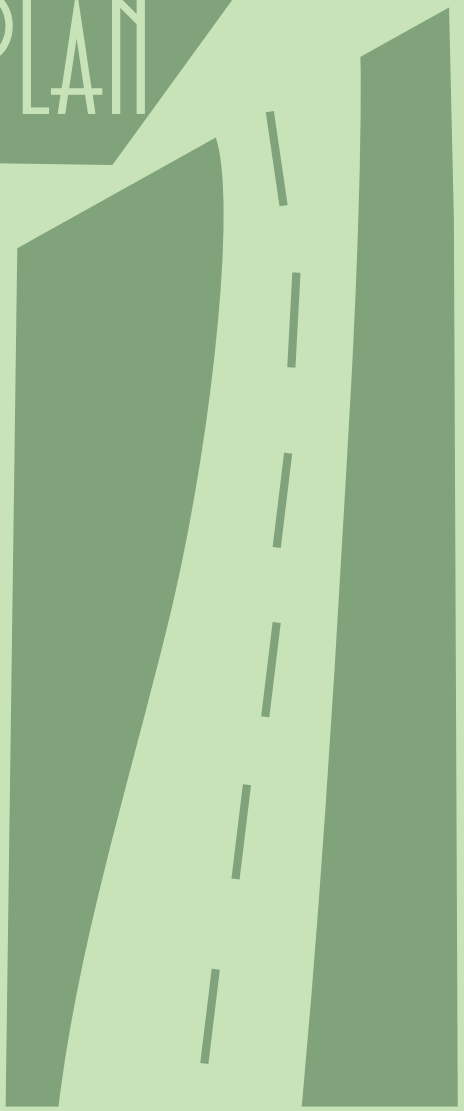
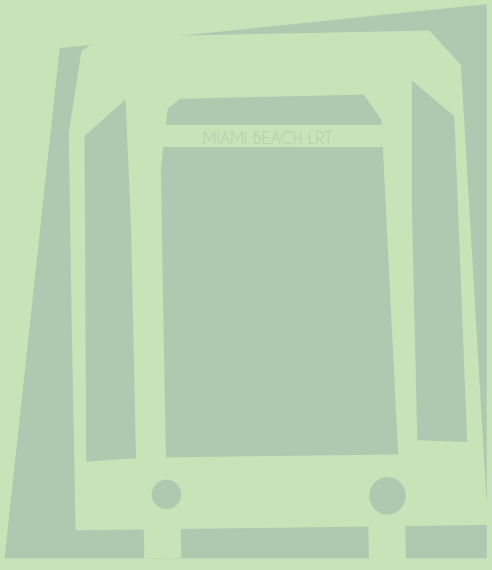
CITY OF MIAMI BEACH
BICYCLE PEDESTRIAN MASTER PLAN

PREPARED BY: THE STREET PLANS COLLABORATIVE





2015

Acknowledgements

Thanks go out to the following groups and individuals who offered input into the creation of the plan:

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EXECUTIVE SUMMARY

More people are riding bikes and walking around Miami Beach than ever before. From the advent of CitiBike, to having one of the most robust bicycle scenes in South Florida, active transportation plays a key role in the life of Beach residents and visitors. As the data in the following pages shows, a third of people on Miami Beach at any one time are riding, walking or taking transit; a statistic that requires a robust policy change.

Every great plan has a strong vision behind it, along with the consensus of staff, elected officials, and residents. Key to implementing this plan will be the development of low stress, safe and convenient bicycle and pedestrian streets that will encourage bicycling and walking, enhance the environment and improve public health and quality of life.

This document, and the process that created it, mark a shift in the priorities of city leaders and staff toward a balanced transportation network. One that elevates human based modes - bicycling, walking and taking transit - as viable forms of transportation for a majority of city residents.

Approximately **45%** of City residents, commuters, and tourists currently walk, bike or use transit as their primary means of transportation. This is a substantial percentage of the population whose transportation needs are addressed by the policies and designs in this report and in the 2015 Transportation Master Plan (TMP).

The projects and implementation strategy shared within reflect the desire of the Mayor, City Commission, and City Manager and Staff to increase the proportion of city residents who walk and bike as their main form of transportation from 19% today **up to 26% in 2020, and 32% in 2035.**

The Bicycle Network Plan in the pages that follow includes over 20 Miles of new and improved bikeways. The plan is has been divided into three distinct categories of projects that will provide for significantly improved bicycle and pedestrian safety and access, and addresses connectivity neighborhood by neighborhood.

Each category of projects builds on previous efforts and tries to improve bicycle access incrementally with the goal of increasing bicycle and pedestrian modeshare, while having a longer term view of improvements to the network as funding and conditions permit. The three categories are:

CATEGORY 1 PROJECTS, AKA "FILLING IN THE GAPS," projects that provide short term improvements to the existing network. These projects fill in gaps within the existing bicycle network over the next five years.

CATEGORY 2 PROJECTS, AKA "IMPROVEMENTS TO EXISTING," are improvements that can be made to the existing bikeway network (as identified in this report).

CATEGORY 3 PROJECTS are those that will require extensive changes, and which may require significant political will and further study to pursue. These projects may be desirable in their impact on bicycle modeshare, but their political / financial feasibility requires further study.

The 20 year plan envisions a network of protected bike lanes on major corridors, and a network of greenways on residential streets. Existing bike lanes and sharrows on major corridors should be converted into protected bicycle facilities, and critical connections at 71 Street, 63 Street, 51 Street, and Alton at Chase Ave should be made. Major interventions in the plan occur on state or county roads, where the volume of traffic is above 25,000 ADT or the speed above 35 mph.

Critical regional connections at the MacArthur Causeway, the Venetian Causeway, the Julia Tuttle and the JFK Causeway all require investments in separate bicycle and pedestrian infrastructure to accommodate inter-city regional travel between Miami Beach and mainland Miami.

Notable in the long term plan is a synthesis with potential rail linkages on 5 Street and Washington. These investments in rail transit infrastructure along with the improvements shown here will lead to the 14% bicycle mode share by 2035 (A 9% increase over 20 years.)

While these plans cannot predict changes in political climate, costs, or other factors that may impact the order in which these projects are done, city leaders are encouraged to go beyond the recommendations of this report whenever possible. Decision makers should allow for a flexible and aggressive implementation strategy than what is shown on these maps if conditions allow.

SETTING A VISION

More people are riding bikes and walking around Miami Beach than ever before. From the advent of CitiBike, to having one of the most robust bicycle scenes in South Florida, active transportation plays a key role in the life of Beach residents and visitors. As the data in the following pages shows, a third of people on Miami Beach at any one time are riding, walking or taking transit; a statistic that requires a robust policy change.

Every great plan has a strong vision behind it, along with the consensus of staff, elected officials, and residents. Key to implementing this plan will be the development of low stress, safe and convenient bicycle and pedestrian streets that will encourage bicycling and walking, enhance the environment and improve public health and quality of life.

This document, and the process that created it, mark a shift in the priorities of city leaders and staff toward a balanced transportation network. One that elevates human based modes - bicycling, walking and taking transit - as viable forms of transportation for a majority of city residents.

To that end this report starts with a statement of vision and guiding principals and policy action items (Chapter 1), followed by a discussion of our data collection process (Chapter 2), culminating in the description of three phases in the development of the bicycle network (Chapter 3) and a street level analysis that shows how key intersections and roadways can be redesigned to prioritize bicyclists and pedestrians (Chapter 4). All of which will ne reinforced by a robust appendix with more information regarding crash data, implementation analysis, and calibrated street sections (Chapter 6).

VISION, GOALS & POLICIES

SETTING GOALS

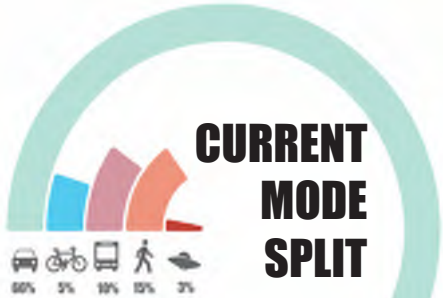
The plan in these pages seeks as its main goal to increase the number of people who safely bike and walk around Miami Beach.

Through research shared on the adjacent page we have estimated Miami Beach's travel mode split. These numbers show how residents and tourists today travel around Miami Beach right now. Approximately **45%** of City residents, commuters, and tourists currently walk, bike or use transit as their primary means of transportation. This is a substantial percentage of the population whose transportation needs are addressed by the policies and designs in this report and in the 2015 Transportation Master Plan (TMP).

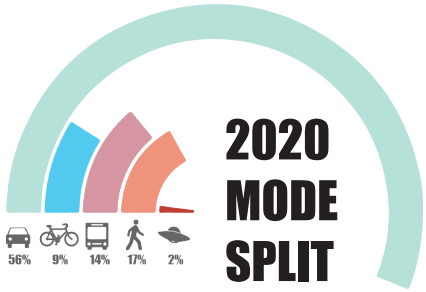
The projects and implementation strategy shared within reflect the desire of the Mayor, City Commission, and City Manager and Staff to increase the proportion of city residents who walk and bike as their main form of transportation from 19% today **up to 26% in 2020, and 32% in 2035.**

To achieve these goals, we have made basic assumptions about the relationship of mode share to the bicycle and pedestrian network density, the potential development of a rail connection between mainland Miami and Miami Beach, and the continued increase countywide of non-motorized transportation.

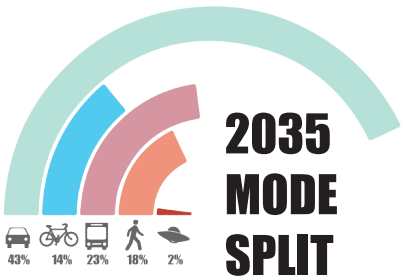
These goals place Miami Beach at the forefront of 21 Century transportation planning in Miami-Dade County, and will propel Miami Beach into a national leadership position with regard to transportation.



20% Bike/Ped
5% Bike
15% Ped



26% Bike/Ped
9% Bike
17% Ped



32% Bike/Ped
14% Bike
18% Ped

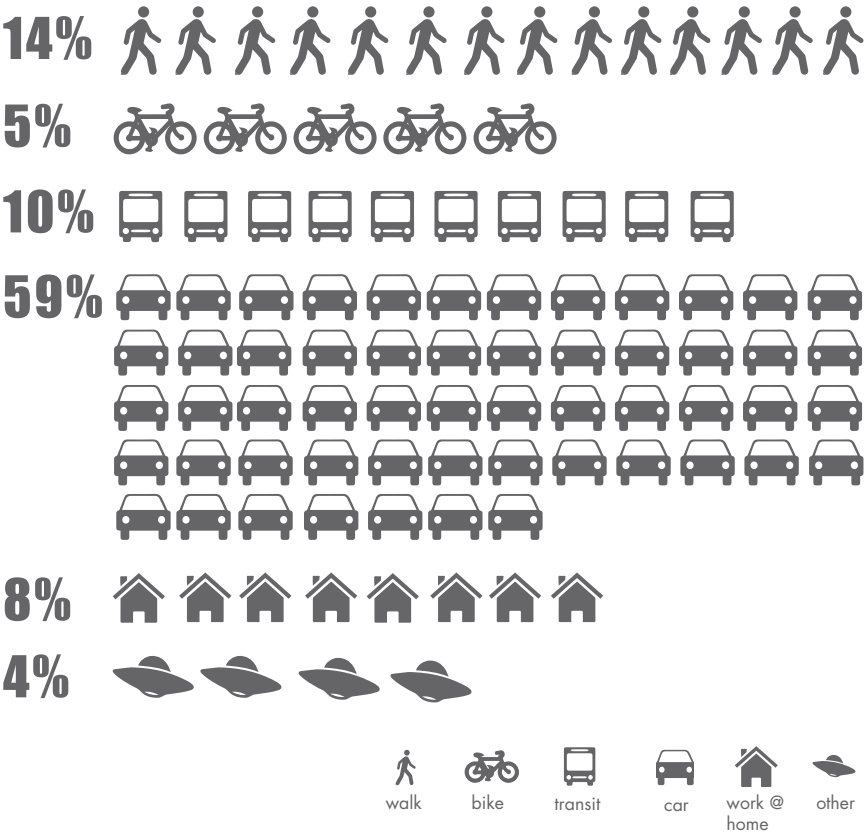
SETTING GOALS
CALCULATING BASELINE

We researched Miami-Dade Transit routes within the city, City sponsored circulators, the 2014 Miami Beach Community Satisfaction Survey, the 2008-2013 American Community Survey, 2010 Census data, and other related demographic studies to establish a baseline view of how people move around Miami Beach today.

Among other details, the data shown to the right, indicates:

- An estimated 122,000 people are on Miami Beach on any given day.
- **29% of residents do not use cars as their daily form of transportation.**
- **Over half of the population of South Beach is on foot at any given time.**
- When we factored in tourists, **45% of the daily population of Miami beach does not have a car.** A good reason to invest in better infrastructure.
- **36% of the population on any given day is taking transit.**

These facts should come as no surprise to Miami Beach residents or visitors. Elected officials, staff, and regional stakeholders should view this data as a clear mandate to prioritize pedestrians and bicyclists in the design of city streets.



Total Population:	87,779*
Total Area:	8.7 Sq Mi.
Est. Annual Tourists: ◊	12.6 Million
Est Daily Tourists:◊	34,500
Est. Daily Commuters:	
Total Daily Population:	
Total Daily Transit Ridership:	25,000
Percentage of Tourists who rented cars:	30%
Estimated Percentage of non-car tourists:	68%

Modes of Transportation to Work:†

Total working population	48,761
Car/Truck/Van (Drove alone)**	59% (28,969)
Walk	14% (6,724)
Public Transit	10% (4,837)
Bicycle	5% (2,452)
Other	4% (1,941)

* 2010 U.S. Census

◊ Estimated number of visitors spending at least 1 night - Greater Miami Convention & Visitors Bureau "2010 Greater Miami and Beaches Visitor Industry Overview"

† 2009-2013 American Community Survey, "Means of Transportation to Work by Age"

** According to the 2009 - 2013 American Community Survey,14% (4,063) of those traveling by Car, Truck or Van carpooled.

PERFORMANCE MEASURES: MODESHARE

How can we measure the success of this plan?

Traditionally, the success of streets has been measured through the efficiency in which goods and services are moved through out the network.

This plan uses as its main metric of success an increase in the number of people who bike and walk.

Tripling the bicycle modeshare over the next thirty years will mean that we need to make significant changes to our infrastructure design and policy in the years to come. While we do not yet have the ability to track bicycle or pedestrian mode share in real time, we can collect important data points that will help us estimate the potential impact of the projects proposed in this plan in the hopes of better informing implementation of the plan.

The plan will rely on two important metrics that will begin to help staff and stakeholders understand how investments made in infrastructure will translate to modeshare gains.

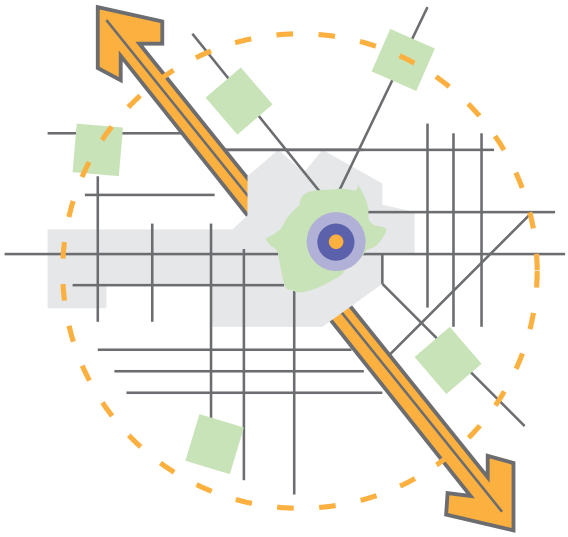
The first is the **percentage of the total street network that has some designated bicycle facility**, either protected or unprotected. Research shows that cities can achieve a basic level of bicycle modeshare of X% if the ratio of bicycle facility lane miles to total lane miles exceeds .2. That means that if over 20% of the street network has bicycle facilities then the bicycle modeshare will be in the range of up to 5-6%

Improvements in policy, including items listed in the following pages, can help further solidify and marginally increase this number, but to reach double digit gains in bicycle ridership envisioned in this report will involve the expansion of protected lanes around the city. A second metric, **the percentage of the bicycle network that is low stress**, will determine how much more bicycle mode share the city achieves.

