

Systemwide Level of Service Analysis

Technical Memorandum

Prepared for



**Miami-Dade Transportation
Planning Organization**

Prepared by:



March 2022

Table of Contents

1	INTRODUCTION	1
2	LITERATURE RESEARCH & DATA GATHERING	1
2.1	Transportation Studies Proposing Major Improvements.....	1
2.2	Existing and Future Socioeconomic Data.....	4
2.3	Transit Related Data	9
2.4	Bicycle and Pedestrian Related Data.....	17
2.4.1	Bicycle Counts	20
2.5	Transportation Data and Characteristics of the Arterial Network	22
3	SYSTEM NETWORK ANALYSIS	33
3.1	Roadway Planning LOS.....	33
3.1.1	Roadway Planning LOS for FDOT facilities.....	33
3.1.2	Roadway Planning LOS for County facilities.....	33
3.2	Transit Planning LOS.....	37
3.3	Non-motorized Analysis.....	39
3.3.1	Bicycle Planning LOS	39
3.3.2	Pedestrian Planning LOS	42
4	TRANSPORTATION SYSTEM ASSESSMENT.....	44
4.1	Roadway Assessment	44
4.1.1	Arterial Grid Network Disruptions and Missing Links	44
4.1.2	Identified Priority Corridors and Improvements Strategies.....	49
4.1.3	AADTs Trends Based on 2013 and 2019 Data	53
4.2	Transit Assessment.....	55
4.2.1	Transit Propensity Analysis	55
4.2.2	Transit System Capacity and Improvements	59
4.2.3	Committed Bus Service Adjustments.....	63
4.2.4	Existing Trends based on the five-year data collection.....	65
4.3	Non-motorized Assessment	66
5	CONCLUSION AND NEXT STEPS	70
	Appendix A - TPO Count Locations.....	71

List of Figures

Figure 1: Countywide Major Roadway Improvement Projects	3
Figure 2: Existing (2015) Employment Density	5
Figure 3: Future (2045) Employment Density	6
Figure 4: Existing (2015) Population Density	7
Figure 5: Future (2045) Population Density.....	8
Figure 6: Strava Yearly Bicycle Trips (2016)	18
Figure 7: Strava Yearly Pedestrian Trips (2017)	19
Figure 8: FDOT and TPO Bicycle Counts Locations.....	21
Figure 9: 2019 AADTs for State and County Facilities.....	24
Figure 10: 2020 Number of Lanes along State and County Facilities	25
Figure 11: 2015 Daily Roadway Capacity for State and County Facilities.....	26
Figure 12: 2020 Speed Limits for State Facilities.....	27
Figure 13: 2020 Roadway Functional Classification for State and County Facilities	28
Figure 14: 2019 Operating AM Peak Period Speeds for state and County Facilities	29
Figure 15: 2019 Operating AM Off Peak Period Speeds for State and County Facilities	30
Figure 16: 2019 Operating PM Peak Period Speeds for State and County Facilities	31
Figure 17: 2019 Operating PM Off Peak Period Speeds for State and County Facilities	32
Figure 18: Roadway Planning LOS Map for State Facilities.....	35
Figure 19: Roadway Planning LOS Map for County Facilities	36
Figure 20: Transit Planning LOS Map.....	38
Figure 21: Area of the Downtown Miami DRI Increment III.....	40
Figure 22: Bicycle Planning LOS Map	41
Figure 23: Pedestrian Planning LOS Map	43
Figure 24: NW 37 th Avenue Connections.....	45
Figure 25: Kendall Parkway	46
Figure 26: SR 924 West Extension.....	47
Figure 27: SR 924 East Extension	48
Figure 28: Priority Corridors	52
Figure 29: 2013 & 2019 AADT Comparison.....	54
Figure 30: Zero-Vehicle Household Density	56
Figure 31: Low Income Households.....	57
Figure 32: Population Density (Over 65 Years of Age).....	58
Figure 33: Better Bus Project Draft Network.....	64
Figure 34: Proposed Bicycle Lanes near the South Dade Transitway	67
Figure 35: Proposed Bicycle Lanes near Existing Metrorail.....	68

List of Tables

Table 1: Metrobus Monthly Boardings By Route.....	10
Table 2: Metrobus Schedule Information and Operating Data Report	14
Table 3: Bicycle Counts (TPO Count Location)	22
Table 4: Bicycle Counts (FDOT NMDS Station)	22
Table 5: Planning Roadway LOS Calculation for County Facilities	34
Table 6: Transit Planning LOS Criteria	37
Table 7: Bicycle Planning LOS Criteria.....	39
Table 8: Pedestrian Planning LOS Criteria.....	42
Table 9: Major Roadway Improvement Projects to Address Network Disruptions	44
Table 10: Priority Corridors and Improvements	50
Table 11: Cost Estimates for Priority Corridors Improvements	51
Table 12: Plans for Expanding Transit Service (Rapid Transit Network) as per TDP	60
Table 13: Plans for Expanding Transit Service (BERT Network) as per TDP	61
Table 14: Plans for Enhancing Integration and Connectivity of Transit as per TDP	62
Table 15: Plans for Ensuring Equity in Transit Services as per TDP.....	62
Table 16: DTPW Metrobus 2013-2018 Trend	65
Table 17 Proposed Bicycle Lanes.....	69

1 Introduction

The systemwide level of service analysis has been developed to evaluate the performance, observed trends, and capacity of the existing transportation system network. This study focuses on the County's roadway, transit, and non-motorized facilities to determine if they meet the current travel demands. The assessment of multimodal system needs, and recommendations will support the development of program priorities and will be used to update future transportation plans.

The Miami-Dade TPO completed a previous Arterial Grid Analysis Study in 2013 which examined the existing conditions and evaluated potential improvements to the arterial network. This study builds upon the information collected to perform trend analysis and broaden the range of modes analyzed for a comprehensive multimodal perspective.

This study updates the existing conditions for State and County roadways, transit and non-motorized facilities. Recommendations are developed for future system improvements to support the Long-Range Transportation Plan (LRTP), Transportation Improvement Program (TIP), and Transit Development Plan (TDP).

2 Literature Research & Data Gathering

To complete this task, all available data developed in the previous Arterial Grid Network Study was reviewed in addition to other relevant and recent studies obtained from different agencies, including the Florida Department of Transportation (FDOT) and Miami-Dade Transportation and Public Works (DTPW).

2.1 Transportation Studies Proposing Major Improvements

Figure 1 shows major roadway improvements throughout the County as per the 2022 Transportation Improvement Program (TIP), the 2045 Long-Range Transportation Plan (LRTP) and the 2022-2031 Transit Development Plan (TDP). The following major improvements will have considerable impact on mobility throughout the County:

- Golden Glades Interchange (GGI) Enhancement Project. The proposed enhancements to the GGI Interchange include several miles of roadway and ramps. The overall project will help increase the regional connectivity to this major interchange. The project area consists of the following five major facilities: SR 9A/I- 95, SR 826/Palmetto Expressway, Florida's Turnpike, SR 9, and SR 7/US 441/NW 7th Avenue.
- I-395/SR 836/I-95 Design-Build Project. Mobility will be enhanced for residents, commuters, and tourists by increasing capacity on SR 836, I-95 and I-395. SR 836 will be double-decked to allow for a direct connection between SR 836 and I-395. Mobility in

Overtown will also be improved with the connection of NW 2nd Avenue under I-395 and improvements to arterial roads.

- SR 25/Okeechobee Road Roadway Improvements. FDOT has been working on a series of projects to improve capacity and address safety concerns along this corridor that includes the interchange at the Palmetto Expressway. This is an important corridor in terms of improving mobility for trucks and providing better connections to an area with considerable industrial land use. The project will also provide a better connection between Miami-Dade County and Broward County.
- SR 874 Ramp Connector to SW 128th Street. This project includes widening of SW 128th Street from two to four lanes. The SR 874 Ramp Connector provides alternative expressway access to residents and businesses in the area, reducing congestion on SW 120th Street and SW 152nd Street, and providing additional connectivity and mobility to the rapidly growing area of West Kendall and Southwest Miami-Dade County.
- SR 924 West Extension. This proposed project would extend the SR 924/Gratigny Parkway to the west to connect with the Turnpike. The purpose is to improve access and meet east/west mobility needs for commuters and freight traffic.

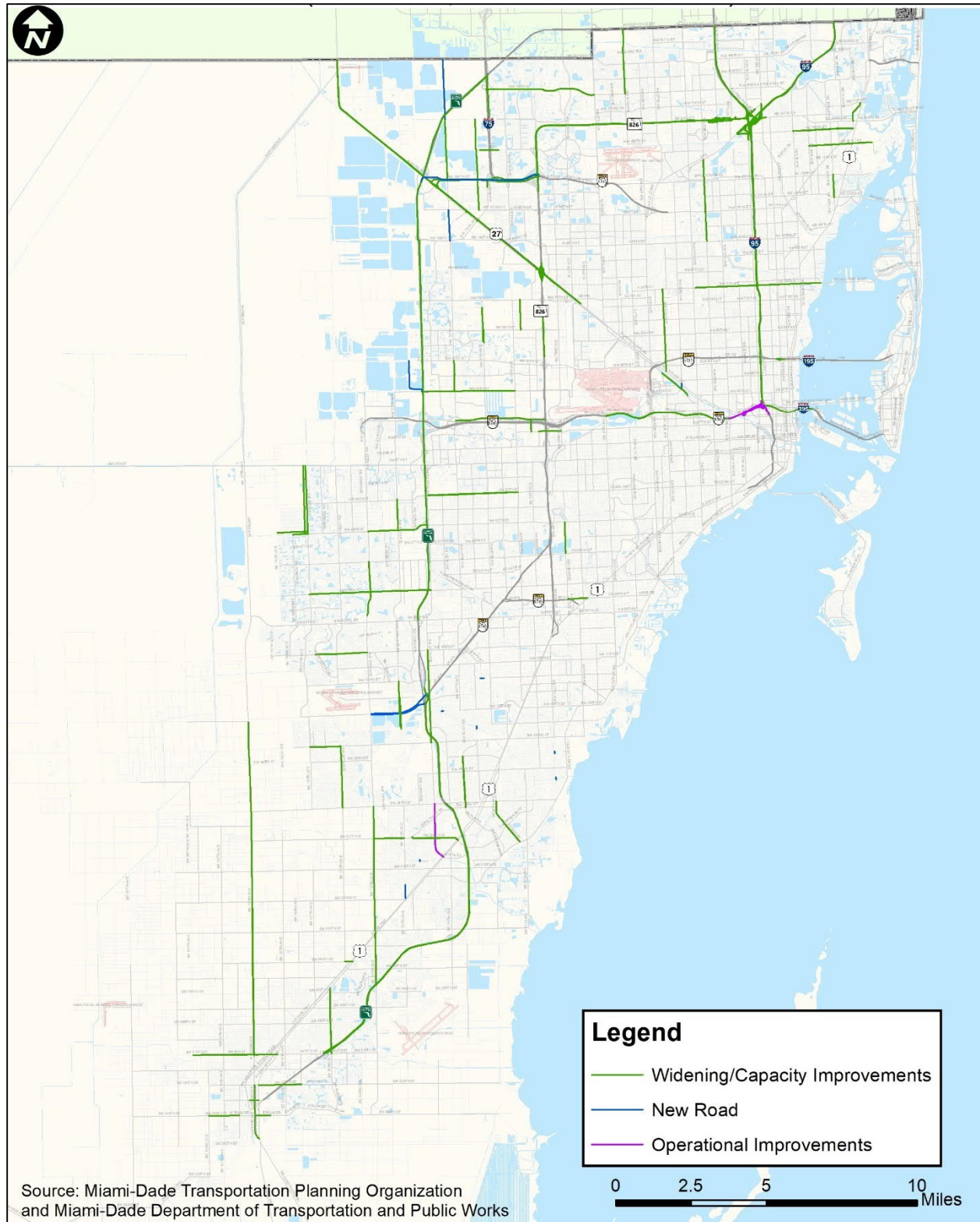


Figure 1: Countywide Major Roadway Improvement Projects

2.2 Existing and Future Socioeconomic Data

Existing and future socioeconomic data was extracted from the Southeast Florida Regional Planning Model (SERPM) Version 8. Figure 2 shows the existing (2015) employment density throughout Miami-Dade County. Figure 2 shows that there are concentrated pockets of employment in the Doral area (especially near the Palmetto Expressway), in the Central Business District (Brickell, Downtown, Midtown and the Design District), in Miami Beach (especially south of W 47th Street) and in Aventura.

Figure 3 shows the future (2045) employment density throughout Miami-Dade County. Figure 3 shows that areas with high employment density in 2015 are expected to remain with high density in 2045. Figure 3 also shows a noticeable increase in employment density in the area around Medley and Hialeah Gardens (near Okeechobee Road northwest of the Palmetto Expressway) and in Homestead.

Figure 4 shows the existing (2015) population density throughout Miami-Dade County. Figure 4 shows that there are areas with high population density in parts of the Central Business District, such as Brickell, Midtown, and the Design District but not in Downtown. Other areas with high population density are Hialeah, City of Miami, parts of Kendall and the east-west corridor formed between SW 8th Street and SR 836.

Figure 5 shows the future (2045) population density throughout Miami-Dade County. Figure 5 shows that areas with high population density in 2015 are expected to remain with high density in 2045. Figure 5 also shows a noticeable increase in population density in areas such as Overtown, Wynwood, and Homestead.

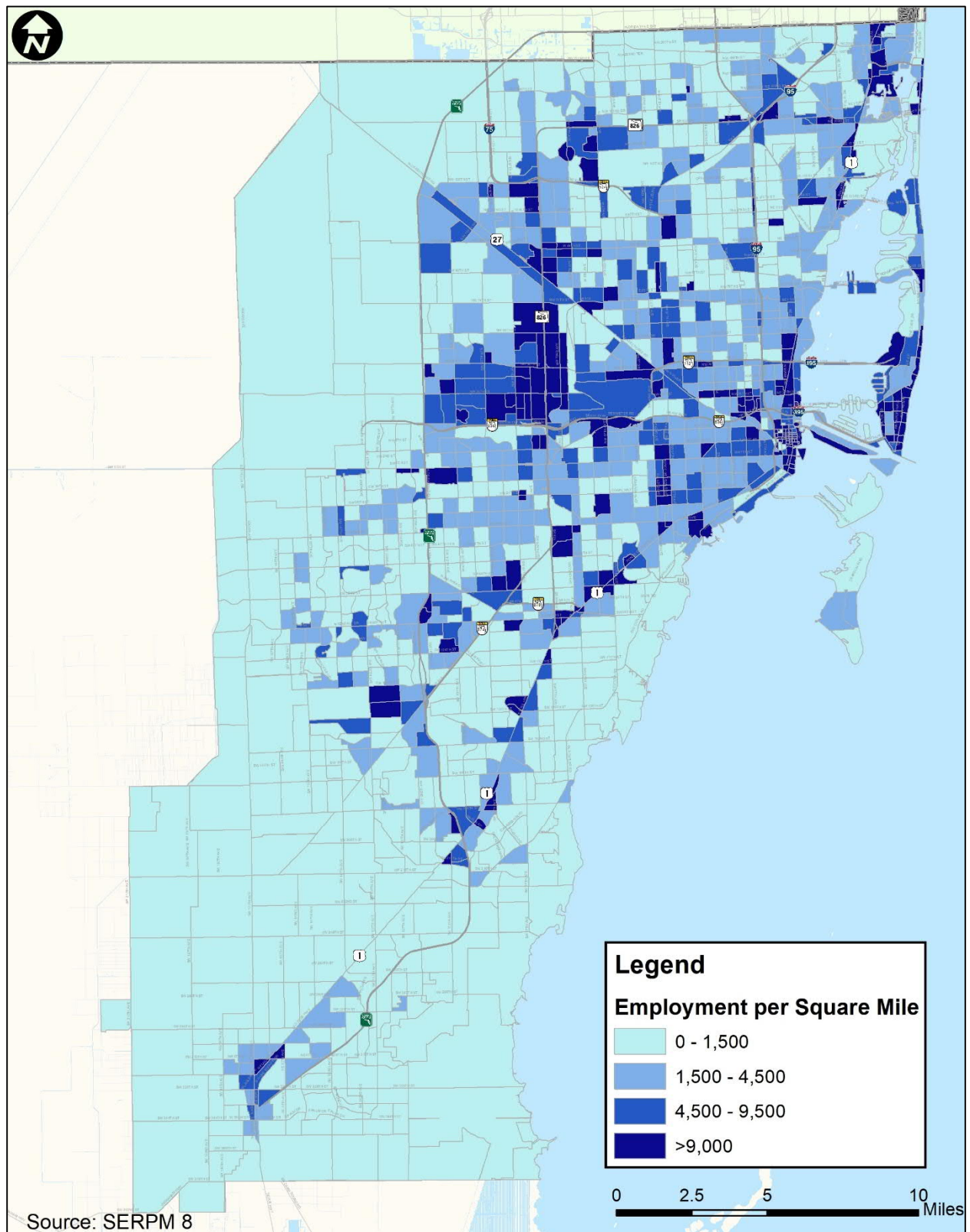


Figure 2: Existing (2015) Employment Density

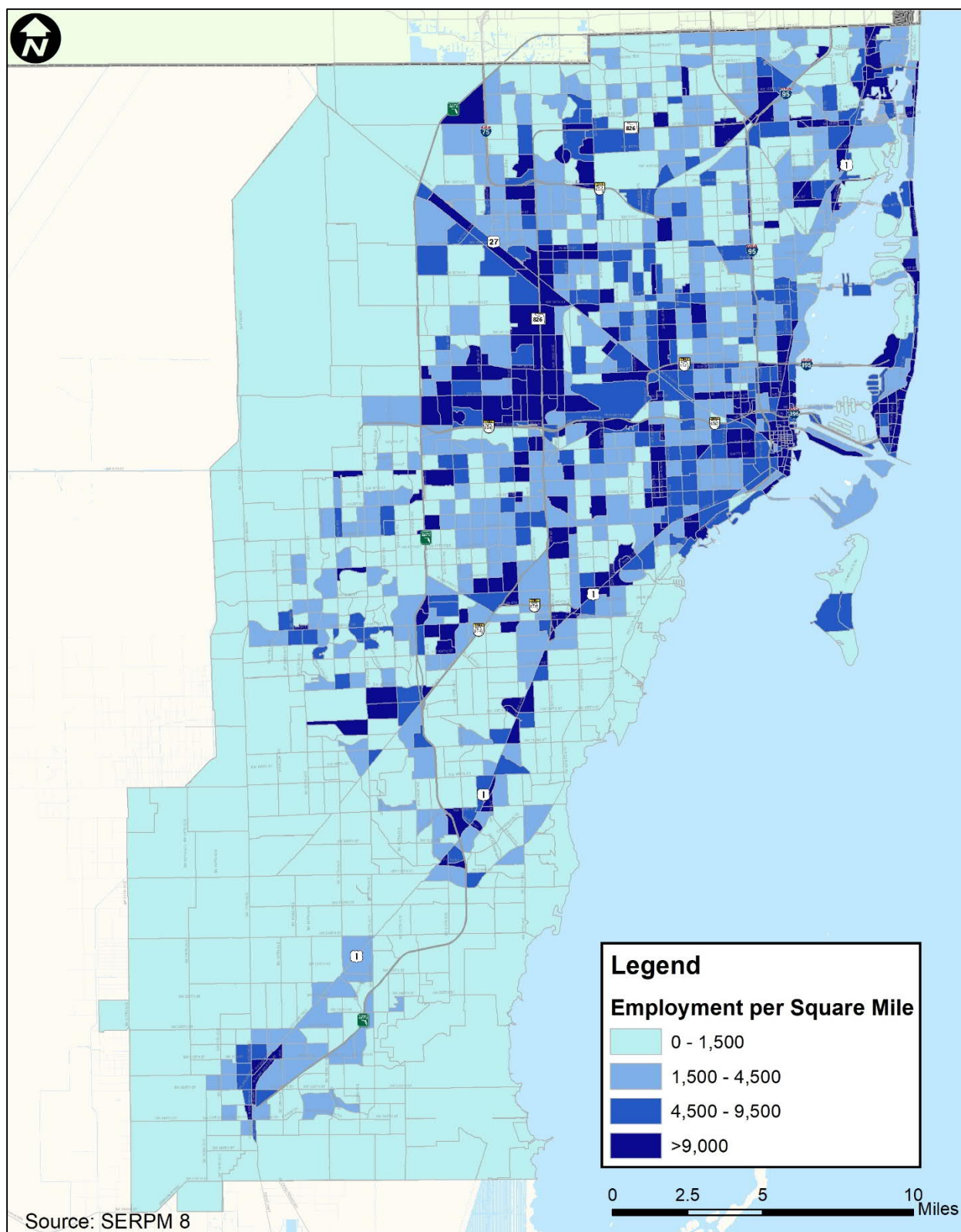


Figure 3: Future (2045) Employment Density

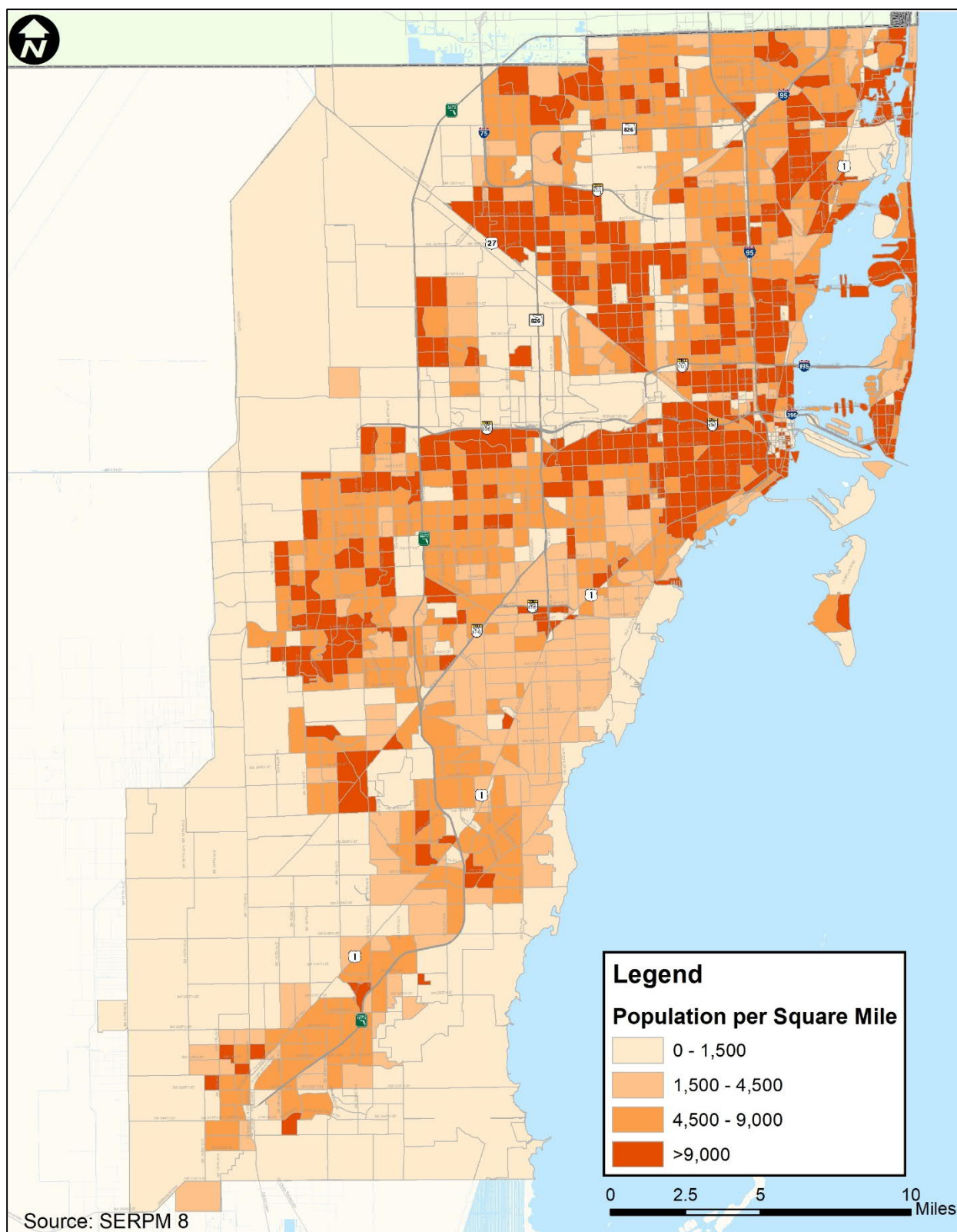
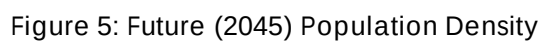


Figure 4: Existing (2015) Population Density



2.3 Transit Related Data

Table 1 shows monthly ridership for Metrobus routes in 2019, which correspond to pre-pandemic levels. Listed below are the routes with the highest ridership in the County:

- Route 119 - S: Local service seven days a week. Travels from the Bus Terminal at Aventura Mall to Downtown Miami through Miami Beach. Stops include the Adrienne Arsht Center Metromover station/Omni Metrobus terminal, and Government Center Metrorail/Metromover station. This route has an annual monthly ridership of 243,672 passengers.
- Route 112 - L: Local service seven days a week. Travels from Hialeah Metrorail station to South Beach along NW 79th St, the 79th Street Causeway, and Collins Avenue. Stops include Tri-Rail Metrorail station and Northside Metrorail station. This route has an annual monthly ridership of 200,338 passengers.
- Route 11: Local service seven days a week. Travels from the FIU Maidique Campus to Downtown Miami along W Flagler Street & SW 1st Street. Stops include the FIU Maidique Bus Terminal and the Government Center Metrorail/Metromover station. This route has an annual monthly ridership of 191,408 passengers.
- Route 77: Local service seven days a week. Travels from NW 199th St/NW 7th Avenue to Government Center Metrorail and Metromover station, along NW 7th Avenue. Stops include the Golden Glades Terminal and Park & Ride, Edmonson Transit Village Metrobus terminal and Park & Ride and the Culmer Metrorail station. This route has an annual monthly ridership of 179,425 passengers.
- Route 38: Local service seven days a week. Travels from Florida City to Dadeland South Metrorail station along the South Dade TransitWay and through Goulds. Stops include all Park & Ride lots along the TransitWay. This route has an annual monthly ridership of 177,136 passengers.

Table 2 summarizes operational information for each of the Metrobus routes. The total number of buses for each of the peak periods are assigned based on the length of the route (round trip miles) and the round running time. The morning and afternoon peak periods in Table 2 correspond to 6 AM to 9 AM and 3 PM to 7 PM.

