

Working Towards Better, Safer, & More Comfortable Streets for Active Transportation

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The recognition that our destinations are not the only places in our lives, but that the places in between, our roadways, bikeways, trails, and sidewalks, are vital components impacting our quality of life, the health of our residents, and the strength of community.



Common Goals

FDOT

Provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities.

Miami-Dade County

Increase access to opportunities , improve customer experience, provide safe, equitable and sustainable alternatives and ensure seamless integration of transportation services.

City of Miami Beach

To ensure the safe and efficient movement of people and goods through an interconnected transportation system that provides mobility, livability, accessibility, and promotes alternative modes of travel, while ensuring environmental and economic sustainability and improving the quality of life for all who live, work, and play in our vibrant, tropical, historical community.



Outline

- I. Miami-Dade County Bicycle Network Plan
- II. Implementation Steps
- III. Strategies
- IV. Separated & Protected Bike Lanes
- V. Florida Design Manual on Bicycle Facilities
- VI. State Approved Products
- VII. Other Protective Elements
- VIII. MOUs & ILAs
- IX. Design Variance Process
- X. Slow Streets in Miami Beach
- XI. Public Engagement & Education
- XII. Destinations Between Event



FDOT District Six is working with our Miami-Dade County partners to create a safe, connected, and accessible countywide bicycle network to enhance mobility and safety for nonmotorized road users

Miami-Dade County Bicycle Network Plan



Bicycle Network Plan

The Miami-Dade Bicycle Network Plan builds upon previous efforts by focusing on **cohesiveness and connectivity**. The plan aims to establish a clear **vision of the future system** and provides **guidance for prioritization** to attain successful implementation. Strong and committed **partnerships** with local communities and leaders as well as County, State, and local agencies are needed to develop a **low-stress system of interconnected bicycle facilities**. This plan is the basemap that links everyone.

Link: <u>ArcGIS - FDOT DRAFT Bike Network</u> <u>Proposed Connections</u>



Creating the Network Implementation Steps



Implementation Steps

- Prioritization
- Feasibility Analysis
- Community Engagement & Support
- Funding Priority
- Programming Options
- Importance of Evaluation

Link: ArcGIS - FDOT Bike Network Prioritization



What are our tools? Strategies



Strategies

- Bike lanes (buffered bike lanes)
- Slowing Operating Speeds (& Posted Speeds)
 - Bike Boulevards/Slow Streets
- Protected Bike Lanes
- Two-Way Cycle Tracks
- Green Conflict Zone Markings
- Shared-Use Paths
- Adding Safe Crossing Opportunities
- Utilizing Closed Roadways/ Cul de sacs
- Trails
- Protected Intersections



Customer Oriented

Separated and Protected Bicycle (Micromobility) Lanes



Separated and Protected Bicycle Lanes

- 1. Economic Benefits
- 2. Safety Benefits
- 3. Public Demand
- 4. Making a Statement



Downtown Miami Micromobility Network

Complete Streets Project in the heart of Downtown Miami to improve bicycle connectivity, to improve walkability and to harmonize interaction between modes in a highly urbanized area of Miami-Dade County

Project features include:

- Green bicycle lane
- Bicycle boxes
- Pedestrian ramps
- Relocation of street furniture
- Sidewalk improvements
- High visibility crossings and signage
- Separation/protection devices





Before

After

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NE 5 ST Between NW 2 Ave and NW 1 CT



Washington Avenue Protected Bike Lane Quick-Build Project

- Implemented the project in 2020 to respond the needs of the business in the area and increase economic resilience along the corridor
- Lane reduction accommodated the room for restaurant expansions and a parking protected bike lane
- Prior to the pilot, the corridor had sharrows (first in the state)
- Project was designed in-house and implemented using City contracts
- The City has collected data on a quarterly basis to track project performance



Washington Avenue Protected Bike Lane Quick-Build Project



Washington Avenue Protected Bike Lane Quick-Build Project Challenges

Project Challenges include:

- Enforcement of vehicles and trucks parking in the bike lane
- Relocating transit to Collins Avenue did not work well due to challenges with the available right of way
- Some of the restaurants did not expand resulting in missed opportunities for protection to bicyclists



