MIAMI-DADE TPO
GOLDEN GLADES
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Golden Glades Multimodal Transportation Facility Bike & Pedestrian Eastside Connectivity Study

Final Report
GPC-VII TWO#30
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prepared by:
Gannett Fleming, Inc.

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List of Acronyms

BERT	Bus Express Rapid Transit
BIIG	Business Innovation & Investment Grant
CIGP	County Incentive Grant Program
CIP	Commercial Improvement Program
CMAQ	Congestion Mitigation and Air Quality
CRA	Community Redevelopment Agency
DBOM	Design-Build-Operate-Maintain
DTPW	Department of Transportation and Public Works
FAST	Fixing America's Surface Transportation
FDOT	Florida Department of Transportation
FHP	Florida Highway Patrol
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FTE	Florida's Turnpike Enterprise
GGI	Golden Glades Interchange
GGMTF	Golden Glades Multimodal Transportation Facility
GGTTC	Golden Glades Truck Travel Center
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation System
LRTP	Long Range Transportation Plan

MTI	Norman Y. Mineta International Institute
PD&E	Project Development and Environmental
PROS	Parks, Recreation and Open Spaces
RFP	Request for Proposal
SAG	Study Advisory Group
SFRC	South Florida Rail Corridor
SFRPC	South Florida Regional Planning Council
SFRTA	South Florida Regional Transportation Authority
SFWMD	South Florida Water Management District
SMART	Strategic Miami Area Rapid Transit
STBG	Surface Transportation Block Grant
STIP	State Transportation Improvement Plan
STP	Surface Transportation Program
TAP	Transportation Alternatives Program
TASA	Transportation Alternatives Set-Aside
TCRPC	Treasure Coast Regional Planning Council
TIP	Transportation Improvement Plan
TNC	Transportation Network Company
TPO	Transportation Planning Organization
USDOT	United States Department of Transportation

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Introduction

Miami-Dade County is experiencing forces of change that are transforming the County into a capital of capitals. Of all industry sectors, this evolution is most evident in the County's transportation infrastructure. From construction of a new signature bridge on I-395 to adoption of the comprehensive Strategic Miami Area Rapid Transit (SMART) Plan, the County is reshaping how its citizens and visitors move and connect. One area in particular, the Golden Glades Interchange (GGI) in northeast Miami-Dade County, is experiencing significant change. A regionally significant node of arterials, expressways, interstates, and the South Florida Rail Corridor (SFRC), the GGI area represents a microcosm of the County's overall evolution by improving livability via inclusive measures that benefit all modes of transportation.

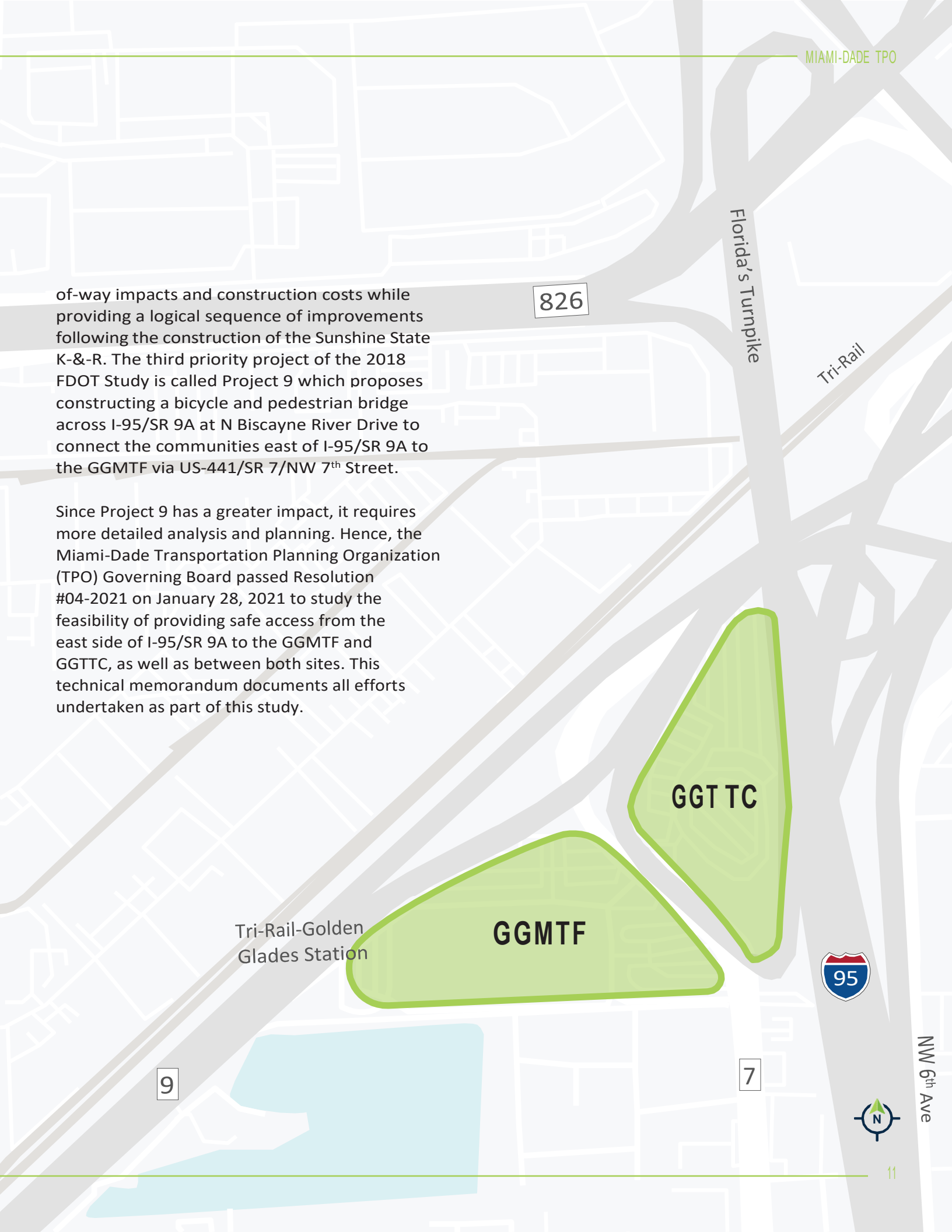
The Golden Glades Interchange Enhancement Project sponsored by the Florida Department of Transportation (FDOT) and Florida's Turnpike Enterprise (FTE) will reconstruct and widen several miles of roadways and ramps to provide improved mobility, safety and connectivity on SR 826/Palmetto Expressway, SR 9, I-95/SR 9A, SR 826/NW 167th Street, US-441/SR 7/NW 7th Avenue, and SR 821/Florida's Turnpike. Nested within this confluence of roadways, ramps, and freight-passenger rail corridor is the Golden Glades Multimodal Transportation Facility (GGMTF), a project which is reconstructing an existing park-and-ride facility and transforming it into a state-of-the-art SMART Plan terminal that will provide seamless connectivity between Tri-Rail, Miami-Dade and Broward County bus routes, intercity bus, rideshare services, and vehicular, bicycle, and pedestrian mobility. On the repurposed east lot of the existing park and ride facility, a future Golden Glades Truck Travel Center (GGTTC) will deliver much needed truck parking and amenities to support the County's most popular mode of freight transportation.

Northwest of the GGMTF, the Miami-Dade Department of Transportation and Public Works (DTPW) and FDOT are studying the development of the Sunshine State Industrial Park Kiss and Ride/Transit Terminal Facility. This proposed kiss and ride and transit terminal ~~w~~will increase the convenience and accessibility of Miami Gardens residents traveling to/from the Golden Glades Tri-Rail Station and GGMTF. Abbreviated herein as Sunshine State K-&-R, this project is the result of a planning and conceptual engineering study conducted by FDOT in 2018. Titled *Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Access Study*, this study evaluated bicycle and pedestrian improvements within a 2-mile radius around the GGMTF. This study developed a vision of major and minor bicycle and pedestrian improvements that bridge existing infrastructure and geographical barriers that isolate neighborhoods surrounding the GGMTF. In the 2018 FDOT Study, the Sunshine State K-&-R is documented as the top priority project ~~out~~ of 11 major bicycle and pedestrian connections proposed for the area.

The second priority project proposed in the 2018 FDOT Study is called Project 8. This project comprises two low-level bridges across the NW 17th Avenue Canal and the development of a segment of the Memorial/Biscayne Blueway Trail connecting to the Sunshine State K-&-R. This project ran~~ked~~ second in FDOT's study due to minimal right-

of-way impacts and construction costs while providing a logical sequence of improvements following the construction of the Sunshine State K-&-R. The third priority project of the 2018 FDOT Study is called Project 9 which proposes constructing a bicycle and pedestrian bridge across I-95/SR 9A at N Biscayne River Drive to connect the communities east of I-95/SR 9A to the GGMTF via US-441/SR 7/NW 7th Street.

Since Project 9 has a greater impact, it requires more detailed analysis and planning. Hence, the Miami-Dade Transportation Planning Organization (TPO) Governing Board passed Resolution #04-2021 on January 28, 2021 to study the feasibility of providing safe access from the east side of I-95/SR 9A to the GGMTF and GGTTC, as well as between both sites. This technical memorandum documents all efforts undertaken as part of this study.



Study Area

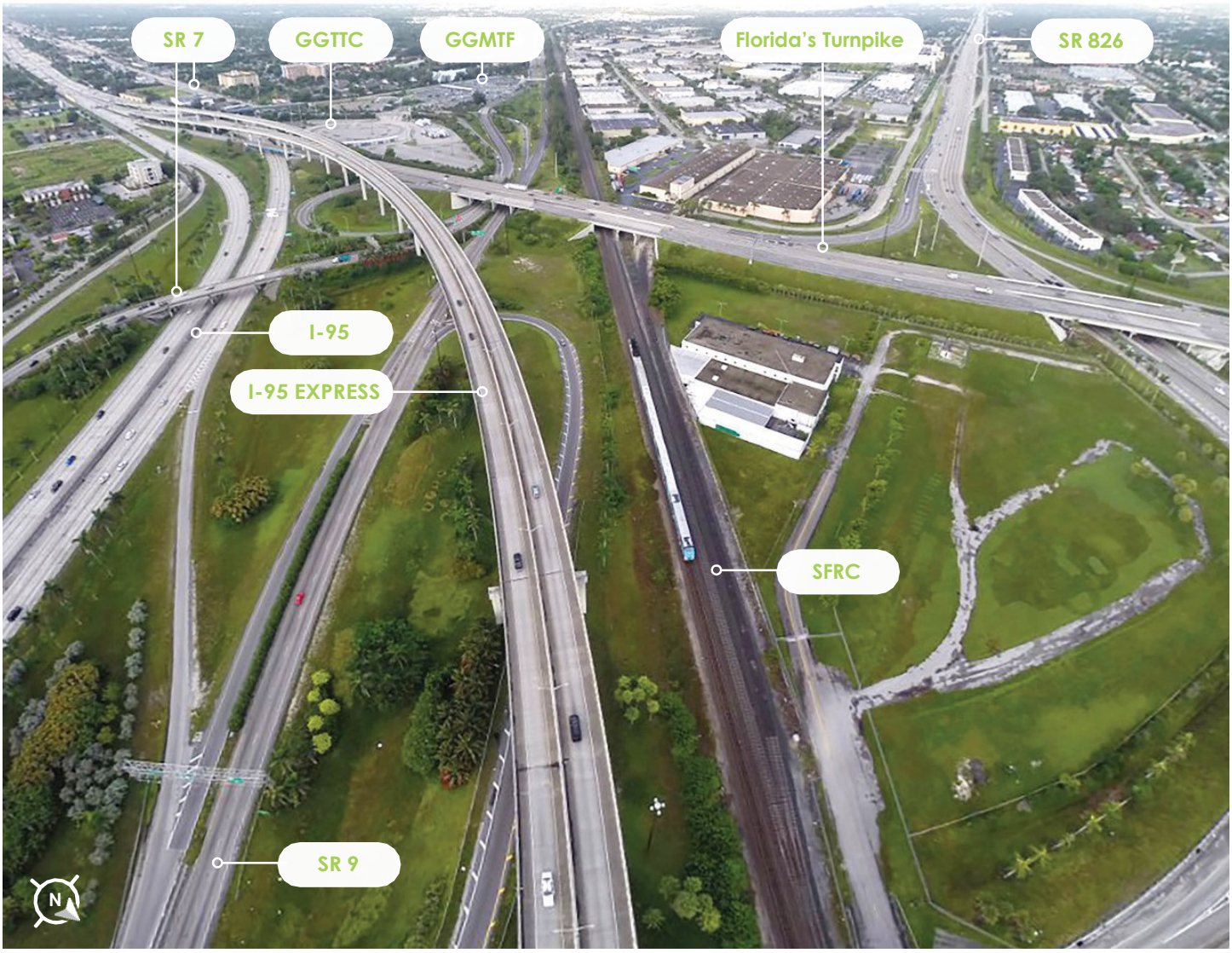
In the GGI, existing transportation facilities and roadways create physical mobility barriers for non-motorized modes of transportation. Dividing the area into eight sectors, these barriers include SR 826/Palmetto Expressway, SR 9, SFRC, I-95/SR 9A, SR 826/NW 167th Street, US-441/SR 7/NW 7th Avenue, and SR 821/Florida's Turnpike; with additional subdivisions created by the Biscayne Canal (C-8) and NW 17th Avenue Canal. The study area for this feasibility assessment focuses on the sectors created by I-95/SR 9A, Biscayne Canal (C-8), SR 826/NW 167th Street, and the SFRC; which encompass the Biscayne Gardens neighborhood of unincorporated Miami-Dade County, as well as a portion of the City of North Miami Beach. Within these sectors, this feasibility study evaluates the area within a 1-mile radius from the GGMTF. The study team chose a 1-mile radius because it adequately captures the walkshed (i.e., area around a station that is reachable on foot for the average potential transit rider) between the GGMTF and the defined eastern sectors. While the Federal Transit Administration (FTA) considers "all pedestrians improvements located within ½-mile from a public transportation station to have a *de facto* physical and functional relationship to public transportation" (76 FR 52046, 2011), and the Norman Y. Mineta International Institute for Surface Transportation Policy Studies (MTI) estimates the average walking trip in the United States to be ¾-mile (Report 11-05, 2012), a 1-mile buffer from the GGMTF sufficiently captures potential bicyclist and pedestrian trips while focusing on a scale that permits specific investigation and analysis. Figure 1 illustrates the study area.

Figure 1: Study Area


STUDY FOCUS AREA
GGTTC
GGMTF
Tri-Rail-Golden Glades Station
Biscayne Gardens
Golden Glades
Florida's Turnpike
Tri-Rail
I-95 Express Ln
SR-9
N Biscayne River Dr
S Biscayne River Dr
N Miami Ave
NW 7th Ave Ext
NW 2nd Ave
NW 6th Ave
NW 5th Ave
NW 3rd Ave
NW 176th Ter
NW 175th St
NW 171st St
NW 170th Ter
NW 167th Ter
NW 165th St
NW 163rd Dr
NW 159th Dr
NW 156th Ln
NW 155th Ln
NW 153rd St
NW 151st St
NW 148th St
NW 147th St
NW 146th St
NW 145th St
NW 144th St
NE 175th St
NE 174th St
NE 173rd St
NE 172nd St
NE 171st Ter
NE 170th St
NE 169th St
NE 168th St
NE 167th St
NE 166th St
NE 165th St
NE 164th Ter
NE 164th St
NE 163rd St
NE 162nd St
NE 161st St
NE 160th Ter
NW 159th St
NW 158th St
NW 157th St
NW 156th St
NW 154th St
NE 152nd St
NE 151st St
NE 150th St
NE 148th St
NE 146th St
826
95
441
7
9A

Purpose

The purpose of this feasibility study is to determine a safe, convenient, and enticing bicycle and pedestrian connection to the GGMTF, across US-441/SR 7/NW 7th Avenue, from the future GGTTC, and from the surrounding sectors east of I-95/SR 9A.



Literature Review

The following documents were reviewed to understand the historical context of the study area and document planned, committed, and ongoing transportation projects.

Golden Glades Bicycle and Pedestrian Access Study

(FDOT, 2018)

The *2018 Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Access Study* was undertaken by FDOT at the request of the City of Miami Gardens. The City has continually advocated for enhancing its bicycle and pedestrian facilities as documented in its *Recreational Trails Master Plan, Comprehensive Development Master Plan*, and *Roadway Assessment Study.* Taking advantage of the ongoing GGMTF project, which was in a Request for Proposal (RFP) process in 2018, FDOT's study focused on developing viable short-term and long-term conceptual alternatives that improve the accessibility, connectivity, and mobility of bicyclists and pedestrians to existing, planned, and potential transit services across the GGI and between surrounding neighborhoods. The study area for this evaluation included the City of Miami Gardens, City of Opa-Locka, City of North Miami, City of North Miami Beach, and Biscayne Gardens within unincorporated Miami-Dade County.

The 2018 FDOT Study focused on a 2-mile buffer around the GGMTF to capture the average convenient bicycle trip. The FDOT study performed a detailed existing conditions analysis to understand the mobility barriers, land uses, and socioeconomic and demographic characteristics of the area. This analysis, along with geometric, traffic, crash, and safety data revealed major gaps and deterrents in the area's non-motorized mobility network. Following an extensive literature review, the study documents a non-motorized vision including an interconnected network of trails, shared-use paths, pedestrian overpasses/underpasses, bicycle lanes, sidewalks, and other improvements that address non-motorized mobility issues and increase mobility options for transit dependent/underserved populations.

To determine where transit dependent/underserved populations where located, the 2018 FDOT Study developed a map of High Impact Areas by superimposing 2016 American Community Survey data regarding minority distribution, density of people with disability, density of elderly citizens, density of youth

citizens, density of citizens with minimal education, density of veterans, unemployment density, zero-car households, and density of low income and earnings households. By mapping the High Impact Areas, and understanding the existing transportation needs, the 2018 FDOT Study developed a bank of non-motorized improvements that created a mobility vision for the area. Figure 2 illustrates the non-motorized transportation vision proposed in the 2018 FDOT Study and Table 1 documents the projects that fall within the study area of this technical memorandum.

Figure 2: Proposed Projects Connecting High Impact Areas (FDOT 2018)

Table 1: *2018 FDOT Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Access Study* Proposed Improvements within the Eastside Connectivity Study

PROJECT TYPE	ROADWAY	FROM	TO
Crosswalk	NW 6th Ave.	N Biscayne River Dr.	
Crosswalk	NW 6th Ave.	NW 159th St.	
Crosswalk	NW 2nd Ave.	N Biscayne River Dr.	
Crosswalk	NW 2nd Ave.	NW 159th St.	
Crosswalk	NW 2nd Ave.	NW 161st St.	
Crosswalk	NW 2nd Ave.	NW 163rd St.	
Crosswalk	NW 2nd Ave.	NW 165th St.	
Crosswalk	NW 2nd Ave.	SR 826/NW 167th St.	
Median Island	SR 826/NW 167th St.	NW 2nd Ave.	
Sidewalk	SR 826/NW 167th St.	NW 2nd Ave.	
Sidewalk	NW 166th St.	NW 2nd Ave.	N Miami Ave.
Sidewalk	NW 165th St.	NW 2nd Ave.	N Miami Ave.
Sidewalk	NW 164th St.	NW 2nd Ave.	N Miami Ave.
Sidewalk	NW 163rd St.	NW 2nd Ave.	N Miami Ave.
Sidewalk	NW 162nd St.	NW 2nd Ave.	N Miami Ave.
Sidewalk	NW 161st St.	NW 6th Ave.	N Miami Ave.
Sidewalk	NW 159th St.	NW 6th Ave.	NE 6th Ave.
Sidewalk	NW 158th St.	NW 2nd Ave.	N Miami Ave.
Sidewalk	NW 157th St.	NW 6th Ave.	NW 2nd Ave.

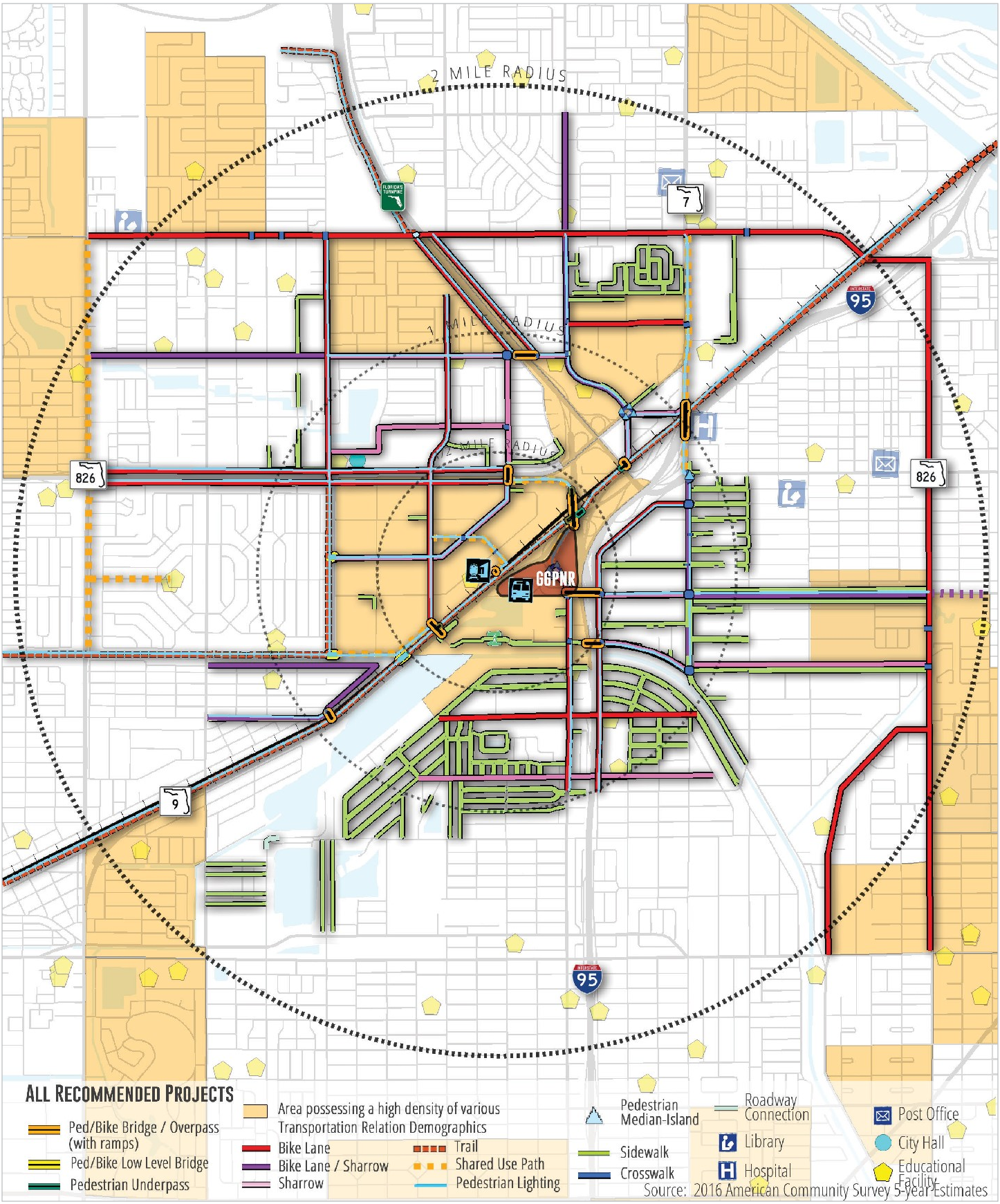

2 MILE RADIUS
1 MILE RADIUS
½ MILE RADIUS
826
826
7
9
95
95
GGPNR
ALL RECOMMENDED PROJECTS
Ped/Bike Bridge / Overpass (with ramps)
Ped/Bike Low Level Bridge
Pedestrian Underpass
Area possessing a high density of various Transportation Relation Demographics
Bike Lane
Bike Lane / Sharrow
Sharrow
Trail
Shared Use Path
Pedestrian Lighting
Pedestrian Median-Island
Sidewalk
Crosswalk
Roadway Connection
Library
Hospital
Post Office
City Hall
Educational Facility
Source: 2016 American Community Survey 5-year Estimates

Table 1: *2018 FDOT Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Access Study* Proposed Improvements within the Eastside Connectivity Study *Continued*

PROJECT TYPE	ROADWAY	FROM	TO
Sidewalk	NW 156th St.	NW 2nd Ave.	N Miami Ave.
Sidewalk	NW 154th St.	N Biscayne River Dr.	NE 6th Ave.
Sidewalk	NW 152nd St.	N Biscayne River Dr.	N Miami Ave.
Sidewalk	N Biscayne River Dr.	NW 6th Ave.	N Miami Ave.
Sidewalk	NW 165th St.	NW 161st St.	Toyota of North Miami Driveway
Sidewalk	NW 2nd Ave.	N Biscayne River Dr.	NW 159th St.
Sidewalk	N Miami Ave.	NW 161st St.	SR 826/NW 167th St.
Pedestrian Lighting	NW 159th St.	NW 6th Ave.	NE 6th Ave.
Pedestrian Lighting	NW 165th St./NW 6th Ave.	N Biscayne River Dr.	NW 2nd Ave.
Pedestrian Lighting	NW 2nd Ave.	N Biscayne River Dr.	SR 826/NW 167th St.
Pedestrian Lighting	N Biscayne River Dr.	NW 6th Ave.	NW 2nd Ave.
Shared Bicycle Lane ("Sharrow")	NW 159th St.	NW 6th Ave.	NW 2nd Ave.
Shared Bicycle Lane ("Sharrow")	N Biscayne River Dr.	NW 6th Ave.	NW 2nd Ave.
Shared Bicycle Lane ("Sharrow")	NW 154th St.	N Biscayne River Dr.	NE 6th Ave.
Bicycle Lane	NW 2nd Ave.	N Biscayne River Dr.	SR 826/NW 167th St.
Bicycle Lane	NW 159th St.	NW 2nd Ave.	NE 6th Ave.
Bicycle Lane	NW 165th St./NW 6th Ave.	N Biscayne River Dr.	NW 2nd Ave.
Pedestrian Bridge	I-95/SR 9A at N Biscayne River Dr.	US-441/SR 7/NW 7th Ave.	NW 6th Ave.
Sidewalk	NW 158th St.	NW 2nd Ave.	N Miami Ave.
Sidewalk	NW 157th St.	NW 6th Ave.	NW 2nd Ave.

The proposed pedestrian bridge across I-95/SR 9A at N Biscayne River Drive is part of 11 major projects proposed in the 2018 FDOT Study. These major projects include pedestrian bridges/underpasses and complete the non-motorized network within 2-miles of the GGMTF by crossing major mobility barriers that would otherwise create gaps in trials, bicycle lanes, and sidewalks. Called Project 9, the bridge across I-95/SR 9A at N Biscayne River Drive connects Biscayne Gardens with the GGMTF and includes segments of a shared-use path along US-441/SR 7/NW 7th Avenue and NW 6th Avenue to guide bicyclists and pedestrians to the future Memorial/Biscayne Blueway Trail along the Biscayne Canal (C-8) and future Gold Coast Trail along the SRFC, north of the GGMTF and GGTTC. Project 9 is envisioned as two connected bridges, one crossing I-95/SR 9A and another crossing the future southbound I-95/SR 9A off-ramp to US-441/SR 7/NW 7th Avenue, with three pedestrian ramps. The bridge is conceptualized to fall mostly within FDOT and Miami-Dade County right-of-way, with exception of one property estimated to have a market value of approximately $152,000 (2017 $). The bridge was estimated to have a construction cost of approximately $11 Million (2017 $). The bridge structure is envisioned as a prefabricated metal box truss with span lengths no longer than 240 feet. Challenges documented in the 2018 FDOT Study include coordination with the ongoing GGI Enhancement Project, impact to one existing bus stop, impact to private right-of-way, and environmental permitting with South Florida Water Management District and Miami-Dade Environmental Resources Management.

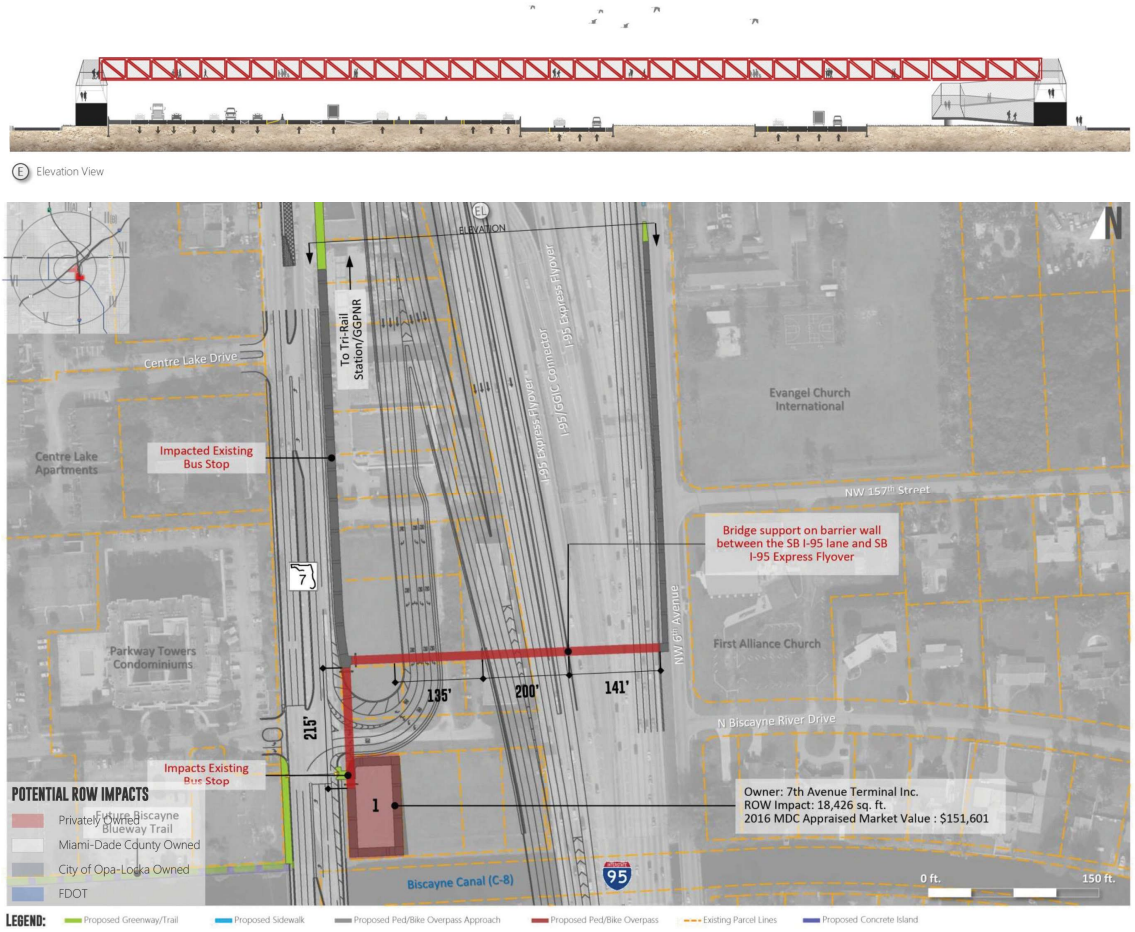


Figure 3: Project 9 – Proposed Pedestrian Bridge over I-95/SR 9A at N. Biscayne River Drive (FDOT 2018)

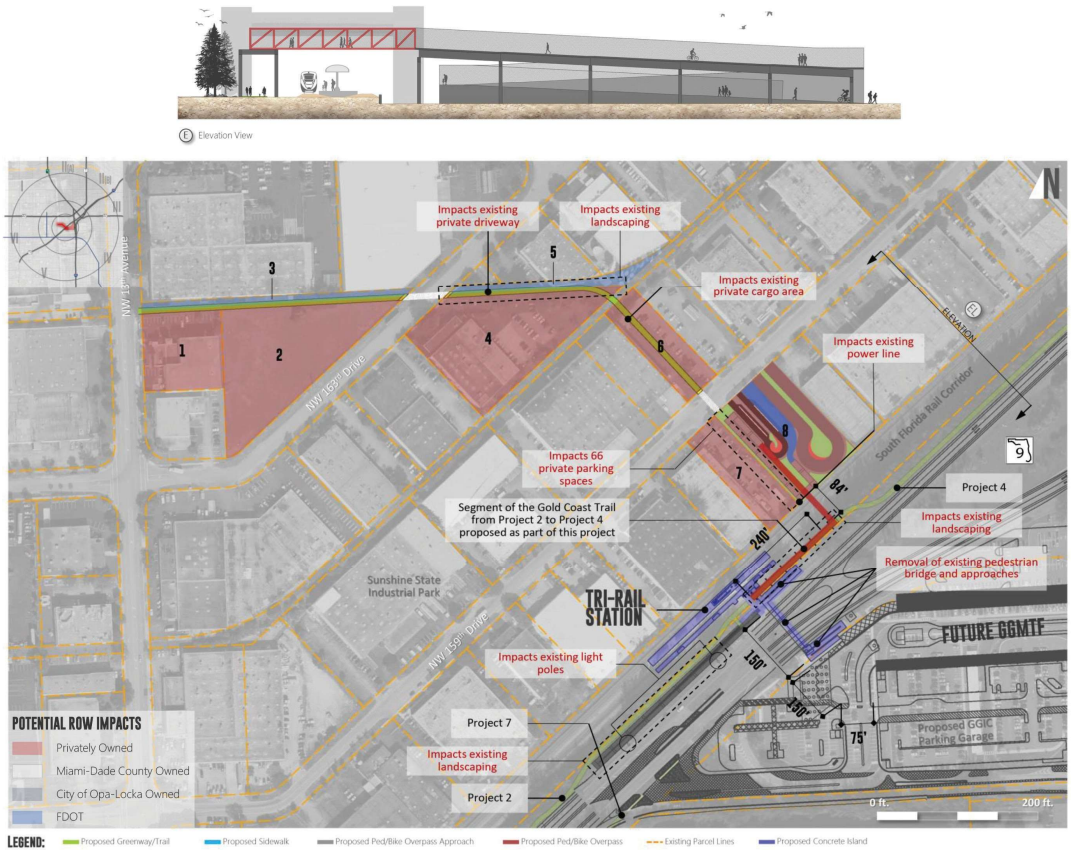
A larger version of Figure 3 can be seen in Appendix A page A1.

Sunshine State Industrial Park Kiss and Ride/ Transit Terminal Facility Project *(Miami-Dade DTPW)*

The Sunshine State Industrial Park Kiss and Ride/Transit Terminal Facility, or Sunshine State K-&-R for short, was the top priority project recommended in the *Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Access Study*. As illustrated in Figure 4 and Figure 5, the recommended Project 3 includes the development of a pedestrian bridge across the SFRC and into the Tri-Rail Station, and a kiss and ride and transit terminal facility with short-term parking, pick-up/ drop-off area, bicycle parking, bus bays, and bus layover. In addition, the *Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Access Study* proposed building trails on abandoned railroad tracks owned by South Florida Regional Transportation Authority (SFRTA) within the Sunshine State Industrial Park (see Figure 6).

In consultation with the City of Miami Gardens and Miami-Dade DTPW, Project 3 was submitted and selected to receive funding through the County Incentive Grant Program (CIGP) administered by FDOT. FDOT requested that Miami-Dade DTPW conduct the PD&E Study for Project 3, with FDOT as the lead agency. The ongoing PD&E Study for the Sunshine State K-&-R, as Project 3 is now called, aims to evaluate the potential social, cultural, physical, and environmental impacts of building the bicycle/pedestrian bridge, kiss and ride and transit facility, as well as a shared used path from NW 13th Avenue to NW 159th Drive along abandoned SFRTA right-of-way and a segment of the Gold Coast Trail from the Tri-Rail Station to the northwest ramp of the project's proposed bicycle/ pedestrian bridge.

Figure 4: Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Access Study Project 3



A larger version of Figure 4 can be seen in Appendix A page A2.

Figure 5: Project 3 Kiss and Ride Details

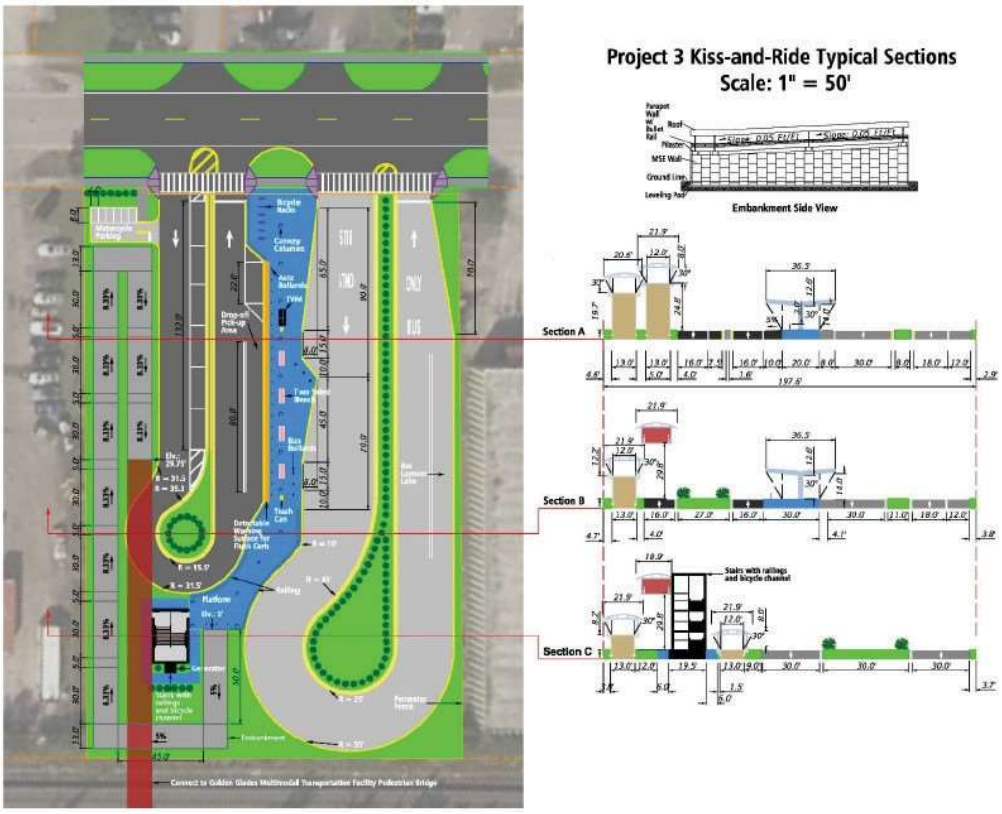
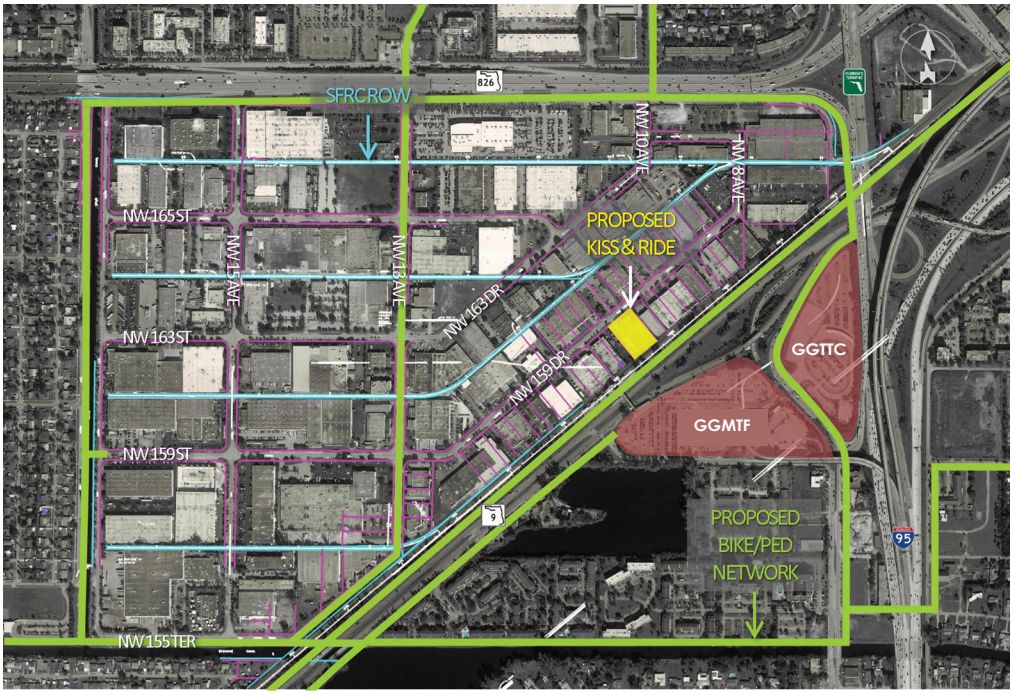


Figure 6: Potential Trails on Abandoned Railroads in the Sunshine State Industrial Park



Golden Glades Multimodal Transportation Facility Project

(Miami-Dade DTPW)

FDOT began construction on the GGMTF on December 17, 2018. In partnership with Miami-Dade County, this design-build project is on track to be completed in the Winter of 2021/2022. With a construction cost of approximately $60 Million, the GGMTF includes a variety of transit services that will improve rider comfort, convenience, connectivity, access, and mobility. As indicated in Figure 7, the GGTMF project is:

1. Building a multi-story parking garage
2. Installing stairwells and elevators for access to parking garage
3. **Extending the existing Tri-Rail pedestrian bridge to connect to a new parking garage**
4. Adding a passenger pick-up/drop-off area
5. Adding a designated taxi pick-up/drop-off area
6. Building covered walkways to parking lots
7. Building a new bus driver's break lounge
8. **Building a new transit hub facility, including passenger waiting areas and restrooms; and retail development with food services**
9. Building a new bus terminal platform with real-time electronic bus schedule information and 14 new bus bays
10. **Installing new sidewalks to provide continuity throughout the facility**
11. **Installing bicycle lanes along US-441/SR 7/NW 7th Avenue, SR 9, and the SR 9 – SR 7 Connector Road**
12. **Building a new shared-use path for pedestrians and bicyclists**
13. **Installing landscaping and lighting in several areas**
14. **Adding benches, trash cans, bicycle racks and lockers**
15. Installing a new Park & Ride monument sign
16. **Upgrading signalized intersections along US-441/SR 7/NW 7th Avenue, SR 9, and the SR 9 – SR 7 Connector Road**
17. Installing a noise wall
18. Widening the I-95 Express Lanes on-ramp
19. Installing Intelligent Transit System (ITS) and I-95 Express Lanes electronic information signage
20. Adding a new Incident Response Area

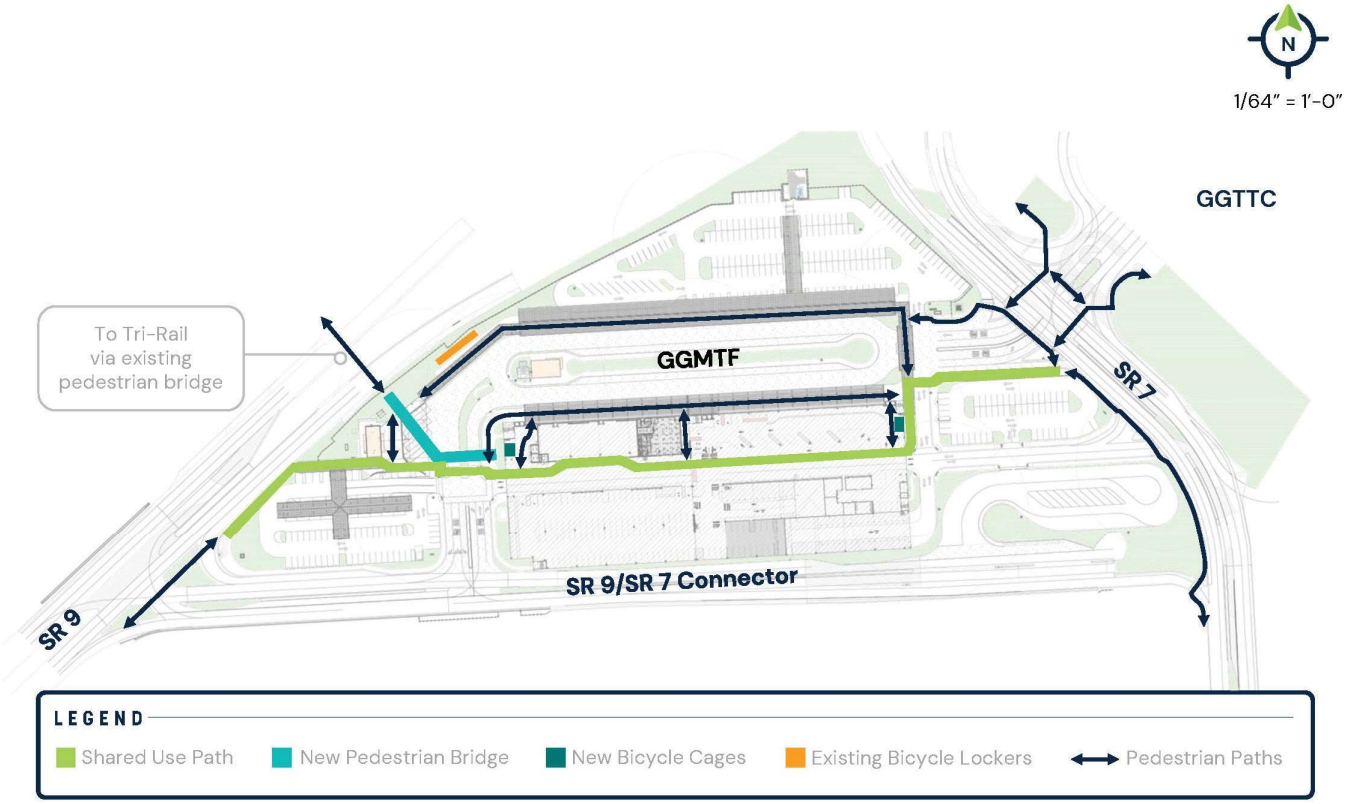
Figure 8 illustrates a rendering of the GGMTF configuration.

Figure 7: Top View Rendering of the GGTMF

Figure 8: Isometric Rendering of the GGTMF

Figure 9 illustrates the pathways and amenities included in the GGMTF for bicyclists and pedestrians. Throughout the facility, a 12-feet wide shared-use path connects the bicycle lanes and sidewalks on SR 9 to those on US-441/SR 7/ NW 7th Avenue. This shared-use path provides access to bicycle cages and lockers along the GGMTF's main platform, as well as access to the pedestrian bridges to the Tri-Rail Station, transit hub, and retail development which will house restrooms, hydration stations, and food services. Any bicycle and pedestrian connection to the GGMTF must connect with the shared-use path to provide pathway continuity and guide bicyclist and pedestrian behavior.

Figure 9: GGTMF Bicycle and Pedestrian Pathways and Amenities

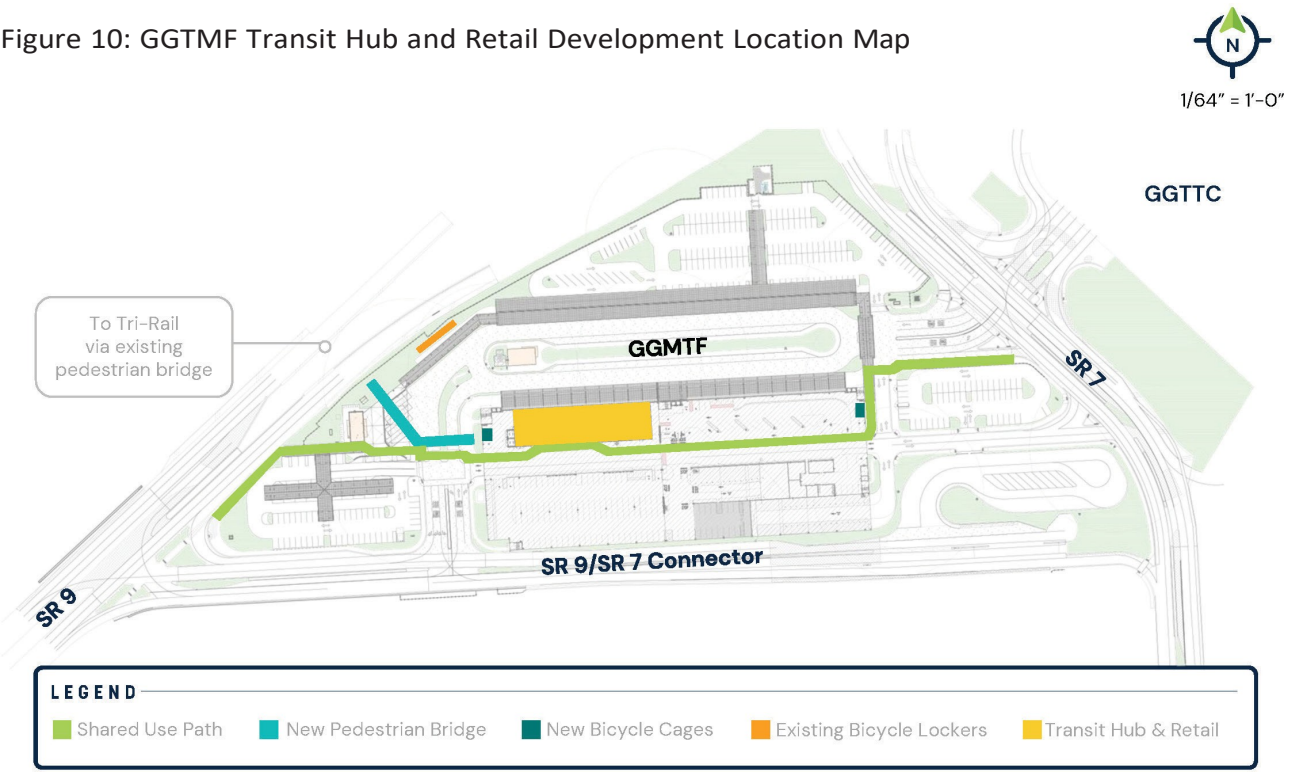


Market Assessment: Golden Glades Intermodal Facility Joint Public/Private Development Opportunity

(FDOT, 2004)

Prior to initiating the original PD&E Study for the GGMTF, FDOT commissioned a financial analysis report to explore potential opportunities for joint public/private development and alternative project implementation strategies. At the time, the site was being evaluated for best use and mixed-use development including developing office, retail, and/or a hotel. The analysis determined that the primary market opportunity for office use favored a 100,000 to 150,000 square feet development of Class A rentable area ($25 - $35 per square feet) with primary tenants in the telecommunications, technology, business, legal, educational, and government service industries. Retail development of approximately 20,000 to 50,000 square feet of rentable area, with leases of $20 - $25 per square feet, was considered viable for food, beverage, and goods services. Hotel development was considered less favorably and highly dependent on the scope and nature of office and commercial developments. These conclusions were included in the *GGMTF Financial Analysis (FDOT, 2016)* and *PD&E Reevaluation Study (2016, FDOT)*. Ultimately, the ongoing construction of the GGMTF only includes the development of a transit hub and retail area on the ground floor of the parking garage. The parking garage includes 10,058 net square feet for future governmental use and 2,892 net square feet for the transit hub waiting area. The future governmental use development is anticipated to be leased for food, beverage, and goods services once the facility is completed and transferred to Miami-Dade County for operations and maintenance.

Figure 10: GGTMF Transit Hub and Retail Development Location Map



Golden Glades Truck Travel Center (GGTTC) Project

(FDOT)

In 2020, FDOT began a Project Development and Environmental (PD&E) Reevaluation Study of the GGTTC. Previously included as part of the *Conceptual Alternatives Evaluation for the Golden Glades Multimodal Transportation Facility (FDOT, 2014)* and *GGMTF PD&E Reevaluation Study (FDOT, 2016)*, FDOT was required to reevaluate the GGTTC as an independent project based on changes in environmental guidance and advancement in project development to pre-engineering activities in 2020. Figure 11 illustrates the truck travel center concept proposed in the *GGMTF PD&E Reevaluation Study (FDOT, 2016)*. This concept includes 53 regular truck parking spaces, 15 tandem truck parking spaces, a 6-pump truck fueling station, truck wash, spill containment berm, static scale, truck maintenance facility, and Florida Highway Patrol (FHP) emergency management area. This concept also includes an 8-pump vehicle fueling station and 10,000 square feet commercial building with 69 car parking spaces. Since the GGMTF advanced to design and construction in 2016, the FHP emergency management area was relocated to the multimodal facility adjacent to the I-95 Express Lanes access ramp to improve the mobility of emergency vehicles clearing crashes on I-9/SR 9A. Figure 12 displays the latest concept of the truck travel center developed for the ongoing *GGTTC PD&E Reevaluation Study (FDOT, 2021)*. This concept removes the FHP emergency management area from the GGTTC and accommodates 131 truck parking spaces, 4 tandem truck parking spaces, 4 trailer dolly parking spaces, 2 truck maintenance facilities, a 6-pump truck fueling station, truck wash, spill containment berm, static scale, 10-pump vehicle fueling station, car wash, and 10,000 square feet commercial building with 18 car parking spaces.

In January 2021, FDOT advertised the GGTTC Request for Proposal (RFP) Development. Scheduled to begin in July 2021, the RFP Development team will explore different project delivery approaches for the GGTTC including Design-Build-Operate-Maintain (DBOM), Joint-use Lease Agreement, etc. Along with this research, the RFP Development team will conduct two industry forums to gauge private interest and determine the commercial viability and need for specific truck amenities (i.e. such as quantity of fuel pumps and need for truck wash, etc.). Depending on these investigations, the RFP Development team will update the proposed concept once more and create indicative plans for design-build procurement.

Regardless of the final configuration of the GGTTC, the optimal location for a bicycle and pedestrian connection to the truck travel center is near the proposed commercial building or at the entrance to the facility directly across from the GGMTF shared-use path. These two locations may coincide or be in close proximity as illustrated in both Figure 11 and Figure 12. The GGMTF shared-use path aligns with the south crosswalk of the intersection of US-441/SR 7/NW 7th Avenue and NW 1600 Block (GGMTF/GGTTC entrance).