Table 1: Metrobus Monthly Boardings By Route

Route	Monthly Ridership												Average Annual Monthly Ridership
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	
1	7,846	7,417	7,558	7,151	8,390	7,648	8,462	8,029	8,077	8,049	8,321	9,269	8,018
2	60,422	55,628	58,935	59,858	60,899	53,652	59,504	60,642	59,830	68,570	62,506	60,687	60,094
3	139,854	132,726	148,187	144,103	147,935	135,253	144,949	142,933	137,554	152,608	148,547	148,005	143,555
7	87,170	78,903	86,811	84,333	84,337	75,040	80,453	80,269	80,504	89,828	81,808	78,875	82,361
8	94,583	90,287	96,410	97,781	99,674	89,534	94,868	94,099	91,970	102,362	93,650	90,285	94,625
9	118,800	118,685	127,458	131,713	135,709	120,292	131,987	130,755	130,511	147,848	138,066	136,412	130,686
10	59,094	54,958	65,067	62,125	60,098	54,778	56,944	56,656	56,360	64,064	59,198	58,385	58,977
11	191,595	184,336	203,653	199,778	201,087	183,044	188,534	189,416	183,647	202,332	188,314	181,157	191,408
12	53,651	51,507	53,878	56,205	56,534	48,073	56,501	55,848	55,318	63,630	55,318	51,889	54,863
16	49,237	46,713	49,202	48,565	50,065	44,393	45,222	46,555	45,451	49,970	47,282	48,703	47,613
17	97,271	94,314	95,323	100,735	103,085	86,405	91,720	94,137	94,933	105,317	97,525	93,560	96,194
19	36,129	32,474	33,855	36,769	33,776	26,773	28,094	26,293	31,550	36,643	30,660	27,562	31,715
21	41,972	38,200	37,387	40,679	41,675	35,265	38,618	37,486	36,338	42,696	36,937	37,269	38,710
22	94,823	91,036	94,701	93,875	97,454	82,736	87,065	87,852	87,285	101,764	92,639	89,365	91,716
24 - Coral Way Limited	48,371	45,310	49,805	48,878	46,915	41,693	47,591	45,101	44,683	49,909	46,915	45,137	46,692
27	169,488	162,425	170,599	170,150	172,134	154,898	168,204	168,973	165,560	186,566	171,096	167,976	169,006
29	15,616	14,945	14,998	16,063	15,879	11,907	13,001	14,110	13,388	14,533	12,870	13,699	14,251
31 - BUSWAY LOCAL	30,360	29,604	32,382	29,462	32,236	28,708	28,478	29,131	27,875	31,245	30,304	28,793	29,882
32	55,055	52,937	56,378	58,520	56,418	50,790	57,016	56,356	55,761	63,304	57,236	54,336	56,176
33	39,926	39,156	40,801	40,436	43,600	35,926	39,189	39,759	40,412	47,463	43,150	41,532	40,946
34 EXPRESS	45,151	41,024	43,714	45,506	44,447	38,721	38,665	39,605	38,008	44,795	37,324	37,257	41,185
35	61,145	56,175	57,127	57,659	57,964	52,122	57,583	56,717	56,218	71,063	61,808	59,666	58,771
36	58,444	53,934	58,493	61,137	61,142	55,134	60,930	61,253	58,566	67,083	62,344	62,236	60,058
37	82,474	78,831	85,821	85,485	89,586	79,655	86,005	85,774	82,666	93,383	86,189	83,425	84,941
38	189,296	177,394	183,910	181,208	181,043	160,969	169,322	171,014	171,304	187,914	176,989	175,265	177,136
39 EXPRESS	20,018	19,702	19,153	22,016	21,312	17,103	18,167	18,946	18,732	21,910	17,801	16,697	19,296
40	42,284	40,213	43,482	44,088	44,710	38,184	40,066	40,593	39,382	44,044	39,285	37,872	41,184
42	20,990	20,555	20,928	22,362	21,573	19,929	21,623	21,312	21,017	23,323	21,597	21,322	21,378

Route	Monthly Ridership												Average Annual Monthly Ridership
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	
46 - LIBERTY CITY CONN.	1,466	1,243	1,010	1,042	822	445	516	504	506	837	700	1,072	847
51 - FLAGLER MAX	68,497	62,141	64,100	67,819	67,977	58,013	63,055	63,344	62,530	71,878	64,366	61,689	64,617
52	32,840	31,508	32,971	33,592	33,792	28,766	30,986	30,782	30,684	33,968	30,091	29,443	31,619
54	72,708	70,245	76,816	75,945	79,564	69,643	74,021	73,034	71,522	81,312	75,573	73,969	74,529
55 MARLINS SHUTTLE				775	911	1,250	728	853	536				421
56	9,108	8,799	8,528	8,109	8,573	6,824	7,506	7,589	7,378	8,344	7,053	7,854	7,972
57	9,841	8,369	8,443	8,663	8,387	7,893	8,621	8,691	8,131	10,115	8,239	8,025	8,618
62	49,472	46,333	50,188	48,347	49,666	43,831	46,593	47,499	45,904	53,264	49,768	48,248	48,259
71	17,772	16,915	17,230	15,842	14,318	12,773	13,311	13,344	12,800	17,403	16,393	15,302	15,284
72	20,647	18,601	20,105	18,914	19,488	16,775	17,993	18,513	17,240	19,305	18,136	17,779	18,625
73	53,401	50,467	53,103	55,938	55,642	48,250	49,204	50,765	49,400	55,673	50,303	44,936	51,424
75	32,127	31,187	30,968	32,723	32,540	24,856	29,575	31,249	33,471	39,197	33,431	33,345	32,056
77	176,036	171,740	169,015	184,891	186,020	166,168	181,784	182,065	174,470	198,022	181,409	181,483	179,425
79	6,551	7,850	8,010	8,015	8,175	7,231	7,372	7,121	6,357	8,517	7,567	8,155	7,577
82 - WESTCHESTER CIRC.	1,431	1,534	1,648	1,659	1,457	1,209	1,232	1,382	1,233	1,543	1,655	1,584	1,464
87	36,429	35,288	37,554	39,058	38,859	32,300	35,120	34,437	34,306	37,648	34,368	33,077	35,704
88	58,053	55,617	61,706	60,013	61,692	52,880	55,011	54,777	52,733	59,093	55,978	56,990	57,045
93 - BISCAYNE MAX	71,180	67,338	69,571	73,521	71,535	61,509	67,101	69,381	63,972	76,791	68,910	66,587	68,950
95 EXPRESS	43,724	42,797	42,950	45,710	45,506	36,604	38,657	38,802	36,052	43,125	34,266	34,115	40,192
95 EXPRESS	43,724	42,797	42,950	45,710	45,506	36,604	38,657	38,802	36,052	43,125	34,266	34,115	40,192
99	39,114	34,571	37,081	37,832	38,274	32,797	35,966	35,882	35,979	40,476	36,841	36,249	36,755
101 - A	4,140	3,732	3,785	3,740	3,691	3,817	3,950	3,749	3,608	3,875	3,753	4,130	3,831
102 - B	38,698	40,041	43,444	42,856	44,828	39,211	40,003	39,726	38,832	44,119	40,079	40,802	41,053
103 - C	10,841	11,023	11,760	11,705	11,462	10,360	11,001	11,252	10,186	11,336	10,991	11,465	11,115
104	25,112	24,175	24,810	24,778	22,595	19,632	19,853	19,684	22,478	25,496	21,587	20,522	22,560
105 - E	30,510	30,084	31,279	31,674	31,420	27,484	29,681	29,371	27,801	32,893	30,235	31,710	30,345
107 - G	41,299	39,594	43,265	43,528	43,311	37,471	41,170	40,457	41,139	46,917	43,252	42,820	42,019
108 - H	13,940	12,965	14,452	13,779	13,540	11,846	12,961	12,123	11,819	13,385	13,272	13,190	13,106
110 - J	61,916	63,928	71,223	68,581	69,872	64,666	69,141	69,683	64,012	74,168	69,886	70,157	68,103
112 - L	195,044	182,847	203,563	201,396	206,555	188,143	203,437	202,773	189,610	214,529	207,288	208,875	200,338

Route	Monthly Ridership												Average Annual Monthly Ridership
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	
113 - M	19,164	18,947	19,814	19,832	20,696	19,701	20,524	21,321	19,889	21,345	21,112	20,871	20,268
115	3,225	3,238	3,388	3,497	3,735	3,476	3,919	3,740	3,704	3,872	4,102	4,288	3,682
119 - S	248,420	230,274	259,064	247,922	246,228	228,998	245,158	242,620	217,831	250,096	252,731	254,718	243,672
120 - BEACH MAX	160,842	152,989	164,057	165,618	165,629	150,300	167,689	171,554	152,212	176,787	179,834	179,335	165,571
132 TRI-RAIL (DORAL)	466	450	380	501	515	408	139	72	289	173	114	63	298
135	32,801	31,793	31,649	33,567	34,420	25,155	27,490	28,144	29,704	34,140	31,143	30,954	30,913
136	3,318	2,810	3,050	3,506	3,483	2,840	2,796	3,143	2,830	3,316	2,835	2,481	3,034
137 - WEST DADE CONN.	44,112	41,967	46,123	45,307	45,283	40,392	41,415	41,578	41,785	44,468	41,900	40,658	42,916
150 - MIAMI BEACH AIRPORT FLYER	49,942	48,490	53,836	53,087	52,722	47,123	49,676	51,690	44,866	49,335	54,524	50,065	50,446
155 - BISCAYNE GARDENS CIRCULATOR	956	878	873	1,017	1,030	749	943	974	876	1,018	775	1,012	925
175 - NW MIAMI-DADE EXPRESS											80	329	34
183	79,628	76,659	81,646	83,355	83,506	69,787	72,454	74,507	72,509	82,054	78,888	78,182	77,765
195 EXPRESS - BROWARD BLVD	9,602	9,063	9,642	9,016	9,809	8,844	8,903	8,756	8,299	9,332	7,339	6,870	8,790
196 EXPRESS - SHERIDAN ST	8,210	7,706	8,532	8,665	8,789	8,092	8,154	8,587	7,648	8,877	7,235	6,998	8,124
200 - CUTLER BAY LOCAL	4,075	3,954	4,490	4,467	4,307	3,941	3,745	4,065	3,992	4,383	3,645	3,932	4,083
202 - LITTLE HAITI CONN.	3,978	3,312	3,477	3,699	3,819	3,401	3,487	3,633	3,284	3,602	3,571	3,402	3,555
204 KILLIAN KAT	23,725	22,324	23,889	24,868	24,329	20,820	21,436	21,400	20,670	23,996	19,404	17,725	22,049
207 (7st) - LITTLE HAVANA CIRC	36,270	34,734	39,346	39,870	40,504	36,362	39,068	38,811	37,180	41,645	39,082	40,422	38,608
208 (8st) - LITTLE HAVANA CIRC	34,182	33,542	34,489	35,530	38,220	34,861	38,577	38,642	37,140	41,006	38,482	40,483	37,096
210 - SKYLAKE CIRC	7,070	6,938	7,840	8,283	8,574	7,342	7,737	8,020	7,506	7,785	7,543	6,305	7,579
211 - OVERTOWN CIRC.	1,521	1,368	1,497	1,426	1,473	1,413	1,621	1,458	1,320	1,569	1,360	1,503	1,461
212 - SWEETWATER CIRC.	1,180	1,069	1,000	901	985	792	942	865	756	879	598	1,174	928
217 - BUNCHE PARK CIRC	1,559	1,690	1,346	1,726	1,966	1,084	1,246	1,190	1,172	1,952	1,701	1,456	1,507
238 EAST/WEST CONN.	9,963	9,602	10,685	11,395	10,812	9,469	10,215	10,311	8,990	11,945	10,261	9,415	10,255

Route	Monthly Ridership												Average Annual Monthly Ridership
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	
246 - NIGHT OWL	3,829	2,744	3,080	2,890	3,097	2,719	2,686	2,948	2,619	2,816	2,912	3,145	2,957
248 - PRINCETON CIRCULATOR	2,081	2,385	2,345	2,789	2,816	2,217	2,500	2,456	2,324	2,382	2,298	768	2,280
252 - CORAL REEF MAX	22,038	20,785	22,438	22,451	22,404	18,474	19,276	20,192	19,563	22,064	19,814	18,865	20,697
254 - BROWNSVILLE CIRC.	690	488	771	406	478	266	323	339	295	386	332	393	431
267 - LUDLAM LIMITED	3,273	3,166	3,274	3,095	3,263	2,601	2,697	2,570	2,447	3,028	2,696	2,656	2,897
272 SUNSET KAT	11,839	11,209	11,536	11,755	12,021	10,058	10,959	10,682	10,513	12,674	10,397	10,849	11,208
277 - 7th AVENUE MAX	12,203	12,234	12,474	13,977	14,018	10,948	11,982	12,371	12,010	14,421	12,937	12,260	12,653
286 - NORTH POINTE CIRC.	2,481	2,505	2,638	1,876	2,193	1,621	1,787	1,936	1,724	2,134	2,490	2,228	2,134
287 - SAGA BAY MAX	8,161	7,842	7,415	7,606	8,211	6,519	7,039	6,885	6,648	7,384	6,736	6,552	7,250
288 - KENDALL CRUISER	18,175	17,065	17,743	18,321	17,764	15,120	16,307	16,543	15,641	18,021	15,855	14,897	16,788
295 EXPRESS - BROWARD BLVD - CIVIC CENTER	5,220	4,820	5,223	4,822	5,452	4,870	5,484	5,405	4,655	5,417	4,395	4,547	5,026
296 EXPRESS - SHERIDAN ST - CIVIC CENTER	4,117	4,078	4,701	4,887	5,127	4,692	5,188	5,034	4,555	4,876	3,899	4,113	4,606
297-27th AVENUE ORANGE MAX	29,783	28,311	28,994	28,924	27,263	22,831	24,599	24,863	25,997	30,746	26,500	26,892	27,142
301 DADE-MONROE EXPRESS	27,039	24,314	26,439	26,341	26,787	25,185	24,971	25,262	21,699	24,789	24,452	25,280	25,213
302 CARD SOUND EXPRESS	2,422	2,140	2,284	2,206	2,116	2,059	2,241	1,985	1,787	2,048	2,180	2,290	2,147
338 - WEEKEND EXPRESS	1,861	1,820	2,303	1,900	2,018	2,398	1,833	2,019	1,988	1,583	2,674	2,236	2,053
344	2,565	2,442	2,330	2,283	2,246	1,625	1,904	1,888	1,761	2,874	2,087	2,135	2,178
500	1,419	1,327	1,510	1,364	1,319	1,284	1,345	1,122	1,017	1,120	1,168	1,283	1,273
12/21 WEEKEND INTERL.	19,058	19,741	24,036	18,697	20,595	21,376	19,784	20,932	21,541	18,771	23,731	22,341	20,884
GREEN HILLS SHUTTLE	45	54	43	70	227	17	30	25	31	26	21	38	52
KINGS CREEK SHUTTLE	79	99	47	55	78	66	51	111	54	105	33	76	71
SIERRA LAKES SHUTTLE	135	105	107	90	150	87	85	106	102	100	118	105	108
ROBERT SHARP SHUTTLE	37	51	109	15	75	19	19	14	19	24	24	19	35

Route	Monthly Ridership												Average Annual Monthly Ridership
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	
AHEPA SHUTTLE	96	95	87	77	131	95	84	135	91	111	56	70	94
FEDERATION GARDENS SHUTTLE	94	81	134	98	89	94	88	263	98	92	92	102	110

Table 2: Metrobus Schedule Information and Operating Data Report

Route	Round Trip Miles	Round Running Time	Total Peak Vehicles	
			AM	PM
2	26.8	155	6	6
3	34.1	240	11	13
7	30.7	210	11	12
8	25.3	150	10	11
9	38.3	255	16	17
10	27.4	180	6	6
11	25.1	200	16	16
12	24.5	180	6	6
16	23.6	150	5	6
17	42.6	240	12	12
19	16.1	104	5	4
21	18.9	120	4	5
22	45.5	250	13	16
24 - Coral Way Limited	35.8	190	8	10
27	39.8	240	15	15
31 - BUSWAY LOCAL	19.3	90	4	3
32	45.7	240	8	8
33	25.8	170	7	6
34 EXPRESS	52.2	120	12	12
36	36.9	210	9	9
37	39.5	270	9	9
38	43.2	200	15	19
39 EXPRESS	27.1	60	4	4
40	30.3	150	9	10
42	33.8	195	8	8

Route	Round Trip Miles	Round Running Time	Total Peak Vehicles	
			AM	PM
51 - FLAGLER MAX	34.6	180	12	11
52	47.6	230	7	8
54	41.5	265	9	9
57	39.7	180	3	3
62	14.7	120	4	4
73	47	295	9	9
75	38.1	205	7	7
77	31.5	180	20	23
79	17	105	4	4
87	32.1	180	6	6
88	22.6	120	6	6
93 - BISCAYNE MAX	28.2	180	9	11
95 EXPRESS	23.5	70	17	13
95 EXPRESS	23.5	55	7	9
99	36.9	155	5	6
102 - B	18.2	60	6	4
103 - C	11.7	120	4	4
104	30.4	135	4	5
105 - E	40.8	245	6	8
107 - G	18.9	95	4	4
108 - H	12.6	90	3	3
110 - J	22.6	120	6	7
112 - L	32.4	225	16	17
113 - M	30.9	185	4	4
119 - S	42.9	270	18	22
120 - BEACH MAX	41.5	228	17	17
132 TRI-RAIL (DORAL)	14.1	80	1	1
135	29.4	150	6	6
136	22		3	3
137 - WEST DADE CONN.	49.3	225	8	7
150 - MIAMI BEACH AIRPORT FLYER	27.3	120	6	6
175 - NW MIAMI-DADE EXPRESS	19.2	75	5	5
183	25.3	160	10	11

Route	Round Trip Miles	Round Running Time	Total Peak Vehicles	
			AM	PM
195 EXPRESS - BROWARD BLVD	53.3	105	6	7
196 EXPRESS - SHERIDAN ST	41.2	90	6	6
200 - CUTLER BAY LOCAL	14.3	60	1	1
204 KILLIAN KAT	26.9	90	12	11
207 (7st) - LITTLE HAVANA CIRC	7.1	60	4	4
208 (8st) - LITTLE HAVANA CIRC	7.3	60	4	4
252 - CORAL REEF MAX	22.2	120	5	5
277 - 7th AVENUE MAX	22.2	95	4	4
287 - SAGA BAY MAX	24.4	100	3	3
288 - KENDALL CRUISER	23.4	90	10	11
295 EXPRESS - BROWARD BLVD - CIVIC CENTER	52.1	120	3	4
296 EXPRESS - SHERIDAN ST - CIVIC CENTER	39.9	120	4	4
297-27th AVENUE ORANGE MAX	32.2	120	8	9

2.4 Bicycle and Pedestrian Related Data

FDOT District 6 Planning & Environmental Management Office provided the Unified Basemap Repository (UBR) link which contained Strava data from 2012 to mid-2018. Since the Strava data included the entire street network within Florida, a spatial GIS analysis was performed to only select facilities within Miami-Dade County identified in the scope of the study.

The Strava dataset is the largest collection of human-powered transportation information in the world. Millions of people track their bicycle rides, runs, and walks to Strava every day with their phone or GPS device. Figure 6 shows the bicycle trips recorded in the Strava dataset in 2016 throughout Miami-Dade County. It is important to mention that most of the bicycle trips recorded in Strava are from recreational riders and not necessarily from commuters. Figure 6 shows a considerable number of bicycle trips along the following corridors/areas:

- City of Miami Beach. This is in line with the bicycle infrastructure investment made in the City over the last few years. It is important to note that the reconstruction of the South Beach Trail has attracted an important number of recreational bicyclists to Miami Beach.
- Venetian Causeway. This facility provides a safe connection for bicyclists between Downtown Miami and Miami Beach.
- Corridor along Sunset Drive, Ingraham Highway, Main Highway, Bayshore Drive and the Rickenbacker Causeway is a very scenic route that attracts many riders and provides a connection between City of Coral Gables, Coconut Grove, Brickell, and Key Biscayne.
- Corridor along Old Cutler Road or SW 57th Avenue, SW 87th Avenue, and SW 107th Avenue attracts many riders going on bicycle rides from the Coral Gables/Coconut Grove area to Black Point Marina or Homestead.
- Kendall Lakes Drive. This road located in the Kendall area is used by many riders in the west side of the County to exercise.

Figure 7 shows yearly pedestrian trips from the Strava dataset made in 2017 throughout Miami-Dade County. It is important to note that Figure 7 is a recollection of trips made by people jogging and running. Facilities used by runners are very similar to the ones used by recreational bicyclists. Therefore, the bicycle corridors described in the previous section experience considerable pedestrian activity. However, pedestrian activity recorded by the Strava dataset is more spread-out and covers all residential areas in the County.

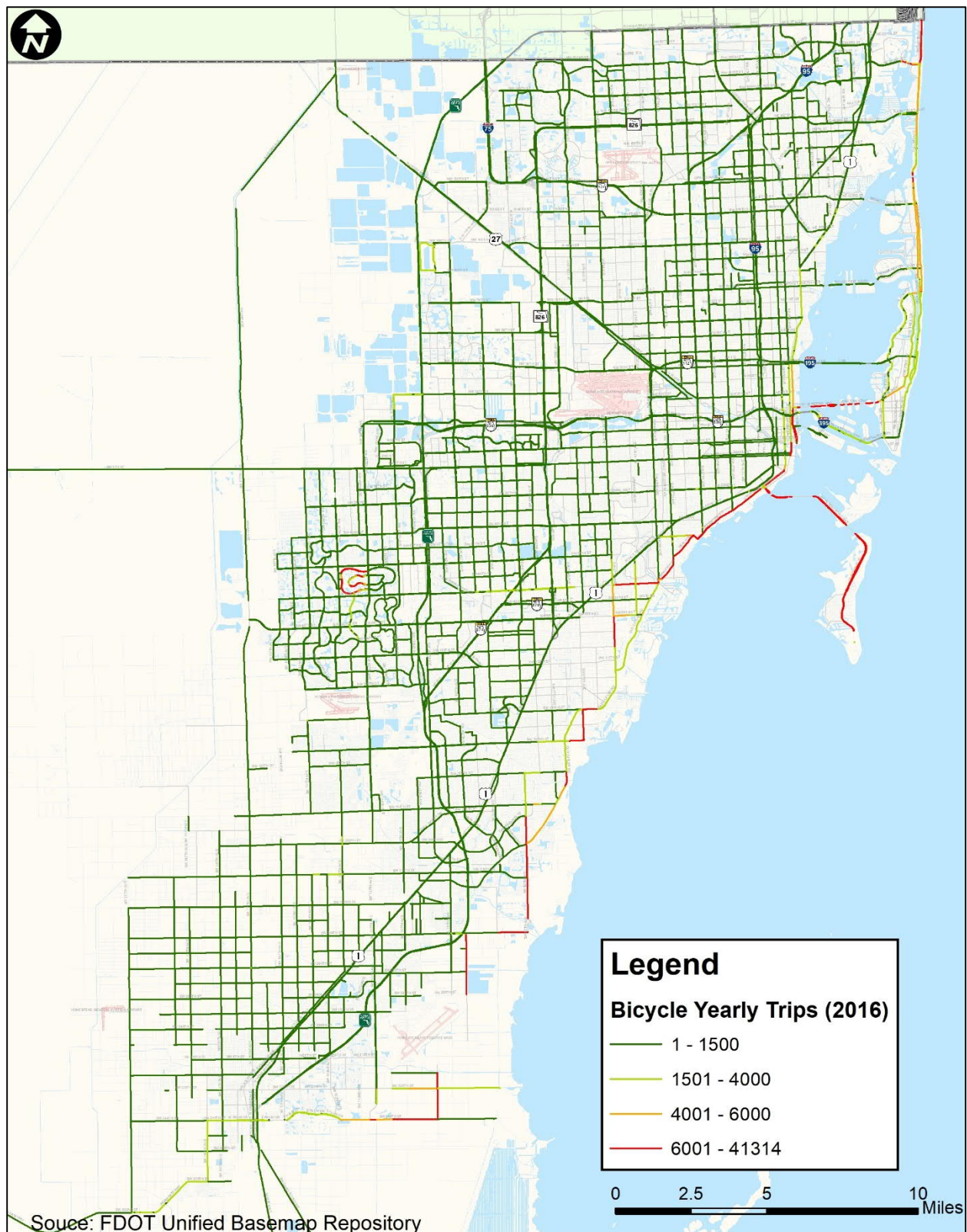


Figure 6: Strava Yearly Bicycle Trips (2016)

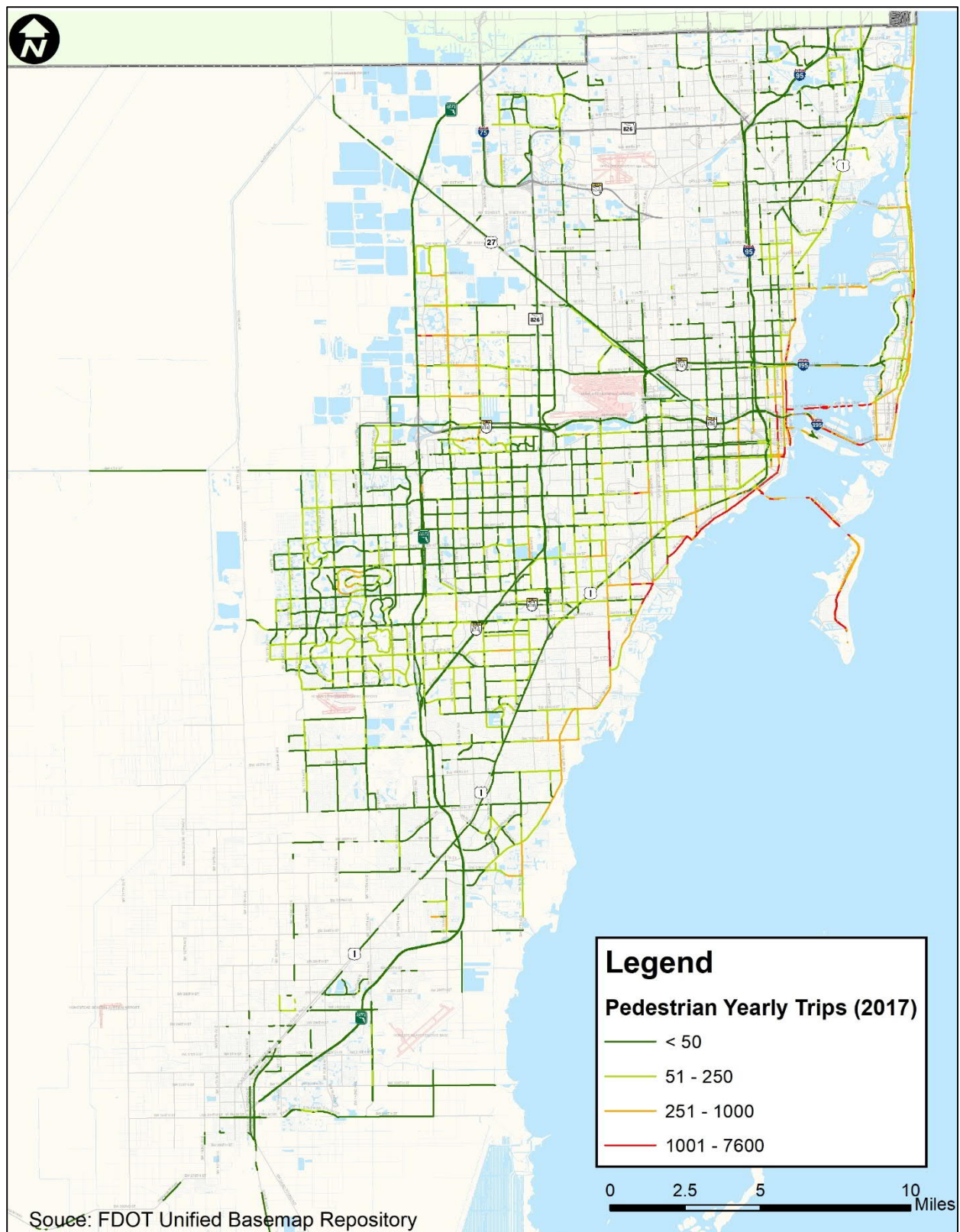


Figure 7: Strava Yearly Pedestrian Trips (2017)

2.4.1 Bicycle Counts

Figure 8 shows a map with the location of all the bicycles counts from the FDOT Non-Motorized Database System (NMDS) and bicycle counts collected as part of this study. The NMDS database was created and is currently being maintained with the collaboration of different agencies throughout the County.

Bicycle counts collected as part of this study were gathered during weekdays only to capture bicycle activity from commuters. Table 3 provides a list of all the bicycle counts collected in this study along with the magnitude of the daily bicycle counts. The locations of these bicycle counts were coordinated with representatives of City of Miami, and FDOT. The count location (TPO counts) with the highest number of bicycle trips is the one located in Miami Beach at Washington Avenue south of 11th Street with a total of 591 trips recorded between 6 AM and 8 PM. This is an important corridor for bicycle mobility in Miami Beach because it runs through an area that connects many trip generators. This section of Washington Avenue was recently re-constructed to provide protected bicycle lanes. The second count location in this study with the highest number of bicycle trips is located on the Underline just north of SW 13th Street, which recorded a total of 129 trips between 6 AM and 8 AM. This comes as no surprise, given that this is the first section of the Underline to be completed and provides all the amenities to attract riders in a very dense urban area. Another notable mention is the count location at the Black Creek Trail north of SW 200th Street that recorded a total of 102 bicycle trips between 6 AM and 8 PM. Appendix A provides a map and a street photograph of all bicycle count locations defined as part of this study.

Table 4 provides a list of all the bicycle stations found in the NMDS along with the magnitude of monthly bicycle counts. Table 4 shows that counts are not available for all bicycle stations. It is also important to note that counts from the NMDS were post-processed to eliminate data from certain months where data collection was interrupted or not provided for the entire month. One notable mention is the number of counts recorded along the Atlantic Greenway Trail in Miami Beach (28,164 per month or 909 per day). Another location with considerable bicycle activity is in Miami Beach at West Avenue and Lincoln Road. This station recorded (16,708 trips per month or 539 trips per day).

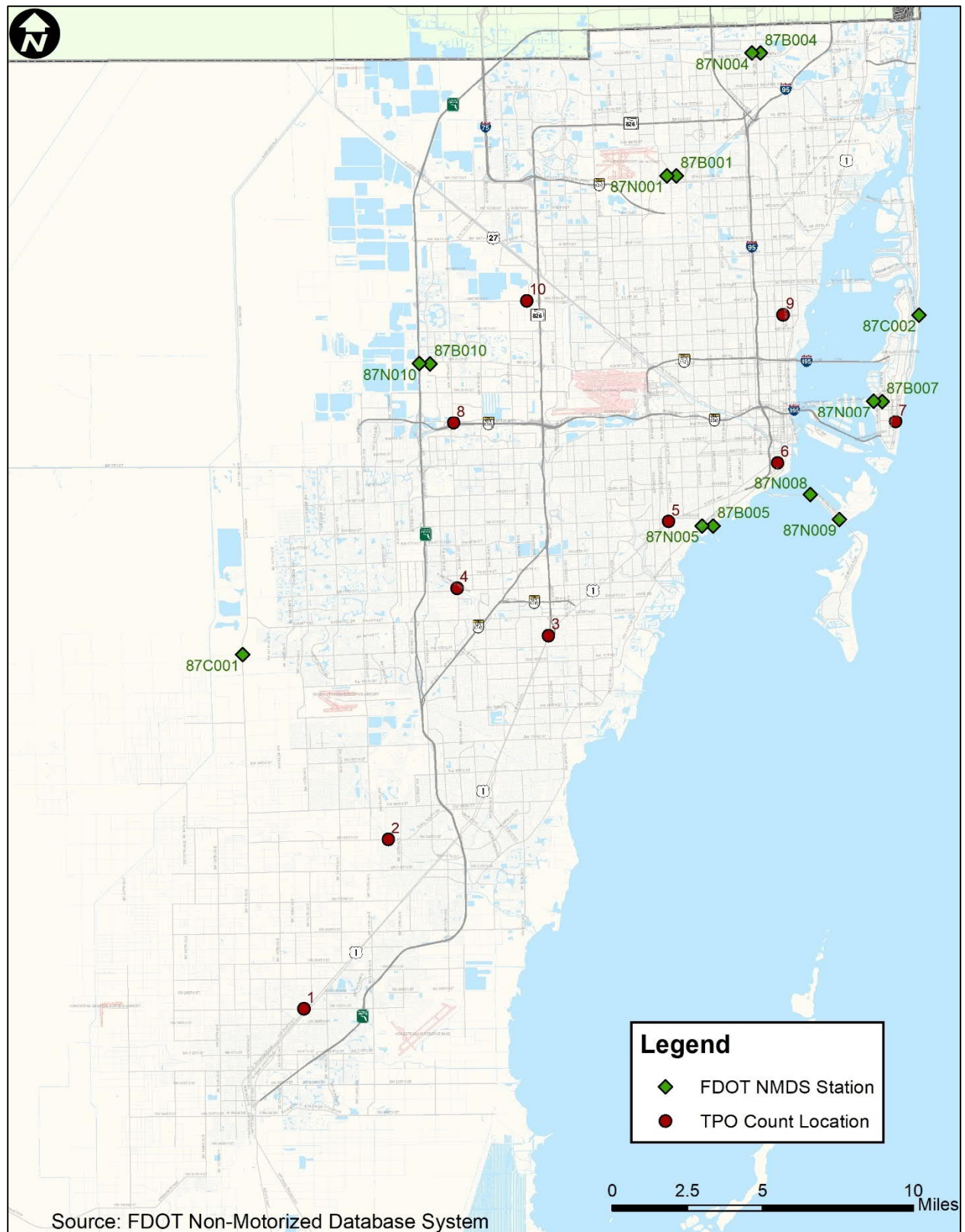


Figure 8: FDOT and TPO Bicycle Counts Locations

Table 3: Bicycle Counts (TPO Count Location)

ID	Name	Daily Volumes (6AM – 8PM)	Date
1	SW 288 th St at west of Old Dixie Hwy	9	4/15/2021
2	Black Creek Trail at north of SW 200 th St	102	4/17/2021
3	M-Path/Underline at south of Dadeland South Metrorail station	60	4/14/2021
4	Snapper Creek Trail west of SW 107 th Ave	36	4/17/2021
5	M-Path/Underline at east of SW 37 th Ave	57	4/15/2021
6	M-Path/Underline at north of SW 13 th St	129	4/14/2021
7	Washington Ave at south of 11 th St	591	4/14/2021
8	Kitty Roedel Bicycle Path at east of NW 107 th Ave	53	4/17/2021
9	NE 2 nd Ave at north of NE 62 nd St	81	4/14/2021
10	NW 74 th St at west of NW 79 th Ave	14	4/14/2021

Table 4: Bicycle Counts (FDOT NMDS Station)

ID	Name	Monthly Volumes	Month
87B001	Opa-Locka Tri-Rail Station	192	Feb, 2020
87B004	Creek Trail at 441 West -PROS/SFWMD	895	Dec,2020
87B005	Commodore Trail at Aviation Ave	3,147	Dec,2020
87B007	Miami - Venetian 2 (West Ave at Lincoln Rd)	16,708	Dec,2020
87B010	Turnpike Trail at 41 st St South	711	Dec,2020
87C001	Krome Path at SW 100 th St	2,362	Jan, 2021
87C002	Atlantic Greenway Trail at NE 54 th St.	28,164	July,2020
87N001	Opa-Locka Tri-Rail Station	n/a	
87N004	Creek Trail at 441 West	n/a	
87N005	Trail at Aviation Ave	n/a	
87N007	Miami, Venetian 2 (West Ave at Lincoln Rd)	n/a	
87N008	Rickenbacker Cswy	n/a	
87N009	Rickenbacker Cswy at Arthur Lamb Jr. Rd	n/a	
87N010	Turnpike Trail at 41 st St South	n/a	

2.5 Transportation Data and Characteristics of the Arterial Network

The transportation data summarized in this chapter provides the main characteristics of the arterial network in Miami-Dade County related to traffic demand, capacity, speeds, and roadway classification. Some of these characteristics were taken into consideration when estimating the level of service for the different transportation modes.

