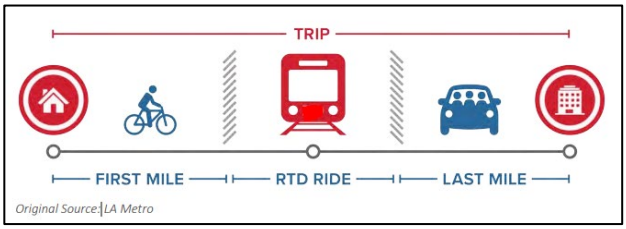
First and Last Mile/Leg Connectivity and Shared Mobility

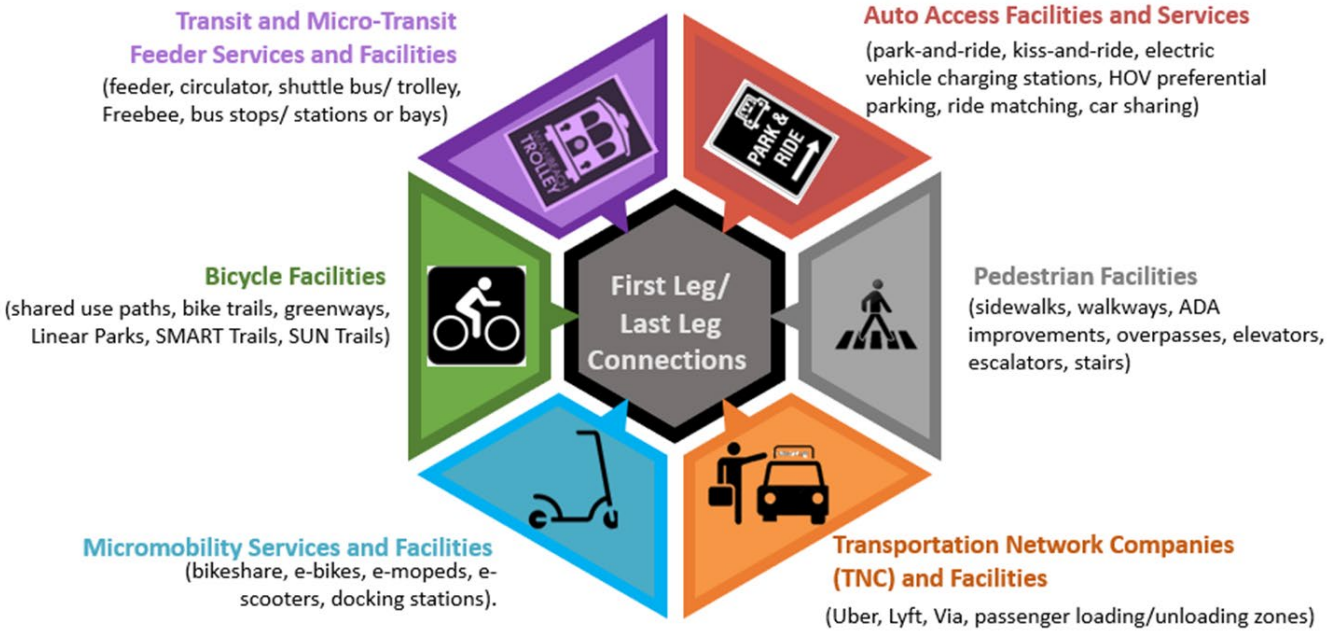
What is First and Last Mile/Leg (FLM) connection?



First and last mile/leg (FLM) concept in public transportation system is essentially travel choices for public to travel from their origin (e.g., home) to the nearest transit station and from transit station to their destination (e.g., office).

First and last mile/leg connection is a critical, yet often overlooked and under-resourced, component of successful transit systems. Despite being unproportionable to the overall length of a trip, it often dictates commuter's willingness of taking public transportation. Over the past several decades, 'walking' is the primary mode choice for public transportation commuters to complete the first and last mile(s)/leg(s) portion of their trip. However, several other alternate options are rapidly becoming available with the recent technological advancements in the last decade.

Development of a well-connected non-motorized transportation network system with multiple FLM commute choices is one of our top priority areas to achieve a sustainable and eco-friendly multimodal transportation system. To achieve this goal, Miami-Dade County and all its partners have been continuously emphasizing on improving first and last mile/leg connectivity and enhancing non-motorized transportation system by implementing various projects.



Pedestrian Facilities (within half mile of a transit stop/station/terminal)

Pedestrian Facilities include sidewalks, walkways, ADA improvements, pedestrian overpasses, elevators/escalators, and stairs. Most major streets and local streets throughout the county have sidewalks for safe walking. MDC's adaptation of Complete Streets Policy in the year 2014 shows the county's direction and requirements on various context sensitive design elements in all street design projects to facilitate the needs of all modes of transportation. Escalators/elevators and stairs are available for passenger use in all 21 Metrorail stations and existing Metrorail station pedestrian overpasses. DTPW maintains pedestrian overpasses throughout its transit system to facilitate safe passenger connection. Listed below are some of the pedestrian overpasses.

- Douglas Road Metrorail Station Pedestrian Overpass
- Vizcaya Metrorail Station Pedestrian Overpass
- Hialeah Metrorail Station Overpass
- Snapper Creek Expressway and U.S.1 M-Path Overpass
- University Metrorail Station Pedestrian Overpass

University Metrorail Station Pedestrian Overpass

The Miami-Dade 2045 Bicycle/Pedestrian Plan outlines county's vision, mission, goals and direction of creating interconnected pedestrian and bicycle friendly communities throughout the county.

Bicycle Facilities (within three miles of a transit stop/station/terminal)

Bicycle facilities include shared use paths, greenways, trails (SUN, SMART, other), linear parks (underline), bicycle parking, bicycle repair, and stair tire channels. In addition to the 2045 Bicycle/Pedestrian Plan update mentioned above, the Miami-Dade TPO 2045 Long Range Transportation Plan presents the County's vision, direction, and improvement strategies to enhance non-motorized transportation network in the county.

