FLAGLER TRAIL

NORTHEAST NON-MOTORIZED NETWORK MASTER PLAN

Prepared for:

Miami-Dade Transportation Planning Organization

Prepared by:

Gannett Fleming

December 2018

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PREPARED FOR:

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The preparation of this report has been financed in part from the U.S. Department of Transportation (USDOT) through the Federal Highway Administration (FHWA) and/or the Federal Transit Administration (FTA), the State Planning and Research Program (Section 505 of Title 23, U.S. Code) and Miami-Dade County, Florida. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

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INTRODUCTION

Miami-Dade County, Florida, has seen extensive growth over the last 20 years. With the increase in population comes the need for alternative forms of transportation and increased connectivity between facilities. To address this growth, the Miami-Dade TPO is researching ways to increase bicycle and pedestrian access countywide. Bicycling and walking requires human physical activity which reduces the risk of chronic diseases and other health impacts, as well as improves overall physical fitness. Improving an environment's walkability creates spaces that are user-friendly as well as enjoyable. Miami-Dade County does have an extensive existing non-motorized network, however, there is a need for more direct connections from downtown Miami to the northern part of the county. This Master Plan analyzes the existing conditions and improvements necessary to incorporate a non-motorized network within a 2-mile buffer of the Northeast Corridor starting in downtown Miami and traveling north to the Broward County line.

The Northeast Corridor is one of six rapid transit corridors identified in the Miami-Dade's People's Transportation Plan in 2002 and as a "highest priority" corridor in the Strategic Miami Area Rapid Transit Plan (SMART Plan). The SMART Plan was adopted unanimously by the TPO Governing Board in February 2016 for the advancement of rapid transit corridors and transit supportive projects in the county. The Northeast Corridor runs along the Florida East Coast Rail (FEC) Corridor. The Northeast Corridor in Miami-Dade County runs from Downtown Miami to the City of Aventura.

The FEC rail corridor is currently being used for the Virgin Trains (Brightline), an intercity passenger express train service currently connecting Miami, Ft. Lauderdale, and West Palm Beach and for transporting freight.

The Tri-Rail Coastal Link will reintroduce commuter passenger service along the FEC rail corridor from Downtown Miami to Jupiter in Palm Beach County. This 85-mile rail corridor will connect several densely populated municipalities in eastern Miami-Dade, Broward, and Palm Beach Counties. The Tri-Rail Coastal Link Study is currently in the Project Development and Environmental (PD&E) phase. There are six Tri-Rail Coastal Link Stations located in Miami-Dade County and therefore are located within the Study Area for this study.

This study focuses on the development of desirable, human scale environments that contribute to a non-motorized comprehensive network of pedestrian and bicycle facilities along the Northeast Corridor. FDOT defines a pedestrian as any person travelling on foot or in a wheelchair. Pedestrian facilities may include: sidewalks, crosswalks, refuge islands, curb extensions, pedestrian signals, and public transit loading zones. A bicycle facility is any infrastructure improvement made to a roadway to accommodate or encourage bicycling. Bicycle facilities play an important role in providing for safe bicycle travel. Bicycle facilities may include: bicycle lanes, separated bicycle lanes, bicycle parking facilities.[1] The proposed bicycle/pedestrian connections identified in this study are located outside the FEC rail corridor Right-of-Way (ROW) and will provide additional connectivity to the Tri-Rail Coastal Link Stations.

[1] *222 Pedestrian Facilities; 223 Bicycle Facilities*, FDOT Design Manual, January 1, 2019.

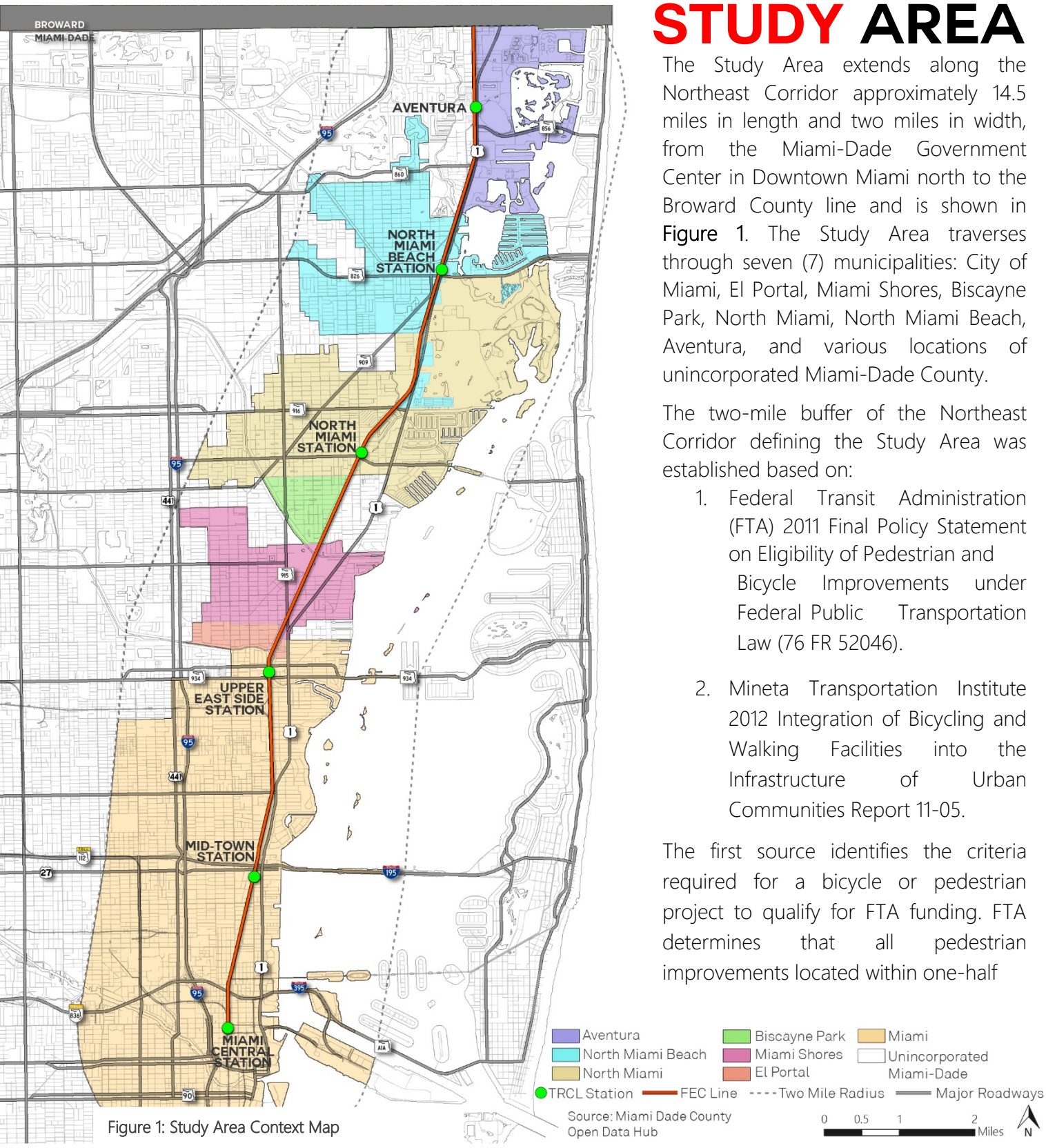


Figure 1: Study Area Context Map

STUDY AREA

The Study Area extends along the Northeast Corridor approximately 14.5 miles in length and two miles in width, from the Miami-Dade Government Center in Downtown Miami north to the Broward County line and is shown in Figure 1. The Study Area traverses through seven (7) municipalities: City of Miami, El Portal, Miami Shores, Biscayne Park, North Miami, North Miami Beach, Aventura, and various locations of unincorporated Miami-Dade County.

The two-mile buffer of the Northeast Corridor defining the Study Area was established based on:

1. Federal Transit Administration (FTA) 2011 Final Policy Statement on Eligibility of Pedestrian and Bicycle Improvements under Federal Public Transportation Law (76 FR 52046).

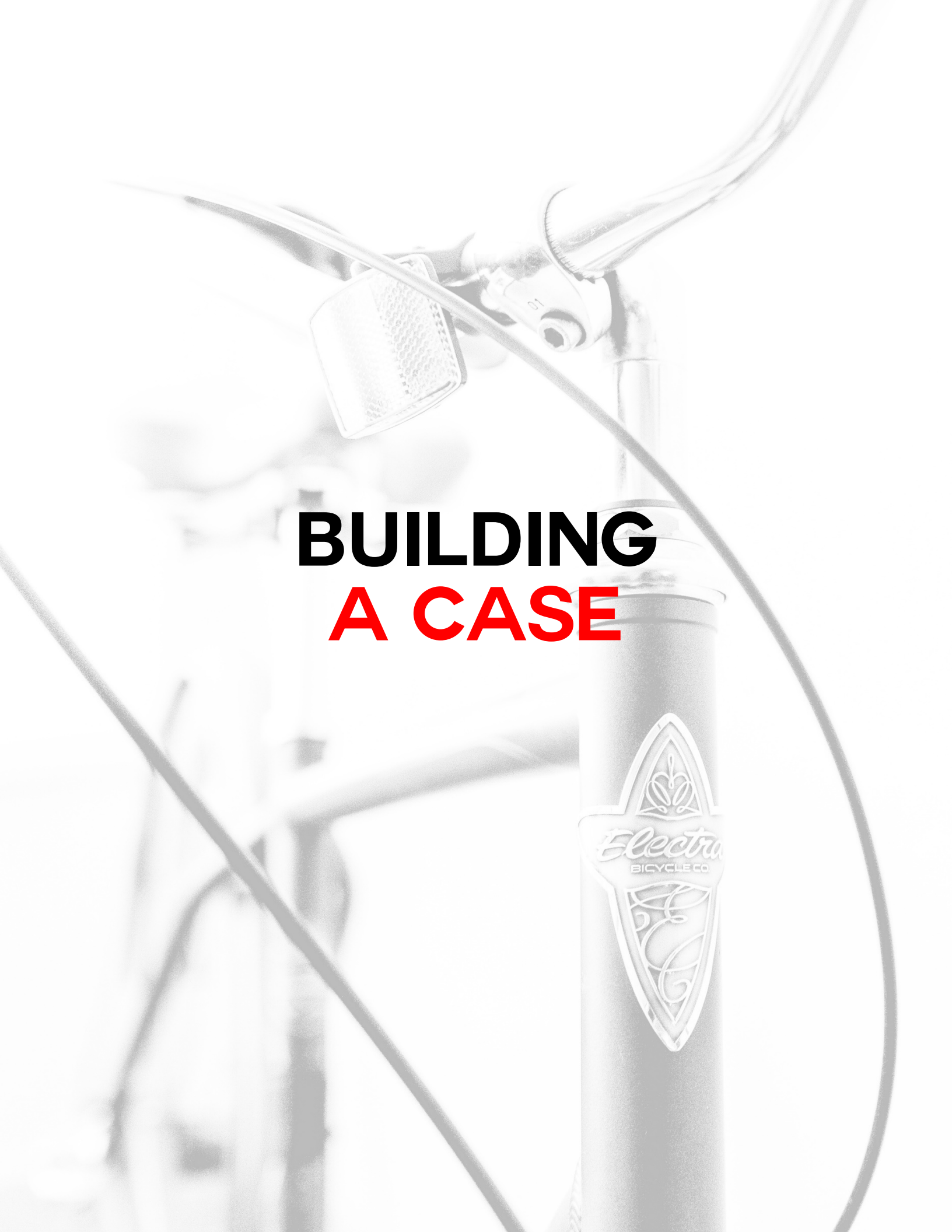
2. Mineta Transportation Institute 2012 Integration of Bicycling and Walking Facilities into the Infrastructure of Urban Communities Report 11-05.

The first source identifies the criteria required for a bicycle or pedestrian project to qualify for FTA funding. FTA determines that 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. Projects beyond these distances may be eligible for FTA funding by demonstrating that the improvement is within the distance that people will travel by foot or by bicycle to use a stop or station.

The second source comes from the Norman Y. Mineta International Institute for Surface Transportation Policy Studies (MTI) which was established by Congress in 1991 and works to provide policy-oriented research for all levels of government and the private sector to foster the development of optimum surface transportation systems. This source highlights best practices and identifies program characteristics associated with high levels of non-motorized travel, with an emphasis on bicyclists and pedestrians. This report states that the average walking trip in the United States is three-quarters of a mile while the average bicycle trip is just over two miles. Various surveys also concluded that the average utilitarian bicycle trip is between one and two miles while the average commuting bicycle trip is between five and six miles. Relying on a two-mile buffer around the Northeast Corridor produces an area approximately 60 square miles.

The three proposed alternatives are located with the 2-mile buffer surrounding the Northeast Corridor, with the goal of providing viable alternatives to vehicular travel that are safe and convenient for all users.



BUILDING A CASE

PURPOSE & NEED

Previous plans and studies identified the need for a non-motorized connection between downtown Miami and the Broward County line along the Northeast Corridor. Beginning with the Miami-Dade Open Space Master Plan in 1969 and the Miami-Dade Recommended Bikeways Plan in 1972, the corridor was identified as a priority for non-motorized connectivity. The North Dade Greenways Master Plan (NDGMP) in 1998 includes an integrated system of 24 greenways occupying canal, railroad, utility easements, and road ROW, lists the corridor as a priority known as the Flagler Trail. In the plan, potential linkages to the trail are identified, including to the Snake Creek Trail, Memorial Trail, Unity Trail, Miami River Trail, and M-Path.

Additionally, the Northeast Corridor Flagler Trail facility was identified as a priority in the Florida Greenways and Trails System Plan, which is required for the trail to be eligible for Shared Use Non-Motorized (SUN) Trail funding and to be incorporated into the State of Florida's SUNTrail Program.

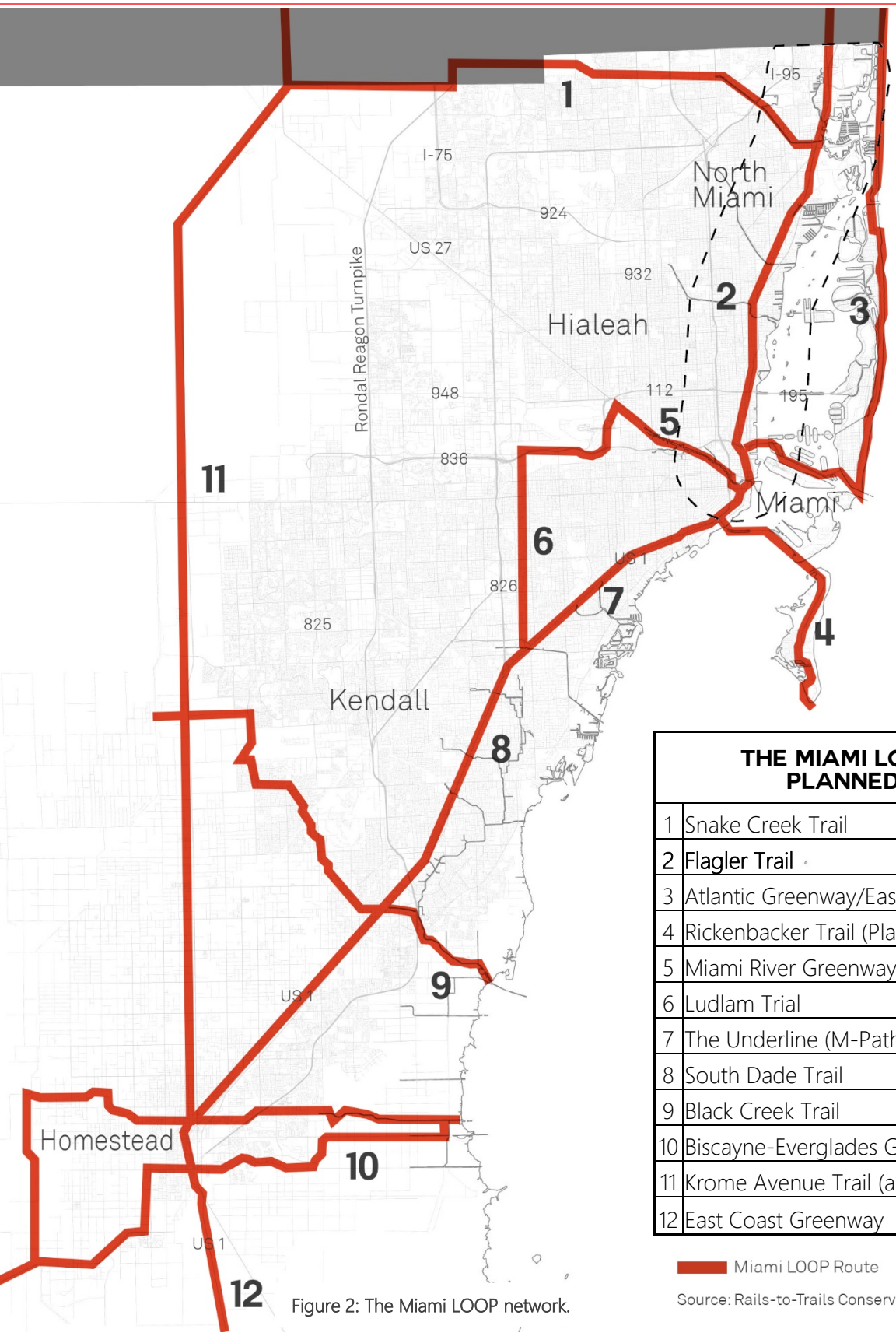
After consideration of the identified need for a non-motorized connection along the Northeast Corridor, the Miami-Dade TPO initiated a study to examine the feasibility of incorporating a trail in this location. The original intent of this Master Plan was to develop a non-motorized shared-use path, known as the Flagler Trail, along the Northeast Corridor. However, after extensive coordination with stakeholders and input from Florida East Coast Rail Industries (FECI), the decision was made to locate bicycle and pedestrian facilities outside of the FEC ROW. Due to the variation in available ROW along the corridor outside of the FEC ROW, three alternatives where explored to provide a non-motorized connection from Miami-Dade Government Center in downtown Miami, north to the Broward County line. These alternatives were developed through extensive coordination with stakeholders, and input from the Study Advisory Committee. A preferred alternative was selected and is documented in the Conceptual Design section of this report. Three overarching goals were identified to guide the development of the Flagler Trail Northeast Non-Motorized Network Master Plan:

- Provide a north-south spine for non-motorized trips
- Provide connections to the six transit stations within the Study Area
- Avoid crossing the FEC railroad with any proposed alignment

LOCAL CONNECTIVITY

The Northeast Corridor 2-mile buffer provides direct linkages to various trip generators and attractors such as schools, hospitals/medical facilities, and high job sectors. To increase connectivity to these facilities, this study proposes non-motorized connections to provide a seamless network geared toward promoting the use of alternative transportation in a convenient and safe way. This, in turn, provides a positive impact on health and overall quality of life. These proposed non-motorized connections will be further explored in the Alternatives Development section of this report.

Additionally, the Northeast Corridor's Flagler Trail is part of the Miami LOOP, which is a vision for a 225-mile non-motorized trail network around Miami-Dade County. The Miami LOOP is currently being developed by the Miami-Dade Trail Alliance under the Rails-to-Trails Conservancy (RTC). The network is approximately 54% complete, and almost 86% of the trail corridors identified for the LOOP are publicly owned. The LOOP network includes key non-motorized corridors selected to increase connectivity across the county. These corridors include: the Atlantic Greenway, the Underline, Biscayne-Everglades Greenway, Ludlam Trail, Miami River Greenway, Rickenbacker Trail, Snake Creek Trail, South Dade Trail, Black Creek Trail, Krome Avenue Trail (and bike lane) and the East Coast Greenway and are shown in Figure 2.



THE MIAMI LOOP OPEN AND PLANNED SECTIONS	
1	Snake Creek Trail
2	Flagler Trail
3	Atlantic Greenway/East Coast Greenway
4	Rickenbacker Trail (Plan Z)
5	Miami River Greenway
6	Ludlam Trial
7	The Underline (M-Path)
8	South Dade Trail
9	Black Creek Trail
10	Biscayne-Everglades Greenway
11	Krome Avenue Trail (and Bike Lane)
12	East Coast Greenway

Miami LOOP Route

Source: Rails-to-Trails Conservancy

0 2 4 6 miles

N

Figure 2: The Miami LOOP network.

BACKGROUND RESEARCH AND LITERATURE REVIEW

Various plans and studies were reviewed as part of the analysis conducted for this report. Studies provided input and guidance on the development of non-motorized facilities. Many of them also site a need for a non-motorized connection between downtown Miami to the Broward County line. Table 1 identifies relevant plans and studies that were used as a reference for this report. If the Flagler Trail is referenced in the plan or study, it is mentioned in the table, and the other plans and studies included in the table provide additional background and contextual information.

Table 1: Referenced Documents

Document Name	Brief Summary	Relevant Data
North Dade Greenways Master Plan, Miami-Dade MPO, November 1998	The North Dade Greenways Master Plan provides an interconnected system of 24 greenways along canals, railroad corridors, utility easements, and road rights-of-way. Among the greenways cited in this Master Plan is the Flagler Trail. The Master Plan provides a description of the trail from beginning to end, with constraints and opportunities identified.	**Flagler Trail Length:** 14.9 mi **Corridor Width:** 100 ft ROW **Specs:** Flagler Trail will occupy east and west portions of the ROW **Potential Connections:** Lehaman Park, Greynolds Park, Miami Gardens Dr., Sunny Isles Blvd, Snake Creek Trail, Oleta Link, Memorial Trail, Unity Trail, Venetian Trail, M-Path
Metrorail M-Path Master Plan, Miami-Dade MPO, July 2007	The Metrorail M-Path Master Plan is meant to address operational issues by providing uniform trail design and maintenance standards for the M-Path. The Master Plan includes design standards that are to be used in the development of future segments of the M-Path, which starts at SW 3rd St in downtown Miami, and travels south to SW 67th Ave in South Miami. The current trail is between 6 ft and 8 ft wide, connects six Metrorail Stations and crosses 28 roadway intersections.	**Metrorail M-Path Trail Length:** 9 mi **Funding:** Miami-Dade Transit, Miami-Dade County, FDOT **Design Speed:** 20 mph; 12 mph in constrained areas **Pavement width:** 12 ft; 10 ft in constrained areas (for future segments) **Vertical Clearance:** 10 ft recommended, 8 ft allowed **Side Clearance:** 2 ft **Pedestrian Bridges:** 14 ft width with 42" high railings **Crossings:** 12 ft width **Fencing:** New fencing or walls located within or adjacent to Metrorail ROW are to be made of non-opaque materials such as chain link, wrought iron, metal tubular, etc. Existing

Table 1: Referenced Documents		
Document Name	Brief Summary	Relevant Data
		opaque fencing should be evaluated for replacement. Metrorail Plaza Treatments: Wayfinding signs should be installed in high traffic areas, "You Are Here" Maps of M-Path corridor and local landmark information. Should also include the M-Path "M" symbol, directional arrow, "SLOW' pavement marking, and '[bicycle symbol] YIELD TO PEDS' sign shall be installed within 50 feet of Metrorail Station approaches. *For additional Standards, see Master Plan.*
Black Creek Trail Segment "B," Planning and Feasibility Study, Miami-Dade County Parks and Recreation Department, October 2007	The Black Creek Trail Segment "B" Planning and Feasibility Study provides a design concept for Segment "B" of the trail. The Black Creek Trail is located along the Black Creek Canal right-of- way from the Everglades Levee to Black Point Park and Marina. Segment "B" is meant to provide connectivity from the Everglades Levee to Black Creek Trail Segment "A" at SW 137 Ave. It will also provide connectivity to the Krome Trail, the Everglades Trail, the South Dade Trail, the Biscayne Trail, and the Old Cutler Bike Path. The project has been split into four phases. Phase 1 of this project includes construction of a trail between SW 137th Ave and a CSX Railroad Corridor. The CSX Railroad Corridor consists of 100 ft of ROW. The Miami-Dade MPO's Rail Coverability Study defines the corridor as	Black Creek Trail Segment "B" Trail Length: 9.2 mi Corridor Length: 17 mi Corridor Width: 105-106 ft Funding: $900K from Transportation Enhancements (TE) funds, other potential funding identified from General Obligation Bonds Corridor Owner: SFWMD Supplemental Amenities: Benches, Shelters, Bicycle Racks, Trash Receptacles, Directional Signs, Location Kiosks, Interpretive Signs, Access Points, Trailheads, Rest Stops Landscaping Requirements: Must be kept 40 ft from the top of the bank due to maintenance and canal backage concerns. Access Control: limited to pedestrians and bicyclists. Access gates must be

Table 1: Referenced Documents		
Document Name	Brief Summary	Relevant Data
	having minimal freight activity; as one to three freight trains per day operate on it.	provided for maintenance and emergency vehicles. **Trail Safety Requirements:** Railroad crossing flashers and gates, active warning pedestrian systems, signs, pavement markings, striping, bollards, decorative crosswalks
Snake Creek Bike Trail Planning and Feasibility Study, Miami-Dade Parks and Recreation Department, Miami-Dade MPO, September 2005	The Snake Creek Bike Trail Planning and Feasibility Study provides an analysis of existing conditions, opportunities, constraints, and general design guidance for the development of the Snake Creek Bike Trail. The Trail is located along the Snake Creek Canal in Northern Miami-Dade County. It extends east to west, from NE Miami Gardens Dr. to Florida's Turnpike. It will provide connectivity to the Miami River Trail, the Florida's Turnpike Trail, the Gold Coast Trail, the Flagler Trail, the Oleta Trail, and the Atlantic Trail.	**Snake Creek Bike Trail Length:** 3.5 mi **Corridor Length:** 19 mi **Corridor Width:** 150-220 ft **Funding:** Not defined **Corridor Owner:** SFWMD **Supplemental Amenities**: Benches, Shelters, Bicycle Racks, Trash Receptacles, Fishing Platforms, Directional Signs, Location Kiosks, Interpretive Signs, Neighborhood Connections/Meeting Areas, Trailheads, Exercise Facilities, Playgrounds, Kayak/Canoe Launches **Landscaping Requirements**: Must be kept 40 ft from the top of the bank due to maintenance and canal backage concerns. **Access Control:** limited to pedestrians and bicyclists. Access gates must be provided for maintenance and emergency vehicles. **Trail Safety Requirements:** signs, pavement markings, striping, bollards, decorative crosswalks
Snapper Creek Trail Segment "B" Master Plan, Miami-Dade MPO, June 2016	The Snapper Creek Trail Segment "B" Master Plan identifies ways to improve facility safety and connectivity through the continuation of the Snapper Creek Trail. The trail begins at Florida	**Snapper Creek Trail Segment "B" Trail Length:** 5 mi **Corridor Length:** 10 mi **Corridor Width:** Not defined

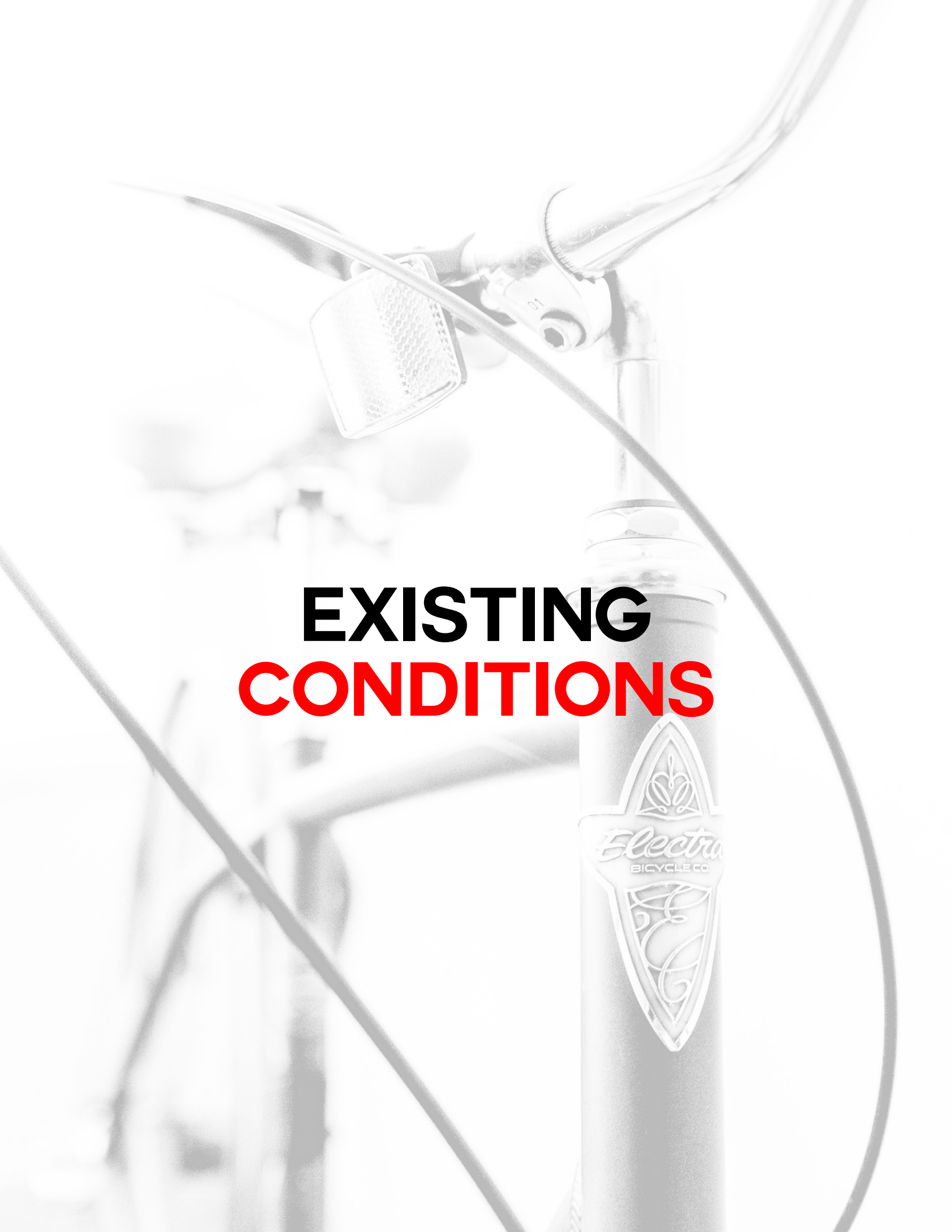
Table 1: Referenced Documents		
Document Name	Brief Summary	Relevant Data
	International University and follows Snapper Creek to Older Cutler Trail. Segment "B" will connect the eastern end of Segment "A" at K-Land Park to Red Road Linear Park at the eastern side of SW 57 Ave and SW 88 St. The trail provides connectivity to SW 87th Ave, the M-Path, South Dade Trail.	**Funding:** Transportation Alternatives Program (TAP) funding or local County funding **Corridor Owner:** SFWMD and/or Miami-Dade County **Supplemental Amenities**: Crosswalks, Rectangular Rapid Flashing Beacon, Canoe/Kayak Launch
CSX Right of Way Multi-Use Path Feasibility/Conceptual Design Study, MA Executive Office of Energy & Environmental Affairs, City of Chelsea, MA, June 2011	The CSX Right of Way Multi-Use Path Feasibility/Conceptual Design Study examined the potential to convert an inactive CSX rail corridor to a multi-use path in Chelsea, MA. The project is split into four phases, and the study includes design standards for each phase. Due to the location of segments of the trail within the vicinity of Massachusetts Bay Transportation Authority (MBTA) transit routes, the Study also includes alternative designs that feature the 10' multi-use path with 3 ft setbacks on either side, and a 6 ft chain link fence dividing the multi-use path from the remaining CSX ROW and the MBTA ROW. On the rail side of the fence, an 18 ft setback separates the fence from the Center Line of the MBTA track.	**CSX Right of Way Multi-Use Path** **Length:** 1.5 mi **Corridor Width:** ranges between 28-160 ft **Funding:** Not defined- potential funding sources listed- Transportation Enhancements, Congestion Mitigation Air Quality Improvement Program, Recreational Trails Program, MassWorks Infrastructure Program, Gateway City Parks Program, Parkland Acquisitions and Renovations for Communities, Bikes Belong Coalition, WalkBoston, Safe Routes to School Program, Fields Pond Foundation, New England Grassroots Environment Fund, Kodak American Pathways Grant Program, Private Sources **Corridor Owner:** MassDOT **Pavement Width:** 10 ft **Setbacks:** ranging between 3 ft and 5 ft on each side of the trail **Fencing:** 48" Chain Link fence mounted on roadway barrier **Supplemental Amenities**: Waterfront Park, Gateway Entrances, Boardwalk, Fitness Area, Landscaping, On-road Facilities

Table 1: Referenced Documents

Document Name	Brief Summary	Relevant Data
America's Rails-with-Trails, A Resource for Planners, Agencies, and Advocates on Trails Along Active Railroad Corridors, Rails-to-Trails Conservancy, September 2013	The America's Rails-with-Trails, A Resource for Planners, Agencies, and Advocates on Trails Along Active Railroad Corridors Report examines 88 rails-with-trails along active rail corridors. It also includes interviews with rail-with-trail managers, and an analysis of FRA data on fatalities on rail corridors.	**Average Trail Width:** 10 ft **Average Trail Length:** 9.3 mi **Corridor Width:** approx. 34% unknown, 3% between 0-30 ft, 25% between 31-60 ft, 23% 61-100 ft, 6% 101-150 ft, 8% between 151-200 ft, and 1% greater than 200 ft **Corridor Owner:** majority within or alongside privately-owned rail corridors, and 28% of them owned by Class 1 railroads. **Acquisition:** 45% of trails reported used easements or license agreements to acquire all or a portion of the rail corridor, and half of those trails negotiated with the railroad for acquisition. **Railroad type:** Most common was a Class 1 freight railroad operation **Train Frequency:** Majority of trails are located along corridors that receive service daily (1/4 of them receive service over 20 times a day) **Train Speed:** Majority between 30-60 mph **Setback:** Approx. 60% of trails were 30 feet or less from the railroad tracks **Separation:** 70% of trails were reported to have some type of physical barrier along all or a portion of the trail. The most common barrier was fencing. **Crossings:** at-grade crossings constituted the majority of crossing types **Liability:** None of the 88 trail managers were aware of liability claims filed against railroads because of the presence of a rail-with-trail.

Table 1: Referenced Documents		
Document Name	Brief Summary	Relevant Data
		Insurance Policies: 70% of trails reported they are insured by their own policy or umbrella policy of a managing agency **Indemnification:** approx. 32% of trail managers reported having to indemnify the railroad or owner of the corridor, releasing them from liability.
Miami-Dade 2040 Bicycle and Pedestrian Plan	The Miami-Dade 2040 Bicycle and Pedestrian Plan is part of the Miami-Dade 2040 Long Range Transportation Plan. It highlights bicycle and pedestrian priorities and projects identified across the county. The plan includes the Flagler Trail as a showcase project and is included in the plan' list of illustrative projects.	**Flagler Trail Length:** 15.9 mi **Vision:** Implement a regional trail connecting the downtowns of the eastern cities. **Existing Conditions:** • Florida East Coast (FEC) railroad (freight traffic) • U.S. 1 • Dixie Highway **Study Area:** Downtown Miami to West Palm Beach **Needs Plan:** • Implement a regional shared-use path along the corridor • Integrate with stations • Passenger rail access

The plans and studies listed in **Table 1** contributed to the proposed layout and design of the typical sections included in this report. While every design is unique to the surrounding context, the plans and studies were considered in the development of the alternatives proposed in this report, which will be explored further in the Alternatives Development section.



EXISTING CONDITIONS

EXISTING NETWORK

To evaluate future needs, existing conditions are a key component to provide a complete picture of the current state of the existing transportation network. The existing infrastructure and conditions within the Study Area were analyzed to evaluate the effects on bicycling and walking. Elements such as the existing roadway characteristics, bicycle network, transit system, and crash rates provide insight to the needed connections. Beyond the analysis presented here, an extensive sidewalk inventory is needed to address gaps in existing facilities.

BICYCLE AND PEDESTRIAN

Bicycling is the most sustainable mode of transportation because it provides a multitude of benefits from improved community quality of life to reduced net embodied energy. While bicycling can be entertaining, this mode of transportation requires human physical activity which reduces the risk of chronic diseases, improves cardio-vascular and aerobic fitness, reduces impacts to joints, builds muscles, increase coordination/reflex abilities, and prevents cognitive decline. Cost benefits are also immense considering that the average cost for owning and operating a small to large sedan can be anywhere from $7,400 to $10,800 per year (AAA Your Driving Costs 2017 Edition), while a brand-new commuter bicycle can retail anywhere from $150 to $1,500 with an average yearly maintenance cost of $100. These benefits aggregate to provide societal benefits such as a reduced carbon footprint (producing a new car can release up to 17 tons of CO_2 equivalent greenhouse gases), improved community interactions through increased outdoor activities, and reduced risk of injury in traffic crashes.

Walking is the most fundamental form of transportation. Almost every trip a person makes begins and ends by walking. While walking also provides some of the benefits associated with bicycling and physical activity, improving an environment's walkability has a more profound effect on the human experience. Hence, this study is concerned with providing traversable, compact, safe, and physically-enticing environments. Traversable environments meet basic physical conditions which allow people of all ages and abilities to move from one place to another without major impediments. These conditions improve with compact paths which are relatively smooth, convenient, and provide direct connections between origins and destinations. Safe and physically-enticing environments require attention to available amenities, interesting architecture, wayfinding, shading, and lighting.

BICYCLE NETWORK

Several roadways and arterials within the Study Area contain bicycle lanes, wide curb lanes, and paved shoulders, as shown in Figure 3. Creating a user-friendly bicycle and pedestrian network through the development of existing and future projects is essential to the success of the Flagler Trail Northeast Corridor Non-Motorized Network. Further exploration of the connections between the non-motorized network and the proposed SMART plan stations, as well as existing neighborhood features, will be a driving factor in the development of the future proposed network. The goal for the County is to provide a robust non-motorized alternative that helps Miami-Dade County address the issue of first mile/last mile trips within a county-wide transportation network. Integrating these existing and funded projects can further the success of this endeavor.

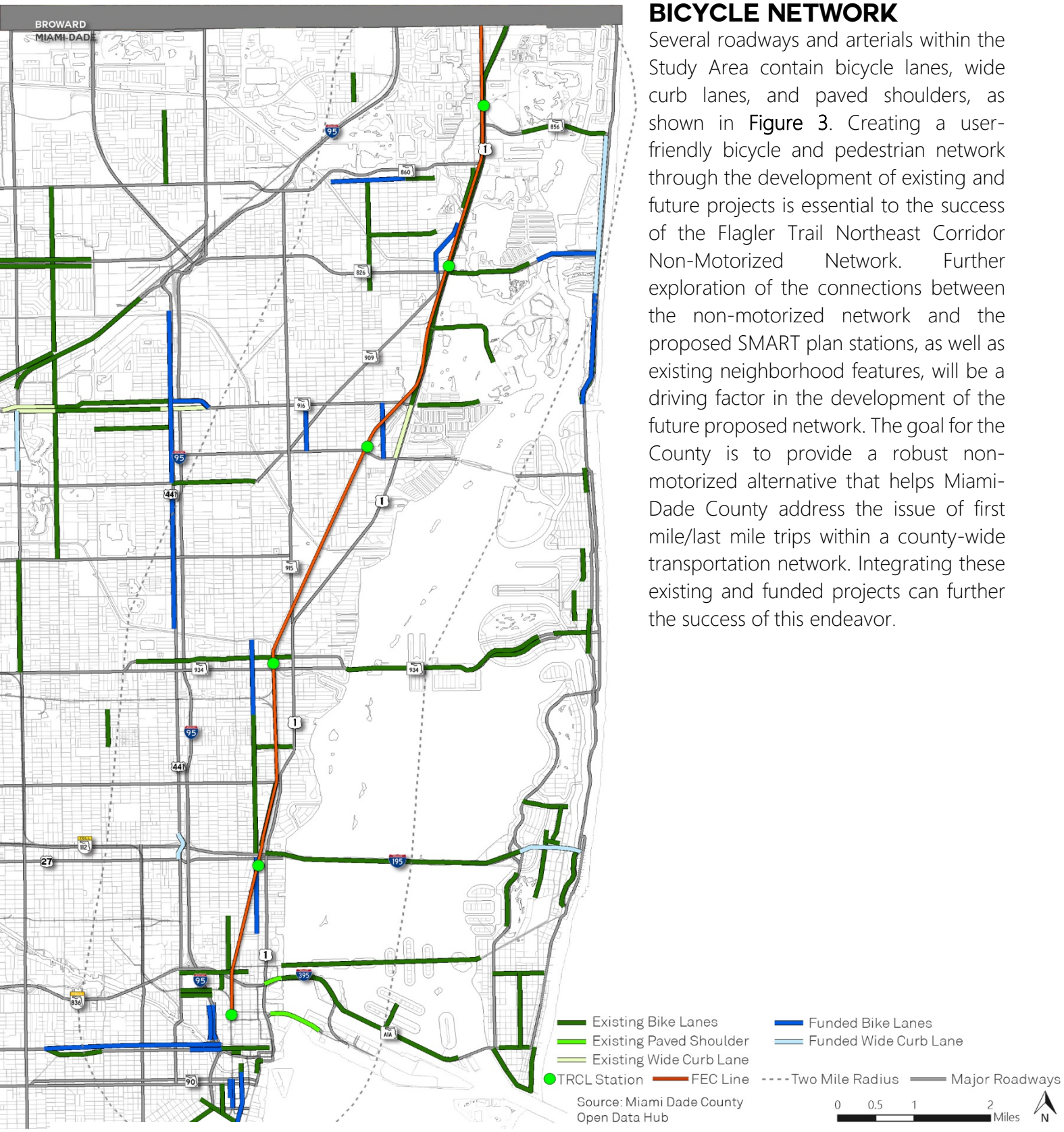


Figure 3: Existing and Funded Bicycle Facilities

Table 2 lists the length of existing and funded facilities within the Study Area, as well as the County. It should be noted that 17% of all listed existing and funded bicycle facilities in the county are located within the Study Area.

Table 2: Existing and Funded Bicycle Facilities

Project Type		Length (Miles)
Study Area	Existing Bike Lanes	38.3
	Existing Paved Shoulders	2.4
	Existing Wide Curb Lanes	0.8
	Funded Bike Lanes	14.8
	Funded Wide Curb Lanes	2.5
	Total Miles of Facilities:	**58.8**
Miami-Dade County	Existing Bike Lanes	183.6
	Existing Paved Shoulders	63.2
	Existing Wide Curb Lanes	28.6
	Funded Bike Lanes	54.1
	Funded Wide Curb Lanes	9.1
	Total Miles of Facilities:	**338.6**

While some facilities may reach beyond the study limits, the following is a comprehensive list of **existing bike lanes** within the Study Area and the roadways on which they are located:

- W. Dixie Highway from Greynolds Park to NE 185th Street
- NE 183rd Street from NE 19th Avenue to NE 22nd Avenue
- SR 5/Biscayne Blvd from NE 209 Street to NE 215 Street
- Venetian Causeway from Bayshore Drive to 17th Street
- Miami Avenue from SW 25th Road to SW 15th Road
- Sunny Isles Causeway from Biscayne Boulevard to NE 35th Avenue
- NE 15th Avenue from NE 159th Street to NE 186th Street
- Arch Creek Bike Path from Biscayne Boulevard to Bay Vista Boulevard
- SW 15th Road from Coral Way to S Miami Avenue
- Coral Way from SW 12th Avenue to SW 15th Road
- SW 2nd Avenue SW 15th Road SW 8th Street
- NW 11th Street from NW 7th Avenue to NW 3rd Avenue
- NW 10th Street from NW 7th Avenue to NW 3rd Avenue
- Federal Highway from NW 39th Street to NW 54th Street
- NW 1st Avenue from NW 14th Street to NW 23rd Street
- NE 14th Avenue from NE 199th Street to NE 203rd Street
- NE 151st Street from US-1 to FIU South Entrance
- NW 1st Place from NW 11th Street to WN 14th Street

- NE 61st Street from NE 2nd Avenue to Biscayne Boulevard
- NE 2nd Avenue from NE 37th Street to NE 42nd Street
- NE 2nd Avenue from NE 51st Street to NE 69th Street
- South Miami Avenue from South 14th Street to South 10th Street
- NW/NE 14th Street from NW 1st Avenue to NE 1st Avenue
- SR 112/Julia Tuttle Causeway from Biscayne Boulevard to Alton Road
- SR 856/Lehman Causeway from Country Club Drive to Collins Avenue
- SR A1A/MacArthur Causeway from North Bayshore Drive to Watson island
- SR 934/NW 82nd Street from NW 12th Avenue to Biscayne Boulevard
- SW 15th Road from SW 11th Street to SW 13th Street
- SW 2nd Street from SW 1st Avenue to South Miami Avenue
- NW 14th Street from NW 7th Avenue to NW 1st Avenue
- SR A1A/MacArthur Causeway from Watson Island to Terminal Island
- NE 171st Street from NE 15th Avenue to NE 22nd Avenue
- SR 5/ Biscayne Boulevard from NE 135th Street to NE 151st Street
- Miami Avenue Bridge from South of River to North of River
- SR 934/79th Street Causeway from Harbor Island to West Bay Drive
- SR 934/79th Street Causeway from NE Bayshore Court to Harbor Island
- SR 924/NW/Ne 119 Street from NW 7th Avenue West Dixie Highway
- SR 5/Brickell Avenue from SE 5th Street to Se 3rd Avenue
- SR/Biscayne Boulevard from NE 151st Street to NE 196th Street
- SW-SE 1st Street from SW 2nd Avenue to Biscayne Boulevard
- SR 5/Biscayne Boulevard from NE 196 Street to NE 209 Street
- SR 968/SW 1st Street from SW 24th Avenue to SW 17th Avenue
- NE 2nd Avenue from NE 42nd Street to NE 51st Street

The roadways with **funded future bike lanes** are as follow:

- NE 2nd Avenue from NE 69th Street and NE 84th Street
- SR 968/West Flagler Street from West 24th Avenue to West 14th Avenue
- SR 968/West Flagler Street from West 14th Avenue to West 2nd Avenue
- South Miami Avenue from US-1 to SW 25th Road
- SW 1st Avenue from SW 13th Street from SW 7th Street
- SR 968/SW 1st Street from SW 6th Avenue to SW 2nd Avenue
- SW 1st Court from SW 11th Street to SW 7th Street
- NE 16th Avenue from NE 123rd Street to NE 135 Street
- West Dixie Highway from NE 163rd Street to NE 174th Street

- NE 2nd Avenue from NE 20th Street to NE 36th Street
- South Miami Avenue form South 15th Road to South 5th Street
- NE 8 Avenue from NE 125th Street to NE 135th Street
- SR A1A/Collins Avenue from Haulover Intel to Bayview Drive
- SR 7/NW 7th Avenue from Little River Drive to NW 117th Street
- NE 183rd Street from Snake Creek Trail to NE 19th Avenue
- SR 925/NW 3rd Avenue from NW 1 Street to NW 8th Street
- SR 925/NW 3rd Court from NW 1st Street to NW 8th Street
- SR 826/Sunny Isles Causeway from NE 35th Avenue to SR A1A

PUBLIC AND PRIVATE TRANSIT

The Northeast Corridor area makes access to public and private transportation a critical component to this study. Public transit provides mobility options to all sectors of our community. With well-connected origin and destination pairs, transit can service 65% of daily trips affordably by aggregating would-be single-occupancy trips and reducing marginal costs.[2]

This cost reduction is most effective when transit services compete with automobiles in mitigating traffic delays. Reduced demand for physical space increases the people-carrying capacity of existing facilities and reduces travel times on already congested routes. Consolidating multiple car trips into one transit trip or one rideshare trip also improves air quality, conserves energy, and improves overall community quality of life. In 2016, the American Public Transportation Association (APTA) published a study that shows planned public transportation investments will yield a 2 to 1 return while helping generate income for local business, its workers, and their neighborhoods.[2]

[2] *Public Transportation's Role in the Knowledge Economy.* American Public Transportation Association. February 2016.

TRANSIT ROUTES AND STOPS

Figure 4 displays the extensive transit network operating within the Study Area. There are 1,947 transit stops servicing Miami-Dade County and Broward County routes in the Study Area. On average that is 32 stops per sq. mile within the Study Area. Table 3 Lists the Miami-Dade Transit (MDT) routes within the Study Area. Additionally, the Broward County Transit (BCT) routes that provide service in the northern sector of the Study Area are routes 1, 6, 9, and 18.

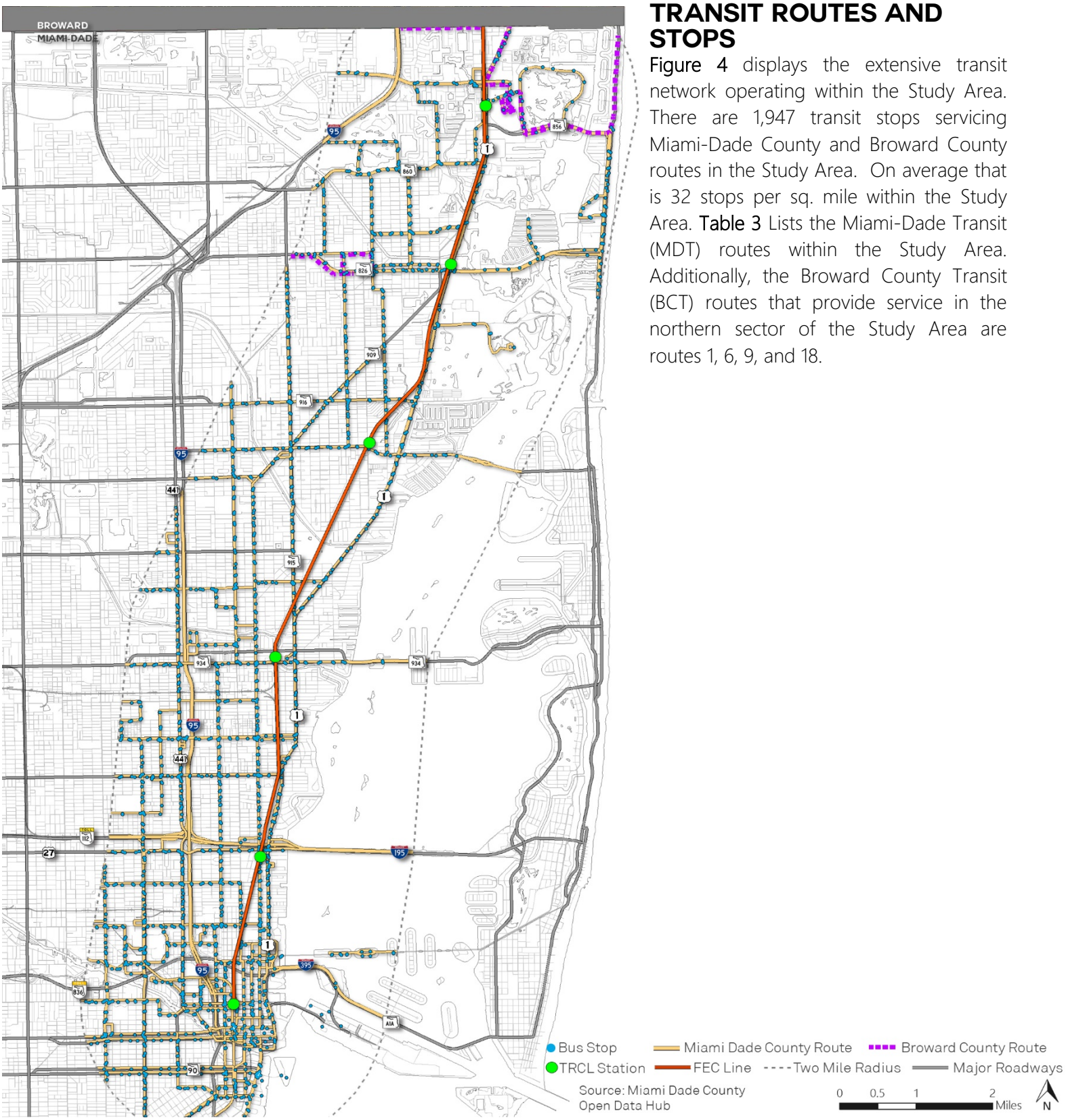


Figure 4: MDT and BCT Transit Routes and Stops

Table 3: Miami-Dade Transit Routes serving the Study Area

Route Number	Route Name
Route 10	SKYLAKE - OMNI - VIA NE12 & 2AVE
Route 101	A-VIA VENETIAN CAUSEWAY
Route 102	B-BRICKELL STATION-KEY BISCAYNE
Route 103	C-MT SINAI HOSP-CBD VIA WASH AVE
Route 105	E-GOLDEN GLDS.-AVENTURA/HALLANDALE
Route 107	G-BUNCHE PK-BEACH-96 ST VIA 125 ST
Route 108	H-N.MIA BEACH-72 ST & COLLINS AVE
Route 11	FIU-CBD VIA FLAGLER ST
Route 110	J-MIAMI BCH-MIA STAT VIA 36 ST
Route 112	L-HIALEAH-MIA BCH/LINC RD VIA 79 ST
Route 113	M-CIVIC CENTER-MIAMI BEACH
Route 119	S-AVENTURA-CBD VIA COLLINS & ALTON
Route 12	NORTHSIDE - MERCY HOSP.
Route 120	BEACH MAX: CBD-AVENTURA MALL
Route 135	135_STREET CROSSTOWN
Route 150	MIAMI BEACH AIRPORT FLYER
Route 16	163 ST-OMNI VIA 16AV & BISC. BLVD
Route 17	NORWOOD - VIZCAYA VIA NW-SW17AVE
Route 183	NW 87 AV/186 ST- AVENTURA
Route 19	163 ST MALL-MDC NORTH
Route 195	DADE-BROWARD EXPRESS (BROWARD BLVD)
Route 196	DADE-BROWARD EXPRESS (SHERIDAN ST)
Route 2	CBD-163 ST MALL VIA NW 2 AVE
Route 202	LITTLE HAITI CONNECTION
Route 207	LITTLE HAVANA CONNECTION
Route 208	LITTLE HAVANA CONNECTION
Route 21	NORTHSIDE - CBD
Route 211	OVERTOWN CIRCULATOR
Route 22	163 ST MALL-COCO GROVE VIA 22 AVE
Route 24	WEST DADE TO BRICKELL VIA CORAL WAY
Route 246	NIGHT OWL
Route 277	7 AVE MAX
Route 295	I-95 FT LAUD-CIVIC CENTER EXPRESS
Route 296	I-95 SHERIDAN-CIVIC CENTER EXPRESS
Route 3	AVENTURA MALL-CBD VIA BISC.BLVD.
Route 32	MIAMI GRDNS-OMNI VIA NW 32 AVE-20ST
Route 33	HIA GRDNS-BISC BLVD VIA 49/103 ST
Route 36	DOLPHIN-DORAL-MIA.SPGS-VIA NW 36 ST
Route 46	LIBERTY CITY CONNECTION
Route 48	BRICKELL-UNIV. STA. VIA S. BAYSHORE
Route 500	MIDNIGHT OWL
Route 51	FLAGLER MAX: WEST DADE TO CBD
Route 54	HIALEAH GRDNS-BISC BLVD VIA 54 ST
Route 6	CENT.PLAZA-ROUND TOWERS VIA CBD
Route 62	HIALEAH-BISC BLVD VIA 62 ST
Route 7	CBD-DOLPHIN MALL/MIA STA.VIA NW 7ST
Route 75	MIAMI LAKES-163ST MALL-FIU BISC BAY
Route 77	NORWOOD - CBD VIA NW 7 AVE
Route 79	79_ST MAX: MIA BCH-NORTHSIDE
Route 8	BRICKELL-107AV/WSTCHSTR VIA SW 8 ST
Route 9	AVENTURA - CBD VIA NE 6 & 2 AVE
Route 93	BISCAYNE MAX: CBD-AVENTURA
Route 95	I-95 GOLDEN GLADES EXPRESS
Route 99	NW DADE-AVENTURA MALL

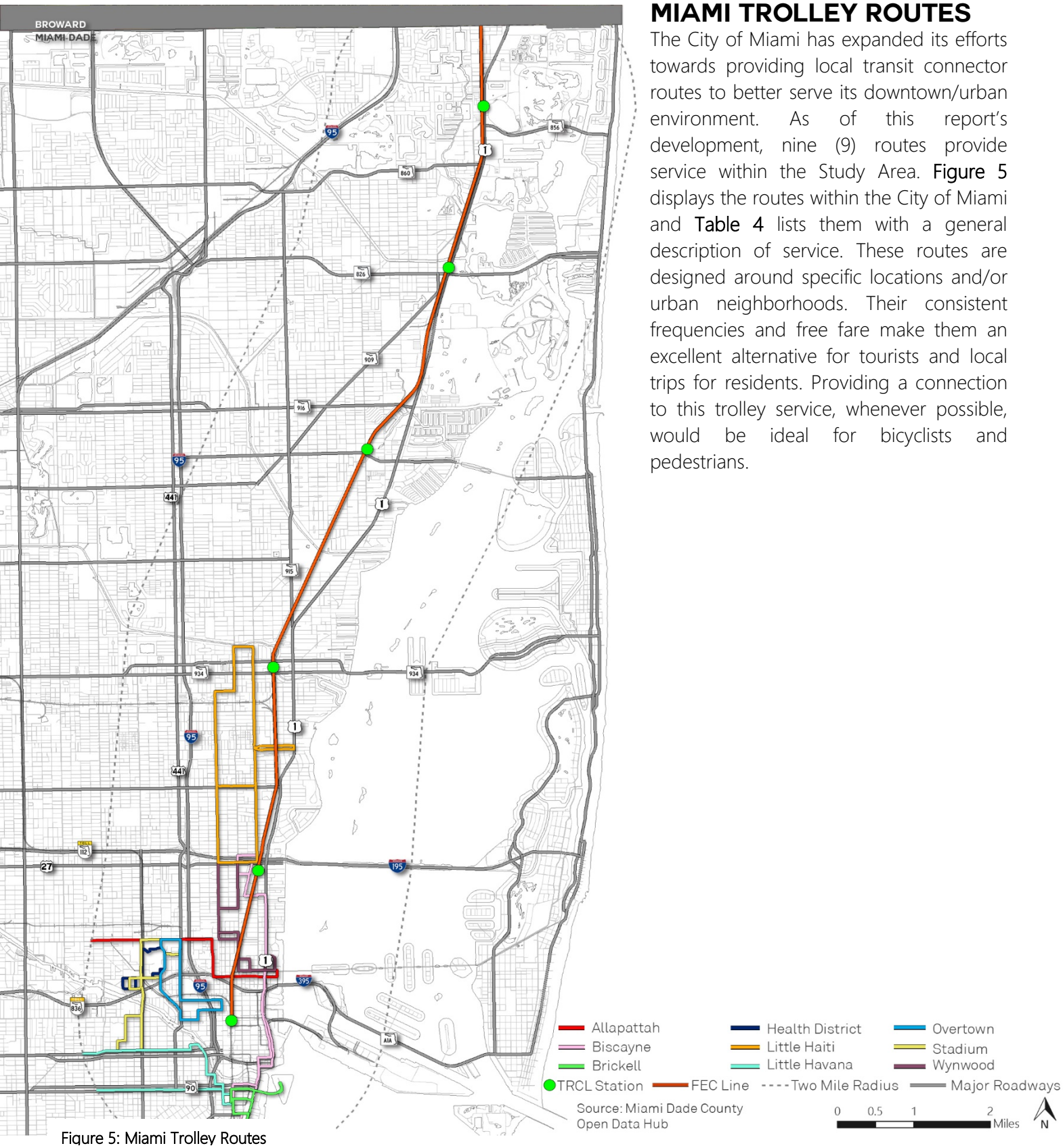


Figure 5: Miami Trolley Routes

MIAMI TROLLEY ROUTES

The City of Miami has expanded its efforts towards providing local transit connector routes to better serve its downtown/urban environment. As of this report's development, nine (9) routes provide service within the Study Area. Figure 5 displays the routes within the City of Miami and Table 4 lists them with a general description of service. These routes are designed around specific locations and/or urban neighborhoods. Their consistent frequencies and free fare make them an excellent alternative for tourists and local trips for residents. Providing a connection to this trolley service, whenever possible, would be ideal for bicyclists and pedestrians.

Table 4: City of Miami Trolley Routes

Miami Trolley Routes	Description	Hours of Operation	Frequency
Allapattah	Allapattah route operates on NW 20 Street, from NW 27 Avenue to the OMNI Bus Station on Biscayne Boulevard.	Monday-Saturday: 6:30 AM - 7:00PM	Approx. 20 Min
Health District	Health District route circulates clockwise along NW 12 Avenue, NW 20 Street, NW 7 Avenue, NW 14 Street and NW 14 Avenue.	Monday - Saturday 6:30 AM - 11:00PM	Approx. 20 Min
Stadium	Stadium Route is a circulates counterclockwise between NW 20 Street and Flagler Street, along NW 12 Avenue.	Monday - Saturday 6:30 AM - 11:00PM	Approx. 20 Min
Overtown	Overtown route circulates clockwise along NW 20 Street, NW 7 Avenue, NW 10 Street, NW 3 Avenue and NW 8 Street through the Overtown neighborhood and connecting to the Health District.	Monday-Saturday: 6:30 AM - 7:00PM	Approx. 20 Min
Little Havana	Little Havana route circulates from Brickell Street to Magic City along Flagler Street and SW 8 Street	Monday - Saturday 6:30 AM - 11:00PM Sunday: 8:00 AM - 8:00 PM	Approx. 20 Min
Biscayne	Biscayne route operates on Biscayne Boulevard, from the Design District and Midtown Miami to the Brickell Metrorail Station.	Monday - Saturday 6:30 AM - 11:00PM Sunday: 8:00 AM - 8:00 PM	Approx. 20 Min
Wynwood	Wynwood Route circulates counterclockwise between NW 29 Street to 1st and NW 2nd to Omni.	Monday - Saturday 6:30 AM - 11:00PM Sunday: 8:00 AM - 8:00 PM	Approx. 20 Min
Brickell	Brickell route operates on Brickell Avenue, from Brickell Key to Mercy Hospital, providing access to the Brickell Metrorail Station.	Monday - Saturday 6:30 AM - 11:00PM Sunday: 8:00 AM - 8:00 PM	Approx. 20 Min
Little Haiti	Little Haiti route circulates counter-clockwise from NE 36th Street, NE 2nd Street, the North City of Miami boundary, N Miami Avenue and NW 2nd Avenue	Monday-Saturday: 6:30 AM - 8:00PM	Approx. 20 Min

VIRGIN TRAINS

Virgin Trains, formerly known as Brightline, is an express intercity high-speed rail system developed and operated by All Aboard Florida, a wholly owned subsidiary of Florida East Coast Industries (FECI). Virgin trains are the United States' only privately owned and operated intercity passenger railroad. Virgin Train's service runs between Miami and West Palm Beach with a single intermediate stop at the Virgin train station on NW 2nd Avenue in Fort Lauderdale. The Fort Lauderdale–West Palm Beach segment opened on January 13, 2018, followed by the Fort Lauderdale–Miami segment on May 19, 2018. An extension from West Palm Beach to Orlando via Cocoa is scheduled to open in 2021, and more extensions are planned.

Virgin Train's diesel–electric locomotive-hauled trains run alongside freight trains in a shared-use corridor that was upgraded from a pre-existing FEC freight train corridor. The future West Palm Beach–Cocoa segment will be constructed in a similar fashion, while 40 mi (64 km) of new track will be constructed in the SR 528 corridor for the remainder of the extension, between Cocoa and the Orlando International Airport.

To cover the distance between Orlando and Miami in the desired time of about three hours, Virgin Trains will have to operate with an overall average speed of 80 miles per hour, which is similar to the overall average speed of the *Acela Express* operating on the Northeast Corridor between New York City and Washington, D.C. By comparison, the approximate driving time for this distance is about four hours, with an average speed of 60 mph (97 km/h).

Train speeds reach up to 78 mph (127 km/h) between Miami and West Palm Beach, will reach 110 mph (177 km/h) between West Palm Beach and Cocoa, and 125 mph (201 km/h) between Cocoa and the Orlando International Airport. To increase the speed limit from 78 mph (127 km/h) to 110 mph (177 km/h) between West Palm Beach and Cocoa, the existing track conditions will be brought up to meet required federal standards.