By looking at other comparable cities, like Santa Monica and Key West, we can derive ratios for each of these metrics that will allow us to determine the impact of a particular project.

Other important, and measurable data that can tell us if the plan is working include:

- Decrease in street fatalities and injuries for all age groups.
- Increase in transit ridership
- The number of trips by walking, cycling, and transit increases.
- Vehicle travel is reduced.
- Prevailing speeds of vehicles on local streets decrease.
- Street water runoff is reduced.
- Retail sales and tourism increase.
- Resident satisfaction increases.
- Tenant retention increases.
- Traffic congestion is greatly reduced.



Achieving these mode split goals will mean designing and building bicycle facilities that people will use. Understanding the types of facilities that people feel comfortable and safe using will help implement a practical plan. Research suggests that most people fit into four broad categories when it comes to their relationship to bicycling (and subsequent preferences for bicycle facility type).

A general description of each type along with typical bicycle facilities appropriate for each are described below and in the pages that follow. Our approach seeks to appeal to the Type 3 riders on major roads with protected facilities, in addition to the traditional approaches that place on-street facilities for Type 1 and 2 riders.

Type 1: Strong and Fearless
- Experienced riders who bike regularly;
- More likely to use bicycles to complete longer trips;
- Commuters, racers, messengers, recreational cyclist;
- Prefer route that provides direct access to destination;
- Comfortable sharing roadway with vehicular traffic;
- More aware of traffic rules as they relate to bicycles;
- More likely to prefer wide outside curb lanes ;
- **Preferred Facility Type:** roadway shoulder, travel lane

Type 2: Enthused and Confident
- Skilled bicyclist who bike with varying regularity;
- More likely to use bicycling to complete a part of a trip (e.g. origin to bus stop and bus);
- Prefer low-speed, low traffic routes;
- Likely to use sidewalks;
- Prefer separation from vehicular traffic;
- **Preferred Facility Type:** designated on- or off-road bicycle facilities depending on speed and volume.

Type 3: Interested but Concerned
- Beginner bicyclist; may not have bicycled for a long time;
- Would bicycle more with low stress routes that may not provide direct access;
- Likely to use sidewalks, prefer separation from cars;
- **Preferred Facility Type:** off- road bicycle facilities (shared path, protected bike lane)

To help communicate the need to accommodate the most vulnerable users, Street Plans helps stakeholders visualize Roger Geller's oft-cited framework for bicycle planning and design.

Bicycle Facility Criteria

Choosing the right type of bicycle facility for a given route involves understanding the volume, speed and street type as well as a consideration of the desired rider demographic. Here are general guidelines for the design and placement of bicycle routes.*

For Streets Below 25 mph and 7 - 10,000 ADT:
- Bicycle Boulevard
- Bike Lane
- Off-road Greenway

For Streets Between 25 mph and 35 mph, 10 - 18,000 ADT:
- Bike Lane
- Off-road Greenway
- Shared use path

For Streets Between 35 mph and above, over 20,000 ADT:
- Off-street Greenway
- Shared use path
- Protected bike lane

On streets over 35 mph and 20,000 ADT, protected facilities are recommended as these are safety thresholds. The average bicyclists feel the greatest safety and comfort while driving on the road where traffic travels under 40 mph.

* http://nacto.org/cities-for-cycling/design-guide/

GOALS

The goals and accompanying policy recommendations in this section are divided into eight categories. Partially based on the League of American Bicyclists' "Five E's", together with some practical implementation needs. The categories are:

Engineering
Encouragement
Education
Enforcement
Equity
Funding
Implementation
Evaluation

The goals and policy changes proposed herein contain as their core ethos the following principles:

Design for all ages, physical abilities, or income levels

Encourage people to travel by walking, bicycling, and transit, and to drive less

Foster commerce and promote the economic well-being of both businesses and residents

Reduce energy consumption, greenhouse gas emissions and other air pollution

Acknowledges that streets are civic space with a social function that connects people through everyday interaction.

Involve the community in shared responsibility for street design

Create inviting places with engaging architecture, street furniture, landscaping, and public art that reflect the diversity and cultures of the city of Miami Beach.

Encourage active and healthy lifestyles

Integrate environmental stewardship, water management, energy conservation, and preservation of plant life

Enhance the safety and security of streets, from both a traffic and personal perspective

Create livable neighborhoods

Reduce street water runoff and pollution, and maximize infiltration and reuse of storm water

The walking school bus program encourages biking and walking to school with one or more adults.

Parklets are a way to enhance the pedestrian realm

The walking school bus program encourages biking and walking to school with one or more adults.

Goal 1: Engineering - Provide a citywide network of safe, convenient and accessible bicycle and pedestrian facilities for all users.

Action 1.1: Adopt a Goal of Developing 80% of the Street Network with Bicycle Facilities

Increasing the number of lane miles of bicycle facilities around the city is an important step in increasing the number of people who bike around.

Action 1.2: Ensure that the citywide bicycle network addresses the needs of different types of users from experienced cyclists on arterial roadways to low stress routes on local roads.

Action 1.3: Establish a maintenance program and standards that ensure safe and usable bicycle and pedestrian facilities.

Action 1.4: Strive to provide amenities facilities

Such as bicycle parking and storage, lighting, landscaping, signing, pavement marking, signalization and seating to improve the utility and comfort of bicyclists and pedestrians.

Action 1.5: Improve WayFinding and Visibility

The strategic design and location of route signs will do much to improve the visibility of the city's bicycle network. Such signs should be placed in highly conspicuous places like downtown, highly transited areas, and neighborhood centers. In addition, signs and maps should be located at bicycle shops, transit stations and bicycle parking shelters.

Action 1.6: Adopt a "Vision 0" policy

Goal 2: Encouragement - Promote and encourage cycling and walking as viable forms of transportation, healthy forms of exercise, and as a positive benefit to the environment.

Action 2.1: Establish Bike- to -Work Week Activities

Partner with the MPO, local employers and other organizations to host commuter contests, group rides and

VISION ZERO

NO MORE TRAFFIC DEATHS

incentives for bicycle commuting during bike-to-work week. Use BIKEMIAMIBEACH.ORG portal to promote and document these activities.

Action 2.2: Raise Profile of National Bike Month

Sponsor, support, promote and/ or collaborate with municipalities, businesses and non-profit organizations to promote group rides and events during the month of May, which is National Bike Month.

Action 2.3: Promote bicycle Commuting

Work with employers to develop programs, incentives and end-of-trip facilities that encourage employees to commute via bicycle. Use BIKEMIAMIBEACH.ORG and social media pages to encourage people to connect with each other so that they may ride to work/transit together rather than drive.

Action 2.4: Update BikeMiamiBeach.Org

Update the City's Bicycle Pedestrian website, bikemiamibeach.org, with ongoing bicycle, pedestrian and transit information. This should include the latest regional bikeway information (paths, multimodal travel, etc), street design information, and other relevant information.

Action 2.5: Sponsor Monthly Family Recreational Family Rides

Work with the Miami Beach Police Department and any/all local advocacy organizations to organize a seasonal, monthly recreational ride.

Action 2.6: Provide Adequate Public Bicycle Parking at City-Sponsored Events

In addition to permanent bicycle parking through out the City, provide temporary bicycle parking valet stations at large City-Sponsored events if held in locations where parking facilities cannot supply the demand.

Action 2.7: Create and Update Bike/Walk Map

As the on-street bikeway is built out , and shared use paths and new crossings are added, create a map displaying all on and off street bikeways. This map should include traffic safety information, the location of significant destinations and be distributed in portable print and on-line form. Update and re-distribute the map on an annual basis.

Action 2.8 Encourage Employers To Provide Facilities for employees who Bike to Work

BikeMiamiBeach.org serves as a portal for information between The City and the public where comments and updates are posted and tracked.

Policy and Street design are interdependent in regards to Safe Routes to school programs.

Numerous locations in The City can be enjoyed by bicycle or walking. A comprehensive map of facilities and landmarks should be paired with City-sponsored tours.

(e.g., locker rooms, showers and bicycle parking) through coordination with South Florida Commuter Services.

Action 2.9 Encourage Bicycle and Pedestrian Training and Safety Programs

In conjunction with local institutions, non-profit organizations and bicycle and pedestrian interest groups.

Action 2.10: Encourage creative Bike / Pedestrian Community Engagement

Foster creative engagement through bicycle/pedestrian - themed art exhibitions at local museums and street fairs; create bicycle film festival where residents and visitors may create short films that promote multimodal culture and highlight Miami Beach.

Goal 3: Implementation - Promote long term implementation and evaluation of bicycle and pedestrian planning and development.

Action 3.1: Establish Bicycle / Pedestrian Department

Establish a permanent bicycle and pedestrian coordinator within the city, to coordinate the work of Public Works Department.

Action 3.2: Establish Street Design Committee

Provide a forum for bicycle, pedestrian, and street planning and discussion through an official commission sanctioned committee, to include the stakeholders responsible for this document, in addition to representation from the City Department of Parks and Recreation, the Planning Department, the Department of Public Works and the Transportation Department.

Action 3.3:

Establish mechanisms to ensure full public participation in developing citywide policies, plans and programs.

Increasing the number of officers on bike helps make the streets safe for bicyclists and pedestrians and may influence modeshare split for the interested but concerned group.

Initiatives like a Bicycle Film Festival hosted in Miami Beach, heighten the profile of The City's upcoming multimodal network.

Bike Valet services draw a large numbers of people to community events and help relief congestion.

Action 3.4:

Encourage the development of bicycle and pedestrian plans in adjacent municipalities and the county that connect to and support city bicycle and pedestrian projects.

Action 3.5: Establish policies that track and report systems use and progress in implementing projects.

From an interactive online map

Action 3.6:

Seek changes to zoning, land use, policy and roadway design to promote bicycle and pedestrian friendly infrastructure and development projects.

Goal 4: Funding - Strive to provide adequate funding resources for planning, developing and maintaining bicycle and pedestrian infrastructure.

Action 4.1:

Coordinate with ongoing Miami Beach Public Works projects to leverage bicycle and pedestrian investment using public resources.

Action 4.2:

Seek eligible federal and state grants for bicycle and pedestrian planning and development.

Action 4.3:

Coordinate with adjacent municipalities and the county to leverage bicycle and pedestrian investment using public and private resources.

Action 4.4:

Research financing options for bicycle and pedestrian facilities.

Action 4.5:

Strive to provide equity in funding for bicycle and pedestrian projects.

Goal 5: Education - Design marketing, education,

The provision of appropriate bicycle parking has a direct influence on ridership. Bike corrals are an efficient way to convert underutilized space.

Bike to work day is a national event that raises the profile of commuting to work.

ENCOURAGEMENT AND ENFORCEMENT CAMPAIGNS TO APPEAL TO CYCLISTS AND NON- CYCLISTS ALIKE.

Campaigns have the opportunity to highlight the fact that all people may be categorized as a particular type of user of the public realm at specific times.

Too often, campaigns unintentionally reinforce the widely held belief that bicycling is , and always will be , a marginal activity reserved for children and athletic, risk-adverse men.

By contrast, successful efforts market bicycling as a normal mode of transportation, that does not require expensive equipment, extreme travel patterns and or spandex outfits. These bicycle stereotypes will only appeal to a very limited number of cyclists and will not aid in the development of a healthy bicycle friendly community.

A way to think of breaking the stereotypical associations of cycling mentioned above is to realize how walking does not carry the same connotation. When most people think of walking to the neighborhood store, they don't necessarily associate it with marathon running. Most people would say they would walk instead of drive a close distance to: stretch, get fresh air, do something different, because its convenient, and they might get to interact with the neighbors. The same can be said about riding a bicycle to run errands.

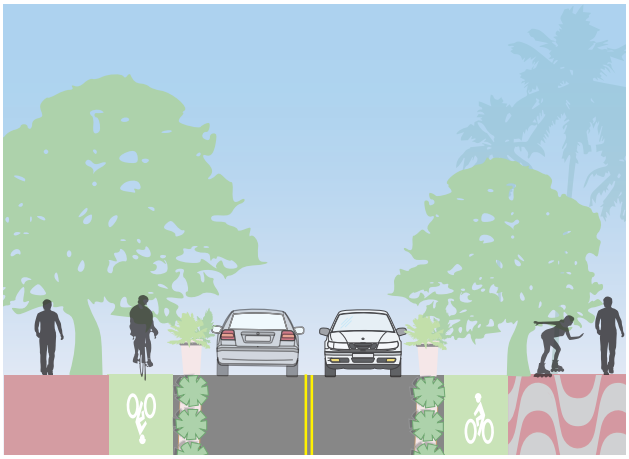
While the city should take lead on local bicycle safety issues, most education, encouragement and enforcement campaigns require regional cooperation. The City should partner with the county and MPO whenever possible.

Actions for advancing education, encouragement, enforcement, and evaluation effort are outlined below. In all cases of printed material, the city should ensure that all printed and web education materials are printed in various languages.

ACTION 5.1: EDUCATE MOTORIST AND BICYCLISTS ABOUT RIGHTS AND RESPONSIBILITIES

Utilize the BIKEMIAMIBEACH.ORG website portal to provide pedestrians, bicyclists and motorists with safety information.

Additional publications, brochures, public service announcements (PSA's) and social media should be used to connect the general public to safety information.



A street design committee can be an excellent incubator for ideas that can be tested through tactical urbanism methods.

Action 5.2: Educate Residents about New Facility Types
Use all of the methods listen in action #1 to educate Miami Beach motorists and bicyclists about new bikeway network facility and countermeasure types as they are implemented. These include, but are not limited to share use lane markings, protected bike lanes, new signal coordination, bicycle signal detection systems, etc.

Action 5.3: Expand safe Routes to School Program Partnerships
Pursue funding to expand safe routes to school programs through out the city. Provide municipal support to help schools dovetail their efforts with any other existing school- and - city related safety programs like : helmet giveaways, bicycle rodeos and safety trainings.

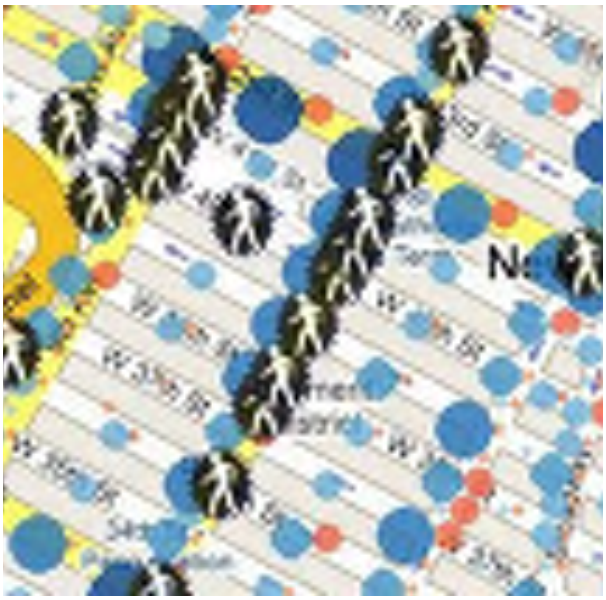
Action 5.4: Encourage City Employees/Residents to become "League of American Bicyclists " League Certified Instructor (LCI)" on an annual basis
Encourage at least 6 employees and police officers to LCI training. Work with the LCI's to host bicycle skills courses.

Goal 6: Enforcement - create a bicycle-friendly City, by addressing the safety concerns of all people; those who choose to drive, walk as well as those who choose to bicycle.

Action 6.1: Increase Enforcement of Unlawful Bicyclist, and Motorist Behavior.
The Miami Beach Police Department should focus on enforcement of the following unsafe and illegal motorist and bicyclist behavior.