Figure 9 shows 2019 Annual Average Daily Traffic (AADTs) for State and County facilities throughout Miami-Dade County obtained from the FDOT Geographic Information System (GIS) database. These daily volumes include weekdays and weekends.

Figure 10 shows the 2020 number of lanes (directional) for State and County facilities throughout Miami-Dade County obtained from the FDOT GIS database.

Figure 11 shows the 2015 roadway capacity for State and County facilities obtained from the base year model in SERPM 8. Note that the street network within the SERPM model also includes local roads and centroid connectors that are not part of the scope of this study. A spatial GIS analysis was performed to filter out State and County facilities within Miami-Dade County from the SERPM model.

Figure 12 shows the speed limits for State facilities in 2020 obtained from the FDOT GIS database. The speed limits were arranged in three categories: 1) ≤ 35 mph 2) 40 – 50 mph and 3) ≥ 55 mph.

Figure 13 shows the roadway functional classification for State and County facilities in 2020 obtained from the FDOT GIS. The functional classification is divided into twelve categories ranging from local road to principal arterial.

Figure 14 through Figure 17 show the observed bi-directional speeds along State and County facilities in Miami-Dade County in 2019. The speed data was extracted from the Regional Integrated Transportation Information System (RITIS). RITIS is an automated data fusion and dissemination system that provides an enhanced overall view of the transportation network. RITIS fuses data from many agencies, many systems, and even the private sector.

Figure 14 shows bi-directional operating speeds during the morning peak period (7:00 AM to 9:00 AM). Figure 14 shows that most facilities are experiencing congestion with operating speeds of 35 mph or lower. There are only a selected number of facilities towards the west side of the County, often in the north-south direction, that operate at favorable speeds during the morning peak period. Figure 15 on the other hand, shows morning off-peak period (9:00 AM to 11:00 AM) bi-directional speeds in Miami-Dade County. Figure 15 shows that most facilities are still experiencing low operating speeds during the morning off-peak period. Sections in Downtown and some of the main corridors in the County like US-1 show similar operating speeds between peak and off-peak periods.

Figure 16 shows bi-directional operating speeds during the afternoon peak period (4:00 PM to 6:00 PM). Similar to the morning peak period, Figure 16 shows that most facilities are experiencing congestion with operating speeds of 35 mph or lower. There are only a selected number of facilities towards the west side of the County, often in the north-south direction, that operate at favorable speeds during the afternoon peak period. Figure 17 on the other hand, shows afternoon off-peak period (2:00 PM to 4:00 PM) bi-directional speeds in Miami-Dade County. Figure 17 shows that most facilities are still experiencing low operating speeds during the morning off-peak period. Sections in Downtown and some of the main corridors like US-1 show similar operating speeds between peak and off-peak periods.

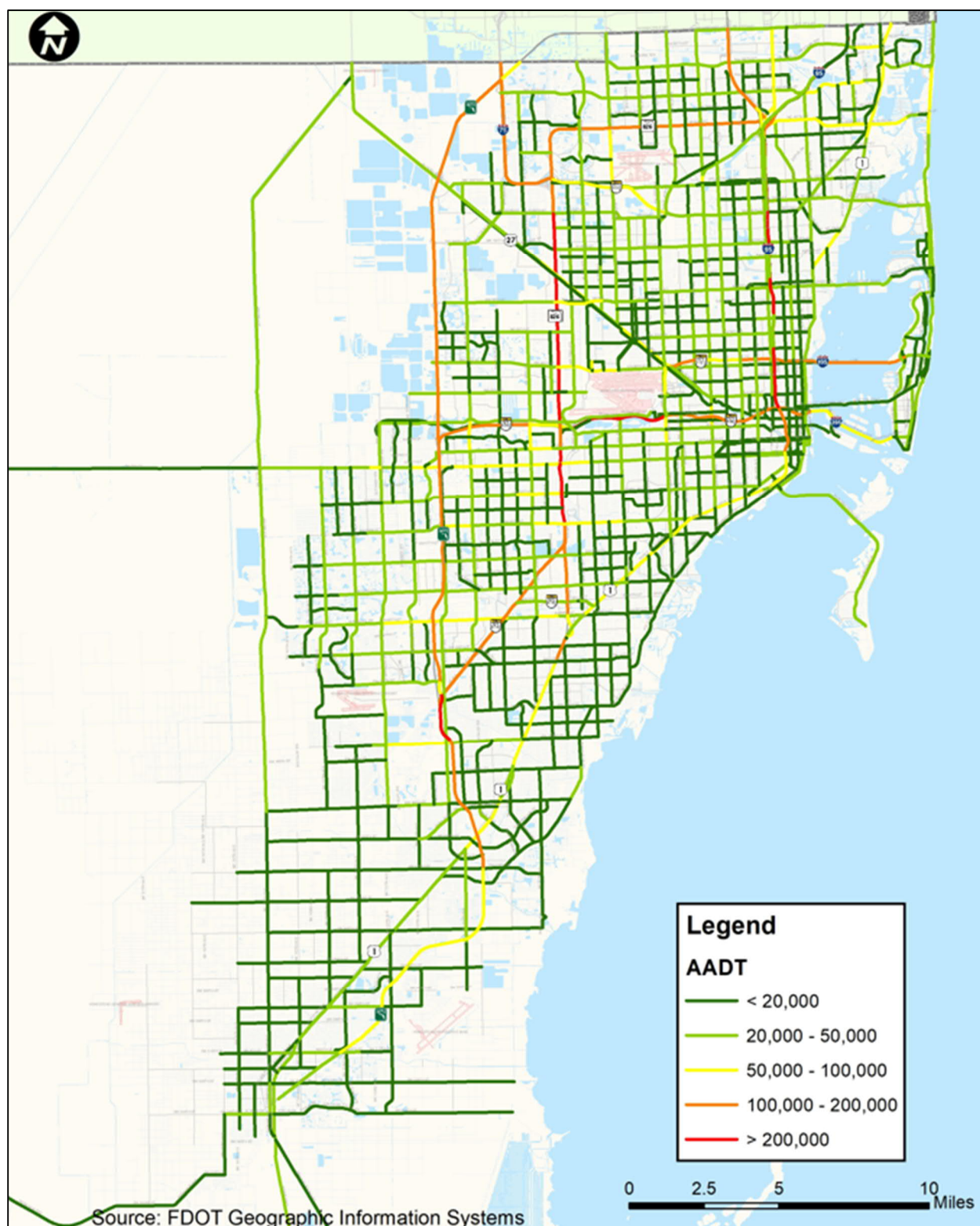


Figure 9: 2019 AADTs for State and County Facilities

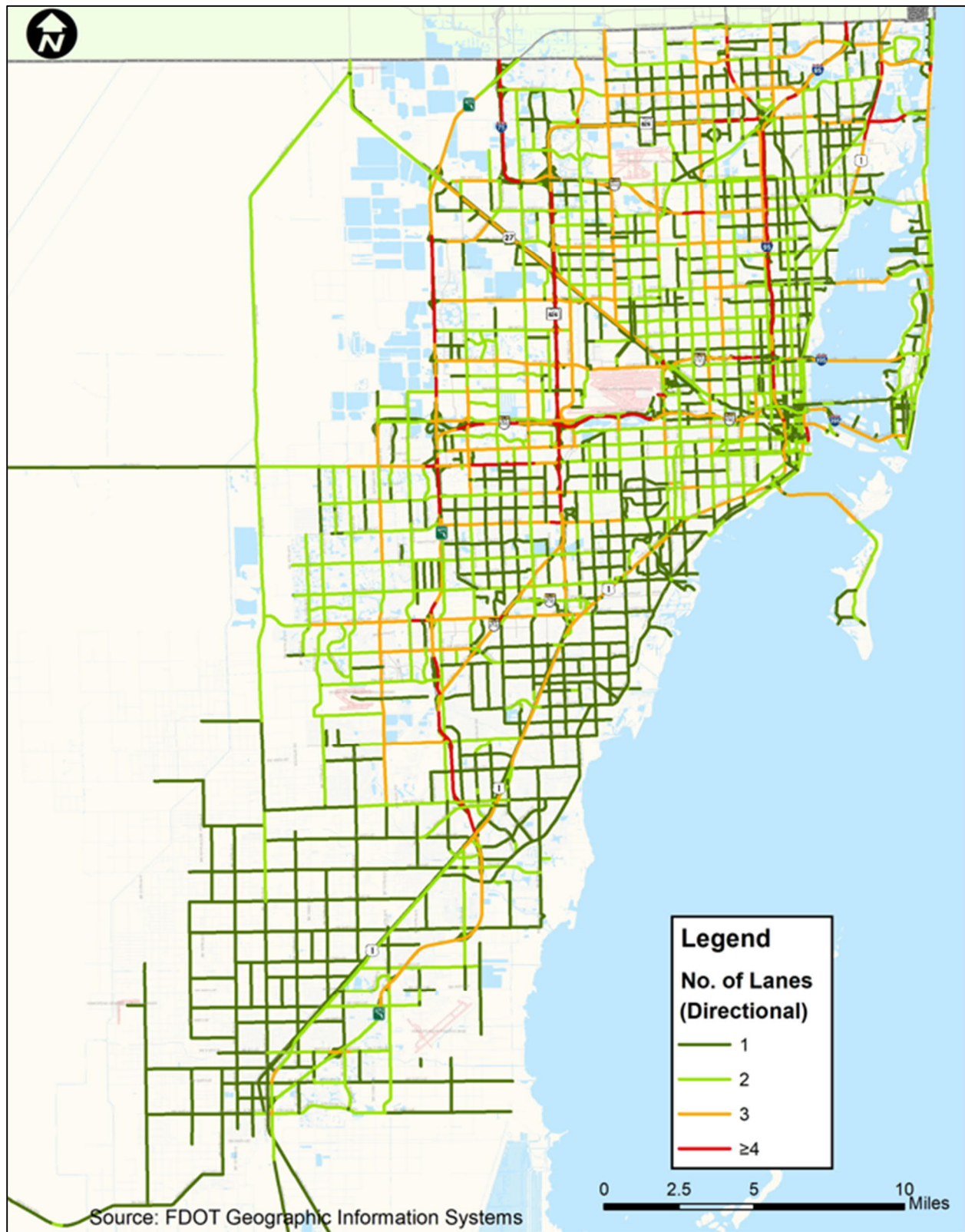


Figure 10: 2020 Number of Lanes along State and County Facilities

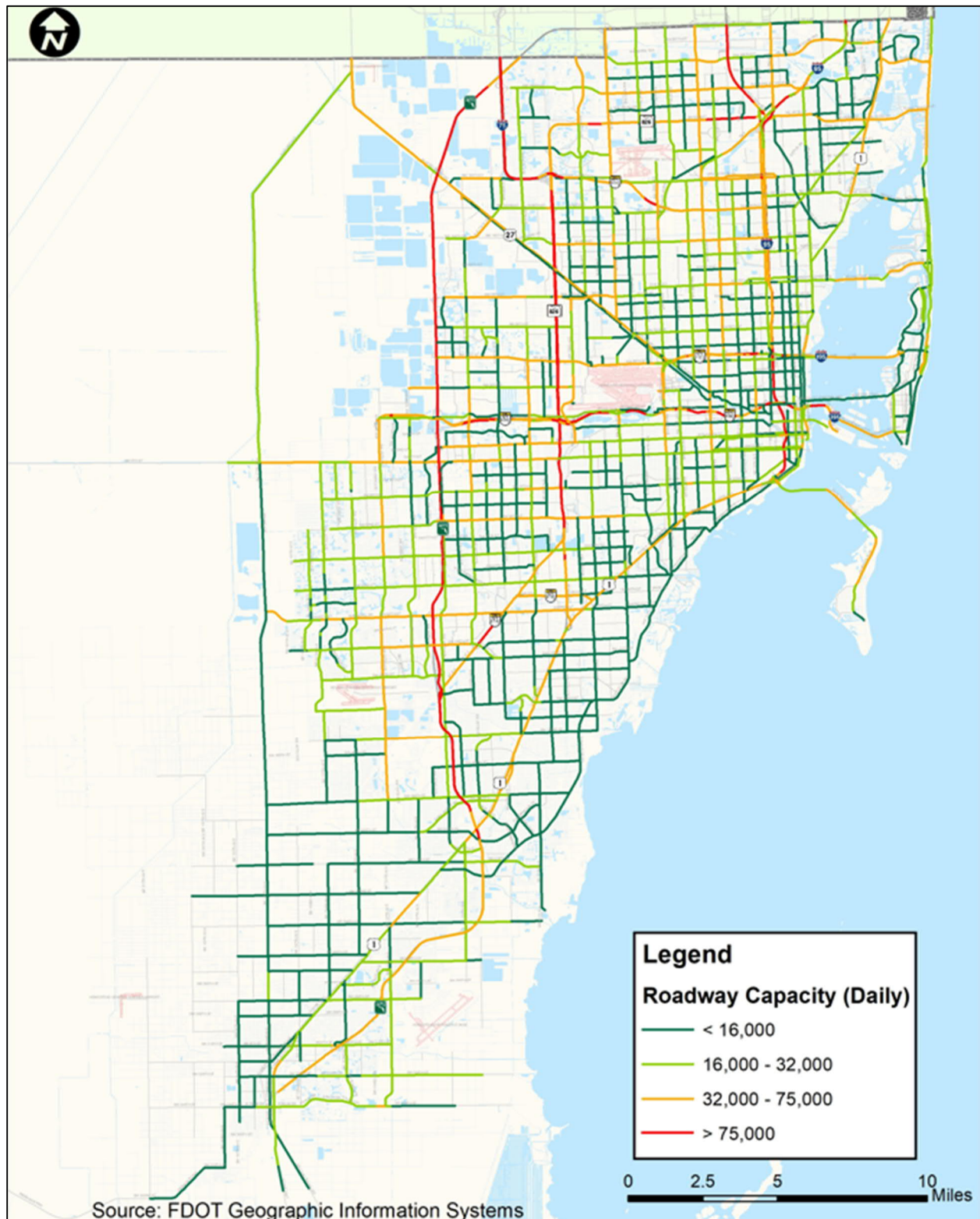


Figure 11: 2015 Daily Roadway Capacity for State and County Facilities

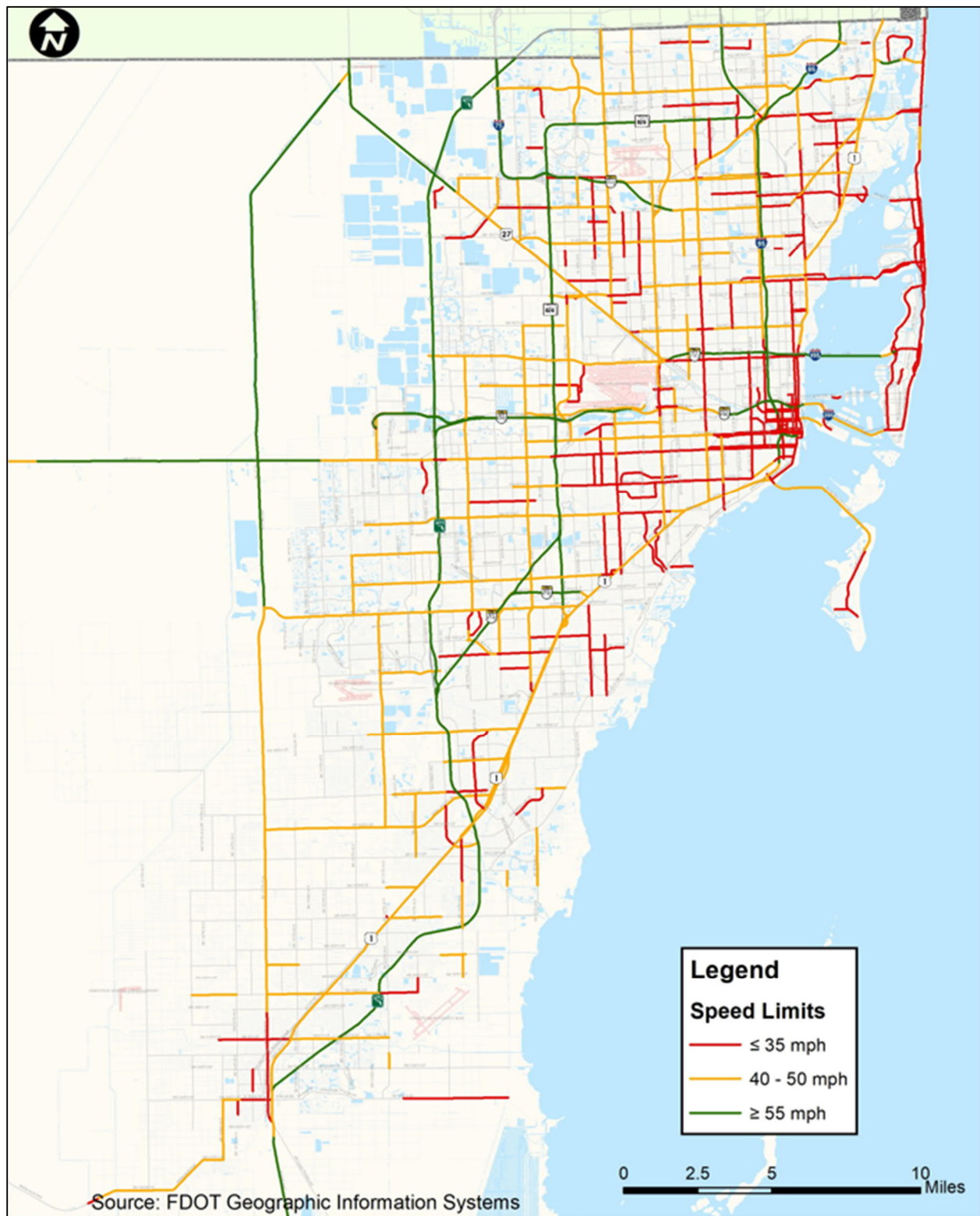


Figure 12: 2020 Speed Limits for State Facilities

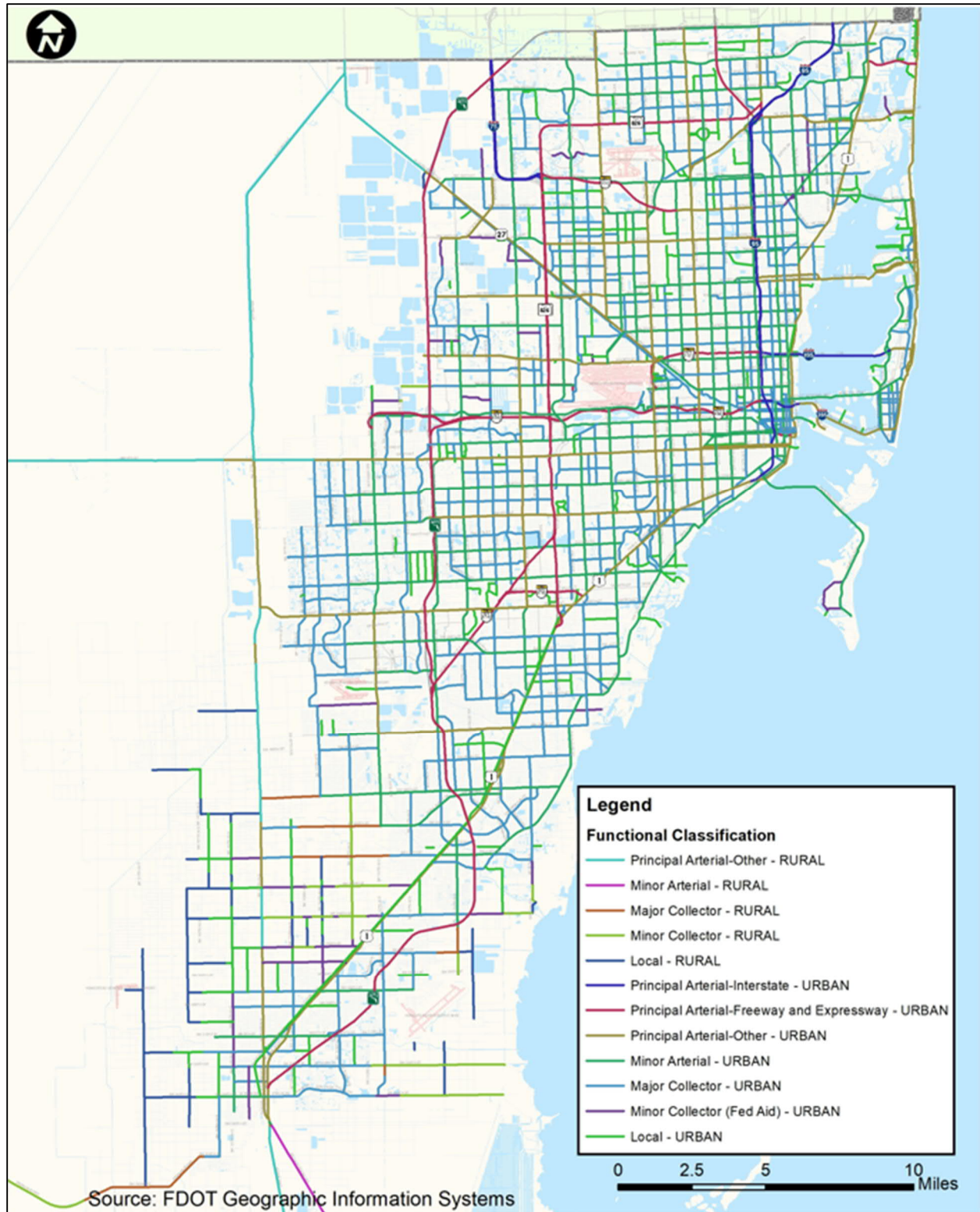


Figure 13: 2020 Roadway Functional Classification for State and County Facilities

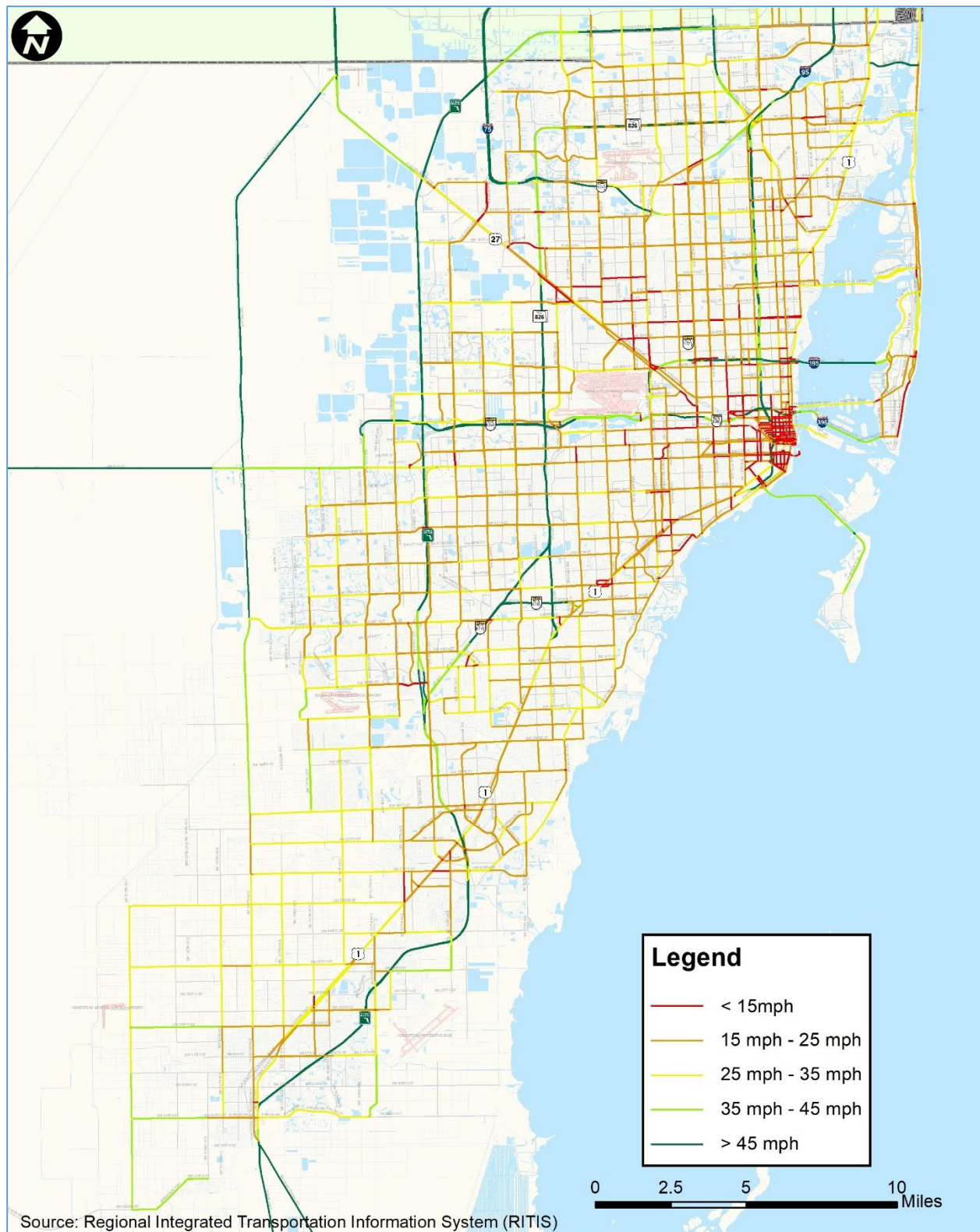


Figure 14: 2019 Operating AM Peak Period Speeds for state and County Facilities

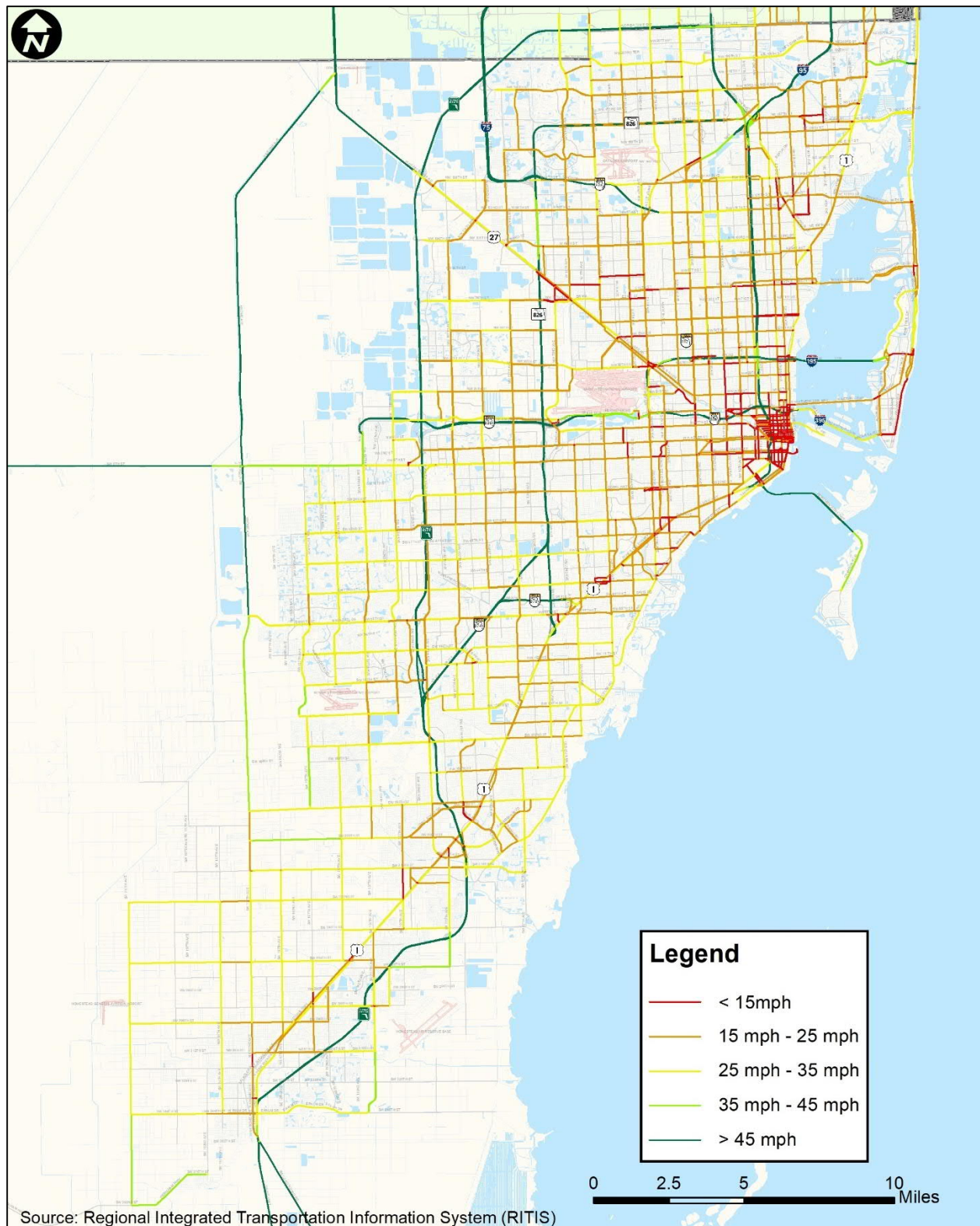


Figure 15: 2019 Operating AM Off Peak Period Speeds for State and County Facilities