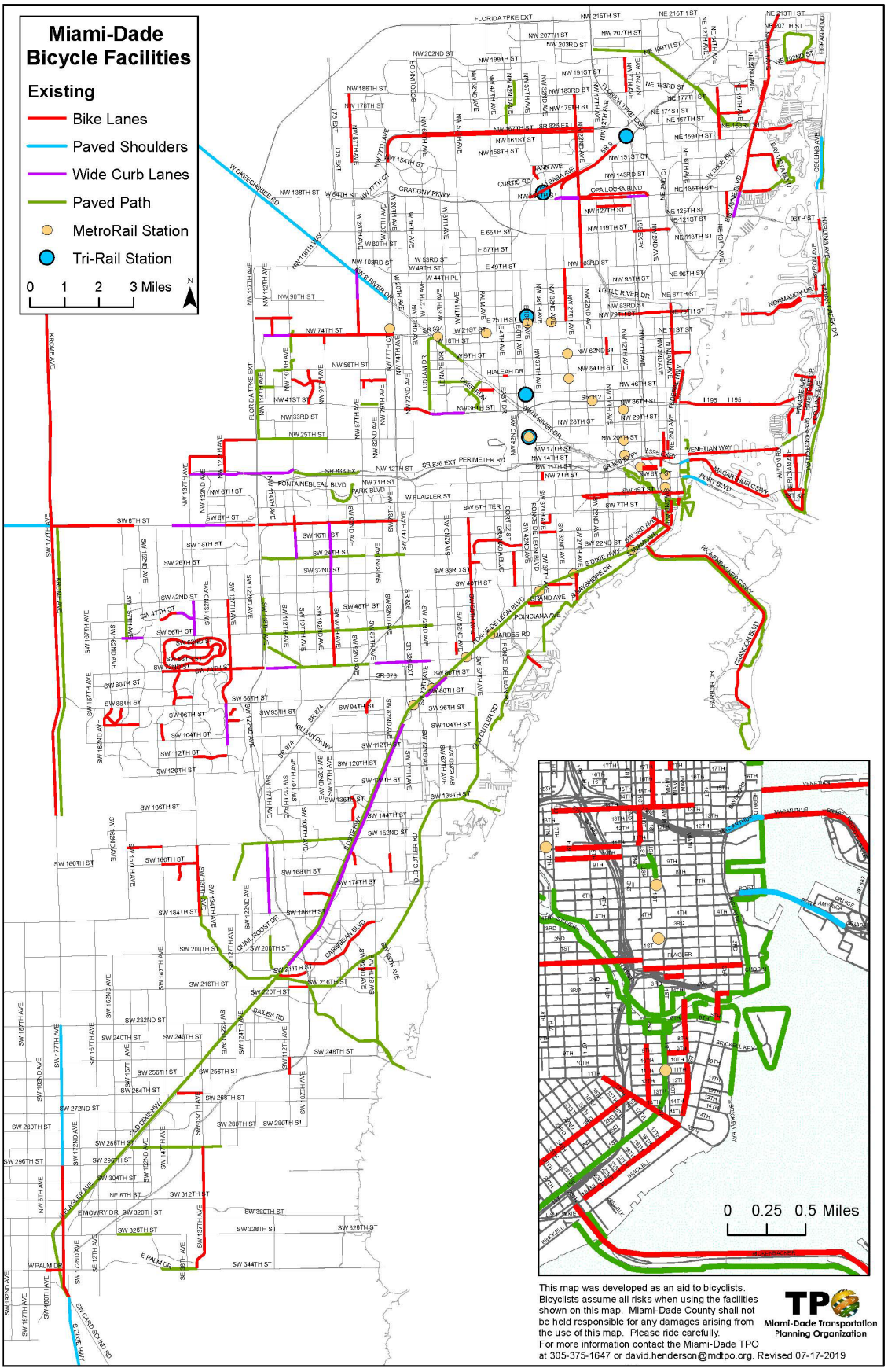
Also, there are several other initiatives including Bicycle Pedestrian Program (BPP), Bicycle Friendly Business (BFB) Program, Bicycle Friendly Community (BFC) Program, Bicycle Friendly University (BFU) Program to actively promote and encourage biking. The Bicycle Pedestrian Advisory Committee (BPAC) advises the TPO Governing Board on bicycle and pedestrian-related issues, assists the TPO staff in the development of the comprehensive bicycle transportation plan. Miami-Dade Transit's Bike & Ride program allows commuters to bring their bike onto Metrorail and rack-equipped Metrobus. Also, the county zoning code has required that multi-family residential and commercial properties in the unincorporated area provide secure bike parking close to their primary entrance.

Miami-Dade County has more than 522 miles of bicycle infrastructure ranging from protected and unprotected bike lanes, paved paths and trails, paved shoulders, and wide curb lanes, in addition to sharrows that provide ample opportunities for cycling. The breakdown in facility mileage through July 31st, 2022 is illustrated below:

