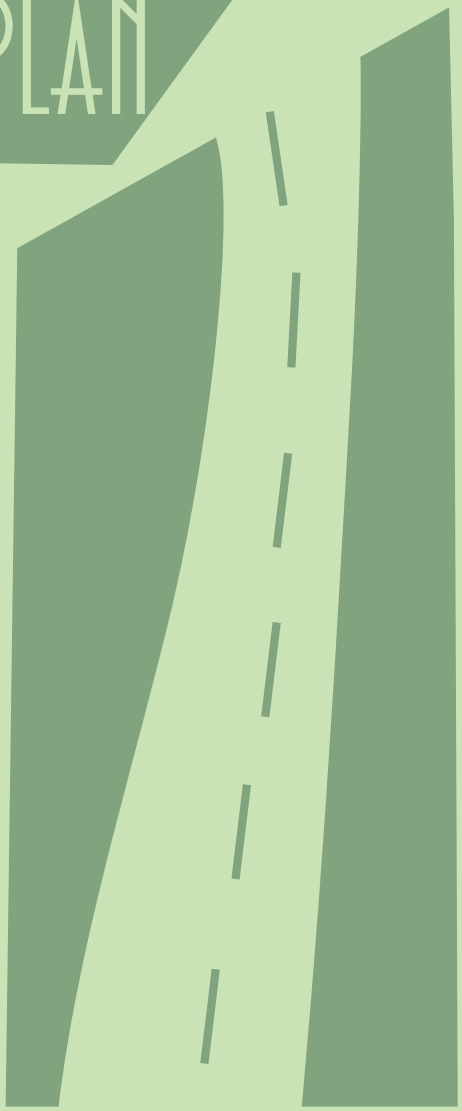
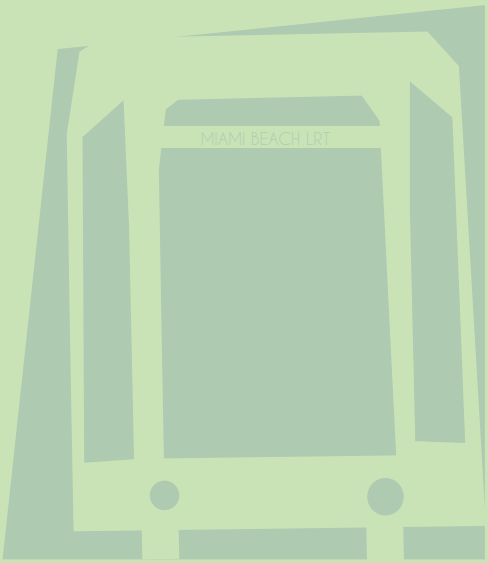
CITY OF MIAMI BEACH
BICYCLE PEDESTRIAN MASTER PLAN

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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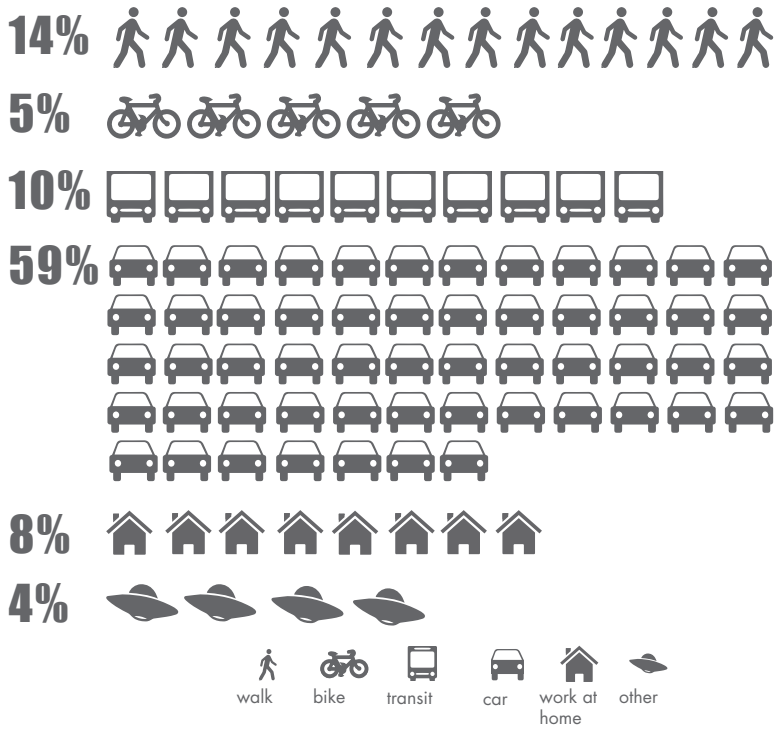
BPMP EXECUTIVE SUMMARY

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.** 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).

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

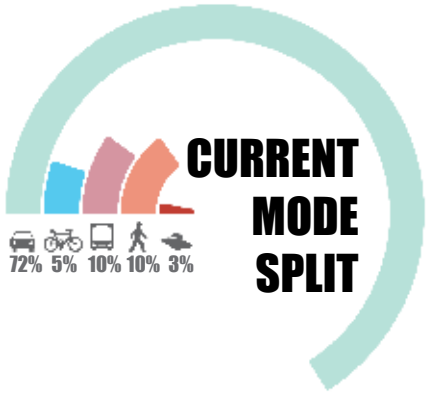


SETTING GOALS

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.

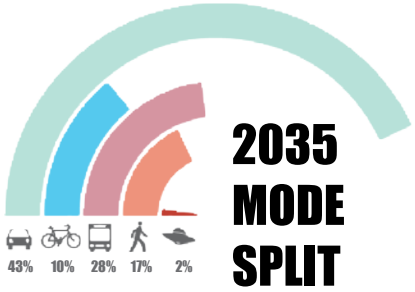
This document, and the process that created it, mark a shift in the priorities of city leaders and staff toward a balanced transportation network. One that elevates human based modes - bicycling, walking and taking transit - as viable forms of transportation for a majority of city residents.

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 15% today **up to 27% in in 2035.**



CURRENT MODE SPLIT

15% Bike/Ped
5% Bike
10% Ped



2035 MODE SPLIT

27% Bike/Ped
10% Bike
17% Ped

HOW DO WE GET THERE?

NETWORK PHASING & COSTS

The Bicycle Network Plan in the pages that follow includes over 40 Miles of new and improved bikeways - a network that will make Miami Beach one of the most bicycle friendly in the nation.

The plan envisions a **$20 million dollar investment over the next 20 years** on a network of protected bike lanes on major corridors, and greenways on residential streets. Existing bike lanes and sharrows on major corridors are to be converted into protected bicycle facilities,and critical connections at 71 Street, 63 Street, 51 Street, and Alton at Chase Ave are proposed.

Routes are planned for state and county roads, where the volume of traffic is above 25,000 ADT or the speed above 35 mph. In general, the plan eschews conventional (unprotected) bike lanes in favor of protected and low stress facilities.

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.

For implementation purposes, the routes in the master plan have been divided into three distinct project categories. The categories are not sequential, but rather each describes a different type of project as it relates to existing conditions (As described in the adjacent column) Projects from each Category can happen concurrently.

Each category 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, AKA "FILLING IN THE GAPS," are projects that fill gaps within the existing network. The focus of this category is on projects whose implementation is easy. These are our low hanging fruit projects. No improvements to existing facilities are included here.

Shared use path average cost : $1,500,000
Protected bike lanes average cost: $3,000,000
Light Greenway: $350,000
Heavy Greenway: $500,000
TOTAL CATEGORY 1 INVESTMENT **=** $5,350,000

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

Shared use path average cost: $1,000,000
Protected bike lanes average cost: $4,000,000
Light Greenway: $300,000
TOTAL CATEGORY 2 INVESTMENT **=** $5,300,000

CATEGORY 3, AKA "ASPIRATIONAL" projects are those that may require extensive changes, or which may require greater 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. This is what a complete network of protected bikeways looks like for Miami Beach.

Shared use path average cost: $3,000,000
Protected bike lanes average cost: $4,500,000
Light Greenway: $800,000
Heavy Greenway:$2,000,000
TOTAL CATEGORY 3 INVESTMENT **=** $10,300,000

HOW DO WE GET THERE : PEDESTRIAN PRIORITY ZONES

MOVING TOWARDS PEDESTRIAN PRIORITY

As the data show, almost half of all residents and visitors to Miami Beach are on foot at any given time. Included in the analysis ahead is a study of potential pedestrian priority zones, their characteristics and processes.

Rethinking districts where pedestrian trips are high, as in the case of the Flamingo neighborhoods, as pedestrian priority zones will be critical to advancing pedestrian modeshift.

A Pedestrian Priority Zone (PPZ) includes:

- Clear pedestrian path of 6 feet minimum.
- Sidewalks on both sides of the street everywhere vehicle travel is present.
- Curbs are aligned with ramps and sidewalks.
- All intersections with visible crosswalks,10′ min.
- Crossing signals give enough time for crossing safely.
- Travel lanes have a reduced width of 10 feet.
- Provide curb extensions (bulb outs) at intersections.
- Require crossings at regular intervals, not to exceed 800′.
- Require Street trees/ Shade trees/ Shade structures on all sidewalks.
- Prohibit right turns on red. Provide green signal turn.
- Reduce posted speed limit to 25 mph.
- Reduce design speed by implementing traffic calming methods and pedestrian oriented countermeasures listed in the Street Design Guidelines.