Florida Design Manual



Florida Design Manual

- Context Classification
 - Guide Link: FDOT Web Link
 - Website Link: <u>http://flcompletestreets.com/</u>
- Speed Management (Chapter 202)
 - Link: FDOT Web Link
- Bicycle Facilities (Chapter 223)
 - Link: FDOT Web Link
 - Bike Lanes; Paved Shoulders; Keyhole Lanes; Shared Use Paths; Intersection Bicycle Box; Two-Stage Bicycle Turn Box; Separated Bicycle Lanes



Washington Avenue Protected Bike Lane Quick-Build Project

- Implemented the project in 2021 to connect the new green bike lane on West Avenue to the very popular green bike lanes on Venetian Causeway
- City worked closely with DTPW to perform the traffic study and design the intersection modifications
- Project has increased safety and bicyclist comfort at this very active intersection
- City is in the process of collecting post implementation data
- City worked closely with Communications Department, Police Department, and the community to educate all road users
- Public Service Announcement
 - Bicycle Box PSA



Context Classification



Approved Products



FDOT Approved Products







Other Protective Elements





3 ft Minimum _____ 7 ft - 8 ft Typical

Partnering for Innovation MOUS and ILAS



Agreements to Foster Collaboration

- ILA with municipality to establish terms and conditions of partnership
 - Funding
 - Public Involvement
 - Maintenance
 - Enforcement
 - Permitting
- Could potentially be extended to other agencies (e.g. DDA)

OFFICIAL FILE COPY CLERK OF THE BOARD OF COUNTY COMMISSIONERS MIAMI-DADE COUNTY, FLORIDA

JOINT PARTICIPATION AGREEMENT BETWEEN MIAMI-DADE COUNTY AND THE CITY OF MIAMI FOR THE DEVELOPMENT OF A MICROMOBILITY NETWORK

This AGREEMENT made and entered into this <u>1st</u> day of ^{September}, ²⁰²¹ by and between MIAMI-DADE COUNTY, a political subdivision of the STATE OF FLORIDA, hereafter referred to as the "County" and the CITY OF MIAMI, a municipal corporation of the STATE OF FLORIDA, hereafter refer to as the "City".

WITNESSETH

WHEREAS, the County's adopted Complete Streets policy directs planners and engineers to promote the development of streets inclusive of all modes of transportation in accordance to the character and context of a particular area; and

WHEREAS, thanks to the robust transit coverage, new mobility options and the planned mixed development of the Greater Downtown Miami, there is a high demand for infrastructure to support personal mobility; and

WHEREAS, the County wishes to work collaboratively with the City to ensure the establishment and progressive construction of a safe micromobility network to promote safe alternative modes of transportation such as bicycling, and scooter riding; and

WHEREAS, the City has a dedicated funding source for the capital improvement of micromobility infrastructure within its Commission District 2; and WHEREAS, the City wishes to utilize the resources of the County to develop

and construct the Project, subject to the terms and conditions of this Agreement; and

WHEREAS, both parties have concurred on a proposed network of roadways to be improved as described in Exhibit A, which may be modified from time, hereafter refer to as the "Project",

NOW, THEREFORE, in consideration of the promises and covenants contained herein, the parties agree:

Documenting Innovation Design Variance Process



Design Variance for Non-Standard Items

Design Variations are required when proposed design elements do not meet the criteria contained in the referred Standard (FDOT Greenbook, FDM, or MDC Design Guidelines), sufficient detail and justification of such deviations must be documented by the Responsible Professional Engineer as a Design Variation and submitted to county.

Design Variance Structure:

- Project Description
- Existing Conditions
- Design Criteria
- Proposed Criteria
- Justification and Supporting Documents
- Conclusions and Recommendations

TO: Frank Gu	yamier P.E., Dep	outy Director	-	D	ATE:	10/27/2021		
SUBJECT:	PILOT PRO	JECT						
	Local road number or street name: N 5 St and N 6 St Project description (limits): From NW 3 Ave to NE 2 Ave, within Downtown Miami Type construction (new, rehab, adding lanes, resurfacing, etc.) <u>Bike lane improvements</u> State and/or Federal road number (if applicable):							
RECOMMEN	IDATION FOR T	THE FOLLO		Т:				
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Design Variance for Non-Standard Items

