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Miami Bicycle Master Plan



Prepared By:
The Street Plans Collaborative

HNTB



Miami Bicycle Master Plan

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Miami Bicycle Master Plan

1.0 Executive Summary

The Bicycle Action Committee was formed in the spring of 2008 as a subcommittee of the Miami Green Commission and was tasked with forming policies related to the inclusion of bicycle friendly infrastructure, events, education and enforcement. The committee created a short range list of priorities and basic mapping of primary bicycle routes which were identified and composed into the Bicycle Action Plan. On October 16, 2008, the Miami City Commission unanimously adopted the City's first ever Bicycle Action Plan. The plan has helped to transform the City of Miami into a more bicycle friendly city, through the designation of primary routes and beginning a coordination of planning, infrastructure, development, and education. The long term goal of the Bicycle Action Plan is to develop a comprehensive Miami Bicycle Master Plan which would transform Miami into a bicycle friendly city.

The purpose of this study is to create the first City of Miami Bicycle Master Plan. This Miami Bicycle Master Plan was developed with the guidance of previous bicycle study efforts locally and nationally. The study also reviewed existing conditions in the City of Miami and gauged public sentiment. Additionally, three Bicycle Summits were held so that the plan's development could be shared with, and shaped by the public. This research along with city staff recommendations was used for establishing the citywide bikeway network plan, bicycle parking plan, safety and awareness actions, and evaluation tools to measure future performance of the network and suggest improvements to the existing bicycle infrastructure. The study serves as a guide for the development of the bikeway network and parking over a 20 year period in phases of 2010, 2015, 2020, and 2030. The Miami Bicycle Master Plan is intended to work in collaboration with the Miami 21 Zoning Ordinance and the Complete Streets ordinance. This plan will also assist the City with obtaining Bicycle Friendly City status in 2012—a stated goal of the 2008 Bicycle Action Plan.

A review of the City of Miami's existing network conditions revealed that the corridors, most of which are County or State owned, are designed primarily for auto mobility. The major corridors within the City allows for a high volume of swift moving traffic which results in the isolation rather than connection of the City's neighborhoods. Existing motor vehicle speeds do not provide for a safe environment for bicyclists along these important thoroughfares. Furthermore, the existing conditions research revealed the lack of bicycle facilities, parking, and the unbalanced geographical distribution of what has been implemented. It should be noted that the two most extensive routes, the M-Path and the Rickenbacker



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Causeway Bicycle Lanes, both receive heavy use and provide a framework for the southeastern portion of the City.

Public input was an important component of the Miami Bicycle Master Plan. As part of the master planning effort, a survey was issued to those already bicycling within the City. In total, 312 surveys were returned. Many of the questions allowed for open ended responses, which provided further insight into how bicyclists identify themselves by skill type; where they frequently ride and why; what they perceive as the significant barriers to safe cycling; and how the City should best approach the desired improvements.

When asked what the largest barriers are for bicycling in Miami, 84% stated the current lack of facilities. Another 76% identified a concern for personal safety as a major impediment, if not for themselves then for others. Additionally, 48% of respondents said that the lack of bicycle parking facilities hinders bicycle use, while 12% said Miami's climate presented particular challenges.

Based on the survey, it is clear that Miami's bicyclists feel that there are not enough bikeways, and that their safety is compromised as a result. Likewise, they want the City to focus on expanding the on-street network and to promote safety through education and enforcement, and undertake infrastructure improvements and evaluation. Also, bicyclists in Miami want to be involved in the improvements, pointing to the need to keep the process as open as possible when the City begins implementing their first bicycle master plan.

The guidance of previous bicycle study efforts locally and nationally, review of the existing bikeway network conditions, obtaining public input, and city staff recommendations were used for establishing the citywide bikeway network infrastructure plan. The Miami Bicycle Master plan includes more than 280 miles of new or improved bikeways which comprises about 33% of the City street network. At present, the City of Miami bikeway network includes 17.12 miles of Bicycle Lanes and Shared Use Paths/ Greenways which is only 1.6% of the City street network. Thus, the 2030 plan recommends a comprehensive expansion and diversification of facilities to meet the needs of beginner, intermediate, and expert bicyclists. In total, seven different bikeway types are included. They include: Bicycle Routes, Shared Use Lane Markings (Sharrows), Bicycle Lanes, Shared Use Paths/Greenways, Bicycle Boulevards, Neighborhood Connections, and Scenic View Routes.



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A close working relationship will have to be established with the Florida Department of Transportation (FDOT) and Miami-Dade County in the pursuit of the bikeway network plan's implementation, as competing jurisdictional interests and funding constraints may prove detrimental to the realization of the Miami Bicycle Master Plan. The Miami Bicycle Master Plan is broken out into four implementation phases and recommends bikeway projects for the next 1, 5, 10, and 20 years (2010, 2015, 2020, and 2030). The proposed 2030 bikeway network master plan is depicted in **Figure 1-1**. The proposed 2030 bikeway network maps by commission districts and Downtown Development Authority (DDA) area can be seen in **Appendix G**.





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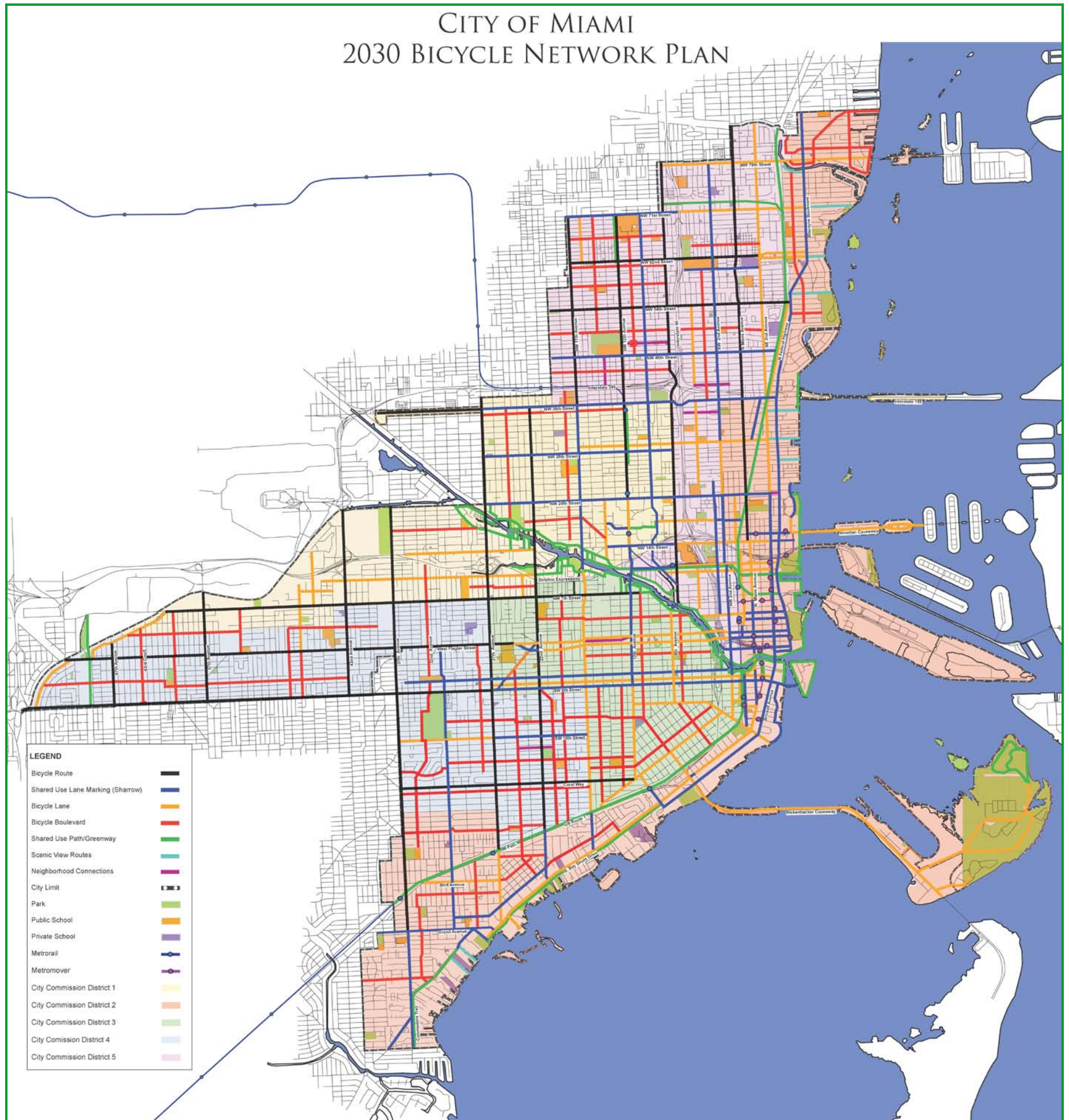
Bikeway Network miles: 276.36 miles

Total Number of Bikeway Projects: 213

Percentage of City Street Network with Bikeways: 33%

Bikeway Types: 7

Figure 1- 1: 2030 Bikeway Network Master Plan





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While the provision of bikeways is the most visible element in a citywide bikeway network, bicyclists must also have safe and convenient places to store their bicycles at a trip's end. Based on the review of the existing conditions, the City of Miami lacks adequate bicycle parking. Furthermore, in the public survey undertaken as part of this Miami Bicycle Master Plan, the majority of respondents called for additional parking along the City's major commercial corridors and within destinations such as Downtown and Coconut Grove.

Because bicycle parking planning at this scale requires a fine grain analysis of local site conditions, the recommendations herein provide the general scope of the bicycle parking plan which improves existing parking supply conditions and collaborates with the network phasing, survey response, local agency requests, and needs of the locations as well as other guidelines. The bicycle parking plan provides and illustrates more than 950 location recommendations for the implementation of bicycle parking facilities, specified by type. The priority areas for bicycle parking provisions are depicted in **Figure 1-2**.

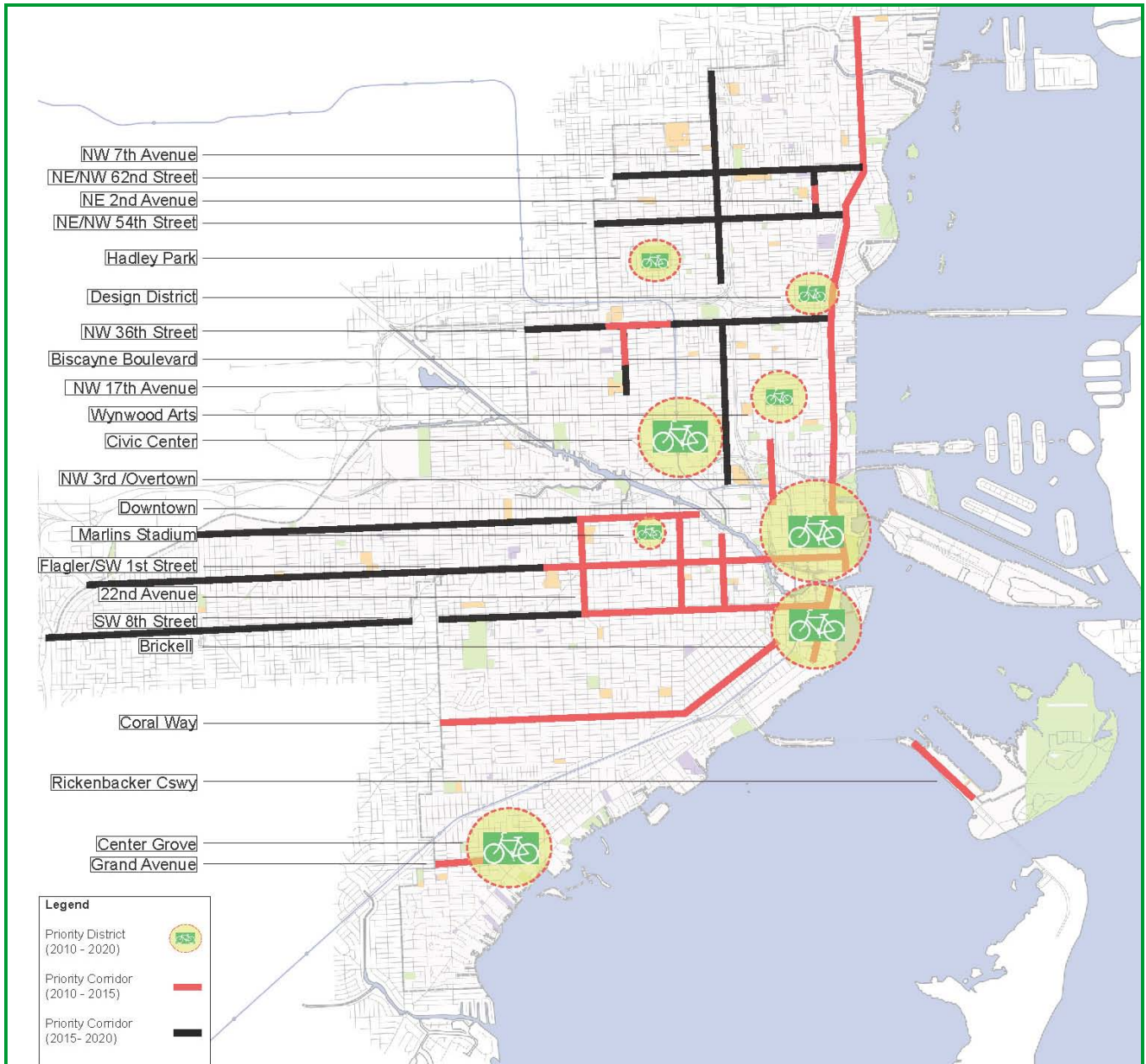
As part of the Miami Bicycle Master Plan, the City of Miami should become one of Florida's leaders in improving bicycle safety through not just the provision of bikeways, but through education, encouragement and enforcement. In general, bicycle education campaigns should aim to increase commuting, errands, socializing, utility, and exercising trips by decreasing the perceived and actual risk of bicycling. The master plan establishes education actions such as promoting bicycling skills courses, motorist and bicyclist safety campaigns, advertising, bicycling events, social media and web-based advocacy tools and programs, and other traditional communication and outreach strategies.

The City of Miami should continue to encourage bicycling as a healthy form of recreation and as a sustainable mode of transportation. Miami now designates March as the City's official Bike Month, has scheduled Bike to Work Week events, and has produced Bike Miami Days. From November 2008 to May of 2009, Bike Miami Days encouraged thousands of residents and visitors to explore Coconut Grove, Brickell and Downtown Miami by bicycle. These accomplishments mark a new direction for the City and demonstrate an impressive amount of momentum. The Miami Bicycle Master Plan establishes actions which include additional resources, programs, and events that will maintain and expand the city's bicycling activity.



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Figure 1- 2: Priority Areas for Bicycle Parking Provisions



The Miami Bicycle Master Plan also establishes actions for enforcement of laws pertaining to bicyclist safety. To create a bicycle-friendly city, law enforcement departments must address the safety concerns of the bicycling public. Miami Police Department should join with Miami-Dade County Police to increase motorist and bicyclist education through increased enforcement. These education, encouragement, and enforcement actions will help the City accomplish its stated goal of becoming certified by 2012 as a Bicycle Friendly Community by the League of American Bicyclists.



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The collection and evaluation of data must play an integral role in the Miami Bicycle Master Plan implementation process. Demonstrating a structured system under which to collect and evaluate data is required by the League of American Bicyclists if the City is to obtain Bicycle Friendly City status in 2012.

The Miami Bicycle Master Plan, Evaluation Plan is intended to enable the City of Miami to measure its successes against its shortcomings, and the goals set forth in the Bicycle Master Plan. These efforts range from simple tasks, such as tracking the number of bicycle racks installed each year, to more complex and time-intensive endeavors, such as counting bicyclists and analyzing crash data on a bi-annual basis. Regardless of what metric is utilized, all data should be collected and used to mark and communicate Miami's successes, but more importantly to shift priorities to those areas in need—whether the areas require engineering, education, encouragement, enforcement, or even additional evaluation initiatives. Indeed, the Miami Bicycle Master Plan is, and should always be a living document. Both short and long term projects will be necessary for improving bicycling conditions in the City of Miami. Possible funding sources can be seen in **Appendix H**.



2.0 Introduction

In 1972, Miami-Dade County issued Public Improvement Bonds to, among other things, modernize its transportation infrastructure. At this same time, Americans were returning to bicycling in large numbers, some for sport, but mostly for transportation as the oil supply shortage and resulting price shocks rippled through the American economy. In response, Miami-Dade's Metropolitan Planning Organization (MPO) identified a need for bikeways as an important alternative transportation provision. The creation of the first, and only, elevated Metrorail line and the 9-mile M-Path that runs along a significant portion of its trajectory, are the most tangible products from the "decade of progress." The MPO has been planning and implementing bicycle infrastructure since this time, including an early bicycle master plan completed in 1974, but with limited success due to funding and other related constraints.

In contrast to the County, the City of Miami has historically not independently planned for bicycle infrastructure within its boundaries, choosing instead to rely on the Miami Dade County MPO for any bicycle related improvements. However, bicycle facility demand is once again enjoying resurgence as a record number of Americans are turning to bicycling as an efficient, healthy, and enjoyable form of transport, utility, and recreation. Additionally, the City of Miami and its constituents have recently become proactive in engineering the expansion of its nascent bikeway network and increasing education, enforcement, and evaluation efforts. Drawing thousands on a monthly basis, Bike Miami Days and Bike Miami Rides has been an early success. Furthermore, the creation of a citywide Bicycle Action Plan and the adoption of a Complete Streets ordinance serves as the foundation for this 20 year bicycle master planning effort, Miami's first, which demonstrates a commitment to making Miami more bicycle-friendly. These efforts have been accomplished under the guidance of the Bicycle Action Committee, which was formed to help Miami to become a more bicycle friendly city.

The Bicycle Action Committee was formed in the spring of 2008 as a subcommittee of the Miami Green Commission and was tasked with forming policies related to the inclusion of bicycle friendly infrastructure, events, education and enforcement. The committee created a short range list of priorities and basic mapping of primary bicycle routes which were identified and composed into the Bicycle Action Plan. On October 16, 2008, the Miami City Commission unanimously adopted the City's first ever Bicycle Action Plan. The plan has helped to transform the City of Miami into a more bicycle friendly city, through the designation of primary routes and beginning a coordination of planning, infrastructure, development, and education. The long term goal of the Bicycle Action Plan is to



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3.0 BACKGROUND RESEARCH

In order to become familiar with Miami-Dade County's bicycle planning history, and specifically as it relates to the City of Miami, a review of more than 25 City, County, and State plans was undertaken. This effort connects the current planning process with those from the past and is being undertaken to identify lessons learned and key strategies for successful implementation of the Miami Bicycle Master Plan. This review begins with the oldest relevant plan: The 1997 Miami-Dade MPO Bicycle Master Plan. This document forms the basis for many subsequent plans and studies conducted over the past decade. Bike-related plans from 1997 to the present day in 2009 were reviewed. Additionally, a few ongoing plans that affect the Miami Bicycle Master Plan were tracked. This includes an MPO led Bicycle Boulevards Study, the City of Miami Virginia Key Master Plan, and recent attempts to bring bicycle facilities to the long underutilized FEC rail corridor.

Looking outside of Miami-Dade County, a secondary review analyzed some of the country's most successful bicycle master plans. These cities—selected for their comparable size—include Seattle, Portland, and Denver. Gleaning national best practice strategies and overall planning approaches informed the current planning effort, and the future implementation of bicycle infrastructure in the City of Miami.

Below is the list of selected plans reviewed and the year they were completed

Local Plans reviewed:

- City of Miami 21 Zoning Ordinance (2005-2009)
- City of Miami Bicycle Action Plan (2008)
- Miami-Dade MPO Mountain Biking / Unpaved Trails (2008)
- City of Miami Virginia Key Master Plan Draft (2008)
- Miami-Dade MPO Bicyclist Count (2008)
- Miami-Dade MPO Bikeway Map (2008)
- City of Miami Downtown Development Authority Master Plan (2008)
- City of Miami Parks Master Plan (2007)
- Miami-Dade MPO Parks Master Plan (2007)
- Miami-Dade MPO M-Path Master Plan (2007)
- FDOT/MPO Safe Routes to School (2007)



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- Miami-Dade MPO Bicycle Safety Plan (2006)
- Miami-Dade MPO Crash data (2006)
- Miami-Dade MPO Long Range Transportation 2030 Plan (2004)
- Miami-Dade MPO Traffic Calming at Miami-Dade College (2004)
- Miami-Dade MPO Rail Convertibility Study (2004)
- City of Miami Downtown Transportation Master Plan (2003)
- Miami-Dade MPO Bikeway Priority Feasibility and Evaluation Study (2003)
- Miami-Dade MPO Transit Station Bicycle Parking Plan (2002)
- Miami-Dade MPO Bicycle Facilities 2025 Plan (2001)
- Miami-Dade MPO LRTP 2025 Bike Suitability Study (2001)
- Miami River Greenway Action Plan (2001)
- Miami-Dade MPO North Dade Greenways Plan (1998)
- Miami-Dade MPO Bicycle Facilities Plan (1997)

National Plans Reviewed:

- City of Seattle Bicycle Master Plan (2007)
- City of Denver Bicycle Master Plan Update (2001)
- City of Portland Bicycle Master Plan (1996)

The completion of these Local and National Plan reviews will prevent redundancy, reduce chances of error in determining the placement of planned bikeway infrastructure, and help dovetail this master plan into those planning efforts already underway at the local, county and state level. Specifically, this review will help the City combine the Miami Bicycle Master Plan bikeway network plan with the implementation of those previous plans where capital improvements and other city/county/state projects can support the future build out of the master plan bikeway network.

The review of plans from other cities also provides a key resource as ideas and plans are developed for the City of Miami. Periodically calling upon these efforts, as well as reaching out to those stewards of bicycle plans in other municipalities will make the best plan for the City of Miami. The summary of the Local and National Plan review is included in **Appendix A**.



4.0 EXISTING BIKEWAY NETWORK CONDITIONS

The review of the existing bikeway network conditions required bicycling through the neighborhoods of the City of Miami for a two-week period. Before undertaking this field review, background research (crash data, existing plans, and literature review) was undertaken. Physical mapping, photography, interviews with bicyclists, and extensive note taking comprise the body of research for reviewing the existing bikeway network conditions. However, bicycle riding throughout the City of Miami revealed several challenges and opportunities that currently exist. A detailed description of each Neighborhood Enhancement Team (NET) District's existing bikeway features, challenges to bicycling, and the general opportunities for improvement is included in **Appendix B**.

4.1 Study Area

The research study area was organized by each of Miami's 13 NET Districts. Innovative in their management, NETs capably operate as administrative centers for the City at the scale of the neighborhood. This effectively links neighborhood specific issues with the City's overarching governing structure.

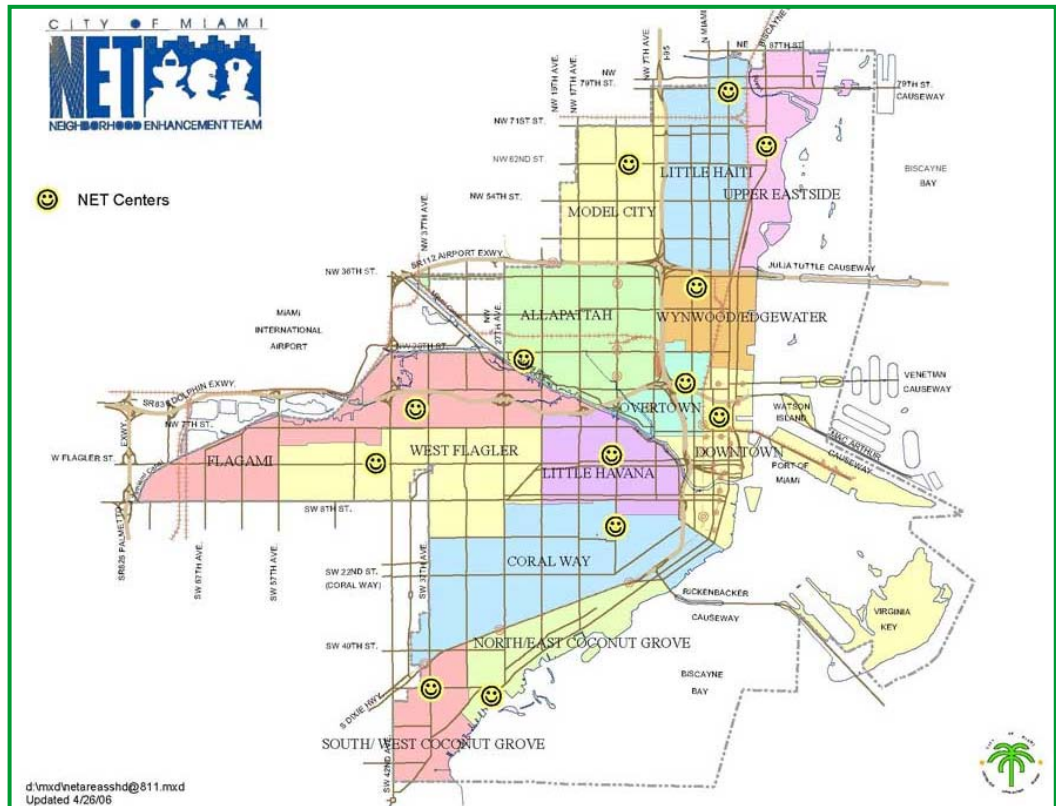
The physical boundaries for each NET District was used to delineate sub-study areas. While many physical, social, and political issues cross NET boundaries, this approach recognizes that conditions also vary greatly between each of the 13 Districts. Additionally, the NET Districts allow neighborhood constituencies to voice their support and concerns as it relates to improving bikeway facilities within their own neighborhoods. The 13 NET Districts include the following:



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- Allapattah
- Coconut Grove North/East
- Coconut Grove South/west
- Coral Way
- Downtown
- Flagami
- Little Havana
- Little Haiti
- Model City
- Overtown
- Upper East Side
- West Flagler
- Wynwood/Edgewater

Figure 4- 1: Net centers



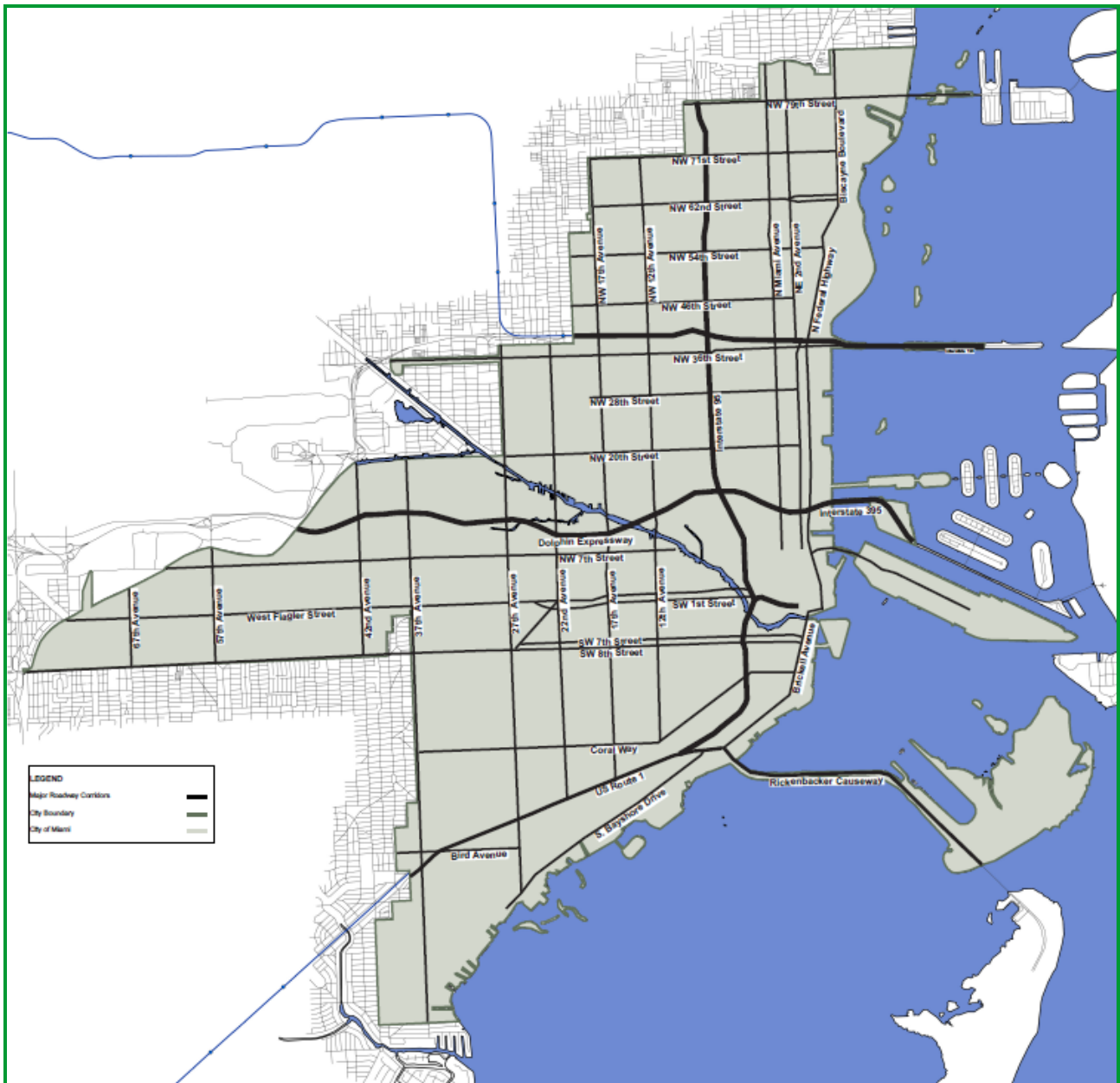
4.2 Major Corridors

The City of Miami’s existing corridors, most of which are County or State owned, are designed primarily for auto mobility. So while the corridors contain the majority of the City’s commercial and civic amenities, the high volume of swift moving traffic serves to isolate rather than knit the City’s neighborhoods together. Indeed, existing motor vehicle speeds do not provide for a safe environment for bicyclists along these important thoroughfares. Therefore, balancing the needs of motorists, bicyclists and pedestrians is a challenge the City of Miami must work with in partnership with Miami-Dade County and the FDOT, both of which have jurisdiction over the majority of these important thoroughfares. **Figure 4-2** the major corridors in the City of Miami.



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Figure 4- 2: Major Corridors



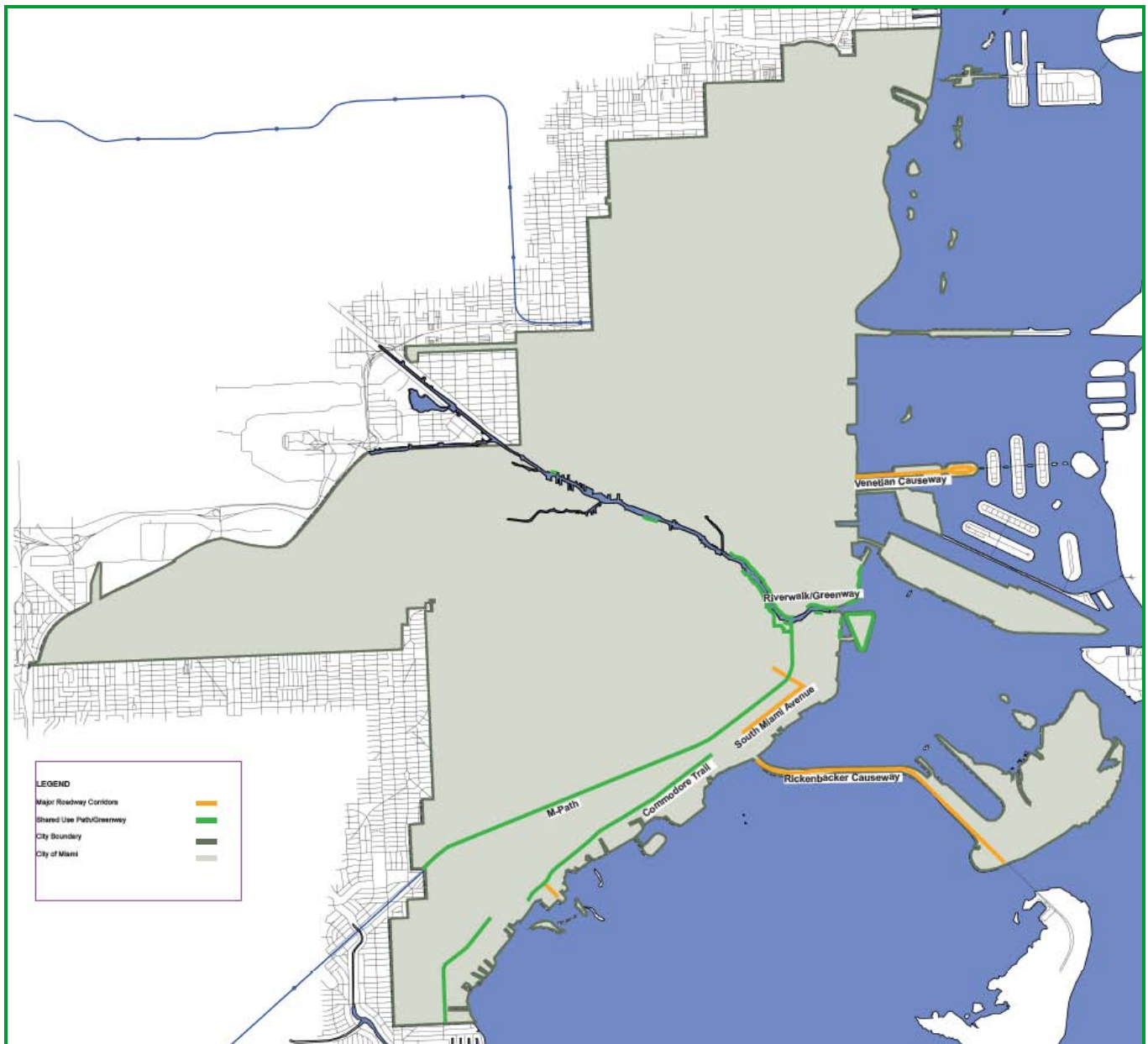
4.3 Existing Bikeway Network

Figure 4-3 reveals the lack of bicycle facilities, parking, and the unbalanced geographical distribution of what has been implemented. It should be noted that the two most extensive routes, the M-Path and the Rickenbacker Causeway Bicycle Lanes, both receive heavy use and provide a framework for the southeastern portion of the City. Specific recommendations for improvement may be found in the Bikeway Network Plan section.



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Figure 4- 3: Existing Bikeway Network



The following is the summary of the existing bikeway network infrastructure:

- Existing Bikeway Network Miles: 17.12
- Percentage of City Street Network with Bikeways: 1.6%
- Number of Bikeways: 8
- Bikeway Types: 2
- Bicycle Lanes Miles: 5.56
- Shared Use Paths/Greenways Miles: 11.56



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The following is a detailed description of each existing bikeway:

- 1) **Venetian Causeway (1.32 miles):** Bicycle Lanes extend along the Venetian Causeway from the western terminus of Dade Boulevard in Miami Beach to the eastern terminus of NE 15th Street in the City of Miami. Approximately 1/3rd of the Bikeway is located within the City of Miami. The route also includes a short multi-use path to help bicyclists and pedestrians navigate the eastbound Venetian tollbooths.
- 2) **M-Path (4.65 miles):** The M-Path is a Shared Use Path that extends along the Metrorail right-of-way from the Dadeland area in Kendall to the Miami River. The portion in the City of Miami comprises approximately half of the bikeway's length. Pathway surface improvements are currently underway.
- 3) **SW 15th Road (.32 miles):** Bicycle Lanes extend from the South Miami Avenue traffic circle to SW 13th Street (Coral Way). Experimental green pavement markings have been placed along part of the bikeway.
- 4) **South Miami Avenue (.74 miles):** Bicycle Lanes extend from the South Miami Avenue traffic circle at SW 15th Road to SE 25th Road.
- 5) **Rickenbacker Causeway (3.04 miles):** Bicycle Lanes extend from the Rickenbacker toll plaza to the Village of Key Biscayne along Crandon Boulevard. The portion that exists within the City of Miami includes the segment from the Rickenbacker toll plaza to the Bear Cut Bridge.
- 6) **Pan American Drive (.14 miles):** Bicycle Lanes extend from South Bayshore Drive to the City Hall round-a-bout.
- 7) **Commodore Trail (3.77 miles):** The Commodore Trail is a shared use path that extends from Cocoplum Circle in Coral Gables to the eastern terminus of the Rickenbacker Causeway. However, the only decipherable portion of the trail that remains in the City of Miami extends from Sunrise Avenue to Franklin Avenue near the Center Grove. A second segment, running from McFarlane Road to SW 32nd Road makes use of both separated paths and sidewalks, but is in need of reconstruction, as it is not visible as a continuous Shared Use Path.



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- 8) **Baywalk/Riverwalk/Miami River Greenway (3.24 miles):** While not explicitly designated for the use of bicycles, the completed portions of the Baywalk, Riverwalk, and Miami River Greenway provide amenable conditions for recreational bicycling.





5.0 OUTREACH EFFORTS

As part of the Miami Bicycle Master Planning effort, three public bicycle summits were held to garner input from stakeholders. In total, almost 200 people attended these workshops. In addition, a survey was issued to those already bicycling within the City. Over a six week period, the eleven question survey was administered online via Survey Monkey. It was also distributed in print at bicycle events like the monthly Critical Mass rides and the City's first Bicycle Summit. In total, 312 surveys were returned. Many of the questions allowed for open ended responses, which provided further insight into how bicyclists identify themselves by skill type; where they frequently ride and why; what they perceive as the significant barriers to safe cycling; and how the City should best approach the desired improvements. Of the eleven questions asked, seven were specifically designed to capture specific opinions about Miami's bicycling conditions, while the remaining four were intended for posterity and administrative purposes.

In general, the survey attracted those who already bicycle frequently in the City of Miami and beyond. Indeed, 42% of the respondents claimed to bicycle a few times a week, while another 36% said they bicycle every day. Conversely, only 1% of the respondents bicycle monthly and 2% bicycle a few times a year. Sixty percent of respondents self-identified themselves as advanced bicyclists which for the purposes of the survey means that they already feel comfortable bicycling on most streets. Thirty-Six percent of respondents identified themselves as intermediate bicyclists, meaning they generally feel confident bicycling on streets with adequate bicycle facilities or low volumes of traffic. Only 4% claimed to be novices. **Figure 5-1** shows the survey results of the respondents bicycling frequency. **Figure 5-2** shows the survey results of the type of bicyclists.

Figure 5- 1: How Often Do You Bicycle?

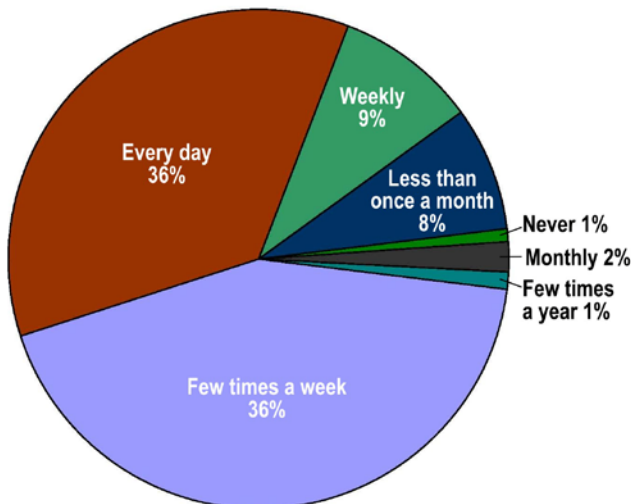
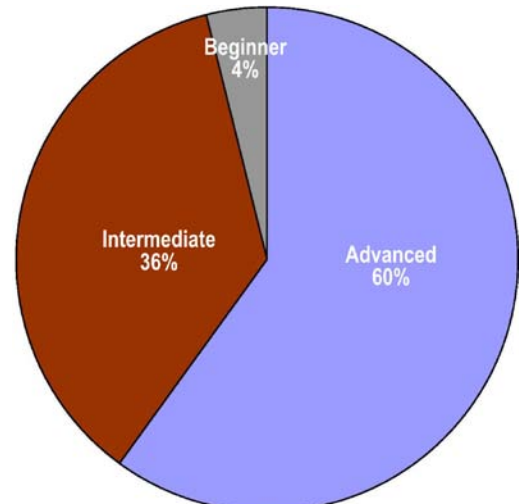


Figure 5- 2: What Type of Bicyclist Are You?

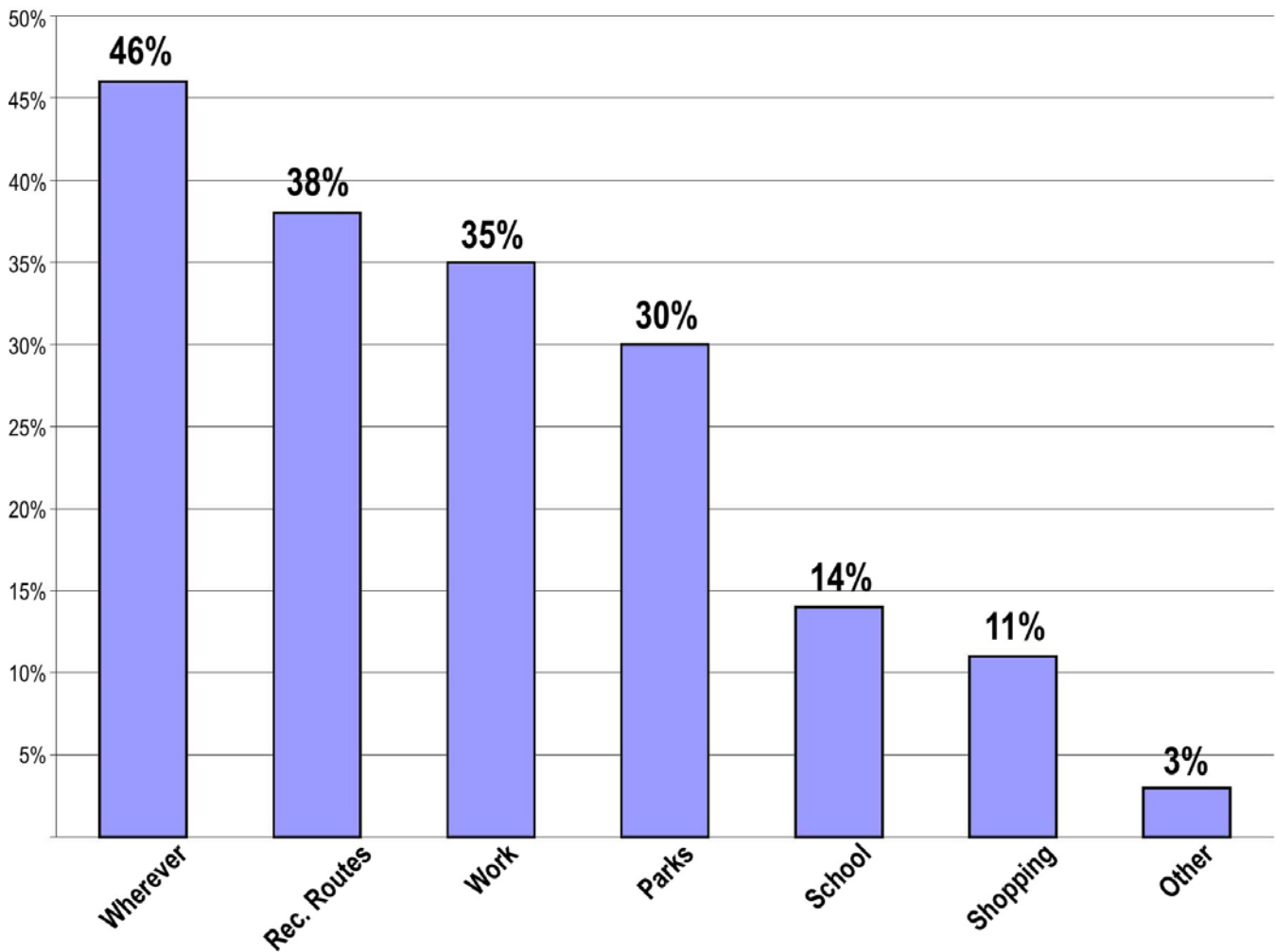




Miami Bicycle Master Plan

When asked where they travel most frequently, 46% chose to answer “wherever my wheels take me,” meaning they bicycle for a multitude of recreational, social, and utilitarian purposes. A relatively high number of respondents (38%, 35%, and 30%) were more specific, stating they bicycle for recreation, to parks, and to work with frequency. Without a well-connected network of bikeways yet in place, the recreational riding garnered the highest percentage of specific responses. Only 14% and 11% of respondents stated that they bicycle to school or for shopping, respectively, as a primary purpose for bicycling. These low numbers represent an area for growth capture in mode share, but also point to the type of bicyclists the survey attracted. Indeed, many of the respondents are no longer in school, and many of the City’s “invisible bicyclists,” known to bicycle more frequently to neighborhood retail stores, were not well-represented in the survey. These survey results are summarized in **Figure 5-3**.

Figure 5- 3: Survey of Bicycling Destinations

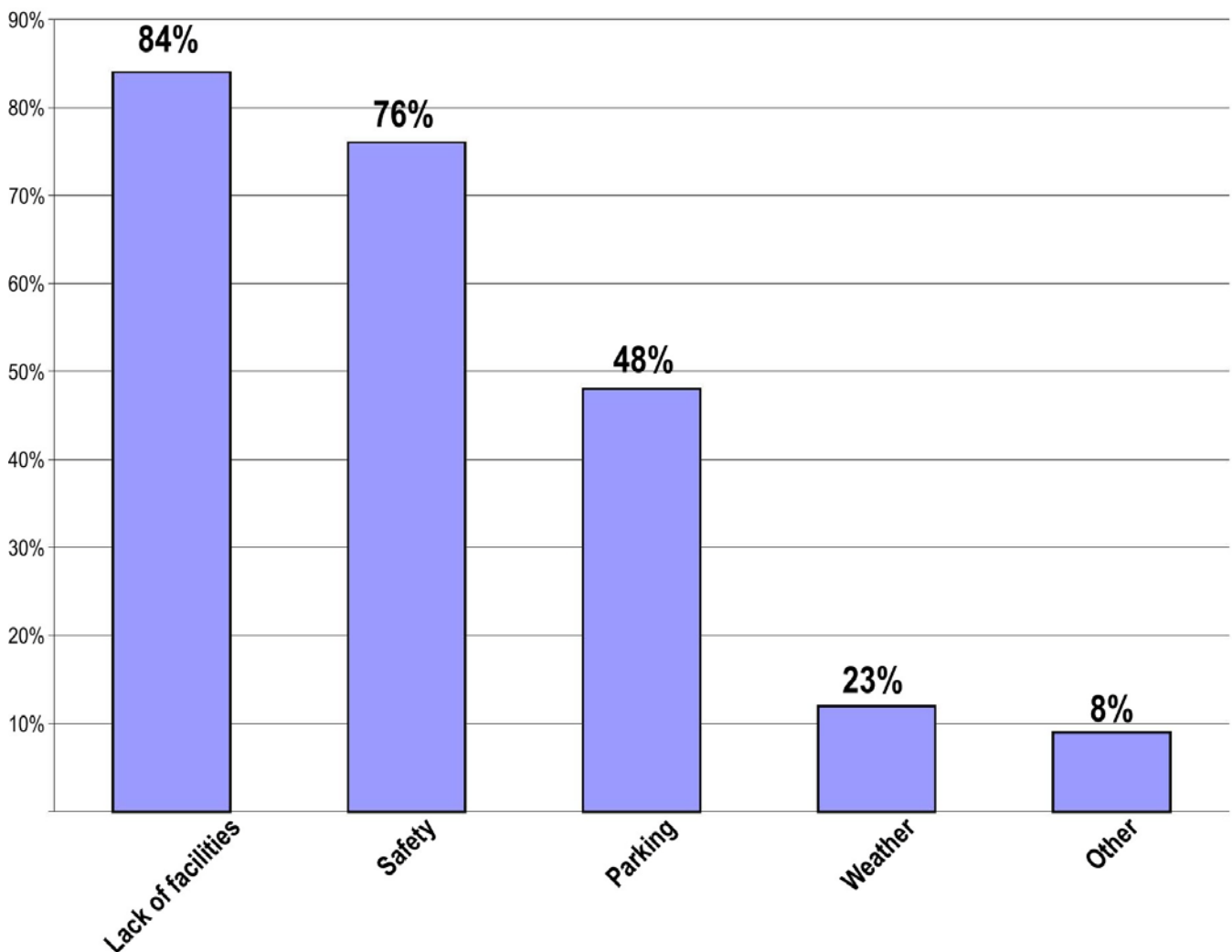




Miami Bicycle Master Plan

When asked what the largest barriers are for bicycling in Miami, 84% stated the current lack of facilities. Another 76% identified a concern for personal safety as a major impediment, if not for themselves then for others. Additionally, 48% of respondents said that the lack of bicycle parking facilities hinders bicycle use, while 12% said Miami’s climate presented particular challenges. These survey results are depicted in **Figure 5-4**.