Figure 11: GGMTF PD&E Reevaluation Study (FDOT, 2016) Proposed GGTTC Concept

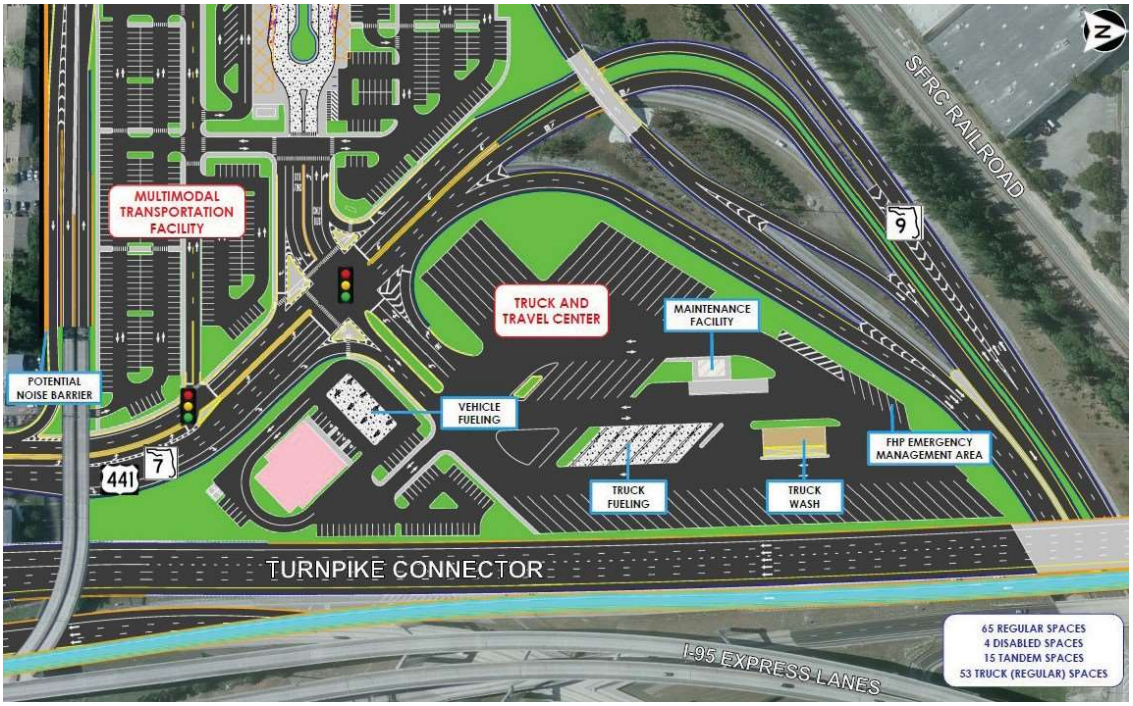
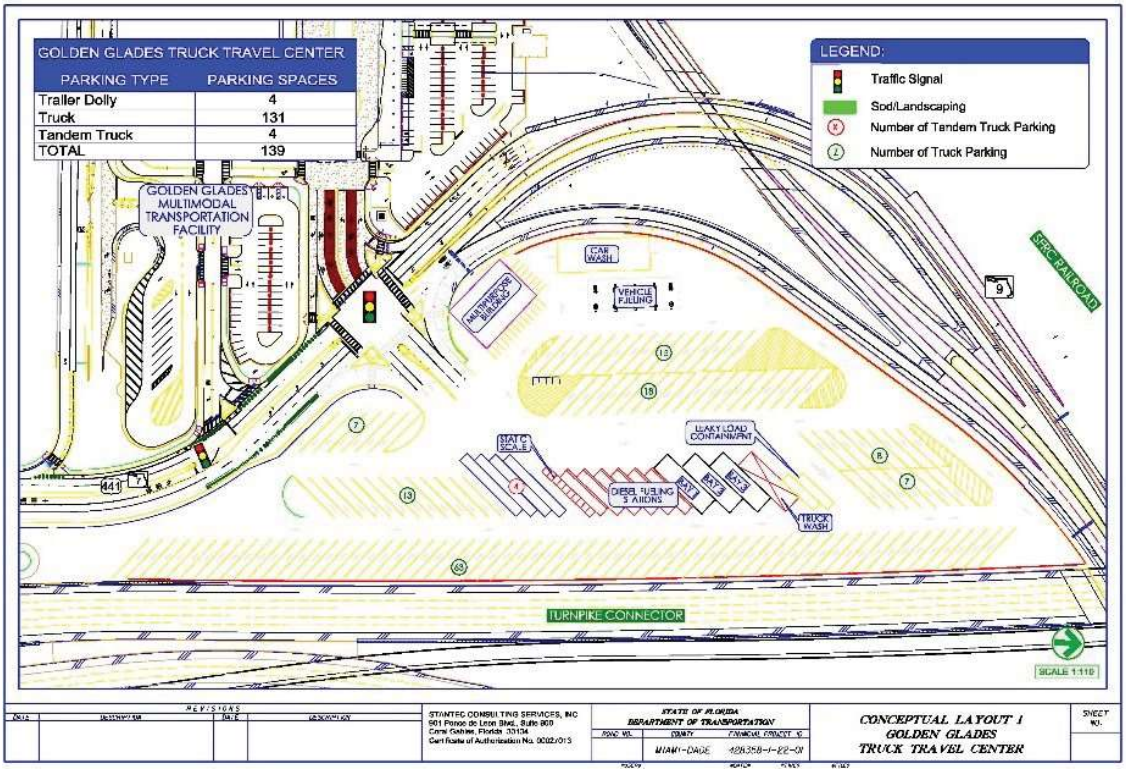


Figure 12: GGTTC PD&E Reevaluation Study (FDOT, 2021) Preliminary GGTTC Concept

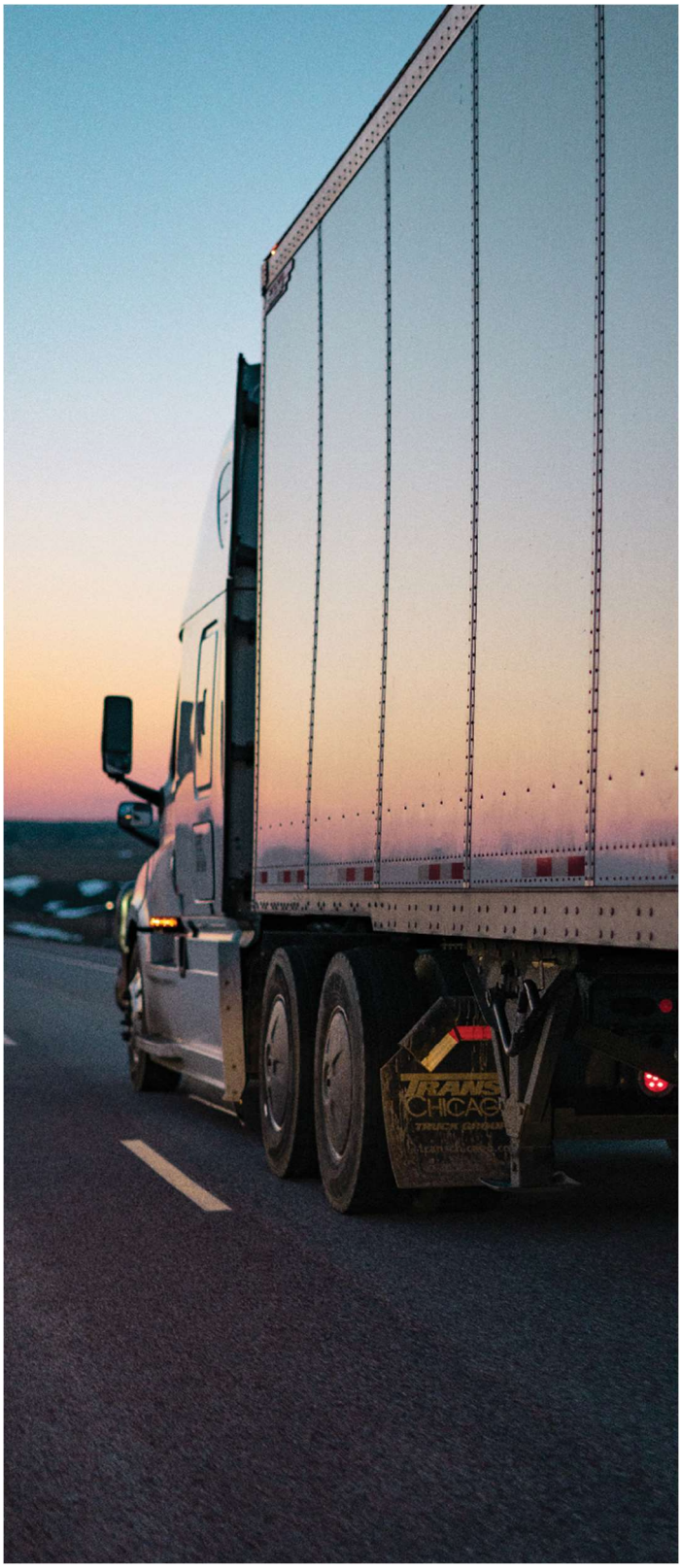


South Florida Truck Stop Market Analysis

(FDOT, 2016)

Like the GGMTF, a market analysis was conducted for the GGTTC to determine the supply and demand characteristics for different truck amenities and services considered for the truck travel center. This study concluded that the GGTTC parcel size (i.e. 10 acres) is rather small, but that similar truck parking facilities within 150 miles of the site are reportedly running profitable truck fueling services. Truck parking typically attracts approximately 1.2 truck drivers per truck. Most truck stops within the influence area of the GGTTC charge for parking unless the truck driver buys fuel or other services offered in the facility. Truck drivers in the greater Miami area routinely paying $12 to $20 per night to park.

Truck travel centers usually include multiple profit centers with the main profit generator being fuel sale. Based on interviews conducted for the truck stop market analysis, fleets that were using the truck parking lot within the east lot of the old park and ride will likely not fuel at the GGTTC because virtually all of these fleets fuel at local terminals. Other profit centers such as convenience stores, supplies, truck maintenance and scales can contribute as much as 50 percent of a truck travel center's total gross margin. Based on the concept illustrated in Figure 11, the GGTTC site was estimated to generate up to $260,000 per month in non-fuel sales by the end of the first year of operation. Overall, the market analysis recommended the GGTTC only include "a convenience store with gasoline sales featuring an auto wash and quick lube, food offerings, a small number of diesel fuel pumps and a minimum amount of truck parking to meet local needs" (FDOT, 2016).



Golden Glades Interchange Enhancement Project

(FDOT)

FDOT District Six, comprising Miami-Dade and Monroe counties, and FTE are developing the design of several roadway projects within the GGI in Miami-Dade County. The proposed enhancements to the GGI include several miles of roadways and ramps. The overall project will help increase the regional connectivity to this major interchange. The project area consists of the following five major facilities: SR 826/Palmetto Expressway, SR 9, I-95/SR 9A, SR 826/NW 167th Street, US-441/SR 7/NW 7th Avenue, and SR 821/Florida's Turnpike.

Estimated at a construction cost of $600 Million, the project includes the following activities:

- Rebuilding SR 826/Palmetto Expressway between NW 17th Avenue and the GGI to accommodate a future I-95 Express Lanes connection
- Providing a direct connection flyover ramp from eastbound SR 826/Palmetto Expressway to northbound I-95/SR 9A
- Providing protected U-Turns underneath the SR 826/Palmetto Expressway bridges located at NW 17th Avenue and NW 12th Avenue
- Relocating NW 12th Avenue entrance ramp to I-95/SR 9A
- Rebuilding and realigning various ramps throughout the interchange to meet current standards
- Rebuilding and widening northbound and southbound I-95/SR 9A from the GGI to SR 860/NW 183rd Street/Miami Gardens Drive to accommodate future express lanes
- Rebuilding SR 821/Florida's Turnpike Connector at the intersection of NW 2nd Avenue and SR 826/NW 167th Street
- Widening the southbound lanes of the Turnpike Connector to accommodate two lanes from SR 821/Florida's Turnpike and three lanes from eastbound SR 826/Palmetto Expressway to southbound I-95/SR 9A
- Providing a direct express lane connection from SR 821/Florida's Turnpike to the southbound I-95 Express Lanes
- Relocating the US-441/SR 7/NW 7th Avenue exit ramp of southbound I-95/SR 9A
- Rebuilding the westbound SR 826/Palmetto Expressway bridge and entrance ramp to enhance access from SR 821/Florida's Turnpike
- Widening southbound I-95/SR 9A from Biscayne Canal to NW 135th Street to accommodate an additional lane for the southbound Turnpike Connector
- **Rebuilding the pedestrian bridge at NW 147th Street to enhance pedestrian safety for Thomas Jefferson Middle School, Biscayne Gardens Elementary and the surrounding communities**
- Rebuilding toll gantry
- Rebuilding and widening I-95/SR 9A to provide a direct connection from northbound I-95 Express Lanes to Florida's Turnpike
- Constructing new express lanes along the median of Florida's Turnpike to provide a direct connection to the existing northbound and southbound I-95 Express Lanes
- Rebuilding ramp connections to meet current standards

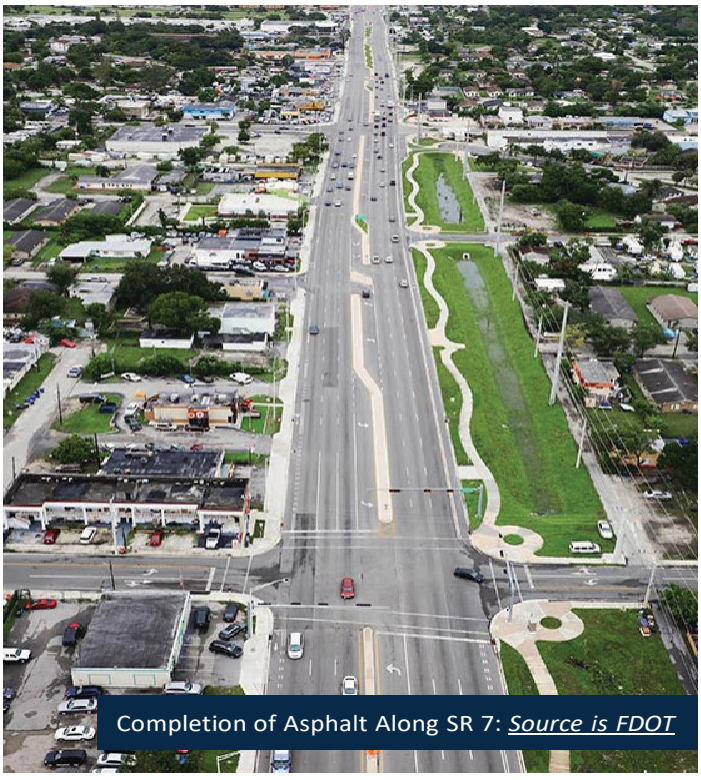
US-441/SR 7 Collaborative

(SFRPC)

At its inception in 2001, the US-441/SR 7 Collaborative was formed as a regional partnership to address the economic and aesthetic conditions of Broward County's deteriorating US-441/SR 7/NW 7th Avenue and its impact on abutting cities. The original group included the cities of Lauderhill, Plantation, Miramar, Lauderdale Lakes, and Hollywood. Soon after, the group included the remaining 11 area jurisdictions. The communities conducted regular monthly meetings and shared the common goal of improving the corridor. The group asked the South Florida Regional Planning Council (SFRPC) for assistance, and SFRPC responded by providing funding from the Florida Department of Community Affairs.

The Treasure Coast Regional Planning Council (TCRPC) and the SFRPC partnered to help citizens' plan and articulate their visions for the corridor. As the Collaborative formalized, its work was supported by local in-kind services and funding from the Department of Community Affairs, FDOT, Broward County Metropolitan Planning Organization, South Florida Regional Resource Center, John D. and Catherine T. MacArthur Foundation, and the Federal Highway Administration. Additionally, the SFRPC leveraged technical assistance services from the Regional Plan Association, Lincoln Land Institute, the Urban Land Institute, and the Department of Housing and Urban Development. In 2003, the Collaborative received a $1.9 million grant from the Federal Highway Administration to fund a Corridor Strategic Master Plan for the entire 25.6 miles that included tasks to promote smart growth principles, planning studies, and implementation strategies for the future. In 2012, SFRPC reported that corridor investments totaled $165,350,000 since 2000, including: $137,000,000 in right-of-way acquisition and construction to widen 5.8-miles; $10,440,000 in transit enhancements; $10,500,000 in sewer line and stormwater management infrastructure investment; and $4,216,000 in bus shelter construction along the entire corridor.

FDOT completed two projects in south Broward. The first project widened US-441/SR 7/NW 7th Avenue from SW 25th Street to Fillmore Street. The second project improved US-441/SR 7/NW 7th Avenue from Fillmore Street to south of Stirling Road. FDOT is currently working on the design phase of a third project widening US-441/SR 7/NW 7th Avenue from two to four lanes from Okeechobee Boulevard to 60th Street. Construction of this third project is estimated for completion by Winter 2024. FDOT is also constructing a new four lane divided facility from 60th Street to Northlake Boulevard in Palm Beach County.



Completion of Asphalt Along SR 7: *Source is FDOT*

NW 7th Avenue Corridor Community Redevelopment Agency

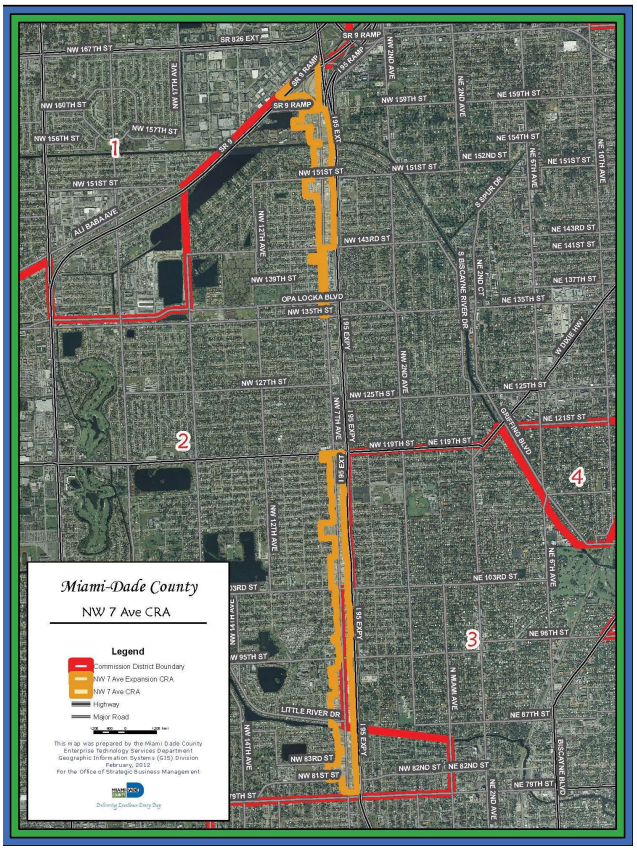
(Miami-Dade County)

In 2004, the Miami-Dade Board of County Commissioners adopted a redevelopment plan and created a trust fund for the creation of the NW 7th Avenue Community Redevelopment Agency (CRA), also known as Uptown Avenue 7. The Mission of Uptown Avenue 7 is to:

- Reposition US-441/SR 7/NW 7th Avenue as a major regional employment center.
- Support the growth and expansion of existing businesses within the CRA.
- Support development of new business within the CRA.
- Provide training and increased employment opportunities for residents of northwest Miami-Dade.
- Redevelop US-441/SR 7/NW 7th Avenue, supporting a mix of business, residential and commercial opportunities within the CRA.

Businesses located within, or moving into, Uptown Avenue 7 are eligible for no less than 29 state, county and local tax credit, grant, tax abatements, and loan programs. In addition, the CRA has its own program of grants and credits available for businesses in or relocating to Uptown Avenue 7. The CRA's Commercial Improvement Program (CIP) provides funding assistance to rehabilitate privately-owned commercial and industrial buildings which are occupied by qualified and licensed businesses. The CRA budgeted $250,000 for the program in FY 2019-20. The CRA's Business Innovation & Investment Grant (BIIG) Program provides funding assistance to purchase new equipment or technology, or improve or upgrade existing equipment or technology, to be used directly in qualified businesses within the CRA. For FY 2019-20, the CRA budgeted $150,000 for the BIIG Program in the hopes of awarding at least 15 grants to deserving small businesses within the CRA.

Figure 13: Miami-Dade NW 7th Street CRA Location Map



In 2014 the CRA published an *Opportunity Assessment Report* which highlights key strengths and weaknesses for targeted redevelopment opportunities within its boundaries.

Key CRA strengths include:

AVAILABLE LAND FOR REDEVELOPMENT

- With the County largely built out, Uptown Avenue 7 provides a considerable opportunity for development and job creation. Over 70 acres of vacant, underutilized, and affordable land within the CRA can accommodate a minimum of 1.3 Million square feet of development, supporting estimated 3,200 new jobs.

UNPARALLELED ACCESS AND VISIBILITY

- The CRA includes the most connected transportation junction in the County, with daily vehicle counts over 600,000 vehicles.
- The CRA has excess transportation capacity able to support new developments.
- Unlike much of the rest of the County's road network, both the I-95/ SR 9A and US-441/SR 7/NW 7th Avenue segments within the CRA operate under capacity and can support significant new development under existing conditions.

Key CRA weaknesses include:

- Household incomes below the County average.
- Flexible, but fragmented zoning, allowing incompatible uses in segmented spots along US-441/SR 7/NW 7th Avenue.
- Density limitations (units per acre), particularly for residential development, may be uneconomic.
- Widely varying building conditions, poor streetscape conditions, and hostile public domain for pedestrians.
- A real and perceived threat of crime, particularly thefts from vehicles, and crime patterns that do not lend themselves to easy or cheap security fixes.

The Proceedings Report of the SR 7 Redevelopment Strategy Workshops in Miami-Dade County

(SFRPC, 2012)

With the corridor master plan and infrastructure in place for Broward County, SFRPC coordinated with the Miami-Dade TPO to enrich regional transportation and redevelopment opportunities along the US-441/ SR 7/NW 7th Avenue in Miami-Dade County. The SFRPC hosted meetings of citizens, business owners, redevelopment organizations, and local governments to identify issues, frame research parameters, and assess potential policies and actions relevant to US-441/SR 7/NW 7th Avenue. The SFRPC gathered preliminary information and plans to prepare and submit funding proposals to implement community-based solutions solving issues and concerns raised by corridor-wide stakeholders in Miami-Dade. Preliminary recommendations included:

- Accelerate right-of-way and related infrastructure improvements along the corridor to meet current and anticipated future needs and encourage private investment.
- Acquire sufficient right-of-way along the corridor to correct inefficiencies and safety issues.
- Plan for development centers at locations where bus rapid transit stops and stations have been planned and bus routes intersect.
- Build on the strengths of the east/west corridors at development centers.
- At development center intersections, allow higher density development to proceed on each corner independent of current or planned land uses on other corners.
- Encourage themed retail that celebrates diversity along the corridor, such as the Osun's Village District within the City of Miami.

The Proceedings Report of the State Road 7 Redevelopment Strategy Workshops in Miami-Dade County

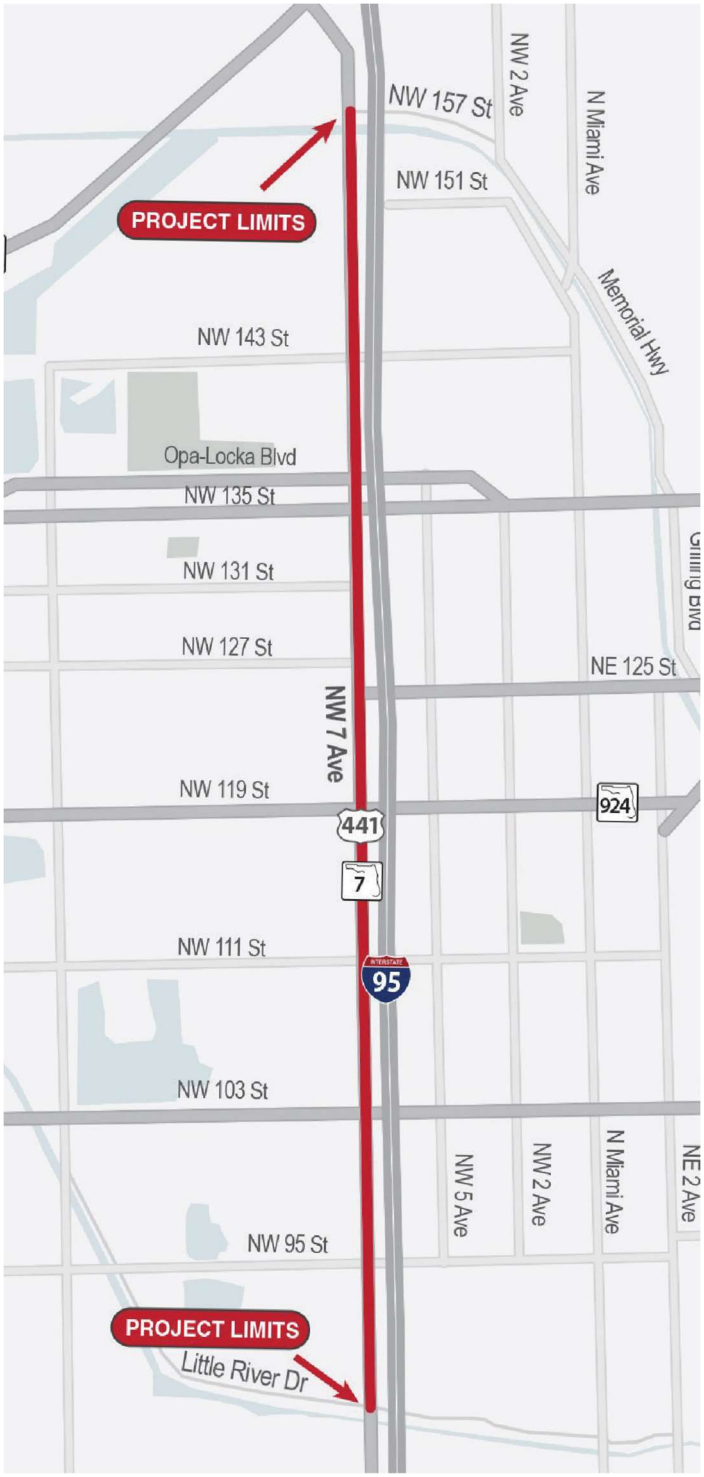
Held on May 8, 2012 – June 19, 2012
Arcola Lakes Library
Miami, FL

US-441/SR 7/NW 7th Avenue Complete Streets Project

(FDOT)

FDOT is completing a Complete Streets project along US-441/SR 7/NW 7th Avenue, from Little River Drive to NW 157th Street, in the City of North Miami and parts of unincorporated Miami-Dade County. With an estimated construction cost of $10 Million, this project is constructing new and modified medians, replacing outside travel lanes with exclusive bicycle lanes, installing on-street parking, replacing pedestrian curb ramps, installing high emphasis crosswalks at signalized intersections, installing stormwater drainage, upgrading pedestrian signs and signals, widening sidewalks to accommodate bus shelters, upgrading the mid-block crosswalk north of NW 147th Street, and repaving and restriping the roadway. Begun in July 2020, the project is anticipated to be completed by Summer 2021.

Figure 14: US-441/SR 7/NW 7th Avenue Complete Streets Project Location Map



2045 Bicycle Pedestrian Master Plan

(Miami-Dade TPO, 2019)

The vision of the *Miami-Dade 2045 Bicycle and Pedestrian Master Plan* is to enhance the accessibility, safety, public health, social equity, environment, and overall quality of life within Miami-Dade County for all users of all abilities, at all times. This Plan also seeks to strengthen bicycle and pedestrian friendly communities and their connections to existing and future transit opportunities to further encourage alternate modes of transportation throughout the County.

As part of the 2045 Bicycle Pedestrian Master Plan, a non-motorized transportation needs assessment was performed resulting in 552 projects incorporated into the *2045 Long Range Transportation Plan (LRTP)*. Based on priority and available set-aside funding, 73 of the 552 projects were programmed for the 2025 – 2045 Priority I period. The 2045 Bicycle Pedestrian Master Plan only has one project within the study area. Under Plan Period I, Project 87 is the Golden Glades Bicycle-Pedestrian Connector to the Sunshine State Industrial Park. This project is the bicycle/pedestrian bridge included in the Sunshine State K-&-R project.

Appendix B includes an excerpt of the 2045 Bicycle Pedestrian Master Plan showing Project 87.

2045 Long Range Transportation Plan

(Miami-Dade TPO, 2019)

The Miami-Dade County 2045 LRTP is a strategic and comprehensive plan that identifies highway, transit, freight, and non-motorized transportation improvements. The 2045 LRTP addresses mobility, safety, security, resiliency, and sustainability in its twenty-year horizon while also considering the impact of emerging technologies and innovation on the County's existing and future transportation infrastructure. The 2045 LRTP includes several project banks prioritized by implementation periods: Priority I (2020 – 2025), Priority II (2026 – 2030), Priority III (2031 – 2025), and Priority IV (2036 – 2045). Table 2 lists the roadway and transit projects in the 2045 LRTP that fall within the study area. Table 3 and Figure 15 document the 2045 LRTP bicycle and pedestrians projects that fall within the study area. Figure 15 also highlights proposed network completion projects which FDOT is evaluating through an in-house effort. These projects aim to fill gaps in the bicycle network by developing Countywide Connectors (i.e. greenways) with branching Point of Interest Connectors (i.e. bicycle lanes or other similar facilities) that distribute bicyclists to/from important destinations near the greenway network.

Table 2: 2045 LRTP Projects in the Study Area

PROJECT TYPE	PRIORITY	FACILITY	LIMITS FROM	LIMITS TO	TOTAL PROJECT COST (2018 $)
Transit (Bus Express Rapid Transit (BERT))	I	Beach Express North	Miami Beach Convention Center	GGMTF	$10.000 Million
FDOT SIS	I	Golden Glades Interchange Various Ramp Improvements			$65.413 Million
FDOT SIS	I	Golden Glades Multimodal Terminal			$76.466 Million
FDOT SIS	I	SR 826 (Palmetto Expy.) Connector	At the Golden Glades Interchange & Various Ramps		$69.381 Million
FDOT SIS	I	SR 826 (Palmetto Expy.) EB Ramp to I-95 (SR 9A) NB			$187.755 Million
FDOT SIS	I	Truck Parking at GGI East Lot			$20.000 Million
FDOT Other Roads	IV	I-95/SR 9A Corridor	South of NW 62nd St. (Dr Martin Luther King Jr. Blvd.)	South of GGI	$1,140.289 Million
FDOT Other Roads	IV	I-95/SR 9A Corridor	South of GGI	South of SR 860 (Miami Garden Dr.)	$63.024 Million
Florida's Turnpike	I	Golden Glades Truck Travel Center			$19.086 Million
Florida's Turnpike	I	Southern Turnpike Mainline (SR 91)	MP OX – Golden Glades/I-95 (SR 9A)/SR 826 (Spur)		$382.425 Million
Congestion Management Process	II	SR 826 (Palmetto Expy.)/NE 167th St./Miami Beach Blvd.	I-95 (SR 9A)	US-1 (South Dixie Hwy./SR 5)	$6.600 Million

Table 3: 2045 LRTP Bicycle and Pedestrian Projects in the Study Area

MAP ID	PROPOSED IMPROVEMENT	FACILITY	N. MIAMI AVENUE	LIMITS - TO	SOURCE
A	Pedestrian Overpass	SFRC	GGMTF	Sunshine State Industrial Park	Transportation Improvement Plan (TIP) 2022 - 2026 Project DT4438611 Miami-Dade DTPW
B	Pedestrian Overpass	I-95/SR 9A South	E of NW 6th Ave.	GGMTF	LRTP 2045 Project # 501 (Unfunded)
C	On-Road Bicycle Improvements	US-441/SR 7/ NW 7th Ave.	NW 156th St.	GGMTF	LRTP 2045 Project # 201 (Unfunded)
D	On-Road Bicycle Improvements	US-441/SR 7/ NW 7th Ave.	NW 119th St.	N Biscayne River Dr.	LRTP 2045 Project # 249 (Unfunded)
E	Pedestrian Overpass	SR 9 and Biscayne Canal (C-8)	South of Biscayne Canal (C-8)	GGMTF	LRTP 2045 Project # 172 (Unfunded)
F	Pedestrian Overpass	SR 826/I-95 Connector	GGMTF	NW 8th Ave.	LRTP 2045 Project # 258 (Unfunded)
G	Pedestrian Overpass	SFRC and I-95/SR 9A	Gold Coast Trail	NW 4th Ave./ Seaboard Rd.	LRTP 2045 Project # 466 (Unfunded)
H	Pedestrian Overpass	SFRC and I-95/SR 9A	NW 2nd Ave.	NW 7th Ave. Extension	LRTP 2045 Project # 465 (Unfunded
I	Pedestrian Overpass	SR 826/NW 167th St. and NW 9th Ave.	NW 8th Ave.	NW 170th Ter.	LRTP 2045 Project # 301 (Unfunded)
J	Pedestrian Overpass	Florida's Turnpike	NW 175th St.	NW Sunshine State Parkway	LRTP 2045 Project # 502 (Unfunded)
K	On-Road Bicycle Improvements	N Miami Ave.	SR 826/ NE 167th St.	NW 173rd St.	LRTP 2045 Project # 547 (Unfunded)
L	Pedestrian Overpass	SFRC	GGMTF	Sunshine State Industrial Park	LRTP 2045 Project # 339 (Unfunded)
M	Pedestrian Overpass	I-95/SR 9A South	E of NW 6th Ave.	GGMTF	LRTP 2045 Project # 517 (Unfunded)

Figure 15: 2045 LRTP Bicycle and Pedestrian Projects in the Study Area

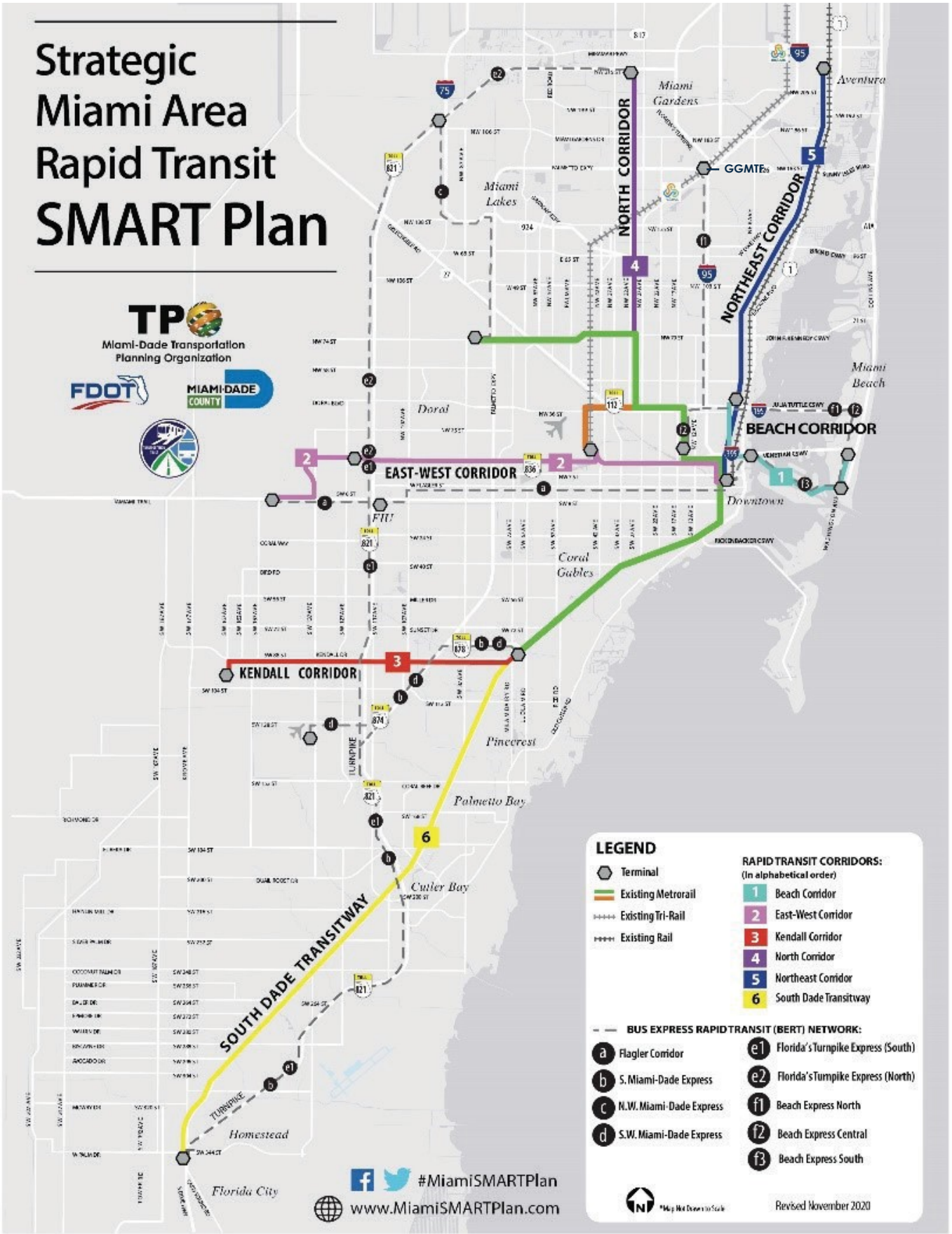
Strategic Miami Area Rapid Transit Plan

(Miami-Dade TPO)

The Miami-Dade TPO's highest priority is the advancement of the SMART Plan. Made of six rapid transit corridors, a network of Bus Express Rapid Transit (BERT) service, and other transit supportive projects, the SMART Plan is a comprehensive vision that will transform how people move in Miami-Dade County. Included in the SMART Plan is the GGMTF as a SMART Plan terminal. Serving multiple transit routes, this terminal is also anticipated to serve the proposed Beach Express North BERT running on SR 9A/I-95. Improvements that support transit and improve mobility and connectivity to/from the GGMTF can be considered high priority projects for the County because they help advance the SMART Plan vision.

Figure 16:
SMART Plan Map
(11/17/2020)

175 NW Miami-Dade Express: Source: Miami-Dade DTPW

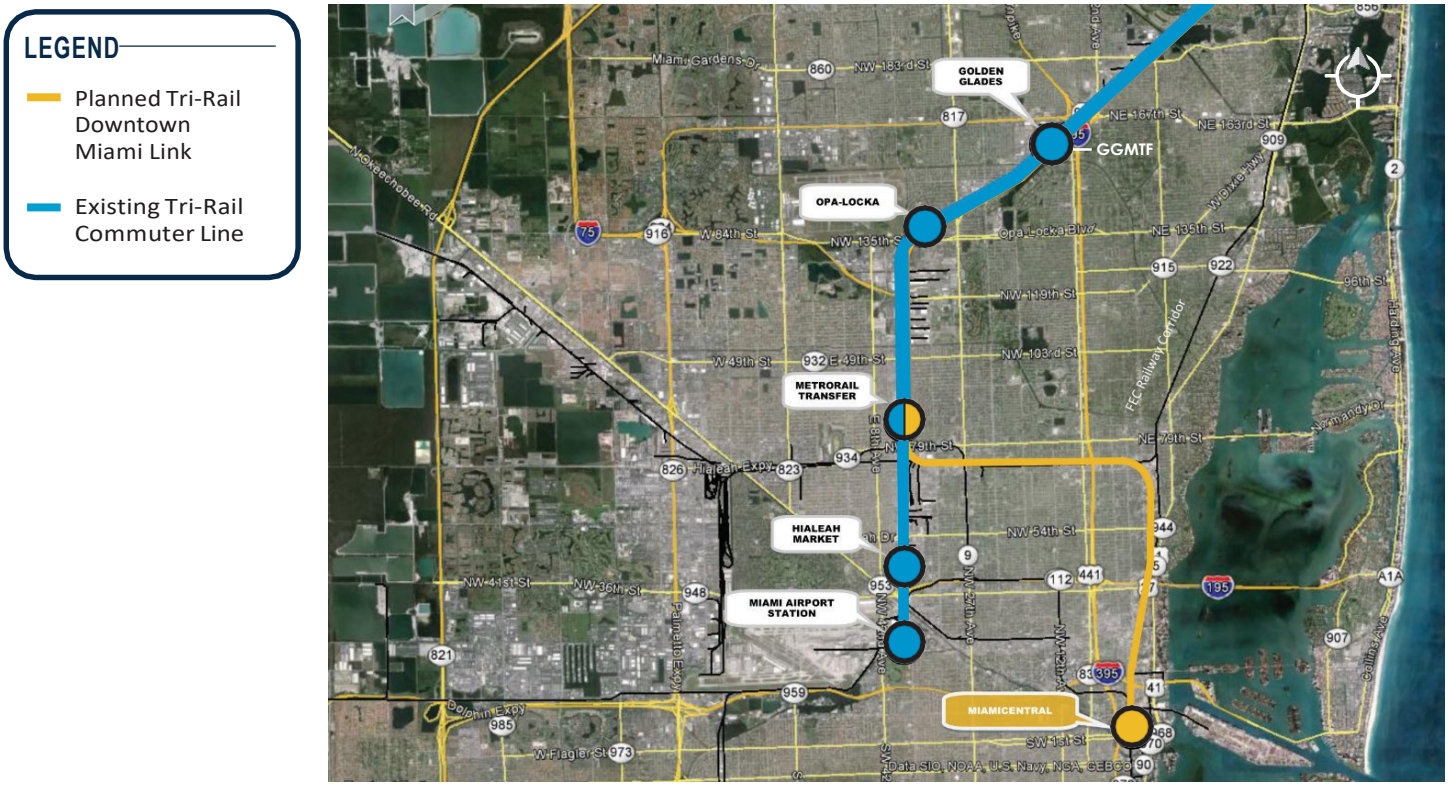

Strategic Miami Area Rapid Transit SMART Plan
TPO
Miami-Dade Transportation Planning Organization
FDOT
MIAMI-DADE COUNTY
NORTH CORRIDOR
NORTHEAST CORRIDOR
EAST-WEST CORRIDOR
BEACH CORRIDOR
KENDALL CORRIDOR
SOUTH DADE TRANSITWAY
GGMTE
Miami Gardens
Aventura
Miami Lakes
Doral
Miami Beach
Downtown
FIU
Coral Gables
Pinecrest
Palmetto Bay
Cutler Bay
Homestead
Florida City
TURNPIKE
LEGEND
Terminal
Existing Metrorail
Existing Tri-Rail
Existing Rail
RAPID TRANSIT CORRIDORS: (In alphabetical order)
1 Beach Corridor
2 East-West Corridor
3 Kendall Corridor
4 North Corridor
5 Northeast Corridor
6 South Dade Transitway
BUS EXPRESS RAPID TRANSIT (BERT) NETWORK:
a Flagler Corridor
b S. Miami-Dade Express
c N.W. Miami-Dade Express
d S.W. Miami-Dade Express
e1 Florida's Turnpike Express (South)
e2 Florida's Turnpike Express (North)
f1 Beach Express North
f2 Beach Express Central
f3 Beach Express South
*Map Not Drawn to Scale
Revised November 2020
#MiamiSMARTPlan
www.MiamiSMARTPlan.com

Tri-Rail Downtown Miami Link Service

(SFRTA)

SFRTA, in concert with multiple partners, is planning a new one-seat ride passenger service, known as the Tri-Rail Downtown Miami Link, between Palm Beach and Downtown Miami. To make this service a reality, SFRTA secured a Transportation Investment Generating Economic Recovery grant from the United States Department of Transportation (USDOT) to construct 9.05 miles of new rail connection from the SFRC to the Florida East Coast railway corridor at the Tri-Rail Metrorail Transfer Station. The Tri-Rail Downtown Miami Link will provide a cost effective and strategic transit solution for Miami-Dade County in conjunction with SMART Plan. This new service plans to leverage the existing and future Brightline express train service and stations and use quiet zone funds provided by the Miami-Dade TPO. This project increases the significance of any project improving mobility and access to the Golden Glades Tri-Rail Station given passengers will have more mobility options to the Central Business Districts of Palm Beach, Broward, and Miami-Dade County.

Figure 17: Tri-Rail Downtown Miami Link in Miami-Dade County



Literature Review Summary

The literature reviewed for this study illustrates how extensively the GGI area has been studied and highlights the projects that are creating broad reaching multimodal infrastructure changes.

Projects in this area are regionally significant because they advance the County's top transportation priority: the SMART Plan. Since the GGMTF includes a suite of mobility improvements (e.g. Miami-Dade and Broward county bus routes, intercity bus, and rideshare services), and Tri-Rail is expanding the reach of its commuter train service, all pedestrians improvements within ½-mile of these facilities have a *de facto* relationship to public transportation. Furthermore, since the GGMTF is a SMART Plan terminal any accessibility improvements to/from this facility can be considered high priority projects for the County because they help advance the SMART Plan vision.

Any proposed non-motorized improvements must build upon the vision of projects proposed in the *2018 Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Access Study* and must be coordinated with the ongoing GGMTF project and ongoing GGTTC and GGI Enhancement projects. Coordination with these projects can result in economies of scale and reduced administrative costs by coupling recommendations and procuring projects together rather than separately. Moreover, any bicycle and pedestrian connection to the GGMTF must connect to the shared-used path within the site to provide pathway continuity and guide bicyclist and pedestrian behavior.

The same is true for the future GGTTC. Regardless of the final configuration, the optimal location for a bicycle and pedestrian connection to the truck travel center is near the proposed commercial building or at the entrance to the facility directly across from the GGMTF shared-use path.

Table 4 provides a small summary of the documents reviewed and their significance to this study.

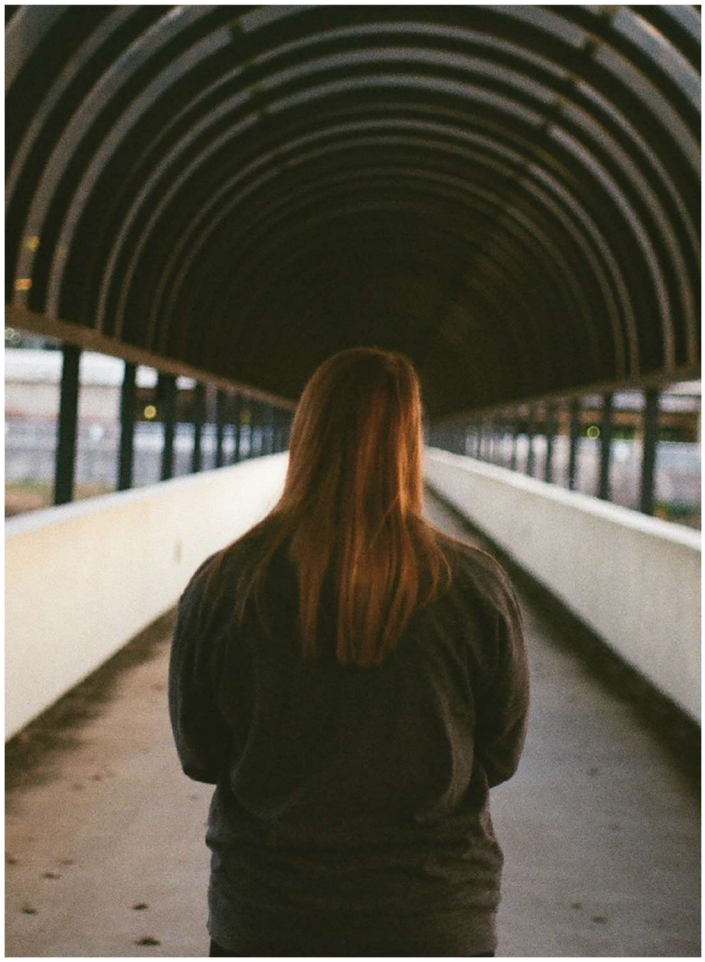


Table 4: Literature Review Summary

DOCUMENT	PUBLISHER	RELEVANCE TO THE STUDY
Golden Glades Bicycle and Pedestrian Access Study	FDOT, 2018	This report documents a bicycle and pedestrian master plan that connects the neighborhoods around the GGI to the GGMTF. This report includes useful data that documents the need for bicycle and pedestrian improvements in the Study Area. In addition, this study provides concepts and cost estimates for a wide range of non-motorized improvements, including a bicycle and pedestrian bridge connecting the neighborhoods east of I-95/SR 9A to the GGTTC and the GGMTF.
Sunshine State Industrial Park Kiss and Ride/Transit Terminal Facility Project	Miami-Dade DTPW	This project advances one of the concepts presented in the *Golden Glades Bicycle and Pedestrian Access Study* into the PD&E phase. This project includes the development of a kiss and ride and transit terminal facility in the Sunshine State Industrial Park as well as a bicycle-pedestrian bridge across the SFRC, connecting to the existing Golden Glades Tri-Rail Station and GGMTF. This project further increases the urgency of providing bicycle and pedestrian connections from all surrounding neighborhoods to the GGMTF.
Golden Glades Multimodal Transportation Facility Project	Miami-Dade DTPW	FDOT is expected to complete the construction of this state-of-the-art multimodal transportation facility by Winter of 2021/2022. Important components of this project include a new transit hub facility with amenities and food services, bicycle lanes along US-441/SR 7/NW 7th Avenue, SR 9 and the SR 9-SR 7 Connector Road, a new shared-use path across the facility, landscaping, security, and lighting, other non-motorized amenities such as benches, trash cans, bicycle racks, and lockers. An eastside connection to the GGMTF must tie-into the facility's shared-use path to increase accessibility and path continuity.
Market Assessment: Golden Glades Intermodal Facility Joint Public/Private Development Opportunity	FDOT, 2004	This report examines the viability of developing offices, retail, and/or a hotel in the GGMTF. While the ongoing construction only includes the development of a transit hub and retail area, this study determined another viable use include Class A offices between 100,000 to 150,000 square feet and discourages the development of a hotel.
Golden Glades Truck Travel Center (GGTTC) Project	FDOT	FDOT has advertised the RFP Development for a truck travel center that is expect to accommodate key features including: 131 truck parking spaces, 4 tandem truck parking spaces, 2 truck maintenance facilities, a 6-pump truck fueling station, 10-pump vehicle fueling station, and 10,000 square feet commercial building. These features represent employment centers that should be accessible via walking and cycling.
South Florida Truck Stop Market Analysis	FDOT, 2016	Similar to the GGMTF, a market analysis was completed for the GGTTC and it determined potentially profitable amenities to be provided in the GGTTC including a convenience store, gas station, auto wash, food offerings, and diesel fuel station. These amenities represent future viable employment centers and pedestrian attractors.
Golden Glades Interchange Enhancement Project	FDOT	With an estimated construction cost of $600 Million, FDOT is designing a suite of improvements to the GGI that will improve mobility by increasing free-flow travel speeds and creating new roadway connections. This project will also rebuild the existing pedestrian bridge at NW 147th Street that crosses I-95 south of the study area. This project presents a unique opportunity to coordinate potential bicycle and pedestrian connections with planned roadway improvements.

DOCUMENT	PUBLISHER	RELEVANCE TO THE STUDY
US-441/SR 7 Collaborative	SFRPC	Since 2001, the US-441/SR 7 Collaborative has been spearheading a corridor master plan for the 25.6 miles of US-441/SR 7/NW 7th Avenue. FDOT has completed two projects in south Broward and is working on a third from Okeechobee Boulevard to 60th Street and a forth project in Palm Beach County. While the US-441/SR 7 Collaborative focuses on the corridor north of Miami-Dade County, the Collaborative's work highlights the importance of US-441/SR 7/NW 7th Avenue.
NW 7th Avenue Corridor Community Redevelopment Agency	Miami-Dade County	This CRA looks at redeveloping US-441/SR 7/NW 7th Avenue within Miami-Dade County and follows the example set forth by the US-441/SR 7 Collaborative. The CRA has active grants incentivizing businesses to relocate and redevelop parcels along US-441/SR 7/NW 7th Avenue. Increasing non-motorized connections to major employment and transportation nodes along US-441/SR 7/NW 7th Avenue will allow employees and customers to travel cheaply and conveniently.
The Proceedings Report of the SR 7 Redevelopment Strategy Workshops in Miami-Dade County	SFRPC, 2012	This report documents the coordination between the US-441/SR 7 Collaborative, Miami-Dade NW 7th Avenue Corridor CRA, and SFRPC to advance community-based solutions. Proposed solutions relevant to this study include: develop centers at locations where bus rapid transit stops and stations are planned, allow higher density developments at intersections, and encourage themed retail along the corridor.
US-441/SR 7/NW 7th Avenue Complete Streets Project	FDOT	Immediately south of the study area, FDOT is finishing a Complete Streets project that, among other improvements, is adding exclusive bicycle lanes, high emphasis crosswalks, upgrading pedestrian signs and signals, and widening sidewalks on US-441/SR 7/NW 7th Avenue.
2045 Bicycle Pedestrian Master Plan	Miami-Dade TPO, 2019	Only one project in the 2045 Bicycle Pedestrian Master Plan is within the study area. The project is number 87 under Plan Period I and consists of the bicycle/pedestrian bridge included in the Sunshine State K-&-R project.
2045 Long Range Transportation Plan	Miami-Dade TPO, 2019	From the 2045 LRTP, 11 roadway and transit projects were identified within the study area as well as 13 bicycle and pedestrian projects.
Strategic Miami Area Rapid Transit Plan	Miami-Dade TPO	The GGMTF is a transit terminal in the SMART Plan, Miami-Dade's highest transportation improvement priority. Improving bicycle and pedestrian connections to this high priority terminal is essential for increasing the share of potential transit riders and convenience to existing users.
Tri-Rail Downtown Miami Link Service	SFRTA	SFRTA is adding a new passenger services allowing Tri-Rail clients to take a one-seat ride from Palm Beach to/from Downtown Miami by creating a new rail connection between the Metrorail Terminal Station and the MiamiCentral Station. This enhancement of the Tri-Rail system means customers will have increased accessibility and convenience to travel between high employment areas. Hence, increasing bicycle and pedestrian access to the Golden Glades Tri-Rail Station has a compound positive impact.

Existing Conditions Analysis

Existing data was collected to understand and assess the study area needs with regards to bicycle and pedestrian mobility, connectivity, accessibility, and safety. Assessment of existing conditions results in conclusions necessary to develop effective and comprehensive conceptual engineering alternatives that satisfy the purpose of this study

Field Review

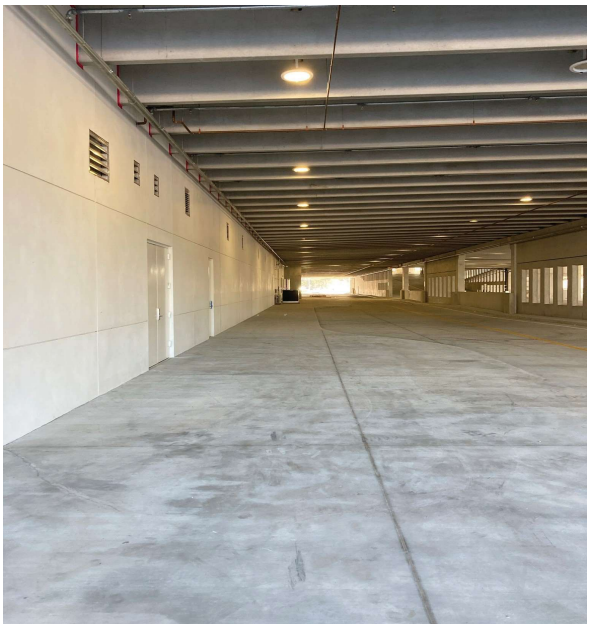
On March 22, 2021, the study team conducted a field review of the ongoing construction of the GGMTF, the NW 147th Street pedestrian bridge, and the communities east of I-95/ SR 9A. Starting at 9:00 AM, the study team observed the continued used of the east lot park and ride and several pedestrians traveling from the east lot to the Tri-Rail Station via the temporary pedestrian path (see Figure 18). The GGMTF construction is advancing rapidly and the study team was able to inspect the shared-use path, bicycle cages, bicycle lockers, and pedestrian bridge truss. The pedestrian bridge connecting the GGMTF parking garage to the existing pedestrian bridge across SR 9 was installed shortly after the field visit. As a result of the field review, the study team coordinated with the GGMTF design-build team to improve the quality of the installed bicycle cages and to note the need for wayfinding across the shared-use path (which had yet to be installed).

When reviewing the NW 147th Street pedestrian bridge across I-95/SR 9A the study team noted the poor maintenance of the bridge. The bridge was not clean and lacked proper lighting and necessary roof cover for protection from direct sun and rain. However, the GGI Enhancement Project is scheduled to rebuild the pedestrian bridge at NW 147th Street. The study team also observed large holes in the bridge's fence. This was reported to Florida Department of Transportation (FDOT) and was repaired by April 12, 2021.

In the communities east of I-95/SR 9A, the study team observed ongoing developments on NW 161st Street from NW 6th Avenue to NW 2nd Avenue. The study team noted that NW 161st Street is a good potential connection in the area because the road has ample right-of-way, high density developments, and is directly across the future GGTTC.