Unsafe Motorist Behaviors:
- Turning without using turn signals
- Overtaking bicyclists without at least 3 feet clearance
- Parking/ Traveling in bicycle facility.
- Opening doors in the path of byclists a.k.a "dooring"
- Rolling through stop signs
- Harassing or assaulting bicyclists
- Driving under the influence of drugs or alcohol
- Speeding

Unsafe Bicyclist Behaviors
- Ignoring traffic control devices
- Bicycling against the flow of traffic (where prohibited)
- Bicycling without lights at night
- Minors bicycling without helmets
- Failing to yield to pedestrians



- Bicycling while under the influence of drugs or alcohol

Action 6.2: Train officers annually about traffic laws

Police officers who serve(d) in the bicycle patrol unit, or who are well-versed in traffic law as it pertains to bicycle safety, should lead an annual workshop to cover best practices in bicycle and motor vehicle law enforcement. Such workshops should cover:

- The 3 foot law
- The"dynamics" of the door zone
- Right hook collision conflicts
- Methods for reducing conflict among users

Action 6.3: Improve Traffic Safety and Educational Outreach Materials

The Miami Beach Police Department should work with other City departments and local non-profits like Green Mobility Network to develop an informational card or traffic law safety pamphlet to distribute with issued warning for all infractions involving a bicyclist

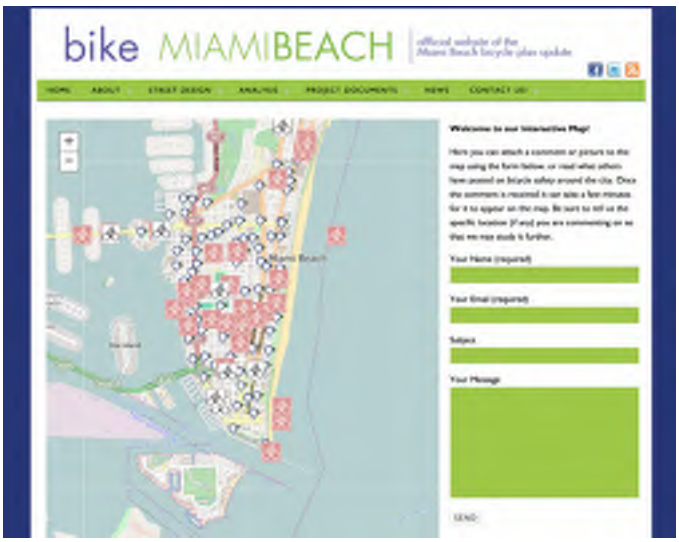
Action 6.4: Increase Number of Officers on Bicycles and Foot

To sensitize officers to the joys and challenges of bicycling, and walking, work with the Miami Beach Police Department to expand the number of police officers serving in the bicycle patrol unit.

Action 6.5: Map Problem Areas

The Miami Beach Police Department should identify problem areas where the incidence of conflict between people bicycling, walking and driving are high, in order to create strategies for enforcement and design alternatives.

The BIKEMIAMIBEACH.ORG portal interactive map should be used to continue to identify conflict areas, and augmented with crash statistics so that the public is aware of the most problematic segments of the city.



Action 6.6: Create Bicycle/Pedestrian/ Motorist Collision Report Program

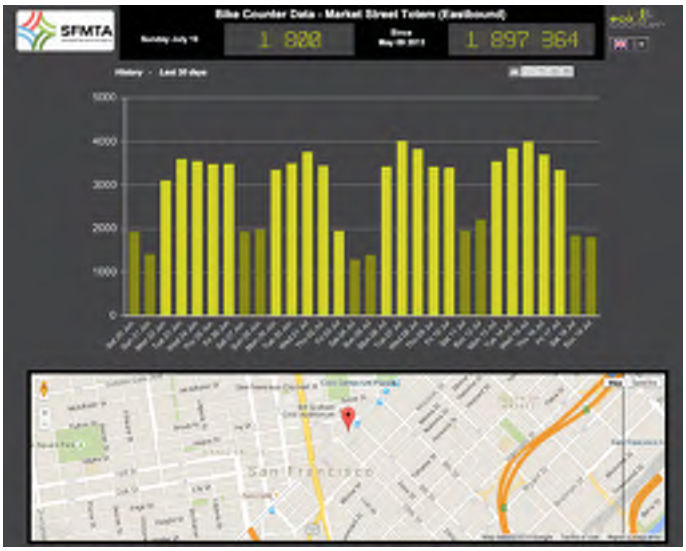
The Police department should work with State and County officials to create a protocol for bicyclists, pedestrian, and motorists to report aggressive or otherwise unsafe behavior.

Action 6.7: Fund Enforcement Initiatives

Work with local non-protit organizations, like Green Mobility Network, Miami-Dade County, FDOT and other local, regional and national organizations to identify and obtain funding for bicycle encouragement programs and initiatives.

Goal 7: Evaluation - Establish mechanisms and procedures that inform and evaluate the bicycle pedestrian initiatives proposed and implemented

The collection, evaluation, and publishing of bicycle related data should play an integral role in furthering the community's awareness of the City's effort to improve bicycle conditions. These bicycle master plan evaluation recommendations are intended to enable the City of Miami Beach to measure its implementation success.



Action 7.1 : Publish a map showing the existing and proposed bike network

An inventory of the current an d planned infrastructure so that the City and the public can track the implementation process in real-time.
The map should be updated annually in print but updated more regularly on the web and be available for download via BIKEMIAMIBEACH.ORG

Action 7.2 Map Annual Bicycle and Pedestrian Crash Statistics

The number of reported bicycle crashes should be compared against the number of average daily bicyclists counted-annually. The crash rate percentage derived from this equation should be then tracked over time to determine bicycle ridership levels and its effect on safety trends. The

results should be published on BIKEMIAMIBEACH.ORG.

Action 7.3: Developed a Web-Based, and User-Generated crash/problem reporting program

Bicycle crashes are generally underreported. Because bicycle crash reports represent only those cases in which the police are called,many accidents, specially bicycle-on-bycicle crashes and hit-and-runs, go underreported. The implementation of a simple web interface that allows bicyclists to upload their own information regarding crashes, would help create a more robust data set that could be compared to official police data.

Action 7.4: Conduct Bicycle-Pedestrian Counts
Bicyclist counts should be held at up to 10 locations throughout the city every other year to measure any increases or decreases in bicycling and general shifts of transportation modes.

The counts should be taken at the same location, approximate time of day and similar weather conditions. These counts should also include observations about behavior and travel patterns.

Action 7.5: Conduct Bicycle Counts before and after the Implementation of Bike lanes In order to have a record of how bikeway implementation impacts ridership over time, bike counts should be taken prior to implementation and compared against the periodic post implementation counts.

Action 7.6: Track upcoming Roadway Projects at The City, County and State Level
Coordinate with City, County and State departments to ensure the inclusion of bicycle and pedestrian infrastructure within capital improvement and County/ State public works projects.

Action 7.7: Evaluate where bicycle facility maintenance may be needed
Integrate restriping, pothole filling, sign replacing, etc, into City, County and State capital improvement/ maintenance plans. Consider using a web - based tool to let citizens report maintenance issues.

Action 7.8: Install Bicycle counters along key routes

Bike counters provide real time proof of the demand for bicycling. Bicycle counters incentivize ridership and gather information that can be provided online to the public for free, letting all who are interested view the daily changes in bicycle traffic around the city.

Goal 8: Equity and Inclusion - In order for the Bicycle Pedestrian Master Plan to be successful and become a model for cities around the country/ world; residents, tourists and those who commute to the island for work need to be equally considered when gaging the multimodal level of service of various alternatives.

Action 8.1: Note all existing major connection routes

Maintain an inventory of the current North- South, East-West major connections within the island and from the main land to the island. Revision of annual data gathered by the Greater Miami and Beaches Visitors Bureau and Census should inform the design of streets that might be used by commuters or serve major destinations.

Action 8.2: Provide frequent access to the Beach Walk/ Atlantic Way

The Beach Walk, or board walk, or Atlantic Trail, is considered a crucial north south connector for Miami Beach. It serves as a recreational trail as well as a scenic route for commuters.

There are multiple areas along the board walk that do not currently allowed bicycles, thus defeating the nature of a multi-use or shared use path as part of a bicycle/pedestrian network.

In addition, parts of the network where the boardwalk becomes the Atlantic Way have very limited public access from adjacent streets, thus limiting the use of this route as part of a larger network.
The City of Miami Beach must identify main routes and work with stakeholders along the Atlantic Way/ Board Walk to provide frequent public access.

Action 8.3: Provide ADA enhancements at all beach access points

Upgrade all beach access points to be ADA compliant facilities. This included, but is not limited to: braille signs and ADA accessible beach paths. Consider the rental or use- through-deposit beach/sand wheel chairs.

Complete Streets policies are being adopted by cities around the country and adapted to local community needs. Among the different policies there are 10 comprehensive themes that make up an ideal and comprehensive Complete Streets policy:

- Set a clear vision (how and why implement changes)
- Specifies ALL USERS of all ages and abilities as well as transit
- Applies to both new and retrofit projects, including design, maintenance and operations for the entire right of way
- Encourages street connectivity and aims for an integrated network for all transportation modes
- Is adoptable by all agencies to cover all roads
- Directs the use of the best and latest design criteria and guidelines while being flexible to accommodate specific circumstances.
- Is context sensitive & informs community vision
- Establishes performance standards with measurable outcomes.
- Includes specific next steps for the implementation of the policies.

Vibrant and complete streets can be achieved through a variety of policies:

Ordinances, resolutions and policies developed by stakeholders from the community and agency staff that are formally adopted by an elected board of officials.

The Miami Beach Street Design Guide

Inclusion in comprehensive plans

Internal policies developed by transportation agencies

Executive orders from elected officials, such as Mayors or Commissioner

Council Driven

Ordinances

Legally require the needs of all users be addressed in transportation projects and change city code accordingly. They might also apply to private developers by changing of a zoning code or other developing requirements. Ordinances require strong community support and support of elected officials. They are enforceable by law.

Resolutions

The City Commission could start by passing a Complete Streets resolution showing political support for the approach.

Plans

Complete Streets policies can be integrated within comprehensive plans. New plans, or amendments provide an opportunity to engage communities. A complete streets approach should serve as the overarching theme in a plan, and should give equal weight to all transportation modes and design decisions. Policies should be well regarded by the community and inform the budget process.

City Policy

Complete Streets policy can be directly adopted as official policy by the City Commission. This type of approach allows cities to form robust partnerships with the community, business sector, health officials, private developers, planning and engineering firms. These policies tend to be very detailed and are held to a vote. However, like resolutions and ordinances, city policy is non-binding. That said, the strong support for change from the community, business sector and elected officials usually results in implementation with high involvement.

Miami Beach Street Design Guidelines

Using documents like this guide serves as a first step of implementation. Periodic revision of design guides and implementation of new design guidelines is encouraged.

Directives

Departmental policy

City departments can issue their own Complete Streets policy directive. These policies are usually created internally by the department; the tend to be more detailed than resolutions and generally have support from transportation professionals.

According to the Complete Streets manual "If departmental leadership is strong and committed to Complete Streets, but elected officials' support is wavering, this is a good option for your community"

Executive order

Issued by the city's chief executive, often the Mayor. These types of orders help to define a problem and direct internal departments to implement policies and changes in order to address the issue.
Executive orders can be very effective , however, without continuous support, their effect is limited to the time the issuing Mayor serves in office.

Citizen Vote

Tax Levy

Some communities may decide to implement additional tax in order to fund transportation improvements. Tax levies are approved by a general vote of residents and have detailed goals like : Pavement or sidewalk repair, street trees/ landscaping, bicycle network implementation.

Ballot

A citizen-led campaign for a Complete Streets law enacted not by a body of elected officials but by direct ballot by the general voting public. Ballot measures create strong community support however, important stakeholders like transportation departments and elected officials may be left out of the planning process.

BICYCLE PRIORITY CORRIDORS & NEIGHBORHOOD GREENWAYS

Miami Beach has a mix of leisure and commuter bicyclists at all times. Providing infrastructure for bicyclists is crucial to the success of Miami Beach as a multi-modal city.

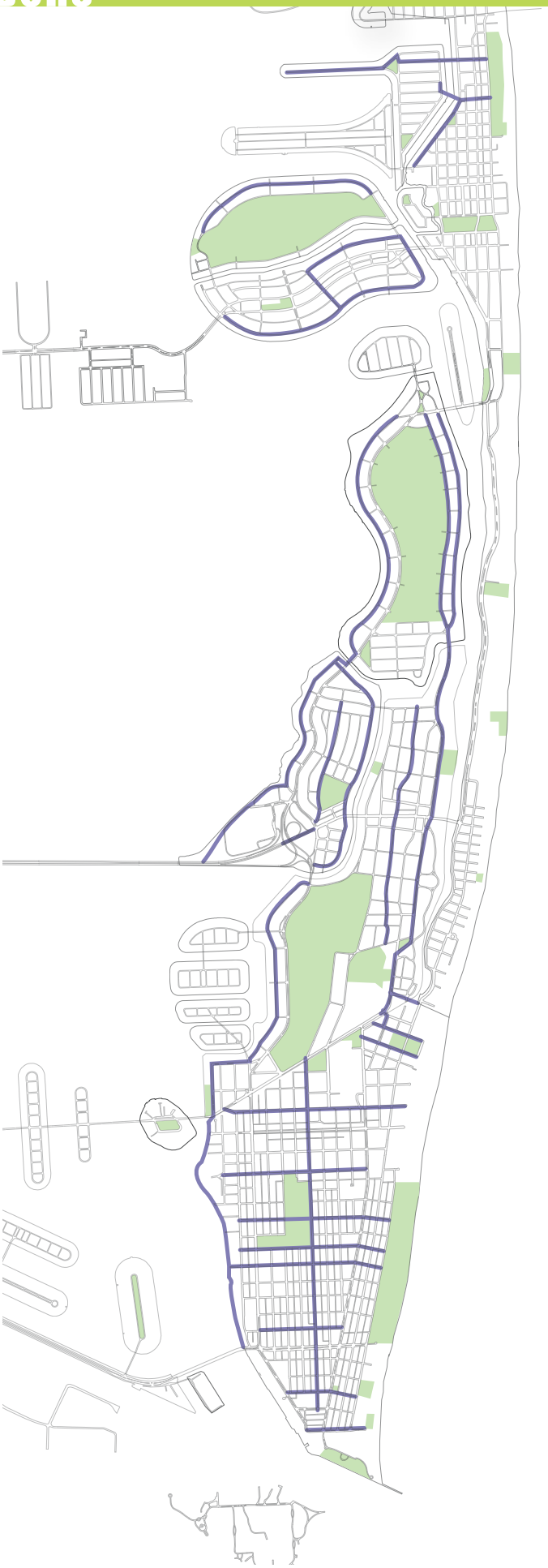
As the name implies, a bicycle priority corridor rearranges transportation modes giving priority of design and the right of way to bicyclists.

In Miami Beach, Neighborhood Greenways are a type of bicycle priority corridor.

Greenways are part of a continuum of countermeasures that may be implemented when retrofitting streets. Greenways are defined in detail in the Street Design Guidelines.

The following are characteristics of Bicyclist Priority Corridors:

- Bicyclist Priority corridor signage along routes promotes slower motor vehicle speeds to encourage leisure riding as well as commuting for all users.
- Designated areas are in proximity to transit.
- Require Street trees/ Shade trees/ Shade structures on sidewalks.
- Crossing signals give enough time for crossing safely.
- Travel lanes have a reduced width of 10 feet.
- Provide bike boxes and turn boxes at all intersections.
- Provide bike repair stations along route.
- Require Street trees/ Shade trees/ Shade structures on sidewalks.
- Provide green signal turn and bike signals when required.
- Reduce travel speed.
- Reduce design speed through implementation of traffic calming countermeasures.
- Provide short and long-term bicycle parking along route/zone.

