

EXECUTIVE SUMMARY

2050 Bicycle-Pedestrian Master Plan



MIAMI-DADE TRANSPORTATION PLANNING ORGANIZATION

2050 LONG RANGE TRANSPORTATION PLAN



Miami-Dade Transportation
Planning Organization

September 2024

Introduction

The Miami-Dade 2050 Bicycle Pedestrian Master Plan outlines a long-term vision for improving walking and bicycling in the region, helping to create a safer, more equitable, and more sustainable environment for a population of 2,701,762 Miami-Dade County residents.¹ The Master Plan is fully coordinated and integrated with the recommendations made in the 2050 Long Range Transportation Plan (LRTP), also known as the SMART M.A.P. (Mobility. Accessibility. Prosperity.) 2050 LRTP, regarding non-motorized strategies.

As noted in the American Community Survey (ACS), commuting characteristics² indicate that in Miami-Dade County, approximately eight (8) percent of commuters do not drive to work, instead relying on public transportation, walking, bicycling, or using a taxicab, which is three (3) percent higher than the rest of the State of Florida. High-quality bicycle and pedestrian facilities are a critical component in forming more comfortable commuting environments for users of all ages and experience levels. The recommendations identified in the Master Plan will strengthen bicycle and pedestrian friendly communities' connections with existing and future transit opportunities. This intends to encourage alternate modes of transportation throughout the county, ultimately increasing the number of residents and visitors who choose to bicycle and walk. Such modifications will not only increase the safety of such travel modes, but also decrease growing traffic congestion, encourage healthier lifestyles, and reduce single-occupancy vehicle trips contributing to transportation emissions.

This Master Plan builds upon the Miami-Dade 2045 Bicycle Pedestrian Master Plan. It begins by situating Miami-Dade County within the context of existing countywide and municipal plans. This foundation provides a blueprint to address current and future needs, focusing primarily on daily commuters and those projects which support safety for the greatest number of people each day. The Master Plan considers destinations frequented by bicyclists and pedestrians, like schools and high employment areas, as well as countywide statistics regarding high-injury areas, bicycle and pedestrian crashes and fatalities, transit ridership patterns, and historically-disadvantaged neighborhoods.

Finally, the Master Plan identifies and prioritizes a list of improvement project recommendations, and serves as the Projects for the non-motorized element of the SMART M.A.P. 2050 LRTP.



Crossing S Miami Avenue in Brickell, Miami

¹<https://www.census.gov/quickfacts/fact/table/miamidadecountyflorida/POP060210>

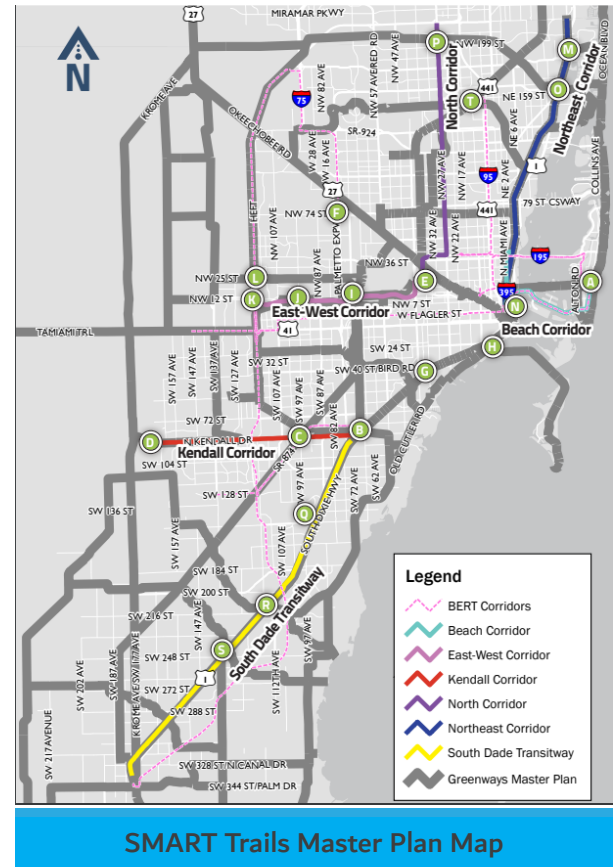
²U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates, Commuting Characteristics

Literature Review

An essential element of a Master Plan is to gain understanding of prior initiatives that can provide information about the context in which this Bicycle-Pedestrian Master Plan exists, and about projects that can be used as a starting point for enhancing bicycle and pedestrian mobility. Consequently, countywide and municipal plans were reviewed, and recommendations and projects identified in these prior studies influenced the outcome of this Master Plan. Below is a partial list of studies and plans that were reviewed.