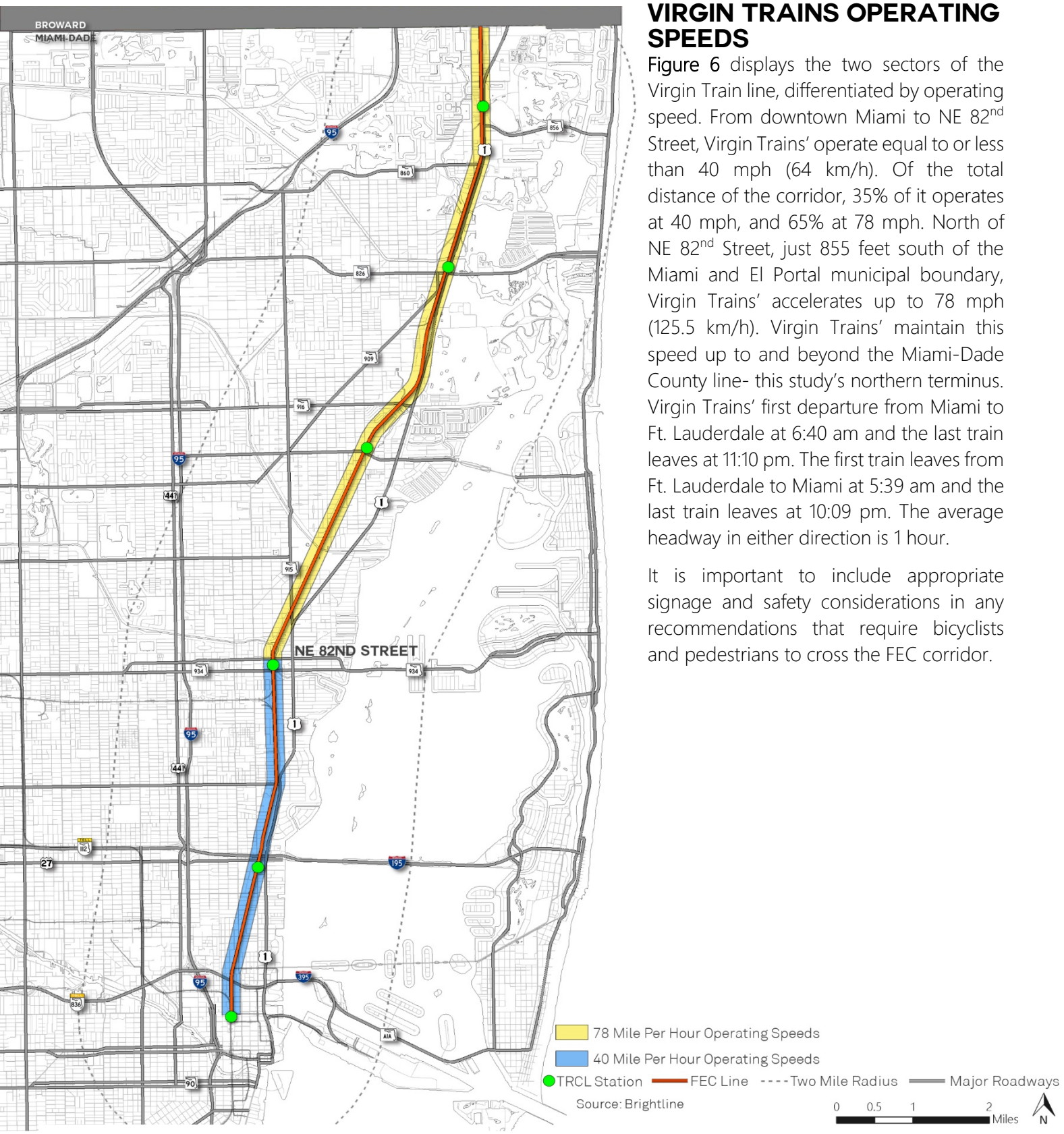


Figure 6: Virgin Train Operating Speeds

VIRGIN TRAINS OPERATING SPEEDS

Figure 6 displays the two sectors of the Virgin Train line, differentiated by operating speed. From downtown Miami to NE 82nd Street, Virgin Trains' operate equal to or less than 40 mph (64 km/h). Of the total distance of the corridor, 35% of it operates at 40 mph, and 65% at 78 mph. North of NE 82nd Street, just 855 feet south of the Miami and El Portal municipal boundary, Virgin Trains' accelerates up to 78 mph (125.5 km/h). Virgin Trains' maintain this speed up to and beyond the Miami-Dade County line- this study's northern terminus. Virgin Trains' first departure from Miami to Ft. Lauderdale at 6:40 am and the last train leaves at 11:10 pm. The first train leaves from Ft. Lauderdale to Miami at 5:39 am and the last train leaves at 10:09 pm. The average headway in either direction is 1 hour.

It is important to include appropriate signage and safety considerations in any recommendations that require bicyclists and pedestrians to cross the FEC corridor.

CRASH ANALYSIS

When studying existing bicycle and pedestrian accessibility to an area, it is important to perform a crash analysis to determine existing safety needs within the area as well as determine bicycle and pedestrian route choices and limitations. Historically, Miami-Dade County has had some of the highest rates of bicyclist and pedestrian fatalities statewide according to the *Florida Bicycle and Pedestrian Strategic Safety Plan (February 2017)*.

As part of this analysis, 5-year crash data (2010 – 2014) was obtained from the Florida Signal Four website, and the results are summarized in Table 5. From 2010 to 2014, the total number of pedestrian crashes in the Study Area was 671, with a mean of at approximately 134 crashes per year. During this same period, the total number of bicyclist crashes in the Study Area was 357, with a mean of 71 crashes per year. Combined, bicyclist and pedestrian crashes in the Study Area totaled to 1,028, or 2.6% of all crashes occurring in the Study Area between 2010 and 2014.

Table 5: Total Pedestrian and Bicycle crashes 2010-2014 (Crashes Per Year)

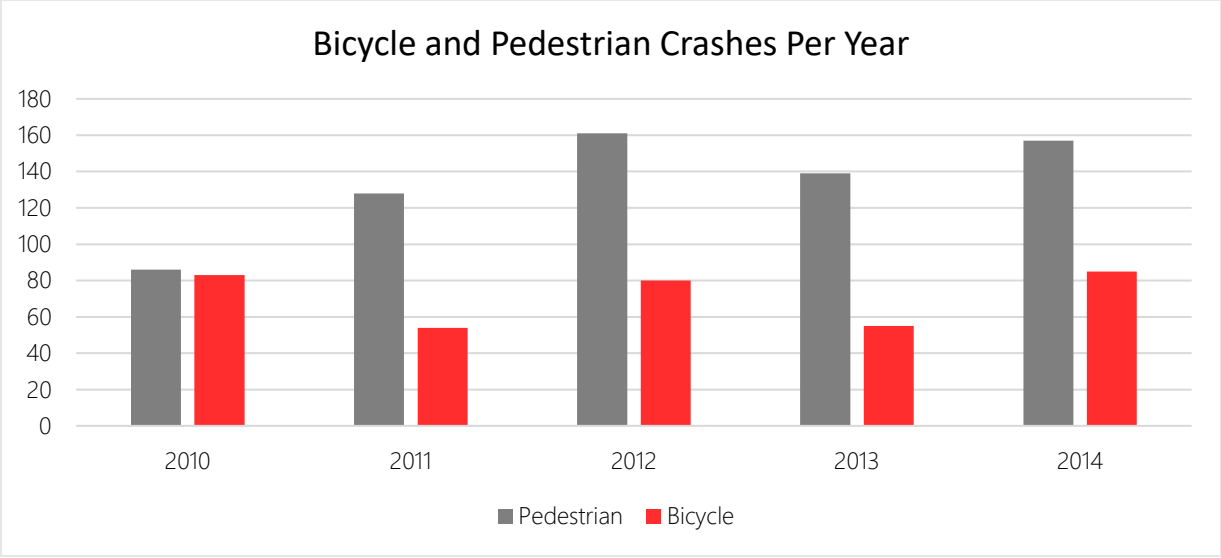


Table 6 summarizes pedestrian and bicycle crashes reported at intersections within the Study Area. The intersection with the highest number of crashes between 2010 and 2014 was SR 5/ Biscayne Boulevard from NE 5 Street to N. of NE 213th Street.

Table 6: State Road Intersection 2010-2014 (Crashes per year)

Roadway Name	Pedestrian Crashes	Bicycle Crashes
Off-System Roads	354	222
SR 112/I-95 from N. Miami Ave to Biscayne Blvd	3	0
SR 25/NW 36 St from NE 10th Ave to Biscayne Blvd	9	3
SR 5/Biscayne Blvd from NE 5th St to N. of NE 213 St	**96**	**57**
SR 7/US 441 from SW 4 St o NW 119 St	26	12
SR 826/ NE 163rd St from NE 14th Ave to NE 26th Ave	21	4
SR 836/ I-395 at Biscayne Blvd	2	0
SR 854/ Ives Dairy Rd at 26th Ave	1	0
SR 856/ William Lehman Cswy from Biscayne Blvd to W. Country Club Dr.	3	1
SR 860/ Miami Gardens Dr. from NE 18th Ave to Biscayne Blvd	11	7
SR 9/NW 27 Ave at 95 St	1	0
SR 90/SW 8th St from Brickell Ave to S. Miami Ave	11	2
SR 909/West Dixie Hwy from Griffin Blvd to NE 161 St	25	8
SR 915/NE 6 Ave from NE 106 St to NE 149 St	21	7
SR 916/NE 135th St	7	6
SR 922/NE 125 St from NE 4 Ave to NE 14 Ave	19	7
SR 924/ NE 119th St from SR 7 to W 6th Ave	6	2
SR 932/ NE 103rd St from NE 7th Ave to NE 5th Ave	6	0
SR 934/ NE 79th St from Biscayne Blvd to NE 4th Ct	36	9
SR 968/ Flagler St from NW 7th Ave to W 6th Ave from SR 7 to SW 6th Ave	6	9
SR A1A/ Federal Hwy at NE 171st Block and at NE 54th St	7	1

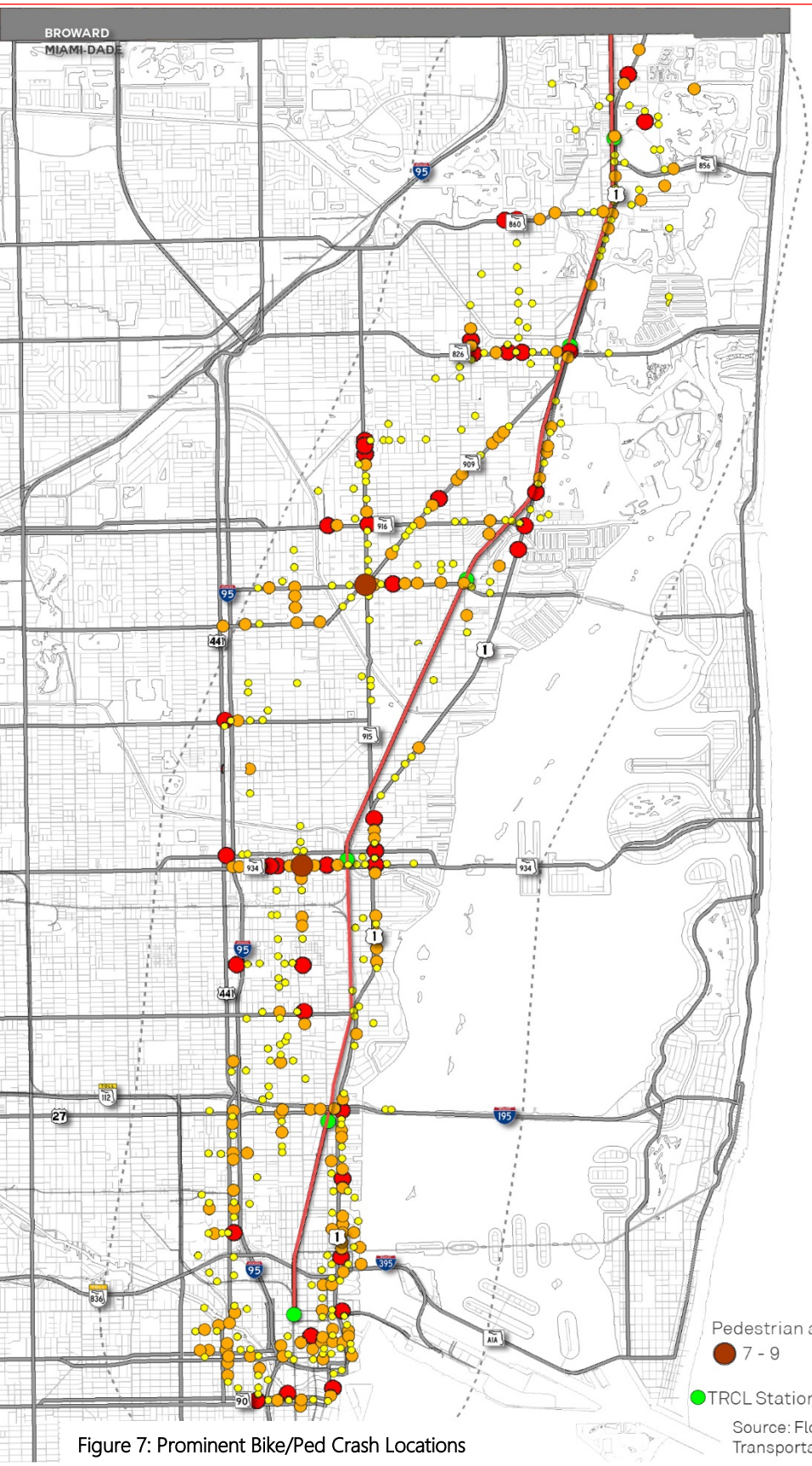


Figure 7: Prominent Bike/Ped Crash Locations

PROMINENT BIKE/PED CRASH LOCATIONS

The locations of all 1,028-recorded bicycle and pedestrian crashes from this analysis are shown in Figure 7. The following six (6) segments identify roadways with intersections that have the highest number of crashes experienced by bicyclists and pedestrians in the Study Area:

1. SR 5/Biscayne Boulevard from NE 5 Street to N. of NE 213 Street (96 pedestrian crashes and 57 bicycle crashes)
2. SR 7/US 441 from SW 4 Street to NW 119 Street (26 pedestrian and 12 bicycle crashes)
3. SR 909/West Dixie Highway from Griffin Boulevard to NE 161 Street (25 pedestrian and 8 bicycle crashes)
4. SR 915/NE 6 Avenue from NE 106 Street to NE 149 Street (21 pedestrian and 7 bicycle crashes)
5. SR 922/NE 125 Street from NE 4 Avenue to NE 14 Avenue (19 pedestrian and 7 bicycle crashes)
6. SR 826/NE 163 Street from NE 14 Avenue to NE 26 Avenue (21 pedestrian and 4 bicycle crashes)

For a more in-depth analysis of crashes in the Study Area refer to Appendix A.

AVERAGE ANNUAL DAILY TRAFFIC (AADT)

The Average Annual Daily Traffic (AADT) on major roads in Miami-Dade County is shown in Figure 8. The majority of the roadways shown on the map have an AADT of less than 13,000 vehicles.

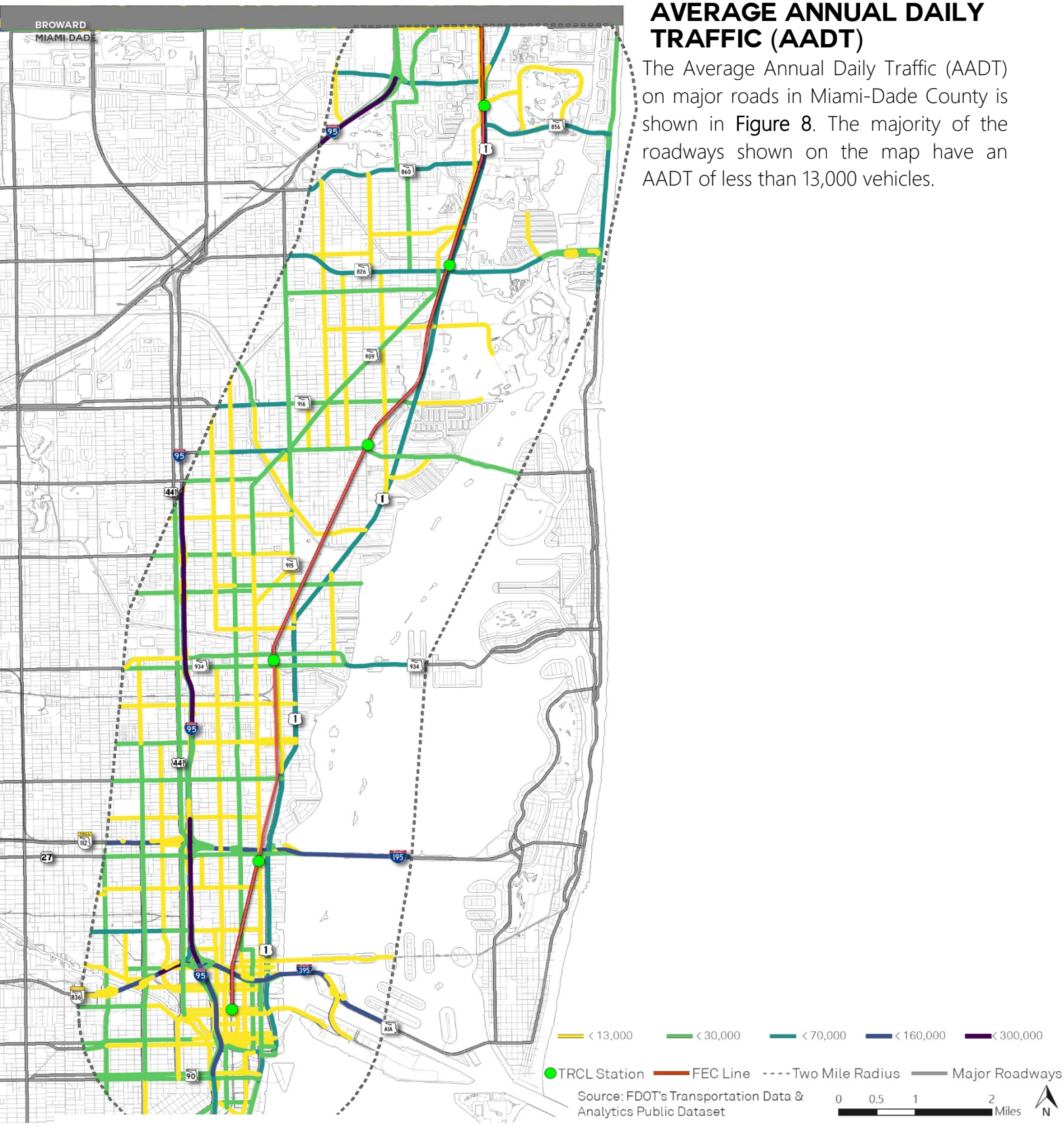


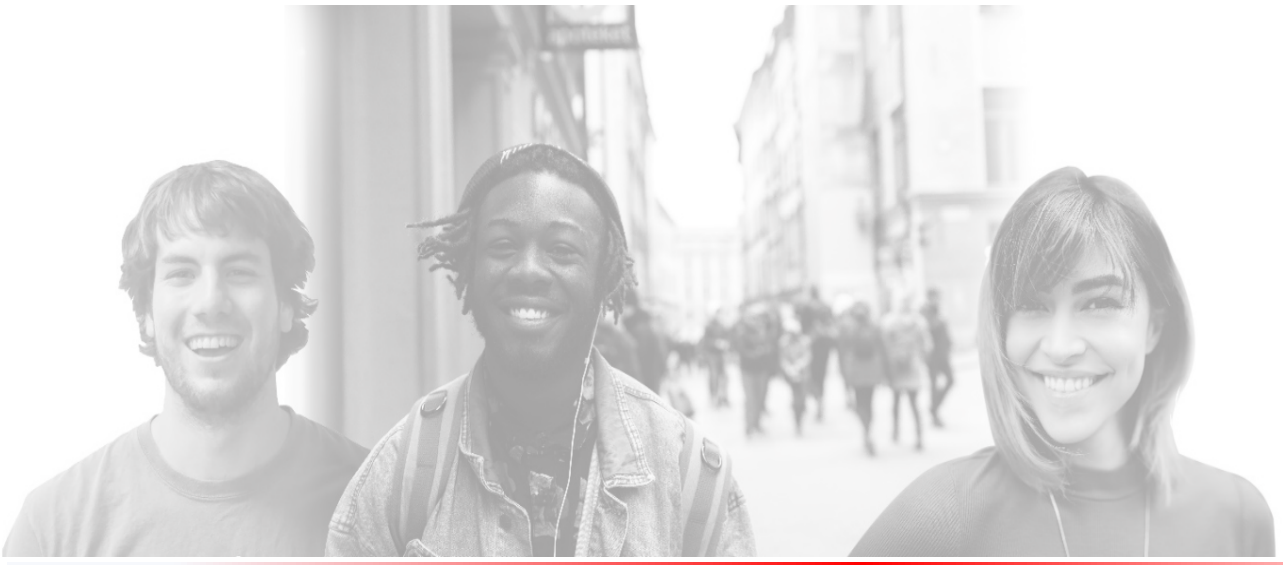
Figure 8: AADT Map

SOCIOCULTURAL

The many characteristics that define the Study Area, are comprised in sociocultural data. From age and race to income and living standards, sociocultural data describes most aspects of human interaction with the physical environment and surrounding society. When considering transportation improvements, five sociocultural issues are specifically evaluated and include:

- Social Definitions
- Economic Definitions
- Land Use Changes
- Environmental
- Connectivity Opportunities

The following subsections document existing social, economic, and land use characteristics to understand where bicycle and pedestrian improvements will be most beneficial to the surrounding communities within the Study Area.



TOTAL POPULATION DENSITY

The total estimated population of the Study Area was approximately 526,000 in 2016. It represents approximately 20% of the total population of Miami-Dade County, which was approximately 2,664,000 in 2016 according to the American Community Survey (ACS) 2016 5-year estimates. The population density of the Study Area is shown in Figure 9. The data is distributed by census block groups, which are statistical divisions of census tracts containing between 600 to 3,000 people.

Along the Northeast Corridor, the northern and southern termini are two distinct areas of high demographic density.

Near the southern terminus in Downtown Miami, the grouping of high population density occurs just south of the Miami River. This grouping of population suggests a large, developed heavily urbanized area.

To the north, there is a scattered pattern with high density population. Generally, these areas have suburban residential and commercial zoning. Several high-density census block groups exist because of multi-family residential developments located there.

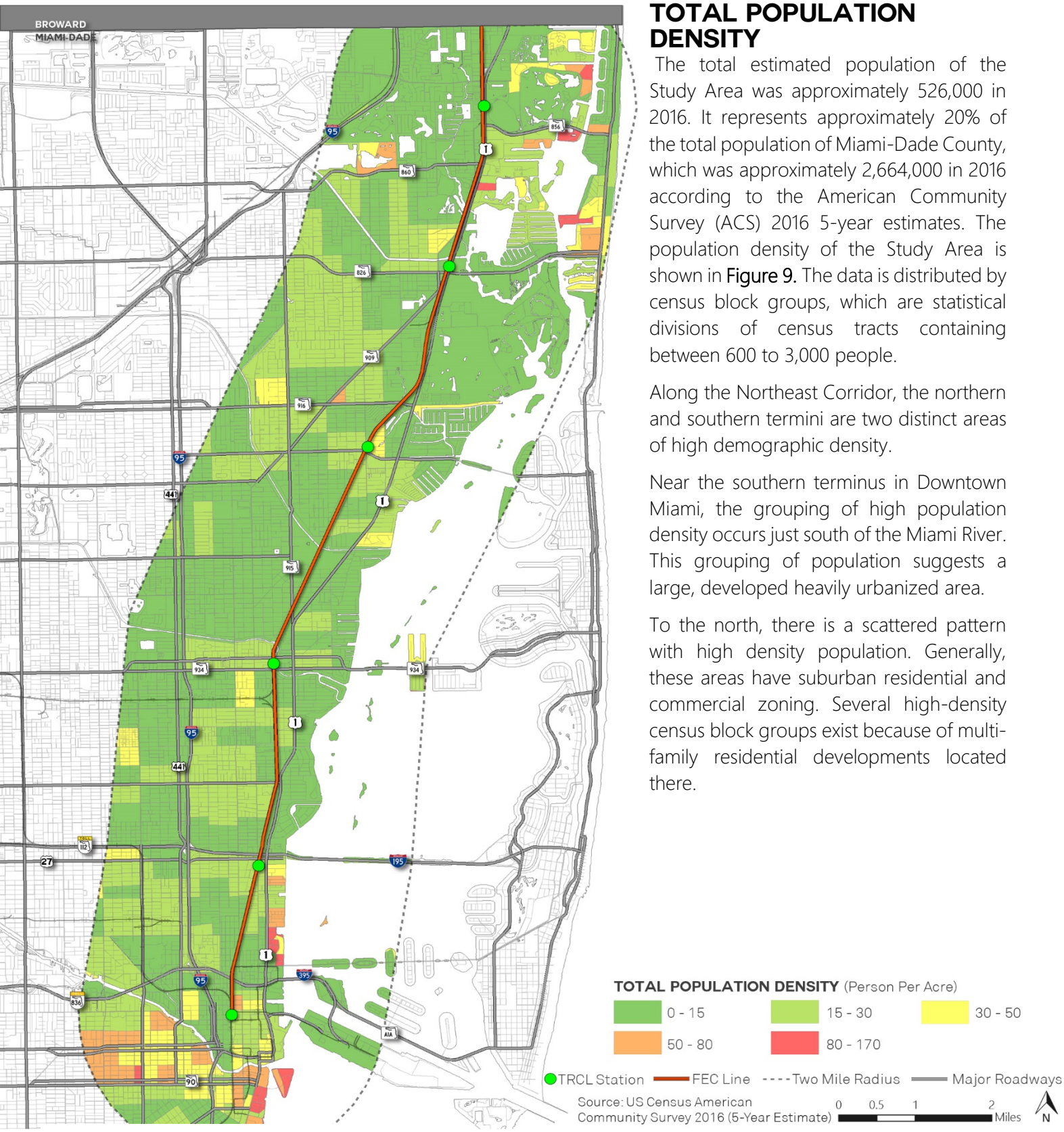


Figure 9: Total Population Density

YOUTH POPULATION DENSITY

The youth population is defined as all individuals between the ages of 10 – 17. The total estimated youth population of the Study Area was approximately 43,000 in 2016 according to ACS 2016 5-year estimates. It represents approximately 18% of the youth population of all Miami-Dade County, which was approximately 244,000 in 2016. The youth density in the Study Area is shown in Figure 10.

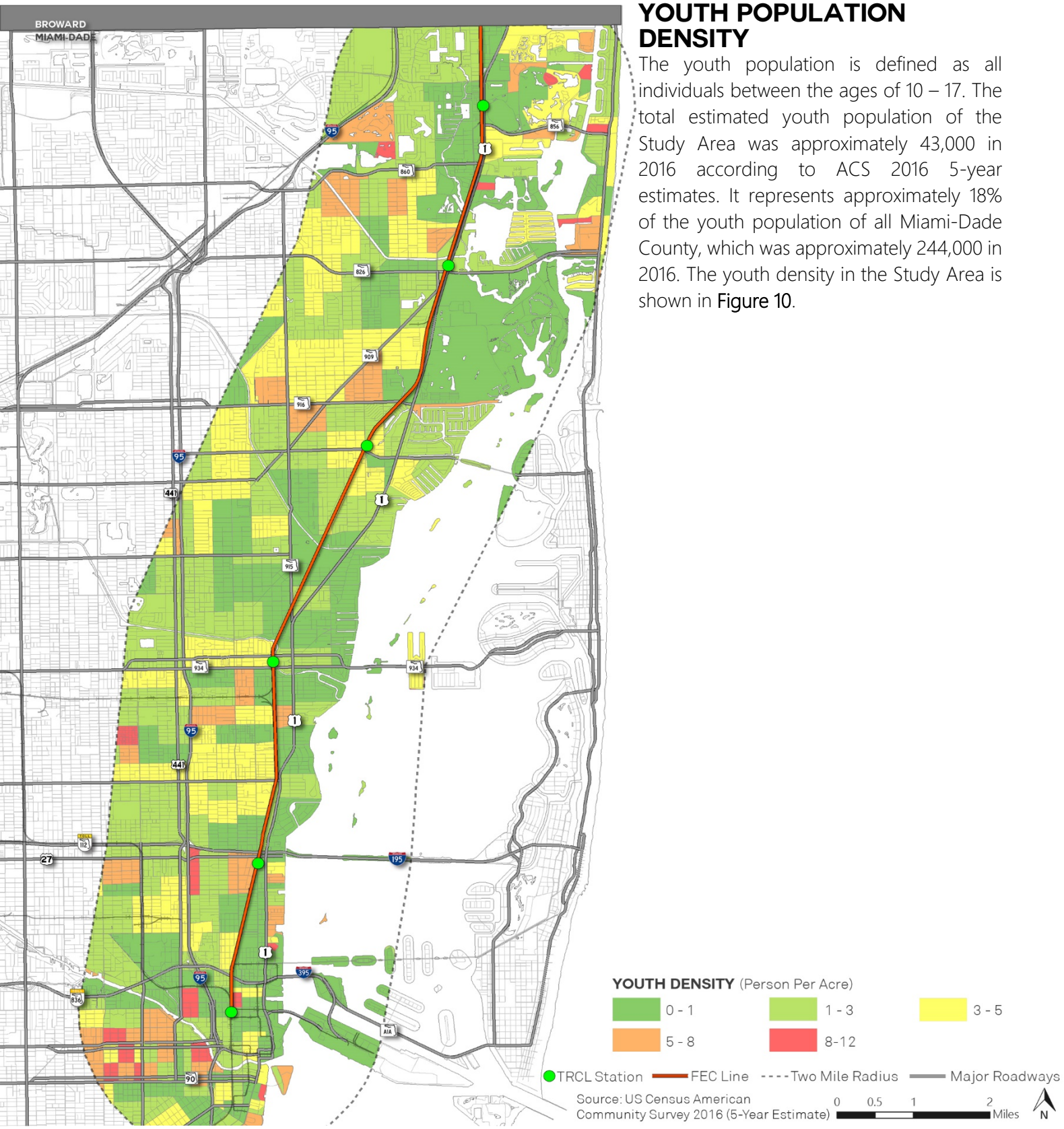


Figure 10: Youth Population Density

ELDERLY POPULATION DENSITY

The elderly population is defined as all individuals above the age of 65. The total estimated elderly population of the Study Area was approximately 78,000 in 2016 according to ACS 2016 5-year estimates. It represents approximately 19% of the Elderly population of all Miami-Dade County, which was an estimated population of approximately 406,000 in 2016. The elderly population density in the Study Area is shown in Figure 11.

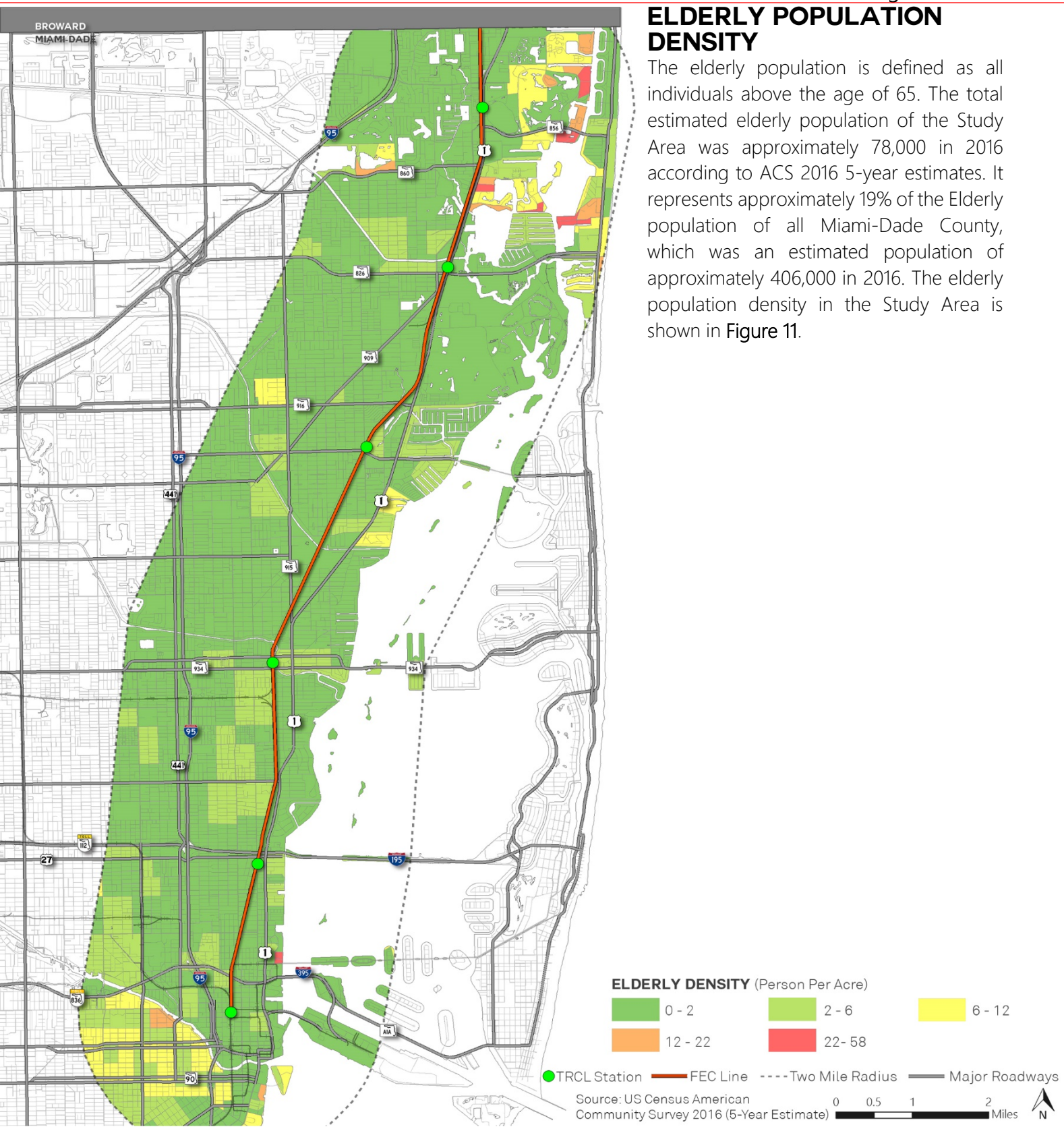


Figure 11: Elderly Population Density

LIMITED ENGLISH PROFICIENCY DENSITY

Limited English Proficiency is identified in this analysis as those who speak English "not well" or "not at all" based on the data presented in the ACS 2016 5-year estimates for Miami-Dade County. Figure 12 highlights where Limited English Proficiency is high or low within the Study Area. The total estimated Limited English Proficiency population in the Study Area is approximately 47,000 in 2016 according to ACS 2016 5-year estimates. Of the approximately 217,000 individuals in the county identified as of Limited English Proficiency in 2016, an estimated 22% live in the Study Area.

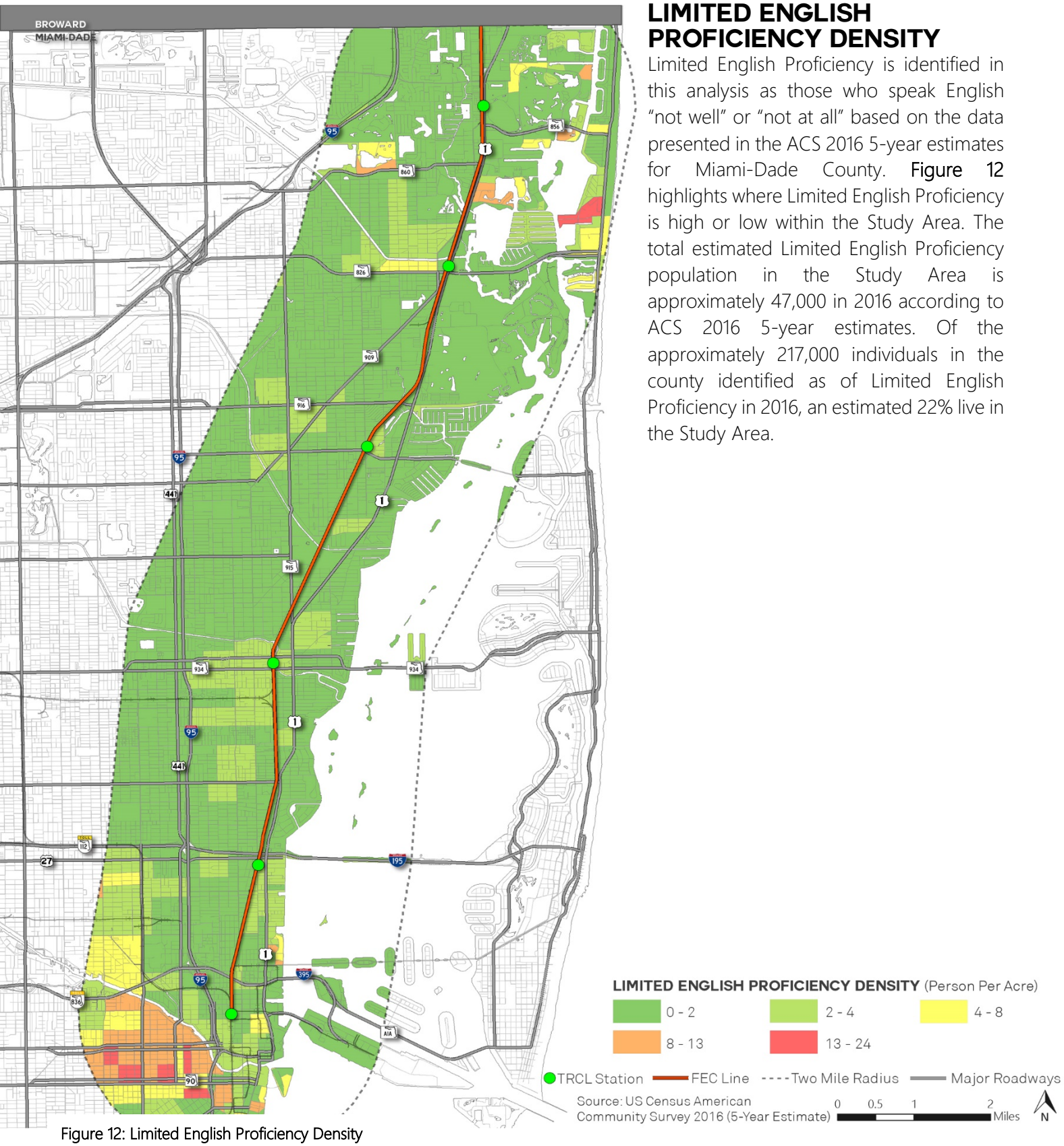


Figure 12: Limited English Proficiency Density

MINORITY POPULATION DENSITY

The minority population is identified in this analysis as the total population of individuals that do not identify as white in the 2016 ACS 5-year estimates for Miami-Dade County. The Study Area's total estimated minority population is approximately 201,000 people in 2016 according to ACS 2016 5-year estimates. Of Miami-Dade County's total estimated minority population of 610,000 in 2016, approximately 33% live within the Study Area, and the density is shown in Figure 13.

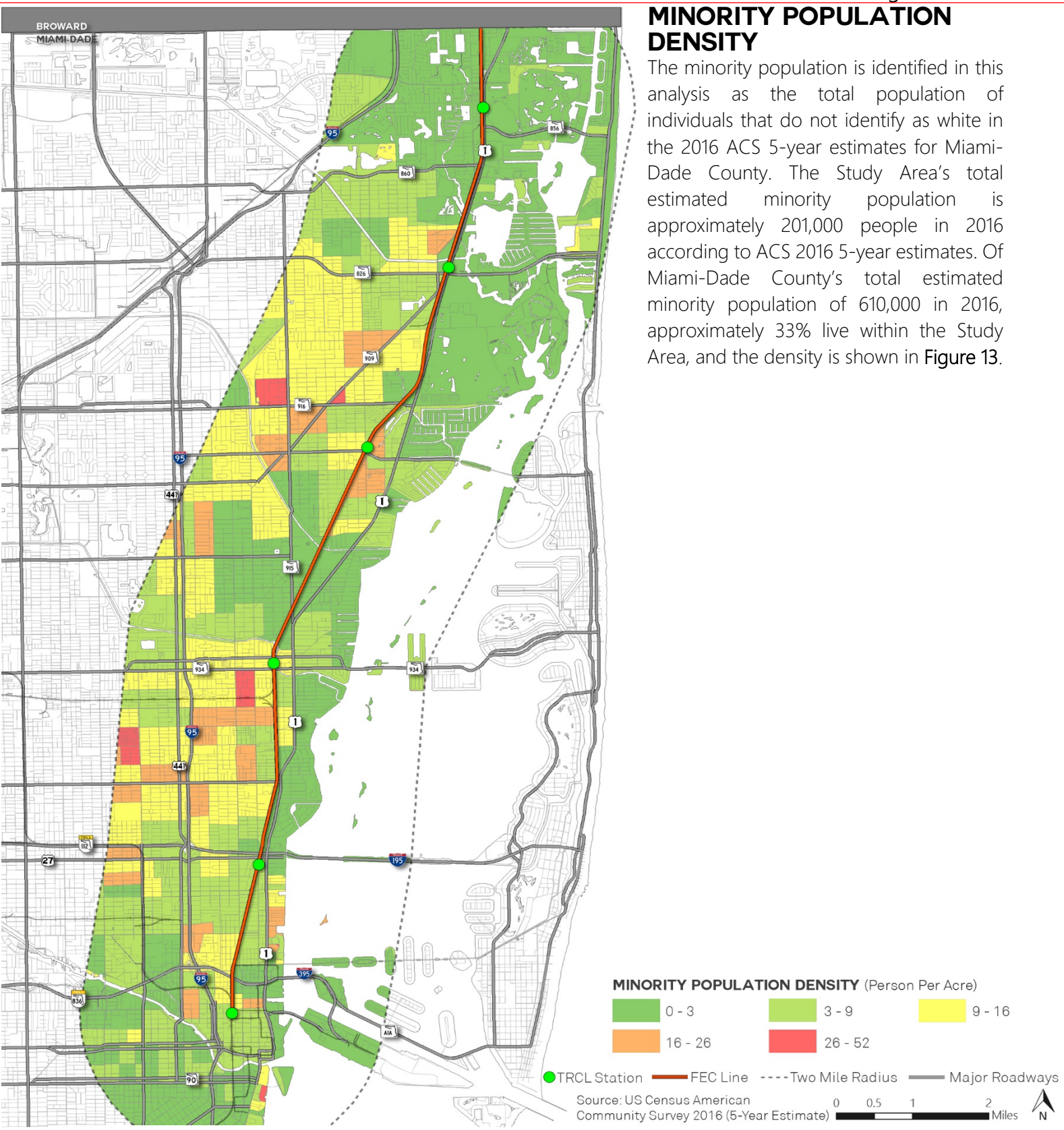


Figure 13: Minority Population Density

VETERAN POPULATION DENSITY

The veteran population is identified in this analysis as those who claimed veteran status in the 2016 ACS 5-year estimates for Miami-Dade County. The total estimated veteran population in the Study Area was approximately 11,000 in 2016 according to ACS 2016 5-year estimates. It represents approximately 21% of the total veteran population of Miami-Dade County, which was an estimated 53,000 in 2016, and the density in the Study Area is shown in Figure 14.

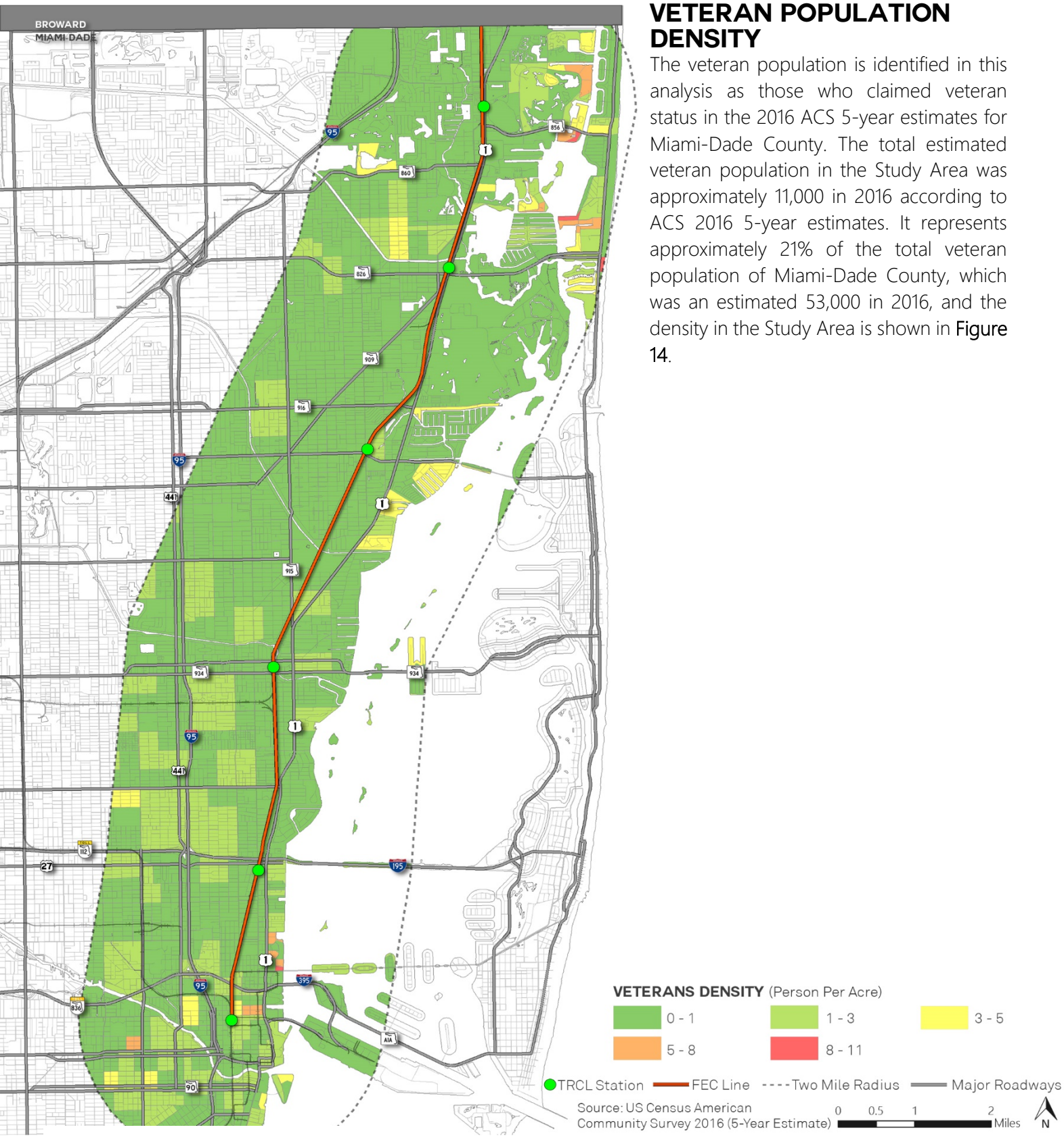


Figure 14: Veteran Population Density

DISABLED POPULATION DENSITY

The disabled population is identified in this analysis as those who identified as disabled in the 2016 ACS 5-year estimates for Miami-Dade County. The total estimated disabled population of the Study Area was approximately 25,000 in 2016 according to ACS 2016 5-year estimates. It represents approximately 22% of the total estimated disabled population of Miami-Dade County, which was approximately 115,000 in 2016, and the density in Study Area is shown in Figure 15.

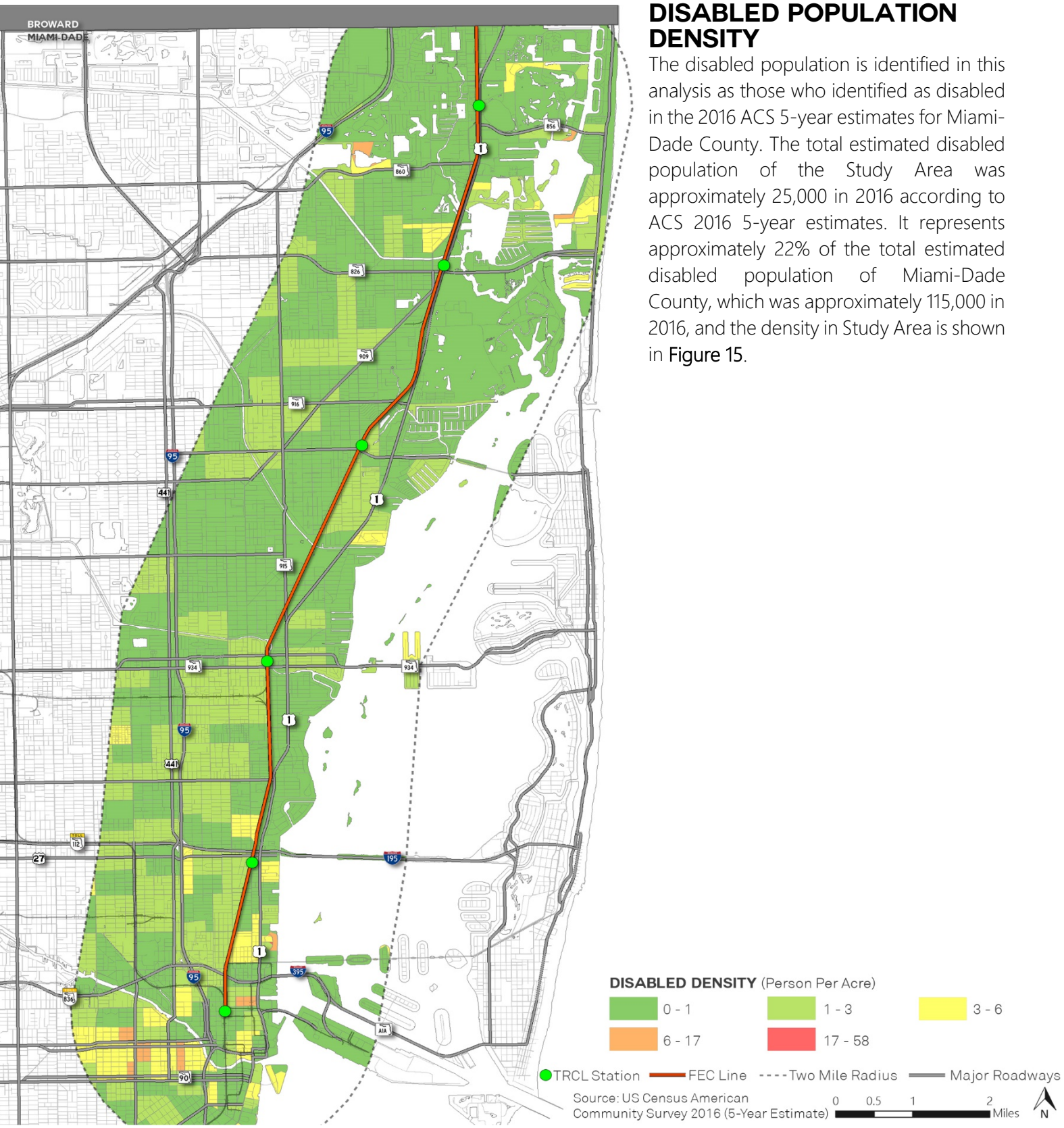


Figure 15: Disabled Population Density

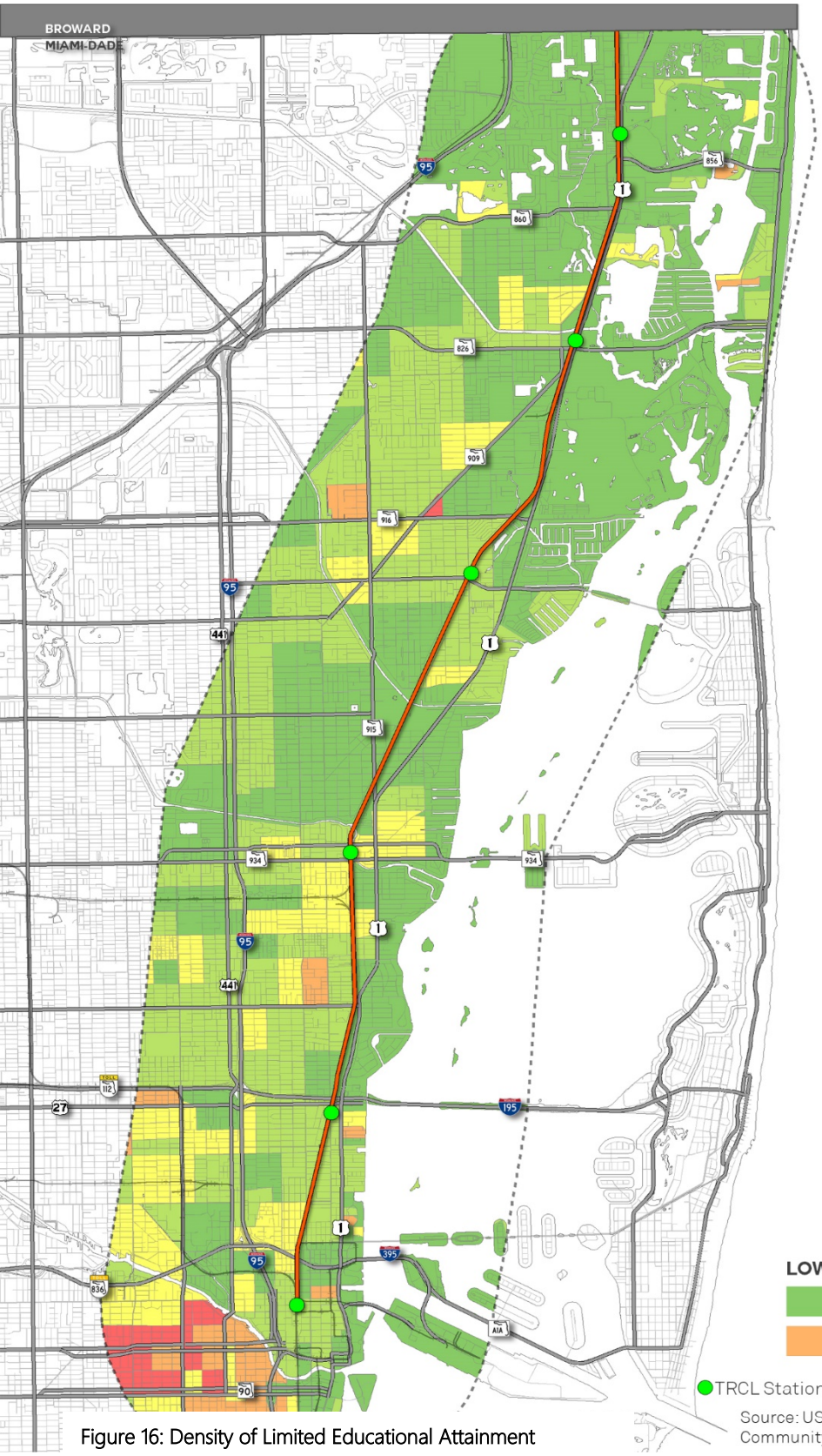


Figure 16: Density of Limited Educational Attainment

LIMITED EDUCATIONAL ATTAINMENT DENSITY

Limited educational attainment is identified in this analysis as those who identified as either achieving a High School Diploma or the General Education Development (GED) certificate as their highest level of completed education in the 2016 ACS 5-year estimates for Miami-Dade County. The total estimated population with limited educational attainment within the Study Area was approximately 78,000 in 2016 according to ACS 2016 5-year estimates as shown in Figure 16. The Study Area possesses approximately 22% of all individuals who identified as having a limited educational attainment in Miami-Dade County, which was approximately 362,000 in 2016.

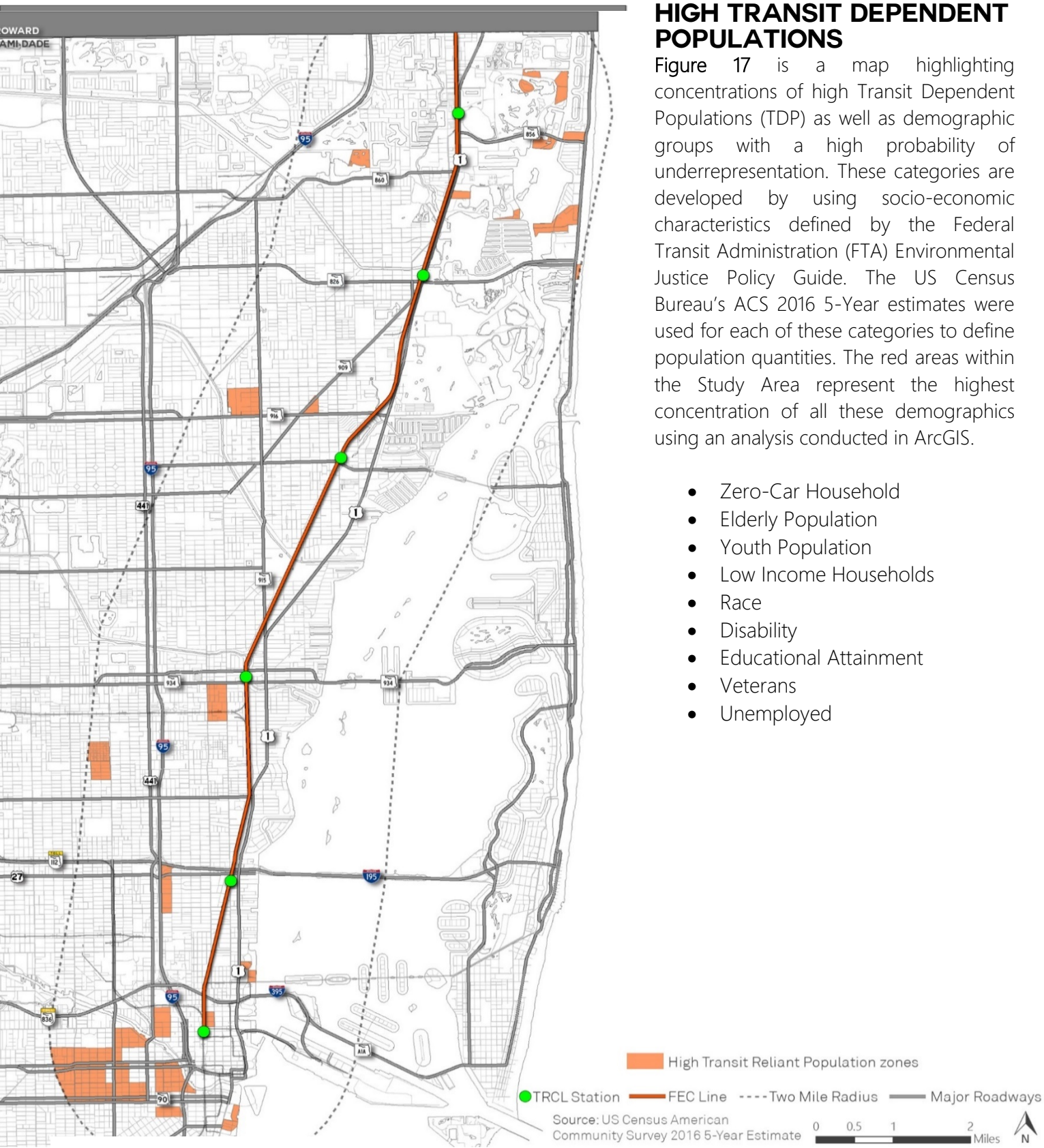


Figure 17: High Transit Dependent Populations

HIGH TRANSIT DEPENDENT POPULATIONS

Figure 17 is a map highlighting concentrations of high Transit Dependent Populations (TDP) as well as demographic groups with a high probability of underrepresentation. These categories are developed by using socio-economic characteristics defined by the Federal Transit Administration (FTA) Environmental Justice Policy Guide. The US Census Bureau's ACS 2016 5-Year estimates were used for each of these categories to define population quantities. The red areas within the Study Area represent the highest concentration of all these demographics using an analysis conducted in ArcGIS.

- Zero-Car Household
- Elderly Population
- Youth Population
- Low Income Households
- Race
- Disability
- Educational Attainment
- Veterans
- Unemployed

COMMUNITIES OF CONCERN

The Miami-Dade County Communities of Concern are identified in the *Federal Planning Emphasis Areas (PEAs) for Miami-Dade County* study, conducted in 2017 for the Miami-Dade TPO. These areas are identified as census tracts that are at least one standard deviation above the average percentage and/or average density of Families below the Poverty Level or Households with Zero Vehicles. The Communities of Concern are shown in Figure 18.

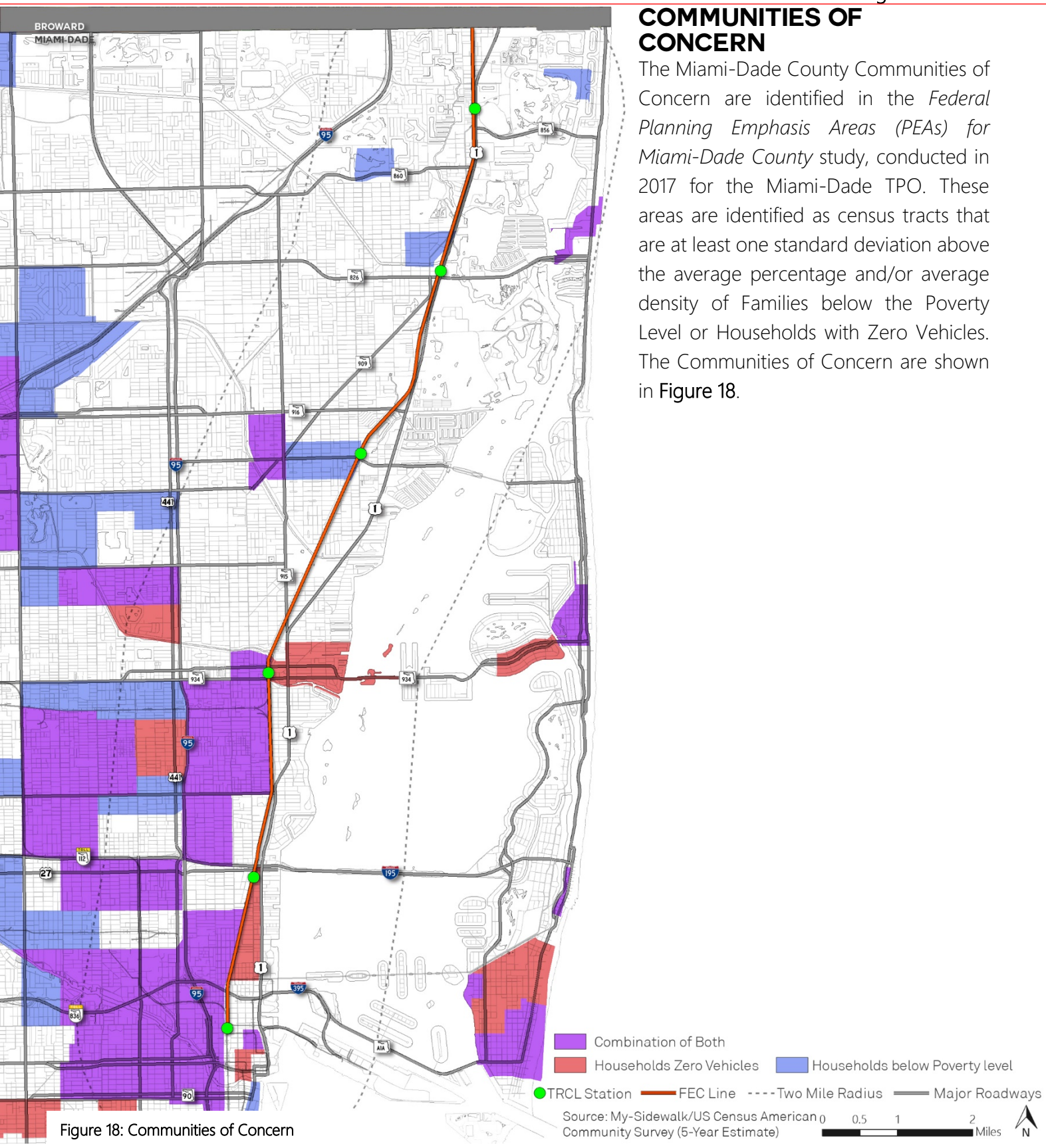


Figure 18: Communities of Concern

COMMUNITY REDEVELOPMENT AREAS

The Community Redevelopment Areas (CRAs) are areas that will be revitalized because they are designated as slum and blight, as defined by Miami-Dade County. The Community Redevelopment Areas are shown in Figure 19.