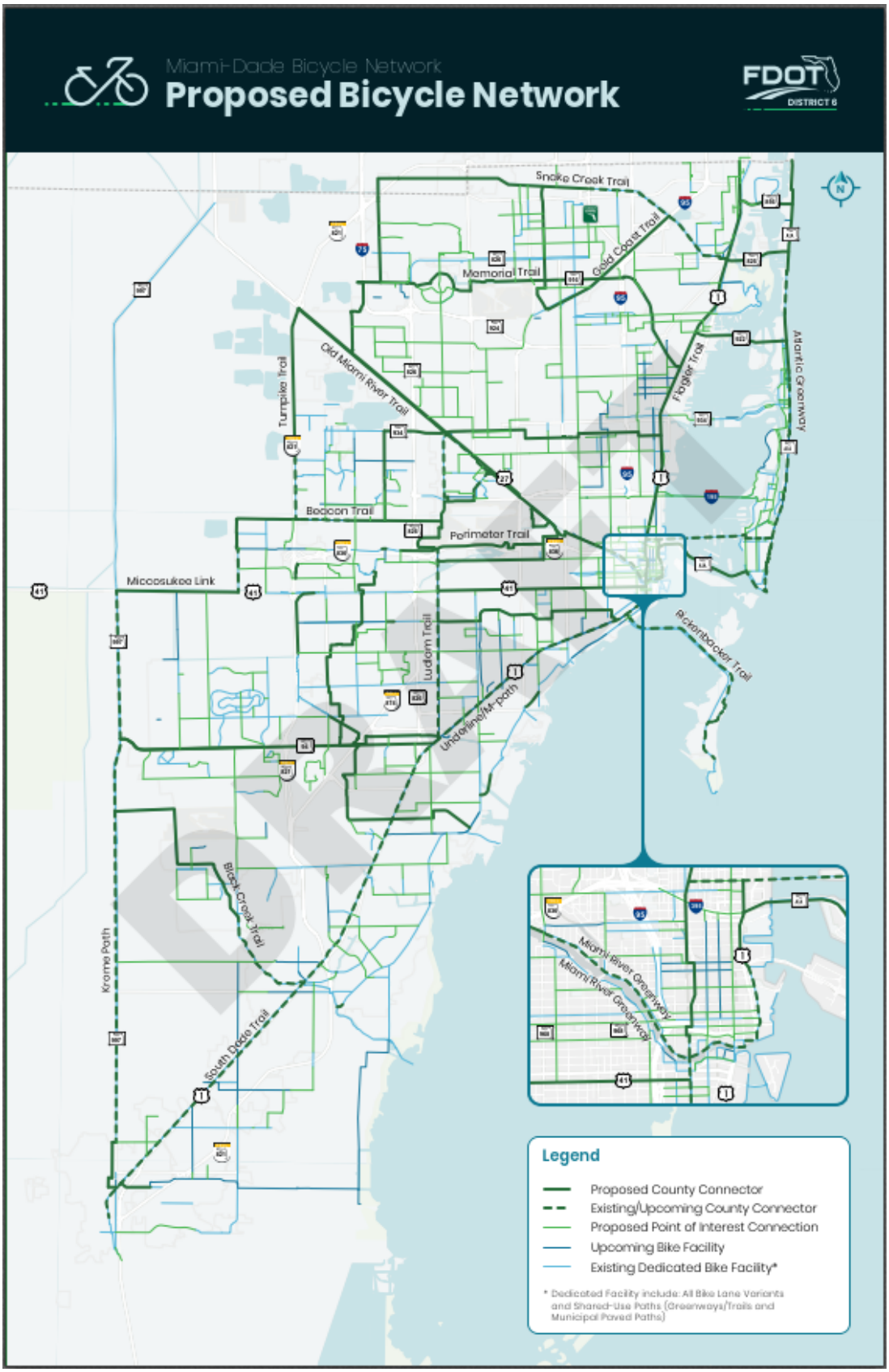
Type	Miles
Dedicated Facilities	
Bike Lanes	
Unprotected	196.57
Buffered	6.39
Protected	4.81
Total Bike Lanes	**207.77**
Paved Paths and Trails	
Paved Paths	54.43
Trails	123.80
Total Paved Paths and Trails	**178.23**
Total Miles of Dedicated Facilities	**386.00**
Paved Shoulders	**53.27**
Wide Curb Lanes	**28.11**
Total Miles of all Bike Facilities	**467.38**
Sharrows*	**54.67**
**-Sharrows are not considered as bicycle facilities*	
Total All Mileage	**522.05**

Source: Miami-Dade TPO (miamidadetpo.org)

