenon typically requires an additional 1.5-ft of head in order to overcome the difference in density between the fresh water resulting from a storm event and the saltwater encountered in the saltwater intrusion zone. This effectively reduces the peak flow of an injection well at a given stage and increases the stage at which flow into the well begins. Such stage is 1.94 ft-NAVD for most areas within the saltwater intrusion zone. Based on this, drainage wells must be located east of the 1,500 (ppm) isochlorine line which delimits the intrusion zone. This line is located west of the project limits (in the vicinity of NW 21st Avenue) which allows the use of Drainage Wells in the project area.



## SECTION 4 HYDROLOGIC/HYDRAULIC MODELING

### 4.1 Overview

The Interconnected Pond Routing (ICPR) computer model was used to evaluate the existing drainage system of the. The ICPR computer model is a hydrodynamic model developed by Streamline Technologies, Inc. and simulates hydrologic and hydraulic conditions by generating runoff hydrographs and dynamically routing these hydrographs through stormwater management systems. The ICPR model provides the following advantages:

1. Dynamically simulates hydrology and hydraulics simultaneously simplifying the analysis and design process, versus performing hydrologic calculations separately and then keying them in the model.
2. Simulation results can be viewed graphically to aid the designer in data interpretation.
3. A wide variety of conduits can be simulated including natural channels, horizontal and vertical weirs, pumps and rating curves. Rating curves can also be used to simulate French drains, drainage wells, and pond infiltration within the system.
4. Entrance, exit, and bend losses can be simulated dynamically in the system.

In ICPR, a stormwater management system is simulated as a network of nodes or junctions and links or reaches. A node is a discrete location in the drainage system where runoff enters the system and conservation of mass or continuity is maintained. The hydrologic conditions within the management system are modeled by the nodes. Links represent connections between nodes and are used to transfer or convey stormwater runoff through the system. The links are used to model the hydraulic response of the management system for a defined hydrologic condition.

### 4.2 Hydrologic Modeling

In ICPR, stormwater runoff hydrographs can be generated by the Soil Conservation Service (SCS) hydrograph method, Santa Barbara Urban hydrograph (SBUH) method, and kinematic overland flow method. The SCS method was selected because it is the most applicable method for the size of hydrologic basin, land use, soil condition, and regional location of the project area and was also the model used for the original permit in the project corridor. This method generates runoff hydrographs using the following hydrologic parameters:

1. Basin areas
2. Curve numbers (CN)
3. Percent directly connected impervious area (DCIA)
4. Rainfall depth
5. Rainfall distributions
6. Times of concentration (TOC)

The following subsections describe these parameters in detail and how they were applied in the Beach Corridor Rapid Transit Project Station hydrologic modeling.

#### 4.2.1 Basin Area

The basin area is the surface area encompassed by the individual drainage basins and is associated with a given node in the network. More than one basin can be associated with a node. The pre-development condition drainage basin areas for the Stations on 5<sup>th</sup> Street in Miami Beach were estimated using the Microstation computer aided design and drafting (CADD) package. These areas were subdivided into impervious and pervious. The pre-development condition drainage basin area for the Children's Museum Station was taken from the existing permit for the Miami Tunnel Project.

#### 4.2.2 Runoff Curve Numbers (CN)

The runoff CN for each basin was estimated as outlined in the FDOT Drainage Manual:

$$CN = \sum (CN_i A_i) / AT$$

Where: CN = Composite Curve Number  
 CN<sub>i</sub> = CN of subarea i  
 A<sub>i</sub> = Area of subarea i  
 AT = Total Area of basin

The CN used for paved areas is 98 as indicated in the above referenced FDOT Drainage Manual. However CN for pervious areas was determined based on the storage capacity of the soil. That procedure was developed by Victor Mockus and others and is presented in the US SCS National Engineering Handbook. This method establishes a relationship between the Runoff Curve Number (CN) and the Potential Maximum Storage Capacity (S), which is:

$$CN = 1000 / (S + 10)$$

The Soil Conservation Service has estimated S for the normal sandy soils found within the South Florida Water Management District Boundaries. The total amount, which can be stored in the soil profile expressed as a function of the depth to the water table (Seasonal High Water Table) for these soils, is:

**Table 4-1: Potential Storage Capacity (S)**

Depth to Water Table (ft.)	Cumulative Water Storage (in.)	Compacted Water Storage (in.)
1.0	0.50	0.45
2.0	2.50	1.88
3.0	6.60	4.95
4.0	10.90	8.18

The values of the third column represent the estimated amount of water, which can be stored under pervious areas after development. The values have been reduced 25% to account for the reduction of void spaces due to the compaction which occurs during earthwork operations.

#### **4.2.3 Percent Directly Connected Impervious Area (DCIA)**

The DCIA within a drainage basin is the total impervious area that drains directly to the conveyance systems without draining across pervious areas. Examples of DCIA would be roof drains and roadway sections draining directly to the inlets without contacting grassed areas. The basin DCIA is accounted in ICPR as a percentage of the overall basin area. Since impervious areas are included in all basins with their corresponding Curve Numbers, DCIA was assumed zero for all basins.

#### **4.2.4 Rainfall Depth**

The storm to be modeled as part of the master plan is the SFWMD 25-year (72-hours). The rainfall depth for this storm is 11.00-inches.

#### **4.2.5 Rainfall Distribution and Peak Factor**

The design rainfall distribution defines how the mass rainfall is distributed throughout the storm event. The SFWMD distribution was used for 72-hour storm event routing.

A unit hydrograph is a normalized storm hydrograph for 1-inch of rainfall excess distributed over the watershed at a constant rate during a specific design period. The peak rate factor (K) is used to reflect the effect of storage on hydrograph shape. For the location of the study area, a unit hydrograph with a peak rate factor of 323 was used in the ICPR model.

#### **4.2.6 Time of Concentration (TOC)**

The drainage basin TOC is the time for a drop of water to reach the basin discharge point from the most hydraulically remote point in the basin. The pre-development conditions drainage basins within the project corridor are relatively small and highly impervious. These basins have a TOC of 10 minutes where the majority of runoff occurs via overland flow to the storm sewer system or storage area.

### **4.3 Hydraulic Modeling**

ICPR routes runoff hydrographs dynamically in the defined stormwater management system, using the St. Venant hydrodynamic flow equations for gradually varied one-dimensional flow. In ICPR, stormwater management systems are idealized as node-link networks. After routing the hydrograph, the ICPR model generates storage and discharge hydrographs, including peak stages, discharge (flow) and discharge volumes. The hydraulic modeling parameters used to routing the design storm event runoff hydrographs are described in detail in the following subsections.

### 4.3.1 Nodes

In ICPR, nodes or junction are used to simulate lakes, retention/detention ponds, and model boundary conditions. There are several node types used in ICPR:

- Stage-Area
- Stage-Volume
- Time-Stage
- Manholes

Stage-area and stage-volume nodes are typically used to simulate lakes, retention/detention ponds, inlets with storage above the grade elevation, and manholes and inlets without available storage. Node initial stage is the stage at the beginning of the storm event simulation. These stages were established as the higher of the node invert elevation and the boundary condition stage elevation. Node warning stage is a user-defined stage and is not used in the ICPR computations.

Time stage nodes are typically used for establishing model boundary conditions such as canals, lakes, the ocean and the groundwater table. For the pond located next to the Children's Museum Station, the model boundary condition was assumed as the groundwater table for the drainage well.

### 4.3.2 Links

Links or reaches define physical characteristics of the drainage or conveyance system. The ICPR model allows for a wide range of reach types to be simulated:

- Culverts (circular, oval, arch, and rectangular)
- Channels (trapezoidal, parabolic, and irregular)
- Weirs (horizontal or vertical trapezoidal, parabolic, arch, rectangular, and irregular)
- Drop Structures
- Rating Curves
- Bridges
- Breaches

The links used in the Children's Museum Station hydraulic modeling include weirs and rating curves.

### 4.3.3 Rating Curves and Operating Tables for Injection Drainage Wells

Discharge to the aquifer from injection drainage well is defined using Operating Tables and Rating Curves in ICPR. An Upstream stage vs. Discharge relationship in the Operating Table dialog should be used to simulate well flow. For the Children's Museum Station design, the permitted well capacity is 1200 GPM/ft of head (2.67 cfs/ft of head).



Upstream Stage	Flow (gpm)	Flow (cfs)
0.44	0	0.00
1.94	0	0.00
2	72	0.16
2.5	672	1.50
3	1272	2.83
3.5	1872	4.17
4	2472	5.51
5	3672	8.18
6	4872	10.85
8	7272	16.20
10	9672	21.55

## SECTION 5 BASIN ANALYSIS

The proposed track alignment will be an elevated open deck track. Stormwater runoff will fall through the track to the existing ground below. Therefore, water quality will not be impacted by this project. There will be no increase the impervious area due to the track alignment, therefore there will be no increase in stormwater runoff. Four Stations are proposed along the Bay Crossing. They are the Herald Plaza Station, Children's Museum Station, 5<sup>th</sup> Street and Lenox Avenue Station, and 5<sup>th</sup> Street and Washington Avenue Station. Pre- and Post-Development basin analysis can be found in Appendix 2.

Herald Plaza Station is located over and existing impervious area, so there will not be an increase in runoff from this site. The station site will not decrease water quality from the basin it is located in.

The Children's Museum Station will be located on Watson Island, adjacent to an existing dry retention pond. Pond recovery is via an existing drainage well. The pond will be reconfigured to account for the new station. In addition the pipe connection to the existing drainage well will be reconfigured. The reconfigured pond will contain the runoff from the 25-year/72-hour storm event within the confines of the reconfigured pond.

In Miami Beach, there will be two Stations located on 5<sup>th</sup> Street. The first station will be located between Lenox Avenue and Michigan Avenue between the east and west bound travel lanes. The existing left turn lanes to Lenox Avenue and Michigan Avenue will be removed, which will improve the water quality. The existing raised grass median will also be removed, leading to a negligible increase in runoff to the local drainage system.

The second station will be located between Meridian Avenue and Washington Avenue between the east and west bound travel lanes. The existing left turn lane to Meridian Avenue and one of the dual left turn lanes onto Washington Avenue will be removed, which will improve the water quality.

The existing raised grass median will also be removed, leading to a negligible increase in runoff to the local drainage system.

**Table 5-1 – Pre/Post Basin Analysis**

STATION	POND ID	EXISTING CONDITIONS					PROPOSED CONDITIONS				
		IMPERVIOUS AREA (AC)	PERVIOUS AREA (AC)	TOTAL DRAINAGE AREA (AC)	25YR/72HR DISCHARGE (CFS)	25YR/72HR STAGE (FT)	IMPERVIOUS AREA (AC)	PERVIOUS AREA (AC)	TOTAL DRAINAGE AREA (AC)	25YR/72HR DISCHARGE (CFS)	25YR/72HR STAGE (FT)
HERALD PLAZA <sup>(1)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CHILDREN'S MUSEUM <sup>(2)</sup>	WA	9.07	2.23	11.30	N/A	6.69	9.24	2.06	11.30	N/A	6.73
LENOX AVENUE <sup>(3)</sup>	N/A	1.05	0.11	1.16	6.40	N/A	1.16	0.00	1.16	6.41	N/A
WASHINGTON AVENUE <sup>(3)</sup>	N/A	1.21	0.11	1.32	7.28	N/A	1.32	0.00	1.32	7.29	N/A
Notes: 1. The existing ground surface is 100 % DCIA, therefore there will be no change between the existing and proposed conditions.											
2. The Childrens Museum Station will drain to an existing retention pond, stormwater runoff is recovered via drainage wells											
3. The Lenox Avenue and Washingto Avenue Stations will be constructed in median of 5th Street, runoff will drain to the existing curb an gutter storm drain.											

***APPENDIX 1 FEMA Floodplain Map***

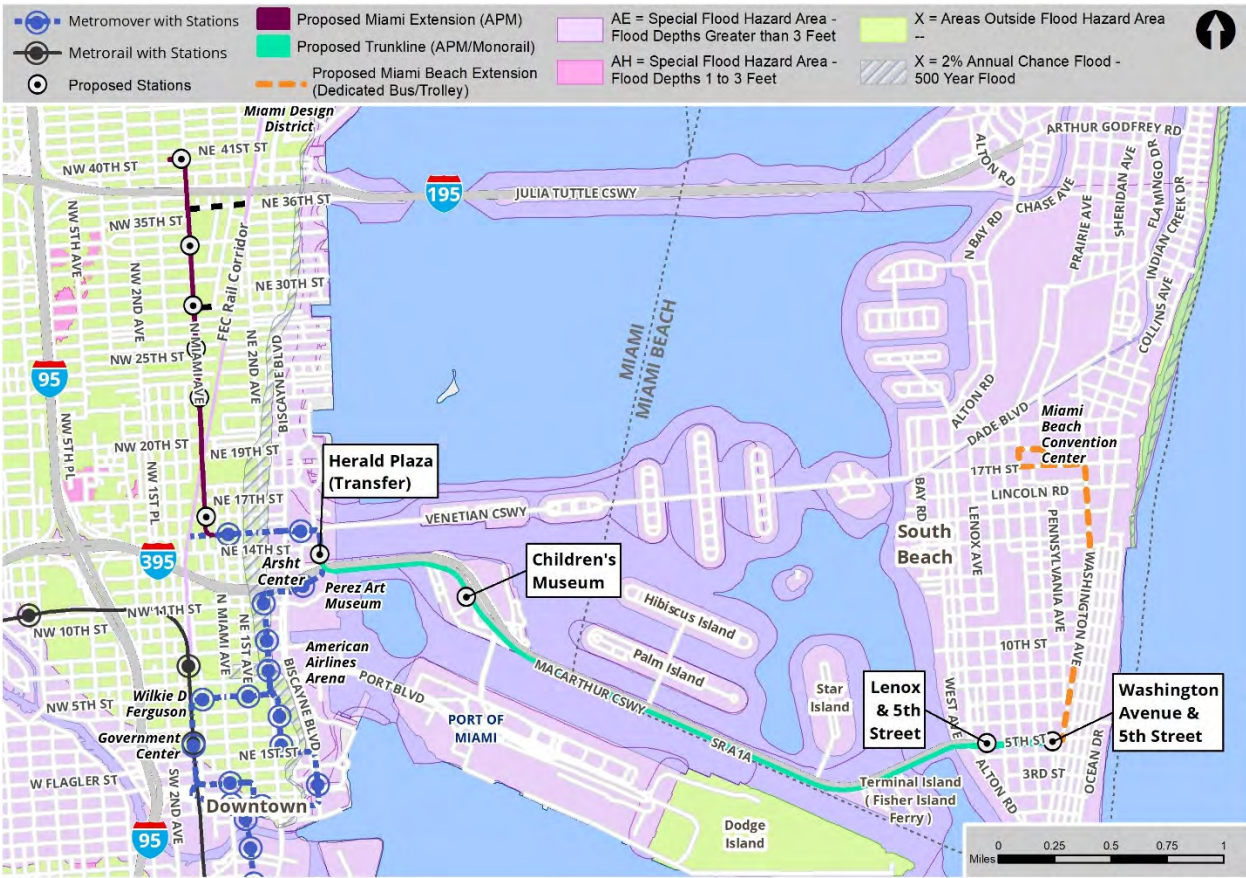


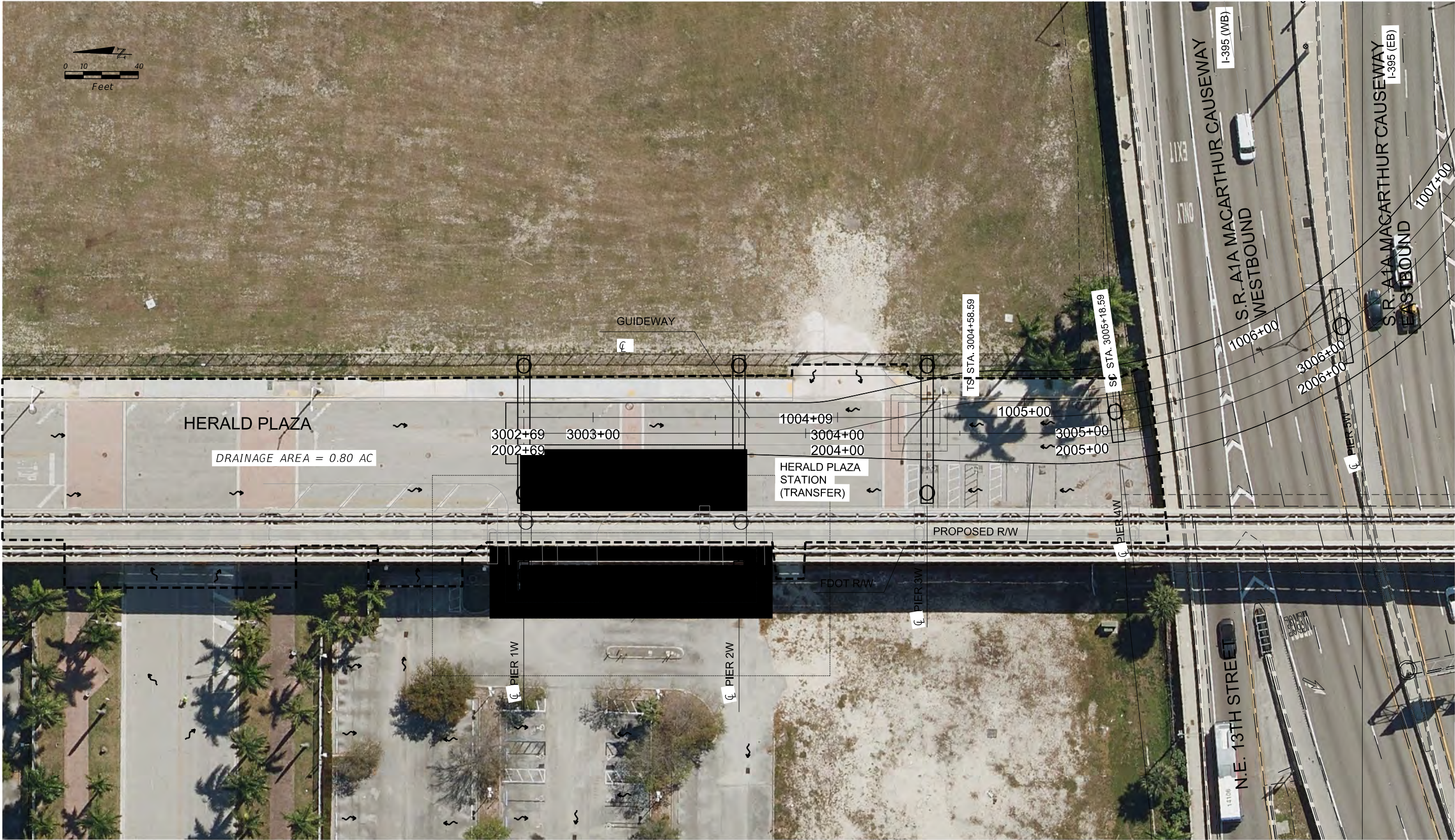
Figure 3 FEMA Floodplain Map



## ***APPENDIX 2 BASIN ANALYSIS***



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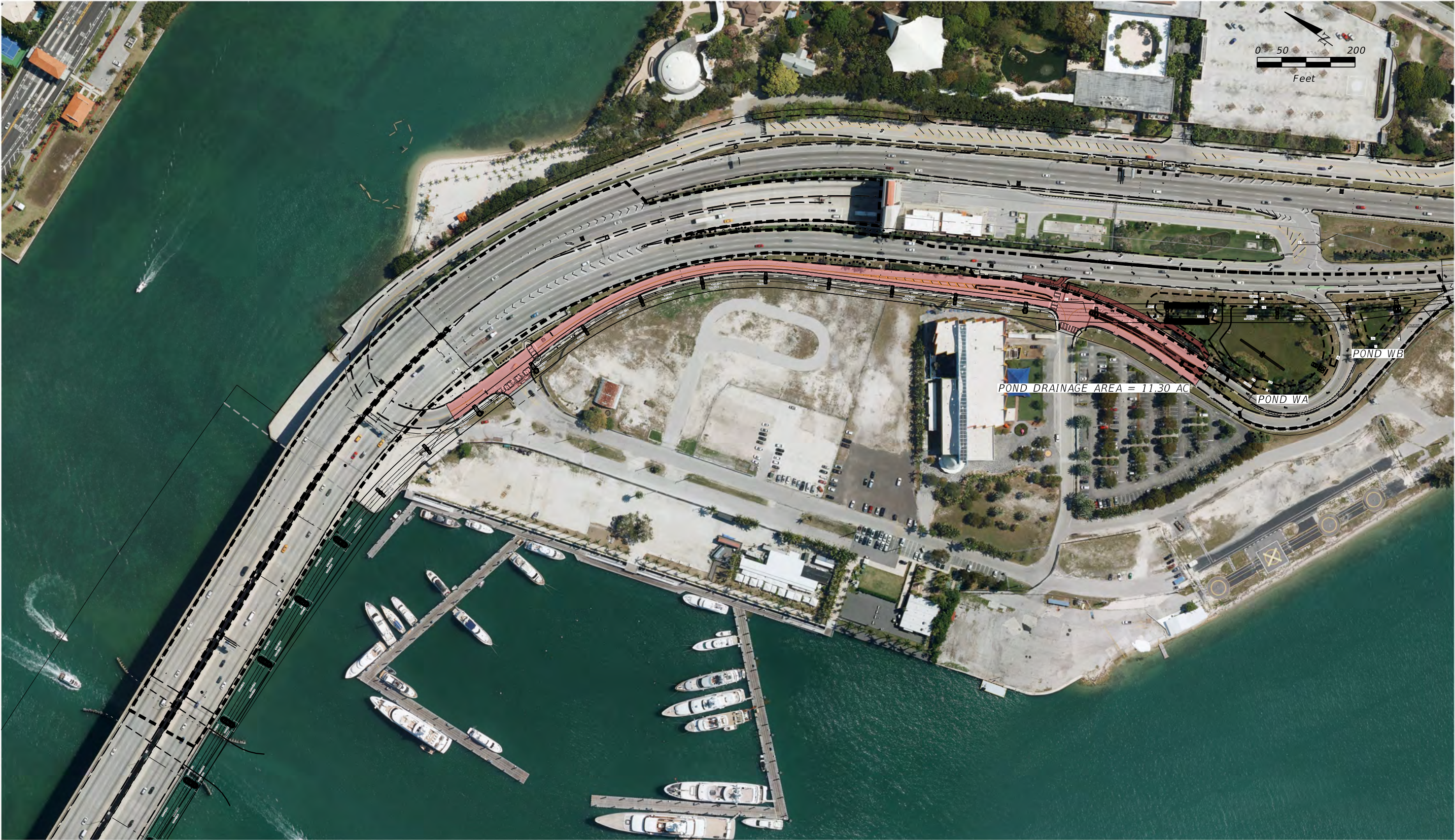


PERMIT PLANS

				Designed by LEF 10/20	<div><div><div><div>MIAMI-DADE COUNTY</div><div>PEOPLE'S TRANSPORTATION PLAN</div></div><div><div>DTPW TRANSIT</div></div></div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP # 153				<div>DRAWING TITLE:  BEACH CORRIDOR DRAINAGE MAP HERALD PLAZA STATION</div> <div>DRAWING NO. SHEET NO.</div>
				Drawn by LEF 10/20		<div><div><div><div></div><div>PARSONS</div></div><div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126</div><div>PHONE: (786) 464-1000 FAX: (786) 845-7119</div><div>CERTIFICATE OF AUTHORIZATION NO. 1638</div><div>EDWARD J. KORY, P.E. P.E. LICENSE No. 53178</div></div></div></div>				
				Checked by EJK 10/20						
				DRAWING SCALE: 1"=40'						
No.	Date	App.	Revisions			APPROVED	DATE	APPROVED	DATE	



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PERMIT PLANS

				Designed by LEF 10/20	 <div>DTPW TRANSIT</div> <div>PEOPLE'S TRANSPORTATION PLAN</div>	<div>BEACH CORRIDOR RAPID TRANSIT PD &amp; E - CIP # 153</div> <div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION NO. 1838 EDWARD J. KORY, P.E. P.E. LICENSE No. 53178</div></div>		<div>DRAWING TITLE: BEACH CORRIDOR DRAINAGE MAP CHILDREN MUSEUM STATION</div>		
				Drawn by LEF 10/20						
				Checked by EJK 10/20						
				DRAWING SCALE: 1"=200'						
No.	Date	App.	Revisions		APPROVED	DATE	APPROVED	DATE	DRAWING NO.	SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



<b>PARSONS</b> ENGINEERS AND PLANNERS	<b>SUBJECT:</b>	Beach Corridor	<b>CIP #</b> 153
		Children's Museum Station Existing Conditions	
	<b>MADE BY:</b>	EJK	<b>DATE:</b> 10/23/20
	<b>CHECKED BY:</b>	LF	<b>DATE:</b> 10/23/20

#### Children's Museum Station Existing Conditions

The Children's Museum Station will be located over the west corner of existing Pond WA. The station will impact this pond. The existing pond is a dry retention facility the is recovered via an existing drainage well, which will need to be relocated due to the location of the proposed station.

<b>Total Area (A) =</b>	11.3	acres
Water Surface =	0.00	acres
DCIA =	9.07	acres
% DCIA =	80.27	%
Pervious =	2.23	acres

Soils: Urban Land "15"; Area = 2.23 acres

2.23 acres

#### **Weighted Curve Number Calculation (CN)**

Land Use	SCS Class	Area	CN	Product
Open Space, good condition	D	2.23	80	178.4
DCIA		9.07	98	888.9
		11.30		1067.26

<b>Weighted CN = 94.45</b>
----------------------------

#### **Time of Concentration (Tc)**

Travel Time to Existing Pond

**Tc = 10.00 minutes**



Nodes

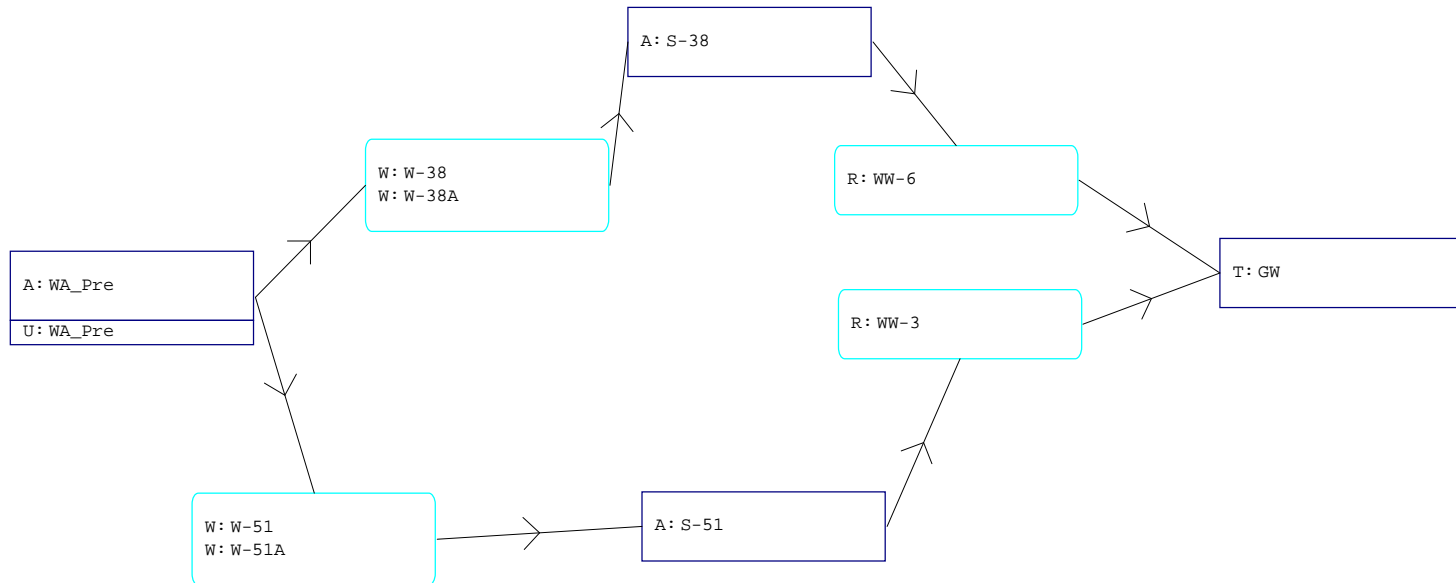
A Stage/Area  
V Stage/Volume  
T Time/Stage  
M Manhole

Basins

O Overland Flow  
U SCS Unit CN  
S SBUH CN  
Y SCS Unit GA  
Z SBUH GA

Links

P Pipe  
W Weir  
C Channel  
D Drop Structure  
B Bridge  
R Rating Curve  
H Breach  
E Percolation  
F Filter  
X Exfil Trench



---

Basin Name: WA\_Pre  
Group Name: BASE  
Simulation: SFWMD72  
Node Name: WA\_Pre  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh323  
Peaking Fator: 323.0  
Spec Time Inc (min): 1.33  
Comp Time Inc (min): 1.33  
Rainfall File: Sfwmd72  
Rainfall Amount (in): 11.000  
Storm Duration (hrs): 72.00  
Status: Onsite  
Time of Conc (min): 10.00  
Time Shift (hrs): 0.00  
Area (ac): 11.300  
Vol of Unit Hyd (in): 1.001  
Curve Number: 94.450  
DCIA (%): 0.000  
  
Time Max (hrs): 60.00  
Flow Max (cfs): 59.06  
Runoff Volume (in): 10.329  
Runoff Volume (ft3): 423696

```
=====
---- Basins -----
=====
```

```
Name: WA_Pre           Node: WA_Pre           Status: Onsite
Group: BASE            Type: SCS Unit Hydrograph CN
```

```
Unit Hydrograph: Uh323           Peaking Factor: 323.0
Rainfall File:                  Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000       Time of Conc(min): 10.00
Area(ac): 11.300                Time Shift(hrs): 0.00
Curve Number: 94.45             Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00
```

```
=====
---- Nodes -----
=====
```

```
Name: GW                 Base Flow(cfs): 0.000       Init Stage(ft): 0.440
Group: BASE              Warn Stage(ft): 0.000
Type: Time/Stage
```

Time(hrs)	Stage(ft)
0.00	0.440
100.00	0.440

```
Name: S-38               Base Flow(cfs): 0.000       Init Stage(ft): 1.690
Group: BASE              Warn Stage(ft): 0.000
Type: Stage/Area
```

Stage(ft)	Area(ac)
-3.500	0.0000
5.500	0.0010

```
Name: S-51               Base Flow(cfs): 0.000       Init Stage(ft): 1.690
Group: BASE              Warn Stage(ft): 0.000
Type: Stage/Area
```

Stage(ft)	Area(ac)
-3.500	0.0000
5.500	0.0010

```
Name: WA_Pre             Base Flow(cfs): 0.000       Init Stage(ft): 2.600
Group: BASE              Warn Stage(ft): 0.000
Type: Stage/Area
```

Stage(ft)	Area(ac)
2.600	0.8700
7.000	1.3800

```
=====
---- Operating Tables -----
=====
```

```
Name: W_OPT_1200         Group: BASE
Type: Rating Curve
Function: US Stage vs. Discharge
```

Well flow = 1200 GPM per foot of head  
Water Table Elevation at Mean High Tide is 0.44' NAVD  
Mounding due to freshwater in salt water intrusion zone for well = 1.50'  
Well flow capped at elevation 8.0' NAVD

US Stage(ft)	Discharge(cfs)
0.440	0.00
1.940	0.00
2.000	0.16
2.500	1.50

---

3.000	2.83
3.500	4.17
4.000	5.51
5.000	8.18
5.500	9.52
6.000	10.85
8.000	16.20
10.000	21.55

=====  
===== Weirs =====  
=====

Name: W-38                      From Node: WA\_Pre  
Group: BASE                      To Node: S-38  
Flow: Both                      Count: 1  
Type: Horizontal                  Geometry: Rectangular

Span(in): 49.00  
Rise(in): 37.00  
Invert(ft): 5.500  
Control Elevation(ft): 5.500

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

-----

Name: W-38A                      From Node: WA\_Pre  
Group: BASE                      To Node: S-38  
Flow: Both                      Count: 1  
Type: Horizontal                  Geometry: Rectangular

Span(in): 50.00  
Rise(in): 44.00  
Invert(ft): 6.420  
Control Elevation(ft): 6.420

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

-----

Name: W-51                      From Node: WA\_Pre  
Group: BASE                      To Node: S-51  
Flow: Both                      Count: 1  
Type: Horizontal                  Geometry: Rectangular

Span(in): 49.00  
Rise(in): 37.00  
Invert(ft): 5.500  
Control Elevation(ft): 5.500

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

-----

Name: W-51A                      From Node: WA\_Pre  
Group: BASE                      To Node: S-51  
Flow: Both                      Count: 1  
Type: Horizontal                  Geometry: Rectangular

Span(in): 50.00  
Rise(in): 44.00  
Invert(ft): 5.500  
Control Elevation(ft): 5.500

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

=====  
==== Rating Curves =====  
=====



Name: WW-3                      From Node: S-51                      Count: 1  
Group: BASE                      To Node: GW                      Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: W_OPT_1200	1.500	1.500
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

Name: WW-6                      From Node: S-38                      Count: 1  
Group: BASE                      To Node: GW                      Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: W_OPT_1200	1.500	1.500
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

=====  
Hydrology Simulations  
=====

Name: SFWMD72  
Filename: C:\Temp\Beach Corridor\ICPR\SFWMD72.R32

Override Defaults: Yes  
Storm Duration(hrs): 72.00  
Rainfall File: Sfwmd72  
Rainfall Amount(in): 11.00

Time(hrs)	Print Inc(min)
100.000	5.00

=====  
Routing Simulations  
=====

Name: SFWMD72                      Hydrology Sim: SFWMD72  
Filename: C:\Temp\Beach Corridor\ICPR\SFWMD72.I32

Execute: Yes                      Restart: No                      Patch: No  
Alternative: No

Max Delta Z(ft): 1.00	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 100.00
Min Calc Time(sec): 0.5000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
100.000	15.000

Group	Run
BASE	Yes

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
GW	BASE	SFWMD72	0.00	0.44	0.00	0.0000	0	60.28	25.25	0.00	0.00
S-38	BASE	SFWMD72	60.28	6.66	0.00	0.0050	113	60.26	12.61	60.28	12.61
S-51	BASE	SFWMD72	60.28	6.67	0.00	0.0060	113	60.32	16.12	60.28	12.64
WA_Pre	BASE	SFWMD72	60.28	6.69	0.00	0.0029	58547	60.00	59.05	60.32	28.72

<b>PARSONS</b> ENGINEERS AND PLANNERS	<b>SUBJECT:</b>	Beach Corridor	<b>CIP #</b> 153
		Children's Museum Station Proposed Conditions	
	<b>MADE BY:</b>	EJK	<b>DATE:</b> 10/23/20
	<b>CHECKED BY:</b>	LF	<b>DATE:</b> 10/23/20

#### Children's Museum Station Proposed Conditions

The Children's Museum Station will be located over the west corner of existing Pond WA. The station will impact this pond. The existing pond is a dry retention facility the is recovered via an existing drainage well, which will need to be relocated due to the location of the proposed station. To match the permitted stages in Pond WA, a second drainage well will be required in the reconfigured pond.

<b>Total Area (A) =</b>	11.3	acres
Water Surface =	0.00	acres
DCIA =	9.24	acres
% DCIA =	81.77	%
Pervious =	2.06	acres

Soils: Urban Land; "15";Area = 2.06 acres

2.06 acres

#### Weighted Curve Number Calculation (CN)

Land Use	SCS Class	Area	CN	Product
Open Space, good condition	C	2.06	80	164.8
DCIA		<u>9.24</u>	98	<u>905.5</u>
		11.30		1070.32
<b>Weighted CN =</b>				<b>95</b>

#### Time of Concentration (Tc)

Travel Time to Existing Pond

**Tc = 10.00 minutes**

<b>Project Name:</b>	Beach Corridor Rapid Transit Project	<b>Designer:</b>	EJK
<b>Contract No.</b>	153	<b>Checked by:</b>	LF
<b>County:</b>	Miami-Dade	<b>Date:</b>	10/29/2020
<b>Basin:</b>	System 2: Basins WA and WB		

#### Water Quality Calculation

Total Area = 11.3 acres  
Impervious Area = 9.24 acres  
Pervious Area = 2.06 acres

Water Quality Required: Use the more stringent of either the South Florida Water Management District (SFWMD) criteria or Miami-Dade County Department of Regulatory Economic Resource (DRER) criteria

SFWMD Criteria: Treat the greater of the following, the first inch of runoff from the project site or 2.5 inches times the percentage of impervious area. For dry retention systems 50% of the above values apply and for dry detention 75% of the values above apply.-

DRER Criteria: The first inch of runoff from the farthest point of the drainage basin is required to be retained onsite.

SFWMD Criteria: First inch of runoff from the project site: **0.47 acre-feet**  
or  
2.5 inches time percentage of impervious area: **0.96 acre-feet**  
OFW Requirement : **1.44 acre-feet**

$$\text{DRER Criteria: } t_1 = \frac{2940 * F^{-0.11}}{308.5 * C - 60.5 * (0.5895 + F^{-0.67})}$$

Where:  $t_1$  = time to generate 1 inch of runoff in minutes  
F = 10-year frequency in years, DCPW Manual, Part II, Section D4 - Water Control, Table 1.  
C = Weighted runoff coefficient from the rational formula  
 $T_c$  = 10 minutes, time of concentration in minutes

C = **0.83**  
 $t_1$  = **10.98 minutes**

Total Time of Concentration  $T_t$  = **20.98 minutes**

$$\text{Stormwater Intensity (from Dade County Rainfall IDF Curves) = } i = \frac{308.5}{48.6 * F^{-0.11} + T_t * (0.5895 + F^{-0.67})}$$

i = **5.65 inches/hour**

Runoff Flow =  $Q_1 = C * I * A =$  **53.11 cfs** (Note: For 1<sup>st</sup> inch of runoff)

Total Runoff Volume to be Treated ( $V_1$ ) =  $V_1 = 60 * Q_1 * T_t =$  **66846.2 cf = 1.53 acre-feet**

Therefore Required Water Quality Treatment Volume = **1.53 acre-feet**

BASIN WA & WB / STORAGE RELATIONSHIP (Pond WA & WB)					
Stage	Area	Average Area	Storage	Accum. Storage	
2.60	0.67	0.88	0.00	0.00	
7.00	1.08		3.85	3.85	

#### Water Quality Volume (WQV) Provided

#### WATER QUANTITY ELEVATION

Stage	Storage (ac-ft)
2.60	0.00
7.00	3.85

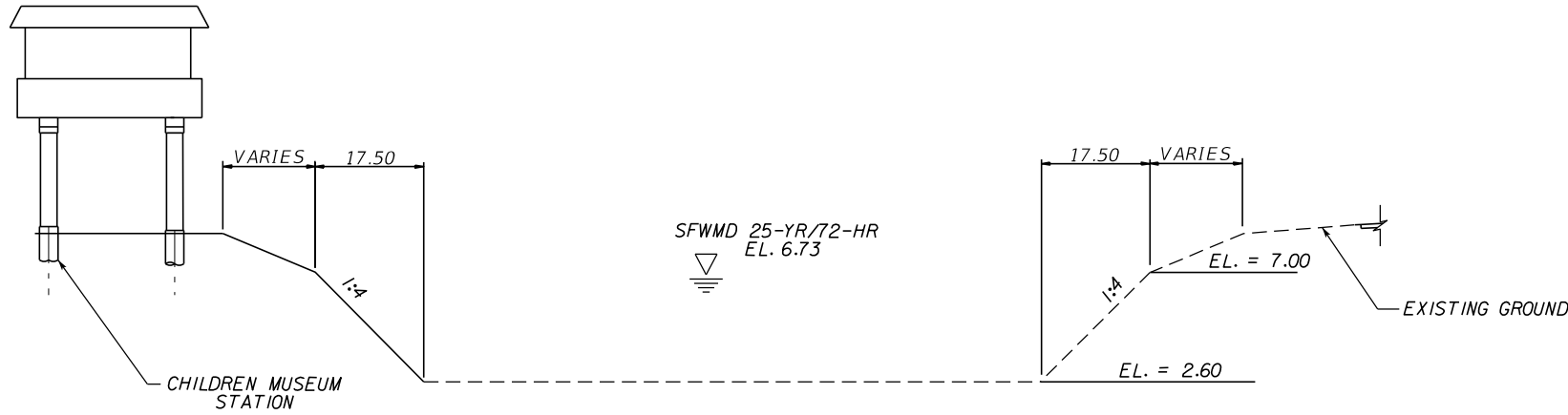
Therefore, from linear interpolation, minimum water quantity elevation = **4.35** NAVD  
to provide 1.53 ac-ft of required water quantity volume.

Set weir overflow elevation at 5.00 to provide 2.10 ac-ft of Water Quantity Volume

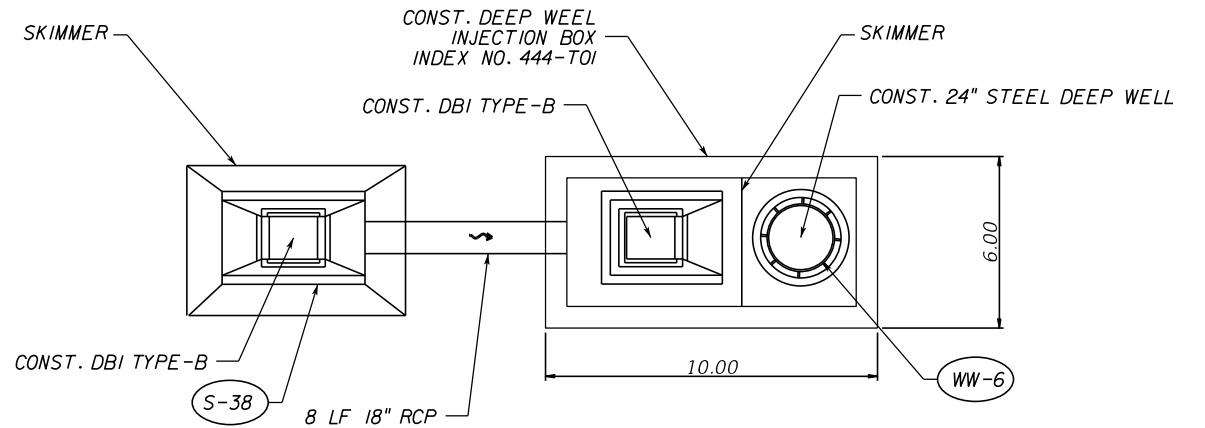




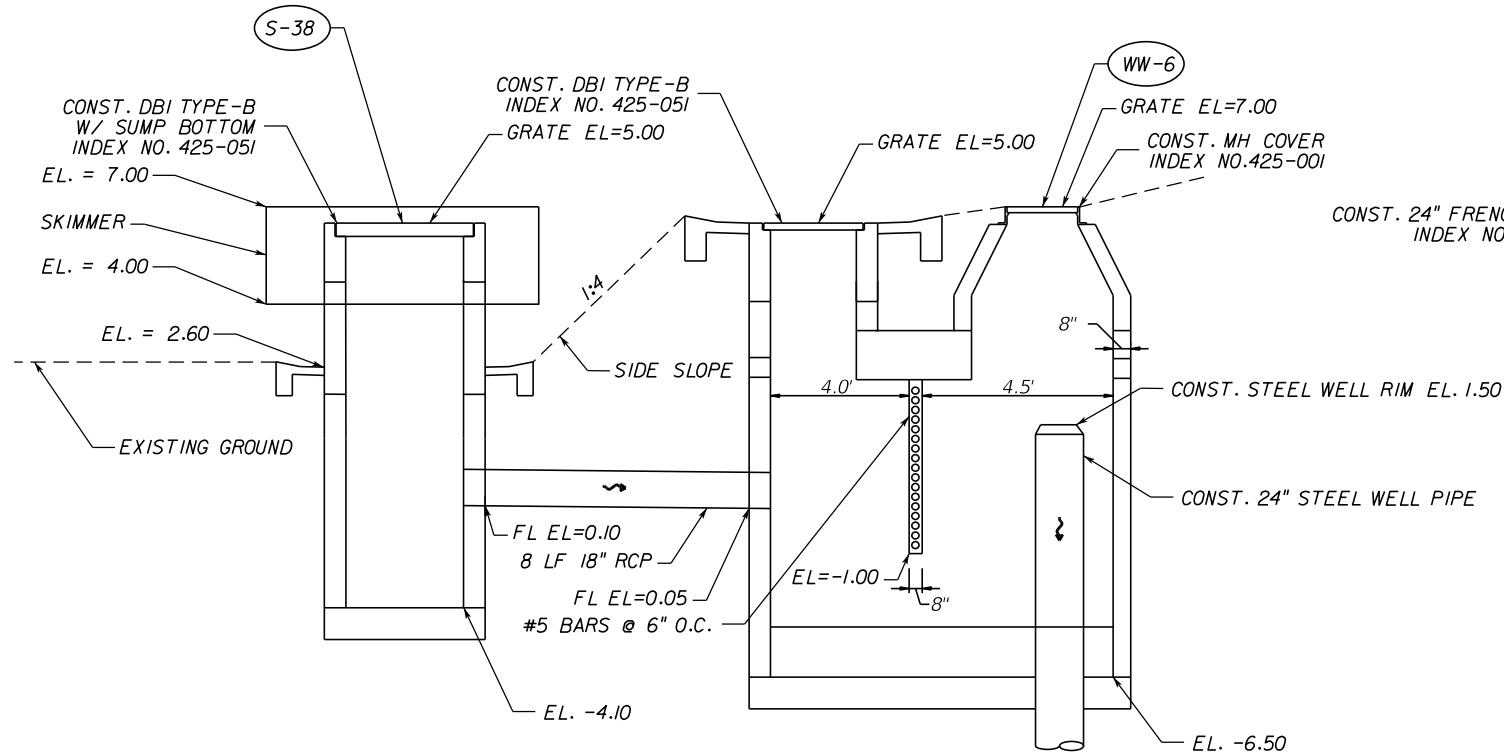
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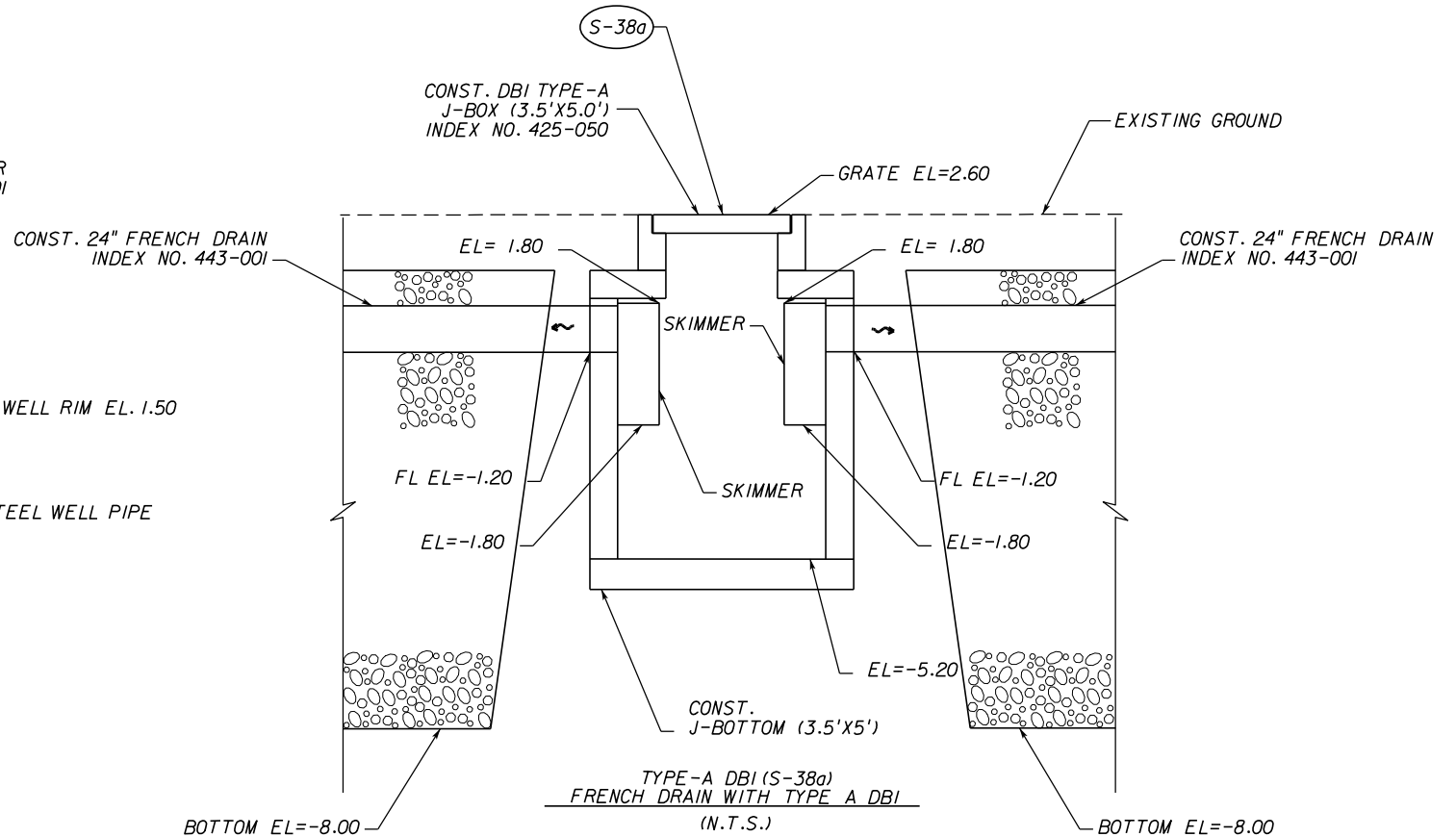
POND WA  
CROSS SECTION AA  
(N.T.S.)



PLAN VIEW TYPE-B DBI  
& DRAINAGE DEEP WELL  
(N.T.S.)



TYPE-B (S-38) &  
DRAINAGE DEEP WELL (WW-6)  
(N.T.S.)



TYPE-A DBI (S-38a)  
FRENCH DRAIN WITH TYPE A DBI  
(N.T.S.)

PERMIT PLANS

				Designed by LEF 10/20	<div><div>DTPW TRANSIT</div><div>PEOPLE'S TRANSPORTATION PLAN</div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP # 153				<div>DRAWING TITLE:  BEACH CORRIDOR POND WA DETAILS (2)</div>	
				Drawn by LEF 10/20		<div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION NO. 1838 EDWARD J. KORY, P.E. P.E. LICENSE No. 53178</div></div>					
				Checked by EJK 10/20							
				DRAWING SCALE: N.T.S.							
No.	Date	App.	Revisions			APPROVED	DATE	APPROVED	DATE	DRAWING NO.	SHEET NO.

Nodes

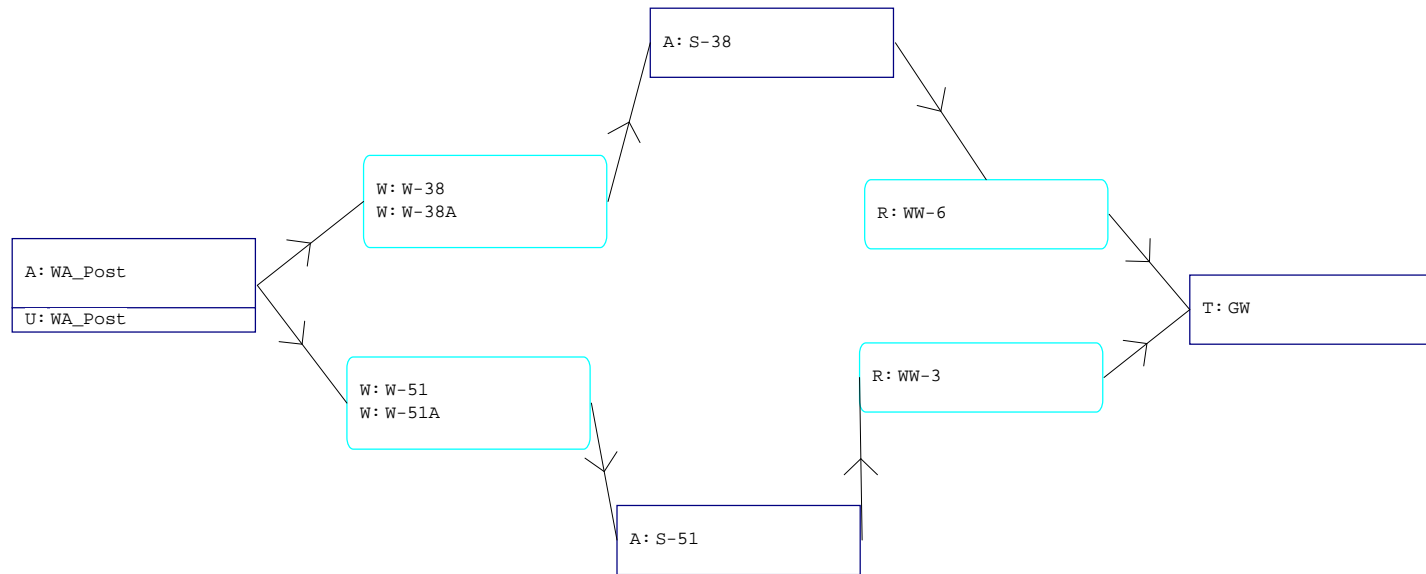
A Stage/Area  
V Stage/Volume  
T Time/Stage  
M Manhole

Basins

O Overland Flow  
U SCS Unit CN  
S SBUH CN  
Y SCS Unit GA  
Z SBUH GA

Links

P Pipe  
W Weir  
C Channel  
D Drop Structure  
B Bridge  
R Rating Curve  
H Breach  
E Percolation  
F Filter  
X Exfil Trench



---

Basin Name: WA\_Post  
Group Name: BASE  
Simulation: SFWMD72  
Node Name: WA\_Post  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh323  
Peaking Fator: 323.0  
Spec Time Inc (min): 1.33  
Comp Time Inc (min): 1.33  
Rainfall File: Sfwmd72  
Rainfall Amount (in): 11.000  
Storm Duration (hrs): 72.00  
Status: Onsite  
Time of Conc (min): 10.00  
Time Shift (hrs): 0.00  
Area (ac): 11.300  
Vol of Unit Hyd (in): 1.001  
Curve Number: 95.000  
DCIA (%): 0.000  
  
Time Max (hrs): 60.00  
Flow Max (cfs): 59.13  
Runoff Volume (in): 10.397  
Runoff Volume (ft3): 426474

```
=====
---- Basins -----
=====
```

```
Name: WA_Post          Node: WA_Post          Status: Onsite
Group: BASE            Type: SCS Unit Hydrograph CN
```

```
Unit Hydrograph: Uh323          Peaking Factor: 323.0
Rainfall File:                  Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000      Time of Conc(min): 10.00
Area(ac): 11.300                Time Shift(hrs): 0.00
Curve Number: 95.00             Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00
```

```
=====
---- Nodes -----
=====
```

```
Name: GW                Base Flow(cfs): 0.000      Init Stage(ft): 0.440
Group: BASE              Warn Stage(ft): 0.000
Type: Time/Stage
```

Time(hrs)	Stage(ft)
0.00	0.440
100.00	0.440

```
Name: S-38              Base Flow(cfs): 0.000      Init Stage(ft): 1.690
Group: BASE              Warn Stage(ft): 0.000
Type: Stage/Area
```

Stage(ft)	Area(ac)
-3.500	0.0000
5.500	0.0010

```
Name: S-51              Base Flow(cfs): 0.000      Init Stage(ft): 2.200
Group: BASE              Warn Stage(ft): 0.000
Type: Stage/Area
```

Stage(ft)	Area(ac)
-0.200	0.0000
5.500	0.0010

```
Name: WA_Post          Base Flow(cfs): 0.000      Init Stage(ft): 2.600
Group: BASE              Warn Stage(ft): 0.000
Type: Stage/Area
```

Stage(ft)	Area(ac)
2.600	0.6700
7.000	1.0800

```
=====
---- Operating Tables -----
=====
```

```
Name: W_OPT_1200        Group: BASE
Type: Rating Curve
Function: US Stage vs. Discharge
```

Well flow = 1200 GPM per foot of head  
Water Table Elevation at Mean High Tide is 0.44' NAVD  
Mounding due to freshwater in salt water intrusion zone for well =  
1.50' Well flow capped at elevation 8.0' NAVD

US Stage(ft)	Discharge(cfs)
0.440	0.00
1.940	0.00
2.000	0.16
2.500	1.50



---

3.000	2.83
3.500	4.17
4.000	5.51
5.000	8.18
5.500	9.52
6.000	10.85
8.000	16.20
10.000	21.55

=====  
===== Weirs =====  
=====

Name: W-38                      From Node: WA\_Post  
Group: BASE                    To Node: S-38  
Flow: Both                    Count: 1  
Type: Horizontal              Geometry: Rectangular

Span(in): 49.00  
Rise(in): 37.00  
Invert(ft): 5.000  
Control Elevation(ft): 5.500

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

-----

Name: W-38A                    From Node: WA\_Post  
Group: BASE                    To Node: S-38  
Flow: Both                    Count: 1  
Type: Horizontal              Geometry: Rectangular

Span(in): 50.00  
Rise(in): 44.00  
Invert(ft): 5.000  
Control Elevation(ft): 5.000

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

-----

Name: W-51                    From Node: WA\_Post  
Group: BASE                    To Node: S-51  
Flow: Both                    Count: 1  
Type: Horizontal              Geometry: Rectangular

Span(in): 49.00  
Rise(in): 37.00  
Invert(ft): 5.500  
Control Elevation(ft): 5.500

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

-----

Name: W-51A                    From Node: WA\_Post  
Group: BASE                    To Node: S-51  
Flow: Both                    Count: 1  
Type: Horizontal              Geometry: Rectangular

Span(in): 50.00  
Rise(in): 44.00  
Invert(ft): 5.500  
Control Elevation(ft): 5.500

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

=====  
==== Rating Curves =====  
=====

Name: WW-3                      From Node: S-51                      Count: 1  
Group: BASE                      To Node: GW                      Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: W_OPT_1200	1.500	1.500
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

Name: WW-6                      From Node: S-38                      Count: 1  
Group: BASE                      To Node: GW                      Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: W_OPT_1200	1.500	1.500
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

=====  
Hydrology Simulations  
=====

Name: SFWMD72  
Filename: C:\Temp\Beach Corridor\ICPR\SFWMD72.R32

Override Defaults: Yes  
Storm Duration(hrs): 72.00  
Rainfall File: Sfwmd72  
Rainfall Amount(in): 11.00

Time(hrs)	Print Inc(min)
100.000	5.00

=====  
Routing Simulations  
=====

Name: SFWMD72                      Hydrology Sim: SFWMD72  
Filename: C:\Temp\Beach Corridor\ICPR\SFWMD72.I32

Execute: Yes                      Restart: No                      Patch: No  
Alternative: No

Max Delta Z(ft): 1.00	Delta Z Factor: 0.00500
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 100.00
Min Calc Time(sec): 0.5000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
100.000	15.000

Group	Run
BASE	Yes

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
GW	BASE	SFWMD72	0.00	0.44	0.00	0.0000	0	60.28	25.50	0.00	0.00
S-38	BASE	SFWMD72	60.28	6.71	0.00	0.0051	113	60.39	17.09	60.28	12.76
S-51	BASE	SFWMD72	60.28	6.71	0.00	0.0083	113	60.27	12.77	60.28	12.75
WA_Post	BASE	SFWMD72	60.28	6.73	0.00	0.0029	45947	60.00	59.12	60.39	29.79



C:\Pw\_Working\Flstate\p0042090\B1stborder01\_5TH ST LENOX AVE STATION.Dgn



PERMIT PLANS

				Designed by LEF 10/20	<div><div>DTPW TRANSIT</div><div>PEOPLE'S TRANSPORTATION PLAN</div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP # 153				DRAWING TITLE:  BEACH CORRIDOR DRAINAGE MAP 5TH ST AND LENOX AVE STATION	
				Drawn by LEF 10/20		<div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION NO. 1838 EDWARD J. KORY, P.E., P.E. LICENSE No. 53178</div></div>					
				Checked by EJK 10/20							
				DRAWING SCALE: 1"=40'							
No.	Date	App.	Revisions			APPROVED		DATE	APPROVED	DATE	DRAWING NO.

p0042090

11/3/2020

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<b>PARSONS</b> ENGINEERS AND PLANNERS	<b>SUBJECT:</b>	Beach Corridor	<b>CIP #</b> 153
		5th Street and Lenox Avenue Station Existing Conditions	
	<b>MADE BY:</b>	EJK	<b>DATE:</b> 10/22/20
	<b>CHECKED BY:</b>	LF	<b>DATE:</b> 10/22/20

#### **5th Street and Lennox Avenue Station Existing Conditions**

The existing area of 5th Street (SR A1A) between Lennox Avenue and Michigan Avenue is an urban arterial with a raised grass separator.

<b>Total Area (A) =</b>	1.16	acres
Water Surface =	0.00	acres
DCIA =	1.05	acres
% DCIA =	90.52	%
Pervious =	0.11	acres

Soils: Urban Land "15"; Area = 0.11 acres

0.11 acres

#### **Weighted Curve Number Calculation (CN)**

Land Use	SCS Class	Area	CN	Product
Open Space, good condition	D	0.11	80	8.8
DCIA		1.05	98	102.9
		1.16		111.70

<b>Weighted CN = 96.29</b>
----------------------------

#### **Time of Concentration (Tc)**

Travel Time to Existing Storm Sewer System

**Tc = 10.00 minutes**

<b>PARSONS</b> ENGINEERS AND PLANNERS	<b>SUBJECT:</b>	Beach Corridor	<b>CIP #</b> 153
		5th Street and Lenox Avenue Station Proposed Conditions	
	<b>MADE BY:</b>	EJK	<b>DATE:</b> 10/23/20
	<b>CHECKED BY:</b>	LF	<b>DATE:</b> 10/23/20

#### 5th Street and Lennox Avenue Station Proposed Conditions

The proposed improvements will eliminate the westbound left turn lane onto Lennox Avenue and the eastbound left turn lane onto Michigan Avenue. The raised grass separator and turn lanes eliminate will be replaced by pavers providing a walk way to the 5th Avenue Station.

<b>Total Area (A) =</b>	1.16	acres
Water Surface =	0.00	acres
DCIA =	1.16	acres
% DCIA =	100.00	%
Pervious =	0.00	acres

Soils: Urban Land; "15";Area = 0.00 acres

0.00 acres

#### Weighted Curve Number Calculation (CN)

Land Use	SCS Class	Area	CN	Product
Open Space, good condition	C	0.00	80	0.0
DCIA		<u>1.16</u>	98	<u>113.7</u>
		1.16		113.68
<b>Weighted CN =</b>				<b>98</b>

#### Time of Concentration (Tc)

Travel Time to Existing Storm Sewer System

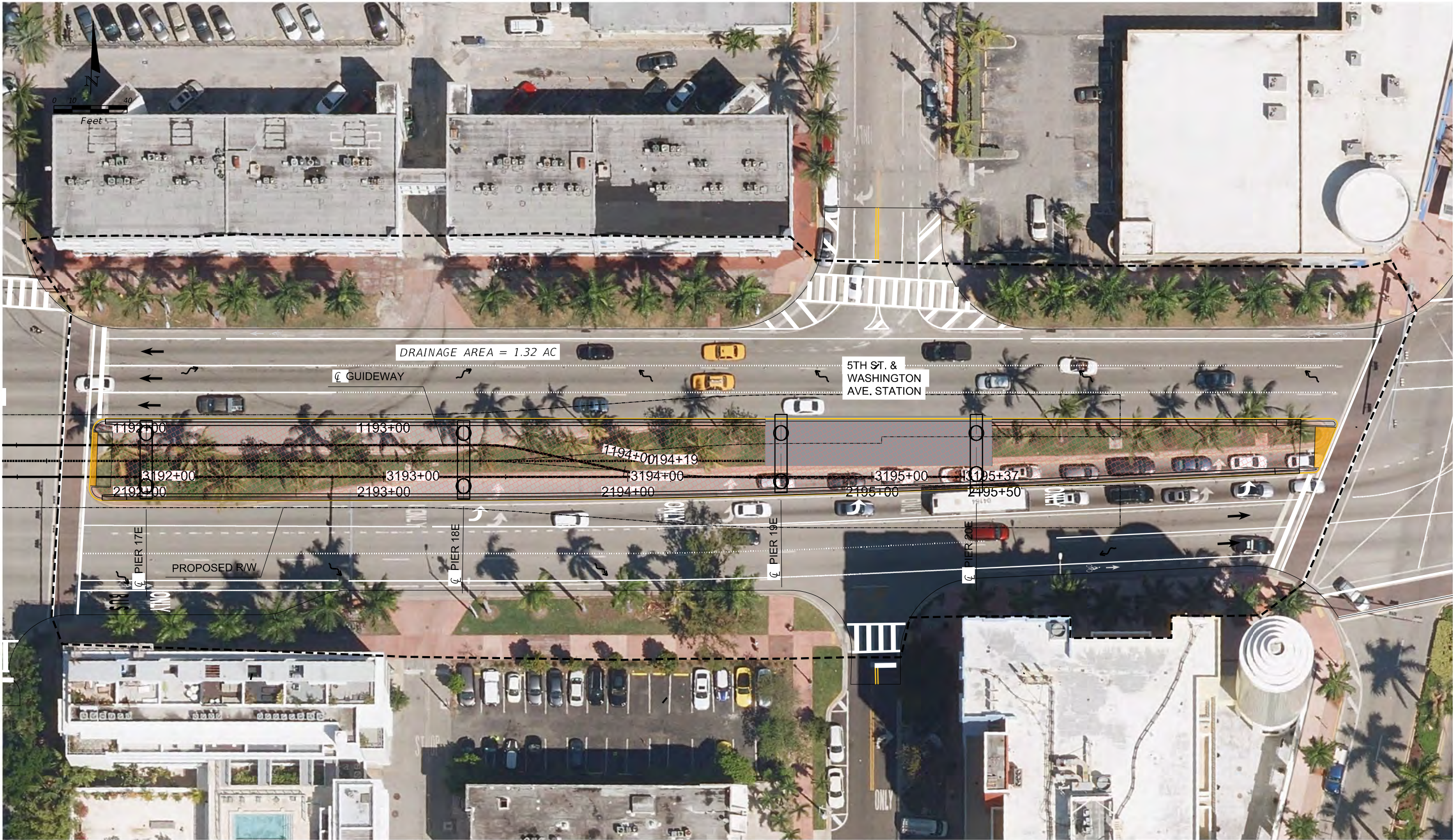
**Tc = 10.00 minutes**

---

Name: Lennox_Post	Lennox_Pre
Group: BASE	BASE
Simulation: 25YR72HR	25YR72HR
Node: Lennox_Post	Lennox_Pre
Type: SCS	SCS
Unit Hydrograph: Uh484	Uh484
Peaking Factor: 484.0	484.0
Spec Time Inc(min): 1.33	1.33
Comp Time Inc(min): 1.33	1.33
Rain File: Sfwmd72	Sfwmd72
Rain Amount(in): 11.000	11.000
Duration(hrs): 72.00	72.00
Status: Onsite	Onsite
TC(min): 10.00	10.00
Time Shift(hrs): 0.00	0.00
Area(ac): 1.160	1.160
Vol of Unit Hyd(in): 1.001	1.000
Curve Num: 98.000	96.290
DCIA(%): 0.000	0.000
Time Max(hrs): 59.98	59.98
Flow Max(cfs): 6.41	6.40
Runoff Volume(in): 10.744	10.537
Runoff Volume(ft3): 45242	44367



C:\Pw\_Working\Flstate\p0042090\0ms50025\B1stborder01\_5TH ST WASHINGTON AVE STATION.Dgn - - - -



PERMIT PLANS

				Designed by LEF 10/20	<div><div>DTPW TRANSIT</div><div>PEOPLE'S TRANSPORTATION PLAN</div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP # 153				DRAWING TITLE:  BEACH CORRIDOR DRAINAGE MAP 5TH ST AND WASHINGTON AVE STATION		
				Drawn by LEF 10/20		<div><div></div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION NO. 1838 EDWARD J. KORY, P.E., P.E. LICENSE No. 53178</div></div>						
				Checked by EJK 10/20								
				DRAWING SCALE: 1"=40'								
No.	Date	App.	Revisions									
					APPROVED		DATE	APPROVED	DATE		DRAWING NO.	SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



<b>PARSONS</b> ENGINEERS AND PLANNERS	<b>SUBJECT:</b>	Beach Corridor	<b>CIP #</b> 153
		5th Street and Washington Avenue Station Existing Conditions	
	<b>MADE BY:</b>	EJK	<b>DATE:</b> 10/23/20
	<b>CHECKED BY:</b>	LF	<b>DATE:</b> 10/23/20

#### 5th Street and Washington Avenue Station Existing Conditions

The existing area of 5th Street (SR A1A) between Meridian Avenue and Washington Avenue is an urban arterial with a raised grass separator.

<b>Total Area (A) =</b>	1.32	acres
Water Surface =	0.00	acres
DCIA =	1.21	acres
% DCIA =	91.67	%
Pervious =	0.11	acres

Soils: Urban Land "15"; Area = 0.11 acres

0.11 acres

#### **Weighted Curve Number Calculation (CN)**

Land Use	SCS Class	Area	CN	Product
Open Space, good condition	D	0.11	80	8.8
DCIA		1.21	98	118.6
		1.32		127.38

<b>Weighted CN = 96.50</b>
----------------------------

**Time of Concentration (Tc)**

<b>PARSONS</b> ENGINEERS AND PLANNERS	<b>SUBJECT:</b>	Beach Corridor	<b>CIP #</b> 153
		5th Street and Washington Avenue Station Proposed Conditions	
	<b>MADE BY:</b>	EJK	<b>DATE:</b> 10/23/20
	<b>CHECKED BY:</b>	LF	<b>DATE:</b>

#### 5th Street and Washington Avenue Station Proposed Conditions

The proposed improvements will eliminate the westbound left turn lane onto Meridian Avenue and one of the eastbound left turn lanes onto Washington Avenue. The raised grass separator and turn lanes eliminate will be replaced by pavers providing a walk way to the 5th Avenue Station.

<b>Total Area (A) =</b>	1.32	acres
Water Surface =	0.00	acres
DCIA =	1.32	acres
% DCIA =	100.00	%
Pervious =	0.00	acres

Soils: Urban Land; "15";Area = 0.00 acres

0.00 acres

#### Weighted Curve Number Calculation (CN)

Land Use	SCS Class	Area	CN	Product
Open Space, good condition	C	0.00	80	0.0
DCIA		<u>1.32</u>	98	<u>129.4</u>
		1.32		129.36
<b>Weighted CN =</b>				<b>98</b>

#### Time of Concentration (Tc)

Travel Time to Existing Storm Sewer System

**Tc = 10.00 minutes**

---

Name:	Washington_Post	Washington_Pre
Group:	BASE	BASE
Simulation:	25YR72HR	25YR72HR
Node:	Washington_Post	Washington_Pre
Type:	SCS	SCS
Unit Hydrograph:	Uh484	Uh484
Peaking Factor:	484.0	484.0
Spec Time Inc(min):	1.33	1.33
Comp Time Inc(min):	1.33	1.33
Rain File:	Sfwmd72	Sfwmd72
Rain Amount(in):	11.000	11.000
Duration(hrs):	72.00	72.00
Status:	Onsite	Onsite
TC(min):	10.00	10.00
Time Shift(hrs):	0.00	0.00
Area(ac):	1.320	1.320
Vol of Unit Hyd(in):	1.001	1.000
Curve Num:	98.000	96.500
DCIA(%):	0.000	0.000
Time Max(hrs):	59.98	59.98
Flow Max(cfs):	7.29	7.28
Runoff Volume(in):	10.744	10.562
Runoff Volume(ft3):	51483	50610

***APPENDIX 3 OCTOBER 25, 2019 MINUTES SFWMD MEETING***



**MEETING MINUTES**  
**Beach Corridor Rapid Transit Project – Bay Crossing**  
**Department of Transportation and Public Works**  
**South Florida Water Management District Pre-Application Meeting**  
**Friday, October 25, 2019 – 10:30-11:30 AM**

**Attendees:** Gayle Stone (E-Sciences, Inc.); Angel Chavarria (Parsons); Edward Kory (Parsons); Joe Marquez (SFWMD); Kathleen Maloney-Pollack (SFWMD); XXXX XXXXX (Parsons)

The meeting began with Mr. Chavarria presenting an overview of the bay crossing for the project. He indicated that the crossing would consist of two bridges and an elevated structure located on the south side of the MacArthur Causeway for either a monorail or an Automated People Mover (APM) (i.e. Metromover).

Mr. Kory interjected that these structures would have an open deck and thus would not collect stormwater runoff. Mr. Chavarria than added that both potential transportation modes would have rubber tires that run on a fixed guideway.

Mr. Marquez stated that a stormwater management permit would not be required since the bay crossing structure would not have an impervious surface (i.e. deck) that would collect stormwater runoff. He said the elevated structure would be considered similar to a building. After some additional thought, Mr. Marquez raised the point that typically buildings couldn't discharge directly to the outfall. He left the room to consult with other SFWMD staff and came back and confirmed that a stormwater management permit would not be required for the proposed bay crossing elevated structure. He said the project would require an environmental resource permit to address the environmental issues only.

Mr. Marquez asked who the permittee would be for this project. Ms. Stone said the Miami-Dade County Department of Transportation and Public Works (DTPW) would be the permittee and that the Florida Department of Transportation (FDOT) would be the co-applicant, since the bay crossing would be located within their right-of-way (ROW). Ms. Maloney-Pollack said the co-applicant from the County should be the Miami-Dade County Board of County Commissioners.

Mr. Chavarria asked if it a Sovereign Submerged Land (SSL) determination should be initiated before the permit is submitted. We were advised to ask FDOT, since they would have been required to obtain an easement for the MacArthur Causeway. SFWMD also said that the SSL easement would usually encompass the entire ROW. Therefore, the addition of the elevated bay crossing would require a modification of the current SSL easement over the MacArthur Causeway.

## ATTACHMENT D | SOCIOCULTURAL EFFECT EVALUATION (SCE) and MOF TITLE VI ANALYSIS REPORT

# **SOCIOCULTURAL EFFECTS EVALUATION REPORT**

for the

## **Beach Corridor Rapid Transit Project Project Development and Environment (PD&E) Study ETDM #14257**

**Prepared for:**

**MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION  
AND PUBLIC WORKS**



**Prepared by:**

**E Sciences, Incorporated**

**In association with:**

**Parsons**

**June 2020**

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# 1 PROJECT OVERVIEW

## 1.1 INTRODUCTION

In 2016, the Miami-Dade County Transportation Planning Organization (TPO) adopted the Strategic Miami Area Rapid Transit (SMART) Plan as the blueprint for developing premium transit services throughout Miami-Dade County (Figure 1-1). Subsequently, the Miami-Dade County Department of Transportation and Public Works (DTPW) initiated the Beach Corridor Rapid Transit Project, Project Development and Environment (PD&E) Study in 2017, in collaboration with the Florida Department of Transportation (FDOT) and the cities of Miami and Miami Beach.

This Sociocultural Effects Evaluation Report summarizes project effects of DTPW's Recommended Alternative on communities and community resources. DTPW's Recommended Alternative led to the selection of a Locally Preferred Alternative (LPA) for the Beach Corridor by the Miami-Dade County TPO. It may further support entry into the Federal Transit Administration (FTA) project development process and an application for a Capital Investment Grant, if DTPW elects to pursue the project as an FTA New Starts project.

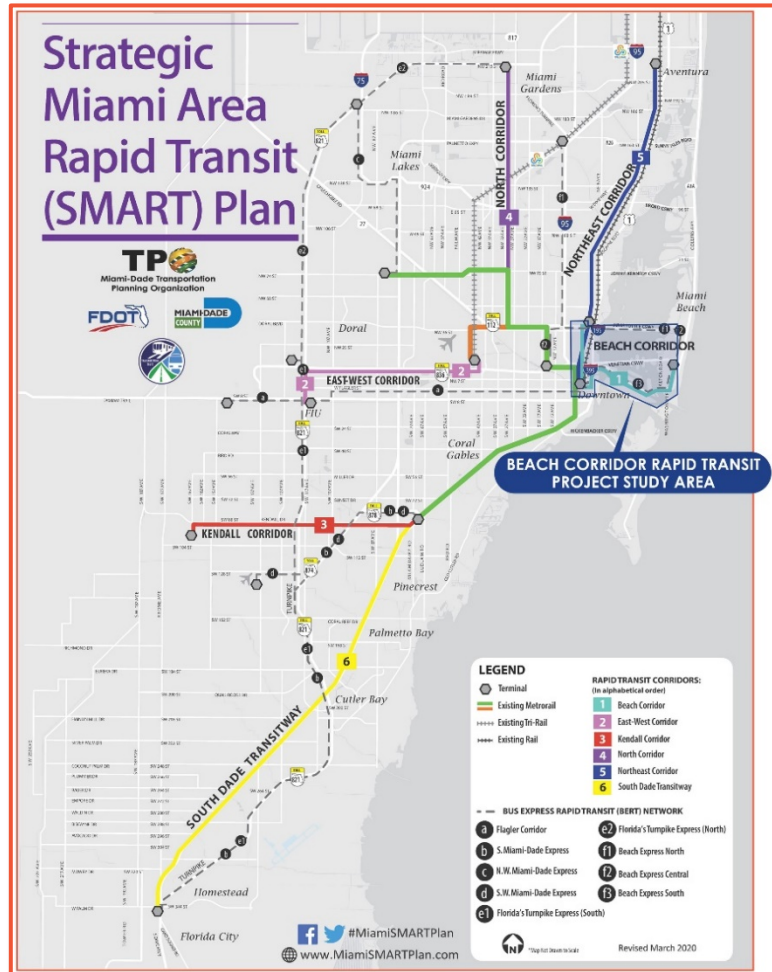


Figure 1-1 SMART Plan Map

The Beach Corridor study area, shown in Figure 1-2, is located in the east central region of the SMART Plan and is generally bounded by:

- I-195/Julia Tuttle Causeway on the north,
- I-395/MacArthur Causeway on the south,
- I-95 on the west, and
- Washington Avenue on the east.

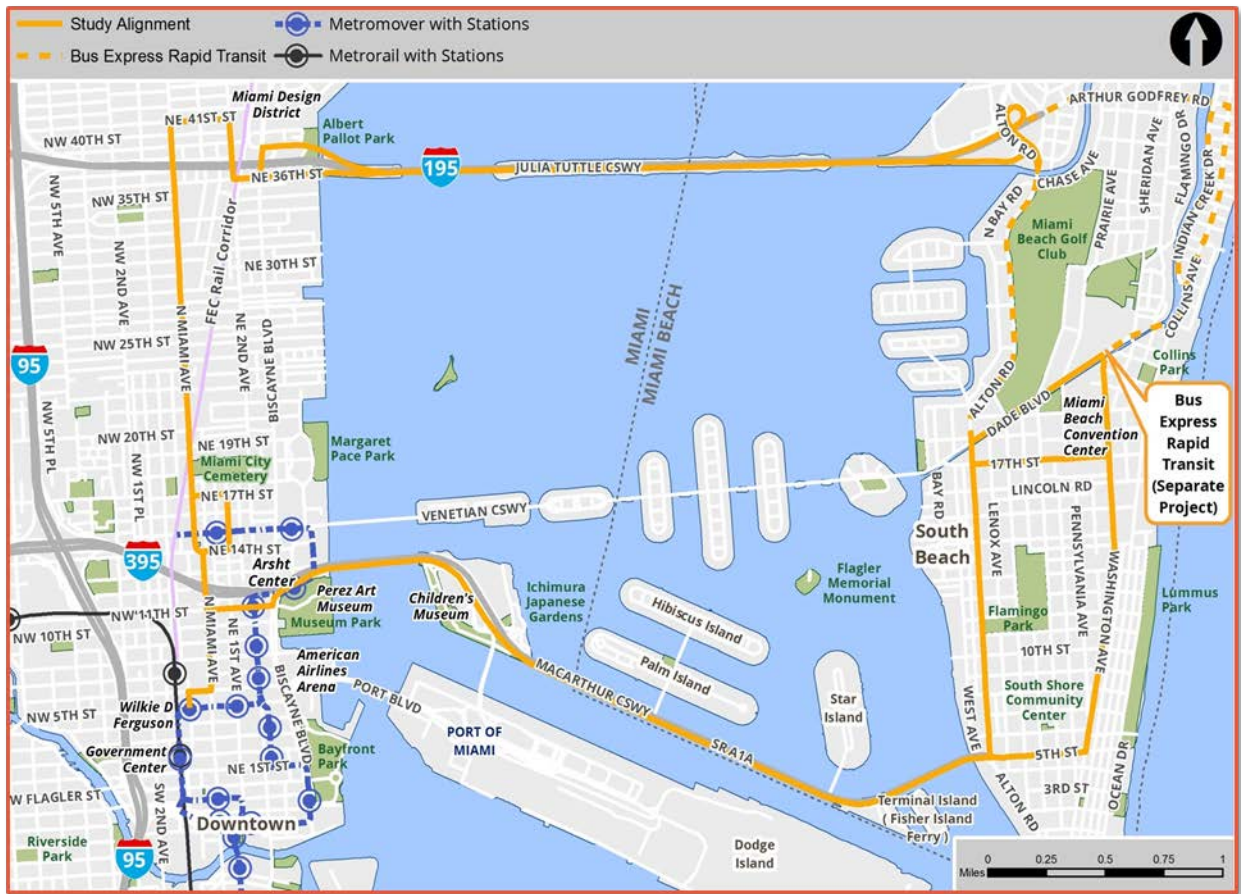


Figure 1-2 Initial Study Area

Figure 1-2 shows the original project study area evaluated in the development of alternatives for this project. Existing Metromover and Metrorail are shown in relation to the project and, at the request of the City of Miami Beach, Figure 1-2, also shows the Bus Express Rapid Transit Project, illustrating the connectivity of the Beach Corridor Rapid Transit Project with other existing and future transit.

### 1.3 PURPOSE AND NEED

The purpose of this project is to increase the person-throughput to the Beach Corridor's major origins and destinations via a rapid transit technology. The need for the project is based upon the extensive population growth throughout the study area resulting in ever-increasing traffic congestion and the demand for enhanced access to the area's many facilities and services.

The Beach Corridor traverses an area that is at the epicenter of population and economic growth within Miami-Dade County. The City of Miami Central Business District (CBD) area and Miami Beach have undergone rapid population and employment increases over the past decade, a trend that is projected to continue over the next 20 years. The population densities in the study area are among the highest in the nation, with the Miami CBD at 17,800 persons per square mile and Miami Beach at 11,500 persons per square mile, per the 2010 U.S. Census. The Miami CBD saw a dramatic 172 percent increase in population density over the last decade.



Due to the region's appealing qualities, such as its temperate climate, attractive beaches, and convenient access to the Caribbean and Latin America, South Florida and Miami-Dade County have become an important tourist destination for both national and international visitors. The county hosts millions of annual visitors and seasonal residents. Visitors typically access the study area via tour bus, taxi, or rental car.

In 2018, Greater Miami and the Beaches attracted a record 16.5 million overnight visitors and an additional 6.8 million day trippers. Miami Beach and Downtown Miami are the two most popular locations for overnight stays, lodging nearly 50 percent of all 2018 area visitors with approximately 6.1 million and 1.6 million overnight guests, respectively. Additionally, five of the six most-visited attractions are in proximity to the Beach Corridor, including South Beach, the Beaches, Lincoln Road, Bayside Market Place, and Downtown Miami.

This high rate of tourism generates additional demand for travel, produces additional trips within the area, and contributes to traffic and subsequently roadway congestion. The Greater Miami Convention and Visitor's Bureau 2018 Visitor Industry Overview indicated that traffic congestion is the top negative aspect of trips to Greater Miami and Miami Beach. Traffic congestion has been the top-ranked problem in each of the last eight annual surveys.

In order to meet the project's purpose and need, goals were established that would accommodate the high travel demand throughout the study area and provide relief to the extreme traffic congestion along the surface streets. The project goals include the following:

- Connect to and provide direct, convenient, and comfortable rapid-transit service to serve existing and future planned land uses;
- Provide enhanced interconnections with Metrorail, Tri-Rail, Brightline (Virgin), Metromover, and Metrobus routes; Broward County Transit (BCT) bus routes; Miami and Miami Beach circulators; jitneys; shuttles; taxis; Transportation Network Companies (TNCs); and/or other supporting transportation services; and
- Promote pedestrian- and bicycle-friendly solutions in the corridors of the study area.

## 1.4 PROJECT CORRIDOR AND SUB-AREAS

---

The project corridor is characterized by:

- Mixed-use development, including areas of high residential and employment density;
- A diverse population with a higher-than-countywide minority percentage and a lower median household income than county and national levels;
- Limited transportation pathways, with high average daily traffic volumes and congestion on the expressways and major roadways;
- Historic, cultural, and recreational resources;
- Wetlands and critical habitats for protected species;
- Land uses sensitive to noise and vibration effects;
- Special Flood Hazard Area (SFHA) designation for nearly 50 percent of the corridor; and
- A navigable waterway (the Atlantic Intracoastal Waterway).

The study area is comprised of three sub-areas along this project corridor, featuring distinct segments of travel demand and origin/destination pairs that vary in their land use and environmental characteristics.

*The Bay Crossing sub-area*, an east–west corridor between Miami Beach and downtown Miami that would form the “trunk line” of the project. The travel demand in this corridor could be served directly via I-395/MacArthur Causeway, or less directly via I-95 and the Julia Tuttle Causeway (I-195).

*The Midtown/Design District sub-area*, a north–south corridor between the Design District/Midtown and downtown Miami.

*The Miami Beach sub-area* is a north-south corridor extending from Washington Avenue and 5th Street to the Miami Beach Convention Center.

## 2 ALTERNATIVES CONSIDERED

Alternatives were developed in two project phases—Tier One, a transit technology screening, and Tier Two, Preliminary Engineering and Environmental Assessment.

The Tier One evaluation considered seven alternative technologies to provide rapid-transit connections between the Midtown Miami/Design District, Downtown Miami, and Miami Beach. Automated transit analysis was included with each technology assessment.

DTPW identified the following transit technologies (modes) for consideration in the Beach Corridor Rapid Transit Project Tier One Evaluation:

- Automated guideway transit (Metromover or automated people mover)
- Streetcar/light rail transit (LRT)
- Heavy rail transit (Metrorail)
- Bus rapid transit (BRT)
- Aerial cable transit
- Monorail
- Personal Rapid Transit

The Tier One Evaluation included a summary of these transit technologies and modes, the development of representative alignments, public involvement and the evaluation of the potential modes with respect to transit performance, economic and community development, environmental effects, and cost/feasibility.

To support the Tier One Evaluation of transit technologies, representative alignments were developed for each mode to demonstrate how the general characteristics of the technology would be applied to the study area. The purpose of the Tier One representative alignments was to provide enough specificity about the application of each mode to the corridor to allow for a comparative evaluation of the modes.

Based on the results of the Tier One analysis, DTPW determined that the following technologies had the potential to meet the project purpose and need and would be advanced for further development in Tier Two.

- Automated People Mover (APM)
- Light Rail Transit/Streetcar (LRT)
- Monorail
- Bus Rapid Transit (BRT)

In addition, the No-Build Alternative was considered. The No-Build Alternative assumes that existing bus/trolley transit service continues to operate in the study area with no additional improvements to speed, reliability or capacity.

### 2.1 NO-BUILD ALTERNATIVE

---

The No-Build Alternative assumes that existing bus/trolley transit service continues to operate in the study area with no additional improvements to speed, reliability or capacity.

### 2.2 BUILD ALTERNATIVES

---

The natural and built environment differ significantly by sub-area. These differences influenced the development of alternatives and the performance of the alternatives with respect to the evaluation criteria. Therefore, as a result of the Tier Two analysis, DTPW identified recommended alternatives for each of the sub-areas as described below and summarized in Figure 2-1.

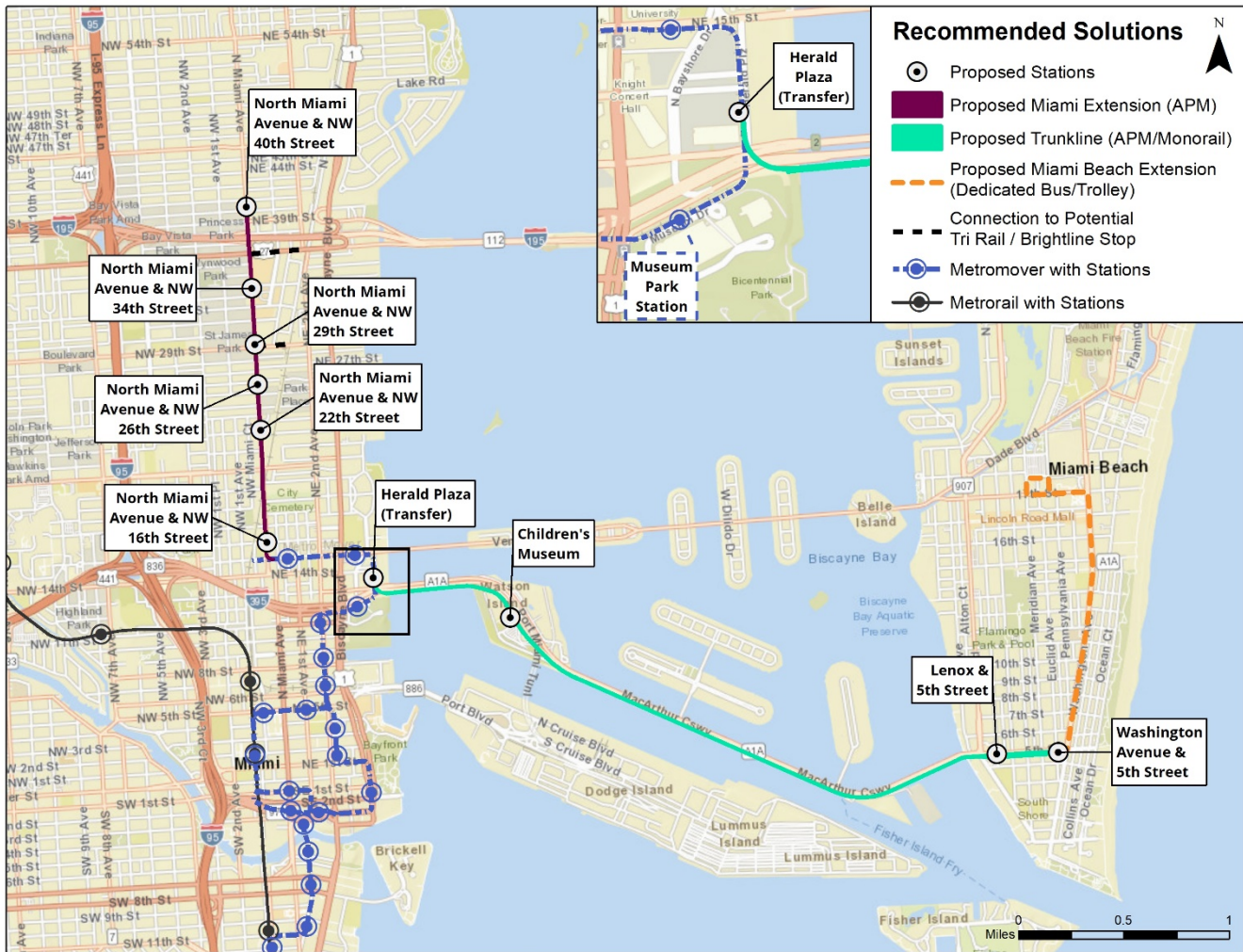


Figure 2-1 Recommended Alternative

## 2.2.1 BAY CROSSING SUB-AREA (TRUNK LINE): ELEVATED AUTOMATED RAIL TRANSIT (APM OR MONORAIL)

### 2.2.1.1 AUTOMATED PEOPLE MOVER (APM) TRUNK LINE ALTERNATIVE

**Technological features:** APM is a fully-automated transportation system with driverless vehicles operating on fixed guideways and exclusive rights-of-way (elevated in urban areas or in tunnels at airports). APM trains operate on a two-rail guideway system with rubber tires on steel or concrete guideway. Miami's existing Metromover is an example of this system, featuring concrete columns that support a steel guideway. Typically, APMs, regardless of the technology or manufacturer, are defined by the following characteristics:

- Driverless/fully automated
- Operate on fixed guideway (usually elevated)
- Vehicles have rubber tires on concrete or steel surface

Miami-Dade County currently has an APM system in place, which is known as the Metromover. The existing vehicles have an overall body length of 39 feet, 8 inches, and body width of 9 feet, 4 inches. The minimum turning radius of the CX100 vehicle is



75 feet, and the maximum grade is 10 percent. The maximum operating speed is 25 miles per hour (mph), but newer vehicles are expected to be able to achieve speeds of 35 mph. The APM would be able to travel at or near the maximum operating speed for the Bay Crossing trunk line. Available modern APM technology can reach up to 50 mph.

**Proposed Alignment:** In the Bay Crossing sub area (trunk line), the APM alternative would extend from the Herald Plaza and Museum Park Metromover station with a new Y-crossover allowing Inner Loop trains to continue east on a new elevated guideway structure along the MacArthur Causeway. New stations would be provided at the Children's Museum and at 5th Street and Washington Avenue, with a potential additional station on 5th Street between Alton Road and Washington Avenue.

The APM Trunk Line Alternative would terminate at the 5th Street & Washington Avenue station, where passengers could transfer to bus/trolley service in a dedicated bus lane extending along Washington Avenue to the Miami Beach Convention Center. A bus transit hub facility will be provided. The guideway structure would be elevated with a minimum of 16.5-foot clearance above the roadway and would be supported on oblong-shaped columns with a typical spacing of 130 feet and typical diameter of four to six feet. The elevated stations would have approximate dimensions of 100 feet by 40 feet, typically supported by two columns.

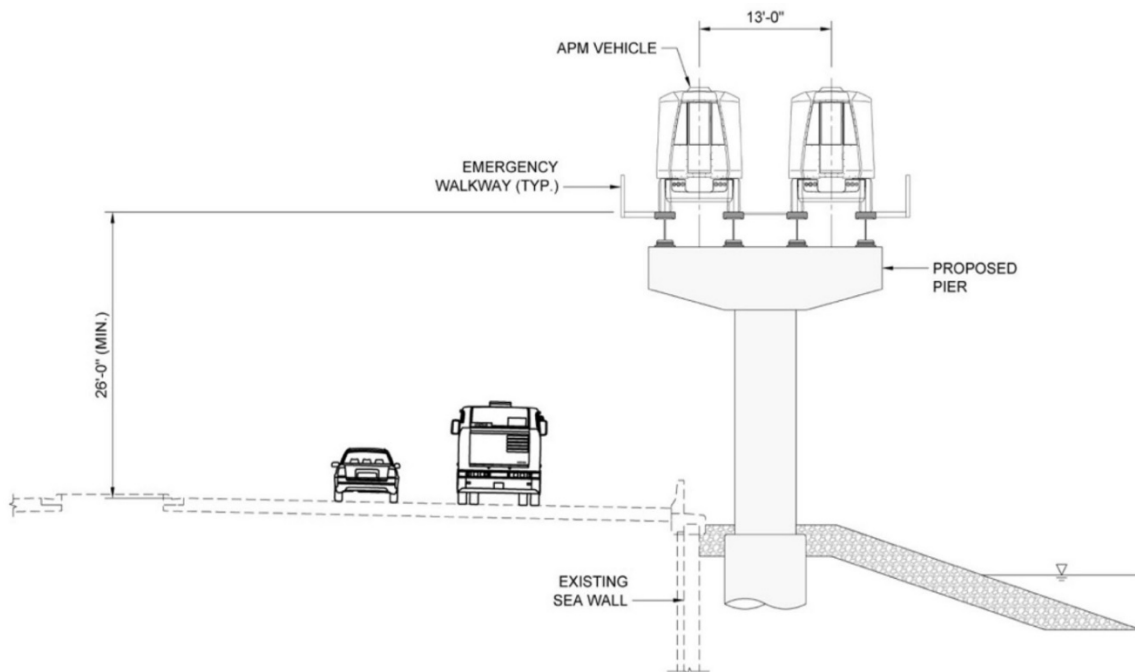


Figure 2-2 APM – Trunk Line Typical Section

### 2.2.1.2 MONORAIL TRUNK LINE ALTERNATIVE

**Technological Features:** Monorail technology features rail cars that operate on concrete beam guideways, with rubber drive wheels that run on the top of the beam and guide wheels running along the two sides. Traction power is supplied by a trolley wire mounted on the sides of the guideway beam, and electricity is picked up by shoes on the vehicle. Monorail vehicles are 10 feet wide and roughly 35 feet to 45 feet long (can vary by manufacturer) and may be operated in two- to eight-car trainsets. Monorails have a minimum turning radius of 130 feet to 150 feet and can handle grades as steep as 10 percent. Similar to APM, modern Monorails systems are driverless and fully automated. Although some older Monorail systems are comprised solely of columns, monorail beams, and power rails, modern Monorail systems require an additional structure to support a continuous emergency walkway along the alignment. Available Monorail technology can reach up to 50 mph and have superior aesthetics in terms of lighter vehicles and sleeker columns.

**Proposed Trunk Line Alignment:** In the Bay Crossing sub-area, the Monorail Alternative alignment, shown in Figure 2-3, would

extend from a new station at Herald Plaza offering a direct seamless transfer to a Metromover platform within the same station house and continue east on a new elevated guideway structure along the south side of the MacArthur Causeway. The station at Herald Plaza has connectivity with the Omni Bus Terminal to facilitate transfers to and from existing and future bus routes. New stations would be provided at Herald Plaza, at the Children's Museum and at 5th Street and Washington Avenue, with a potential additional station on 5th Street between Alton Road and Washington Avenue.



Figure 2-3 Monorail Alignment

The Monorail Alternative would terminate at 5th Street & Washington Avenue, where passengers could transfer to bus/trolley service extending along Washington Avenue to the Miami Beach Convention Center. A bus/trolley transfer facility would be provided at the termini location. The guideway structure would be elevated with a minimum clearance of 16.5 feet above the roadway and would be supported on oblong-shaped columns with a typical spacing of 130 feet and typical diameter of four to six feet. The elevated stations would have approximate dimensions of 100 feet by 40 feet, typically supported by two columns. A new maintenance facility, of approximately 2.3 acres, would be required at a potential Watson Island location. Renderings of the Monorail and station concept are depicted on Figures 2-4 and 2-5, respectively and typical sections are shown on Figures 2-6 and 2-7.



Figure 2-4 Monorail Rendering



Figure 2-5 Monorail Station Conceptual Design – Typical Station Plan

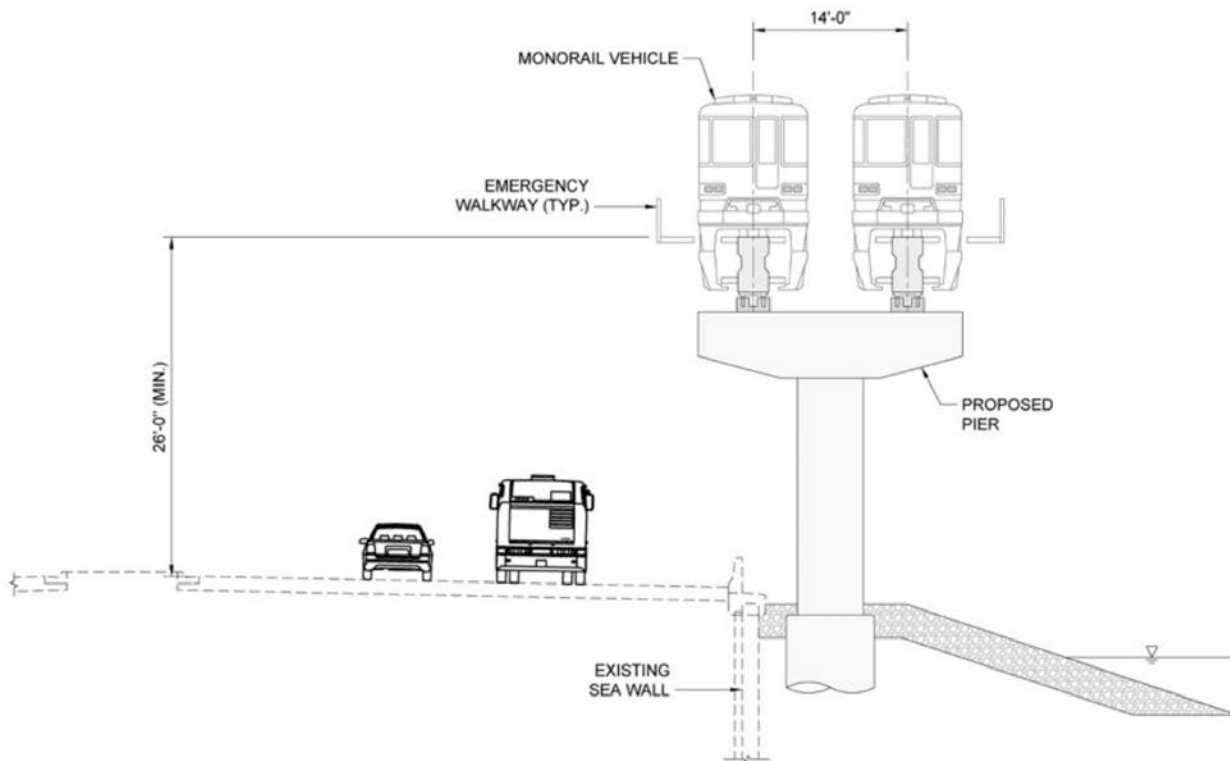


Figure 2-6 Monorail – Trunk Line Typical Section

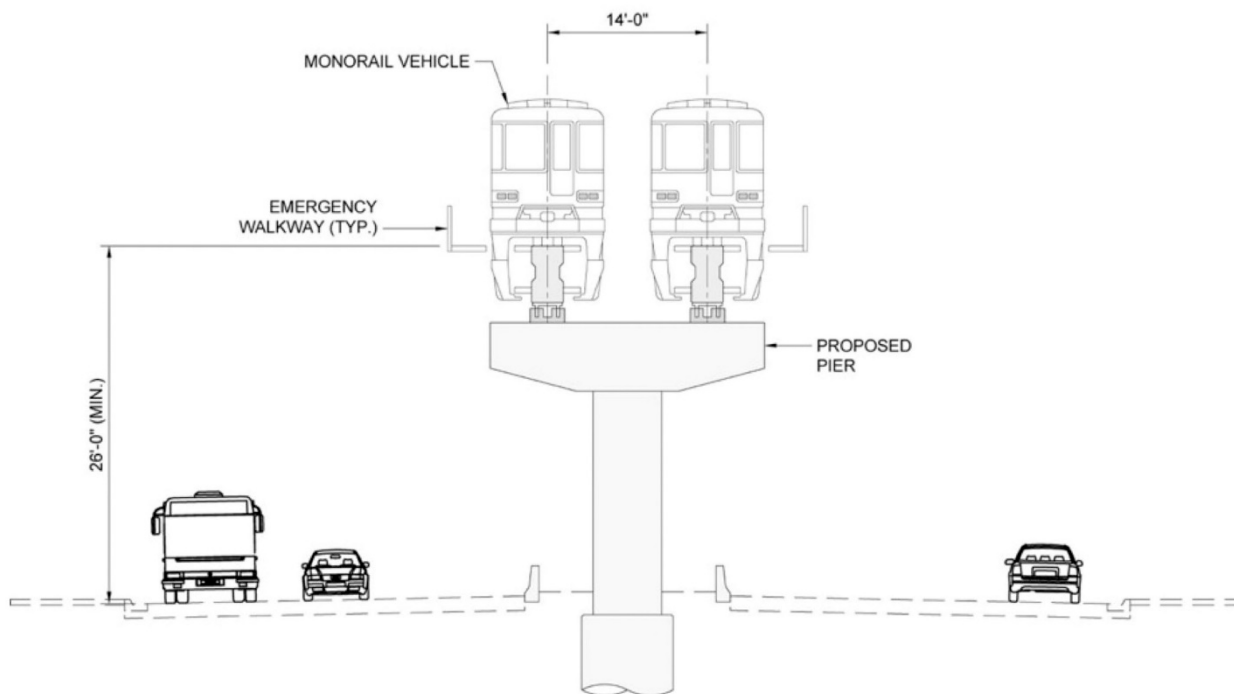


Figure 2-7 Monorail – 5th Street Typical Section



### 2.2.1.3 REASON FOR TRUNK LINE PREFERRED ALTERNATIVE SELECTION

The fixed-guideway modes offer similar transit performance for the Bay Crossing trunk line, with lower costs and impacts for the automated, rubber-tire modes (APM and Monorail) than for the LRT/Streetcar mode. The BRT alternatives, while lower cost, lack sufficient capacity to meet the project purpose and need, and present significant environmental impacts associated with the widening of the causeways. Therefore, an elevated, automated rail transit system (APM or Monorail) is the recommended alternative for the trunk line service in the Bay Crossing sub-area.

If federal funds are pursued, funding analysis for the APM and Monorail technologies will be completed in the Engineering phase of the project.

### 2.2.2 MIDTOWN/DESIGN DISTRICT: AUTOMATED PEOPLE MOVER (APM)

In the Midtown/Design District sub-area, the APM is the Recommended Alternative because it provides better travel time and ridership than the LRT/Streetcar Alternative, with less impact to general traffic, more resilient infrastructure, and less construction impact.

#### 2.2.2.1 AUTOMATED PEOPLE MOVER (APM) MIDTOWN/DESIGN DISTRICT ALTERNATIVE

**Technological features:** As described above, the APM is a fully-automated transportation system with driverless vehicles operating on fixed guideways and exclusive rights-of-way (elevated in urban areas or in tunnels at airports). APM trains operate on a two-rail guideway system with rubber tires on steel or concrete guideway. In Downtown Miami, curves and stop spacing will limit the APM to average operating speeds of approximately 10 mph.

**Proposed Alignment:** In the Midtown/Design District sub-area, the APM alignment, shown in Figure 2-8, would extend from the existing School Board Metromover Station on NE 15th Street to N Miami Avenue, with a two-track elevated alignment (mostly in the median) extending to a terminus at NW 41st Street and stations located at North Miami Avenue, NW 16th, 22nd, 26th, 29th, 34th and 40th Streets. The guideway structure would be elevated with a minimum 16.5-foot clearance above the roadway and would be supported on oblong-shaped columns with a typical spacing of 90 feet to 120 feet and typical diameter of four to six feet. The elevated stations would have approximate dimensions of 100 feet by 40 feet, typically supported by two columns. A new maintenance facility of approximately three acres would be required in order to accommodate the additional vehicles for the trunk line and design district extension. Renderings of the APM guideway and station concepts are shown on Figures 2-9 and 2-10, respectively. A typical section is depicted on Figure 2-11.



Figure 2-8 APM Alignment



Figure 2-9 APM Rendering



Figure 2-10 APM Station Conceptual Design

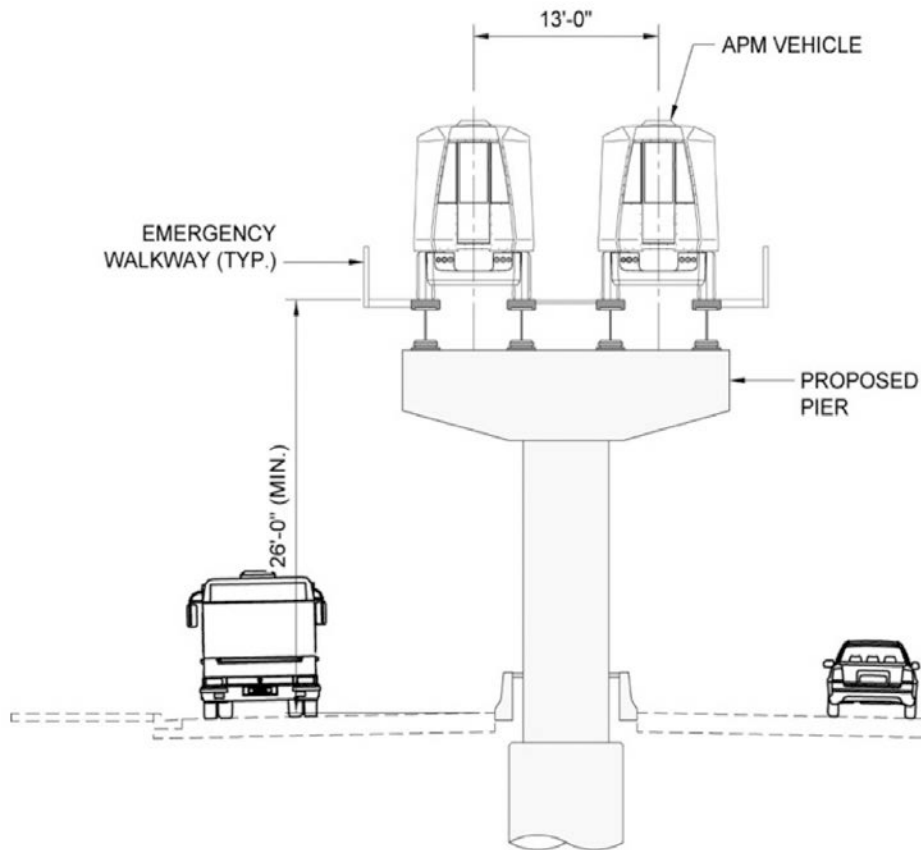


Figure 2-11 North Miami Avenue and 5th Street Sections

### 2.2.3 MIAMI BEACH: BUS/TROLLEY IN DEDICATED LANES

The Recommended Alternative in the Miami Beach sub-area is a connection to the existing bus/trolley service in dedicated bus lanes in each direction. Some adjustments to routing and service plans of existing bus/trolley service may be implemented to enhance connections to the high-capacity rail system. The LRT/Streetcar Alternative is not recommended as a stand-alone project for the Miami Beach sub-area given its lack of resiliency to sea-level rise, high cost, and difficulty of siting an operations and maintenance facility in this sub-area. Moreover, a bus has the ability to divert from flooded conditions, whereas, a fixed LRT rail would not.



### 3 COMMUNITY CHARACTERISTIC INVENTORY

The Community Characteristic Inventory (CCI) is a comprehensive summary of the quantitative and qualitative data for each defined community within the study area. The CCI is used to help support the decisions made during the Sociocultural Effects (SCE) evaluation process. The CCI assists the community analyst in acquiring a better understanding of the affected community and potential issues considered when evaluating the effect of a transportation action on the community. A comprehensive CCI is valuable to the identification and resolution of issues.

The study area is defined as the geographic area that includes all communities with the potential to be affected by a transportation action. The study area typically includes communities immediately surrounding the project; however, it may extend beyond the typical project corridor to account for specific communities affected by the project. The SCE study area shown in Figure 3-1 extends 0.25 miles from the Beach Corridor alignment and an expanded area around Palm, Hibiscus and Star Islands because they have a singular point of access from MacArthur Causeway.

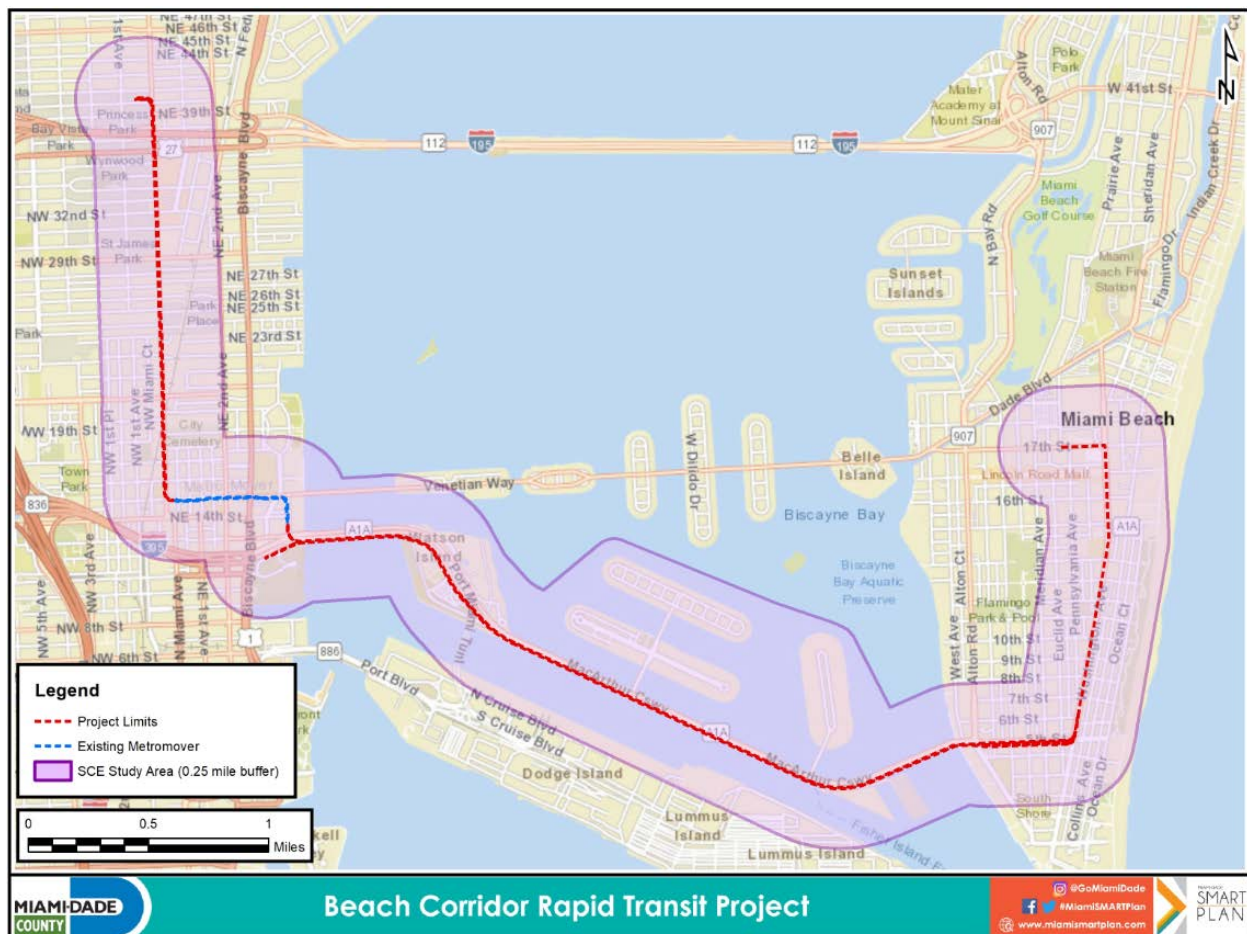


Figure 3-1 Sociocultural Effects Study Area

### 3.1 COMMUNITIES

The study area includes three sections defined by the proposed alignment with a modified 0.25-mile buffer:

- Bay Crossing trunk line from the vicinity of the Herald Plaza Metromover Omni Extension east on a new elevated guideway structure constructed approximately fifteen feet south of MacArthur Causeway and terminating at the 5th Street & Washington Avenue station. This section includes an expanded area (i.e. modified buffer) around Palm, Hibiscus and Star Islands because they have a singular point of access from MacArthur Causeway.
- The Midtown/Design District (mainland Miami) sub-area section from the existing School Board Metromover Station on NE 15th Street to North Miami Avenue, extending to a terminus at NW 41st Street.
- Miami Beach Extension on Washington Avenue from the 5th Street station to the Miami Beach Convention Center at 17<sup>th</sup> Street and Convention Center Drive.

The Sociocultural Data Report from the Florida Department of Transportation (FDOT) Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST), published in August 2019, was reviewed for this study area. A copy of the Sociocultural Data Report is provided in Appendix A.

The project study area includes the City of Miami and the City of Miami Beach. A field reconnaissance of the project corridor was conducted on April 11, 2019. Miami is a major transportation and business center with a population of approximately 400,000 in 2010 and estimated to be approximately 460,000 in 2017 by the U.S. Census Bureau. It is also a major center for tourism, culture, media, entertainment, the arts, finance, commerce and international trade, designated as the "Gateway to the Americas".

The Miami River and PortMiami, adjacent to the project corridor, are world leaders in international shipping and cruise ship operations and Downtown Miami is home to many large national and international banking companies. It is the seat of Miami-Dade County.

Miami Beach is a year-round, coastal resort city located on the barrier island east of Miami on the Atlantic Ocean and on man-made islands in Biscayne Bay. The population of Miami Beach was approximately 88,000 in 2010 and was estimated to be approximately 92,000 in 2017. The Beach Corridor Project in the South Beach area is within the Miami Beach Architectural District, or Art Deco District, which includes hundreds of structures built between 1923 and 1943. It was listed in the National Register of Historic Places in 1979. The South Beach section of Miami Beach is also a major arts and entertainment destination with hundreds of nightclubs, restaurants, and hotels as well as museums and galleries. It is the host of several well-known, annual art, music, food, fashion and film festivals.

The study area is 30.72% water and 69.28% land. The majority of properties directly adjacent to the corridor are classified as commercial and services or industrial. These land uses constitute 44.14% of the total study area, and residential land uses constitute 13.11% of the study area.

A community can be identified as an area with well-defined geographic, man-made or natural boundaries, such as a neighborhood subdivision or an unincorporated area recognized by the community. A community can be further defined as a social group whose members share similar culture, history, social network, religious affiliation, occupation or other common characteristics.

Community features identified within 0.25 miles of the project include 11 assisted housing facilities, 13 community centers, 45 cultural centers, 21 existing parks and recreational facilities, five government buildings, 24 healthcare facilities, 23 schools, 23 religious centers, four social services, one veteran facility, one fire station, five law enforcement facilities and one cemetery.

Seven communities within the cities of Miami and Miami Beach have been identified in the vicinity of the study area and are included in Table 3-1 and Figure 3-2.

Table 3-1 Communities			
#	Name	Boundaries	City
1	Miami Design District	At the northern end of the corridor, The Miami Design District is bound by NW 2 <sup>nd</sup> Avenue to the west; NW 51 <sup>st</sup> Street to the north; Federal Highway to the east; and NE 36 <sup>th</sup> Street to the south.	Miami
2	Wynwood	Wynwood is generally bound by I-95 to the west; I-195 to the north; the FEC railway to the east; and NE 20 <sup>th</sup> Street and NW 22 <sup>nd</sup> Street to the south.	Miami
3	Edgewater	The area east of Wynwood, Edgewater is generally bound by the FEC railway to the west, I-195 to the north, including the western portion of the Julia Tuttle Causeway, and NE 17 <sup>th</sup> Terrace to the south. It includes a portion of Biscayne Bay.	Miami
4	Town Square	Immediately south of Edgewater, Town Square is generally bound by the FEC railway to the west, NE 17 <sup>th</sup> Street to the north, SE 2 <sup>nd</sup> Avenue to the east and I-395 to the south.	Miami
5	Downtown Miami	Generally bound by NE 1 <sup>st</sup> Avenue, the Miami River and I-95 to the west; NE 17 <sup>th</sup> Terrace to the north and SW 15 <sup>th</sup> Road to the south. It includes a portion of Biscayne Bay along with Watson Island, Dodge Island (with PortMiami) and Virginia Key.	Miami
6	Overtown	Generally bound by I-95, SR 836 and the Miami River to the west; NW 21 <sup>st</sup> Terrace, NW 22 <sup>nd</sup> Street and SW 20 <sup>th</sup> Street to the north; the FEC railway and NE 1 <sup>st</sup> Street to the east and NW 5 <sup>th</sup> Street to the south.	Miami
7	South Beach	The southern portion of Miami Beach, South Beach, is generally bound by Biscayne Bay to the west, Dade Boulevard and 23 <sup>rd</sup> Street to the north, the Atlantic Ocean to the west and Government Cut to the south.	Miami Beach
8	City Center	Encompassing the northeastern portion of South Beach, City Center is roughly bound by Dade Boulevard and 23 <sup>rd</sup> Street to the north, Lincoln Road to the south, Alton Road and Biscayne Bay to the west, and the Atlantic Ocean to the east.	Miami Beach

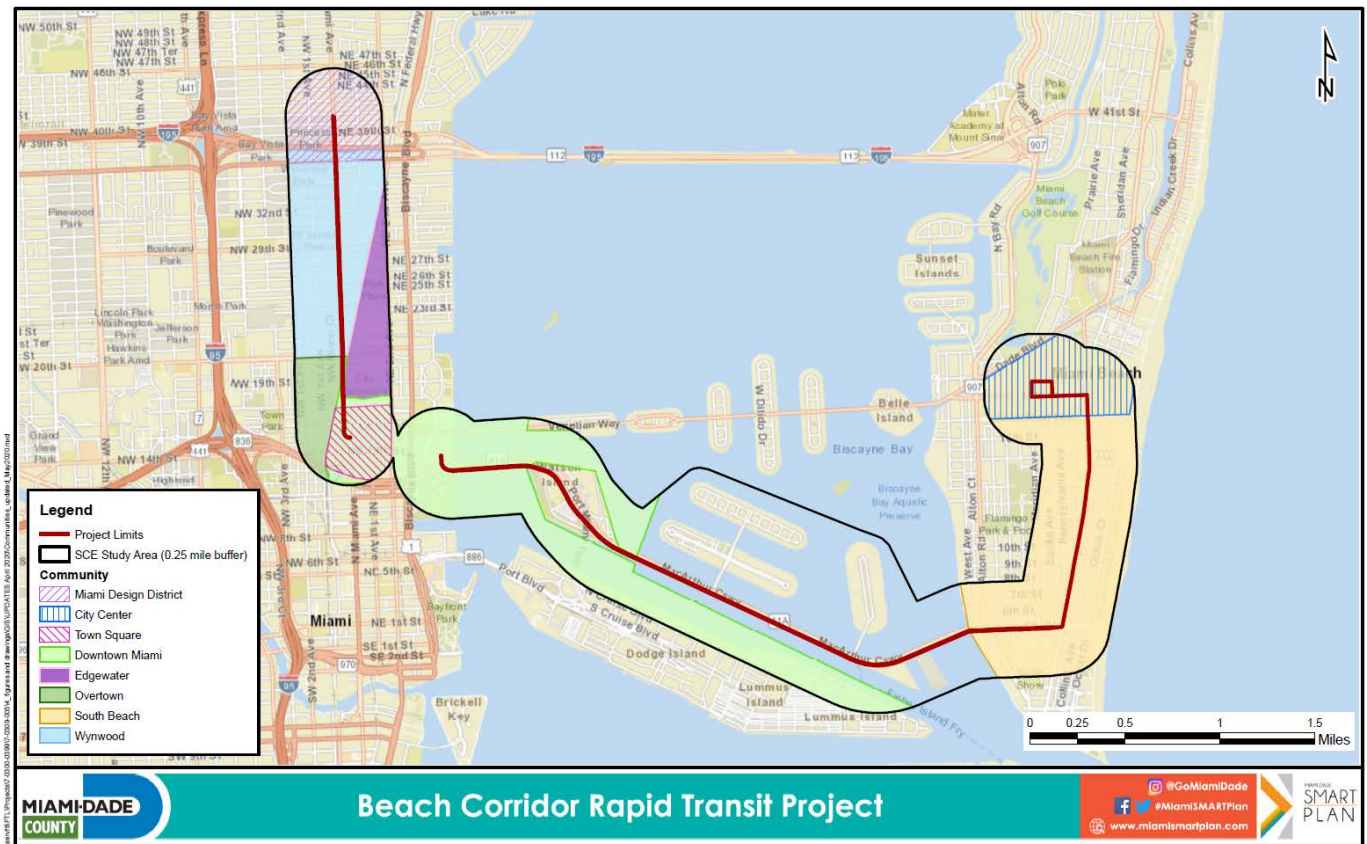


Figure 3-2 Communities

### 3.1.1 MIAMI DESIGN DISTRICT

The Miami Design District began with the acquisition and redevelopment of vacant buildings within the southeast section of the historic Buena Vista neighborhood in the late 1990s and early 2000s. The Miami Design District's primary developer was a neighborhood resident whose vision was to reinvigorate the community and provide residents and visitors with shopping, restaurants, museums, and outdoor space. Over the past two decades, the Miami Design District has retained its historic architecture and now attracts designer brands, important art collections and installations, and premier dining. The result has been a culturally rich and visually appealing pedestrian-friendly community.

### 3.1.2 WYNWOOD

Throughout the mid-to-late 1900s, the Wynwood area was the location of Miami's Garment District and many Caribbean immigrants resided there. In the early 2000s, after a decade of economic depression during which many residents and businesses left, developers and property owners rehabilitated warehouses, shuttered factories, and other unused buildings resulting in renewed public interest in the area. Notably, street art played a large part in Wynwood's revitalization, with the introduction of Second Saturday Art Walk and Art Basel in 2002.

Artists from around the world have used the numerous large warehouse buildings of Wynwood as canvases for their work, creating vibrant murals throughout the area. Today, Wynwood is known for art, fashion, and nightlife within Miami's urban core. It is particularly famous for murals painted on warehouses throughout the neighborhood, including Wynwood Walls, one of the largest outdoor street-art installations in the world. There are numerous art galleries, retail stores, antique shops, artisanal eateries,



breweries, restaurants, and bars in the area. Wynwood has become a highly desirable location, particularly for young professionals, and new residential buildings are being developed to meet the demand for housing in this neighborhood.

### 3.1.3 EDGEWATER

Just to the east of Wynwood is Edgewater, a primarily residential neighborhood. Edgewater is located north of Downtown and the Arts & Entertainment District, and south of the Upper East Side. The neighborhood is known for many historic early 20th century homes, as well as its high-rise residential towers along Biscayne Bay. The area has grown in popularity since 2000 due to its proximity to Downtown and neighborhoods such as the Design District.

### 3.1.4 TOWN SQUARE

The Town Square neighborhood is an urban area to the west of the Adrienne Arsht Center for the Performing Arts, east of the Florida East Coast (FEC) railway. Much of the area is undeveloped or unoccupied, having experienced economic depression. However, the neighborhood's location within Downtown Miami and proximity to Miami's cultural center make this area a priority for context-sensitive re-development.

### 3.1.5 DOWNTOWN MIAMI

Downtown Miami is a busy shopping area with cultural and event venues including the American Airlines Arena and Adrienne Arsht Center for the Performing Arts and the Ziff Concert Hall, which host the Miami City Ballet and Florida Grand Opera. Museum Park is located south of I-395, adjacent to Biscayne Bay, and includes the Perez Art Museum and Frost Science Museum. The American Airlines Arena, also adjacent to Biscayne Bay, is the home of the Miami Heat basketball team and a venue for concerts and shows. The Central Business District (CBD) is in Downtown Miami.

### 3.1.6 OVERTOWN

Overtown is located just northwest of Downtown Miami and was the historic center for commerce in the black community in Miami and South Florida from the 1920s through the 1950s. During this period, Overtown thrived as a center for commerce, primarily along Northwest Second Avenue, and was home to the Lyric Theatre, which was completed in 1913. During the Florida land boom of the 1920s, Overtown was home to one of the first black millionaires in the American South, D. A. Dorsey (who once owned Fisher Island), and the original Booker T. Washington High School, then the first high school educating black students south of Palm Beach. Northwest Second Avenue and the surrounding neighborhood, once-called the "Little Broadway" of the South, was lined with hundreds of mostly black-owned businesses, nightclubs, libraries, social organizations, and a hospital. Overtown was a center for nightly entertainment for both blacks and whites in Miami, in the 1940s and 1950s. The area hotels like the Mary Elizabeth Hotel served black mainstream entertainers such as Count Basie, Ella Fitzgerald, Cab Calloway, Josephine Baker, Billie Holiday and Nat King Cole who were not allowed to lodge at the venues where they performed, like the Fontainebleau and the Eden Roc. Prominent black luminaries like W. E. B. Du Bois, Zora Neale Hurston, Joe Louis and Jackie Robinson also lodged and entertained in the neighborhood.

The area experienced serious economic decline starting in the late 1950s related to the construction of I-95, and later the Dolphin Expressway and the Midtown Interchange in the 1960s, which fragmented the Overtown center and decimated the resident population by nearly 80 percent. The area became economically destitute as businesses closed.

It was not until the late 1980s, when the Miami Arena was constructed, that transit-oriented development surrounding the newly opened Overtown station spurred economic growth again. Since the 1990s and 2000s, community gardens, including the Roots in the City Overtown Community Garden, have been designated and planted, and renovations have been made to the historic Lyric Theatre, largely through the efforts of local community organizers and volunteers.

### 3.1.7 SOUTH BEACH

South Beach is a section of Miami Beach encompassing the area south of Dade Boulevard, known for its beaches, shops and restaurants (including those along the iconic Lincoln Road Mall outdoor shopping area), and its entertainment scene. The area is a popular tourist destination and home to Ocean Drive, which is known for its historic art deco architecture and outdoor cafes.

### 3.1.8 CITY CENTER

City Center is a neighborhood within South Beach located between Lincoln Road and Dade Boulevard. This area includes the Miami Beach City Hall, as well as prominent cultural centers, including the Miami Beach Convention Center, New World Symphony, Fillmore Miami Beach Theater, Miami Beach Botanical Garden, and Holocaust Memorial. The City Center is also home to community centers such as the Greater Miami Chamber of Commerce. The Beach Corridor ultimately connects to the Miami Beach Convention Center via Washington Avenue and 17<sup>th</sup> Street.

## 3.2 DEMOGRAPHICS

Demographic data describes the statistical data of a population. It is primarily collected by local, state, or federal agencies, such as the Census Bureau and other local government departments. Demographic data provides information about communities: population size, gender, age composition, income, education, ethnic backgrounds, household characteristics, and geographic distribution.

Demographic data assists the community analyst in structuring the Public Involvement Plan (PIP) to reach the various ages, and educational and economic backgrounds present in the community. This information can be used to determine the percentage of individuals with Limited English Proficiency (LEP) within a community.

This highlights the need for developing communication materials in languages other than English. This is also helpful in determining the types of outreach techniques that may work better in certain communities (for example: door to door versus electronic communication). Tables 3-2 through 3-5 summarize relevant demographic parameters of the population within the SCE study area (defined as the Modified 0.25-mile buffer around the project area) based on 2017 data obtained from American Communities Survey (ACS) and the ETDM EST.

Table 3-2 Study Area by Race and Ethnicity (2017 Data)		
	Number	Percentage
Total Population	28,861	100%
Race		
White Alone	20,515	71.08
Black or African American Alone	3,301	11.44
Native Hawaiian or Pacific Islander Alone	0	0
Asian Alone	455	1.58
American Indian or Alaska Native Alone	36	0.12
Some Other Race Alone	3,878	13.44
Claimed 2 or More Races	675	2.34

Table 3-2 Study Area by Race and Ethnicity (2017 Data)		
	Number	Percentage
Hispanic or Latino of Any Race	16,146	55.94
Not Hispanic or Latino	12,715	44.06
Minority	20,313	70.38

Table 3-3 Study Area by Age (2017 Data)	
Age Group	Percentage
Under Age 5	6.49
Ages 5 - 17	7.48
Ages 18-21	2.91
Ages 22-29	14.58
Ages 30-39	20.91
Ages 40-49	15.75
Ages 50-64	18.30
Age 65 and Over	13.58

Table 3-4 Study Area by Income (2017 Data)	
Description	
Median Household Income	\$37,820
	Percentage
Population Below Poverty Level	22.00%
Households Below Poverty Level	22.10%
Households with Public Assistance Income	1.44%

Table 3-5 Study Area by Language* (2017 Data)		
Description	Number	Percentage
Speaks English Well	3,283	12.17%
Speaks English Not Well or Not at All Total	5,334	19.77%
<i>Speaks English Not Well</i>	<i>3,161</i>	<i>11.71%</i>
<i>Speaks English Not at All</i>	<i>2,173</i>	<i>8.05%</i>

\*Applies to the portion of the total population who are not native English speakers, therefore the total does not add up to 100%. The sum of the percentages of people who Speak English Not Well or Speak English Not at All does not equal the percentage of people who Speak English Not Well or Not at All Total because the percentages were rounded to the nearest hundredth of a percent.

Based on the demographic information, 55.94% of the population is of Hispanic or Latino origin and 70.38% of the population are persons belonging to a minority group. Of the total population, 15,903 are male (55%) and 12,958 are female (45%). The median age is 40. Of the total population, 19.77% speak English not well or not at all. In general, the race and ethnicity trends in the study area are similar in degree to those of Miami-Dade County. See Section 6.1 for comparative information.



## 4 EVALUATION OF POTENTIAL EFFECTS

Transportation projects may have various types of effects on the surrounding environment. The FDOT Project PD&E Manual, Part 2, Chapter 4 (effective January 14, 2019) defines three types of effects: direct effects, indirect effects and cumulative effects. Direct effects are caused by the action and occur at the same time and place. They are changes in the community that principally occur as a result of implementing the transportation project (e.g., acquisition of right-of-way and business displacement). Indirect effects occur later in time or are farther removed in distance but still reasonably foreseeable. Indirect effects include growth-inducing impacts such as changes in land use pattern or population density/growth rate. Cumulative effects result from the incremental impact of the action when added to other past, present and reasonably foreseeable actions. An example of a cumulative effect would be if a project improves access to a relatively undeveloped area and the improved access stimulates development, thus increasing population and overcrowding.

The degree of effect was determined using the guidance provided in the FDOT PD&E Manual. The evaluation criteria are summarized in Table 4-1.

The proposed project has been subjected to preliminary agency coordination and review through the Efficient Transportation Decision Making (ETDM) screening process. The project was screened by FDOT District 6 on behalf of DTPW. An ETDM Summary Report was published on April 28, 2019 and is included in Appendix B.

Table 4-2 summarizes the degrees of effect assigned by FDOT District Six (D6), Florida Department of Economic Opportunity (FDEO), and US Environmental Protection Agency (USEPA) regarding the sociocultural aspects of the project.

Table 4-1 Evaluation Criteria	
Degree Of Effect	Sociocultural Resources
Enhanced	Project has a positive effect on community. Affected community supports the proposed project.
None	Project has no adverse effect on the affected community.
Minimal	Project has minimum adverse effect on elements of affected community. Minimum community resistance to the planned project. Little or no mitigation is needed.
Moderate	Project has adverse effect on some elements of the affected community. There is moderate community resistance to the planned project. Public involvement is needed to seek alternatives more acceptable to the community. Moderate community involvement is required during project development. Some avoidance, minimization or mitigation is needed to gain support from the community.
Substantial	Project has substantial adverse effects on the affected community and faces substantial community resistance. Intensive community interaction with focused public involvement is required during project development to address community concerns. Project will need substantial mitigation to gain public acceptance.
Potential Dispute (coordination required)	Project is not in compliance with approved local government comprehensive plans, and/or affects Title VI of the Civil Rights Act of 1964 compliance.

Table 4-2 ETDM 14257 Degree of Effects						
Agency	Social	Economic	Land Use Changes	Mobility	Aesthetic Effects	Relocation Potential
FDOT D6	Enhanced	Enhanced	Minimal	Enhanced	Moderate	Minimal
FDEO		Enhanced	Minimal			
USEPA	Moderate					

## 4.1 SOCIAL

Transportation improvement projects can affect the function of the existing communities within the project study area. The project can have an impact on the community cohesion, demographics, safety/emergency response times, compatibility with community goals and quality of life.

The Beach Corridor Rapid Transit Project alignments contain four sub-areas and connect Downtown Miami to the Miami Design District via North Miami Avenue and to Miami Beach via a Bay Crossing adjacent to SR A1A/MacArthur Causeway, which ultimately connects to the Miami Beach Convention Center via Washington Avenue. The project corridor lies within two cities, or two census designated places, Miami and Miami Beach.

The predominant land uses adjacent to the corridor are Commercial and Services (36.31%), Residential (either fixed single family units or multiple dwelling units, 13.11%), and Industrial (7.83%), with 30.72% of the area within 500 feet of the project consisting of Embayments Opening Directly to Gulf or Ocean (Biscayne Bay).

Within 0.25 miles of the project corridor there are 11 assisted housing facilities, 13 community centers, 45 cultural centers, 21 existing parks and recreational facilities, five government buildings, 24 healthcare facilities, 23 schools, 23 religious centers, four social services, one veteran facility, one fire station, five law enforcement facilities and one cemetery.

The EPA notes that minority and low-income populations were identified within the one-quarter mile buffer used for the ETDM Sociocultural Data Report. Key concerns for the EPA include the Civil Rights Act of 1964 and 1968 along with Title VI of the Civil Right Act and Executive Order 12898 regarding Environmental Justice, ensuring that minority and/or low income persons are neither disproportionately adversely impacted by major transportation projects nor denied reasonable access to them. They also recommend meaningful public involvement that enables transportation professionals to develop systems, services and solutions that meet the needs of the community and the vulnerable populations that will be temporarily impacted by the project.

During the Project Development phase, a PIP was implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 (effective January 14, 2019) of the PD&E Manual. The PIP goal was to solicit input from residents and business owners on potential project effects related to community cohesion and social interaction as well as potential solutions to ensure that both the social and transportation needs of the surrounding communities are addressed. Public outreach activities included transportation disadvantaged and Limited English Proficiency populations in accordance with applicable Acts and Executive Orders. The public involvement activities are described in Section 7 of this report. While there are vulnerable populations and numerous social facilities in the vicinity of the project corridor, disproportionate adverse effects to Environmental Justice populations are not anticipated, and the project is expected to enhance access to social, cultural and institutional facilities. The degree of effect assigned to social issues is Enhanced.

#### 4.1.1 DEMOGRAPHICS

The new rapid transit will occur on existing rights-of-way and a separate transit structure south of MacArthur Causeway. No residential displacements are anticipated. Furthermore, no population changes are anticipated as a result of the project. The Overtown neighborhood has previously been adversely affected by the construction of public highways in the 1950s and 1960s. Therefore, public involvement has been conducted to provide that the project meets the needs of the community and the populations that may be temporarily impacted by the project. The project will improve the ability of the resident populations to access important social, cultural and institutional facilities and community features. The project will continue to be conducted in accordance with Title VI of the Civil Rights Act and Executive Order 12898 regarding Environmental Justice to ensure that there are no disproportionate effects on low-income or minority populations.

#### 4.1.2 COMMUNITY COHESION

The project is not anticipated to negatively affect community cohesion. The new rapid transit will occur on existing rights-of-way and a separate transit structure south of MacArthur Causeway, and will not result in any barriers dividing neighborhoods. The project is anticipated to increase neighborhood interaction and connectivity by improving the ability of the resident populations to access important social, cultural and institutional facilities and community features. The project is intended to improve the people-carrying capacity with premium rapid transit throughout the sub-areas along the project corridor and promote and support a multi-modal, multi-user transportation network that is pedestrian and bicycle friendly. No changes in traffic patterns through established neighborhoods are anticipated as a result of this project.

#### 4.1.3 SAFETY

A broad definition of safety is used when evaluating transportation projects. Safety considerations range from whether or not residents feel safe in their neighborhood to emergency services to bicycle and pedestrian safety. The project will not result in the creation of isolated areas, and is anticipated to increase neighborhood interaction and connectivity by improving safe access to community activity centers and facilities. The project will not jeopardize emergency services response time, as the project will be constructed in or above the existing rights-of-way and on a separate transit guideway crossing Biscayne Bay. It is anticipated to reduce on-street vehicular congestion, which should result in fewer collisions. Further, this alternative transit option will provide increased capacity for evacuation in the event of severe storm events.

#### 4.1.4 COMMUNITY GOALS/QUALITY OF LIFE

The State of Florida requires all local governments to prepare and maintain a long-range comprehensive plan that will guide future growth and development of the community. A Comprehensive Plan consists of goals for future land use, transportation, housing, recreation, and capital improvements. In addition to the Comprehensive Plan, many communities have more specific small area plans, neighborhood plans, corridor plans, or vision statements that include issues and goals for a smaller segment of the community.

The City of Miami, the City of Miami Beach and Miami-Dade County have provided assurances that the project is compatible with their respective comprehensive plans and community development goals. Each plan has elements or policies that would generally or specifically promote the proposed project. The Beach Corridor Rapid Transit Project would promote multi-modal, transit-oriented development that is bicycle and pedestrian friendly. The project is compatible with the Transportation Elements of each of the plans and supports the goals of mixed-use development.

Miami-Dade County noted that they recently approved a Comprehensive Plan amendment that related to the Beach Corridor Rapid Transit Project which allows for higher density mixed-use land uses for properties within 0.5 miles on either side of the SMART Plan corridors. The following are excerpts from the FDEO's comments in the ETDM Planning Screen Summary Report.

The County provided the following relevant points:

1. The proposed amendment supports the goals, objectives and policies of the C that promote transit-supportive land uses along rapid transit corridors by providing for increased density and intensity for mixed-use projects located along the planned SMART Plan Corridors. Specifically, Comprehensive Development Master Plan (CDMP) Objective LU-7 states that "Miami-Dade County shall require all new development and redevelopment in existing and planned transit corridors and urban centers to be planned and designed to promote transit-oriented development (TOD), and transit use, which mixes residential, retail, office, open space and public uses in a safe, pedestrian and bicycle friendly environment that promotes mobility for people of all ages and abilities through the use of rapid transit services." The proposed amendment works in conjunction with the Urban Center policies of the CDMP, which promote moderate to high-density development around rapid transit stations, by addressing the transit-supportive areas between Zoned Urban Centers. Further, the proposed amendment supports transit investment by encouraging development and redevelopment within the Transportation Infrastructure Improvement District which pledges future ad valorem tax revenue increases within the SMART Plan Areas to help fund the rapid transit projects.
2. The proposed amendment supports the implementation of the CDMP Urban Center policies by establishing a timeline for completion of Urban Center area plans for rapid transit stations located in unincorporated Miami-Dade County. Specifically, CDMP Policy LU-7A states that rapid transit station sites and their vicinity shall be developed as Urban Centers in accordance with the CDMP text for Urban Centers.
3. The proposed amendment ensures adequate transit ridership and supports transit investment by establishing as County policy that station development and improvements be prioritized for those municipalities that have established zoning standards that ensure minimum average residential density and non-residential intensity in accordance with CDMP Policy LU-7F.
4. In addition to intensification along the SMART Plan Corridors, the proposed amendment supports the intensification of mixed-use corridors identified in area plans accepted by the Board of County Commissioners.

The proposed amendment establishes provisions for horizontal mixed-use development in furtherance of CDMP Policy LU-9T which states that the County "shall consider provisions to allow horizontal mixed-use developments, defined as the horizontal integration of parcels with different primary uses within the same site or block, in appropriate future land use categories in the Urban Development Boundary". The proposed amendment also supports vertical mixed-use development in appropriate areas of the County by providing greater flexibility in the location and proportion of uses within the mixed-use building.

The City of Miami Beach provided that the project is compatible with the City's community development goals. The areas adjacent to the proposed routes all allow for mixed-use development. The City's Land Development Regulations (LDR) incorporate guidelines that ensure that development is transit oriented and pedestrian friendly, which supports the use of public transportation. Additionally, the City has recently adopted amendments to the LDRs that encourage the revitalization of the areas adjacent to the proposed routes. The amendments include the following:

- a. Washington Avenue Zoning Incentives incorporate the properties that front Washington Avenue from 6th Street to 16th Street. The incentives allow for increases in height in order to incentivize the construction of hotels and an improved business and office environment, while protecting the historic facades and character of Washington Avenue. The incentives also incorporated the adoption of Parking District No. 7, which reduced parking requirements for the incentivized uses in order to encourage walkability and the use of alternative modes of travel.
- b. Alton Road Gateway Overlay incorporates the properties between Alton Road and West Avenue just north of the MacArthur Causeway. This allows for the development of a high density, 519-foot residential tower, commercial uses, and a three-acre public park. As it is adjacent to the Causeway, it will be easily accessible to the proposed transit system.



c. Parking District Number 5 is located in the Sunset Harbour neighborhood, which is north of the Dade Canal and east of Alton Road. It provides for parking reductions to incentivize pedestrian scale development and encourage alternative modes of transportation.

d. Parking District Number 6 is located along the Alton Road corridor between 5th Street and the Dade Canal, it provides for parking reductions to incentivize pedestrian scale development and encourage alternative modes of transportation. Additionally, this parking district requires new development and uses to incorporate bicycle parking and provides other incentives to encourage the use of alternative modes of transportation, which are conducive to public transit use.

The City of Miami Beach provided that the project is compatible with the City of Miami Beach's Comprehensive Plan, which contains the following policies in the Transportation Element that support the development of the Beach Corridor Rapid Transit Project:

a. Policy 4.11: Beach Corridor Transit Connection Project (formerly known as Baylink) - The City shall continue to pursue the component of the Metropolitan Planning Organization (MPO) 2015 Beach Corridor Transit Connection Study that is located in the South Beach portion of Miami-Dade County (south of Dade Boulevard and east of Biscayne Bay). This study provided an update to and reaffirmed the 2014 Bay Link Study which recommended a mass transit connection from downtown Miami to the Miami Beach Convention Center across the MacArthur Causeway.

b. Objective 2: Coordination With Land Use -The City shall evaluate its transportation system as it relates to the land use element of this comprehensive plan in an effort to encourage commercial development that is mixed-use, multi-modal (intermodal transit facility, transit center, or transit stop) in nature and that ultimately enhances mobility.

c. Policy 2.2: Impact of Land Use Changes on the Multi-Modal System -The City shall assess the impacts of future land use changes on the overall transportation system, including roadway, transit (including but not limited to light rail transit/modern street car, bus, trolley, rail, and marine), bicycle and pedestrian levels of service.

d. Policy 2.3: Transit Oriented Design (TOD) - By 2015, the City shall examine the type of incentives, and create design guidelines, for TODs within the City. The City shall include transit intermodal facilities, transfer centers and transfer stops into Land Use and Design Guidelines to achieve context-sensitive integration with residential and commercial land uses.

Locations for maintenance and storage of transit infrastructure may be incorporated into such facilities.

The City of Miami provided that the project is compatible with the Miami Comprehensive Neighborhood Plan and is compatible with the entirety of our Transportation Element. The City noted two particular Comprehensive Plan goals:

Goal TR-1: Maintain an effective and cost-efficient circulation network that provides transportation for all persons while reducing both the dependency on automobiles and overall roadway congestion.

Goal TR-2: Provide a balanced, accessible, safe, and sustainable multi-modal transportation system linking highways, transit, greenways, bikeways, and sidewalks into a seamless network.

#### Future Transportation Map:

The City of Miami Beach adopted a Transportation Master Plan that provides for future transportation projects. A "Premium Light Rail Connection from Miami Downtown Terminal to the Beach Convention Center" is identified in the plan. The plan includes a map that identifies several transit corridors throughout the City that could accommodate dedicated transit lanes as well as potential alignments.

The City of Miami, noted that the North Miami Light Rail has been on its Map TR-23, in their appendix, data and analysis of the Miami Comprehensive Neighborhood Plan.

Overall, the project is consistent with the social values and vision of the communities involved and compatible with their plans, goals and objectives. The project will serve all community populations equitably and is anticipated to have a positive effect on quality of life in the Miami and Miami Beach communities.

#### 4.1.5 SPECIAL COMMUNITY DESIGNATIONS

Major roadway segments in the Beach Corridor are lined with commercial/retail/office land uses and are within the Miami-Dade County Enterprise Zone. The Beach Corridor lies within the Miami-Dade County Enterprise Zone, designated E.Z. 1301. Approximately 38% of the area within 100 feet of the Beach Corridor alignment is within the enterprise zone, including the area around North Miami Avenue, Watson Island, 5<sup>th</sup> Street and Washington Avenue. Areas around sections of North Miami Avenue and on Watson Island are also within a HUD Empowerment Zone. These initiatives have been established to encourage business development, business expansion and job creation through incentive programs to promote economic development of an area. Business incentives are also available through the Brownfields program. The project has the potential to incentivize new development along major project corridors that are zoned for medium to high intensity mixed-use development.

## 4.2 ECONOMIC

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Economic and employment conditions describe a community's economic history, current economic well-being, and future potential. This information takes into account employment levels, types of jobs, per capita income, poverty, unemployment rates, the range of incomes in the community, and trends in employment opportunities.

The main objective of the project is to enhance mobility in Miami and Miami Beach by promoting and supporting a multimodal and multiuser transportation corridor that is also pedestrian and bicycle friendly. Major roadway segments in the Beach Corridor are lined with commercial/retail/office land uses and are within the Miami-Dade County Enterprise Zone. Therefore, economic development activities will continue to be supported along the corridor in both Miami and Miami Beach.

The FDEO stated that the project will offer and enhance the provision of an alternative mode of travel via rapid transit technology and new development is likely to benefit from the project. The City of Miami Beach provided that the project has the potential to incentivize new development along major project corridors that are zoned for medium to high intensity mixed-use development. The FDEO also noted that the Beach Corridor Rapid Transit Project will allow greater diversification and growth of business development in the project area. The sustaining and continued growth of tourism can be facilitated by the non-auto integration of travel modes between Miami and Miami Beach with a strong potential to generate jobs.

A PIP has been implemented in coordination with the Miami-Dade TPO, City of Miami, and City of Miami Beach in accordance with Part 1, Chapter 11 (effective January 14, 2019) of the PD&E Manual to solicit input from residents and business owners regarding potential economic enhancements or impacts as a result of the project as well as potential solutions. A review of the potential impacts to commerce and tax base issues was conducted as presented in the sections below. The degree of effect of economic issues is Enhanced.

#### 4.2.1 BUSINESS AND EMPLOYMENT

Transportation is the engine of economic development because it ensures the movement of products from the production place to the market or distribution centers and the movement of people for specific purpose trips. The Downtown Miami Central Business District is a major employment center in the County. In addition, both Miami and Miami Beach are major tourist destinations for local, regional, national and international visitors. There have been several Developments of Regional Impact in the area of the Beach Corridor over the past thirty to fifty years. Mount Sinai Medical Center, a major employer in the area, is located in the northwest quadrant of the I-195/Alton Road interchange. It is expected that this project will enhance access to businesses and employment through improved connectivity, and any impediments to business access or visibility during construction will be

temporary. There will be no permanent changes to traffic patterns, business access or visibility, and increases in local and regional employment opportunities are expected.

#### 4.2.2 TAX BASE

The effect of a project on the tax base of a community may range from negligible to very significant. When considering effects on the tax base, many variables are reviewed. These variables include property values, the millage rate of a community, total ad valorem revenue collected by the community, the percentage of the budget of the community that is funded by ad valorem revenue, the percentage of the total ad valorem revenue collected in the study area and the effect of the project on property values in the study area. An important point to consider is that the tax base is derived from property values of an entire county or city. The project is not anticipated to have adverse effects on the tax base of Miami-Dade County or the other affected municipalities. The increased connectivity could attract businesses to the study area, thereby increasing the area's contribution to the tax base.

#### 4.2.3 TRAFFIC PATTERNS

This project will increase connectivity to commercial hubs of economic importance. The project will improve accessibility to major employment hubs by providing alternative routes between Miami and Miami Beach, and among neighborhoods within the two cities. However, project design is in process and it is being determined if left turn lane eliminations will be necessary to accommodate stations along North Miami Avenue in Miami and along 5<sup>th</sup> Street in Miami Beach. Lane eliminations would alter local traffic patterns. DTPW is conducting traffic studies in conjunction with the engineering to ascertain the potential impact to traffic and to minimize impacts. Traffic patterns will not be permanently impacted due to construction.

#### 4.2.4 BUSINESS ACCESS

As noted above, the SCE study area is characterized by commercial activity. The primary land use adjacent to the project corridor is commercial and services and the dominant future land use is identified as commercial, office, tourism, and marina land uses. These economic activities will continue to be supported in the area and the land use character will remain relatively unchanged. The project will provide an alternative mode of transportation to access commercial and employment hubs in Miami and Miami Beach. The project will enhance access to local businesses and increase the mobility of people and goods to and from the surrounding commercial areas. Access to adjacent businesses may temporarily be affected during project construction. However, the project does not propose to permanently move or change access to local businesses.

#### 4.2.5 SPECIAL NEEDS PATRONS

Access for special needs patrons, as well as the general population, is anticipated to ultimately be improved as a result of this project. Special needs patrons potentially present within 500 feet of the project corridor include 11 assisted housing facilities, 24 health care facilities, four social service facilities, and one veterans facility. According to the American Community Survey five-year estimate from 2013 - 2017, only 6.75% of the population 20 to 64 years within one quarter-mile of the project corridor is disabled. However, this number is for residents, not employees. This project is not anticipated to impact access to transportation modes or services that serve special needs patrons and will increase transportation options for those without motor vehicle access.

### 4.3 LAND USE CHANGES

Land use planning provides order and regulates use of land to best meet the needs of the people in a community. The FDEO stated that the City of Miami, the City of Miami Beach and Miami-Dade County provided assurances that the project is compatible with their respective comprehensive plans and community development goals. Each plan has elements or policies that would generally or specifically promote the proposed project. The Beach Corridor Rapid Transit Project would promote multi-modal, transit-oriented development that is pedestrian-friendly. The project is compatible with the Transportation Elements of each of the plans and supports the goals of mixed-use development.

Based on the Future Land Use Plans for Miami, Miami Beach and Miami-Dade County, the land uses along the corridor and in the surrounding areas are anticipated to remain relatively unchanged. The proposed project is consistent with the land use vision of the area as identified in the comprehensive plans of the Cities of Miami and Miami Beach and Miami-Dade County.

DTPW has coordinated with the Cities of Miami and Miami Beach, Miami-Dade County and the TPO to ensure that the project is consistent with local government comprehensive plans. During the study, a review of the potential impacts to land use patterns, plan consistency and growth trends was conducted as presented in the sections below. The degree of effect assigned to land use changes is Minimal.

#### 4.3.1 LAND USE – URBAN FORM

The predominant land uses adjacent to the corridor are Commercial and Services (36.31%), Residential (either fixed single family units or multiple dwelling units, 13.11%), and Industrial (7.83%), with 30.72% of the area within 500 feet of the project consisting of Embayments Opening Directly to Gulf or Ocean (Biscayne Bay). With increasing distance from the corridor, residential units, whether single family or multiple dwelling units, are an increased percentage of the land use, even though Commercial and Services and Embayments remain the two predominant land uses. While institutional and educational facilities are not a large percentage of the land use, (5.10% and 0.66%, respectively) the proposed project serves to connect major cultural, educational and government centers in Miami and Miami Beach. A land use map utilizing the Florida Land Use, Cover and Forms Classification System (FLUFCS) (FDOT, 1999) is provided in Figure 4-1.

#### 4.3.2 PLAN CONSISTENCY

The Adopted 2020 and 2030 Land Use Plan for Miami-Dade County substantially conforms to the future land use plans for the Cities of Miami and Miami Beach in the areas of the Beach Corridor. The Strategic Miami Area Rapid Transit (SMART) Plan was developed by Miami-Dade County and the Miami-Dade TPO and adopted by the TPO Governing Board on April 21, 2016. The SMART Plan intends to advance six rapid transit corridors, along with a network system of Bus Express Rapid Transit (BERT) service, in order to implement premium mass transit projects in Miami-Dade County. See Section 4.1.4 for additional information regarding consistency of this project with community plans.

#### 4.3.3 GROWTH TRENDS AND ISSUES (PAST AND PRESENT)

According to data from the U.S. Decennial Census, the population within 0.25 miles of the SCE project area has decreased from 1990 (34,454) to 2000 (27,111). Data from the American Community Survey five-year estimates from 2006 through 2010 and 2013 through 2017 indicate that the population has remained relatively stable through 2010 (28,117) and 2017 (28,861). The City of Miami, the City of Miami Beach and Miami-Dade County have provided assurances that the project is compatible with their respective comprehensive plans and community development goals. Each plan has elements or policies that would generally or specifically promote the proposed project. The Beach Corridor Rapid Transit Project would promote multi-modal, transit-oriented development that is bicycle and pedestrian friendly. The project is compatible with the Transportation Elements of each of the



plans and supports the goals of mixed-use development. Further detail regarding the County's and Cities' comprehensive plans and community development goals are included in Section 4.1.4.