Figure 5- 4: Survey of Barriers for Bicyclists

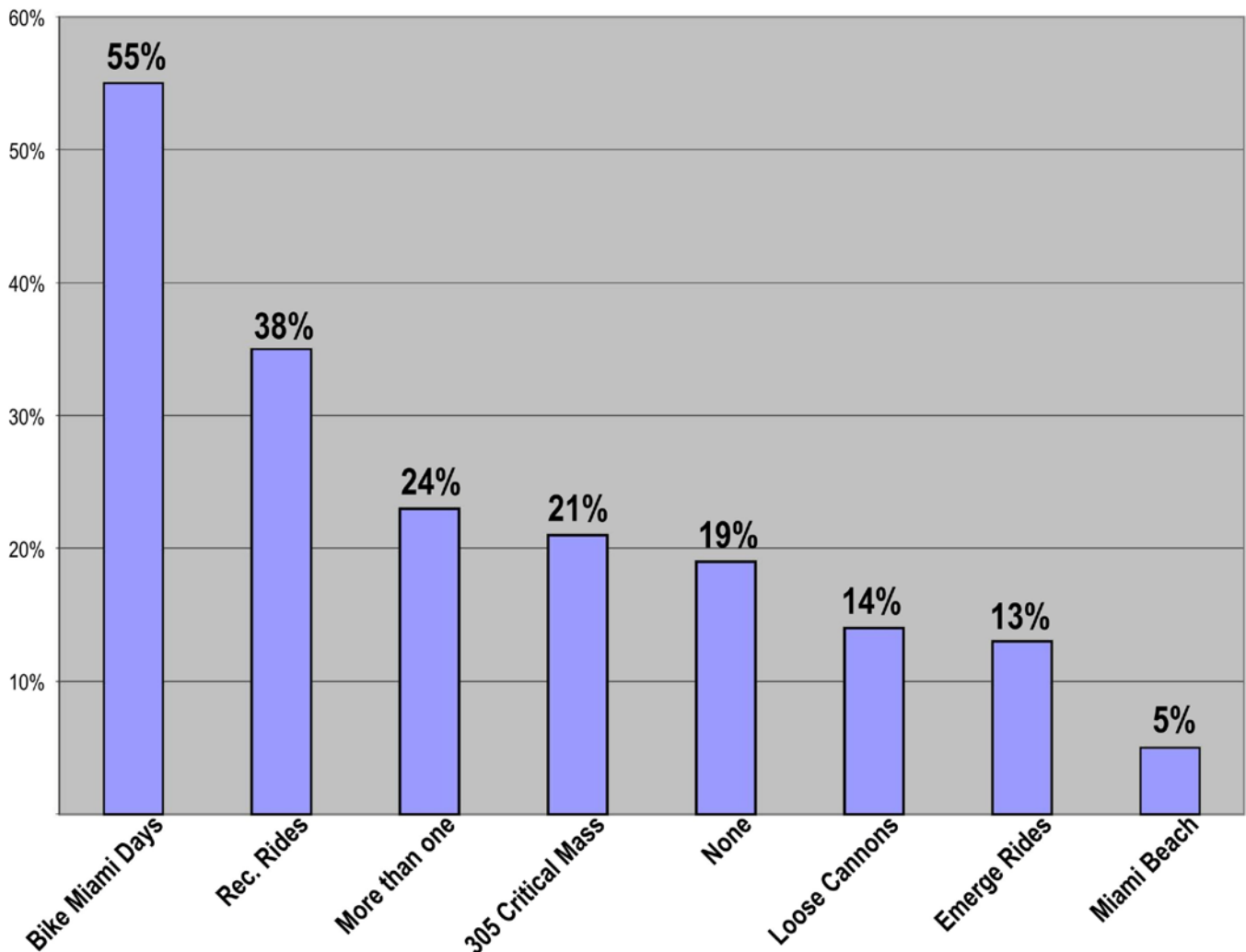




Miami Bicycle Master Plan

According to survey participants, many are already involved in many bicycle related events and rides taking place across the City. The Bike Miami Days claimed 55% of respondent’s participation, while smaller but frequent informal recreational rides (35%) netted the second most responses. Miami’s 305 Critical Mass Rides (21%) and Loose Cannon races (14%) appear to be frequented by a fair proportion of bicyclists as well, but mostly by a younger demographic. Twenty-three percent of respondents did not claim to participate in one of the listed bicycle culture events, choosing instead to participate in many of the regular bicycle-related events. Finally, 19% have not participated in any of the events listed, with some claiming to have little knowledge of their existence. These survey results are depicted in **Figure 5-5**.

Figure 5- 5: Survey of Bicycle Related Events Participation

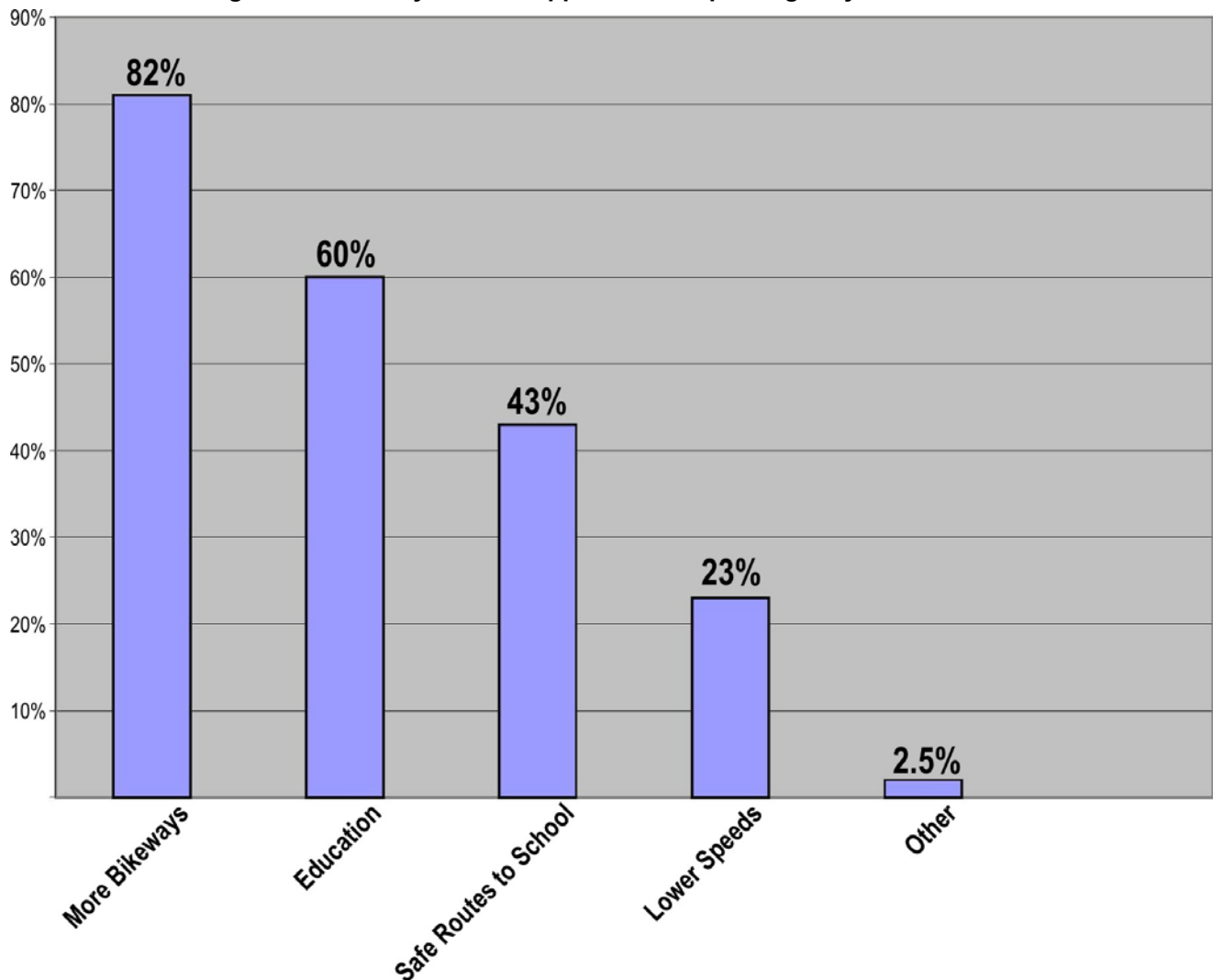




Miami Bicycle Master Plan

When asked how to best approach the improvement of bicycling conditions in the City of Miami, 80% of respondent's stated that the addition of more bikeway network facilities, signs, and parking infrastructure would make them feel more comfortable riding. Sixty percent said that education for both motorists and bicyclists is needed so that the road is shared more equitably. Forty-three percent called for additional safe routes to school investments so that kids develop healthier and more active lifestyles. Twenty-three percent agreed that lowering speed limits along the City's major corridors would provide a helpful countermeasure. This somewhat low number may be due to the majority of respondents who were self-identified as advanced bicyclists. Finally, a small percentage (2.5%) identified other important factors, such as improving street lighting and conducting regular street cleanings/sweepings along heavily traveled bicycle streets. Survey results are depicted in **Figure 5-6**.

Figure 5- 6: Survey on Best Approach to Improving Bicycle Conditions

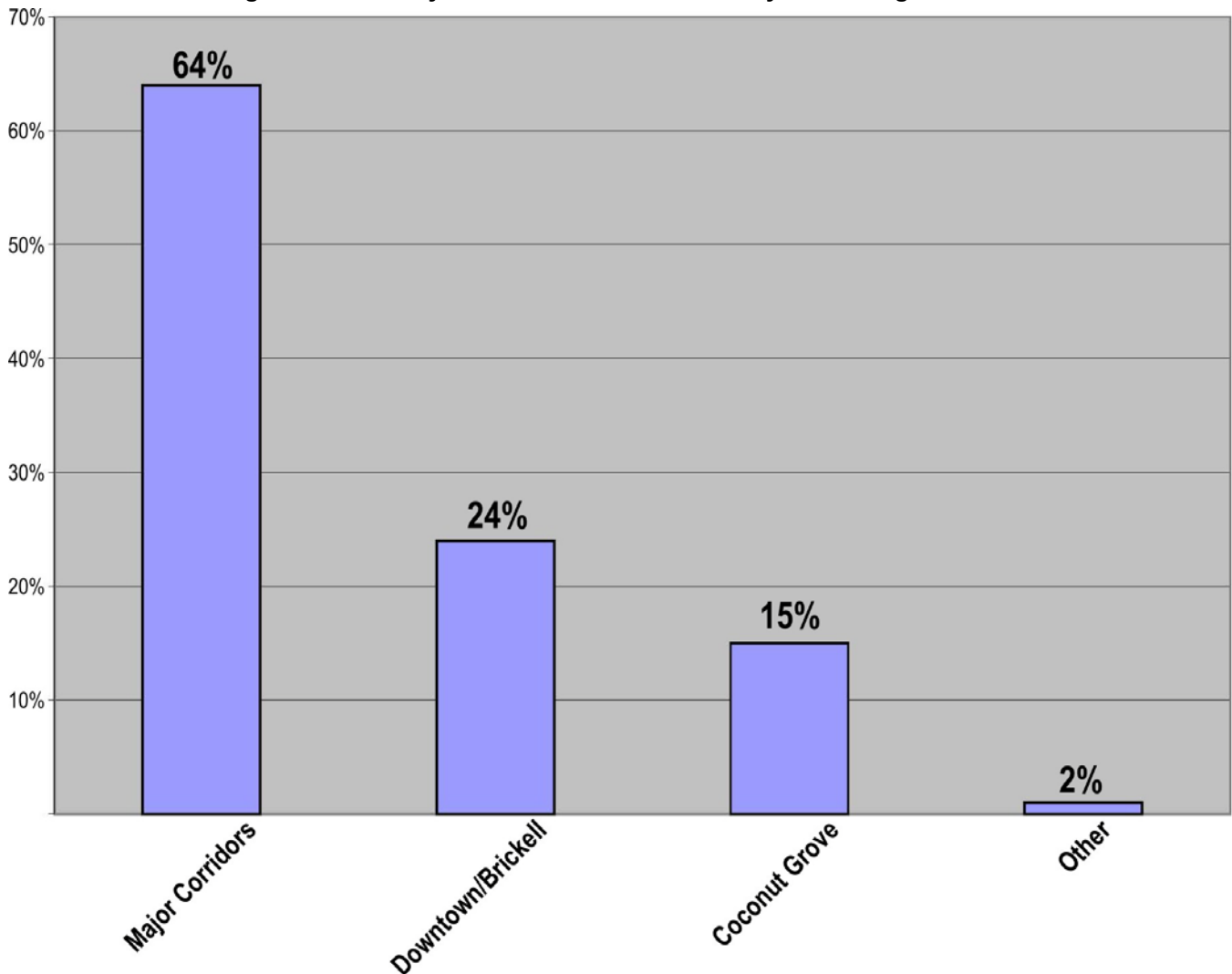




Miami Bicycle Master Plan

When asked about the placement of future bicycle parking facilities, 64% of survey respondents called for increased parking along the City’s commercial corridors, such as Coral Way, SW 8th Street, West Flagler Street, and Biscayne Boulevard. An additional 24% said more parking in Downtown Miami (Brickell included) is needed. Even with recent bicycle parking expansion, 15% of the survey’s respondent’s called for more bicycle parking in the Coconut Grove area. An additional 2% asked for parking in other destinations, such as the Health District. Several respondents left additional comments that bicycle parking is important, but far less important to them than building new bikeways—citing the adequacy of street signs, lamp posts, and other elements in the streetscape to which they lock their bicycles. These survey results are depicted in **Figure 5-7**.

Figure 5- 7: Survey for Future Placement of Bicycle Parking Facilities

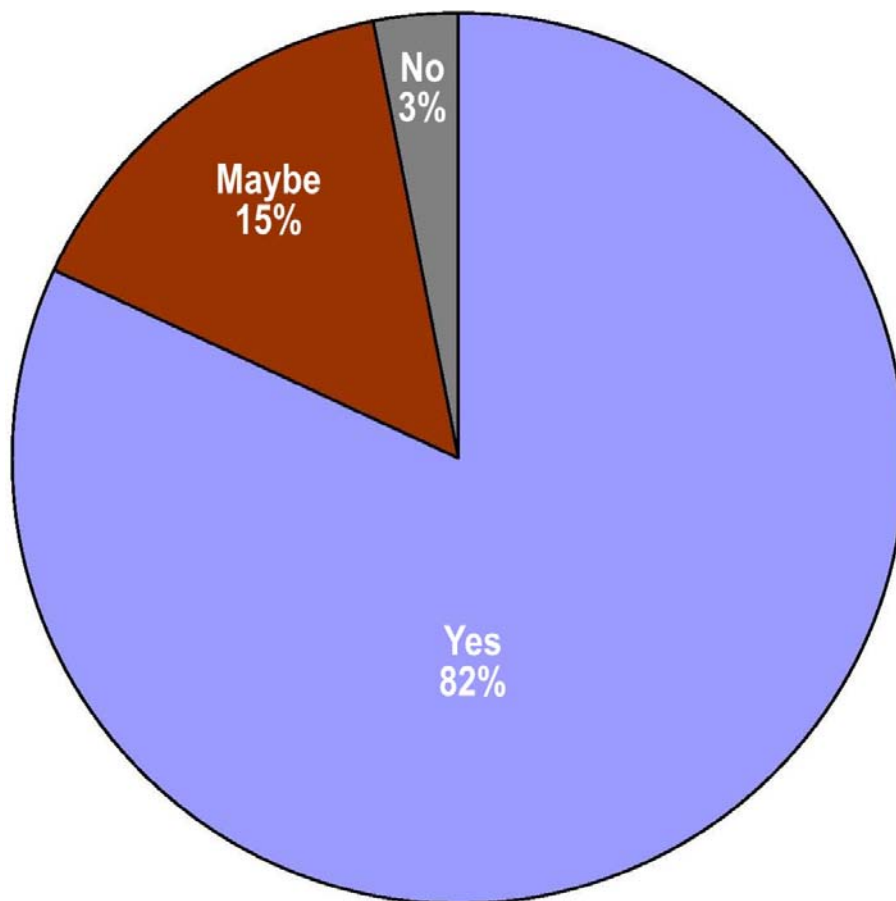




Miami Bicycle Master Plan

Survey respondents were also asked to respond to four administrative questions unrelated to the City's current bicycling conditions. The first of these inquired whether participants would be interested in using a dynamic online mapping program to help track the plan's progress; share their own bicycle routes and identify gaps in the network; to report safety issues and crashes; and to connect with other bicycle advocates throughout the City. An overwhelming 82% said such a service is desired, while another 15% said they might use such an online tool if it were made available. Only 3% said they had little interest in doing so. Survey results are depicted in **Figure 5-8**.

Figure 5- 8: Survey on Interest of Use of Dynamic Online Route Program



In an attempt to better understand public involvement, the remaining survey questions focused on participation. However, the sample size is closer to 260, rather than 312, as the following questions were removed from the survey administered at the first Citywide Bicycle Summit, which garnered approximately 50 responses.



Miami Bicycle Master Plan

Briefly, 74% of respondents knew the City was undertaking a master plan when answering the survey questions; 36% would like to help direct change and participate in bicycle advocacy events; while another 32% would like to be more involved, but have a difficult time fitting meetings and events into their schedule. Twenty-one percent said they may participate, and just 10% said they had little interest in being involved. These responses indicate that Miami's bicycling citizens want to be more involved, but also need a more efficient way to do so; perhaps suggesting a collaborative online tool hosted at the City's current bicycle website (www.miamigov.com/bikes) as a needed resource.

Finally, 33% of respondents said they would attend the first bicycle summit, while another 42% said they were considering it. Twenty-five percent said they would not attend.

It must be noted that the 312 surveys collected represents only a small fraction of those bicycling in Miami. Those who did participate are those drawn to bicycling for a variety of reasons, and often demonstrate a great commitment to improving bicycling, walking, and transportation within the City of Miami. Thus, it is not surprising that many detailed responses were included in the additional comments sections, offering ideas and thoughts beyond the limited number of options presented to them.

Above all, it is clear that Miami's bicyclists feel that there are not enough bikeways, and that their safety is compromised as a result. Likewise, they want the City to focus on expanding the on-street network and to promote safety through education and enforcement, and undertake infrastructure improvements and evaluation. Based on the survey, bicyclists in Miami want to be involved in the improvements, pointing to the need to keep the process as open as possible when the city begins implementing their first bicycle master plan.



Miami Bicycle Master Plan

6.0 BIKEWAY NETWORK PLAN

The Miami Bicycle Master plan includes more than 280 miles of new or improved bikeways which comprises about 33% of the City street network. At present, the City of Miami bikeway network includes 17.12 miles of Bicycle Lanes and Shared Use Paths/ Greenways which is only 1.6% of the City street network. Thus, the 2030 plan recommends a comprehensive expansion and diversification of facilities to meet the needs of beginner, intermediate, and expert bicyclists. In total, seven different bikeway types are included. They include: Bicycle Routes, Shared Use Lane Markings (Sharrows), Bicycle Lanes, Shared Use Paths/Greenways, Bicycle Boulevards, Neighborhood Connections, and Scenic View Routes. The signs, pavement markings, and other traffic control devices related to the operations of these bikeways must follow the Manual on Uniform Traffic Control Devices (MUTCD), Chapter 9, Traffic Controls for Bicycle Facilities. The different bikeway types included in the plan are defined as follows:

- **Bicycle Route:** a thoroughfare marked with signs intended to improve destination wayfinding, network identification, and safety.
- **Shared Use Lane Marking (Sharrows):** a pavement marking applied to a thoroughfare too narrow to accommodate bicycle lanes and/or with vehicular target speeds slow enough to allow cyclists to move safely with motor vehicles. It should be noted that while Sharrows are currently considered an experimental bikeway type, they are in the process of being adopted into the MUTCD.
- **Bicycle Lane:** a lane reserved for bicycle travel within a vehicular thoroughfare, marked by painted lines, signs, and bicycle symbol pavement markings.

Figure 6- 1: Bicycle Lane Photo Simulation on NW 8th Avenue





Miami Bicycle Master Plan

- **Shared Use Path / Greenway:** a dual-direction Bikeway that is physically separated from the vehicular right-of-way, and shared with pedestrians. A greenway is an on-or off-street corridor designed for recreational bicyclist and pedestrian use. It should be noted that all Miami River Greenway shared use path / greenways in the network plan should comply with the previously completed Miami River Greenway Design Standards and Guidelines.

Figure 6- 2: Shared Use Path / Greenway Photo Simulation on Metrorail path along NW 12th Avenue



- **Bicycle Boulevard:** a thoroughfare with shared vehicular lanes that use a variety of traffic calming devices to give movement priority to bicyclists. To facilitate movement and to increase identity, stop signs along a boulevard's trajectory may be removed and signs detailing distance to destinations may be added.

Figure 6- 3: Bicycle Boulevard Photo Simulation on NW 11th Avenue





Miami Bicycle Master Plan

- **Neighborhood Connection:** a designated alley or lane that provides a needed bicycle connection within residential neighborhoods.
- **Scenic View Route:** a designated low-speed, shared use residential street that provides views of Biscayne Bay, Miami River, or the Little River.

Other bikeway facility types and features explored are referenced in this network plan are defined as follows:

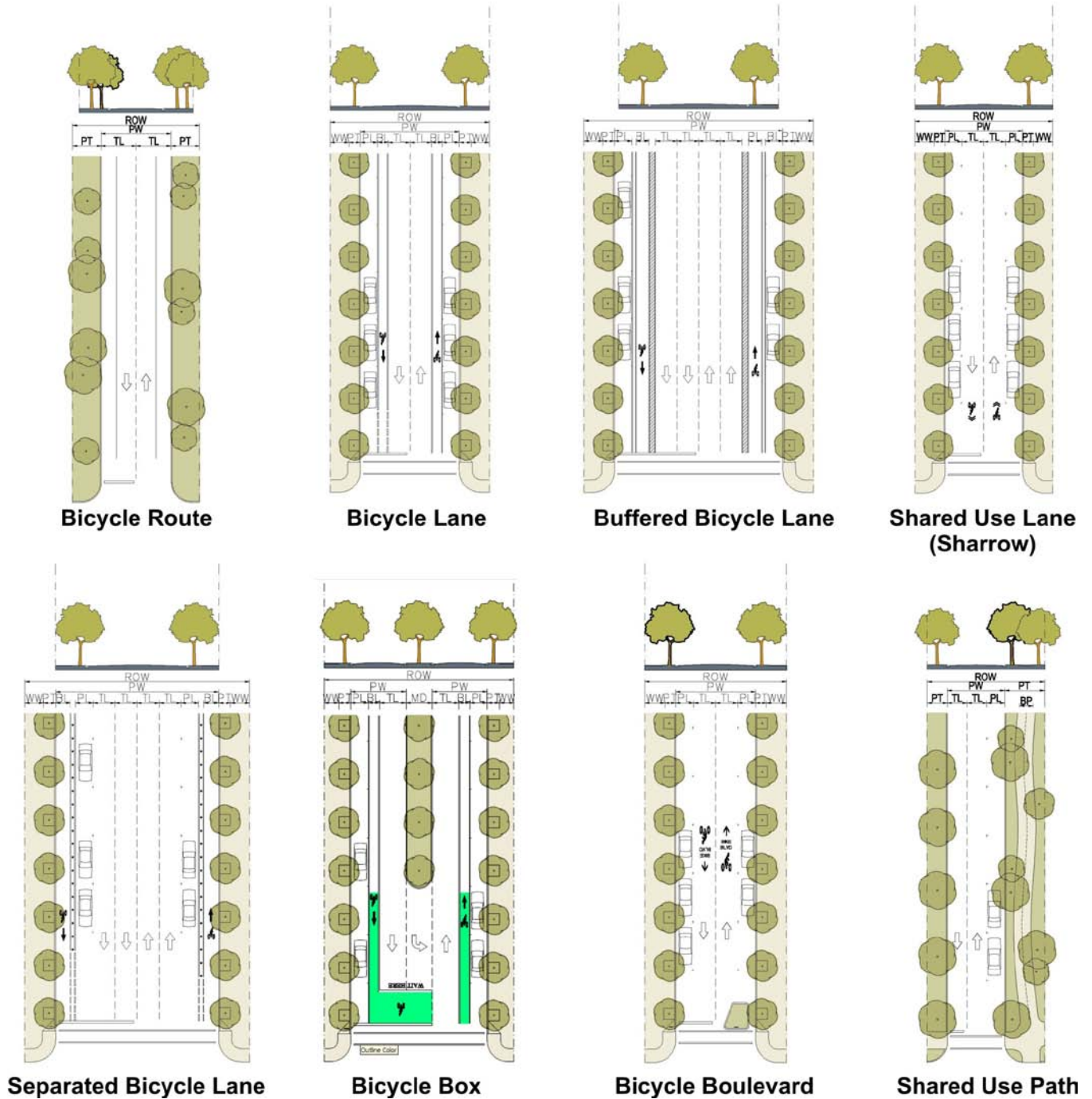
- **Bicycle Box:** a section of pavement aimed at preventing bicycle/car collisions at intersections, particularly between drivers turning right and cyclists traveling through an intersection within an existing Bicycle Lane. To improve its visibility, a Bicycle Box is often colored and includes a standard white bicycle pavement marking (Syn: advance stop line). It should be noted that the bicycle box is an experimental countermeasure not yet adopted by the MUTCD.
- **Bikeway:** a continuously designated segment of right-of-way that provides exclusive, preferential, or equal priority for bicycle travel. Bikeway facilities include bicycle routes, lanes, paths, boulevards etc.
- **Buffered Bicycle Lane:** a Bicycle Lane buffered from vehicular travel and/or parking lanes by pavement markings and/or an unmarked 'shy zone.'
- **Contra-Flow Bicycle Lane:** a designated Bicycle Lane marked to allow bicyclists to travel against the flow of traffic.
- **Physically-Separated Bicycle Lane:** a Bicycle Lane separated from the motor vehicle travel lanes by curbs, railings, plantings, parked cars, and/or grade separation, etc. (Syn: cycle track, sidepath)

A sample of different bikeway types and countermeasures are depicted in **Figure 6-4**.



Miami Bicycle Master Plan

Figure 6- 4: Bikeway Types





Miami Bicycle Master Plan

While the plan offers very specific recommendations for the location of these bikeway facility types, each bikeway recommendation should be considered if the opportunity for improvement arises. For example, if a corridor is designated as a bicycle route, which includes little more than implementing bikeway and bikeway safety signs along the route, but is capable of accommodating bicycle lanes, then the higher level of service should be pursued. Routes in this plan are recommended, but will require political support, positive public sentiment, and compliance with roadway design practices and standards.

A close working relationship will have to be established with the FDOT and Miami-Dade County in the pursuit of the plan's implementation, as competing jurisdictional interests and funding constraints may prove detrimental to the realization of the Miami Bicycle Master Plan.

The Miami Bicycle Master Plan is broken out into four implementation phases and recommends bikeway projects for the next 1, 5, 10, and 20 years (2010, 2015, 2020, and 2030). While Bicycle Facilities should be included in all roadway projects where appropriate, it should be noted that additional projects should be undertaken solely to implement a recommended bikeway segment. Striping bicycle lanes where there is already sufficient roadway width is one such example and should be pursued in a "lowest hanging fruit" approach.

The 2030 Bikeway Network Plan may be summarized as follows:



Miami Bicycle Master Plan

6.1 Proposed 2030 bikeway network Infrastructure

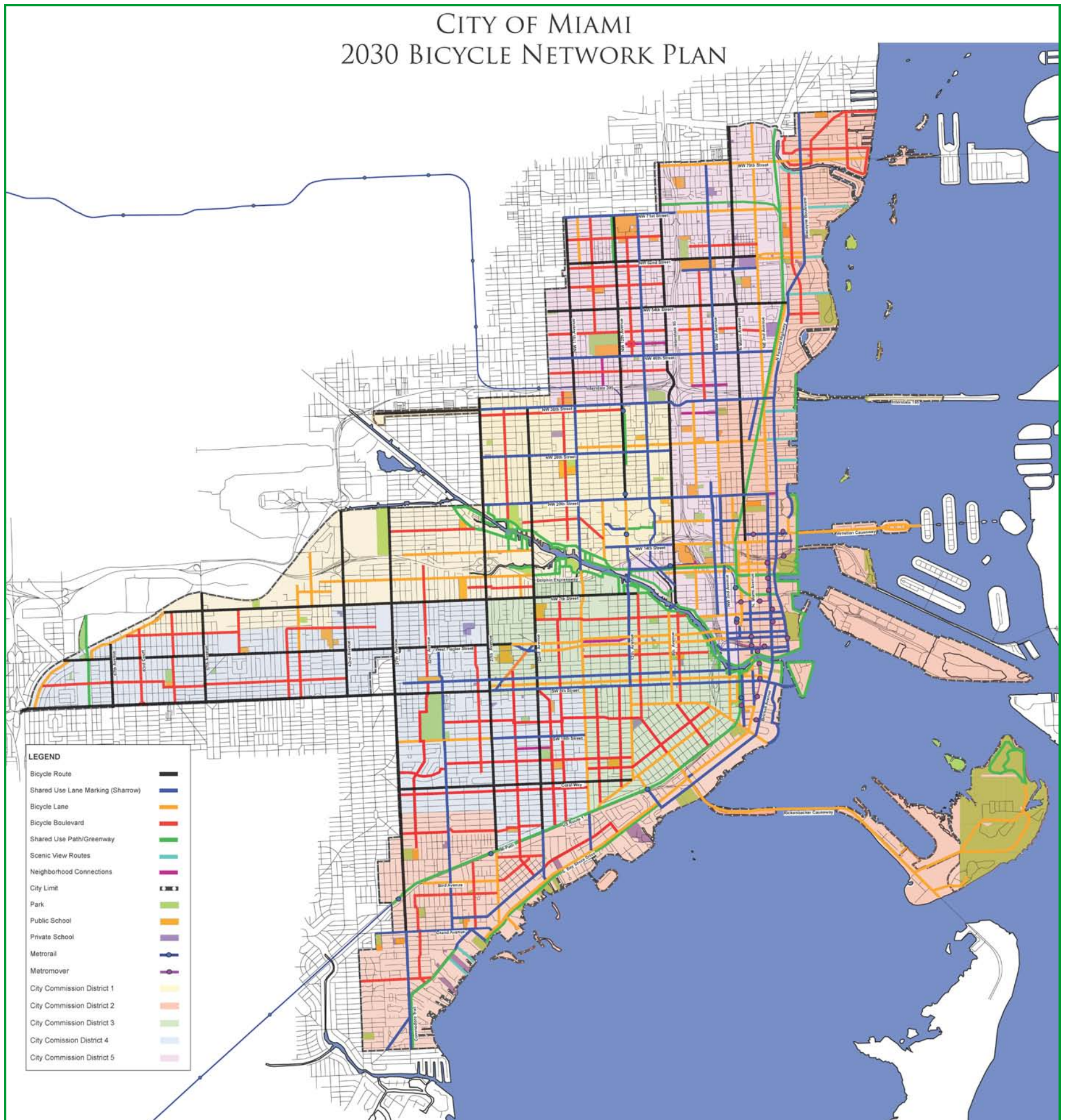
Bikeway Network miles: 276.36 miles

Total Number of Bikeway Projects: 213

Percentage of City Street Network with Bikeways: 33%

Bikeway Types: 7

Figure 6- 5: 2030 bikeway network Master Plan





Miami Bicycle Master Plan

Bicycle Routes:

19 Projects

64.75 miles

Percentage of bikeway network: 23%

Shared Use Lane Markings:

Projects: 50

Miles: 62.8

Percentage of Bicycle Network: 23%

Bicycle Lanes:

Projects: 57

Miles: 55.75

Percentage of Bicycle Network: 20%

Shared Use Paths/Greenways:

Projects: 23

Miles: 29.08

Percentage of Bicycle Network: 11%

Bicycle Boulevards:

Projects: 50

Miles: 62.06

Percentage of Bicycle Network: 21%

Neighborhood Connections:

Projects: 7

Miles: 2.29

Percentage of Bicycle Network: 1%





Miami Bicycle Master Plan

Scenic View Routes:

Projects: 7

Miles: 1.92

Percentage of Bicycle Network: 1%

A description of each bicycle improvement project, including its length and location, is broken out by phase and bikeway type. It should be noted that the network phase maps and the individual project descriptions are color coordinated by bicycle facility type. The bikeway network summary table may be found in the **Appendix C**. The following is the bikeway network phasing plan:





Miami Bicycle Master Plan

6.2 2010 Phase

Number of Bikeway Network Projects: 23 projects

Bikeway Network Miles to be Added: 15.48

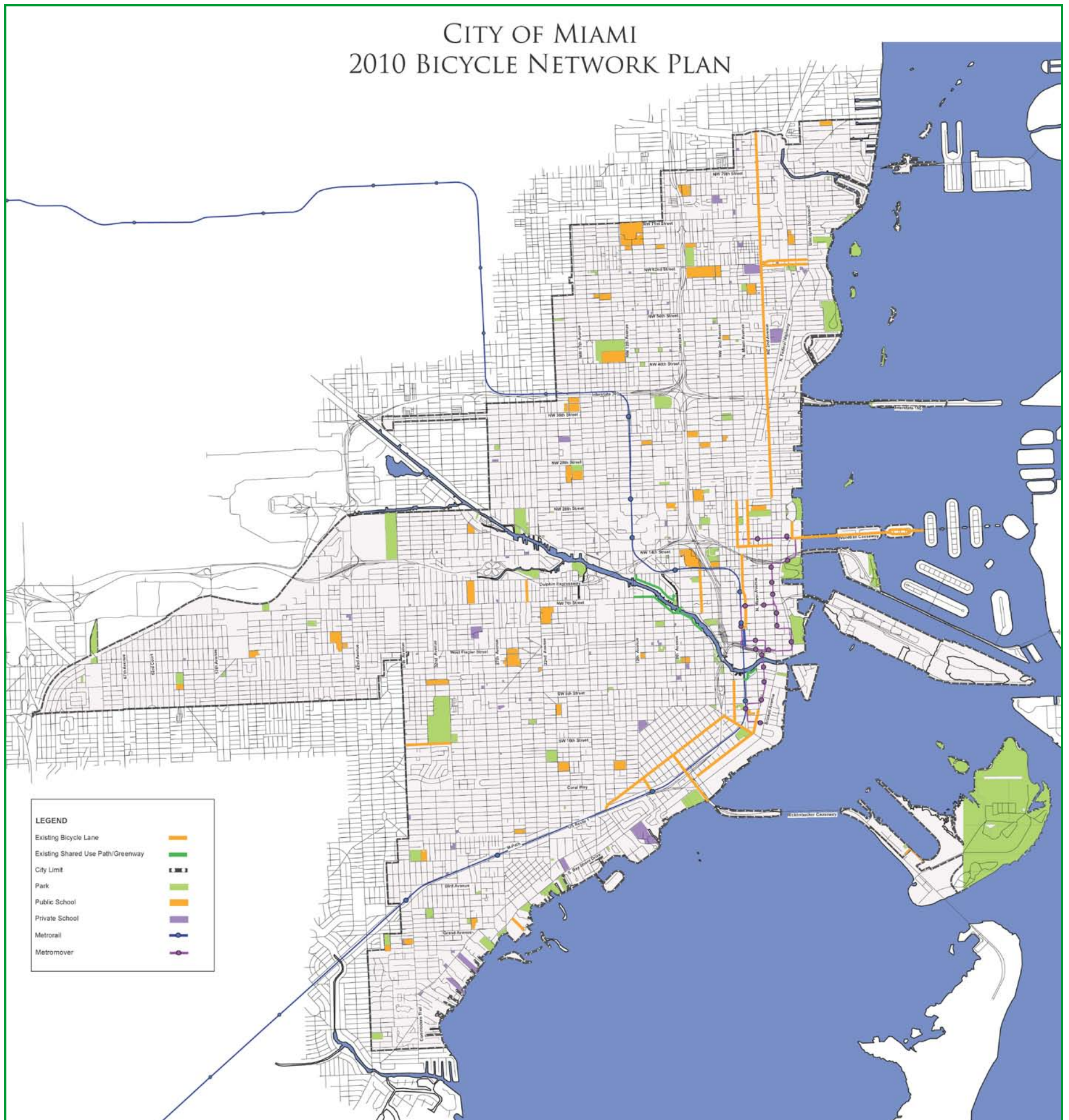
Existing Bikeway Network Miles to be Improved: 6.09

Shared Use Lane Marking Miles to be added: .10

Bicycle Lane Miles to be Added: 13.76

Shared Use Path/Greenway Miles to be Added: 1.62

Figure 6- 6: 2010 Phase Bikeway Network Plan





6.2.1 Shared Use Lane Markings (Sharrows)

1 Project

.1 miles

- 1) **SW 1st Avenue (.10 miles):** This project extends Sharrow pavement markings from West Flagler Street to SW 2nd Street.

6.2.2 Bicycle Lanes

19 Projects

15.7 miles

- 2) **NE 2nd Avenue (3.95 miles):** This project includes Bicycle Lanes from NE 20th Street to NE 84th Street.
- 3) **NE 14th Street – Phase One (.35 miles):** The first phase of the NE 14th Street project includes Bicycle Lanes between NE 2nd Avenue and NW 1st Avenue. Bicycle street signs have already been implemented, marking the bikeway's full trajectory. See a description of the project's second phase in the following 2015 Bikeway Plan.
- 4) **Venetian Causeway (1.44 miles):** This bikeway is part of an already scheduled roadway reconstruction project where the Causeway's existing bicycle lanes are slated to be re-striped, from San Marino Island west to North Bayshore Drive. Physically-separated bicycle lanes should be placed next to the sidewalk in the roadway, are recommended from North Bayshore Drive to the western end of the Venetian Causeway Bridge. This would require shifting the parallel parking that already exists along the southern side NE 15th Street outward so that the bicycle lanes are between the parallel parking and the sidewalk. This alignment would shrink the effective roadway width and therefore help slow motor-vehicle traffic and provide an additional level of comfort for bicyclists entering and exiting the Venetian Causeway.
- 5) **North Bayshore Drive (.17 miles):** This project, connecting the Venetian Causeway Bikeway with Margaret Pace Park, includes Bicycle Lanes from NE 15th Street to the intersection of North Bayshore Drive and NE 17th Terrace.



Miami Bicycle Master Plan

- 6) **SW 3rd Avenue - Phase One (Coral Way) (1.15 miles):** The first phase of this bikeway project is to include bicycle lanes between SW 15th Road and SW 12th Avenue. See description of the project's second phase in the following 2015 section.
- 7) **SW 32nd Road (.12 miles):** This project includes bicycle lanes from SW 3rd Avenue (Coral Way) to the Vizcaya Metrorail Station.
- 8) **NE 61st Street (.5 miles):** This project includes Bicycle Lanes that extend from Biscayne Boulevard to NE 2nd Avenue. NE 61st Avenue is a one-way pair with NE 62nd Street.
- 9) **NE 62nd Street (.5 miles):** This project includes Bicycle Lanes that extend from Biscayne Boulevard to NE 2nd Avenue. NE 62nd is a one-way pair with NE 61st Street.
- 10) **SW 2nd Avenue (.38 miles):** This project includes Bicycle Lanes that extend from SW 15th Road to SW 8th Street. This is a Miami-Dade County roadway.
- 11) **South Miami Avenue (.25 miles):** This project includes Bicycle Lanes that extend from SW 15th Road to a half-block north of Coral Way (SW 15th Street), where the roadway splits at SW 12th Street. This is a Miami-Dade County roadway.
- 12) **SW 26th Road (.68 miles):** This project adds Bicycle Lanes from The Rickenbacker Causeway to SW 3rd Avenue (Coral Way).
- 13) **North Miami Avenue (.5 miles):** This project includes Bicycle Lanes from NE 14th Street to NE 20th Street. This is a Miami-Dade County roadway.
- 14) **NW 1st Avenue (.83 miles):** This project includes Bicycle Lanes that extend from NW 1st Street to NW 13th Street.
- 15) **NW 1st Avenue (.5 miles):** This project includes Bicycle Lanes that extend from NW 14th Street to NW 20th Street.



Miami Bicycle Master Plan

- 16) **NW 5th Avenue (.45 miles):** This project includes removing some parallel parking spaces and adding Bicycle Lanes from NW 4th Street to NW 11th Street.
- 17) **SW 16th Street - Phase One (.50 miles):** This project will add Bicycle Lanes from SW 32nd Avenue to SW 37th Avenue. Additional segments of SW 16th Street are designated for Bicycle Lanes in the 2015 Plan.
- 18) **NW 23rd Avenue (.23 miles):** This project will add Bicycle Lanes from NW 7th Street to NW 11th Street.
- 19) **Sewage Plant Road (2.75 miles):** This project includes Bicycle Lanes from the Rickenbacker Causeway to the terminus of Sewage Plant Road.
- 20) **Virginia Beach County Park Access Road (.45 miles):** This project includes Bicycle Lanes from the Rickenbacker Causeway to the end of the parking lot in Virginia Beach County Park.

6.2.3 Shared Use Paths/Greenway

3 Projects

6.27 miles

- 21) **Spring Garden On-Street Greenway (.60 miles):** This project includes an on-street Greenway from the Spring Garden Bridge at NW 7th Street Road to NW 11th Place at NW North River Drive. As an on-street Greenway, Shared Use Lane pavement markings are recommended.
- 22) **M-Path Restoration (4.65 miles):** This existing bikeway maintenance project includes the resurfacing of the existing M-Path in those areas that need it most.
- 23) **Miami River Greenway (1.02 miles):** This project includes three segments that stretch from NW 1st Street along S. NW River Drive to NW 12th Avenue, including the 5th Street Bridge. A fourth segment includes an off-street riverwalk segment from SW 1st Court along Miami Avenue Road to the South Miami Avenue Bridge.





Miami Bicycle Master Plan

Bicycle Boulevards:

0 Projects

Scenic View Routes:

0 Projects

Neighborhood Connections:

0 Projects



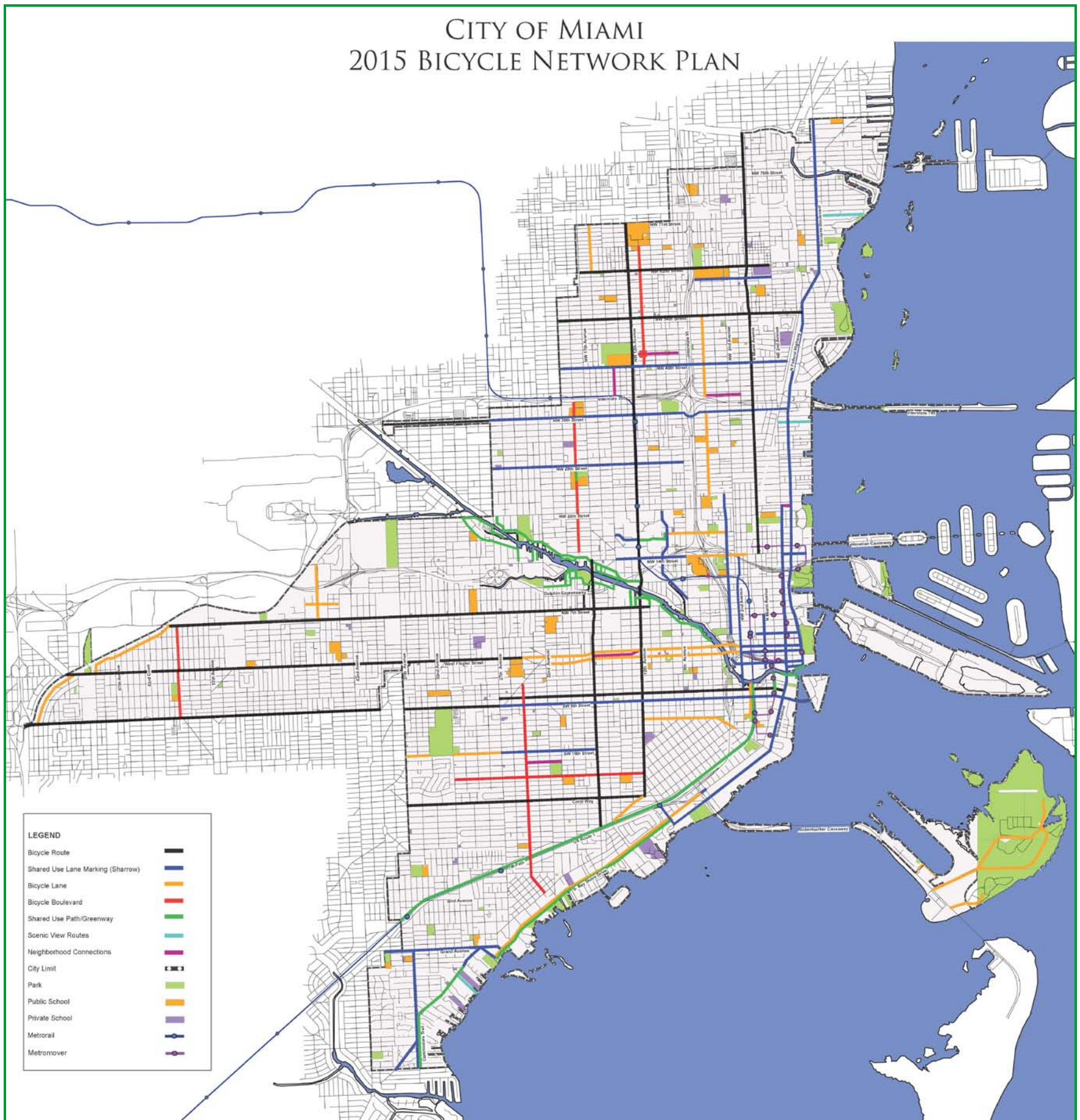


Miami Bicycle Master Plan

6.3 2015 Phase

- Number of Bikeway Network Projects:** 81 projects
- Bikeway Network to be Added:** 116.64 miles
- Existing Bikeway Network to be Improved:** 6.04 miles
- Bike Routes:** 38.37 miles
- Shared Use Lane Markings:** 36.48 miles
- Bicycle Lanes:** 16.44 miles
- Shared Use Path/Greenways:** 14.34 miles
- Bicycle Boulevards:** 8.07 miles
- Neighborhood Connections:** 2.29 miles
- Scenic View Routes:** .65 miles

Figure 6- 7: 2015 Phase Bikeway Network Plan





6.3.1 Bicycle Routes

10 Projects

38.37 miles

- 1) **Coral Way (2.49 miles):** This Bicycle Route project will extend from SW 37th Avenue to SW 12th Avenue. It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.
- 2) **SW 8th Street (4.92 miles):** This Bicycle Route project will extend from SW 27th Avenue to Tamiami Canal Road. It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.
- 3) **SW 7th Street (3.0 miles):** This Bicycle Route project will extend from Brickell Avenue to SW 27th Avenue. It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.
- 4) **West Flagler Street (4.81 miles):** This Bicycle Route project will extend from SW 24th Avenue to SW 72nd Avenue. It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.
- 5) **NW 7th Street (5.18 miles):** This Bicycle Route project will extend from NW South River Drive to Tamiami Canal Road. It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.
- 6) **NE/NW 54th Street (2.59 miles):** This Bicycle Route project will extend from Biscayne Boulevard to NW 19th Avenue. It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.
- 7) **NE/NW 62nd Street (2.03 miles):** This Bicycle Route project will extend from NE 2nd Avenue to NW 17th Avenue. It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.



Miami Bicycle Master Plan

- 8) **North Miami Avenue (4.45 miles):** This Bicycle Route project will extend from NE 20th Street to NE 84th Avenue. It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.
- 9) **SW/NW 12th Avenue (6.07 miles):** This Bicycle Route project will extend from NW 71st Street to SW 22nd Street (Coral Way). It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.
- 10) **SW/NW 17th Avenue (2.83 miles):** This Bicycle Route project will extend from NW River Drive to US Route 1. It is to include signs demarcating the routes as part of the Miami Bicycle Network, as well as any additional signs intended to improve the visibility of the bikeway.

6.3.2 Shared Use Lane Markings (Sharrows)

27 Projects

36.48 miles

- 11) **Biscayne Boulevard (5.81 miles):** This project extends Sharrow pavement markings from the Western terminus of Biscayne Boulevard Way at SE 2nd Avenue, to the intersection of NE 87th Street.
- 12) **NE/NW 3rd Street (.78 miles):** This project extends Sharrow pavement markings from Biscayne Boulevard to NW North River Drive.
- 13) **SW/SE 1st Street (.64 miles):** This project extends Sharrow pavement markings from the western side of the SW 1st Avenue Bridge to the street's terminus at Biscayne Boulevard.
- 14) **West/East Flagler Street (.66 miles):** This project extends Sharrow pavement markings from the Biscayne Boulevard to the western edge of the West Flagler Street Bridge at NW 6th Avenue.
- 15) **Brickell Avenue (1.87 miles):** This project extends Sharrow pavement markings from SE 2nd Street, at Biscayne Boulevard Way, to Brickell Avenue at the Rickenbacker Causeway.



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- 16) **Brickell Avenue (.39 miles):** This project extends Sharrow pavement markings along Brickell Avenue, from the Rickenbacker Causeway to SE 32nd Road.
- 17) **South Miami Avenue (.18 miles):** This project extends Sharrow pavement markings from SE 25th Road to S. Dixie Highway.
- 18) **North Miami Avenue (.51 miles):** This project extends Sharrow pavement marking between NW/SW 5th Street and SW/SE 3rd Street.
- 19) **SW/NW 2nd Avenue (1.44 miles):** This project extends Sharrow pavement markings between SW 7th Street and NW 11th Street, and extends to NW 14th Street along NW 1st Place.
- 20) **SW 1st Avenue (1.19 miles):** This project extends Sharrow pavement markings between SW 7th Street and SW 15th Road.
- 21) **NE/NW 14th Street (1.25 miles):** This project is comprised of two segments. The first segment extends Sharrow pavement markings from Herald Plaza to NE 1st Court . The second segment extends Sharrow pavement markings from NW 7th Avenue to NW 17th Avenue.
- 22) **SE/NE 2nd Avenue (1.71 miles):** This project extends Sharrow pavement markings from Biscayne Boulevard Way to NE 20th Street.
- 23) **NW 3rd Avenue (1.5 miles):** This project extends Sharrow pavement markings from NW 2nd Street to NW 22nd Street.
- 24) **NW 8th Street Road, NW 9th Avenue, NW 10th Avenue (1.06 miles):** This Shared Pavement Markings project includes three segments that follow a single, continuous trajectory. It extends Sharrows along NW 8th Street Road from NW 7th Avenue to NW 14th Street and from NW 14th Street to NW 20th Street along NW 9th and NW 10th Avenue.
- 25) **NW 16th Terrace (.27 miles):** This project extends the 'Healthwalk' bicycle component with Shared Use Lane pavement markings from NW 12th Avenue to NW 14th Avenue.