HOW DO WE GET THERE: BICYCLE PLANNING TOOLKIT

The BPMP and Street Design Guide together detail a variety of bikeway and street types that will take Miami Beach into the 21 Century. As described in the definitions and images below, we are greatly expanding the language of types available to city leaders. A true shift in bicycle modeshare can only be accomplished through street design that reflects the needs of all types of bicyclists.

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.

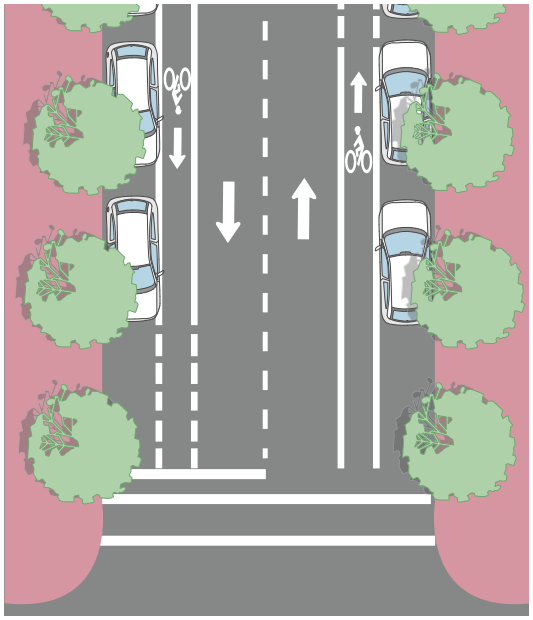
Bicycle Lane: a lane reserved for bicycle travel within a thoroughfare, marked by a painted line.

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.

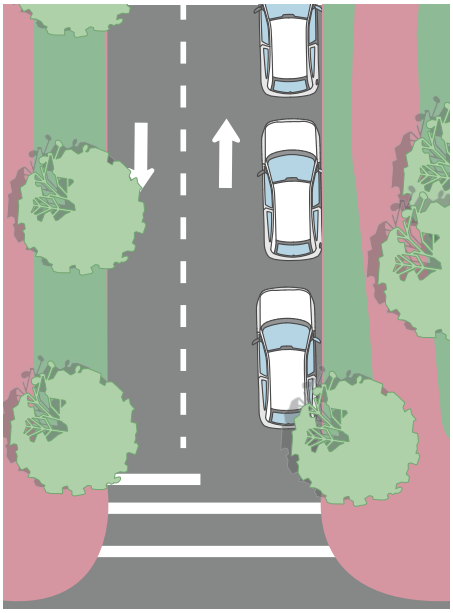
Bikeway: A continuously designated segment of right-of-way that provides exclusive, preferential, or equal priority for bicycle travel. It includes the Bikeway facility (lane, path, etc. and any curbs, markings and/or protective barriers.

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

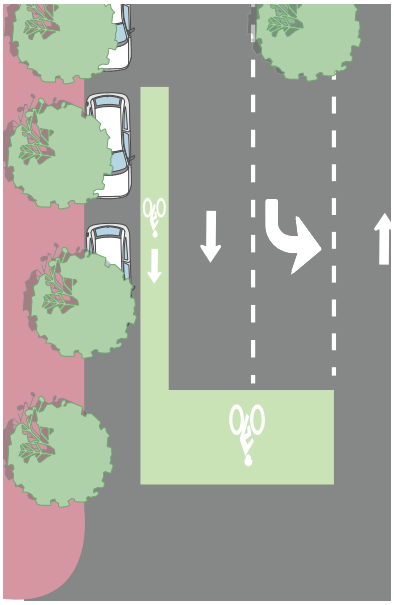
Green Bike Lane: A conventional bike lane that has been painted green, either at high alert areas, or along the entire route.



Bicycle Lane



Shared Use Path



Bicycle Box

The single most important part of this plan is its use of protected bikeways, trails and greenways as the basis of a robust active transportation network.

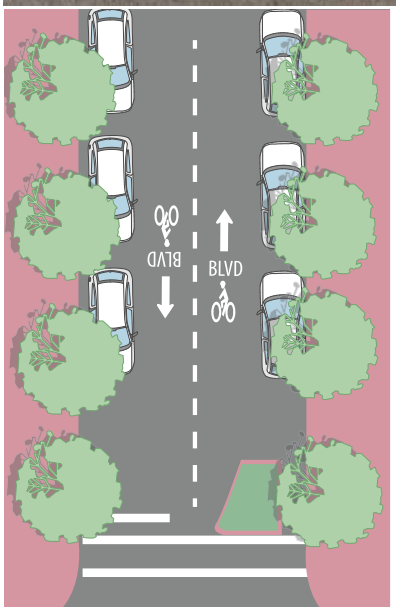
Neighborhood Greenway: A low-speed and low-volume thoroughfare with shared vehicular lanes that give movement priority to bicyclists, designed for commuting and recreational bicyclist as well as pedestrian use.

> **Neighborhood Greenway Light:** 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.

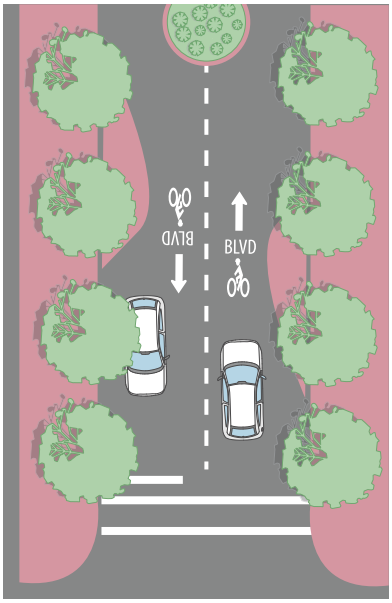
Protected / Physically-Separated Bicycle Lane: A Bicycle Lane separated from the motor vehicle travel lanes by Curbs, railings, plantings, parked cars, and/or grade separation, etc. (Syn: cycle track, side path)

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.

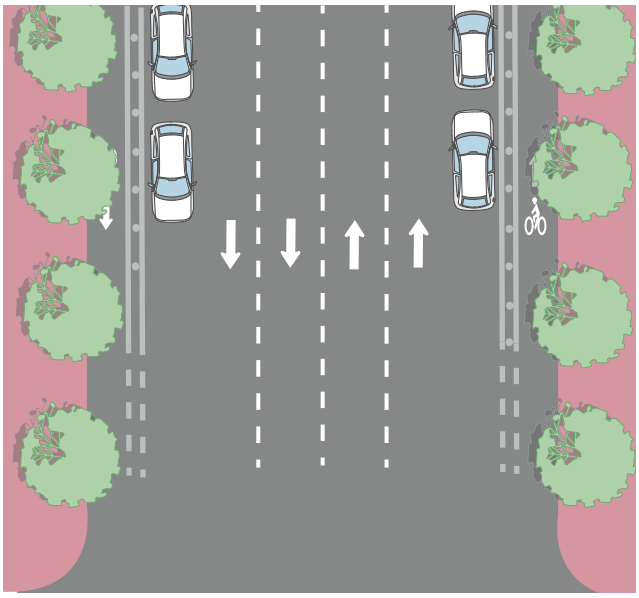
Shared-Use Path: A two-way physically separated facility from motor vehicular traffic with an open space or barrier (AASHTO, 2012). Shared-use paths should always be designed to include pedestrians even if the primary anticipated users are bicyclists.



Neighborhood Greenway (light)



Neighborhood Greenway (heavy)