• Studies and Plans

- Bicycle Friendly Miami-Dade Program, 2017
- Complete Streets for Corridors with Bicycle/Pedestrian Gaps on the State Highway System in Miami-Dade County, 2022
- Countermeasures for Pedestrian and Bicycle High Crash Locations, 2016
- Intersection Safety Analysis, 2021
- Miami-Dade Bicycle and Pedestrian Data Collection, 2018
- Miami-Dade 2045 Bicycle Pedestrian Master Plan, 2019
- Miami-Dade County Vision Zero Plan, 2018
- Miami-Dade County Vision Zero Framework Plan, 2021
- Miami LOOP
- Plan Z
- Public Easement Bicycle/Pedestrian Network Plan, 2018
- Safe Routes to Schools Infrastructure Plans, 2017-2022
- Senior Living Facilities Road Safety Audit, 2019
- SMART Trails Master Plan, 2019
- SW 127th Avenue Connector Study, 2017
- SW 152nd Street Mobility Solutions, 2017
- The Underdeck
- The Underline
- TPO Mobility Hub Study - SW 244th Street, 2021
- TPO SMART Street Transportation Enhancement Program

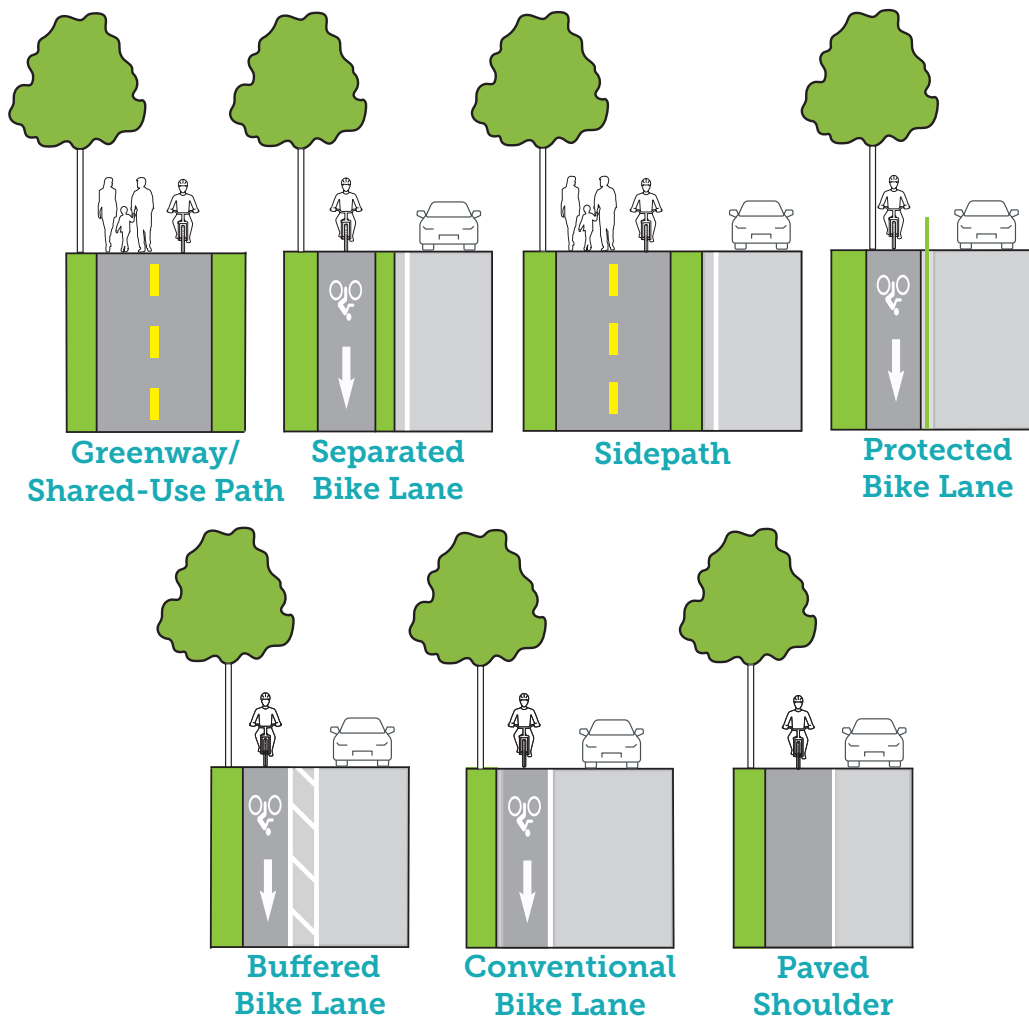


Infrastructure Gap Needs Analysis

Evaluating the existing state of bicycle and pedestrian infrastructure within Miami-Dade County enabled an understanding of the gaps between facilities and the needs necessary to provide a network of connected facilities that provide efficient connections to popular destinations. A variety of elements were combined to form a baseline collection of bicycle and pedestrian facilities throughout the county, including existing facilities, the 2045 Miami-Dade TPO Bicycle Pedestrian Master Plan Priority I-V Cost Feasible and Needs Plan Projects, and the SMART Trail Corridors.

Common Bicycle Facilities