Community Redevelopment Areas
Omni
North Miami
North Miami Beach
7th Avenue Corridor
Midtown Miami
Beach City
SE Overtown/Park West
NW 79th Street
Opa-Locka

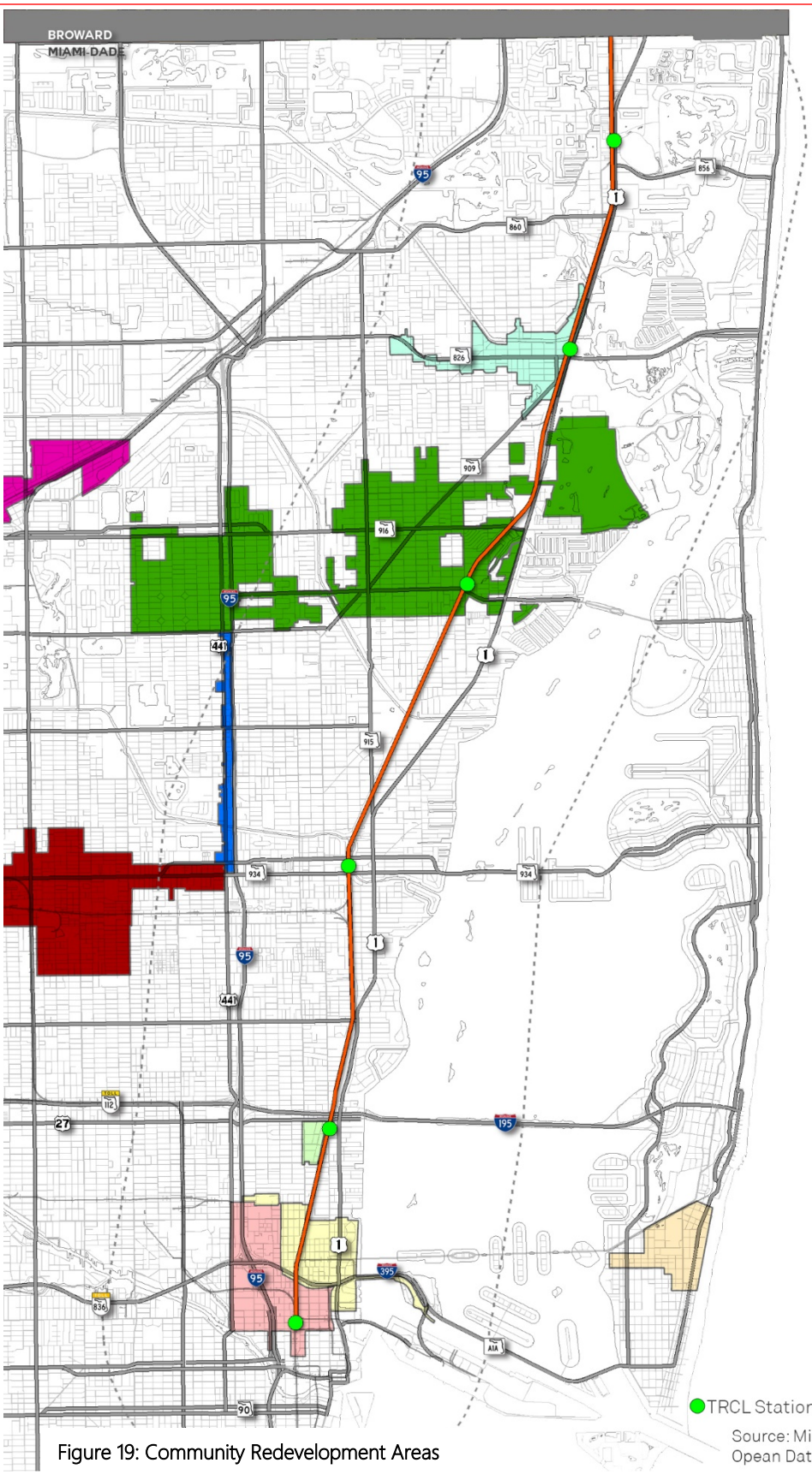


Figure 19: Community Redevelopment Areas

UNEMPLOYED POPULATION DENSITY

The total estimated unemployed population in the Study Area was 26,000 in 2016 according to ACS 2016 5-year estimates. It represents approximately 23% of the total estimated unemployed population of Miami-Dade County, which was approximately 115,000 in 2016, and the density in the Study Area is shown in Figure 20.

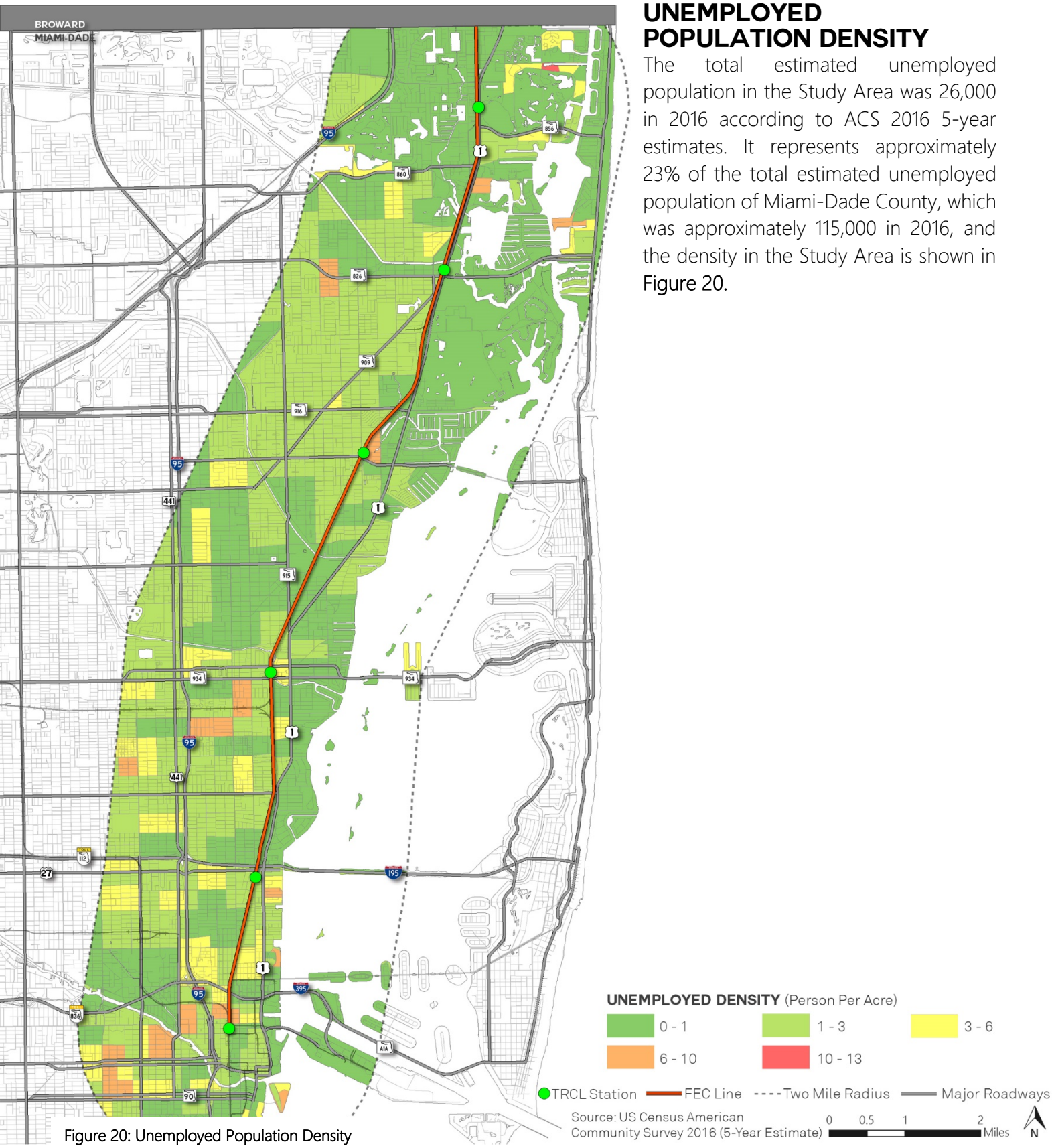


Figure 20: Unemployed Population Density

ZERO-CAR HOUSEHOLDS

Zero-Car Households are defined as households without access to a personal vehicle. The total estimated number of zero-car households in the Study Area was approximately 35,000 in 2016 according to ACS 2016 5-year estimates. The number of zero-car households per acre in the Study Area is shown in Figure 21. The highly urbanized environment of the Study Area results in it maintaining approximately 37% of the total estimated number of zero-car households in Miami-Dade County, which was an approximately 94,000 households in 2016.

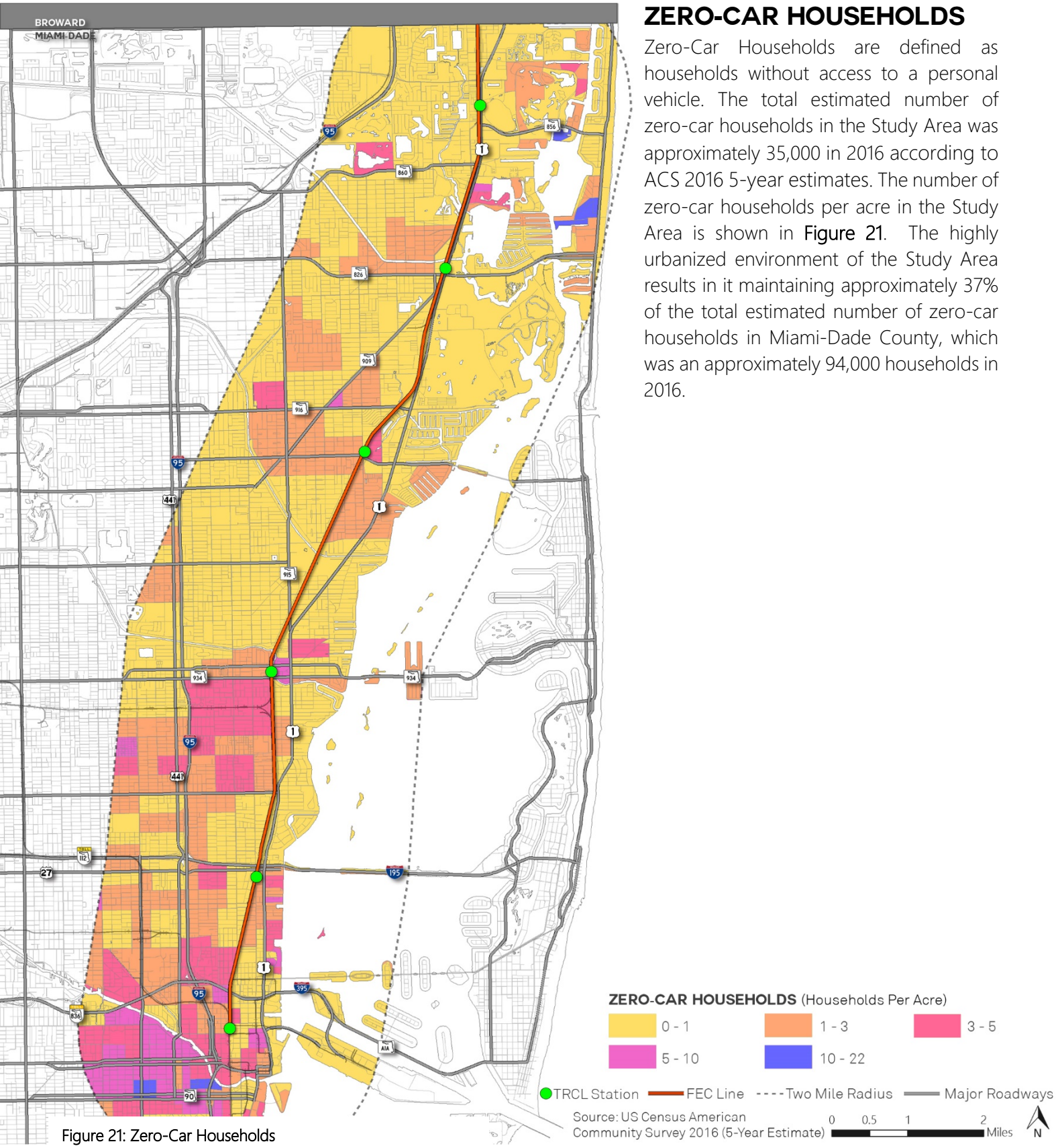


Figure 21: Zero-Car Households

MEDIAN HOUSEHOLD INCOME

Median household income is frequently used to determine housing affordability. Median household income is defined as the income level earned by a given household where half of the homes in the area earn more and half earn less. The total estimated median household income (MHI) within the Study Area was approximately $37,000 in 2016 according to ACS 2016 5-year estimates and is shown in Figure 22. The estimated MHI of Miami-Dade County was approximately $44,000 in 2016.

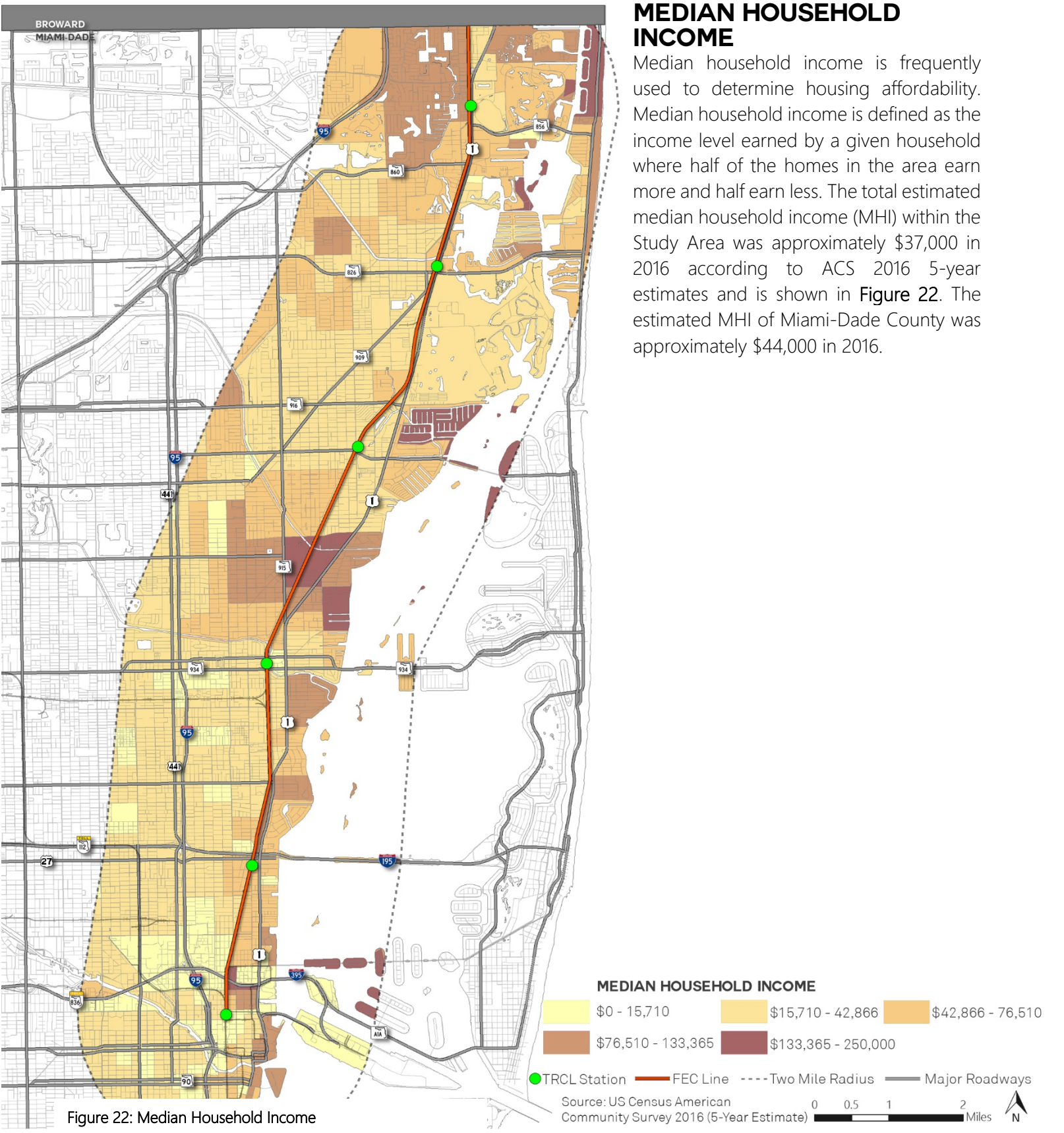


Figure 22: Median Household Income

DENSITY OF HOUSEHOLDS LIVING BELOW POVERTY LEVEL

The 2016 Federal Poverty Level (FPL) for a household of four (4) is $24,500, according to the U.S. Census Bureau. Figure 23 visualizes the density of Poverty stricken households throughout the Study Area. The total estimated number of households with an income below the FPL in Miami-Dade County in 2016 was approximately 175,000, according to the ACS 2016 5-year estimates. The Study Area possesses approximately 49,000, or 28% of these households.

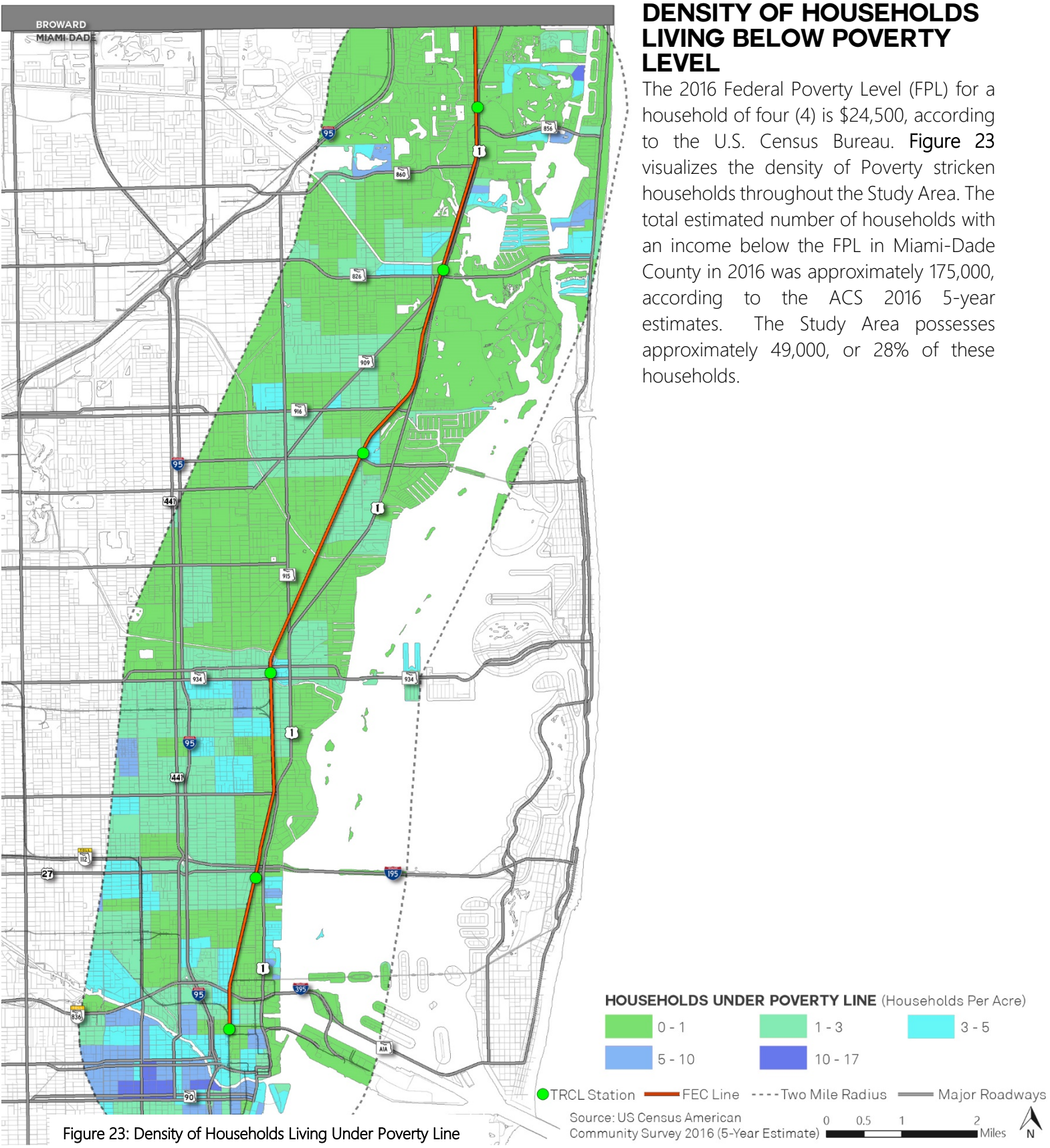


Figure 23: Density of Households Living Under Poverty Line

SOCIOECONOMIC REVIEW

Table 7 provides a summary of the socioeconomic characteristics present in the Study Area in comparison to Miami-Dade County, that were explored in-depth in the previous section. These characteristics can be used to provide a better picture of the region's socioeconomic status.

Table 7: Study Area High County Low Income- Housing Units

AMERICAN COMMUNITY SURVEY 2016 5YR ESTIMATE SUMMARY			
CATEGORY	STUDY AREA	COUNTY	PERCENTAGE
Total Population	525,891	2,664,418	19.74%
Youth	43,279	243,904	17.74%
Elderly	77,993	406,136	19.20%
Limited English	46,732	217,043	21.53%
Minority	201,304	610,091	33.00%
Veterans	10,923	53,272	20.50%
Disabled	24,875	114,656	21.70%
Limited Educational Attainment	78,483	362,252	21.67%
Unemployed	26,220	115,270	22.75%
Zero-car Households	34,602	94,105	36.77%
Median Household Income	$37,195	$44,224	15.90%↓
Households Below Poverty Level	48,503	174,850	27.74%

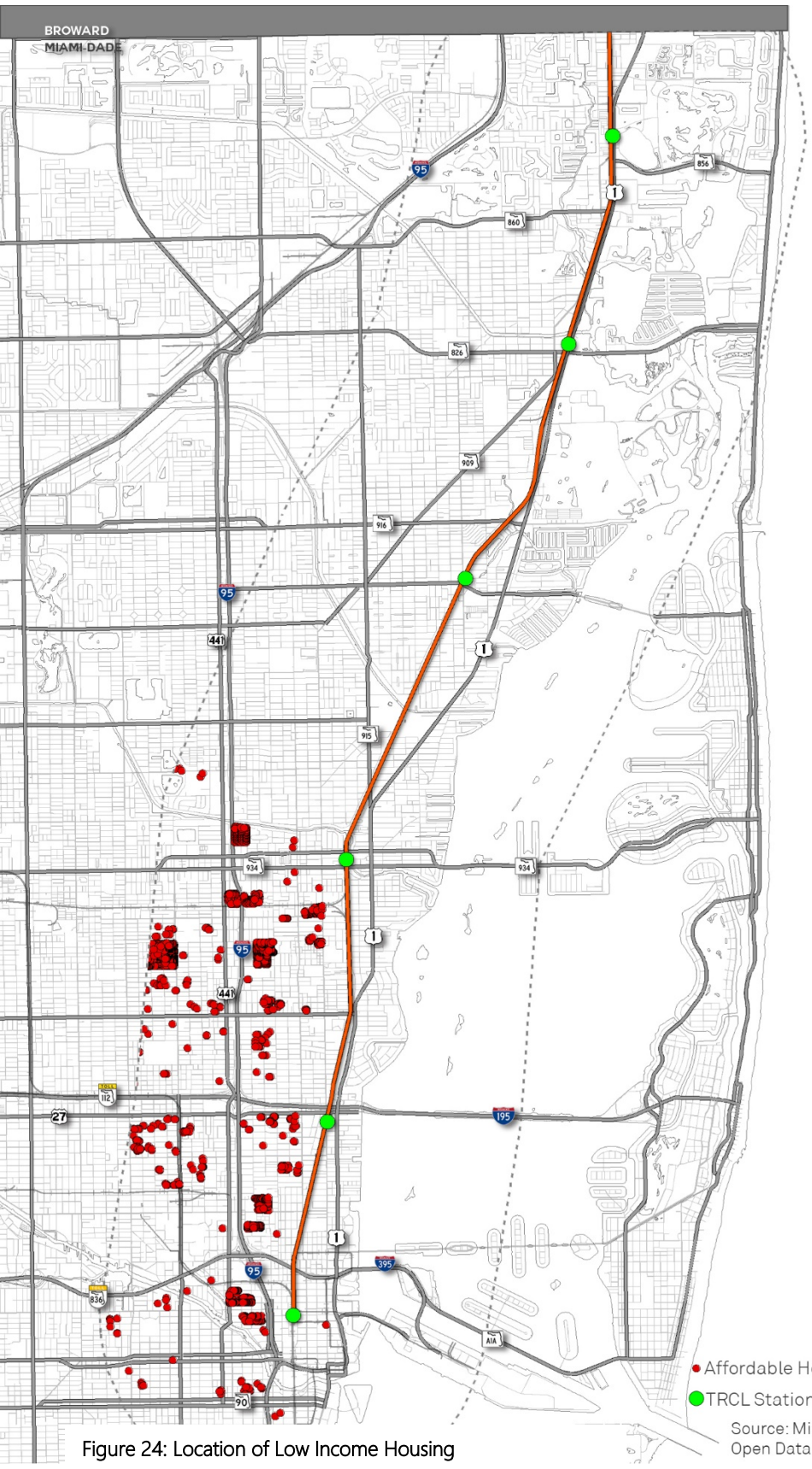


Figure 24: Location of Low Income Housing

LOCATION OF LOW INCOME HOUSING

The U.S. government's interest in low-income housing dates to the late 1800s and efforts to improve the living conditions for many Americans living in substandard conditions in urban areas. Throughout the early 1900s, the government created programs to provide safe and affordable housing, several which still exist in some form to make rent affordable or present opportunities for low-income residents to secure a loan to buy a home. Miami-Dade County as of 2018, maintains approximately 4,100 low income housing units in Miami-Dade County. Within the Study Area, there are approximately 1,900 units, or 47% of all low-income housing units. Of those 1,900 units, approximately 1,800 preside within the City of Miami. Table 8 identifies the low-income housing developments with the largest number of units. The locations of the low-income housing units in the Study Area are shown in Figure 24.

Table 8: Study Area High County Low Income-Housing Units

Development Name	Housing Units
Liberty Square	551
Edison Courts	341
Victory Homes	142
Culmer Place	134
Little River Terrace	106

TRANSPORTATION COSTS IN THE REGION

The United States Census Bureau has online tools that summarize and make accessible many of its data collected over the years. One of these tools is called the American FactFinder and it was accessed in December 2017 to review the 2013 American Housing Survey Transportation Cost data for all occupied units in the selected metropolitan area of Miami-Ft. Lauderdale-Hollywood. Table 9 summarizes pertinent information from this dataset. Of 1,978,800 occupied households, 79% had sidewalks present and 21% had bicycle lanes present. In a declining trend, renters, elderly, and people living below poverty level, respectively, have less sidewalks and bicycle lanes present around their households. Of a total of 43% of households with bicyclists or walkers, only 13% travel by bicycling or walking, even though the median monthly cost of driving is $820 (2013 $) more expensive.

Average accessibility to land uses by bicycling or walking throughout the metropolitan area of Miami-Ft. Lauderdale-Hollywood are 20% to grocery stores, 19% to personal services, 18% to retail shopping, 19% to entertainment, 13% to health care services, 17% to personal banking, and 8% to school or workplaces.

Table 9: American FactFinder Transportation Cost (2013)

Characteristics	Total Occupied Units	Owner	Renter	Elderly (65 years and over)	Below Poverty Level
Household Mode of Transportation[1]					
Total	1,978.80	1,196.30	782.5	507.1	352.6
Biking or Walking	260.2	175.8	84.4	23.7	26.3
	13%	9%	4%	1%	1%
Households with Bikers or Walkers	844.5	505.6	338.9	191.5	123.7
	43%	26%	17%	10%	6%
Accessible by Biking or Walking[1]					
Grocery Stores	392.9	242.7	150.2	67.3	41.8
	20%	12%	8%	3%	2%
Personal Services	379.5	235.7	143.9	69.9	43.9
	19%	12%	7%	4%	2%
Retail Shopping	359.9	212	147.9	60.5	46.7
	18%	11%	7%	3%	2%
Entertainment	367.3	223	144.4	62.8	47
	19%	11%	7%	3%	2%
Health Care Services	248	150.9	97.1	46.2	31.6
	13%	8%	5%	2%	2%
Personal Banking	338.4	211.1	127.3	61.4	39
	17%	11%	6%	3%	2%
School or Workplace	154.4	84	70.6	21	29.7
	8%	4%	4%	1%	2%
Neighborhood Features[1]					
Sidewalks Present	1,569.9	937.1	632.8	414.1	262.6
	79%	47%	32%	21%	13%
Bike Lanes Present	421.2	263.2	158	103.7	58.2
	21%	13%	8%	5%	3%
Median Monthly Transportation Costs[2]					
Car[3]	850	920	809	690	700
Public Transportation	30	20	40	20	40
Notes:	[1]Information presented in thousands of units [2]Information presented in 2013 Dollars [3]Median monthly transportation cost for cars includes gas, auto insurance, car payments, car maintenance, and parking				

LAND USE

EXISTING LAND USE

Figure 25 shows the existing land use in the Study Area. This map displays key information for understanding the context of the area and identifying available public space to accommodate potential projects with minimal impacts. Table 10 shows the percent of each type of land use making up the Study Area.

Table 10: Existing Land Use Percentages

Land Use	Area (Sq. Miles)	Percentage
Commercial	3.25	7%
Industrial	2.65	5%
Residential - Single Family	13.13	26%
Residential - Multi-Family	6.4	13%
Outdoor Recreational	3.4	7%
Government	0.34	1%
Educational	1.61	3%
Medical	0.34	1%
Street	13.72	28%
Other	4.92	10%
Total:	49.76	100%

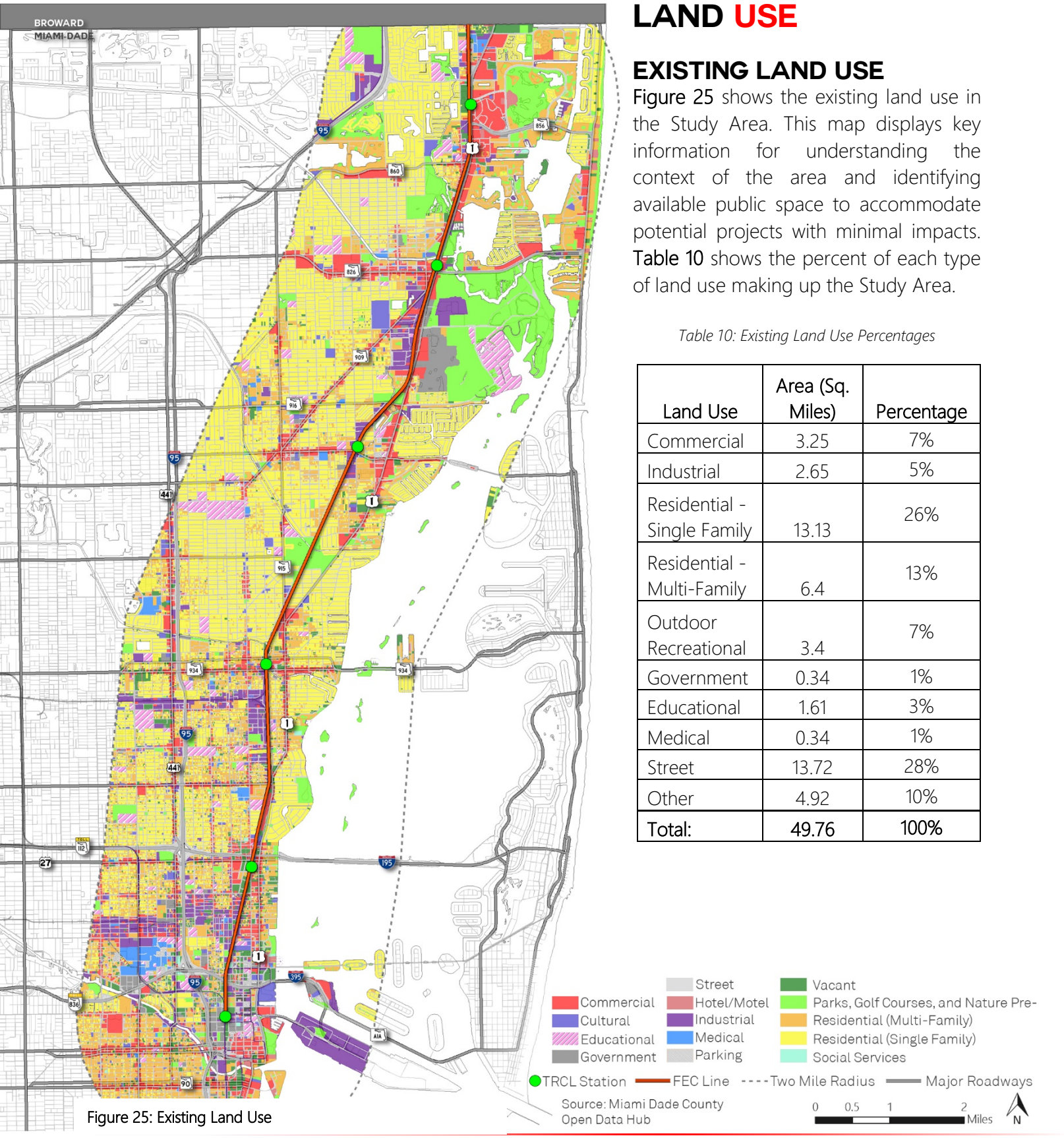


Figure 25: Existing Land Use

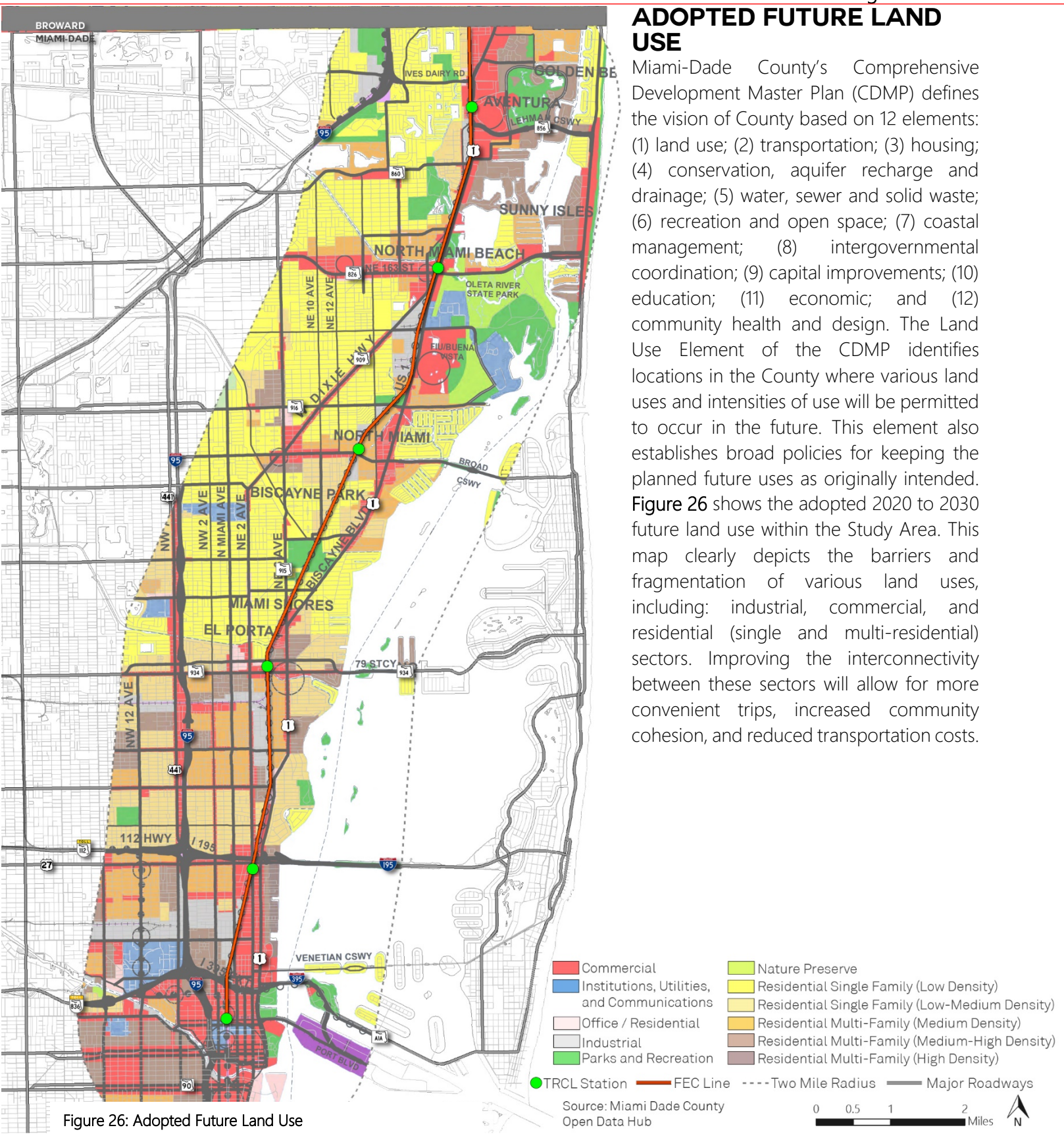


Figure 26: Adopted Future Land Use

ADOPTED FUTURE LAND USE

Miami-Dade County's Comprehensive Development Master Plan (CDMP) defines the vision of County based on 12 elements: (1) land use; (2) transportation; (3) housing; (4) conservation, aquifer recharge and drainage; (5) water, sewer and solid waste; (6) recreation and open space; (7) coastal management; (8) intergovernmental coordination; (9) capital improvements; (10) education; (11) economic; and (12) community health and design. The Land Use Element of the CDMP identifies locations in the County where various land uses and intensities of use will be permitted to occur in the future. This element also establishes broad policies for keeping the planned future uses as originally intended. Figure 26 shows the adopted 2020 to 2030 future land use within the Study Area. This map clearly depicts the barriers and fragmentation of various land uses, including: industrial, commercial, and residential (single and multi-residential) sectors. Improving the interconnectivity between these sectors will allow for more convenient trips, increased community cohesion, and reduced transportation costs.

COMMUNITY DESTINATIONS

The 14.5-mile-long Study Area possesses several different community destinations that act as points of interest for public residents, as well as tourists. Incorporating these locations into the proposed route is critical for connectivity.

The following destinations are identified within the Study Area:

- Historical Sites and Districts
- Educational facilities (Universities, High Schools, and Middle Schools)
- Cultural centers
- Hospitals
- Libraries
- County/Municipal Parks and Recreational Areas

Figure 27: Historic Sites and Districts

HISTORIC SITES AND DISTRICTS

Figure 27 displays locations of historic districts and sites within the Study Area as defined by The National Register of Historic Places (NRHP). The NRHP is the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.

Historic Districts possess a significant concentration of sites, buildings, structures or objects united historically or aesthetically by plan or physical development. The importance of a district lies in the collection of buildings that reflects the social and architectural history of the area. There are eight (8) established districts in the county, two (2) which are in the Study Area.

A Historic site or Heritage site is an official location where pieces of political, military, cultural, or social history have been preserved due to their cultural heritage value. There are 26 historic sites within the Study Area, representing 21% of the historic sites in Miami-Dade County. The nature of these sites ranges from individual buildings to parks. Historic sites are protected by law, and many have been recognized with the official national historic site status. Table 11 identifies the names of each site and district in the Study Area.

Table 11: Inventory of Historic Sites and Districts within Study Area

Historical Type	Name
Historic Sites	Watercourt Villa and Pergola
	Atlantic Island Bridges A
	Fulford-By-The-Sea Monument
	El Portal Little River Seawall
	Phillips House
	Barrentine House
	Fulford-By-The-Sea Wall
	Green Acres Villas
	The Lido Condo
	Spanish Monastery
	Atlantic Island Bridges B
	Hazenthorpe House
	Greynolds Park
	Sunny Isles Pier
	William Jennings Bryan Elementary
	Tebbetts House
	Burr House
	El Portal House
	DS Campbell House
	Peoples Gas System
	Golden Beach Pavilion
	Staehle House
	Majestic Isle Condominium
	Zimmerman House
	Burwell House
	Irons Manor Fountain (Pioneer Fountain)
Historic Districts	North Shore Crest Historic District
	Lake Belmar Canal Historic District

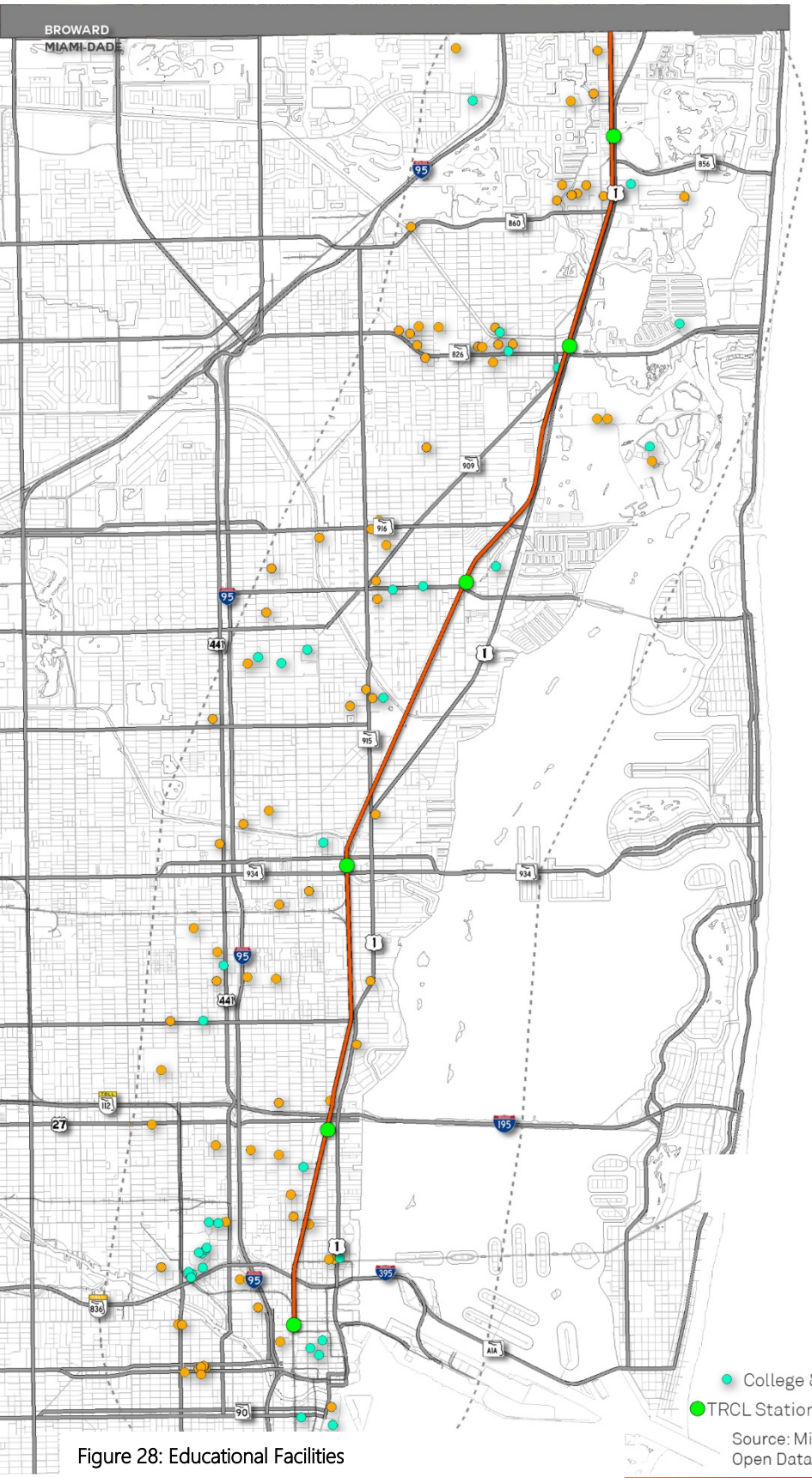


Figure 28: Educational Facilities

EDUCATIONAL FACILITIES

Figure 28 displays the locations of educational facilities within the Study Area, including College/University institutions and Middle/High Schools (public, private, and charter). Elementary schools are not shown since public elementary schools are generally located in neighborhoods and private charter schools are located too far away for young children to bike/walk to and from school. Colleges, universities, and technical schools are the ideal locations to focus non-motorized connections based on the average age of their student population and their typical economic demographic.

There are 39 colleges, universities, and technical schools in the Study Area, Table 12, identifies these facilities.

Table 12: Inventory of Colleges, Universities, and Technical Schools within Study Area

Facility Type	Facility Name	Municipality
College	Innova College Virtual Campus	Miami
	Miami-Dade College Medical Center	Miami
	Miami-Dade College Wolfson	Miami
	New World School of the Arts	Miami
	SEGAL Institute Health and Medical	North Miami
	SAE Institute - Miami	North Miami Beach
Technical	Inlingua Language Center - Aventura	Aventura
	ADE Assoc Development Exceptional	Miami
	Exceptional Development Corp of South Florida	Miami
	Inlingua Language Center - Brickell	Miami
	Keyes Real State License Exam School	Miami
	Lindsey Hopkins Technical College	Miami
	Miami-Dade College Entrepreneurial Education Ct	Miami
	Open Hearts Language Academy	Miami
	TALK International School of Languages	Miami
	Traveling Angels Security Academy	Miami
	UM Kessenich MDA ALS Center	Miami
	Barry University Vivian A. Decker Alumni	Miami-Dade
	Miami Country Day School	Miami-Dade
	Sheet Metal Workers Apprentice Training Center	Miami-Dade
	Health Education Training School	North Miami
	Beauty Schools of America	North Miami Beach
	Gold Coast School of Real Estate - North Miami	North Miami Beach
University	Florida International University Brickell	Miami
	Miami International University of Art & Design	Miami
	UM Bascom Palmer Eye Institute	Miami
	UM Bachelor Children's Research Institute	Miami
	UM Center for Complementary & Integrative Medicine	Miami
	UM Clinical Enterprise Technologies Tech	Miami
	UM Department of Microbiology & Immunology	Miami
	UM Environmental Health & Safety	Miami
	UM Epidemiology and Public Health	Miami
	UM Leonard M. Miller School of Medicine	Miami
	UM Otolaryngology Department	Miami
	Barry University Main Campus	Miami Shores
	Barry University Podiatric Medicine	Miami Shores
	Florida International University Biscayne Bay	North Miami
	Johnson & Wales University (JWU)	North Miami
	Nova Southeastern University - Miami	North Miami Beach

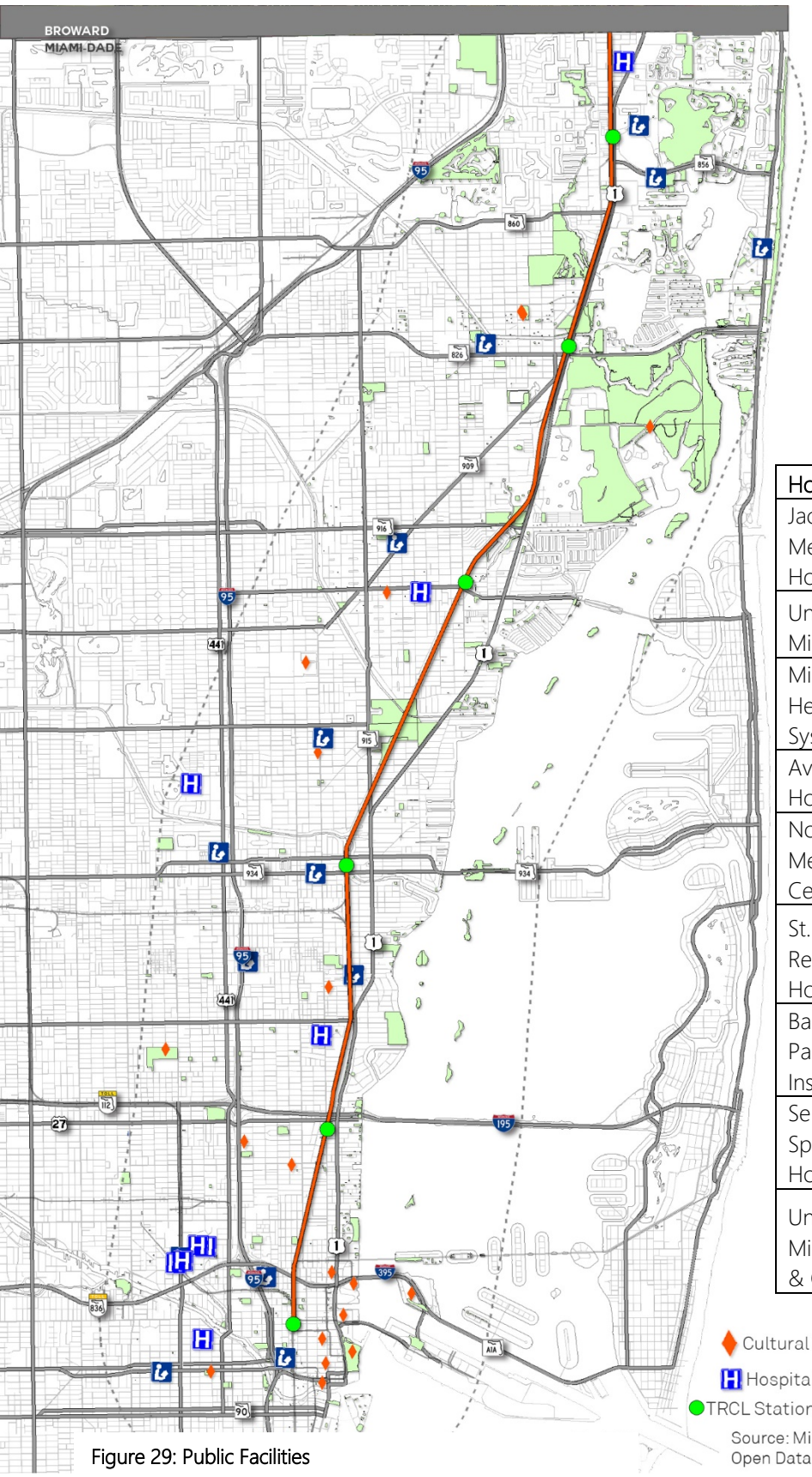


Figure 29: Public Facilities

PUBLIC FACILITIES

Figure 29 highlights the locations of four (4) categories of public facilities that represent community destinations within the Study Area and include:

- Hospitals
- Outdoor Recreational Facilities
- Libraries
- Cultural Centers

Table 13 lists the names of medical facilities within the Study Area.

Table 13: Hospitals

Hospital Name	Beds	City
Jackson Memorial Hospital	1567	Miami
University of Miami Hospital	568	Miami
Miami Jewish Health Systems	462	Miami
Aventura Hospital	407	Aventura
North Shore Medical Center	357	Miami
St. Catherine's Rehabilitation Hospital	234	North Miami
Bascom Palmer Eye Institute	100	Miami
Select Specialty Hospital	40	Miami
University of Miami Hospital & Clinics	40	Miami

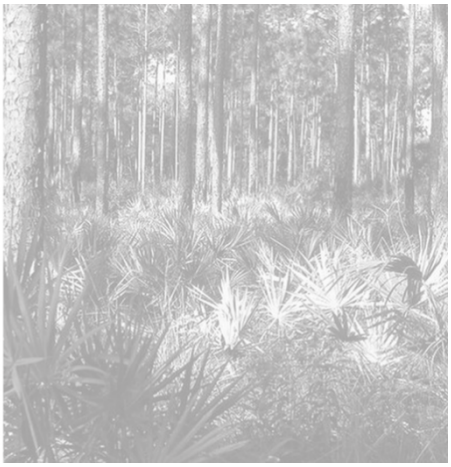
ENVIRONMENTAL CONDITIONS



Within the United States, Miami-Dade County is at the forefront of dealing with climate change and the environmental concerns it entails. The Study Area is highly developed and urbanized yet there are locations within it where animals rely on sensitive habitats, and where there are areas easily affected by intense regional weather events. Proposed location and design of bicycle/pedestrian facilities need to consider the existing environmental conditions:

- Wetland Areas of Concern
- Location of Natural Forest Communities
- FEMA designed Flood Zones
- Critical Habitats
- Environmentally Endangered Land





WETLANDS

There are two Wetland categories within the 2-mile buffer along the Northeast Corridor that are shown in Figure 30:

- Depressional Soils (with a 500-foot buffer)
- Hydric Soils (with a 500-foot buffer)

There are minimal identified wetlands within the Study Area. There is a Depressional Soil area located in the northern sector of the Study Area within the municipality of North Miami. The total acreage of this area is 1,124 or 1.76 sq. miles. There are also two small Hydric Soils areas located in the northern sector of the Study Area, as shown in Figure 30. Proposed new facilities that traverse these areas would have to consider mitigation and additional design standards.

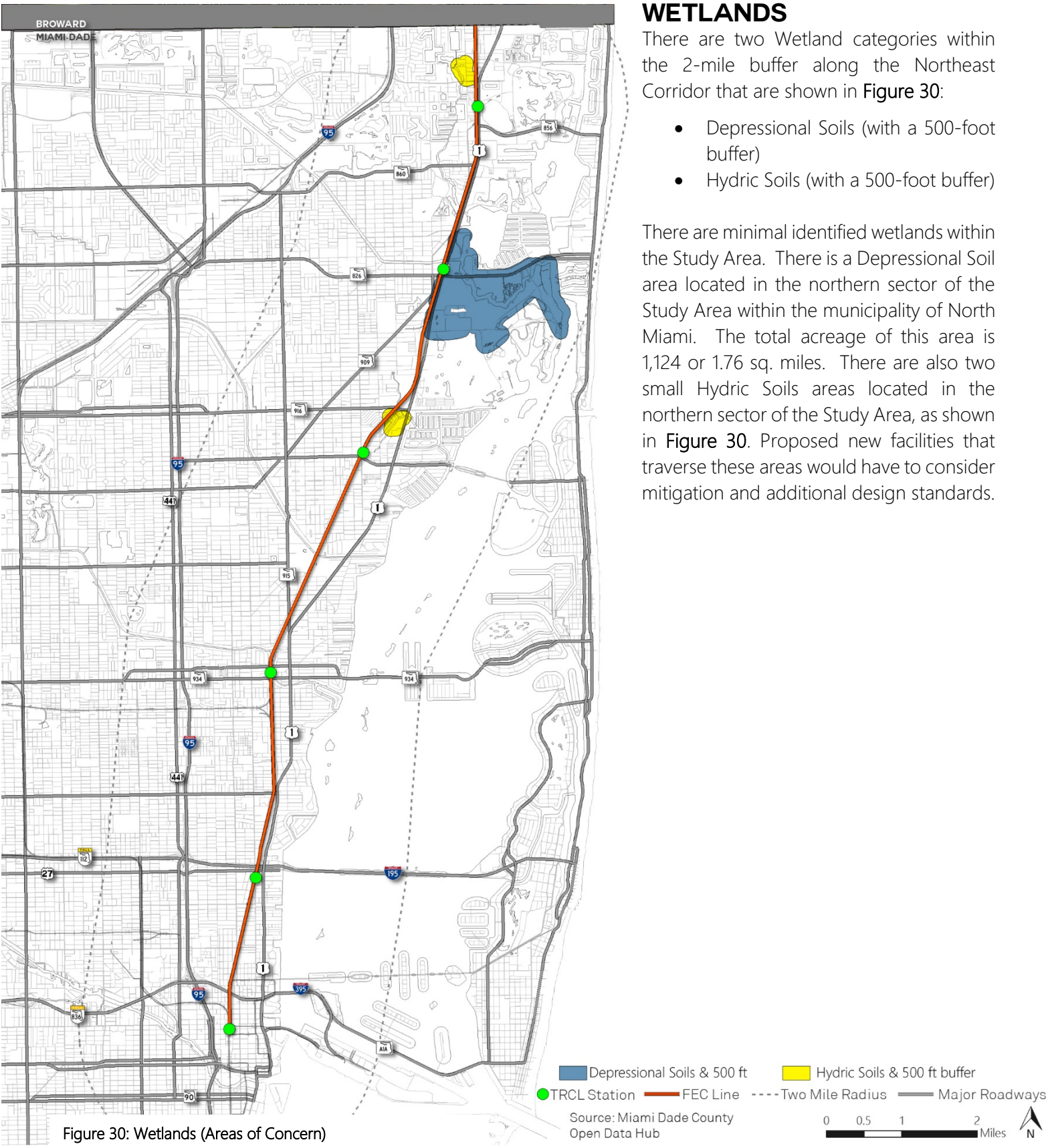


Figure 30: Wetlands (Areas of Concern)

Figure 31: Natural Forest Communities

NATURAL FOREST COMMUNITIES

Natural Forest Communities (NFC) are rare upland plant communities that are protected in Miami-Dade County. These plant communities typically consist of Pine Rocklands and Tropical Hardwood Hammock habitats that contain a large diversity of native plants, many of which are found only in within Miami-Dade County.

In order to protect, preserve and manage these remaining natural habitats, Miami-Dade County requires a NFC removal permit for activity that results in the removal or damage to any vegetation in a designated NFC, including impacts to any tree, shrub, or groundcover plant. These permits are required to ensure that impacts to the NFCs are minimized and that remaining areas are preserved and managed. Table 14 identifies the four (4) NFC's within the Study Area, and they are shown in Figure 31.

NFC Owner	Folio	Acreage
City of Miami-Dept of P&D	141390590020	0.22
Dade County	3012320000065	10.8
City of Miami-Dept of P&D	141390110010	7.65
Dade County	722090080010	16.2
Dade County	622160000040	4

Table 14: Natural Forest Communities

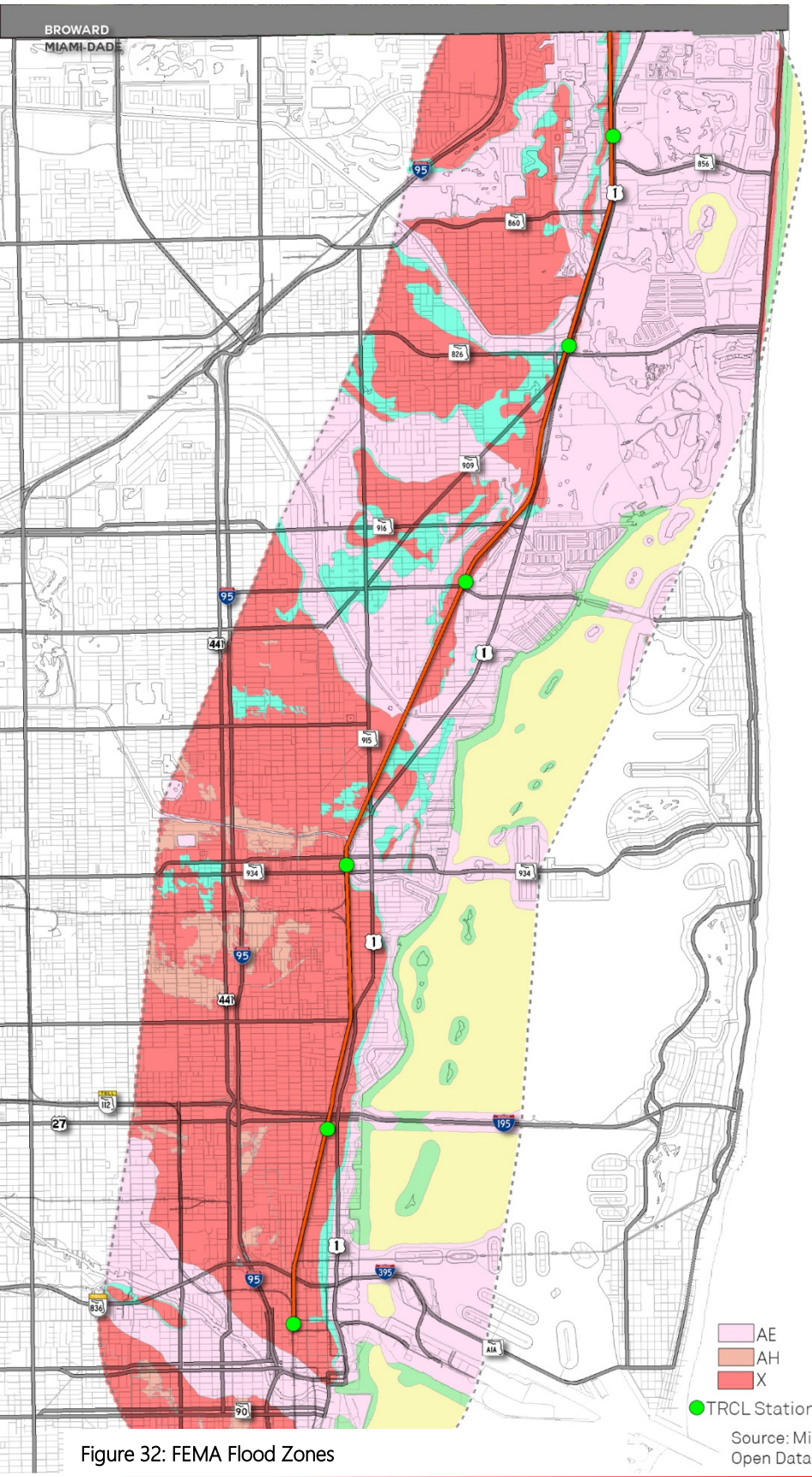


Figure 32: FEMA Flood Zones

FEMA FLOOD ZONES

Figure 32 highlights the flood zones as defined by the Federal Emergency Management Agency that are located within the Study Area. Flood zones help identify areas which represent high risk for flooding during torrential weather conditions, such as hurricanes.

Zone X - Area of moderate flood hazard, usually the area between the limits of the 100- year and 500-year floods.

Zone X (Shaded) - Area of minimal flood hazard, usually depicted on Flood Insurance Rate maps as above the 500-year flood level.

Zone A - Areas subject to inundation by the 1%-annual-chance flood event generally determined using approximate methodologies.

Zone AH - Areas subject to inundation by 1%-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet.

Zone AE - Areas subject to inundation by the 1%-annual-chance flood event determined by detailed methods.

Zone VE - Areas subject to inundation by the 1%-annual-chance flood event with additional hazards due to storm-induced velocity wave action.

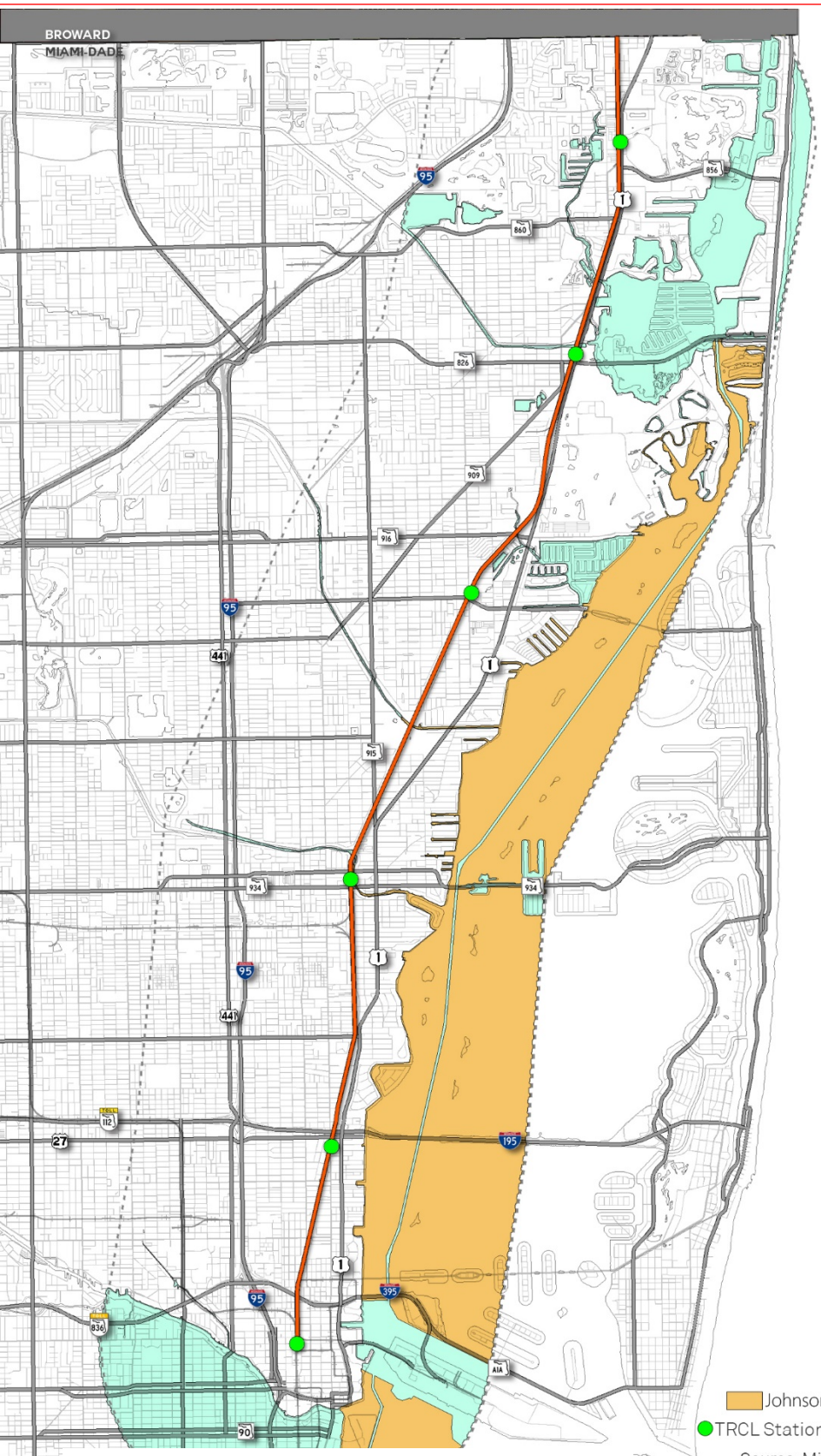


Figure 33: Critical Habitats

CRITICAL HABITATS

Two critical habitats exist within the Study Area and are shown in Figure 33. These areas have sensitive flora or fauna which rely on the protection of local and state government regulation to ensure their protection. Both areas are strictly related to the coastal/aquatic biomes of Southeast Florida.

Johnson's seagrass - In 1998, Johnson's seagrass was listed as a threatened species under the Endangered Species Act (ESA). It is the first and only marine plant to be listed under the ESA. Johnson's seagrass was listed as threatened due to its limited geographic range and habitat loss. This unique seagrass occurs in the coastal waters off the east coast of Florida, from just north of Sebastian Inlet south to Virginia Key in Biscayne Bay.

West Indian Manatee - The West Indian manatee is a large, aquatic mammal, sometimes referred to as "sea cows" due to their diets of seagrass. Manatees are protected under the Endangered Species Act and under the Marine Mammal Protection Act. Today there are more than 6,300 west Indian manatees in Florida.