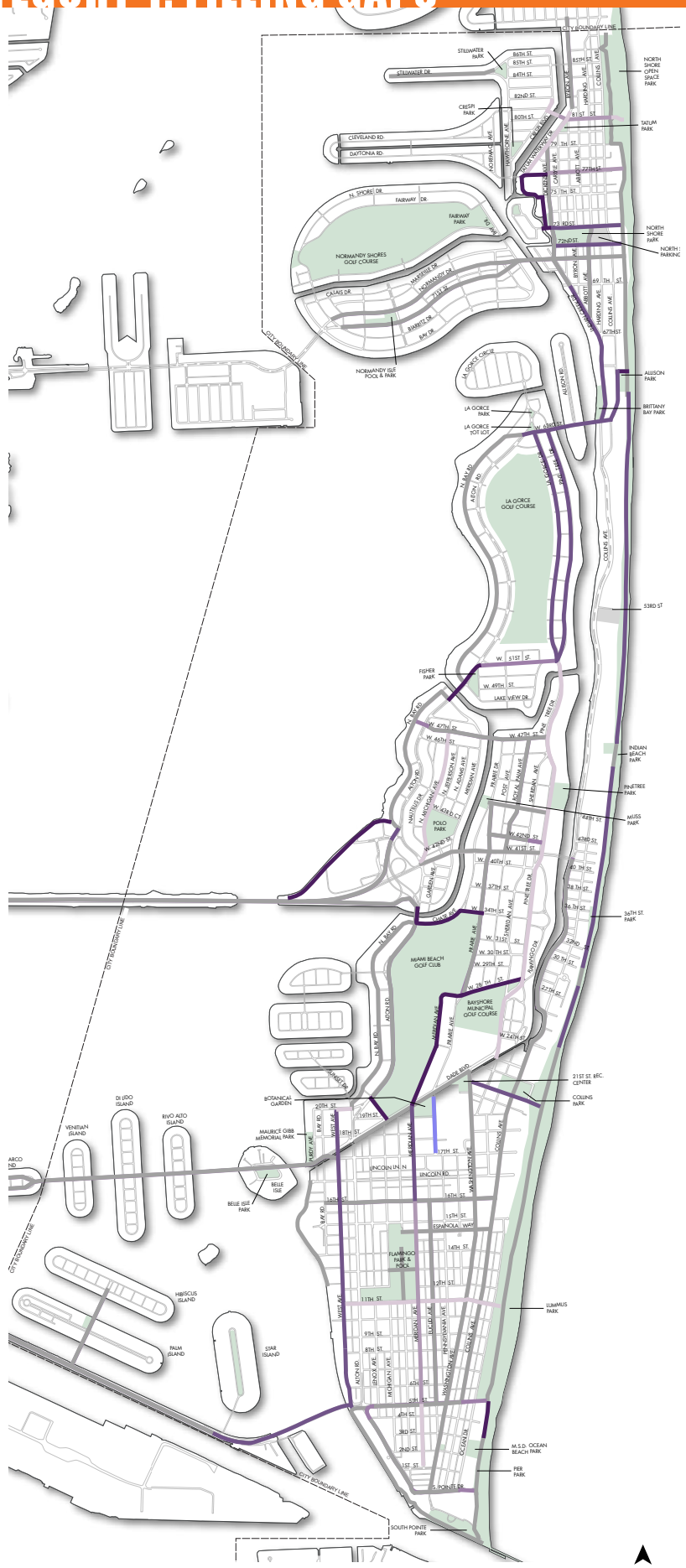
Parking Protected Bicycle Lane

BICYCLE NETWORK PLAN: CATEGORY 1: FILLING GAPS

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. While infrastructure alone will not move the needle on modeshift, implementation of all Category 1 projects will result in an anticipated mode shift increase of between 2 - 5% over a five year horizon.

2% **5 -YEAR BICYCLE MODESHIFT INCREASE**

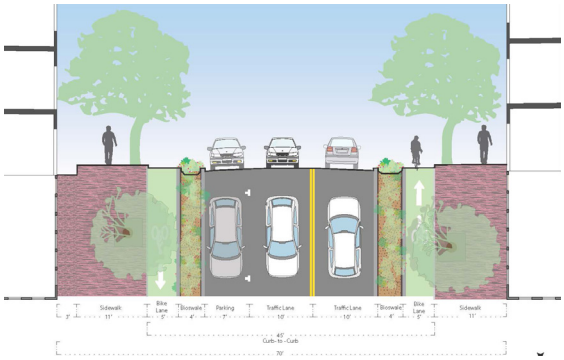


LEGEND: BIKEWAY NETWORK

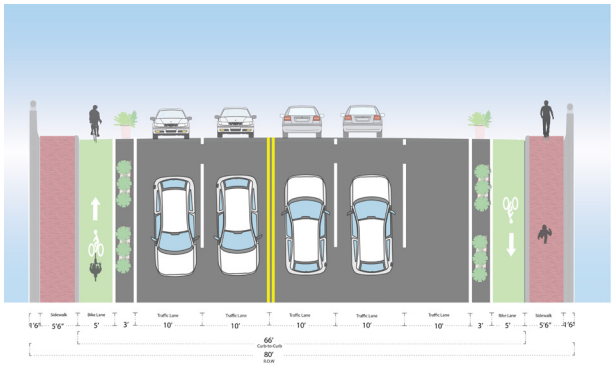
EXISTING	PROPOSED
All Facilities	Protected Bike Lane
	Conventional Bike Lane
	Neighborhood Greenway (Heavy)
	Neighborhood Greenway (lite)
	Shared Path
	Shared Space

BICYCLE NETWORK PLAN: CATEGORY 1 TYPICAL SECTIONS

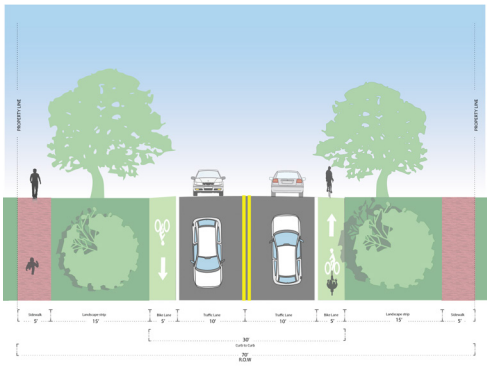
WEST AVENUE PROTECTED LANE



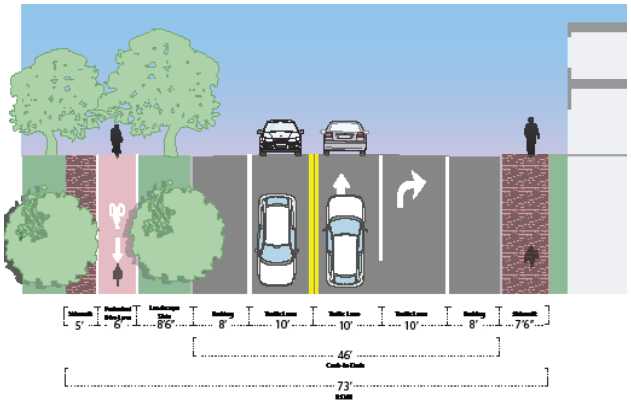
63 STREET PROTECTED BIKE LANE



51 STREET BIKE LANE

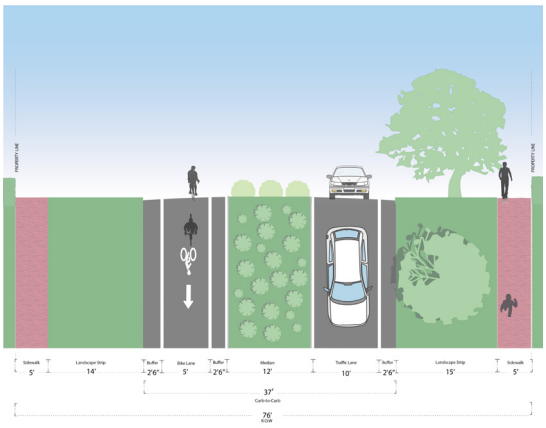


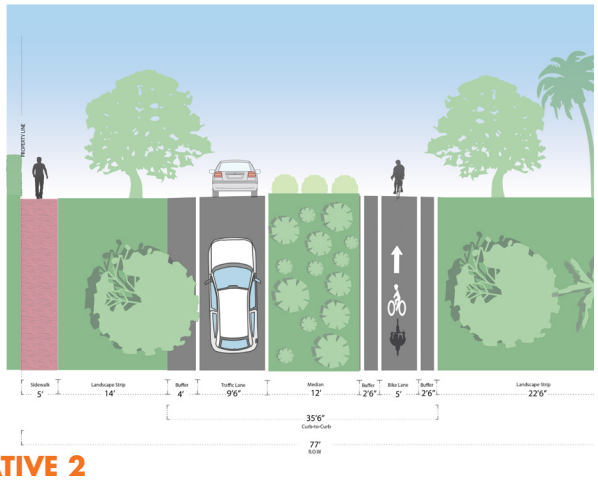
72 / 73 AVENUE PROTECTED LANE



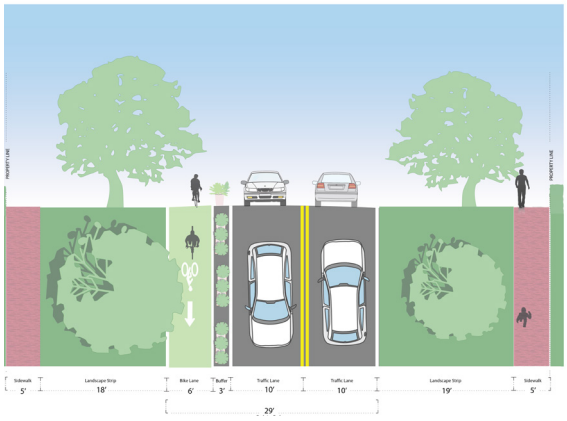
LA GORCE/ PINE TREE COMBINATIONS

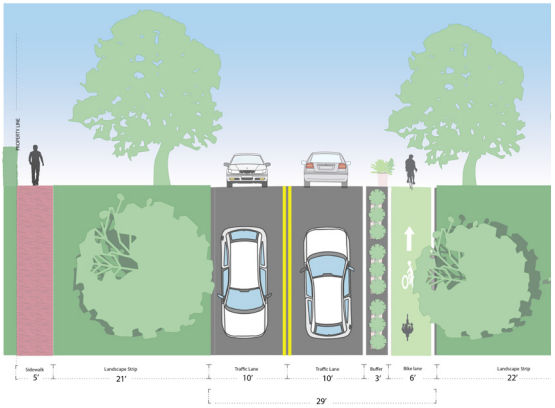
ALTERNATIVE 1





ALTERNATIVE 2





CATEGORY 2: IMPROVEMENTS TO EXISTING FACILITIES

The 5 -10 year plan envisions 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. 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.