Each facility provides users with various experiences and comfort levels depending on the environment in which they are implemented. The differences come from each facilities' design requirements, the separation between the users and operating traffic, and the functionality of the roadway. Throughout this section, the different types of bicycle and pedestrian facilities will be detailed to provide an understanding of the differences between facility types, and the applicability and effectiveness of certain facilities in different commuting environments. For design criteria specific to each facility type, refer to the latest Florida Greenbook and FDOT Design Manual (FDM).



On- and Off-Road Bicycle Facilities

Intersection Treatments

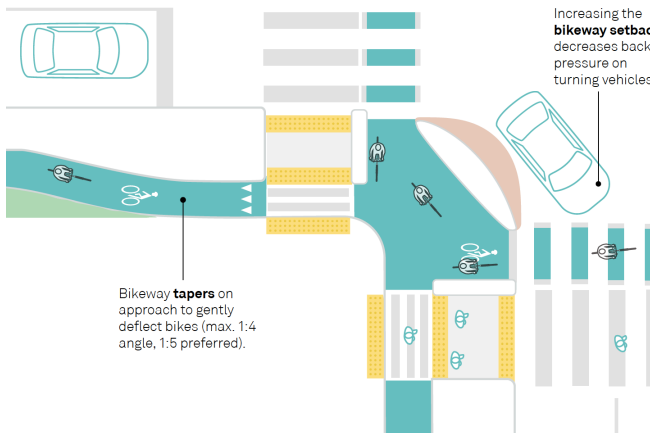
Techniques that promote safer intersections may include elements such as painted pavement, signage, medians, signal detection, and priority crossings. Multiple design concepts for bicycle and pedestrian facility treatments at intersections are provided in the Urban Bikeway Design Guide, published by the National Association of City Transportation Officials (NACTO). Additional suggestions in the Florida Greenbook and FDM outline effective techniques to manage vehicular speed, including by adding bicycle and pedestrian infrastructure, although these considerations are less concentrated on pedestrian and bicyclist safety.



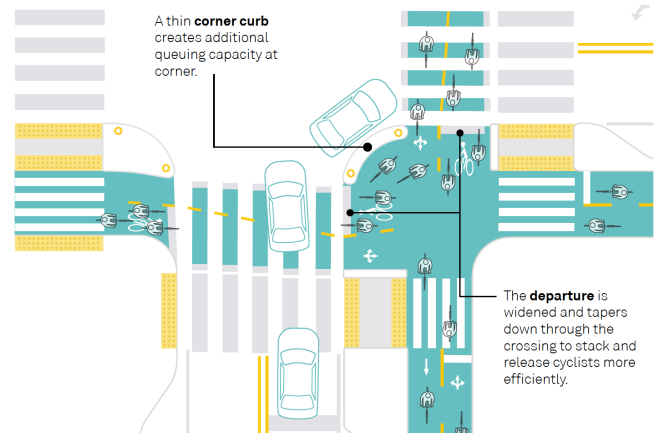
Median Refuge Buffer with Cycle Track



Cycle Track to Bicycle Lane and Bicycle Box



Shared-Use Path/Sidepath Bend Out



High-Capacity Protected Intersection

At signalized intersections, especially in urban settings where there is high activity of bicyclists, detection systems should be designed to accommodate bicyclists to facilitate safe, comfortable, and convenient crossings. Bicycle detection can either be active or passive. Active detection is through the use of pushbuttons, while passive detection is through the use of automated means such as pavement loops and motion-sensing cameras.