Miami Bicycle Master Plan

- 26) **NW 28th Street (2.02 miles):** This project extends Sharrow pavement markings from NW 27th Avenue and NW 7th Avenue.
- 27) **NE/NW 36th Street (3.17 miles):** This project extends Sharrow pavement markings from Biscayne Boulevard to NW 27th Avenue.
- 28) **NE/NW 46th Street (2.41 miles):** This project extends Sharrow pavement markings from NE 4th Avenue to NW 19th Avenue.
- 29) **NE/NW 60th Street (.81 miles):** This project extends Sharrow pavement markings from NE 2nd Avenue to NW 5th Court.
- 30) **NW 71st Street (1.17 miles):** This project extends Sharrow pavement markings from the I-95 underpass to NW 17th Avenue.
- 31) **SW 8th Street (3.32 miles):** This project extends Sharrow pavement from Brickell Key Drive to SW 27th Avenue. SW 8th Street is a one-way street.
- 32) **SW 16th Street (1.0 mile):** This project extends Sharrow pavement from SW 17th Avenue to SW 27th Avenue.
- 33) **Mary Street/Grand Avenue (.93 miles):** This project extends Sharrow pavement markings from Mary Street at Bayshore Drive to the eastern terminus of Grand Avenue, to US Route 1.
- 34) **McFarlane Road (.17 miles):** This project extends Sharrow pavement markings from South Bayshore Drive to Grand Avenue.
- 35) **Main Highway (.28 miles):** This project extends Sharrow pavement markings from the McFarlane Road/Grand Avenue intersection to Franklin Avenue.
- 36) **SW 37th Avenue (South Douglas Road) (1.36 miles):** This project extends Sharrow pavement markings from Sunrise Avenue to Grand Avenue.



- 37) Ingraham Highway (.58 miles):** This Shared Pavement Markings project extends Sharrow pavement markings from Sunrise Avenue to SW 37th Avenue (South Douglas Road).

6.3.3 Bicycle Lanes

17 Projects

16.44 miles

- 38) NE 14th Street (.64 miles):** The second phase of the NE 14th Street project includes Bicycle Lanes between NW 1st Avenue and NW 7th Avenue. “Share The Road” street signs have already been implemented, marking the Bikeway’s full trajectory.
- 39) SW 1st Street (1.93 miles):** This ‘road diet’ reconstruction project adds Bicycle Lanes from SW 5th Avenue to SW 22nd Avenue. Physically-protected bicycle lanes or buffered bicycle lanes would improve the level of service and should be studied further in the design process. SW 1st Street is an FDOT roadway.
- 40) West Flagler Street (3.29 miles):** This ‘road diet’ reconstruction project adds Bicycle Lanes from SW 6th Avenue to SW 24th Avenue. Physically-protected bicycle lanes or buffered bicycle lanes would improve the level of service and should be studied further in the design process. Flagler Street is an FDOT roadway.
- 41) SW 11th Street/SW 1st Court (.44 miles):** This project includes Bicycle Lanes from SW 2nd Avenue to the terminus of SW 1st Court at the Miami River. Both the SW 11th Street and SW 1st Court segments feature one-way traffic movements.
- 42) SW 15th Road (.42 miles):** This project includes two segments. The first segment includes Bicycle Lanes from the South Miami Avenue traffic circle to Brickell Bay Drive. The second segment includes Bicycle Lanes from SW 3rd Avenue to SW 11th Street.
- 43) SW 11th Street (.76 miles):** This project includes Bicycle Lanes from SW 15th Road to SW 12th Avenue. Some parallel parking spaces will have to be removed.



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- 44) South Miami Avenue/South Bayshore Drive (2.62 miles):** This project adds Bicycle Lanes along one of Miami's most heavily traveled bicycle corridors, from South Miami Avenue at South Dixie Highway, to McFarlane Road. While this bikeway project will likely take place as part of a roadway or drainage reconstruction project, it is recommended that such a project be fast-tracked for implementation within five years of this Plan's adoption.

- 45) SW 16th Street – Phase Two (.74 miles):** This project is comprised of two segments, which extends the Phase 1 (2010) Bicycle Lane improvements between SW 32nd Avenue to SW 37th Avenue. This additional segment extends from SW 27th Avenue to SW 32nd Avenue.

- 46) NW 17th Street (.62 miles):** This Bicycle Lane project comprises an on-street bicycle segment of the Health District 'Healthwalk'. It extends from NW 3rd Avenue to NW 9th Avenue. See the Shared Use Lane Marking and Shared Use Path/Greenway sections of this 2015 phase to understand the route's full trajectory.

- 47) NW 5th Avenue (.89 miles):** The first of two segments planned on NW 5th Avenue will include Bicycle Lanes from NW 21st Terrace to NW 36th Street.

- 48) NW 5th Avenue (.86 miles):** The second segment of the NW 5th Avenue Bicycle Lanes extends from NW 40th Street to NW 54th Street.

- 49) NW 9th Street (.36 miles):** This project includes Bicycle Lanes between NW 43rd Avenue and NW 47th Avenue.

- 50) NW 45th Avenue (.56 miles):** This project includes Bicycle Lanes between NW 7th Street and NW 15th Street.

- 51) Tamiami Canal Road (.67 miles):** This project will add Bicycle Lanes from SW 8th Street to West Flagler Street.

- 52) Tamiami Canal Road (.98 miles):** This project will add Bicycle Lanes from NW 69th Avenue to NW 7th Street.



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- 53) SW 3rd Avenue - Phase Two (.42 miles):** The second phase of this bikeway project is to include bicycle lanes between Coral Way and SW 16th Avenue. See description of the project's first phase in the 2010 section.

6.3.4 Shared Use Paths/Greenways

14 Projects

14.34 Miles

- 54) Commodore Trail Restoration and Improvement (3.77 miles):** While the Commodore Trail begins in the City of Coral Gables, the Shared Use Path/Greenway in Miami extends from Sunrise Avenue to Franklin Avenue before becoming an on-street route through the Coconut Grove Village Center. The Trail then continues from the intersection of McFarlane Road and South Bayshore Drive to SW 32nd Road. At present, this second segment is in very poor shape and is hardly visible. This project is to include re-surfacing, additional signage and safety measures, especially at intersection and curb cut locations, per the Commodore Trail Improvement Plan.
- 55) M-Path Comprehensive Improvement (4.65 miles):** This project includes the entire 9 mile trajectory of the M-Path, half of which exists in the City of Miami, from Southwest 37th Avenue to the Miami River. It is to include re-surfacing, additional signage and safety measures, especially at intersection and curb cut locations, per the M-Path Master Plan.
- 56) Metromover Guideway Path (.25 miles):** This project includes a shared-use path segment running underneath the Metromover, from SW 8th Street to the Miami River Greenway.
- 57) Healthwalk Bicycle Path (.33 miles):** This Bicycle Path will extend for a half-block south of the NW 17th Street and NW 9th Avenue intersection before cutting through the Health district to the intersection of NW 12th Avenue and NW 16th Street. This Path should be studied and designed carefully so as to facilitate safe riding through the district without comprising the safety of pedestrians within the core Health District campus. A physically-separated path, delineated with different color pavers, paint, or protected by curbs, and accompanied by signs, should help mark the way for bicyclists in a district that can experience heavy pedestrian traffic. This bicycle path will link to both the Healthwalk bicycle lane on NW 17th Street to the west, and a Shared Use Lane Marking on NW 16th Terrace to the west.





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- 58) NW 13th Avenue (.17 miles):** This on-street Greenway project extends from NW 7th Street to the terminus of NW 13th Avenue. It is recommended that Shared Use Lane Markings be added.
- 59) NW 18th Avenue Greenway (.10 miles):** This project includes a shared use pathway between the terminus of NW 18th Avenue, through Comstock Elementary and Comstock Park to where NW 18th Avenue resumes at NW 27th Street. This Greenway will connect two Bicycle Boulevard segments.
- 60) SW 32nd Road (.21 miles):** This project adds Bicycle Lanes between Brickell Avenue and the entrance to the Vizcaya Metrorail Station pedestrian bridge that spans US Route 1.
- 61) NW North River Drive Greenway (1.37):** This on-street Greenway project extends from NW 17th Avenue and includes on-street portions of NW North River Drive, NW 18th Terrace, NW 25th Avenue, and NW 26th Avenue before terminating at NW 20th Street. The project also includes an off-street Shared Use Riverwalk path, which extends from NW 14th Avenue to NW 13th Terrace. On-street segments of the Greenway should be accompanied by Shared Use Lane markings.
- 62) NW South River Drive Greenway (.42):** This on-street and riverwalk Greenway project borders the western edge of Sewall Park and extends along the Miami River to the South Fork. Two additional segments of the project run north to the river from the terminus of NW19th Avenue and NW 19th Court. This on-street Greenway should be accompanied by Shared Use Lane Markings.
- 63) NW South River Drive (.95 miles):** This project includes an on-street Greenway from NW 14th Avenue to NW 22nd Avenue. It should include Shared Use Lane marking.
- 64) Miami River Greenway— Fern Island Park (.25 miles):** This project includes Shared Use Path along the South Fork of the Miami River, which extends from NW 22nd Avenue to the western terminus of Fern Island Park. On-street segments should include Shared Use Lane markings.
- 65) Miami River Greenway—Riverwalk Extensions (.23 miles):** This project includes Shared Use Path along two parcels extending into the Miami River, between NW 22nd Avenue and NW 22nd Court.



- 66) **Miami River Greenway—NW 14th Street/NW 23rd Avenue/NW 16th Street Road/NW 17th Street/Delaware Parkway/NW 29th Avenue, NW South River Drive/NW 18th Terrace (1.48 miles):** This project includes on-street Greenways, from NW 14th Street to NW 18th Terrace, and should include Shared Use Lane markings along its trajectory.
- 67) **Miami River Greenway—Riverwalk Extensions (.16 miles):** This project includes Shared Use Path along the Miami River at the southern terminus of NW 19th Avenue.

6.3.5 Bicycle Boulevards

5 Projects

8.07 miles

- 68) **SW 19th Street (2.02 miles):** This Bicycle Boulevard Project will extend from SW 12th Avenue to SW 32nd Avenue. An additional traffic circle should be considered at SW 19th, SW 21st, SW 26th, and SW 29th Avenues. New Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the SW 17th, SW 22nd, and SW 27th intersections.
- 69) **SW 24th Avenue/Calusa Street (2.26 miles):** This Bicycle Boulevard project extends from Tiger Tail Avenue to Beacom Boulevard. New Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the SW 7th, SW 8th Street, and Coral Way intersections.
- 70) **SW 60th Avenue (.98 miles):** This Bicycle Boulevard project will extend from SW 8th Street to NW 7th Avenue. New Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the West Flagler intersection.
- 71) **NW 18th Avenue (1.5 miles):** This Bicycle Boulevard project extends from NW 15th Street to NW 39th Street. New Bicycle Priority Signals/Actuators and traffic calming devices should be considered at the NW 20th Street intersection, as well as the NW 28th and 36th Street intersections. This Bicycle Boulevard is interrupted by the NW 18th Street Greenway, connecting the Boulevard through Comstock Elementary.



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72) NW 11th Avenue (1.31 miles): This Bicycle Boulevard project will extend from NW 46th Street, around Crestwood Park, to NW 67th Street/Miami Northwestern Senior High School. New Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the NW 54th and NW 62nd intersections.

6.3.6 Neighborhood Connections

7 Projects

2.29 miles

73) NE 20th Street Alley (.10 miles): This Neighborhood Bikeway Connection project will extend from NE 2nd Avenue to Biscayne Boulevard. It is to include signs demarcating the route as part of the Miami Bicycle Network.

74) SW Flagler Terrace (.51 miles): This Neighborhood Bikeway Connection project will extend from SW 17th Avenue to West Flagler Street. It is to include signs demarcating the route as part of the Miami Bicycle Network.

75) SW 17th Street Lane (.37 miles): This Neighborhood Bikeway Connection project will extend from SW 24th Avenue to SW 21st Avenue. It is to include signs demarcating the route as part of the Miami Bicycle Network.

76) NW 5th Ave (.02 miles): This neighborhood bikeway connection will formalize and extend a current desire line path from NW 11th Street to NW 11th Terrace, connecting two bicycle lanes and Booker T. Washington High School.

77) NW 13th Street Lane (.30 miles): This Neighborhood Bikeway Connection project will extend from NW 40th Street to NW 46th Street. It is to include signs demarcating the route as part of the Miami Bicycle Network.

78) NW 39th Street Alley (.5 miles): This Neighborhood Bikeway Connection project is located between 39th and 40th Streets. It extends from North Miami Avenue to NW 3rd Avenue. It is to include signs demarcating the route as part of the Miami Bicycle Network.





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79) NW 47th Terrace Alley (.49 miles): This Neighborhood Bikeway Connection project is located between NW 47th Terrace and NW 48th Street. It extends from NW 7th Avenue to NW 12th Avenue, passing through East Bay Vista Park and Crestwood Park. It is to include signs demarcating the route as part of the Miami Bicycle Network.

6.3.7 Scenic View Routes

2 Projects

.65 miles

80) Royal Road (.29 miles): This Scenic View Route project will extend from Main Highway to the terminus of Royal Road at Biscayne Bay. It is to include signs or special pavement markings demarcating the route as part of the Miami bikeway network. Additionally, small pocket park improvements should be made at the route's terminus on the bay.

81) NE 34th Street (.36 miles): This Bicycle Waterway Route project will extend from Biscayne Boulevard to the eastern terminus of NE 34th Street at the Biscayne Bay Network. It is to include signs or special pavement markings demarcating the route as part of the Miami Bicycle.



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6.4 2020 Phase

Number of Bikeway Network Projects: 64 projects

Bikeway Network to be Added: 92.13 miles

Bike Routes: 26.38 miles

Shared Use Lane Markings: 25.77 miles

Bicycle Lanes: 9.94 miles

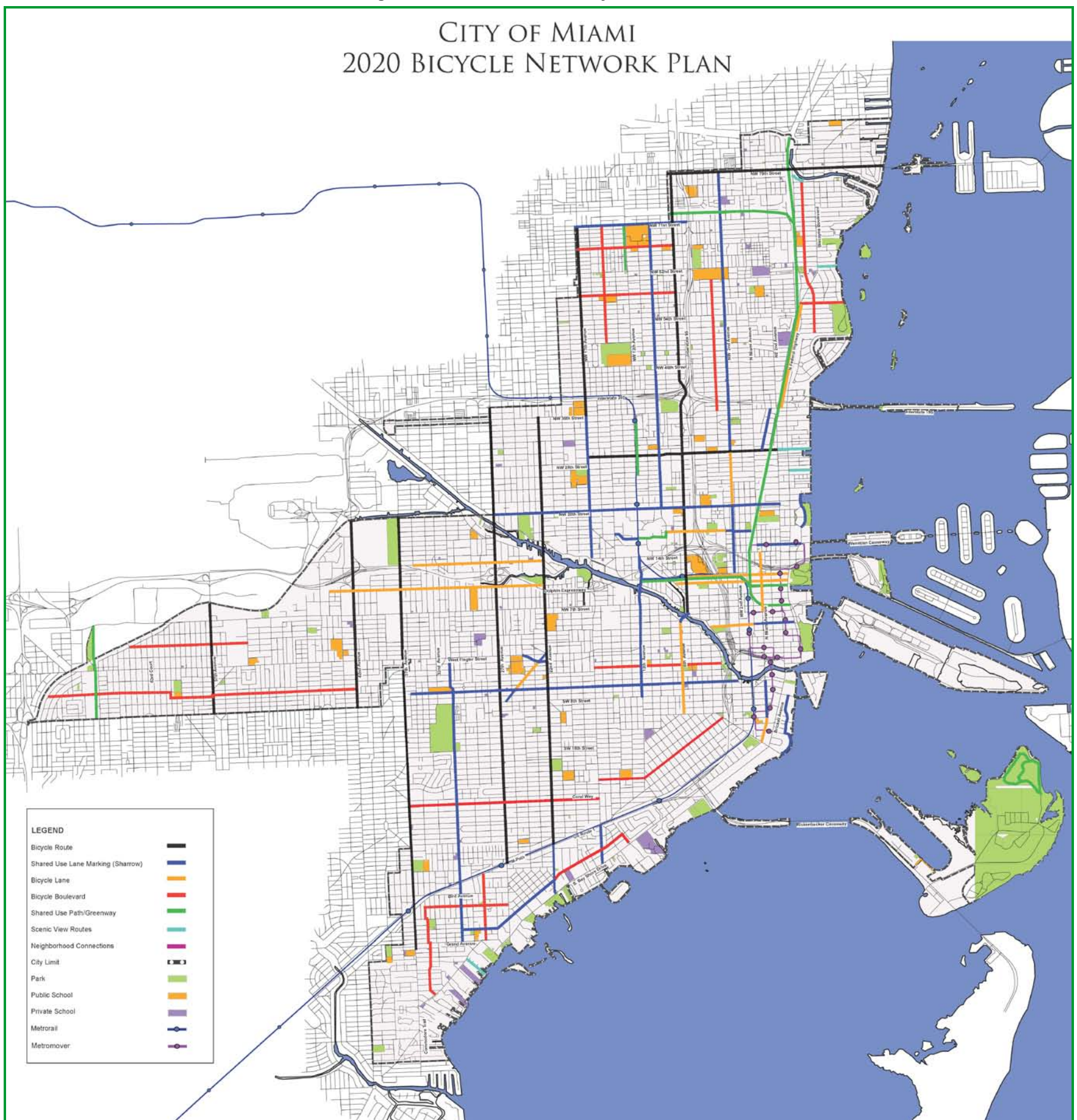
Shared Use Path/Greenways: 10.8 miles

Bicycle Boulevards: 17.87 miles

Neighborhood Connections: 0 miles

Scenic View Routes: 1.37 miles

Figure 6- 8: 2020 Phase bikeway network Plan





6.4.1 Bicycle Routes

9 Projects

26.38 miles

- 1) **NE/NW 29th Street (2.03 miles):** This Bicycle Route project will extend from NE 2nd Avenue to NW 17th Avenue. It is to include signs demarcating the routes as part of the Miami bikeway network, as well as any additional signs intended to improve the visibility of the bikeway.
- 2) **NW 7th Avenue (4.73 miles):** This Bicycle Route project will extend from NW 5th Street to NW 71st Street. It is to include signs demarcating the routes as part of the Miami bikeway network, as well as any additional signs intended to improve the visibility of the bikeway.
- 3) **SW/NW 22nd Avenue (4.54 miles):** This Bicycle Route project will extend from NW 36th Street to US Route 1. It is to include signs demarcating the routes as part of the Miami bikeway network, as well as any additional signs intended to improve the visibility of the bikeway.
- 4) **SW/NW 27th Avenue (4.87 miles):** This Bicycle Route project will extend from US Route 1 to NW 39th Street. It is to include signs demarcating the routes as part of the Miami bikeway network, as well as any additional signs intended to improve the visibility of the bikeway.
- 5) **SW/NW 37th Avenue (4.51 miles):** This Bicycle Route project will extend from Grand Avenue to NW 20th Street. It is to include signs demarcating the routes as part of the Miami bikeway network, as well as any additional signs intended to improve the visibility of the bikeway.
- 6) **SW/NW 42nd Avenue (1.6 miles):** This Bicycle Route project will extend from NW 11th Street to SW 8th Street. It is to include signs demarcating the routes as part of the Miami bikeway network, as well as any additional signs intended to improve the visibility of the bikeway.
- 7) **SW/NW 57th Avenue (1.16 miles):** This Bicycle Route project will extend from SW 8th Street to the Tamiami Canal Bridge, which is one block north of NW 7th Street. It is to include signs demarcating the routes as part of the Miami bikeway network.



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- 8) **SW/NW 67th Avenue (.68 miles):** This Bicycle Route project will extend from SW 8th Street to the Tamiami Canal Road. It is to include signs demarcating the routes as part of the Miami bikeway network.
- 9) **NE/NW 79th Street (2.26 miles):** This Bicycle Route project will extend from NE 79th Street Causeway to NW 7th Avenue. It is to include signs demarcating the routes as part of the Miami bikeway network, as well as any additional signs intended to improve the visibility of the bikeway.

6.4.2 Shared Use Lane Markings (Sharrows)

22 Projects

26.22 miles

- 10) **NE/NW 3rd Street (.41 miles):** This project extends Sharrow pavement markings from Biscayne Boulevard to NW 1st Avenue.
- 11) **NE 15th Street (.45 miles):** This project extends Sharrow pavement markings from North Bayshore Drive to North Miami Avenue.
- 12) **North Bayshore Drive (.38 miles):** This project extends Sharrow pavement markings from the NE 17th Terrace intersection to NE 21st Street.
- 13) **NW 17th Street (.28 miles):** This project extends Sharrow pavement marking from NW 3rd Avenue to the terminus of NW 17th Street at the FEC railroad tracks.
- 14) **NW 2nd Avenue (.71 miles):** This project extends Sharrow pavement markings from NW 11th Terrace to NW 20th Street.
- 15) **NE 1st Avenue (.44 miles):** This project extends Sharrow pavement markings from NE 29th Street to NE 36th Street.
- 16) **NW 2nd Avenue (2.99 miles):** This project extends Sharrow pavement markings from NW 29th Street to NW 79th Street.



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- 17) **NW 11th Street (.7 miles):** This project extends Sharrow pavement markings from NW 7th Avenue to NW 12th Avenue.
- 18) **NW 7th Avenue Bridge (.10 miles):** This project extends Sharrow pavement markings over the NW 7th Avenue Bridge, between SW 8th Avenue NW North River Drive.
- 19) **NW 10th Avenue (3.05 miles):** This project extends Sharrow pavement markings from NW 20th Street to NW 71st Street.
- 20) **NW 17th Avenue (1.53 miles):** This project extends Sharrow pavement markings from NW 14th Street to NW 36th Street.
- 21) **NE/NW 20th Street (3.04 miles):** This project extends Sharrow pavement markings from NE 2nd Avenue to NW 27th Avenue.
- 22) **Brickell Bay Drive (.72 miles):** This project extends Sharrow pavement markings between SE 15th Road Street and SE 8th Street.
- 23) **South Miami Avenue (.4 miles):** This project extends Sharrow pavement markings from SW 12th Street to SE 6th Street.
- 24) **SW 6th Street (3.5 miles):** This project extends from the eastern terminus of SW 6th Street, at the SW 2nd Avenue Bridge, to SW 36 Court.
- 25) **Beacom Boulevard (.25 mile):** This project is comprised of two segments. The first segment extends Sharrow pavement markings from SW 8th Street to SW 6th Street. The second segment extends Sharrow pavement markings from SW 1st to West Flagler Street.
- 26) **SW 1st Street (.25 miles):** This project extends Sharrow pavement markings from SW 22nd Avenue to SW 24th Avenue.
- 27) **SW 12th Avenue (1.5 miles):** This project places Sharrow pavement markings along an already designated Bicycle Route, from SW 8th Street to NW 14th Street.



- 28) **SW 32nd Avenue (3.04 miles):** This project extends Sharrow pavement markings from Grand Avenue to West Flagler Street.
- 29) **SW 17th Avenue (.4 miles):** This project extends Sharrow pavement markings from South Bayshore Drive to US Route 1.
- 30) **SW 22nd Avenue/Kirk Street (.5 miles):** This project extends Sharrow pavement markings from South Bayshore Drive to US Route 1.
- 31) **Tigertail Avenue/Oak Avenue (1.13 miles):** This project extends Sharrow pavement markings from SW 22nd Avenue to the western terminus of Oak Avenue.

6.4.3 Bicycle Lanes

10 projects

9.94 miles

- 32) **NE/NW 11th Street (1.07 miles):** This project includes Bicycle Lanes between Biscayne Boulevard and NW 7th Avenue.
- 33) **NW 11th Street (2.29 miles):** This project includes Bicycle Lanes between NW 22nd Avenue and NW 44th Avenue.
- 34) **NE/NW 10th Street (1.06 miles):** This project includes Bicycle Lanes between Biscayne Boulevard and NW 8th Street Road.
- 35) **North Miami Avenue (.64 miles):** This 'road diet' project recommends the addition of a physically-separated, or buffered Bicycle Lanes from NW 14th Street to NW 5th Street.
- 36) **NW 3rd Street (.47 miles):** This project adds Bicycle Lanes from NW 1st Avenue to Northwest North River Drive.



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- 37) **SW/NW 8th Avenue (.98 miles):** This project includes Bicycle Lanes between SW 11th Street and NW South River Drive.
- 38) **NW 2nd Avenue (.58miles):** This project includes Bicycle Lanes from NW 20th Street to NW 29th Street.
- 39) **North Federal Highway (1.04 miles):** This project includes Bicycle Lanes from NE 36th Street to NE 54th Street.
- 40) **Beacom Boulevard (.41 miles):** This project includes Bicycle Lanes from SW 6th Street to SW 1st Street.
- 41) **NW 14th Street (1.40 miles):** This project includes Bicycle Lanes from NW 22nd Avenue to NW 37th Avenue. Because the westernmost block of this segment is a one-way street, the eastbound Bicycle Lane will have to start at NW 36th Avenue.

6.4.4 Shared Use Paths/Greenways

5 Projects

10.8 Miles

- 42) **FEC Greenway (5.35 miles):** This project includes a Shared Use Path from the Freedom Tower at Biscayne Boulevard to the City's northernmost boundary at the Little River.
- 43) **FEC Unity Trail (1.33 miles):** This project within the City of Miami includes a Shared Use Path from the east-west FEC tracks along 72nd Street to NW 7th Avenue.
- 44) **NW 12th Parkway Greenway (.5 miles):** This project within the City of Miami includes a Shared Use Path within the existing, or in the reclaimed space from the existing NW 12th Parkway, from NW 62nd Street to NW 71st Street.
- 45) **Overtown Greenway (1.62):** This project extends from Biscayne Boulevard and NE 9th Street, and includes on-street portions of NW 9th Street, NW 1st Avenue, and NW 11th Street before





terminating at NW 12th Avenue. On-street segments of the Greenway should be accompanied by Shared Use Lane markings.

- 46) Virginia Key Trails (2.0):** This project includes several interconnected off-road bicycle trails suitable for mountain bikes and a Shared Use Path. The trails should be located at the northernmost peninsula of Virginia Key, and should be made accessible at the terminus of Sewage Plant Road.

6.4.5 Bicycle Boulevards

13 Projects

17.87 miles

- 47) SW 3rd Street (1.35 miles):** This Bicycle Boulevard Project extends from SW 4th Avenue to SW 17th Avenue.
- 48) SW 4th Avenue/SW 20th Street (1.53 miles):** This Bicycle Boulevard project extends from SW 15th Road to SW 17th Avenue. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the SW 12th Avenue intersection.
- 49) SW 22nd Terrace (2.02 miles):** This Bicycle Boulevard project extends from SW 17th Avenue to SW 37th Avenue. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the SW 22nd, SW 27th, and SW 32nd Avenue intersections.
- 50) Shipping Avenue (.86 miles):** This Bicycle Boulevard project extends from SW 26th Avenue to Plaza Street. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the McDonald Street intersection.
- 51) Alarka Street/Tigertail Avenue (.99 miles):** This Bicycle Boulevard project extends from Alarka Street at South Bayshore Drive, to SW 22nd Avenue.
- 52) Plaza Street (1.05 miles):** This Bicycle Boulevard project extends from Main Highway to US Route 1. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the Grand Avenue Intersection.



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- 53) SW 4th/SW 5th Street (3.35 miles):** This Bicycle Boulevard project extends from SW 4th Avenue to Tamiami Canal Road. New Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the SW 57th and SW 67th Avenue intersections.

- 54) NE 55th Terrace (.45miles):** This Bicycle Boulevard project extends from Morningside Park to Biscayne Boulevard.

- 55) NE 5th Avenue (1.64 miles):** This Bicycle Boulevard project extends from NE 55th Terrace to NE 77th Street. A bicycle crossing refuge should be constructed at the Biscayne Boulevard intersection.

- 56) NW 3rd Avenue (1.25 miles):** This Bicycle Boulevard project extends from NW 36th Street to NW 60th Street. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the NW 54th and 64th Street intersections.

- 57) NW 14th Avenue (1.35 miles):** This Bicycle Boulevard project extends from NW 50th Street to NW 72nd Street. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the NW 54th and 64th Street intersections.

- 58) NW 58th Street (1.02 miles):** This Bicycle Boulevard project extends from NW 7th Avenue to NW17th Avenue. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the NW 12th Avenue intersection.

- 59) NW 67th Street (1.01 miles):** This Bicycle Boulevard project extends from NW 17th Avenue to NW 7th Avenue. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the NW 12th Avenue intersection.

6.4.6 Neighborhood Connections

0 Projects

0 miles





6.4.7 Scenic View Routes

5 Projects

1.37 miles

- 60) Munroe Drive (.25 miles):** This Bicycle Waterway Route project will extend from Main Highway to the terminus of Munroe Drive at Biscayne Bay. It is to include signs or special pavement markings demarcating the route as part of the Miami Bicycle Network.
- 61) NE 29th Street (.35 miles):** This Bicycle Waterway Route project will extend from NE 2nd Avenue to the terminus of NE 29th Street at Biscayne Small pocket park improvements should be made at the route's terminus on the bay.
- 62) NE 25th Street (.34 miles):** This Bicycle Waterway Route project will extend from Biscayne Boulevard to the terminus of NE 34th Street at Biscayne. Additionally, small pocket park improvements should be made at the route's terminus on the bay.
- 63) NE 77th Street Road (.14 miles):** This Bicycle Waterway Route project will extend from Biscayne Boulevard to NE 4th Court. It is to include signs or special pavement markings demarcating the route as part of the Miami Bicycle Network. .Additionally, a small pocket park improvements should be made at the route's terminus on the Little River.
- 64) NE 61st Street (.19 miles):** This Bicycle Waterway Route project will extend from Biscayne Boulevard the terminus of NE 61st Street at Biscayne Bay. Additionally, small pocket park improvements should be made at the route's terminus on the bay.



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6.5 2030 Phase

Number of Bikeway Network Projects: 45 projects

Bikeway Network to be Added: 52.11 miles

Bikeway Network to be Improved: 7.23 miles

Bike Routes: 0 miles

Shared Use Lane Markings: 0 miles

Bicycle Lanes: 13.67 miles

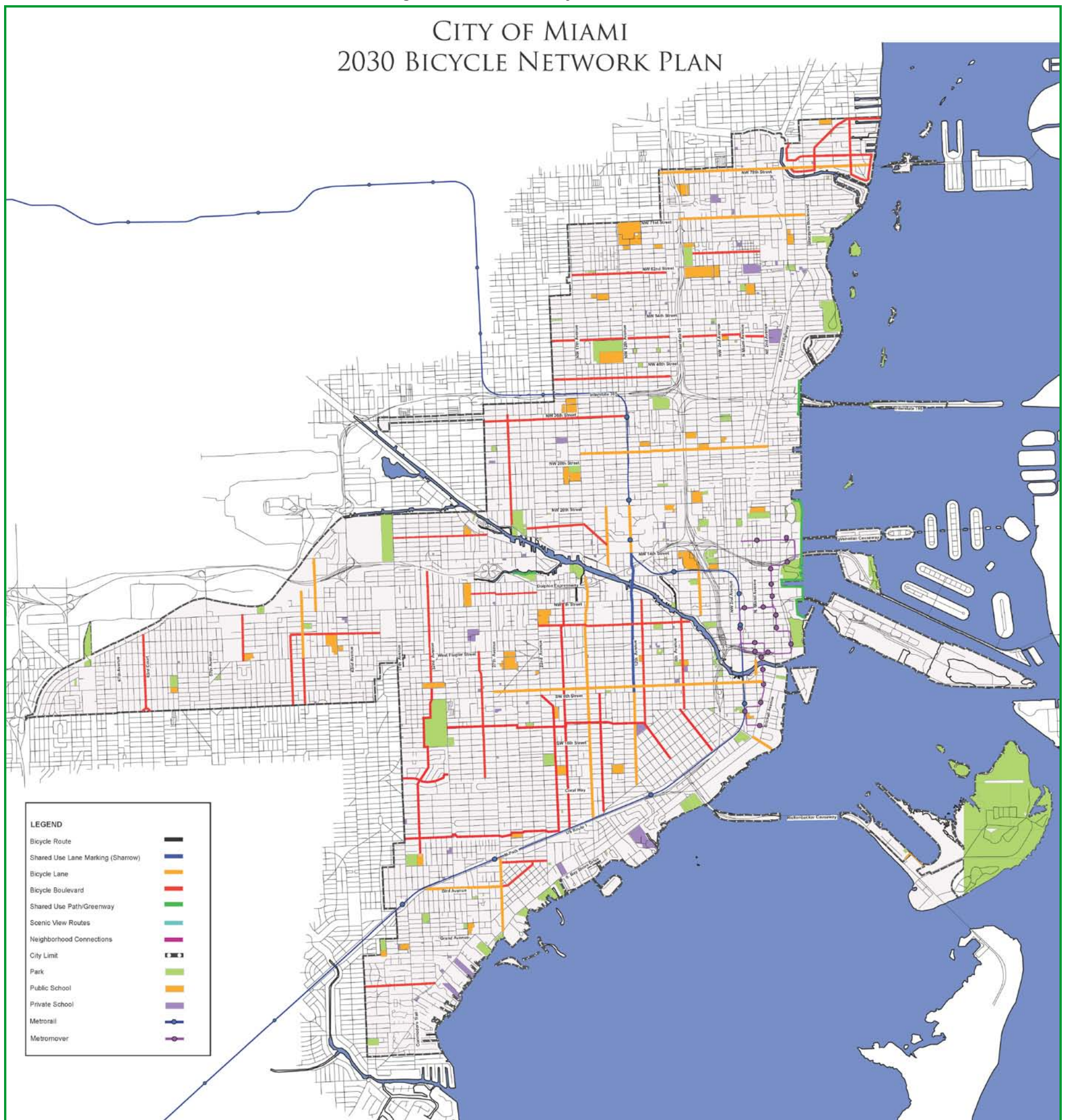
Shared Use Path/Greenways: 2.32 miles

Bicycle Boulevards: 36.12 miles

Neighborhood Connections: 0 miles

Scenic View Routes: 0 miles

Figure 6-9: 2030 bikeway network Plan





6.5.1 Bicycle Routes

0 projects

0 miles

6.5.2 Shared Use Lane Markings (Sharrows)

0 projects

0 miles

6.5.3 Bicycle Lanes

11 projects

13.67 miles

- 1) **South Miami Avenue Bridge (.18 miles):** This project recommends placing protected or buffered bicycle lanes along the length of the Bridge.
- 2) **Bird Avenue (.77 miles):** This project includes bicycle lanes from SW 27th Avenue to US Route 1.
- 3) **SW 7th Street (3.01 miles):** This 'road diet' project adds Bicycle Lanes to the existing Bike Route, from Brickell Avenue to SW 27th Avenue.
- 4) **SW 12th Avenue (1.52 miles):** This 'road diet' project adds Bicycle Lanes to segments of an already existing Bike Route. The first segment includes Coral Way to SW 8th Street. The second segment extends from NW 14th Street to NW 20th Street.
- 5) **SW 27th Avenue (.75 miles):** This project includes Bicycle Lanes from South Bayshore Drive to US Route 1.
- 6) **NW 4th Avenue (.57 miles):** This project includes Bicycle Lanes from NW 7th Street to NW 15th Street.
- 7) **NW 14th Avenue (.63 miles):** This 'road diet' project includes Bicycle Lanes from NW North River Drive to NW 20th Street.



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- 8) **NE/NW 29th Street (2.02 miles):** This project adds Bicycle Lanes to an existing Bike Route, from NE 2nd Avenue to NW 17th Avenue.
- 9) **NE/NW 71st Street (1.34 miles):** This project adds Bicycle Lanes from Biscayne Boulevard to the I-95 Expressway underpass.
- 10) **NE/NW 79th Street (2.19 miles):** This project adds Bicycle Lanes to an existing Bike Route, from NE Bayshore Court to NW 7th Street.
- 11) **NW 47th Avenue (.69 miles):** This project includes Bicycle Lanes from West Flagler Street to the Avenue's terminus at Blue Lagoon.

6.5.4 Shared Use Paths/Greenways

2 Projects

2.32 miles

- 12) **Biscayne Baywalk (1.99 miles):** This project includes a Shared Use Path along the Biscayne Bay, from the northern terminus of Bayfront Park to the northern terminus of Margaret Pace Park. It will connect to the Miami River Greenway.
- 13) **Biscayne Baywalk North Greenway (.33 miles):** This project includes a Shared Use Path along the Bayfront, from NE 34th Street to the Northern border of Magnolia Park. Those segments crossing beneath the Julia Tuttle Causeway should be cantilevered along the Bay.

6.5.5 Bicycle Boulevards

32 Projects

36.12 miles

- 14) **Poinciana Avenue (.74 miles):** This Bicycle Boulevard project extends from SW 42nd Avenue to Main Highway. Traffic calming devices should be considered at the SW 37th Avenue intersection.
- 15) **SW 28th Street (.49 miles):** This Bicycle Boulevard project extends from SW 22nd Avenue to SW 27th Avenue.





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- 16) **Swanson Avenue/ Kirk Street (.46 miles):** This Bicycle Boulevard project extends from SW 28th Street to SW 27th Avenue.
- 17) **SW 26th Street (1.86 miles):** This Bicycle Boulevard project extends from SW 21st Avenue to SW 37th Avenue. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the SW 22nd, SW 27th and SW 32nd Avenue intersections.
- 18) **SW 10th Street Road/ SW 21st Avenue (1.51 miles):** This Bicycle Boulevard project extends from SW 26th Street to SW 8th Street. Bicycle Priority Signals/Actuators and/or traffic calming devices should be considered at the Coral Way intersection.
- 19) **SW 13th Street (2.23 miles):** This Bicycle Boulevard project extends from SW 9th Avenue to SW 32nd Avenue. Bicycle Priority Signals/Actuators, bicycle median refuges and/or traffic calming devices, should be considered at the intersections of SW 12th, 17th, 22nd, and 27th Avenues.
- 20) **SW 11th Avenue/ SW 26th Road (1.31 miles):** This Bicycle Boulevard project extends from SW 3rd Avenue to SW 8th Street. Bicycle Priority Signals/Actuators and/or traffic calming devices, should be considered at the SW 8th, SW 7th, SW 1st, and West Flagler Street intersections.
- 21) **SW 20th Road (.57 miles):** This Bicycle Boulevard project extends from SW 1st Avenue to SW 11th Street.
- 22) **SW/NW 7th Avenue (.97 miles):** This Bicycle Boulevard project extends from SW 20th Street to Northwest South River Drive. Bicycle Priority Signals/Actuators and/or traffic calming devices, should be considered at the SW 8th, SW 7th, SW 1st, and West Flagler Street intersections.
- 23) **SW/NW 19th Avenue (2.45 miles):** This Bicycle Boulevard project extends from US Route 1 to NW 7th Street. Priority Signals/Actuators and/or traffic calming devices, should be considered at the SW 8th, SW 7th, SW 1st, and West Flagler Street intersections.
- 24) **SW 29th Avenue (1.36 miles):** This Bicycle Boulevard project extends from SW 20th Street to West Flagler Street. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the SW 8th Street intersection.



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- 25) **SW/NW 33rd Avenue (1.19 miles):** This Bicycle Boulevard project extends from SW 5th Street to NW 11th Street. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the West Flagler and NW 7th Street intersections.
- 26) **SW 33rd Avenue/SW 34th Avenue/Coral Gate Drive/SW 36th Avenue (1.92 miles):** This multi-segment, continuous Bicycle Boulevard project extends from SW 27th Street to SW 5th Street. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the Coral Way and SW 8th Street intersections
- 27) **SW 20th Street/SW 19th Terrace (.54 miles):** This Bicycle Boulevard project extends from SW 32nd Avenue to SW 31st Avenue.
- 28) **SW 47th Avenue (.49 miles):** This Bicycle Boulevard project extends from SW 8th Street to West Flagler Street.
- 29) **NW 3rd Street/NW 48th Avenue (1.71 miles):** This Bicycle Boulevard project contains two segments. The first extends east-west along NW 3rd Street, between NW 38th Court to and NW 48th Avenue. The second segment extends north-south, between SW 3rd Street and SW 8th Street. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the SW 42nd Avenue intersection.
- 30) **NW 53rd Avenue (.49 miles):** This Bicycle Boulevard project extends from West Flagler Street to NW 7th Street.
- 31) **SW/NW 63rd Court (.90 miles):** This Bicycle Boulevard project extends from SW 8th Street to West Tamiami Canal Road. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the West Flagler Street intersection.
- 32) **NW 17th Street (1.0 miles):** This Bicycle Boulevard project extends from NW 27th Avenue to NW 37th Avenue.
- 33) **NW 9th Street (.7 miles):** This Bicycle Boulevard project extends from NW 22nd Avenue to Kensington Elementary School, just past NW 29th Avenue.



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- 34) NW 3rd Street (1.64 miles):** This Bicycle Boulevard project extends from NW 22nd Avenue to Northwest South River Drive. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the NW 17th and NW 12th Avenue intersections.
- 35) NW 15th Street Road/NW18th Street (.85 miles):** This Bicycle Boulevard project extends from NW 14th Avenue to Northwest 22nd Avenue.
- 36) NW 24th Avenue (1.18 miles):** This Bicycle Boulevard project extends from NW North River Drive to NW 36th Street. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the NW 20th and NW 28th Street intersections.
- 37) NW 43rd Street (1.27 miles):** This Bicycle Boulevard project extends from NW 7th Avenue to NW 19th Avenue. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the NW 12th and NW 17th Avenue intersections.
- 38) NW/NE 50th Street (.90 miles):** This Bicycle Boulevard project extends from Archbishop Curley Notre Dame High School at NE 2nd Avenue to NW 6th Avenue. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the NE 2nd and North Miami Avenue intersections.
- 39) NW 50th Street (1.27 miles):** This Bicycle Boulevard project extends from NW 7th Avenue to NW 19th Avenue. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the NW 12th and NW 17th Avenue intersections.
- 40) NW 61st Street (1.02 miles):** This Bicycle Boulevard project extends from NW 7th Avenue to NW 17th Avenue. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the NW 12th Avenue intersection.
- 41) NE/NW 64th Street (.73 miles):** This Bicycle Boulevard project extends from NE 2nd Avenue to Edison Central Park. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the North Miami and NW 2nd Avenue intersections.



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- 42) NE 87th Street/E. Dixie Highway/ NE 7th Avenue/NE 78th Street (1.34 miles):** This Bicycle Boulevard project extends from the eastern terminus of NE 87th Street to NE 79th Street. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the NE 79th Street intersection.

- 43) NE 10th Avenue/NE North Little River Drive/ NE Bayshore Court (.94 miles):** This Bicycle Boulevard project extends from the eastern terminus of NE 87th Street to NE 79th Street. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at both NE 79th Street intersections.

- 44) NE 81st Street/NE 4th Place (1.09 miles):** This Bicycle Boulevard project extends from the eastern terminus of NE 81st Street to the northern terminus of NE 4th Place. Bicycle Priority Signals/Actuators, bicycle median refuge and/or traffic calming devices, should be considered at the North Bayshore Drive, Biscayne Boulevard, and NE 83rd Street intersections.

6.5.6 Neighborhood Connections

0 Projects
0 miles

6.5.7 Scenic View Routes

0 Projects
0 miles



7.0 Bicycle Parking Plan

While the provision of bikeways is the most visible element in a citywide bikeway network, bicyclists must also have safe and convenient places to store their bicycles at a trip's end. Thus, providing bicycle parking and other "end-of-trip" facilities is critically important in supporting bicycling as a viable mode of transportation. Solutions range from the basic bicycle rack, to semi-enclosed bicycle shelters, to full bicycle stations that may include attended bicycle storage and repair, showers, lockers, changing rooms, rentals, and even cafe space.

No matter the type, bicycle parking is commonly excluded or insufficiently addressed in the planning, urban design, and development process. As a result, accessible, attractive, and safe parking options for both short and long term use are often undersupplied or poorly sited. Through field review of the City's existing bicycle parking conditions and through an online survey of Miami's bicycling public, it is apparent that additional and improved bicycle parking and other end-of-trip facilities are needed in the City of Miami.

It should be noted that the general public's growing desire for expanded bicycle infrastructure has been met with a commensurate level of institutional, political, and governmental support. As a result, Miami's Bicycle Action Committee worked with the Miami Parking Authority (MPA), and the Downtown Development Authority (DDA) to install more than two dozen new bicycle racks in Miami's urban core. Likewise, the Coconut Grove Business Improvement District (BID) is in the process of expanding bicycle parking in the Center Grove. In Coconut Grove, these provisions have mostly come in the form of stylized bicycle racks that double as public art installations. At present, the MPA, DDA, and Coconut Grove BID remain committed to further expanding bicycle parking in their respective jurisdictions. Furthermore, the City of Miami is in the process of establishing the "Bicycle Parking" ordinance which has already been approved by the Planning Advisory Board (PAB). The ordinance is slated for the October 8th, 2009 commission meeting.

While expanding Miami's bicycle parking facilities is certainly beneficial to all, formulating a coherent approach will help identify appropriate types, locations, and the various user groups so that all new bicycle parking facilities are safe, attractive, accessible, and meet the needs of the bicycling public. While there are many different types of bicycle parking solutions, only a few effectively meet the needs



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of the bicycling public. **Figure 7-1** depicts two types of bicycle racks being utilized: a “comb” rack at left and “inverted U” racks on the right side. Clearly, one type is preferred over the other.

Figure 7- 1: Existing Bicycle Parking Rack



The bicycle parking plan is intended to provide all stewards of the Miami Bicycle Master Plan with the information needed to not only improve bicycle parking conditions, but by extension the entire bikeway network.

7.1 Implementation

The bicycle parking plan and standards detailed here are conceived at the scale of the City, but are intended to be implemented with sensitivity at the block level, and in keeping with the overall needs of Miami’s individual neighborhoods, districts, and corridors. Therefore the bicycle parking plans identifies only the general locations for the provision of future bicycle parking facilities. Additional steps and site analysis is necessary so that bicycle parking remains convenient, visible, and is located properly in relation to the bicyclists and land uses it serves.

Like the bikeway network plan, this bicycle parking plan will be implemented in cooperation with a number of inter-related city, county, and state entities who have jurisdiction over the governance and



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physical development of Miami and its public right-of-ways. The realization of this bicycle parking plan should also be supplemented and supported by the City's resident and business communities.

To date, many cities have created bicycle parking programs that encourage public-private partnerships, which can reduce the cost of bike racks and installation while simultaneously expanding the supply. For example, Minneapolis, Minnesota has 50-50 match bicycle parking implementation program that encourages businesses to partner with the City. Similarly, Chicago maintains a "shop by bike" program which encourages businesses to provide discounts, parking, and promotions to those who choose to meet their shopping needs via the bicycle. Both programs are worth researching and potentially adapting to the City of Miami. At present, Downtown, Brickell, and Coconut Grove would have much to gain by pursuing such programs.

It is the intent of the Miami Bicycle Master Plan to encourage government entities to work with the City's businesses and NET districts to foster bicycling as a viable, safe, and sustainable form of recreation and transportation. Bicycle parking and other end-of-trip facilities have a key role to play in realizing this goal.

7.2 Bicycle Parking Typologies

While there is a multiplicity of bicycle parking designs and configurations from which to choose, there are only five basic types:

- Bicycle racks
- Semi-enclosed bicycle shelters
- Fully enclosed bicycle lockers
- Fully enclosed bicycle stations/storage rooms
- Self-service bicycle sharing systems

Matching each of these types and the available configurations to the right context is not difficult, but requires an understanding of the following:

- Intended bicycle user group
- Length of time for which bicycles are likely to be parked
- Types of trips to be accommodated (long/short term)
- Proposed location and the surrounding land uses
- Local climate considerations
- Ability of the proposed facility to provide orderly, safe, and attractive bicycle parking



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- The performance standards and location guidelines

The following sections discuss these five basic types of bicycle parking designs, and offer recommendations for how each should be deployed within the City of Miami.

7.2.1 Bicycle Racks

These provide places to temporarily store bicycles in a safe and organized manner. While a great variety of designs and configurations are available, the most effective are those which are easy to identify, efficient in their ability to accommodate the intended amount of bicycles, allow for easy bicycle maneuverability both in and out of the designated bicycle parking space, and enable the bicycle to be secured properly.

Two simple and recommended forms that meet these standards are the inverted “U” Rack and the “Post and Ring”. Each design may be implemented singularly - one rack provides two bicycle parking spaces - or configured in groups where space demand exists. One such application, the Bicycle Corral, makes use of several racks to replace a motor vehicle parking space where demand is high and sidewalk space is either limited or must accommodate high volumes of pedestrian traffic. Depending on the configuration, a single motor vehicle parking space may yield between 6 and 12 bicycle parking spaces. Examples of U Rack, Post and Ring, and Bicycle Corral parking designs are depicted in **Figure 7-2**.

While both the Inverted U and the Post and Ring offer excellent short term bicycle parking solutions for most bicyclists, it is recommended that the City of Miami

Figure 7- 2: U Rack, Post and Ring, Bicycle Corral





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designate a version of the inverted U rack to be the standard city bicycle rack. Selecting a single design type will yield added recognition by bicyclists over time and streamline the implementation process for inter-governmental and cross-jurisdictional entities.