Notable in the Category 2 projects are improvements to Normandy Drive, Dade Boulevard, 5 Street, Euclid, and Washington, all of which currently have bicycle facilities that are used and should be upgraded to facilitate greater use, comfort and, most importantly, safety. Implementation of all Category 2 projects will result in an anticipated mode shift increase of between 5 - 10%.

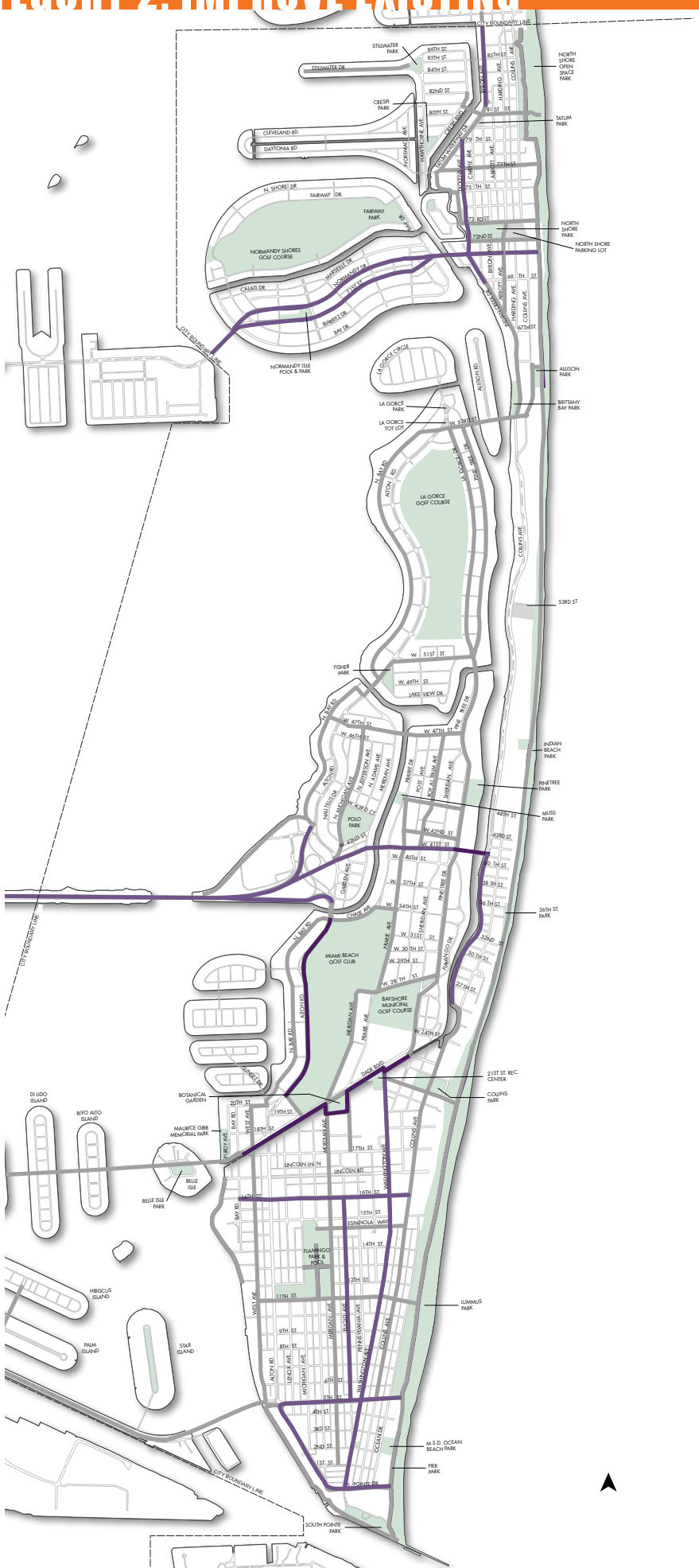
23 PROTECTED BICYCLE LANE MILES

5% 10-YEAR BICYCLE MODESHIFT INCREASE

6 BICYCLE FACILITY TYPES

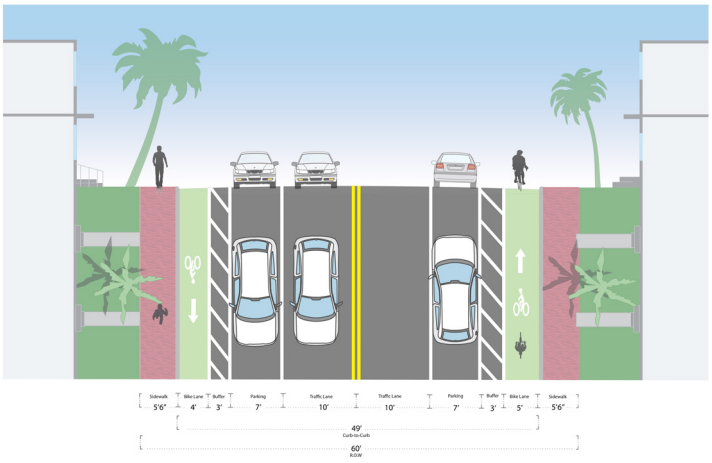
LEGEND: BIKEWAY NETWORK

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