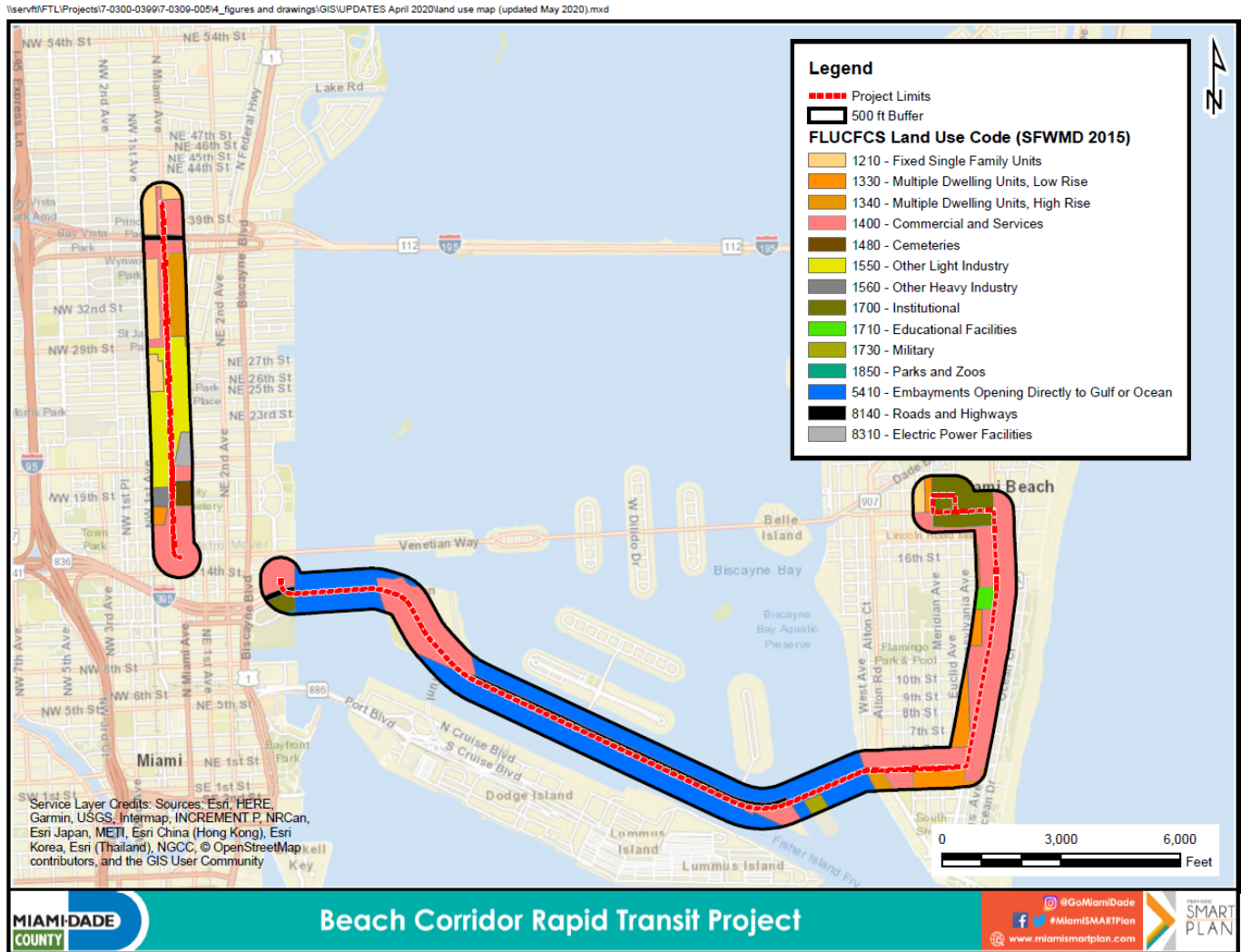


Figure 4-1 Existing Land Use Map

#### 4.3.4 FOCAL POINTS

The Beach Corridor Rapid Transit Project will enhance intermodal connectivity in the region, including access to community features such as Museum Park, the Miami Arena, the Adrienne Arsht Center for the Performing Arts, Ocean Drive, the Miami Beach City Hall, the Miami Beach Convention Center, Wynwood Walls, and businesses and community services in both Miami and Miami Beach. The project proposes to provide direct, convenient, and comfortable rapid transit to serve existing and future land uses as well as enhanced interconnections with other transit and non-transit modes of transportation. The project's connection to major focal points also facilitates use of other modes of transportation or recreation, including vehicular, pedestrian, cycling, boating and paddling.

## 4.4 MOBILITY

Mobility is the ability of people to move about freely and it encompasses all modes of travel, including pedestrian, bicycle, automobile and transit. The Beach Corridor includes a segment from the Miami Design District to Downtown Miami on North Miami Avenue, a Bay Crossing on SR A1A/MacArthur Causeway, and alternative alignments on Washington Avenue. The Beach Corridor alignments are designed to offer rapid transit to and from major destinations and points of origin. The Beach Corridor alignments are also designed to provide enhanced interconnections with other modes of transit, including the Metromover in Downtown Miami, Tri-Rail and Brightline (Virgin), and local bus circulators in Miami and Miami Beach. Connection to major destinations also facilitates use of other modes of transportation or recreation, including vehicular, pedestrian, cycling, boating and paddling.

The Intermodal Passenger Connectivity Database (IPCD) is a data table of transportation terminals that provides an estimate of the degree of intermodal connectivity in the transportation system. There are 10 IPCD locations within 100 feet of the corridor, 35 within 500 feet and 78 within a quarter-mile. Within 1,320 feet (quarter-mile) of the Beach Corridor, there are currently two airports, two aviation transportation facilities, two boat ramps, 79 bus transit routes, three existing recreational trails, 14 fixed-guideway transit network stations, 13 marinas, five OGT multi-use trails opportunities, two OGT paddling trails opportunities, three potential navigable waterways and the FEC Railroad. Additional studies are currently being performed, under the SMART Plan and by other transit providers, to provide more terminals that will increase intermodal connectivity. Miami-Dade Transit Authority is a Transportation Disadvantaged Service Provider in this area.

The typical sections for each of the four modes of transit under study include pedestrian facilities on the arterial roadways (North Miami Avenue, Washington Avenue) and bicycle lanes on both of the arterial roadways and the Bay Crossing. The proposed project will enhance mobility by 1) increasing the person-throughput to the Beach Corridor's major origins and destinations via rapid transit technology; 2) connecting to and providing interconnections with Metrorail, Tri-Rail, Brightline (Virgin), Metromover, Metrobus routes, Miami and Miami Beach circulators, jitneys, shuttles, taxis and Transportation Network Companies; and 3) promoting pedestrian and bicycle friendly solutions in the Beach Corridor. A review of the potential impacts to mobility, accessibility, traffic circulation and public parking was conducted as shown in the following sections. The degree of effect assigned to mobility is Enhanced.

### 4.4.1 MOBILITY CHOICES

The project proposes to provide direct, convenient and comfortable rapid transit to serve existing and future land uses as well as enhanced interconnections with other transit and non-transit modes of transportation. Connection to major destinations also facilitates use of other modes of transportation or recreation, including vehicular, pedestrian, cycling, boating and paddling. The Beach Corridor Rapid Transit Project will enhance intermodal connectivity in the region.

### 4.4.2 ACCESSIBILITY

The project will improve accessibility to major employment hubs and community activity centers and services by providing alternative routes between Miami and Miami Beach, and among neighborhoods within the two cities.

### 4.4.3 CONNECTIVITY

The project is anticipated to increase connectivity by improving the ability of the resident populations to access important social, cultural and institutional facilities and community features. The project is intended to improve the people-carrying capacity with rapid transit throughout the sub-areas along the project corridor and promote and support a multi-modal, multi-user transportation network that is pedestrian and bicycle friendly.

#### 4.4.4 TRAFFIC CIRCULATION

The project is anticipated to improve traffic circulation in the surrounding areas by alleviating on-street vehicular traffic.

#### 4.4.5 PUBLIC PARKING

The project is not expected to decrease public parking facilities within the study area.

### 4.5 AESTHETICS

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Aesthetics in transportation planning incorporates how the community is affected by a project in regard to visual, noise and vibration impacts. Aesthetic issues are subjective and are best defined by the collective community vision of what constitutes a pleasing environment. It includes actual or perceived impacts to noise and vibration, viewsheds, and compatibility of the project with the surrounding area.

The project corridor is within two US Census designated places, the urbanized areas of Miami and Miami Beach. Each area has its own visual character and viewshed. Additionally, the bay crossing on MacArthur Causeway has its own community character and viewshed due to Biscayne Bay, PortMiami and the residences on Hibiscus, Palm and Star Islands. The project is consistent with the future land use vision of this high-growth area and proposes to increase the person-throughput to major origins and destinations in the Beach Corridor via premium rapid transit. It is noted that Hibiscus, Palm and Star Islands, along with Terminal Island, are part of the City of Miami Beach; Watson Island and Dodge Island (PortMiami) are in the City of Miami.

The land use character in each of the sub-areas is anticipated to remain relatively unchanged. Population, tourism and employment growth in the vicinity of the Beach Corridor are projected to continue to grow along with an increase in travel demand. The project appears to be consistent with the future land use vision of the area. However, it is anticipated that new rapid transit, whether an elevated rail line or a dedicated at-grade lane, will have a visual effect on the corridor. A review of the potential effects to visual impacts, noise and vibration, viewshed and compatibility issues was conducted as presented in the sections below. The degree of effect assigned to aesthetics is Moderate.

#### 4.5.1 NOISE/VIBRATION

The most common land uses adjacent to the corridor are commercial and services, while the roads and highways that are part of the corridor or within 100 feet make up the second most common land use. While the area is predominantly urbanized, increased noise levels during construction and potential noise level increases as a result of a new mode of transit along the corridor have the potential to affect the surrounding community. Therefore, an operational noise assessment, issued under a separate cover, was conducted for the project using the 2007 FTA Noise Impact Assessment spreadsheet and procedures from the 2006 FTA Noise and Vibration guidance manual. Project-related noise levels were calculated using FTA reference sound levels for rail transit and potentially noise-sensitive land uses along the project were identified.

Both of the recommended technologies, APM and Monorail have rubber wheels on an elevated guideway and design features that would reduce noise and vibration compared to other mass transit systems, such as LRT. The Noise and Vibration Study found no severe noise impacts for schools, public parks, or residential areas. Moderate noise impacts were projected for two residential locations and no noise mitigation measures are proposed at this time.

Because no vibration impacts are projected, no vibration mitigation is proposed. No buildings with special ground-borne vibration concerns were identified. Furthermore, the FTA Noise and Vibration guidance manual states that rubber tire mass transit systems do not cause vibration issues with building structures, unless there are discontinuity or spurs in the rail guide that could cause vibrations. The FTA vibration impact criteria are not based upon the existing vibration levels measured at adjacent structures, but

are based on the frequency of the proposed transit service and the type of proposed transit vehicle only. If needed, locations that exceed these criteria will be surveyed for ambient vibration levels at a later time as part of final engineering design.

#### 4.5.2 VIEWSHED

Downtown Miami is characterized by skyscrapers and other commercial, institutional and light industrial land uses. The project would connect with the existing elevated Metromover. Therefore, an elevated mode of transit would not be incompatible with the existing downtown Miami city character.

Along the Miami Beach alignments, most of the buildings adjacent to the corridor are two or three stories high and the land uses are mainly residential, mixed-use commercial and entertainment. In addition, the Beach Corridor traverses several historic districts on Miami Beach and there are numerous potentially historic structures. Furthermore, the streets are landscaped. Only at-grade modes of transit are proposed on Miami Beach due to its aesthetic character. However, the landscaping may be removed to accommodate a dedicated transit lane, which would alter the aesthetics of the streets.

An elevated mode of transit is being proposed on the Bay Crossing. The transitway is proposed on the south side of MacArthur Causeway, which will allow causeway access to the residences on Hibiscus, Palm and Star Islands to be maintained. Median landscaping will remain undisturbed. PortMiami is south of MacArthur Causeway across the channel. By elevating the transit guideway, views of the Miami Channel and PortMiami will be available for vehicles traveling across MacArthur Causeway. The new transit is not anticipated to affect the view of residents on Hibiscus, Palm and Star Islands. Aesthetic features of the transit guideway will be further explored during design.

#### 4.5.3 COMPATIBILITY

Downtown Miami already contains an elevated mode of transit in the Metromover. Therefore, an elevated mode of transit would not be incompatible with the existing downtown city character.

Along the Miami Beach alignments, most of the buildings adjacent to the corridor are two or three stories high and the land uses are mainly residential, mixed-use commercial and entertainment. In addition, the Beach Corridor traverses several historic districts on Miami Beach and there are numerous potentially historic structures. Only at-grade modes of transit are proposed on Miami Beach for compatibility with its aesthetic character.

The bay crossing transitway is proposed on the south side of MacArthur Causeway, which will maintain current access to the residences on Hibiscus, Palm and Star Islands to be maintained. Median landscaping will remain undisturbed.

### 4.6 RELOCATION POTENTIAL

Relocation and displacement in the context of SCE evaluation refers to the action of being removed from an existing location and being reestablished in a new place. This action involves modifying the complex spatial relationships between residents, businesses and community facilities, and can involve financial as well as social and psychological considerations.

The Beach Corridor rapid transitway is proposed to be located within existing public rights-of-way, including highways and arterial roadways. For the elevated transit modes, the railway is proposed on one side of the existing right-of-way. For the at-grade transit modes, a dedicated lane is proposed within the existing right-of-way. Therefore, no right-of-way acquisition or relocations are anticipated for the corridor alignment. No unique or community/institutional facilities are anticipated to be impacted.

Although no right-of-way acquisition or relocations are anticipated for the corridor alignment, potential locations for other transit-related facilities will be identified. Relocation potential will be further assessed as more definitive information regarding design and right-of-way needs becomes available. A Public Involvement Plan will be implemented in coordination with the Miami-Dade TPO, City of Miami, and City of Miami Beach in accordance with Part 1, Chapter 11 (effective January 14, 2019) of the PD&E Manual



to solicit input from surrounding property owners on potential project effects to adjacent properties and alternatives that may minimize impacts. If required, a Conceptual Stage Relocation Plan will be developed in accordance with Part 2, Chapter 4 (effective January 14, 2019) of the PD&E Manual. The degree of effect assigned to relocation potential is Minimal.

#### 4.6.1 RESIDENTIAL

Residential relocations are not anticipated as part of this project. If required, a Conceptual Stage Relocation Plan will be developed in accordance with Part 2, Chapter 4 (effective January 14, 2019) of the PD&E Manual. A Conceptual Stage Relocation Plan includes an estimate of the number of households and number of persons to be displaced as well as the percentage of minority, elderly, handicapped or disabled residential occupants. The income range in the affected community and the age of the structures that are being affected are also taken into consideration. The availability of decent, safe and sanitary housing for sale or rent is provided as well as financial compensation.

#### 4.6.2 NON-RESIDENTIAL

Relocations are not anticipated as part of this project. If required, a Conceptual Stage Relocation Plan will be developed in accordance with Part 2, Chapter 4 (effective January 14, 2019) of the PD&E Manual.

#### 4.6.3 PUBLIC FACILITIES

No public facilities will be impacted by the project.

## 5 RECOMMENDATIONS AND COMMITMENTS

### 5.1 RECOMMENDATIONS FOR RESOLVING ISSUES

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The FDOT PD&E Manual recommends four strategies to resolve adverse sociocultural effects of a transportation project: avoidance, minimization, mitigation and enhancement. Some of the solutions address short-term effects (during construction) and others are implemented to address long-term effects. Additionally, solutions to resolve one effect might create another adverse effect. Based on the analysis presented herein, the project will not adversely affect the communities within the SCE study area. Minimal temporary impacts are anticipated due to noise/vibration from construction. Issues will be resolved through public involvement and the relocation assistance programs.

### 5.2 PROJECT COMMITMENTS

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The following commitments are proposed based on the SCE findings documented herein:

- A PIP will continue to be implemented. The PIP will include LEP accommodations.
- Public input on the aesthetic features of the transit guideway will be solicited during design.
- If necessary, a Conceptual Stage Relocation Plan will be developed for the project.
- If necessary, DTPW will carry out a Right of Way Acquisition and Relocation Assistance Program.

Measures to avoid and minimize noise and vibration impacts consistent with applicable state and local regulations and the FDOT Standard Specifications for Road and Bridge Construction will be applied.

## 6 ENVIRONMENTAL JUSTICE, CIVIL RIGHTS, AND RELATED ISSUES

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving Federal financial assistance. National origin includes LEP groups. More specifically, Title VI provides that “no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance (42 U.S.C. Section 2000d).

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by the president on February 11, 1994, directs federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

On August 11, 2000, the president signed Executive Order 13166, “Improving Access to Services for Persons with Limited English Proficiency.” Executive Order 13166 requires Federal agencies to examine the services they provide, identify any need for services to those with LEP, and develop and implement a system to provide those services so LEP persons can have meaningful access to them. It is expected that agency plans will provide for such meaningful access consistent with, and without unduly burdening, the fundamental mission of the agency. Executive Order 13166 also requires that the Federal agencies work to ensure that recipients of Federal financial assistance provide meaningful access to their LEP applicants and beneficiaries.

### 6.1 PROTECTED POPULATIONS IN THE STUDY AREA

The demographic within the SCE study area includes protected populations under Title VI, including minorities, LEP groups and low-income households. A comparison of the relevant demographics between the SCE study area and Miami-Dade County is shown in Table 6-1. Based on the 2017 demographic information presented in Section 4.1.1, minorities constitute 70.38% of the study area population compared to 86.26% in Miami-Dade County, 55.94% of the population is of Hispanic or Latino origin, compared to 67.45% of the population in Miami-Dade County. 19.77% of the population in the SCE study area speak English not well or not at all, compared to 21.96% in Miami-Dade County. Households below the poverty level are 22.10% in the study area and 19.95% in Miami-Dade County.

Table 6-1 Study Area and County by Race and Ethnicity (2017 Data)		
Race	SCE Study Area	Miami-Dade County
White Alone	71.08	75.60
Black or African American Alone	11.44	17.97
Native Hawaiian or Pacific Islander Alone	0	0.03
Asian Alone	1.58	1.58
American Indian or Alaska Native Alone	0.12	0.15
Some Other Race Alone	13.44	3.14
Claimed 2 or More Races	2.34	1.53
Hispanic or Latino of Any Race	55.94	67.45

Table 6-1 Study Area and County by Race and Ethnicity (2017 Data)		
Race	SCE Study Area	Miami-Dade County
Not Hispanic or Latino	44.06	32.55
Minority	70.38	86.26

Table 6-2 Study Area and County by Language* (2017 Data)		
Description	SCE Study Area	Miami-Dade County
Speaks English Well	12.17%	13.10%
Speaks English Not Well or Not at All Total	19.77%	21.96%
<i>Speaks English Not Well</i>	<i>11.71%</i>	<i>12.46%</i>
<i>Speaks English Not at All</i>	<i>8.05%</i>	<i>9.49%</i>

\*Applies to the portion of the total population who are not native English speakers, therefore the total does not add up to 100%. The sum of the percentages of people who Speak English Not Well or Speak English Not at All does not equal the percentage of people who Speak English Not Well or Not at All Total because the percentages were rounded to the nearest hundredth of a percent.

Table 6-3 Study Area and County by Income (2017 Data)		
Description	SCE Study Area	Miami-Dade County
Median Household Income	\$37,820	\$46,338
Population Below Poverty Level	22.00%	18.98%
Households Below Poverty Level	22.10%	19.95%
Households with Public Assistance Income	1.44%	2.24%

While the census data indicates that protected populations are predominant in the area, the project implementation will not result in the isolation of that area or the area will benefit from the enhanced traffic flow by improving connectivity, mobility and economic opportunity in the area.

## 6.2 COORDINATION AND PARTICIPATION

In an effort to provide that no minority, disadvantaged, low-mobility or low-income population is underrepresented, and that no specific population is disproportionately affected by the project, a comprehensive PIP was initiated to comply with Title VI/Nondiscrimination and the Executive Orders as per Part 1, Chapter 11 (effective January 14, 2019) of the FDOT PD&E Manual and provide for meaningful opportunities for public participation.

DTPW complies with the Executive Order 13166 regarding LEP with a determination based on four factors: 1) the number and proportion of LEP persons in the eligible service area; 2) the frequency with which LEP persons come in contact with the program; 3) the nature and importance of the program, activity, or service provided by the recipient to people's lives; and 4) the resources



available to the recipient and costs. Spanish translations and bi-lingual communication during the public involvement efforts for this study will continue in the future as these four factors were met (refer to Section 7 for Public Involvement information).

### 6.3 SUMMARY OF PROJECT EFFECTS

The project is not anticipated to result in the displacement of any residents, as discussed in Section 4.6.1.

Overall, the project is expected to enhance the economic opportunities for minority and LEP persons in the project area by promoting and supporting a multimodal and multiuser transportation corridor linking activity and business centers within Miami and Miami Beach. The project is also expected to enhance mobility in Miami and Miami Beach and improve access to commercial, retail, and office land uses within the Miami-Dade County Enterprise Zone. The project is not expected to impact the demographics of the population in the area or adversely affect minority or special populations.

Table 6-4 Summary Degree of Effect for Each SCE Issue									
Social		Economic		Land Use Changes		Mobility		Aesthetics	
Demographics	Minimal	Business/ Employment	Enhanced	Land Use – Urban Form	Minimal	Mobility Choices	Enhanced	Noise/ Vibration	Minimal
Community Cohesion	None	Tax Base	None	Plan Consistency	None	Accessibility	Enhanced	Viewshed	Moderate
Safety/ Emergency Response	Enhanced	Traffic Patterns	None	Growth Trends and Issues	None	Connectivity	Enhanced	Compatibility	None
Compatibility with Community Goals/Quality of Life	Enhanced	Business Access	Enhanced	Focal Points	Enhanced	Traffic Circulation	None		
Special Community Designations	Enhanced	Special Needs Patrons	Enhanced			Public Parking	None		
Enhanced		Enhanced		Minimal		Enhanced		Moderate	

### 6.4 MITIGATION AND ENHANCEMENT ACTIONS

Disproportionate adverse effects to Environmental Justice populations are not anticipated, and the project is expected to enhance access to social, cultural and institutional facilities. The PIP will continue to be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 (effective January 14, 2019) of the FDOT PD&E Manual to solicit further input from residents and business owners on potential project effects related to community cohesion and social interaction as well as potential solutions to ensure that both the social and transportation needs

of the surrounding communities are addressed. Public outreach activities include transportation disadvantaged and populations with LEP in accordance with applicable Acts and Executive Orders.

The project corridor is within the urbanized areas of Miami and Miami Beach and crosses Biscayne Bay. Each area has its own visual character and viewshed. Potential aesthetic effects will continue to be assessed further during future phases of Project Development as more detailed design information becomes available. The DTPW will continue to engage residents and business owners in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach to solicit input on potential project effects as well as opinions and preferences regarding general design concepts related to corridor aesthetics.

While the area is predominantly urbanized, increased noise levels during construction and potential noise level increases as a result of the new mode of transit along the corridor could affect these features. No noise mitigation measures are currently proposed. However, once the project is operating, field measurements may be conducted at representative sites. Should the project's noise impacts exceed the FTA noise impact levels, further mitigation may be implemented on the receivers with the authorization of the property owners.

Detailed right-of-way acquisition needs have not yet been determined. Once right-of-way acquisition has been determined, DTPW will carry out a right-of-way acquisition and relocation assistance program in accordance with Florida Statute 339.09 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646 as amended by Public Law 100-17) and the established guidelines by which these programs are administered, to minimize any unavoidable effects of right-of-way acquisition and displacement of people. This will include advance notification of impending right-of-way acquisition. Prior to acquiring right of way, all properties will be appraised on the basis of comparable sales and land use values in the area. Owners of property to be acquired will be offered and paid fair market value for their property rights.

At least one Relocation Agent will be assigned to each project to carry out the Relocation Assistance and Payments Program. A Relocation Agent will contact each person to be relocated to determine individual needs and desires, and to provide information, answer questions, and find help in locating replacement property. Residential tenants and owner-occupants will receive an explanation regarding options available to them. Relocation resources will be available to all relocatees without discrimination.

No persons lawfully occupying real property will be required to move without at least 90 days written notice of the intended vacation date, and no occupant of a residential property will be required to move until decent, safe and sanitary replacement housing is "made available." "Made available" means that the affected person has either by himself obtained and had the right of possession of replacement housing, or that DTPW has offered the relocatee decent, safe and sanitary housing which is within his financial means and is available for immediate occupancy.

The acquisition and relocation program would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended; Title VI of the Civil Rights Act of 1964; and Title VIII of the Civil Rights Act of 1968 (Fair Housing Act). Relocation advisory services and resources are available to all displacees without discrimination.

## 6.5 FINDINGS REGARDING DISPROPORTIONATE ADVERSE EFFECTS

Based on the above discussion and analysis, the project will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of Title VI of the Civil Rights Act of 1964, Executive Order 12898 and Executive Order 13166.

## 7 SUMMARY OF PUBLIC INVOLVEMENT

### 7.1 ADVANCE NOTIFICATION

This project will seek federal funding from FTA. This project underwent a Planning Screen in the EST (ETDM # 14257). A Programming Screen was not possible because the project was screened by FDOT District 6 on behalf of DTPW. Agency comments were received on March 1, 2019 and a Summary Report was published on April 28, 2019. A copy of the Summary Report is included in Appendix B. In meeting its purpose and objectives, this project intends to satisfy the PD&E procedures to assure proposed recommendations are sustainable and in accordance with federal, State and local authorities.

### 7.2 PUBLIC INVOLVEMENT PLAN

Public involvement is an important input to the project. This coordination allows the public to provide input in transportation decisions resulting in the development of transportation systems that meet community needs and desires. Through public involvement, DTPW can gain insight into an affected community and use this knowledge to evaluate the sociocultural effects of the project alternatives. Another important objective of this outreach is to engage other agencies and public entities to facilitate identifying, evaluating, and addressing the potential project effects on the surrounding community.

Public input was gathered at several milestones (See Figure 7-1), providing residents, business owners, elected officials and government agencies with the opportunity to inform the development and screening of the alternatives and the evaluation. The Tier One Screening public involvement activities included one agency/elected officials kick-off meeting, one public kick-off meeting (held in Miami on July 25, 2017 and in Miami Beach on July 27, 2017) and more than 20 one-on-one meetings with elected officials and community stakeholders between June and November 2017. Public and agency input during Tier One was important in shaping further analysis:

- As a result of stakeholder input and in response to a resolution adopted by the City of Miami Beach, DTPW expanded the study area to include both I-195 and I-395 as potential corridors for rapid transit to and from Miami Beach.
- To address requests for consideration of additional corridors within the City of Miami, a Corridor Analysis Report was completed in August 2018. The Corridor Analysis examined North Miami Avenue, NE 2nd Avenue and Biscayne Boulevard for potential transit improvements. The Corridor Analysis determined that due to various environmental, engineering and ridership factors, North Miami Avenue would be the recommended corridor for implementation of a rapid transit mode.
- The public involvement opportunities during Tier Two of the study included an additional agency/elected officials kick-off meeting, public-kick off meeting, and Alternatives Workshops held on the Miami side and Miami-Beach side to present initial alternatives. A Project Advisory Group (PAG) comprised of local stakeholders having an active role in the community was established during Tier Two. A second series of Alternatives Workshops was held to present the evaluation results and refinement of alternatives in both Miami and Miami-Beach locations, and the public involvement process has revealed public support for the project, with favorable public feedback and no identified significant controversies. Presentations to municipalities and a series of one-on-one briefings with elected officials were conducted as listed in Table 7-1.

## Project Schedule



Figure 7-1 Project Timeline with Public Involvement Milestones

Table 7-1 Project Meeting Summary		
Date	Meeting Group or Official	Location
December 17, 2017	Project Tier 2 Kick-Off Meeting	Miami Beach Regional Library 227 22 <sup>nd</sup> Street, Miami Beach
February 27, 2018	City of Miami Beach Commissioner Gongora	1700 Convention Center Drive, 4th Floor, Miami Beach
March 2, 2018	City of Miami Beach Commissioner Samuelian	1700 Convention Center Drive, 4th Floor, Miami Beach
March 2, 2018	City of Miami Beach Commissioner Aleman	1700 Convention Center Drive, 4th Floor, Miami Beach
March 2, 2018	City of Miami Beach Commissioner Arriola	1700 Convention Center Drive, 4th Floor, Miami Beach
March 7, 2018	County Commissioner Barreiro	1454 SW 1 <sup>st</sup> Street, Miami
March 7, 2018	County Commissioner Edmonson	1454 SW 1 <sup>st</sup> Street, Miami
March 9, 2018	City of Miami Beach Mayor Gelber	1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach
March 9, 2018	City of Miami Mayor Suarez's staff	3500 Pan American Drive, Miami
March 9, 2018	City of Miami Beach Commissioner Steinberg	1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach
March 20, 2018	City of Miami Commissioner Russell's staff	3500 Pan American Drive, Miami



Table 7-1 Project Meeting Summary		
Date	Meeting Group or Official	Location
March 20, 2018	City of Miami Commissioner Hardemon's staff	111 NW 1 <sup>st</sup> Street, Miami
March 22, 2018	County Commissioner Heyman's staff	111 NW 1 <sup>st</sup> Street, Miami
October 11, 2018	County Commissioner Higgins	111 NW 1 <sup>st</sup> Street, 2 <sup>nd</sup> Floor, Miami
November 27, 2018	City of Miami Beach Technical Meeting	1688 Meridian Avenue, Suite 801, Miami Beach
April 10, 2019	County Commissioner Higgins	111 NW 1 <sup>st</sup> Street, 2 <sup>nd</sup> Floor, Miami
May 30, 2019	Project Advisory Group Meeting #1	Miami Marriott Biscayne Bay, 1633 N. Bayshore Drive, Miami
June 17, 2019	Project Alternatives Workshop #1 (Miami Beach)	New World Symphony, 500 17 <sup>th</sup> Street, Miami Beach
June 20, 2019	Project Alternatives Workshop #1 (Miami)	Miami Marriott Biscayne Bay 1633 N. Bayshore Drive, Miami
July 15, 2019	City of Miami Beach Mayor and Commission Project Workshop	Miami Beach Commission Chambers
July 17, 2019	City of Miami Beach Commission	Miami Beach City Hall, 1700 Convention Center Drive, 4th Floor, Miami Beach
August 29, 2019	Project Advisory Group Meeting #2	Miami-Dade Main Library, 101 W. Flagler Street, Miami
September 5, 2019	Miami Beach Mayor Gelber meeting	1700 Convention Center Drive, Fourth Floor, Miami Beach
September 5, 2019	Miami Beach Commissioner Arriola	1700 Convention Center Drive, Fourth Floor, Miami Beach
September 6, 2019	County Commissioner Higgins	Stephen P. Clark Center, 111 NW 1 <sup>st</sup> Street, 18 <sup>th</sup> Floor, Room 18-B, Miami
September 12, 2019	Project Alternatives Workshop #2 (Miami Beach)	New World Center, 500 17 <sup>th</sup> Street, Miami Beach
September 16, 2019	Project Alternatives Workshop #2 (Miami)	Miami Marriott Biscayne Bay, 1633 N. Bayshore Drive, Miami
September 19, 2019	City of Miami Mayor Suarez	3500 Pan American Drive, Miami
October 21, 2019	County Commissioner Heyman's staff	Stephen P. Clark Center, 111 NW 1 <sup>st</sup> Street, Miami
November 6, 2019	County Commissioner Martinez's staff	4081 SW 152 <sup>nd</sup> Avenue, Unit 21, Miami
November 13, 2019	County Commissioner Cava	Stephen P. Clark Center, 111 NW 1 <sup>st</sup> Street, Miami
November 19, 2019	Project Advisory Group Meeting #3	Miami Beach Library, 227 22 <sup>nd</sup> Street, Miami Beach
November 20, 2019	City of Miami Beach Commissioner Samuelian	1700 Convention Center Drive, Fourth Floor, Miami Beach
November 20, 2019	County Commissioner Bovo's staff	111 NW 1 <sup>st</sup> Street, Miami

Table 7-1 Project Meeting Summary

Date	Meeting Group or Official	Location
November 20, 2019	Freight Transportation Advisory Committee meeting	8228 NW 14 <sup>th</sup> Street, Doral
November 26, 2019	City of Miami Commissioner Russell	Miami City Hall, 3500 Pan American Drive, Miami
November 26, 2019	City of Miami Commissioner Hardemon's staff	Miami City Hall, 3500 Pan American Drive, Miami
December 3, 2019	County Commissioner Higgins	111 NW 1 <sup>st</sup> Street, Miami
December 4, 2019	County Commissioner Jordan's staff	2780 NW 167 <sup>th</sup> Street, Miami
December 18, 2019	Miami Dade County Citizens Independent Transportation Trust (CITT)	111 NW 1 <sup>st</sup> Street, Miami
January 3, 2020	City of Miami Mayor Suarez	Miami City Hall, 3500 Pan American Drive, Miami
January 6, 2020	Miami-Beach Commissioner Richardson	Miami City Hall, 3500 Pan American Drive, Miami
January 6, 2020	Miami-Dade County Commissioner Suarez	South Miami City Hall, 6130 Sunset Drive, South Miami
January 7, 2020	City of Miami-Beach Mayor Gelber	Miami Beach City Hall, 1700 Convention Center Drive, 4th Floor, Miami Beach
January 7, 2020	City of Doral Mayor Bermudez	Doral City Hall, 8401 NW 53rd Terrace, Doral
January 7, 2020	Miami-Dade County Commissioner Diaz	Miami City Hall, 3500 Pan American Drive, Miami
January 8, 2020	County Transportation Planning Technical Advisory Committee (TPTAC)	111 NW 1 <sup>st</sup> Street, 9 <sup>th</sup> Floor Rear Conference Room, Miami
January 8, 2020	Citizens Transportation Advisory Committee (CTAC)	111 NW 1 <sup>st</sup> Street, 18 <sup>th</sup> Floor Conf. Rm. 4, Miami
January 8, 2020	Miami-Dade School Board Representative	Miami-Dade County Department of Transportation and Public Works
January 8, 2020	City of Miami Gardens Mayor Gilbert	Miami Gardens City Hall
January 9, 2020	Miami Beach Commissioner Steinberg	Miami Beach City Hall, 1700 Convention Center Drive, 4th Floor, Miami Beach
January 10, 2020	Miami Beach Commissioner Arriola	Miami Beach City Hall, 1700 Convention Center Drive, 4th Floor, Miami Beach
January 13, 2020	Transportation Planning Council (TPC)	111 NW 1st Street, 18th Floor, Conf. Rm. 3, Miami
January 13, 2020	Miami Beach Commissioner Gongora	Teleconference
January 13, 2020	Miami-Dade Commissioner Heyman	Stephen P. Clark Center, 111 NW 1st Street
January 14, 2020	Miami Beach Commissioner Meiner	Miami Beach City Hall, 1700 Convention Center Drive, 4th Floor, Miami Beach
January 14, 2020	City of North Miami Mayor Bien-Aime	North Miami City Hall, 776 NE 125th St, North Miami
January 22, 2020	Florida Department of Transportation	FDOT D6 Headquarters, 1000 NW 111th Ave, Miami
January 30, 2020	Miami-Dade County Transportation Planning Organization	111 NW 1st Street, Commission Chambers, Miami

## APPENDIX A – SOCIOCULTURAL DATA REPORT

# Sociocultural Data Report

## Connector Aug 2019 - Feature 1

**Area:** 4.372 square miles  
**Jurisdiction(s):** **Cities:** Miami Beach, Miami  
**Counties:** Miami-dade

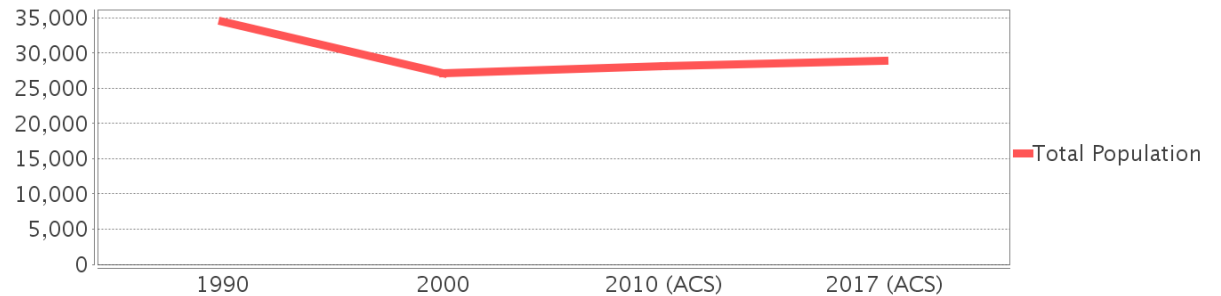
## General Population Trends

Description	1990	2000	2010 (ACS)	2017 (ACS)
Total Population	34,454	27,111	28,117	28,861
Total Households	17,947	14,689	15,382	13,826
Average Persons per Acre	61.14	30.23	46.45	44.44
Average Persons per Household	3.10	2.01	1.87	1.94
Average Persons per Family	3.15	2.99	2.59	2.88
Males	17,118	14,663	15,491	15,903
Females	17,336	12,448	12,626	12,958

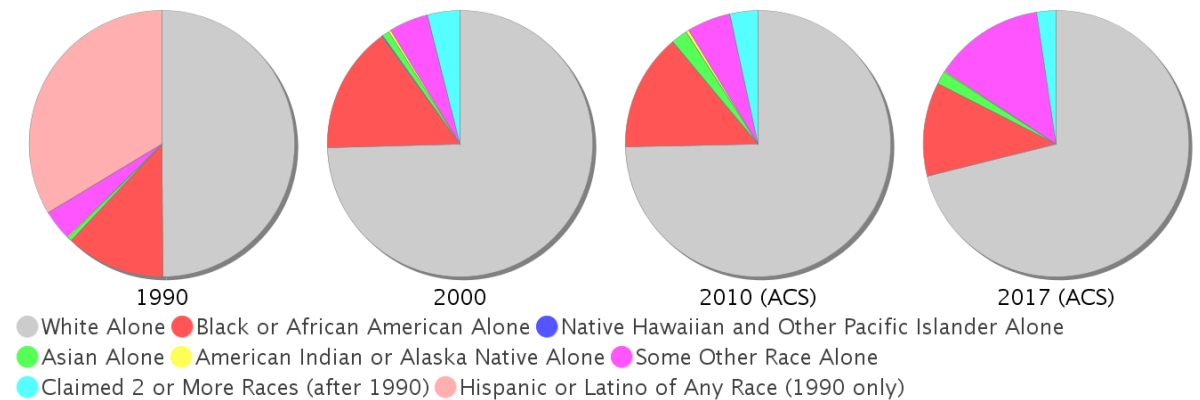
## Race and Ethnicity Trends

Description	1990	2000	2010 (ACS)	2017 (ACS)
White Alone	25,900 (75.17%)	20,210 (74.55%)	20,982 (74.62%)	20,515 (71.08%)
Black or African American Alone	6,289 (18.25%)	4,191 (15.46%)	4,004 (14.24%)	3,301 (11.44%)
Native Hawaiian and Other Pacific Islander Alone	7 (0.02%)	33 (0.12%)	19 (0.07%)	0 (0.00%)
Asian Alone	261 (0.76%)	227 (0.84%)	560 (1.99%)	455 (1.58%)
American Indian or Alaska Native Alone	78 (0.23%)	92 (0.34%)	104 (0.37%)	36 (0.12%)
Some Other Race Alone	1,919 (5.57%)	1,293 (4.77%)	1,495 (5.32%)	3,878 (13.44%)
Claimed 2 or More Races	NA (NA)	1,065 (3.93%)	953 (3.39%)	675 (2.34%)
Hispanic or Latino of Any Race	17,458 (50.67%)	13,765 (50.77%)	14,322 (50.94%)	16,146 (55.94%)
Not Hispanic or Latino	16,996 (49.33%)	13,346 (49.23%)	13,795 (49.06%)	12,715 (44.06%)
Minority	22,974 (66.68%)	18,213 (67.18%)	18,820 (66.93%)	20,313 (70.38%)

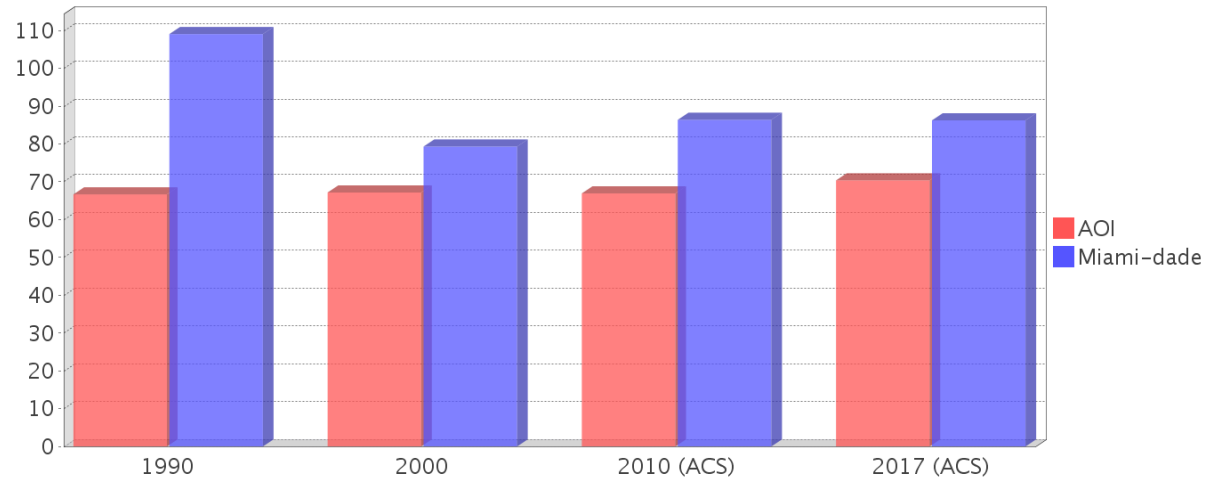
Population



Race



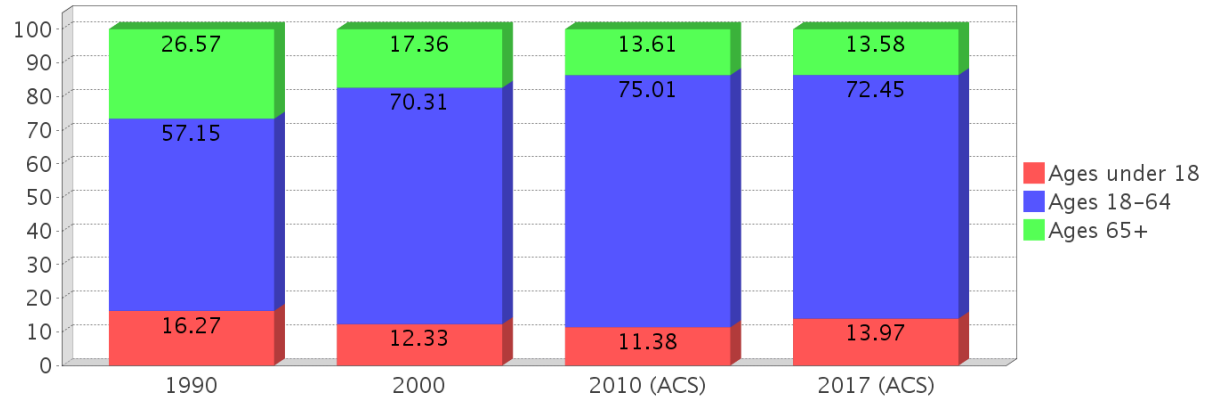
Minority Percentage Population



## Age Trends

Description	1990	2000	2010 (ACS)	2017 (ACS)
Under Age 5	5.34%	3.29%	4.30%	6.49%
Ages 5-17	10.93%	9.04%	7.07%	7.48%
Ages 18-21	4.18%	4.47%	3.93%	2.91%
Ages 22-29	12.75%	17.67%	18.48%	14.58%
Ages 30-39	15.43%	21.19%	21.79%	20.91%
Ages 40-49	10.91%	13.78%	15.30%	15.75%
Ages 50-64	13.89%	13.20%	15.51%	18.30%
Age 65 and Over	26.57%	17.36%	13.61%	13.58%
-Ages 65-74	10.56%	7.60%	6.67%	6.93%
-Ages 75-84	10.67%	7.35%	4.85%	4.71%
-Age 85 and Over	5.34%	2.41%	2.09%	1.94%
Median Age	NA	37	36	40

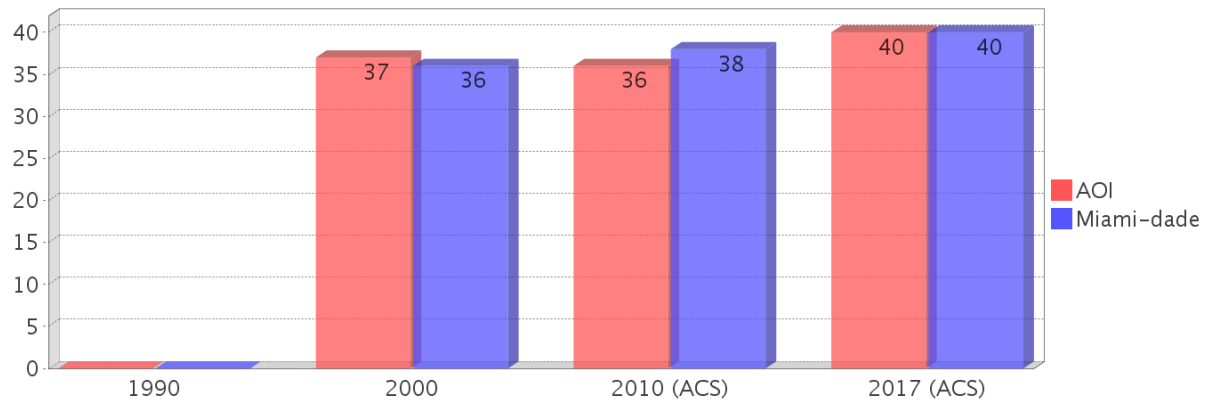
Percentage Population by Age Group



## Income Trends

Description	1990	2000	2010 (ACS)	2017 (ACS)
Median Household Income	\$10,948	\$23,835	\$37,964	\$37,820
Median Family Income	\$12,852	\$23,708	\$32,017	\$31,660
Population below Poverty Level	37.63%	30.81%	26.54%	22.00%
Households below Poverty Level	36.05%	29.72%	22.19%	22.10%
Households with Public Assistance Income	14.98%	6.90%	0.82%	1.44%

Median Age Comparison

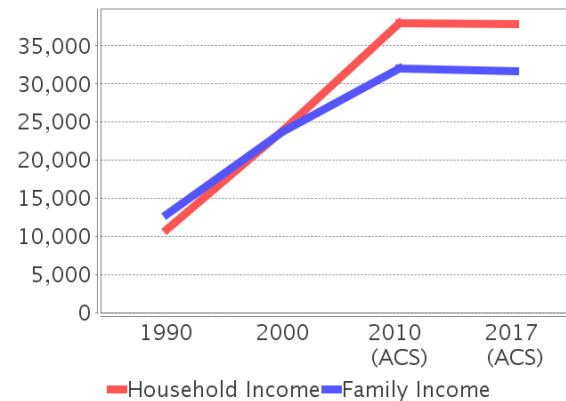


## Disability Trends

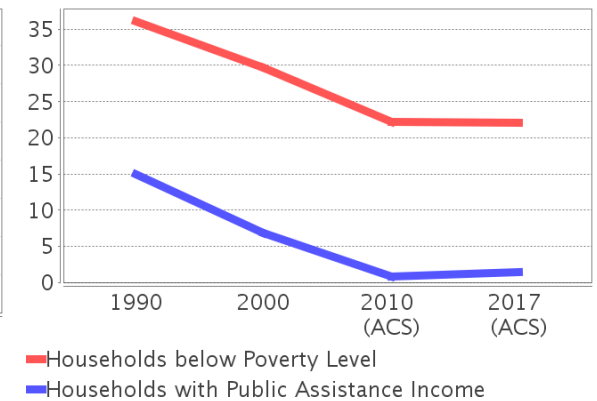
See the Data Sources section below for an explanation about the differences in disability data among the various years.

Description	1990	2000	2010 (ACS)	2017 (ACS)
Population 16 To 64 Years with a disability	2198 (7.70%)	5213 (20.28%)	(NA)	(NA)
Population 20 To 64 Years with a disability	(NA)	(NA)	(NA)	1373 (6.75%)

Income Trends



Poverty and Public Assistance





## Educational Attainment Trends

Age 25 and Over

Description	1990	2000	2010 (ACS)	2017 (ACS)
Less than 9th Grade	6,532 (25.27%)	3,482 (16.53%)	2,767 (12.88%)	1,869 (8.24%)
9th to 12th Grade, No Diploma	5,472 (21.17%)	2,906 (13.80%)	2,414 (11.23%)	1,253 (5.52%)
High School Graduate or Higher	13,846 (53.56%)	14,674 (69.67%)	16,310 (75.89%)	19,564 (86.23%)
Bachelor's Degree or Higher	4,105 (15.88%)	5,833 (27.69%)	6,920 (32.20%)	9,495 (41.85%)

## Language Trends

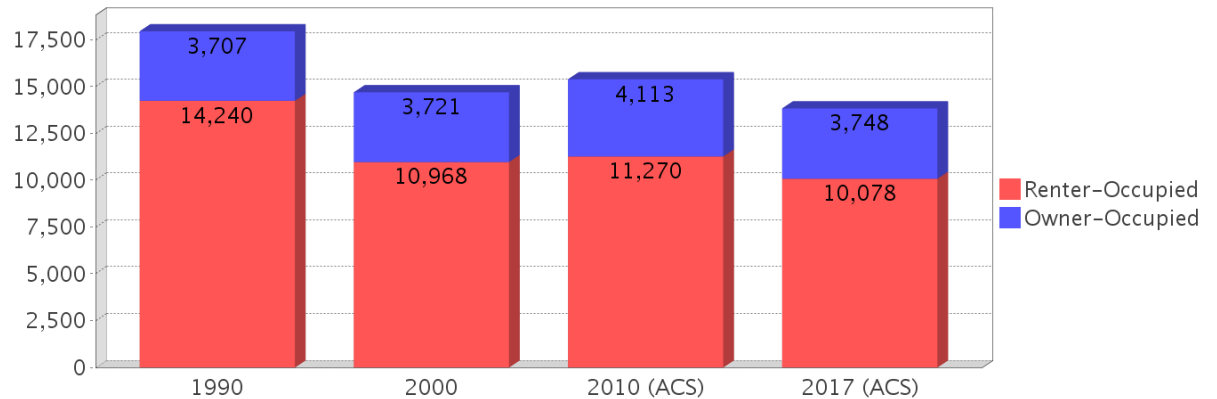
Age 5 and Over

Description	1990	2000	2010 (ACS)	2017 (ACS)
Speaks English Well	5,057 (15.59%)	3,709 (14.15%)	3,692 (14.38%)	3,283 (12.17%)
Speaks English Not Well	NA (NA)	3,459 (13.19%)	3,738 (14.56%)	3,161 (11.71%)
Speaks English Not at All	NA (NA)	1,737 (6.63%)	2,498 (9.73%)	2,173 (8.05%)
Speaks English Not Well or Not at All	8,036 (24.78%)	5,196 (19.82%)	6,236 (24.29%)	5,334 (19.77%)

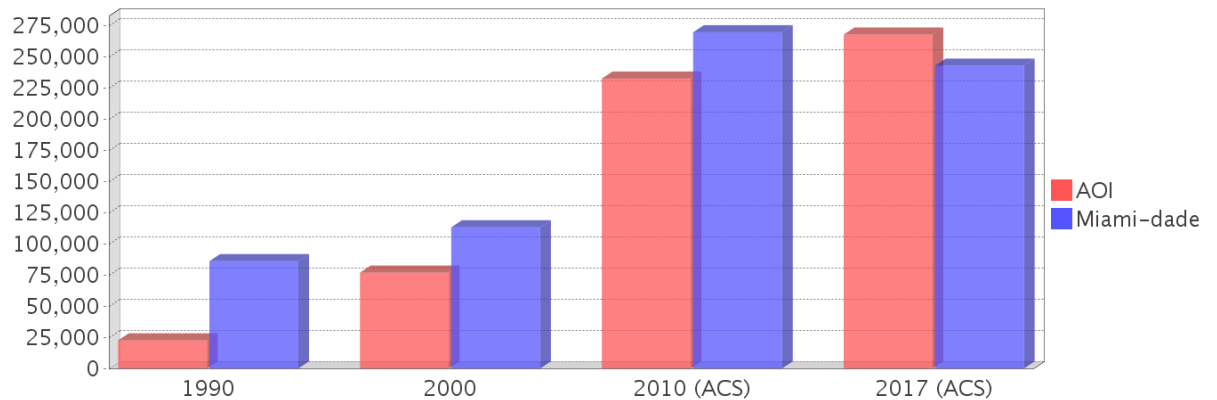
## Housing Trends

Description	1990	2000	2010 (ACS)	2017 (ACS)
Total	22,322	18,482	20,909	21,639
Units per Acre	18.20	16.84	20.00	20.69
Single-Family Units	1,427	1,757	1,637	1,606
Multi-Family Units	15,988	16,668	18,785	19,967
Mobile Home Units	7	49	66	66
Owner-Occupied Units	3,707	3,721	4,113	3,748
Renter-Occupied Units	14,240	10,968	11,270	10,078
Vacant Units	4,375	3,792	5,527	7,814
Median Housing Value	\$22,500	\$76,800	\$232,450	\$267,700
Occupied Housing Units w/No Vehicle	9,873 (55.01%)	6,373 (43.38%)	4,901 (31.86%)	4,251 (30.75%)

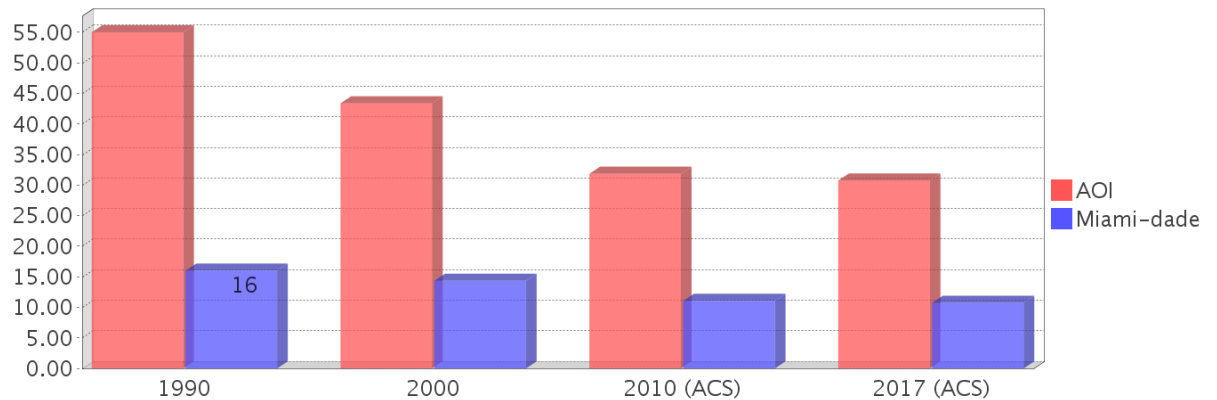
## Housing Tenure



## Median Housing Value Comparison

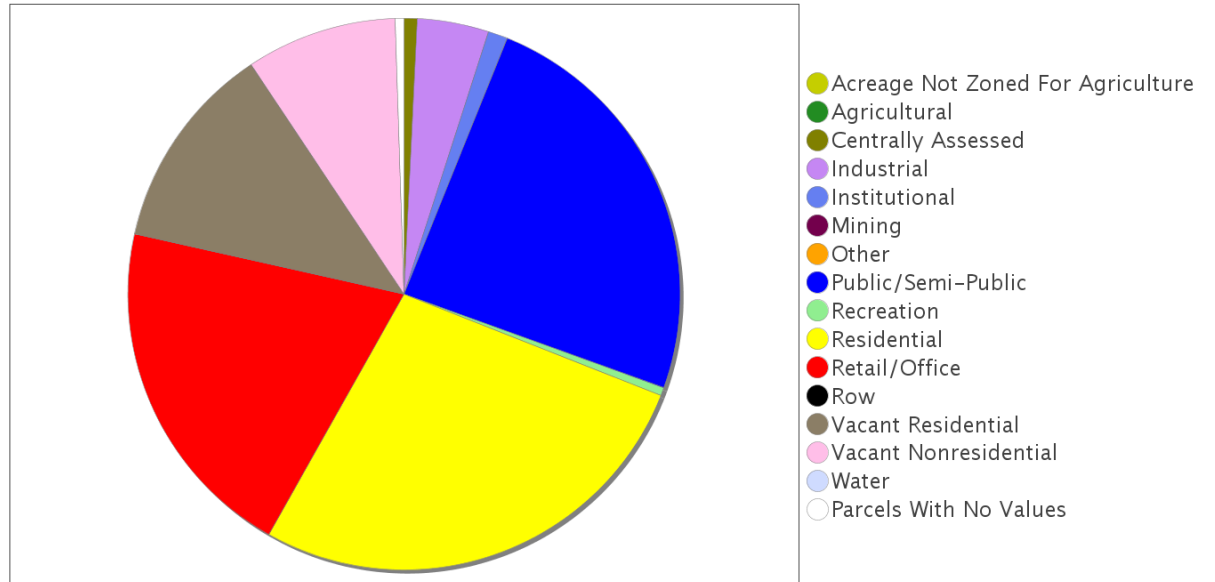


## Occupied Units With No Vehicles Available

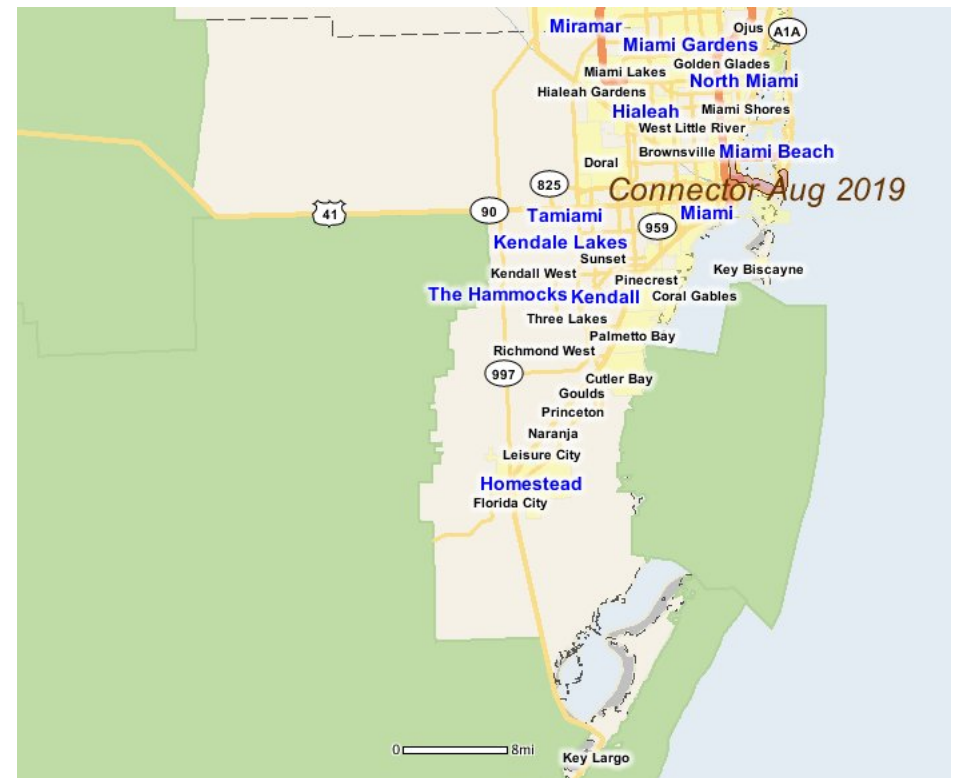
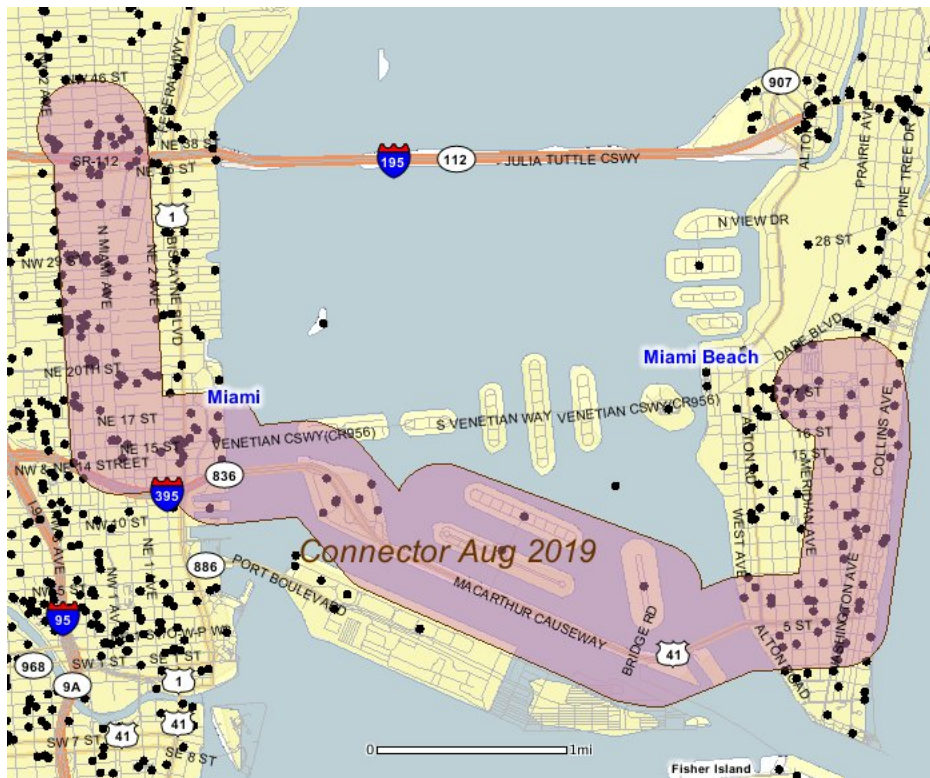


## Existing Land Use

Land Use Type	Acres	Percentage
Acreage Not Zoned For Agriculture	0	0.00%
Agricultural	<0.5	<0.02%
Centrally Assessed	12	0.43%
Industrial	65	2.32%
Institutional	18	0.64%
Mining	0	0.00%
Other	0	0.00%
Public/Semi-Public	379	13.55%
Recreation	7	0.25%
Residential	422	15.08%
Retail/Office	316	11.29%
Row	0	0.00%
Vacant Residential	189	6.75%
Vacant Nonresidential	137	4.90%
Water	0	0.00%
Parcels With No Values	8	0.29%



## Location Maps



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## Community Facilities

The community facilities information below is useful in a variety of ways for environmental evaluations. These community resources should be evaluated for potential sociocultural effects, such as accessibility and relocation potential. The facility types may indicate the types of population groups present in the project study area. Facility staff and leaders can be sources of community information such as who uses the facility and how it is used. Additionally, community facilities are potential public meeting venues.

### Assisted Housing (Points)

Facility Name	Address	Zip Code
FEDERATION TOWERS	757 WEST AVE	33139
STEVEN E. CHAYKIN	321-327 MICHIGAN AVE	33139
SUNSOUTH PLACE	530 MERIDIAN AVE	33139
ANN-ELL	700 EUCLID AVENUE	33139
MADISON	259 WASHINGTON AVE	33139
LONDON ARMS	727 COLLINS AVE	33139
SWEZY	1220 PENNSYLVANIA AVENUE	33139
LULAV SQUARE	628 LENOX AVE.	33139
SHELBOURNE HOUSE	710 JEFFERSON AVE	33139
FERNWOOD APARTMENTS	935 PENNSYLVANIA AVE	33139
COUNCIL TOWERS	1040 N COLLINS AVE	33139

### Community Centers (Points)

Facility Name	Address	Zip Code
CHAMBER OF COMMERCE - MIAMI BEACH LATIN	510 LINCOLN RD	33139
MIAMI DESIGN PREVENTION LEAGUE	1001 OCEAN DR	33139
SOUTH SHORE COMMUNITY CENTER	833 6TH ST	33139
ASPIRA OF FLORIDA INC	1 NE 19TH ST	33132
COUNCIL TOWERS CENTER	533 COLLINS AVE	33139
MIAMI BEACH SENIOR CENTER	610 ESPANOLA WAY	33139
CHAMBER OF COMMERCE - GREATER MIAMI	1601 BISCAYNE BLVD	33132
VFW POST 3559 - MIAMI BEACH	650 W AVE	33139
PRIDELINES YOUTH SERVICES	180 NE 19TH ST	33132
MIAMI BEACH COMMUNITY DEVELOPMENT CORPORATION	945 PENNSYLVANIA AVE	33139
CHAMBER OF COMMERCE - MIAMI DADE GAY AND LESBIAN	1130 WASHINGTON AVE	33137
ASPIRA OF FLORIDA INC	3650 N MIAMI AVE	33127
CENTRO CULTURAL ESPANOL DE COOPERACION IBERO AMERICANA	1490 BISCAYNE BLVD	33132

### Cultural Centers (Points)

Facility Name	Address	Zip Code
GALLERY DIET	174 NW 23RD ST	33127
WYNWOOD CENTRAL GALLERY	2242 NW 1ST PL	33127
FREDRIC SNITZER GALLERY	2247 NW 1ST PL	33127
O CINEMA	96 NW 29TH ST	33127
DIASPORA VIBE GALLERY	3938 N MIAMI AVE	33136
BERNICE STEINBAUM GALLERY	3550 N MIAMI AVE	33137
ETRA FINE ART	50 NE 40TH ST	33137
GARY NADER FINE ART	62 NE 27TH ST	33137
LOCUST PROJECTS	155 NE 38TH ST	33137
MIAMI HERALD LIBRARY & ARCHIVES	1 HERALD PLZ	33132
KABE CONTEMPORARY	123 NW 23RD ST	33127
ADRIENNE ARSHT CENTER FOR THE PERFORMING ARTS	1300 BISCAYNE BLVD	33132
MIAMI CHILDREN'S MUSEUM	980 MACARTHUR CSWY	33132
ART FUSION GALLERY	1 NE 40TH ST	33137
DIANA LOWENSTEIN FINE ARTS	2043 N MIAMI AVE	33127

Facility Name	Address	Zip Code
101 / EXHIBIT - GALLERY	101 NE 40TH ST	33137
MARKOWICZ FINE ART	114 NE 40TH ST	33137
JUNGLE ISLAND	1111 PARROT JUNGLE TRL	33132
ARTCENTER/SOUTH FLORIDA	924 LINCOLN RD	33139
INTERNATIONAL CINEMATOGRAPHERS GUILD	690 LINCOLN RD STE 203	33139
LEONARD TACHMES GALLERY	3930 NW 2ND AVE	33127
CHELSEA GALLERIA	2441 NW 2 AVE	33127
WORLD CLASS BOXING - SCHOLL COLLECTION	170 NW 23RD ST	33127
GALERIE BERTIN-TOUBLANC	2534 N MIAMI AVE	33127
MYRA GALLERIES	177 NW 23RD ST	33127
AVANT GALLERY	3850 N MIAMI AVE	33127
KELLY ROY GALLERY	50 NE 29TH ST	33137
ARTFORMZ ALTERNATIVE	171 NW 23RD ST	33127
GALERIE HELENE LAMARQUE	125 NW 23RD ST	33127
DOT FIFTYONE GALLERY	51 NW 36TH ST	33127
RICART GALLERY MIAMI	444 NW 28TH ST	33137
SAMMER GALLERY	82 NE 29TH ST	33137
LINCOLN CENTER ART GALLERY	618 LINCOLN RD	33139
CAMEO THEATRE	690 LINCOLN RD STE 201	33139
JEWISH MUSEUM OF FLORIDA	301 WASHINGTON AVE	33139
THE WOLFSONIAN-FLORIDA INTERNATIONAL UNIVERSITY	1001 WASHINGTON AVE	33139
PRAXIS INTERNATIONAL ART	2219 NW 2ND AVE	33127
AI MIAMI INTERNATIONAL UNIVERSITY OF ART & DESIGN - BROWN MACKIE COLLEGE-MIAMI LIBRARY	1501 BISCAYNE BLVD	33132
MIAMI BEACH CINEMATHEQUE	1130 WASHINGTON AVE STE 200	33139
MAC ART GROUP	2727 NW 2ND AVE	33127
CALIX GUSTAV GALLERY	98 NW 29TH ST	33127
RUBELL FAMILY COLLECTION	95 NW 29TH ST	33127
KAVACHNINA CONTEMPORARY	46 NW 36TH ST	33127
HARDCORE ART CONTEMPORARY SPACE	3326 N MIAMI AVE	33127
DANIEL AZOULAY GALLERY	3252 NE 1ST AVE	33137

### Fire Stations (Points)

Facility Name	Address	Zip Code
MIAMI FIRE DEPARTMENT AND RESCUE STATION 2	1901 N MIAMI AVE	33132

### Florida Parks and Recreational Facilities (Points)

Facility Name	Address	Zip Code
WATSON ISLAND PARK	1050 MACARTHUR CSWY	33132
SOUNDSCAPE PARK	400 17TH ST	33139
4TH STREET BEACH ACCESS	OCEAN DR & 4TH ST	33139
17TH STREET BEACH ACCESS	COLLINS AVE & 17TH ST	33139
15TH STREET BEACH ACCESS	COLLINS AVE & 15TH ST	33139
M BCH GARDEN CENT/HOLOCAUST MEMORIAL	2000 CONVENTION CENTER DR	33139
LUMMUS PARK / OCEANFRONT AUDITORIUM	10TH ST / OCEAN DR	33139
WASHINGTON AVENUE PLAYGROUND	2ND ST & WASHINGTON AVE	33139
18TH STREET BEACH ACCESS	COLLINS AVE & 18TH ST	33139
DORSEY PARK	1775 NW 1ST AVE	33136
BISCAYNE PARK	150 NE 19TH ST	33132
PALM ISLAND PARK	159 PALM AVE	33139
HIBISCUS DRIVE PARK	201 N HIBISCUS DR	33139
SOUTH SHORE PARK AND PLAYGROUND	833 6TH ST	33139
LINCOLN ROAD BEACH ACCESS	LINCOLN RD & COLLINS AVE	33140
OMNI PARK	1234 N MIAMI AVE	33136
WATSON ISLAND BAYWALK & BOAT RAMP	1040 MACARTHUR CSWY	33132
BUOY PARK	STAR ISLAND DR	33139
16TH STREET BEACH ACCESS	COLLINS AVE & 16TH ST	33139

Facility Name	Address	Zip Code
ROBERTO CLEMENTE PARK	101 NW 34TH ST	33127
BICENTENNIAL PARK	1075 BISCAYNE BLVD	33132

### Government Building

Facility Name	Address	Zip Code
U S POST OFFICE - MIAMI BEACH	1300 WASHINGTON AVE	33139
U S POST OFFICE - BUENA VISTA	66 NE 39TH ST	33137
MIAMI-DADE COUNTY HEALTH DEPARTMENT - PET CENTER	615 COLLINS AVE	33139
CITY OF MIAMI BEACH CITY HALL	1700 CONVENTION CENTER DR	33139
MIAMI-DADE COUNTY MIAMI BEACH DISTRICT COURT	1130 WASHINGTON AVE	33139

### Healthcare Facilities (Geocoded)

Facility Name	Address	Zip Code
NAGLER, M.D. PA JOEL	1688 MERIDIAN AVENUE, SUITE 202	33139
LEONARD TACHMES MD	1674 MERIDIAN AVENUE, SUITE 204	33139
MIAMI BEACH MEDICAL CENTER /DR. DOMINGUEZ	1540 WASHINGTON AVENUE	33139
ST. JOHN CLINIC MEDICAL CENTER	156 NW 29 STREET	33127
SOUTH FLORIDA ENT ASSOCIATES	1444 BISCAYNE BOULEVARD, SUITE 214	33132
VITALITY HEALTH & WELLNESS, LLC	801 4 STREET	33139
MERIDIAN PAIN & DIAGNOSTICS	555 WASHINGTON AVENUE, SUITE 101	33139
CLINICARE MEDICAL CENTER	1562 WASHINGTON AVENUE	33139
MBOD MEDICAL SPA	1717 N BAYSHORE DRIVE, SUITE 230	33132
MIDTOWN DIAGNOSTIC CENTER , LLC	2751 N MIAMI AVENUE, SUITE 4	33127
KIDSTOWN PEDIATRICS	4112 NE 1 AVENUE	33137
SOBE GYN	1370 WASHINGTON AVENUE, SUITE 314	33139
CARE RESOURCE	777 17 STREET, SUITE 400	33139
HEBREW HOME OF SOUTH BEACH	320 COLLINS AVENUE	33139
D DISTRICT SURGERY CENTER	2 NE 40 STREET, SUITE 203	33137
STANLEY C. MYERS COMMUNITY HEALTH CENTER, INC.	710 ALTON ROAD	33139
BAPTIST HEALTH MEDICAL GROUP - MBSP	1691 MICHIGAN AVENUE, SUITE 500	33139
ST. JOHN CLINIC MEDICAL CENTER	161 NW 29 STREET	33127
MIAMI HOPE CENTER	1550 N MIAMI AVENUE	33136
1055 WASHINGTON MEDICAL OFFICE	1055 WASHINGTON AVENUE	33139
MIAMI BEACH CENTER	615 COLLINS AVENUE	33139
BAPTIST HEALTH MEDICAL GROUP - MBWG	1691 MICHIGAN AVENUE, SUITE 500	33139
OCEANSIDE EXTENDED CARE CENTER	550 9 STREET	33139
SKIN AND CANCER ASSOCIATES	555 WASHINGTON AVENUE, SUITE 210	33139

### Law Enforcement Facilities (Points)

Facility Name	Address	Zip Code
MIAMI POLICE DEPARTMENT - DOWNTOWN/BRICKELL NET	1401 N MIAMI AVE (2ND FLOOR)	33136
MIAMI POLICE DEPARTMENT - OMNI SUBSTATION	391 NE 15TH ST	33128
MIAMI BEACH POLICE DEPARTMENT	1100 WASHINGTON AVE	33139
MIAMI POLICE DEPARTMENT - WYNWOOD/EDGEWATER NET	101 NW 34TH ST	33127
MIAMI POLICE DEPARTMENT - MARINE PATROL	1001 MACARTHUR CSWY	33132

### Public and Private Schools (Points)

Facility Name	Address	Zip Code
METROPOLITAN INTERNATIONAL SCHOOL OF MIAMI	3465 NW 2ND AV	33127
CHAPMAN PARTNERSHIP EARLY CHILDHOOD CENTER NORTH	1550 N MIAMI AVE	33136
MIAMI SKILL CENTER	1550 N MIAMI AVE	33136
KIDCO CHILD CARE INC	3630 NE 1ST CT	33137
LINCOLN-MARTI COMMUNITY AGENCY 41	1700 JEFFERSON AVE	33139
YOUNG MEN'S PREPARATORY ACADEMY	3001 NW 2ND AVENUE	33127



Facility Name	Address	Zip Code
PHYLLIS WHEATLEY ELEMENTARY SCHOOL	1801 NW 1ST PL	33136
PRIMARY LEARNING CENTER	1500 BISCAYNE BLVD	33132
MIAMI-DADE SCHOOL BOARD	1500 BISCAYNE BLVD	33132
AI MIAMI INTERNATIONAL UNIVERSITY OF ART AND DESIGN	1501 BISCAYNE BOULEVARD	33132
EBENEZER CHRISTIAN ACADEMY	3901 NW 2ND AVE	33127
CARE ELEMENTARY SCHOOL	2025 NW 1ST AVENUE	33127
DADE COUNTY DISTRICT OFFICE	1450 NE 2ND AVE	33132
I PREPARATORY ACADEMY	1500 BISCAYNE BLVD STE 129	33132
FLORIDA INTERNATIONAL UNIVERSITY - THE WOLFSONIAN	1001 WASHINGTON AVE	33139
ASPIRA ARTS DECO CHARTER	1 NE 19TH ST	33132
SOUTH POINTE ELEMENTARY SCHOOL	1050 4TH ST	33139
ATLANTIS UNIVERSITY	1442 BISCAYNE BOULEVARD	33132
MIAMI BEACH ADULT & COMMUNITY ED CENTER	1424 DREXEL AVE	33139
BRIDGEPREP ACADEMY OF GREATER MIAMI	137 NE 19TH ST	33132
MIA PICCOLO MONTESSORI SCHOOL	2302 NE 2ND AVE	33137
MIAMI CHILDREN'S MUSEUM CHARTER SCHOOL	980 MCARTHUR CSWY	33132
FIENBERG/FISHER K-8 CENTER	1420 WASHINGTON AVE	33139

### Religious Centers (Points)

Facility Name	Address	Zip Code
FRIENDSHIP MISSIONARY BAPTIST CHURCH	740 5TH ST	33139
TEMPLE EMANU-EL SYNAGOGUE - MIAMI BCH JEWISH COMM CENTER	1701 WASHINGTON AVENUE	33139
DIOCESE OF SOUTHEAST FLOIDA EPISCOPAL	525 NE 15TH ST	33010
GREATER ISRAEL BETHEL BAPTIST	160 NW 18TH STREET	33136
TEMPLE ISRAEL OF GREATER MIAMI	137 NE 19TH ST	33132
CONGREGATION BETH JACOB	311 WASHINGTON AVE	33139
FULL GOSPEL ACADEMY	173 NW 39TH ST	33127
NEW LIFE FAMILY CENTER CATHOLIC CHARITIES	3620 NW 1 AVE	33127
MIAMI RESCUE MISSION	2159 NW 1ST COURT	33127
MIAMI RESCUE MISSION BARGAIN BARN	2233 NW 1ST CT	33127
MIAMI BEACH COMMUNITY CHURCH	1620 DREXEL AVE	33139
MIAMI RESCUE MISSION MENS CENTER	2020 NW 1ST AVENUE	33127
HOLY CROSS EPISCOPAL CHURCH	121 NORTHEAST 36TH STREET	33137
NEW HOPE PRIMITIVE BAPT CHURCH	1301 NW 1ST PLACE	33136
TRIUMPH THE CHURCH AND KINGDOM OF GOD IN CHRIST	1752 NORTHWEST 1ST COURT	33136
IGLESIA DE DIOS PENTECOSTAL	36 NORTHWEST 29TH STREET	33127
TRINITY EPISCOPAL CATHEDRAL	464 NORTHEAST 16TH STREET	33132
IGLESIA BAUTISTA DE WYNWOOD	137 NW 29TH ST	33127
MIAMI RESCUE MISSION	2250 NORTHWEST 1ST AVENUE	33127
ST FRANCIS DE SALES PARISH	621 ALTON RD	33139
MT OLIVETTE BAPTIST CHURCH	1450 NW 1ST COURT	33136
IGLESIA CRISTIANA REFUGIO DE AMOR	3814 NORTHWEST 2ND AVENUE	33127
CONGREGATION OHR HACHAIM SYNAGOGUE	1455 OCEAN DR OFFICE	33139

### Social Services (Geocoded)

Facility Name	Address	Zip Code
NEW LIFE FAMILY SHELTER	3620 W 1ST AVE	33127
TEACH FOR AMERICA MIAMI	3252 N.E. 1ST AVENUE	33137
CAREERSOURCE SOUTH FLORIDA	833 6TH STREET	33139
MIAMI BEACH SERVICE CENTER	945 PENNSYLVANIA AVENUE	33139

### US Census Places

Facility Name
Miami
Miami Beach

## **Veteran Organizations and Facilities (Points)**

### **Facility Name**

### **Address**

### **Zip Code**

VFW POST 3559 - MIAMI BEACH

650 WEST AVENUE

33139

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## Block Groups

The following Census Block Groups were used to calculate demographics for this report.

### 1990 Census Block Groups

120250026001, 120250027022, 120250043004, 120250026002, 120250028001, 120250044002, 120250043001, 120250026003, 120250022013, 120250037021, 120250042004, 120250043003, 120250044004, 120250045002, 120250044003, 120250022022, 120250022023, 120250028003, 120250045999, 120250042003, 120250034001, 120250037022, 120250027014, 120250041022, 120250042005, 120250044006, 120250043002, 120250042002, 120250042001, 120250031001, 120250028002, 120250044005, 120250044001, 120250027024, 120250042006, 120250043005, 120250031002, 120250022012, 120250027023, 120250044008, 120250044007, 120250045001

### 2000 Census Block Groups

120860031001, 120860028001, 120860022012, 120860043003, 120860042022, 120860026002, 120860044011, 120860042021, 120860027022, 120860027016, 120860042012, 120860044025, 120860043002, 120860044021, 120860022022, 120860028002, 120860041022, 120860043005, 120860044014, 120860026001, 120860027021, 120860044012, 120860042023, 120860044023, 120860045001, 120860045002, 120860045003, 120860044013, 120860044022, 120860043001, 120860026003, 120860034001, 120860022023, 120860022013, 120860027015, 120860042011, 120860043004, 120860037021, 120860044024

### 2010 Census Block Groups

120860026003, 120860027035, 120860043041, 120860044032, 120860044041, 120860045006, 120860043034, 120860026002, 120860022013, 120860027021, 120860044051, 120860044054, 120860044031, 120860042051, 120860037026, 120860027032, 120860044063, 120860045002, 120860042052, 120860044042, 120860043031, 120860037021, 120860037023, 120860027037, 120860044052, 120860045003, 120860045004, 120860043033, 120860027036, 120860044034, 120860042061, 120860022022, 120860028002, 120860041022, 120860042042, 120860042041, 120860043043, 120860042053, 120860042063, 120860031001, 120860026001, 120860022012, 120860027022, 120869810001, 120860044061, 120860044053, 120860044033, 120860043032, 120860044043, 120860022023, 120860034001, 120860027038, 120860044062, 120860042062

### 2017 Census Block Groups

120860026003, 120860027021, 120860027035, 120860044032, 120860044042, 120860045006, 120860027037, 120860027032, 120860027038, 120860027036, 120860045002, 120860042042, 120860044033, 120860044031, 120860042051, 120860042041, 120860044051, 120860045003, 120860042053, 120860044034, 120860022013, 120860037026, 120860044052, 120860043043, 120860044054, 120860042052, 120860042062, 120860022022, 120860043032, 120860043031, 120860042063, 120860031001, 120860022023, 120860022012, 120860041022, 120869810001, 120860044061, 120860043033, 120860044041, 120860043034, 120860026002, 120860034001, 120860026001, 120860037023, 120860027022, 120860044053, 120860045004, 120860044043, 120860042061, 120860028002, 120860037021, 120860044063, 120860044062, 120860043041

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## Data Sources

### Area

The geographic area of the community based on a user-specified community boundary or area of interest (AOI) boundary.

### Jurisdiction

Jurisdiction(s) includes local government boundaries that intersect the community or AOI boundary.

## Demographic Data

Demographic data reported under the headings General Population Trends, Race and Ethnicity Trends, Age Trends, Income Trends, Educational Attainment Trends, Language Trends, and Housing Trends is from the U.S. Decennial Census (1990, 2000) and the American Community Survey (ACS) 5-year estimates from 2006-2010 and 2013-2017. The data was gathered at the block group level for user-specified community boundaries and AOIs, and at the county level for counties. Depending on the dataset, the data represents 100% counts (Census Summary File 1) or sample-based information (Census Summary File 3 or ACS).

## About the Census Data:

User-specified community boundaries and AOIs do not always correspond precisely to block group boundaries. In these instances, adjustment of the geographic area and data for affected block groups is required to estimate the actual population. To improve the accuracy of such estimates in the SDR report, the census block group data was adjusted to exclude all census blocks with a population of two or fewer. These areas were eliminated from the corresponding years' block groups. Next, the portion of the block group that lies outside of the community or AOI boundary was removed. The demographics within each block group were then recalculated, assuming an equal area distribution of the population. Note that there may be areas where there is no population.

Use caution when comparing the 100% count data (Decennial Census) to the sample-based data (ACS). In any given year, about one in 40 or 2.5% of U.S. households will receive the ACS questionnaire. Over any five-year period, about one in eight households will receive the questionnaire, as compared to about one in six that received the long form questionnaire for the Decennial Census 2000. (Source: <http://mcdc.missouri.edu/pub/data/acs/Readme.shtml>) The U.S. Census Bureau provides help with this process:

<https://www.census.gov/programs-surveys/acs/guidance/comparing-acs-data/2017.html>

Use caution when interpreting changes in Race and Ethnicity over time. Starting with the 2000 Decennial Census, respondents were given a new option of selecting one or more race categories. Also in 2000, the placement of the question about Hispanic origin changed, helping to increase responsiveness to the Hispanic-origin question. Because of these and other changes, the 1990 data on race and ethnicity are not directly comparable with data from later censuses. (Source: <http://www.census.gov/prod/2001pubs/c2kbr01-1.pdf>; <http://www.census.gov/pred/www/rpts/Race%20and%20Ethnicity%20FINAL%20report.pdf>)

The "Minority" calculations are derived from Census and ACS data using both the race and ethnicity responses. On this report, "Minority" refers to individuals who list a race other than White and/or list their ethnicity as Hispanic/Latino. In other words, people who are multi-racial, any single race other than White, or Hispanic/Latino of any race are considered minorities.

Disability data is not included in the 2010 Decennial Census, or the 2006-2010 ACS. This data is available in the 2013-2017 ACS.

Because of changes made to the Census and ACS questions between 1990 and 2017, disability variables should not be compared from year to year. For example: 1) With the 1990 data the disabilities are listed as a "work disability" while this distinction is not made with 2000 or 2017 ACS data; 2) The 2017 ACS data includes the institutionalized population (e.g. persons in prisons and group homes), while this population is not included in 1990 or 2000; 3) the age groupings changed over the years.

Please take the following two concerns into account when viewing this data: 1) With the 1990 data the disabilities are listed as a "work disability" while this distinction is not made with 2000 or 2017 ACS data; 2) The 2017 ACS data includes the institutionalized population (e.g. persons in prisons and group homes), while this population is not included in 1990 or

2000.

The category Bachelor's Degree or Higher under the heading Educational Attainment Trends is a subset of the category High School Graduate or Higher.

Income of households. This includes the income of the householder and all other individuals 15 years old and over in the household, whether they are related to the householder or not. Because many households consist of only one person, average household income is usually less than average family income.

Income of families. In compiling statistics on family income, the incomes of all members 15 years old and over related to the householder are summed and treated as a single amount.

Age Trends median age for 1990 is not available.

### **Land Use Data**

The Land Use information Indicates acreages and percentages for the generalized land use types used to group parcel-specific, existing land use assigned by the county property appraiser office according to the Florida Department of Revenue land use codes.

### **Community Facilities Data**

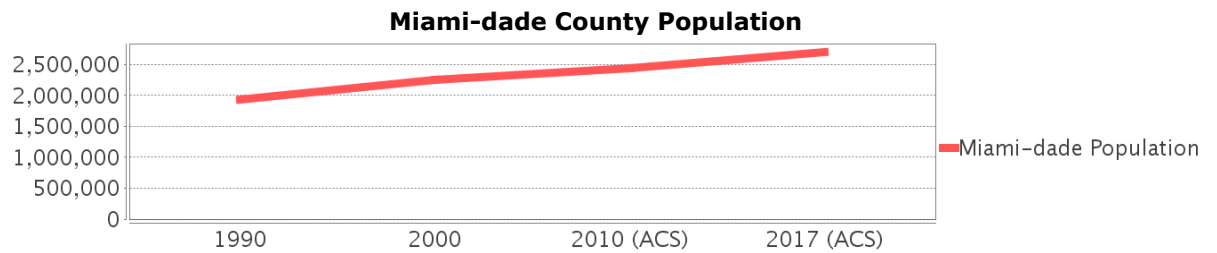
- Assisted Rental Housing Units - Identifies multifamily rental developments that receive funding assistance under federal, state, and local government programs to offer affordable housing as reported by the Shimberg Center for Housing Studies, University of Florida.
- Mobile Home Parks - Identifies approved or acknowledged mobile home parks reported by the Florida Department of Business and Professional Regulation and Florida Department of Health.
- Migrant Camps - Identifies migrant labor camp facilities inspected by the Florida Department of Health.
- Group Care Facilities - Identifies group care facilities inspected by the Florida Department of Health.
- Community Center and Fraternal Association Facilities - Identifies facilities reported by multiple sources.
- Law Enforcement Correctional Facilities - Identifies facilities reported by multiple sources.
- Cultural Centers - Identifies cultural centers including organizations, buildings, or complexes that promote culture and arts (e.g., aquariums and zoological facilities; arboreta and botanical gardens; dinner theaters; drive-ins; historical places and services; libraries; motion picture theaters; museums and art galleries; performing arts centers; performing arts theaters; planetariums; studios and art galleries; and theater producers stage facilities) reported by multiple sources.
- Fire Department and Rescue Station Facilities - Identifies facilities reported by multiple sources.
- Government Buildings - Identifies local, state, and federal government buildings reported by multiple sources.
- Health Care Facilities - Identifies health care facilities including abortion clinics, dialysis clinics, medical doctors, nursing homes, osteopaths, state laboratories/clinics, and surgicenters/walk-in clinics reported by the Florida Department of Health.
- Hospital Facilities - Identifies hospital facilities reported by multiple sources.
- Law Enforcement Facilities - Identifies law enforcement facilities reported by multiple sources.
- Parks and Recreational Facilities - Identifies parks and recreational facilities reported by multiple sources.
- Religious Center Facilities - Identifies religious centers including churches, temples, synagogues, mosques, chapels, centers, and other types of religious facilities reported by multiple sources.
- Private and Public Schools - Identifies private and public schools reported by multiple sources.
- Social Service Centers - Identifies social service centers reported by multiple sources.
- Veteran Organizations and Facilities



# Miami-dade County Demographic Profile

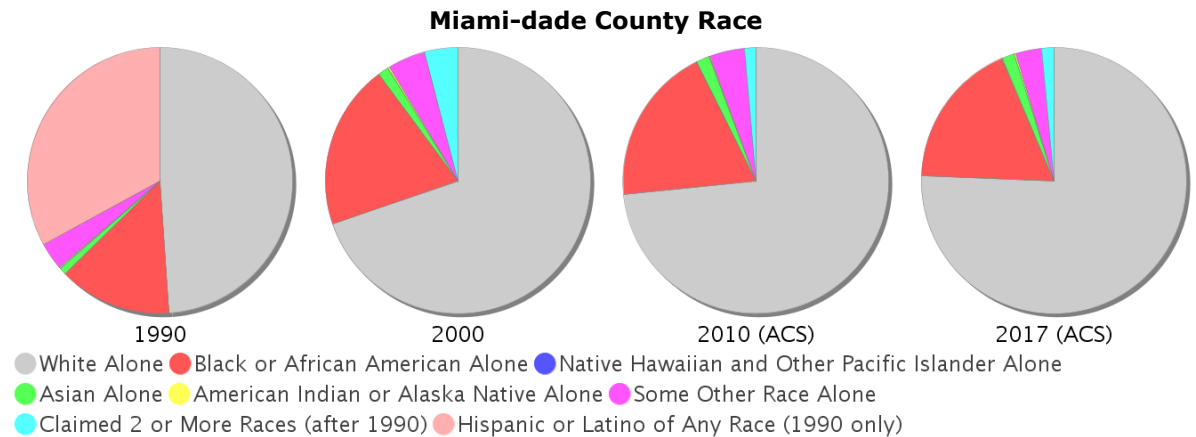
## General Population Trends - Miami-dade

Description	1990	2000	2010 (ACS)	2017 (ACS)
Total Population	1,937,094	2,253,362	2,445,374	2,702,602
Total Households	692,355	776,774	827,556	858,289
Average Persons per Acre	1.528	1.774	1.925	2.128
Average Persons per Household	2.798	2.84	3.00	3.09
Average Persons per Family	3.413	3.488	3.591	3.926
Males	928,411	1,086,558	1,182,784	1,311,997
Females	1,008,683	1,166,804	1,262,590	1,390,605



## Race and Ethnicity Trends - Miami-dade

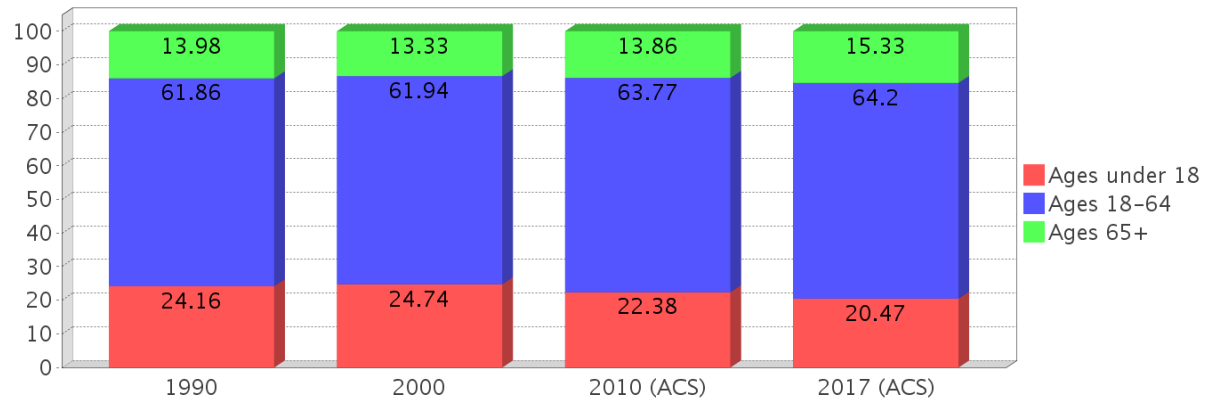
Description	1990	2000	2010 (ACS)	2017 (ACS)
White Alone	1,413,015 (72.95%)	1,570,990 (69.72%)	1,794,730 (73.39%)	2,043,272 (75.60%)
Black or African American Alone	397,993 (20.55%)	452,333 (20.07%)	470,326 (19.23%)	485,602 (17.97%)
Native Hawaiian and Other Pacific Islander Alone	(NA)	605 (0.03%)	649 (0.03%)	724 (0.03%)
Asian Alone	25,869 (1.34%)	30,692 (1.36%)	38,813 (1.59%)	42,770 (1.58%)
American Indian or Alaska Native Alone	3,066 (0.16%)	4,841 (0.21%)	3,572 (0.15%)	4,040 (0.15%)
Some Other Race Alone	96,713 (4.99%)	102,436 (4.55%)	102,938 (4.21%)	84,892 (3.14%)
Claimed 2 or More Races	(NA)	91,465 (4.06%)	34,346 (1.40%)	41,302 (1.53%)
Hispanic or Latino of Any Race	953,407 (49.22%)	1,291,681 (57.32%)	1,565,410 (64.02%)	1,823,038 (67.45%)
Not Hispanic or Latino	983,687 (50.78%)	961,681 (42.68%)	879,964 (35.98%)	879,564 (32.55%)
Minority	2,112,884 (109.07%)	1,787,468 (79.32%)	2,112,884 (86.40%)	2,331,369 (86.26%)



## Age Trends - Miami-dade

Description	1990	2000	2010 (ACS)	2017 (ACS)
Under Age 5	7.21%	6.43%	6.20%	5.78%
Ages 5-17	16.95%	18.31%	16.18%	14.69%
Ages 18-21	5.60%	5.24%	5.83%	5.06%
Ages 22-29	13.10%	10.97%	10.98%	11.21%
Ages 30-39	16.06%	16.33%	14.14%	13.89%
Ages 40-49	12.47%	14.49%	15.67%	14.68%
Ages 50-64	14.63%	14.90%	17.15%	19.37%
Age 65 and Over	13.98%	13.33%	13.86%	15.33%
-Ages 65-74	7.54%	7.23%	7.34%	8.19%
-Ages 75-84	4.88%	4.41%	4.71%	4.95%
-Age 85 and Over	1.55%	1.69%	1.81%	2.20%
Median Age	NA	36	38	40

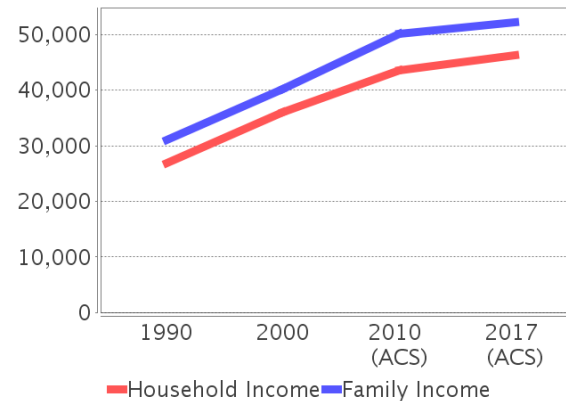
Percentage Population by Age Group - Miami-dade



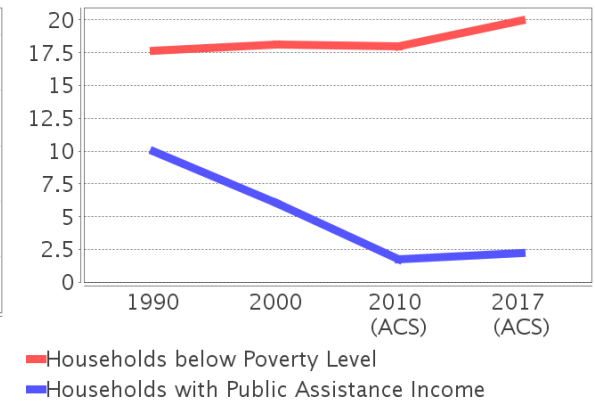
## Income Trends - Miami-dade

Description	1990	2000	2010 (ACS)	2017 (ACS)
Median Household Income	\$26,909	\$35,966	\$43,605	\$46,338
Median Family Income	\$31,113	\$40,260	\$50,065	\$52,235
Population below Poverty Level	17.94%	17.97%	17.18%	18.98%
Households below Poverty Level	17.62%	18.10%	18.02%	19.95%
Households with Public Assistance Income	9.96%	6.01%	1.74%	2.24%

Income Trends



Poverty and Public Assistance



## Disability Trends - Miami-dade

See the Data Sources section below for an explanation about the differences in disability data among the various years.

Description	1990	2000	2010 (ACS)	2017 (ACS)
Population 16 To 64 Years with a disability	78,949 (5.28%)	324,062 (15.60%)	NA (NA)	NA (NA)
Population 20 To 64 Years with a disability	NA (NA)	NA (NA)	NA (NA)	114,936 (6.96%)

## Educational Attainment Trends - Miami-dade

Age 25 and Over

Description	1990	2000	2010 (ACS)	2017 (ACS)
Less than 9th Grade	228,426 (17.83%)	219,066 (14.68%)	202,413 (12.23%)	194,934 (10.23%)
9th to 12th Grade, No Diploma	219,856 (17.16%)	260,287 (17.45%)	178,335 (10.77%)	167,399 (8.78%)
High School Graduate or Higher	833,013 (65.01%)	1,012,436 (67.87%)	1,274,809 (77.00%)	1,543,966 (80.99%)
Bachelor's Degree or Higher	240,460 (18.77%)	323,399 (21.68%)	434,574 (26.25%)	530,196 (27.81%)

## Language Trends - Miami-dade

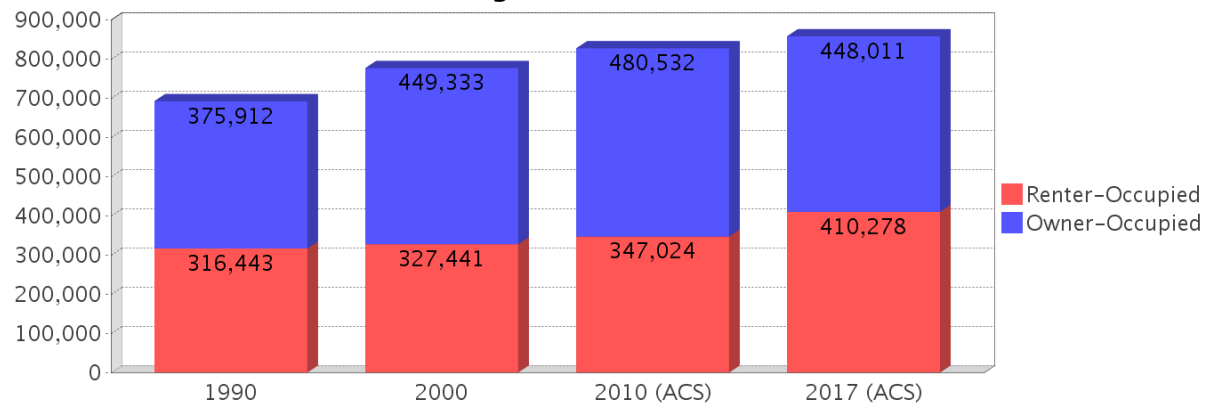
Age 5 and Over

Description	1990	2000	2010 (ACS)	2017 (ACS)
Speaks English Well	221,943 (12.34%)	285,783 (13.55%)	302,397 (13.18%)	333,659 (13.10%)
Speaks English Not Well	NA (NA)	261,782 (12.42%)	294,777 (12.85%)	317,308 (12.46%)
Speaks English Not at All	NA (NA)	184,249 (8.74%)	217,650 (9.49%)	241,775 (9.49%)
Speaks English Not Well or Not at All	341,005 (18.96%)	446,031 (21.15%)	512,427 (22.34%)	559,083 (21.96%)

## Housing Trends - Miami-dade

Description	1990	2000	2010 (ACS)	2017 (ACS)
Total	771,288	852,278	980,580	1,008,908
Units per Acre	0.608	0.671	0.772	0.794
Single-Family Units	365,600	448,569	508,364	503,457
Multi-Family Units	301,870	387,550	457,465	492,080
Mobile Home Units	15,359	15,338	14,234	13,071
Owner-Occupied Units	375,912	449,333	480,532	448,011
Renter-Occupied Units	316,443	327,441	347,024	410,278
Vacant Units	78,933	75,504	153,024	150,619
Median Housing Value	\$86,000	\$113,200	\$269,600	\$242,800
Occupied Housing Units w/No Vehicle	110,809 (16.00%)	111,323 (14.33%)	91,558 (11.06%)	92,055 (10.73%)

## Housing Tenure - Miami-dade



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## County Data Sources

Demographic data reported is from the U.S. Decennial Census (1990, 2000) and the American Community Survey (ACS) 5-year estimates from 2006-2010 and 2013-2017. The data was gathered at the county level. Depending on the dataset, the data represents 100% counts (Census Summary File 1) or sample-based information (Census Summary File 3 or ACS).

### About the Census Data:

Use caution when comparing the 100% count data (Decennial Census) to the sample-based data (ACS). In any given year, about one in 40 or 2.5% of U.S. households will receive the ACS questionnaire. Over any five-year period, about one in eight households will receive the questionnaire, as compared to about one in six that received the long form questionnaire for the Decennial Census 2000. (Source: <http://mcdc.missouri.edu/pub/data/acs/Readme.shtml>) The U.S. Census Bureau provides help with this process:

<https://www.census.gov/programs-surveys/acs/guidance/comparing-acs-data/2017.html>

Use caution when interpreting changes in Race and Ethnicity over time. Starting with the 2000 Decennial Census, respondents were given a new option of selecting one or more race categories. Also in 2000, the placement of the question about Hispanic origin changed, helping to increase responsiveness to the Hispanic-origin question. Because of these and other changes, the 1990 data on race and ethnicity are not directly comparable with data from later censuses. (Source: <http://www.census.gov/prod/2001pubs/c2kbr01-1.pdf>; <http://www.census.gov/pred/www/rpts/Race%20and%20Ethnicity%20FINAL%20report.pdf>)

The "Minority" calculations are derived from Census and ACS data using both the race and ethnicity responses. On this report, "Minority" refers to individuals who list a race other than White and/or list their ethnicity as Hispanic/Latino. In other words, people who are multi-racial, any single race other than White, or Hispanic/Latino of any race are considered minorities.

Disability data is not included in the 2010 Decennial Census, or the 2006-2010 ACS. This data is available in the 2013-2017 ACS.

Because of changes made to the Census and ACS questions between 1990 and 2017, disability variables should not be compared from year to year. For example: 1) With the 1990 data the disabilities are listed as a "work disability" while this distinction is not made with 2000 or 2017 ACS data; 2) The 2017 ACS data includes the institutionalized population (e.g. persons in prisons and group homes), while this population is not included in 1990 or 2000; 3) the age groupings changed over the years.

Please take the following two concerns into account when viewing this data: 1) With the 1990 data the disabilities are listed as a "work disability" while this distinction is not made with 2000 or 2017 ACS data; 2) The 2017 ACS data includes the institutionalized population (e.g. persons in prisons and group homes), while this population is not included in 1990 or 2000.

source:

<https://www.census.gov/people/disability/methodology/acs.html>

<https://www.census.gov/population/www/cen2000/90vs00/index.html>

The category Bachelor's Degree or Higher under the heading Educational Attainment Trends is a subset of the category High School Graduate or Higher.

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## Metadata

- Community and Fraternal Centers [https://etdmpub.flc-etat.org/metadata/gc\\_communitycenter.htm](https://etdmpub.flc-etat.org/metadata/gc_communitycenter.htm)
- Correctional Facilities in Florida [https://etdmpub.flc-etat.org/metadata/gc\\_correctional.htm](https://etdmpub.flc-etat.org/metadata/gc_correctional.htm)
- Cultural Centers in Florida [https://etdmpub.flc-etat.org/metadata/gc\\_culturecenter.htm](https://etdmpub.flc-etat.org/metadata/gc_culturecenter.htm)
- Fire Department and Rescue Station Facilities in Florida [https://etdmpub.flc-etat.org/metadata/gc\\_firestat.htm](https://etdmpub.flc-etat.org/metadata/gc_firestat.htm)
- Local, State, and Federal Government Buildings in Florida [https://etdmpub.flc-etat.org/metadata/gc\\_govbuild.htm](https://etdmpub.flc-etat.org/metadata/gc_govbuild.htm)
- Florida Health Care Facilities [https://etdmpub.flc-etat.org/metadata/gc\\_health.htm](https://etdmpub.flc-etat.org/metadata/gc_health.htm)
- Hospital Facilities in Florida [https://etdmpub.flc-etat.org/metadata/gc\\_hospitals.htm](https://etdmpub.flc-etat.org/metadata/gc_hospitals.htm)
- Law Enforcement Facilities in Florida [https://etdmpub.flc-etat.org/metadata/gc\\_lawenforce.htm](https://etdmpub.flc-etat.org/metadata/gc_lawenforce.htm)
- Florida Parks and Recreational Facilities [https://etdmpub.flc-etat.org/metadata/gc\\_parks.htm](https://etdmpub.flc-etat.org/metadata/gc_parks.htm)
- Religious Centers [https://etdmpub.flc-etat.org/metadata/gc\\_religion.htm](https://etdmpub.flc-etat.org/metadata/gc_religion.htm)
- Florida Public and Private Schools [https://etdmpub.flc-etat.org/metadata/gc\\_schools.htm](https://etdmpub.flc-etat.org/metadata/gc_schools.htm)
- Social Service Centers [https://etdmpub.flc-etat.org/metadata/gc\\_socialservice.htm](https://etdmpub.flc-etat.org/metadata/gc_socialservice.htm)
- Assisted Rental Housing Units in Florida [https://etdmpub.flc-etat.org/metadata/gc\\_assisted\\_housing.htm](https://etdmpub.flc-etat.org/metadata/gc_assisted_housing.htm)
- Group Care Facilities <https://etdmpub.flc-etat.org/metadata/groupcare.htm>
- Mobile Home Parks in Florida [https://etdmpub.flc-etat.org/metadata/gc\\_mobilehomes.htm](https://etdmpub.flc-etat.org/metadata/gc_mobilehomes.htm)
- Migrant Camps in Florida <https://etdmpub.flc-etat.org/metadata/migrant.htm>
- Veteran Organizations and Facilities [https://etdmpub.flc-etat.org/metadata/gc\\_veterans.htm](https://etdmpub.flc-etat.org/metadata/gc_veterans.htm)
- Generalized Land Use - Florida DOT District 6 [https://etdmpub.flc-etat.org/metadata/d6\\_lu\\_gen.htm](https://etdmpub.flc-etat.org/metadata/d6_lu_gen.htm)
- Census Block Groups in Florida [https://etdmpub.flc-etat.org/metadata/e2\\_cenacs\\_cci.htm](https://etdmpub.flc-etat.org/metadata/e2_cenacs_cci.htm)
- 1990 Census Block Groups in Florida [https://etdmpub.flc-etat.org/metadata/e2\\_cenblkgrp\\_1990\\_cci.htm](https://etdmpub.flc-etat.org/metadata/e2_cenblkgrp_1990_cci.htm)
- 2000 Census Block Groups in Florida [https://etdmpub.flc-etat.org/metadata/e2\\_cenblkgrp\\_2000\\_cci.htm](https://etdmpub.flc-etat.org/metadata/e2_cenblkgrp_2000_cci.htm)
- 2010 Census Block Groups in Florida [https://etdmpub.flc-etat.org/metadata/e2\\_cenblkgrp\\_2010\\_cci.htm](https://etdmpub.flc-etat.org/metadata/e2_cenblkgrp_2010_cci.htm)



## APPENDIX B – EFFICIENT TRANSPORTATION DECISION MAKING (ETDM) SUMMARY REPORT

Lead Agency			Purpose and Need			
	FDOT	Understood.				
	FDACS	Understood.				
	FDEO	Understood.				
	FDEP	Understood.				
	FDOS	Understood.				
	FWC	Understood.				
	NMFS	Understood.				
	NPS	Understood.				
	NRCS	Understood.				
	SFWMD	Understood.				
	USACE	Understood.				
	USCG	Understood.				
	USEPA	Understood.				
	USFWS	Understood.				
Florida Department of Transportation District Six/Miami-Dade County Department of Transportation and Public Works ETDM #14257 Beach Corridor Rapid Transit Project Planning Screen						
Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Social and Economic						
Land Use Changes	FDOT District 6	PD&E Support Document as per PD&E Manual	Minimal	<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>Miami-Dade County Comprehensive Development Master Plan Miami-Dade County Existing Land Use Map Miami-Dade County Adopted 2020 and 2030 Land Use Map City of Miami Comprehensive Neighborhood Plan City of Miami Beach 2025 Comprehensive Plan</p> <p>100-Foot Buffer: 2008-2015 SFWMD Land Use and Land Cover / 429.24 Acres / Percent</p> <p>Cemeteries - 1.52 / 0.35% Channelized Waterways / Canals - 4.01 / 0.93% Coastal Shrub - 0 / 0% Commercial and Services - 153.13 / 35.67% Commercial and Services (Under Construction) - 2.63 / 0.61% Community Recreation Facilities - 0 / 0% Educational Facilities - 6.59 / 1.53% Electrical Power Facilities - &lt;0.10 / 0.02% Embayments Opening Directly to Gulf or Ocean - 45.26 / 10.54% Fixed Single Family Units - 31.90 / 7.43% Golf Course - 13.23 / 3.08% Institutional - 17.81 / 4.15% Military - 0 / 0% Multiple Dwelling Units, High Rise - 10.32 / 2.41% Multiple Dwelling Units, Low Rise - 8.07 / 1.88% Open Land - 0.64 / 0.15% Other Heavy Industrial - 0.52 / 0.12% Other Light Industry - 15.86 / 3.69% Parks and Zoos - 0.22 / 0.05% Port Facilities - 0 / 0% Reservoirs - 0 / 0% Roads and Highways - 105.77 / 24.64% Shopping Centers - 3.88 / 0.90% Swimming Beach - 0 / 0% Transportation - 0 / 0% Upland Shrub and Brushland - 7.83 / 1.82%</p> <p>Future Land Use 2008 - Acres / Percent Commercial, Office, Tourism, Marina - 123.06 / 28.67% Industrial, Extractive, Transportation - 67.72 / 15.78% Public/Semi-Public, Gov. Institution - 18.35 / 4.27% Recreation/Open Space - 49.89 / 11.62% Residential High More than RM and &gt;12DU - 21.76 / 5.07% Residential Medium More than RL &lt;13DU - 19.81 / 4.61% Water Bodies - 128.65 / 29.97%</p> <p>500-Foot Buffer:</p> <p>2008-2015 SFWMD Land Use and Land Cover / 1,986.66 Acres / Percent Cemeteries - 8.12 / 0.41% Channelized Waterways / Canals - 7.20 / 0.36% Coastal Shrub - 0 / 0% Commercial and Services - 616.49 / 31.03% Commercial and Services (Under Construction) - 11.34 / 0.57% Community Recreation Facilities - 0 / 0% Educational Facilities - 51.39 / 2.59% Electrical Power Facilities - 6.71 / 0.34% Embayments Opening Directly to Gulf or Ocean - 528.85 / 26.62% Fixed Single Family Units - 200.79 / 10.11%</p>	Minimal	<p>The DEO stated that the City of Miami, the City of Miami Beach and Miami-Dade County provided assurances that the project is compatible with their respective comprehensive plans and community development goals. Each plan has elements or policies that would generally or specifically promote the proposed project. The Beach Corridor Rapid Transit Project would promote multi-modal, transit-oriented development that is pedestrian-friendly. The project is compatible with the Transportation Elements of each of the plans and supports the goals of mixed use development.</p> <p>Based on the Future Land Use Plans for Miami, Miami Beach and Miami-Dade County, the land uses along the corridor and in the surrounding areas are anticipated to remain relatively unchanged. The proposed project is consistent with the land use vision of the area as identified in the comprehensive plans of the Cities of Miami and Miami Beach and Miami-Dade County. As such, and because the project proposes development of new rapid transit, a Summary Degree of Effect of Minimal was assigned to the Land Use Changes issue.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects to surrounding communities and to identify potential solutions. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual. In addition, DTPW will coordinate with the Cities of Miami and Miami Beach, Miami-Dade County and the TPO to ensure that the project is consistent with local government comprehensive plans and that required project funding is identified.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Land Use Changes (Continued)	FDOT District 6	PD&E Support Document as per PD&E Manual	Minimal	<p>Golf Course - 63.46 / 3.19%</p> <p>Institutional - 87.23 / 4.39%</p> <p>Military - 3.46 / 0.17%</p> <p>Multiple Dwelling Units, High Rise - 60.87 / 3.06%</p> <p>Multiple Dwelling Units, Low Rise - 72.19 / 3.63%</p> <p>Open Land - 6.44 / 0.32%</p> <p>Other Heavy Industrial - 5.07 / 0.25%</p> <p>Other Light Industry - 64.14 / 3.23%</p> <p>Parks and Zoos - 5.40 / 0.27%</p> <p>Port Facilities - 0 / 0%</p> <p>Reservoirs - 4.54 / 0.23%</p> <p>Roads and Highways - 143.34 / 7.22%</p> <p>Shopping Centers - 6.38 / 0.32%</p> <p>Swimming Beach - 0 / 0%</p> <p>Transportation - 1.37 / 0.07%</p> <p>Upland Shrub and Brushland - 31.86 / 1.60%</p> <p>Future Land Use 2008 - Acres / Percent</p> <p>Commercial, Office, Tourism, Marina - 473.36 / 23.83%</p> <p>Industrial, Extractive, Transportation - 288.69 / 14.53%</p> <p>Public/Semi-Public, Gov. Institution - 105.42 / 5.31%</p> <p>Recreation/Open Space - 164.13 / 8.26%</p> <p>Residential High More than RM and &gt;12DU - 213.86 / 10.76%</p> <p>Residential Medium More than RL &lt;13DU - 101.10 / 5.09%</p> <p>Water Bodies - 640.10 / 32.22%</p> <p>1,320-Foot (Quarter-Mile) Buffer:</p> <p>2008-2015 SFWMD Land Use and Land Cover - 4,735.66 Acres / Percent</p> <p>Cemeteries - 20.18 / 0.43%</p> <p>Channelized Waterways / Canals - 12.41 / 0.26%</p> <p>Coastal Shrub - 11.27 / 0.24</p> <p>Commercial and Services - 1,006.23 / 21.25%</p> <p>Commercial and Services (Under Construction) - 13.09 / 0.28%</p> <p>Community Recreation Facilities - 17.63 / 0.37%</p> <p>Educational Facilities - 141.43 / 2.99%</p> <p>Electrical Power Facilities - 7.01 / 0.15%</p> <p>Embayments Opening Directly to Gulf or Ocean - 1,570.25 / 33.16%</p> <p>Fixed Single Family Units - 567.44 / 11.98%</p> <p>Golf Course - 131.29 / 2.77%</p> <p>Institutional - 153.12 / 3.23%</p> <p>Military - 11.79 / 0.25%</p> <p>Multiple Dwelling Units, High Rise - 204.77 / 4.32%</p> <p>Multiple Dwelling Units, Low Rise - 327.25 / 6.91%</p> <p>Open Land - 7.46 / 0.16%</p> <p>Other Heavy Industrial - 6.52 / 0.14%</p> <p>Other Light Industry - 139.59 / 2.95%</p> <p>Parks and Zoos - 22.98 / 0.49%</p> <p>Port Facilities - 86.77 / 1.83%</p> <p>Reservoirs - 10.82 / 0.23%</p> <p>Roads and Highways - 152.07 / 3.21%</p> <p>Shopping Centers - 6.38 / 0.13%</p> <p>Swimming Beach - 57.2 / 1.21%</p> <p>Transportation - 18.85 / 0.40%</p> <p>Upland Shrub and Brushland - 31.86 / 0.67%</p> <p>Future Land Use 2008 - Acres / Percent</p> <p>Commercial, Office, Tourism, Marina - 869.39 / 18.36%</p> <p>Industrial, Extractive, Transportation - 574.27 / 12.13%</p> <p>Public/Semi-Public, Gov. Institution - 232.90 / 4.92%</p> <p>Recreation/Open Space - 348.78 / 7.36%</p> <p>Residential High More than RM and &gt;12DU - 659.15 / 13.92%</p> <p>Residential Medium More than RL &lt;13DU - 360.15 / 7.61%</p> <p>Water Bodies - 1,691.01 / 35.71%</p> <p>Comments on Effects to Resources:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>The Adopted 2020 and 2030 Land Use Plan for Miami-Dade County substantially conforms to the future land use plans for the Cities of Miami and Miami Beach in the areas of the Beach Corridor. The most common land uses adjacent to the corridor are commercial and services, while the roads and highways that are part of the corridor or within 100 feet make up the second most common land use. Biscayne Bay is the third most common category of land use within 100 feet. With increasing distance from the corridor, residential units, whether single family or multiple dwelling units, are an increased percentage of the land use, even though commercial/ services and embayments remain the two predominant land uses. While institutional and educational facilities are not a large percentage of the land use, the proposed project serves to connect major cultural, educational and government centers in Miami and Miami Beach.</p>	Minimal	<p>The DEO stated that the City of Miami, the City of Miami Beach and Miami-Dade County provided assurances that the project is compatible with their respective comprehensive plans and community development goals. Each plan has elements or policies that would generally or specifically promote the proposed project. The Beach Corridor Rapid Transit Project would promote multi-modal, transit-oriented development that is pedestrian-friendly. The project is compatible with the Transportation Elements of each of the plans and supports the goals of mixed use development.</p> <p>Based on the Future Land Use Plans for Miami, Miami Beach and Miami-Dade County, the land uses along the corridor and in the surrounding areas are anticipated to remain relatively unchanged. The proposed project is consistent with the land use vision of the area as identified in the comprehensive plans of the Cities of Miami and Miami Beach and Miami-Dade County. As such, and because the project proposes development of new rapid transit, a Summary Degree of Effect of Minimal was assigned to the Land Use Changes issue.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects to surrounding communities and to identify potential solutions. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual. In addition, DTPW will coordinate with the Cities of Miami and Miami Beach, Miami-Dade County and the TPO to ensure that the project is consistent with local government comprehensive plans and that required project funding is identified.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Land Use Changes (Continued)	FDOT District 6 (Continued)	PD&E Support Document as per PD&E Manual		<p>based on the Future Land Use Plans for Miami, Miami Beach and Miami-Dade County, the land uses along the corridor and in the surrounding areas are anticipated to remain relatively unchanged. The project is not anticipated to affect land use patterns in the project corridor or the expected levels of development activity therein. Overall land use changes as a result of the project are anticipated to be minimal.</p> <p>Project Status: The Strategic Miami Area Rapid Transit (SMART) Plan was developed by Miami-Dade County and the Miami-Dade Transportation Planning Organization (TPO) and adopted by the TPO Governing Board on April 21, 2016. The SMART Plan intends to advance six rapid transit corridors, along with a network system of Bus Express Rapid Transit (BERT) service, in order to implement mass transit projects in Miami-Dade County.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Additional Comments (optional): CLC Recommendations:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>During the Project Development phase, DTPW will engage residents and business owners in coordination with the Miami-Dade TPO to solicit input on potential project effects to surrounding communities and work to identify potential solutions. DTPW will also coordinate with the Cities of Miami and Miami Beach, Miami-Dade County and the TPO to ensure that the project is consistent with local government comprehensive plans and that required project funding is identified. The DTPW will coordinate with FDOT District Six to ensure that public comments collected as a result of such efforts are documented in the EST.</p>		
	FDEO	No Involvement	Minimal	<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>Comprehensive Plan(s) Reviewed: COMPREHENSIVE DEVELOPMENT MASTER PLAN for Miami-Dade County, October 2013 Edition As adopted October 2, 2013, and as amended through September 27, 2018. The Miami Comprehensive Neighborhood Plan (MCNP) February 9, 1989 and contains amendments through May 2018. CITY OF MIAMI BEACH YEAR 2025 COMPREHENSIVE PLAN Adopted April 13, 2011 Effective July 1, 2011.</p> <p>Comments on Effects to Resources: Compatibility with Community Development Goals and Comprehensive Plan The City of Miami Beach Provided that the project is compatible with the City's community development goals. The areas adjacent to the proposed routes all allow for mixed-use development. The City's Land Development Regulations (LDR) incorporate guidelines which ensure that development is transit oriented and pedestrian friendly, which supports the use of public transportation. Additionally, the City has recently adopted amendments to the LDRs that encourage the revitalization of the areas adjacent to the proposed routes. The amendments include the following:</p> <p>a. Washington Avenue Zoning Incentives incorporate the properties which front Washington Avenue from 6th Street to 16th Street. The incentives allow for increases in height in order to incentivize the construction of hotels and an improved business and office environment, while protecting the historic facades and character of Washington Avenue. The incentives also incorporated the adoption of Parking District No. 7, which reduced parking requirements for the incentivized uses in order to encourage walkability and the use of alternative modes of travel.</p> <p>b. Alton Road Gateway Overlay incorporates the properties between Alton Road and West Avenue just north of the MacArthur Causeway. The ordinance allows for the development of a high density, 519-foot residential tower, commercial uses, and a 3-acre public park. As it is adjacent to the Causeway, it will be easily accessible to any proposed transit system.</p> <p>c. Parking District Number 5 is located in the Sunset Harbour neighborhood, which is north of the Dade Canal and east of Alton Road. It provides for parking reductions to incentivize pedestrian scale development and encourage alternative modes of transportation.</p> <p>d. Parking District Number 6 is located along the Alton Road corridor between 5th Street and the Dade Canal, it provides for parking reductions to incentivize pedestrian scale development and encourage alternative modes of transportation. Additionally, this parking district requires new development and uses to incorporate bicycle parking and provides other incentives to encourage the use of alternative modes of transportation, which are conducive to public transit use. The City of Miami provided assurance that the project is compatible with its goals.</p> <p>Miami-Dade County noted that Miami Dade County recently approved a Comprehensive Plan amendment that related to the Beach Corridor Rapid Transit Project which allows for higher density mixed use land uses for properties within 0.5 miles on either side of the SMART Plan corridors. The County provided the following relevant points:</p> <p>1. The proposed amendment supports the goals, objectives and policies of the CMDP that promote transit-supportive</p>	Minimal	<p>The DEO stated that the City of Miami, the City of Miami Beach and Miami-Dade County provided assurances that the project is compatible with their respective comprehensive plans and community development goals. Each plan has elements or policies that would generally or specifically promote the proposed project. The Beach Corridor Rapid Transit Project would promote multi-modal, transit-oriented development that is pedestrian-friendly. The project is compatible with the Transportation Elements of each of the plans and supports the goals of mixed use development.</p> <p>Based on the Future Land Use Plans for Miami, Miami Beach and Miami-Dade County, the land uses along the corridor and in the surrounding areas are anticipated to remain relatively unchanged. The proposed project is consistent with the land use vision of the area as identified in the comprehensive plans of the Cities of Miami and Miami Beach and Miami-Dade County. As such, and because the project proposes development of new rapid transit, a Summary Degree of Effect of Minimal was assigned to the Land Use Changes issue.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects to surrounding communities and to identify potential solutions. A Sociocultural Effects Evaluation Technical Memorandum will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual. In addition, DTPW will coordinate with the Cities of Miami and Miami Beach, Miami-Dade County and the TPO to ensure that the project is consistent with local government comprehensive plans and that required project funding is identified.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Land Use Changes (Continued)	FDEO (Continued)	No Involvement	Minimal	<p>land uses along rapid transit corridors by providing for increased density and intensity for mixed-use projects located along the planned SMART Plan Corridors. Specifically, CDMP Objective LU-7 states that "Miami-Dade County shall require all new development and redevelopment in existing and planned transit corridors and urban centers to be planned and designed to promote transit-oriented development (TOD), and transit use, which mixes residential, retail, office, open space and public uses in a safe, pedestrian and bicycle friendly environment that promotes mobility for people of all ages and abilities through the use of rapid transit services." ... The proposed amendment works in conjunction with the Urban Center policies of the CDMP, which promote moderate to high-density development around rapid transit stations, by addressing the transit-supportive areas between Zoned Urban Centers. Further, the proposed amendment supports transit investment by encouraging development and redevelopment within the Transportation Infrastructure Improvement District which pledges future ad valorem tax revenue increases within the SMART Plan Areas to help fund the rapid transit projects. See further discussion on page 1-10 of this report.</p> <p>1. The proposed amendment supports the implementation of the CDMP Urban Center policies by establishing a timeline for completion of Urban Center area plans for rapid transit stations located in unincorporated Miami-Dade County. Specifically, CDMP Policy LU-7A states that rapid transit station sites and their vicinity shall be developed as Urban Centers in accordance with the CDMP text for Urban Centers.</p> <p>1. The proposed amendment ensures adequate transit ridership and supports transit investment by establishing as County policy that station development and improvements be prioritized for those municipalities that have established zoning standards that ensure minimum average residential density and non-residential intensity in accordance with CDMP Policy LU-7F.</p> <p>1. In addition to intensification along the SMART Plan Corridors, the proposed amendment supports the intensification of mixed use corridors identified in area plans accepted by the Board of County Commissioners.</p> <p>1. The proposed amendment establishes provisions for horizontal mixed-use development in furtherance of CDMP Policy LU-9T which states that the County "shall consider provisions to allow horizontal mixed-use developments, defined as the horizontal integration of parcels with different primary uses within the same site or block, in appropriate future land use categories in the Urban Development Boundary". The proposed amendment also supports vertical mixed-use development in appropriate areas of the County by providing greater flexibility in the location and proportion of uses within the mixed-use building.</p> <p>The City of Miami Beach provided that the project is compatible with the City of Miami Beach's Comprehensive Plan, which contains the following policies in the Transportation Element that support the development of the Beach Corridor Rapid Transit Project:</p> <p>a. Policy 4.11: Beach Corridor Transit Connection Project (formerly known as Baylink)</p> <p>The City shall continue to pursue the component of the Metropolitan Planning Organization (MPO) 2015 Beach Corridor Transit Connection Study that is located in the South Beach portion of Miami Dade (south of Dade Blvd and east of Biscayne Bay). This study provided an update to and reaffirmed the 2014 Bay Link Study which recommended a mass transit connection from downtown Miami the Miami Beach Convention Center across the MacArthur Causeway.</p> <p>The City encourages FDOT, CTPW, the City of Miami and the Metropolitan Planning Organization (MPO) to move forward with the recommendations of the Policy Executive Committee for the 2015 Beach Corridor Transit Connection Study to complete the Project Development and Engineering for McArthur Causeway portion of the Project as expeditiously as possible.</p> <p>b. OBJECTIVE 2: COORDINATION WITH LAND USE -The City shall evaluate its transportation system as it relates to the land use element of this comprehensive plan in an effort to encourage commercial development which is mixed use, multi-modal (intermodal transit facility, transit center, or transit stop) in nature and which ultimately enhances mobility.</p> <p>c. Policy 2.2: Impact of Land Use Changes on the Multi-Modal System -The City shall assess the impacts of future land use changes on the overall transportation system, including roadway, transit (including but not limited to light rail transit/modern street car, bus, trolley, rail, and marine), bicycle and pedestrian levels of service.</p> <p>d. Policy 2.3: Transit Oriented Design (TOD) (please see Glossary of terms) -By 2015, the City shall examine the type of incentives and create design guidelines for TODs within the City. The City shall include transit intermodal facilities, transfer centers and transfer stops into Land Use and Design Guidelines to achieve context-sensitive integration with residential and commercial land uses. Locations for maintenance and storage of transit infrastructure may be incorporated into such facilities. The City of Miami provided that the project is compatible with the Miami Comprehensive Neighborhood Plan and is compatible with the entirety of our Transportation Element.</p> <p>The City noted two particular Comprehensive Plan goals:</p> <p>GOAL TR-1: Maintain an effective and cost-efficient circulation network that provides transportation for all persons while reducing both the dependency on automobiles and overall roadway congestion</p> <p>GOAL TR-2: Provide a balanced, accessible, safe, and sustainable multi-modal transportation system linking highways, transit, greenways, bikeways, and sidewalks into a seamless network</p> <p>Future Transportation Map:</p> <p>The City of Miami Beach adopted a Transportation Master Plan, which provides for future transportation projects. A "Premium Light Rail Connection from Miami Downtown Terminal to the Beach Convention Center" is identified in the plan. The plan includes a map that identifies several transit corridors throughout the City which could accommodate dedicated transit lanes on page 184, and potential alignments on the pages that follow.</p> <p>The City of Miami, noted that the North Miami Light Rail has been on its Map TR-23, in their appendix, data and analysis of the Miami Comprehensive Neighborhood Plan.</p> <p>Land Uses:</p> <p>Future land uses surrounding the project include: General Commercial, Restricted Commercial, Medium Family Residential, and Duplexes Residential (City of Miami), Recreation and Open Space, Single Family Residential, Residential Multifamily, Low Intensity, Commercial - Medium Intensity, Commercial - High intensity, Public Facility/Governmental, and Mixed Use Entertainment (City of Miami Beach), Parks and Recreation, Medium High Density Residential, Low Density Residential, Business and Office, and Restricted Industrial and Office (Miami-Dade County).</p>	Minimal	<p>The DEO stated that the City of Miami, the City of Miami Beach and Miami-Dade County provided assurances that the project is compatible with their respective comprehensive plans and community development goals. Each plan has elements or policies that would generally or specifically promote the proposed project. The Beach Corridor Rapid Transit Project would promote multi-modal, transit-oriented development that is pedestrian-friendly. The project is compatible with the Transportation Elements of each of the plans and supports the goals of mixed use development.</p> <p>Based on the Future Land Use Plans for Miami, Miami Beach and Miami-Dade County, the land uses along the corridor and in the surrounding areas are anticipated to remain relatively unchanged. The proposed project is consistent with the land use vision of the area as identified in the comprehensive plans of the Cities of Miami and Miami Beach and Miami-Dade County. As such, and because the project proposes development of new rapid transit, a Summary Degree of Effect of Minimal was assigned to the Land Use Changes issue.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects to surrounding communities and to identify potential solutions. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual. In addition, DTPW will coordinate with the Cities of Miami and Miami Beach, Miami-Dade County and the TPO to ensure that the project is consistent with local government comprehensive plans and that required project funding is identified.</p>



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Land Use Changes	FDEO	No Involvement	Minimal	<p>Parks: The proposed project is located in close proximity to the following parks: Miami Beach: Miami Beach Botanical Gardens Maurice Gibb Memorial Park Lummus Park - Art Deco District Miami Beach Soundscape Park Flamingo Park Baseball Park Collins Park Polo Park</p> <p>City of Miami Dade: Julia Tuttle Causeway Park Jungle Island Ichimura Japan Garden</p> <p>City of Miami: Albert Pallot Park Stearns Park Martell Park Woodson Mini Park Roberto Clemente Park Biscayne Park Palm Island Park</p> <p>FDOT should analyze potential impacts to these 4(f) resources. Area of Critical State Concern (ACSC), Coastal High Hazard Area (CHHA), and Military Bases: The project is not located within an Area of Critical State Concern, nor does it encroach on any military bases. A small portion of the project is located in the CHHA, in areas of Miami Beach.</p> <p>Other Planning-Related Items: The City of Miami provided: The project could potentially affect (positively) the Downtown and Southeast Overtown/Park West DRI. The master development order for Downtown was 1987, SEOPW was 1988. Credits are low in both, but being able to create a surplus of credit could be good to densify the urban core and perhaps this project could do that. Contact Information: Sue Trone STrone@miamigov.com 305-416-1445 Thomas Mooney ThomasMooney@miamibeachfl.gov 305.673.7550 Vinod Sandanasamy vinod.sandanasamy@miamidade.gov 305-375-2835</p>	Minimal	<p>The DEO stated that the City of Miami, the City of Miami Beach and Miami-Dade County provided assurances that the project is compatible with their respective comprehensive plans and community development goals. Each plan has elements or policies that would generally or specifically promote the proposed project. The Beach Corridor Rapid Transit Project would promote multi-modal, transit-oriented development that is pedestrian-friendly. The project is compatible with the Transportation Elements of each of the plans and supports the goals of mixed use development.</p> <p>Based on the Future Land Use Plans for Miami, Miami Beach and Miami-Dade County, the land uses along the corridor and in the surrounding areas are anticipated to remain relatively unchanged. The proposed project is consistent with the land use vision of the area as identified in the comprehensive plans of the Cities of Miami and Miami Beach and Miami-Dade County. As such, and because the project proposes development of new rapid transit, a Summary Degree of Effect of Minimal was assigned to the Land Use Changes issue.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects to surrounding communities and to identify potential solutions. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual. In addition, DTPW will coordinate with the Cities of Miami and Miami Beach, Miami-Dade County and the TPO to ensure that the project is consistent with local government comprehensive plans and that required project funding is identified</p>
Social	FDOT District 6	PD&E Support Document as per	Enhanced	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: ***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act. 100-Foot Buffer: 2010 Census Designated Places (2) -Miami -Miami Beach Enterprise Zones (1) -Miami-Dade County [EZ-1301] Brownfield Location Boundaries (3) -Miami Area -Miami EZ Expansion Area -Potamkin Properties Cemeteries (Polygons) (1) -City of Miami Cemetery Community Centers (Points) (2) -Aspira of Florida, Inc. -Chamber of Commerce - Miami-Dade Gay and Lesbian Cultural Centers (Polygons) (16) -Adamar Fine Arts -Miami Beach Cinematheque -The Wolfsonian-Florida International University -Miami Children's Museum -Art Fusion Gallery</p>	Moderate	<p>The Beach Corridor Rapid Transit Project alignments contain four sub-areas and connect Downtown Miami to the Miami Design District via North Miami Avenue and to Miami Beach via a Bay Crossing on SR A1A/MacArthur Causeway, which ultimately connects to the Miami Beach Convention Center via Washington Avenue. An additional Bay Crossing for Bus Rapid Transit (BRT) connects the Miami Beach Convention Center to Miami via I-195/Julia Tuttle Causeway. The project corridor lies within two cities, or two census designated places, Miami and Miami Beach.</p> <p>The predominant land use adjacent to the corridor is commercial and services, 31.60% within 500 feet, and 26.62% of the area within 500 feet consists of the waters of Biscayne Bay. Only 16.80% of the area is residential, either fixed single family units or multiple dwelling units.</p> <p>Within 500 feet of the project corridor there are eight community centers, 31 cultural centers, three existing recreational trails, 11 civic centers, seven government buildings, 16 parks or recreational facilities, nine religious centers, two veteran facilities, one fire station, one law enforcement facility and one cemetery.</p> <p>The EPA notes that minority and low income populations were identified within the one-quarter mile buffer used for the Sociocultural Data Report. Key</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Social (Continued)	FDOT District 6 (Continued)	PD&E Support Document as per PD&E Manual (Continued)	Enhanced	<p>Art - South Gallery</p> <ul style="list-style-type: none"> <li>-Avant Gallery</li> <li>-Diaspora Vibe Gallery</li> <li>-Wolfgang Roth &amp; Partners Fine Art</li> <li>-South Beach 18</li> <li>-Diana Lowenstein Fine Arts</li> <li>-Galerie Berth-Toublanc</li> <li>-Hardcore Art Contemporary Space</li> <li>-OHWOW</li> <li>-Bernice Steinbaum Gallery</li> <li>-Italian Heritage Museum</li> <li>-Miami Herald Library &amp; Archives</li> </ul> <p>Existing Recreational Trails (3)</p> <ul style="list-style-type: none"> <li>-East Coast Greenway - Dade Corridor</li> <li>-Florida Circumnavigational Paddling Trail</li> <li>-M-Path</li> </ul> <p>Geocoded Civic Centers (5)</p> <ul style="list-style-type: none"> <li>-Treetop Ballroom Ave Parrot Jungle Island</li> <li>-Z1st Street Recreation Center</li> <li>-South Florida Boxing</li> <li>-Crobar-FL</li> <li>-Jackie Gleason Theater</li> </ul> <p>Geocoded Fire Stations (1)</p> <ul style="list-style-type: none"> <li>-Miami Fire Department and Rescue Station 2</li> </ul> <p>Geocoded Government Buildings (0) Geocoded Health Care Facilities (15)</p> <p>Geocoded Homeowner and Condominium Associations (26) Geocoded Hospitals (0)</p> <p>Geocoded Laser Facilities (10)</p> <p>Geocoded Law Enforcement Facilities (0) Geocoded Schools (2)</p> <p>Geocoded Social Service Facilities (0) Geocoded Veteran Facilities (0) Religious Centers (Polygons) (5)</p> <p>Local Florida Parks and Recreational Facility Boundaries (12)</p> <ul style="list-style-type: none"> <li>-Miami Beach Garden Center / Holocaust Memorial</li> <li>-Albert Pallot Park</li> <li>-Woodson/Miai Design</li> <li>-Bicentennial Park</li> <li>-Flamingo Park &amp; Pool</li> <li>-Martell Park</li> <li>-Stearns Park</li> <li>-Watson Island Park</li> <li>-Z1st Street Recreation Center</li> <li>-Miami Beach Golf Club</li> <li>-Soundscape Park</li> <li>-Omni Park</li> </ul> <p>Office of Greenways and Trails: Hiking Trails Priorities (2018 - 2022) (3)</p> <ul style="list-style-type: none"> <li>-All Aboard Florida Rail with Trail Corridor</li> <li>-East Coast Greenway - Dade Corridor</li> <li>-MacArthur Causeway</li> </ul> <p>Office of Greenways and Trails: Paddling Trails Priorities (2018 - 2022) (1)</p> <ul style="list-style-type: none"> <li>-Florida Circumnavigational Saltwater Paddling Trail</li> </ul> <p>500-Foot Buffer:</p> <p>2010 Census Designated Places (2)</p> <ul style="list-style-type: none"> <li>-Miami</li> <li>-Miami Beach</li> </ul> <p>Enterprise Zones (1)</p> <ul style="list-style-type: none"> <li>-Miami-Dade County [EZ-1301]</li> </ul> <p>Brownfield Location Boundaries (3)</p> <ul style="list-style-type: none"> <li>-Miami Area</li> <li>-Miami EZ Expansion Area</li> <li>-Potamkin Properties</li> </ul> <p>Cemeteries (Polygons) (1)</p> <ul style="list-style-type: none"> <li>-City of Miami Cemetery</li> </ul> <p>Community Centers (Points) (8)</p> <ul style="list-style-type: none"> <li>-City of Miami Beach Community Center</li> <li>-Council Towers Center</li> <li>-Aspira of Florida, Inc.</li> </ul> <p>Chamber of Commerce - Miami-Dade Gay and Lesbian</p> <ul style="list-style-type: none"> <li>-Miami Beach Community Development Corporation</li> <li>-Chamber of Commerce - Miami Beach</li> <li>-Chamber of Commerce - Miami Beach Latin</li> </ul> <p>-VFW Post 3559 - Miami Beach</p> <p>Cultural Centers (Polygons) (31)</p> <ul style="list-style-type: none"> <li>-Jungle Island</li> <li>-Colony Theatre</li> <li>-Bass Museum of Art</li> <li>-Adamar Fine Arts</li> <li>-Miami Beach Cinematheque</li> <li>-The Wolfsonian-Florida International University</li> <li>-Miami Children's Museum</li> <li>-101 / Exhibit - Gallery</li> <li>-Art Fusion Gallery</li> <li>-Avant Gallery</li> <li>-Diaspora Vibe Gallery</li> <li>-Etra Fine Art</li> <li>-Fouquet Private</li> </ul>	Moderate	<p>concerns for the EPA include the Civil Rights Act of 1964 and 1968 along with Title VI of the Civil Right Act and Executive Order 12898 regarding Environmental Justice, ensuring that minority and/or low income persons are neither disproportionately adversely impacted by major transportation projects nor denied reasonable access to them. They also recommend meaningful public involvement that enables transportation professionals to develop systems, services, and solutions that meet the needs of the community and the vulnerable populations that will be temporarily impacted by the project.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects related to community cohesion and social interaction as well as potential solutions to ensure that both the social and transportation needs of the surrounding communities are addressed. Public outreach activities will include transportation disadvantaged and Limited English Proficiency populations in accordance with applicable Acts and Executive Orders. While disproportionate adverse effects to Environmental Justice populations are not anticipated, and the project is expected to enhance access to social, cultural and institutional facilities, a Summary Degree of Effect of Moderate is assigned to the Social issue due to presence of vulnerable populations and numerous social facilities in the vicinity of the project corridor. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual.</p> <p>The Beach Corridor Rapid Transit Project alignments contain four sub-areas and connect Downtown Miami to the Miami Design District via North Miami Avenue and to Miami Beach via a Bay Crossing on SR A1A/MacArthur Causeway, which ultimately connects to the Miami Beach Convention Center via Washington Avenue. An additional Bay Crossing for Bus Rapid Transit (BRT) connects the Miami Beach Convention Center to Miami via I-195/Julia Tuttle Causeway. The project corridor lies within two cities, or two census designated places, Miami and Miami Beach.</p> <p>The predominant land use adjacent to the corridor is commercial and services, 31.60% within 500 feet, and 26.62% of the area within 500 feet consists of the waters of Biscayne Bay. Only 16.80% of the area is residential, either fixed single family units or multiple dwelling units.</p> <p>Within 500 feet of the project corridor there are eight community centers, 31 cultural centers, three existing recreational trails, 11 civic centers, seven government buildings, 16 parks or recreational facilities, nine religious centers, two veteran facilities, one fire station, one law enforcement facility and one cemetery.</p> <p>The EPA notes that minority and low income populations were identified within the one-quarter mile buffer used for the Sociocultural Data Report. Key concerns for the EPA include the Civil Rights Act of 1964 and 1968 along with Title VI of the Civil Right Act and Executive Order 12898 regarding Environmental Justice, ensuring that minority and/or low income persons are neither disproportionately adversely impacted by major transportation projects nor denied reasonable access to them. 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Social (Continued)	FDOT District 6 (Continued)	PD&E Support Document as per PD&E Manual	Enhanced	<ul style="list-style-type: none"> <li>-Markowicz Fine Art</li> <li>-Ricart Gallery Miami</li> <li>-Wolfgang Roth &amp; Partners Fine Art</li> <li>-South Beach 18</li> <li>-Diana Lowenstein Fine Arts</li> <li>-Dot Fiftyone Gallery</li> <li>-Galerie Bertin-Toublanc</li> <li>-Gary Nader Fine Art</li> <li>-Hardcore Art Contemporary Space</li> <li>-Kavachnina Contemporary</li> <li>-Kelly Roy Gallery</li> <li>-OHWO</li> <li>-Sammer Gallery</li> <li>-Daniel Azoulay Gallery</li> <li>-Bernice Steinbaum Gallery</li> <li>-Italian Heritage Museum</li> <li>-Mount Sinai Medical Center - Max and Rose Cohen Medical Library</li> <li>-Miami Herald Library &amp; Archives</li> <li>-Existing Recreational Trails (3)</li> <li>-East Coast Greenway - Dade Corridor</li> <li>-Florida Circumnavigational Paddling Trail</li> <li>-M-Path</li> <li>-Geocoded Civic Centers (11)</li> <li>-Treetop Ballroom Ave Parrot Jungle Island</li> <li>-21st Street Recreation Center</li> <li>-New World Symphony (New Campus)</li> <li>-South Florida Boxing</li> <li>-Miami Beach Latin Chamber of Commerce</li> <li>-Regus Business Centers</li> <li>-The Rhythm Foundation</li> <li>-Billboard Live</li> <li>-Crobar-FL</li> <li>-Jackie Gleason Theater</li> <li>-Flamingo Park</li> <li>-Geocoded Fire Stations (1)</li> <li>-Miami Fire Department and Rescue Station 2</li> <li>-Geocoded Government Buildings (7)</li> <li>-US Post Office - Carl Fisher</li> <li>-US Post Office - Miami Beach</li> <li>-Miami-Dade County Child Support/Alimony Office - Central Depository</li> <li>-Miami-Dade County Miami Beach District Court</li> <li>-City of Miami Beach City Hall</li> <li>-Miami-Dade County Health Department - Pet Center</li> <li>-US Post Office - Buena Vista</li> <li>-Geocoded Health Care Facilities (38)</li> <li>-Geocoded Homeowner and Condominium Associations (196)</li> <li>-Geocoded Hospitals (0)</li> <li>-Geocoded Laser Facilities (26)</li> <li>-Geocoded Law Enforcement Facilities (1)</li> <li>-Miami Beach Police Department</li> <li>-Geocoded Schools (17)</li> <li>-Geocoded Social Service Facilities (1)</li> <li>-Miami Beach Service Center</li> <li>-Geocoded Veteran Facilities (2)</li> <li>-Veterans of Foreign Wars (VFW) Post 3559 - Miami Beach</li> <li>-Miami-Dade County Veterans Service Office</li> <li>-Religious Centers (Polygons) (9)</li> <li>-Local Florida Parks and Recreational Facility Boundaries (16)</li> <li>-Watson Island Baywalk &amp; Boat Ramp</li> <li>-Miami Beach Garden Center / Holocaust Memorial</li> <li>-Collins Park</li> <li>-Albert Pallot Park</li> <li>-Woodson/Mial Design</li> <li>-Bicentennial Park</li> <li>-Dorsey Park</li> <li>-Flamingo Park &amp; Pool</li> <li>-Martell Park</li> <li>-Stearns Park</li> <li>-Watson Island Park</li> <li>-21st Street Recreation Center</li> <li>-Miami Beach Golf Club</li> <li>-Soundscape Park</li> <li>-Biscayne Park</li> <li>-Omni Park</li> <li>-Office of Greenways and Trails: Hiking Trails Priorities (2018 - 2022) (3)</li> <li>-All Aboard Florida Rail with Trail Corridor</li> <li>-East Coast Greenway - Dade Corridor</li> <li>-MacArthur Causeway</li> <li>-Office of Greenways and Trails: Paddling Trails Priorities (2018 - 2022) (1)</li> <li>-Florida Circumnavigational Saltwater Paddling Trail</li> <li>-1,320-Foot (Quarter-Mile) Buffer: 2010 Census Designated Places (2)</li> <li>-Miami</li> <li>-Miami Beach</li> <li>-Estimating Zones (1)</li> </ul>	Moderate	<p>The Beach Corridor Rapid Transit Project alignments contain four sub-areas and connect Downtown Miami to the Miami Design District via North Miami Avenue and to Miami Beach via a Bay Crossing on SR A1A/MacArthur Causeway, which ultimately connects to the Miami Beach Convention Center via Washington Avenue. 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Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Social (Continued)	FDOT District 6 (Continued)	PD&E Support Document as per PD&E Manual	Enhanced	<p>Enterprise Zones (1)  Miami-Dade County [EZ-1301]  Brownfield Location Boundaries (3)  Miami Area  Miami EZ Expansion Area  Potamkin Properties  Cemeteries (Polygons) (1)  City of Miami Cemetery  Community Centers (Points) (19)  YWCA Child Care Center  South Shore Community Center  Miami Beach Senior Center  City of Miami Beach Community Center  Knights of Columbus 13654 - San Patricio  Council Towers Center  Aspira of Florida, Inc.  Our Kids of Miami-Dade Monroe Co, Inc.  International Longshoreman's Association Local 1416 AFL-CIO  Chamber of Commerce - Miami-Dade Gay and Lesbian  Miami Beach Community Development Corporation  Boys &amp; Girls Club - Miami - South Beach Unit  Miami Design Prevention League  Centro Cultural Espanol de Cooperacion Ibero Americana  Chamber of Commerce - Miami Beach  Israel Aliyah Jewish Community Center  Chamber of Commerce - Miami Beach Latin  Pridelines Youth Services  VFW Post 3559 - Miami Beach  Cultural Centers (Polygons) (58)  Myra Galleries  Jungle Island  Lincoln Center Art Gallery  Colony Theatre  Adrienne Arsht Center for the Performing Arts  Artcenter/South Florida  Bass Museum of Art  Adamar Fine Arts  Cameo Theatre  Jewish Museum of Florida  Miami Beach Cinematheque  The Wolfsonian-Florida International University  Miami Children's Museum  O Cinema  101 / Exhibit - Gallery  Art Fusion Gallery  Avant Gallery  Diaspora Vibe Gallery  Etra Fine Art  Locust Projects  Markowicz Fine Art  Ricart Gallery Miami  Wolfgang Roth &amp; Partners Fine Art  South Beach 18  Calix Gustav Gallery  Chelsea Gallery  Diana Lowenstein Fine Arts  Dot Fiftyone Gallery  World Class Boxing - Scholl Collection  Galerie Bertin-Toublanc  Gallery Helene Lamarque  Gallery Diet  Gary Nader Fine Art</p> <p>-Kabe Contemporary  Kavachnina Contemporary  Kelly Roy Gallery  Mac Art Group  OHWOW  Praxis International Art  Rubell Family Collection  Sammer Gallery  Daniel Azoulay Gallery  The Wallflower Gallery  Artformz Alternative  Fredric Shtlzer Gallery  Wolfson Galleries Miami Dade College  Bernice Steinbaum Gallery  Wywood Central Gallery  International Cinematographers Guild  Haitian Heritage Museum  Mount Sinai Medical Center - Max and Rose Cohen Medical Library  South Shore Branch Library  Miami Beach Regional Library  Miami-Dade College - Wolfson Campus Library  AI Miami International University of Art &amp; Design - Brown Mackie College - Miami Library  Center for the Advancement of Jewish Education - Alder Family Library  Miami Herald Library &amp; Archives  Existing Recreational Trails (3)  East Coast Greenway - Dade Corridor  Florida Circumnavigational Paddling Trail  MLPath</p>	Moderate	<p>The Beach Corridor Rapid Transit Project alignments contain four sub-areas and connect Downtown Miami to the Miami Design District via North Miami Avenue and to Miami Beach via a Bay Crossing on SR A1A/MacArthur Causeway, which ultimately connects to the Miami Beach Convention Center via Washington Avenue. An additional Bay Crossing for Bus Rapid Transit (BRT) connects the Miami Beach Convention Center to Miami via I-195/Julia Tuttle Causeway. The project corridor lies within two cities, or two census designated places, Miami and Miami Beach.</p> <p>The predominant land use adjacent to the corridor is commercial and services, 31.60% within 500 feet, and 26.62% of the area within 500 feet consists of the waters of Biscayne Bay. Only 16.80% of the area is residential, either fixed single family units or multiple dwelling units.</p> <p>Within 500 feet of the project corridor there are eight community centers, 31 cultural centers, three existing recreational trails, 11 civic centers, seven government buildings, 16 parks or recreational facilities, nine religious centers, two veteran facilities, one fire station, one law enforcement facility and one cemetery.</p> <p>The EPA notes that minority and low income populations were identified within the one-quarter mile buffer used for the Sociocultural Data Report. Key concerns for the EPA include the Civil Rights Act of 1964 and 1968 along with Title VI of the Civil Right Act and Executive Order 12898 regarding Environmental Justice, ensuring that minority and/or low income persons are neither disproportionately adversely impacted by major transportation projects nor denied reasonable access to them. They also recommend meaningful public involvement that enables transportation professionals to develop systems, services, and solutions that meet the needs of the community and the vulnerable populations that will be temporarily impacted by the project.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects related to community cohesion and social interaction as well as potential solutions to ensure that both the social and transportation needs of the surrounding communities are addressed. Public outreach activities will include transportation disadvantaged and Limited English Proficiency populations in accordance with applicable Acts and Executive Orders. While disproportionate adverse effects to Environmental Justice populations are not anticipated, and the project is expected to enhance access to social, cultural and institutional facilities, a Summary Degree of Effect of Moderate is assigned to the Social issue due to presence of vulnerable populations and numerous social facilities in the vicinity of the project corridor. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Social (Continued)	FDOT District 6 (Continued)	PD&E Support Document as per PD&E Manual	Enhanced	<p>Geocoded Civic Centers (21)</p> <ul style="list-style-type: none"> <li>-Treetop Ballroom Ave Parrot Jungle Island</li> <li>-21st Street Recreation Center</li> <li>-Colony Theater</li> <li>-New World Symphony (New Campus)</li> <li>-South Florida Boxing</li> <li>-Casanova Suites on the Beach</li> <li>-Greater Miami Chamber of Commerce</li> <li>-Miami Beach Latin Chamber of Commerce</li> <li>-Regus Business Centers</li> <li>-Fenasoft USA</li> <li>-Wynwood Convention Center</li> <li>-Miami Beach Convention Center</li> <li>-The Rhythm Foundation</li> <li>-Shelborne Beach Resort</li> <li>-Bicentennial Park</li> <li>-Billboard Live</li> <li>-Crobar-FL</li> <li>-Jackie Gleason Theater</li> <li>-Collins Park</li> <li>-Flamingo Park</li> <li>-Lincoln Theatre - FL</li> </ul> <p>Geocoded Fire Stations (4)</p> <ul style="list-style-type: none"> <li>-Miami Fire Department and Rescue Station 1</li> <li>-Miami Fire Department and Rescue Station 2</li> <li>-Miami Beach Fire Department and Rescue Station 1</li> <li>-Miami Beach Fire Department and Rescue Station 2 (HQ)</li> </ul> <p>Geocoded Government Buildings (12)</p> <ul style="list-style-type: none"> <li>-US Post Office - Carl Fisher</li> <li>-US Post Office - Miami Beach</li> <li>-Miami-Dade County Child Support/Alimony Office - Central Depository</li> <li>-Miami-Dade County Miami Beach District Court</li> <li>-Miami-Dade County Clerk of the Board and Code Enforcement - Stephen P. Clark Center</li> <li>-Miami-Dade County Family Court - Lawson E. Thomas Courthouse Center</li> <li>-Miami-Dade County Property Appraiser</li> <li>-City of Miami Beach City Hall</li> <li>-Miami-Dade County Health Department - Pet Center</li> <li>-US Post Office - Flagler Miami</li> <li>-US Post Office - Buena Vista</li> <li>-Miami-Dade County Supervisor of Elections</li> </ul> <p>Geocoded Health Care Facilities (116)</p> <p>Geocoded Homeowner and Condominium Associations (522) Geocoded Hospitals (1)</p> <p>Geocoded Laser Facilities (63)</p> <p>Geocoded Law Enforcement Facilities (7)</p> <ul style="list-style-type: none"> <li>-Miami Police Department (HQ)</li> <li>-Miami Beach Police Department</li> <li>-Miami Police Department - Omni Substation Station</li> <li>-Miami Police Department - Wynwood/Edgewater Net</li> <li>-Miami-Dade College Police Department - Wolfson Campus</li> <li>-Miami Police Department - Marine Patrol</li> <li>-Miami-Dade Police Department - Police Operations Bureau</li> </ul> <p>Geocoded Schools (40)</p> <p>Geocoded Social Service Facilities (13)</p> <ul style="list-style-type: none"> <li>-Miami-Dade Transit</li> <li>-Miami-Dade Community Action &amp; Human Services</li> <li>-Legal Aid Society of Dade County Bar Association</li> <li>-Legal Aid Society of Dade County Bar Association - Miami Beach Domestic Violence Unit</li> <li>-Miami Beach Service Center</li> <li>-Miami-Dade Housing HA Code FL005</li> <li>-Miami Beach Housing HA Code FL017</li> <li>-Teach for America Miami</li> <li>-Agency for Persons with Disabilities (APD) Southern Region</li> <li>-New Life Family Shelter</li> <li>-Our Kids of Miami-Dade/Monroe, Inc.</li> <li>-Careersource South Florida</li> <li>-Miami-Dade County Homeless Trust</li> </ul> <p>Geocoded Veteran Facilities (2)</p> <ul style="list-style-type: none"> <li>-Veterans of Foreign Wars (VFW) Post 3559 - Miami Beach</li> <li>-Miami-Dade County Veterans Service Office</li> </ul> <p>Religious Centers (Polygons) (32)</p> <p>Local Florida Parks and Recreational Facility Boundaries (38)</p> <ul style="list-style-type: none"> <li>-Miami Beach</li> <li>-Marjorie Stoneman Douglas Park</li> <li>-Maurice Gibb Memorial Park</li> <li>-Watson Island Baywalk &amp; Boat Ramp</li> <li>-Polo Park</li> <li>-Washington Avenue Playground</li> <li>-Palm Island Park</li> <li>-Miami Beach Garden Center / Holocaust Memorial</li> <li>-Collins Park</li> <li>-Albert Pallot Park</li> </ul>	Moderate	<p>The Beach Corridor Rapid Transit Project alignments contain four sub-areas and connect Downtown Miami to the Miami Design District via North Miami Avenue and to Miami Beach via a Bay Crossing on SR A1A/MacArthur Causeway, which ultimately connects to the Miami Beach Convention Center via Washington Avenue. An additional Bay Crossing for Bus Rapid Transit (BRT) connects the Miami Beach Convention Center to Miami via I-195/Julia Tuttle Causeway. The project corridor lies within two cities, or two census designated places, Miami and Miami Beach.</p> <p>The predominant land use adjacent to the corridor is commercial and services, 31.60% within 500 feet, and 26.62% of the area within 500 feet consists of the waters of Biscayne Bay. Only 16.80% of the area is residential, either fixed single family units or multiple dwelling units.</p> <p>Within 500 feet of the project corridor there are eight community centers, 31 cultural centers, three existing recreational trails, 11 civic centers, seven government buildings, 16 parks or recreational facilities, nine religious centers, two veteran facilities, one fire station, one law enforcement facility and one cemetery.</p> <p>The EPA notes that minority and low income populations were identified within the one-quarter mile buffer used for the Sociocultural Data Report. Key concerns for the EPA include the Civil Rights Act of 1964 and 1968 along with Title VI of the Civil Right Act and Executive Order 12898 regarding Environmental Justice, ensuring that minority and/or low income persons are neither disproportionately adversely impacted by major transportation projects nor denied reasonably access to them. They also expressed significant public involvement that neither transportation professionals to develop</p>



Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
				<p>-Woodson/Mai Design</p> <p>-Bicentennial Park</p> <p>-Roberto Clemente Park</p> <p>-Dorsey Park</p> <p>-15th Street Beach Access</p> <p>-16th Street Beach Access</p> <p>-17th Street Beach Access</p> <p>-18th Street Beach Access</p> <p>-20th Street Beach Access</p> <p>-4th Street Beach Access</p> <p>-Flamingo Park &amp; Pool</p> <p>-Martell Park</p> <p>-South Shore Park and Playground</p> <p>-Stearns Park</p> <p>-Watson Island Park</p> <p>-Lummus Park / Oceanfront Auditorium</p> <p>-21st Street Recreation Center</p> <p>-Lincoln Road Beach Access</p> <p>-Stephen P. Clark Government Center Park</p> <p>-Banyan Tree Park</p> <p>-Barry Kutun Public Boat Ramp</p> <p>-Robert F. Clark Park</p> <p>-Miami Beach Golf Club</p> <p>-Buoy Park</p> <p>-Soundscape Park</p> <p>-Biscayne Park</p> <p>-Second Avenue Mini Park</p> <p>-Omni Park</p> <p>Office of Greenways and Trails: Hiking Trails Priorities (2018 - 2022) (4)</p> <p>-All Aboard Florida Rail with Trail Corridor</p> <p>-Atlantic Trail</p> <p>-East Coast Greenway - Dade Corridor</p> <p>-MacArthur Causeway</p> <p>Office of Greenways and Trails: Paddling Trails Priorities (2018 - 2022) (1)</p> <p>-Florida Circumnavigational Saltwater Paddling Trail</p> <p>2008-2015 SFWMD Land Use and Land Cover - Acres / Percent</p> <p>Cemeteries - 20.18 / 0.43%</p> <p>Channelized Waterways / Canals - 12.41 / 0.26% Coastal Shrub - 11.27 / 0.24</p> <p>Commercial and Services - 1,006.23 / 21.25%</p> <p>Commercial and Services (Under Construction) - 13.09 / 0.28% Community Recreation Facilities - 17.63 / 0.37%</p> <p>Educational Facilities - 141.43 / 2.99%</p> <p>-Electrical Power Facilities - 7.01 / 0.15%</p> <p>-Embayments Opening Directly to Gulf or Ocean - 1,570.25 / 33.16% Fixed Single Family Units - 567.44 / 11.98%</p> <p>-Golf Course - 131.29 / 2.77%</p> <p>-Institutional - 153.12 / 3.23%</p> <p>-Military - 11.79 / 0.25%</p> <p>Multiple Dwelling Units, High Rise - 204.77 / 4.32% Multiple Dwelling Units, Low Rise - 327.25 / 6.91% Open Land - 7.46 / 0.16%</p> <p>-Other Heavy Industrial - 6.52 / 0.14% Other Light Industry - 139.59 / 2.95% Parks and Zoos - 22.98 / 0.49%</p> <p>-Port Facilities - 86.77 / 1.83%</p> <p>-Reservoirs - 10.82 / 0.23%</p> <p>-Roads and Highways - 152.07 / 3.21% Shopping Centers - 6.38 / 0.13%</p> <p>-Swimming Beach - 57.2 / 1.21%</p> <p>-Transportation - 18.85 / 0.40%</p> <p>-Upland Shrub and Brushland - 31.86 / 0.67%</p> <p>Comments on Effects to Resources:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>The Beach Corridor Rapid Transit Project alignments contain four sub-areas and connect Downtown Miami to the Miami Design District via North Miami Avenue and to Miami Beach via a Bay Crossing on SR A1A/MacArthur Causeway, which ultimately connects to the Miami Beach Convention Center via Washington Avenue. An additional Bay Crossing for Bus Rapid Transit (BRT) connects the Miami Beach Convention Center to Miami via I-195/Julia Tuttle Causeway.</p> <p>The project corridor lies within two cities, Miami and Miami Beach. Based on the Sociocultural Data Report generated by the Environmental Screening Tool (EST), there are 78 U.S. Census Block Groups within one quarter-mile in both the 2010 census data and the 2017 American Community Survey (ACS) five-year estimates (2013 - 2017). The total population is 51,714 persons and there are 25,049 households. It is noted, however, that residential land uses constitute only 23.21% of the area within one quarter-mile and 33.16% of the area is water (66.84% land). Commercial and services constitute 21.53% of the total area as they are the predominant land use directly adjacent to the corridor. The total area is 7.4 square miles (4,736 acres).</p> <p>Community features identified within the 1,320-foot buffer include one cemetery, 19 community centers, 58 cultural centers, 21 civic centers, four fire stations, 12 government buildings, 116 health care facilities, one hospital, 63 laser facilities, seven law enforcement facilities, 40 schools, 13 social service facilities, two veteran facilities, 37 religious centers, 38 parks and recreational facility boundaries, four hiking trails and one paddling trail.</p> <p>Demographic data from the quarter-mile buffer Sociocultural Data Report for the project area and Miami-Dade County are presented below. In general, the race and ethnicity trends in the beach corridor are similar in degree to those of Miami-Dade County with minor differences. For example, 71.33% of the population in the corridor identify as "White Alone" as compared to 75.60% in Miami-Dade County. Miami-Dade County has a larger "Minority" population (66.26%) than does the Beach Corridor, where 67.15% are identified as "Minority". In the Beach Corridor, 62.35% of the population identify as "Latino or Hispanic of Any Race" compared to 67.45% in Miami-Dade County. A larger difference in the Beach Corridor is that 11.97% identify as "Some Other Race Alone" compared to only 3.14% identified as "Some Other Race Alone" in Miami-Dade County. The "Median Age" of people in the beach corridor (39) nearly matches that in Miami-Dade County (40), although the County has approximately twice the number of people "Ages 5 to 17" and approximately one-third more people "Age 65 and Older". The "Median Household Income" and the "Population Below Poverty Level" are also comparable. However, the Beach Corridor has almost three times the "Occupied Housing Units with No Vehicle" than Miami-Dade County.</p>		<p>projects nor denied reasonable access to them. They also recommend meaningful public involvement that enables transportation professionals to develop systems, services, and solutions that meet the needs of the community and the vulnerable populations that will be temporarily impacted by the project.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects related to community cohesion and social interaction as well as potential solutions to ensure that both the social and transportation needs of the surrounding communities are addressed. Public outreach activities will include transportation disadvantaged and Limited English Proficiency populations in accordance with applicable Acts and Executive Orders. While disproportionate adverse effects to Environmental Justice populations are not anticipated, and the project is expected to enhance access to social, cultural and institutional facilities, a Summary Degree of Effect of Moderate is assigned to the Social Issue due to presence of vulnerable populations and numerous social facilities in the vicinity of the project corridor. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual.</p> <p>The Beach Corridor Rapid Transit Project alignments contain four sub-areas and connect Downtown Miami to the Miami Design District via North Miami Avenue and to Miami Beach via a Bay Crossing on SR A1A/MacArthur Causeway, which ultimately connects to the Miami Beach Convention Center via Washington Avenue. An additional Bay Crossing for Bus Rapid Transit (BRT) connects the Miami Beach Convention Center to Miami via I-195/Julia Tuttle Causeway. The project corridor lies within two cities, or two census designated places, Miami and Miami Beach.</p> <p>The predominant land use adjacent to the corridor is commercial and services, 31.60% within 500 feet, and 26.62% of the area within 500 feet consists of the waters of Biscayne Bay. Only 16.80% of the area is residential, either fixed single family units or multiple dwelling units.</p> <p>Within 500 feet of the project corridor there are eight community centers, 31 cultural centers, three existing recreational trails, 11 civic centers, seven government buildings, 16 parks or recreational facilities, nine religious centers, two veteran facilities, one fire station, one law enforcement facility and one</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Social (Continued)	FDOT District 6 (Continued)	PD&E Support Document as per PD&E Manual	Enhanced	<p>Demographic / Beach Corridor / Miami-Dade County</p> <p>-Race/Ethnicity - White Alone / 71.33% / 75.60%</p> <p>-Race/Ethnicity - Black or African American Alone / 11.40% / 17.97% Race/Ethnicity - Asian Alone / 2.09% / 1.58%</p> <p>-Race/Ethnicity - American Indian or Alaska Native Alone / 0.51% / 0.15%</p> <p>-□</p> <p>-Race/Ethnicity - Some Other Race Alone - 11.97% / 3.14% Race/Ethnicity - Claimed 2 or More Races - 2.70% / 1.53% Race/Ethnicity - Latino or Hispanic of Any Race - 52.35% / 67.45% Race/Ethnicity - Not Hispanic or Latino - 47.65% / 32.55% Race/Ethnicity - Minority - 67.15% / 86.26%</p> <p>-Age 65 and Older - 10.94% / 15.33%</p> <p>-Ages 5 to 17 - 7.45% / 14.69%</p> <p>-Median Age - 39 / 40</p> <p>-Income - Median Household Income - \$43,254 / \$46,338 Income - Median Family Income - \$37,250 / \$52,235</p> <p>Income - Population Below Poverty Level - 18.53% / 18.98%</p> <p>-Housing - Occupied Housing Units with No Vehicle - 27.29% / 10.73%</p> <p>-Minority Population Greater than 40%:</p> <p>-There are 205 census blocks within the 500-foot project buffer that contain a minority population greater than 40%. A total of 28,507 individuals comprise the population of the 205 census blocks.</p> <p>Limited English Proficiency (LEP) Accommodations:</p> <p>It is important to note that the project area contains 7,615 persons or 15.56% that "speak English not well or not at all". According to issued guidance, Limited English Proficiency (LEP) accommodations should be considered based on the number or proportion of LEP persons in the eligible service population/affected area, the frequency of which LEP persons may come into contact with Project Development activities, the importance of the proposed project service/action to LEP persons, and resources available. Given the notable percentage and number of persons in the area that are in the LEP population, LEP accommodations will be required during public outreach efforts during the Project Development phase.</p> <p>Overall, the project is not anticipated to negatively affect community cohesion and the social environment because the new rapid transit will occur on existing rights-of-way. The project will improve the ability of the resident and tourist populations to access important social, cultural and institutional facilities and community features. The project is intended to improve the people-carrying capacity with rapid transit throughout the sub-areas along the project corridor and promote and support a multi-modal, multi-user transportation network that is pedestrian and bicycle friendly. The project will be conducted in accordance with Title VI of the Civil Rights Act and Executive Order 12898 regarding environmental justice to ensure that there are no disproportionate effects on low-income or minority populations.</p> <p>Overall, the project is anticipated to augment the ability of populations in the Beach Corridor, and from the greater metropolitan region, to access important social services and community facilities. The Proposed Degree of Effect for the social environment is, therefore, enhanced.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Additional Comments (optional):</p> <p>CLC Recommendations:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>Potential social impacts will be further assessed during Project Development as more detailed information becomes available. During the Project Development phase, DTPW will engage residents and business owners in coordination with the Miami-Dade TPO on public outreach efforts applicable to the project. DTPW will solicit input on potential project effects related to community cohesion and social interaction as well as potential solutions to ensure that both the social and transportation needs of the surrounding communities, including quality of life goals, are addressed throughout the project. Throughout the process, DTPW will coordinate with FDOT District Six to ensure that public commentary collected as a result of such effort is documented in the EST.</p>	Moderate	<p>cemetery.</p> <p>The EPA notes that minority and low income populations were identified within the one-quarter mile buffer used for the Sociocultural Data Report. Key concerns for the EPA include the Civil Rights Act of 1964 and 1968 along with Title VI of the Civil Right Act and Executive Order 12898 regarding Environmental Justice, ensuring that minority and/or low income persons are neither disproportionately adversely impacted by major transportation projects nor denied reasonable access to them. They also recommend meaningful public involvement that enables transportation professionals to develop systems, services, and solutions that meet the needs of the community and the vulnerable populations that will be temporarily impacted by the project.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects related to community cohesion and social interaction as well as potential solutions to ensure that both the social and transportation needs of the surrounding communities are addressed. Public outreach activities will include transportation disadvantaged and Limited English Proficiency populations in accordance with applicable Acts and Executive Orders. While disproportionate adverse effects to Environmental Justice populations are not anticipated, and the project is expected to enhance access to social, cultural and institutional facilities, a Summary Degree of Effect of Moderate is assigned to the Social issue due to presence of vulnerable populations and numerous social facilities in the vicinity of the project corridor. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual.</p>
	FDOT District 6 (continued)	PD&E Support Document as per PD&E Manual				
Social (Continued)	USEPA	To Be Determined: Further Coordination Required	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>Concentrations of minority and low-income populations were identified. The Sociocultural Data Report for the Beach Corridor Rapid Transit Project identified a 65.78% minority population (2017 ACS). FDOT acknowledges in its Preliminary Environmental Discussion comments that the project will be developed in accordance with the Civil Rights Act of 1964 and 1968, along with Title VI of the Civil Rights Act, and Environmental Justice E.O. 12898 ensuring that minority and/or low income persons are neither disproportionately adversely impacted by major transportation projects, nor denied reasonable access to them by excessive cost or physical barriers. Therefore, EPA assigns a Moderate Degree of Effect to Social.</p> <p>Comments on Effects to Resources:</p> <p>FDOT acknowledges in its Preliminary Environmental Discussion comments that within 0.5 miles of the project corridor approximately 49% of the population are living below the poverty line and are served by several listed community facilities within a 200-ft buffer of the project. Access to the facilities and potential relocation of the facilities may adversely effect Environmental Justice communities in the project corridor.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities:</p> <p>FDOT acknowledges in its Preliminary Environmental Discussion comments that a Sociocultural Effects Evaluation Technical Memorandum will be performed to determine potential impacts to the social environment. Because of the close proximity of residences, businesses, schools, and other facilities the EPA recommends conducting a Noise Study in the project area and consider any necessary abatement for potential noise impacts. Also, consider meaningful public involvement that enables transportation professionals to develop systems, services, and solutions that meet the needs of the community and the vulnerable populations that will be temporarily impacted during project construction.</p>	Moderate	<p>The Beach Corridor Rapid Transit Project alignments contain four sub-areas and connect Downtown Miami to the Miami Design District via North Miami Avenue and to Miami Beach via a Bay Crossing on SR A1A/MacArthur Causeway, which ultimately connects to the Miami Beach Convention Center via Washington Avenue. An additional Bay Crossing for Bus Rapid Transit (BRT) connects the Miami Beach Convention Center to Miami via I-195/Julia Tuttle Causeway. The project corridor lies within two cities, or two census designated places, Miami and Miami Beach.</p> <p>The predominant land use adjacent to the corridor is commercial and services, 31.60% within 500 feet, and 26.62% of the area within 500 feet consists of the waters of Biscayne Bay. Only 16.80% of the area is residential, either fixed single family units or multiple dwelling units.</p> <p>Within 500 feet of the project corridor there are eight community centers, 31 cultural centers, three existing recreational trails, 11 civic centers, seven government buildings, 16 parks or recreational facilities, nine religious centers, two veteran facilities, one fire station, one law enforcement facility and one cemetery.</p> <p>The EPA notes that minority and low income populations were identified within the one-quarter mile buffer used for the Sociocultural Data Report. Key concerns for the EPA include the Civil Rights Act of 1964 and 1968 along with Title VI of the Civil Right Act and Executive Order 12898 regarding Environmental Justice, ensuring that minority and/or low income persons are neither disproportionately adversely impacted by major transportation projects nor denied reasonable access to them. They also recommend meaningful public involvement that enables transportation professionals to develop systems, services, and solutions that meet the needs of the community and the vulnerable populations that will be temporarily impacted by the project.</p> <p>During the Project Development phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners on potential project effects related to community cohesion and social interaction as well as potential solutions to ensure that both the social and transportation needs of the surrounding communities are addressed. Public outreach activities will include transportation disadvantaged and Limited English Proficiency populations in accordance with applicable Acts and Executive Orders. 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Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Relocation Potential	FDOT District 6	PD&E Support Document as per PD&E Manual	Minimal	<p>Direct Effects:</p> <p>Identified Resources and Level of Importance:            ***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>100-Foot Buffer:            2010 Census Designated Places (2)            -Miami            -Miami Beach            Enterprise Zones (1)            -Miami-Dade County [EZ-1301]            HUD Empowerment Zones (1)            -Miami-Dade County FL Empowerment Zone            Cemeteries (Polygons) (1)            -City of Miami Cemetery            Community Centers (Points) (2)            -Aspira of Florida, Inc.            -Chamber of Commerce - Miami-Dade Gay and Lesbian            Florida Site File Cemeteries (1)            Florida Site File Historic Standing Structures (238)            Florida Site File Resource Groups (10)            Geocoded Fire Stations (1)            -Miami Fire Department and Rescue Station 2            Geocoded Government Buildings (0)            Geocoded Law Enforcement Facilities (0)            Geocoded Veteran Facilities (0)            Local Florida Parks and Recreational Facility Boundaries (12)            -Miami Beach Garden Center / Holocaust Memorial            -Albert Pallot Park            -Woodson/Miai Design            -Bicentennial Park            -Flamingo Park &amp; Pool            -Martell Park            -Stearns Park            -Watson Island Park            -21st Street Recreation Center            -Miami Beach Golf Club            -Soundscape Park            -Omni Park</p> <p>500-Foot Buffer:            2010 Census Designated Places (2)            -Miami            -Miami Beach            Enterprise Zones (1)            -Miami-Dade County [EZ-1301]            HUD Empowerment Zones (1)            -Miami-Dade County FL Empowerment Zone            Cemeteries (Polygons) (1)            -City of Miami Cemetery            Community Centers (Points) (8)            -City of Miami Beach Community Center            -Council Towers Center            -Aspira of Florida, Inc.            -Chamber of Commerce - Miami-Dade Gay and Lesbian            -Miami Beach Community Development Corporation            -Chamber of Commerce - Miami Beach            -Chamber of Commerce - Miami Beach Latin            -Veterans of Foreign Wars (VFW) Post 3559 - Miami Beach            Florida Site File Cemeteries (1)            Florida Site File Historic Standing Structures (691)            Florida Site File Resource Groups (14)            Geocoded Fire Stations (1)            -Miami Fire Department and Rescue Station 2            Geocoded Government Buildings (7)            -US Post Office - Carl Fisher            -US Post Office - Miami Beach            -Miami-Dade County Child Support/Alimony Office - Central Depository            -Miami-Dade County Miami Beach District Court            -City of Miami Beach City Hall            -Miami-Dade County Health Department - Pet Center            -US Post Office - Buena Vista            Geocoded Law Enforcement Facilities (1)            -Miami Beach Police Department            Geocoded Veteran Facilities (2)            -Veterans of Foreign Wars (VFW) Post 3559 - Miami Beach            -Miami-Dade County Veterans Service Office            Local Florida Parks and Recreational Facility Boundaries (16)            -Watson Island Baywalk &amp; Boat Ramp</p>	Minimal	<p>No comments were received regarding the Relocation Potential issue. Beside the corridor alignment, the project will involve station locations as well as an evaluation of potential maintenance yard sites. Given the fact that right-of-way availability along the corridor is limited due to the surrounding urban environment, and access to proximate businesses and residences may be temporarily affected and/or modified as a result of the project, a Minimal Summary Degree of Effect was assigned for the Relocation Potential issue.</p> <p>Although no right-of-way acquisition or relocations are anticipated for the corridor alignment, potential locations for other transit-related facilities will be identified, assessed and selected during Project Development. Relocation potential will be further assessed as more definitive information regarding design and right-of-way needs becomes available. A Public Involvement Plan will be implemented in coordination with the Miami-Dade TPO, City of Miami, and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from surrounding property owners on potential project effects to adjacent properties and alternatives that may minimize impacts. A Sociocultural Effects Evaluation Technical Memorandum will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual. If required, a Conceptual Stage Relocation Plan will be developed in accordance with Part 2, Chapter 4 of the PD&amp;E Manual.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Relocation Potential (Continued)	FDOT District 6 (Continued)	PD&E Support Document as per PD&E Manual	Minimal	<p>-Miami Beach Garden Center / Holocaust Memorial</p> <p>-Collins Park</p> <p>-Albert Pallot Park</p> <p>-Woodson/Miai Design</p> <p>-Bicentennial Park</p> <p>-Dorsey Park</p> <p>-Flamingo Park &amp; Pool</p> <p>-Martell Park</p> <p>-Stearns Park</p> <p>-Watson Island Park</p> <p>-21st Street Recreation Center</p> <p>-Miami Beach Golf Club</p> <p>-Soundscape Park</p> <p>-Biscayne Park</p> <p>-Omni Park</p> <p>Comments on Effects to Resources:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>The project corridor lies within eastern Miami-Dade County and connects the Miami Design District, Downtown Miami and Miami Beach via the Bay Crossing. US Census designated places include Miami and Miami Beach. Land uses adjacent to the corridor are predominantly commercial and services and the waters of Biscayne Bay. Residences consist of 11.63% of the land use within 100 feet. There are also many public facilities and parks adjacent to the corridor. The Adopted 2020 and 2030 Land Use Plan for Miami-Dade County suggests that the land use character of the corridor will remain relatively unchanged.</p> <p>The Beach Corridor rapid transitway is proposed on existing State and County rights-of-way, including highways and arterial roadways. For the elevated transit modes, the railway is proposed on one side of the existing rights-of-way. For the at-grade transit modes, a dedicated lane is proposed within existing rights-of-way. Therefore, no right-of-way acquisition or relocations are anticipated for the corridor alignment.</p> <p>During Project Development, potential locations for transit stations and other transit-related facilities will be identified, assessed and selected. Relocation potential will be re-examined as part of the selection process. Due to the potential for impacts to properties outside the existing right-of-way, relocation potential was assigned a minimal degree of effect.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities:</p> <p>Additional Comments (optional):</p> <p>CLC Recommendations:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>During the Project Development phase, DTPW will engage appropriate property owners in coordination with the Miami-Dade TPO to solicit input on potential project effects to adjacent properties and identify alternatives that may minimize impacts. Further assessment of relocation effects will be conducted during the Project Development phase as more detailed and finalized project information regarding right-of-way needs becomes available.</p>	Minimal	<p>No comments were received regarding the Relocation Potential issue. Beside the corridor alignment, the project will involve station locations as well as an evaluation of potential maintenance yard sites. Given the fact that right-of-way availability along the corridor is limited due to the surrounding urban environment, and access to proximate businesses and residences may be temporarily affected and/or modified as a result of the project, a Minimal Summary Degree of Effect was assigned for the Relocation Potential issue.</p> <p>Although no right-of-way acquisition or relocations are anticipated for the corridor alignment, potential locations for other transit-related facilities will be identified, assessed and selected during Project Development. Relocation potential will be further assessed as more definitive information regarding design and right-of-way needs becomes available. A Public Involvement Plan will be implemented in coordination with the Miami-Dade TPO, City of Miami, and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from surrounding property owners on potential project effects to adjacent properties and alternatives that may minimize impacts. A Sociocultural Effects Evaluation Technical Memorandum will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual. If required, a Conceptual Stage Relocation Plan will be developed in accordance with Part 2, Chapter 4 of the PD&amp;E Manual.</p>
Farmlands	-	-	-	The following organization(s) were expected to but did not submit a review of the Farmlands issue for this alternative: Natural Resources Conservation Service	No Involvement	There are no farmlands reported within 500 feet of the project corridor. The project is consistent with the existing and future land use vision of the project area. In addition, the project occurs within the Miami Urbanized Area. For these reasons, a Summary Degree of Effect of No Involvement has been assigned to the Farmlands issue.
				<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>City of Miami Comprehensive Neighborhood Plan City of Miami Beach 2025 Comprehensive Plan</p> <p>100-Foot Buffer:</p> <p>2010 Census Designated Places (2)</p> <p>-Miami</p> <p>-Miami Beach</p> <p>Florida Site File Cemeteries (1)</p> <p>-City of Miami Cemetery - eligible</p> <p>Florida Site File Historic Bridges (4)</p> <p>-MacArthur Causeway East Bridge - ineligible</p> <p>-SR 907 Flyover - ineligible</p> <p>-Alton Road Bridge - ineligible</p> <p>-Washington Avenue/Collins Canal Bridge - not evaluated Florida Site File Historic Standing Structures (238) Florida Site File Resource Groups (10)</p> <p>-Biscayne Boulevard Linear Resource - ineligible</p> <p>-Flamingo Park Designed Historic Landscape - eligible</p> <p>-Miami Beach Architectural District - eligible</p> <p>-E.E.C. Railway Linear Resource - eligible</p> <p>-Collins Canal Linear Resource - eligible</p> <p>-Ocean Beach Historic District - not evaluated</p>		

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Aesthetic Effects	FDOT District 6	PD&E Support Document as per PD&E Manual	Moderate	<p><del>Project Corridor Effects on Designated Historic Resources</del></p> <ul style="list-style-type: none"> <li>-Miami Beach Golf Club Designed Historic Landscape - eligible</li> <li>-Lincoln Road Mall Designed Historic Landscape - eligible</li> <li>-Collins Canal Seawall Linear Resource - ineligible</li> <li>-Sunset Lake Historic District - eligible</li> </ul> <p>SFWMD Residential Areas 2008-2015 - Acres / Percent Fixed Single Family Units - 31.90 / 7.43% Multiple Dwelling Units, High Rise - 10.32 / 2.40% Multiple Dwelling Units, Low Rise - 8.07 / 1.88%</p> <p>500-Foot Buffer:</p> <p>2010 Census Designated Places (2)</p> <ul style="list-style-type: none"> <li>-Miami</li> <li>-Miami Beach</li> <li>Florida Site File Cemeteries (1)</li> <li>-City of Miami Cemetery - eligible</li> <li>Florida Site File Historic Bridges (5)</li> <li>-MacArthur Causeway East Bridge - ineligible</li> <li>-SR 907 Flyover - ineligible</li> <li>-Sunset Lake Canal - not evaluated</li> <li>-Alton Road Bridge - ineligible</li> <li>-Washington Avenue/Collins Canal Bridge - not evaluated Florida Site File Historic Standing Structures (691) Florida Site File Resource Groups (14)</li> <li>-Biscayne Boulevard Linear Resource - ineligible</li> <li>-Flamingo Park Designed Historic Landscape - eligible</li> <li>-Miami Beach Architectural District - eligible</li> <li>-E.E.C. Railway Linear Resource - eligible</li> <li>-Collins Canal Linear Resource - eligible</li> <li>-Ocean Beach Historic District - not evaluated</li> <li>Miami Beach Golf Club Designed Historic Landscape - eligible</li> <li>-Bayshore Municipal Par 3 Golf Course Designed Historic Landscape - ineligible</li> <li>-Lincoln Road Mall Designed Historic Landscape - eligible</li> <li>-Collins Canal Seawall Linear Resource - ineligible</li> <li>-Sunset Lake Historic District - eligible</li> <li>-Buena Vista East Historic District - not evaluated</li> <li>-41st Street Historic District - eligible</li> <li>-SR A1A / Collins Avenue Linear Resource - ineligible SFWMD Residential Areas 2008-2015 - Acres / Percent Fixed Single Family Units - 200.79 / 10.11% Multiple Dwelling Units, High Rise - 60.87 / 3.06% Multiple Dwelling Units, Low Rise - 72.19 / 3.63%</li> <li>1,320-Foot (Quarter-Mile) Buffer: 2010 Census Designated Places (2)</li> <li>-Miami</li> <li>-Miami Beach</li> <li>Florida Site File Cemeteries (1)</li> <li>-City of Miami Cemetery - eligible</li> <li>Florida Site File Historic Bridges (10)</li> <li>-MacArthur Causeway East Bridge - ineligible</li> <li>-SR 907 Flyover - ineligible</li> <li>-Venetian Causeway - ineligible</li> <li>-Sunset Lake Canal - not evaluated</li> <li>-Sunset Islands Bridge Number 2 - ineligible</li> <li>-Sunset Island Bridge Number 4 - eligible</li> <li>-West 23rd Street at Collins Canal - not evaluated</li> <li>-Liberty Avenue Footbridge - not evaluated</li> <li>-Alton Road Bridge - ineligible</li> <li>-Washington Avenue/Collins Canal Bridge - not evaluated Florida Site File Historic Standing Structures (1,373)</li> <li>Florida Site File Resource Groups (21)</li> <li>-Beverly Terrace Historic District - eligible</li> <li>-Pine Tree Drive Linear Resource - insufficient information</li> <li>-Biscayne Boulevard Linear Resource - ineligible</li> <li>-Flamingo Park Designed Historic Landscape - eligible</li> <li>-Lummus Park on Miami Beach Designed Historic Landscape - not evaluated</li> <li>-Miami Beach Architectural District - eligible</li> <li>-Bay Vista Park Historic District - eligible</li> <li>-Downtown Miami Historic District - eligible</li> <li>-E.E.C. Railway Linear Resource - eligible</li> <li>-Collins Canal Linear Resource - eligible</li> <li>-Ocean Beach Historic District - not evaluated</li> <li>-Miami Beach Golf Club Designed Historic Landscape - eligible</li> <li>-Bayshore Municipal Par 3 Golf Course Designed Historic Landscape - ineligible</li> <li>-D &amp; K Island Project Building Complex - ineligible</li> <li>-Collins Waterfront Architectural District - eligible</li> <li>-Lincoln Road Mall Designed Historic Landscape - eligible</li> <li>-Collins Canal Seawall Linear Resource - ineligible</li> <li>-Sunset Lake Historic District - eligible</li> <li>-Buena Vista East Historic District - not evaluated</li> <li>-41st Street Historic District - eligible</li> <li>-SR A1A / Collins Avenue Linear Resource - ineligible SFWMD Residential Areas 2008-2015 - Acres / Percent Fixed Single Family Units - 567.44 / 11.98% Multiple Dwelling Units, High Rise - 204.77 / 4.32% Multiple Dwelling Units, Low Rise - 327.25 / 6.91%</li> </ul> <p>Comments on Effects to Resources:</p>	Moderate	<p>The project corridor is within the urbanized areas of Miami and Miami Beach and crosses Biscayne Bay. Each area has its own visual character and viewshed. The project is consistent with the future land use vision of this high-growth area and proposes to increase the person-throughput to major origins and destinations in the Beach Corridor via premium rapid transit. However, because a new mode of rapid transit will affect the visual character of the corridor, a Moderate Summary Degree of Effect was assigned to this issue.</p> <p>Potential aesthetic effects will be assessed further during future phases of Project Development as more detailed design information becomes available. The DTPW will engage residents and business owners in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach to solicit input on potential project effects as well as opinions and preferences regarding general design concepts related to corridor aesthetics. A Sociocultural Effects Evaluation in accordance with Part 2, Chapter 4 of the PD&amp;E Manual and a Visual and Aesthetic Conditions Report in accordance with Part 2, Chapter 5 of the PD&amp;E Manual will be prepared for the project.</p>



Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Aesthetic Effects (Continued)	FDOT District 6	PD&E Support Document as per PD&E Manual	Moderate	<p>The project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>The project corridor includes two US Census designated places, Miami and Miami Beach, each with its own community character and viewshed. Additionally, the bay crossing on MacArthur Causeway has its own community character and viewshed due to Biscayne Bay, PortMiami and the residences on Hibiscus, Palm and Star Islands. It is noted that Hibiscus, Palm and Star Islands, along with Terminal Island, are part of the City of Miami Beach; Watson Island and Dodge Island (PortMiami) are in the City of Miami.</p> <p>The Tier Two Study will evaluate four modes of rapid transit: Automated Guideway Transit (AGT), or Metromover, and Monorail are elevated modes; Light Rail Transit (LRT) and Bus Rapid Transit (BRT) are at-grade modes. Downtown Miami already contains an elevated mode of transit in the Metromover. The area is characterized by skyscrapers and other commercial, institutional and light industrial land uses. An elevated mode of transit would not be incompatible with the existing downtown city character.</p> <p>Along the Miami Beach alignments, most of the buildings adjacent to the corridor are two or three stories high and the land uses are mainly residential and mixed use commercial and entertainment. In addition, the Beach Corridor traverses several historic districts on Miami Beach and there are numerous potentially historic structures. Furthermore, the streets are landscaped. Only at-grade modes of transit are proposed on Miami Beach due to its aesthetic character. However, the landscaping may be removed to accommodate a dedicated transit lane, which would alter the aesthetics of the streets.</p> <p>Both elevated and at-grade modes of transit are being considered on the Bay Crossing. The transitway is proposed on the south side of MacArthur Causeway, which will allow access to the residences on Hibiscus, Palm and Star Islands to be maintained. Median landscaping will remain undisturbed. PortMiami is south of MacArthur Causeway across the channel. It is anticipated that a rapid transit system on the beach corridor will have the same aesthetic effects whether it is at-grade or elevated.</p> <p>The land use character in each of the sub-areas is anticipated to remain relatively unchanged. Population, tourism and employment growth in the vicinity of the Beach Corridor are projected to continue to grow along with an increase in travel demand. The project appears to be consistent with the future land use vision of the area. However, it is anticipated that new rapid transit, whether an elevated rail line or a dedicated at-grade lane, will have a visual effect on the corridor, and therefore a moderate degree of effect was assigned for this issue. A Visual and Aesthetic Conditions Report will be prepared during Project Development.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Additional Comments (optional): CLC Recommendations:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>Potential aesthetic effects will be assessed further during future phases of Project Development as more detailed design information becomes available. During the Project Development phase, DTPW will engage residents and business owners in coordination with the Miami-Dade TPO to solicit input on potential project effects as well as opinions and preferences regarding general design concepts related to corridor aesthetics.</p>	Moderate	<p>The project corridor is within the urbanized areas of Miami and Miami Beach and crosses Biscayne Bay. Each area has its own visual character and viewshed. The project is consistent with the future land use vision of this high-growth area and proposes to increase the person-throughput to major origins and destinations in the Beach Corridor via premium rapid transit. However, because a new mode of rapid transit will affect the visual character of the corridor, a Moderate Summary Degree of Effect was assigned to this issue.</p> <p>Potential aesthetic effects will be assessed further during future phases of Project Development as more detailed design information becomes available. The DTPW will engage residents and business owners in coordination with the Miami-Dade TPO, City of Miami and City of Miami Beach to solicit input on potential project effects as well as opinions and preferences regarding general design concepts related to corridor aesthetics. A Sociocultural Effects Evaluation in accordance with Part 2, Chapter 4 of the PD&amp;E Manual and a Visual and Aesthetic Conditions Report in accordance with Part 2, Chapter 5 of the PD&amp;E Manual will be prepared for the project.</p>
				<p>Direct Effects</p> <p>Identified Resources and Level of Importance: ***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>100-Foot Buffer: 2010 Census Designated Places (2) -Miami -Miami Beach Brownfield Location Boundaries (3) -Miami Area -Miami EZ Expansion Area -Potamkin Properties Bus Transit Routes (67) Developments of Regional Impact (DRI) (5) -Miami Beach Marina (ADA No: 1975-050) -Miami Downtown (ADA No: 1987-035) -South Shore Development (ADA No: 1978-015) -Southeast Overtown / Park West-II (ADA No: 1987-046) -Watson Island (ADA No: 1980-011) Enterprise Zones (1) -Miami-Dade County [EZ-1301] Fixed-Guideway Transit Network Stations (3) -Arena/State Plaza - Metromover Brickell, Downtown, Omni Loops (now Wilkie D. Ferguson) -Bicentennial Park - Metromover Omni Loop (now called Museum Park) -Fleventh Street - Metromover Omni Loop Geocoded Assisted Housing (1) Geocoded Health Care Facilities (15)</p>		

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Economic	FDOT District 6	PD&E Support Document as per PD&E Manual	Enhanced	<p> Eleventh Street - Metromover Omni Loop Geocoded Assisted Housing (17) Geocoded Health Care Facilities (17)  Geocoded Hospitals (0)  Geocoded Social Service Facilities (0)  Geocoded Veteran Facilities (0) Group Care Facilities (7)  HUD Empowerment Zones / Enterprise Communities (1)  -Miami-Dade County FL Empowerment Zone Intermodal Passenger Connectivity Database (10) Marinas (0)  Parcel Derived Intermodal Facilities (1)  -Fisher Island Holdings LLC  Railroads in the State of Florida (1) 500-Foot Buffer:  2010 Census Designated Places (2)  -Miami  -Miami Beach  Brownfield Location Boundaries (3)  -Miami Area  -Miami EZ Expansion Area  -Potamkin Properties  Bus Transit Routes (68)  Developments of Regional Impact (DRI) (7)  -Dade County Regional Service Center (ADA No:1976-022)  -Downtown Government Center-M (ADA No: 1981-030)  -Miami Beach Marina (ADA No: 1975-050)  -Miami Downtown (ADA No: 1987-035)  -South Shore Development (ADA No: 1978-015)  -Southeast Overtown / Park West-II (ADA No: 1987-046)  -Watson Island (ADA No: 1980-011)  Enterprise Zones (1)  -Miami-Dade County [EZ-1301]  Fixed-Guideway Transit Network Stations (5)  -Arena/State Plaza - Metromover Brickell, Downtown, Omni Loops (now Wilkie D. Ferguson)  -School Board - Metromover Omni Loop  -No Description Available - Metromover Omni Loop  -Bicentennial Park - Metromover Omni Loop (now called Museum Park)  -Eleventh Street - Metromover Omni Loop Geocoded Assisted Housing (8) Geocoded Health Care Facilities (38)  Geocoded Hospitals (0)  Geocoded Social Service Facilities (1) Geocoded Veteran Facilities (2) Group Care Facilities (19)  HUD Empowerment Zones / Enterprise Communities (1)  -Miami-Dade County FL Empowerment Zone Intermodal Passenger Connectivity Database (35) Marinas (1)  Parcel Derived Intermodal Facilities (1)  -Fisher Island Holdings LLC  Railroads in the State of Florida (1) 1,320-Foot (Quarter-Mile) Buffer:  2010 Census Designated Places (2)  -Miami  -Miami Beach  Bus Transit Routes (79)  Brownfield Location Boundaries (3)  -Miami Area  -Miami EZ Expansion Area  -Potamkin Properties  Developments of Regional Impact (DRI) (10)  -Dade County Regional Service Center (ADA No:1976-022)  -Downtown Government Center-M (ADA No: 1981-030)  -Miami Arena (ADA No: 1985-066)  -Miami Beach Marina (ADA No: 1975-050)  -Miami Downtown (ADA No: 1987-035)  -Plaza Venetia &amp; Omni Marinas (ADA No: 1978-008)  -Port of Miami (ADA No: 1979-016)  -South Shore Development (ADA No: 1978-015)  -Southeast Overtown / Park West-II (ADA No: 1987-046)  -Watson Island (ADA No: 1980-011)  Enterprise Zones (1)  -Miami-Dade County [EZ-1301]  Fixed-Guideway Transit Network Stations (14)  -Overtown/Arena - Metrorail  -Arena/State Plaza - Metromover Brickell, Downtown, Omni Loops (now Wilkie D. Ferguson)  -Government Center - Metrorail, Metromover Brickell, Downtown, Omni Loops  -Park West - Metromover Omni Loop  -Freedom Tower - Metromover Omni Loop  -No Description Available - Metromover Omni Loop  -No Description Available - Metromover Omni Loop  -College North - Metromover Brickell, Downtown, Omni Loops  -No Description Available - Metromover Brickell, Downtown, Omni Loops  -School Board - Metromover Omni Loop  -No Description Available - Metromover Omni Loop  -Omni - Metromover Omni Loop  -Bicentennial Park - Metromover Omni Loop (now called Museum Park)  -Eleventh Street - Metromover Omni Loop Geocoded Assisted Housing (18) Geocoded Health Care Facilities (116)  Geocoded Hospitals (1)  Geocoded Social Service Facilities (16) Geocoded Veteran Facilities (2)  Group Care Facilities (41)  HUD Empowerment Zones / Enterprise Communities (1)  -Miami-Dade County FL Empowerment Zone Intermodal Passenger Connectivity Database (78) Marinas (13)  Parcel Derived Intermodal Facilities (3)  -Fisher Island Holdings LLC </p>	Enhanced	<p>The main objective of the project is to enhance mobility in Miami and Miami Beach by promoting and supporting a multimodal and multiuser transportation corridor that is also pedestrian and bicycle friendly. Major roadway segments in the Beach Corridor are lined with commercial/retail/office land uses and are within the Miami-Dade County Enterprise Zone. Therefore, economic development activities will continue to be supported along the corridor in both Miami and Miami Beach.</p> <p>The DEO stated that the project will offer and enhance the provision of an alternative mode of travel via rapid transit technology and new development is likely to benefit from the project. The City of Miami Beach provided that the project has the potential to incentivize new development along major project corridors that are zoned for medium to high intensity mixed-use development. The DEO also noted that the Beach Corridor Transit Project will allow greater diversification and growth of business development in the project area. The sustaining and continued growth of tourism can be facilitated by the non-auto integration of travel modes between Miami and Miami Beach with a strong potential to generate jobs.</p> <p>Based on improved economic opportunities with implementation of the Beach Corridor Rapid Transit Project in Miami and Miami Beach, an Enhanced Summary Degree of Effect has been assigned for the Economic issue.</p> <p>A Public Involvement Plan will be implemented in coordination with the Miami-Dade TPO, City of Miami, and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners regarding potential economic enhancements or impacts as a result of the project as well as potential solutions. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Economic (Continued)	FDOT District 6 (Continued)	PD&E Support Document as per PD&E Manual	Enhanced	<p>Identified Resources and Level of Importance:</p> <p>Comprehensive Plan(s) Reviewed:</p> <p>COMPREHENSIVE DEVELOPMENT MASTER PLAN for Miami-Dade County, October 2013 Edition As adopted October 2, 2013, and as amended through September 27, 2018.</p> <p>The Miami Comprehensive Neighborhood Plan (MCNP) February 9, 1989 and contains amendments through May 2018. CITY OF MIAMI BEACH YEAR 2025 COMPREHENSIVE PLAN Adopted April 13, 2011 Effective July 1, 2011.</p> <p>Comments on Effects to Resources:</p> <p>The project is not located within a Rural Area of Opportunity.</p> <p>The upsurge in tourism, residential growth, and economic redevelopment in the study area have all generated additional demand for area travel modes. The road system is seriously constrained by lack of available land and very high land cost. The Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) will offer and enhance the provision of an alternative mode of travel via rapid transit technology and person-throughput to the Beach Corridor from the Miami downtown area. New development is likely to benefit from Beach Corridor Rapid Transit Project servicing major origin and destination points in this high value area.</p> <p>The City of Miami Beach specifically provided: The project has the potential to incentivize new development along the Washington Avenue, 5th Street, Alton Road, and West Avenue corridors. Those corridors are zoned for medium to high intensity mixed-use development that have available development capacity. Due to recently approved incentives along Washington Avenue, which is located within an historic district, there are opportunities to incorporate historic facades and buildings into new and creative developments. Similar opportunities exist for properties that fall within historic districts along 5th Street and Alton Road.</p> <p>The Beach Corridor Rapid Transit will allow greater diversification and growth of business development in the project area. By helping to efficiently use remaining land for intensified land uses and business development there likely will be less need for the need for vehicle parking space in this already constrained location. In addition, the sustaining and continued growth of tourism can be facilitated by the non-auto integration of travel modes between Miami and Miami Beach with a strong potential to generate jobs (beyond those associated with the Beach Corridor Rapid Transit development project itself).</p> <p>Miami Beach specifically provided: The project has the potential to encourage new development which will allow for new businesses to open within the City.</p>	Enhanced	<p>The main objective of the project is to enhance mobility in Miami and Miami Beach by promoting and supporting a multimodal and multiuser transportation corridor that is also pedestrian and bicycle friendly. Major roadway segments in the Beach Corridor are lined with commercial/retail/office land uses and are within the Miami-Dade County Enterprise Zone. Therefore, economic development activities will continue to be supported along the corridor in both Miami and Miami Beach.</p> <p>The DEO stated that the project will offer and enhance the provision of an alternative mode of travel via rapid transit technology and new development is likely to benefit from the project. The City of Miami Beach provided that the project has the potential to incentivize new development along major project corridors that are zoned for medium to high intensity mixed-use development. The DEO also noted that the Beach Corridor Transit Project will allow greater diversification and growth of business development in the project area. The sustaining and continued growth of tourism can be facilitated by the non-auto integration of travel modes between Miami and Miami Beach with a strong potential to generate jobs.</p> <p>Based on improved economic opportunities with implementation of the Beach Corridor Rapid Transit Project in Miami and Miami Beach, an Enhanced Summary Degree of Effect has been assigned for the Economic issue.</p> <p>A Public Involvement Plan will be implemented in coordination with the Miami-Dade TPO, City of Miami, and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners regarding potential economic enhancements or impacts as a result of the project as well as potential solutions. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual.</p>
Economic (Continued)	FDEO	No Involvement	Enhanced	<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>Comprehensive Plan(s) Reviewed:</p> <p>COMPREHENSIVE DEVELOPMENT MASTER PLAN for Miami-Dade County, October 2013 Edition As adopted October 2, 2013, and as amended through September 27, 2018.</p> <p>The Miami Comprehensive Neighborhood Plan (MCNP) February 9, 1989 and contains amendments through May 2018. CITY OF MIAMI BEACH YEAR 2025 COMPREHENSIVE PLAN Adopted April 13, 2011 Effective July 1, 2011.</p> <p>Comments on Effects to Resources:</p> <p>The project is not located within a Rural Area of Opportunity.</p> <p>The upsurge in tourism, residential growth, and economic redevelopment in the study area have all generated additional demand for area travel modes. The road system is seriously constrained by lack of available land and very high land cost. The Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) will offer and enhance the provision of an alternative mode of travel via rapid transit technology and person-throughput to the Beach Corridor from the Miami downtown area. New development is likely to benefit from Beach Corridor Rapid Transit Project servicing major origin and destination points in this high value area.</p> <p>The City of Miami Beach specifically provided: The project has the potential to incentivize new development along the Washington Avenue, 5th Street, Alton Road, and West Avenue corridors. Those corridors are zoned for medium to high intensity mixed-use development that have available development capacity. Due to recently approved incentives along Washington Avenue, which is located within an historic district, there are opportunities to incorporate historic facades and buildings into new and creative developments. Similar opportunities exist for properties that fall within historic districts along 5th Street and Alton Road.</p> <p>The Beach Corridor Rapid Transit will allow greater diversification and growth of business development in the project area. By helping to efficiently use remaining land for intensified land uses and business development there likely will be less need for the need for vehicle parking space in this already constrained location. In addition, the sustaining and continued growth of tourism can be facilitated by the non-auto integration of travel modes between Miami and Miami Beach with a strong potential to generate jobs (beyond those associated with the Beach Corridor Rapid Transit development project itself).</p> <p>Miami Beach specifically provided: The project has the potential to encourage new development which will allow for new businesses to open within the City.</p>	Enhanced	<p>The main objective of the project is to enhance mobility in Miami and Miami Beach by promoting and supporting a multimodal and multiuser transportation corridor that is also pedestrian and bicycle friendly. Major roadway segments in the Beach Corridor are lined with commercial/retail/office land uses and are within the Miami-Dade County Enterprise Zone. Therefore, economic development activities will continue to be supported along the corridor in both Miami and Miami Beach.</p> <p>The DEO stated that the project will offer and enhance the provision of an alternative mode of travel via rapid transit technology and new development is likely to benefit from the project. The City of Miami Beach provided that the project has the potential to incentivize new development along major project corridors that are zoned for medium to high intensity mixed-use development. The DEO also noted that the Beach Corridor Transit Project will allow greater diversification and growth of business development in the project area. The sustaining and continued growth of tourism can be facilitated by the non-auto integration of travel modes between Miami and Miami Beach with a strong potential to generate jobs.</p> <p>Based on improved economic opportunities with implementation of the Beach Corridor Rapid Transit Project in Miami and Miami Beach, an Enhanced Summary Degree of Effect has been assigned for the Economic issue.</p> <p>A Public Involvement Plan will be implemented in coordination with the Miami-Dade TPO, City of Miami, and City of Miami Beach in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from residents and business owners regarding potential economic enhancements or impacts as a result of the project as well as potential solutions. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Mobility	FDOT District 6	PD&E Support Document as per PD&E Manual	Enhanced	<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>100-Foot Buffer</p> <p>Aviation Transportation Facilities (0)</p> <p>Boat Ramps (0)</p> <p>Bus Transit Routes (67) Existing Recreational Trails (3)</p> <p>-East Coast Greenway - Dade Corridor</p> <p>-Florida Circumnavigational Paddling Trail</p> <p>-M-Path</p> <p>Fixed-Guideway Transit Network Stations (3)</p> <p>-Arena/State Plaza - Metromover Brickell, Downtown, Omni Loops (now Wilkie D. Ferguson)</p> <p>-Bicentennial Park - Metromover Omni Loop (now called Museum Park)</p> <p>-Eleventh Street - Metromover Omni Loop</p> <p>-□</p> <p>Intermodal Passenger Connectivity Database (IPCD) (10) Marinas (0)</p> <p>Office of Greenways and Trails: Multi-Use Trails Opportunities (4)</p> <p>-All Aboard Florida Rail with Trail Corridor</p> <p>-Baywalk Trail Corridor</p> <p>-East Coast Greenway - Dade Corridor</p> <p>-MacArthur Causeway</p> <p>Office of Greenways and Trails: Paddling Trails Opportunities (2)</p> <p>-Florida Circumnavigational Saltwater Paddling Trail</p> <p>-Florida Circumnavigational Saltwater Paddling Trail - Alternate Route</p> <p>Potential Navigable Waterways (2)</p> <p>-Intracoastal Access</p> <p>-Atlantic Intracoastal Waterway</p> <p>Railroads in the State of Florida (1)</p> <p>Transportation Disadvantaged Service Provider Areas (TDSP) in Florida - 2010 (1)</p> <p>-Miami-Dade Transit Authority</p> <p>500-Foot Buffer</p> <p>Aviation Transportation Facilities (2)</p> <p>-Miami Heliport</p> <p>-Miami Beach Police Department Heliport</p> <p>Boat Ramps (0)</p> <p>Bus Transit Routes (68) Existing Recreational Trails (3)</p> <p>-East Coast Greenway - Dade Corridor</p> <p>-Florida Circumnavigational Paddling Trail</p> <p>-M-Path</p> <p>Fixed-Guideway Transit Network Stations (5)</p> <p>-Arena/State Plaza - Metromover Brickell, Downtown, Omni Loops (now Wilkie D. Ferguson)</p> <p>-School Board - Metromover Omni Loop</p> <p>-No Description Available - Metromover Omni Loop</p> <p>-Bicentennial Park - Metromover Omni Loop (now called Museum Park)</p> <p>-Eleventh Street - Metromover Omni Loop</p> <p>Intermodal Passenger Connectivity Database (IPCD) (35) Marinas (1)</p> <p>Office of Greenways and Trails: Multi-Use Trails Opportunities (4)</p> <p>-All Aboard Florida Rail with Trail Corridor</p> <p>-Baywalk Trail Corridor</p> <p>-East Coast Greenway - Dade Corridor</p> <p>-MacArthur Causeway</p> <p>Office of Greenways and Trails: Paddling Trails Opportunities (2)</p> <p>-Florida Circumnavigational Saltwater Paddling Trail</p> <p>-Florida Circumnavigational Saltwater Paddling Trail - Alternate Route</p> <p>Potential Navigable Waterways (3)</p> <p>-Florida Shallow Water Access</p> <p>-Intracoastal Access</p> <p>-Atlantic Intracoastal Waterway</p> <p>Railroads in the State of Florida (1)</p> <p>Transportation Disadvantaged Service Provider Areas (TDSP) in Florida - 2010 (1)</p> <p>-Miami-Dade Transit Authority 1,320-Foot (Quarter-Mile) Buffer: Airports (2)</p> <p>-Miami</p> <p>-Mount Sinai Medical Center</p> <p>Aviation Transportation Facilities - Not Analyzed Boat Ramps (2)</p> <p>-Watson Island Park FWC ID MI00009AA</p> <p>-□</p> <p>-Barry Kutun Public Boat Ramp FWC ID MI30001BF</p> <p>Bus Transit Routes (79) Existing Recreational Trails (3)</p> <p>-East Coast Greenway - Dade Corridor</p> <p>-Florida Circumnavigational Paddling Trail</p> <p>-M-Path</p> <p>Fixed-Guideway Transit Network Stations (14)</p> <p>-Overtown/Arena - Metrorail</p> <p>-Arena/State Plaza - Metromover Brickell, Downtown, Omni Loops (now Wilkie D. Ferguson)</p> <p>-Government Center - Metrorail, Metromover Brickell, Downtown, Omni Loops</p> <p>-Park West - Metromover Omni Loop</p> <p>-Freedom Tower - Metromover Omni Loop</p>	Enhanced	<p>The project proposes to provide direct, convenient and comfortable rapid transit to serve existing and future land uses as well as enhanced interconnections with other transit and non-transit modes of transportation. Connection to major destinations also facilitates use of other modes of transportation or recreation, including vehicular, pedestrian, cycling, boating and paddling. The Beach Corridor Rapid Transit Project will enhance intermodal connectivity in the region. For these reasons, a Summary Degree of Effect of Enhanced has been assigned for the Mobility issue.</p> <p>During the Project Development Phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami, City of Miami Beach, and Miami-Dade County in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from the general public on potential project effects and enhancements regarding mobility within the region. A Sociocultural Effects Evaluation will also be conducted in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Mobility (Continued)	FDOT District 6	PD&E Support Document as per PD&E Manual	Enhanced	<p>-No Description Available - Metromover Omni Loop  -No Description Available - Metromover Omni Loop  -College North - Metromover Brickell, Downtown, Omni Loops  -No Description Available - Metromover Brickell, Downtown, Omni Loops  -School Board - Metromover Omni Loop  -No Description Available - Metromover Omni Loop  -Omni - Metromover Omni Loop  -Bicentennial Park - Metromover Omni Loop (now called Museum Park)  -Eleventh Street - Metromover Omni Loop  Intermodal Passenger Connectivity Database (IPCD) (78) Marinas (13)  Office of Greenways and Trails: Multi-Use Trails Opportunities (5)  -All Aboard Florida Rail with Trail Corridor  -Atlantic Trail  -Baywalk Trail Corridor  -East Coast Greenway - Dade Corridor  -MacArthur Causeway  Office of Greenways and Trails: Paddling Trails Opportunities (2)  -Florida Circumnavigational Saltwater Paddling Trail  -Florida Circumnavigational Saltwater Paddling Trail - Alternate Route  Potential Navigable Waterways (3)  -Florida Shallow Water Access  -Intracoastal Access  -Atlantic Intracoastal Waterway  Railroads in the State of Florida (1)  Transportation Disadvantaged Service Provider Areas (TDSP) in Florida - 2010 (1)  -Miami-Dade Transit Authority</p> <p>Comments on Effects to Resources:  ***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>The Beach Corridor includes a segment from the Miami Design District to Downtown Miami on North Miami Avenue, a Bay Crossing on SR A1A/MacArthur Causeway, and alternative alignments on Washington Avenue and Alton Road in Miami Beach. Bus transit is also proposed from the Miami Beach Convention Center across I-195/Julia Tuttle Causeway. The Beach Corridor alignments are designed to offer rapid transit to major destinations from commonly-used points of origin. The Beach Corridor alignments are also designed to provide enhanced interconnections with other modes of transit, including the Metromover in Downtown Miami, Tri-Rail and Brightline on the FEC railway line, and local bus circulators in Miami and Miami Beach. Connection to major destinations also facilitates use of other modes of transportation or recreation, including vehicular, pedestrian, cycling, boating and paddling.</p> <p>The Intermodal Passenger Connectivity Database (IPCD) is a data table of transportation terminals that provides an estimate of the degree of intermodal connectivity in the transportation system. There are 10 IPCD locations within 100 feet of the corridor, 35 within 500 feet and 78 within a quarter-mile. Additional studies are currently being performed, under the SMART Plan and by other transit providers, to provide more terminals that will increase intermodal connectivity. Within 1,320 feet (quarter-mile) of the Beach Corridor, there are currently two airports, two aviation transportation facilities, two boat ramps, 79 bus transit routes, three existing recreational trails, 14 fixed-guideway transit network stations, 13 marinas, five OGT multi-use trails opportunities, two OGT paddling trails opportunities, three potential navigable waterways and the FEC Railroad. Miami-Dade Transit Authority is a Transportation Disadvantaged Service Provider in this area.</p> <p>The typical sections for each of the four modes of transit under study include pedestrian facilities on the arterial roadways (North Miami Avenue, Washington Avenue) and bicycle lanes on both the arterial roadways and the SR A1A/MacArthur Causeway bay crossing. The proposed project will enhance mobility by 1) increasing the person-throughput to the Beach Corridor's major origins and destinations via rapid transit technology; 2) connecting to and providing interconnections with Metrorail, Tri-Rail, Brightline, Metromover, Metrobus routes, Miami and Miami Beach circulators, jitneys, shuttles, taxis and Transportation Network Companies; and 3) promoting pedestrian- and bicycle-friendly solutions in the Beach Corridor.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Additional Comments (optional):  CLC Recommendations:  ***This project is being screened by FDOT on behalf of Miami-Dade County Department of Transportation and Public Works (DTPW). DTPW is conducting a Project Development and Environment (PD&amp;E) Study for the Beach Corridor Rapid Transit Project in collaboration with the Federal Transit Administration (FTA) under the National Environmental Policy Act.</p> <p>During the Project Development phase, DTPW will engage the surrounding communities in coordination with the Miami-Dade TPO and the Cities of Miami and Miami Beach to solicit input on potential project effects and enhancements regarding mobility in the area.</p>	Enhanced	<p>The project proposes to provide direct, convenient and comfortable rapid transit to serve existing and future land uses as well as enhanced interconnections with other transit and non-transit modes of transportation. Connection to major destinations also facilitates use of other modes of transportation or recreation, including vehicular, pedestrian, cycling, boating and paddling. The Beach Corridor Rapid Transit Project will enhance intermodal connectivity in the region. For these reasons, a Summary Degree of Effect of Enhanced has been assigned for the Mobility issue.</p> <p>During the Project Development Phase, a Public Involvement Plan will be implemented by DTPW in coordination with the Miami-Dade TPO, City of Miami, City of Miami Beach, and Miami-Dade County in accordance with Part 1, Chapter 11 of the PD&amp;E Manual to solicit input from the general public on potential project effects and enhancements regarding mobility within the region. A Sociocultural Effects Evaluation will also be conducted [in accordance with Part 2, Chapter 4 of the FDOT PD&amp;E Manual.</p>
Cultural						
Section 4(f)	-	-	-	None Found. No Summary Degree of Effect Found.	Moderate	<p>No comments were received for the Section 4(f) Potential issue. Publicly owned parks and recreation areas and publicly or privately owned historic resources are Section 4(f) resource types. As detailed in the sections on Historic and Archaeological Sites and Recreation Areas, there are numerous properties directly adjacent to the Beach Corridor that are or have the potential to be Section 4(f) protected properties. A Summary Degree of Effect of Moderate has been assigned to the Section 4(f) Potential issue for the following reasons: 1) the proximity of existing public recreational features to the project corridor and potential temporary impacts on access to and enjoyment of these amenities during project construction, and 2) the presence of NRHP-eligible resources and the potential presence of unrecorded archaeological and/or historic resources within close proximity to the project corridor.</p> <p>During Project Development, the DTPW will follow the new Determination of Applicability (DOA) policy in the latest Section 4(f) Resources chapter of the PD&amp;E Manual (Part 2, Chapter 7, January 14, 2019) to determine the extent of Section 4(f) involvement and necessary documentation on the avoidance and/or minimization of impacts to the Section 4(f) resource. The DTPW will further coordinate with relevant agencies on the required studies, documentation, and commitments needed to adequately address any identified resources in accordance with federal, state, and local laws and regulations.</p>



Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Historic and Archaeological Sites	FDOS	PD&E Support Document as per PD&E Manual	Moderate	<p>Coordination Document Comments:</p> <p>Since the project area has not been comprehensively surveyed, a survey should be conducted for this project. All cultural resources, including potential historic districts, within the area of potential effect should be documented and assessed for NRHP eligibility. The resultant survey report shall conform to the specifications set forth in Chapter 1A-46 Florida Administrative Code, FDOT PD&amp;E Manual Part 2, Chapter 12 and will need to be forwarded to this agency (or the appropriate Federal Agency) for review and comment.</p> <p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>As reported.</p> <p>Comments on Effects to Resources:</p> <p>The project has the potential to impact cultural resources within and adjacent to the proposed project.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities:</p> <p>This office will consult with the project sponsors to avoid, minimize, or mitigate any adverse effects to significant cultural resources.</p> <p>Additional Comments (optional):</p> <p>Since the project area has not been comprehensively surveyed, a survey should be conducted for this project. All cultural resources, including potential historic districts, within the area of potential effect should be documented and assessed for NRHP eligibility. The resultant survey report shall conform to the specifications set forth in Chapter 1A-46 Florida Administrative Code, FDOT PD&amp;E Manual Part 2, Chapter 12 and will need to be forwarded to this agency (or the appropriate Federal Agency) for review and comment.</p>	Moderate	<p>There are a large number of historic or potentially historic resources in the Beach Corridor project area as well as potential for archaeological finds. Based on an initial desktop analysis, there are 3,254 pre-1974 buildings in the study area, 1,125 of which have been previously recorded in the Florida Master Site File (FMSF) and 2,129 structures which have not been recorded. There are nine historic bridges, three of which are ineligible for listing in the National Register of Historic Places (NRHP), including the MacArthur Causeway east bridge. The City of Miami Cemetery is listed in the NRHP and is a locally designated historic landmark. Also, the FMSF has identified 19 historic resource groups in the study area, including eight historic districts, five designated historic landscapes, five linear resources and one building complex. Several of these are either listed on the NRHP, NRHP-eligible or have not been evaluated by the State Historic Preservation Officer (SHPO). In addition, part of the proposed project area is within the Miami-Dade County Archaeological Conservation Area and the original Brickell Archaeological Zone.</p> <p>The FDOS noted that a comprehensive survey has not been conducted for the project area and requested that all cultural resources, including potential historic districts, within the area of potential effect be documented and assessed for NRHP-eligibility. The SFWMD notes that when an Environmental Resource Permit is required for a project, the SFWMD is required to evaluate and determine that the project is not contrary to the public interest, which includes addressing whether or not the project will adversely affect significant historical and archaeological resources.</p> <p>The project is not anticipated to result in direct impacts to cultural resources; however, due to the presence of historic and potentially historic or archaeological sites within close proximity to the project corridor, and because the entire corridor has not been systematically surveyed, a Summary Degree of Effect of Moderate has been assigned to the Historic and Archaeological Sites issue.</p>
	SFWMD	To Be Determined: Further Coordination Required	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>When a project includes work in wetlands or other surface waters, for which an Individual Environmental Resource Permit (ERP) is required from the South Florida Water Management District (SFWMD), the SFWMD is required to evaluate and determine that the project is not contrary to the public interest under Subsection 10.2.3 of the Environmental Resource Permit Applicant's Handbook Volume I. As part of that criteria FDOT would be required to address whether the project will adversely affect significant historical and archeological resources under the provisions of Section 267.061, F.S. (subparagraph 62330.302(1)(a)6, F.A.C. Additionally, because the work in wetlands and other surface waters is within a Outstanding Florida, FDOT would need to demonstrate that the project is clearly in the public interest.</p> <p>If possible, it is recommended that FDOT coordinate with the Florida Division of Historical Resources (DHR), and obtain a letter of no objection from DHR, prior to the submittal of an ERP application to the SFWMD.</p>		<p>To assist in project planning and development of alternatives, DTPW will initiate consultation with the SHPO by submitting the Technical Memorandum Cultural Resource Desktop Analysis for the Beach Corridor. DTPW will ultimately conduct a Cultural Resource Assessment Survey (CRAS) in accordance with Part 2, Chapter 8 of the FDOT PD&amp;E Manual to identify NRHP-eligible historic and archeological resources in the project area. The resultant CRAS report will be consistent with the specifications set forth in Chapter 1A-46 Florida Administrative Code and will be submitted to the DOS Division of Historical Resources for review and comment. In addition, a Section 106 Effects Case Study Report will be prepared for the project.</p>
Recreation Areas	NPS	To Be Determined: Further Coordination Required	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>The National Park Service has reviewed ETDM # 14257, Beach Corridor Rapid Transit Project in Miami-Dade County, Florida. The purpose of this project is to increase the person-throughput to the Beach Corridor's major origins and destinations via rapid transit technology.</p> <p>The Beach Corridor traverses an area which is at the epicenter of population and economic growth within Miami-Dade County. The central business district (CBD) area located in the City of Miami and the City of Miami Beach have undergone rapid population and employment growth over the past decade, a pattern that is projected to continue over the next 20 years. The population densities in the study area are among the highest in the nation, with Downtown Miami (CBD) at 17,800 persons per square mile and Miami Beach at 11,500 persons per square mile, per the 2010 U.S. Census. Downtown Miami saw a dramatic 172 percent increase in population density over the last decade. The proposed project with in 200 feet of Watson Island Baywalk park, which is a Land and Water Conservation Fund (LWCF) site. LWCF sites are not to be used as staging areas.</p> <p>If it is determined that right of way is needed from Watson Island Baywalk Park, in whole or in part, that converts the use of the park to other than public outdoor recreation, would trigger a) conversion of an LWCF protected facility under 54 USC 200305(f) (formerly Section 6(f)(3) of the LWCF Act). A conversion of use will include the Florida Department of Transportation providing replacement property that not only is equal or greater in fair market value to the converted site, but also, is of reasonable equivalent usefulness. Also, all NEPA requirements must be satisfactorily completed as well as other requirements as outlined in the LWCF Act (36 CFR 59.3). If a conversion should occur, the Florida Department of Environmental Protection (FDEP), Division of State Lands, 3900 Commonwealth Blvd, Tallahassee, FL 32399-3000, should be contacted for early coordination. The point of contact with FDEP is Linda Reeves, Operations Management Consultant Manager Linda.reeves@dep.state.fl.us (850) 245-2501. Please keep us informed as the project progresses through the PD&amp;E phase and if the proposed project changes please contact Anita Barnett at National Park Service, 100 Alabama Street, 1924 Bldg., Atlanta Georgia, 30303, 404-507-5706; Anita_Barnett@nps.gov. Thank you for the opportunity to review and provide comments. If you have any questions please contact Anita Barnett at 404-507- 5706.</p> <p>Comments on Effects to Resources:</p> <p>If it is determined that right of way is needed from Watson Island Baywalk Park, in whole or in part, that converts the use of the park to other than public outdoor recreation, would trigger a) conversion of an LWCF protected facility under 54 USC 200305(f) (formerly Section 6(f)(3) of the LWCF Act). A conversion of use will include the Florida Department of Transportation providing replacement property that not only is equal or greater in fair market value to the converted site, but also, is of reasonable equivalent usefulness. Also, all NEPA requirements must be satisfactorily completed as well as other requirements as outlined in the LWCF Act (36 CFR 59.3). If a conversion should occur, the Florida Department of Environmental Protection (FDEP), Division of State Lands, 3900 Commonwealth Blvd, Tallahassee, FL 32399-3000, should be contacted for early coordination. The point of contact with FDEP is Linda Reeves, Operations Management Consultant Manager Linda.reeves@dep.state.fl.us (850) 245-2501. Please keep us informed as the project progresses through the PD&amp;E phase and if the proposed project changes please contact Anita Barnett at National Park Service, 100 Alabama Street, 1924 Bldg., Atlanta Georgia, 30303, 404-507-5706; Anita_Barnett@nps.gov.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities:</p> <p>Indirect Effects</p> <p>Identified Resources and Level of Importance:</p> <p>Flamingo Park is listed in the Environmental Screen Tool as a Land and Water Conservation Fund site, however this is incorrect. The city of Miami Beach applied for a LWCF grant but the application was withdrawn.</p> <p>Comments on Effects to Resources:</p> <p>The National Park Service has reviewed ETDM # 14257, Beach Corridor Rapid Transit Project in Miami-Dade County, Florida. The purpose of this project is to increase the person-throughput to the Beach Corridor's major origins and destinations via rapid transit technology.</p> <p>The Beach Corridor traverses an area which is at the epicenter of population and economic growth within Miami-Dade</p>		<p>There are 16 parks and recreational facilities within 500 feet of the project corridor, one of which is a National Park. The National Park Service points out that Watson Island Baywalk Park is a Land and Water Conservation Fund (LWCF) site and that LWCF sites are not to be used as staging areas. If right of way is needed from Watson Island Baywalk Park, in whole or in part, that converts the use to other than public outdoor recreation, a conversion of an LWCF protected facility would be triggered and resultant coordination and mitigation would be required. The DTPW will avoid use of this LWCF facility.</p> <p>There are also five trails that cross the Beach Corridor, including the All Aboard Florida Rail with Trail Corridor, Baywalk Trail Corridor, East Coast Greenway - Dade Corridor (which coincides with the M-Path in Miami), MacArthur Causeway and the Florida Circumnavigational Saltwater Paddling Trail. In accordance with the Florida Department of Environmental Protection comments, DTPW will coordinate with the stakeholders who manage these facilities to ensure minimal impacts to recreational resources. No take or conversion of recreational land uses is anticipated at this time. Overall, the project will improve access to recreational facilities in the vicinity of the project, including the beaches. A Summary Degree of Effect of Moderate has been assigned to the Recreation Areas issue due to the number of recreational features in proximity to the project corridor and temporary impacts on access to and enjoyment of these facilities during project construction.</p> <p>An assessment of potential impacts to identified recreational resources will be conducted during future phases of project development. The Miami-Dade County DTPW will coordinate with relevant agencies on any required studies, documentation and commitments needed to adequately address identified resources in accordance with federal, state, and local laws and regulations. Future environmental documentation will include an evaluation of the primary, secondary, and cumulative effects of the proposed project on recreational resources and/or public land.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Recreation Areas (Continued)	NPS (continued)	To Be Determined: Further Coordination Required	Moderate	<p>County. The central business district (CBD) area located in the City of Miami and the City of Miami Beach have undergone rapid population and employment growth over the past decade, a pattern that is projected to continue over the next 20 years. The population densities in the study area are among the highest in the nation, with Downtown Miami (CBD) at 17,800 persons per square mile and Miami Beach at 11,500 persons per square mile, per the 2010 U.S. Census. Downtown Miami saw a dramatic 172 percent increase in population density over the last decade.</p> <p>The proposed project with with in 200 feet of Watson Island Baywalk park, which is a Land and Water Conservation Fund (LWCF) site. LWCF sites are not to be used as staging areas.</p> <p>If it is determined that right of way is needed from Watson Island Baywalk Park, in whole or in part, that converts the use of the park to other than public outdoor recreation, would trigger a) conversion of an LWCF protected facility under 54 USC 200305(f) (formerly Section 6(f)(3) of the LWCF Act). A conversion of use will include the Florida Department of Transportation providing replacement property that not only is equal or greater in fair market value to the converted site, but also, is of reasonable equivalent usefulness. Also, all NEPA requirements must be satisfactorily completed as well as other requirements as outlined in the LWCF Act (36 CFR 59.3). If a conversion should occur, the Florida Department of Environmental Protection (FDEP), Division of State Lands, 3900 Commonwealth Blvd, Tallahassee, FL 32399-3000, should be contacted for early coordination. The point of contact with FDEP is Linda Reeves, Operations Management Consultant Manager Linda.reeves@dep.state.fl.us (850) 245-2501. Please keep us informed as the project progresses through the PD&amp;E phase and if the proposed project changes please contact Anita Barnett at National Park Service, 100 Alabama Street, 1924 Bldg., Atlanta Georgia, 30303, 404-507-5706; Anita_Barnett@nps.gov.</p> <p>Thank you for the opportunity to review and provide comments. If you have any questions please contact Anita Barnett at 404-507- 5706.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: The National Park Service has reviewed ETDM # 14257, Beach Corridor Rapid Transit Project in Miami-Dade County, Florida. The purpose of this project is to increase the person-throughput to the Beach Corridor's major origins and destinations via rapid transit technology. The Beach Corridor traverses an area which is at the epicenter of population and economic growth within Miami-Dade County. The central business district (CBD) area located in the City of Miami and the City of Miami Beach have undergone rapid population and employment growth over the past decade, a pattern that is projected to continue over the next 20 years. The population densities in the study area are among the highest in the nation, with Downtown Miami (CBD) at 17,800 persons per square mile and Miami Beach at 11,500 persons per square mile, per the 2010 U.S. Census. Downtown Miami saw a dramatic 172 percent increase in population density over the last decade. The proposed project with with in 200 feet of Watson Island Baywalk park, which is a Land and Water Conservation Fund (LWCF) site. LWCF sites are not to be used as staging areas. If it is determined that right of way is needed from Watson Island Baywalk Park, in whole or in part, that converts the use of the park to other than public outdoor recreation, would trigger a) conversion of an LWCF protected facility under 54 USC 200305(f) (formerly Section 6(f)(3) of the LWCF Act) .A conversion of use will include the Florida Department of Transportation providing replacement property that not only is equal or greater in fair market value to the converted site, but also, is of reasonable equivalent usefulness. Also, all NEPA requirements must be satisfactorily completed as well as other requirements as outlined in the LWCF Act (36 CFR 59.3). If a conversion should occur, the Florida Department of Environmental Protection (FDEP), Division of State Lands, 3900 Commonwealth Blvd, Tallahassee, FL 32399-3000, should be contacted for early coordination. The point of contact with FDEP is Linda Reeves, Operations Management Consultant Manager Linda.reeves@dep.state.fl.us (850) 245-2501. Please keep us informed as the project progresses through the PD&amp;E phase and if the proposed project changes please contact Anita Barnett at National Park Service, 100 Alabama Street, 1924 Bldg., Atlanta Georgia, 30303, 404-507-5706; Anita_Barnett@nps.gov.</p> <p>Thank you for the opportunity to review and provide comments. If you have any questions please contact Anita Barnett at 404-507- 5706.</p>	Moderate	<p>There are 16 parks and recreational facilities within 500 feet of the project corridor, one of which is a National Park. The National Park Service points out that Watson Island Baywalk Park is a Land and Water Conservation Fund (LWCF) site and that LWCF sites are not to be used as staging areas. If right of way is needed from Watson Island Baywalk Park, in whole or in part, that converts the use to other than public outdoor recreation, a conversion of an LWCF protected facility would be triggered and resultant coordination and mitigation would be required. The DTPW will avoid use of this LWCF facility.</p> <p>There are also five trails that cross the Beach Corridor, including the All Aboard Florida Rail with Trail Corridor, Baywalk Trail Corridor, East Coast Greenway – Dade Corridor (which coincides with the M-Path in Miami), MacArthur Causeway and the Florida Circumnavigational Saltwater Paddling Trail. In accordance with the Florida Department of Environmental Protection comments, DTPW will coordinate with the stakeholders who manage these facilities to ensure minimal impacts to recreational resources. No take or conversion of recreational land uses is anticipated at this time. Overall, the project will improve access to recreational facilities in the vicinity of the project, including the beaches. A Summary Degree of Effect of Moderate has been assigned to the Recreation Areas issue due to the number of recreational features in proximity to the project corridor and temporary impacts on access to and enjoyment of these facilities during project construction.</p> <p>An assessment of potential impacts to identified recreational resources will be conducted during future phases of project development. The Miami-Dade County DTPW will coordinate with relevant agencies on any required studies, documentation and commitments needed to adequately address identified resources in accordance with federal, state, and local laws and regulations. Future environmental documentation will include an evaluation of the primary, secondary, and cumulative effects of the proposed project on recreational resources and/or public land.</p>
	FDEP	PD&E Support Document as per PD&E Manual	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: Several trails can be found in close proximity to the proposed project. The East Coast Greenway - Dade Corridor, Florida Circumnavigational Paddling Trail, M-Path and the Miami River Greenway within the 500-ft. project buffer zone. Additionally, nine parks and recreation facilities occur within this zone: Watson Island Baywalk &amp; Boat Ramp, Miami Beach Garden Center and Holocaust Memorial, Albert Pallot Park, Woodson/Mai Design, Dorsey Park, Martell Park, Stearns Park, 21st Street Recreation Center and Soundscape Park.</p> <p>Comments on Effects to Resources: Please work with local and state stakeholders who manage these facilities to ensure minimal impacts.</p>		
	SFWMD	No Involvement	Minimal	There are no SFWMD lands located within the vicinity of the project which would be affected by the project.		
Natural						
				<p>Coordination Document Comments: This project will first need to go through a 408 review since it has multiple crossings of the Atlantic Intracoastal Waterway a Federal project. The proposed project would require a Department of the Army (DA) authorization for impacts to any waters of the U.S. (wetlands) under Section 404 of the Clean Water Act. The proposed project would not require any DA authorization for structures or work under Section 10 of the Rivers and Harbors Act. A Standard Individual Permit review be applicable for any estuarine wetland impacts associated with the new bridge replacement construction. There is a possibility that a Nationwide 3</p> <p>Direct Effects</p> <p>Identified Resources and Level of Importance: The waters of the U.S. (wetlands and surface waters) are Outstanding Florida Waters and included in the Biscayne Bay Aquatic Preserve and the Atlantic Intracoastal Waterway. 524.14 acres of estuarine wetlands, .09 acres of palustrine wetlands exist within a 500 foot buffer; 139.60 acres of estuarine wetlands, .75 acres of palustrine wetlands exist within a 200 foot buffer; and, 49.6 acres of estuarine wetlands exist within a 100 foot buffer.</p> <p>The level of importance would be substantial for any new bridge construction or additional crossing of the Atlantic Intracoastal Waterway and wetland fill associated with any new construction or replacement, roadway improvements along the approaches and causeway construction.</p> <p>Comments on Effects to Resources:  Any estuarine and palustrine wetlands in the project areas deemed to be jurisdictional along the existing travel corridor are primarily mangroves swamps and marine habitat considered Essential Fish Habitat (EFH). Given the jurisdictional wetland resources along the proposed project corridor, any impacts to these resources will be substantial.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: The Corps recommends a continued emphasis on wetland avoidance and minimization opportunities throughout the</p>		

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Wetlands and Surface Waters	USACE	To Be Determined: Further Coordination Required	Moderate	<p>The Corps recommends a continued emphasis on wetland avoidance and minimization opportunities throughout the planning process. A wetland survey should be conducted within the study area to identify the wetlands and a jurisdictional determination should be completed. In addition there should be a benthic survey conducted below mean low water to determine any specific hard or soft corals, and any other benthic resources found in these waters.</p> <p>A review of the Corps RIBITS indicates that the proposed project corridor would not traverse the geographical service areas of any federally approved mitigation banks or in-lieu fee programs. Permittee responsible on-site and/or off-site mitigation options for unavoidable impacts should be considered early on in the project development and planning phases. The proposed project will more than likely have to be permitted using a Standard Individual Permit review, given that the project corridor is within tidal waters and are Outstanding Florida Waters.</p> <p>There is a possibility that a Nationwide 3 (Maintenance) or/and a Nationwide 15 (U.S. Coast Guard Approved Bridges) could be used as the project development and planning moves forward.</p> <p>Additional Comments (optional): This project will first need to go through a 408 review since it has multiple crossings of the Atlantic Intracoastal Waterway a Federal project. The proposed project would require a Department of the Army (DA) authorization for impacts to any waters of the U.S. (wetlands) under Section 404 of the Clean Water Act. The proposed project would not require any DA authorization for structures or work under Section 10 of the Rivers and Harbors Act. A Standard Individual Permit review be applicable for any estuarine wetland impacts associated with the new bridge replacement construction. There is a possibility that a Nationwide 3 Identified Resources and Level of Importance: See comments for direct effects.</p> <p>Indirect Effects Comments on Effects to Resources: Additional secondary impacts should be looked at in the planning portion of this project. Particularly in locating staging equipment areas, to avoid upland source contamination from run-off during construction activities in Upland and water ward locations adjacent to estuarine wetlands and other surface waters.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: See comments for direct effects.</p>	Substantial	<p>FDEP notes that there are 172.45 acres of continuous seagrass beds and 69.84 acres of discontinuous seagrass beds within 500 feet of the project corridor. Coastal wetlands, primarily mangrove fringe wetlands composed of white mangroves, are present along I-195/Julia Tuttle Causeway and SR A1A/MacArthur Causeway. We note that there are no freshwater or coastal wetlands along the corridor alignments on the Miami mainland or on the main barrier island of Miami Beach.</p> <p>An Environmental Resource Permit from the SFWMD will be required for the project. In addition, ownership documentation of the submerged lands within the project area will be required. If there are existing sovereign submerged lands leases and/or easements, copies should be provided to the SFWMD. A new easement or an easement modification may be required for the project.</p> <p>The USACE notes that the project crosses the Atlantic Intracoastal Waterway and will, therefore, require a Section 408 review. A benthic survey and wetland jurisdictional determination should be conducted. The USACE recommends a continued emphasis on wetland avoidance and minimization opportunities throughout the planning process. The USACE RIBITS indicates that the project is not in the service area of federally approved mitigation banks or in-lieu fee programs. Permittee responsible on-site mitigation options should be considered ear in the project development and planning phases. Although the USACE mentions an Individual Permit, there is a possibility that a Nationwide 3 (Maintenance) combined with a Nationwide 15 (US Coast Guard Approved Bridges) could be used. The DTPW anticipates that the US Coast Guard will be the lead federal permitting agency for the project.</p> <p>The EPA recommends that stormwater runoff be diverted from Biscayne Bay and the collection and treatment of stormwater is maximized. Comments regarding Essential Fish Habitat from USEPA and NMFS will be addressed in the Coastal and Marine issue section.</p> <p>Based on the agency comments, a Summary Degree of Effect of Substantial was assigned for the Wetlands and Other Surface Waters issue. During the Project Development phase, potential wetland impacts will be assessed through a Natural Resources Evaluation conducted in accordance with Part 2, Chapter 9 of the FDOT PD&amp;E Manual. All necessary measures will be taken to avoid and/or minimize impacts to wetlands during project development. Should avoidance and/or minimization not be practicable, a Mitigation Plan will be prepared. Best management practices will be utilized during construction and compensatory mitigation will be provided in the event that any adverse wetland impacts are identified. In addition, all applicable permits will be obtained or modified in accordance with federal, state, and local laws and regulations. Further, the proposed stormwater management system for the project will be developed to meet the design and performance criteria established in the SFWMD ERP Applicant's Handbook Volumes I and II for the treatment and attenuation of discharges to nearby waterbodies. The design will also make every effort to maximize the treatment of stormwater runoff from the proposed project.</p>
	USEPA	To Be Determined: Further Coordination Required	Substantial	<p>Coordination Document Comments: Detailed protection measures for these resources as the project continues into future phases of development</p> <p>Direct Effects</p> <p>Identified Resources and Level of Importance: Human activities effect the natural functioning system of estuaries and coastal environments. The Beach Corridor Rapid Transit Project is located in the Biscayne Bay, an area that is ecologically important for supporting and nurturing habitat for a variety of wildlife that include threatened and endangered species. The Port of Miami is located within the project area and Biscayne Bay, which is also known for its many recreational activities. It is important to maintain a healthy functioning natural system. Therefore, EPA assigns a Substantial Degree of effect to Wetlands and Surface waters.</p> <p>Comments on Effects to Resources: Human activities effect such as commercial ports, urban storm water runoff, and recreational activities can adversely affect the natural environment. Sediments are an essential constituent of aquatic environments as many organisms live in, ingest or otherwise come into contact with sediments repeatedly during their life cycles. Metals naturally occur in sediment and the highest concentrations of contaminant metals are mostly found in coastal areas in close proximity to human activities that release metals.</p> <p>Accidental or intentional release of contaminants can be traced to population centers and urban-associated discharges, industrial, military and transportation activities. Pollutants such as heavy metals, volatile organic chemicals, petroleum hydrocarbons, and suspended solids degrade near-by water bodies. Contaminants can increase the turbidity of a water body. Turbid waters heat more rapidly when exposed to sunlight and decrease primary production and dissolved oxygen levels. Therefore, there is a potential for an increase in water degradation.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: The EPA recommends the following practices for direct wetland and surface water impacts : --Consult with the National Marine Fisheries Services and the U.S. Fish and Wildlife Service on essential fish habitat and threatened and endangered species. --To the maximum extent practicable avoid and/or minimize the adverse impacts essential fish habitat. --Storm water runoff should be diverted from water bodies. --Maximize the collection and treatment of storm water.</p> <p>Additional Comments (optional): Detailed protection measures for these resources as the project continues into future phases of development</p>		
	FDEP	PD&E Support Document as per PD&E Manual	Substantial	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: The that there are 172.45 and 69.84 acres of continuous and discontinuous seagrass beds (respectively) within the 500-ft. project buffer zone. Biscayne Bay is also designated an aquatic preserve and Outstanding Florida Waters under Rules 18-18 and 62-302.700(9), Florida Administrative Code. Biscayne Bay has been designated critical habitat for Johnson's seagrass (<i>Halophila johnsonii</i>). Finally several species of hard and soft corals may also be present withing the study area.</p> <p>Comments on Effects to Resources: The proposed project will require an environmental resource permit (ERP) from the South Florida Water Management District. The ERP applicant will be required to eliminate or reduce the proposed wetland resource impacts of bridge construction to the greatest extent practicable: -Minimization should emphasize avoidance-oriented corridor alignments, wetland fill reductions via pile bridging and steep/vertically retained side slopes, and median width reductions within safety limits. -Wetlands should not be displaced by the installation of stormwater conveyance and treatment swales; compensatory treatment in adjacent uplands is the preferred alternative. -After avoidance and minimization have been exhausted, mitigation must be proposed to offset the adverse impacts of the project to existing wetland functions and values. Significant attention is given to forested wetland systems and seagrass beds, which are difficult to mitigate. -The cumulative impacts of concurrent and future transportation improvement projects in the vicinity of the subject project should also be addressed.</p>		

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Wetlands and Surface Water (continued)	USFWS	To Be Determined: Further Coordination Required	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: wetlands and marine resources</p> <p>Comments on Effects to Resources: The project footprint occurs within or adjacent to Biscayne Bay, an area that contains valuable marine wetlands. The marine wetlands that have the potential to be impacted by the project provide important habitat for a variety of species including seagrasses, mangroves, benthic organisms and fish. We recommend that these valuable resources be avoided to the greatest extent practicable. If impacts to marine wetlands and resources are unavoidable, we recommend the Florida Department of Transportation provide mitigation that fully compensates for the loss of important resources.</p>	Substantial	<p>FDEP notes that there are 172.45 acres of continuous seagrass beds and 69.84 acres of discontinuous seagrass beds within 500 feet of the project corridor. Coastal wetlands, primarily mangrove fringe wetlands composed of white mangroves, are present along I-195/Julia Tuttle Causeway and SR A1A/MacArthur Causeway. We note that there are no freshwater or coastal wetlands along the corridor alignments on the Miami mainland or on the main barrier island of Miami Beach.</p> <p>An Environmental Resource Permit from the SFWMD will be required for the project. In addition, ownership documentation of the submerged lands within the project area will be required. If there are existing sovereign submerged lands leases and/or easements, copies should be provided to the SFWMD. A new easement or an easement modification may be required for the project.</p> <p>The USACE notes that the project crosses the Atlantic Intracoastal Waterway and will, therefore, require a Section 408 review. A benthic survey and wetland jurisdictional determination should be conducted. The USACE recommends a continued emphasis on wetland avoidance and minimization opportunities throughout the planning process. The USACE RIBITS indicates that the project is not in the service area of federally approved mitigation banks or in-lieu fee programs. Permittee responsible on-site mitigation options should be considered early in the project development and planning phases. Although the USACE mentions an Individual Permit, there is a possibility that a Nationwide 3 (Maintenance) combined with a Nationwide 15 (US Coast Guard Approved Bridges) could be used. The DTPW anticipates that the US Coast Guard will be the lead federal permitting agency for the project.</p> <p>The EPA recommends that stormwater runoff be diverted from Biscayne Bay and the collection and treatment of stormwater is maximized. Comments regarding Essential Fish Habitat from USEPA and NMFS will be addressed in the Coastal and Marine issue section.</p> <p>Based on the agency comments, a Summary Degree of Effect of Substantial was assigned for the Wetlands and Other Surface Waters issue. During the Project Development phase, potential wetland impacts will be assessed through a Natural Resources Evaluation conducted in accordance with Part 2, Chapter 9 of the FDOT PD&amp;E Manual. All necessary measures will be taken to avoid and/or minimize impacts to wetlands during project development. Should avoidance and/or minimization not be practicable, a Mitigation Plan will be prepared. Best management practices will be utilized during construction and compensatory mitigation will be provided in the event that any adverse wetland impacts are identified. In addition, all applicable permits will be obtained or modified in accordance with federal, state, and local laws and regulations. Further, the proposed stormwater management system for the project will be developed to meet the design and performance criteria established in the SFWMD ERP Applicant's Handbook Volumes I and II for the treatment and attenuation of discharges to nearby waterbodies. The design will also make every effort to maximize the treatment of stormwater runoff from the proposed project.</p>
	NMFS	Tech Memo Required	Substantial	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: Based on our review of the information provided on the ETDM website, aerial photographic interpretation and a site visit on January 24, 2019, NOAA's National Marine Fisheries Service (NMFS) has determined that sand and shell bottom, corals, macro algae, sponges, mangroves and seagrass occur at the project site. Seagrass has been documented in the area, including Johnson's Seagrass (<i>Halophila johnsonii</i>), which is listed as threatened under the Endangered Species Act (ESA). The project site is located within designated critical habitat for Johnson's Seagrass. These habitats are moderate in quality.</p> <p>The South Atlantic Fishery Management Council (SAFMC) has designated the sand and shell bottom, mangroves, corals, sponge, macro algae, and seagrass as essential fish habitat (EFH). Coral, mangroves and seagrass are Habitat Areas of Particular Concern (HAPC). In addition, Biscayne Bay is geographically designated as an HAPC for Caribbean spiny lobster (<i>Panulirus argus</i>), coral, coral reefs and live/hardbottom. HAPC's are subsets of EFH that are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Biscayne Bay is an Aquatic Preserve, Outstanding Florida Water (OFW), and state designated nursery area. The project study area is connected to Government Cut, making the habitat impacted by this project readily accessible to many federally managed fishery species. Ault et al. (2001), identified over 325 fish and macroinvertebrate species in Biscayne Bay and concluded that the Bay plays an important role as primary nursery area for many coastal bay and coral reef fishes and macroinvertebrates.</p> <p>Federally managed fishery species associated with sand and shell bottom habitat include postlarval, juvenile, and subadult stages of penaeid shrimp; and members of the snapper/grouper complex. The corals, macro algae, and sponges are EFH for spiny lobster and members of the snapper/grouper complex. The seagrass is EFH for penaeid shrimp and members of the snapper/grouper complex. Mangroves are EFH for members of the snapper/grouper complex. The SAFMC provides detailed information on federally managed fisheries and their EFH in amendments to fishery management plans and in the Fishery Ecosystem Plan of the South Atlantic Region (available on-line at <a href="http://www.safmc.net">www.safmc.net</a>).</p> <p>The NMFS also notes that mangroves, seagrass and other benthic habitats in this area provide nursery, foraging, and refuge habitat for other commercially and recreationally important fish such as snook (<i>Centropomus undecimalis</i>), tarpon (<i>Megalops atlanticus</i>), jacks (<i>Cariacidae</i>) and a variety of coastal migratory pelagics. Seagrass and mangroves help maintain water quality (eg. pollution uptake), stabilize sediments, attenuate wave action, and produce and export detritus (decaying organic material), an important component of marine and estuarine food chains.</p> <p>Endangered Species Act: Threatened Johnson's seagrass may be present at the project site and the area is designated critical habitat for Johnson's seagrass. Other ESA listed species that may be present include hawksbill sea turtles (<i>Eretmochelys imbricata</i>), loggerhead sea turtles (<i>Caretta caretta</i>), green sea turtles (<i>Chelonia mydas</i>), Kemp's ridley sea turtles (<i>Lepidochelys kempi</i>), leatherback sea turtles (<i>Dermochelys coriacea</i>), smalltooth sawfish (<i>Pristis pectinata</i>), Nassau grouper (<i>Epinephelus striatus</i>), and the seven species of ESA listed corals. Effects determinations must be made by the action agency. Please coordinate closely with the U.S. Fish and Wildlife Service for other species listed under the Endangered Species Act that may require consultation.</p> <p>Comments on Effects to Resources: Comments on effects to resources:</p> <p>Hardbottom, coral, sand and shell bottom, mangroves and seagrass habitats are critical for maintaining viable fisheries in southeastern Florida. These habitats provide an important linkage between estuaries and offshore reefs for ecologically, commercially, or recreationally important species. The Beach Corridor Rapid Transit Project may permanently impact EFH by filling or by mechanical removal of habitat during construction. Removal, replacement or modification of hard structure materials (bridge, pilings, bulkheads, riprap) may impact hermatypic corals and sponges that have colonized these structures. In addition, secondary impacts may result from sedimentation, shading, and equipment operation associated with the project.</p> <p>Benthic surveys should be conducted to document and characterize all habitats within the project area including mangroves, seagrass, sand and shell bottom, corals, macro algae, and sponges. The number, size (in centimeters) and species of corals and sponges at the project site should be obtained by conducting a benthic resources survey. This survey will be used to determine the size and numbers of corals that should be relocated. Additionally, FDOT may consider relocation of barrel sponges at the site as a minimization effort. Gilliam et al. (2008), found that giant barrel sponges can be reattached. Less mitigation may be required if sponges and corals are relocated.</p> <p>With construction, impervious surface area may be replaced or expanded. Surface and stormwater runoff into the surrounding waters and Biscayne Bay may result. The discharge of hydrocarbons and other contaminants may degrade water quality. Subsequently, NOAA trust resources located in the receiving waters could be adversely affected. To the extent practicable, runoff from the new bridge should be treated before discharged into the bay.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Recommended avoidance, minimization, and mitigation opportunities:</p> <p>Based on the project location, information provided through ETDM, the site visit, and aerial photographic interpretation, NMFS concludes the proposed work will directly impact areas that support essential fish habitat (EFH), HAPC, and NOAA trust fishery resources. To ensure adequate conservation and impact avoidance, NMFS recommends that the following measures be implemented as project development progresses to PD&amp;E, design, and construction:</p> <p>1) Adverse impacts to EFH should be sequentially avoided and/or minimized, and unavoidable impacts should be offset in a</p>		<p>FDEP notes that there are 172.45 acres of continuous seagrass beds and 69.84 acres of discontinuous seagrass beds within 500 feet of the project corridor. Coastal wetlands, primarily mangrove fringe wetlands composed of white mangroves, are present along I-195/Julia Tuttle Causeway and SR A1A/MacArthur Causeway. We note that there are no freshwater or coastal wetlands along the corridor alignments on the Miami mainland or on the main barrier island of Miami Beach.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Wetlands and Surface Waters (Continued)	SFWMD	Permit Required	Substantial	<p>Coordination Document Comments: The project will require an Environmental Resource Permit from the South Florida Water Management District (SFWMD) in accordance with Rule 62-330.054, Florida Administrative Code (FAC). Please contact the SFWMD to schedule a pre-application meeting with staff.</p> <p>Direct Effects</p> <p>Identified Resources and Level of Importance: Wetlands and surface waters within the project area are located within the Biscayne Bay Aquatic Preserve, which is designated as Outstanding Florida Waters.</p> <p>Coastal wetlands (primarily mangrove fringe wetlands) are present along both the Julia Tuttle Causeway (I-195) and the MacArthur Causeway (I-395).</p> <p>Surface waters within the project area may contain benthic resources such as seagrasses, corals and hard bottom communities.</p> <p>Comments on Effects to Resources: The SFWMD concurs with the assignment of a substantial degree of effect to wetlands and surface waters resources.</p> <p>Ownership documentation of the submerged lands within the project area would be required, in accordance with Chapter 18-21, FAC. If FDOT has existing sovereign submerged lands leases and/or easements, please provide copies, in accordance with Chapter 18-21, FAC. FDOT may need to obtain sovereign submerged lands authorization (i.e. new easement or easement modification) for the project, in accordance with Chapter 18-21, FAC.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Reasonable assurance is required to be provided which demonstrates that the project has been designed and will be constructed in a manner to reduce or eliminate wetlands and other surface water resources direct and secondary impacts, in accordance with the Environmental Resource Permit Applicant's Handbook Volume I, subsection 10.2.1 (AH I, 10.2.1).</p> <p>To ensure that proposed construction activities do not degrade adjacent preserved wetlands and other surface waters, some of which are designated as Outstanding Florida Waters, temporary silt and turbidity control would need to be implemented around the limits of construction, in accordance with AH I, 11.0.</p> <p>In addition, a water quality monitoring program for turbidity would be required, in accordance with AH I, 11.0.</p> <p>Additional Comments (optional): The project will require an Environmental Resource Permit from the South Florida Water Management District (SFWMD) in accordance with Rule 62-330.054, Florida Administrative Code (FAC). Please contact the SFWMD to schedule a pre-application meeting with staff.</p>	Substantial	<p>An Environmental Resource Permit from the SFWMD will be required for the project. In addition, ownership documentation of the submerged lands within the project area will be required. If there are existing sovereign submerged lands leases and/or easements, copies should be provided to the SFWMD. A new easement or an easement modification may be required for the project.</p> <p>The USACE notes that the project crosses the Atlantic Intracoastal Waterway and will, therefore, require a Section 408 review. A benthic survey and wetland jurisdictional determination should be conducted. The USACE recommends a continued emphasis on wetland avoidance and minimization opportunities throughout the planning process. The USACE RIBITS indicates that the project is not in the service area of federally approved mitigation banks or in-lieu fee programs. Permittee responsible on-site mitigation options should be considered ear in the project development and planning phases. Although the USACE mentions an Individual Permit, there is a possibility that a Nationwide 3 (Maintenance) combined with a Nationwide 15 (US Coast Guard Approved Bridges) could be used. The DTPW anticipates that the US Coast Guard will be the lead federal permitting agency for the project.</p> <p>The EPA recommends that stormwater runoff be diverted from Biscayne Bay and the collection and treatment of stormwater is maximized. Comments regarding Essential Fish Habitat from USEPA and NMFS will be addressed in the Coastal and Marine issue section.</p> <p>Based on the agency comments, a Summary Degree of Effect of Substantial was assigned for the Wetlands and Other Surface Waters issue. During the Project Development phase, potential wetland impacts will be assessed through a Natural Resources Evaluation conducted in accordance with Part 2, Chapter 9 of the FDOT PD&amp;E Manual. All necessary measures will be taken to avoid and/or minimize impacts to wetlands during project development. Should avoidance and/or minimization not be practicable, a Mitigation Plan will be prepared. Best management practices will be utilized during construction and compensatory mitigation will be provided in the event that any adverse wetland impacts are identified. In addition, all applicable permits will be obtained or modified in accordance with federal, state, and local laws and regulations. Further, the proposed stormwater management system for the project will be developed to meet the design and performance criteria established in the SFWMD ERP Applicant's Handbook Volumes I and II for the treatment and attenuation of discharges to nearby waterbodies. The design will also make every effort to maximize the treatment of stormwater runoff from the proposed project.</p>
Water Quality and Quantity	USEPA	To Be Determined: Further Coordination Required	Substantial	<p>Coordination Document Comments: Technical Memorandum: Sole Source Aquifer Impact Determination Detailed protection measures for these resources as the project continues into future phases of development</p> <p>Direct Effects</p> <p>Identified Resources and Level of Importance: Important measures of water quality include clarity, eutrophication, chemical and biological contamination. Human activities have highly influenced water quality trends in most of the estuaries and coastal environments. Water quality impacts caused by multiple natural and human factors can be additive and/or cumulative. FDOT acknowledges in its Preliminary Environmental Discussion comments that the Beach Corridor Rapid Transit Project corridor is located within the Biscayne Aquifer (Sole Source Aquifer), the Biscayne Bay (Outstanding FL Water), and 4 verified impaired waterbodies. Therefore, EPA assigns a Substantial Degree of effect to Water Quality and Quantity.</p> <p>Comments on Effects to Resources: Accidental or intentional release of contaminants can be traced to population centers and urban-associated discharges, industrial, military and transportation activities. Pollutants such as heavy metals, volatile organic chemicals, petroleum hydrocarbons, and suspended solids degrade near-by water bodies. Contaminants can increase the turbidity of a water body. Turbid waters heat more rapidly when exposed to sunlight and decrease primary production and dissolved oxygen levels. Therefore, there is a potential for an increase in water degradation.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: EPA acknowledges the proposed practices that FDOT stated in its Preliminary Environmental Discussion comment to minimize water quality impacts through drainage and storm water management systems that will ensure water quality and treatment and attenuation requirements for storm water discharges by the Miami-Dade Code and/or South Florida Water Management District criteria and accommodate any increase in impervious surface, and a Storm water Prevention Plan to ensure the use of best management practices during construction. Therefore, the EPA recommends that FDOT identify and quantify incremental and cumulative impacts on water quality as a result of the past, present, and reasonably foreseeable actions, including the proposed project and other land use actions.</p> <p>Additional Comments (optional): Technical Memorandum: Sole Source Aquifer Impact Determination Detailed protection measures for these resources as the project continues into future phases of development</p>	Substantial	<p>The EPA notes that the project is located in the Biscayne Aquifer, a Sole Source Aquifer, the Biscayne Bay, an Outstanding Florida Water, and four verified impaired waterbodies. (Of note in the PED is that Biscayne Bay is verified impaired for chlorophyll-a, a plant-based nutrient.) The EPA states that there is a potential for an increase in water degradation and recommends that incremental and cumulative impacts on water quality as a result of past, present and reasonably foreseeable actions be identified and quantified.</p> <p>The FDEP notes that Outstanding Florida Waters are afforded the highest level of protection and no degradation of water is permitted, other than that allowed in subsections 62-4.242(2) and (3), F.A.C. Biscayne Bay is protected under the Aquatic Preserve Rules 18-18 and 18-20, F.A.C. The SFWMD notes that an Environmental Resource Permit will be required and that the project will need to be designed to meet the water quality and quantity criteria of the ERP Applicant's Handbook Volumes I and II. Additional and more stringent stormwater treatment requirements of discharge into both impaired waters and designated Outstanding Florida Waters are required to meet state water quality and quantity standards. Additional recommendations for construction and operation of the project were provided.</p> <p>Due to the more stringent stormwater treatment requirements of discharge into impaired waters, an Aquatic Preserve and Outstanding Florida Waters, a Summary Degree of Effect of Substantial was assigned for the Water Quality and Quantity issue. During the Project Development phase, DTPW will coordinate with the appropriate agencies concerning the necessary studies, documentation, and commitments needed to adequately address the identified issues. The proposed stormwater facility system will be designed to meet the water quality and quantity criteria established by rule and in the SFWMD ERP Applicant's Handbook Volumes I and II for discharges into impaired waterbodies, Biscayne Bay Aquatic Preserve and Outstanding Florida Waters. The design will maximize the containment and treatment of stormwater runoff from the proposed project. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented during construction to control turbidity and the effects of stormwater runoff. A Water Quality Impact Evaluation Checklist will be completed in accordance with Part 2, Chapter 11 of the FDOT PD&amp;E Manual. The DTPW will additionally complete the Sole Source Aquifer Checklist from Part 2, Chapter 11 of the FDOT PD&amp;E Manual given the potential impacts to the Biscayne Aquifer. All necessary permits will be obtained in accordance with federal, state, and local laws and regulations during subsequent phases of development.</p>
	USEPA	To Be Determined: Further Coordination Required				



Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Water Quality and Quantity (Continued)	FDEP	PD&E Support Document as per PD&E Manual	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: Biscayne Bay is designated an aquatic preserve and Outstanding Florida Waters (OFW) under Rules 18-18 and 62-302.700(9), Florida Administrative Code. Any increase in stormwater runoff from the new bridges or other impervious surfaces would be of concern. We recommend that the study include an evaluation of existing bridge/causeway stormwater treatment adequacy and details on the future stormwater treatment facilities. Retro-fitting of stormwater conveyance systems would help reduce impacts to water quality.</p> <p>Comments on Effects to Resources: The aquatic preserve designation requires that the bay be managed primarily for the maintenance of natural conditions, the propagation of fish and wildlife, and public recreation [Rule 18-20, F.A.C.]. In accordance with Section 373.414(1), F.S., direct impacts to OFWs must be demonstrated to be "clearly in the public interest" as part of the ERP permitting process. OFWs are afforded the highest level of protection, and no degradation of water quality - other than that allowed in subsections 62-4.242(2) and (3), F.A.C. - is permitted. The ERP permit applicant may be required to demonstrate that the proposed bridge/causeway stormwater system meets the design and performance criteria established for the treatment and attenuation of discharges to OFWs under Rule 40E-4, F.A.C., and the SFWMD Basis of Review for ERP Applications</p>	Substantial	<p>The EPA notes that the project is located in the Biscayne Aquifer, a Sole Source Aquifer, the Biscayne Bay, an Outstanding Florida Water, and four verified impaired waterbodies. (Of note in the PED is that Biscayne Bay is verified impaired for chlorophyll-a, a plant-based nutrient.) The EPA states that there is a potential for an increase in water degradation and recommends that incremental and cumulative impacts on water quality as a result of past, present and reasonably foreseeable actions be identified and quantified.</p> <p>The FDEP notes that Outstanding Florida Waters are afforded the highest level of protection and no degradation of water is permitted, other than that allowed in subsections 62-4.242(2) and (3), F.A.C. Biscayne Bay is protected under the Aquatic Preserve Rules 18-18 and 18-20, F.A.C. The SFWMD notes that an Environmental Resource Permit will be required and that the project will need to be designed to meet the water quality and quantity criteria of the ERP Applicant's Handbook Volumes I and II. Additional and more stringent stormwater treatment requirements of discharge into both impaired waters and designated Outstanding Florida Waters are required to meet state water quality and quantity standards. Additional recommendations for construction and operation of the project were provided.</p> <p>Due to the more stringent stormwater treatment requirements of discharge into impaired waters, an Aquatic Preserve and Outstanding Florida Waters, a Summary Degree of Effect of Substantial was assigned for the Water Quality and Quantity issue. During the Project Development phase, DTPW will coordinate with the appropriate agencies concerning the necessary studies, documentation, and commitments needed to adequately address the identified issues. The proposed stormwater facility system will be designed to meet the water quality and quantity criteria established by rule and in the SFWMD ERP Applicant's Handbook Volumes I and II for discharges into impaired waterbodies, Biscayne Bay Aquatic Preserve and Outstanding Florida Waters. The design will maximize the containment and treatment of stormwater runoff from the proposed project. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented during construction to control turbidity and the effects of stormwater runoff. A Water Quality Impact Evaluation Checklist will be completed in accordance with Part 2, Chapter 11 of the FDOT PD&amp;E Manual. The DTPW will additionally complete the Sole Source Aquifer Checklist from Part 2, Chapter 11 of the FDOT PD&amp;E Manual given the potential impacts to the Biscayne Aquifer. All necessary permits will be obtained in accordance with federal, state, and local laws and regulations during subsequent phases of development.</p>
	SFWMD	Permit Required	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: Wetlands and surface waters within the project area are located in the Biscayne Bay Aquatic Preserve which is designated as Outstanding Florida Waters.</p> <p>Comments on Effects to Resources: SFWMD concurs with the assignment of a moderate degree of effect, provided that the project is designed to meet the stormwater water quality and quantity criteria of the ERP Applicant's Handbook Vols. I &amp; II, including Appendix E of Vol. II pertaining to Impaired Waters criteria.</p> <p>To avoid degradation of water quality during construction and operation of the project, the design would need to meet the criteria in ERP Applicant's Handbook Volume I and II.</p> <p>Moderate involvement regarding water quality and quantity is anticipated due to: 1) additional and more stringent stormwater treatment requirements of discharge into both impaired waters and designated Outstanding Florida Waters to meet state water quality and quantity standards; and 2) potential impacts from construction related disturbances.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: The construction and operation of the project cannot contribute to impaired water bodies for those water quality parameters which are impaired.</p> <p>To ensure that proposed construction activities do not degrade adjacent preserved wetlands and other surface waters, some of which are designated as Outstanding Florida Waters, temporary silt turbidity control would need to be implemented around the limits of construction, in accordance with AH I, 11.0.</p> <p>In addition, a water quality monitoring program for turbidity would be required, in accordance with AH I, 11.0.</p> <p>Additional Comments (optional): An Environmental Resource Permit would be required from the South Florida Water Management District. A pre-application meeting with the SFWMD is recommended.</p>		
Floodplains	SFWMD	Permit Required	Minimal	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: Impacts to floodplain storage need to be compensated per ERP Applicant's Handbook Volume II.</p> <p>Comments on Effects to Resources: No comment.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Additional Comments (optional): An Environmental Resource Permit is required. A pre-application meeting is recommended.</p>	Minimal	<p>According to the DFIRM 100-Year Floodplain Data, 58.75% of the 200-foot project buffer is located within a 100-year floodplain (54.24% in Zone AE and 4.51% in Zone VE) and 41.25% of the area in the 200-foot project buffer is outside the 100-year floodplain. SFWMD stated that an Environmental Resource Permit (ERP) is required and impacts to floodplain storage need to be compensated per the ERP Applicant's Handbook Volume II. SFWMD added that a pre-application meeting is recommended. Due to the amount of area within Special Flood Hazard Areas, a Summary Degree of Effect of Minimal has been assigned to Floodplain issue.</p> <p>All necessary permits will be obtained in accordance with federal, state, and local laws and regulations. In addition, impacts to floodplain storage will be compensated in accordance with the SFWMD ERP Applicant's Handbook Volumes I &amp; II.</p>
				<p>Direct Effects</p> <p>Identified Resources and Level of Importance: An assessment of the project area was performed on lands within 500 feet of the proposed project to determine potential impacts to habitat which supports listed species and other fish and wildlife resources. Our inventory included a review of aerial and ground-level photography, various wildlife observation and landcover data bases, along with coordination with FWC biologists and other State and Federal agencies. A GIS analysis was performed using FDOT's Environmental Screening Tool to determine the potential quality and extent of upland and wetland habitat, and other wildlife and fisheries resource information. We have reviewed the Preliminary Environmental Discussion Comments Report provided by FDOT and offer the following comments and recommendations.</p> <p>Based on range and preferred habitat type, the following fish and wildlife species listed by the Federal Endangered Species Act and the State of Florida as Federally Endangered (FE), Federally Threatened (FT), or State-Threatened (ST) have the potential to occur in the project area: smalltooth sawfish (FE), American crocodile (FE), green sea turtle (FT), hawksbill sea turtle (FE), loggerhead sea turtle (FT), boulder star coral (FT), elkhorn coral (FT), lobed star coral (FT), mountainous star coral (FT), pillar coral (FT), rough cactus coral (FT), staghorn coral (FT), Eastern indigo snake (FT), piping plover (FT), rufa red knot (FT), wood stork (FE), Florida manatee (FT), Florida bonneted bat (FE), least tern (FT), snowy plover (ST), reddish egret (ST), little blue heron (ST), tricolored heron (ST), and roseate spoonbill (ST). The aquatic and wetland species are either likely to or will potentially use appropriate habitats in the vicinity of the Biscayne Bay causeways.</p> <p>Our assessment reveals that the project area landcover is entirely urban except for Biscayne Bay and adjacent waters, which provide valuable fish and wildlife habitat and are our primary concern for the potential impacts of this project. Although the Tier One analysis only considered potential rapid transit across the MacArthur Causeway, future studies will also look at the Julia Tuttle Causeway.</p> <p>Both are within the Biscayne Bay Aquatic Preserve, Critical Habitat for the Florida Manatee and Johnson's Seagrass, FWC Manatee Protection Zones, and the Consultation Areas for American Crocodile, Florida Bonneted Bat, Piping Plover, Florida Manatee, and Atlantic Coast Plants. There are continuous and discontinuous seagrass beds adjacent</p>		

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Wildlife and Habitat	FFWCC	To Be Determined: Further Coordination Required	Substantial	<p>Primary wildlife issues associated with this project include: potential loss or adverse impact to seagrass and other aquatic habitat resulting from in-water project works; potential loss or adverse impact to marine aquatic species such as coral and other benthic species via substrate removal and sedimentation/turbidity; potential for injury to manatees, sea turtles, and other aquatic life during in-water construction operations; potential adverse effects to a moderate number of species listed by the Federal Endangered Species Act as Endangered or Threatened, or by the State of Florida as Threatened; and potential for water quality impacts during construction and operation. Most of the potential for adverse impact is associated with in-water construction operations.</p> <p>Comments on Effects to Resources:</p> <p>Primary wildlife issues associated with this project include: potential loss or adverse impact to seagrass and other aquatic habitat resulting from in-water project works; potential loss or adverse impact to marine aquatic species such as coral and other benthic species via substrate removal and sedimentation/turbidity; potential for injury to manatees, sea turtles, and other aquatic life during in-water construction operations; potential adverse effects to a moderate number of species listed by the Federal Endangered Species Act as Endangered or Threatened, or by the State of Florida as Threatened; and potential for water quality impacts during construction and operation. Most of the potential for adverse impact is associated with in-water construction operations.</p> <p>Based on the project information provided, FWC staff have determined that direct and indirect effects of this project on wildlife resources could be minimal if the bus rapid transit alternative is utilized for the Bay Crossing sub-area, since in-water work could be avoided. Alternatives that require new bridge construction and possibly fill along the causeway shorelines could have a substantial degree of effect.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities:</p> <p>FWC staff recommend that the PD&amp;E Study address natural resources by including the following measures for conserving fish and wildlife and habitat resources that may occur within and adjacent to the project area.</p> <p>1.Plant community mapping and wildlife surveys for the occurrence of fish and wildlife species listed by the Federal Endangered Species Act as Endangered or Threatened, or by the State of Florida as Threatened or Species of Special Concern are recommended. Basic guidance for conducting wildlife surveys may be found in the FWC's Florida Wildlife Conservation Guide at: <a href="http://myfwc.com/conservation/value/fwgc/">http://myfwc.com/conservation/value/fwgc/</a>. Benthic areas and submerged structures around the causeways proposed for in-water work are recommended to be surveyed and mapped for seagrass beds, hard bottom, and hard bottom-associated species such as coral, octocoral, sponges, etc.</p> <p>2.Based on the survey results, FWC staff recommend a plan be developed to address direct, indirect, and cumulative effects of the project on fish, wildlife and habitat resources, including state-listed species. Avoidance, minimization, and compensatory mitigation measures should also be formulated and implemented. Equipment staging areas can be located in previously disturbed sites to avoid habitat destruction or degradation. Project planning is recommended to address specific habitat needs which are biologically compatible with the recovery of the target species. For guidance in this effort, consult FWC's Species Action Plans for state-listed species at: <a href="http://myfwc.com/wildlifehabitats/imperiled/species-action-plans/">http://myfwc.com/wildlifehabitats/imperiled/species-action-plans/</a>.</p> <p>3.Since information is not yet available on required in-water work, including project construction seasons, length or duration and methods, only general avoidance and minimization measures for manatees and sea turtles can be recommended at this time. Based on currently available information, protection measures that may be needed include, but are not limited to, Standard Manatee Conditions for In-Water Work, presence of manatee/sea turtle observers during in-water work, and no nighttime work. Further coordination with our agency will be necessary to determine specific measures for this project. For technical assistance and coordination on manatees and sea turtles, please contact the FWC Imperiled Species Management Section in Tallahassee at <a href="mailto:imperiledspecies@myfwc.com">imperiledspecies@myfwc.com</a> or (850) 922-4330 early in the planning process.</p> <p>4.Due to the presence of sea turtle nesting beaches nearby, staff recommends that the project consider potential impacts to marine turtles and their habitat due to artificial light pollution. Specifically, all permanent lighting is recommended to use light fixtures that do not allow short wavelength (white) light to be directly, reflectively, or cumulatively visible from the nesting beach. To accomplish this, all fixtures should be full-cutoff (well shielded) fixtures that direct light downward only. FWC has lighting guidelines for sea turtles, and staff recommend that a lighting plan be developed that is consistent with these guidelines. Technical assistance by FWC staff to help in lighting plan development can be requested at <a href="mailto:MarineTurtle@myfwc.com">MarineTurtle@myfwc.com</a>.</p> <p>5.The proposed project is in an area where smalltooth sawfish may occur. The smalltooth sawfish is a federally-listed endangered species pursuant to the Endangered Species Act, and the potential "take" of this species associated with this project may only be authorized by the National Marine Fisheries Service (NMFS) and/or the USFWS. FWC defers to NMFS and USFWS on permitting, and requests that DTPW take into consideration any project-specific permit conditions, comments, recommendations and Biological Opinions regarding smalltooth sawfish that NMFS and/or USFWS may provide for federal permitting activities associated with this project.</p> <p>6.Every effort should be made to avoid and minimize any impacts to seagrass habitats. If needed once avoidance and minimization efforts have been made, compensatory mitigation for seagrass impacts are recommended to be determined via interagency coordination. Seagrass planting projects can yield less than the desired results, which has been frequently experienced because of avoidable problems with project design. The FWC's Fish and Wildlife Research Institute has evaluated seagrass restoration techniques and can provide technical assistance in the design of a mitigation project. The Seagrass Research Team in St. Petersburg can be contacted at (727) 896-8626, or technical assistance can be provided by staff identified at the close of this memo.</p> <p>7.FWC staff recommend that a compensatory mitigation plan include the replacement of any wetland, upland, or aquatic habitat functional values for listed species which are lost because of the project. Replacement habitat for mitigation should be type for type, as productive, and equal to or of higher functional value. Please notify FWC staff as soon as the design, extent, or footprint of the current project is modified to allow for the opportunity to provide</p>	Moderate	<p>The USFWS noted the following federally listed species have the potential to occur near the project site: American crocodile, Florida bonneted bat, piping plover, West Indian manatee and Federally listed plants. They recommend Florida bonneted bat surveys if suitable habitat occurs near the project footprint and preparation of a Biological Assessment for the project.</p> <p>In addition to the species listed above, the Florida Fish and Wildlife Conservation Commission (FWC) identified the potential occurrence of the following federal and State-listed species in the project area: smalltooth sawfish (FE), green sea turtle (FE), hawksbill sea turtle (FE), loggerhead sea turtle (FT), boulder star coral (FT), elkhorn coral (FT), lobed star coral (FT), mountainous star coral (FT), pillar coral (FT), rough cactus coral (FT), staghorn coral (FT), Eastern indigo snake (FT), rufa red knot (FT), wood stork (FE), least tern (FT), snowy plover (ST), reddish egret (ST), little blue heron (ST), tricolored heron (ST), and roseate spoonbill (ST). The FWC also notes that Biscayne Bay Aquatic Preserve is Critical Habitat for the Florida manatee and Johnson's seagrass. The FWC provides several recommendations for conserving fish and wildlife resources that may occur near the project area. Their biggest concern for potential adverse impacts is associated with in-water construction operations.</p> <p>The SFWMD also notes that Johnson' seagrass may be present in the project area as well as mangrove fringe wetlands habitat, seagrass habitat and hardbottom habitat. Reasonable assurance is required which demonstrates that the construction and operation of the project will not cause adverse impacts to the abundance and diversity of listed species or adverse impacts to the habitat of fish, wildlife and listed species.</p> <p>The final design of the project will avoid and/or minimize impacts to wetlands and other habitat to the greatest extent practicable and appropriate mitigation will be provided for unavoidable impacts. Because there are standard construction conditions for the protection of listed species that will be utilized during construction activities, a Summary Degree of Effect of Moderate was assigned to the Wildlife and Habitat issue. During the Project Development phase, a Natural Resources Evaluation, to include a Protected Species and Habitat Evaluation in accordance with Part 2, Chapter 16 of the PD&amp;E Manual, will be prepared. Further, informal consultation with USFWS, NMFS, FWC, USACE and SFWMD will occur during the Project Development phase in order to determine site-specific measures required for the project.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Wildlife and Habitat (Continued)	FFWCC (Continued)	To Be Determined: Further Coordination Required	Substantial	<p>Due to the design, extent, or footprint of the current project is intended to leave for the opportunity to provide additional comments and/or recommendations.</p> <p>We appreciate the opportunity to provide input on highway design and the conservation of fish and wildlife resources. Please contact Brian Barnett at (772) 579-9746 or email <a href="mailto:brian.barnett@MyFWC.com">brian.barnett@MyFWC.com</a> and <a href="mailto:conservationplanningservices@myfwc.com">conservationplanningservices@myfwc.com</a> to initiate the process for further overall coordination on this project.</p>	Moderate	<p>The USFWS noted the following federally listed species have the potential to occur near the project site: American crocodile, Florida bonneted bat, piping plover, West Indian manatee and Federally listed plants. They recommend Florida bonneted bat surveys if suitable habitat occurs near the project footprint and preparation of a Biological Assessment for the project.</p> <p>In addition to the species listed above, the Florida Fish and Wildlife Conservation Commission (FWC) identified the potential occurrence of the following federal and State-listed species in the project area: smalltooth sawfish (FE), green sea turtle (FT), hawksbill sea turtle (FE), loggerhead sea turtle (FT), boulder star coral (FT), elkhorn coral (FT), lobed star coral (FT), mountainous star coral (FT), pillar coral (FT), rough cactus coral (FT), staghorn coral (FT), Eastern indigo snake (FT), rufa red knot (FT), wood stork (FE), least tern (FT), snowy plover (ST), reddish egret (ST), little blue heron (ST), tricolored heron (ST), and roseate spoonbill (ST). The FWC also notes that Biscayne Bay Aquatic Preserve is Critical Habitat for the Florida manatee and Johnson's seagrass. The FWC provides several recommendations for conserving fish and wildlife resources that may occur near the project area. Their biggest concern for potential adverse impacts is associated with in-water construction operations.</p> <p>The SFWMD also notes that Johnson's seagrass may be present in the project area as well as mangrove fringe wetlands habitat, seagrass habitat and hardbottom habitat. Reasonable assurance is required which demonstrates that the construction and operation of the project will not cause adverse impacts to the abundance and diversity of listed species or adverse impacts to the habitat of fish, wildlife and listed species.</p> <p>The final design of the project will avoid and/or minimize impacts to wetlands and other habitat to the greatest extent practicable and appropriate mitigation will be provided for unavoidable impacts. Because there are standard construction conditions for the protection of listed species that will be utilized during construction activities, a Summary Degree of Effect of Moderate was assigned to the Wildlife and Habitat issue. During the Project Development phase, a Natural Resources Evaluation, to include a Protected Species and Habitat Evaluation in accordance with Part 2, Chapter 16 of the PD&amp;E Manual, will be prepared. Further, informal consultation with USFWS, NMFS, FWC, USACE and SFWMD will occur during the Project Development phase in order to determine site-specific measures required for the project.</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Wildlife and Habitat (Continued)	FFWCC (Continued)	To Be Determined: Further Coordination Required			Moderate	<p>The USFWS noted the following federally listed species have the potential to occur near the project site: American crocodile, Florida bonneted bat, piping plover, West Indian manatee and Federally listed plants. They recommend Florida bonneted bat surveys if suitable habitat occurs near the project footprint and preparation of a Biological Assessment for the project.</p> <p>In addition to the species listed above, the Florida Fish and Wildlife Conservation Commission (FWC) identified the potential occurrence of the following federal and State-listed species in the project area: smalltooth sawfish (FE), green sea turtle (FT), hawksbill sea turtle (FE), loggerhead sea turtle (FT), boulder star coral (FT), elkhorn coral (FT), lobed star coral (FT), mountainous star coral (FT), pillar coral (FT), rough cactus coral (FT), staghorn coral (FT), Eastern indigo snake (FT), rufa red knot (FT), wood stork (FE), least tern (FT), snowy plover (ST), reddish egret (ST), little blue heron (ST), tricolored heron (ST), and roseate spoonbill (ST). The FWC also notes that Biscayne Bay Aquatic Preserve is Critical Habitat for the Florida manatee and Johnson's seagrass. The FWC provides several recommendations for conserving fish and wildlife resources that may occur near the project area. Their biggest concern for potential adverse impacts is associated with in-water construction operations.</p> <p>The SFWMD also notes that Johnson's seagrass may be present in the project area as well as mangrove fringe wetlands habitat, seagrass habitat and hardbottom habitat. Reasonable assurance is required which demonstrates that the construction and operation of the project will not cause adverse impacts to the abundance and diversity of listed species or adverse impacts to the habitat of fish, wildlife and listed species.</p> <p>The final design of the project will avoid and/or minimize impacts to wetlands and other habitat to the greatest extent practicable and appropriate mitigation will be provided for unavoidable impacts. Because there are standard construction conditions for the protection of listed species that will be utilized during construction activities, a Summary Degree of Effect of Moderate was assigned to the Wildlife and Habitat issue. During the Project Development phase, a Natural Resources Evaluation, to include a Protected Species and Habitat Evaluation in accordance with Part 2, Chapter 16 of the PD&amp;E Manual, will be prepared. Further, informal consultation with USFWS, NMFS, FWC, USACE and SFWMD will occur during the Project Development phase in order to determine site-specific measures required for the project.</p>
Wildlife and Habitat	USFWS	To Be Determined: Further Coordination Required	Moderate	<p><b>Direct Effects</b> Identified Resources and Level of Importance: Federally listed species and fish and wildlife resources</p> <p><b>Comments on Effects to Resources:</b> Federally-listed species -</p> <p>The Service has reviewed our Geographic Information Systems (GIS) database for recorded locations of federally listed threatened and endangered species on or adjacent to the project study area. The GIS database is a compilation of data received from several sources. Based on review of our GIS database, the Service notes that the following federally listed species may occur in or near the project area.</p> <p>Florida bonneted bat</p> <p>The project is located in the geographic range of the endangered Florida bonneted bat (<i>Eumops floridanus</i>). If suitable habitat occurs within or near the project footprint, we recommend that surveys (both roosting and acoustic), based on the Service's guidance, be conducted to determine the status of the Florida bonneted bat.</p> <p>The Service believes that the following federally listed species have the potential to occur in or near the project site: American crocodile (<i>Crocodylus acutus</i>), Florida bonneted bat, piping plover (<i>Charadrius melodus</i>), West Indian manatee (<i>Trichechus manatus</i>) and Federally listed plants (<a href="http://www.fws.gov/verobeach/ListedSpeciesPlants.html">http://www.fws.gov/verobeach/ListedSpeciesPlants.html</a>). Accordingly, the Service recommends that the Florida Department of Transportation (FDOT) prepare a Biological Assessment for the project (as required by 50 CFR 402.12) during the FDOT's Project Development and Environment process.</p> <p><b>Fish and Wildlife Resources -</b></p> <p>The project footprint occurs within or adjacent to Biscayne Bay, an area that contains valuable marine wetlands. The marine wetlands that have the potential to be impacted provide important habitat for a variety of species including seagrasses, mangroves, benthic organisms and fish. We recommend that these valuable resources be avoided to the greatest extent practicable. If impacts to marine wetlands and resources are unavoidable, we recommend the Florida Department of Transportation provide mitigation that fully compensates for the loss of important resources.</p>	Moderate	<p>The USFWS noted the following federally listed species have the potential to occur near the project site: American crocodile, Florida bonneted bat, piping plover, West Indian manatee and Federally listed plants. They recommend Florida bonneted bat surveys if suitable habitat occurs near the project footprint and preparation of a Biological Assessment for the project.</p> <p>In addition to the species listed above, the Florida Fish and Wildlife Conservation Commission (FWC) identified the potential occurrence of the following federal and State-listed species in the project area: smalltooth sawfish (FE), green sea turtle (FT), hawksbill sea turtle (FE), loggerhead sea turtle (FT), boulder star coral (FT), elkhorn coral (FT), lobed star coral (FT), mountainous star coral (FT), pillar coral (FT), rough cactus coral (FT), staghorn coral (FT), Eastern indigo snake (FT), rufa red knot (FT), wood stork (FE), least tern (FT), snowy plover (ST), reddish egret (ST), little blue heron (ST), tricolored heron (ST), and roseate spoonbill (ST). The FWC also notes that Biscayne Bay Aquatic Preserve is Critical Habitat for the Florida manatee and Johnson's seagrass. The FWC provides several recommendations for conserving fish and wildlife resources that may occur near the project area. Their biggest concern for potential adverse impacts is associated with in-water construction operations.</p> <p>The SFWMD also notes that Johnson's seagrass may be present in the project area as well as mangrove fringe wetlands habitat, seagrass habitat and hardbottom habitat. Reasonable assurance is required which demonstrates that the construction and operation of the project will not cause adverse impacts to the abundance and diversity of listed species or adverse impacts to the habitat of fish, wildlife and listed species.</p> <p>The final design of the project will avoid and/or minimize impacts to wetlands and other habitat to the greatest extent practicable and appropriate mitigation will be provided for unavoidable impacts. Because there are standard construction conditions for the protection of listed species that will be utilized during construction activities, a Summary Degree of Effect of Moderate was assigned to the Wildlife and Habitat issue. During the Project Development phase, a Natural Resources Evaluation, to include a Protected Species and Habitat Evaluation in accordance with Part 2, Chapter 16 of the PD&amp;E Manual, will be prepared. Further, informal consultation with USFWS, NMFS, FWC, USACE and SFWMD will occur during the Project Development phase in order to determine site-specific measures required for the project.</p>
	FDACS	No Involvement	N/A	No comments.		

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
	SFWMD	Permit Required	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <ul style="list-style-type: none"> <li>-American Crocodile (<i>Crocodylus acutus</i>).</li> <li>-West Indian manatee (<i>Trichechus manatus</i>).</li> <li>Hawksbill sea turtle (<i>Eretmochelys imbricata</i>), Leatherback sea turtle (<i>Dermochelys coriacea</i>), Loggerhead sea turtle (<i>Caretta caretta</i>),</li> <li>Green sea turtle (<i>Chelonia mydas</i>),</li> <li>Kemp's ridley sea turtle (<i>Lepidochelys kempi</i>), Smallooth sawfish (<i>Pristis pectinata</i>), and Johnson's seagrass (<i>Halophila johnsonii</i>).</li> <li>Mangrove fringe wetlands habitat</li> <li>Seagrasses habitat</li> <li>Hard bottom habitat</li> </ul> <p>Comments on Effects to Resources:</p> <p>Reasonable assurance is required to be provided which demonstrates that the construction and operation of the project will not cause adverse impacts to the abundance and diversity of wetland dependent listed species and will not cause adverse impacts to the habitat of fish, wildlife and listed species, in accordance with AH I, 10.2.2.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Additional Comments (optional):</p> <p>An Environmental Resource Permit would be required from the South Florida Water Management District. A pre-application meeting is recommended.</p>		<p>Natural Resources Evaluation, to include a Protected Species and Habitat Evaluation in accordance with Part 2, Chapter 10 of the FDOT Manual, will be prepared. Further, informal consultation with USFWS, NMFS, FWC, USACE and SFWMD will occur during the Project Development phase in order to determine site-specific measures required for the project.</p>
Coastal and Marine	NMFS	Tech Memo Required	Substantial	<p>Direct Effects</p> <p>Identified Resources and Level of Importance:</p> <p>Based on our review of the information provided on the ETDM website, aerial photographic interpretation and a site visit on January 24, 2019, NOAA's National Marine Fisheries Service (NMFS) has determined that sand and shell bottom, corals, macro algae, sponges, mangroves and seagrass occur at the project site. Seagrass has been documented in the area, including Johnson's Seagrass (<i>Halophila johnsonii</i>), which is listed as threatened under the Endangered Species Act (ESA). The project site is located within designated critical habitat for Johnson's Seagrass. These habitats are moderate in quality.</p> <p>The South Atlantic Fishery Management Council (SAFMC) has designated the sand and shell bottom, mangroves, corals, sponge, macro algae, and seagrass as essential fish habitat (EFH). Coral, mangroves and seagrass are Habitat Areas of Particular Concern (HAPC). In addition, Biscayne Bay is geographically designated as an HAPC for Caribbean spiny lobster (<i>Panulirus argus</i>), coral, coral reefs and live/hardbottom. HAPC's are subsets of EFH that are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Biscayne Bay is an Aquatic Preserve, Outstanding Florida Water (OFW), and state designated nursery area. The project study area is connected to Government Cut, making the habitat impacted by this project readily accessible to many federally managed fishery species. Ault et al. (2001), identified over 325 fish and macroinvertebrate species in Biscayne Bay and concluded that the Bay plays an important role as primary nursery area for many coastal bay and coral reef fishes and macroinvertebrates.</p> <p>Federally managed fishery species associated with sand and shell bottom habitat include postlarval, juvenile, and subadult stages of penaeid shrimp; and members of the snapper/grouper complex. The corals, macro algae, and sponges are EFH for spiny lobster and members of the snapper/grouper complex. The seagrass is EFH for penaeid shrimp and members of the snapper/grouper complex. Mangroves are EFH for members of the snapper/grouper complex. The SAFMC provides detailed information on federally managed fisheries and their EFH in amendments to fishery management plans and in the Fishery Ecosystem Plan of the South Atlantic Region (available on-line at <a href="http://www.safmc.net">www.safmc.net</a>).</p> <p>The NMFS also notes that mangroves, seagrass and other benthic habitats in this area provide nursery, foraging, and refuge habitat for other commercially and recreationally important fish such as snook (<i>Centropomus undecimalis</i>), tarpon (<i>Megalops atlanticus</i>), jacks (<i>carangidae</i>) and a variety of coastal migratory pelagics. Seagrass and mangroves help maintain water quality (eg. pollution uptake), stabilize sediments, attenuate wave action, and produce and export detritus (decaying organic material), an important component of marine and estuarine food chains.</p> <p>Endangered Species Act: Threatened Johnson's seagrass may be present at the project site and the area is designated critical habitat for Johnson's seagrass. Other ESA listed species that may be present include hawksbill sea turtles (<i>Eretmochelys imbricata</i>), loggerhead sea turtles (<i>Caretta caretta</i>), green sea turtles (<i>Chelonia mydas</i>), Kemp's ridley sea turtles (<i>Lepidochelys kempi</i>), leatherback sea turtles (<i>Dermochelys coriacea</i>), smallooth sawfish (<i>Pristis pectinata</i>), Nassau grouper (<i>Epinephelus striatus</i>), and the seven species of ESA listed corals. Effects determinations must be made by the action agency. Please coordinate closely with the U.S. Fish and Wildlife Service for other species listed under the Endangered Species Act that may require consultation.</p> <p>Comments on Effects to Resources:</p> <p>Comments on effects to resources:</p> <p>Hardbottom, coral, sand and shell bottom, mangroves and seagrass habitats are critical for maintaining viable fisheries in southeastern Florida. These habitats provide an important linkage between estuaries and offshore reefs for ecologically, commercially, or recreationally important species. The Beach Corridor Rapid Transit Project may permanently impact EFH by filling or by mechanical removal of habitat during construction. Removal, replacement or modification of hard structure materials (bridge, pilings, bulkheads, riprap) may impact hermatypic corals and sponges that have colonized these structures. In addition, secondary impacts may result from sedimentation, shading, and equipment operation associated with the project.</p>	Substantial	<p>The NMFS has determined that sand and shell bottom, macroalgae, corals, sponges, mangroves and seagrass occur in Biscayne Bay, all of which are designated by the South Atlantic Fishery Management Council as Essential Fish Habitat (EFH). Coral, mangroves and seagrass are Habitat Areas of Particular Concern (HAPC). In addition, Biscayne Bay is geographically designated as HAPC for Caribbean spiny lobster, coral, coral reefs and live/hardbottom and is a state designated nursery area for many coastal bay and coral reef fishes and macroinvertebrates. The NMFS provided a list of federally managed fishery species that utilize these habitats for foraging, refuge and as nurseries.</p> <p>In regard to endangered species, the area is designated Critical Habitat for Johnson's seagrass, a threatened species. Other Endangered Species Act (ESA) listed species under the purview of NMFS include hawksbill, loggerhead, green, Kemp's ridley and leatherback sea turtles, smallooth sawfish, Nassau grouper, and the seven species of ESA listed corals.</p> <p>The NMFS recommends that a benthic resources survey be conducted for the project to document and characterize the EFH and HAPC habitats. Additional sequential avoidance, minimization and mitigation opportunities are recommended, including conservation measures, a stormwater management plan and a mitigation plan. It is noted that Biscayne Bay is an Aquatic Preserve, which is an Outstanding Florida Water. The SFWMD also recommends a survey of benthic resources and an evaluation of wetland/marine-dependent threatened/endangered species and species of special concern which may utilize habitat within the project area. Both agencies request early coordination with staff.</p> <p>The SFWMD states that an Environmental Resource Permit will be required. Manatee, sea turtle and smallooth sawfish protection measures will be required. In addition, turbidity control and a water quality monitoring program for turbidity will be required. The SFWMD also requires a mitigation plan.</p> <p>Based on agency comments, a Summary Degree of Effect of Substantial has been assigned to the Coastal and Marine issue. During the Project Development phase, potential impacts to sensitive coastal and marine resources will be assessed through a Natural Resources Evaluation, which will include a Wetland Evaluation, a Protected Species and Habitat Evaluation and an EFH Assessment in accordance with Part 2, Chapters 9, 16 and 17 of the FDOT P&amp;E Manual. All necessary measures will be taken to avoid and/or minimize impacts to coastal resources during project design. Further, the proposed stormwater management system for the project will be developed to meet the design and performance criteria established in the SFWMD ERP Applicant's Handbook Volumes I and II for the treatment and attenuation of discharges to impaired waters. Additional construction controls will be developed to protect Outstanding Florida Waters. All necessary permits will be obtained for the project.</p>



Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Coastal and Marine (Continued)	NMFS (Continued)	Tech Memo Required		<p>Benthic surveys should be conducted to document and characterize all habitats within the project area including mangroves, seagrass, sand and shell bottom, corals, macro algae, and sponges. The number, size (in centimeters) and species of corals and sponges at the project site should be obtained by conducting a benthic resources survey. This survey will be used to determine the size and numbers of corals that should be relocated. Additionally, FDOT may consider relocation of barrel sponges at the site as a minimization effort. Gilliam et al. (2008), found that giant barrel sponges can be reattached. Less mitigation may be required if sponges and corals are relocated.</p> <p>With construction, impervious surface area may be replaced or expanded. Surface and stormwater runoff into the surrounding waters and Biscayne Bay may result. The discharge of hydrocarbons and other contaminants may degrade water quality. Subsequently, NOAA trust resources located in the receiving waters could be adversely affected. To the extent practicable, runoff from the new bridge should be treated before discharged into the bay.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Recommended avoidance, minimization, and mitigation opportunities:</p> <p>Based on the project location, information provided through ETDM, the site visit, and aerial photographic interpretation, NMFS concludes the proposed work will directly impact areas that support essential fish habitat (EFH), HAPC, and NOAA trust fishery resources. To ensure adequate conservation and impact avoidance, NMFS recommends that the following measures be implemented as project development progresses to PD&amp;E design, and construction:</p> <p>1)Adverse impacts to EFH should be sequentially avoided and/or minimized, and unavoidable impacts should be offset in a manner that precludes a net loss of habitat function.</p> <p>2)A habitat characterization of the project site, including habitats that would be directly and/or indirectly impacted by the proposed project should be prepared. This should include a seagrass survey performed in accordance with the "Recommendations for sampling Halophila johnsonii at a project site" contained in the Final Recovery Plan for Johnson's Seagrass and available from this web site (<a href="http://sero.nmfs.noaa.gov/pr/protres.htm">http://sero.nmfs.noaa.gov/pr/protres.htm</a>). Seagrass surveys should be conducted between June and September as recommended by NMFS (NMFS 2010)</p> <p>3)Conservation measures (i.e., best management practices for water quality and erosion control) should be included in the project design and implemented during project construction.</p> <p>4)A Stormwater Management Plan for containment/treatment of surface and stormwater runoff from impervious surfaces should be prepared. Treatment should be in accordance with state and federal (NPDES) standards. Details of the stormwater plan should include location, area, and cross section of proposed stormwater swales, and/or ponds and information on wetland vegetation planting if proposed.</p> <p>5)A mitigation plan should be developed that includes the following items: Detailed overview and cross-sectional drawings of the mitigation area(s) with elevations. A vegetative planting plan for the mitigation site. A detailed description of the proposed mitigation plan, including success criteria. The mitigation plan should contain sufficient detail to ensure no net loss of habitat functions and values as a result of project authorization.</p> <p>6)Timely coordination between NMFS and FDOT staff should continue through project planning and until environmental issues are addressed and resolved.</p> <p>Literature Cited:</p> <p>Ault, J.S., S.G. Smith, G.A. Meester, J. Juo, and J.A. Bohnsack. 2001. Site Characterization for Biscayne National Park: Assessment of Fisheries Resources and Habitats. NOAA Technical Memorandum NMFS-SEFSC-468. 156 pp. Available on-line at: <a href="http://www.aoml.noaa.gov/general/lib/tm_468.pdf">http://www.aoml.noaa.gov/general/lib/tm_468.pdf</a></p> <p>Gilliam, D.S., B.K. Walker, S.J. Saelens, D.P. Fahy, V.N. Kosmynin. 2008. Recovery of injured giant barrel sponges, Xestospongia muta, offshore southeast Florida. Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, 7-11 July 2008, Session number 24</p>	Substantial	<p>The NMFS has determined that sand and shell bottom, macroalgae, corals, sponges, mangroves and seagrass occur in Biscayne Bay, all of which are designated by the South Atlantic Fishery Management Council as Essential Fish Habitat (EFH). Coral, mangroves and seagrass are Habitat Areas of Particular Concern (HAPC). In addition, Biscayne Bay is geographically designated as HAPC for Caribbean spiny lobster, coral, coral reefs and live/hardbottom and is a state designated nursery area for many coastal bay and coral reef fishes and macroinvertebrates. The NMFS provided a list of federally managed fishery species that utilize these habitats for foraging, refuge and as nurseries.</p> <p>In regard to endangered species, the area is designated Critical Habitat for Johnson's seagrass, a threatened species. Other Endangered Species Act (ESA) listed species under the purview of NMFS include hawksbill, loggerhead, green, Kemp's ridley and leatherback sea turtles, smalltooth sawfish, Nassau grouper, and the seven species of ESA listed corals.</p> <p>The NMFS recommends that a benthic resources survey be conducted for the project to document and characterize the EFH and HAPC habitats. Additional sequential avoidance, minimization and mitigation opportunities are recommended, including conservation measures, a stormwater management plan and a mitigation plan. It is noted that Biscayne Bay is an Aquatic Preserve, which is an Outstanding Florida Water. The SFWMD also recommends a survey of benthic resources and an evaluation of wetland/marine-dependent threatened/endangered species and species of special concern which may utilize habitat within the project area. Both agencies request early coordination with staff.</p> <p>The SFWMD states that an Environmental Resource Permit will be required. Manatee, sea turtle and smalltooth sawfish protection measures will be required. In addition, turbidity control and a water quality monitoring program for turbidity will be required. The SFWMD also requires a mitigation plan.</p> <p>Based on agency comments, a Summary Degree of Effect of Substantial has been assigned to the Coastal and Marine issue. During the Project Development phase, potential impacts to sensitive coastal and marine resources will be assessed through a Natural Resources Evaluation, which will include a Wetland Evaluation, a Protected Species and Habitat Evaluation and an EFH Assessment in accordance with Part 2, Chapters 9, 16 and 17 of the FDOT PD&amp;E Manual. All necessary measures will be taken to avoid and/or minimize impacts to coastal resources during project design. Further, the proposed stormwater management system for the project will be developed to meet the design and performance criteria established in the SFWMD ERP Applicant's Handbook Volumes I and II for the treatment and attenuation of discharges to impaired waters. Additional construction controls will be developed to protect Outstanding Florida Waters. All necessary permits will be obtained for the project.</p>
Coastal and				<p>Coordination Document Comments: The project will require an Environmental Resource Permit from the South Florida Water Management District (SFWMD) in accordance with Rule 62-330.054, Florida Administrative Code (FAC). Please contact the SFWMD to schedule a pre-application meeting with staff.</p> <p>Direct Effects</p> <p>Identified Resources and Level of Importance: Wetlands and surface waters within the project area are located within the Biscayne Bay Aquatic Preserve, which is designated as Outstanding Florida Waters.</p> <p>Coastal wetlands (primarily mangrove fringe wetlands) are present along both the Julia Tuttle Causeway (I-195) and the MacArthur Causeway (I-395).</p> <p>Surface waters within the project area may contain benthic resources such as seagrasses, corals and hard bottom communities.</p> <p>Comments on Effects to Resources: Wetlands and surface waters within the project area are located within the Biscayne Bay Aquatic Preserve, which is designated as Outstanding Florida Waters.</p> <p>Coastal wetlands (primarily mangrove fringe wetlands) are present along both the Julia Tuttle Causeway (I-195) and the MacArthur Causeway (I-395).</p> <p>Surface waters within the project area may contain benthic resources such as seagrasses, corals and hard bottom communities.</p> <p>A detailed evaluation of wetland/marine-dependent threatened, endangered species and species of special concern</p>		<p>The NMFS has determined that sand and shell bottom, macroalgae, corals, sponges, mangroves and seagrass occur in Biscayne Bay, all of which are designated by the South Atlantic Fishery Management Council as Essential Fish Habitat (EFH). Coral, mangroves and seagrass are Habitat Areas of Particular Concern (HAPC). In addition, Biscayne Bay is geographically designated as HAPC for Caribbean spiny lobster, coral, coral reefs and live/hardbottom and is a state designated nursery area for many coastal bay and coral reef fishes and macroinvertebrates. The NMFS provided a list of federally managed fishery species that utilize these habitats for foraging, refuge and as nurseries.</p> <p>In regard to endangered species, the area is designated Critical Habitat for Johnson's seagrass, a threatened species. Other Endangered Species Act (ESA) listed species under the purview of NMFS include hawksbill, loggerhead, green, Kemp's ridley and leatherback sea turtles, smalltooth sawfish, Nassau grouper, and the seven species of ESA listed corals.</p> <p>The NMFS recommends that a benthic resources survey be conducted for the project to document and characterize the EFH and HAPC habitats. Additional sequential avoidance, minimization and mitigation opportunities are recommended, including conservation measures, a stormwater management plan and a mitigation plan. It is noted that Biscayne Bay is an Aquatic Preserve, which is an Outstanding Florida Water. The SFWMD also</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Marine (Continued)	SFWMD	Permit Required	Substantial	<p>A Wetland Assessment or Wetland Inventory, Significant Wetland Inventory, and/or a Species and Species of Special Concern which may be present within the project area or utilize habitat within the project area would be required, in accordance with AH I, 10.2.2.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Reasonable assurance is required to be provided which demonstrates that the project has been designed and will be constructed in a manner to reduce or eliminate wetlands and other surface water resources direct and secondary impacts, in accordance with the Environmental Resource Permit Applicant's Handbook Volume I, subsection 10.2.1 (AH I, 10.2.1).</p> <p>Manatee, sea turtle and smalltooth sawfish protection measures will be required during all in-water work. In addition, manatee exclusion gates will be required on all existing and proposed outfalls that are associated with the SWM system serving this segment of the US 1 roadway.</p> <p>A mitigation plan to offset any proposed direct, secondary, or unacceptable cumulative impacts to wetland/marine-dependent wildlife and their habitats would be required, in accordance with AH I, 10.2.2.</p> <p>To ensure that proposed construction activities do not degrade adjacent preserved wetlands and other surface waters, some of which are designated as Outstanding Florida Waters, temporary silt and turbidity control would need to be implemented around the limits of construction, in accordance with AH I, 11.0.</p> <p>In addition, a water quality monitoring program for turbidity would be required, in accordance with AH I, 11.0.</p> <p>Additional Comments (optional): The project will require an Environmental Resource Permit from the South Florida Water Management District (SFWMD) in accordance with Rule 62-330.054, Florida Administrative Code (FAC). Please contact the SFWMD to schedule a pre-application meeting with staff.</p>	Substantial	<p>management plan and mitigation plan to offset any proposed direct, secondary, or unacceptable cumulative impacts to wetland/marine-dependent wildlife and their habitats would be required, in accordance with AH I, 10.2.2.</p> <p>The SFWMD states that an Environmental Resource Permit will be required. Manatee, sea turtle and smalltooth sawfish protection measures will be required. In addition, turbidity control and a water quality monitoring program for turbidity will be required. The SFWMD also requires a mitigation plan.</p> <p>Based on agency comments, a Summary Degree of Effect of Substantial has been assigned to the Coastal and Marine issue. During the Project Development phase, potential impacts to sensitive coastal and marine resources will be assessed through a Natural Resources Evaluation, which will include a Wetland Evaluation, a Protected Species and Habitat Evaluation and an EFH Assessment in accordance with Part 2, Chapters 9, 16 and 17 of the FDOT PD&amp;E Manual. All necessary measures will be taken to avoid and/or minimize impacts to coastal resources during project design. Further, the proposed stormwater management system for the project will be developed to meet the design and performance criteria established in the SFWMD ERP Applicant's Handbook Volumes I and II for the treatment and attenuation of discharges to impaired waters. Additional construction controls will be developed to protect Outstanding Florida Waters. All necessary permits will be obtained for the project.</p>
Physical						
Noise	-	-	-	None Found.	Moderate	<p>No comments regarding the Noise issue were provided. The primary land uses adjacent to the project corridor are commercial, office and entertainment. There are also parks and recreational facilities, community and cultural centers, medical facilities, historic resources, and some residences that may be sensitive to noise and vibration. In addition, the USEPA recommended conducting a Noise Study in their comments for the Social issue. For these reasons, a Summary Degree of Effect of Moderate was assigned to the Noise issue. While the area is predominantly urbanized, increased noise levels during construction and potential noise level increases as a result of the new mode of transit along the corridor could affect these features.</p> <p>During future phases of project development, a Public Involvement Plan in accordance with Part 1, Chapter 11 of the PD&amp;E Manual will be implemented by the DTPW in coordination with the City of Miami, the City of Miami Beach and the Miami-Dade TPO to solicit opinions from residents and business owners on potential noise and vibration effects related to the proposed improvements. Any identified potential effects will be assessed in a Noise, Air Quality and Vibration Study Report will be prepared for the project.</p>
Air Quality	USEPA	To Be Determined: Further Coordination Required	Minimal	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: A wide variety of air pollutants can be emitted from station and mobile sources. The EPA establishes the National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare, and regulates emissions of hazardous air pollutants. The Beach Corridor Rapid Transit Project is in attainment, so criteria pollutants under NAAQS are considered to be an acceptable level. Therefore, EPA expects the project to have minimal impact on air quality.</p> <p>Comments on Effects to Resources: The project air quality can possibly be effected by airborne dust, and other ambient air pollutants from project construction.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: The EPA recommends that the project follow the Florida State Implementation Plan to ensure consistency with the state's emissions levels. The EPA also recommends the use of diesel controls, cleaner fuel, and cleaner construction practices for on-road and off-road equipment used for transportation, soil movement, or other project activities, including: -Strategies and technologies that reduce unnecessary idling, including auxiliary power units, the use of electric equipment, and strict enforcement of idling limits; and -Use of clean diesel through add-on control technologies like diesel particulate filters and diesel oxidation catalysts, repowers, or newer, cleaner equipment.</p>	Minimal	<p>The US EPA noted that the project is in attainment for the National Ambient Air Quality Standards (NAAQS), so criteria pollutant under NAAQS are considered to be at an acceptable level. The EPA recommends that the project follow the Florida State Implementation Plan to ensure consistency with the state's emissions levels. The EPA also recommends the use of diesel controls, cleaner fuel, and cleaner construction practices for on-road and off-road equipment used for transportation, soil movement, or other project activities, including: strategies and technologies that reduce unnecessary idling, including auxiliary power units, the use of electric equipment, and strict enforcement of idling limits; and use of clean diesel through add-on control technologies like diesel particulate filters and diesel oxidation catalysts, repowers, or newer, cleaner equipment.</p> <p>A Summary Degree of Effect of Minimal has been assigned to the Air Quality issue. During Project Development, the DTPW will prepare a Noise, Air Quality and Vibration Study Report for the project.</p>
	USEPA	To Be Determined: Further Coordination Required	Substantial	<p>Coordination Document Comments: Detailed measures taken for this project as it continues into future phases of development</p> <p>Direct Effects</p> <p>Identified Resources and Level of Importance: FDOT acknowledges in its Preliminary Environmental Discussion comments that the Beach Corridor Rapid Transit project is located within 200-ft of 58 biomedical waste facilities, 3 brownfield sites, 36 Miami-Dade County Department of Environmental Resources Management contaminated sites, 4 FDEP dry cleaning program sites, 37 hazardous waste facilities sites, 71 petroleum contamination sites, 48 U.S. EPA RCRA regulated facilities, 3 solid waste facilities, and 84 storage tank contamination monitoring sites. Contaminants may reach ground water from activities on land surface, pollution of surface water bodies, or by infiltration through soils. Soils, groundwater and surface water have the potential to be negatively affected by contaminated site features such as underground petroleum storage tanks, industrial or commercial facilities with onsite storage of hazardous materials, solid waste facilities, and hazardous waste facilities. Therefore, the EPA assigns a Substantial degree of Effect to Contamination.</p> <p>Comments on Effects to Resources: Underground and/or above ground storage tanks have the potential for environmental impacts to soils and/or groundwater from petroleum hydrocarbons. Petroleum hydrocarbons are the primary constituents in oil, gasoline, diesel, as well as solvents. Petroleum hydrocarbons are the primary focus of many site and risk assessments. The petroleum constituents of primary interest to human health are aromatic hydrocarbons (benzene ethylbenzene, toluene, and xylenes), polycyclicaromatic hydrocarbons (PAHs), gasoline additives (MTBE, TBA) and combustion emissions from fuels. Other contaminated site features, such as Hazardous Waste Sites, Solid Waste Sites, and USEPA RCRA Sites, involve other types of hazardous and solid wastes. Releases of hazardous wastes into the ground can contaminate groundwater and degrade land use. Furthermore, owners or operators have corrective obligations under RCRA. Owners and operators are to properly install storage systems and protect their storage systems from spills, overfills, and corrosion. It is also required that correct filling practices to be followed. In addition,</p>		

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Contamination				<p>owners and operators must report the existence of new storage systems, suspected releases, storage system closures, and keep records of operation and maintenance. If wastes are not cleaned-up the property may become a brownfield site. Blighted and potentially contaminated sites negatively affect the aesthetics, criminality, and economic value of a community.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: Potential issues relating to contaminated sites include leaking underground petroleum storage tanks, leaking above ground storage tanks, improper storage and/or disposal of hazardous materials, spills and/or leaks from transportation vehicles (trucks, trains, etc.). Direct and indirect impacts resulting from these issues include contamination of soils, groundwater, and surface water. If any petroleum storage tanks are to be impacted or removed during the construction phase of the project, sampling and analysis of soils and groundwater should be conducted to determine if petroleum and hydrocarbon pollutants are present above regulatory levels. The EPA recommends corrective action is completed before commencement of project activities.</p> <p>Additional Comments (optional): Detailed measures taken for this project as it continues into future phases of development</p>	Substantial	<p>The Beach Corridor Rapid Transit project is located within 200-ft of 58 biomedical waste facilities, three brownfield sites, 36 Miami-Dade County Department of Environmental Resources Management contaminated sites, 4 FDEP dry cleaning program sites, 37 hazardous waste facilities sites, 71 petroleum contamination sites, 48 USEPA Resource Conservation and Recovery Act (RCRA) regulated facilities, three solid waste facilities, and 84 storage tank contamination monitoring sites. The USEPA notes that soils, groundwater and surface waters have the potential to be negatively affected by contaminated site features. Potential issues relating to contaminated sites include leaking underground petroleum storage tanks, leaking above ground storage tanks, improper storage and/or disposal of hazardous materials, and spills and/or leaks from transportation vehicles, including transit.</p> <p>Underground and/or above ground storage tanks have the potential for environmental impacts to soils and/or groundwater from petroleum hydrocarbons. If any petroleum storage tanks are to be impacted or removed during the construction phase of the project, sampling and analysis of soils and groundwater should be conducted to determine if petroleum and hydrocarbon pollutants are present above regulatory levels. Other contaminated site features, such as hazardous waste sites, solid waste sites, and USEPA RCRA sites, involve other types of hazardous and solid wastes. Releases of hazardous wastes into the ground can contaminate groundwater and degrade land use. The EPA recommends corrective action is completed before commencement of project activities.</p> <p>The FDEP noted that there are three brownfield sites, 63 hazardous waste facilities, nine solid waste facilities and two toxic release sites within 500 feet of the project corridor. It was stated that the Contamination Screening Evaluation should outline specific procedures that would be followed in the event drums, wastes, tanks or potentially contaminated soils are encountered during construction. The SFWMD stated that a water use permit may be required if dewatering is necessary. Based comments from the EPA, FDEP and SFWMD and the large number of potentially contaminated sites that could affect the project, a Summary Degree of Effect of Substantial has been assigned to the Contamination issue.</p>
	FDEP	PD&E Support Document as per PD&E Manual	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: GIS data indicates that there are three brownfields, 63 hazardous waste facilities nine solid waste and two toxic release sites within the 500-ft. project buffer zone.</p> <p>Comments on Effects to Resources: A Contamination Screening Evaluation (similar to Phase I and Phase II Audits) may need to be conducted along the project right-of- way in considering the proximity to the potential petroleum and hazardous material handling facility. The Contamination Screening Evaluation should outline specific procedures that would be followed by the applicant in the event drums, wastes, tanks or potentially contaminated soils are encountered during construction.</p>		<p>Contamination will be evaluated during the Project Development phase through a Contamination Screening Evaluation Report in accordance with Part 2, Chapter 20 of the PD&amp;E Manual, including site specific surveys to assess existing known subsurface contamination as well as historical contamination release. Identified sites will be investigated to determine their potential risk, and proper mitigation will take place if medium to high risk sites are identified. All necessary permits will be obtained in accordance with federal, state, and local laws and regulations.</p>
	SFWMD	To Be Determined: Further Coordination Required	Substantial	<p>Coordination Document Comments: If dewatering is necessary, a water use permit may be required. A general permit is available in rule 40E-2.061(2), FAC. Projects that do not qualify for the general permit will require a water use permit from SFWMD.</p> <p>Direct Effects</p> <p>Identified Resources and Level of Importance: Surface water and ground water</p> <p>Comments on Effects to Resources: Construction methodologies, such as dewatering, must be designed to minimize movement of contaminant plumes. Recommended Avoidance, Minimization, and Mitigation Opportunities: Additional Comments (optional): If dewatering is necessary, a water use permit may be required. A general permit is available in rule 40E-2.061(2), FAC. Projects that do not qualify for the general permit will require a water use permit from SFWMD.</p>		
Infrastructure	-	-	-	None Found	Moderate	<p>No comments were provided for the Infrastructure issue. Within 200 feet of the project corridor, there are 21 on-site sewage facilities, four Federal Aviation Administration (FAA) obstructions, five RCI grade-level railroad crossings and two RCI railroad crossings. Due to the surrounding urban environment, extensive overhead and underground utilities line the project corridor. The project entails new rapid transit from the Miami Design District, to Downtown Miami and across Biscayne Bay to Miami Beach. Due to the new infrastructure and the number of infrastructure-related features that may have a conflict with the project corridor, a Moderate Summary Degree of Effect was assigned to the Infrastructure issue.</p>
	USACE	To Be Determined: Further Coordination Required	Moderate	<p>Coordination Document Comments: This project will first need to go through a 408 review since it has multiple crossing of The Atlantic Intracoastal Waterway a Federal project. The proposed project would then require a Department of the Army (DA) authorization for any discharge of fill material into waters of the U.S. in conjunction with the bridge replacements under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. A Standard Individual Permit review would be applicable for any estuarine wetland impacts associated with the new bridge replacement construction. There is a possibility that a Nationwide 3 (Maintenance) or/and a Nationwide 15 (U.S. Coast Guard Approved Bridges) could be used as the project development and planning moves forward.</p> <p>Direct Effects</p> <p>Identified Resources and Level of Importance: The project envisions constructing a new form of rapid transit within the coastal corridor of Miami and Miami Beach over the (Atlantic Intracoastal Waterway), which is a Traditional Navigable Water (TNW) of the U.S. under Section 10 of the Rivers and Harbors Act of 1899 and a Federal Navigation Channel. The U.S. Coast Guard will be the agency charged with insuring the clearance is met as it will also be the lead federal permitting agency. Any discharge of fill material into waters of the U.S. in conjunction with the bridge replacements will require a Corps permit. The level of importance is substantial.</p> <p>Comments on Effects to Resources: The permanent effect to the federal waterway is that the new bridge crossing would be in compliance with bridge clearances to support institutional, commercial and recreational navigation. There may be temporary impacts to navigation during construction activities. These would require authorization.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: A Standard Individual Permit review would be applicable for any estuarine wetland impacts associated with the new bridge replacement construction. There is a possibility that a Nationwide 3 (Maintenance) or/and a Nationwide 15 (U.S. Coast Guard Approved Bridges) could be used as the project development and planning moves forward.</p>		<p>The project crosses navigable waterway channels at four locations: two crossings of the Atlantic Intracoastal Waterway under the west bridges of I-195/Julia Tuttle Causeway and SR A1A/MacArthur Causeway. In addition, a channel is present under the east bridges of I-195/Julia Tuttle Causeway and SR A1A/MacArthur Causeway. Each of these four bridges is subject to US Coast Guard bridge clearance guidelines. It is anticipated at this time that the US Coast Guard will be the lead federal permitting agency and that a permit will also be required from the US Army Corps of Engineers.</p> <p>The Atlantic Intracoastal Waterway is a Federal Navigation Channel, or "federal Civil Works project". Therefore, the project will require a Section 408</p>

Issues	Organization	Coordination Document	Agency Degree of Effect	Significant Resources and Reason for Significance	FDOT Summary Degree of Effect	FDOT Comment on Summary Degree of Effect
Navigation				<p>The Corps recommends a continued emphasis on wetland and surface water avoidance and minimization opportunities throughout the planning process.</p> <p>Permittee responsible on-site and/or off-site mitigation options for unavoidable impacts should be considered early on in the project development and planning phases.</p> <p>Additional Comments (optional): This project will first need to go through a 408 review since in has multiple crossing of The Atlantic Intracoastal Waterway a Federal project. The proposed project would then require a Department of the Army (DA) authorization for any discharge of fill material into waters of the U.S. in conjunction with the bridge replacements under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. A Standard Individual Permit review would be applicable for any estuarine wetland impacts associated with the new bridge replacement construction. There is a possibility that a Nationwide 3 (Maintenance) or/and a Nationwide 15 (U.S. Coast Guard Approved Bridges) could be used as the project development and planning moves forward.</p>	Moderate	<p>review under Section 14 of the Rivers and Harbors Act of 1899. Discharge of fill material into waters of the US will require permits under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. If the US Coastal Guard is the lead federal permitting agency, there is a possibility that a Nationwide 3 (Maintenance) or/and a Nationwide 15 (US Coast Guard Approved Bridges) could be used for the US Army Corps of Engineers. The Corps recommends a continued emphasis on wetland and surface water avoidance and minimization opportunities throughout the planning process. Permittee responsible on-site and/or off-site mitigation options for unavoidable impacts should be considered early in the project development and planning phase.</p> <p>Due to the required coordination with the US Coast Guard for bridge permits and the US Army Corps of Engineers for impacts to wetlands and waters of the US, a Summary Degree of Effect of Moderate was assigned to the Navigation issue.</p>
	US Coast Guard	Permit Required	Moderate	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: Navigation and navigable waters of the United States - moderate to high</p> <p>Comments on Effects to Resources: Coordination will be required and Coast Guard bridge permits may be required for all waterway crossings. Recommended Avoidance, Minimization, and Mitigation Opportunities: Additional Comments (optional): Coordination will be required and Coast Guard bridge permits may be required for all waterway crossings.</p>		
Special Designations						
Special Designations	USEPA	To Be Determined: Further Coordination Required	Substantial	<p>Direct Effects</p> <p>Identified Resources and Level of Importance: FDOT acknowledges in its Preliminary Environmental Discussion comments that the Beach Corridor Rapid Transit project crosses the Biscayne Bay Aquatic Preserve. The project is also located within the Biscayne Sole Source Aquifer. Sediment and water quality from human activities can adversely effect these environmental resources. Therefore, EPA assigns a Substantial Degree of Effect to Outstanding Florida Waters and Aquatic Preserves.</p> <p>Comments on Effects to Resources: According to the Florida Department of Environmental Management Issues of Biscayne Bay Aquatic Preserves nutrients, particulates and other pollutants from storm water runoff and canal discharge are still a problem. Water movement to and from ground water, and storm water runoff patterns are factors that influence the health of the waters. Protecting natural attributes of water is important. Potential degradation from contamination from human activities can be additive and/or cumulative, as discussed in the EPA comments for Wetlands and Surface Water, Water Quality and Quantity, and Contamination.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: The EPA recommends the following : --Consult with the National Marine Fisheries Services and the U.S. Fish and Wildlife Service on essential fish habitat and threatened and endangered species. --To the maximum extent practicable avoid and/or minimize the adverse impacts essential fish habitat. --Storm water runoff should be diverted from water bodies. --Maximize the collection and treatment of storm water. --Grading, excavation, and construction plans should include implementable measures to prevent erosion and sediment runoff from the project both during and after project activities. --Maintain the integrity of the waters through best management practices --Refer to EPA comments for Wetlands and Surface Water, Water Quality and Quantity, and Contamination</p> <p>Additional Comments (optional): Technical Memorandum: Sole Source Aquifer Impact Determination Detailed protection measures for these resources as the project continues into future phases of development</p>	Substantial	<p>Both I-195/Julia Tuttle Causeway and SR A1A/MacArthur Causeway are in Biscayne Bay Aquatic Preserve, which is designated as Outstanding Florida Waters. Both crossings include filled causeways and two bridges. There are no Scenic Highways or Wild and Scenic Rivers in the project area.</p> <p>The SFWMD stated that an Environmental Resource Permit would be required and that a pre-application meeting is recommended. The project must be designed to meet the stormwater quality and quantity criteria of the ERP Applicant's Handbook Volumes I and I, including Appendix E of Volume II pertaining to Impaired Waters criteria. Additional and more stringent stormwater treatment requirements of discharge into both impaired waters and designated Outstanding Florida Waters to meet state water quality and quantity standards would be required.</p> <p>The USEPA also notes that the project is in the Biscayne Sole Source Aquifer. They state that nutrients, particulates and other pollutants from stormwater runoff and canal discharge are still a problem in Biscayne Bay Aquatic Preserve. The EPA recommends that DTPW 1) consult with the National Marine Fisheries Service and US Fish and Wildlife Service on essential fish habitat and threatened and endangered species, 2) avoid and/or minimize the adverse impacts to essential fish habitat to the maximum extent practicable, 3) divert stormwater runoff from water bodies, 4) maximize collection and treatment of stormwater, 5) implement measures to prevent erosion and sediment runoff from the project during and after project activities, 6) maintain the integrity of the waters through best management practices and 7) refer to the EPA comments for the Wetlands and Surface Waters, Water Quality and Quantity, and Contamination issues.</p> <p>Due to the presence of specially designated and impaired waters in the project corridor, and issues and concerns raised by the SFWMD and USEPA, a Summary Degree of Effect of Substantial has been assigned to the Special Designations issue.</p> <p>The proposed project will be designed to meet state water quality and quantity requirements for Outstanding Florida Waters and impaired waters. Best management practices will be utilized during project activities. Further, the proposed stormwater system will be developed to meet the design and performance criteria established for the treatment and attenuation of discharges to impaired waters, Outstanding Florida Waters in accordance with SFWMD Environmental Resource Permit Applicant's Handbook Volumes I and II, including Appendix E. During the Project Development phase, the DTPW will coordinate with the appropriate agencies concerning the necessary studies, documentation, and commitments needed to adequately address all identified resources and avoid and/or minimize any potential project impacts. A Water Quality Impact Evaluation Checklist will be completed in accordance with Part 2, Chapter 11 of the FDOT PD&amp;E Manual. The DTPW will additionally complete the Sole Source Aquifer Checklist from Part 2, Chapter 11 of the FDOT PD&amp;E Manual given the potential impacts to the Biscayne Aquifer. All necessary permits will be obtained in accordance with federal, state, and local laws and regulations during subsequent project phases.</p>
	Special Designations	SFWMD	Permit Required	Substantial		<p>Direct Effects</p> <p>Identified Resources and Level of Importance: Wetlands and surface waters within the project area are located in the Biscayne Bay Aquatic Preserve which is designated as Outstanding Florida Waters.</p> <p>Comments on Effects to Resources: The project must be designed to meet the stormwater water quality and quantity criteria of the ERP Applicant's Handbook Vols. I &amp; II, including Appendix E of Vol. II pertaining to Impaired Waters criteria. Additional and more stringent stormwater treatment requirements of discharge into both impaired waters and designated Outstanding Florida Waters to meet state water quality and quantity standards would be required.</p> <p>To avoid degradation of water quality during construction and operation of the project, the design would need to meet the criteria in ERP Applicant's Handbook Volume I and II.</p> <p>Recommended Avoidance, Minimization, and Mitigation Opportunities: To ensure that proposed construction activities do not degrade adjacent preserved wetlands and other surface waters, some of which are designated as Outstanding Florida Waters, temporary silt turbidity control would need to be implemented around the limits of construction, in accordance with AH I, 11.0.</p> <p>In addition, a water quality monitoring program for turbidity would be required, in accordance with AH I, 11.0.</p> <p>Additional Comments (optional): An Environmental Resource Permit would be required from the South Florida Water Management District. A pre-application meeting is recommended.</p>

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**Beach Corridor Rapid Transit Project  
Project Development and Environment (PD&E) Study**

**Title VI Analysis for  
Proposed Maintenance and  
Operations Facility Locations**

Prepared for:  
**MIAMI-DADE COUNTY  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS**



Prepared by:  
**Parsons Transportation Group Inc.**

**September 2021**



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## ACRONYMS

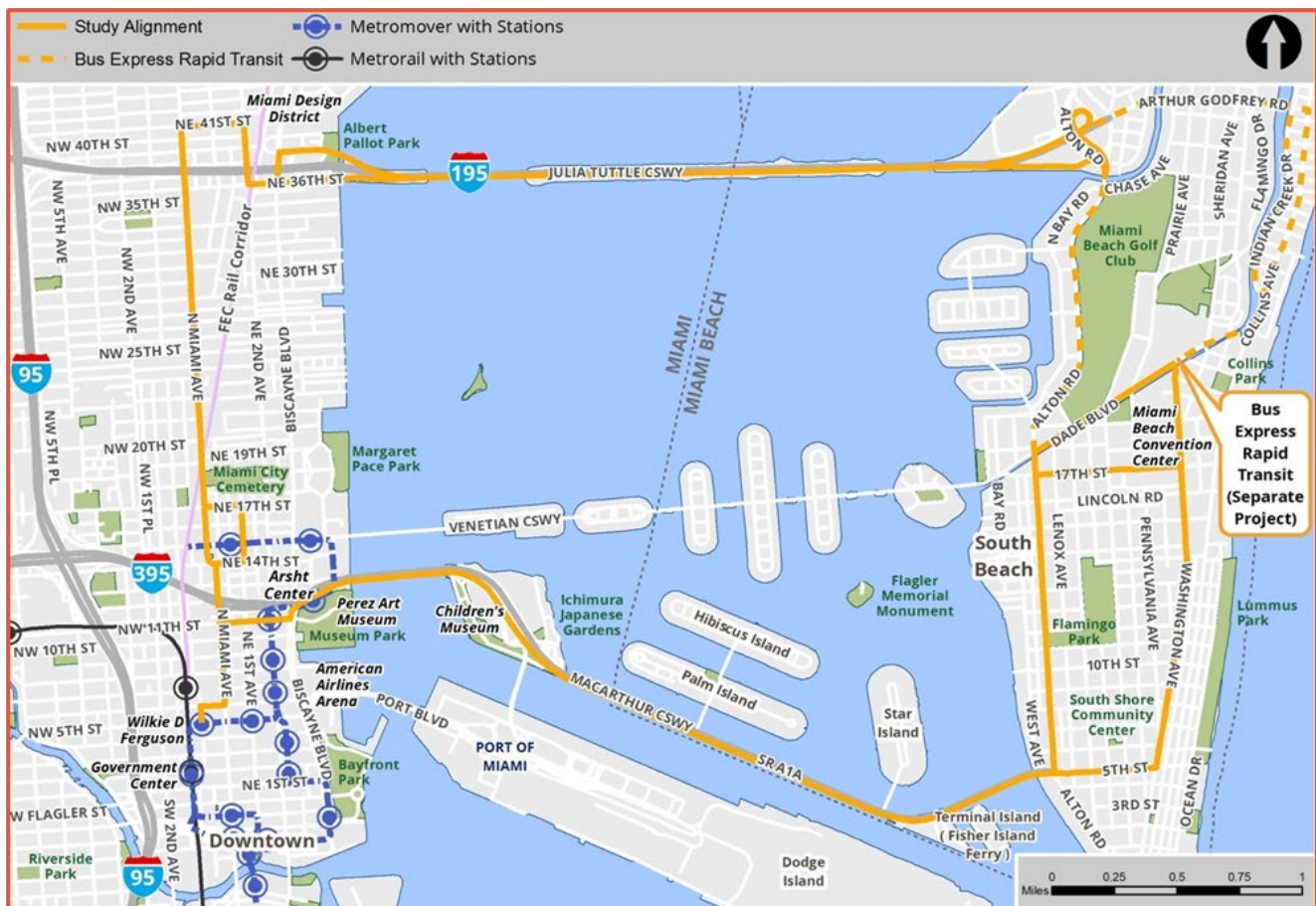
ADA	Americans with Disabilities Act
BRT	Bus Rapid Transit
DTPW	Miami-Dade County Department of Transportation and Public Works
EJ	environmental justice
FDOT	Florida Department of Transportation
FPID	FDOT financial project identification number
FTA	Federal Transit Administration
LEP	limited English proficiency
LPA	Locally preferred alternative
LRT	Light Rail Transit
MOF	Maintenance and Operations Facility
PD&E	Project Development & Environment
SMART	Strategic Miami Area Rapid Transit Plan
SR	State Road
TPO	Transportation Planning Organization
U.S.C.	U.S. Code

# 1 INTRODUCTION

The purpose of this document is to analyze potential effects on Title VI populations of the proposed maintenance facility locations for the Beach Corridor Rapid Transit Project.