Figure 18: GGMTF Temporary Pedestrian Paths

Figure 19: GGMTF Field Review Images



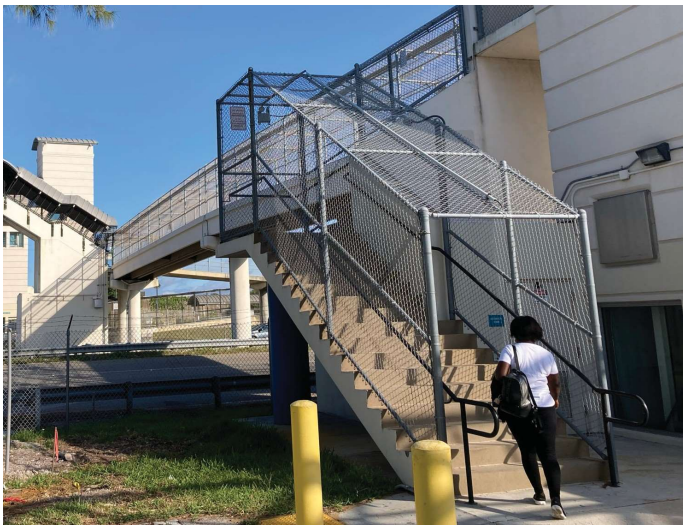
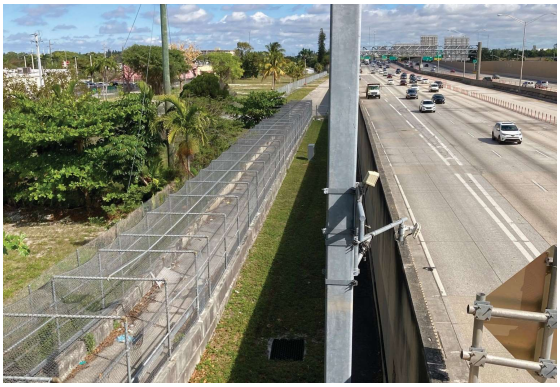


Figure 20: NW 147th Street Pedestrian Bridge Field Review Images



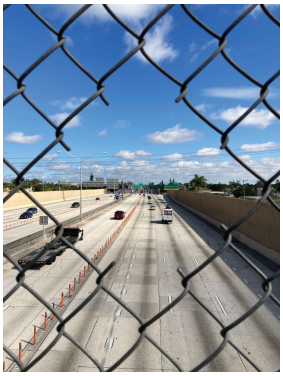
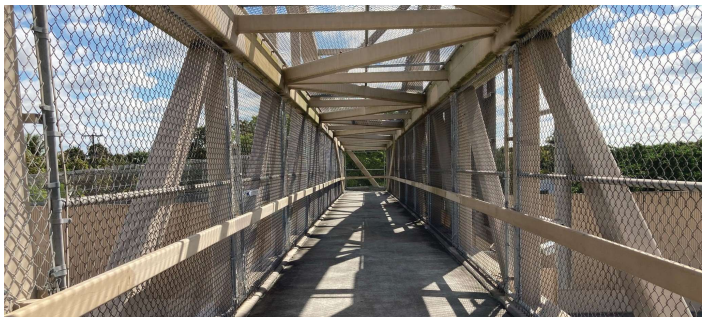
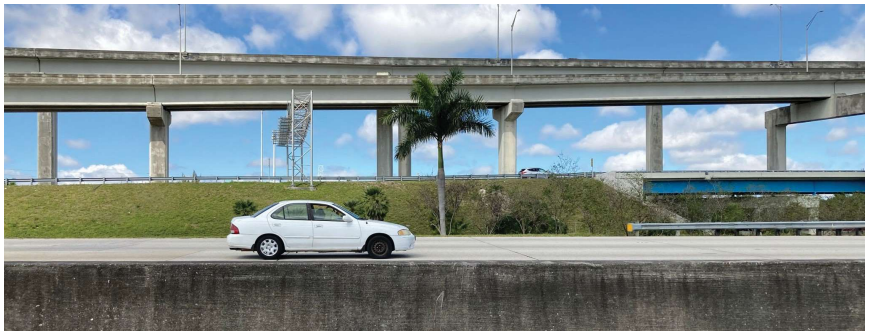




Figure 21: NW 161st Street Potential Connection across I-95/SR 9A





Crash Data Overview

Crash data involving Vulnerable Road Users between April 29, 2016 and April 29, 2021 was collected for the study area. By Florida Statute 316.027, Vulnerable Road Users include pedestrians, bicyclists, and motorcyclists due to their high probability of injury in the event of a crash. A total of 24 bicycle and pedestrian crashes were reported to have occurred and are summarized in Table 5 and Figure 22. Of the 24 crashes, 18 occurred within the communities east of I-95/SR 9A. Two of the 24 crashes resulted in fatalities, three resulted in incapacitating injuries, and one involved a minor.

Figure 22: Crash Location Map

The fatal crash on NW 6th Avenue and S Biscayne River Drive occurred in November 2016 at night, during clear dry weather as the pedestrian tried to cross the road near the bus stop midblock between N Biscayne River Drive and S Biscayne River Drive, next to Vive City Chapel. The bicyclist fatal crash on NW 2nd Avenue and SR 826/NW 167th Street occurred in May 2019 at dusk, during clear dry weather. The bicyclist was traveling westbound on the outside lane of SR 826/NW 167th Street into the ramp leading to westbound SR 9, southbound US-441/SR 7/NW 7th Avenue and southbound I-95/SR 9A. The bicyclist made a sudden lane change to the northbound Florida's Turnpike ramp and was struck by an adjacent moving vehicle. Bicycle traffic is not permitted on highway ramps and bicycle lanes where not present on SR 826/NW 167th Street, SR 9, nor US-441/SR 7/NW 7th Avenue at the day of the crash. The crash involving a minor occured on NW 2nd Avenue and NW 156th Street near Elite Scholars Learning Center within Biscayne Gardens. This crash happened when the minor ran south from the learning center's doorway, crossed NW 156th Street, and crashed with a vehicle traveling westbound.


LEGEND
Pedestrian Crash, No Injuries or Fatalities
Pedestrian Crash, With Injuries
Pedestrian Crash, Fatal Incident
Bicycle Crash, No Injuries or Fatalities
Bicycle Crash, With Injuries
Bicycle Crash, Fatal Incident
Focus Area
N
GGTTC
GGMTF
Tri-Rail-Golden Glades Station
Biscayne Gardens
Golden Glades
Florida's Turnpike
Tri-Rail
I-95 Express Ln
NW 7th Ave Ext
SR-9
Sunshine State Pkwy E
N Biscayne River Dr
S Biscayne River Dr
N Miami Ave
NW 2nd Ave
NW 6th Ave
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Minors and elderly are considered vulnerable populations. The Total Crashes column shows all crash events, including crashes involving adults. This column was added to highlight locations that may deserve additional consideration due to the presence of high minor/elderly pedestrian activity.

Table 5: 5-Year Pedestrian and Biyclist Crash Data Summary

ROADWAY	CROSS STREET	TOTAL CRASHES	POSSIBLE INJURIES	NON-INCAPACITATING INJURIES	INCAPACITATING INJURIES	FATALITIES (WITHIN 30 DAYS)	INVOLVING A MINOR OR ELDERLY
US-441/SR 7/ NW 7th Ave.	SR 9 / SR 7 Connector	2	0	1	0	0	0
US-441/SR 7/ NW 7th Ave.	NW 151st St.	1	1	0	0	0	0
US-441/SR 7/ NW 7th Ave.	NW 147th St.	1	1	0	0	0	0
NW 151st St.	NW 6th Ave.	1	0	0	0	0	0
NW 6th Ave.	S Biscayne River Dr.	1	0	0	0	1	0
NW 6th Ave.	N Biscayne River Dr.	1	0	0	0	0	0
NW 2nd Ave.	NW 156th St.	1	0	1	0	0	1
NW 2nd Ave.	NW 159th St.	1	0	1	0	0	0
NW 2nd Ave.	NW 165th St.	1	1	0	0	0	0
NW 2nd Ave.	SR 826/ NW 167th St.	2	0	1	0	1	0
N Miami Ave.	NW 154th St.	1	0	1	0	0	0
N Miami Ave.	NW 159th St.	2	0	0	2	0	0
N Miami Ave.	NW 165th St.	1	0	0	0	0	0
N Miami Ave.	SR 826/ NW 167th St.	3	2	1	0	0	0
NW 165th St.	NW 3rd Ave.	1	0	1	0	0	0
NW 165th St.	NW 1st Ave.	1	1	0	0	0	0
NW 1st Ave.	SR 826/ NW 167th St.	2	1	0	1	0	0
NW 1st Ave.	NW 168th St.	1	0	1	0	0	0
TOTAL		24	7	8	3	2	1

LEGEND

Fatal Crashes | Crashes Resulting in Incapacitating Injuries | Crash Involving a Minor

Socioeconomic Data

(This information comes from the ACS.)

According to the 2019 American Community Survey, Biscayne Gardens has a total population of 15,846 out of which 51.51% are females. The median age is 34.9, lower than the rest of the County (40.1). It is estimated that 2,585 people (16.31% of total population) live below poverty level, comparable to the rest of Miami-Dade County which is estimated at 16.58%. The median household income is $45,711, lower than the rest of the County which stands at $53,998. Out of 4,248 households, 1,591 (37.45%) are estimated to have children. Most houses were built between 1950 – 1970 with an estimated 38.54% (1,637/4,248) renter-occupied units. The median house value with mortgage is of $214,700. Of 15,846 residents, only 2,375 (14.99%) have completed some level of higher education (Associates Degree or higher).

Figure 23 through Figure 32 explore socioeconomic data at a census tract block group level. The data presented in these figures help identify High Impact Areas. High Impact Areas are census tract block groups where disadvantaged populations live and where providing transportation improvements result in a high impact/improvement to living standards. From a transportation mobility perspective, these populations are considered disadvantaged because they either have limited access or no access to a vehicle or are prohibited/unable to drive. Since cars are the most prevalent mode of transportation in Miami-Dade County, not being able to drive usually results in transit-dependency. Factors that limit mobility include affordability, educational barriers, physical impairments, and historic redlining based on race/ethnicity.

One block group with medium to medium-high youth and minority densities is bounded by US-441/SR 7/NW 7th Avenue on the east, SR 916/ Opa-Locka Boulevard on the south, and NW 147th Street on the north. This block is south of the study area and adjacent to the NW 147th Street pedestrian bridge providing access to the Thomas Jefferson Middle School and Biscayne Gardens Elementary School across I-95/SR 9A.

Just east of the study area there is another High Impact Area bounded by NE 2nd Avenue on the west, NE 6th Avenue on the east, NE 154th Street on the south, and NW 160th Terrace on the north. This block group abuts the Oak Grove Park and Oak Grove Elementary School on NE 158th Street and NE 6th Avenue.

Figure 23: Total Population Density per Acre

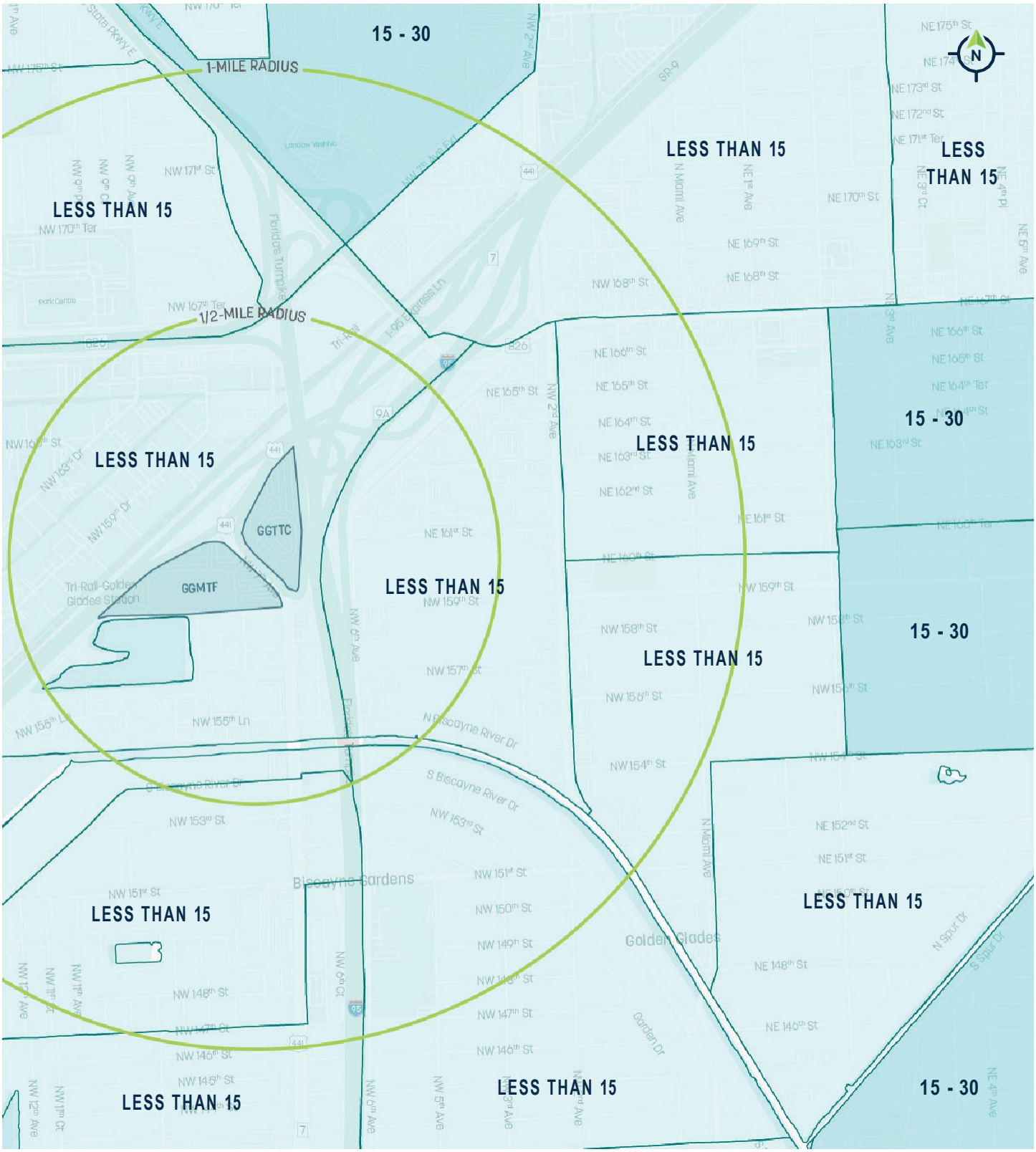


Figure 24: Youth Density per Acre (Ages 10 – 19)

Figure 25: Elderly Density per Acre (Ages 65+)

Figure 26: Minority Density per Acre

Figure 27: Unemployment Density per Acre

Figure 28: Disabled Density per Acre

Figure 29: Veteran Density per Acre

Figure 30: Non-English-Speaking Household Density per Acre

Figure 31: Low Income Household Density per Acre ($0-$26,500)

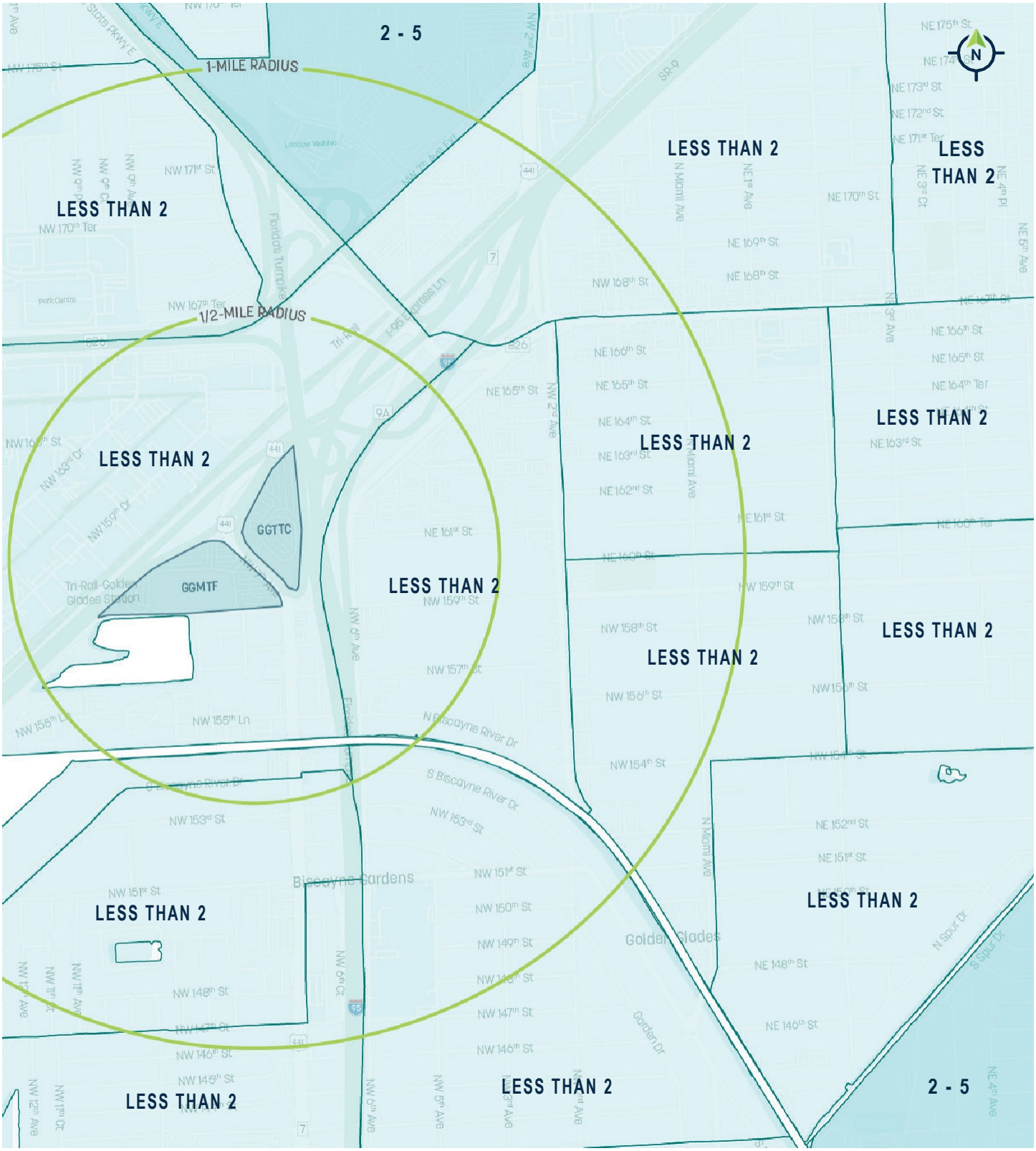


Figure 32: Zero-Car Household Density per Acre

Transportation Demand

The study area is mostly made up of single-family homes with the exception of the commercial/ multi-family residential developments on NW 2nd Avenue and the triangular area bounded by NW 165th Street on the northwest, NW 161st Street on the south, and NW 2nd Avenue on the east. The latter area contains the following businesses, institutions, high-density residences, and religious centers:

- Toyota of North Miami
- Golden Glades Office Park
- Louis Law Group
- The Summit 16401 Office Building
- Webster International Realty, LLC
- Hampton Court Rehabilitation Center
- Planned Parenthood of Golden Glades
- Interactive Therapy Solutions
- Sovereign School of Nursing
- Reviver Academy
- Monte Carlo Condominium
- Park Grove Condominium
- Golden Gates Condominium
- Masjid As-Sunnah An-Nabawiyyah Mosque

Figure 33 illustrates the zoning codes for the study area and Figure 34 highlights points of interest that attract/generate cycling and walking activity. Points of interests include high-density residentials, which are points of concentrated population mass, and secondary trip destinations such as post offices, educational facilities, parks, religious and medical institutions, and libraries. No supermarkets or food services are located within the study area. Overall, the study area has approximately 832 units in multi-family developments, 6 religious institutions, 3 medical centers, and 4 schools.

Noteworthy points of interest are listed below.

MULTI-FAMILY DEVELOPMENTS

- Monte Carlo Condominium: 348 units
- Parkway Grove Condominium: 29 units
- Golden Gate Apartments Condominium: 50 units
- 15500 NW 2nd Avenue: 9 units
- 15201 Memorial Highway: 56 units
- 111 NW 152nd Street: 26 units
- 15555 NW 2nd Avenue: 42 units
- 15701 NW 2nd Avenue: 68 units
- 171 NW 158th Street: 44 units
- Livewell Retirement Community: 160 units

HOSPITAL

- Jackson North Medical Center

PARK

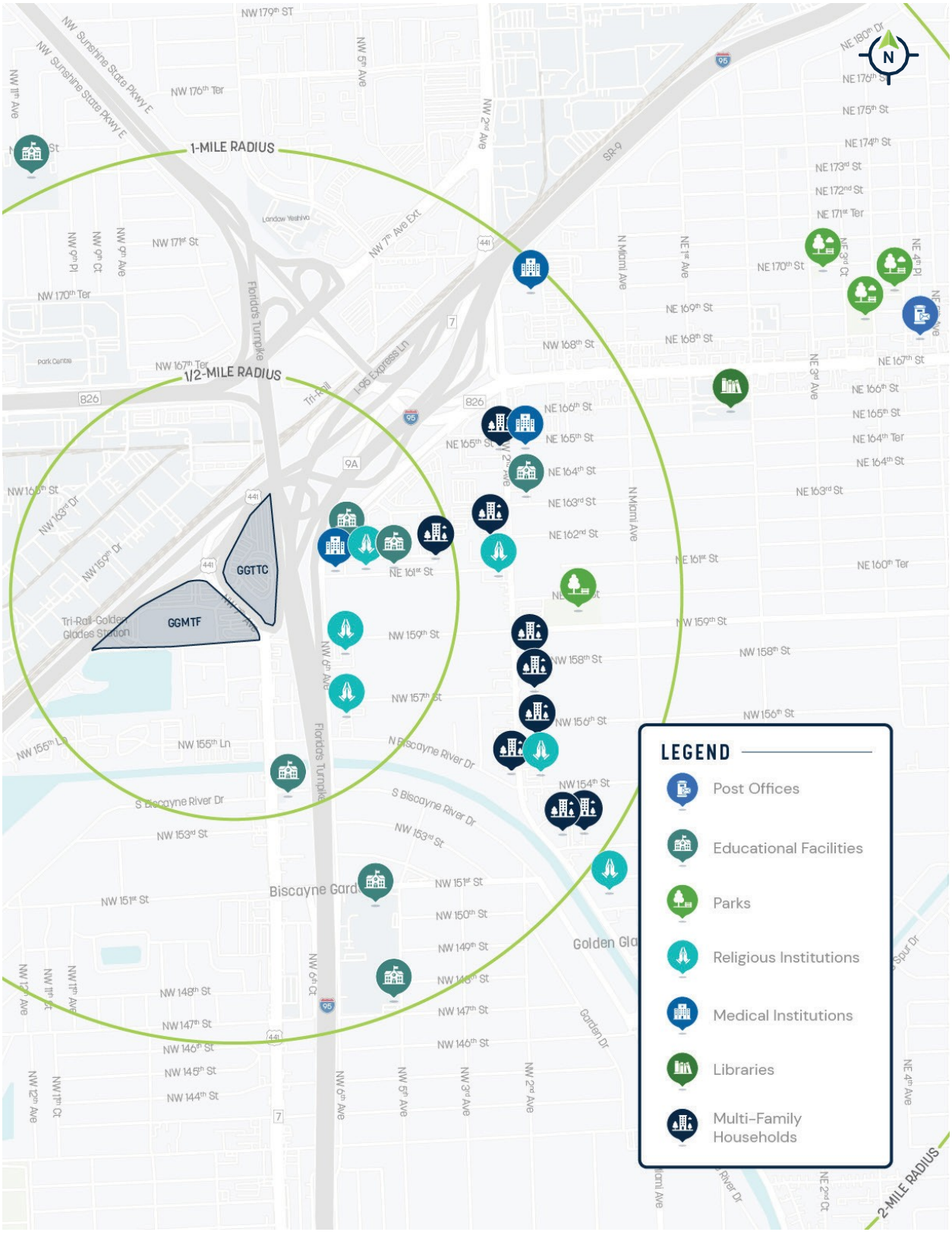
- Biscayne Gardens Park

RELIGIOUS INSTITUTIONS

- Masjid As-Sunnah An-Nabawiyyah mosque
- Evangel Church International
- Vive City Chapel
- Rescue Church Miami
- St Simeon Serbian Orthodox Church
- Church of Christ Redeemer
- First Haitian Baptist Church
  (just east of the study area)

Figure 33: Zoning Map

Figure 34: Points of Interest



The field review revealed an ongoing development at 390 NW 161st Street. This development is a mega-church called Tabernacle of Glory (see Figure 35). Construction on this church is advancing rapidly. Research of other planned developments in the area revealed a multi-family residential planned on a 4.04-acre parcel (Folio Number 30-2113-000-0280) located at 190 NW 162nd Street (see Figure 36). This development is being advertised as 3 buildings: one 5-Story garden apartment building with 28 one-bedroom units and 34 two-bedroom units and two buildings comprising 38 townhouse units of four-bedroom each. The average unit size will be of 1,263 square feet and the development will include a surface parking lot with a total of 209 dedicated and guest parking spaces. Research also revealed planned multi-family residential developments at a 7.1 acre vacant lot (Folio Number 30-2113-036-0010) adjacent to NW 6th Avenue, between NW 161st Street and NW 159th Street, and at a 7.05 acre lot currently occupied by the Evangel Church International.

To further understand the existing transportation demand within the study area, the team requested from FDOT any available bicycle and/or pedestrian counts, including STRAVA data. FDOT advised that "the available STRAVA data is from 2016 and is lacking in the vicinity of the GGMTF." Hence, no count data was available for analysis.

Figure 35: Tabernacle of Glory

Figure 36: Biscayne Gardens Multi-Family Residential Development

Need

Through an extensive evaluation of existing conditions and literature review, this study determined that there is a need for the proposed link based on system linkage, capacity, social demand and economic development, and safety.

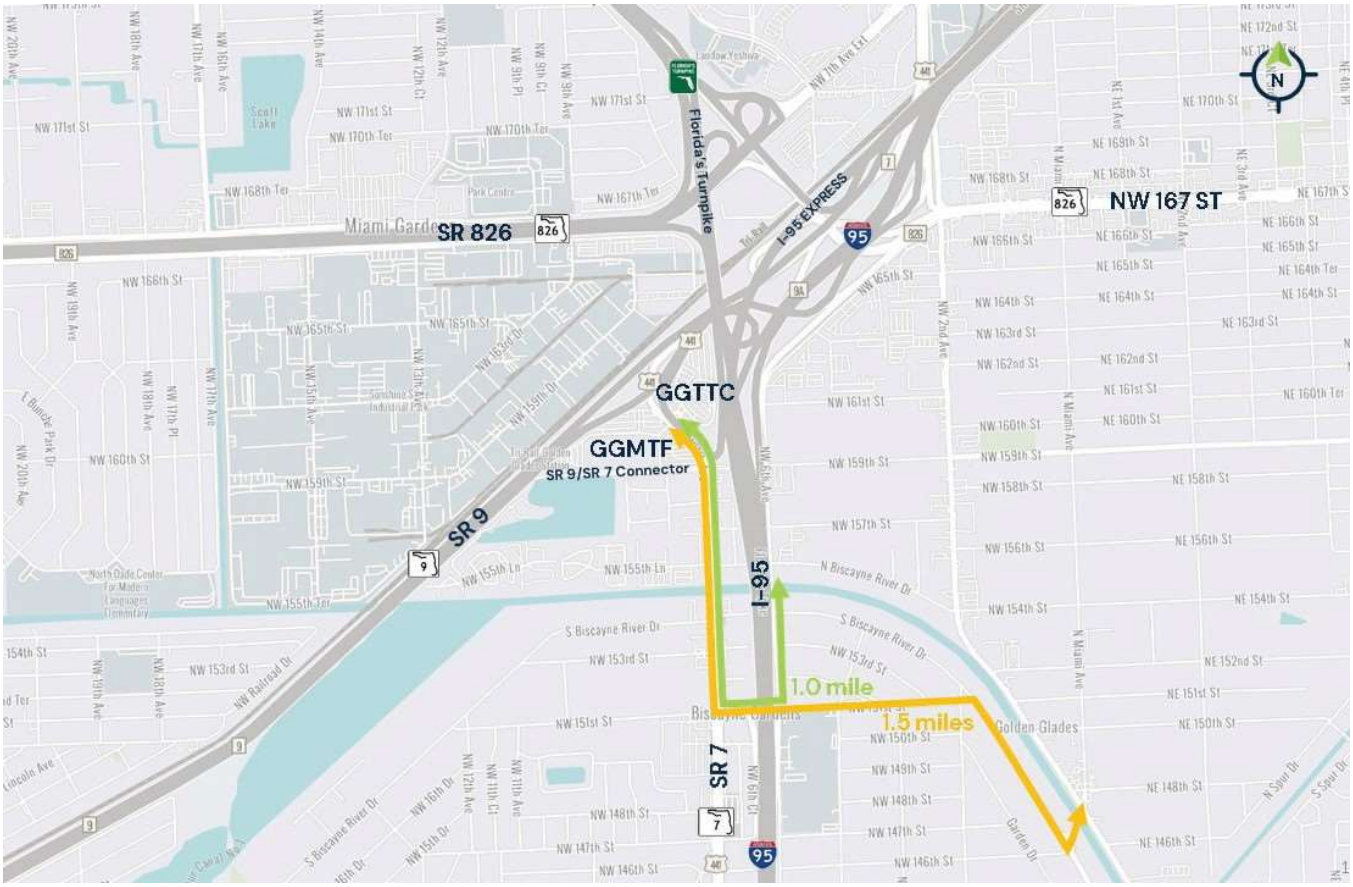
System Linkage

The Federal Transit Administration considers "all pedestrian improvements located within one-half mile and all bicycle improvements located within three miles of a public transportation stop or station have a *de facto* physical and functional relationship to public transportation." (76 FR 52046, 2011). The barriers created by the GGI limit or eliminate potential connections in the roadway and bicycle/pedestrian networks as well as reduce the market share of potential users for existing and future transit services at the GGMTF. The GGMTF is a critical transportation hub providing multiple public transit services including intercity bus, local, limited-stop, and express buses, local circulators, regional commuter rail (i.e., Tri-Rail), and ridesharing. The GGMTF has also been identified as a transit hub for the Miami-Dade TPO's Strategic Miami Area Rapid Transit (SMART) Plan. Furthermore, Miami-Dade DTPW is designing the Sunshine State Industrial Park Kiss and Ride/Transit Terminal Facility north of the SFRC which will provide local bus and circulator services and will connect the City of Miami Gardens to Tri-Rail and the GGMTF via bicycle and pedestrian bridges.

East of I-95/SR 9A, bicyclists and pedestrians are only able to access the transit services provided at the GGMTF via the Biscayne Canal (C-8) bridges on NW 151st Street and N Miami Avenue. Measured from the canal, these bridges are approximately 1-mile and 1.5-miles away from the GGMTF, respectively. A trip to destinations within the communities east of I-95/SR 9A, and not immediately adjacent to the NW 151st Street or N Miami Avenue bridges, quickly exceeds the average utilitarian walking trip of 1 to 2 miles (Report 11-05, 2012).

Convenience is extremely important when developing bicycle and pedestrian networks. Convenience can be measured by the work (i.e., force times distance) a trip requires. Using an average walking speed of 3 mph and cycling speed of 12 mph, which are low-effort speeds, and an average walking and cycling distance of ¾-mile and 3-miles (Report 11-05, 2012), respectively, a convenient walking and cycling trip is estimated to take 15 minutes. The existing cycling and walking trips to/from the GGMTF and the communities east of I-95/SR 9A exceed the 15-minute trip time, further justifying the need for more convenient links in the study area.

Figure 37: Existing Routes to/from the GGTMF and Biscayne Gardens and other communities east of I-95



Capacity

East of I-95/SR 9A, most travelers within the study area do not have the option to perform short trips (5-miles or less) to/from the GGMTF on alternative modes of transportation. This has an adverse effect on the existing roadway network because commuters have to make long and circuitous trips around the GGI which contribute to traffic congestion via reliance on motorized transportation. By providing a well-connected and complete bicycle and pedestrian network in the study area, citizens of the communities east of I- 5/SR 9A benefit from unlocking new transportation options that are more socioeconomically equitable, energy-efficient, customizable, and direct.

Social Demand and Economic Development

The proposed bridge will allow residents of Areas of Persistent Poverty (APP) and Historically Disadvantaged Communities (HDC) to affordably access central business districts in Miami-Dade, Broward, and Palm Beah County by allowing travelers to customize the cost and duration of individual trips through the use of transit and non-motorized transportation modes. USDOT defines APP as census tracts with a poverty rate of 20% as measured by the 2014 – 2018 5-year data available from the American Community Survey. USDOT definition of HDC is consistent with the Justice40 Initiative and considers a combination of variables including, but not limited to low income, high/persistent poverty, high unemployment or underemployment, racial and ethnic residential segregation, linguistic isolation, distressed neighborhoods, high transportation cost burden or low transportation access, disproportionate environmental stressors, limited water and sanitation access and affordability, disproportionate impacts from climate change, high energy cost burden or low energy access, jobs lost through the energy transition, and low access to healthcare. According to the 2019 American Community Survey, the neighborhoods east of SR 9A/I-95 within the study area have a total population of 15,846 out of which an estimated 2,585 people (16.31%) live below poverty level. The study area's median household income ($45,711) is lower than the rest of the County ($53,998) as well as the study area's median home value ($214,700) compared to the County ($289,600). Of the 15,846 residents, only 2,375 (14.99%) have completed some level of higher education (Associates Degree or higher). These statistics depict the average study area resident as a modest earning with limited economic opportunities. Creating a bicycle and pedestrian connection to the GGMTF will exponentially increase the economic mobility of residents within the study area by providing cheap transportation to major business districts within the counties of Miami-Dade, Broward, and Palm Beach.

The construction of the proposed bridge will also leverage public and private investments by connecting planned high density residential developments to public transportation; creating walkable neighborhoods with unique community characteristics. The study area has numerous points of interest for walking and cycling trips. Points of interests include high-density residentials, which are points of concentrated population mass, and secondary trip destinations such as post offices, educational facilities, parks, religious and medical institutions, and libraries. Overall, the study area has approximately 832 units in multi-family developments, 6 religious institutions, 3 medical centers, and 4 schools. With most businesses are located north of NW 161st Street and west of NW 2nd Avenue, NW 2nd Avenue is undergoing significant economic redevelopment. Field reviews and research have also revealed plans for three high-density residential developments and one megachurch under construction within the study area.

The proposed bridge proactively creates a new connection to reconnect segregated communities and pave a path for future multimodal improvements such as a potential shared-use

path on NW 159th Street connecting the proposed bridge to the commercial corridor of NW 2nd Avenue, Biscayne Gardens Park, and Oak Grove School and Park. Moreover, the neighborhoods east of I-95/SR 9A in the Golden Glades CDP and cities of North Miami Beach and North Miami may benefit from increased tourism as a result of increased transportation options since these neighborhoods are centrally located between popular destinations such as Hard Rock Stadium, Aventura Mall, Gulfstream Park Racing and Casino, Oleta River State Park, Haulover Park, St. Thomas University, and FIU Biscayne Bay Campus.

Safety

In the project area, a total of 24 bicycle and pedestrian crashes were reported between April 29, 2016 and April 29, 2021. Of these 24 crashes, 2 were fatal, and 3 resulted in incapacitating injuries. The construction of a pedestrian bridge is estimated to have a Crash Reduction Factor between 86 - 100 percent[1].

1 Albert Gan, Joan Shen, and Adriana Rodriguez (2005) Update of Florida Crash Reduction Factors and Countermeasures to improve the Development of District Safety Improvement Projects. Contract BD015-04, Florida Department of Transportation Safety Office, Tallahassee. Available at https://lctr.eng.fiu.edu/Documents/CRFFinalReport.pdf

Connectivity Assessment

Tier 1: GGMTF and GGTTC Connection Points

The GGMTF includes a new pedestrian bridge connecting a new multi-story parking garage to the existing pedestrian bridges over SR 9 and the SFRC. This new path creates a continuous route for Tri-Rail passengers. Additionally, the GGMTF includes a 12-foot-wide shared use path connecting bicycle lanes on SR 9 and US-441/ SR 7/NW 7th Avenue (see Figure 38). The shared use path is the logical connection point at the GGMTF, especially south of the reconstructed four-legged intersection of US-441/SR 7/NW 7th Avenue and the driveways to the GGMTF and GGTTC. This intersection is being reconstructed to include dedicated pedestrian crossings and signal phases across all four legs to increase safety by allowing all pedestrian movements to occur while all traffic is stopped. An elevated connection across US-441/SR 7/NW 7th Avenue is not feasible north of the intersection given the new 100-foot pilon monument installed as a gateway feature to the GGMTF.

FDOT is currently working on developing the GGTTC Request for Proposal. The GGTTC is expected to be a joint development with a private sector partner. As such, the current GGTTC concept included in the latest PD&E Study is subject to change. The GGTTC is envisioned to have a commercial building which may be multi-story and could conflict with any potential bicycle/pedestrian bridge over the GGTTC airspace. Therefore, the logical connection point to the GGTTC is south of the reconstructed four-legged intersection of US-441/SR 7/NW 7th Avenue and the driveways to the GGMTF and GGTTC. This point is directly across the proposed connection point at the GGMTF and avoids impacting the GGTTC driveway, which includes a large right-turn bay onto northbound US-441/SR 7/NW 7th Avenue given the expected traffic pattern.

Based on field reviews and existing and future condition analysis, two logical connections were determined in Biscayne Gardens:

1. NW 161st Street and NW 6th Avenue
2. NW 159th Street and NW 6th Avenue

NW 161st Street is adjacent to commercial and institutional developments that generate bicycle and pedestrian trips. This roadway also has ample right-of-way and leads to a major proposed multi-family development on NW 2nd Avenue. NW 159th Street also has ample right-of-way and is a direct connection to Biscayne Gardens Park and Oak Grove Park which are ideal logical termini for bicycle routes.

Tier 2: Bicycle and Pedestrian Connectivity Gaps

The study area has various bicycle network connectivity needs identified in the 2045 LRTP. As illustrated in Table 3 and Figure 15 in the Literature Review chapter, two major bicycle network gaps that need to be completed to fulfill the purpose of this study are:

1. An east-west connection across I-95/SR 9A. Providing this connection will fulfill two needs. One need is to connect the GGMTF to the GGTTC. The other need is to complete the Memorial Trail running along the Biscayne Canal (C-8).
2. A north-south connection along NW 6th Avenue. Providing this connection will further complete the Memorial Trail and will provide additional opportunities to connect bicyclists to destinations along NW 161st Street or NW 159th Street.

Tier 3: Bicycle and Pedestrian Elevated Connection across SR 7 and SR 9A/I-95

The alternative development process began by reviewing the bicycle and pedestrian connection proposed in the *Golden Glades Bicycle and Pedestrian Access Study (FDOT, 2018)*. Refered to as Project 9 (see Figure 4), the bridge across I-95/ SR 9A at N Biscayne River Drive connects Biscayne Gardens to the GGMTF. This concept includes segments of a shared-use path along US-441/ SR 7/NW 7th Avenue and NW 6th Avenue to guide bicyclists and pedestrians to the future Memorial/ Biscayne Blueway Trail along the Biscayne Canal (C-8) and future Gold Coast Trail along the SRFC, north of the GGMTF and GGTTC. The bridge is conceptualized mostly within FDOT and Miami-Dade County right-of-way, with the exception of one property.

The bridge was estimated to have a conceptual construction cost of approximately $11 Million (2017 $). Excluding right-of-way acquisition costs.

With the ongoing design of the Golden Glades Interchange Enhancement Project (see Figure 40) this connection is no longer possible. The interchange design has changed over the years and the most current design is anticipated to be completed Summer 2022. The current plans increase the turning radius of the proposed I-95/ SR 9A southbound off-ramp which conflicts with the pier location and structure configuration of the concept presented in Figure 4.

This concept has other disadvantages in relation to the purpose of this study.

- The concept does not directly connect to the shared-use path within the GGMTF.
- Bicyclists and pedestrians will need to cross US-441/SR 7/NW 7th Avenue at grade to travel between the GGMTF and the GGTTC.
- If the concept were to be extended across US-441/SR 7/NW 7th Avenue, the concept would impact an existing multi-family development.
- To reach the shared-use path within the GGMTF, from NW 159th Street in Biscayne Gardens, bicyclists and pedestrians are required to walk more than 1,500 feet. Alignments closer to the entrance of the GGMTF and GGTTC can easily accommodate shorter walking distances.
- The concept includes two bridges and indirect routing for bicyclists and pedestrians. These characteristics increase inconvenience and may be perceived as security issues given sight lines are blocked by turns in the travel path.
- The concept includes right-of-way acquisition.

Figure 38: GGMTF Final Configuration within West Lot (including an east-west shared-use path)

Figure 39: GGMTF Looking East to Biscayne Gardens

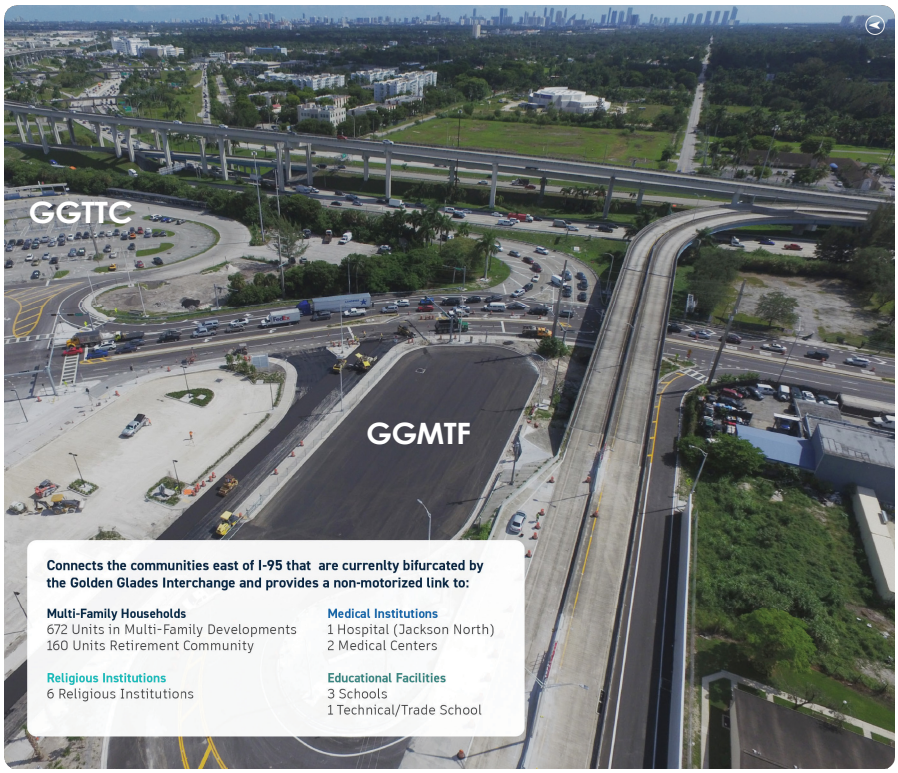
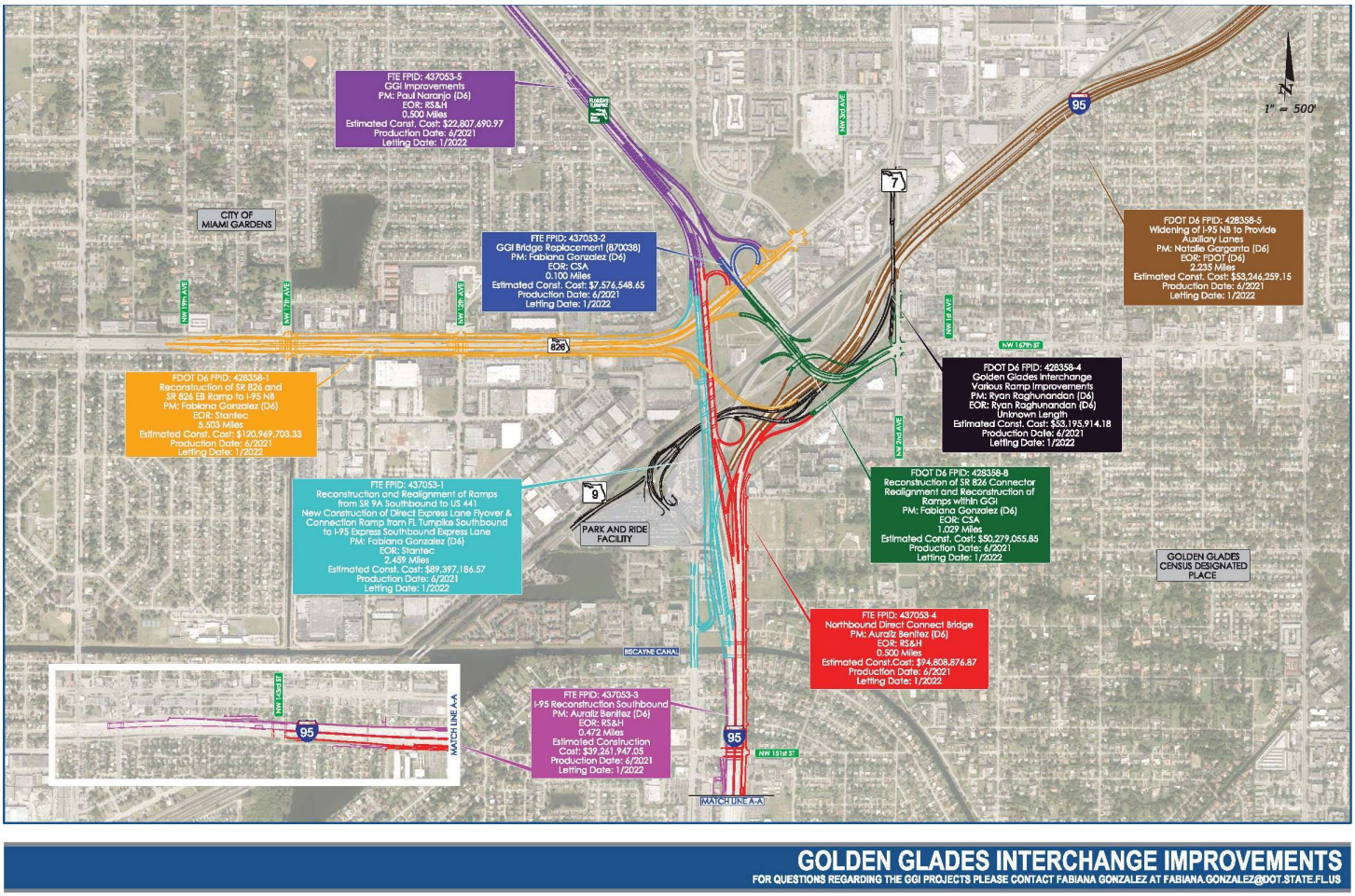


Figure 40: Golden Glades Interchange Enhancement Project (FDOT 2021)



A larger version of Figure 40 can be seen in Appendix F page F1.

Alternative 1 - US-441/SR 7/NW 7th Avenue Perpendicular Bicycle and Pedestrian Bridge

In an effort to create a more direct connection between the chosen points at the GGMTF and GGTTC, the first alternative conceptualizes a perpendicular bridge across US-441/SR 7/NW 7th Avenue directly connecting the GGMTF shared-use path to the entrance of the future GGTTC (see Figure 41). This alternative creates the most direct path and has a total walking distance (including approach ramps and bridge) of 710 feet between the GGMTF and GGTTC. Another advantage of this alternative is that the shorter bridge length and perpendicular configuration to US-441/SR 7/NW 7th Avenue increases ease of construction and decreases cost. This alternative is estimated to cost $7,447,000 including the addition of two fully equipped elevator towers and impacts to the GGMTF Orange Lot. Table 7 provides a detailed conceptual cost breakdown.

This alternative, however, does not connect the GGMTF to the communities east of I-95/SR 9A. As stated in the Need section of this study, there is an existing need to provide the connection to Biscayne Gardens and other communities within the 1-mile radius walk/bike shed east of I-95/SR 9A. Alternative 1 requires reconstructing the GGMTF Orange Lot, impacting 24 surface parking spaces and has a large footprint within the future GGTTC parcel. Lastly, this alternative also impacts driver's visibility of the traffic signals at the GGMTF/GGTTC entrance intersection, which is a safety concern.

Connecting to Communities east of I-95/SR 9A

Given the existing need to connect to Biscayne Gardens and other communities within the 1-mile radius walk/bike shed east of I-95/SR 9A, the study team evaluated different potential configurations of a bicycle and pedestrian connection across the GGI that would land near the chosen points at the GGMTF and GGTTC.

Figures 42 through 44 illustrate three conceptual diagrams developed in pursuit of the least impactful connection to the ongoing Golden Glades Interchange Enhancement Project. These bubble diagrams highlight the existing shared-use path within the GGMTF, the potential connection points, and the various existing and future ramps and mainlines within the GGI.

Conceptual Diagram 1 - Bicycle/Pedestrian Bridge Adjacent to Existing I-95/SR 9A Express Off Ramps

The first bubble diagram was conceptualized adjacent to the existing I-95/SR 9A Express off ramps to the GGMTF to maintain a straight and perpendicular connection. The advantages of this configuration include:

1. Ideal landing at the intersection of NW 6th Avenue and NW 159th Street (one of the logical connections east of I-95/SR 9A).
2. Reduced impact to the footprint of the future GGTTC.

Disadvantages of Bubble Diagram 1 include:

1. Minor impact to the Golden Glades Enhancement Project. Need to modify the vertical alignments of Future NB Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB Mainline to cross below the existing SB & NB I-95 Express Ramps.
2. Increased walking distance between the proposed GGMTF and GGTTC connection points (1,545 feet).

Conceptual Diagram 2 - Bicycle/Pedestrian Bridge Aligned to Existing Gantry on NB I-95/SR 9A

The second potential crossing was conceptualized by following the alignment of an existing roadway sign structure gantry over northbound I-95/SR 9A. This configuration was first noted during the field visits conducted for this study. While this configuration was initially observed as a viable option due to existing conditions, multiple challenges were determined when analyzing future conditions due to the new ramps added by the Golden Glades Interchange Enhancement Project. The advantage of this configuration includes:

1. Ideal landing at the intersection of NW 6th Avenue and NW 161st Street (one of the logical connections east of I-95/SR 9A).

The disadvantages of this configuration include:

1. Significant impact to the Golden Glades Enhancement Project. Need to modify the vertical alignments of the southbound Turnpike Mainline, Future NB Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB Mainline to cross below the existing SB & NB I-95 Express Ramps.
2. Does not include a direct connection between the GGMTF and GGTTC (i.e., does not accomplish the purpose of this study).
3. If the bridge is extended to cross US-441/SR 7/NW 7th Avenue, this configuration will result in significant impacts to the GGTTC. If not extended, the configuration shown in Figure 43 still has a large impact to the GGTTC footprint.
4. Requires right-of-way acquisition of existing vacant parcel with planned development in the near future (i.e., significant cost).

Conceptual Diagram 3 - Bicycle/Pedestrian Underpass/Bridge Hybrid

Given the significance and number of disadvantages with Bubble Diagram 2, a third configuration was evaluated further north where the future northbound Turnpike Express Ramp and Ramp T overpass southbound I-95/SR 9A Mainline. At this location, a connection across the GGI could be made as an underpass beneath the southbound Turnpike Mainline, future southbound Turnpike Express Ramp, southbound and northbound I-95/SR 9A Express Ramps, future northbound Turnpike Express Ramp, future Ramp V, future Ramp T, and northbound I-95/SR 9A Mainline. This bicycle/pedestrian connection will however overpass southbound I-95/SR 9A Mainline and all open ditch areas. Hence, this configuration creates a hybrid underpass/bridge concept that begins and ends at ground level on both ends at the GGTTC and NW 6th Avenue. Advantages of this configuration include:

1. No need for elevation changes along the entire bicycle-pedestrian path (i.e., increased convenience and reduced walking distance).
2. Reduced impact to the footprint of the future GGTTC.

The disadvantages of this configuration include:

1. Significant impact to the Golden Glades Enhancement Project. Need to modify the vertical alignments of the southbound Turnpike Mainline, southbound I-95/SR 9A Mainline, Future NB Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB Mainline to cross below the existing SB & NB I-95 Express Ramps.
2. Does not include a direct connection between the GGMTF and GGTTC (i.e., does not accomplish the purpose of this study).
3. Challenging pedestrian crossing at NW 6th Avenue with poor visibility due to roadway curvature.