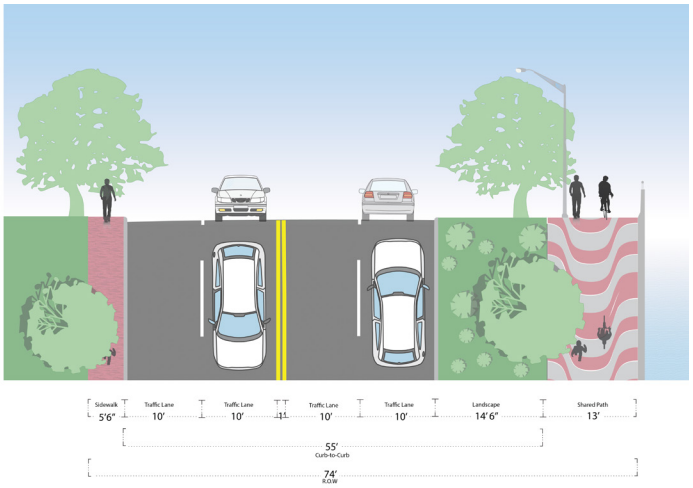


BICYCLE NETWORK PLAN: CATEGORY 2 TYPICAL SECTIONS

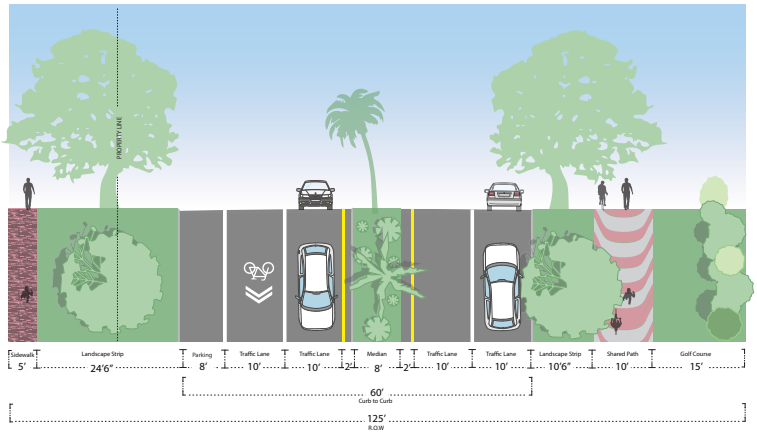
16 STREET PROTECTED LANE



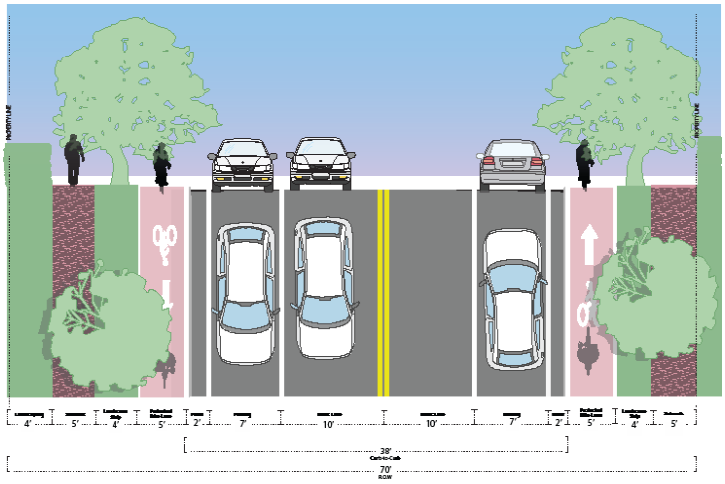
DADE BOULEVARD SHARED PATH



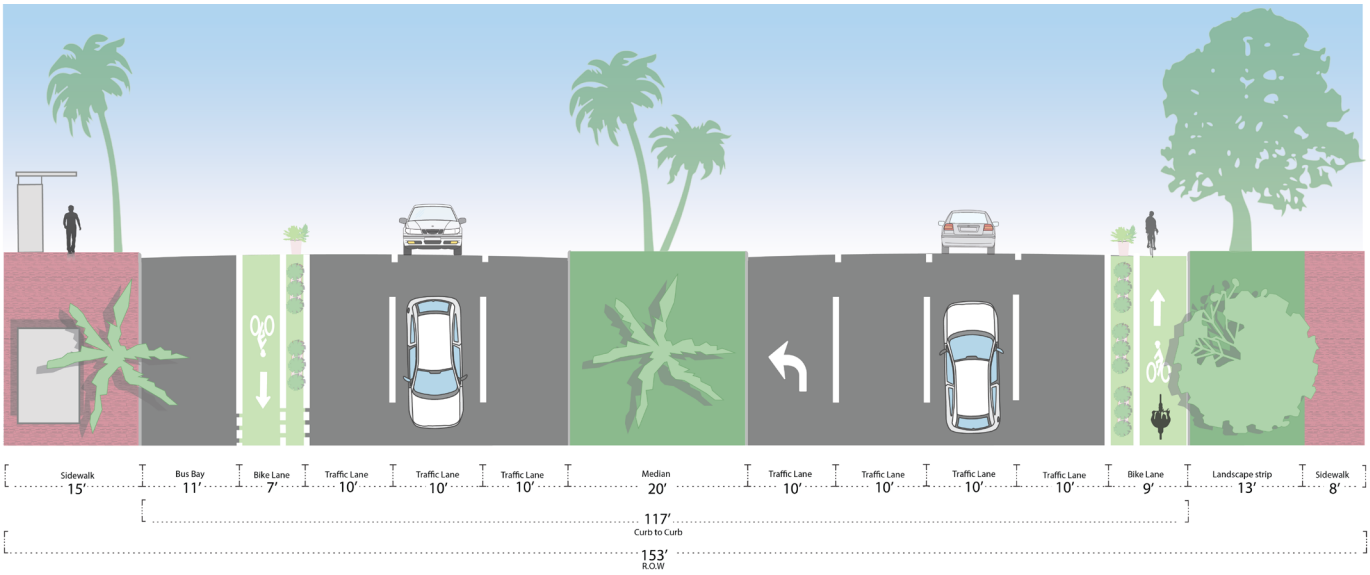
ALTON ROAD SHARED PATH



EUCLID AVENUE PROTECTED LANE



5 STREET PROTECTED LANE



BICYCLE NETWORK PLAN: CATEGORY 3: ASPIRATIONAL

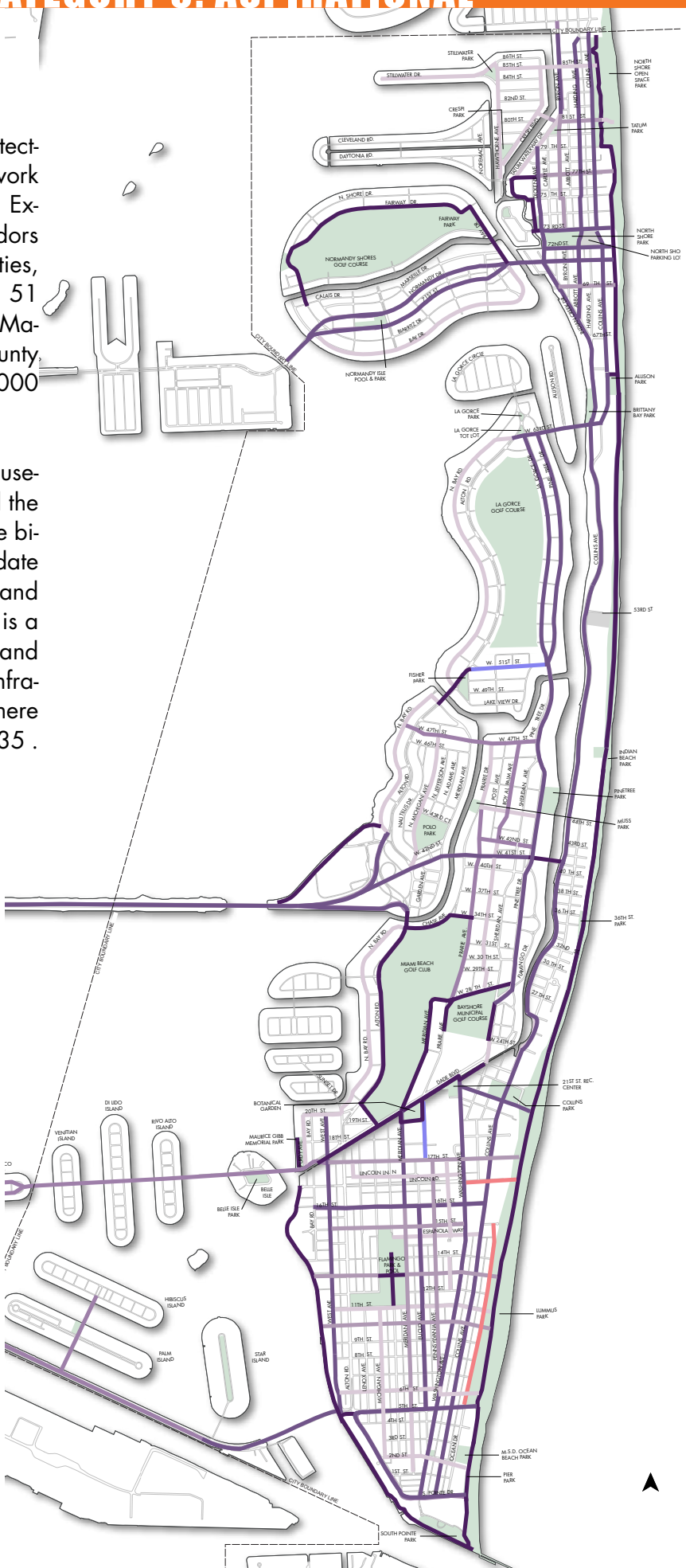
CATEGORY 3: ASPIRATIONAL LONG TERM MASTER PLAN

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 a 10-15% bicycle mode share by 2035 .