Certain neighborhood, civic, district, non-profit, institutional, or business groups within the City of Miami may want to pursue bicycle parking facilities that reinforce an existing cultural, historical, social, and/or other known identity. In such instances, custom or public art bicycle racks should be allowed to creatively address bicycle parking needs while simultaneously enhancing the profile of bicycling and the customers such racks are intended to serve. However, when implemented, the form of such racks often trumps functionality. All too often this results in inefficient, unrecognizable, and undesirable bicycle parking facilities. Thus, the provision of art racks should meet or surpass the guidelines and performance standards set forth in this bicycle parking plan, follow the regulations of the City's Bicycle Parking Ordinance, and be approved by the City of Miami Bicycle Coordinator before implementation. **Figure 7-3** shows bicycle rack designs which should be avoided.

Safety Standards

All outdoor bicycle racks and any related facilities should also be well-lit and visible at night so that users may feel as comfortable as possible using the facility. In addition, bicycle racks should not be capable of being compromised by hand tools, especially those that are easily concealed. Similarly, bicycle racks and the bicycles secured to them, should not create a tripping hazard for visually impaired individuals. Bicycle racks should be able to support bicycles in at

Figure 7- 3: Avoidable Bicycle Rack Designs



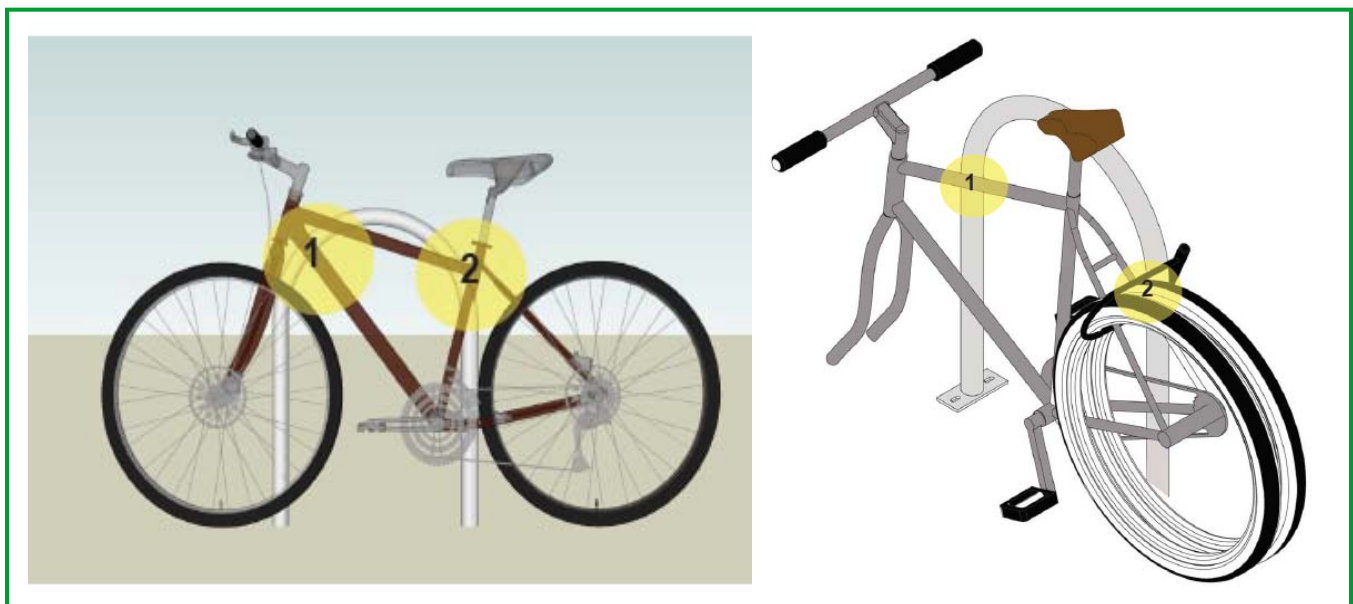


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least two places as shown in **Figures 7-4**. To ensure this, all bicycle racks should meet the following performance standards:

- Support the frame of the bicycle in at least two locations
- Allow the frame and one wheel to be locked to the rack when both wheels are left on the bike
- Allow the frame and both wheels to be locked to the rack if the front wheel is removed
- Allow the use of both cable and U-shaped locks
- Be securely anchored
- Be usable by bicycles with bottle cages, panniers
- Be usable by a variety of bicycle sizes and types
- Allow for both wheels to be kept on the ground

Figure 7- 4: Ideal Bicycle Rack Support Areas



Source: Dero

7.2.2 Bicycle Shelters

Bicycle shelters provide semi-enclosed weather protection for bicycles. They are intended to accommodate short and medium term parking needs. Bicycle shelters should be placed at highly frequented bicycle destinations where users tend to park for periods of an hour or more. Such places include, but are not limited to transit stops, fitness gyms, civic buildings, parks, schools, and other educational institutions. Bicycle shelters should be easily identifiable, well-lit at night, and be able to sufficiently protect bicycles from the elements.



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Bicycle Shelters also provide an opportunity to display safety information, a map of the regional and local bikeway network, and /or any other relevant bicycle information. Like bus shelters, they may also provide ad space, which can defray the cost of installation. The spacing between individual bicycle racks and/or other streetscape elements must be taken into account and should follow the general bicycle parking performance and location standards contained within this Bicycle Parking Plan. An example of a bicycle shelter is shown in **Figure 7-5**.

Figure 7- 5: Bicycle Shelter



The City of Miami should pursue the implementation of bicycle shelters at strategic locations. This will raise the profile of bicycling and provide a parking amenity that provides shelter. Additionally, Miami's rainy climate makes the provision of bicycle shelters particularly relevant.

7.2.3 Bicycle Lockers

Bicycle lockers not only offer additional security and protection from the elements, they provide an appropriate solution for long term bicycle parking needs. Bicycle lockers should be placed at transit stops, park and rides, civic buildings, large residential apartment buildings and office towers, and within educational institutions. While such facilities offer a higher level of security for the bicyclist, they must be well-maintained to ensure that their use continues unfettered and that tampering and theft attempts are kept at bay.



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Additionally, bicycle lockers need to be located so that they are highly visible, accessible and convenient to any/all adjacent land use destinations and intermodal transportation options. Because bicycle lockers are intended for long term use, safe lighting is a critical element to making the lockers feel safe, as many bicycle commuters may be using the facility. Some locations may require the use of CCTV devices to monitor the lockers and the surrounding areas. An example of bicycle lockers are shown in **Figure 7-6**.

Figure 7- 6: Bicycle Locker



Miami-Dade Transit has already implemented many bicycle lockers at Metrorail stations. Some lockers are in better conditions than others, but many remain convenient for those bicycle commuters who use them. The City of Miami should consider placing additional lockers in conjunction with MDT for those Metrorail station locations in need of more secure, long term bicycle parking. Additionally, the City of Miami should pursue types of lockers that discourage their use by vagrants, a known problem at some of the MDT stations. Pay for use programs can also help alleviate this known problem. Finally, the City should create a program that encourages private businesses to supply such lockers for their employees.



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7.2.4 Bicycle Stations

Bicycle stations are intended to serve as a regional hub for metropolitan bicycling activity. They may offer a wide variety of services, such as secure and attended parking facilities, bicycle rentals, changing rooms, lockers and showers, cafe space, and repair services. As such, they provide the highest level of bicycle parking service for both medium and long term use. They also elevate the visibility and viability of bicycling across the region, and often become social centers for those who use them frequently.

Bicycle stations are most appropriate for urban core/central business district locations where the density, mixture of uses, and employment opportunities offered may be maximized by bicycle commuters and tourists alike. Cities such as Chicago, Seattle, Berkeley and Long Beach all provide working models that have been integrated into their downtown urban fabric.

Bicycle stations should be placed in a highly visible location, preferably with access to regional and local transit networks. Parks, plazas, central government buildings and transit stations are all potential locations. An example of a bicycle station is shown in **Figure 7-7**.

Figure 7- 7: Bicycle Station



It is recommended that the City of Miami work with the Miami-Dade MPO to further study the possibility of developing a bicycle station in the Downtown, Health District, or Brickell financial districts. Such a



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facility would promote bicycle tourism, service existing commuters, and entice recreational bicyclists to utilize the provided services on a regular basis. Bayfront Park, Government Center, the University of Miami health campus, and Mary Brickell Village are other possible locations.

7.2.5 Bicycle Sharing Systems

Bicycle sharing systems provide an easy-to-use and inexpensive form of public transportation. Each bicycle sharing station includes several bicycle parking stations and a rental service kiosk designed for visibility and ease of use. Stations are typically located within the public sidewalk, but may also replace an existing on-street parking space where sidewalk space is at a premium. Bicycle stations may also be located within a public park, plaza, or transit stop.

Like the bicycle station concept, bicycle sharing systems are ideal for the most urban environments, such as central business districts and high-density mixed-use neighborhoods. While Washington D.C. is the only American city to have successfully implemented a bicycle sharing system thus far, cities such as New York City, San Francisco, Boston, and Miami Beach are moving to implement systems reminiscent of the most successful in Europe (Barcelona, Lyon, and Paris). An example of a bicycle sharing system is shown in **Figure 7-8**.

Figure 7- 8: Bicycle Sharing System





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While the City of Miami should consider implementing a bicycle sharing system, it is recommended that it first focus on improving the bikeway network so that an increasing number of citizens and visitors would feel comfortable taking to the streets with the bicycles provided by such a system. Once bikeway network conditions improve, a network of bicycle sharing stations starting in the Center Grove, Brickell, Downtown, and the Health District would help reduce automobile dependence and improve accessibility and mobility for all roadway users.

Examples of recommended bicycle parking designs are shown in **Figure 7-9**. Examples of inefficient bicycle parking designs are shown in **Figure 7-10**.



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Figure 7- 9: Recommended Bicycle Parking Designs





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Figure 7- 10: Inefficient Bicycle Parking Designs

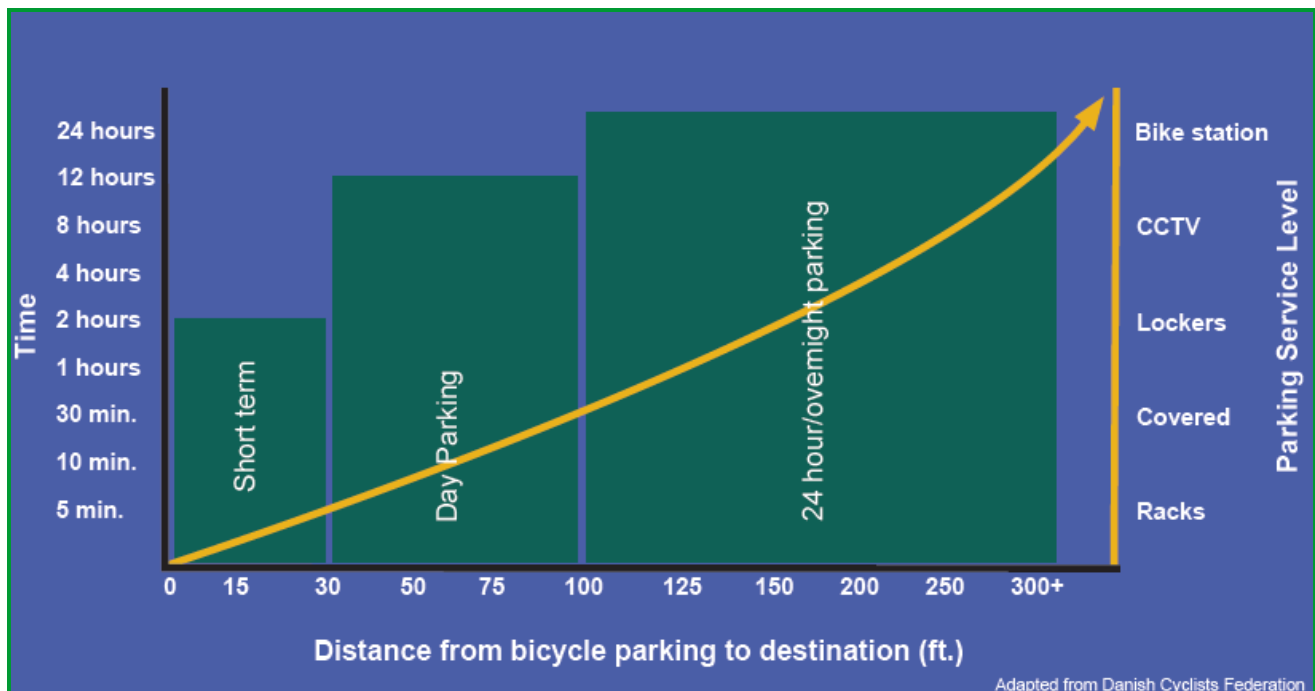




7.3 General Location and Proximity

The general location and specific placement of bicycle parking and other end-of-trip facilities is crucial to its success. Similar to motorists, bicyclists desire to park as closely and as conveniently to their destination(s) as possible. However, the specific placement of parking facilities may vary by the type of facility being provided and the type of trip/user it is intended to serve. **Figure 7-11** shows this relationship.

Figure 7- 11: Distances from Bicycle Parking to Destinations



Short term parking facilities, like bicycle racks and shelters, should be located as close as possible to the destination(s) they serve. This is especially important for streets served by concentrations of retail where any prolonged effort to find adequate bicycle parking is as frustrating for the bicyclist as circling the block is for the motorist.

Long term parking, such as bicycle lockers and stations, should also be as convenient as possible. However, the protection from inclement weather and the enhanced level of safety/service that such facilities afford the user often makes up for location deficiency. Similarly, shower, changing rooms, and locker facilities need not be located inside the destination they serve, but should provide enough proximity and convenience so that commuting by bicycle is as easy as possible.



7.3.1 Location and Performance Standards

In general, safe bicycle rack location should:

- Maximize visibility and minimize opportunities for vandalism by being located near pedestrian traffic, windows, doors, and/or well-lit areas;
- Protect bicycles from inclement weather, as long as the facilities meet or exceed visibility, spacing, and performance standards;
- Locate bicycles a safe distance away from automobiles parked on-street, in lots, or in structures so that bicycles will not be damaged by opening doors or errant driving behavior;
- Not obstruct pedestrian traffic in any way;
- Place the rack(s) between the primary road/path used by bicyclists and the entrance to the destination;
- Not be located on or near stairs, large curbs, or within handicap accessible ramps;
- Provide enough space for bicycles of all types to maximize the bicycle parking capacity of a given facility.

Specifically, bicycle racks for short term parking should be located within 30 feet of the entrance(s) they serve. If impossible, they should be no more than a 30-second walk (~120 feet) away, or at least as close as the nearest automobile parking space. An example of a New York City bicycle shelter which is conveniently located and encourages use can be seen in **Figure 7-12**.

Figure 7- 12: Conveniently Located Bicycle Parking Shelter





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Bicycle racks should be clearly visible from the approach of a destination's most actively used entrance. If located along a sidewalk, within the public right-of-way, bicycle parking should be visible from the street for which the sidewalk serves. Additionally, entire urban blocks should not be served by a large, single distant bicycle rack cluster. Rather, it is preferable to place several smaller rack clusters, or even single bicycle racks in multiple, convenient locations.

When considering the implementation of bicycle parking facilities in the City of Miami, the following location and performance standards and guidelines should be met:

Signs

If a bicycle parking facility is unable to be sited visibly in front of the destination it serves then signs should be provided at all primary entrances to direct bicyclists to the parking.

Clear Path

With few exceptions, bicycle racks, shelters, lockers, and rental stations must allow a minimum clear path of 42" in width so that pedestrians may move without obstruction.

Clearance from the Curb

If sited on public sidewalk abutting a thoroughfare, all bicycle racks must be placed within the furniture zone and be placed at least 24 inches from the curb where parallel parking exists, and at least 18 inches from the curb where parallel parking does not exist. Those placed perpendicular to the curb, however, must locate the nearest vertical component of the rack at a minimum of 48 inches from the curb's edge. Both dimension requirements will help prevent bicycles from being struck by car doors or moving motor vehicles.

Distance from Rack to Rack

Bicycle racks aligned parallel to each other must be at least 36 inches apart. This includes racks that are sold as multiple rack units, which may be attached together. Racks that are aligned end to end must be at least 96 inches apart.

Distance from Wall

Bicycle racks placed perpendicular to a wall must be at least 4 feet from the wall to the nearest vertical component of the rack. Bicycle racks placed parallel to a wall must be at least 3 feet from the wall.



Distance from a Pedestrian Aisle

For indoor racks placed in groups, an adequate pedestrian aisle must be provided so that bicyclists can access and maneuver their bicycles in and out of the parking position. Racks placed perpendicular to a pedestrian aisle must be at least 4 feet from the aisle, which should be at least five feet wide.

Other Site Dimensions

When placed within the public right-of-way, bicycle racks should be:

- 15 feet from fire hydrants, bus stops, taxi stands, hotel loading zones, transit station entrances, newspaper kiosks etc.
- 10 feet from driveways/curb cuts 6 feet from a wall fire hydrant
- 6 feet from a wall mounted fire hydrant
- 5 feet from any standpipes, or above-ground vertical structures like signs, meters, lights, mailboxes, planters, public bathrooms, pay phones etc.
- 3 feet from tree pit edges, grates, utility covers, etc.

Visual representation for many of the above conditions, are detailed in **Figures 7-13 to 7-16**.



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Figure 7- 13: Narrow Sidewalk Bicycle Parking Visible, Accessible, and Close Proximity to Destinations



Figure 7- 14: Narrow Sidewalk Dimensions for Specific Bicycle Parking Guidelines





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Figure 7- 15: Wide Sidewalk Bicycle Parking Visible, Accessible, and Close Proximity to Destinations



Figure 7- 16: Wide Sidewalk Dimensions for Specific Bicycle Parking Guidelines





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Figure 7- 17: Bicycle Parking Located Near Walls Provided with Adequate Maneuverability

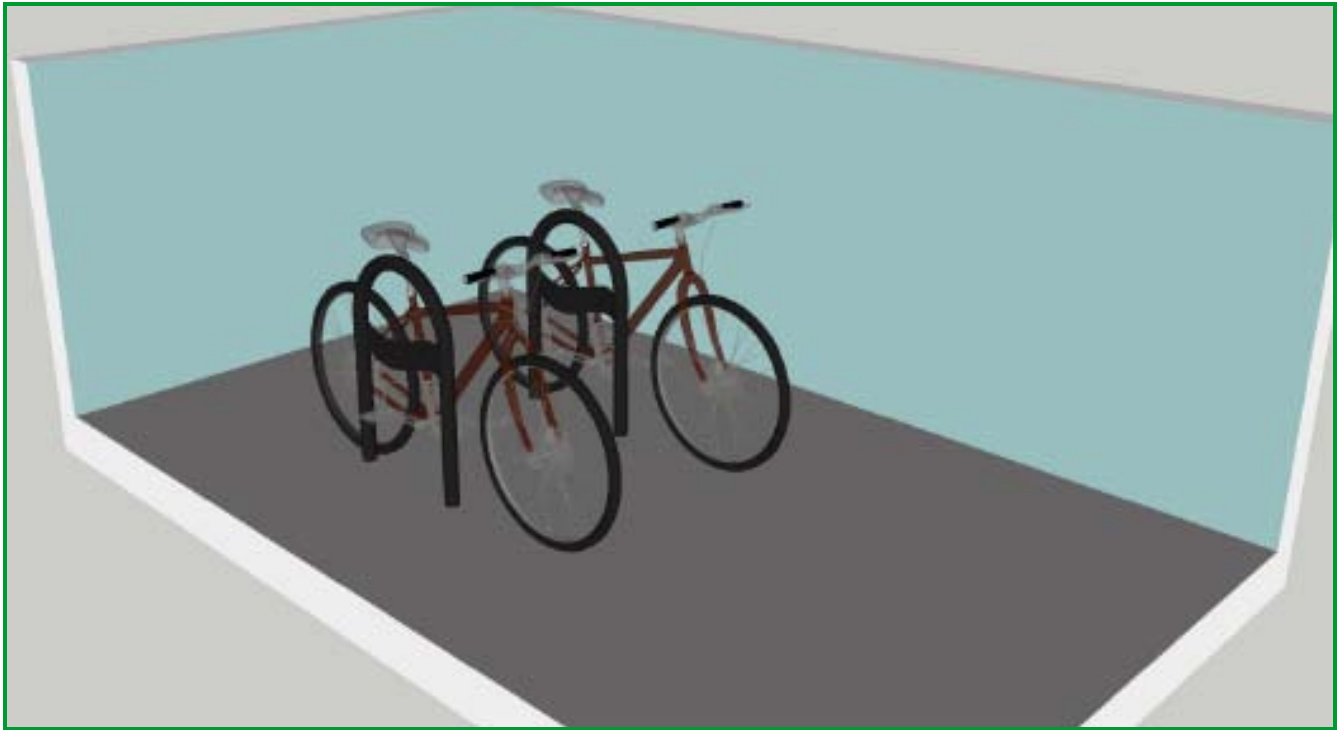


Figure 7- 18: Accessibility and Maneuverability Dimensions for Bicycle Parking Located Near Indoor or Outdoor Walls





7.4 Maintenance and Aesthetics

Once implemented, bicycle parking facilities of all types must be well maintained. This means keeping all facilities clean, orderly, free of any/all abandoned bicycles or bicycle locks, and/or other debris. This will help ensure that bicycle parking remains attractive and is used frequently.

The areas around the facility, whether it be a rack, locker, or otherwise must also remain well-paved, mown, or otherwise tended and cared for so that bicyclists are not deterred from using the facility. Additionally, bicycle racks must be checked periodically so that each remains securely fastened to the ground. Failing to meet basic maintenance standards will deter use and ultimately lead to more problems than the bicycle parking facility is intended to solve. An example of a bicycle rack in the City which is dilapidated and useless is shown in **Figure 7-17**.

Figure 7- 19: Dilapidated Bicycle Rack in the City



The responsibility for maintenance and rack type selection should be conferred upon the city's sponsoring entity (Miami Parking Authority, Parks Department, DDA, Planning Department etc.), or agreed upon between mutual public/private parties and/or multi-jurisdictional interests. This will help ensure that bicycle parking remains viable, safe, and attractive.



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Bicycle parking solutions can add an attractive and unique element to any street or cityscape. In general, visibility and function remain the most important elements. However, opportunities exist for the City, individual businesses or districts to develop their own “brand” of bicycle parking. This is a common occurrence in downtowns, universities or businesses keen on supporting both public art and bicycling. Indeed, a unique, well-designed bicycle rack can enhance or reinforce the visual appeal in the area in which it is placed. While custom bicycle racks do cost more than generic racks, they raise the profile and visibility of bicycling in general, and improve the public perception regarding a city or organization’s values. An example of a New York City standard bicycle rack can be seen in **Figure 7-18**.

Figure 7- 20: Attractive and Unique Bicycle Parking Design



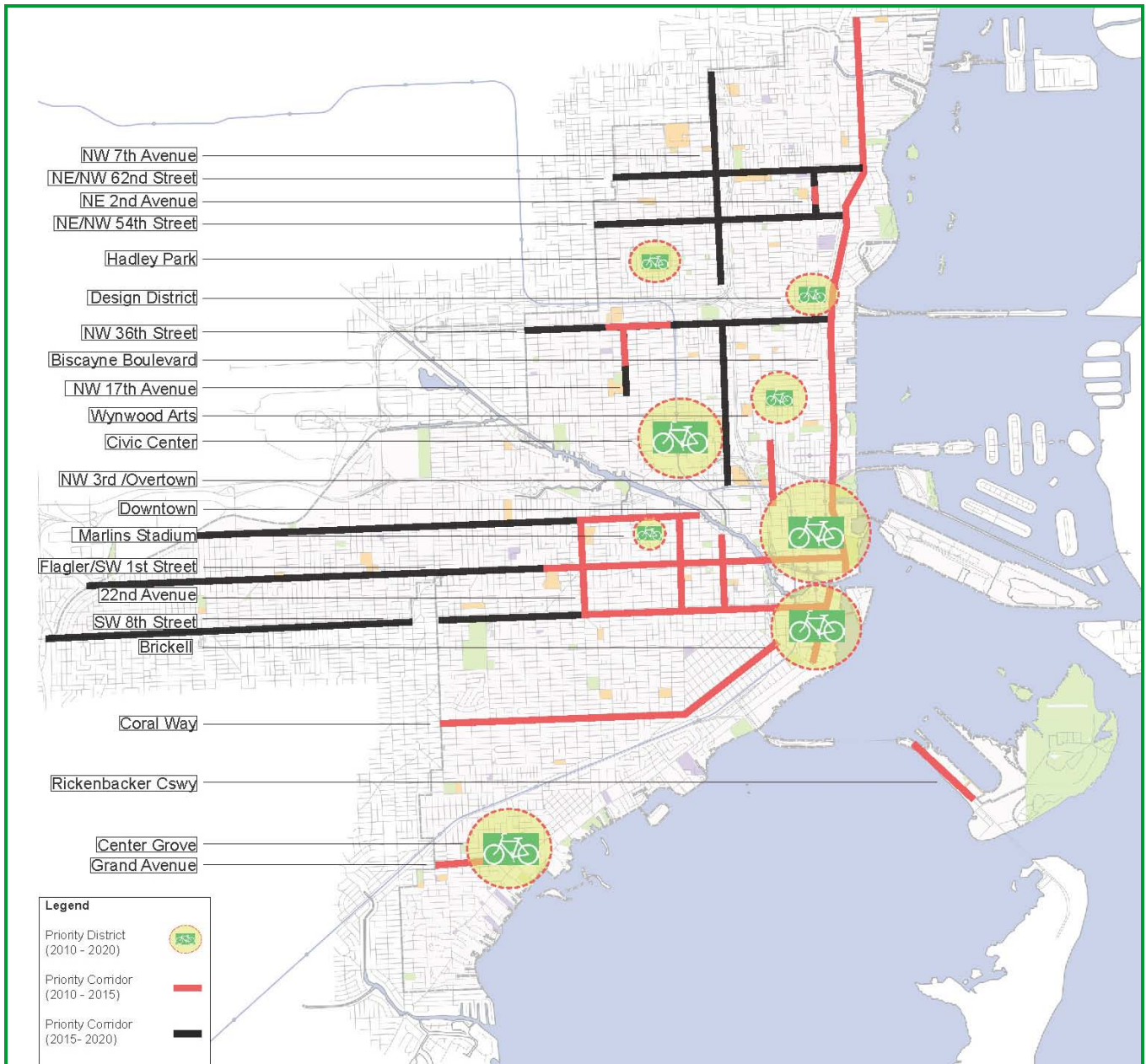
7.5 Priority Corridors and Districts

The City of Miami lacks adequate bicycle parking. In the existing bicyclist survey undertaken as part of this Miami Bicycle Master Plan, the majority of respondents called for additional parking along the City’s major commercial corridors and within destinations such as Downtown and Coconut Grove. Using this input, the City’s current bicycle parking supply, observations on the current demand, and bicyclist travel behavior, **Figure 7-19** depicts priority implementation areas for bicycle parking provisions.



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Figure 7- 21: Priority Areas for Bicycle Parking Provisions



Because planning at this scale requires a fine grain analysis of local site conditions, the recommendations contained herein provide the general scope of the bicycle parking plan which improves existing parking supply conditions and collaborates with the network phasing, survey response, local agency requests, and needs of the locations as well as other guidelines. The parking plans illustrate more than 950 location recommendations (allocating more than 3,000 bicycle rack spaces) for the implementation of bicycle parking facilities in 2010, 2015, and 2020 phases. The



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bicycle parking plans by phase can be seen in **Appendix D**. The detailed bicycle parking plans by NET District are shown in **Appendix E**.





8.0 Safety and Awareness Plan

With 119 fatalities in 2007, The State of Florida routinely ranks as one of the most deadly places in America for bicycling (National Highway Traffic Safety Administration). As the state's second largest City, within its largest metropolitan area, the City of Miami should become one of Florida's leaders in improving bicycle safety not just through the provision of bikeways, but with education, encouragement and enforcement.

If this is to be accomplished, working partnerships between local, county and state entities must be strengthened, and supported by other non-profit organizations and like-minded civic groups. These entities include, but are not limited to:

- City of Miami Police Department
- City of Miami Department of Public Works
- City of Miami Department of Planning
- City of Miami Department of Capital Improvements Program
- City of Miami Department of Transportation
- City of Miami Mayor's Office
- City of Miami Office of Sustainable Initiatives
- The City of Miami Bicycle Action Committee
- Miami Downtown Development Authority
- Miami-Dade County MPO Bicycle and Pedestrian Advisory Committee
- Miami-Dade Police Department
- Miami-Dade Department of Public Works
- Emerge Miami
- The Green Mobility Network
- The Miami Bicycle Coalition
- The Florida Bicycle Association
- Local bicycle shops

While education, encouragement and enforcement measures often overlap, detailed recommendations follow:



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8.1 Education

In general, bicycle education campaigns should aim to increase commuting, errands, socializing, utility, and exercising trips by decreasing the perceived and actual risk of bicycling. In Miami, the importance of improving bicycle safety is underscored by the surveys conducted as part of this bicycle master planning effort. To reiterate, a majority of the survey respondents classified themselves as ‘advanced’ bicyclists, yet 76% cited safety concerns as a major barrier to bicycling in the City of Miami. If bicycling conditions are to be improved, then the primary concern of safety needs to be addressed for the majority of Miamians who currently feel uncomfortable bicycling on a regular basis. **Figure 8-1** shows a motorist-bicyclist education campaign tool in Portland, Oregon.

To improve bicycle safety, the City of Miami should utilize several strategies. These include, but are not limited to promoting bicycling skills courses, motorist and bicyclist safety campaigns, advertising, bicycling events, social media and web-based advocacy tools and programs, and other traditional communication and outreach strategies. To be truly effective, such efforts should also target adult and school age populations, and those who do not speak English as a first language. Such efforts will help cultivate safe bicycling behavior and further attract new bicyclists to Miami’s street and bikeway network, thereby making it even safer for bicyclists. This phenomenon, the so-called ‘virtuous cycle’ has been documented in several other cities where network improvements have lead to both more ridership and improvements in safety.

Figure 8- 1: Motorist-Bicyclist Educational Campaign Billboard





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Through a partnership with the Miami-Dade County MPO, the City of Miami recently produced 45 Metrobus stop safety advertisements (see **Figure 8-2**). This represents one of Miami's first deliberate forays into motorist/bicyclist education. While the ads put forth three different safety messages, the overall goal is to inform motorists that bicycles have a right to ride on the road and that their presence should be respected. The campaign is indicative of a growing partnership between the City and the County in the pursuit of improved public safety.

The City of Miami adopted a Complete Streets policy in April of 2009. The purpose of the policy is to ensure a more balanced and equitable approach to street design, which includes the routine accommodation of bicycle facilities in all street network improvements. If adhered to by City, County, and State agencies responsible for the engineering and design of Miami's thoroughfares, the policy will help support bicycling as a means to achieving the more universal mobility, accessibility, social, health, and environmental goals.

Figure 8- 2: Metrobus Shelter Safety Public Service Advertisement





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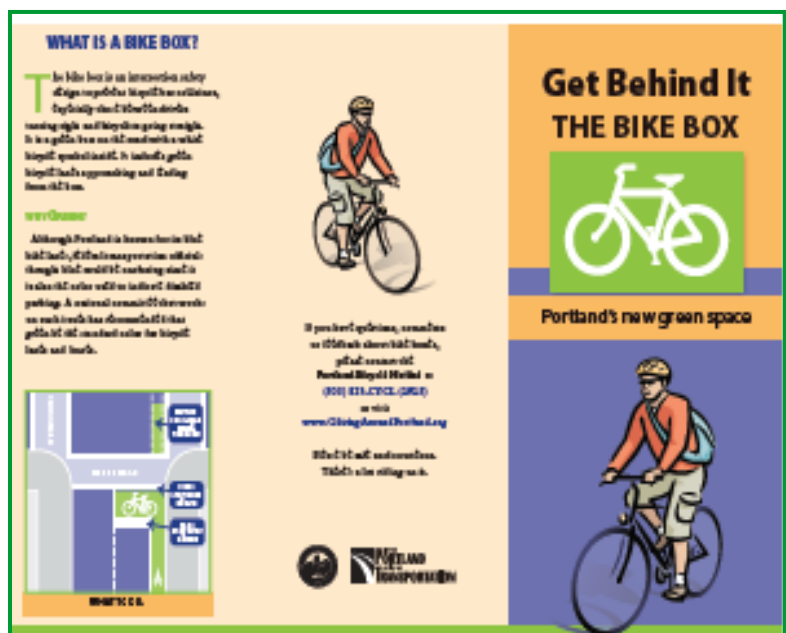
Additionally, the City has created a new website (www.miamigov.com/bikes) dedicated to all bicycling initiatives. This communication tool will provide a valuable interface for the dissemination of all bicycle education efforts, as well as any other information relevant to citizens and visitors alike.

While the City of Miami should take the lead on those bicycle safety issues encompassed within its boundary, most education programs and campaigns will be more cost-effective and beneficial if applied regionally. Our society is highly mobile and not everyone bicycling or driving in Miami actually lives here. Billboards, brochures, and other media messages, for example, can also be produced in greater quantities at a lower unit cost if they are distributed regionally. They can also help the City's visitors bring the message home to the streets of their own communities. In addition to these general accomplishments and goals, the following 9 Education goals should be pursued.

Action 1: Expand efforts to educate motorists and bicyclists about mutual rights and responsibilities. Employ the City of Miami website (www.miamigov.com/bikes) (www.miamigov.com/bikes), language-specific publications, brochures, advertisements, Public Service Announcements (PSAs), billboards, and social media to connect the general public to bicycle safety initiatives.

Action 2: Educate Miami motorists and bicyclists about new facility types. Use all of the above methods to educate Miami motorists and bicyclists about how to use and respect new bikeway network facility types as they are implemented. These include, but are not limited to Shared Use Lane Markings, Bicycle Boulevards, and Physically Separated Bicycle Lanes. The City of Portland distributes information when new bikeway facility types are implemented using a brochure shown in **Figure 8-3**.

Figure 8- 3: Bicycle Education Brochure





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Action 3: Expand Safe Routes to Schools Partnerships.

Collaborate with Miami-Dade County Public Schools, public health organizations, parent-teacher associations, the FDOT, and local advocacy groups to expand the Safe Routes to School program, whereby students are further encouraged to bicycle and walk to school through innovations such as Freiker (Frequent Biker) and the University of Miami's successful WALKSAFE and new BIKESAFE program.

Figure 8- 4: Complete Street Priorities for Pedestrians and Bicyclists



Action 4: Partner with the Miami-Dade public school system. Work with the public school system to create a Miami-specific bicycle education curriculum for elementary and middle schools, and promote it through the Education Compact and other existing school-related safety programs. Bicycle rodeos, helmet giveaways, and safety training should also be pursued in conjunction with these efforts, as well as those detailed in Action item number three.

Action 5: Encourage at least five new City of Miami employees/BAC members/residents to become a League of American Bicyclists League Certified Instructor (LCI) on an annual basis. Encourage each to be responsible for leading at least three bicycle skills courses per year, in coordination with the Miami Police Department, non-profit organizations, and/or other partnering governmental and non-governmental entities. In **Figure 8-5**, a League of American Bicyclists Certified Instructor teaches traffic skills 101 participants on how to change a flat tire.

Figure 8-5: League of American Bicyclists Certified Instructor Teaching



Action 6: Educate City staff members about Complete Streets. In recognition of the City's Complete Streets Policy, City of Miami employees who work in the Planning, Public Works, and Transportation departments should be trained in the design and implementation of bikeway facilities and their role in fulfilling the City's Complete Streets policy.



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Action 7: Work with Miami-Dade County to follow the lead of Seminole County's Alternative Transportation Education (ATE) program. Establish a traffic education program for those who have had their license suspended or revoked, and ensure that violators undergo a motorist-bicyclist safety education course before said license is restored.

Action 8: Create a Bicycle Ambassador program. Work with the Downtown Development Authority and the Coconut Grove Business Improvement district to coordinate voluntary Bicycle Ambassadors in Downtown Miami/Brickell and Coconut Grove. These ambassadors should provide safety tips, assist with bicycle maintenance, identify network infrastructure maintenance issues, and distribute Bikeway Network maps.

Action 9: Fund Education initiatives. Work with County, FDOT, and other local, regional, state, and national entities to obtain funding for bicycle education.

8.2 Encouragement

The City of Miami should directly promote bicycling as a healthy form of recreation and as a sustainable mode of transportation. Within a year from its adoption, the City has already met and surpassed several encouragement goals set forth in the Miami Bicycle Action Plan. In some instances, it has even positioned itself as a national leader in sponsoring bicycle use.

More specifically, Miami now designates March as the City's official Bike Month, has scheduled Bike to Work Week events, and has produced Bike Miami Days. From November 2008 to May of 2009, Bike Miami Days encouraged thousands of residents and visitors to explore Coconut Grove, Brickell and Downtown Miami by bicycle. The car-free event raised a tremendous amount of awareness by enticing residents of all abilities to bicycle in a safe, car-free setting. During the summer of 2009 Bike Miami Days was supplemented by Bike Miami Rides, which encourage people of all ages and abilities to embark monthly on community rides lead by volunteers, city staff, and members of the city bicycle police unit through various Miami neighborhoods (see **Figure 8-6**). These group rides encourage less experienced bicyclists to ride, and allow them to learn basic traffic skills and build confidence. They also foster more connection to Miami's growing bicycle culture.



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Figure 8- 6: Bike Miami Days Event



While these accomplishments mark a new direction for the City, and demonstrate an impressive amount of momentum, additional resources, programs, and events will be needed to maintain and expand the City's bicycling activity. The following 14 Encouragement Actions should be pursued.

Action 1: Raise the profile of Bike Month. The City of Miami should sponsor and collaborate with other municipalities, government organizations, businesses, and non-profit groups to promote rides, events, and promotions during the month of March.

Action 2: Expand Bike to work week activities. Partner with employers to host commuter contests, group rides, and incentives for bicycle commuting during Bike to Work Week.

Action 3: Provide adequate public bicycle parking at all city sponsored events. The City of Miami should work with the Department of Public Facilities, Miami Parks Department, Police Department, and bicycle advocacy groups to provide temporary bicycle parking valets at large city sponsored events.

Action 4: Host an annual Bicycle Summit. The City of Miami should build upon the momentum of the Bicycle Master Plan public summits by instituting an annual summit. This will allow the general public to interact with City, County, and State officials, and to provide general input and feedback.



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Action 5: Continue to host Bike Miami Days or Bike Miami Rides on a monthly basis. These events raise the profile of bicycling in the community, encourage exercise, foster safe on-street riding practices, and establish goodwill between the Miami Police Department and the bicycling public.

Action 6: Seek opportunities to host local, regional, statewide, national, and international bicycle-centric events. Such efforts should include, but not be limited to competitive races, rallies, conventions, conferences, and the like.

Action 7: Continue working with South Florida Commuter Services to promote bicycling as part of their Transportation Demand Management (TDM) program. Expand the SFCS bicycling program's scope to help businesses in the region offer incentives for those who choose to commute by bicycle in the City of Miami.

Action 8: Create a City of Miami Bikeway Map. The map should detail the location of all existing bikeway network infrastructure. The map should also include basic traffic safety information, the location of significant destinations, be distributed in portable print and online formats, and be updated and re-distributed on an annual basis.

Action 9: Develop an online bicycle route wayfinding/planning/community input tool. As social media and online technologies continue to advance, interactive online planning tools will likely change how governments pursue the acquisition and dissemination of information. Thus, a comprehensive, web-based program should be integrated with the City's existing bicycle website (www.miamigov.com/bikes) to help City departments collect and share relevant data, and allow bicyclists to report network deficiencies, form communities of interest, identify the need for additional bicycle parking, and participate in the prioritization of infrastructure

Figure 8- 7: Bicycle Magazine's Biketown Event



Figure 8- 8: Emerge Miami Mapping Session





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improvements. The program should integrate the city's current master plan and those improvements already completed and would effectively become the online version of the City of Miami Bikeway Map.

Action 10: Improve wayfinding and visibility. The strategic location of Bikeway Network Map displays and Bikeway Network route signs will do much to improve the visibility of Miami's bikeway network. Such maps should be sited in highly conspicuous downtown and neighborhood center locations, as well as at transit stops, bicycle parking shelters, and bicycle shops. Network signs should provide clear information regarding the location of bikeways and destinations.

Action 11: Promote bicycle commuting. Work with employers, including the City of Miami, to develop programs, incentives, and end-of-trip facilities that encourage employees to bicycle. Specifically, the City of Miami should officially adopt and promote the Federal bicycle commuter tax break.

Action 12: Establish a Shop by Bike program. Promote errand-running and other short trips through Shop by Bike programs in the city's commercial and mixed-use neighborhood centers, and along corridors where retail, restaurant and offices are clustered.

Action 13: Promote all types of bicycling. Support efforts to develop off-road bicycle facilities like BMX parks, velodromes, and the creation of new road and mountain bicycling clubs and organizations.

Action 14: Fund Encouragement initiatives. Work with Miami-Dade County, FDOT, and other local, regional, and national organizations to identify and obtain funding for bicycle encouragement programs and initiatives.

8.3 Enforcement

To create a bicycle-friendly city, law enforcement departments must address the safety concerns of the bicycling public. At present, this responsibility logically falls upon the bicycle officer division of the Miami Police Department, but should extend to all officers within the police force.

In general, the City of Miami Police Department (MPD) has become an excellent partner in pursuing encouragement and education through Bike Miami Days and Bike Miami Rides. However, a lack of everyday traffic law enforcement encourages both unsafe motorist and bicyclist behavior. The MPD



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should join with Miami-Dade County Police to increase motorist and bicyclist education through increased enforcement. The specific recommendations include the following 6 Enforcement actions.

Action 1: Increase enforcement of unsafe and unlawful bicyclist and motorist behavior. The Miami Police Department should focus on enforcing laws that reduce bicycle/motor vehicle crashes and increase mutual respect between all roadway users. This enforcement program should take a balanced approach to improving behaviors of both bicyclists and motorists, and help educate both groups about safe behavior.

Action 2: Train officers annually about traffic laws. Police officers who either serve in the bicycle officer division, or who are well-versed in traffic law as it pertains to bicycle safety, should help organize annual workshop trainings for fellow officers on motorist and bicyclist law enforcement practices. Such workshops should cover the Florida state ‘three-foot law,’ the dynamics of the door-zone and right-hook collision-conflicts, and identify methods for reducing conflicts between bicyclists and motorists. An annual overview of the City’s expanding bikeway network, crash data statistics, and continued areas of concern should also be presented to the force by the City of Miami Bicycle Coordinator.

Figure 8- 9: MPD Participating in Bike Miami Rides



Action 3: Improve traffic safety and education outreach material. The Miami Police Department should work with other related City departments to develop an informational card or traffic law safety pamphlet to distribute with issued warnings for all bicycle, and bicycle-motor vehicle infractions.

Action 4: Put more officers on more bikes, more often. Work with the Police Department to expand the number of police officers on bicycles, especially within the city’s urban core.

Action 5: Map problem areas. Continue to identify the most common conflicts between bicycle and motor vehicle users and create strategies for enforcement and design alternatives to mitigate the conflict between motor vehicles, pedestrians, and bicyclists.



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Unsafe motorist behavior that should be targeted includes, but is not limited to:

- Turning left or right in front of bicyclists without properly using signals
- Overtaking bicyclists without at least three feet of horizontal clearance
- Parking or traveling in bicycle lanes, bicycle paths, or other facilities designated for the exclusive use of bicyclists
- Opening the doors of parked vehicles in front of bicyclists
- Rolling through stop signs or disobeying traffic control devices
- Harassment or assault of bicyclists
- Driving while under the influence
- Speeding

Unsafe bicyclist behavior that should be targeted includes, but is not limited to:

- Ignoring traffic control devices
- Bicycling against the flow of traffic, except in those rare instances where contra-flow facilities are provided
- Bicycling without lights at night
- Bicycling without helmets
- Bicycling recklessly on sidewalks
- Failing to yield to pedestrians
- Bicycling while under the influence

Action 6: Fund Enforcement initiatives. Work with Miami-Dade County, FDOT, and other local, regional, and national organizations to identify and obtain funding for bicycle encouragement programs and initiatives.

These education, encouragement, and enforcement actions will help the City accomplish its stated goal of becoming certified by 2012 as a Bicycle Friendly Community by the League of American Bicyclists.





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9.0 EVALUATION PLAN

The collection and evaluation of data must play an integral role in the Miami Bicycle Master Plan implementation process. Demonstrating a structured system under which to collect and evaluate data is required by the League of American Bicyclists if the City is to obtain Bicycle Friendly City status in 2012—a stated goal of the 2008 Bicycle Action Plan.

This Evaluation Plan is intended to enable the City of Miami to measure its successes against its shortcomings, and the goals set forth in the Bicycle Master Plan. These efforts range from simple tasks, such as tracking the number of bicycle racks installed each year, to more complex and time-intensive endeavors, such as counting bicyclists and analyzing crash data on a bi-annual basis. Regardless of what metric is utilized, all data should be collected and used to mark and communicate Miami’s successes, but more importantly to shift priorities to those areas in need—whether the areas require engineering, education, encouragement, enforcement, or even additional evaluation initiatives. Indeed, the Miami Bicycle Master Plan is, and should always be a living document.

The following 21 actions are recommended for the City of Miami to evaluate and implement the Bicycle Master Plan:

Figure 9- 1: Bicycle Collaboration Route Map and Planner

BikePlanner: Collaborative Route Mapping

What is your bike commuting route?

Show routes by: Experienced riders

Latest routes:

- 4/12/09 by Anonymous
- 4/12/09 by Joe Bliggs
- 4/11/08 by Jane Smith
- 4/10/09 by Dani Cohn

Latest comments:

- Aaron Cooper said: I ride my bike through that intersection all the time. There should definitely...
- Buzon Donaldson said: Actually, I usually ride along the east side of the river until 2nd street, then...

Notify me when new routes and comments are posted

Collaborative maps can be grouped by question / prompt (e.g., "where do you ride?")

Riders can mark routes as well as other locations of various types

Visitors can leave comments, starting a discussion around routes and places

The Open Planning Project



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Action 1: Implement an open source, online public input tool like BikePlanner to help support Actions 4, 10, 12, 14, 18, 19, and where possible.

Action 2: Map all planned and existing Bikeway Network infrastructure facilities. Keeping track of the type, length, and location of all current and planned bikeways will help the City, and the general public, track the planning and implementation process. The map should be updated annually and be available on the City's Bicycle Initiatives website (www.miamigov.com/bikes): www.miamigov.com/bikes.

Action 3: Collaborate with the Miami-Dade County MPO and the Miami Police Department to track bicyclist crash statistics yearly. The number of police reported bicycle crashes should be compared against the number of average daily bicyclists counted bi-annually. The crash rate percentage derived from these measures should then be tracked over time to determine ridership and safety trends. Results should be published on the City's Bicycle Initiatives website (www.miamigov.com/bikes).

Action 4: Develop an open source, web-based crash data collection program. Because police-reported crashes only represent those situations where the police are called upon, many incidents—especially bicycle-on-bicycle crashes—are under-reported. The implementation of a web program allowing bicyclists to upload their own information to an online data base would help create more robust data sets that could be compared and contrasted with official police data (see crashstat.org for a working example).

Action 5: Conduct a bi-annual bicyclist count. Bicyclist counts should be taken at up to 25 locations throughout the City every other year to measure any increases or decreases in bicycling. Count locations should include those corridors already known for bicycle activity, whether they have bikeway facilities or not. Other locations, such as the City's causeways and those bridges spanning the Miami River also mark appropriate count locations. These counts should also include observations on helmet use, riding on the correct side of the street, obeying traffic controls, and light use (if counts take place at night).

In order to complete this bi-annual task efficiently, the City of Miami should collaborate with volunteers from organizations like the Miami Bicycle Coalition and the Green Mobility Network. For consistency, each bi-annual count cycle should take place at approximately the same time, date, and under similar



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weather conditions. Additionally, the use of pneumatic tubes on trails, or the emerging infrared detection technologies should be explored for reasons of efficiency and accuracy.

Action 6: Conduct bicyclist counts before and after the implementation of new bikeways. Prior to the implementation of any bikeway, pre-implementation counts should measure the number of riders and the manner in which they are riding (against traffic, with or without helmets etc.) against the post-implementation counts. Over time, these measures will help determine what, if any, effect bikeways have on travel behavior.

Action 7: Measure Bicycle mode split every five years. In partnership with the Miami-Dade County MPO, citywide travel mode share should be documented and encouraged to shift from private automobile use to bicycle use and transit use. As the County seat, any progress measured in Miami will help spur other municipalities to follow, and make inroads against the challenge of global climate change and the need to reduce carbon emissions.

Action 8: Track all upcoming roadway improvement projects at the City, County and State level. Coordinate with City, County and State departments, as well as Miami and Miami-Dade Commissioner offices to ensure the inclusion of bicycle infrastructure within capital improvement and County Public Works projects, and as part of the City of Miami's Complete Streets policy.

Action 9: Evaluate new bikeway types' performance and efficacy. Because the Bicycle Master Plan recommends several new bikeway types currently not found within the City of Miami, it will be important for the City to evaluate their safety and effectiveness.

Action 10: Update the Miami Bikeway Network map annually. The Miami Bikeway Network Guide Map should be updated every year to reflect the addition of all new bikeway facilities. The map should also reflect any changes in the location of bicycle shops and/or other pertinent information related to bicycling in the City of Miami.

Action 11: Measure the expansion of bicycle parking facilities. Within one year of the adoption of this plan, record the total number and location of the city's publicly accessible existing bicycle rack supply.



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Action 12: Track the implementation of all new bicycle parking facilities on a bi-annual basis. Collaborate with the Miami Parking Authority, the Downtown Development Authority, Coconut Grove Business Improvement District and all other entities involved with implementing bicycle parking to install and measure the expansion of bicycle parking.