Figure 41: Alternative 1 – US-441/SR 7/NW 7th Avenue Perpendicular Bicycle and Pedestrian Bridge

Figure 42: Conceptual Diagram 1 - Bicycle/Pedestrian Bridge Adjacent to Existing I-95/SR 9A Express Off Ramps

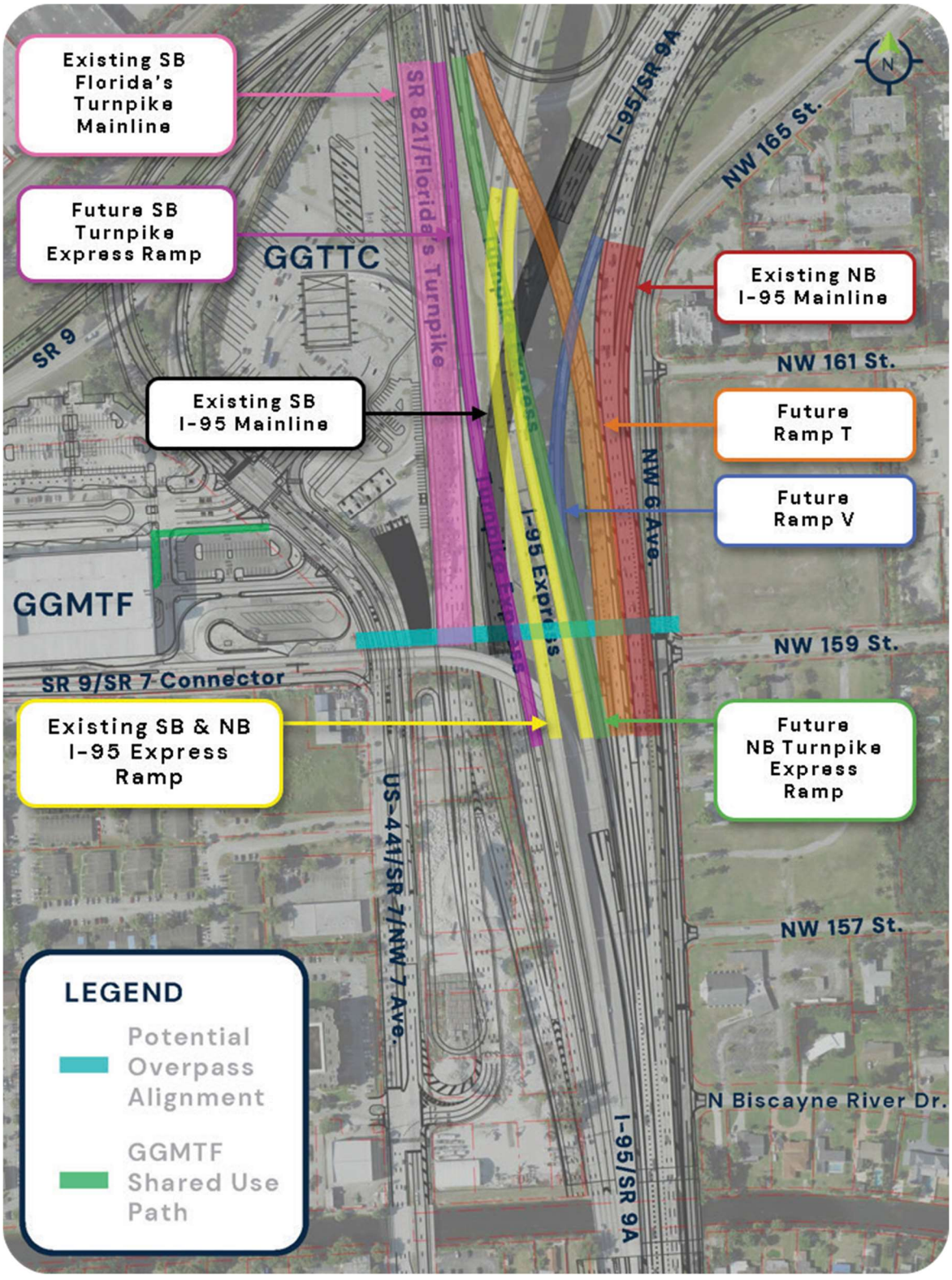


Figure 43: Conceptual Diagram 2 - Bicycle/Pedestrian Bridge Aligned to Existing Gantry on NB I-95/SR 9A

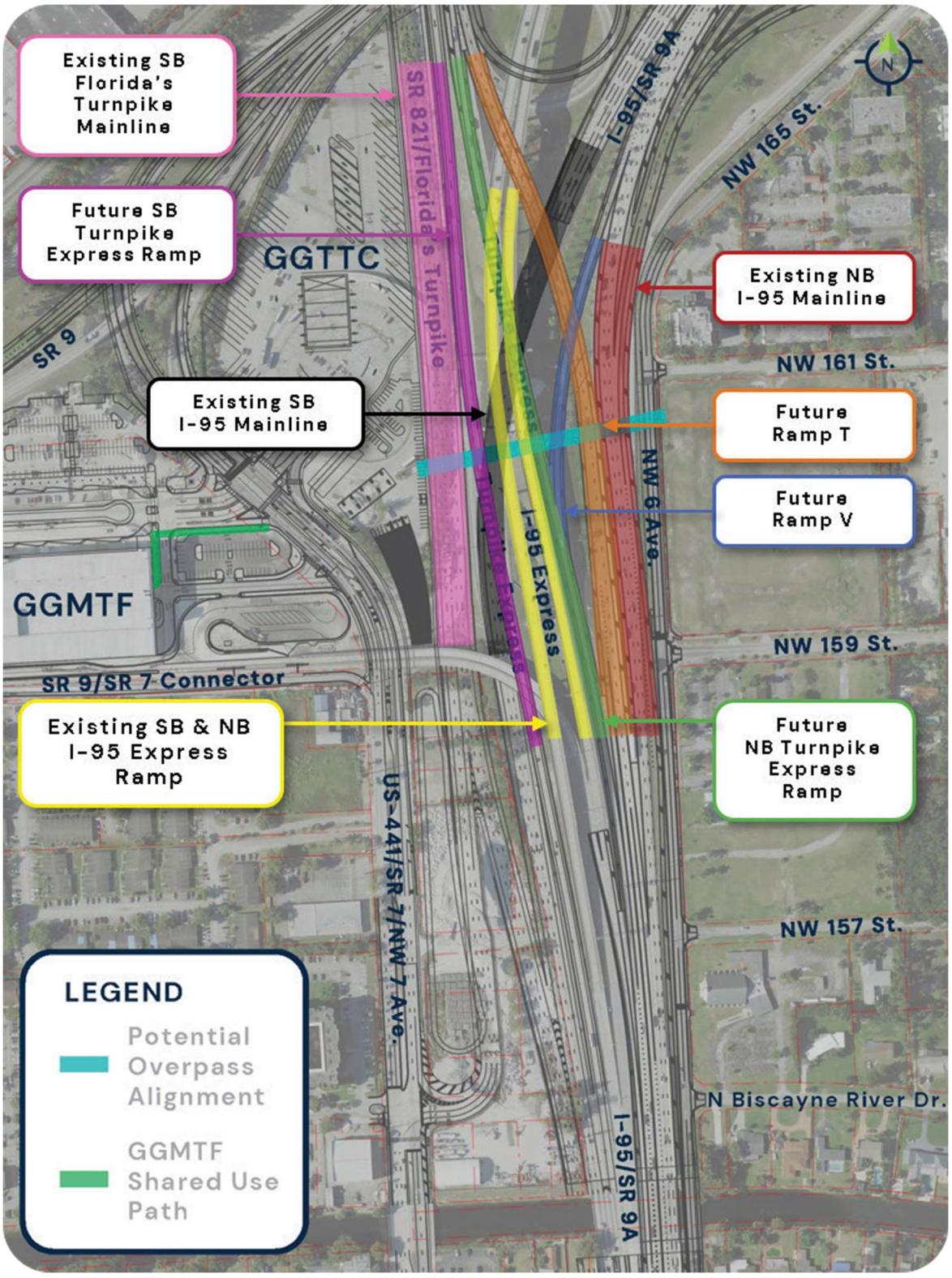
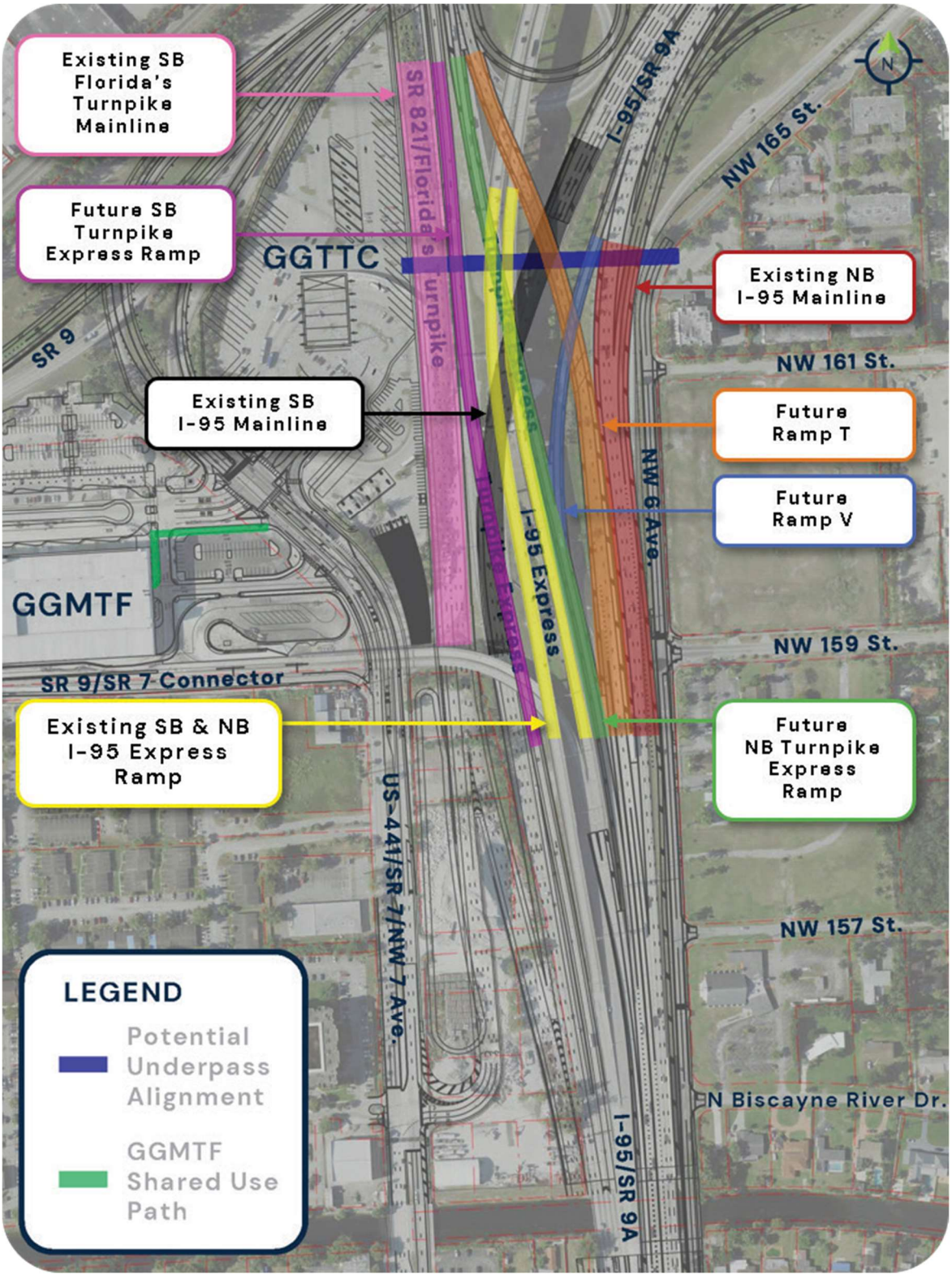


Figure 44: Conceptual Diagram 3 - Bicycle/Pedestrian Underpass/Bridge Hybrid



Other Crossing Opportunities Evaluated

Conceptual Diagrams 1 through 3 only present crossing configurations north of NW 159th Street, however, the study team also evaluated other crossing opportunities south of NW 159th Street. While crossing configurations north of NW 159th Street are in conflict with the GGI Enhancement Project, these configurations allow for the construction of a bicycle/pedestrian bridge of reasonable height. South of NW 159th Street the vertical profiles of the various GGI ramps begin to ascend north of the Biscayne Canal (C-8) bridge. This condition means that any potential pedestrian bridge south of NW 159th Street has to be significantly elevated to meet the vertical clearance over the ascending ramp profiles. North of NW 159th Street, any potential pedestrian bridge can fit beneath the existing I-95 Express Ramps and any other future ramps that match the elevation of the I-95 Express Ramps.

Therefore, constructing what would be a very tall pedestrian bridge south of NW 159th Street increases the capital cost and decreases the ease of construction as well as increases the vertical travel distance for bicyclists and pedestrians. Moreover, any crossing opportunities south of NW 159th Street has a longer horizontal travel distance to the identified connection points at the GGMTF and GGTTC. Similarly, the horizontal travel distance to NW 161st Street and NW 159th Street increases the further south the connection across east of I- 5/SR 9A is made. Lastly, these configurations also require right-of-way acquisition due private properties abutting the west side of US-441/SR 7/ NW 7th Avenue south NW 159th Street.

A connection south of NW 159th Street may also decrease the utility of the existing pedestrian bridge at NW 147th Street by serving the same potential walkshed and bikeshed.

From the three potential crossing configurations, Conceptual Diagram 1 presents the best opportunity for a connection to the communities east of I-95/SR 9A. Hence, in developing the following alternatives, the study team looked at Conceptual Diagram 1 in more detail to create an improved configuration per the purpose of this study. The study team developed two additional alternatives with one being an interim condition allowing for a future connection to the communities east of I-95/SR 9A, and the other an ultimate condition including the connection to the communities east of I-95/SR 9A.

Alternative 2 - US-441/SR 7/NW 7th Avenue Skewed Bicycle and Pedestrian Bridge

By directly linking the proposed points at the GGMTF and GGTTC, Alternative 2 improves on Conceptual Diagram 1 by reducing the walking distance and providing a more convenient connection. This alternative also removes the condition of bicyclists and pedestrians having to cross the second driveway from the GGMTF to US-441/SR 7/NW 7th Avenue, which is anticipated to have the highest turning movement into/out of the GGMTF. Alternative 2 is the interim condition to Alternative 3 and allows for future expansion of the bicycle/ pedestrian bridge across the GGI and landing on NW 159th Street in Biscayne Gardens. The advantages of Alternative 2 are that it has linear access ramps and minimal impact to the GGTTC footprint. The disadvantage of this alternative is that it does impact the GGMTF Orange Lot and requires removing 18 surface parking spaces.

Table 8 presents a detailed conceptual cost estimates for this alternative, which is estimated to cost $11,772,000 including the addition of two fully equipped elevator towers and impacts to the GGMTF Orange Lot.

Alternative 3 - Ultimate Bicycle and Pedestrian Bridge across GGI and US-441/SR 7/NW 7th Avenue

Alternative 3 presents the ultimate configuration with a bicycle and pedestrian bridge connecting the proposed points at the GGMTF, GGTTC, and NW 159th Street. This concept originates at the GGMTF shared used path and skews the proposed connection to provide a straight and direct connection to the communities east of I-95/SR 9A. The location of the bicycle and pedestrian crossing across the GGI is relatively close to that of Conceptual Diagram 1, hence resulting in the same impacts to the Golden Glades Enhancement Projects. This alternative has the same advantages as Alternative 2 plus the addition of resolving the need to connect the communities east of I-95/ SR 9A. The disadvantages of this alternative are that it does have a minor impact to the Golden Glades Enhancement Project. This alternative requires the proposed vertical alignments of the future northbound Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB Mainline to be lowered in order for the proposed bridge to cross below the existing SB & NB I-95 Express Ramps. This alternative also impacts the GGMTF Orange Lot and requires removing 18 surface parking spaces. This alternative also includes roadway improvements on NW 159th Street to accommodate the bridge landing and pedestrian ramps, with an opportunity to extend the connection to the east via a shared-use path that would terminate at Biscayne Gardens Park (conceptual cost estimate does not include the extension of the shared use path on NW 159th Street).

Table 9 presents a detailed conceptual cost estimates for this alternative which is estimated to cost $18,907,000 including the addition of three fully equipped elevator towers and impacts to the GGMTF Orange Lot.

The addition of a shared-use path from NW 6th Avenue to Biscayne Gardens Park along SW 158 Street is estimated to cost $1,806,000 (see Table 10).

Figure 45: Alternative 2 - US-441/SR 7/NW 7th Avenue
Skewed Bicycle and Pedestrian Bridge

Figure 46: Alternative 3 – Ultimate Bicycle and Pedestrian Bridge
across GGI and US-441/SR 7/NW 7th Avenue

Table 6: Proposed Reconstruction of the GGMTF Orange Lot Conceptual Cost Estimate

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Roadway	Inlet Protection System	EA	7.00	$183.89	$1,287.23
	Clearing & Grubbing	AC	0.63	$10,178.04	$6,451.77
	Removal of Existing Concrete	SY	507.89	$16.41	$8,334.52
	Type B Stabilization (Widening)	SY	32.56	$0.78	$25.39
	Optional Base Group 01 (Widening)	SY	32.56	$15.22	$495.49
	Milling Existing Asphalt Pavement,2" Avg. Depth	SY	1872.02	$2.02	$3,781.49
	Superpave Asphaltic Concrete, Traffic C, PG76-22 (M&R)	TN	314.26	$123.11	$38,688.02
	Asphalt Concrete Friction Course, Traffic C, FC-12.5, PG 76-22 (M&R)	TN	314.26	$148.42	$46,641.83
	Concrete Curb & Gutter, Type D	LF	475.86	$27.20	$12,943.46
	Concrete Sidewalk and Driveways, 4" Thick	SY	125.09	$38.75	$4,847.07
	Detectable Warnings	SF	300.00	$27.69	$8,307.00
	Performance Turf, Sod	SY	1025.05	$2.49	$2,552.39
Subtotal					**$134,355.66**
Signing and Pavement Markings	Painted Pavement Markings, STD, White, Solid, 6"	GM	0.09	$805.69	$73.39
	Painted Pavement Markings, STD, White, Solid, 12" for Crosswalk	LF	30.00	$0.44	$13.20
	Painted Pavement Markings, STD, White, Solid, 24" for Stop Line and Crosswalk	LF	30.00	$0.81	$24.30
	Painted Pavement Markings, STD, Yellow, Solid, 6"	GM	0.01	$872.76	$8.60
	Painted Pavement Markings, Final Surface	LS	1.00	$16,763.19	$16,763.19
	Thermoplastic, STD, White, Solid, 12" For Crosswalk	LF	30.00	$1.62	$48.60
	Thermoplastic, STD, White, Solid, 24" for Stop Line	LF	30.00	$3.33	$99.90
	Thermoplastic, Preformed, White, Solid, 24" for High Emphasis Crosswalk	LF	180.00	$14.82	$2,667.60
	Thermoplastic, Preformed, White, Arrow	EA	0.00	$240.57	$-
	Thermoplastic, STD-Other Surfaces, White, Solid, 6"	GM	0.09	$3,763.34	$342.81
	Thermoplastic, STD-Other Surfaces, Yellow, Solid, 6"	GM	0.01	$3,833.83	$37.76
Subtotal					**$20,079.35**

ITEM	AMOUNT
Subtotal	$154,435.01
Mobilization (7%)	$10,810.45
Maintenance of Traffic (10%)	$15,443.50
Utilities (2%)	$3,088.70
Lighting (10%)	$15,443.50
Drainage (10%)	$15,443.50
Design (10%)	$15,443.50
Geotechnical (15% of Design)	$2,316.53
Survey (15% of Design)	$2,316.53
CEI (8%)	$12,354.80
Contingency (15%)	$23,165.25
Total (Rounded to Nearest Thousand)	**$271,000.00**

The conceptual cost estimate includes utility work within FDOT right-of-way. Utility work is not reimbursable, however a percentage was estimated for an assumed value of reimbursable work. Design cost percentage was conservatively assumed based on the complexity of the project (i.e., structural and drainage analysis).

All other costs were obtained from the FDOT Long-Range Cost Estimates for the different items included in Table 6.

Table 7: Alternative 1 Conceptual Cost Estimate

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Structures	Steel Truss	SF	1738.00	$250.00	$434,500.00
	Concrete Class IV, Bridge Substructure	CY	30.00	$1,465.00	$43,950.00
	Concrete Class IV, MASS Substructure	CY	300.00	$1,000.00	$300,000.00
	Reinforcing Steel - Bridge Substructure	LB	60105.00	$1.25	$75,131.25
	Drilled Shaft, 48" Diameter	LF	597.00	$622.00	$371,334.00
	Drilled Shaft Casting, 48" Diameter	LF	555.00	$360.00	$199,800.00
	Core - Pilot Hole, Drilled Shaft Excavation	LF	165.00	$45.00	$7,425.00
	Thermal Integrity Testing, up to 4' Shaft Diameter	EA	3.00	$1,500.00	$4,500.00
	Bridge Drainage Pipe	LF	48.00	$198.00	$9,504.00
	Fencing, Type R, 6.1-7.0', w/Partial Enclosure	LF	262.00	$325.00	$85,150.00
	Conduit, F&I, Embedded Concrete	LF	934.00	$8.40	$7,845.60
	Junction Box, F&I, Embedded	EA	3.00	$425.00	$1,275.00
	Architectural - Special Walls/Towers & Elevators	LS	2.00	$950,000.00	$1,900,000.00
	Fencing, Type R, 7.1–8.0', w/Full Enclosure	LF	1098.00	$545.00	$598,410.00
	Embankment (Fill)	CY	4269.78	$14.37	$61,356.71
Subtotal					**$4,100,181.56**

The conceptual cost estimate includes utility work within FDOT right-of-way. Utility work is not reimbursable, however a percentage was estimated for an assumed value of reimbursable work. Design cost percentage was conservatively assumed based on the complexity of the project (i.e., structural and drainage analysis).

All other costs were obtained from the FDOT Long-Range Cost Estimates for the different items included in Table 7.

ITEM	AMOUNT
Subtotal	$4,100,181.56
Reconstruction of the GGMTF Orange Lot	$271,000.00
Mobilization (7%)	$287,012.71
Maintenance of Traffic (10%)	$410,018.16
Utilities (2%)	$82,003.63
Lighting (10%)	$410,018.16
Drainage (10%)	$410,018.16
Design (10%)	$410,018.16
Geotechnical (15% of Design)	$61,502.72
Survey (15% of Design)	$61,502.72
CEI (8%)	$328,014.52
Contingency (15%)	$615,027.23
Total (Rounded to Nearest Thousand)	**$7,447,000.00**

Table 8: Alternative 2 Conceptual Cost Estimate

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Structures	Steel Truss	SF	12600.00	$250.00	$3,150,000.00
	Concrete Class IV, Bridge Substructure	CY	30.00	$1,465.00	$43,950.00
	Concrete Class IV, MASS Substructure	CY	300.00	$1,000.00	$300,000.00
	Reinforcing Steel - Bridge Substructure	LB	60105.00	$1.25	$75,131.25
	Drilled Shaft, 48" Diameter	LF	597.00	$622.00	$371,334.00
	Drilled Shaft Casting, 48" Diameter	LF	555.00	$360.00	$199,800.00
	Core - Pilot Hole, Drilled Shaft Excavation	LF	165.00	$45.00	$7,425.00
	Thermal Integrity Testing, up to 4' Shaft Diameter	EA	3.00	$1,500.00	$4,500.00
	Bridge Drainage Pipe	LF	73.00	$198.00	$14,454.00
	Fencing, Type R, 6.1-7.0', w/Partial Enclosure	LF	476.00	$325.00	$154,700.00
	Conduit, F&I, Embedded Concrete	LF	1435.00	$8.40	$12,054.00
	Junction Box, F&I, Embedded	EA	5.00	$425.00	$2,125.00
	Architectural - Special Walls/Towers & Elevators	LS	2.00	$950,000.00	$1,900,000.00
	Fencing, Type R, 7.1–8.0', w/Full Enclosure	LF	552.00	$545.00	$300,840.00
	Embankment (Fill)	CY	2463.08	$14.37	$35,394.40
Subtotal					**$6,571,707.65**

The conceptual cost estimate includes utility work within FDOT right-of-way. Utility work is not reimbursable, however a percentage was estimated for an assumed value of reimbursable work. Design cost percentage was conservatively assumed based on the complexity of the project (i.e., structural and drainage analysis).

All other costs were obtained from the FDOT Long-Range Cost Estimates for the different items included in Table 8.

ITEM	AMOUNT
Subtotal	$6,571,707.65
Reconstruction of the GGMTF Orange Lot	$271,000.00
Mobilization (7%)	$460,019.54
Maintenance of Traffic (10%)	$657,170.77
Utilities (2%)	$131,434.15
Lighting (10%)	$657,170.77
Drainage (10%)	$657,170.77
Design (10%)	$657,170.77
Geotechnical (15% of Design)	$98,575.61
Survey (15% of Design)	$98,575.61
CEI (8%)	$525,736.61
Contingency (15%)	$985,756.15
Total (Rounded to Nearest Thousand)	**$11,772,000.00**

Table 9: Alternative 3 Conceptual Cost Estimate

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Structures	Steel Truss	SF	12600.00	$250.00	$3,150,000.00
	Concrete Class IV, Bridge Substructure	CY	100.00	$1,465.00	$146,500.00
	Concrete Class IV, MASS Substructure	CY	1000.00	$1,000.00	$1,000,000.00
	Reinforcing Steel - Bridge Substructure	LB	200350.00	$1.25	$250,437.50
	Drilled Shaft, 48" Diameter	LF	1990.00	$622.00	$1,237,780.00
	Drilled Shaft Casting, 48" Diameter	LF	1850.00	$360.00	$666,000.00
	Core - Pilot Hole, Drilled Shaft Excavation	LF	550.00	$45.00	$24,750.00
	Thermal Integrity Testing, up to 4' Shaft Diameter	EA	10.00	$1,500.00	$15,000.00
	Bridge Drainage Pipe	LF	283.00	$198.00	$56,034.00
	Fencing, Type R, 6.1-7.0', w/Partial Enclosure	LF	1853.00	$325.00	$602,225.00
	Conduit, F&I, Embedded Concrete	LF	5574.00	$8.40	$46,821.60
	Junction Box, F&I, Embedded	EA	16.00	$425.00	$6,800.00
	Architectural - Special Walls/ Towers & Elevators	LS	3.00	$950,000.00	$2,850,000.00
	Fencing, Type R, 7.1-8.0', w/Full Enclosure	LF	974.00	$545.00	$530,830.00
	Embankment (Fill)	CY	4576.89	$14.37	$65,769.96
Subtotal					**$10,648,948.06**

The conceptual cost estimate includes utility work within FDOT right-of-way. Utility work is not reimbursable, however a percentage was estimated for an assumed value of reimbursable work. Design cost percentage was conservatively assumed based on the complexity of the project (i.e., structural and drainage analysis).

All other costs were obtained from the FDOT Long-Range Cost Estimates for the different items included in Table 9.

ITEM	AMOUNT
Subtotal	$10,648,948.06
Reconstruction of the GGMTF Orange Lot	$271,000.00
Mobilization (7%)	$745,426.36
Maintenance of Traffic (10%)	$1,064,894.81
Utilities (2%)	$212,978.96
Lighting (10%)	$1,064,894.81
Drainage (10%)	$1,064,894.81
Design (10%)	$1,064,894.81
Geotechnical (15% of Design)	$159,734.22
Survey (15% of Design)	$159,734.22
CEI (8%)	$851,915.84
Contingency (15%)	$1,597,342.21
Total (Rounded to Nearest Thousand)	**$18,907,000.00**

Table 10: Proposed Shared-Use Path on NW 159th Street Conceptual Cost Estimate

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Roadway	Inlet Protection System	EA	3.00	$183.89	$551.67
	Clearing & Grubbing	AC	3.41	$10,178.04	$34,663.10
	Tree Removal	EA	200.00	$27.58	$5,516.00
	Removal of Existing Concrete	SY	1614.67	$16.41	$26,496.68
	Regular Excavation	CY	3901.45	$4.49	$17,517.51
	Type B Stabilization (Share-Use Path)	SY	2984.30	$0.78	$2,327.75
	Type B Stabilization (Widening)	SY	917.15	$0.78	$715.38
	Optional Base Group 01 (Share-Use Path)	SY	2984.30	$15.22	$45,420.97
	Optional Base Group 01 (Widening)	SY	917.15	$15.22	$13,959.08
	Milling Existing Asphalt Pavement, 2" Avg. Depth	SY	8553.95	$2.02	$17,278.98
	Superpave Asphaltic Concrete, Traffic A (Share-Use Path)	TN	492.41	$112.63	$55,459.99
	Superpave Asphaltic Concrete, Traffic C, PG76-22 (Widening & M&R)	TN	1562.73	$123.11	$192,387.94
	Asphalt Concrete Friction Course, Traffic C, FC-12.5, PG 76-22 (Widening & M&R)	TN	1562.73	$148.42	$231,940.68
	Concrete Class NS, Gravity Wall Index 400-011 (For Shared-Use Path Thickened Edge)	CY	103.26	$572.68	$59,135.84
	Concrete Curb & Gutter, Type F	LF	15.24	$22.41	$341.44
	Concrete Curb & Gutter, Type D	LF	46.27	$27.20	$1,258.51
	Shoulder Gutter - Concrete	LF	182.35	$21.15	$3,856.70
	Concrete Sidewalk and Driveways, 4" Thick	SY	785.94	$38.75	$30,455.07
	Detectable Warnings	SF	600.00	$27.69	$16,614.00
	Guardrail - Roadway, General TL-3	LF	50.00	$22.00	$1,100.00
	Performance Turf, Sod	SY	2598.46	$2.49	$6,470.15
	Patterned Pavement, Vehicular Areas (Green Colored Pavement)	SY	25.74	$117.00	$3,011.98
Subtotal					**$766,479.43**

Table 10: Proposed Shared-Use Path on NW 159th Street Conceptual Cost Estimate (*Continued)*

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Signing and Pavement Markings	Painted Pavement Markings, STD, White, Solid, 6"	GM	0.19	$805.69	$156.68
	Painted Pavement Markings, STD, White, Solid, 12" for Crosswalk	LF	479.91	$0.44	$211.16
	Painted Pavement Markings, STD, White, Solid, 24" for Stop Line and Crosswalk	LF	120.53	$0.81	$97.63
	Painted Pavement Markings, STD, White, 2-4 Dotted Guideline/6-10 Dotted Extension, 6"	GM	0.03	$352.04	$10.00
	Painted Pavement Markings, STD, White, Message or Symbol	EA	2.00	$40.51	$81.02
	Painted Pavement Markings, STD, White, Arrows	EA	8.00	$25.11	$200.88
	Painted Pavement Markings, STD, Yellow, Solid, 6"	GM	2.13	$872.76	$1,862.02
	Painted Pavement Markings, Final Surface	LS	1.00	$16,763.19	$16,763.19
	Thermoplastic, STD, White, Solid, 12" For Crosswalk	LF	479.91	$1.62	$777.45
	Thermoplastic, STD, White, Solid, 24" for Stop Line	LF	120.53	$3.33	$401.36
	Thermoplastic, STD, White, 2-4 Dotted Guideline/6-10 Dotted Extension, 6"	GM	0.03	$1,343.80	$38.18
	Thermoplastic, STD, White, Message or Symbol	EA	2.00	$84.79	$169.58
	Thermoplastic, STD, White, Arrows	EA	8.00	$52.40	$419.20
	Thermoplastic, Preformed, White, Solid, 24" for High Emphasis Crosswalk	LF	1332.00	$14.82	$19,740.24
	Thermoplastic, Preformed, White, Arrow	EA	0.00	$240.57	$-
	Thermoplastic, STD-Other Surfaces, White, Solid, 6"	GM	0.19	$3,763.34	$731.83
	Thermoplastic, STD-Other Surfaces, Yellow, Solid, 6"	GM	2.13	$3,833.83	$8,179.43
Subtotal					**$49,839.86**
Structures	Removal of Existing Structures/Bridges	SF	1920.00	$26.63	$51,129.60
	Concret Class IV, Culverts	CY	89.42	$780.00	$69,748.24
	Concrete Class IV, Bridge Culverts	CY	89.42	$858.87	$76,800.86
	Pedestrian / Bicycle Railing, Steel Only, 48" Type 1	LF	50.00	$57.20	$2,860.00
	Concrete Parapet, Pedestrian / Bicycle, 27" Height	LF	50.00	$115.00	$5,750.00
	Concrete Sidewalk and Driveways, 4" Thick	SY	123.73	$38.75	$4,794.54
Subtotal					**$211,083.23**

Table 10: Proposed Shared-Use Path on NW 159th Street Conceptual Cost Estimate (*Continued)*

ITEM	AMOUNT
Subtotal	$1,031,851.11
Mobilization (7%)	$72,229.58
Maintenance of Traffic (10%)	$103,185.11
Utilities (2%)	$20,637.02
Lighting (10%)	$103,185.11
Drainage (10%)	$103,185.11
Design (10%)	$103,185.11
Geotechnical (15% of Design)	$15,477.77
Survey (15% of Design)	$15,477.77
CEI (8%)	$82,548.09
Contingency (15%)	$154,777.67
Total (Rounded to Nearest Thousand)	**$1,806,000.00**

The conceptual cost estimate includes utility work within FDOT right-of-way. Utility work is not reimbursable, however a percentage was estimated for an assumed value of reimbursable work. Design cost percentage was conservatively assumed based on the complexity of the project (i.e., structural and drainage analysis).

All other costs were obtained from the FDOT Long-Range Cost Estimates for the different items included in Table 10.

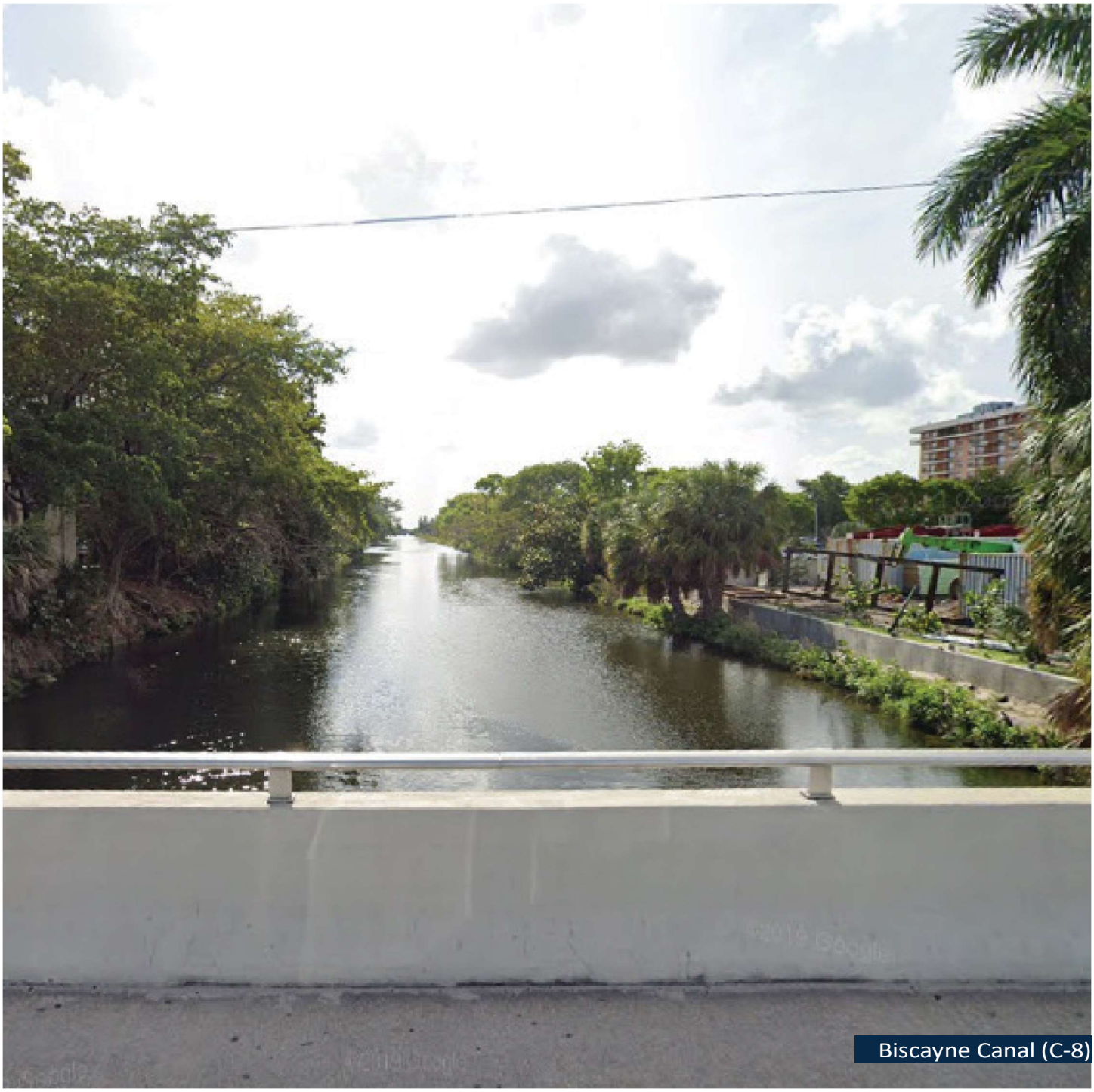
Coordination

South Florida Water Management District

On March 25, 2021, the team spoke with Jerry Krenz from South Florida Water Management District (SFWMD) to discuss the potential of developing a trail along the Biscayne Canal (C-8). Mr. Krenz said that all SFWMD canals are open for public recreational use but that the agency does not support developing solid surface paths along their canals because:

1. Solid surfaces increase the runoff volume into their canals, therefore increasing the risk of canal overflow.
2. Regular canal maintenance may result in impacts to paved paths along canals. SFWMD does not take responsibility for repairing impacted paved paths developed by other agencies on their right-of-way. Hence, SFWMD is hesitant to approve paved paths along their canals because SFWMD may be limited from performing regular maintenance on their canals.

SFWMD is more open to approving construction of gravel trails as these do not increase runoff and are not impacted by canal maintenance equipment. Additionally, Mr. Krenz said that SFWMD often has longstanding easements with private properties along canals that have been poorly documented. Hence, SFWMD has experienced situations in which an easement agreement expires, and the private property reclaims the land adjacent to a canal. This means that any trail along a SFWMD canal will need to meticulously research land ownership to ensure the trail development is feasible.



Biscayne Canal (C-8)

Study Advisory Group

A Study Advisory Group (SAG) was created for this study to obtain comments from key stakeholders. The SAG comprised employees from FDOT D6, City of Miami Gardens, City of North Miami, City of North Miami Beach, Miami-Dade DTPW, SFRTA, and Miami-Dade TPO.

FDOT D6 is the transportation agency in charge of establishing, maintaining, and operating all state roads in the counties of Miami-Dade and Monroe. From this agency, the Bicycle/Pedestrian and ADA Coordinator and Freight Coordinator were invited to join the SAG due to the impacts to bicyclists, pedestrians, and trucks at the GGMTF, GGTTC, I-95/SR 9A, and US-441/SR 7/NW 7th Avenue.

While the Study Area is located entirely within Unincorporated Miami-Dade County, the proposed improvements provide improved connectivity for residents of Miami Gardens, North Miami Beach, and North Miami. Staff from the public works departments of these municipalities were invited to join the SAG to identify additional opportunities and obtain local support.

Representatives from several divisions in Miami-Dade County were invited to join the SAG. Miami-Dade DTPW is in charge of the establishment, maintenance, and operations of all County roads and transit systems. Miami-Dade Traffic Engineering Division is in charge of the County's traffic planning, design, and operations. The County's Regulatory & Economic Resources (RER) is in charge of land use, zoning, and resilience initiatives that impact and impacted by transportation decisions. Lastly, the County's Parks, Recreation and Open Spaces (PROS) division is in charge of designing, maintaining, and operating County parks such as the Biscyane Gardens Park.

SFRTA was also invited to join the SAG. SFRTA manages, maintians, and operates Tri-Rail. Increasing access to the GGMTF and Golden Glades Tri-Rail Station impacts the potential demand for this commuter rail line.

Study Advisory Group Meeting #1

On April 28, 2021 the first Study Advisory Group (SAG) meeting was conducted for this study. Appendix C includes a list of agencies and personnel invited to form part of the SAG as well as the presentation displayed in this first meeting. During the meeting, the information compiled in Technical Memorandum #1: Literature Review and this report was presented. The purpose of this meeting was to obtain critical information from the SAG members and begin brainstorming ideas for connecting the GGMTF, GGTTC, and the communities east of I-95/SR 9A. Appendix D includes a copy of the slides presented in this meeting.

During the meeting, Tiffany Gehrke, the FDOT D6 Bicycle/Pedestrian & ADA Coordinator, mentioned that NW 6th Avenue and NW 161st Street were great candidates for providing low-stress bicycle facilities. She further elaborated that these potential facilities could compliment the proposed Gold Coast Trail, ideally running on the west side of the SFRC tracks. Tom Ruiz, Public Works Director at the City of Miami Gardens, inquired about any planned roadway connections from the Sunshine Industrial Park into the GGTTC since he has observed multiple trucks waiting outside warehouses in the industrial park. Carlos Castro, the FDOT District Six Freight Coordinator, replied that there are no planned connections from the Sunshine Industrial Park into the GGTTC for truck mobility. Mr. Castro mentioned that he is currently working on beginning the GGTTC Request for Proposal effort and that the GGTTC is expected to be a joint development with a private sector partner. Hence, he warned that the current GGTTC concept is subject to change based on final plans. The GGTTC is envisioned to have a commercial building which may be multi-story and could conflict with any potential bicycle/pedestrian bridge over the GGTTC airspace. Mr. Castro also advised the team to coordinate with the FDOT District Six Roadway Design department since the GGI Enhancement Project has been scaled down due to budget constraints. The latest GGI design may affect conceptual engineering alternatives of any proposed bicycle/pedestrian bridge across I-95/SR 9A.

The GGTTC and Sunshine State Industrial Park Kiss and Ride/Transit Terminal Facility were discussed in more detail following inquiries from Vinod Sandanasamy and Yanek Fernandez. Oscar Camejo, the Miami-Dade TPO project manager for this study, advised the study team to consult with the GGMTF design-build team to provide better bicycle cages than the ones observed in the field review and to add wayfinding, especially for the shared-use path. Mr. Camejo also suggested investigating bicycle and pedestrian improvements for the study area beyond just providing a connection across I-95/SR 9A into the GGTMF/GGTTC. Mark Heinicke, Miami-Dade Parks, Recreation and Open Spaces (PROS) Senior Park Planner, said to investigate lighting conditions on existing and proposed pedestrian bridges, suggested to mark the centerline of the shared-use path in the GGMTF, and recommended adding bicycle repair stations throughout the GGMTF.

Study Advisory Group Meeting #2

On November 10, 2021 the study team presented the alternative development process and results to the SAG. Appendix E includes a copy of the slides presented in this meeting.

During this meeting the study team explained how Alternatives 1 through 3 came about from the initial concept presented during the first SAG meeting. Yanek Fernandez, Miami-Dade DTPW Traffic Engineer, raised a concern with Alternative 3 given the long horizontal walk distance across I-95/SR 9A. Ms. Fernandez understood that Alternative 3 presents the most direct connection across I-95/SR 9A but still considered the 1,600 feet horizontal walk distance significant since not all residents live near the intersection of NW 159th Street and NW 6th Avenue. Ms. Fernandez proposed considering micro-mobility options to cross the proposed bridge such as electric scooters or golf carts. These micro-mobility vehicles could be provided at either ends of the proposed bridge or connect to a transit hub within Biscayne Gardens similar to the Sunshine State K-&-R. The idea behind this consideration is that, as presented, Alternative 3 may still be inaccessible for many residents thus supplementing the alternative with micro-mobility may both make it more convenient for residents to use the proposed bridge and widen the walkshed of the proposed bridge. The consideration of micro-mobility may require a wider bridge depending on the vehicles used.

Tiffany Gherke added that along with the consideration of micro-mobility, the study team should consider accommodating cargo bicycles. Residents traveling to the airport via Tri-Rail or using intercity bus services at the GGMTF may need to carry luggage across the proposed bridge.

Carlos Castro, FDOT D6 Freight Coordinator, requested a separate meeting to discuss the potential impacts of Alternatives 1 through 3 with the future GGTTC layout. FDOT is advancing the RFP development for the GGTTC thus Mr. Castro has a better understanding of the future potential layout for the GGTTC.

Overall, the SAG members understood the issues and opportunities navigated throughout the alternative development process. The SAG members concurred with the study team that out of the three alternatives, Alternative 3 is preferred because it fully accomplishes the study purpose and resolves the study needs within a reasonable cost and level of impact. The SAG members recommended further refining Alternative 3 to provide an improved connection to the eastern limit of the study area. Coordination with FDOT will also result in other refinements to Alternative 3 based on the GGI Enhancement Project and future GGTTC layout.

FDOT D6 Technical Coordination Meeting #1

On October 8, 2021 the study team presented Alternative 3 to FDOT and its team of consultants to assess the feasibility of providing an envelope for the proposed bridge within the ongoing GGI Enhancement Project. In attendance to this meeting was Raul Quintela and Auraliz Benitez from FDOT D6, Paul Naranjo from FTE, Juan Restrepo from Stantec, Samuel Gonzalez and Raul Andujar from RS&H, Daniel Benitez and William Stahovec from BCC Engineering, Oscar Camejo from Miami-Dade TPO, and Nelson Mora, Carlos Cejas, and Ivan Jimenez from Gannett Fleming.

During the meeting Nelson Mora presented the potential changes required to the vertical profiles of the future NB Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB Mainline within the GGI. The FDOT team of consultants reviewed the proposed profile changes and revised the assumptions made by the study team. The design files provided to the study team reflected an early design with all movements designed for 45 MPH. About 2 years ago FDOT gave the directive to change the design speed to 50 MPH (only for the multi-lane portion of the Turnpike Connector Ramp) for the GGI Enhancement Project. Turnpike Connector and Ramp T profiles were changed accordingly, and 60% plans were submitted. The FDOT consultant team also confirmed that the design for the GGI follows the standards provided in FDOT's 2017 Plans Preparation Manual.

Raul Quintela, FDOT D6 Project Manager for the GGI Enhancement Project, said FDOT is willing to accommodate the envelope for the proposed pedestrian bridge in Alternative 3 provided that the recommend roadway profile changes are feasible and that the changes do not result in impacts to the GGI design project schedule.

The proposed bicycle/pedestrian bridge is within two segments of the GGI Enhancement Project. Stantec is responsible for the design of the new southbound Florida's Turnpike-to-I-95/SR 9A Express Connector. Juan Restrepo said that the proposed improvements do not impact Stantec's segment significantly other than some proposed conceptual pier locations which appear to be too close to designed mechanically stabilized earth retaining walls. Mr. Restrepo said that the new southbound express ramp connector will be at a similar elevation to the existing southbound I-95/SR 9A express ramp and recommended that the study team obtained bottom-of-structure-elevations for the existing northbound I-95/SR 9A express ramp to ensure that the proposed bridge fits below this existing ramp.

The second segment impacted by the proposed improvements is managed by RS&H. Samuel Gonzalez and Raul Andujar expressed concerns with the proposed changes given their team is under a tight schedule to submit 90% plans by March 2022. RS&H also expressed concerns with secondary changes resulting from the proposed changes to the vertical profiles such as changes to sign structures, signing and pavement markings, design variations and exceptions, and gore-to-gore spacing guidelines.

Overall, FDOT agreed that the GGI improvements would be better if an envelop for the proposed bicycle and pedestrian bridge in Alternative 3 can be accommodated. Based on the comments provided during this meeting, the study team revised the proposed vertical alignment changes.

FDOT D6 Technical Coordination Meeting #2

On October 25, 2021 the study team met with FDOT and its consultant team once more to review the updated proposed changes to the GGI vertical alignments. Before this meeting began, RS&H had provided the study team with preliminary comments (see Appendix F). The preliminary comments were discussed during this meeting. Overall, the comments raised two major concerns: the use of spiral vertical curves and schedule impacts.

Due to the change from 45 MPH to 50 MPH design speed, the updated proposed profiles considered tangents and grade breaks instead of continuous curves to meet vertical clearance standards. While the combination of short tangents and grade breaks met FDOT allowable grade standards, the FDOT consultant owner's representative team expressed concerns with sight distance.

Through resolution of this comment, FDOT's consultant team clarified that on this portion of the GGI the design speed of the impacted ramps (i.e., Future NB Turnpike Express Ramp, Ramp V, and Ramp T) is actually 45 MPH and not 50 MPH as previously discussed. Hence, FDOT curve criteria can be maintained within the proposed changes to the vertical profiles. The study team used this new insight to revise the proposed vertical profile changes once more. Figure 48 presents the final revised plot submitted to FDOT for review on November 10, 2021.

Meeting with FDOT D6 Secretary Stacey Miller

On October 27, 2021 the study team presented a summary of this study and Alternatives 1 through 3 to FDOT D6 Secretary Stacey Miller. During this meeting, the study team stated that Alternative 3 is the preferred alternative and asked if FDOT can accommodate an envelope for the proposed bicycle and pedestrian bridge across I-95/SR 9A.

District Secretary Stacey Miller was in favor of the preferred Alternative 3 but was very concerned about potential schedule impacts to the ongoing GGI Enhancement Project. District Secretary Stacey Miller mentioned that the State is under a strict commitment to let the construction of the GGI by Fiscal Year 2022/23. The ongoing design project has scheduled 90% design plans by March 2022 and 100% design plans by June 2022. Regardless of the technical feasibility of accommodating the proposed bicycle and pedestrian bridge envelope, if the proposed changes to the GGI Enhancement Project impact the schedule, then accommodating the envelope is not feasible. District Secretary Stacey Miller agreed to further review the engineering, financial, and schedule feasibility of accommodating the envelope. The study team coordinated further with FDOT's engineering staff and consultant team to evaluate the feasibility of the proposed changes.

FDOT Final Determination

Through communications with FDOT District Project Manager for the FDOT Enhancement Project and FDOT District Six Director of Transportation Development, FDOT committed to modifying the roadway design plans for Project FM Number 437053-4-52-01 to create an envelope for the recommended bicycle and pedestrian bridge to be constructed within the interchange. FDOT clarified that the engineering design of the recommended bridge cannot be included with the current GGI Enhancement Project due to strict funding and schedule commitments for the reconstruction of the interchange. Through a series of conceptual design reviews and revisions, the study team and FDOT were able to achieve a concept that was feasible from an engineering perspective. On January 6, 2022 FDOT reviewed the latest concept presented on December 13, 2021 and agreed to proceed with revising the design of Project FM Number 437053-4-52-01 to accommodate the envelope for the recommended bicycle and pedestrian bridge based on the conceptual alignment. Changes to Project FM Number 437053-4-52-01 will be reflected on the 90% design plan submittal due May 2022.

Meeting with Miami-Dade District 2 Commissioner Jean Monestime

On October 18, 2021 the study team presented a summary of this study and Alternatives 1 through 3 to the Honorable Commissioner Jean Monestime given this study's impacts to Miami-Dade District 2. Honorable Commissioner Jean Monestime also introduced the Miami-Dade TPO resolution that prompted this study. The purpose of this meeting was to ensure that the alternatives presented accomplished the needs of the commissioner's constituents.

Honorable Commissioner Jean Monestime confirmed that the presented alternatives accomplish the needs of his constituents and preferred Alternative 3 given the significant benefits to the existing and future conditions of the study area. Appendix G includes a copy of the Study Fact Sheet presented to the commissioner.

Recommendations

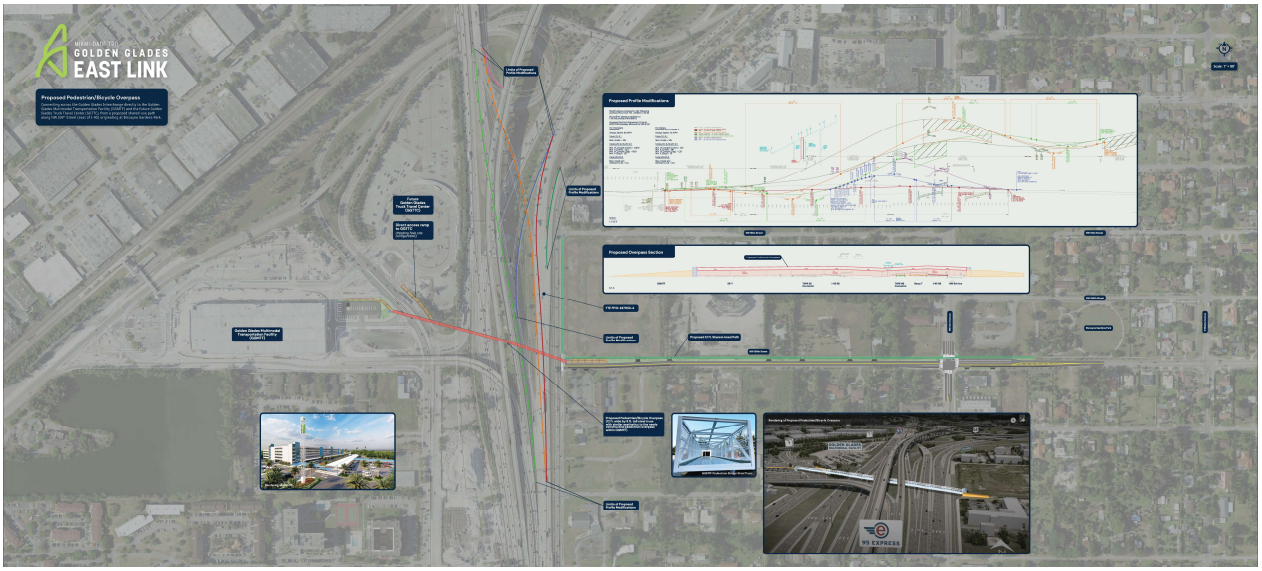
A simplified alternative selection matrix was used for this study given the simple purpose and need statements. That is, this study aims to determine a safe, convenient, and enticing bicycle and pedestrian connection to the GGMTF, across US-441/SR 7/NW 7th Avenue, from the future GGTTC, and from the surrounding sectors east of I-95/SR 9A. The study has a need for increased safety of bicyclist and pedestrian movements and for improved system linkage, capacity and modal interrelationship. Another reason for using a simplified alternative selection process is the number of similar characteristics between the conceptualized alternatives versus opposing characteristics. Alternatives 1 through 3 present different configurations of a bicycle and pedestrian bridge overpassing US-441/SR 7/NW 7th Avenue, and in the case of Alternative 3 other roadways. Alternative 2 is a subset of Alternative 3. All alternatives conceptualize the bridge as a steel truss structure given the low cost, ease of construction, and shallow structure depth of this structure type as compared to other options such as concrete superstructure and substructure.

Table 11 presents the calculations used to estimate the number of trips that each alternative may facilitate. Using the Common Trip Rates for PM Peak Hours given within the Institute of Transportation Engineer (ITE) Trip Generation Manual (10th Edition) and the South Florida Market Analysis (FDOT, 2016), the study team estimated the number of trips produced by the future GGTTC and the existing land use between Biscayne Canal (C-8) to the south, NW 6th Avenue to the west, SR 836/NW 167th Street to the north, and NW 2nd Avenue to the east. Engineering judgment was used to determine a reduction factor since not everyone traveling to these land uses will utilize the proposed alternatives to cross between the GGMTF, GGTTC, and neighborhoods east of I-95/SR 9A.

Table 12 displays the selection matrix. Overall, Table 12 shows that Alternative 3 provides the most benefit while being less expensive per estimated bicycle and pedestrian trips. Alternative 3 is the only alternative that fulfills the study purpose completely. Given the positive feedback received during coordination meetings performed for this study, the study team recommends Alternative 3 to move forward into project development.

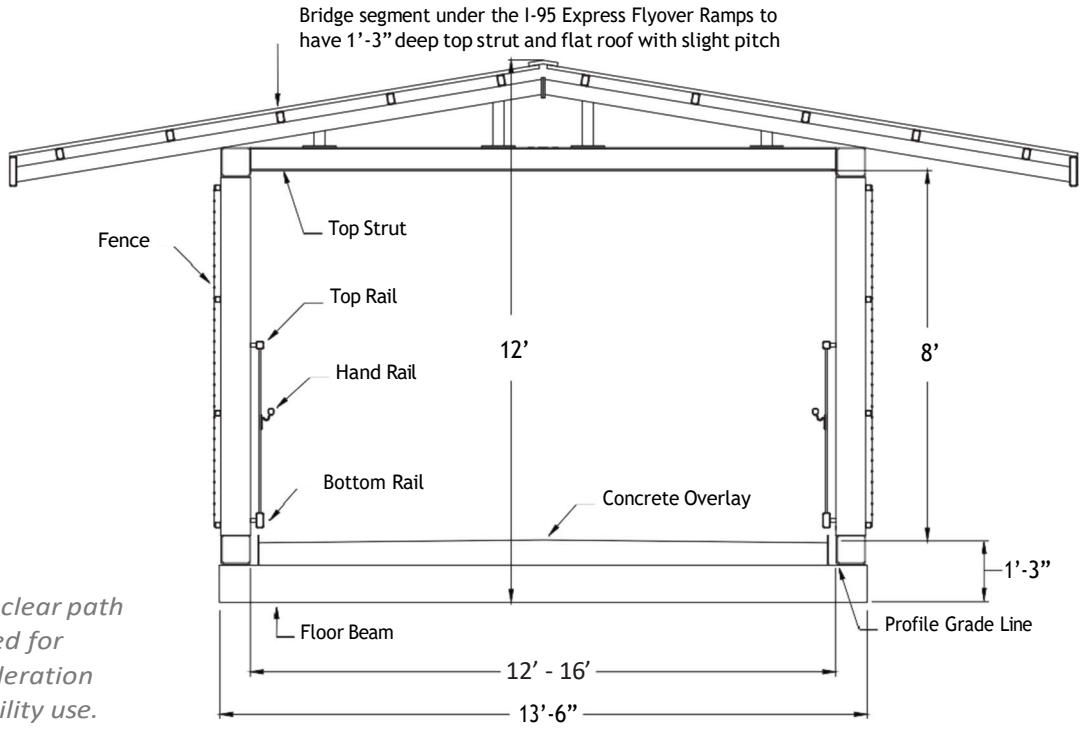
Figure 47: Bridge Rendering

Figure 48: Recommended Alternative



A larger version of Figure 48 can be seen in Appendix F page F2.

Figure 49: Recommended Bicycle and Pedestrian Bridge Typical Section



16-feet wide clear path recommended for future consideration of micromobility use.