40+ PROTECTED BICYCLE LANE MILES

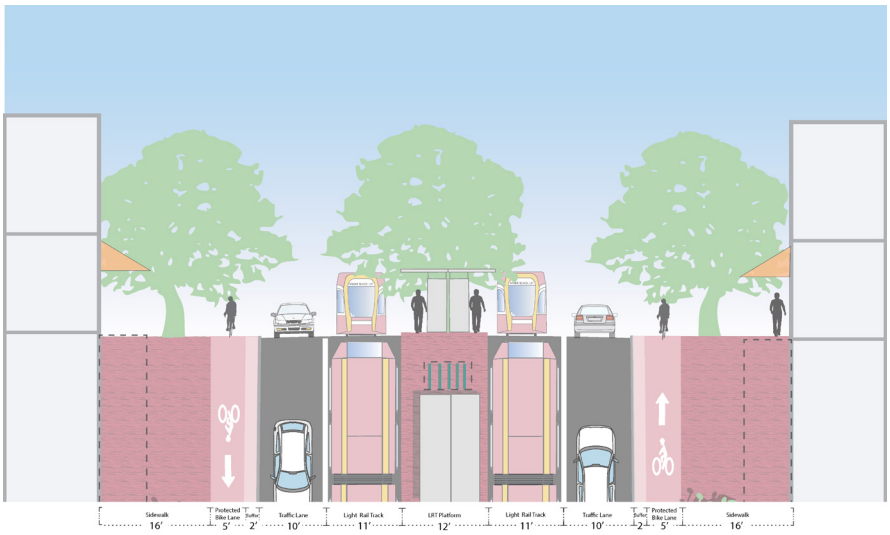
10% 20-YEAR BICYCLE MODESHIFT



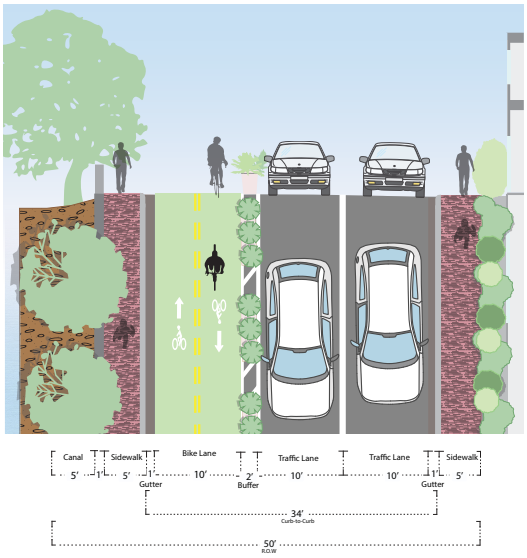
LEGEND: BIKEWAY NETWORK

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

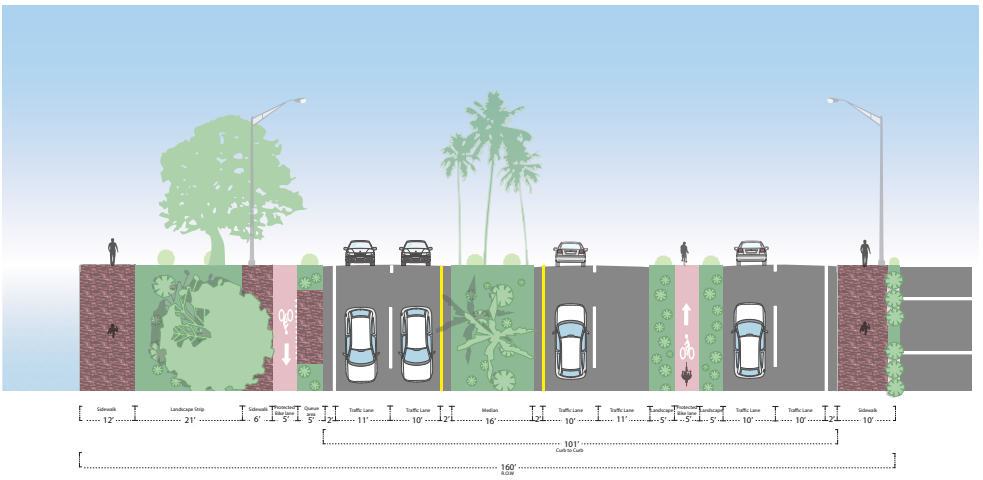
WASHINGTON AVENUE PROTECTED LANES



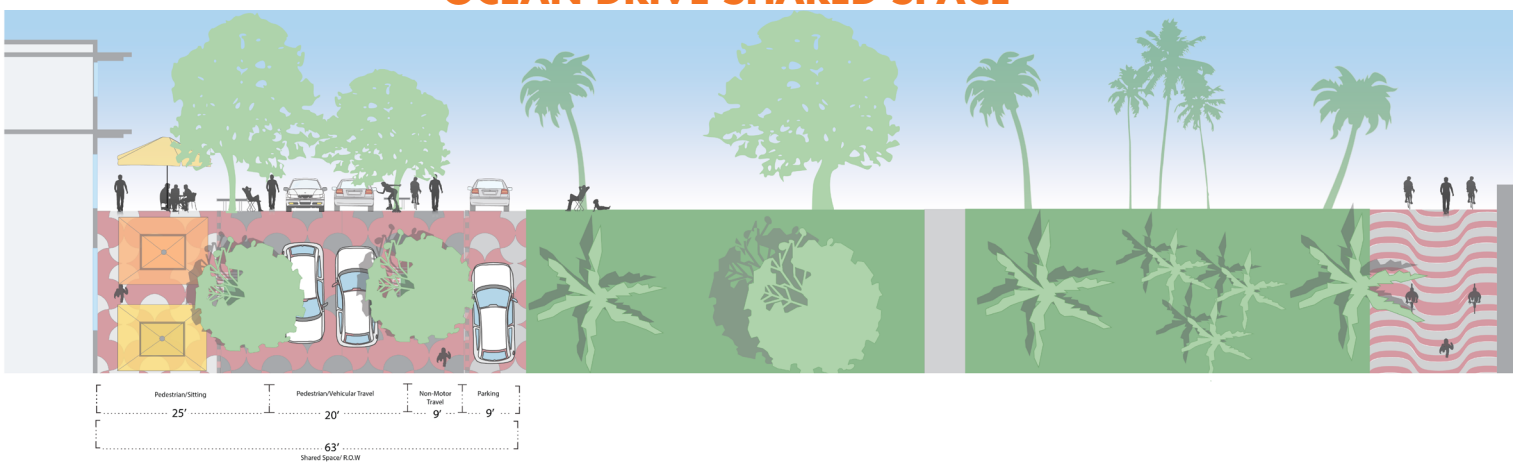
INDIAN CREEK PROTECTED LANE



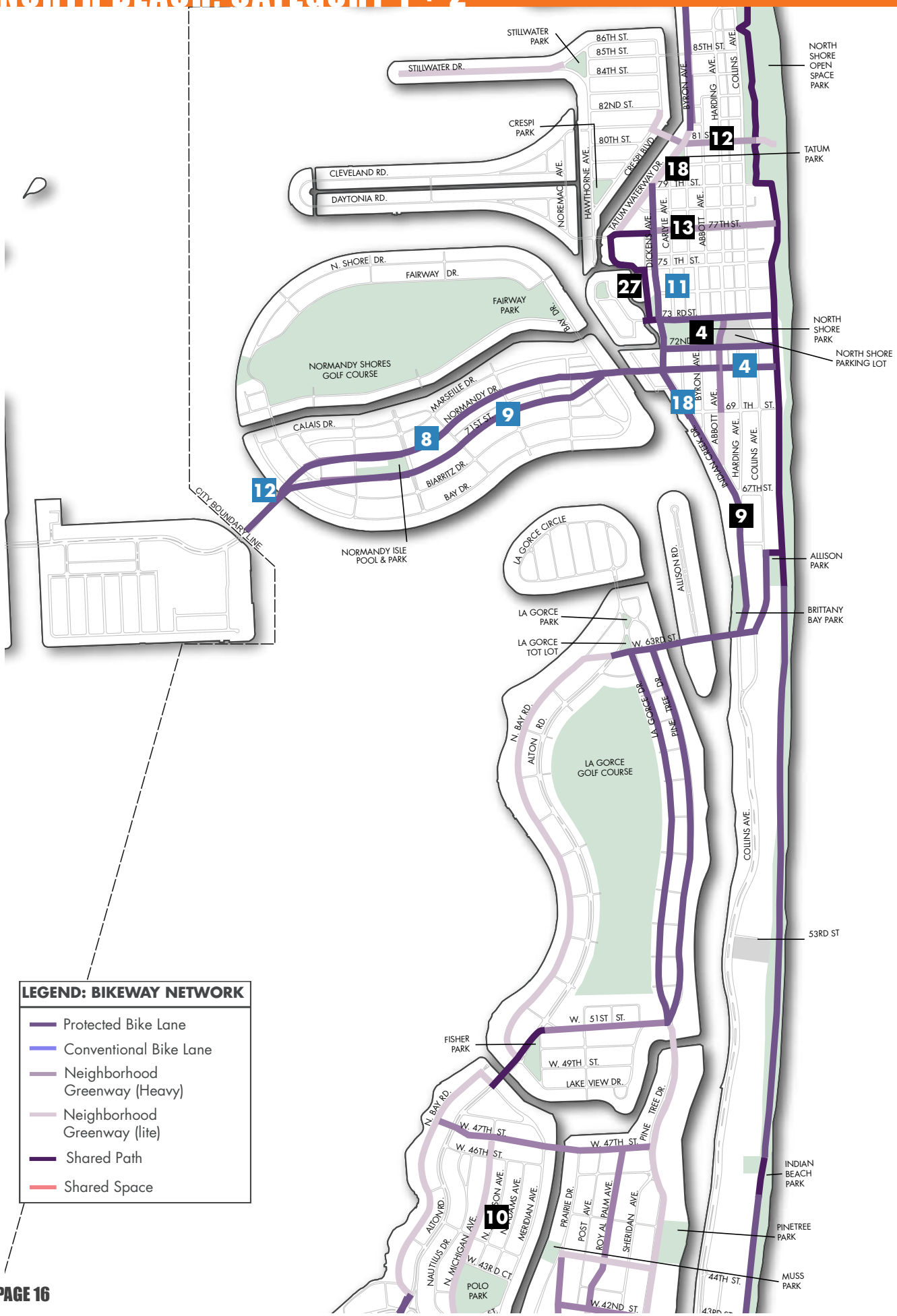
COLLINS AVENUE PROTECTED LANES



OCEAN DRIVE SHARED SPACE



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 72/ 73 Streets, between Atlantic Trail and Dickens Avenue.

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

12 Medium to light greenway along 81 Street from Atlantic Trail to Crespi Boulevard.

13 Greenway along 77 Street between the Atlantic Trail and Dickens Avenue.

18 Create a greenway along Tatum Waterway Drive.

27 Implement a shared path along the Parkview Island Park, around Biscayne Elementary to Dickens Drive.

Category 2: Improvement to existing facilities

4 Upgrade from sharrows and bike lanes on 71 Street to protected bike lanes from the Atlantic Trail to Normandy Fountain.