## 1.1 PROJECT BACKGROUND AND PURPOSE

In 2016, the Miami-Dade County Transportation Planning Organization (TPO) adopted the Strategic Miami Area Rapid Transit (SMART) plan as the blueprint for developing premium transit services throughout Miami-Dade County. Subsequently the Miami-Dade County Department of Transportation and Public Works (DTPW) initiated the Beach Corridor Rapid Transit Project Development and Environment (PD&E) study in 2017, in collaboration with the Florida Department of Transportation (FDOT) and the cities of Miami and Miami Beach. The Beach Corridor study alignments are illustrated in **Figure 1-1**. The purpose of this project is to increase the person-throughput to the Beach Corridor's major origins and destinations via a rapid transit technology. The need for the project is based upon the extensive population growth throughout the study area resulting in ever-increasing traffic congestion and the demand for enhanced access to the area's many facilities and services.



### Figure 1-1 Beach Corridor Study Alignments

## 1.2 PREFERRED ALTERNATIVE

Analyses conducted early on during the PD&E study confirmed that there is no singular transit mode suitable for the different sub areas of the Beach Corridor project. The following four distinct segments were identified for consideration: Design District, Downtown Miami, Bay Crossings and Miami Beach. The recommended study areas for alignment alternatives by mode were:

- **Monorail** | Recommended for study of alignment alternatives in the Design District, Downtown Miami and Bay Crossing segments.
- **Metromover** | Recommended for study of alignment alternatives in all four segments Design District, Downtown Miami, Bay Crossing and Miami Beach.
- **BRT/Express Bus** | Recommended for study of BRT and/or Express Bus from Downtown to the Convention Center (with a repurposed typical section along the Causeway and a dedicated lane in Miami Beach) and Express Bus along a freeway loop alignment using I-95, I-195, I-395 in Miami and 5<sup>th</sup> Street, Washington and Alton Roads in the Miami Beach segment.
- **LRT/Modern Streetcar**: Recommended for study of alignment alternatives in the Design District, Bay Crossing and Miami Beach segments.

### 1.2.1 Study Sub Areas

The natural and built environment within the corridors evaluated differ significantly by sub-area – the Miami Extension, Bay Crossing (Trunkline) and Miami Beach Extension. Therefore, DTPW identified preferred alternatives for the Miami Extension, Trunkline, and Miami Beach sub areas, which are summarized below and illustrated in **Figure 1-2**.

- **Bay Crossing (Trunkline)** | The Trunkline is an east–west alignment between Miami Beach and downtown Miami that would form the “trunkline” of the project. An elevated, automated rubber tire vehicle rail transit system (automated people mover (APM) or Monorail) is the recommended alternative for the Trunkline service in the Bay Crossing sub area. The alignment runs from a new Herald Plaza Station in Miami then along the MacArthur Causeway to 5th Street and terminating at 5th Street and Washington Avenue in Miami Beach.
- **Miami Extension (Midtown/Design District)** | This is a north-south alignment between the Design District/Midtown and Downtown Miami. The APM operating on an elevated guideway is the preferred alternative for this alignment because it provides better travel time and ridership than the LRT/Streetcar Alternative, with less impact to general traffic, more resilient infrastructure, and less construction impact. The Miami Extension would extend from the existing School Board Metromover Station on NE 15th Street to North Miami Avenue, with a two-track elevated alignment extending to a terminus at NW 41st Street and stations located at North Miami Ave & NW 16th, 22nd, 26th, 29th, 34th and 40th Streets.
- **Beach Extension** | The recommended Beach Extension alternative is a connection to enhanced bus/trolley service in dedicated bus lanes in each direction from Washington Avenue and 5th Street, northward to the Miami Beach Convention Center. Some adjustments to routing and service plans of existing bus/trolley service may be implemented to enhance connections to the high-capacity rail system.



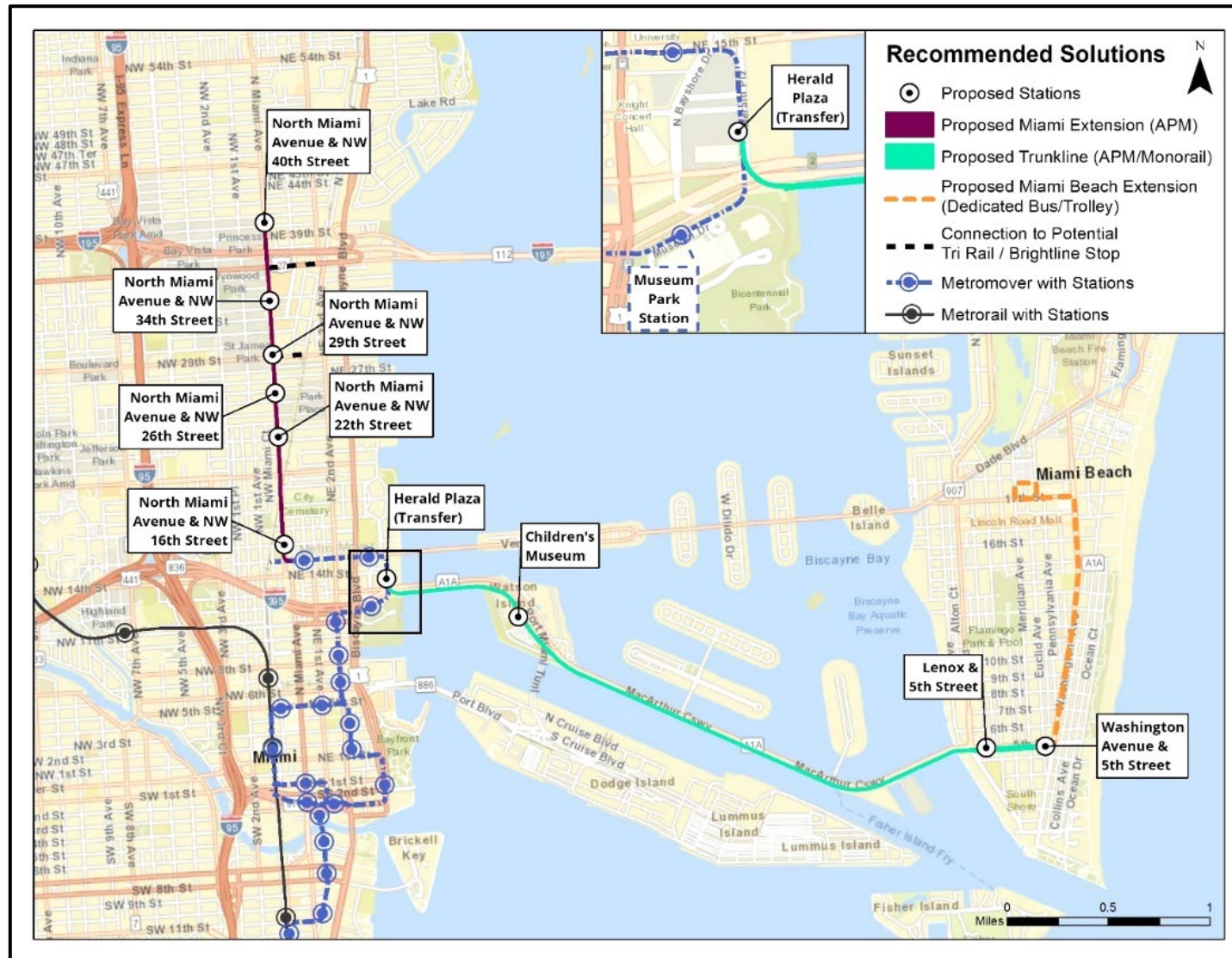


Figure 1-2 Beach Corridor Trunkline and Miami Extension Preferred Alignments

### 1.2.2 Potential Maintenance and Operations Facility Locations

In February 2021, the *PD&E Study Maintenance and Operations Facility Site Identification & Preferred Sites Evaluation Report* was prepared. That report summarized the evaluation of potential maintenance facilities for each of the systems alternative alignments and provided an evaluation of site conditions to select a preferred maintenance facility location.

The approach and methodology to identifying, evaluating and providing a recommendation for potential maintenance and operations facility locations included:

1. Consideration of fleet size and maintenance facility land area requirements
2. Identification of potential locations in proximity to the preferred alignments
3. Review of potential site characteristics, including contamination, historic and archaeological conditions as well as market value, ownership, urban context, and potential long-term impacts.
4. Development of a site evaluation matrix
5. Selection of preferred sites that will be further evaluated based on the selection of a locally preferred alternative (LPA)

The potential maintenance and operations facility locations evaluated for each of the study sub areas are illustrated in **Figure 1-3**.

**Bay Crossing (Trunkline) |** There are two potential locations for a maintenance and operations facility on the Trunkline alignment, both of which are on Watson Island. Watson Island is bisected by I-395/MacArthur Causeway, and both of the potential maintenance facility locations are south of the highway.

**Miami Extension (Midtown/Design District) |** There are two potential maintenance facility locations for the Miami Extension. Both of which are located in the historic Overtown neighborhood in the City of Miami. Both locations consist of urban city blocks containing multiple lots of various sizes and of mixed use. The properties chosen for these proposed facilities are either vacant or with low occupancy.

**Beach Extension |** No transit maintenance facilities are proposed on this alignment. Existing DTPW bus maintenance facilities would serve this future service.

## 2 TITLE VI ANALYSIS

Title VI is a statute of the Civil Rights Act of 1964 that provides that "no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Additionally, the 1994 Executive Order 12898, Federal Actions to address Environmental Justice in Minority Populations and Low-Income Populations, provides that "Each recipient of federal funds shall make achieving environmental justice part of its mission by identifying and addressing as appropriate, disproportionately high and adverse

human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

Miami-Dade County is committed to providing equal access to its services regardless of race, color, national origin, religion, sex, age, disability, family status or marital status in accordance with Title VI of the Civil Rights Act of 1964. Moreover, Miami Dade County believes that the best programs and services result from careful consideration of the needs of all its communities when those communities are involved in the transportation decision making process. Thus, Miami Dade County does not tolerate discrimination in any of its programs, services, or activities.

## 2.1 METHODOLOGY

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The Title VI analysis for the Beach Corridor potential maintenance facility locations was conducted in accordance with direction provided in Federal Transit Administration (FTA) Circular 4702.1B, and using U.S. Census (2010) data at the block level. The block level was chosen for this analysis because it provides the most accurate population numbers potentially affected by the project. Low-income, minority, and limited English proficiency (LEP) populations were identified in the block level touched by the four potential maintenance facility sites. These populations were compared to the Miami-Dade County average for each metric to assess if the amenity provided by the Beach Corridor maintenance facilities disproportionately affect Title VI target populations.

## 2.2 SERVICE AREAS AND TITLE VI POPULATIONS

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### 2.2.1 Low-Income Populations

Low-income populations are defined as any individual or household whose median household income is at or below U.S. Department of Health and Human Services poverty guidelines. FTA Circular 4702.1B references 49 U.S.C. 5302 (as amended by MAP-21) which defines low-income person as an individual whose family income is at or below 150 percent of the poverty line. For this analysis, low-income populations were identified using American Community Survey Table S1701 Poverty Status in the Past 12 Months. This analysis was conducted at the block level using 2010 Census estimates.

### 2.2.2 Minority Populations

Minorities are individuals as a race other than non-Hispanic white. Minority populations were identified using American Community Survey Table B02001 Race. This analysis was conducted at the census tract level using 2010 Census estimates.

### 2.2.3 LEP Populations

LEP populations are defined by FTA Circular 4702.1B as “persons for whom English is not their primary language and who have a limited ability to read, write, speak, or understand English. It includes people who reported to the U.S. Census that they speak English less than very well, not well, or not at all.” Miami Dade County concentrated on obtaining the information for those people whose English proficiency was “less than well”. This information was accessed for households at the Census tract level to be able to provide and analyze the information. LEP populations were identified using American Community Survey Table S1602 Limited English-Speaking Households. This analysis was conducted at the block group level using 2010 Census estimates.

## 3 MAINTENANCE AND OPERATIONS FACILITY LOCATION ASSESSMENTS

### 3.1 MIAMI EXTENSION MAINTENANCE AND OPERATIONS FACILITIES

**Figure 3-1** illustrates the potential Miami Extension maintenance facility locations, named Extension 1 and Extension 2, that were assessed as part of this PD&E Study.

#### 3.1.1 Land Use

The two potential maintenance facility locations in Overtown are in an area currently utilized for single-family residential, multi-family residential, institutional, commercial, utilities, and parks.

Based on Miami-Dade County Property Appraiser records, the land use designations for the Extension 1 site is 1066-Vacant Commercial Land for the left parcel and 1081-Vacant Commercial Land for the right parcel, and the Extension 2 site is 9163-Utility for the top parcel, 4081-Vacant Land-Industrial for the middle parcel, and 4066-Vacant Land-Industrial for the bottom parcel (see Appendix A).

Within the 500-foot buffer area of the Extension 1 site there are four residential properties, and 15 residential properties within the buffer area of the Extension 2 site.

**Table 3-1** lists the current uses and community facilities that fall in part or entirely within the 500-foot buffer areas for the potential Miami Extension maintenance facility locations.

Table 3-1 – Miami Extension/Overtown Community Facilities	
Miami Extension 1 Maintenance Facility Location	
Type	Name and Address
School	Care Elementary School   2025 NW 1st Ave. Miami, FL 33127
Sports Complex	Wynwood Padel Club   1932 NW Miami Ct. Miami, FL 33136
Gym	Hybrid Performance Method   1995 NW 1st Pl. Miami, FL 33136
Miami Extension 2 Maintenance Facility Location	
Type	Name and Address
Park	Dorsey Park   1701 NW 1st Ave Miami, FL 33136
School	Cphi North Head Start   1550 N Miami Ave Miami, FL 33136

#### 3.1.2 Cultural Resources

In April 2021, a cultural resources desktop analysis was performed for the potential maintenance facility locations. This desktop analysis was conducted with the purpose of identifying cultural resource potential and previously recorded historic properties that are listed, or may be eligible for listing, in the National Register of Historic Places (NRHP). The review of the Florida Master Site File (FMSF) database and data provided by Miami-Dade County indicates that no previously recorded archaeological resources are documented within the Miami Extension maintenance facility buffer areas. However, none of the proposed maintenance facility locations for the Miami Extension have been subject to Phase I archaeological testing, and a more detailed survey is recommended as part of the Cultural Resources Assessment Survey (CRAS) for the preferred Miami Extension maintenance facility location.



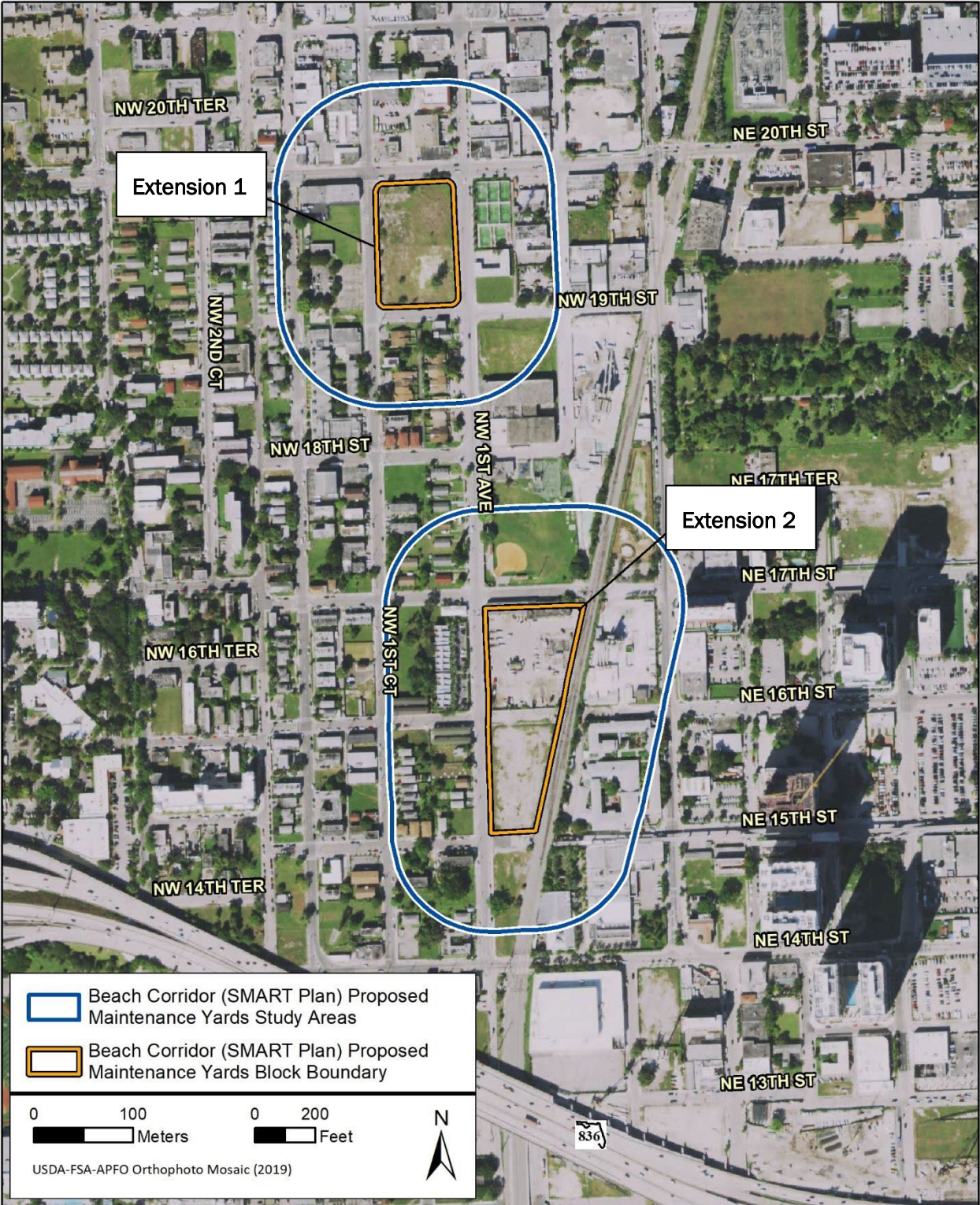


Figure 3-1 – Potential Miami Extension Maintenance and Operations Facility Locations



### 3.1.3 Population Characteristics

**Table 3-2** summarizes the demographic characteristics of the populations served for Census Block Group 31, Overtown. Demographic characteristics fall below County-wide averages for minority and limited English proficiency; however, there is a larger share of low-income households (49%) within this Block Group.

**Table 3-2 – Demographic Characteristics for Overtown Block Group**

Area	Block Group	Population	Households	Low-Income (<150% Poverty)		Minority (All but Non-Hispanic White)		Limited English Proficiency	
				Population	Share	Population	Share	Households	Share
County	N/A	2,715,500	870,100	821,600	31%	2,350,400	87%	218,300	25%
Overtown Block Group	31	908	377	445	49%	717*	79%*	29	4%

\*Block Group Level does not differentiate between Hispanic White, Non-Hispanic White, and Non-Hispanic White, so the ethnic category is not calculated in the population total or share.

### 3.1.4 Potential Effects of Proposed Site Improvements

#### *Land Use Changes*

Construction of a maintenance facility on the Extension 1 site will have to be designed to respond to the adjacent residential and educational uses. This vacant site is zoned T6-8 that allows mixed use construction to eight stories.

Construction of a maintenance facility on the Extension 2 site would affect the TECO Gas Farm which lies on the northern parcel. The gas facilities on this parcel are connected to both TECO and Florida Gas Transmission natural gas pipelines. Any impact to the gas farm will result in significant utility relocations. The middle and bottom parcels for the Extension 2 site is vacant.

#### *Visual Impacts*

Construction of a maintenance facility on the Extension 1 site would be within the viewshed of the Care Elementary School and the Wynwood Padel Club. Construction on the Extension 2 site would be within the viewshed of the adjacent residences and Dorsey Park.

#### *Air Quality, Noise, and Vibrations*

Since this project will result in decreased traffic congestion, air quality impacts are not expected to occur.

A noise screening assessment was completed following the *FTA Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) procedures for the proposed Beach Corridor maintenance facility locations. This analysis is documented in the *Beach Corridor Rapid Transit Project Preliminary Noise and Vibration Assessment* memorandum dated September 2021.

**Table 3-2** summarizes the impacts for each Miami Extension maintenance facility site. The level of impact at each site was determined based on whether the estimated project noise levels exceed criteria provided in the FTA guidance, which are based on existing noise levels. Existing noise levels in each respective area were taken from the noise measurements conducted for the *Beach Corridor Rapid Transit Project Noise and Vibration Study Report* in August 2021.

**Table 3-2 – Noise Impacts – Miami Extension Maintenance Facility Locations**

Maintenance Facility Location	Distance to nearest land use, feet <sup>1</sup>	FTA land use category	fta project noise IMPACT criteria (MODERATE/SEVERE), dBA <sup>2,3</sup>	calculated project noise level, dBA <sup>3</sup>	level of IMPACT (NONE, MODERATE, Severe)
<b>Extension 1</b>					
NW 20th Street & NW 1st Court	270	2 – Residential	62/67	61	None
NW 20th Street & NW 1st Court	330	3 – Institutional	66 /71	60	None
<b>Extension 2</b>					
NW 17th Street & NW 1st Avenue	195	2 – Residential	62 /67	64	Moderate
NW 17th Street & NW 1st Avenue	220	3 – Institutional	66 /71	64	None

Notes:1–Distance measured to center of the maintenance yards per FTA guidelines.

2–FTA impact thresholds based on estimated existing noise levels, following FTA guidelines.

3–Noise levels are day-night sound levels (L<sub>dn</sub>) for Cat 2 and hourly sound levels (L<sub>eq</sub>) for Cat 3.

The increase in noise levels from maintenance facility operations on the Extension 1 proposed site is anticipated to have less than “Moderate Impact” per the Federal Transit Administration’s (FTA) guidelines, and “Moderate Impact” criteria for the Extension 2 site. FTA does not require mitigation for moderate impacts. Therefore, consideration of mitigation for maintenance facility operations would not be required for either Miami Extension maintenance facility. The FTA Vibration Impact Criteria were used to identify locations where potential impact may occur based on existing land use activities. Furthermore, the FTA vibration impact criteria are not based upon the existing vibration levels measured at adjacent structures to the proposed alignment. They are based on the frequency of the proposed transit service and the type of proposed transit vehicle only.

Also, as noted in the FTA manual vibration screening section, rubber wheels APM’s are unlikely to cause vibration impacts and no further analysis is required.

### 3.1.5 Temporary Effects of Construction

#### *Air Quality*

The potential temporary air quality impacts of construction would primarily result from emissions from diesel-powered construction equipment and dust from construction activities. Air pollution associated with the creation

of airborne particles during construction will be effectively controlled using watering or the application of other controlled materials in accordance with the FDOT Standard Specifications for Road and Bridge Construction, as directed by DTPW.

### *Noise and Vibration*

Temporary noise and vibrations impacts during construction could also result from the use of heavy equipment. Noise control measures used during construction should include those contained in the FDOT Standard Specifications for Road and Bridge Construction. The construction contractor will also be required to adhere to local construction noise and/or vibration ordinances.

The FDOT Standard Specifications outline guidelines for the protection of existing structures that include inspection, monitoring for vibration, settlement, and changes in groundwater level. Existing structures that would be protected include adjacent buildings, bridges, overhead signs and retaining walls as well as vibration-sensitive sites, including historic structures. Vibration-sensitive sites identified in the land use analysis that are within the vicinity of the construction (within 250 feet) will be verified and further direction will be given to the contractor in the design plans, which may include notes that impose a more stringent vibration limits; restrict hours of construction operations; and restrict the type of construction equipment to be used.

### *Traffic Flow and Access*

Temporary impacts to access and traffic flow as a result of construction activities may include minor disruptions to traffic flow around the proposed maintenance facility site as well as pedestrian access to adjacent sidewalks.

All work on the proposed maintenance facilities is expected to take place within the property limits or existing right of way. During construction, the contractor will be required to provide:

- Adequate accommodations for intersecting traffic at crossings and intersections
- Continuous vehicular and pedestrian access to all residences and places of business during construction
- Provide safe alternate accessible routes through or around the work zone meeting the requirements of the Americans with Disabilities Act (ADA) Standards for Transportation Facilities when pedestrian facilities are detoured, closed, or blocked during the work

## 3.2 TRUNKLINE MAINTENANCE AND OPERATIONS FACILITIES

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**Figure 3-2** illustrates the potential Trunkline maintenance facility locations, named Trunkline 1 and Trunkline 2, that were assessed as part of this PD&E Study.

### 3.2.1 Land Use, Community Facilities

#### *Land Use*

The two potential maintenance facility locations on Watson Island are in an area currently utilized for commercial, institutional, and government-owned facilities, along with parks, preserves, conservation areas, and PortMiami (see **Figure 3-2**).

The original Trunkline maintenance and operations facility locations evaluated in the *PD&E Study Maintenance and Operations Facility Site Identification & Preferred Sites Evaluation Report*, located just east of the Children's

Museum, had a future land use designation as a Civic Space Zone, and transit uses are not permitted within this zoning classification. Since a zoning change may be required for this preliminary site, alternate sites – Trunkline 1 and Trunkline 2 were considered.

Based on Miami-Dade County Property Appraiser records, the land use designation for the Trunkline 1 site is 8940-Municipal, and Trunkline 2 site is 2111-Restaurant: Retail Outlet (see Appendix A). Within the 500-foot buffer area of either Trunkline site, there are no residential properties.

The existing use for the Trunkline 1 site is the Miami Seaplane Base. The Miami Seaplane Base is a public-use seaplane base which is owned by the City of Miami. The Miami Seaplane Base was initially established as Chalk's International Airlines in 1919, and is utilized by Nautilus Enterprises for chartered planes to and from the Bahamas.

The existing use for the Trunkline 2 site is the Yacht Haven at Island Gardens complex, Miami's first superyacht marina. The Island Gardens Deep Harbour opened in 2016, and the Island Gardens restaurant and marina offices opened in late 2020. A \$1 billion planned project for Island Gardens also includes plans for two luxury hotels, a residential building, a shopping center and numerous other restaurants.

**Table 3-3** lists the current uses and community facilities that fall in part or entirely within the 500-foot buffer areas for the potential Trunkline 1 and 2 maintenance and operations facility locations.

Table 3-3 – Trunkline/Watson Island Community Facilities	
Trunkline 1 Maintenance and Operations Facility Location	
Type	Name and Address
Airport	Miami Seaport Base   1000 MacArthur Causeway Miami, FL 33132
Institutional	Miami Children's Museum   980 MacArthur Causeway, Miami, FL 33132 *There is an outdoor recreation area on the museum property
Trunkline 2 Maintenance and Operations Facility Location	
Type	Name and Address
Restaurant	Island Gardens – The Deck   888 MacArthur Causeway, Miami, FL 33132
Institutional	Miami Children's Museum   980 MacArthur Causeway, Miami, FL 33132



Figure 3-2 – Potential Trunkline Maintenance and Operations Facility Locations



### 3.2.2 Cultural Resources

In April 2021, a cultural resources desktop analysis was performed for the potential maintenance and operations facility locations. This desktop analysis was conducted with the purpose of identifying cultural resource potential and previously recorded historic properties that are listed, or may be eligible for listing, in the National Register of Historic Places (NRHP). The review of the Florida Master Site File (FMSF) database and data provided by Miami-Dade County indicates that no previously recorded archaeological resources are documented within the Trunkline maintenance facility buffer areas.

### 3.2.3 Population Characteristics

**Table 3-4** summarizes the demographic characteristics of the populations served for Census Block Group 9810, which includes Watson Island. Demographic characteristics fall below County-wide averages. Furthermore, the entire population of the Census Block Group 9810 exists outside of the Watson Island boundary.

**Table 3-4 –Demographic Characteristics for Watson Island Block Group and Miami-Dade County**

Area	Total Population	Total Households	Low-Income (<150% Poverty)		Minority (All but Non-Hispanic White)		Limited English Proficiency (LEP)	
			Population	Share	Population	Share	Households	Share
Miami-Dade County	2,715,500	870,100	821,600	31%	2,350,400	87%	218,300	25%
Watson Island U.S. Census Block Group 9810	59	0	0	0%	8*	13%	0	0%

\* Note: Block Group Level does not differentiate between Hispanic White, Non-Hispanic White, and Non-Hispanic White, so the ethnic category is not calculated in the population total or share.

### 3.2.4 Potential Effects of Proposed Site Improvements

#### Land Use Changes

Construction on the Trunkline 1 site would affect the Miami Seaplane Base. The Miami Seaplane Base is a public-use seaplane base which is owned by the City of Miami. The Miami Seaplane Base was initially established as Chalk's International Airlines in 1919, and is utilized by Nautilus Enterprises for chartered planes to and from the Bahamas.

Construction of a maintenance facility on the Trunkline 2 site would affect the Yacht Haven at Island Gardens complex, Miami's first superyacht marina. This complex includes a newly-renovated marina restaurant and operations buildings along with parking and marina boat slip access.

#### Visual Impacts

Construction of a maintenance facility on either proposed Trunkline site would be within the viewshed of the Miami Children's Museum outdoor recreational area.

### *Air Quality, Noise, and Vibrations*

Since this project will result in decreased traffic congestion, air quality impacts are not expected to occur.

A noise screening assessment was completed following the *FTA Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) procedures for the proposed Beach Corridor maintenance facility locations. This analysis is documented in the *Beach Corridor Rapid Transit Project Noise and Vibration Assessment* memorandum dated September 2021.

**Table 3-5** summarizes the impacts for each Trunkline maintenance facility location. The level of impact at each site was determined based on whether the estimated project noise levels exceed criteria provided in the FTA guidance, which are based on existing noise levels. Existing noise levels in each respective area were taken from the noise measurements conducted for the *Beach Corridor Rapid Transit Project Noise and Vibration Study Report* conducted in August 2021.

**Table 3-5 – Noise Impacts – Trunkline Maintenance Facility Locations**

MOF Location	Distance to nearest land use, feet <sup>1</sup>	FTA land use category	fta project noise IMPACT criteria (MODERATE/SEVERE), dBA <sup>2,3</sup>	calculated project noise level, dBA <sup>3</sup>	level of IMPACT (NONE, MODERATE, Severe)
Trunkline 1 980 MacArthur Causeway	460	3 – Institutional	70 /75	56	None
Trunkline 2 850 MacArthur Causeway	780	3 – Institutional	70 /75	50	None

Notes:1–Distance measured to center of the maintenance yards per FTA guidelines.

2–FTA impact thresholds based on estimated existing noise levels, following FTA guidelines.

3 – Noise levels are day-night sound levels (Ldn) for Cat 2 and hourly sound levels (L<sub>eq</sub>) for Cat 3.

The increase in noise levels from maintenance facility operations are anticipated to be “None” per the FTA guidelines. Therefore, consideration of mitigation for maintenance facility operations would not be required for either Trunkline maintenance facility.

## **3.3 TEMPORARY EFFECTS OF CONSTRUCTION**

### **3.3.1 Air Quality**

The potential temporary air quality impacts of construction would primarily result from emissions from diesel-powered construction equipment and dust from construction activities. Air pollution associated with the creation of airborne particles during construction will be effectively controlled using watering or the application of other controlled materials in accordance with the FDOT Standard Specifications for Road and Bridge Construction, as directed by DTPW.

### **3.3.2 Noise and Vibration**

Temporary noise and vibration impacts during construction could also result from the use of heavy equipment. Noise control measures used during construction should include those contained in the FDOT Standard Specifications for Road and Bridge Construction. The construction contractor will also be required to adhere to local construction noise and/or vibration ordinances.

The FDOT Standard Specifications outline guidelines for the protection of existing structures that include inspection, monitoring for vibration, settlement, and changes in groundwater level. Existing structures that would be protected include adjacent buildings, bridges, overhead signs and retaining walls as well as vibration-sensitive sites, including museums. Vibration-sensitive sites identified in the land use analysis that are within the vicinity of the construction (within 250 feet) will be verified and further direction will be given to the contractor in the design plans, which may include notes that impose a more stringent vibration limits; restrict hours of construction operations; and restrict the type of construction equipment to be used.

### 3.3.3 Traffic Flow and Access

Temporary impacts to access and traffic flow as a result of construction activities may include minor disruptions to traffic flow around the proposed maintenance facility site as well as pedestrian access to adjacent sidewalks.

All work on the proposed maintenance facilities is expected to take place within the property limits or existing right of way. During construction, the contractor will be required to provide:

- Adequate accommodations for intersecting traffic at crossings and intersections
- Continuous vehicular and pedestrian access to all residences and places of business during construction
- Provide safe alternate accessible routes through or around the work zone meeting the requirements of the Americans with Disabilities Act (ADA) Standards for Transportation Facilities when pedestrian facilities are detoured, closed, or blocked during the work

## 4 PUBLIC INVOLVEMENT PLAN

### 4.1 OVERVIEW

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Public involvement has been an important part of the Beach Corridor Rapid Transit PD&E Study. A Public Involvement Plan (PIP) was developed in 2018 at the outset of the study to outline an engagement process that would help to ensure that the study reflects the values and needs of the communities it is designed to benefit.

The public outreach process was designed to share information, obtain feedback and build consensus for a Locally Preferred Alternative (LPA) among all community stakeholders. Public input was gathered at several milestones in the study process, providing residents, business owners, elected officials and government agencies with the opportunity to inform the development and screening of the alternatives and the evaluation.

### 4.2 PUBLIC INVOLVEMENT ACTIVITIES

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The public involvement opportunities during the PD&E study included public-kick off meetings. A series of Alternatives Workshops were held to present the evaluation and refinement of alternatives in both a Miami and Miami-Beach location. A Project Advisory Group (PAG) composed of local stakeholders having an active role in the community was also established during the PD&E study. Presentations to municipalities and a series of one-on-one briefings were also conducted.

Throughout the PD&E study, public input was collected at community meetings, received by emails, on social media, mail-in comments and other sources. These comments were cataloged and considered throughout the study with respect to the project goals. Public involvement meetings are listed in **Table 4-1**. A summary of the

public involvement opportunities is provided below. Details of the public involvement process are provided in the *Beach Corridor Rapid Transit Project Preliminary Engineering Report*.

#### 4.2.1 Kickoff Meetings and Briefings

The PD&E kick-off meetings, which were separated into three separate functions serving elected officials, Downtown/Midtown Miami residents and Miami Beach residents respectively, announced the start of the PD&E Study to address the Beach Corridor Rapid Transit Project as part of the overall SMART plan. During the meetings attendees reviewed boards, drone footage and given an activity timeline of the upcoming Alternatives Workshop and creation of a Project Advisory Group.

#### 4.2.2 Project Advisory Group

A Project Advisory Group (PAG); composed of 20 members who were local stakeholders engaged in an active role in their respective communities, such as representatives from impacted cities, regional agencies, neighborhood associations or other groups within the project area was established. Recommendations for appointees were solicited at both the public and officials/agency kick-off meeting as well as at one-on-one briefings with elected officials. Formal requests for appointments were sent to elected officials and stakeholder groups. PAG meetings are listed in **Table 4-1**.

#### 4.2.3 Alternatives Public Workshops

The Alternatives public workshops were opportunities for the public to provide input to the DTPW in their effort to reach their project goals. To maximize the level and diversity of feedback a variety of methods were used to notify the public including, email blasts, flyer distribution, mailers, social media and newspaper ads. Elected officials were also invited to contribute in the analysis process. For each workshop, there were two meetings to better serve the Miami and Miami Beach communities, respectively. Alternatives Workshops are listed in **Table 4-1**.

**Table 4-1 – Public Involvement Meetings**

Meeting Description	Date	Location
<b>Elected Official Briefings</b>	Month of July	Various
<b>Elected Official &amp; Public Kickoff</b>	July 25, 2017	Culmer Community Action Center, Miami
<b>Public Kickoff Meeting</b>	July 27, 2017	New World Center, Miami Beach
<b>Public Kickoff Meeting</b>	December 17, 2018	Miami Beach Regional Library, Miami Beach
<b>PAG Meeting</b>	May 30, 2019	Marriott Biscayne Bay, Miami Beach
<b>Alternatives Public Workshop</b>	June 20, 2019	Marriott Biscayne Bay, Miami
<b>PAG Meeting</b>	August 29, 2019	Miami-Dade County Main Library, Miami
<b>Alternatives Public Workshop</b>	September 12, 2019	New World Center, Miami Beach
<b>Alternatives Public Workshop</b>	September 16, 2019	Marriott Biscayne Bay, Miami
<b>PAG Meeting</b>	October 19, 2019	Miami Beach Public Library, Miami Beach

### 4.3 COMPLIANCE

#### 4.3.1 Title VI of the Civil Rights Act of 1964

Pursuant to Title VI of the Civil Rights Act of 1964 and other federal and state authorities, Miami Dade County will not exclude from participation in, deny the benefits of, or subject to discrimination anyone on the grounds

of race, color, national origin, religion, sex, age, disability, family or marital status. In addition, the Miami-Dade TPO assures that no person based on the aforementioned characteristics, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination or retaliation under any program or activity, as provided by not only Title VI of the Civil Rights Act of 1964, but also the Civil Rights Restoration Act of 1987, the Florida Civil Rights Act of 1992, and other nondiscrimination authorities.

This project has also met the FTA assurance requirements in outlining the poverty, minority, and LEP populations throughout not only the project area, but the entirety of Miami-Dade County. Information about the Title VI Program is provided as part of the Beach Corridor public involvement program, which includes presentations, by handout, signage, through availability of study team members, and on the Miami-Dade County Title VI Program and the Relocation Assistance Program.

#### 4.3.2 Americans with Disabilities Act (ADA) Compliance

Notification of the DTPW's intent to comply with the Americans with Disabilities Act (ADA) of 1990 was provided in public advertisements for the Beach Corridor PD&E study public meetings, in invitational letters to property owners/tenants and local officials, in handouts, news releases, and by selection of the public meeting sites that meet all ADA requirements.

## 5 TITLE VI ANALYSIS CONCLUSIONS

### 5.1 OVERALL BENEFIT TO TITLE VI POPULATIONS

As a majority-minority county, Miami-Dade has higher than typical minority population representation and reflects the diverse population. The table below shows the County averages, the Beach Corridor service area results, and the ratio between them for the three Title VI measures. Detailed U.S. Census reports from the Miami-Dade County TPO Transportation Planner for the Countywide and project area of interest are provided in Appendix B.

**Table 5-1 – Beach Corridor Locally Preferred Alternative Alignments Analysis Results**

Geography Level	Low-Income Population (at/or under 150% Poverty Level)	Minority Population	Households with Limited English Proficiency (LEP)
County Average	20.4%	24.25% (non-white) 65.62% (Hispanic)	10.7%
Beach Corridor Locally Preferred Alternative Alignments	25.8%	26.31% (non-white) 55.7% (Hispanic)	11.8%

**Source:** Miami-Dade County TPO Transportation Planner Tool Census Reports



## 5.2 SUMMARY OF EFFECTS AND COMPARISON

**Table 5-2** provides a comparison of the potential effects of the Miami Extension and Trunkline maintenance facilities.

**Table 5-2 – Potential Effects Comparison**

Maintenance Facility Location	Size <sup>(1)</sup>	Land Use Change <sup>(2)</sup>	Visual	Noise & Vibration <sup>(3)</sup>	Temporary Construction Impacts
Extension 1	2.49 ac.	1066 & 1081-Vacant Commercial	School and residential viewshed.	None	Air, Noise, Dust
Extension 2	3.81 ac.	9163-Utility 4081 & 4066-Vacant Industrial	Residential viewshed.	Moderate	Air, Noise, Dust
Trunkline 1*	2.19 ac.	8940-Municipal	Miami Children's Museum outdoor area viewshed.	None	Air, Noise, Dust
Trunkline 2*	4.14 ac.	2111-Restaurant: Retail Outlet	Miami Children's Museum outdoor area viewshed.	None	Access, Air, Noise, Dust

<sup>(1)</sup>Source: Beach Corridor Cultural Resources Addendum June 2021.

<sup>(2)</sup>Source: Miami-Dade County Property Appraiser Records, 2021

<sup>(3)</sup>Source: Beach Corridor Maintenance Facility Site Noise and Vibration, 2021

\*No Title VI populations are present in the vicinity of the Trunkline Maintenance Facility locations evaluated in this report. Impacts to views and access to the Children's museum are accounted for in this table.

Degree of Effect	None	Minimal	Moderate	High
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## **APPENDIX A: MIAMI-DADE COUNTY PROPERTY APPRAISER RECORDS**



# OFFICE OF THE PROPERTY APPRAISER

## Summary Report

Generated On : 9/1/2021

Property Information	
Folio:	01-3231-061-0040
Property Address:	980 MACARTHUR CSWY Miami, FL 33132-0000
Owner	CITY OF MIAMI DEPT OF P&D ASSET MANAGEMENT DIVISION
Mailing Address	444 SW 2 AVE #325 MIAMI, FL 33130-1910
PA Primary Zone	8002 PARKS & RECREATION
Primary Land Use	8940 MUNICIPAL : MUNICIPAL
Beds / Baths / Half	0 / 0 / 0
Floors	2
Living Units	0
Actual Area	Sq.Ft
Living Area	Sq.Ft
Adjusted Area	67,981 Sq.Ft
Lot Size	802,008 Sq.Ft
Year Built	Multiple (See Building Info.)



Assessment Information			
Year	2021	2020	2019
Land Value	\$24,060,240	\$24,060,240	\$25,263,252
Building Value	\$7,814,775	\$7,906,796	\$7,635,234
XF Value	\$884,835	\$894,509	\$897,383
Market Value	\$32,759,850	\$32,861,545	\$33,795,869
Assessed Value	\$17,727,416	\$16,115,833	\$14,650,758

Benefits Information				
Benefit	Type	2021	2020	2019
Non-Homestead Cap	Assessment Reduction	\$15,032,434	\$16,745,712	\$19,145,111
Municipal	Exemption	\$17,727,416	\$16,115,833	\$14,650,758
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Short Legal Description
WATSON ISLAND SOUTHWEST PB 166-11 T-21420 TRACT D LOT SIZE 802008SQ FT M/L FAU 01 3132 000 0010 & 0012

Taxable Value Information			
	2021	2020	2019
<b>County</b>			
Exemption Value	\$17,727,416	\$16,115,833	\$14,650,758
Taxable Value	\$0	\$0	\$0
<b>School Board</b>			
Exemption Value	\$32,759,850	\$32,861,545	\$33,795,869
Taxable Value	\$0	\$0	\$0
<b>City</b>			
Exemption Value	\$17,727,416	\$16,115,833	\$14,650,758
Taxable Value	\$0	\$0	\$0
<b>Regional</b>			
Exemption Value	\$17,727,416	\$16,115,833	\$14,650,758
Taxable Value	\$0	\$0	\$0

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description

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Version:



# OFFICE OF THE PROPERTY APPRAISER

## Summary Report

Generated On : 9/1/2021

Property Information	
Folio:	01-3231-061-0030
Property Address:	
Owner	CITY OF MIAMI DEPT OF P&D ASSET MANAGEMENT DIVISION
Mailing Address	444 SW 2 AVE #325 MIAMI, FL 33130-1910
PA Primary Zone	8002 PARKS & RECREATION
Primary Land Use	8040 VACANT GOVERNMENTAL : MUNICIPAL
Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	0 Sq.Ft
Living Area	0 Sq.Ft
Adjusted Area	0 Sq.Ft
Lot Size	72,940 Sq.Ft
Year Built	0



Assessment Information			
Year	2021	2020	2019
Land Value	\$2,188,200	\$2,188,200	\$2,297,610
Building Value	\$0	\$0	\$0
XF Value	\$0	\$0	\$0
Market Value	\$2,188,200	\$2,188,200	\$2,297,610
Assessed Value	\$170,811	\$155,283	\$141,167

Benefits Information				
Benefit	Type	2021	2020	2019
Non-Homestead Cap	Assessment Reduction	\$2,017,389	\$2,032,917	\$2,156,443
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Short Legal Description
WATSON ISLAND SOUTHWEST PB 166-11 T-21420 TRACT C LOT SIZE 72940 SQ FT M/L FAU 01 3132 000 0010 & 0012

Taxable Value Information			
	2021	2020	2019
<b>County</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$170,811	\$155,283	\$141,167
<b>School Board</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$2,188,200	\$2,188,200	\$2,297,610
<b>City</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$170,811	\$155,283	\$141,167
<b>Regional</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$170,811	\$155,283	\$141,167

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description

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# OFFICE OF THE PROPERTY APPRAISER

## Summary Report

Generated On : 9/1/2021

Property Information	
Folio:	01-3231-061-0010
Property Address:	888 MACARTHUR CSWY Miami, FL 33132-0000
Owner	CITY OF MIAMI /ASSET MGMT
Mailing Address	444 SW 2 AVE #325 MIAMI, FL 33130-1910
PA Primary Zone	6405 CEN HIGH DNSTY BORDERS CB
Primary Land Use	2111 RESTAURANT OR CAFETERIA : RETAIL OUTLET
Beds / Baths / Half	0 / 0 / 0
Floors	1
Living Units	0
Actual Area	4,277 Sq.Ft
Living Area	4,277 Sq.Ft
Adjusted Area	4,277 Sq.Ft
Lot Size	331,789 Sq.Ft
Year Built	2016



Assessment Information			
Year	2021	2020	2019
Land Value	\$99,536,700	\$99,536,700	\$99,536,700
Building Value	\$85,424	\$86,296	\$87,168
XF Value	\$1,569,341	\$1,570,590	\$1,571,840
Market Value	\$101,191,465	\$101,193,586	\$101,195,708
Assessed Value	\$5,056,405	\$4,596,732	\$4,178,848

Benefits Information				
Benefit	Type	2021	2020	2019
Non-Homestead Cap	Assessment Reduction	\$96,135,060	\$96,596,854	\$97,016,860
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Short Legal Description	
WATSON ISLAND SOUTHWEST PB 166-11 T-21420 TRACT A LOT SIZE 331789 SQ FT M/L FAU 01 3132 000 0010 & 0012	

Taxable Value Information			
	2021	2020	2019
<b>County</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$5,056,405	\$4,596,732	\$4,178,848
<b>School Board</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$101,191,465	\$101,193,586	\$101,195,708
<b>City</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$5,056,405	\$4,596,732	\$4,178,848
<b>Regional</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$5,056,405	\$4,596,732	\$4,178,848

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description

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# OFFICE OF THE PROPERTY APPRAISER

## Summary Report

Generated On : 8/30/2021

Property Information	
Folio:	01-3136-072-0020
Property Address:	1905 NW 1 CT Miami, FL 33136-1301
Owner	1950 NW 1 AVE LLC
Mailing Address	9100 S DADELAND BLVD STE 1500 MIAMI, FL 33156 USA
PA Primary Zone	6100 COMMERCIAL - NEIGHBORHOOD
Primary Land Use	1066 VACANT LAND - COMMERCIAL : EXTRA FEA OTHER THAN PARKING
Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	0 Sq.Ft
Living Area	0 Sq.Ft
Adjusted Area	0 Sq.Ft
Lot Size	40,511 Sq.Ft
Year Built	0

Assessment Information			
Year	2021	2020	2019
Land Value	\$3,645,990	\$3,645,990	\$3,645,990
Building Value	\$0	\$0	\$0
XF Value	\$26,365	\$26,638	\$26,911
Market Value	\$3,672,355	\$3,672,628	\$3,672,901
Assessed Value	\$3,672,355	\$3,672,628	\$3,672,901

Benefits Information				
Benefit	Type	2021	2020	2019
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Short Legal Description	
NATIONAL LINEN PROPERTIES PB 115-24 TR B OR 14884-99 0291 2 COC 22089-3347 02 2004 2	



Taxable Value Information			
	2021	2020	2019
<b>County</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$3,672,355	\$3,672,628	\$3,672,901
<b>School Board</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$3,672,355	\$3,672,628	\$3,672,901
<b>City</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$3,672,355	\$3,672,628	\$3,672,901
<b>Regional</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$3,672,355	\$3,672,628	\$3,672,901

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
07/15/2021	\$23,000,000	32636-0440	Qual on DOS, multi-parcel sale
04/15/2016	\$100	30044-3890	Corrective, tax or QCD; min consideration
09/09/2015	\$16,000,000	29775-1663	Involving trade or exchange of land
02/01/2004	\$1,625,000	22089-3347	Deeds that include more than one parcel

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# OFFICE OF THE PROPERTY APPRAISER

## Summary Report

Generated On : 8/30/2021

Property Information	
Folio:	01-3136-072-0010
Property Address:	1950 NW 1 AVE Miami, FL 33136-1750
Owner	1950 NW 1 AVE LLC
Mailing Address	9100 S DADELAND BLVD STE 1500 MIAMI, FL 33156 USA
PA Primary Zone	6100 COMMERCIAL - NEIGHBORHOOD
Primary Land Use	1081 VACANT LAND - COMMERCIAL : VACANT LAND
Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	0 Sq.Ft
Living Area	0 Sq.Ft
Adjusted Area	0 Sq.Ft
Lot Size	67,823 Sq.Ft
Year Built	0



Assessment Information			
Year	2021	2020	2019
Land Value	\$5,798,866	\$5,798,866	\$5,798,866
Building Value	\$0	\$0	\$0
XF Value	\$0	\$0	\$0
Market Value	\$5,798,866	\$5,798,866	\$5,798,866
Assessed Value	\$5,798,866	\$5,798,866	\$5,798,866

Benefits Information				
Benefit	Type	2021	2020	2019
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Short Legal Description	
NATIONAL LINEN PROPERTIES PB 115-24 TR A OR 14884-99 0291 2 COC 22089-3347 02 2004 2	

Taxable Value Information			
	2021	2020	2019
<b>County</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$5,798,866	\$5,798,866	\$5,798,866
<b>School Board</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$5,798,866	\$5,798,866	\$5,798,866
<b>City</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$5,798,866	\$5,798,866	\$5,798,866
<b>Regional</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$5,798,866	\$5,798,866	\$5,798,866

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
07/15/2021	\$23,000,000	32636-0440	Qual on DOS, multi-parcel sale
04/15/2016	\$100	30044-3890	Corrective, tax or QCD; min consideration
09/09/2015	\$16,000,000	29775-1663	Involving trade or exchange of land
02/01/2004	\$1,625,000	22089-3347	Deeds that include more than one parcel

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# OFFICE OF THE PROPERTY APPRAISER

## Summary Report

Generated On : 8/30/2021

Property Information	
Folio:	01-3125-048-1520
Property Address:	
Owner	CP 1551 INC
Mailing Address	1550 NORTH MIAMI AVE MIAMI, FL 33136 USA
PA Primary Zone	7000 INDUSTRIAL - GENERAL
Primary Land Use	4066 VACANT LAND - INDUSTRIAL : EXTRA FEA OTHER THAN PARKING
Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	0 Sq.Ft
Living Area	0 Sq.Ft
Adjusted Area	0 Sq.Ft
Lot Size	25,200 Sq.Ft
Year Built	0



Assessment Information			
Year	2021	2020	2019
Land Value	\$1,209,600	\$1,209,600	\$1,209,600
Building Value	\$0	\$0	\$0
XF Value	\$15,682	\$15,860	\$16,038
Market Value	\$1,225,282	\$1,225,460	\$1,225,638
Assessed Value	\$909,488	\$826,808	\$751,644

Benefits Information				
Benefit	Type	2021	2020	2019
Non-Homestead Cap	Assessment Reduction	\$315,794	\$398,652	\$473,994
Charitable	Exemption	\$909,488	\$826,808	\$751,644
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Short Legal Description	
25 36 53 41	
WADDELLS ADD PB B-53	
LOTS 12-13-14-15 & S30FT OF LOTS	
8 & 9 & STRIP OF FORMER ALLEY	
LYG BETW S30FT OF LOT 8 & LOTS	

Taxable Value Information			
	2021	2020	2019
<b>County</b>			
Exemption Value	\$909,488	\$826,808	\$751,644
Taxable Value	\$0	\$0	\$0
<b>School Board</b>			
Exemption Value	\$1,225,282	\$1,225,460	\$1,225,638
Taxable Value	\$0	\$0	\$0
<b>City</b>			
Exemption Value	\$909,488	\$826,808	\$751,644
Taxable Value	\$0	\$0	\$0
<b>Regional</b>			
Exemption Value	\$909,488	\$826,808	\$751,644
Taxable Value	\$0	\$0	\$0

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
12/18/2012	\$1,230,000	28415-2992	Qual on DOS, multi-parcel sale
09/01/2005	\$4,440,000	23812-2766	Deeds that include more than one parcel
08/01/1973	\$65,000	00000-00000	Sales which are qualified

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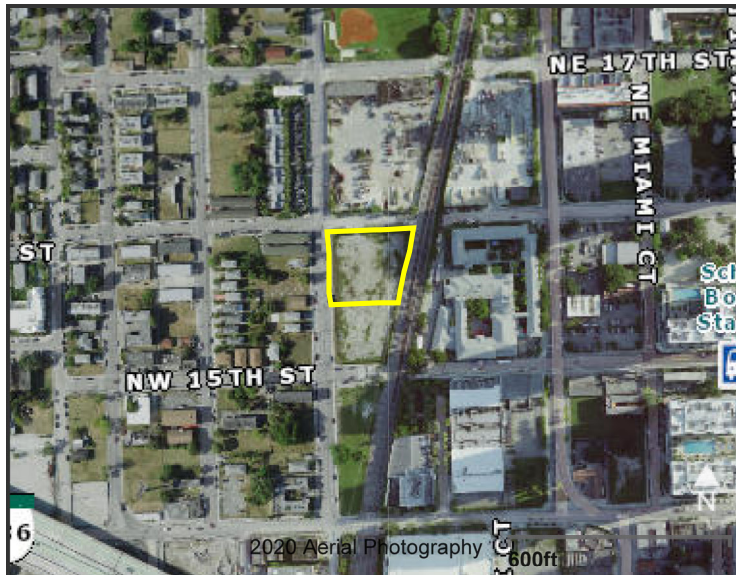


# OFFICE OF THE PROPERTY APPRAISER

## Summary Report

Generated On : 8/30/2021

Property Information	
Folio:	01-3125-048-1480
Property Address:	1551 NW 1 AVE Miami, FL 33136-2005
Owner	CP 1551 INC
Mailing Address	1550 NORTH MIAMI AVE MIAMI, FL 33136 USA
PA Primary Zone	7000 INDUSTRIAL - GENERAL
Primary Land Use	4081 VACANT LAND - INDUSTRIAL : VACANT LAND
Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	0 Sq.Ft
Living Area	0 Sq.Ft
Adjusted Area	0 Sq.Ft
Lot Size	43,050 Sq.Ft
Year Built	0



Assessment Information			
Year	2021	2020	2019
Land Value	\$2,066,400	\$2,066,400	\$2,066,400
Building Value	\$0	\$0	\$0
XF Value	\$0	\$0	\$0
Market Value	\$2,066,400	\$2,066,400	\$2,066,400
Assessed Value	\$1,512,707	\$1,375,189	\$1,250,172

Benefits Information				
Benefit	Type	2021	2020	2019
Non-Homestead Cap	Assessment Reduction	\$553,693	\$691,211	\$816,228
Charitable	Exemption	\$1,512,707	\$1,375,189	\$1,250,172
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Short Legal Description	
25 36 53 41	
WADDELLS ADD PB B-53	
LOTS 1-2-3-4-6-7-8-9 LESS S29.99	
FT OF LOTS 8 & 9 & STRIP OF	
FORMER ALLEY LYG BETW LOTS 1-4-6	

Taxable Value Information			
	2021	2020	2019
County			
Exemption Value	\$1,512,707	\$1,375,189	\$1,250,172
Taxable Value	\$0	\$0	\$0
School Board			
Exemption Value	\$2,066,400	\$2,066,400	\$2,066,400
Taxable Value	\$0	\$0	\$0
City			
Exemption Value	\$1,512,707	\$1,375,189	\$1,250,172
Taxable Value	\$0	\$0	\$0
Regional			
Exemption Value	\$1,512,707	\$1,375,189	\$1,250,172
Taxable Value	\$0	\$0	\$0

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
12/18/2012	\$1,230,000	28415-2992	Qual on DOS, multi-parcel sale
09/01/2005	\$4,440,000	23812-2766	Deeds that include more than one parcel
06/01/1972	\$80,500	00000-00000	Sales which are qualified

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Version:



# OFFICE OF THE PROPERTY APPRAISER

## Detailed Report

Generated On : 7/29/2021

Property Information	
Folio:	01-3125-048-1141
Property Address:	60 NW 17 ST Miami, FL 33136-2011
Owner	PEOPLES GAS SYSTEM INC ATTN TAX DEPARTMENT
Mailing Address	PO BOX 2562 TAMPA, FL 33601-2562
PA Primary Zone	7000 INDUSTRIAL - GENERAL
Primary Land Use	9163 UTILITY : UTILITY
Beds / Baths / Half	0 / 0 / 0
Floors	1
Living Units	0
Actual Area	13,765 Sq.Ft
Living Area	Sq.Ft
Adjusted Area	13,765 Sq.Ft
Lot Size	103,590 Sq.Ft
Year Built	Multiple (See Building Info.)



Assessment Information			
Year	2021	2020	2019
Land Value	\$4,661,550	\$4,661,550	\$4,661,550
Building Value	\$268,169	\$268,169	\$254,418
XF Value	\$138,660	\$139,157	\$139,655
Market Value	\$5,068,379	\$5,068,876	\$5,055,623
Assessed Value	\$42,625	\$38,750	\$35,228

Benefits Information				
Benefit	Type	2021	2020	2019
Non-Homestead Cap	Assessment Reduction	\$5,025,754	\$5,030,126	\$5,020,395
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Taxable Value Information			
	2021	2020	2019
<b>County</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$42,625	\$38,750	\$35,228
<b>School Board</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$5,068,379	\$5,068,876	\$5,055,623
<b>City</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$42,625	\$38,750	\$35,228
<b>Regional</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$42,625	\$38,750	\$35,228

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# OFFICE OF THE PROPERTY APPRAISER

Generated On : 7/29/2021

## Property Information

Folio: 01-3125-048-1141

Property Address: 60 NW 17 ST

## Roll Year 2021 Land, Building and Extra-Feature Details

Land Information					
Land Use	Muni Zone	PA Zone	Unit Type	Units	Calc Value
GENERAL	D1	7000	Square Ft.	103,590.00	\$4,661,550

Building Information						
Building Number	Sub Area	Year Built	Actual Sq.Ft.	Living Sq.Ft.	Adj Sq.Ft.	Calc Value
1	1	1952	5,736		5,736	\$117,444
1	2	1962	1,908		1,908	\$36,090
1	3	1967	5,470		5,470	\$103,465
2	1	1959	192		192	\$3,294
3	1	1959	459		459	\$7,876

Extra Features			
Description	Year Built	Units	Calc Value
Light Standard - 10-30 ft High - 1 Fixture	2014	6	\$7,488
Light Standard - 10-30 ft High - 2 Fixtures	2014	1	\$1,920
Wall - CBS unreinforced	2006	1,355	\$4,770
Wrought Iron Fence	2006	20	\$757
Wall - CBS unreinforced	1986	3,500	\$9,520
Wall - CBS unreinforced	1982	1,920	\$4,915
Cent A/C - Comm (Aprox 300 sqft/Ton)	1977	8	\$7,080
Paving - Asphalt	1962	70,000	\$57,750
Chain-link Fence 4-5 ft high	1962	120	\$660
Cent A/C - Comm (Aprox 300 sqft/Ton)	1962	10	\$8,250
Paving - Asphalt	1954	10,000	\$8,250
Cent A/C - Comm (Aprox 300 sqft/Ton)	1952	12	\$9,900
Interior Office - Average Quality	1952	1,825	\$14,600
Plumbing Fixtures - Warehouse	1952	4	\$2,800

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Version:



# OFFICE OF THE PROPERTY APPRAISER

Generated On : 7/29/2021

## Property Information

Folio: 01-3125-048-1141

Property Address: 60 NW 17 ST

## Roll Year 2020 Land, Building and Extra-Feature Details

Land Information					
Land Use	Muni Zone	PA Zone	Unit Type	Units	Calc Value
GENERAL	D1	7000	Square Ft.	103,590.00	\$4,661,550

Building Information						
Building Number	Sub Area	Year Built	Actual Sq.Ft.	Living Sq.Ft.	Adj Sq.Ft.	Calc Value
1	1	1952	5,736		5,736	\$117,444
1	2	1962	1,908		1,908	\$36,090
1	3	1967	5,470		5,470	\$103,465
2	1	1959	192		192	\$3,294
3	1	1959	459		459	\$7,876

Extra Features			
Description	Year Built	Units	Calc Value
Light Standard - 10-30 ft High - 2 Fixtures	2014	1	\$1,940
Light Standard - 10-30 ft High - 1 Fixture	2014	6	\$7,566
Wrought Iron Fence	2006	20	\$765
Wall - CBS unreinforced	2006	1,355	\$4,824
Wall - CBS unreinforced	1986	3,500	\$9,660
Wall - CBS unreinforced	1982	1,920	\$4,992
Cent A/C - Comm (Aprox 300 sqft/Ton)	1977	8	\$7,200
Cent A/C - Comm (Aprox 300 sqft/Ton)	1962	10	\$8,250
Chain-link Fence 4-5 ft high	1962	120	\$660
Paving - Asphalt	1962	70,000	\$57,750
Paving - Asphalt	1954	10,000	\$8,250
Plumbing Fixtures - Warehouse	1952	4	\$2,800
Interior Office - Average Quality	1952	1,825	\$14,600
Cent A/C - Comm (Aprox 300 sqft/Ton)	1952	12	\$9,900

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# OFFICE OF THE PROPERTY APPRAISER

Generated On : 7/29/2021

## Property Information

Folio: 01-3125-048-1141

Property Address: 60 NW 17 ST Miami, FL 33136-2011

## Roll Year 2019 Land, Building and Extra-Feature Details

Land Information					
Land Use	Muni Zone	PA Zone	Unit Type	Units	Calc Value
GENERAL	D1	7000	Square Ft.	103,590.00	\$4,661,550

Building Information						
Building Number	Sub Area	Year Built	Actual Sq.Ft.	Living Sq.Ft.	Adj Sq.Ft.	Calc Value
1	1	1952	5,736		5,736	\$111,422
1	2	1962	1,908		1,908	\$34,239
1	3	1967	5,470		5,470	\$98,159
2	1	1959	192		192	\$3,126
3	1	1959	459		459	\$7,472

Extra Features			
Description	Year Built	Units	Calc Value
Light Standard - 10-30 ft High - 2 Fixtures	2014	1	\$1,960
Light Standard - 10-30 ft High - 1 Fixture	2014	6	\$7,644
Wall - CBS unreinforced	2006	1,355	\$4,878
Wrought Iron Fence	2006	20	\$774
Wall - CBS unreinforced	1986	3,500	\$9,800
Wall - CBS unreinforced	1982	1,920	\$5,069
Cent A/C - Comm (Aprox 300 sqft/Ton)	1977	8	\$7,320
Paving - Asphalt	1962	70,000	\$57,750
Chain-link Fence 4-5 ft high	1962	120	\$660
Cent A/C - Comm (Aprox 300 sqft/Ton)	1962	10	\$8,250
Paving - Asphalt	1954	10,000	\$8,250
Cent A/C - Comm (Aprox 300 sqft/Ton)	1952	12	\$9,900
Interior Office - Average Quality	1952	1,825	\$14,600
Plumbing Fixtures - Warehouse	1952	4	\$2,800

The Office of the Property Appraiser is continually editing and updating the tax roll. This website may not reflect the most current information on record. The Property Appraiser and Miami-Dade County assumes no liability, see full disclaimer and User Agreement at <http://www.miamidade.gov/info/disclaimer.asp>

Version:



# OFFICE OF THE PROPERTY APPRAISER

Generated On : 7/29/2021

**Property Information****Folio:** 01-3125-048-1141**Property Address:** 60 NW 17 ST**Full Legal Description**

WADDELLS ADD PB B-53

LOTS 1 TO 12 INCL &amp; 12FT ALLEY

CLOSED LYG W OF LOTS 1-4-5-8-9-12

&amp; NW MIAMI COURT CLOSED LYG E OF

LOTS 1-4-5-8-9 BLK 32 &amp;

LOT 3 BLK 31

LOT SIZE 103590 SQ FT

OR 10446-454 0679 5

**Sales Information**

Previous Sale

Price

OR Book-Page

Qualification Description

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Version:

## **APPENDIX B: MIAMI-DADE COUNTY TPO TRANSPORTATION PLANNER CENSUS REPORTS**

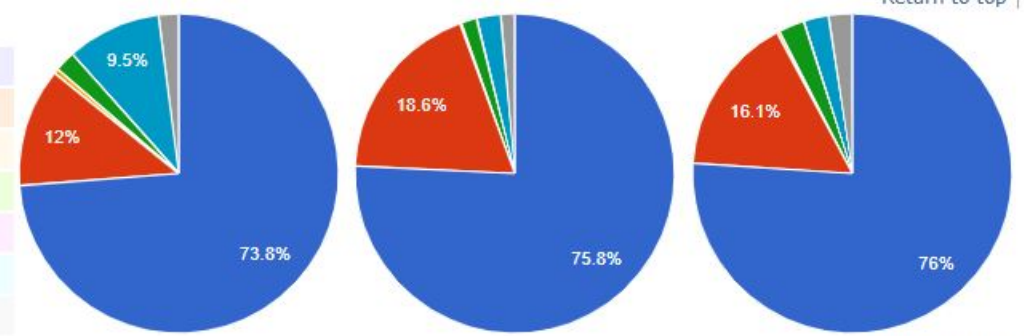


Data from 2010 Census, unless otherwise noted.

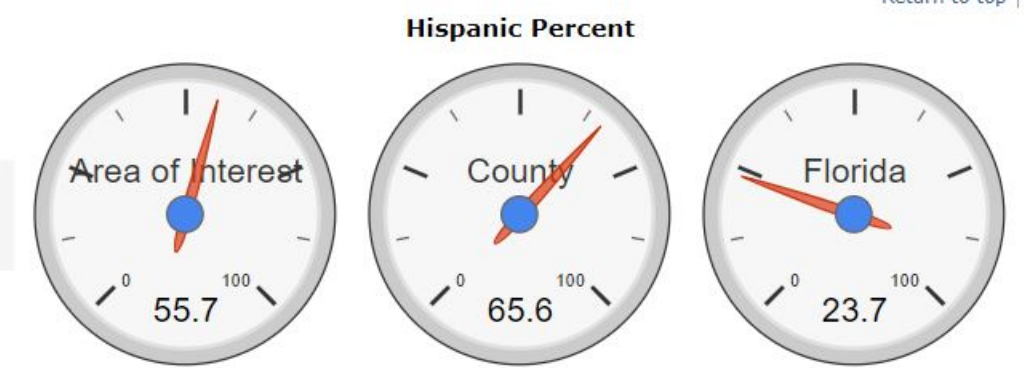
[Race and Ethnicity in the 2010 Census](#)

Statistic	Area of Interest	Miami-Dade County	Florida	Area of Interest	County	Florida
<b>Total Population</b>	34905	2639042	19645772	1.32% of County	13.43% of Florida	
Land Area (sq. mi.)	4.54	1897.72	53668.20	0.24% of County	3.54% of Florida	
Water Area (sq. mi.)	3.98	533.47	8017.07	0.75% of County	6.65% of Florida	
Population per Square Mile	4096.34	1085.50	318.48			
Households	16297	842153	7300494			

Race	Area of Interest	Miami-Dade County	Florida
White	25756 (73.79%)	1999090 (75.75%)	14934702 (76.02%)
Black	4192 (12.01%)	491978 (18.64%)	3171108 (16.14%)
Native	176 (0.5%)	4001 (0.15%)	54569 (0.28%)
Asian	735 (2.11%)	41871 (1.59%)	509085 (2.59%)
Pacific	0 (0%)	612 (0.02%)	11024 (0.06%)
Other	3329 (9.54%)	64010 (2.43%)	493202 (2.51%)
Multiple Races	717 (2.05%)	37480 (1.42%)	472082 (2.4%)

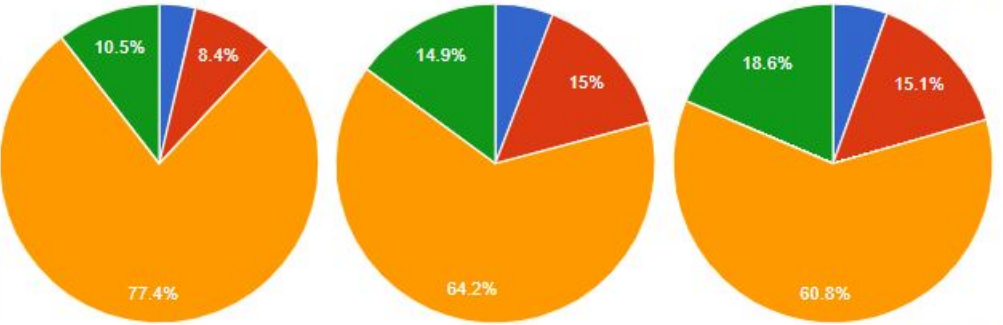


Ethnicity	Area of Interest	Miami-Dade County	Florida
Not Hispanic	15462 (44.3%)	907309 (34.38%)	14985039 (76.28%)
Hispanic	19443 (55.7%)	1731733 (65.62%)	4660733 (23.72%)

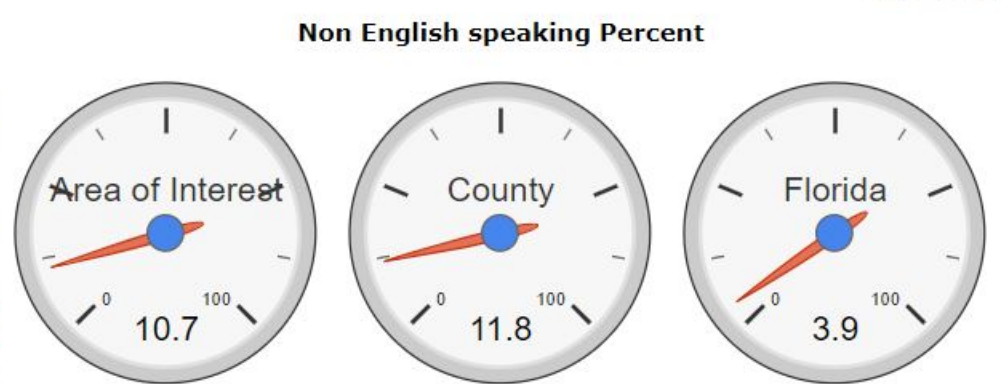


<a href="#">Diversity Index</a>	71.19	66.54	61.34
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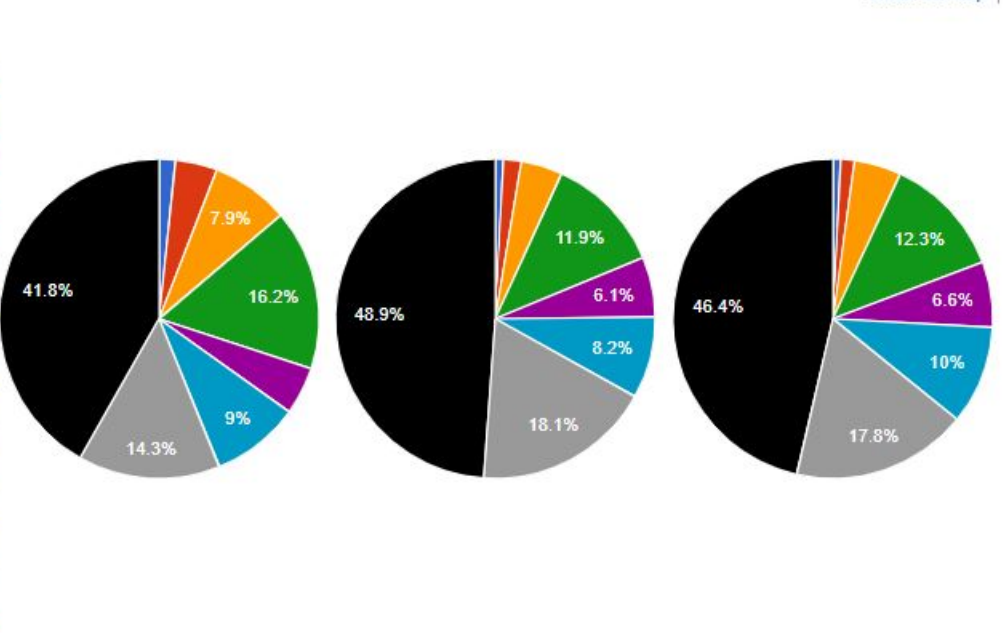
Age		Area of Interest	Miami-Dade County	Florida
Age 0 to 4	<div></div>	1279 (3.66%)	154842 (5.87%)	1081057 (5.5%)
Age 5 to 17	<div></div>	2936 (8.41%)	395858 (15%)	2960066 (15.07%)
Age 18 to 64	<div></div>	27022 (77.42%)	1694868 (64.22%)	11953658 (60.85%)
Age 65 and Over	<div></div>	3668 (10.51%)	393474 (14.91%)	3650991 (18.58%)



Language	2008-2015 ACS	Area of Interest	MOE	County	MOE	Florida	MOE
Non English speaking over 5 years old		3597 (10.7%)	784 (0.11) <div><div></div><div></div><div></div><div></div></div>	294109 (11.84%)	38113 (3.20) <div><div></div><div></div><div></div><div></div></div>	731038 (3.94%)	209314 (1.07) <div><div></div><div></div><div></div><div></div></div>
N.E. Spanish speaking		3420 (10.17%)	1209 (2.83) <div><div></div><div></div><div></div><div></div></div>	273085 (10.99%)	77255 (1.70) <div><div></div><div></div><div></div><div></div></div>	598746 (3.22%)	305224 (1.62) <div><div></div><div></div><div></div><div></div></div>
N.E. Other Indo-European		146 (0.43%)	789 (2.34) <div><div></div><div></div><div></div><div></div></div>	24316 (0.98%)	30676 (1.21) <div><div></div><div></div><div></div><div></div></div>	109108 (0.59%)	203825 (1.10) <div><div></div><div></div><div></div><div></div></div>



Education	2008-2015 ACS	Area of Interest	MOE	County	MOE	Florida	MOE
Doctorate	<div></div>	580 (1.66%)	924 (2.65) <div><div></div><div></div><div></div><div></div></div>	21291 (0.81%)	36623 (1.39) <div><div></div><div></div><div></div><div></div></div>	154629 (0.79%)	251737 (1.28) <div><div></div><div></div><div></div><div></div></div>
Professional	<div></div>	1477 (4.23%)	1467 (4.20) <div><div></div><div></div><div></div><div></div></div>	48356 (1.83%)	52832 (2.00) <div><div></div><div></div><div></div><div></div></div>	274741 (1.4%)	320412 (1.63) <div><div></div><div></div><div></div><div></div></div>
Master	<div></div>	2756 (7.9%)	2249 (6.43) <div><div></div><div></div><div></div><div></div></div>	110663 (4.19%)	85799 (3.25) <div><div></div><div></div><div></div><div></div></div>	932223 (4.75%)	621327 (3.16) <div><div></div><div></div><div></div><div></div></div>
Bachelor	<div></div>	5670 (16.24%)	3140 (8.95) <div><div></div><div></div><div></div><div></div></div>	314713 (11.93%)	168090 (6.35) <div><div></div><div></div><div></div><div></div></div>	2418555 (12.31%)	1110789 (5.64) <div><div></div><div></div><div></div><div></div></div>
Associates	<div></div>	1694 (4.85%)	1639 (4.69) <div><div></div><div></div><div></div><div></div></div>	160206 (6.07%)	117363 (4.44) <div><div></div><div></div><div></div><div></div></div>	1296844 (6.6%)	828511 (4.21) <div><div></div><div></div><div></div><div></div></div>
Some College	<div></div>	3136 (8.98%)	2388 (6.82) <div><div></div><div></div><div></div><div></div></div>	217658 (8.25%)	142525 (5.39) <div><div></div><div></div><div></div><div></div></div>	1969869 (10.03%)	1071680 (5.44) <div><div></div><div></div><div></div><div></div></div>
High School	<div></div>	5005 (14.34%)	3335 (9.52) <div><div></div><div></div><div></div><div></div></div>	476658 (18.06%)	234806 (8.87) <div><div></div><div></div><div></div><div></div></div>	3491793 (17.77%)	1542201 (7.82) <div><div></div><div></div><div></div><div></div></div>
Below High School	<div></div>	14587 (41.79%)	931 (1.40) <div><div></div><div></div><div></div><div></div></div>	1289497 (48.86%)	40388 (2.47) <div><div></div><div></div><div></div><div></div></div>	9107118 (46.36%)	244415 (2.10) <div><div></div><div></div><div></div><div></div></div>





Income	2008-2015 ACS	Area of Interest	MOE	County	MOE	Florida	MOE	Poverty Percent
Average Per Capita Income		\$ 39488.83	16024.50	\$ 28823.6	9733.98	\$ 32305.06	9072.42	
Poverty (Population earning less than \$21286 or less than 1.25 times poverty threshold)		8573	5197	530006	327461	3180109	2046494	
Poverty Percent (of total population)		25.84%	13.53	20.4%	11.41	16.54%	9.96	

Area of Interest

25.8





















County

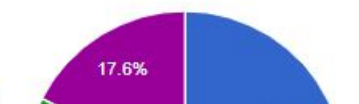


20.4

Florida

























16.5

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Employment	2008-2015 ACS	Area of Interest	MOE	County	MOE	Florida	MOE			
Civilian Employed		16119 (51.68%)	7178 (16.84)		905282 (42.06%)	379598 (13.99)		5719260 (35.57%)	2436953 (13.05)	
Unemployed		1863 (5.97%)	600 (0.64)		133338 (6.19%)	22250 (1.89)		915976 (5.7%)	178704 (1.66)	
Armed Forces		102 (0.33%)	1893 (6.07)		1770 (0.08%)	108860 (5.06)		53414 (0.33%)	737685 (4.59)	
Not in Labor Force 16 - 64		9846 (31.57%)	4958 (12.69)		812417 (37.74%)	295230 (9.76)		6567097 (40.85%)	2026912 (8.97)	
Not in Labor Force 65 up		3259 (10.45%)	1340 (2.90)		299589 (13.92%)	2514 (3.56)		2822031 (17.55%)	7087 (3.81)	



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Employed By	2008-2015 ACS	Area of Interest	MOE	County	MOE	Florida	MOE
For Profit Company	 31390 (89.91%)	4153 (11.22)	 	547814 (66.67%)	6496 (9.97)	 	626784 (50%) 1351453 (107.24)
Government Agency	 877 (2.51%)	225 (0.63)	 	121299 (14.76%)	31946 (3.21)	 	289391 (23.09%) 75611 (3.20)
Self Employed	 1782 (5.1%)	430 (1.21)	 	86910 (10.58%)	22467 (2.23)	 	188991 (15.08%) 49155 (2.06)
Non Profit	 862 (2.47%)	210 (0.59)	 	63972 (7.79%)	16959 (1.71)	 	144486 (11.53%) 37514 (1.56)
Unpaid Family Worker	 3 (0.01%)			1726 (0.21%)	343 (0.03)	 	3916 (0.31%) 274 (0.07)

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## ATTACHMENT E | SFWMD ENVIRONMENTAL RESOURCE PERMIT



**South Florida Water Management District**  
**Conceptual Permit No. 13-103809-P**  
**Date Issued: September 24, 2021**

**Permittee:** Miami-Dade Board of County Commissioners  
Department of Transportation and Public Works  
701 NW 1st Court, Suite 1700  
Miami, FL 33136

**Project:** Beach Corridor Rapid Transit Project - Bay Crossing

**Application No.** 200710-3865

**Location:** Miami-Dade County, See Exhibit 1

Your application for a Conceptual Permit is approved. This action is taken based on Chapter 373, Part IV, of Florida Statutes (F.S.) and the rules in Chapter 62-330, Florida Administrative Code (F.A.C.). Unless otherwise stated, this permit constitutes certification of compliance with state water quality standards under section 401 of the Clean Water Act, 33 U.S.C. 1341, and a finding of consistency with the Florida Coastal Management Program. Please read this entire agency action thoroughly and understand its contents.

This permit is subject to:

- Not receiving a filed request for a Chapter 120, F.S., administrative hearing.
- The attached General Conditions for Environmental Resource Permits.
- The attached General Conditions for Authorizations.
- The attached Special Conditions.
- All referenced Exhibits.

All documents are available online through the District's ePermitting site at [www.sfwmd.gov/ePermitting](http://www.sfwmd.gov/ePermitting).

If you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights", we will assume that you concur with the District's action.

The District does not publish notices of action. If you wish to limit the time within which a person may request an administrative hearing regarding this action, you are encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Legal requirements and instructions for publishing a notice of agency action, as well as a noticing format that can be used, are available upon request. If you publish a notice of agency action, please send a copy of the affidavit of publication provided by the newspaper to the District's West Palm Beach office for retention in this file.

If you have any questions regarding your permit or need any other information, please call us at 1-800-432-2045 or email [epermits@sfwmd.gov](mailto:epermits@sfwmd.gov).

A handwritten signature in blue ink, appearing to read "Gary R. Priest".

Gary R. Priest, P.E.  
Engineering Section Administrator, Environmental Resource Bureau



**South Florida Water Management District  
Conceptual Permit No. 13-103809-P**

<b>Date Issued:</b>	September 24, 2021	<b>Expiration Date:</b>	September 24, 2041
<b>Project Name:</b>	Beach Corridor Rapid Transit Project - Bay Crossing		
<b>Permittee:</b>	Miami-Dade Board of County Commissioners Department of Transportation and Public Works 701 NW 1st Court, Suite 1700 Miami, FL 33136		
<b>Operating Entity:</b>	Miami-Dade Board of County Commissioners Department of Transportation and Public Works 701 NW 1st Court, Suite 1700 Miami, FL 33136		
<b>Location:</b>	Miami Dade County		
<b>Permit Acres:</b>	37.27 acres		
<b>Project Land Use:</b>	Transportation		
<b>Special Drainage District:</b>	N/A		
<b>Water Body Classification:</b>	CLASS III CLASS III		
<b>FDEP Water Body ID:</b>	3226H3 3226H		
<b>Wetland and Surface Water Impacts:</b>	4.595 acres		
<b>Sovereign Submerged Lands:</b>	Yes	<b>Type:</b>	Public Easement

**Project Summary**

This permit authorizes Conceptual Approval of a stormwater management (SWM) system serving 37.27 acres of transportation development known as Beach Corridor Rapid Transit Project. The permit includes conceptual authorization for impacts to 0.19 acres of seagrasses, and offsite mitigation to offset the adverse impacts.

The project is an elevated rapid transit guideway crossing Biscayne Bay, consisting of upland and in-water portions adjacent to and south of MacArthur Causeway to connect the Cities of Miami and Miami Beach with rapid transit service using electric rubber-tire vehicles (monorail or automated people-mover). The structural components include piles and piers supporting the guideway as an independent bridge along the causeway. The project corridor comprises three sub-basins and four stations along the Bay Crossing: Herald Plaza Station, Children's Museum Station, 5th Street and Lenox Avenue Station, and 5th Street and Washington Avenue Station. Stormwater runoff will fall through the elevated open deck track to the existing ground and surface water below. The SWM system consists of catch basins, two reconfigured retention ponds and an existing drainage well to provide water quality treatment for the Children's Museum Station (Exhibit No. 2.0).

Activities in the water involve substantial sub-surface drilling and pile-driving into the submerged

bottom and limestone substrate for geotechnical investigations and to construct guideway bridge support bents with drilled concrete shafts, temporary and permanent casings, temporary steel construction templates, cofferdams, temporary work platform trestles and new fender piles. Cofferdam cells around the drilled shafts will be dewatered for concrete pouring and construction of pier caps and superstructure atop the drilled shafts. Additional activities include temporary removal and replacement of existing riprap south of the Causeway, construction of temporary work platform trestles, and removal of existing dock structures at Island Gardens Marina at the west bridge. Barges will be used for most of the construction and will require spudding into the seafloor. More detailed descriptions of the in-water activities are provided in Exhibit No. 3.0.

No construction or operation is authorized under this application. The permittee shall obtain a separate Environmental Resource Permit (ERP) to authorize the construction and operation. For portions of the project on sovereignty submerged lands, the permittee shall obtain authorization in the form of a public easement and a letter of consent from the Board of Trustees of the Internal Improvement Trust Fund. A modification of this conceptual permit may be required if the construction proposal changes assumptions or impacts authorized herein.

Issuance of this permit constitutes certification of compliance with state water quality standards in accordance with Rule 62-330.062, F.A.C..

### **Site Description**

The site is located within the southern limits of the North Biscayne Bay Basin. The project starts at the Midtown Metromover Omni Extension in Miami, crosses Biscayne Bay adjacent to the south side of MacArthur Causeway and ends in Miami Beach at 5th Street near Washington Avenue, for a total distance of approximately 3.67 miles. The offsite mitigation area is located in Biscayne Bay at Matheson Hammock Park, approximately 9 miles south of the project site. Refer to Exhibit No. 1.0 for the location map.

There are no existing permitted water management facilities within the project area.

For information on wetland and other surface water impacts, please see the Wetlands and Other Surface Water section of this permit.

### **Ownership, Operation and Maintenance**

Perpetual operation and maintenance of the stormwater management system and mitigation activities will be the responsibility of Miami-Dade Board of County Commissioners. Upon conveyance or division of ownership or control of the property or the system, the permittee must notify the Agency in writing within 30 days, and the new owner must request transfer of the permit.

### **Engineering Evaluation:**

#### **Land Use**

Please refer to the Engineering Evaluation Table for the project's land use breakdown. The land use includes other surface water area ("Other") and an offsite wetland mitigation area.

#### **Water Quality**

The project is located within a watershed identified by the Florida Department of Environmental Protection as Outstanding Florida Waters OFW; therefore, the design includes a site-specific pollutant loading analysis and an additional 50% water quality treatment volume above the amounts required pursuant to Section 4.2.1, Volume II, as reasonable assurances that the projects discharge will not cause or contribute to violations of State water quality standards. The project provides 1.53 ac-ft of water quality treatment.

The project includes several measures to demonstrate reasonable assurance of compliance with water quality criteria, including anti-degradation provisions in Rule 62-4.242, F.A.C. Turbidity curtains and erosion control devices will be deployed prior to any soil-disturbing activities or

construction and will remain in place until construction is complete and monitoring data verify that turbidity has returned to back ground levels. A water quality monitoring plan will be implemented in accordance with Exhibit No. 3.1 and permit special conditions. Temporary casings will be installed to contain drilling spoils or slurry. These materials and dewatering effluent will be discharged into sealed tanks on barges and offloaded to land-based facilities. Barge operation areas identified in Exhibit No. 3.0 are based on bathymetry data indicating adequate depths to avoid bottom disturbance.

### **Discharge**

The project proposes to retain stormwater runoff onsite for the designated 25-year, 3-day storm event.

### **Perimeter Berm**

As found in Water Quantity Data Table, minimum perimeter berm elevations have been set at or above the calculated design storm flood elevation.

### **Certification, Operation, and Maintenance:**

Pursuant to Chapter 62-330.310, F.A.C., Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all SWM systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of SWM systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity is responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of the Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

## Engineering Evaluation Tables: Land Use

Basin	Land Type	Area (ac)	% of Total Basin
Beach Corridor Rapid Transit	Impervious Area	11.33	30.40
	Pervious Area	2.45	6.57
	Other	4.60	12.34
	Offsite Wetland Mitigation	18.89	50.68
	<b>Total:</b>	37.27	100%

## Water Quality

Basin	Treatment Type	Treatment System	Volume Required (ac-ft)	Volume Provided (ac-ft)	Area (ac)
Beach Corridor Rapid Transit	Treatment	DRY DETENTION	0.53	0.53	0.67
	Treatment	DRAINAGE WELLS	1.00	1.00	1.08

## Water Quantity

Basin	Elevation Type	Storm Event (Yr/Day)	Precipitation Depth (in)	Peak Stage (ft NAVD88)	Min. EL (ft NAVD88)
Beach Corridor Rapid Transit	Perimeter Berm/ Discharge	25YR-3D	11.00	6.73	7.00

## **Environmental Evaluation:**

### **Wetlands and Other Surface Waters**

The project is located in 4.6 acres of open tidal waters along the western and eastern bridges and riprap shoreline adjacent to the south side of MacArthur Causeway, and is within Biscayne Bay Aquatic Preserve (Outstanding Florida Waters). The project area experiences good tidal flushing and strong currents from the inlet at Government Cut, approximately 1 mile from the site. The surrounding area is heavily developed with commercial shipping, including cruise lines, and marinas, as well as various commercial and residential activities on the uplands. Bay waters are often very turbid due to the nature and ongoing intensity of activities. Seagrasses, corals, sponges, macroalgae, hardbottom, mangroves, sand, and sand/shell hash occur within the project area.

Several benthic community types are located within the project area. Seagrasses were observed by staff during a site visit in October, 2019. One seagrass bed is present at the west bridge site, consisting of approximately 1.35 acres with dense cover by paddle grass (*Halophila decipiens*). Three seagrass beds comprising 0.63 acres are present at the east bridge site, with moderate cover by *H. decipiens* (Exhibit 3.0). Johnson's seagrass (*H. johnsonii*, federally-listed as a threatened species), was not found in the project area. Benthic habitats along the causeway portion of the project are comprised of medium relief boulder riprap in shallow water up to 4 feet deep, and low relief hardbottom and rubble from the toe of the riprap to the edge of the ship channel. The riprap and hardbottom are colonized by algae and invertebrates, including stony corals, octocorals, sponges, and bryozoans. Approximately 121 red, black, and white mangroves as individuals or in small clumps are growing among the riprap, mostly above the mean high water line. Additional descriptions are available in the ePermitting file.

### **Impacts**

Generally, in-water activities include installation of pile foundations and pier caps to support the guideway, construction of temporary trestles, and operation of barges. Foundation work includes placement of construction templates and cofferdams, subaqueous drilling into the limestone substrate, pouring concrete into the drilled shafts to build the piles and placement of pier caps atop the piles. The total area of work within tidal surface waters of Biscayne Bay is 4.6 acres. Impacts to a total of 0.19 acres of seagrass are expected from barge spudding, constructing the drilled shafts, installing the drilled shaft templates and cofferdams, and shading from barges and temporary trestle bridges (0.047 acre south of the west bridge and 0.138 acre south of the east bridge). There is an additional 4.41 acre area of work in the Bay where no adverse impacts to resources will occur.

Barge spudding will occur within the low-relief hardbottom habitat waterward of the riprap. Based on calculations using the numbers of barges, spuds per barge, spudding events, and area per spud, the area of temporary disturbance is approximately 0.25 acre and is somewhat scattered. This area is expected to recover. The applicant has coordinated with the Florida Fish and Wildlife Conservation Commission (FWC) and National Marine Fisheries Service (NMFS) to develop plans for coral relocation to minimize the number of individual corals impacted and a procedure for determining a number of corals to be outplanted by a research organization to replace the anticipated number of corals that would be lost (See Exhibit 4.0). Relocated corals will be placed on the riprap at the northeast corner of MacArthur Causeway. The low-relief hardbottom will remain after the spudding and is expected to recover its function, so mitigation is not required.

Mangroves in the riprap are expected to be lost due to construction. However, these mangroves provide minimal habitat and additional mangroves are expected to recruit back to the shoreline post-construction.

### **Reduction and Elimination of Impacts**

The applicant provided an analysis of alternative alignments that considered existing and future



constraints (environmental, alignment geometry, right-of-way, cultural resources and existing infrastructure). Alignment along the existing causeway and bridges was determined infeasible due to interfering structures, Port of Miami Tunnel access, and insufficient structural foundation. An alignment on the north side of MacArthur is precluded by geometric constraints, submerged piles, and land use restrictions. A detailed explanation of the analysis is contained in the ePermitting file.

The proposed design consists of an independent bridge and pier foundations to support an elevated guideway with open-deck grating adjacent to the south side of the existing bridges and causeway. To minimize impacts to seagrasses and corals, a hybrid construction solution incorporates temporary trestle work bridges in shallow areas to avoid dredging for barge access, and use of barges in seagrass areas to avoid pile driving and constant shading.

The elevated guideway will be 78 feet above water at the west bridge and 58 feet above water at the east bridge. The applicant provided an analysis of potential shading impacts on seagrass beds. The analysis concluded that a shadow would be cast over portions of the beds during portions of the day, but over most areas the shadow is transient. Additionally, the height of the guideway and its open-deck grating are expected to allow sufficient light penetration to support growth of paddle grass (*Halophila decipiens*), the species that occurs in this area.

Most of the 56 drilled shafts to support the piers along the causeway section of the project will be located above the mean low water line and will have little to no impact to corals or other benthic species. An estimated 0.46 acre of riprap above the mean high water line will be removed prior to construction to install the drilled shafts and replaced post construction. Submerged riprap will be removed, stored underwater and replaced post construction.

### **Mitigation**

To mitigate for impacts to 0.19 acre of seagrass habitat, the applicant will implement a seagrass restoration project in a 18.89-acre shoal area within Biscayne Bay, just offshore of Matheson Hammock Park (Operated by Miami-Dade County). The permittee will install marker buoys and signage to guide boaters around the shoals and into the existing navigation channel with the goal of reducing the incidence of propeller scarring by motorboats, promoting seagrass recruitment into areas previously damaged by propellers. The existing line of sight in the channel between the park marina and the bay is not straight, so the existing aids to navigation do not adequately direct boaters around the shoals. Reducing the area potentially exposed to scarring and increasing seagrass cover within the existing scars is expected to benefit the entire shoal area within the markers. The predominant species present on the shoals are shoal grass (*Halodule wrightii*), turtle grass (*Thalassia testudinum*), and manatee grass (*Syringodium filiforme*), as well as several species of calcareous algae. The shoals are criss-crossed with shallow scars ranging up to 2 feet wide. Most of the scars are relatively shallow and contained shoal grass (*Halodule wrightii*), indicating the scars would trend toward recovery through succession if additional damage could be prevented. The applicant provided an analysis based on the length of scars accumulating on the shoals as depicted in a series of historic aerials since 2005. Based on the applicant's calculations, the number of scars increased 140% in a 5 year period. Buoys will be placed to guide boats along the channel and on the Bay-side to indicate the presence of the shoals. Additional educational signage will be installed at the park and marina showing the seagrass areas, marker buoys and signs.

The applicant shall obtain a Florida Uniform Waterway Marker (FUWM) permit for the bouys and in-water signs from the Florida Fish and Wildlife Conservation Commission (FWC) and Army Corps of Engineers and then submit the permits to the US Coast Guard. The FWC permit will require the permittee to maintain the buoys and signs in the designed condition, and requires triennial reporting to the FWC regarding the maintenance status. Success criteria will be based on a decrease in the rate of future scarring and an increase in percent cover of seagrass in scarred areas.

The functional loss related to the project is -0.131 functional units and the functional gain provided by the mitigation activities is 0.437 functional units. The amount of required mitigation was

determined using the Uniform Mitigation Assessment Method (UMAM) in Chapter 62-345, F.A.C. The final scores are attached in Exhibit 5.0.

### **Monitoring and Maintenance**

Monitoring in the shoals will be conducted to determine that seagrass is recruiting to the scars and that there is a reduction in the rate of increase of scarring as an indication that the protective measures are effective.

Seagrass cover in the scars will be monitored for five years. Percent seagrass cover and percent cover of macroalgae in the scars will be based on a sampling plan described in 5.0. Baseline monitoring will occur prior to installing the buoys and signs. Monitoring will occur annually for the next five years during the seagrass growing season (June - September). Reports will be submitted to the SFWMD within one month of monitoring. A qualitative assessment will be conducted by sampling the seagrass beds adjacent to the scars for comparison of species and coverage in accordance with the monitoring plan in Exhibit 5.0. Success will be determined by demonstrating a trend toward recovery within the scars by achieving at least 3% increase in coverage in the existing scars by seagrass each year and at least 30% cover by seagrass in the scars within 5 years.

To measure a reduction in the rate of scarring, or a decrease in the number and intensity of new scars, scarring at the site will be measured by mapping new scars versus pre-existing scars by comparing year-to-year measurements of scars imaged by drone aerial photography as described in the mitigation plan. Success will be demonstrated by a net increase in the total length and number of scars of no more than 35% over five years, with an interim measure of less than 5% increase in scars each year of monitoring.

Each year or more often, if warranted by storm events, the buoys and signs will be inspected to verify they are in the installed location and in good condition. This information will be included in the monitoring reports. The District may require relocation of buoys or additional buoys after periodic evaluation of the area based on staff's observations and the monitoring reports

### **Cumulative Impacts**

The mitigation area is not located within the same basin as the seagrass habitat impacts (Biscayne Bay Basin). Therefore, the applicant must demonstrate that the project will not result in unacceptable cumulative impacts to seagrass habitats within the Biscayne Bay Basin (Basin), in accordance with Rule 10.2.8 of Volume I. The Basin contains large areas of seagrass beds that are not subject to substantial development. The relatively small amount of impact to seagrasses resulting from the project represents a very small fraction of the remaining seagrasses. The mitigation area is in an adjacent portion of Biscayne Bay that is not included in the Basin, and is located approximately 9 miles south of the project site. The benefits in the mitigation area are expected to accrue to the Basin. Therefore, the District has determined that the project will not result in unacceptable cumulative impacts to the Biscayne Bay Basin. This conclusion is project specific, and does not apply to any other application.

### **Fish, Wildlife, and Listed Species**

The project site is located within habitat for many wildlife species listed as endangered (E) or threatened (T) by the federal Endangered Species Act of 1973, as amended. The project site is located within Johnson's seagrass critical habitat as designated by the U.S. National Marine Fisheries Service (NMFS).

The NMFS and the U.S. Fish and Wildlife Service (USFWS) evaluated the potential effects of the proposed activities to listed species during the federal review of the U.S. Coast Guard Permit required for the project. The reviews focused on impacts to critical habitat for listed species as well as behavioral effects related to pile-driving activities which generate noise disturbances, and other construction activities that could result in injury or death to wildlife species (take). As part of the review, NMFS issued a Biological Opinion (BO), dated July 14, 2021, concluding that the proposed action may affect, but is not likely to adversely affect the following species: green sea turtle (*Chelonia mydas*) [North and South Atlantic Distinct Population Segments (DPS) - T],

hawksbill sea turtle - E (*Eretmochelys imbricate*), Kemp's ridley sea turtle – E (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*) (Northwest Atlantic DPS - T), leatherback sea turtle – E (*Dermochelys coriacea*), giant manta ray -T (*Manta birostris*), Nassau grouper -T (*Epinephelus striatus*), and smalltooth sawfish (*Pristis pectinata*) (United States DPS - E). NMFS also concluded that the proposed action is likely to adversely affect, but will not destroy or adversely modify, Johnson's seagrass designated critical habitat (Exhibit 6.0).

The USFWS provided a determination, dated October 23, 2020, to the U.S. Coast Guard that the activities are not likely to adversely affect any federally listed species or designated critical habitat protected by the Endangered Species Act of 1973. The aquatic or wetland-dependent species addressed in the USFWS determination include: Rufa red knot -T (*Calidris canutus rufa*), piping plover -T (*Charadrius melodus*), wood stork -T (*Mycteria americana*), Florida bonneted bat - E (*Eumops floridanus*), West Indian manatee - T (*Trichchus manatus*), American alligator – T (due to similarity of appearance with American crocodile) (*Alligator mississippiensis*), and American crocodile – T (*Crocodylus acutus*). Please see Exhibit 7.0.

The Florida Fish and Wildlife Conservation Commission (FWC) provided comments regarding manatee protection, including conditions for pile-driving activities.

The applicant shall construct the project in accordance with the Standard Manatee Construction Conditions, Sea Turtle and Smalltooth Sawfish Construction Conditions, and Pile Driving Conditions.

This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered or threatened species or species of special concern are discovered on the site.

### **Navigation**

The transit guideway will be constructed over the Intracoastal Waterway and Meloy Channel, and in proximity to the City of Miami Beach Marina, Island Gardens Marina and the Fisher Island Ferry Terminal. No activities are proposed within the federal navigation channel. The project is adjacent to but not within the ship channel between Dodge Island and the Causeway. The applicant has coordinated directly with the marina operators regarding temporary disruption at portions of the marinas and the need to remove and reconstruct portions of the Island Gardens Marina. The site plan for construction activities identifies areas to be avoided during construction for maintenance of unrestricted operations by the Fisher Island Ferry. The applicant is in the process of obtaining a permit from the U.S. Coast Guard which requires that the guideway bridges meet horizontal and vertical clearance requirements for navigation.

During construction, floating barriers will be installed to warn personal watercraft operators traveling south not to travel between piers. (see Exhibit No. 3.0)

### **Biscayne Bay Aquatic Preserve/Outstanding Florida Waters**

The project is located within Biscayne Bay Aquatic Preserve (BBAP), Outstanding Florida Waters (OFW). The project was evaluated to determine if the activities are clearly in the public interest in accordance with rule 62-330.302(1), F.A.C., and to determine compliance with the rules for BBAP (Chapter 18-18, F.A.C. and Chapter 258, F.S), including those regarding public interest in rule 18-18.006, F.A.C., for activities on sovereignty submerged lands.

Accordingly, staff has determined that the project is clearly in the public interest based on an evaluation of the criteria described in section 10.2.3, Vol. I, and that the activities are consistent with provisions of Chapter 18-18, F.A.C., including activities within the BBAP located on sovereign submerged lands. Primarily, the project is considered a public necessity for improving public health and safety by providing mass transit between Miami and Miami Beach to help address traffic congestion on MacArthur Causeway and the general vicinity. On June 30, 2021, the District mailed notices provided by the applicant to property owners within a 500-foot radius of the activities. On August 23, 2021, the District published notice of the application in the Florida

Administrative Register and in the Miami Herald. No objections or other comments were received by the District in responses to noticing provided by the applicant and the District.

The proposed transit vehicles are electric and not expected to generate substances that would be discharged to the water. The permit incorporates measures to minimize the potential for adverse impacts to fish and wildlife including listed species. Project modifications have been incorporated to reduce the footprint to the minimum necessary for the purpose of the project and to minimize the potential for long-term damage to fish and wildlife habitats. Adverse impacts to seagrass will be offset by mitigation to allow recovery of seagrass beds damaged by boat propellers, and individual corals within the work area will be relocated or replaced in-kind by a program to outplant new corals.

The project is not expected to result in adverse impacts to historical and archaeological resources. The permittee submitted information to demonstrate that the project will not adversely affect the flow of water or cause harmful shoaling. Navigation in the federal channel will not be adversely affected during construction. The permittee has coordinated with adjacent marinas to address temporary disruption of operations. Temporary barriers will be placed north of the bridges during construction to warn south-bound operators of personal watercraft and guide them away from the bridge pilings. Best management practices and turbidity monitoring will be implemented, to avoid water quality impacts during construction.

### **Sovereignty Submerged Lands**

Portions of the activities are located on sovereignty submerged lands - lands owned by the State of Florida; therefore, authorization is required from the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), pursuant to Article X, Section 11 of the Florida Constitution, and Section 253.77, F.S.

Based on the conceptual plans, the activities associated with the elevated guiderail and support structures require a public easement for permanent structures and a temporary public easement for construction. The survey in Exhibit 8.0 depicts the approximate boundaries for the permanent easement. No survey for the temporary construction easement was provided. The permanent easement request was noticed, as mentioned previously, on June 30, 2021, in accordance with the requirements in subsections 18-21.005(3), F.A.C. (noticing for public easements) and 18-18.014(5)-(7), F.A.C.(noticing for dredging and filling in Biscayne Bay Aquatic Preserve). The District did not receive a request for a hearing or any other comments in response to the noticing.

The District has determined that the activities associated with the shoal markers for the mitigation project described in Exhibit 5.0 qualify for a letter of consent, in accordance with section 18-21.005(1)(c)4, F.A.C.

The final determination of boundaries for both easements will be based on the plans in the ERP construction permit. A permit special condition requires the permittee to obtain authorization for use of sovereignty submerged plans as part of the ERP construction permit.

## Environmental Evaluation Tables: Summary

Wetlands and Other Surface Waters: 4.595 acres  
 Direct Impacts: 4.595 acres  
 Secondary impacts: 0 acres  
 Net UMAM Functional Loss/ Gain: 0.306 units  
 Total Onsite Mitigation Area: 0 acres  
 Total Offsite Mitigation Area: 18.89 acres  
 Mitigation Provided in Permit No.:

### Wetlands and Other Surface Waters

#### Activities in Wetlands or Other Surface Waters, Not Including Mitigation at a Bank

ID	Acres	Action	Community Description	Current Score	With Project Score	UMAM Loss
SG West	0.047	Direct Impact	Sea Grasses	0.733	0	-0.034
SG East	0.138	Direct Impact	Sea Grasses	0.7	0	-0.097
OSW	4.41	Works in Surface Waters	Bays and Estuaries			0.000
<b>Total: 4.595</b>						<b>-0.131</b>

#### UMAM Mitigation and Preservation

ID	Acres	Action	Existing Community Description	Proposed Community Description	Current or Without Preserve Score	With Project Score	Time Lag Years.	Risk	P. A. F.	UMAM Gain
Shoal	18.89	Enhancement	Sea Grasses	Sea Grasses	0.667	0.733	5	2.5	1.0	0.437
<b>Total: 18.89</b>										<b>0.437</b>



**Related Concerns:****Water Use Permit Status**

No construction is proposed or authorized so irrigation and dewatering are not required for this conceptual permit.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) required for future construction authorizations.

**Historical/ Archeological Resources**

No information has been received that indicates the presence of archaeological or historical resources on the project site or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places. This permit does not release the permittee from complying with any other agencies' requirements in the event that historical and/or archaeological resources are found on the site.

## General Conditions for Conceptual Permits

1. This permit does not authorize any construction, alteration, maintenance, operation, removal, or abandonment, except where such activities are specifically authorized as the first phase of an individual permit or are authorized to occur in accordance with a general permit or exemption under Chapter 62-330, F.A.C.
2. This permit does not:
  - (a) Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
  - (b) Convey to the permittee or create in the permittee any interest in real property;
  - (c) Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
  - (d) Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.
3. The permittee shall notify the Agency in writing:
  - (a) Immediately if any previously submitted information is discovered to be inaccurate; and
  - (b) Within 30 days of any conveyance or division of ownership or control of the property or the system, the name and contact information for the new owner.
4. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample, and test the project site to ensure conformity with the permit.
5. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.
6. This conceptual approval permit only authorizes design concepts for a master or future plan to construct, alter, operate, maintain, remove, or abandon projects that require a permit under Part IV of Chapter 373, F.S. It does not authorize any construction, alteration, operation, maintenance, removal, or abandonment, or the establishment and operation of a mitigation bank, or relieve the permit holder of any requirements to obtain such permits.
7. Subsequent applications to construct and operate activities shall be prepared and submitted using the applicable procedures in Rules 62-330.052, 62-330.054, 62-330.060, and 62-330.402 F.A.C., and sections 4.2.2, 4.2.3, 4.3, and 4.4 of Volume I. An application for conceptual approval for a mitigation bank shall also include the materials required by Chapter 62-342, F.A.C.
8. Issuance of this conceptual approval permit is a determination, within the level of detail provided in the application, that the activities approved in this permit are consistent with applicable rules at the time of issuance. This permit provides the conceptual approval permit holder with a rebuttable presumption, during the duration of this permit, that the engineering design and scientific principles upon which the conceptual approval permit approved herein are likely to meet applicable rule criteria for issuance of permits for subsequent phases of the project, provided all of the following are met at the time of receipt of a complete application to construct and operate the future phases:
  - (a) The application to construct and operate the future phases remains consistent with the designs and conditions of this permit. Primary areas for consistency comparisons include the size, location, and extent of the activities proposed, the type and nature of the activities, percent imperviousness, allowable discharge and points of discharge, location and extent of wetland

and other surface water impacts, mitigation plans implemented or proposed, control elevations, extent of stormwater reuse, detention and retention volumes, and the extent of flood elevations. If an application for construction of any portion of the land area covered by this permit is inconsistent with the design concepts and conditions approved herein, the application will be reviewed to determine the extent to which the inconsistency will affect the designs and conditions for the remainder of the lands contained in this permit. If the inconsistency will materially affect those designs and conditions, then the applicant must demonstrate that the holder of this permit agrees to that inconsistency. In such a case, the holder of the conceptual approval permit may:

1. Modify the conceptual approval permit to conform to the revised design;
2. Abandon reliance on the conceptual approval permit; or
3. Rely on those portions of the conceptual approval permit for only those areas that were not affected by the inconsistency.

(b) There are no changes to state water quality standards that would be affected by activities authorized in the conceptual approval permit that have not already been authorized for construction or operation.

(c) There have been no amendments to Florida law governing special basin criteria that would affect future activities authorized by the conceptual approval permit that have not already been authorized for construction.

(d) There are no substantive changes in the site characteristics that would affect whether the design concepts approved in the conceptual approval permit can continue to be reasonably expected to meet the conditions for authorizing construction of future phases. This shall include such things as changes in the designation of listed species, and changes to nesting, denning, and critical designation status of listed species that exist within the lands served by the project area.

9. If changes are proposed to the design of existing or future phases, or where there have been changes to state water quality standards, special basins, or site characteristics as described in conditions (3)(a) through (d), above, during the duration of this permit, the applicant must modify this permit if it wishes to continue to rely on this permit as a basis that reasonable assurance exists for the Agency to issue future construction or operation permits under the terms and conditions of this permit. If the permittee fails to do this, this conceptual approval permit can no longer be relied upon as a basis, in part or whole, under which permits to construct or operate future phases will be issued, and the Agency will reevaluate the terms and conditions of this permit at the time a permit application is received to construct the next phase of activities, or at the next requested extension of this permit's duration in accordance with subsection 62-330.056(11), F.A.C., whichever occurs first.

**General Conditions for Authorizations for Use of Sovereign Submerged Lands, Rule 18-21.004(7), F.A.C.**

All authorizations granted by rule or in writing under Rule 18-21.005, F.A.C., except those for aquaculture activities and geophysical testing, shall be subject to the general conditions as set forth in paragraphs (a) through (i) below. The general conditions shall be part of all authorizations under this chapter, shall be binding upon the grantee, and shall be enforceable under Chapter 253 or Chapter 258, Part II, F.S.

(a) Authorizations are valid only for the specified activity or use. Any unauthorized deviation from the specified activity or use and the conditions for undertaking that activity or use shall constitute a violation. Violation of the authorization shall result in suspension or revocation of the grantee's use of the sovereignty submerged land unless cured to the satisfaction of the Board.

(b) Authorizations convey no title to sovereignty submerged land or water column, nor do they constitute recognition or acknowledgment of any other person's title to such land or water.

(c) Authorizations may be modified, suspended or revoked in accordance with their terms or the remedies provided in Sections 253.04 and 258.46, F.S., or Chapter 18-14, F.A.C.

(d) Structures or activities shall be constructed and used to avoid or minimize adverse impacts to sovereignty submerged lands and resources.

(e) Construction, use, or operation of the structure or activity shall not adversely affect any species which is endangered, threatened or of special concern, as listed in Rules 68A-27.003, 68A-27.004, and 68A-27.005, F.A.C.

(f) Structures or activities shall not unreasonably interfere with riparian rights. When a court of competent jurisdiction determines that riparian rights have been unlawfully affected, the structure or activity shall be modified in accordance with the court's decision.

(g) Structures or activities shall not create a navigational hazard.

(h) Structures shall be maintained in a functional condition and shall be repaired or removed if they become dilapidated to such an extent that they are no longer functional. This shall not be construed to prohibit the repair or replacement subject to the provisions of Rule 18-21.005, F.A.C., within one year, of a structure damaged in a discrete event such as a storm, flood, accident, or fire.

(i) Structures or activities shall be constructed, operated, and maintained solely for water dependent purposes, or for non-water dependent activities authorized under paragraph 18-21.004(1)(g), F.A.C., or any other applicable law.

## Special Conditions for Conceptual Permits

1. The Conceptual Approval shall expire on the date shown on page 2 of this permit, in accordance with Rules 62-330.056(9) and (10), F.A.C.
2. Operation and maintenance of the stormwater management system and mitigation activities shall be the responsibility of Miami-Dade Board of County Commissioners. The permittee shall notify the Agency in writing within 30 days of any conveyance or division of ownership or control of the property of the system, and the new owner must request transfer of the permit in accordance with Rule 62-330.340, F.A.C.
3. Prior to any future construction, the permittee shall apply for and receive an Individual ERP. As part of the permit application, the applicant for that phase shall provide documentation verifying that the proposed construction is consistent with the design of the master stormwater management system, including the land use and site grading assumptions.
4. The permittee is hereby advised that Section 253.77, F.S., states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state owned lands.
5. A mitigation program shall be implemented in accordance with Exhibit No. 5.0. The permittee shall place marker buoys and signage to visually mark the 18.89 acre shoal area offshore of Matheson Hammock Park to promote restoration within scarred areas and to reduce the incidence of additional scarring by boats. Monitoring shall be conducted to document recovery of seagrasses into the existing scars and to document the reduced rate of new scarring over a period of 5 years, as described below.
6. A monitoring program shall be implemented to evaluate seagrass recruitment in scarred areas, in accordance with Exhibit No. 5.0, Section 4.4. The monitoring program shall extend for a period of 5 years with annual reports submitted to District staff. The scarred areas shall exhibit at least 3% increase in percent cover from year to year for each year of monitoring, and a total 30% increase in seagrass cover, compared to Time 0, at the end of the 5 year monitoring period. A report shall be submitted to document the monitoring results at Time 0, then annually for years 1-5 after Time 0. The construction authorization shall reflect a time schedule for the reports.

A monitoring program shall be implemented to evaluate the rate of new scarring within the shoal area, in accordance with Exhibit No. 5.0, Section 4.4. The monitoring program shall extend for a period of 5 years with annual reports submitted to District staff. Monitoring shall demonstrate less than 5% increase in new scarring (numbers and linear feet) from year to year for each year of monitoring, and less than 35% net increase in scars compared to Time 0, at the end of the 5 year monitoring period. A report shall be submitted to document the monitoring results at Time 0, then annually for years 1-5 after Time 0. The construction authorization shall reflect a time schedule for the reports.
7. The permittee shall conduct inspections in accordance with the Uniform Waterway Marking



System Permit to be issued by FWC, and replace or maintain the buoys and signs as necessary to maintain them in perpetuity in the condition and functioning for the purpose described the mitigation proposal.

8. Turbidity curtains and other turbidity control measures shall be utilized during construction as described in Exhibit 3.0.

9. A water quality monitoring program shall be implemented as outlined below and described in Exhibit 3.1

The monitoring data must demonstrate that turbidity outside of the work area and downstream of all activities is 0 NTU's above natural background turbidity (meets OFW standards). If monitoring shows such levels to be exceeded, construction shall cease and District compliance staff shall be notified immediately. Work shall not resume until District staff is satisfied that adequate corrective measures have been taken and turbidity has returned to acceptable levels.

All monitoring data shall be maintained on site and be available to District staff during regular business hours.

10. This permit does not authorize the permittee to cause any adverse impact to or "take" of state listed species and other regulated species of fish and wildlife. Compliance with state laws regulating the take of fish and wildlife is the responsibility of the owner or applicant associated with this project. Please refer to Chapter 68A-27 of the Florida Administrative Code for definitions of "take" and a list of fish and wildlife species. If listed species are observed onsite, FWC staff are available to provide decision support information or assist in obtaining the appropriate FWC permits. Most marine endangered and threatened species are statutorily protected and a "take" permit cannot be issued. Requests for further information or review can be sent to: FWCConservationPlanningServices@MyFWC.com.

11. The applicant shall implement the measures to relocate and outplant corals as described in Exhibit 4.0.

12. Turbidity barriers shall be monitored at least twice a day, once in the a.m. and again in the p.m. for manatee entanglement or entrapment. If a manatee becomes entrapped within the construction area, the barrier shall be opened so the manatee is able to leave the construction area on its own volition. If a manatee becomes entangled, the Florida Fish and Wildlife Conservation Commission should be notified immediately at 1-888-404-3922 (FWCC).

13. STANDARD MANATEE CONDITIONS FOR IN-WATER WORK (2011) The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or Vero Beach (1-772-562-3909) for south Florida, and to FWC at [ImperiledSpecies@myFWC.com](mailto:ImperiledSpecies@myFWC.com)

f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads Caution: Boaters must be posted. A second sign measuring at least 8.5" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at [MyFWC.com/manatee](http://MyFWC.com/manatee). Questions concerning these signs can be sent to the email address listed above.

14. For all pile-driving activity related to this project:

a. At least one dedicated observer shall be present during pile driving activities and shall perform no other duties that may interfere with their ability to observe for protected marine species. Observer(s) must have prior on-the-job experience observing manatees during dredging projects or in-water work where the activities were similar in nature to this project. Observer(s) shall have the authority to cease project operations 1) upon sighting a manatee within 50 feet of the pile driving or vessel activity; and 2) if detection of manatees is not possible due to weather or other conditions.

b. All pile driving activities shall be limited to daylight hours in order to maximize visibility for protected species observers. Monitoring shall occur for 30 minutes prior to, during, and for 30 minutes after pile driving ends.

c. During pile driving, the project will utilize a ramp-up measure. At the start of pile driving activity, pile driving hammers would initially be operated at low levels, then gradually increase to minimum necessary power required for pile installation.

d. If the activities appear to harass or injure a protected marine species, then work shall cease immediately and not resume until after consultation with the Florida Fish and Wildlife Conservation Commission ([ImperiledSpecies@myfwc.com](mailto:ImperiledSpecies@myfwc.com) or 850-922-4330). Any additional conservation measures deemed necessary by FWC must be implemented to minimize the risks to protected species.

15. The permittee shall comply with the following protected species construction conditions:

a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth

sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.

b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.

c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.

d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.

e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.

f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/ rescue organization.

## **Distribution List**

Angel Chavarria, Parsons Transportation Group  
Jimmy A Usma, Miami-Dade Board of County Commissioners  
Aldo Bustamante, City of Miami  
Gayle Stone, E Sciences, Incorporated  
Nilia Cartaya, Florida Department Of Transportation  
Jimmy Morales, Miami-Dade Board of County Commissioners  
Audubon of Florida  
Department of Regulatory and Economic Resources  
Department of Regulatory and Economic Resources  
Div of Recreation and Park - District 5  
US Army Corps of Engineers - Permit Section  
Miami-Dade County - RER  
Miami-Dade County - RER

## **Exhibits**

The following exhibits to this permit are incorporated by reference. The exhibits can be viewed by clicking on the links below or by visiting the District's ePermitting website at <http://my.sfwmd.gov/ePermitting> and searching under this application number 200710-3865 .

[Exhibit 1.0 Location Map](#)

[Exhibit 2.0A SWM Plans](#)

[Exhibit 2.0B SWM Plans](#)

[Exhibit 2.0C SWM Plans](#)

[Exhibit 3.0 Construction Methods](#)

[Exhibit 3.1 Water Quality Monitoring Plan](#)

[Exhibit 3.2 Bathymetry](#)

[Exhibit 4.0 Coral Relocation/Outplanting Plan](#)

[Exhibit 5.0 Mitigation Plan](#)

[Exhibit 6.0 NMFS Biological Opinion](#)

[Exhibit 7.0 USFWS Comments](#)

[Exhibit 8.0 SSL Easement Sketch](#)



## **NOTICE OF RIGHTS**

As required by Chapter 120, Florida Statutes, the following provides notice of the opportunities which may be available for administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes, or judicial review pursuant to Section 120.68, Florida Statutes, when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Some of the legal proceedings detailed below may not be applicable or appropriate for your situation. You may wish to consult an attorney regarding your legal rights.

### **RIGHT TO REQUEST ADMINISTRATIVE HEARING**

A person whose substantial interests are or may be affected by the South Florida Water Management District's (District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Florida Statutes. Persons seeking a hearing on a District decision which affects or may affect their substantial interests shall file a petition for hearing in accordance with the filing instructions set forth herein within 21 days of receipt of written notice of the decision unless one of the following shorter time periods apply: (1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Florida Statutes; or (2) within 14 days of service of an Administrative Order pursuant to Section 373.119(1), Florida Statutes. "Receipt of written notice of agency decision" means receipt of written notice through mail, electronic mail, posting, or publication that the District has taken or intends to take final agency action. Any person who receives written notice of a District decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

If the District takes final agency action that materially differs from the noticed intended agency decision, persons who may be substantially affected shall, unless otherwise provided by law, have an additional point of entry pursuant to Rule 28-106.111, Florida Administrative Code.

Any person to whom an emergency order is directed pursuant to Section 373.119(2), Florida Statutes, shall comply therewith immediately, but on petition to the board shall be afforded a hearing as soon as possible.

A person may file a request for an extension of time for filing a petition. The District may grant the request for good cause. Requests for extension of time must be filed with the District prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and whether the District and any other parties agree to or oppose the extension. A timely request for an extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

### **FILING INSTRUCTIONS**

A petition for administrative hearing must be filed with the Office of the District Clerk. Filings with the Office of the District Clerk may be made by mail, hand-delivery, or e-mail. Filings by facsimile will not be accepted. A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the Office of the District Clerk at the District's headquarters in West Palm Beach, Florida. The District's normal business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Any document received by the Office of the District Clerk after 5:00 p.m. shall be deemed filed as of 8:00 a.m. on the next regular business day.

Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, 3301 Gun Club Road, West Palm Beach, Florida 33406.
- Filings by hand-delivery must be delivered to the Office of the District Clerk. Delivery of a petition to the District's security desk does not constitute filing. It will be necessary to request that the District's security officer contact the Office of the District Clerk. An employee of the District's Clerk's office will receive and process the petition.
- Filings by e-mail must be transmitted to the Office of the District Clerk at [clerk@sfwmd.gov](mailto:clerk@sfwmd.gov). The filing date for a document transmitted by electronic mail shall be the date the Office of the District Clerk receives the complete document.

### **INITIATION OF ADMINISTRATIVE HEARING**

Pursuant to Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Rules 28-106.201 and 28-106.301, Florida Administrative Code, initiation of an administrative hearing shall be made by written petition to the District in legible form and on 8 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other District identification number, if known.
2. The name, address, any email address, any facsimile number, and telephone number of the petitioner, petitioner's attorney or qualified representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the District's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the District's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the District's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the District to take with respect to the District's proposed action.

### **MEDIATION**

The procedures for pursuing mediation are set forth in Section 120.573, Florida Statutes, and Rules 28-106.111 and 28-106.401–.405, Florida Administrative Code. The District is not proposing mediation for this agency action under Section 120.573, Florida Statutes, at this time.

### **RIGHT TO SEEK JUDICIAL REVIEW**

Pursuant to Section 120.68, Florida Statutes, and in accordance with Florida Rule of Appellate Procedure 9.110, a party who is adversely affected by final District action may seek judicial review of the District's final decision by filing a notice of appeal with the Office of the District Clerk in accordance with the filing instructions set forth herein within 30 days of rendition of the order to be reviewed, and by filing a copy of the notice with the appropriate district court of appeals via the Florida Courts E-Filing Portal.

ATTACHMENT F | COASTAL ZONE CONSISTENCY REVIEW LETTER

**From:** [Bian, Jie \(DTPW\)](#)  
**To:** [Gayle Stone](#); [Delgado, Odalys](#); [Nadia Locke](#)  
**Subject:** RE: State Clearance Letter for FL202002278856C- Federal Transit Administration (FTA) -Environmental Assessment For The Beach Corridor Rapid Transit Project – Bay Crossing, Miami-Dade County, Florida.  
**Date:** Sunday, April 19, 2020 6:34:31 PM

---

Thank you for your explanation!

Jie

**Jie Bian**, Ph.D., Chief, Planning and System Development  
**Miami-Dade County Department of Transportation and Public Works**

701 NW 1<sup>st</sup> Court, 15<sup>th</sup> Floor, Miami, Florida 33136

786-469-5245 Phone 305-299-2574 Mobile 786-469-5572 Fax

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---

**From:** Gayle Stone <gstone@esciencesinc.com>  
**Sent:** Friday, April 17, 2020 1:49 PM  
**To:** Bian, Jie (DTPW) <Jie.Bian@miamidade.gov>; Delgado, Odalys <Odalys.Delgado@parsons.com>; Nadia Locke <nlocke@esciencesinc.com>  
**Subject:** RE: State Clearance Letter for FL202002278856C- Federal Transit Administration (FTA) - Environmental Assessment For The Beach Corridor Rapid Transit Project – Bay Crossing, Miami-Dade County, Florida.

EMAIL RECEIVED FROM EXTERNAL SOURCE.

---

Jie,

This is the concurrence letter from the Florida State Clearinghouse finding consistency with the Florida Coastal Management Plan (FCMP), aka, federal coastal zone consistency. If you recall from my February 27 email, the FCMP consists of a network of [24 Florida Statutes](#) administered by eight state agencies and the five water management districts. The Florida State Clearinghouse is the single point of contact for federal consistency review and coordinates the reviews by the other agencies. This means he has coordinated with the other agencies and compiled their responses to make a determination of federal consistency. The FWC letter is positive and expresses their support of the project.

I have highlighted the important statement from the next to last paragraph below. Mr. Stahl is also pointing out that an ERP may be required (which we knew) and that the final determination of consistency is made during permitting.

Based on the information submitted and minimal project impacts, the state has no objections to allocation of federal funds for the subject project and, therefore, the funding award is consistent

with the Florida Coastal Management Program (FCMP). The state's final concurrence of the project's consistency with the FCMP will be determined during any environmental permitting processes.

Please let me know if you have any questions.

Gayle

**From:** Bian, Jie (DTPW) <[Jie.Bian@miamidade.gov](mailto:Jie.Bian@miamidade.gov)>

**Sent:** Friday, April 17, 2020 12:09 PM

**To:** Delgado, Odalys <[Odalys.Delgado@parsons.com](mailto:Odalys.Delgado@parsons.com)>; Nadia Locke <[nlocke@esciencesinc.com](mailto:nlocke@esciencesinc.com)>;  
Gayle Stone <[gstone@esciencesinc.com](mailto:gstone@esciencesinc.com)>

**Subject:** FW: State Clearance Letter for FL202002278856C- Federal Transit Administration (FTA) - Environmental Assessment For The Beach Corridor Rapid Transit Project – Bay Crossing, Miami-Dade County, Florida.

**Importance:** High

FYI.

What does this mean?

Jie

**Jie Bian**, Ph.D., Chief, Planning and System Development

**Miami-Dade County Department of Transportation and Public Works**

701 NW 1<sup>st</sup> Court, 15<sup>th</sup> Floor, Miami, Florida 33136

786-469-5245 Phone 305-299-2574 Mobile 786-469-5572 Fax

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**From:** Stahl, Chris <[Chris.Stahl@dep.state.fl.us](mailto:Chris.Stahl@dep.state.fl.us)>

**Sent:** Friday, April 17, 2020 11:58 AM

**To:** Bian, Jie (DTPW) <[Jie.Bian@miamidade.gov](mailto:Jie.Bian@miamidade.gov)>

**Cc:** State\_Clearinghouse <[State.Clearinghouse@dep.state.fl.us](mailto:State.Clearinghouse@dep.state.fl.us)>

**Subject:** State Clearance Letter for FL202002278856C- Federal Transit Administration (FTA) - Environmental Assessment For The Beach Corridor Rapid Transit Project – Bay Crossing, Miami-Dade County, Florida.

EMAIL RECEIVED FROM EXTERNAL SOURCE.

April 17, 2020

Jie Bian



Principal Planner  
Miami-Dade County Department of Transportation and Public Works  
701 NW 1st Court, 15th Floor  
Miami, Florida 33136

RE: Department of Transportation, Federal Transit Administration (FTA) -Environmental Assessment for the Beach Corridor Rapid Transit Project – Bay Crossing, Miami-Dade County, Florida.  
SAI # FL202002278856C

Dear Jie:

Florida State Clearinghouse staff has reviewed the proposal under the following authorities: Presidential Executive Order 12372; § 403.061(42), Florida Statutes; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The project will require an Environmental Resource Permit from the South Florida Water Management District (SFWMD) in accordance with Rule 62-330.054, Florida Administrative Code (FAC). Please contact the SFWMD West Palm Beach at (561) 682-6856 or email [erpreapp@sfwmd.gov](mailto:erpreapp@sfwmd.gov) to schedule a pre-application meeting with staff.

The Department of Environmental Protection's Southeast District has the following comments on the project: 1. The proposed activities may require an Environmental Resource Permitting (ERP) pursuant to Chapter 373, Florida Statutes and Chapter 62-330, F.A.C.. Based on the Operating Agreement between the South Florida Water Management District (SFWMD) and Florida Department of Environmental Protection (FDEP), ERP jurisdiction falls to the SFWMD. Issuance of an ERP in coastal counties constitutes a finding of consistency under Florida's federally approved Coastal Zone Management Program under Section 307 (Coastal Zone Management Act). 2. Construction activities that will result in the disturbance of 1 or more acres of land are required to obtain coverage under the Construction General Permit, if stormwater from the activity has the potential to enter a surface water of the State or a municipal separate storm sewer system. [Construction GP Permit Rule 62-621.300(4)(a), Florida Administrative Code]. 3. Soil or ground water contamination may be present or in close proximity of the project area. Construction will need to be closely coordinated with Miami-Dade DERM to identify potential contamination area(s). All activity within or in close proximity of the contaminated areas shall obtain approval from DERM. 4. Construction dewatering in close proximity of ground water contamination zones may require SFWMD and/or FDEP approval to demonstrate no impact or movement of any groundwater contamination plume

The Florida Fish and Wildlife Conservation Commission has reviewed the proposed action and submitted comments. As a courtesy, these have been attached to this letter and are incorporated hereto.

If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The applicant shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section at (850)-245-6333. Project activities shall not resume without verbal and/or written authorization. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes. If you have any questions, please contact Mercedes Harrold, Historic Preservationist, by email at [Mercedes.Harrold@dos.myflorida.com](mailto:Mercedes.Harrold@dos.myflorida.com), or by telephone at 850.245.6342 or 800.847.7278.

Based on the information submitted and minimal project impacts, the state has no objections to allocation of federal funds for the subject project and, therefore, the funding award is consistent with the Florida Coastal Management Program (FCMP). The state's final concurrence of the project's consistency with the FCMP will be determined during any environmental permitting processes, in accordance with Section 373.428, Florida Statutes, if applicable.

Thank you for the opportunity to review the proposed plan. If you have any questions or need further assistance, please don't hesitate to contact me at (850) 717-9076.

Sincerely,

*Chris Stahl*

Chris Stahl, Coordinator  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3800 Commonwealth Blvd., M.S. 47  
Tallahassee, FL 32399-2400  
ph. (850) 717-9076  
[State.Clearinghouse@floridadep.gov](mailto:State.Clearinghouse@floridadep.gov)

\_\_\_\_\_



## Florida Fish and Wildlife Conservation Commission

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MyFWC.com

March 26, 2020

Chris Stahl, Coordinator  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3900 Commonwealth Blvd., M.S. 47  
Tallahassee, FL 32399-3000  
[Chris.Stahl@dep.state.fl.us](mailto:Chris.Stahl@dep.state.fl.us)

Re: Beach Corridor Rapid Transit Project – Bay Crossing Environmental Assessment,  
Miami-Dade County, SAI# FL202002278856C,

Dear Mr. Stahl:

Florida Fish and Wildlife Conservation Commission (FWC) staff reviewed the Beach Corridor Rapid Transit Project – Bay Crossing Environmental Assessment (EA), in accordance with Chapter 379, Florida Statutes, the federal National Environmental Policy Act, the federal Coastal Zone Management Act, and the State of Florida Coastal Management Program. The EA was prepared as part of the Project Development and Environment Study for the proposed project. In February 2019, we reviewed this project via the Efficient Transportation Decision Making process (ETDM 14257), and our comments are in the ETDM Environmental Screening Tool and attached.

In the year since the ETDM review of this project, the monorail alternative has been selected for the Biscayne Bay crossing, proposed to be constructed immediately south of the MacArthur Causeway. The primary potential for impact to fish and wildlife resources would come from the temporary placement of cofferdams and the spudding of construction barges in shallow flats containing corals and seagrasses. The Miami-Dade Department of Transportation and Public Works has made a commitment to work with the National Marine Fisheries Service to develop a plan to mitigate these impacts. FWC staff supports this and other project commitments for protected species that were listed in the EA.

FWC staff appreciates the opportunity to review this phase of the project. If you have specific technical questions regarding the content of this letter, contact Brian Barnett at (772) 579-9746 or email [brian.barnett@MyFWC.com](mailto:brian.barnett@MyFWC.com). All other inquiries may be directed to our office by email at [ConservationPlanningServices@MyFWC.com](mailto:ConservationPlanningServices@MyFWC.com).

Sincerely,

Jason Hight  
Land Use Planning Program Administrator  
Office of Conservation Planning Services

jh/bb  
Beach Corridor Rapid Transit EA\_41244\_03262020\_BB

Attachment

## ATTACHMENT G | SOLE SOURCE AQUIFER REVIEW LETTER



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET, SW  
ATLANTA, GEORGIA 30303-3104

Ms. Jie Bian  
Chief, Planning and System Development  
Miami-Dade County Department of Transportation and Public Works  
701 NW 1st Court, 15th Floor  
Miami, Florida 33136

Subject: Sole Source Aquifer Review/Concurrence for Beach Corridor Rapid Transit Project.

Dear Ms. Bian:

The U.S. Environmental Protection Agency, Region 4 received the Miami-Dade County Department of Transportation and Public Works request dated February 7th, 2020 and the additional information provided on April 9<sup>th</sup>, 2020 to review the above referenced project pursuant to Section 1424(e) of the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300h-3. The objective of the EPA's review is to determine if the project lies within the boundaries, including recharge and streamflow source zones, of an EPA designated Sole Source Aquifer (SSA), and to determine if the project poses potential adverse health or environmental impacts. A SSA is the sole or principal water source for a designated area.

Beach Corridor Rapid Transit Project (Project) has been determined to lie inside the designated boundaries of the Biscayne Sole Source Aquifer and based on the information provided, may cause a significant impact to the aquifer system when the Project's bridge foundations are installed and/or construction dewatering is undertaken. However, with proper implementation of best management practices (BMPs), these potential impacts can be adequately reduced or properly mitigated. To that effect, when installing bridge foundations, the FDOT must adhere to the list of BMPs provided as items 1 and 2 below. The dewatering operation BMPs are listed in item 3 below:

1. FDOT Design Manual Chapter 320 Stormwater Pollution Prevention Plan (SWPPP)
2. FDOT Standard Specification for Road and Bridge Construction
  - a. Section 6 – Control of Materials
  - b. Section 104 – Prevention, Control, And Abatement of Erosion and Water Pollution
  - c. Section 455 – Structures Foundations
3. U.S. Bureau of Reclamation Engineering Geology Field Manual – Chapter 20 Water Control.  
<https://www.usbr.gov/tsc/techreferences/mands/geologyfieldmanual-vol2/Chapter20.pdf>

Furthermore, all debris from any demolition of the existing structures must be properly contained and removed from the site prior to construction of the new structure. If applicable, all county flood plain management plans and public notification processes must be followed. During construction, it is the EPA's understanding and expectation that those responsible for the project will strictly adhere to all Federal, State, and local government permits, ordinances, planning designs, construction codes,



operation, maintenance, and engineering requirements, and any contaminant mitigation recommendations outlined by federal and state agency reviews. All best management practices for erosion and sedimentation control must also be followed and State and local environmental offices must be contacted to address proper drainage and storm water designs. Additionally, the project manager should contact State and local environmental officials to obtain a copy of any local Wellhead Protection Plans. The following website provides information regarding the Florida Department of Environmental Protection's Source Water Assessment and Protection Program.  
<http://www.dep.state.fl.us/swapp/Default.htm>

The EPA finds that, if the conditions outlined above are adhered to, this Project should have no significant impact to the aquifer system. Please note that this "no significant impact" finding has been determined based on compliance with all requirements outlined above and, on the information provided. Further, this finding only relates to Section 1424(e) of the SDWA, 42 U.S.C. § 300h-3. If there are any significant changes to the project, the EPA Region 4 office should be notified for further review. Other regulatory groups within the EPA responsible for administering other programs may, at their own discretion and under separate cover, provide additional comments.