Per BIKESAFE, the following considerations should be taken into when installing a bicycle-activated signal detection:

- Detection devices, passive or active, should be placed in the expected path of the bicyclists, and aimed to maximize efficiency and responsiveness
- It may be desirable to install advanced bicycle detection—such as video cameras or pavement loops—on the *approach* to the intersection, in order to allow for continuous bicycle through movements
- If active detection such as a pushbutton is used, the location of the device should not require bicyclists to dismount or be rerouted out of the way or onto the sidewalk to activate the phase, and signage should supplement the signal to alert bicyclists of the required activation to prompt the green phase
- Signal timings should be adjusted to account for the unique operating speeds and characteristics of bicycles
- If pavement loops are adopted, these loops should consider the amount of metal in typical bicycles so that loop detectors can accurately detect bicycles, as certain types of loop configurations are better at detecting bicyclists than others

A mixture of active and passive signal detection treatment methods are illustrated below. (Source: NACTO Urban Bicycleway Design Guidance)



Signal Detection and Actuation



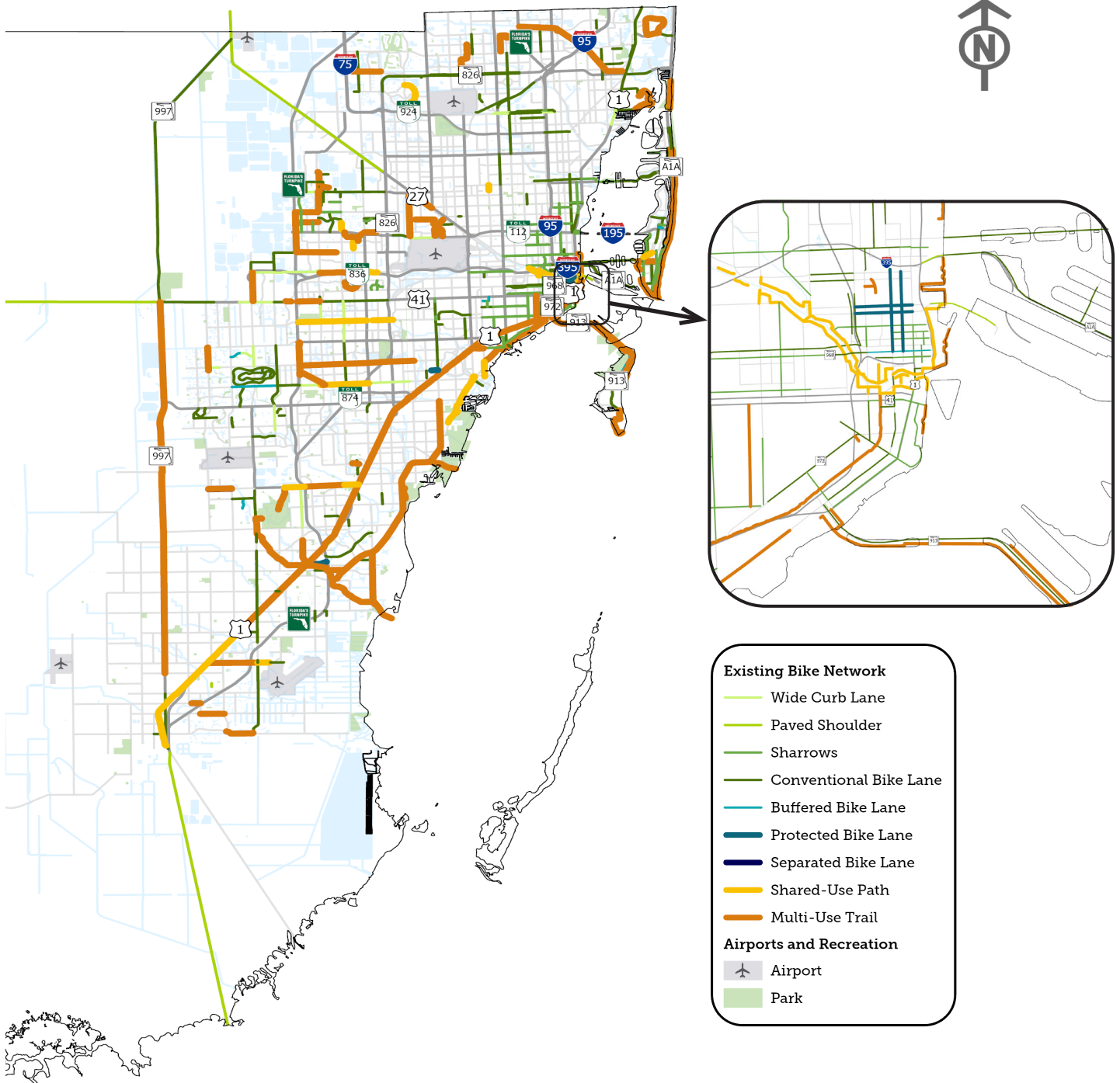
Signal Detection in Bicycle Box



Signal Detection in Bicycle Lane

Existing Bicycle Facilities

The map below displays the existing bicycle network within Miami-Dade County. To better understand the existing non-motorized network, documentation of additional characteristics beyond the basic type of facility was undertaken and is expanded upon in the 2005 Bicycle and Pedestrian Master Plan. As of 2022, the existing bicycle network consisted of 525.39 miles of bicycle facilities.



Existing Bicycle Network

Source: Miami-Dade County GIS Data, 2022

Needs Plan