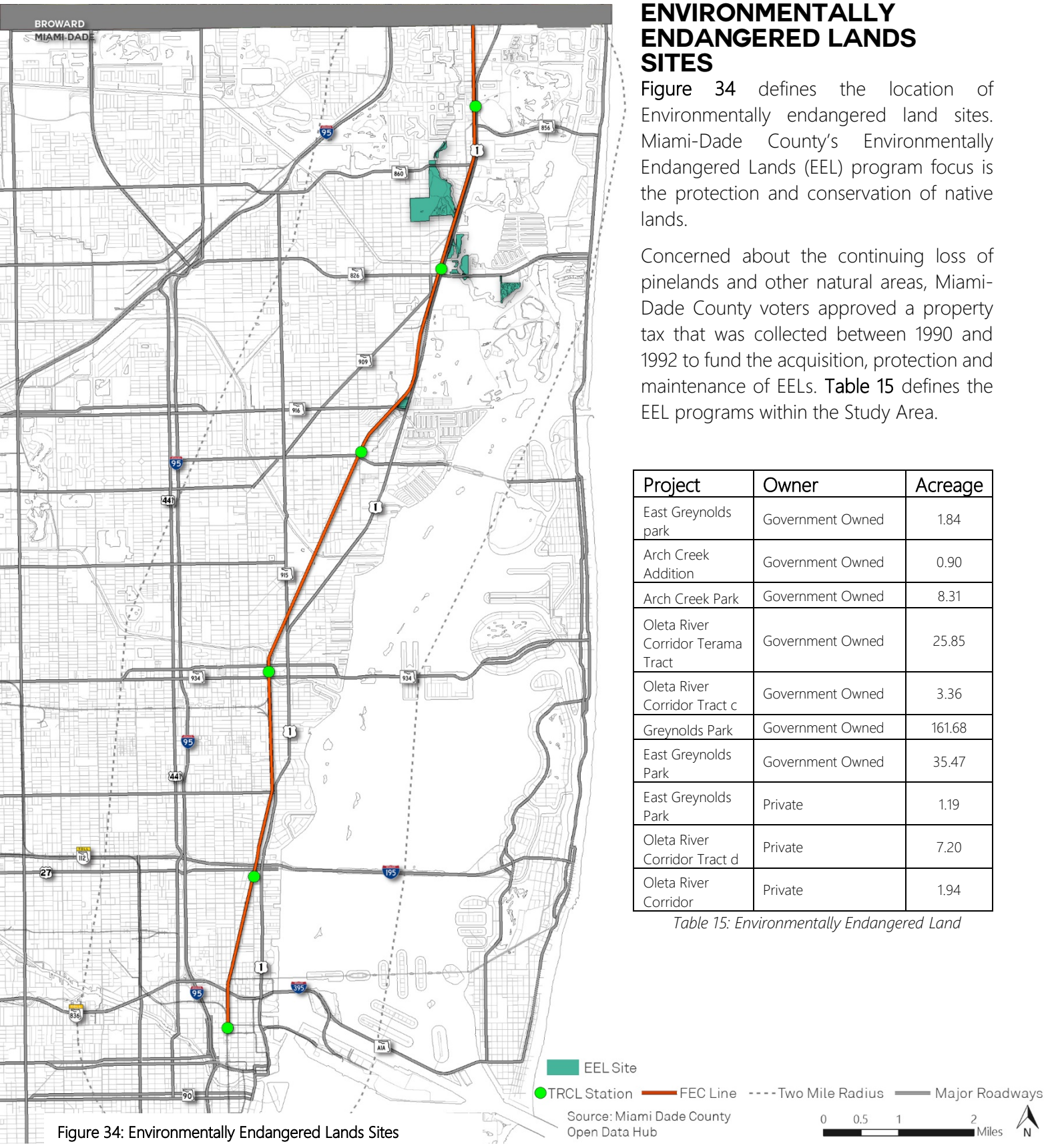


Figure 34: Environmentally Endangered Lands Sites

ENVIRONMENTALLY ENDANGERED LANDS SITES

Figure 34 defines the location of Environmentally endangered land sites. Miami-Dade County's Environmentally Endangered Lands (EEL) program focus is the protection and conservation of native lands.

Concerned about the continuing loss of pinelands and other natural areas, Miami-Dade County voters approved a property tax that was collected between 1990 and 1992 to fund the acquisition, protection and maintenance of EELs. Table 15 defines the EEL programs within the Study Area.

Project	Owner	Acreage
East Greynolds park	Government Owned	1.84
Arch Creek Addition	Government Owned	0.90
Arch Creek Park	Government Owned	8.31
Oleta River Corridor Terama Tract	Government Owned	25.85
Oleta River Corridor Tract c	Government Owned	3.36
Greynolds Park	Government Owned	161.68
East Greynolds Park	Government Owned	35.47
East Greynolds Park	Private	1.19
Oleta River Corridor Tract d	Private	7.20
Oleta River Corridor	Private	1.94

Table 15: Environmentally Endangered Land

ALTERNATIVES DEVELOPMENT

EXPLORING OPPORTUNITIES

During this study, the FECI requested that no bike/ped transportation facility alternatives be developed within the FEC rail corridor ROW. Therefore, it became necessary to explore opportunities within the surrounding area. Public ROW was examined on the east and west sides of the FEC rail corridor for a potential continuous route. Ownership of parcels was identified through the Miami-Dade Property appraiser database. Due to the lack of available and public ROW in this heavily developed urbanized area of Miami-Dade County, it was determined this approach was not feasible. Of the total FEC rail corridor distance within the study area, only 17% of the corridor has public ROW immediately adjacent to it with enough space to accommodate a multimodal trail. Furthermore, these public ROW segments were spaced few and far apart, on average one mile between viable segments. The 83% of the corridor length which is not viable, ROW is privately owned, empty, or actively used parcels, many with structures built to the FEC rail corridor ROW line.

Figure 35: Viable Public ROW Adjacent to FEC

LONGEST PUBLIC RIGHT OF WAY SEGMENTS

Figure 35 highlights locations of public ROW immediately adjacent to the FEC rail corridor that have enough available space without disrupting basic functionality of the roadways which share those public parcels. The longest segment is located on Federal Highway and is 0.9 miles in length. Table 16 identifies the roadway and estimated length of the seven segments on Figure 35. The available width for any potential proposed facilities also varies per segment.

Segment	Roadway	Estimated Length (Miles)
1	West and East Dixie Highways	0.45
2	SR 5/Biscayne Boulevard	0.27
3	SR 5/Biscayne Boulevard	0.16
4	Club Drive	0.59
5	NE 4th Avenue	0.52
6	Federal Highway	0.91
7	NW 1st Avenue	0.12

Table 16: Viable Segment Distances

LAND USE NEAR THE FEC IN THE FAR FUTURE

Based on this analysis, it is this reports recommendation for Miami-Dade County, and all associated municipalities to coordinate necessary land use regulations for parcels immediately adjacent to the east and west of the FEC rail corridor. This regulation should aim towards the ultimate goal of phasing out privately owned parcels from abutting the FEC rail corridor ROW. These parcels would then be used to make a continuous north-south non-motorized trail which follows the FEC rail corridor alignment. Figure 36 displays an example of what the existing and future conditions can be if this undertaking would come to fruition. The following are recommended elements for the regulation of land use near the FEC rail corridor:

- Establish a minimum setback of 20', on the east and west side, of the FEC rail corridor.
- Individual 20' setback parcels may be leased to private owners but are prohibited from building permanent structural components on the leased property. They are required to relinquish the property and all activities once an applicable section of trail is ready to be constructed.
- Parcels with existing permanent structures with businesses that still wish to operate out of the existing structure may continue to do so. However, once a segment of this future trail is ready to be built, current business owners must accept that renovation/reconstruction of their existing structure must occur and comply with the required 20' setback.

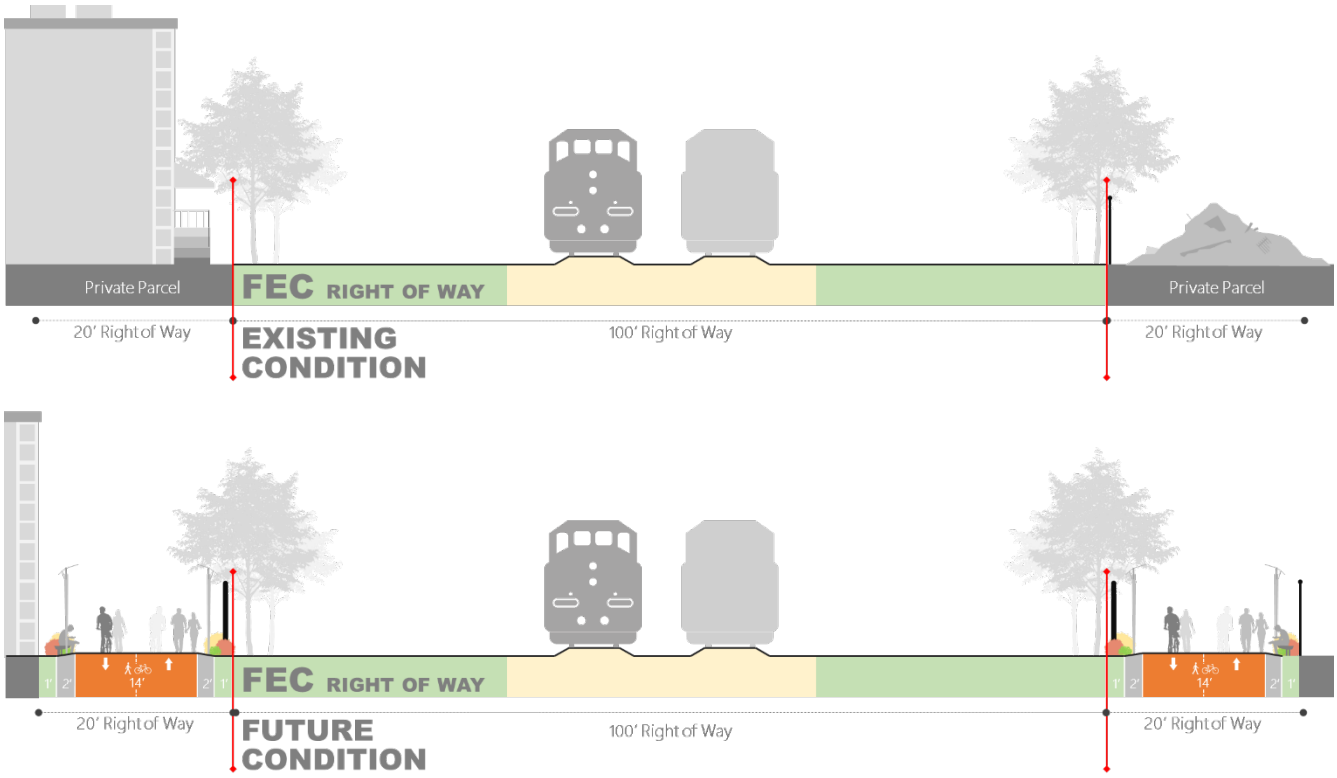


Figure 36: Future Setback Conditions

SEEKING ALTERNATE ROUTES

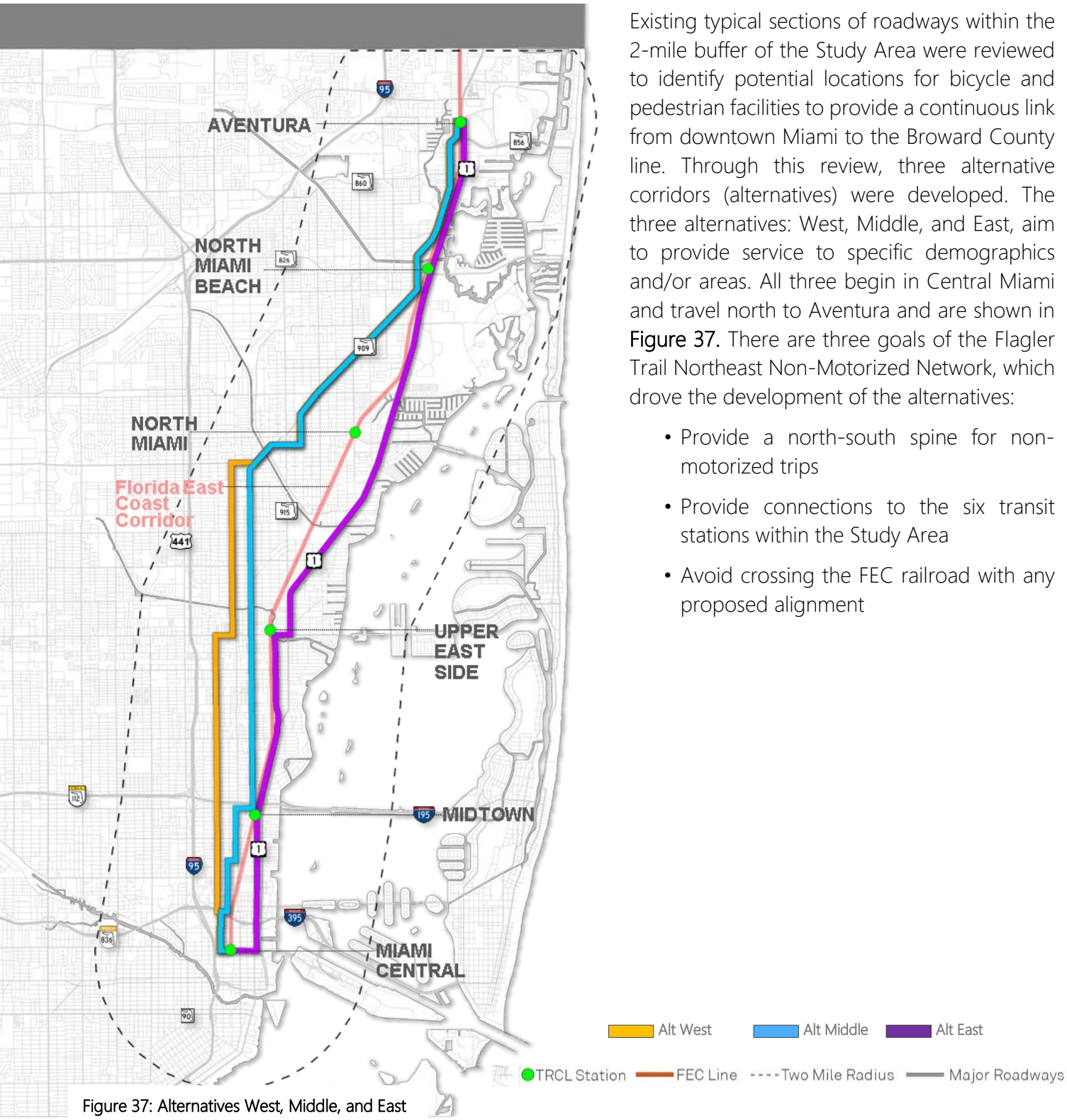
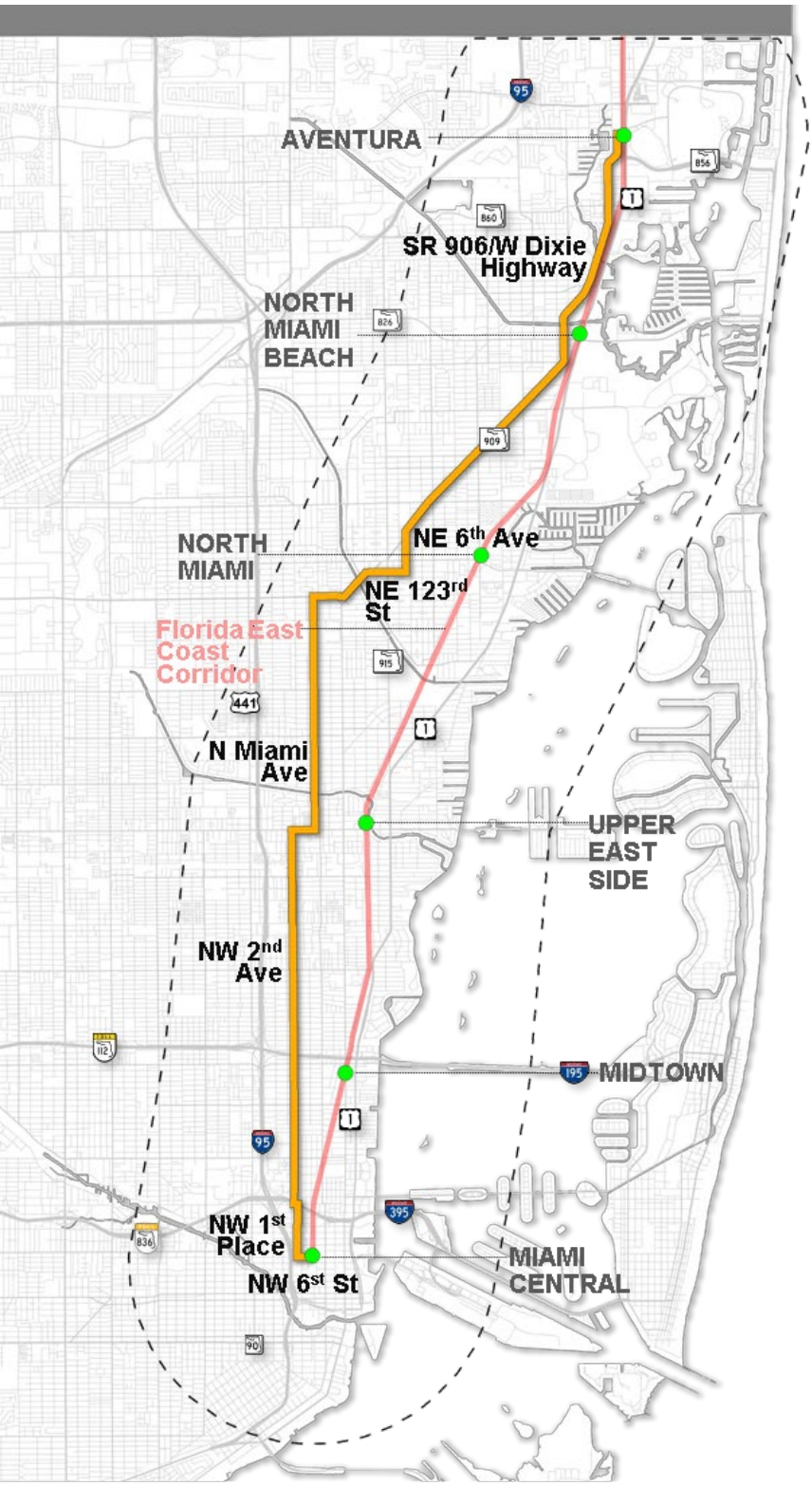


Figure 37: Alternatives West, Middle, and East

Existing typical sections of roadways within the 2-mile buffer of the Study Area were reviewed to identify potential locations for bicycle and pedestrian facilities to provide a continuous link from downtown Miami to the Broward County line. Through this review, three alternative corridors (alternatives) were developed. The three alternatives: West, Middle, and East, aim to provide service to specific demographics and/or areas. All three begin in Central Miami and travel north to Aventura and are shown in Figure 37. There are three goals of the Flagler Trail Northeast Non-Motorized Network, which drove the development of the alternatives:

- Provide a north-south spine for non-motorized trips
- Provide connections to the six transit stations within the Study Area
- Avoid crossing the FEC railroad with any proposed alignment



ALTERNATIVE WEST

As described by its name, the western-most alignment is Alternative West, and is graphically depicted in Figure 38. Though this corridor is the farthest of the three from the Northeast Corridor, it locates non-motorized facilities in neighborhoods with a high percentage of transit reliant populations. Alternative West aims to aid in providing for greater prosperity for under-served areas by directly connecting to affordable housing developments or being no farther than within ½ mile. Primary roads used for this corridor include NW 2nd Avenue, with an average ROW of 70 feet, and an average posted speed of 35 mph; N Miami Avenue, with an average ROW of 70 feet and an average posted speed of 35 mph; and SR 909/West Dixie Highway, with an average ROW of 70 feet and an average posted speed of 40 mph. Alternative West provides direct connectivity to Wynwood, the Thomas Edison Educational Center, and Barry University. The land use and context of design along the corridor consists of: Urban General, Industrial, and Emerging Urban Communities. One of the constraints of the alignment is the far distance between the centerline/ "spine" of the alignment and the proposed station locations along the Northeast Corridor. There are also potentially longer timelines for full implementation due to the limited availability of existing non-motorized facilities, specifically bicycle facilities. Incorporation and development of future facilities will require long-term improvements and greater funding to implement. Additionally, this alignment makes frequent turns in the downtown area, and traverses through higher crime areas, which could potentially cause safety/security issues for users in the future.

Figure 38: Alternative West

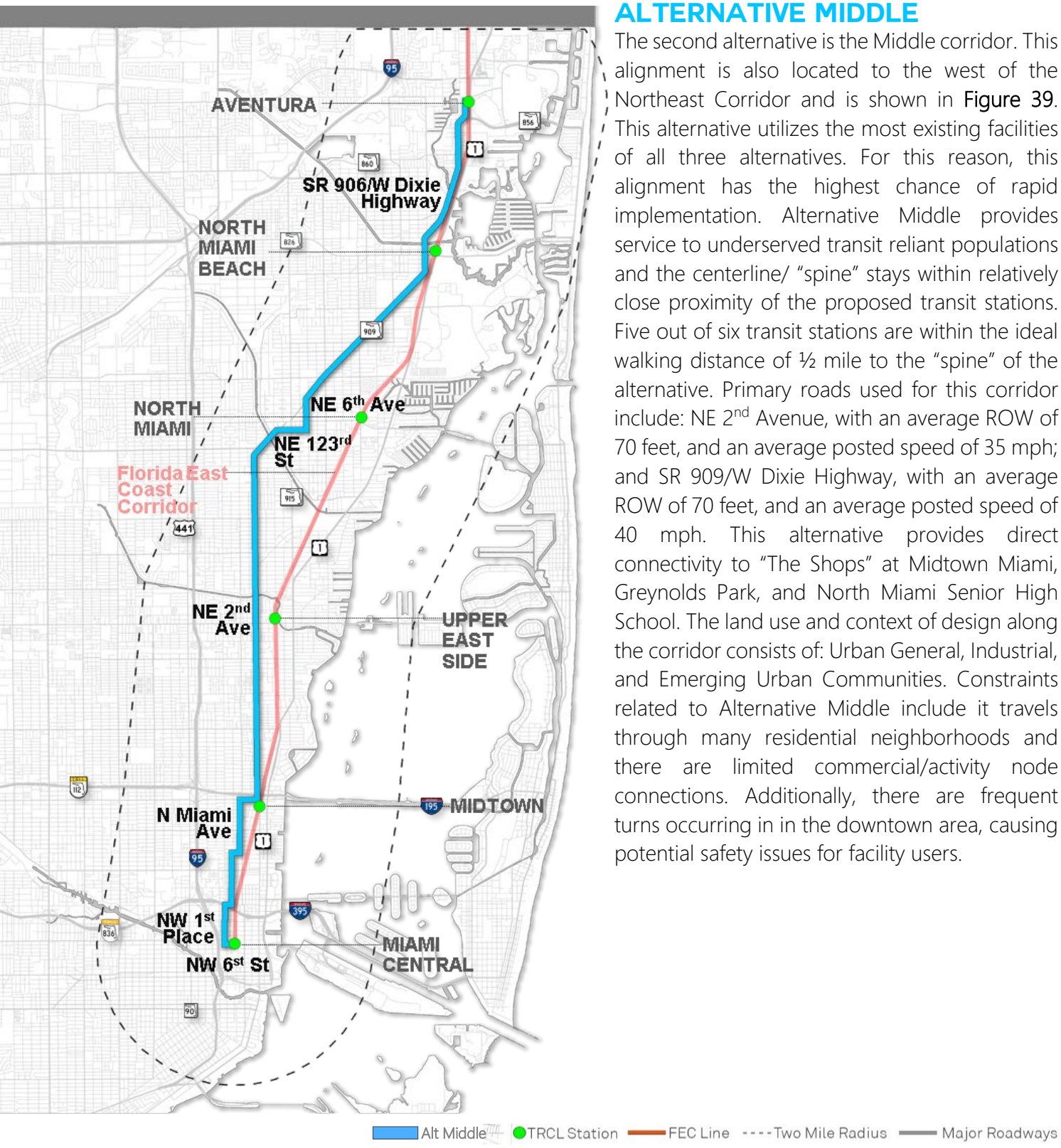


Figure 39: Alternative Middle

ALTERNATIVE MIDDLE

The second alternative is the Middle corridor. This alignment is also located to the west of the Northeast Corridor and is shown in Figure 39. This alternative utilizes the most existing facilities of all three alternatives. For this reason, this alignment has the highest chance of rapid implementation. Alternative Middle provides service to underserved transit reliant populations and the centerline/ "spine" stays within relatively close proximity of the proposed transit stations. Five out of six transit stations are within the ideal walking distance of ½ mile to the "spine" of the alternative. Primary roads used for this corridor include: NE 2nd Avenue, with an average ROW of 70 feet, and an average posted speed of 35 mph; and SR 909/W Dixie Highway, with an average ROW of 70 feet, and an average posted speed of 40 mph. This alternative provides direct connectivity to "The Shops" at Midtown Miami, Greynolds Park, and North Miami Senior High School. The land use and context of design along the corridor consists of: Urban General, Industrial, and Emerging Urban Communities. Constraints related to Alternative Middle include it travels through many residential neighborhoods and there are limited commercial/activity node connections. Additionally, there are frequent turns occurring in in the downtown area, causing potential safety issues for facility users.

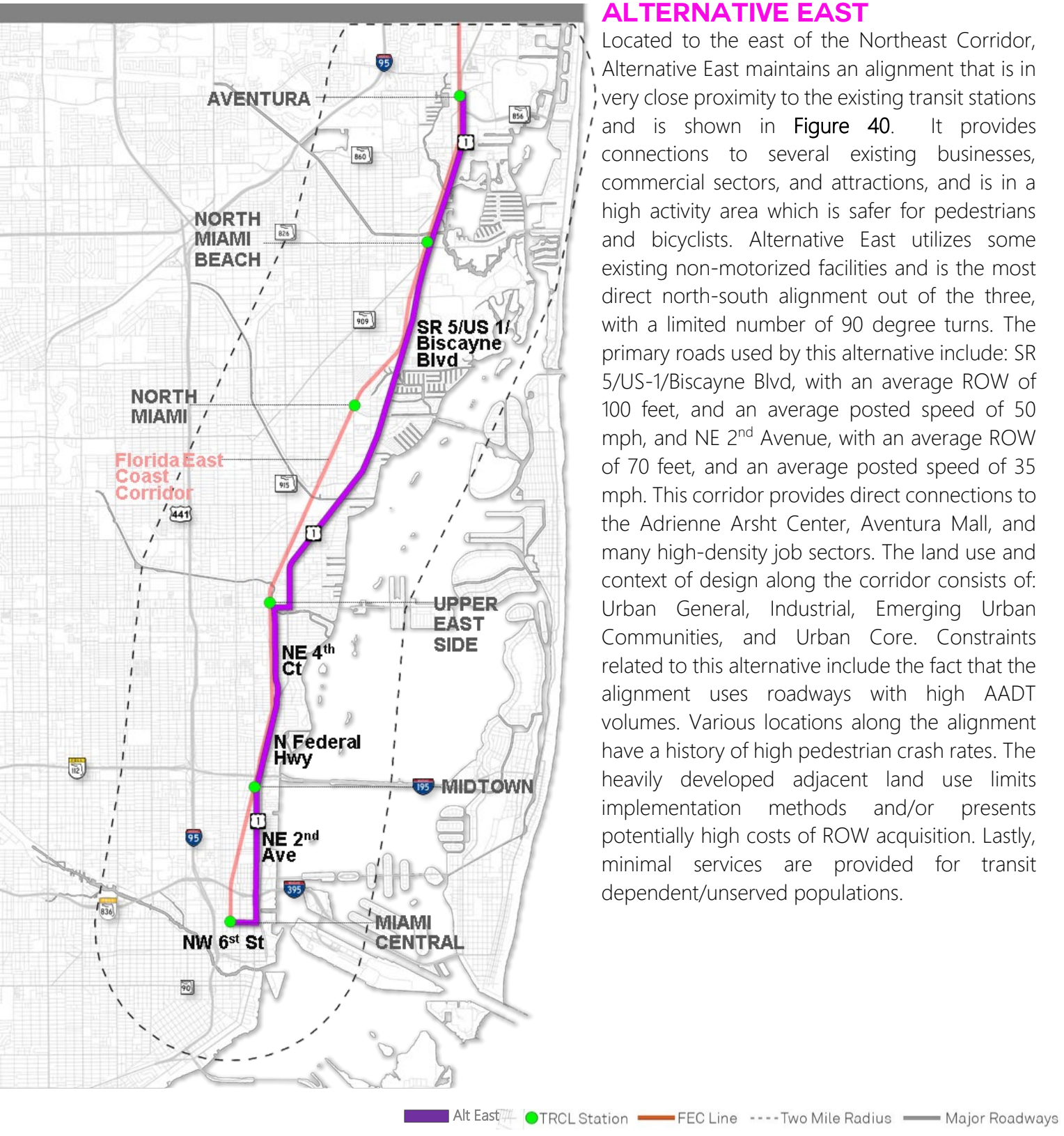


Figure 40: Alternative East

ALTERNATIVE EAST

Located to the east of the Northeast Corridor, Alternative East maintains an alignment that is in very close proximity to the existing transit stations and is shown in Figure 40. It provides connections to several existing businesses, commercial sectors, and attractions, and is in a high activity area which is safer for pedestrians and bicyclists. Alternative East utilizes some existing non-motorized facilities and is the most direct north-south alignment out of the three, with a limited number of 90 degree turns. The primary roads used by this alternative include: SR 5/US-1/Biscayne Blvd, with an average ROW of 100 feet, and an average posted speed of 50 mph, and NE 2nd Avenue, with an average ROW of 70 feet, and an average posted speed of 35 mph. This corridor provides direct connections to the Adrienne Arsht Center, Aventura Mall, and many high-density job sectors. The land use and context of design along the corridor consists of: Urban General, Industrial, Emerging Urban Communities, and Urban Core. Constraints related to this alternative include the fact that the alignment uses roadways with high AADT volumes. Various locations along the alignment have a history of high pedestrian crash rates. The heavily developed adjacent land use limits implementation methods and/or presents potentially high costs of ROW acquisition. Lastly, minimal services are provided for transit dependent/unserved populations.

NETWORK CONTEXT

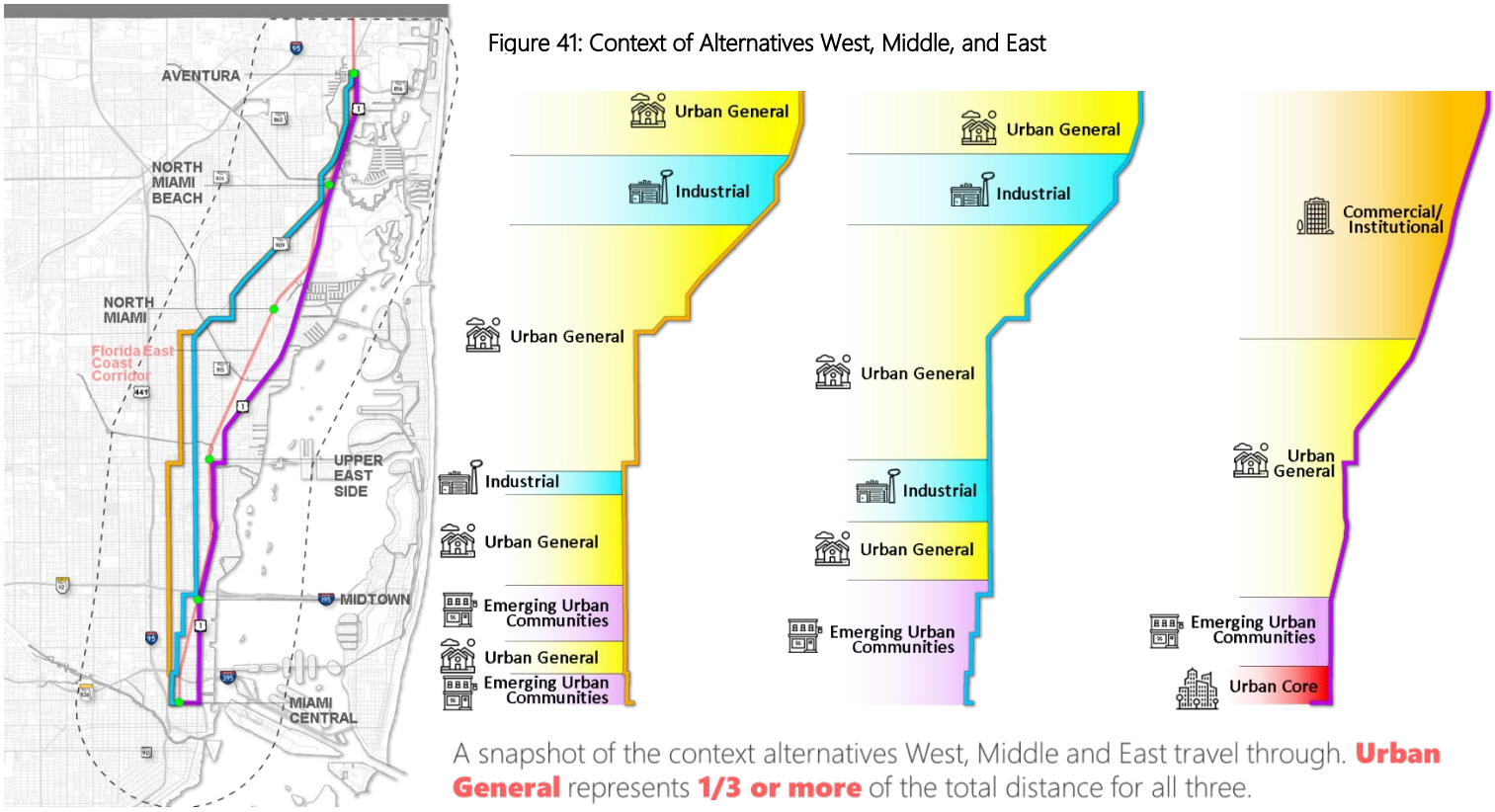


Figure 41: Context of Alternatives West, Middle, and East

A snapshot of the context alternatives West, Middle and East travel through. **Urban General** represents **1/3 or more** of the total distance for all three.

The context of the current transportation network in Miami-Dade County was considered during the development of the alternatives and is shown in Figure 41. The incorporation of context classification into the planning process allows for the consideration of all users of a transportation system in the context in which it exists. The context classification system was broadly defined by the FDOT and has been further refined in this plan to account for the various land use contexts that make up Miami-Dade County. The context classifications that characterize the land surrounding the three alternatives are: urban core, emerging urban communities, industrial, urban general, and commercial/institutional. A profile of each context classification is shown in Figure 42.

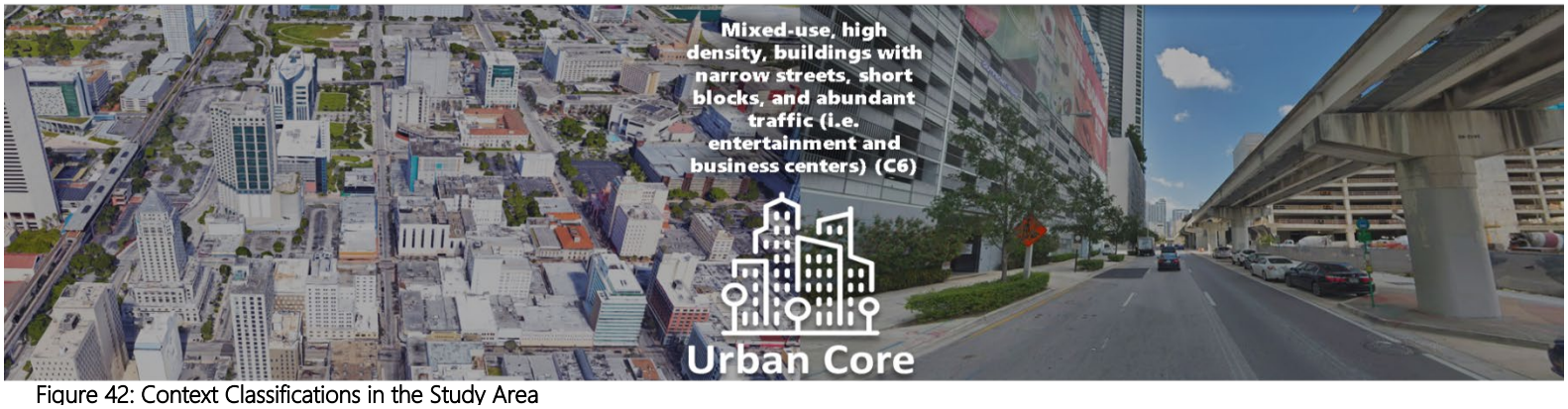


Figure 42: Context Classifications in the Study Area

Figure 42 Continued: Context Classifications in the Study Area

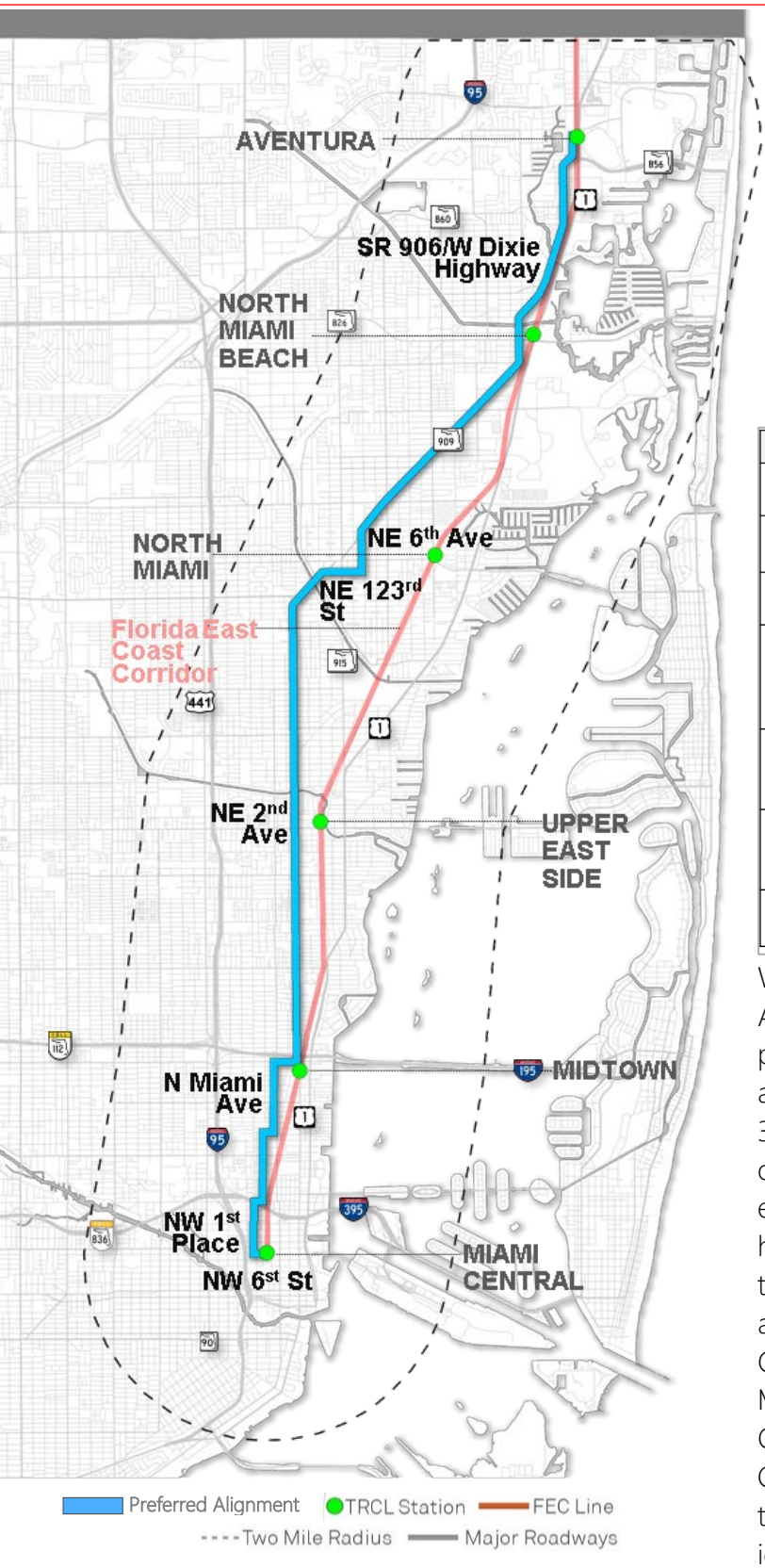


Figure 43: Alternative Middle is the Preferred Alternative

SELECTION OF THE PREFERRED ALTERNATIVE

The characteristics of the three alternatives that were considered during the analysis are presented in Table 17. Additional factors were also considered, including: connectivity to under-served areas/population (providing equity); avoidance of historically high pedestrian & bicyclist crash locations; and minimizing environmental impacts (sociocultural and natural).

Table 17: Summary of the Characteristics of the Three Alternatives

	Alt West	Alt Middle	Alt East
Total Distance	14.6	14.5	14.0
Average Post Speed	30-40	30-40	40-50
Average AADT	12,200	12,047	34,993
Utilization of Existing and Funded Bike Facilities	17% (2.5 mi.)	42% (5.9 mi.)	50% (6.7 mi.)
Average Distance to Station	1,703 ft.	1,108 ft.	481 ft.
Number Non-motorized trip generators	102	101	96
Percentage of Trail Within CRA	40% (5.3 mi.)	42% (5.9 mi.)	26% (3.5 mi.)

While all three alignments provided unique benefits, Alternative Middle's characteristics present the most potential for implementation. The total length of this alignment is 14.5 miles. The average posted speed is 30-40 mph with an average annual daily traffic (AADT) of 12,047 vehicles. This alternative has the most existing bicycle facilities, with 42% of the alignment having bike facilities on the roadways that make up the alignment. The average distance from the alignment to the Tri-Rail stations or Northeast Corridor is 0.21 miles. A large portion of Alternative Middle also traverses through several of the Communities of Concern identified in Miami-Dade County. Additionally, Alternative Middle serves six of the Community Redevelopment Areas (CRAs) identified in Miami-Dade County. Serving

these areas mean better non-motorized access for these communities. The preferred alternative is depicted in Figure 43. Additionally, network connections were identified within the Study Area that will provide additional connectivity to the preferred alternative. These network connections are meant to provide first mile/last mile connections to key destinations. To develop the proposed network connections, key trip destinations were identified based on commuter trips. These include: middle and high schools, university and tech schools, hospitals, and high job sectors. High job sectors were identified based on FDOT's Context Classification Matrix for employment density of 20 or more jobs per acre at the census tract level. Additionally, the Miami-Dade TPO 2015-2019 Transportation Improvement Program (TIP) projects, the 2040 Long Range Transportation Plan (LRTP) projects, and additional planned bicycle and pedestrian facility projects provided by the Miami-Dade TPO were considered in identifying locations of potential connections. These network connections are presented in Figure 44.

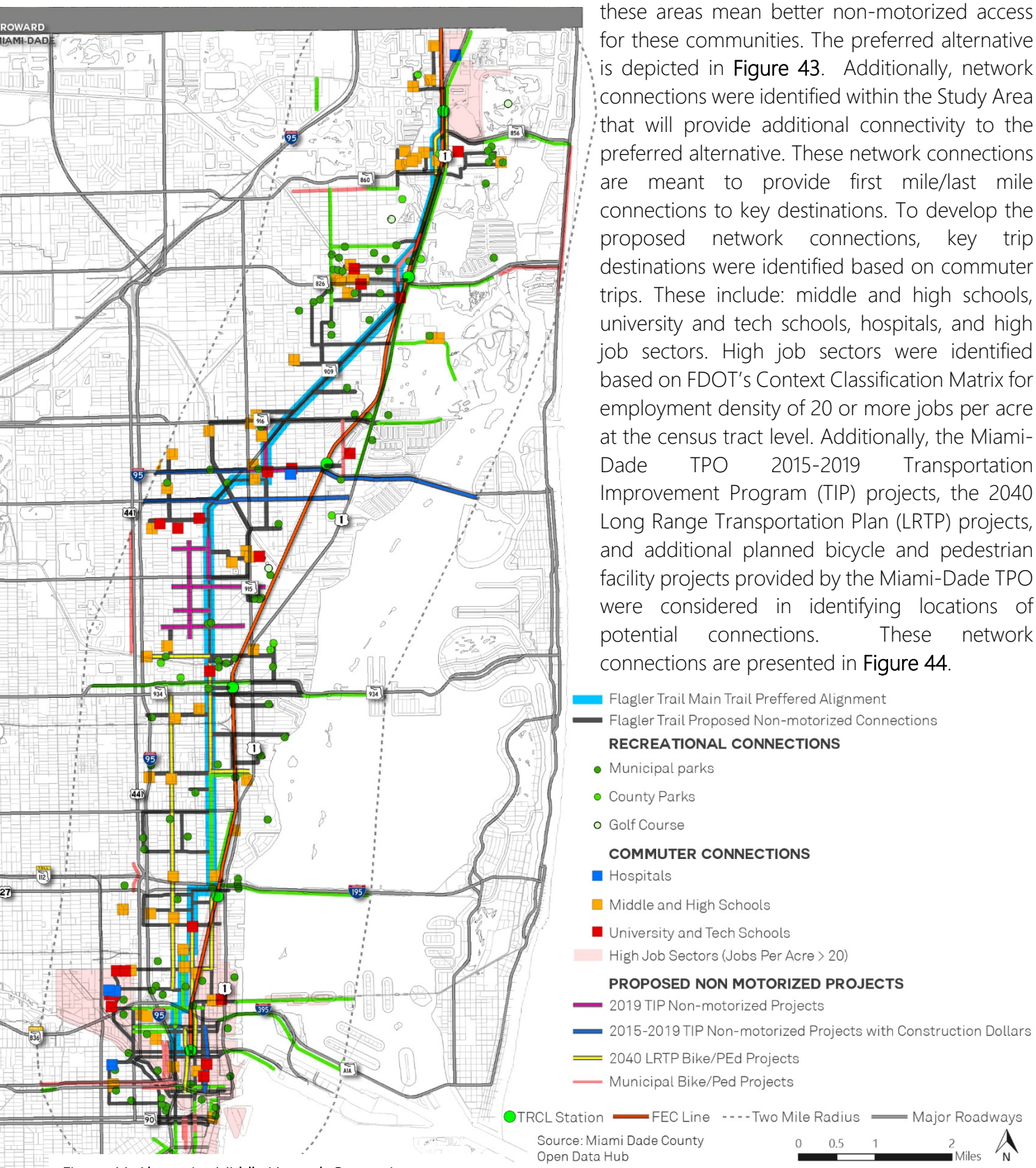


Figure 44: Alternative Middle Network Connections

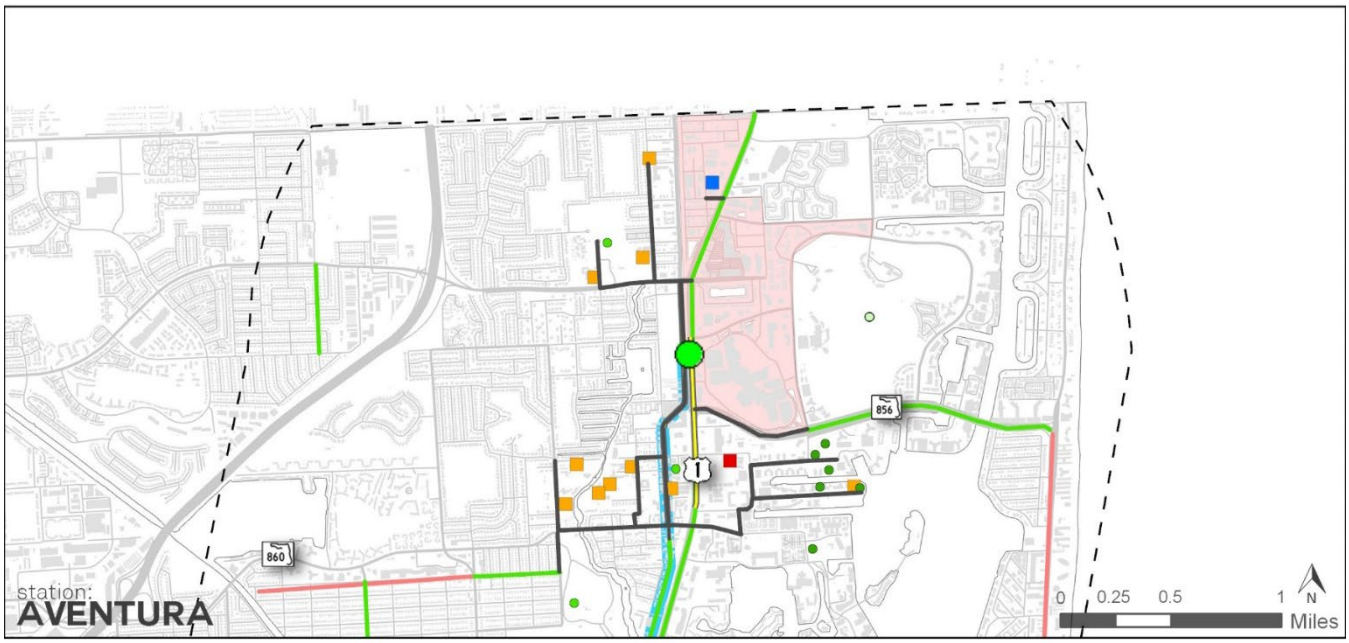


Figure 44 Continued: Aventura Network Connections

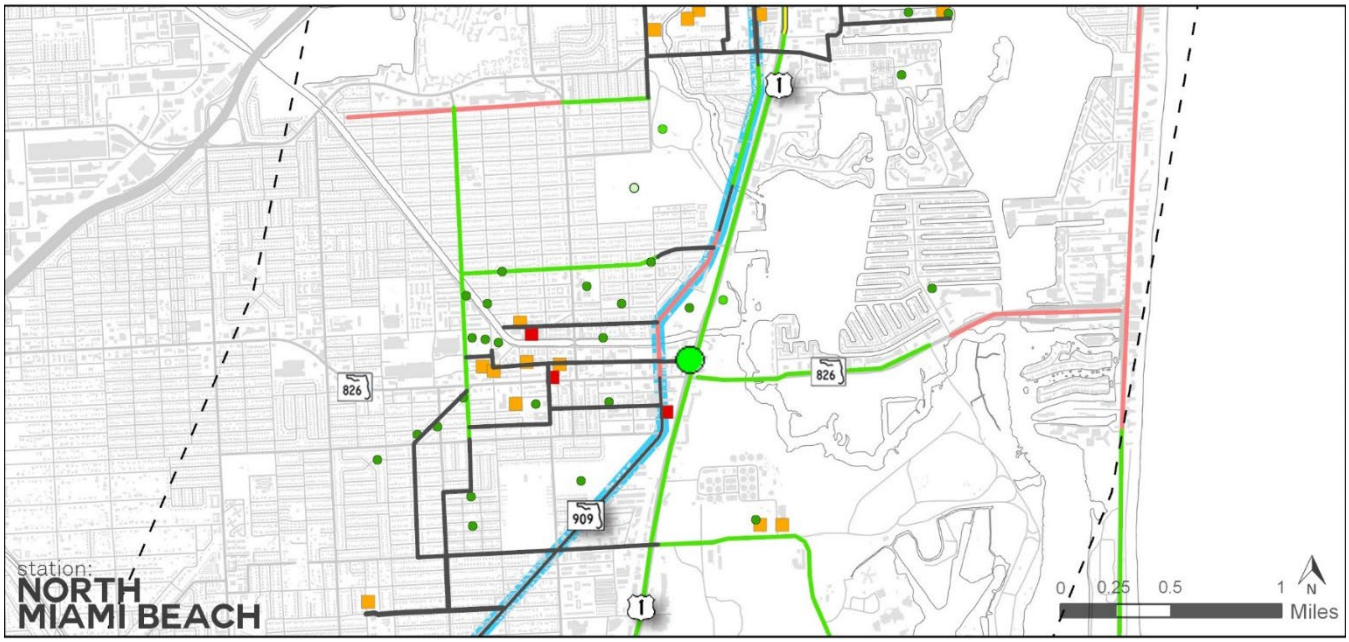


Figure 44 Continued: North Miami Beach Network Connections

Flagler Trail Main Trail Preffered Alignment
Flagler Trail Proposed Non-motorized Connections
Municipal parks
County Parks
Golf Course
Hospitals
Middle and High Schools
University and Tech Schools
High Job Sectors
TRCL Station
Municipal Bike/Ped Projects
2019 TIP Non-motorized Projects
2015-2019 TIP Non-motorized Projects with Construction Dollars
2040 LRTP Bike/PEd Projects

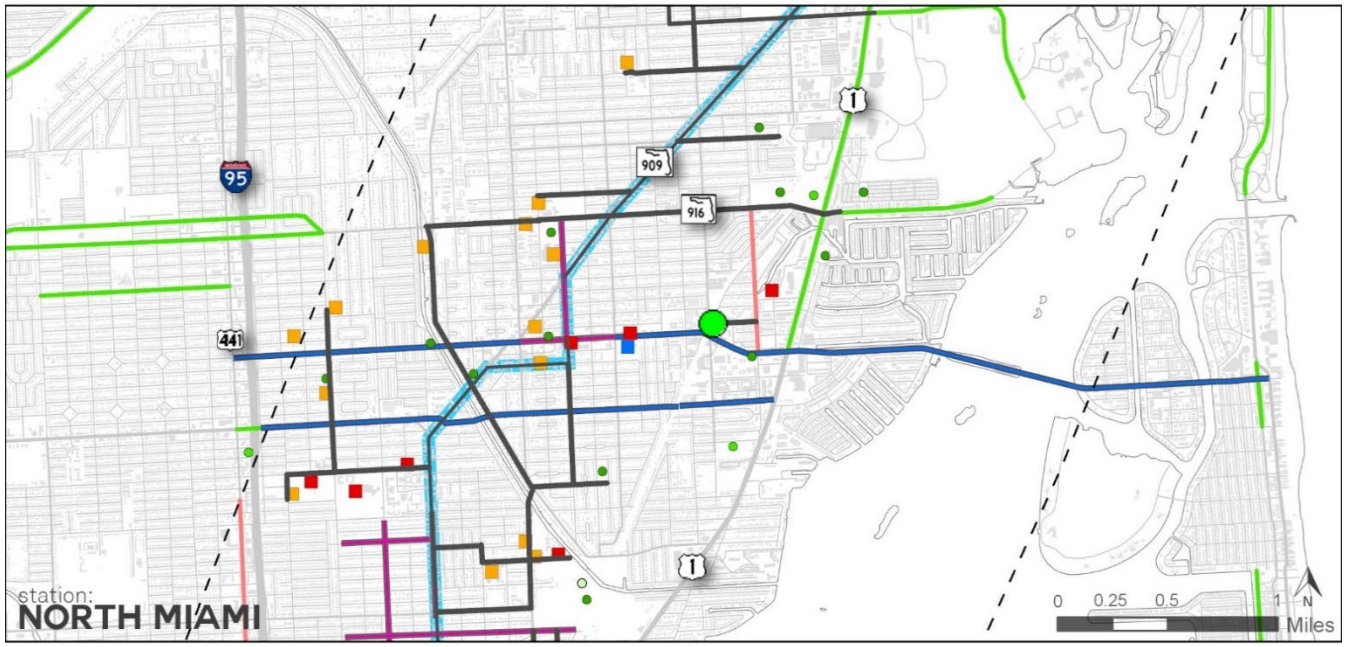


Figure 44 Continued: North Miami Network Connections

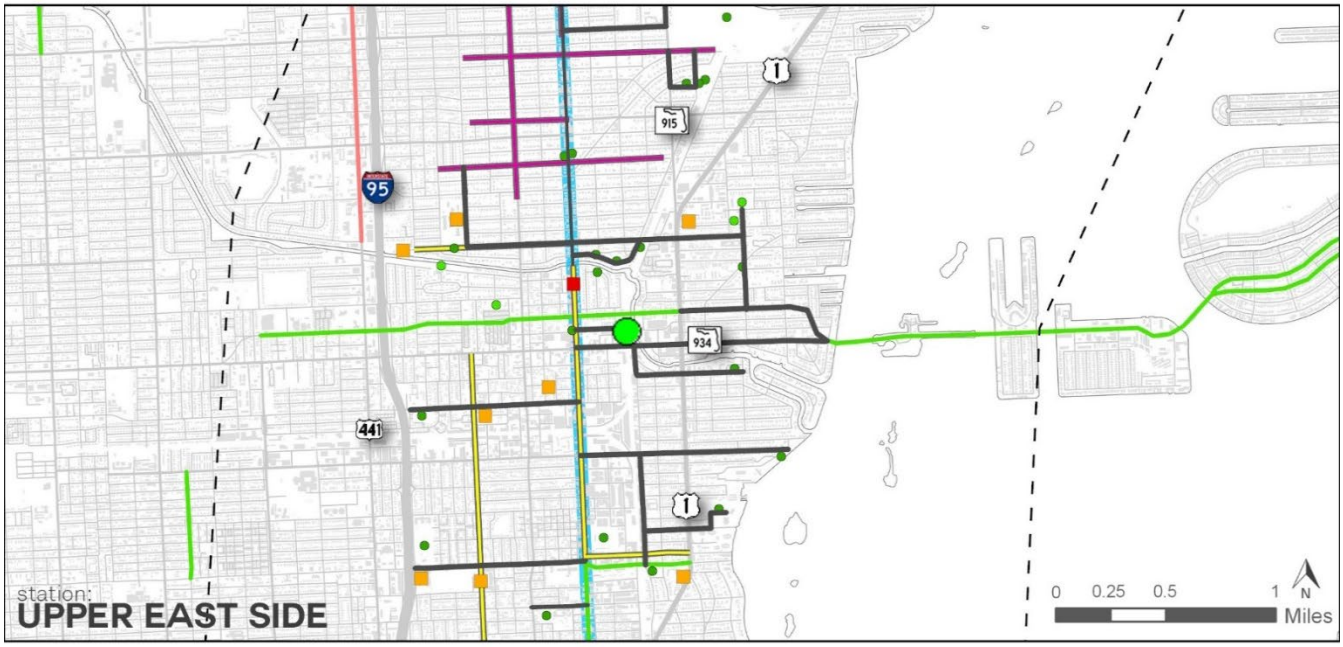


Figure 44 Continued: Upper East Side Network Connections

Flagler Trail Main Trail Preffered Alignment
Flagler Trail Proposed Non-motorized Connections
Municipal parks
County Parks
Golf Course
Hospitals
Middle and High Schools
University and Tech Schools
High Job Sectors
TRCL Station
Municipal Bike/Ped Projects
2019 TIP Non-motorized Projects
2015-2019 TIP Non-motorized Projects with Construction Dollars
2040 LRTP Bike/PEd Projects

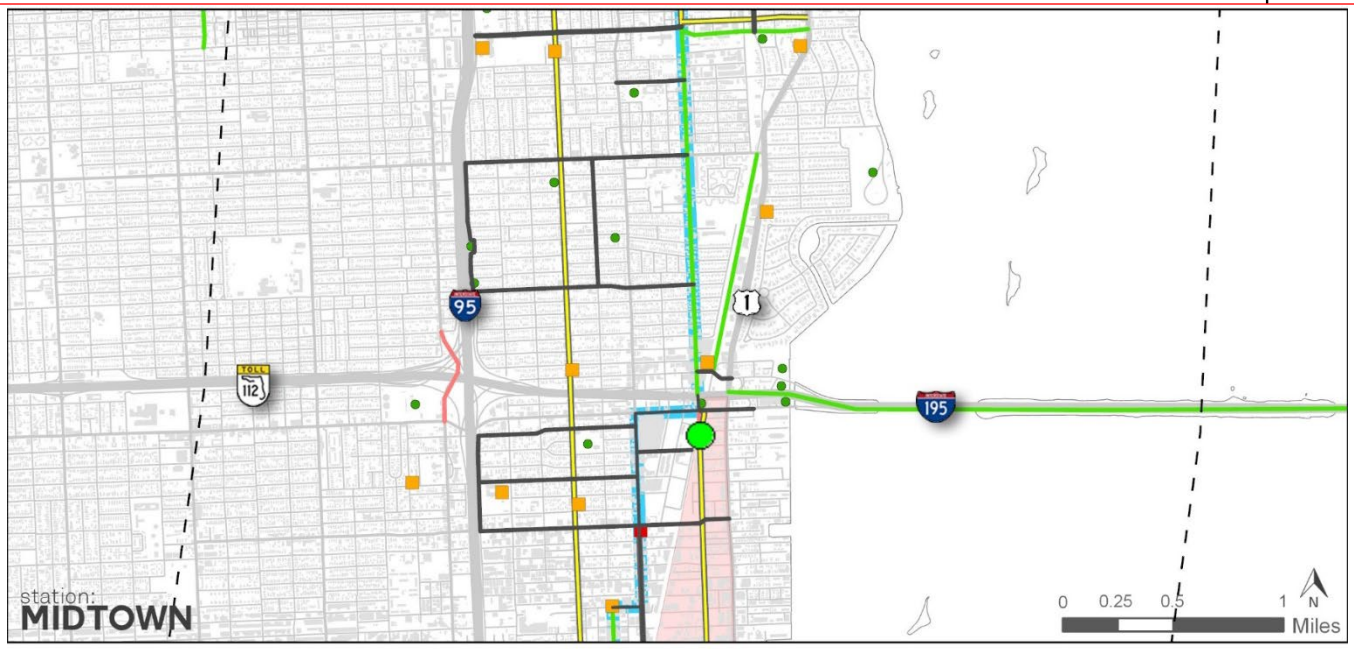


Figure 44 Continued: Midtown Network Connections

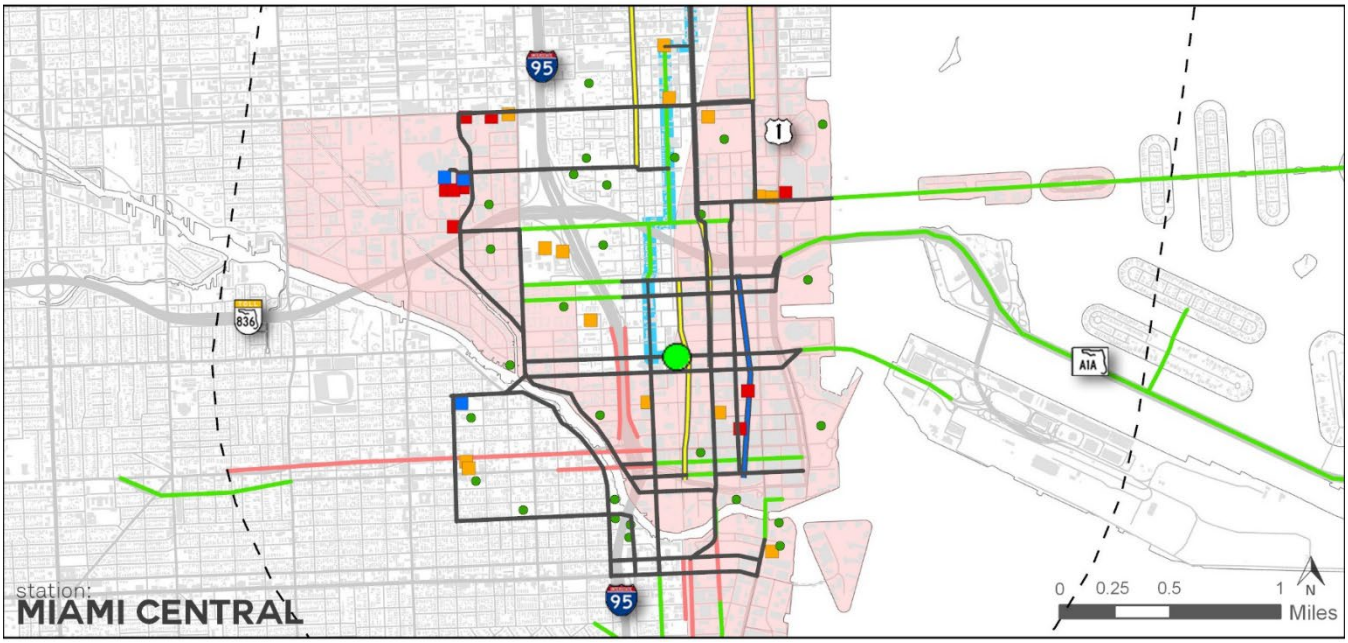


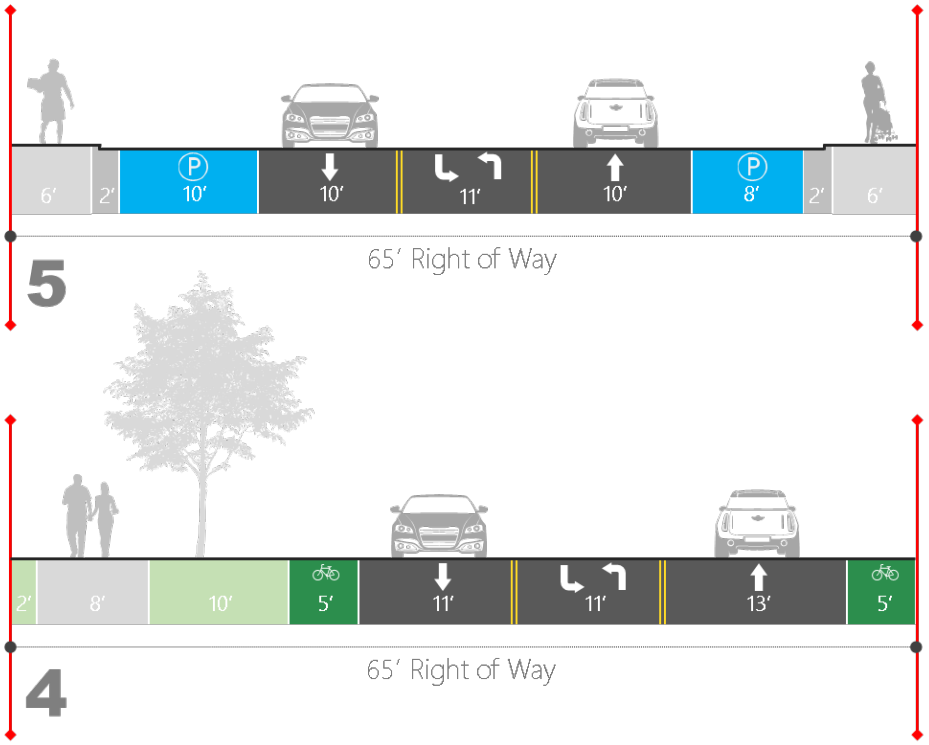
Figure 44 Continued: Miami Central Network Connections

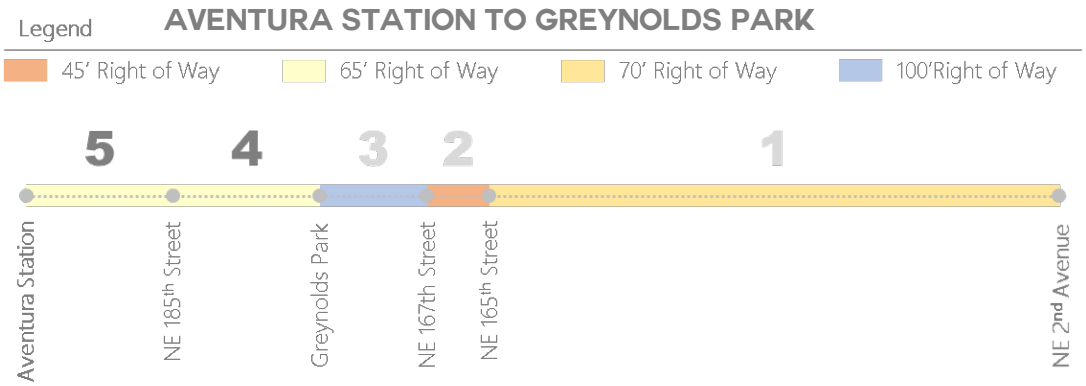
Flagler Trail Main Trail Preffered Alignment
Flagler Trail Proposed Non-motorized Connections
Municipal parks
County Parks
Golf Course
Hospitals
Middle and High Schools
University and Tech Schools
High Job Sectors
TRCL Station
Municipal Bike/Ped Projects
2019 TIP Non-motorized Projects
2015-2019 TIP Non-motorized Projects with Construction Dollars
2040 LRTP Bike/PEd Projects

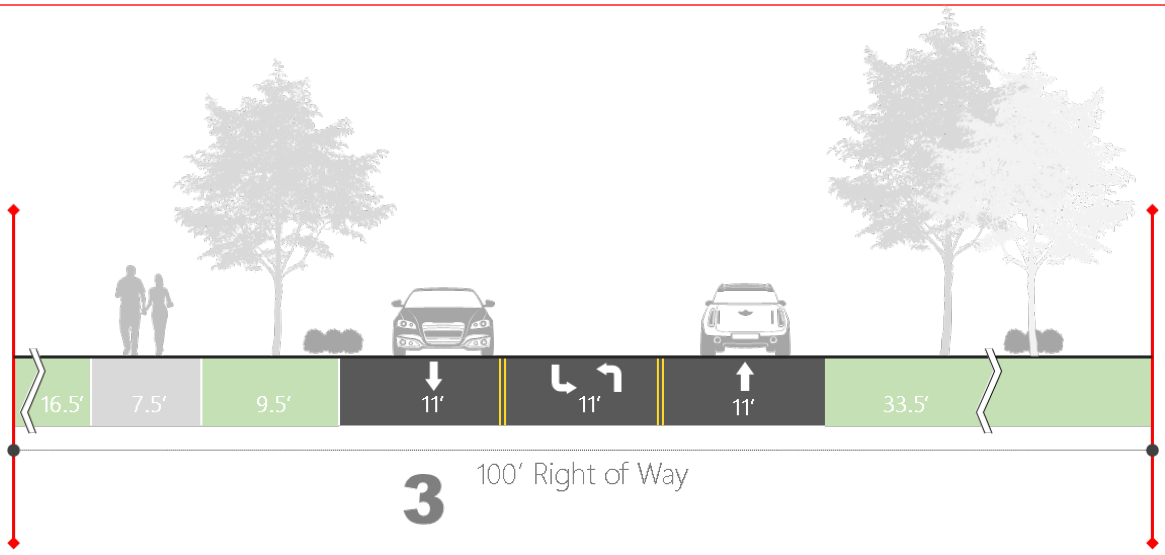
EXISTING TYPICAL SECTIONS

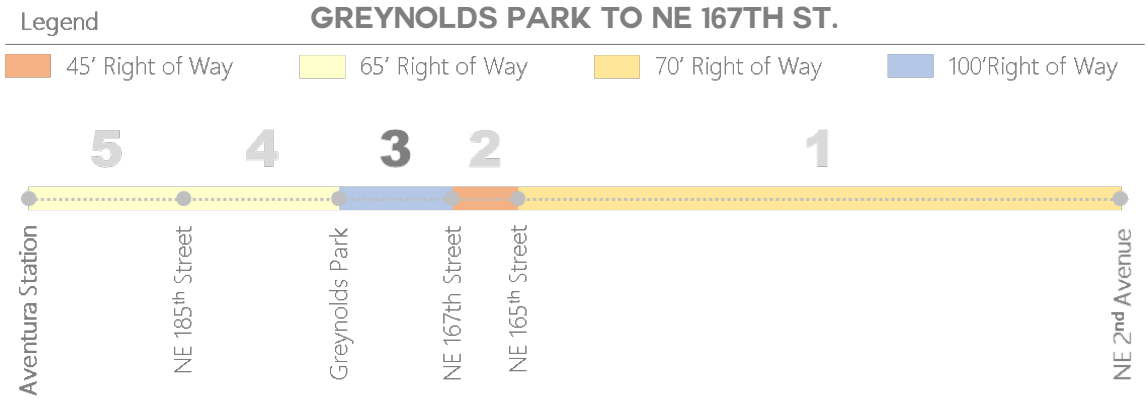
The Existing Typical Sections of the preferred alternative are shown in the images below. The numbers correspond to the associated segments/sections along the corridor. Figure 43 shows the existing typical sections of West Dixie Highway. The segment of West Dixie Highway between Aventura Station and Greynolds Park has a 65-foot ROW. The segment of West Dixie Highway between Greynolds Park and NE 167th Street, has a 100-foot ROW. The segment of West Dixie Highway between NE 167th Street and NE 165th Street has a 45-foot ROW, and the segment between NE 165th Street and NE 2nd Avenue has a 70-foot ROW.