Action 13: Survey bicycle parking demand at key locations (commercial districts, transit stops, schools, parks, etc.) on a bi-annual basis. The City of Miami, in conjunction with volunteers and/or bicycling related non-profits should analyze the number of bicycle parking spaces provided and the number of spaces being used. These parking counts should occur at the same locations and be used to measure any increases or decreases in bicycle parking demand.

In order to complete this bi-annual task efficiently, the City of Miami should collaborate with volunteers from organizations like the Miami Bicycle Coalition and the Green Mobility Network. For consistency, each bi-annual parking count cycle should take place at approximately the same time, date, and under similar weather conditions.

Action 14: Create a bicycle rack request program. Utilize open-source mapping software to allow Miami residents and businesses to request the improvement or implementation of bicycle parking facilities. For best practices, research similar programs in New York City, Seattle, and Washington D.C.

Action 15: Measure bikes on transit. Work with the Miami-Dade County MPO to count the number of bicycles carried onto Metrobus and Metrorail on a bi-annual basis. Work with County MPO to improve bicycle rack capacity on those Metrobus lines where need dictates, and monitor the needs of bicyclists who bring bicycles onto Metrorail.

Action 16: Keep track of the amount of funding applied to the following initiatives:

- Planning, design, and engineering
- Education and outreach
- Encouragement
- Enforcement
- Evaluation



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Recording what is being spent annually will illuminate how money is being spent in relation to the core principles of the Bicycle Master Plan.

Action 17: Create a bicycle facility maintenance program. Work with City of Miami, Miami-Dade County, and FDOT to make operational and annual schedule of minor maintenance projects (re-striping, pothole filling, storm grate replacement, etc.)

Action 18: Update the Bicycle Master Plan every five years. As a living document, priorities, funding, and needed improvements will change over time. Thus, the Bicycle Master Plan should be updated every five years over the duration of the Plan's 20 year timeline. Make use of the annual bicycle summit and BikePlanner tool to gather input on shifting travel behavior and preferences to prioritize project implementation.

Action 19: Measure the percentage of Bikeway Network completed each year. Such efforts will measure progress toward completing the entire recommended 280-mile Bikeway Network by 2030. This exercise should be broken out into the percentage of network miles completed per facility type as well (bicycle lanes, shared lane markings, Share Use Paths, and bicycle boulevards). Make the data available at www.miamigov.com/bikes and on the BikePlanner website, if implemented.

Action 20: Measure the approximate number of people participating in pedestrian or bicycle safety education programs and events annually. Miami area bicycle advocacy organizations should help the City of Miami track the number of participants in education or encouragement activities (e.g., Bike to Work Day, bicycle commuter classes, bicycle safety training, bicycle rodeos, Bike Miami Days, Bike Miami Rides, etc.), for inclusion in the Bicycle Benchmarking Report. The number of participants should grow over time.

Action 21: Count the number of Miami Bikeway Network Guide Maps distributed annually. This measure will help track the growth in interest and also help plan ahead for the amount of maps to be distributed following the Map's annual update.



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In general, if the Bicycle Master Plan is to be implemented, all future transportation projects must duly consider accommodating bicyclists safely, and in a contextually appropriate manner. Many of the Bicycle Facility Network improvements within the Plan may be achieved simply by enforcing the City's Complete Streets policy. However, this may require the City of Miami to secure additional funding sources, to train staff appropriately, and to coordinate with other regional governments so that the recommendations of the Plan are implemented. Some projects may be realized in the short term, while others may require several years to come to fruition. Both short and long term projects will be necessary for improving bicycling conditions in the City of Miami. The Evaluation Matrix can be seen in **Appendix F**.



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Images:

Miami Downtown Development Authority

Mike Lydon/ The Street Plans Collaborative

Carly Clark/The Open Planning Project

Dero Bike Racks

Bike Portland

Steve Vance via Flickr

Bike Portland via Flickr

Ed Yourdon via Flickr

treeHugger.com

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United States Department of Transportation

conceptcars.org

City of Portland Office of Transportation

Bruce Wayne Stanley

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The City of Miami

Office of the Mayor

Mayor Manny Diaz

Kathryn Moore

Suzanna Valdez

City Commission

Commissioner Angel Gonzalez, District 1

Commissioner Marc Sarnoff, District 2

Commissioner Joe Sanchez, District 3

Commissioner Tomas Regalado, District 4

Commissioner Michelle Spence-Jones, District 5

City Manager

Pedro Hernandez

City Assistant Manager

Bill Anido

City of Miami Office of Sustainable Initiatives

Robert Ruano

City of Miami Bicycle Coordinator

Collin Worth

City of Miami Department of Transportation

Lilia Medina

Jose Gonzalez, P.E.



Miami Bicycle Master Plan

City of Miami Department of Planning

Alexander Adams, AICP

The City of Miami Bicycle Action Committee

Alex Argudin, Richard Berkowitz, Javier Betancourt, Roger Bowers, Richard Cahlin, Kenneth Capezzuto, Terry Connor, Alicia Corral, Angel Diaz, Betty Fleming, David Henderson, John Hopkins, Norman Lipoff, Theodora Long, Gabriel Lopez-Bernal, Mike Lydon, Anamarie Garces de Marcilla, Mary Jane Mark, Art Noriega, Dario Perez, Ignacio Riveria, Jason Rodgers-da Cruz, Hank Sanchez-Resnik, Adam Schachner, Javier Soto

Miami-Dade County Metropolitan Planning Organization

David Henderson

Consultants:

HNTB Corporation

Odalys Delgado

Christopher Benitez

Joshua Garcia

The Street Plans Collaborative

Mike Lydon

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1.0 Local Plans Reviewed

1.1 City of Miami: Miami 21 Zoning Ordinance (2005-Ongoing)

Summary: The Miami 21 Ordinance will be a re-write of the City's Zoning Ordinance 11,000, which to date has produced an unpredictable urban form, and one not conducive to a walkable, bicycle-friendly, transit-oriented, livable city. The proposed form-based code is in the process of being adopted by the City Commission.

Analysis: Typical thoroughfare cross-section plans were drawn and proposed as part of the Miami 21 process but they will not be included in the final code adoption. Article 3 of the code does recognize that bicycles "are a sustainable and viable mode of transportation and recreation in the City of Miami." Additionally, the code calls for the use of bicycles as transportation, utility and recreation, and makes note that the provision of bicycle lanes and shared use streets are to be laid out in a future bicycle master plan, which is now being undertaken. Finally, the code calls for a minimum of 1 bicycle rack space for every 20 vehicular spaces in the most urban Transect zones (T4-T6), as well as in special districts. This provision will likely not provide enough bicycle parking spaces for certain land uses, such as high-density residential, educational uses, and certain commercial and park destinations, but is being revisited by the City of Miami bicycle parking ordinance.

1.2 City of Miami: Bicycle Action Plan (2008)

Summary: The City of Miami Bicycle Action Plan includes a relatively comprehensive set of goals and actions for making Miami a more bicycle-friendly city. The BAP is the foundation for the current master planning effort.

Analysis: Adopted in October of 2008, Miami has already accomplished many of the Plan's key components. These include hiring a part-time bicycle coordinator, hosting the monthly and much-loved Bike Miami Days and Bike Miami Rides, inserting bikeways into planned roadway infrastructure investment with City, County, and State agencies, increasing bicycle parking (downtown and Coconut Grove), posting bicycle safety and awareness bus shelter ads, and undertaking this master plan effort. Furthermore, the scope of the master plan includes many of those items listed as goals in the BAP, which include education, evaluation, and enforcement efforts for tracking the city's ongoing successes and shortcomings.

1.3 Miami-Dade MPO: Mountain Biking / Unpaved Trails Map (2008)

Summary: A single map depicting all unpaved trails in Miami-Dade County.

Analysis: The Miami-Dade MPO produced a useful map that displays all unpaved trails and routes designed specifically for, or well-suited to off-road biking enthusiasts. Mountain biking is largely a recreational activity that



piques the interest of many riders in south Florida for which the map will prove useful. However, within the City of Miami, there are currently no unpaved trails available for such use. There are several paved paths designed for recreational riding where mountain bikes are used. The Virginia Key Master Plan includes trails to be used specifically by BMX and off-road bicyclists.

1.4 City of Miami: Virginia Key Master Plan Draft (2008)

Summary: A master plan calling for the restoration of the Key's natural areas, as well as the improvement of built and natural recreational facilities for many types of users and demographics.

Analysis: As noted above, the master plan provides miles of both on and off-road recreational bicycle facilities. The construction of off-road and BMX courses will specifically draw a demographic of regional users to Virginia Key. Already part of a heavily used recreational bicycling corridor, such facilities will be a welcome addition to the City's bikeway network.

1.5 Miami-Dade MPO: Bicycle Count (2008)

Summary: The MPO used 45 different points and intersection locations throughout the County to tally bicycle and pedestrian traffic. The effort was intended to demonstrate and track high activity areas. Counts are to be periodically updated so that an increase or decrease in use patterns may be logged.

Analysis: The data was gathered on weekday mornings and weekend afternoons in the summer and winter of 2008. The results reveal that an overwhelming number of riders in the City of Miami are adult males who don't wear helmets. This has clear implications for future safety countermeasure and education efforts, especially as it relates to attracting a more diverse demographic to ride bicycles safely. Data collection methods also systematized location and behavior metrics for future bicycle counts to monitor behavior and activity trends. This will help understand how improved facilities increase usage patterns. High activity areas included the Venetian Causeway, the Rickenbacker Causeway and Coconut Grove. Other areas such as Overtown, Model City, and Liberty City—where bicycling is prevalent—deserve more detailed evaluation, as they were left out of the above bicycle count efforts.

1.6 Miami-Dade MPO Bikeway Map 2008

Summary: A map displaying all existing bicycle paths, trails, lanes, wide curb lanes and shoulders intended for bicycle use, as well as those under construction.

Analysis: The map displays a broad range of County bicycle routes. For example, the Biscayne Boulevard's wide sidewalks in downtown Miami are labeled as a "paved path." Using a bicycle on a sidewalk, without the appropriate signage and intersection safety countermeasures, should not be encouraged. Additionally, segments



of Southwest and Northwest River Drive sidewalks are similarly called “paved paths,” despite being far too narrow for bicyclists and pedestrians to share equitably. The map also shows the proposed Baywalk link at Museum Park as under construction, which it currently is not. Overall, it’s a relatively rough document that displays a small and discontinuous bikeway system.

1.7 Miami Downtown Development Authority Plan (2008)

Summary: A very thorough, detailed plan for all elements comprising Downtown Miami and its many needed improvements. According to the DDA, many of the recommendations are being phased out for practical reasons, to the point where the plan is now referred to as a study.

Analysis: Relating to bicycles, the study offers a somewhat detailed approach to bicycle infrastructure. It includes some bicycle network proposals, recommendations for bicycle parking types and locations, and specific ways to address barriers like bridges. An important recommendation made numerous times in this study is to return many of Miami’s one-way streets to bi-directional traffic flow. Implementing such changes would do much to improve circulation for bicyclists, pedestrians, buses, and motorists.

1.8 City of Miami: Parks and Open Space Master Plan (2007)

Summary: This plan was undertaken in conjunction with Miami 21 to communicate a 21st century park system for the City of Miami.

Analysis: Utilizing a survey-laden public process approach, it is clear that Miami’s citizens desire more and safer places to walk and bicycle. As a result, implementation of the Plan will prioritize pedestrian facilities that connect the city’s parks. According to the Plan, “Over half of the survey respondents expressed a need for walking and biking trails (which translates to nearly 74,000 households), and half of them see their needs for trails currently being met 50% of the time or less. Survey respondents would allocate 15% of all park capital funds specifically to acquisition and development of new walking and biking trails.” Furthermore, the plan recommends prioritizing the development of such facilities like the Baywalk, the FEC corridor greenway, the Commodore Trail and the M-Path.

1.9 Miami-Dade MPC: Parks Master Plan (2007)

Summary: A 50-year master plan encompassing the full extent of the County’s public realm: greenways, streets, natural areas, parks, cultural areas, and waterway trails.

Analysis: Related to bicycling, a primary recommendation is to create network of “Great Streets” by retrofitting the County’s existing oversupply of wide, auto-centric arterial and collector roadways. With Miami 21 as a foundation on which to push this agenda forward, Miami’s urban form would improve the region’s aesthetics; provide for bicycle/pedestrian safety and comfort; and improve the social, physical and economic environment for those land



uses abutting important corridors. Clearly, Miami-Dade County and the City of Miami must work with FDOT “to move beyond vehicular performance based street design and instead design streets that are defined by their role in the community.” In bringing this point to light, the Plan underscores the importance for all residents to have immediate access to comprehensive bikeway network

1.10 Miami-Dade MPO: Bicycle Crash Data – 2005-2007

Summary: Map indicating reported crash data for 2005, 2006, and 2007.

Analysis: While crashes occur throughout the city, it is evident that the vast majority of crashes are occurring at intersections, especially along the city’s major avenue and street corridors. Crashes are likely underreported, as is the case in most official pedestrian or bicycle crash statistics. Indeed, most bicycle crashes are caused by the bicyclist, and not the cause of motor vehicles, and therefore many are not reported. However, when and where bicycles crashes occur with motor vehicles, the risk of serious injury or death is exponentially higher. The 2007 statistics were lower on reported crashes in the city in comparison to other years. Instituting a more robust crash analysis tool, one where bicyclists may report their own incidents may go further in providing more reliable data.

1.11 Miami-Dade MPO M-Path Master Plan (2007)

Summary: The Metrorail M-Path Master Plan addresses operational, maintenance, and design issues along the existing 9-mile M-Path.

Analysis: This is a crucial corridor in the Miami Bikeway Network that needs to be prioritized at both the County and City level for improvement. It has major connections through dense neighborhoods, including Brickell Avenue, and is aligned with the Metrorail, the region’s only rapid transit system. Therefore the path offers numerous multi-modal transportation options, as well as recreational opportunities, and should be thought of as a bicycle trunk line for the southeastern portion of the city.

While specific bikeway design standards are not to be included in the Miami Bicycle Master Plan scope, the planned improvements are to be supported in the plan, especially intersection improvements and pavement width/conditions. It appears that beyond the bicycle path, the corridor seems underutilized, and could be rebranded as a 9-mile linear park, and not just as a shared use path.



1.12 Miami-Dade MPO/FDOT Safe Routes to School (2007)

Summary: A SRTS program to improve walking and bicycling safety for the Henry Flagler elementary school catchment area. Includes education, program, and infrastructure improvement to an area that experienced a relatively high number of pedestrian/motor vehicle accidents during the 3-year study period—15 pedestrian crashes, although none involving juveniles were reported, including two fatalities. The study also provided similar recommendations for Ludlam, Southside, and Riverside elementary schools.

Analysis: Specific countermeasures are certainly needed to address SRTS issues within the City of Miami. While the plan identifies ideal routes, and includes recommendations to add sidewalks, crosswalks, signals, curb extensions, bulbouts, and the like, it is unclear how much has been implemented, and what has resulted from the study. Follow-up with the individual schools and the County needs to occur.

1.13 Miami-Dade MPO Bicycle Safety Plan (2006)

Summary: This plan is built from crash data analysis (GIS, 1996-2002), and illuminates possible safety countermeasures, which include education, enforcement, and engineering/design methods.

Analysis: In general, the bicycle crash trend line is decreasing throughout the whole county. As it relates to Miami, the largest clusters of crashes were occurring west and northwest of downtown (high density neighborhoods with noticeably elevated levels of bicycle ridership, but no bikeway network facilities). However, data shows young riders in Liberty City to be particularly at risk. Physical engineering recommendations include bicycle lanes, traffic calming measures, and experimental treatments like shared use lane markings (sharrows) and bicycle boxes. The former are starting to be found throughout the city in the form of neighborhood traffic circles, while the latter two have not been implemented in the City of Miami or the County. Additionally, bicycle boulevards simultaneously calm traffic and create bicycle routes along primarily residential streets. This option is currently being studied by the County as feasible option for particular areas in the City of Miami, including the aforementioned underserved neighborhoods.

Most countermeasures suggested in the study have yet to be implemented, which is frustrating bicycle advocates considering some improvements include only minor interventions. Educating City Commissioners and other city/county agencies may help decision makers prioritize these relatively inexpensive safety improvements.



1.14 Miami MPO Crash data (2000 – 2006)

Summary: A recording of all traffic (motor vehicle, pedestrian and bicycle) injuries and fatalities. General trend is that there are fewer crashes throughout the County.

Analysis: The crash trends bode well, but the data demonstrates that bicyclist fatalities are not decreasing, despite the decrease in accidents. In general, those neighborhoods with higher ridership levels experience higher crash rates, which is to be expected and not necessarily an indication of other neighborhoods being safer for bicycling.

1.15 FDOT Safe Routes to School Study (2005)

Summary: The study chose schools, identified proposed routes and estimated costs for implementing a safer network of bicycle and pedestrian improvements.

Analysis: This study is not nearly as detailed as the one conducted in 2007, which got into very site specific interventions and the countermeasures needed to improve conditions. Additionally, there was no implementation plan associated with the outlined funding stream. Clearly the study served as a basis for the 2007 study, explained in more detail above.

1.16 Miami-Dade MPO Long Range Transportation 2030 Plan (2004)

Summary: This is a big picture, 25-year planning and policy document for Miami-Dade County. Updated every five years, the plan includes investment priority for all modes of travel.

Analysis: The plan still places a primary emphasis on mobility and not accessibility, which is a focus that ultimately deters bicycle use. The plan calls for expanding bicycles lanes and greenways, many of which were identified in previous studies. The plan doesn't assign specific funding streams or priority to any of the proposed projects. To date, some additional bicycle lanes have been striped, but major greenway improvements, such as the M-Path, Unity Trail, FEC Corridor, and Commodore Trail have not been fully funded.

1.17 Miami-Dade MPO Traffic Calming at Miami-Dade College (2004)

Summary: A study outlining potential traffic-calming measures within the streets and avenues that surround and bisect Miami-Dade College's Wolfson Campus, located in downtown Miami.

Analysis: While the study focused primarily on pedestrian issues, many of the proposed traffic-calming measures would directly benefit bicyclists as well. These include narrowing lanes, returning streets to two-way configurations, improving wayfinding, and other infrastructure improvements like sidewalk bulb-outs and the like.



1.18 Miami MPO Rail Convertibility Study – 2004

Summary: A study outlining potential strategies for transforming the County’s unused or underutilized rail corridors for improved transit service and bicycle and pedestrian paths. The study updated a previous study conducted in 1993.

Analysis: As the report highlights, Miami-Dade has a history of transforming underutilized rail right-of-ways into multi-modal corridors. Starting in 1978, this includes the Metrorail/M-Path corridor. The study states “It would be imperative that the County seek designation of any proposed corridor as part of the Statewide Greenways and Trails Map. Additionally, “the corridor [in question] should be added to the County’s Bikeway Plan to ensure its inclusion in the County program.”

Both the FEC and Unity Trails were not designated as priorities in the previously mentioned 2030 LRTP, which means there is little impetus to get these crucial links implemented. In particular, the Rail Convertibility study points to the FEC below 72nd Street as the most important corridor, currently proposed as a rail with trails project. Currently, this dovetails nicely with a new group of advocates who are proposing a first phase of the project between downtown Miami and Overtown.

1.19 City of Miami: Downtown Transportation 2025 Master Plan (2003)

Review: This long range transportation plan for downtown Miami includes bicycle facilities and improvements as a small element within the overall plan.

Analysis: An ambitious and comprehensive scope, the 2025 Master Plan lays out multimodal improvements to be attempted over a quarter century. The plan’s bicycle route recommendations do not take into account the existing street sections or the level of change needed for implementation. None of the proposed bicycle projects were included in the plan’s final list of priorities to accomplish. There has been no progress on implementation of the plan’s bikeway recommendations.



1.20 Miami –Dade MPO: Bikeway Priority Feasibility and Evaluation Study (2003)

Summary: A study that put forth seven high priority projects in need of evaluation and prioritization. The study concluded that the Commodore Trail redevelopment project deserves to have the highest priority because it will have the largest net effect on the bikeway network. The other six projects included:

- Bird Road from SW 67th Avenue to SW 37th Avenue (Not within the City of Miami)
- NW 11th Street from NW 32nd Avenue to NW 22nd Avenue
- Palm Avenue from W 9th Street to Okeechobee Road (Not within the City of Miami)
- Red Road from U.S. 1 to SW 8th Street (not with the City of Miami)
- North Federal Highway from NE 36th Street to NE 54th Street
- M-Path Trail from SW 67th Avenue to Downtown Miami

Analysis: Commodore Trail (ranked 1st) and the M-Path (ranked 2nd) have yet to be upgraded per the feasibility study. Both play vitally important roles in improving connectivity, recreation and multimodal transportation for bicyclists within the City of Miami. At present, the Commodore Trail has entered into a more detailed design stage for improvement, from Cocoplum Circle to the intersection of South Miami and Brickell Avenue. Positively, the M-Path is currently undergoing maintenance for the removal of crumbling pavement, exposed tree roots, and the like.

1.21 Miami-Dade MPO: Bicycle Parking Plan for Miami-Dade Transit (2002)

Summary: This is a bicycle parking plan for integrating bicycle use further into Miami-Dade transit, specifically the Metrorail and park-and-rides. The plan specifically recommends replacing all lockers with 190 new lockers, potential bus hub bike parking locations, the removal of all “wheel bender” racks to be replaced with U-Racks, replacement of parking spaces with bicycle parking, and minimizing restrictions on bicycles on transit.

Analysis: The plan runs through best practices, all types of racks, existing conditions and bicycle counts at stations. The study found no racks or lockers at Culmer, Civic Center, Overtown/Arena, despite high levels of bicycle ridership and transit use in those areas. The Miami Bicycle Master Planning effort will analyze the condition of racks and lockers at all Metrorail stations within the city limits so that the City may work with the County to request an upgrade of parking facilities in those locations that need them.

1.22 Miami-Dade MPO: Bicycle Facilities Plan (2000)

Summary: A comprehensive bicycle plan for Miami-Dade County. The plan used many statistical analysis tools to determine the conditions of the existing roadway network. Of the 1,500 roadway miles analyzed, only 8.6 percent of roadway miles were at an acceptable level of service for bicycling (score of “C” or better). Moreover, over 90



percent of the roadway miles received an unacceptable LOS score of “D” or worse, with approximately 58 percent of all segments receiving an LOS score of “E” and 5.7 percent a LOS of “F” rating. As of 2001, The County had less than 12 miles of on-road bicycle lanes meeting FDOT criteria, and to date has implemented very few additional segments.

Analysis: The plan offers a very robust quantitative based survey of existing conditions within the bicycle network. The plan also identifies how to prioritize routes. To date it seems very little has been implemented in the City of Miami and the whole County.

1.23 Miami-Dade MPO: LRTP 2025 Bike Suitability Study (2001)

Review: This is a map that demonstrated those streets suitable for bikeway network facilities in 2001.

Analysis: This countywide bikeway network only takes major arterial and collector streets into account. While such streets link major destinations across long distances, it ignores neighborhood routes as part of the County’s network. Most streets in the county were deemed not suitable for bicycling unless major improvements are made to vehicle travel speeds, number of lanes, land uses abutting the corridors, end of trip facilities, the education of motorists, and the like.

1.24 Miami River Greenway Action Plan (2001)

Summary: A greenways plan for the Miami River intended to promote more recreational activity along the important body of water that bisects the City.

Analysis: The plan provides a bevy of on-street pedestrian and bicycling improvements along the river and within the neighborhoods that abut it. Many of the recommendations have not been implemented, but others are complete or on their way to being completed. Future plans need to continually support the vision associated with this original plan as it lays out a comprehensive and equitable approach to both on and off-street facilities.

1.25 Miami-Dade MPO: North Dade Greenways Plan (1998)

Summary: The plan documents the growing awareness and need for greenways as means of both recreation and transport in Miami-Dade. The 393 square mile study is extensive, of which Miami comprised about 10%. Of relevance is the identification of a link between the M-Path with the heavily used Venetian Causeway corridor, the Miami River greenways, the Commodore Trail, the Gold Coast Trail in portions of Allapattah/Model City/Liberty city stretching from the Miami river north along 27th avenue, a perimeter trail near the airport, the FEC (Flagler Trail) from downtown stretching north along the corridor to the city limit, and portions of Unity Trail in Miami along 73rd street/FEC east-west link. Additional recommendations include improving South Miami Avenue.



Analysis: In Miami, most of the Plan recommendations have not been implemented, except for portions of the Miami River Greenway, and a bicycle lane along South Miami Avenue. The M-Path and Commodore Trail improvements have also been refined and proposed, but have yet to be fully funded or implemented. The M-Path link to Venetian has since been redesigned as a “baywalk” concept to tie the terminus of the M-path to the river, along Biscayne Bay and Bayfront/Museum Park to 15th street/Venetian causeway.

1.26 Miami-Dade MPO: Bicycle Facilities Plan (1997)

Summary: In the early 1990s, the Intermodal Surface Transportation Efficiency Act (ISTEA) and Clean Air Act (CAA) gave incentives to MPOs for promoting the expansion of bikeway facilities. This resulted in a renewed interest in bicycling, which spurred the creation of many plans, such as Miami Dade County’s 1997 Plan.

Analysis: The 1997 plan was largely a physical needs-based document used to determine future routes, infrastructure needs, and the existing conditions for bicycling within the County, including the City of Miami. The latter was done using a quantitative and objective Roadway Condition Index (RCI). The index found that more than 60% of roadways were unsuitable for safe bicycling in the County. Interestingly, a similar LOS analysis in 2001 indicated that 90% of roadways were unsuitable for such use.

The RCI and the subsequent LOS metrics, while intended to correctly identify unsafe conditions and promote bicycle-friendly streets, often do the opposite. For example, as the plan mentions, the RCI promoted wide curb lanes and expanded turn lanes for “more automobile capacity.” This directly conflicts with the same RCI notion that lower ADT equals a more bike-friendly street.



2.0 National Plans Reviewed

2.1 Seattle, 2007

A comprehensive two year planning process that culminated in the creation of one of America's most ambitious bicycle master plans—a 10-year timeline for the build out of 450 miles of bikeway infrastructure. Seattle is much further along than Miami in creating bicycle infrastructure. Yet, the plan serves as the jumping off point for a new commitment, one that aims to do no less than make Seattle the best bicycling city in America. The full plan includes a master route plan, broken out by route types, education and safety measures, coordination amongst inter-governmental agencies, implementation, performance measures, maintenance, and an existing conditions analysis. The plan serves as a great model for the Miami Bicycle Master Plan. Of note, it relies little on statistical justification, rather assumes bicycling as a key component to the city's green initiatives and as a critical element in their recently enacted Complete Streets legislation. The plan admirably places bikeways within a quarter mile of 95% of all households.

2.2 Portland, 1996

This is an impressive plan from America's most bicycle-friendly large city and one that continues to be implemented with success. The planning process encompassed two-and-half years and included input from over 2,000 people in dozens of public meetings. The plan is a 20 year-time frame with updates occurring every 5 years. It entails a fully comprehensive approach to developing bikeways, education, regulations and standards, benchmarks for performance etc. The Plan calls for 630 miles of bikeways of all types with the commensurate end of trip facilities. The stated goal is to place bikeways within a quarter mile of all Portland residents. The long term plan includes 23,000 additional bicycle parking spaces in the city. Engineering guidelines are detailed and extensive. The plan uses a three tiered approach of goals, policies, and objectives to approach a 20 year build out. The Bikeways classification system is clearly spelled out.

2.3 Denver 2001

This was a comprehensive update to the existing master plan first created in 1993. The plan was updated to track accomplishments as well as refocus efforts to improving bicycle conditions in the City of Denver. This plan called for 100 new miles of bike lanes, primarily along the major grid corridors, not unlike Miami's. The potential effect is that all City residents will be within ½ mile of a bikeway facility. The City created a signed bike route system for 22 corridors, so there are routes entitled D-1, D-2, etc. The Plan looks at a lot of off-road alignments as areas where connectivity and ridership levels can both be improved. The Plan provides a well detailed "gap analysis" type of approach, outlining where the opportunities are and what the standards are for trails and their improvement.



Miami Bicycle Master Plan Appendix B





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1.0 Allapattah



-  Parks
-  Public School/Daycare Facility
-  Private School/Daycare Facility

Within an excellent network of streets, Allapattah features a mixture of small lot single-family homes and duplexes, and medium density apartment buildings. The area is served by bus and rail transit, with numerous bus stops located along the commercial corridors, and three Metrorail stations along NW 12th Avenue (Health District, Santa Clara, and Allapattah). Bicycle use is readily apparent throughout the neighborhood, especially as a means to access daily shopping needs and social engagements. With a collection

of neighborhood-serving retail and restaurant businesses, NW 17th Avenue, between NW 28th and NW 36th Streets, is one of the neighborhoods definitive bicycle activity hubs.

Existing Bicycle-Friendly Features

Most parks in Allapattah feature at least one green “wave” bicycle rack, while all three Metrorail stations offer a various amount of inverted “U” bicycle racks and bicycle lockers in various condition. Many low-volume, low-speed residential streets offer safe routes parallel to Allapattah’s commercial and industrial corridors.

Key Challenges

Allapattah is bordered and bisected by several high-volume and high-speed thoroughfares that make bicycling uncomfortable for even the most experienced cyclist. NW 7th, 12th, 22nd, and 27th Avenues, and NW 20th and NW 36th Streets exemplify this condition. Yet, it is along these corridors where many local jobs, services, and commercial uses are located. Accessibility and safety are therefore an issue that needs consideration. At present, there are no on-street bikeways or bicycle parking facilities in the district, which likely deters use and exacerbate the amount of wrong-way and sidewalk riding that occurs in the neighborhood. Between 2005 and 2007, 33 crashes were recorded, almost exclusively along the neighborhood’s commercial corridors. NW 36th Street alone was the location for 8 crashes.



An Industrial district, bordered by NW 20th and NW 23rd Street to the south and north, and NW 7th and NW 27th Avenues to the east and west, poses an additional safety threat and barrier to bicyclists, as large delivery and 18-wheel trucks frequent the area and the surrounding corridors.

As a large regional employment center, Allapattah's Health District district significantly lacks bicycle parking and bikeway facilities, which would help visitors and employees access the area's many amenities and services and potentially lower the amount of needed motor vehicle parking.

Finally, accessing the Miami River, which comprises the district's southern border, is made difficult along the NW River Drive corridor where many private residential and marine related land uses offer limited access to the River. Furthermore, the bridges connecting Allapattah to the neighborhoods to the south of the Miami River do not accommodate bicyclists safely and therefore serve as additional barriers to safe bicycle use.

Key Opportunities

Allapattah's street network offers several opportunities for enhanced bikeway facilities, such as bicycle boulevards and shared use lane markings connecting schools, parks, residential areas, and commercial corridors. The Metrorail right-of-way, between NW 25th Street and NW 36th Street should also be improved to include a shared use path, similar to the M-Path. At present, well worn "desire lines" already demonstrate such use, but more importantly a need for such a facility.

Both NW 28th and 29th streets present opportunities for inter- and intra-neighborhood connectivity. NW 10th Avenue also offers an excellent north-south route allowing bicyclists to travel between the Health District and the Model City/Liberty City neighborhoods. As existing bicyclist destinations, NW 17th Avenue and NW 36th Street would be ideal for shared use markings/signs, as the present width does not allow for bicycle lanes.

Finally, a need for bicycle parking facilities along the commercial corridors exists. Better wayfinding amenities would also best help roadway users to access the neighborhood's recreational amenities, like the Miami River and planned on-street and off-street greenways.



Allapattah Images



Bicycle and pedestrian desire lines along the Metrorail right-of-way.



Inverted "U" Racks provide parking at the Allapattah Metrorail Station



A common scene: two bicyclists turn north off of NW 28th Street.



NW 28th Street offers a good east-west bicycle route.



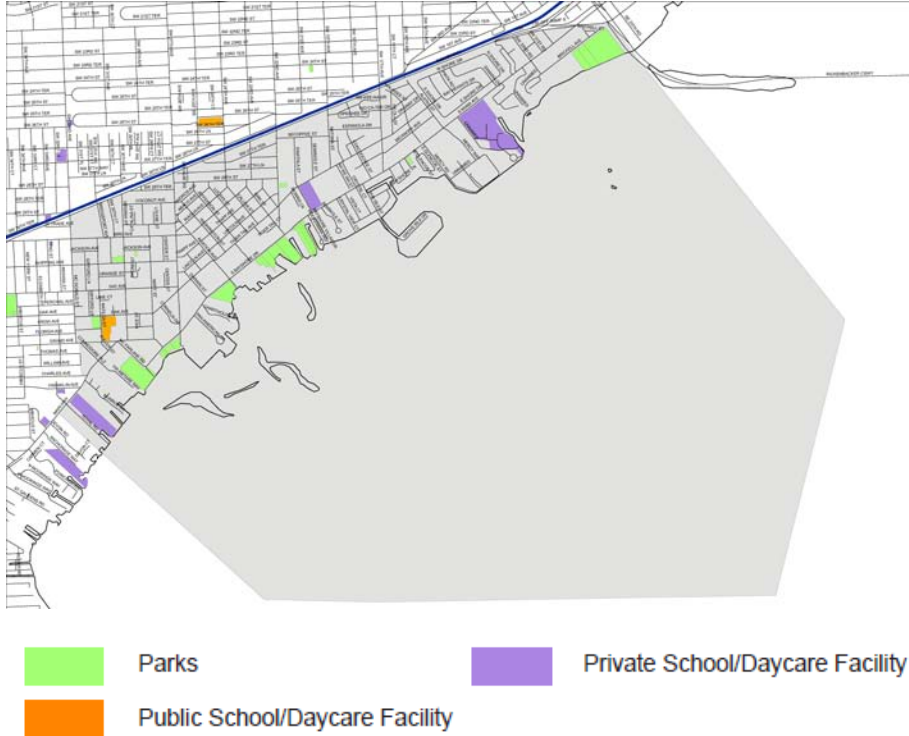
Wrong-way, sidewalk riding on NW 36th Street.



Wide lanes and high speeds threaten bicyclists along NW 7th Avenue.



2.0 North/East Coconut Grove



North/East Coconut Grove is a high activity area for recreational and competitive bicyclists, especially on the weekends. From points south and northeast, hundreds of bicyclists use South Bayshore Drive as they ride to and from the Rickenbacker Causeway. The Grove's mixed-use village center, as well as the parks and restaurants that line Biscayne Bay (Kennedy, Myres, and Peacock parks) serve as recreational and utility trip generating destinations for bicyclists of all abilities.

Existing Bicycle-Friendly Features

The recent improvements to the Rickenbacker Causeway and the prevailing attitude towards bicyclists in this NET District make the area a regional destination for south Florida's bicyclists. Additionally, the Grove's Business Improvement District has effectively hosted the most successful Bike Miami Days to date. Also, by increasing the supply of bicycle parking in the village center the area is committing itself to the needs of bicyclists. Previous to these important efforts, the Commodore Trail has given recreational bicyclists an alternative along sections of Bayshore Drive and Main Highway towards the South Grove area. Additionally, a traffic signal actuator capable of detecting bicyclists was installed at the intersection of SW 32nd Road and S Bayshore Drive. This device allows bicyclists to change the light signal green within a matter of seconds. Finally, North/East Coconut Grove's residential neighborhoods are formed by a grid of streets that feature several traffic calming devices, such as chicanes, diverters and traffic signals, which make travel more comfortable for bicyclists.

Key Challenges

Many challenges and barriers remain for bicyclists in the North/East Grove NET area. To date, the Commodore Trail is virtually unidentifiable between the Rickenbacker Causeway and the center Grove. Additionally, where the trail enters the village it becomes an urban sidewalk. Beginner and intermediate bicyclists often do not move to the roadway, which causes conflicts with pedestrians and cafe patrons.



Of the bicycle crashes reported in North/East Coconut Grove between 2005 and 2007, the majority occurred along Bayshore Drive. The roadway's width (primarily four lanes), the level of traffic congestion, and the speeds at which motorists travel seems to deter less experienced riders from riding safely within the roadway, instead forcing them to the sidewalk where they must vie for limited space with pedestrians, and navigate many intersections.

At the District's northeastern border, the entrance to the Rickenbacker Causeway is difficult for bicyclists to access, as they must contend with heavy vehicular traffic and confusing traffic patterns. Additionally, South Dixie Highway, which forms the northern border for North/East Coconut Grove District acts as a significant barrier to the neighborhoods immediately to the north, as well as the M-Path.

Additional bicycle parking is still needed within all parks and within the village center itself. And while new decorative bicycle racks raise the profile of bicycling, they sometimes do not offer the most functional or efficient solutions.

Key Opportunities

The North/East Coconut Grove NET District has a great opportunity to capture more utility and commuting trips by bicycle, while also improving safety for the thousands of recreational and competitive riders who use the district's main corridors. Major improvements along the Commodore Trail, Bird Road, SW 27th Avenue, and South Bayshore Drive will do much to improve connectivity and safety. Bicycle boulevards along select residential streets will improve safety and mobility options for intermediate and beginner bicyclists too. Those streets already closed to thru-traffic, or which have already received traffic-calming improvements present excellent opportunities for bicycle boulevards if wayfinding is improved.

More bicycle parking will also encourage the use of bicycles for short, utilitarian trips, especially at destinations within the village center. Additional bicycle-centric events, like Bike Miami Days, will likely be met with political and constituent support, thereby further raising the profile of bicycling in the North/East Coconut Grove District. Finally, adding more inductor loops should be pursued to allow bicyclists to cross high-volume thoroughfares at challenging intersections.



North/East Coconut Grove Images



Traffic Circles slow traffic in residential neighborhoods.



Decorative bicycle racks "spoil the bicyclist," and help raise their profile.



Streets closed to traffic still provide bicycle and pedestrian access.



Bicyclists and motorists constantly vie for space along S. Bayshore Drive.



A chicane along Tiger Tail Avenue slows motor vehicle traffic.



Commodore Plaza seems ideal for shared-use lane markings.



3.0 Coconut Grove South/West



-  Parks
-  Public School/Daycare Facility
-  Private School/Daycare Facility

The Coconut Grove South/West NET District is a physically, socially, and demographically diverse area. In the northern part of the district, bicycles are frequently used for social purposes and to access daily needs. In particular, the commercial district along Grand Avenue remains a key destination for the neighborhood's residents.

In the southern part of the district, skilled recreational bicyclists comprise the majority of users.

These bicyclists typically do not

make use of the Commodore Trail, which attracts joggers and a less visible population of intermediate and beginner bicyclists.

Bicycle-Friendly Features

A relatively new bicycle/pedestrian path has made a much needed connection between Plaza Street in the northern and southern part of the grove. Additionally, new traffic calming improvements, mostly in the form of small traffic circles, indicate potential locations for bicycle boulevards along Franklin and Day Avenues. The Commodore Trail is in need of significant improvement, but it is best defined as a physically-separated shared use path in this district. Remnants of on-pavement markings and old bicycle route signs still exist, but are difficult to make out.

Key Challenges

Between 2005 and 2007, 4 of 13 recorded crashes occurred along Grand Avenue. Clearly, safety improvements are needed along this well-frequented corridor. McDonald Street, Bird Avenue, SW 37th Avenue, and Ingraham/Main Highway represent four other corridors where bicycle safety measures should be commensurate with their use as frequent bicyclist travel corridors, but in which limited or no improvements have been made.



Due to the dense foliage, rightfully considered an amenity, poor lighting and visibility pose safety risks, especially at intersections. Additionally, because so many of the South Grove's waterfront streets are privatized, accessing Biscayne Bay on a bicycle remains difficult.

Recovering and improving the Commodore Trail remains an important challenge for this portion of the City, and Bicycle access in and around the schools remains difficult.

Despite the number of bicyclists, there are no bicycle racks located along Grand Avenue. Equalizing the investment in such infrastructure between the North/East Coconut Grove and Coconut Grove South/West districts is an important challenge to overcome.

Opportunities

There are several large and small scale opportunities to make the Coconut Grove South/West district more bicycle-friendly. While featuring lower densities and less proximity from the commercial services of the village center, this district is likely to garner higher levels of bicycle use if on-street bikeways, wayfinding signs and bicycle parking facilities are expanded and improved upon. Bicycle Boulevards that connect east to west, and north to south present the greatest opportunity to improve safety and use.

The improvement of the Commodore Trail, and those potential bicycle routes that feed into it (such as the recently connected Plaza Street), should help bicyclists reach their destinations more safely. Finally, the few streets that do reach the district's waterfront should be well-marked and improved so that the general public can enjoy the natural beauty of Biscayne Bay.



Coconut Grove South/West Images



Grand Avenue is an area of high bicycle activity in the West Grove.



Day Avenue at Virrick Park is both a destination and a link for bicyclists.



A recently constructed path provides a needed bicycle connection.



The Commodore Trail is poorly marked and in various states of disrepair.



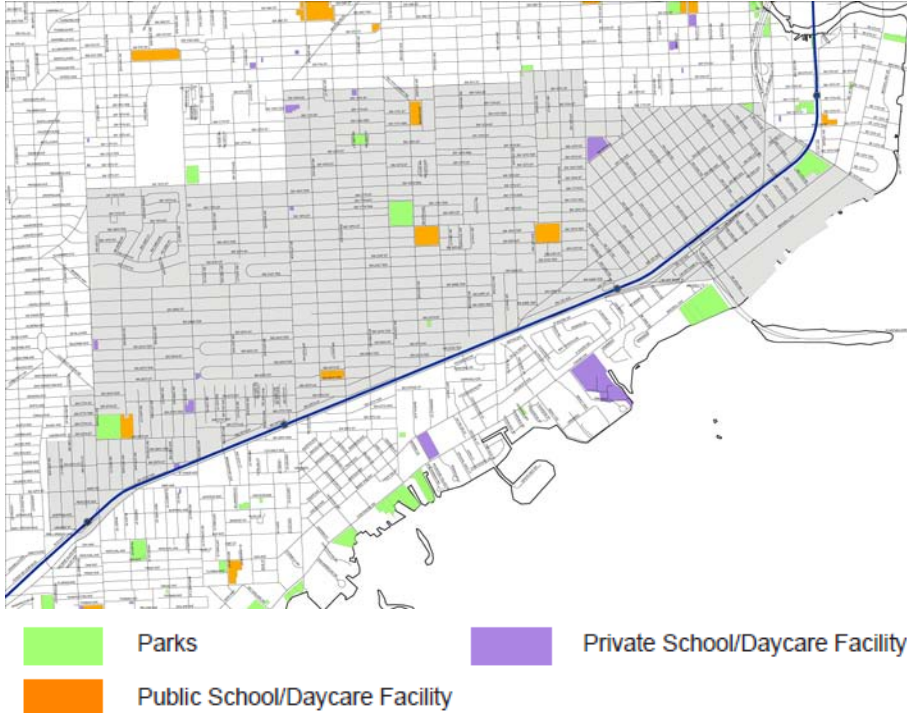
Royal Road provides rare public access to Biscayne Bay.



Signage warn motorists to the presence of bicyclists along Ingraham Hwy.



4.0 Coral Way



Named for one of Miami's most historic thoroughfares, the Coral Way NET District is comprised of several smaller neighborhoods, including The Roads, Shenandoah, Coral Gate, and Silver Bluff. The Coral Way corridor, which connects downtown Miami to downtown Coral Gables, is increasingly the home to dense mixed-use and residential development. However, the adjacent neighborhoods, save for the SW 27th Avenue corridor, are comprised primarily of single-

family homes, duplex units, and one to three-story apartment houses. The area is served by Metrobus along the major corridors and the Metrorail/South Dixie Highway forms the District's southern border. While bicycle use varies by neighborhood, higher volumes may be found near the M-Path and the District's eastern neighborhoods.

Bicycle-Friendly Features

In recent years many small, landscaped traffic circles have proliferated throughout the Coral Way NET District. Residents state anecdotally that these improvements have slowed traffic speed and helped beautify their neighborhoods, especially in The Roads and Shenandoah neighborhoods.

In addition, Bicycle Lanes have been implemented along SW 15th Road and South Miami Avenue. At present, two roadway reconstruction projects are slated to include bicycle lanes. These include portions of Coral Way (FDOT project between SW 15th Avenue and SW 12th Avenue) and SW 3rd Avenue (City of Miami project between SW 12th Avenue to SW 1st Avenue). Additionally, the M-Path is currently undergoing \$700,000 worth of needed repairs. These improvements will increase connectivity between the M-Path, Metrorail, downtown Miami, and The Roads neighborhood. Finally, bicycle lockers and bicycle racks are available at the Vizcaya and Coconut Grove Metrorail stations, adjacent to the M-Path.



Key Challenges

While the recent and future bicycle lane projects continue to improve conditions for bicyclists, the Coral Way District overall has very little bicycle infrastructure. The lack of visible bicycle parking options at schools and along the primary commercial corridors, like Coral Way, seems to deter use and threaten one's sense of safety. Additionally, high motor vehicle speeds and traffic volumes along the district's major north-south corridors (SW 12th, 17th, 22nd, 27th, and 32nd Avenues) provide barriers to bicyclists. As a major east-west automobile commuter route, Coral Way also presents a particular challenge, as the vehicular speeds and volumes of traffic threaten all but the most experienced of riders. It should be noted that the current 40mph speed limit does not recognize the corridor's land use patterns and built character.

A total of 25 crashes were recorded between 2005 and 2007. The majority of these occurred in clusters along Coral Way (6), South Dixie Highway intersections (7), and at the entrance to the Rickenbacker Causeway (4).

Key Opportunities

Although Coral Way's density is less intense than that of the Little Havana or Downtown NET Districts, the Coral Way area maintains an excellent network of residential streets that, between the major corridors, provide an excellent network of parallel streets already amenable to implementing bicycle boulevards. Opportunities to capture higher bicycle mode share and improve safety may be found in connecting those streets that pass by known trip generators like parks and schools which already feature traffic-calming measures.

There are also significant opportunities to add bicycle parking facilities, especially along Coral Way, SW 27th Avenue, at schools, and Metrorail Stations. Such facilities will improve the network and offer safer choices for bicyclists when they reach their destination. Finally, moving past the scheduled repairs to implementing the M-Path Master Plan (2007) in full would create a signature bikeway for the all southeastern and southwestern neighborhoods.



Coral Way Images



Recently built traffic circles force neighborhood traffic to slow down.



Shenandoah Middle School and Park are important destinations.



SW 17th Lane offers a safe route to Shenandoah Park and Middle School.



In the Roads neighborhood, overgrown plantings block visibility.



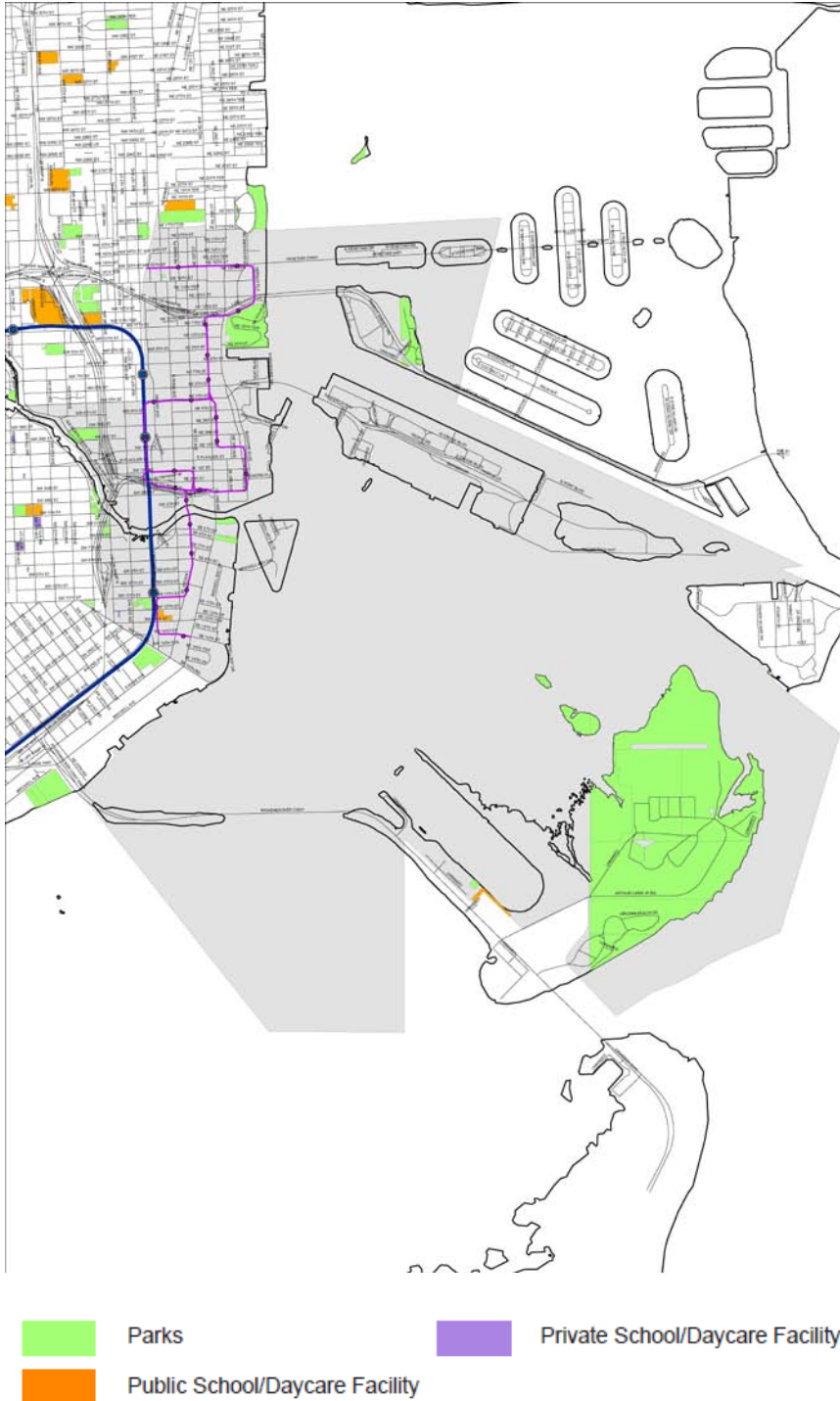
SW 17th Avenue connects many neighborhoods, but offers no bicycling amenities.