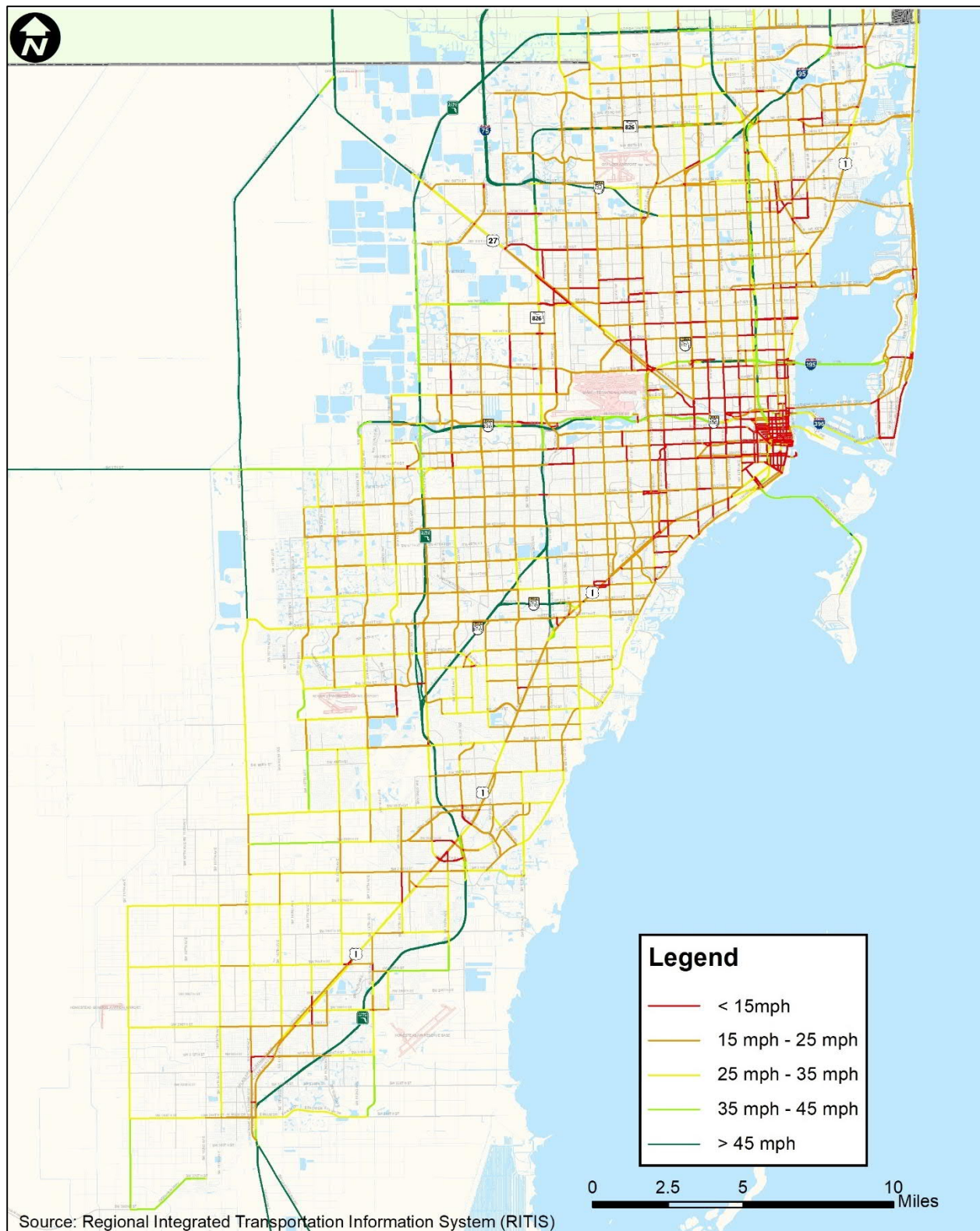


Figure 16: 2019 Operating PM Peak Period Speeds for State and County Facilities

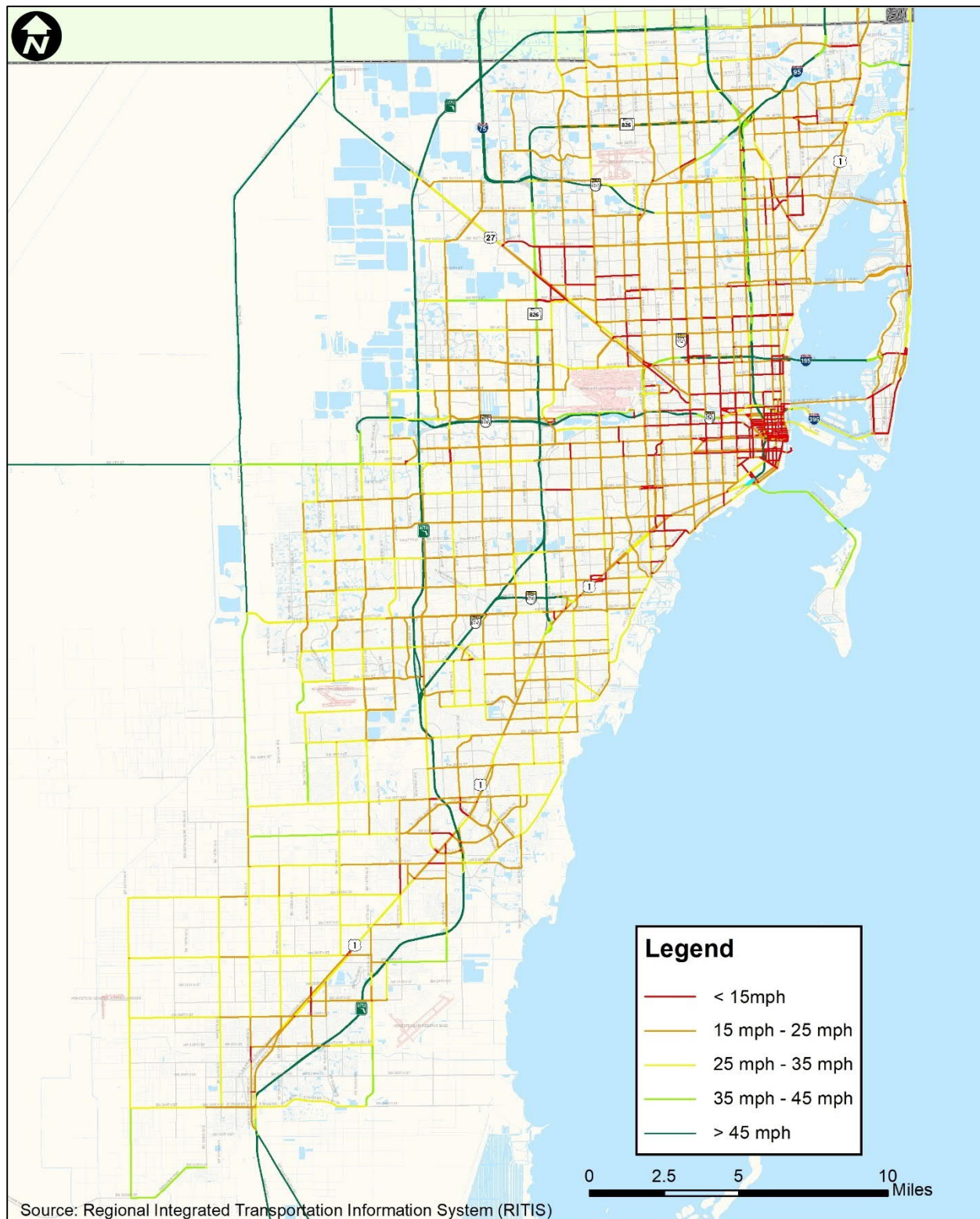


Figure 17: 2019 Operating PM Off Peak Period Speeds for State and County Facilities

3 System Network Analysis

3.1 Roadway Planning LOS

3.1.1 Roadway Planning LOS for FDOT facilities

Figure 18 shows the planning LOS for State facilities within Miami-Dade County calculated based on 2019 AADTs and using the generalized LOS tables found in the FDOT Quality/Level of Service Handbook. The information presented in Figure 18 was obtained from the FDOT District 6 Planning and Environmental Management Office. LOS for the Florida's Turnpike was obtained directly from this agency for the year 2019. The following corridors/facilities with LOS F, are very important for the mobility in Miami-Dade County based on the magnitude of traffic they serve and the connections they provide between major trip generators.

- US-1 between SW 288th Street and SW 248th Street, SW 168th Street and SW 88th Street, SR 878 and the Rickenbacker Causeway and SR 836 and NE 123rd Street
- Bird Road/SW 40th Street between SW 87th Avenue and SW 67th Avenue, and SW 57th Avenue and SW 42nd Avenue
- SW 8th Street between SW 87th Avenue and SW 27th Avenue
- Flagler Street between W 72nd Avenue and W 42nd Avenue
- SR 836 between the Palmetto Expressway and NW 45th Avenue, and between NW 37th Avenue and I-95
- I-395 between I-95 and Port Miami entrance, and between Fountain Street and Alton Road
- SR 112 near the I-95 interchange
- I-195 near the I-95 interchange
- I-95 between SW 8th Street and NW 54th Street
- Golden Glades Interchange
- SR 826 between the I-75/SR 924 interchange and NW 27th Avenue
- Florida's Turnpike intermittent sections between US 1 and Bird Road

3.1.2 Roadway Planning LOS for County facilities

Figure 19 shows the planning LOS for County facilities calculated based on a volume to capacity (V/C) ratio. Table 5 shows how the V/C ratio relates to the LOS. The information presented in Table 5 was obtained from the Transportation Research Board, Highway Capacity Manual, Special Report 209 (Washington, D.C., 1994).

Table 5: Planning Roadway LOS Calculation for County Facilities

Level of Service	Description	V/C
A	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimal.	0.00 to 0.60
B	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.	0.61 to 0.70
C	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.	0.71 to 0.80
D	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.	0.81 to 0.90
E	Operations with significant intersection approach delays and low average speeds.	0.91 to 1.00
F	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.	Greater than 1.00

The volumes in the V/C ratio calculation use 2019 AADTs obtained from the FDOT GIS database provided by the Transportation Data and Analytics Office. The capacity values were obtained using the 2015 base model SERPM. Figure 18 shows that County facilities with poor LOS are scattered throughout the County.

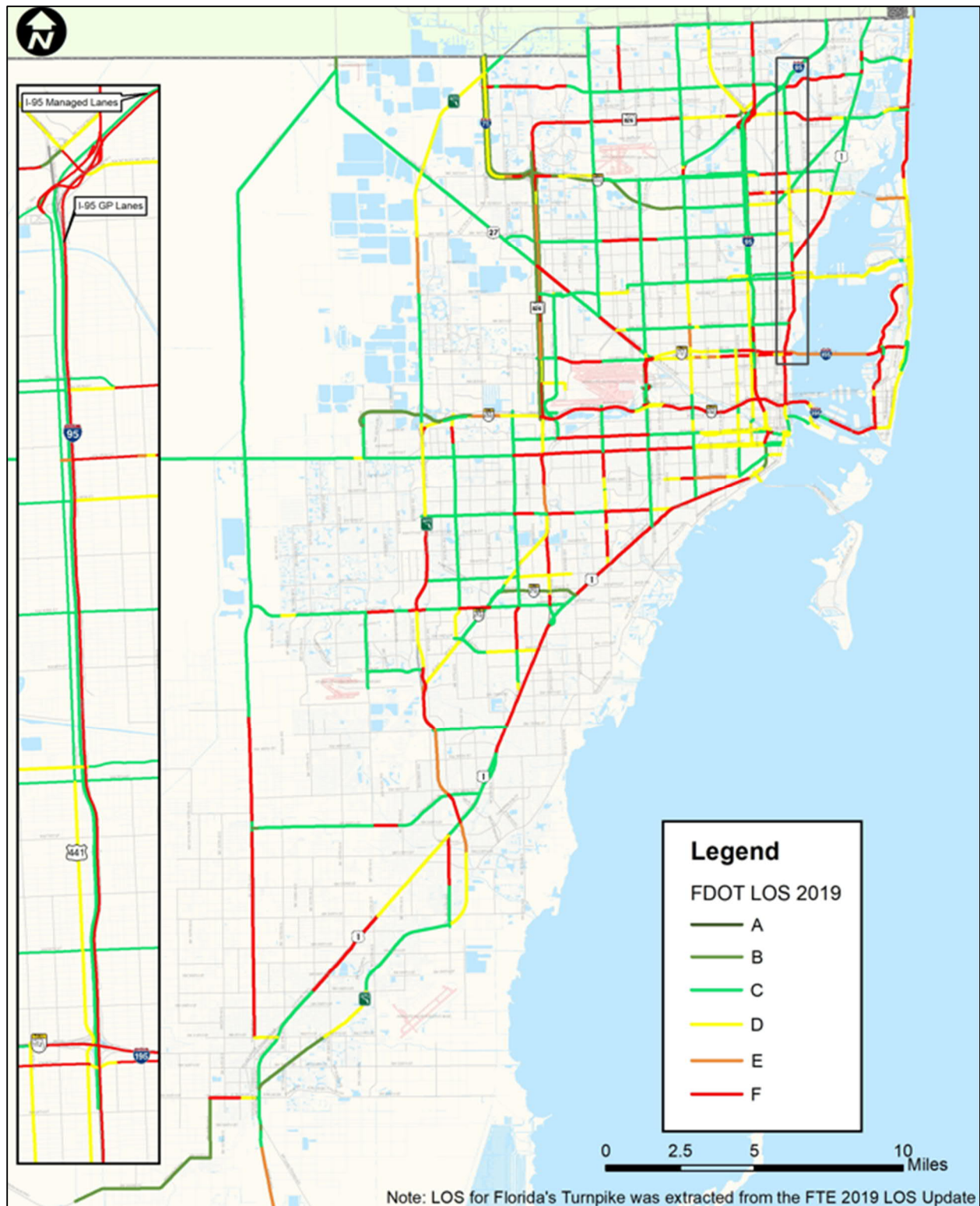


Figure 18: Roadway Planning LOS Map for State Facilities

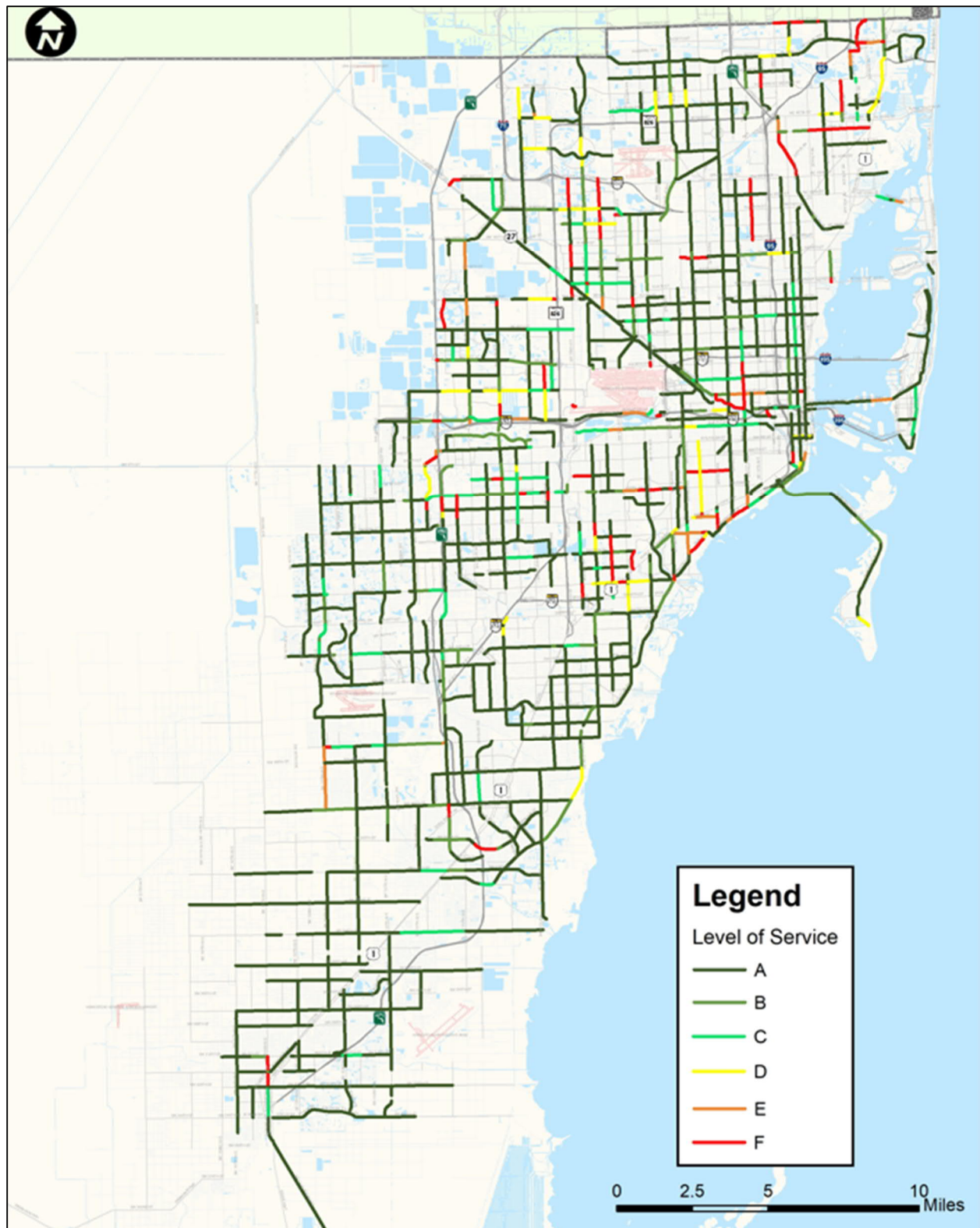


Figure 19: Roadway Planning LOS Map for County Facilities

3.2 Transit Planning LOS

Figure 20 shows the planning LOS for transit service calculated according to the criteria shown in Table 6, which was developed in close coordination with staff from the TPO and following concepts found in the new version of the Highway Capacity Manual. As shown in Table 6, a transit planning LOS was determined based on headways, and bus stop conditions. A provision was introduced for LOS A, so that exceptional LOS was given to routes that in addition to frequent service and adequate bus stops, provide connections to major destinations.

Information about bus route alignment and bus stop location and conditions were obtained from the Miami-Dade County Open Data Hub. Information about the headways were found using the General Transit Feed Specification (GTFS). The GTFS is a data specification that allows public transit agencies to publish their transit data in a format that can be consumed by a wide variety of software applications. The GTFS data format is used by thousands of public transportation providers.

Table 6: Transit Planning LOS Criteria

LOS	Criteria
A	Bus headways of 20 min or less during peak hours with more than 75% of bus stops with adequate conditions and at least one transit stop connecting to a major destination (e.g., Downtown, shopping center) or transportation hub (e.g., Metrorail station)
B	Bus headways of 20 min or less during peak hours with more than 75% of bus stops with adequate conditions
C	Bus headways of 20 min or less during peak hours with less than 75% of bus stops with adequate conditions
D	Bus headways of more than 20 minutes during peak hours with less than 50% of bus stops with adequate conditions
E	Bus headways of more than 30 minutes during peak hours with more than 50% of bus stops with substandard conditions
F	Bus headways of more than 30 minutes during peak hours with more than 75% of bus stops with substandard conditions

Figure 20 shows that the following corridors/areas have LOS F transit service:

- Homestead
- W 57th Avenue (through City of Coral Gables and City of Miami)
- SW 56th Street/Miller Drive
- SW 42nd Avenue/Le Jeune Road south of Coral Way
- Venetian Causeway
- Sections of W 16th Avenue and W 29th Street in City of Hialeah
- Sections of NE 163rd Street connecting North Miami Beach and Sunny Isles Beach
- Miami Gardens near the Golden Glades interchange



3.3 Non-motorized Analysis

3.3.1 Bicycle Planning LOS

Figure 22 shows the planning LOS for bicycle facilities in Miami-Dade County calculated based on the criteria shown in Table 7, which was developed following concepts found in the Highway Capacity Manual. A standard bike line was defined based on information found in the FDOT Design Manual Chapter 223.2.1. Since there are certain conditions for which the minimum sidewalk width is 5 feet, a decision was made so that only bike lanes with a lane width of 5 feet or more were categorized as standard bike lanes. Posted speed limits on roads adjacent to the bicycle facilities was also taken into consideration as per guidance from the Highway Capacity Manual. The idea is that bicycle facilities near a high-speed roadway negatively impact the safety and comfort for bicyclists, therefore deteriorating the level of service. Also, an area type consideration was introduced to the bicycle LOS calculation as recommended by TPO staff with the idea that bicyclists within the area defined for the Downtown Development of Regional Importance (DDRI) usually experience more conflicts from all the activity and transportation modes that converge in this area. The area defined for the DDRI Increment III is shown in Figure 21 and is composed by the Brickell District, the Central Business District (including Downtown) and the Arts and Entertainment District. The bicycle network used for the LOS calculation, which included the width of the bicycle lanes, and the speed of the adjacent roadway was provided by the FDOT District 6. Note that this analysis assumes that corridors shown in Figure 22, where some bicycle treatment is in place, do not fall into LOS F. LOS E includes two criteria, which are: 1) substandard bike lane with speed limit of 35 mph or more inside the DDRI or 2) no bike lane with speed limit of 35 mph or more.

Table 7: Bicycle Planning LOS Criteria

LOS	Criteria
A	Standard bike lane with speed limit of 35 mph or less outside the DDRI
B	Standard bike lane with speed limit of 35 mph or less inside the DDRI
C	Standard bike lane with speed limit of 40 mph or more inside or outside of the DDRI
D	Substandard bike lane with speed limit of 35 mph or more outside the DDRI
E	Substandard bike lane with speed limit of 35 mph or more inside the DDRI/ No bike lane with speed limit of 35 mph or more
F	No LOS assigned

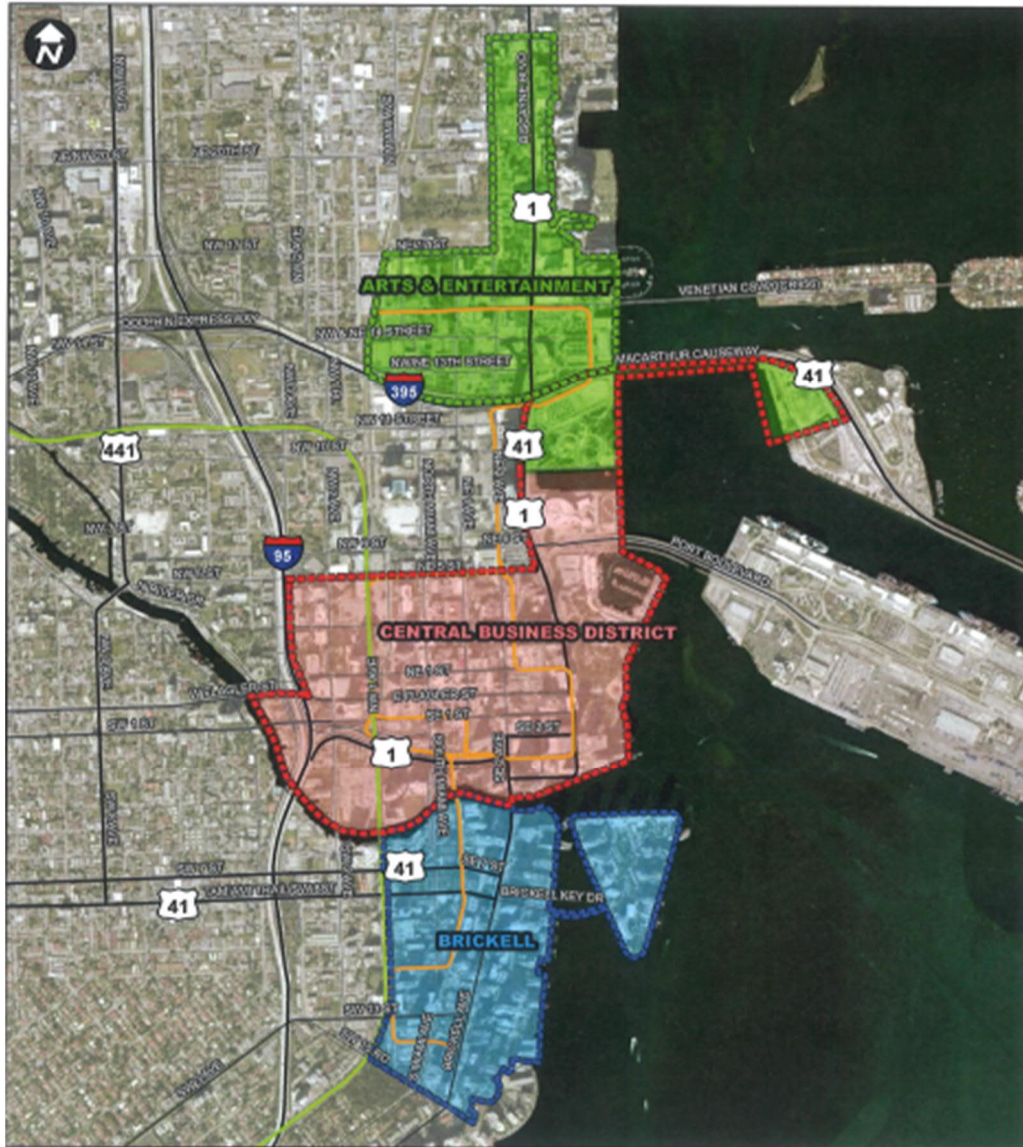


Figure 21: Area of the Downtown Miami DRI Increment III

Figure 22 shows that the following areas/corridors have bicycle facilities with no dedicated bicycle lanes (only sharrows) experiencing LOS E.

- NW 114th Avenue between NW 41st Street and NW 82nd Street and NW 58th Street between NW 107th Avenue and NW 97th Avenue in Doral
- Sections of Coral Way, SW 6th Street, and SW 1st Street in City of Miami
- Sections of Alton Road, Collins Avenue and Washington Avenue in the City of Miami Beach.

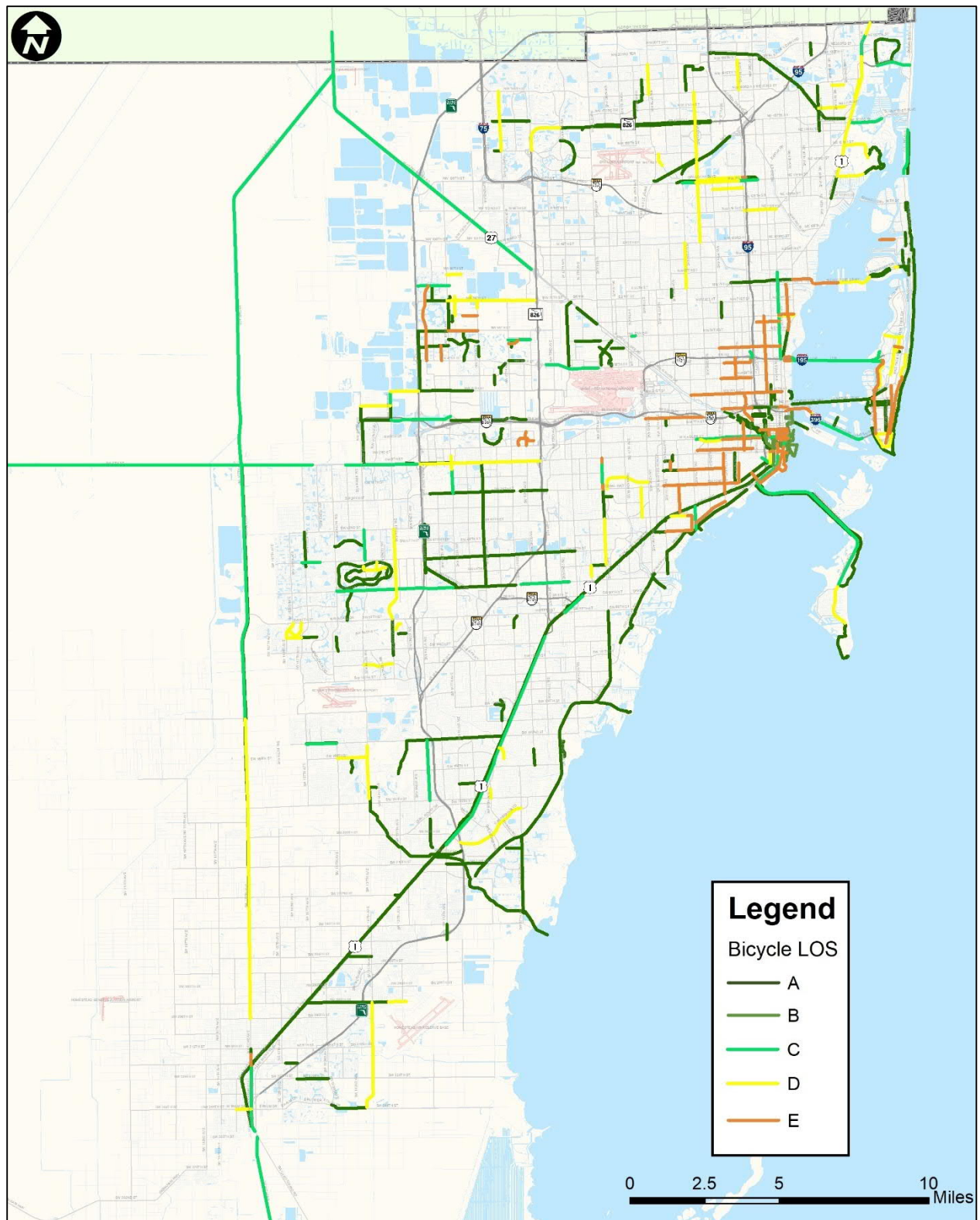


Figure 22: Bicycle Planning LOS Map

3.3.2 Pedestrian Planning LOS

Figure 23 shows the pedestrian planning LOS calculated according to the criteria shown in Table 8, which was developed following concepts found in the recent version of the Highway Capacity Manual. Since there are certain conditions for which the minimum sidewalk width is 6 feet, a decision was made so that only sidewalks with a width of 6 feet or more were categorized as standard. Posted speed limits on roads adjacent to the pedestrian facilities were also taken into consideration in the LOS calculation as per guidance from the Highway Capacity Manual. The concept is that sidewalks near a high-speed roadway negatively impact the safety and comfort for pedestrians, therefore deteriorating the level of service. Sidewalk Barriers were also considered and included in the LOS A denomination when physical barriers were found separating motorized vehicle lanes from sidewalks.

Table 8: Pedestrian Planning LOS Criteria

LOS	Criteria
A	Standard sidewalk with speed limit of 35 mph or less and presence of sidewalk/roadway separation or a sidewalk roadway barrier.
B	Standard sidewalk with speed limit of 35 mph or less
C	Standard sidewalk with speed limit of 40 mph or more
D	Substandard sidewalk with speed limit of 35 mph or less
E	Substandard sidewalk with speed limit of 40 mph or more
F	No sidewalk

Figure 23 shows that most sidewalks are located within the Urban Development Boundary. Note that all freeways (LOS F for no sidewalk) were removed from the pedestrian LOS map. Figure 23 shows that the following areas/corridors have substandard sidewalk with higher speed limits experiencing LOS E.