Thank you for your concern with the environmental impacts of this project. If you have any questions, please contact Mr. Khurram Rafi at 404-562-9283 or [Rafi.Khurram@epa.gov](mailto:Rafi.Khurram@epa.gov) or Mr. Larry Cole at 404-562-9474 or [Cole.Larry@epa.gov](mailto:Cole.Larry@epa.gov).

Sincerely,

6/5/2020

X Alanna Conley

Signed by: ALANNA CONLEY

Alanna Conley, Chief  
Groundwater, UIC and GIS Section  
EPA, Region 4, Atlanta, GA

## ATTACHMENT H | SEAGRASS MITIGATION PLAN (MATHESON HAMMOCK COUNTY PARK)

# Revised Seagrass Mitigation Plan Beach Corridor Rapid Transit Project – Bay Crossing

Permit Application Number 20200710-3865

E Sciences Project Number 7-0309-005

July 2021



**ENGINEERING  
ENVIRONMENTAL  
ECOLOGICAL**

Prepared for:

Miami-Dade County Department of Transportation  
and Public Works  
Overtown Transit Village  
701 NW 1<sup>st</sup> Court  
Miami, FL 33136



Prepared in association with:



**Parsons PLUS**  
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## 1.0 INTRODUCTION

The Beach Corridor Rapid Transit Project – Bay Crossing, a transit guideway connecting Miami to Miami Beach along the south side of SR A1A/MacArthur Causeway, will require mitigation for impacts to 0.19 acres of paddle grass (*Halophila decipiens*). Seagrass mitigation is proposed at two shoal areas adjacent to Matheson Hammock County Park and Marina (the Site) in Biscayne Bay Aquatic Preserve. The areas proposed for mitigation have experienced “severe” propeller scarring as categorized by Sargent et al, 1995. Proposed mitigation consists of increased protection of the shoal areas through marker buoys, shoal area signage and educational signs designed to guide boaters around the shoals and to the existing channels. Success criteria will be based on a decrease in future scarring and an increase in percent cover of seagrass.

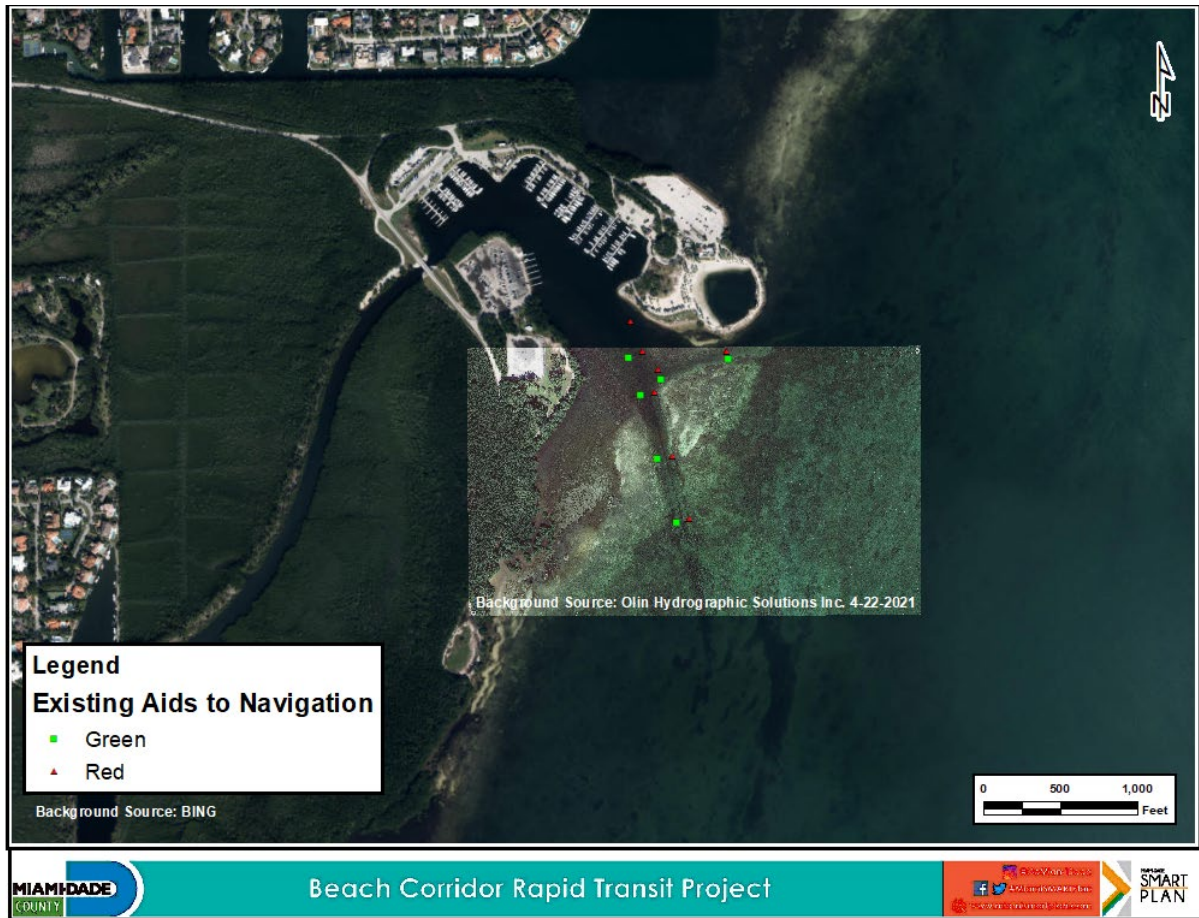
### 1.1 Site Selection

The Matheson Hammock Site was selected for the following reasons:

- A high density of scarring has been documented on the two shoals.
- Existing Aids to Navigation (AToNs) do not adequately direct boaters around the shoals.
- The number of scars has historically increased.
- Turtle grass (*Thalassia testudinum*), a climax seagrass species, is present at the Site.
- The scarring is preventable because of the location and configuration of the Site.

To elaborate on the reasons listed above, **Figure 1** is an aerial photograph showing the existing layout of the marina and two channels, with the existing AToNs. It is apparent that the channels are at odd angles when traveling between the marina and Biscayne Bay. The straight line of sight between the marina and Biscayne Bay is not through the channels. The straight lines of sight to or from Biscayne Bay are through the shoals, which are visible as a lighter shade on the aerial. It is surmised that this is a primary reason for the propensity of scarring.





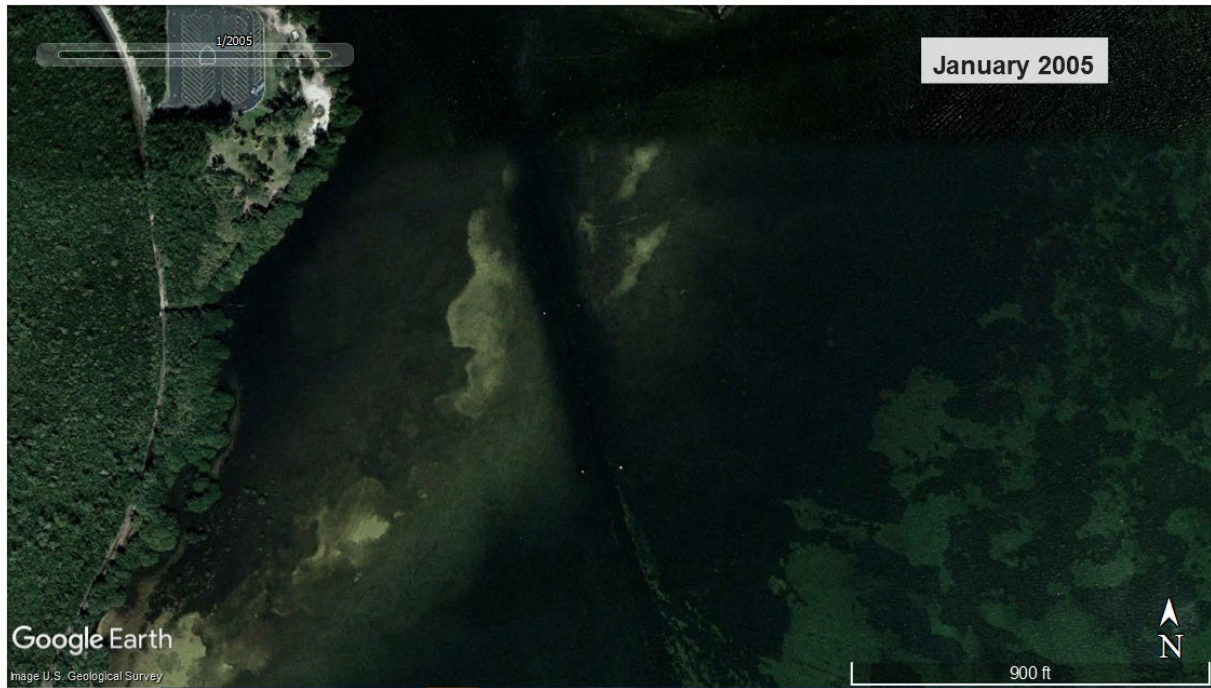
**Figure 1. Existing Conditions**

Scarring has steadily increased over the last 15 years. Following is a series of images taken from the historical aerials on Google Earth. Each page shows the aerial photograph from a certain year and then the same aerial photograph with the scars drawn over it in GIS. The years shown were selected based on the quality of aerial imagery on Google Earth and the ability to see the scars.

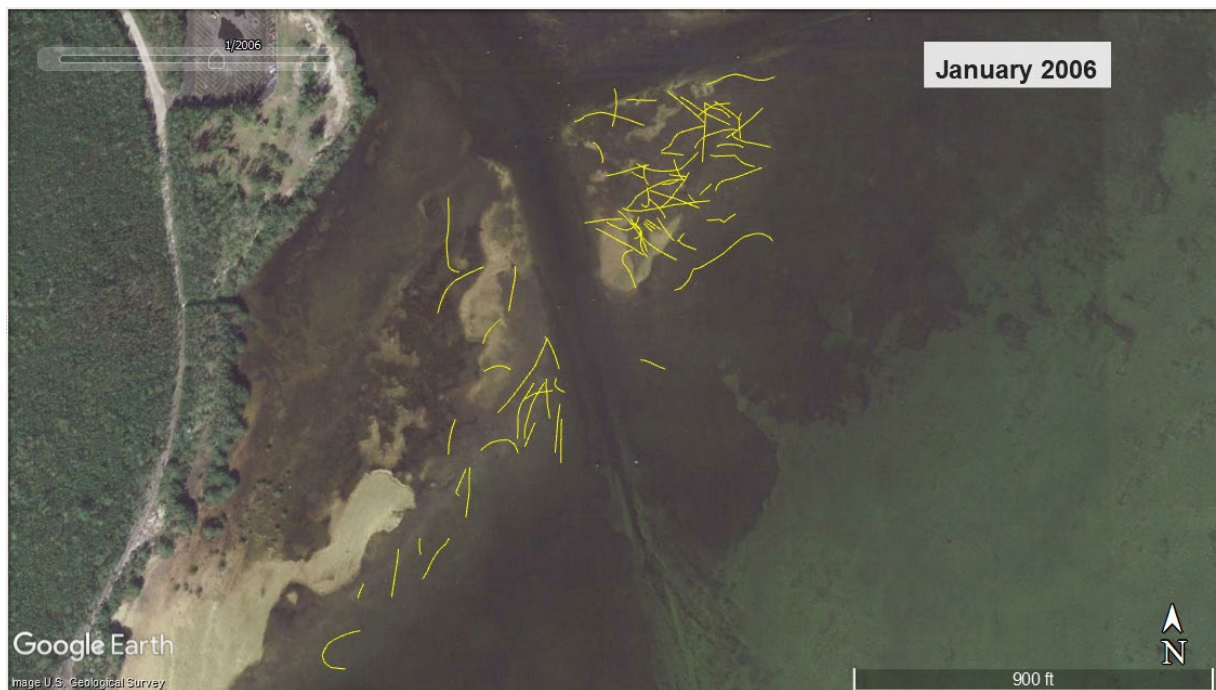
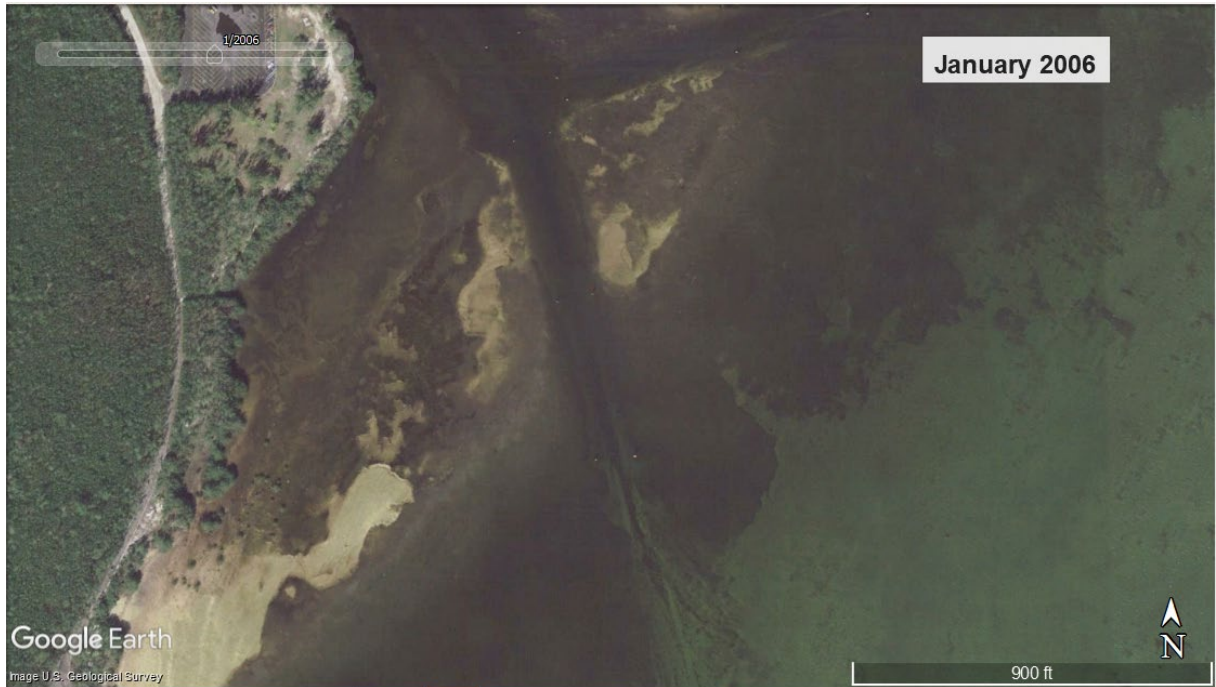
One of our criteria for site selection was that healthy seagrass beds, preferably including turtle grass, were present in the vicinity of propeller scars. Field visits to the Site occurred several times in 2020 and 2021. Turtle grass was present on the shoals and had recruited into some of the scars. Most of the scars were shallow and contained shoal grass (*Halodule wrightii*), indicating the scars would trend toward recovery through succession if additional damage could be prevented.

Surveys of other scars in Biscayne Bay were conducted on October 12, 2021 and February 4, 2021 from Bird Key to Key Biscayne (using images of scarring prepared the same way as those shown above in the historical aerial images). The surveys had diminishing returns as many areas were either not surrounded

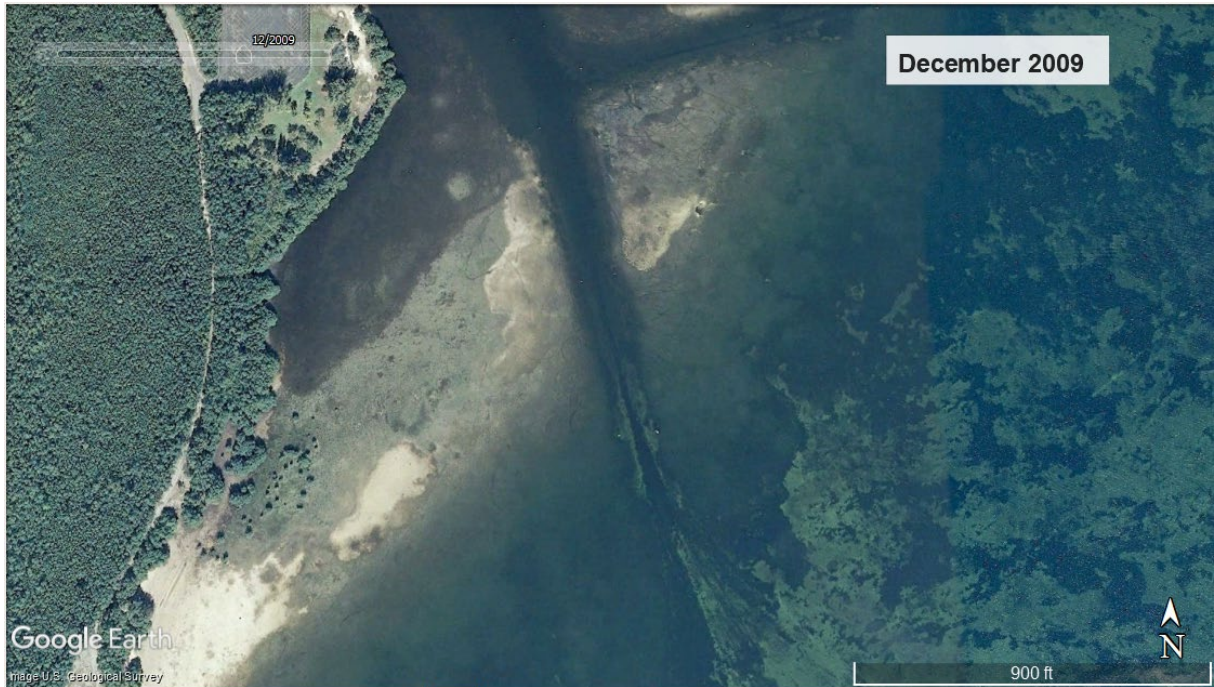
by seagrass, did not exhibit a high density of scarring (severe scarring), did not have deep scars suitable for restoration or were not in areas where future scarring could be prevented. Therefore, the Matheson Hammock Site was selected for the proposed mitigation.







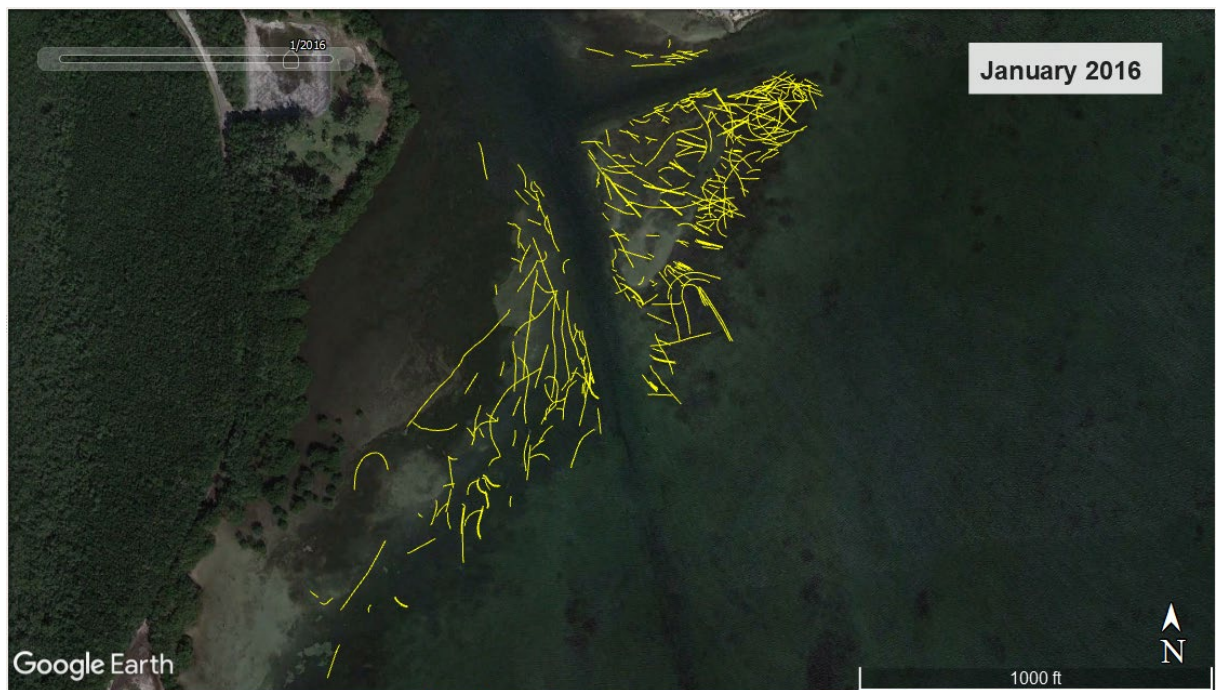


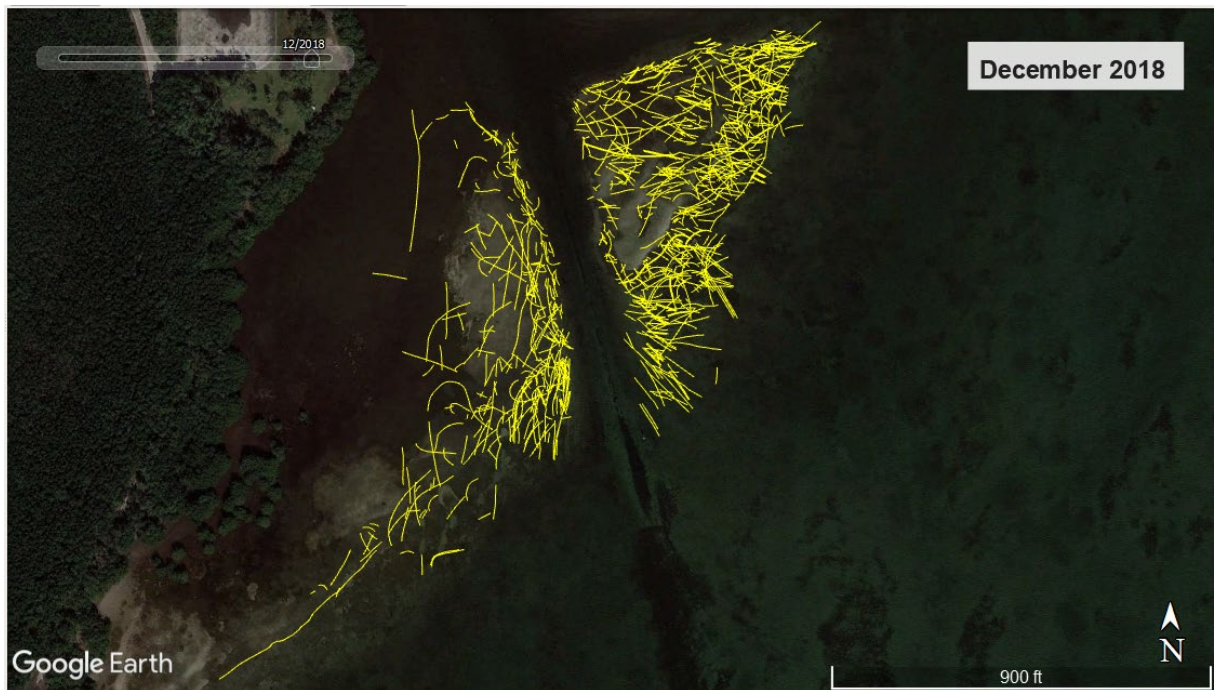




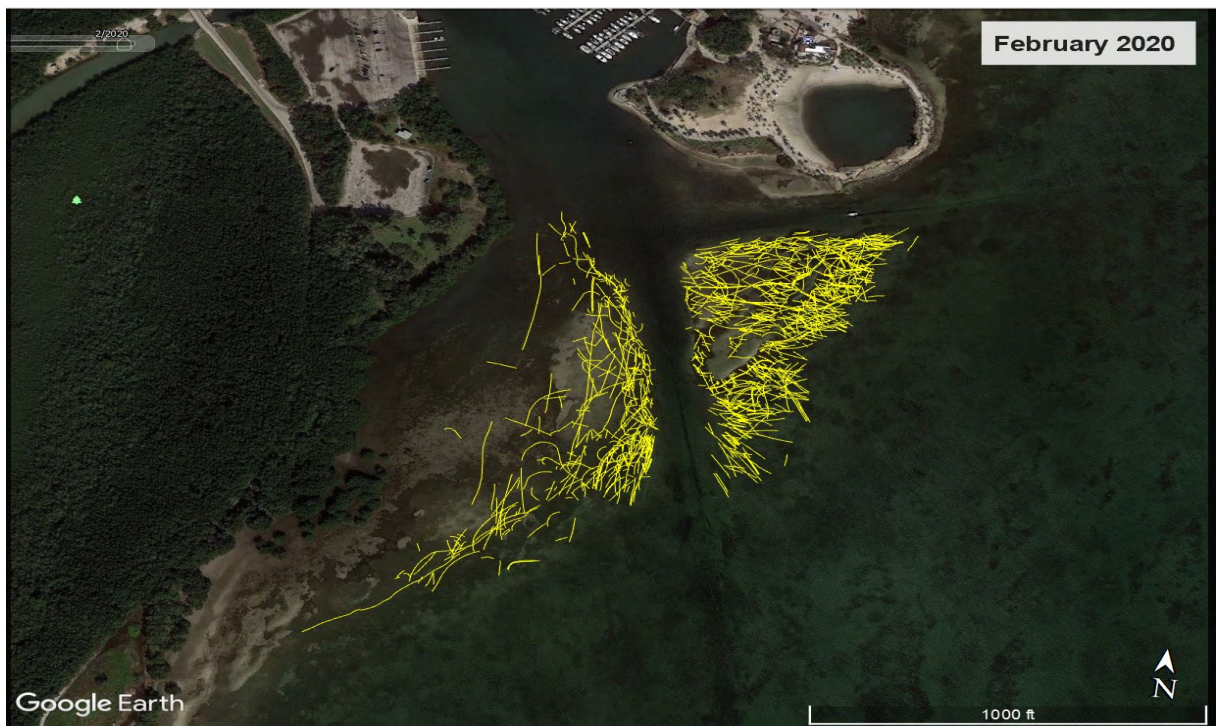
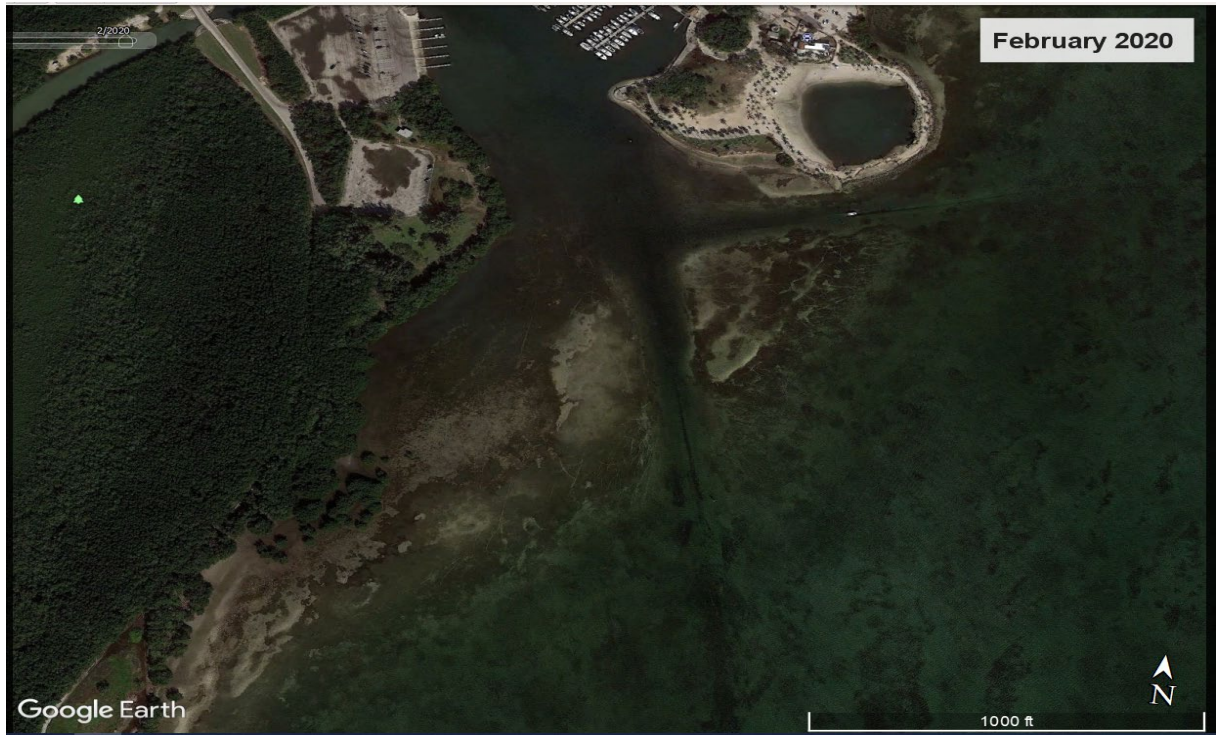












## **2.0 PROPOSED MITIGATION PLAN**

Based on the reasons discussed above under Site Selection, it was concluded that the Matheson Hammock Site is the best and only option for seagrass mitigation. Future scarring is preventable because additional AToNs (in the form of buoys) that guide boaters toward the already marked channels can be installed. In addition, standard caution signs warning boaters that the area is a shallow seagrass area would serve to deter boaters from the mitigation Site. Photos of the buoys and signs are shown below in **Photos 1** and **2**.



**Photo 1 (top). Caution Seagrass Area Buoy**



**Photo 2 (right). Caution Seagrass Area Sign**

Boater awareness can also be increased by installing educational signage at Matheson Hammock County Park and Marina showing the seagrass areas, marker buoys and signs. A graphic depiction of the educational sign we propose is shown in **Photo 3**. A minimum of two educational signs will be installed on land at the boat ramp at Matheson Hammock County Park, one near the launch site and one next to the payment booth as payment for parking a boat ramp launch trailer is required.





**Photo 3. Proposed Educational Sign**

The mitigation plan showing the locations of signs and buoys marking the two shoal areas at the Site is shown in **Figure 2**. Final locations will be determined in the field at the time of installation.





Figure 2. Proposed Condition showing Caution Seagrass Area buoy and sign locations.

## 2.1 Existing Condition

A rectified aerial photograph was captured on April 22, 2021 by Olin Hydrographic Solutions, Inc. In addition, a hydrographic survey, including cross-sections of the deeper scars, was performed. The CAD file was provided to E Sciences and mapped in GIS. The deepest scar had a depth of 3.6 inches. Other shallow scars visible on the rectified aerial image were mapped in GIS. **Figure 3** shows the existing scarring conditions at the Site with deeper, surveyed scars in blue and shallow scars in yellow. As mentioned above, most of the scars contain shoal grass and some contain blades of turtle grass. A baseline (time-zero) survey of the species and percent cover of seagrass in the scars and in the surrounding area will be performed when the mitigation plan is implemented.



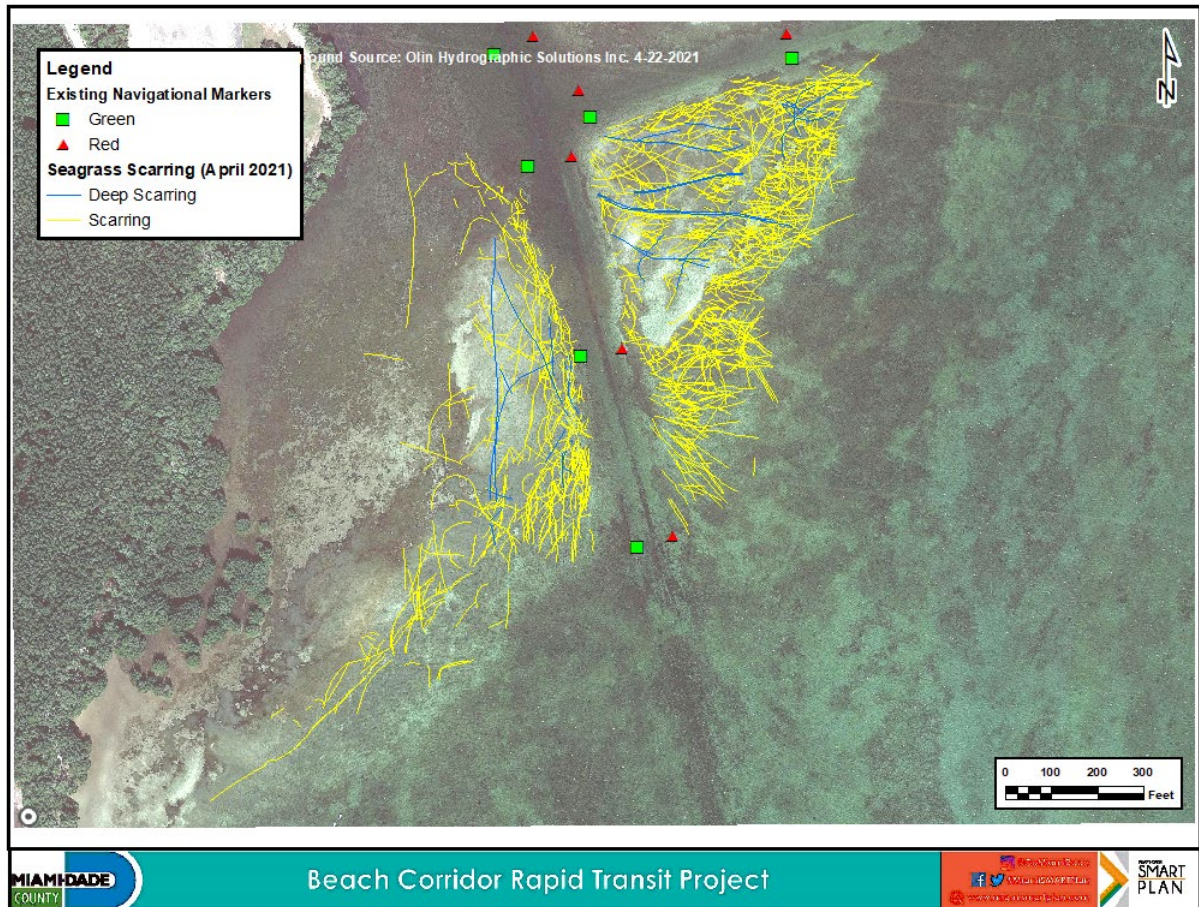


Figure 3. Existing Condition Showing Deep and Shallow Scarring in 2021.

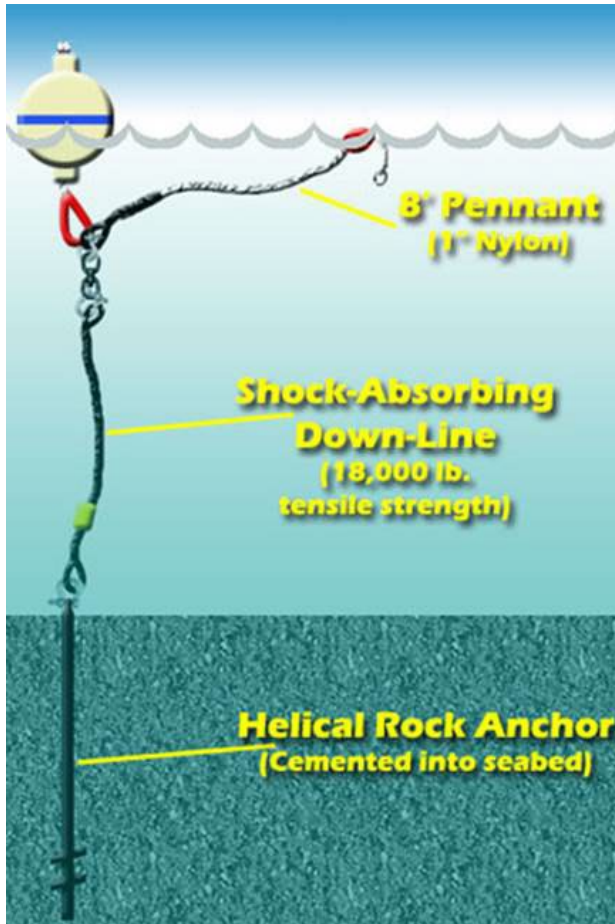
## 2.2 Proposed Condition

The proposed condition is shown in **Figure 2** above. The proposed condition is regeneration of seagrass in the shoal areas of the Site due to a decrease in scarring events. Without the protection measures discussed above, the seagrass beds at the Site will continue to be impacted by scarring. Turtle grass will not expand laterally into scars once the rhizomes are severed; therefore, development of a turtle grass community depends on recruitment and colonization. Studies have shown that turtle grass seedlings are regular and reliable recruits (Whitfield et al., 2004) but development of a climax community of turtle grass takes at least ten years (Dawes et al., 1997).

## 2.3 Construction/Mitigation Activities

Mitigation will be performed concurrent with the construction of the Bay Crossing transit guideway. The first step in implementing the mitigation plan is to acquire a Florida Uniform Waterway Marker (FUWM) Permit from the Florida Fish and Wildlife Conservation Commission (FWC), Division of

Law Enforcement, Boating and Waterways Section. This permit is submitted to the US Coast Guard (USCG) and they then issue a letter of authorization (a permit from USCG is not required). Also, a Nationwide Permit 1 – Aids to Navigation, is required from the US Army Corps of Engineers.



It is anticipated that the Caution Seagrass Area marker buoys will be installed with a helical anchor and floating line (so as to not damage seagrass) similar to those used for mooring ball buoys, a depiction of which is shown here, (except that a pennant will not be needed for these buoys as vessels will not be tied to them). The Caution Seagrass Area signs and the educational signs at Matheson Hammock Park boat ramp, both of which measure approximately three by three feet, will be installed using standard methods (pile-driving). Final design and construction plans, if required, will be performed prior to applying for permits.



### 3.0 MITIGATION CREDITS

To calculate the size of the mitigation Site for use in the Uniform Mitigation Assessment Method (UMAM) scores, the maximum limits of scarring were mapped. Although a larger area is actually being protected by the buoys, the UMAM area accurately represents the scarring area for use in calculating mitigation credits, as shown in **Figure 4**. The two areas are 8.95 and 9.94 acres for a total mitigation area of 18.89 acres.

The UMAM Impact and Mitigation Worksheets are provided in **Appendix A**. Impacts to 0.19 acres of paddle grass result in a Functional Loss of 0.131. The form of mitigation is enhancement and the lift from the mitigation is minor and mainly due to the increase in the Community Structure score with success of the mitigation plan resulting in increased seagrass cover. A time lag factor of five years was used, and a risk factor of 2.5 was assigned due to the heavy boat traffic in the area from the Matheson Hammock Park Marina. Using the 18.89 acres of mitigation area, the Functional Gain at the Site is 0.437, a surplus of 0.306.

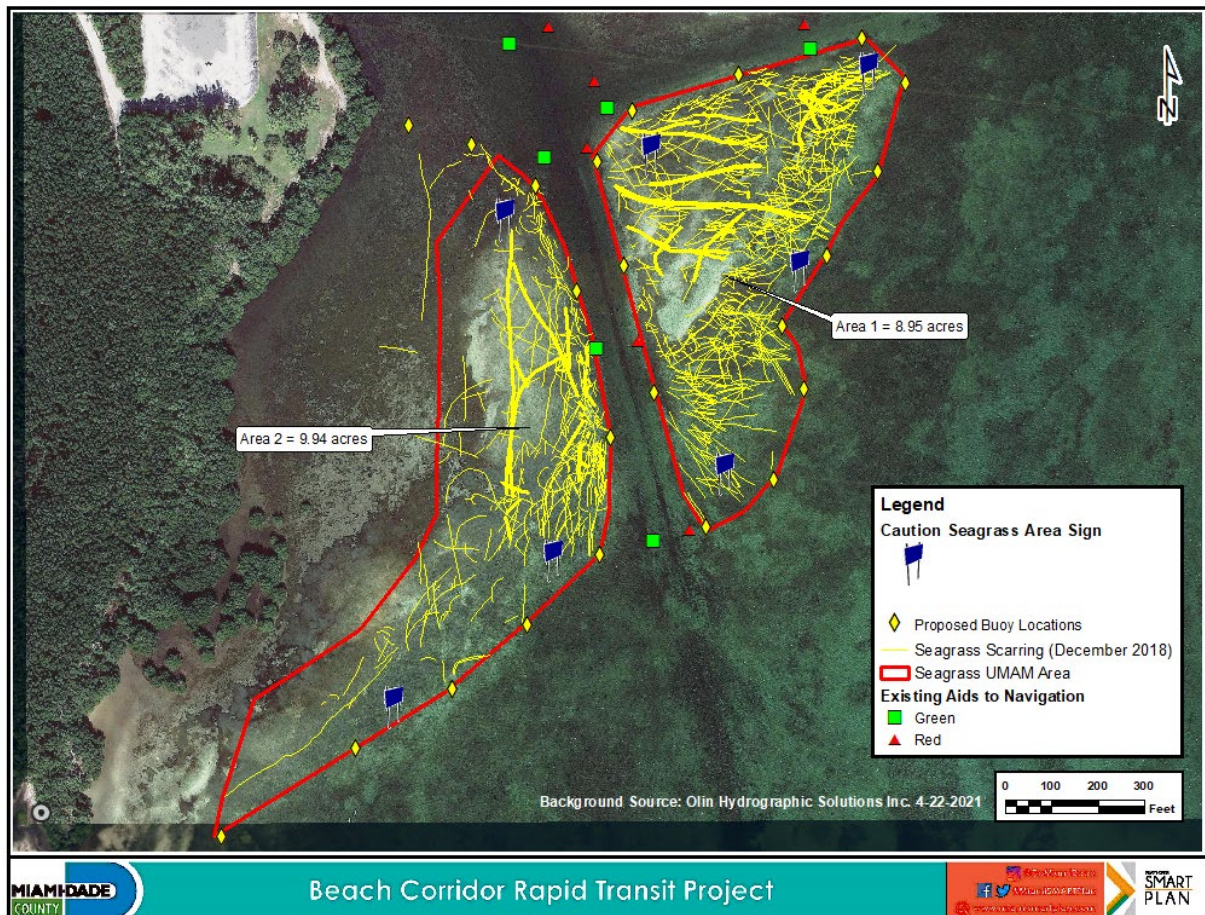


Figure 4. UMAM Area Map

## **4.0 MONITORING PLAN**

### **4.1 Schedule**

The Site will be monitored annually between June 1 and September 30 for five years. At this time, the dates of construction for the Bay Crossing transit guideway and the seagrass mitigation construction activities are unknown. The baseline (time-zero) monitoring event will occur within the first seagrass growing season after installation of the Caution Seagrass Area signs and buoys. Annual monitoring events for years one through four should occur in the same month as the time-zero monitoring event. Reports will be submitted to the SFWMD within one month of monitoring.

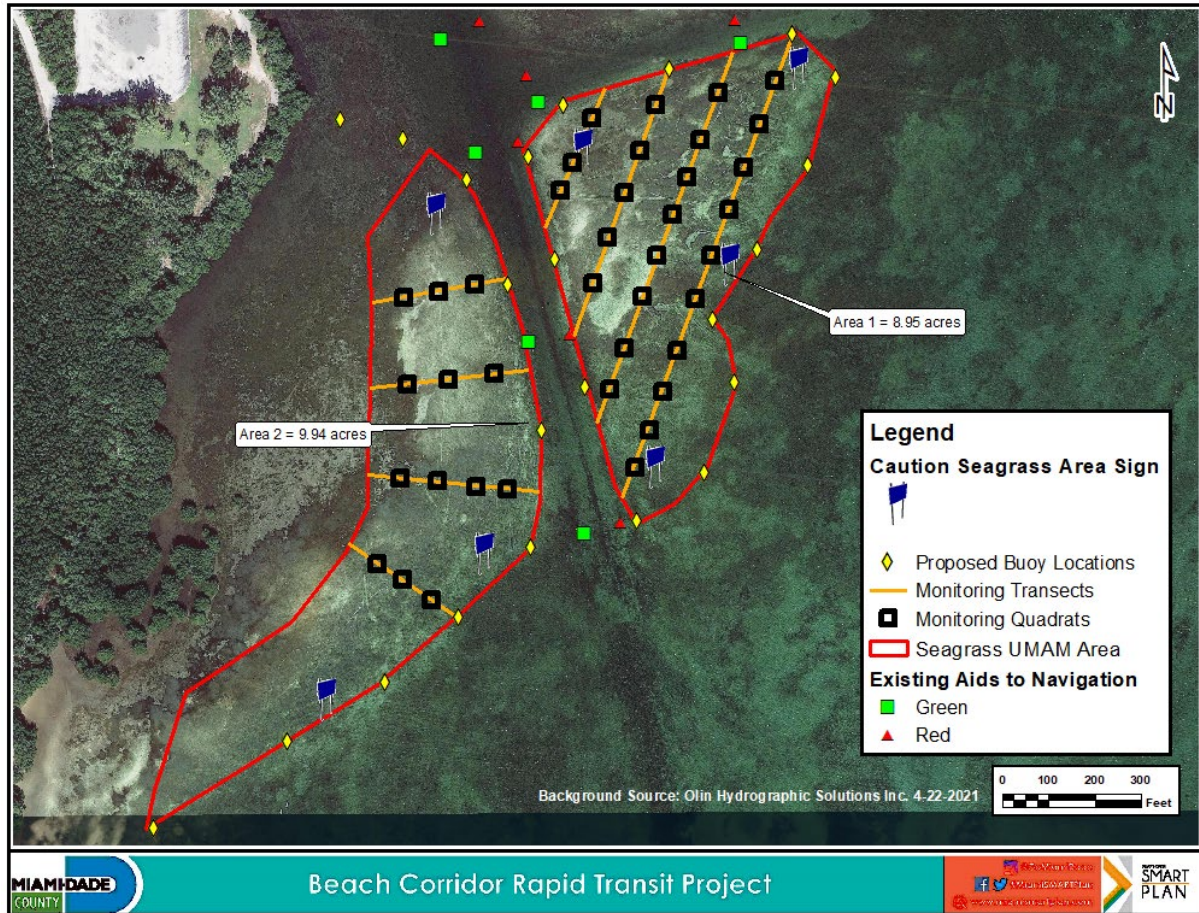
### **4.2 Monitoring Methods**

Monitoring methods at the Site must be able to determine: 1) that seagrass is recruiting to the scars, 2) that there is a reduction in the rate of scarring and, ultimately, that the protection measures are effective. Each year, the buoys and signs will be inspected to make sure they are present at each location and that each is in good condition. This information will be included in the monitoring reports. Should an evaluation of the effectiveness of the protection measures reveal an inadequacy, then the buoys or signs may be repositioned or additional buoys added to mark the area.

To monitor seagrass recruitment, percent cover and species of seagrass and macroalgae will be measured at fixed 0.25 m<sup>2</sup> quadrat locations in the scars. The quadrat locations will be located along transects that cross perpendicularly to the direction of the scars on the two shoals. Quadrat locations will be determined during the baseline monitoring event and located with a sub-meter Global Positioning System (GPS) unit such that the same location can be monitored in subsequent years. The location of transects and number of quadrats/transect are shown in **Figure 5**. It is estimated that there will be eight transects and 39 quadrats.

In addition, a qualitative assessment of recruitment in the scars along each transect will be performed, noting if turtle grass is present outside of the fixed quadrat locations. Also, at least one fixed quadrat along each transect will be placed outside of a scar to measure the species assemblage and trends in the existing seagrass beds on the Site. While it is preferred that the quadrat locations outside of the scars are in the same location each year, if a propeller scar is detected in that quadrat location, a new quadrat location will be chosen. This location should represent seagrass conditions in the unscarred areas of the Site, such as changes in species assemblage, overall percent cover of seagrass species, particularly turtle grass, or an increase in macroalgal coverage.





**Figure 5. Monitoring Plan**

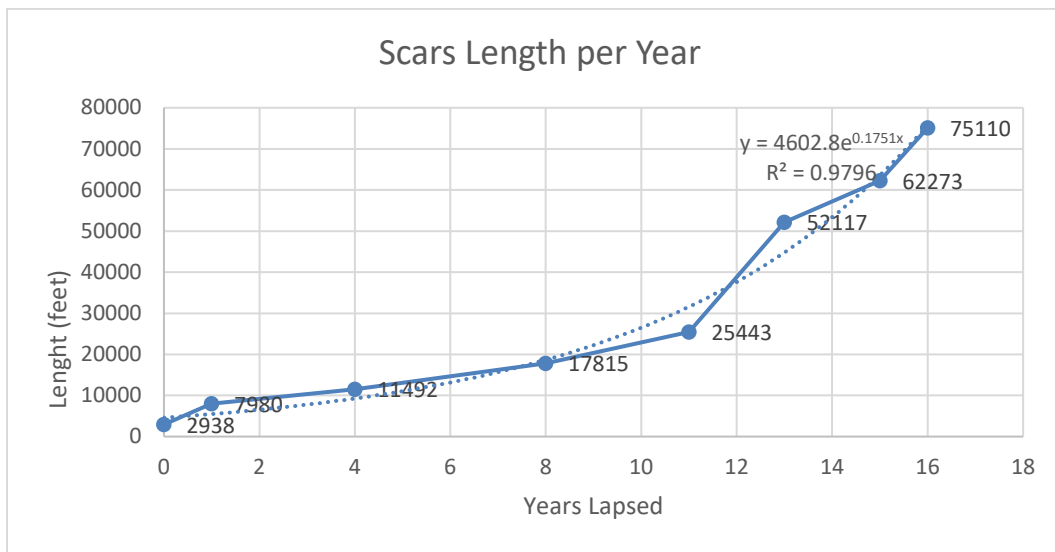
To measure a reduction in the rate of scarring, or a decrease in the number and intensity of new scars, scarring at the Site will be measured by mapping new scars versus pre-existing scars using drone aerial photography. An aerial photograph will be captured from fixed positions and heights from a drone each year of monitoring so that the scars can be accurately mapped. Differences in new scarring can be measured by counting the number of scars and/or measuring the linear footage of scars and comparing the amounts between years.

### 4.3 Success Criteria

Based on the mapped scars shown in the historical aerial photographs above, the number of scars per year and the linear footage of scarring per year were retrieved from the GIS overlays. This data was plotted in Excel to evaluate data trends. The best fit line for the data was an exponential trendline, which showed the least regression value. Using the exponential equation derived from the best fit line, the increase in number of scars and length of scarring for every year between 2005 and 2021 was

estimated, including those years for which aerial photographs were not available for review. The annual increase was then estimated based on the calculated values.

The equation using length of scarring yielded the best fit to the data (i.e., the lowest regression value) and indicated a 19% annual increase in the historical linear footage of scarring. Because the best fit was an exponential trendline, the increase in scar length each successive five-year period was calculated to be 140%. The chart showing the actual (solid line) and extrapolated (dashed line) data is shown below.



Two criteria are proposed to measure the success of the mitigation plan: an increase in seagrass cover and a decrease in future propeller scars.

#### 4.3.1 Seagrass Cover

The increase in seagrass cover is dependent on recruitment. It typically takes at least ten years for turtle grass to fully recruit to an area and the monitoring period is five years. Also, seagrass beds undergo changes in the course of development and pioneering species, such as shoal grass and manatee grass (*Syringodium filiforme*), are the first to colonize an area. For this reason, the seagrass success criterion is based on a trend toward recovery in the scars and not an absolute percent cover of climax species. The success criteria for seagrass cover are:

1. An increase in coverage of Submerged Aquatic Vegetation (SAV), including seagrasses and macroalgae in the scars. Seagrass species must be a component of the SAV.
2. Within 3 years, the monitored areas shall achieve at least 5% areal cover, and at the end of the 5-year monitoring period, the monitored areas shall achieve at least 25% areal cover.

#### 4.3.2 Scarring

The installation of ATOns will provide an effective means of protection for the Site that will aid in preventing future damage to the seagrass area and reduce future scarring. The degree of prevention of scarring will be measured by comparing the existing map of scars shown in **Figure 3** above with aerial maps of scars generated in future years. The success criteria are:

1. Less than 35% net increase in scars over five years (one-quarter of the current rate of increase).
2. As an interim measure, less than 7% increase in scars each year of monitoring.

An evaluation of the effectiveness of the protection measures and if the Site is trending toward success will be included in each monitoring report. The qualitative observations of the area outside the quadrat locations will aid in the evaluation.

#### 4.4 Monitoring Summary

The following tables summarize the monitoring to be conducted to evaluation seagrass recruitment success and to evaluation reduction in the rate of scarring.

Summary of Monitoring to Be Conducted to Evaluate Seagrass Recruitment Success	
Success Criteria	<ul style="list-style-type: none"> <li>• Increase in SAV coverage in the scars. Seagrass species must be a component of the SAV.</li> <li>• Within 3 years, the monitored areas shall achieve at least 5% areal cover, and at the end of the 5-year monitoring period, the monitored areas shall achieve at least 25% areal cover.</li> </ul>
Means of Measurement	<ul style="list-style-type: none"> <li>• Percent cover, species of seagrass and macroalgae will be measured at fixed 0.25 m<sup>2</sup> quadrats perpendicular to the scars, estimated to be eight transects and 39 quadrats.</li> <li>• Qualitative assessment will include recording the presence of turtle grass outside of fixed quadrat locations.</li> <li>• At least one fixed quadrat per transect will be placed outside of a scar to measure the species assemblage and trends in the existing seagrass beds.</li> </ul>
Deliverable	Time zero report, annually thereafter
Monitoring Frequency	Annually, during each seagrass growing season
Monitoring Duration	Five years

<b>Summary of Monitoring to Be Conducted to Evaluate Reduction in the Rate of Scarring</b>	
Success Criteria	<ul style="list-style-type: none"> <li>• Less than 35% net increase in scars over five years</li> <li>• Less than 7% increase in scars each year of monitoring</li> </ul>
Means of Measurement	<ul style="list-style-type: none"> <li>• Map new scars and compare pre-existing scars using drone aerial photographs from fixed positions</li> <li>• Number of scars and linear footage of scars will be obtained from aerial photographs and compared between time zero monitoring and each monitoring event.</li> </ul>
Deliverable	Time zero report, annually thereafter
Monitoring Frequency	Annually, during each seagrass growing season
Monitoring Duration	Five years

## 5.0 STEWARSHIP

The applicant for the Beach Corridor Rapid Transit Project - Bay Crossing Conceptual Environmental Resource Permit (ERP) is the Miami-Dade County Department of Transportation and Public Works (DTPW). The mitigation Site is at Matheson Hammock County Park, an area that has been designated as a County Park since 1938. DTPW will be responsible for the monitoring, maintenance and long-term stewardship of the mitigation area.

The estimated cost to implement the mitigation plan is \$348,500, as shown in the table below. This includes the cost and installation of the protection measures, development of the webpage for the educational sign, full monitoring for five years and inspecting the condition of the buoys and signs for an additional 15 years, potential replacement of buoys and administration and coordination. The FUWM Permit requires monitoring the buoys and signs placed in the water in perpetuity and inspection reports are required to be submitted to FWC Waterways Section every three years.

### Mitigation Cost Summary

Purchase and install signs, Develop webpage	\$10,000
Install buoys (23 @ \$1,500 each)	\$34,500
Install shoal markers (7 @ \$5,000 each)	\$35,000
Annual inspection of buoys (\$1,500 per year, 5 years)	\$7,500
Triennial inspection of buoys after initial five years (\$1,500 per event for 15 years)	\$7,500
Replace buoys (twice each @ \$1,500 each)	\$69,000
Administration and coordination (\$4,000 per year, 20 years)	\$60,000
Five years of mitigation monitoring, including reports and coordination (\$25k per year)	\$125,000
<b>Total</b>	<b>\$348,500</b>

The Beach Corridor Rapid Transit Project is one component of the Strategic Miami Area Rapid Transit (SMART) Plan, which proposes six premium rapid transit corridors throughout Miami-Dade County as well as a system of Bus Express Rapid Transit (BERT) routes. The SMART Plan is partially funded by the People's Transportation Plan, which includes revenues from the penny tax approved by voters in 2016. Additional funding may be provided from the Florida Department of Transportation and the Cities of Miami and Miami Beach.



## 6.0 REFERENCES

- Dawes, C.J., Andorfer, J., Rose, C., Uranowski, C., and Ehringer, N. 1997. Regrowth of the seagrass *Thalassia testudinum* into propeller scars. Aquatic Botany 59: 139-155.
- Sargent, F.J., T.J. Leary, D.W. Crewz, and C.R. Kruer. 1995. Scarring of Florida's seagrasses: assessment and management options. FMRI Tech. Rep. TR-1. Florida Marine Research Institute, FMRH 1H/94, St. Petersburg, Florida. 37 p. plus appendices - 62 p.
- Whitfield, Paula E., W. Judson Kenworthy, Michael J. Durako, Kamille K. Hammerstrom and Manuel F. Merello. 2004. Recruitment of *Thalassia testudinum* seedlings into physically disturbed seagrass beds. Marine Ecology Progress Series 267:121-131.

# APPENDIX A

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)**

Site/Project Name <b>Beach Corridor Rapid Transit Project - Bay Crossing</b>		Application Number <b>20200710-3865</b>		Assessment Area Name or Number <b>Seagrass Beds - West Bridge</b>	
FLUCCs code <b>541 - Embayments Opening Directly to Ocean, 645 - SAV</b>		Further classification (optional) <b>E1AB3 - Estuarine Subtidal Aquatic Bed - Rooted vascular</b>		Impact or Mitigation Site? <b>Impact</b>	Assessment Area Size <b>0.047 Acres</b>
Basin/Watershed Name/Number <b>North Biscayne Bay</b>	Affected Waterbody (Class) <b>Class III</b>		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) <b>Biscayne Bay (OFW, AP)</b>		
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  <b>Occurs within Biscayne Bay, which is connected to the Atlantic Ocean via Government Cut.</b>					
Assessment area description  <b>Paddle grass (<i>Halophila decipiens</i>) bed south of the west bridge. At the west bridge, one 1.35 acre bed was observed that consisted of seagrass with a density of 90% cover.</b>					
Significant nearby features  <b>Located in Biscayne Bay.</b>			Uniqueness (considering the relative rarity in relation to the regional landscape.)  <b>Not unique</b>		
Functions <b>Productive ecosystem, provides food and habitat for other marine organisms, stabilizes the sea bottom, and maintains water quality.</b>			Mitigation for previous permit/other historic use  <b>No</b>		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )  <b>Wading birds; aquatic invertebrates, amphibians and reptiles; marine mammals; fish</b>			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)  <b>Potential habitat for Johnson's seagrass (T and CH). Potential foraging habitat for west Indian manatee (T), American crocodile, loggerhead sea turtle (T), green sea turtle (T), leatherback sea turtle (E), hawksbill sea turtle (E), kemp's ridley sea turtle (E), smalltooth sawfish (E).</b>		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  					
Additional relevant factors:  <b>The site is designated as Essential Fish Habitat and a Habitat Area of Particular Concern. The seagrass is EFH for penaeid shrimp and members of the snapper/grouper complex.</b>					
Assessment conducted by: <b>JMS</b>			Assessment date(s): <b>09/21/18</b>		

Form 62-345.900(1), F.A.C. [ effective date ]

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - IMPACT**  
Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name: <b>Beach Corridor Rapid Transit Project - Bay Crossing</b>		Application Number: <b>20200710-3865</b>		Assessment Area Name or Number: <b>Seagrass Beds - West Bridge</b>	
Impact or Mitigation: <b>Impact</b>		Assessment Conducted by: <b>JMS</b>		Assessment Date: <b>09/21/18</b>	

Scoring Guidance		Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed		Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

		Current	With Impact
.500(6)(a) Location and Landscape Support	a. Quality and quantity of <b>habitat support</b> outside of AA.	X	X
	b. <b>Invasive plant species.</b>		
	c. <b>Wildlife access</b> to and from AA (proximity and barriers).		
	d. <b>Downstream benefits</b> provided to fish and wildlife.		
	e. Adverse impacts to wildlife in AA from <b>land uses</b> outside of AA.		
	f. <b>Hydrologic connectivity</b> (impediments and flow restrictions).	X	X
	g. <b>Dependency</b> of downstream habitats on quantity or quality of discharges.		
	h. <b>Protection of wetland functions provided by uplands (upland AAs only).</b>		
Current	With Impact		
7	0	Notes: The site is located directly south of the MacArthur Causeway west bridge. However, the site is accessible to wildlife and connected to the Atlantic Ocean via Government Cut.	

		Current	With Impact
.500(6)(b) Water Environment (n/a for uplands)	a. Appropriateness of <b>water levels and flows.</b>	X	X
	b. Reliability of <b>water level indicators.</b>		
	c. Appropriateness of <b>soil moisture.</b>		
	d. <b>Flow rates</b> /points of discharge.		
	e. <b>Fire frequency/severity.</b>		
	f. <b>Type of vegetation.</b>		
	g. <b>Hydrologic stress</b> on vegetation.		
	h. <b>Use by animals</b> with hydrologic requirements.		
	i. <b>Plant community composition</b> associated with water quality (i.e., plants tolerant of poor WQ).		
	j. <b>Water quality of standing water by observation</b> (i.e., discoloration, turbidity).		
	k. <b>Water quality data</b> for the type of community.		
Current	With Impact		
7	0	Notes: The site displayed normal hydrology and use by animals. Strong currents were present and moderate water quality deviation was observed due to the heavy boat traffic.	

		Current	With Impact
.500(6)(c) Community Structure	I. <b>Appropriate/desirable species</b>	X	X
	II. <b>Invasive/exotic plant species</b>		
	III. <b>Regeneration/recruitment</b>		
	IV. <b>Age, size distribution.</b>		
	V. <b>Snags, dens, cavity, etc.</b>		
	VI. <b>Plants' condition.</b>		
	VII. <b>Land management practices.</b>		
	VIII. <b>Topographic features</b> (refugia, channels, hummocks).		
	IX. <b>Submerged vegetation</b> (only score if present).	X	X
	X. <b>Upland assessment area</b>		
Current	With Impact		
8	0	Notes: Seagrass consisted of paddle grass at 90% cover. The seagrass appeared healthy with minimal macroalgae present.	

**Raw Score** = Sum of above scores/30  
(if uplands, divide by 20)

Current	With Impact
0.73	0.00

Impact Delta (ID)	
Current - w/Impact	0.733

<b>Impact Acres =</b>	0.047
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Functional Loss (FL) (For Impact Assessment Areas):	
FL = ID x Impact Acres =	0.034

NOTE: If impact is proposed to be mitigated at a mitigation bank that was assessed using UMAM, then the credits required for mitigation is equal to Functional Loss (FL). If impact mitigation is proposed at a mitigation bank that was not assessed using UMAM, then UMAM cannot be used to assess impacts; use the assessment method of the mitigation bank.

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)**

Site/Project Name <b>Beach Corridor Rapid Transit Project - Bay Crossing</b>		Application Number <b>20200710-3865</b>		Assessment Area Name or Number <b>Seagrass Beds - East Bridge</b>	
FLUCCs code <b>541 - Embayments Opening Directly to Ocean, 645 - SAV</b>		Further classification (optional) <b>E1AB3 - Estuarine Subtidal Aquatic Bed - Rooted vascular</b>		Impact or Mitigation Site? <b>Impact</b>	
Assessment Area Size <b>0.138 Acres</b>					
Basin/Watershed Name/Number <b>North Biscayne Bay</b>	Affected Waterbody (Class) <b>Class III</b>		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) <b>Biscayne Bay (OFW, AP)</b>		
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  <b>Occurs within Biscayne Bay, which is connected to the Atlantic Ocean via Government Cut.</b>					
Assessment area description <b>Paddle grass (<i>Halophila decipiens</i>) beds south of the east bridge. At the east bridge, three beds were observed that consisted of patchy seagrass with lower densities, between 20% to 40% cover. One 0.124 acre bed is located north of the US Coast Guard Base Miami Beach, one 0.41 acre bed is west of the navigation channel and one 0.10 acre bed is north of Miami Beach Marina.</b>					
Significant nearby features  <b>Located in Biscayne Bay.</b>			Uniqueness (considering the relative rarity in relation to the regional landscape.)  <b>Not unique</b>		
Functions <b>Productive ecosystem, provides food and habitat for other marine organisms, stabilizes the sea bottom, and maintains water quality.</b>			Mitigation for previous permit/other historic use  <b>No</b>		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )  <b>Wading birds; aquatic invertebrates, amphibians and reptiles; marine mammals; fish</b>			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)  <b>Potential habitat for Johnson's seagrass (T and CH). Potential foraging habitat for west Indian manatee (T), American crocodile, loggerhead sea turtle (T), green sea turtle (T), leatherback sea turtle (E), hawksbill sea turtle (E), kemp's ridley sea turtle (E), smalltooth sawfish (E).</b>		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  <b>Wildlife observations included spiny lobster and butterfly rays.</b>					
Additional relevant factors:  <b>The site is designated as Essential Fish Habitat and Habitat Areas of Particular Concern. The seagrass is EFH for penaeid shrimp and members of the snapper/grouper complex.</b>					
Assessment conducted by: <b>JMS</b>			Assessment date(s): <b>09/21/18</b>		

Form 62-345.900(1), F.A.C. [ effective date ]



**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - IMPACT**  
Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name: <b>Beach Corridor Rapid Transit Project - Bay Crossing</b>		Application Number: <b>20200710-3865</b>		Assessment Area Name or Number: <b>Seagrass Beds - East Bridge</b>	
Impact or Mitigation: <b>Impact</b>		Assessment Conducted by: <b>JMS</b>		Assessment Date: <b>09/21/18</b>	

Scoring Guidance		Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)	
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed		Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions	
					Current	With Impact
.500(6)(a) Location and Landscape Support		a. Quality and quantity of habitat support outside of AA.			X	X
		b. Invasive plant species.				
		c. Wildlife access to and from AA (proximity and barriers).				
		d. Downstream benefits provided to fish and wildlife.				
		e. Adverse impacts to wildlife in AA from land uses outside of AA.				
		f. Hydrologic connectivity (impediments and flow restrictions).			X	X
Current	With Impact	g. Dependency of downstream habitats on quantity or quality of discharges.				
7	0	h. Protection of wetland functions provided by uplands (upland AAs only).				
		Notes: The site is south of the MacArthur Causeway east bridge. The site is accessible to wildlife and connected to the Atlantic Ocean via Government Cut.			Place an "X" in the box above next to the two (2) most important criteria used in scoring this section	
.500(6)(b) Water Environment (n/a for uplands)		a. Appropriateness of water levels and flows.			X	X
		b. Reliability of water level indicators.				
		c. Appropriateness of soil moisture.				
		d. Flow rates/points of discharge.				
		e. Fire frequency/severity.				
		f. Type of vegetation.				
		g. Hydrologic stress on vegetation.				
		h. Use by animals with hydrologic requirements.				
		i. Plant community composition associated with water quality (i.e., plants tolerant of poor WQ).				
		j. Water quality of standing water by observation (i.e., discoloration, turbidity).				
Current	With Impact	k. Water quality data for the type of community.				
7	0	l. Water depth, wave energy, and currents.			X	X
		Notes: The site displayed normal water depth and flow. Strong currents were present and moderate water quality deviation was observed due to the heavy boat and jet ski traffic.			Place an "X" in the box above next to the two (2) most important criteria used in scoring this section	
.500(6)(c) Community Structure  X Vegetation  Benthic  Both		I. Appropriate/desirable species			X	X
		II. Invasive/exotic plant species				
		III. Regeneration/recruitment				
		IV. Age, size distribution.				
		V. Snags, dens, cavity, etc.				
		VI. Plants' condition.				
		VII. Land management practices.				
		VIII. Topographic features (refugia, channels, hummocks).				
		IX. Submerged vegetation (only score if present).			X	X
		X. Upland assessment area				
Current	With Impact	Notes: There were three beds observed south of the east bridge. The three beds south of the east bridge had lower densities of 20% to 40% cover. The invasive macroalgae <i>Caulerpa sertularoides</i> was present in the area.			Place an "X" in the box above next to the two (2) most important criteria used in scoring this section	
7	0					

Raw Score = Sum of above scores/30  
(if uplands, divide by 20)

Current	With Impact
0.70	0.00

Impact Acres = 0.138

Functional Loss (FL)  
[For Impact Assessment Areas]:

FL = ID x Impact Acres = 0.097

Impact Delta (ID)

Current - w/Impact	0.700
--------------------	-------

NOTE: If impact is proposed to be mitigated at a mitigation bank that was assessed using UMAM, then the credits required for mitigation is equal to Functional Loss (FL). If impact mitigation is proposed at a mitigation bank that was not assessed using UMAM, then UMAM cannot be used to assess impacts; use the assessment method of the mitigation bank.

**PART I – Qualitative Description**  
**(See Section 62-345.400, F.A.C.)**

Site/Project Name Beach Corridor Rapid Transit Project - Bay Crossing		Application Number 200710-3865	Assessment Area Name or Number Matheson Hammock Park Site
FLUCCs code 541- Embayments Opening Directly to Ocean	Further classification (optional) E2USN - Estuarine Intertidal Unconsolidated Shore and E1AB3L - Estuarine Subtidal Aquatic Bed Rooted Vascular		Impact or Mitigation Site? Mitigation
			Assessment Area Size 18.89
Basin/Watershed Name/Number Biscayne Bay	Affected Waterbody (Class) Class III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) Biscayne Bay (OFW, AP)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  Occurs within Biscayne Bay, which is connected to the Atlantic Ocean.			
Assessment area description Area 1 was a mixture of turtle grass ( <i>Thalassia testudinum</i> ) and shoal grass ( <i>Halodule wrighti</i> ). Density coverage varied throughout Area 1, ranging from a mixture of turtle grass and shoal grass to all turtle grass. In the southeastern section of Area 1, a bare patch was observed, which appeared to be at grade and with suitable sediment for seagrass growth (i.e. fine sand). Dense turtle grass flanked the bare area. Area 2 was shallower, approximately three to four feet deep at slack high tide. Portions of the middle of Area 2 had sparse shoal grass, approximately 10-20% coverage. The edge of Area 2 consisted of high densities of turtle grass and lesser coverage of manatee grass ( <i>Syringodium filiforme</i> ). Both areas had severe prop scarring, approximately 20% of the entire area. Recruitment of shoal grass and some turtle grass was observed in the prop scars.			
Significant nearby features  Located in Biscayne Bay		Uniqueness (considering the relative rarity in relation to the regional landscape.)  Not unique in landscape	
Functions  Productive ecosystem, provides food and habitat for other marine organisms, stabilizes the sea bottom, and maintains water quality.		Mitigation for previous permit/other historic use  No	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )  Wading birds; aquatic invertebrates, amphibians and reptiles; marine mammals; fish		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)  Potential foraging habitat for west Indian manatee (T), American crocodile, loggerhead sea turtle (T), green sea turtle (T), leatherback sea turtle (E), hawksbill sea turtle (E), kemp's ridley sea turtle (E), smalltooth sawfish (E).	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  Pelicans and mojarras			
Additional relevant factors:  			
Assessment conducted by: GLS		Assessment date(s): 7/27/2021	

**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name Beach Corridor Rapid Transit Project - Bay Crossing	Application Number 200710-3865	Assessment Area Name or Number Matheson Hammock Park Site
Impact or Mitigation Mitigation	Assessment conducted by: GLS	Assessment date: 7/27/2021

<b>Scoring Guidance</b>
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

<b>Optimal (10)</b>	<b>Moderate(7)</b>	<b>Minimal (4)</b>	<b>Not Present (0)</b>
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

<p>.500(6)(a) Location and Landscape Support</p> <p>w/o pres or current      with</p> <p>7      7</p>	<p>The Assessment Area (AA) is located adjacent to Matheson Hammock County Park within Biscayne Bay Aquatic Preserve and connected to the Atlantic Ocean. The area displays healthy seagrass communities, supporting an array of marine wildlife. No invasive plant species were observed. Wildlife will continue to have access to and from the AA. The ecological conditions/functions associated with the seagrass communities in the assessment area are not anticipated to change between pre-and post project conditions.</p>
<p>.500(6)(b)Water Environment (n/a for wetlands vs. aquatic environments)</p> <p>w/o pres or current      with</p> <p>7      7</p>	<p>Observed water quality was good in the AA. No discoloration or turbidity was observed. Currents and wave energy flush the environment. A bare area was observed in Area 1 and an area with sparse shoal grass coverage was observed in Area 2. Sand bars were observed in both areas. Prop scars were observed in both areas, approximately 20% coverage, however recruitment of shoal grass and turtle grass was observed in older scars. Bare areas may experience water quality degradation and suspension of sediments during storm events. Water clarity is suitable to allow light penetration required for seagrass growth. The increase in seagrass cover in the AA over time will slightly improve the water environment.</p>
<p>.500(6)(c)Community structure</p> <p>1. Vegetation and/or 2. Benthic Community</p> <p>w/o pres or current      with</p> <p>6      8</p>	<p>The AA consists of propeller scarred shoal area totalling 18.89 acres. The prop-scarred areas are estimated to cover 10% to 20% of the overall seagrass beds. The seagrass beds consist predominantly of turtle grass (&gt;75%) in most areas and shoal grass. A bare area at grade was observed in Area 1 with sediment suitable for seagrass growth and an area with sparse shoal grass coverage (10-20%) was observed in Area 2. The installation of seagrass area buoy markers and signs and educational signage at Matheson Hammock Park's marina and boat ramp will improve the "land management" of the area and protect the area from future scarring. Evidence of colonization by shoal grass and turtle grass was already observed in the prop scars during field visits. An increase in cover of seagrasses improves the community structure of the AA.</p>

Score = sum of above scores/30 (if uplands, divide by 20)
current      with
or w/o pres
0.667      0.733

If preservation as mitigation,
Preservation adjustment factor
Adjusted mitigation delta

Functional Gain
<b>FG = RFG x acres = 0.437</b>

Delta = [with-current]
0.066

If mitigation
Time lag (t-factor) = 1.14 (5 years)
Risk factor = 2.5 (high-risk)

Relative Functional Gain
RFG = delta/(t-factor x risk) = 0.023

## ATTACHMENT I | BISCAYNE NATIONAL PARK SEAGRASS MITIGATION PLAN (BISCAYNE NATIONAL PARK)

# BNP Seagrass Mitigation Plan Beach Corridor Rapid Transit Project – Bay Crossing

USCG File Numbers 3944/3945  
NMFS Number SERO-2020-02388  
E Sciences Project Number 7-0309-005  
September 2021



**ENGINEERING  
ENVIRONMENTAL  
ECOLOGICAL**

Prepared for:

Miami-Dade County Department of Transportation  
and Public Works  
Overtown Transit Village  
701 NW 1<sup>st</sup> Court  
Miami, FL 33136



Prepared in association with:



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## APPENDICES

Appendix A: Shoal Area Scarring Maps  
Appendix B: UMAM Worksheets

## 1.0 INTRODUCTION

The Miami-Dade County Department of Transportation and Public Works (DTPW) is acquiring two bridge permits from the US Coast Guard (USCG) for the Trunkline of the Beach Corridor Rapid Transit Project, also called the Bay Crossing. The project proposes a new, elevated rapid transit guideway from Herald Plaza in Miami across Biscayne Bay to 5<sup>th</sup> Street in Miami Beach near Washington Avenue (**Figure 1 – Location Map**). The guideway is proposed adjacent to and south of MacArthur Causeway for either an Automated People Mover (APM) or Monorail rubber tire vehicle mode of transit. The two bridge permits are for crossing the Atlantic Intracoastal Waterway (AIWW) (Mile 1088.9) at the west bridge and the Meloy Channel (Mile 0.44) at the east bridge, USCG File Number 3944/3945. Paddle grass (*Halophila decipiens*) is present south of the two bridges.



**Figure 1. Location Map**

The USCG has initiated consultation with the National Marine Fisheries Service (NMFS) for Essential Fish Habitat under the provisions of the Magnuson-Stevens Fishery Conservation and Management Act. In the NMFS letter to the USCG on October 14, 2020, the Conservation Recommendations requested submittal of a seagrass mitigation plan with alternative propeller scar sites for restoration. The plan presented herein

proposes restoration of propeller scars or blowholes from vessel groundings in Biscayne National Park. Impacts to 0.19 acres of paddle grass are estimated from the Beach Corridor Rapid Transit Project – Bay Crossing. The NMFS believes this may be an underestimate; however, the mitigation presented herein is scalable if it is determined that more impacts will result from construction of the transit guideway. Pre- and post-construction seagrass surveys will be performed. A condition of the USCG bridge permits will require that the seagrass mitigation is performed.

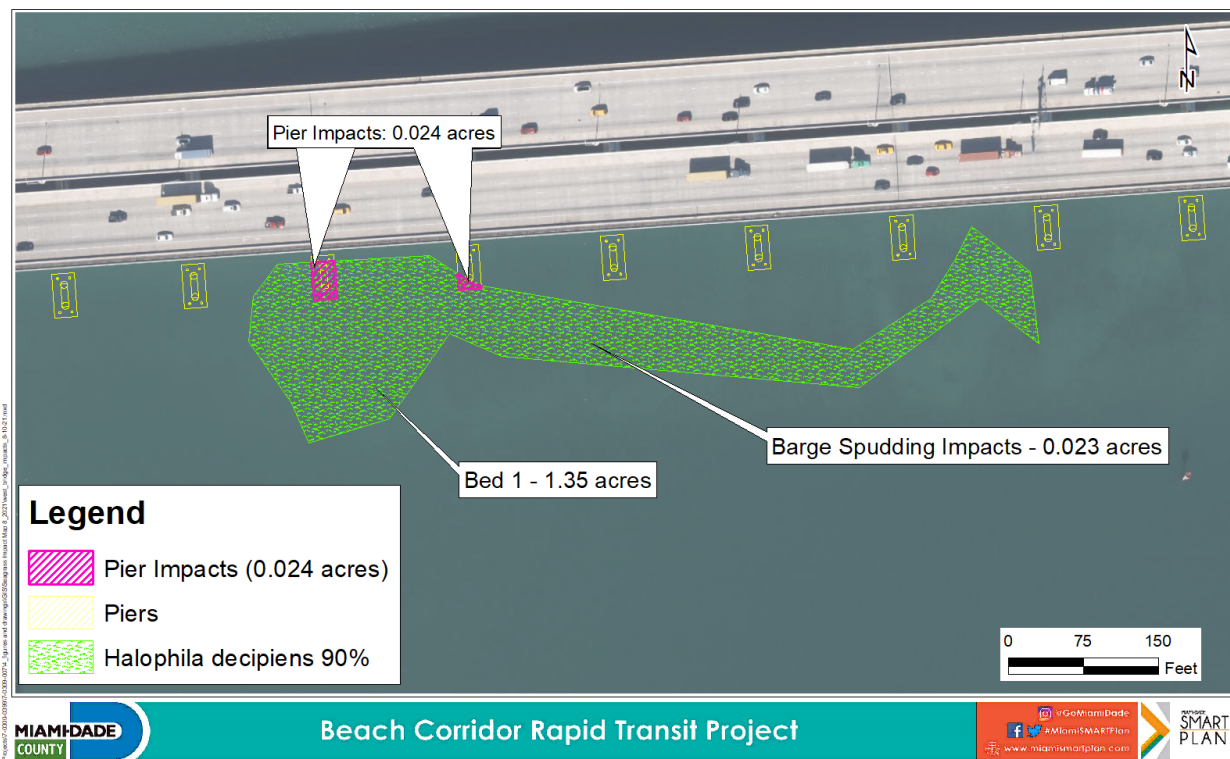
This seagrass mitigation plan will follow the format for the 12 Components of a Seagrass Mitigation Plan as required by the *Compensatory Mitigation for Losses of Aquatic Resources* under the Clean Water Act Section 404(b)(1) Guidelines [40 CFR § 230.94(c)/33 CFR § 332.4(c)], commonly referred to as the 2008 Mitigation Rule.

## **2.0 GOALS AND OBJECTIVES**

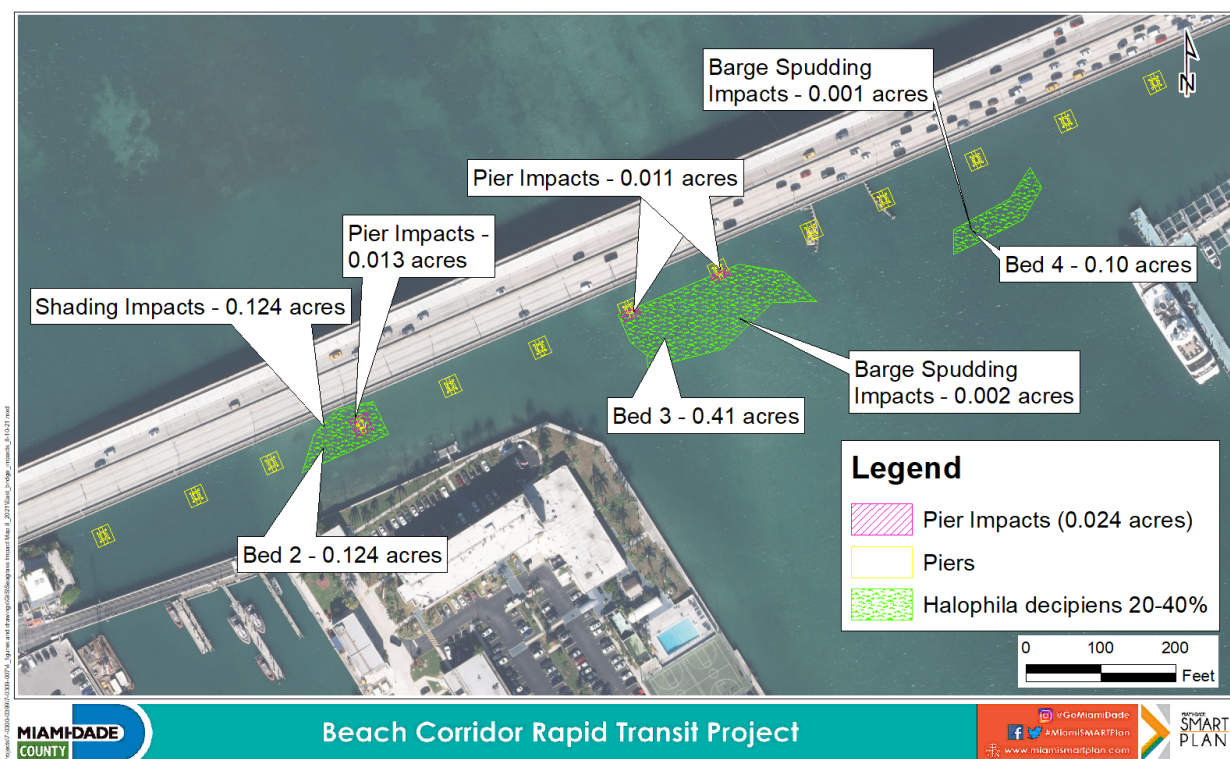
### **2.1 Impacts**

The impact site is located south of the MacArthur Causeway at the west and east bridges. Seagrass surveys were conducted on September 17-21 and 26 – 29, 2018. South of the west bridge there was a 1.35-acre bed of paddle grass with 90% cover (Bed 1). South of the east bridge, there were three beds of paddle grass: Bed 2 was 0.12 acres with 20% cover; Bed 3 was 0.41 acres with 40% cover and Bed 4 was 0.10 acres with 40% cover.

Impacts to seagrass were estimated from 30% design plans and conceptual construction methodology. Seagrass impacts from installation of the foundations were based on the area within a cofferdam at each pier location, which includes the drilled shafts, construction templates, temporary steel casings and the pile cap. Impacts from barge spudding during construction were based on two barges spudding down at each pier location seven times. Due to the east-west orientation and the proposed height of the west bridge, no impacts from shading were anticipated. The east bridge is oriented northeast to southwest and is not as high. Therefore, shading impacts to Bed 2 were anticipated and, due to its small size and having only 20% coverage of paddle grass, the total area of Bed 2 was included in the impact calculations. All impacts were considered as permanent (rather than temporary). The seagrass beds and estimated impacts are shown in **Figures 2 and 3** and were described in further detail in documents previously submitted to NMFS for this project. A total of 0.185 acres of paddle grass are anticipated to be impacted from the project.



*Figure 2. West Bridge Seagrass Bed and Impacts.*



*Figure 3. East Bridge Seagrass Beds and Impacts*

## 2.2 Goals and Objectives

The existing paddle grass beds provide a minor amount of seagrass functions, such as sediment stabilization, nutrient uptake, and food and shelter for marine organisms. Their contribution is limited due to their small size when compared to other seagrasses. The average height of paddle grass is one inch and the average width is up to 0.24 inches (<https://www.floridamuseum.ufl.edu/southflorida/habitats/seagrasses/species/>). In addition, paddle grass does not form extensive rhizome structures and tends to reproduce by seed bank. The potential mitigation sites in Biscayne National Park are surrounded by healthy seagrass beds composed predominantly of turtle grass (*Thalassia testudinum*) as well as manatee grass (*Syringodium filiforme*), shoal grass (*Halodule wrightii*), and multiple species of calcareous green macroalgae. The average height of turtle grass is 14 inches with a width of 0.5 inches (<https://www.floridamuseum.ufl.edu/southflorida/habitats/seagrasses/species/>). Turtle grass is considered a climax species and provides higher habitat value than paddle grass due to its larger size, substantial below-ground biomass, and tendency to form dense meadows. It provides habitat for a larger range of invertebrate and fish species. Manatee grass and shoal grass are colonizer species that also provide seagrass functions and habitat value.

The goal of the mitigation is to replace the functions provided by the paddle grass beds at the west and east bridges that will be impacted by the Beach Corridor Rapid Transit Project – Bay Crossing. This will be accomplished by the objectives of restoring propeller scars/blowholes to grade with fill and providing nutrient fertilizer (i.e. bird feces) to allow recruitment of seagrass into the scars/blowholes. Biscayne National Park, on both its northern and southern boundaries, is connected to the Biscayne Bay Aquatic Preserves and is within the same watershed. Restoration of seagrass beds within Biscayne National Park will improve water quality entering the Preserves and within Biscayne Bay as a whole. Restoration of seagrass beds will also provide habitat for a variety of organisms and replace the ecological services provided by seagrass beds impacted by the Beach Corridor Rapid Transit Project – Bay Crossing.

## 3.0 SITE SELECTION

The selection of prop scar/blowhole restoration in Biscayne National Park was based on several factors. First, there are no permitted mitigation banks available for seagrass mitigation that would satisfy either federal or State regulatory requirements. DTPW is also performing seagrass mitigation at Matheson Hammock County Park by placing “Caution: Seagrass Area” signs and buoys around a shoal area. This is to satisfy State permitting requirements and Biscayne Bay Aquatic Preserves staff requests (as Matheson Hammock County Park is within Biscayne Bay Aquatic Preserves). However, in their October 14, 2020 letter, NMFS rejected exclusion (preservation) as a form of mitigation and requested alternative restoration sites. An extensive survey of scars in Biscayne Bay Aquatic Preserves was conducted in October and November 2020 and February 2021 to identify scars suitable for restoration and satisfy both NMFS and the State. However, no suitable areas of scarring were identified within Biscayne Bay Aquatic Preserves, mainly because the scars were either shallow, already recruiting seagrass or were not surrounded by healthy



seagrass beds. This led to a search for scar areas in Biscayne National Park. However, Biscayne Bay Aquatic Preserves staff rejected performing restoration in Biscayne National Park because the impacts are within their management area in Biscayne Bay Aquatic Preserves. Therefore, DTPW will perform mitigation for the same impacts in both Biscayne Bay Aquatic Preserves and in Biscayne National Park to satisfy the differing federal and State agency requirements.

Second, there are many shoal areas in Biscayne National Park that have scars/blowholes suitable for restoration. Nine shoal areas have been identified where scars and blowholes are deep enough to warrant fill and are surrounded by healthy seagrass beds composed of climax species. Biscayne National Park staff have reported that less than 10% of grounding incidents in Biscayne National Park are reported and, if there is no responsible party for the injury, then funding opportunities for restoration are extremely limited (Bourque 2011). This presents an opportunity to provide the National Park Service/Biscayne National Park funds dedicated for seagrass restoration, similar to mitigation banking.

Third, Biscayne National Park staff and contractors have implemented seagrass restoration projects through the Park's Habitat Restoration Program for years (<https://www.nps.gov/bisc/learn/management/seagrass-restoration.htm>) and have a proven track record of success. The same methods have been used in the Florida Keys National Marine Sanctuary (FKNMS) with success (<https://floridakeys.noaa.gov/restoration/welcome.html>). The likelihood of a successful restoration project was a key factor in deciding to perform mitigation in Biscayne National Park. Means and methods of restoration will be determined by the National Park Service/Biscayne National Park staff but will include placing limestone sand into excavations to bring them to grade.

Another factor in the selection of Biscayne National Park was the scalability of the restoration project. At this time, the impacts are based on a conceptual design and construction methodology. Actual impacts will be determined by the final design and construction means and methods and an updated seagrass survey. Nine areas have initially been identified as potential restoration areas; however, these areas are just starting points. There are multiple areas in Biscayne National Park that may have scars/blowholes suitable for restoration. Due to potential changes within the scars/blowholes, the exact restoration locations will be selected when the project reaches the next phase.

In summary, site selection in Biscayne National Park was based on the following factors:

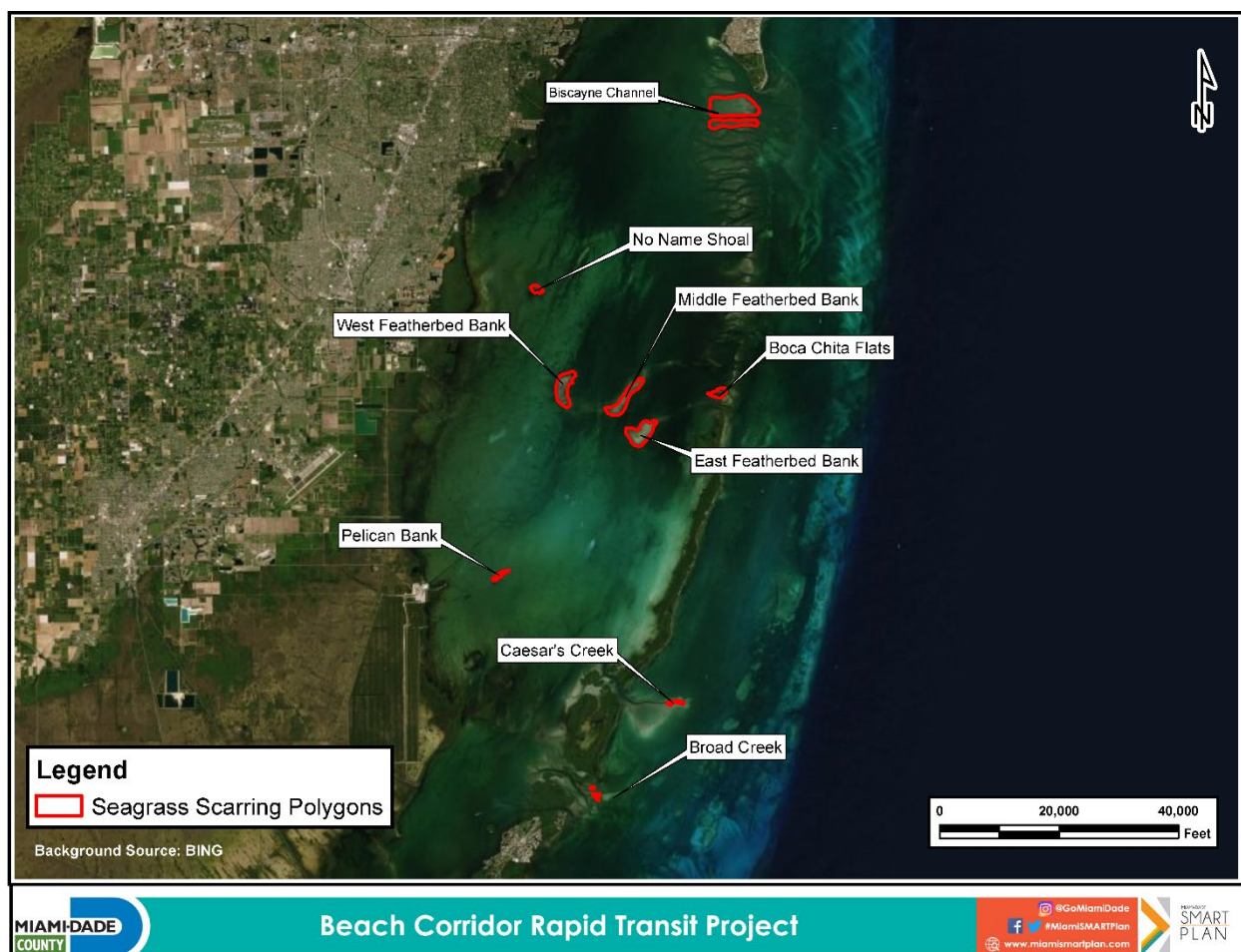
- Restoration rather than preservation;
- Number of suitable restoration areas;
- A funding opportunity is available;
- Historical seagrass restoration know-how and success; and
- Scalability.

#### 4.0 SITE PROTECTION INSTRUMENT

Mitigation is proposed in Biscayne National Park. Biscayne National Park was established June 28, 1980, after declaration of the Biscayne National Monument by Lyndon B. Johnson in 1968. As such, the Park is protected by Title 36 of the Code of Federal Regulations and managed by the US National Park Service, an agency of the US Department of the Interior. A national park is established to provide protection of resources in large land or water areas. Therefore, the mitigation sites will have long-term protection.

#### 5.0 BASELINE INFORMATION

As mentioned above, nine shoals within Biscayne National Park have been identified as having an abundance of propeller scars and blowholes. The names of the shoals are Biscayne Channel, No Name Shoal, West Featherbed Bank, Middle Featherbed Bank, East Featherbed Bank, Boca Chita Flats, Pelican Bank, Caesar's Creek and Broad Creek. A location map showing polygons of each area is provided below (Figure 4).



*Figure 4. Shoal areas in Biscayne National Park.*

Using 2021 Google Earth imagery, each of the nine shoals was analyzed for seagrass scarring. The aerial imagery of the shoal was viewed at multiple scales to identify variations in the signature of the image. Lighter lines within seagrass beds indicating a propeller scar were marked using the “path” feature in Google Earth Pro. A polygon was created to encompass the areas containing seagrass scarring around each shoal location. Google Earth KMZ files were then converted to shapefiles using ArcGIS; length (seagrass scars) and area (polygon area) attributes were autogenerated in ArcGIS using the WGS1984 coordinate system. The location map (**Figure 4** above) and larger scaled maps showing scarring on the shoals are provided in **Appendix A**.

Based on the data retrieved from the GIS mapping, the acreage of the polygons encompassed 1,690 acres. Within this area, there were 468,738 linear feet of scarring. If each scar is estimated to be one foot wide, the total acreage of scarring is 10.76 acres. Blowholes were not included in the mapping because a signature pattern could not be identified as an indicator using Google Earth imagery, yet blowholes will present another opportunity for restoration when the actual restoration locations are selected.

## **6.0 DETERMINATION OF CREDITS**

The Uniform Mitigation Assessment Method (UMAM) was used to quantify the amount of wetland functions lost at the impact site and the amount of functional gain needed for the mitigation project. Based on the UMAM worksheets presented in **Appendix B**, the functional loss from impacts to 0.185 acres of paddle grass beds is 0.135 (0.037 + 0.098). The mitigation assessment areas and UMAM scores are the areas that will be restored within each scar/blowhole. The amount of mitigation necessary to compensate for the lost functions and values is estimated to be approximately one acre of scars/blowholes.

The UMAM mitigation acreages can be adjusted as details of the mitigation work plan are finalized and as specific locations for restoration are identified. As discussed above, the proposed mitigation in Biscayne National Park is scalable, which means that additional scars/blowholes can be earmarked for restoration to account for an increase in the functional loss at the impact site.

## **7.0 MITIGATION WORK PLAN**

Prior to implementation of the mitigation, a contribution will be made for earmarked mitigation in Biscayne National Park. This can be accomplished either by a donation to the National Park Service or through a transfer from The Alliance for Florida’s National Parks, which is the official philanthropic partner for Biscayne National Park (and other national park system units in Florida). Their mission is to ensure that the State’s greatest natural ecosystems are preserved and protected.

Prior to commencement of the mitigation, aerial and field surveys will be conducted to identify shoals and specific injuries to be included in the project. Ground-truthing is not occurring now because there may be

changes in the scars prior to implementation, such as recruitment and coverage of shoal grass or other seagrass species in the scars or additional scars. Also, blowholes were not included in the mapping discussed above. Larger areas and areas with an abundance of scarring and blowholes will be selected first. It is anticipated that multiple shoals will be needed to meet the requirements for this seagrass mitigation project. Scars/blowholes that are deep enough to warrant fill and that are surrounded by a healthy seagrass community of climax species will be selected for restoration.

The mitigation work plan follows standard procedures used by Biscayne National Park for seagrass restoration activities. Each scar or blowhole site will be restored by filling the excavation to grade with sediment fill (after surrounding each site with floating turbidity curtain). Because this fill is low in nutrients, recruitment will be enhanced by applying fertilizer to the filled sites through the installation of bird roosting stakes. Following completion of the restoration filling, each restored feature will be mapped with a sub-meter GPS unit and entered into ESRI ArcGIS to get an accurate post-restoration footprint. Reference areas will be delineated in ArcGIS as two-meter buffers around each restoration site.

## **8.0 MAINTENANCE PLAN**

Maintenance of the mitigation sites will not be required as recruitment will occur naturally and the seagrass areas in Biscayne National Park are not typically subject to invasion by exotic invasive species. The bird stakes will be evaluated for position and integrity during the year one monitoring event and are scheduled to be removed 12 to 18 months post-restoration. However, if cyanobacteria mats are observed on the seafloor in the immediate vicinity of the bird stakes in the months following installation, the bird stakes will be removed sooner.

## **9.0 PERFORMANCE STANDARDS**

Performance standards are used to measure the success of the mitigation project. In this case, the mitigation site is within a turtle grass community. It is recognized that seagrass beds go through developmental changes and variations before developing into a climax community. First, colonizer species such as shoal grass and manatee grass will colonize an area along with calcareous algae. In addition, it may take upward of 10 years for a turtle grass community to develop through succession. Based on staff's experience with seagrass restoration in Biscayne National Park, the performance standards should be based on community metrics in the first five years after restoration rather than restoration to a climax community. In discussion with NMFS on May 3, 2021, it was recognized that the impacts are to paddle grass whereas the surrounding seagrass beds at the mitigation site are shallower and predominantly turtle grass. NMFS staff stated that they will not require full restoration to a climax community as had been stated in their October 14, 2020 letter. Therefore, the performance standards will be based on a trend toward success, i.e. development toward a climax community. The performance standards are divided into interim measures during the monitoring period and final success criteria. Interim measures are meant to provide an indication of whether

the restoration sites are trending toward success, given that there will be variations in the community assemblage over time. Success will be based on the final performance standards.

#### Interim Measures

1. Total percent cover estimates of submerged aquatic vegetation (SAV), including seagrasses and calcareous macroalgae, shall increase in the restored areas each year of monitoring.
2. Seagrasses must be a component of the community assemblage and percent cover of seagrasses shall increase in the restored areas each year.

#### Performance Standards

1. Total percent cover of seagrasses reaches 30% or greater within the restoration sites compared to the reference sites. [This criterion can be calculated by the equation ( $\text{seagrass density}_{\text{rest}} \geq \text{density}_{\text{ref}} \times 30\%$ )].
2. *T. testudinum* percent cover reaches 15% or greater within the restoration sites compared to the reference sites. [This criterion can be calculated by the equation ( $T. \text{testudinum density}_{\text{rest}} \geq \text{density}_{\text{ref}} \times 15\%$ )].
3. *T. testudinum* shoot density demonstrates a trending increase at a 95% confidence level.

### **10.0 MONITORING REQUIREMENTS**

The mitigation and monitoring will be conducted by Biscayne National Park and its contractors. The restoration features will be monitored annually for five years. The restoration sites are south of Virginia Key and not subject to a growing season. A time-zero report will be prepared within one-month of completion of the restoration project and each year for the next four years or until the performance standards are met. All reports will be submitted to NMFS and the USCG.

To monitor performance of the restoration project, the seagrass community will be assessed in 10% of each restoration site through randomly placed 0.25 m<sup>2</sup> quadrats (“community quadrats”). An equivalent number of randomly placed quadrats will be sampled in undisturbed reference areas adjacent to the restoration features (reference quadrats). Reference areas will be delineated as two-meter buffers around each site following completion of restoration activities (see Mitigation Work Plan Section 7.0.).

In each community quadrat and reference quadrat, the percent cover of each species of seagrass and of calcareous macroalgae will be estimated. Separate percent cover estimates will be made for each seagrass species, *T. testudinum*, *S. filiforme*, and *H. wrightii*, and for calcareous macroalgae. The total percent cover of SAV will also be estimated; note that the “total” score is not the sum of the component species, but rather a separate cover estimate. Based on a 0.0625 m<sup>2</sup> quadrat placed inside one corner of the 0.25 m<sup>2</sup> quadrat, the shoot density of *T. testudinum* will be estimated.

The seagrass and macroalgae percent cover and *T. testudinum* shoot density data will be used to evaluate restoration site status. The status of restoration sites relative to the reference seagrass community will be



evaluated by plotting restoration and reference site cover and density metrics through time since restoration. In addition, the stability of the sediment in the restored areas will be evaluated and a qualitative assessment of seagrass recruitment, health and potential recovery will be made.

## **11.0 LONG-TERM MANAGEMENT PLAN**

The restoration sites are in and under the protection of Biscayne National Park, a unit of the National Park Service and, therefore, the resources and sites in the Park will be managed, preserved and protected in perpetuity.

## **12.0 ADAPTIVE MANAGEMENT PLAN**

The site will be monitored for sediment stability, bird stake use for nutrient input and trends in seagrass community metrics. Based on these measures and qualitative assessments, if there is an indication that the site is not trending toward success within the five-year monitoring period, there are adaptive management measures that can be taken, including:

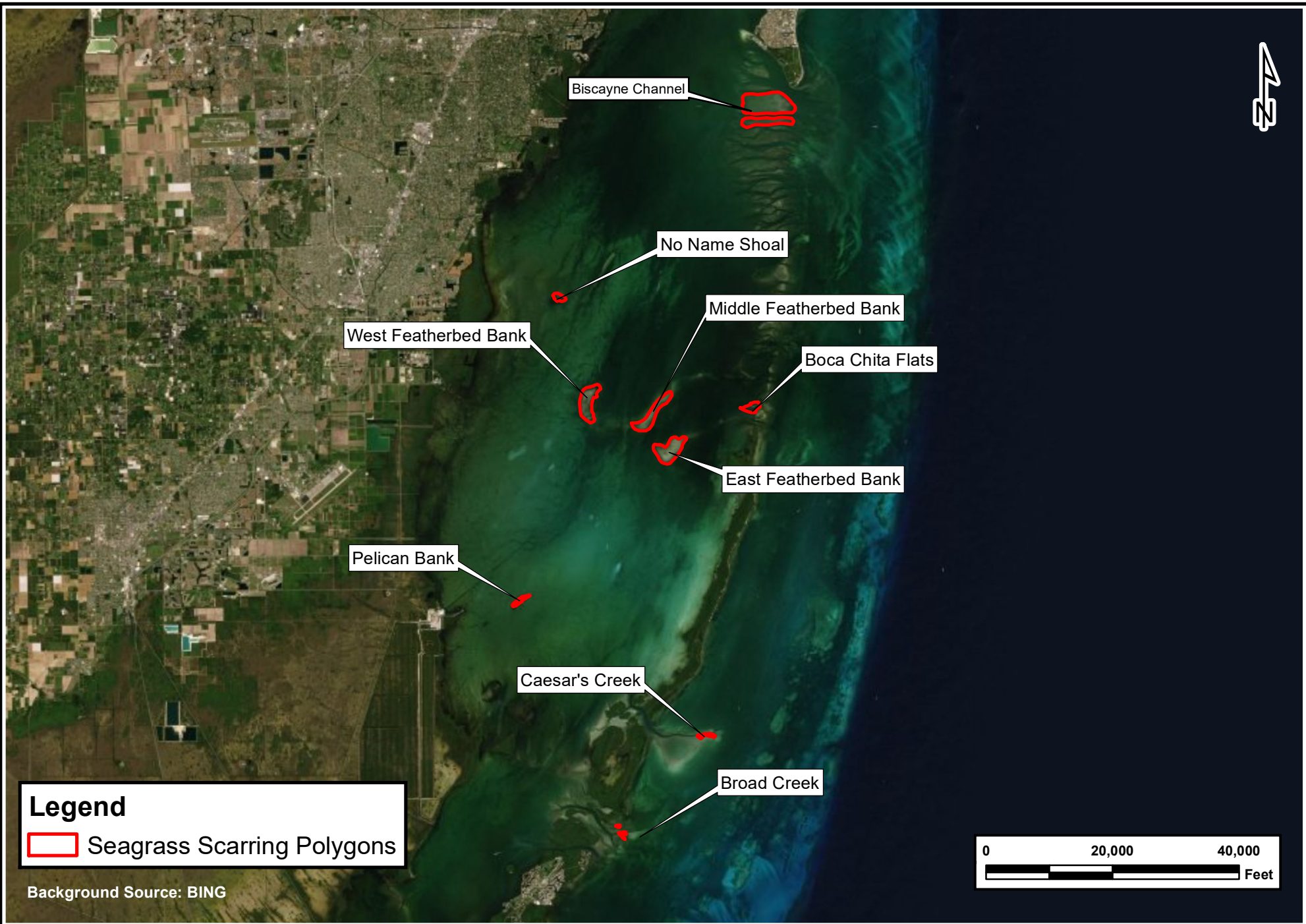
- Adding fill if there is an indication of erosion or unstable sediment;
- Extending the monitoring period to better quantify site changes;
- Transplanting seagrass if the site is large and recruitment toward the center is slow; and,
- As a last resort, selecting other features for restoration.

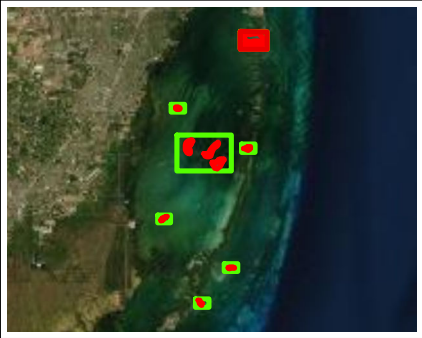
Any adaptive management measures are subject to advanced approval by NMFS, USCG, and National Park Service, and will require additional funding.

## **13.0 FINANCIAL ASSURANCES**

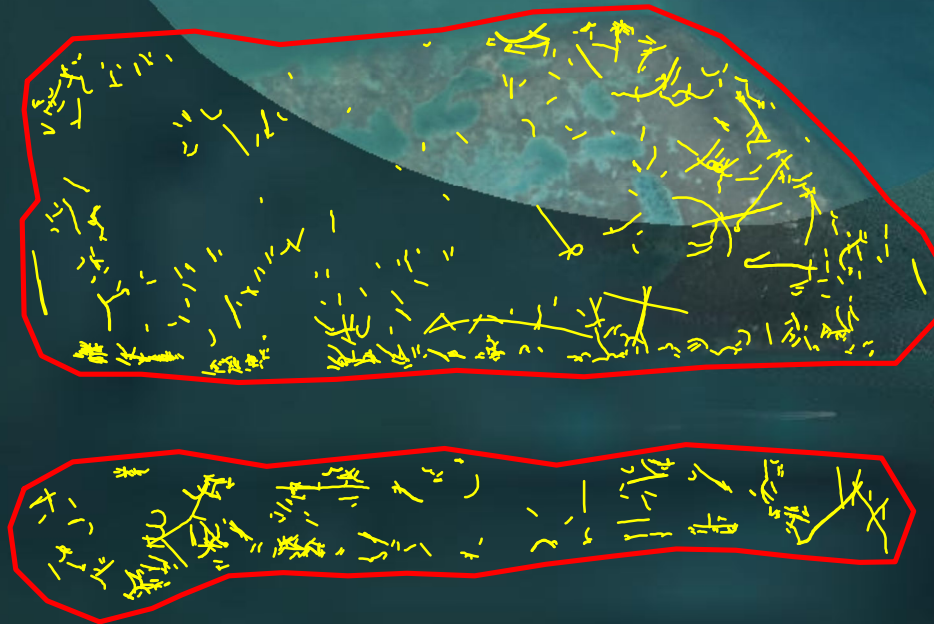
The mitigation will be accomplished through a contribution of funds to Biscayne National Park.. It has been estimated that approximately one to 1.5 million dollars will be needed to restore and monitor enough features to satisfy the mitigation requirements for the Beach Corridor Rapid Transit Project – Bay Crossing. This project is being funded by DTPW in cooperation with the Florida Department of Transportation and the Cities of Miami and Miami Beach, all government entities. The USCG will require that the mitigation project is performed and successfully completed as a condition of their bridge permits for the project.

# APPENDIX A





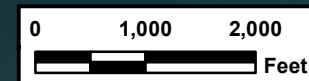


Biscayne Channel

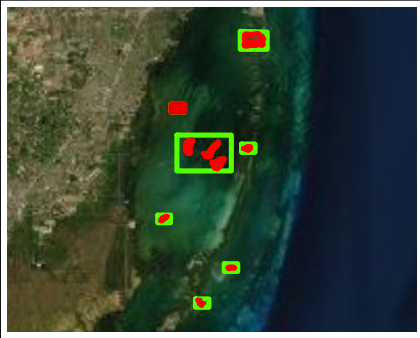


### Legend

-  Seagrass Scarring Polygons
-  Seagrass Scarring (2021 Google Earth Aerial)







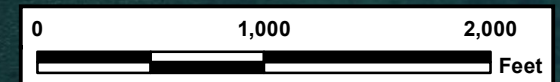


## No Name Shoal

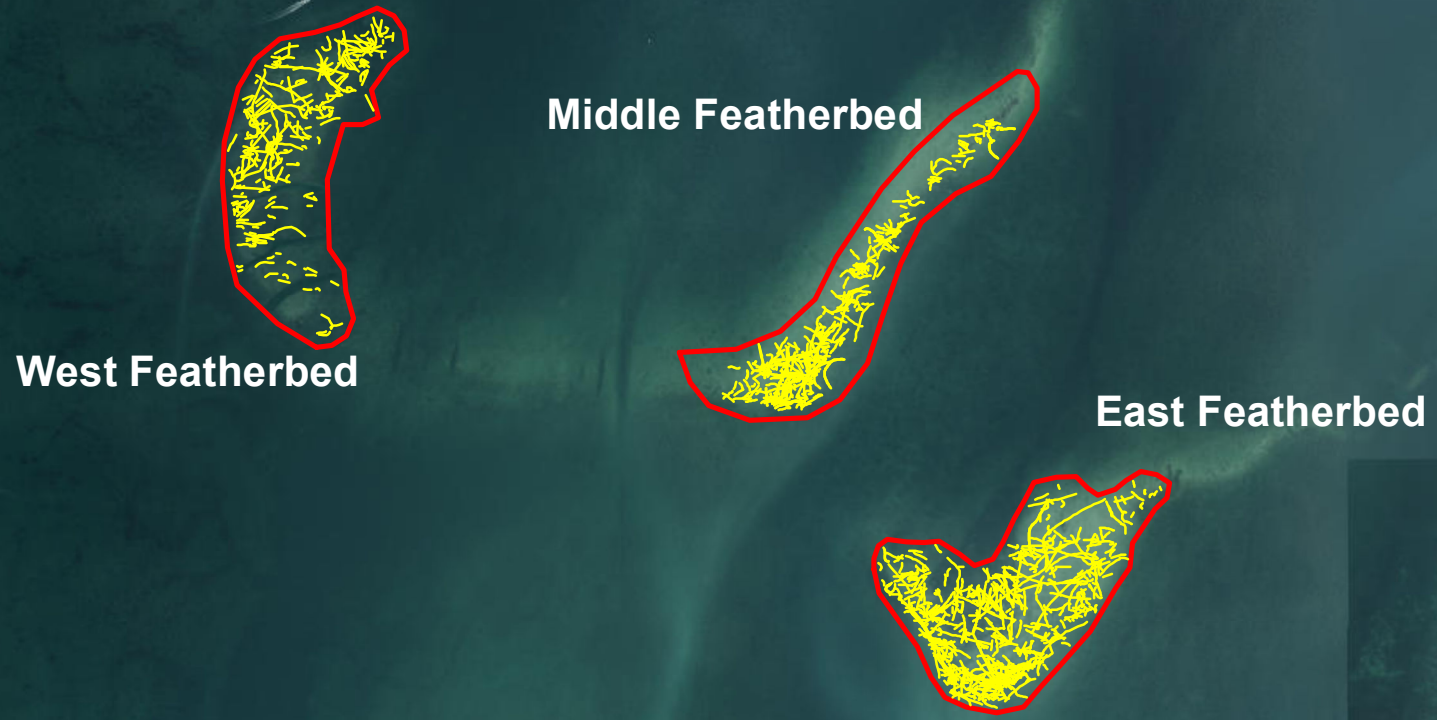
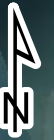
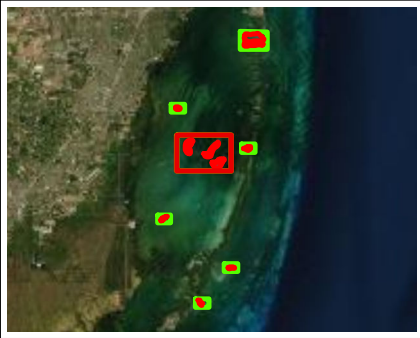


### Legend



-  Seagrass Scarring Polygons
-  Seagrass Scarring (2021 Google Earth Aerial)



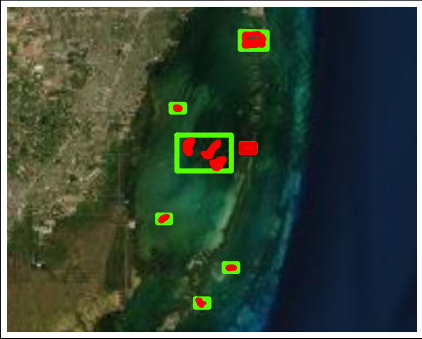




### Legend

-  Seagrass Scarring Polygons
-  Seagrass Scarring (2021 Google Earth Aerial)





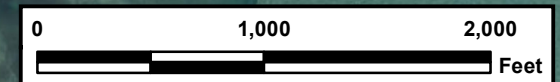


## Boca Chita Flats

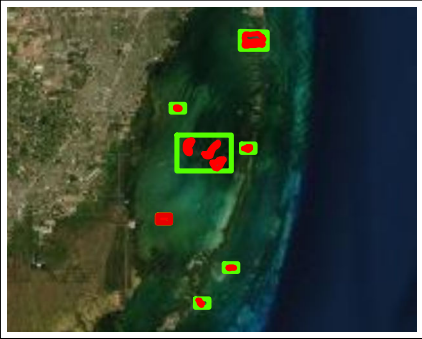


### Legend

-  Seagrass Scarring Polygons
-  Seagrass Scarring (2021 Google Earth Aerial)







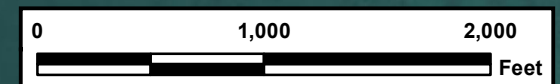


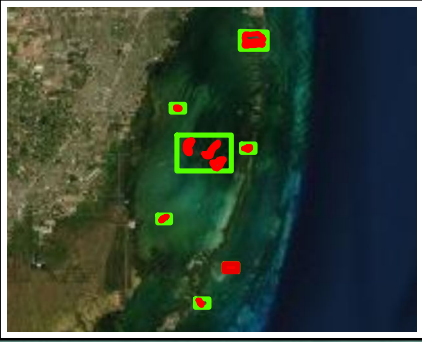
Pelican Bank



### Legend

-  Seagrass Scarring Polygons
-  Seagrass Scarring (2021 Google Earth Aerial)





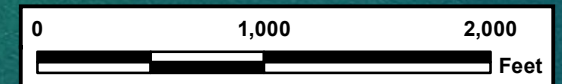


## Caesar's Creek

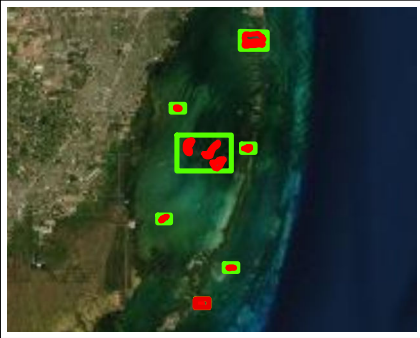


### Legend

-  Seagrass Scarring Polygons
-  Seagrass Scarring (2021 Google Earth Aerial)





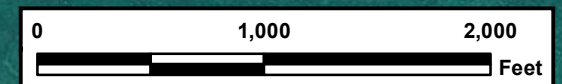




Broad Creek

### Legend

-  Seagrass Scarring Polygons
-  Seagrass Scarring (2021 Google Earth Aerial)





## APPENDIX B

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)**

Site/Project Name <b>Beach Corridor Rapid Transit Project - Bay Crossing</b>		Application Number <b>USCG 3944/3945 / NMFS SERO-2020-02388</b>		Assessment Area Name or Number <b>Seagrass Beds - West Bridge</b>	
FLUCCs code <b>541 - Embayments Opening Directly to Ocean, 645 - SAV</b>		Further classification (optional) <b>E1AB3 - Estuarine Subtidal Aquatic Bed - Rooted vascular</b>		Impact or Mitigation Site? <b>Impact</b>	
Assessment Area Size <b>0.047 Acres</b>					
Basin/Watershed Name/Number <b>North Biscayne Bay</b>		Affected Waterbody (Class) <b>Class III</b>		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) <b>Biscayne Bay (OFW, AP)</b>	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  <b>Occurs within Biscayne Bay, which is connected to the Atlantic Ocean via Government Cut.</b>					
Assessment area description  <b>Paddle grass (<i>Halophila decipiens</i>) bed south of the west bridge. At the west bridge, one 1.35 acre bed was observed that consisted of seagrass with a density of 90% cover.</b>					
Significant nearby features  <b>Located in Biscayne Bay.</b>		Uniqueness (considering the relative rarity in relation to the regional landscape.)  <b>Not unique</b>			
Functions  <b>Productive ecosystem, provides food and habitat for other marine organisms, stabilizes the sea bottom, and maintains water quality.</b>		Mitigation for previous permit/other historic use  <b>No</b>			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )  <b>Wading birds; aquatic invertebrates, amphibians and reptiles; marine mammals; fish</b>		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)  <b>Potential habitat for Johnson's seagrass (T and CH). Potential foraging habitat for west Indian manatee (T), American crocodile, loggerhead sea turtle (T), green sea turtle (T), leatherback sea turtle (E), hawksbill sea turtle (E), kemp's ridley sea turtle (E), smalltooth sawfish (E).</b>			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  					
Additional relevant factors:  <b>The site is designated as Essential Fish Habitat and a Habitat Area of Particular Concern. The seagrass is EFH for penaeid shrimp and members of the snapper/grouper complex.</b>					
Assessment conducted by:  <b>JMS</b>		Assessment date(s):  <b>09/21/18</b>			

Form 62-345.900(1), F.A.C. [ effective date ]

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - IMPACT**  
Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name: <b>Beach Corridor Rapid Transit Project - Bay Crossing</b>		Application Number: <b>USCG 3944/3945 / NMFS SERO-2020-02388</b>		Assessment Area Name or Number: <b>Seagrass Beds - West Bridge</b>	
Impact or Mitigation: <b>Impact</b>		Assessment Conducted by: <b>JMS</b>		Assessment Date: <b>09/21/18</b>	

Scoring Guidance		Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed		Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

		Current	With Impact		
.500(6)(a) Location and Landscape Support	a. Quality and quantity of habitat support outside of AA.	X	X		
	b. Invasive plant species.				
	c. Wildlife access to and from AA (proximity and barriers).				
	d. Downstream benefits provided to fish and wildlife.				
	e. Adverse impacts to wildlife in AA from land uses outside of AA.				
	f. Hydrologic connectivity (impediments and flow restrictions).	X	X		
	g. Dependency of downstream habitats on quantity or quality of discharges.				
	h. Protection of wetland functions provided by uplands (upland AAs only).				
Current	7	With Impact	0	Notes: The site is located directly south of the MacArthur Causeway west bridge. However, the site is accessible to wildlife and connected to the Atlantic Ocean via Government Cut.	Place an "X" in the box above next to the two (2) most important criteria used in scoring this section

		Current	With Impact		
.500(6)(b) Water Environment (n/a for uplands)	a. Appropriateness of water levels and flows.	X	X		
	b. Reliability of water level indicators.				
	c. Appropriateness of soil moisture.				
	d. Flow rates/points of discharge.				
	e. Fire frequency/severity.				
	f. Type of vegetation.				
	g. Hydrologic stress on vegetation.				
	h. Use by animals with hydrologic requirements.				
	i. Plant community composition associated with water quality (i.e., plants tolerant of poor WQ).				
	j. Water quality of standing water by observation (i.e., discoloration, turbidity).				
Current	7	With Impact	0	Notes: The site displayed normal hydrology and use by animals. Strong currents were present and moderate water quality deviation was observed due to the heavy boat traffic.	Place an "X" in the box above next to the two (2) most important criteria used in scoring this section

		Current	With Impact		
.500(6)(c) Community Structure	I. Appropriate/desirable species	X	X		
	II. Invasive/exotic plant species				
	III. Regeneration/recruitment				
	IV. Age, size distribution.				
	V. Snags, dens, cavity, etc.				
	VI. Plants' condition.				
	VII. Land management practices.				
	VIII. Topographic features (refugia, channels, hummocks).				
	IX. Submerged vegetation (only score if present).	X	X		
	X. Upland assessment area				
Current	8	With Impact	0	Notes: Seagrass consisted of paddle grass at 90% cover. The seagrass appeared healthy with minimal macroalgae present.	Place an "X" in the box above next to the two (2) most important criteria used in scoring this section

<b>Raw Score</b> = Sum of above scores/30 (if uplands, divide by 20)	
Current	With Impact
0.73	0.00

<b>Impact Acres</b> =	0.05
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<b>Functional Loss (FL)</b> [For Impact Assessment Areas]:	
FL = ID x Impact Acres =	0.037

<b>Impact Delta (ID)</b>	
Current - w/Impact	0.73

NOTE: If impact is proposed to be mitigated at a mitigation bank that was assessed using UMAM, then the credits required for mitigation is equal to Functional Loss (FL). If impact mitigation is proposed at a mitigation bank that was not assessed using UMAM, then UMAM cannot be used to assess impacts; use the assessment method of the mitigation bank.

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)**

Site/Project Name <b>Beach Corridor Rapid Transit Project - Bay Crossing</b>		Application Number <b>USCG 3944/3945 / NMFS SERO-2020-2388</b>		Assessment Area Name or Number <b>Seagrass Beds - East Bridge</b>	
FLUCCs code <b>541 - Embayments Opening Directly to Ocean, 645 - SAV</b>		Further classification (optional) <b>E1AB3 - Estuarine Subtidal Aquatic Bed - Rooted vascular</b>		Impact or Mitigation Site? <b>Impact</b>	
Assessment Area Size <b>0.138 Acres</b>					
Basin/Watershed Name/Number <b>North Biscayne Bay</b>		Affected Waterbody (Class) <b>Class III</b>		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) <b>Biscayne Bay (OFW, AP)</b>	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  <b>Occurs within Biscayne Bay, which is connected to the Atlantic Ocean via Government Cut.</b>					
Assessment area description <b>Paddle grass (<i>Halophila decipiens</i>) beds south of the east bridge. At the east bridge, three beds were observed that consisted of patchy seagrass with lower densities, between 20% to 40% cover. One 0.124 acre bed is located north of the US Coast Guard Base Miami Beach, one 0.41 acre bed is west of the navigation channel and one 0.10 acre bed is north of Miami Beach Marina.</b>					
Significant nearby features  <b>Located in Biscayne Bay.</b>		Uniqueness (considering the relative rarity in relation to the regional landscape.)  <b>Not unique</b>			
Functions <b>Productive ecosystem, provides food and habitat for other marine organisms, stabilizes the sea bottom, and maintains water quality.</b>		Mitigation for previous permit/other historic use  <b>No</b>			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )  <b>Wading birds; aquatic invertebrates, amphibians and reptiles; marine mammals; fish</b>		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)  <b>Potential habitat for Johnson's seagrass (T and CH). Potential foraging habitat for west Indian manatee (T), American crocodile, loggerhead sea turtle (T), green sea turtle (T), leatherback sea turtle (E), hawksbill sea turtle (E), kemp's ridley sea turtle (E), smalltooth sawfish (E).</b>			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  <b>Wildlife observations included spiny lobster and butterfly rays.</b>					
Additional relevant factors:  <b>The site is designated as Essential Fish Habitat and Habitat Areas of Particular Concern. The seagrass is EFH for penaeid shrimp and members of the snapper/grouper complex.</b>					
Assessment conducted by: <b>JMS</b>		Assessment date(s): <b>09/21/18</b>			

Form 62-345.900(1), F.A.C. [ effective date ]

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - IMPACT**  
Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name: <b>Beach Corridor Rapid Transit Project - Bay Crossing</b>		Application Number: <b>USCG 3944/3945 / NMFS SERO-2020-2388</b>		Assessment Area Name or Number: <b>Seagrass Beds - East Bridge</b>	
Impact or Mitigation: <b>Impact</b>		Assessment Conducted by: <b>JMS</b>		Assessment Date: <b>09/21/18</b>	

Scoring Guidance		Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)	
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed		Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions	
					Current	With Impact
.500(6)(a) Location and Landscape Support		a. Quality and quantity of habitat support outside of AA.			X	X
		b. Invasive plant species.				
		c. Wildlife access to and from AA (proximity and barriers).				
		d. Downstream benefits provided to fish and wildlife.				
		e. Adverse impacts to wildlife in AA from land uses outside of AA.				
		f. Hydrologic connectivity (impediments and flow restrictions).			X	X
		g. Dependency of downstream habitats on quantity or quality of discharges.				
		h. Protection of wetland functions provided by uplands (upland AAs only).				
Current	With Impact	Notes: The site is south of the MacArthur Causeway east bridge. The site is accessible to wildlife and connected to the Atlantic Ocean via Government Cut.				Place an "X" in the box above next to the two (2) most important criteria used in scoring this section
7	0					
.500(6)(b) Water Environment (n/a for uplands)		a. Appropriateness of water levels and flows.			X	X
		b. Reliability of water level indicators.				
		c. Appropriateness of soil moisture.				
		d. Flow rates/points of discharge.				
		e. Fire frequency/severity.				
		f. Type of vegetation.				
		g. Hydrologic stress on vegetation.				
		h. Use by animals with hydrologic requirements.				
		i. Plant community composition associated with water quality (i.e., plants tolerant of poor WQ).				
		j. Water quality of standing water by observation (i.e., discoloration, turbidity).				
Current	With Impact	Notes: The site displayed normal water depth and flow. Strong currents were present and moderate water quality deviation was observed due to the heavy boat and jet ski traffic.				Place an "X" in the box above next to the two (2) most important criteria used in scoring this section
7	0					
.500(6)(c) Community Structure  X Vegetation  Benthic  Both		I. Appropriate/desirable species			X	X
		II. Invasive/exotic plant species				
		III. Regeneration/recruitment				
		IV. Age, size distribution.				
		V. Snags, dens, cavity, etc.				
		VI. Plants' condition.				
		VII. Land management practices.				
		VIII. Topographic features (refugia, channels, hummocks).				
		IX. Submerged vegetation (only score if present).			X	X
		X. Upland assessment area				
Current	With Impact	Notes: There were three beds observed south of the east bridge. The three beds south of the east bridge had lower densities of 20% to 40% cover. The invasive macroalgae Caulerpa sertularoides was present in the area.				Place an "X" in the box above next to the two (2) most important criteria used in scoring this section
7	0					

Raw Score = Sum of above scores/30 (if uplands, divide by 20)	
Current	With Impact
0.70	0.00

Impact Acres =	0.14
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Functional Loss (FL) [For Impact Assessment Areas]:	
FL = ID x Impact Acres =	0.098

Impact Delta (ID)	
Current - w/Impact	0.70

NOTE: If impact is proposed to be mitigated at a mitigation bank that was assessed using UMAM, then the credits required for mitigation is equal to Functional Loss (FL). If impact mitigation is proposed at a mitigation bank that was not assessed using UMAM, then UMAM cannot be used to assess impacts; use the assessment method of the mitigation bank.



**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - MIT/PRES**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)**

Site/Project Name <b>Beach Corridor Rapid Transit Project</b>		Application Number <b>USCG 3944/3955 / NMFS SERO-2020-02388</b>		Assessment Area Name or Number <b>Biscayne National Park</b>	
FLUCCs code <b>5410 - Embayments opening directly to the Atlantic Ocean</b>		Further classification (optional) <b>E1UBL - Estuarine Subtidal Unconsolidated Bottom, E1ABL - Estuarine Subtidal Aquatic Bed</b>		Mitigation Type <b>Restoration</b>	
Assessment Area Size <b>0.00 Acres</b>					
Basin/Watershed Name/Number <b>Biscayne Bay</b>		Affected Waterbody (Class) <b>Class III</b>		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) <b>National Park, Marine Protected Area, OFW, EFH - HAPC)</b>	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  <b>Open waters of Biscayne Bay in Biscayne National Park, which is connected to the Atlantic Ocean.</b>					
Assessment area description <b>The mitigation area are productive seagrass flats with predominantly <i>Thalassia testudinum</i>, <i>Syringodium filiforme</i> and <i>Halodule wrightii</i>. Shoal areas contain pronounced incidence of propeller scarring and blowholes where the rhizomes have been cut and the injury is barren of seagrass due to heavy boat traffic in the area and shallow water depths.</b>					
Significant nearby features  <b>Located in Biscayne Bay</b>		Uniqueness (considering the relative rarity in relation to the regional landscape.)  <b>Not Unique in landscape</b>			
Functions <b>The scarred areas do not provide typical seagrass functions of sediment stabilization, nutrient uptake and food and shelter for other marine organisms.</b>		Mitigation for previous permit/other historic use  <b>None</b>			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )  <b>The mitigation is anticipated to enhance the productivity of the surrounding area by creating a continuous seagrass bed. The West Indian Manatee, sea turtles, juvenile fish, epibenthic invertebrates and water birds are anticipated to utilize the site.</b>		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)  <b>West Indian manatee (E), American crocodile (T), loggerhead sea turtle (T), leatherback sea turtle (E), green turtle (E), hawksbill turtle (E), smalltooth sawfish (E).</b>			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):     					
Additional relevant factors:     					
Assessment conducted by: <b>GLS</b>		Assessment date(s): <b>8/12/2021</b>			

Form 62-345.900(1), F.A.C. [ effective date ]

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - MITIGATION/PRESERVATION**  
Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name: <b>Beach Corridor Rapid Transit Project</b>		Application Number: <b>USCG 3944/3945 / NMFS SERO-2020-02388</b>		Assessment Area Name or Number: <b>Biscayne National Park</b>	
Impact or Mitigation: <b>Mitigation</b>		Assessment Conducted by: <b>GLS</b>		Assessment Date: <b>8/12/21</b>	

Scoring Guidance		Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed		Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

		Current	With Mitigation
.500(6)(a) Location and Landscape Support	a. Quality and quantity of <b>habitat support</b> outside of AA.	X	X
	b. <b>Invasive plant species.</b>		
	c. <b>Wildlife access</b> to and from AA (proximity and barriers).	X	X
	d. <b>Downstream benefits</b> provided to fish and wildlife.		
	e. Adverse impacts to wildlife in AA from <b>land uses</b> outside of AA.		
	f. <b>Hydrologic connectivity</b> (impediments and flow restrictions).		
	g. <b>Dependency</b> of downstream habitats on quantity or quality of discharges.		
	h. Protection of wetland functions provided by uplands ( <b>upland AAs</b> only).		
<b>7</b>	<b>8</b>	Notes: The AAs are in Biscayne National Park and the surrounding area presents high quality habitat that supports an array of marine species. Wildlife will continue to have access to and from the AAs, however, the AAs are devoid of seagrass. The ecological conditions/functions will improve between the pre- and post-project conditions	
.500(6)(b)Water Environment (n/a for uplands)	a. Appropriateness of <b>water levels and flows.</b>	X	X
	b. Reliability of <b>water level indicators.</b>		
	c. Appropriateness of <b>soil moisture.</b>		
	d. <b>Flow rates/points</b> of discharge.		
	e. <b>Fire frequency/severity.</b>		
	f. <b>Type of vegetation.</b>		
	g. <b>Hydrologic stress</b> on vegetation.		
	h. Use by animals with hydrologic requirements.		
	i. <b>Plant community composition</b> associated with water quality (i.e., plants tolerant of poor WQ).		
	j. <b>Water quality of standing water by observation</b> (i.e., discoloration, turbidity).		
	k. <b>Water quality data</b> for the type of community.		
<b>5</b>	<b>8</b>	Notes: The AAs are devoid of seagrass and therefore sediments can be suspended in the water column during storm events creating turbidity. The water depths and wave energy may be different inside deeper scars/blowholes. Restoration to grade will restore appropriate water depths and wave energy to allow seagrass recruitment and improved water quality.	
.500(6)(c)Community structure  x Vegetation  Benthic  Both	I. Appropriate/desirable species	X	X
	II. Invasive/exotic plant species		
	III. Regeneration/recruitment		
	IV. Age, size distribution.		
	V. Snags, dens, cavity, etc.		
	VI. Plants' condition.		
	VII. Land management practices.		
	VIII. Topographic features (refugia, channels, hummocks).		
	IX. Submerged vegetation (only score if present).	X	X
	X. Upland assessment area		
<b>2</b>	<b>7</b>	Notes: The AAs consist of prop scars/blowholes devoid of seagrass within productive seagrass flats. Restoration of the scars/blowholes to grade will allow for seagrass recruitment and an increase in coverage of seagrass species. The community structure within the AAs will therefore be improved with restoration.	

<b>Raw Score = Sum of above scores/30</b> (if uplands, divide by 20)	
<b>Current</b>	<b>With Mitigation</b>
<b>0.47</b>	<b>0.77</b>

TEMPORAL LAG TABLE					
YEAR	T-factor	YEAR	T-factor	YEAR	T-factor
< or = 1	1	11-15	1.46	41-45	3.03
2	1.03	16-20	1.68	46-50	3.34
3	1.07	21-25	1.92	51-55	3.65
4	1.10	26-30	2.18	>55	3.91
5	1.14	31-35	2.45		
6-10	1.25	36-40	2.73		

<b>Temporal Lag Factor (TLF) =</b> (see Temporal Lag Table above)	<b>1.25</b>
<b>Risk Factor (RF) =</b> [1=no risk, 2=mod risk, 3=hi risk, on 0.25 increments)	<b>2.00</b>

<b>Relative Functional Gain (RFG) =</b> MD/(TLF x RF) =	<b>0.120</b>
<b>Mitigation Area Required (acres) =</b> FL/RFG =	<b>1.11</b>

<b>Mitigation Area Size (acres)</b>	<b>0.00</b>
<b>Functional Gain (FG) (RFG x MIT AREA)</b> (should balance with Functional Loss)	<b>0.000</b>

<b>FOR PRESERVATION ONLY:</b>	
<b>Mitigation Delta (MD)</b>	
w/Mitigation - Current	<b>0.30</b>

<b>Mitigation Deficit (acres)</b>	<b>-1.11</b>
<b>Acres of Impact Offset by this Mitigation Area</b>	<b>0.00</b>

## ATTACHMENT J | CORAL RELOCATION PLAN

# Coral Relocation Plan Beach Corridor Rapid Transit Project – Bay Crossing Miami- Dade County, Florida October 2021

E Sciences Project Number 7-0309-005 USCG Permit  
File Numbers: 3944/3945



**ENGINEERING  
ENVIRONMENTAL  
ECOLOGICAL**

Prepared for:

Miami-Dade County Department of Transportation  
and Public Works  
111 NW 1<sup>st</sup> Street Miami, FL 33128



Prepared in association with:



**Parsons PLUS**  
envision more

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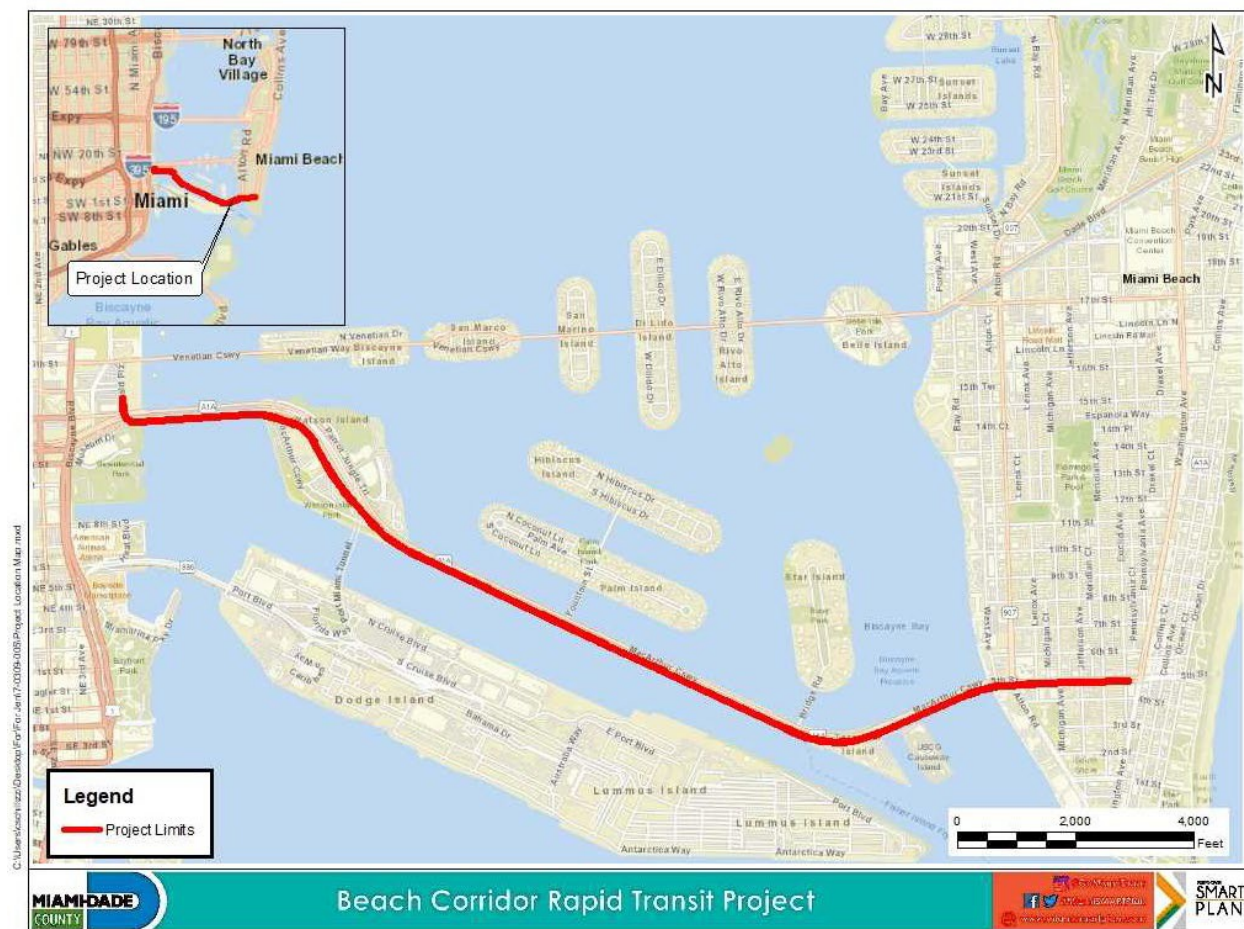
### APPENDICES

Appendix A – Resource Equivalency Analysis (REA), Parsons 2020
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## 1.0 INTRODUCTION

The Beach Corridor Trunkline (Bay Crossing) is one of three sub-areas that comprise the Miami-Dade County Department of Transportation and Public Works (DTPW), Beach Corridor Rapid Transit Project. The Bay Crossing is a proposed elevated rail system along an east–west corridor that extends from the existing Downtown Metromover Omni Extension along the south side of MacArthur Causeway to 5th Street (in the median) in Miami Beach and ending near Washington Avenue (**Figure 1: Project Location Map**). The Bay Crossing will connect to existing transit services such as the Metromover and bus service in Miami’s Central Business District on the west end and Miami Beach’s extensive trolley system on the east end. The purpose of this project is to increase the person-throughput to the Beach Corridor’s major origins and destinations via a rapid transit technology. The City of Miami Central Business District (CBD) area and City of Miami Beach have undergone rapid population and employment increases over the past decade, a trend that is projected to continue over the next 20 years.



**Figure 1: Project Location Map**

The elevated rail transit system will require the installation of 56, seven-foot (84-inch) diameter drilled shafts within the existing riprap south of the MacArthur Causeway roadway. Installation of the drilled shafts involves the use of two spudded barges and one tethered barge. E Sciences, Incorporated (E Sciences) conducted a coral survey of an estimated 25 percent of the number of proposed pile locations in the area south of the MacArthur Causeway in August 2019. The sample size was determined in consultation with regulatory agency staff, including National Marine Fisheries Service (NMFS). Based on initial conceptual engineering plans at the time of the survey, it was anticipated that there would be 57 pier foundations drilled into the area south of the MacArthur Causeway. Therefore, 15 locations spaced approximately 500 feet apart were surveyed.

The survey was performed by E Sciences biologists utilizing SCUBA diving equipment. Because the surveys were conducted during both high and low tides, the transects started on the riprap at the edge of water where corals were first observed. The two biologists performed three two-meter-wide, six meter long transects at each location. The six meter square survey area included medium-relief boulder riprap and low-relief hardbottom.

The survey was conducted in accordance with the Florida Fish and Wildlife Conservation Commission (FWC) Coral and Octocoral Mitigation Relocation Recommendations (2018). The following data were collected for corals and octocorals at each location:

- Hard coral data: location along transect, if organism is located on the riprap, identification to species level, size (maximum length, width and height, as applicable), percent lost biomass and condition.
- Octocoral data: location along transect, if organism is located on the riprap, identification to genera, size (maximum height, length and width, as applicable), percent lost biomass and condition; and
- Representative photographs and video.

The 15 survey locations were used to extrapolate an anticipated number and type of corals to be found at each pier location to provide a reasonable estimate of coral impacts. The survey results and method are documented in the Bay Crossing Environmental Permit Report dated June 2020 prepared by Parsons Transportation Group, Inc. and E Sciences.

As part of the permitting process, ongoing consultation with NMFS and FWC has occurred to address the coral impacts associated with the project. To determine the functional impacts to Essential Fish Habitat (EFH), E Sciences in coordination with NMFS, prepared a National Oceanic and Atmospheric Administration (NOAA) Resource Equivalency Analysis (REA) to identify the amount of mitigation required to offset adverse impacts to resources found in the low-relief hardbottom, including corals, octocorals and sponges. For corals, it was estimated that 504 spawners, 5,132 brooders, and 393 branching corals of all size classes will be impacted. For octocorals and sponges, it was estimated that 2,846 organisms will be impacted. Per coordination with NMFS, sponges were grouped with octocorals because life history information is not as well defined for sponges. The results of the REA predicted a total loss of 8,875 corals

from direct impacts; however, due to the low service value of the majority of organisms to be impacted, the Coral Colony Yearly Loss (CCYL) was anticipated to be 6,996 organisms. Therefore, a total of 6,996 corals will require mitigation. For the full analysis of impacts by species and size class, please see the REA in **Appendix A**.

To minimize impacts to corals, candidate colonies of hard corals occurring within the impact areas will be relocated or donated to qualified coral research and restoration practitioners prior to construction. To offset the remaining impacts following relocations/donations, coral impacts will be mitigated through outplanting performed by an approved coral restoration practitioner. Since octocorals and sponges are grouped in the REA tool and provide the most structural habitat for fisheries resources, NMFS stated they would not require additional mitigation for hardbottom communities. This Coral Relocation Plan outlines the actions and considerations for the selection of corals to be relocated.

## 2.0 CORAL IMPACT ASSESSMENT

The 2019 coral survey identified two benthic habitat types where corals colonize: low-relief hardbottom and medium-relief riprap. The low-relief hardbottom is a flat area composed of unconsolidated sediment and rubble riprap that is only slightly raised from the bottom. The riprap boulders were defined as medium-relief because there are only two to three feet of riprap with coral between the bottom and the MLW line. Corals were observed on medium-relief riprap waterward of the Mean Low Water (MLW) line and along the flat low-relief hardbottom areas south of the riprap.

Most of the 56 drilled shafts along the causeway section of the project will be sited above the MLW line and will have minimal direct impacts to corals occurring on the medium-relief riprap. However, there are four pier locations where potential impacts to the coral on the medium-relief riprap may occur. A pre-construction survey at the pier locations will be conducted to identify corals that can be relocated, donated or added to the REA.

The impact area on the low-relief hardbottom will encompass the approximately 5.4-acre area where the barges will operate, as defined by Parsons (2020) in the Construction Method Drawings in **Appendix B**. Impacts to corals will occur from the spudding of barges within the low-relief hardbottom habitat. A total of 11,086 square feet (0.25 acre) of impact to hardbottom habitat from spudding barges is anticipated. This was calculated based on two barges at each of the 56 pier locations, an estimated seven spudding events by each barge at each location, two spuds per barge and each spud will impact 7.07 square feet. A portion of the corals in the barge spudding area will be removed and relocated or donated.

To estimate potential impacts to corals, the coral survey data was extrapolated to determine the diversity, size, health, and number of corals, octocorals, and sponges throughout the barge spudding area in the hardbottom habitat. This information, by species and size class, plus information on high priority sponges and octocorals, was input into the REA tool to determine the CCYL units that will require mitigation (6,996 CCYL). The REA analysis estimated that the project will impact 6,030 individual corals.

### 2.1 Hard Corals

A total of 2,891 hard corals were observed at the 15 locations surveyed. Hard corals were observed on the larger medium-relief riprap boulders south of the causeway and in the low-relief hardbottom. A total of 14 species were documented. A total of 834 corals were observed on the riprap and a total of 2,057 corals were observed in the hardbottom habitat. The most abundant species were *Siderastrea radians*, *Porites astreoides*, and *Siderastrea siderea*. See **Table 1** for a summary of hard coral species identified and their abundance.

<i>Table 1: Summary of Coral by Habitat</i>			
	<b>Riprap</b>	<b>Hardbottom</b>	<b>Total</b>
<i>Colpophyllia natans</i>	5	0	5
<i>Dichocoenia stokesii</i>	1	1	2
<i>Diploria labyrinthiformis</i>	4	1	5
<i>Manicina areolata</i>	1	1	2
<i>Montastraea cavernosa</i>	1	1	2
<i>Oculina diffusa</i>	8	2	10
<i>Porites astreoides</i>	345	476	821
<i>Porites porites</i>	38	132	170
<i>Pseudodiploria clivosa</i>	9	5	14
<i>Pseudodiploria strigosa</i>	2	2	4
<i>Siderastrea radians</i>	383	1,267	1,650
<i>Siderastrea siderea</i>	36	161	197
<i>Solenastrea bournoni</i>	0	7	7
<i>Stephanocoenia intersepta</i>	1	1	2
<b>Total</b>	<b>834</b>	<b>2,057</b>	<b>2,891</b>

Per the 2021 FWC Relocation Recommendations, of the 2,891 hard corals observed, 366 prioritized hard corals were observed on the riprap and 574 were observed in the low-relief hardbottom (**Table 2: Summary of Prioritized Coral by Habitat**).



Table 2: Summary of Prioritized Coral by Habitat				
Relocation Priority	Species	Riprap	Hardbottom	Total
Relocate at Any Size	<i>Acropophyllia natans</i>	5	0	5
	<i>Acrocoenia stokesii</i>	1	1	2
	<i>Diploria labyrinthiformis</i>	4	1	5
	<i>Pseudodiploria strigosa</i>	2	2	4
	<b>Subtotal</b>	<b>12</b>	<b>4</b>	<b>16</b>
Relocate at equal to or greater than five centimeters	<i>Manicina areolata</i>	8	1	9
	<i>Montastraea cavernosa</i>	0	1	1
	<i>Pseudodiploria clivosa</i>	8	5	13
	<i>Siderastrea radians</i>	78	172	250
	<i>Solenastrea bournoni</i>	0	4	4
	<b>Subtotal</b>	<b>94</b>	<b>183</b>	<b>277</b>
Relocate at equal to or greater than ten centimeters	<i>Oculina diffusa</i>	4	1	5
	<i>Porites astreoides</i>	232	289	521
	<i>Porites porites</i>	12	35	47
	<i>Siderastrea siderea</i>	12	62	74
	<b>Subtotal</b>	<b>260</b>	<b>387</b>	<b>647</b>
<b>Total</b>		<b>366</b>	<b>574</b>	<b>940</b>

## 2.2 Octocorals

A total of 108 octocorals consisting of eight species were observed at the 15 survey locations. See **Table 3** for a list of species identified by habitat and size class. A total of 15 octocorals were observed on the riprap and a total of 93 in the hardbottom habitat. The most abundant octocoral genera were *Pseudoplexaura*, *Antillogorgia*, and *Plexaurella*. In total, 90 octocorals equal to or greater than ten centimeters in height were observed. Of those 90 octocorals, 13 were located on the riprap and 77 were located in the hardbottom habitat. The only Gorgonian coral observed was the common sea fan (*Gorgonia ventalina*).

<i>Table 3: Summary of Octocorals by Habitat and Size Class</i>					
Genus	Less than 10 cm Height		10 cm or Greater Height		Total
	Riprap	Hardbottom	Riprap	Hardbottom	
<i>Antillogorgia</i>	0	4	2	20	26
<i>Eunicea</i>	0	1	0	3	4
<i>Gorgonia</i>	1	0	7	5	13
<i>Muricea</i>	0	2	0	4	6
<i>Plexaura</i>	0	1	0	3	4
<i>Plexaurella</i>	0	3	1	17	21
<i>Pseudoplexaura</i>	1	4	3	25	33
<i>Pterogorgia</i>	0	1	0	0	1
<b>Total</b>	<b>2</b>	<b>16</b>	<b>13</b>	<b>77</b>	<b>108</b>

### 3.0 CORAL RELOCATION PLAN

Per coordination with FWC and NMFS, it was agreed that coral relocation of corals in the low-relief hardbottom habitat will be performed as a component of the minimization measures for the project. Corals deemed to be most suitable for removal will be prioritized based on size, species, and condition. Additionally, octocorals in the genus *Gorgonia*, including the common sea fan (*Gorgonia ventalina*) and Venus sea fan (*Gorgonia flabellum*) that are suitable for relocation, will be relocated. The prioritized corals and octocorals that are rescued from the impact area will either be relocated or donated to a qualified entity permitted to conduct coral restoration or research activities. The FWC has prioritized coral species for removal and relocation based on susceptibility to Stony Coral Tissue Loss Disease (SCTLD) and conservation values. The general criteria for the selection of corals and octocorals to be removed from the impact area will follow the FWC priority criteria outlined in Section VIII of the Florida Fish and Wildlife Conservation Commission (FWC) *Coral and Octocoral Mitigation Relocation Recommendations Relocation Size and Species* (2021) (**Appendix C**).

#### 3.1 Removal Site Conditions

**Low Relief Hardbottom**—The species and number of colonies to be relocated has been estimated based on the extrapolated coral survey data. A total of 2,057 corals and 93 octocorals were documented in the low-relief hardbottom habitat that was surveyed, or 3,782 square feet. Corals and octocorals to be removed will include hard corals and *Gorgonians* from the barge spudding area in the low-relief hardbottom habitat. The estimated impact area within the barge spudding area is 11,086 square feet. The corals will be removed and relocated prior to construction. During the 2019 survey, a higher abundance of corals and octocorals and higher priority corals were observed in the eastern half of the impact area. Therefore, relocation efforts will begin at the eastern end of the impact area and move west, however, to increase the probability of capturing greater genetic diversity, at least ten percent of the corals will be collected from the western half of the impact area, as available.

Based on the FWC relocation criteria, 573 hard corals and five common sea fans were present in the survey area that are candidates for relocation. Approximately one-third of the barge spudding area that will be directly impacted by barge spudding was surveyed (3,782/11,086). Therefore, the number of candidate species to be relocated from the hardbottom was extrapolated by multiplying the number of corals and octocorals observed by three. As shown **Table 4** below, the extrapolated number of potential candidate species for relocation from the hardbottom was estimated to be 1,697 coral colonies and octocorals. However, to reduce excessive relocation effort of more common species per FWC guidance, if there are more than 50 colonies of specifically identified species, then a maximum of 25% of the colonies or 50 colonies, whichever is greater, will be relocated. These colonies are to be selected and prioritized for relocation according to the following criteria:

- Colonies of abundant species should be removed from locations as spread out as possible across the impact area to increase the probability of capturing greater genetic diversity.
- Prioritize larger sizes over smaller sizes.

- Prioritize colonies exhibiting fewer stress indicators.

Table 4: Summary of Corals and Octocorals Proposed for Relocation Based on Extrapolated Data and Reduction					
Relocation Priority		Species	Number of Colonies Surveyed in the Hardbottom	Extrapolated Number of Colonies in the Impact Area	Number of Colonies to be Relocated
Hard Corals	Relocate at Any Size	<i>chocoenia stokesii</i>	1	3	3
		<i>Diploria labyrinthiformis</i>	1	3	3
		<i>udodiploria strigosa</i>	2	6	6
		Subtotal	4	12	12
	Relocate at equal to or greater than five centimeters	<i>Manicina areolata</i>	1	3	3
		<i>Montastraea cavernosa</i>	1	3	3
		<i>udodiploria clivosa</i>	5	15	15
		<i>Siderastrea radians</i> *	172	505	126
		<i>olenastrea bournoni</i>	3	9	9
		Subtotal	182	535	156
	Relocate at equal to or greater than ten centimeters	<i>Oculina diffusa</i>	1	3	3
		<i>Porites astreoides</i> *	289	847	212
		<i>Porites porites</i> *	35	103	50
		<i>iderastrea siderea</i> *	62	182	50
		Subtotal	387	1,135	315
	Total		573	1,697	483
Octocorals	Relocate at equal to or greater than ten centimeters	<i>Gorgonia ventalina</i>	5	15	15
	Total		5	15	15
	Grand Total		578	1,697	498

\*Species in red font exceed 50 colonies at the recommended relocation size or larger. The number for relocation was reduced to either 50 colonies or 25% of the total number of colonies, whichever is greater (50 colonies minimum).

**Medium-Relief Riprap:** A preconstruction survey will be conducted at pier locations where impacts to corals and octocorals on the medium-relief riprap may occur and at any other location where corals and octocorals on medium-relief riprap will be impacted. Corals and octocorals deemed to be suitable for removal will be prioritized based on size, species, and condition. The prioritized corals and octocorals that are rescued from the impact area will either be relocated or donated to a qualified entity permitted to conduct coral restoration or research activities. The number of corals and octocorals to be relocated from riprap locations that will impact corals will be determined during the preconstruction survey and added to the grand total in **Table 4**.

### **3.2 Coral Relocation Criteria**

**Removal Site:** We propose the removal of corals and octocorals from the low-relief hardbottom habitat. No SCTLD was identified at the time of survey in 2019. Water depth at the removal site is estimated to be six to eight feet. Water quality at the removal site is influenced by PortMiami, Biscayne Bay, the Miami-Dade County metropolitan area, and the ocean. Water circulation at the removal site is good with strong currents moving through the area. Light availability at the removal sites is adequate for coral survival. Visibility in the water was 10 to 20 feet during site surveys in 2019. Corals and octocorals are attached horizontally on low-relief hardbottom. Small pieces of loose rubble were observed in portions of the impact site. The removal site is considered a high energy site.