8 Upgrade from bike lane to protected bike lane on Normandy Drive from Biarritz to Bay Drive.

9 Upgrade from bike lane to protected bike lane on 71 Street from Biarritz to Bay Drive

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

12 Upgrade to protected bike lanes on 71 Street from Biarritz to City limits.

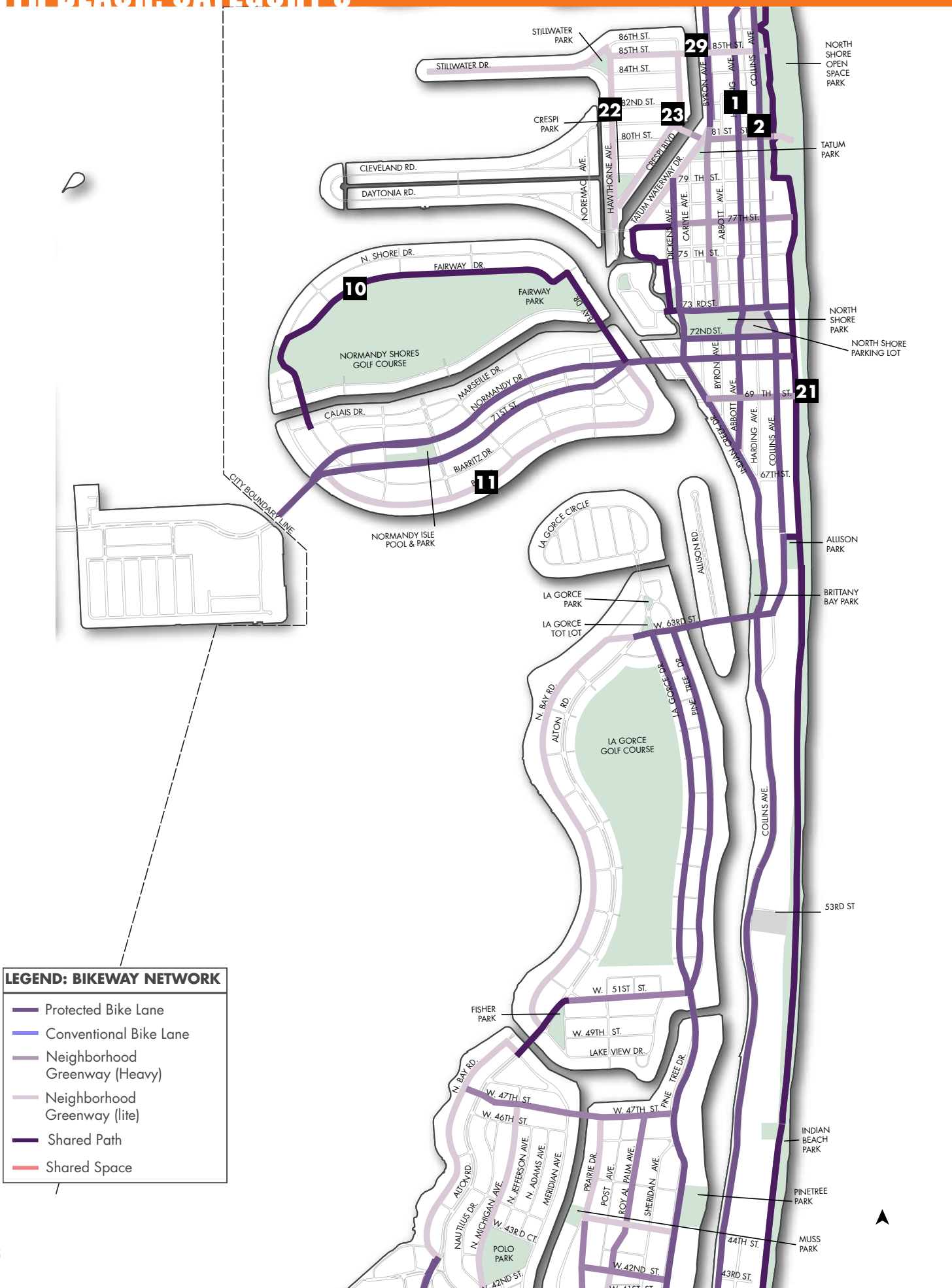
18 Upgrade from bike lane to protected bike lane on Indian Creek, between Abbott Avenue and Dickens Avenue

Existing bike lanes on 71st street are a combination of unprotected bicycle lanes and sharrows.

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

Bicycle parking at Crespi Park.

NORTH BEACH: CATEGORY 3



Category 3: Aspirational

Over the long-term a network of trails and protected facilities are envisioned for North Beach. The plan recommends the following improvements as funding arises and demand for improved facilities grow.

1 Implement a protected bike lane on Harding Avenue from 73 Street to City limits, and from 73 to Indian Creek Drive.

2 Implement a protected bike lane on Collins Avenue from 73 Street to 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 81 to 73 Streets.

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

21 Protected bike lanes along 69 Street, from Indian Creek to the Atlantic Trail.

22 Greenway on Hawthorne Avenue from 77 Street to Stillwater Drive.

23 Greenway on along Crespi Boulevard, between Hawthorne Avenue and 85 Street.

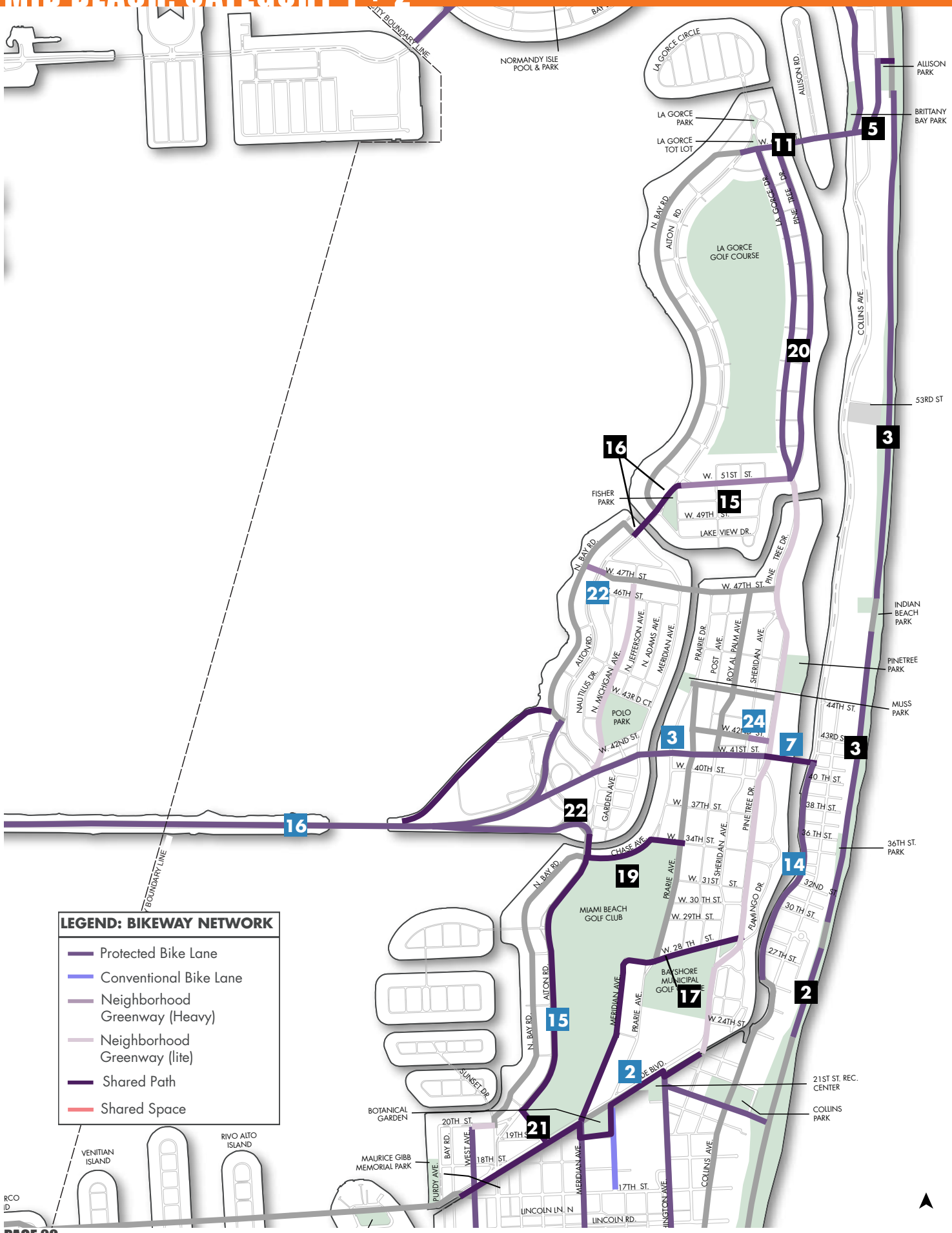
29 Greenway along 85 Street, from Atlantic Trail to Stillwater Drive.

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.