Table 11: Estimated Bicycle and Pedestrian Trips

FACILITY	USE	UNIT	QTY.	TRIPS/ USE	REDUCTION FACTOR	TOTAL TRIPS	SOURCE
GGTTC	Regular Truck	Parking Spaces	131	1.2	30%	47	South Florida Truck Stop Market Analysis (FDOT, 2016)
	Tandem Truck	Parking Spaces	4	1.2	10%	0	South Florida Truck Stop Market Analysis (FDOT, 2016)
	950 Truck Stop	1,000 SF GFA	18.36	22.73	30%	125	ITE Trip Generation Manual, 10th Edition
	944 Gasoline / Service Station	1,000 SF GFA	13	109.27	10%	142	ITE Trip Generation Manual, 10th Edition
	944 Gasoline / Service Station	1,000 SF GFA	7	109.27	10%	76	ITE Trip Generation Manual, 10th Edition
	932 High-Turnover (Sit-Down) Restaurant	1,000 SF GFA	10	9.8	30%	29	ITE Trip Generation Manual, 10th Edition
	948 Automated Car Wash	1,000 SF GFA	7	14.2	10%	10	ITE Trip Generation Manual, 10th Edition
					Subtotal	429	
East of I-95/SR 9A	221 Multifamily Housing (Mid-Rise)	Units	832	0.44	80%	293	ITE Trip Generation Manual, 10th Edition
	221 Multifamily Housing (Mid-Rise)	1-bedroom Units	28	0.44	90%	11	ITE Trip Generation Manual, 10th Edition
	221 Multifamily Housing (Mid-Rise)	2-bedroom Units	34	0.44	80%	12	ITE Trip Generation Manual, 10th Edition
	220 Multifamily Housing (Low-Rise	Townhouses of 4 bedrooms	38	0.56	60%	13	ITE Trip Generation Manual, 10th Edition
	630 Clinic	1,000 SF GFA	29.548	5.18	50%	77	ITE Trip Generation Manual, 10th Edition
	562 Mosque	1,000 SF GFA	10.38	4.22	50%	22	ITE Trip Generation Manual, 10th Edition
	560 Church	1,000 SF GFA	81.009	0.49	50%	20	ITE Trip Generation Manual, 10th Edition
	710 General Office Building	1,000 SF GFA	484.481	1.15	70%	390	ITE Trip Generation Manual, 10th Edition
	210 Single-Family Detached Housing	1,000 SF GFA	183.653	0.99	50%	91	ITE Trip Generation Manual, 10th Edition
					Subtotal	929	
					Total	1,358	

Table 12: Alternative Selection Matrix

CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Conceptual Cost	$7,447,000	$11,772,000	$18,907,000
Bridge Length	145 ft.	238 ft.	930 ft.
Walking Distance between GGMTF and GGTTC	870 ft. (longer distance due to switchback ramps)	860 ft. (shorter distance due to straight ramps)	860 ft. (shorter distance due to straight ramps)
Walking Distance between GGMTF and Sectors east of I-95/SR 9A	N/A	N/A	1,640 ft.
Right-of-Way Acquisition	None	None	None
Impact to the GGMTF	24 surface parking spaces	18 surface parking spaces	18 surface parking spaces
Impact to the future GGTTC	3,920 Sq. Ft.	3,725 Sq. Ft.	4,045 Sq. Ft. (+ 1,285 Sq. Ft. of Air Space)
Impact to the GGI Enhancement Project	N/A	N/A	Minor modification to the vertical alignments of the Future NB Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB Mainline
Difficulty of Construction	Simple	Simple	Complex
Estimated Bicycle and Pedestrian Trips	429 (i.e., conceptual cost of $17,359 per trip)	429 (i.e., conceptual cost of $27,441 per trip)	1,358 (i.e., conceptual cost of $13,9923 per trip)

Alternative 3 is the recommended alternative.

Additional Recommendations

In addition to the proposed bicycle and pedestrian bridge, Alternative 3 requires reconstructing a small segment of NW 159th Street to accommodate the pedestrian ramp and elevator tower/stair east of I-95/SR 9A. With this reconstruction, Alternative 3 includes a shared used path within the right-of-way of NW 159th Street.

Continuing the shared use path on NW 159th Street to Biscayne Garden Park is an optional improvement that can supplement Alternative 3. Another shared use path on NW 6th Avenue, connecting the proposed pedestrian bridge to the intersection of NW 6th Avenue and NW 161st Street, also complements Alternative 3 by increasing the mobility of bicyclists to/from the business district north of NW 161st Street.

Furthermore, the study team recommends that the proposed bicycle and pedestrian bridge is at least 16 feet wide to accommodate future uses. As discussed in the second SAG meeting, users of the proposed bridge can be better served through micromobility modes of transportation that use the proposed bridge as its principal guideway. These micromobility options can include electric scooters, electric bicycles, cargo bicycles, golf carts, etc. FreeBee is an example of an existing micromobility mode available throughout Miami-Dade County that utilizes electric vehicles similar to golf carts. Micromobility may also extend to the Jackson North Medical Center located north of SR 836/ NE 167th Street.


Electric Scooter


Electric Bicycle

Cargo Bicycle

FreeBee Micromobility

Implementation Plan

This implementation plan lists next steps, responsible agencies, and potential funding sources to make the recommendations of this study a reality.

Next Steps

Table 13 lists the next steps required to make the recommended improvements come to fruition.

Potential Funding Sources

There are numerous existing federal, state, and local funding sources that may be used to fund the various project development phases needed for the recommended improvements.

FEDERAL TRANSIT ADMINISTRATION (FTA)

The Federal Transit Administration's *Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law* issued in August 15, 2011, dictates that bicycle and pedestrian improvements within three miles and one-half mile have a *de facto* physical or functional relationship to public transportation. This automatically qualifies capital and public transportation enhancement projects for funding under various FTA grant programs (Title 49, Chapter 53, U.S. Code). Furthermore, bicycle and pedestrian improvements beyond these threshold distances may be eligible for FTA funding if the improvement is within the distance that people could be expected to safely and conveniently walk or cycle to use a transit stop or station, such as the GGMTF. The appropriate FTA Grant programs that provide funding opportunities for the proposed vision area listed in Table 14.

The eligibility of bicycle and pedestrian improvements under FTA's policy must satisfy additional statuary criteria including requirements to:

- Enhance economic development or incorporate private investment;
- Enhance the effectiveness of public transportation and relate physically or functionally to that project, or to establish new or enhanced coordination between public transportation and other transportation; and
- Provide a fair share of revenue for public transportation.

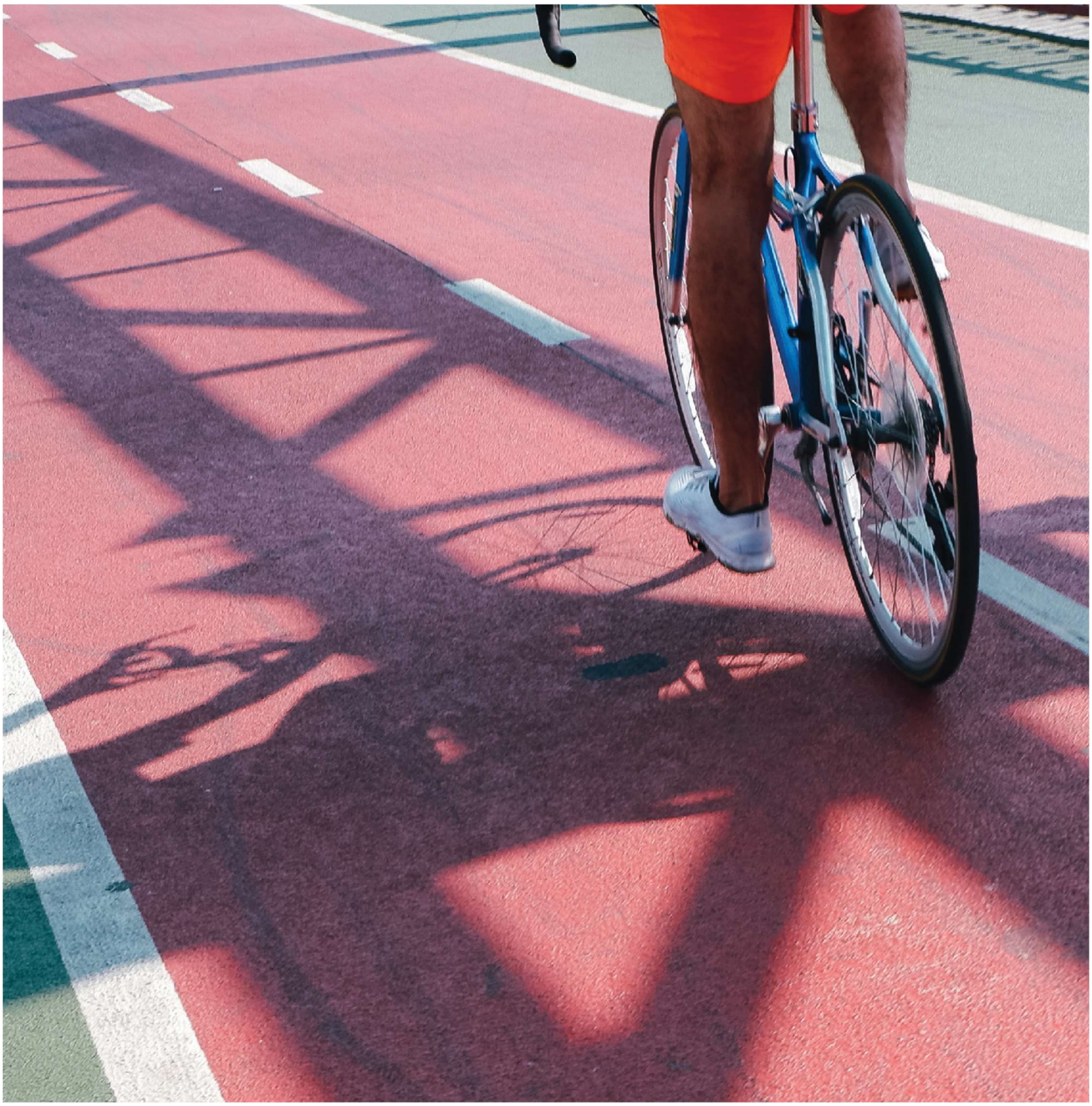


Table 13: Implementation Plan

RECOMMENDATION	ACTION ITEMS	LEAD AGENCY/STAKEHOLDER
Create envelope for proposed bicycle and pedestrian bridge within the ongoing FDOT D6 desgin project: GGI Enhacement Project	1. Continue coordination with FDOT D6 to determine the engineering, financial, and administrative feasibility of changing the proposed vertical profiles or determine an alternate way of preserving the envelope. 2. Modify the GGI Enhacement Project to ensure construtability of proposed bicycle and pedestrian bridge based on resolution provided by FDOT D6.	Lead Agency: • FDOT D6 Stakeholder: • Miami-Dade TPO
Adopt the recommendations of this study.	1. Pass a resolution from the Miami-Dade TPO Board Governing adopting the recommendations of this study.	Lead Agency: • Miami-Dade TPO Stakeholder: • FDOT D6 • Miami-Dade DTPW
Program the proposed improvements in the FDOT D6 work program.	1. Select funding source and appropriate funds for the project development, design, and construction of the recommended bicycle and pedestrian bridge, ramps, and stairs and elevator towers. This project includes modifying the Orange Lot within the GGMTF and reconstructing 550 feet of NW 159th Street to accommodate the proposed pedestrian ramps and towers. This project may be funded and lead by FDOT D6 or through a joint participation agreement with FDOT D6 and lead by Miami-Dade DTPW. 2. Amend the County's LRTP and TIP and State's STIP accordingly. 3. Include the recommended project within the STIP and State work programs.	Lead Agency: • FDOT D6 Stakeholder: • Miami-Dade TPO • Miami-Dade DTPW
Program the proposed improvements in the Miami-Dade DTPW work program.	1. Select funding source and appropriate funds for the project development, design, and construction of the recommended shared use paths on NW 159th Street, from NW 6th Avenue to the Biscyane Gardens Park, and on NW 6th Avenue, from NW 159th Street to NW 161st Street. This project may be funded and lead by Miami-Dade DTPW or through a joint participation agreement with FDOT D6. 2. Include the recommended project within the County's LRTP, TIP, and work program.	Lead Agency: • Miami-Dade DTPW Stakeholder: • Miami-Dade TPO • FDOT D6
Complete project development, environmental clearance, design, and construction activities for each project.	1. FDOT D6 and Miami-Dade DTPW must work in tandem to complete the project development and environmental clearance for the proposed improvements. 2. The lead agency for the recommended pedestrian bridge must begin design and finish construction prior to the design and construction of the recommended shared use paths to establish a logical terminus for the shared use paths at the recommended bridge ramp.	Lead Agencies: • Miami-Dade DTPW • FDOT D6 Stakeholder: • Miami-Dade TPO

Table 14: Available FTA Grant Programs

PROGRAM NAME	PROGRAM TYPE	PROGRAM DESCRIPTION
Urbanized Area Formula	Formula	Provides funding to public transit systems in Urbanized Areas for public transportation capital, planning, job access and reverse commute projects, as well as operating expenses in certain circumstances.
Bus and Bus Facilities Infrastructure Investment	Competitive	Provides funding through a competitive allocation process to states and transit agencies to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. The competitive allocation provides funding for major improvements to bus transit systems that would not be achievable through formula allocations.
Enhanced Mobility of Seniors and Individuals with Disabilities	Formula	Formula funding to states for assisting private nonprofit groups in meeting transportation needs of the elderly and persons with disabilities.
New Freedom Program	Formula	The New Freedom formula grant program aims to provide additional tools to overcome existing barriers facing Americans with disabilities seeking integration into the work force and full participation in society. Lack of adequate transportation is a primary barrier to work for individuals with disabilities.
Urbanized Area Formula	Formula	Provides funding to public transit systems in Urbanized Areas for public transportation capital, planning, job access and reverse commute projects, as well as operating expenses in certain circumstances.

One percent of FTA's Urbanized Area Formula program funds apportioned to urbanized areas with populations of at least 200,000 are set aside for transit enhancements. Eligible transit enhancement projects include pedestrian access and walkways, bicycle access, and bicycle storage facilities. As an added incentive, the Federal share of transit enhancement grants covers 90% of the cost of the project. If the project involves providing bicyclist access to public transportation, the grant or portion of that grant may be at a Federal share of 95%.

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Certain funding programs administered by FHWA, including the Surface Transportation Program (STP) and the Congestion Mitigation and Air Quality (CMAQ) Program, may be used for public transportation purposes. Once transferred to FTA for a public transportation purpose, these "flexible" funds are administered as FTA funds and take on all the eligibility and requirements of the FTA program to which they are transferred, except for the Federal share which remains required under the FHWA program.

The Fixing America's Surface Transportation (FAST) Act replaced the Transportation Alternatives Program (TAP) with a Transportation Alternatives Set-Aside (TASA) from the Surface Transportation Block Grant (STBG). This set-aside funds all projects and activities that were previously eligible under TAP, encompassing a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity.

The five-year FAST Act authorized federal spending on highways and public transportation for FY2016-FY2020. A one-year FAST Act extension, through September 30, 2021, was enacted as part of the Continuing Appropriations Act, 2021, and other Extensions Act.

For each fiscal year, FHWA sets aside part of the TASA for Florida's Recreational Trails Program. These funds are administered by the Florida Department of Environmental Protection.

Of the remaining funds, 50% is sub-allocated to areas based on their relative share of the total State 2010 Census population. The remaining 50% is available for use in any area of the State. The State may transfer to the National Highway Performance Program, National Highway Freight Program, the STBG Program, Highway Safety Improvement Program, and Congestion Mitigation and Air Quality Improvement Program any amount of the 50% of TASA funds made available each fiscal year.

Funds for TASA-eligible projects may be transferred to FTA to administer in the same manner as other Federal-aid Highway Program. States may use STBG funds for projects eligible as TASA projects without making a transfer and STBG provisions and requirements will apply.

Eligible projects include:

- Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990.
- Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs.
- Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other non-motorized transportation users.
- Construction of turnouts, overlooks, and viewing areas.
- Community improvement activities, which include but are not limited to: inventory, control, or removal of outdoor advertising; historic preservation and rehabilitation of historic

transportation facilities; vegetation management practices in transportation right-of-way to improve roadway safety, prevent against invasive species, and provide erosion control; and some archaeological activates relating to impacts from implementation of transportation.

- Any environmental mitigation activity, including pollution prevention and pollution abatement activities and mitigation to: address stormwater management, control, and water pollution prevention or abatement related to highway construction or due to highway runoff, and other activities; and reduce vehicle-caused wildlife mortality or to restore and maintain connectivity among terrestrial or aquatic habitats.
- Planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways.

Projects must be identified in the Statewide Transportation Improvement Program (STIP)/ Transportation Improvement Program (TIP) and be consistent with the LRTP. Table 15 lists all bicycle and pedestrian improvements that can be funded via FHWA programs.

On November 15, 2021, the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act) was signed into law. This legislation includes around $550 billion in new federal investment in the country's infrastructure. The new infrastructure law includes funding for two areas relevant to this project: safety and reconnecting communities.

While specifics for this new law are yet to be determined, the fact sheet for this new law describes these areas as following:

> **SAFETY**
>
> *America has one of the highest road fatality rates in the industrialized world. The legislation invests $11 billion in transportation safety programs, including a new, $5 billion Safe Streets for All program to help states and localities reduce crashes and fatalities in their communities, especially for bicyclists and pedestrians. It includes a new program to provide grants to community owned utilities to replace leaky and obsolete cast iron and bare steel natural gas pipelines, some of which are over 100 years old. It will more than double funding directed to programs that improve the safety of people and vehicles in our transportation system, including highway safety, truck safety, and pipeline and hazardous materials safety. [...]*
>
> **RECONNECTING COMMUNITIES**
>
> *Too often, past transportation investments divided communities – like the Claiborne Expressway in New Orleans or I-81 in Syracuse – or it left out the people most in need of affordable transportation options. In particular, significant portions of the interstate highway system were built through Black neighborhoods. The legislation creates a first-ever program to reconnect communities divided by transportation infrastructure. The program will fund planning, design, demolition, and reconstruction of street grids, parks, or other infrastructure through $1 billion of dedicated funding in addition to historic levels of major projects funding, for which these investments could also qualify.*

(White House Statement and Releases, August 2, 2021, UPDATED FACT SHEET: Bipartisan Infrastructure Investment and Jobs Act)

Table 15: FHWA Bicycle and Pedestrian Funding Opportunities

IMPROVEMENT	RAISE	TIFIA	CMAQ	HSIP	NHPP	STBG	PLAN	NHTSA 402	NHTSA 405	FLTTP
Access enhancements to public transportation (includes benches, bus pads)	$	$	$		$	$				$
ADA / 504 Self Evaluation / Transition Plan						$	$			$
Bicycle lanes on road	$	$	$	$	$	$				$
Bicycle parking	~$	~$	$		$	$				$
Bicycle racks on transit	$	$	$			$				$
Bicycle share (capital and equipment; not operations)	$	$	$		$	$				$
Bicycle storage or service centers at transit hubs	~$	~$	$			$				$
Bridges/overcrossings for pedestrians and/or bicyclists	$	$	$*	$	$	$				$
Bus shelters and benches	$	$	$		$	$				$
Crosswalks (new or retrofit)	$	$	$*	$	$	$				$
Curb cuts and ramps	$	$	$*	$	$	$				$
Data collection and monitoring for pedestrians and/or bicyclists				$	$	$	$*			$
Historic preservation (pedestrian and bicycle and transit facilities)	$	$				$				$
Landscaping, streetscaping (pedestrian and/or bicycle route; transit access); generally, as part of a larger project	~$	~$			$	$				$
Lighting (pedestrian and bicyclist scale associated with pedestrian/bicyclist project)	$	$		$	$	$				$
Maps (for pedestrians and/or bicyclists)			$			$	$*			
Paved shoulders for pedestrian and/or bicyclist use	$	$	$*	$	$	$				$

IMPROVEMENT	RAISE	TIFIA	CMAQ	HSIP	NHPP	STBG	PLAN	NHTSA 402	NHTSA 405	FLTTP
Recreational trails	~$	~$				$				$
Road Safety Assessment for pedestrians and bicyclists				$		$	$			$
Safety enforcement (including police patrols)						$SRTS		$*	$*	
Separated bicycle lanes	$	$	$	$	$	$				$
Shared use paths / transportation trails	$	$	$*	$	$	$				$
Sidewalks (new or retrofit)	$	$	$	$	$	$				$
Signs/signals/signal improvements	$	$	$	$	$	$				$
Signed pedestrian or bicycle routes	$	$	$		$	$				$
Spot improvement programs	$	$		$	$	$				$
Stormwater impacts related to pedestrian and bicycle projects	$	$		$	$	$				$
Traffic calming	$	$		$	$	$				$
Trail bridges	$	$	$*	$	$	$				$
Trail construction and maintenance equipment						$RTP				
Trail/highway intersections	$	$	$*	$	$	$				$
Trailside and trailhead facilities (includes restrooms and water, but not general park amenities; see guidance)	~$*	~$*				$*				$
Tunnels/undercrossing for pedestrians and/or bicyclists	$	$	$*	$	$	$				$

Notes:

1) $ = Funds may be used for this activity, but restrictions may apply 2) $* = See program-specific notes for restrictions 3) ~$ = Eligible, but not competitive unless part of a larger project 4) ADA/504: Americans with Disabilities Act of 1990/Section 504 of the Rehabilitation Act of 1973 5) TIFIA: Transportation Infrastructure Finance and Innovation Act (loans) 6) CMAQ: Congestion Mitigation and Air Quality Improvement Program 7) HSIP: Highway Safety Improvement Program 8) NHPP: National Highway Performance Program 9) STBG: Surface Transportation Block Grant 10) PLAN: Statewide Planning and Research or Metropolitan Planning funds 11) NHTSA 402: State and Community Highway Safety Grant Program 12) NHTSA 405: National Priority Safety Programs (Non-motorized Safety) 13) FLTTP: Federal Lands and Tribal Transportation Programs

MIAMI-DADE COUNTY

Miami-Dade PROS and DTPW are responsible for developing and improving County owned and operated open places, natural and cultural heritage places, trails and greenways, and roadways. One funding mechanism for the recommended improvements is through the County's Recreation Program Plan. Another method of funding bicycle and pedestrian improvements is through the County's People Transportation Plan. This plan is made up of transit and roadway projects developed by the County for voter approval to be funded with surtax proceeds.

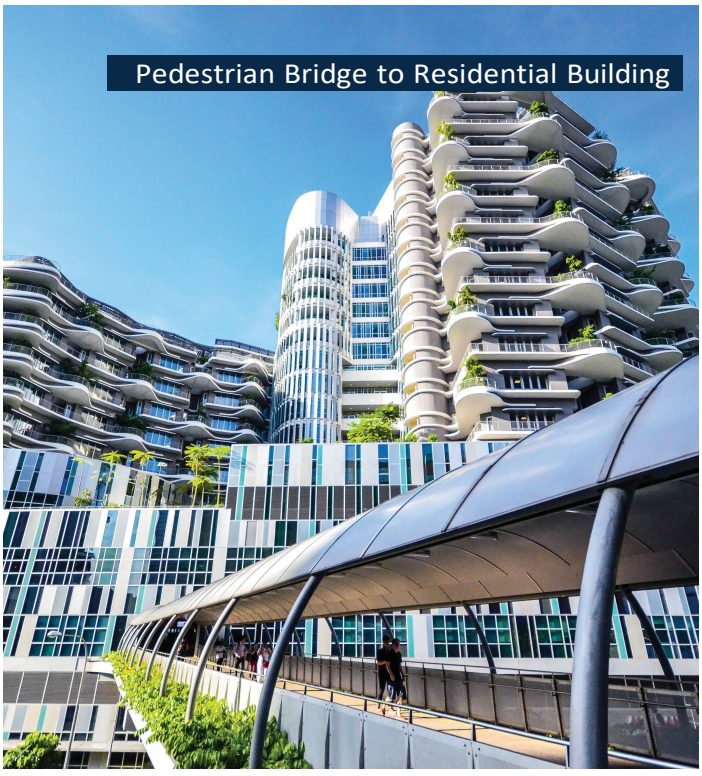
Coordination with Miami-Dade County and local municipalities is critical to secure funding for improvements that are on County right-of-way or that require a local share.

IMPACT FEES & INNOVATIVE FINANCING

Major residential developments are planned for vacant lots in Biscayne Gardens. One of these developments, will be on the vacant parcels folio number 30-2113-036-0010 and 30-2113-001-0530 adjacent to NW 159th Street and NW 6th Avenue (i.e., where the proposed pedestrian ramp will be located). County impact fees for this 14 acre residential development could be used to fund the reconstruction of NW 159th Street and the shared use paths along NW 159th Street and NW 6th Avenue.

Coordination with private developers in the area can also result in funding opportunities as the proposed bicycle and pedestrian bridges may increase property values due to improved mobility and accessibility to the GGMTF. Including micromobility between major existing and future residential developments within the neighborhoods east of SR 9A/I-95 further incentivizes private interest in funding the study recommendations.

Micromobility also opens the door for innovative financing via fees to micromobility companies. Entering into an exclusive agreement with a micromobility company or Transportation Network Company (TNC) may generate a consistent stream of revenue that can be used for the maintenance of the recommended bridge infrastructure and elevators.


Pedestrian Bridge to Residential Building

Conclusion

The GGI area is a perfect example of the forces of change that are transforming Miami-Dade County into a capital of capitals. From major roadway improvements to the construction of a state-of-the-art multimodal transportation facility, projects within the GGI are enhancing the mobility, accessibility, and safety of citizens. Regardless of the significant improvements coming to the GGI, neighborhoods east of I-95/SR 9A will still remain disconnected from the new GGMTF and future GGTTC adjacent to US-441/SR 7/NW 7th Avenue.

This study evaluated the feasibility of connecting these neighborhoods and transportation hubs by studying previous documented efforts, assessing existing and future conditions, developing potential alternatives, and recommending the most suitable alternative for advancement into project development.

The recommended alternative, Alternative 3, proposes connecting the GGMTF Orange Lot with the entrance to the GGTTC and the intersection of NW 159th Street and NW 6th Avenue via a bicycle and pedestrian steel truss bridge over several GGI roadways and ramps and US-441/SR 7/NW 7th Avenue. The recommended bridge must have a clear width of at least 16 feet to accommodate the use of micromobility modes of transportation that will further increase the convenience and accessibility of potential users.

In addition to the recommended bridge, two shared use paths on NW 159th Street and NW 6th Avenue are recommended to guide pedestrians and bicyclists to the commercial land uses north of NW 161st Street and to Biscayne Gardens Park.

Through coordination with FDOT, an envelope has been preserved for the recommended alternative to cross I-95/SR 9A via changes to the ongoing FDOT D6 GGI Enhancement Project.

Overall, the recommended improvements fulfill the purpose and need of this study regarding system linkage, capacity, social demand and economic development, and safety. Furthermore, the recommendations aim to reconnect communities which is a special emphasis area of the 2021 Infrastructure Investment and Jobs Act.

Appendix A

Figure 3: Project 9 – Proposed Pedestrian Bridge over I-95/SR 9A at N. Biscayne River Drive (FDOT 2018)

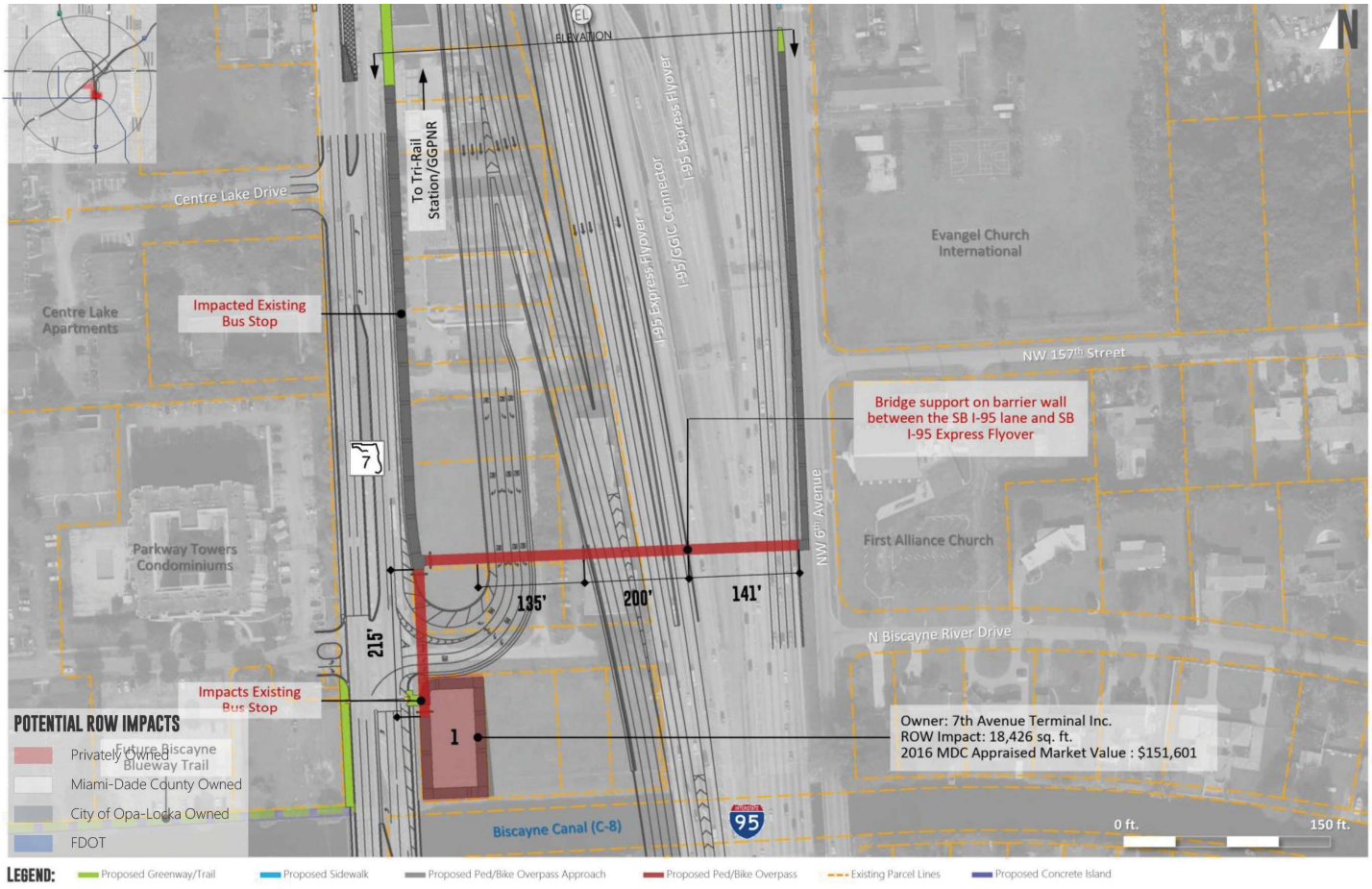
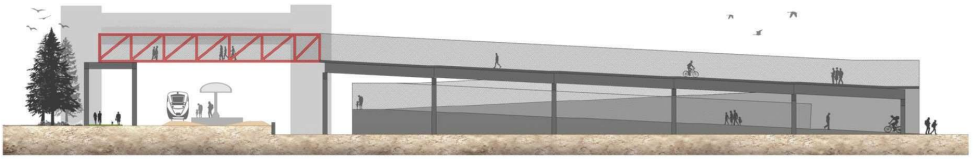
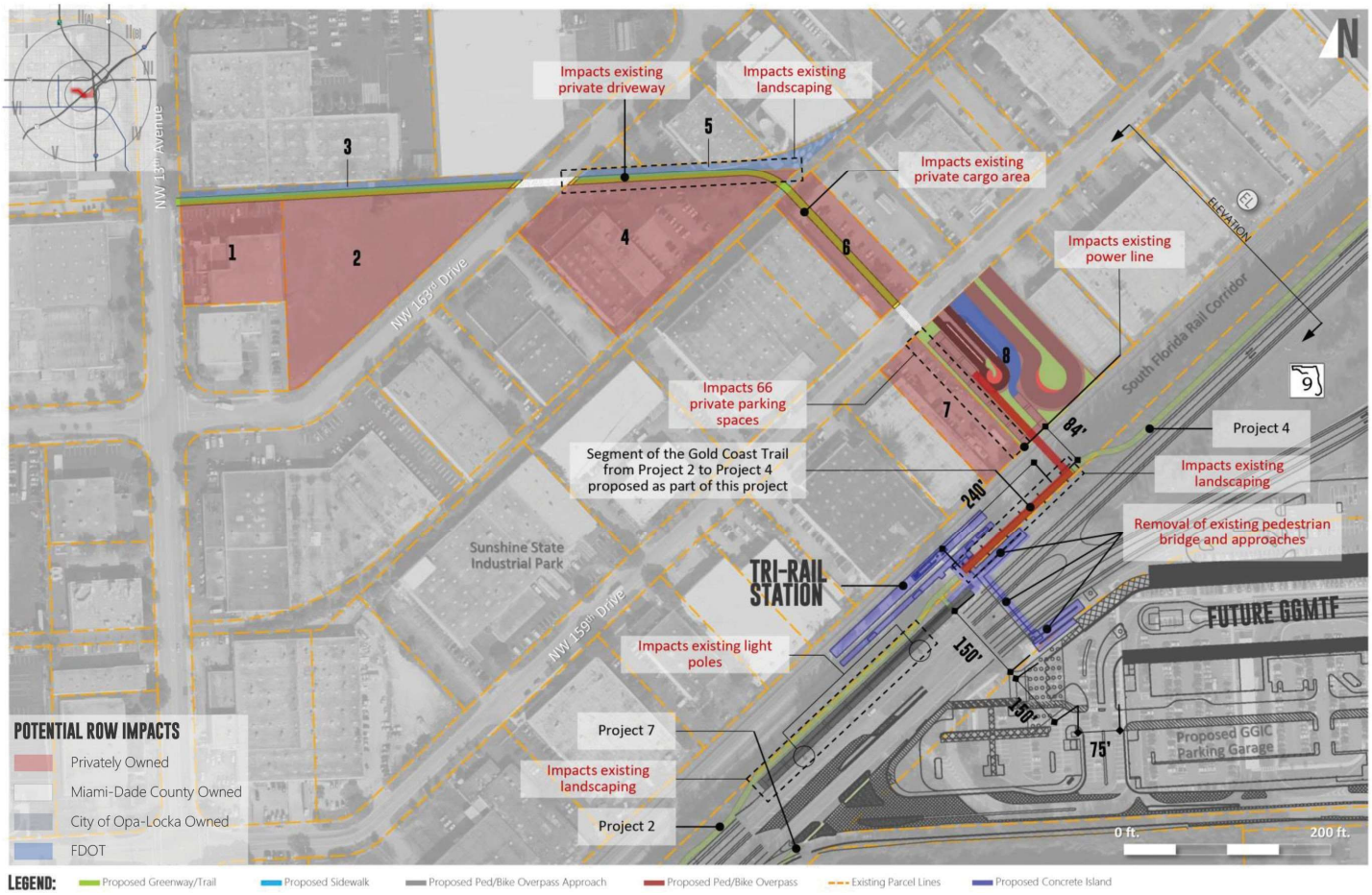


Figure 4: Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Access Study Project 3



Ⓔ Elevation View



Appendix B

COST FEASIBLE PLAN

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FIGURE 107 2045 BICYCLE AND PEDESTRIAN COST FEASIBLE PLAN MAP

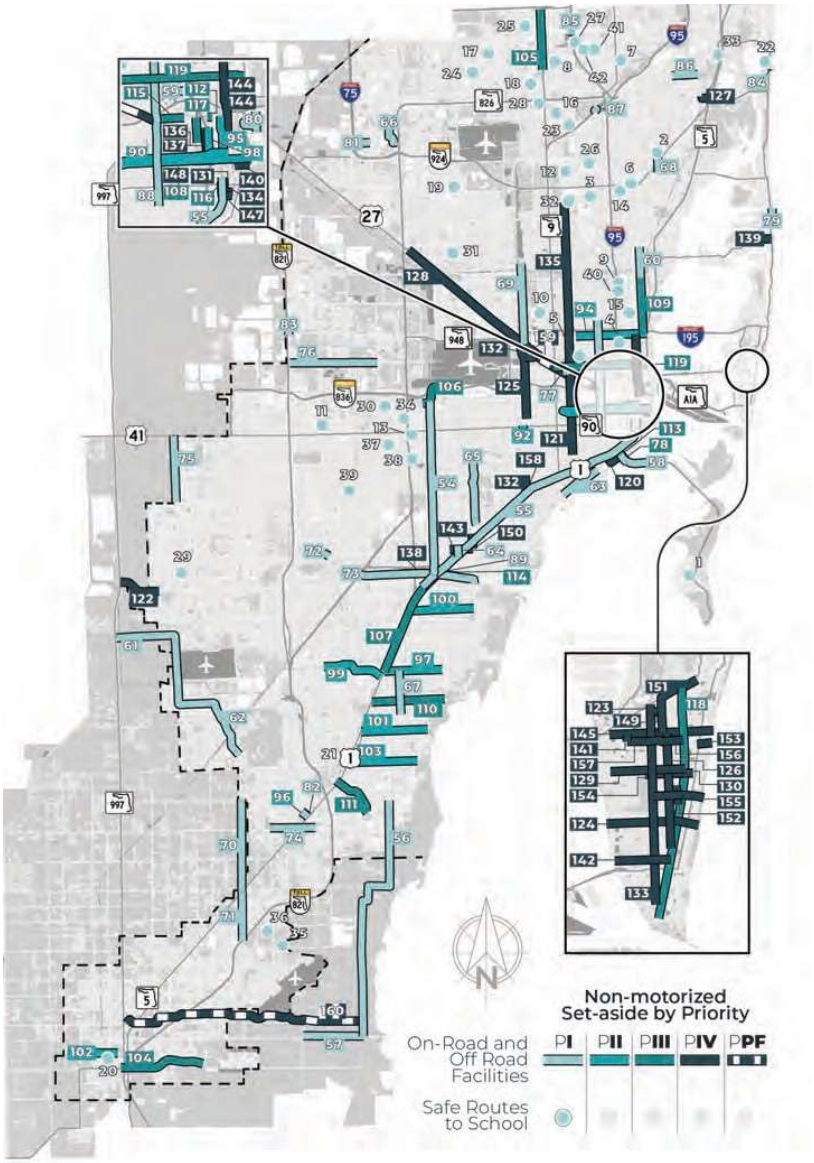

TABLE 28 BICYCLE AND PEDESTRIAN PROJECTS

MAP ID	FACILITY	LIMITS FROM	LIMITS TO	DESCRIPTION
PLAN PERIOD I (CONTINUED)				
87	Golden Glades Bicycle-Ped Connector to Sunshine State Industrial Park	Golden Glades Multimodal Transportation Facility (GGMTF)	Sunshine State Industrial Park	Pedestrian Bridge/ Overpass
88	SMART Terminal Connector - SW 12 Ave (SR 933)	SW 13 St	NW 46 St	Protected On-Road Bicycle Facility and Pedestrian Improvements
89	SMART Trails - South of Snapper Creek Expy	Ludlam Trail	Underline	Off-Road Bicycle and Pedestrian Facility Improvement
PLAN PERIOD II				
90	SMART Terminal Connector - SR 968/SW 1 St	SW 24 Ave	US 1 (South Biscayne Blvd/SR 5)	Protected On-Road Bicycle Facility and Pedestrian Improvements
91	County-wide Complete Streets Future Projects	Various Locations	Various Locations	Areawide Improvements Facilitation
92	Improve Safety by Public Outreach Initiatives	Various Locations	Various Locations	Areawide Public Outreach
93	Non-Motorized Facility Improvements	Various Locations	Various Locations	Areawide Existing Facility Improvements
94	SMART Terminal Connector - US 27 /Okeechobee Rd (SR 25)/NW 36 St	NW 19 Ave	US 1 (Biscayne Blvd/SR 5)	Protected On-Road Bicycle Facility and Pedestrian Improvements
95	SW/NW 1 Ave	SW 2 St	SW 11 St	Dedicated On-Road Bicycle Facility Improvement
96	SMART Trails - SW Side of SW 117 Ave	Roberta Hunter Park	South Dade Trail & Black Creek Trail Junction	Off-Road Bicycle and Pedestrian Facility Improvement
97	SW 136 St (Howard Dr)	US 1 (South Dixie Hwy/SR 5)	Old Cutler Rd	Dedicated On-Road Bicycle Facility Improvement
98	SR 925/NW 3 Ave	NW 1 St	NW 8 St	Dedicated On-Road Bicycle Facility Improvement
99	SMART Trails - FPL Easement	SW 107 Ave (SR 985)	South Dade Transitway	Off-Road Bicycle and Pedestrian Facility Improvement

Values in Thousands YOE $
YOE: Year of Expenditure

				PLAN PERIOD I: 2020-2025		PLAN PERIOD II: 2026-2030		PLAN PERIOD III: 2031-2035		PLAN PERIOD IV: 2036-2045	
	TOTAL PROJECT COST (2018 $)	2020-2024 TIP FUNDING	TOTAL 2045 PLAN (YOE $)	PRE-ENG	CON/DB	PRE-ENG	CON/DB	PE/PDE	CON/DB	PE/PDE	CON/DB
	$17,582.000	$7.594		**$626.000**	**$6,968.000**						
	$3,273.148		$3,895.047	$399.492	$3,495.555						
	$682.080		$811.675	$111.955	$699.720						
	$2,524.479		$3,299.181	$303.278			$2,995.903				
	$10.455		$10,455.000				$1,980.000		$2,325.000		$6,150.000
	$1.320		$1,320.000				$1,320.000				
	$1.320		$1,320.000				$1,320.000				
	$2,033.758		$2,684.560			$275.339	$2,409.221				
	$602.516		$795.322			$81.571	$713.750				
	$232.000		$306.240			$42.240	$264.000				
	$1,382.784		$1,825.275			$187.208	$1,638.067				
	$331.687		$437.827			$44.905	$392.922				
	$992.960		$1,310.707			$180.787	$1,129.920				

BOLD PHASE FUNDS ARE INCLUDED IN THE 2019/2024 MIAMI-DADE TIP

** Safe Routes to School - funded as a program 2020/2024 Miami-Dade County TIP

Appendix C

Golden Glades Multimodal Transportation Facility (GGMTF)
Bicycle and Pedestrian East Side Connectivity Feasibility Study
Study Advisory Group Member List

Organization	Member Name	Title
Miami-Dade TPO	Oscar Camejo	Transportation Planner III
FDOT D6 Bicycle/Pedestrian Planning	Tiffany Gehrke	Bicycle/Pedestrian Coordinator & ADA Coordinator
FDOT D6 Bicycle/Pedestrian Planning	Shereen Yee Fong	Transportation Planner IV
FDOT D6 Freight	Carlos Castro	District Freight Coordinator
FDOT D6 Design	Karina Fuentes	District Design Engineer
City of Miami Gardens	Tom Ruiz	Public Works Director
City of North Miami	Debbie Love, AICP	City Planner
City of North Miami	Mohammed Zaid	
City of North Miami Beach	Frank Ruiz	Capital Improvement Manager / ADA Coordinator
City of North Miami Beach	Chidi Tobias	
Miami-Dade DTPW Transit	Elia Nunez	Assistant Director
Miami-Dade DTPW Transit	Jie Bian	Chief of Planning and System Development
Miami-Dade DTPW Traffic	Yanek Fernandez	Traffic Engineering Division
Miami-Dade DTPW Planning	Julian Guevara	
Miami-Dade RER	Vinod Sandanasamy	Supervisor, Metropolitan Planning Section – Transportation Planning
Miami-Dade PROS	Mark Heinicke	Senior Park Planner
South Florida Water Management	Jerry Krauze	
SFRTA	Vicki Gatanis	Transportation Planner
SFRTA	Barbara Handrahan	Planning and Capital Development

	Contact Email	Contact Phone Number	Confirmed
	Oscar.Camejo@miamidade.gov	(305) 375-1837	Yes
	Tiffany.Gehrke@dot.state.fl.us	(305) 470-5308	Yes
	Shereen.yeefong@dot.state.fl.us	(305) 470-5393	Tiffany Gherke to attend in place of Shereen Yee Fong
	Carlos.Castro@dot.state.fl.us	(305) 470-5238	Yes
	Karina.Fuentes@dot.state.fl.us		No Reply
	truiz@miamigardens-fl.gov	(786) 279-1260	Yes
	dlove@northmiamifl.gov	(305) 893-6511 (Ext 19003)	Yes
	mzaid@northmiamifl.gov		Yes
	frank.ruiz@citynmb.com	(305) 948-2904	Yes
	chidi.tobias@citynmb.com		No Reply
	Elia.Nunez@miamidade.gov	(786) 469-5444	Yes
	Jie.Bian@miamidade.gov		Yes
	Yanek.Fernandez@miamidade.gov	(305) 375-1847	Yes
	Julian.Guevara@miamidade.gov	(305) 773-3218	Yes
	vinod.sandanasamy@miamidade.gov	(305) 375-2855	Yes
	Mark.Heinicke@miamidade.gov	(305) 755-7811	Yes
	jkenz@sfwmd.gov	(561) 574-5914	No; but can call to consult on any ideas
	GatanisV@sfrta.fl.gov	(954) 788-7977	Yes
	handrahanb@sfrta.fl.gov	(954) 788-7974	No Reply

Appendix D

GOLDEN GLADES EAST LINK

Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Eastside Connectivity Study

TPO

APRIL 2021

SAG MEETING #1

GOLDEN GLADES EAST LINK

- Introduction
- Purpose
- Infrastructure
- Environment
- Potential Connection
- Workshop

TPO

INTRODUCTION

Welcome

Oscar Camejo

Project Manager,
Miami-Dade TPO

Nelson Mora, PE

Project Manager,
Gannett Fleming

Ivan Jimenez, EIT

Presenter,
Gannett Fleming

2

GOLDEN GLADES EAST LINK

Introduction
Purpose
Infrastructure
Environment
Potential Connection
Workshop

INTRODUCTION

Roll Call

NAME	TITLE	ATTENDANCE
Tiffany Gehrke	FDOT D6 Bicycle/Pedestrian & ADA Coordinator	Present
Carlos Castro	FDOT D6 Freight Coordinator	Present
Tom Ruiz	Public Works Director at the City of Miami Gardens	Present
Debbie Love	City Planner at the City of North Miami	
Mohammed Zaid	Transportation Manager at the City of North Miami	
Frank Ruiz	Capital Improvement Manager / ADA Coordinator at the City of North Miami Beach	
Elia Nunez	Miami-Dade DTPW Assistant Director	Present
Jie Bian	Miami-Dade DTPW Chief of Planning and System Development	Present
Yanek Fernandez	Miami-Dade DTPW Traffic Engineering Division	Present
Julian Guevara	Miami-Dade DTPW Municipal Manager	
Vinod Sandanasamy	Miami-Dade RER Supervisor of the Metropolitan Planning Section – Transportation	Present
Mark Heinicke	Miami-Dade PROS Senior Park Planner	Present
Oscar Camejo	Miami-Dade TPO Transportation Planner III	Present
Vicki Gatanis	SFRTA Transportation Planner	
Barbara Handrahan	SFRTA Planning and Capital Development	

TPO

GOLDEN GLADES EAST LINK

Introduction
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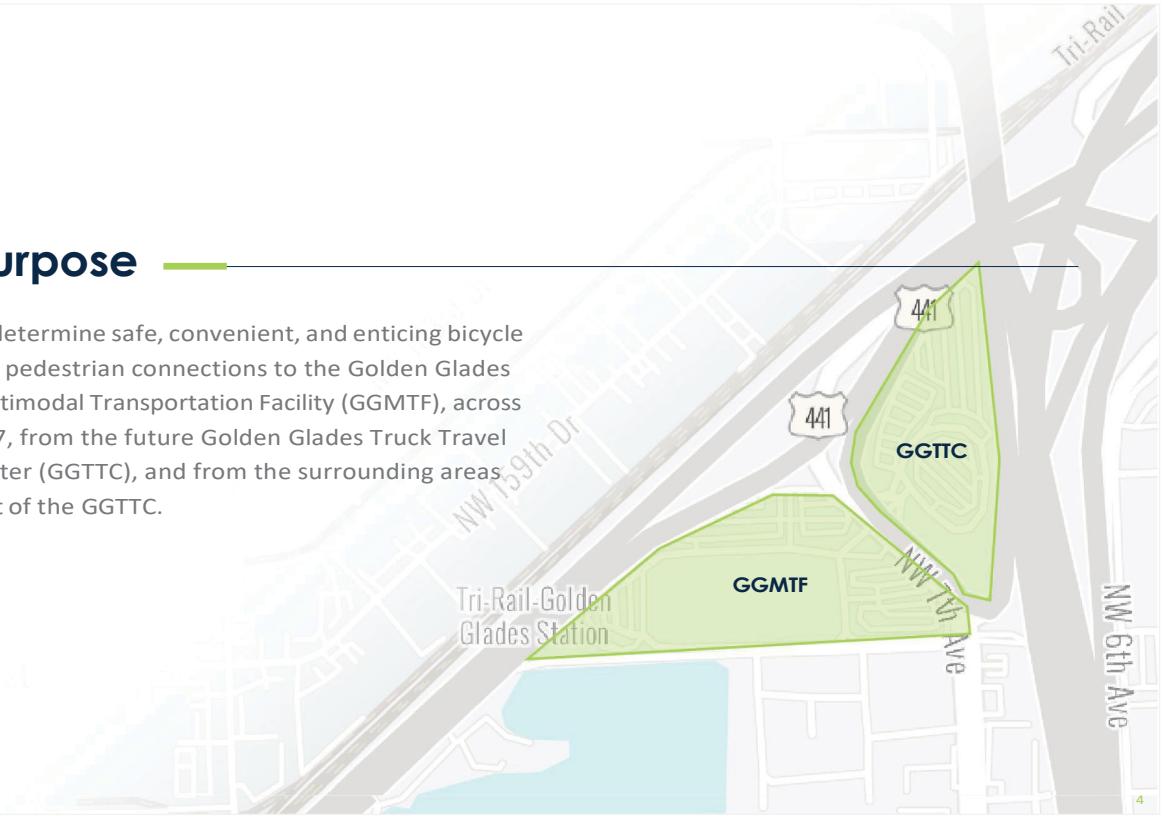
Workshop

Purpose

To determine safe, convenient, and enticing bicycle and pedestrian connections to the Golden Glades Multimodal Transportation Facility (GGMTF), across SR-7, from the future Golden Glades Truck Travel Center (GGTTC), and from the surrounding areas east of the GGTTC.