**Coral Colony Size and Species:** Coral colonies to be rescued will be prioritized based on size categories following the FWC guidance criteria which identifies species to be rescued based on any size and those equal to or greater than five and ten centimeters. Because specific sizes are unknown, corals for rescue will be prioritized by larger sizes over smaller sizes. Encrusting coral colonies with adequate thickness equal to or greater than three centimeters in thickness will only be considered for relocation to allow for successful removal and relocation. It is anticipated that additional species of corals may be discovered during rescue efforts that were not previously identified during the 2019 survey. Reasonable efforts shall be made to rescue additional candidate species on the FWC priority list by appropriate size criteria.

**Endangered Species Act (ESA) Listed Corals:** No ESA-listed corals were documented during the surveys in 2019 (Parsons 2020). ESA-listed corals at any size encountered in the low-relief hardbottom habitat during the relocation efforts will be rescued for either donation to an FWC-approved facility for research or restoration purposes, or will be relocated.

**Coral Fragmentation Upon Removal:** 50% of fragments of broken corals that are  $\geq 5$  cm live tissue diameter will be relocated and reattached and considered as separate corals for monitoring purposes. At the time of removal, any fractured coral will be singly bagged for transport and reattachment or donation.



**Octocoral Relocation:** Per coordination with FWC, relocation of the common and Venus sea fans that are suitable for relocation and are equal to or greater than ten centimeters in height will be relocated.

**Coral Health:** Corals and octocorals will be visually assessed for disease prior to removal from the removal site, pursuant to “FWC Coral and Octocoral Visual Health Assessment Protocols” (FWC Health Protocols). Only corals and octocorals that are visually assessed as healthy pursuant to the criteria provided in the FWC Health Protocols will be removed, relocated, and reattached. Field personnel conducting coral visual health assessments will be proficient with species identification and trained in coral and octocoral disease, predation identification and removal, and survey techniques to assure accuracy of the assessment.

### **3.3 Relocation Site**

The recipient coral relocation site for receiving corals consists of a linear riprap breakwater composed of large limerock boulders located on the northeast side of MacArthur Causeway (**Figure 2**). The site was surveyed on May 20, 2021 and determined to be an appropriate location because it has good water quality, a suitable substrate to reattach corals and appropriate water depths similar to the removal site. Additional features that make this an ideal relocation site include close proximity to the impact site, available space for attachment, stable structures, anticipated longevity of the structure, and unforeseen future impacts to the structure. Additionally, the site has adequate flushing due to its proximity to Government Cut and has naturally occurring healthy coral colonies present. DTPW consulted with FDOT to seek their approval for use of this site. FDOT does not object and confirmed that they have no construction projects planned for this location. A formal memorandum of understanding will be executed between the two parties to formalize this.



**Figure 2: Coral Relocation Site**

### 3.4 Relocation Methods

Corals identified as relocation candidates will be removed from the low-relief hardbottom areas from the impact area by experienced coral biologists following current Florida Keys National Marine Sanctuary (FKNMS) coral relocation protocols. Coral removal will be conducted using small hand tools including small chisels, scrapers, and hammers. A visual health assessment will be conducted for each coral identified for relocation immediately prior to removal. Any corals found to not meet health criteria will be excluded from relocation.

Reasonable attempts will be made to remove candidate sized corals intact, however due to the thin, plated morphology of many corals, significant fragmentation is anticipated. Fifty percent of fragments of broken corals that are  $\geq 5$  cm will be relocated and reattached. Corals will be placed in storage baskets when removed and relocated immediately; no caching is proposed. Corals will be attached at intermediate water depths along the riprap, typically between four and six feet deep. Attachment will be completed using a Portland Type II cement with molding plaster added to improve setting or epoxy. Corals will be spaced

between 0.5 and 1 meter apart when reattaching. Corals selected for monitoring will be individually identified with a permanent ID tag affixed to the substrate adjacent to the relocated coral colony.

### 3.5 Coral Relocation Monitoring

Coral relocation monitoring will be conducted pursuant to FWC Coral and Octocoral Mitigation Relocation Recommendations. A subset of 25% of the total relocated corals and octocorals will be tagged and monitored. The subset will be representative of the species composition and size classes of the relocated corals and octocorals. If less than 10 corals or octocorals from one species are relocated, then all colonies of this species are to be included in the subset. The monitoring schedule and report deliverables are outlined in **Table 5**.

<i>Table 5: Coral Relocation Monitoring Schedule and Deliverables</i>	
<b>Monitoring Event</b>	<b>Description and Reporting Requirements</b>
Baseline	Baseline data collected at time of relocation. Baseline data to include full accounting of all corals relocated including species, size, fragmentation status, health, and identification ID for monitoring subset based upon a visual assessment. Baseline data to be reported in combination with One Week monitoring event.
One Week	One week data collection to begin immediately following relocation event and completed within seven days of relocation. Baseline and One Week Monitoring Report to include location map, representative photographs, and completed FWC data sheets prior to initiating the one-month monitoring event or within 21 days of the one-week event, whichever occurs first. Percent partial mortality will be estimated.
One Month	One Month monitoring to be completed within one month from relocation. Report to include report of percent partial mortality and all applicable FWC data sheets and representative photographs and submitted within 30 days of completion of the monitoring event.
Three Month	Three Month monitoring to be completed within three months from relocation. Report to include report of percent partial mortality all applicable FWC data sheets and representative photographs and submitted within 30 days of completion of the monitoring event.
Six Month	Six Month monitoring to be completed within six months from relocation. Report to include report of percent partial mortality all applicable FWC data sheets and representative photographs and submitted within 30 days of completion of the monitoring event.
One Year	One Year monitoring to be conducted one year following relocation. Report to include report of percent partial mortality and all applicable FWC data sheets and representative photographs. Submitted within 30 days of completion of the monitoring event.

#### **4.0 PERFORMANCE STANDARDS**

Performance standards for coral relocation are needed to assess the overall success of the coral relocation project. Many factors affect coral relocation success outside of the control of the practitioner including predation and competition by other marine organisms, impacts from hot or cold-water events, disease and human-caused vandalism. The overall success of the mitigation project will be evaluated considering these factors. Considering this aspect, the performance standards for the proposed coral relocation will be between 65-85% overall survival for relocated corals, with secure substrate attachment documented one-year post-relocation. This range is consistent with the FWC Recommendations and was developed with input from NMFS Habitat Conservation Division. Overall survival of corals shall be defined as no net loss in pooled (by species) Live Tissue Area Index or an increase in pooled (by species) Live Tissue Area Index.

## **5.0 ADAPTIVE MANAGEMENT**

Adaptive management is defined as a flexible decision-making process employed to address unanticipated events that affect the ability to achieve specified objectives. In keeping with this definition, adaptive management measures for the coral relocation activities proposed herein may include actions that would be implemented to address unanticipated events (e.g., predation on relocated corals by parrotfish, storm events), that may affect the ability to achieve established mitigation performance standards. Trends and changes to the relocated corals and recommendations on measures to be taken to ensure the success of the coral relocation will be identified in the monitoring reports. If un-anticipated impacts occur during coral relocation and post-relocation monitoring, the regulatory agencies, including FWC and NMFS, will be consulted promptly to identify the cause of the unanticipated impact and address reasonable corrective actions needed. Adaptive management measures could include the following:

- If predation is an issue for coral survival, the corals may be “caged” to prevent parrot fish predation;
- If the 65-85% success criteria are not being met due to unforeseen events, such as storms or temperature stressors, then additional mitigation (i.e. more outplanting) may be offered to offset the functional loss;
- If the 65-85% success criteria are not being met due to environmental conditions, the monitoring subset may be increased and include monitoring of surrounding natural conditions and corals to provide a more representative result. Additionally, regional impacts to corals that may influence the relocated corals will be documented;
- If additional mitigation is required, nursery grown corals can be outplanted into the impact area after completion of construction.

In addition, corals on the medium-relief riprap at the pier locations will be re-assessed prior to construction and either relocated, outplanted as mitigation using the REA, or donated to a coral restoration practitioner.



## **6.0 RELOCATION SITE PHOTOGRAPHS**



*Photo 1: Coral Relocation Site*



*Photo 2: Representative Conditions at Coral Relocation Site*



***Photo 3: Representative Structure at Coral Relocation Site***

## **7.0 REFERENCES**

Florida Fish and Wildlife Conservation Commission. 2021. Coral and Octocoral Mitigation Relocation Recommendations.

Parsons 2020. Environmental Permit Report for the Beach Corridor Rapid Transit Project – Bay Crossing. Prepared for: Miami-Dade County Department of Transportation and Public Works. 212 pp.

**APPENDIX A –  
Resource Equivalency Analysis  
(REA), Parsons 2020**





**Species Group B**

[illegible]

**Species Group C**

[illegible]

[illegible]

Species Group E													
Octocorals													
Species	Service Weighting Factor	Size Class											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 - 5 cm	5-10 cm	10-20 cm	20-30 cm	30-40 cm	40-50 cm	50-60 cm	60-70 cm	70-80cm	80-90 cm	90-100 cm	100-110 cm
Avg Size (cm)		2.5	7.5	15	25	35	45	55	65	75	85	95	105
Briareum asbestinum	0.270												
Eunicea spp.	0.173	2.93		5.86	2.93								
Erythropodium spp.	0.117												
Gorgonia spp.	0.230			5.86	2.93	5.86							
Muricea spp.	0.214	2.93	2.93	2.93	5.86	2.93							
Muriceopsis spp.	0.245												
Plexaura spp.	0.214	0.00	2.93	5.86	2.93								
Plexaurella spp.	0.214		8.79	23.45	20.52	0.00	2.93						
Psuedoplexaura spp.	0.214	2.93	8.79	35.17	8.79	20.52	8.79						
Pterogorgia spp.	0.224		2.93										
Xestospongia muta	0.423			8.79	2.93								
Ball Sponge	0.179	5.86	2.93	8.79									
Barrel Sponge	0.362	26.38	17.59	23.45	61.55	8.79							
Encrusting Sponge	0.179	172.92	152.41	231.54	87.93	32.24	14.56	23.45	11.72	2.93	2.93		
Rope Sponge	0.219												
Tube Sponge	0.311	43.96	96.72	90.86	64.48	20.52							
Amorphous/ Massive	0.362	1113.73	52.76	131.89	41.03	14.65	0.00	2.93	2.93				

[illegible]

Restoration Scenerios

CCYL Requiring Offset	6,996	CCYG Gained	7,228	Balance	-232
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Coral Propagation

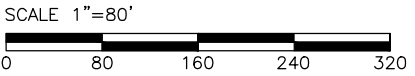
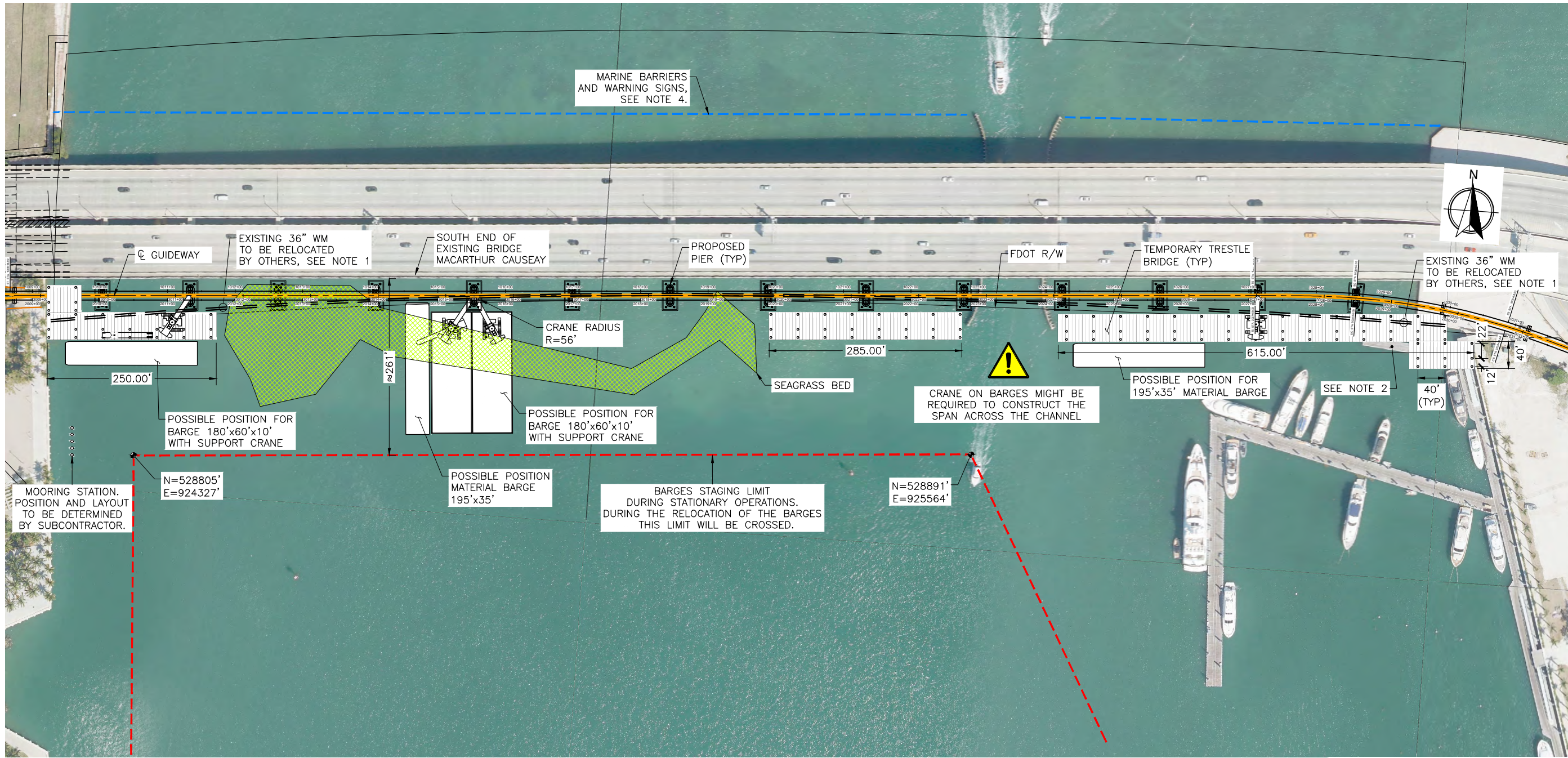
Species	Service Weighting Factor	Target Outplant Size (cm)	Full Function after Outplanting (Years)	Outplant Lifespan (years)	% Relative Service Function	Project Start Year	Project Year		# of Surviving Corals Outplanted Annually	WCCYG Annually	Total WCCYG	Total Surviving Corals	Total Corals Needed (30% Mortality)	Cost p/Coral	Total Cost
Acropora palmata	0.816	10	5	50	80%	2020	1	2020	0	0	0	2,300.00	2,990.00	\$50.00	\$ 149,500.00
							2	2021	0	0					
							3	2022	0	0					
							4	2023	0	0					
							5	2024	0	0					
							6	2025	0	0					
							7	2026	0	0					
							8	2027	0	0					
							9	2028	0	0					
							10	2029	0	0					
Acropora cervicornis	0.719	15	5	50	80%	2020	1	2020	0	0	4,044				
							2	2021	0	0					
							3	2022	500	2,287					
							4	2023	250	1,110					
							5	2024	150	647					
							6	2025	0	0					
							7	2026	0	0					
							8	2027	0	0					
							9	2028	0	0					
							10	2029	0	0					
Dendrogyra cylindrus	0.806	10	5	50	80%	2020	1	2020	0	0	0				
							2	2021	0	0					
							3	2022	0	0					
							4	2023	0	0					
							5	2024	0	0					
							6	2025	0	0					
							7	2026	0	0					
							8	2027	0	0					
							9	2028	0	0					
							10	2029	0	0					
Orbicella faveolata	0.816	10	5	50	80%	2020	1	2020	0	0	692				
							2	2021	0	0					
							3	2022	200	692					
							4	2023	0	0					
							5	2024	0	0					
							6	2025	0	0					
							7	2026	0	0					
							8	2027	0	0					
							9	2028	0	0					
							10	2029	0	0					
Montastraea cavernosa	0.592	10	5	50	80%	2020	1	2020	0	0	502				
							2	2021	0	0					
							3	2022	200	502					
							4	2023	0	0					
							5	2024	0	0					
							6	2025	0	0					
							7	2026	0	0					
							8	2027	0	0					

							9	2028	0	0	
							10	2029	0	0	
Siderastrea siderea	0.582	10	5	50	80%	2020	1	2020	0	0	493
							2	2021	0	0	
							3	2022	200	493	
							4	2023	0	0	
							5	2024	0	0	
							6	2025	0	0	
							7	2026	0	0	
							8	2027	0	0	
							9	2028	0	0	
							10	2029	0	0	
Psuedodiploria clivosa	0.541	10	5	50	80%	2020	1	2020	0	0	459
							2	2021	0	0	
							3	2022	200	459	
							4	2023	0	0	
							5	2024	0	0	
							6	2025	0	0	
							7	2026	0	0	
							8	2027	0	0	
							9	2028	0	0	
							10	2029	0	0	
Diploria labyrinthiformis	0.582	10	5	50	80%	2020	1	2020	0	0	493
							2	2021	0	0	
							3	2022	200	493	
							4	2023	0	0	
							5	2024	0	0	
							6	2025	0	0	
							7	2026	0	0	
							8	2027	0	0	
							9	2028	0	0	
							10	2029	0	0	
Agaricia spp.	0.337	10	5	50	80%	2020	1	2020	0	0	285
							2	2021	0	0	
							3	2022	200	285	
							4	2023	0	0	
							5	2024	0	0	
							6	2025	0	0	
							7	2026	0	0	
							8	2027	0	0	
							9	2028	0	0	
							10	2029	0	0	
Porites astreoides	0.306	10	5	50	80%	2020	1	2020	0	0	260
							2	2021	0	0	
							3	2022	200	260	
							4	2023	0	0	
							5	2024	0	0	
							6	2025	0	0	
							7	2026	0	0	
							8	2027	0	0	
							9	2028	0	0	
							10	2029	0	0	

## **APPENDIX B – Construction Method Drawings**



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WEST BRIDGE  
PLAN VIEW

1

-

- NOTES:
- EXISTING 36" WATER MAIN TO BE RELOCATED BY OTHERS PRIOR TO STARTING CONSTRUCTION ACTIVITIES FOR PIERS (36" WATER MAIN TO BE ABANDONED IN PLACE).
  - EXISTING DOCK ON THE EAST SIDE OF THE WEST BRIDGE TO BE TEMPORARY REMOVED AND REPLACED BY CONTRACTOR AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED.
  - BARGE STAGING SHOWN WILL VARY WITHIN CONSTRUCTION LIMITS.
  - PROVIDE MARINE FLOATING BARRIERS AND WARNING SIGNS TO PREVENT JET SKIS, WAVE RUNNERS AND UNAUTHORIZED PERSONNEL TRAVELING SOUTH FROM NAVIGATING BETWEEN PIERS AND CRASHING INTO THE TRESTLE BRIDGES AND/OR BARGES.

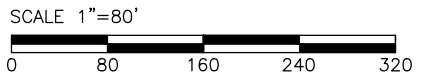
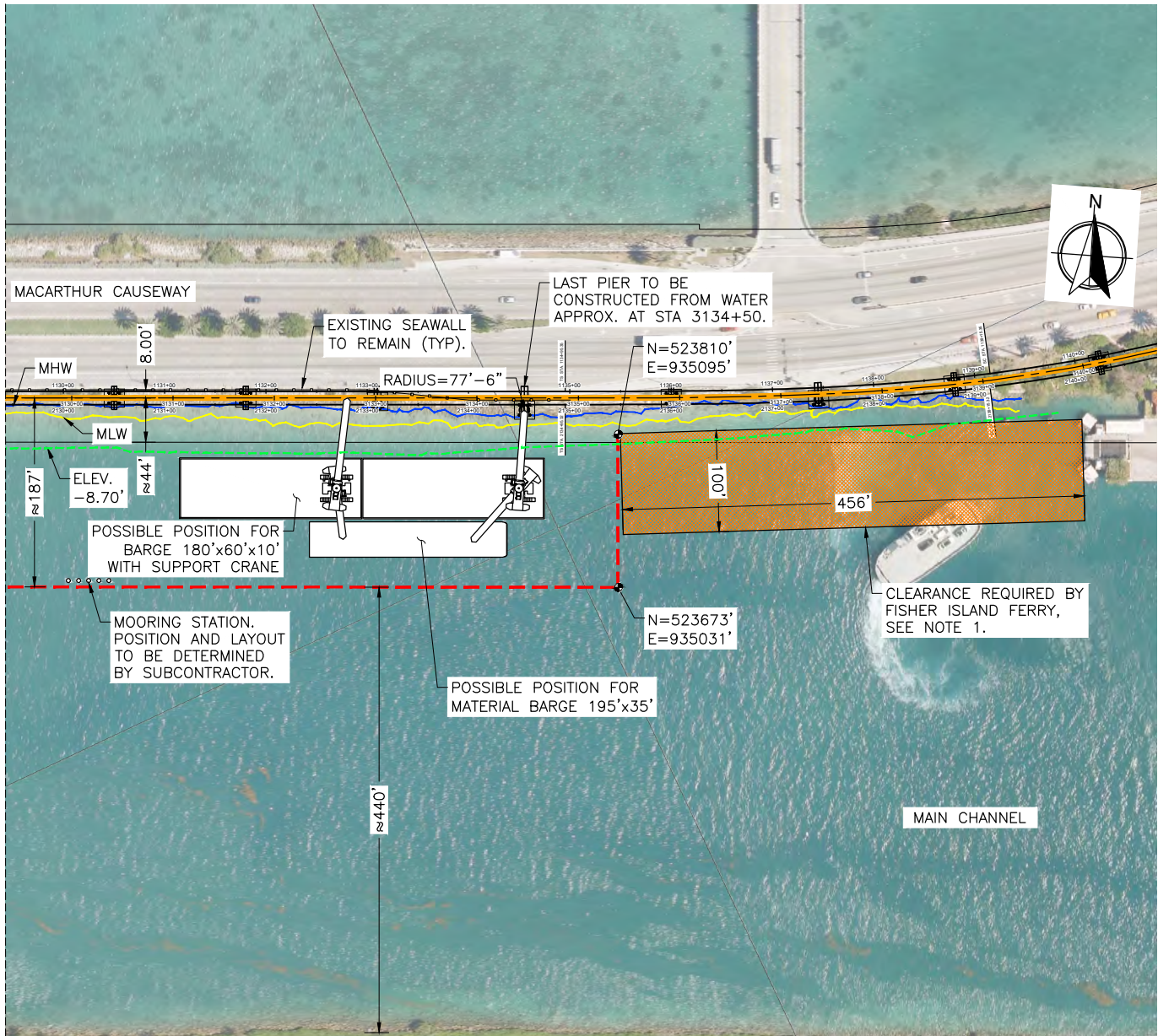
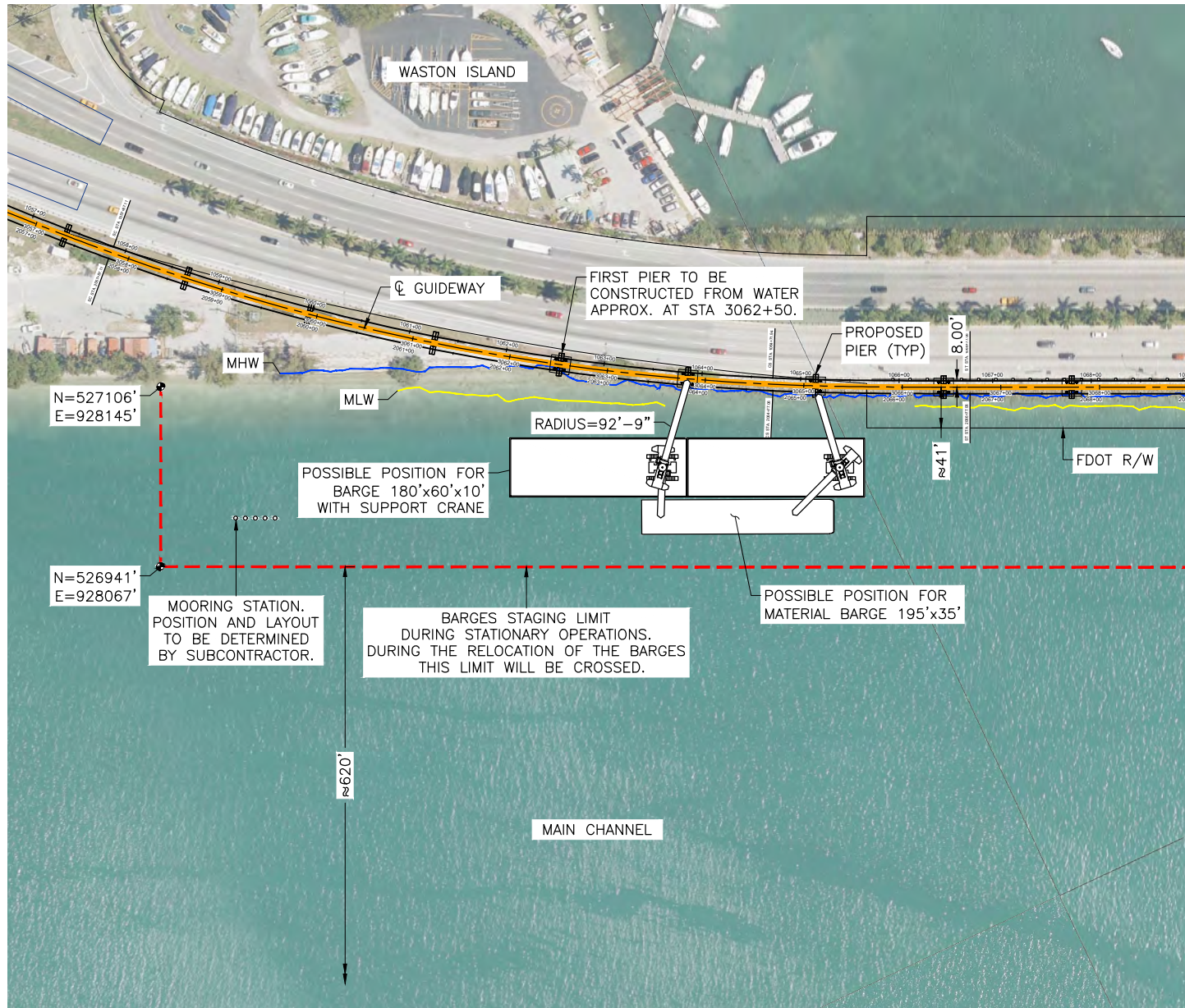
PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT				<div><div><div></div><div>MIAMI-DADE COUNTY</div></div><div>DTPW TRANSIT</div><div>PEOPLE'S TRANSPORTATION PLAN</div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153				<div>DRAWING TITLE: BEACH CORRIDOR GUIDEWAY WEST BRIDGE CONSTRUCTION STAGING</div> <div>DRAWING NO. W-061SHEET NO. 376</div>	
					<div><div><div></div><div>PARSONS</div></div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 SAM T. PHAN, P.E. P.E. LICENSE No. 54072</div></div>					
					APPROVED	DATE	APPROVED	DATE		
No.	Date	App.	Revisions		Designed by D.O.					
				Drawn by D.O.						
				Checked by J.R.H.						
				DRAWING SCALE: AS SHOWN						

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



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- NOTES:
1. CLEARANCE REQUIRED BY FISHER ISLAND FERRY: CONSTRUCTION ACTIVITIES AND BARGES TO NOT ENCR OACH INTO THE DEFINED AREA UNDER ANY CIRCUMSTANCES OR AT ANY TIME.
  2. BARGE STAGING SHOWN WILL VARY WITHIN CONSTRUCTION LIMITS.
  3. THE GREEN DASHED LINE REFERRING TO ELEVATION -8.70' GUARANTEES A MINIMUM BARGE'S DRAFT OF 2'-0" DURING THE MLW TIE, AS SHOWN IN DRAWING W-069. THIS LINE IS AVAILABLE ONLY FOR THE EAST SIDE OF THE CAUSEWAY.
  4. GIVEN THAT BATHYMETRY DATA IS NOT AVAILABLE FOR THE ENTIRE LENGTH OF THE CAUSEWAY TO DELINEATE THE MINIMUM DEPTH OF 8.70-FT, THE CONTRACTOR MUST PERFORM A BATHYMETRY SURVEY PRIOR TO START OF CONSTRUCTION AND USE IT TO DEFINE THE MINIMUM DEPTH, WHILE CONSIDERING THE FOLLOWING FACTORS:
    - a. NEW BATHYMETRY SURVEY
    - b. BARGE HEIGHT
    - c. DRAFT BASED ON SELECTED BARGE AND CONSTRUCTION EQUIPMENT (FOR ALL ACTIVITIES)
    - d. PROVIDE A 2.0-FT CLEARANCE FROM BARGE BOTTOM TO CHANNEL BOTTOM.
  5. BUOYS SHOULD BE INSTALLED AT EVERY APPROXIMATE 30' ALONG THE ELEVATION LINE -8.70' TO KEEP THE BARGES AWAY FROM THE RIPRAP. ADDITIONALLY, BARGES SHALL BE EQUIPPED WITH DEVICES TO CONFIRM THAT A MINIMUM DRAFT OF 2'-0" IS MAINTAINED ALL THE TIME.

BARGE CONSTRUCTION AT CAUSEWAY 1  
PLAN VIEW

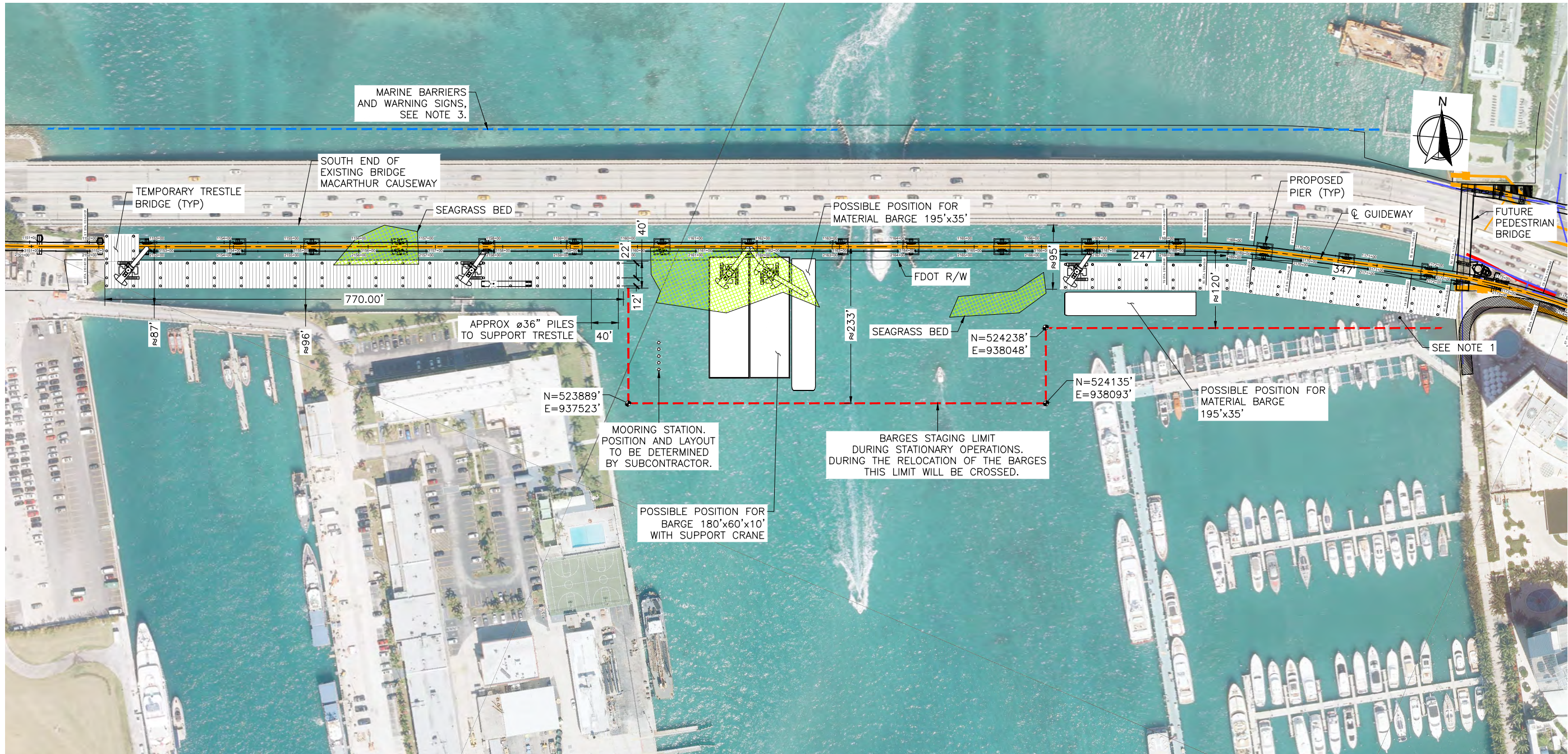
SHOWN ONLY WEST AND EAST ENDS OF THE CAUSEWAY.  
INTERMEDIATE SECTION IS SIMILAR.

PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT				<div>Designed by D.O.</div> <div>Drawn by D.O.</div> <div>Checked by J.R.H.</div> <div>DRAWING SCALE: AS SHOWN</div>	<div><div>MIAMI-DADE COUNTY</div><div>DTPW TRANSIT</div><div>PEOPLE'S TRANSPORTATION PLAN</div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153		<div>DRAWING TITLE: BEACH CORRIDOR GUIDEWAY CAUSEWAY CONSTRUCTION STAGING</div> <div>DRAWING NO. W-062</div> <div>SHEET NO. 377</div>
						<div><div>PARSONS</div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 SAM T. PHAN, P.E. P.E. LICENSE No. 54072</div></div>		
						APPROVED	DATE	
No.	Date	App.	Revisions					



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EAST BRIDGE  
PLAN VIEW

1  
-

- NOTES:
- EXISTING DOCK ON THE EAST SIDE OF THE EAST BRIDGE TO BE TEMPORARY REMOVED AND REPLACED BY CONTRACTOR AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED.
  - BARGE STAGING SHOWN WILL VARY WITHIN CONSTRUCTION LIMITS.
  - PROVIDE MARINE FLOATING BARRIERS AND WARNING SIGNS TO PREVENT JET SKIS, WAVE RUNNERS AND UNAUTHORIZED PERSONNEL TRAVELING SOUTH FROM NAVIGATING BETWEEN PIERS AND CRASHING INTO THE TRESTLE BRIDGES AND/OR BARGES.

PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT				<div>Designed by D.O.</div> <div>Drawn by D.O.</div> <div>Checked by J.R.H.</div> <div>DRAWING SCALE: AS SHOWN</div>	<div><div><div>MIAMI-DADE COUNTY</div><div>DTPW TRANSIT</div></div><div>PEOPLE'S TRANSPORTATION PLAN</div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153				<div>DRAWING TITLE: BEACH CORRIDOR GUIDEWAY EAST BRIDGE CONSTRUCTION STAGING</div> <div>DRAWING NO. W-063</div> <div>SHEET NO. 378</div>
						<div><div><div>PARSONS</div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 SAM T. PHAN, P.E. P.E. LICENSE No. 54072</div></div></div>				
No.	Date	App.	Revisions			APPROVED	DATE	APPROVED	DATE	

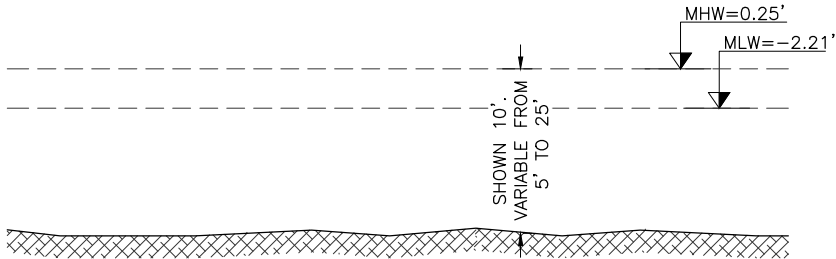
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



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NOTES:

- ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND MEASURE IN FEET ABOVE THE DATUM.
- EXISTING 36" WATER MAIN HAS BEEN ABANDONED IN PLACE AND IT IS IN DIRECT CONFLICT WITH SOME PIERS LOCATED AT THE WEST BRIDGE ONLY (REFER TO PLAN VIEW). EXISTING 36" WM SHALL BE REMOVED/CUT AS NECESSARY WITHIN LIMITS OF PIER CONSTRUCTION (COFFERDAM AND DRILLED SHAFT LOCATION LIMITS) AND/OR IN CONFLICT WITH PROPOSED TRESTLE BRIDGE PILES.
- THE SEQUENCE OF STEPS SHOWN BELOW BETWEEN INSTALLATIONS OF TEMPLATE PILES AND COFFERDAM SHEET PILES IS A CONCEPT. THE CONTRACTOR MAY ELECT TO INSTALL THE COFFERDAMS PRIOR TO THE INSTALLATION OF TEMPLATE PILES.
- THE USE OF COFFERDAMS TO CONSTRUCT THE WATER LEVEL FOOTINGS IS OPTIONAL. THE CONTRACTOR MAY ELECT TO USE OTHER METHODS SUCH AS STEEL CASING FORM OR PRECAST CONCRETE SHELL AS ALTERNATIVES.

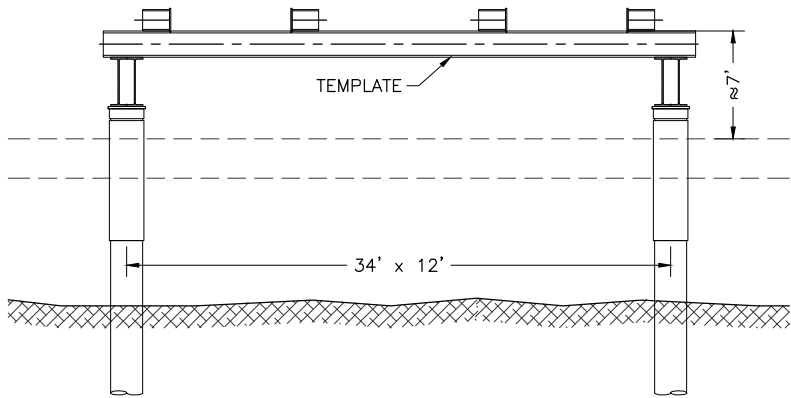


STEP 1

THE FOLLOWING SEQUENCE IS APPLICABLE FOR THE CONSTRUCTION OF THE SUB-STRUCTURES FOR THE WEST BRIDGE.

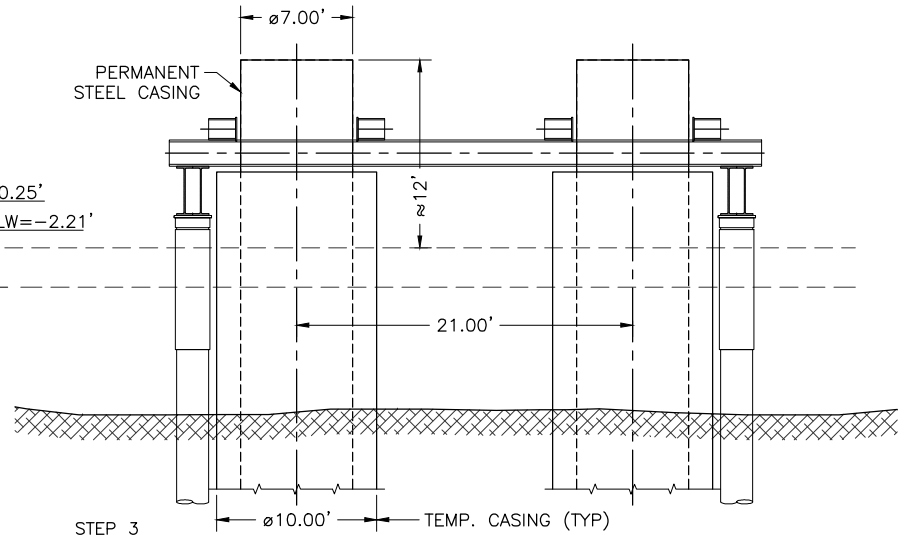
- CONDUCT THE GEOTECHNICAL INVESTIGATION USING A BARGE MOUNTED DRILL RIG.

- THE OPERATIONS DESCRIBED BELOW ASSUME THAT NO NIGHTTIME WORK IS PERFORMED WITH VIBRO-HAMMERS, IMPACT HAMMERS OR OTHER DEVICES THAT CAN GENERATE A LEVEL OF NOISE POSING A RISK FOR THE MARINE LIFE IN THE BISCAYNE BAY WATER.
- DURING THE INSTALLATION OF THE PERMANENT SHAFT(S) AND THE INSTALLATION/REMOVAL OF THE TEMPLATE AND THE COFFERDAM SHEET PILES, THE WORK ZONE WILL BE SURROUNDED BY FLOATING TURBIDITY CURTAINS. ANY TURBIDITY WATER WILL NEED TO BE CONTAINED AND TREATED ACCORDING TO ACCEPTED STANDARDS BEFORE RELEASING IT INTO BISCAYNE BAY WATER.



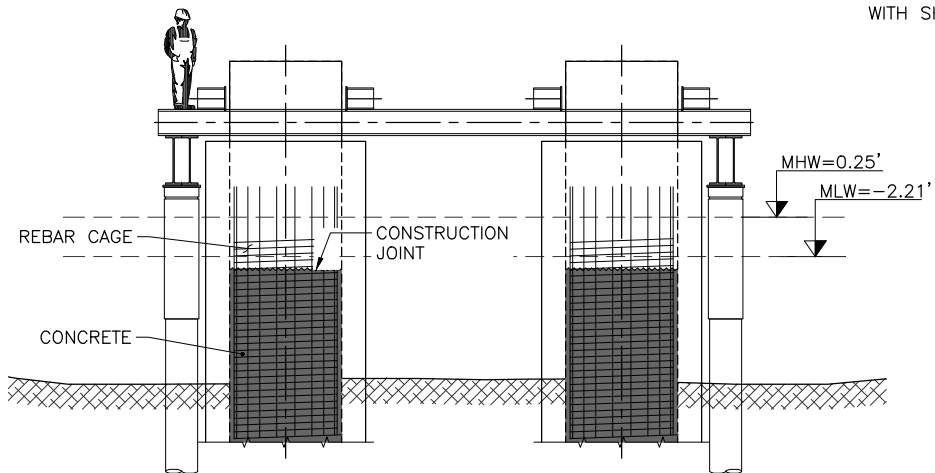
STEP 2

- IF REQUIRED, TEMPLATES WILL BE POSITIONED IN ADVANCE OF DRILLED SHAFT INSTALLATION TO SUPPORT THE PERMANENT STEEL CASING. FOR TEMPLATE'S PLAN VIEW REFER TO NEXT SHEET.



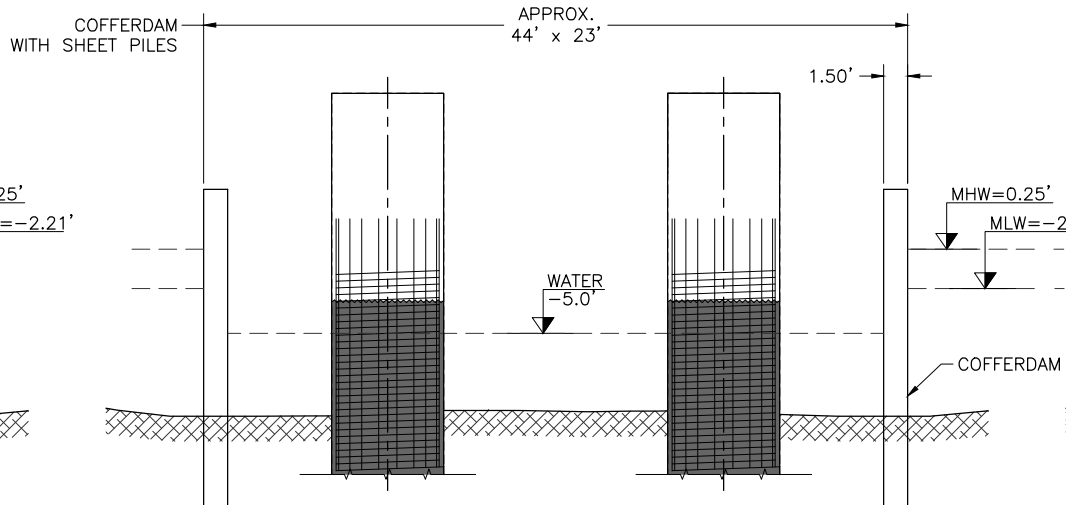
STEP 3

- INSTALL THE TEMPORARY 10' CASING TO CONTAIN SPOIL'S SPILLS.
- INSTALL THE PERMANENT CASINGS FOLLOWING THE METHOD STATEMENT PREPARED BY THE SUB-CONTRACTOR.



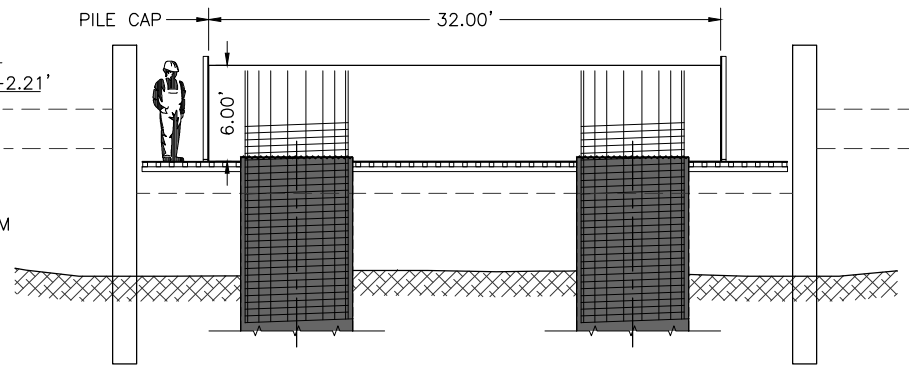
STEP 4

- INSTALL THE REBAR CAGE AND HANG IT TO THE TOP OF THE CASING.
- POUR THE CONCRETE UP TO THE CONSTRUCTION JOINT.



STEP 5

- REMOVE THE TEMPLATE AND THE TEMPORARY CASINGS.
- INSTALL THE COFFERDAM. FOR APPROXIMATE COFFERDAM DIMENSIONS REFER ALSO TO THE NEXT SHEET.
- DE-WATER THE INSIDE OF THE COFFERDAM.



STEP 6

- CUT THE CASING AT THE CONSTRUCTION JOINT ELEVATION.
- INSTALL FORMWORK FOR PILE-CAP

PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT

No.	Date	App.	Revisions

Designed by	D.O.
Drawn by	D.O.
Checked by	J.R.H.
DRAWING SCALE:	AS SHOWN



DTPW  
TRANSIT

PEOPLE'S TRANSPORTATION PLAN

BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153



7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126  
PHONE: (786) 464-1000 FAX: (786) 845-7119  
CERTIFICATE OF AUTHORIZATION No. 1838  
SAM T. PHAN, P.E. P.E. LICENSE No. 54072

APPROVED

DATE

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APPROVED

DATE

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DRAWING TITLE:

BEACH CORRIDOR GUIDEWAY  
WEST BRIDGE  
CONSTRUCTION SEQUENCE 1 OF 2

DRAWING NO.

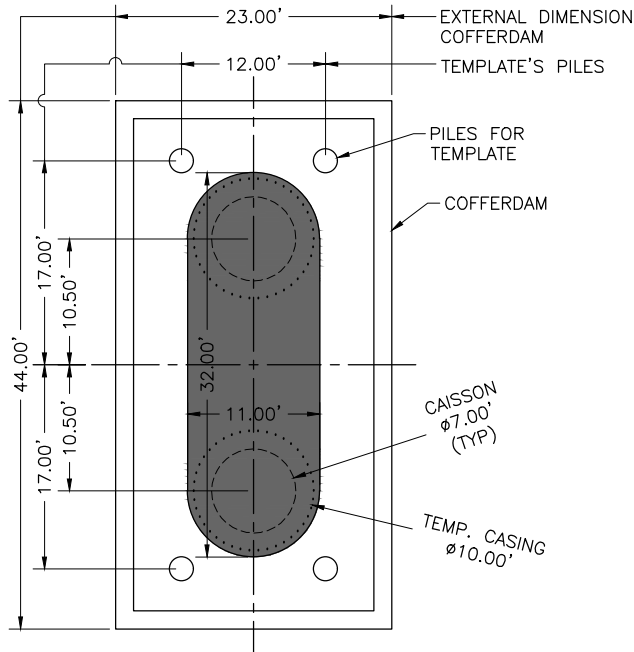
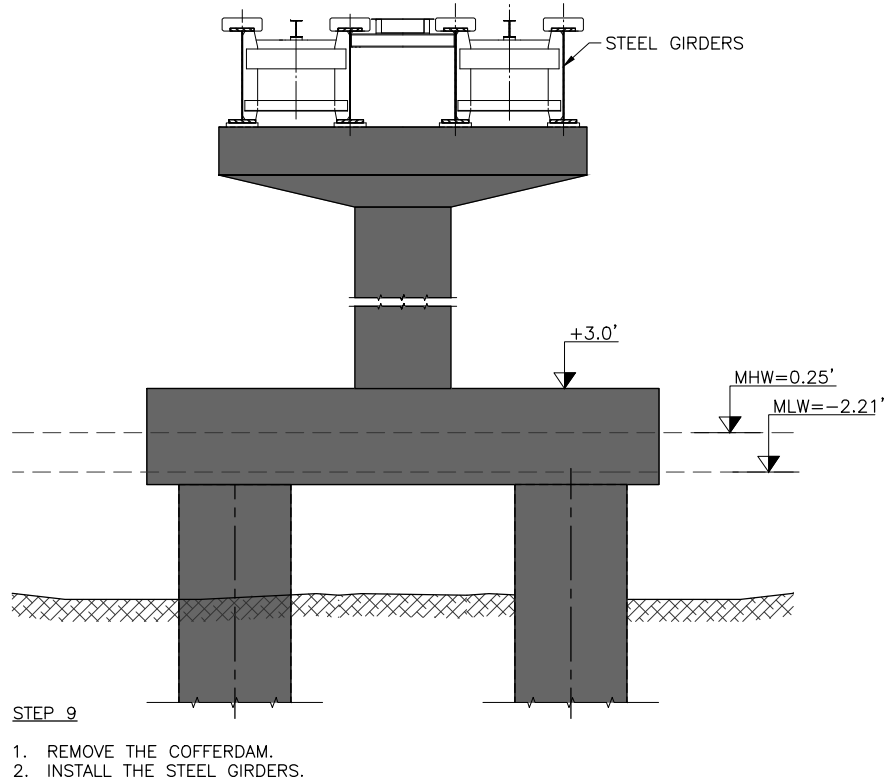
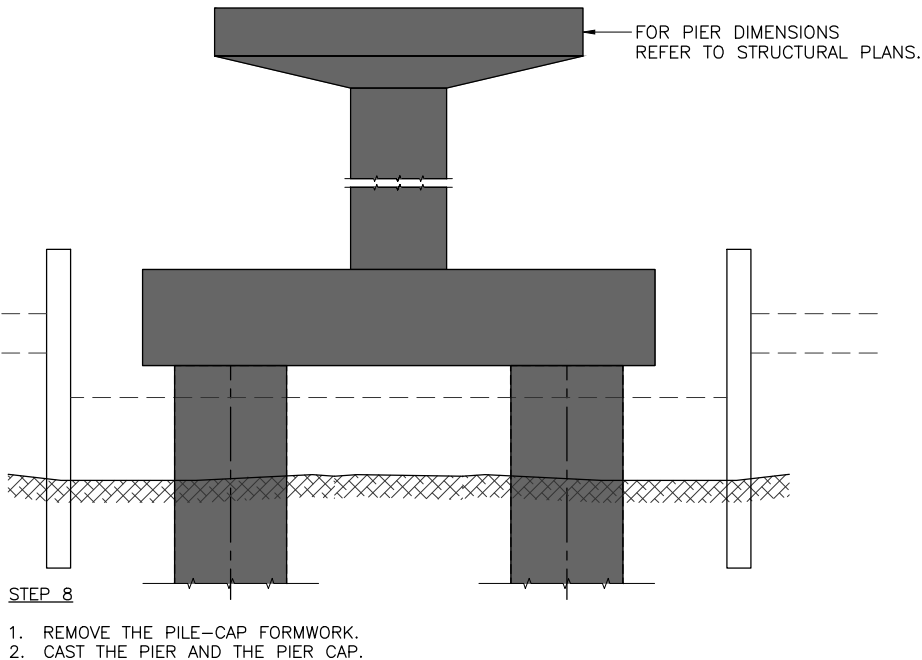
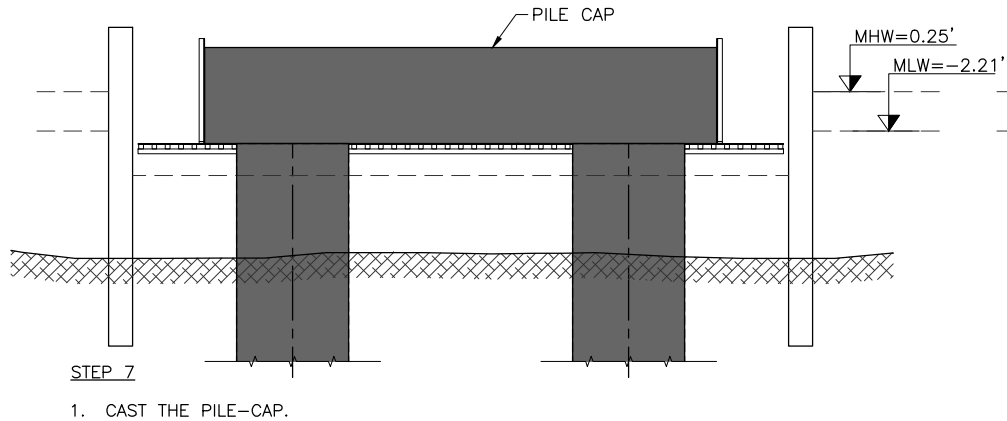
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SHEET NO.

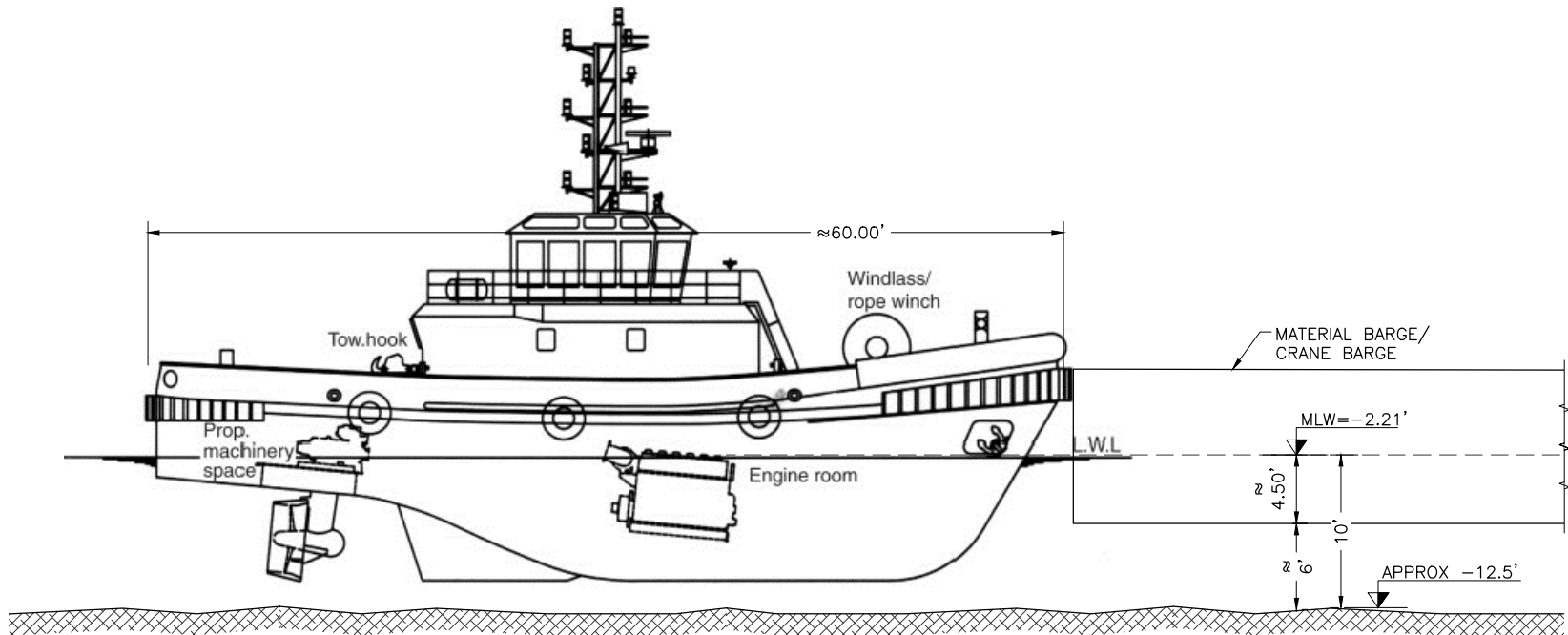
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LAYOUT FOUNDATION WEST BRIDGE 1



TUGBOAT 2

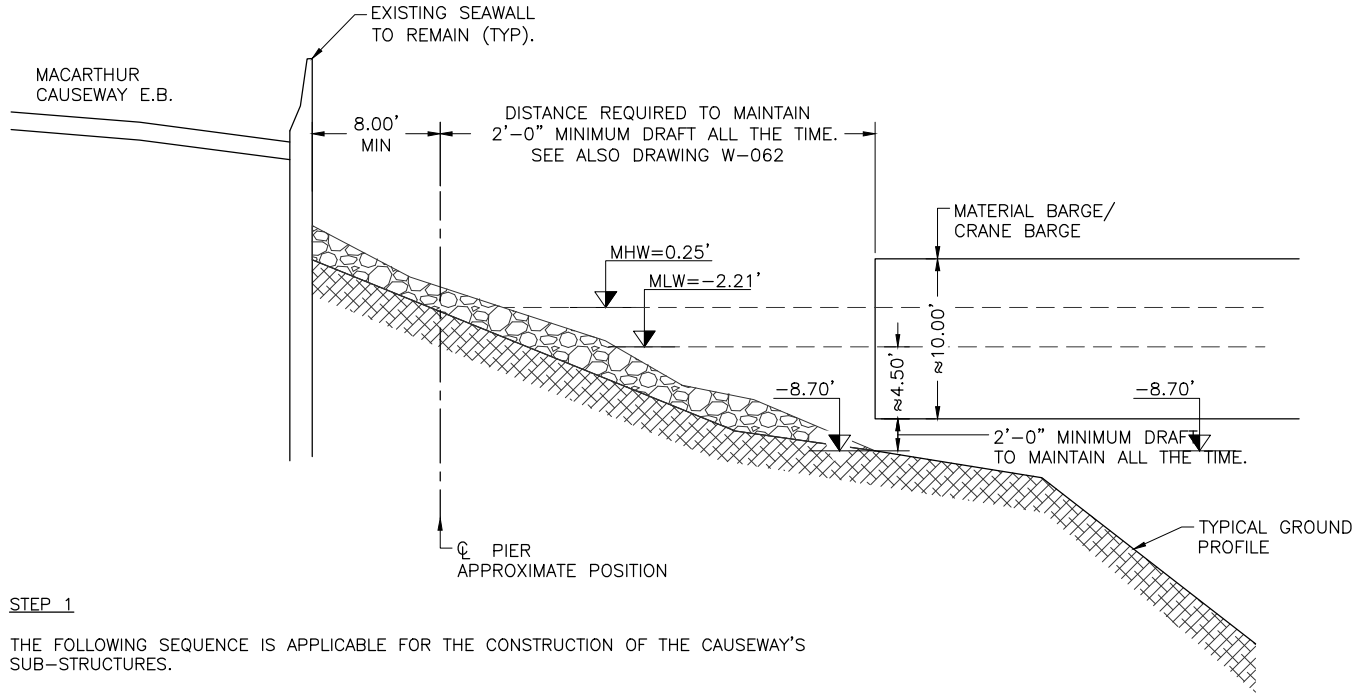
PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT				<div>Designed by D.O.</div> <div>Drawn by D.O.</div> <div>Checked by J.R.H.</div> <div>DRAWING SCALE: AS SHOWN</div>	<div><div>MIAMI-DADE COUNTY</div><div>DTPW TRANSIT</div><div>PEOPLE'S TRANSPORTATION PLAN</div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153		<div>DRAWING TITLE: BEACH CORRIDOR GUIDEWAY WEST BRIDGE CONSTRUCTION SEQUENCE 2 OF 2</div> <div>DRAWING NO. W-068</div> <div>SHEET NO. 383</div>
No.	Date	App.	Revisions			APPROVED	DATE	

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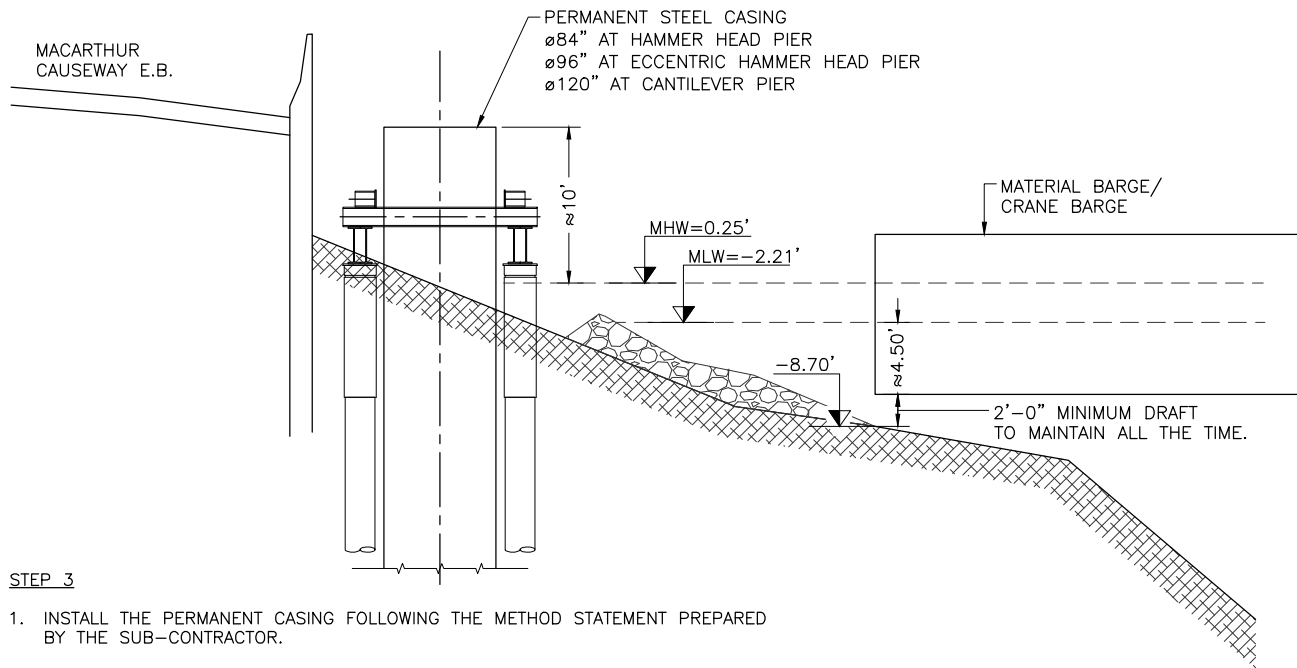
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STEP 1

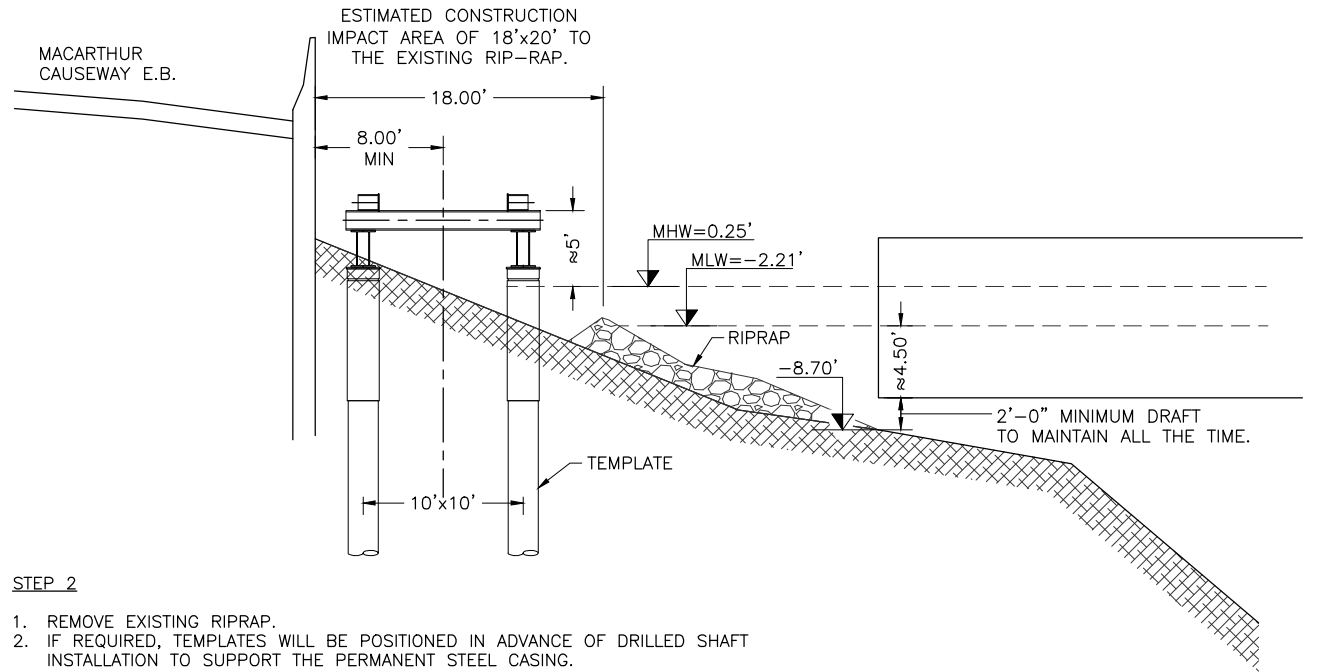
THE FOLLOWING SEQUENCE IS APPLICABLE FOR THE CONSTRUCTION OF THE CAUSEWAY'S SUB-STRUCTURES.

1. CONDUCT THE GEOTECHNICAL INVESTIGATION USING A BARGE MOUNTED DRILL RIG.



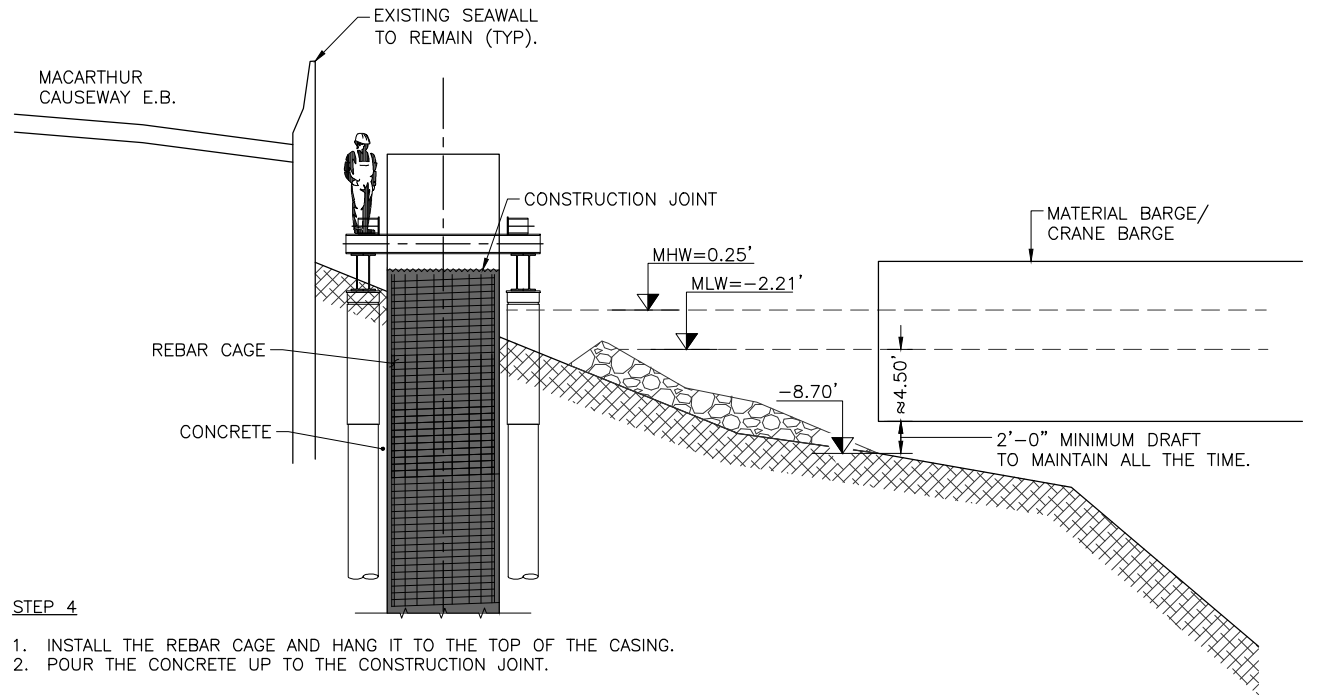
STEP 3

1. INSTALL THE PERMANENT CASING FOLLOWING THE METHOD STATEMENT PREPARED BY THE SUB-CONTRACTOR.



STEP 2

1. REMOVE EXISTING RIPRAP.
2. IF REQUIRED, TEMPLATES WILL BE POSITIONED IN ADVANCE OF DRILLED SHAFT INSTALLATION TO SUPPORT THE PERMANENT STEEL CASING.



STEP 4

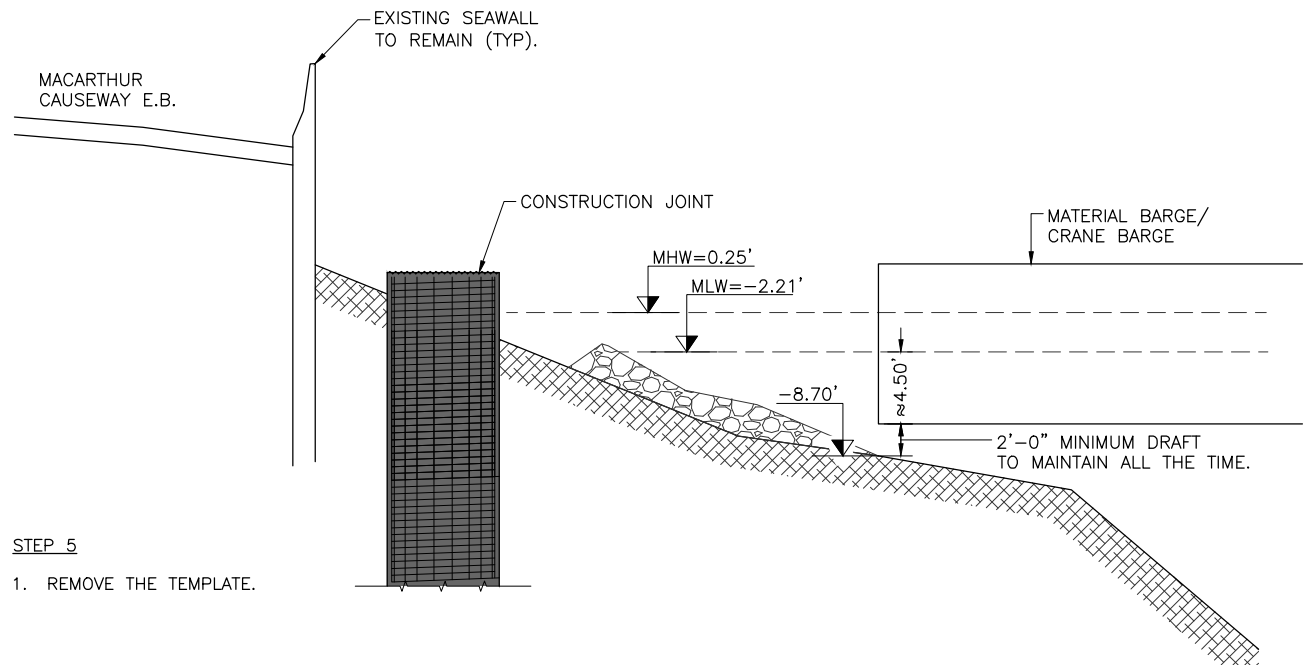
1. INSTALL THE REBAR CAGE AND HANG IT TO THE TOP OF THE CASING.
2. POUR THE CONCRETE UP TO THE CONSTRUCTION JOINT.

PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT				Designed by D.O.	<div><div>DTPW TRANSIT</div><div>PEOPLE'S TRANSPORTATION PLAN</div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153					DRAWING TITLE: BEACH CORRIDOR GUIDEWAY CAUSEWAY CONSTRUCTION SEQUENCE 1 OF 2	
				Drawn by D.O.		<div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 SAM T. PHAN, P.E. P.E. LICENSE No. 54072</div></div>						
				Checked by J.R.H.								
				DRAWING SCALE: AS SHOWN								
No.	Date	App.	Revisions			APPROVED	DATE	APPROVED	DATE		DRAWING NO. W-069	SHEET NO. 384

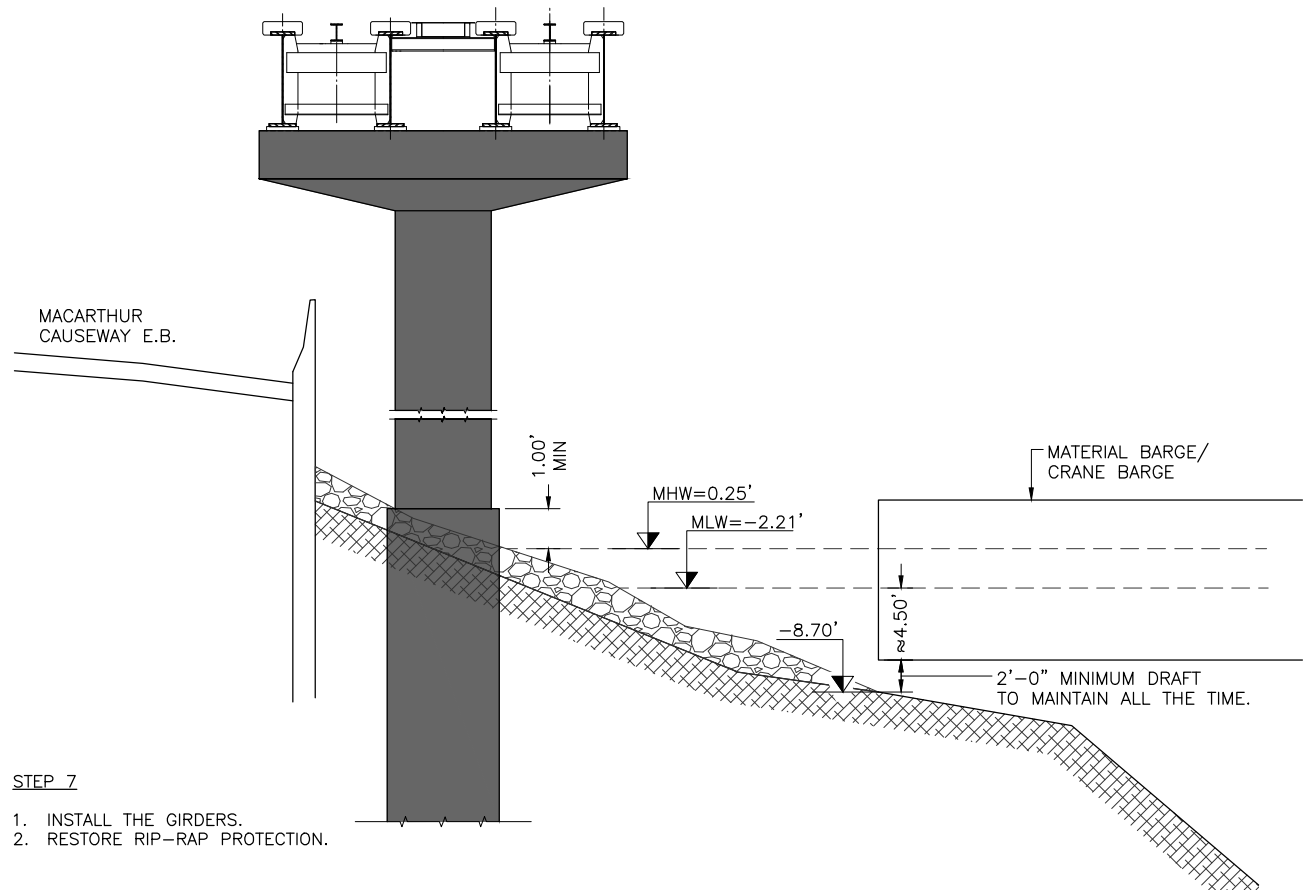
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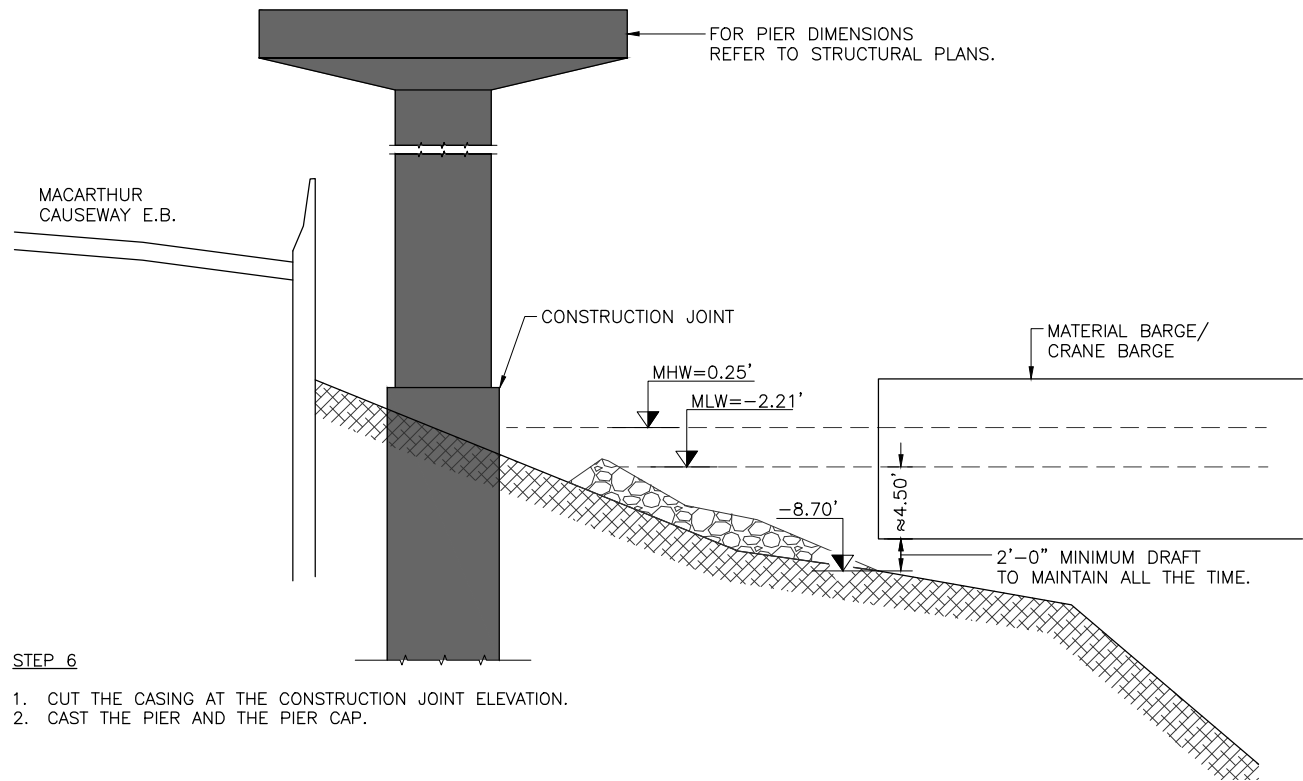
STEP 5

1. REMOVE THE TEMPLATE.



STEP 7

1. INSTALL THE GIRDERS.
2. RESTORE RIP-RAP PROTECTION.



STEP 6

1. CUT THE CASING AT THE CONSTRUCTION JOINT ELEVATION.
2. CAST THE PIER AND THE PIER CAP.

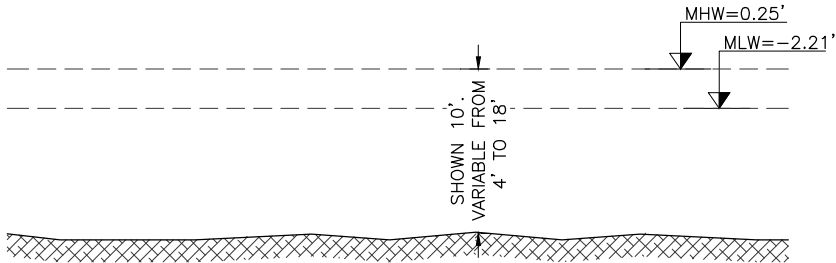
PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT				Designed by D.O.	<div>DTPW TRANSIT</div> <div>PEOPLE'S TRANSPORTATION PLAN</div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153				<div>DRAWING TITLE: BEACH CORRIDOR GUIDEWAY CAUSEWAY CONSTRUCTION SEQUENCE 2 OF 2</div> <div>DRAWING NO. W-070SHEET NO. 385</div>
				Drawn by D.O.		<div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 SAM T. PHAN, P.E. P.E. LICENSE No. 54072</div></div>				
				Checked by J.R.H.						
				DRAWING SCALE: AS SHOWN						
No.	Date	App.	Revisions				APPROVED	DATE	APPROVED	

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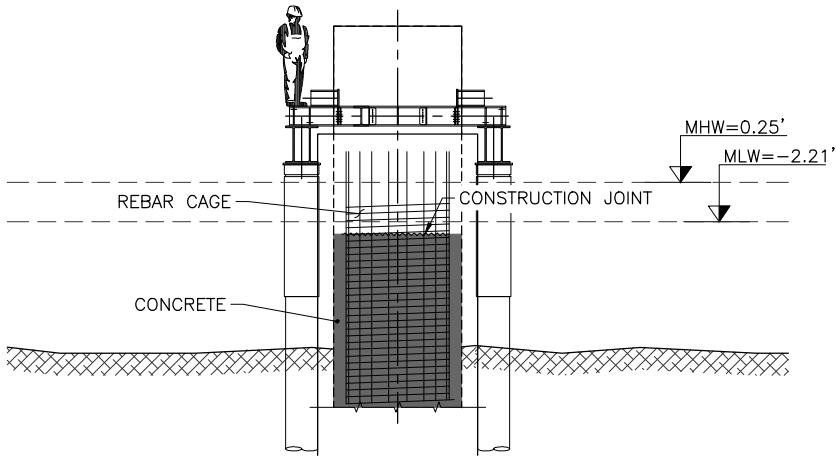
1. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND MEASURE IN FEET ABOVE THE DATUM.
2. THE SEQUENCE OF STEPS SHOWN BELOW BETWEEN INSTALLATIONS OF TEMPLATE PILES AND COFFERDAM SHEET PILES IS A CONCEPT. THE CONTRACTOR MAY ELECT TO INSTALL THE COFFERDAMS PRIOR TO THE INSTALLATION OF TEMPLATE PILES.
3. THE USE OF COFFERDAMS TO CONSTRUCT THE WATER LEVEL FOOTINGS IS OPTIONAL. THE CONTRACTOR MAY ELECT TO USE OTHER METHODS SUCH AS STEEL CASING FORM OR PRECAST CONCRETE SHELL AS ALTERNATIVES.
4. THE OPERATIONS DESCRIBED BELOW ASSUME THAT NO NIGHTTIME WORK IS PERFORMED WITH VIBRO-HAMMERS, IMPACT HAMMERS OR OTHER DEVICES THAT CAN GENERATE A LEVEL OF NOISE POSING A RISK FOR THE MARINE LIFE IN THE BISCAYNE BAY WATER.



STEP 1

THE FOLLOWING SEQUENCE IS APPLICABLE FOR THE CONSTRUCTION OF THE SUB-STRUCTURES FOR THE EAST BRIDGE.

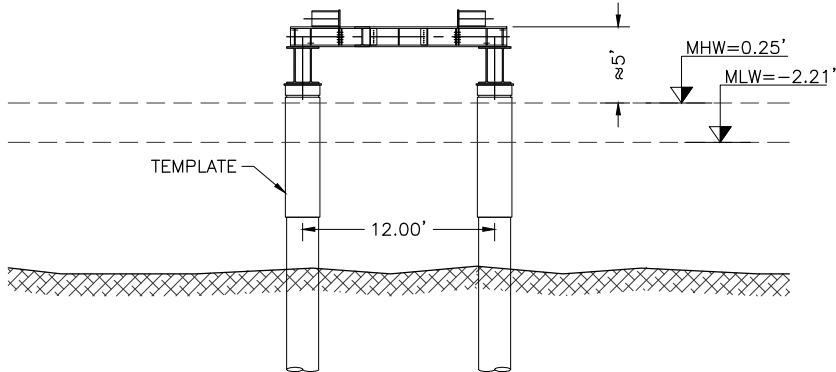
1. CONDUCT THE GEOTECHNICAL INVESTIGATION USING A BARGE MOUNTED DRILL RIG.



STEP 4

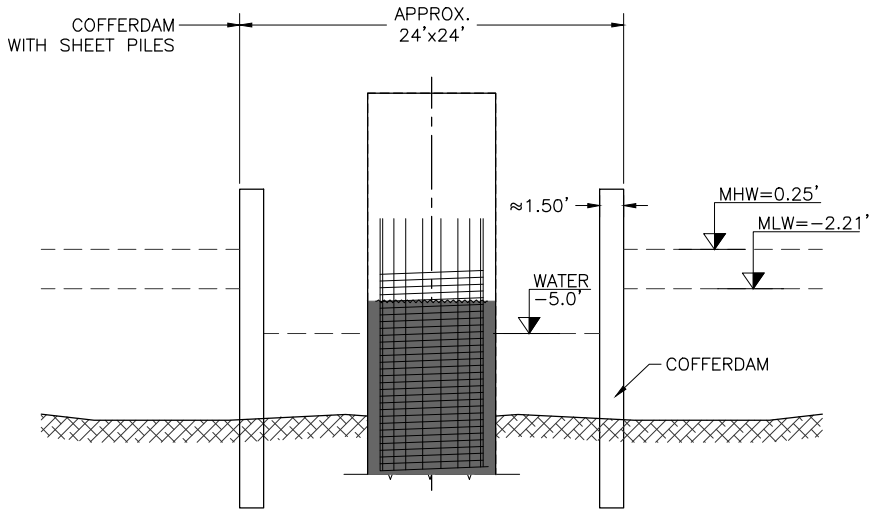
1. INSTALL THE REBAR CAGE AND HANG IT TO THE TOP OF THE CASING.
2. POUR THE CONCRETE UP TO THE CONSTRUCTION JOINT.

5. DURING THE INSTALLATION OF THE PERMANENT SHAFT(S) AND THE INSTALLATION/REMOVAL OF THE TEMPLATE AND THE COFFERDAM SHEET PILES, THE WORK ZONE WILL BE SURROUNDED BY FLOATING TURBIDITY CURTAINS. ANY TURBIDITY WATER WILL NEED TO BE CONTAINED AND TREATED ACCORDING TO ACCEPTED STANDARDS BEFORE RELEASING IT INTO BISCAYNE BAY WATER.



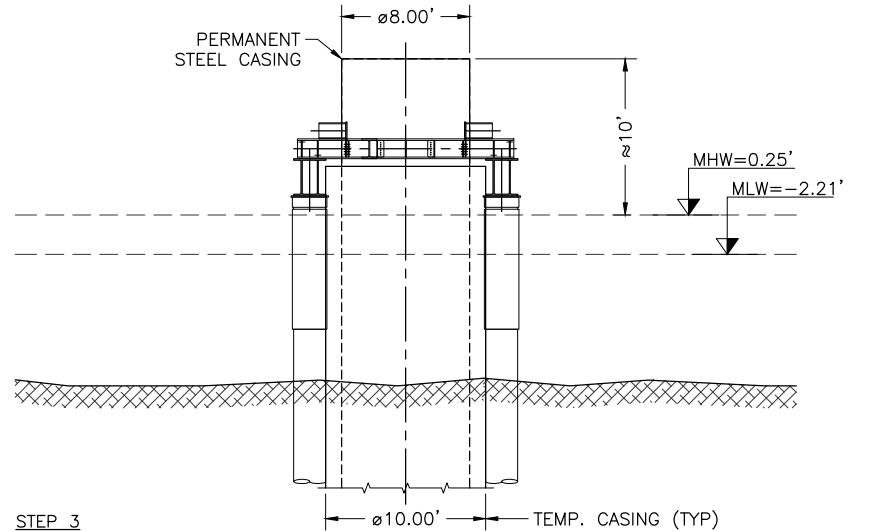
STEP 2

1. IF REQUIRED, TEMPLATES WILL BE POSITIONED IN ADVANCE OF DRILLED SHAFT INSTALLATION TO SUPPORT THE PERMANENT STEEL CASING. FOR TEMPLATE'S PLAN VIEW REFER TO NEXT SHEET.



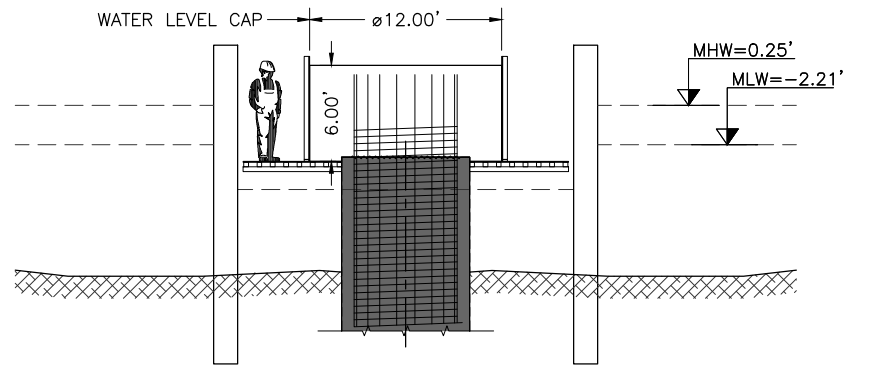
STEP 5

1. REMOVE THE TEMPLATE AND THE TEMPORARY CASING.
2. INSTALL THE COFFERDAM. FOR APPROXIMATE COFFERDAM DIMENSIONS REFER ALSO TO THE NEXT SHEET.
3. DE-WATER THE INSIDE OF THE COFFERDAM.



STEP 3

1. INSTALL THE TEMPORARY 10' CASING TO CONTAIN SPOIL'S SPILLS.
2. INSTALL THE PERMANENT CASING FOLLOWING THE METHOD STATEMENT PREPARED BY THE SUB-CONTRACTOR.



STEP 6

1. CUT THE CASING AT THE CONSTRUCTION JOINT ELEVATION
2. INSTALL FORMWORK FOR WATER LEVEL CAP

PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT

No.	Date	App.	Revisions

Designed by	D.O.
Drawn by	D.O.
Checked by	J.R.H.
DRAWING SCALE:	AS SHOWN



DTPW  
TRANSIT

PEOPLE'S TRANSPORTATION PLAN

BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153



7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126  
PHONE: (786) 464-1000 FAX: (786) 845-7119  
CERTIFICATE OF AUTHORIZATION No. 1838  
SAM T. PHAN, P.E. P.E. LICENSE No. 54072

APPROVED

DATE

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DATE

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DRAWING TITLE:

BEACH CORRIDOR GUIDEWAY  
EAST BRIDGE  
CONSTRUCTION SEQUENCE 1 OF 2

DRAWING NO.

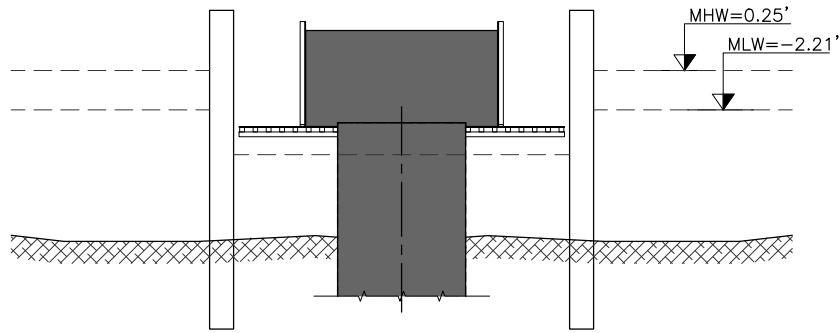
W-071

SHEET NO.

386

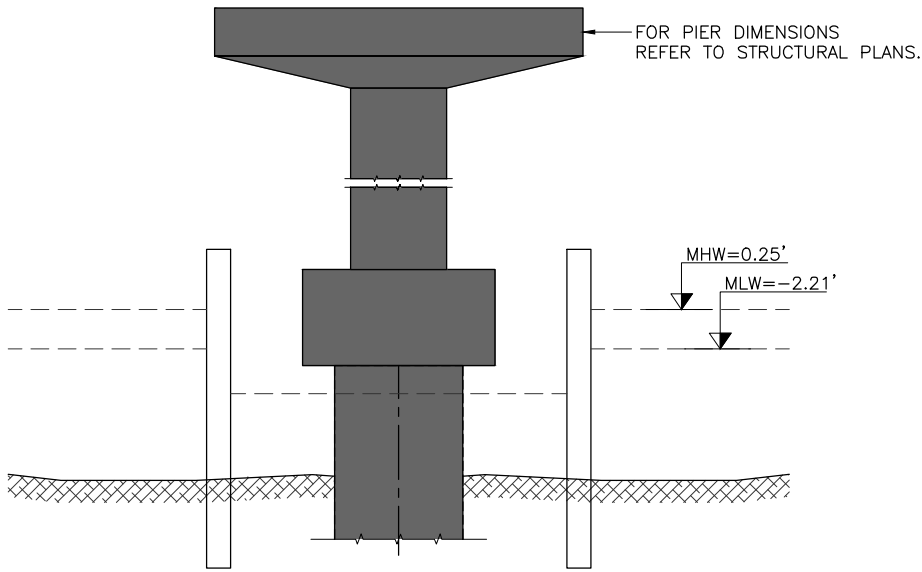
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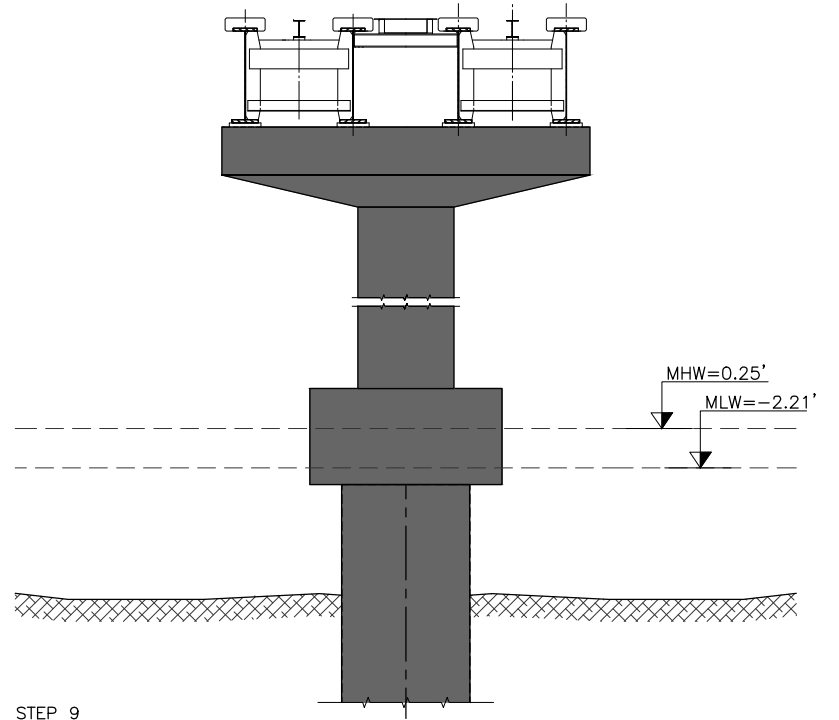
STEP 7

1. CAST THE WATER LEVEL CAP.



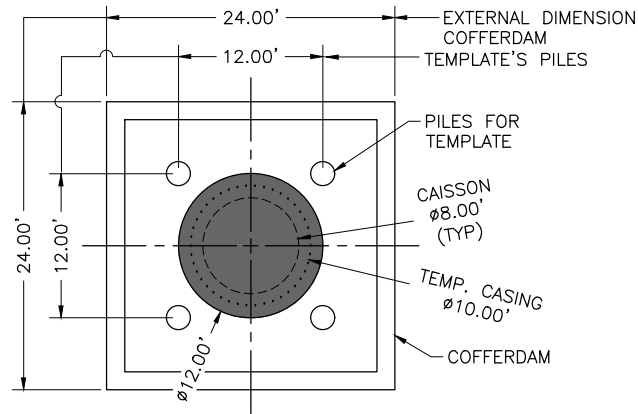
STEP 8

1. REMOVE THE WATER LEVEL CAP FORMWORK.  
2. CAST THE PIER AND THE PIER CAP.



STEP 9

1. REMOVE THE COFFERDAM.  
2. INSTALL THE GIRDERS.



LAYOUT FOUNDATION  
EAST BRIDGE



PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT				Designed by D.O.	<div><div><div><div>MIAMI-DADE</div><div>COUNTY</div></div><div></div></div><div>DTPW TRANSIT</div><div>PEOPLE'S TRANSPORTATION PLAN</div></div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153				<div>DRAWING TITLE: BEACH CORRIDOR GUIDEWAY EAST BRIDGE CONSTRUCTION SEQUENCE 2 OF 2</div>		
				Drawn by D.O.		<div><div><div><div></div><div>PARSONS</div></div><div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 SAM T. PHAN, P.E. P.E. LICENSE No. 54072</div></div></div>			<div>DRAWING NO. W-072</div> <div>SHEET NO. 387</div>			
				Checked by J.R.H.								
				DRAWING SCALE: AS SHOWN								
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	BEACH CORRIDOR GUIDEWAY - WEST AND EAST BRIDGE OPERATIONS PERFORMED FROM BARGES			BEACH CORRIDOR GUIDEWAY - CAUSEWAY		
OPERATION	MAIN BARGES SIZE AND # SPUDS	OTHER EQUIPMENT <small>(ALL ANCHORED TO MAIN BARGES IN LEFT COLUMN)</small>	DURATION FOR EACH UNIT	MAIN BARGES SIZE AND # SPUDS	OTHER EQUIPMENT <small>(ALL ANCHORED TO MAIN BARGES IN LEFT COLUMN)</small>	DURATION FOR EACH UNIT
PRE-BORING OPERATIONS	-	-	-	EXCAVATOR ON 40'x60' BARGE ANCHORED WITH 2 SPUDS TO REMOVE RIP-RAP	-	0.5 DAY/BORING POINT
BORING	BORING DRILL ON 40'x60' BARGE ANCHORED WITH 2 SPUDS	-	1 DAY/BORING	BORING DRILL ON 40'x60' BARGE ANCHORED WITH 2 SPUDS	-	1 DAY/BORING
DRILLING SHAFT	DRILLER RIG ON 60'x180' BARGE SUPPORT CRANE ON 60'x180' BARGE 2 SPUDS PER EACH BARGE	TEMPLATE FOR PILE'S INSTALLATION #2 MATERIAL BARGES 35'x195' EXTRA MATERIAL BARGE 35'x195' <small>(ASSUMED THAT WATER IS THE DRILLING FLUID)</small>	2 WEEKS/2-84" SHAFTS	DRILLER RIG ON 60'x180' BARGE SUPPORT CRANE ON 60'x180' BARGE 2 SPUDS PER EACH BARGE	TEMPLATE FOR PILE'S INSTALLATION EXCAVATOR AND SPOIL BARGE 35'x195' #3 MATERIAL BARGES 35'x195" <small>(ASSUMED THAT WATER IS THE DRILLING FLUID)</small>	1 WEEK/CAISSON
SUB-STRUCTURE: COFFERDAM, PILECAP, PIER, PIERCAP, REMOVE FORMWORKS	SUPPORT CRANE ON 60'x180' BARGE ANCHORED WITH 2 SPUDS	MATERIAL BARGE 35'x195' #2 EXTRA MATERIAL BARGES 35'x195'	1 WEEK/EACH COFFERDAM 2 WEEKS/EACH PILECAP 1½ WEEKS/EACH PIER 1½ WEEK/EACH PIER CAP 1 WEEK/REMOVE FORMWORKS	SUPPORT CRANE ON 60'x180' BARGE ANCHORED WITH 2 SPUDS	MATERIAL BARGE 35'x195' #1 EXTRA MATERIAL BARGE 35'x195'	- - 1½ WEEKS/EACH PIER 1½ WEEK/EACH PIER CAP 1 WEEK/REMOVE FORMWORKS
SUPER-STRUCTURE: STEEL GIRDER ERECTION	#1 BARGE 60'x180' EACH WITH 1 SUPPORT CRANE 2 SPUDS PER EACH BARGE	#2 MATERIAL BARGES 35'x195'	2 WEEKS / THREE SPANS	#1 BARGE 60'x180' EACH WITH 1 SUPPORT CRANE 2 SPUDS PER EACH BARGE	#2 MATERIAL BARGES 35'x195'	2 WEEKS / THREE SPANS
SUPER-STRUCTURE: CONCRETE RUNNING PADS SYSTEMS	#2 BARGE 50'x100' EACH WITH 1 SUPPORT CRANE WORKING AT TWO DIFFERENT LOCATIONS 2 SPUDS PER EACH BARGE	#2 MATERIAL BARGES 30'x100' WORKING AT TWO DIFFERENT LOCATIONS	1 <sup>ST</sup> CREW: 1 WEEK/SPAN FOR PADS 2 <sup>ND</sup> CREW: 1 WEEK/SPAN FOR SYSTEMS THESE TWO CREWS HAVE AN OFFSET	#2 BARGES 50'x100' EACH WITH 1 SUPPORT CRANE WORKING AT TWO DIFFERENT LOCATIONS 2 SPUDS PER EACH BARGE	#2 MATERIAL BARGES 30'x100' WORKING AT TWO DIFFERENT LOCATIONS	1 <sup>ST</sup> CREW: 1 WEEK/SPAN FOR PADS 2 <sup>ND</sup> CREW: 1 WEEK/SPAN FOR SYSTEMS THESE TWO CREWS HAVE AN OFFSET

	BEACH CORRIDOR GUIDEWAY - WEST AND EAST BRIDGE OPERATIONS PERFORMED FROM TRESTLE		
OPERATION	MAIN BARGES SIZE AND # SPUDS	OTHER EQUIPMENT <small>(ALL ANCHORED TO MAIN BARGES IN LEFT COLUMN)</small>	DURATION FOR EACH UNIT
PRE-BORING OPERATIONS	-	-	-
BORING	BORING DRILL ON 40'x60' BARGE ANCHORED WITH 2 SPUDS	-	1 DAY/BORING
DRILLING SHAFT	DRILLER RIG AND CRAWLER CRANE ON TRESTLE	TEMPLATE FOR PILE'S INSTALLATION #2 MATERIAL BARGES 35'x195' EXTRA MATERIAL BARGE 35'x195' <small>(ASSUMED THAT WATER IS THE DRILLING FLUID)</small>	1 WEEK/96" SHAFTS
SUB-STRUCTURE: COFFERDAM, PILECAP, PIER, PIERCAP, REMOVE FORMWORKS	CRAWLER CRANE ON TRESTLE	MATERIAL BARGE 35'x195' #2 EXTRA MATERIAL BARGES 35'x195'	1 WEEK/EACH COFFERDAM 2 WEEKS/EACH PILECAP 1½ WEEKS/EACH PIER 1½ WEEK/EACH PIER CAP 1 WEEK/REMOVE FORMWORKS
SUPER-STRUCTURE: STEEL GIRDER ERECTION	#1 CRAWLER CRANES	#2 MATERIAL BARGES 35'x195'	2 WEEKS / THREE SPANS
SUPER-STRUCTURE: CONCRETE RUNNING PADS SYSTEMS	#2 CRAWLER CRANES WORKING AT TWO DIFFERENT LOCATIONS	#2 MATERIAL BARGES 30'x100' WORKING AT TWO DIFFERENT LOCATIONS	1 <sup>ST</sup> CREW: 1 WEEK/SPAN FOR PADS 2 <sup>ND</sup> CREW: 1 WEEK/SPAN FOR SYSTEMS THESE TWO CREWS HAVE AN OFFSET

- NOTES:
- CONTRACTOR SHALL TAKE PRECAUTIONS TO MAINTAIN STABILITY OF THE EXISTING MACARTHUR CAUSEWAY AND EXISTING BRIDGES DURING ALL CONSTRUCTION STAGES.
  - ASSUMED THAT CONCRETE POURS ARE DONE SETTING UP THE PUMP AND DELIVERING THE CONCRETE FROM THE EXISTING BRIDGE AT NIGHT TIME.
  - STEEL GIRDER ERECTION DURATIONS ASSUMED THAT THE SPANS ARE SIMPLE SUPPORTED.
  - DURATIONS SHOWN ARE TENTATIVE.

PERMIT PLANS

CONCEPTUAL PLANS UTILIZED TO OBTAIN PERMIT				Designed by D.O.	 <div>DTPW TRANSIT</div>	BEACH CORRIDOR RAPID TRANSIT PD & E - CIP #153			DRAWING TITLE: CONSTRUCTION STAGING EQUIPMENT PLANNING AND SCHEDULE			
				Drawn by D.O.		 <div>7600 CORPORATE CENTER DRIVE, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 SAM T. PHAN, P.E. P.E. LICENSE No. 54072</div>			DRAWING NO. SHEET NO.			
				Checked by J.R.H.					W-073 388			
				DRAWING SCALE: AS SHOWN					APPROVED	DATE	APPROVED	DATE
No.	Date	App.	Revisions									

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**APPENDIX C –  
Section VIII of the FWC Coral and Octocoral Mitigation  
Relocation Recommendations (2021)**



## Florida Fish and Wildlife Conservation Commission (FWC) Coral and Octocoral Mitigation Relocation Recommendations

- 7) Relocation site(s) – provide the following information for the relocation site(s):
- a. Site coordinates.
  - b. Proximity to the removal site.
  - c. Identify if there has been historic presence of the species to be relocated at the relocation site within recent decades.
  - d. Substrate size and substrate type corals/octocorals were found on (e.g., walls, boulders, rip rap, natural, artificial, metal, concrete,).
  - e. Identify presence/absence of Stony Coral Tissue Loss Disease (SCTLD) or other suspect or active disease indicators (review attached FWC Health Protocols for suspect or active disease indicators).
  - f. Identify presence/absence of predators/competitors/overgrowth (by species if possible, by genus otherwise) on corals and/or substrate corals are proposed to be attached to.
  - g. Water depth in relation to the removal site.
  - h. Water quality in relation to the removal site.
  - i. Water circulation in relation to the removal site.
  - j. Light availability (PAR level) in relation to the removal site.
  - k. Orientation of reattachment.
  - l. Presence/absence of loose rubble.
  - m. Identify if it is a low or high energy environment.
  - n. Verify that the relocation site is not located within a direct or indirect impact area for any permitted, authorized or reasonably foreseeable marine coastal construction activity (e.g., dock/marina/seawall/rip rap work, dredging, beach nourishment, pipeline, communication cable installations), or within exclusion or buffer areas/zones (e.g., military, aquaculture, resource protection).
  - o. Provide information on spatial requirements for the species to be relocated which addresses how the relocation site will provide adequate and appropriate space to allow for: colony growth, tissue re-colonization and plating based on colony size, species growth rates, and maximum size capacity

### ***Technical Assistance***

The FWC is available to provide technical expertise to assist with the development or review of relocation plans, including relocation methodologies. The FWC would appreciate the ability to provide additional comments on relocation plans or relocation plan revisions if such information is not available at this time and becomes available in the future.

Staff of the Florida Department of Environmental Protection – Coral Reef Conservation Program, NOAA National Marine Fisheries Service, and NOAA Florida Keys National Marine Sanctuary (for projects located within Monroe County) are also available to provide technical expertise to assist with the review or development of relocation plans based on lessons learned on the Florida Reef Tract (FRT). Appropriate contacts for each of these agencies respective programs can be provided upon request.

### **VIII. Relocation Size and Species**

The FWC has prioritized coral species for removal and relocation based on susceptibility to Stony Coral Tissue Loss Disease (SCTLD) and conservation value (e.g., ESA-listing status, abundance, growth rate and maximum size, contributions to reef-building, genetic diversity, recruitment rate, post-settlement mortality). The FWC recommends relocation of all corals at the specified size or larger that are identified in the following priority list, unless donated to qualified entities conducting permitted coral restoration or research activities.

#### ***Relocate at any size:***

- 1) *Acropora cervicornis* – ESA-listed; confirmed not susceptible to SCTLD
- 2) *Acropora palmata* – ESA-listed; confirmed not susceptible to SCTLD; functionally extinct
- 3) Order *Antipatharia* (black corals) – rare
- 4) *Cladocora arbuscula* – confirmed not susceptible to SCTLD; rare and small (under 10 cm) on FRT; relocation size may be increased to  $\geq 10$  cm for areas outside of the Florida Reef Tract



## Florida Fish and Wildlife Conservation Commission (FWC) Coral and Octocoral Mitigation Relocation Recommendations

- 5) *Colpophyllia natans* – SCTLD-susceptible; significantly impacted by SCTLD; showing signs of recruitment within early SCTLD-endemic areas; major reef-building species
- 6) *Dendrogyra cylindrus* – ESA-listed; SCTLD-susceptible; functionally extinct
- 7) *Dichocoenia stokesii* – SCTLD-susceptible; significantly impacted by SCTLD; showing signs of recruitment within early SCTLD-endemic areas
- 8) *Diploria labyrinthiformis* – SCTLD-susceptible; significantly impacted by SCTLD; showing signs of recruitment within early SCTLD-endemic areas; reef-building species
- 9) *Eusmilia fastigiata* – SCTLD-susceptible; significantly impacted by SCTLD
- 10) *\*Favia fragum* – unknown SCTLD susceptibility; functionally extinct; small; does not reach 10 cm
- 11) *Meandrina meandrites* – SCTLD-susceptible; significantly impacted by SCTLD; showing signs of recruitment within early SCTLD-endemic areas
- 12) *Millepora complanata* – not susceptible to SCTLD; functionally extinct; reef-building fire coral
- 13) *Mycetophyllia ferox* – ESA-listed; SCTLD-susceptible; functionally extinct
- 14) *Orbicella annularis* – ESA-listed; SCTLD-susceptible; major reef-building species
- 15) *Orbicella faveolata* – ESA-listed; SCTLD-susceptible; major reef-building species
- 16) *Orbicella franksi* – ESA-listed; SCTLD-susceptible; major reef-building species
- 17) *Phyllangia* spp. – unknown SCTLD susceptibility; small; does not reach 10 cm
- 18) *Pseudodiploria strigosa* – SCTLD-susceptible; significantly impacted by SCTLD; showing signs of recruitment within early SCTLD-endemic areas; reef-building species
- 19) *Scolymia* spp. – unknown SCTLD susceptibility; small; does not reach 10 cm; cryptic

### ***Relocate at $\geq 5$ cm (measured as live tissue diameter - continuous live tissue patch with a diameter of 5 cm or greater):***

- 1) *Agaricia agaricites* – unknown SCTLD susceptibility; sensitive to temperature/light stress
- 2) *Agaricia fragilis* – unknown SCTLD susceptibility; sensitive to temperature/light stress
- 3) *Agaricia lamarcki* – unknown SCTLD susceptibility; rare; low recruitment; often found  $> 60'$ ; sensitive to temperature/light stress; relocation size may be increased to  $\geq 10$  cm for Tortugas and Pulley Ridge areas
- 4) *Helioseris cucullata* – assumed SCTLD-susceptible (based on susceptibility of family members); rare in FL; low recruitment; often found in deep water or shallower in cryptic locations
- 5) *Isophyllia sinuosa* – assumed SCTLD-susceptible (based on susceptibility of family members); rare in FL; low recruitment
- 6) *Isophyllia rigida* – assumed SCTLD-susceptible (based on susceptibility of family members); rare in FL; low recruitment
- 7) *Madracis auretenra* – assumed SCTLD susceptibility; uncommon to rare; declining trends in counts and live tissue area in long-term monitoring assessments; low recruitment; sensitive to temperature/light stress;
- 8) *Madracis decactis* – assumed SCTLD-susceptible (based on susceptibility of congener); low recruitment
- 9) *Madracis formosa* – assumed SCTLD-susceptible (based on susceptibility of congener); low recruitment
- 10) *Manicina areolata* – assumed SCTLD-susceptible (based on susceptibility of family members)
- 11) *Montastraea cavernosa* – SCTLD-susceptible; significantly impacted by SCTLD; showing signs of recruitment within early SCTLD-endemic areas; major reef-building species
- 12) *Mussa angulosa* – SCTLD-susceptible; significantly impacted by SCTLD; rare; low recruitment
- 13) *Mycetophyllia aliciae* – SCTLD-susceptible; significantly impacted by SCTLD; rare; low recruitment
- 14) *Mycetophyllia lamarckiana* – SCTLD-susceptible; significantly impacted by SCTLD; uncommon to rare; declining trends in counts and live tissue area in long-term monitoring assessments; low recruitment
- 15) *Pseudodiploria clivosa* – SCTLD-susceptible; significantly impacted by SCTLD; reef-building species; uncommon to rare; declining trends in counts and live tissue area in long-term monitoring assessments; low recruitment
- 16) *Siderastrea radians* – often smaller than 10 cm
- 17) *Solenastrea bournoni* – SCTLD-susceptible; significantly impacted by SCTLD; uncommon to rare; declining trends in counts and live tissue area in long-term monitoring assessments
- 18) *Solenastrea hyades* – assumed SCTLD-susceptible (based on susceptibility of congener)



## Florida Fish and Wildlife Conservation Commission (FWC) Coral and Octocoral Mitigation Relocation Recommendations

**Relocate at  $\geq 10$  cm (measured as live tissue diameter - continuous live tissue patch with a diameter of 10 cm or greater):**

- 1) *Oculina diffusa* – unknown SCTLD susceptibility
- 2) *Oculina robusta* – unknown SCTLD susceptibility
- 3) \**Porites astreoides* – confirmed not susceptible to SCTLD
- 4) \**Porites divaricata* – confirmed not susceptible to SCTLD
- 5) \**Porites furcata* – confirmed not susceptible to SCTLD
- 6) \**Porites porites* – confirmed not susceptible to SCTLD
- 7) \**Siderastrea siderea* – SCTLD-susceptible; susceptible to many coral diseases; reef-building species; abundant recruiter
- 8) *Stephanocoenia intersepta* – SCTLD-susceptible; reef-building species; abundant recruiter

\*If numbers of the species \*underlined in red font exceed 50 colonies at the recommended relocation size or larger, the numbers required for relocation may be reduced to 50 colonies or 25% of the total number of colonies, whichever is greater (50 colonies minimum). Reduced numbers of colonies must be selected and prioritized for relocation according to the following criteria:

- Colonies of this species should be removed from locations as spread out as possible across the total project area to increase the probability of capturing greater genetic diversity
- Prioritize larger sizes over smaller sizes
- Prioritize colonies exhibiting fewer stress indicators

### **Attention Permit Processors**

**3. Recommended Permit Condition:** All species of corals that are not specifically identified in the categories below that measure  $\geq 10$  cm and are located within the project area must be relocated prior to the start of construction, unless donated to a qualified entity conducting permitted coral restoration or research activities.

Corals that are specifically identified in the categories below, that are at or above the specified size and are located within the project area, must be relocated prior to the start of construction unless donated to a qualified entity conducting permitted coral restoration or research activities.

#### **Coral Species to be Relocated at Any Size:**

- 1) *Acropora cervicornis*
- 2) *Acropora palmata*
- 3) Order Antipatharia
- 4) *Cladocora arbuscula*
- 5) *Colpophyllia natans*
- 6) *Dendrogyra cylindrus*
- 7) *Dichocoenia stokesii*
- 8) *Diploria labyrinthiformis*
- 9) *Eusmilia fastigiata*
- 10) \**Favia fragum*
- 11) *Meandrina meandrites*
- 12) *Millepora complanata*
- 13) *Mycetophyllia ferox*
- 14) *Orbicella annularis*
- 15) *Orbicella faveolata*
- 16) *Orbicella franksi*
- 17) *Phyllangia* spp.
- 18) *Pseudodiploria strigosa*
- 19) *Scolymia* spp.



## Florida Fish and Wildlife Conservation Commission (FWC) Coral and Octocoral Mitigation Relocation Recommendations

Coral Species to be Relocated at  $\geq 5$  cm (measured as live tissue diameter - continuous live tissue patch with a diameter of 5 cm or greater):

- 1) *Agaricia agaricites*
- 2) *Agaricia fragilis*
- 3) *Agaricia lamarcki*
- 4) *Helioseris cucullata*
- 5) *Isophyllia sinuosa*
- 6) *Isophyllia rigida*
- 7) *Madracis auretenra*
- 8) *Madracis decactis*
- 9) *Madracis formosa*
- 10) *Manicina areolata*
- 11) *Montastraea cavernosa*
- 12) *Mussa angulosa*
- 13) *Mycetophyllia aliciae*
- 14) *Mycetophyllia lamarckiana*
- 15) *Pseudodiploria clivosa*
- 16) *Siderastrea radians*
- 17) *Solenastrea bournoni*
- 18) *Solenastrea hyades*

Coral Species to be Relocated at  $\geq 10$  cm (measured as live tissue diameter - continuous live tissue patch with a diameter of 10 cm or greater):

- 1) *Oculina diffusa*
- 2) *Oculina robusta*
- 3) *\*Porites astreoides*
- 4) *\*Porites divaricata*
- 5) *\*Porites furcata*
- 6) *\*Porites porites*
- 7) *\*Siderastrea siderea*
- 8) *Stephanocoenia intersepta*

\*If numbers of the species \*underlined in red font exceed 50 colonies at the recommended relocation size or larger, the numbers required for relocation are reduced to 50 colonies or 25% of the total number of colonies, whichever is greater (50 colonies minimum). Reduced numbers of colonies must be selected and prioritized for relocation according to the following criteria:

- Colonies of this species should be removed from locations as spread out as possible across the total project area to increase the probability of capturing greater genetic diversity.
- Prioritize larger sizes over smaller sizes.
- Prioritize colonies exhibiting fewer stress indicators.

### ***Coral Fragmentation Upon Removal***

The potential exists for corals to fragment upon removal. It is feasible for all fragments of the same broken coral to be kept together and reconstructed by reattaching fragments as close together as possible (like puzzle pieces – reattached within 0 - 5 cm apart from one another), to promote successful fusing. The re-constructed corals should be considered as one single coral for monitoring purposes. Research has shown that fragments of the same genet are known to readily and successfully fuse (Raymundo and Maypa 2004).



## ATTACHMENT K | USFWS CONCURRENCE STAMPED LETTER

U.S. Department of  
Homeland Security

United States  
Coast Guard



Commander  
United States Coast Guard  
Seventh District

909 S. E. First Avenue (Rm 432)  
Miami, FL 33131  
Staff Symbol: (dpb)  
Phone: (305) 415-6736  
Fax: (305) 415-6763  
Email: [randall.d.overton@uscg.mil](mailto:randall.d.overton@uscg.mil)

Ms. Roxanna Hinzman, Field Supervisor  
South Florida Ecological Services Office  
US Fish and Wildlife Service  
1339 20th Street  
Vero Beach, FL 32960  
Via Email: [verobeach@fws.gov](mailto:verobeach@fws.gov)

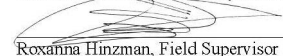


U.S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960  
772-562-3909 Fax 772-562-4288

FWS Log No. 04EF2000-2019-1-0492

The U.S. Fish and Wildlife Service has reviewed the information provided and finds that the proposed action is not likely to adversely affect any federally listed species or designated critical habitat protected by the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et. seq.). A record of this consultation is on file at the South Florida Ecological Service Office.

This fulfills the requirements of section 7 of the Act and further action is not required. If modifications are made to the project, if additional information involving potential effects to listed species becomes available, or if a new species is listed, reinitiation of consultation may be necessary.

  
Roxanna Hinzman, Field Supervisor

10/23/2020  
Date

**Subject: ESA Section 7 Informal Consultation/Concurrence Re .**  
**Project Name:** Beach Corridor Rapid Transit Project  
**ETDM No.:** 14257  
**County:** Miami-Dade

Dear Ms. Hinzman:

The U.S. Coast Guard (USCG) has received bridge permit applications for the Miami-Dade County - Beach Corridor Rapid Transit Project. The project includes a proposed transit bridge over the Atlantic Intracoastal Waterway, Biscayne Bay (approximate latitude/longitude: 25.786905, -80.185382 to 25.787204, -80.179320) and a proposed transit bridge over Meloy Channel (25.772239, -80.147434 to 25.774229, -80.141876) adjacent to MacArthur Causeway in Biscayne Bay, Miami-Dade County, Florida. The applicant for the project is the Miami-Dade County Department of Transportation and Public Works (DTPW). The Coast Guard, as the Lead Federal Agency (LFA) for a proposed project, would like to initiate Section 7 Informal Consultation under the provisions of the Endangered Species Act (ESA).

This project is part of the Strategic Miami Area Rapid Transit (SMART) Plan, adopted by the Miami-Dade County Transportation Planning Organization (TPO) in 2016 as the blueprint for developing premium transit services throughout Miami-Dade County. The Beach Corridor Rapid Transit Project proposes new rapid transit in three sub-areas, described as follows:

1. The Beach Corridor Trunkline (Bay Crossing) extends east from the existing Downtown Metromover Omni Extension along the south side of MacArthur Causeway to 5th Street near Washington Avenue in Miami Beach. The selected technology for the Bay Crossing sub-area is an elevated transit guideway with rubber tire vehicles [Monorail or Automated People Mover (APM)].
2. The Miami Design District Extension extends north on N. Miami Avenue from 15th Street to NW 41st Street in the Design District of Miami. The selected technology for the Miami Design District Extension sub-area is an extension of the existing Metromover, an APM.

U.S. Department of  
Homeland Security

United States  
Coast Guard



Commander  
United States Coast Guard  
Seventh District

909 S. E. First Avenue (Rm 432)  
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16450/3944/3945  
September 1, 2020

Ms. Roxanna Hinzman, Field Supervisor  
South Florida Ecological Services Office  
US Fish and Wildlife Service  
1339 20th Street  
Vero Beach, FL 32960  
Via Email: [verobeach@fws.gov](mailto:verobeach@fws.gov)

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**Project Name:** Beach Corridor Rapid Transit Project

**ETDM No.:** 14257

**County:** Miami-Dade

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2. The Miami Design District Extension extends north on N. Miami Avenue from 15th Street to NW 41st Street in the Design District of Miami. The selected technology for the Miami Design District Extension sub-area is an extension of the existing Metromover, an APM.

3. The Miami Beach Convention Center Extension extends north on Washington Avenue from 5th Street to the Miami Beach Convention Center. The selected technology for the Miami Beach Convention Center sub-area is dedicated lanes for bus or trolley.

The Locally Preferred Alternative, as described above, was selected by the TPO with Resolution #03-2020 on January 30, 2020. The purpose of the project is to increase the person-throughput to the Beach Corridor's major origins and destinations via rapid transit technology. The need for the project is based upon the extensive population growth throughout the study area resulting in increasing traffic congestion and demand for enhanced access to the area's many facilities and services.

This project was screened through the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) by Florida Department of Transportation (FDOT) District 6 on behalf of DTPW. A Planning Screen Summary Report was published on April 28, 2019 (ETDM #14257).

DTPW is conducting a Project Development and Environment (PD&E) Study for the project and a Natural Resources Evaluation (NRE) was prepared for the PD&E Study. At the same time, DTPW is submitting permit applications to the environmental regulatory agencies for the Bay Crossing portion of the project. As part of this advance permitting effort, a more detailed analysis of impacts to benthic resources and plans for compensatory mitigation were conducted and included in an Environmental Permit Report. The Environmental Permit Report will be transmitted via DOD SAFE file transfer site due to large file size. Both reports are included with this initiation package; however, it is noted that the Protected Species and Habitat sections are identical in both reports.

#### Protected Species

Eight federally listed species under the purview of the USFWS were evaluated to determine if the proposed project would adversely affect these species. Based on review of available data, in conjunction with field reconnaissance, the following effects determinations have been made.

Species	Status	Effects Determination
<i>Calidris canutus rufa</i> (Rufa red knot)	T	No Effect
<i>Charadrius melodus</i> * (Piping plover)	T	No Effect
<i>Mycteria americana</i> (Wood stork)	T	No Effect
<i>Eumops floridanus</i> * (Florida bonneted bat)	E	MANLAA
<i>Trichechus manatus</i> * (West Indian manatee)	T, CH	MANLAA
<i>Alligator mississippiensis</i> (American alligator)	SAT	MANLAA

Species	Status	Effects Determination
<i>Crocodylus acutus</i> * (American crocodile)	T	MANLAA
<i>Drymarchon couperi</i> (Eastern indigo snake)	T	MANLAA

**Notes:** Species: \* = Project falls within USFWS Consultation Area for this specie.

Status: E = Endangered, T = Threatened, SAT = Threatened due to Similarity of Appearance to a listed species, CH = Critical Habitat.

Effects Determination: MANLAA = May affect, not likely to adversely affect

Avoidance and minimization of impacts to protected species will occur through implementation of the Standard Manatee Conditions for In-Water Work (2011) and the Standard Protection Measures for the Eastern Indigo Snake (2013) as specified in the effects determinations for these species. Other species with a “May affect, not likely to adversely affect” determination include the Florida bonneted bat and American crocodile. A follow-up survey for the Florida bonneted bat will occur prior to construction following the latest Florida Bonneted Bat Consultation Guidelines as the survey for Florida bonneted bat occurred before the 2019 guidelines were issued.

Thank you for your assistance with this project. Please contact me at (305) 415-6736 or at [randall.d.overton@uscg.mil](mailto:randall.d.overton@uscg.mil) if you have any questions or need additional information.

Sincerely,



RANDALL D. OVERTON  
Director, District Bridge Program  
Coast Guard Seventh District

Enclosures:      a. Natural Resources Evaluation (NRE) dated June 2020  
                      b. Environmental Permit Report dated June 2020 (transmitted via DOD  
                              SAFE file transfer site due to large file size)

Copy:      CGHQ-BRG-2 via email: [HQS-DG-1st-CG-BRG-2@uscg.mil](mailto:HQS-DG-1st-CG-BRG-2@uscg.mil)  
              John Wrublik, USFWS: [john\\_wrublik@fws.gov](mailto:john_wrublik@fws.gov)  
              E-Sciences Inc. via email: [gstone@esciencesinc.com](mailto:gstone@esciencesinc.com) [nlocke@esciencesinc.com](mailto:nlocke@esciencesinc.com)  
              Jie Bian, Miami-Dade Transportation and Public Works: [Jie.Bian@miamidade.gov](mailto:Jie.Bian@miamidade.gov)



## ATTACHMENT L | NMFS BIOLOGICAL OPINION



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701-5505  
<https://www.fisheries.noaa.gov/region/southeast>

F/SER31:JS  
SERO-2020-02388

Mr. Randall Overton  
Director, District Bridge Program  
Coast Guard Seventh District  
909 SE 1<sup>st</sup> Avenue Suite 432  
Miami, Florida 33131

Ref: Coast Guard File Number 3944/3945, US Coast Guard, Miami Beach Corridor Rapid Transit Project Bay Crossing, Miami-Dade County, Florida

Dear Mr. Overton:

The enclosed Biological Opinion (Opinion) was prepared by the National Marine Fisheries Service (NMFS) pursuant to Section 7(a)(2) of the Endangered Species Act (ESA). The Opinion considers the effects of a proposal to construct the new Miami Beach Corridor Rapid Transit Project Bay Crossing. NMFS concludes that the proposed action may affect, but is not likely to adversely affect, green sea turtle (North and South Atlantic Distinct Population Segments [DPSs]), hawksbill sea turtle, Kemp's ridley sea turtle, loggerhead sea turtle (Northwest Atlantic DPS), leatherback sea turtle, giant manta ray, Nassau grouper, and smalltooth sawfish (United States DPS). NMFS concludes that the proposed action is likely to adversely affect, but will not destroy or adversely modify, Johnson's seagrass designated critical habitat.

This project has been assigned the tracking number SERO-2020-02388 in the NMFS Environmental Consultation Organizer (ECO). Please refer to the ECO number in all future inquiries regarding this consultation. Please direct questions regarding this Opinion to Jennifer Schull, Consultation Biologist, by phone at (561) 440-1748, or by email at [Jennifer.Schull@noaa.gov](mailto:Jennifer.Schull@noaa.gov).

Sincerely,

Andrew J. Strelcheck  
Acting Regional Administrator

Enclosure:  
Biological Opinion

File: 1514-22.h



**Endangered Species Act - Section 7 Consultation  
Biological Opinion**

**Action Agency:** United States Coast Guard

**Applicant:** Miami-Dade County Department of Transportation and Public Works

**Activity:** Miami Beach Corridor Rapid Transit Project, Miami-Dade County, Florida

**Consulting Agency:** National Oceanic and Atmospheric Administration (NOAA),  
National Marine Fisheries Service (NMFS),  
Southeast Regional Office, Protected Resources Division (PRD),  
St. Petersburg, Florida

Consultation Tracking Number SERO-2020-02388

**Approved by:** \_\_\_\_\_  
Andrew J. Strelcheck, Acting Regional Administrator  
NMFS, Southeast Regional Office  
St. Petersburg, Florida

**Date Issued:** \_\_\_\_\_

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## **Acronyms and Abbreviations**

CFR	Code of Federal Regulations
DPS	Distinct Population Segment
DTPW	Miami-Dade County, Department of Transportation and Public Works
ECO	NMFS Environmental Consultation Organizer
ESA	Endangered Species Act
FRP	Fiber Reinforced Polymer
MHWL	Mean High Water Line
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
Opinion	Biological Opinion
PRD	NMFS Southeast Regional Office Protected Resources Division
REA	Resource Equivalency Analysis
U.S.	United States
USACE	U.S. Army Corps of Engineers
USCG	United States Coast Guard

## **Units of Measurement**

ac	acre(s)
ft	foot/feet

ft <sup>2</sup>	square foot/feet
in	inch(es)
m	meter(s)
mi	miles



## Introduction

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Section 7(a)(2) of the ESA of 1973, as amended (16 U.S.C. § 1531 et seq.), requires that each federal agency ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. Section 7(a)(2) requires federal agencies to consult with the appropriate Secretary in carrying out these responsibilities. The National Oceanic and Atmospheric Administration (NOAA) NMFS and the United States (U.S.) Fish and Wildlife Service share responsibilities for administering the ESA.

Consultation is required when a federal action agency determines that a proposed action “may affect” listed species or designated critical habitat. Consultations on most listed marine species and their designated critical habitat are conducted between the action agency and NMFS. Informal consultation is concluded after NMFS determines that the action is not likely to adversely affect listed species or critical habitat. Formal consultation is concluded after NMFS issues a Biological Opinion (“Opinion”) that identifies whether a proposed action is likely to jeopardize the continued existence of a listed species, or destroy or adversely modify critical habitat, in which case reasonable and prudent alternatives to the action as proposed must be identified to avoid these outcomes. The Opinion states the amount or extent of incidental take of the listed species that may occur, develops measures (i.e., reasonable and prudent measures) to reduce the effect of take, and recommends conservation measures to further the recovery of the species. No incidental destruction or adverse modification of designated critical habitat may be authorized, and thus there are no reasonable and prudent measures – only reasonable and prudent alternatives that must avoid destruction or adverse modification.

This document represents NMFS’s Opinion based on our review of impacts associated with the proposed action to issue a permit within Miami-Dade County, Florida. This Opinion analyzes the project’s effects on threatened and endangered species and designated critical habitat, in accordance with Section 7 of the ESA. We based our Opinion on project information provided by the USCG, consultants for the applicant, DTPW, and other sources of information, including the published literature cited herein.

## 1 CONSULTATION HISTORY

---

The following is the consultation history for NMFS ECO number SERO-2020-02388:

- 1/24/19 – NMFS conducted a site inspection
- 1/28/19 – NMFS uploaded a response to the Efficient Transportation Decision Making #14257 Planning Screen
- July to Aug 2019 – Multiple calls with project consultants to discuss project and coral survey design
- 9/12/19 – NMFS attended a public meeting on Miami Beach
- 10/9/19 – NMFS participated in a preliminary call with consultants to discuss mitigation strategies
- 10/23/19 – NMFS participated in a multi-agency site visit
- 12/6/19 – NMFS participated in an interagency pre-application meeting

- 1/30/20 – NMFS participated in a call with project consultants to work on REA and coral impacts
- 2/14/20 – NMFS participated in a call with project consultants to discuss REA and requirements for ESA Section 7 consultation
- 3/11/20 – NMFS participated in an interagency call on consultation initiation process
- 4/9/20 – NMFS participated in a call to discuss Biscayne Bay Aquatic Preserve permitting guidelines
- 4/18/20 – USCG requested NMFS serve as cooperating agency
- 5/15/20 – NMFS responded affirmatively to USCG, agreeing to serve as cooperating agency
- 8/31/20 – USCG submitted request to NMFS for ESA Section 7 and Essential Fish Habitat consultations
- 9/24/20, 9/25/20, 10/13/20 – NMFS requests additional information for ESA Section 7 consultations
- 10/26/20 – USCG sent addendum modifying effects determination for Nassau grouper, Giant Manta Ray, and Johnson’s seagrass critical habitat
- 11/25/20 – NMFS receives a response to requests for information
- 12/24/20 – NMFS receives additional information on previous request for information and initiates consultation that day

## **2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA**

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### **2.1 Proposed Action**

The applicant, DTPW, proposes to construct an elevated guide rail rapid transit line over Biscayne Bay to link the City of Miami to the City of Miami Beach adjacent to and south of the MacArthur Causeway. The project will be built by DTPW as part of its Strategic Miami Area Rapid Transit Plan (SMART Plan). The project will consist of three sections: a west bridge, a causeway section, and an east bridge. The bridges will match the clearances of the existing MacArthur Causeway vehicular bridges, and the causeway section will be 16.5 feet (ft) above the road grade. The entire project is approximately 3.7 miles (mi) in length.

The proposed west bridge will be at risk for strikes by large vessels due to its proximity to the Port of Miami and therefore, will be fortified by construction of two drilled shafts per bent. For the west bridge, construction will consist of 14 bents, each consisting of two 84-in diameter drilled concrete shafts with permanent steel casings. A temporary steel casing will surround the shaft while it is being drilled for containment. Temporary templates will be erected to support the drilled shaft construction and each of these templates will be supported by four 18-in steel pipe piles. A cofferdam (45 ft by 24 ft) will be constructed around the two drilled shafts to dewater and isolate the area in order to form and pour a 326 square foot (ft<sup>2</sup>) pier cap and the superstructure on top of the drilled shafts.

For the proposed east bridge, construction will consist of 16 bents, each consisting of one 96-in diameter drilled concrete shaft with permanent steel casings. A temporary steel casing will surround the shaft while it is being drilled for containment. A cofferdam (24 ft by 24 ft) will be constructed around each drilled shaft to form and pour a 113.1 ft<sup>2</sup> pier cap and the superstructure.

Templates supported by 4 18-in steel pipe piles will be erected to support drilled shaft construction.

For the causeway section, construction will consist of 56 bents, each consisting of one 96-in drilled shaft with permanent steel casings. A temporary steel casing will surround the shaft while it is being drilled for containment. No cofferdams will be constructed since pier caps are unnecessary. Templates supported by 4 18-in steel pipe piles will be erected to support drilled shaft construction. A new fender system will be constructed to guide vessels under the new bridges. This fender system will be constructed of 14-inch (in) FRP composite piles.

Barges will be used for most of the construction since traffic needs to be maintained along the adjacent MacArthur Causeway. Three barges will be on site at each location for 5 to 9 weeks at a time. Two of the three barges will be anchored to the seafloor using two 36-in diameter spuds. In waters too shallow for barges, temporary trestles supported by steel pipe piles will be constructed to support construction equipment. Three temporary trestles will be constructed for the west bridge construction and two temporary trestles will be built to construct the east bridge. These trestles will be supported by 36-in steel pipe piles. Table 1 provides a summary of the piles that will be used throughout the project.

DTPW has committed to ensuring no drilling slurry is discharged into Biscayne Bay. Containment systems will contain drilling fluid during construction, and it will be pumped out to containment barges and tanks and removed from the area for disposal.

In-water work will take approximately 33 months. Work will be conducted during daylight hours only. The applicant will comply with *NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions*<sup>1</sup>. Ramp up procedures will be followed each day for vibratory hammer and impact hammer activities. The vibratory and impact hammer will start each day at less than maximum power to give ample time for protected species to leave the area on their own volition prior to maximum noise and vibration propagation. This reduces the likelihood protected species are within the range for noise-related injury.

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<sup>1</sup> NMFS. 2006. Sea Turtle and Smalltooth Sawfish Construction Conditions revised March 23, 2006. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division, Saint Petersburg, Florida.

**Table 1. Summary of Pile Installation**

<b>Pile type(s)</b>	<b>Number of Piles</b>	<b>Installation Method</b>	<b>Seconds of vibration or strikes per pile</b>	<b>Pile Use</b>
18-in Steel Pipe	344	Vibratory Hammer	600	Drilled Shaft Templates
36-in Steel Pipe	216	Vibratory Hammer	1,800	Temporary Trestles
84-in Steel Pipe	28	Vibratory Hammer	20,000	Permanent Drilled Shaft Casings – West Bridge
96-in Steel Pipe	72	Vibratory Hammer	20,000	Permanent Drilled Shaft Casings – East Bridge and Causeway
120-in Steel Pipe	100	Vibratory Hammer	20,000	Temporary Drilled Shaft Casings
48-in by 18-in Sheet Pile	860	Vibratory Hammer	600	Coffercells
14-in FRP	140	Impact Hammer	1,200	Fender Piles

## 2.2 Action Area

The proposed project site is parallel to and south of the MacArthur Causeway connecting the City of Miami with the City of Miami Beach in Miami-Dade County, Florida (central coordinate approximately 25.7777°N, 80.165605°W, North American Datum 1983), approximately 1 mi from Government Cut. Government Cut is the nearest opening to the Atlantic Ocean (approximately 1 nautical mile) and experiences significant boat traffic, including cruise ships (Figure 1). The project occurs within the Biscayne Bay Aquatic Preserve. Biscayne Bay is a state-designated Outstanding Florida Water. The habitats impacted by this project are readily accessible to NOAA trust resources. Project area depths range from 0-15 ft as the narrow shelf slopes gently towards the navigation channel. The project area experiences high velocity currents and water is often turbid. Although the area is highly urbanized, seagrass, corals, sponges, macroalgae, hardbottom, mangroves, sand, and sand/shell hash occur within the project area. Extensive riprap lines the shoreline of the causeway section of the project. The project site is located within Unit J of Johnson's seagrass critical habitat.

Miami-Dade County contractors performed coral and mangrove surveys in August 2019. Seagrass surveys were conducted in September 2018. One seagrass bed is present at the west bridge site, consisting of approximately 1.35 acres (ac) with 90 percent cover by *Halophila decipiens*. Three seagrass beds are present at the east bridge site, consisting of approximately 0.63 ac and a combined percent cover of 40 percent or less for *H. decipiens*. Impacts to seagrass are expected from barge spudding, constructing the drilled shafts, installing the drilled shaft templates and cofferdams, and shading from barges and temporary trestle bridges. The applicant estimates overall impacts to seagrass will be 0.18 ac. NMFS believes this may be an underestimate of impacts, but the overall project impact to seagrass resources is unlikely to change the effects determinations for ESA-listed species and designated critical habitat herein.

The project is within designated critical habitat for Johnson's seagrass, but no Johnson's seagrass was observed.

Benthic habitats along the causeway portion of the project are comprised of medium sized boulder riprap in 0-4 ft of water and low relief hardbottom from the toe of the riprap to the beginning of the navigation channel. These riprap boulders and hardbottom areas are colonized by a diverse array of algae and invertebrates, including corals, octocorals, sponges, and bryozoans. No ESA-listed corals were found during benthic surveys. Most of the 56 drilled shafts along the causeway section of the project will be sited above the mean low water line and will have little to no impact to corals or submerged riprap. It is estimated that up to 20,160 ft<sup>2</sup> of riprap (56 shafts x 360 ft<sup>2</sup>) will need to be removed to accommodate installation of the drilled shafts. Most of this riprap is located above the MHWL. The riprap will be replaced post construction.

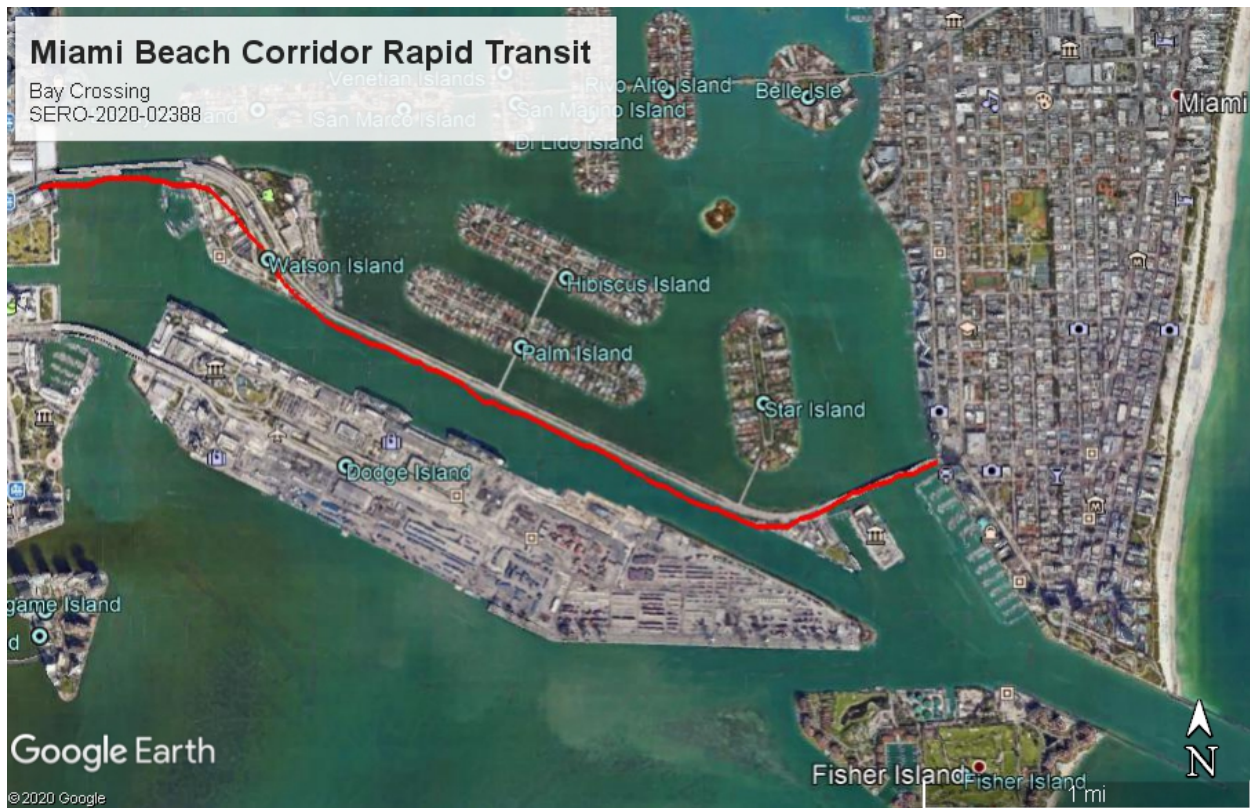
The low relief hardbottom will not be impacted by the installation of the drilled shafts, but spuds from the construction barges will likely impact this habitat. Exact locations of barge spudding are not known. To determine potential impacts to corals, octocorals and sponges, the applicant extrapolated data from coral surveys to determine size, density and abundance of corals, octocorals, and sponges throughout the hardbottom habitat. The applicant then determined the theoretical square footage of spudding impacts (11,086 ft<sup>2</sup> (0.25 ac))<sup>2</sup> to calculate a theoretical impact to 6,030 individual corals, 273 octocorals, and 2,573 sponges within the project area. No ESA-listed corals were found throughout the project corridor where construction will occur.

Red, black, and white mangroves have colonized the riprap along MacArthur Causeway, mostly above the MHWL. Of the 121 individual mangroves present along the shoreline, 56 are expected to be lost from construction. These mangroves provide minimal habitat for NOAA trust resources. We expect mangroves to recruit naturally to the riprap-lined shoreline after construction.

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<sup>2</sup> Two barges per site, two spuds each barge, each spud 7.07 ft<sup>2</sup>, 7 visits each barge, 56 pier locations equals 11,086 ft<sup>2</sup>.





**Figure 1. Image of the approximate project location (red line) and surrounding area (©2020 Google)**

The action area is defined by regulation as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action” (50 Code of Federal Regulations [CFR] 402.02). As such, the action area includes the areas in which construction will take place, as well as the immediate surrounding areas that may be affected by noise generated from pile driving and vibratory hammer use. Thus, the action area is equivalent to the maximum radius of noise effects to ESA-listed species that are expected to result from the installation of steel sheet piles and pilings using impact or vibratory hammer, which in this case is a 3,280.8-ft behavioral noise radius.

### **3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT**

This section identifies ESA-listed species and designated critical habitat under NMFS’s jurisdiction that may occur in or near the action area and evaluates which of those may be affected by the proposed action. Effects determinations are summarized in Table 2 and Table 3.

Table 2 provides the effect determinations for ESA-listed species the USCG and/or NMFS believe may be affected by the proposed action.

**Table 2. Effects Determination(s) for Species the Action Agency and/or NMFS Believe May Be Affected by the Proposed Action<sup>3</sup>**

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
<b>Sea Turtles</b>			
Green (North Atlantic [NA] DPS)	T	NLAA	NLAA
Green (South Atlantic [SA] DPS)	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NLAA
Loggerhead (Northwest Atlantic [NWA] DPS)	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
<b>Fish</b>			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
Nassau grouper	T	NLAA	NLAA
Giant manta ray	T	NLAA	NLAA
<b>Invertebrates and Marine Plants</b>			
Elkhorn coral ( <i>Acropora palmata</i> )	T	NLAA	NP
Staghorn coral ( <i>Acropora cervicornis</i> )	T	NLAA	NP
Boulder star coral ( <i>Orbicella franksi</i> )	T	NLAA	NP
Mountainous star coral ( <i>Orbicella faveolata</i> )	T	NLAA	NP
Lobed star coral ( <i>Orbicella annularis</i> )	T	NLAA	NP
Rough cactus coral ( <i>Mycetophyllia ferox</i> )	T	NE	NP
Pillar coral ( <i>Dendrogyra cylindrus</i> )	T	NE	NP
Johnson's seagrass	T	NE	NP

Because elkhorn coral, staghorn coral, star coral (*Orbicella sp.*), and Johnson's seagrass were not observed during the benthic survey of this site, we believe these species are not present within the action area.

Table 3 provides the effects determination for designated critical habitat occurring in the action area that the USCG and NMFS believe may be affected by the proposed action.

**Table 3. Effects Determinations for Designated Critical Habitat the Action Agency and/or NMFS Believe May Be Affected by the Proposed Action**

Critical Habitat	Unit	USCG Effect Determination	NMFS Effect Determination
Johnson's seagrass	Unit J	Likely to adversely affect	Likely to adversely affect, will not destroy or adversely modify

<sup>3</sup> E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect; NE = no effect; NP = not present

### 3.1 Potential Routes of Effect Not Likely To Adversely Affect Listed Species

We believe that sea turtles (green, Kemp's ridley, loggerhead, leatherback, and hawksbill), and ESA-listed fishes (giant manta rays, Nassau grouper, and smalltooth sawfish) may be found in or near the action area and may be affected by the proposed action covered in this Opinion. We have identified the following potential adverse effects to these species and concluded that these are not likely to adversely affect the ESA-listed species for the reasons described below.

Effects to sea turtles (green, Kemp's ridley, loggerhead, leatherback, and hawksbill), giant manta rays, Nassau grouper, and smalltooth sawfish include the potential for injury from construction equipment or materials. We believe this effect is extremely unlikely to occur. Because these species are highly mobile, we expect these species to move away from the action area if disturbed. The applicant's implementation of *NMFS's Sea Turtle and Smalltooth Sawfish Construction Conditions*<sup>1</sup> will further reduce the risk of injuries by requiring all construction workers to watch for sea turtles and smalltooth sawfish. Operation of any mechanical construction equipment will cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of moving equipment. Activities will not resume until the protected species has departed the project area of its own volition.

The action area contains shallow-water seagrass, coral, sponge, octocoral, algae, and mangrove habitats that are established on hardbottom, seawalls, pilings, riprap, shoreline and rubble communities throughout the project corridor. These habitats may be used by sea turtles and ESA-listed fishes for refuge and forage and will be temporarily unavailable to sea turtles and ESA-listed fishes during construction. Giant manta rays may temporarily lose forage habitat containing zooplankton that will be temporarily disturbed by construction activities. Sea turtles and ESA-listed fishes may be affected by their inability to access habitats within the action area due to their avoidance of construction activities, noise and associated disturbances, and physical exclusion from the action area due to turbidity barriers. We believe habitat displacement effects to sea turtles and ESA-listed fishes will be insignificant given the proposed action will be temporary and intermittent (i.e., in-water work will occur during daylight hours only) and will only occur within a relatively small area adjacent to otherwise open water and useable habitat. In addition, because these species are mobile, we expect that they will move away from construction activities and use adjacent areas in Biscayne Bay with similar available habitat. Furthermore, we expect encrusting benthic organisms used for forage and refuge will recruit and grow within the project corridor after completion of the project. While some of these habitats will be permanently lost as a result of new in-water structures, we believe such effects will be insignificant due to the relatively small area of these structures (1,881.76 ft<sup>2</sup> or 0.04 acres) and the availability of similar habitat in adjacent areas in Biscayne Bay.

Effects to listed species as a result of noise created by construction activities can physically injure animals in the affected areas or change animal behavior in the affected areas. Injurious effects can occur in 2 ways. First, immediate adverse effects can occur to listed species if a single noise event exceeds the threshold for direct physical injury. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals, and these can constitute adverse effects if animals are exposed to the noise levels for sufficiently long periods. Behavioral effects can be adverse if such effects interfere with animals migrating, feeding, resting, or reproducing, for example. Our evaluation of effects to ESA-listed

species as a result of noise created by construction activities is based on the analysis prepared in support of the Opinion for SAJ-82 (NMFS 2014). The noise analysis in this consultation evaluates effects to ESA-listed fish and sea turtles identified by NMFS as potentially affected in the table above (Table 2).<sup>4</sup> To simplify the analysis below, we have combined the analysis of 18-in and 36-in steel pipe piles, and combined the analysis of 84-in, 96-in, and 120-in steel pipe piles.

Based on our noise calculations, which use the best available data for calculating injuries to ESA-listed fish species and sea turtles, installation of 18-in or 36-in steel pipe piles by vibratory hammer will not cause single-strike or peak-pressure injurious noise effects. However, the cumulative sound exposure level over the course of a day may cause injury to ESA-listed fishes and sea turtles up to 1.9 ft (0.6 meters [m]) away from the pile. Due to the mobility of sea turtles and ESA-listed fish species, and because the project occurs in open water and the construction crew will use ramp-up procedures, we expect the species to move away from noise disturbances. Because we anticipate an exposed animal will move away, we believe that animal's suffering physical injury from noise is extremely unlikely to occur. Even in the unlikely event an animal does not vacate the daily cumulative injurious impact zone, the 1.9-ft radius for potential noise effects from the installation of 36-in steel pipe piles by vibratory hammer is smaller than the 50-ft radius that must be visually monitored for smalltooth sawfish and sea turtles in accordance with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*. Because personnel must cease construction activities if a sea turtle or smalltooth sawfish is sighted per NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, these conditions will provide an additional measure of protection. Thus, we believe the likelihood of any injurious cumulative sound effects is unlikely to occur. An animal's movement away from the injurious sound radius is a behavioral response, with the same effects discussed below.

The installation of 18-in or 36-in steel pipe piles by vibratory hammer could also result in behavioral effects at radii 1,522.8 ft (464.2 m) for ESA-listed fishes and 328.1 ft (100 m) for sea turtles. Due to the mobility of sea turtles and ESA-listed fishes and the use of ramp-up procedures, we expect them to move away from noise disturbances in this open-water environment. Because there is similar habitat nearby in Biscayne Bay, we believe behavioral effects will be insignificant. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise impacts during installation. Up to 6 piles will be installed per day and installation will occur only during the day. Therefore, these species will be able to resume normal activities during quiet periods between installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

In order to determine the impacts of installation of 84-in, 96-in, and 120-in steel pipe piles by vibratory hammer, we used the largest steel pipe pile data available<sup>5</sup>, which pertains to 72-in steel pipe piles. Based on our noise calculations, which use the best available data for calculating injuries to ESA-listed fish and sea turtles, installation of 84-in, 96-in, or 120-in steel

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<sup>4</sup> While NMFS does not have information regarding noise effects specific to giant manta rays, we believe that effects to giant manta rays from pile driving noise would be very similar to effects on smalltooth sawfish (which are considered in SAJ-82), because both species are elasmobranchs, are very large at birth, and lack swim bladders.

<sup>5</sup> From CALTRANS. 2012. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Report prepared by ICF Jones & Stokes and Illinworth and Rodkin, Inc.

pipe piles by vibratory hammer could cause single-strike or peak-pressure injurious noise effects at a radius of up to 6.1 ft (1.8 m). There are adequate avenues for ESA-listed fish species or sea turtles to leave or avoid the project area during pile-driving activities and the use of ramp-up procedures will encourage ESA-listed species to leave the area. Because it is extremely unlikely that a sea turtle or ESA-listed fish would remain in such close proximity to construction activities, and we anticipate that sea turtles and ESA-listed fish will move away from the project area during set up for pile driving, we believe that an animal's suffering physical injury from peak-pressure noise exposure is extremely unlikely to occur. Even in the unlikely event an animal does not vacate the single-strike or peak-pressure injurious noise impact zone, the 6.1-ft radius is smaller than the 50-ft radius that must be visually monitored for smalltooth sawfish and sea turtles in accordance with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*. These conditions will provide an additional measure of protection by causing activities to stop if a sea turtle or smalltooth sawfish is spotted within 50 ft of operations. Thus, we believe that the potential for peak-pressure injury effects is extremely unlikely to occur.

Cumulative sound exposure level associated with the installation of 84-in, 96-in, or 120-in steel pipe piles by vibratory hammer over the course of a day may cause injury to ESA-listed fishes and sea turtles up to 6.1 ft (1.9 m) away from the pile. Due to the mobility of sea turtles and ESA-listed fish species, and because the project occurs in open water and ramp-up procedures will be used, we expect them to move away from noise disturbances. Because we anticipate the animal will move away, we believe that an animal's suffering physical injury from noise is extremely unlikely to occur. Moreover, as discussed above, even in the unlikely event an animal does not vacate the daily cumulative injurious impact zone, the 6.1-ft radius is smaller than the 50-ft radius that must be visually monitored for smalltooth sawfish and sea turtles in accordance with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*. These conditions will provide an additional measure of protection by causing activities to stop if a sea turtle or smalltooth sawfish is spotted within 50 ft of operation. An animal's movement away from the injurious sound radius is a behavioral response, with the same effects discussed below.