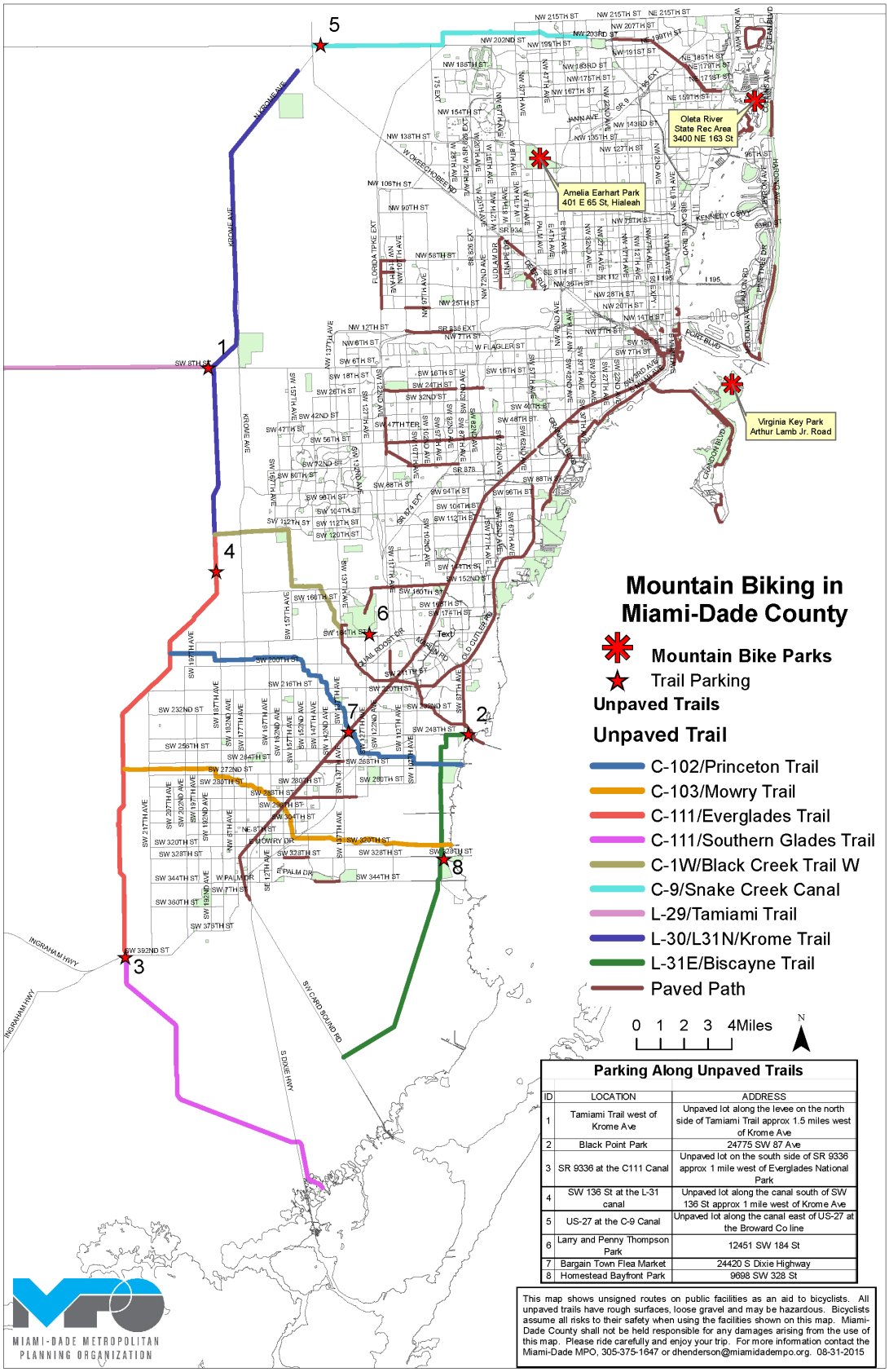
The maps below show the existing (Map 1), planned bike facilities (Map 2), and Mountain biking trails (Map 3) in the County as we continue to transform our County as a pedestrian and bicycle friendly community.