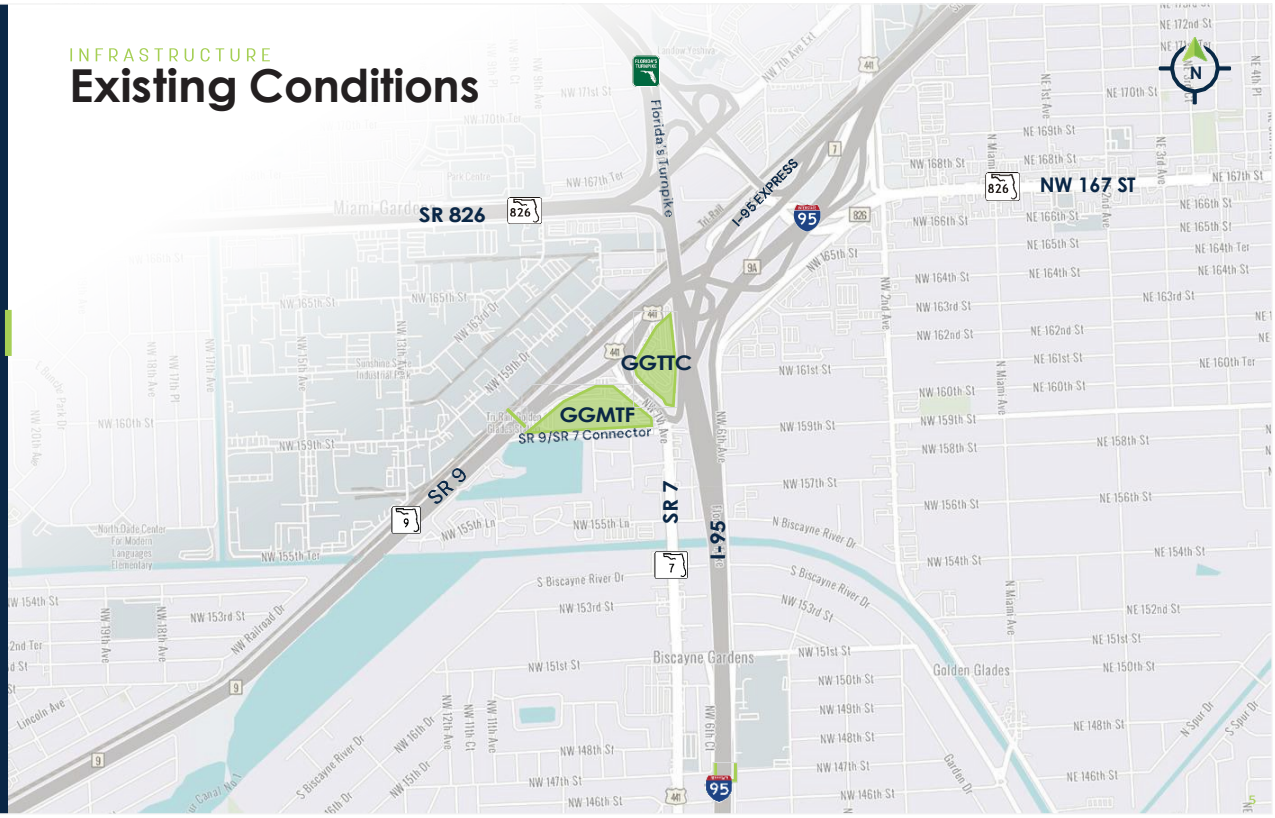
TPO

GOLDEN GLADES EAST LINK

- Introduction
- Purpose
- Infrastructure
- Environment
- Potential Connection
- Workshop

INFRASTRUCTURE

Existing Conditions



GOLDEN GLADES EAST LINK

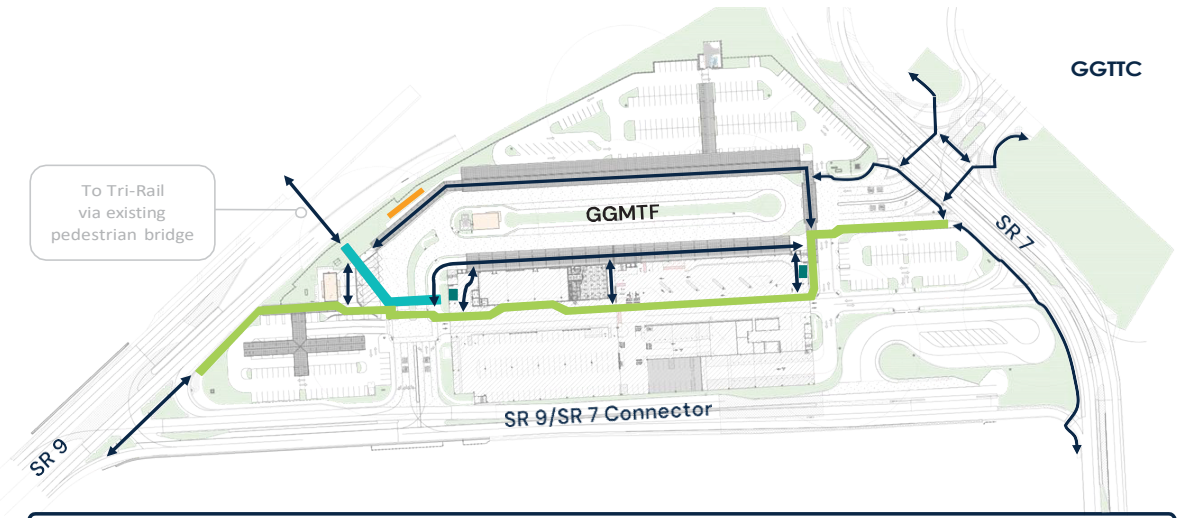
- Introduction
- Purpose
- Infrastructure
- Environment
- Potential Connection
- Workshop

INFRASTRUCTURE

Existing Conditions

N

1/64" = 1'-0"



LEGEND

Shared Use Path | New Pedestrian Bridge | New Bicycle Cages | Existing Bicycle Lockers | Pedestrian Paths

GOLDEN GLADES EAST LINK

Introduction
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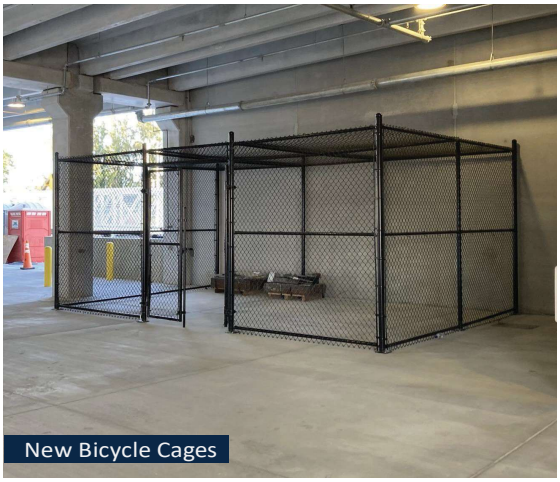
TPO

INFRASTRUCTURE

Existing Conditions

Bicycle Amenities


Existing Bicycle Lockers


New Bicycle Cages

GOLDEN GLADES EAST LINK

Introduction
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TPO

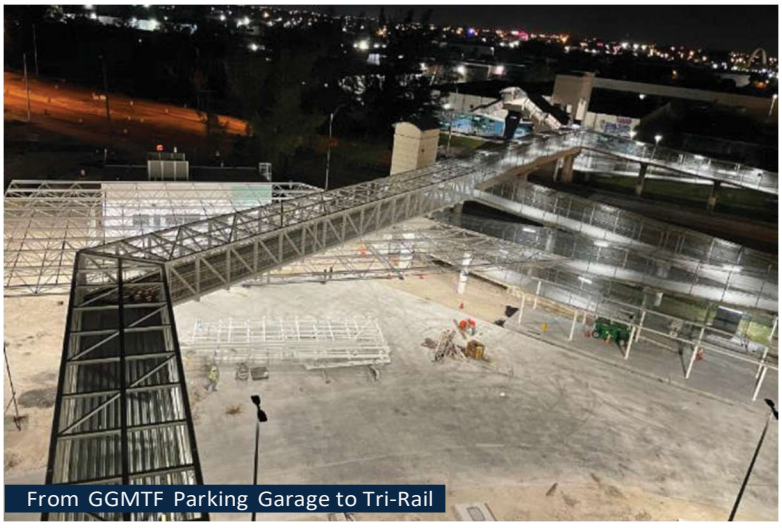
INFRASTRUCTURE

Existing Conditions

New Pedestrian Bridge


Parking Garage Connection


Bridge Section


From GGMTF Parking Garage to Tri-Rail

GOLDEN GLADES EAST LINK
Introduction
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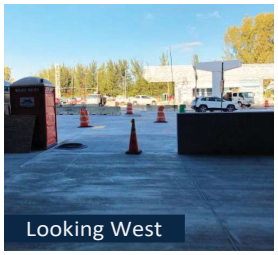
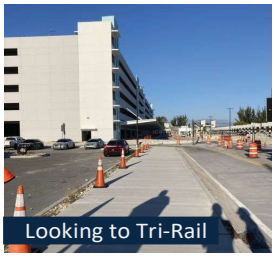
INFRASTRUCTURE

Existing Conditions

Shared Use Path


Looking East inside Parking Garage


Looking West


Looking to Tri-Rail


Looking to GGTTC


Crosswalk to GGTTC

GOLDEN GLADES EAST LINK
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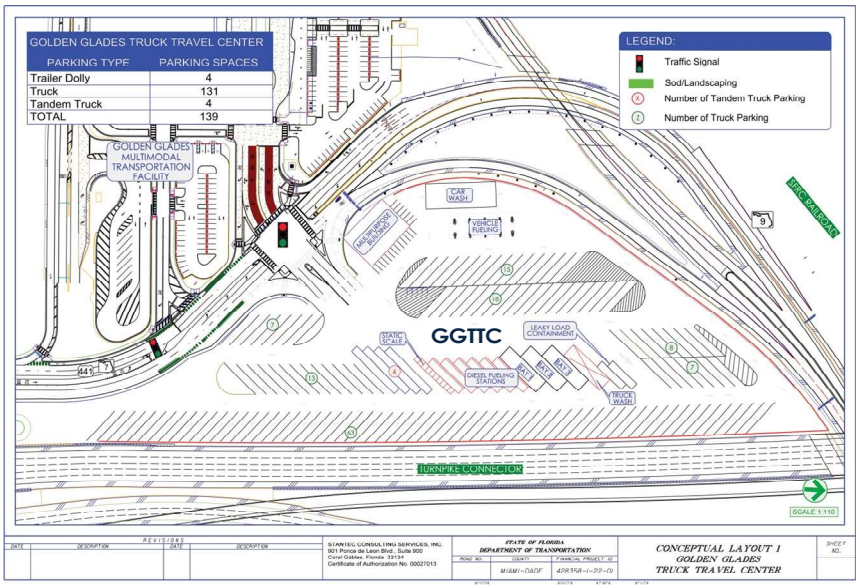
INFRASTRUCTURE

Existing Conditions



GOLDEN GLADES EAST LINK

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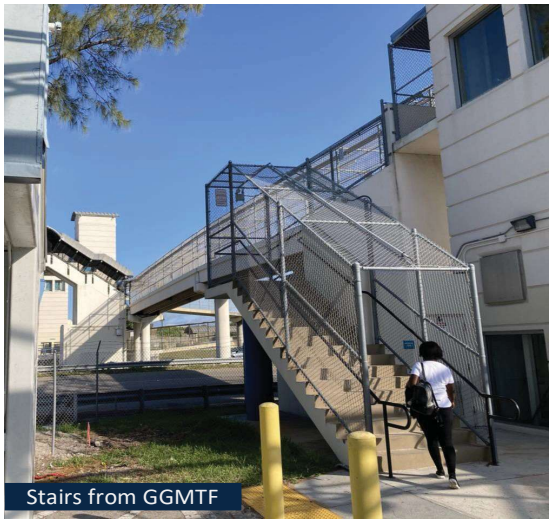
INFRASTRUCTURE

Existing Conditions

Existing Pedestrian Bridge over SR 9 and Tri-Rail Tracks


Stairs from GGMTF


Ramp from GGMTF

GOLDEN GLADES EAST LINK

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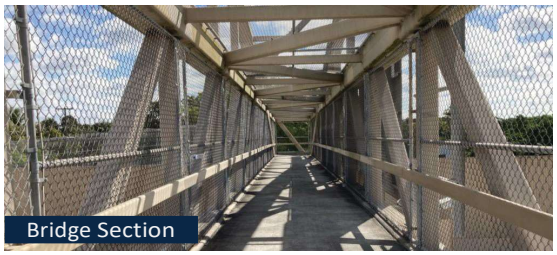
INFRASTRUCTURE

Existing Conditions

Existing Pedestrian Bridge over I-95 at NW 147th Street


Bridge Section


East Ramp


West Ramp


Bridge Profile


School East of I-95

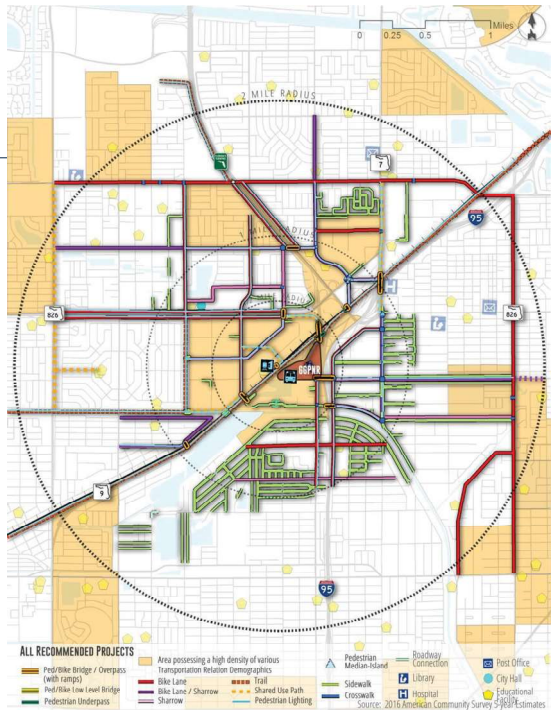
INFRASTRUCTURE

Literature Review

FDOT GOLDEN GLADES BICYCLE AND PEDESTRIAN ACCESS STUDY

Proposed Vision Includes:

- Sidewalks and crosswalks
- Median Islands
- Shared and Protected Bicycle Lanes
- Shared Use Paths
- Trails
- Pedestrian Lighting
- 11 Pedestrian Bridges and Underpasses



GOLDEN GLADES EAST LINK

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INFRASTRUCTURE

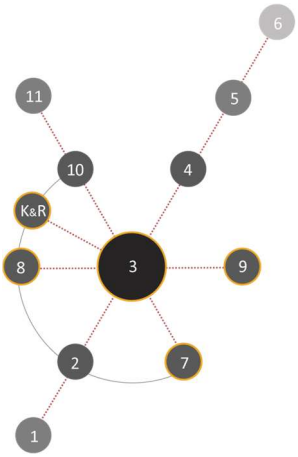
Literature Review

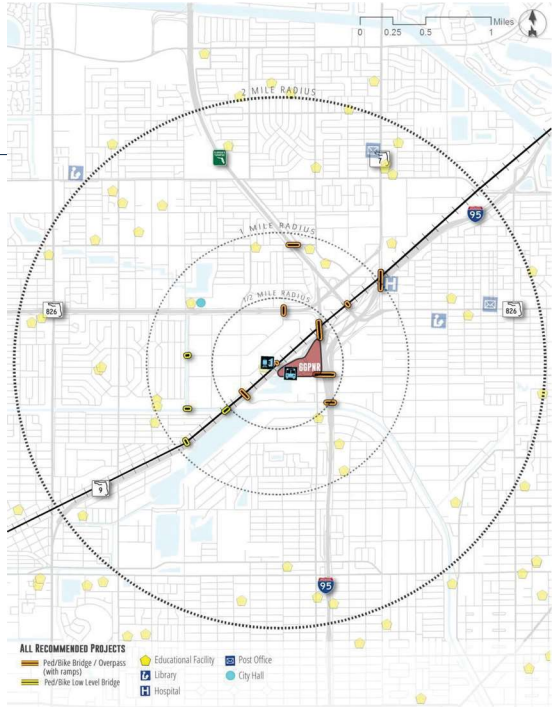
FDOT GOLDEN GLADES BICYCLE AND PEDESTRIAN ACCESS STUDY

11 Pedestrian Bridges & Underpasses

LEGEND

- Network Connection between Projects
- Direct Network Connection to Project 3
- Essential Projects (Top 5 Priority)





INFRASTRUCTURE

Literature Review

FDOT GOLDEN GLADES BICYCLE AND PEDESTRIAN ACCESS STUDY

Sunshine State Kiss-and-Ride and Pedestrian Overpass (i.e., Project 3)

GOLDEN GLADES EAST LINK

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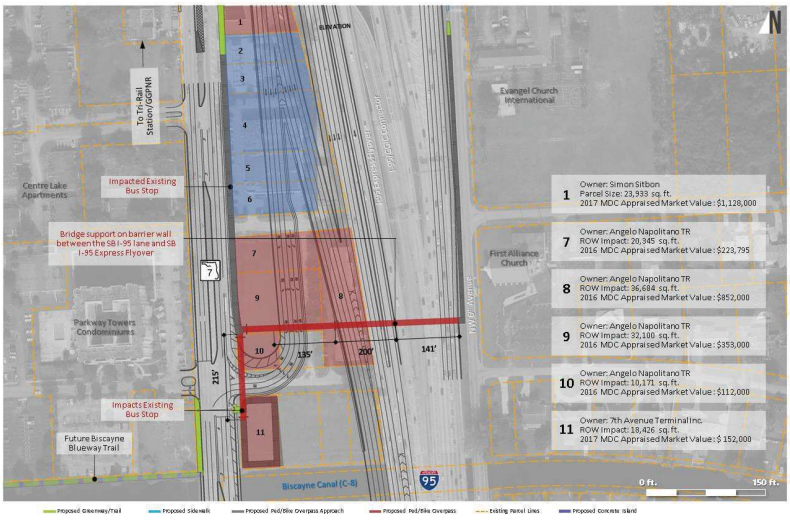
Literature Review

FDOT GOLDEN GLADES BICYCLE AND PEDESTRIAN ACCESS STUDY

Project 9



LEGEND

Privately Owned

FDOT

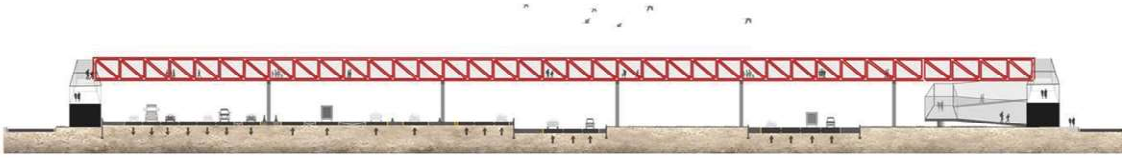
Total ROW Impact	141,659 sq. ft.
Total MDC Appraised Market Value:	$2,821,000

INFRASTRUCTURE

Literature Review

FDOT GOLDEN GLADES BICYCLE AND PEDESTRIAN ACCESS STUDY

Project 9



Elevation View

COST ITEM	ESTIMATED COST ($ 2018)
Materials	$4,989,000
Lighting (7%)	$350,000
Drainage (7%)	$350,000
Signing & Pavement Markings (5%)	$250,000
Design & CEI (20%)	$998,000
MOT & Mobilization (10%)	$499,000
Contingency (15%)	$749,000
Subtotal	$8,185,000
ROW	$2,821,000
Total	$11,006,000

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INFRASTRUCTURE

Literature Review

FDOT GOLDEN GLADES BICYCLE AND PEDESTRIAN ACCESS STUDY

Pedestrian Bridge over SR-154, Salt Lake County, UT

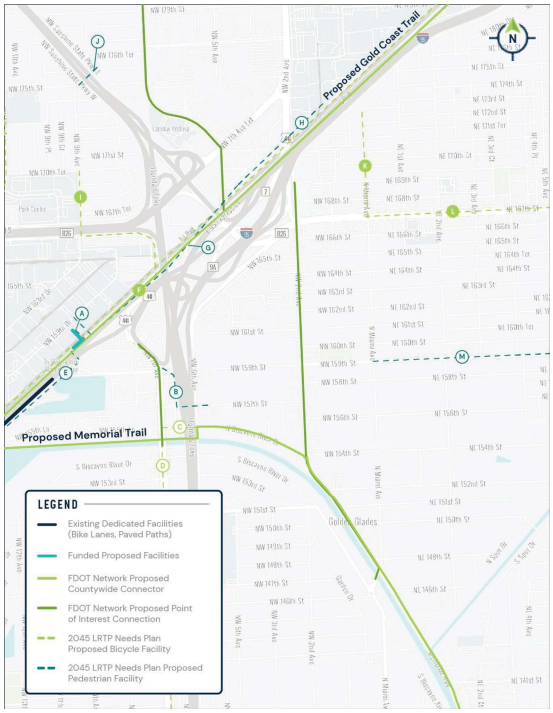
Big R Bridge, 2018 ©

Big R Bridge, 2018 ©

INFRASTRUCTURE

Literature Review

MAP ID	PROPOSED IMPROVEMENT	FACILITY	N. MIAMI AVENUE	LIMITS - TO	SOURCE
A	Pedestrian Overpass	South Florida Rail Corridor	GGMTF	Sunshine State Industrial Park	TIP 2022 - 2026 - DT4438611 DTPW – Golden Glades Bike-Ped Overpass to Sunshine State Industrial Park, Bicycle & Pedestrian Access Major Project 3
B	Pedestrian Overpass	I-95 South	E of NW 6th Ave.	GGMTF	LRTP 2045 Project Num. 501 (Unfunded), GGMTF Bicycle & Pedestrian Access Major Project 9
C	On-Road Bicycle Improvements	US 441/ NW 7th Ave.	NW 156th St.	GGMTF	LRTP 2045 Project Num. 201 (Unfunded
D	On-Road Bicycle Improvements	SR 7/ NW 7th Ave.	NW 119th St.	N Biscayne River Dr.	LRTP 2045 Project Num. 249 (Unfunded)
E	Pedestrian Overpass	SR 9 & Biscayne Canal (C-8)	South of Biscayne Canal	GGMTF	LRTP 2045 Project Num. 172 (Unfunded), GGMTF Bicycle & Pedestrian Access Major Project 7
F	Pedestrian Overpass	SR 826/I-95 Connectors	GGMTF	NW 8th Ave.	LRTP 2045 Project Num. 258 (Unfunded), GGMTF Bicycle & Pedestrian Access Major Project 4
G	Pedestrian Overpass	South Florida Rail Corridor/ I-95	Gold Coast Trail	NW 4th Ave./ Seaboard Road	LRTP 2045 Project Num. 466 (Unfunded), GGMTF Bicycle & Pedestrian Access Major Project 5
H	Pedestrian Overpass	South Florida Rail Corridor/I-95	NW 2nd Ave.	NW 7th Ave. Extension	LRTP 2045 Project Num. 465 (Unfunded), GGMTF Bicycle & Pedestrian Access Major Project 6
I	Pedestrian Overpass	NW 167th St. & NW 9th Ave.	NW 8th Ave.	NW 170th Ter,	LRTP 2045 Project Num. 301 (Unfunded), GGMTF Bicycle & Pedestrian Access Major Project 10
J	Pedestrian Overpass	Florida Turnpike	NW 175th St.	NW Sunshine State Parkway	LRTP 2045 Project Num. 502 (Unfunded), GGMTF Bicycle & Pedestrian Access Major Project 11
K	On-Road Bicycle Improvements	N, Miami Ave.	SR 826/ NE 167th St	NW 173rd St,	LRTP 2045 Project Num. 547 (Unfunded)
L	Pedestrian Overpass	South Florida Rail Corridor	GGMTF	Sunshine State Industrial Park	LRTP 2045 Project Num. 339 (Unfunded)
M	Pedestrian Overpass	I-95 South	E, of NW 6th Ave.	GGMTF	LRTP 2045 Project Num. 517 (Unfunded



ENVIRONMENT

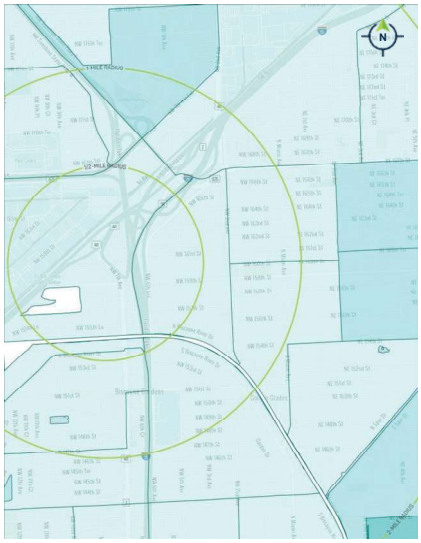
Socioeconomic

LEGEND
Persons Per Acre

Total Population
- Density Less than 15
- 15 - 30
- 30 - 50
- 50 - 100
- 100 - 200

Youth
- Density
- Less than 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 30

TOTAL POPULATION DENSITY



YOUTH DENSITY

ENVIRONMENT

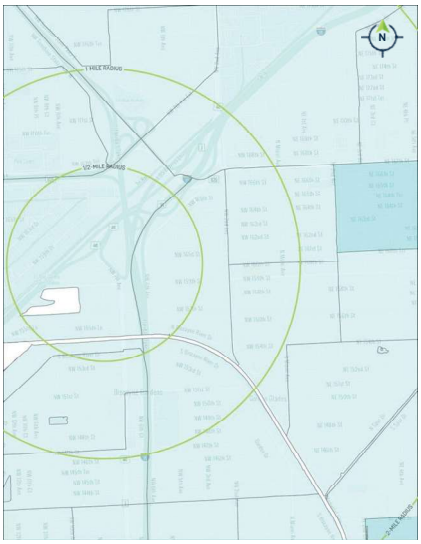
Socioeconomic

LEGEND
Persons Per Acre

Elderly
- Density Less than 3
- 3 - 7
- 7 - 14
- 14 - 27
- 27 - 50

Minority
- Density Less than 3
- 3 - 8
- 8 - 15
- 15 - 30
- 30 - 60

ELDERLY DENSITY



MINORITY DENSITY

GOLDEN GLADES EAST LINK

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ENVIRONMENT

Socioeconomic

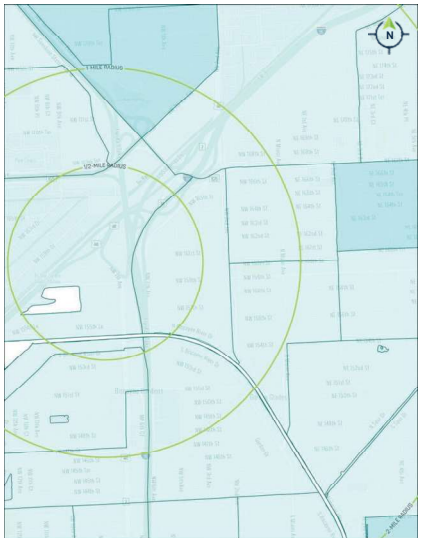
LEGEND
Persons Per Acre

Unemployment
- Density Less than 4
- 4 - 8
- 8 - 16
- 16 - 30
- 30 - 60

Disabled
- Density Less than 1
- 1 - 2
- 2 - 3
- 3 - 5
- 5 - 12

UNEMPLOYMENT DENSITY

DISABLED DENSITY



ENVIRONMENT

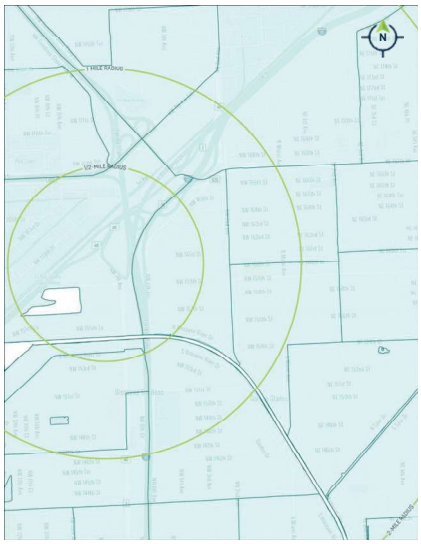
Socioeconomic

LEGEND
Persons Per Acre

Veteran
- Density Less than 1
- 1 - 2
- 2 - 3
- 3 - 5
- 5 - 11

Non-English Speaking Household
- Density Less than 2
- 2 - 5
- 5 - 10
- 10 - 18
- 18 - 35

VETERAN DENSITY



NON-ENGLISH SPEAKING HOUSEHOLD DENSITY

GOLDEN GLADES EAST LINK

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ENVIRONMENT

Socioeconomic

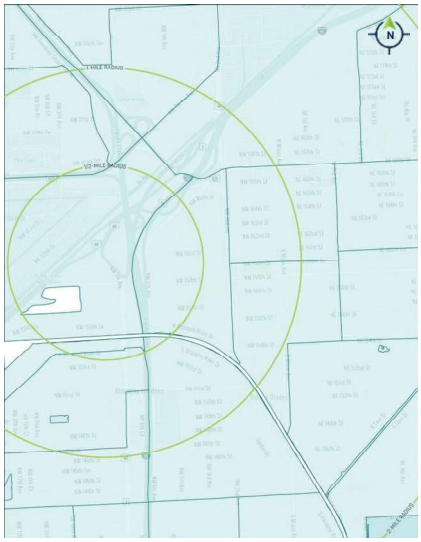
LEGEND
Households Per Acre

Low Income Household
- Density Less than 2
- 2 - 5
- 5 - 10
- 10 - 18
- 18 - 35

Zero-Car Household
- Density Less than 1
- 1 - 3
- 3 - 8
- 8 - 14
- 14 - 30

LOW INCOME HOUSEHOLD DENSITY

ZERO-CAR HOUSEHOLD DENSITY



ENVIRONMENT

Points of Interest

1- Mile and ½-Mile Buffers

Multi-Family Households

- 672 Units in Multi-Family Developments East of I-95
- 160 Units Retirement Community

Religious Institutions

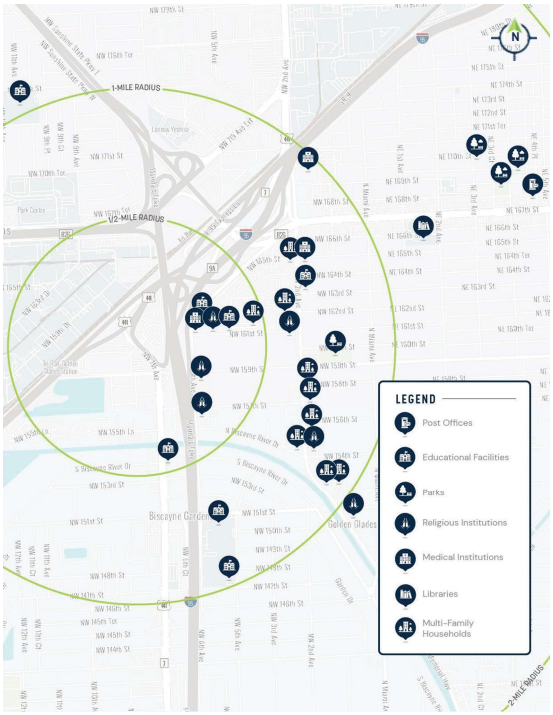
- 6 Religious Institutions

Medical Institutions

- 1 Hospital (Jackson North)
- 2 Medical Centers

Educational Facilities

- 3 Schools
- 1 Technical/Trade School



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GOLDEN GLADES EAST LINK

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ENVIRONMENT

Points of Interest

New Developments

Religious Institution
Tabernacle of Glory

Multi-Family Household

- 4.04 acres
- 100 units (average size of 1,263 SF)
- 5-Story garden apartment building facing NW 2nd Ave (28 one-bedroom units, 34 two-bedroom units)
- 38 townhouse units of 4-bedroom spread over 3 buildings
- Surface parking lot with a total of 209 dedicated and guest parking spaces


Tabernacle of Glory


Biscayne Gardens Development

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GOLDEN GLADES EAST LINK

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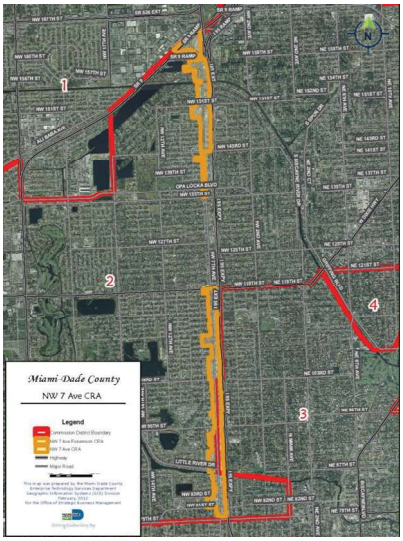
ENVIRONMENT

Zoning

NW 7 AVE CRA



ADOPTED ZONING

GOLDEN GLADES EAST LINK

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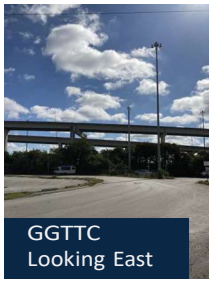
POTENTIAL CONNECTION

NW 161st Street


NE Corner


North Side of NW 161 St.


South Side of NW 161 St.


GGTTC Looking East


NW 6 Ave. Looking West


I-95 Southbound

GOLDEN GLADES EAST LINK

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POTENTIAL CONNECTION

NW 161st Street

GOLDEN GLADES EAST LINK

- Introduction
- Purpose
- Infrastructure
- Environment
- Potential Connection
- Workshop

POTENTIAL CONNECTION

NW 161st Street

GOLDEN GLADES EAST LINK

- Introduction
- Purpose
- Infrastructure
- Environment
- Potential Connection
- Workshop

Q & A

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GOLDEN GLADES EAST LINK

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Next Steps

Task 3 – Connectivity Assessment and Concept Development

- Establish connection points between the GGMTF and GGTXTC
- Identify connectivity gaps in the study area
- Develop concepts, including pedestrian bridge and other bike/ped safety enhancements
- Analyze modal interrelationships and potential safety concerns, specially at the GGTTC

SAG Meeting #2

- Anticipated: TBD

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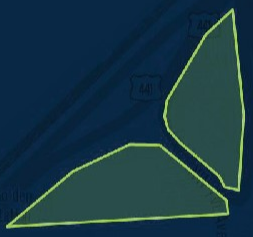
MIAMI-DADE TPO
GOLDEN GLADES
EAST LINK

Thank You.



TPO

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Miami-Dade Transportation Planning Organization

150 West Flagler Street
Suite 1900
Miami, Florida 33130

SAG MEETING #1

Project: Golden Glades Bike/Pedestrian Eastside Connectivity Feasibility Study
Date: April 28, 2021

SIGN-IN SHEET

Name	Title	Attendance
Tiffany Gehrke	FDOT D6 Bicycle/Pedestrian & ADA Coordinator	Present
Carlos Castro	FDOT D6 Freight Coordinator	Present
Tom Ruiz	Public Works Director at the City of Miami Gardens	Present
Debbie Love	City Planner at the City of North Miami	
Mohammed Zaid	Transportation Manager at the City of North Miami	
Frank Ruiz	Capital Improvement Manager / ADA Coordinator at the City of North Miami Beach	
Emmanuel Adediran	Assistant to the City Manager of North Miami Beach	
Elia Nunez	Miami-Dade DTPW Assistant Director	Present
Jie Bian	Miami-Dade DTPW Chief of Planning and System Development	Present
Yanek Fernandez	Miami-Dade DTPW Traffic Engineering Division	Present
Julian Guevara	Miami-Dade DTPW Municipal Manager	
Vinod Sandanasamy	Miami-Dade RER Supervisor of the Metropolitan Planning Section – Transportation	Present
Mark Heinicke	Miami-Dade PROS Senior Park Planner	Present
Vicki Gatanis	SFRTA Transportation Planner	
Barbara Handrahan	SFRTA Planning and Capital Development	
Oscar Camejo	Miami-Dade TPO Transportation Planner III	Present
Ivan Jimenez	Gannett Fleming	Present
Nelson Mora	Gannett Fleming	Present

Miami-Dade Transportation Planning Organization

150 West Flagler Street
Suite 1900
Miami, Florida 33130

MEETING MINUTES

On April 28, 2021 the first Study Advisory Group (SAG) meeting was conducted for this study. During the meeting, the information compiled in Literature Review and Existing Conditions Assessment was presented to the SAG members. The purpose of this meeting was to obtain critical information from the SAG members and begin brainstorming ideas for connecting the GGMTF, GGTTC, and the communities east of I-95/SR 9A. Ivan Jimenez was the presenter and Nelson Mora and Oscar Camejo were supporting the presentation.

During the meeting, Tiffany Gehrke, the FDOT D6 Bicycle/Pedestrian & ADA Coordinator, mentioned that NW 6th Avenue and NW 161st Street were great candidates for providing low stress bicycle facilities. She further elaborated that these potential facilities could compliment the proposed Gold Coast Trail, ideally running on the west side of the SFRC tracks.

Tom Ruiz, Public Works Director at the City of Miami Gardens, inquired about any planned roadway connections from the Sunshine Industrial Park into the GGTTC since he has observed multiple trucks waiting outside warehouses in the industrial park.

Carlos Castro, the FDOT District Six Freight Coordinator, replied that there are no planned connections from the Sunshine Industrial Park into the GGTTC for truck mobility. Mr. Castro mentioned that he is currently working on beginning the GGTTC Request for Proposal effort and that the GGTTC is expected to be a joint development with a private sector partner. Hence, he warned that the current GGTTC concept is subject to change based on the selection of the design-build team and private sector input. The GGTTC is envisioned to have a commercial building which may be multi-story and could conflict with any potential bicycle/pedestrian bridge over the GGTTC airspace. Mr. Castro also advised the team to coordinate with the FDOT District Six Roadway Design department since the GGI Enhancement Project has been scaled down due to budget constraints. The latest GGI design may affect conceptual engineering alternatives of any proposed bicycle/pedestrian bridge across I-95/SR 9A.

The GGTTC and Sunshine State Industrial Park Kiss and Ride/Transit Terminal Facility were discussed in more detail following inquiries from Vinod Sandanasamy and Yanek Fernandez.

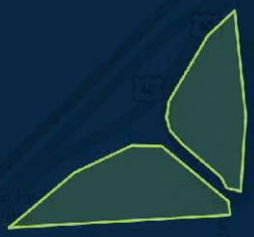
Oscar Camejo, the Miami-Dade TPO project manager for this study, advised the study team to consult with the GGMTF design-build team to provide better bicycle cages than the ones observed in the field review and to add wayfinding, especially for the shared-use path. Mr. Camejo also suggested investigating bicycle and pedestrian improvements for the study area beyond just providing a connection across I-95/SR 9A into the GGTMF/GGTTC.

Mark Heinicke, Miami-Dade Parks, Recreation and Open Spaces (PROS) Senior Park Planner, said to investigate lighting conditions on existing and proposed pedestrian bridges, suggested to mark the centerline of the shared-use path in the GGMTF, and recommended adding bicycle repair stations throughout the GGMTF.

Appendix E

GOLDEN GLADES EAST LINK

Golden Glades Multimodal Transportation Facility Bicycle & Pedestrian Eastside Connectivity Study



TPO

NOVEMBER 2021

SAG MEETING #2

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Conclusion

TPO

INTRODUCTION

Welcome

Oscar Camejo

Project Manager,
Miami-Dade TPO

Nelson Mora, PE

Project Manager,
Gannett Fleming

Ivan Jimenez, EIT

Presenter,
Gannett Fleming

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TPO

INTRODUCTION

Roll Call

NAME	TITLE	ATTENDANCE
Barbara Handrahan	SFRTA Planning and Capital Development	
Bernard Buxton-Tetteh	Assistant Public Works Director at the City of Miami Gardens	Present
Carlos Castro	FDOT D6 Freight Coordinator	Present
Chidi Tobias	City of North Miami Beach	Present
Christina Miskis	SFRTA Senior Planner	
Debbie Love	City Planner at the City of North Miami	
Elia Nunez	Miami-Dade DTPW Assistant Director	Present
Frank Ruiz	Capital Improvement Manager / ADA Coordinator at the City of North Miami Beach	
Ivanna Incer	FDOTD6 Freight Coordinator In-house Consultant	Present
Jie Bian	Miami-Dade DTPW Chief of Planning and System Development	
Julian Guevara	Miami-Dade DTPW Municipal Manager	
Les Pettit	City of North Miami Beach Engineer	Present
Mark Heinicke	Miami-Dade PROS Senior Park Planner	
Mohammed Zaid	Transportation Manager at the City of North Miami	
Samuel Brinson	Parks and Recreation Director at the City of North Miami	
Tiffany Gehrke	FDOT D6 Bicycle/Pedestrian & ADA Coordinator	Present
Tom Ruiz	Public Works Director at the City of Miami Gardens	
Vicki Gatanis	SFRTA Senior Planner	Present
Vinod Sandanasamy	Miami-Dade RER Supervisor of the Metropolitan Planning Section – Transportation	Present
Yanek Fernandez	Miami-Dade DTPW Traffic Engineering Division	Present

GOLDEN GLADES EAST LINK

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TPO

BACKGROUND

Study Development

Literature Review

Multimodal Accessibility and Data Collection

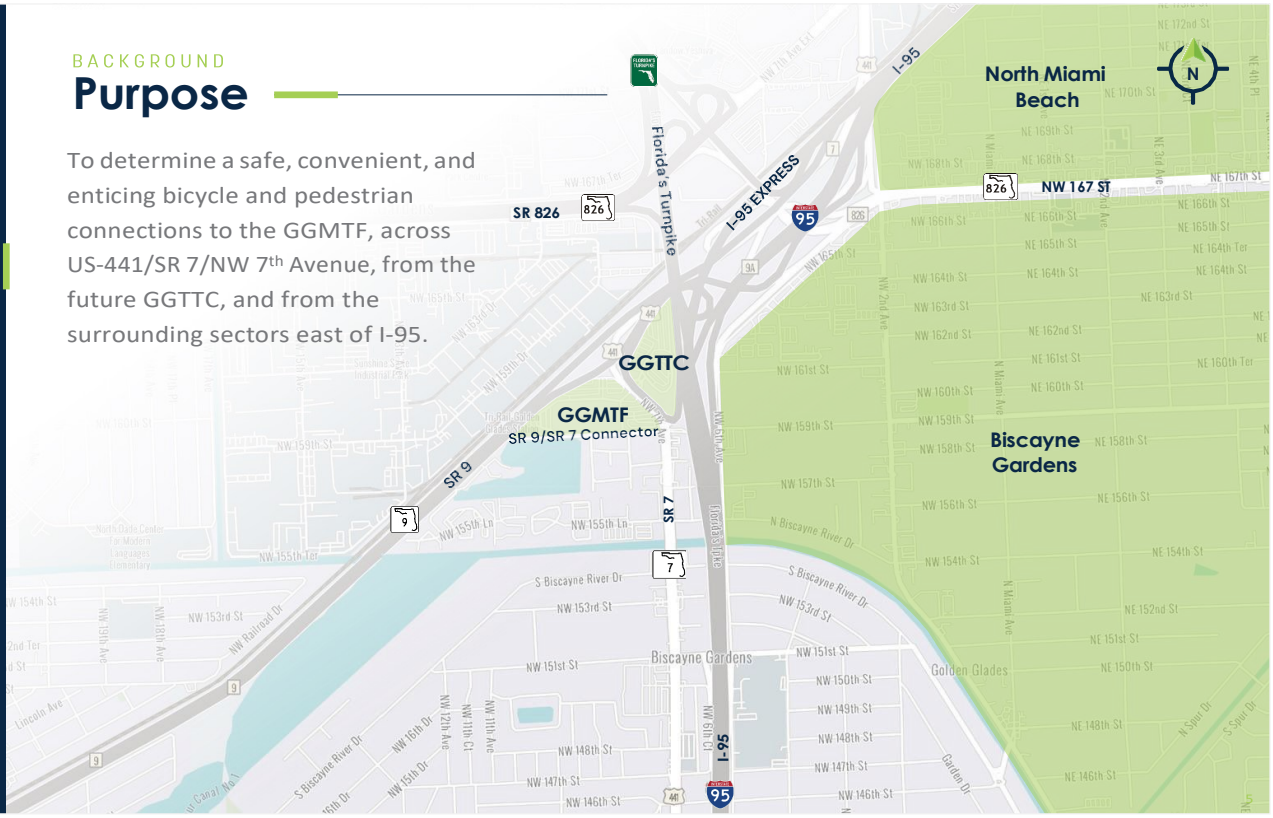
Connectivity Assessment and Concept Development

Develop Recommendations & Implementation Plan

BACKGROUND

Purpose

To determine a safe, convenient, and enticing bicycle and pedestrian connections to the GGMTF, across US-441/SR 7/NW 7th Avenue, from the future GGTTC, and from the surrounding sectors east of I-95.



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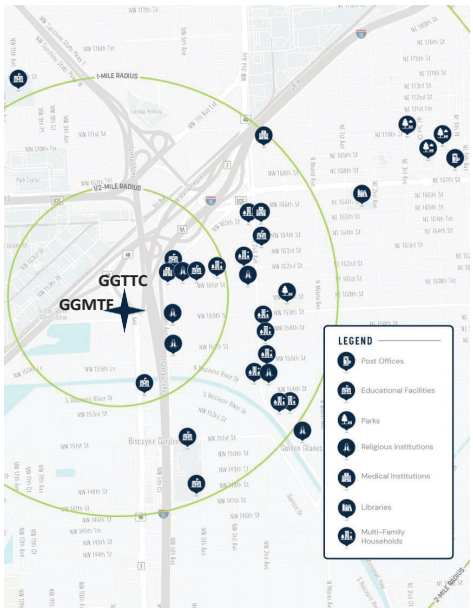
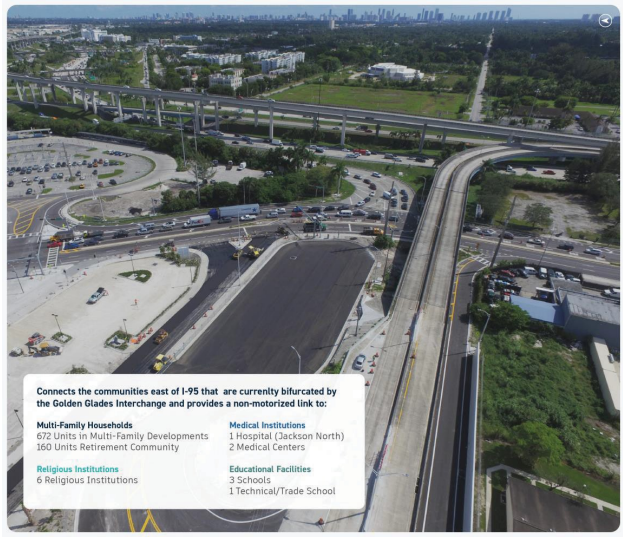
BACKGROUND

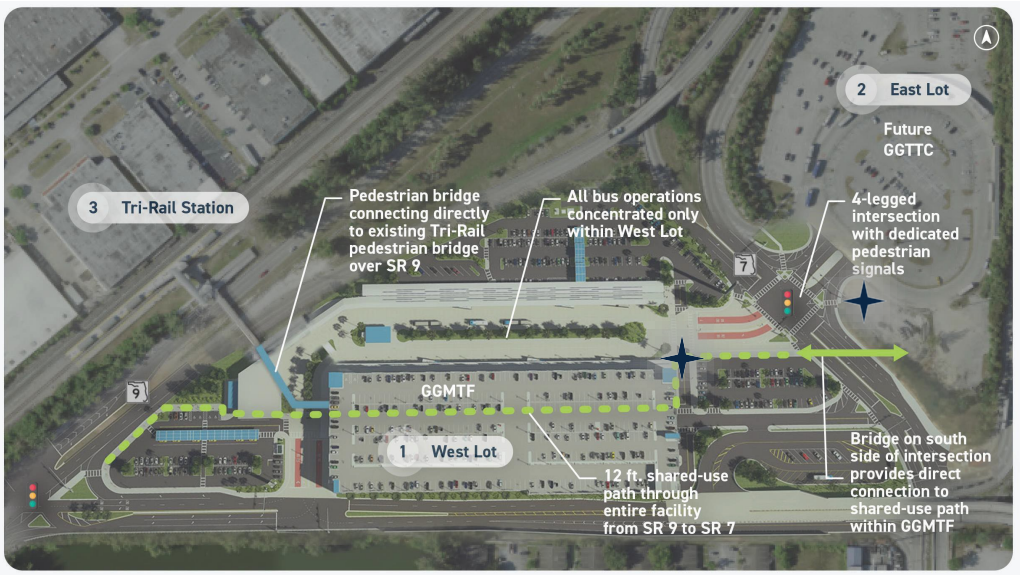
Need





BACKGROUND

GGMTF – GGTTC Connection Points

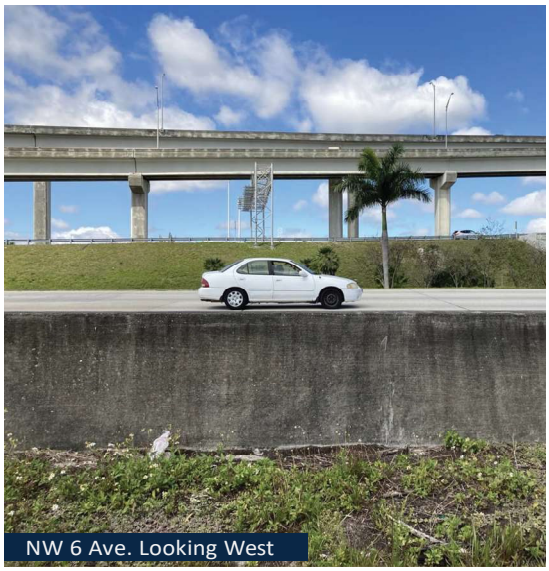


BACKGROUND

Connection Points East of I-95

BACKGROUND

NW 161st Street Potential Connection



NW 6 Ave. Looking West

I-95 Southbound

GOLDEN GLADES EAST LINK

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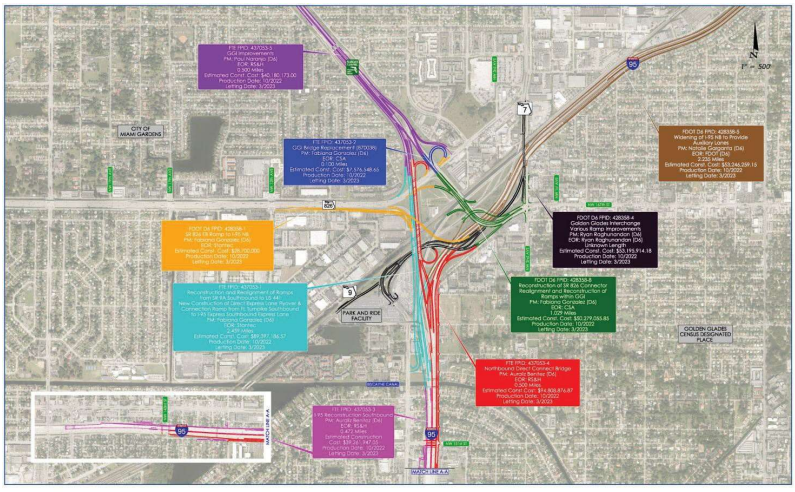
BACKGROUND

Challenges

Golden Glades Enhancement Project



GOLDEN GLADES INTERCHANGE IMPROVEMENTS
FOR QUESTIONS REGARDING THE GGI PROJECTS PLEASE CONTACT FABIANA GONZALEZ AT FABIANA.GONZALEZ@DOT.STATE.FL.US

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ALTERNATIVE DEVELOPMENT

Alternative 1

Note: Conceptual cost estimate was updated for the Final Report.

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ALTERNATIVE DEVELOPMENT

Connecting East

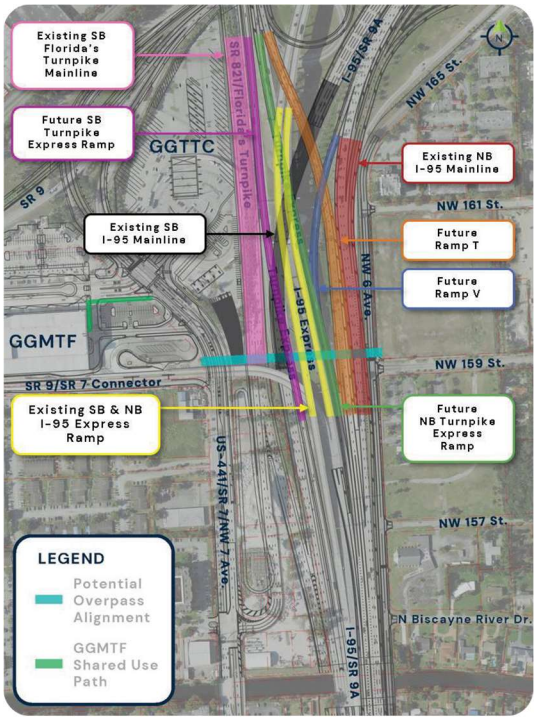
Concept 1 (Overpass)

Pros:

- Ideal landing at the intersection of NW 6th Ave. and NW 159th St. (one of the logical connections east of I-95)
- Reduced impact to the footprint of the future GGTTC

Cons:

- Minor modification to the vertical alignments of Future NB Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB Mainline to cross below the existing SB & NB I-95 Express Ramps
- Increased walking distance between the proposed GGMTF and GGTTC connection points (1,545 feet)



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ALTERNATIVE DEVELOPMENT

Connecting East

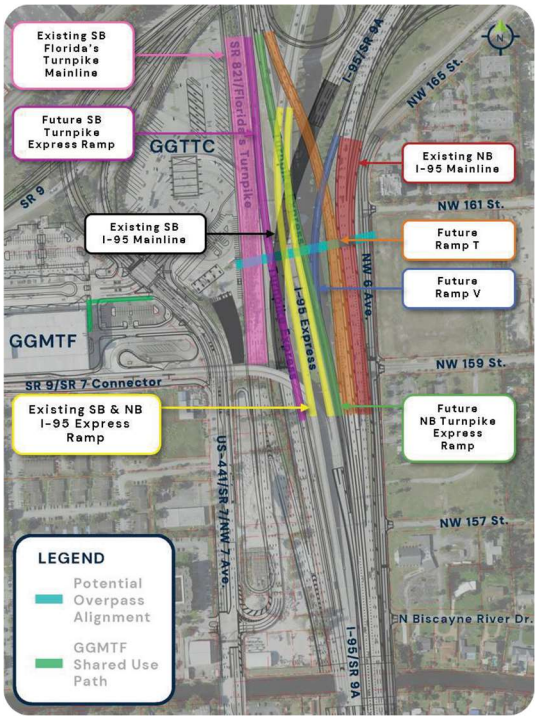
Concept 2 (Overpass)

Pros:

- Ideal landing at the intersection of NW 6th Ave. and NW 161st St. (one of the logical connections east of I-95)

Cons:

- Significant modification to the vertical alignments of the southbound Turnpike Mainline, Future NB Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB mainline to cross below the existing SB & NB I-95 Express Ramps
- Does not include a direct connection between the GGMTF and GGTTC
- Large impact to the GGTTC footprint
- ROW acquisition of vacant parcel with planned development



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ALTERNATIVE DEVELOPMENT

Connecting East

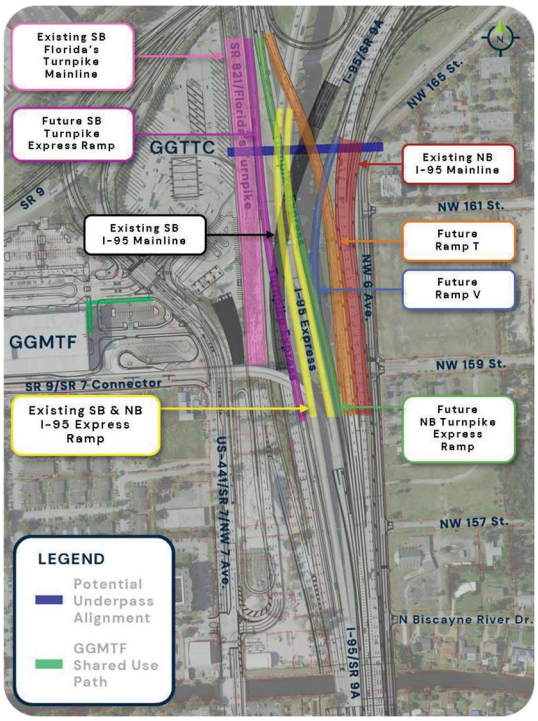
Concept 3 (Overpass + Underpass Hybrid)

Pros:

- No need for elevation change along entire bicycle-pedestrian path (i.e., increased convenience and reduced walking distance)
- Reduced impact to the footprint of the future GGTTC

Cons:

- Significant modification to the vertical alignments of the southbound Turnpike Mainline, southbound I-95 mainline, Future NB Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB mainline to cross below the existing SB & NB I-95 Express Ramps
- Does not include a direct connection between the GGMTF and GGTTC
- Challenging pedestrian crossing at NW 6th Ave. with poor visibility due to roadway curvature



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ALTERNATIVE DEVELOPMENT

Alternative 2

*Note: Conceptual cost estimate was updated for the Final Report.

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ALTERNATIVE DEVELOPMENT

Alternative 3

*Note: Conceptual cost estimate was updated for the Final Report.

ALTERNATIVE DEVELOPMENT

Alternative 3

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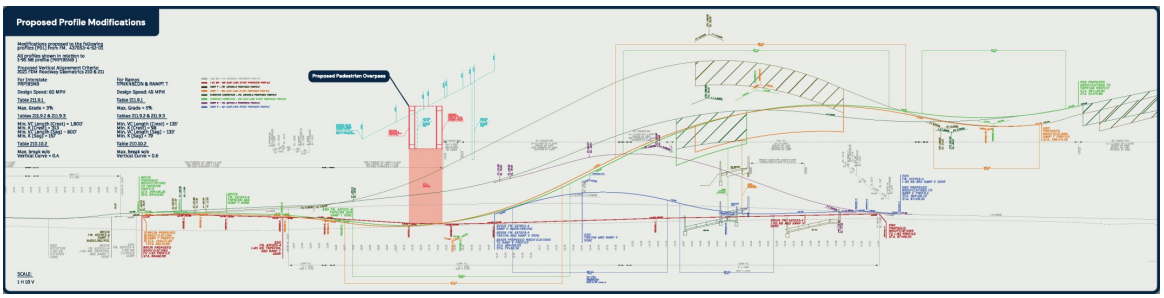
Alternative 3



ALTERNATIVE DEVELOPMENT

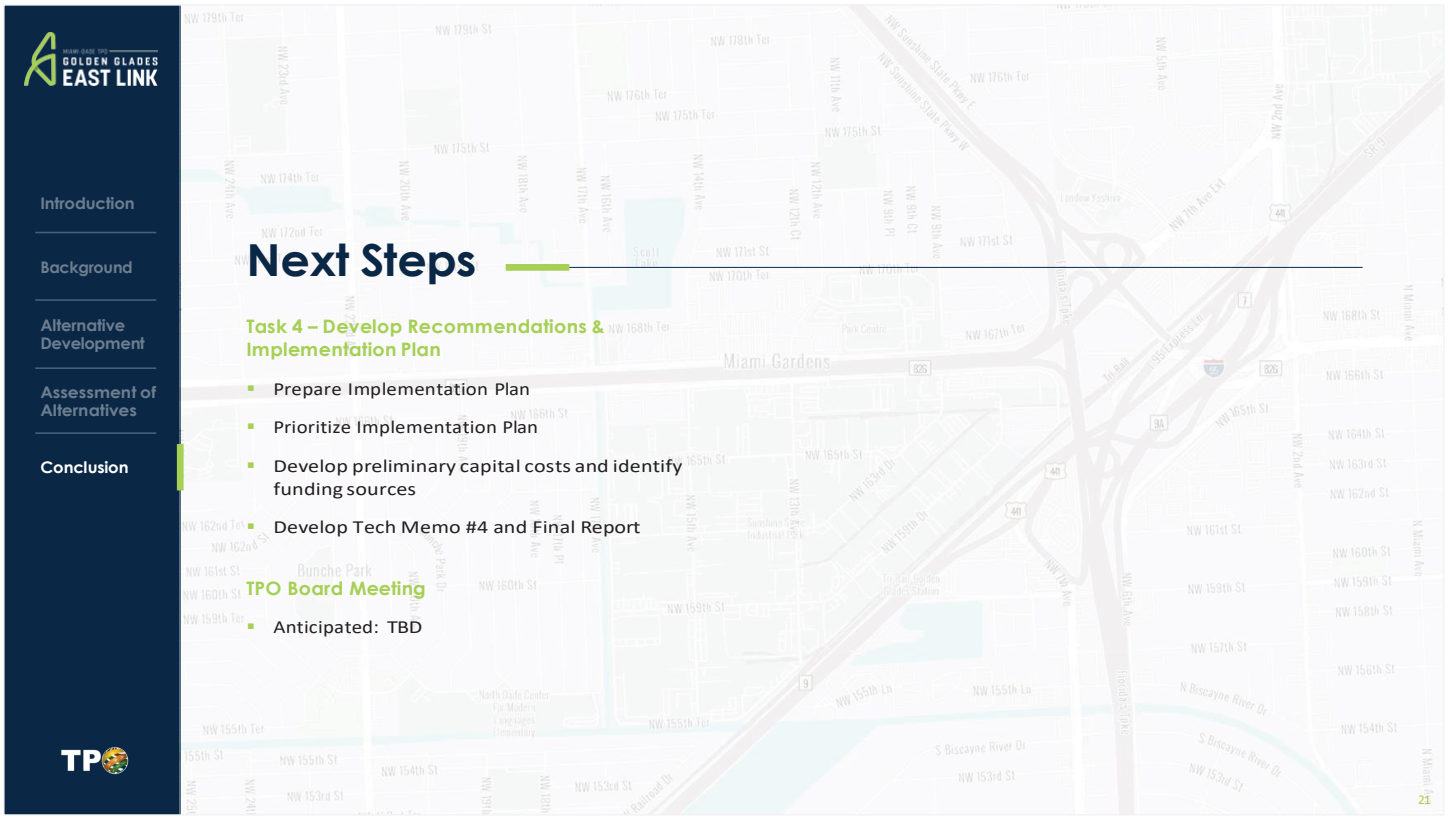
Alternative 3

ASSESSMENT OF ALTERNATIVES

Comparison Matrix

	Alternative 1	Alternative 2	Alternative 3
Conceptual Capital Cost	$2,500,000 (+ $1,000,000 for two elevator towers)	$2,850,000 (+ $1,000,000 for two elevator towers)	$8,500,000 (+ $1,500,000 for three elevator towers)
Walking Distance between GGMTF and GGTTC	870 ft. (longer distance due to switchback ramps)	860 ft. (shorter distance due to straight ramps)	860 ft. (shorter distance due to straight ramps)
Walking Distance between GGMTF and sectors East of I-95	N/A	N/A	1,640 ft.
ROW acquisition	None	None	None
Impact to the GGMTF	24 surface parking spaces	18 surface parking spaces	18 surface parking spaces
Impact to the future GGTTC Footprint	3,920 Sq. Ft.	3,725 Sq. Ft.	4,045 Sq. Ft. (+ 1,285 Sq. Ft. Air Space)
Impact to the GGI Enhancement Project	N/A	N/A	Minor modification to the vertical alignments of the Future NB Turnpike Express Ramp, Ramp V, Ramp T, and I-95 NB mainline
Difficulty of Construction	Simple	Simple	Complex

**Note: Conceptual cost estimate was updated for the Final Report.*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Next Steps
Task 4 – Develop Recommendations & Implementation Plan
Prepare Implementation Plan
Prioritize Implementation Plan
Develop preliminary capital costs and identify funding sources
Develop Tech Memo #4 and Final Report
TPO Board Meeting
Anticipated: TBD
Miami Gardens
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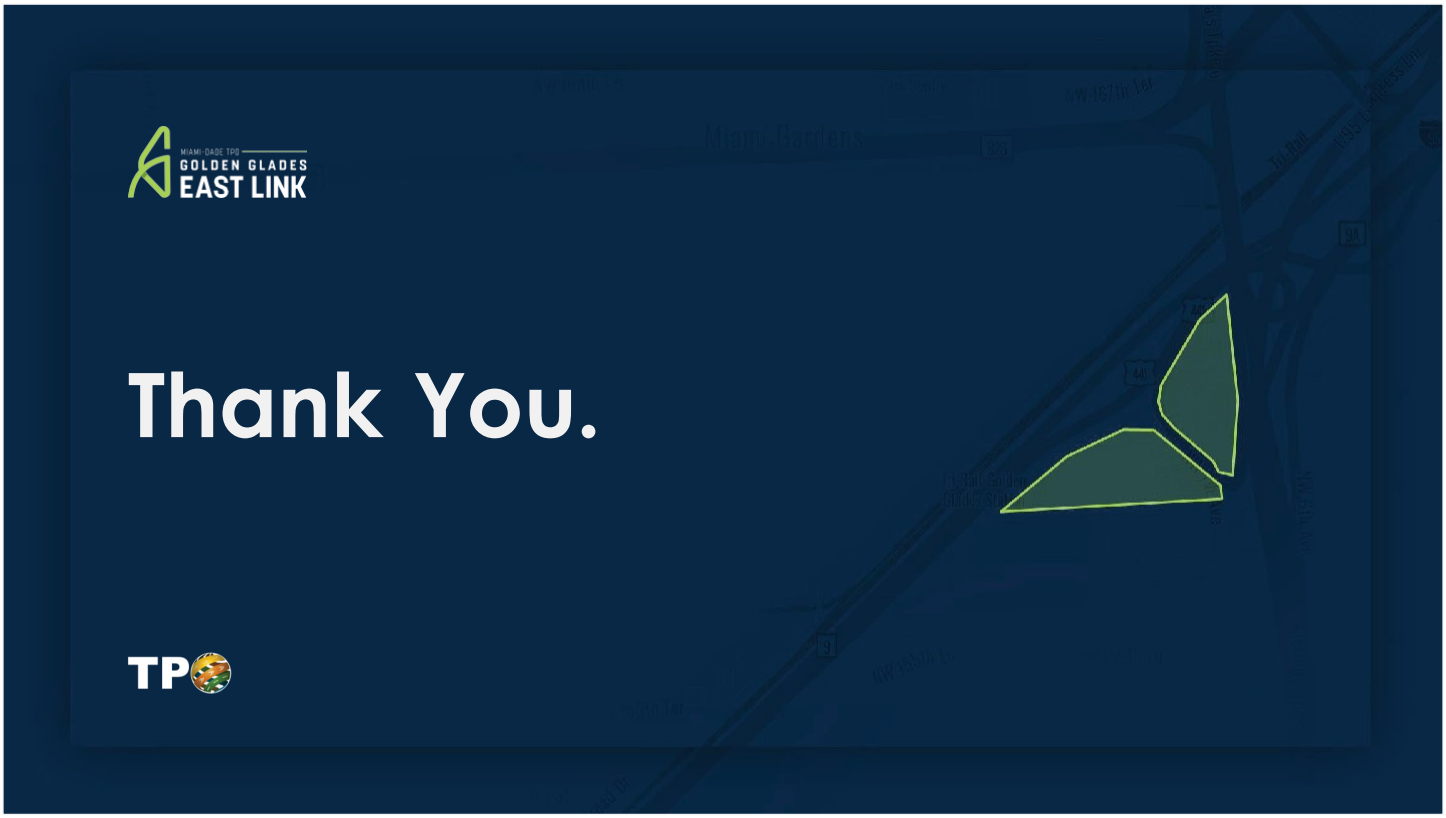
GOLDEN GLADES EAST LINK
Thank You.