At 40mph, traffic along Coral Way moves swiftly despite its urban context.



5.0 Downtown



The Downtown NET District comprises the city's historic core. Neighborhoods include Downtown (centered on Flagler Street), Brickell, Park West, Omni, and the islands (Port of Miami, Watson, Venetian, and Virginia Key). The built and natural character of the District varies greatly, but remains dynamic and in transition. Due to its density, mixture of uses, destinations, transit coverage and location, the Downtown District attracts the city's highest number of bicyclists—service and construction workers, deliverymen, messengers, commuters, weekend or morning recreational riders, and students.

Bicycle-friendly features

Downtown Miami features a number of bicycle amenities: the ongoing river and baywalk projects provide recreational bicyclists with unsurpassed views of Biscayne Bay and the downtown skyline; Bike Miami Days has attracted thousands of bicyclists, effectively raising the profile of downtown and the viability of bicycling in Miami; new bicycle racks designed for short term use continue to proliferate in the downtown office and residential core, joining the

existing bicycle rack and locker storage facilities at Government Center; Bayfront Park's Bike n' Roll is now offering guided bicycle tours; the Venetian Causeway corridor remains one of the city's most well-traveled



recreational and commuter bike routes; and finally, improvements to the Rickenbacker Causeway have solidified it as the #1 bicyclist destination in Miami-Dade County. In fact, a recent count tallied by the Miami-Dade County marked 950 bicyclists entering the Causeway on a Saturday morning, between 6:30am and 9:00am.

Key Challenges

Despite the progress, there are no on-street bikeways in the Downtown District, save for the Rickenbacker and Venetian Causeway bicycle lanes. While the gridded streets provide connectivity, the number of one-way streets hinders navigation and induces higher travel speeds amongst motorists, which makes streets less comfortable for bicyclists. Important corridors like NE 2nd Avenue, N. Miami Avenue, NE 5th Street, SW 7th Street, SW 8th Street, and SW 13th Street exemplify this condition.

Blight and crime remains an issue, particularly in the Park West/Omni neighborhood. Other safety concerns include railroad crossings and bridges, which in general are not designed to accommodate bicyclists safely. A total of 31 crashes were recorded between 2005 and 2007. As in other areas of the city, crashes were clustered in what may be presumed to be dangerous intersections or roadway segments. These include the highway on and off-ramps for Route I-95 and I-395, Biscayne Boulevard, Bayshore Drive and NE 14th Street, Brickell Avenue, and along certain areas of the Rickenbacker Causeway.

Key Opportunities

As the metropolitan core, Downtown Miami has the opportunity and responsibility to showcase bicycling as a desired form of transportation and recreation. The density, mixture of land uses, and number of destinations within short proximity make the area ideal for added and improved bicycle infrastructure.

Short and long term opportunities include the transformation of the FEC rail corridor into a recreational path; restoring many streets to their original two-way traffic configurations; the addition of bicycle lanes, shared use lane markings and physically protected and/or buffered bicycle lanes; the development of additional bicycle parking facilities for both short term use (racks, shelters) and overnight storage (bicycle station); the continued buildout of the river and baywalks; and route/wayfinding signs that not only helps bicyclists navigate the area, but brand the city as South Florida's most bicycle-friendly destination. If continued, programs like Bike Miami Days will keep bicycling in the public conscious and provide further opportunities for education, awareness, and mode share gains.



Downtown Images



A short sidepath helps bicyclists around the Venetian Causeway tollbooth.



Bridges, with dangerous storm grates like this, can be hazardous.



In some locations, new bicycle racks cannot keep up with demand.



Bicyclists often take to the sidewalk along unsafe corridors.



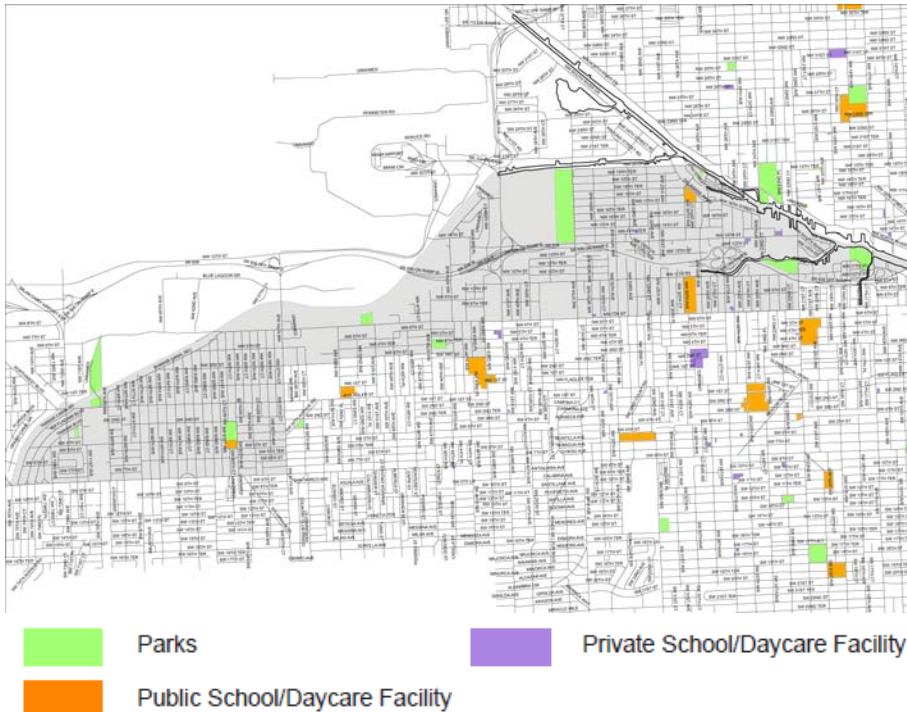
A recreational bicyclist braves Biscayne Boulevard, an 8-lane thoroughfare.



Recent improvements have made the Rickebacker Causeway safer.



6.0 Flagami



The Flagami District is primarily made up of two distinct neighborhoods: Grapeland Heights to the north of SW 7th Street, and Flagami, the westernmost neighborhood in the city of Miami. While the NW 7th Street corridor, west of NW 42nd Avenue, features many mid-rise apartment, condominium, and commercial buildings, single-family and duplex building types comprise the majority of the District's built fabric. Flagami's northern and western limits are physically defined by water—the

Miami River, Blue Lagoon, Lake Manor, and the Tamiami Canal. Heavily trafficked commercial corridors and the Dolphin Expressway also bisect and delimit the neighborhood's urban structure. At present, bicyclists are more common in the Grapeland neighborhood. However, younger families continue to move into Flagami, thereby increasing the amount of children who could potentially be bicycling to the neighborhood's schools and parks.

Bicycle-friendly features

The Flagami District has many neighborhood streets that maintain low levels of traffic volume, some of which connect to parks, schools, and key destinations and services along the bordering commercial corridors. On these streets, which continue to receive traffic-calming infrastructure investment, bicycling should be a comfortable activity for most users. However, besides installing bicycle racks at some neighborhood parks and schools, the Flagami District has not witnessed bicycle specific improvements.

Key Challenges

In general, the Flagami District is in need of more active green spaces where residents can walk and bicycle. Many of the parks and open spaces that do exist are located along the heavily trafficked commercial corridors where bicycle access is made very difficult. Similarly, as the area's canals and lakes are rarely visible or accessible to the public. Also, ample curb cuts, fast-moving commuter traffic, and suburban land use patterns



make it clear that Flagami's commercial corridors are designed primarily for automobile use, offering few amenities to pedestrians and even fewer to bicyclists.

Between 2005 and 2007 15 crashes were recorded. The vast majority occurred at intersections along dangerous road segments, such as West Flagler Street (6), SW 8th Street (1), NW 7th Avenue (5), and NW 37th Avenue (1). Because most of these streets are built out, and handle high volumes of traffic, decisions will have to be made regarding what type of bicycle facilities are most appropriate for offsetting the dangerous conditions that currently exist.

Key Opportunities

Because there are low volumes of traffic within the interior residential neighborhoods, and the streets form a well-connected grid pattern, a few well-placed bicycle boulevards could offer users, especially children, with safe bikeway facilities. Such facilities would improve access and safety, help those already bicycling to navigate the District, and encourage new bicyclists to take to the streets. New bikeway network types, like bicycle boulevards, would also help mitigate the District's lack of green space dedicated to active recreation.

Bicycle parking along the commercial corridors and at civic use destinations will benefit many of those who ride for daily needs already, as well as entice others to do so. Traffic calming measures along the corridors would likely improve safety and access to all the goods and services contained along their trajectory. Finally, the planned 7-mile Ludlam Trail, which is a rail-to-trail conversion along the existing FEC railroad corridor segment, would offer Flagami residents with a wonderful, and much needed recreational amenity. The chance to develop such a signature bikeway is one opportunity the City and County should not pass up.



Flagami Images



A utilitarian bicyclist gets ready to navigate NW 7th Street.



Wayfinding and end of trip facilities are needed in Sewall Park.



West End Park is an important destination for neighborhood children.



A traffic circle at SW 4th Street and Tamiami Boulevard improves safety.



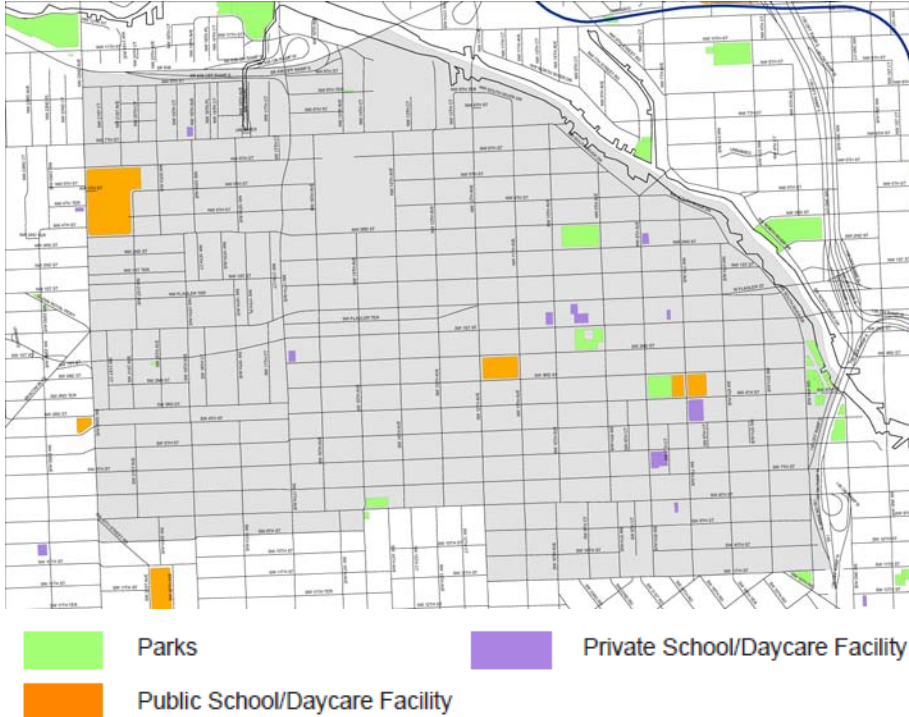
NW 14th Street is wide enough to accommodate a bicycle lane.



The seven mile Ludlam Trail is in the early planning stages.



7.0 Little Havana



Little Havana is a dense and culturally vibrant urban neighborhood. The neighborhood maintains a rich network of commercial services, civic buildings, parks, schools, and open spaces. However, it is also bisected by many major east-west and north-south thoroughfares that continue to undermine the viability of the bicycling /pedestrian activities. Many of these corridors feature one-way traffic flow patterns, which make bicycling difficult. Notwithstanding these conditions, many

neighborhood residents continue to bicycle as a simple and efficient form of transport within the neighborhood and to nearby employment centers.

Bicycle-friendly features

There are no on-street bikeway network facilities in Little Havana. However, a recently completed portion of the SW River Drive on-street greenway offers a bicycle-friendly segment, as do some of the neighborhood's interior thoroughfares. The neighborhood's land use patterns and urban structure, with several parks, schools, and services intermingled with dense residential housing, remains Little Havana's greatest bicycling asset. Additionally, some bicycle racks may be found within the neighborhood's parks and schools. Ada Merritt Elementary School, for example, alone offers 40 bicycle racks for students. Basic traffic calming measures have been implemented throughout the District such as street closures around schools; however, few amenities exist for bicyclists in Little Havana.

Key Challenges

Making Little Havana more conducive to bicycling will require re-working the design of its major corridors. The Miami River Greenway within Little Havana currently includes publicly accessible riverwalks in Jose Marti Park, Latitude on the River, Neo Vertika, several riverfront pocket parks, art in public places and the on-road Greenway from SW 2 Avenue to NW 1 Street. The remaining Miami River Greenway in Little Havana is fully funded by three



FDOT grants (\$3 million total) awarded to the City. The City is finishing engineering documents which will be constructed next year for the remaining section of on-road Miami River Greenway in Little Havana along South River Drive from NW 1 Street to NW 12 Avenue. Adding wayfinding signs and pavement markings would help residents to safely navigate those streets where bicycle lanes are not feasible. Wrong-way and sidewalk riding increases the danger and risk for accidents, especially down one-way streets. Major corridors, such as SW 7th, SW 8th, and NW 7th Streets, and SW/NW 12th, 17th, and 22nd Avenues provide barriers to bicyclists, as swift moving vehicular traffic and frequent curb cuts dominate these primary thoroughfares. An example of the latter, SW 7th Street alone has 67 major curb cuts along a 22-block stretch.

Between 2005 and 2007 30 crashes were recorded within the Little Havana District. While some of these crashes were spread around the neighborhood as isolated events, the majority occurred at intersections along dangerous road segments, such as West Flagler Street (7), SW 8th Street (4), NW 7th Street (4), NW 12th Avenue (4), and SW 7th Street (4). Because most of these streets are built out and handle high volumes of traffic, decisions will have to be made regarding the type of bicycle facilities most appropriate for offsetting the dangerous conditions that currently exist. In addition, gaining local constituent support for bikeway improvements is an important challenge to overcome.

Opportunities

Developing bikeways parallel to major traffic arteries will offer bicyclists enhanced connectivity to parks and services. Flagler Terrace, for example, provides a 5 block dual direction route parallel to Flagler Street, which remains a one-way street along the same segment. Creating a signature bicycle facility along Flagler Street, SW 1st Avenue, or connecting to the future Marlins Stadium (now under construction) will raise the profile of bicycling and help residents and visitors access the neighborhood's best amenities.

Certain minor and major commercial corridors, like SW 8th Street offer an opportunity to use shared-use lane markings where reducing the number of lanes may not be financially or operationally feasible and recommended because of the roadways major vehicular usage. All commercial corridors need bicycle parking particularly along Calle Ocho (SW 8th Street).



Little Havana Images



Miami River Greenway on SW 3 Avenue



40 bicycle parking spaces exist at Ada Merritt Elementary. None are used.



NW 8th Ave. is a minor commercial street, ideal for a sharrow.



SW 6th Street connects small-scale neighborhood commercial nodes.



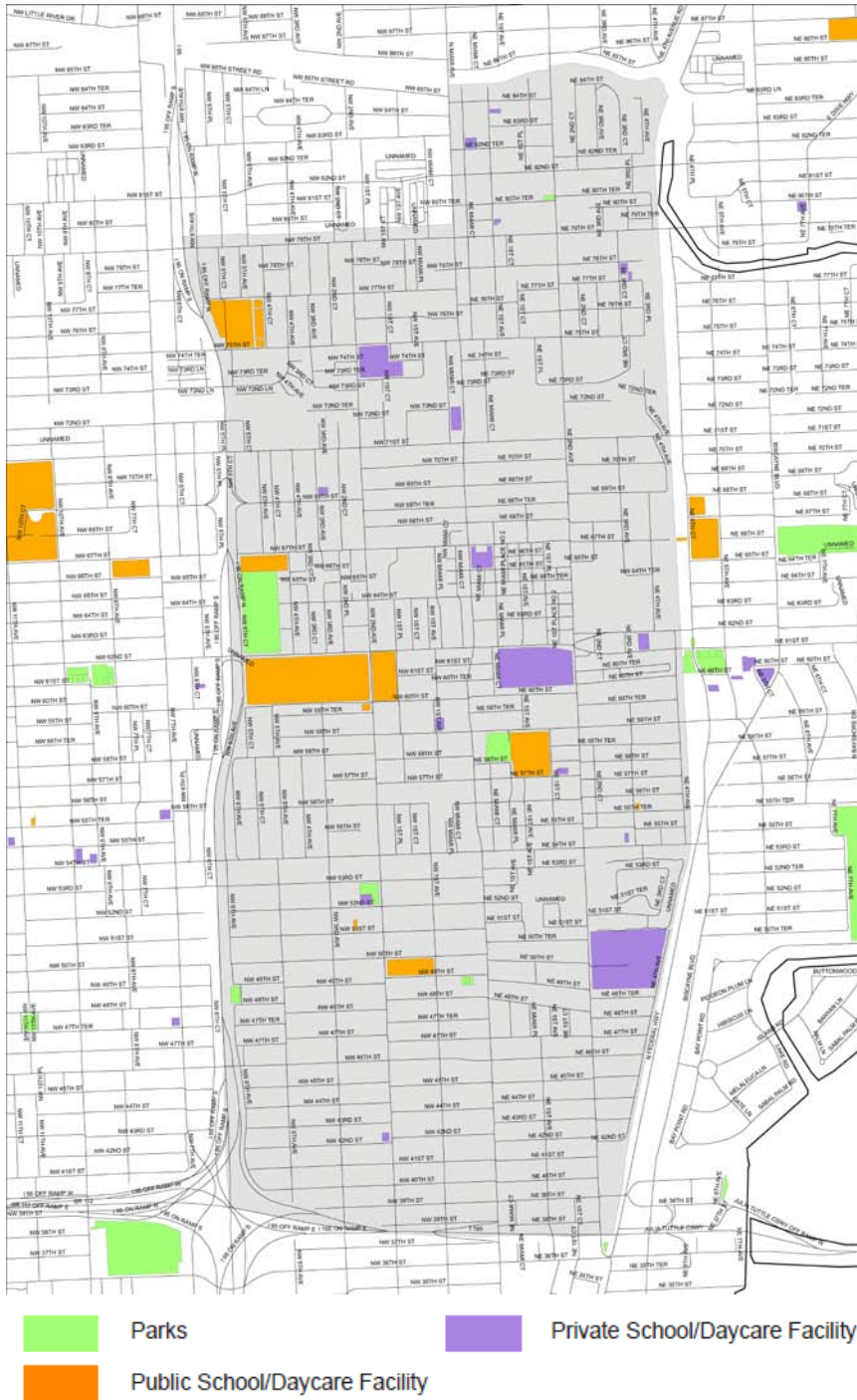
Bicycles are used frequently for social/utilitarian purposes in Little Havana.



At the western edges SW 27th Avenue is a barrier to safe bicycle travel.



8.0 Little Haiti



The Little Haiti District is physically defined by Biscayne Boulevard to the east; SR-836 to the south; I-95 to the west; and the Little River to the north. Established neighborhoods within the District include Buena Vista, Little Haiti, and the Design District. A variety of commercial and light industrial land uses may be found throughout the area, as well as art studios and galleries in the Design District. Little Haiti’s housing stock is primarily made up of single-family and duplex building types. However, small and medium-scale apartment buildings are common and add density along the District’s main corridors.

Bicycle-Friendly Features

Besides offering bicycle racks at select parks and schools, there are no completed bikeways in the Little Haiti District. However, a bicycle lane along NE 2nd Avenue is being striped from NE 80th Street to NE 20th Street, which will bisect the length of Little Haiti and offer a safer way to travel north-south throughout the District. Since the District is approximately eight blocks wide, and

because NE 2nd Avenue serves the cultural heart of Little Haiti, the improvement will likely serve as a trunkline for many of the neighborhood’s bicyclists.



Key Challenges

While NE 2nd Avenue will soon include a bicycle lane, most of the District's other commercial corridors are difficult to navigate for all but the most experienced bicyclist. N 54th, 62nd, 71st, and 79th streets all exemplify this condition; as well as North Miami Avenue and Biscayne Boulevard, which are designed primarily for vehicular travel.

15 crashes were recorded between 2005 and 2007. NE/NW 54th Street, with four such incidents, is likely the most unsafe streets for bicyclists in Little Haiti. Additionally, many bicyclists in this neighborhood can be seen bicycling against the flow of traffic or along the sidewalks, which increases the risk of accident, especially at the intersections of the district's major corridors.

Key Opportunities

As in most areas of the city, education and outreach, along with expanding the amount of bikeway infrastructure will help residents' access to services safely and entice others to ride more frequently. Physically, Little Haiti has two rail corridors that remain underutilized. Running north-south, the FEC rail corridor greenway project presents the largest opportunity for improvement in this District and perhaps the entire city. Additionally, the Gold Coast rail corridor, which parallels NE/NW 72nd Street, offers another excellent opportunity to provide alternative transportation and recreation facilities for those living in the Little Haiti District.

Other challenges include funding the expansion of bicycle parking within the District's most active areas. At present, there are no street side bicycle racks to be found anywhere in the district, which raises bicycle theft concerns for many users, especially those who must park their bicycles for the duration of the day or overnight.



Little Haiti Images



NE 54 Street is designed so that most bicyclists opt to use the sidewalk.



NW 71st Street is an ideal street for bicycle lane improvements.



Bicycle lanes will be included in the reconstruction of NE 2nd Avenue.



Safe routes to school improvements are needed along NW 59th Street.



Schools, dense housing and neighborhood retail make NW 2nd Avenue a primary candidate for a north-south bicycle corridor.





9.0 Model City



Model City, which is most often referred to as Liberty City, features a single-family and duplex residential streets nested within a larger grid of auto-oriented commercial corridors. Bicyclists are a common sight in the neighborhood. The Metrorail skirts the District's southern border; however the area's overall transit service is currently inadequate. Moreover, connectivity to the south (Allapattah) and east (Little Haiti) is limited due to the I-95 and SR-112 highways.

Bicycle-Friendly Features

No bicycle improvements have been made in the Model City area, save for some bicycle racks at parks and schools, and at the Earlington Heights Metro station, located at the district's southwestern edge. However, Miami-Dade County is currently studying the possibility of building bicycle boulevards in the neighborhood. Moreover, City officials are working with the University of Miami's BIKESAFE program at the Belafonte Tacolcy Center to develop bicycle safety education for school-age children.



Key Challenges

While the neighborhoods between the corridors are relatively easy to navigate by bicycle, the commercial corridors, such as NW 54th Street, NW 62nd Street, NW 71st Street, NW 7th Avenue, NW 12th Avenue, and NW 17th Avenue present significant barriers for most bicyclists.

Currently, many bicyclists ride along sidewalks and against the flow of traffic. This is especially true along the commercial corridors. Therefore, developing safe-route wayfinding and education outreach is important.

16 crashes were recorded between 2005 and 2007. Unlike other areas of the city, there were no consistent accident clusters. Rather, accidents were distributed evenly throughout the District, and seemed to occur as frequently on residential streets as on commercial corridors.

Key Opportunities

Because there are already a high number of bicyclists in the neighborhood, there are plenty of opportunities to attract existing and new riders to bikeway facilities and safety outreach programs. In particular, it seems bicycle boulevards are most appropriate because the highly connected grid of residential streets may attract a relatively high number of users. Schools and parks should be the focus of such bikeways.

The FEC corridor along NW 72nd Street may be outside of the city's boundaries in Model City, but it still provides an excellent opportunity to develop an east-west recreational and alternative transportation facility. Given the current patterns of use and lack of end trip facilities, bicycle parking along the commercial corridors and at the district's small parks is needed. Wayfinding and safety signs would also help direct residents to those routes most safe for bicycle travel and likely lower the number of crashes occurring within the residential neighborhoods. And as previously mentioned the Belafonte Tacolcy Center is a tremendous resource for the neighborhood. Bicycle education and outreach opportunities would do well to focus on children within afterschool and summer programs and help build a supportive constituency.

Finally, an informal network of alleys provides short but safe connections within the residential neighborhoods. Adding signs would help residents further navigate their neighborhood safely as well as provide a unique bicycling experience.



Model City Images



Bicycle parking at the Earlington Heights Metrorail Station.



Alleys provide safe, informal connections within neighborhoods.



A "road diet" along NW 15th Avenue could accommodate bicycle lanes.



The Tacolcy Center is a possible resource for bicycle safety awareness.



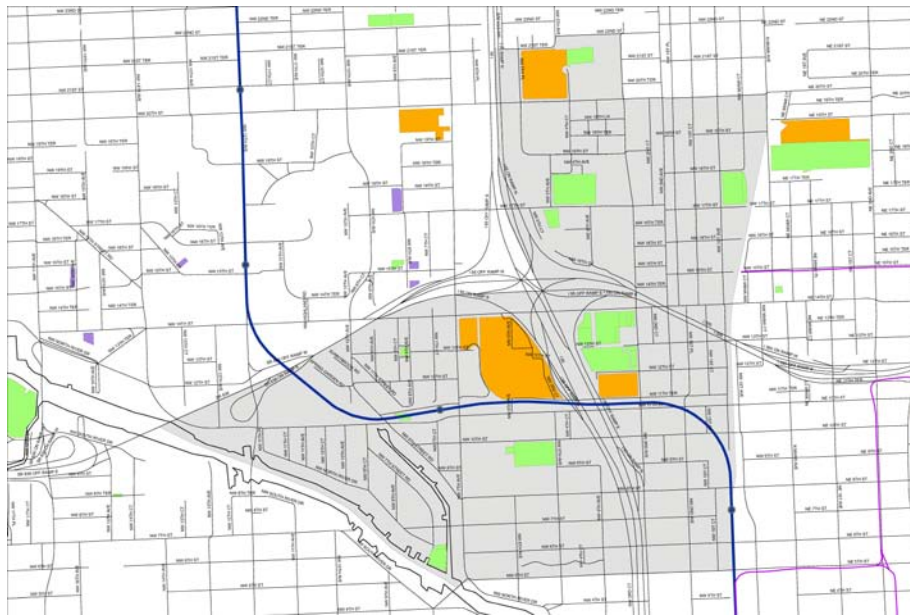
NW 12th Avenue is as hostile an environment as any for bicyclists.



The network of local streets could be transformed into bicycle boulevards.



10.0 Overtown



Overtown may be one of the city's smallest NET Districts, but it features a high number of bicyclists riding for social and utility purposes. The neighborhoods in this district are physically split into three sections by the major highways of I-95 and I-395. The areas eastern and western edge is bookended by two Metrorail stations, and there are numerous Metrobus stops within the district.

Bicycle-Friendly Features

The redevelopment of NW 3rd Avenue has helped recover the neighborhood's historic main street. Its narrow width, detailing, and mixture of services and uses make it a pleasant street on which to bicycle, even without any specific bikeway infrastructure. However, no other bicycle improvements have been made within the district.

Key Challenges

At present, wayfinding remains a problem in the neighborhood. In particular, the elevated highways physically divide the neighborhood and make conditions unsafe at highway on-and-off ramps. Several one-way streets also hinder navigation. There is also a lack of bicycle parking and on-street bikeway facilities. Bike theft and crime appear to be an issue for residents as indicated by interviews.

Between 2005 and 2007 there were 10 crashes reported. Two occurred along NW 5th Avenue, but the others were scattered about the district. Neighborhood bicyclists repeatedly express safety concerns when speaking about the highway on-and-off ramps, where motorists are not always looking for bicyclists or pedestrians as they exit and enter the highway. Finally, safety education and enforcement remains a challenge, as many bicyclists may be observed riding in an unsafe manner.



Key Opportunities

Because Overtown does not suffer from the effects of having wide at-grade thoroughfares, and the regional traffic that goes along with them, the streets that do connect through the highways present more amenable conditions to bicycling.

Currently, NW 10th, 11th, 17th, and 20th Street offer east-west, connectivity particularly to and from the Health District. These streets offer the opportunity to connect to Metrorail stations as well, and provide a good opportunity for bikeway enhancements. NW 3rd Avenue could be improved with additional signs and shared-use lane markings. Additional bicycle connections to transit facilities in the neighborhood would also serve residents and visitors well.

At present, NW 1st Place's width does not seem commensurate to the volume of traffic it receives. Therefore, the thoroughfare could be redeveloped to include bicycle lanes so that kids could more safely ride their bicycles to Phyllis Wheatley Elementary School. Additionally, NW 2nd Avenue provides a good connection north-south from Overtown north through Wynwood and Little Haiti, connecting parks, schools, and several neighborhoods along its trajectory.

NW 17th Street, which connects to the health district, is currently wide enough to accommodate bicycle lanes. This segment was also identified as a potential bicycle lane street in the Bicycle Action Plan. Finally, if built, the proposed Overtown Greenway, between NW 12 Avenue to Bayfront Park would help increase connectivity between schools, Metrorail stations, and downtown.



Overtown Images



A segment of NW 3rd Ave. is now a pedestrian and bicycle-friendly street..



NW 1st Place @ Phyllis Wheatley Elementary is due for a road diet.



NW 2nd Avenue is an important north-south inter-neighborhood link.



NW 14th Street is an east-west link to the Civic Center.



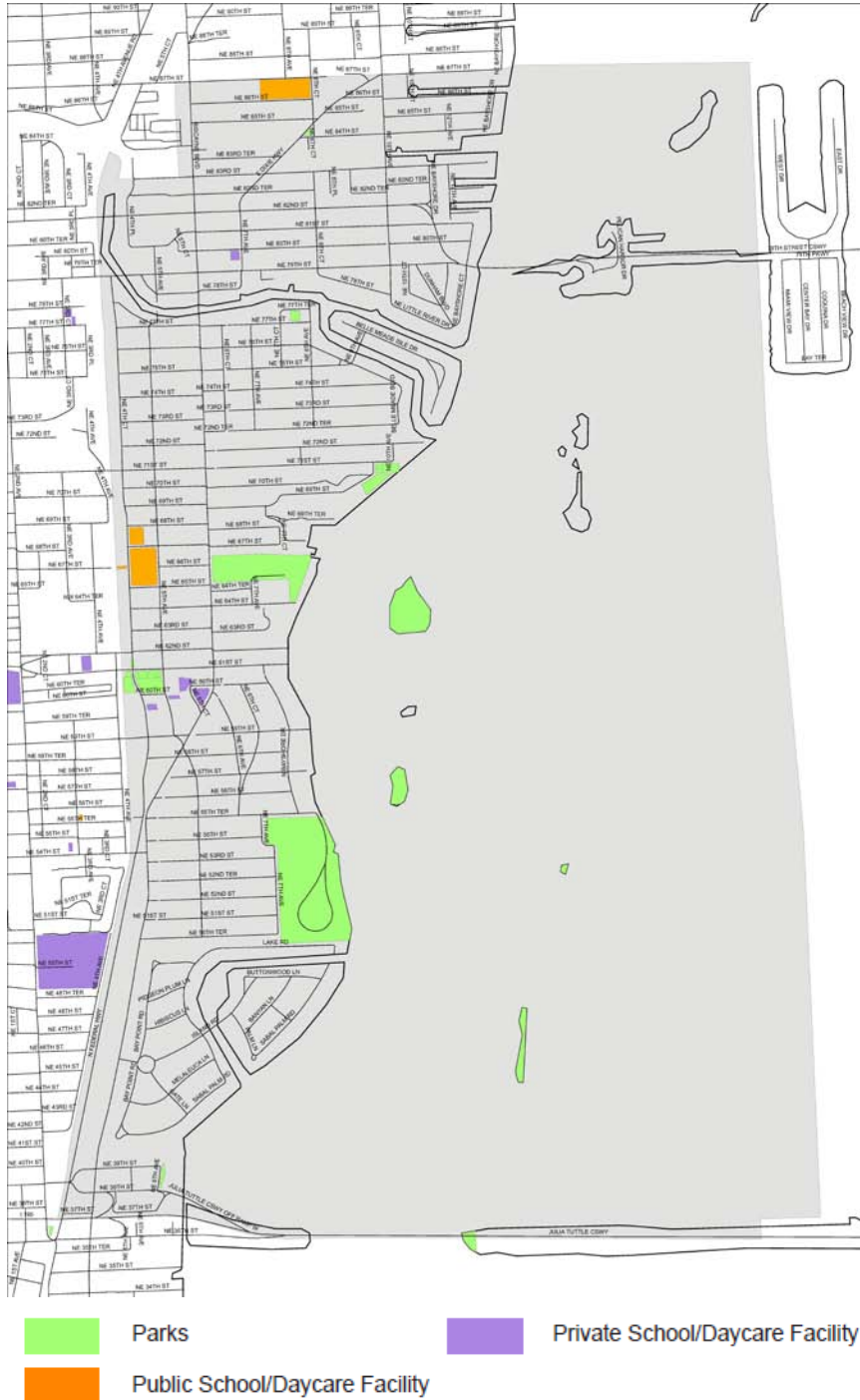
NW 17th Street is wide enough for an east-west bicycle lane.



NW 11th Street could accommodate bicycle lanes.



11.0 Upper East Side



The Upper East Side District is comprised of several small and diverse neighborhoods: Magnolia Park, Bay Point Estates, Morningside, Bayside, Belle Meade, Shorecrest, and Palm Grove. During the recent building boom, the Upper East Side District underwent a renaissance, as new neighborhood-oriented restaurants, retail stores, and historic preservation efforts helped bring new vitality to the area. It is currently only served by Metrobus and is defined by the Boulevard from which the district gets its name.

Bike-Friendly Features

The neighborhoods to the east of Biscayne Boulevard have undertaken several traffic-calming measures, which help bicyclists travel safely within the immediate neighborhood. Standard “wave” bicycle parking racks are present in Morningside Park and in Legion Park although they are not well located/distributed within each site.

Key Challenges:

Despite being the heart of the Upper East Side, Biscayne Boulevard

functions as a significant barrier to bicyclists traveling along and across it. Additionally, accessing neighborhoods like Belle Meade and Morningside are a particular challenge to bicyclists because of the many street closures which communicate to visitors that they are not welcome. Likewise, wayfinding and the identification of a safe



neighborhood bikeway network amongst all of the semi-private streets and heavily traveled corridors make navigating by bicycle in the Upper East Side difficult.

There were seven crashes involving bicyclists recorded between 2005 and 2007. Three of the crashes occurred on Biscayne Boulevard, while another three occurred along NE 79th Street. These two major corridors do not feature any bicycle amenities.

Key Opportunities

Due to the Upper East Side being a linear, narrow NET District, the amenities of Biscayne Boulevard are never more than a few blocks away. Likewise, Legion Park and Morningside Park provide excellent recreational facilities, but remain somewhat difficult to access.

Well identified bikeways and the introduction of bicycle parking facilities will help meet the current and latent demand for neighborhood bicycling. Bicycle parking along Biscayne Boulevard and at neighborhood schools will likely encourage additional bicycle use. The implementation of bicycle boulevards may be able to take advantage of existing street closures and other traffic-calming measures already implemented. On the District's western border, the long planned FEC rail greenway would do much to transform recreational and commuting opportunities, providing an excellent and direct connection to the Design District, Midtown, Edgewater, and Downtown Miami.



Upper East Side Images



In Morningside, a closed street still provides bicycle access.



Passing schools and parks, NE 4th Court may be converted to a bike blvd.



Along Biscayne Boulevard a bicyclist exhibits wrong-way riding.



As the neighborhood spine, Biscayne Boulevard offers little to bicyclists.



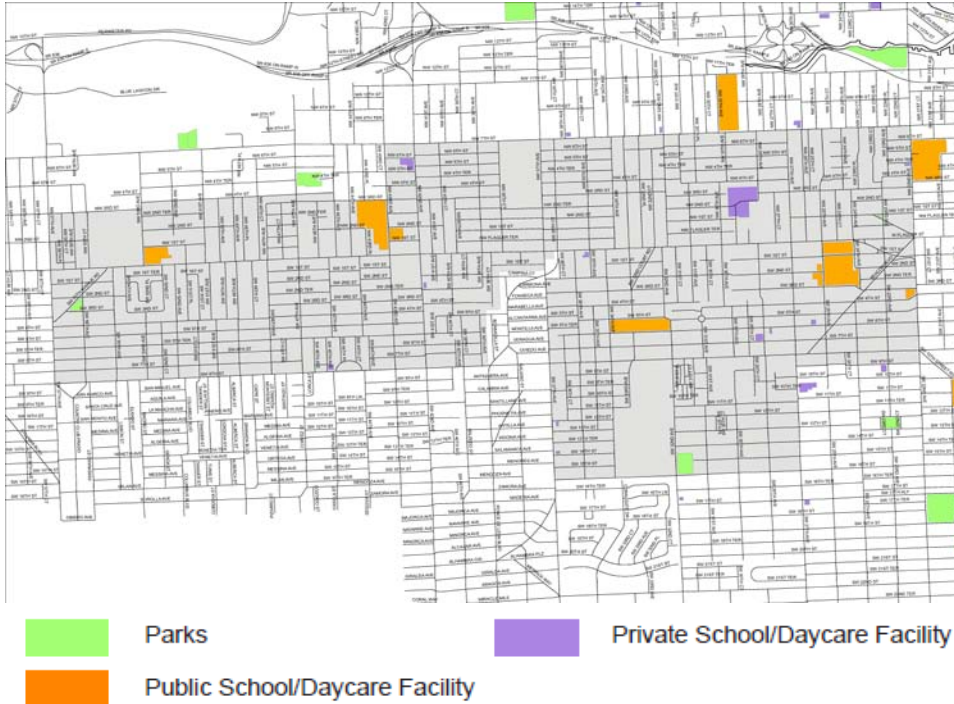
Traffic calming along NE 81st street it a possible bicycle boulevard.



Bicycle Parking is ample in Legion Park, however its location is not ideal.



12.0 West Flagler



The West Flagler District is comprised primarily of single-family and duplex residential neighborhoods. Named primarily for the neighborhood's main east-west thoroughfare, the district features a well-connected grid of residential streets and commercial corridors. Principal among these are SW 8th Street and NW 7th Street, which form much of the district's northern and southern border, as well as West Flagler Street and NW

22nd, 27th, 37th, 42nd, 57th, and 67th Avenue. Bicyclists ride mostly for utility in the West Flagler neighborhood, as there are few recreational facilities or destinations within reach.

Bike-Friendly Features:

While a few of the District's schools feature bicycle racks, no other visible bicycle improvements have been made. That being said, the areas residential streets are well-connected, have low traffic volumes, feature traffic-calming infrastructure, and run parallel to large segments of the district's commercial corridors. These streets make bicycling easier and safer within the neighborhoods, but still lack wayfinding and safety countermeasures.

Key Challenges:

The West Flagler's commercial corridors, where the majority of services are located, are designed primarily for the movement of automobiles. Along these streets and avenues, traffic remains heavy, especially during peak travel hours. The residential neighborhoods also contain very little functional green space for recreation and social engagement, thus finding other means for active recreation is challenging.

There were 18 crashes were recorded between 2005 and 2007. One third of all these bicycle-vehicular crashes occurred along West Flagler Street, demonstrating that safety improvements are needed along this well-traveled corridor. Clearly, opportunities exist to improve such streets so they balance the needs of its diverse set of users.



Key Opportunities:

While numerous opportunities exist to improve the visibility of the existing residential street network, safety improvements and bikeway infrastructure is needed along the commercial corridors. As the heart of the District, West Flagler Street provides an excellent opportunity for such improvements, especially since the roadway had the highest percentage of bicycle crashes in the District. Along the residential streets, bicycle boulevards will make neighborhood routes safer and more visible to current and future bicyclists. Bicycle parking opportunities are ample, particularly along the commercial corridors where none presently exist.



West Flagler Images



A large traffic circle slows traffic and provides a neighborhood amenity.



An overly wide neighborhood street encourages speeding.



A bicyclist contends with congestion at SW 37th Avenue and W. Flagler.



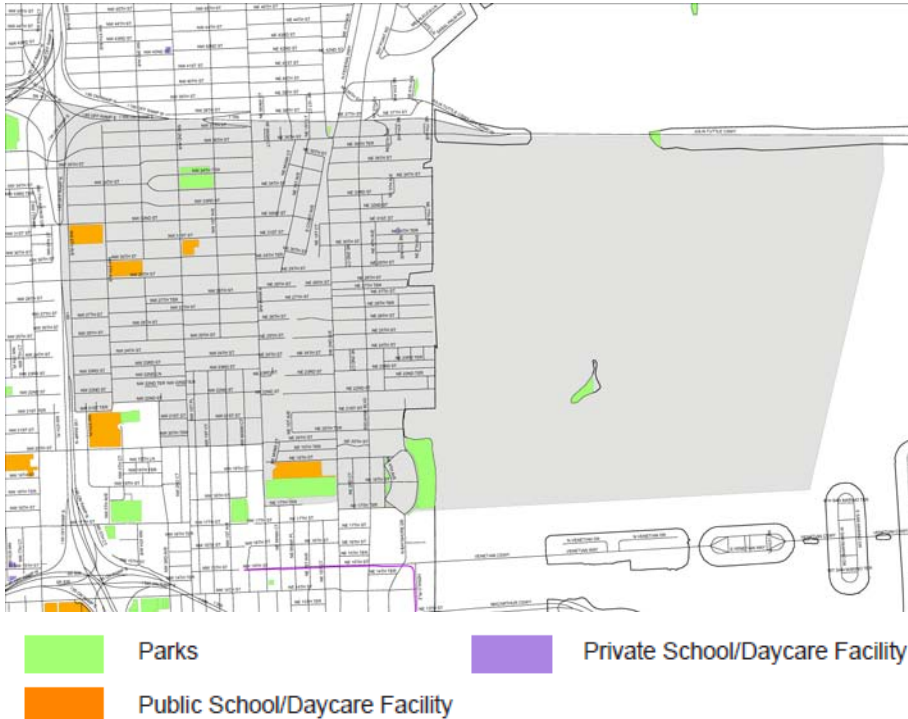
SW 8th Avenue does not balance the needs of bicyclists and pedestrians.



SW 5th Street provides an opportunity for an east-west bicycle boulevard.



13.0 Wynwood/Edgewater



The Wynwood/Edgewater NET District is comprised of two very distinct neighborhoods that form a singular District. The Wynwood neighborhood is comprised primarily of warehouse buildings that in recent years have been transformed into the city's leading art gallery district. Residential and retail business has been slow to follow, yet change is still underway. Just north of the warehouse district street is the neighborhood's residential core, roughly centered on Roberto Clemente Park, between NW 29th

and 36th Street. The aptly named Edgewater neighborhood is located east of Biscayne Boulevard and along Biscayne Bay. This neighborhood contains many mixed-use, mid-rise and residential towers. Recreational bicyclists are commonly found traveling along North Bayshore Drive and at the Venetian Causeway.

Bike-Friendly Features:

There is a large supply of bicycle parking facilities at neighborhood schools in the Wynwood/Edgewater NET District. Additionally, the construction of a bicycle lane along NE 2nd Avenue will greatly improve the identity of the city's network and help bicyclists safely reach important destinations within and outside of the District.

Challenges:

Despite the urban redevelopment, Biscayne Boulevard remains oriented to motorists. Indeed, wide lanes and high speed make bicycling uncomfortable along Miami's signature thoroughfare. As a result, bicyclists often opt for the sidewalks instead. Little bicycle parking exists on-street, except for a wave rack located at Staples, along Biscayne Boulevard. Because of the north-south running FEC rail line, many east-west streets within the Wynwood/Edgewater District do not connect, which makes navigation difficult. Attention to railroad crossing improvements for bicycles and pedestrians should be focused on the ongoing FEC transit study being conducted by FDOT.



There were 12 bicyclist-related crashes recorded between 2005 and 2007. Ten of these crashes occurred along the neighborhood's most significant north-south commercial corridors: Biscayne Boulevard (3), Northeast 2nd Avenue (4), North Miami Avenue (2), and NW 2nd Avenue (1). Such data suggests additional safety improvements are needed, especially at intersections along these primary corridors.

Key Opportunities:

Bicycle boulevards and shared-use lane markings would provide needed connections between schools and parks, as well as the commercial nodes. Creating “blue streets” east of Biscayne Boulevard could connect bicyclists to choice vistas along the Bay. Bicycle parking should be expanded, especially along NE 2nd Avenue, Biscayne Boulevard, and NW 2nd Avenue, which are where a majority of the neighborhood's commercial services and amenities are located. Finally, incorporating a shared use pathway along the FEC corridor would not only provide a recreational amenity for the District and improve mobility north-south, but also east-west if additional connections were put into the corridors within the Wynwood/Edgewater District.



Wynwood/Edgewater Images



Wide curb lanes may be turned into bicycle lanes on Biscayne Boulevard.



NE 34th Street provides views of Biscayne Bay and Miami Beach.



Shared Use Lane markings are a good match for NW 2nd Avenue.



A robust supply of bicycle parking goes unused at Hartner Elementary.



Wide parking stalls in Wynwood could be transformed into bicycle lanes.



North Bayshore Drive has become a comfortable place to ride a bicycle.