Map 1 - Miami-Dade Existing Bicycle Facilities



Map 2 - Miami-Dade Proposed Bicycle Facilities

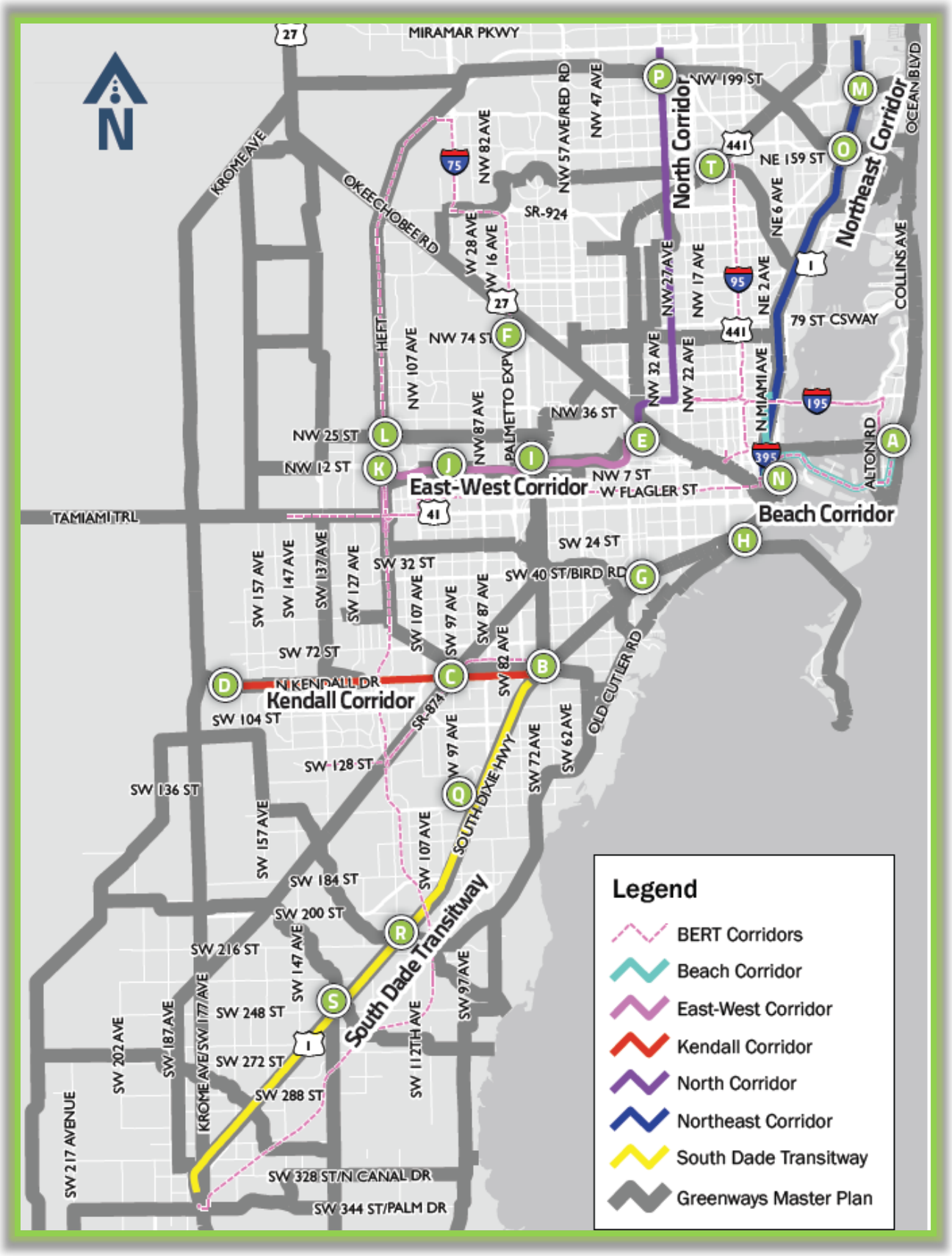


Map 3 - Miami-Dade Mountain Biking Trails and Parks

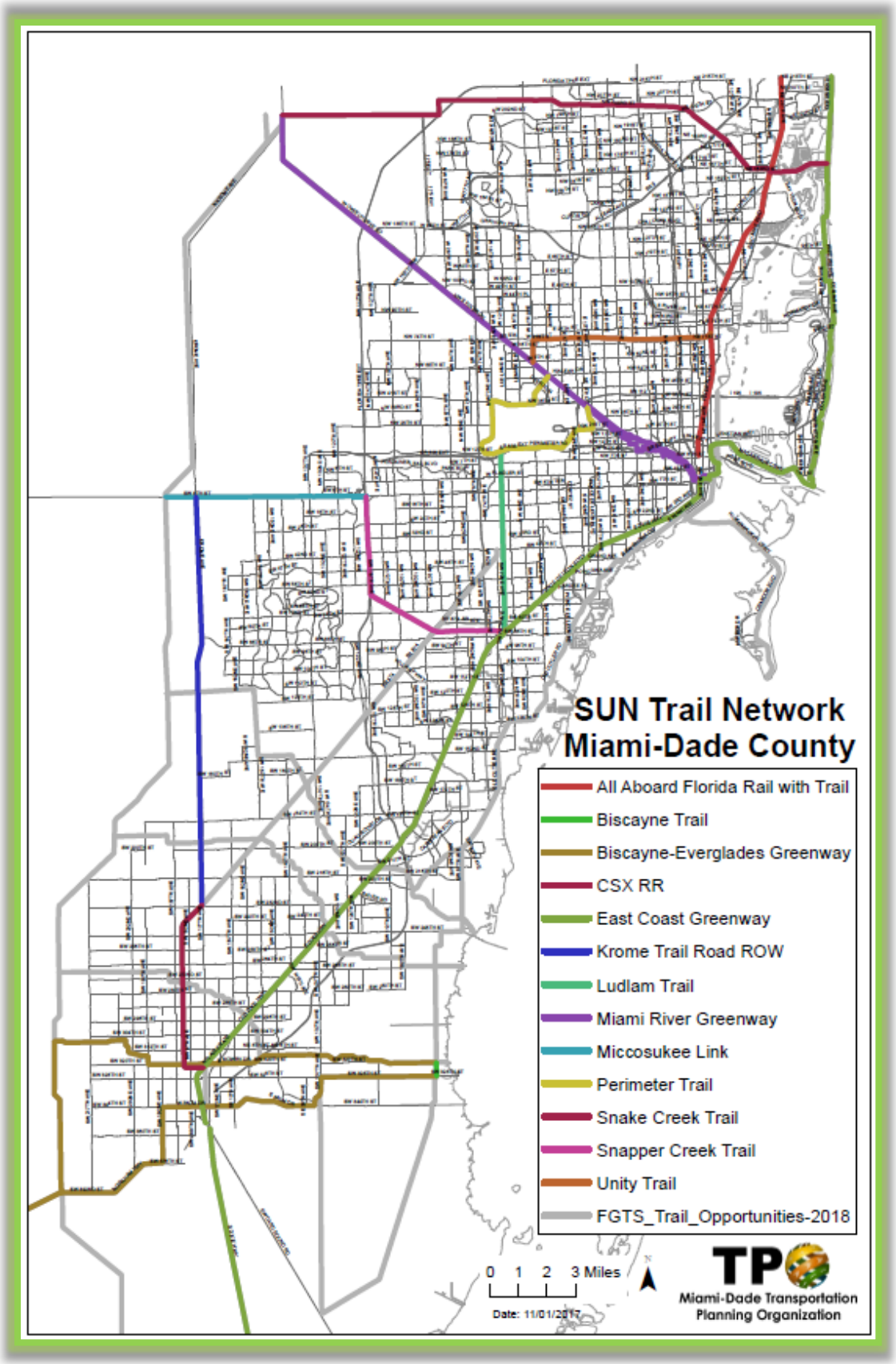
A **SMART Trails Connections** Master Plan was developed as part of the SMART Plan implementation effort to identify potential first and last mile/leg connections between the SMART Plan corridors and the regional non-motorized trail system within the County. SMART Trails and their connectivity to SMART Plan Corridors include:

SMART PLAN/ TRANSIT CORRIDOR	SMART TRAILS CONNECTIONS
Beach Corridor	**A.** Atlantic Greenway to Beach Corridor
Kendall Corridor	**B.** Ludlam Trail to Dadeland North Metrorail Station/Underline/Kendall Corridor — Route A
	B. Ludlam Trail to Dadeland North Metrorail Station/Underline/Kendall Corridor — Route B
	C. Snapper Creek Trail to Kendall Corridor
	D. Krome Trail to Kendall Corridor
Metrorail	**E.** Miami River Greenway to Metrorail — Route A
	E. Miami River Greenway to Metrorail — Route B
	F. Miami River Greenway to Palmetto Metrorail
	G. SW 38th Avenue to Douglas Metrorail/Underline
	H. Rickenbacker Cswy to Underline/Vizcaya Metrorail — Route A
	H. Rickenbacker Cswy to Underline/Vizcaya Metrorail — Route B
East-West Corridor	**I.** Ludlam Trail to East-West Corridor
	J. Kitty Roedel to East-West Corridor
	K. Central West Basin Linear Park to Dolphin Park & Ride
	L. Turnpike Trail to Dolphin P&R — Route A
	L. Turnpike Trail to Dolphin P&R — Route B
Northeast Corridor	**M.** Lehman Link to Northeast Corridor
	N. Baywalk Path to Northeast Corridor
	O. Snake Creek Trail to Northeast Corridor
North Corridor	**P.** Snake Creek Trail to North Corridor - Route A
	P. Snake Creek Trail to North Corridor - Route B
South Dade Transitway/ South Corridor	**Q.** Briar Bay Linear Park to South Dade Transitway
	R. Roberta Hunter Park Trail to South Dade Transitway
	S. Princeton Trail to South Dade Transitway/South Dade Trail
Tri-Rail	**T.** Gold Coast Trail to Golden Glades Tri-Rail Station

Map 4 identifies the Miami-Dade County SMART Trails Connections Network and Greenways Master Plan and connectivity to the six SMART Plan rapid transit corridors.