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Miami-Dade Transportation Planning Organization

150 West Flagler Street
Suite 1900
Miami, Florida 33130

SAG MEETING #2

Project: Golden Glades Bike/Pedestrian Eastside Connectivity Feasibility Study
Date: November 10, 2021

SIGN-IN SHEET

Name	Title	Attendance
Tiffany Gehrke	FDOT D6 Bicycle/Pedestrian & ADA Coordinator	Present
Carlos Castro	FDOT D6 Freight Coordinator	Present
Tom Ruiz	Public Works Director at the City of Miami Gardens	
Debbie Love	City Planner at the City of North Miami	
Mohammed Zaid	Transportation Manager at the City of North Miami	
Frank Ruiz	Capital Improvement Manager / ADA Coordinator at the City of North Miami Beach	
Chidi Tobias	Assistant to the City Manager of North Miami Beach	Present
Elia Nunez	Miami-Dade DTPW Assistant Director	Present
Jie Bian	Miami-Dade DTPW Chief of Planning and System Development	
Yanek Fernandez	Miami-Dade DTPW Traffic Engineering Division	Present
Julian Guevara	Miami-Dade DTPW Municipal Manager	
Vinod Sandanasamy	Miami-Dade RER Supervisor of the Metropolitan Planning Section – Transportation	Present
Mark Heinicke	Miami-Dade PROS Senior Park Planner	Present
Vicki Gatanis	SFRTA Transportation Planner	Present
Barbara Handrahan	SFRTA Planning and Capital Development	
Oscar Camejo	Miami-Dade TPO Transportation Planner III	Present
Bernard Buxton-Tetteh	Assistant Public Works Director at the City of Miami Gardens	Present
Christina Miskis	SFRTA Senior Planner	
Ivanna Incer	FDOT D6 Freight Coordinator In-house Consultant	Present
Les Pettit	City of North Miami Beach Engineer	Present
Mark Heinicke	Miami-Dade PROS Senior Park Planner	
Samuel Brinson	Parks and Recreation Director at the City of North Miami	
Ivan Jimenez	Gannett Fleming	Present
Nelson Mora	Gannett Fleming	Present
Carlos Cejas	Gannett Fleming	Present

Miami-Dade Transportation Planning Organization

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Miami, Florida 33130

MEETING MINUTES

On November 10, 2021, the study team presented the alternative development process and results to the SAG. Ivan Jimenez was the presenter with support from Nelson Mora, Carlos Cejas, and Oscar Camejo.

Ivan went over the study background, explaining that during the first SAG meeting the literature review and multimodal accessibility and data collection tasks – which comprise the Existing Conditions Assessment – were presented. Ivan mentioned that the purpose of this meeting is to discuss the Connectivity Assessment and Concept Development process. Ivan went over the need to connect the Golden Glades Multimodal Transportation Facility (GGMTF) and Golden Glades Truck Travel Center (GGTTC) to the communities east of I-95. He explained the various points of interest in the community and developments under-construction and planned within the community. He explained that NW 2 Avenue will host most of the high-density land uses within the study area.

Ivan went over the GGMTF layout, explaining the multiple bicycle and pedestrian amenities and corridors within the facility. Ivan also discussed the GGTTC and how it is under procurement, noting that the current conceptual design is likely to change once the design-build process begins. Ivan explained how the team determined the desired connecting points at the GGMTF and GGTTC located south of the existing intersection between the driveways to these facilities and NW 7 Avenue. On the Biscayne Gardens area, Ivan explained why the ideal connecting points are either NW 161 Street or NW 159 Street.

Ivan then discussed the concept development process and the different conceptual connections tested by the team. He mentioned that the team initially envisioned a straight-forward connection cutting across I-95 from the GGTTC to NW 161 Street following the alignment of an existing gantry under the I-95 Express Ramps. He explained why this concept is not viable given the future Golden Glades Enhancement Projects which will completely modify the existing Golden Glades Interchange (GGI). Ivan then goes over how the team went back to the purpose statement of the study and developed Alternative 1, a simple pedestrian bridge over SR 7 connecting the GGMTF to the GGTTC. He explained the impacts, benefits, and disadvantages of this alternative and why this alternative does not fulfill the study purpose.

Ivan continued to explain how the team envisioned different connections across the GGI through the use of concept diagrams. The presented Concept Diagram 1 shows an overpass adjacent to the existing I-95 Express ramps to/from SR 9/SR 7 Connector Roadway. Ivan explained that this concept was discarded because it requires significant elevation to overpass the future GGI ramps while having long walking distances and not providing a direct connecting to the GGMTF. The presented Concept Diagram 2 follows the teams initial vision of connecting across I-95 from the GGTTC to NW 161 Street. Ivan explained that this concept was discarded because it requires significant modifications to the GGTTC and Golden Glades Enhancement Projects, requires right-of-way acquisition, and does not connect to the GGMTF. Ivan continued and explained Concept Diagram 3, a conceived underpass north of NW 161 Street following a straight east-west alignment. He explained that this concept was also discarded since

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Miami, Florida 33130

it requires significant impacts to the Golden Glades Enhancement Projects, has an unsafe connection at the curve of NW 165 Street, still does not connect to the GGMTF.

Ivan then proceeded to explain how the team arrived at Alternatives 2 and 3 by keeping the GGMTF connection point fixed and rotating and extending the alignment proposed in Alternative 1. The team proceeded to figure out the point across I-95 that would result in the least impacts to the Golden Glades Enhancement Projects will still providing a safe connection to Biscayne Gardens. This resulted in Alternative 3, connecting to NW 159 Street with one slight deflection in the bridge alignment. Alternative 2 came out of Alternative 3 as a shortened bridge only connecting the GGMTF and GGTTC across SR 7. Ivan explains the impacts, benefits, and disadvantages of these alternatives. Nelson Mora then explained in more detail the engineering analysis performed to ensure Alternative 3 fits within constrains presented by the Golden Glades Enhancement Project and the proposed changes to the vertical alignment of the Golden Glades Enhancement Project ramps. Nelson also described the proposed shared-use path along NW 159 Street to connect the bridge of Alternative 3 to the Biscayne Gardens Park. Ivan explained that Alternative 3 is the preferred alternative and how the team is working with FDOT to ensure this alternative can be accommodated within the Golden Glades Enhancement Project.

Vinod Sandanasamy asked if it is necessary to connect directly to the GGMTF. He asked if the team thought about connecting south of the SR 9/SR 7 Connector Roadway where the I-95 right-of-way is less wide. Nelson explained that the team did consider this option and explained that this location has more constraints due to the relocation of the Turnpike to SR 7 off-ramp by the Golden Glades Enhancement Project. Ivan added that FDOT will be replacing an existing pedestrian bridge at NW 147th Street and how pushing the alignment of the study's proposed bridge further south would serve a similar purpose as the existing bridge while not meeting the need to connect to the premium transit services at the GGMTF. Vinod agreed with the team approach and made the comment since the proposed location seemed to have less impacts to the Golden Glades Enhancement Project.

Carlos Castro asked about the potential impacts to the GGTTC. Ivan explained the impacts by alternative, including the airspace to the GGTTC. Ivan showed the impact by square footage and Carlos required a separate meeting to see if FDOT's RFP Consulting Team had any issues with the presented alternatives.

Elia Nunez asked about the length of the proposed bridge in Alternative 3. Nelson responded and said it is approximately 1,000 feet long and that the bridge supports have been conceptually located to allow for future widening of the overpassed roadways. Nelson also explained that Alternative 3 provides the shortest walking distance by also minimizing the vertical walking distance – which the conceptualized bridge requires pedestrians to go approximately 23 feet up via stairs, ramps, and elevators.

Ivan presented a comparison matrix of the alternatives and explained the study's next steps.

Yanek Fernandez asked if the City or the County have any planned shuttle service on the east communities. Carlos Cejas added that in the future a circulator could be added to service the east communities but said that this service could easily incur a lot of delay due to having to navigate around

Miami-Dade Transportation Planning Organization

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Miami, Florida 33130

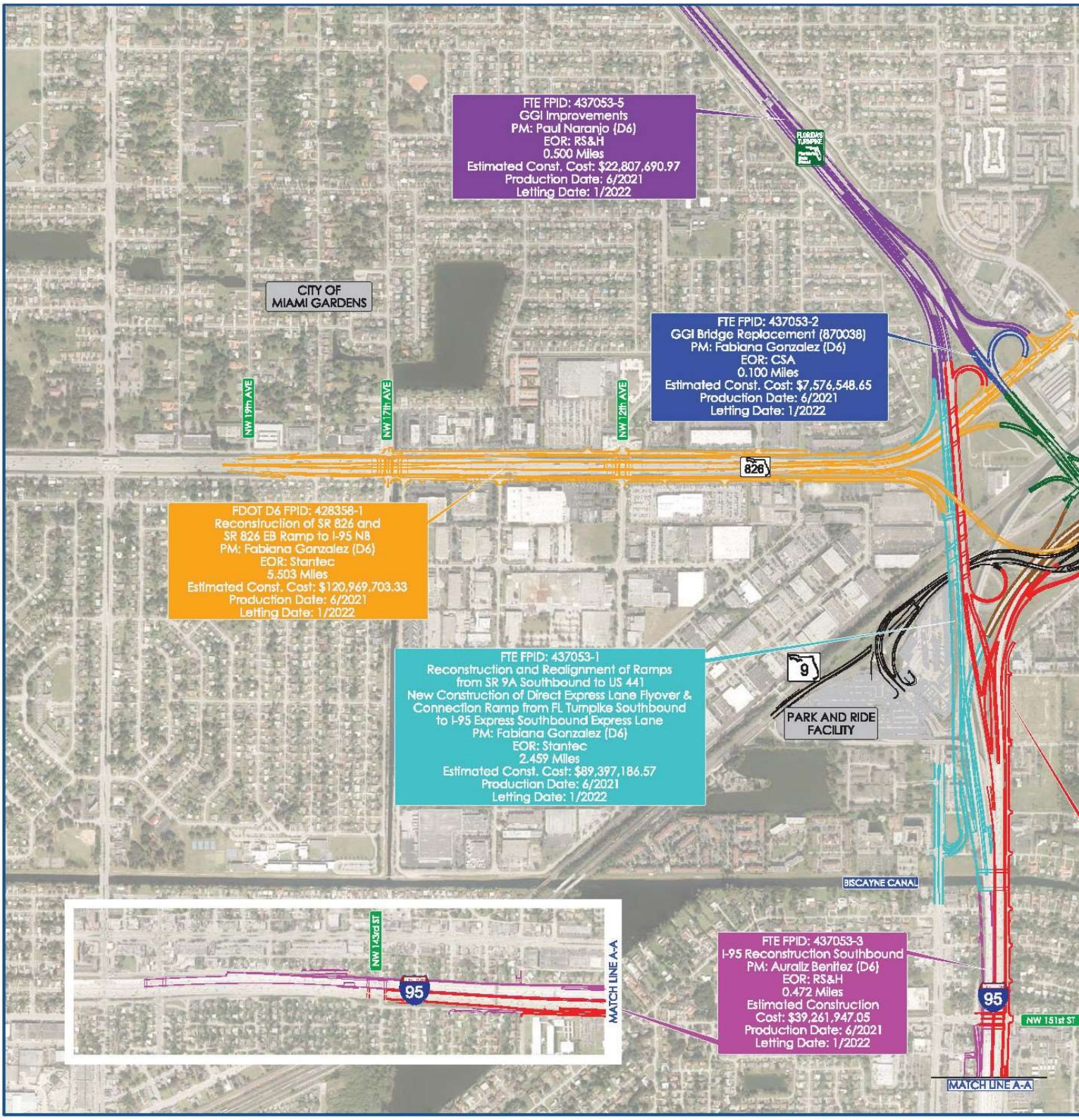
the GGI to connect to the GGMTF. Ivan mentioned that the City of North Miami Beach has a circulator but the limits of this circulator service do not coincide with the study limit. Ivan explained that by having the bridge a transit hub similar to the Sunshine State Kiss-and-Ride/Transit Terminal could be constructed within Biscayne Gardens to drop passengers off near the proposed bridge so they can walk across to the GGMTF. Yanek asked how wide the proposed bridge is. Nelson said the bridge width is flexible but a 12-feet width was considered given standards for multi-use/shared-use paths.

Tiffany Gherke mentioned that she likes the proposed alternative because it makes non-motorized transportation easier and may reduce the number of vehicles on the GGI and the side streets. Tiffany said that an option to make the connection more efficient is to consider scooters or electric bicycle. Yanek mentioned that the walking distance is still very long if passengers come from destinations further away from the proposed bridge limits. Yanek proposed using golf carts or some type of micro-mobility/vehicle to make the trip across the bridge more accessible. Yanek said that a walking trip across the bridge seems plausible, but that walking from destinations/origins further away begin to make the walking trip less feasible. Yanek proposed widening the proposed bridge typical to accommodate an expanded use beyond walking and biking.

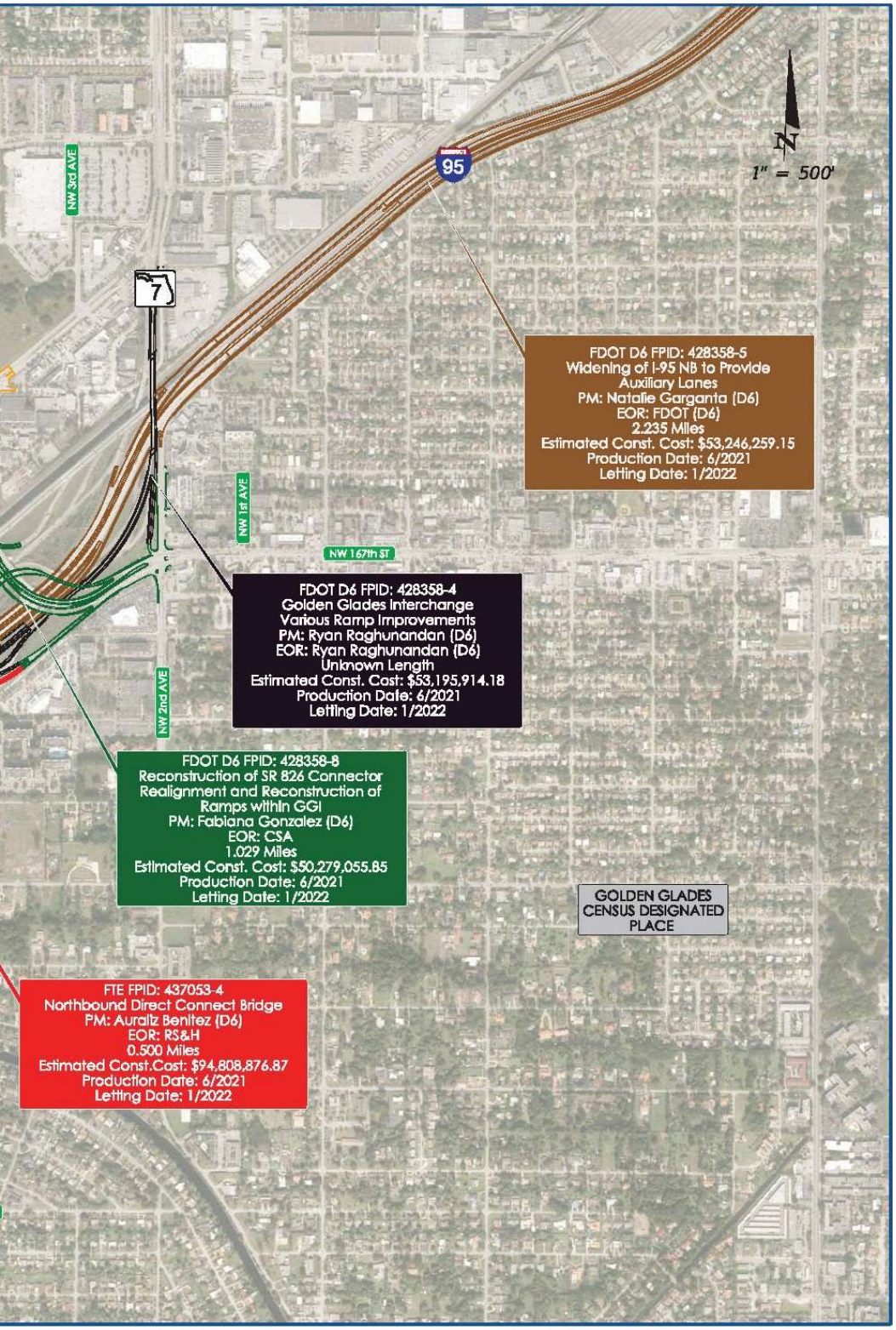
Vinod mentioned that the bridge may also allow for future east-west connectivity to the proposed Northeast Corridor station.

Ivan and Oscar concluded the meeting.

Appendix F


FTE FPID: 437053-5
GGI Improvements
PM: Paul Naranjo (D6)
EOR: RS&H
0.500 Miles
Estimated Const. Cost: $22,807,690.97
Production Date: 6/2021
Letting Date: 1/2022
CITY OF MIAMI GARDENS
FTE FPID: 437053-2
GGI Bridge Replacement (870038)
PM: Fabiana Gonzalez (D6)
EOR: CSA
0.100 Miles
Estimated Const. Cost: $7,576,548.65
Production Date: 6/2021
Letting Date: 1/2022
NW 19th AVE
NW 17th AVE
NW 12th AVE
826
FDOT D6 FPID: 428358-1
Reconstruction of SR 826 and
SR 826 EB Ramp to I-95 NB
PM: Fabiana Gonzalez (D6)
EOR: Stantec
5.503 Miles
Estimated Const. Cost: $120,969,703.33
Production Date: 6/2021
Letting Date: 1/2022
FTE FPID: 437053-1
Reconstruction and Realignment of Ramps
from SR 9A Southbound to US 441
New Construction of Direct Express Lane Flyover &
Connection Ramp from FL Turnpike Southbound
to I-95 Express Southbound Express Lane
PM: Fabiana Gonzalez (D6)
EOR: Stantec
2.459 Miles
Estimated Const. Cost: $89,397,186.57
Production Date: 6/2021
Letting Date: 1/2022
9
PARK AND RIDE FACILITY
BISCAYNE CANAL
NW 143rd ST
95
MATCH LINE A-A
FTE FPID: 437053-3
I-95 Reconstruction Southbound
PM: Auraliz Benitez (D6)
EOR: RS&H
0.472 Miles
Estimated Construction
Cost: $39,261,947.05
Production Date: 6/2021
Letting Date: 1/2022
95
NW 151st ST
MATCH LINE A-A

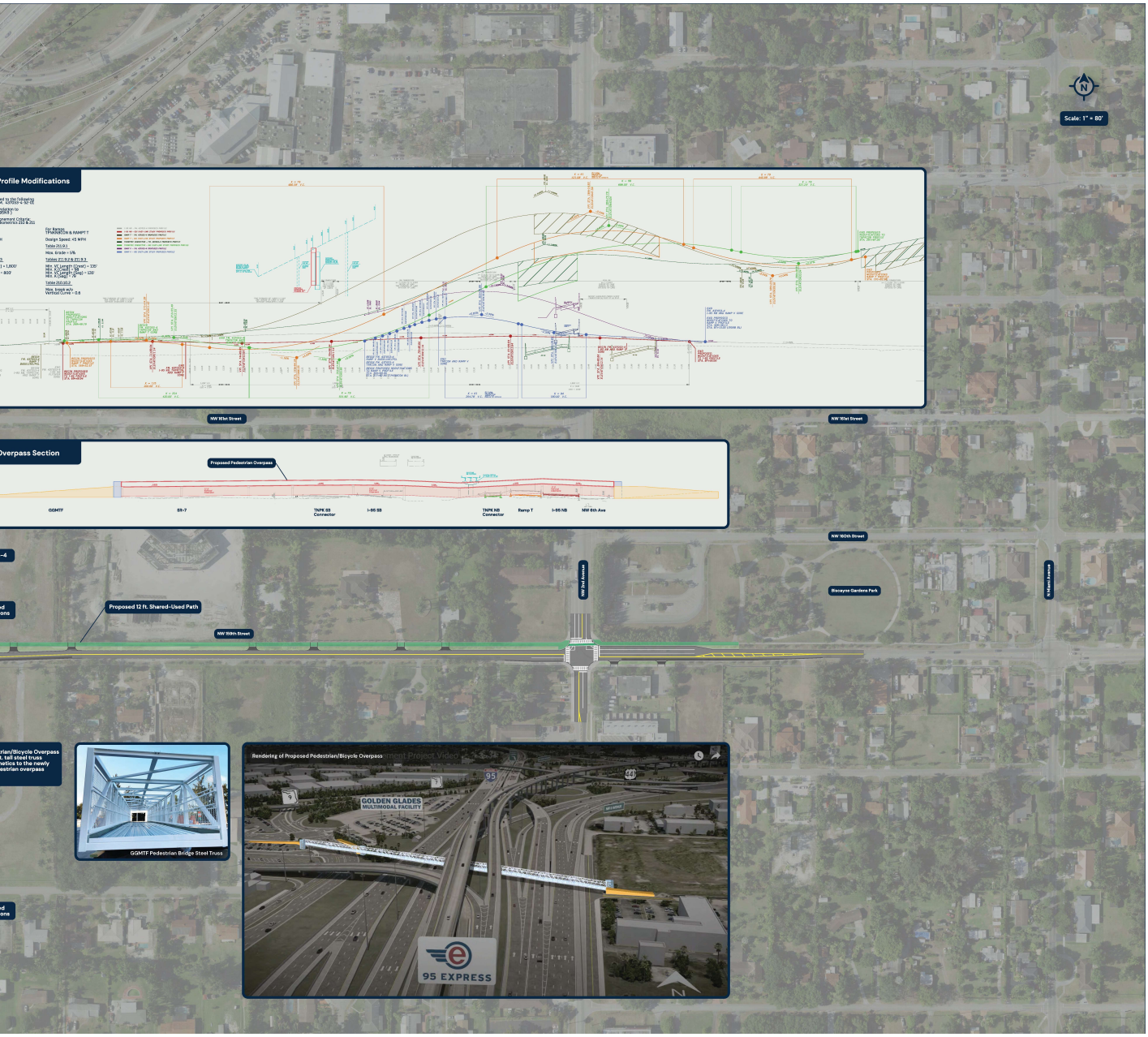
FOR QUES



GOLDEN GLADES INTERCHANGE IMPROVEMENTS

TIONS REGARDING THE GGI PROJECTS PLEASE CONTACT FABIANA GONZALEZ AT FABIANA.GONZALEZ@DOT.STATE.FL.US


MIAMI-DADE TPO
GOLDEN GLADES
EAST LINK
Proposed Pedestrian/Bicycle Overpass
Connecting across the Golden Glades Interchange directly to the Golden Glades Multimodal Transportation Facility (GGMTF) and the future Golden Glades Truck Travel Center (GGTTC), from a proposed shared-use path along NW 159th Street (east of I-95) originating at Biscayne Gardens Park.
Limits of Proposed Profile Modifications
Future Golden Glades Truck Travel Center (GGTTC)
Direct access ramp to GGTTC
(Pending final site configuration)
Golden Glades Multimodal Transportation Facility (GGMTF)
Limits of Proposed Profile Modifications
Rendering of GGMTF


Scale: 1" = 80'
Profile Modifications
NW 97th Street
NW 103rd Street
Overpass Section
Proposed Pedestrian Overpass
GGMTF
SR-7
TNPK SB Connector
I-95 SB
TNPK NB Connector
Ramp T
I-95 NB
NW 6th Ave
NW 107th Street
NW 2nd Avenue
Biscayne Gardens Park
N Miami Avenue
Proposed 12 ft. Shared-Used Path
NW 119th Street
GGMTF Pedestrian Bridge Steel Truss
Rendering of Proposed Pedestrian/Bicycle Overpass
GOLDEN GLADES MULTIMODAL FACILITY
95 EXPRESS

Miami Dade TPO GGMTF East-Link Feasibility Study Comments

ROADWAY

1. The proposed profiles with VPIs are not recommended along the new profiles but only where the new profile connects to the proposed ramps at the gores. According to AASHTO, PPM and FDM for new construction / reconstruction projects, the minimum required criteria regarding vertical geometry, stopping sight distance, length of curve (sag and crest), K value must be met. Spline grade (VPIs) are mostly used for gore connections or matching existing. During RS&H 30% plans submittal, ERC comments from the Department requested geometric profiles for Ramp T and the Turnpike Connector instead of the use of splines. All of the ramps and the I-95 mainline detailed in the concept propose (VPIs) splines, which is not recommended.

2. The Turnpike connector's profile (orange) geometrics shown on the concept appears to be impacting Ramp ZZ at the gore. Was this verified?

3. Additional analysis will be required to the existing HOV flyover's foundation/piers due to the lowering of the I-95, Ramp T and Turnpike Connector's profile within spans 1 to 5. Lowering the profile could potentially expose existing foundations.

4. RS&H's current design provides a vertical geometric profile meeting the minimum 0.3% longitudinal grades as concrete barriers are being proposed. The concept as presented accounts for VPIs with 0.2% longitudinal grades which would require a Design Variation approval by the Department as well as analyzing spread and hydroplaning.

5. All vertical clearances from this project and all adjacent projects need to be verified to ensure vertical clearance criteria is met throughout.

6. RS&H's current design Ramp V connects the express lane to I-95 general purpose lanes. The design at the gores needs to be verified as the Ramp V alignment is in superelevation transition and the I-95 alignment is superelevated, and constrained by the Ramp T bridge.

7. Additional analysis is required to the lowering of the I-95, Ramp T and Turnpike Connector profiles as lowering the profiles could impact "Base Clearance" criteria for the pavement design and TCP since this would require 3 lifts of 3" of Type B 12.5 base as done in other similar conditions. This is based on BCC's Pavement Life Cycle Cost Analysis.

8. Exhibit appears to show that proposed pedestrian bridge is in conflict with the existing flyover. Please clarify how this conflict will be eliminated and how maintenance will be done to the pedestrian bridge.

STRUCTURES

1. The following permanent MSE walls will be impacted by the proposed Pedestrian/Bicycle Overpass concept: MSE Walls 4, 5, 6, 7, 8, 9, 10, and 11.

   Impacts to these permanent MSE walls include changes to horizontal wall geometry (wall limits) and vertical wall geometry. Additionally, any impacts to the drainage design could potentially result in changing the retaining wall type for the abovementioned walls (i.e., portions of CIP walls require to accommodate large drainage pipe diameters).

2. The following bridge replacements will be impacted by the proposed Pedestrian/Bicycle Overpass concept: Bridge B4 and Bridge B8.

   Impacts to these bridge replacements involve the following modifications in the Plans and Calculations: vertical alignment and clearance, finish grade elevations, substructure elevations, end bents and piers vertical geometry, build-up and camber for prestressed beams, prestressed beam schedules, etc. Additionally, updates to prestressed beam designs and load rating could be necessary depending on new build-up values due to profile changes.

3. Ramp T – GGI East-Link Study Proposed Profile and Turnpike Connector – GGI East – Link Study Proposed Profile shows splines on Bridges B4 and B8. Verify that bridge deck is constructable with the proposed splines detailed in the concept. The Department will need to provide approval for the use of splines on the bridges.

4. Bridge B4 is the most affected bridge by the proposed profile changes. At the end of Bridge B4, the Ramp T – GGI East-Link Study Proposed Profile is approximately 3’ higher than the Ramp T – FM 437053-4 Proposed Profile. Consequently, MSE Wall 10C will exceed the 40’ height limit specified in the SDG. A horizontal bench along the MSE Wall 10C could be evaluated to prevent exceeding the 40’ height limit without creating a perched wall. However, this could potentially reduce the storage capacity for the adjacent pond. Any mitigation plan will have to be discussed with Drainage and the Department.

   The Department will need to provide approval for the use of a MSE wall taller than 40’ if no other measures are taking to prevent exceeding the height limit. Possible redesign of Bridge B4 may be required if the Department rejects the use of a MSE wall taller than 40’.

5. The Ramp T – GGI East-Link Study Proposed Profile is adding more embankment at the end of Bridge B4, this translates into more additional embankment load on the existing I-95 SB-NB EL flyover foundations. This will need to be investigated during the ACP secant wall system design tasks.

6. The proposed profiles will change the embankment height configurations on all the existing I-95 SB-NB EL flyover foundations previously identified as requiring analysis and/or design solutions to mitigate additional embankment load. In some cases, the additional embankment load will be lower than anticipated, but in other locations the load will be higher. Roadway needs to process

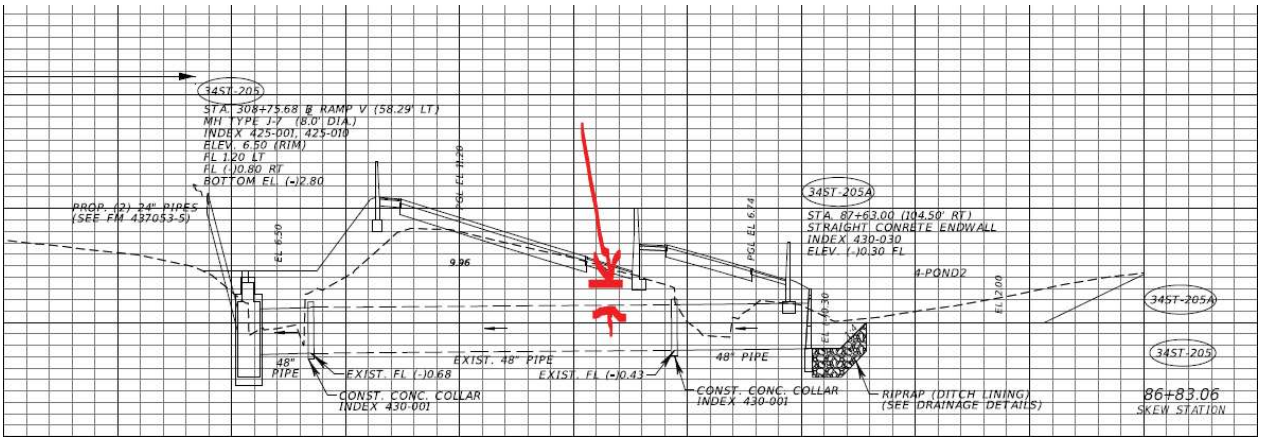
these changes before Structures can begin the ACP secant wall designs/plans production for the affected existing I-95 SB-NB EL flyover foundations.

7. Verify that sufficient access/clearance is provided between the existing I-95 SB-NB EL flyover and the proposed Pedestrian/Bicycle Overpass concept for maintenance and inspection of both bridges.

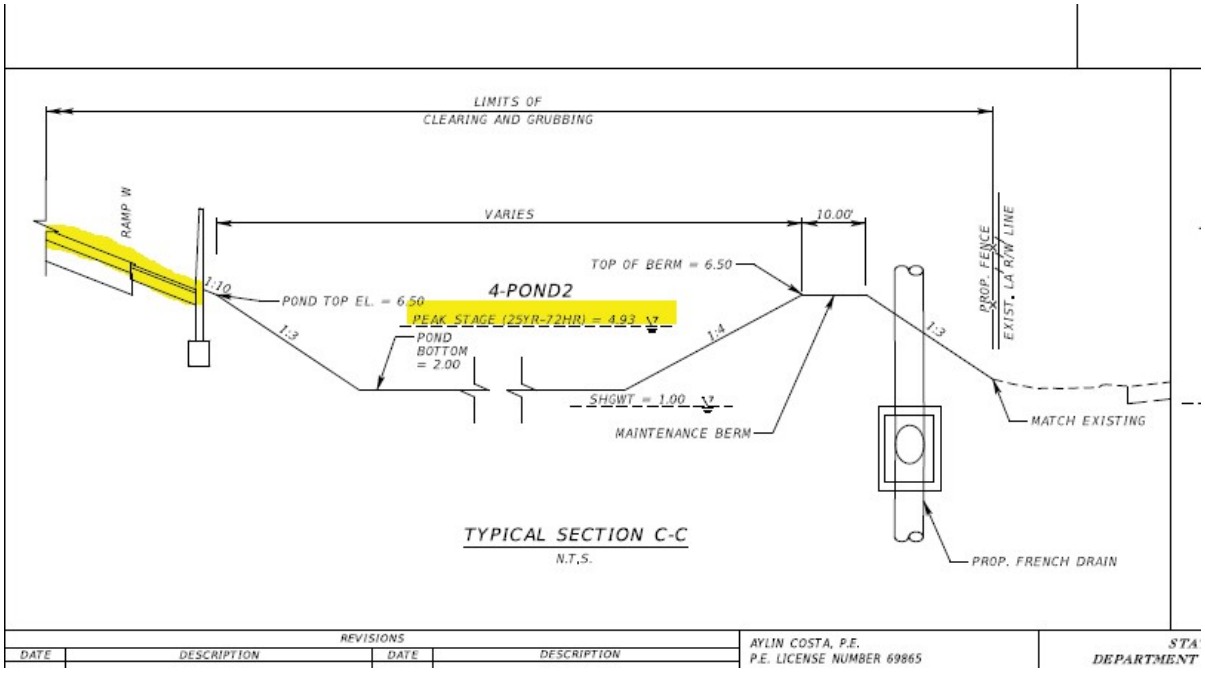
8. Verify that existing I-95 SB-NB EL flyover foundations will not be uncovered due to lowering the proposed Turnpike Connector profile. See Roadway Comment # 3.

DRAINAGE

1. The main 48” culverts near station 86+00 would likely not meet clearance to roadway base. These are very critical connections that must be maintained. As you can see below we are barely meeting minimum clearance and we are already dredging with rip rap onto 4-Pond2 to make this work.



2. The freeboard at 4-Pond2 is likely to not be met with the lower I-95 profile. The pond 25yr-72hr stage would likely be higher than the I-95 gutter grade. As it currently stands, we are just barely meeting the design requirements for this pond. This was a problem identified from the beginning of the project.



3. The proposed Ramp T profile low point would now be lower than the existing grade at that location. This is almost never a good proposition for drainage, especially in a project this size and would likely result in new stage issues at Ramp T.

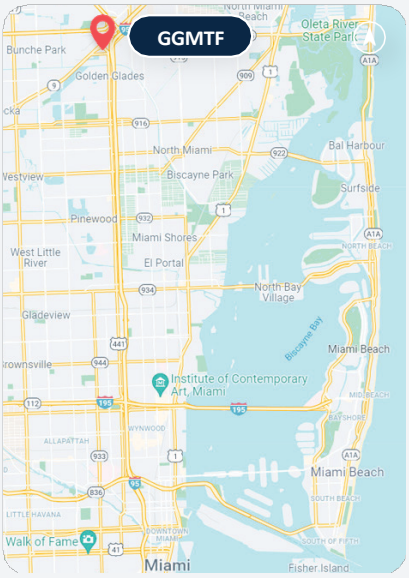
Appendix G

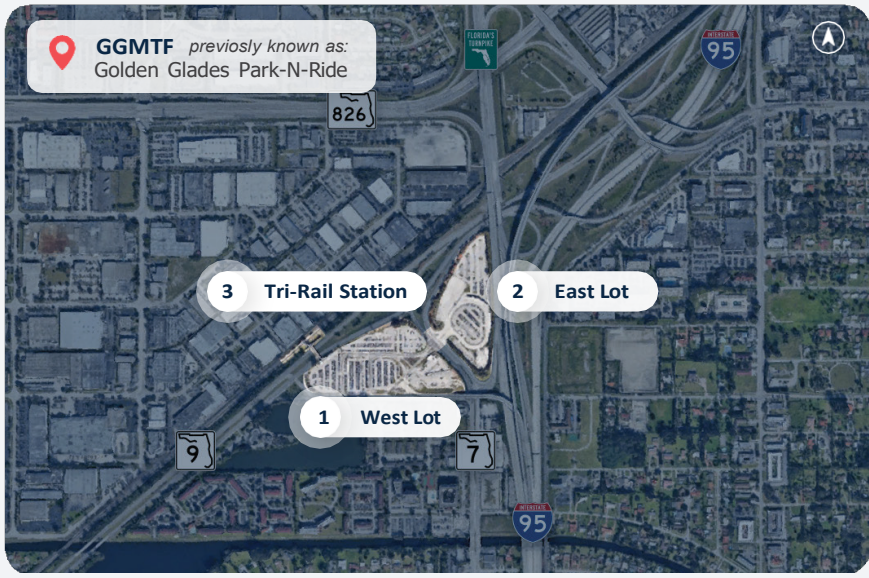
MIAMI-DADE TPO
GOLDEN GLADES
EAST LINK

FACTSHEET

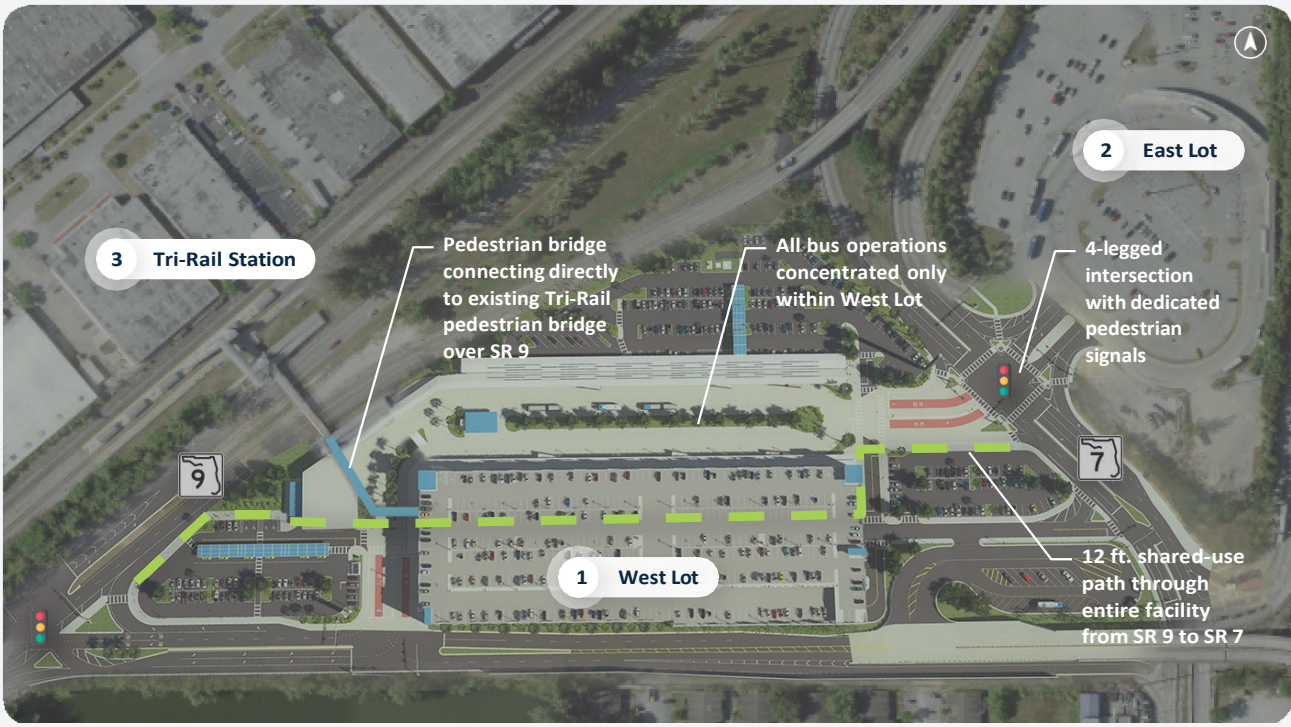
FEASIBILITY STUDY

Project Location





Current Conditions



Study Purpose

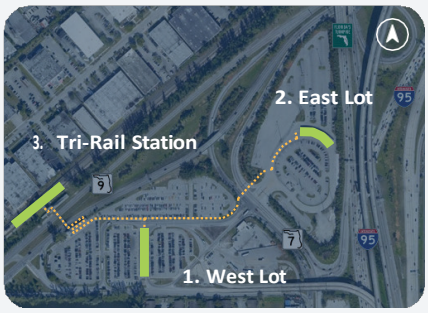
To determine safe, convenient, and enticing bicycle and pedestrian connections to the **Golden Glades Multimodal Transportation Facility (GGMTF), across SR-7**, from the future Golden Glades Truck Travel Center (GGTTC), and from the surrounding areas east of the GGTTC.

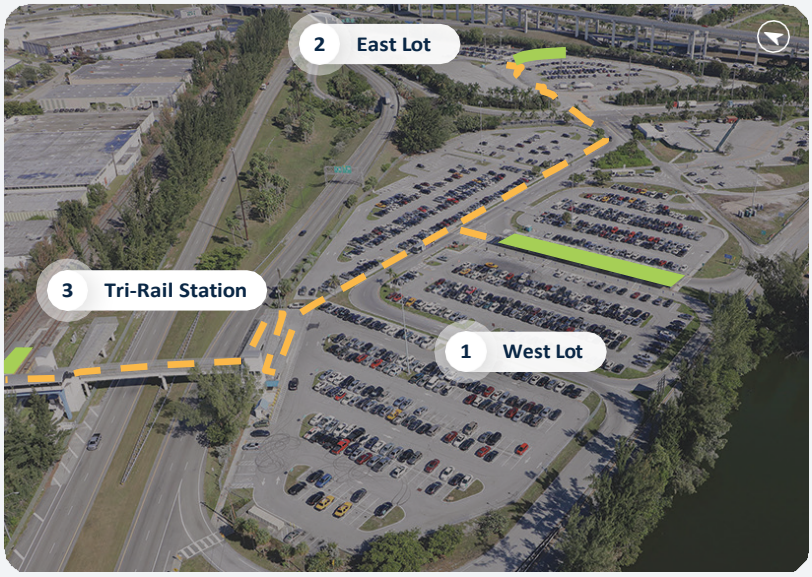
Previous Conditions

Boarding areas were scattered and lacked defined routes.

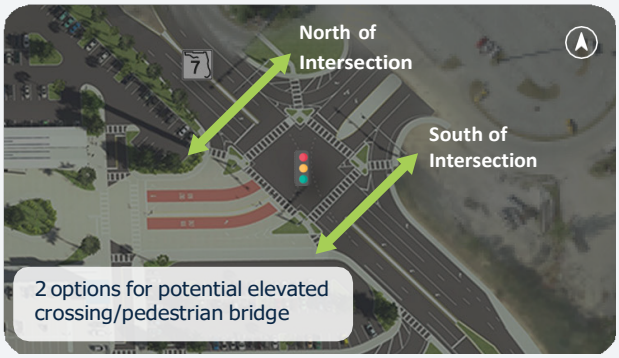
Long and indirect walking distances having to cross SR 7 to transfer modes and/or transit routes.

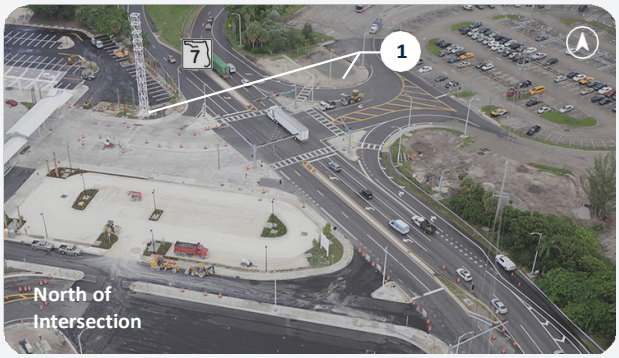
Boarding Areas *Walking Routes*





Alternative to Cross SR 7





1. Bridge on north side of intersection presents conflicts with existing 100' pylon and utilities for landing within the GGMTF and with trucks exiting right out of the future GGTTC.

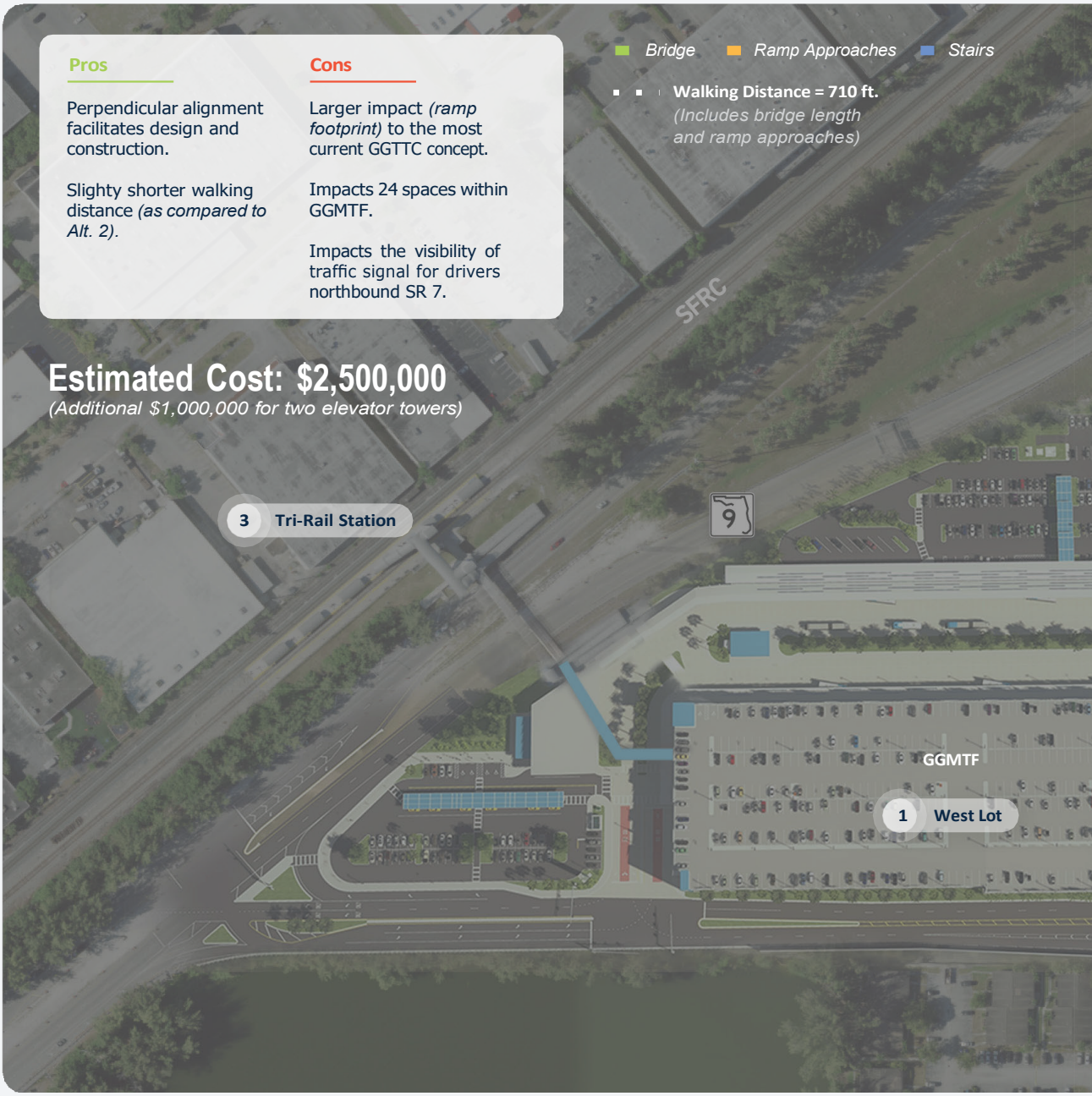
2. Bridge on south side of intersection provides direct connection to shared-use path within GGMTF and has more space, and fewer to no conflicts, to land within each lot.

MIAMI-DADE TPO
GOLDEN GLADES
EAST LINK

FACTSHEET

FEASIBILITY STUDY

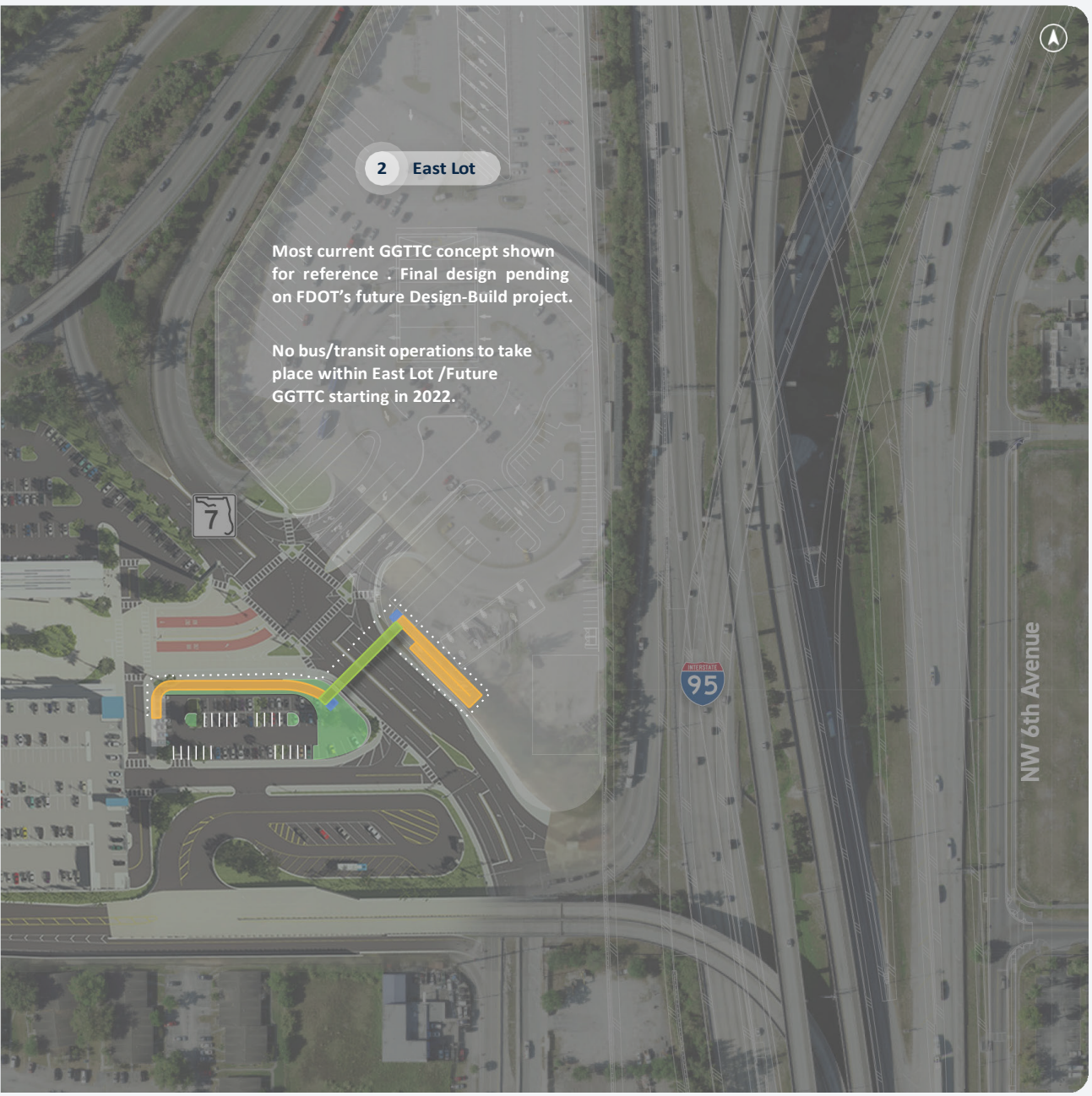
Alternative 1



*Note: Conceptual cost estimate was updated for the Final Report.

Study Purpose

To determine safe, convenient, and enticing bicycle and pedestrian connections to the **Golden Glades Multimodal Transportation Facility (GGMTF), across SR-7**, from the future Golden Glades Truck Travel Center (GGTTC), and from the surrounding areas east of the GGTTC.