Pilot Project: Concrete Parking Stoppers Bicycle Lane Separator 5

Pilot Project: Concrete Parking Stoppers Bicycle Lane Separator 2

I. Description

A. Project Description

The Miami-Dade County Department of Transportation and Public Works (DTPW) will pilot quickly deployable separation devices to protect the recently installed bicycle lanes along N 5 St and N 6 St within Downtown Miami. <u>Appendix A</u> shows a location map delineating the project limits. The scope of the project is to install non-standard concrete parking wheel stops in combination with approved delineators within the buffer areas of the roadways, between the newly installed bicycle lane and the immediately adjacent travel lane. The existing road configuration is predominantly a one-way two-lane roadway with bicycle lanes in the same direction of travel, sidewalk, and curb and gutter. The proposed improvement maintains the existing configuration of the roadway with the addition of bike lane separators. The posted speed limit is predominantly 30 mph. The total length of the project is 1.4 miles.

The main purpose of this pilot project is to install concrete parking wheel stops in combination with plastic delineators to enhance the physical separation, promote rider comfort and discourage vehicles from parking on the bicycle lane. This design application is common in other cities of the USA, including New York, Seattle, Portland and Washington DC and it is also contemplated as a form of separation in the Federal Highway Administration's Separated Bike Lane Planning and Design Guide.



City of Houston, Texas

The City of Houston has recently started installing precast concrete separators (1 ft wide) to protect its bicycle lanes, particularly in the Downtown area.



II. Operational Impacts

The existing number of lanes and overall roadway configuration will not change as a result of these improvements. Therefore, negative operational impacts on the road are not expected.

III. Crash History and Analysis

The most current five years crash data of the corridor was obtained from Signal Four Analytics website and reviewed. The report was generated based on the parameters listed below:

- Period of Analysis: 2015-2019
- Accidents Reviewed: Serious injuries, and Pedestrian and Bicyclist related.
- Reporting Agencies:
 - Miami-Dade Police Department
 - City of Miami Police Department
- A. Historical Crash Trends

The most recent five (5) year Crash Reports (2015-2019) were downloaded from Florida Signal Four Analytics Database for the below listed road segments. Data provided includes the location of the crash, the type of crash, date, and the existing conditions; details can be observed in the attached excel file. A total of 75 crashes occurred in the 5-year period. Only serious injury, fatalities, and bicycle and pedestrian related accidents were counted and listed for this effort.

Design Variance for Non-Standard Items

Pilot Project: Concrete Parking Stoppers Bicycle Lane Separator 6

Boundaries of the analysis:

- West Limit NW 3 Ave
- East Limit NE 2 Ave

Summary of serious injury, fatalities, and bicycle and pedestrian related crashes on both N 5 St and N 6 St (by Type/Year):

Crash Type	2015	2016	2017	2018	2019	Grand Total
Bicycle	3		1		1	5
Head On	2	1			1	4
Angle	3	3	2	3	1	12
Other	2					2
Pedestrian		2	2	3	4	11

Crash Analysis – N 5 Street

Three (3) severe accidents along the corridor, Seven (7) ped and bicycle related. Severe accidents are mainly related to traffic failing to stop at a red light, particularly at the intersections of N 5 St with NE 1 Ave and NE 2 Ave.

Pedestrian and bicyclists related accidents are mainly due to vehicles turning at intersections and failing to notice pedestrian or bicyclist on crosswalk. Per police reports, this occured at NW 1 Ct, N Miami Ave, NE 1 Ave and NE 2 Ave. Additionally, one bicycle accident occurred due to a parked vehicle opening the door onto bicyclist path.

Crash Analysis - N 6 Street

Five (5) severe accidents along the corridor, Seven (7) ped and bicycle related. Severe accidents are mainly related to traffic failing to stop at a red light, with four of them (80%) occurring at the intersection of NE 1 Ave.

Pedestrian and bicyclists related accidents include conflicts with driveways and parked vehicles but also with two (2) incidents related to vehicles turning at intersections and failing to notice pedestrian or bicyclist on crosswalk. Per police reports, this occurred at NE 1 Ave and NE 2 Ave.

Refer to Appendix C for a table listing the Signal 4 analytic outputs.

B. Fatal Crash Summary

There was one (1) fatal crashed recorded at the intersection of NE 6 St and NE 1 Ave. Scooter rider failed to stop at the red-light heading WB and was hit by a NB vehicle, Pilot Project: Concrete Parking Stoppers Bicycle Lane Separator 7

rider was pronounced dead at scene. Reducing speed at intersection and providing refuge and sight clearance is highly recommended.