- US 1 between SW 211th Street and I-95
- W Flagler Street between SW 22nd Avenue and I-95
- SW 40th Street/Bird Road between SW 87th Avenue and SW 42nd Avenue
- SW 22nd Avenue between Bayshore Drive and SR 9.
- Section of sidewalks in sections of Homestead

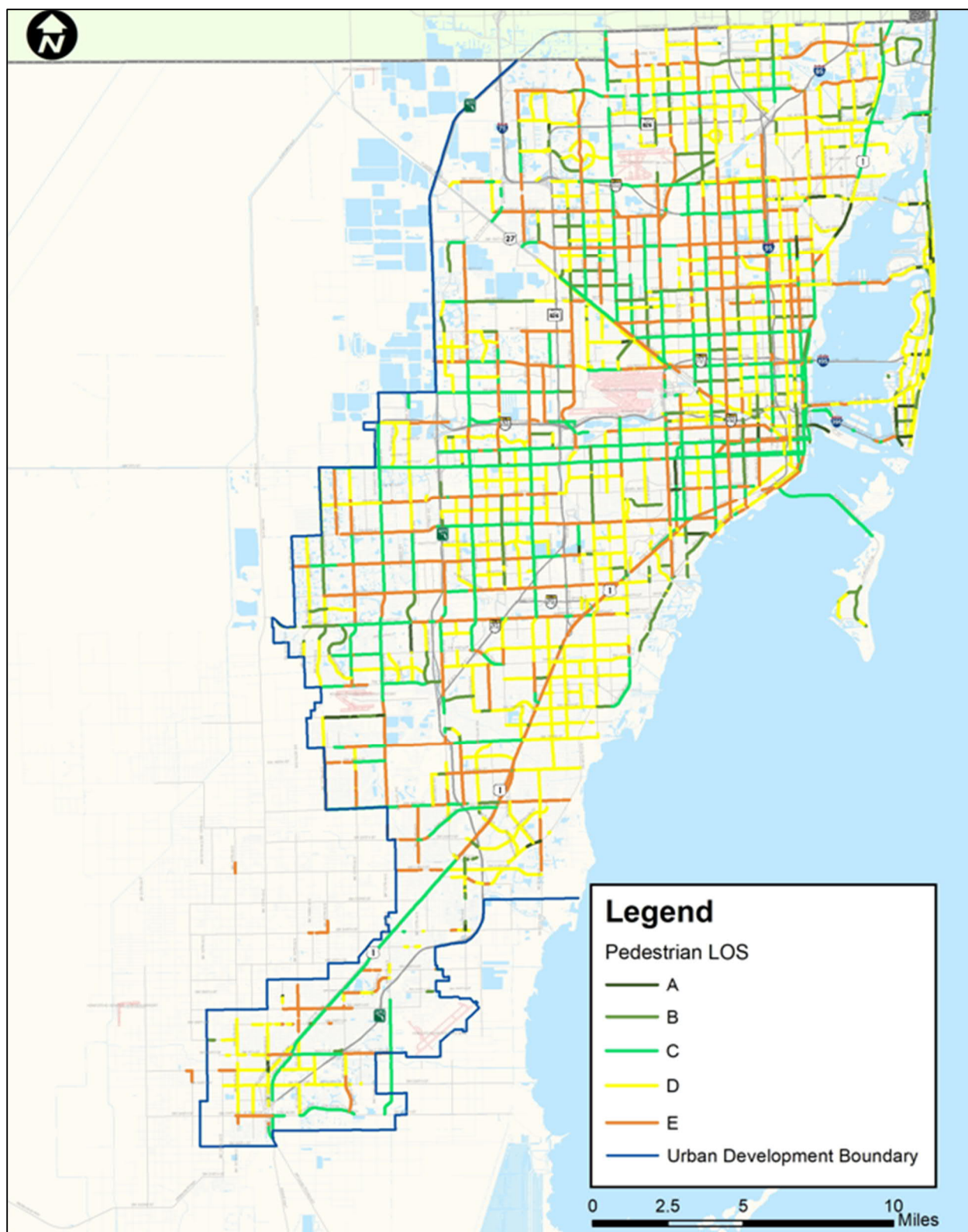


Figure 23: Pedestrian Planning LOS Map

4 Transportation System Assessment

4.1 Roadway Assessment

4.1.1 Arterial Grid Network Disruptions and Missing Links

Table 9 provides a list of new projects already programmed under the latest Transportation Improvement Program (TIP), the Long-Range Transportation Plan (LRTP) and the Transportation Development Program (TDP) to address existing network disruptions and missing links.

Table 9: Major Roadway Improvement Projects to Address Network Disruptions

ID	Project	Limit From	Limits To	Owner	Project Type
1	NW 107 th Ave	NW 170 th St	Broward County line	DTPW	Arterial/Collector
2	SW 120 th St	SW 99 th Ct	SW 99 th Ave	DTPW	Bridge Construction
3	SW 102 nd Ave	SW 145 th St	SW 146 th St	DTPW	Bridge Construction
4	SW 77 th Ave	SW 159 th Ter	SW 160 th Ter	DTPW	Bridge Construction
5	SW 77 th Ave	SW 173 rd St	SW 174 th St	DTPW	Bridge Construction
6	SW 122 nd Ave	SW 210 th St	SW 212 nd St	DTPW	Bridge Construction
7	SW 136 th St	Harrison St	SW 112 nd Ave	DTPW	Bridge Construction
8	NW 107 th Ave	NW 106 th St	NW 122 nd St	DTPW	Arterial/Collector
9	NW 32 nd Ave	NW 21 st St	NW N River Dr at NW 26 th St	DTPW	Arterial/Collector
10	SW 102 nd Ave	SW 145 th St	SW 146 th St	DTPW	Bridge Construction/Arterial/Collector
11	SR 112/I-195	Frontage Rd & Ramp	TBD	FDOT	Expressway
12	NW 122 nd Ave	NW 25 th St	NW 41 st St	Private Sector	Arterial/Collector Road

The following projects have also been identified in previous years and provide connections at some key locations throughout the County.

4.1.1.1 NW 37th Avenue Connections at and near SR 112

The proposed project shown in Figure 24 will provide a bridge connection on NW 37th Avenue to cross the Miami River and two ramps to provide a partial interchange at SR 112. The purpose of these connections is to alleviate traffic congestion on LeJeune Road and fixing connectivity between Coconut Grove, City of Coral Gables, City of Miami, and City of Opa-Locka among other municipalities. NW 37th Avenue is a strategic roadway as it provides mobility for a very well established urban area and connects the Douglas Metrorail Station and the Miami Intermodal Center (MIC).



This project provides a southwest extension of the SR 836/Dolphin Expressway from its current terminus at NW 137th Avenue in the vicinity of NW 12th Street to SW 136th Street as shown in Figure 25. This corridor is envisioned as a multi-modal limited access facility and the goal is to relieve traffic congestion along the SR 836, Florida's Turnpike and east-west corridors in the Kendall area while providing an opportunity to limit urban expansion to the west. This corridor will provide a direct connection between the eastern portion of Miami-Dade County and the Kendall area.

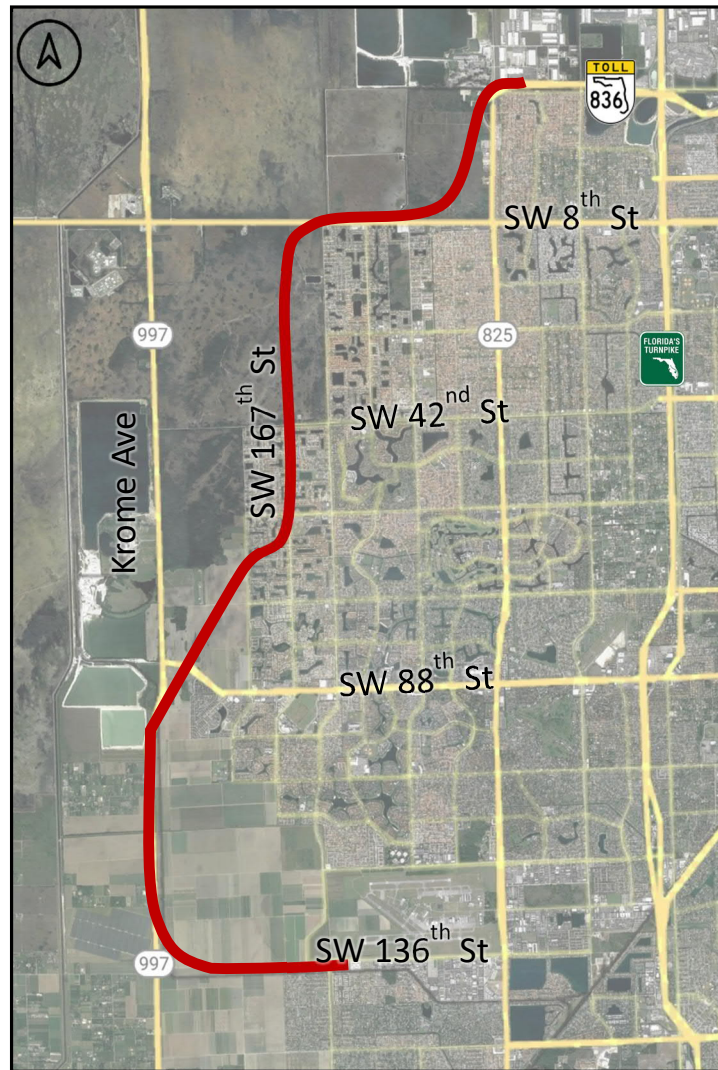
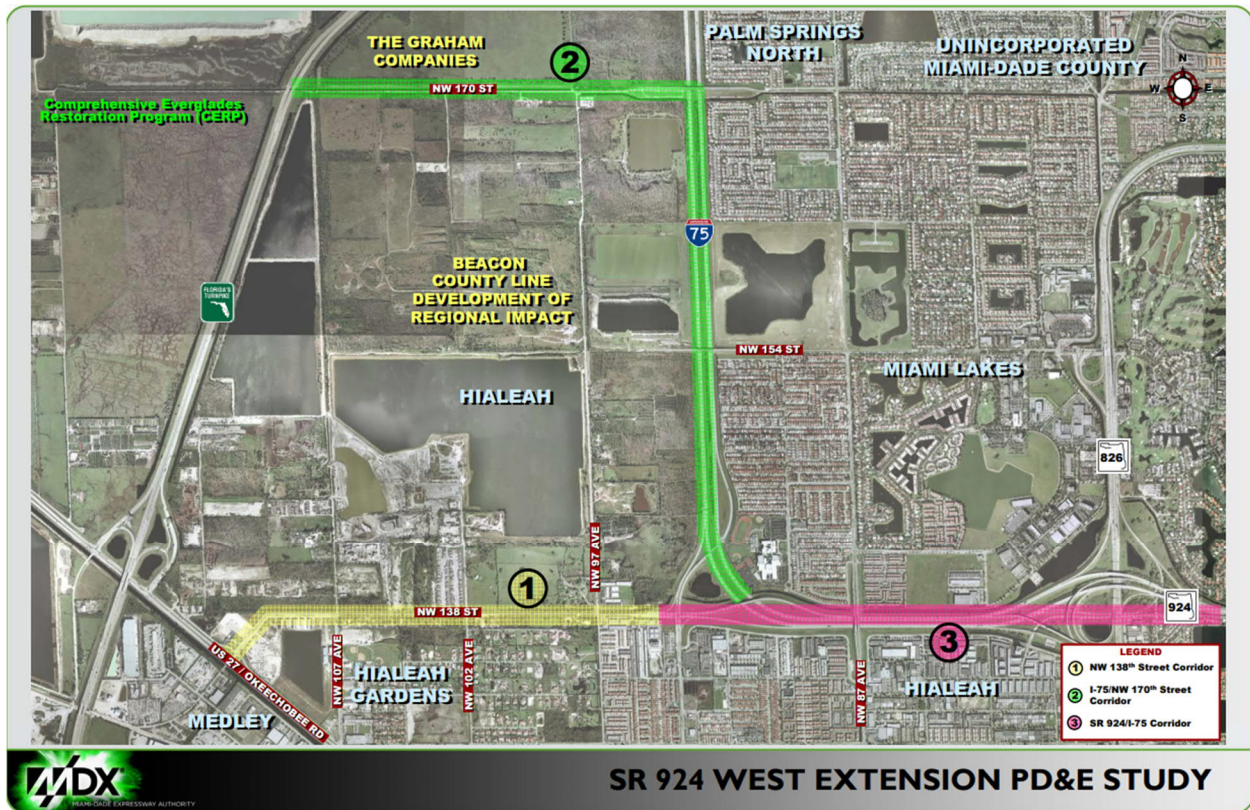


Figure 25: Kendall Parkway

4.1.1.3 SR 924 West Extension

This project extends the 924/Gratigny Parkway to the west to connect with the Florida's Turnpike as shown in Figure 26. The main purpose of the project is to improve access and meet east-west mobility needs for commuters and freight traffic. This extension alleviates existing and future local traffic congestion by providing improved access to the integrated expressway network of SR 826, I-75, SR 924, and the HEFT.

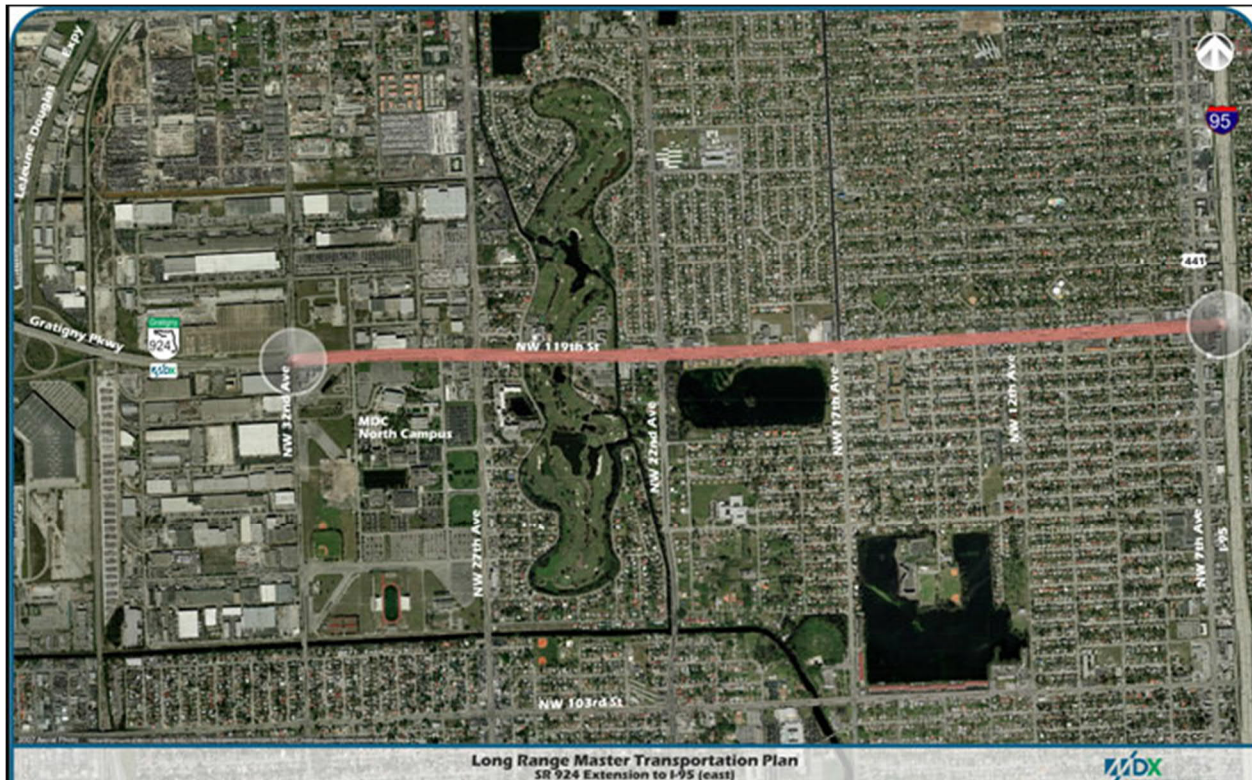


Source: MDX's website

Figure 26: SR 924 West Extension

4.1.1.4 SR 924 East Extension

This project consists of providing a connection from SR 924/Gratigny Parkway eastern termini to I-95. This extension would provide a more integrated highway system by improving access and mobility to and from major origin and destinations in northern Miami-Dade County including employment centers in the cities of North Miami, Opa-Locka, Hialeah and Miami Lakes.



Source: MDX's website

Figure 27: SR 924 East Extension

4.1.2 Identified Priority Corridors and Improvements Strategies

The existing conditions LOS maps for State and County facilities (Figure 18 and Figure 19) were used to identify roadways that operate at LOS E or F. Also, 2019 operating speeds during the peak periods for State and County facilities (Figure 14 and Figure 16) were reviewed to check the difference between those operating speeds and the posted speed limits. Thereafter, 2022 TIP and 2045 LRTP were reviewed to determine if roadway capacity improvements have been identified to address LOS deficiencies. The State and County facilities are identified as “priority corridors” if they meet the following 3 criteria:

1. Operate at LOS E or F,
2. The operating speed during the peak hours is 10 mph or more lower than the posted speed limit,
3. And not included in 2022 TIP or 2045 LRTP.

As shown on Table 10 and Figure 28, a total of 32 road segments were identified as priority corridors. Table 10 lists the ownership, limits, and improvement strategies for each priority corridor. The specific roadway improvement strategies were developed based on the characteristics of each corridor. Table 11 shows preliminary cost estimates for improvements identified for each priority corridor. Note that the cost of widening is based on FDOT’s cost per mile models for long range estimating in the statewide average level. The cost of Transit Signal Priority (TSP) is based on a fee estimate prepared in 2021 for the deployment of TSP in Palm Beach County and includes equipment and installation of GLANCE technology. Estimate does not include analysis, operation, or maintenance cost. The estimate takes in consideration the potential deployment of TSP at intersections along the applicable corridors.

Table 10: Priority Corridors and Improvements

ID	Project	Ownership	Limits From	Limits To	Improvements
1	Allapattah Rd	FDOT	SW 232nd St	US 1	Widening, intersection improvements
2	US 1	FDOT	SW 22nd St	SW 168th St	Intersection and multimodal improvements
3	Galloway Rd	FDOT	SW 88th St	SW 112th St	Widening, intersection improvements
4	N Kendall Dr	FDOT	SW 137th Ave	SW 97th Ave	Premium transit, intersection improvements, TSP
5	SW 57th Ave	FDOT	SW 8th St	US 1	Intersection improvements, signal retiming
6	SW 37th Ave	County	Main Hwy	Grand Ave	Intersection and multimodal improvements, signal retiming
7	Main Hwy	County	SW 37th Ave	Grand Ave	Intersection and multimodal improvements, signal retiming
8	SW 67th Ave	County	SW 48th St	SW 40th St	Intersection improvements, signal retiming
9	Grand Ave	County	S Dixie Hwy	Main Hwy	Intersection and multimodal improvements, signal retiming
10	SW 27th Ave	County	S Bayshore Dr	S Dixie Hwy	Intersection improvements, signal retiming
11	Bird Rd	FDOT	SW 87th Ave	NW 42nd Ave	Intersection improvements, signal retiming
12	S Bayshore Dr	County	SW 27th Ave	SW 17th Ave	Intersection and multimodal improvements, signal retiming
13	SW 17th Ave	County	S Bayshore Dr	S Dixie Hwy	Intersection and multimodal improvements, signal retiming
14	SW 24th St/Coral Way	County	SW 57th Ave	SW 42nd Ave	Intersection improvements
15	SW 24th St/Coral Way	FDOT	SW 31st Ct	SW 17th Ave	Intersection improvements, signal retiming
16	SW 2nd Ave	County	SW 15th Rd	SW 8th St	Intersection, interchange and multimodal improvements
17	Flagler St	FDOT	NW 72th Ave	NW 42nd Ave	Premium transit, intersection improvements, TSP
18	LeJeune Rd	FDOT	SR 112	NW 36th St	Network connectivity, intersection and interchange imp.
19	NW 17th Ave	County	NW 14th St	NW 36th St	Intersection and multimodal improvements
20	NW 20th St	County	NW 22nd Ave	NE 2nd Ave	Intersection and multimodal improvements
21	NW 27th Ave	FDOT	NW 42nd St	NW 57th St	Intersection improvements
22	US 1	FDOT	NE 123rd St	MacArthur Cswy	Premium transit, intersection and multimodal improvements
23	Alton Rd	FDOT	W 63rd St	5th St	Intersection and multimodal improvements
24	NW 107th Ave	County	NW 66th St	NW 106th St	Widening, intersection improvements
25	SR 916/NW 135th St	FDOT	SR 826	W 12th Ave	Network connectivity, intersection improvements
26	NW 2nd Ave	County	NW 154th Ave	NE 167th Ave	Widening, intersection improvements
27	SR 7	FDOT	Golden Glades Int.	NW 215th St	Intersection and multimodal improvements, congestion mgt.
28	NE 167th St	FDOT	NE 6th Ave	NE 18th Ave	Intersection improvements, signal retiming
29	A1A	FDOT	William L. Cswy	96th St	Intersection and multimodal improvements
30	Miami Gardens Dr	FDOT	NE 6th Ave	NE 22rd Ave	Intersection and multimodal improvements
31	Highland Lakes Blvd	County	NE 199th St	NE 208th St	Intersection and interchange improvements
32	NE 203rd St	County	Highland Lakes Blvd	NE 26th Ave	Network connectivity, intersection improvements

Table 11: Cost Estimates for Priority Corridors Improvements

ID	Project	Improvements	Cost
1	Allapattah Rd	Widening, intersection improvements	Widening: \$5M per mile for a total of \$8.1M (1.6 miles). Cost for intersection improvements will be determined when such improvements are further defined.
2	US 1	Intersection and multimodal improvements	Cost will be further defined in PD&E phase or design phase.
3	Galloway Rd	Widening, intersection improvements	Widening: \$4.9M per mile for a total of \$7.5M (1.5 miles). Cost for intersection improvements will be determined when such improvements are further defined.
4	N Kendall Dr	Premium transit, intersection improvements, TSP	TSP: \$10k per intersection for a total of \$140K (14 intersections). Other Cost will be further defined in PD&E phase or design phase.
5	SW 57 th Ave	Intersection improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
6	SW 37 th Ave	Intersection and multimodal improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
7	Main Hwy	Intersection and multimodal improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
8	SW 67 th Ave	Intersection improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
9	Grand Ave	Intersection and multimodal improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
10	SW 27 th Ave	Intersection improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
11	Bird Rd	Intersection improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
12	S Bayshore Dr	Intersection and multimodal improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
13	SW 17 th Ave	Intersection and multimodal improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
14	SW 24 th St/Coral Way	Intersection improvements	Cost will be determined when such improvements are further defined.
15	SW 24 th St/Coral Way	Intersection improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
16	SW 2 nd Ave	Intersection, interchange and multimodal improvements	Cost will be further defined in PD&E phase or design phase.
17	Flagler St	Premium transit, intersection improvements, TSP	TSP: \$10k per intersection for a total of \$100K (10 intersections). Other Cost will be further defined in PD&E phase or design phase.
18	LeJeune Rd	Network connectivity, intersection and interchange imp.	Cost will be further defined in PD&E phase or design phase.
19	NW 17 th Ave	Intersection and multimodal improvements	Cost for intersection improvements will be determined when such improvements are further defined.
20	NW 20 th St	Intersection and multimodal improvements	Cost will be further defined in PD&E phase or design phase.
21	NW 27 th Ave	Intersection improvements	Cost will be further defined in PD&E phase or design phase.
22	US 1	Premium transit, intersection and multimodal improvements	Cost will be further defined in PD&E phase or design phase.
23	Alton Rd	Intersection and multimodal improvements	Cost will be further defined in PD&E phase or design phase.
24	NW 107 th Ave	Widening, intersection improvements	Widening: \$4.9M per mile for a total of \$7.1M (1.5 miles). Cost for intersection improvements will be determined when such improvements are further defined.
25	SR 916/NW 135 th St	Network connectivity, intersection improvements	Cost will be further defined in PD&E phase or design phase.
26	NW 2 nd Ave	Widening, intersection improvements	Widening: \$5M per mile for a total of \$3.7M (0.7 miles). Cost for intersection improvements will be determined when such improvements are further defined.
27	SR 7	Intersection and multimodal improvements, congestion mgt.	Cost will be further defined in PD&E phase or design phase.
28	NE 167 th St	Intersection improvements, signal retiming	Preliminary cost cannot be determined before defining with more details the proposed improvements
29	A1A	Intersection and multimodal improvements	Cost for intersection improvements will be determined when such improvements are further defined.
30	Miami Gardens Dr	Intersection and multimodal improvements	Cost for intersection improvements will be determined when such improvements are further defined.
31	Highland Lakes Blvd	Intersection and interchange improvements	Cost for intersection improvements will be determined when such improvements are further defined.
32	NE 203 rd St	Network connectivity, intersection improvements	Cost will be further defined in PD&E phase or design phase.

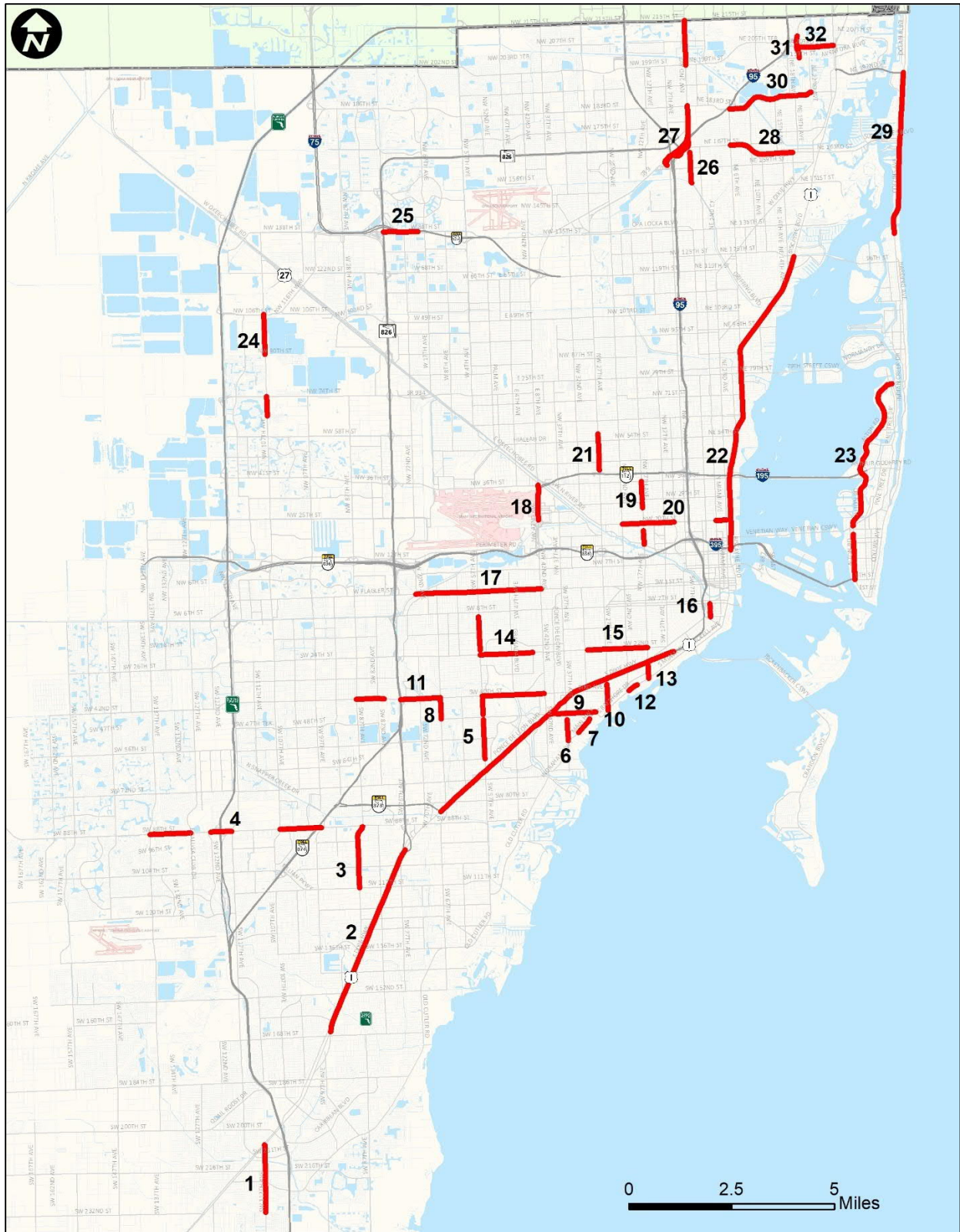


Figure 28: Priority Corridors

4.1.3 AADTs Trends Based on 2013 and 2019 Data

Figure 29 shows a comparison between 2013 and 2019 AADTs, which examine trends based on AADTs from the Arterial Grid Network study completed in 2013 and AADTs in 2019 before the pandemic, which are used as a reference throughout this study. The green line represents roadway segments that perceived a negative growth or decline in AADTs of more than 10%, the yellow line roadway segments that perceived minimum change in AADTs with less than 10%, and the red line roadway segments that perceived a positive growth or increase in AADTs greater than 10%. Based on a link length calculation, 14% of the link segments perceived a reduction in traffic volumes, 39% perceived a small difference in traffic volumes and 47% perceived an increase in traffic volumes when comparing 2013 and 2019 AADTs. The fact that the majority of the links experienced an increase in traffic volumes, shows that traffic demand has outpaced the roadway capacity of our roadway network in the last 6 years. Figure 29 shows that most facilities are in yellow or red color. In other words, most facilities in Miami Dade County have experienced an increase in traffic demands over the last years.