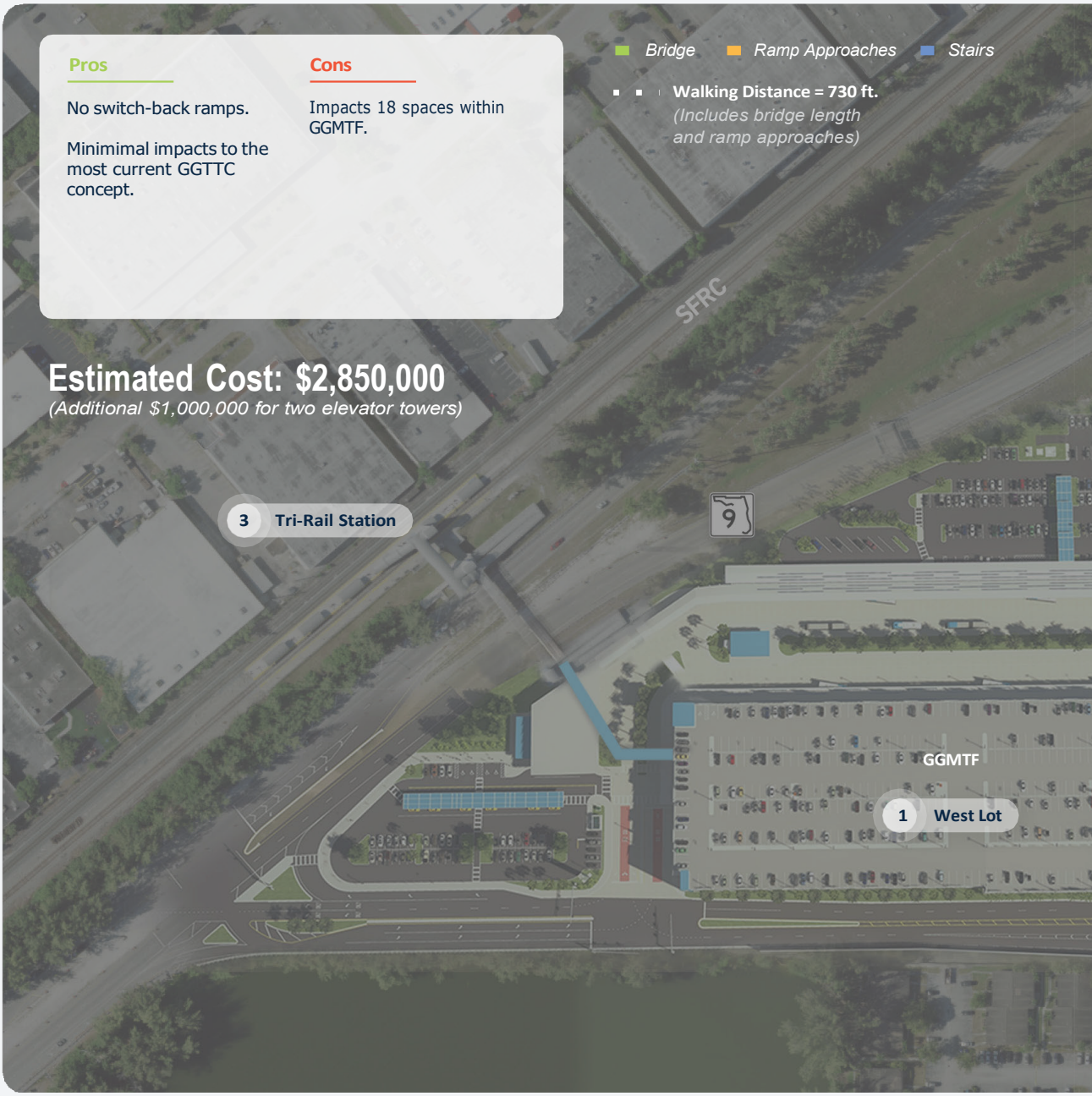


MIAMI-DADE TPO
GOLDEN GLADES
EAST LINK

FACTSHEET

FEASIBILITY STUDY

Alternative 2



*Note: Conceptual cost estimate was updated for the Final Report.

Study Purpose

To determine safe, convenient, and enticing bicycle and pedestrian connections to the **Golden Glades Multimodal Transportation Facility (GGMTF), across SR-7**, from the future Golden Glades Truck Travel Center (GGTTC), and from the surrounding areas east of the GGTTC.

MIAMI-DADE TPO
GOLDEN GLADES
EAST LINK

FACTSHEET

FEASIBILITY STUDY

Alternative 3 *(Recommended)*

Pros

No switch-back ramps.

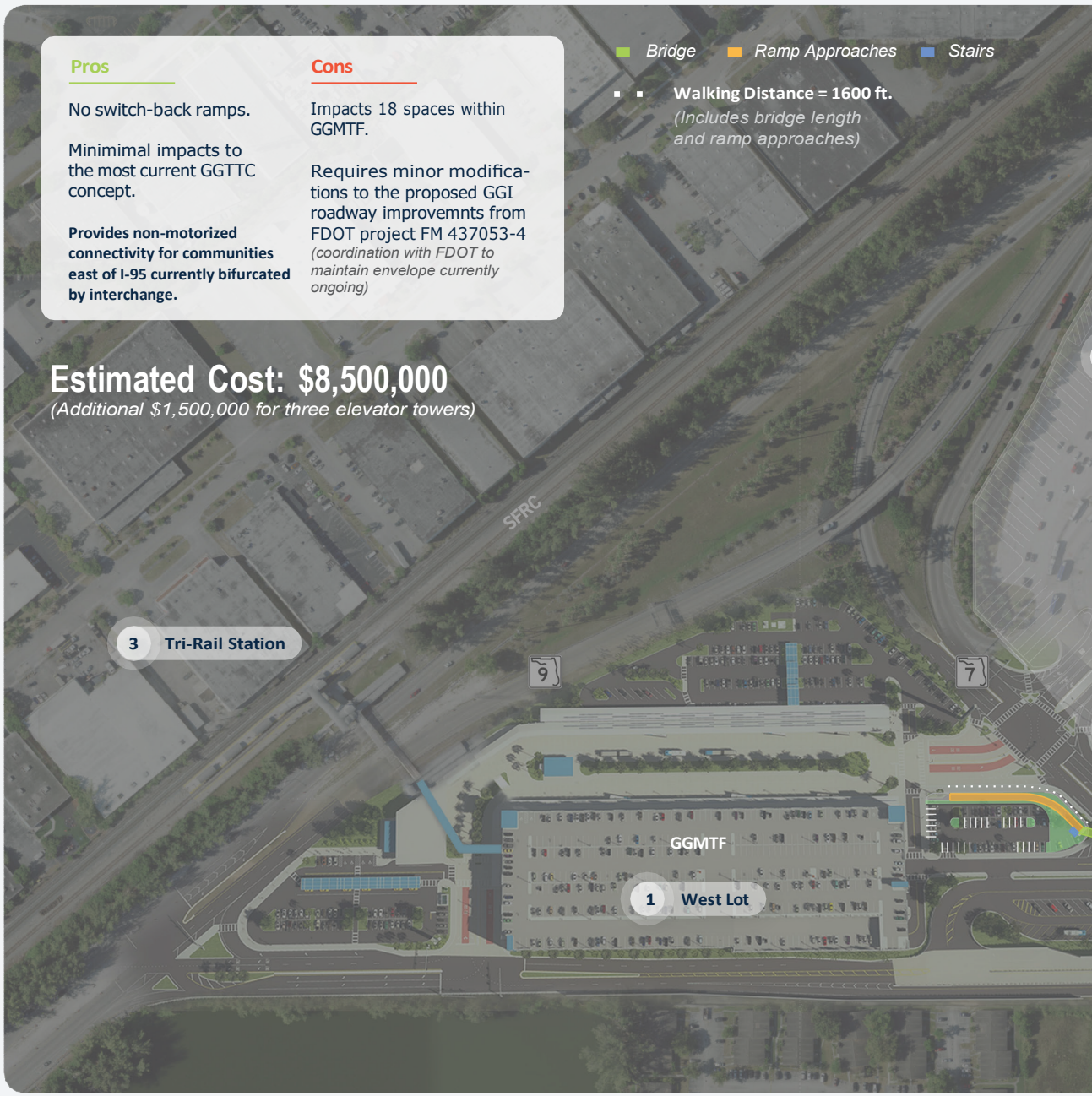
Minimimal impacts to the most current GGTTC concept.

Provides non-motorized connectivity for communities east of I-95 currently bifurcated by interchange.

Cons

Impacts 18 spaces within GGMTF.

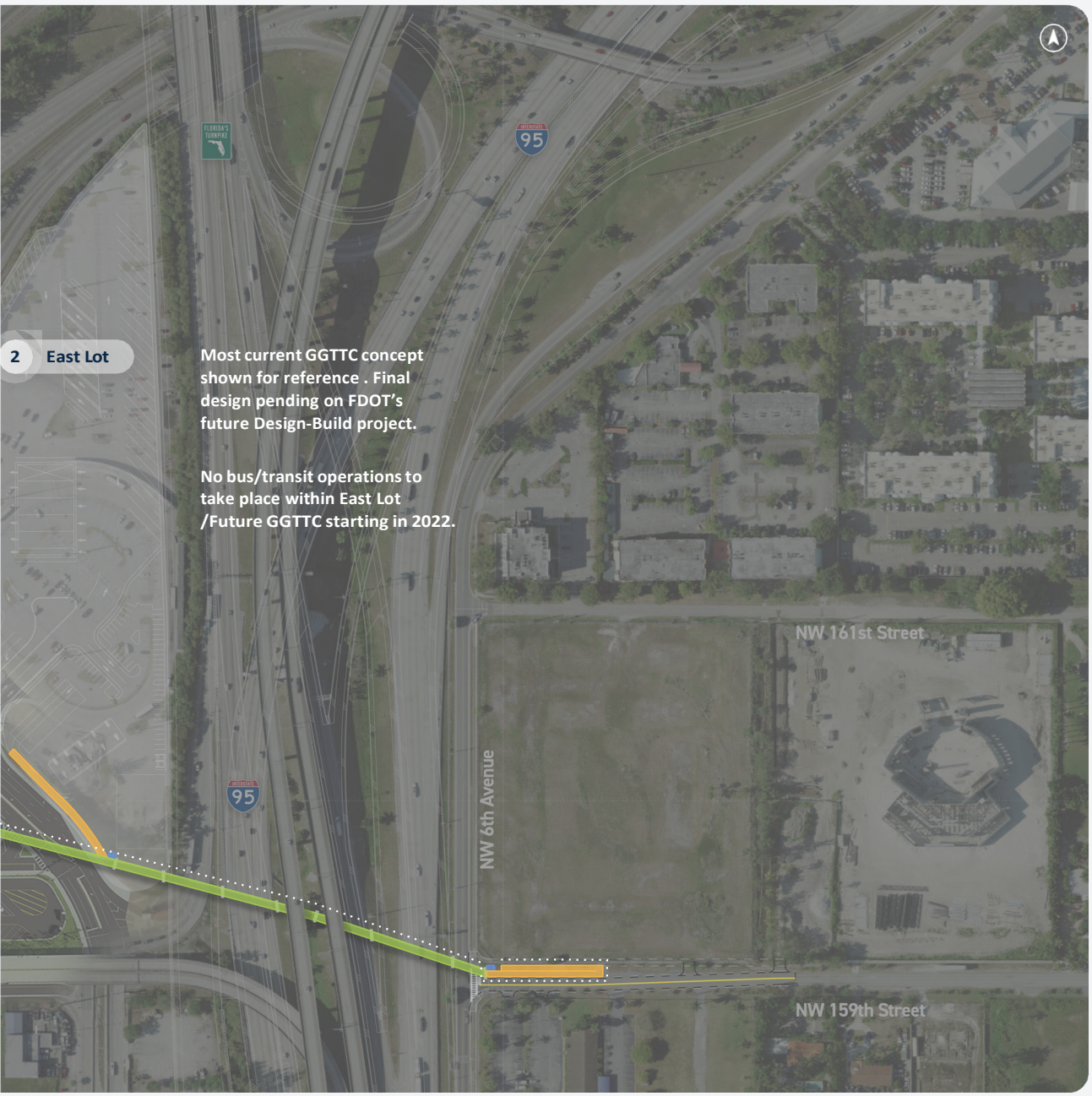
Requires minor modifications to the proposed GGI roadway improvemnts from FDOT project FM 437053-4 *(coordination with FDOT to maintain envelope currently ongoing)*



*Note: Conceptual cost estimate was updated for the Final Report.

Study Purpose

To determine safe, convenient, and enticing bicycle and pedestrian connections to the **Golden Glades Multimodal Transportation Facility (GGMTF), across SR-7**, from the future Golden Glades Truck Travel Center (GGTTC), and from the surrounding areas east of the GGTTC.



MIAMI-DADE TPO
GOLDEN GLADES
EAST LINK

FACTSHEET

FEASIBILITY STUDY

Conceptual Rendering of Alternative 3 *(Recommended)*

Study Purpose

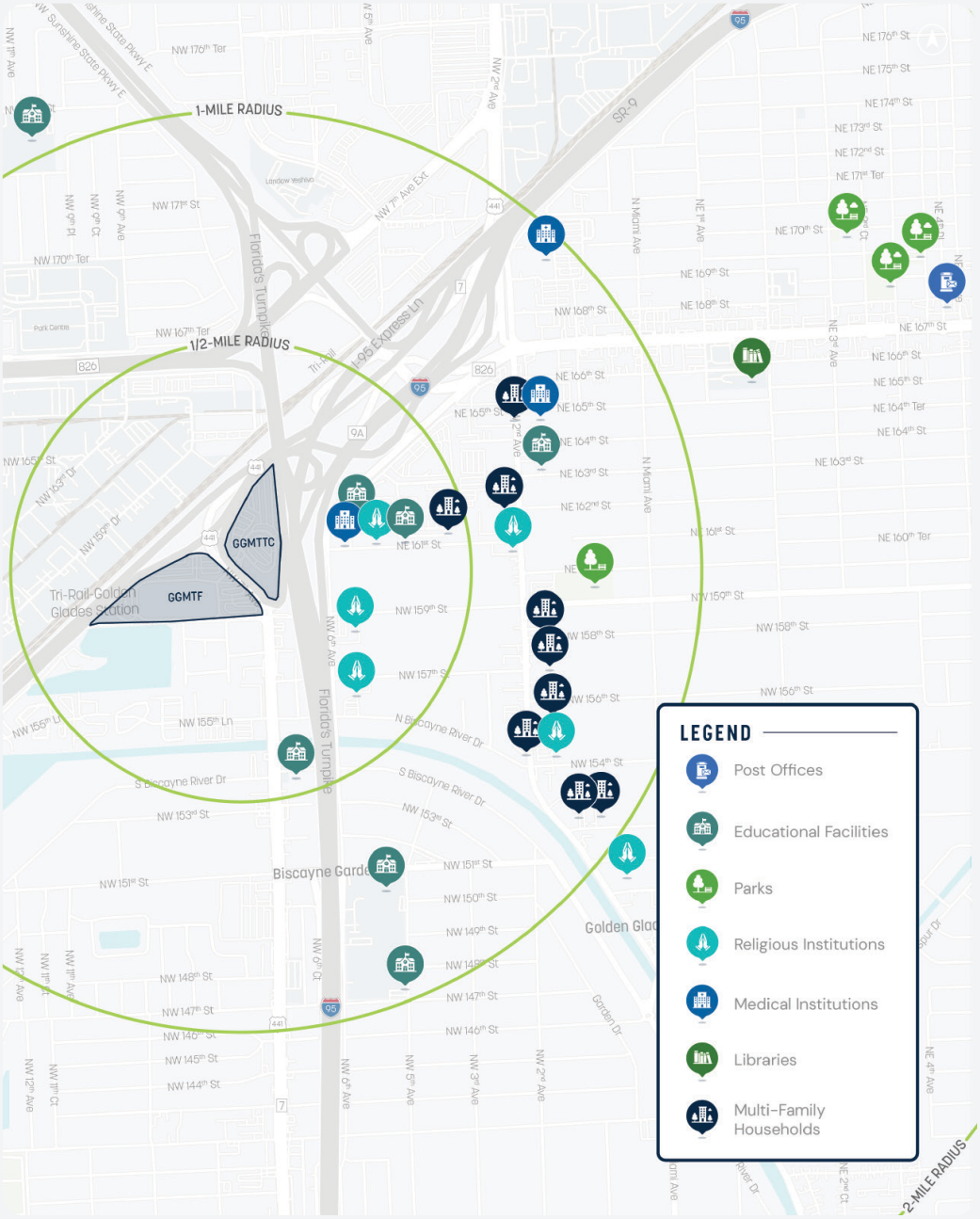
To determine safe, convenient, and enticing bicycle and pedestrian connections to the **Golden Glades Multimodal Transportation Facility (GGMTF), across SR-7**, from the future Golden Glades Truck Travel Center (GGTTC), and from the surrounding areas east of the GGTTC.

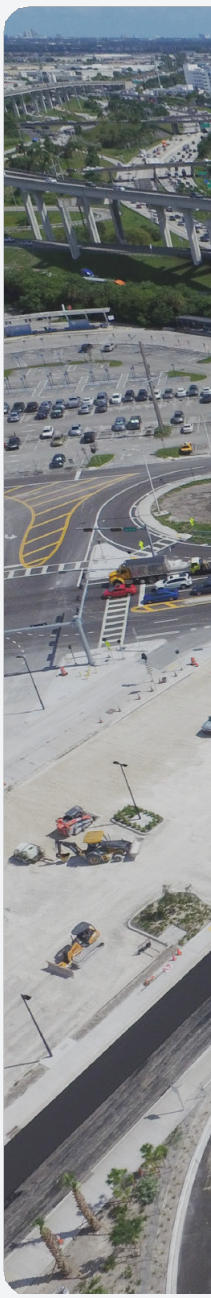
MIAMI-DADE TPO
GOLDEN GLADES
EAST LINK

FACTSHEET

FEASIBILITY STUDY

Benefits of Extending to East of I-95





Study Purpose

To determine safe, convenient, and enticing bicycle and pedestrian connections to the **Golden Glades Multimodal Transportation Facility (GGMTF), across SR-7**, from the future Golden Glades Truck Travel Center (GGTTC), and from the surrounding areas east of the GGTTC.

Connects the communities east of I-95 that are currenlty bifurcated by the Golden Glades Interchange and provides a non-motorized link to:

Multi-Family Households
672 Units in Multi-Family Developments
160 Units Retirement Community

Religious Institutions
6 Religious Institutions

Medical Institutions
1 Hospital (Jackson North)
2 Medical Centers

Educational Facilities
3 Schools
1 Technical/Trade School

Appendix H

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MIAMI-DADE TPO
GOLDEN GLADES
EASTLINK

Golden Glades Multimodal Transportation Facility Bike & Pedestrian Eastside Connectivity Study

Refinement of Recommended
Bike & Pedestrian Bridge Concept
GPC-VII TWO#46

Introduction

The purpose of this feasibility study was to determine a safe, convenient, and enticing bicycle and pedestrian connection to the GGMTF, across US-441/SR 7/ NW 7th Avenue, from the future Golden Glades Truck Travel Center (GGTTC), and from the surrounding sectors east of I-95/SR 9A. Located southeast of the Golden Glades Interchange (GGI), the GGMTF is a critical transportation hub providing multiple public transit services including intercity bus, local, limited-stop, express buses, local circulators, regional commuter rail (i.e., Tri-Rail), and ridesharing. The GGMTF has also been identified as a transit hub in the Strategic Miami Area Rapid Transit (SMART) Plan. Unfortunately, the GGMTF is inaccessible to bicyclists and pedestrians from neighborhoods east of SR 9A/I-95 given the various roadways, ramps, and canals that make up the GGI which create extensive physical and psychological mobility barriers for non-motorized modes of transportation.

To fulfill the purpose and need of the feasibility study, the study team developed a recommended alternative (see Alternative 3 in the Final Report of GPC-VII TWO# 30) that proposes constructing a 930-feet long bicycle and pedestrian bridge across US-441/SR 7/NW 7th Avenue, SR 821/Florida's Turnpike Southbound Connector, I-95/SR 9A, and NW 6th Avenue (see Figure 1). However, to make the

recommended bicycle and pedestrian bridge a viable alternative, certain modifications to adjacent projects in the area are required. One modification required is the removal of 18 surface parking spaces from the GGMTF Orange Lot to accommodate the bridge landing and ramps into the GGMTF shared-use path and parking garage. Another required modification is the reconstruction of approximately 250 feet of NW 159th Street, east of NW 6th Avenue, to accommodate the bridge landing and ramp into Biscayne Gardens. Another bridge landing and ramp is proposed at the GGTTC which has yet to be designed. Lastly, the immediate modifications required resulting from the recommended bicycle and pedestrian bridge are vertical geometry changes proposed to the ongoing GGI Enhancement Project. Comprising eight unique project segments, the proposed enhancements to the GGI will reconstruct several miles of roadways and ramps in an effort to increase regional connectivity along five major facilities: SR 9A/I- 95, SR 826/Palmetto Expressway, Florida's Turnpike, SR 9, and US-441/SR 7/ NW 7th Avenue. In particular, the recommended alternative of the feasibility study impacts the Florida Department of Transportation (FDOT) project Financial Number (FM) Number 437053-4-52-01. Impacts include vertical geometry changes to the future Northbound Turnpike Express Ramp, Ramp V, Ramp T, and I-95 Northbound Mainline. Figure 2 illustrates the refined recommended alternative and Figure 3 illustrates the GGI Enhancement Project.

Figure 1: Pedestrian Bridge Rendering

Figure 2: Golden Glades Multimodal Transportation Facility (GGMTF)
Bike & Ped Eastside Connectivity Feasibility Study Refined Recommended Alternative

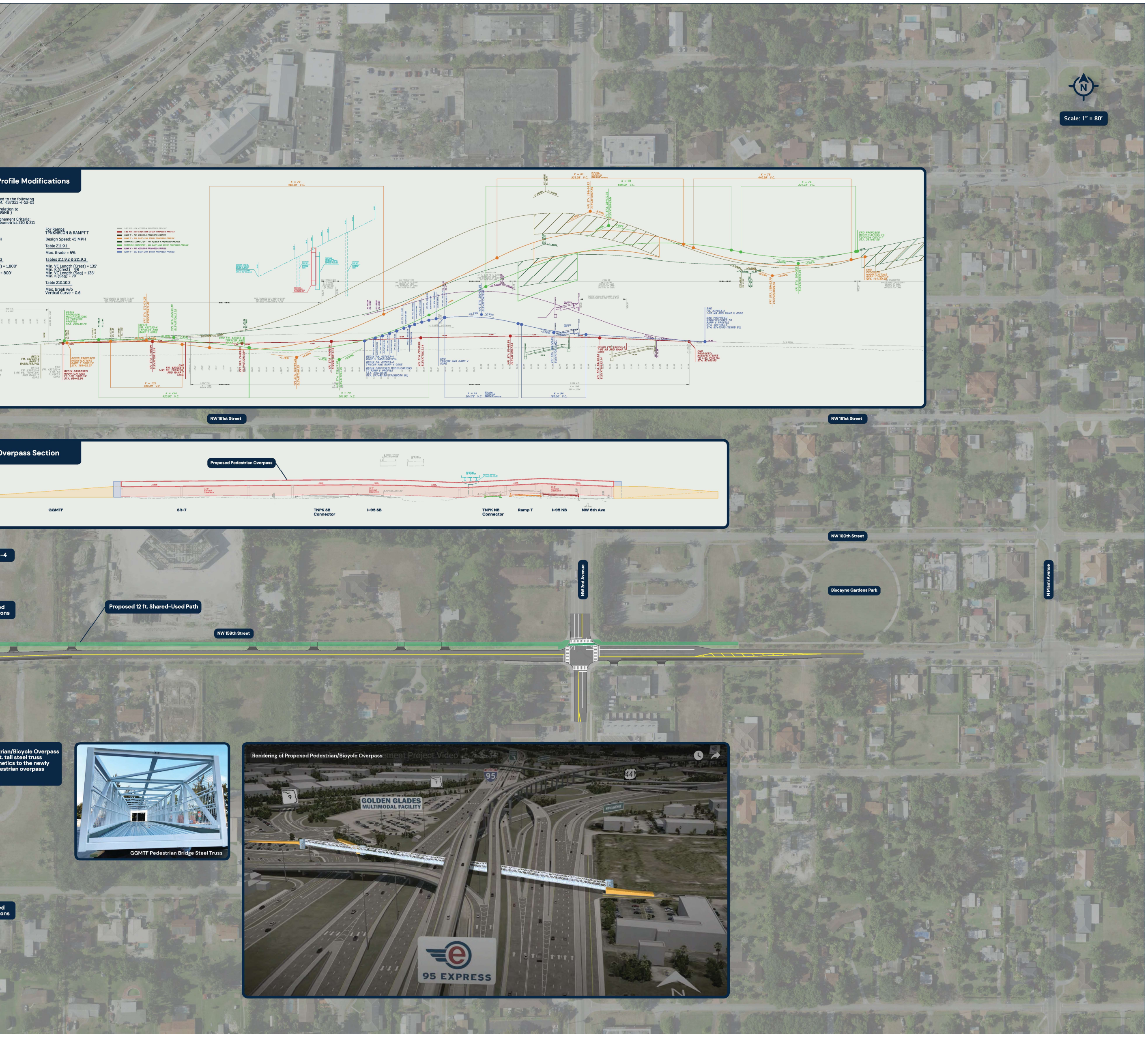
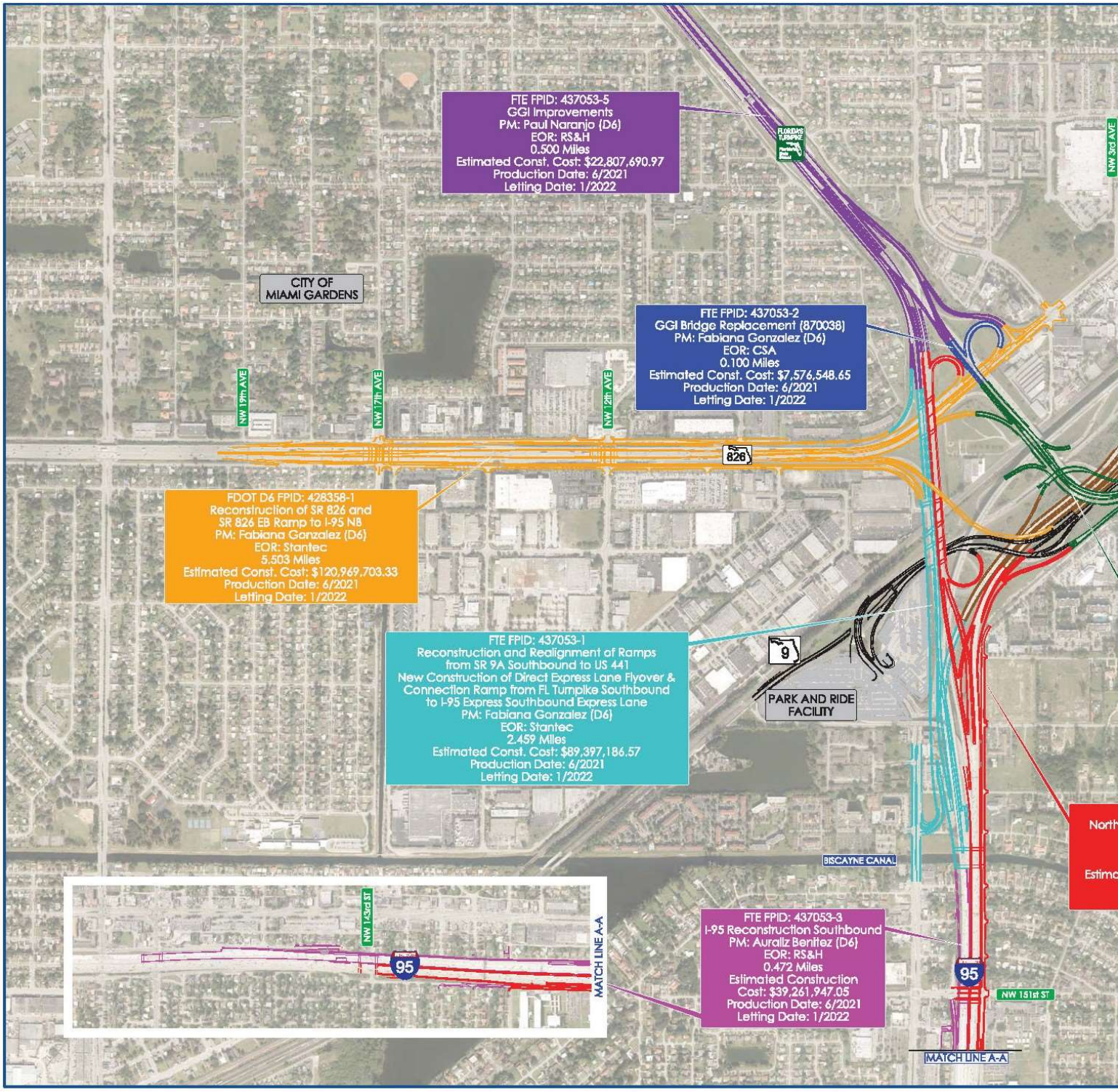
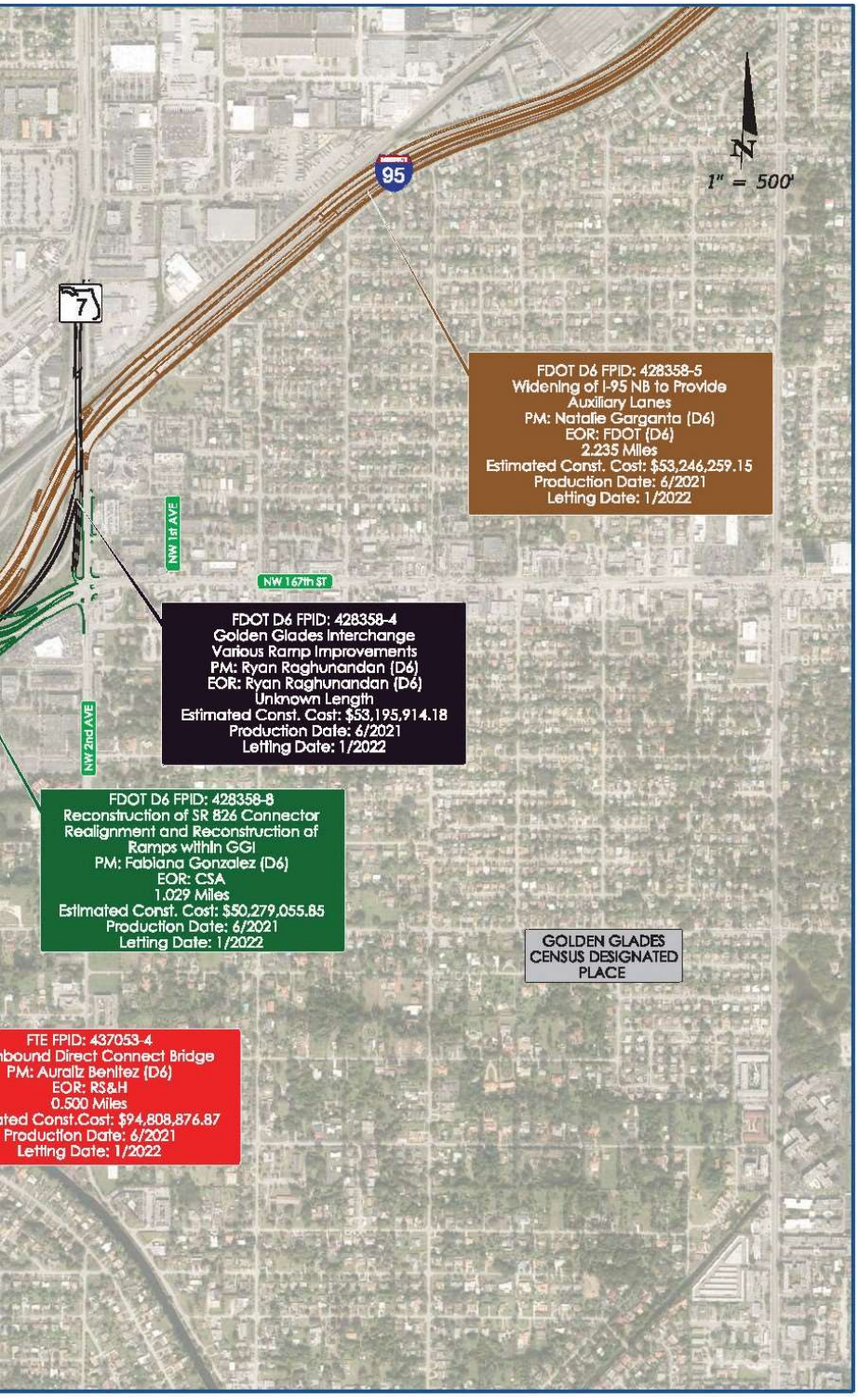

Scale: 1" = 80'
Profile Modifications
Overpass Section
Proposed Pedestrian Overpass
GGMTF
SR-7
TNPK SB Connector
I-95 SB
TNPK NB Connector
Ramp T
I-95 NB
NW 6th Ave
NW 161st Street
NW 161st Street
NW 160th Street
NW 2nd Avenue
N Miami Avenue
Biscayne Gardens Park
Proposed 12 ft. Shared-Used Path
NW 159th Street
GGMTF Pedestrian Bridge Steel Truss
Rendering of Proposed Pedestrian/Bicycle Overpass
GOLDEN GLADES
MULTIMODAL FACILITY
95 EXPRESS

Figure 3: Golden Glades Interchange Enhancement Project





Through the development of the GGMTF Bike & Ped Eastside Connectivity Feasibility Study, the study team coordinated extensively with FDOT to ensure the proposed changes to Project FM Number 437053-4-52-01 were viable. On October 27, 2021 the study team presented a summary of the feasibility study to FDOT D6 Secretary Stacey Miller. During this meeting, District Secretary Stacey Miller was in favor of the recommended alternative but was very concerned about potential schedule impacts to GGI Enhancement Project given FDOT is under a strict commitment to let the construction of this project by Fiscal Year 2022/23. The ongoing GGI Enhancement Project has scheduled 90% design plans by March 2022 and 100% design plans by June 2022. During this meeting, District Secretary Stacey Miller agreed to preserve the envelope for the recommended bicycle and pedestrian bridge only if the proposed changes to the GGI Enhancement Project resulted in no schedule impacts and if FDOT could independently confirm the engineering and financial feasibility of making the proposed changes.

This report documents additional conceptual design efforts and coordination undertaken to ensure the viability of the recommended alternative from the GGMTF Bike & Ped Eastside Connectivity Feasibility Study and satisfy FDOT requirements.

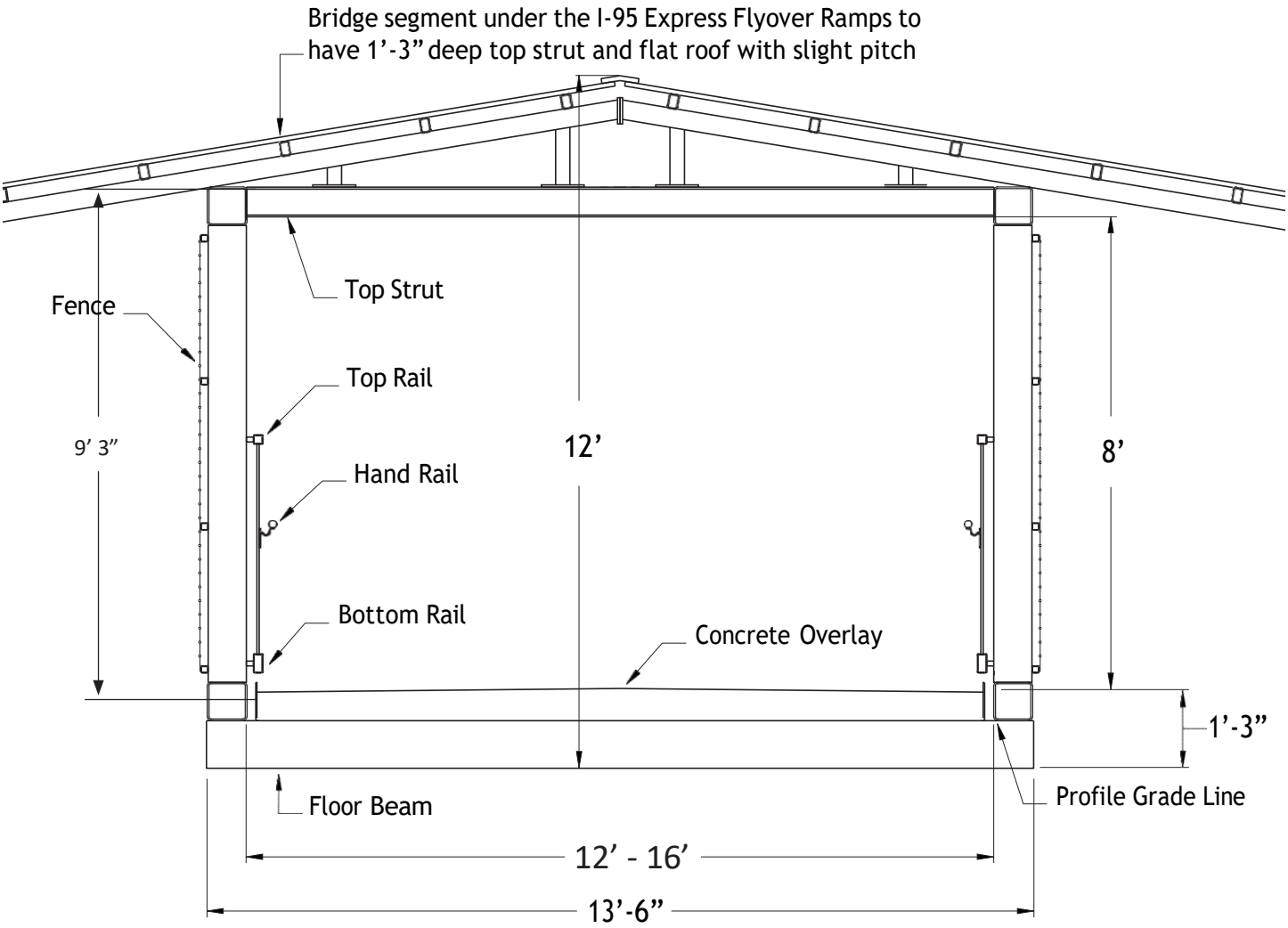
Refinement of Recommended Bike & Pedestrian Bridge Concept

The GGMTF Bike & Pedestrian Eastside Connectivity Feasibility Study recommends a bicycle and pedestrian bridge that connects the GGMTF Orange Lot, the GGTTC entrance, and the intersection of NW 159th Street and NW 6th Avenue (see Alternative 3). The recommended bridge has a direct horizontal geometry connecting these points and a top of structure elevation of approximately 36.5 feet. Figure 3 illustrates the recommended typical section of the proposed bicycle and pedestrian bridge. The typical section includes a 12-feet wide clear path, with the potential to increase to 16 feet to accommodate the future potential use of micromobility modes of transportation such as electric scooters, electric bicycles, cargo bicycles, golf carts, etc. The recommended alternative includes eight piers on US-441/SR 7/ NW 7th Avenue and the GGTTC and GGI right-of-way in addition to three landings and access ramps at the GGMTF Orange Lot, GGTTC, and on the north sidewalk of NW 159th Street.

This section documents the changes made to the recommended alternative (Alternative 3) of the GGMTF Bike & Pedestrian Eastside Connectivity Feasibility Study to ensure the proposed bridge typical section and horizontal and vertical geometries can be accommodated across the GGI.

1. The bridge was modified to have a +5% profile grade line on the segment under the SR 9A/I-95 Northbound Express Flyover and over the future Northbound Turnpike Express Ramp and Ramp T.
2. The bridge was modified to have -4.25% profile grade line on the segment under the I-95 Southbound Express Flyover Ramp.
3. A new pier was introduced between Ramp T and I-95 Northbound Mainline to accommodate new bridge grades.
4. The bridge was modified to have -4% profile grade line on the segment over I-95 Northbound Mainline and NW 6th Avenue.

Figure 3: Recommended Typical Section of the Proposed Bicycle and Pedestrian Bridge



Review and Evaluation of FDOT GGI Enhancement Project

The GGMTF Bike & Ped Eastside Connectivity Feasibility Study recommends lowering the vertical profiles of the Northbound Turnpike Express Ramp, Ramp V, Ramp T, and I-95 Northbound Mainline by varying distances to accommodate a 17.5-feet vertical clearance from the bottom of the lowest member of the proposed bicycle and pedestrian bridge.

This effort made the following design refinements to the proposed horizontal and vertical geometry changes to Project FM Number 437053-4-52-01 to secure an envelope for the recommended bicycle and pedestrian bridge across the GGI.

1. The I-95 Northbound Mainline profile grade line was refined to be higher than previously proposed to FDOT for the preferred bridge alternative while maintaining a sawtooth profile with minimum grade tangent lengths of 250 feet.
2. The Northbound Turnpike Express Ramp profile grade line was refined to comply with minimum vertical curve requirements for a design speed of 45 MPH with K values equal to 79 feet for sag curves and equal to 98 feet for crest curves.
3. Ramp T and Ramp V profile grade lines were refined to comply with minimum vertical curve requirements for a design speed of 45 MPH with K value equal to 79 feet for sag curves. A K value equal to 61 feet was used for crest curve to be consistent with the crest curve K value proposed by Project FM Number 437053-4-52-01. The FDOT design consultants for Project FM Number 437053-4-52-01 already obtained a Design Variation for the proposed crest curve K value.
4. Slight adjustments were proposed for the profile grade line of Ramp S to provide acceptable gore breaks as the horizontal geometry of the ramp ties into the modified Ramp T.
5. Slight adjustments were proposed for the profile grade line of Ramp W to provide acceptable gore breaks as the horizontal geometry of the ramp breaks away from the I-95 Northbound Mainline.

NOTE: K value represents the horizontal distance along which a 1% change in grade occurs on the vertical curve.

Coordination

Through communications with FDOT District Project Manager Engineer Supervisor for the FDOT Enhancement Project and FDOT District Six Director of Transportation Development, FDOT committed to modifying the roadway design plans for Project FM Number 437053-4-52-01 to create an envelope for the recommended bicycle and pedestrian bridge to be constructed within the interchange. FDOT clarified that the engineering design of the recommended bridge cannot be included with the current GGI Enhancement Project due to strict funding and schedule commitments for the reconstruction of the interchange. Through a series of conceptual design reviews and revisions, the study team and FDOT were able to achieve a concept that was feasible from an engineering perspective. On January 6, 2022 FDOT reviewed the latest concept presented on December 13, 2021 and agreed to proceed with revising the design of Project FM Number 437053-4-52-01 to accommodate the envelope for the recommended bicycle and pedestrian bridge based on the conceptual alignment. Changes to Project FM Number 437053-4-52-01 will be reflected on the 90% design plan submittal due May 2022.

Updated Conceptual Cost Estimate

Table 1 presents a detailed conceptual cost estimate for the recommended bicycle and pedestrian bridge which totals approximately $18,907,000. This alternative includes three elevator towers at each side of US-441/SR 7/NW 7th Avenue and at the intersection of NW 6th Avenue and NW 159th Street. The updated conceptual cost estimate was developed using comparable construction costs for the pedestrian bridge over W Dixie Highway/Florida East Coast Railroad (FDOT FM# 879096) in Miami-Dade County. The conceptual cost estimate also includes the reconstruction of the GGMTF Orange Lot to accommodate the proposed bridge ramp. The construction of a shared-use path along NW 159th Street, from NW 6th Avenue to Biscayne Gardens Park, is estimated to cost an additional $1,806,000.

Table 1: Proposed Reconstruction of the GGMTF Orange Lot Conceptual Cost Estimate

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Roadway	Inlet Protection System	EA	7.00	$183.89	$1,287.23
	Clearing & Grubbing	AC	0.63	$10,178.04	$6,451.77
	Removal of Existing Concrete	SY	507.89	$16.41	$8,334.52
	Type B Stabilization (Widening)	SY	32.56	$0.78	$25.39
	Optional Base Group 01 (Widening)	SY	32.56	$15.22	$495.49
	Milling Existing Asphalt Pavement,2" Avg. Depth	SY	1872.02	$2.02	$3,781.49
	Superpave Asphaltic Concrete, Traffic C, PG76-22 (M&R)	TN	314.26	$123.11	$38,688.02
	Asphalt Concrete Friction Course, Traffic C, FC-12.5, PG 76-22 (M&R)	TN	314.26	$148.42	$46,641.83
	Concrete Curb & Gutter, Type D	LF	475.86	$27.20	$12,943.46
	Concrete Sidewalk and Driveways, 4" Thick	SY	125.09	$38.75	$4,847.07
	Detectable Warnings	SF	300.00	$27.69	$8,307.00
	Performance Turf, Sod	SY	1025.05	$2.49	$2,552.39
Subtotal					**$134,355.66**
Signing and Pavement Markings	Painted Pavement Markings, STD, White, Solid, 6"	GM	0.09	$805.69	$73.39
	Painted Pavement Markings, STD, White, Solid, 12" for Crosswalk	LF	30.00	$0.44	$13.20
	Painted Pavement Markings, STD, White, Solid, 24" for Stop Line and Crosswalk	LF	30.00	$0.81	$24.30
	Painted Pavement Markings, STD, Yellow, Solid, 6"	GM	0.01	$872.76	$8.60
	Painted Pavement Markings, Final Surface	LS	1.00	$16,763.19	$16,763.19
	Thermoplastic, STD, White, Solid, 12" For Crosswalk	LF	30.00	$1.62	$48.60
	Thermoplastic, STD, White, Solid, 24" for Stop Line	LF	30.00	$3.33	$99.90
	Thermoplastic, Preformed, White, Solid, 24" for High Emphasis Crosswalk	LF	180.00	$14.82	$2,667.60
	Thermoplastic, Preformed, White, Arrow	EA	0.00	$240.57	$-
	Thermoplastic, STD-Other Surfaces, White, Solid, 6"	GM	0.09	$3,763.34	$342.81
	Thermoplastic, STD-Other Surfaces, Yellow, Solid, 6"	GM	0.01	$3,833.83	$37.76
Subtotal					**$20,079.35**

ITEM	AMOUNT
Subtotal	$154,435.01
Mobilization (7%)	$10,810.45
Maintenance of Traffic (10%)	$15,443.50
Utilities (2%)	$3,088.70
Lighting (10%)	$15,443.50
Drainage (10%)	$15,443.50
Design (10%)	$15,443.50
Geotechnical (15% of Design)	$2,316.53
Survey (15% of Design)	$2,316.53
CEI (8%)	$12,354.80
Contingency (15%)	$23,165.25
Total (Rounded to Nearest Thousand)	**$271,000.00**

Table 2: Proposed Bike-Ped Bridge Conceptual Cost Estimate

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Structures	Steel Truss	SF	12600.00	$250.00	$3,150,000.00
	Concrete Class IV, Bridge Substructure	CY	100.00	$1,465.00	$146,500.00
	Concrete Class IV, MASS Substructure	CY	1000.00	$1,000.00	$1,000,000.00
	Reinforcing Steel - Bridge Substructure	LB	200350.00	$1.25	$250,437.50
	Drilled Shaft, 48" Diameter	LF	1990.00	$622.00	$1,237,780.00
	Drilled Shaft Casting, 48" Diameter	LF	1850.00	$360.00	$666,000.00
	Core - Pilot Hole, Drilled Shaft Excavation	LF	550.00	$45.00	$24,750.00
	Thermal Integrity Testing, up to 4' Shaft Diameter	EA	10.00	$1,500.00	$15,000.00
	Bridge Drainage Pipe	LF	283.00	$198.00	$56,034.00
	Fencing, Type R, 6.1-7.0', w/Partial Enclosure	LF	1853.00	$325.00	$602,225.00
	Conduit, F&I, Embedded Concrete	LF	5574.00	$8.40	$46,821.60
	Junction Box, F&I, Embedded	EA	16.00	$425.00	$6,800.00
	Architectural - Special Walls/ Towers & Elevators	LS	3.00	$950,000.00	$2,850,000.00
	Fencing, Type R, 7.1-8.0', w/Full Enclosure	LF	974.00	$545.00	$530,830.00
	Embankment (Fill)	CY	4576.89	$14.37	$65,769.96
Subtotal					**$10,648,948.06**

ITEM	AMOUNT
Subtotal	$10,648,948.06
Reconstruction of the GGMTF Orange Lot	$271,000.00
Mobilization (7%)	$745,426.36
Maintenance of Traffic (10%)	$1,064,894.81
Utilities (2%)	$212,978.96
Lighting (10%)	$1,064,894.81
Drainage (10%)	$1,064,894.81
Design (10%)	$1,064,894.81
Geotechnical (15% of Design)	$159,734.22
Survey (15% of Design)	$159,734.22
CEI (8%)	$851,915.84
Contingency (15%)	$1,597,342.21
Total (Rounded to Nearest Thousand)	**$18,907,000.00**

Table 3: Proposed Shared-Use Path on NW 159th Street Conceptual Cost Estimate

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Roadway	Inlet Protection System	EA	3.00	$183.89	$551.67
	Clearing & Grubbing	AC	3.41	$10,178.04	$34,663.10
	Tree Removal	EA	200.00	$27.58	$5,516.00
	Removal of Existing Concrete	SY	1614.67	$16.41	$26,496.68
	Regular Excavation	CY	3901.45	$4.49	$17,517.51
	Type B Stabilization (Share-Use Path)	SY	2984.30	$0.78	$2,327.75
	Type B Stabilization (Widening)	SY	917.15	$0.78	$715.38
	Optional Base Group 01 (Share-Use Path)	SY	2984.30	$15.22	$45,420.97
	Optional Base Group 01 (Widening)	SY	917.15	$15.22	$13,959.08
	Milling Existing Asphalt Pavement, 2" Avg. Depth	SY	8553.95	$2.02	$17,278.98
	Superpave Asphaltic Concrete, Traffic A (Share-Use Path)	TN	492.41	$112.63	$55,459.99
	Superpave Asphaltic Concrete, Traffic C, PG76-22 (Widening & M&R)	TN	1562.73	$123.11	$192,387.94
	Asphalt Concrete Friction Course, Traffic C, FC-12.5, PG 76-22 (Widening & M&R)	TN	1562.73	$148.42	$231,940.68
	Concrete Class NS, Gravity Wall Index 400-011 (For Shared-Use Path Thickened Edge)	CY	103.26	$572.68	$59,135.84
	Concrete Curb & Gutter, Type F	LF	15.24	$22.41	$341.44
	Concrete Curb & Gutter, Type D	LF	46.27	$27.20	$1,258.51
	Shoulder Gutter - Concrete	LF	182.35	$21.15	$3,856.70
	Concrete Sidewalk and Driveways, 4" Thick	SY	785.94	$38.75	$30,455.07
	Detectable Warnings	SF	600.00	$27.69	$16,614.00
	Guardrail - Roadway, General TL-3	LF	50.00	$22.00	$1,100.00
	Performance Turf, Sod	SY	2598.46	$2.49	$6,470.15
	Patterned Pavement, Vehicular Areas (Green Colored Pavement)	SY	25.74	$117.00	$3,011.98
Subtotal					**$766,479.43**

Table 3: Proposed Shared-Use Path on NW 159th Street Conceptual Cost Estimate (*Continued)*

ITEM TYPE	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
Signing and Pavement Markings	Painted Pavement Markings, STD, White, Solid, 6"	GM	0.19	$805.69	$156.68
	Painted Pavement Markings, STD, White, Solid, 12" for Crosswalk	LF	479.91	$0.44	$211.16
	Painted Pavement Markings, STD, White, Solid, 24" for Stop Line and Crosswalk	LF	120.53	$0.81	$97.63
	Painted Pavement Markings, STD, White, 2-4 Dotted Guideline/6-10 Dotted Extension, 6"	GM	0.03	$352.04	$10.00
	Painted Pavement Markings, STD, White, Message or Symbol	EA	2.00	$40.51	$81.02
	Painted Pavement Markings, STD, White, Arrows	EA	8.00	$25.11	$200.88
	Painted Pavement Markings, STD, Yellow, Solid, 6"	GM	2.13	$872.76	$1,862.02
	Painted Pavement Markings, Final Surface	LS	1.00	$16,763.19	$16,763.19
	Thermoplastic, STD, White, Solid, 12" For Crosswalk	LF	479.91	$1.62	$777.45
	Thermoplastic, STD, White, Solid, 24" for Stop Line	LF	120.53	$3.33	$401.36
	Thermoplastic, STD, White, 2-4 Dotted Guideline/6-10 Dotted Extension, 6"	GM	0.03	$1,343.80	$38.18
	Thermoplastic, STD, White, Message or Symbol	EA	2.00	$84.79	$169.58
	Thermoplastic, STD, White, Arrows	EA	8.00	$52.40	$419.20
	Thermoplastic, Preformed, White, Solid, 24" for High Emphasis Crosswalk	LF	1332.00	$14.82	$19,740.24
	Thermoplastic, Preformed, White, Arrow	EA	0.00	$240.57	$-
	Thermoplastic, STD-Other Surfaces, White, Solid, 6"	GM	0.19	$3,763.34	$731.83
	Thermoplastic, STD-Other Surfaces, Yellow, Solid, 6"	GM	2.13	$3,833.83	$8,179.43
Subtotal					**$49,839.86**
Structures	Removal of Existing Structures/Bridges	SF	1920.00	$26.63	$51,129.60
	Concret Class IV, Culverts	CY	89.42	$780.00	$69,748.24
	Concrete Class IV, Bridge Culverts	CY	89.42	$858.87	$76,800.86
	Pedestrian / Bicycle Railing, Steel Only, 48" Type 1	LF	50.00	$57.20	$2,860.00
	Concrete Parapet, Pedestrian / Bicycle, 27" Height	LF	50.00	$115.00	$5,750.00
	Concrete Sidewalk and Driveways, 4" Thick	SY	123.73	$38.75	$4,794.54
Subtotal					**$211,083.23**

ITEM	AMOUNT
Subtotal	$1,031,851.11
Mobilization (7%)	$72,229.58
Maintenance of Traffic (10%)	$103,185.11
Utilities (2%)	$20,637.02
Lighting (10%)	$103,185.11
Drainage (10%)	$103,185.11
Design (10%)	$103,185.11
Geotechnical (15% of Design)	$15,477.77
Survey (15% of Design)	$15,477.77
CEI (8%)	$82,548.09
Contingency (15%)	$154,777.67
Total (Rounded to Nearest Thousand)	**$1,806,000.00**

Recommendation and Conclusion

Through coordination with FDOT, an envelope has been preserved for the recommended alternative to cross I-95/SR 9A via changes to the ongoing FDOT D6 GGI Enhancement Project. More specifically, the study team proposed vertical profile changes of the Northbound Turnpike Express Ramp, Ramp V, Ramp T, and I-95 Northbound Mainline. Through a series of conceptual design reviews and revisions of the recommended bicycle and pedestrian bridge and proposed changes to Project FM Number 437053-4-52-01, the study team and FDOT were able to achieve a feasible concept. On January 6, 2022 FDOT reviewed the feasible concept presented on December 13, 2021 and agreed to proceed with revising the design of Project FM Number 437053-4-52-01 to accommodate the envelope for the recommended bicycle and pedestrian bridge. Changes to FDOT Project FM Number 437053-4-52-01 will be reflected on the 90% design plan submittal due May 2022.

MIAMI-DADE TPO
GOLDEN GLADES
EASTLINK

Golden Glades Multimodal Transportation Facility Bike & Pedestrian Eastside Connectivity Study

Refinement of Recommended Bike & Pedestrian Bridge Concept

GPC-VII TWO#46

prepared by: Gannett Fleming, Inc.

Golden Glades Multimodal Transportation Facility Bike & Pedestrian Eastside Connectivity Study

Technical Memorandum #4

Final Report - GPC-VII TWO#30

prepared by: Gannett Fleming, Inc.

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