Utilizing the existing conditions evaluation process throughout the county, a set of projects has been recommended for implementation. The projects focus on building meaningful connections and a cohesive protected bicycle network in the county, with a specific focus on connections to middle schools and neighborhoods. Together the projects support the TPO's long-term emphasis on strengthening bicycle- and pedestrian-friendly communities' connections with existing and future transit opportunities. As noted in the Bicycle Needs Survey, approximately 42 percent of respondents were recreational cyclists, and a protected bicycle network would benefit those recreational cyclists. The projects establish a framework to increase walking and bicycling, and most importantly, improve connectivity.

QUICK FACT

80 percent of the project recommendations are off-road, protected facilities.

Mileage of Needs Plan

Facility Type		Miles
Protected Facilities	Shared-Use Path	321.8
	Sidepath	87.6
	Protected Bicycle Lane	29.1
	Subtotal	438.5
SMART Plan Terminal Corridor		100.4
Bicycle and Pedestrian Facility Improvements		1.87
Buffered Bicycle Lane		2.5
Total		543.3



Connection to Parks

105

Parks are within 500 ft. of projects



Connection to High Ridership Stops

81

High Ridership Stops (>250 Riders/Day) within 500 ft. of projects



Connection to Schools

80

Schools are within 500 ft. of projects



Connection to Transit Stations

21

Transit Stations (Metrorail, Metromover, Tri-Rail, and Brightline) 500 ft. of projects

Prioritization Criteria

The prioritization process allows the TPO to evaluate a recommended projects significance to enhancing the bicycle and pedestrian network, with a specific focus on its ability to improve key initiatives of the Master Plan such as connectivity, equity, and safety. The criteria detailed in the table below have been developed to support projects with higher degrees of connectivity and protection from motor vehicles, along with those that improve conditions for disadvantaged populations. Higher scoring projects (max. 15 points) are intended to be advanced toward implementation by identifying funding sources, available rights-of-way, and utility or land use conflicts.