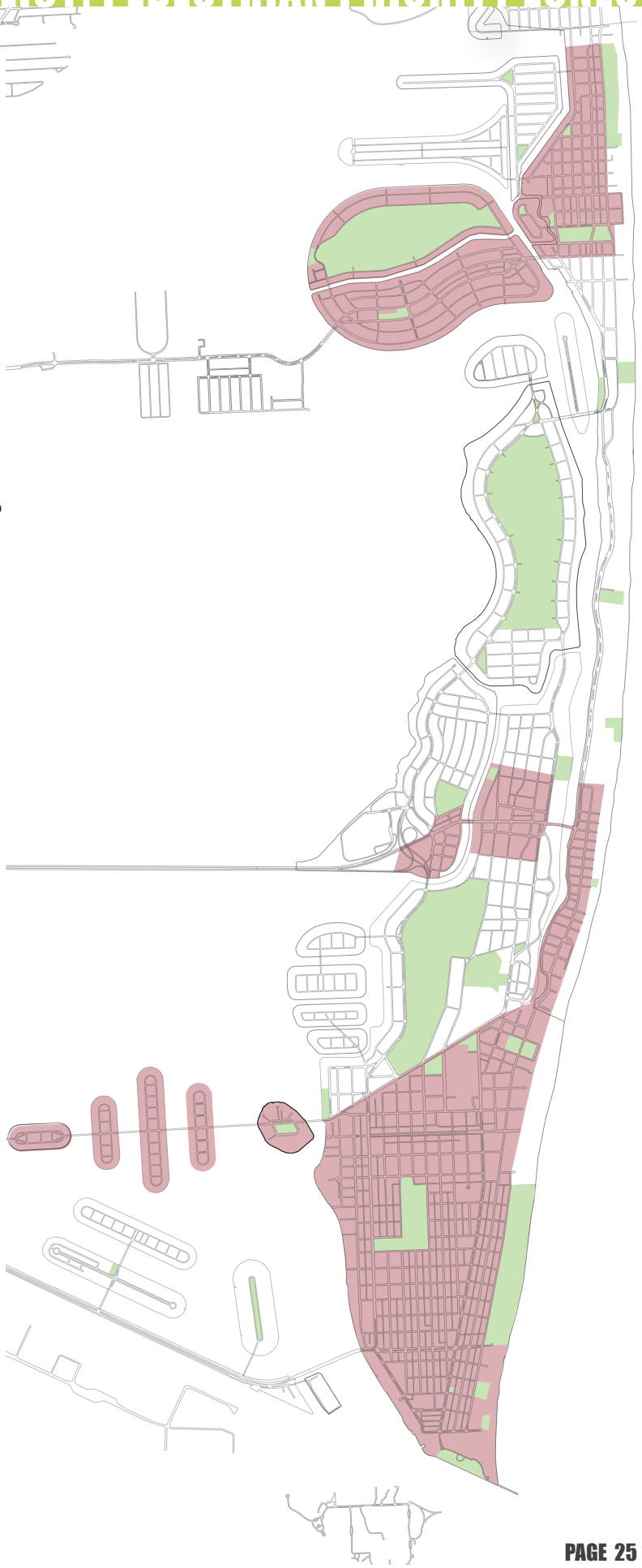


PEDESTRIAN PRIORITY ZONES (PPZ)

Pedestrians are said to be the most vulnerable users of the public realm. Design is at the core of this vulnerability. Rethinking streets as pedestrian priority zones becomes an encompassing framework for all modes of transportation in an urban environment.
Pedestrian priority zones accommodate all users in the public realm while highlighting the safety and comfort of pedestrian travel. Pedestrian priority zones are usually found in shopping districts, however, elements of PPZ's should be regularly applied to zones of high vehicular traffic in order to improve pedestrian safety though out The City.

The following are characteristics of Pedestrian Priority Zones (PPZ):

- Clear pedestrian path of 6 feet minimum.
- Sidewalks on both sides of the street every-where vehicle travel is present.
- Curbs are aligned with ramps and sidewalks.
- All intersections have visible crosswalks of 10 feet.
- Crossing signals give enough time for crossing safely.
- Travel lanes have a reduced width of 10 feet.
- Provide curb extensions (bulb outs) at intersections.
- Enhance mid block crossing and lighting.
- Require Street trees/ Shade trees/ Shade structures on sidewalks.
- Prohibit right turns on red. Provide green signal turn.
- Reduce posted speed limit to 25 mph maximum.
- Reduce design speed by implementing traffic calming methods and pedestrian oriented countermeasures listed in the Street Design Guidelines.



PUBLIC INPUT

What We Heard

Improvements most frequently mentioned in residents' comments:

- Provide more bike parking
- Finish the beachwalk
- Lower speed limits
- Add more protected bicycle facilities
- Widen sidewalks
- Create connected routes

We also asked residents to show us the most dangerous (and scary) locations for folks to ride around Miami Beach. Here are some of the top contenders:

- Collins @ 63 Street
- Collins @ 41 Street
- Alton Road @ Julia Tuttle Causeway
- Alton Road @ North Michigan
- Dade Boulevard @ North Michigan
- Washington @ 9 Street
- 5 Street @ West Avenue
- MacArthur Causeway

THE PLANNING PROCESS

The project team looked at the existing transportation network, including bikeways and transit ridership, and street volume to establish a baseline measurement of how people move around Miami Beach. We also talked to residents and neighborhood associations throughout the project to get the everyday view, while also riding around The City in a field test of streets in our handlebar survey (page 25).

The Planning Process revealed general themes that require attention at a city-wide level. Miami Beach has some of the best tree lined streets in Miami-Dade County and is one of the most compact. Urban cities in the Country. Streets in Miami Beach are well traveled by bicyclists and pedestrians alike, but challenges abound, from missing street trees on many streets, to the lack of protected bicycle facilities.

The character and speeds on many residential streets are appropriate enough to prioritize bicycle traffic, while more intense interventions are saved for the main thoroughfares around the city. Throughout Miami Beach there are locations where the volume of bicyclists and pedestrians is so great that the street design in these areas should prioritize pedestrian and bicycle safety. In other locations the needs of moving commuters at rush hour times north and south must be carefully balanced against the needs of bicyclists, pedestrians, and neighborhood residents.

PUBLIC INVOLVEMENT

Since the start of the Bike Miami Beach process there have been numerous meetings, workshops and opportunities for public input into the creation of the plan.

One major result of the project has been the creation of the Bike Miami Beach Website, a portal for all things bicycle on Miami Beach. We've used the website as a planning and input tool, but we also intend to leave it to city staff to continue the dialogue about bicycles on Miami Beach.

Three public meeting have been held so far (in 2012 and 2014) that have discussed the Miami Beach context and the latest street design techniques and methods. Residents crowded around maps of the city and were asked to identify challenging intersections, and notable destinations.

The project team has also met with numerous neighborhood associations, and conducted interviews with individuals who are civically engaged and active in the design of city streets. The overwhelming response has been positive in the direction of advancing street designs that provide low-stress, protected bicycle facilities, and more ample pedestrian accommodations.

Street Plans held a bicycle street design workshop in May 2014.

Street Plans conducted part of the Handlebar Survey along side residents during a Saturday morning ride.

WEBSITE

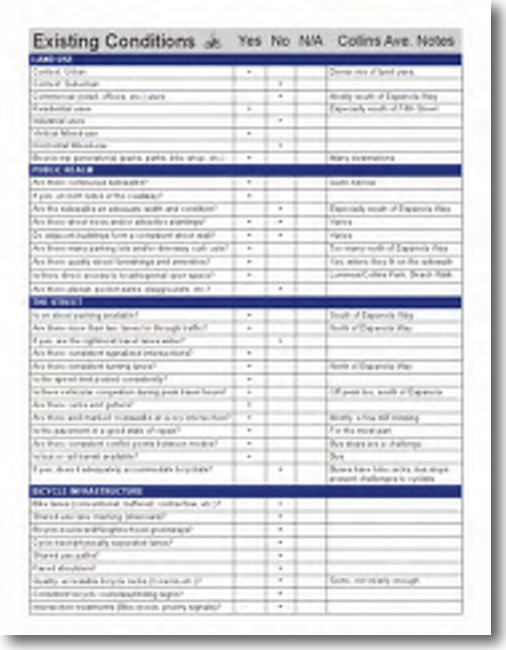
The project website was launched in 2012 and is another way that the public can learn more about the project, view updates to the plan, and provide feedback into the creation of the plan. The website has functioned as the main source of information for the public on everything bicycling in Miami Beach. It has also functioned as an extension of the public process for those residents and visitors who have been unable to join us in person, with an online survey option, and an interactive map.

HANDLEBAR SURVEY

Central to the process of producing the master plan was a thorough analysis of the existing conditions as seen through the eyes of a cyclist and pedestrian. The aptly named 'handlebar survey' is a quantitative and qualitative analysis of streets around the city

The project team canvassed the city with measuring wheels and speed guns to document conditions facing cyclists every day. The completed survey includes information such as lane widths, traffic volumes, and posted speeds, to best inform the choice of bicycle facility for each route.

- Current bicycle demand
- The level of comfort and perceived safety felt while bicycling a wide variety of streets
- Existing street widths, types, and characteristics
- Bicycle network gaps
- Presence of signalized intersections
- Posted and actual vehicular speeds
- Land use characteristics
- Local and regional open space connections
- Public transportation options/bicycle integration
- Bicycle parking supply/demand
- Bicycle parking type, location, and quality
- Bicycle trip generators
- Existing bikeway infrastructure
- Interactions between all street users
- Safe/unsafe routes
- Wayfinding amenities



While a majority of the streets were covered in each neighborhood, only select "arterial" and "collector" streets went through the formal survey analysis process. Such thoroughfares typically contain land uses that generate the most bicycle trips, but are also known to be the most uncomfortable for bicycling. Based on the information collected, each of these streets are given an average "cycling experience" score. While not comprehensive, the Handlebar Survey certainly provides a representational snapshot of cycling in Miami Beach, and is Attachment A to this document.

PUBLIC INPUT

We canvassed the city and asked folks on foot and by bike about their first hand accounts of walking and biking on Miami Beach. Here are some of their responses.

Name: Chad Blaize
Age: 33
Resident of Miami Beach
Commutes primarily by: Bicycle
Perception of bicycle safety in Miami Beach(daytime): 3

"I feel drivers have no respect for pedestrians, they feel they own the road. I use the bike lanes when I travel and I think we should have more. Euclid and 16 are the two bike lanes I use the most. The most desirable place I would ride my bike would be Meridian because of the shade but that just isn't possible with the amount traffic.

"I think West Avenue should have a bike lane. Also, the share-road on Washington Avenue gives a false impression of rider security. I don't feel safe at all when riding along Washington."

Name: Erick Hernandez
Age: 19
Works in Miami Beach
Commutes primarily by: Bus and DecoBike
Perception of bicycle safety in Miami Beach(daytime): 5
Perception of bicycle safety in Miami Beach(night time): 1

"I think they(bike/pedestrian conditions)fine the way they are now, but if I had to do something I would make the streets wider and include more bike lanes. They also should improve the condition of the CitiBikes."

"I most often use the bus, when I have time I like to ride bike to and around the beach because it's no nice out here. "

Name: Monica Ribera
Age:39
Miami Beach resident
Commutes primarily by: Car and bus
Perception of pedestrian safety in Miami Beach (daytime): 5

"I like the bike lanes and cross walks along Collins Avenue, and they should have more of that on the western part of the city."

"I think there should be more bike lanes and dog parks. I also don't like seeing all the trash, I see trash everywhere and I don't see any trash bins around." (She points to trash along the bus stop bench)"

William Zalquett
Age: 49
Miami Beach resident for 20 years
Commutes primarily by: Bike
Perception of bicycle safety in Miami Beach(daytime): 0

"I don't feel safe at all. I don't ride on the streets, I prefer the sidewalks. I do my best to be courteous of pedestrians and I realize that I should be on the street, but I just don't feel safe when on the street."

"I think driver's education is the main problem. I also feel Miami Beach visitors are more respectful than the residents are. Education to residents needs to be improved including littering."

Name: Steve Pierre
Age: 28
Miami Beach resident for 3 years
Commutes primarily by: Bike and bus
Perception of bicycle/pedestrian safety in Miami Beach(daytime): 2

"I feel generally safe, but I don't feel like drivers respect us on bikes, I think bike lanes and sidewalks should be widened".

Name: Marie Kolbert
Age:41
Miami Beach resident for 19 years
Commutes primarily by: Bicycle
Perception of bicycle safety in Miami Beach : 4

" I have been commuting to work in Wynwood for the past 10 years. I have seen many accidents and recently, positive changes. A Pedestrian Bicycle Master Plan is a big step forward but as someone who has not driven a car in the past decade, I feel that driver/community education must be a mandatory ongoing campaign in the local media, print and school system, I am proud of my transportation choice but it is very dangerous sometimes, I would like for people like me to feel protected"

MIAMI BEACH ATLANTIC GREENWAY MASTER PLAN (2008)

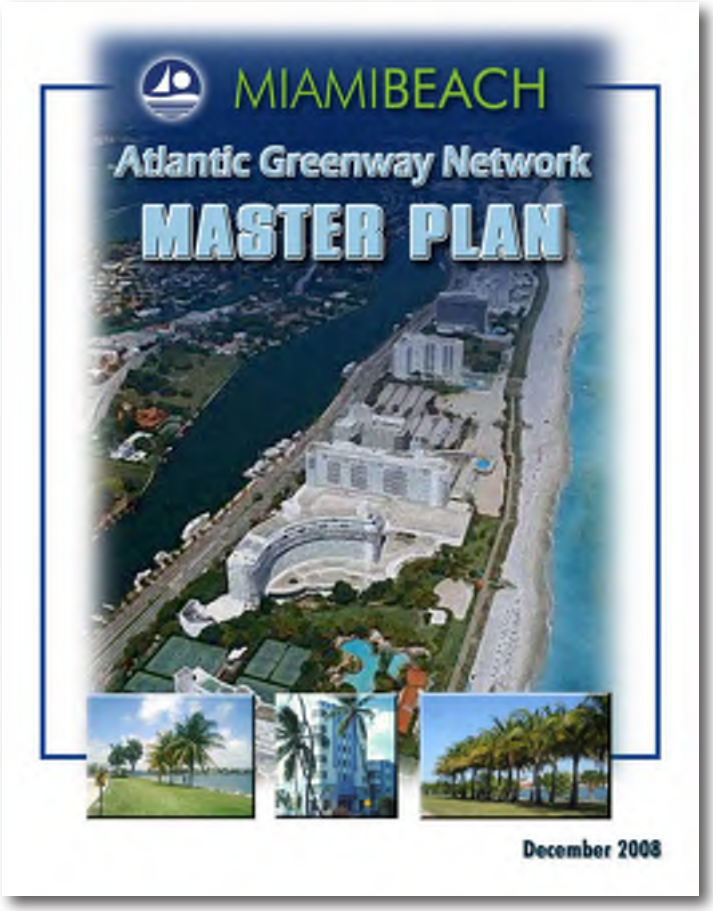
Summary: Adopted in December of 2008, the Atlantic Greenway Master Plan (AGN) is the guiding planning documenting for the development of bicycle facilities in Miami Beach.

The AGN Plan includes an inventory of all existing conditions in the City; provided an analysis of the conditions found; created a master plan of bikeway improvements; and outlines an implementation plan.

Analysis: The strengths of the AGN Plan include the level of existing conditions collection and analysis work. Indeed, the Plan paints a clear picture of the opportunities and need to create a complete and connected citywide bikeway system. However, the AGN Plan fell noticeably short on a lot of best practice measures. In addition, it does not promote the creation of additional green areas within the City of Miami Beach. Among the major points from this document are:

- Overall the inventory seems acceptable for this type of study and general connectivity objectives are good. The report lacks conclusions based on the inventory for transit, impacts on roadway cross sections, connectivity, vehicular and bike parking, safety, utility impacts, specific cost and traffic counts.
- The AGN does not provide substantial definition or description of the proposed 'greenway' physical requirements or minimum standards.
- The AGN does not significantly address separate treatments for bikes and pedestrians.
- The report does not explain the objectives for each trail in the AGN nor does it ask basic questions including:
    - o Why is it being proposed?
    - o Why this location?
    - o Why is it a bike lane as opposed to path or a route?