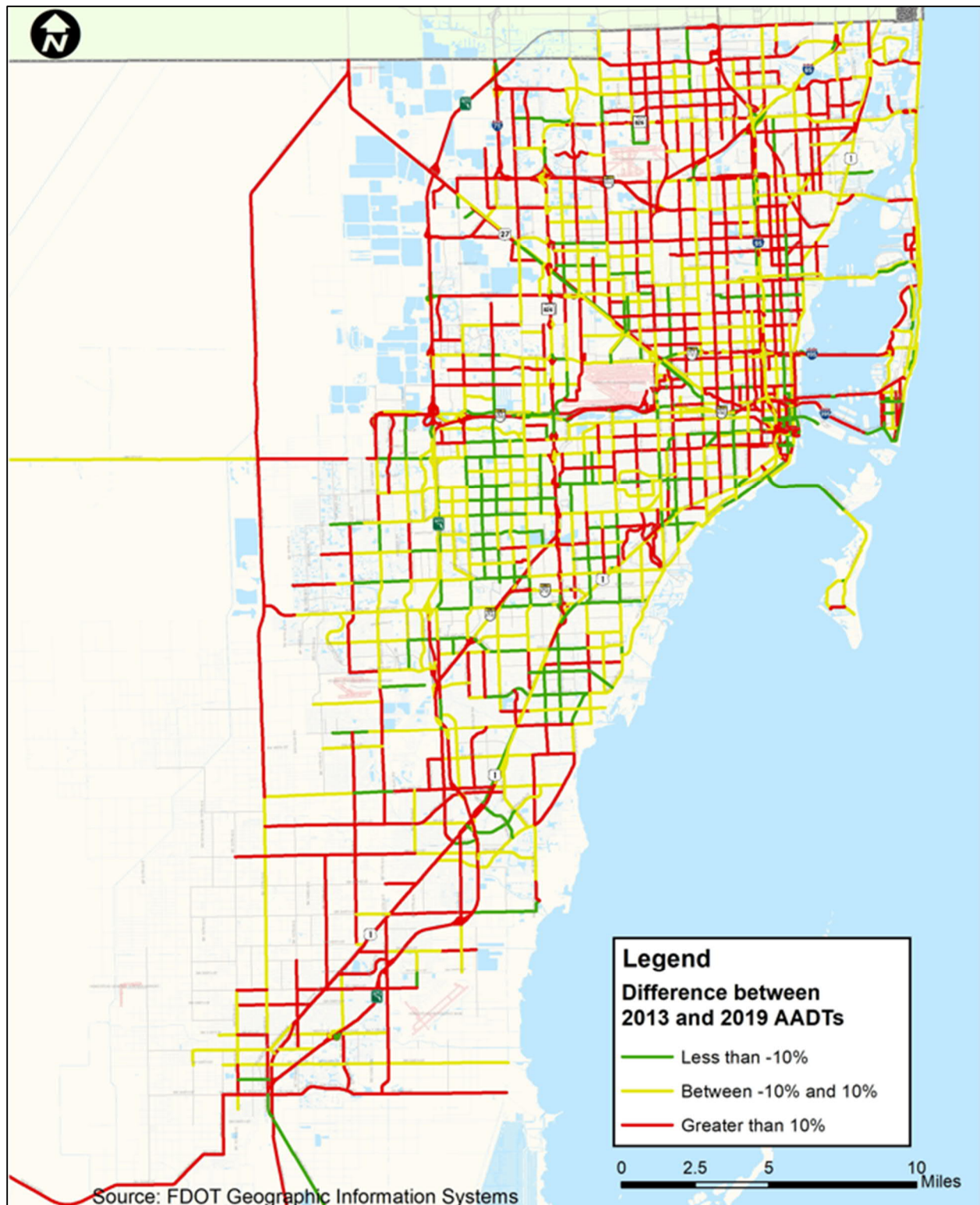


Figure 29: 2013 & 2019 AADT Comparison

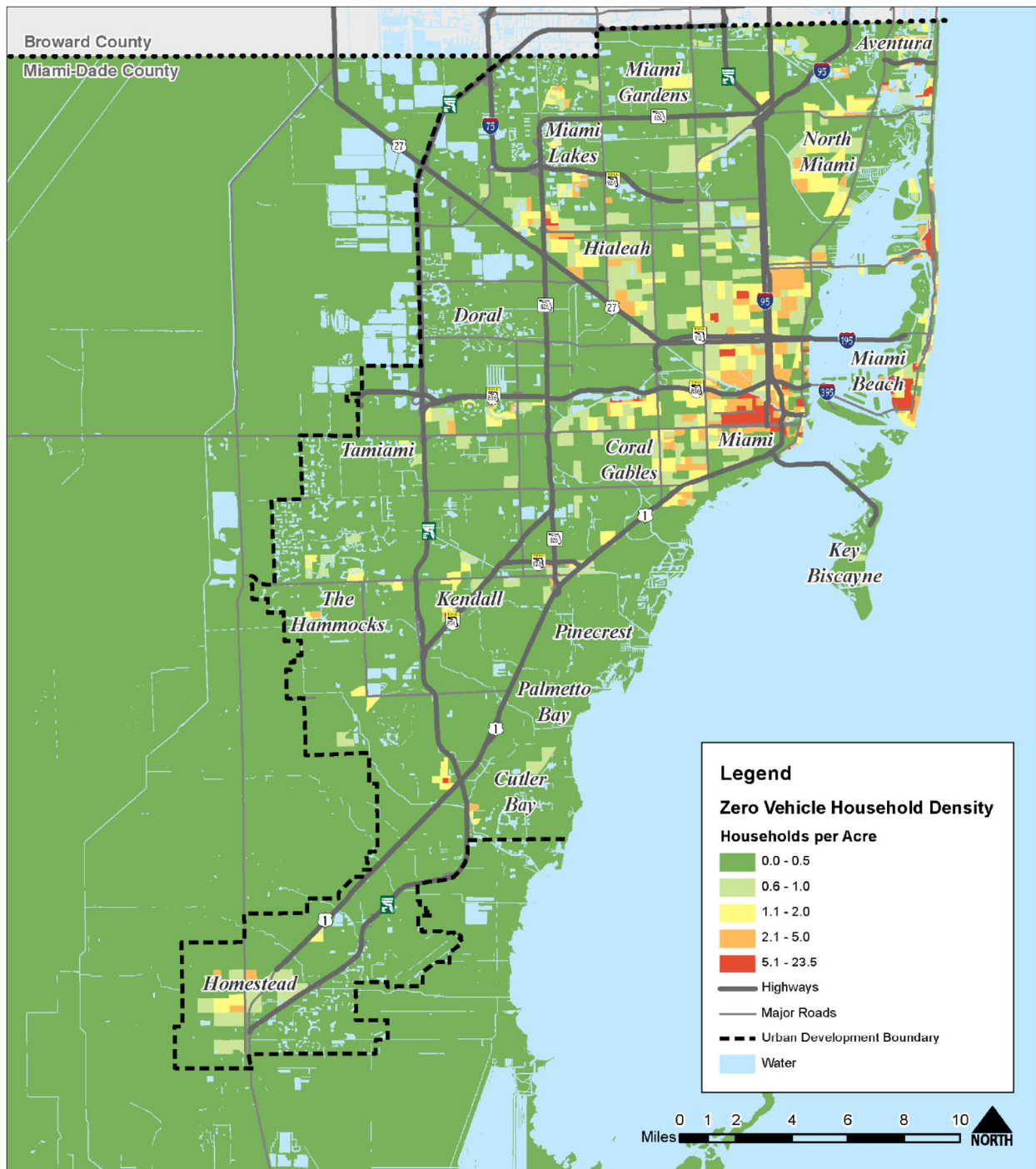
4.2 Transit Assessment

Information in the following section was taken from DTPW TDP 2020-2029 Major Update report and 2022-2031 Miami-Dade Transit TDP report.

4.2.1 Transit Propensity Analysis

Households without access to a vehicle are the most likely to be transit dependent for their mobility. While some individuals are unable to acquire a car, others choose to live in communities which enable a car-free lifestyle. Regardless of the reason, these individuals depend on the transit system to reach destinations outside of their immediate community.

The largest concentrations of zero vehicle households can be found in walkable mixed use areas as shown in Figure 30, such as Downtown Miami, Little Havana, and South Beach. Smaller pockets can be identified throughout the City of Miami, and in Homestead, North Beach, Hialeah, and North Miami.



Source: US Census Bureau - 2016 ACS 5-year Estimates

Data Resolution: Census Block Groups

Figure 30: Zero-Vehicle Household Density

According to the Florida Department of Revenue, the threshold for a low-income household is at \$30,174. Median household incomes below \$30,174 are shown in Figure 31. This map indicates large numbers of low income households in Hialeah, Little Havana, North Miami, and Homestead.

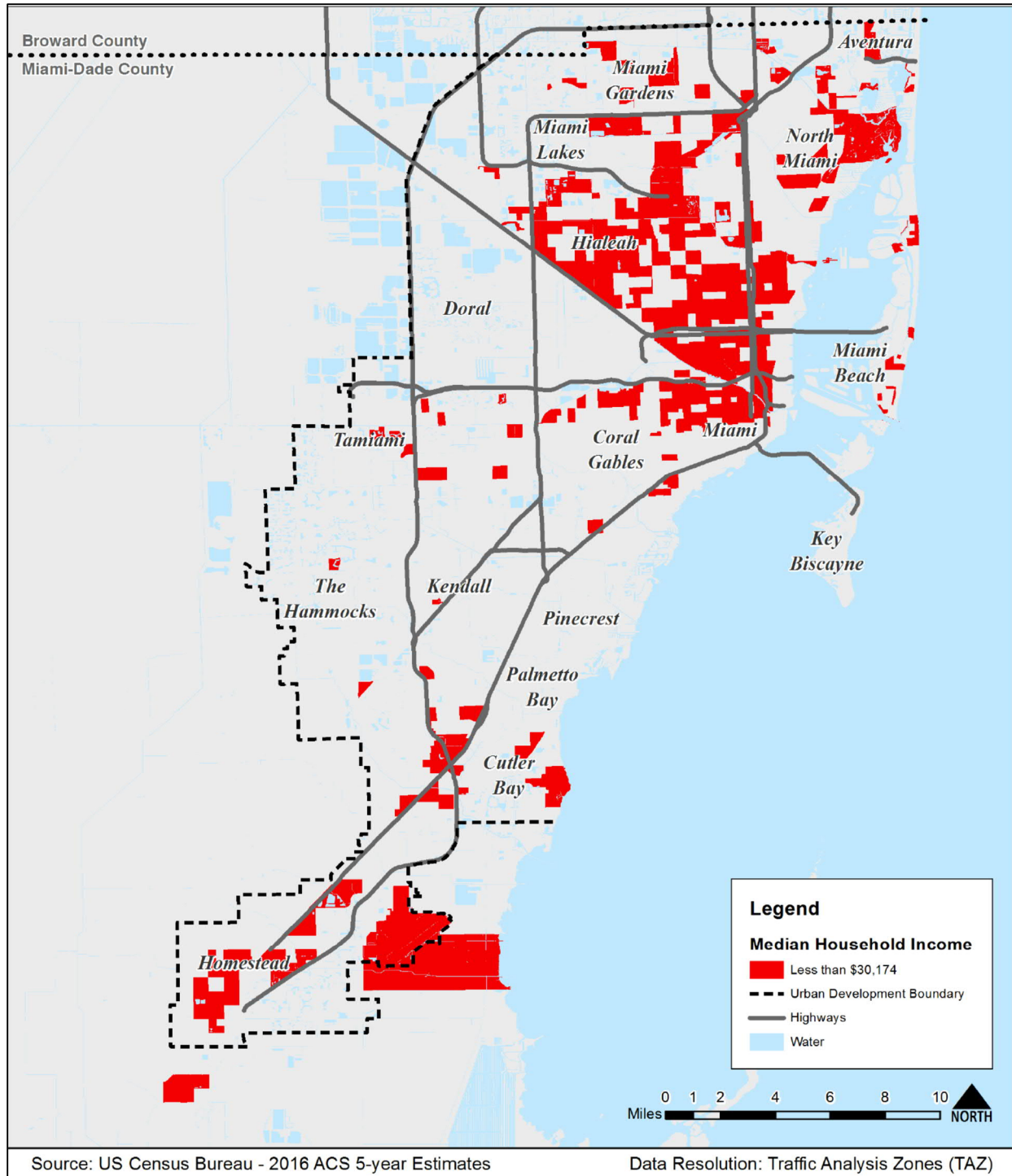


Figure 31: Low Income Households

As shown on Figure 32, senior citizens are most densely concentrated along the coast, including Key Biscayne, Brickell, Miami Beach, Bal Harbor, Sunny Isles Beach, and Aventura. Additional major concentrations exist in Little Havana, Hialeah, and along the corridor between Flagler and SR 836.

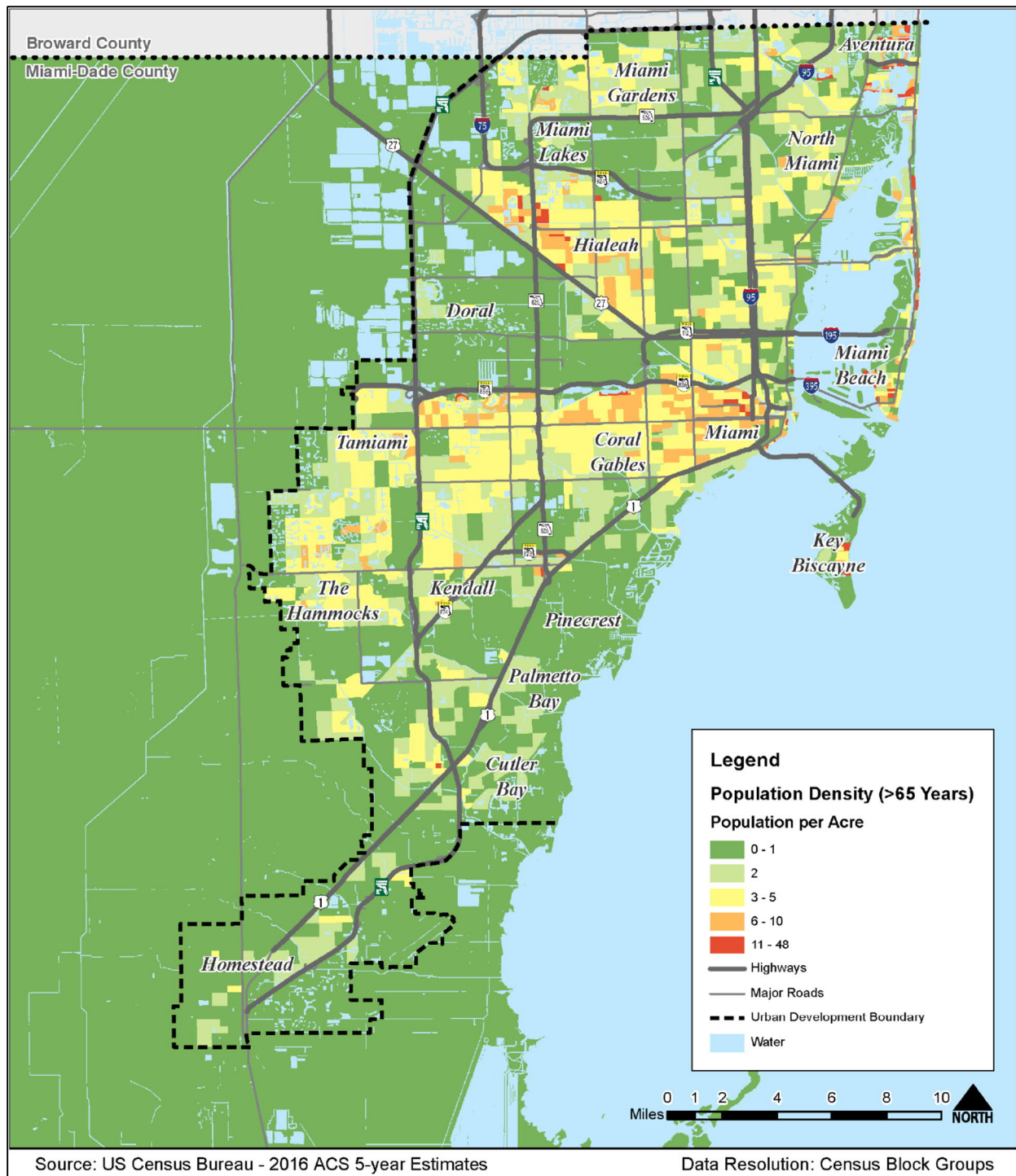


Figure 32: Population Density (Over 65 Years of Age)

4.2.2 Transit System Capacity and Improvements

Information about propensity maps, census data such as employment and population density, origin destination information and congested corridors were used to develop the SMART plan, which is a major expansion of the transit service. Table 12 and Table 13 show a detailed description on the plans to expand transit service in Miami-Dade County as per the Transit Development Plan.

Table 14 shows two objectives that have been discussed for a number of years by different transportation agencies and public officials, and the public in general. First/last mile connectivity is critical to get transit users from and to their residences to transit systems like Metrorail and express buses. This will increase transit ridership and decrease the dependance of the private automobile. Table 15 present specific objectives for ensuring equity in transit service by means of providing the infrastructure to accommodate people with disabilities. This is particularly important in Miami-Dade County where there is a considerable segment of the population over 65 years of age.

Table 12: Plans for Expanding Transit Service (Rapid Transit Network) as per TDP

Goal 7: Expand Transit Services				
Objective	Measure	Target	2020 Accomplishments	Status
7.1 - Implement the Strategic Miami Area Rapid Transit (SMART) Plan Rapid Transit Network	Beach Corridor	Progress toward three milestones: 1. Locally Preferred Alternative (LPA); 2. Inclusion of the SMART Plan projects in the TDP and other planning documents; 3. Implementation of the projects upon funding availability	1. TPO Resolution #05-20 selected the LPA for monorail, AP/L, and LRT in January 2020. 2. Included in TDP Implementation Plan, the TPO TIP, and the 2045 LRTP. 3. Board of County Commissioners approved the contract award for the Interim Agreement (IA) for the Beach Corridor Trunk Line. The IA became effective on Oct 31, 2020.	✓ Yes
	East-West Corridor		1. TPO Adoption of BRT as the Locally Preferred Alternative in October 2020. 2. Included in TDP Implementation Plan, the TPO TIP, and the 2045 LRTP. 3. Dolphin Station Park-and-Ride completed. 4. Express Bus Service (complimentary to BRT) initiated.	▶ In Progress
	Kendall Corridor		1. Curbside Bus Rapid Transit (BRT) was identified as the recommended alternative for the Kendall corridor in 2019. Endorsement of the recommended alternative is expected in Q1 2021. 2. Included in TDP Implementation Plan, the TPO TIP, and the 2045 LRTP.	▶ In Progress
	North Corridor		1. Elevated Heavy Rail selected as the LPA by the TPO Governing Board in October 2019. 2. Included in TDP Implementation Plan, the TPO TIP, and the 2045 LRTP. 3. Optimized concepts and costs presented to Miami-Dade TPO Governing Board in March 2020. 4. Released an RFP for the design build operate and maintain service for the North Corridor in June 2020 with proposals due by Spring 2021.	✓ Yes
	Northeast Corridor		1. Established framework for negotiations with Brightline. Reached a tentative agreement regarding access fee and other project elements. 2. Included in TDP Implementation Plan, the TPO TIP, and the 2045 LRTP. 3. Advanced the NEPA process 4. Began pursuing federal and state funding	✓ Yes
	South Corridor		1. FTA and FDOT grant agreements fully executed in September 2020. 2. NTP Issued February 2021, construction scheduled to begin Summer 2021.	✓ Yes

Table 13: Plans for Expanding Transit Service (BERT Network) as per TDP

Goal 7: Expand Transit Services				
Objective	Measure	Target	2020 Accomplishments	Status
7.2 - Implement the S/MART Plan BERT Network	Flagler Corridor	Progress toward three milestones: 1. Locally Preferred Alternative (LPA) as needed; 2. Inclusion of the S/MART Plan projects in the TDP and other planning documents; 3. Implementation of the projects upon funding availability.	1. Flagler Corridor PD&E study is refining recommended alternatives, expecting TPO endorsement in 2020. 2. Included in TDP Implementation Plan, the TPO TIP, and the 2045 LRTP.	In Progress
	South Miami-Dade Express		1. BERT Network PD&E study received Notice to Proceed (NTP) March 2019. 2. Park-and-Rides Included in TDP Implementation Plan and the 2045 LRTP.	In Progress
	Northwest Miami-Dade Express		1. BERT Network PD&E study received NTP March 2019. 2. Included in TDP Implementation Plan and the 2045 LRTP. 3. I-75 & Miami Gardens Dr. Park-and-Ride Lot opened Spring 2019. Service initiated November 2019.	Yes
	Southwest Miami-Dade Express		1. BERT Network PD&E study received NTP March 2019. 2. Included in TDP Implementation Plan and the 2045 LRTP. Park-and-Ride included in TDP Implementation Plan and the 2045 LRTP.	In Progress
	Florida's Turnpike Express (North)		1. BERT Network PD&E study received NTP March 2019. On March 21, 2019 the TPO passed Resolution # 26-19 to amend the S/MART plan to extend the limits of Florida's Turnpike Express (North), to connect to the North corridor. 2. Included in TDP Implementation Plan and the 2045 LRTP. Park-and-Rides Included in TDP Implementation Plan and the 2045 LRTP.	In Progress
	Florida's Turnpike Express (South)		1. BERT Network PD&E study received NTP March 2019. 2. Included in TDP Implementation Plan and the 2045 LRTP.	In Progress
	Beach Express North		1. BERT Network PD&E study received NTP March 2019. 2. Included in TDP Implementation Plan and the 2045 LRTP.	In Progress
	Beach Express Central		1. BERT Network PD&E study received NTP March 2019. 2. Included in the 2045 LRTP.	In Progress
	Beach Express South		1. BERT Network PD&E study received NTP March 2019. 2. Included in the 2045 LRTP.	In Progress
7.3 - Increase service frequency on high demand bus routes	Number of route improvements or adjustments to top 10 routes	Increased frequency on 10% of top 10 routes from previous year	2019 top 10 Routes by: 119, 112, 11, 77, 27, 120, 38, 9, 3, 8 No route frequency increases in 2020 due to Covid-19	N/A

Table 14: Plans for Enhancing Integration and Connectivity of Transit as per TDP

Goal 8: Enhance Integration and Connectivity of Transit Systems Across Modes				
Objective	Measure	Target	2020 Accomplishments	Status
8.1 - Improve local, first/last mile connectivity and convenience	Incorporate recommendations from the TPO Study First Mile - Last Mile Options with High Trip Generator Employers	Develop action plan to incorporate recommendations by 2024	1) Exclusive bus lanes on SR-836 and SR-874/878. 2) Level boarding incorporated into design for South Dade transitway corridor. 3) Installation of Transit Signal Priority (TSP) capabilities under way county-wide. 4) Numerous SMART Plan Demonstration Projects initiated	✓ Yes
8.2 - Improve Regional Connectivity	Number of routes connecting to regional transit (FLIC, Miami Central, Tri-Rail, Amtrak, and Greyhound services)	Increase Previously: 25 Routes (7, 22, 32, 37, 42, 57, 77, 95, 10, 110, 112, 132, 135, 146, 150, 155, 195, 196, 211, 238, 277, 297, 338, Metrorail, Metromover)	25 Routes (2, 7, 9, 21, 22, 32, 36, 37, 42, 57, 95 Express Golden Glades, 110, 112, 132, 135, 150, 155, 211, 238, 246, 297, 338, 836, Metrorail, Metromover)	✗ No

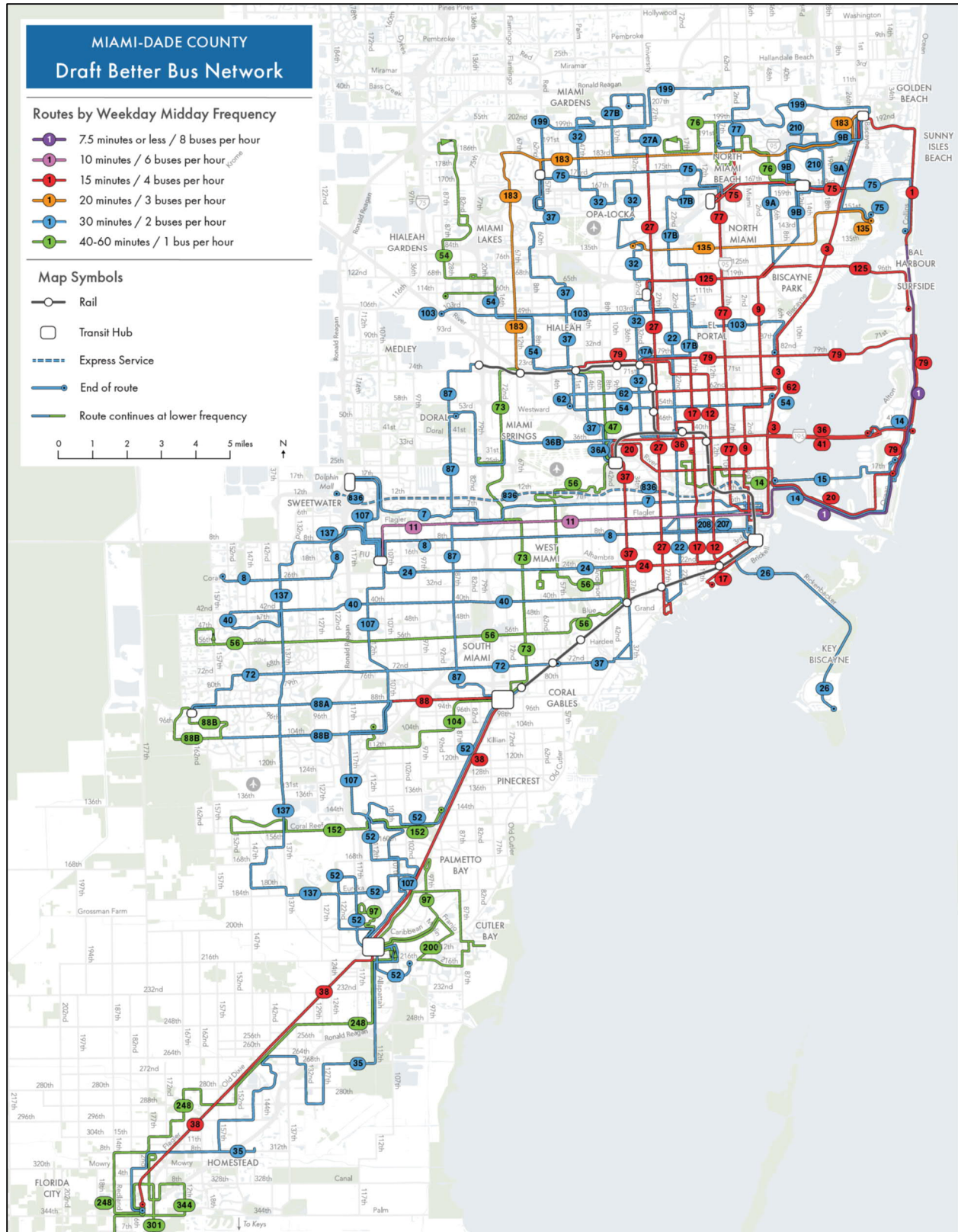
Table 15: Plans for Ensuring Equity in Transit Services as per TDP

Goal 9: Ensure Equity in Transit Services				
Objective	Measure	Target	2020 Accomplishments	Status
9.1 - Reduce dependence on STS by improving service for transit dependent population	Increase route miles serving areas with a high density of persons with a disability	Increase by 2024 2018: 399 miles	411 miles (No change due to Covid-19)	✓ Yes
	Increase percentage of DTPW stops that are ADA accessible	Increase by 2024 2018: 48.6%	48.6% - 3,887 out of 8,000 Contract for an additional 360 stops awarded on May 1, 2020. Completion scheduled May 2023.	N/A
	Implement travel training program to teach passengers with disabilities how to use fixed route service	Implement training program by 2024	None	✗ No

4.2.3 Committed Bus Service Adjustments

In an effort to continually match service capacity with ridership demand, DTPW routinely revises the existing bus route network to better meet the evolving transportation needs of Miami-Dade County. These revisions seek to improve the operational efficiency of the overall transit system. In a typical year, these adjustments are planned and committed to in the TDP – however for 2020, these adjustments have been deferred until the implementation of the Better Bus Project.

The Better Bus Project is a partnership between Miami-Dade County and Transit Alliance Miami, a local non-profit organization that advocates for “walkable streets, bikeable neighborhoods, and better public transit”. Figure 33 shows The Better Bus Project draft network. The purpose of the Better Bus Project is to redesign the county DTPW bus system, and three municipal trolley systems (City of Miami, Miami Beach and Coral Gables). The project explored two different approaches: one focusing on maximizing ridership, and another focused on maximizing the coverage of the transit system. A cost-neutral hybrid of these two approaches was presented to the BCC Transportation and Finance Committee in November 2019. A draft plan was presented to the BCC in October 2020 where they directed staff to take the next steps towards implementation. Between 2018 and 2020 there were over 100 outreach events, workshops and presentations including community meetings, portable transit outreach and more – this outreach resulted in the Transit Alliance reaching over 2,600 people in person, obtaining over 4,400 survey responses, and over 1,000 text conversations with riders. Subsequent DTPW public outreach ensued on the final draft plan in spring 2021 during the COVID-19 pandemic. Outreach comprised of five virtual meetings; reaching over 1,000 people at bus stops/stations, a text message line and phone line; and receiving over 2,000 survey responses.



4.2.4 Existing Trends based on the five-year data collection

The trend analysis was conducted using validated 2013-2017 National Transit Database (NTD) data and preliminary 2018 data obtained from DTPW. DTPW began reporting commuter bus as a separate mode from motorbus beginning in 2015, thus, directly operated and purchased motorbus, as well as commuter bus, are included in this first modal analysis. Commuter bus refer to services like the 95 Express connecting outlying areas with a central city with limited stops in the central city. Motorbus is the traditional bus operating in the Metrobus system. Table 16 presents the trend of the six years of data as made available from the NTD for the operation and performance of DTPW's fixed-route Metrobus service.

Table 16: DTPW Metrobus 2013-2018 Trend

Performance Measure	2013	2014	2015	2016	2017	2018	Trend
Farebox Recovery Ratio (%)	28.6%	27.7%	25.5%	24.4%	19.1%	17.1%	↘
Route Miles	1,983	2,003	2,050	2,035	2,241	2,053	↗
Unlinked Passenger Trips	78,892,846	77,356,941	72,757,836	65,539,767	58,383,786	51,759,916	↘
Average Age (yrs.) of Bus Fleet	9.52	10.52	10.93	11.30	11.55	N/A	↗
Passenger Miles Traveled	442,301,250	451,411,327	415,852,203	358,674,249	358,974,382	326,460,926	↘
Average Passenger Trip Length	5.6	5.8	5.7	5.5	6.1	6.3	↗
Vehicle Revenue Hours	2,426,669	2,432,923	2,418,109	2,466,039	2,502,559	2,099,041	↘
Vehicle Revenue Miles	28,936,033	28,953,282	28,750,157	28,270,367	28,377,228	27,212,944	↘
Passenger Trips per Revenue Hour	32.5	31.8	30.1	26.6	23.3	24.7	↘
Passenger Trips per Revenue Mile	2.7	2.7	2.5	2.3	2.1	1.9	↘
Operating Expense Per Passenger Trip	\$3.86	\$4.18	\$4.71	\$5.40	\$6.35	\$6.91	↗
Operating Expense Per Revenue Hour	\$125.35	\$132.88	\$141.85	\$143.54	\$148.24	\$170.46	↗
Weekend Service Availability (Revenue Hours)	9,032	9,132	9,012	9,056	9,463	7,249	↘
Total Operating Expenses	\$304,180,600	\$323,275,649	\$342,999,039	\$353,975,359	\$370,984,500	\$357,811,284	↗
Maintenance Expenses	\$85,141,374	\$88,325,197	\$91,880,930	\$98,855,137	\$104,636,064	\$123,896,295	↗

Data Source: 2013-2017 NTD and 2018 unvalidated NTD data from DTPW. Data for the Trend analysis combines motorbus and commuter bus modes.

4.3 Non-motorized Assessment

The existing conditions Bicycle Planning LOS Map shown in Figure 22 was used to identify areas where the County's bicycle/pedestrian network is disrupted or lacks connectivity. Connections to Metrorail stations and high population density areas were the two major factors considered. Figure 34 shows recommended bicycle lanes along the proposed South Dade Transitway Stations and Figure 35 shows recommended bicycle lanes along the existing Metrorail stations. The proposed bicycle lanes (Blue dash lines) provide feasible connectivity between existing bike lanes (Green lines) and transit stations. Table 17 provides the detailed information of the proposed bicycle lanes, which include street name, limits, station to connect and the related transit line.