The installation of 84-in, 96-in, or 120-in steel pipe piles by vibratory hammer could also result in behavioral effects at radii 3,280.8 ft (1000 m) for ESA-listed fishes and 706.8 ft (215 m) for sea turtles. Due to the mobility of sea turtles and ESA-listed fish species, we expect them to move away from noise disturbances in this open-water environment. Because there is similar habitat nearby in Biscayne Bay, we believe behavioral effects will be insignificant. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise impacts during installation. Because only 1 pile will be installed per day and installation will occur only during the day, these species will be able to resume normal activities during quiet periods between installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

Based on our noise calculations, which use the best available data for calculating injuries to ESA-listed species fish and sea turtles, installation of 48-in by 18-in corrugated steel sheet piles by vibratory hammer will not cause single-strike or peak-pressure injurious noise effects. However, the cumulative sound exposure level over the course of a day may cause injury to ESA-listed fishes and sea turtles up to 0.4 ft (0.1 m) away from the pile. Due to the mobility of sea turtles and ESA-listed fish species and the use of ramp-up procedures, we expect them to



move away from noise disturbances. Because we anticipate the animal will move away, we believe that an animal's suffering physical injury from noise is extremely unlikely to occur. Even in the unlikely event an animal does not vacate the daily cumulative injurious impact zone, the 0.4-ft radius for potential noise effects from the installation of corrugated steel sheet piles by vibratory hammer is smaller than the 50-ft radius that must be visually monitored for smalltooth sawfish and sea turtles in accordance with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*. Because personnel must cease construction activities if a sea turtle or smalltooth sawfish is sighted per NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, these conditions will provide an additional measure of protection. Thus, we believe the likelihood of any injurious cumulative sound effects is unlikely to occur. An animal's movement away from the injurious sound radius is a behavioral response, with the same effects discussed below.

The installation of 48-in by 18-in sheet piles by vibratory hammer could also result in behavioral effects at radii 328.1 ft (100 m) for ESA-listed fishes and 70.7 ft (21.5 m) for sea turtles. Due to the mobility of sea turtles and ESA-listed fish, we expect them to move away from these noise disturbances. Because there is similar habitat nearby in Biscayne Bay, we believe behavioral effects will be insignificant. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise impacts during installation. Up to 15 sheet piles will be installed per day and installation will occur only during the day. Therefore, these species will be able to resume normal activities during quiet periods between installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

Based on our noise calculations, which use the best available data for calculating injuries to ESA-listed species fish and sea turtles, installation of 14-in FRP fender piles by impact hammer will not cause single-strike or peak-pressure injurious noise effects. However, the cumulative sound exposure level over the course of a day may cause injury to ESA-listed fishes and sea turtles up to 93.2 ft (28.4 m) away from the pile. Due to the mobility of sea turtles and ESA-listed fish species and the use of ramp-up procedures, we expect them to move away from noise disturbances. Because we anticipate the animal will move away, we believe that an animal's suffering physical injury from noise is extremely unlikely to occur. An animal's movement away from the injurious sound radius is a behavioral response, with the same effects discussed below.

The installation of 14-in FRP fender piles by impact hammer could also result in behavioral effects at radii 706.8 ft (215.4 m) for ESA-listed fishes and 152.3 ft (46.4 m) for sea turtles. Due to the mobility of sea turtles and ESA-listed fish, we expect them to move away from these noise disturbances. Because there is similar habitat nearby in Biscayne Bay, we believe behavioral effects will be insignificant. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise impacts during installation. Because only 2 fender piles will be installed per day and installation will occur only during the day, these species will be able to resume normal activities during quiet periods between installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

### **3.2 Designated Critical Habitat Likely To Be Adversely Affected**

The term “critical habitat” is defined in Section 3(5)(A) of the ESA as (i) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (1) essential to the conservation of the species and (2) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. “Conservation” is defined in Section 3(3) of the ESA as “...the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which listing under the ESA is no longer necessary.”

#### **3.2.1 Johnson’s Seagrass Critical Habitat**

##### *Description*

NMFS designated Johnson’s seagrass critical habitat on April 5, 2000 (65 FR 17786; see also, 50 CFR 226.213). The specific areas occupied by Johnson’s seagrass and designated by NMFS as critical habitat are those with 1 or more of the following criteria:

1. Locations with populations that have persisted for 10 years
2. Locations with persistent flowering populations
3. Locations at the northern and southern range limits of the species
4. Locations with unique genetic diversity
5. Locations with a documented high abundance of Johnson’s seagrass compared to other areas in the species’ range

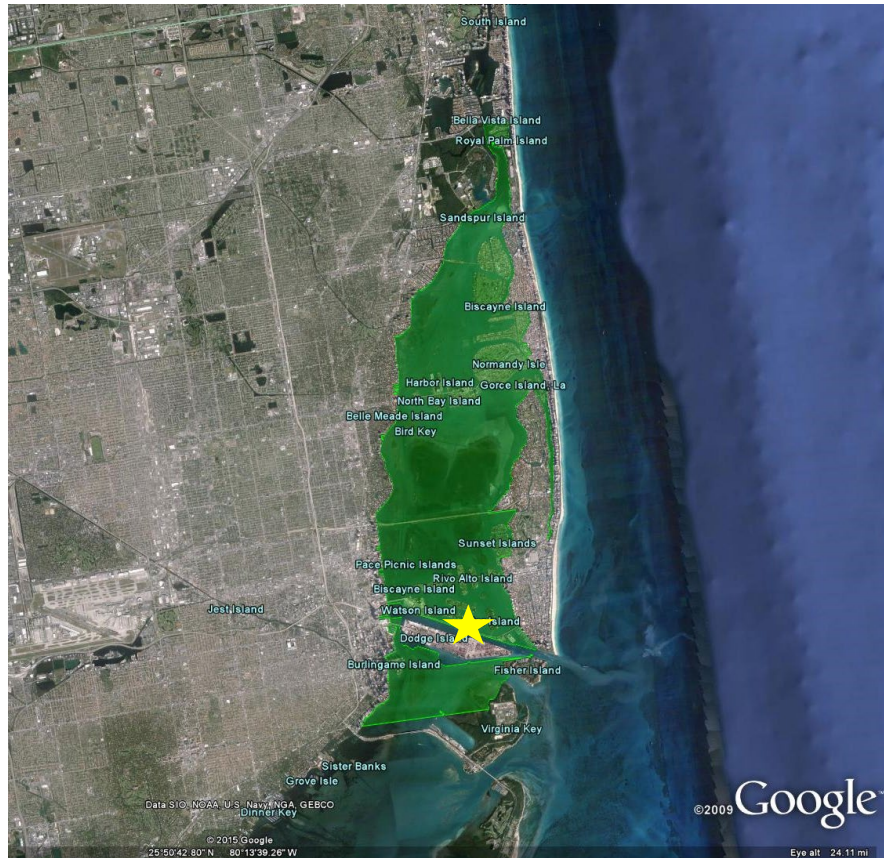
Ten areas (Units) within the range of Johnson’s seagrass (approximately 200 kilometers of coastline from Sebastian Inlet to northern Biscayne Bay, Florida) are designated as Johnson’s seagrass critical habitat (Table 4). The total range-wide acreage of critical habitat for Johnson’s seagrass is roughly 22,574 ac (NMFS 2002).

**Table 4. Designated Critical Habitat Units for Johnson's Seagrass**

<b>Unit</b>	<b>Location/Area</b>
<b>A</b>	A portion of the Indian River, Florida, north of the Sebastian Inlet Channel
<b>B</b>	A portion of the Indian River, Florida, south of the Sebastian Inlet Channel
<b>C</b>	A portion of the Indian River Lagoon, Florida, in the vicinity of the Fort Pierce Inlet
<b>D</b>	A portion of the Indian River Lagoon, Florida, north of the St. Lucie Inlet
<b>E</b>	A portion of Hobe Sound, Florida, excluding the federally marked navigation channel of the Intracoastal Waterway
<b>F</b>	A portion of the south side of Jupiter Inlet, Florida
<b>G</b>	A portion of Lake Worth, Florida, north of Bingham Island
<b>H</b>	A portion of Lake Worth Lagoon, Florida, located just north of the Boynton Inlet
<b>I</b>	A portion of northeast Lake Wyman, Boca Raton, Florida, excluding the federally marked navigation channel of the Intracoastal Waterway
<b>J</b>	A portion of northern Biscayne Bay, Florida, including all parts of the Biscayne Bay Aquatic Preserve excluding the Oleta River, Miami River, and Little River beyond their mouths, the federally marked navigation channel of the Intracoastal Waterway, and all existing federally authorized navigation channels, basins, and berths at the Port of Miami to the currently documented southernmost range of Johnson's seagrass, Central Key Biscayne

*Critical Habitat Unit Impacted by this Action*

This consultation focuses on an activity that occurs in Unit J, which encompasses the northern portion of Biscayne Bay from Northeast 163<sup>rd</sup> Street south to Central Key Biscayne at 25°45'N (Figure 2). This portion of Biscayne Bay is bound by heavy residential and commercial development, though a few areas of mangrove shoreline remain. Dredge and fill projects have resulted in a number of spoil islands and channels too deep for seagrass growth. Biscayne Bay supports a diversity of biological communities including intertidal wetlands, seagrasses, hard bottom, assemblages, and open water. Unit J is wholly within the Biscayne Bay Aquatic Preserve.



**Figure 2. Johnson's seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO). Star indicates approximate project location within Biscayne Bay.**

### *Essential Features of Critical Habitat*

NMFS identified 4 habitat features essential for the conservation of Johnson's seagrass: (1) adequate water quality, defined as being free from nutrient over-enrichment by inorganic and organic nitrogen and phosphorous or other inputs that create low oxygen conditions; (2) adequate salinity levels, indicating a lack of very frequent or constant discharges of fresh or low-salinity waters; (3) adequate water transparency, which would allow sunlight necessary for photosynthesis; and (4) stable, unconsolidated sediments that are free from physical disturbance. All 4 essential features must be present in an area for it to function as critical habitat for Johnson's seagrass.

### *Status and Threats*

A wide range of activities, many funded, authorized or carried out by federal agencies, have and will continue to affect the essential habitat requirements of Johnson's seagrass. These are generally the same activities that may affect the species itself, and include: (1) vessel traffic and the resulting propeller dredging; (2) dredge and fill projects; (3) dock, marina, and bridge construction; (4) water pollution; and (5) land use practices (shoreline development, agriculture, and aquaculture).

Vessel traffic has the potential to affect Johnson's seagrass critical habitat by reducing water transparency. Operation of vessels in shallow water environments often leads to the suspension

of sediments due to the spinning of propellers on or close to the bottom. Suspended sediments reduce water transparency and the depth to which sunlight penetrates the water column. Populations of Johnson's seagrass that inhabit shallow water and water close to inlets where vessel traffic is concentrated are likely to be most affected. This effect is expected to worsen with increases in boating activity.

The dredging of bottom sediments to maintain, or in some cases create, inlets, canals, and navigation channels can directly affect essential features of Johnson's seagrass critical habitat. Dredging results in turbidity through the suspension of sediments. As discussed previously, the suspension of sediments reduces water transparency and the depth to which sunlight can penetrate the water column. The suspension of sediments from dredging can also re-suspend nutrients, which could result in over-enrichment and/or reduce dissolved oxygen levels. Further, dredging can destabilize sediments and alter both the shape and depth of the bottom within the dredged footprint. This may affect the ability of the critical habitat to function through the removal or modification of essential features.

Dock, marina, and bridge construction leads to loss of habitat via construction impacts (e.g., pile installation) and shading. Similar to dredging, installation of piles for docks or bridges can result in increased turbidity that can negatively impact water transparency over short durations. Additionally, installed piles also replace the stable, unconsolidated bottom sediments essential for the species. Completed structures can have long-term effects on critical habitat in the surrounding area because of the shade they produce. While shading does not affect water transparency directly, it does affect the amount and/or duration of sunlight that can reach the bottom. The threat posed by dock, marina, and bridge construction is especially apparent in coastal areas where Johnson's seagrass is found.

Other threats include inputs from adjacent land use. Johnson's seagrass critical habitat located in proximity to rivers, canal mouths, or other discharge structures is affected by land use within the watershed. Waters with low salinity that are highly colored and often polluted are discharged to the estuarine environment. This can impact salinity, water quality, and water transparency, all essential features of Johnson's seagrass critical habitat. Frequent pulses of freshwater discharge to an estuarine area may decrease salinity of the habitat and provoke physiological stress to the species. Nutrient over-enrichment, caused by inorganic and organic nitrogen and phosphorous loading via urban and agricultural land run-off, stimulates increased algal growth, decreased water transparency, and diminished oxygen content within the water. Low oxygen conditions have a demonstrated negative impact on seagrasses and associated communities. Discharges can also contain colored waters stained by upland vegetation or pollutants. Colored waters released into these areas reduce the amount of sunlight available for photosynthesis by rapidly reducing the amount of shorter wavelength light that reaches the bottom. In general, threats from adjacent land use will be ongoing, randomly occurring events that follow storm events.

#### **4 ENVIRONMENTAL BASELINE**

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By regulation, the environmental baseline for an Opinion refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline



includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early Section 7 consultation, and the impact of State or private actions that are contemporaneous with the consultation in process. The consequences to the listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

#### **4.1 Status of Designated Critical Habitat within the Action Area**

As discussed above, this Opinion focuses on an activity occurring in Unit J of Johnson's seagrass designated critical habitat, which encompasses the northern portion of Biscayne Bay from North East 163<sup>rd</sup> Street south to Central Key Biscayne at 25°45'N. The project site is adjacent to the MacArthur Causeway, connecting the City of Miami to City of Miami Beach. A seagrass survey was performed in September 2018. Johnson's seagrass was not observed. The depth within the action area ranges from 0-15 ft. The substrate is sand/shell bottom with riprap, rubble, hardbottom, and seagrass.

#### **4.2 Factors Affecting Johnson's Seagrass Designated Critical Habitat Within the Action Area**

##### *Federal Actions*

A wide range of activities funded, authorized, or carried out by federal agencies may affect the essential features of designated critical habitat for Johnson's seagrass. These include actions permitted or implemented by the USACE such as dredging, dock/marina construction, bridge/highway construction, residential construction, shoreline stabilization, breakwaters, and/or the installation of subaqueous lines or pipelines. Other federal activities that may affect Johnson's seagrass critical habitat include actions by the Environmental Protection Agency and the USACE to manage freshwater discharges into waterways, management of Biscayne Bay Aquatic Preserve, regulation of vessel traffic to minimize propeller dredging and turbidity, and/or other activities by the USCG and U.S. Navy. Although these actions have adversely affected Johnson's seagrass critical habitat, none of these past actions have destroyed or adversely modified Johnson's seagrass critical habitat. Other than the proposed action, the following federally permitted projects in Table 5 are known to have occurred or have had effects to Johnson's seagrass designated critical habitat within the action area, as per a review of the NMFS PRD's completed consultation database by the consulting biologist on March 9, 2021. All of these projects resulted in a determination of may affect, and is likely to adversely affect, but not destroy or adversely modify Johnson's seagrass designated critical habitat.

**Table 5. Federal Actions within Action Area with Impacts to Johnson's Seagrass Critical Habitat**

<b>Action Agency Identifier</b>	<b>NMFS Identifier</b>	<b>Name of Project</b>	<b>Biological Opinion Completion Date</b>	<b>Project Summary</b>	<b>Impact to Johnson's Seagrass Critical Habitat</b>
SAJ-2017-02907 & 01036	SER-2018-19123 & 19110	Cejas Dock & Tina Dock	7/18/18	Removal and replacement of dock and installation of boat lifts	916 ft <sup>2</sup> (0.021 ac)
SAJ-2015-2909	SER-2017-18680	Dean Carr Riprap Project	2/12/18	Riprap installation	1,090 ft <sup>2</sup> (0.025 ac)
SAJ-2013-01554	SER-2017-18963	JSG Besson Kayak	3/13/18	Construction of kayak launch	141 ft <sup>2</sup> (0.003 ac)
SAJ-2015-2411 & 2412	SER-2017-18515 & 18508	Lape Holdings LLC Dock Projects	1/5/18	Dock Construction	1164 ft <sup>2</sup> (0.027 ac)
SAJ-2014-00958	SER-2018-19343	Jungle Island Shoreline Stabilization	12/21/18	Riprap shoreline stabilization	1,563 ft <sup>2</sup> (0.036 ac)
SAJ-2015-02909	SER-2016-18329	Dean Carr Dock	5/17/17	Dock removal and construction, with jet ski lift and davit crane	1,063 ft <sup>2</sup> (0.024 ac)
SAJ-2015-1571	SER-2015-17171	Edmund Irvine Seawall and Dock Project	4/7/17	Dock replacement, seawall and riprap installation	1,645 ft <sup>2</sup> (0.038 ac)
SAJ-2016-462	SER-2016-18094	Twenty Two Star Island LLC Dock Project	7/19/17	Installation of wood frame dock	1,778 ft <sup>2</sup> (0.041 ac)
SAJ-2015-622	SER-2016-17903	158 Palm LLC Dock Project	5/3/17	New dock and 2 vessel slip installation	1,286 ft <sup>2</sup> (0.03 ac)
SAJ-2014-2050	SER-2015-16504	Kristi Jernigan Dock Project	4/26/16	Dock Repair	696 ft <sup>2</sup> (0.016 ac)
SAJ-2013-3483	SER-2014-15017	Berdan Group Corp. Pier Project	5/19/15	Pier and mooring piling installation, relocation of boat lift	246 ft <sup>2</sup> (0.006 ac)
SAJ-2013-3339	SER-2014-14823	Michael Sidney Lipscomb Pier & Seawall Project	5/19/15	Installation of seawall, dock, floating pier, mooring for 2 vessels, boat lift and new riprap	1,718 ft <sup>2</sup> (0.040 ac)
SAJ-2014-0058	SER-2014-14693	Bayfront 2011 Property LLC Marina Project	12/9/15	Construction of new 50-slip marina	211,902 ft <sup>2</sup> (4.9 ac)

*Private Recreational Vessel Traffic*

Marina and dock construction increases recreational vessel traffic within areas of Johnson's seagrass critical habitat, which increases suspended sediments from propellers and could result in propeller dredging. As mentioned above, suspended sediments are known to adversely affect Johnson's seagrass critical habitat by reducing the water transparency essential feature. Shading from dock structures and vessel mooring also affects the water transparency essential feature of

the designated critical habitat. Propeller dredging and installation of piles and dock support structures may adversely affect Johnson's seagrass critical habitat and permanently remove the unconsolidated sediments essential feature of the critical habitat.

#### *Marine Pollution and Environmental Contamination*

The project is located in a highly-developed coastal area in Biscayne Bay. This can lead to freshwater discharges and nutrient over-enrichment due to coastal runoff and man-made canal discharges into the bay. Freshwater discharge from canals may affect the salinity essential feature of the designated critical habitat while excess nutrients can lead to decreased water transparency and decreased dissolved oxygen content in the water.

#### *State and Federal Activities That May Benefit Johnson's Seagrass Critical Habitat in the Action Area*

State and federal conservation measures exist to protect Johnson's seagrass and its habitat under an umbrella of management and conservation programs that address seagrasses in general (Kenworthy et al. 2006). These conservation measures must be continually monitored and assessed to determine if they will ensure the long-term protection of the species and the maintenance of environmental conditions suitable for its continued existence throughout its geographic distribution.

## **5 EFFECTS OF THE ACTION ON CRITICAL HABITAT**

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Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02).

The action area is within the boundary of Johnson's seagrass critical habitat (Unit J), and all 4 essential features are present at the project site. The 4 habitat features essential to the conservation of Johnson's seagrass are: (1) adequate water quality, defined as being free from nutrient over-enrichment by inorganic and organic nitrogen and phosphorous or other inputs that create low oxygen conditions; (2) adequate salinity levels, indicating a lack of very frequent or constant discharges of fresh or low-salinity waters; (3) adequate water transparency, which would allow sunlight necessary for photosynthesis; and (4) stable, unconsolidated sediments that are free from physical disturbance. All 4 essential features must be present in an area for it to function as critical habitat for Johnson's seagrass and the loss of 1 essential feature of Johnson's seagrass critical habitat will result in a total loss in the conservation function of the critical habitat in that area.

The adequate water quality and adequate water transparency essential features of Johnson's seagrass critical habitat may be affected by increased turbidity due to drilled shaft installation, pile driving, and vibratory hammer installation of piles and sheet piles; however, we believe this effect will be insignificant. Best Management Practices (BMPs) for controlling turbidity will be used wherever practical. Any outstanding turbidity is expected to be temporary, and will be

contained by turbidity curtains and temporary containment piles when practical, and will dissipate quickly due to high current velocities in the area.

We believe the proposed action will have no effect on the adequate salinity levels essential feature of Johnson's seagrass designated critical habitat because the proposed action lacks any potential to affect adequate salinity levels in the action area.

The proposed action is likely to adversely affect Johnson's seagrass critical habitat by removing the adequate water transparency essential feature due to shading from the pier caps being installed at the water line. Since the new guiderails are greater than 16 ft above MHWL, we believe the impact of shading by the bridge superstructure and guiderails will be insignificant, based on the height of the structure and the fact the sun will change positions throughout the day and seasonally, making shading impacts temporary and intermittent. In addition, we believe the proposed action is likely to adversely affect Johnson's seagrass critical habitat by removing or disrupting the stable, unconsolidated sediments essential feature by construction of the new bridge pilings and fender system.

First, we consider loss of the adequate water transparency essential feature. The adequate water transparency essential feature of Johnson's seagrass critical habitat may be affected by shading from the pier caps. We only expect adverse effects in the area immediately underneath the pier caps, as any shading by the guiderail bridges to nearby areas will be temporary in nature and therefore insignificant. In order to calculate adverse impacts from shading from the pier caps, we calculate the area of the west bridge pier caps ( $326 \text{ ft}^2$  each  $\times$  14 pier caps =  $4,564 \text{ ft}^2$ ) and add it to the area of the east bridge pier caps ( $113.1 \text{ ft}^2$  each  $\times$  16 pier caps =  $1,809.6 \text{ ft}^2$ ). Thus, we believe the new pier caps will adversely affect  $6,373.6 \text{ ft}^2$  ( $4,564 \text{ ft}^2 + 1,809.6 \text{ ft}^2 = 6,373.6 \text{ ft}^2$ ) of Johnson's seagrass critical habitat from the permanent removal of the adequate water transparency essential feature.

Next, we consider the permanent loss of the stable, unconsolidated sediments essential feature from the installation of drilled shafts. Since the footprint of the drilled shafts at the east and west bridge will be shaded by the pier caps described in the previous paragraph, we do not include them in these current calculations. The 56 drilled shafts along the causeway section of the project are located in riprap, both above and below the MHWL. The presence of riprap precludes the area from functioning as Johnson's seagrass critical habitat. Therefore, these drilled shaft locations will not be counted towards the loss of the stable, unconsolidated sediments essential feature. While the riprap will be removed prior to installation of the drilled shafts, it will be replaced after installation and no additional riprap will be installed. Because there is no net loss (or gain) of the stable, unconsolidated sediments essential feature, the installation of 56 drilled shafts will not adversely affect Johnson's seagrass critical habitat.

The project will also reconfigure the fender systems under the MacArthur Causeway and new elevated guiderails at both the west and east bridges. The project will remove approximately  $300 \text{ ft}^2$  (200 linear ft  $\times$  1.5 ft wide) of existing fenders, which will expose the stable unconsolidated sediment essential feature. The new fender system will occupy approximately  $576 \text{ ft}^2$  of stable unconsolidated sediment essential feature (384 linear ft  $\times$  1.5 ft wide). Therefore, the the

reconfiguration of the fender system will affect 276 ft<sup>2</sup> (576 ft<sup>2</sup> – 300 ft<sup>2</sup>) of Johnson's seagrass critical habitat given the loss of the stable unconsolidated sediment essential feature.

Several project activities will result in temporary, reversible impacts to Johnson's seagrass critical habitat. These include barge spudding, barge shading, installation of temporary trestles, and installation of shaft templates, and temporary containment coffercells and steel pipe piles. These activities are not expected to have permanent impacts to critical habitat. Therefore, these temporary impacts are insignificant and are not included in the estimates of permanent impacts to critical habitat.

Combining the total impacts to Johnson's seagrass critical habitat from the loss of the adequate water transparency essential feature (6,373.6 ft<sup>2</sup>) and the stable unconsolidated sediment essential feature (276 ft<sup>2</sup>), we believe the project will adversely affect 6,649.6 ft<sup>2</sup> (0.15 ac)<sup>6</sup> of Johnson's seagrass critical habitat (6,373.6 ft<sup>2</sup> + 276 ft<sup>2</sup>).

## 6 CUMULATIVE EFFECTS

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Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Biological Opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA and 50 CFR 402.14.

NMFS is not aware of any future projects that may contribute to cumulative effects. Within the action area, major future changes are not anticipated beyond the ongoing activities and processes described in the environmental baseline. The present human uses of the action area are expected to continue, though some may occur at increased levels, frequency, or intensity in the near future. Dock and marina construction will likely continue at current rates, with associated loss and degradation of seagrass habitat, including Johnson's seagrass critical habitat. Because these activities are subject to USACE permitting and thus, the ESA Section 7 consultation requirement, they do not lead to cumulative non-federal effects to be discussed in this section. NMFS and the USACE have developed protocols to encourage the use of light-transmitting materials in future construction of docks constructed in or over submerged aquatic vegetation, marsh or mangrove habitat.<sup>7,8,9</sup> Even if all new docks are constructed in full compliance with the NMFS and USACE's guidance, NMFS acknowledges that shading impacts, and thus, impacts to the water transparency essential feature, to Johnson's seagrass will continue via dock construction. As NMFS and the USACE continue to encourage permit applicants to design and construct new docks in full compliance with the construction guidelines discussed above, and the recommendations in Adam (2012), Landry et al. (2008), and Shafer et al. (2008), NMFS believes

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<sup>6</sup> 1 ft<sup>2</sup> = 0.0000229568 ac Therefore, 41,614.2 ft<sup>2</sup> x (0.0000229568 ac/1ft<sup>2</sup>) = 0.9553 ac.

<sup>7</sup> Project Design Criteria A2.17 in U.S. Army Corps of Engineers Jacksonville District's Programmatic Biological Opinion (JAXBO) issued by NMFS on November 20, 2017 (SER-2015-17616)

<sup>8</sup> Dock Construction Guidelines in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat U.S. Army Corps of Engineers/National Marine Fisheries Service, dated August 2001

<sup>9</sup> Key for Construction Conditions for Docks or Other Minor Structures Constructed in or Over Johnson's Seagrass (*Halophila johnsonii*) National Marine Fisheries Service/U.S. Army Corps of Engineers, dated October 2002



that shading impacts to Johnson's seagrass will be reduced in the short- and long-term. Moreover, even with some shading from grated construction materials, researchers have found all 4 essential features necessary for Johnson's seagrass to persist under docks constructed of grated decking (Landry et al. 2008).

Upland development and associated runoff will continue to degrade the water quality essential feature necessary for Johnson's seagrass critical habitat. Flood control and imprudent water management practices will continue to result in freshwater inputs into estuarine systems, thereby degrading and altering the water quality and salinity essential features of Johnson's seagrass critical habitat.

Increased recreational vessel traffic will continue to result in damage to Johnson's seagrass and its designated critical habitat by improper anchoring, propeller scarring, and accidental groundings. Nonetheless, we expect that ongoing boater education programs and posted signage about the dangers to seagrass habitat from propeller scarring and improper anchoring may reduce impacts to Johnson's seagrass designated critical habitat, including that in Unit J.

## **7 DESTRUCTION/ADVERSE MODIFICATION ANALYSIS**

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NMFS's regulations define *destruction or adverse modification* to mean "a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species." (50 CFR 402.02). Alterations that may destroy or adversely modify critical habitat may include impacts to the area itself, such as those that would impede access to or use of the essential features. NMFS will generally conclude that a Federal action is likely to "destroy or adversely modify" designated critical habitat if the action results in an alteration of the quantity or quality of the essential physical or biological features of designated critical habitat, or that precludes or significantly delays the capacity of that habitat to develop those features over time, and if the effect of the alteration is to appreciably diminish the value of critical habitat for the conservation of the species. This analysis takes into account the geographic and temporal scope of the proposed action, recognizing that "functionality" of critical habitat necessarily means that it must now and must continue in the future to support the conservation of the species and progress toward recovery. Destruction or adverse modification does not depend strictly on the size or proportion of the area adversely affected, but rather on the role the action area serves with regard to the function of the overall designation, and how that role is affected by the action.

Recovery for Johnson's seagrass, as set forth in the final recovery plan (NMFS 2002), will be achieved when the following recovery objectives are met:

- (1) The species' present geographic range remains stable for at least 10 years, or increases.
- (2) Self-sustaining populations are present throughout the range at distances less than or equal to the maximum dispersal distance to allow for stable vegetative recruitment and genetic diversity.
- (3) Populations and supporting habitat in its geographic range have long-term protection (through regulatory action or purchase acquisition).

We evaluated the proposed action's expected effects on critical habitat to determine whether it will be able to continue to provide its intended functions in achieving these recovery objectives and supporting the conservation of the species.

The first recovery objective for Johnson's seagrass is for the present range of the species to remain stable for 10 years or to increase during that time. In the 5-year review (2007) of the status of the species, NMFS concluded that the first recovery objective had been achieved as of 2007. In fact, the species range had increased slightly northward at that time. We have no information indicating range stability has decreased since then. We determined that the proposed action will adversely affect a total of 6,649.6 ft<sup>2</sup> (0.15 ac) of Johnson's seagrass designated critical habitat. However, the action area is not at a boundary of the species' range, the affected area is very small, and the loss of this area for potential colonization will not affect the stability of the species' range now or in the future. Thus, we believe the proposed action's effects will not affect the critical habitat's ability to contribute to range stability for Johnson's seagrass.

The second recovery objective for Johnson's seagrass requires that self-sustaining populations be present throughout the range at distances less than or equal to the maximum dispersal distance for the species. Due to its asexual reproductive mode, self-sustaining populations are present throughout the range of species. As discussed above in the Designated Critical Habitat Likely to be Adversely Affected section, there are approximately 22,574 ac of Johnson's seagrass critical habitat. The loss of 6,649.6 ft<sup>2</sup> (0.15 ac) of designated critical habitat for Johnson's seagrass would equate to a loss of 0.0007% of Johnson's seagrass critical habitat ( $0.15 \text{ ac} \div 22,574 \text{ ac} \times 100$ ). In addition, within the action area, 15 additional projects removed 0.023% of Johnson's seagrass critical habitat ( $5.2 \text{ ac} \div 22,574 \text{ ac} \times 100$ ). Together, these projects removed 0.024% of critical habitat in the action area [ $(0.15 \text{ ac} + 5.2 \text{ ac}) \div 22,574 \text{ ac} \times 100$ ]. The loss from this project, alone and in combination with the other projects in the action area, will not affect the conservation value of available critical habitat to an extent that it would affect Johnson's seagrass self-sustaining populations by adversely affecting the availability of suitable habitat in which the species can disperse in the future. Drifting fragments of Johnson's seagrass can remain viable in the water column for 4-8 days (Hall et al. 2006), and can travel several kilometers under the influence of wind, tides, and waves. Because of this, we believe that the permanent removal of critical habitat due to the proposed actions will not appreciably diminish the conservation value of critical habitat in supporting self-sustaining populations.

The third, and final, recovery objective is for populations of Johnson's seagrass and supporting habitat in the geographic range of Johnson's seagrass to have long-term protection through regulatory action or purchase acquisition. Though the affected portions of the project site will not be available for the long-term, thousands of acres of designated critical habitat are still available for long-term protection, which would include areas surrounding the action area.

Based on the above analysis, we conclude that the adverse effects on Johnson's seagrass critical habitat due to the proposed action will not impede achieving the 3 recovery objectives listed above and, therefore will not appreciably diminish the value of critical habitat for the conservation of the species.

## 8 CONCLUSION

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After reviewing the current status of Johnson's seagrass designated critical habitat, the environmental baseline, the effects of the proposed action, and the cumulative effects, it is our opinion that the loss of 6,649.6 ft<sup>2</sup> (0.15 ac) from the proposed action will not interfere with achieving the relevant habitat-based recovery objectives for Johnson's seagrass. It is our opinion that the proposed action will not impede the critical habitat's ability to support Johnson's seagrass conservation, despite permanent adverse effects. Therefore, we conclude that the action, as proposed, is likely to adversely affect, but is not likely to destroy or adversely modify, Johnson's seagrass designated critical habitat.

### 8.1 INCIDENTAL TAKE STATEMENT

NMFS does not anticipate that the proposed action will incidentally take any species and no take is authorized. Nonetheless, any take of any ESA-listed species shall be immediately reported to [takereport.nmfs@noaa.gov](mailto:takereport.nmfs@noaa.gov). Refer to the present Biological Opinion by title, Beach Corridor Rapid Transit, issuance date, and NMFS ECO tracking number, SERO-2020-02388. At that time, consultation must be reinitiated.

### 8.2 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

NMFS believes the following conservation recommendations are reasonable, necessary, and appropriate to conserve and recover Johnson's seagrass. NMFS strongly recommends that these measures be considered and adopted.

1. NMFS recommends that the USCG, in coordination with seagrass researchers and industry, support ongoing research on light requirements and transplanting techniques to preserve and restore Johnson's seagrass, and on collection of plants for genetics research, tissue culture, and tissue banking.
2. NMFS recommends that a report of all current and proposed USCG projects in the range of Johnson's seagrass be prepared and used by the USCG to assess impacts on the species from these projects, to assess cumulative impacts, and to assist in early consultation that will avoid and/or minimize impacts to Johnson's seagrass and its critical habitat. Information in this report should include location and scope of each project and identify the federal lead agency for each project. The information should be made available to NMFS.
3. NMFS recommends that the USCG conduct and support research to assess trends in the distribution and abundance of Johnson's seagrass. Data collected should be contributed to the Florida Fish and Wildlife Conservation Commission's Florida Wildlife Research Institute

to support ongoing geographic information system mapping of Johnson's seagrass and other seagrass distribution.

4. NMFS recommends that the USCG prepare an assessment of the effects of other actions under its purview on Johnson's seagrass for consideration in future consultations.

## **9 REINITIATION OF CONSULTATION**

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As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of taking specified in the proposed action is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the Biological Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the identified action.

## **10 LITERATURE CITED**

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ATTACHMENT M | NMFS ESSENTIAL FISH HABITAT CORRESPONDENCE



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701-5505  
<https://www.fisheries.noaa.gov/region/southeast>

December 16, 2021

FSER47:KG/jk

(Sent via Electronic Mail)

Randall D. Overton, M.P.A.  
Director, District Bridge Program  
U.S. Coast Guard Seventh District  
909 SE 1st Avenue  
Miami, Florida 33131

Dear Mr. Overton:

NOAA's National Marine Fisheries Service (NMFS) reviewed the *Draft Environmental Assessment for the Beach Corridor Rapid Transit Project Bay Crossing* (Draft EA) dated September 2021, and prepared by the United States Coast Guard (USCG) and Miami-Dade County Department of Transportation and Public Works (DTPW). The Draft EA describes DTPW's plans to construct the Miami Beach Corridor Rapid Transit trunkline (bay crossing) across Biscayne Bay, in Miami-Dade County. In response to information provided by the USCG on August 31, 2020, the NMFS provided six essential fish habitat (EFH) conservation recommendations to the USCG by letter dated October 14, 2020. The Draft EA provides detail on how EFH recommendations would be implemented. The EFH recommendations were:

1. Containment measures (e.g., coffercells or steel pipe piles) should be put in place before construction of the drilled shafts commences to avoid contaminating the surrounding waters during drilled shaft pourings.
2. As an avoidance measure, submerged small and medium boulder riprap along the causeway section of the project that may be impacted by drilled shaft containment measures or drilled shaft templates should be moved within the project corridor and placed in a similar habitat instead of being removed from the system. Additionally, riprap moved out of the construction zone should not be moved again. New riprap should be installed around the newly constructed pilings.
3. The applicant should update their estimate of seagrass impacts, taking into account impacts of barge spudding on seagrass bed integrity and shading for five to nine weeks at a time, and submit new seagrass impact estimates and associated functional assessment (e.g., Uniform Mitigation Assessment Method) scores to NMFS. If the applicant maintains the total seagrass impacts will remain at 0.18 acre, the applicant should conduct pre- and post-construction surveys for up to a year post-construction to monitor recovery/persistence of seagrass beds and prepare an adaptive management plan if impacts are greater than anticipated.
4. The applicant should commit to conducting a new seagrass survey of the entire project corridor within two years of construction initiation. The seagrass survey should be conducted during the seagrass growing season between June 1 and September 30.
5. The applicant should provide an updated seagrass mitigation plan. This plan should include:
  - Alternative propeller scar sites for restoration (instead of those already colonized with seagrass).
  - Updated success criteria including restoration to a climax community resembling the surrounding seagrass beds.



- An updated monitoring strategy including monitoring at least 25 percent of the restoration sites by area.
  - An adaptive management strategy. Especially if the seagrass impact estimations remain at 0.18 acre, the applicant should develop an adaptive mitigation strategy in case seagrass impacts are greater than intended and/or the restored sites do not recover as planned. NMFS also strongly recommends the applicant designate and monitor a seagrass reference site to help differentiate between project impacts and regional scale seagrass changes.
  - All seagrass monitoring occurring between June 1 and September 30.
6. The applicant should provide the NMFS with all mitigation plans and monitoring reports for seagrass, hardbottom, and coral for review.

#### *Consultation History*

A detailed consultation history is provided in our letter dated October 14, 2020. The NMFS has continued to provide technical assistance to the USCG and DTPW to address the conservation recommendations including teleconferences on July 19, 2021 and August 27, 2021. Additional email coordination occurred with NMFS, agents for DTPW, and the Florida Fish and Wildlife Conservation Commission (FWC) between August 26, 2021 and October 21, 2021, regarding the movement of riprap.

#### *Response to EFH Recommendations*

The response to EFH recommendations is provided in Draft EA, Attachment M. Regarding recommendations 1 and 2, revised construction methods are described in addition to shorter construction sequencing. An updated seagrass mitigation plan is provided and includes Uniform Mitigation Assessment Method worksheets outlining how seagrass propeller scar restoration in Biscayne National Park (BNP) would offset impacts to seagrass at the construction sites. The USCG agrees to require measures such as containment at drilled shaft locations and moving small to medium sized riprap out of project work areas to avoid or minimize impacts to water quality and EFH. Based on interagency coordination for this project, we understand a Special Activity License (SAL) will be required by the FWC for movement of the riprap if corals or other marine organisms are attached. The NMFS supports the FWC's requirement to prohibit moving boulders with organisms known to compete with corals for space, such as the red boring sponge (*Cliona* spp.) that is known to excavate and kill corals. The NMFS also supports using the FWC visual health assessment to determine if corals attached to riprap are candidates for movement.

Regarding recommendations 3, the USCG did not update the impact assessment to describe additional impacts to seagrass. The USCG will require pre- and post-construction seagrass surveys, however their proposed survey window (April 1 to September 30) does not align with the recommended seagrass growing season window (June 1 to September 30). The survey window is a component of NMFS recommendations 4 and 5. The NMFS is concerned about our ability to draw conclusions from the monitoring, if the recommended window is not followed and we request additional coordination on recommendation 4 and 5.

Regarding other components of recommendation 5, the seagrass mitigation plan proposes to restore approximately one acre of propeller scars and blow holes within BNP to offset 0.14 acres of seagrass impacts resulting from the project. The mitigation plan is designed to be scalable in the event additional seagrass mitigation is needed, based on pre- and post-construction seagrass survey results. Numerous primary and alternative sites are identified in the seagrass mitigation

plan. Updated success criteria described in the plan includes interim measures of increasing climax seagrass species cover and calcareous algae each year.

In addition, the seagrass mitigation plan was updated to include an adaptive management section describing corrective actions that will take place if annual monitoring fails to show a trend toward success. Corrective actions may include adding fill, extending monitoring beyond five years, transplanting seagrass to the restored site, or adding additional restoration sites to fully offset project impacts. Monitoring of 10 percent of the restored seagrass habitat is proposed. The NMFS remains concerned the proposed monitoring area may be too small to accurately evaluate trends toward success and potentially inform adaptive management actions.

Regarding recommendation 6, the USCG agrees to condition their permit to require DTPW to provide monitoring reports to NMFS.

### *Closing*

The NMFS views the EFH consultation for this project as complete, even though we request additional coordination on the time of year for seagrass surveys. The NMFS appreciates the opportunity to provide these comments and looks forward to resolving this remaining issue in a manner that supports public trust resources. Please direct correspondence to the attention of Mr. Kurtis Gregg at our West Palm Beach Office, 400 North Congress Avenue, Suite 270, West Palm Beach, Florida 33401, at 561-440-3167, or at Kurtis.Gregg@noaa.gov.

Sincerely,

/ for

Pace Wilber  
Acting Assistant Regional Administrator  
Habitat Conservation Division

cc:

USCG, Randall.D.Overton@uscg.mil

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**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**NATIONAL MARINE FISHERIES SERVICE**  
Southeast Regional Office  
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October 14, 2020

F/SER47:JS/pw

(Sent via Electronic Mail)

Randall Overton, M.P.A  
Director, District Bridge Program  
Coast Guard Seventh District  
909 SE 1st Ave  
Miami, FL 33131

Dear Mr. Overton:

NOAA's National Marine Fisheries Service (NMFS) reviewed the letter dated August 31, 2020, from the United States Coast Guard (USCG) initiating consultations under the Endangered Species Act (ESA) and essential fish habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) for construction of the Miami Beach Corridor Rapid Transit trunkline (bay crossing) across Biscayne Bay, in Miami-Dade County (Coast Guard File Number 3944/3945). This letter addresses the EFH consultation request.

This project is a Florida Department of Transportation (FDOT) Strategic Miami Area Rapid Transit (SMART) project led by the Miami-Dade County Department of Transportation and Public Works. The project will construct a new elevated transit guideway to accommodate a rubber-wheel automated people mover or monorail public transportation system linking downtown Miami to Miami Beach. The guideway will be adjacent to and south of the MacArthur Causeway and will impact seagrass, mangrove, hardbottom, coral, and sand/shell habitats. The USCG states the impacts to EFH will be moderate. As the nation's federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, the NMFS provides the following comments and recommendations pursuant to authorities of the Fish and Wildlife Coordination Act and the Magnuson-Stevens Act.

#### *Project History*

NMFS has been consulting and advising on this project since December 2019. A summary of the assistance includes:

- 1/24/19 – NMFS conducted a site inspection
- 1/28/19 – NMFS uploaded a response to the Efficient Transportation Decision Making (ETDM) 14257 Planning Screen
- July to Aug 2019 – Multiple calls with E Sciences to discuss project and coral survey design
- 9/12/19 – NMFS attended a public meeting on Miami Beach
- 10/9/19 – NMFS participated in a preliminary call with E Sciences to discuss mitigation strategies





- 10/23/19 – NMFS participated in multi-agency site visit to look at mangroves, corals, and seagrass
- 12/6/19 – NMFS participated in an interagency pre-application meeting
- 1/30/20 – NMFS participated in a call with E Sciences to work through Resource Equivalency Analysis (REA) and coral impacts
- 2/14/20 – NMFS participated in a call with E Sciences to discuss REA and requirements for ESA Section 7 consultation
- 3/11/20 – NMFS participated in an interagency call on consultation initiation process
- 4/9/20 – NMFS participated in a call to discuss Biscayne Bay Aquatic Preserve permitting guidelines
- 4/18/20 – USCG requested NMFS serve as cooperating agency
- 4/20/20 – NMFS delivered REA tool to E Sciences that accommodated additional corals
- 5/15/20 – NMFS responded affirmatively to USCG, agreeing to serve as cooperating agency
- 8/31/20 – USCG submitted request to NMFS for ESA Section 7 and EFH consultations
- 9/25/20 – NMFS and E Sciences discuss information needs for consultations
- 9/28/20 – NMFS requests a two-week deadline extension for EFH consultation from USCG

### *Project Description*

The project will consist of three sections, a west bridge, a causeway, and an east bridge. The bridges will match the clearances of the existing vehicular bridges, and the causeway will be 16.5 feet (ft) above the road grade. The entire project is approximately 3.7 miles in length. The west bridge is at risk for strikes by large vessels due to its proximity to the Port of Miami. For the west bridge, construction will consist of 14 bents, each consisting of two 7-ft diameter drilled concrete shafts. A cofferdam (45 ft by 24 ft) will be constructed around the two drilled shafts to form and pour a pile cap (11 ft by 32 ft) and the superstructure. For the east bridge, construction will consist of 16 bents, each consisting of one 8-ft diameter drilled concrete shaft. A cofferdam (24 ft by 24 ft) will be constructed around each drilled shaft to form and pour a pile cap (12 ft diameter) cap and the superstructure. For the causeway section, construction will consist of 56 bents, each consisting of one 8-ft drilled shaft. No cofferdams will be used since no pier cap is needed. As per a phone call on September 25, 2020, the applicant has committed to using some form of containment for pouring the drilled shafts to avoid contamination of the surrounding waters.

Barges will be used for most of the construction since traffic needs to be maintained along MacArthur Causeway. Three barges will be on site at each location for five to nine weeks at a time. Two of the three barges will be anchored to the seafloor using two 36-inch diameter spuds. In waters too shallow for barges, temporary trestles supported by steel pipe piles will be constructed to support construction equipment. Three temporary trestles will be constructed for the west bridge, and these will not impact seagrass beds. Two temporary trestles will be built to construct the east bridge.

### *Essential Fish Habitat within the Project Area*

The project occurs within the Biscayne Bay Aquatic Preserve. Ault et al. (2001)<sup>1</sup> identified over 325 fish and macroinvertebrate species in Biscayne Bay and concluded the Bay plays an important role as a primary nursery area for many fishes and macroinvertebrates. The project study area is adjacent to Government Cut, which experiences significant boat traffic, including cruise ships. The habitats impacted by this project are readily accessible to federally managed fishery species. Project area depths range from 0 ft to 15 ft as the narrow shelf slopes gently towards the navigation channel. Seagrass, corals, sponges, macroalgae, hardbottom, mangroves, sand, and sand/shell hash occur within the project area. The South Atlantic Fishery Management Council (SAFMC) designates one or more of these habitats as EFH under the fishery management plans for shrimp; the snapper/grouper complex; spiny lobster; and coral, coral reef and hardbottom. In addition, Biscayne Bay is a state-designated Outstanding Florida Water and a SAFMC-designated Habitat Area of Particular Concern (HAPC) under fishery management plans mentioned previously. HAPCs are subsets of EFH that are rare, particularly susceptible to human-induced degradation, especially important ecologically, or located in an environmentally stressed area. The SAFMC also designates seagrass, hardbottom, and mangroves as HAPCs. The habitats affected by this project provide important forage and refuge habitat for a variety of federally managed fishery species and their prey. Seagrasses, mangroves, and corals also help maintain water quality (e.g., pollution uptake), stabilize sediments, attenuate wave action, and produce and export detritus (decaying organic material), an important component of marine and estuarine food chains. The SAFMC provides additional information on EFH, HAPCs, and their support of federally managed fishery species in the *Fishery Ecosystem Plan of the South Atlantic Region* which is available at [www.safmc.net](http://www.safmc.net).

### *Impacts to Essential Fish Habitat*

#### Mangroves

Red, black, and white mangroves have colonized the riprap along MacArthur Causeway, mostly above the mean high water line. While these mangroves are not directly functioning as fisheries habitat, these mangroves provide shoreline stabilization functions, shade for juvenile fish, and detritus export into marine and estuarine food webs. Of the 121 individual mangroves present along the shoreline, 56 are expected to be lost from construction. To satisfy Miami-Dade County mitigation requirements, the applicant will contribute to the Biscayne Bay Environmental Enhancement Trust for environmental restoration projects within Biscayne Bay. While NMFS will not require additional mitigation for this loss, we are supportive of this payment for enhancement of estuarine habitat within Biscayne Bay. We expect mangroves to recruit naturally to the riprap-lined shoreline after construction.

#### Seagrass

At the west and east bridges, the benthic habitat consists of sand and silt, and the depths range from six to 14 ft. One seagrass bed is present at the west bridge, consisting of approximately 1.35 acres with 90 percent cover by *Halophila decipiens*. Three seagrass beds are present at the east bridge, consisting of approximately 0.63 acre and a combined percent cover of 40 percent or less for several seagrass species. Impacts to seagrass are expected from barge spudding,

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<sup>1</sup> Ault, J.S., S.G. Smith, G.A. Meester, J. Juo, and J.A. Bohnsack. 2001. Site Characterization for Biscayne National Park: Assessment of Fisheries Resources and Habitats. NOAA Technical Memorandum NMFS-SEFSC-468. 156 pp. Available on-line at: [http://www.aoml.noaa.gov/general/lib/tm\\_468.pdf](http://www.aoml.noaa.gov/general/lib/tm_468.pdf)

constructing the drilled shafts, installing the drilled shaft templates and cofferdams, and shading from barges and temporary trestle bridges. The applicant estimates overall impacts to seagrass will be 0.18 acre. The NMFS believes this is an underestimate of the actual impacts. While barge spudding is a discrete impact, barge spudding can create “craters” within a continuous seagrass bed that can destabilize the rhizome structure and destroy the continuity and integrity of the seagrass bed. Furthermore, NMFS suggests that five to nine weeks of shading impacts by on-site barges will have a negative impact on seagrass beds, and these impacts will not be negligible as indicated by the applicant in the Environmental Permit Report, dated June 2020 and provided by email dated August 31, 2020.

### Coral and Hardbottom Communities

Benthic habitats along the causeway portion of the project are comprised of medium sized boulder riprap in 0 to 4 ft of water and low relief hardbottom from the toe of the riprap to the beginning of the navigation channel. These riprap boulders and hardbottom areas are colonized by a diverse array of algae and invertebrates, including corals, octocorals, sponges, and bryozoans. These habitats support thriving reef communities despite the urban environment and are home to many fish species, including snapper, grouper, and spiny lobster.

Most of the 56 drilled shafts along the causeway section of the project will be sited above the mean low water line and will have little to no impact to corals or submerged riprap. It is estimated that up to 20,160 square feet (ft<sup>2</sup>) of riprap (360 ft<sup>2</sup> per shaft) will need to be removed to accommodate installation of the drilled shafts. However, in areas where construction (including drilled shaft containment measures and template installation) will come in contact with submerged riprap, NMFS recommends moving this riprap to another, similar location within the project corridor so long as the boring sponge clionid is not introduced into recipient sites that exhibit little to no prevalence. The NMFS views this as an avoidance measure and a means to preserve the other benthic organisms associated with the riprap and their associated habitat function. The NMFS strongly recommends not removing this riprap from the system altogether so it can continue to provide ecosystem services to the surrounding waters.

The low relief hardbottom will not be impacted by the installation of the drilled shafts, but spuds from the construction barges will likely impact this habitat. Exact locations of barge spudding are not known. To determine potential impacts to corals, the applicant extrapolated data from coral surveys to determine the diversity, size, health, and number of corals, octocorals, and sponges throughout the hardbottom habitat and determined the theoretical square footage of spudding impacts (11,086 ft<sup>2</sup> (0.25 ac))<sup>2</sup> to calculate a theoretical impact to 6,030 individual corals within the project area. This information, by species and size class, plus information on high priority sponges and octocorals, was inputted into a NOAA Resource Equivalency Analysis (REA) tool to determine the Coral Colony Yearly Loss (CCYL) units that will require mitigation (6,996 CCYL). The applicant will offset the CCYL via a coral outplanting mitigation strategy that will generate enough Coral Colony Yearly Gain (CCYG) credits to offset the loss. The comments above assume relocating a substantial number of corals from the spudding area is not practicable. The NMFS encourages the applicant to reassess this view and notes minimizing impacts to corals may reduce the required compensatory mitigation.

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<sup>2</sup> Two barges per site, two spuds each barge, each spud 7.07 ft<sup>2</sup>, 7 visits each barge, 56 pier locations = 11,086 ft<sup>2</sup>

In addition to the impact to coral growing on hardbottom, barge spudding will also impact non-coral covered hardbottom. To offset the loss of hardbottom, the applicant included high-profile, high-priority sponges and octocorals in their inputs to the REA (273 octocorals and 2573 sponges). Impacts to these species resulted in a loss of 2,368 CCYL units (out of the 6,996 CCYL total for the project). Because these are the organisms that provide the most structural habitat for fisheries resources, the NMFS will not require additional mitigation for hardbottom communities.

### *Mitigation*

#### Seagrass

The applicant will mitigate for the loss of 0.18 acre of seagrass by repairing propeller scars, and protecting seagrass habitat with exclusion buoys and signage just outside of Matheson Hammock County Park. While the conceptual mitigation plan is mostly sound, the NMFS has concerns about repairing propeller scars that have seagrass recruiting within them, showing signs of natural recovery. In a meeting on September 25, 2020, the applicant concurred with our concern, and agreed to resurvey the area and choose additional sites for restoration. On this same call, the applicant agreed to increase the monitoring surveys from five percent of sites to 25 percent of sites by area. The NMFS does not support exclusion as a compensatory mitigation strategy, because it does not replace impacted habitat, and urges the applicant to reevaluate the seagrass mitigation plan to refine the mitigation strategies.

#### Coral/Hardbottom

The applicant has identified two strategies to meet coral and hardbottom mitigation requirements for this project and may employ a combination of the two. The first strategy is conducting coral outplanting of nursery-reared corals at nearby permitted restoration sites. The applicant has coordinated considerably with both the University of Miami and Nova Southeastern University coral outplanting programs to establish a restoration program to meet the mitigation needs of this proposed project. A second mitigation option is to outplant or reattach “corals of opportunity” that have been damaged or detached from the reef from an injury event, such as a vessel grounding, or natural processes, such as a hurricane, but for which there is no identified responsible party. The REA tool is flexible enough to accommodate either of these options or a combination of the two. The NMFS supports both strategies and agrees to work with the applicant as the mitigation and monitoring plans develop. The applicant has agreed to implement the guidance within *Florida Fish and Wildlife Conservation Commission Coral and Octocoral Mitigation and Relocation Recommendations*. The applicant should use the most updated version of these recommendations, and the NMFS can assist USCG in obtaining the most up-to-date version. The conceptual mitigation plan also includes reasonable adaptive management measures if performance metrics are not met.

### **EFH Conservation Recommendations**

The NMFS concludes the proposed project would have significant adverse impacts to EFH. Section 305(b)(4)(A) of the Magnuson-Stevens Act requires NMFS to provide EFH conservation recommendations when an activity is expected to adversely impact EFH. Therefore, NMFS recommends the following to ensure the conservation of EFH and associated fishery resources:

- Containment measures (e.g., coffercells or steel pipe piles) should be put in place before construction of the drilled shafts commences to avoid contaminating the surrounding waters during drilled shaft pourings.
- As an avoidance measure, submerged small and medium boulder riprap along the causeway section of the project that may be impacted by drilled shaft containment measures or drilled shaft templates should be moved within the project corridor and placed in a similar habitat instead of being removed from the system. Additionally, riprap moved out of the construction zone should not be moved again. New riprap should be installed around the newly constructed pilings.
- The applicant should update their estimate of seagrass impacts, taking into account impacts of barge spudding on seagrass bed integrity and shading for five to nine weeks at a time, and submit new seagrass impact estimates and associated functional assessment (e.g., UMAM) scores to NMFS. If the applicant maintains the total seagrass impacts will remain at 0.18 acre, the applicant should conduct pre- and post-construction surveys for up to a year post-construction to monitor recovery/persistence of seagrass beds and prepare an adaptive management plan if impacts are greater than anticipated.
- The applicant should commit to conducting a new seagrass survey of the entire project corridor within two years of construction initiation. The seagrass survey should be conducted during the seagrass growing season between June 1 and September 30.
- The applicant should provide an updated seagrass mitigation plan. This plan should include:
  - Alternative propeller scar sites for restoration (instead of those already colonized with seagrass).
  - Updated success criteria including restoration to a climax community resembling the surrounding seagrass beds.
  - An updated monitoring strategy including monitoring at least 25 percent of the restoration sites by area.
  - An adaptive management strategy. Especially if the seagrass impact estimations remain at 0.18 acre, the applicant should develop an adaptive mitigation strategy in case seagrass impacts are greater than intended and/or the restored sites do not recover as planned. NMFS also strongly recommends the applicant designate and monitor a seagrass reference site to help differentiate between project impacts and regional scale seagrass changes.
  - All seagrass monitoring occurring between June 1 and September 30.
- The applicant should provide the NMFS with all mitigation plans and monitoring reports for seagrass, hardbottom, and coral for review.

Section 305(b)(4)(B) of the Magnuson-Stevens Act and implementing regulation at 50 CFR Section 600.920(k) require the applicant to provide a written response to this letter within 30 days of its receipt. If it is not possible to provide a substantive response within 30 days, an interim response should be provided to NMFS. A detailed response then must be provided prior to final approval of the action. The detailed response must include a description of measures proposed by the applicant to avoid, mitigate, or offset the adverse impacts of the activity. If the response is inconsistent with the EFH conservation recommendations, the applicant must provide a substantive discussion justifying the reasons for not following the recommendations.



*Conclusion*

The NMFS will continue to work with the applicant and other regulatory agencies to resolve the outstanding conservation recommendations. The NMFS appreciates the opportunity to provide these comments. Questions should be directed to the attention of Jennifer Schull in our West Palm Beach Field Office, 400 North Congress Avenue, Suite 270, West Palm Beach, FL 33401. She can be reached by telephone at (561) 440-1748 or by email at [Jennifer.Schull@noaa.gov](mailto:Jennifer.Schull@noaa.gov).

Sincerely,

/ for

Virginia M. Fay  
Assistant Regional Administrator  
Habitat Conservation Division

cc: USCG: [Randall.D.Overton@uscg.mil](mailto:Randall.D.Overton@uscg.mil)  
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## ATTACHMENT N | CULTURAL RESOURCES REPORTS AND SHPO CORRESPONDENCE



16591

14 December 2020

Mr. Timothy A. Parsons  
Director, Florida Division of Historical Resources  
State Historic Preservation Officer  
R. A. Gray Building  
500 South Bronough Street  
Tallahassee, Florida 32399-0250  
Sent via email: [Jason.Aldridge@dos.myflorida.com](mailto:Jason.Aldridge@dos.myflorida.com) and [Adrianne.Daggett@dos.myflorida.com](mailto:Adrianne.Daggett@dos.myflorida.com)

Dear Mr. Parsons:

A Determination of Effects (DOE) technical memorandum for the Beach Corridor Rapid Transit Project, Miami-Dade County, Florida has been uploaded to DOD SAFE file transfer site, <https://safe.apps.mil/>. The determination of effects details a review of the Beach Corridor Rapid Transit Project, which is one of six corridors included as part of the Strategic Miami Area Rapid Transit (SMART) Plan. The Miami-Dade Department of Transportation and Public Works (DTPW), in collaboration with the US Coast Guard as the lead agency and the Federal Transit Administration (FTA) as a cooperating agency, have evaluated alternatives for the development of multi-modal transportation corridors to connect the Design District/Midtown Miami, Downtown Miami, and Miami Beach. The Locally Preferred Alternative (LPA) has been approved by the Miami-Dade Transportation Planning Organization (TPO) Governing Board and calls for a rubber tire, elevated, Automated People Mover (APM) or Monorail on the trunk line connecting Miami and Miami Beach. An APM also is proposed for the segment of the project along Miami Avenue on the mainland. Along Washington Avenue in Miami Beach, the project is limited to the designation of bus lanes within the existing roadway footprint with no reconstruction proposed.

The study complies with Public Law 113-287 (Title 54 U.S.C.), which incorporates the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended, and the Archeological and Historic Preservation Act of 1979, as amended. The study complies with the regulations for implementing NHPA Section 106 found in 36 CFR Part 800 (*Protection of Historic Properties*). The study also complies with Chapter 267 of the Florida Statutes and Rule Chapter 1A-46, Florida Administrative Code. All work was performed in accordance with Part 2, Chapter 8 of the FDOT's PD&E Manual (revised July 2020), as well as the Florida Division of Historical Resources' (FDHR) recommendations for such projects, as stipulated in the FDHR's Cultural Resource Management Standards & Operations Manual, Module Three: Guidelines for Use by Historic Preservation Professionals. The Principal Investigator for this project meets the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716-42).

A Phase I cultural resource assessment survey (CRAS) for the Beach Corridor Rapid Transit Project was completed by SEARCH in April 2020. On July 8, 2020, your office responded to

the Phase I CRAS with a letter, concurring with the eligibility recommendations. The CRAS and subsequent consultation with the State Historic Preservation Officer (SHPO) concluded that there are seven historic resources either listed in, or eligible for listing in, the National Register of Historic Places (NRHP) located within the project Area of Potential Effects (APE). These seven resources are: Miami Beach Architectural District (8DA01048), City of Miami Cemetery (8DA01090), Fire Station No. 2 at 1401 North Miami Avenue (8DA01176), FEC Railway (8DA10107), Big Time Equipment, Inc. at 59 Northwest 14th Street (8DA10520), 71 Northwest 14th Street (8DA10858), and Ocean Beach Historic District (8DA11415). The enclosed effects assessment, which is based on the 15% plan submittal, addresses project-related effects relative to each of these seven resources.

### **Miami Beach Architectural District (8DA01048)**

Only a small portion of the Miami Beach Architectural District (8DA01048) along Washington Avenue between 6<sup>th</sup> Street and 7<sup>th</sup> Street falls within the project APE. While some adjustments to routing and service plans of existing bus/trolley service may be implemented to enhance connections to the high-capacity rail system, the only improvement taking place within the district along Washington Avenue is the addition of red pavement markings. These route/service plan adjustments and pavement markings will not adversely affect the district, and no additional improvements currently proposed as part of this project will take place within or adjacent to the boundaries of the Miami Beach Architectural District (8DA01048).

Additional project improvements are located a block to the south of the district and include the expansion of the hardscape and grass medians, the construction of the guideway, and two new stations (the 5<sup>th</sup> Street and Washington Avenue Station and the 5<sup>th</sup> Street and Lennox Avenue Station). Due to visual obstructions in the form of multi-story buildings, there will be no aesthetic or viewshed effects on the district, nor is there the potential to affect any features or buildings contributing to the district. Based upon a review of the 15% plans, there will be no other effects to the district such as noise, construction vibration, or accessibility as a result of the project. The project will not result in any loss of integrity to the district or affect the integrity of any resources contributing to the district's significance. Based on the current project plans, the Beach Corridor project will have no adverse effects on the NRHP-listed Miami Beach Architectural District (8DA01048).

### **City of Miami Cemetery (8DA01090)**

Proposed work in the vicinity of the City of Miami Cemetery (8DA01090) consists of the construction of an elevated APM system along North Miami Avenue. The portion nearest to the cemetery will be shifted to the western side of the roadway, opposite the cemetery. The cemetery is located in a highly urban area, and the northwest corner is less than 100 feet (30.5 meters) away from the FEC Railway tracks. The cemetery's current surroundings have previously been altered by modern construction. The proposed APM will not create visual clutter that is inconsistent with what is already present in this highly developed area. Numerous multi-story residential, commercial, institutional, and light industrial buildings are located in the neighborhood surrounding the cemetery, additionally skyscrapers are visible within the viewshed of the cemetery. There are 12 mature trees located along the eastern side of North Miami Avenue between the roadway and the sidewalk abutting the cemetery. These trees create a

prominent buffer between the cemetery and any elevated structures on this western side of the cemetery property. There are no plans to alter or remove these trees or any other historic fabric or landscaping features within or adjacent to the cemetery as part of this project. The cemetery property is quite heavily treed in general, which also helps to minimize the viewshed from within the boundaries of the resource. No right-of-way will be taken from the cemetery property.

The APM system, a low noise transport system will not increase the ambient noise level in the cemetery juxtaposed to the traffic on the adjacent streets or the nearby FEC Railway. The cemetery derives its significance from its history, landscaping features, and association with the important people from Miami's early history interred there. Based on information contained within the 15% plans, the Beach Corridor project will have no adverse effect on the NRHP-listed City of Miami Cemetery (8DA01090) or the characteristics that define its significance.

### **Fire Station No. 2 (8DA01176)**

Based on current project information provided in the 15% plans, the nearest improvements to Fire Station No. 2 (8DA01176) are located approximately 265 feet (80.7 meters) north of the resource along NW/NE 15<sup>th</sup> Street near the intersection with North Miami Avenue. There is already an elevated APM system (the Metromover) present in this location. The APM system proposed as part of this project will meet the existing Metromover near the intersection between NW/NE 15<sup>th</sup> Street and North Miami Avenue and continue north up North Miami Avenue, away from Fire Station No. 2 (8DA01176). As there is already an APM system in place in the nearest location where project improvements will take place, and as Fire Station No. 2 (8DA01176) is already located on a large intersection, no additional effects due to noise or vibration will occur. The existing access to this building also will not be affected, so there will be no negative effects to the building related to traffic volume. The improvements do not require the removal of any contributing elements related to the building, and they will not affect the character or function of this historic resource or affect its historic and architectural significance. The current viewshed also will be unaffected by the proposed improvements, as the existing Metromover will block the view of the proposed line to the north. There are presently two concrete block buildings, one residential and one commercial, located between Fire Station No. 2 (8DA01176) and the current/proposed APM system, further buffering the building from the improvements. Because it is located a considerable distance from the improvements and due to the presence of an existing elevated APM system in the area of the proposed improvements, the Beach Corridor project will have no adverse effects on NRHP-listed Fire Station No. 2 (8DA01176).

### **FEC Railway (8DA10107)**

The APM guideway that will cross over the FEC Railway (8DA10107) will not result in an adverse effect to the linear historic resource. Based on the review of the current project plans, the project will meet the required 23-foot (7.0-meter) vertical clearance over the FEC Railway (8DA10107) and also will meet the 25-foot (7.6-meter) lateral clearance envelope for the support columns. This railroad is already bridged by numerous modern structures throughout its considerable length. Despite these crossings, this resource still maintains its significance, which is related to the history of transportation. The project will not alter the railway itself or the original alignment. The improvements that will take place as part of the Beach Corridor project



will still allow the NRHP-eligible FEC Railway (8DA10107) to convey its significance, and no adverse effects are anticipated.

### **Big Time Equipment, Inc. (8DA10520)**

Based on the current project information, the nearest improvements to Big Time Equipment, Inc. (8DA10520) are located at the intersection of North Miami Avenue and NW/NE 15<sup>th</sup> Street, near the northeast corner of the building. There is already an elevated APM system (the Metromover) present in this location. It currently runs along the south side of NW/NE 15<sup>th</sup> Street and is immediately adjacent to the north side of Big Time Equipment, Inc. (8DA10520) with the support columns and the guideway only a few feet from the building. As there is already an elevated APM system in place directly adjacent to Big Time Equipment, Inc. (8DA10520), no notable additional audible effects will occur from the addition of a branch line extending out across the other side of the intersection and heading north, away from the building. The existing access to this building will not be affected, nor will there be any negative effects to the building related to noise or construction vibration. Although the proposed APM will be visible from the building's exterior, there are no remaining windows on the north side with a view of the proposed APM. Furthermore, the presence of an APM system already located on the same side of the building as that facing the proposed line means that the new line would create no visual clutter that is inconsistent with what is already present in the area. The improvements do not require the removal of any contributing elements related to the building, and they will not affect the character or function of this historic resource or affect its historic and architectural significance. Therefore, the Beach Corridor project will have no adverse effects on the NRHP-eligible Big Time Equipment, Inc. (8DA10520) building.

### **Building at 71 Northwest 14<sup>th</sup> Street (8DA10858)**

71 Northwest 14<sup>th</sup> Street (8DA10858) is located between NW Miami Court and the FEC Railway, just across NW Miami Court from Big Time Equipment, Inc. (8DA10520). Based on the current project information, the nearest improvements to 71 Northwest 14<sup>th</sup> Street (8DA10858) are located at the intersection of North Miami Avenue and NW/NE 15<sup>th</sup> Street. The large Big Time Equipment, Inc. (8DA10520) building separates 71 Northwest 14<sup>th</sup> Street (8DA10858) from the proposed improvements. There is already an elevated APM system (the Metromover) present in this location. The Metromover currently runs along the south side of NW 15<sup>th</sup> Street, and its current western terminus appears to be slightly visible to the north from 8DA10858, although there is substantial planted tropical vegetation obscuring much of the view north of the building. As there is already an elevated APM system directly north approximately 150 feet (45.7 meters) from 71 Northwest 14<sup>th</sup> Street (8DA10858), no additional audible effects will occur from the addition of a branch line extending out north from the North Miami Avenue and NW/NE 15<sup>th</sup> Street intersection, which is more than 400 feet (122 meters) from the building. The existing access to this building will not be affected, nor will there be any effects to the building related to noise or construction vibration based upon a review of the 15% plans. The proposed APM will not be visible from 71 Northwest 14<sup>th</sup> Street (8DA10858), as the large Big Time Equipment, Inc. (8DA10520) building is located between it and the proposed improvements, obscuring the view. The project will not require the removal of any contributing elements related to the building, the character or function of this historic resource will not be affected, and its historic and architectural significance will remain intact. Therefore, the Beach

Corridor project will have no adverse effects on the NRHP-eligible building at 71 Northwest 14<sup>th</sup> Street (8DA10858).

### **Ocean Beach Historic District (8DA11415)**

The proposed improvements within the Ocean Beach Historic District (8DA11415) will not require additional right-of-way from the district, and no historic fabric will be removed or altered by the project. The feeling, setting, and association of 8DA11415 has noticeably changed along 5<sup>th</sup> Street, which is a major east-west thoroughfare that has been altered substantially by non-historic modifications over the years. Many structures along 5<sup>th</sup> Street in the vicinity of the improvements have now been noticeably altered or demolished. The current elements present within the 5<sup>th</sup> Street right-of-way, such as the roadway itself, sidewalks, driveways, curbing, medians, lighting, landscaping, etc. are non-contributing to the district's significance or integrity.

The improvements associated with this project will not affect the individual historic resources that contribute to the district's overall significance. Due to considerable non-historic changes that have already affected the 5<sup>th</sup> Street corridor, the addition of an APM or Monorail and the two stations down the center of the six-lane thoroughfare will not cause an adverse effect to the district. The smaller streets within the district retain more of their historic setting, whereby a person can still experience the feeling and common period of development within the district. Along 5<sup>th</sup> Street, however, the integrity of the historic location, design, setting, materials, workmanship, feeling, and association that speak to the district's significance has already been lost. Although a dozen historic buildings still remain along this portion of 5<sup>th</sup> Street within the district, most have a diminished design and feeling as they no longer retain many of their original features. Demolitions, modern infill, and the modernization of virtually all features within the 5<sup>th</sup> Street corridor right-of-way also have led to the destruction of the historical setting and feeling in this location. The project alignment along 5<sup>th</sup> Street already has the feeling of a modern roadway corridor, and so the construction of the APM/Monorail in this location will not further diminish the integrity of the district or any of the remaining contributing resources along 5<sup>th</sup> Street. Although these are new elements within the district, the historic feeling and setting in this portion of the district have already been lost. As such, the present visual character of the district will not be changed by the project. Due to its limited elevation compared to surrounding buildings and its location in the middle of a large, six-lane roadway, the proposed APM/Monorail will not cause any adverse visual effects to any areas of the district. Additionally, the district will retain its accessibility via car traffic on 5<sup>th</sup> Street as before, but also receive the benefit of increased accessibility via the new APM or Monorail. The district's current use also will continue as-is.

Due to being a high traffic area with elevated noise levels, as compared to the relatively low levels of noise generated by the APM or Monorail modes, the project is not expected to result in any significant ground-borne vibration or noise issues within the historic district.

The addition of the APM/Monorail and associated stations along the central portion of 5<sup>th</sup> Street will in no way diminish those qualities that render the historic district significant, namely the district's historical connection to the development of Miami Beach, its importance in Jewish ethnic history, or the architecture of its contributing buildings. The project will not interfere with the integrity of the character-defining features that comprise many of the commercial and

residential historic resources within the district. The proposed undertaking's effects do not meet the criteria of adverse effect as described above and would not alter those characteristics that qualify 8DA11415 for inclusion in the NRHP in a manner that would diminish the district's aspects of integrity. Based on the current project plans, the Beach Corridor project will have no adverse effects on the NRHP-eligible Ocean Beach Historic District (8DA11415).

In summary, as discussed in the enclosed effects evaluation, the Beach Corridor Rapid Transit Project will not require the acquisition of right-of-way from the properties, and the project will not compromise the historical significance or architectural integrity of the resources to the extent that they can no longer convey their importance. Based on a review of the proposed plans, no adverse effects to the NRHP-eligible or -listed resources are anticipated as a result of the project.

I respectfully request your concurrence with the findings and recommendations presented in this letter and the effects assessment technical memorandum.

If you have any questions, feel free to call Mr. Randall Overton at (305) 415-6736.

Sincerely,

A handwritten signature in blue ink, appearing to read "Randall D. Overton", with a stylized flourish at the end.

RANDALL D. OVERTON  
Director, District Bridge Program  
U. S. Coast Guard Seventh District

Encl: Effects Assessment Technical Memorandum at DOD SAFE site <https://safe.apps.mil/>

eCopy: Jie Bian, Miami-Dade County Department of Transportation and Public Works

The Florida State Historic Preservation Officer finds the attached report titled Technical Memorandum: Effects Assessment for the Beach Corridor Rapid Transit Project (SMART Plan), Miami-Dade County, Florida (2020) complete and sufficient and ☐ concurs / ☐ does not concur with the recommendations and findings provided in this cover letter for SHPO/FDHR Project File Number \_\_\_\_\_. Or, the SHPO finds the attached document contains \_\_\_\_\_ insufficient information.

SHPO Comments:

\_\_\_\_\_  
Timothy A. Parsons, PhD, Director

\_\_\_\_\_  
Date

Florida Division of Historical Resources

**TECHNICAL MEMORANDUM**  
**EFFECTS EVALUATION FOR THE**  
**BEACH CORRIDOR RAPID TRANSIT PROJECT (SMART PLAN),**  
**MIAMI-DADE COUNTY, FLORIDA**

<b>CONSULTANT:</b>	SEARCH 315 NW 138 <sup>th</sup> Terrace, Newberry, Florida 32669
<b>PRINCIPAL INVESTIGATOR:</b>	Mikel Travisano, MS
<b>ARCHITECTURAL HISTORIAN:</b>	Jason Newton, MA, MLIS
<b>CLIENT:</b>	Parsons Transportation Group Inc.
<b>DATE:</b>	September 2020
<b>PROJECT NUMBER:</b>	CIP153-1-TPW16-PEI

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This effects evaluation details a review of the Beach Corridor Rapid Transit Project, which is one of six corridors included as part of the Strategic Miami Area Rapid Transit (SMART) Plan. The Miami-Dade Department of Transportation and Public Works (DTPW), in collaboration with the Federal Transit Administration (FTA) and Florida Department of Transportation (FDOT), have evaluated alternatives for the development of multi-modal transportation corridors to connect the Design District/Midtown Miami, Downtown Miami, and Miami Beach. The Locally Preferred Alternative (LPA) has been approved by the Miami-Dade Transportation Planning Organization (TPO) Governing Board and calls for a rubber tire, elevated, Automated People Mover (APM) or Monorail on the trunk line connecting Miami and Miami Beach. An APM also is proposed for the segment of the project along Miami Avenue on the mainland. Along Washington Avenue in Miami Beach, the project is limited to the designation of bus lanes within the existing roadway footprint with no reconstruction proposed.

SEARCH completed a Phase I cultural resource assessment survey (CRAS) for the Beach Corridor Rapid Transit Project in April 2020 (**Figures 1 and 2**). The CRAS and subsequent consultation with the State Historic Preservation Officer (SHPO) concluded that there are seven historic resources (i.e., cultural resources listed or eligible for listing in the National Register of Historic Places [NRHP]) located within the project Area of Potential Effects (APE). This technical memorandum will address project-related effects relative to each of these seven resources. It also should be noted that this effects assessment is based on the 15% plan submittal. Any future revisions to the project plans will need to be reviewed in order to assess whether any of the changes might have the potential to affect historic resources. If future revisions are found to have such potential, then an addendum to this effects document will be necessary.

It also should be noted that a separate CRAS was completed for the segment of the project along Washington Avenue in Miami Beach. The *Miami Beach Light Rail Modern Streetcar Cultural Resource Assessment Survey* was conducted by Janus Research, and a draft report was completed in 2017 and was submitted to the SHPO by the US Coast Guard (USCG) concurrently with the SEARCH CRAS in June 2020. However, the 2017 CRAS report was not submitted for





Figure 1. Beach Corridor Rapid Transit Project location, Miami-Dade County, Florida.





Figure 2. Beach Corridor APE, Miami-Dade County, Florida.

review and concurrence, but was only provided to document the work performed in support of the earlier, more extensive version of the Washington Avenue improvements and as background information relative to the current project and survey report. The concurrence received from the SHPO in the letter dated July 8, 2020, only applies to the 2020 CRAS report submitted by SEARCH; that concurrence does not apply to the earlier 2017 draft CRAS report by Janus Research. As the portion of the project along Washington Avenue will only involve adjustments to routing and service plans for the existing bus/trolley service, there will be no project-related effects to the Washington Avenue segment of the project, and it is not further addressed in this effects evaluation.

This study was conducted to comply with Chapter 267 of the Florida Statutes and Rule Chapter 1A-46, Florida Administrative Code. All work was performed in accordance with Part 2, Chapter 8 of the FDOT's Project Development and Environment (PD&E) Manual (revised July 2020), as well as the Florida Division of Historical Resources' (FDHR) recommendations for such projects, as stipulated in the FDHR's *Cultural Resource Management Standards & Operations Manual, Module Three: Guidelines for Use by Historic Preservation Professionals*. The Principal Investigator for this project meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716-42).

Due to the anticipation of future federal funding, this study complies with Public Law 113-287 (Title 54 U.S.C.), which incorporates the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended, and the Archeological and Historic Preservation Act of 1979, as amended. The study also complies with the regulations for implementing NHPA Section 106 found in 36 CFR Part 800 (*Protection of Historic Properties*).

## PROPOSED UNDERTAKING

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The APE for the CRAS report (see **Figure 2**) includes the existing right-of-way for the subject roads within the project corridor for the LPA and is defined as extending to the back or side property lines of parcels adjacent to the right-of-way, or a distance of no more than 328 feet (100 meters) from the right-of-way for sections at-grade or 984 feet (300 meters) from the right-of-way for elevated sections. This APE was applied for the Miami Avenue segment that runs from the existing station on NE 15<sup>th</sup> Street to 41<sup>st</sup> Street and for the segment that extends from the new station at Herald Plaza east along MacArthur Causeway and 5<sup>th</sup> Street to Washington Avenue in Miami Beach.

The purpose of this project is to increase the person-throughput to the Beach Corridor's major origins and destinations via a rapid transit technology. The need for the project is based upon the extensive population growth throughout the study area, resulting in ever-increasing traffic congestion and the demand for enhanced access to the area's many facilities and services.

In order to meet the project's purpose and need, goals were established that would accommodate the high travel demand throughout the study area and provide relief to

the extreme traffic congestion along the surface streets. The project goals include the following:

- Connect to and provide direct, convenient, and comfortable rapid-transit service to serve existing and future planned land uses;
- Provide enhanced interconnections with Metrorail, Tri-Rail, Brightline, Metromover, and Metrobus routes; Broward County Transit (BCT) bus routes; Miami and Miami Beach circulators; jitneys; shuttles; taxis; Transportation Network Companies (TNCs); and/or other supporting transportation services; and
- Promote pedestrian- and bicycle-friendly solutions in the corridors of the study area.

The natural and built environment differ significantly by sub-area. These differences influenced the development of alternatives and the performance of the alternatives with respect to the evaluation criteria. On January 30, 2020, the TPO selected the LPA for each of the sub-areas, as described below.

### **Bay Crossing (Trunk Line) Segment: Elevated Rubber Tire Transit (APM or Monorail)**

The fixed-guideway modes offer similar transit performance for the Bay Crossing trunk line, with lower costs and impacts for the rubber-tire modes (APM and Monorail) than for the LRT/Streetcar mode. The BRT alternatives, while lower cost, lack sufficient capacity to meet the project purpose and need, and present significant environmental impacts associated with the widening of the causeway. Therefore, an elevated rubber tire vehicle rail transit system (APM or Monorail) is the LPA for the trunk line service in the Bay Crossing sub area.

In the Bay Crossing segment, the APM/Monorail would extend from a new station at the Downtown Metromover Omni Extension, offering a direct seamless transfer to a Metromover platform within the same station house and continue east on a new elevated guideway structure along the south side of the MacArthur Causeway. The station at the Downtown Metromover Omni Extension also has connectivity with the Omni Bus Terminal to facilitate transfers to and from existing and future bus routes. New stations would be provided at the Downtown Metromover Omni Extension, at the Children's Museum on Watson Island, and at 5<sup>th</sup> Street and Washington Avenue, with an additional station on 5<sup>th</sup> Street between Alton Road and Washington Avenue.

The APM/Monorail would terminate at 5<sup>th</sup> Street and Washington Avenue, where passengers could transfer to bus/trolley service extending along Washington Avenue to the Miami Beach Convention Center. A bus/trolley transfer facility would be provided at the termini location. The guideway structure would be elevated with a minimum clearance of 16.5 feet (5.0 meters) above the roadway and would be supported on oblong-shaped columns with a typical spacing of 130 feet (39.6 meters) and typical diameter of 4.0 to 6.0 feet (1.2 and 1.8 meters). The elevated stations would have approximate dimensions of 100 by 40 feet (30.5 by 12.2 meters),

typically supported by two columns. A new maintenance facility of approximately 2.3 acres would be required at a potential Watson Island location.

### **Midtown/Design District Segment: Automated People Mover (APM)**

In the Midtown/Design District sub-area, the APM is the LPA because it provides better travel time and ridership than the other alternatives, and it is an extension of the existing Metromover.

In the Midtown/Design District segment, the APM Alternative would extend from the existing School Board Metromover Station on NE 15<sup>th</sup> Street to North Miami Avenue, with a two-track elevated alignment in the median of North Miami Avenue extending to a terminus at NW 41<sup>st</sup> Street and stations located at North Miami Avenue, NW 16<sup>th</sup>, 22<sup>nd</sup>, 26<sup>th</sup>, 29<sup>th</sup>, 34<sup>th</sup>, and 40<sup>th</sup> Streets. The guideway structure would be elevated with a minimum 16.5-foot (5.0-meter) clearance above the roadway and would be supported on oblong-shaped columns with a typical spacing of 90 to 120 feet (27.4 and 36.6 meters) and typical diameter of 4.0 to 6.0 feet (1.2 and 1.8 meters). The elevated stations would have approximate dimensions of 100 by 40 feet (30.5 by 12.2 meters), typically supported by two columns. A new maintenance facility of approximately 3.0 acres would be required in order to accommodate the additional vehicles for the trunk line and design district extension.

### **Miami Beach Segment: Bus/Trolley in Dedicated Lanes**

The LPA in the Miami Beach segment is a connection to the existing (No Action Alternative) bus/trolley service in dedicated bus lanes in each direction. Some adjustments to routing and service plans of existing bus/trolley service may be implemented to enhance connections to the high-capacity rail system. The Streetcar Alternative was not recommended as a standalone project for the Miami Beach sub-area given its lack of resiliency to sea-level rise, high cost, and difficulty of siting an operations and maintenance facility in this segment. Moreover, a bus has the ability to divert from flooded conditions, whereas a fixed LRT rail would not. Please note that a separate CRAS for this segment of the project was prepared by Janus Research in 2017 and submitted to the SHPO in June 2020. This 2017 CRAS document was submitted only as a courtesy to document the work performed in support of the earlier, more extensive version of the Washington Avenue improvements. As the dedicated bus lanes pose no effect to historic resources, the current effects analysis does not further analyze this segment of the project.

## **NRHP CRITERIA**

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Cultural resources identified within the project APE during the CRAS were evaluated according to the criteria for listing in the NRHP. As defined by the National Park Service (NPS), the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:



- A. that are associated with events or activities that have made a significant contribution to the broad patterns of our history; or
- B. that are associated with the lives of persons significant in our past; or
- C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. that have yielded, or may be likely to yield, information important in prehistory or history.

NRHP-eligible districts must possess a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. NRHP-eligible districts and buildings must also possess historic significance, historic integrity, and historical context.

## CRITERIA OF ADVERSE EFFECTS

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In order to evaluate the project-related effects posed by the LPA on eligible and listed historic resources, SEARCH applied the criteria of adverse effects, as described by 36 CFR 800:

- (1) *Criteria of adverse effect.* An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.
- (2) *Examples of adverse effects.* Adverse effects on historic properties include, but are not limited to:
  - (i) Physical destruction of or damage to all or part of the property;
  - (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;
  - (iii) Removal of the property from its historic location;
  - (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
  - (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
  - (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious

- and cultural significance to an Indian tribe or Native Hawaiian organization;  
 and  
 (vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

## NATIONAL REGISTER CONTEXT

To better understand the potential effects to the seven historic resources within the Beach Corridor APE, an analysis of their character-defining features was performed. The methodology used to perform this analysis is based upon *Preservation Brief 17, Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character* (National Park Service [NPS] 2016); the 2020 SEARCH CRAS; and a pedestrian survey of the NRHP-listed and -eligible resources within the Beach Corridor APE.

In addition to character-defining features, the significance of historic properties was reviewed to better understand how project-related effects may interact with the tangible physical qualities, which developed during the period of significance for NRHP-eligible and -listed resources. Within the Beach Corridor APE, those areas of significance include:

- Miami Beach Architectural District (8DA01048): Architecture, Recreation and Development
- City of Miami Cemetery (8DA01090): Exploration and Settlement, Landscape Architecture
- Fire Station No. 2 (8DA01176): Architecture, Community Planning and Development
- Florida East Coast (FEC) Railway (8DA10107): Transportation, Tourism, Agriculture, and Industry
- Big Time Equipment, Inc. (8DA10520): Architecture
- 71 Northwest 14<sup>th</sup> Street (8DA10858): Commerce and Significant Person
- Ocean Beach Historic District (8DA11415): Ethnic Heritage, Architecture, Community Planning and Development

A description of each of these seven resources and a summary of each of their evaluations for NRHP eligibility is included below. Photographs of all seven resources are also provided, as are all resources within the APE that are contributing to Miami Beach Architectural District (8DA01048) or Ocean Beach Historic District (8DA11415). An analysis of effects is then provided for each of the seven resources. **Table 1** lists all of the National Register-eligible or -listed resources within the APE for this study.

**Table 1. NRHP-Eligible or -Listed Properties within the Beach Corridor APE.**

FMSF No.	Name/Address	Style	Year Built/Period of Significance	SHPO Evaluation
8DA01048	Miami Beach Architectural District	No Style	1912-1965	NRHP Listed

**Table 1. NRHP-Eligible or -Listed Properties within the Beach Corridor APE.**

FMSF No.	Name/Address	Style	Year Built/Period of Significance	SHPO Evaluation
8DA01090	City of Miami Cemetery	No Style	ca. 1897	NRHP Listed
8DA01176	Fire Station No. 2 1401 North Miami Avenue	Mediterranean Revival	ca. 1926	NRHP Listed
8DA10107	FEC Railway	No Style	ca. 1896	Determined Eligible
8DA10520	Big Time Equipment, Inc. 59 Northwest 14 <sup>th</sup> Street	Art Deco	ca. 1924	Determined Eligible
8DA10858	71 Northwest 14 <sup>th</sup> Street	Art Deco	ca. 1921	Determined Eligible
8DA11415	Ocean Beach Historic District	No Style	1912–1965	Determined Eligible

## 8DA01048, Miami Beach Architectural District

Resource 8DA01048, the Miami Beach Architectural District, contains more than 800 contributing structures within an area of 1.19 square miles (3.08 square kilometers). The District was listed in the NRHP in 1979 under Criterion A for Community Planning and Development and Recreation, and Criterion C for Architecture. The period of significance was 1920–1945 when originally listed (Deibler 1979). Since that time, the period of significance was expanded to include structures from 1946 to 1965 (NPS 2013). Within the Beach Corridor APE, the Miami Beach Architectural District (**Figure 3**) contains four previously recorded contributing structures (8DA00980-8DA00982 and 8DA01022) and one newly recorded structure (8DA18110) (Janus Research 2008) (**Table 2**).

**Table 2. Contributing Historic Structures within the Miami Beach Architectural District (8DA01048) within the Beach Corridor APE.**

FMSF No.	Name/Address	Style	Year Built	Architect
8DA00980	Beach Department Store 601 Washington Avenue	Art Deco	ca. 1934	Edwin L. Robertson
8DA00981	660-662 Washington Avenue 660 Washington Avenue	Mediterranean Revival	ca. 1923	Henry J. Maloney
8DA00982	Charlie's Paddock Grill 685 Washington Avenue	Art Deco	ca. 1934	Edwin L. Robertson
8DA01022	Angler's Hotel 634 Washington Avenue	Mediterranean Revival	ca. 1930	Henry J. Maloney
8DA18110	650 Pennsylvania Avenue	Mid-Century Modern	ca. 1960	Gerard Pitt

The development of the Miami Beach Architectural District is linked to the companies of the Lummus brothers (Ocean Beach Realty Company), John Collins (Miami Beach Improvement Company), and Carl Fisher (Alton Beach Realty Company) between 1912–1915. With their combined efforts, the street pattern and scaling of lots was established for the city before any major construction boom occurred. The district saw major development during the early 1920s with almost exclusively Mediterranean Revival style structures (Zingman 1978).

Between 1920 and 1940, the population of Miami Beach grew tremendously from 644 to 28,000 permanent residents. Additionally, in 1940, the annual tourist population reached 75,000. This population growth is reflected in the second building boom of the 1930s with Art



**Figure 3. Representative views of 8DA01048 within the Beach Corridor APE. Top left: 8DA01022, facing south; Top right: Intersection of Washington Avenue and 7<sup>th</sup> Street with 8DA00982 in the background, facing northeast; Middle left: Intersection of Washington Avenue and 6<sup>th</sup> Street with new construction behind 8DA00980; Middle right: View southeast along Washington Avenue; Bottom left: 8DA18110, facing southeast; Bottom right: 8DA18110, facing southwest.**

Deco and Moderne styles taking the place of the Mediterranean Revival style. Modestly scaled hotels and apartment buildings flourished throughout the district during this time period. Twenty-five architects were responsible for approximately 75% of these post-Depression-era structures, giving the district a unique, uniform sense of size, scale, proportion, and style. By the postwar period, a majority of the district was built-up; however, a third wave of construction filled in the gaps with Mid-Century Modern and Miami Modern (MiMo) structures (Janus Research 2008).

The Miami Beach Architectural District (8DA01048) is a previously recorded historic district that was listed in the NRHP in 1979 under Criterion A for Community Planning and Development and Recreation, and Criterion C for Architecture (Janus Research 2008). Given the limited area of the APE, which overlays the larger historic district, a full re-evaluation of 8DA01048 was outside the scope of the CRAS. Only four previously recorded contributing resources (8DA00980-8DA00982 and 8DA01022) and one newly recorded structure (8DA18110) are included within the boundaries of 8DA01048 and the Beach Corridor APE. However, based on the results of the CRAS fieldwork, SEARCH has evaluated the individual structures for their eligibility for listing in the NRHP as contributing resources to the overall Miami Beach Architectural District.

### ***Effects Assessment***

Only a small portion of the Miami Beach Architectural District (8DA01048) along Washington Avenue between 6<sup>th</sup> Street and 7<sup>th</sup> Street falls within the project APE (**Attachment A**, Sheet No. 235). The portion of the project within the Miami Beach sub-area is a connection to the existing (No Action Alternative) bus/trolley service in dedicated bus lanes in each direction. While some adjustments to routing and service plans of existing bus/trolley service may be implemented to enhance connections to the high-capacity rail system, these adjustments will not adversely affect the district, and no improvements currently proposed as part of this project will take place within or adjacent to the boundaries of the Miami Beach Architectural District (8DA01048).

As the project improvements terminate a block to the south of the district, there will be no aesthetic or viewshed effects on the district, nor is there any potential to affect any features or buildings contributing to the district. There will be no other effects to the district such as noise, vibration, or accessibility as a result of the project. Based on the current project plans, the Beach Corridor project will have no adverse effects on the NRHP-listed Miami Beach Architectural District (8DA01048).

### **8DA01090, City of Miami Cemetery**

Resource 8DA01090, the City of Miami Cemetery (**Figure 4**), was listed in the NRHP in January 1989 under NRHP Criteria A and B for the cemetery's connection to the early establishment of Miami and its association with persons significant in the city's past, and under NRHP Special Considerations Criteria C and D due to the important local figures interred in the cemetery as well as the cemetery's age. The City of Miami Cemetery was established ca. 1897 when William





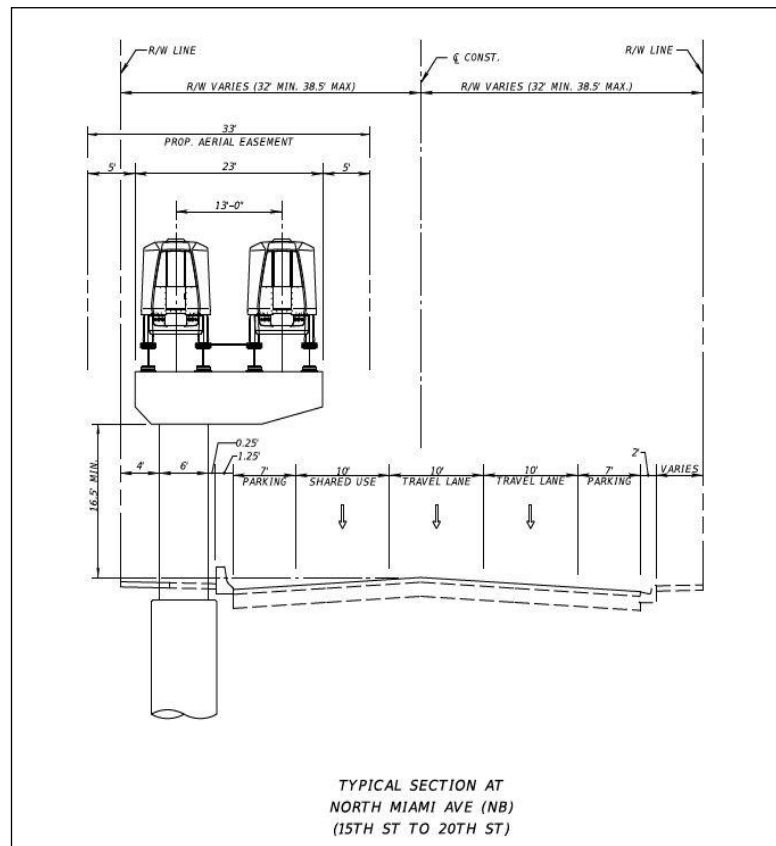
**Figure 4. Resource 8DA01090, with the west entry facing east (top left), east entry facing west (top right), primary pathway facing east (middle left), main road northwest (middle right), Tuttle family graves facing west (bottom left), and Confederate veterans graves facing west (bottom right).**

and Mary Brickell sold 10 acres of land to the City of Miami to be used as a municipal cemetery. This became the first cemetery in the City of Miami and the first municipal cemetery in Dade County. Surrounding the 10-acre tract is an iron fence with the main gate on Northeast 2<sup>nd</sup> Avenue and a secondary gate on North Miami Avenue (see **Figure 4**). A drive bisects the cemetery in an east-west direction connecting the two entrances. Along the drive are two traffic circles on the eastern half of the cemetery.

Based upon the historic research and the results of the CRAS, SEARCH found that the City of Miami Cemetery (8DA01090) should remain listed in the NRHP under NRHP Criteria A and B and under NRHP Special Considerations Criteria C and D due to the age of the cemetery and the important local figures interred there. Additionally, many pioneers and incorporators of Miami are interred there, such as the “Mother of Miami” Julia Tuttle, early city and county officials, the first physician, Bahamian incorporators, and prominent families such as the Belchers, Burdines, Seybolds, Peacocks, and Sewells. Many of the city pioneers and incorporators do not have any known buildings or structures associated with their productive lives. This includes the “Mother of Miami” Julia Tuttle, who aided in securing the FEC Railroad line coming to the area by donating more than 350 acres of land. The City of Miami Cemetery (8DA01090) remains listed in the NRHP for its important role in Miami’s history and the important local figures interred in the cemetery.

### Effects Assessment

Proposed work in the vicinity of the City of Miami Cemetery (8DA01090) consists of the construction of an elevated APM system along North Miami Avenue. Although the proposed APM system will be elevated down the center of the roadway for much of the project along North Miami Avenue, the portion nearest to the cemetery will be shifted to the western side of the roadway (**Figure 5**). Based on the 15% plans, the proposed aerial easement will extend slightly less than halfway across North Miami Avenue from the west. The cemetery is located on the east side of North Miami Avenue between NE 17<sup>th</sup> Terrace and the FEC Railway. The cemetery is located in a highly urban area, and



**Figure 5. Typical section taken from the 15% plans showing the portion of the project in the area of Resource 8DA01090.**



the northwest corner is less than 100 feet (30.5 meters) away from the FEC Railway tracks. Please refer to Sheet Nos. 302 and 303 of the select project plan pages located in **Attachment A** for the project improvements in the vicinity of the cemetery.

Although the proposed APM will be visible from the cemetery, it is unlikely that this would create visual clutter that is inconsistent with what is already present in this highly developed area. Numerous multi-story residential, commercial, institutional, and light industrial buildings are located in the neighborhood surrounding the cemetery, and skyscrapers also are visible.

Furthermore, there are 12 mature trees located along the eastern side of North Miami Avenue between the road and the sidewalk abutting the cemetery (**Figure 6**). These trees create a prominent buffer between the cemetery and any elevated structures on this western side of the cemetery property. There are no plans to alter or remove these trees or any other historic fabric or landscaping features within or adjacent to the cemetery as part of this project. No right-of-way will be taken from the cemetery property.



**Figure 6. Mature trees located along the western side of Resource 8DA01090 (eastern side of North Miami Avenue), facing southeast.**

The APM system is already present in other parts of the city and is known as the Metromover. The construction of the APM system will help to alleviate some of the traffic congestion on North Miami Avenue and NE 2<sup>nd</sup> Avenue, adjacent to the cemetery. The APM system also is considered to be a low noise mode of transport and will not increase the ambient noise level in the cemetery any more than the traffic on the adjacent streets or the nearby FEC Railway. Furthermore, cemeteries are not typically considered noise and vibration sensitive areas, unlike residences, schools, parks, hospitals, or research facilities. The cemetery derives its significance from its history, landscaping features, and association with the important people from Miami's early history interred there. Based on the current information, the Beach Corridor project will have no adverse effect on the NRHP-listed City of Miami Cemetery (8DA01090) or the characteristics that define its eligibility.

## **8DA01176, Fire Station No. 2**

Resource 8DA01176, Fire Station No. 2, ca. 1926, was NRHP-listed in January 1989 under Criteria A and C for Community Planning and Development and Architecture (Eaton and Welcher 1988). Fire Station No. 2 is significant under Criterion A for its construction in

response to the growing demand for municipal services at the height of Miami's land boom. Resource 8DA01176 also is significant under Criterion C as a fine example of the Mediterranean Revival style with its use of stylistic features such as a stucco finish, arched entrance and windows, red tiled roof, wrought iron railings, and tower (**Figure 7**). Additionally, 8DA01176 is significant under Criterion C as a structure designed by August C. Geiger, a prominent architect in Miami-Dade County. Geiger was the architect for the Miami-Dade County School Board and designed several of the municipal and institutional buildings in Miami and Miami Beach. Geiger also was known for introducing the Mediterranean Revival style to Miami in 1915. Based upon the field survey and the historic research conducted for the CRAS, Fire Station No. 2 maintains the level of integrity necessary to convey its significance under Criteria A and C. SEARCH recommended that Fire Station No. 2 (8DA01176) remain listed in the NRHP.

### ***Effects Assessment***

Fire Station No. 2 (8DA01176) is located at the intersection of North Miami Avenue and NW 14<sup>th</sup> Street. Based on the current project information provided in the 15% plans, the nearest improvements are located approximately 265 feet (80.7 meters) north of the resource along NW/NE 15<sup>th</sup> Street near the intersection with North Miami Avenue. **Figure 8** shows the



**Figure 7. Resource 8DA01176, facing southeast (top left), northeast (top right), northwest (bottom left), and west (bottom right) within the Beach Corridor APE.**



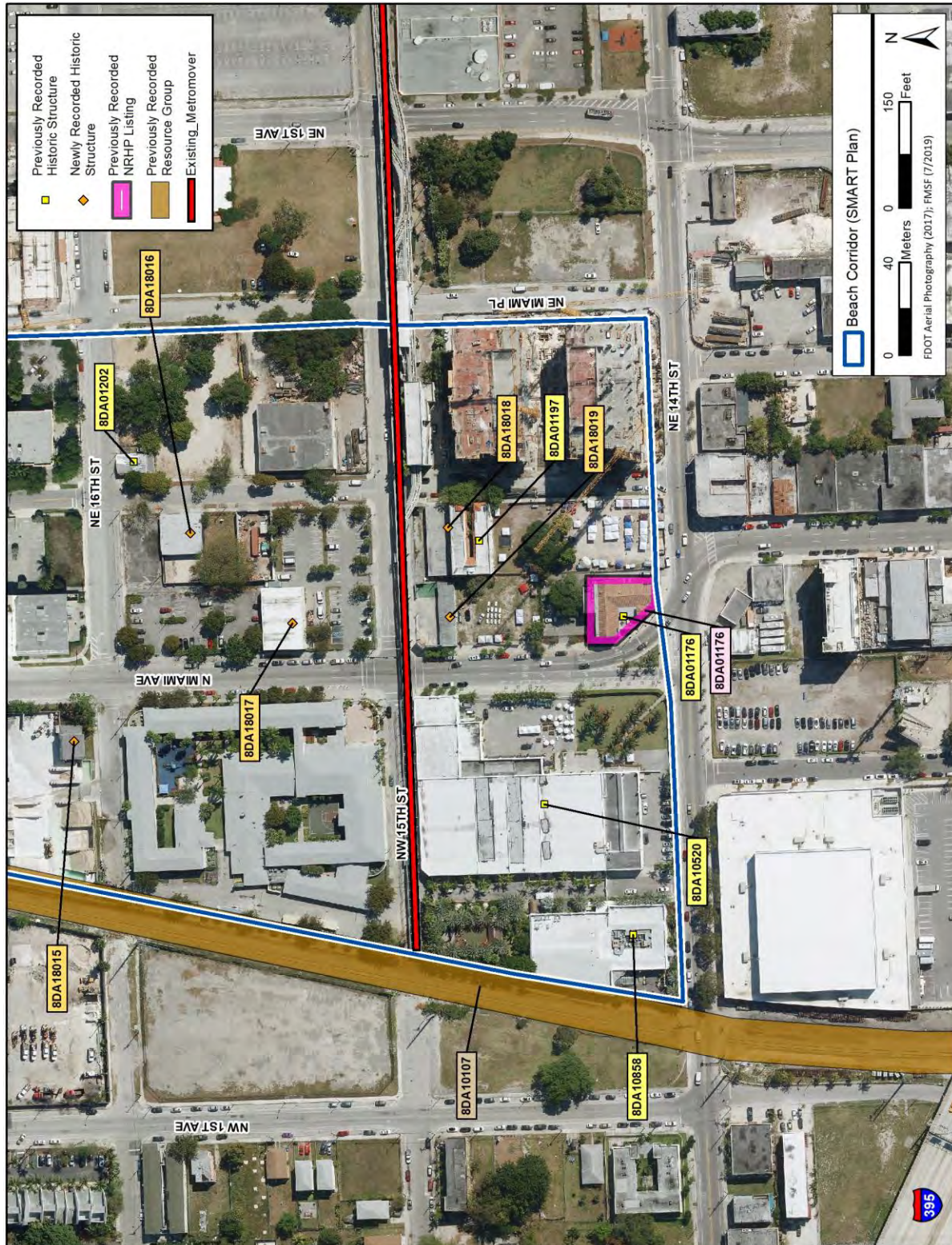


Figure 8. Aerial photograph showing the Beach Corridor APE in the vicinity of 8DA01176, 8DA10520, and 8DA10858.



location of Resource 8DA01176 in relation to the Beach Corridor APE, as well as to NW/NE 15<sup>th</sup> Street. Please also refer to Sheet No. 300 from the 15% project plans, located in **Attachment A**, for the location of the nearest improvements. There is already an elevated APM system (the Metromover) present in this location. The APM system proposed as part of this project will meet the existing Metromover near the intersection between NW/NE 15<sup>th</sup> Street and North Miami Avenue and continue north up North Miami Avenue, away from Resource 8DA01176.

As there is already an APM system in place in the nearest location where project improvements will take place, and as Resource 8DA01176 is already located on a substantial intersection, no additional effects due to noise will occur. The existing access to this building also will not be affected, nor will there be any negative effects to the building related to traffic volume. The improvements do not require the removal of any contributing elements related to the building, and they will not impact the character or function of this historic resource or affect its historic and architectural significance. The current viewshed also will be unaffected by the proposed improvements, as the existing Metromover will block the view of the proposed line to the north. There are presently two concrete block buildings, one residential and one commercial, located between Resource 8DA01176 and the current/proposed APM system, further buffering the building from the improvements. Because it is located such a substantial distance from the improvements and due to the presence of an existing elevated APM system in the area of the proposed improvements, the Beach Corridor project will have no adverse effects on NRHP-listed Fire Station No. 2 (8DA01176).

### 8DA10107, Florida East Coast Railway

Resource 8DA10107, the FEC Railway, is NRHP-eligible under Criterion A for its association with one of Florida's historic railroad periods (Disston Era Expansion and Consolidation, 1881–1903) during which it was built connecting Jacksonville with Miami (**Figure 9**). Resource 8DA10107 also is NRHP-eligible as a means to transport agricultural products to markets, to transport tourists to areas along the eastern coast of Florida, and to open up the area to settlement. During the late nineteenth and early twentieth centuries, the construction of the railroad in this part of Florida allowed for the export of lumber, citrus, vegetables, and passengers from Florida



**Figure 9. Resource 8DA10107 at the intersection of North Miami Avenue and NW 19<sup>th</sup> Street, facing south within the Beach Corridor APE.**

hinterlands to markets across the country, thus integrating Florida into the national economy. The creation of the overall transportation network, not just the main lines, represented the expansion of the local economy and its integration into the larger national economy, an important historical theme.

Based on the results of the CRAS, SEARCH found that the segment of 8DA10107 within the Beach Corridor APE retains enough historic integrity to continue to express its significance under Criteria A and B and to contribute to the overall linear resource. Therefore, the section of 8DA10107 within the Beach Corridor APE remains eligible as a contributing segment to the overall NRHP-eligible linear resource.

### **Effects Assessment**

Based on the review of the current 15% project plans, the project will meet the required 23-foot (7.0-meter) vertical clearance over the railroad and also will meet the 25-foot (7.6-meter) lateral clearance envelope for the support columns. Coordination with the railroad will be required during construction due to the overhead construction of the APM system. Please refer to Sheet No. 303 from the 15% project plans in **Attachment A**, showing the proposed APM system crossing over the FEC Railway.

The APM guideway that will cross over the railroad will not result in an adverse effect to the linear historic resource. This resource is bridged by numerous modern structures throughout its considerable length. Despite these crossings, this resource still maintains its significance, which is related to the history of transportation. The improvements that will take place as part of the Beach Corridor project will still allow the NRHP-eligible FEC Railway (8DA10107) to convey its significance, and no adverse effects are anticipated.

### **8DA10520, Big Time Equipment, Inc.**

Resource 8DA10520, Big Time Equipment, Inc., was determined NRHP-eligible in 2014 under Criterion C for Architecture by the SHPO. The ca. 1924 factory building is a two-story, L-shaped Art Deco structure that features distinctive pilasters, pilaster capitals, and geometric stucco etchings (**Figure 10**). The structure originally housed a lumber company, the Page Lumber Company, but was sold



**Figure 10. Resource 8DA10520, facing southwest within the Beach Corridor APE.**

several times between 1927 and 1963 to rock, sheet metal, mill works, and fan manufacturing companies. In 1963, the building became a warehouse for Lamtrom Industries and was later purchased by Big Time Equipment, Inc. (Janus Research 2014). Based upon the field survey and the historic research undertaken for the CRAS, SEARCH found that 8DA10520 maintains the level of integrity necessary to convey its significance under Criterion C. Therefore, SEARCH recommended that Big Time Equipment, Inc. (8DA10520) remain individually eligible for the NRHP under Criterion C for Architecture.

### **Effects Assessment**

Big Time Equipment, Inc. (8DA10520) is a large structure located on the west side of North Miami Avenue between NW 14<sup>th</sup> Street and NW 15<sup>th</sup> Street, just across North Miami Avenue from Fire Station No. 2 (8DA01176). Based on the current project information provided in the 15% plans, the nearest improvements are located at the intersection of North Miami Avenue and NW/NE 15<sup>th</sup> Street, near the northeast corner of the building. Please refer to Sheet No. 300 from the 15% project plans in **Attachment A**, showing the proposed APM in this location. As noted in the previous effects assessment for Resource 8DA01176, there is already an elevated APM system (the Metromover) present in this location. It currently runs along the south side of NW/NE 15<sup>th</sup> Street and is immediately adjacent to the north side of Resource 8DA10520 with the support columns and the guideway only a few feet from the building (**Figure 11**). The APM system proposed as part of this project will extend out from the current line, crossing on the opposite (northeast) corner of the North Miami Avenue and NW/NE 15<sup>th</sup> Street intersection, and continue north along North Miami Avenue.



**Figure 11. Resource 8DA10520 with the existing Metromover adjacent, facing southwest within the Beach Corridor APE.**

As there is already an elevated APM system in place directly adjacent to Resource 8DA10520, no notable additional audible effects will occur from the addition of a branch line extending out across the other side of the intersection and heading north, away from the building. The existing access to this building also will not be affected, nor will there be any negative effects to the building related to traffic volume. Although the proposed APM will be visible from the building, there are no remaining windows on the north side of the building. Furthermore, the presence of an APM system already located on the same side of the building as that facing the proposed line means that the new line would create no visual clutter that is inconsistent with what is already present in the area. The improvements do not require the removal of any



contributing elements related to the building, and they will not affect the character or function of this historic resource or affect its historic and architectural significance. Therefore, the Beach Corridor project will have no adverse effects on the NRHP-eligible Big Time Equipment, Inc. (8DA10520) building.

### 8DA10858, 71 Northwest 14<sup>th</sup> Street

Resource 8DA10858, 71 Northwest 14<sup>th</sup> Street, was determined eligible for listing in the NRHP in 2014 by the SHPO under Criterion A for Commerce and Criterion B for its association with Lewis Cass Oliver. Resource 8DA10858 is significant under Criterion A as it serves as an example of the expansion and evolution of commerce in the Miami area during the boom period of the 1920s (**Figure 12**). Furthermore, the resource is significant under Criterion B due to its association with Lewis Cass Oliver. Oliver was a pioneer of



**Figure 12. Resource 8DA10858, facing north within the Beach Corridor APE.**

Miami who influenced the early development of the city. Resource 8DA10858, ca. 1921, was originally constructed as the Oliver Ice Company. The building's location along the FEC Railway line was ideal as the company served as Florida's largest ice manufacturer at the time. The president of Oliver Ice Company, Lewis Cass Oliver, was an early pioneer and incorporator of Miami and lived throughout the east coast of Florida (Cutler 1923; *Miami Daily Metropolis* 1920; *Miami Metropolis* 1921; Janus Research 2014). Based on the field survey and further research undertaken for the CRAS, SEARCH recommended that 71 Northwest 14<sup>th</sup> Street remain eligible for listing in the NRHP.

Oliver first moved to Florida in 1887 and settled in Titusville. There, Oliver started a lumber business. Nine years later, Oliver moved to Miami before the train service began to expand his lumber business and became the first lumber dealer in Miami. Additionally, Oliver opened a small ice plant, also the first in the city, and constructed a home. The home was located on the northwest corner of present-day Southeast 2<sup>nd</sup> Avenue and Southeast 1<sup>st</sup> Street and was replaced by the Hotel Urmey. In 1909, Oliver sold both businesses and moved to Jacksonville and eventually back to Titusville. In 1920, Oliver chartered the Oliver Ice Company and moved back to Miami the following year for the business. Oliver's second attempt at an ice plant resulted in the largest ice plant in Florida, which produced approximately 225 tons of ice per day (Cutler 1923; *Miami Metropolis* 1921; Piket 2016).

## **Effects Assessment**

The building at 71 Northwest 14<sup>th</sup> Street (8DA10858) is located on the north side of NW 14<sup>th</sup> Avenue between NW Miami Court and the FEC Railway, just across NW Miami Court from Big Time Equipment, Inc. (8DA10520). Based on the current project information provided in the 15% plans, the nearest improvements are located at the intersection of North Miami Avenue and NW/NE 15<sup>th</sup> Street (see Sheet No. 300 in **Attachment A**), and the large Big Time Equipment, Inc. (8DA10520) building separates Resource 8DA10858 from the proposed improvements. As noted in the previous effects assessments for 8DA01176 and 8DA10520, there is already an elevated APM system (the Metromover) present in this location. The Metromover currently runs along the south side of NW 15<sup>th</sup> Street and its current western terminus appears to be slightly visible to the north from 8DA10858, although there is substantial planted tropical vegetation obscuring much of the view north of the building. The proposed APM system will extend out from the current line, crossing on the northeast portion of the North Miami Avenue and NW/NE 15<sup>th</sup> Street intersection, and continue north along North Miami Avenue.

As there is already an elevated APM system directly north approximately 150 feet (45.7 meters) from Resource 8DA1052, no additional audible effects will occur from the addition of a branch line extending out north from the North Miami Avenue and NW/NE 15<sup>th</sup> Street intersection, which is more than 400 feet (122 meters) from the building. The existing access to this building also will not be affected, nor will there be any effects to the building related to traffic volume. The proposed APM will not be visible from Resource 8DA10858, as the large Big Time Equipment, Inc. (8DA10520) building is located between it and the proposed improvements, obscuring the view (see **Figure 8**). The project will not require the removal of any contributing elements related to the building, the character or function of this historic resource will not be affected, and its historic and architectural significance will remain intact. Therefore, the Beach Corridor project will have no adverse effects on the NRHP-eligible building at 71 Northwest 14<sup>th</sup> Street (8DA10858).

## **8DA11415, Ocean Beach Historic District**

Resource 8DA11415, the Ocean Beach Historic District contains 217 surveyed structures, of which 129 are contributing to the City of Miami Beach locally designated district (**Figure 13**). The District covers an area of 0.16 square miles (0.41 square kilometers). The SHPO has not evaluated the NRHP eligibility of 8DA11415; however, the District has been locally designated since 1996. Since 2005, 8DA11415 has been designated as a Certified Historic District allowing property owners to apply for Federal Rehabilitation Tax Credits per 36 CFR 67: Historic Preservation Certifications Pursuant to Sec. 48(g) and Sec 170(h) of the Internal Revenue Code of 1986. In a 2004 letter to the NPS attached to the Florida Master Site File (FMSF) form, Barbara Mattick, Deputy SHPO, recommended the use of Criterion A for Community Planning and Development, and Ethnic Heritage: Jewish, and Criterion C for Architecture as areas of significance for the Ocean Beach Historic District. Mattick also recommended the period of significance as 1915–1954. Due to the 40-year period of significance, several styles can be





**Figure 13. Representative views of 8DA11415 within the Beach Corridor APE. Top left: Intersection of Washington Avenue and 5<sup>th</sup> Street, facing southwest; Top right: Intersection of Lenox Avenue and 5<sup>th</sup> Street with 8DA18064 in the background, facing northwest; Middle left: 8DA00545, an Art Deco structure that maintains its details, facing northeast; Middle right: 8DA18074, an Art Deco structure that lacks ornamentation; Bottom left: 8DA11638, a Mediterranean Revival structure, facing northeast; Bottom right: 8DA00887, an Art Moderne structure, facing southeast.**

found within the district, including Bungalow, Mediterranean Revival, Art Deco, Moderne, and Mid-Century Modern (see **Figure 13**). In 2020, SEARCH recommended the Ocean Beach Historic District NRHP-eligible under Criteria A and C. Within the Beach Corridor APE, the Ocean Beach Historic District contains 46 NRHP-eligible resources as contributing structures (Gomez 2005).

Beginning in 1912, the development of the Ocean Beach Historic District is linked to the Lummus brothers and their Ocean Beach Realty Company. By 1915, the Ocean Beach area had graded streets, property plots, a hotel, and the infrastructure required for utilities in the area (Gomez 2005; Lummus 1941). While most of Miami Beach placed restrictive covenants in their land deeds prohibiting the sale of Miami Beach lots to anyone with Jewish heritage, the Lummus brothers did not have such stipulations. The lack of discrimination in the area south of 5<sup>th</sup> Street allowed for a flourishing Jewish population, including Jewish-owned hotels, restaurants, and apartments such as Joe's Stone Crab Restaurant (8DA00727), the Nemo Hotel (8DA00728), the Seabreeze Hotel, and the city's first synagogue the Temple Beth Jacob (8DA00950). Although the restrictions lessened after the Great Depression and World War II, several businesses continued to offer no service to anyone with Jewish heritage until the Civil Rights Act of 1964 (Bramson 2008; Jewish Virtual Library 2019). It is estimated that a quarter of the landowners in what would become the Ocean Beach Historic District were of Jewish heritage between 1922 and 1953 (Gomez 2005).

Following World War II, the growth in the neighborhood was slower compared to the northern portions of Miami Beach. Rather than building new resort hotels with private beaches, the buildings in Ocean Beach catered to a modest clientele and minimal improvements were made on the small structures (Gomez 2005). When the City of Miami Beach's Planning, Design, and Historic Preservation Division completed their survey in 1995, substantial rehabilitation and adaptive re-use was prevalent in the Ocean Beach District (City of Miami Beach Planning, Design, and Historic Preservation Division 1995).

**Table 3** below lists all contributing historic structures within the Ocean Beach Historic District (8DA11415) that are located within the Beach Corridor APE. **Figures 14** and **15** show the locations of these resources, as well as the boundaries of 8DA11415 in relation to the APE. It should also be noted that the Lennox Village (8DA00552) resource group, which is comprised of three structures (8DA18055, 8DA18056, and 8DA18057), is located within the boundaries of 8DA11415 and the project APE. Although not individually eligible for the NRHP, Lennox Village (8DA00552) is considered contributing to 8DA11415. **Figures 16** through **61** present photographs of each of the contributing structures located within the district and the APE.

**Table 3. Contributing Historic Structures within the Ocean Beach Historic District (8DA11415) within the Beach Corridor APE.**

FMSF No.	Address/Name	Style	Year Built	Architect
8DA00545	Lindberg Hotel 711 5 <sup>th</sup> Street	Art Deco	1930	T. Hunter Henderson
8DA00887	Lurita Apartments 551-559 Michigan Avenue	Moderne	1940	Edward A. Nolan
8DA00959	636 6 <sup>th</sup> Street	Art Deco	1940	Joseph J. DeBrita

**Table 3. Contributing Historic Structures within the Ocean Beach Historic District (8DA11415) within the Beach Corridor APE.**

FMSF No.	Address/Name	Style	Year Built	Architect
8DA00979	421 Washington Avenue	Mediterranean Revival/ Art Deco Transitional	1923	Unknown
8DA11637	Martha Apartments 747 4 <sup>th</sup> Street	Mediterranean Revival	1930	Victor H. Nellenbogen
8DA11638	Euclid Lofts 739 4 <sup>th</sup> Street	Mediterranean Revival	1930	Victor H. Nellenbogen
8DA11652	Sunsouth Place 530 Meridian Avenue	Art Deco	1940	David T. Ellis
8DA18049	421 Meridian Avenue	Moderne	1940	Edward A. Nolan
8DA18055	1050 6 <sup>th</sup> Street	Art Deco	1938	Henry Hohauser
8DA18056	1040 6 <sup>th</sup> Street	Art Deco	1938	Henry Hohauser
8DA18057	1030 6 <sup>th</sup> Street	Art Deco	1938	Henry Hohauser
8DA18058	1020 6 <sup>th</sup> Street	Art Deco	1936	Henry Hohauser
8DA18059	560 Michigan Avenue	Art Deco	1936	Henry Hohauser
8DA18060	550 Michigan Avenue	Art Deco	1936	Henry Hohauser
8DA18061	544 Michigan Avenue	Post War Modern	1959	A. J. Simberg
8DA18062	532 Michigan Avenue	Mediterranean Revival	1925	J. C. Gault
8DA18064*	1103 5 <sup>th</sup> Street	Unknown	Unknown	Unknown
8DA18066	455 Lenox Avenue	Post War Modern	1949	Milton Abrams
8DA18067	411 Michigan Avenue Building #1	Mediterranean Revival	1933	Owner
8DA18068	411 Michigan Avenue Building #2	Mediterranean Revival	1934	Owner
8DA18069	941 4 <sup>th</sup> Street	Mediterranean Revival	1930	Victor H. Nellenbogen
8DA18070	935 4 <sup>th</sup> Street	Unknown	1940	Unknown
8DA18071	927 4 <sup>th</sup> Street	Mediterranean Revival	1930	Joseph H. Smith
8DA18072	919 4 <sup>th</sup> Street	Unknown	1938	B. Kingston Hall
8DA18074	521 Michigan Avenue	Art Deco	1940	Albert Anis
8DA18075	531 Michigan Avenue	Art Deco	1940	Robert E. Collins
8DA18076	900 6 <sup>th</sup> Street	Post War Modern	1965	Charles H. Markell
8DA18077	543 Jefferson Avenue	Mediterranean Revival	1924	Edward A. Nolan
8DA18081	837 4 <sup>th</sup> Street	Post War Modern	1946	A. Herbert Mathes
8DA18082	829 4 <sup>th</sup> Street	Post War Modern	1952	Harry C. Schwebke
8DA18083	815 4 <sup>th</sup> Street Building #1	Post War Modern	1952	Gerard Pitt
8DA18084	815 4 <sup>th</sup> Street Building #2	Frame Vernacular	1921	Unknown
8DA18085	410 Meridian Avenue	Art Deco	1937	B. Kingston Hall
8DA18086	426 Meridian Avenue Building #1	Mediterranean Revival	1925	Unknown
8DA18087	426 Meridian Avenue Building #2	Post War Modern	1953	Gerard Pitt
8DA18088	819 5 <sup>th</sup> Street	Masonry Vernacular	1921	Unknown
8DA18090	814 6 <sup>th</sup> Street	Post War Modern	1949	Donald G. Smith
8DA18091	545 Michigan Avenue	Mediterranean Revival/Art Deco	1940	Henry Hohauser
8DA18093	549 Meridian Avenue	Post War Modern	1964	Gerard Pitt
8DA18094	543 Meridian Avenue	Post War Modern	1964	Gerard Pitt
8DA18097	411 Meridian Avenue	Art Deco	1936	T. Hunter Henderson
8DA18098	701 4 <sup>th</sup> Street	Mediterranean Revival	1924	Unknown

**Table 3. Contributing Historic Structures within the Ocean Beach Historic District (8DA11415) within the Beach Corridor APE.**

FMSF No.	Address/Name	Style	Year Built	Architect
8DA18102	520 Euclid Avenue	Post War Modern	1961	W. M. Freidman
8DA18107	540-590 Washington Avenue	Art Deco	1935/1946	Henry Hohauser
8DA18108	534 Washington Avenue	Moderne	1939	Henry Hohauser
8DA18111	437 Washington Avenue	Art Deco	1935	Robertson and Patterson
8DA18112	411 Washington Avenue	Mediterranean Revival	1935	Henry Hohauser

*Structures marked with an \* are no longer considered contributing according to the Miami Beach Historic Structures Database.*

*Structures highlighted in orange have later been determined to be contributing to the local district according to the Miami Beach Historic Structures Database.*

The Ocean Beach Historic District (8DA11415) was previously designated a Certified Historic District, allowing property owners to apply for Federal Rehabilitation Tax Credits. The FMSF form from 2005 notes that this district meets NRHP Criterion A for Community Planning and Development, and Ethnic Heritage: Jewish, and Criterion C for Architecture (Gomez 2005). Based on the field survey and further research undertaken for the CRAS, SEARCH recommended that Resource 8DA11415 remains significant under Criterion A for Community Planning and Development, and Ethnic Heritage: Jewish.

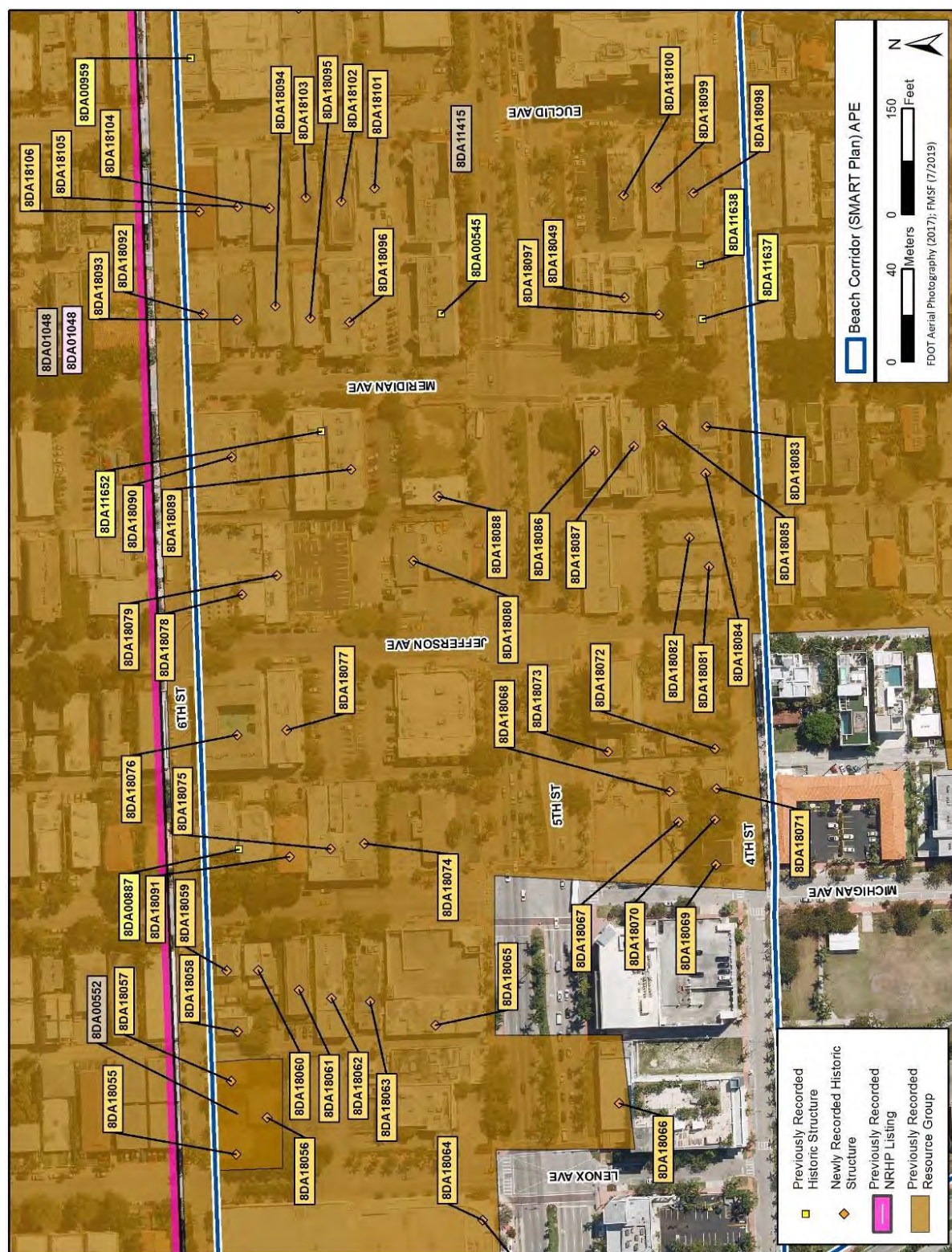
Resource 8DA11415 was the first platted area on Miami Beach and helped to establish the city block grid for all of Miami Beach. Additionally, people of Jewish heritage were able to purchase land, open and maintain businesses, and vacation unlike in areas north of 8DA11415. The lack of discrimination towards those with Jewish heritage allowed for a unique and flourishing Jewish community. The resource also remains significant under Criterion C as the district provides excellent examples of Art Deco, Art Moderne, Mid-Century Modern, and Mediterranean Revival.

Furthermore, structures within the district are representative of master works of several significant architects credited with the overall design, development, and aesthetics of Miami Beach. Some of the influential architects includes Lawrence Murray Dixon, Henry Hohauser, Carlos Schoepf, Albert Anis, Victor H. Nellenbogen, Anton Skislewicz, and Norden and Nagel. The CRAS report showed that the Ocean Beach Historic District maintains a level of integrity necessary to convey its significance under Criteria A and C. Therefore, SEARCH recommended the Ocean Beach Historic District (8DA11415) eligible for listing in the NRHP.

### ***Effects Assessment***

The proposed improvements intersect with the boundaries of the NRHP-eligible Ocean Beach Historic District (8DA11415) along 5<sup>th</sup> Street (State Road [SR] A1A), as the project corridor in Miami Beach runs along 5<sup>th</sup> Street from Washington Avenue to the MacArthur Causeway. The project APE encompasses numerous historic structures contributing to the district.







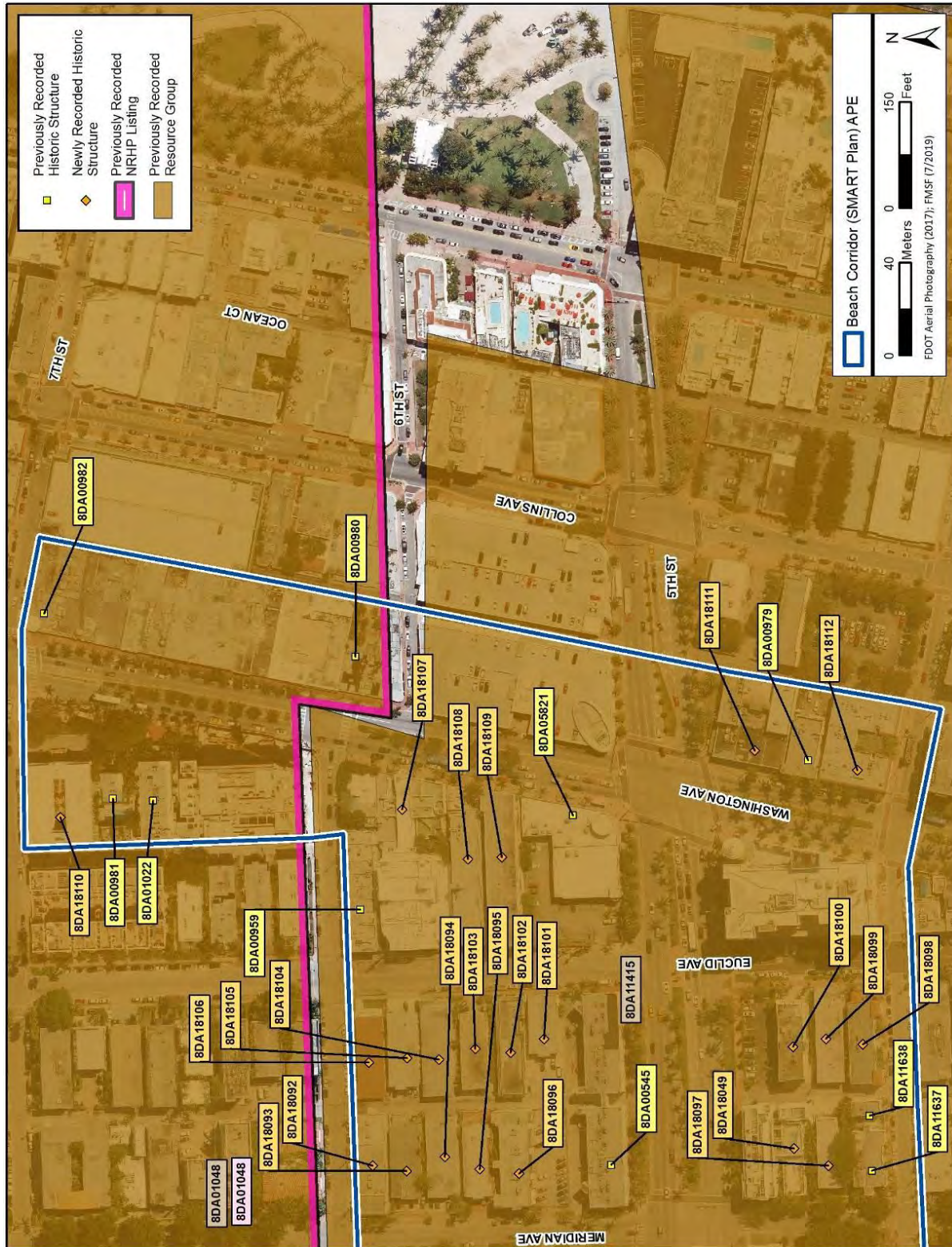


Figure 15. Aerial photograph showing the Beach Corridor (SMART Plan) APE in the vicinity of 8DA11415.





Figure 16. Resource 8DA00545, facing northwest within the Beach Corridor APE.



Figure 17. Resource 8DA00887, facing southeast within the Beach Corridor APE.





Figure 18. Resource 8DA00959, facing southeast within the Beach Corridor APE.



Figure 19. Resource 8DA00979, facing northeast within the Beach Corridor APE.





Figure 20. Resource 8DA11637, facing northeast within the Beach Corridor APE.



Figure 21. Resource 8DA11638, facing northeast within the Beach Corridor APE.





**Figure 22. Resource 8DA11652, facing southwest within the Beach Corridor APE.**



**Figure 23. Resource 8DA18049, facing southeast within the Beach Corridor APE.**





Figure 24. Resource 8DA18055, facing west within the Beach Corridor APE.



Figure 25. Resource 8DA18056, facing southwest within the Beach Corridor APE.





Figure 26. Resource 8DA18057, facing east within the Beach Corridor APE.



Figure 27. Resource 8DA18058, facing southeast within the Beach Corridor APE.





**Figure 28. Resource 8DA18059, facing southwest within the Beach Corridor APE.**



**Figure 29. Resource 8DA18060, facing northwest within the Beach Corridor APE.**





Figure 30. Resource 8DA18061, facing west within the Beach Corridor APE.



Figure 31. Resource 8DA18062, facing northwest within the Beach Corridor APE.





Figure 32. Resource 8DA18066, facing southeast within the Beach Corridor APE.



Figure 33. Resource 8DA18067, facing southeast within the Beach Corridor APE.





Figure 34. Resource 8DA18068, facing east within the Beach Corridor APE.



Figure 35. Resource 8DA18069, facing northeast within the Beach Corridor APE.





Figure 36. Resource 8DA18070, facing north within the Beach Corridor APE.



Figure 37. Resource 8DA18071, facing northwest within the Beach Corridor APE.





Figure 38. Resource 8DA18072, facing northeast within the Beach Corridor APE.



Figure 39. Resource 8DA18074, facing northeast within the Beach Corridor APE.



**Figure 40. Resource 8DA18075, facing southeast within the Beach Corridor APE.**



**Figure 41. Resource 8DA18076, facing southwest within the Beach Corridor APE.**





Figure 42. Resource 8DA18077, facing northwest within the Beach Corridor APE.



Figure 43. Resource 8DA18081, facing northwest within the Beach Corridor APE.





Figure 44. Resource 8DA18082, facing northeast within the Beach Corridor APE.



Figure 45. Resource 8DA18083, facing northeast within the Beach Corridor APE.





Figure 46. Resource 8DA18084, facing northwest within the Beach Corridor APE.



Figure 47. Resource 8DA18085, facing southwest within the Beach Corridor APE.





Figure 48. Resource 8DA18086, facing southwest within the Beach Corridor APE.



Figure 49. Resource 8DA18087, facing northwest within the Beach Corridor APE.





Figure 50. Resource 8DA18088, facing northeast within the Beach Corridor APE.



Figure 51. Resource 8DA18090, facing southwest within the Beach Corridor APE.





Figure 52. Resource 8DA18091, facing east within the Beach Corridor APE.



Figure 53. Resource 8DA18092, facing northeast within the Beach Corridor APE.





Figure 54. Resource 8DA18094, facing northeast within the Beach Corridor APE.



Figure 55. Resource 8DA18097, facing northeast within the Beach Corridor APE.





Figure 56. Resource 8DA18098, facing southeast within the Beach Corridor APE.



Figure 57. Resource 8DA18102, facing southwest within the Beach Corridor APE.





Figure 58. Resource 8DA18107, facing northwest within the Beach Corridor APE.



Figure 59. Resource 8DA18108, facing northwest within the Beach Corridor APE.





Figure 60. Resource 8DA18111, facing southeast within the Beach Corridor APE.

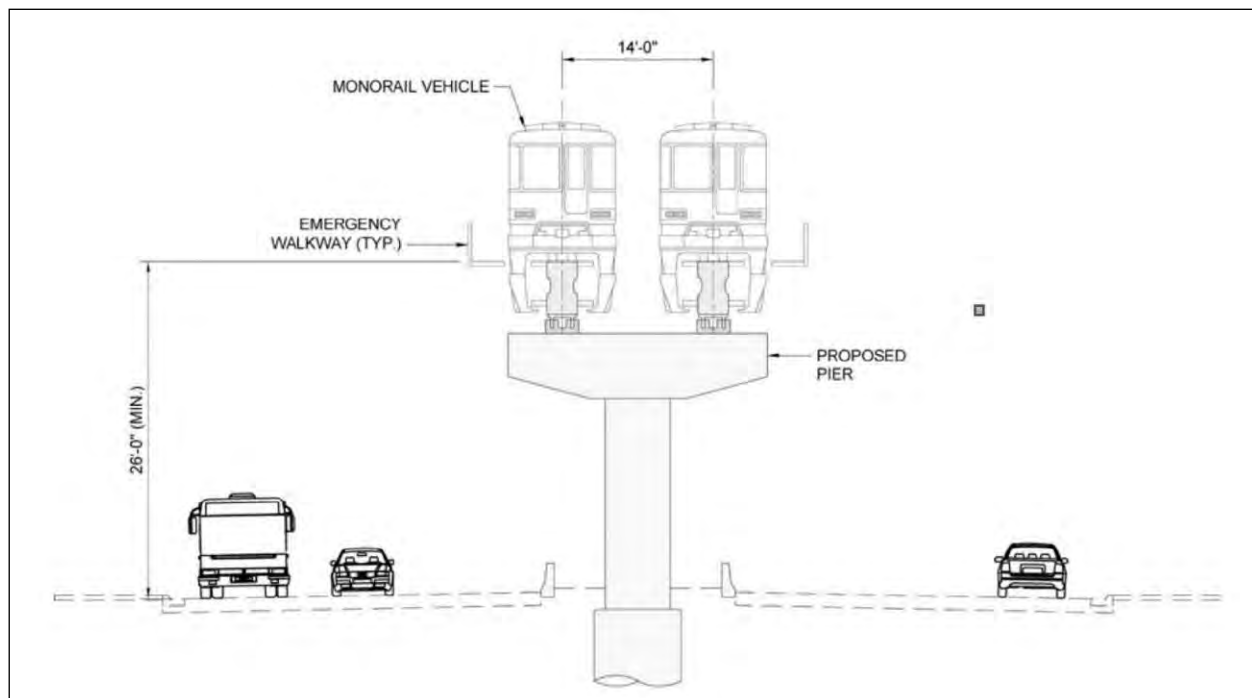


Figure 61. Resource 8DA18112, facing east within the Beach Corridor APE.

Proposed improvements taking place within 8DA11415 involve the construction of an elevated rubber tire mode, either APM or Monorail, that will begin at a new station at Herald Plaza that directly connects with the existing Metromover. It will continue east along a new elevated guideway structure along the south side of MacArthur Causeway, then traverse down the center of 5<sup>th</sup> Street (**Figure 62**) before terminating at 5<sup>th</sup> Street and Washington Avenue, in Miami Beach. In Miami Beach, new stations would be provided at 5<sup>th</sup> Street and Washington Avenue and on 5<sup>th</sup> Street between Lenox Avenue and Michigan Avenue. The portion of the project corridor roughly between Lenox Avenue and Washington Avenue is within the Ocean Beach Historic District (8DA11415) (see **Figures 14** and **15**). Please refer to Sheet Nos. 232-235 from the 15% project plans in **Attachment A**, which show the proposed improvements within the district.

The proposed improvements within the Ocean Beach Historic District (8DA11415) will not require additional right-of-way from the district, and no historic fabric will be removed or altered by the project. The feeling, setting, and association of 8DA11415 has noticeably changed since 1980, particularly along 5<sup>th</sup> Street, which is a major east-west thoroughfare that has been altered substantially over the years. Many structures along 5<sup>th</sup> Street in the vicinity of the improvements have now been noticeably altered or demolished. The current elements present within the 5<sup>th</sup> Street right-of-way, such as the sidewalks, driveways, curbing, medians, lighting, landscaping, etc. are non-historic and are non-contributing elements, as none contribute to the district's significance.

The improvements associated with this project will not affect the resources that contribute to the district's overall significance. Due to the substantial non-historic changes that have already



**Figure 62. Drawing of the proposed APM/Monorail system along 5<sup>th</sup> Street in Miami Beach.**



affected the 5<sup>th</sup> Street corridor, the addition of an APM or Monorail and stations down the center of the six-lane thoroughfare will not cause an adverse effect to the district. The integrity of the historic location, design, setting, materials, workmanship, feeling, and association that speak to the district's significance have already been largely removed along 5<sup>th</sup> Street, with the exception of some of the remaining historic buildings. Additionally, the district will retain its accessibility via car traffic on 5<sup>th</sup> Street as before, but also receive the benefit of increased accessibility via the new APM or Monorail. The district's current use also will continue as is.

An FTA transit noise analysis also was conducted for the project. Due to the low noise levels inherent to the APM and Monorail transit modes, the study found that there are only two moderate impacts that are along the plotted moderate impact line between moderate impact and no impact and that noise from the project would be below existing noise levels (Parsons 2020). Furthermore, the study concluded that no vibration impacts are projected (Parsons 2020). Due to the high level of current high traffic area compared to the relatively low levels of noise generated by the APM or Monorail modes, the project is not expected to result in any significant ground-borne vibration or noise issues within the historic district. However, continued consultation will take place during the design phase to ensure the surrounding viewsheds and district aesthetics will not be adversely affected.

The addition of the APM/Monorail and associated stations along the central portion of 5<sup>th</sup> Street will in no way diminish those qualities that render the historic district significant, namely the district's historical connection to the development of Miami Beach, its importance in Jewish ethnic history, or the architecture of its contributing buildings. The project will not interfere with the integrity of the character-defining features that comprise many of the commercial and residential historic resources within the district. SEARCH has determined that the proposed undertaking's effects do not meet the criteria of adverse effect as described above and would not alter any characteristics that qualify 8DA11415 for inclusion in the NRHP in a manner that would diminish any significant aspects of integrity. Based on the current project plans, the Beach Corridor project will have no adverse effects on the NRHP-eligible Ocean Beach Historic District (8DA11415).

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## CONCLUSION

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This technical memorandum provides an effects discussion regarding the proposed Beach Corridor Rapid Transit Project and the effects the project could have on resources within the project's APE. The Beach Corridor Rapid Transit Project will not require the acquisition of right-of-way from the properties, and the indirect effects will not compromise the historical significance or architectural integrity of the resources to the extent that they can no longer convey their importance. Based on a review of the proposed plans, it is the opinion of SEARCH that the project will have no adverse effects to the NRHP-eligible or -listed resources (**Table 4**).

**Table 4. Effects Recommendations the Beach Corridor Rapid Transit Project.**

FMSF No.	Name/Address	Style	Year Built/Period of Significance	Effects Finding
8DA01048	Miami Beach Architectural District	No Style	1912-1965	No Adverse Effect
8DA01090	City of Miami Cemetery	No Style	ca. 1897	No Adverse Effect
8DA01176	Fire Station No. 2 1401 North Miami Avenue	Mediterranean Revival	ca. 1926	No Adverse Effect
8DA10107	FEC Railway	No Style	ca. 1896	No Adverse Effect
8DA10520	Big Time Equipment, Inc. 59 Northwest 14 <sup>th</sup> Street	Art Deco	ca. 1924	No Adverse Effect
8DA10858	71 Northwest 14 <sup>th</sup> Street	Art Deco	ca. 1921	No Adverse Effect
8DA11415	Ocean Beach Historic District	No Style	1912-1965	No Adverse Effect

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**ATTACHMENT A:**

**SELECT PAGES FROM THE 15% PROJECT PLANS**

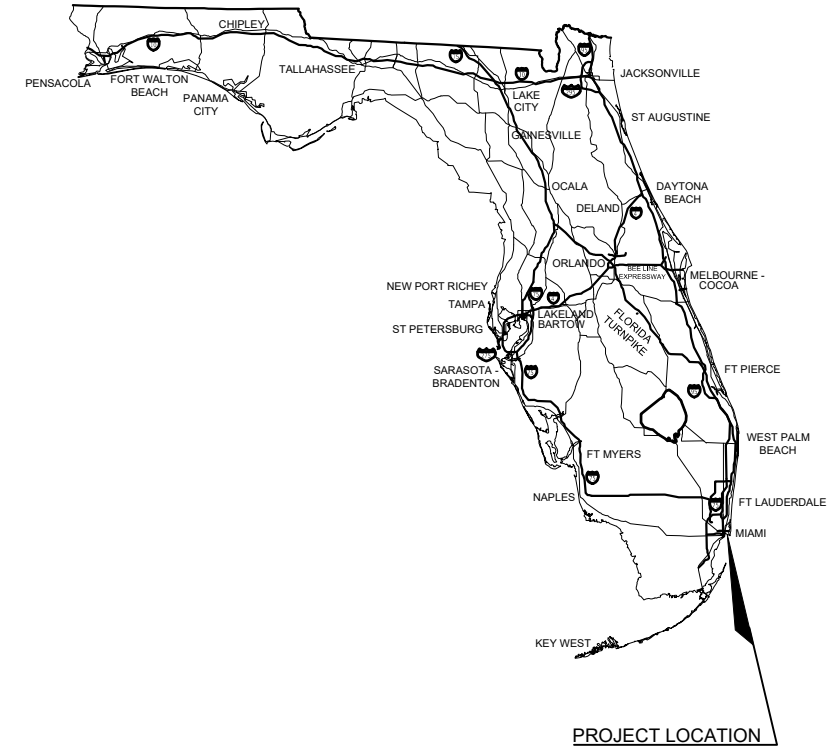


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# MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS (DPTW)

## 15% CONCEPT PLANS

### BEACH CORRIDOR RAPID TRANSIT PROJECT PD&E MIAMI-DADE COUNTY



BEACH CORRIDOR RAPID TRANSIT PROJECT PD&E

ANGEL ANDRE CHAVARRIA, P.E.  
P.E. NO.: 69285  
PARSONS  
7600 CORPORATE CENTER DRIVE, SUITE 104  
MIAMI, FL 33126  
CONTRACT NO.: CIP142-1-TPW16-PE1(1)  
PROJECT NO.: CIP153  
VENDOR NO.: 360982270 04  
CERTIFICATE OF AUTHORIZATION NO.: 1838  
MIAMI-DADE DTPW PM:  
JIE BIAN, Ph. D.