  It is difficult to validate a plan with the Community without reasonable conclusions on why certain decisions were made.
- Issues such as bike parking, trailheads, bike lockers, minimum standards for adjacent development which will respond to future enhanced bike facilities are not addressed.
- AGN does not provide typical cross sections reflective of the majority of segments to determine feasibility and cost impacts.
- The Master Plan does not appear to propose any innovative approaches or facilities.
- The report highlights drainage Canals and Waterways, but does not include a map highlighting the current waterways and drainage canals or discuss whether they could be revamped to be part of the "greenway" network that the City envisions as part of the plan.
- While the report is meant to present the recommended projects to create and enhance greenways, only one project (West Avenue and 17th Street), recommends (in the long-term) the purchase of the corner lot and create a gateway/ green space park. No other actual greenways are envisioned by the plan.
- There are no recommendations on using multimodal transportation in order to encourage pedestrian flow in addition to bike flow.



TRANSIT INTENSITY DIAGRAM

TOP METROBUS STATIONS

Location	Daily Riders
Lincoln Rd. + Washington Ave.	3,113
Harding Ave. + 72nd St.	1,696
Indian Creek Dr. + 41st St.	1,533
Abbott Ave. + 69th St.	1,058
Collins Ave. and 69th St.	996
Washington Ave. and 5th St.	972

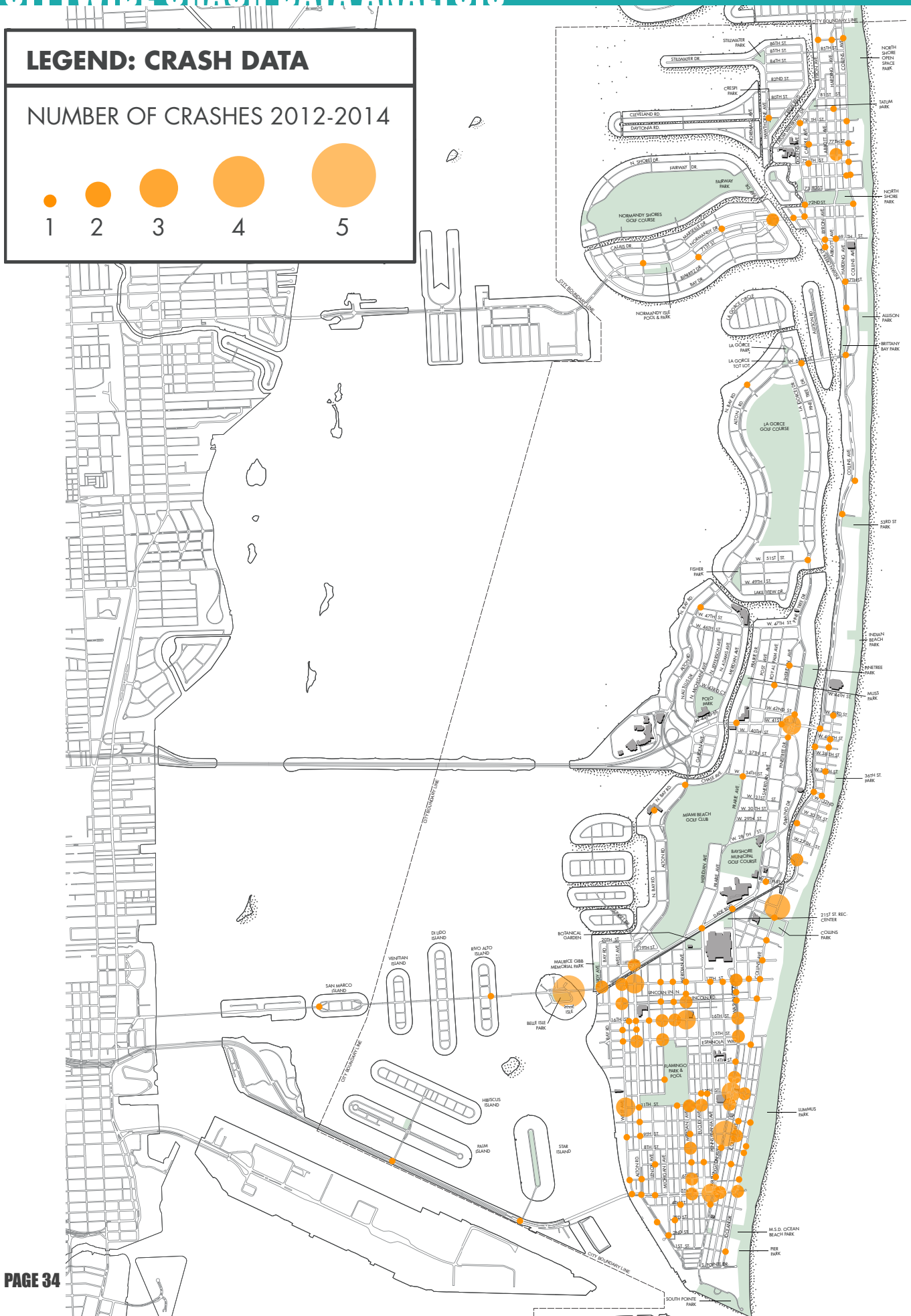
Understanding general transportation demographics in the city is important as it provides a baseline measurement to help city leaders improve transportation options. As it relates to bicycle and pedestrian planning, mapping transit usage patterns allows the project team to identify locations where we can reasonably expect a higher level of bicycle or pedestrian activity.

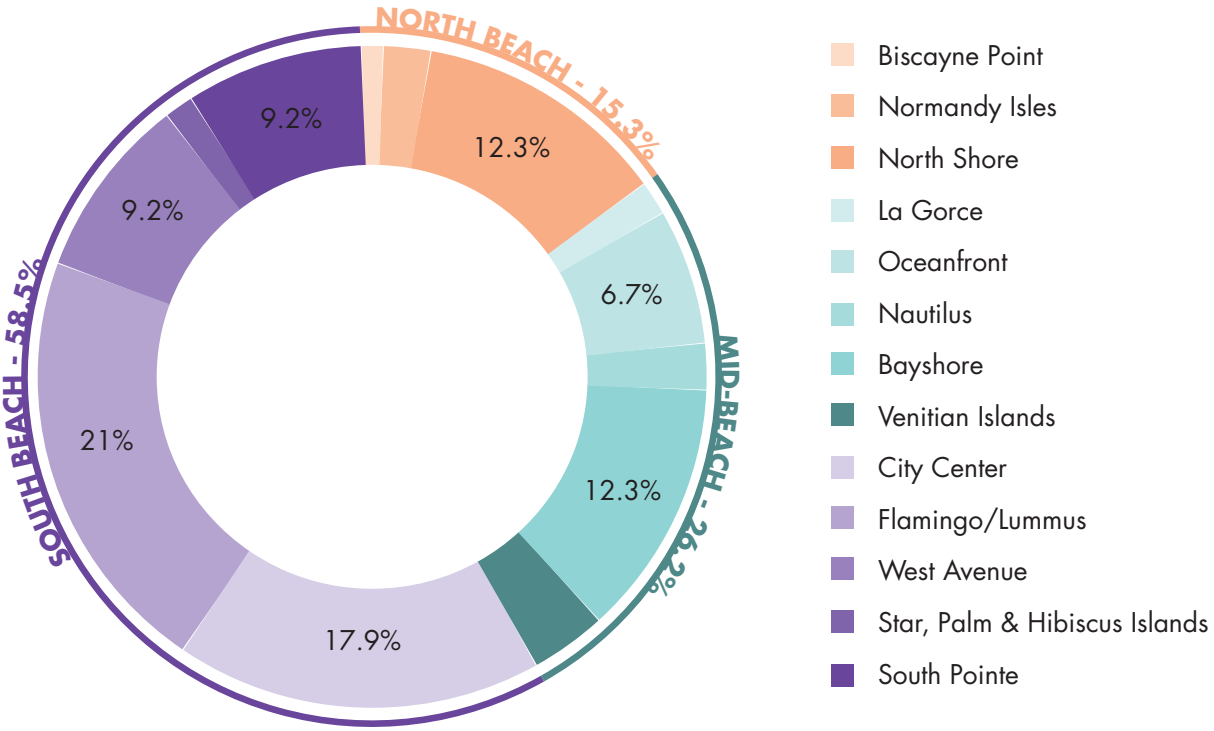
Paying special attention to areas of high transit use is a priority of this plan. Miami-Dade Transit bus ridership information (based on boardings) for locations within the City of Miami Beach was synthesized into this transit intensity graph.

Average Weekday Transit Ridership	44,212 total rides
Metrobus‡	24,212
Trolley	20,000

‡ September 2014 Miami-Dade County Transit "Ridership Technical Report"

CITYWIDE CRASH DATA ANALYSIS





BICYCLE AND PEDESTRIAN CRASHES IN MIAMI BEACH

The crash data included in the diagram on page 30 was collected from an online crash data database managed by the University of South Florida and includes reported bicyclist and pedestrian crashes with cars. As with other similar data, crashes between bikes or between bikes and pedestrians are represented less. Mapping the crashed revealed several important patterns that impact the recommendations in this report. For the period between 2012 and 2014 there were 51 reported crashes in Miami Beach, a number far lower than the proportion of bicyclists would lead to believe.

The first, and most obvious pattern is that most of the crashes happen on state roads, or at intersections with state roads. This is not surprising, since these are also the roads which carry the highest volume of automotive traffic, and thus require a higher standard of bicycle facility than what is currently built. Alton, Washington, Collins, and 71 Street account for most of the crashes.

A second observation is that crashes happen on busy local or county streets where there are a high number of bicyclists and pedestrians with no protected bicycle facility (West, Meridian, 17 Street, 11 Street).

Finally there are a number of crashes existing bicycle facilities. Upgrading these routes to protected facilities will help address this issue. (16 Street, Euclid, 5 Street)

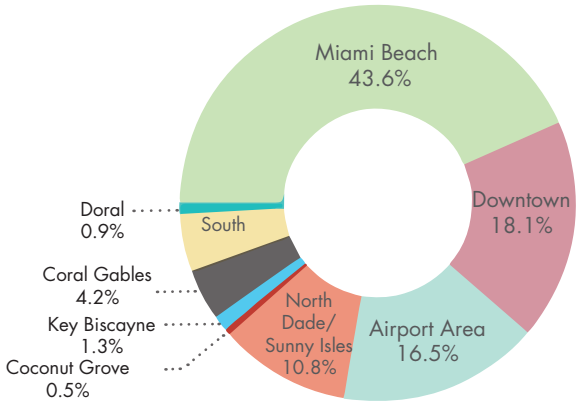
The citywide stats (shown above) indicate that South Beach is the area with the largest concentration of crashes, with 58.5% of the total.

EXISTING BICYCLE CONTEXT

Miami Beach ranks # 6 city in the country for bicycle commuting among cities with a population between 65 -100,000, with 5.29% of its residents commuting to work.

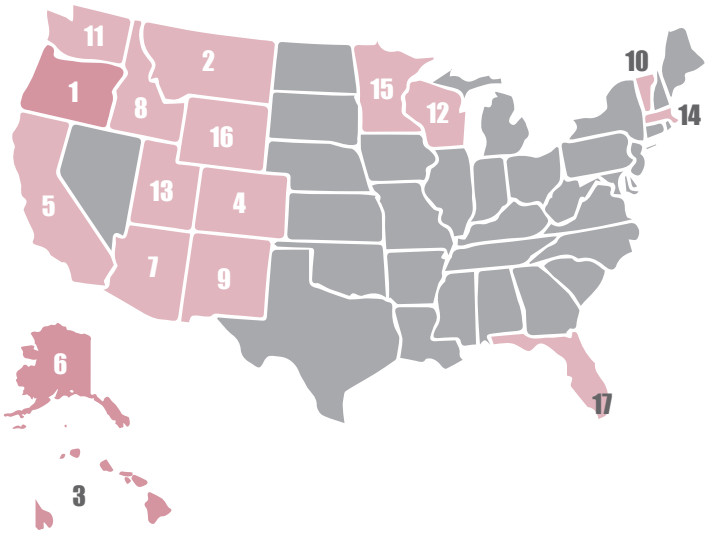
Florida ranks #17 in a 2013 analysis of bicycle commuting in American cities, but it also ranks worst in the county with regard to bicycle and pedestrian safety. A quick look at the crash data maps show that the majority of reported crashes happen on high speed and high capacity roads.

Infrastructure improvements to bicycle networks and pedestrian amenities like the ones proposed in this plan have the potential to reverse traffic congestion while improving quality of life for residents.



Distribution of Total Overnight
** Greater Miami Beaches Visitors Bureau

According to the Greater Miami and Beaches Visitors Bureau, over 40% of visitors who come to Miami stay in Miami Beach. Accommodating this population, which amounts to over 30,000 people per day, with well designed streets for walking and biking is a smart move from an economic perspective. GMBVB data shows that favorable impressions of Greater Miami have recently declined among domestic and international visitors alike, with roughly one fourth of visitors finding **transportation** to be a negative aspect of their trip.*



The general prognosis for bicycling and walking in Miami Beach looks good. There are currently 29.5 miles of bikeways in the city, and more to come. The large bicycle modeshare here in comparison to other parts of Miami-Dade County is encouraging, despite the ongoing challenges of outdated road design standards and general driver behavior. That being said, it is also telling that despite having higher rates of non-motorized transportation, the City did not have a proportionally higher incidence of bicycle/pedestrian crashes as compared to the rest of the county. This is evidence of the theory of 'safety in numbers' at work.

CITIBIKE

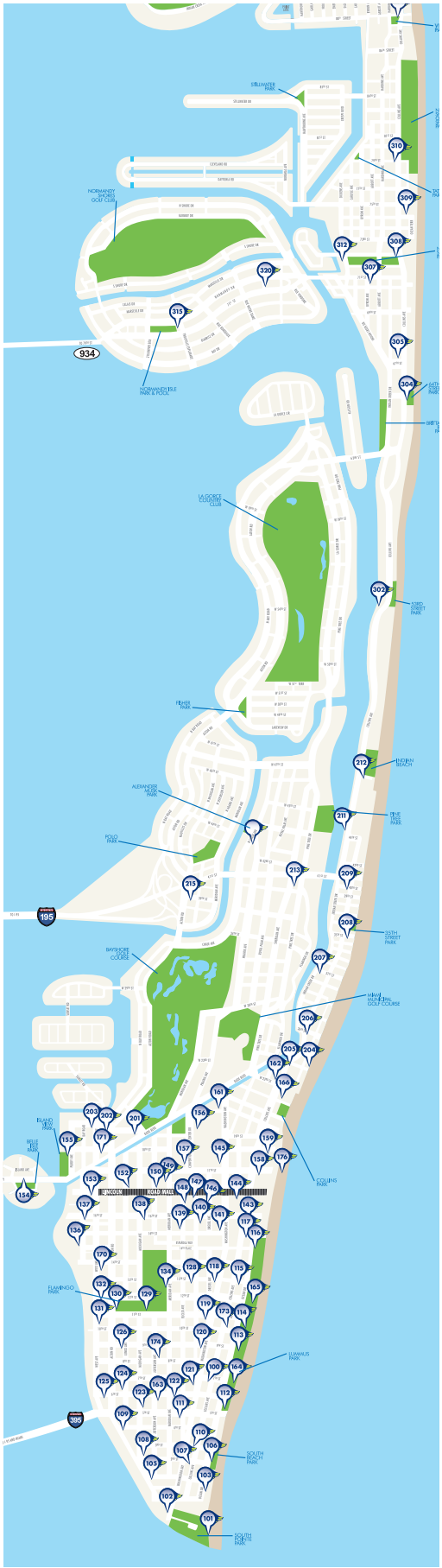
The CitiBike bicycle share program has been embraced by City of Miami Beach residents in an unprecedented manner since it launched in 2011. According to the CitiBike Blog, CitiBike ridership between March 2011 and June 2012 accomplished the following:

· Made 1,003,520 trips
· Covered 2,950,808 miles
· Logged 17,704,848 minutes of ride time
· Offset 2,550,000+ pounds of harmful CO_2
· Burned 100,000,000+ calories

In August 2012, the Environmental Coalition of Miami and the Beaches (ECOMB) recognized CitiBike with the 2012 Emerald City award for their efforts to promote sustainable practices in the community.
In addition, in October 2013 the program generated over 3,000,000 rides making it the busiest bike share fleet in the country per bike.