Miami Bicycle Master Plan Appendix C





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1.0 2010 PHASE BIKEWAY PROJECTS

Project	Bikeway Type
SW 1 st Avenue	Bicycle Lane
NE 2 nd Avenue	Bicycle Lane
NE 14 th Street – Phase One	Bicycle Lane
Venetian Causeway	Bicycle Lane
North Bayshore Drive	Bicycle Lane
SW 3 rd Avenue - Phase One (Coral Way)	Bicycle Lane
SW 32 nd Road	Bicycle Lane
NE 61 st Street	Bicycle Lane
NE 62 nd Street	Bicycle Lane
SW 2 nd Avenue	Bicycle Lane
South Miami Avenue	Bicycle Lane
SW 26 th Road	Bicycle Lane
North Miami Avenue	Bicycle Lane
NW 1 st Avenue	Bicycle Lane
NW 1 st Avenue - addition	Bicycle Lane
NW 5 th Avenue	Bicycle Lane
SW 16 th Street - Phase One	Bicycle Lane
NW 23 rd Avenue	Bicycle Lane
Sewage Plant Road	Bicycle Lane
Virginia Beach County Park Access Road	Bicycle Lane
Spring Garden On-Street Greenway	Shared Use Path/Greenway
M-Path Restoration	Shared Use Path/Greenway
Miami River Greenway	Shared Use Path/Greenway



2.0 2015 PHASE BIKEWAY PROJECTS

Project	Bikeway Type
Coral Way	Bicycle Route
SW 8th Street	Bicycle Route
SW 7th Street	Bicycle Route
West Flagler Street	Bicycle Route
NW 7th Street	Bicycle Route
NE/NW 54 th Street	Bicycle Route
NE/NW 62nd Street	Bicycle Route
North Miami Avenue	Bicycle Route
SW/NW 12th Avenue	Bicycle Route
SW/NW 17th Avenue	Bicycle Route
Biscayne Boulevard	Shared Use Lane Marking
NE/NW 3rd Street	Shared Use Lane Marking
SW/SE 1st Street	Shared Use Lane Marking
West/East Flagler Street	Shared Use Lane Marking
Brickell Avenue - Segment 1	Shared Use Lane Marking
Brickell Avenue - Segment 2	Shared Use Lane Marking
South Miami Avenue	Shared Use Lane Marking
North Miami Avenue	Shared Use Lane Marking
SW/NW 2nd Avenue	Shared Use Lane Marking
SW 1st Avenue	Shared Use Lane Marking
NE/NW 14 th Street	Shared Use Lane Marking
SE/NE 2 nd Avenue	Shared Use Lane Marking
NW 3rd Avenue	Shared Use Lane Marking
NW 8 th Street Road, NW 9 th Avenue, NW 10 th Avenue	Shared Use Lane Marking
NW 16th Terrace	Shared Use Lane Marking
NW 28th Street	Shared Use Lane Marking
NE/NW 36th Street	Shared Use Lane Marking
NE/NW 46th Street	Shared Use Lane Marking
NE/NW 60th Street	Shared Use Lane Marking
NW 71st Street	Shared Use Lane Marking
SW 8 th Street	Shared Use Lane Marking
SW 16th Street	Shared Use Lane Marking
Mary Street/Grand Avenue	Shared Use Lane Marking
McFarlane Road	Shared Use Lane Marking
Main Highway	Shared Use Lane Marking
SW 37th Avenue (South Douglas Road)	Shared Use Lane Marking
Ingraham Highway	Shared Use Lane Marking



2015 PHASE BIKEWAY PROJECTS (CONT.)

Project	Bikeway Type
NE 14th Street	Bicycle Lane
SW 1st Street	Bicycle Lane
West Flagler Street	Bicycle Lane
SW 11th Street/SW 1st Court	Bicycle Lane
SW 15th Road	Bicycle Lane
SW 11 th Street	Bicycle Lane
South Miami Avenue/South Bayshore Drive	Bicycle Lane
SW 32 nd Road	Bicycle Lane
SW 16 th Street – Phase Two	Bicycle Lane
NW 17th Street	Bicycle Lane
NW 5 th Avenue - Segment 1	Bicycle Lane
NW 5 th Avenue - Segment 2	Bicycle Lane
NW 5 th Avenue - Segment 3	Bicycle Lane
NW 9th Street	Bicycle Lane
NW 45 th Avenue	Bicycle Lane
Tamiami Canal Road - Segment 1	Bicycle Lane
Tamiami Canal Road - Segment 2	Bicycle Lane
Commodore Trail Restoration and Improvement	Shared Use Path/Greenway
M-Path Comprehensive Improvement	Shared Use Path/Greenway
Metromover Guideway Path	Shared Use Path/Greenway
Healthwalk Bicycle Path	Shared Use Path/Greenway
NW South River Drive/NW 10 th Avenue/NW 8 th Terrace/NW 12 th Court	Shared Use Path/Greenway
NW 13 th Avenue	Shared Use Path/Greenway
NW 18 th Avenue Greenway	Shared Use Path/Greenway
NW North River Drive Greenway	Shared Use Path/Greenway
NW South River Drive Greenway	Shared Use Path/Greenway
NW South River Drive	Shared Use Path/Greenway
Miami River Greenway - Fern Island Park	Shared Use Path/Greenway
Miami River Greenway - Riverwalk Extensions	Shared Use Path/Greenway
Miami River Greenway - NW 14th Street/NW 23rd Avenue/	Shared Use Path/Greenway
Miami River Greenway - Riverwalk Extensions	Shared Use Path/Greenway
SW 19 th Street	Bicycle Boulevard
SW 24 th Avenue/Calusa Street	Bicycle Boulevard
SW 60 th Avenue	Bicycle Boulevard
NW 18th Avenue	Bicycle Boulevard
NW 11 th Avenue	Bicycle Boulevard
NE 20 th Street Alley	Neighborhood Connection
SW Flagler Terrace	Neighborhood Connection
SW 17 th Street Lane	Neighborhood Connection
NW 5th Ave	Neighborhood Connection
NW 13 th Street Lane	Neighborhood Connection
NW 39th Street Alley	Neighborhood Connection
NW 47th Terrace Alley	Neighborhood Connection
Royal Road	Scenic View Route
NE 34 th Street	Scenic View Route



3.0 2020 PHASE BIKEWAY PROJECTS

Project	Bikeway Type
NE/NW 29 th Street	Bicycle Route
NW 7 th Avenue	Bicycle Route
SW/NW 22 nd Avenue	Bicycle Route
SW/NW 27 th Avenue	Bicycle Route
SW/NW 37 th Avenue	Bicycle Route
SW/NW 42 nd Avenue	Bicycle Route
SW/NW 57 th Avenue	Bicycle Route
SW/NW 67 th Avenue	Bicycle Route
NE/NW 79 th Street	Bicycle Route
NE/NW 3 rd Street	Shared Use Lane Marking
NE 15 th Street	Shared Use Lane Marking
North Bayshore Drive	Shared Use Lane Marking
NW 17 th Street	Shared Use Lane Marking
NW 2 nd Avenue	Shared Use Lane Marking
NE 1 st Avenue	Shared Use Lane Marking
NW 2 nd Avenue	Shared Use Lane Marking
NW 11 th Street	Shared Use Lane Marking
NW 7 th Avenue Bridge	Shared Use Lane Marking
NW 10 th Avenue	Shared Use Lane Marking
NW 17 th Avenue	Shared Use Lane Marking
NE/NW 20 th Street	Shared Use Lane Marking
Brickell Bay Drive	Shared Use Lane Marking
South Miami Avenue	Shared Use Lane Marking
SW 6 th Street	Shared Use Lane Marking
Beacom Boulevard	Shared Use Lane Marking
SW 1 st Street	Shared Use Lane Marking
SW 12 th Avenue	Shared Use Lane Marking
SW 32 nd Avenue	Shared Use Lane Marking
SW 17 th Avenue	Shared Use Lane Marking
SW 22 nd Avenue/Kirk Street	Shared Use Lane Marking
Tigertail Avenue/Oak Avenue	Shared Use Lane Marking
NE/NW 11 th Street	Bicycle Lane
NW 11 th Street	Bicycle Lane
NE/NW 10 th Street	Bicycle Lane



2020 PHASE BIKEWAY PROJECTS (CONT.)

Project	Bikeway Type
North Miami Avenue	Bicycle Lane
NW 3 rd Street	Bicycle Lane
SW/NW 8 th Avenue	Bicycle Lane
NW 2 nd Avenue	Bicycle Lane
North Federal Highway	Bicycle Lane
Beacom Boulevard	Bicycle Lane
NW 14 th Street	Bicycle Lane
FEC Greenway	Shared Use Path/Greenway
FEC Unity Trail	Shared Use Path/Greenway
NW 12 th Parkway Greenway	Shared Use Path/Greenway
Overtown Greenway	Shared Use Path/Greenway
Virginia Key Trails	Shared Use Path/Greenway
NW 16th Street Road/NW 17th Street/Delaware Parkway/	Shared Use Path/Greenway
NW 29th Avenue, NW South River Drive/NW 18th Terrace	Shared Use Path/Greenway
SW 3 rd Street	Bicycle Boulevard
SW 4th Avenue/SW 20th Street	Bicycle Boulevard
SW 22 nd Terrace	Bicycle Boulevard
Shipping Avenue	Bicycle Boulevard
Alatka Street/Tigertail Avenue	Bicycle Boulevard
Plaza Street	Bicycle Boulevard
SW 4 th /SW 5 th Street	Bicycle Boulevard
NE 55 th Terrace	Bicycle Boulevard
NE 5 th Avenue	Bicycle Boulevard
NW 3rd Avenue	Bicycle Boulevard
NW 14 th Avenue	Bicycle Boulevard
NW 58th Street	Bicycle Boulevard
NW 67th Street	Bicycle Boulevard
Munroe Drive	Scenic View Route
NE 29th Street	Scenic View Route
NE 25th Street	Scenic View Route
NE 77th Street Road	Scenic View Route
NE 61st Street	Scenic View Route



4.0 2030 PHASE BIKEWAY PROJECTS

Project	Bikeway Type
South Miami Avenue Bridge	Bicycle Lane
Bird Avenue	Bicycle Lane
SW 7th Street	Bicycle Lane
SW 12 th Avenue	Bicycle Lane
SW 27 th Avenue	Bicycle Lane
NW 4 th Avenue	Bicycle Lane
NW 14th Avenue	Bicycle Lane
NE/NW 29 th Street	Bicycle Lane
NE/NW 71 st Street	Bicycle Lane
NE/NW 79 th Street	Bicycle Lane
NW 47 th Avenue	Bicycle Lane
Biscayne Baywalk	Shared Use Path/Greenway
Biscayne Baywalk North Greenway	Shared Use Path/Greenway
Poinciana Avenue	Bicycle Boulevard
SW 28 th Street	Bicycle Boulevard
Swanson Avenue/ Kirk Street	Bicycle Boulevard
SW 26 th Street	Bicycle Boulevard
SW 10 th Street Road/ SW 21 st Avenue	Bicycle Boulevard
SW 13th Street	Bicycle Boulevard
SW 11th Avenue/ SW 26 th Road	Bicycle Boulevard
SW 20 th Road	Bicycle Boulevard
SW/NW 7 th Avenue	Bicycle Boulevard
SW/NW 19 th Avenue	Bicycle Boulevard
SW 29 th Avenue	Bicycle Boulevard
SW/NW 33 rd Avenue	Bicycle Boulevard
SW 33 rd Avenue/SW 34 th Avenue/Coral Gate Drive/SW 36 th Avenue	Bicycle Boulevard
SW 20 th Street/SW 19 th Terrace	Bicycle Boulevard
SW 47 th Avenue	Bicycle Boulevard
SW 3 rd Street/NW 48 th Avenue	Bicycle Boulevard
NW 53 rd Avenue	Bicycle Boulevard
SW/NW 63 rd Court	Bicycle Boulevard
NW 17 th Street	Bicycle Boulevard
NW 9 th Street	Bicycle Boulevard
NW 3 rd Street	Bicycle Boulevard
NW 15 th Street Road/NW 18th Street	Bicycle Boulevard
NW 24 th Avenue	Bicycle Boulevard
NW 43 rd Street	Bicycle Boulevard
NW/NE 50th Street	Bicycle Boulevard
NW 50th Street	Bicycle Boulevard



2030 PHASE BIKEWAY PROJECTS (CONT.)

Project	Bikeway Type
NW 61 st Street	Bicycle Boulevard
NE/NW 64 th Street	Bicycle Boulevard
NE 87 th Street/E. Dixie Highway/ NE 7 th Avenue	Bicycle Boulevard
NE 87 th Street/E. Dixie Highway/ NE 7 th Avenue/NE 78 th Street	Bicycle Boulevard
NE 10 th Avenue/NE North Little River Drive/ NE Bayshore Court	Bicycle Boulevard
NE 81 st Street/NE 4 th Place	Bicycle Boulevard



Miami Bicycle Master Plan Appendix D





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1.0 2010 Phase Bicycle Parking Plan

While the majority of recommended bicycle parking locations include one or more standard bicycle racks, additional infrastructure is needed. By 2010 the City of Miami should work with local businesses, as well as County and State entities to implement the following:

Art Racks: 17 locations

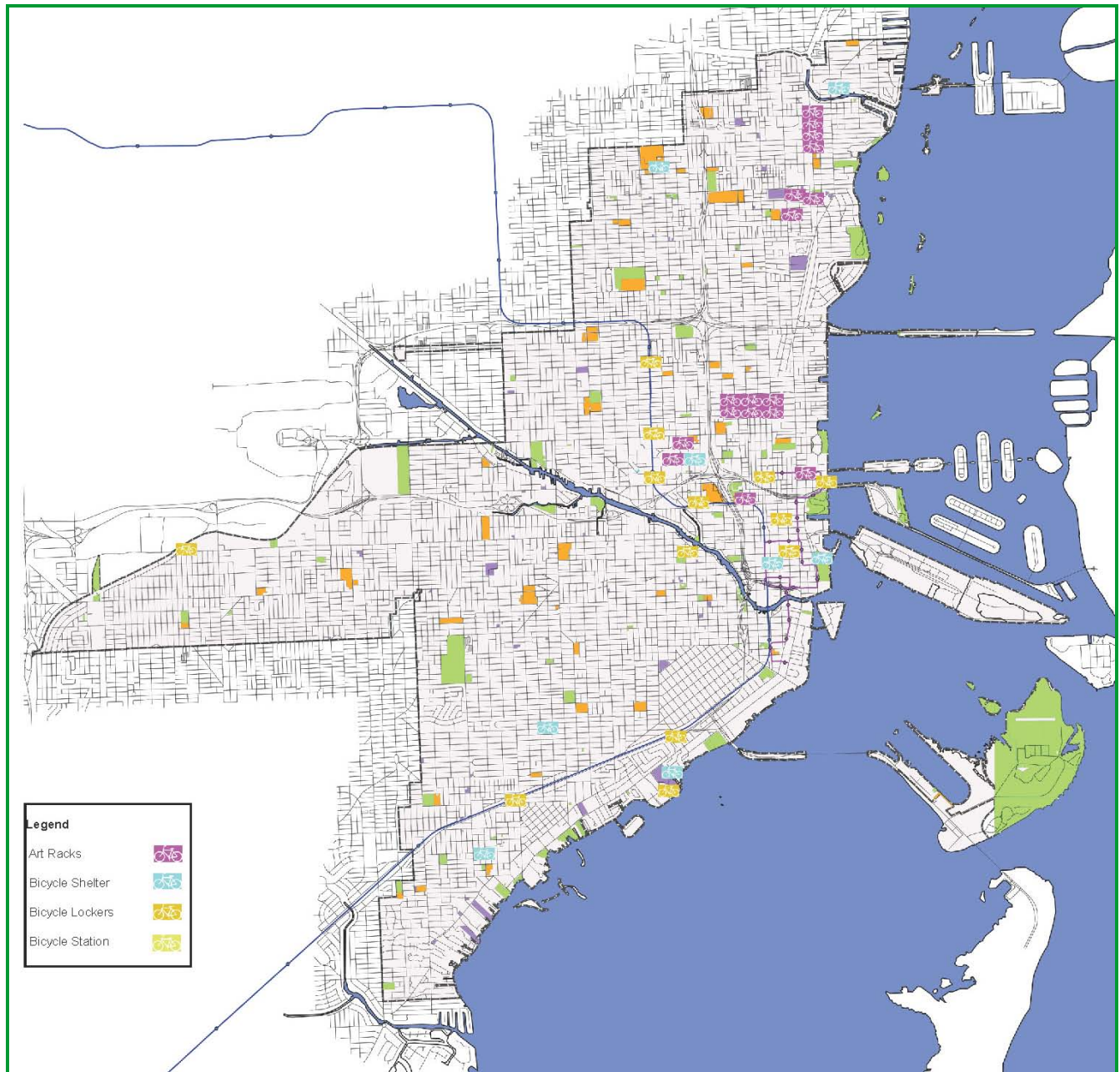
Bicycle Shelters: 8 locations

Bicycle Lockers: 12 locations

Key locations include the Wynwood art district, Metrorail stops, the Coral Way Corridor, downtown Miami, and major employment centers like Mercy Hospital and the Health District. The 2010 phase bicycle parking plan is depicted in the following figure.



2010 Phase Bicycle Parking Plan





2.0 2015 Phase Bicycle Parking Plan

By 2015 the City of Miami should work with local businesses, as well as County and State entities to implement the following:

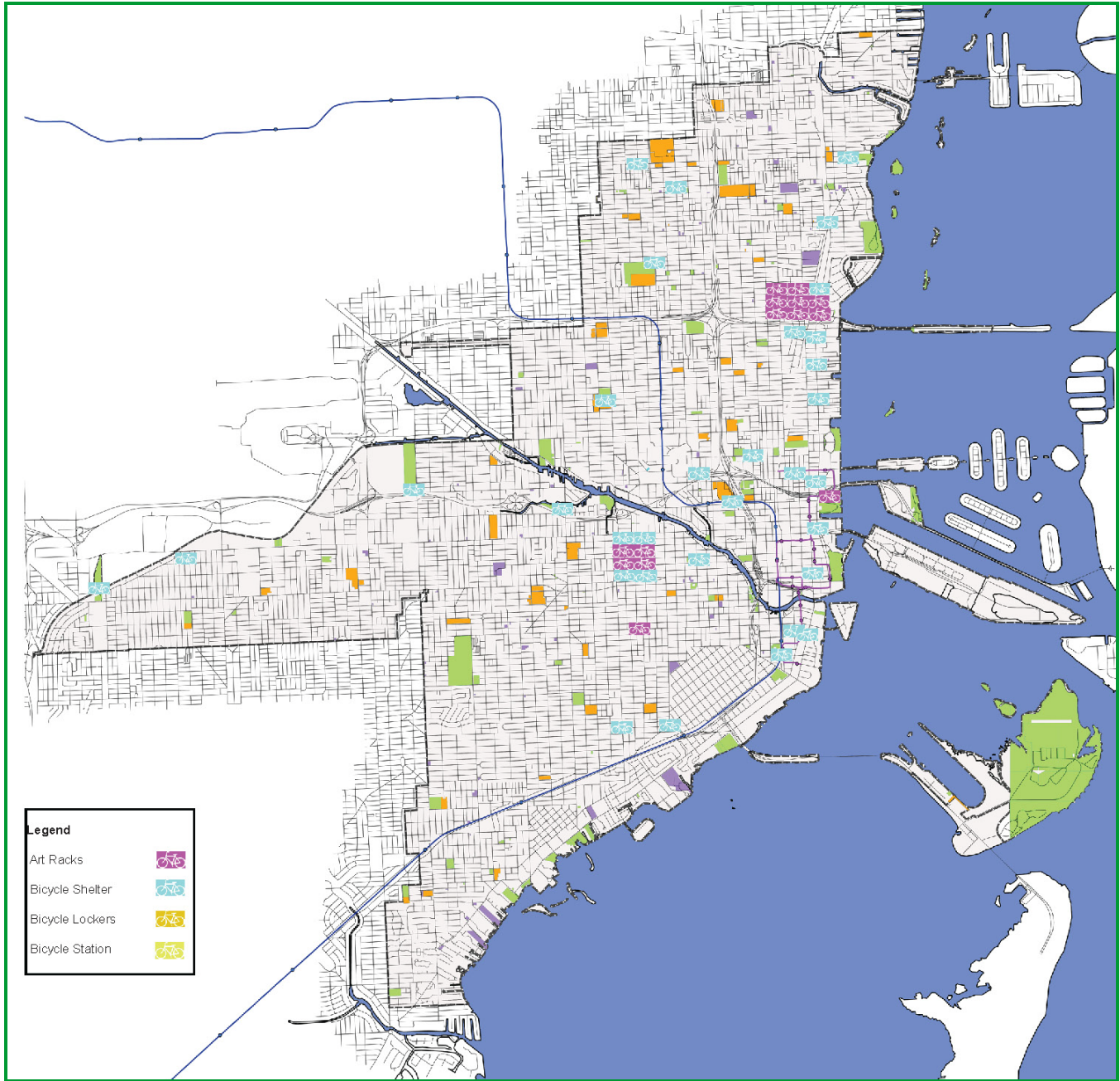
Art Racks: 13 locations

Bicycle Shelters: 32 locations

Key locations include the Design District, Marlins Stadium, downtown Miami, Brickell, and additional parking facilities at the Health District and at neighborhood parks. The 2010 phase bicycle parking plan is depicted in the following figure.



2015 Phase Bicycle Parking Plan





3.0 2020 Phase Bicycle Parking Plan

By 2020 the City of Miami should work with local businesses, as well as County and State entities to implement the following:

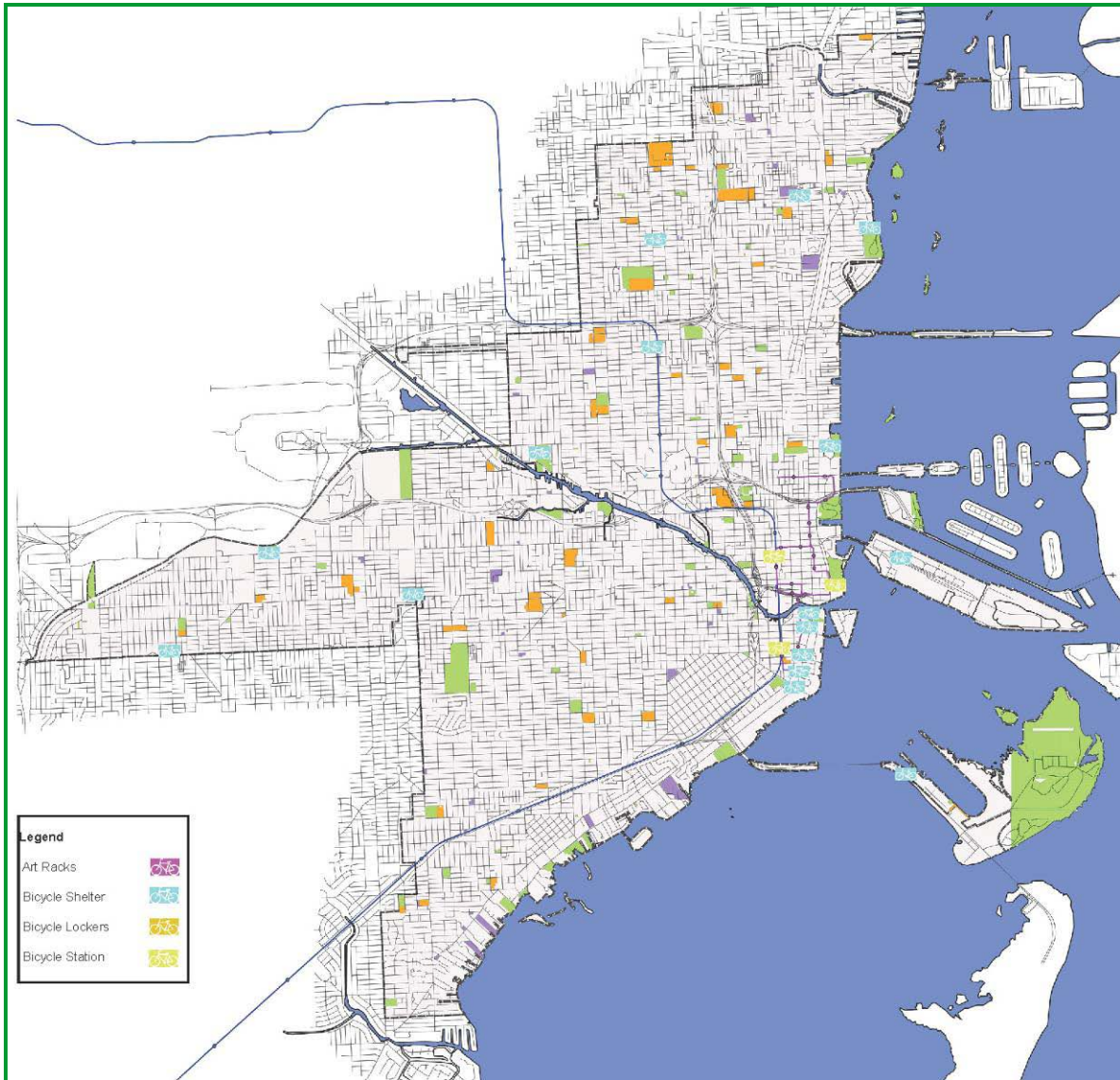
Bicycle Shelters: 16 locations

Bicycle Station: 1 of 3 identified locations

Key locations include downtown Miami, Brickell, and neighborhood parks. The 2010 phase bicycle parking plan is depicted in the following figure.



2020 Phase Bicycle Parking Plan





Miami Bicycle Master Plan Appendix E





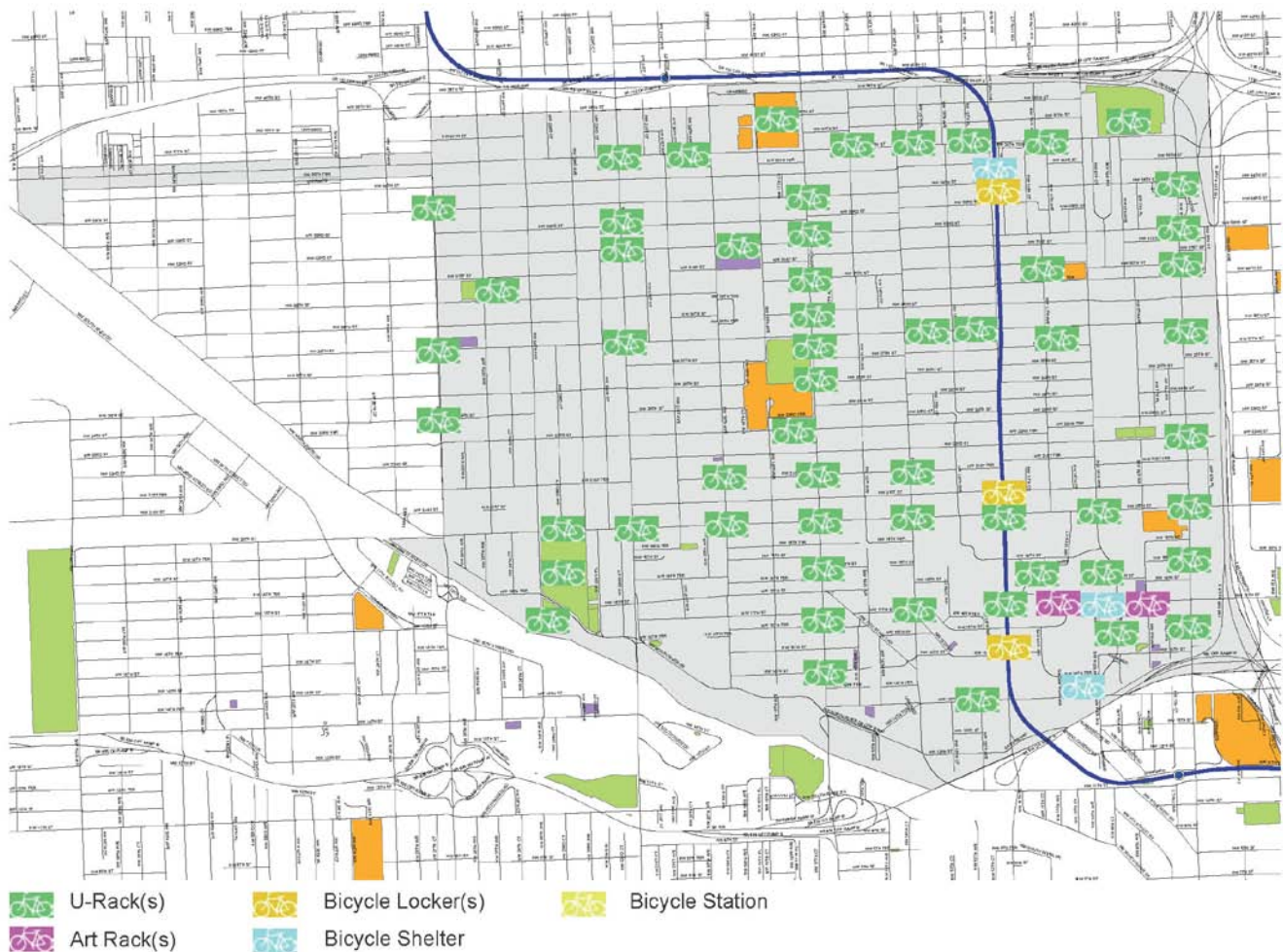
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1.0 Allapattah

Bicycle parking is undersupplied in the Allapattah NET district. The following districts, corridors, and individual locations demonstrate a need for additional facilities and should be considered for the implementation of bicycle parking facilities. Beyond the provision of basic bicycle racks, the need for additional bicycle lockers should be evaluated at all three of the NET area Metrorail stations. Additionally, bicycle shelters, lockers, and public art racks should be considered at strategic locations within the Health District.





Corridors

- NW 7th Avenue
- NW 17th Avenue
- NW 36th Street
- NW 28th Street
- NW 29th Street

Districts

Health District

Schools

- Santa Clara Elementary
- Jackson Senior High
- Maya Angelou Elementary
- Comstock Elementary

Parks

- Moore Park
- Melrose Park
- Gerry Curtis Park

Metrorail Stations

- Civic Center
- Santa Clara
- Allapattah

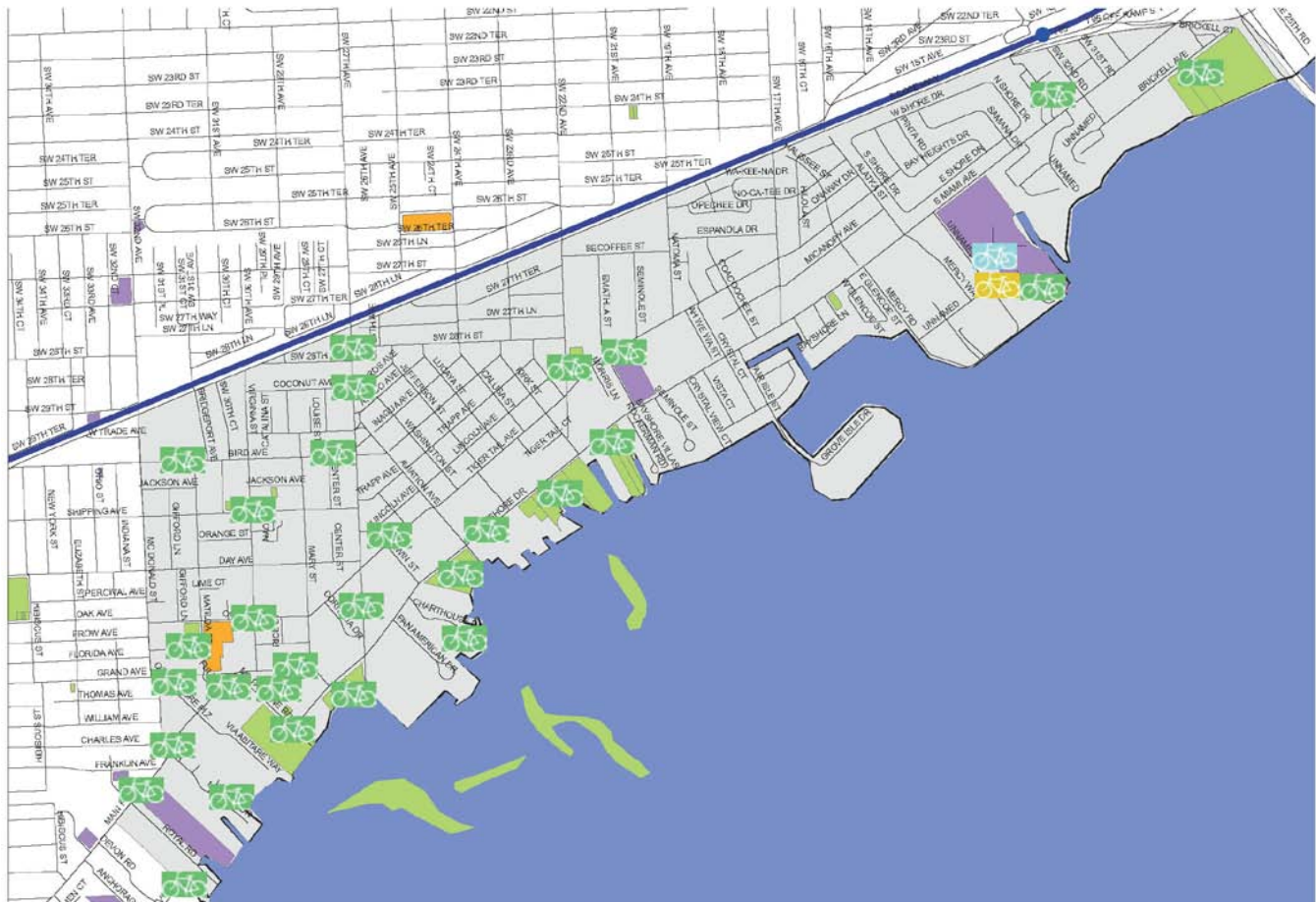
Other






- Allapattah NET Office



2.0 Coconut Grove North/East

While Coconut Grove has recently taken strides to accommodate bicycle parking, it still has many locations in which it could improve its supply, visibility and function. New public art bicycle racks have successfully raised the profile of bicycling in the neighborhood, but those racks selected have not been conducive to easy or desirable parking. The following areas should be considered and evaluated for the implementation of additional bicycle parking facilities.



-  U-Rack(s)
-  Bicycle Locker(s)
-  Bicycle Station
-  Art Rack(s)
-  Bicycle Shelter



Corridors

- South Bayshore Drive
- Bird Avenue
- SW 27th Avenue
- Grand Avenue

Districts

- Mercy Hospital
- Center Grove (Main Highway, Tigertail, Commodore Plaza).

Schools

- LaSalle High School
- Grove Elementary
- Ransom Everglades (two locations)

Parks

- Monroe Park
- Peacock Park
- Myers Bayside Park
- Alice Wainwright Park,
- The Barnacle State Park
- Blanche Park
- Kennedy Park

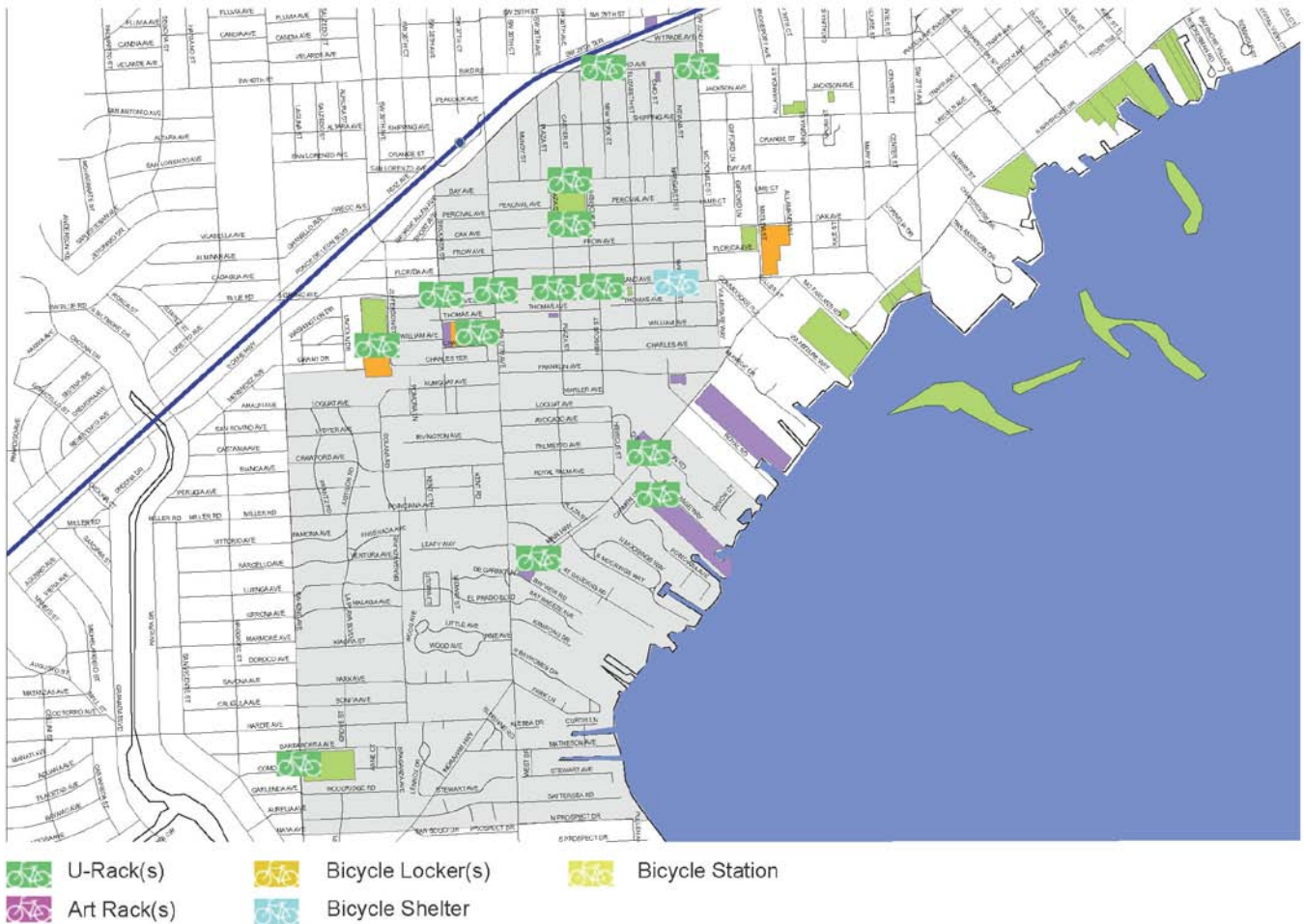
Other

- Miami Science Museum
- Coconut Grove North/East NET Office



3.0 Coconut Grove South/West

While bicycle parking facilities have expanded in the Coconut Grove North/East NET district, South/West Coconut Grove has very few bicycle parking facilities. A primarily low density, residential neighborhood, the facilities are recommended predominantly at parks and schools. However, Grand Avenue serves as the areas main commercial street and is in need of bicycle parking infrastructure.





Corridors

- Grand Avenue
- Bird Avenue

Schools

- Carrollton School
- Vanguard School
- Frances Tucker Elementary

Parks

- Grand Avenue Park
- Coconut Grove Mini Park
- Virrick Park
- Merrie Christmas Park

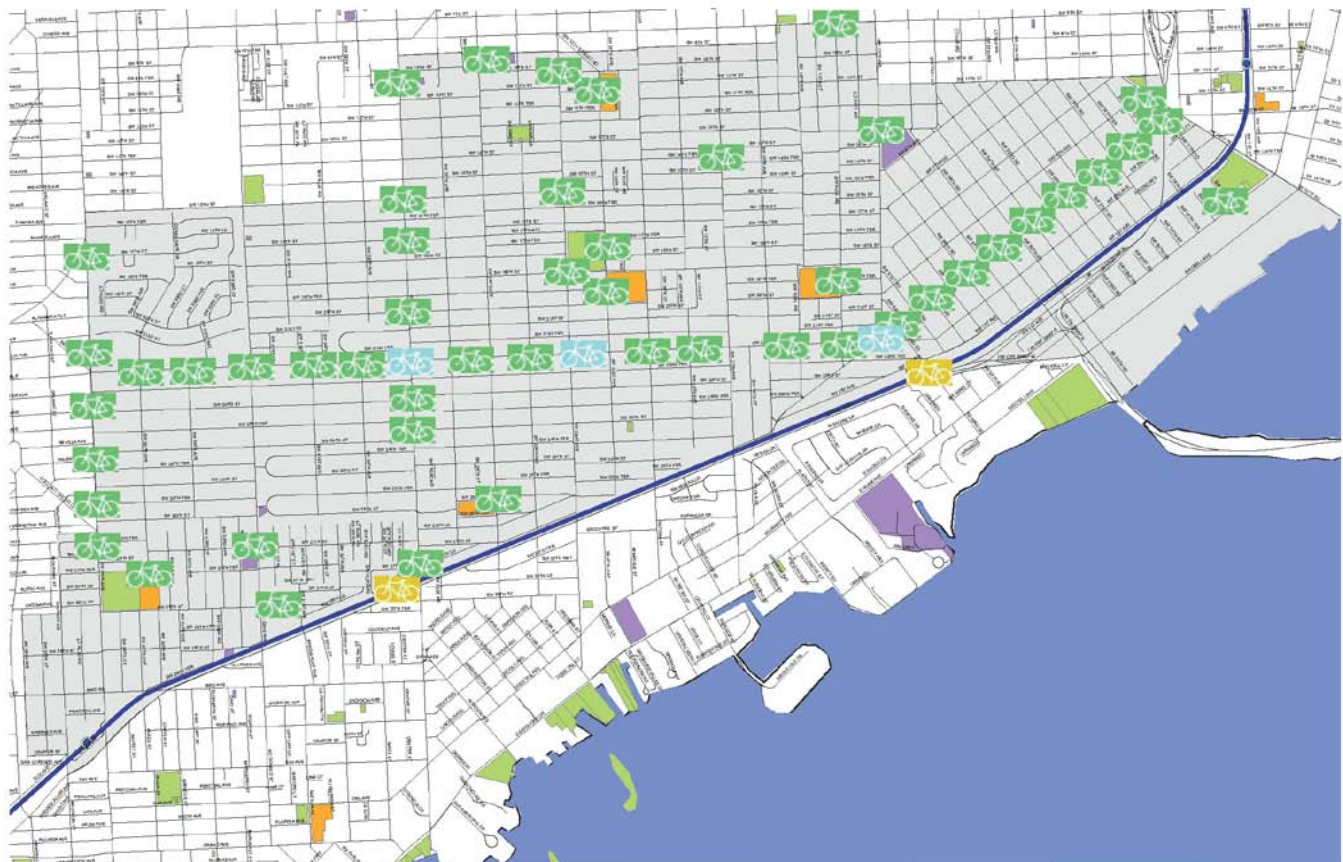
Other






- Farmer's market at Grand and Margaret
- Coconut Grove South/West NET Office



4.0 Coral Way

This NET district is comprised primarily of residential streets. However, the district's namesake, Coral Way, is in need of a comprehensive approach to bicycle parking infrastructure. It is recommended that each block of Coral Way should accommodate new short term bicycle parking racks. Additionally, bicycle shelters should be considered at strategic locations near the intersection of major avenues and Metrobus stops. Other areas of need and evaluation are the district's schools, parks, and two Metrorail stations. Improved wayfinding, bikeways, and end-of-trip facilities will certainly help extend the catchment area for the Coral Way NET's bus and rail transit stations.



-  U-Rack(s)
-  Bicycle Locker(s)
-  Bicycle Station
-  Art Rack(s)
-  Bicycle Shelter



Corridors

- Coral Way
- SW 27th Avenue
- SW 37th Avenue

Schools

- Shenandoah Middle School
- Silver Bluff Elementary School
- Shenandoah Elementary School
- Saint Peter and Paul Catholic School

Parks

- Shenandoah Park
- Simpson Park
- Triangle Park

Metrorail Stations

- Evaluate and Improve parking conditions at the Coconut Grove and Vizcaya Metrorail stations.

Other

- Coral Way NET Office



5.0 Downtown

As the economic, social, and cultural heart of the entire Miami metropolitan region, the Downtown NET district should offer the highest level of bicycle parking service. This includes not only the proliferation of streetside bicycle racks for short term parking on most blocks, but a mix of other short and long-term bicycle parking and other end-of-trip facilities, which should be placed in several strategic locations. As an example, Miami-Dade Transit has implemented bicycle lockers at several prominent transit stops.

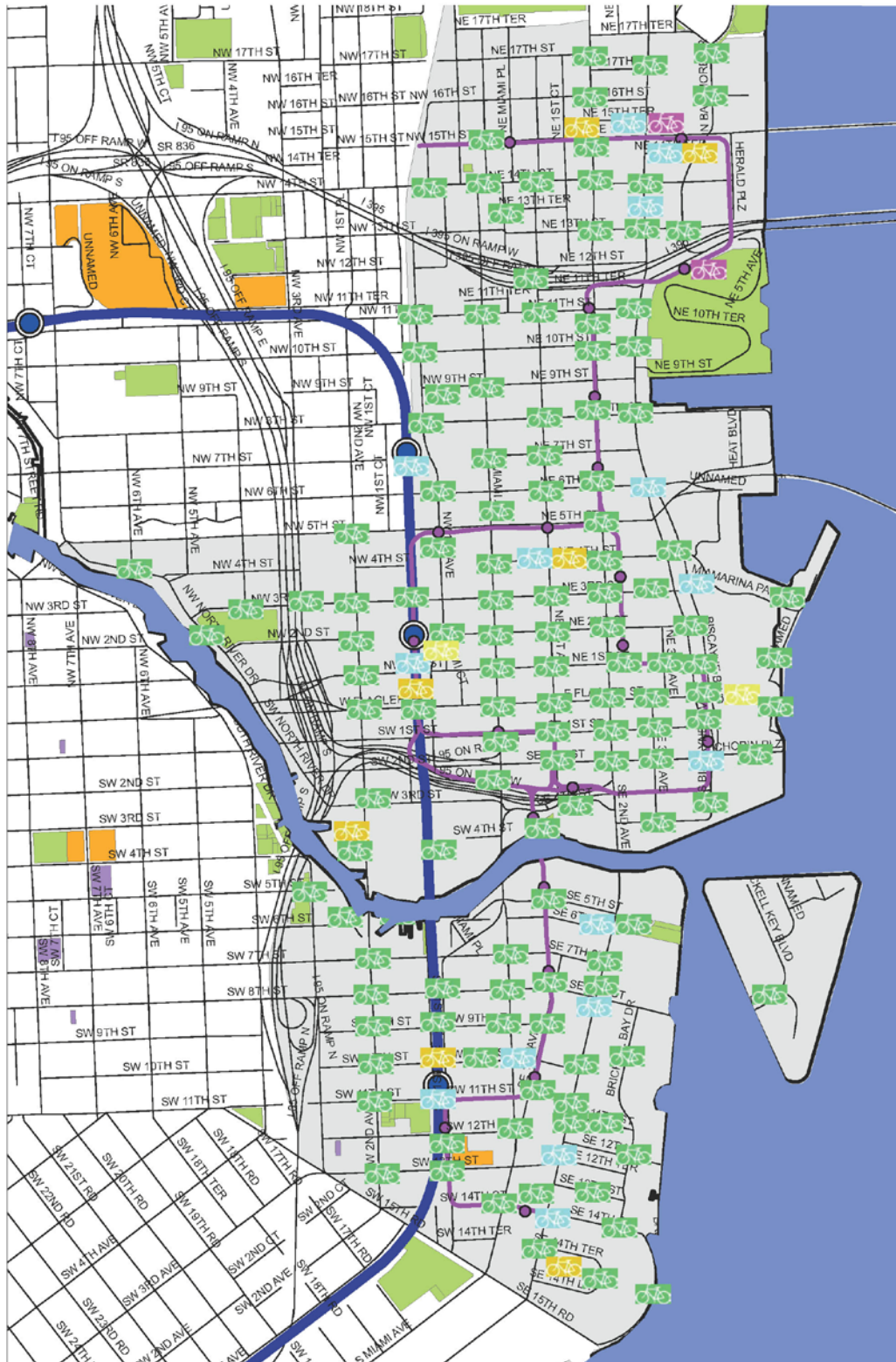
As noted previously, streetside downtown bicycle parking has expanded. Yet, given the district's high density land use mixture, including many regional employment destinations, and a growing residential population, there exists a great opportunity to further induce and capture more commuting and utilitarian bicycle trips simply by providing visible bicycle parking facilities.

Specifically, partnerships between private business and City and County government offices should work together to improve the supply and quality of parking in Downtown Miami. There exists several opportunities to expand bicycle parking and end-of-trip facilities not just along the public right-of-way, but also within privately owned office and residential towers, buildings, and parking lots and structures. Maximizing these opportunities and partnerships will best serve the region by improving the quality and number of bicycle parking options. For such purposes, the full gamut of bicycle parking facilities should be explored in the NET district.



Miami Bicycle Master Plan

Appendix E








- U-Rack(s)
- Art Rack(s)
- Bicycle Locker(s)
- Bicycle Shelter
- Bicycle Station



Miami Bicycle Master Plan

Appendix E



-  U-Rack(s)
-  Art Rack(s)
-  Bicycle Locker(s)
-  Bicycle Shelter
-  Bicycle Station



Corridors

- Biscayne Boulevard
- Flagler Street
- North Miami Avenue
- South Miami Avenue
- NE 2nd Avenue
- Brickell Avenue
- NW 2nd Avenue
- NE/NW 1st Street
- SE/SW 1st Street
- NE/NW 3rd Street
- Rickenbacker Causeway

Schools

- Southside Elementary
- Miami-Dade College, Wolfson Campus
- Downtown Miami Charter School
- Unitech College of Technology
- Brown Mackie College
- Miami International University of Art & Design
- New World School of the Arts
- Mast Academy

Parks

- Bayfront Park
- Bicentennial Park/Museum Park
- Brickell Park
- Brickell Plaza Mini-Park
- Paul Walker Mini-Park
- Fort Dallas Park
- Southside Park
- Lummus Park
- Seamans Park
- Virginia Key Park
- Watson Island Park
- Allen Morris Park



Metrorail and Metromover Transit Stations

- All Metromover stops
- Brickell Station (bicycle shelter)
- Government Center (bicycle station, bicycle shelter)

Other

- Miami-Dade Public School complex
- Downtown NET Office



6.0 Flagami

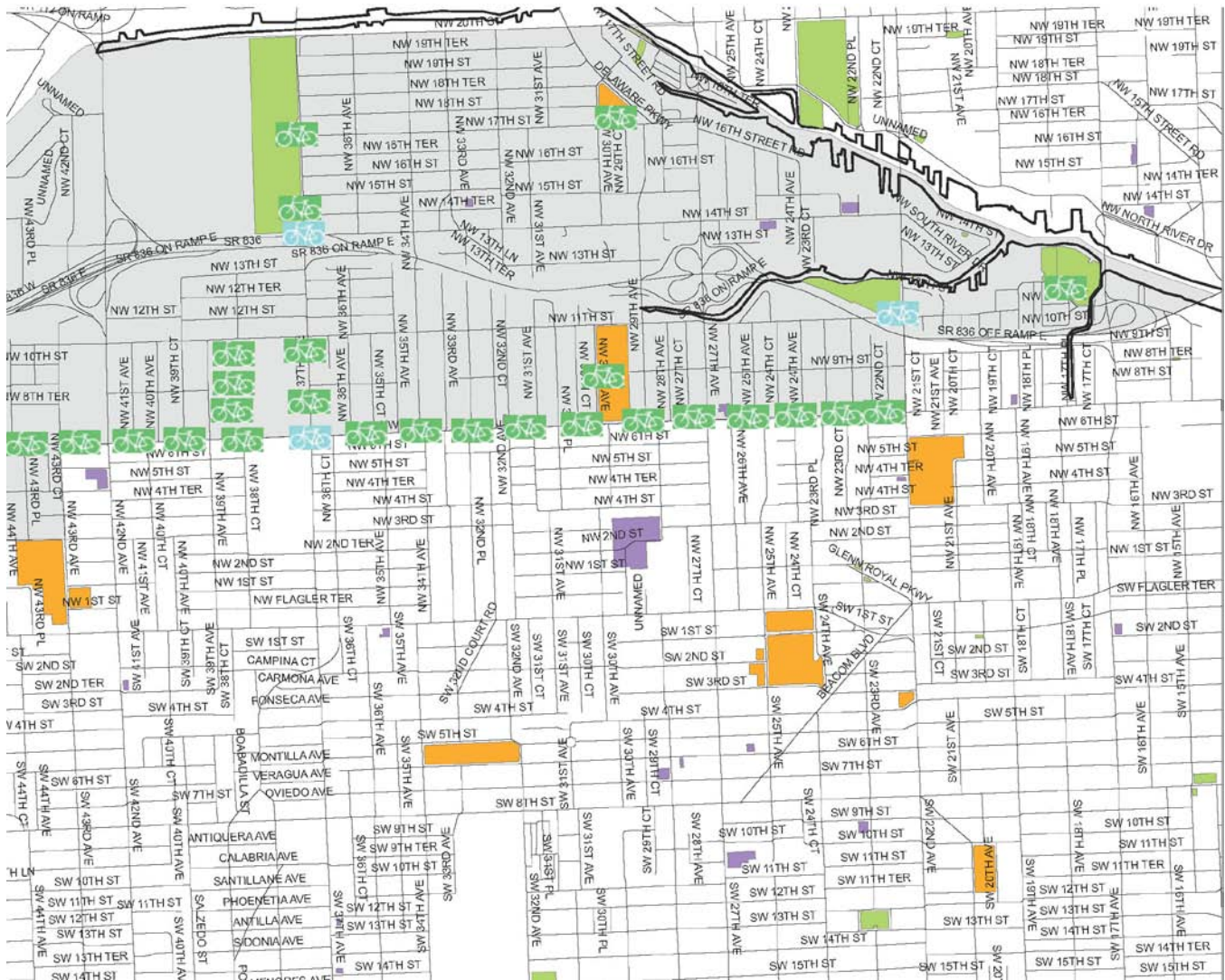
While much of the Flagami NET district is comprised of residential neighborhoods, its primary east-west corridors are shaped by medium and high density residential and commercial uses. As a result, the natural movement for bicyclists is from the residential neighborhoods to these corridors. At present, there is no bicycle parking facilities in these locations. Flagami's few parks, and its schools, mostly located within the interior neighborhoods, are also underserved by bicycle parking facilities.