IV. Conclusions and Recommendations

The following was noted while reading the police reports:

- High speeds noticed on main roads, particularly along crossing intersections with N Miami Ave and NE 1 Ave
- o Pedestrians and bicyclists not respecting the red light at intersections
- Vehicles blocking sight distance at intersections
- o Lack of driver awareness of high ped and bike activity within the area
- Pedestrian and bicyclists traveling in opposite direction to traffic is common
- Many injured pedestrians were homeless, some of which may have mental challenges
- Bicycle boxes, LPIs and curb extensions would be beneficial to give pedestrians head start and visibility at intersections

The recommendation is to ensure motorists understand that this is a designated Pedestrian Priority Zone, which is a highly active pedestrian and bicycle area. All vehicular traffic should be fully aware that vulnerable modes may appear at any crossing at any time and that driving slow and carefully is expected.

Additionally, separation devices must be used to promote the reduction of speeds, to improve sight triangle visibility at intersections and to prioritize and highlight pedestrians and bicyclists entering the intersection along the corridors.; any treatment that allows for pedestrian to get a head start at the intersection or be more visible is highly desired.

SUPPORT DOCS

- Manufacturer specs
- Testing and Product Approval Docs
- Crash data analysis
- Technical evaluations
- Maps





ELEVATION

NOTE:

1. REBARS SHALL BE 3" CLEAR AT ENDS

- 2. EQUILIVANT DESIGNS MAY BE APPROVED AT THE DISCRETION OF THE COUNTY ENGINEER.
- 3. WHEEL STOPS SHALL BE REQUIRED ON ALL PARKING SPACES EXCEPT PARALLEL PARKING SPACES.

A	С	т	X	АН	BD	BE	BF	BG
REPORT	DATE AND TIME	ON ROAD	AT INTERSECTION WITH	TYPE OF IMPACT	CRASH TYPE	SEVERITY	SEVERITY DETAIL	DAY/NIGHT
86872070	5/17/17 13:01	NE 2 AV	NE 6 ST	Hit by Mirror	Pedestrian	Injury	Non-Incapacitating Injury	DAY
89478764	11/29/19 20:42	NE 2 AVE	NE 6 ST	Head on	Pedestrian	No Injury	No Injury	NIGHT
87863135	12/3/18 10:30	NE 6TH ST	NE 1 AVE	Left Turn	Pedestrian	Injury	Possible Injury	DAY
86060023	6/14/15 10:55	NE 1 AVE	NE 6 ST	Head on	Bicyclist	No Injury	No Injury	DAY
89244655	8/16/19 10:16	NW 6TH ST	NW 1 Ct	Car leaving parking	Pedestrian	Injury	Non-Incapacitating Injury	DAY
86872522	5/2/17 9:07	NW 2 AVE	NW 6 ST	Left Turn	Bicyclist	Injury	Non-Incapacitating Injury	DAY
87850287	5/17/18 6:50	2ND AVE NW	6TH ST NW	Driveway	Pedestrian	Injury	Possible Injury	NIGHT



Miami Beach Slow Streets



Miami Beach Slow Streets

- Project implemented to respond to community needs during the COVID Pandemic
- City used the criteria identified in the NACTO Slow Streets Guide
- The project concentrated on low volume-low speeds streets that connected centers of attraction like pharmacies, markets, etc.
- Community engagement City gathered feedback from community groups, homeowner associations, and elected officials prior to deploying
- Begin with temporary materials and move towards more aesthetic materials
- Develop performance measures and collect data to check the performance





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Miami Beach Slow Streets

- Vehicular volumes decreased by an average of 41% in comparison to Pre-COVID conditions
- Bicycle volumes increased by 57% and pedestrian volumes increased by 26%
- 85th Percentile Speed reduced by an average of 7 miles per hour
- Continuous check-ins with the community to obtain feedback on the performance of the project.







Engagement and Education



DTPW Public Involvement and Participation

- Public Implementation Plan PIP
 - Previous efforts
 - Local support
 - Community based organizations
 - Education (TA support)
 - Document involvement (public hearings Title VI)

Key Takeaways for Municipal Partners

- 1. DTPW supports PBLs
- 2. You can help us
 - Policy
 - Planning & Design
 - Outreach & Education
 - Funding (Capital & Operating)

Engaging Differently Destinations Between



Destinations Between