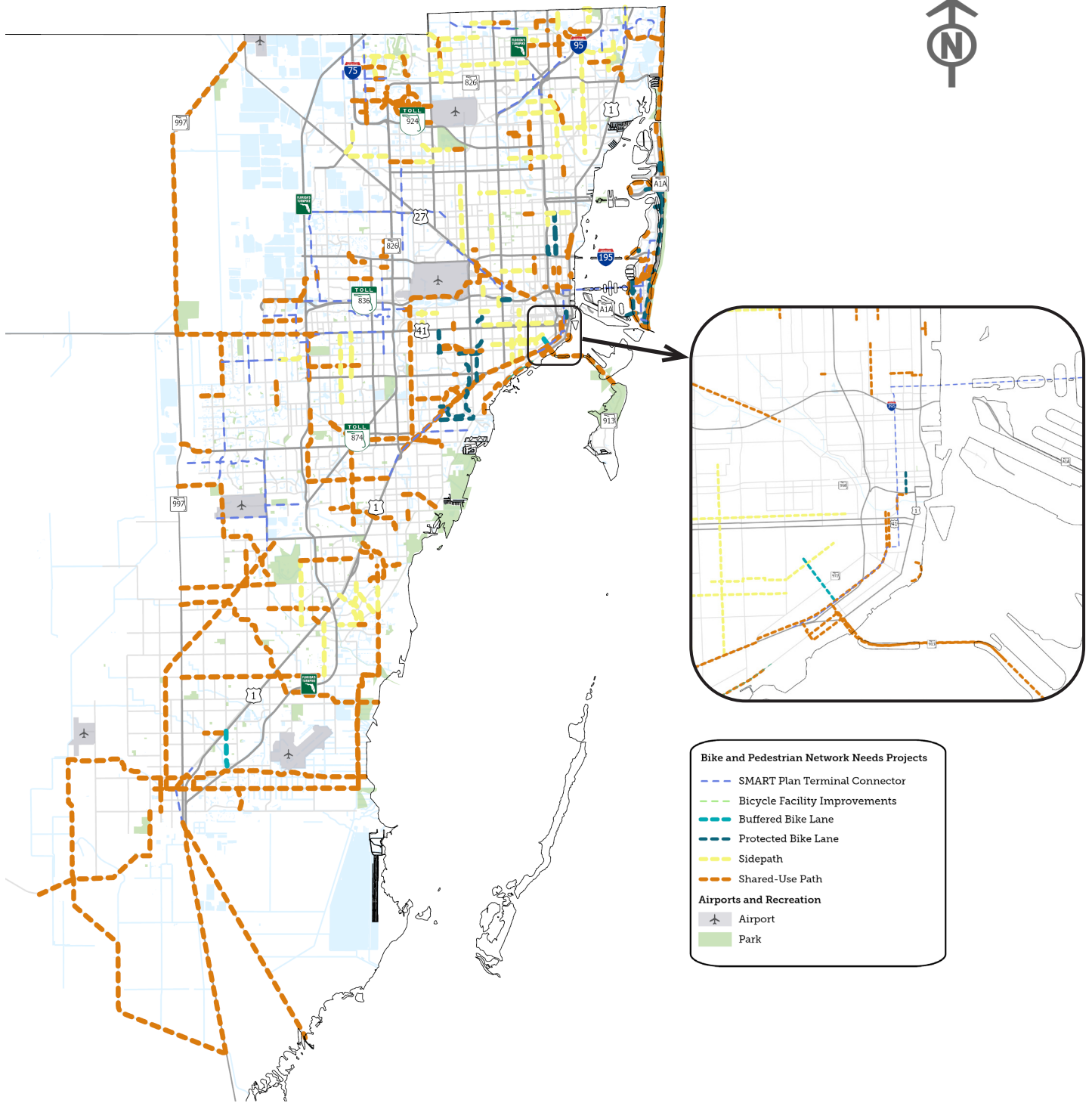
Prioritization Scoring Criteria

Criteria	Description	Points	
Population Density	Targets projects that are located in densely populated areas.	Greater than 10,000 persons per square mile	2 points
		5,000-10,000 persons per square mile	1.50 points
		1,000-5,000 persons per square mile	1 point
		100-1,000 persons per square mile	0.50 points
		0-100 persons per square mile	0 points
Employment Density	Targets projects that are located in areas of dense employment.	Greater than 7,000 persons per square mile	1 point
		4,000-7,000 persons per square mile	0.75 points
		3,000-4,000 persons per square mile	0.50 points
		1,000-3,000 persons per square mile	0.25 points
		0-1,000 persons per square mile	0 points
Facility Type	Measures the degree of protection or separation between a facility and motor vehicles	Shared-Use Path	2 points
		On-Road Protected Bicycle Lanes	1 point
		Sidepath	0.50 points
		Unprotected Facilities	0 points
Access to Schools	Conveys the extent to which a project will improve bicycle/pedestrian access to schools.	Project within ¼ mile of a Middle School	1 point
		Project within ¼ mile of any School	.75 points
		Project within ½ mile of any School	0.50 points
		Project greater than ½ mile of any School	0 points
Presence of Transit (includes bus and rail)	Conveys the extent to which a project will improve bicycle/pedestrian access to transit	Project within ¼ mile of a transit stop	1 point
		Project within ½ mile of a transit stop	0.50 points
		Project greater than ½ mile of a transit stop	0 points
Access to High Ridership Transit Stops/Stations	Proximity of a project to transit locations/services that produce a large amount of bicycle/pedestrian activity.	Project within 250 feet of a High Ridership Stop (>250 Riders/day)	2 points
		Project within 500 feet of a High Ridership Stop	0 points
Access to Parks	Conveys the extent to which a project will improve bicycle/pedestrian access to parks.	Project within ¼ mile of a park	1 point
		Project within ½ mile of a park	0.50 points
		Project greater than ½ mile of a park	0 points
Promotes Safety	Project at a location with a high crash history, as identified by the High Injury Network (HIN)	Project located within a High Injury Corridor	2 points
		No overlap with a High Injury Corridor	0 points
Equity	Indicates if the project is within, or intersects, a Historically Disadvantaged Community (HDC).	Project located within a HDC	3 points
		No overlap with a HDC	0 points