Map 4 – Miami-Dade County SMART Trails Connections Network and Greenways Master Plan



Map 5 - Miami Dade County SUN Trail Network

In addition to the SMART and SUN Trails, there are several Bicycle and Pedestrian Paths/Trails/Greenways initiatives throughout the County. Also, the County's adaptation of Complete Streets approach and focus on context sensitive solutions further emphasizes the need for making existing roadways safer not only to vehicular traffic but all roadway users (both transportation and non-transportation users).

The Citizens' Independent Transportation Trust (CITT) continues to promote the projects that improve first and last mile/leg connectivity and non-motorized elements of our transit connectivity system and urges all the stakeholders to prioritize related projects in its capital program and budget.

A. Bicycle and Pedestrian Paths/Trails/Greenways[1, 2, 3]

1. Brownsville/Model City Bicycle Boulevard Plan
2. Black Creek Trail
3. Commodore Trail
4. Flagler Trail
5. Miami Baywalk/Biscayne Line
6. Miami Loop
7. Okeechobee Metrorail Station Bike/Ped Connectivity to Miami Springs/Medley
8. Old Cutler Trail
9. Overtown Greenway
10. Rickenbacker Trail
11. SMART Trails
12. Safe Routes to Schools
13. South Dade Trail
14. SUN Trail Network
15. Sunset Drive/Road Protected Bicycle Path
16. Underline/M-Path
17. Other paths/trails/greenway connectors approved by the CITT and Board of County Commissioners on a case-by-case basis.

B. Bicycle Facilities & Services[1, 2, 4]

1. Bike Commuter Stations (secured/covered parking, repair facilities, lockers, showers, etc.)
2. Bike/Scooter-share programs
3. Protected bicycle parking at transit facilities

C. On-Demand Service [1, 2, 4]

1. Ride-sharing service (for at least two passengers)
2. Variable route circulators/trolleys/shuttles (for at least two passengers)

NOTES:

1. Projects are listed in alphabetical order, and not in any order of priority or preference.
2. Projects/service must primarily serve as a connection to a major transit facility (i.e., Metrorail, Tri-Rail, SMART Plan corridor, park-and-ride, or other premium transit station), or as a direct commuter connection to major employment centers or schools and shall exclude projects that serve a primarily recreational purpose.
3. Bicycle and Pedestrian Paths/Trails/Greenways should be separated and/or otherwise protected from vehicular traffic to the maximum extent possible.

Vision Zero

In Miami-Dade County, road crashes over the past decade resulted in an average of 4 fatalities per week and 17 severe injuries per week costing a total amount of $22 billion dollars (emergency services, medical services, household productivity lost, insurance administration, workplace costs, legal costs, congestions impact and property damage). Over the past 10 years, the number of fatal crashes has increased by 38% and crashes involving people walking and biking increased by 20% nationwide. Fatal crashes involving pedestrians and bicyclists in Miami-Dade County is 37% even though they account for only 10% of all the trips. The number of crashes resulting in fatal injuries is twice than the US average of 21%. Vision Zero is a world-wide movement establishing a program dedicated to eliminating deaths and serious injuries from the transportation network through a system-wide approach. This program includes identifying high crash locations and possible countermeasures to avoid future crashes, propose systematic approach to enhance safety. In May 2021 (National Bike Month), Miami-Dade County launched its "Vision Zero" program with the goal to end all bicycling road deaths by 2030.

DTPW is prioritizing the implementation of the Vision Zero Plan in Miami-Dade County. DTPW have identified high crash pedestrian and bicycle locations to implement site specific safety countermeasures and is finalizing the Vision Zero Implementation Plan report that further identified the County High-Injury (HI) Network (segments and intersections), layout a systematic approach to implement safety countermeasures and policies considering prioritizing interdepartmental coordination, accountability, create awareness and educating the public, and making safety improvements at the HI network. The Vision Zero projects also include first and last mile/leg connections to SMART plan projects enhancing pedestrian and bicycle facilities and also retrofit existing bicycle facilities with protection elements to further promote safety and multimodal choices.

In addition to the traditional non-motorized travel modes discussed above, technological advancements in the last decade and growing business interest of private companies (or Transportation Network Companies) towards Mobility-as-a-Service (MaaS) has provided commuters with additional mobility modes such as Uber, Lyft, car sharing, e-scooters, bikeshare, etc.

Micromobility Services and Facilities (at and to/from a transit stop/station/terminal)

Micromobility Services and Facilities include Bikeshare, e-bikes, e-scooters, e-mopeds and docking stations. DPTW implemented RideOn automated bike share program that provided approximately 2000 e-bikes via docks at several Metrorail stations and Metrobus terminals throughout the County. Municipalities including City of Miami Beach, City of Miami, Bal Harbour Village partnered with Citibike and City of Aventura partnered with Aventura BCycle to implement successful bikeshare programs in the County that contributes to the first and last mile/leg connections.