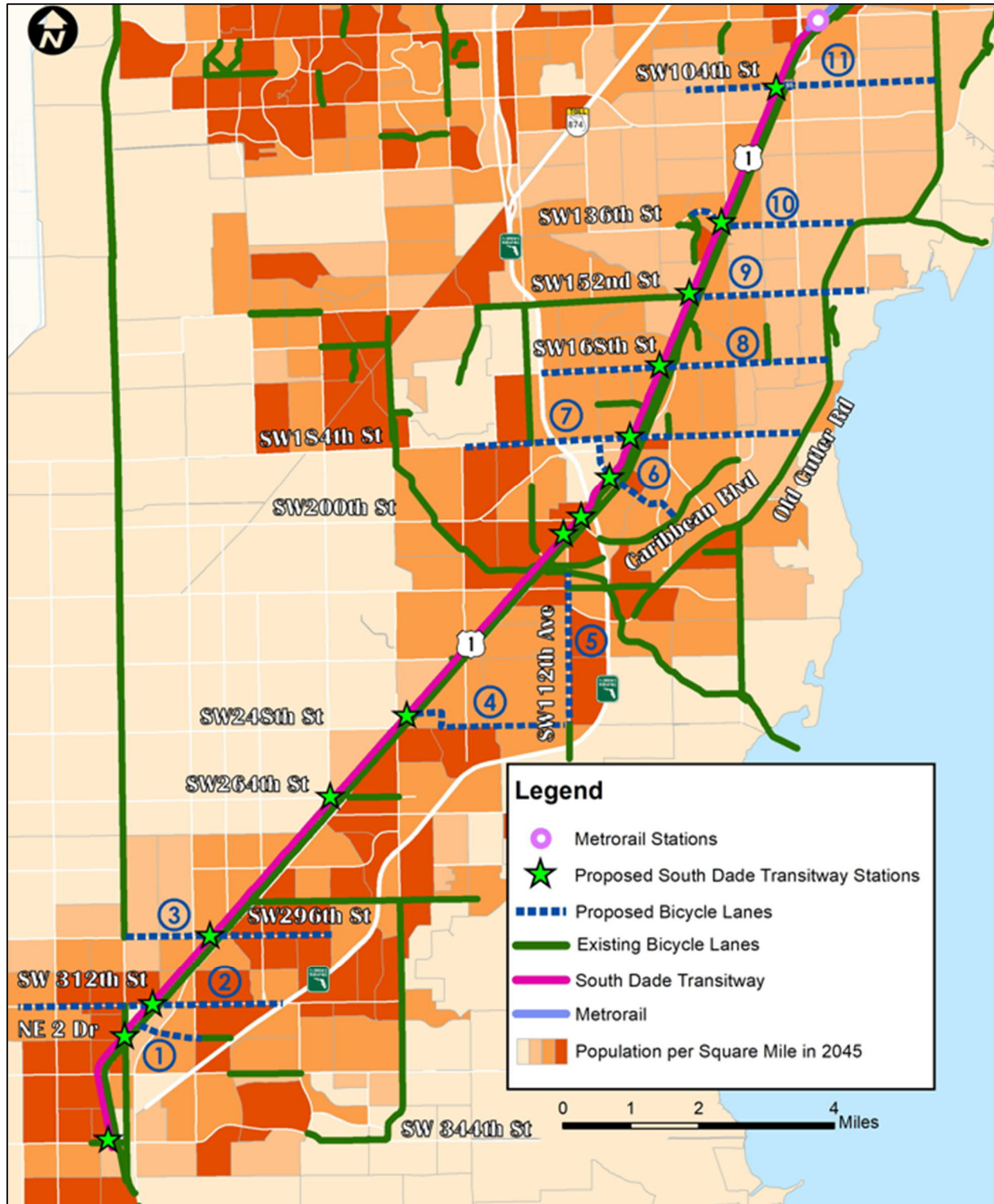


Figure 34: Proposed Bicycle Lanes near the South Dade Transitway

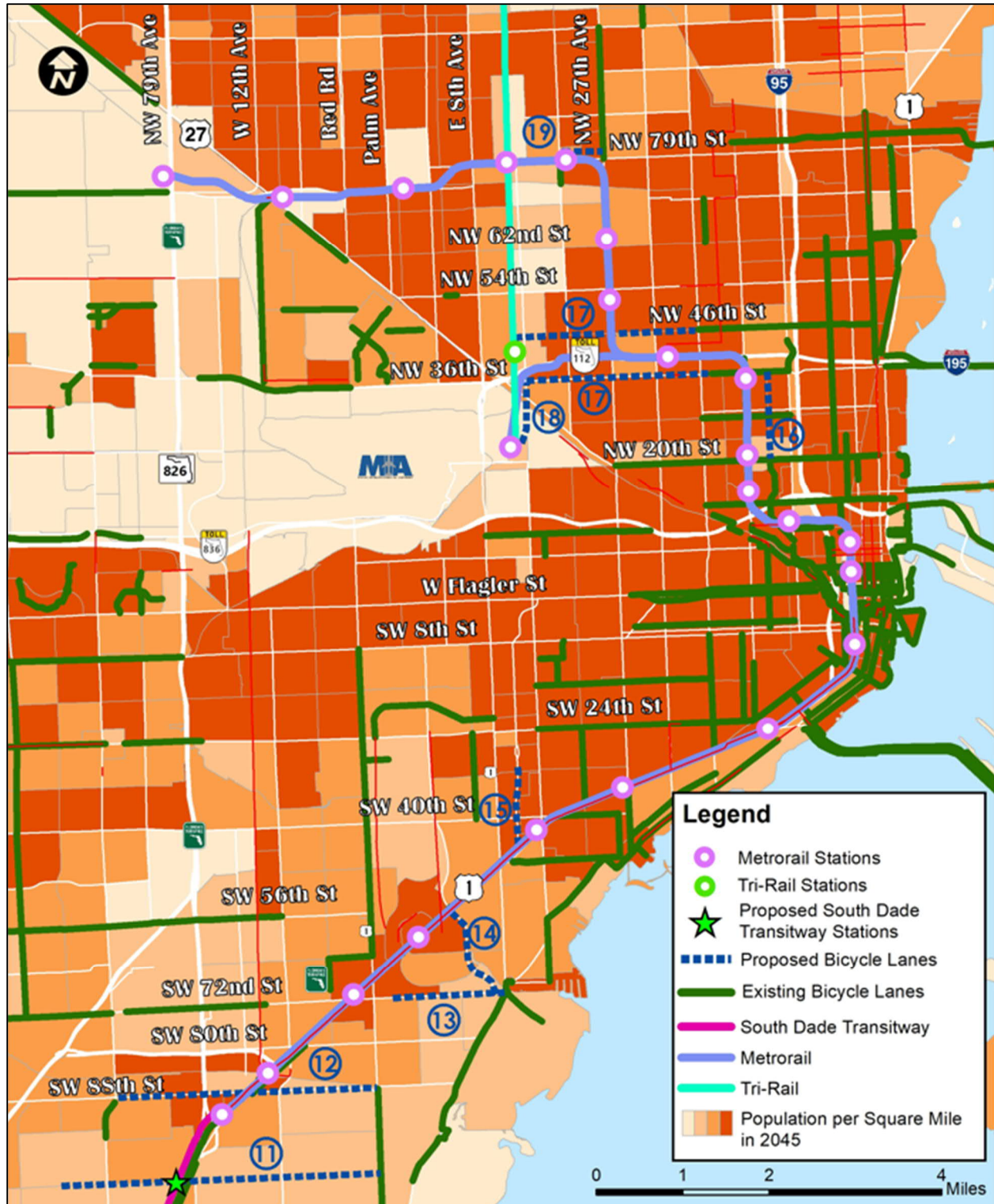


Figure 35: Proposed Bicycle Lanes near Existing Metrorail

Table 17 Proposed Bicycle Lanes

ID	On Street	Limits From	Limits To	Station to Connect	Transit Line
1	E Mowry Dr	US 1	W of SW 162 nd Ave	Proposed station at NE 2 nd Dr	South Dade Transitway
2	SW 312 th St	W of SW 187 th Ave	Florida's Turnpike	Proposed station at SW 312 th St	South Dade Transitway
3	SW 296 th St	N Krome Ave	SW 147 th Ave	Proposed station at SW 296 th St	South Dade Transitway
4	SW 242 nd St/SW 129 th Ave/ SW 248 th St	US 1	SW 112 th Ave	Proposed station at SW 244 th St	South Dade Transitway
5	SW 112 th Ave	SW 248 th St	SW 216 th St	Proposed station at SW 112 th Ave	South Dade Transitway
6	Marlin Rd	Old Cutler Rd	SW 184 th St	Proposed station at Marlin Rd	South Dade Transitway
7	SW 184 th St	SW 127 th Ave	Old Cutler Rd	Proposed station at SW 184 th St	South Dade Transitway
8	SW 168 th St	SW 117 th Ave	Old Cutler Rd	Proposed station at SW 168 th St	South Dade Transitway
9	SW 152 nd St	US 1	SW 67 th Ave	Proposed station at SW 152 nd St	South Dade Transitway
10	SW 136 th St	SW 92 nd Ave	Old Cutler Rd	Proposed station at SW 136 th St	South Dade Transitway
11	SW 104 th St	SW 97 th Ave	SW 57 th Ave	Proposed station at SW 104 th St	South Dade Transitway
12	SW 88 th St	SW 107 th Ave	SW 57 th Ave	Dadeland South/Dadeland North	Metrorail
13	SW 72 nd St	SW 54 th Ave	Old Cutler Rd	South Miami	Metrorail
14	Granada Blvd	US 1	Old Cutler Rd	University	Metrorail
15	Ponce de Leon	US 1	Malaga Ave	Douglas Road	Metrorail
16	NW 10 th Ave	NW 20 th St	NW 36 th St	Santa Clara/Allapattah	Metrorail
17	NW 36 th St/NW 46 th St	NW 42 nd Ave	NW 17 th Ave	Earlington Heights/Hialeah Market	Metrorail/Tri-Rail
18	NW 37 th Ave	Miami Intermodal Center	NW 36 th St	Miami Intermodal Center	Metrorail
19	NW 79 th St	NW 32 nd Ave	NW 27 th Ave	Northside	Metrorail

5 Conclusion and Next Steps

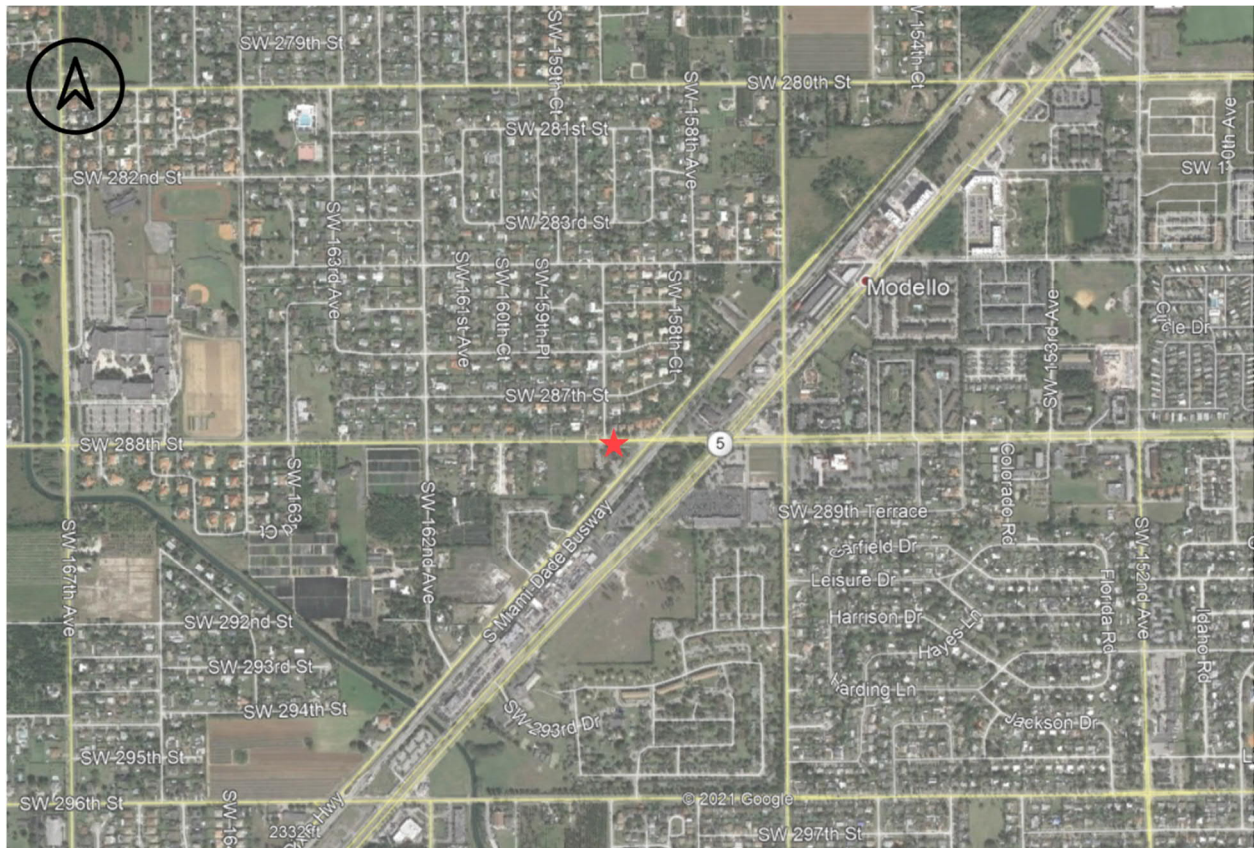
The systemwide level of service analysis completed a comprehensive evaluation of existing conditions and identified potential improvements to the arterial network from a multimodal perspective. Some of the most important aspects of the study are summarized below:

- Documentation of major roadway improvements from the Long Range Transportation Plan (LRTP), the Transportation Improvement Program (TIP), and the Transit Development Plan (TIP)
- Gathering of the latest existing and future socio-economic conditions in Miami-Dade County
- Documentation of existing roadway, transit, bicycle, and pedestrian facilities and service.
- Evaluation of the level of service for roadways, transit, and non-motorized modes of transportation
- Identification of priority corridors for roadway improvements
- Documentation of the latest plans to improve transit service
- Proposed new improvements for non-motorized modes of transportation

Recommended improvements and the roadway priority corridors identified in this study layout the groundwork for further analysis to evaluate in more detail the need and feasibility of said improvements. The recommendations included in this report, will be considered during the preparation of the 2050 LRTP and the TPO's future planning processes.

Appendix A - TPO Count Locations

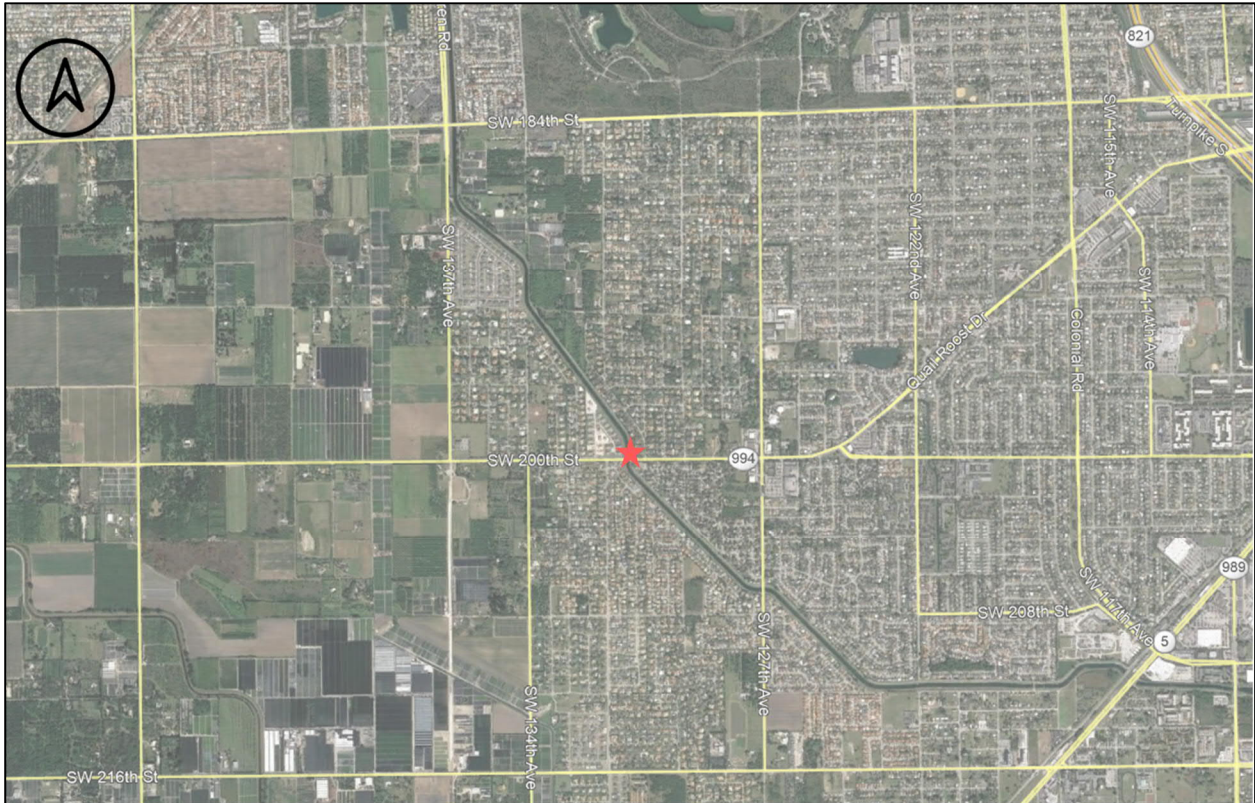
1. SW 288th St at west of Old Dixie Hwy



Note: Standing on NW 288th Street at Old Dixie Highway and looking west.



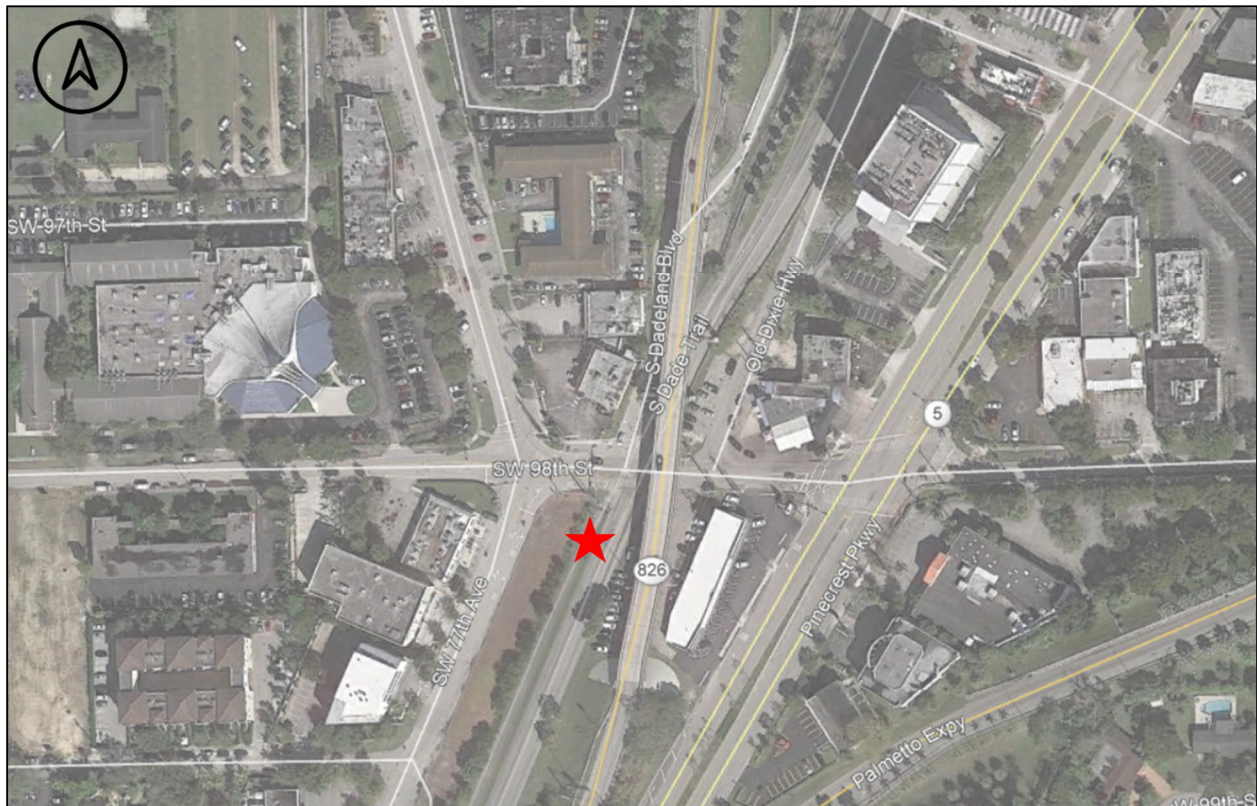
2. Black Creek Trail at north of SW 200th St



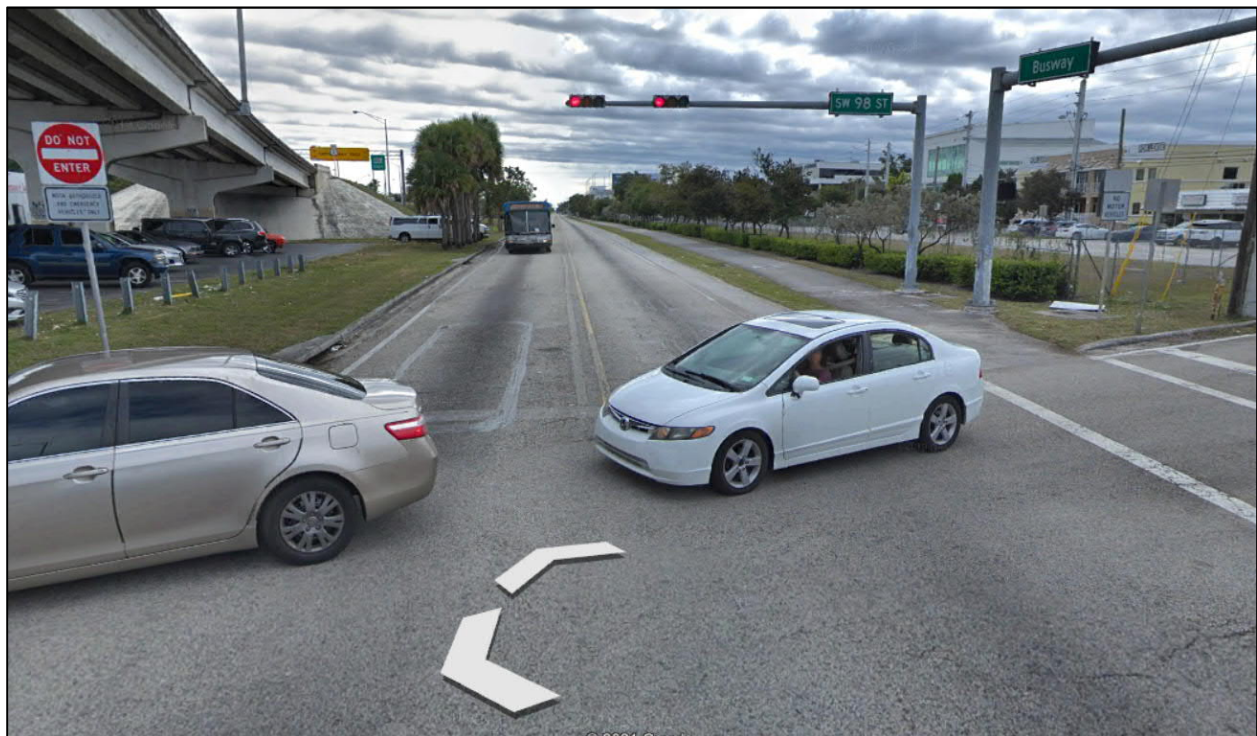
Note: Standing on NW 200th Street looking north on the Black Creek Trail.



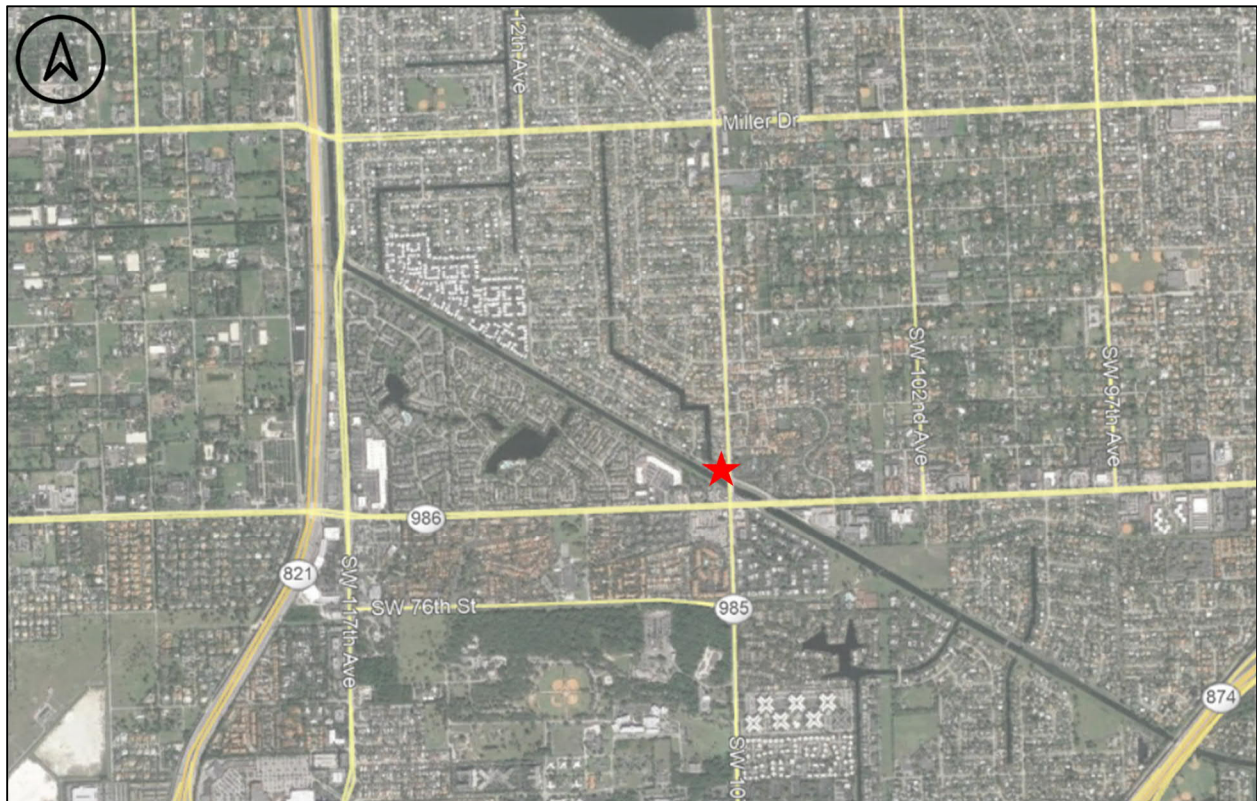
3. M-Path/Underline at south of Dadeland South Metrorail station



Note: Standing on NW 98th Street looking south on the M-Path/Underline.



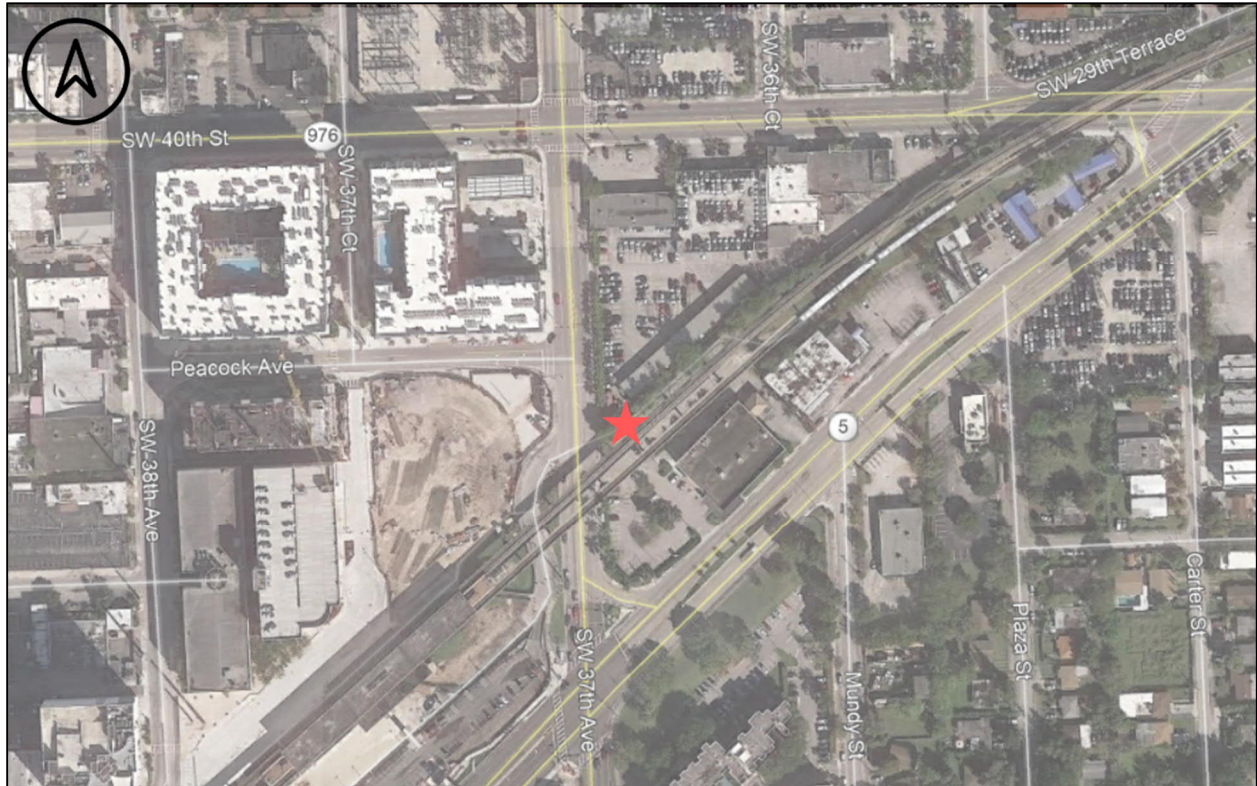
4. Snapper Creek Trail west of SW 107th Ave



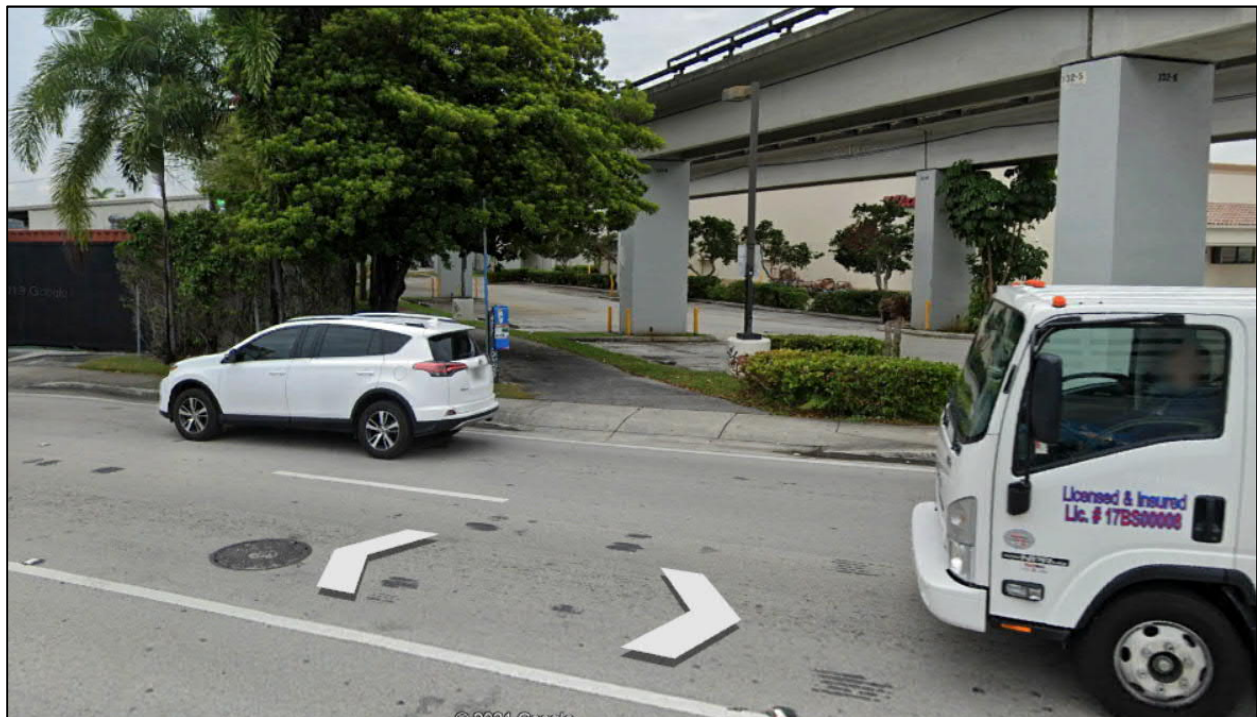
Note: Standing on SW 107th Aveune looking south on the Snapper Creek Trail.