Bike Share programs like CitiBike, attract tourism without adding parking and congestion to the streets, making getting around the city enjoyable and safe for tourists and residents alike. CitiBike Miami Beach was featured on Discovery Network's TLC Latin America as one of the "Miami Hip & Trendy" amenities that is a must-do for locals and visitors.

In addition to offering a healthy and sustainable alternative to getting around town, CitiBike partnered with Discovery Miami Beach in 2012 to offer self guided audio tours of the Art Deco district. Visitors can now discover the rich architectural history of Miami Beach while exercising at their own pace. Most recently, CitiBike has extended their partnership to local businesses through DecoRewards, through which BEACHPASS members get perks and rewards around the city.



METHODOLOGY, CRITERIA, & APPROACH

PERFORMANCE MEASURES: MODESHARE

How can we measure the success of this plan?

Traditionally, the success of streets has been measured through the efficiency in which goods and services are moved through out the network.

This plan uses as its main metric of success an increase in the number of people who bike and walk.

Tripling the bicycle modeshare over the next thirty years will mean that we need to make significant changes to our infrastructure design and policy in the years to come. While we do not yet have the ability to track bicycle or pedestrian mode share in real time, we can collect important data points that will help us estimate the potential impact of the projects proposed in this plan in the hopes of better informing implementation of the plan.

The plan will rely on two important metrics that will begin to help staff and stakeholders understand how investments made in infrastructure will translate to modeshare gains.

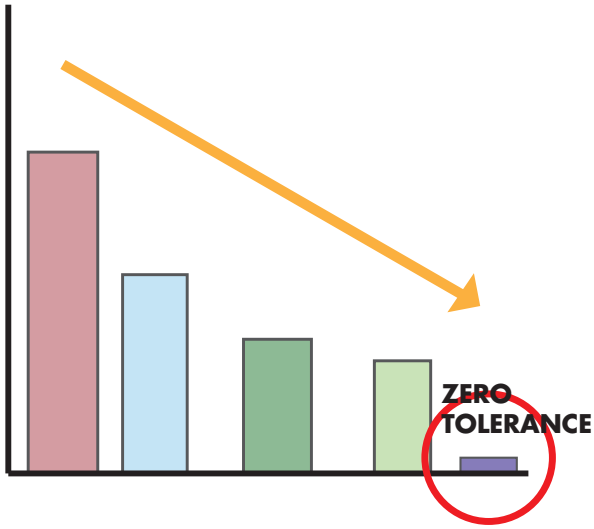
The first is the **percentage of the total street network that has some designated bicycle facility**, either protected or unprotected. Research shows that cities can achieve a basic level of bicycle modeshare of X% if the ratio of bicycle facility lane miles to total lane miles exceeds .2. That means that if over 20% of the street network has bicycle facilities then the bicycle modeshare will be in the range of up to 5-6%

Improvements in policy, including items listed in the following pages, can help further solidify and marginally increase this number, but to reach double digit gains in bicycle ridership envisioned in this report will involve the expansion of protected lanes around the city. A second metric, **the percentage of the bicycle network that is low stress**, will determine how much more bicycle mode share the city achieves.

By looking at other comparable cities, like Santa Monica and Key West, we can derive ratios for each of these metrics that will allow us to determine the impact of a particular project.

Other important, and measurable data that can tell us if the plan is working include:

- Decrease in street fatalities and injuries for all age groups.
- Increase in transit ridership
- The number of trips by walking, cycling, and transit increases.
- Vehicle travel is reduced.
- Prevailing speeds of vehicles on local streets decrease.
- Street water runoff is reduced.
- Retail sales and tourism increase.
- Resident satisfaction increases.
- Tenant retention increases.
- Traffic congestion is greatly reduced.
- Decrease in Carbon Dioxide emissions.



Achieving the mode split goals on page 6 will mean designing and building bicycle facilities that people will use. Understanding the types of facilities that people feel comfortable and safe using will help implement a practical plan. Research suggests that most people fit into four broad categories when it comes to their relationship to bicycling (and subsequent preferences for bicycle facility type).

A general description of each type along with typical bicycle facilities appropriate for each are described below and correspond to the facilities listed previously. Our approach seeks to appeal to the Type 3 riders on major roads with protected facilities, in addition to the traditional approaches that place on-street facilities for Type 1 and 2 riders.

Type 1: Strong and Fearless

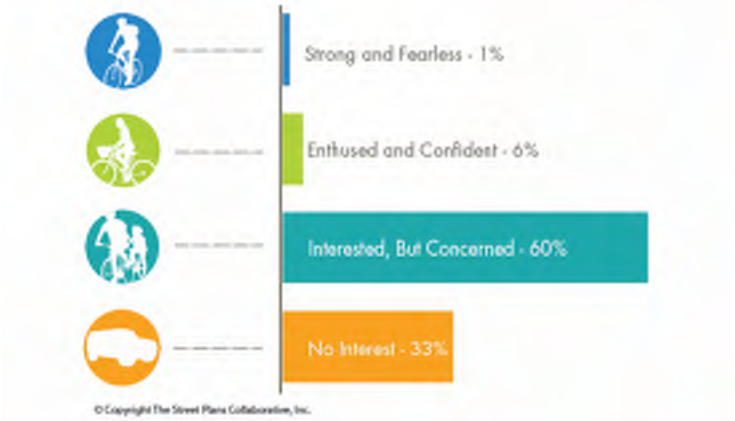
- Experienced riders who bike regularly;
- More likely to use bicycles to complete longer trips;
- Commuters, racers, messengers, recreational cyclist;
- Prefer route that provides direct access to destination;
- Comfortable sharing roadway with vehicular traffic;
- More aware of traffic rules as they relate to bicycles;
- More likely to prefer wide outside curb lanes ;
- **Preferred Facility Type:** roadway shoulder, travel lane

Type 2: Enthused and Confident

- Skilled bicyclist who bike with varying regularity;
- More likely to use bicycling to complete a part of a trip (e.g. origin to bus stop and bus);
- Prefer low-speed, low traffic routes;
- Likely to use sidewalks;
- Prefer separation from vehicular traffic;
- **Preferred Facility Type:** designated on- or off-road bicycle facilities depending on speed and volume.

Type 3: Interested but Concerned

- Beginner bicyclist; may not have bicycled for a long time;
- Would bicycle more with low stress routes that may not provide direct access;
- Likely to use sidewalks, prefer separation from cars;
- **Preferred Facility Type:** off- road bicycle facilities (shared path, protected bike lane)



To help communicate the need to accommodate the most vulnerable users, Street Plans helps stakeholders visualize Roger Geller's,Portland's bicycle coordinator oft-cited framework for bicycle planning and design.

Bicycle Facility Criteria

Choosing the right type of bicycle facility for a given route involves understanding the volume, speed and street type as well as a consideration of the desired rider demographic. Here are general guidelines for the design and placement of bicycle routes.*

For Streets Below 25 mph and 7 - 10,000 ADT:

- Bicycle Boulevard
- Bike Lane
- Off-road Greenway

For Streets Between 25 mph and 35 mph, 10 - 18,000 ADT:

- Bike Lane
- Off-road Greenway
- Shared use path

For Streets Between 35 mph and above, over 20,000 ADT:

- Off-street Greenway
- Shared use path
- Protected bike lane

On streets over 35 mph and 20,000 ADT, protected facilities are recommended as these are safety thresholds. The average bicyclists feel the greatest safety and comfort while driving on the road where traffic travels under 40 mph.

* http://nacto.org/cities-for-cycling/design-guide/

CRITERIA AND APPROACH

While the project prioritization process will integrate a certain degree of professional judgment, we intend to base our evaluations on defensible qualitative and quantitative metrics. These metrics will allow us to score each project in two areas:

- Ease of implementation
- Impact on modeshare

We will assign each project a score in these two areas based on points awarded using a prioritization matrix. The matrix will include the categories below, and each project will be scored across all categories to arrive at a point total. Projects with the highest point totals would reflect the highest level of favorable characteristics in a given area. Because some of the categories are dynamic, we will build the matrix in Excel, so that it may be edited and recalibrated in the future as needed.

PROPOSED CATEGORIES FOR EASE OF IMPLEMENTATION SCORE:

Ease of Implementation: Projects will be awarded 0-3 points, based on how easy they would be to implement (0 points for projects that would require extensive right-of-way negotiations with private property owners or expensive engineering, and up to 3 points for projects within the public right-of-way with minimal changes to traffic patterns).

Public Input: Projects will be awarded 0-3 points, based on how frequently they were identified by the public as a desirable facility throughout the public outreach process for this report (0 points for a project that was not identified by the public, and up to 3 points for projects that were mentioned multiple times).

PROPOSED CATEGORIES FOR IMPACT ON MODE SHARE SCORE:

Improves Safety: Projects will be awarded 1-4 points, based on their impact to safety.

Points in this category will be tied to the four facility types recommended in the plan, with 1 point representing the least protected facility (shared markings) and 4 points representing the most protected, "low stress" facility type (shared path). In this way, the Safety score can be a grounding metric for validating low-stress facilities.

Projects at sites with a pedestrian-car collision in the past three years will be awarded 2 additional points

This approach prioritizes taking action at conflict points based on the most up to date crash data at the time of analysis.

Provides Safe Routes to School: Projects will be awarded 0-3 points, based on their proximity to one or more schools:

- 0 points – not within .25 miles of a school
- .5 points for location within .25 miles of a single, small or mid-sized school

- 1 point for location within .25 miles of a large school or more than one school facility
- 1.5 points for location within .10 miles of a school
- 2 points for location within .10 miles of a large school or more than one school facility
- 2.5 points for location that directly borders a school
- 3 points for location that directly borders a large school or more than one school facility

Community Destinations: Projects will be awarded 0-3 points, based on their proximity to one or more community destinations. Community destinations are defined as municipal buildings, post offices, recreation centers, and libraries.

- 0 points for a location not within .25 miles of a community destination
- 0.5 points for location within .25 miles of a single, moderately trafficked community destination.
- 1 point for location within .25 miles of a highly trafficked community destination or more than one community destination
- 1.5 points for location within .10 miles of a community destination
- 2 points for location within .10 miles of a highly trafficked community destination or more than one community destination
- 2.5 points for location that directly borders a community destination
- 3 points for location that directly borders a highly trafficked community destination or more than one community destination

Park Access: Projects will be awarded 0-3 points, based on their proximity to public parks.

- 0 points for a location not within .25 miles of a park
- 0.5 points for location within .25 miles of a single, moderately trafficked park
- 1 point for location within .25 miles of a highly trafficked park or more than one park
- 1.5 points for location within .10 miles of a park
- 2 points for location within .10 miles of a highly trafficked park or more than one park
- 2.5 points for location that directly borders a park
- 3 points for location that directly borders a highly trafficked park or more than one park

Beach Access: Projects will be awarded 0-3 points, based on the degree to which they provide access to the beach:

- 0 points – not located within .25 miles of a beach access point
- 1 point for location within .25 miles of a beach access point
- 2 points for location within .10 miles of a beach access point
- 3 points for a facility that directly borders the beach

Increased Connectivity: Projects will be awarded 1-3 points, based on the extent to which they increased connectivity between facilities.

- 1 point for a location within 1 block of an existing facility or a proposed facility in the planning or design phase
- 2 points for a location intersecting an exist ing facility or a proposed facility in the planning or design phase.
- 3 points for a project that intersects mul tiple existing facilities or proposed facilities in the planning or design phases.

CRITERIA AND APPROACH

Impact on Traffic: Projects will be awarded 1-3 points, based on their potential impact to traffic, defined as a noticeable increase in congestion:

- 1 point for projects with a significant impact on traffic
- 2 points for projects with small or moderate im pact on traffic
- 3 points for projects with no impact on traffic

Access to Transit: Projects will be awarded 0-3 points, based on their distance from a transit stop:

0 points for a location not within .25 miles of a transit stop

- 0.5 points for location within .25 miles of a transit stop
- 1 point for location within .25 miles of a tran- sit stop with high ridership volumes or more than one transit stop
- 1.5 points for location within .10 miles of a transit stop
- 2 points for location within .10 miles of a tran sit stop with high ridership volumes or more than one transit stop
- 2.5 points for location that directly borders a transit stop
- 3 points for location that directly borders a transit stop with high ridership volumes or more than one transit stop

Order-of-Magnitude Cost: Projects will be awarded 0 - 3 points, based on an order-of-magnitude cost esti- mate:

- 0 points for the costliest projects and up to 3 points for projects estimated to cost less than $150,000

Curb Appeal: Projects were awarded 0-2 points, based on their aesthetic value

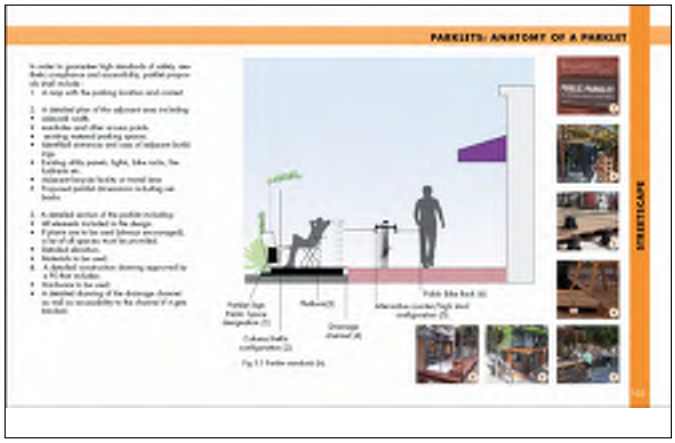
- 0 points for a project that is inconsistent with the standards set in the street design guide, and up to 2 points for projects that greatly enhance the attractiveness of the streetscape.

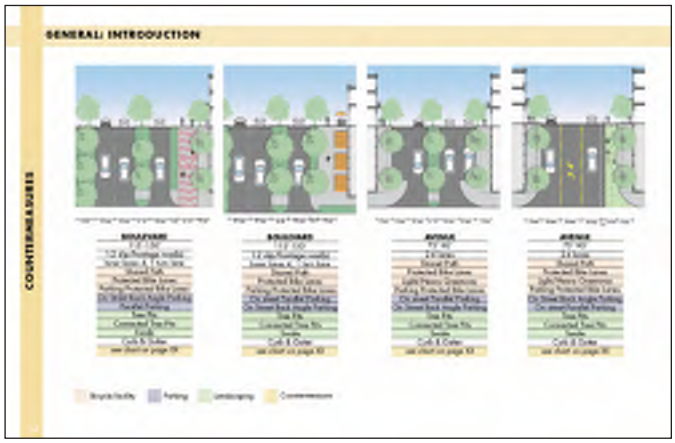
The Miami Beach Bicycle Master Plan is paired with The Miami Beach Street Design Guide. The Street Design Guide serves as the technical guide for the implementation of bicycle and pedestrian facilities along with general streetscape recommendations based on complete street guidelines.

The Miami Beach Street Design Manual has been drafted to address the needs of the growing population and a desire to improve pedestrian and bicycle facilities to create more walkable communities. The guide has been developed to address the following needs:

- To accommodate existing driver behavior which is unique to Miami Beach due to its diverse population.
- To design streets that create a safe environment for all users , recognizing cultural differences.
- To act as a tool for the transition of Miami Beach from a vehicle trip based society to a multi-modal society and supporting the long term vision of the Miami Beach Transportation plan.
- To revitalize street networks in order to allow greater route choice for pedestrians and bicyclists thus relieving traffic congestion and promoting physical activity.
- To promote the creation of third-places where rich social interactions can take place by redesigning existing streetscapes.

This document will refer to specific pages of The Miami Beach Street Design Guide where further information is provided.