Miami Bicycle Master Plan

Appendix E



-  U-Rack(s)
-  Bicycle Locker(s)
-  Bicycle Station
-  Art Rack(s)
-  Bicycle Shelter

Corridors

- SW 8th Street (Called Ocho)
- West Flagler Street
- NW 7th Street
- NW 37th Avenue
- NW 42nd Avenue
- SW/NW 57th Avenue
- SW/NW 67th Avenue





Schools

- West Dade-Academy
- Fairlawn Elementary
- Kinlock Park Elementary and Middle School
- Kensington Park Elementary

Parks

- Grapeland Park
- Antonio Maceo Park
- Kinlock Park
- Robert King High Park
- West End Park
- Flagami Park
- Fern Isle Park
- Sewall Park

Other

- Metropolitan Hospital of Miami
- Flagami NET Office



7.0 Little Havana

The Little Havana NET district is full of bicycling activity, yet there are very few bicycle parking facilities. Implementation should focus primarily on the district's main commercial corridors, parks, and schools as outlined below. Specifically, art racks may be considered along SW 8th Street (Calle Ocho) to enhance the unique character of the area. Likewise, the new Marlins Stadiums, currently under construction, should make use of a variety of bicycle parking facilities, including bicycle shelters, and standard or artistic bicycle racks for both employees and ballpark visitors.





Corridors

- SW 8th Street
- SW 1st Street
- West Flagler Street
- NW 7th Street
- SW 8th Avenue
- SW 12th Avenue
- SW 17th Avenue

Schools

- Riverside Elementary
- Citrus Grove Middle and Elementary Schools
- Lincoln Marti Schools
- Hope Center

Parks

- Riverside Park
- Henderson Park
- Maximo Gomez Park (Domino Park)

Other

- Victoria Hospital
- Select Specialty Hospital
- Marlins Stadium
- Little Havana NET Office



8.0 Little Haiti

While bicycle parking facilities are few and far between in Little Haiti, the district provides a plethora of opportunities for bicycle rack expansion. The spine of NE 2nd Avenue, soon to be the location of the city's longest bicycle lane, will serve as a linear corridor for the area's existing bicycle activity.

Corridors

- NE 2nd Avenue
- North Miami Avenue
- 46th Street
- 54th Street
- 62nd Street
- 71st Street
- 75th Street

Districts

- Design District, Replace the existing racks
- Douglas Gardens Jewish Home for the Aged Campus

Schools

- Shadowlawn Elementary
- Touissant Louverture Community School
- Edison Central Park Elementary, Middle, and High Schools
- Notre Dame D'Haiti
- Little River Elementary

Parks

- Victory Homes Park
- Simpson Park
- Triangle Park





Other

- Little Haiti Cultural Center
- Little Haiti NET Office
- Caribbean Marketplace



9.0 Model City

Bicycle parking is under supplied in the Model City NET district. As in other districts, primary locations for implementation include the district’s commercial corridors, parks, and schools as outlined below. The strategic location of bicycle shelters will provide needed shelter and raise the profile of bicycling within the neighborhoods of Model City, especially if shelters include the city’s network map. Wherever possible, such facilities should be grouped with Metrobus stops.

Corridors

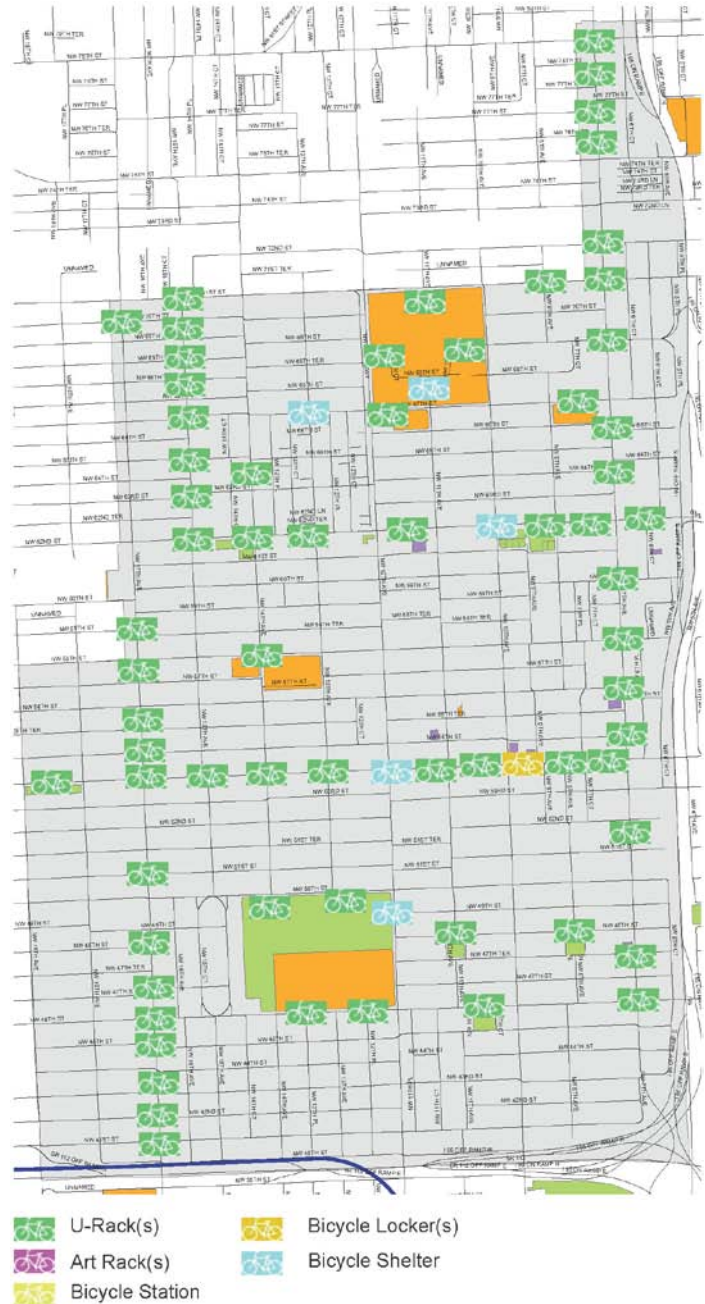
- NW 7th Avenue
- NW 15th Avenue, between NW 62nd Street and NW 71st Street
- NW 17th Avenue
- NW 54th Street
- NW 62nd Street

Schools

- Orchard Villa Elementary
- Lenora Braynon Smith Elementary
- Holmes Elementary
- Miami Northwestern Senior High School
- Allapattah Middle School

Parks

- Hadley Park
- Manor Park
- West Buena Vista Park
- Crestwood Park
- East Bay Vista Park
- NW 54 Street Mini Park
- Liberty Square Community Center





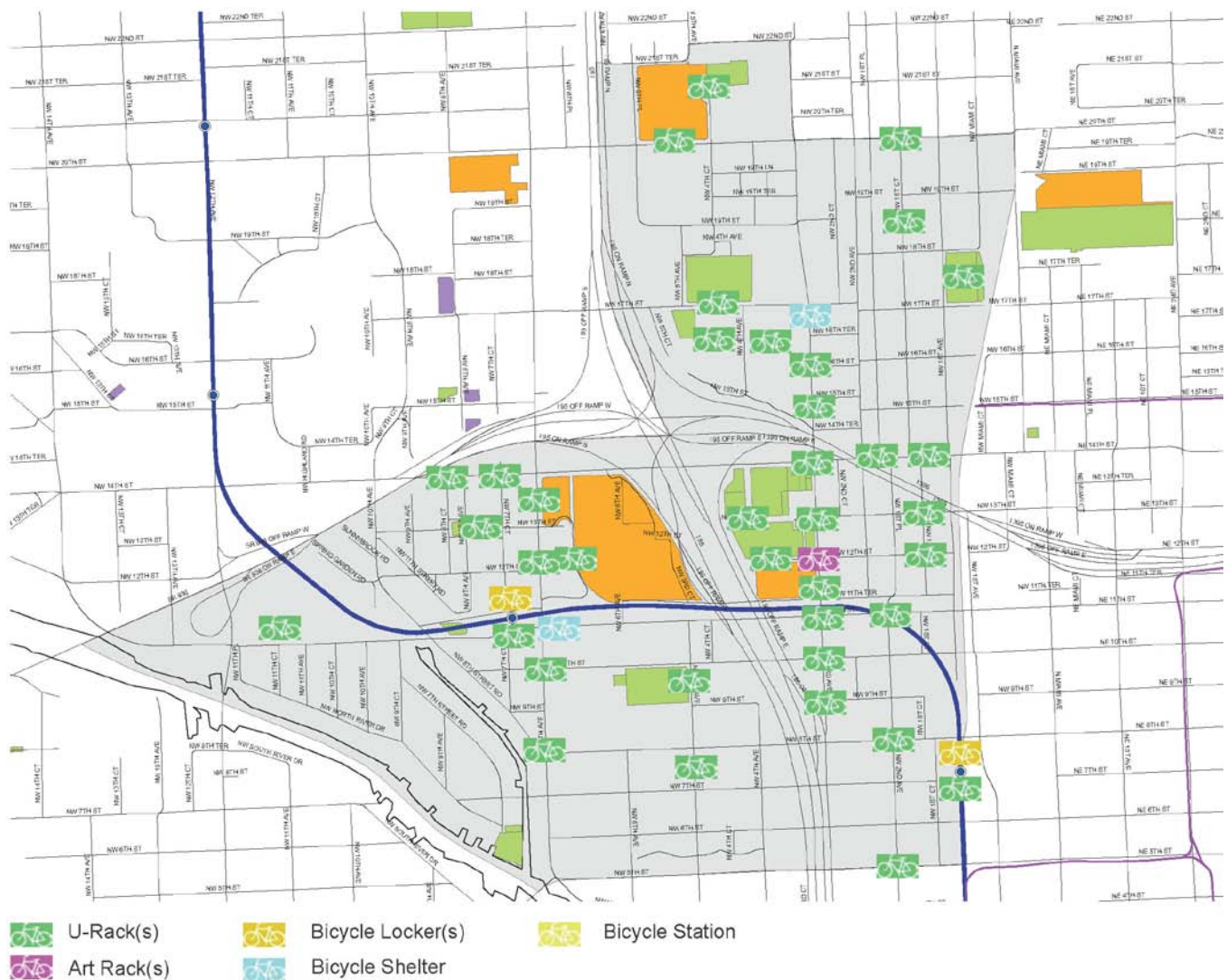
Other

- Belafonte Tacolcy Center
- Model City NET Office



10.0 Overtown

Streetside bicycle parking is almost non-existent in the Overtown NET district. However, given the number of people bicycling in the neighborhood, it is apparent that new bicycle facilities will greatly improve conditions. The redevelopment of NW 3rd Street, as well as all schools and parks demonstrate a clear need for such facilities. Bicycle shelters and lockers should also be considered for select locations; especially at Metrorail stops where diversifying the type of facilities available will better meet the needs of those in the District.





Corridors

- NW 1st Avenue
- NW 3rd Avenue
- NW 7th Avenue
- NW 14th Street

Schools

- Booker T. Washington High School
- Phyllis Wheatley Elementary
- Frederick Douglass Elementary
- Paul Laurence Dunbar Elementary
- Saint Francis Xavier Catholic School

Parks

- Gibson Park
- Williams Park
- Reeves Park
- Rainbow Village Park
- Spring Garden Park

Metrorail Stations

- Culmer Station (consider type diversification)
- Overtown Station (consider type diversification)

Other

- Winn Dixie
- Jessica Culmer Center
- Overtown NET Office



11.0 Upper East Side

The Upper East Side district primarily needs bicycle parking facilities along the Biscayne Boulevard corridor where no streetside facilities exist. In addition to the implementation of standard U-racks along the entire corridor, it is recommended that bicycle shelters be used intermittently, and in coordination with Metrobus transit stops. Schools and parks are also in need of bicycle parking facilities. Special areas of interest also include the Little River Industrial complex along NE 4th Court where significant interest in art racks has already been generated, and the 55th Street Station area which currently serves as a neighborhood center.

Corridors

- Biscayne Boulevard

Schools

- Miller Phyllis Ruth Elementary
- Morningside Elementary
- Cushman School
- Florida International Academy

Parks

- Morningside Park
- Legion Park
- Eaton Park
- Belle Meade Park

Other

- 55th Street Station
- The Little River Industrial Complex
- 79th Street/Biscayne Boulevard node
- Upper East Side NET Office





12.0 West Flagler

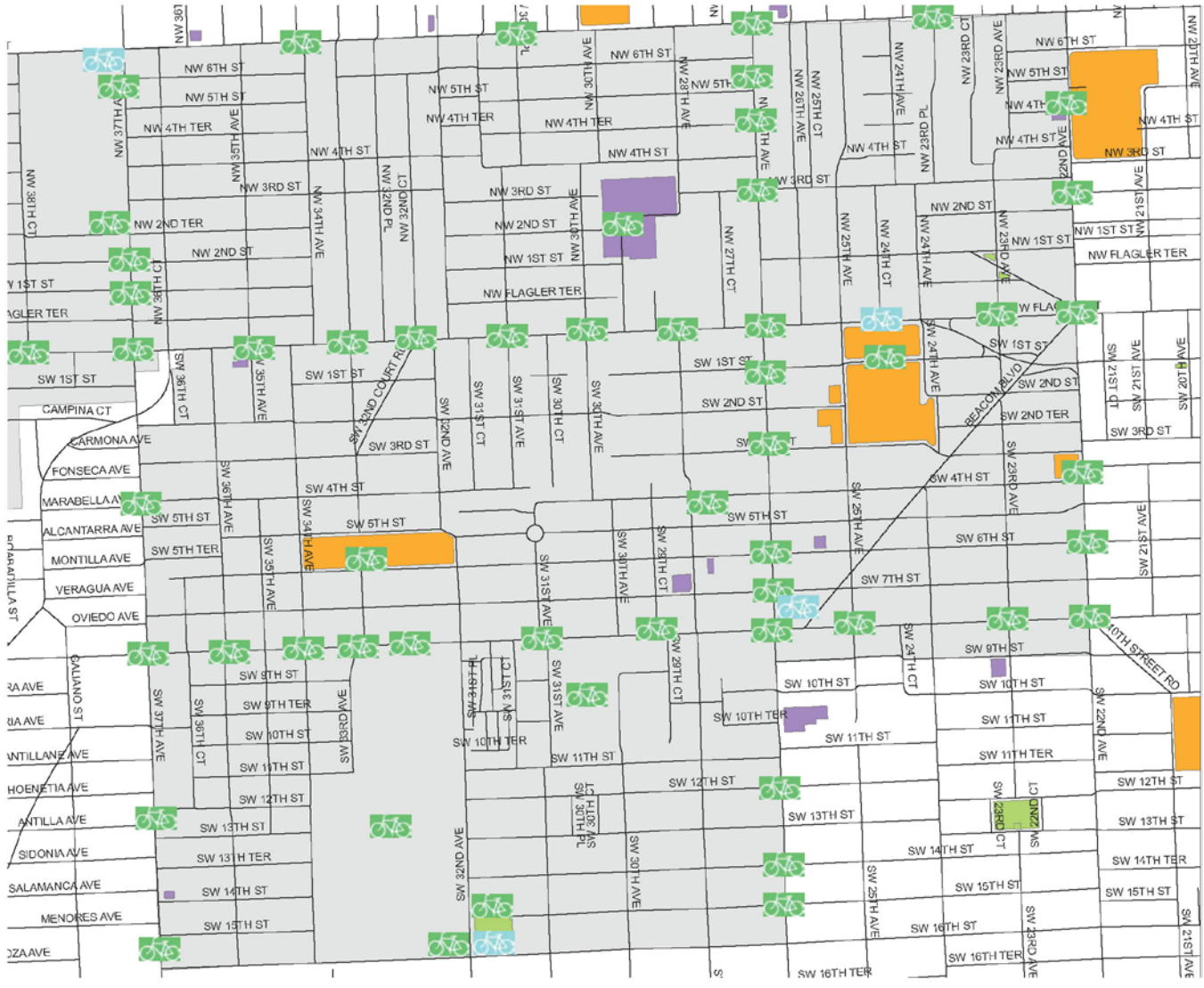
Similar to Flagami in its built character, West Flagler is defined by low density residential neighborhoods located between the major east-west corridors of SW 8th Street, West Flagler Street and NW 7th Street. It is on these corridors where the majority of bicycle parking facilities are needed, but currently lacking. Other areas of need are the District's parks and schools.










Miami Bicycle Master Plan

Appendix E



-  U-Rack(s)
-  Art Rack(s)
-  Bicycle Locker(s)
-  Bicycle Shelter
-  Bicycle Station

Corridors

- SW 8th Street (Calle Ocho)
- West Flagler Street
- NW 7th Street
- SW 27th Avenue
- SW 37th Avenue
- SW 42nd Avenue



Schools

- Flagler Elementary
- Kinloch Park Middle and Elementary
- Auburndale Elementary
- Miami Senior High
- Miami-Dade College, Interamerican Campus

Parks

- Coral Gate Park
- Flagler Terrace Park

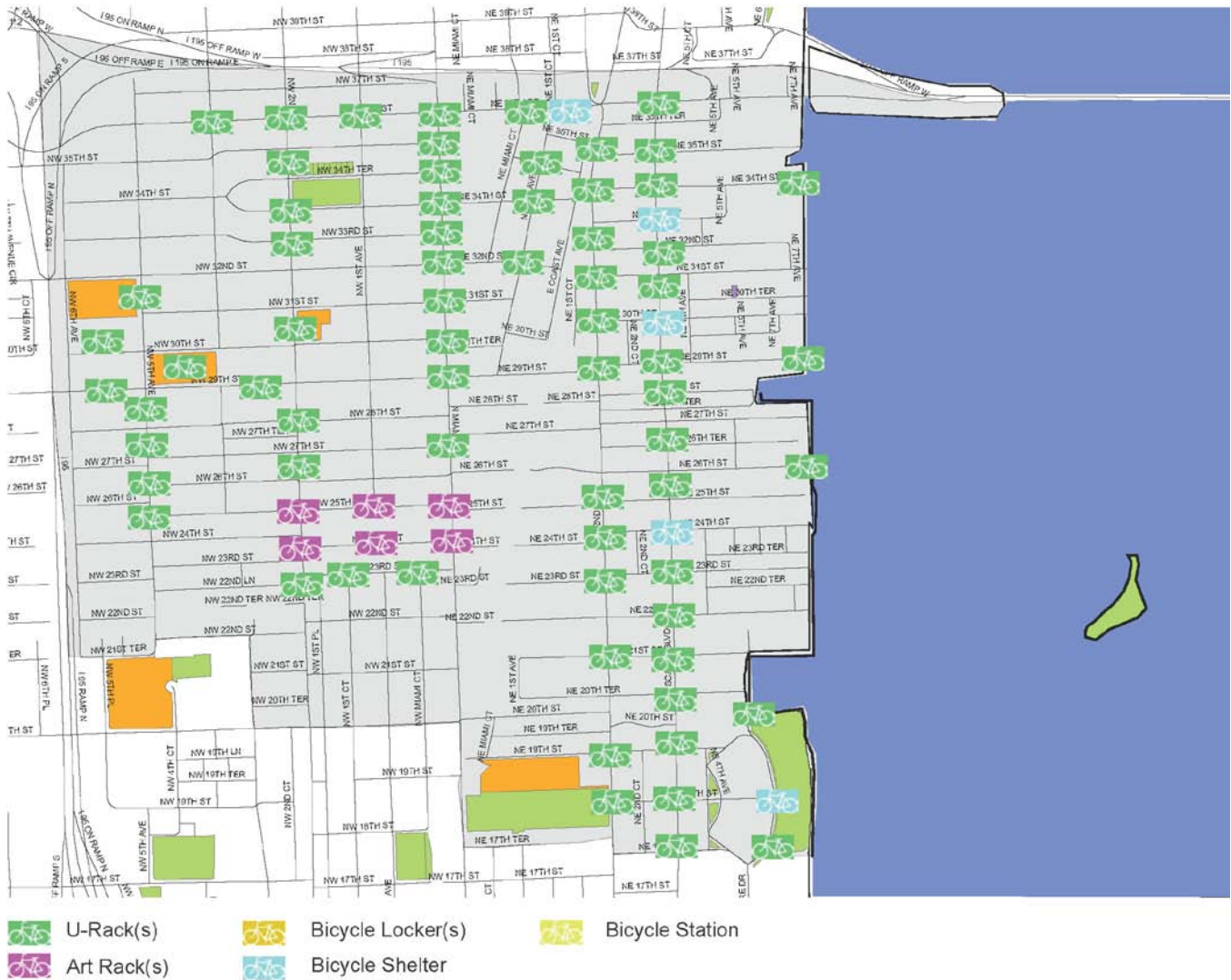
Other

- Flagler Dog Track
- West Flagler NET Office
- Leon Medical Center



13.0 Wynwood/Edgewater

While bicycle parking is abundant at Hartner Elementary School (40 spaces), the Edgewater/Wynwood NET neighborhoods need many bicycle parking facilities of various types. The Biscayne Boulevard corridor, NE 2nd Avenue, and in general the Wynwood and Midtown districts need a comprehensive approach to bicycle parking. In addition to the proliferation of standard U-racks, bicycle shelters are well-suited for the Biscayne Boulevard corridor near Metrobus stops. Likewise, art racks should be pursued in the Wynwood Arts district, where bicycle parking facilities do not currently exist.





Corridors

- Biscayne Boulevard
- NE 2nd Avenue
- North Miami Avenue
- NW 5th Avenue
- NW 29th Street
- NW 36th Street

Districts

- Wynwood Arts
- Midtown

Schools

- Jose De Diego Middle School
- Young Men's Preparatory Academy
- Eneida Massas Hartner School

Parks

- Robert E. Lee Park
- Margaret Pace Park
- Roberto Clemente Park
- Biscayne Park
- Martell Park

Other

- Edgewater/Wynwood NET Office



Miami Bicycle Master Plan Appendix F





EVALUATION MATRIX

Bikeways

Bikeways	Existing Facility Miles	Under construction	2030	Percent Complete
Bicycle Routes	0	0	64.75	0%
Bicycle Lanes	5.56	5.45	55.75	10%
Bicycle Boulevards	0	0	62.06	0%
Shared Use Lane Markings	0	0	62.8	0%
Greenways/Shared Use Paths	11.56	0	30.44	38%
Scenic View Routes	0	0	1.92	0%
Neighborhood Connections	0	0	2.29	0%
Total	17.12	5.45	280.01	6.11%

Bicycle Parking

Bicycle Parking	Existing (Public)	Planned	Percent Complete
Bicycle Racks	TBD		TBD
Bicycle Shelters	0	0	
Bicycle Lockers	TBD		TBD
Bicycle Station	0	0	
Bicycle Sharing/Rental	0	0	

Crash Data

Crash Data	2009	2010	2011	2012	2013	2014	2015
Number of crashes reported							
Fatalities							
Crash rate (# crashes reported /Bi-Annual bicycle count estimates)							

Mode Share

Mode Share	2010	2015	2020	2025	2030
Percentage of trips taken by bicycle					



Maps Distributed

Bicycle Maps Distributed	2010	2011	2012	2013	2014	2015
Maps distributed annually						

LCI Trainings

LCI Trainings	2009	2010	2011	2012	2013	2014	2015
Traffic Skills 101	1						
Traffic Skills 201							
LCI Seminar							
Kids I							
Kids II							

Events

Encouragement Events (Rides, contest, promotions etc.)	2009	2010	2011	2012	2013	2014	2015
Bike Miami Days	7						
Bike Miami Rides	4						
Ride of Silence	1						
Miami-Dade County Rickenbacker Ride	1						
Critical Mass	17						
Charity Rides	TBD						
Other (Bicycle Magazine BikeTown event, etc.)	1						
TOTAL	31						



Miami Bicycle Master Plan Appendix G





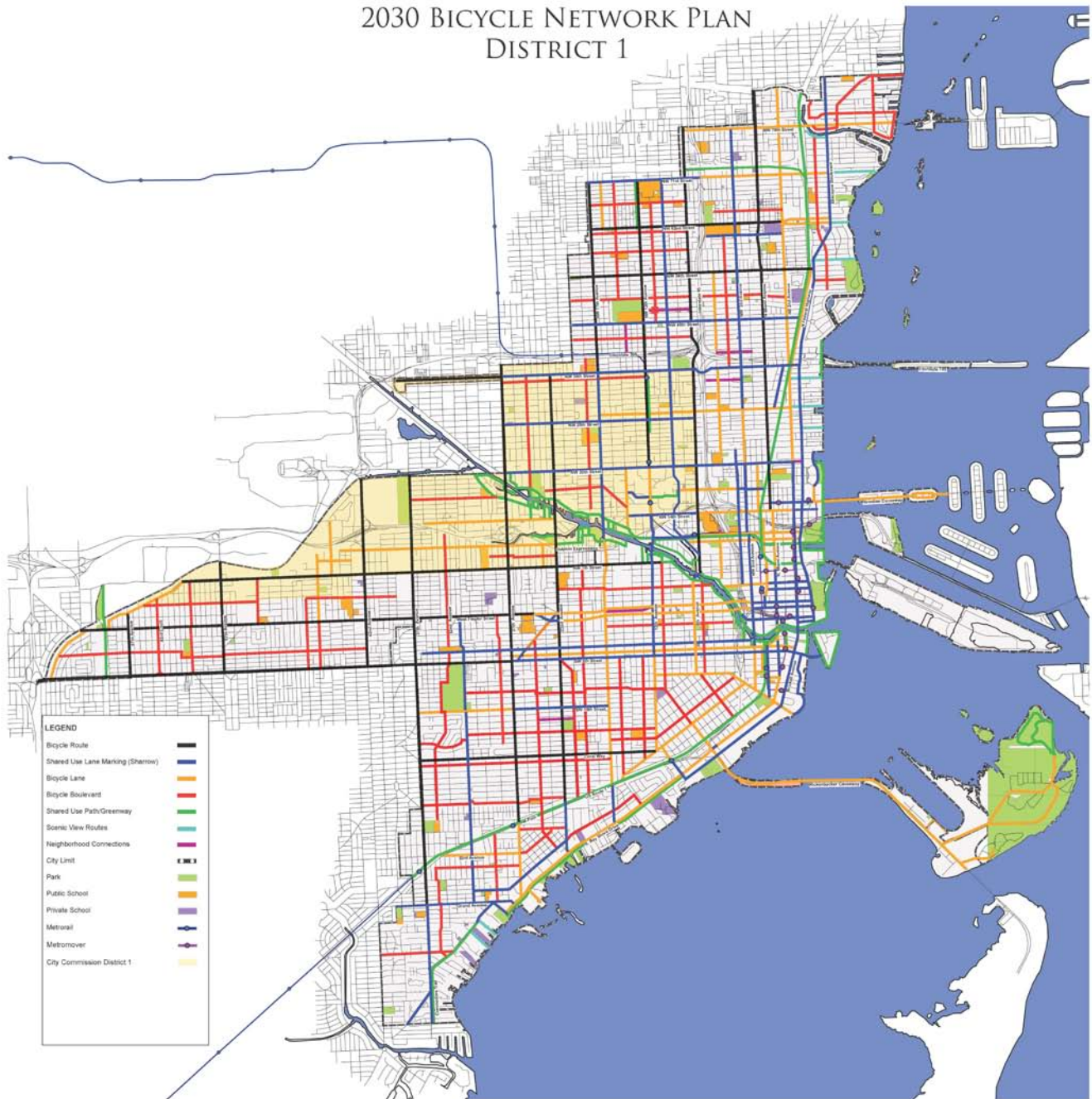
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1.0 Commission District 1 - 2030 Bicycle Master Plan

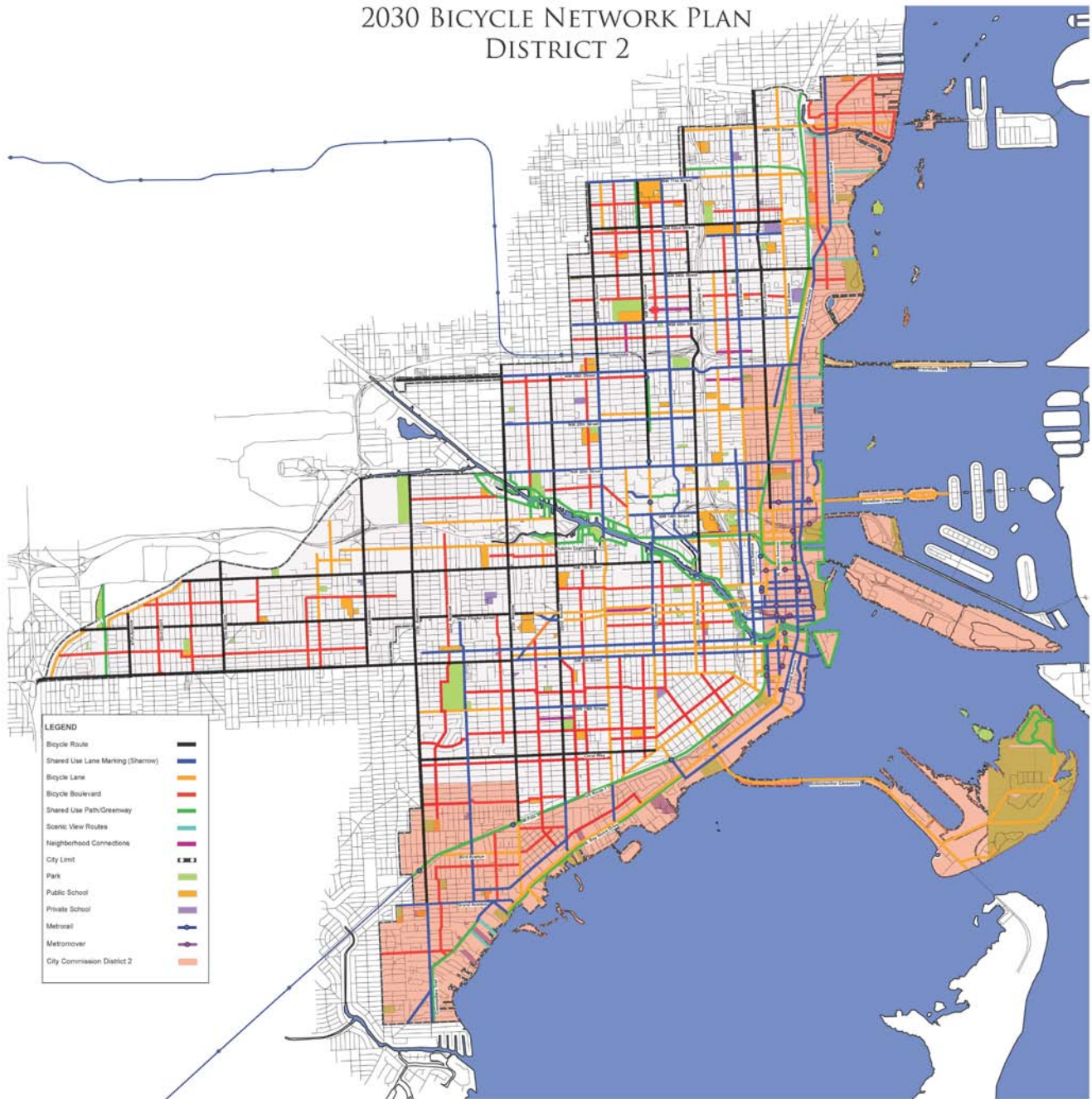
CITY OF MIAMI
2030 BICYCLE NETWORK PLAN
DISTRICT 1





2.0 Commission District 2 - 2030 Bicycle Master Plan

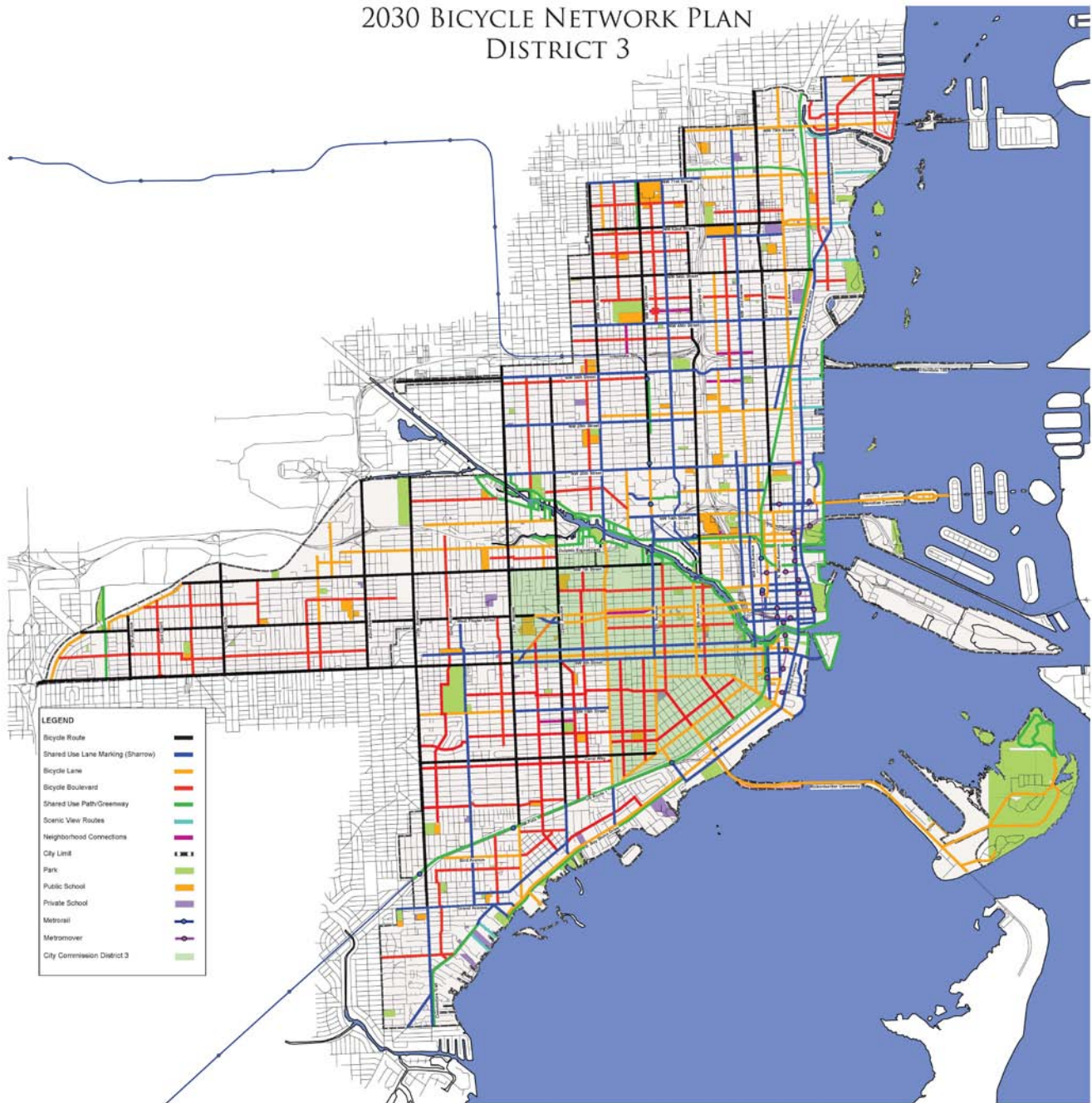
CITY OF MIAMI
2030 BICYCLE NETWORK PLAN
DISTRICT 2





3.0 Commission District 3 - 2030 Bicycle Master Plan

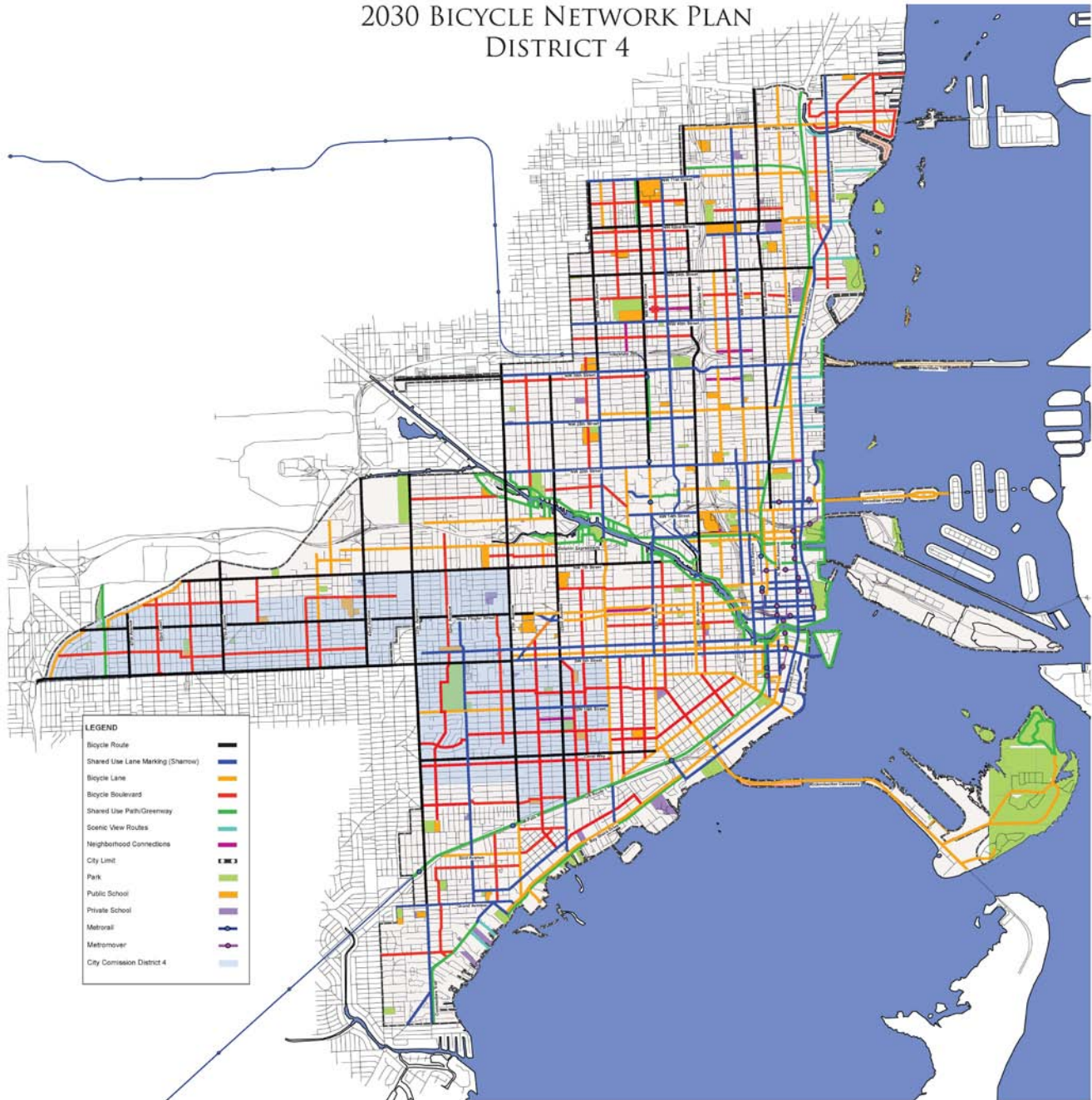
CITY OF MIAMI
2030 BICYCLE NETWORK PLAN
DISTRICT 3





4.0 Commission District 4 - 2030 Bicycle Master Plan

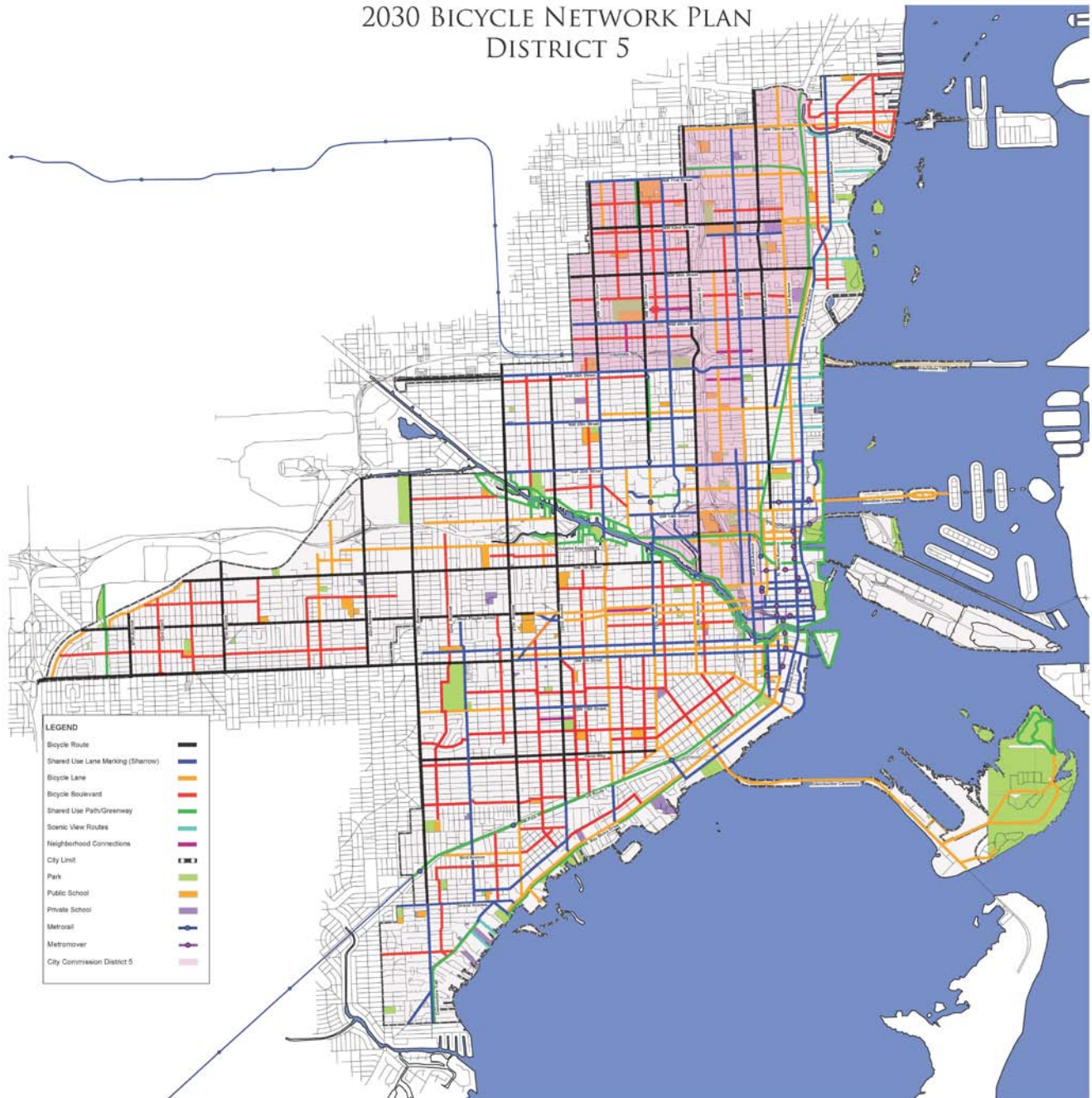
CITY OF MIAMI
2030 BICYCLE NETWORK PLAN
DISTRICT 4





5.0 Commission District 5 - 2030 Bicycle Master Plan

CITY OF MIAMI
2030 BICYCLE NETWORK PLAN
DISTRICT 5





6.0 Downtown Development Authority - 2030 Bicycle Master Plan

CITY OF MIAMI - DOWNTOWN DEVELOPMENT AUTHORITY 2030 BICYCLE NETWORK PLAN



Prepared By:
HNTH Corporation
The Street Plans Collaborative



Miami Bicycle Master Plan Appendix H





General Funding Sources

Funding for bicycle infrastructure and programs is available from a wide variety of federal, state, local, private, and non-profit sources. The following describes several potential funding sources for implementing the Miami Bicycle Master Plan.

Federal Transportation Funds:

SAFETEA-LU

The Safe, Accountable, Flexible, Efficient, and Transportation Equity Act: A Legacy of Users (SAFETEA-LU) authorizes hundreds of billions of dollars in Federal gas-tax revenue and other federal funds for all modes of surface transportation. Under SAFETEA-LU, pedestrian and bicycle programs are eligible to receive over half the funds, however there are no funds dedicated solely to the proliferation one of bicycle or pedestrian facilities and/or programs.

Energy Efficiency and Conservation Block Grant Program

As part of the American Recovery and Reinvestment Act of 2009, the Energy Efficiency and Conservation Block Grant program (EECBG) has set aside \$1.9 billion in grant funding for select cities and counties. These funds are available for Bicycle and Pedestrian Project which "reduce energy use and fossil fuel emissions" in an environmentally sustainable manner that will "maximize benefits for local and regional communities". You may visit the EECBG program website: <http://www.eecbg.energy.gov/>.

Congestion Mitigation and Air Quality (CMAQ)

As part of the TEA-21 legislation, CMAQ fund may be used for bicycle facilities. However, due to the expiration of TEA-21, CMAQ funding will not be available until TEA-21 is reauthorized.

In general, CMAQ funds can be used for projects that improve air quality in at least one of the following three categories:

- 1) Traffic flow (upgrade signal timing, turn pockets),
- 2) Transit improvements
- 3) Other modes to get people out of cars (bicycle projects, park and ride lots, etc). The bicycle infrastructure typically funded include access to transit centers and regionally important activity centers, bike racks on transit, or gap closures for regionally significant paths and bicycle lanes.

Federal Non-Transportation Funds:

There is a wide range of other federal funds that can be used for bicycling and walking facilities. Visit www.fhwa.dot.gov/environment/bikeped/bp-broch.thm#funding for a complete list of federal funding available for bicycle facilities/programs.

Funds through federal land agencies such as the National Forest Service, National Park Service or Bureau of Land Management are also available. These funds are primarily for trails and must be on federal lands.

HUD Community Development Block Grants fund community-based projects. These include:
- Commercial district streetscape improvements



- Sidewalk improvements
- Safe routes to school
- Neighborhood-based bicycling and walking facilities that improve local transportation options or help revitalize neighborhoods

In addition to the above Federal funding sources, the [National Transportation Enhancements Clearinghouse](#) produces the comprehensive Financing and Funding for Trails document. This resource includes more than thirty federal and national grant funding sources that could be used to help fund bicycling facilities and/or programs. They also provide state-specific information for funding history and application timelines.

State Transportation Funds:

The State of Florida raises funds for transportation infrastructure, including bicycle facilities, through a state motor-vehicle fuel tax. The Florida state legislature is among the first to create state funding programs for trail building and open space preservation. Much of the funding is available for local community-sponsored projects. The funds are also used for more regional projects of statewide interest.

Florida and national Safe Routes To School funding streams:

Florida's SRTS program is unlike any other in that the first call for applications solicited projects for all five years' worth of federal funding (2005-2009). The seven Florida DOT Districts received the applications, selected projects, got them approved by the State SRTS Coordinator, and entered them into the five-year Work Program, to be funded as federal funds were released. Miami is located within FDOT District 6 and should continue working with the Miami-Dade MPO and the State to pursue such funds.

In addition, applications are available for Florida's non-infrastructure programs on a rolling basis, as long as the FDOT District has uncommitted funds. Florida plans to continue issuing annual calls for infrastructure applications each fall, and selecting projects. This is all subject to the renewal of federal funding streams.

Share the Road Mini Grants

Through the sale of 'Share the Road' specialty license plates, Florida Bicycle Association has established a small mini-grants program to provide funds for programs that focus on motorist and bicycle education and awareness of proper, legal roadway sharing. Preference is given to efforts that garner significant media coverage.

Applicant may apply for grants from \$500 to \$5,000 per year. There is no assurance that the exact amount specified in the grant proposal will be awarded to the applicant.

Grants will be awarded four times a year in conjunction with quarterly board meetings generally held January, April, June, October.

Local (City of Miami and Miami-Dade County)

The City of Miami already funds transportation-related street projects, including bicycle facilities, through a variety of local, county, and federal sources. Some of these sources



include, Streets Bonds, Homeland Defense Bonds, Miami-Dade County's ½ cent transit tax, Miami-Dade County Secondary Gas Tax, Stormwater Utility Trust Fund, Parking Surcharges, General City Funds, the People's Transportation Plan, Local Options Gas Tax, and through the FDOT Transportation program. While these funding streams have been available, they have rarely been used for bicycle facility improvements. It is recommended that the City of Miami work with the Miami-Dade County MPO and the FDOT to more aggressively pursue all available funds for the implementation of the Miami Bicycle Network 2030 Plan, and all other related eligible programs included in the Miami Bicycle Master Plan.

Non-Profit Grants

While non-profit grants may be very difficult to come by, national organizations like Bike Belong have increasingly funded bicycle facilities and programs across the county. To date, Bike Belong has not yet funded projects in the City of Miami, or Miami-Dade County.

Bike Belong

The Bikes Belong Grant Program strives to put more people on bicycles more often by funding important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths, lanes, and routes, as well as bike parks, mountain bike trails, BMX facilities, and large-scale bicycle advocacy initiatives. Since 1999, Bikes Belong has awarded 191 grants to municipalities and grassroots groups in 46 states and the District of Columbia, investing nearly \$1.6 million in community bicycling projects and leveraging close to \$525 million in federal, state, and private funding.

Other grant sources may be found by visiting the FHWA and NTEC funding websites.