W DIXIE HWY






16.5'
7.5'
9.5'
11'
11'
11'
33.5'
3
100' Right of Way


Legend
GREYNOLDS PARK TO NE 167TH ST.
45' Right of Way
65' Right of Way
70' Right of Way
100'Right of Way
5
4
3
2
1
Aventura Station
NE 185th Street
Greynolds Park
NE 167th Street
NE 165th Street
NE 2nd Avenue

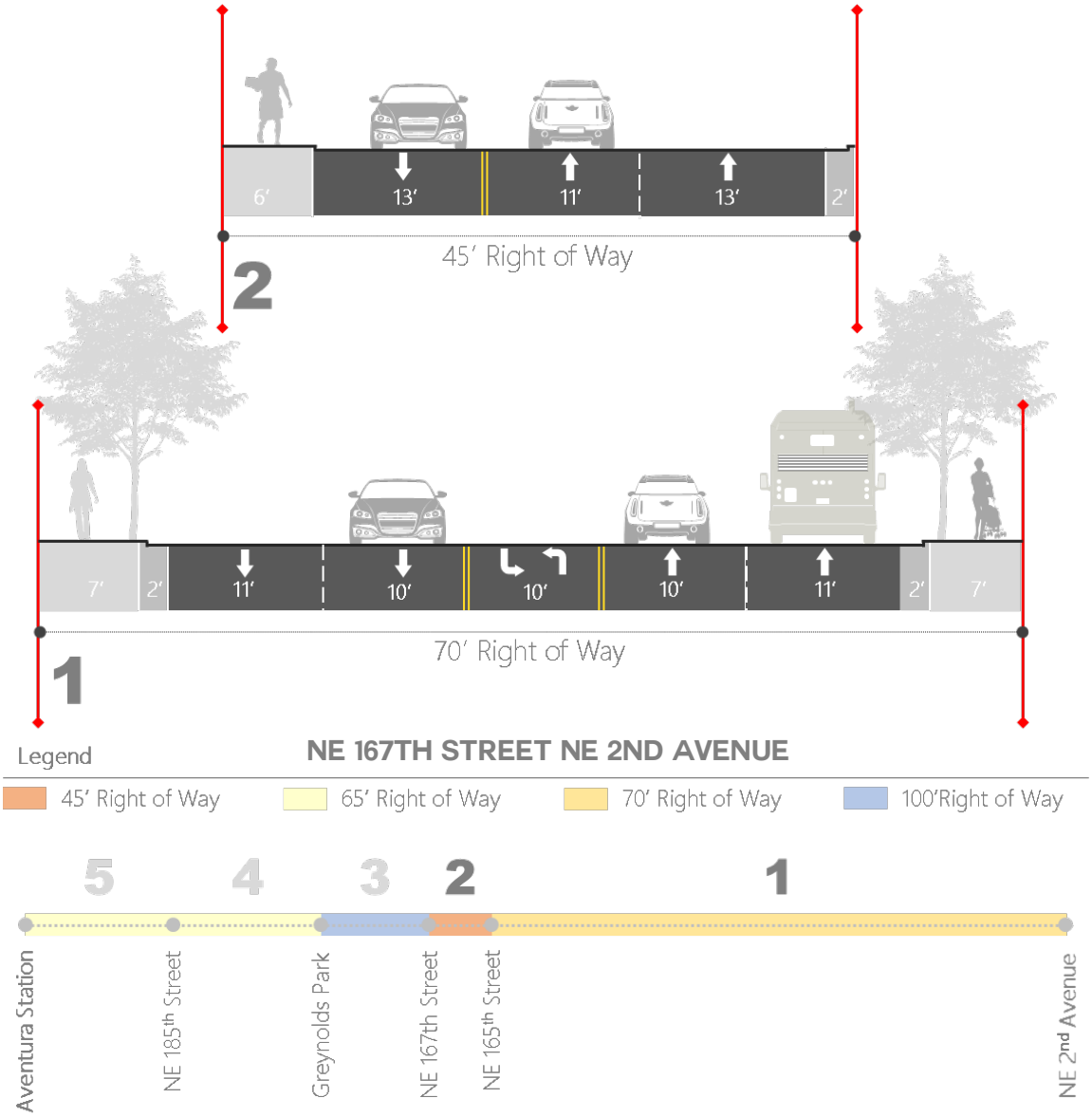
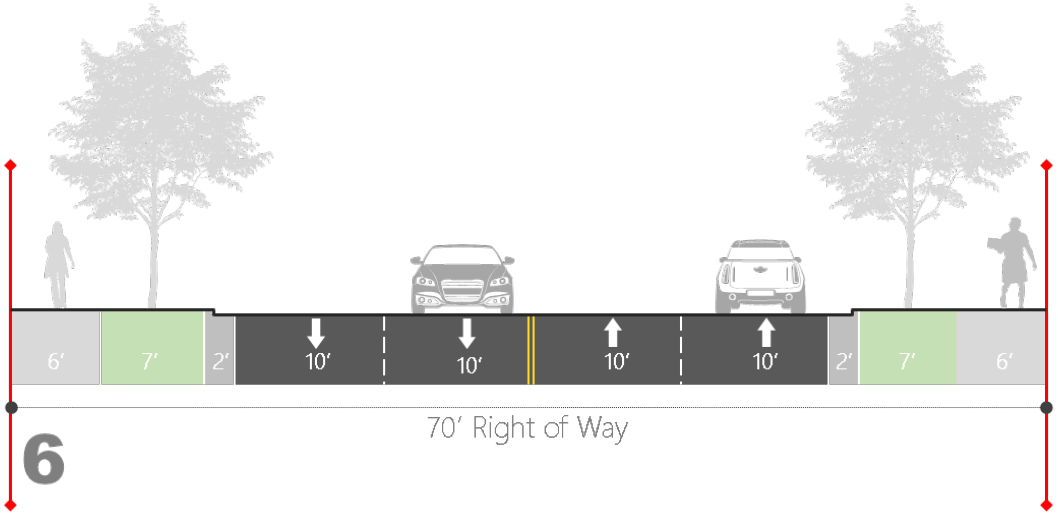
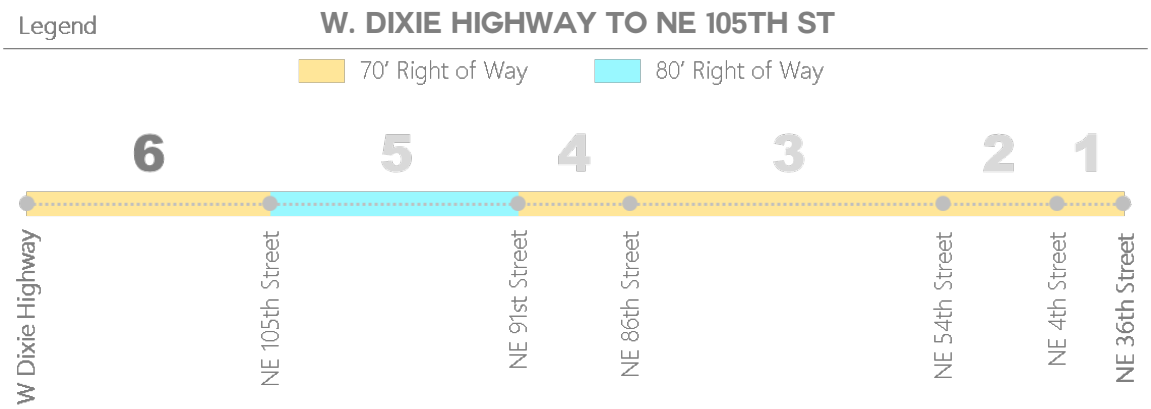


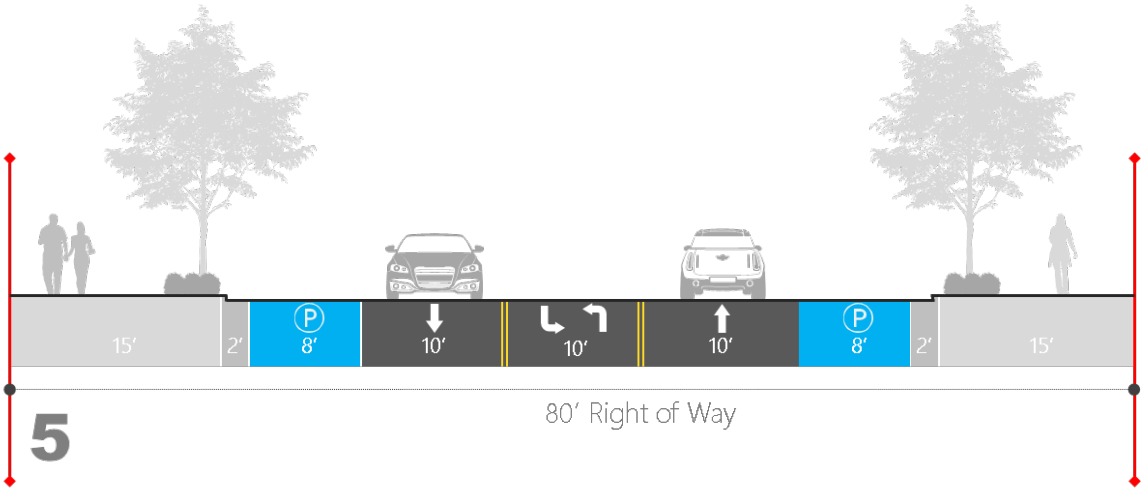
Figure 45: W Dixie Highway ROW

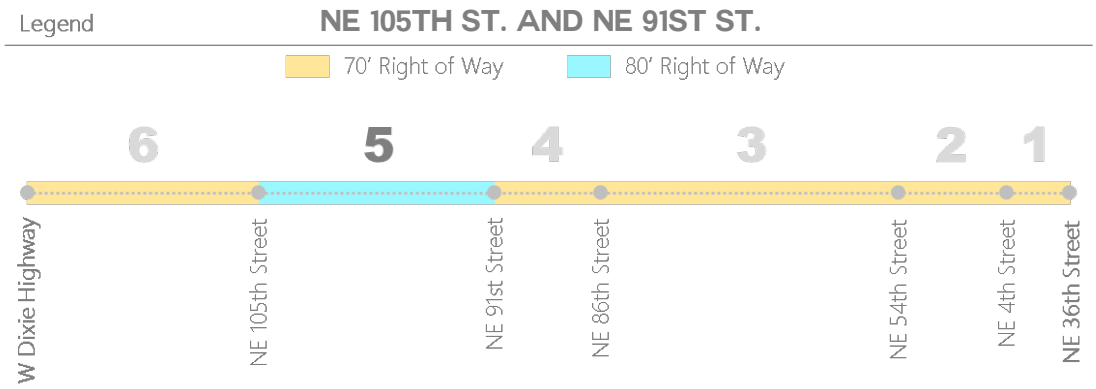
Figure 46 shows the existing typical sections of NE 2nd Avenue. The segment of NE 2nd Avenue between West Dixie Highway and NE 105th Street has a 70-foot ROW. The segment of NE 2nd Avenue between NE 105th Street and NE 91st Street has an 80-foot ROW. The segment of NE 2nd Avenue between NE 91st Street and NE 54th Street has a 70-foot ROW. The segment of NE 2nd Avenue between NE 54th Street and NE 36th Street also has a 70-foot ROW.

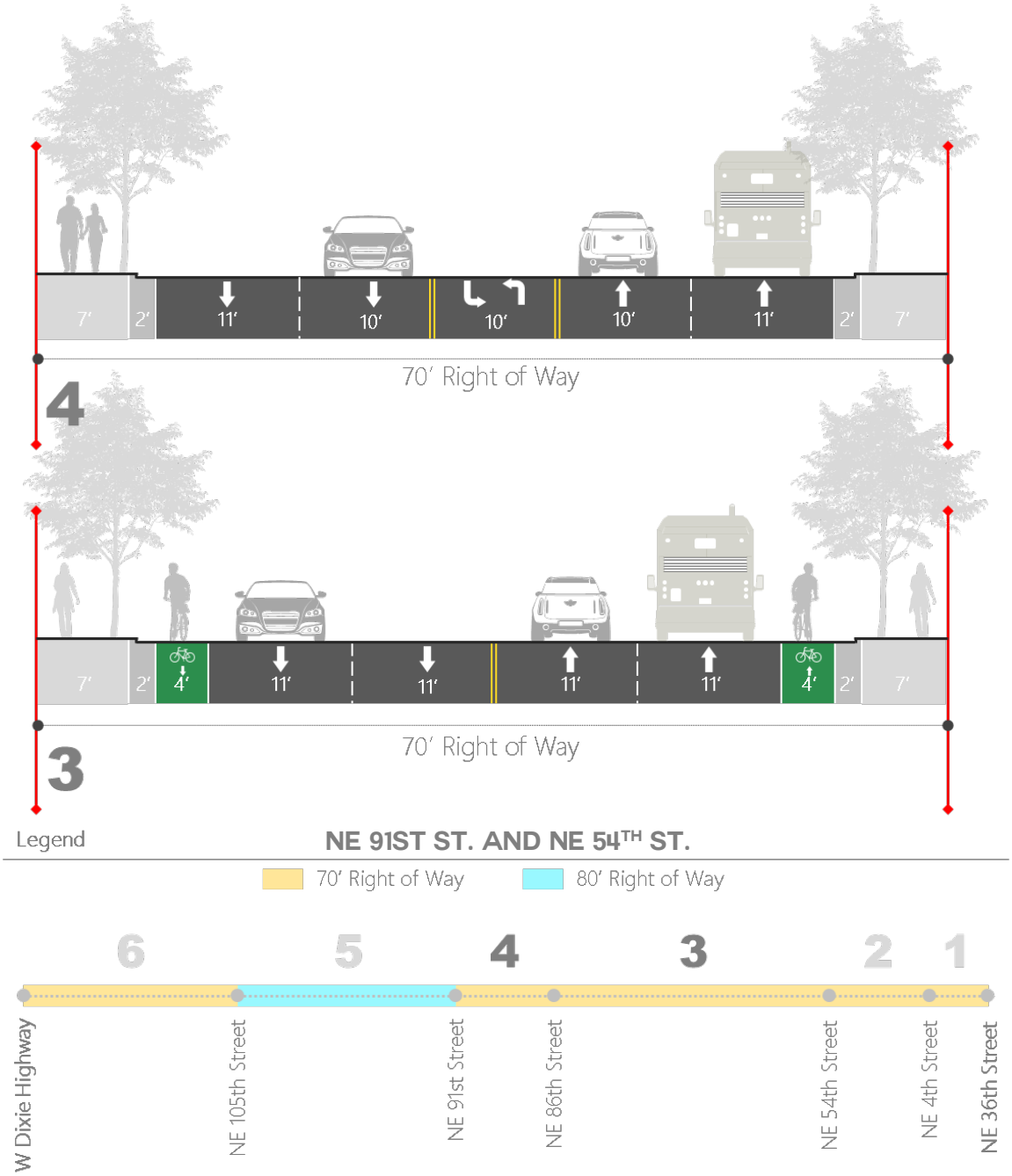
NE 2nd AVENUE






15'
2'
8'
10'
10'
10'
8'
2'
15'
5
80' Right of Way


Legend
NE 105TH ST. AND NE 91ST ST.
70' Right of Way
80' Right of Way
6
5
4
3
2
1
W Dixie Highway
NE 105th Street
NE 91st Street
NE 86th Street
NE 54th Street
NE 4th Street
NE 36th Street



Legend

NE 91ST ST. AND NE 54TH ST.

70′ Right of Way 80′ Right of Way

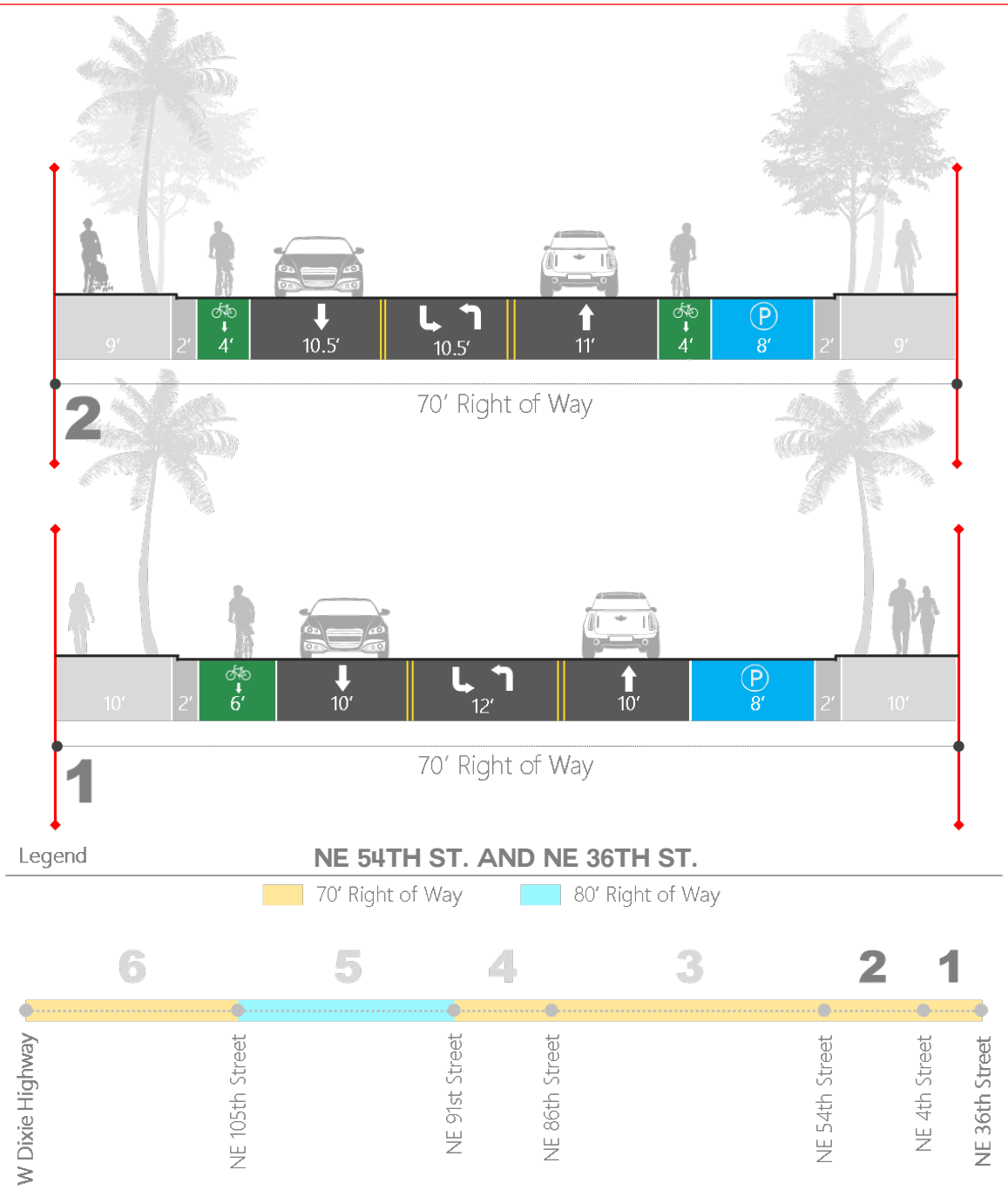


Figure 46: NE 2nd Avenue ROW

Figure 47 shows the existing typical sections for N Miami Avenue. The segment of N Miami Avenue between NE 36th Street and NE 29th Street contains 80 feet of ROW and between NE 29th Street and NW 23rd Street has a 70-foot ROW.

N MIAMI AVENUE

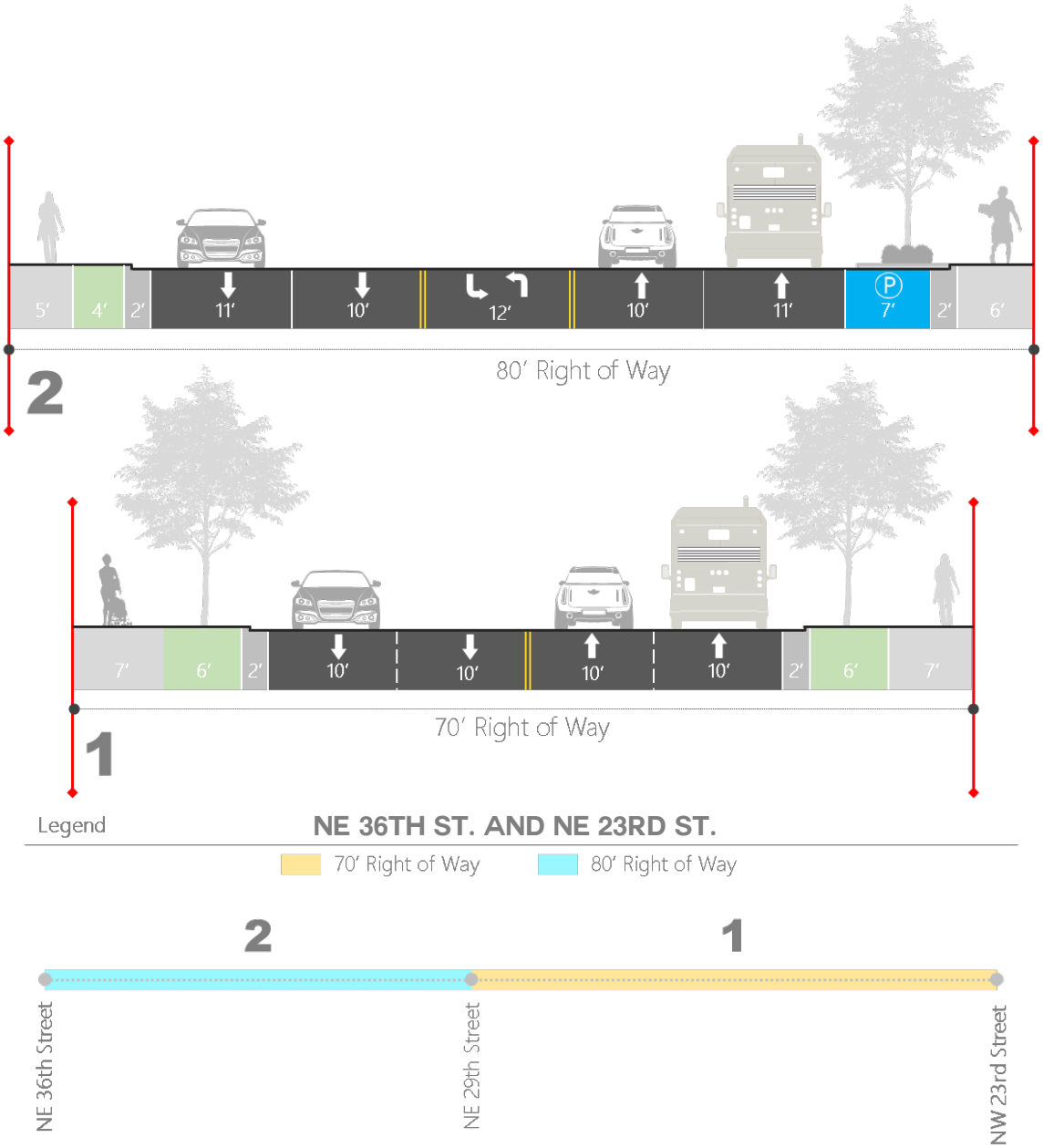


Figure 47: N Miami Avenue ROW

Figure 48 shows the existing typical sections of NW 1st Avenue. The segment of NW 1st Avenue between NW 23rd Street and NW 14th Street has a 60-foot ROW.

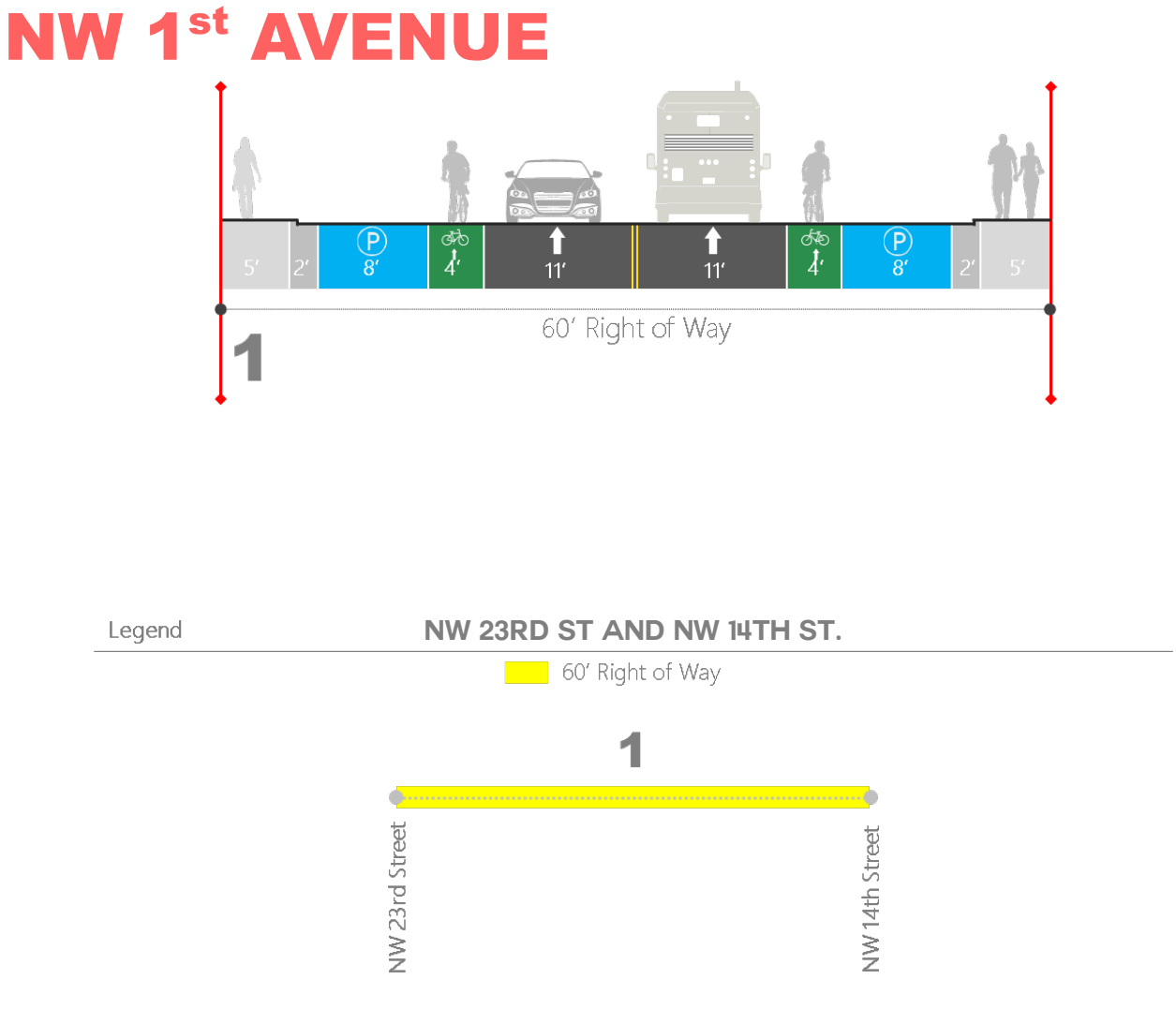


Figure 48: NW 1st Avenue ROW

Figure 49 shows the existing typical sections of NW 1st Place. The segment of NW 1st Place between NW 14th Street and NW 11th Terrace has a 50-foot ROW.

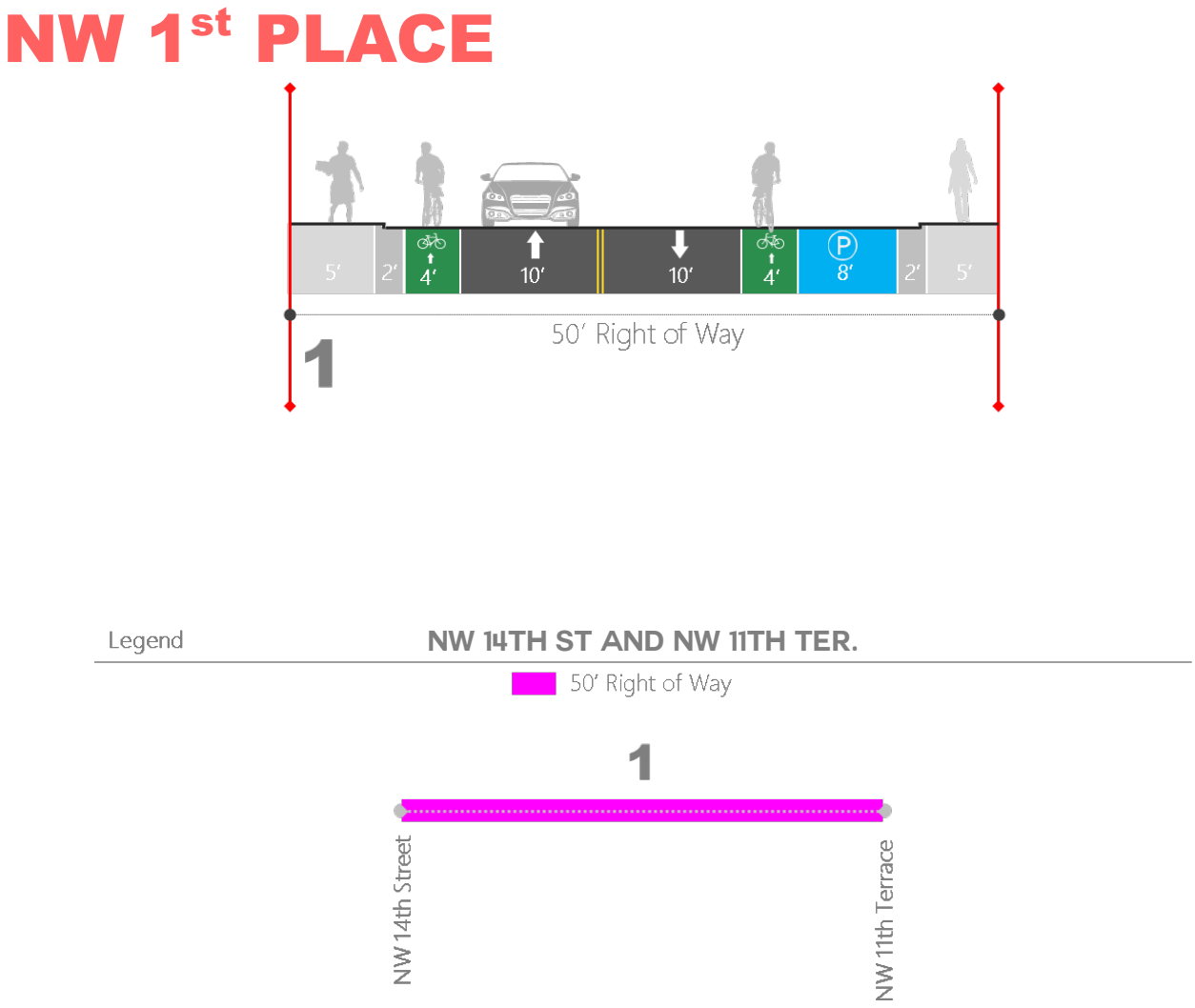


Figure 49: NW 1st Place ROW

Figure 50 shows the existing typical sections of NW 2nd Avenue. The segment of NW 2nd Avenue between NW 11th Street and NW 8th Street has a 60-foot ROW, and the segment of NW 2nd Avenue between NW 8th Street and NW 6th Street has a 55-foot ROW.

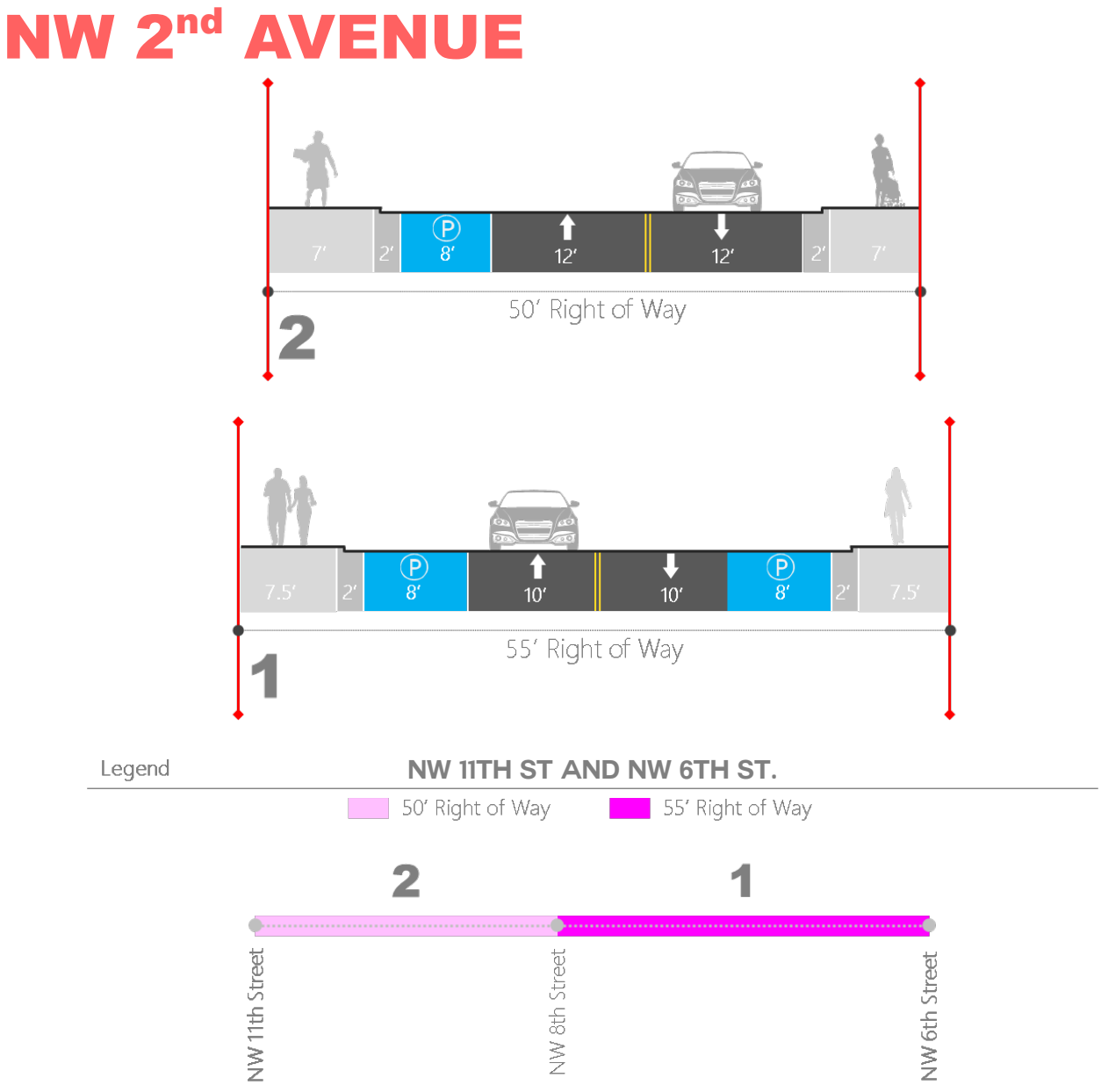


Figure 50: NW 2nd Avenue ROW

Overall, most of the ROW along the corridor is 70 feet wide.

NON-MOTORIZED FACILITIES

The following section includes a collection of non-motorized facilities to potentially incorporate into the design of bicycle and pedestrian connections within the Flagler Trail Northeast Nonmotorized Network Study Area. The information provided consists of a compilation of research from various sources to provide a holistic approach to design. These sources include, but not limited to: FDWA's MUTCD, FDOT's Complete Streets Context Classification Handbook, NACTO's Urban Street Design Guide and Urban Bikeway Design Guide.

PEDESTRIAN FACILITIES

SIDEWALKS

A sidewalk is defined by FDOT as "a continuous concrete pedestrian walkway." The placement of a sidewalk along a roadway should follow the identified hierarchy: "as near to the ROW line as possible, outside of the clear zone, five feet beyond the limits of the full width shoulder, and at the limits of the full width shoulder." Sidewalks should extend across bridge structures when provided on the approach roadway. Sidewalks must be constructed on both sides of the roadway unless pedestrian access to destinations is reasonably provided by the sidewalks on one side of the roadway. Table 18 lists the required sidewalk widths by context classification.[3]

Table 18: Sidewalk Width by Context Classifications

Context Classification	Sidewalk Width (feet)
C4 – Urban General	6
C3C – Suburban Commercial	6
C3R – Suburban Residential	6

Notes:
1) For C3 and C4, sidewalks may be increased up to 8 feet when the demand is demonstrated.
2) For RRR projects, unaltered sidewalk width 4 feet or greater may be retained within any context classification.
3) See FDM 260.2.2 for sidewalk width requirements on bridges.

Source: 222 Pedestrian Facilities, *FDOT Design Manual, January 1, 2019.*

CROSSWALKS

FDOT defines crosswalks as "marked paths where pedestrians can safely cross a roadway. Marking of crosswalks helps drivers better identify the intersection and guides pedestrians to the best crossing location."[3] Standard Plans, Index 711-001, includes detailed information for crosswalk pavement markings. At all marked legs of a signalized intersection or roundabout and a mid-block crossing, Special Emphasis crosswalk markings should be used. Standard crosswalk markings should be used on a stop or yield-controlled intersection. Additional marked crosswalks can be incorporated into an uncontrolled leg of an intersection and can be used with other treatments such as beacons, signals, curb extensions, raised medians, raised traffic islands, and enhanced overhead lighting.[4]

[3] *222 Pedestrian Facilities*, FDOT Design Manual, January 1, 2019.
[4] Standard Plans, Index 711-001

REFUGE ISLANDS

FDOT defines a refuge island as "an area for pedestrians and bicyclists to stop before finishing the crossing of a roadway. Refuge islands are commonly raised curb corner islands (a.k.a., 'pork chop islands') and center channelizing or divisional islands. Refuge islands should be a minimum of 6 feet wide when they will be used for bicyclists. Pedestrians and bicyclists should have a clear path through the island and should not be obstructed by objects such as poles, sign posts, or utility boxes."[5]

CURB EXTENSIONS

Curb extensions can be used to increase pedestrian safety in intersections. "Curb extensions (a.k.a., bulb-outs) may be used in conjunction with on-street parking at intersections or midblock locations where there is a crosswalk, provided there is adequate width for existing traffic movements. Curb extensions shorten the crossing distance, and provide additional space at intersections, allowing pedestrians to see and be seen before entering a crosswalk."[3]

PEDESTRIAN SIGNALS

In the 2019 FDOT Design Manual, it states that "the standard for detecting the presence of a pedestrian is the Pedestrian Pushbutton Detector. The Pedestrian detector assemblies and pedestrian control signals are detailed in the Standard Plans, Index 653-001 and 665-001."[3]

PUBLIC TRANSIT LOADING ZONES

Boarding and alighting areas provide for safer access to transit facilities. "Boarding and alighting areas help to create an accessible bus stop by providing a raised platform that is compatible with a bus that kneels or extends a ramp. A boarding and alighting area must have a firm, stable, and slip-resistant surface with a minimum clear length of eight feet (measured perpendicular to the curb or roadway edge), and a minimum clear width of five feet (measured parallel to the roadway). They are required if amenities such as benches or shelters are added to a bus stop. Boarding and alighting areas are not required at bus stops on flush shoulder roadways where only a bus stop sign is provided."[6]

[5] *212 Intersections*, FDOT Design Manual, January 1, 2019.
[6] *225 Public Transit Facilities*, FDOT Design Manual, January 1, 2019.

BICYCLE FACILITIES

BICYCLE LANES

FDOT defines Bicycle lanes as "a portion of a curbed roadway designated for the exclusive use of bicyclists. Bicycle lanes are identified by a bicycle symbol pavement marking and signage in accordance with FDOT's Standard Plans, Index 711-002 and the MUTCD. Bicycle lanes are the preferred bicycle facility type on curbed roadways with a design speed less than or equal to 45 mph."[7]

"Bicycle lanes are one-way facilities and carry bicycle traffic in the same direction as adjacent motor vehicle traffic. On one-way streets, bicycle lanes should typically be placed on the right side of the street. A bicycle lane on the left side of the street can be considered if it will substantially reduce the number of potential conflicts, such as those caused by frequent bus traffic, heavy right-turn movements, high-turnover parking lanes, or if there is a significant number of left-turning bicyclists."[7]

Bicycle Lane Width

"The width of the bicycle lane is measured from the edge of travel lane to the edge of pavement. For new construction projects, a 7-foot buffered bicycle lane is used as the standard. A buffered bicycle lane has a double-6-inch white edge line separating the bike lane and the adjacent travel lane. A buffered bicycle lane should not exceed 7 feet in width (including the buffer). Any additional pavement width that results from restricting the buffered bicycle lane to 7 feet should be applied to the outside travel lane."[3]

"For Resurfacing, Restoration, and Rehabilitation (RRR) projects where a bike lane is needed but it is not practical to move the existing curb, the width of the bicycle lane depends on the width of the available roadway pavement. For these types of projects, the potential bicycle lanes to be incorporated in the order of priority are: (1) 7-foot buffered bicycle lane, (2) 6-foot buffered bicycle lane, (3) 5-foot bicycle lane, (4) 4-foot bicycle lane. A bike lane should not be provided when available pavement is less than 4 feet on the roadway."[3]

Pavement Markings and Signage

Pavement markings provide guidance to roadway users on the function of the facility. The following guidance provides information on the appropriate placement of bicycle lane markings:

- "At an intersection approach, transition the buffer lane striping to a double 6-inch wide stripe using a 2'-4' dotted pattern 150 feet in advance of the intersection to provide sufficient distance for an automobile or truck to merge into the bicycle lane before turning right.
- Provide continuous lane striping past low-volume and residential driveways.
- Place a Helmeted Bicyclist Symbol and Bicycle Lane Arrow (per Standard Plans, Index 711-002) in the following locations:
    - The beginning of a bicycle lane
    - The far side of major intersections
    - Prior to and within the keyhole lane

[7] *223 Bicycle Facilities*, FDOT Design Manual, January 1, 2019.

- The maximum spacing of the Helmeted Bicyclist Symbol and Bicycle Lane Arrow is 1,320 feet."[7]

BICYCLE PARKING FACILITIES

Bicycle parking facilities can be incorporated into a streetscape to provide convenient and safe storage of bicycles. "Appropriately-placed bicycle parking supports those who choose to use the bicycle as their mode of transportation. The following should be considered for the placement of bicycle parking facilities:

- Bicycle facilities do not interfere with pedestrian facilities and meet lateral offset requirements
- Racks support the bicycle from two locations to prevent it from falling over
- Bicycle shelters are desirable for long-term bicycle parking and for shielding bicycles from inclement weather conditions
- Bicycle lockers can provide a secure place to store a bicycle by preventing access when closed"[7]

The above list of facilities provides a sample of the various types of bicycle and pedestrian facilities that can be incorporated into a project. The proposed typical sections presented in the next section and the recommended projects provided in the Action Plan include many of these facilities, and additional options are presented as examples. For additional information on these and other bicycle and pedestrian facilities, please consult the referenced documents.

PROPOSED TYPICAL SECTIONS

Proposed typical sections were developed, as examples, for the incorporation of a non-motorized facility along the preferred alternative based on existing available ROW, as well as sidewalk improvements to address any gaps in existing facilities. The Federal Highway Administration's *Separated Bike Lane Planning and Design Guide* and the National Association of City Transportation Official's *Urban Street Design Guide* were used as references. Rapid Development, Hybrid, and Multimodal Alternatives are presented and defined as follows:

- Rapid Development- focuses on filling gaps between existing bicycle facilities to create a north-south connection with dedicated facilities in a shorter time frame. Typically, this will require lane repurposing, however, no roadway reconstruction or physical alterations to the existing roadway geometry are included in this type of implementation.
- Hybrid- focuses on providing improved amenities for bicyclists and pedestrians while reducing, but not eliminating, on-street parking. The preferred alignment traverses through various low density commercial sectors which rely on on-street parking for customer/freight loading access. Hybrid implementation attempts to expand sidewalks where possible, with a primary goal of maintaining the predominate existing 7-foot sidewalk width.
- Multimodal - focuses on the incorporation of multimodal features within the corridor. The design removes on-street parking and/or travel lanes and repurposes the ROW through widening existing bicycle facilities or providing new 5-foot buffered bike lanes. It also proposes expanding sidewalks to between 9 and 14 feet to provide proper space for extended curb and pedestrian through zones. In areas with limited ROW space, the next step of implementation is to consider possible incorporation of one-way pairs or ROW encroachment.

RAPID DEVELOPMENT:

Figures 51-53 present the Rapid Development Alternative for the ROW segments along the corridor. The 80-foot ROW allows for 5 and 6-foot sidewalks, 4-foot bike lanes, an 11-foot travel lane for transit and on-street parking on one side of the road.

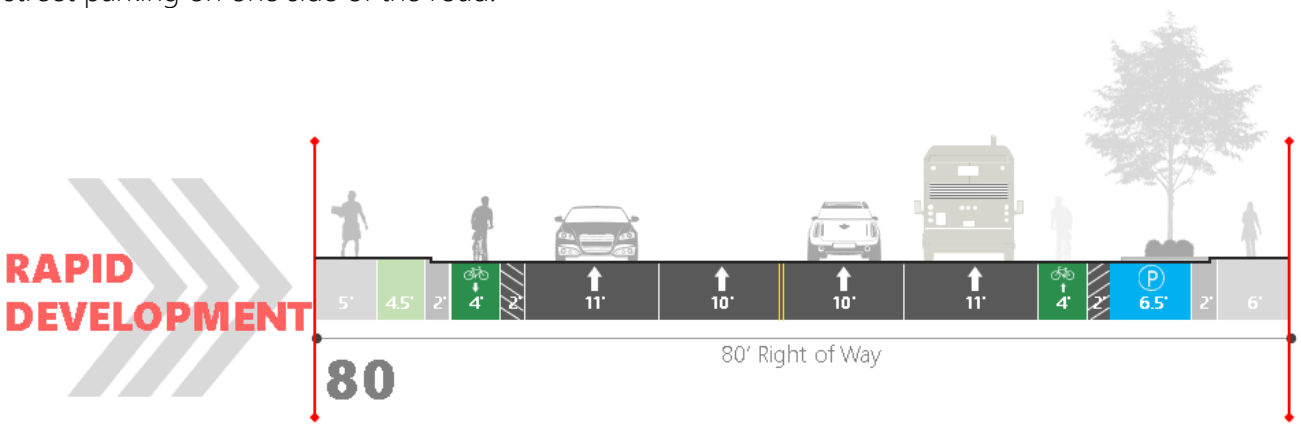


Figure 51: Rapid Development Alternative for 80' Typical Section

The 70-foot ROW allows for 7-foot sidewalks, 4-foot buffered bike lanes, and 10-foot travel lanes.

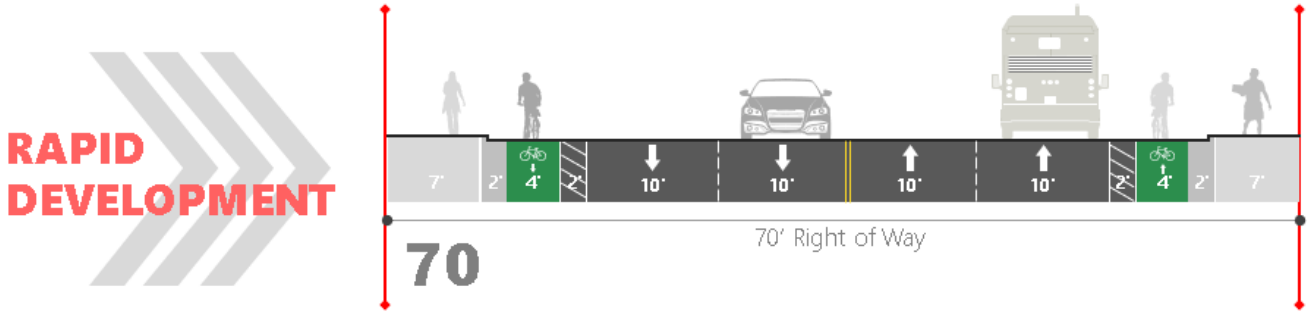


Figure 52: Rapid Development Alternative for 70' Typical Section

The 50-foot ROW allows for 7-foot sidewalks, a 4-foot bike lane in one direction and sharrows in the other direction, on-street parking on one side of the road, and 10.5 and 12-foot travel lanes.

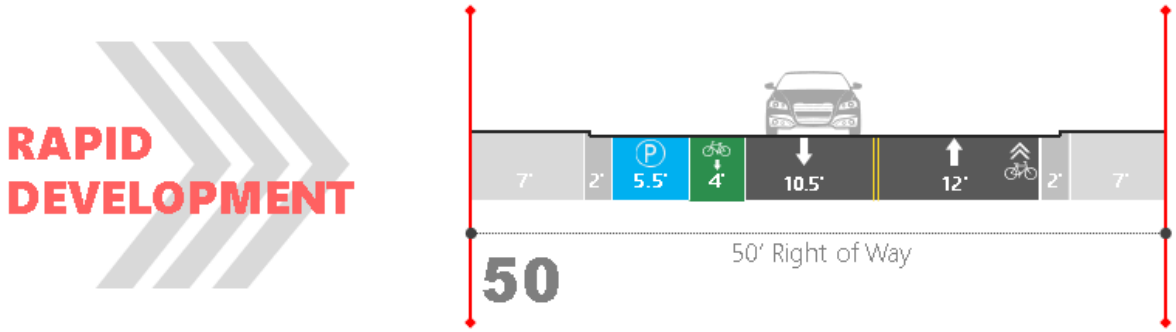


Figure 53: Rapid Development Alternative for 50' Typical Section

HYBRID:

Figures 54-55 presents the Hybrid Alternative for the ROW segments along the corridor. Due to limited available space, a 50' Hybrid section, which provided a dedicated bicycle facility was not feasible. The 80-foot ROW allows for 9-foot sidewalks, 5-foot bike lanes, on-street parking, and 11-foot travel lanes.

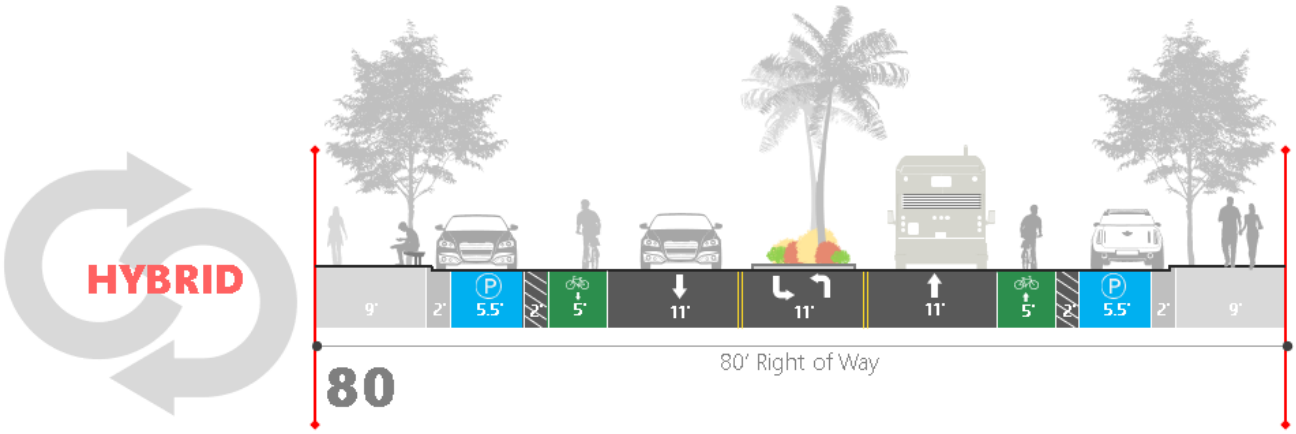


Figure 54: Hybrid Alternative for 80' Typical Section

The 70-foot ROW allows for 7-foot sidewalks, 4-foot buffered bike lanes, 11-foot travel lanes, 10-foot turning lanes, and on-street parking on one side of the road.

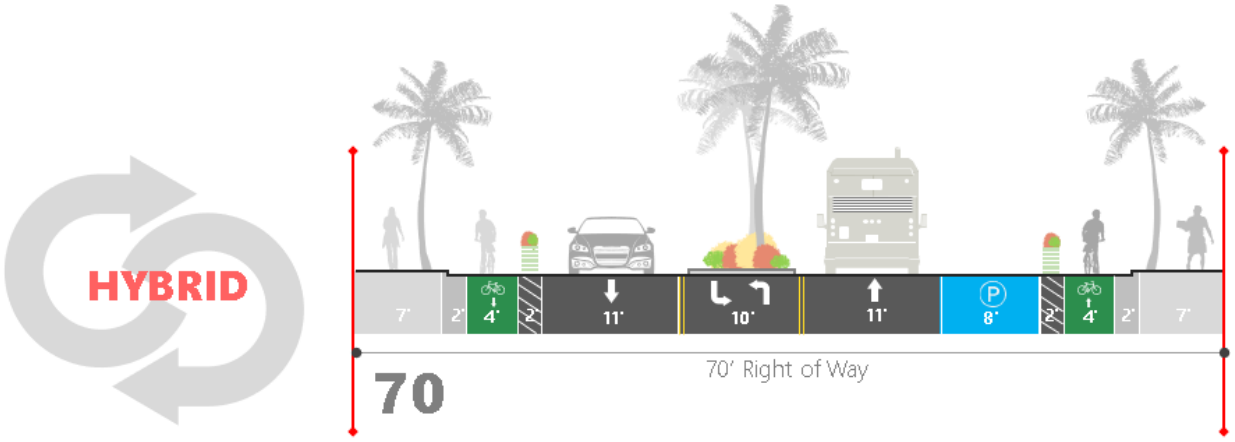


Figure 55: Hybrid Alternative for 70' Typical Section

MULTIMODAL:

Figures 56-58 present the Multimodal Alternative for the ROW segments along the corridor. The 80-foot ROW allows for 14-foot sidewalks, 5-foot bike lanes, 11-foot travel lanes and 12-foot turning lanes.

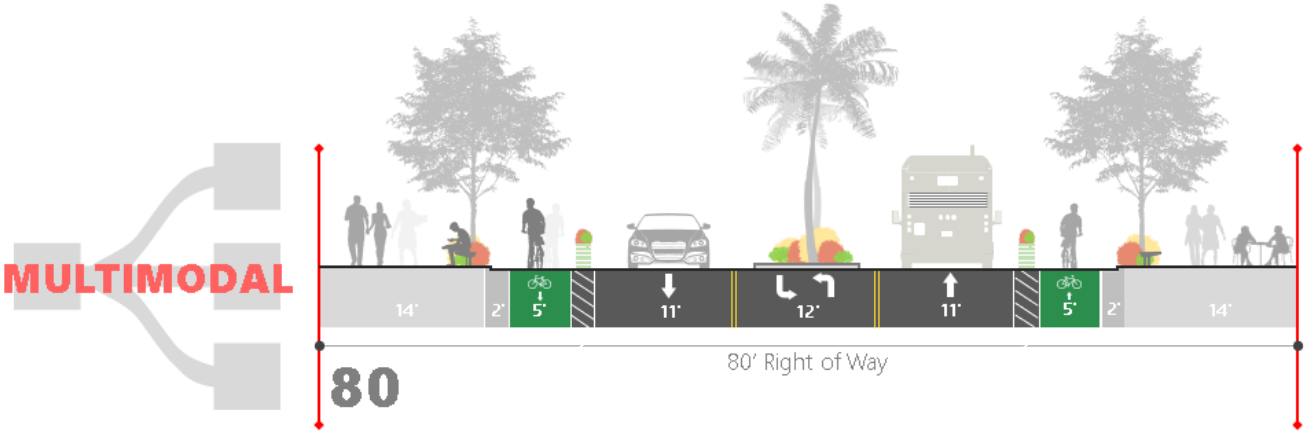


Figure 56: Multimodal Alternative for 80' Typical Section

The 70-foot ROW allows for 9-foot sidewalks, 5-foot buffered bike lanes, 12-foot travel lanes, and 10-foot turning lanes.

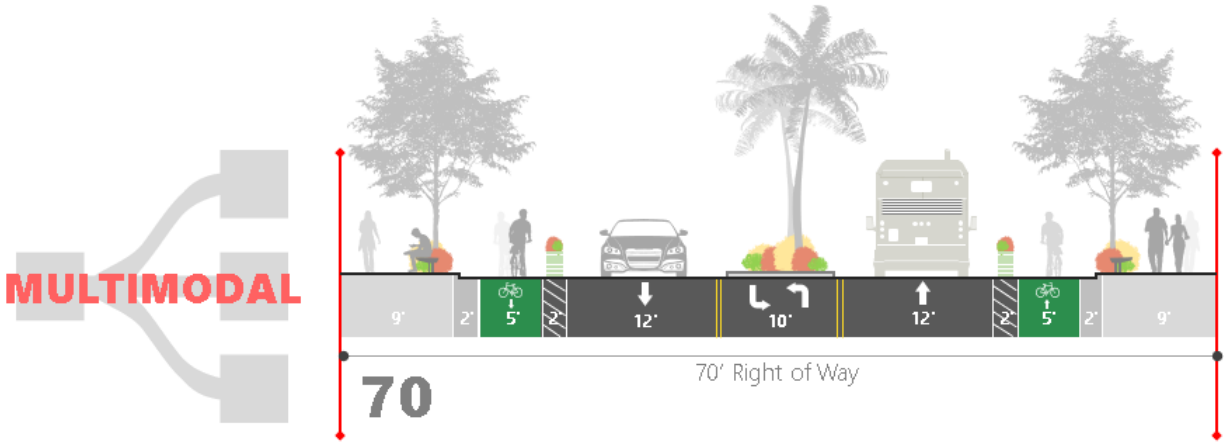


Figure 57: Multimodal Alternative for 70' Typical Section

The 50-foot ROW allows for 7-foot sidewalks, 4-foot buffered bike lanes, and 10-foot travel lanes.