The City of Miami implemented a pilot program with the micromobility providers- Lime, Bird, Bolt, Jump, Lyft, Spin, Wheels, Baus, and HelBiz to evaluate the effectiveness of e-scooters as part of an overall transportation and mobility. The City permitted 3,957 scooters in the program with a $5,000 up-front licensing fee and a charge of $1 per day per scooter. The City also issued a $25 ticket for improperly parked scooters. Miami Parking Authority introduced e-mopeds in the City of Miami.

Use of bicycles, e-bikes, e-scooters, e-mopeds was banned during COVID-19 pandemic and resumed later.

Transit and Micro-transit Feeder Service and Facilities (at and to/from a transit stop/station/terminal)

Transit and Micro-transit Feeder Service and Facilities includes Feeder buses, circulator, Municipal Trolley/Shuttle bus, on-demand transit, and micro transit (Freebee), Bus stops/stations or bays. These modes majorly supports first and last mile/leg connectivity. Majority of the municipalities (28 of 34 municipalities) in Miami-Dade County provide fare-free Trolley/Circulator and/or on-demand Freebee service that connects to the County Metrorail stations or the Metrobus system. Additionally, two (2) more municipalities are planning to implement the Freebee service in 2022. In 2019, the municipal transit system carried over 14 million passengers whereas the ridership declined in 2020 and 2021 due to service suspensions and reductions during the COVID-19 pandemic. However, post pandemic, the ridership trend is increasing with service restorations and new service. CITT provides funding to the municipalities to support transit service through People's Transportation Plan half-penny sales Surtax. Detailed information (transit vehicle, service, ridership, PTP funds, connectivity with County transit system etc.) can be found in the Municipal Program section of this Plan.

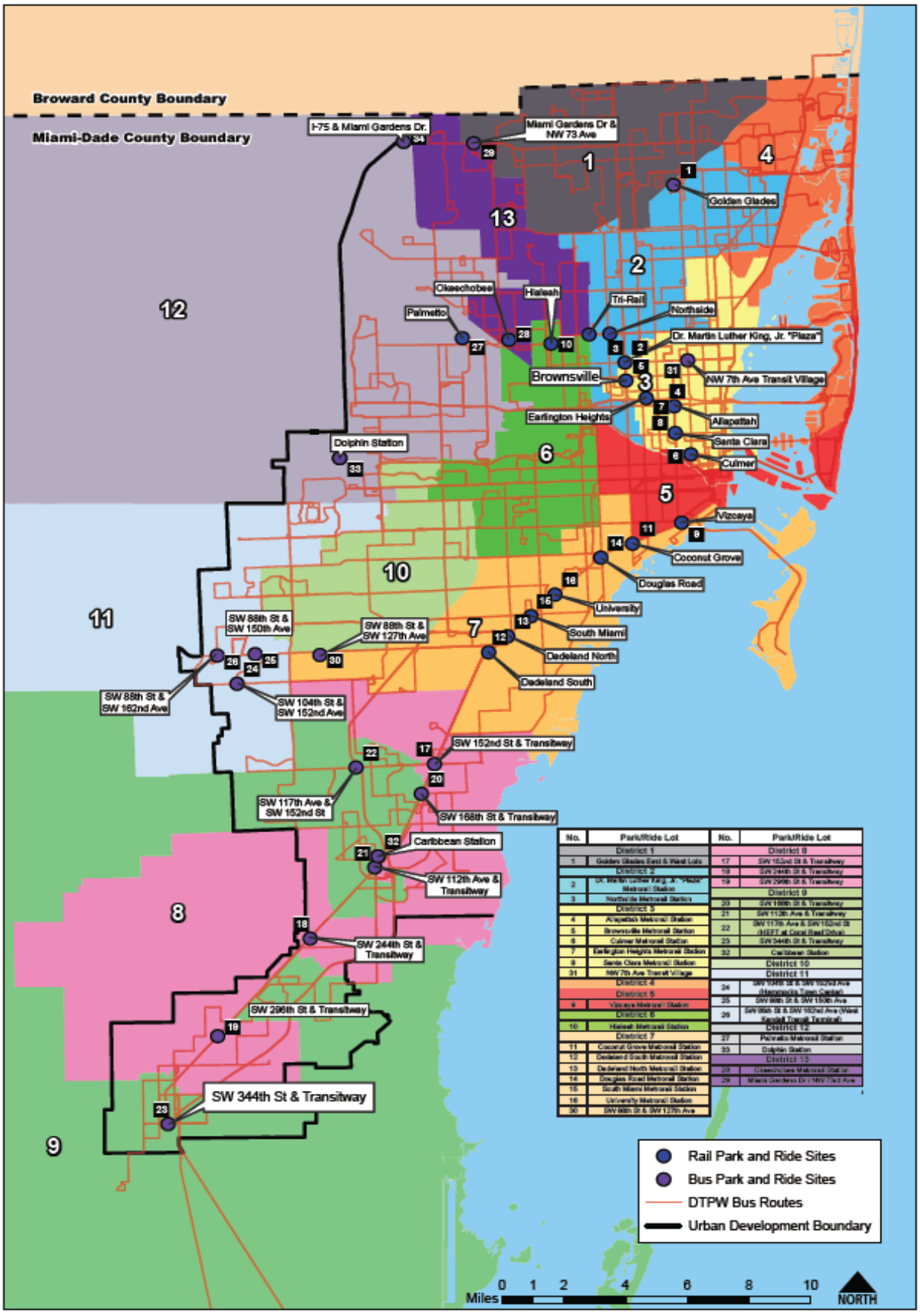
Municipal Trolleys/Circulators and Freebee Vehicles

Auto Access Facilities and Services (at and to/from a transit stop/station/terminal)

Dolphin Station Park-and-Ride

Auto access facilities and services include park-and-ride, kiss-and-ride, electric vehicle charging stations, High Occupancy Vehicle (HOV) preferential parking, ride matching, car sharing. Strategic development of park-and-ride, kiss-and-ride, and multimodal Metrorail parking facilities encourages travelers to take transit trips. I-95 Express Bus routes, Metrorail, Enhanced Express Bus Service routes are a few existing examples of transit routes that are greatly befitted (in terms of ridership) due to the availability of conveniently connected park-and-ride, kiss-and-ride, and metro parking facilities. DTPW currently has over 34 existing park-and-ride locations including Transit Oriented Developments (TODs) with over 13,000 available parking spaces and is planning to develop more transit hub locations. Map 6 below identifies locations of the Miami-Dade County existing park-and-ride facilities.