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
T-0000	2020	100

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GENERAL LEGEND

	PROPOSED AERIAL EASEMENT
	FDOT R/W
	METROMOVER R/W
	EXISTING 36" WM
	BURIED FIBER OPTIC (D)
	BURIED FIBER OPTIC CABLE (B)
	BURIED FIBER OPTIC ELECTRIC (D)
	BURIED ELECTRIC (A)
	BURIED ELECTRIC (B)
	BURIED ELECTRIC (D)
	BURIED TELEPHONE (B)
	BURIED TELEPHONE (C)
	BURIED TELEPHONE (D)
	BURIED NON-POTABLE WATER LINE (D)
	OVERHEAD ELECTRIC
	BURIED SANITARY SEWER (C)
	BURIED SANITARY SEWER (D)
	BURIED WATER LINE (B)
	BURIED WATER LINE (C)
	BURIED WATER LINE (D)

	STATION PLATFORM
	MILLING AND RESURFACING PAVEMENT
	GRASS MEDIAN
	HARDSCAPE MEDIAN
	PROPOSED CURB RAMPS

ABBREVIATIONS

A/E	-	ARCHITECT / ENGINEER
AH	-	AHEAD
APPROX.	-	APPROXIMATE
ASPH.	-	ASPHALT / ASPHALTIC
BL	-	BASELINE
BK	-	BACK
BLVD.	-	BOULEVARD
BOT. EL.	-	BOTTOM ELEVATION
BOT.	-	BOTTOM
CL	-	CENTERLINE
CLR.	-	CLEARANCE
CONC.	-	CONCRETE
CONST.	-	CONSTRUCT / CONSTRUCTION
CSWY	-	CAUSEWAY
DIA.	-	DIAMETER
Ø	-	DIAMETER
E	-	EAST / EASTING
EA	-	EACH
EB	-	EASTBOUND
EL.	-	ELEVATION
ENG.	-	ENGINEER
EQ	-	EQUATION
E.W.	-	EACH WAY
EXIST.	-	EXISTING
FT.	-	FOOT / FEET
HOR.	-	HORIZONTAL
IB	-	INBOUND
LT	-	LEFT
MAX.	-	MAXIMUM
MHW	-	MEAN HEIGHT WATER TABLE
MIN.	-	MINIMUM
MLW	-	MEAN LOW WATER TABLE
N	-	NORTH / NORTHING
N.I.C.	-	NOT IN CONTRACT
N.T.S.	-	NOT TO SCALE
OB	-	OUTBOUND
OFF.	-	OFFSET
PAV'T	-	PAVEMENT
PD&E	-	PROJECT DEVELOPMENT AND ENVIRONMENT
PM	-	PROJECT MANAGER
PROP.	-	PORPOSED
RDWY	-	ROADWAY
REQ'D	-	REQUIRED
RT	-	RIGHT
R/W	-	RIGHT OF WAY
S	-	SOUTH
SCHED.	-	SCHEDULE
SDWK	-	SIDEWALK
ST.	-	STREET
STA.	-	STATIONING
STRUCT	-	STRUCTURE
TK	-	TRACK
TK EB	-	EASTBOUND TRACK
TK WB	-	WESTBOUND TRACK
TK XO	-	CROSS OVER TRACK
T/P	-	TOP OF PLINTH
T.O.R.	-	TOP OF RAIL
TYP.	-	TYPICAL
V.C.	-	VERTICAL CURVE
VERT.	-	VERTICAL
W	-	WEST
WB	-	WESTBOUND
WM	-	WATER MAIN
XO	-	CROSS OVER

CURVE / SPIRAL DEFINITIONS:

Ls	-	LENGTH OF SPIRAL MEASURED ALONG THE SPIRAL
Dc	-	DEGREE OF CURVE
R	-	RADIUS OF CIRCULAR CURVE
Δ	-	TOTAL INTERSECTION ANGLE
Δc	-	CENTRAL ANGLE OF CIRCULAR CURVE
Δs	-	CENTRAL ANGLE OF SPIRAL
PC	-	POINT OF CURVATURE
PI	-	POINT OF INTERSECTION (SPIRAL-CURVE-SPIRAL)
Plc	-	POINT OF INTERSECTION (CURVE)
Pls	-	POINT OF INTERSECTION (SPIRAL)
PT	-	POINT OF TANGENCY
TS	-	TANGENT - TO - SPIRAL
SC	-	SPIRAL - TO - CURVE
CS	-	CURVE - TO - SPIRAL
ST	-	SPIRAL - TO - TANGENT
T	-	TANGENT LENGTH FROM PC TO Plc OR Plc TO PT
L	-	LENGTH OF CIRCULAR ARC FROM PC TO PT OR SC TO CS
LC	-	LENGTH OF CHORD FROM PC TO PT OR SC TO CS
E	-	EXTERNAL DISTANCE
M	-	MIDDLE ORDINATE DISTANCE
Ts	-	TANGENT LENGTH FROM TS TO TI OR PI TO ST
Ea	-	ACTUAL SUPERELEVATION (PERCENTAGE)

AGENCIES / COMPANIES

DTPW	-	DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
FDOT	-	FLORIDA DEPARTMENT OF TRANSPORTATION
FEC	-	FLORIDA EAST COAST/VIRGIN TRAINS (BRIGHTLINE)
FPL	-	FLORIDA POWER AND LIGHT
MDX	-	MIAMI DADE EXPRESSWAY AUTHORITY
POMT	-	PORT OF MIAMI TUNNEL
SFRTA	-	SOUTH FLORIDA REGIONAL TRANSIT AGENCY

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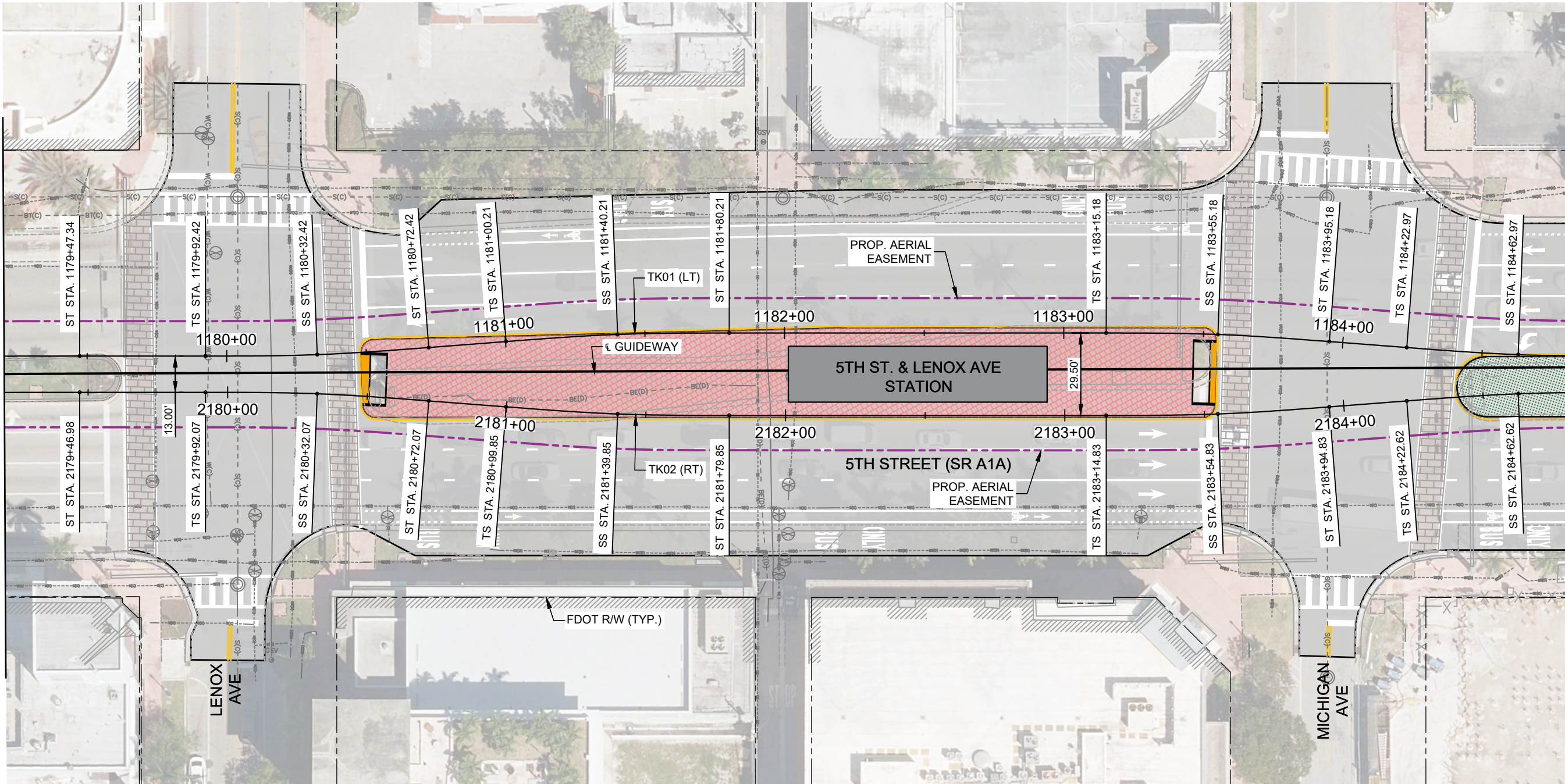
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CERTIFICATE OF AUTHORIZATION No. 1838  
A. CHAVARRIA, P.E. LICENSE No. 69285

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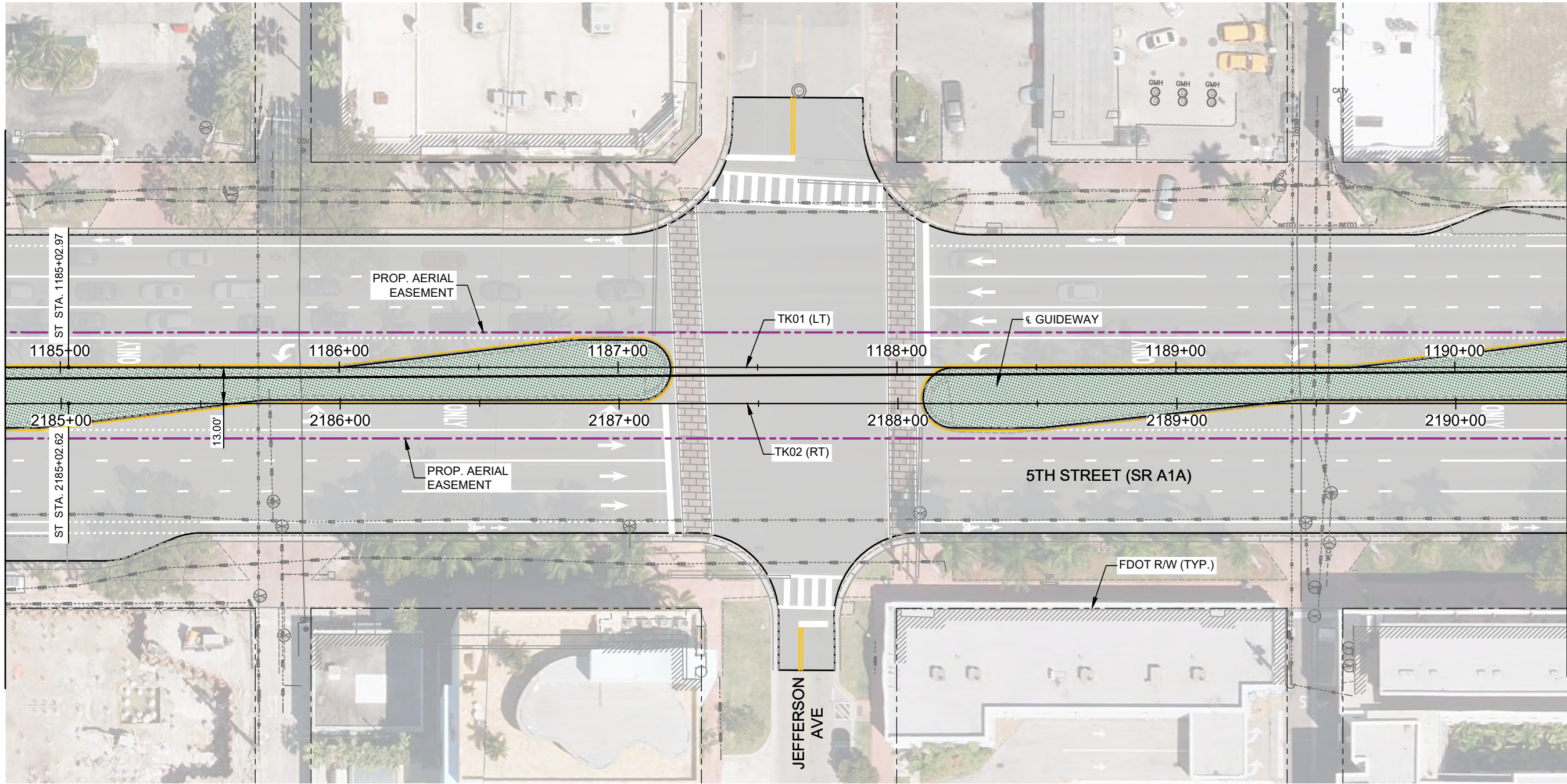
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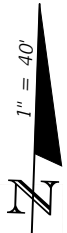


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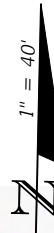
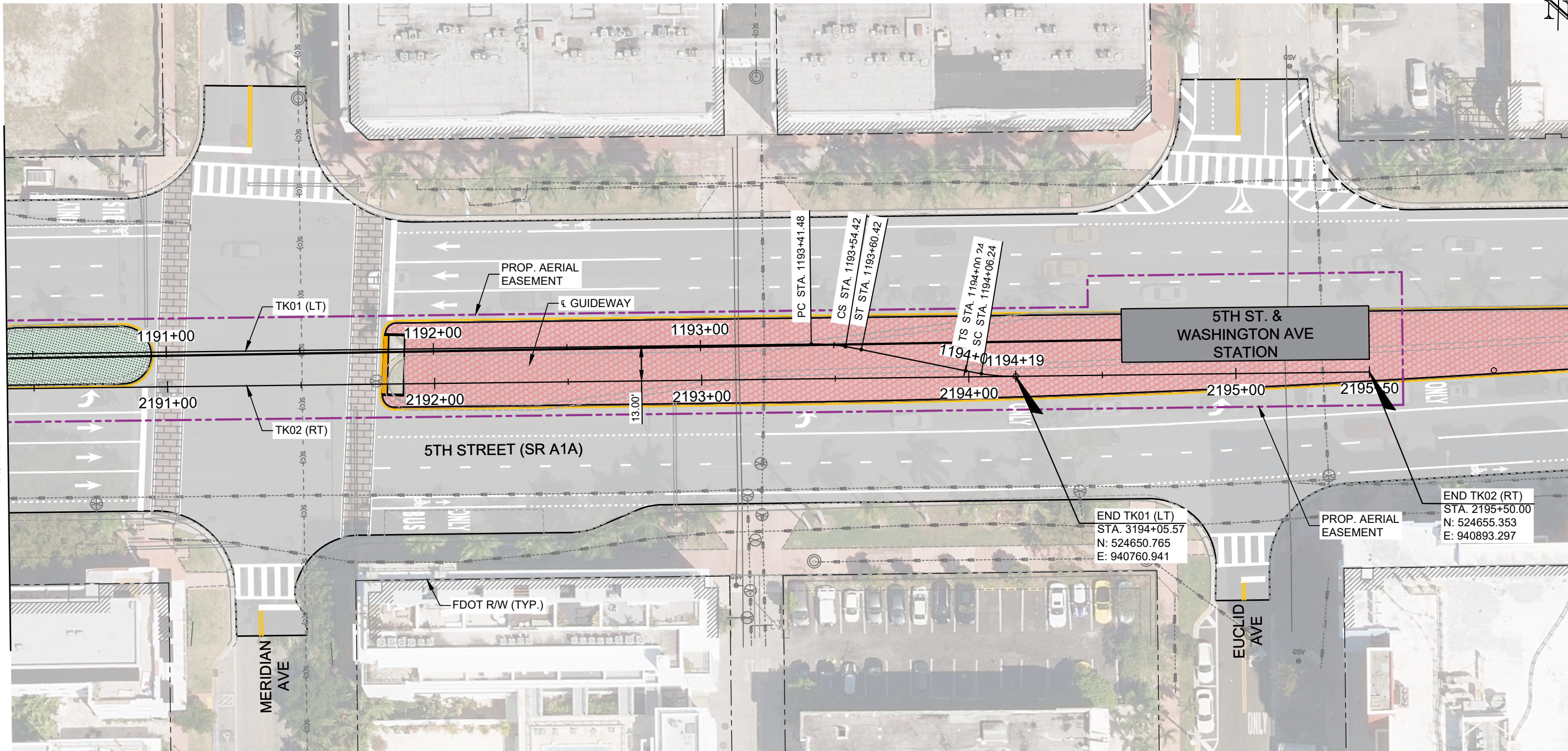
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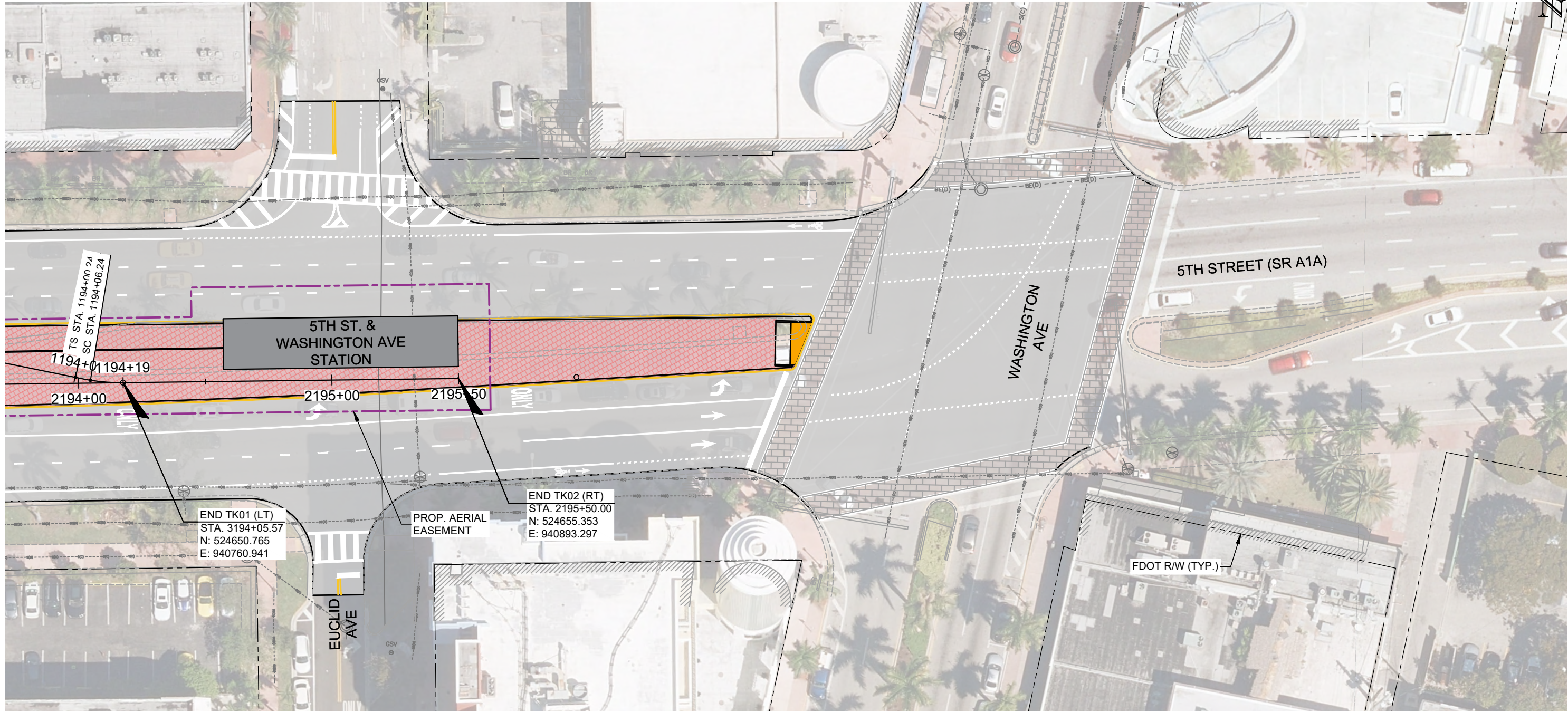
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BEACH CORRIDOR RAPID TRANSIT PD&E - CIP # 153



7600 NW 19TH STREET, SUITE 104, MIAMI, FL 33126  
PHONE: (786) 464-1000 FAX: (786) 845-7119  
CERTIFICATE OF AUTHORIZATION No. 1838  
A. CHAVARRIA, P.E. LICENSE No. 69285



APPROVED	DATE	APPROVED	DATE
p002205F	5/04/2020 5:33pm		

DRAWING TITLE: <b>BEACH CORRIDOR TRUNKLINE - PLAN (36 OF 36)</b>	
DRAWING NO. <b>TTP135</b>	SHEET NO. <b>235</b>

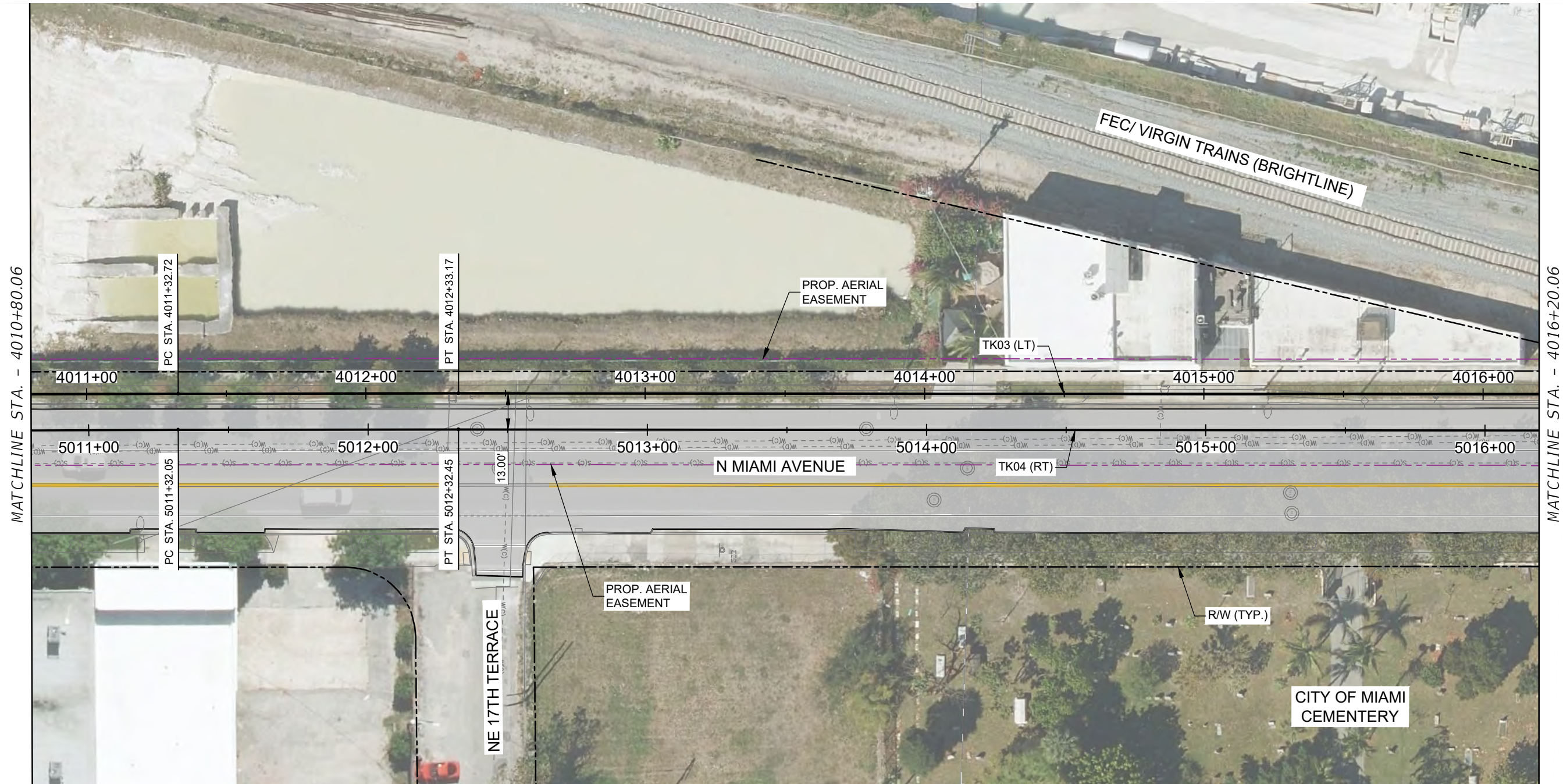
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.





				DESIGNED BY A.C.H.		BEACH CORRIDOR RAPID TRANSIT PD&E - CIP # 153					DRAWING TITLE:  BEACH CORRIDOR MIAMI EXTENSION - PLAN (1 OF 17)	
				DRAWN BY R.U. & JMR		 7600 NW 19TH STREET, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 A. CHAVARRIA, P.E. LICENSE No. 69285			DRAWING NO. SHEET NO.			
				CHECKED BY E.M.					TTP200 300			
 05/20 A.C.H. 15% CONCEPT PLAN SUBMITTAL				DRAWING SCALE: AS SHOWN								
No.	DATE	APP.	REVISIONS			APPROVED	DATE	APPROVED	DATE			





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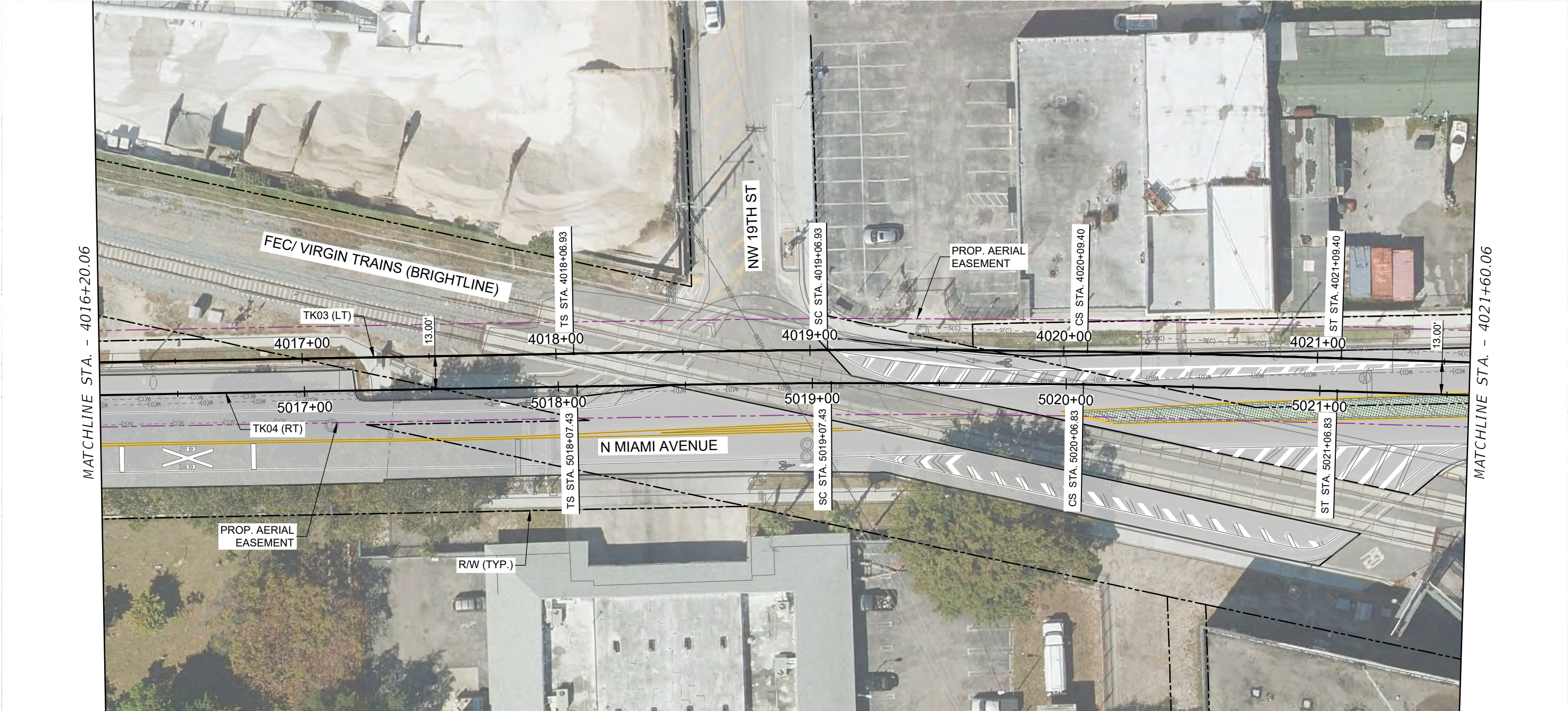
				DESIGNED BY A.C.H.
				DRAWN BY R.U. & JMR
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No.	DATE	APP.	REVISIONS	



BEACH CORRIDOR RAPID TRANSIT PD&E - CIP # 153			
 7600 NW 19TH STREET, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 A. CHAVARRIA, P.E. LICENSE No. 69285			
APPROVED	DATE	APPROVED	DATE

DRAWING TITLE: <b>BEACH CORRIDOR MIAMI EXTENSION - PLAN (3 OF 17)</b>	
DRAWING NO. <b>TTP202</b>	SHEET NO. <b>302</b>





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				DESIGNED BY A.C.H.
				DRAWN BY R.U. & JMR
				CHECKED BY E.M.
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No.	DATE	APP.	REVISIONS	
1	05/20	A.C.H.	15% CONCEPT PLAN SUBMITTAL	



BEACH CORRIDOR RAPID TRANSIT PD&E - CIP # 153				DRAWING TITLE: BEACH CORRIDOR MIAMI EXTENSION - PLAN (4 OF 17)	
 7600 NW 19TH STREET, SUITE 104, MIAMI, FL 33126 PHONE: (786) 464-1000 FAX: (786) 845-7119 CERTIFICATE OF AUTHORIZATION No. 1838 A. CHAVARRIA, P.E. LICENSE No. 69285				DRAWING NO. TTP203	SHEET NO. 303
APPROVED	DATE 5/04/2020	APPROVED	DATE		





## FLORIDA DEPARTMENT of STATE

RON DESANTIS  
Governor

LAUREL M. LEE  
Secretary of State

Commander (DPB), Seventh Coast Guard District  
909 SE 1<sup>st</sup> Avenue  
Suite 432  
Miami, FL 33131-3028

21 January 2021

Attn: Randall Overton

RE: DHR Project File No. 2019-0139C, Received by DHR 14 December 2020  
Project: *Beach Corridor Rapid Transit Project Effects Determination*  
County: Miami-Dade

Mr. Overton:

The Florida State Historic Preservation Officer reviewed the referenced project for possible effects on historic properties listed, or eligible for listing, on the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*.

The effects assessment document states that the proposed undertaking will have no adverse effect on the Miami Beach Architectural District (8DA01048), the City of Miami Cemetery (8DA01090), Fire Station No. 2 (8DA01176), the FEC Railway (8DA10107), Big Time Equipment (8DA10520), 71 Northwest 14<sup>th</sup> Street (8DA10858), and the Ocean Beach Historic District (8DA11415).

Our office concurs with these recommendations, with the exception of the Ocean Beach Historic District (8DA11415). Based on additional email correspondence regarding the project on January 8, 2020, and the provided renderings of the proposed monorail along 5<sup>th</sup> Street in Miami Beach, it is the opinion of this office that the proposed undertaking will have an **adverse effect** on the Ocean Beach Historic District (8DA11415). The project, as designed, will adversely affect the setting and feeling for the district by introducing an extended vertical element/vertical massing in the form of a raised platform and by bisecting the district. It will also adversely affect the visual character of the district and contributing resources.

Our office looks forward to continued consultation for this project to avoid, minimize, or mitigate these adverse effects. If you have any questions, please contact Dr. Adrienne Daggett, Archaeologist, Transportation Compliance & Review, by email [adrienne.daggett@dos.myflorida.com](mailto:adrienne.daggett@dos.myflorida.com), or by telephone at 850.245.6372 or 800.847.7278.

Sincerely,

For  
Timothy A. Parsons, Ph.D.  
Director, Division of Historical Resources  
and State Historic Preservation Officer

## MEMO

To: Timothy A. Parsons (Director FDHR and State Historic Preservation Officer)  
Attn: Adrienne Daggett (FDHR)  
From: Jason Newton (SEARCH); Mikel Travisano (SEARCH); Mechelle Kerns (SEARCH)  
CC: Randall Overton (USCG); Odalys Delgado (Parsons); Beth Chambless (SEARCH)  
Date: 5/7/2021  
Re: Additional Information Regarding the Effects Assessment for the Beach Corridor Rapid Transit Project (SMART Plan) Miami-Dade County, Florida; Project No. CIP153-1-TPW16-PEI

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In June 2020, SEARCH completed a Phase I cultural resource assessment survey (CRAS) of the Beach Corridor Rapid Transit Project (SMART Plan) Study, Miami-Dade County, Florida. The CRAS was submitted to the State Historic Preservation Officer (SHPO) for review, and concurrence was received from the SHPO in a letter dated July 8, 2020 (**Attachment A**). The CRAS and subsequent consultation with the SHPO concluded that there are seven historic resources (i.e., cultural resources listed or eligible for listing in the National Register of Historic Places [NRHP]) located within the project area of potential effects (APE). Due to the presence of these historic resources, SEARCH subsequently produced a technical memorandum addressing project-related effects relative to each of these seven resources. This effects assessment was based on the 15% complete plans submittal provided by Parsons. Based on a review of the proposed plans, SEARCH concluded that the project would have no adverse effects on the NRHP-eligible or -listed resources; this technical memorandum was submitted to the SHPO for review and comment in November 2020. In a letter dated January 21, 2021 (**Attachment B**), the SHPO responded, stating that their office concurs with the recommendations of no adverse effect to six of the seven eligible resources, with the exception being the Ocean Beach Historic District (8DA11415).

On April 15, 2021, a consultation meeting was held between representatives of the SHPO, the US Coast Guard (lead federal agency), the Miami-Dade County Department of Transportation and Public Works (DTPW), Parsons (project consultant), and SEARCH. As the SHPO has presented concerns that the project will have an adverse effect on the Ocean Beach Historic District (8DA11415), SEARCH is providing this supplementary memorandum in order to provide additional information supporting the recommendation put forth in the effects assessment that the project will have no adverse effect on the Ocean Beach Historic District (8DA11415).

## ADDITIONAL CONSULTATION WITH THE CITY OF MIAMI BEACH

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The Ocean Beach Historic District (8DA11415) was originally designated as a Local Historic District by the City of Miami Beach in 1995. As this district was initially identified and delineated by the City of Miami Beach, SEARCH conducted additional consultation with the City regarding the

project. Ms. Deborah Tackett, Historic Preservation Chief with the Planning Department at the City of Miami Beach, had previously stated via email that she did not have any concerns regarding adverse effects on the City's cultural resources. This statement was received via email as a result of the Certified Local Government (CLG) coordination undertaken for the CRAS and was referenced in that document. A copy of this email response is included as **Attachment C**. As part of ongoing consultation with the City, SEARCH Architectural Historian Jason Newton spoke at length with Ms. Tackett in order to better understand the City's position and to obtain any thoughts the City may have regarding the project or any desired minimization/mitigation efforts. In an effort to better clarify the City's position regarding the project in relation to the Ocean Beach Historic District, Ms. Tackett provided a letter detailing the City's position that the proposed improvements will have no adverse effect on the Ocean Beach Historic District. This letter is provided as **Attachment D**, and it highlights several important reasons supporting the City's decision. Coordination with the City of Miami Beach will be ongoing as the project progresses.

## THE HISTORIC TROLLEY IN MIAMI BEACH

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One noteworthy historical aspect of the project corridor along 5<sup>th</sup> Street in Miami Beach, where the current project is proposed, is that it was formerly the site of the old trolley route. The first streetcar using an extensive system of overhead direct suspension wires (**Figure 1**) began Miami's



Figure 1. Trolley No. 301 in Miami Beach in 1938. Source: Florida Memory 1938.



electric trolley system on January 7, 1922. Typically, the wires were suspended at a height of 18 feet and attached to poles at the sides of the street; the wires and poles required for such trolley systems could be visually obtrusive (**Figure 2**) (American Public Transit Association [APTA] 2021; Miami History 2012). Soon after the establishment of the downtown streetcar, the electric trolley system was extended to Coral Gables. Following this first major extension, the trolley expanded to several lines, including a line to Miami Beach, which was constructed after the 1926 hurricane (Miami History 2012). The trolley continued to provide the public with much needed mass transportation between Miami and Miami Beach throughout the 1920s and 1930s. It was the hurricane that struck Miami on November 4, 1935, that marked the beginning of the end of the last trolley system in Miami. After this storm, the two trolleys connecting Coral Gables and Miami ceased operation. In 1939, the streetcar service to Miami Beach, via the County Causeway (later renamed the MacArthur Causeway), also ended. In November 1940, the last trolley car in Miami ceased operation, ending the trolley era in Miami (Miami History 2012).

This historical use of this corridor as the old trolley route was pointed out by Ms. Tackett in telephone conversations regarding the project, as well as in the letter she has provided detailing her position on effects to the historic district (see **Attachment D**). The current project involves the reinstating of public mass transit to an area where it was historically present along 5<sup>th</sup> Street. The City believes the proposed automated people mover (APM)/monorail will have a positive impact on commercial business and tourism within the district, as well as to the City of Miami



**Figure 2. Trolley Car No. 109 eastbound on 5<sup>th</sup> Street. Source: Florida Memory 1921.**

Beach as a whole. This connection with business and tourism is vitally important to the district, just as it was in the 1920s and 1930s. The re-establishment of a public mass transit line along 5<sup>th</sup> Street will help to keep the historic use and function of this corridor alive.

In comparison with the historic trolleys that once utilized this corridor, it also is imperative to point out the vital importance of any modern mass transit facilities being elevated. One of the major factors in the ultimate failure of the historic trolley was its vulnerability to hurricanes, as it was constructed at-grade or just a few feet above sea level along the MacArthur Causeway. Due to climate change and the additional challenges being faced by coastal communities, such as Miami Beach with regard to sea-level rise and potential hazardous storms, it is no longer practical to construct a mass transit line at-grade in Miami Beach. Therefore, what must be instituted is an elevated mass transit line that is safe and functional, but that also blends in with the surrounding character of the district. This is the goal of the current project.

## **CURRENT CONDITIONS ALONG THE 5<sup>TH</sup> STREET CORRIDOR WITHIN THE OCEAN BEACH HISTORIC DISTRICT**

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As previously discussed in the effects analysis, 5<sup>th</sup> Street currently serves as a major east-west thoroughfare in Miami Beach and has been altered substantially by non-historic modifications over the years. The current elements present within the 5<sup>th</sup> Street right-of-way, such as the roadway itself, sidewalks, driveways, curbing, medians, lighting, landscaping, etc. are non-contributing to the district's significance or integrity. Although many of the smaller streets within the district to the north and south of 5<sup>th</sup> Street retain much of their historic character, the integrity of location, design, setting, materials, workmanship, feeling, and association that speak to the district's significance have already been lost along 5<sup>th</sup> Street. Demolitions, modern infill, and the modernization of the features along the 5<sup>th</sup> Street corridor have led to this destruction of the historical setting and feeling (**Figures 3-6**).

In the response letter received from the SHPO regarding the effects evaluation, concerns were expressed that the improvements would "adversely affect setting and feeling for the district by introducing an extended vertical element/vertical massing in the form of a raised platform and by bisecting the district." However, it is important to point out that the district is already bisected by the modernized 5<sup>th</sup> Street corridor and no longer retains the historic setting or feeling present in other parts of the district. When a question was raised during the April 15, 2021, consultation meeting regarding the original width of the 5<sup>th</sup> Street right-of-way, SEARCH archaeologist Beth Chambless misspoke, indicating that the current right-of-way was a similar width as the historic corridor. However, a detailed review of historic photographs (see photographs and discussion on Pages 2-3 of **Attachment E**) indicates that the right-of-way was substantially widened in the 1960s and 1970s, involving the demolition of the first row of historic parcels along the south side of 5<sup>th</sup> Street. Not only does SEARCH believe that the addition of the APM/monorail will not cause further division within the district, the facility could in fact help to harmonize the two portions of the district that have already been bisected by modernized 5<sup>th</sup> Street and help to



**Figure 3. Representative view of 8DA11415 within the Beach Corridor APE showing some of the non-historic, multi-story buildings along the 5<sup>th</sup> Street corridor, facing southeast.**



**Figure 4. Representative views of 8DA11415 within the Beach Corridor APE showing some of the non-historic, multi-story buildings along the 5<sup>th</sup> Street corridor, facing southwest.**





**Figure 5. Representative view of 8DA11415 within the Beach Corridor APE showing some of the non-historic buildings along the 5<sup>th</sup> Street corridor, facing southeast.**



**Figure 6. Representative view of 8DA11415 within the Beach Corridor APE showing some of the non-historic, multi-story buildings and demolitions along the 5<sup>th</sup> Street corridor, facing southeast.**

connect these two sections both visually and in terms of access. Currently, north-south pedestrian movements are impeded by several double-left turn lanes along 5<sup>th</sup> Street and limited pedestrian facilities and traffic refuges. Construction of the APM/monorail guideway will eliminate several of these double left-turn lanes along 5<sup>th</sup> Street, providing for an easier pedestrian crossing of this artery. The existing median will form a green space beneath the guideway and provide traffic refuges for pedestrians crossing 5<sup>th</sup> Street; pedestrian amenities and crosswalks also will be implemented to encourage north-south pedestrian access. Ms. Tackett with the City of Miami Beach concurs with this position, noting that the transit line would be beneficial to the district by serving as a force of harmonization and creating a more pedestrian-friendly streetscape.

The response letter received from the SHPO also stated concern that the elevated line would “adversely affect the visual character of the district and contributing resources.” SEARCH does not believe the improvements associated with this project will adversely affect the remaining individual historic resources that contribute to the district’s overall significance. Due to the limited elevation of the APM/monorail (24 feet) compared to surrounding (typically multi-story) structures, together with its location in the center of a large, six-lane roadway, the proposed APM/monorail will not cause adverse visual effects to the district’s contributing resources.

A document highlighting the evolution of the 5<sup>th</sup> Street corridor in Miami Beach is included as **Attachment E**. Please refer to Pages 1-12 in **Attachment E** for the information on the evolution of the corridor. Pages 13-21 of **Attachment E** include digital renderings and before-and-after images of the section of 5<sup>th</sup> Street in the vicinity of the four remaining contributing buildings. These images also help give a sense of the anticipated environment created by the APM/monorail, which will provide a much more pedestrian-friendly atmosphere and landscaping that is harmonious with the surroundings. Page 21 in **Attachment E** shows the proposed guideway superimposed on existing conditions photographs, showing that the view toward 5<sup>th</sup> Street from these side streets within the district will remain relatively unobstructed by the guideway structure.

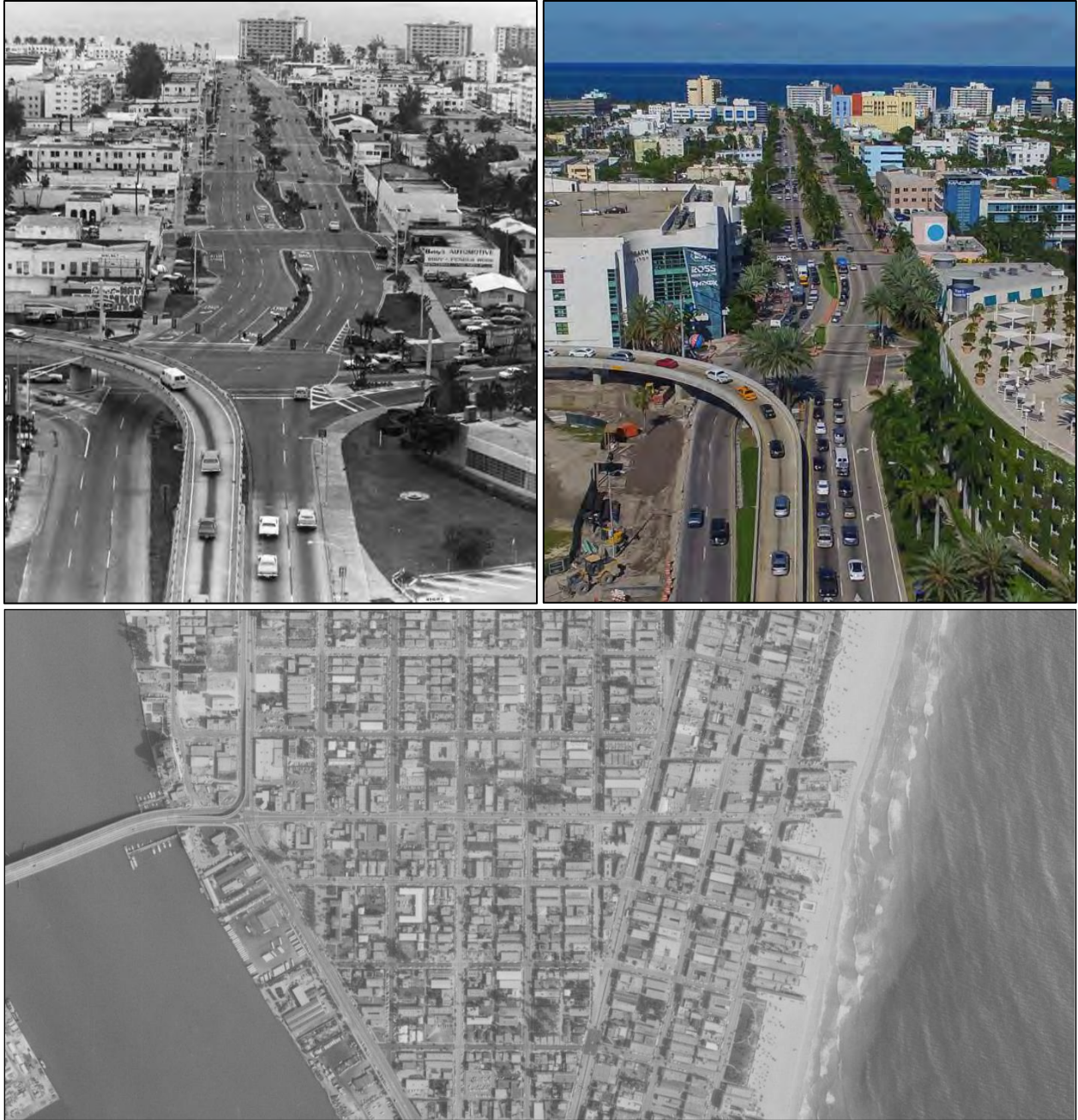
Although the view from the four remaining contributing buildings toward 5<sup>th</sup> Street will be altered, as the elevated line will be visible, SEARCH does not believe that this would constitute an adverse effect. Due to factors such as substantial non-historic infill and demolitions on parcels along 5<sup>th</sup> Street, as well as the modern nature of the roadway/corridor itself, there is no longer a historic viewshed toward 5<sup>th</sup> Street from any of the four remaining contributing buildings left to preserve (**Figure 7**).

## **CURRENT CONCEPT DRAWINGS AND THE CONTINUING DESIGN PROCESS**

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With regard to the ongoing project design process, it is important to emphasize that the renderings included in **Attachment E** are preliminary conceptual drawings; they do not depict the intended design of the facilities. Rather, these designs will be developed and refined during the





**Figure 7. Aerial images showing the changes to the 5<sup>th</sup> Street corridor over the years. The image at top left dates from 1980 (Source: Florida Memory 1980). The image on the top right dates from 2015 (Source: Golden Dusk Photography 2015). The image on the bottom dates from 1968 and shows 5<sup>th</sup> Street with four lanes (Source: Florida Department of Transportation [FDOT]) 1968.**

next phase of the project. In particular, the design of the two stations that will be located within the historic district have yet to be developed. As the project moves forward, Miami-Dade County will work with the SHPO and the City of Miami Beach to ensure that a design is implemented that will be harmonious with the district. Some possible ideas may involve:

- Incorporating Art Deco detailing in the design of the rail/stations/canopies to better harmonize with the remaining historic resources that contribute to the district;
- Incorporating stucco, Spanish tile, or other elements into the rail/stations/canopies in an effort to recreate some of the original design elements that were featured on the original Miami trolley stations;
- Incorporating landscaping in the medians below the tracks; grass, palms, and seagrape could be used to mimic the current landscaping and Miami Beach character; and/or
- Incorporating public interpretation elements to engage with the public about the history of the district; such elements could include interpretive displays/signage on the walls or columns of the APM/monorail facilities.

There are numerous examples of incorporating Art Deco elements into the design of new structures (in this case, of the rail/station/canopies) in an effort to minimize visual effects to a historic district or resource group. **Figure 8** is an example of a modern Art Deco-inspired light rail station that was constructed in 2009 at Fair Park in Dallas, Texas. In this example, the architects skillfully emulated, but did not attempt to duplicate, the original Art Deco buildings located in Fair Park. Through the use of motifs, materials, and lighting, the modern station blends in harmoniously with its Art Deco surroundings. Although this particular station is not elevated, it still serves as an excellent example of harmonizing the modern structure with its surroundings through the incorporation of Art Deco elements.

In addition to the potential use of Art Deco-inspired designs and other decorative architectural elements on the new guideway and stations, other methods can be used to reharmonize the two portions of the historic district currently split by the modern 5<sup>th</sup> Street corridor. The re-introduction of pedestrian mobility is a key component of the project, one that will have a substantial positive effect on the effort to reharmonize the district. One of the characteristics of historic districts in Miami Beach is that they are interesting places to walk. Allowing for this corridor to become more pedestrian friendly, as it was historically, will add to the richness of the pedestrian experience within the district and allow pedestrians to access different parts of the district with greater safety and ease.



Figure 8. Fair Park Station. Courtesy of Brad J. Goldberg, Inc. (n.d.).

The use of well-designed landscaping in the medians below the guideway, including the incorporation of plants such as grass, palms, and seagrape, also will be used to improve the visual quality of 5<sup>th</sup> Street and incorporate the tropical Miami Beach character. Not only will this landscaping soften the visual effect of the guideway, but the integration of pedestrian paths within the medians also will allow for amenities and better access to the two stations. The guideway and stations will help to fill in the visual gap that currently exists between the two separated portions of the district, allowing for a more harmonious corridor that existed historically, prior to the widening of the 5<sup>th</sup> Street right-of-way and demolition of the buildings along the south side of the corridor ca. 1970 (see **Appendix E**).

## CONCLUSION

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The effects evaluation for the Ocean Beach Historic District (8DA11415) applied the Criteria of Adverse Effects as defined in the Section 106 implementing regulations, 36 CFR part 800.5:

*An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.*

Due to the substantial non-historic modifications that have affected the 5<sup>th</sup> Street corridor, the addition of an APM/monorail and the two stations along the center of the modern six-lane thoroughfare will not cause an adverse visual effect to the district. The historic viewshed along 5<sup>th</sup> Street has already been lost, and the few remaining structures along this thoroughfare that contribute to the district are already located adjacent to non-historic buildings and the modernized roadway.

Cumulative visual effects also were considered with regard to the district and the four contributing resources remaining along the 5<sup>th</sup> Street corridor. Per 40 CFR 1508.7, cumulative effects on a historic resource:

results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions ... Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Although the new APM/monorail will be visible from the four remaining contributing resources along 5<sup>th</sup> Street, the loss of historic fabric and the presence of large non-historic structures in the direction of the proposed guideway from these resources is such that the historic setting and feeling is no longer present in that viewshed. The scale of the proposed facility is comparatively small in relation to many of the non-historic multi-story buildings that line the 5<sup>th</sup> Street corridor. As an example, a large multi-story building housing a Target and several other stores was recently constructed across 5<sup>th</sup> Street from the contributing building located at 455 Lenox Avenue. The construction of the guideway and station in the median of 5<sup>th</sup> Street in the direction of this new building will not result in any additional loss of historic viewshed, as this viewshed is already compromised by the existing non-historic structure. The proposed stations and guideway within the 5<sup>th</sup> Street median pale in size and scale when compared to the non-historic structures that are already visible from the four contributing resources. The modified viewshed does not alter the characteristics and aspects of integrity that qualify these buildings for inclusion in the NRHP as contributing resources to the district. With regard to the district itself, the project will not result in additional division within the district, but will instead benefit the neighborhood by unifying the two sections of the district both visually and in terms of pedestrian access and usability.

The characteristics that qualify the Ocean Beach Historic District for NRHP eligibility, specifically its role in Community Planning and Development, and Ethnic Heritage: Jewish (Criterion A) and Architecture (Criterion C), will not be diminished by the project. Along the 5<sup>th</sup> Street corridor, the district's integrity of design, setting, materials, workmanship, feeling, and association have either been greatly reduced or lost. The re-introduction of a mass transit line, which was historically present along this corridor, will be beneficial to the district by improving pedestrian access and helping to reconnect the two portions that are now separated by the wide 5<sup>th</sup> Street corridor.

Further, Miami-Dade County has committed to coordinating with the SHPO regarding the design of the built structures to ensure this mass transit line will be a harmonizing feature within the district and help to alleviate the challenges presented by the current bisected nature of the district.

In summary, based on the discussion presented here and in the effects evaluation, and in view of the County's commitment to maintaining coordination with the SHPO throughout the design process, SEARCH maintains the recommendation that the project will have no adverse effect to the Ocean Beach Historic District (8DA11415).

## REFERENCES CITED

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American Public Transit Association (APTA)

2021 APTA Streetcar and Heritage Trolley Site. Electronic document, <http://www.heritagetrolley.org/index.html>, accessed May 5, 2021.

Brad J. Goldberg, Inc.

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1968 Aerial Photographs: Dade County. Electronic document, <https://fdotewp1.dot.state.fl.us/AerialPhotoLookUpSystem/>, accessed April 6, 2021.

Florida Memory

1921 Trolley car 109 East bound on 5<sup>th</sup> Street. Electronic document, <https://www.floridamemory.com/items/show/5552>, accessed March 2021.

1938 Trolley #301 - Miami Beach, Florida. Electronic document, <https://www.floridamemory.com/items/show/144648>, accessed March 2021.

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Golden Dusk Photography

2015 This Was 5<sup>th</sup> Street & Alton Road in South Beach In 1980 – Before & After. Electronic document, <https://www.goldenduskphotography.com/blog/2015/6/17/south-beach-5th-alton-road-1980-and-now>, accessed March 2021.

Miami History

2012 History of the Trolley in Miami. Electronic document, <https://miami-history.com/history-of-the-trolley-in-miami/>, accessed March 2021.

SEARCH

2006 *Technical Memorandum: Effects Assessment for the Beach Corridor Rapid Transit Project (SMART Plan), Miami-Dade County, Florida*. On file, Florida Division of Historical Resources, Tallahassee, and SEARCH, Newberry.



**ATTACHMENT A**

**SHPO CONCURRENCE LETTER FOR THE CRAS  
JULY 8, 2020**





## FLORIDA DEPARTMENT of STATE

RON DESANTIS  
Governor

LAUREL M. LEE  
Secretary of State

Commander (DPB), Seventh Coast Guard District  
909 SE 1<sup>st</sup> Avenue  
Suite 432  
Miami, FL 33131-3028

8 July 2020

Attn: Randall Overton

RE: DHR Project File No. 2019-0139B, Received by DHR 15 June 2020  
Project: *Beach Corridor Rapid Transit Project*  
County: Miami-Dade

Mr. Overton:

The Florida State Historic Preservation Officer reviewed the referenced project for historic properties listed, or eligible for listing, on the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*.

Our office concurs with the determinations of eligibility as enumerated in the Cultural Resources Assessment Survey (CRAS). We look forward to reviewing the case study for potential effects to eligible or listed properties.

If you have any questions, please contact Dr. Adrienne Daggett, Archaeologist, Transportation Compliance & Review, by email [adrienne.daggett@dos.myflorida.com](mailto:adrienne.daggett@dos.myflorida.com), or by telephone at 850.245.6372 or 800.847.7278.

Sincerely,

Timothy A. Parsons, Ph.D.  
Director, Division of Historical Resources  
and State Historic Preservation Officer





**ATTACHMENT B**

**SHPO CONCURRENCE LETTER FOR THE EFFECTS ANALYSIS  
JANUARY 21, 2021**





## FLORIDA DEPARTMENT of STATE

RON DESANTIS  
Governor

LAUREL M. LEE  
Secretary of State

Commander (DPB), Seventh Coast Guard District  
909 SE 1<sup>st</sup> Avenue  
Suite 432  
Miami, FL 33131-3028

21 January 2021

Attn: Randall Overton

RE: DHR Project File No. 2019-0139C, Received by DHR 14 December 2020  
Project: *Beach Corridor Rapid Transit Project Effects Determination*  
County: Miami-Dade

Mr. Overton:

The Florida State Historic Preservation Officer reviewed the referenced project for possible effects on historic properties listed, or eligible for listing, on the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*.

The effects assessment document states that the proposed undertaking will have no adverse effect on the Miami Beach Architectural District (8DA01048), the City of Miami Cemetery (8DA01090), Fire Station No. 2 (8DA01176), the FEC Railway (8DA10107), Big Time Equipment (8DA10520), 71 Northwest 14<sup>th</sup> Street (8DA10858), and the Ocean Beach Historic District (8DA11415).

Our office concurs with these recommendations, with the exception of the Ocean Beach Historic District (8DA11415). Based on additional email correspondence regarding the project on January 8, 2020, and the provided renderings of the proposed monorail along 5<sup>th</sup> Street in Miami Beach, it is the opinion of this office that the proposed undertaking will have an **adverse effect** on the Ocean Beach Historic District (8DA11415). The project, as designed, will adversely affect the setting and feeling for the district by introducing an extended vertical element/vertical massing in the form of a raised platform and by bisecting the district. It will also adversely affect the visual character of the district and contributing resources.

Our office looks forward to continued consultation for this project to avoid, minimize, or mitigate these adverse effects. If you have any questions, please contact Dr. Adrienne Daggett, Archaeologist, Transportation Compliance & Review, by email [adrienne.daggett@dos.myflorida.com](mailto:adrienne.daggett@dos.myflorida.com), or by telephone at 850.245.6372 or 800.847.7278.

Sincerely,

For  
Timothy A. Parsons, Ph.D.  
Director, Division of Historical Resources  
and State Historic Preservation Officer



**ATTACHMENT C**

**CLG CORRESPONDENCE WITH THE CITY OF MIAMI BEACH  
NOVEMBER 14, 2019**





**From:** [Tackett, Deborah](#)  
**To:** [Jason Newton](#)  
**Cc:** [Mechelle Kerns](#)  
**Subject:** RE: City of Miami Beach CLG Coordination for Beach Corridor Rapid Transit Project (SMART Plan) Study CRAS  
**Date:** Thursday, November 14, 2019 12:11:40 PM  
**Attachments:** [image001.png](#)

---

Hi Jason,

Although a portion of the plan is located within the Ocean Beach Local Historic District, I do not have any concerns regarding adverse impacts on our cultural resources.

Hope you are having a great day!



**Debbie Tackett**  
Chief of Historic Preservation  
Planning Department  
1700 Convention Center Drive – 2<sup>nd</sup> Floor, Miami Beach, FL 33139  
Tel: 305-673-7000 x 26467/ [dtackett@miamibeachfl.gov](mailto:dtackett@miamibeachfl.gov)  
[www.miamibeachfl.gov](http://www.miamibeachfl.gov)  
**It's easy being Green! Please consider our environment before printing this email.**

---

**From:** Jason Newton <jason.newton@searchinc.com>  
**Sent:** Thursday, November 14, 2019 8:40 AM  
**To:** Tackett, Deborah <DeborahTackett@miamibeachfl.gov>  
**Cc:** Mechelle Kerns <mechelle.kerns@searchinc.com>  
**Subject:** City of Miami Beach CLG Coordination for Beach Corridor Rapid Transit Project (SMART Plan) Study CRAS

**[ THIS MESSAGE COMES FROM AN EXTERNAL EMAIL - USE CAUTION WHEN REPLYING AND OPENING LINKS OR ATTACHMENTS ]**

Good morning Deborah,

SEARCH is conducting a Cultural Resource Assessment Survey (CRAS) in support of the Beach Corridor Rapid Transit Project (SMART Plan) Study, which is partially located within the City of Miami Beach. The Project Development and Environment (PD&E) study will evaluate possible routes for the development of multi-modal transportation corridors to connect the Design District/Midtown Miami, Downtown Miami, and Miami Beach. SEARCH has been contracted by Parsons to support the Miami-Dade Department of Transportation and Public Works (DTPW) in collaboration with the Federal Transit Administration (FTA) and Florida Department of Transportation (FDOT) to evaluate the alternative corridors for the purpose of identifying cultural resource potential and previously recorded historic properties that are listed, or may be eligible for listing, in the National Register of Historic Places (NRHP).

The proposed transit corridor is located in Miami Dade County with portions in the City of Miami and

the City of Miami Beach. This area is urban with a mix of high and low rise residential and commercial buildings contained within a dense grid of two- and four-lane paved streets edged with sidewalks and street parking. Nearly all of the project corridor consists of impervious surface. The main section of the Beach Corridor (SMART Plan) Study Area starts at North Miami Avenue and NE 41<sup>st</sup> Street near the eastern termini of the Interstate 195 (I-95)/Julia Tuttle Causeway. The route continues south with North Miami Avenue until NW 13<sup>th</sup> Street where it turns east to the eastern termini of I-395/MacArthur Causeway/State Road (SR) A1A. The route follows MacArthur Causeway and crosses Biscayne Bay heading east to Miami Beach. A separate spur heads south on North Miami Avenue from NW 11<sup>th</sup> Street until NW 6<sup>th</sup> Street, turns west on NW 6<sup>th</sup> Street and south onto NW 1<sup>st</sup> Avenue to connect with the Wilkie D. Ferguson Metromover Station at NW 1<sup>st</sup> Avenue and NE 5<sup>th</sup> Street. This spur connects the new corridor with the existing Metromover transit line. The main section of the corridor Study Area continues east on I-395/MacArthur Causeway/SR A1A and ends on the island of Miami Beach at the intersection of Alton Road and 5<sup>th</sup> Street. The corridor continues east on 5<sup>th</sup> Street until it intersects with Washington Street, the eastern termini of the Miami Beach section.

As a part of this cultural resources evaluation, consultation with the local CLG is required by the Florida Division of Historical Resources (FDHR). Please note that not all of the project area is located within your jurisdiction, but CLG coordination is also being conducted with the City of Miami and Miami-Dade County. A project location map is attached for your reference.

We would appreciate it if you would let us know if you have any local cultural resource concerns in relation to this project or project area.

Thank you so much,

Jason Newton, M.A., MLIS  
Architectural Historian

SEARCH - SEARCH<sub>2</sub>O  
2028 Harrison Street  
Suite 204  
Hollywood, FL 33020  
512-618-2626 cell 754-777-6668 ext. 7602 office  
[jason.newton@searchinc.com](mailto:jason.newton@searchinc.com) [www.searchinc.com](http://www.searchinc.com)

Archaeology–Maritime Archaeology–Architectural History–History & Archives–Museum Services

**ATTACHMENT D**

**LETTER FROM DEBORAH TACKETT,  
HISTORIC PRESERVATION CHIEF, CITY OF MIAMI BEACH  
FEBRUARY 17, 2021**





# MIAMI BEACH

City of Miami Beach, 1700 Convention Center Drive, Miami Beach, Florida 33139. [www.miamibeachfl.gov](http://www.miamibeachfl.gov)

## PLANNING DEPARTMENT

Tel: 305-673-7550, Fax: 305-673-7559

February 17, 2021

Timothy A. Parsons, Ph.D.,  
Director and State Historic Preservation Officer  
Florida Division of Historical Resources  
Florida Department of State  
R.A. Gray Building  
500 South Bronough Street  
Tallahassee, Florida 32399-0250

Attn: Dr. Adrienne Daggett, Transportation Compliance Review Program

RE: DHR Project File No. 2019-0139C  
Beach Corridor Rapid Transit Project Effects Determination  
County: Miami-Dade

Dear Dr. Parsons,

As Chief of Historic Preservation for the City of Miami Beach, I would like to address the State Historic Preservation Officer's (SHPO's) finding of an adverse effect to the Ocean Beach Historic District (8DA11415). I was previously contacted by SEARCH as part of their Certified Local Government (CLG) coordination during the Cultural Resource Assessment Survey (CRAS) for the subject project, completed in 2020. As I stated via email at that time, I have no concerns regarding adverse effects on the City's cultural resources. This letter is an effort to help clarify and detail my position.

Although a portion of the project corridor is located within the Locally-designated and NRHP-eligible Ocean Beach Historic District (8DA11415), I do not believe the project will adversely affect the district or any historic resources that contribute to the district. The widening of the roadway in 1971 bisected the district with a wide, modern thoroughfare and resulted in the substantial loss of historic fabric on the south side of 5<sup>th</sup> Street. Further, only two contributing buildings remain on the north side of 5<sup>th</sup> Street between Alton and Ocean Drive. It is my professional opinion that the addition of an appropriately designed elevated Automated People Mover (APM)/Monorail along this corridor should not cause additional division within the Ocean Beach Historic District. Depending on the design of the proposed elevated rail and stations, which have yet to be developed, the introduction of this transit line may serve as a force of harmonization in this area of the district by narrowing the vehicular lanes, introducing new crosswalks and creating a more pedestrian friendly streetscape. Furthermore, the 5<sup>th</sup> Street corridor was historically the location of a trolley line that once connected Miami with Miami Beach. The reinstatement of public mass transit that was historically present should have a positive effect on mobility, sustainability, business, and tourism, all of which are historically, and currently, important to the district and the City.

It is the job of the Planning Department of the City of Miami Beach Planning Department to examine all site and building plans to confirm that physical changes proposed to an

existing site or building are consistent with the surrounding aesthetic character of the community. Based on the current 15% plans for the Beach Corridor project located along 5<sup>th</sup> Street in Miami Beach, the City finds that the proposed improvements should have no adverse effect on the Ocean Beach Historic District or any other cultural resources.

If you have any questions regarding the position of the City in reference to this project, please contact me at 305-673-7000 x 26467.

Sincerely,



Debbie Tackett  
Chief of Historic Preservation  
Planning Department, City of Miami Beach  
1700 Convention Center Drive – 2nd Floor, Miami Beach, FL 33139  
Tel: 305-673-7000 x 26467/ [dtackett@miamibeachfl.gov](mailto:dtackett@miamibeachfl.gov)

**ATTACHMENT E**

**EVOLUTION OF THE 5<sup>TH</sup> STREET CORRIDOR  
WITH ADDITIONAL CONCEPTS AND RENDERINGS  
APRIL 2021**





BEACH CORRIDOR RAPID TRANSIT PROJECT

# EVOLUTION OF MIAMI BEACH 5TH STREET CORRIDOR

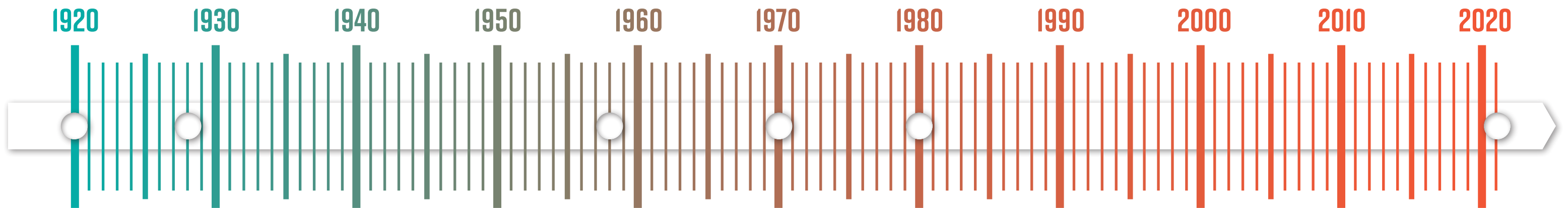
APRIL — 2021

Prepared by:

**PARSONS**

**BA** Bermello Ajamil & Partners

**SEARCH**



## INTRODUCTION

Over the last century, Miami Beach has evolved from a low-lying natural barrier island to the bustling epicenter of commercial, leisure, and residential activity as we know it. The evolution of the 5th Street Corridor has been the most impactful change to the Beach's perception. Today, this corridor is the terminus of the MacArthur Causeway entering South Beach. However, it did not transform overnight. The evolution of 5th Street has been well documented and is presented via an urban design analysis on the following pages. The investigation dates back to the earliest obtained photos from 1920 to the present time and documents the evolution of the historical urban design pattern of the South Beach neighborhoods.

The photographs presented in the following exhibits illustrate the origin and evolution of 5th Street from its original inception to the present +160 feet right-of-way. In 1920, 5th Street was a barren roadway, accessed via a mainland bridge that would eventually become the MacArthur Causeway. Within seven years, the primary grid pattern had been established throughout the southern portion of Miami Beach. However, it was evident that the 5th Street Corridor is the central axis through this section of Miami Beach, given its wider right-of-way width compared to the local streets. At this early stage of development, 5th Street, due to its width and connection to the mainland, separates two distinct neighborhood areas to the north and the south.

By 1958, 5th Street maintained its originally planned right-of-way width, reasonably assumed to be approximately 90 feet. This right-of-way accommodated two travel lanes in each direction, about 48 feet, on-street parking on both sides of the Street (16 feet), and a generous sidewalk of 12 to 13 feet on either side.

The shift towards the present-day right-of-way is evident by 1970. The 5th Street Corridor was widened approximately 70 feet, resulting from the demolition of structures on the south side. The light-colored depiction of blank development sites created by the demolition is now evident, revealing a view of one a historic designated building at 426 Meridien Avenue. Conceived initially as a midblock building with singular frontage on Meridien, this building became a corner building with multiple street frontages, including one along the 5th Street Corridor.

Finally, by 1980, the 5th Street corridor had evolved to the present 160 feet right-of-way. In effect, the widening of 5th Street augmented this dividing line from a relatively wide street to a river of vehicular traffic, impeding north/south pedestrian mobility and delimiting South Beach to the area south of 5th Street, separate from the neighborhoods to the north.

Interestingly, research shows that 5th Street has always been a dividing line. The most historic structures were demolished in

the late 1960s when widening 5th Street from 90 feet ROW to the present 160 feet ROW began.

The proposed Beach Corridor Rapid Transit project proposes providing transit access from the mainland to Miami Beach along on the MacArthur Causeway entering Miami Beach at 5th Street.

There are two questions for the inclusion of the system into the median of the 5th Street corridor. From a functional use and mobility standpoint, does the proposed system's guideway integrate within the corridor and close the divide between the areas to the north and to the south? And aesthetically speaking does the proposed stations and guideway further accentuate the built environment along the corridor establishing unique identity and improving the safety of those who traverse it?

The photos and accompanying narrative analysis reveal quite a complete picture. As a result of this study, our professional opinion is that the inclusion of the system with its pedestrian access and unifying image should help breach the divide.









## 1920— ACCESSING MIAMI BEACH

The aerial photo shows the bridge that later became the MacArthur Causeway as it enters Miami Beach at 5th Street. 5th Street was initially conceived as the gateway entrance to Miami Beach. In the photo we can see the structure of paths that have evolved through the years.

The 1920 ground level photo shows a view of 5th Street looking west. The view shows the Street in its initial phases of development. What is important to note is the width of the right-of-way in its initial inception.





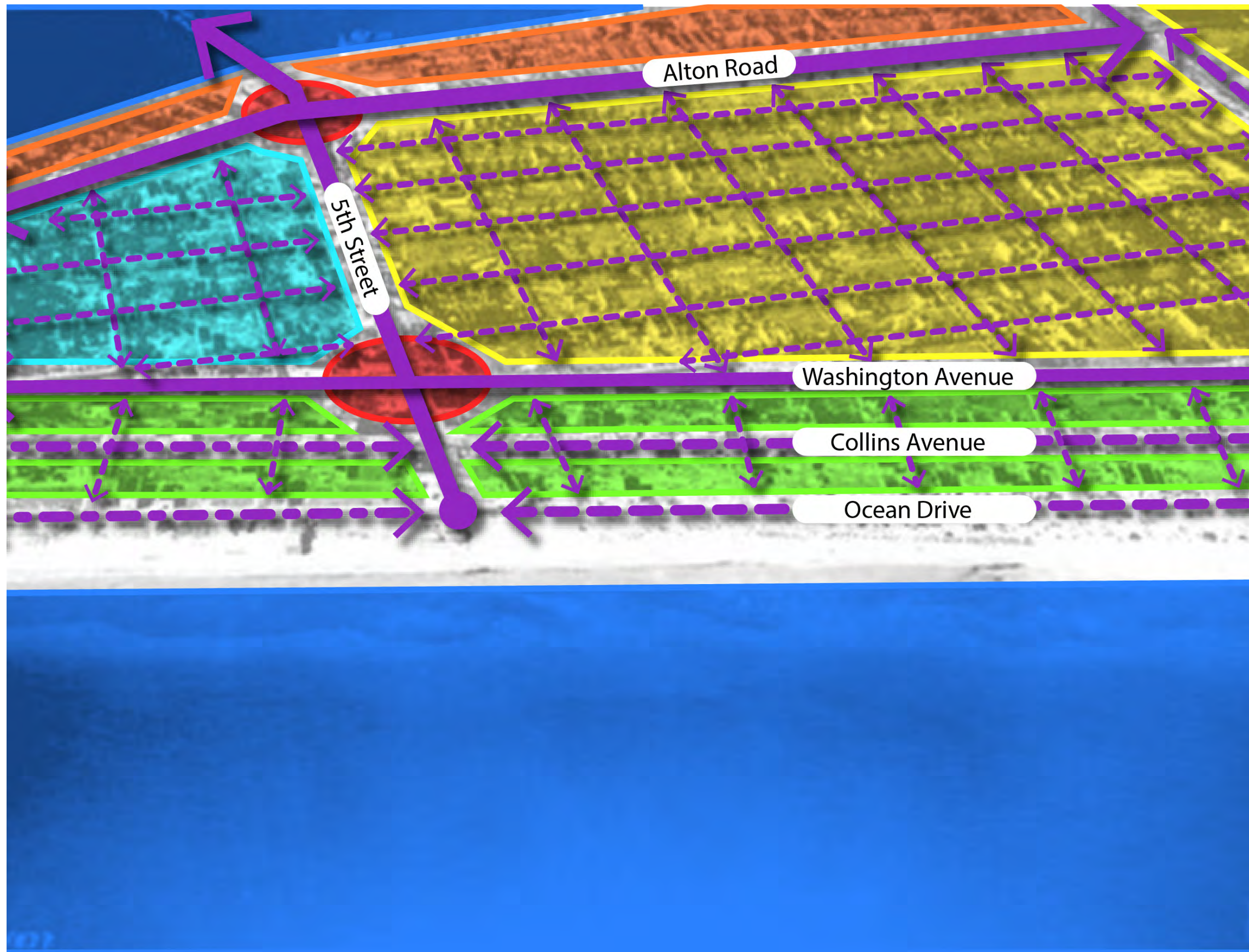
## 1927– ESTABLISHING THE GRID

The 1927 oblique aerial photo of Miami Beach looking from the Atlantic Ocean toward the Biscayne Bay illustrates how the conception of the initial roadway system organized the City of Miami Beach. This roadway system has helped shape the urban form and image of Miami Beach and defined its spatial-visual qualities.

The aerial photo is revealing. The principal east-west Street of the urban plan as conceived is 5th Street, the gateway to Miami Beach from the mainland on the MacArthur Causeway.

The width of right-of-way of 5th Street is wider than the rest of the streets shown. As the gateway into Miami Beach occurs, the increased right-of-way is to be expected.





## 1927– URBAN FORM DIAGRAM

The diagram illustrates the urban form of this area of Miami Beach, where the major north-south connectors are seen. This roadway structure will give rise to the districts and the urban-form of this sector of the city. Alton Road and Washington Avenue are the predominant north-south roadways. Alton Road becomes a wide roadway, and Washington Avenue creates a retail, commercial corridor. Collins Avenue is a narrower roadway, and Ocean Drive becomes the waterfront roadway. The intersection of Washington and 5th becomes a major node in the urban pattern of Miami Beach.





## 1958— 5TH AND LENOX NODE

The aerial photo of the intersection of 5th Street and Alton Road is revealing. We see that the overpass at this intersection had been constructed and the MacArthur East Bridge as we know it today. The juncture of 5th Street and Alton becomes a traffic distributor and a node formed by the intersection of roadways, but not pedestrian activity. It never becomes a primary image-forming node, just a traffic juncture to pass through.

What is most important to note in the photo is the width of the right-of-way in 1958. 5th Street had kept its original right-of-way width. It was a four-lane street, two lanes in each direction, with on-street parking on the north side and, although not visible in the photo, maybe on-street parking on the south side. The right-of-way appears to be approximately 90 feet. This width is derived from observations of the image: four (4) travel lanes of 12 feet, two (2) on-street parking lanes for 16 feet, and the sidewalks, which appear to be 12 feet each for a total of 24 feet.

The scale of the buildings is one and two stories with an occasional higher structure.





## 1960— EXPANSION OF 5TH STREET ROW

The 1960 aerial photo has been superimposed with the original 90' ROW and five remaining contributing historic buildings. Included in orange is an area that outlines the areas that were demolished in the late 1960's early 1970s. As can be seen in the aerial photos of 1970 and 1980, 5th Street underwent a significant transformation with all buildings within the orange area demolished to make way for a wide boulevard of 160 feet in right-of-way.

Of note, the buildings at 426 Meridian Avenue and 465 Lenox Avenue were interior sites that became corner buildings post expansion of 5th Street.

- Historically Significant Structures
- Original 90' ROW
- 5th Street ROW Expansion





The urban node at the intersection of 5th Street and Washington Avenue, through the demolition, changed its character to a large vehicle oriented intersection.





## 1970– 5TH STREET CORRIDOR

The 1970 photo shows the widening of 5th Street and the accompanied demolition of the structures on the south side of 5th Street. The light-colored esplanade created by the destruction is visible in the photo, as is one of the only contributing historic designated buildings on the present south side of 5th Street. 426 Meridian Avenue, presently Urbanica Meridian Hotel building. This building was not a corner building as constructed but became so through demolition carried out to widen 5th Street. The other building that survived the widening of 5th Street on the south side is 455 Lenox Avenue that was not a corner building but became one through the building's demolition to the north.





## 1980— A DIVIDING LINE

The 1980 aerial view of 5th Street shows the finished roadway with three lanes of traffic in each direction plus the turning lane in both directions, in essence, four lanes of traffic in each direction. What was originally a wide street separating south and north of 5th Street became a major vehicular thoroughfare. As an analogy, what was a creek before became a vast river of asphalt. The widening of 5th Street created a vehicular thoroughfare that segmented pedestrian activity north and south.

Interestingly, the area south of 5th Street has experienced substantial new development interspersed with the remaining older structures. This section of the Ocean Park Historic District was heavily affected by the dilapidation in the late '70s and '80s.

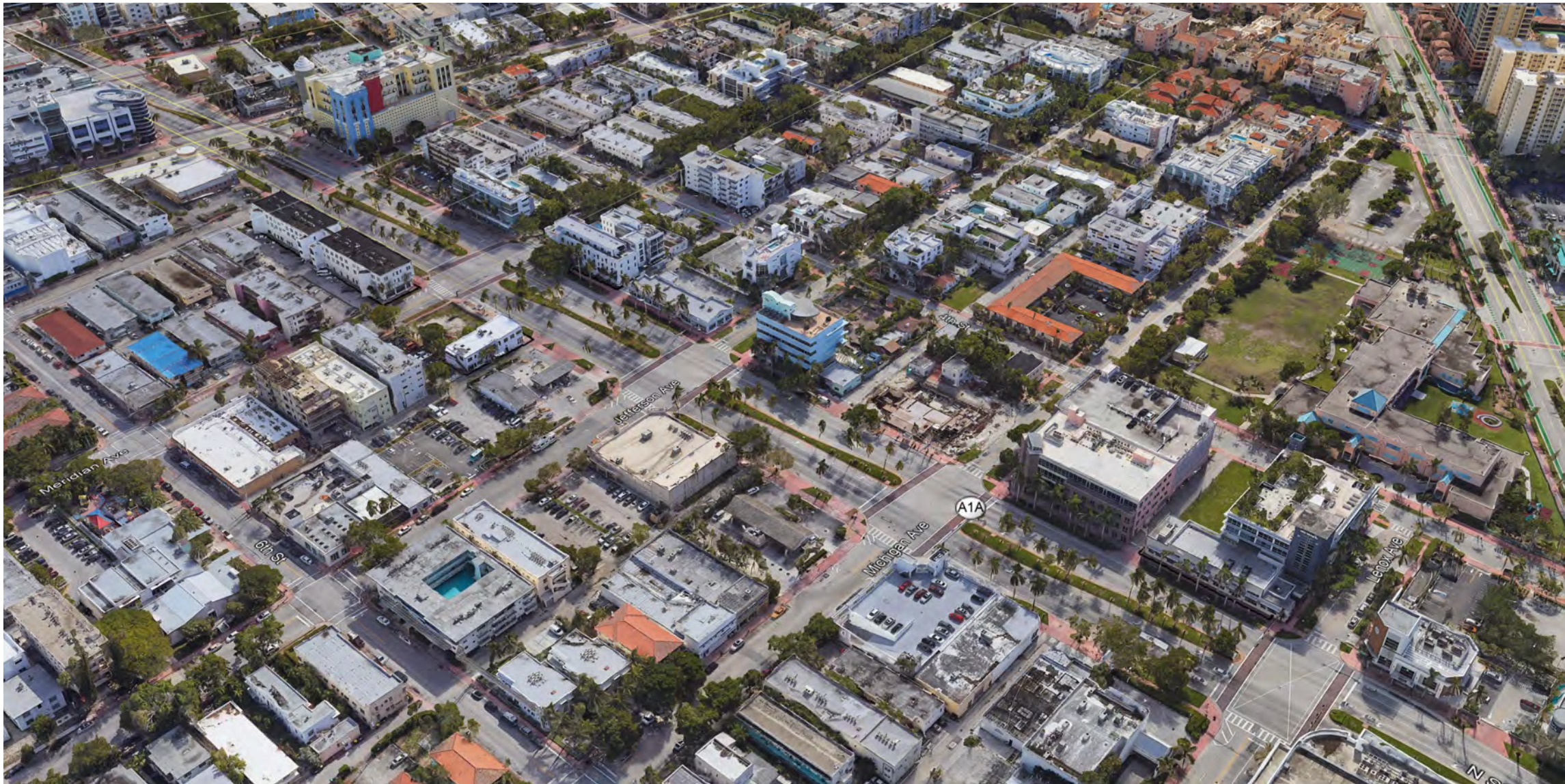
The intersection of 5th Street and Washington Avenue became a vast vehicular-oriented, open space. The widening of 5th Street created a very wide difficult to traverse roadway that has remained so today.

Important to note the change in scale that came about due to the growth generated by the area's rebirth. The 1980 photo taken over 40 years ago shows the remnants of the lower scale development that once lined the north side of 5th Street and permeated to the south on the side streets.









2021- 5TH STREET TODAY







## BRIDGING THE GAP

The construction of the Beach Corridor Rapid Transit Connector system will provide a unique and attractive transit connection in one of the most heavily traveled public transportation routes in Miami-Dade County. On the Beach, the Beach Rapid Transit Connector will help bridge the divide between the south and north sides of 5th Street through the following:

- **Improve Pedestrian Mobility-** Create a broader and more attractive refuge in the median of 5th Street to allow better pedestrian connections to and from the north and south sides of 5th Street.
- **Create a Sense of Space and Place on 5th Street-** Define the edge of what was previously the south side of 5th Street and create a better sense of space enclosure for both the south side and north side of 5th Street.
- **Enhance the Surrounding Environment of 5th Street-** Provide a well-designed landscape and hardscape environment in the station and guideway ground plane to improve the overall visual quality of 5th Street.
- **Activate the Median-** Provide an underline path with pedestrian amenities and landscape to allow better access to the stations and, through the insertion of landscape, soften the impact of the guideway.
- **Provide Night-Time Interest-** Creatively illuminate the underline path to provide a landmark along this extensive roadway.
- **Create a Landmark on 5th Street: Stations at Lenox Avenue and Washington Avenue-** The Beach Connector station will create a landmark at the node of 5th Street and Washington Avenue. It will be a reference point that will improve pedestrian mobility across this heavily traveled intersection. By eliminating one turning lane and creating a broad and active mid-street pedestrian refuge, crossing 5th Street will be safer and more accessible.





BEFORE



AFTER





**BRIDGING THE GAP**

View from north side of 5th Street and Euclid Avenue looking west





BEFORE



AFTER





## BRIDGING THE GAP

View from middle of 5th Street at Meridian Avenue looking east





BEFORE



AFTER





**BRIDGING THE GAP**

View from south side of 5th Street and Jefferson Avenue looking east





BEFORE



AFTER





View North from 4th Street Along Meridian



View South from 6th Street Along Meridian



## GUIDEWAY ELEVATION

The view of the proposed guideway superimposed on the existing conditions photograph was simulated to provide an idea as to how proposed guideway fits within the context of the 5th Street Corridor.

The view from 4th Street and Meridian (Left) is from a predominant residential neighborhood, where the existing tree canopy blocks any significant view of the guideway. This guideway may only be visible as one approaches less than one half block from the intersection.

The lack of tree canopy from the north yields a clearer view of the guideway from 6th and Meridian, on the north of the corridor (Right). However, guideway does blend in with the primary cornice line and background of the structures along the corridor.

The view from either north or south towards 5th street remains reasonably unobstructed.



APPENDIX:

# MIAMI BEACH MONORAIL: 5TH AND LENOX STATION CONCEPT



## Lenox Station



### MIAMI BEACH MONORAIL: VIEW I

The following images are provided as part of the preliminary draft of the Miami Beach Monorail Project. These are included in this report to provide an example of an alternative design language for the monorail guideway and stations. At the time of this report, the specific design of the station has yet to be decided.

View of the proposed 5th and Lenox Station looking northeast.



## Lenox Station



## MIAMI BEACH MONORAIL: VIEW 2

View of the proposed 5th and Lenox Station from the south side of 5th looking north.



## Lenox Station



### MIAMI BEACH MONORAIL: VIEW 3

View of the proposed 5th and Lenox Station from the south side of 5th looking east.



## Lenox Station



### MIAMI BEACH MONORAIL: VIEW 4

Birdseye view of the proposed 5th and Lenox Station looking east.





## FLORIDA DEPARTMENT *of* STATE

**RON DESANTIS**  
Governor

**LAUREL M. LEE**  
Secretary of State

Commander (DPB), Seventh Coast Guard District  
909 SE 1<sup>st</sup> Avenue  
Suite 432  
Miami, FL 33131-3028

10 June 2021

Attn: Randall Overton

RE: DHR Project File No. 2019-0139D, Received by DHR 14 December 2020  
Project: *Beach Corridor Rapid Transit Project Effects Determination*  
County: Miami-Dade

Mr. Overton:

The Florida State Historic Preservation Officer reviewed the referenced project for possible effects on historic properties listed, or eligible for listing, on the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*.

The effects assessment document states that the proposed undertaking will have no adverse effect on the Miami Beach Architectural District (8DA01048), the City of Miami Cemetery (8DA01090), Fire Station No. 2 (8DA01176), the FEC Railway (8DA10107), Big Time Equipment (8DA10520), 71 Northwest 14<sup>th</sup> Street (8DA10858), and the Ocean Beach Historic District (8DA11415).

On January 21, 2021, our office issued a letter with a finding of an adverse effect to the Ocean Beach Historic District (8DA11415). Based on additional information provided to our office during an interagency conference call on April 15, 2021, and a memorandum dated May 7, 2021, our office finds that the proposed undertaking will have no adverse effect to historic properties.

We look forward to continuing consultation regarding the design of the built structures. If you have any questions, please contact Dr. Adrienne Daggett, Archaeologist, Transportation Compliance & Review, by email [adrienne.daggett@dos.myflorida.com](mailto:adrienne.daggett@dos.myflorida.com), or by telephone at 850.245.6372 or 800.847.7278.

Sincerely,

For  
Timothy A. Parsons, Ph.D.  
Director, Division of Historical Resources  
and State Historic Preservation Officer

**U.S. Department of  
Homeland Security**

**United States  
Coast Guard**



Commander  
United States Coast Guard  
Seventh District

909 SE First Avenue  
Miami, Florida 33131  
Staff Symbol: (dpb)  
Phone: (305) 415-6736  
Fax: (305) 415-6763  
Email: [randall.d.overton@uscg.mil](mailto:randall.d.overton@uscg.mil)

16591  
23 June 2020

Mr. Timothy A. Parsons  
Director, Florida Division of Historical Resources  
State Historic Preservation Officer  
R. A. Gray Building – 4<sup>th</sup> Floor  
500 South Bronough Street  
Tallahassee, Florida 32399-0250  
Sent via email: [Jason.Aldridge@dos.myflorida.com](mailto:Jason.Aldridge@dos.myflorida.com) and [Adrianne.Daggett@dos.myflorida.com](mailto:Adrianne.Daggett@dos.myflorida.com)

Dear Mr. Parsons:

Enclosed please find a technical memorandum providing a desktop analysis prepared in support of the Beach Corridor Rapid Transit Project (SMART Plan) in Miami-Dade County, Florida. The Miami-Dade County Department of Public Works (DTPW), in collaboration with the US Coast Guard (USCG; lead federal agency for the trunkline) and the Federal Transit Administration (FTA), is conducting a Project Development and Environment (PD&E) study to evaluate possible routes for the development of a multi-modal transportation corridor, known as the Beach Corridor Rapid Transit Project (SMART Plan), to connect the Design District/Midtown Miami, Downtown Miami, and Miami Beach. A Phase I cultural resource assessment survey (CRAS) for the Beach Corridor Rapid Transit Project was completed by SEARCH in April 2020. The enclosed is an addendum to that original CRAS and summarizes a desktop analysis of four proposed maintenance yard facility locations for the preferred technology alternatives for the proposed corridor in the City of Miami. The Miami-Dade DTPW requested the analysis to evaluate the alternative maintenance yard locations with the purpose of identifying cultural resource potential and historic properties that are listed, or may be eligible for listing, in the National Register of Historic Places (NRHP).

For the purpose of this desktop analysis, the Study Area was defined as the boundaries of each proposed maintenance yard location, plus a 100-meter (328-foot) buffer to consider potential direct and indirect effects to historic and cultural resources.

This study was conducted in support of compliance with Chapter 267 of the Florida Statutes and Rule Chapter 1A-46, Florida Administrative Code. All work was performed in accordance with Part 2, Chapter 8 of the Florida Department of Transportation's (FDOT) PD&E Manual (revised July 2020), as well as the Florida Division of Historical Resources' (FDHR) recommendations for such projects, as stipulated in the FDHR's Cultural Resource Management Standards & Operations Manual, Module Three: Guidelines for Use by Historic Preservation Professionals.

The Principal Investigator for this project meets the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716-42).

Due to the anticipation of future federal action, this study supports compliance with Public Law 113 287 (Title 54 U.S.C.), which incorporates the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended, and the Archeological and Historic Preservation Act of 1979, as amended. The study also complies with the regulations for implementing NHPA Section 106 found in 36 CFR Part 800 (Protection of Historic Properties).

There are four proposed locations for the Beach Corridor maintenance yards. Two alternative locations for the preferred technology, the AGT/APM (automated people mover/Metromover), are within the historic Overtown neighborhood in the City of Miami. These proposed maintenance yards are adjacent to the transit corridor, North Miami Avenue, with one alternative on each side. Two additional proposed maintenance yards for the preferred APM/Monorail are located along the Bay Crossing (Trunk Line) Segment. These two proposed maintenance yards are located on Watson Island to the south of the MacArthur Causeway roadway on either side of the Miami Children's Museum. These properties are not part of the existing FDOT right-of-way.

This desktop study found that no previously recorded archaeological resources are documented within the Maintenance Yards Study Area. However, none of the proposed maintenance yard locations have been subject to Phase I archaeological testing, and the two locations along the North Miami Avenue corridor have been developed and occupied since the first quarter of the twentieth century, thus indicating a high probability for historic archaeological resources. Background research indicated that 18 recorded historic structures, two resource groups, and one linear resource have been recorded within the Maintenance Yards Study Area. Of the 21 recorded resources, nine have not been evaluated for NRHP eligibility by the State Historic Preservation Officer (SHPO), 10 have been determined ineligible, and two were determined NRHP-eligible by the SHPO. The Study Area also contains 20 unrecorded historic resources.

The project consultant, SEARCH, recommends that once the preferred Maintenance Yard location along the North Miami Avenue corridor is determined, a CRAS should be performed. The APE for this CRAS should encompass the subject property and be large enough to consider project-related effects to adjacent resources related to the planned elevated train technology. All historic resources within the APE should be recorded and evaluated. The CRAS should include archaeological pedestrian survey and Phase I testing of areas of open ground to determine the presence or absence of cultural resources that may be eligible for listing in the NRHP.

As for the Study Area on Watson Island, only one historic resource, MacArthur Causeway (8DA16540), intersects the Study Area. The SHPO concurred that MacArthur Causeway (8DA16540) is ineligible for listing in the NRHP as a result of the 2020 CRAS. Therefore, the proposed maintenance yards on Watson Island have no potential to affect historic properties. Furthermore, no archaeological testing is required in this area as the island is man-made and has

no potential for unidentified archaeological sites. No additional cultural survey is necessary for either of the proposed maintenance yard locations on Watson Island.

This desktop analysis is being submitted to request your review and comment on the alternative maintenance yard locations and the recommendations for future work. I respectfully request your concurrence with the findings and recommendations presented in this letter and the enclosed memorandum.

If you have any questions, feel free to contact me at (305) 415-6736 or email at [randall.d.overton@uscg.mil](mailto:randall.d.overton@uscg.mil).

Sincerely,

A handwritten signature in blue ink, appearing to read "Randall D. Overton", with a stylized flourish at the end.

RANDALL D. OVERTON  
Director, District Bridge Program  
U. S. Coast Guard Seventh District

Encl: Cultural Resource Desktop Analysis Maintenance Yard Locations (email attachment)

eCopy: Commandant USCG, Bridge Administration (CG-BRG)  
Jie Bian, Miami-Dade County Department of Transportation and Public Works



The Florida State Historic Preservation Officer has reviewed the attached report titled Cultural Resource Desktop Analysis in Support of the Beach Corridor Rapid Transit Project (SMART Plan) Proposed Maintenance Yard Locations and

☒ concurs / ☐ does not concur with the recommendations and findings provided in this cover letter for SHPO/FDHR Project File Number 2019-0139E. Or, the SHPO finds the attached document contains \_\_\_\_\_ insufficient information.

SHPO Comments: **We look forward to reviewing the CRAS.**

Jason Aldridge DSHPO  
Timothy A. Parsons, PhD, Director

July 13, 2021

Date

Florida Division of Historical Resources

**CULTURAL RESOURCE DESKTOP ANALYSIS IN SUPPORT OF THE  
BEACH CORRIDOR RAPID TRANSIT PROJECT (SMART PLAN)  
PROPOSED MAINTENANCE YARD LOCATIONS,  
MIAMI, MIAMI-DADE COUNTY, FLORIDA**

<b>CONSULTANT:</b>	SEARCH, 2031 Harrison Street, Hollywood, Florida 33020
<b>PRINCIPAL INVESTIGATOR:</b>	Mechelle Kerns, PhD, RPA
<b>CLIENT:</b>	Miami-Dade County and Parsons Transportation Group Inc.
<b>DATE:</b>	April 2021
<b>CONTRACT NO.:</b>	CIP142-1-TPW16-PE1
<b>PROJECT NO.:</b>	CIP153
<b>SEARCH PROJECT NO.:</b>	180194

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The Miami-Dade County Department of Public Works (DTPW) is conducting a Project Development and Environment (PD&E) study to evaluate possible routes for the development of a multi-modal transportation corridor, known as Beach Corridor Rapid Transit Project (SMART Plan), to connect the Design District/Midtown Miami, Downtown Miami, and Miami Beach. In support of the PD&E study, SEARCH completed a desktop analysis of four proposed maintenance yard facility locations for the preferred technology alternatives for the proposed corridor in the City of Miami, Miami-Dade County, Florida (**Figures 1-3**). SEARCH has been contracted by Parsons Transportation Group Inc. to support DTPW in collaboration with the US Coast Guard (USCG; lead federal agency for the trunkline) and the Federal Transit Administration (FTA) to evaluate the maintenance yard locations; this desktop analysis was conducted with the purpose of identifying cultural resource potential and previously recorded historic properties that are listed, or may be eligible for listing, in the National Register of Historic Places (NRHP). A cultural resource assessment survey (CRAS) was prepared for the project corridor area of potential effects (APE) in 2020; the 2020 CRAS document to which this analysis serves as an addendum addresses the project description, the prehistoric and historic context of the project area, as well as a historic map and aerial photograph review of the project corridor (SEARCH 2020). This background research is therefore not repeated herein.

The objective of this cultural resource desktop analysis is to compile existing information on known cultural resources and assess the likelihood that unrecorded archaeological sites or historic resources exist within the project area. For the purpose of this desktop analysis, the Study Area was defined as the boundaries of each proposed maintenance yard location, plus a 100-meter (328-foot) buffer to consider potential direct and indirect effects to historic and cultural resources.

## **LOCATION AND SETTING**

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Two of the four proposed maintenance yard locations are in the historic Overtown neighborhood in the City of Miami. Both locations consist of urban city blocks containing multiple lots of various





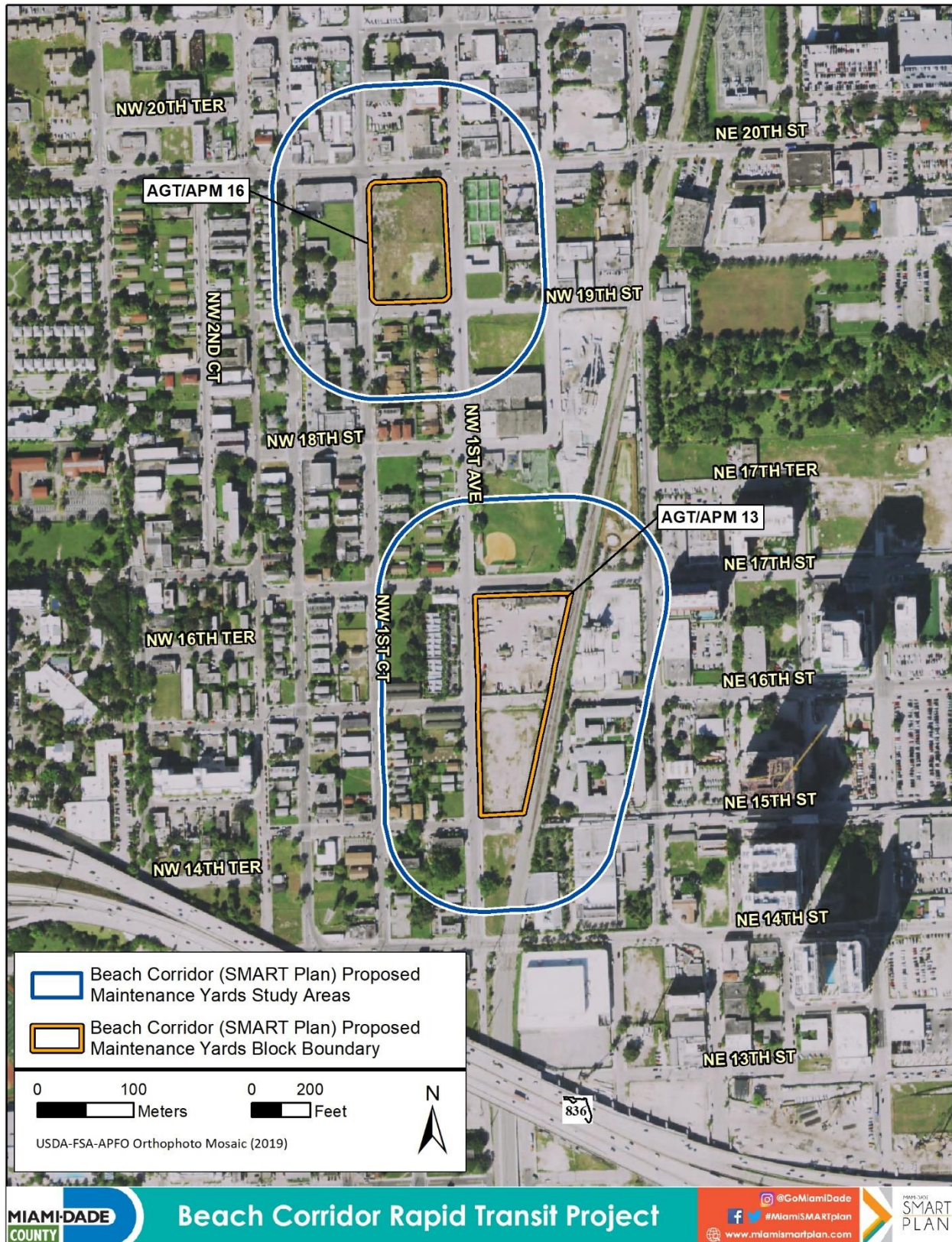


Figure 2. Location of the proposed Beach Corridor Maintenance Yards Study Area along North Miami Avenue.





Figure 3. Location of the proposed Beach Corridor Maintenance Yards Study Area on Watson Island.

sizes and of mixed use. The properties chosen for these proposed facilities are either vacant or with low occupancy; however, historically, the same blocks were subdivided into as many as 14 lots depicting a trend of lot consolidation and variable land use over time (**Figure 4**). Currently, these two proposed facility locations contain a total of five lots. Only one of the lots contains extant structures. The lots would be cleared of existing structures and redeveloped to meet the needs of the elevated transit corridor technology to include a spur of elevated railway, maintenance facility buildings, and parking.

The two remaining proposed maintenance yard locations are on Watson Island in Biscayne Bay along the MacArthur Causeway between Miami and Miami Beach, although the island is within the jurisdictional boundaries of the City of Miami. Watson Island is bisected by US 41/State Road (SR) A1A/MacArthur Causeway, and both of the potential maintenance yard locations are south of the highway (see **Figure 3**). The two parcels proposed for the maintenance yards are currently owned by the City of Miami, with the southernmost parcel containing the Miami Children's Museum and the northernmost parcel vacant aside from a large metal Quonset hut. Watson Island is man-made, was originally created by land reclamation in 1926 with material dredged from the ship channel to the Port of Miami and has expanded with regard to size and development over time.

The Florida Master Site File (FMSF) database was reviewed for any previous surveys or previously recorded resources. Archaeological site probability was based on soil drainage, distance to water, previous land use and occupation, and prior disturbance. In addition, the Miami-Dade County Property Appraiser's database, historic maps, and aerial photographs were reviewed to determine if structures constructed prior to 1975 are located in the vicinity of the proposed maintenance yard locations.

Currently, there are two proposed locations for the Beach Corridor maintenance yards for the preferred technology, the AGT/APM (automated people mover/Metromover), hereafter referred to as AGT/APM 13 and 16 (**Table 1**). The proposed maintenance yards are adjacent to the transit corridor, North Miami Avenue, one on each side (see **Figure 2**).

**Table 1. Proposed Maintenance Yard Locations along the North Miami Avenue Transit Corridor.**

Technology/ID	Location	Area	City of Miami Plat Block
AGT/APM 13	NE 16th Street & NW 1st Avenue	1.75 a	18
AGT/APM 16	NW 20th Street & NW 1st Court	3.94 a	32 & 39

*Block locations from the northwest corner, see **Figure 2**.*

There are two additional proposed locations for the Beach Corridor maintenance yards for the preferred APM/Monorail along the Bay Crossing (Trunk Line) Segment (**Table 2**; see **Figure 3**). These two proposed maintenance yards are located on Watson Island to the south of the MacArthur Causeway roadway on either side of the Miami Children's Museum.

**Table 2. Proposed Maintenance Yard Locations along the Bay Crossing Transit Corridor.**

Technology/ID	Location	Area
APM or Monorail/TRUNKLINE 1	980 MacArthur Causeway	2.19 a
APM or Monorail/TRUNKLINE 2	880-950 Macarthur Causeway	4.14 a



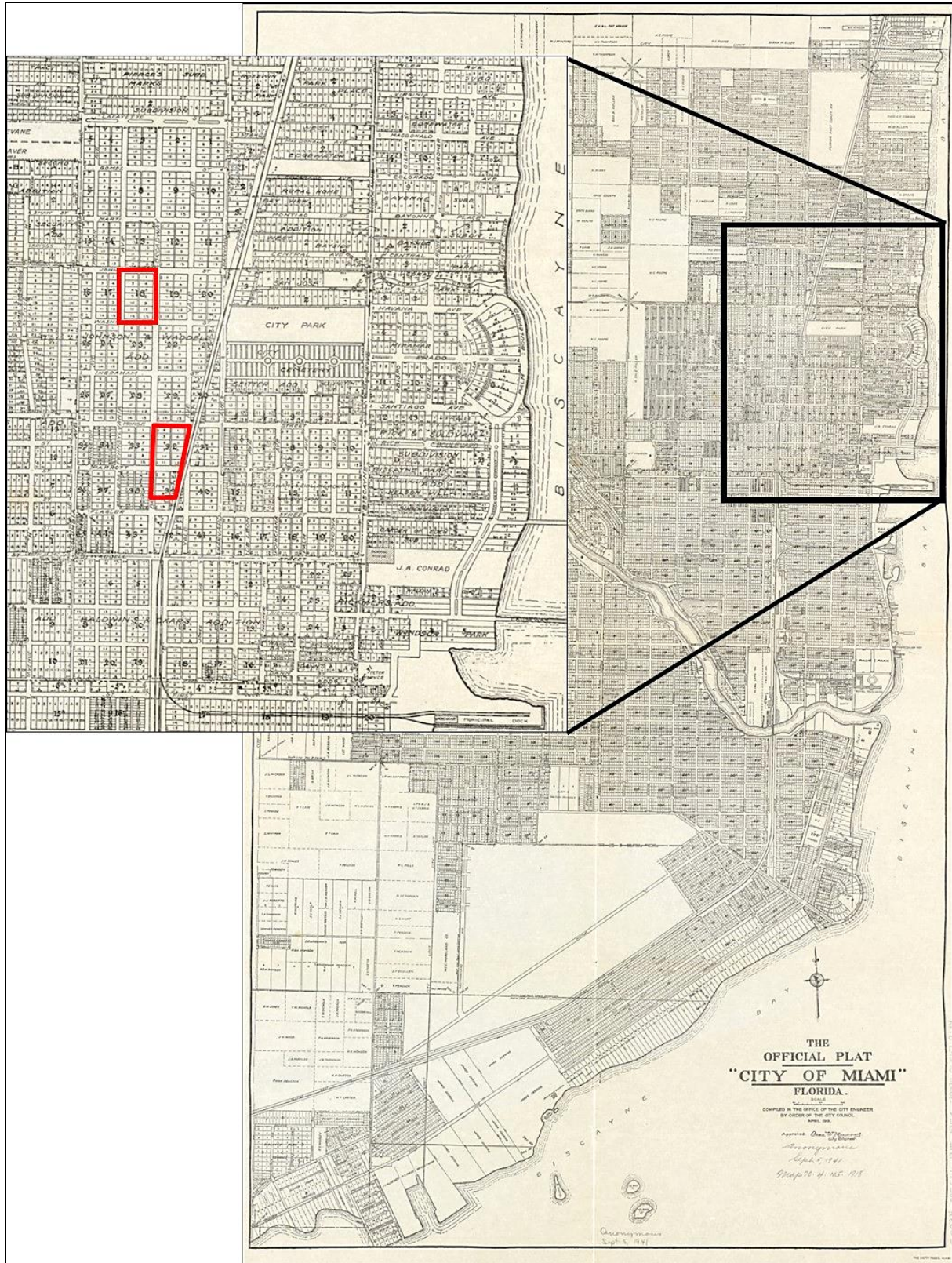


Figure 4. 1918 plat map for the City of Miami showing Blocks 18 and 32/39 of the “Johnson and Waddell’s Addition to Miami” subdivision.

For ease of reference, the two properties located along the North Miami Avenue transit corridor will be referred to as Block 18 (which coincides with the proposed location for AGT/APM 16) and Block 32/39 (which coincides with the proposed location for AGT/APM 13) as they appeared in the 1918 City of Miami plat map that depicts the subdivisions and additions of land that made up the city during the first quarter of the twentieth century (see **Table 1**; see **Figure 4**). This section of the city was platted ca. 1910 and was included in the “Johnson and Waddell’s Addition to Miami” subdivision, which contained 45 city blocks that were bounded by Waddell Street to the south, Lafayette Street to the north, Columbia Avenue to the west, and Harvard Avenue and the Florida East Coast (FEC) Railroad to the east (see **Figure 4**). In 1920, the street names were changed to a system of numbers; both set of street names are provided for reference in **Table 3**

**Table 3. Original and Current Street Names.**

Original Street Name	Post 1920/Current Street Name
Waddell Street	NW 14th Street
Flagler Street	NW 15th Street
Parrott Street	NW 16th Street
Morse Street	NW 17th Street
Ingraham Street	NW 18th Street
Washington Street	NW 19th Street
Johnson Street	NW 20th Street
Marti Street	NW 21st Street
Gomez Street	NW 22nd Street
Lafayette Street	NW 23rd Street
Columbia Avenue	NW 2nd Avenue
Harvard Avenue	North Miami Avenue
Yale Street	NW Miami Court
Broadway	NW 1st Avenue
Pennsylvania Street	NW 1st Court
Princeton Avenue	NW 1st Place

## BACKGROUND RESEARCH

### Previous Surveys

As part of this PD&E study, SEARCH conducted a CRAS of the proposed North Miami Avenue transit corridor, as well as the proposed Trunkline crossing Watson Island (FMSF No. TBD, SEARCH 2020). This current desktop captures the proposed maintenance yard locations along North Miami Avenue, which occur outside the original corridor APE. A review of the FMSF database indicated that six previous surveys overlap or intersect the Maintenance Yards Study Area along North Miami Avenue; however, none of the proposed yard locations have been surveyed for cultural resources (**Table 4**; **Figure 5**).

**Table 4. Cultural Resource Surveys that Overlap or Intersect the Maintenance Yards Study Area Along North Miami Avenue.**

FMSF No.	Title	Year	Reference
1085	<i>Downtown Miami Multiple Resource Area</i>	1988	Florida Division of Historic Resources (FDHR)
5218	<i>Cultural Resource Assessment Survey for East-West Multimodal Corridor from West of Palmetto Expressway to Port of Miami, Volume Report, Volume 2: Appendices</i>	1997	Janus Research, Inc.
13353	<i>Miami Streetcar Analysis Cultural Resources</i>	2006	Janus Research, Inc.
14408	<i>Miami Comprehensive Neighborhood Plan</i>	1989	City of Miami Planning Department



**Table 4. Cultural Resource Surveys that Overlap or Intersect the Maintenance Yards Study Area Along North Miami Avenue.**

FMSF No.	Title	Year	Reference
19480	<i>Cultural Resource Assessment Report for the All Aboard Florida Passenger Rail Project from West Palm Beach to Miami, West Palm Beach, Broward, and Miami-Dade Counties</i>	2012	Janus Research, Inc.
25872	<i>CRAS Reevaluation Addendum: I-395 from I-95 to MacArthur Causeway Bridges and SR 836 Improvements from NW 17th Avenue to I-95/Midtown Interchange and I-95 Pavement Reconstruction</i>	2018	Janus Research, Inc.

Unlike the Maintenance Yards Study Area along North Miami Avenue, the entirety of the Study Area for the proposed maintenance yards on Watson Island was included within the APE for the 2020 CRAS completed by SEARCH. No NRHP-eligible or -listed resources are located within the Study Area on Watson Island. A review of the FMSF database indicated that four previous surveys overlap or intersect the Maintenance Yards Study Area on Watson Island (**Table 5; Figure 6**).

**Table 5. Cultural Resource Surveys that Overlap or Intersect the Maintenance Yards Study Area on Watson Island.**

FMSF No.	Title	Year	Reference
1789	<i>Proposed Upgrading of SR A1A from US 1 to Watson Island</i>	1988	Browning, William D., Melissa G. Wiedenfeld
3086	<i>A Historical Resource Assessment Survey of the Port of Miami Tunnel and Access Project</i>	1991	Janus Research, Inc.
5218	<i>Cultural Resource Assessment Survey for East-West Multimodal Corridor from West of Palmetto Expressway to Port of Miami</i>	1997	Janus Research, Inc.
26098	<i>Cultural Resource Desktop Analysis and Field Review for SR A1A/MacArthur Causeway Improvements from SR 5/Biscayne Boulevard to SR 997/Alton Road, City of Miami Beach and City of Miami, Miami-Dade County, Florida</i>	2019	Janus Research, Inc.

## Previously Recorded Archaeological Sites

The FMSF review found that no previously recorded archaeological sites have been documented within the Maintenance Yards Study Area. None of the previous surveys employed archaeological testing on the properties associated with the proposed transit corridor. No Phase I archaeological testing was conducted within the proposed transit corridor during the 2020 CRAS as the setting is urban, densely developed, and covered with impervious surface.

## Previously Recorded Historic Resources

The FMSF review shows that there are 18 recorded historic structures, two resource groups, and one linear resource within the Maintenance Yards Study Area (**Figures 7 and 8**). Of the 21 recorded resources, nine have not been evaluated for the NRHP by the State Historic Preservation Officer (SHPO) (one of which has been destroyed, 10 have been determined ineligible, and two were determined eligible for listing in the NRHP [**Table 6**]). None of the

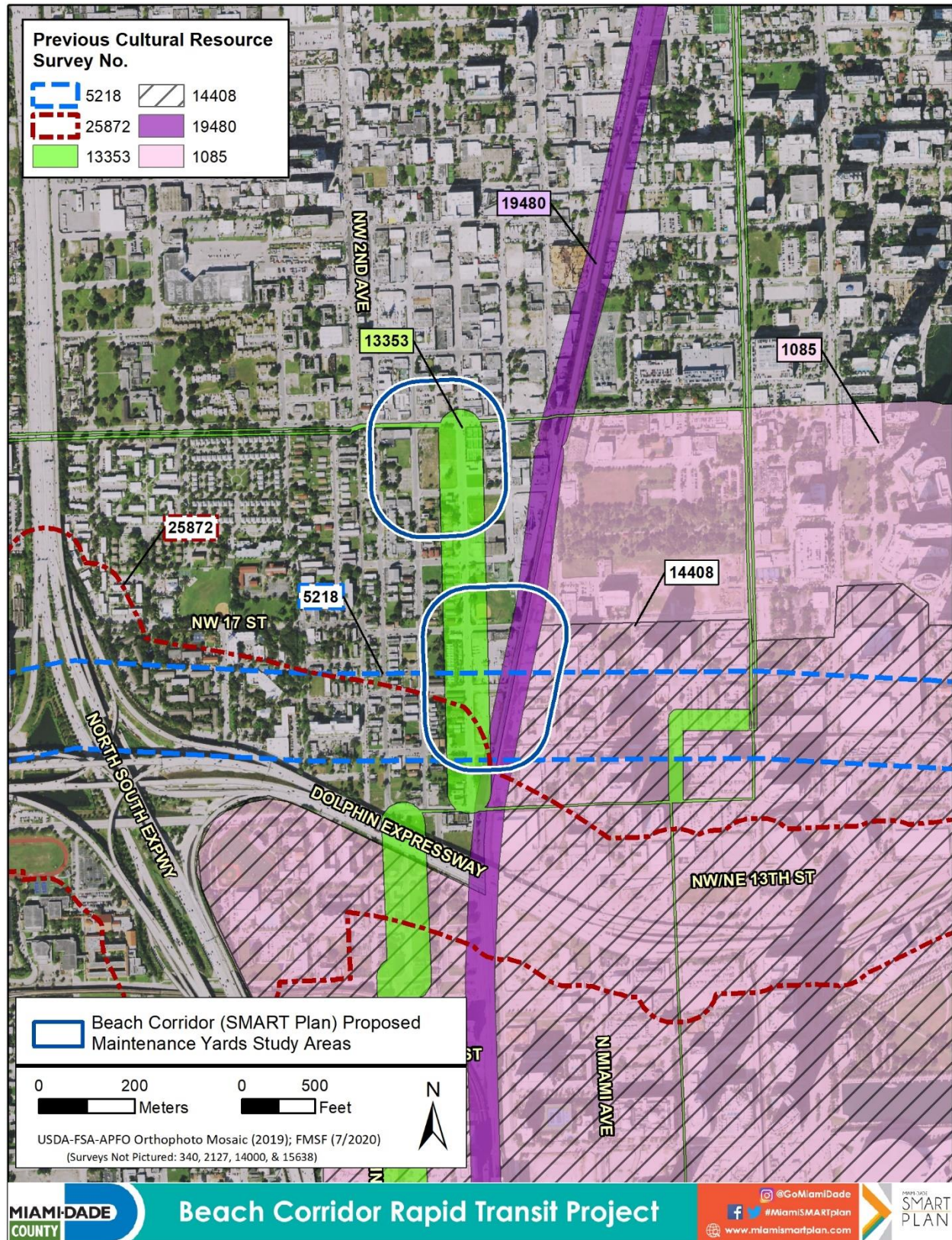


Figure 5. Previous surveys that overlap or intersect with the Maintenance Yards Study Area along North Miami Avenue.



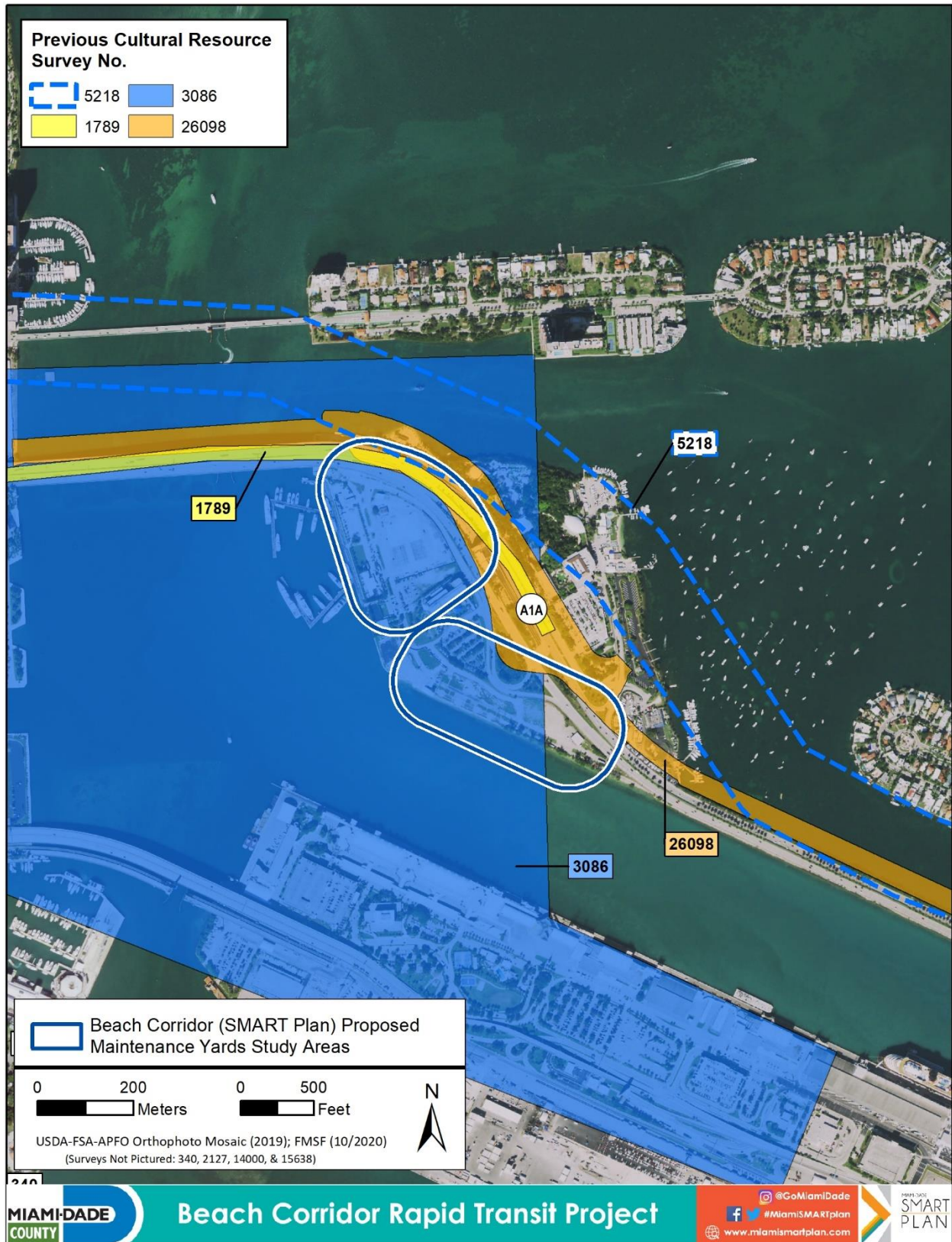


Figure 6. Previous surveys that overlap or intersect with the Maintenance Yards Study Area on Watson Island.



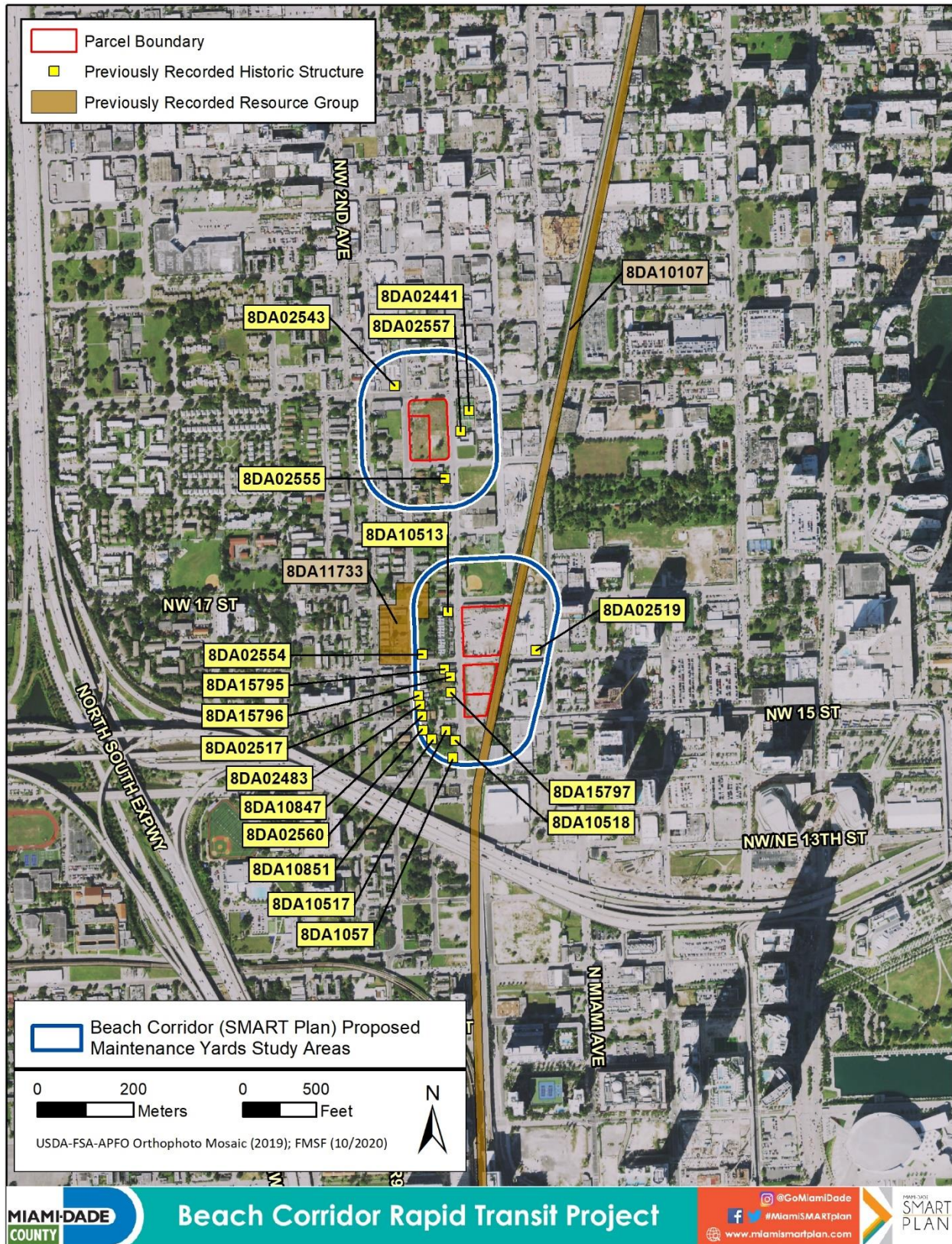


Figure 7. Previously recorded historic resources within the Maintenance Yards Study Area along North Miami Avenue.





Figure 8. Previously recorded historic resource within the Maintenance Yards Study Area on Watson Island.

**Table 6. Previously Recorded Historic Structures within the Maintenance Yards Study Area.**

<b>Historic Structures</b>				
<b>FMSF No.</b>	<b>Address</b>	<b>Year Built</b>	<b>Surveyor Evaluation</b>	<b>SHPO Determination</b>
8DA02441	80 NW 20 <sup>th</sup> Street	c. 1936	Not Evaluated by Recorder	Not Evaluated by SHPO
8DA02483	1527 NW 1 <sup>st</sup> Court	c. 1920	Not Evaluated by Recorder	Not Evaluated by SHPO
8DA02517	1531-1539 NE 1 <sup>st</sup> Court	c. 1920	Not Evaluated by Recorder	Not Evaluated by SHPO
8DA02519	613 NW 16 <sup>th</sup> Street	c. 1930	Not Evaluated by Recorder	Not Evaluated by SHPO
8DA02543	2024 NW 1 <sup>st</sup> Court	c. 1923	Not Evaluated by Recorder	Not Evaluated by SHPO
8DA02554	1629 NE 1 <sup>st</sup> Court	1920	Not Evaluated by Recorder	Not Evaluated by SHPO
8DA02555	1846 NW 1 <sup>st</sup> Avenue	c. 1936	Not Evaluated by Recorder	Not Evaluated by SHPO
8DA02557	1950 NE 1 <sup>st</sup> Avenue	c. 1936	Not Evaluated by Recorder	Not Evaluated by SHPO
8DA02560	1451 NW 1 <sup>st</sup> Court	c. 1920	Documented as Destroyed	Not Evaluated by SHPO
8DA10513*	100 NW 17th	1941	Eligible for NRHP	Eligible for NRHP
8DA10517	1450 NW 1 <sup>st</sup> Avenue	c. 1956	Ineligible for NRHP	Ineligible for NRHP
8DA10518	1440 NW 1 <sup>st</sup> Avenue	c. 1930	Ineligible for NRHP	Ineligible for NRHP
8DA10847	123 NW 15 <sup>th</sup> Street	1940	Ineligible for NRHP	Ineligible for NRHP
8DA10851	1445 NW 1 <sup>st</sup> Court	1957	Ineligible for NRHP	Ineligible for NRHP
8DA10857	1416 NW 1 <sup>st</sup> Court	1954	Ineligible for NRHP	Ineligible for NRHP
8DA15795	1558 NW 1 <sup>st</sup> Avenue	c. 1947	Ineligible for NRHP	Ineligible for NRHP
8DA15796	1540 NW 1 <sup>st</sup> Avenue	c. 1930	Ineligible for NRHP	Ineligible for NRHP
8DA15797	1524-1526 NW 1 <sup>st</sup> Avenue	c. 1920	Ineligible for NRHP	Ineligible for NRHP
<b>Resource Groups</b>				
<b>FMSF No.</b>	<b>Name</b>	<b>Period of Significance</b>		<b>SHPO Determination</b>
8DA11733	D & K Island Project	1940s		Ineligible for NRHP
8DA10107	FEC Railway	Nineteenth Century American, 1821-1899, 1896-1959		Eligible for NRHP
8DA16540	MacArthur Causeway	World War I & Aftermath, 1917-1920		Ineligible for NRHP

\* HS-16 Dorsey Memorial Library is a City of Miami Designated Historic Site (2003) (City of Miami n.d.).

Yellow highlighting indicates eligible resources within the Study Area.

recorded resources have been listed in the NRHP. Two eligible resources are within the Study Area: the FEC Railway (8DA10107) was determined eligible for the NRHP on October 1, 2019, and Dorsey Memorial Library (8DA10513) was determined eligible on October 18, 2006. The Dorsey Memorial Library (HS-16) is a City of Miami-designated Historic Site (City of Miami n.d.). The MacArthur Causeway (8DA16540) intersects the boundaries of the two proposed maintenance yards on Watson Island. None of the other previously recorded historic resources are within the footprints of the maintenance yards along North Miami Avenue. There are no recorded archaeological resources within the Study Area.

## UNRECORDED CULTURAL RESOURCES

The objective of this desktop review is to compile existing information regarding known cultural resources and assess the likelihood that unrecorded archaeological sites or historic resources exist within the project vicinity. For prehistoric and/or historic archaeological sites, settlement patterns were influenced by environmental conditions, such as proximity to fresh water, soil drainage, landform elevation, and local vegetation. In general, relatively elevated, better-drained

land within 100 meters (328 feet) of a freshwater source is considered to have a high potential for pre-modern site location. Generally, as distance from a water source increases, site expectancy decreases. Zones of moderate probability are often defined as situated between 100 and 300 meters (328 to 984 feet) of potable water. Settlements with easy access to drinking water are often multicomponent with subsequent inhabitants occupying established locations of resource procurement. For thousands of years, the margins of the Miami River have served as a transportation route and a zone rich with the natural resources required for human habitation.

## Archaeological Site Potential

### Prehistoric Site Potential

Generally, the period of indigenous occupation of southeast Florida can be divided into four broad periods, three associated with the Glades culture (**Table 7**). Archaeological sites of this type are well documented near the project area and throughout south Florida. The Beach Corridor (SMART Plan) project area is located within the Glades archaeological region, originally defined by Goggin (1947). Geographically, the region encompasses all southern Florida, south of Lake Okeechobee and up the east coast to St. Lucie County. Archaeologically, the region is dominated by the presence of plain, sand-tempered pottery, a technology based on bone and shell tools, and an economy based on freshwater and marine resources (Goggin 1949).

**Table 7. Cultural Periods of Indigenous Occupation in South Florida.**

Period	Date Range
Archaic	ca 10,000–500 BC
Glades I	500 BC–AD 750
Glades II	AD 750–AD 1200
Glades III	AD 1200–AD 1763

Common environmental variables for prehistoric habitation include elevated landforms, access to fresh water, and/or nearby protected marine habitats. These sites also tend to be situated in areas of well drained to somewhat poorly drained soils near wetlands, ponds, and creeks. All these variables are present within the project area; however, road and bridge construction, buried utilities, and commercial and residual development have resulted in significantly disturbed soils within the portion of the Maintenance Yards Study Area along North Miami Avenue. Use of traditional probability models, based on modern soil type and conditions, are impractical in this case due to the extent of urban development and the type of soil classification noted as “Urban land” (created by disturbance and episodes of fill) that encompasses the entire project area. Due to the extent of urban development within the Study Area along North Miami Avenue, the use of soil type for predicative modeling is not practical as there are no undisturbed areas with natural soils. While modern environmental conditions indicate generally low probability, many sites (such as the Miami Circle [8DA00012]) have been identified in similar conditions elsewhere in the county.

The project area along North Miami Avenue is 0.62 miles (1,000 meters) east of Biscayne Bay and more than 0.93 miles (1,500 meters) northeast of the nearest natural freshwater supply, Warner Creek, which flows into the Miami River. These bodies of water could have provided access to food and drinking water in the past, but are located at such a distance from the proposed Maintenance Yards that they do not possess high potential for prehistoric settlement. The two

sites for the Maintenance Yards along North Miami Avenue are situated at 14 feet (4.3 meters) above mean sea level (amsl). The soils within the Maintenance Yards Study Area at these two locations are recorded as Urban land due to the level of development in this section of the city related to grading and fill deposits as well as urban commercial and residential development. The extant buildings consist of commercial/ light industrial structures related to utilities services. The potential for prehistoric archaeological features and sites is considered low due to the distance from fresh water and previous disturbance related to development (grading, excavation, and infill) and, in some cases, redevelopment of these city blocks.

It should be noted that the Study Area at the two proposed maintenance yard locations on Watson Island are located on fill created by dredging of the ship channel to the Port of Miami in the 1920s. As Watson Island is a man-made island, there is no potential for prehistoric sites at either of these locations.

### Historic Site Potential

For the historic period, occupation of the Study Area dates to as early as the sixteenth century by the Tequesta, the Spanish, and Anglo-English and is represented in the historic and, in some cases, the archaeological record with multicomponent sites consisting of complex domestic settlements, improved water, ground transportation routes, trading posts, and religious mission sites (**Table 8**) (Wheeler 2004).

**Table 8. Miami Historic Periods.**

Period	Date Range
Early Exploration	1513–1830
Pioneer Era	1831–1895
Formative Years	1886–1913
Suburban Expansion	1914–1919
The Boom	1920–1926
The Bust and The Great Depression	1927–1942

Review of the Miami-Dade County Property Appraiser's database indicated that the two proposed Maintenance Yards properties along North Miami Avenue contain five individual lots, but only one has extant structures (see **Figure 7**). However, the configuration of the proposed parcels has changed dramatically over time (**Table 9**). A map from 1936 shows the early configuration of these city blocks and the number of buildings occupying the lots during the first half of the twentieth century (**Table 10**). Although some of the lots are now vacant, the remains of earlier occupation and structures are likely extant and could be encountered during construction. The potential for historic archaeological sites within the Maintenance Yards Study Area along North Miami Avenue is considered high based on past land use and period of occupation.

**Table 9. Current Lots, Recorded and Unrecorded Resources.**

Blocks 18 and 32/39 Only	Count
Individual Lots	5
Lots with pre-1975 Structures	1
Vacant Lots	4
Lots with post-1975 Structures	0
Previously Recorded Historic Properties	0
Unrecorded Historic Properties	1

**Table 10. Comparison of Lot Configurations in 1936 and 2020.**

Technology/ID	Maintenance Yard Location*	Current Lots	Lots in 1936*
AGT/APM 13	NW 17th Street & NW 1st Avenue	3	24
AGT/APM 16	NW 20th Street & NW 1st Court	2	14

\*Does not represent all lots captured by the Study Area, only physical lots within the proposed locations. Data from G. M. Hopkins & Co. Plat book of Greater Miami, Florida and suburbs (Philadelphia, PA) 1936.





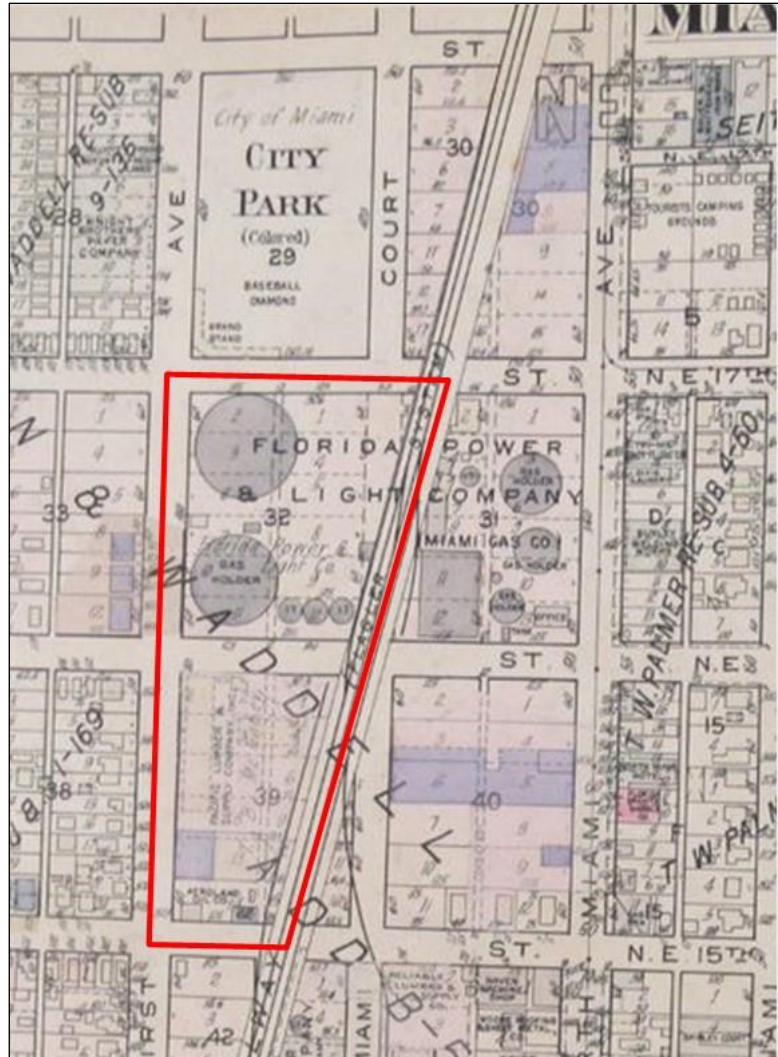
The AGT/APM 16 proposed location encompasses one city block (Block 18) located between NW 20<sup>th</sup> Street and NW 19<sup>th</sup> Street, bounded by NW 1<sup>st</sup> Court to the west and NW 1<sup>st</sup> Avenue to the east (see **Figure 2**). Currently it consists of vacant land composed of two lots recorded as the National Linen Properties subdivision. Buildings were located on the lots until the late 1990s, but were demolished between 1999 and 2002. Block 18 is bisected by a north-south oriented alleyway, and in 1936, the east side was occupied by a large “laundry” building (**Figure 9**). The west side was divided into nine lots: three fronted NW 20<sup>th</sup> Street (measuring 100 feet by 42 feet) and six fronted NW 1<sup>st</sup> Court (measuring 125 feet by 50 feet). In 1936, only two structures were mapped on the west side of the lots and the other lots were unimproved (G. M. Hopkins & Co. 1936). This northern section of Miami was first subdivided into lots for sale in ca. 1910 and was originally part of the Johnson & Waddell’s Addition to Miami (*Miami News* 1911). Prior to 1910, this section of Miami was agricultural land or undeveloped.

AGT/APM 13 includes Blocks 32 and 39 (**Figure 10**). This proposed maintenance yard location consists of two irregular blocks of land between NW 1<sup>st</sup> Avenue (previously Broadway Street) and the FEC Railway bounded on the north by NW 17<sup>th</sup> Street (previously Morse Street) and on the south NW 15<sup>th</sup> Street (previously Flagler Street). Currently, the property is consolidated as two contiguous lots owned by the Florida Power and Light (FPL) utility company. There are small buildings dating to the 1950s and 1960s fronting NW 17<sup>th</sup> Street; the rest of the lot is vacant. The northern section of the property, Block 32 at NW 17<sup>th</sup> Street and NW 1<sup>st</sup> Avenue, was originally part of the Johnson & Waddell Addition to Miami (ca. 1910) and later subdivided into the S. R. Inch Subdivision. In 1925, Block 32 was divided into 12 lots measuring 60 feet by 125 feet with an alleyway running down the middle of the block. The southwest corner of the block had a “gas holder” that occupied Lots 10 and 11 (G. M. Hopkins & Co. 1925). This was an expansion of

the Miami Gas Company facility that was located on the block to the east on the other side of the FEC Railway: it was established in 1904 (Moody's Investors Service 1922). By 1936, the northern section of Block 32 contained five gas storage and manufacturing structures and a small office that was part of the FPL complex that straddled the FEC Railway (G. M. Hopkins & Co. 1936). The FPL was founded in 1925 and soon after acquired the Miami Gas Company. The FPL parent company still owns the subject property (NextERA Energy 2020).

### **Block 39**

The southern section of the proposed AGT/APM 13 property, Block 39, was part of the T. B. McGahey subdivision, and it faced Broadway (now NW 1<sup>st</sup> Avenue). In 1918, it consisted of six developed lots; three with two small dwellings per lot and three oversized lots with one building each. This parcel extended to NW 15<sup>th</sup> Street and was wedge-shaped due to abutting the FEC Railway to the east: six of the lots were full lots (facing Broadway/NW 1<sup>st</sup> Avenue), the others were small wedge-shaped parcels. Those abutting the railway appear undeveloped in 1918 and 1925. Block 39 was reconfigured and developed by 1936, and 10 of the lots were occupied by the Pacific Lumber and Supply Company (see **Figure 10**). One double lot was located at the corner of NW 1<sup>st</sup> Avenue and NW 15<sup>th</sup> Street. It was occupied by the Aeroland Oil Company and contained three small structures (G. M. Hopkins & Co. 1936). By 1940, there were four lumberyard structures within Block 39, and the Aeroland property appears unchanged (Sanborn Map Company 1940) (**Figure 11**). In the mid-1990s, aerial photographs show three structures on Block 39, two in what had been the lumber yard (north section) and one in the same place as the Aeroland Oil Company building depicted in 1940. This building is in the same location as one depicted on the 1918 Sanborn Map Company map. These building were extant in 2006, but by late 2007, they had been removed and the property was vacant. It remains as such today.

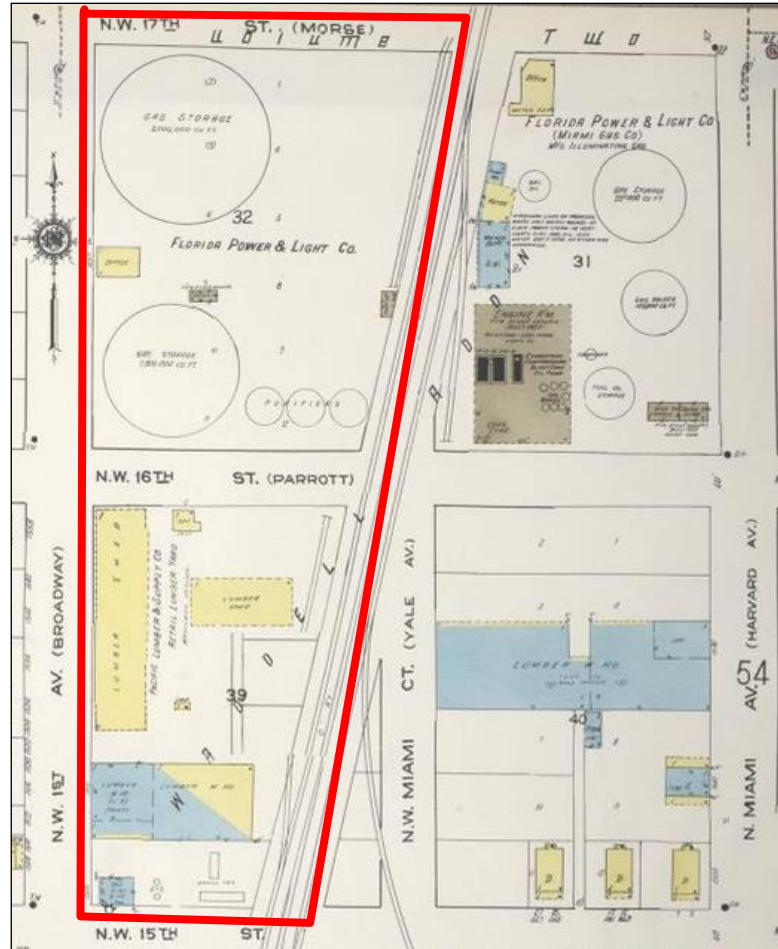


**Figure 10. Proposed Maintenance Yard AGT/APM 13 location within Blocks 32 and 39 of the plat map of Miami, as occupied in 1936 (G. M. Hopkins & Co. 1936).**

Due to the long period of occupation, development, and redevelopment in this part of the city, it is probable that historic archaeological resources dating to Miami's earliest period of development could be encountered during construction activities.

### Unrecorded Historic Resources

A review of the Miami-Dade Property Appraiser's database in geographic information system (GIS) format indicates that 20 parcels containing historic-age (i.e., pre-1975) buildings are located within the Maintenance Yards Study Area for the two potential locations along North Miami Avenue (Table 11). The proposed maintenance yards are located northwest of downtown, in the Overtown neighborhood (made up of Lummas Park, Dixie Park, and Dorsey Park), which is bounded by NW 20<sup>th</sup> Street to the north, NW 5<sup>th</sup> Street to the south, Interstate 95 to the west, and the FEC Railway and NW 1<sup>st</sup> Avenue to the east (Miami-Dade County 2011b).

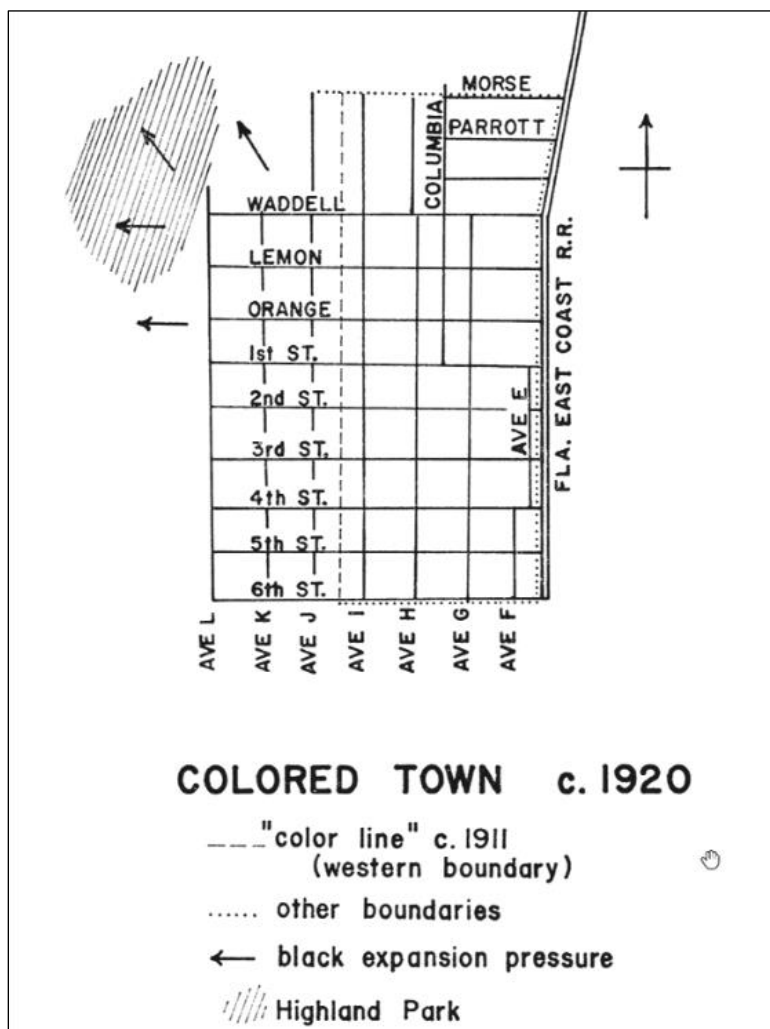




**Table 11. Parcels Containing Unrecorded Historic Structures within the Maintenance Yards Study Area.**

Parcel ID	Name/Address	Year Built
01-3125-054-0440	79 NW 20th Street	1938
01-3125-054-0480	2045 NW 1st Avenue	1946
01-3125-054-0430	41 NW 20th Street	1938
01-3125-048-1120	1775 NW 1st Avenue	ca. 1925
01-3125-048-1141	60 NW 17th Street	1952
01-3125-048-1140	1600 N Miami Avenue	1969
01-3136-090-0010	59 NW 14th Street	1922

This section of the of city was once known as “Colored Town” and dated to the earliest days of incorporated Miami, with Black laborers moving to the area in 1895 (George 1978). Many of the early residents came to the area to work for Henry Flagler during construction of the FEC Railway (Miami-Dade County 2011b). Later, the area was known as Overtown and was “... recognized as one of the oldest Black communities in Miami” (Miami-Dade County 2011b). From the 1890s to the early 1920s, Colored Town was a segregated, crowded, and unplanned section of the city with frail, cramped housing and little to no infrastructure or public services usually associated with twentieth-century cities. This part of the city was designated for Blacks in 1911 to limit where Blacks were allowed to live, restricting them from settling in white neighborhoods (**Figure 12**).



**Figure 12. Map of Colored Town in 1920, part of what is now Overtown (George 1978).**

This area was formally developed as investment real estate subdivisions in the 1920s during the “land boom” and development continued through the 1950s. However, this neighborhood had a segregated “Colored” city park (Block 39, within the Study Area for AGT/APM 13; see **Figures 7 and 10**) as early as 1925 that was improved with a baseball field by 1936 (G. M. Hopkins & Co. 1925, 1936). There also was a “Colored” library donated by African American developer and philanthropist Dana Albert Dorsey (Miami-Dade County 2011a). The structure is extant and located at 100 NW 17<sup>th</sup> Street within the



Study Area. This NRHP-eligible structure, the D. A. Dorsey Library (8DA10513), dates to 1941. After World War II, Miami-Dade County experienced unprecedented growth. This was spurred by aggressive transportation programs: “In 1956, the Florida State Road Department created plans that routed Interstate 95 [I-95] through central portions of Overtown to better allow for the westward expansion of the Central Business District” (University of Miami 2016). The construction of the expressway started in 1957 and continued until 1968 (University of Miami 2016). This interstate project divided Overtown and negatively impacted the setting and character of the neighborhood.

No systematic cultural resource survey of Overtown has been completed to date. There are historic-age properties dating to as early as the 1920s within the Maintenance Yards Study Area (see **Table 11**).

## RECOMMENDATIONS AND CONCLUSIONS

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This report presents the results of a desktop evaluation for four proposed Maintenance Yard locations conducted in support of the Beach Corridor Rapid Transit Project (SMART Plan). The PD&E study concerns the proposed construction of a transit corridor (Beach Corridor) in Miami-Dade County. SEARCH has been contracted by Parsons Transportation Group Inc. in coordination with the Miami-Dade DTPW, in collaboration with the FTA, to evaluate this corridor and its associated maintenance yards for the purpose of identifying cultural resource potential and previously recorded historic properties that are listed, or may be eligible for listing, in the NRHP. The Study Area for the present cultural resource desktop analysis was defined to include the four proposed maintenance yard locations and a 100-meter (328-foot) buffer of each.

SEARCH’s review of the FMSF database and data provided by Miami-Dade County indicates that no previously recorded archaeological resources are documented within the Maintenance Yards Study Area. However, none of the proposed maintenance yard locations have been subject to Phase I archaeological testing, and the two locations along the North Miami Avenue corridor chosen for the proposed maintenance yards have been developed and occupied since the first quarter of the twentieth century, thus indicating a high probability for historic archaeological resources. A walkover survey should be conducted within the construction area to identify areas where subsurface testing would be feasible, and an unanticipated discoveries plan should be prepared for use during construction to provide guidelines in the event of the inadvertent discovery of archaeological material. These efforts would occur during the CRAS for the preferred maintenance yard location, discussed further in the conclusion section below.

Background research indicated that 18 recorded historic structures, two resource groups, and one linear resource have been recorded within the Maintenance Yards Study Area. Of the 21 recorded resources, nine have not been evaluated for the NRHP by the SHPO, 10 have been determined ineligible, and two were determined eligible by the SHPO for the NRHP. The Study Area also contains 20 unrecorded historic resources.

SEARCH recommends, once the preferred Maintenance Yard location along the North Miami Avenue corridor is determined, a CRAS should be performed. The APE for this CRAS should encompass the subject property and be large enough to consider project-related effects to adjacent resources related to the planned elevated train technology. All historic resources within the APE should be recorded and evaluated. The CRAS should include archaeological pedestrian survey and Phase I testing of areas of open ground to determine the presence or absence of cultural resources that may be eligible for listing in the NRHP. The resulting CRAS report should be submitted to the appropriate agencies for review and comment.

The APE for the previous CRAS completed by SEARCH in 2020 included the entirety of the proposed maintenance yard locations and their Study Area on Watson Island. Only one historic resource, MacArthur Causeway (8DA16540), intersects the Study Area. The SHPO has concurred that MacArthur Causeway (8DA16540) is ineligible for listing in the NRHP as a result of the 2020 CRAS. Therefore, the proposed maintenance yards on Watson Island have no potential to affect historic properties. Furthermore, no archaeological testing is required in this area as the island is man-made and has no potential for unidentified archaeological sites. No additional cultural survey is necessary for either of the proposed maintenance yard locations on Watson Island.

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ATTACHMENT O | PUBLIC INVOLVEMENT TABLE

## Beach Corridor Rapid Transit Project Meeting Schedule

Date	Time & Location	Board or Committee	Notes
6/14/17	10 a.m. – City of Miami Beach	City of Miami Beach – Meeting with transportation staff	Completed
6/16/17	9:30 a.m. – Call-In	City of Miami Beach Technical Meeting	Completed
7/6/17	10:15 a.m. – 3500 Pan American Drive, Miami, FL 33133	City of Miami Commissioner Russell	Completed
7/7/17	10:30 a.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Commissioner Rosen Gonzalez	Completed
7/10/17	1 p.m. – 3500 Pan American Drive, Miami, FL 33133	City of Miami Commissioner Hardemon – Meeting with staff	Completed
7/14/17	10 a.m. – 1454 SW 1 <sup>st</sup> Street, Miami, FL 33135	County Commissioner Barreiro	Completed
7/14/17	3:30 p.m. – 5400 NW 22 <sup>nd</sup> Avenue, Miami, FL 33142	County Commissioner Edmonson	Completed
7/18/17	10 a.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Mayor Levine – Meeting with staff	Completed
7/18/17	10:30 a.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Commissioner Aleman	Completed
7/24/17	10 a.m. – 3500 Pan American Drive, Miami, FL 33133	City of Miami Mayor Regalado	Completed
7/25/17	3 p.m. – Culmer Community Action Center 1600 NW 3 <sup>rd</sup> Avenue, Miami, FL 33136	Tier 1 Kick-off Meeting	Completed
7/27/17	6 p.m. – New World Symphony 500 17 <sup>th</sup> Street, Miami Beach, FL 33139	Tier 1 Kick-Off Meeting	Completed
10/19/17	Culmner Community Action Center	Overtown Community Advisory Board	Completed

Date	Time & Location	Board or Committee	Notes
2/27/18	9:30 a.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Commissioner Gongora	Completed
10/11/18	9:00 a.m.- 111 NW 1 <sup>st</sup> ST., 2 <sup>nd</sup> floor, Miami, FL 33128	Commissioner Higgins Briefing	Completed
11/27/18	9:00 a.m. - 1688 Meridian Ave, suite 801	Miami Beach Technical Coordination Meeting	Completed
11/28/17	2:30 p.m. – 2060 Biscayne Boulevard, Miami, FL 33137	Property Owner Meeting – Norman Braman	Completed
3/2/18	11 a.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Commissioner Samuelian	Completed
3/2/18	12 p.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Commissioner Aleman	Completed
3/2/18	1 p.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Commissioner Arriola	Completed
3/7/19	3:30 p.m. – 1454 SW 1 <sup>st</sup> Street, Miami, FL 33135	County Commissioner Barreiro	Completed
3/7/18	2 p.m. – 5400 NW 22 <sup>nd</sup> Avenue, Miami, FL 33142	County Commissioner Edmonson	Completed
3/9/18	10:30 a.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Mayor Gelber	Completed
3/9/18	1 p.m. – 3500 Pan American Drive, Miami, FL 33133	City of Miami Mayor Suarez – Meeting with aide	Completed
3/9/18	11:30 a.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Commissioner Steinberg	Completed
3/20/18	10:30 a.m. – 3500 Pan American Drive, Miami, FL 33133	City of Miami Commissioner Russell – Meeting with staff	Completed



Date	Time & Location	Board or Committee	Notes
3/20/18	10:30 a.m. – 111 NW 1 <sup>st</sup> Street, Miami, FL 33128	City of Miami Commissioner Hardemon – Meeting with aide	Completed
3/22/18	10:30 a.m. – 111 NW 1 <sup>st</sup> Street, Miami, FL 33128	County Commissioner Heyman – Meeting with staff	Completed
3/22/18	2:00 p.m. – 5400 NW 22 <sup>nd</sup> Avenue, Caleb Center	Commissioner Edmonson	Completed
10/11/18	9 a.m. - 111 NW 1 <sup>st</sup> Street, 2 <sup>nd</sup> Floor, Miami, FL 33128	County Commissioner Higgins	Completed
11/27/18	9 a.m. – 1688 Meridian Avenue, Suite 801, Miami Beach, FL 33139	City of Miami Beach Technical Meeting	Completed
12/17/18	3 p.m. – Miami Beach Regional Library 227 22 <sup>nd</sup> Street, Miami Beach, FL 33139	Tier 2 Kick-Off Meeting	Completed
4/10/19	2 p.m. – 111 NW 1 <sup>st</sup> Street, 2 <sup>nd</sup> Floor, Miami, FL 33128	County Commissioner Higgins	Completed
5/30/19	6 p.m. – Miami Marriott Biscayne Bay 1633 N. Bayshore Drive, Miami, FL 33132	Project Advisory Group Meeting #1	Completed
6/17/19	6 p.m. – New World Symphony 500 17 <sup>th</sup> Street, Miami Beach, FL 33139	Project Alternatives Workshop #1 – Miami Beach	Completed
<b>6/18/19</b>	DTPW Smart Plan	City of Miami Beach Department of transportation	
6/20/19	6 p.m. – Miami Marriott Biscayne Bay 1633 N. Bayshore Drive, Miami, FL 33132	Project Alternatives Workshop #1 – Miami	Completed
7/15/19	9 a.m. – Noon, Miami Beach Commission Chambers	City of Miami Beach Mayor and Commission Workshop on Transportation - Beach Corridor Rapid Transit Project	Completed
7/17/19	8:30 a.m. - Miami Beach City Hall	City of Miami Beach Commission	Completed
8/29/19	6 p.m. - Miami-Dade Main Library 101 W Flagler Street, Miami, FL 33130	Project Advisory Group Meeting #2	Completed Facility Fees: \$146 Rental Fees: TBD

Date	Time & Location	Board or Committee	Notes
9/5/19	9 a.m. - 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	Miami Beach Mayor Gelber	Completed
9/5/19	10 a.m. - 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	Miami Beach Commissioner Arriola	Completed
9/6/19	10:30 a.m. - 11 NW 1 <sup>st</sup> Street 18 <sup>th</sup> Floor, Room 18-B, Miami, FL 33128	County Commissioner Higgins	Completed
9/12/19	6 p.m. - New World Center 500 17 <sup>th</sup> Street Miami Beach, FL 33139	Project Alternatives Workshop #2 – Miami Beach	Completed Facility Fees: \$500 Rental Fees: TBD
9/16/19	6 p.m. - Miami Marriott Biscayne Bay 633 North Bayshore Drive Miami, FL 33132	Project Alternatives Workshop #2 – Miami	Completed Facility Fees:
9/19/19	2 p.m. - 3500 Pan American Drive Miami, FL 33133	City of Miami Mayor Suarez	Completed
10/21/19	2 p.m. – 111 NW 1 <sup>st</sup> Street, Miami, FL 33128	County Commissioner Heyman – Meeting with legislative aide and director	Completed
11/6/19	11:30 a.m. – 4081 SW 152 <sup>nd</sup> Avenue, Unit 21, Miami, FL 33185	County Commissioner Martinez – Meeting with legislative aide	Completed
11/13/19	12 p.m. - 111 NW 1 <sup>st</sup> Street, Miami, FL 33128	County Commissioner Cava	Completed
11/19/19	6 p.m. – Miami Beach Library 227 22 <sup>nd</sup> Street, Miami Beach, FL 33139	Project Advisory Group Meeting #3	Completed
11/20/19	9 a.m. – 1700 Convention Center Drive, 4 <sup>th</sup> Floor, Miami Beach, FL 33139	City of Miami Beach Commissioner Samuelian	Completed
11/20/19	11 a.m. – 111 NW 1 <sup>st</sup> Street, Miami, FL 33128	County Commissioner Bovo – Meeting with COS and legislative director	Completed
11/20/19	2 p.m. – 4 p.m. - 8228 NW 14 <sup>th</sup> Street, Doral, FL	Freight Transp. Advisory Committee (FTAC)	Completed

Date	Time & Location	Board or Committee	Notes
11/26/19	10 a.m. – 3500 Pan American Drive, Miami, FL 33133	City of Miami Commissioner Russell	Completed
11/26/19	11 a.m. – 3500 Pan American Drive, Miami, FL 33133	City of Miami Commissioner Hardemon’s COS	Completed
12/3/19	3:30 p.m. – 111 NW 1 <sup>st</sup> Street, Suite 220	Miami-Dade County Commissioner Higgins	Completed
12/13/19	9 a.m. - 200 South Biscayne Boulevard, #2929, Miami, FL 33131	Miami Downtown Development Authority (DDA)	
12/4/19	10 a.m. – 2780 NW 167 <sup>th</sup> Street, Miami, FL 33054	MDC Commissioner Jordan – Meeting with legislative analyst	Completed
12/18/19	4 p.m. - MDC CC 111 NW 1 <sup>st</sup> Street	Citizens Independent Transportation Trust (CITT)	Completed
1/6/20	1 p.m. – Miami Beach City Hall	Miami-Beach Commissioner Richardson	Completed
1/6/20	3:30 p.m. - South Miami City Hall - 6130 Sunset Drive	Miami-Dade County Commissioner Suarez	Completed
1/7/20	9:30 a.m. – Miami Beach City Hall 1700 Convention Center Drive, 4th Floor, Miami Beach, FL 33139	Miami-Beach Mayor Gelber	Completed
1/7/20	3 p.m. – Doral City Hall 8401 NW 53rd Terrace, Doral, FL 33166	City of Doral Mayor Bermudez	Completed
1/8/20	9 a.m. DTPW/OTV 701 NW 1st Court, Suite 1700, Miami, FL 33136.	Miami-Dade School Board Representative	Completed
1/8/20	2 – 3 p.m. Miami Gardens City Hall 18605 NW 27th Ave, Miami Gardens, FL 33056	Briefing with Mayor Gilbert	Completed
1/8/20	10 a.m. – 12 p.m. - 111 NW 1 <sup>st</sup> Street, TPO 9 <sup>th</sup> Floor Rear Conference Room (9-3), Miami, FL 33128	Transportation Planning Technical Advisory Committee (TPTAC)	Completed

Date	Time & Location	Board or Committee	Notes
1/8/20	5:30 p.m. – 7:30 p.m., 111NW 1 <sup>st</sup> Street, 18 <sup>th</sup> Floor Conf. Rm. 4, Miami, FL 33128	Citizens Transportation Advisory Committee (CTAC)	Completed
1/9/20	10 a.m. – Miami Beach City Hall 1700 Convention Center Drive, 4th Floor, Miami Beach, FL 33139	Miami Beach Commissioner Steinberg	Completed
1/10/20	10 a.m. – Miami Beach City Hall 1700 Convention Center Drive, 4th Floor, Miami Beach, FL 33139	Miami Beach Commissioner Arriola	Completed
1/13/20	2 p.m. – 111 NW 1 <sup>st</sup> Street, 18 <sup>th</sup> Floor, Conf. Rm. 3, Miami, FL 33128	Transportation Planning Council (TPC)	Completed
1/13/20	10:30 a.m. - 111 NW 1 <sup>st</sup> Street, 2 <sup>nd</sup> floor Commission Chambers	Miami-Dade Commissioner Heyman	Completed
1/13/20	2:30 p.m. Conference Call	Miami Beach Commissioner Gongora	Completed
1/28/20	5:30 p.m. – 111 NW 1 <sup>st</sup> Street, 18 <sup>th</sup> Floor, Conf. Rm. 4, Miami, FL 33128	Bicycle Ped. Advisory Committee (BPAC)	Completed
1/14/20	10:30 a.m.	North Miami Mayor Bien-Aime	Completed
1/15/20	8:30 a.m. – Miami Beach City Hall	City of Miami Beach Commission	Completed
1/15/2020	1 p.m. - 1000 NW 111th Ave, Miami, FL 33172	Miami-Dade Commissioner Moss	Completed
1/16/20	9:30 a.m.	Miami-Dade Commissioner Edmonson	Completed
1/17/20	2:15 p.m.	Coral Gables Mayor Lago	Completed
1/21/20	9:00 a.m.	Miami Manager Emilio Gonzalez	Completed
1/21/20	12:00 p.m.	Miami Dade County Commissioner Jean Monestine	Completed
1/22/20	3:30 p.m.	FDOT D6 Briefing	Completed
1/22/20	3:30 p.m.- 1000 NW 111 <sup>th</sup> Ave, Miami, FL 33172	FDOT Briefing	Completed
1/23/20	1 p.m. - 1000 NW 111th Ave, Miami, FL 33172	Briefing with Commissioner Cava	Completed
1/21/20	12 p.m. - 1000 NW 111th Ave, Miami, FL 33172	Miami-Dade Commissioner Monestime	Completed



Date	Time & Location	Board or Committee	Notes
1/29/20	Coral Gables City Hall	Coral Gables Vice Mayor Lago Briefing	Completed
1/30/20	2 p.m. - 111 NW 1 <sup>st</sup> Street, Miami, FL 33128	TPO Governing Board	Completed
8/14/20	DTPW briefing via Microsoft teams	City of Miami Planning department	
8/21/20	Microsoft teams	Miami Design District Associates	
9/23/2020	Microsoft teams	The Living Room Theaters	Completed