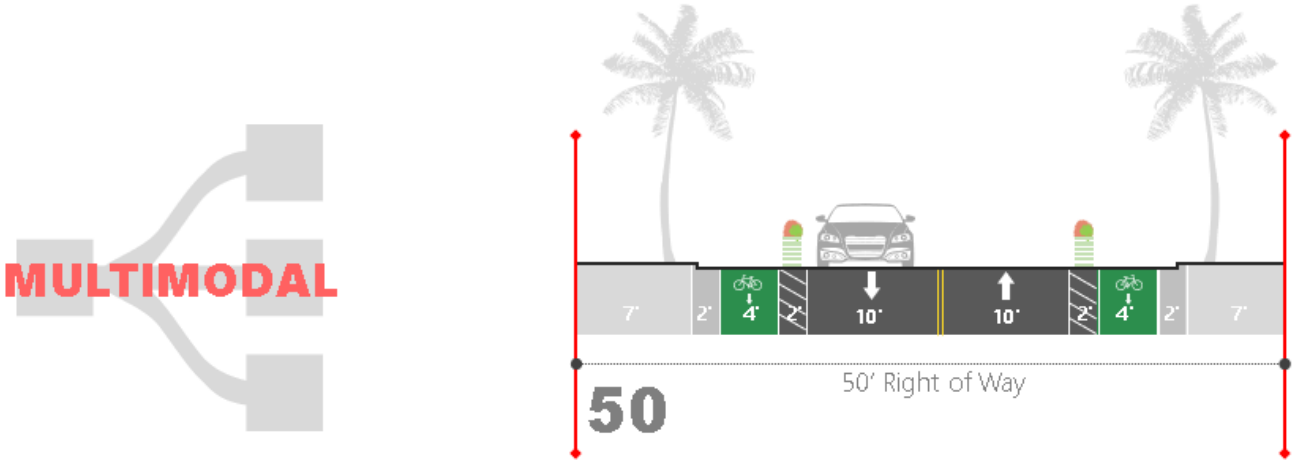


Figure 58: Multimodal Alternative for 50' Typical Section

COST ESTIMATES

Preliminary costs were estimated for each of the proposed typical sections (Rapid Development, Hybrid, and Multimodal) and each of the three main ROW segments of the Alternative Middle's alignment (70', 80', and 50'). There are very short segments throughout alternative middle's alignment which do not possess any of these three ROW widths, representing as a whole, three percent of the total distance. This three percent varies in estimated ROW width and does not represent a "typical" condition for the existing facilities for alternative middle. Based on the estimated total distance for each of the 70', 80', and 50' ROW segments in combination with proposed facility widths, FDOT's Area 13 Miami-Dade historical average construction costs were utilized to generate total costs. The cost per mile (rounded to the nearest hundredth) was calculated based on total cost (rounded to the nearest hundredth) and typical section length and are shown in Table 19.

Itemized costs were developed based on the type of work expected to construct each proposed typical section (i.e. restriping, milling/resurfacing, and/or roadway reconstruction). Signalized/unsignalized intersection costs were incorporated where applicable. Of the total cost, 60% was added for:

- Mobilization (10%)
- MOT (10%)
- Drainage (10%)
- Lighting (10%)
- Signalization (10%)
- Design (10)

Twenty percent of the total cost was added for contingency. To see itemized cost breakdowns per proposed typical section, please refer to Appendix B.

Table 19: Preferred Alternative Proposed Typical Section Cost Estimates

Various Pedestrian and Bicycle facilities- Project Area Improvements			
ROW SEGMENT	**TOTAL COST (2018 $)**	**LENGTH (MILES)**	**COST PER MILE (2018 $)**
70' - Rapid Development	$2,759,000	10.3	$267,900
70' - Hybrid	$52,931,100	10.3	$5,139,000
70' - Multimodal	$58,520,700	10.3	$5,681,700
80' - Rapid Development	$453,900	1.6	$283,700
80' - Hybrid	$9,638,400	1.6	$6,024,000
80' - Multimodal	$9,708,800	1.6	$6,068,000
50' - Rapid Development	$424,800	2.4	$177,000
50' - Multimodal	$10,356,000	2.4	$4,315,000

Source: FDOT Area 13 Historic Average Construction Costs.
https://www.fdot.gov/programmanagement/Estimates/HistoricalCostInformation/HistoricalCost.shtm

SITUATIONAL ALTERNATIVES

In addition to the proposed typical sections along Alternative Middle, the following situational alternatives are included to provide additional contextual design alternatives based on a ROW of 100 feet.

Figure 59 presents a situational alternative for the 100-foot ROW segments along the corridor. When considering an "all-user" low stress facility, the ideal approach is an "off-road" 14-foot shared use path with the necessary amenities (seating, bicycle repair stations, proper lighting) to make it successful in capturing a large user base. In areas where there is 100 feet of ROW, this is the ideal option to provide safe and enjoyable facilities.

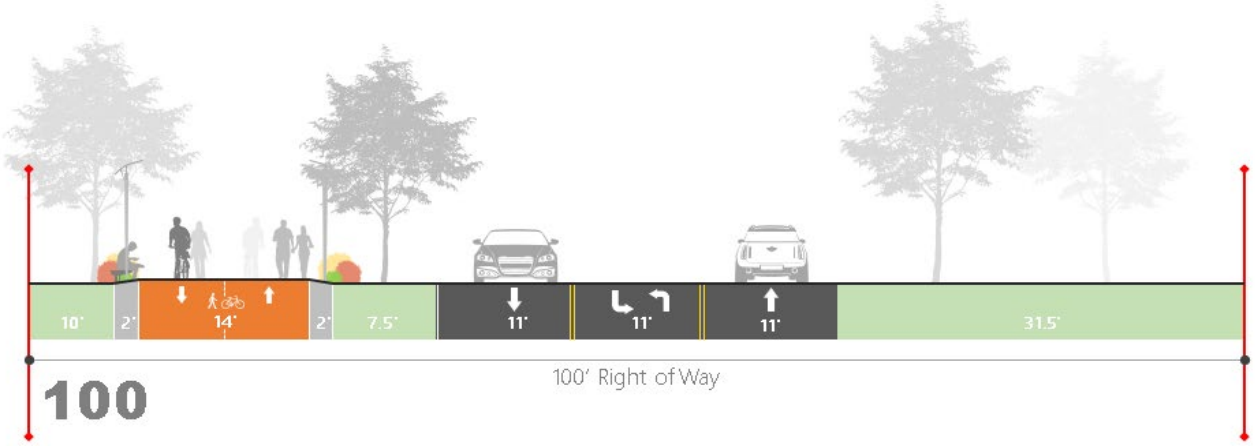


Figure 59: Situational Alternative for a 100' ROW- Incorporation of a Shared Use Path

Figure 60 presents a second situational alternative for the 100-foot ROW segments along the corridor. This typical section represents the ideal design for a roadway crossing along the Northeast Corridor. Depending on the crossing, the number of lanes will vary. Therefore, this current travel lane configuration is for demonstration purposes only. The preferred alternative does not cross the Northeast Corridor.

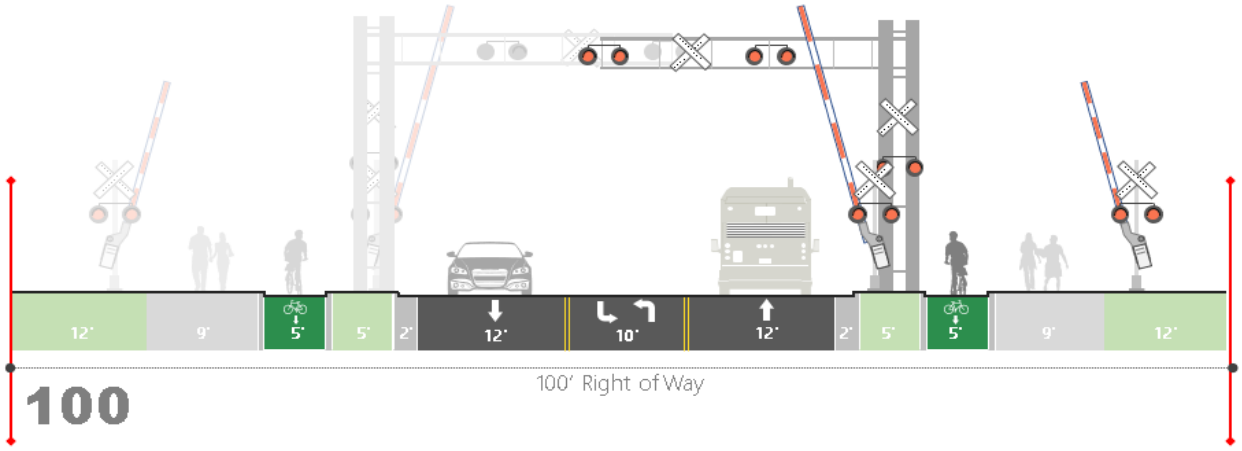


Figure 60: Situational Alternative for a 100' ROW- Incorporation of an at-grade crossing

Figure 61 and Figure 62 present a design alternative to the standard on-street bicycle facility. Paired sidewalks and bike lanes allow for the cyclists to experience a lower stress experience within a more urbanized environment that may not have the ROW space available for a more robust facility. This alternative requires either wide existing sidewalks or reconstruction of the roadway for sidewalk expansion.

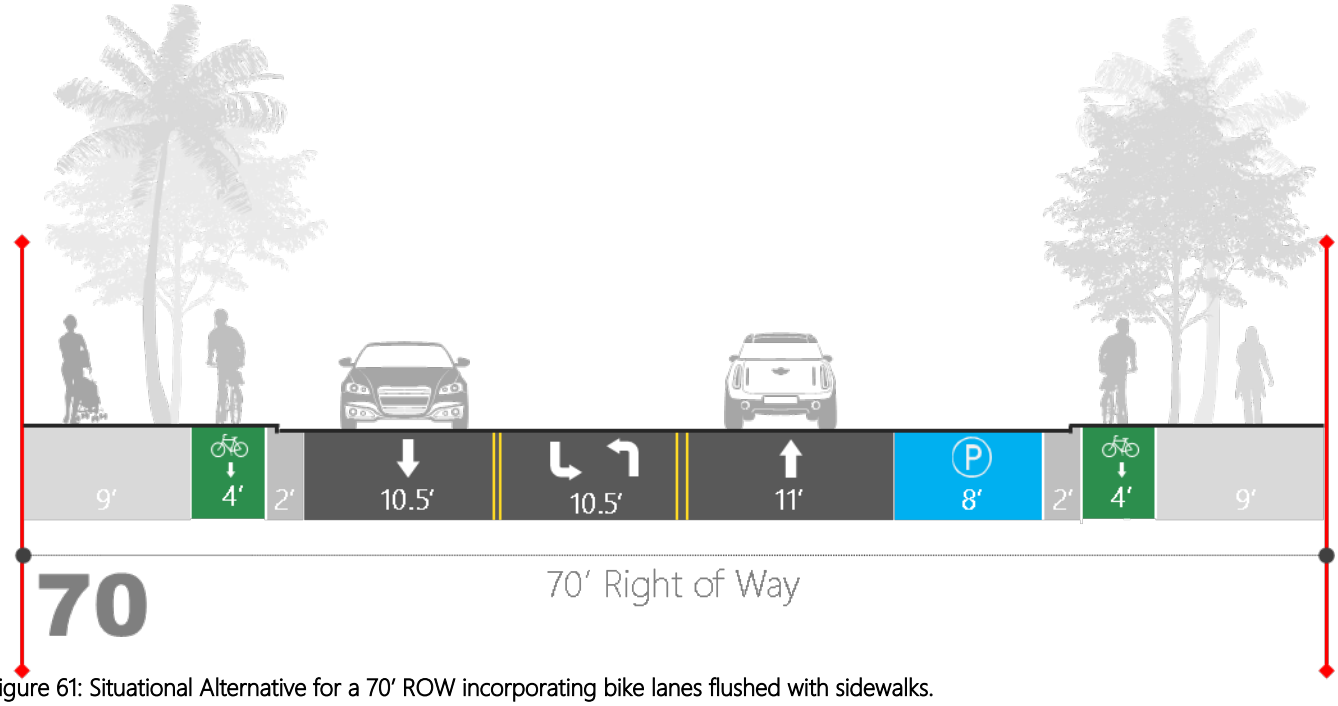


Figure 61: Situational Alternative for a 70' ROW incorporating bike lanes flushed with sidewalks.

Figure 62: Situational Alternative for incorporating bike lanes flushed with sidewalks, Cambridge MA.

POTENTIAL FUNDING OPPORTUNITIES

FUNDING

The Miami-Dade 2040 LRTP included $98 million in set aside funding for bicycle and pedestrian projects. Of that total, $56 million came from Transportation Alternatives (TALU) funding, and $42 million came from TMA/ SU funds. The 2045 LRTP will also include set aside funding for bicycle and pedestrian projects based on the same formulas as used for the 2040 LRTP. The financial analysis for the 2045 LRTP is currently in progress therefore, the exact amount for the bicycle/pedestrian set aside is unknown at this time.

Additional funding opportunities include the Safe Routes to School Program, the Federal Transit Administration (FTA) Metropolitan & Statewide and Nonmetropolitan Transportation Planning program and other FTA grant programs. Table 20 identifies several funding sources that could be used for implementation of bicycle and pedestrian projects.

Table 20: Potential Bicycle and Pedestrian Funding Opportunities

Source	Eligible Activities Applicable to this Plan
Safe Routes to School (SRTS)	The US DOT's Safe Routes to School (SRTS) program offers funding for the development of bicycle/pedestrian plans, bicycle lanes on road, separated bicycle lanes, bicycle parking, crosswalks, curb cuts and ramps, lighting, paved shoulders, signed bicycle and pedestrian routes, traffic calming, bridges/ overcrossing for pedestrians and/or bicyclists.
Metropolitan & Statewide Nonmetropolitan Transportation Planning	FTA's Metropolitan & Statewide Nonmetropolitan Transportation Planning Program provides funding for planning for the incorporation of bicycle facilities in a state or metropolitan transportation network.
Urbanized Area Formula Program	FTA's Urbanized Areas Formula Program funds the incorporation of bicycle routes to transit, bike racks, shelters and equipment for public transportation vehicles.
TOD Planning Pilot Grants	FTA offers funding for projects that facilitate multimodal connectivity and accessibility or Increase access to transit hubs for pedestrian and bicycle traffic.

Funding

Source	Eligible Activities Applicable to this Plan
Better Utilizing Investments to Leverage Development (BUILD)	The US DOT's Better Utilizing Investments to Leverage Development (BUILD) program offers funding to intermodal transportation initiatives, including the incorporation of bicycle and pedestrian infrastructure along roadways. This program is meant to replace the TIGER grant program that was previously funded by US DOT.
Federal Lands Access Program (FLAP)	The US DOT's Federal Lands Access Program (FLAP) was created to improve access to transportation facilities that provide connectivity to, are next to, or are located within Federal Lands. Eligible activities include: bicycle lanes on road/ separated bicycle lanes, bicycle parking, bicycle racks on transit, bicycle share, bicycle storage or service centers, crosswalks, curb cuts and ramps, paved shoulders, bicycle/pedestrian plans, road diets, recreational trails, shared-use paths, sidewalks, traffic calming.
Surface Transportation Block Grant (STBG) Program	The US DOT's Surface Transportation Block Grant (STBG) Program provides funding for access enhancements to public transportation, bicycle/pedestrian plans, bicycle lanes on road, separated bicycle lanes, bicycle parking, bicycle share, bridges/overcrossing for pedestrians and/or bicyclists, crosswalks, curb cuts and ramps, lighting, paved shoulders, road diets, recreational trails, sidewalks, signs, signals, signal improvements, traffic calming, trailside and trailhead facilities.
Shared-Use Nonmotorized (SUN) Trail Network	FDOT's Shared-Use Nonmotorized (SUN) Trial Network provides funding to shared-use nonmotorized paved paths that are included in the Florida Greenways and Trails System Plan developed by the Florida Department of

Source	Eligible Activities Applicable to this Plan
	Environmental Protection's Office of Greenways and Trails.
People 4 Bikes Community Grant Program	People 4 Bikes is a nationwide organization that advocates for biking and walking. They offer the Community Grant Program which offers grant funding for local bicycle and pedestrian projects through a competitive grant application process. The program is funded by the organization's industry partners.
Community Redevelopment Areas	Community Redevelopment Areas (CRAs) are created to provide funding to revitalize areas that are designated as slum or blight. They operate on a budget generated by the increase in property taxes in these areas, known as Tax Increment Financing (TIF). These areas are overseen and administered by Miami-Dade County. Eligible projects include neighborhood parks, sidewalks, streetscapes and roadway improvements.

Source: Pedestrian and Bicycle Funding Opportunities, U.S. Department of Transportation Transit, Highway, and Safety Funds. U.S. Department of Transportation, Federal Highway Administration. Revised August 9, 2018; Source: Miami-Dade County.

ACTION PLAN

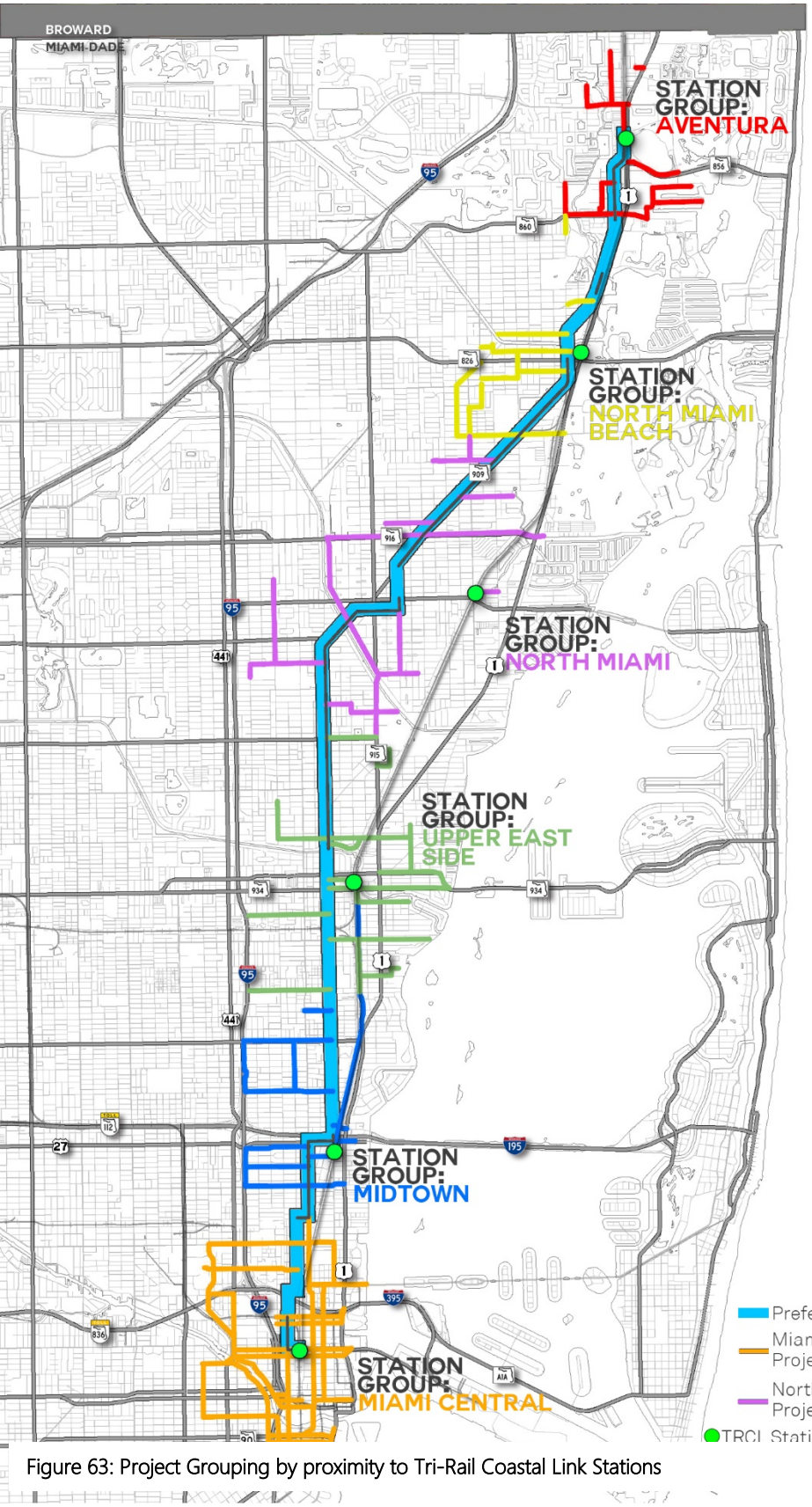


Figure 63: Project Grouping by proximity to Tri-Rail Coastal Link Stations

PROJECT NETWORK

The Action Plan for implementation of the Flagler Trail Northeast Non-Motorized Network includes: project grouping and assessment, development of pilot projects, and implementation. In addition, two pilot projects are presented based on input from the Study Advisory Committee.

PROJECT GROUPING

Projects were organized into six groups based on their proximity to the Tri-Rail Coastal Link transit stations located in the Study Area. The stations are: Miami Central Station, Midtown Station, Upper East Side Station, North Miami Station, North Miami Beach Station, and Aventura Station. During the analysis, a buffer surrounding each transit station was used to ensure that the projects were accurately divided into groups and did not overlap between stations. Projects identified in this plan are shown in Figure 63. Each group of projects is subdivided to identify projects that complete the "spine" of the preferred alternative, projects that provide a direct link to the Tri-Rail Coastal Link stations, and additional connections to improve first mile/last mile connectivity from the preferred alternative to the identified community destinations.

Since one of the goals of this study is to "provide connections to the six proposed transit stations within the Study Area" the associated first mile/last mile non-motorized connections to the Coastal Link stations can be implemented as these stations are built. These connections could also be incorporated into programmed projects.

PROJECT ASSESSMENT

As part of the analysis, projects were assessed to identify those that provide connectivity to an existing or planned facility, those that are commuter connections vs recreational connections, and those that are located within a bicycle and/or pedestrian crash area.

Connectivity to Existing or Planned Facility: This analysis identified projects that provide connectivity to existing or planned bicycle and/or pedestrian facilities. One of the goals of this study is to "provide a north-south spine for non-motorized trips." A major step toward achieving this goal is to close the gaps between existing and planned bicycle and pedestrian facilities. This analysis included the identification of projects that are connected to projects in the Miami-Dade 2018-2019 Transportation Improvement Program (TIP), the 2040 Long Range Transportation Plan (LRTP), and additional planned bicycle and pedestrian facility projects provided by the Miami-Dade TPO. Providing connectivity to these projects promotes nonmotorized access in areas identified as a priority in the region.

Commuter Connection vs Recreational Connection: This analysis identified projects that provide connectivity to commuter destinations, recreational destinations, or both. Commuter destinations are locations such as high job sectors, educational facilities, and medical facilities. Recreational destinations provide recreational opportunities such as county or municipal parks, golf courses etc. By identifying the type of connection provided by these projects, they can be prioritized in the future.

Location within a Bicycle and/or Pedestrian Crash Area: This analysis identified projects that provide connectivity to crash areas. These are areas where non-motorized connectivity needs improvement, as reflected in the crash data. By providing safe and protected bicycle and pedestrian facilities within these areas, crash rates have the potential to decrease, saving lives and reducing injuries.

Other existing characteristics of the roadway in the area of proposed projects were also identified and include: presence of on-street parking, Average Annual Daily Traffic (AADT) and type of facility recommended for the proposed project.

The projects identified for each transit station group are shown in Tables 21 – 38.

AVENTURA PROJECTS

Table 21: Connection for Spine of Preferred Alternative

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
West Dixie Highway	NE 185th St	Aventura Station	No	9,850	0.88	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Both	Yes	Yes

Table 22: Direct Connection to Transit Stations

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
West Dixie Highway	NE 197th St	NE 203rd St	Yes	7,100	0.33	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Both	Yes	

Table 23: Other First Mile/Last Mile Connections

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 26th Ave	NE 203rd St	NE 211th Ter	No	0	0.54	Protected/buffered bicycle lanes, Enhanced crosswalks		Commuter		
NE 203rd St	Biscayne Blvd	NE 24th Ave	No	69,000	0.42	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
NE 24th Ave	NE 203rd St	Highland Oaks Elementary School	No	0	0.21	Neighborhood Greenways (Boulevard Markers and Traffic Calming). Enhanced crosswalks		Commuter		

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 209th St	NE 28th Ave	W Dixie Highway	No	0	0.08	Neighborhood Greenways (Boulevard Markers and Traffic Calming). Enhanced crosswalks	Yes	Commuter		
NE 29th Ave/ NE 190th St	NE 188th St	NE 190th St	No	0	0.54	Neighborhood Greenways (Boulevard Markers and Traffic Calming). Enhanced crosswalks, Safety Study		Recreational		Yes
NE 186th St/ NE 185th St/ NE 22nd Ave	West Dixie Highway	NE 28th Ct	No	0	1.15	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Commuter		Yes
NE 24th Pl/ NE 25th Ave	NE 186th St	NE 191st St	No	0	0.33	NE 191st St to NE 24th Pl: Protected/buffered bicycle lanes, Enhanced crosswalks. NE 187th St to NE Miami Gardens Dr: Neighborhood Greenways (Boulevard Markers and Traffic Calming).		Recreational		
NE 191st St	NE 25th Ave	W Dixie Highway	No	0	0.13	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Recreational		
NE 187th St/ NE 188th St/NE 25th Ct	NE185th St	NE 188th St	No	0	0.70	Neighborhood Greenways (Boulevard Markers and Traffic Calming). Enhanced crosswalks, Safety Study		Recreational		Yes
William Lehman Causeway	Biscayne Blvd	W Country Club Dr	No	35,000	0.55	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Recreational		Yes

NORTH MIAMI BEACH PROJECTS

Table 24: Connection for Spine of Preferred Alternative

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
West Dixie Hwy	NE 147th St/NE 16th Ave	NE 163rd St	No	16,200	1.32	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study		Both		Yes
West Dixie Hwy	NE 173rd St	N of Greynolds Park Road	No	12,600	0.21	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Both		

Table 25: Direct Connection to Transit Stations

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 164th St	NE 18th Ave	NE 23rd Ave	Yes	0	0.62	Sharrows, enhanced crosswalks		Both	Yes	

Table 26: Other First Mile/Last Mile Connections

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 167th St	N Glades Dr	NE 22nd Ave	Yes	0	0.70	Protected/buffered bike lanes, Enhanced crosswalks, Safety Study		Commuter		Yes
NE 151st St	W Dixie Highway	Biscayne Blvd	No	1,600	0.46	Protected/buffered bike lanes, Enhanced crosswalks	Yes	Commuter		
NE 160th St/ NE 18th Ave/ NE 164th St/NE 16th Ave/ NE 165th St	NE 15th Ave	NE 15th Ave	No	0	1.11	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks, Safety Study	Yes	Recreational		Yes

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
Miami Dr	NE 159th St	NE 15th Ave	No	0	0.34	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks, Safety Study	Yes	Recreational		Yes
NE 172nd St	NE 22nd Ave	W Dixie Highway	Yes	5,500	0.26	protected/buffered bike lanes	Yes	Recreational		
NE 161st St	NE 18th Pl	NE 22nd Ave	Yes	0	0.50	Neighborhood Greenway (Sharrow Markers), Safety Study		Recreational		Yes
NE 15th Ave	NE 159th St	NE 155th Ter	No	0	0.23	Neighborhood Greenway (Sharrow Markers)	Yes	Recreational		
NE 13th Ave	NE 151st St	NE 159th St	No	0	0.51	protected/buffered bike lanes		Recreational		
NE 151st St	NE 13th Ave	NE 18th Ave	No	1,600	0.63	Neighborhood Greenway (Sharrow Markers)		Recreational		
NE 14th Ave/ NE 155th Ter	NE 151st St	NE 15th Ave	No	0	0.42	Neighborhood Greenway (Sharrow Markers)		Recreational		
NE 22nd Ave	NE 183rd St	NE Miami Gardens Dr	No	0	0.17	Neighborhood Greenway (Sharrow Markers), Safety Study	Yes	Recreational		Yes

NORTH MIAMI PROJECTS

Table 27: Connections for Spine of Preferred Alternative

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 2nd Ave	NE 103rd St	NE 119th St	No	15,800	1.03	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Both		
West Dixie Hwy/NE 123rd St	NE 119th St	NE 8th Ave	No	17,500	0.80	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Both		Yes
NE 8th Ave	NE 123rd St	NE 125th St	Yes	0	0.13	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Both		Yes
West Dixie Hwy	NE 8th Ave	NE 147th St/NE 16th Ave	Yes	22,500	1.45	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Both		Yes

Table 28: Direct Connection to Transit Stations

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 125th Ter	Tri Rail Station	NE 16th Ave	Yes	0	0.22	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks	Yes	Both	Yes	

Table 29: Other First Mile/Last Mile Connections

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NW 115th St	NW 5th Ave	NE 2nd Ave	No	0	0.75	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks	Yes	Commuter		

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 107th St	NE 4th Ave	Miami County Day School	Yes	0	0.47	protected/buffered bike lanes		Commuter		
NE 4th Ave	NE 107th St	NE 108th St	No	0	0.09	Neighborhood Greenway (Sharrow Markers)		Commuter		
Griffing Blvd/ NE 6th Ave	NE 103rd St	W Dixie Highway	No	19,500	1.25	protected/buffered bike lanes, Safety Study	Yes	Commuter		Yes
NE 137th St	NE 7th Ave	W Dixie Highway	No	0	0.50	protected/buffered bike lanes, enhanced crosswalks, Safety Study		Commuter		Yes
NE 108th St	NE 2nd Ave	NE 4th Ave	No	0	0.25	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks	Yes	Commuter		
NE 8th Ave	NE 113th St	NE 123rd St	No	0	0.63	protected/buffered bike lanes, enhanced crosswalks		Commuter		
NE 113th St	Griffing Blvd	NE 9th Ct	No	0	0.40	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks	Yes	Recreational		
NW 135th St	Memorial Highway	NE 7th Ave	No	37,500	0.61	protected/buffered bike lanes, Safety Study		Recreational		Yes
Griffing Blvd	W Dixie Highway	NE 135th St	No	21,00	0.89	Enhanced crosswalks, Safety Study	Yes	Recreational		Yes
NE 147th St	NE 11th Ave	W Dixie Highway	No	0	0.62	Neighborhood Greenway (Sharrow Markers)		Recreational		
NE 14th Ave	NE 147th St	NE 151st St	No	0	0.24	Neighborhood Greenway (Sharrow Markers), Safety Study		Recreational		Yes
NE 135th St	NE 7th Ave	Biscayne Blvd	No	25,000	1.61	protected/buffered bike lanes, Safety Study	Yes	Commuter		Yes

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 141st St	W Dixie Highway	NE 17th Ct	No	0	0.54	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks		Recreational		
NW 5th Ave	NW 113th St	NW 115th St	No	0	0.13	Neighborhood Greenway (Sharrow Markers)		Commuter		
NE 2nd Ave	NW 115th St	NW 125th St	No	4,500	0.62	Neighborhood Greenway (Sharrow Markers), Safety Study	Yes	Recreational		Yes
NW 2nd Ave	NW 125th St	just north of NW 128th St	No	4,500	0.22	Neighborhood Greenway (Sharrow Markers), Safety Study	Yes	Recreational		Yes

UPPER EAST SIDE PROJECTS

Table 30: Connections for Spine of Preferred Alternative

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 2nd Ave	S of Fixed Bridge over Little River Canal (C7)	NE 103rd St	Yes	11,700	1.12	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Both		

Table 31: Direct Connection to Transit Stations

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 80th Ct	NE 2nd Ave	NE 4th Ave	Yes	0	0.24	Neighborhood Greenways (sharrow markers)	Yes	Both	Yes	

Table 32: Other First Mile/Last Mile Connections

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NW 62nd St	NW 5th Ct	NE 2nd Ave	No	10,600	0.82	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
NW 87th St	NW 2nd Ave	NE 8th Ct	No	0	1.34	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Commuter		
NW 2nd Ave	NW 87th St	NW 93rd St	No	4,500	0.51	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Commuter		
NE 103rd St	NE 2nd Ave	NE 6th Ave	No	8,300	0.50	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Commuter		

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 86th St/ NE 86th St/ NE 4th Ave Rd	NE 2nd Ave	NE 87th St	No	0	0.39	Neighborhood Greenways (Boulevard Markers and Traffic Calming). Enhanced crosswalks	Yes	Recreational		
NE 8th Ct	NE 82nd St	NE 89th St	No	0	0.61	Protected/buffered bicycle lanes, Enhanced crosswalks		Recreational		
NE 6th Ave/ NE 98th St/ NE 7th Ave	NE 101st St	NE 101st St	No	8,600	0.47	Neighborhood Greenways (Boulevard Markers and Traffic Calming). Enhanced crosswalks	Yes	Recreational		
NE/NW 75th St	NW 5th Ct	NE 2nd Ave	Yes	0	0.82	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Recreational		Yes
NE 82nd St/Bayshore Drive	Biscayne Blvd	NE 79th St	Yes	17,000	0.80	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Recreational		
NE 64th St/ NE 7th Ave	NE 4th Ct	NE 7th Ave	Yes	0	0.47	Neighborhood Greenways (Boulevard Markers and Traffic Calming). Enhanced crosswalks, Safety Study		Recreational		Yes
NE 71st St	NE 2nd Ave	NE 10th Ave	Yes	0	1.01	Neighborhood Greenways (Boulevard Markers and Traffic Calming). Enhanced crosswalks	Yes	Recreational		
NE 77th St	NE 4th Ct	NE 8th Ave	Yes	0	0.52	Protected/buffered bicycle lanes, Enhanced crosswalks		Recreational		
NW 79th St	NE 2nd Ave	NE Bayshore Ct	Yes	27,000	1.21	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Recreational		Yes

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 4th Ct	NE 61st St	NE 71st St	No	5,500	0.53	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Recreational		Yes
NE 4th Ct	NE 77th St	NE 79th St	No	5,500	0.13	Protected/buffered bicycle lanes, Enhanced crosswalks		Recreational		

MIDTOWN PROJECTS

Table 33: Connections for Spine of Preferred Alternative

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
N Miami Ave	NW 23rd St	NE 36th Street	No	13,800	0.77	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Both		
NE 36th St	N Miami Ave	NE 2nd Ave	No	20,500	0.32	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study		Both		Yes

Table 34: Direct Connection to Transit Stations

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NE 34th St	N Miami Ave	East Coast Ave	Yes	0	0.22	Neighborhood Greenway (Boulevard Markers and Traffic Calming) Enhanced crosswalks	Yes	Both	Yes	

Table 35: Other First Mile/Last Mile Connections

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NW 29th St	NW 6th Ave	Biscayne Blvd	Yes	9,600	1.00	NW 6th Ave to N Miami Ave: Protected/Buffered Bike Lanes. N Miami Ave - Biscayne Blvd: Neighborhood Greenway (Boulevard Markers and Traffic Calming) Enhanced crosswalks, Safety Study	Yes	Commuter		Yes

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NW 6th Ave	NW 29th St	NW 35th St	Yes	0	0.38	Neighborhood Greenway (Boulevard Markers and Traffic Calming) Enhanced crosswalks		Commuter		
NW 35th St	NW 6th Ave	N Miami Ave	Yes	0	0.63	Neighborhood Greenway (Boulevard Markers and Traffic Calming) Enhanced crosswalks	Yes	Commuter		
NW 32nd St	NW 6th Ave	N Miami Ave	Yes	0	0.64	Neighborhood Greenway (Boulevard Markers and Traffic Calming) Enhanced crosswalks	Yes	Commuter		
NW 59th St	N Miami Ave	NE 2nd Ave	Yes	0	0.27	NW 5th Ave to NW 2nd Ave: Neighborhood Greenways (Boulevard Markers and Traffic Calming). NW 2nd Ave to SR 5/Biscayne Blvd: Protected/buffered bicycle lanes. Enhanced crosswalks		Recreational		
NW 46th St	NW 6th Ave	NE 2nd Ave	Yes	5,600	0.88	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Recreational		Yes
NE 54th St	NW 6th Ave	NE 2nd Ave	Yes	15,500	0.89	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Recreational		Yes
NW 1st Ave	NE 46th St	NW 54th St		0	0.51	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks		Recreational		
NW 6th Ave	NW 46th St	NW 54th St	Yes	0	0.54	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks		Recreational		
NE 38th St/ NE 39th St	NE 2nd Ave	Biscayne Blvd	No	0	0.15	protected/buffered bike lanes, enhanced crosswalks	Yes	Recreational		
NE 36th St	NE 2nd Ave	NE 5th Ave	Yes	0	0.22	protected/buffered bike lanes, enhanced crosswalks, Safety Study	Yes	Recreational		Yes

MIAMI CENTRAL PROJECTS

Table 36: Connections for Spine of Preferred Alternative

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NW 2nd Ave	NW 11th St	NW 6th St/Miami Central Station	Yes	5,500	0.44	Protected/buffered bicycle lanes, Enhanced crosswalks		Both	Yes	
NW 23rd St			Yes	0	0.12	Protected/buffered bicycle lanes, Enhanced crosswalks	Yes	Both		

Table 37: Direct Connection to Transit Stations

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NW/NE 6th St	SW North River Dr	Biscayne Blvd	Yes	4,400	1.18	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Both	Yes	Yes

Table 38: Other First Mile/Last Mile Connections

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NW 7th Ave/ NW North River Dr/ SW North River Dr	SW 3rd St	NW 14th St	Yes, on NW North River Dr	12,250	1.36	Protected/buffered bike lane, SB from NW 14 St to SW 3 St, NB from SW 2 St to NW 14 St, Safety Study	Yes	Commuter		Yes
NE 1st Ave/ SE 2nd St	SE 2nd St	NE 15th St	Yes, on NE 1st Ave	19,500	1.17	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
S Miami Ave/ SW 1st Ave	SW 7th St	NW 23rd St	Yes	6,400	2.27	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
NW/NE 11th St	NW 3rd Ave	Biscayne Blvd	Yes	2,400	0.74	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
NW/NE 10th St	NW 3rd Ave	Biscayne Blvd	Yes	4,200	0.80	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
NW 10th Ave/NW 9th Ave	Spring Garden Rd	NW 20th St	No	13,000	0.70	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study		Commuter		Yes
NW 14th St	NW 7th Ave	NW 10th Ave	No	5,400	0.25	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
SW 1st St	SW North River Dr	SW 2nd Ave	No	6,900	0.15	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
SW 2nd St	SW North River Dr	SW 1st Ave	Yes	0	0.24	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
SW 3rd St	SW North River Dr	S Miami Ave	Yes	0	0.33	Protected/buffered bicycle lanes, Enhanced crosswalks		Commuter		
NE 1st Ave/ SE 2nd St	SE 2nd St	NE 14th St	Yes	0	0.38	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
NW/NE 5th St	SW North River Dr	Biscayne Blvd	Yes	7,200	1.20	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter	Yes	
NE 15th St	NW Miami Ct	Venetian Causeway	Yes	3,200	0.58	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter	Yes	
NW 8th St Rd	NW 8th St	Spring Garden Rd	Yes	13,000	0.38	Repave sharrows, Safety Study	Yes	Commuter	Yes	
NW 17th St	Jackson Memorial Hospital	NW 1st Ave	Yes	2,900	0.95	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
NW/SW 2nd Ave	SW 8th St	NW 6th St	Yes	10,300	0.93	Repave sharrows or protected/buffered bike lane, enhanced crosswalks, Safety Study	Yes	Recreational		Yes
SW 7th St	SW 4th Ave	Brickell Ave	No	11,500	0.64	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Recreational		Yes
SW 8th St	SW 4th Ave	Brickell Ave	Yes	14,500	0.63	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Recreational		Yes
NW South River Dr/ NW 4th St	SW 8th St	NW 10th Ave	Yes	3,500	1.38	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks, Safety Study	Yes	Recreational		Yes
SW 4th St/SW 3rd Ave	SW 8th St	SW 10th Ave	Yes	0	1.00	Neighborhood Greenway (Sharrow Markers) Enhanced crosswalks, Safety Study		Recreational		Yes

Facility	From	To	On-Street Parking	AADT	Project Length (mi)	Facility Type	Connection to Existing/ Planned Facility	Commuter/ Recreational Connection	Direct Link to Transit Station	Safety Connection
Brickell Ave	SE 8th St	SE 5th St	No	36,000	0.16	Protected/buffered bicycle lanes, Safety Study	Yes	Recreational		Yes
SW 10th Ave	SW 4th St	NW 4th St	Yes	0	0.54	Repave sharrows, enhanced crosswalks, Safety Study	Yes	Recreational		Yes
NW 20th St	NW 10th Ave/NW 9th Ave	NE 2nd Ave	No	13,750	1.26	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study	Yes	Commuter		Yes
NE 2nd Ave	NW 15th Ct	NW 20th St	No	12,000	0.43	Protected/buffered bicycle lanes, Enhanced crosswalks, Safety Study		Commuter	Yes	

PILOT PROJECTS

Figure 64 identifies the location of two proposed pilot projects within the Study Area. Both of these projects focus on providing connections to and from Alternative Middle's alignment. Both aim to utilize lower stress roadways within the Study Area, as well as provide dedicated facilities within their proposed limits.

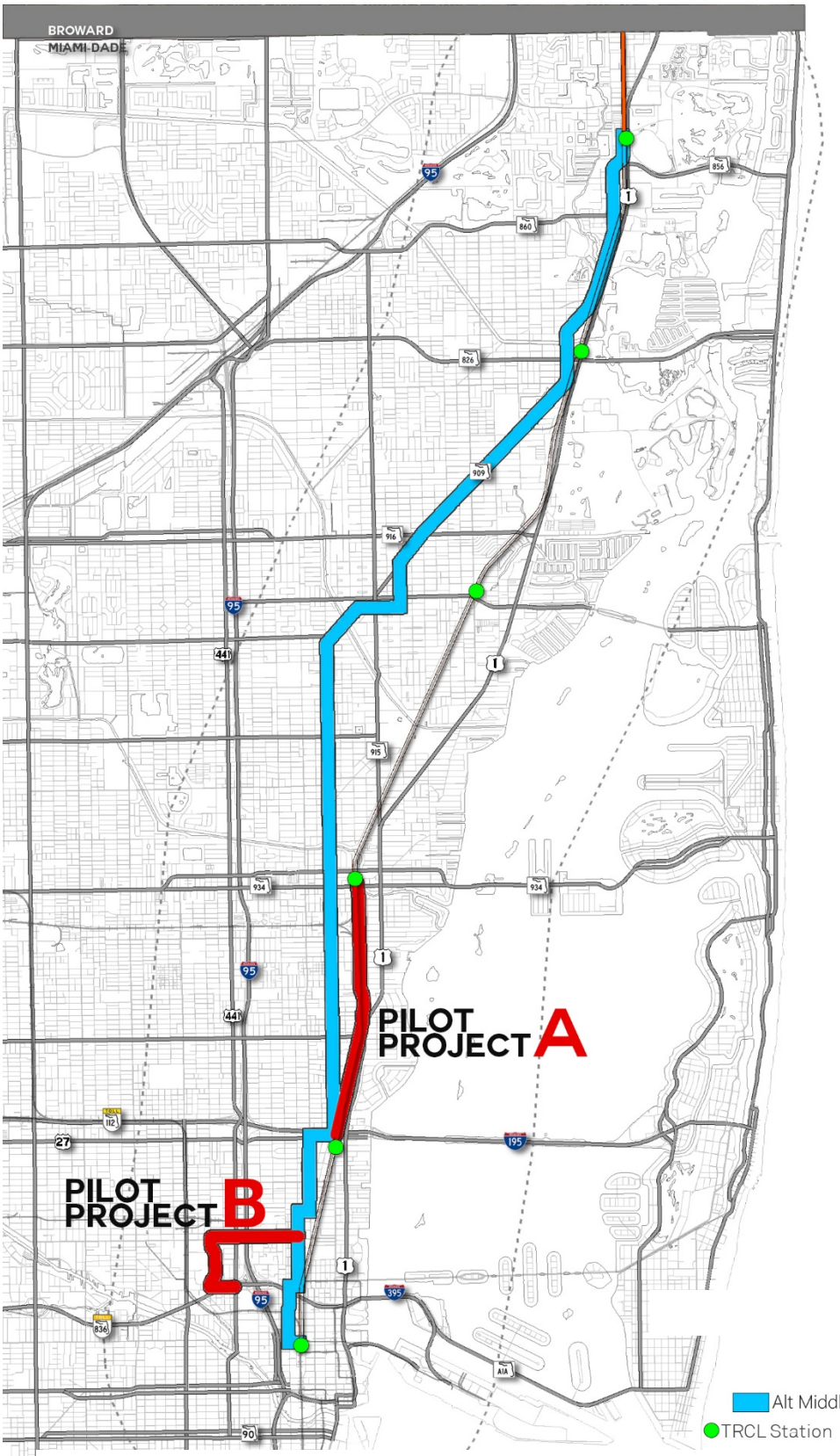


Figure 64: Pilot Projects

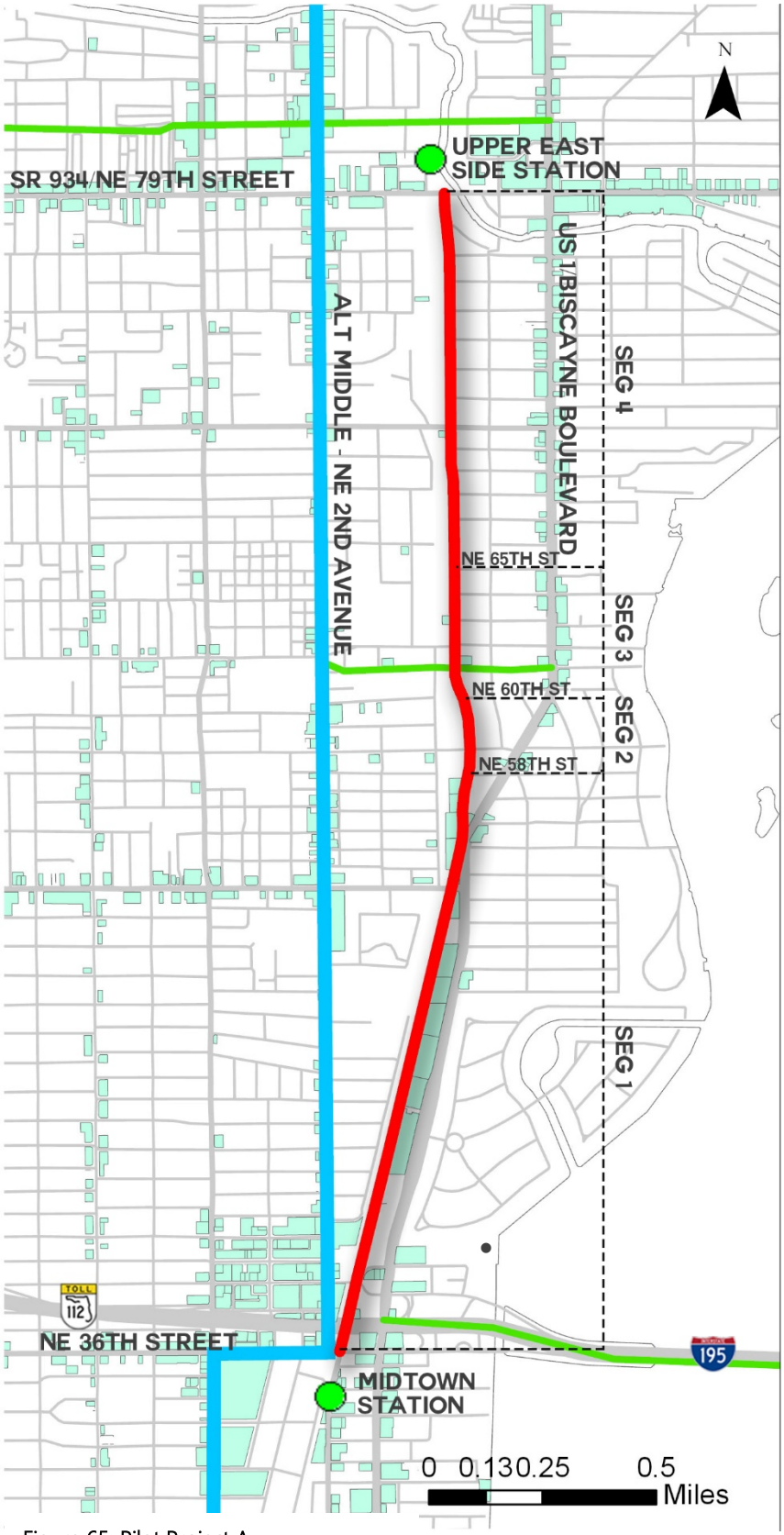


Figure 65: Pilot Project A

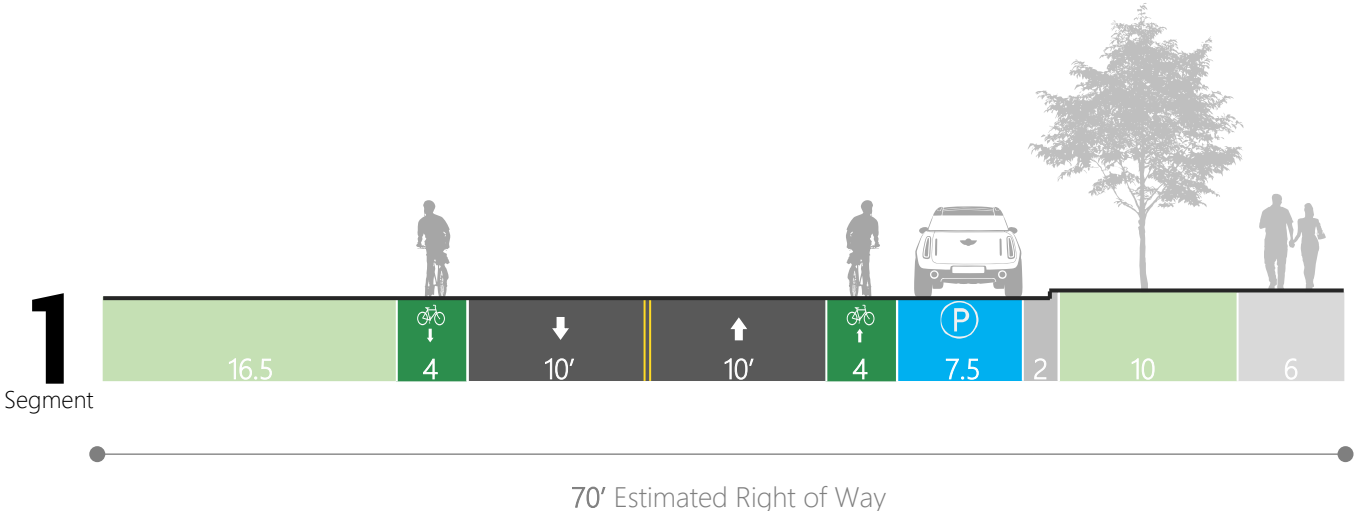
PROJECT A - FEDERAL HIGHWAY/NE 4TH COURT

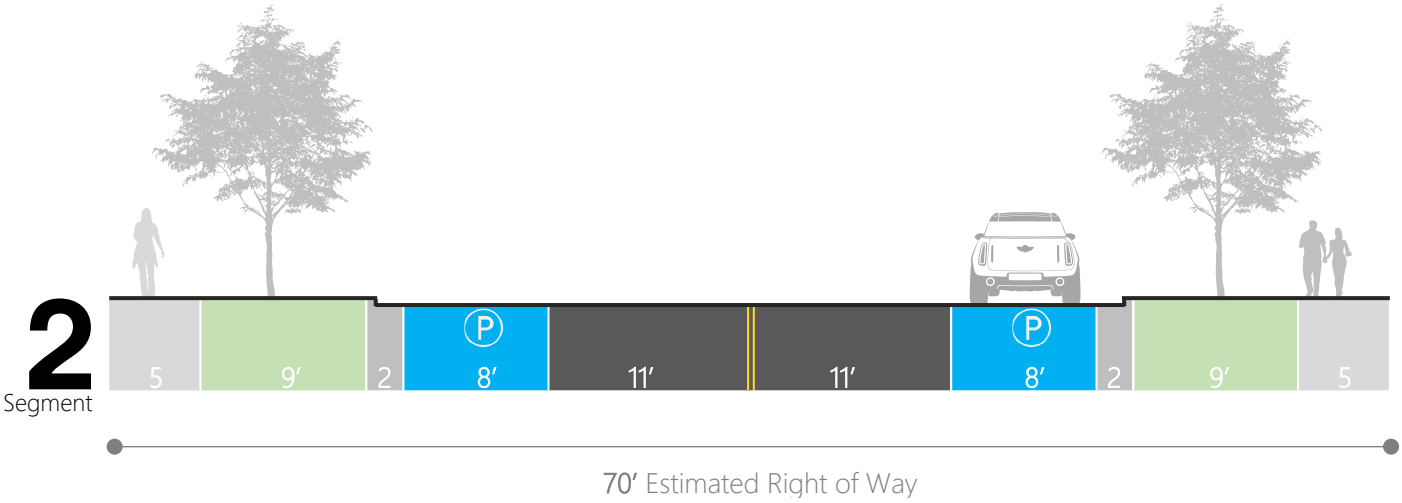
Project A's primary focus is providing a north/south alternative from the "spine", to connect pedestrians and cyclists with local businesses, and a direct line between the Upper East Side and Midtown stations and is shown in Figure 65. The total length of this project is 2.6 miles. The project is divided into four (4) segments that are delineated by the estimated existing ROW, to avoid ROW encroachment. Each segment provides dedicated bicycle facilities through the repurposing of travel lanes or on-street parking facilities, and/or the incorporation of road dieting. Traffic divergent studies are required to ensure consideration of stakeholder input and address parking concerns. The average AADT for the entire project area is 8,700. There is also existing unprotected/unbuffered bicycle facilities along segment 1 which neighbors the FEC ROW. These facilities may be improved through the incorporation of raised separators determined by estimated ROW, to provide physical barriers/protection between the cyclists and traffic. Developing an aesthetically pleasing barrier between the railroad and roadway would be beneficial.

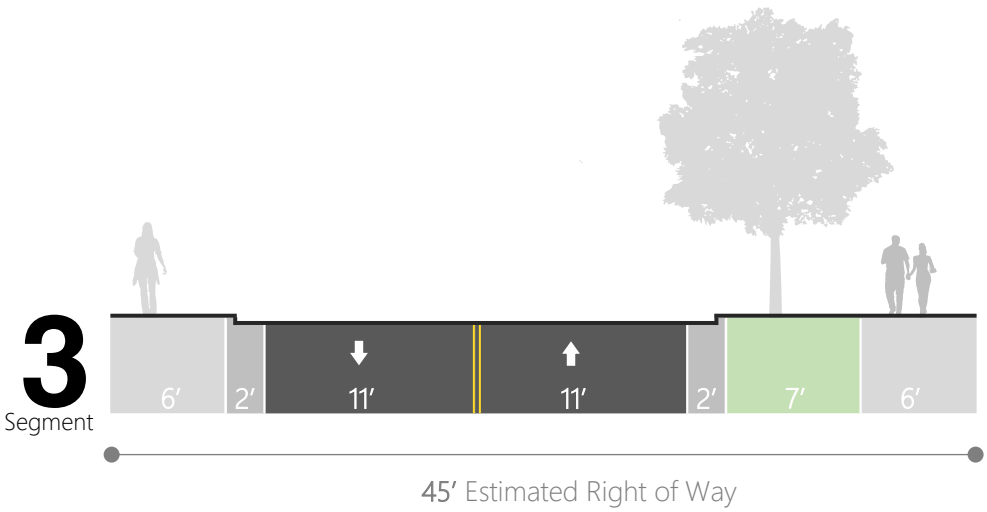
EXISTING TYPICAL SECTIONS BY SEGMENTS

The photograph in Figure 66 was taken within the limits of segment 1 displaying the existing conditions of Pilot Project A. The following four (4) typical sections identify the existing conditions for the entire limits of Pilot Project A.

View of Existing Conditions for Federal Highway (Seg. 1)




2
Segment
5
9′
2
8′
11′
11′
8′
2
9′
5
70′ Estimated Right of Way


3
Segment
6′
2′
11′
11′
2′
7′
6′
45′ Estimated Right of Way

Pilot Project A – View of Existing Conditions for NE 4th Court (Seg. 4)

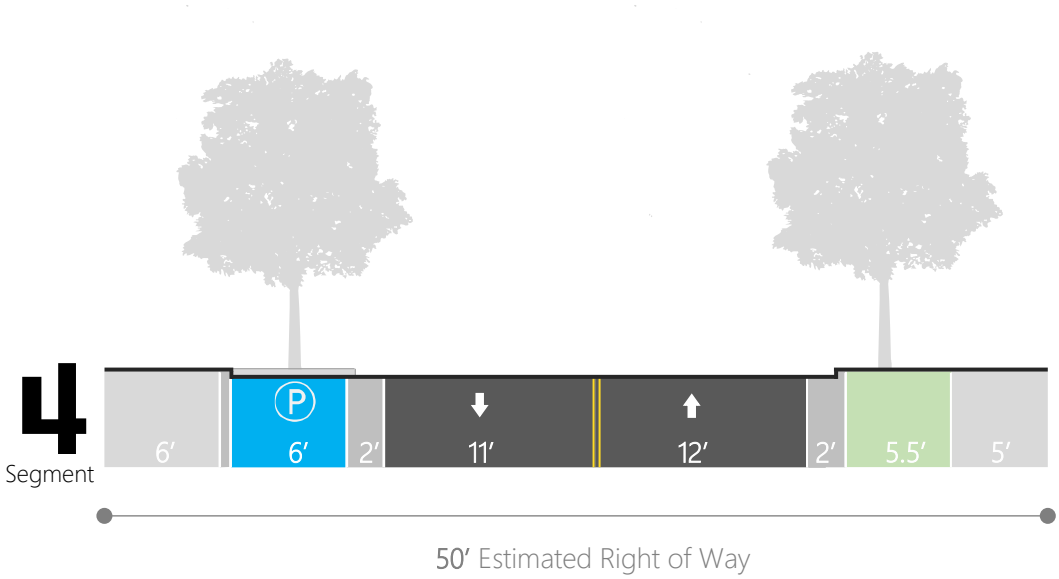
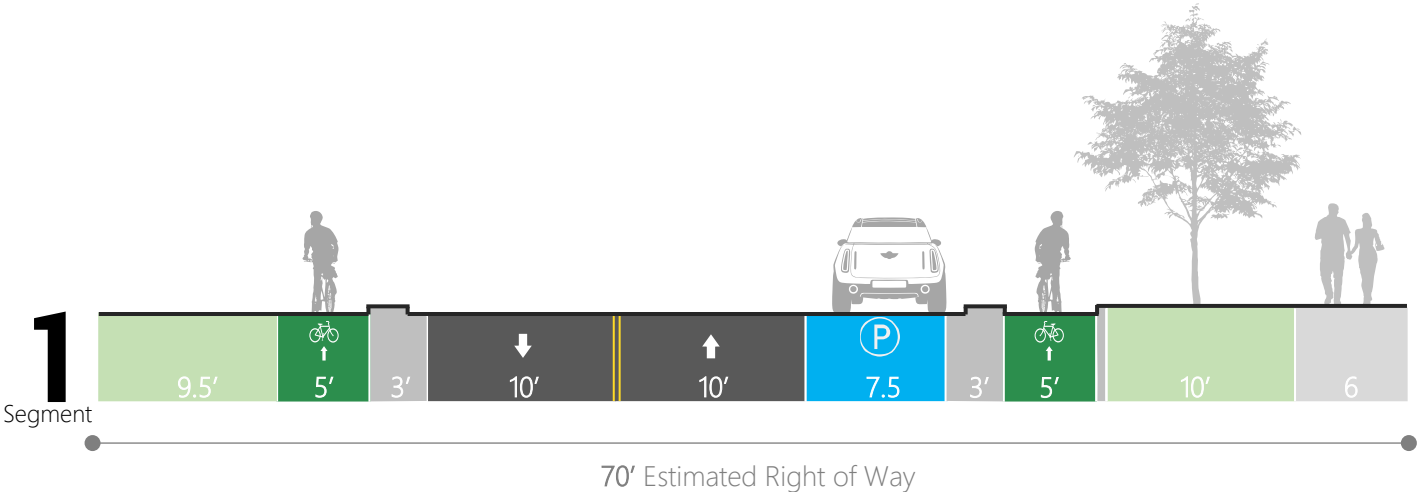


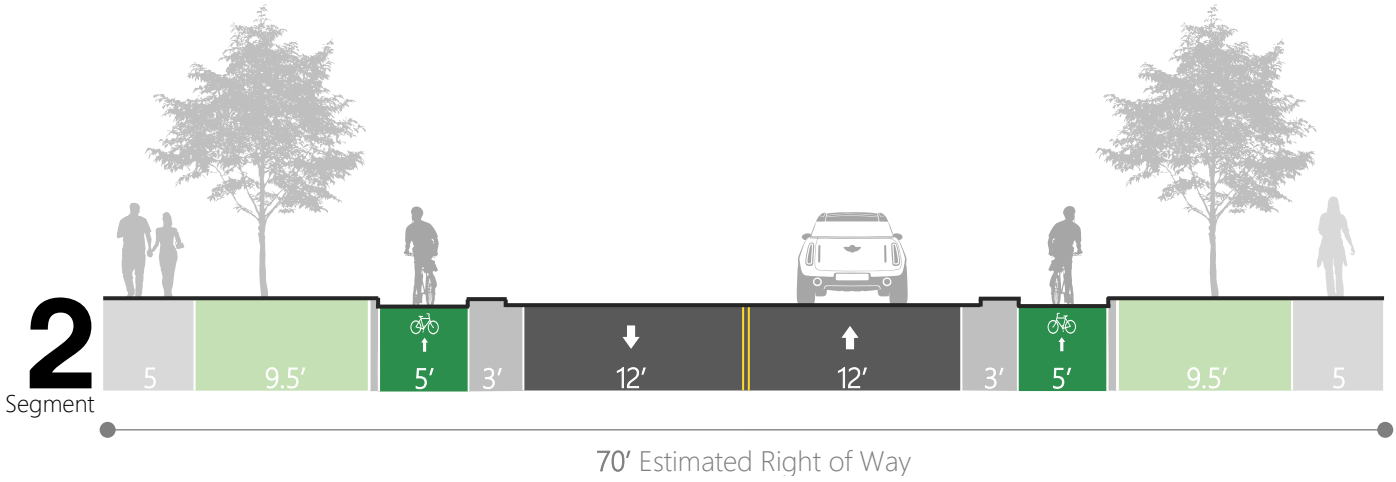
Figure 66: Pilot Project A – Existing Typical Sections

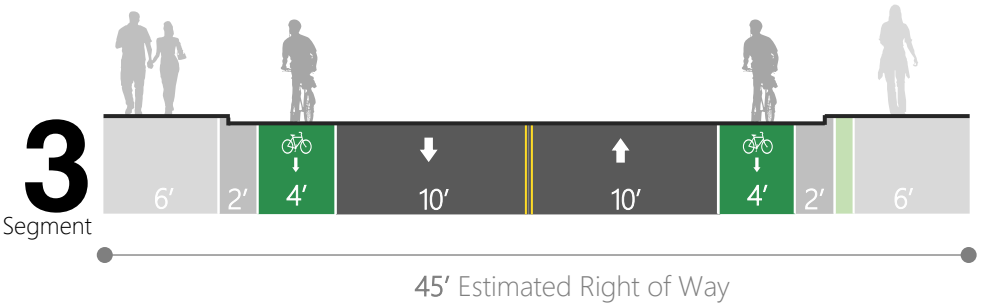
PROPOSED TYPICAL SECTIONS BY SEGMENTS

The four (4) typical sections in Figure 67 identify the proposed typical sections for the entire limits of pilot project A.

Pilot Project A – Federal Highway Rendering (Seg. 1)




2
Segment
5
9.5′
5′
3′
12′
12′
3′
5′
9.5′
5
70′ Estimated Right of Way


3
Segment
6′
2′
4′
10′
10′
4′
2′
6′
45′ Estimated Right of Way

Pilot Project A – NE 4th Court Rendering (Seg. 4)

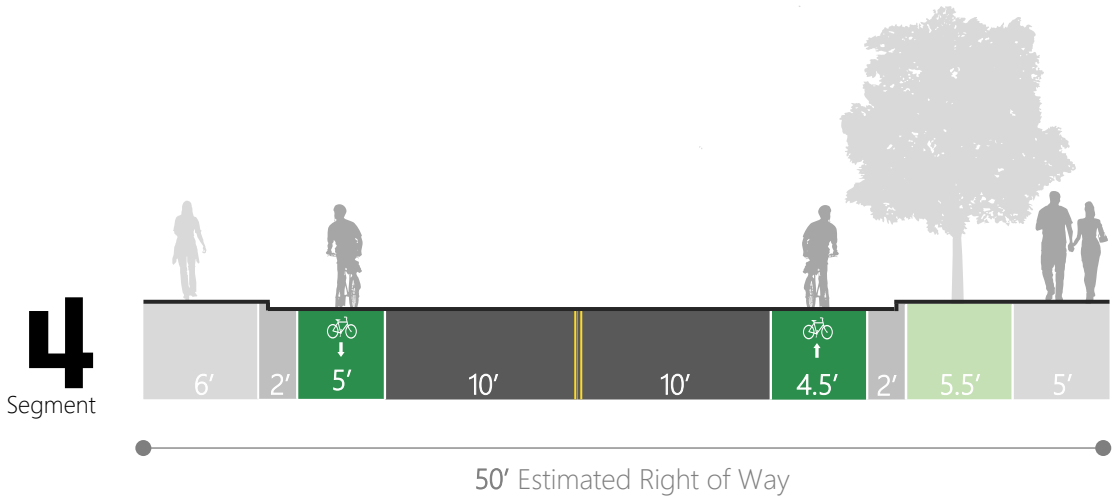


Figure 67: Pilot Project A – Proposed Typical Sections

PROJECT B – NW 20TH STREET/NW10TH AVENUE/NW 14TH STREET

Project B's primary focus is providing a connection from the "spine" to a major commuter connection, Jackson Memorial Hospital facilities and University of Miami Medical School and is shown in Figure 68. The total length of this project is 1.7 miles. The project is divided into five (5) segments that are delineated by the estimated existing ROW, to avoid ROW encroachment. Each segment provides dedicated bicycle facilities through the repurposing of travel lanes or on-street parking facilities, and/or the incorporation of road dieting, as well as roadway reconstruction. Traffic divergent studies are required to ensure consideration of stakeholder input and address parking concerns. The average AADT for the entire project is 10,900. On NW 14th Street, at SR 7/US 441/NW 7th Avenue to N Miami Avenue, existing bicycle facilities provide a connection to the "spine" of the alternative.