Top 20 Scoring Projects

Rank	Facility	From	To	Facility Type	Length (miles)	Score
1	SW 200th Street	Quail Roost Drive	S Miami Dade Busway	Shared-Use Path	1.70	12.5
2	Ponce De Leon Boulevard	US-41/SW 8th Street	SR 968/W. Flagler Street	Protected Bike Lane	0.58	12.3
3	Richmond Drive/SW 168th Street	SW 122nd Avenue	S Dixie Highway	Shared-Use Path	2.96	11.8
4	SR 969/NW 72nd Avenue/W 16th Avenue	NW 47th Street	NW 53rd Terrace	Terminal Corridor	3.82	11.5
5	73rd Street	Ocean Terrace	Dickens Avenue	Protected Bike Lane	0.35	11.5
6	NW 52nd Avenue	NW 183rd Street	NW 199th Street	Shared-Use Path	1.09	10.8
7	Black Creek Trail Segment "B" Phase I	Larry and Penny Thompson Park	Krome Trail	Shared-Use Path	7.54	10.8
8	Washington Avenue	S. Pointe Drive	Dade Boulevard	Protected Bike Lane	2.07	10.8
9	SR A1A/Collins Avenue	S. Pointe Drive	26th Street	Protected Bike Lane	2.41	10.8
10	SR A1A/5th Street	Lenox Avenue	SR 907/Alton Road	Protected Bike Lane	0.08	10.8
11	SW 117th Avenue	SW 112th Street	Snapper Creek Trail	Shared-Use Path	3.63	10.5
12	CSX Trail	SW 328th Street	Gold Coast Railroad Museum Park	Shared-Use Path	12.98	10.5
13	SW/NW 19th Avenue	US-1	NW 3rd Street	Sidepath	2.45	10.5
14	72nd Street	SR A1A/Collins Avenue	Dickens Avenue	Protected Bike Lane	0.29	10.5
15	SR A1A/Harding Avenue	75th Street	87th Terrace	Protected Bike Lane	0.82	10.5
16	SR A1A/Collins Avenue	73rd Street	87th Terrace	Protected Bike Lane	0.98	10.5
17	SR A1A/Collins Avenue	W. 63rd Street	73rd Street	Protected Bike Lane	0.96	10.5
18	NW 2nd Street	NW 136th Place	NW 118th Avenue	Shared-Use Path	2.01	10.3
19	SW 32nd Street	SW 117th Avenue	SW 90th Avenue	Shared-Use Path	2.89	10.3
20	Atlantic Trail	South Pointe Park/ South Pointe Drive	5th Street	Shared-Use Path	0.44	10.3

Bicycle and Pedestrian Network Needs Projects



Bike and Pedestrian Network Needs Projects

- SMART Plan Terminal Connector
- Bicycle Facility Improvements
- Buffered Bike Lane
- Protected Bike Lane
- Sidepath
- Shared-Use Path