Bicycle Planing Toolkit
On the following pages is a brief synopsis of some of the types of bicycle facilities that are included in this section. Each type will be fully illustrated in the Street Design Guide. Together with the criteria listed on page 38, these types form the basis of the plan.

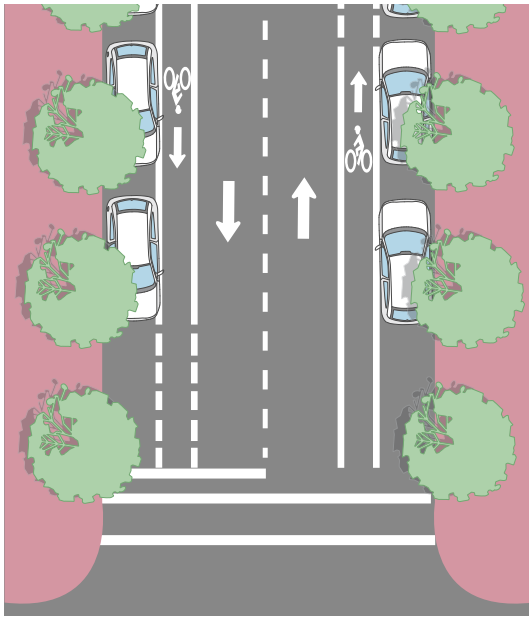
Bicycle Box: a section of pavement aimed at preventing bicycle/car collisions at intersections, particularly between drivers turning right and cyclists traveling through an intersection within an existing Bicycle Lane. To improve its visibility, a Bicycle Box is often colored and includes a standard white bicycle pavement marking.

Bicycle Lane: a lane reserved for bicycle travel within a thoroughfare, marked by a painted line.

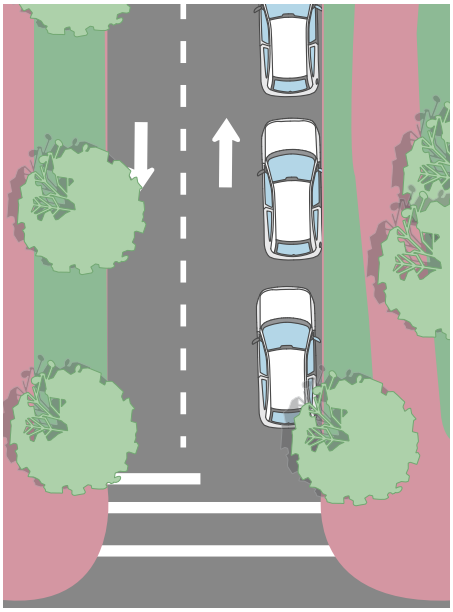
Bicycle Route: A route marked with signage to be amenable to bicycling. A Bicycle Route may just be a set of coordinated signage, but it may also include other types of Bicycle facilities over its trajectory.

Bikeway: A continuously designated segment of right-of-way that provides exclusive, preferential, or equal priority for bicycle travel. It includes the Bikeway facility (lane, path, etc. and any curbs, markings and/or protective barriers.

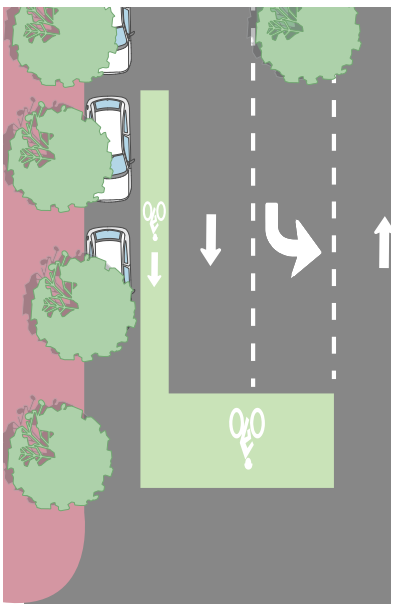
Contra-Flow Bicycle Lane: A designated Bicycle Lane marked to allow bicyclists to travel against the flow of traffic.



Bicycle Lane



Shared Use Path



Bicycle Box

Green Bike Lane: A conventional bike lane that has been painted green, either at high alert areas, or along the entire route.

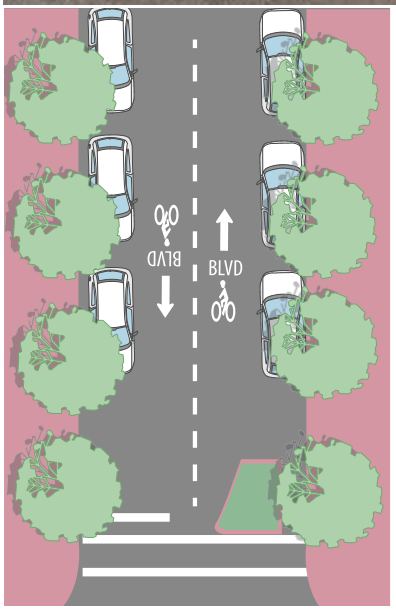
Neighborhood Greenway: A low-speed and low-volume thoroughfare with shared vehicular lanes that give movement priority to bicyclists, designed for commuting and recreational bicyclist as well as pedestrian use.
Neighborhood Greenway Lite : Low to medium intervention, possible light construction. IE: Signage, pavement markings, actuated bike signals.
Neighborhood Greenway Heavy : Medium to heavy intervention: IE: Neighborhood circles, traffic rerouting, tree planting, chicanes, dedicated bicycle signals.

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, side path)

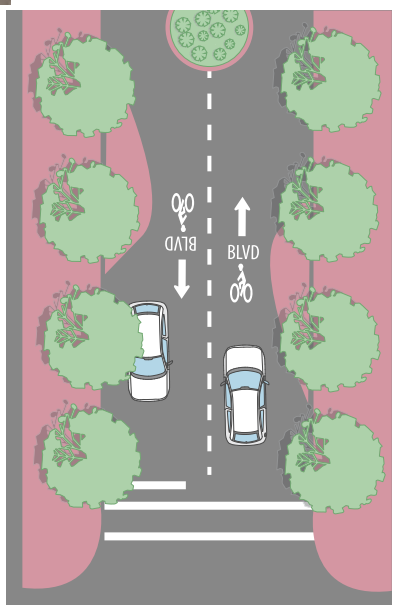
Road Diet: A road treatment that removes either on-street parking, or travel lanes, reduces travel lane width, adds bike lanes, or widen sidewalk. Also known as traffic calming.

Shared Use Lane Marking: 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. (Syn: Sharrow)

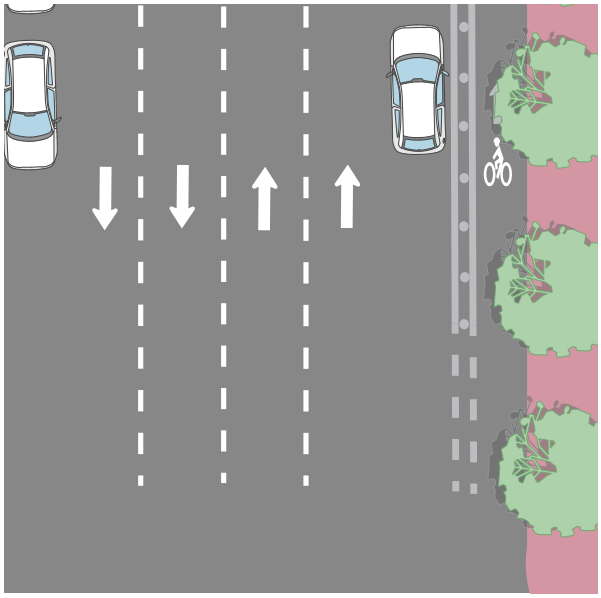
Shared-Use Path: A two-way physically separated facility from motor vehicular traffic with an open space or barrier (AASHTO, 2012). Shared-use paths should always be designed to include pedestrians even if the primary anticipated users are bicyclists.



Neighborhood Greenway (light)



Neighborhood Greenway (heavy)



Parking Protected Bicycle Lane

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ABOUT THE RECOMMENDATIONS

The Bicycle Network Plan in the pages that follow includes over 20 Miles of new and improved bikeways. The plan is has been divided into three distinct categories of projects that will provide for significantly improved bicycle and pedestrian safety and access, and addresses connectivity neighborhood by neighborhood.

Each category of projects builds on previous efforts and tries to improve bicycle access incrementally with the goal of increasing bicycle and pedestrian modeshare, while having a longer term view of improvements to the network as funding and conditions permit.

CATEGORY 1 PROJECTS, AKA "FILLING IN THE GAPS," are those projects that provide short term improvements to the existing network. These projects seek to fill in gaps within the existing bicycle network as it is today, and has a horizon of five year time horizon.

CATEGORY 2 PROJECTS, AKA "IMPROVEMENTS TO EXISTING FACILITIES," are improvements that can be made to the existing bikeway network (as identified in this report). These are envisioned as upgrades to facilities that exist today to safer facility types, as well as upgrades to Category 1 projects.

CATEGORY 3 PROJECTS are those that will require extensive roadway changes, including lane removal and traffic diversion, and which will require significant political will and further study to pursue. Though these projects may be desirable in their impact on bicycle modeshare, their political and financial feasibility requires further study.

PRIORITIZATION BY MODESHARE AND EASE OF IMPLEMENTATION

As described in the pages that follow, criteria are defined for each project, with a complete project list included in the appendix along with typical section and intersection diagrams for major routes.

Projects were categorized then ranked using two broad set of criteria: the project's impact on bicycle modeshare and the ease of implementation.

While these plans cannot predict changes in political climate, costs, or other factors that may impact the order in which these projects are done, city leaders are encouraged to go beyond the recommendations of this report whenever possible. Decision makers should allow for a flexible and aggressive implementation strategy than what is shown on these maps if conditions allow.

GREEN BIKE LANES

As an initial first step in implementing this plan, the City of Miami Beach will be embarking on a Green Bike Lane Project, which as mentioned above, will make multimodal transportation more appealing and safe for all users. A chart on this project can be found in the implementation section.

Green-painted bike lanes make cycling safer, by reminding car drivers to watch out for cyclists when driving across bike lanes. Green bike lanes send the clearest-possible message that roads are not only for cars.

Green-painted bike lanes accomplish what a white stripe next to the parking lane cannot. They organize the streets visually and physically so that all users may feel safe on the roadway.

Green bike lanes alone, aid in the reduction of motor vehicle - bicyclist collisions. In addition, the higher visibility helps a wider range of users to feel safe when biking.

A higher use of bicycles correlates with the decrease of trips otherwise made via automobile. This often results in financial benefits for local businesses including repeat visits and less parking infrastructure requirements.

GREEN BIKE LANES

EXISTING BICYCLE CONTEXT

MIAMI BEACH QUICK FACTS

One of the City of Miami Beach's best assets is the existing network of bicycle lanes, pedestrian streets, and compact walkable urbanism. These assets make the city a great candidate for improvements to bicycle and pedestrian infrastructure and will form the basis of the bicycle master plan.

Total Existing Bike Network: 29.5 miles

Number of Bikeway Types: 3

Existing Bicycle Lanes: 17 miles

Existing Bicycle Route: 7.7 miles

Existing Shared-Use Path: 4.8 miles

LEGEND:
BIKEWAY NETWORK

PROPOSED
- Shared Path
- Bike Lane
- Neighborhood Greenway

CATEGORY 1: FILLING IN THE GAPS

At a minimum, the projects included in the first phase are critical. This phase (shown to the left) is what we call "Filling in the gaps". This strategy looks at the existing bicycle network as it exists today, and suggests improvements that can be done immediately to improve connectivity in the near term. No curb to curb reconstruction would be required. The anticipated mode shift achieved by this network is 4% over a five year horizon.

LEGEND: BIKEWAY NETWORK

EXISTING	PROPOSED
All Facilities	Protected Bike Lane
	Conventional Bike Lane
	Neighborhood Greenway (Heavy)
	Neighborhood Greenway (lite)
	Shared Path
	Shared Space

BICYCLE NETWORK PLAN: CATEGORY 2: IMPROVE EXISTING

CATEGORY 2: IMPROVEMENTS TO EXISTING FACILITIES

The 20 year plan envisions a network of protected bike lanes on major corridors, and a network of secondary greenways on residential streets. Existing bike lanes and sharrows on major corridors should be converted into protected bicycle facilities, and critical connections at 71 Street, 63 Street, 51 Street, and Alton at Chase Ave should be made. Major interventions in the plan occur on state or county roads, where the volume of traffic is above 25,000 ADT or the speed above 35 mph.

Critical regional connections at the MacArthur Causeway, the Venetian Causeway, the Julia Tuttle and the JFK Causeway all require investments in separate bicycle and pedestrian infrastructure to accommodate inter-city regional travel between Miami Beach and mainland Miami. Notable in the long term plan is a synthesis with potential rail linkages on 5 Street and Washington. These investments in rail transit infrastructure along with the improvements shown here will lead to the 14% bicycle mode share by 2035 (A 9% increase over 20 years.)

23 **PROTECTED BICYCLE LANE MILES**

4% **5-YEAR BICYCLE MODESHIFT**

6 **BICYCLE FACILITY TYPES**

LEGEND: BIKEWAY NETWORK

EXISTING	PROPOSED
All Facilities	Protected Bike Lane
	Conventional Bike Lane
	Neighborhood Greenway (Heavy)
	Neighborhood Greenway (lite)
	Shared Path
	Shared Space

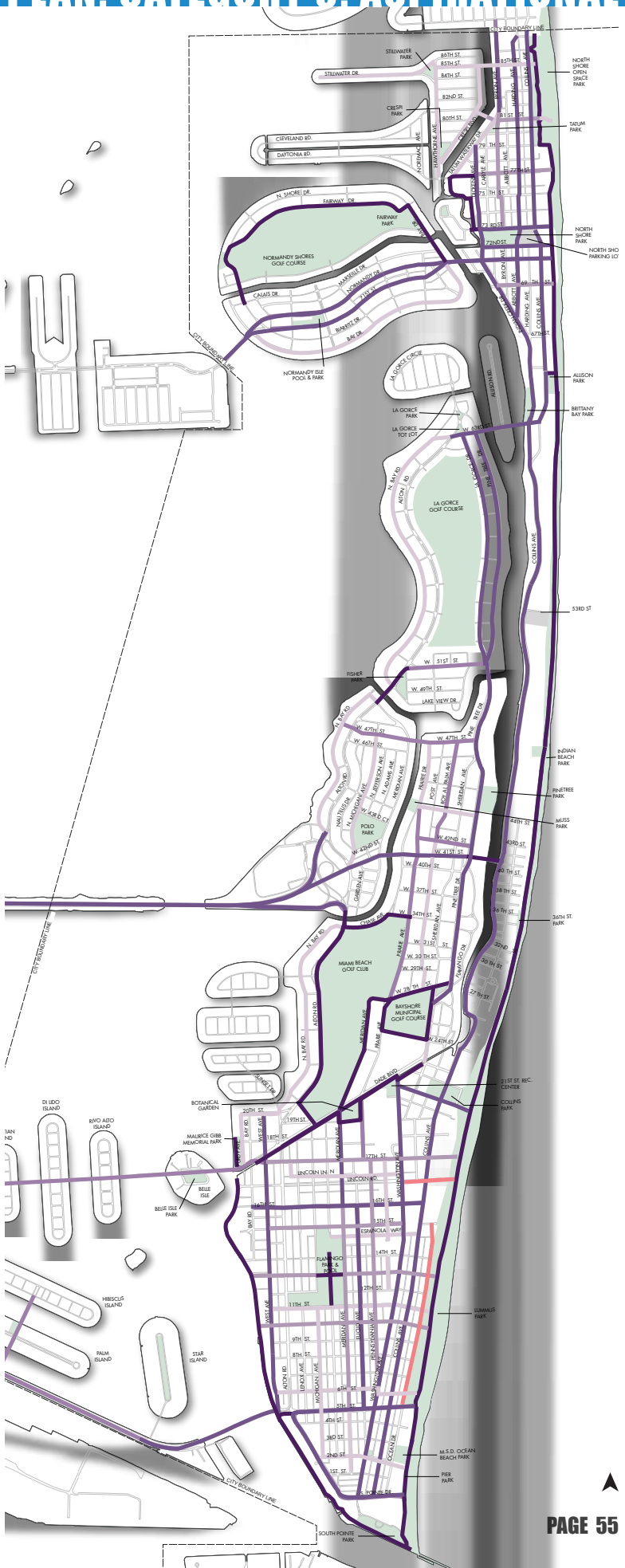
CATEGORY 3: ASPIRATIONAL LONG TERM MASTER PLAN

The 20 year plan envisions a network of protected bike lanes on major corridors, and a network of secondary greenways on residential streets. Existing bike lanes and sharrows on major corridors should be converted into protected bicycle facilities, and critical connections at 71 Street, 63 Street, 51 Street, and Alton at Chase Ave should be made. Major interventions in the plan occur on state or county roads, where the volume of traffic is above 25,000 ADT or the speed above 35 mph.