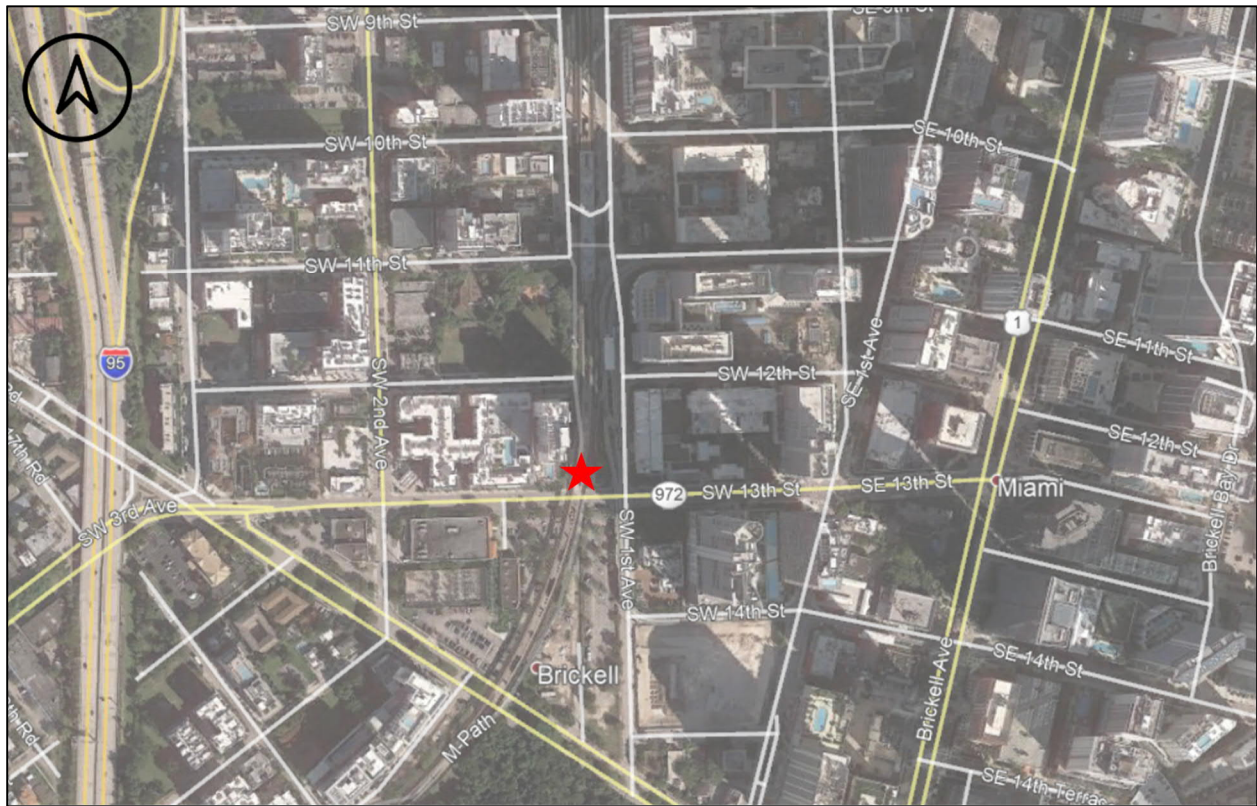
5. M-Path/Underline at east of SW 37th Ave



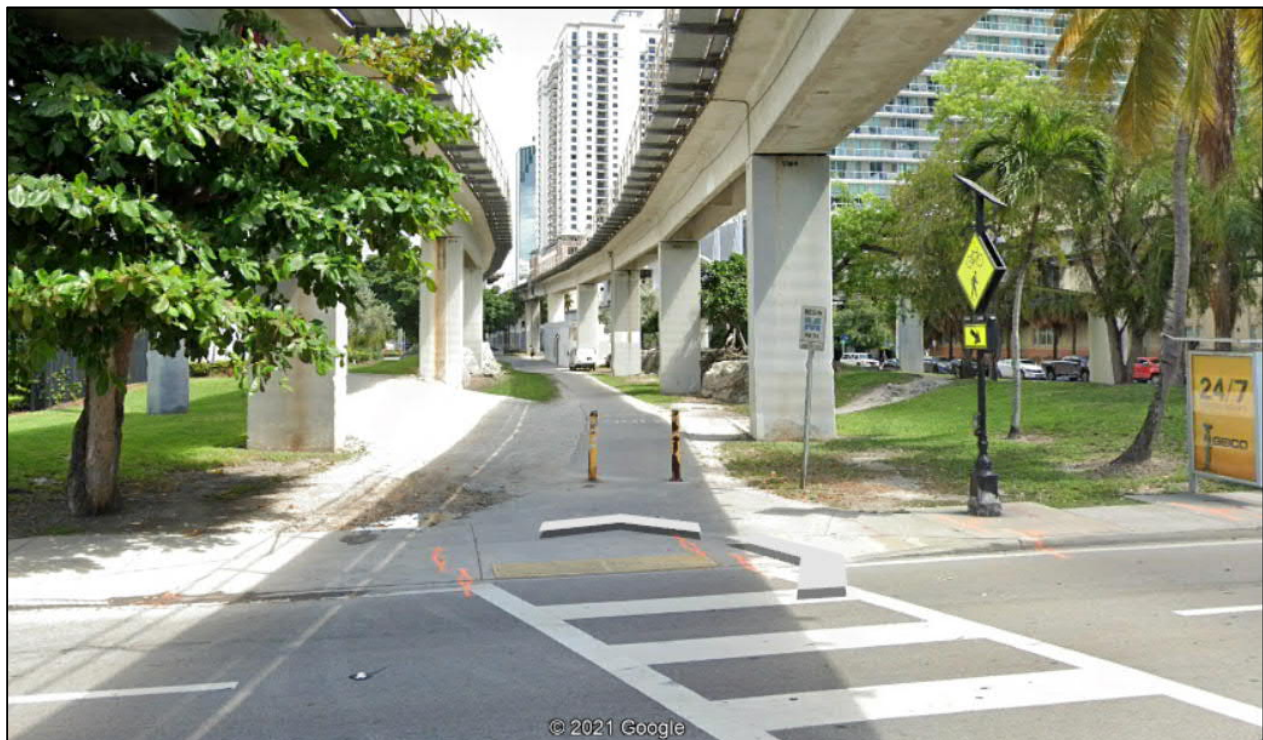
Note: Standing on SW 37th Avenue looking south on M-Path/Underline.



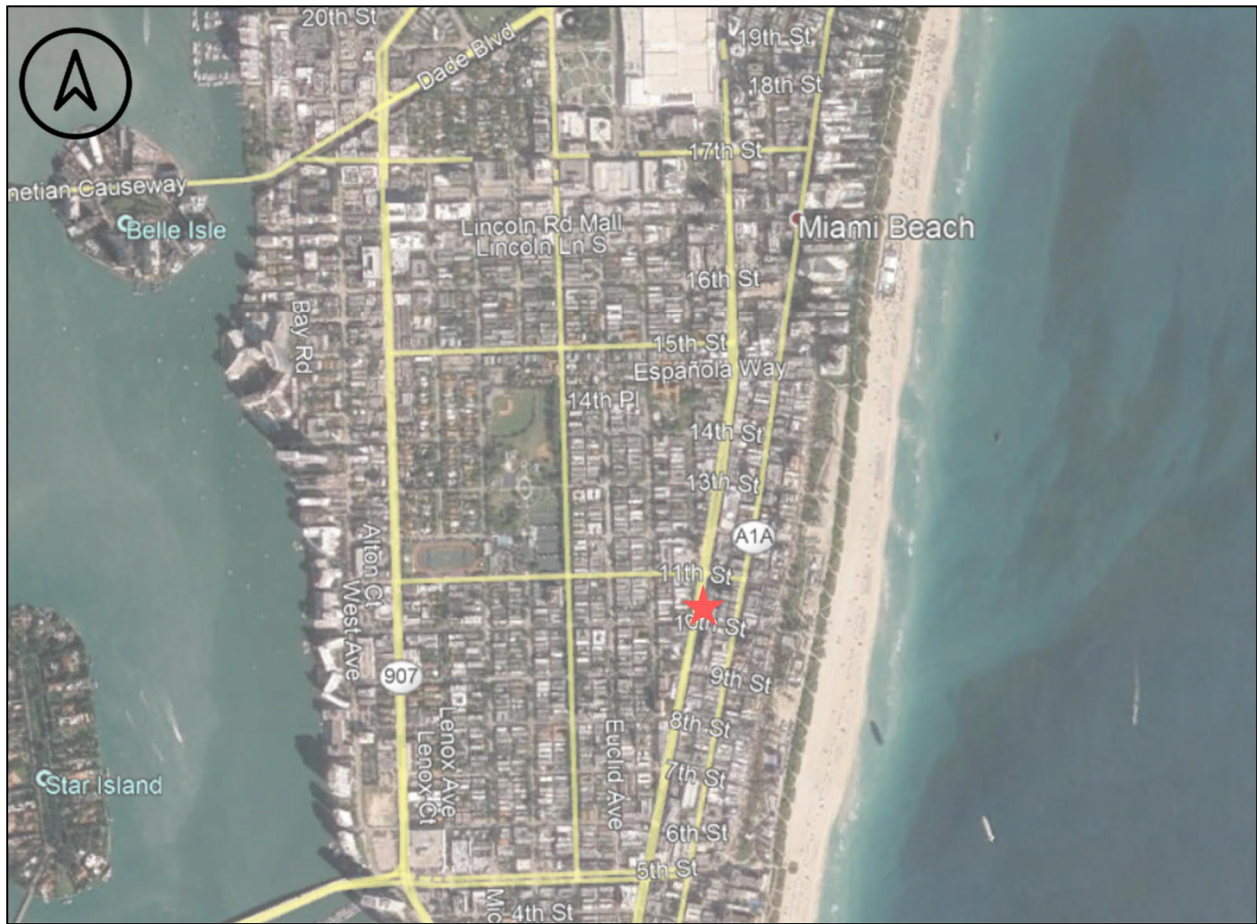
6. M-Path/Underline at north of SW 13th St



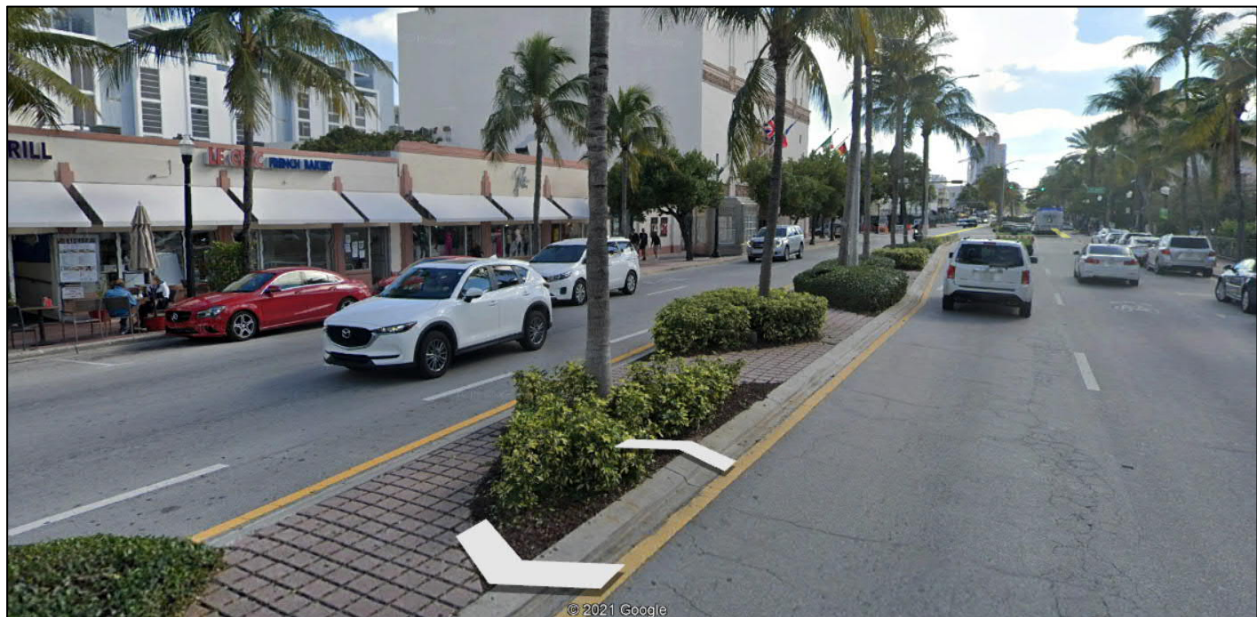
Note: Standing on SW 13th Street looking north on M-Path/Underline.



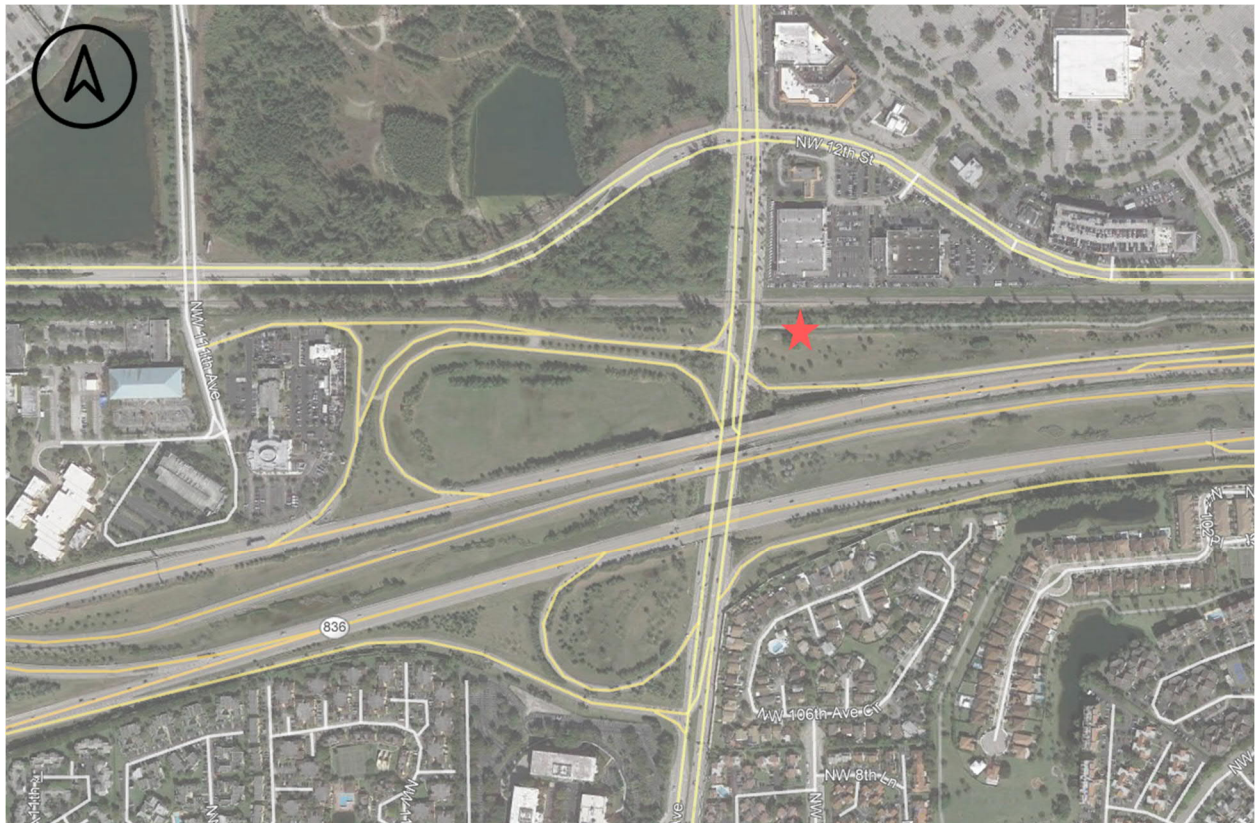
7. Miami Beach: Washington Avenue just south of 11th St



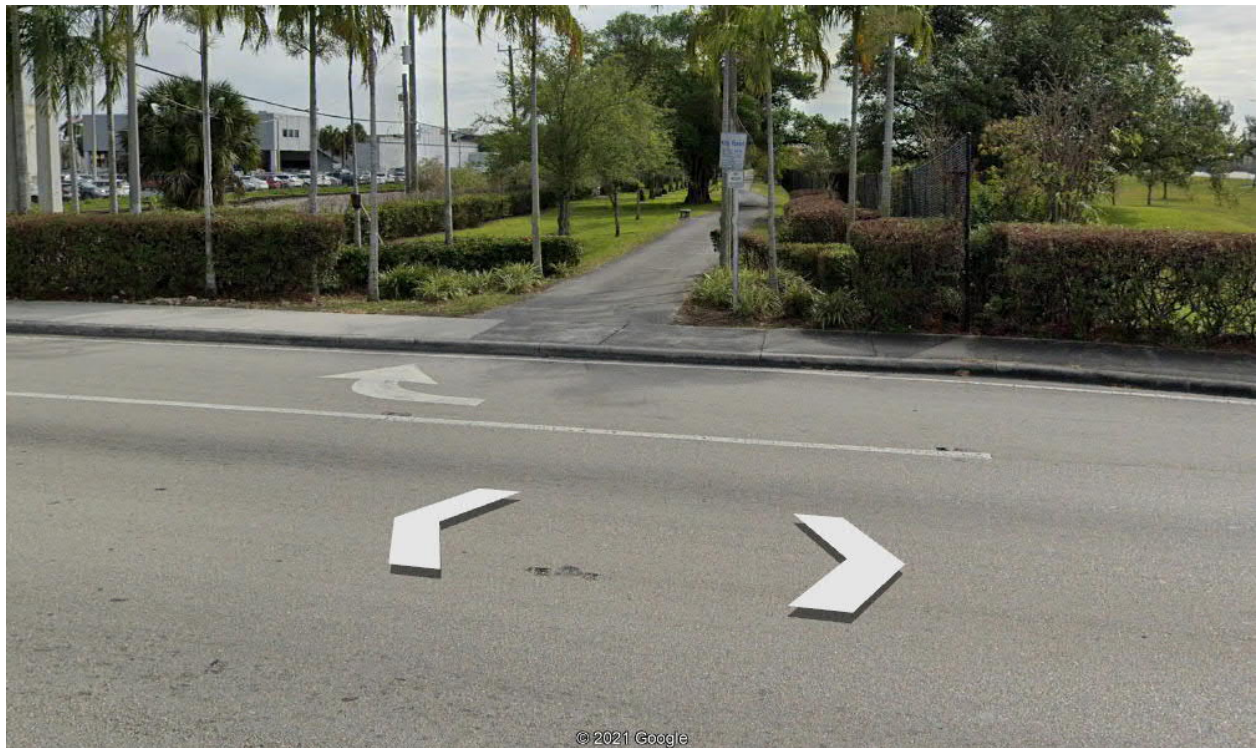
Note: Standing on Washington Avenue at 11th Street and looking south.



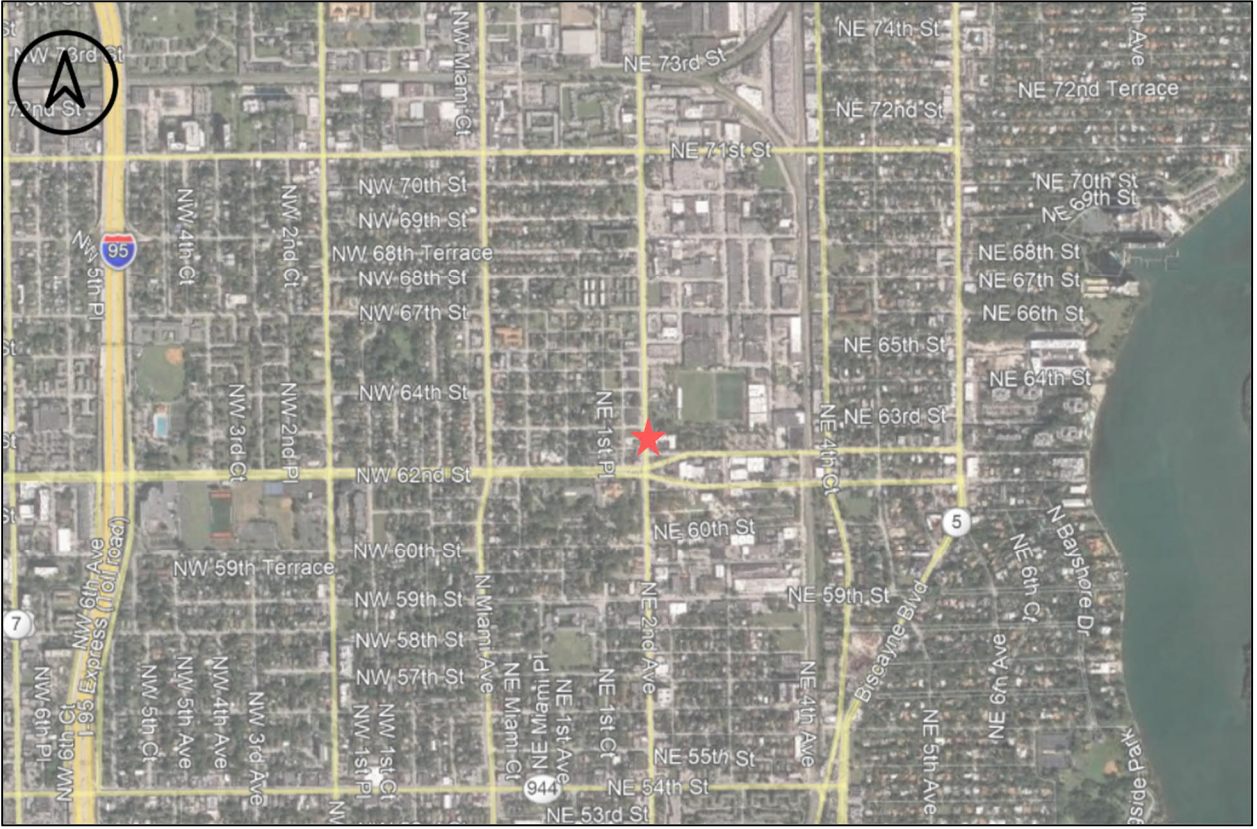
8. Kitty Roedel Bicycle Path at east of NW 107th Avenue



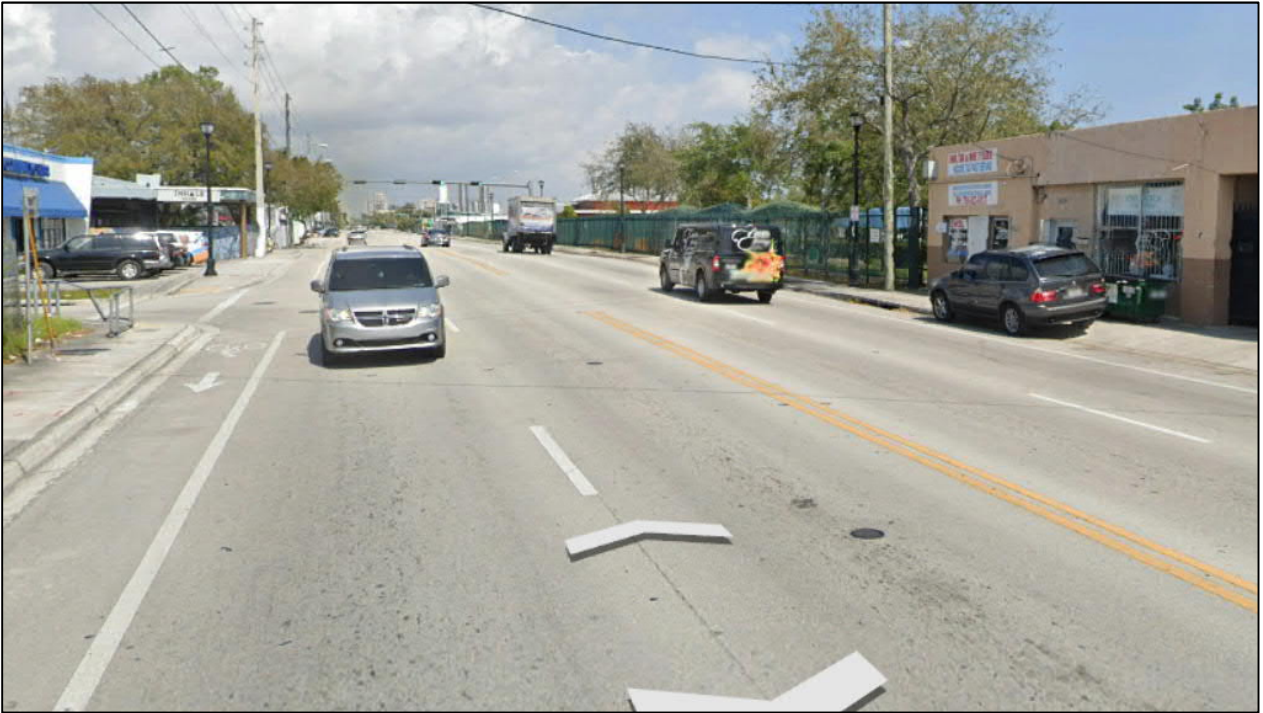
Note: Standing on NW 107th Avenue looking east on the Kitty Roedel Bicycle Path.



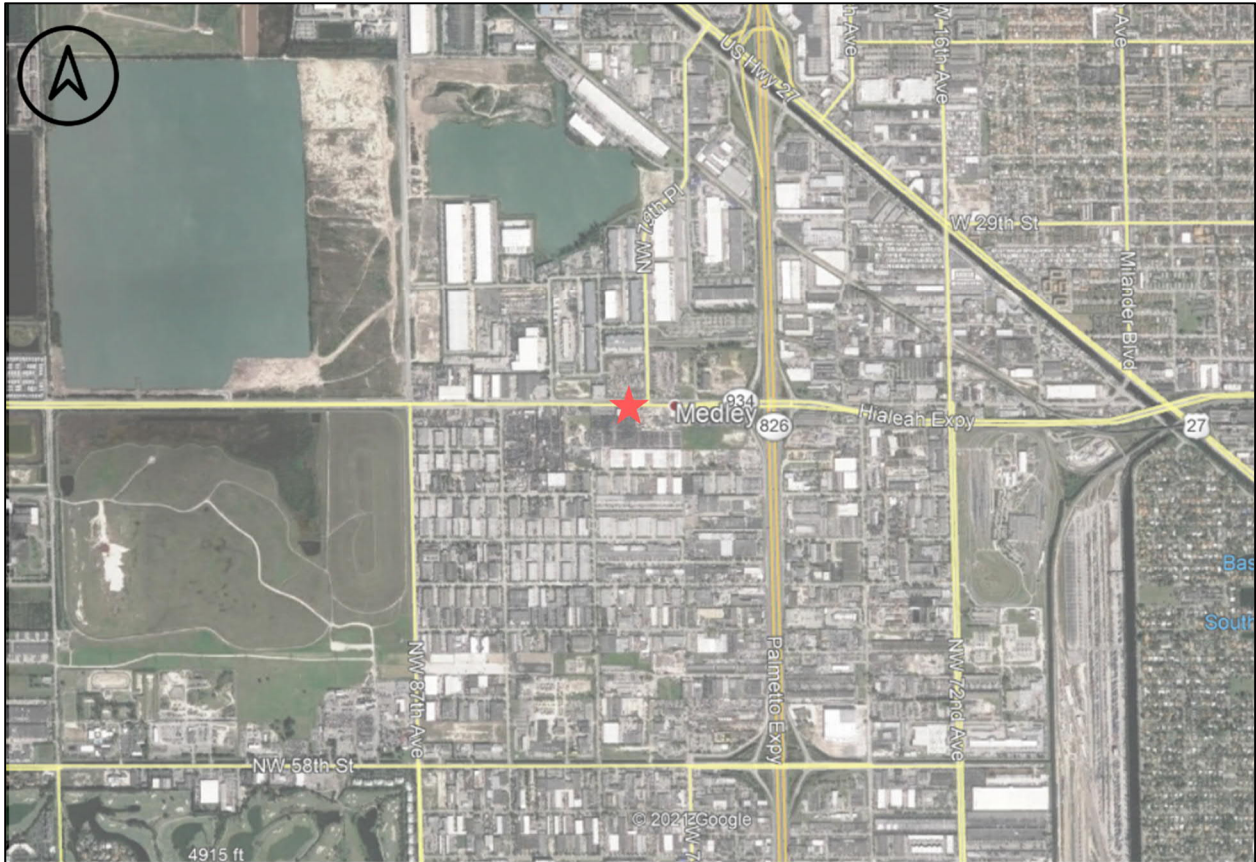
9.



Note: Standing on NW 2nd Avenue at NE 62nd Street and looking north.



10. NW 74th St at west of NW 79th Ave



Note: Standing on NW 74th Avenue at NW 79th Avenue and looking west.