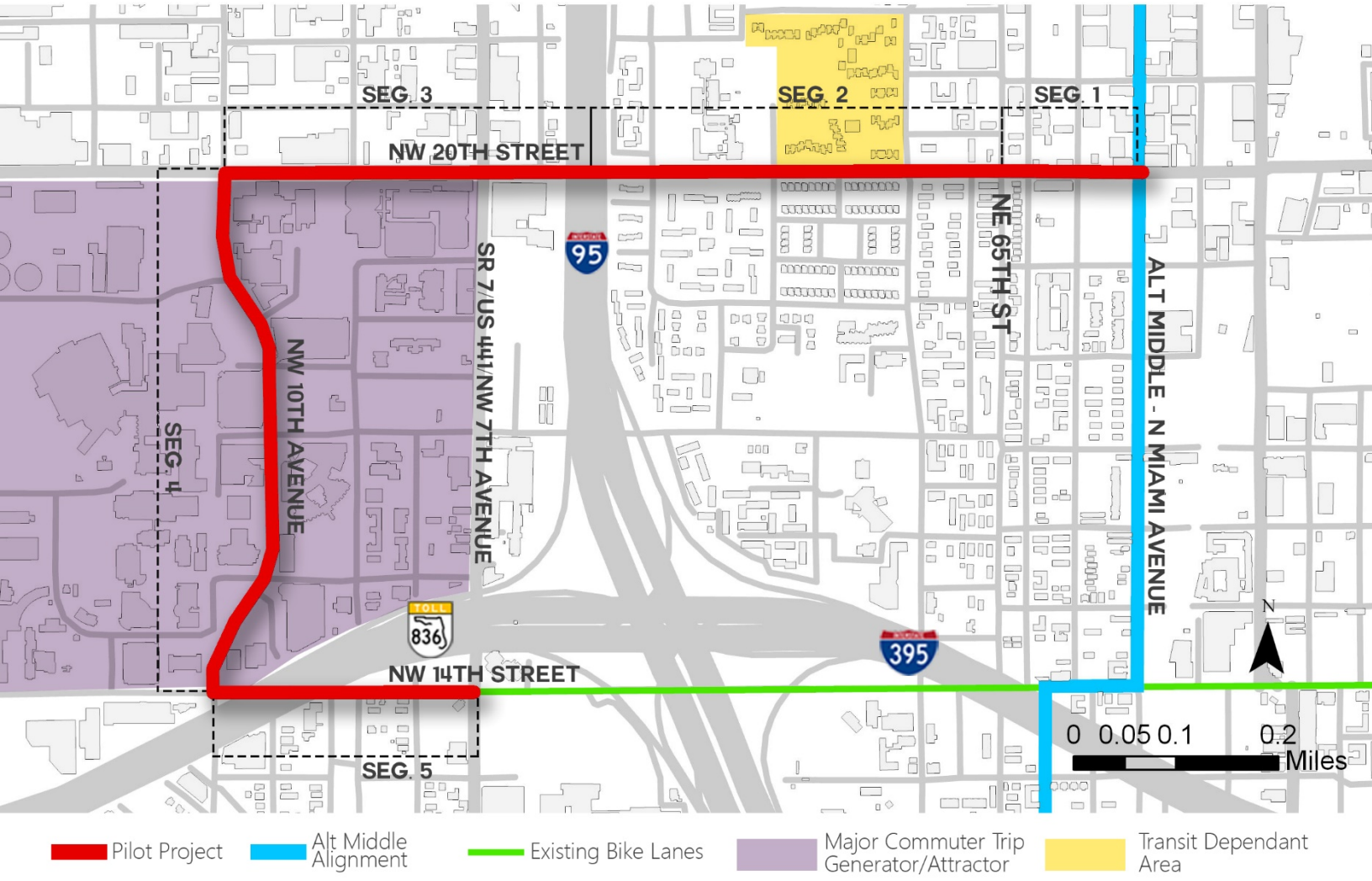
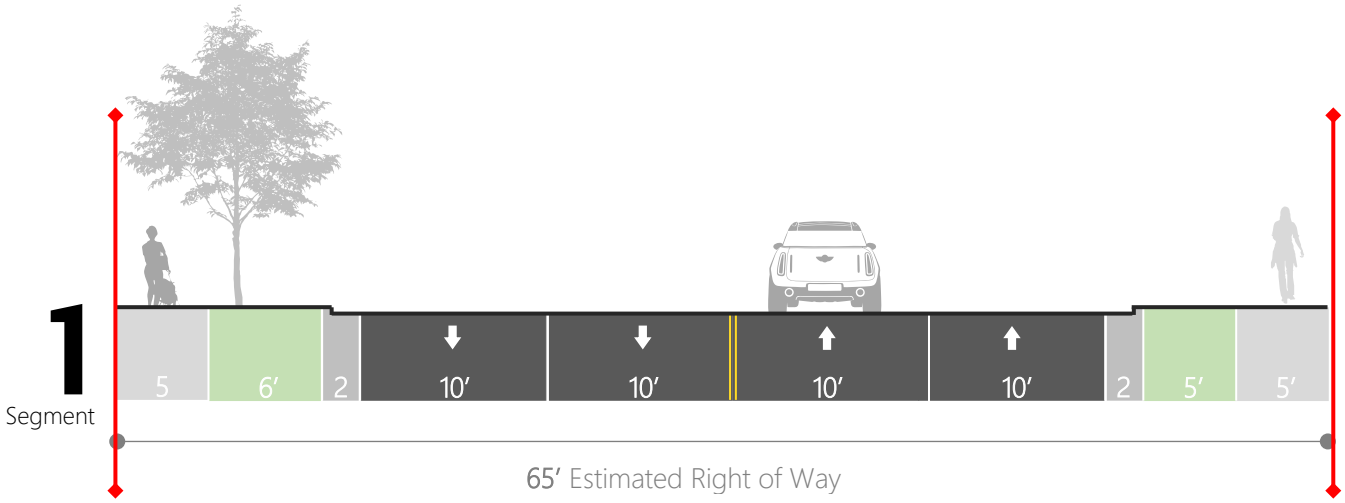
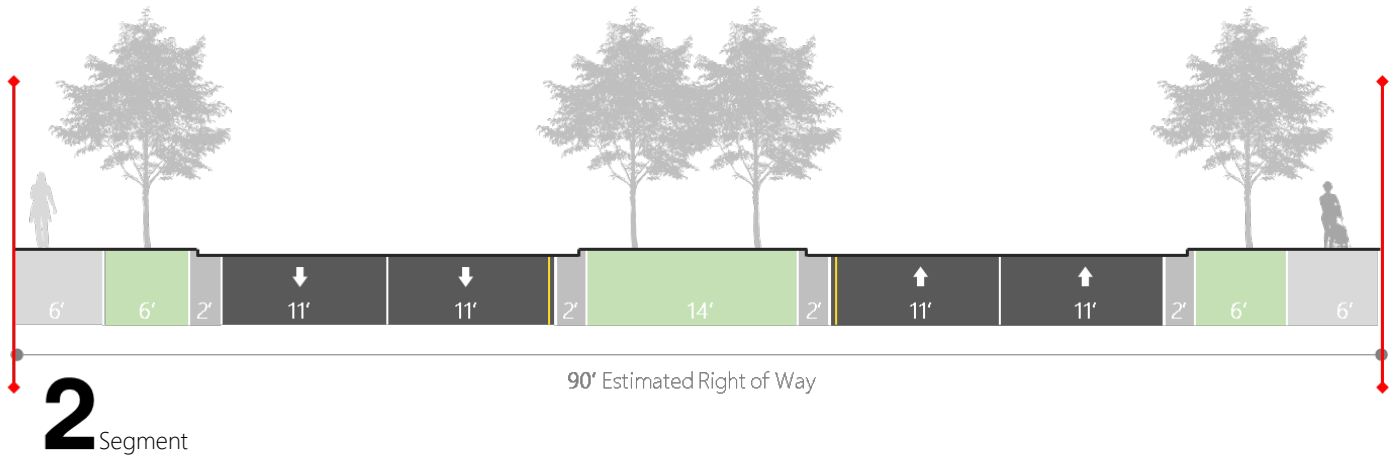


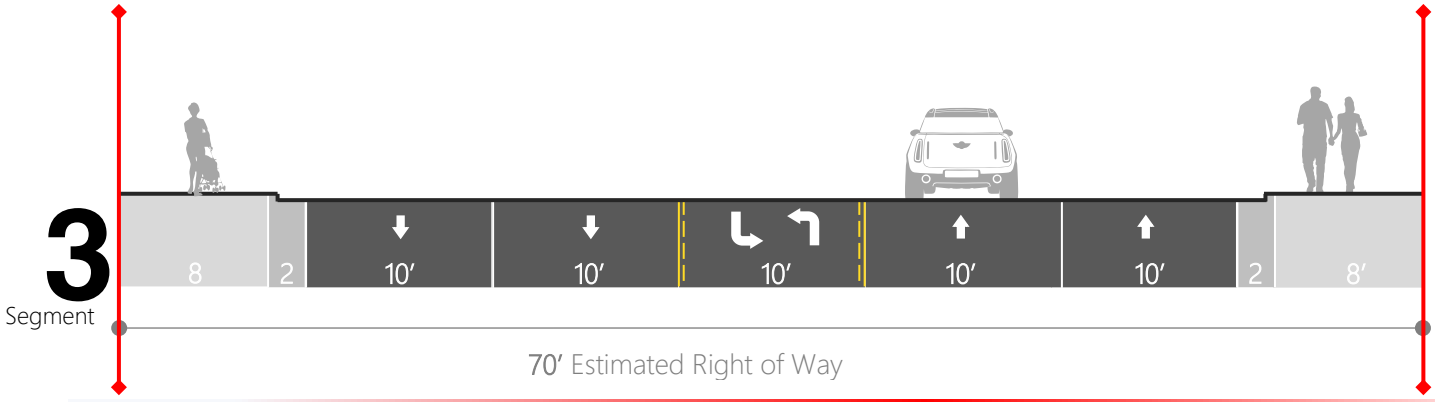
Figure 68: Pilot Project B – View of Existing Conditions for NW 9 Ave/Bob Hope Road

EXISTING TYPICAL SECTIONS BY SEGMENTS

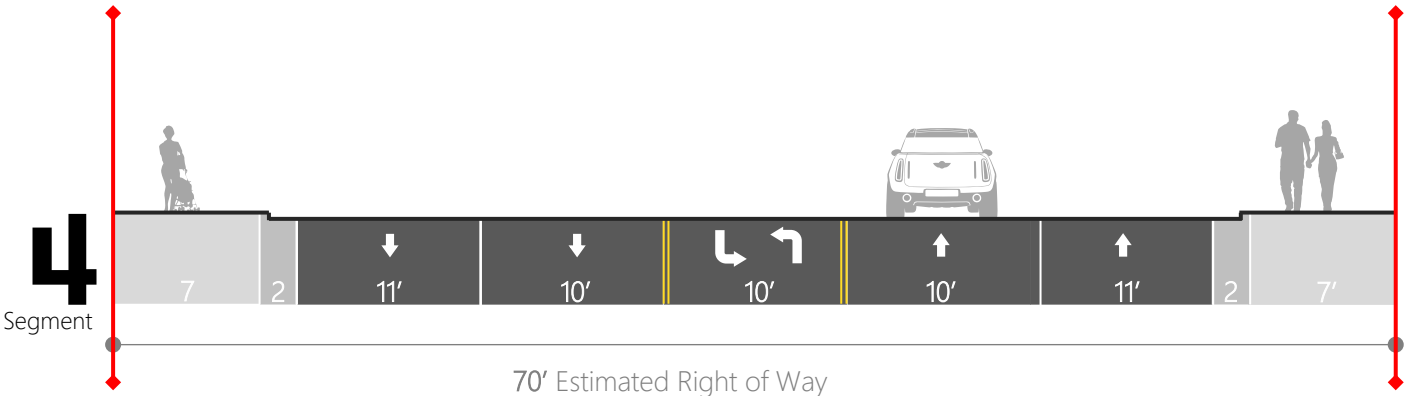
The following five (5) typical sections in Figure 69 identify the existing conditions of Pilot Project B by segment.







Pilot Project B – View of Existing Conditions for NW 9 Ave/Bob Hope Road (Seg. 4)



Pilot Project B – View of Existing Conditions for NW 14th Street (Seg. 5)

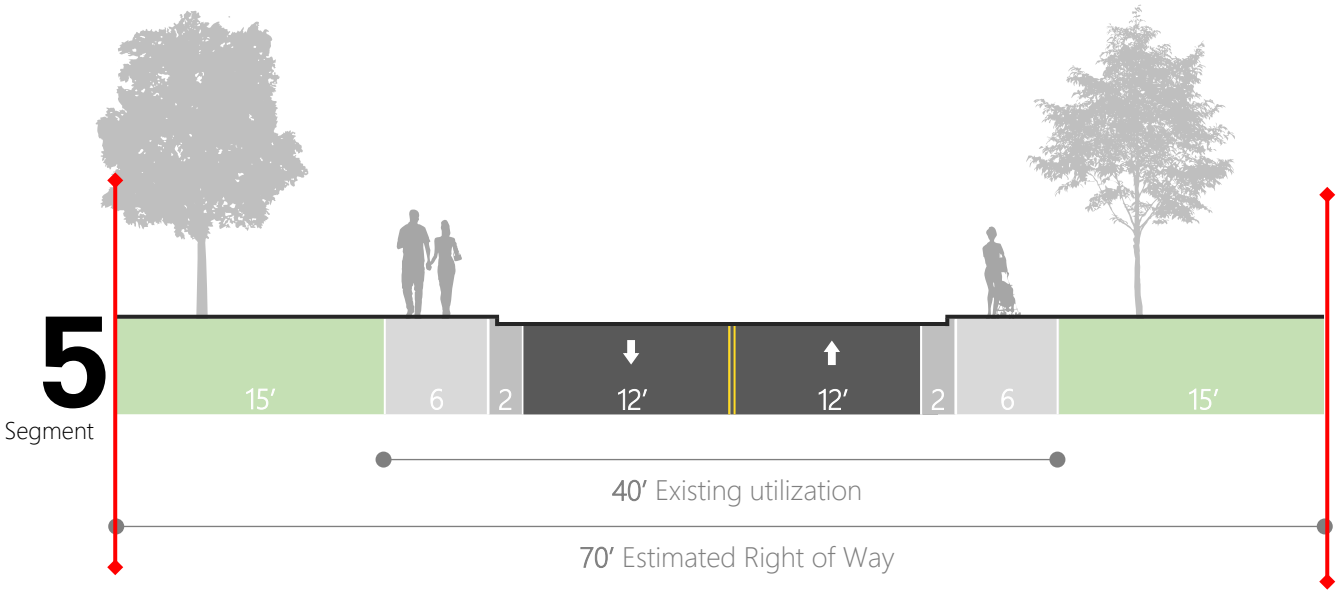
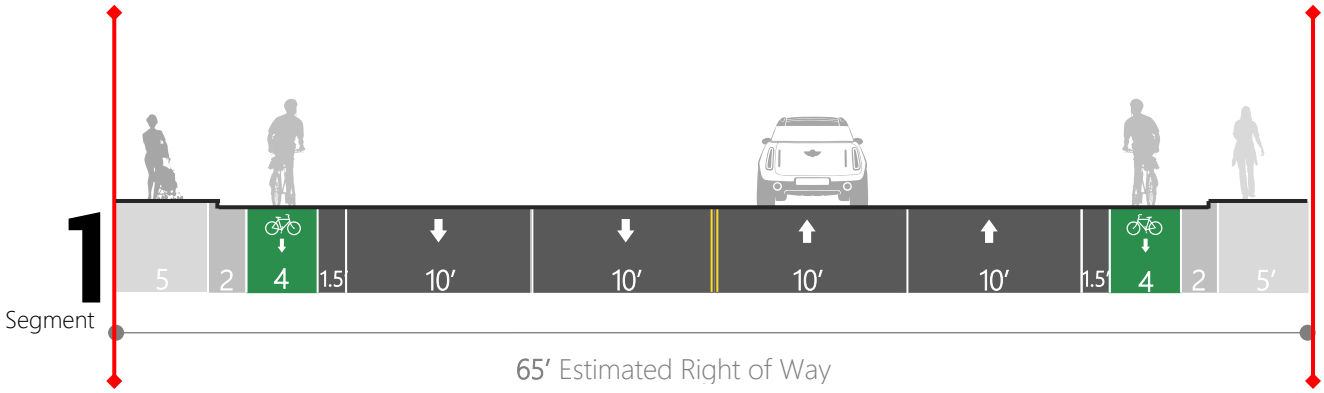
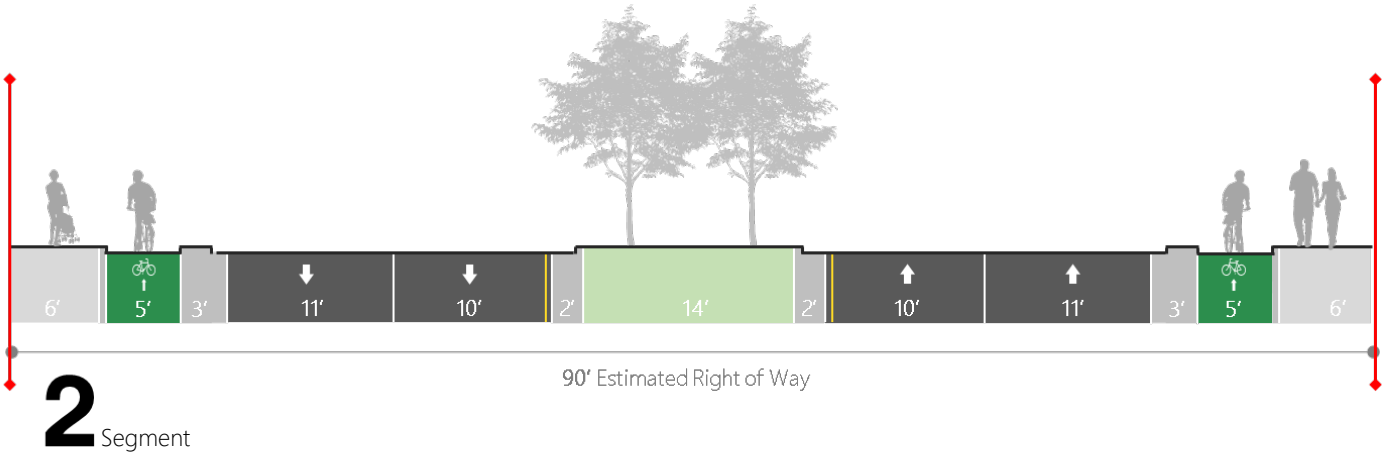


Figure 69: Pilot Project B – Existing Typical Sections

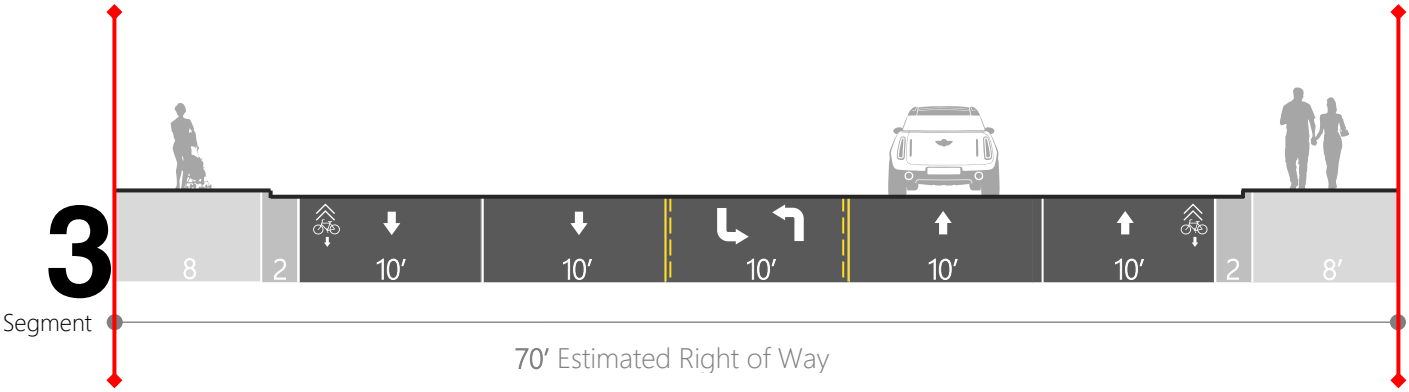
PROPOSED TYPICAL SECTIONS BY SEGMENTS

The following five (5) sections in Figure 70 identify the proposed improvements of Pilot Project B by segment.

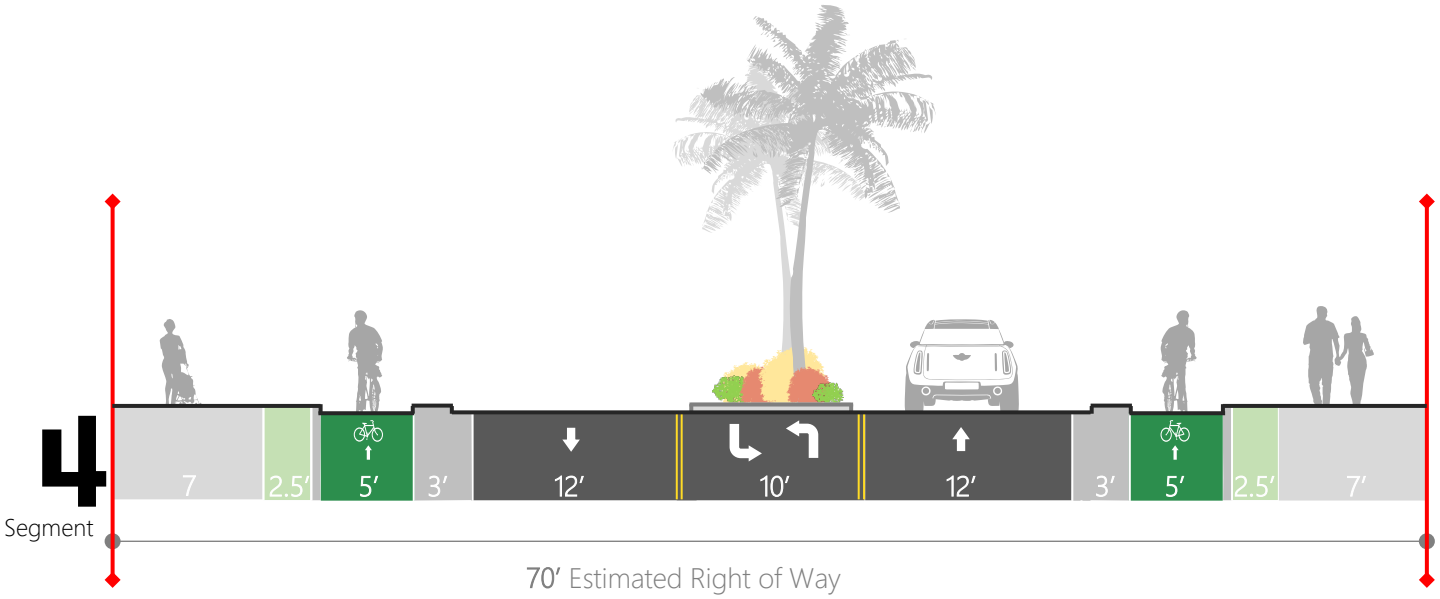




2 Segment



Pilot Project B – View of proposed improvements for NW 9 Ave/Bob Hope Road



Pilot Project B – View of proposed improvements for NW 9 Ave/Bob Hope Road

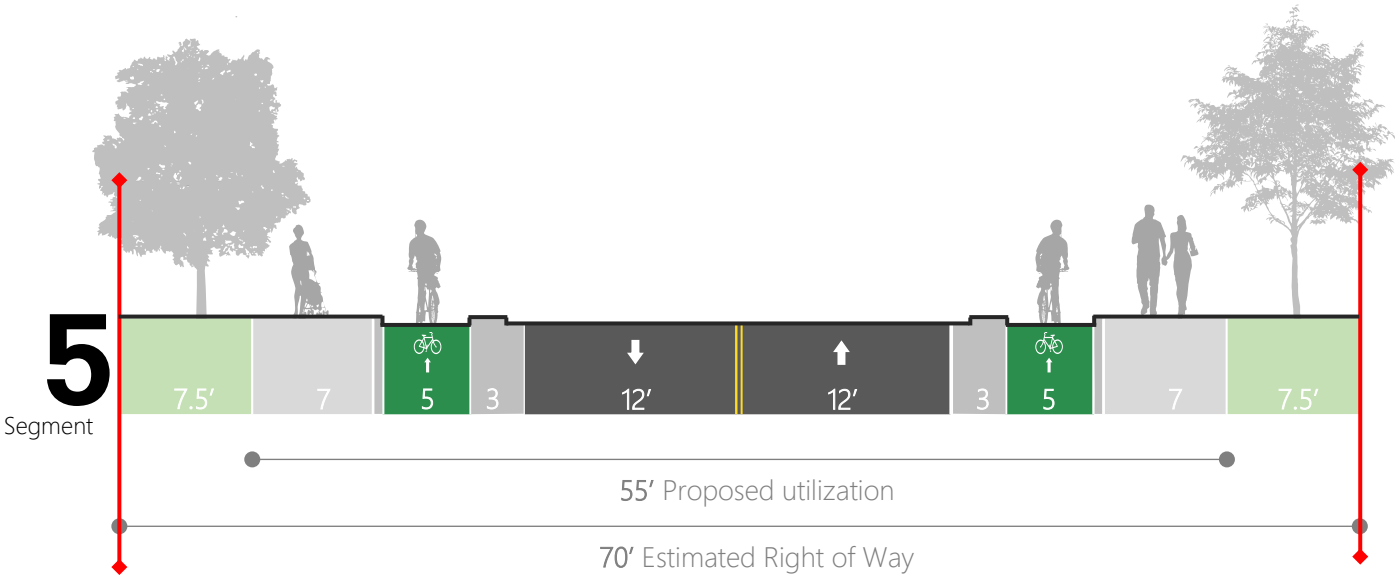


Figure 70: Pilot Project B – Proposed Typical Sections

COST ESTIMATES

Table 39 provides a preliminary cost estimate per mile for each segment of the two pilot projects. Based on the estimated total distance for each segment in combination with proposed facility widths, FDOT's Area 13 Miami Dade historical average construction costs were utilized to generate total costs. The cost per mile (rounded to the nearest hundred) was calculated based on total cost (rounded to the nearest unit) and segment length.

Itemized costs were developed based on the type of work expected to construct each proposed pilot project segment (i.e. restriping, milling/resurfacing, and/or roadway reconstruction).
Signalized/unsignalized intersection costs were incorporated where applicable. Of the total cost, 60 percent was added for:

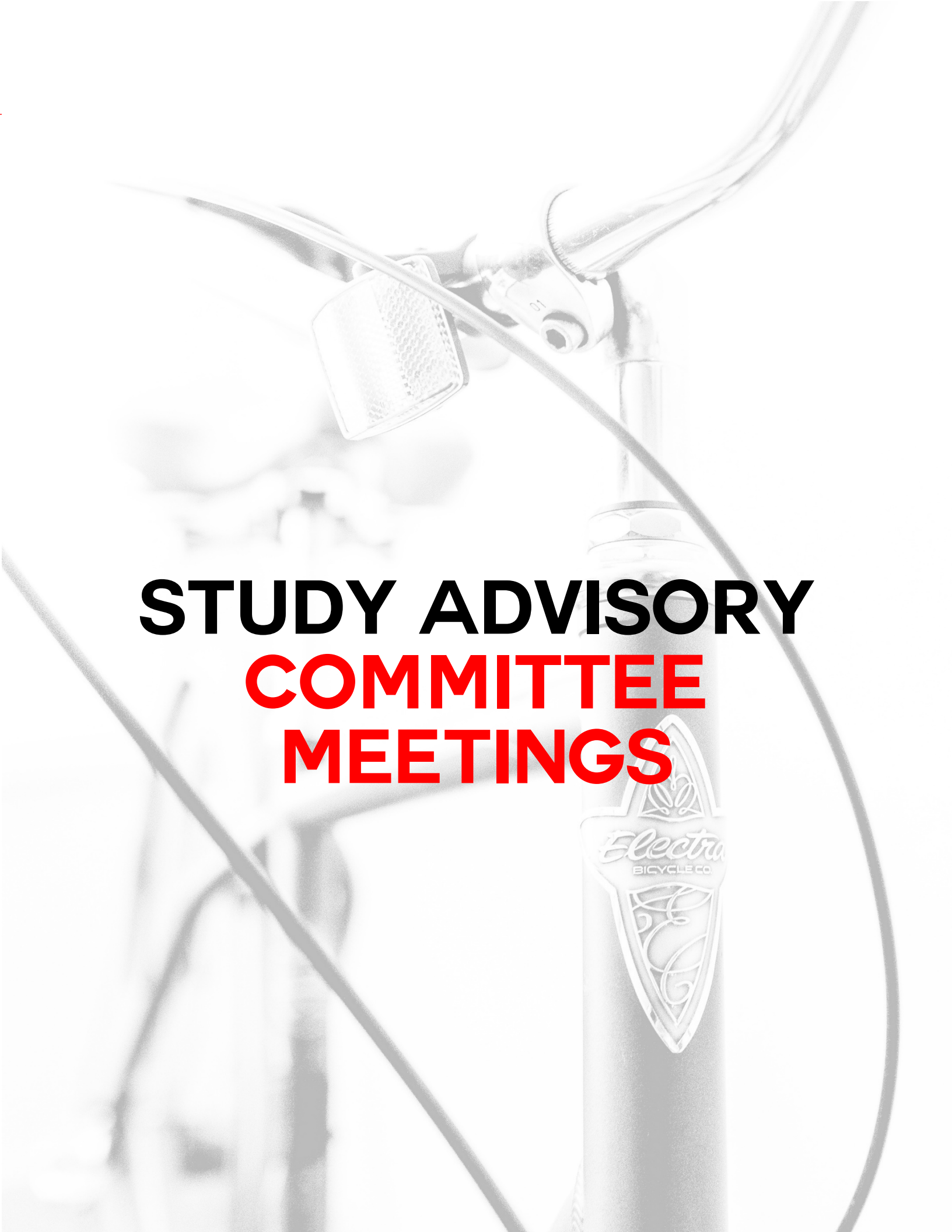
- Mobilization (10%)
- MOT (10%)
- Drainage (10%)
- Lighting (10%)
- Signalization (10%)
- Design (10%)

Twenty percent of the total cost was added for contingency. To see itemized cost breakdowns per pilot project segment, please refer to Appendix C.

Table 39: Pilot Project A & B Project Cost Estimates

Protected/Buffered Bi-Directional Bicycle Lanes- Project Area Improvements				
	PROJECT SEGMENT	**TOTAL COST (2018 $)**	**LENGTH (MILES)**	**COST PER MILE (2018 $)**
Pilot Project **A**	Segment 1	$5,993,300	1.2	$4,994,500
	Segment 2	$1,590,400	0.3	$5,301,400
	Segment 3	$1,061,600	0.3	$3,538,700
	Segment 4	$3,164,600	0.8	$3,955,800
Pilot Project **B**	Segment 1	$891,100	0.2	$4,455,500
	Segment 2	$2,381,800	0.4	$5,954,500
	Segment 3	$64,700	0.3	$215,700
	Segment 4	$2,921,000	0.5	$5,842,000
	Segment 5	$1,759,200	0.3	$5,864,000

Source: FDOT Area 13 Historic Average Construction Costs.
https://www.fdot.gov/programmanagement/Estimates/HistoricalCostInformation/HistoricalCost.shtm



STUDY ADVISORY COMMITTEE MEETINGS

MEETING SUMMARIES

Three Study Advisory Committee (SAC) meetings were held throughout this study. The SAC includes representatives from various public and private organizations throughout Miami-Dade County, and their role is to provide feedback, review and comment on project deliverables.

JUNE 21, 2018

The first meeting was held on June 21, 2018. At this meeting, the Study Team reviewed the scope of work, the project schedule, background information for the project, design setbacks, ROW/implementation, and next steps. The first phase of the study was identified as ROW availability, which involved identifying if there was sufficient ROW along the Northeast Corridor to locate a multi-use trail. To identify encroachment, 2018 Miami-Dade County Open Source Parcel data was used to identify potential locations of encroachment. Google Earth High Resolution Satellite Imagery was used to extrapolate updated Double-Tracked Florida East Coast rail centerlines. While Miami-Dade County aerials were available, currently, Google Earth provides the most up to date images of the Study Area. No fatal flaws were identified, just challenges, such as the potential need to locate the trail outside of the FEC ROW in some areas.

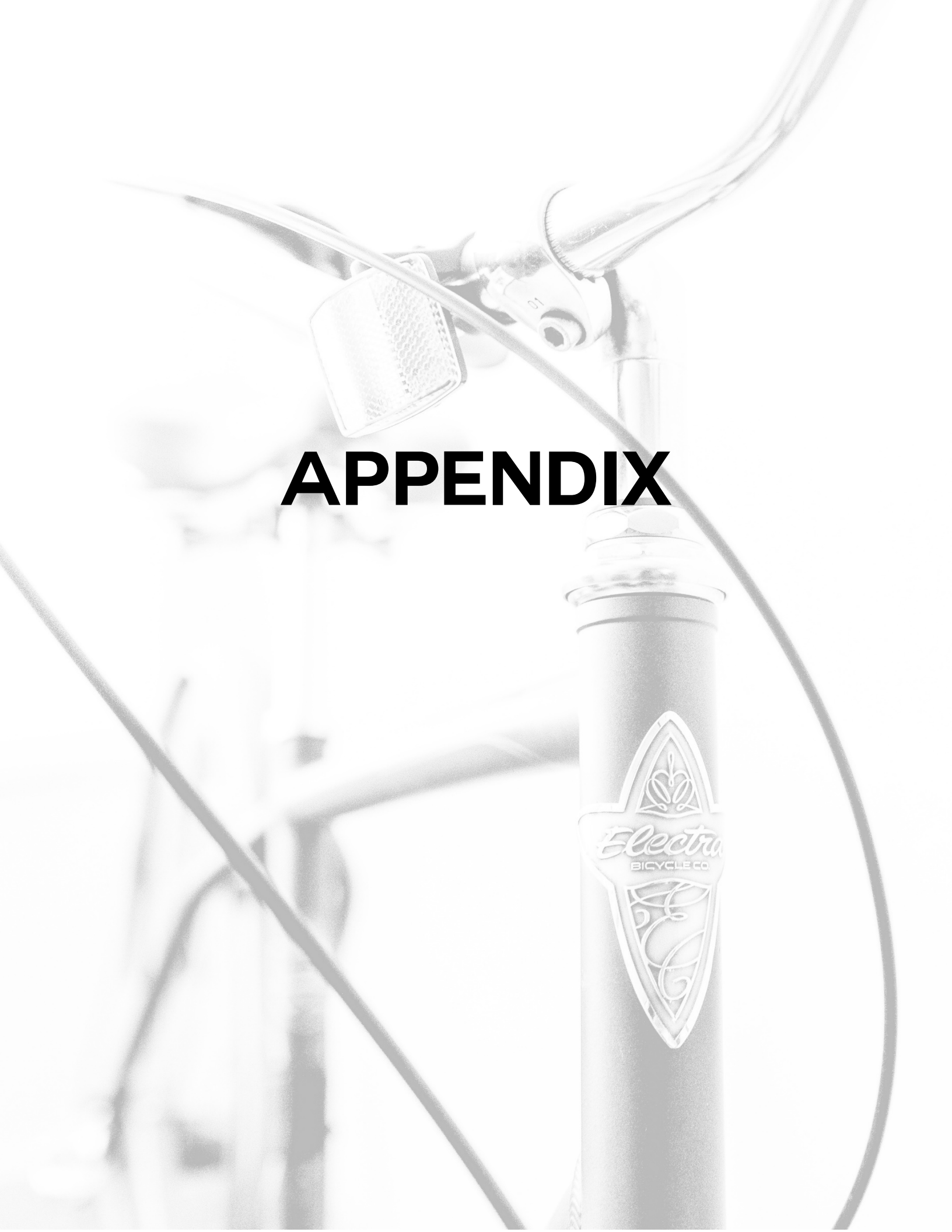
The second phase of the project was identified as the development of the Flagler Trail Northeast Non-Motorized Network Master Plan. During this meeting, the Study Team reviewed available ROW and identified next steps to the study... Background information explored at the meeting include: Study Area context, Literature Review, Existing Conditions, and Crash Locations. It was noted that no design parameters currently exist at the national level for trails. Participants provided feedback and input and were thanked for their participation. Their comments were considered as alternatives were developed and potential pilot project(s) were identified.

NOVEMBER 29, 2018

The second SAC meeting was held on November 29, 2018. At this meeting, the Study Team updated the SAC on the status of the project. Throughout the study, the scope of the project changed, and the Florida East Coast Rail Industries decided not to locate a trail in their ROW. The study continued with a new goal of locating a trail outside of the FEC ROW. At this meeting, three alignment alternatives were presented to the committee for review. These alternatives provide a non-motorized connection from downtown Miami north to the Broward County line, with a focus on providing connectivity to: High Job Sectors, Educational Facilities, Recreational Facilities, and Medical Facilities. The alternatives traverse through various context classifications, including urban general, industrial, emerging urban communities, and urban core. After providing an overview of the alternatives, the Study Team reviewed next steps. These included: identifying a preferred alternative, examination of typical sections, and scheduling of the third SAC meeting.

DECEMBER 20, 2018

The third SAC meeting was held on December 20, 2018. At this meeting, the Study Team discussed the alignment alternatives, their existing typical sections, and the proposed typical sections. The goals of the alignments were identified. They are: to provide a north-south spine for non-motorized trips, to provide connections to the six transit stations within the study area, to seek a network of first mile/last mile connections for non-motorized travel, and to avoid crossing the FEC railroad with any proposed alignment. At the meeting, Alternative Middle was selected as the preferred alignment alternative. Additionally, network connections were presented for each of the alternatives. These network connections were identified with the goal of improving first/last mile connectivity to the alternatives. Two proposed pilot projects were presented to the SAC for their feedback and input, and the feedback received was incorporated into the final report. Finally, next steps were presented that include the refining of proposed typical sections, further development of the non-motorized network connections, and development of per mile cost estimates.



APPENDIX

APPENDIX A
CRASH ANALYSIS

Pedestrian and Bicycle Crashes:

A total of 615 pedestrian and 307 bicycle crashes were reported during the five-year analysis period (2010-2014). These crashes resulted in a total of 24 pedestrian fatal crashes and three (3) bicycle fatal crashes. The locations with the higher concentration of pedestrian and bicycle crashes are as follows:

1. SR 5/Biscayne Boulevard from NE 5 Street to N. of NE 213 Street with 96 pedestrian crashes and 57 bicycle crashes.
2. SR 7/US 441 from SW 4 Street to NW 119 Street with 26 pedestrian and 12 bicycle crashes
3. SR 909/West Dixie Highway from Griffin Blvd to NE 161 Street with 25 pedestrian and 8 bicycle crashes
4. SR 915/NE 6 Avenue from NE 106 Street to NE 149 Street with 21 pedestrian and 7 bicycle crashes
5. SR 922/NE 125 Street from NE 4 Avenue to NE 14 Avenue with 19 pedestrian and 7 bicycle crashes
6. SR 826/NE 163 Street from NE 14 Avenue to NE 26 Avenue with 21 pedestrian and 4 bicycle crashes

Table 1 summarizes pedestrian and bicycle crashes reported along each of the segments part of the study area.

Table 1: Pedestrian and Bicycle Crashes

Roadway Name	Pedestrian Crashes	Bicycle Crashes	Total (P+B)	Observations
Off-System Roads (Signal 4 crashes)	298	172	470	7 pedestrian fatals in 2010, 2 pedestrian fatals in 2011, 1 pedestrian fatal in 2012, 2 pedestrian fatals in 2013, and 5 pedestrian fatals in 2014
SR 112/I-195 from N. Miami Avenue to Biscayne Boulevard	3		3	2 pedestrian fatals in 2013
SR 25? NW 36 Street from NE 10 Avenue to Biscayne Boulevard	9	3	12	1 pedestrian fatal in 2011
SR 5/Biscayne Boulevard from NE 5 Street to N. of NE 213 Street	96	57	153	1 pedestrian fatal in 2010 and 2011, 2 pedestrian fatals in 2014, and bike fatal in 2010
SR 7/US 441 from SW 4 Street to NW 119 Street	26	12	38	1 pedestrian fatal in 2012
SR 826/NE 163 Street from NE 14 Avenue to NE 26 Avenue	21	4	25	1 pedestrian fatal in 2011 and 2014
SR 836/I-395 at Biscayne Boulevard	2		2	1 pedestrian fatal in 2010
SR 854/Ives Dairy Road at 26 Avenue	1		1	
SR 856/William Lehman Causeway from Biscayne Blvd to W County Club Dr	3	1	4	1 pedestrian fatal in 2013
SR 860/Miami Gardens Drive from NE 18 Avenue to Biscayne Boulevard	11	7	18	1 pedestrian fatal in 2011
SR 9/NW 27 Avenue at 95 Street	1		1	1 pedestrian fatal in 2013
SR 90/SW 8 Street from Brickell Avenue to S. Miami Avenue	11	2	13	
SR 909/West Dixie Highway from Griffin Blvd to NE 161 Street	25	8	33	1 bike fatal in 2010
SR 915/NE 6 Avenue from NE 106 Street to NE 149 Street	21	7	28	
SR 916/NE 135 Street	7	6	13	
SR 922/NE 125 Street from NE 4 Avenue to NE 14 Avenue	19	7	26	
SR 924/NE 119 Street from SR 7 to W 6 Avenue	6	2	8	
SR 932/NE 103 Street from NE 7 Avenue to NE 5 Avenue	6		6	
SR 934/NE 79 Street from Biscayne Blvd to NE 4 Court	36	9	45	1 pedestrian fatal in 2010, 3 pedestrian fatals in 2012, 4 pedestrian fatals in 2013, and 1 pedestrian fatal in 2014
SR 968/Flagler Street from NW 7 Avenue to W 6 Avenue and from SR 7 to SW 6 Avenue	6	9	15	1 pedestrian fatal in 2010 and 1 bike fatal in 2014
SR A1A/Federal Highway at NE 171 Block and at NE 54 Street	7	1	8	
Totals	**615**	**307**	**922**	

CRASH STATISTICS

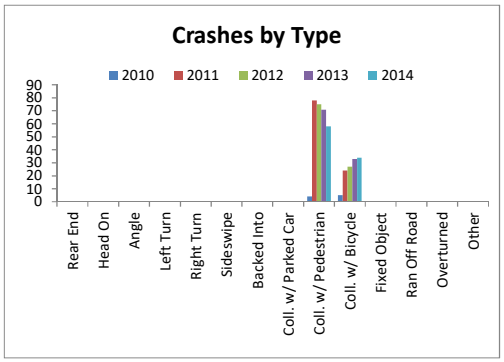
Flagler Trail Pedestrian and Bicycle Crashes		Number of Crashes Year					5 Year Total Crashes	Mean Crashes Per Year	%
		2010	2011	2012	2013	2014			
CRASH TYPE	Rear End	0	0	0	0	0	0	0.00	0.0%
	Head On	0	0	0	0	0	0	0.00	0.0%
	Angle	0	0	0	0	0	0	0.00	0.0%
	Left Turn	0	0	0	0	0	0	0.00	0.0%
	Right Turn	0	0	0	0	0	0	0.00	0.0%
	Sideswipe	0	0	0	0	0	0	0.00	0.0%
	Backed Into	0	0	0	0	0	0	0.00	0.0%
	Coll. w/ Parked Car	0	0	0	0	0	0	0.00	0.0%
	Coll. w/ Pedestrian	4	78	75	71	58	286	57.20	69.9%
	Coll. w/ Bicycle	5	24	27	33	34	123	24.60	30.1%
	Fixed Object	0	0	0	0	0	0	0.00	0.0%
	Ran Off Road	0	0	0	0	0	0	0.00	0.0%
	Overturned	0	0	0	0	0	0	0.00	0.0%
	Other	0	0	0	0	0	0	0.00	0.0%
	Total Crashes	**9**	**102**	**102**	**104**	**92**	**409**	**81.80**	**100.0%**
SEVERITY	PDO Crashes	2	16	14	17	12	61	12.20	14.9%
	Fatal Crashes	2	5	4	5	5	21	4.20	5.1%
	Injury Crashes	5	81	84	82	75	327	65.40	80.0%
LIGHTING CONDITIONS	Daylight	6	61	70	61	58	256	51.20	62.6%
	Dusk	1	3	0	1	3	8	1.60	2.0%
	Dawn	0	2	3	4	2	11	2.20	2.7%
	Dark	1	36	27	38	29	131	26.20	32.0%
	Unknown	1	0	2	0	0	3	0.60	0.7%
SURFACE CONDITIONS	Dry	9	91	86	95	82	363	72.60	88.8%
	Wet	0	11	15	8	10	44	8.80	10.8%
	Others	0	0	1	1	0	2	0.40	0.5%
MONTH OF YEAR	January	0	11	9	13	12	45	9.00	11.0%
	February	1	8	8	14	10	41	8.20	10.0%
	March	0	7	12	13	6	38	7.60	9.3%
	April	0	8	7	7	9	31	6.20	7.6%
	May	0	8	10	9	10	37	7.40	9.0%
	June	1	6	8	4	4	23	4.60	5.6%
	July	1	4	12	13	7	37	7.40	9.0%
	August	2	8	8	7	6	31	6.20	7.6%
	September	1	10	3	6	7	27	5.40	6.6%
	October	1	9	10	6	3	29	5.80	7.1%
	November	0	11	6	4	6	27	5.40	6.6%
	December	2	12	9	8	12	43	8.60	10.5%
DAY OF WEEK	Sunday	0	11	9	16	11	47	9.40	11.5%
	Monday	2	20	12	14	11	59	11.80	14.4%
	Tuesday	2	16	20	14	14	66	13.20	16.1%
	Wednesday	4	8	18	20	12	62	12.40	15.2%
	Thursday	1	18	20	21	24	84	16.80	20.5%
	Friday	0	10	11	10	13	44	8.80	10.8%
	Saturday	0	19	12	9	7	47	9.40	11.5%
HOUR OF DAY	00:00-06:00	1	14	10	6	2	33	6.60	8.1%
	06:00-09:00	1	7	12	10	6	36	7.20	8.8%
	09:00-11:00	0	10	10	3	12	35	7.00	8.6%
	11:00-13:00	3	7	6	12	7	35	7.00	8.6%
	13:00-15:00	2	19	15	8	4	48	9.60	11.7%
	15:00-18:00	1	13	25	26	20	85	17.00	20.8%
	18:00-24:00	1	32	24	39	41	137	27.40	33.5%

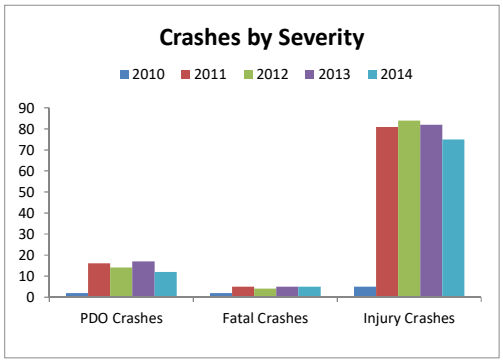
Notes:

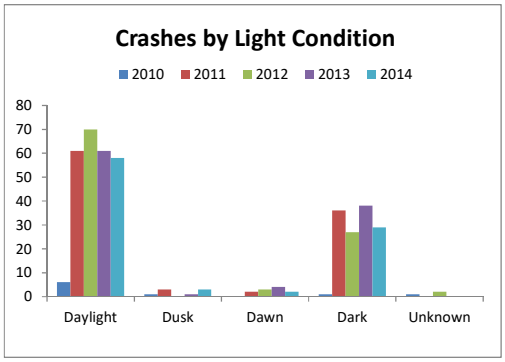
1) Collision with Bicycle Crashes include Collision with Bicycle/Collision with Bicycle in Bike Lane (Codes 11 and 12).
2) Fixed Object Crashes include collisions with sign/sign post, utility/light pole, guardrail, fence, concrete barrier wall, bridge, pier, abutment, rail, tree, shrubbery, construction barricade/sign, traffic gate, crash attenuators, other fixed objects (incl. above road).
3) Ran-off-Road Crashes include Ran in Ditch/Culvert and Ran off road into water (Codes 29 and 30).
4) Other crashes include crashes not categorized as the crash types shown in the table.
5) Dark Crashes include both scenarios - with and without street lighting.

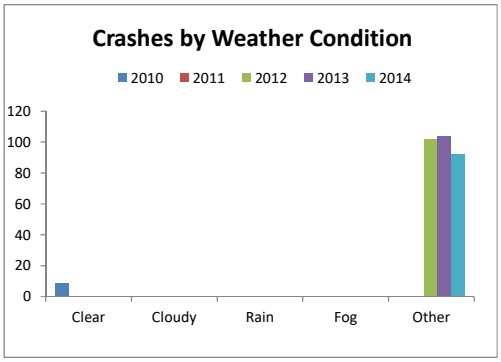
CRASH HISTOGRAMS

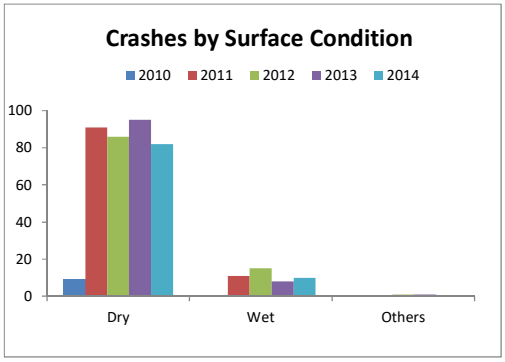
Flagler Trail Pedestrian and Bicycle Crashes

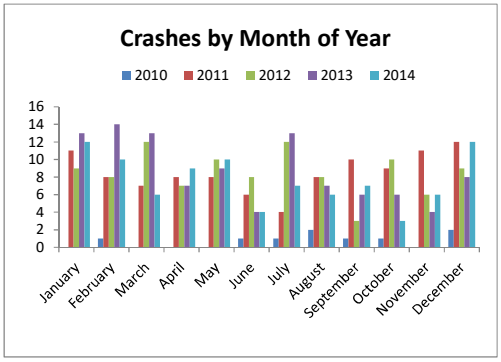


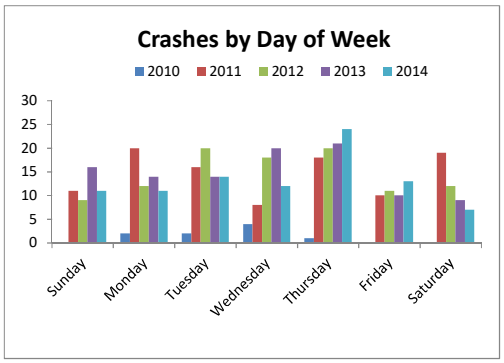


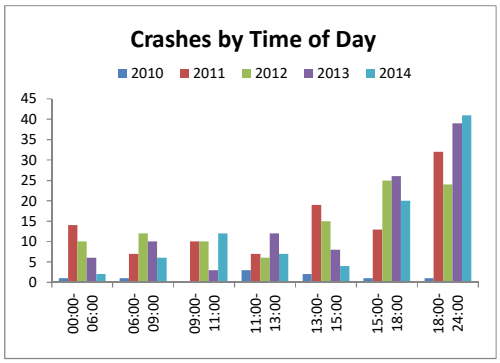












FLORIDA DEPARTMENT OF TRANSPORTATION
CRASH SUMMARY

SECTION: 0 STATE ROUTE: **Flagler Trail Pedestrian and Bicycle Crashes**

ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: 0

STUDY PERIOD: FROM 1/ 10 TO 12/ 10 COUNTY: **Miami-Dade**

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURY	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE
1	11.383	12/15/10	Wed	1300	Coll. W/ Bicycle	1	0	0	Unknown	Dry	#N/A
2	11.383	10/05/10	Tue	2000	Coll. W/ Bicycle (Bike Lane)	0	0	1	Night	Dry	Failed To Yield Right-Of-Way
3	2.343	08/25/10	Wed	0500	Coll. W/ Pedestrian	0	1	0	Night	Dry	Unknown/Not Coded
4	1.063	06/30/10	Wed	1100	Coll. W/ Pedestrian	0	1	0	Day	Dry	Unknown/Not Coded
5	1.231	02/18/10	Thu	1300	Coll. W/ Pedestrian	0	0	1	Day	Dry	Unknown/Not Coded
6	1.655	07/13/10	Tue	1200	Coll. W/ Bicycle	0	1	0	Day	Dry	Careless Driving
7	2.019	09/27/10	Mon	0800	Coll. W/ Bicycle	0	1	0	Day	Dry	No Improper Driving/Act
8	2.019	12/20/10	Mon	1600	Coll. W/ Pedestrian	0	1	0	Day	Dry	Failed To Yield Right-Of-Way
9	2.663	08/18/10	Wed	1200	Coll. W/ Bicycle	1	0	0	Day	Dry	Unknown/Not Coded

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 0 STATE ROUTE: Flagler Trail Pedestrian and Bicycle Crashes

ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: FDOT D6

STUDY PERIOD: FROM 1/ 2011 TO 12/ 2011 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	10.230	01/12/11	Wed	1730	Pedestrian	0	1	0	Day	Dry	No Contributing Action
2	10.251	08/17/11	Wed	1322	Pedalcycle	0	1	0	Day	Dry	Other Contributing Action
3	8.181	07/04/11	Mon	2243	Pedestrian	1	0	0	Night	Dry	No Contributing Action
4	8.185	10/07/11	Fri	1320	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
5	8.297	11/22/11	Tue	1915	Pedestrian	0	1	0	Night	Dry	No Contributing Action
6	8.316	08/31/11	Wed	1020	Pedalcycle	0	1	0	Day	Dry	Other Contributing Action
7	8.721	10/07/11	Fri	2321	Pedestrian	0	0	1	Night	Wet	#N/A
8	9.214	03/14/11	Mon	1849	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
9	9.311	12/19/11	Mon	1541	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
10	10.537	09/12/11	Mon	1515	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
11	10.901	12/13/11	Tue	1218	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner
12	10.956	06/03/11	Fri	0400	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
13	11.024	11/20/11	Sun	1828	Pedestrian	0	1	0	Night	Wet	No Contributing Action
14	11.158	08/28/11	Sun	1450	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner
15	11.701	11/29/11	Tue	1219	Pedestrian	0	1	0	Day	Dry	Improper Backing
16	11.939	11/05/11	Sat	1042	Pedestrian	0	1	0	Day	Dry	No Contributing Action
17	12.088	08/06/11	Sat	0120	Pedestrian	0	1	0	Night	Dry	Careless or Negligent Manner
18	12.682	04/24/11	Sun	0235	Pedalcycle	0	1	0	Night	Dry	No Contributing Action
19	12.804	12/11/11	Sun	1330	Pedestrian	0	0	1	Day	Dry	No Contributing Action
20	12.853	11/25/11	Fri	2130	Pedestrian	0	0	1	Night	Dry	Other Contributing Action
21	13.229	07/08/11	Fri	1845	Pedestrian	0	1	0	Day	Dry	No Contributing Action
22	13.466	12/10/11	Sat	0040	Pedestrian	0	1	0	Night	Wet	No Contributing Action
23	13.480	08/09/11	Tue	1610	Pedestrian	0	1	0	Day	Wet	Ran Red Light
24	13.508	09/29/11	Thu	1255	Pedestrian	0	0	1	Day	Dry	No Contributing Action
25	15.141	05/19/11	Thu	1730	Pedestrian	0	4	0	Day	Dry	No Contributing Action
26	16.200	09/16/11	Fri	1000	Pedestrian	0	1	0	Day	Dry	#N/A
27	16.253	08/08/11	Mon	0700	Pedestrian	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
28	16.492	09/02/11	Fri	1412	Pedestrian	0	1	0	Day	Wet	Failed to Yield Right-Of-Way
29	20.094	04/09/11	Sat	0435	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
30	20.460	02/18/11	Fri	1907	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
31	20.465	02/28/11	Mon	0751	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
32	20.500	04/26/11	Tue	2051	Pedalcycle	0	1	0	Night	Dry	Other Contributing Action
33	20.986	01/04/11	Tue	1333	Pedestrian	0	1	0	Day	Dry	#N/A
34	21.208	02/15/11	Tue	1029	Pedalcycle	0	1	0	Day	Dry	Other Contributing Action
35	21.938	10/11/11	Tue	0105	Pedestrian	0	1	0	Night	Dry	No Contributing Action
36	22.711	04/17/11	Sun	1416	Pedestrian	0	1	0	Night	Dry	#N/A
37	22.758	02/25/11	Fri	0310	Pedestrian	1	0	0	Night	Dry	Other Contributing Action
38	23.234	04/06/11	Wed	1137	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
39	23.493	06/26/11	Sun	2135	Pedestrian	0	1	0	Night	Wet	No Contributing Action
40	23.641	05/08/11	Sun	1425	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
41	23.783	07/02/11	Sat	1412	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
42	23.925	02/23/11	Wed	2022	Pedalcycle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
43	25.030	09/04/11	Sun	1844	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
44	2.337	08/09/11	Tue	1630	Pedestrian	0	1	0	Day	Wet	No Contributing Action
45	3.100	05/17/11	Tue	1601	Pedestrian	0	1	0	Day	Dry	No Contributing Action
46	3.477	01/03/11	Mon	0640	Pedestrian	0	1	0	Night	Dry	#N/A
47	3.695	01/27/11	Thu	1855	Pedestrian	0	1	0	Night	Dry	No Contributing Action
48	3.721	09/30/11	Fri	1413	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
49	3.778	03/30/11	Wed	0000	Pedalcycle	0	0	1	Day	Dry	Improper Backing
50	3.847	02/01/11	Tue	1242	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
51	3.847	01/14/11	Fri	2230	Pedalcycle	0	0	1	Night	Dry	Other Contributing Action
52	2.049	05/31/11	Tue	1855	Pedestrian	0	1	0	Day	Dry	No Contributing Action
53	2.237	11/01/11	Tue	1909	Pedalcycle	0	1	0	Night	Dry	Other Contributing Action
54	0.504	05/11/11	Wed	1353	Pedalcycle	0	0	1	Day	Dry	Other Contributing Action
55	1.321	09/07/11	Wed	1750	Pedestrian	0	1	0	Day	Dry	No Contributing Action
56	1.501	01/28/11	Fri	1205	Pedestrian	0	1	0	Day	Dry	No Contributing Action
57	1.520	03/11/11	Fri	1830	Pedalcycle	0	0	1	Night	Dry	No Contributing Action
58	1.529	11/15/11	Tue	2119	Pedestrian	0	0	1	Night	Dry	No Contributing Action
59	1.770	10/19/11	Wed	1315	Pedestrian	0	1	0	Day	Wet	No Contributing Action
60	1.774	04/06/11	Wed	1410	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner
61	0.005	11/05/11	Sat	1655	Pedestrian	0	1	0	Day	Dry	No Contributing Action
62	0.400	11/04/11	Fri	0810	Pedestrian	0	0	1	Day	Dry	Careless or Negligent Manner
63	0.761	09/15/11	Thu	1855	Pedestrian	0	1	0	Day	Dry	No Contributing Action
64	0.761	11/10/11	Thu	1423	Pedestrian	0	1	0	Day	Dry	#N/A
65	0.761	12/05/11	Mon	1915	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
66	2.171	06/22/11	Wed	0025	Pedestrian	0	1	0	Night	Wet	No Contributing Action
67	38.557	06/22/11	Wed	0900	Pedestrian	0	1	0	Day	Dry	Erratic, Reckless or Aggressive
68	38.845	10/12/11	Wed	2010	Pedestrian	0	1	0	Night	Dry	No Contributing Action
69	38.952	08/11/11	Thu	1130	Pedestrian	0	1	0	Night	Dry	No Contributing Action