Airports and Recreation

- ✈ Airport
- Park

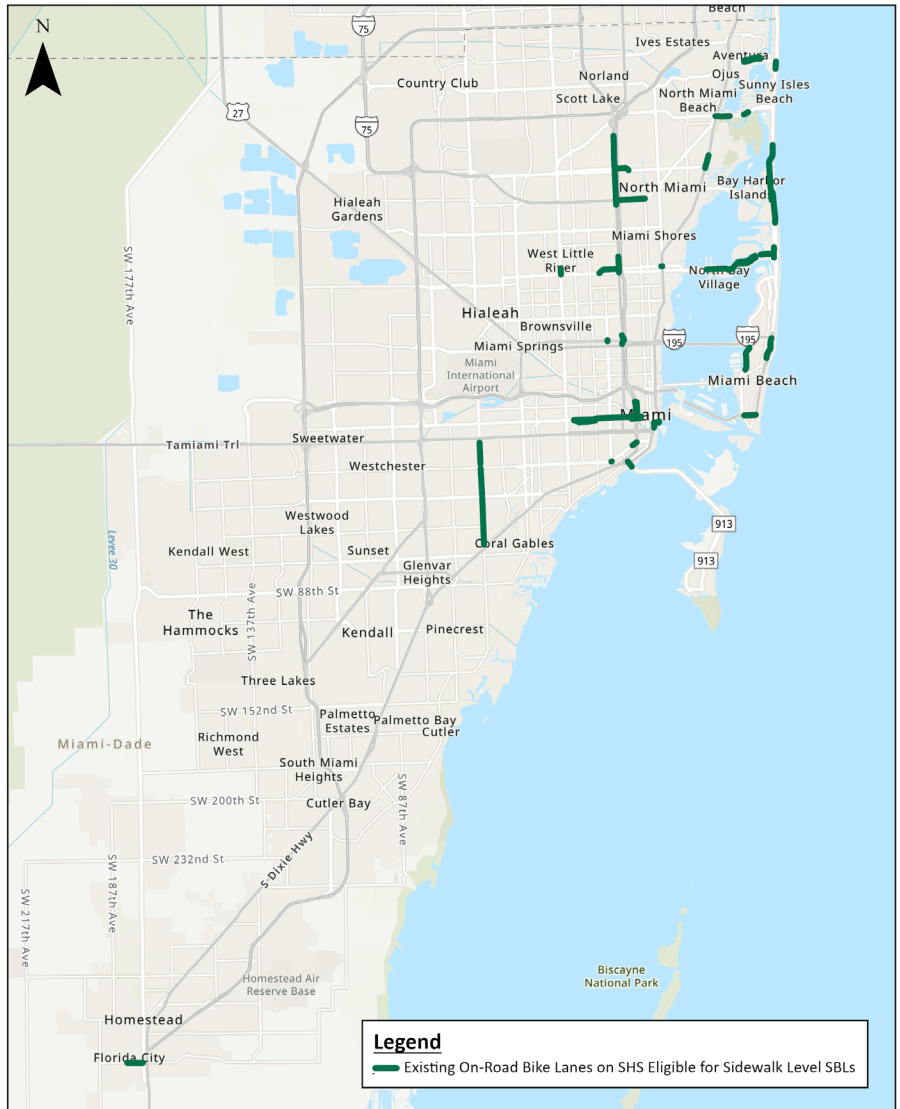
Sidewalk Level Separated Bicycle Lanes Analysis

An addendum to the 2050 Bicycle Pedestrian Master Plan was included as a response to the Miami-Dade TPO’s bicycle safety initiatives. The addendum, which is attached in Appendix G of the 2050 Bicycle Pedestrian Master Plan, evaluated the feasibility of converting existing segments of conventional and buffered bicycle lanes to Sidewalk Level Separated Bicycle Lane facilities. Sidewalk Level Separated Bicycle Lanes are raised bicycle facilities, located at the sidewalk level directly adjacent to the roadway. Eligibility for converting these existing on-road facilities to Sidewalk Level Separated Bicycle Lanes was based on the criteria detailed in Chapter 223 of the [2024 FDM](#), which provides the minimum criteria to be used for the design of bicycle facilities on the State Highway System (SHS). FDM Chapter 223 also provides guidance for the optional use of Sidewalk-Level Separated Bicycle Lanes, as exclusive bicycle facilities located at sidewalk level directly adjacent to the roadway.

The result of the analysis identified the locations of existing conventional and buffered bicycle lanes on the State Highway System (SHS) throughout Miami-Dade County that could be converted to Sidewalk Level Separated Bicycle Lanes. The map below displays the locations of the 36.2 miles of Existing On-Road Bicycle Facilities (including Buffered and Conventional Bicycle Lane types) on the SHS, eligible for Sidewalk Level Separated Bicycle Lanes.

The full analysis can be found in Appendix G of the 2050 Bicycle Pedestrian Master Plan, and includes the following:

- Eligibility criteria from the 2024 FDM
- Total mileage and locations of existing buffered and conventional bicycle lanes, not on the SHS
- Total mileage and locations of existing buffered and conventional bicycle lanes, on the SHS
- Total mileage and locations of existing buffered and conventional bicycle lanes, on the SHS, Eligible for Conversion to Sidewalk Level Separated Bicycle Lanes





Miami-Dade Transportation Planning Organization

150 West Flagler Street, Suite 1900
Miami, FL 33130
305-375-4507
miamidadetpo.org

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