Map 6 - Park-and-Ride Facilities in Miami-Dade County



No.	Park/Ride Lot
	District 1
1	Golden Glades East & West Lots
	District 2
2	Dr. Martin Luther King, Jr. "Plaza" Metrorail Station
3	Northside Metrorail Station
	District 3
4	Allapattah Metrorail Station
5	Brownsville Metrorail Station
6	Culmer Metrorail Station
7	Earlington Heights Metrorail Station
8	Santa Clara Metrorail Station
31	NW 7th Ave Transit Village
	District 4
	District 5
9	Vizcaya Metrorail Station
	District 6
10	Hialeah Metrorail Station
	District 7
11	Coconut Grove Metrorail Station
12	Dadeland South Metrorail Station
13	Dadeland North Metrorail Station
14	Douglas Road Metrorail Station
15	South Miami Metrorail Station
16	University Metrorail Station
30	SW 88th St & SW 127th Ave

No.	Park/Ride Lot
	District 8
17	SW 152nd St & Transitway
18	SW 244th St & Transitway
19	SW 296th St & Transitway
	District 9
20	SW 168th St & Transitway
21	SW 112th Ave & Transitway
22	SW 117th Ave & SW 152nd St (HEFT at Coral Reef Drive)
25	SW 344th St & Transitway
32	Caribbean Station
	District 10
	District 11
24	SW 104th St & SW 152nd Ave (Hammocks Town Center)
25	SW 88th St & SW 150th Ave
28	SW 88th St & SW 162nd Ave (West Kendall Transit Terminal)
	District 12
27	Palmetto Metrorail Station
33	Dolphin Station
	District 13
29	Miami Gardens Dr / NW 73rd Ave

Transportation Network Company (TNC) and Facilities (at and to/from a transit stop/ station/terminal)

TNCs include Uber, Lyft, Via, passenger loading/ unloading zones. In densely populated cities like Miami, ride-hail apps like Uber and Lyft provide excellent opportunities to address first and last mile/leg connectivity challenges. Miami-Dade County Board of County Commission (BCC) passed an Ordinance in May 2016 legalizing operation of TNCs in the County. The Department of Transportation and Public Works (DPTW) conducted a pilot program with Uber in summer 2019 to explore first and last mile/leg connection to payment integration through the 'contactless open payment effort'.

Recently, due to COVID-19, DTPW executed the "Go Nightly" program with Lyft and Uber to provide alternate transportation service between the hours of midnight and 5 am for trips along Miami-Dade Transit bus routes 3, 11, 27, 38, 77, 112, 119, and 246. The program is meant to provide guaranteed rides during late night hours and ensure that the transit riders using the metrobus for "essential purposes" can still use Miami-Dade transit safely. Trips are limited to two trips per night per user, to/from destinations within ¼ mile buffer from the select route alignment. DTPW is considering exploring further partnerships with TNC's beyond Go Nightly.

DPTW's pilot project "Go Connect" demonstrates another example of how the County is using real-time on-demand transit services to o provide shared, near door-to-door rides connecting with major transit stations and selected destinations. Through "Go Connect", riders can book, track, and pay their ride using a smartphone application (or call center option is also available). This service is currently available in Dadeland South, Dadeland North and South Miami Metrorail Stations, Town of Cutler Bay, Civic Center Metrorail Station and West Kendall areas.

Mobility-as-a-service (MaaS)

Mobility-as-a-Service (MaaS) is the integration of the various forms of transportation and services into a single mobility service accessible on demand. DPTW partnered with a MaaS provider Velocia, a rewards platform that works in partnership with transit providers and mobility providers. Velocia integrates all the above-mentioned transportation modes. Velocia encourages travelers to ride transit, walk, bike, and use

shared rides by rewarding velos (points) that can be redeemed for discounts on the participating TNCs, Carpool, Brightline trains and micromobility service options.

Velocia has also developed a segment on its rewards platform for the CITT Ambassador Program. The CITT ambassadors are volunteer transit riders who regularly share their experiences and observations of using transit services in exchange for rewards. They receive velos that can be redeemed for rewards when they complete surveys, share CITT messaging on their social media platforms, and participate in customer focus groups to help the CITT, DTPW, and municipalities learn how well a new and existing transit service is performing.

First and Last Mile/Leg and House Bill 385 Restrictions

CITT encourages all local partners to refer to HB 385 as they develop new first and last mile/leg projects for compliance. House Bill 385 placed additional restrictions on the use of transportation Surtax funds effective October 1, 2022.

The Bill restricts the County's utilization of Surtax funds for construction of bicycle and pedestrian facilities as standalone projects, on-demand services such as Freebee, GoConnect, and micro transit etc. However, if a bicycle/pedestrian path is part of a larger transit capital project/program implementation, the bill does not restrict eligibility for Surtax funding.

Municipalities have greater flexibility in the use of Surtax funds for the implementation, operations, and maintenance of the first and last mile/leg options compared to the County. As an example, County is not eligible to use surtax dollars to provide on-demand services, such as GoConnect or Freebee. However, municipalities may use surtax dollars to provide trolley/circulator, on-demand services provided that on-demand service as part of the municipality's transit system. In similar terms, municipalities may use surtax funds to construct bicycle and pedestrian facilities.