State of Florida Department of Transportation

CRASH SUMMARY

SECTION: 0 STATE ROUTE: Flagler Trail Pedestrian and Bicycle Crashes

ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: FDOT D6

STUDY PERIOD: FROM 1/ 2011 TO 12/ 2011 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
70	39.001	12/04/11	Sun	0325	Pedestrian	0	1	0	Night	Dry	No Contributing Action
71	39.283	04/02/11	Sat	0407	Pedestrian	1	0	0	Night	Dry	No Contributing Action
72	39.287	07/05/11	Tue	0700	Pedestrian	0	1	0	Day	Dry	No Contributing Action
73	19.062	01/15/11	Sat	2255	Pedestrian	1	0	0	Night	Dry	Other Contributing Action
74	19.416	12/03/11	Sat	1407	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
75	19.453	12/07/11	Wed	1900	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
76	19.583	05/14/11	Sat	1020	Pedestrian	0	1	0	Night	Dry	Improper Backing
77	0.000	12/06/11	Tue	2125	Pedestrian	0	0	1	Night	Dry	No Contributing Action
78	0.268	03/13/11	Sun	1050	Pedestrian	0	0	1	Day	Dry	Careless or Negligent Manner
79	1.035	05/27/11	Fri	1350	Pedalcycle	0	0	1	Day	Dry	No Contributing Action
80	1.546	10/26/11	Wed	2027	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner
81	2.054	03/29/11	Tue	1042	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
82	2.565	02/24/11	Thu	1008	Pedestrian	0	1	0	Night	Dry	No Contributing Action
83	2.818	04/25/11	Mon	0840	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
84	3.075	10/06/11	Thu	0823	Pedestrian	0	1	0	Day	Dry	No Contributing Action
85	5.773	09/12/11	Mon	1750	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
86	7.162	03/18/11	Fri	1630	Pedestrian	0	1	0	Day	Dry	No Contributing Action
87	7.197	09/18/11	Sun	0254	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
88	2.727	11/11/11	Fri	1635	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
89	3.065	01/10/11	Mon	1908	Pedestrian	0	1	0	Night	Dry	Failed to Yield Right-Of-Way
90	3.443	03/22/11	Tue	1517	Pedalcycle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
91	3.568	01/02/11	Sun	0921	Pedestrian	0	1	0	Day	Dry	#N/A
92	3.693	02/20/11	Sun	0550	Pedestrian	1	0	0	Night	Dry	No Contributing Action
93	3.695	05/08/11	Sun	0105	Pedestrian	0	1	0	Night	Dry	No Contributing Action
94	0.361	01/07/11	Fri	1939	Pedestrian	0	1	0	Night	Dry	No Contributing Action
95	0.995	01/12/11	Wed	1430	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
96	1.578	12/18/11	Sun	2000	Pedestrian	0	1	0	Night	Dry	No Contributing Action
97	1.749	10/16/11	Sun	1843	Pedestrian	0	1	0	Night	Wet	No Contributing Action
98	2.102	06/12/11	Sun	1328	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner
99	2.544	12/11/11	Sun	1840	Pedestrian	0	1	0	Night	Wet	Other Contributing Action
100	2.553	10/23/11	Sun	2004	Pedalcycle	0	1	0	Night	Dry	Other Contributing Action
101	2.625	12/06/11	Tue	1309	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
102	0.663	06/28/11	Tue	1940	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 0 STATE ROUTE: Flagler Trail Pedestrian and Bicycle Crashes
ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: FDOT D6
STUDY PERIOD: FROM 1/ 2012 TO 12/ 2012 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	8.637	01/22/12	Sun	2225	Pedestrian	0	1	0	Night	Dry	No Contributing Action
2	8.720	05/17/12	Thu	0755	Pedestrian	0	3	0	Day	Wet	Careless or Negligent Manner
3	9.118	10/31/12	Wed	1030	Pedestrian	0	1	0	Day	Dry	No Contributing Action
4	9.311	12/05/12	Wed	1559	Pedalcycle	0	1	0	Day	Dry	Not Coded
5	10.384	07/25/12	Wed	2128	Pedestrian	0	1	0	Night	Dry	No Contributing Action
6	11.158	02/11/12	Sat	0430	Pedestrian	0	1	0	Night	Wet	No Contributing Action
7	11.172	07/29/12	Sun	1245	Pedestrian	0	1	0	Night	Dry	No Contributing Action
8	11.939	02/11/12	Sat	0407	Pedalcycle	0	1	0	Night	Wet	#N/A
9	12.027	05/25/12	Fri	0730	Pedestrian	0	1	0	Day	Dry	No Contributing Action
10	12.060	10/18/12	Thu	0840	Pedalcycle	0	1	0	Day	Wet	No Contributing Action
11	12.211	05/18/12	Fri	1751	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
12	12.211	01/05/12	Thu	2020	Pedestrian	0	2	0	Night	Dry	No Contributing Action
13	12.297	06/03/12	Sun	1440	Pedalcycle	0	0	1	Day	Dry	Other Contributing Action
14	12.297	10/07/12	Sun	1056	Pedalcycle	0	0	1	Day	Wet	Other Contributing Action
15	12.804	05/01/12	Tue	1910	Pedestrian	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
16	12.984	01/23/12	Mon	0845	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner
17	13.108	06/10/12	Sun	1018	Pedestrian	0	0	1	Day	Dry	Careless or Negligent Manner
18	13.285	11/30/12	Fri	1515	Pedestrian	0	1	0	Day	Dry	No Contributing Action
19	13.340	12/03/12	Mon	0820	Pedalcycle	0	1	0	Day	Wet	Failed to Yield Right-Of-Way
20	13.499	04/27/12	Fri	1737	Pedestrian	0	1	0	Day	Dry	No Contributing Action
21	14.181	08/03/12	Fri	1410	Pedalcycle	0	1	0	Day	Wet	Careless or Negligent Manner
22	14.297	01/19/12	Thu	1510	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
23	14.597	08/01/12	Wed	0650	Pedalcycle	0	1	0	Night	Wet	Other Contributing Action
24	15.096	03/30/12	Fri	1120	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
25	15.620	05/10/12	Thu	1635	Pedestrian	0	1	0	Day	Wet	Swerved Or Avoided
26	16.046	09/22/12	Sat	0108	Pedestrian	0	1	0	Night	Dry	Careless or Negligent Manner
27	16.490	03/07/12	Wed	0940	Pedestrian	0	1	0	Unknown	Wet	Disregarded Other Traffic Sign
28	16.624	04/29/12	Sun	2214	Pedestrian	0	1	0	Night	Wet	Other Contributing Action
29	17.113	09/20/12	Thu	1548	Pedestrian	0	0	1	Day	Dry	No Contributing Action
30	17.389	07/02/12	Mon	0835	Pedestrian	0	1	0	Day	Dry	Not Coded
31	17.514	12/01/12	Sat	1830	Pedalcycle	0	1	0	Night	Dry	Not Coded
32	19.836	01/22/12	Sun	1855	Pedestrian	0	2	0	Night	Dry	Careless or Negligent Manner
33	20.653	07/02/12	Mon	1812	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
34	20.984	07/20/12	Fri	1501	Pedestrian	0	1	0	Day	Dry	No Contributing Action
35	23.446	06/15/12	Fri	2100	Pedalcycle	0	0	1	Night	Wet	#N/A
36	24.133	03/17/12	Sat	1130	Pedalcycle	0	0	1	Day	Dry	#N/A
37	24.898	06/21/12	Thu	1400	Pedestrian	0	1	0	Day	Dry	No Contributing Action
38	24.993	01/04/12	Wed	0920	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
39	24.993	02/27/12	Mon	1428	Pedestrian	0	1	0	Day	Dry	#N/A
40	25.281	11/06/12	Tue	1352	Pedestrian	0	1	0	Day	Dry	Not Coded
41	2.220	05/05/12	Sat	1500	Pedestrian	0	0	1	Day	Dry	No Contributing Action
42	2.343	12/08/12	Sat	1604	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
43	2.343	02/17/12	Fri	0558	Pedestrian	0	1	0	Night	Dry	No Contributing Action
44	3.774	04/13/12	Fri	1532	Pedestrian	0	1	0	Day	Dry	Improper Turn
45	8.251	05/07/12	Mon	2230	Pedestrian	0	1	0	Night	Dry	Careless or Negligent Manner
46	8.450	06/12/12	Tue	0836	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
47	8.259	06/29/12	Fri	1932	Pedestrian	0	1	0	Night	Dry	#N/A
48	1.726	03/24/12	Sat	0018	Pedestrian	0	2	0	Night	Dry	Careless or Negligent Manner
49	1.726	07/24/12	Tue	0940	Pedalcycle	0	1	0	Day	Dry	Other Contributing Action
50	1.933	03/18/12	Sun	2350	Pedestrian	0	1	0	Night	Dry	No Contributing Action
51	2.038	12/19/12	Wed	1304	Pedalcycle	0	1	0	Day	Dry	Wrong Side or Wrong Way
52	0.759	06/07/12	Thu	0150	Pedestrian	0	1	0	Day	Dry	No Contributing Action
53	1.142	10/30/12	Tue	1430	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
54	1.529	05/02/12	Wed	1320	Pedestrian	0	1	0	Day	Dry	No Contributing Action
55	1.888	05/02/12	Wed	1000	Pedestrian	0	1	0	Day	Dry	No Contributing Action
56	0.009	12/28/12	Fri	2200	Pedestrian	0	1	0	Night	Dry	No Contributing Action
57	38.621	04/05/12	Thu	0025	Pedestrian	0	1	0	Night	Dry	No Contributing Action
58	38.845	04/27/12	Fri	1500	Pedestrian	0	1	0	Unknown	Other	#N/A
59	39.001	06/13/12	Wed	1727	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
60	39.033	03/22/12	Thu	1210	Pedestrian	0	1	0	Day	Dry	No Contributing Action
61	39.133	11/16/12	Fri	1320	Pedestrian	1	0	0	Day	Dry	No Contributing Action
62	39.209	07/07/12	Sat	0518	Pedestrian	1	0	0	Night	Wet	Other Contributing Action
63	39.257	07/24/12	Tue	1612	Pedestrian	0	1	0	Day	Dry	No Contributing Action
64	39.257	11/17/12	Sat	1640	Pedalcycle	0	1	0	Day	Dry	Careless or Negligent Manner
65	39.627	08/29/12	Wed	1844	Pedestrian	1	0	0	Night	Dry	No Contributing Action
66	39.926	04/04/12	Wed	1624	Pedalcycle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
67	19.449	12/26/12	Wed	1656	Pedestrian	0	0	1	Day	Dry	No Contributing Action
68	19.587	12/22/12	Sat	1640	Pedestrian	0	1	0	Day	Dry	No Contributing Action
69	17.615	07/13/12	Fri	1230	Pedestrian	0	0	1	Day	Dry	Other Contributing Action

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 0 STATE ROUTE: Flagler Trail Pedestrian and Bicycle Crashes

ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: FDOT D6

STUDY PERIOD: FROM 1/ 2012 TO 12/ 2012 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
70	17.724	10/10/12	Wed	0230	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
71	17.853	07/26/12	Thu	1531	Pedestrian	0	1	0	Day	Dry	No Contributing Action
72	17.977	01/20/12	Fri	2230	Pedestrian	0	2	0	Night	Dry	Other Contributing Action
73	0.440	12/16/12	Sun	1321	Pedestrian	0	1	0	Day	Dry	#N/A
74	0.459	08/15/12	Wed	2030	Pedestrian	0	1	0	Night	Dry	Failed to Yield Right-Of-Way
75	0.268	02/26/12	Sun	1852	Pedestrian	0	1	0	Night	Dry	No Contributing Action
76	0.397	10/10/12	Wed	1400	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
77	0.957	03/25/12	Sun	1710	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
78	0.968	04/04/12	Wed	1725	Pedestrian	0	1	0	Day	Dry	No Contributing Action
79	1.354	02/24/12	Fri	1818	Pedestrian	0	1	0	Day	Dry	No Contributing Action
80	1.800	03/20/12	Tue	1430	Pedestrian	0	1	0	Day	Dry	No Contributing Action
81	1.800	10/09/12	Tue	0945	Pedestrian	0	0	1	Day	Dry	No Contributing Action

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 0 STATE ROUTE: Flagler Trail Pedestrian and Bicycle Crashes

ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: FDOT D6

STUDY PERIOD: FROM 1/ 2012 TO 12/ 2012 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
82	1.963	07/17/12	Tue	2117	Pedestrian	0	1	0	Night	Wet	Other Contributing Action
83	2.246	10/22/12	Mon	1417	Pedestrian	1	0	0	Day	Dry	Failed to Yield Right-Of-Way
84	2.942	07/31/12	Tue	1530	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
85	3.624	05/10/12	Thu	1720	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
86	5.768	08/09/12	Thu	1820	Pedestrian	0	1	0	Day	Dry	No Contributing Action
87	5.773	03/29/12	Thu	1554	Pedalcycle	0	0	1	Day	Dry	No Contributing Action
88	7.127	08/31/12	Fri	1441	Pedestrian	0	1	0	Day	Dry	No Contributing Action
89	8.162	02/16/12	Thu	1337	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
90	2.716	09/03/12	Mon	1821	Pedestrian	0	1	0	Day	Dry	#N/A
91	2.816	08/20/12	Mon	1616	Pedalcycle	0	1	0	Day	Dry	Other Contributing Action
92	3.192	01/12/12	Thu	0913	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
93	3.697	03/02/12	Fri	1029	Pedestrian	0	1	0	Day	Dry	No Contributing Action
94	4.105	08/23/12	Thu	0823	Pedalcycle	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
95	1.361	01/18/12	Wed	0840	Pedestrian	0	2	0	Day	Dry	Careless or Negligent Manner
96	1.655	11/06/12	Tue	1838	Pedalcycle	0	0	1	Night	Dry	Careless or Negligent Manner
97	1.749	11/13/12	Tue	2026	Pedestrian	0	1	0	Night	Dry	No Contributing Action
98	2.025	03/18/12	Sun	1125	Pedestrian	0	1	0	Day	Dry	No Contributing Action
99	2.281	03/29/12	Thu	0740	Pedestrian	0	3	0	Day	Dry	Swerved Or Avoided
100	2.722	10/03/12	Wed	0558	Pedalcycle	0	1	0	Night	Dry	Failed to Yield Right-Of-Way
101	2.794	02/24/12	Fri	1843	Pedestrian	0	3	0	Night	Dry	Failed to Yield Right-Of-Way
102	3.605	10/17/12	Wed	0753	Pedalcycle	0	1	0	Day	Wet	Other Contributing Action

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 0 STATE ROUTE: Flagler Trail Pedestrian and Bicycle Crashes

ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: FDOT D6

STUDY PERIOD: FROM 1/ 2013 TO 12/ 2013 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	0.106	12/13/13	Fri	1805	Pedestrian	1	0	0	Night	Wet	No Contributing Action
2	8.185	02/06/13	Wed	2045	Pedestrian	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
3	8.520	08/18/13	Sun	0805	Pedestrian	0	1	0	Day	Dry	No Contributing Action
4	9.214	12/14/13	Sat	1927	Pedestrian	0	1	0	Night	Dry	#N/A
5	10.384	06/19/13	Wed	0345	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
6	10.384	03/13/13	Wed	1930	Pedestrian	0	1	0	Night	Dry	No Contributing Action
7	10.898	12/07/13	Sat	2330	Pedestrian	0	1	0	Night	Wet	No Contributing Action
8	11.227	07/14/13	Sun	2049	Pedestrian	0	1	0	Night	Dry	No Contributing Action
9	11.325	10/17/13	Thu	0610	Pedestrian	0	0	1	Night	Dry	No Contributing Action
10	11.368	03/24/13	Sun	0200	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner
11	11.789	02/07/13	Thu	1819	Pedalcycle	0	1	0	Night	Dry	Failed to Yield Right-Of-Way
12	11.939	10/17/13	Thu	1552	Pedalcycle	0	1	0	Day	Dry	Careless or Negligent Manner
13	12.297	06/19/13	Wed	1200	Pedestrian	0	1	0	Day	Dry	No Contributing Action
14	12.383	03/22/13	Fri	2125	Pedalcycle	0	0	1	Night	Dry	No Contributing Action
15	12.383	05/16/13	Thu	1757	Pedestrian	0	1	0	Day	Dry	No Contributing Action
16	12.682	05/27/13	Mon	1745	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner
17	13.605	01/11/13	Fri	1145	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
18	13.669	01/11/13	Fri	1738	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
19	15.048	01/14/13	Mon	0759	Pedestrian	0	3	0	Day	Dry	Failed to Yield Right-Of-Way
20	15.407	04/23/13	Tue	2110	Pedestrian	0	1	0	Night	Dry	No Contributing Action
21	15.428	01/11/13	Fri	2225	Pedestrian	0	1	0	Night	Wet	No Contributing Action
22	15.575	11/12/13	Tue	0715	Pedalcycle	0	1	0	Day	Dry	Careless or Negligent Manner
23	16.121	07/08/13	Mon	1705	Pedestrian	0	1	0	Day	Dry	No Contributing Action
24	16.354	08/19/13	Mon	1430	Pedalcycle	0	1	0	Day	Dry	Careless or Negligent Manner
25	16.605	10/02/13	Wed	1800	Pedestrian	0	1	0	Day	Dry	Not Coded
26	17.511	04/17/13	Wed	2110	Pedalcycle	0	1	0	Night	Dry	Other Contributing Action
27	19.836	01/10/13	Thu	1730	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
28	19.836	04/19/13	Fri	1625	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
29	19.842	01/10/13	Thu	1820	Pedestrian	0	1	0	Night	Dry	No Contributing Action
30	20.526	02/17/13	Sun	1800	Railway Vehicle (Train, Engine)	0	0	1	Night	Other	Other Contributing Action
31	20.615	07/19/13	Fri	1839	Pedalcycle	0	0	1	Day	Dry	Careless or Negligent Manner
32	20.923	07/11/13	Thu	1604	Pedalcycle	0	1	0	Day	Dry	Ran Stop Sign
33	21.170	03/28/13	Thu	1232	Pedalcycle	0	1	0	Day	Dry	Other Contributing Action
34	23.046	08/06/13	Tue	0229	Railway Vehicle (Train, Engine)	0	0	1	Night	Dry	Other Contributing Action
35	23.327	01/14/13	Mon	1140	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
36	23.379	03/24/13	Sun	1531	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
37	24.907	07/25/13	Thu	1919	Pedestrian	0	1	0	Day	Dry	No Contributing Action
38	24.985	11/21/13	Thu	1247	Pedestrian	0	1	0	Day	Dry	#N/A
39	1.119	07/29/13	Mon	2139	Pedestrian	0	2	0	Night	Dry	No Contributing Action
40	1.968	01/30/13	Wed	1450	Pedestrian	0	1	0	Day	Dry	Ran Stop Sign
41	2.901	05/09/13	Thu	1710	Pedestrian	0	1	0	Day	Dry	No Contributing Action
42	3.847	05/15/13	Wed	1416	Pedestrian	0	1	0	Day	Dry	Improper Turn
43	8.323	06/04/13	Tue	2028	Pedestrian	0	1	0	Night	Dry	Failed to Yield Right-Of-Way
44	8.323	01/25/13	Fri	1850	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
45	2.275	09/30/13	Mon	1532	Pedestrian	0	1	0	Day	Dry	No Contributing Action
46	2.788	03/15/13	Fri	1842	Pedestrian	0	1	0	Day	Dry	No Contributing Action
47	3.014	04/01/13	Mon	1745	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
48	7.818	01/19/13	Sat	1800	Pedalcycle	0	1	0	Night	Dry	Failed to Yield Right-Of-Way
49	7.818	02/21/13	Thu	1121	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
50	7.984	07/04/13	Thu	1610	Pedalcycle	0	1	0	Day	Dry	Other Contributing Action
51	8.155	02/23/13	Sat	0627	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
52	0.063	02/23/13	Sat	0815	Pedestrian	0	4	0	Day	Dry	Careless or Negligent Manner
53	0.485	03/08/13	Fri	1920	Pedestrian	0	2	0	Night	Dry	No Contributing Action
54	1.582	09/12/13	Thu	1800	Pedestrian	0	0	1	Day	Dry	Other Contributing Action
55	1.582	12/20/13	Fri	1805	Pedestrian	0	0	1	Night	Dry	No Contributing Action
56	1.770	04/30/13	Tue	0947	Pedestrian	0	0	1	Day	Dry	No Contributing Action
57	1.897	07/11/13	Thu	1329	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
58	2.255	02/26/13	Tue	1129	Pedestrian	0	1	0	Day	Dry	No Contributing Action
59	2.274	12/03/13	Tue	1838	Pedalcycle	0	1	0	Night	Dry	No Contributing Action
60	2.491	12/03/13	Tue	0335	Railway Vehicle (Train, Engine)	0	0	1	Night	Dry	Careless or Negligent Manner
61	2.531	08/14/13	Wed	0950	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
62	38.557	09/10/13	Tue	1410	Pedalcycle	0	0	1	Night	Dry	No Contributing Action
63	38.636	08/17/13	Sat	1245	Pedalcycle	0	1	0	Day	Dry	Careless or Negligent Manner
64	38.709	02/01/13	Fri	1828	Pedestrian	1	0	0	Night	Dry	Other Contributing Action
65	38.721	02/04/13	Mon	1841	Pedestrian	1	0	0	Night	Dry	No Contributing Action
66	39.257	08/25/13	Sun	1220	Pedestrian	0	2	0	Day	Dry	No Contributing Action
67	39.257	05/09/13	Thu	1515	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
68	39.289	03/26/13	Tue	1522	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
69	39.386	03/29/13	Fri	2338	Pedestrian	1	0	0	Night	Dry	No Contributing Action

State of Florida Department of Transportation

CRASH SUMMARY

SECTION: 0 STATE ROUTE: Flagler Trail Pedestrian and Bicycle Crashes

ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: FDOT D6

STUDY PERIOD: FROM 1/ 2013 TO 12/ 2013 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
70	39.416	02/24/13	Sun	2140	Pedestrian	0	1	0	Night	Dry	No Contributing Action
71	39.512	02/07/13	Thu	1903	Pedestrian	0	0	1	Night	Dry	No Contributing Action
72	39.512	03/08/13	Fri	1751	Pedestrian	0	1	0	Day	Dry	No Contributing Action
73	39.550	07/24/13	Wed	1407	Pedestrian	1	0	0	Day	Dry	No Contributing Action
74	39.750	04/03/13	Wed	1835	Railway Vehicle (Train, Engine)	0	0	1	Day	Dry	Careless or Negligent Manner
75	39.841	06/28/13	Fri	1541	Pedalcycle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
76	18.279	01/07/13	Mon	1827	Pedalcycle	0	1	0	Night	Dry	No Contributing Action
77	18.809	10/18/13	Fri	0640	Pedestrian	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
78	19.317	03/29/13	Fri	0647	Pedalcycle	0	1	0	Night	Dry	Other Contributing Action
79	19.317	09/06/13	Fri	2110	Pedestrian	0	1	0	Night	Dry	Failed to Yield Right-Of-Way
80	19.665	11/20/13	Wed	2009	Pedestrian	0	2	0	Night	Wet	No Contributing Action
81	17.853	05/14/13	Tue	2236	Pedestrian	0	1	0	Night	Dry	No Contributing Action
82	0.000	07/26/13	Fri	1009	Pedalcycle	0	0	1	Day	Dry	Other Contributing Action
83	0.440	07/24/13	Wed	1430	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
84	2.054	03/16/13	Sat	1609	Pedestrian	0	1	0	Day	Dry	No Contributing Action
85	3.516	03/05/13	Tue	1500	Pedestrian	0	1	0	Day	Dry	No Contributing Action
86	5.772	10/31/13	Thu	2052	Pedestrian	0	1	0	Night	Dry	No Contributing Action
87	5.774	09/17/13	Tue	0650	Pedestrian	0	1	0	Night	Wet	No Contributing Action
88	7.167	01/06/13	Sun	1612	Pedestrian	0	0	1	Day	Dry	No Contributing Action
89	2.689	07/01/13	Mon	1609	Pedestrian	0	1	0	Day	Dry	No Contributing Action
90	2.941	02/14/13	Thu	0012	Pedestrian	0	1	0	Night	Dry	No Contributing Action
91	3.067	08/09/13	Fri	1930	Pedestrian	0	1	0	Day	Wet	No Contributing Action
92	3.226	10/28/13	Mon	1635	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
93	3.568	09/14/13	Sat	0025	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
94	0.237	12/30/13	Mon	1628	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
95	0.659	02/07/13	Thu	1330	Pedestrian	0	1	0	Day	Dry	No Contributing Action
96	0.995	02/16/13	Sat	1747	Pedestrian	0	1	0	Day	Dry	No Contributing Action
97	1.749	01/28/13	Mon	1930	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
98	1.749	04/15/13	Mon	2008	Pedestrian	0	1	0	Night	Wet	No Contributing Action
99	1.749	05/24/13	Fri	1238	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
100	2.292	05/29/13	Wed	1140	Pedestrian	0	1	0	Day	Wet	No Contributing Action
101	2.374	12/09/13	Mon	0630	Pedestrian	0	1	0	Night	Dry	Careless or Negligent Manner
102	0.000	07/20/13	Sat	1145	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
103	0.106	12/13/13	Fri	1805	Pedestrian	1	0	0	Night	Wet	No Contributing Action
104	0.018	11/03/13	Sun	1544	Pedalcycle	0	1	0	Day	Dry	Not Coded

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 0 STATE ROUTE: Flagler Trail Pedestrian and Bicycle Crashes

ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: FDOT D6

STUDY PERIOD: FROM 1/ 2014 TO 12/ 2014 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	8.637	01/08/14	Wed	1658	Pedalcycle	0	0	1	Day	Wet	Careless or Negligent Manner
2	9.134	02/07/14	Fri	1723	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
3	8.185	07/25/14	Fri	0943	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
4	8.316	11/11/14	Tue	1605	Pedalcycle	0	1	0	Day	Dry	Careless or Negligent Manner
5	8.567	12/04/14	Thu	1525	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
6	8.985	02/24/14	Mon	1845	Pedestrian	0	1	0	Night	Dry	Careless or Negligent Manner
7	10.384	09/21/14	Sun	1900	Pedalcycle	0	1	0	Night	Dry	Other Contributing Action
8	10.384	07/22/14	Tue	2119	Pedestrian	0	0	1	Night	Dry	No Contributing Action
9	11.939	01/15/14	Wed	1852	Pedestrian	1	0	0	Night	Wet	No Contributing Action
10	11.939	03/15/14	Sat	1828	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
11	12.055	04/04/14	Fri	0940	Pedestrian	0	1	0	Day	Dry	No Contributing Action
12	12.211	02/15/14	Sat	1041	Pedestrian	0	1	0	Day	Dry	Improper Backing
13	12.682	03/22/14	Sat	2030	Pedalcycle	0	1	0	Night	Dry	No Contributing Action
14	12.753	12/07/14	Sun	1250	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
15	13.192	02/28/14	Fri	2026	Pedestrian	0	1	0	Night	Dry	No Contributing Action
16	13.285	05/17/14	Sat	1240	Pedestrian	0	1	0	Day	Dry	No Contributing Action
17	13.397	12/18/14	Thu	2225	Pedestrian	0	1	0	Night	Dry	Not Coded
18	13.605	03/21/14	Fri	1030	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
19	16.046	09/24/14	Wed	2122	Pedestrian	0	1	0	Day	Dry	No Contributing Action
20	16.605	06/16/14	Mon	0850	Pedalcycle	0	1	0	Day	Dry	Careless or Negligent Manner
21	16.616	04/18/14	Fri	1735	Pedestrian	0	1	0	Day	Dry	No Contributing Action
22	20.300	12/16/14	Tue	2048	Pedalcycle	0	1	0	Night	Dry	#N/A
23	20.576	11/25/14	Tue	1120	Pedalcycle	0	1	0	Day	Dry	#N/A
24	20.653	06/22/14	Sun	1908	Pedalcycle	0	1	0	Night	Wet	Other Contributing Action
25	20.805	01/13/14	Mon	1022	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
26	20.922	11/13/14	Thu	1137	Pedalcycle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
27	21.131	07/06/14	Sun	1752	Pedalcycle	0	1	0	Day	Dry	Other Contributing Action
28	21.170	05/12/14	Mon	1553	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
29	21.463	06/13/14	Fri	0730	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
30	21.947	05/29/14	Thu	1023	Pedalcycle	0	3	0	Day	Dry	Followed too Closely
31	21.985	03/07/14	Fri	2038	Pedestrian	1	0	0	Night	Dry	No Contributing Action
32	22.012	12/05/14	Fri	1706	Pedalcycle	0	1	0	Day	Dry	Other Contributing Action
33	23.114	08/06/14	Wed	1355	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
34	23.890	02/21/14	Fri	1115	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
35	24.332	05/15/14	Thu	1940	Pedalcycle	0	0	1	Night	Wet	#N/A
36	24.332	05/31/14	Sat	1118	Pedalcycle	0	1	0	Day	Dry	Not Coded
37	25.271	09/13/14	Sat	1724	Pedestrian	0	1	0	Day	Wet	No Contributing Action
38	1.268	02/19/14	Wed	0707	Pedalcycle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
39	1.331	06/14/14	Sat	1800	Pedalcycle	0	1	0	Day	Wet	Other Contributing Action
40	2.477	04/18/14	Fri	1619	Pedestrian	0	1	0	Day	Dry	No Contributing Action
41	2.762	04/05/14	Sat	2234	Pedestrian	0	1	0	Night	Dry	No Contributing Action
42	3.235	01/22/14	Wed	1815	Pedestrian	0	1	0	Night	Dry	Other Contributing Action
43	3.613	04/30/14	Wed	0300	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
44	3.712	01/21/14	Tue	2017	Pedalcycle	0	1	0	Night	Wet	Other Contributing Action
45	3.804	12/19/14	Fri	1820	Pedestrian	0	1	0	Night	Dry	No Contributing Action
46	3.819	05/13/14	Tue	1846	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
47	8.199	04/16/14	Wed	2053	Pedestrian	0	1	0	Night	Dry	No Contributing Action
48	8.577	10/31/14	Fri	1013	Pedalcycle	0	1	0	Day	Dry	Careless or Negligent Manner
49	2.786	12/24/14	Wed	1815	Pedestrian	0	1	0	Night	Dry	Careless or Negligent Manner
50	3.042	01/31/14	Fri	1522	Pedestrian	0	1	0	Day	Dry	No Contributing Action
51	7.837	10/20/14	Mon	1930	Pedalcycle	0	1	0	Night	Dry	Other Contributing Action
52	1.933	09/12/14	Fri	1530	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
53	1.975	07/29/14	Tue	0841	Pedestrian	0	0	1	Day	Dry	Other Contributing Action
54	0.086	05/06/14	Tue	0745	Pedalcycle	1	0	0	Night	Dry	Failed to Yield Right-Of-Way
55	0.378	01/20/14	Mon	1847	Pedestrian	0	2	0	Night	Dry	No Contributing Action
56	1.464	02/28/14	Fri	1750	Pedestrian	0	1	0	Day	Dry	No Contributing Action
57	1.644	07/05/14	Sat	1531	Pedalcycle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
58	1.770	01/02/14	Thu	1156	Pedestrian	0	0	1	Day	Dry	Other Contributing Action
59	2.025	05/20/14	Tue	2112	Pedestrian	0	1	0	Night	Dry	Improper Turn
60	2.593	01/18/14	Sat	1505	Pedestrian	0	0	1	Day	Dry	No Contributing Action
61	0.009	12/18/14	Thu	1914	Pedestrian	0	1	0	Night	Dry	No Contributing Action
62	0.121	08/15/14	Fri	0921	Pedestrian	0	1	0	Day	Dry	No Contributing Action
63	1.530	02/02/14	Sun	1833	Pedestrian	0	1	0	Day	Dry	Careless or Negligent Manner
64	2.109	12/30/14	Tue	1725	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
65	38.923	10/15/14	Wed	2340	Pedestrian	1	0	0	Night	Dry	No Contributing Action
66	39.001	08/29/14	Fri	1925	Pedestrian	0	1	0	Day	Dry	No Contributing Action
67	39.512	07/10/14	Thu	0900	Pedestrian	0	3	0	Day	Dry	Other Contributing Action
68	39.656	05/11/14	Sun	2030	Pedestrian	0	1	0	Night	Dry	No Contributing Action
69	19.362	01/30/14	Thu	2320	Pedestrian	0	0	1	Night	Wet	No Contributing Action

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 0 STATE ROUTE: Flagler Trail Pedestrian and Bicycle Crashes

ROADWAY LIMITS: 0 M.P. 0.000 TO 0.000 ENGINEER: FDOT D6

STUDY PERIOD: FROM 1/ 2014 TO 12/ 2014 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
70	17.601	02/22/14	Sat	1510	Pedestrian	0	1	0	Day	Dry	No Contributing Action
71	17.601	02/26/14	Wed	1011	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
72	0.431	03/28/14	Fri	1035	Pedalcycle	0	0	1	Day	Dry	No Contributing Action
73	0.601	04/27/14	Sun	0153	Pedalcycle	0	1	0	Night	Dry	No Contributing Action
74	1.799	05/08/14	Thu	1744	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
75	2.117	11/08/14	Sat	1550	Pedestrian	0	1	0	Day	Dry	No Contributing Action
76	2.636	04/07/14	Mon	0814	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
77	3.015	09/26/14	Fri	1950	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
78	3.072	04/24/14	Thu	1750	Pedestrian	0	1	0	Day	Dry	No Contributing Action
79	5.782	11/26/14	Wed	1425	Pedalcycle	0	1	0	Day	Dry	No Contributing Action
80	8.171	01/23/14	Thu	2200	Pedalcycle	0	0	1	Night	Dry	Careless or Negligent Manner
81	2.509	11/24/14	Mon	1432	Pedestrian	0	1	0	Day	Dry	Other Contributing Action
82	2.680	08/05/14	Tue	1356	Pedestrian	0	1	0	Day	Dry	No Contributing Action
83	2.691	08/09/14	Sat	1058	Pedestrian	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
84	2.941	09/29/14	Mon	1930	Pedestrian	0	1	0	Night	Wet	No Contributing Action
85	3.065	03/28/14	Fri	1927	Pedestrian	0	1	0	Night	Dry	Careless or Negligent Manner
86	3.146	07/11/14	Fri	2210	Pedestrian	0	1	0	Night	Dry	No Contributing Action
87	3.197	12/17/14	Wed	1814	Pedestrian	0	1	0	Night	Dry	No Contributing Action
88	3.226	09/12/14	Fri	2054	Pedestrian	1	0	0	Night	Wet	No Contributing Action
89	3.317	08/25/14	Mon	1858	Pedestrian	0	0	1	Day	Dry	No Contributing Action
90	1.300	12/24/14	Wed	2106	Pedestrian	0	3	0	Day	Dry	No Contributing Action
91	2.102	01/31/14	Fri	2057	Pedestrian	0	1	0	Night	Dry	No Contributing Action
92	2.703	12/01/14	Mon	1802	Pedestrian	0	1	0	Night	Dry	No Contributing Action

APPENDIX B
ALTERNATIVE MIDDLE
PROPOSED TYPICAL SECTION COST ESTIMATES

Alternative Middle Proposed Typical Section Cost Estimates

Source: FDOT Area 13 Historic Average Construction Costs (01/01/2018 to 12/31/2018)
https://www.fdot.gov/programmanagement/Estimates/HistoricalCostInformation/HistoricalCost.shtm

ALTERNATIVE MIDDLE - 70' RAPID IMPLEMENTATION

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	-	$0.00
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	-	$0.00
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	-	$0.00
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	-	$0.00
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	-	$0.00
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0.00
522-2	6" Concrete Driveways	SY	$49.35	-	$0.00
520-1-10	C & G Type F	LF	$21.34	-	$0.00
520-2-4	C & G Type D	LF	$23.31	-	$0.00
570-1-2	Performance Sod	SY	$3.83	-	$0.00
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$0.00**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0.00
*706-3	W/R RPMs	EA	$2.75	2,722.00	$7,485.50
*706-3	Y/Y RPMs	EA	$2.75	2,722.00	$7,485.50
*706-3	Y/R RPMs	EA	$2.75	-	$0.00
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	41.20	$26,679.47
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	208.00	$101.92
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	104.00	$112.32
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	20.60	$7,460.29
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	20.60	$13,258.37
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0.00
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	208.00	$347.36
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	104.00	$329.68
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0.00
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	208.00	$2,121.60
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	260.00	$4,388.80
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	84.00	$15,857.52
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	84.00	$8,426.88
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	41.20	$142,030.41
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	20.60	$26,485.63
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe (Double Yellow)	GM	$3,463.00	20.60	$71,337.80
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0.00
711-17	Thermoplastic, Remove	SF	$5.28	227,057.20	$1,198,862.02
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$1,532,771.06**
				SUBTOTAL	**$1,532,771.06**
	DESIGN	LS	10%	1.00	$153,277.11
	MOBILIZATION	LS	10%	1.00	$153,277.11
	MOT	LS	10%	1.00	$153,277.11
	DRAINAGE	LS	10%	1.00	$153,277.11
	LIGHTING	LS	10%	1.00	$153,277.11
	SIGNALIZATION	LS	10%	1.00	$153,277.11
	CONTINGENCY	LS	20%	1.00	$306,554.21
				TOTAL COST	**$2,758,987.90**

ALTERNATIVE MIDDLE - 70' HYBRID

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	15,620.29	$2,074,218.75
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	23,430.44	$2,419,192.93
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	284,005.33	$4,274,280.27
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	284,005.33	$144,842.72
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	48,341.33	$11,940,309.33
522-1	4" Concrete Sidewalk	SY	$38.84	84,597.33	$3,285,760.43
522-2	6" Concrete Driveways	SY	$49.35	-	$0.00
520-1-10	C & G Type F	LF	$21.34	108,768.00	$2,321,109.12
520-2-4	C & G Type D	LF	$23.31	54,384.00	$1,267,691.04
570-1-2	Performance Sod	SY	$3.83	27,192.00	$104,145.36
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$27,831,549.95**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0.00
*706-3	W/R RPMs	EA	$2.75	-	$0.00
*706-3	Y/Y RPMs	EA	$2.75	2,724.00	$7,491.00
*706-3	Y/R RPMs	EA	$2.75	-	$0.00
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	55.62	$36,018.27
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	208.00	$101.92
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	140.00	$151.20
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0.00
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	20.60	$13,258.37
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	10.30	$3,603.35
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	208.00	$347.36
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	140.00	$443.80
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	166.00	$7,956.38
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	208.00	$2,121.60
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	260.00	$4,388.80
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	84.00	$15,857.52
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	84.00	$8,426.88
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	55.62	$191,746.27
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0.00
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe (Double Yellow)	GM	$3,463.00	20.60	$71,337.80
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	10.30	$12,472.99
711-17	Thermoplastic, Remove	SF	$5.28	227,057.20	$1,198,862.02
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$1,574,585.53**
				SUBTOTAL	**$29,406,135.48**
	DESIGN	LS	10%	1.00	$2,940,613.55
	MOBILIZATION	LS	10%	1.00	$2,940,613.55
	MOT	LS	10%	1.00	$2,940,613.55
	DRAINAGE	LS	10%	1.00	$2,940,613.55
	LIGHTING	LS	10%	1.00	$2,940,613.55
	SIGNALIZATION	LS	10%	1.00	$2,940,613.55
	CONTINGENCY	LS	20%	1.00	$5,881,227.10
				TOTAL COST	**$52,931,043.86**

ALTERNATIVE MIDDLE - 70' MULTIMODAL

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	14,290.91	$1,897,689.50
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	21,436.36	$2,213,304.17
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	259,834.67	$3,910,511.73
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	259,834.67	$132,515.68
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	60,426.67	$14,925,386.67
522-1	4" Concrete Sidewalk	SY	$38.84	108,768.00	$4,224,549.12
522-2	6" Concrete Driveways	SY	$49.35	-	$0.00
520-1-10	C & G Type F	LF	$21.34	108,768.00	$2,321,109.12
520-2-4	C & G Type D	LF	$23.31	54,384.00	$1,267,691.04
570-1-2	Performance Sod	SY	$3.83	27,192.00	$104,145.36
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$30,996,902.39**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0.00
*706-3	W/R RPMs	EA	$2.75	-	$0.00
*706-3	Y/Y RPMs	EA	$2.75	2,724.00	$7,491.00
*706-3	Y/R RPMs	EA	$2.75	-	$0.00
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	41.20	$26,679.47
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	192.00	$94.08
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	116.00	$125.28
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0.00
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	20.60	$13,258.37
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	10.30	$3,603.35
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	192.00	$320.64
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	116.00	$367.72
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	166.00	$7,956.38
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	192.00	$1,958.40
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	220.00	$3,713.60
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	84.00	$15,857.52
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	84.00	$8,426.88
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	41.20	$142,030.41
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0.00
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe (Double Yellow)	GM	$3,463.00	20.60	$71,337.80
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	10.30	$12,472.99
711-17	Thermoplastic, Remove	SF	$5.28	227,057.20	$1,198,862.02
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$1,514,555.91**
				SUBTOTAL	**$32,511,458.29**
	DESIGN	LS	10%	1.00	$3,251,145.83
	MOBILIZATION	LS	10%	1.00	$3,251,145.83
	MOT	LS	10%	1.00	$3,251,145.83
	DRAINAGE	LS	10%	1.00	$3,251,145.83
	LIGHTING	LS	10%	1.00	$3,251,145.83
	SIGNALIZATION	LS	10%	1.00	$3,251,145.83
	CONTINGENCY	LS	20%	1.00	$6,502,291.66
				TOTAL COST	**$58,520,624.92**

ALTERNATIVE MIDDLE - 80' RAPID IMPLEMENTATION

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	-	$0.00
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	-	$0.00
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	-	$0.00
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	-	$0.00
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	-	$0.00
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0.00
522-2	6" Concrete Driveways	SY	$49.35	-	$0.00
520-1-10	C & G Type F	LF	$21.34	-	$0.00
520-2-4	C & G Type D	LF	$23.31	-	$0.00
570-1-2	Performance Sod	SY	$3.83	-	$0.00
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$0.00**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0.00
*706-3	W/R RPMs	EA	$2.75	425.00	$1,168.75
*706-3	Y/Y RPMs	EA	$2.75	425.00	$1,168.75
*706-3	Y/R RPMs	EA	$2.75	-	$0.00
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	8.49	$5,498.64
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	216.00	$105.84
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	108.00	$116.64
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	3.20	$1,158.88
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	3.20	$2,059.55
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0.00
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	216.00	$360.72
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	108.00	$342.36
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0.00
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	216.00	$2,203.20
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	260.00	$4,388.80
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	15.00	$2,831.70
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	15.00	$1,504.80
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	8.49	$29,272.49
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	3.20	$4,114.27
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe (Double Yellow)	GM	$3,463.00	3.20	$11,081.60
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0.00
711-17	Thermoplastic, Remove	SF	$5.28	34996.45	$184,781.26
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$252,158.25**
				SUBTOTAL	**$252,158.25**
	DESIGN	LS	10%	1.00	$25,215.82
	MOBILIZATION	LS	10%	1.00	$25,215.82
	MOT	LS	10%	1.00	$25,215.82
	DRAINAGE	LS	10%	1.00	$25,215.82
	LIGHTING	LS	10%	1.00	$25,215.82
	SIGNALIZATION	LS	10%	1.00	$25,215.82
	CONTINGENCY	LS	20%	1.00	$50,431.65
				TOTAL COST	**$453,884.85**

ALTERNATIVE MIDDLE - 80' HYBRID

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	2,710.40	$359,914.02
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	4,065.60	$419,773.20
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	49,280.00	$741,664.00
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	49,280.00	$25,132.80
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	9,386.67	$2,318,506.67
522-1	4" Concrete Sidewalk	SY	$38.84	16,896.00	$656,240.64
522-2	6" Concrete Driveways	SY	$49.35	-	$0.00
520-1-10	C & G Type F	LF	$21.34	16,896.00	$360,560.64
520-2-4	C & G Type D	LF	$23.31	8,448.00	$196,922.88
570-1-2	Performance Sod	SY	$3.83	4,693.33	$17,975.47
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$5,096,690.31**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0.00
*706-3	W/R RPMs	EA	$2.75	-	$0.00
*706-3	Y/Y RPMs	EA	$2.75	427.00	$1,174.25
*706-3	Y/R RPMs	EA	$2.75	-	$0.00
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	10.48	$6,787.78
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	232.00	$113.68
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	138.00	$149.04
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0.00
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	3.20	$2,059.55
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	1.60	$559.74
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	232.00	$387.44
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	138.00	$437.46
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	26.00	$1,246.18
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	232.00	$2,366.40
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	260.00	$4,388.80
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	15.00	$2,831.70
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	15.00	$1,504.80
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	10.48	$36,135.31
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0.00
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe (Double Yellow)	GM	$3,463.00	3.20	$11,081.60
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	1.60	$1,937.55
711-17	Thermoplastic, Remove	SF	$5.28	34996.45	$184,781.26
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$257,942.54**
				SUBTOTAL	**$5,354,632.85**
	DESIGN	LS	10%	1.00	$535,463.28
	MOBILIZATION	LS	10%	1.00	$535,463.28
	MOT	LS	10%	1.00	$535,463.28
	DRAINAGE	LS	10%	1.00	$535,463.28
	LIGHTING	LS	10%	1.00	$535,463.28
	SIGNALIZATION	LS	10%	1.00	$535,463.28
	CONTINGENCY	LS	20%	1.00	$1,070,926.57
				TOTAL COST	**$9,638,339.12**

ALTERNATIVE MIDDLE - 80' MULTIMODAL

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	2,168.32	$287,931.21
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	3,252.48	$335,818.56
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	39,424.00	$593,331.20
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	39,424.00	$20,106.24
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	9,386.67	$2,318,506.67
522-1	4" Concrete Sidewalk	SY	$38.84	26,282.67	$1,020,818.77
522-2	6" Concrete Driveways	SY	$49.35	-	$0.00
520-1-10	C & G Type F	LF	$21.34	16,896.00	$360,560.64
520-2-4	C & G Type D	LF	$23.31	8,448.00	$196,922.88
570-1-2	Performance Sod	SY	$3.83	5,162.67	$19,773.01
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$5,153,769.19**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0.00
*706-3	W/R RPMs	EA	$2.75	-	$0.00
*706-3	Y/Y RPMs	EA	$2.75	427.00	$1,174.25
*706-3	Y/R RPMs	EA	$2.75	-	$0.00
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	6.40	$4,144.38
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	192.00	$94.08
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	120.00	$129.60
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0.00
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	3.20	$2,059.55
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	1.60	$559.74
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	192.00	$320.64
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	120.00	$380.40
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	26.00	$1,246.18
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	192.00	$1,958.40
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	220.00	$3,713.60
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	15.00	$2,831.70
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	15.00	$1,504.80
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	6.40	$22,062.98
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0.00
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe (Double Yellow)	GM	$3,463.00	3.20	$11,081.60
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	1.60	$1,937.55
711-17	Thermoplastic, Remove	SF	$5.28	34996.45	$184,781.26
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$239,980.71**
				SUBTOTAL	**$5,393,749.90**
	DESIGN	LS	10%	1.00	$539,374.99
	MOBILIZATION	LS	10%	1.00	$539,374.99
	MOT	LS	10%	1.00	$539,374.99
	DRAINAGE	LS	10%	1.00	$539,374.99
	LIGHTING	LS	10%	1.00	$539,374.99
	SIGNALIZATION	LS	10%	1.00	$539,374.99
	CONTINGENCY	LS	20%	1.00	$1,078,749.98
				TOTAL COST	**$9,708,749.82**

ALTERNATIVE MIDDLE - 50' RAPID IMPLEMENTATION

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	-	$0.00
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	-	$0.00
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	-	$0.00
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	-	$0.00
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	-	$0.00
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0.00
522-2	6" Concrete Driveways	SY	$49.35	-	$0.00
520-1-10	C & G Type F	LF	$21.34	-	$0.00
520-2-4	C & G Type D	LF	$23.31	-	$0.00
570-1-2	Performance Sod	SY	$3.83	-	$0.00
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$0.00**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0.00
*706-3	W/R RPMs	EA	$2.75	-	$0.00
*706-3	Y/Y RPMs	EA	$2.75	636.00	$1,749.00
*706-3	Y/R RPMs	EA	$2.75	-	$0.00
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	5.52	$3,575.27
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	128.00	$62.72
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	48.00	$51.84
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0.00
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	4.80	$3,089.33
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0.00
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	128.00	$213.76
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	48.00	$152.16
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0.00
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	128.00	$1,305.60
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	180.00	$3,038.40
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	37.00	$6,984.86
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	11.00	$1,103.52
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	5.52	$19,033.23
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0.00
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe (Double Yellow)	GM	$3,463.00	4.80	$16,622.40
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0.00
711-17	Thermoplastic, Remove	SF	$5.28	33901.60	$179,000.45
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$235,982.54**
				SUBTOTAL	**$235,982.54**
	DESIGN	LS	10%	1.00	$23,598.25
	MOBILIZATION	LS	10%	1.00	$23,598.25
	MOT	LS	10%	1.00	$23,598.25
	DRAINAGE	LS	10%	1.00	$23,598.25
	LIGHTING	LS	10%	1.00	$23,598.25
	SIGNALIZATION	LS	10%	1.00	$23,598.25
	CONTINGENCY	LS	20%	1.00	$47,196.51
				TOTAL COST	**$424,768.57**

ALTERNATIVE MIDDLE - 50' MULTIMODAL

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	2,478.08	$329,064.24
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	3,717.12	$383,792.64
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	45,056.00	$678,092.80
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	45,056.00	$22,978.56
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	11,264.00	$2,782,208.00
522-1	4" Concrete Sidewalk	SY	$38.84	19,712.00	$765,614.08
522-2	6" Concrete Driveways	SY	$49.35	-	$0.00
520-1-10	C & G Type F	LF	$21.34	25,344.00	$540,840.96
520-2-4	C & G Type D	LF	$23.31	-	$0.00
570-1-2	Performance Sod	SY	$3.83	-	$0.00
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$5,502,591.28**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0.00
*706-3	W/R RPMs	EA	$2.75	-	$0.00
*706-3	Y/Y RPMs	EA	$2.75	636.00	$1,749.00
*706-3	Y/R RPMs	EA	$2.75	-	$0.00
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	9.60	$6,216.58
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	128.00	$62.72
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	64.00	$69.12
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0.00
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	4.80	$3,089.33
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0.00
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	128.00	$213.76
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	64.00	$202.88
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0.00
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	128.00	$1,305.60
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	180.00	$3,038.40
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	21.00	$3,964.38
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	21.00	$2,106.72
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	9.60	$33,094.46
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0.00
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe (Double Yellow)	GM	$3,463.00	4.80	$16,622.40
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0.00
711-17	Thermoplastic, Remove	SF	$5.28	33901.60	$179,000.45
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$250,735.80**
				SUBTOTAL	**$5,753,327.08**
	DESIGN	LS	10%	1.00	$575,332.71
	MOBILIZATION	LS	10%	1.00	$575,332.71
	MOT	LS	10%	1.00	$575,332.71
	DRAINAGE	LS	10%	1.00	$575,332.71
	LIGHTING	LS	10%	1.00	$575,332.71
	SIGNALIZATION	LS	10%	1.00	$575,332.71
	CONTINGENCY	LS	20%	1.00	$1,150,665.42
				TOTAL COST	**$10,355,988.74**

APPENDIX C
PILOT PROJECT COST ESTIMATES

Pilot Project A & B Cost Estimates Summary

Source: FDOT Area 13 Historic Average Construction Costs (01/01/2018 to 12/31/2018)
https://www.fdot.gov/programmanagement/Estimates/HistoricalCostInformation/HistoricalCost.shtm

PILOT PROJECT A - SEGEMENT 1

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	1,064.80	$141,395
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	2,526.48	$260,859
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	30,624.00	$460,891
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	30,624.00	$15,618
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	7,040.00	$1,738,880
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0
522-2	6" Concrete Driveways	SY	$49.35	-	$0
520-1-10	C & G Type F	LF	$21.34	-	$0
520-2-4	C & G Type D	LF	$23.31	681.12	$15,877
520-5-11	Traffic Separator Concrete Type I, 4' Wide	LF	$45.44	12,672.00	$575,816
570-1-2	Performance Sod	SY	$3.83	-	$0
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$3,209,336**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0
*706-3	W/R RPMs	EA	$2.75	-	$0
*706-3	Y/Y RPMs	EA	$2.75	318.00	$875
*706-3	Y/R RPMs	EA	$2.75	-	$0
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	2.85	$1,847
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	348.00	$171
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	130.50	$141
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	2.40	$1,545
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	348.00	$581
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	130.50	$414
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	174.00	$1,775
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	160.00	$2,701
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	10.00	$1,888
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	10.00	$1,003
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	2.85	$9,831
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe (Double Yellow)	GM	$3,463.00	2.40	$8,311
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0
711-17	Thermoplastic, Remove	SF	$5.28	16,883.25	$89,144
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$120,224**
				SUBTOTAL	**$3,329,560**
	DESIGN	LS	10%	1.00	**$332,956**
	MOBILIZATION	LS	10%	1.00	**$332,956**
	MOT	LS	10%	1.00	**$332,956**
	DRAINAGE	LS	10%	1.00	**$332,956**
	LIGHTING	LS	10%	1.00	**$332,956**
	SIGNALIZATION	LS	10%	1.00	**$332,956**
	CONTINGENCY	LS	20%	1.00	**$665,912**
				TOTAL COST	**$5,993,208**

PILOT PROJECT A - SEGEMENT 2

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	232.32	$30,850
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	580.80	$59,968
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	7,040.00	$105,952
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	7,040.00	$3,590
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	1,760.00	$434,720
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0
522-2	6" Concrete Driveways	SY	$49.35	-	$0
520-1-10	C & G Type F	LF	$21.34	-	$0
520-2-4	C & G Type D	LF	$23.31	3,168.00	$73,846
520-5-11	Traffic Separator Concrete Type I, 4' Wide	LF	$45.44	3,168.00	$143,954
570-1-2	Performance Sod	SY	$3.83	-	$0
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$852,880**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0
*706-3	W/R RPMs	EA	$2.75	-	$0
*706-3	Y/Y RPMs	EA	$2.75	80.00	$220
*706-3	Y/R RPMs	EA	$2.75	-	$0
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	0.60	$389
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	160.00	$78
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	80.00	$86
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	0.60	$386
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	160.00	$267
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	80.00	$254
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	160.00	$1,632
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	140.00	$2,363
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	4.00	$755
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	4.00	$401
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	0.60	$2,068
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe	GM	$3,463.00	0.60	$2,078
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0
711-17	Thermoplastic, Remove	SF	$5.28	3,730.40	$19,697
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$30,675**
				SUBTOTAL	**$883,554**
	DESIGN	LS	10%	1.00	**$88,355**
	MOBILIZATION	LS	10%	1.00	**$88,355**
	MOT	LS	10%	1.00	**$88,355**
	DRAINAGE	LS	10%	1.00	**$88,355**
	LIGHTING	LS	10%	1.00	**$88,355**
	SIGNALIZATION	LS	10%	1.00	**$88,355**
	CONTINGENCY	LS	20%	1.00	**$176,711**
				TOTAL COST	**$1,590,398**

PILOT PROJECT A - SEGEMENT 3

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	193.60	$25,708
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	406.56	$41,977
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	4,928.00	$74,166
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	4,928.00	$2,513
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	1,408.00	$347,776
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0
522-2	6" Concrete Driveways	SY	$49.35	-	$0
520-1-10	C & G Type F	LF	$21.34	3,168.00	$67,605
520-2-4	C & G Type D	LF	$23.31	-	$0
520-5-11	Traffic Separator Concrete Type I, 4' Wide	LF	$45.44	-	$0
570-1-2	Performance Sod	SY	$3.83	-	$0
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$559,746**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0
*706-3	W/R RPMs	EA	$2.75	-	$0
*706-3	Y/Y RPMs	EA	$2.75	80.00	$220
*706-3	Y/R RPMs	EA	$2.75	-	$0
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	0.60	$389
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	336.00	$165
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	140.00	$151
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	0.60	$386
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	336.00	$561
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	140.00	$444
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	224.00	$2,285
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	200.00	$3,376
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	4.00	$755
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	4.00	$401
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	0.60	$2,068
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe	GM	$3,463.00	0.60	$2,078
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0
711-17	Thermoplastic, Remove	SF	$5.28	3,168.00	$16,727
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$30,006**
				SUBTOTAL	**$589,752**
	DESIGN	LS	10%	1.00	**$58,975**
	MOBILIZATION	LS	10%	1.00	**$58,975**
	MOT	LS	10%	1.00	**$58,975**
	DRAINAGE	LS	10%	1.00	**$58,975**
	LIGHTING	LS	10%	1.00	**$58,975**
	SIGNALIZATION	LS	10%	1.00	**$58,975**
	CONTINGENCY	LS	20%	1.00	**$117,950**
				TOTAL COST	**$1,061,554**

PILOT PROJECT A - SEGEMENT 4

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	516.27	$68,555
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	1,142.24	$117,936
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	13,845.33	$208,372
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	13,845.33	$7,061
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	4,458.67	$1,101,291
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0
522-2	6" Concrete Driveways	SY	$49.35	-	$0
520-1-10	C & G Type F	LF	$21.34	8,448.00	$180,280
520-2-4	C & G Type D	LF	$23.31	-	$0
520-5-11	Traffic Separator Concrete Type I, 4' Wide	LF	$45.44	-	$0
570-1-2	Performance Sod	SY	$3.83	-	$0
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$1,683,496**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0
*706-3	W/R RPMs	EA	$2.75	-	$0
*706-3	Y/Y RPMs	EA	$2.75	212.00	$583
*706-3	Y/R RPMs	EA	$2.75	-	$0
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	1.60	$1,036
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	1,298.00	$636
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	383.50	$414
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	1.60	$1,030
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	1,298.00	$2,168
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	383.50	$1,216
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	313.88	$3,202
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	200.00	$3,376
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	8.00	$1,510
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	8.00	$803
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	1.60	$5,516
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe	GM	$3,463.00	1.60	$5,541
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0
711-17	Thermoplastic, Remove	SF	$5.28	9,005.40	$47,549
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$74,578**
				SUBTOTAL	**$1,758,074**
	DESIGN	LS	10%	1.00	**$175,807**
	MOBILIZATION	LS	10%	1.00	**$175,807**
	MOT	LS	10%	1.00	**$175,807**
	DRAINAGE	LS	10%	1.00	**$175,807**
	LIGHTING	LS	10%	1.00	**$175,807**
	SIGNALIZATION	LS	10%	1.00	**$175,807**
	CONTINGENCY	LS	20%	1.00	**$351,615**
				TOTAL COST	**$3,164,532**

PILOT PROJECT B - SEGEMENT 1

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	277.49	$36,848
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	493.68	$50,972
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	5,984.00	$90,059
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	5,984.00	$3,052
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	938.67	$231,851
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0
522-2	6" Concrete Driveways	SY	$49.35	-	$0
520-1-10	C & G Type F	LF	$21.34	2,112.00	$45,070
520-2-4	C & G Type D	LF	$23.31	-	$0
520-5-11	Traffic Separator Concrete Type I, 4' Wide	LF	$45.44	-	$0
570-1-2	Performance Sod	SY	$3.83	-	$0
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$457,853**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0
*706-3	W/R RPMs	EA	$2.75	54.00	$149
*706-3	Y/Y RPMs	EA	$2.75	54.00	$149
*706-3	Y/R RPMs	EA	$2.75	-	$0
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	0.80	$518
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	612.00	$300
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	255.00	$275
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	0.40	$145
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	0.40	$257
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	612.00	$1,022
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	255.00	$808
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	408.00	$4,162
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	440.00	$7,427
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	2.00	$378
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	2.00	$201
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	0.80	$2,758
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	0.40	$514
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe	GM	$3,463.00	0.40	$1,385
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0
711-17	Thermoplastic, Remove	SF	$5.28	3,168.00	$16,727
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$37,174**
				SUBTOTAL	**$495,027**
	DESIGN	LS	10%	1.00	**$49,503**
	MOBILIZATION	LS	10%	1.00	**$49,503**
	MOT	LS	10%	1.00	**$49,503**
	DRAINAGE	LS	10%	1.00	**$49,503**
	LIGHTING	LS	10%	1.00	**$49,503**
	SIGNALIZATION	LS	10%	1.00	**$49,503**
	CONTINGENCY	LS	20%	1.00	**$99,005**
				TOTAL COST	**$891,049**

PILOT PROJECT B - SEGEMENT 2

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	542.08	$71,983
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	1,122.88	$115,937
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	13,610.67	$204,841
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	13,610.67	$6,941
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	2,346.67	$579,627
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0
522-2	6" Concrete Driveways	SY	$49.35	-	$0
520-1-10	C & G Type F	LF	$21.34	-	$0
520-2-4	C & G Type D	LF	$23.31	4,224.00	$98,461
520-5-11	Traffic Separator Concrete Type I, 4' Wide	LF	$45.44	4,224.00	$191,939
570-1-2	Performance Sod	SY	$3.83	-	$0
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$1,269,729**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0
*706-3	W/R RPMs	EA	$2.75	-	$0
*706-3	Y/Y RPMs	EA	$2.75	106.00	$292
*706-3	Y/R RPMs	EA	$2.75	-	$0
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	0.80	$518
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	608.00	$298
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	126.00	$136
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	0.80	$290
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	0.80	$515
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	608.00	$1,015
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	126.00	$399
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	14.00	$671
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	304.00	$3,101
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	300.00	$5,064
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	4.00	$755
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	4.00	$401
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	0.80	$2,758
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	0.80	$1,029
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe	GM	$3,463.00	0.80	$2,770
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0
711-17	Thermoplastic, Remove	SF	$5.28	6,336.00	$33,454
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$53,466**
				SUBTOTAL	**$1,323,195**
	DESIGN	LS	10%	1.00	**$132,319**
	MOBILIZATION	LS	10%	1.00	**$132,319**
	MOT	LS	10%	1.00	**$132,319**
	DRAINAGE	LS	10%	1.00	**$132,319**
	LIGHTING	LS	10%	1.00	**$132,319**
	SIGNALIZATION	LS	10%	1.00	**$132,319**
	CONTINGENCY	LS	20%	1.00	**$264,639**
				TOTAL COST	**$2,381,751**

PILOT PROJECT B - SEGEMENT 3

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	-	$0
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	-	$0
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	-	$0
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	-	$0
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	-	$0
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0
522-2	6" Concrete Driveways	SY	$49.35	-	$0
520-1-10	C & G Type F	LF	$21.34	-	$0
520-2-4	C & G Type D	LF	$23.31	-	$0
520-5-11	Traffic Separator Concrete Type I, 4' Wide	LF	$45.44	-	$0
570-1-2	Performance Sod	SY	$3.83	-	$0
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$0**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0
*706-3	W/R RPMs	EA	$2.75	-	$0
*706-3	Y/Y RPMs	EA	$2.75	-	$0
*706-3	Y/R RPMs	EA	$2.75	-	$0
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	-	$0
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	-	$0
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	-	$0
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	-	$0
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	-	$0
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	-	$0
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	-	$0
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	-	$0
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	13	$2,454
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	-	$0
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	-	$0
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe	GM	$3,463.00	-	$0
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0
711-17	Thermoplastic, Remove	SF	$5.28	6,336.00	$33,454
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$35,908**
				SUBTOTAL	**$35,908**
	DESIGN	LS	10%	1.00	**$3,591**
	MOBILIZATION	LS	10%	1.00	**$3,591**
	MOT	LS	10%	1.00	**$3,591**
	DRAINAGE	LS	10%	1.00	**$3,591**
	LIGHTING	LS	10%	1.00	**$3,591**
	SIGNALIZATION	LS	10%	1.00	**$3,591**
	CONTINGENCY	LS	20%	1.00	**$7,182**
				TOTAL COST	**$64,635**

PILOT PROJECT B - SEGEMENT 4

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	467.87	$62,128
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	1,089.00	$112,439
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	13,200.00	$198,660
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	13,200.00	$6,732
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	2,933.33	$724,533
522-1	4" Concrete Sidewalk	SY	$38.84	-	$0
522-2	6" Concrete Driveways	SY	$49.35	-	$0
520-1-10	C & G Type F	LF	$21.34	-	$0
520-2-4	C & G Type D	LF	$23.31	7,920.00	$184,615
520-5-11	Traffic Separator Concrete Type I, 4' Wide	LF	$45.44	5,280.00	$239,923
570-1-2	Performance Sod	SY	$3.83	1,320.00	$5,056
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$1,534,087**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0
*706-3	W/R RPMs	EA	$2.75	-	$0
*706-3	Y/Y RPMs	EA	$2.75	136.00	$374
*706-3	Y/R RPMs	EA	$2.75	-	$0
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	1.00	$648
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	-	$0
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	240.00	$259
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	1.00	$644
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	0.50	$175
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	-	$0
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	240.00	$761
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	10.00	$479
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	800.00	$8,160
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	720.00	$12,154
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	6.00	$1,133
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	6.00	$602
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	1.00	$3,447
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe	GM	$3,463.00	1.00	$3,463
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	0.50	$605
711-17	Thermoplastic, Remove	SF	$5.28	10,560.00	$55,757
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$88,660**
				SUBTOTAL	**$1,622,747**
	DESIGN	LS	10%	1.00	**$162,275**
	MOBILIZATION	LS	10%	1.00	**$162,275**
	MOT	LS	10%	1.00	**$162,275**
	DRAINAGE	LS	10%	1.00	**$162,275**
	LIGHTING	LS	10%	1.00	**$162,275**
	SIGNALIZATION	LS	10%	1.00	**$162,275**
	CONTINGENCY	LS	20%	1.00	**$324,549**
				TOTAL COST	**$2,920,944**

PILOT PROJECT B - SEGEMENT 5

PAY ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	TOTAL
Roadway and Hardscape					
337-7-82	1" FC-9.5 Asphalt - Traffic C, PG 76-22	TON	$132.79	232.32	$30,850
334-1-13	1.5" SP-9.5 Superpave - Traffic C	TON	$103.25	580.80	$59,968
285-706	8" Limerock - Optional Base (Base group 06)	SY	$15.05	7,040.00	$105,952
160-4	12" LBR 40 - Type B Stabilization	SY	$0.51	7,040.00	$3,590
523-1-3	Green Pavement Area for Bike Lanes	SY	$247.00	1,760.00	$434,720
522-1	4" Concrete Sidewalk	SY	$38.84	2,464.00	$95,702
522-2	6" Concrete Driveways	SY	$49.35	-	$0
520-1-10	C & G Type F	LF	$21.34	-	$0
520-2-4	C & G Type D	LF	$23.31	3,168.00	$73,846
520-5-11	Traffic Separator Concrete Type I, 4' Wide	LF	$45.44	3,168.00	$143,954
570-1-2	Performance Sod	SY	$3.83	-	$0
				TOTAL ROADWAY AND HARDSCAPE ITEMS	**$948,582**
Signing & Pavement Markings					
710-90	Painted Pavement Markings, Final Surface				
*706-3	Retro-Reflective/Raised Pavement Markers				
*706-3	MD/Y RPMs	EA	$2.75	-	$0
*706-3	W/R RPMs	EA	$2.75	-	$0
*706-3	Y/Y RPMs	EA	$2.75	80.00	$220
*706-3	Y/R RPMs	EA	$2.75	-	$0
*710-11-101	Painted Pavement Markings, Std, White, Solid 6"	GM	$647.56	0.60	$389
*710-11-123	Painted Pavement Markings, Std, White, Solid 12" for Standard Crosswalk	LF	$0.49	480.00	$235
*710-11-125	Painted Pavement Markings, Std, White, Solid 24" for Stop Line	LF	$1.08	160.00	$173
*710-11-131	Painted Pavement Markings, Std. White, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$362.15	-	$0
*710-11-201	Painted Pavement Markings, Std, Yellow, Solid 6"	GM	$643.61	0.60	$386
*710-11-231	Painted Pavement Markings, Std, Yellow, Skip 6", 10'-30' Skip or 3'-9' Lane Drop	GM	$349.84	-	$0
711-11-123	Thermoplastic Std. White, Solid, 12" for Standard Crosswalk	LF	$1.67	480.00	$802
711-11-125	Thermoplastic Std. White, Solid, 24" for Stop Line	LF	$3.17	160.00	$507
711-11-170	Thermoplastic Std. White Arrow (TWLTL Arrows)	EA	$47.93	-	$0
711-14-123	Thermoplastic Preformed White, Solid, 12" for High Emphasis Crosswalk	LF	$10.20	160.00	$1,632
711-14-125	Thermoplastic Preformed White, Solid, 24" for High Emphasis Crosswalk	LF	$16.88	140.00	$2,363
711-14-160	Thermoplastic Preformed Bike Message	EA	$188.78	4.00	$755
711-14-170	Thermoplastic Preformed Bike Arrow	EA	$100.32	4.00	$401
711-16-101	Thermoplastic Std. Other 6" White Solid Stripe	GM	$3,447.34	0.60	$2,068
711-16-131	Thermoplastic Std. Other 6" White Skip Stripe (10-30)	GM	$1,285.71	-	$0
711-16-201	Thermoplastic Std. Other 6" Yellow Solid Stripe	GM	$3,463.00	0.60	$2,078
711-16-231	Thermoplastic Std. Other 6" Yellow Skip Stripe (10-30)	GM	$1,210.97	-	$0
711-17	Thermoplastic, Remove	SF	$5.28	3,168.00	$16,727
				TOTAL SIGNING AND PAVEMENT MARKINGS ITEMS	**$28,736**
				SUBTOTAL	**$977,318**
	DESIGN	LS	10%	1.00	**$97,732**
	MOBILIZATION	LS	10%	1.00	**$97,732**
	MOT	LS	10%	1.00	**$97,732**
	DRAINAGE	LS	10%	1.00	**$97,732**
	LIGHTING	LS	10%	1.00	**$97,732**
	SIGNALIZATION	LS	10%	1.00	**$97,732**
	CONTINGENCY	LS	20%	1.00	**$195,464**
				TOTAL COST	**$1,759,172**