Critical regional connections at the MacArthur Causeway, the Venetian Causeway, the Julia Tuttle and the JFK Causeway all require investments in separate bicycle and pedestrian infrastructure to accommodate inter-city regional travel between Miami Beach and mainland Miami. Notable in the long term plan is a synthesis with potential rail linkages on 5 Street and Washington. These investments in rail transit infrastructure along with the improvements shown here will lead to the 14% bicycle mode share by 2035 (A 9% increase over 20 years.)

40+ **PROTECTED BICYCLE LANE MILES**

4% **5-YEAR BICYCLE MODESHIFT**



LEGEND: BIKEWAY NETWORK

- Protected Bike Lane
- Conventional Bike Lane
- Neighborhood Greenway (Heavy)
- Neighborhood Greenway (lite)
- Shared Path
- Shared Space

The communities of North Beach include Normandy Isle, Normandy Shores, North Shore and Biscayne Pointe stretch from the northern boundary of the city down to around 63 Street.

Both Normandy Isle and North Shore are home to some of the most vibrant pedestrian friendly commercial districts in the City. Indeed, these attractions place many of life's daily needs within a short walk or bike ride for most residents, something which is not obvious when looking at the modeshare analysis for the area.

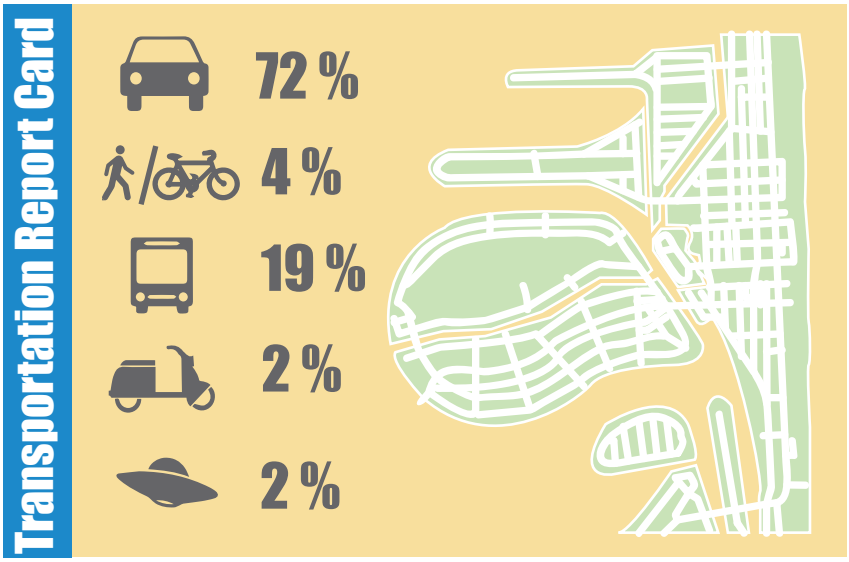
Crash data for the area shows that the main points of conflict are Collins, Indian Creek Drive, 71 Street and 63 Street Bridge. These are locations where protected bicycle facilities should be prioritized. Overall, North Beach accounted for 15.3% of the total crashes citywide over the past three years.

The modeshare analysis for the neighborhood, as documented in the Miami Beach Community Satisfaction Survey, shows that one third of residents do not use cars as their main form of transportation. When viewed against the backdrop of compact walkable urbanism, these numbers are encouraging.

Previous Bikeway Analysis

Both the 2007 Bikeways Master Plan and the 2009 Atlantic Greenways Network Master Plan showed several proposed routes in this area. They included bike routes on 72 Street, 73 Street, 77 Street, 81 Street, a bike boulevard on Carlyle, a bicycle path on Park View Island, and a bike lane on Dickens Avenue.

The Basis of Design Report for the North Shore neighborhood was also reviewed for consistency with development of the master plan. We reference this document in the pages ahead.

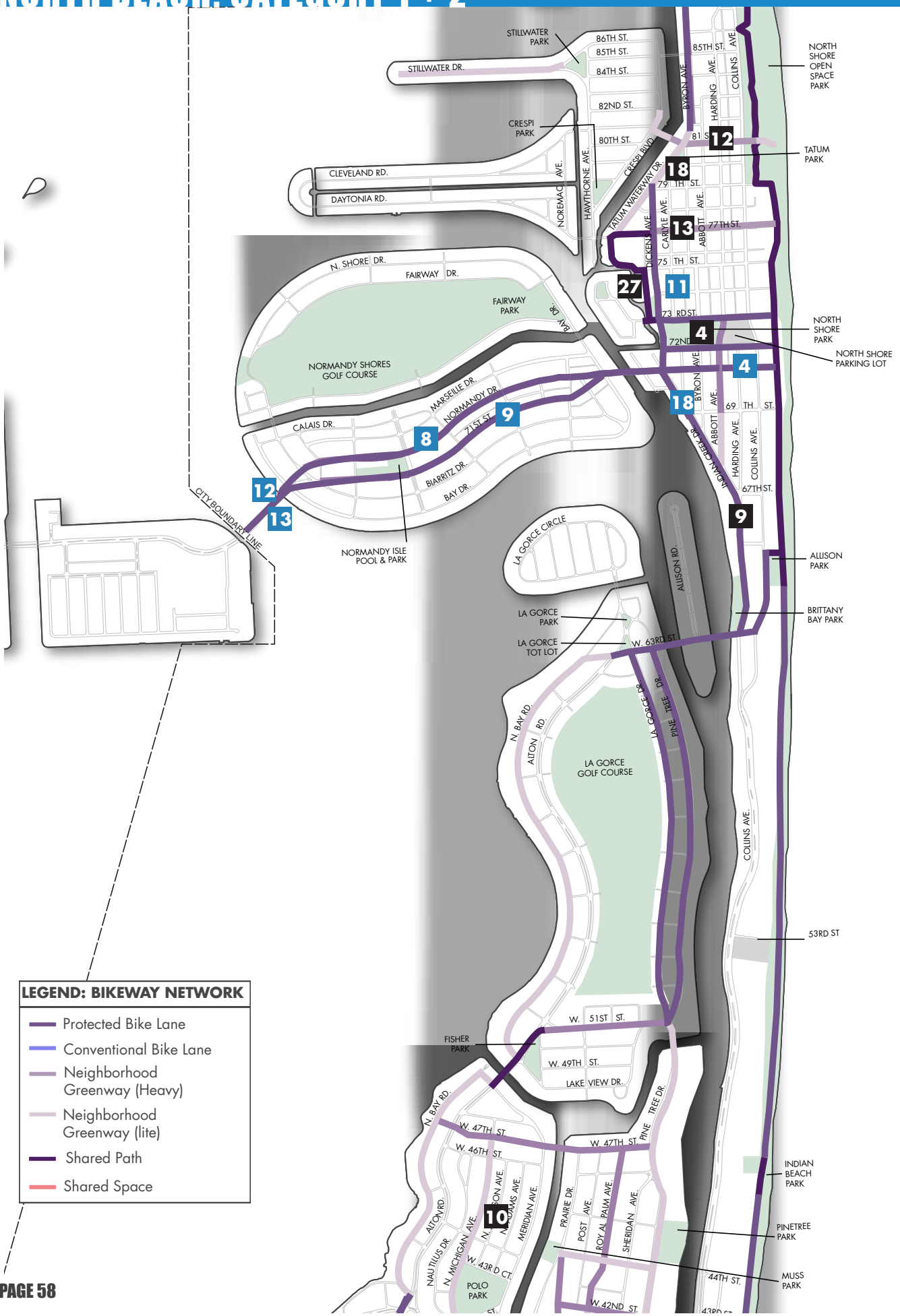


The re-paving of 71st Street included the addition of bicycle lanes. Image: Miami Bike Scene

Miami Beach Community Ride participants enjoy a police escort south along Indian Creek Drive.

Connecting Stillwater Park and Crespi Park, Hawthorne is a good candidate for a bicycle facility.

NORTH BEACH: CATEGORY 1 + 2



Category 1: Filling in the Gaps

With a network of slow, residential streets, and a budding bicycle network, the prospects for North Beach are strong. The adjacent plan shows how the network in North Beach may develop by focusing on connecting to or improving existing bicycle facilities and proposing solutions that can be implemented without curb reconstruction. These projects represent the first five percent jump in bicycle modeshare envisioned by the modeshare goals. The main elements of the short term plan are:

4 Implement protected bike lanes on 72nd and 73rd street , between Collins Ave. and Dickens Ave. between Atlantic Trail. and Dickens Avenue.

9 Protected bike lane along Indian creek, between Abbott and 63rd St.

12 Medium to light greenway along 81st from Atlantic Trail to Crespi Blvd.

13 Greenway along 77th Street between the Atlantic Greenway and Dickens Ave.

18 Create a greenway along Tatum Waterway Drive.

27 Implement a shared path along the parkview island park, around Biscayne Elementary to Dickens Dr.

Category 2: Improvement to existing facilities

4 Upgrade from sharrows to protected bike lanes. From bike lane to Protected Bike lane Atlantic Trail to Abbott Ave.

8 Upgrade from sharrows to protected bike lanes. From bike lane to Protected Bike lane on Normandy Dr from Biarritz to Bay Drive

9 Upgrade from sharrows to protected bike lanes. From bike lane to Protected Bike lane on 71st Dr from Biarritz to Bay Drive

11 Upgrade Dickens Dr. from bike lanes to protected bike lanes between 71st and Tatum Waterway Dr.

12 Protected bike lanes on 71st St from Biarritz to City limits.

13 Protected bike lanes on Normandy Drive from Biarritz to city limits.

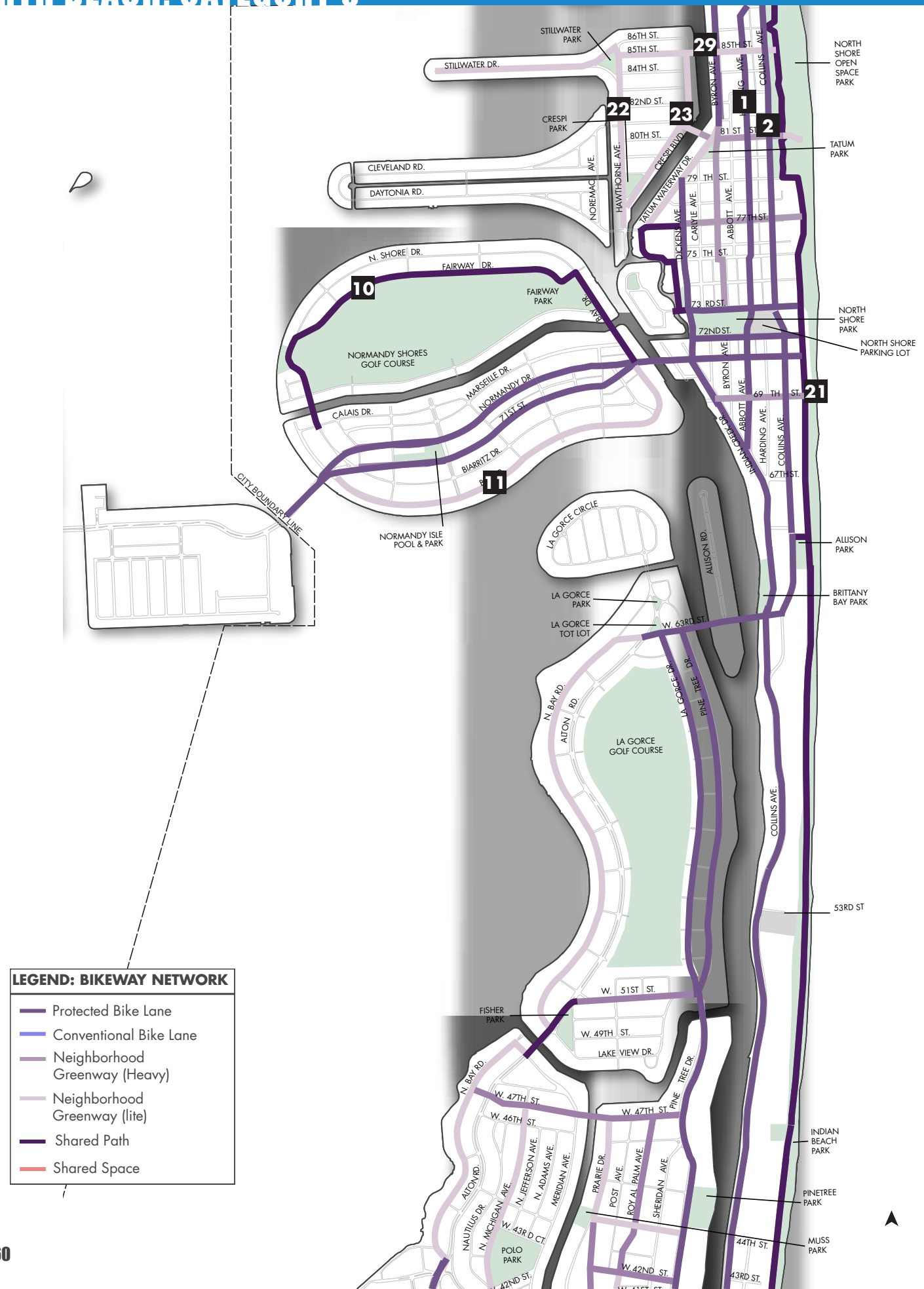
18 Upgrade from bike lane to protected bike lane on Indian Creek, between Abbott Ave. and Dickens Ave.

Existing bike lanes on 71st street.

A western looking view of 85th Street, which terminates at Stillwater Park.

Bicycle parking at Crespi Park.

NORTH BEACH: CATEGORY 3



LEGEND: BIKEWAY NETWORK

- Protected Bike Lane
- Conventional Bike Lane
- Neighborhood Greenway (Heavy)
- Neighborhood Greenway (lite)
- Shared Path
- Shared Space

Category 3: Aspirational

The long term plan Over the long-term existing bicycle facilities should be upgraded. Bike lanes on major roads should be converted into projected facilities, and recommends the following improvements as funding arises and demand for improved facilities grow.

1 Implement a protected bike lane on Harding Ave. from 73rd St to The City limits, and from 73rd to Indian Creek

2 Implement a protected bike lane on Collins Ave.from 73rd St to The City limits.

10 Shared path on Fairway Drive along golf course, from Bay Drive East to Calais Drive.

11 Greenway on Bay Drive South

19 Greenway on Byron Avenue from 81st to 73rd Street.

12 Greenway along 85th street, from the Atlantic Trail to Stillwater Drive .

21 Greenway along 69th St., from Indian Creek to the Atlantic Trail.

22 Greenway on Hawthorne from 77th to Still Water Dr.

23 Greenway on along Crespi blvd., between Hawthorne Ave. and 85th St.

29 Greenway along 85th St, from Atlantic trail to Still Water Drive.

The Beach Walk provides a great recreational and transportation amenity, especially those looking for an alternative to Collins Avenue.

A father and daughter enjoy the Miami Beach Community Ride. As a police escorted ride, dangerous thoroughfares like Collins Avenue temporarily feel safe for cyclists of all abilities.

North Bay Road provides an important alternative to the congestion and fast-moving cars found moving along Alton Road.