MID BEACH: CATEGORY 1 + 2



Category 1: Filling in the Gaps

2 Design the section of the Atlantic Trail between 24 and 29 Streets with protected bike lanes.

3 Design the section of the Atlantic Trail between 30 Street to Allison park with protected bike lanes.

5 Protected bike lane on 63 Street from Indian Creek to Atlantic Way.

11 Protected bike lane on 63 Street from Indian Creek to Alton Road.

15 Create bike lanes along 51 Street between Alton Road and Pine Tree Drive.

16 Shared Path along Alton Road, between 51 Street and North Bay Road.

17 Shared path Along 28 Street between Prairie Avenue. and Pine Tree Drive.

19 Shared path along Chase Avenue between Praire Avenue and Alton Road to Julia Tuttle junction.

20 Protected bike facilities along Pine Tree Drive and La Gorce Drive between 51 and 63 Street.

21 Shared path along North Michigan between Dade Boulevard and Alton Road.

22 Protected bike lanes @ intersection of North Bay Road, Alton Road and the Julia Tuttle Causeway.

Category 2: Improvement to existing facilities

2 Create a robust shared path along Dade Boulevard between Purdy Avenue and Pine Tree Drive.

3 Protected bicycle facilities along 41st between Pine Tree and Julia Tuttle Causeway.

7 Shared path on 41 Street, between Indian Creek and Pine Tree Drive.

14 Protected bike lane along Indian Creek between 41 and 26 Street.

15 Shared path along Alton Road, between North Michigan and Chase Ave.

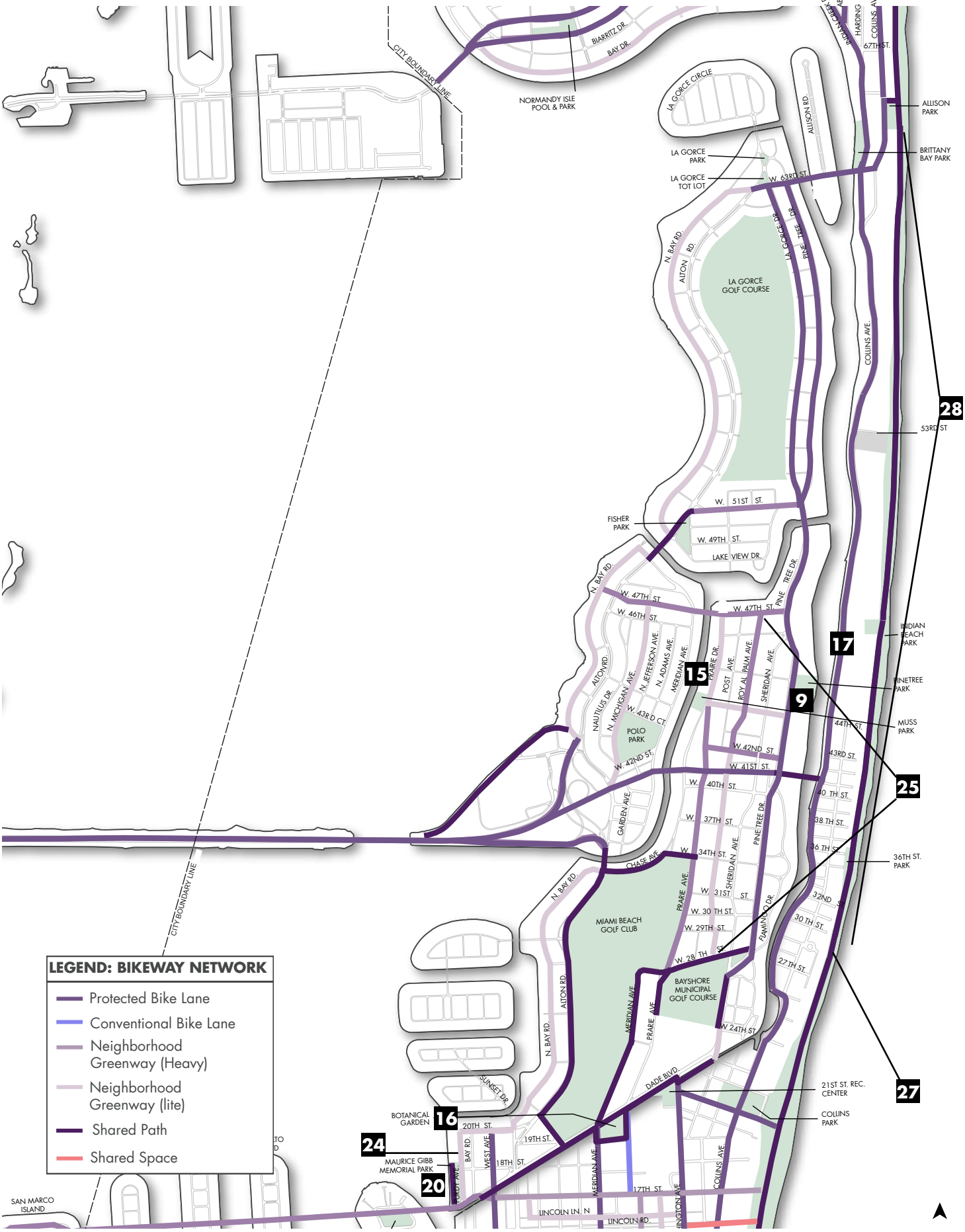
16 Protected bike facilities along Julia Tuttle Causeway from City limits to Alton Road interchange.

20 Establish North Bay Road as a heavy neighborhood greenway.

22 Extend bike lanes on 47 Street from Alton Road to North Bay Road.

24 Extend bike lanes on 42 Street from Sheridan to Pine Tree Drive.

MID BEACH: CATEGORY 3



Category 3: Aspirational

In order to achieve the 2035 modeshare goals, major connections will need to be made in the bicycle network. The critical connections needed in Mid Beach are:

- Julia Tutle Causeway
- 63 Street

9 Protected bike facilities along Pine Tree Drive between Dade Boulevard and 51 Street.

15 Greenway on Prairie Avenue between 44th and 47 Street.

16 Greenway along 20th St. between Purdy Avenue and North Michigan.

17 Collins Ave, Protected bike lanes from 41 to 63 Street

20 Shared Path along Maurice Gibb Memorial Park

24 Greenway along Purdy Avenue, between the Venetian Causeway and 20 Street.

25 Greenway on Royal Palm Ave. between 28 and 41 Street.

27 Shared path along the Atlantic Trail between 24 and 29 Street.

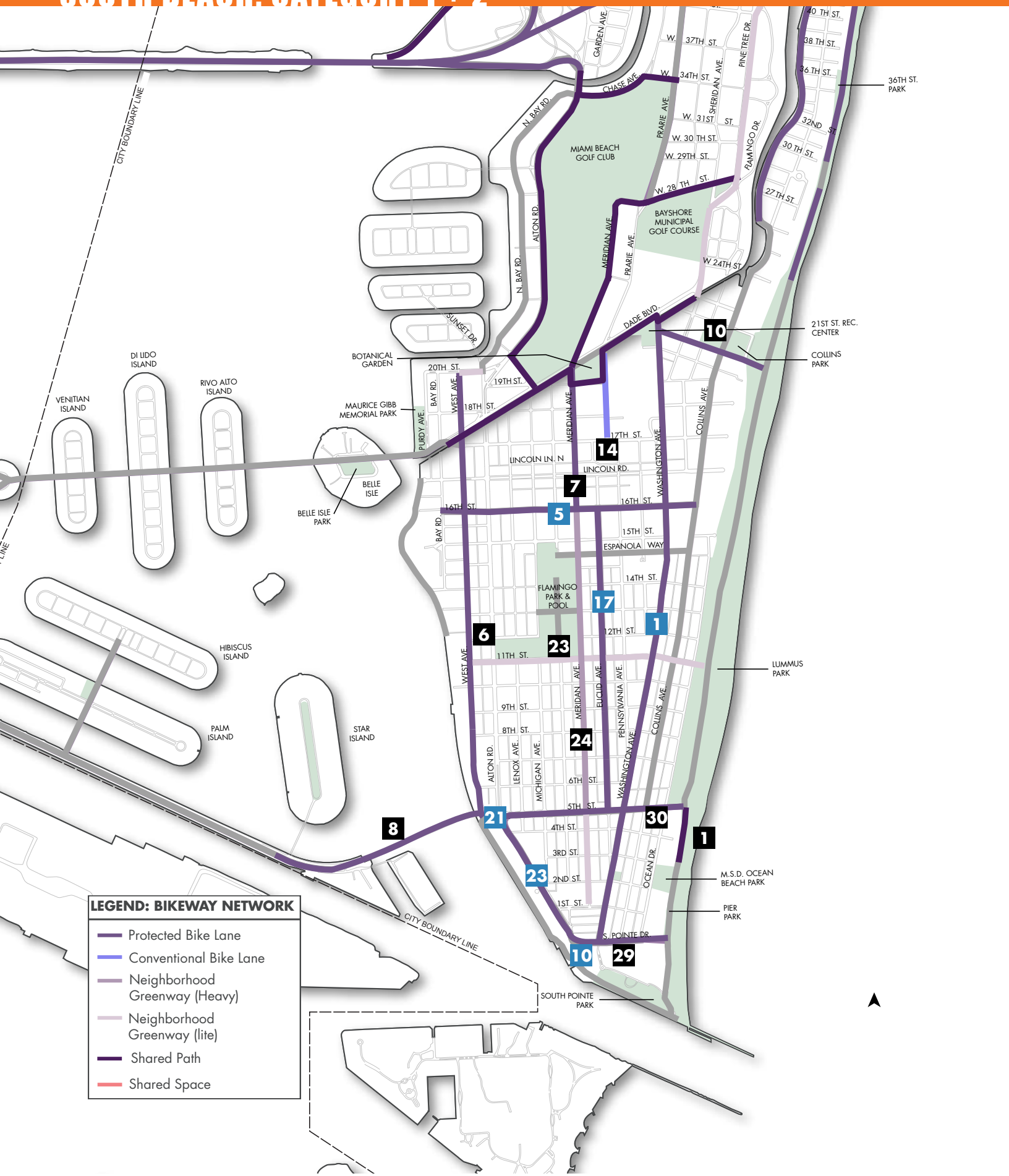
28 Shared path along the Atlantic Trail from 29 Street to Allison Park.

Digital speed readout signs remind motorists when they are exceeding the speed limit along Alton Road.

An old Bike Route sign along North Bay Road reminds users of the street's history as a preferred alternative to cycling Alton Road.

Looking east along a short residential street located between La Gorce and Pine Tree Drive. Narrow residential streets like this provide a pleasant cycling environment.

SOUTH BEACH: CATEGORY 1 + 2



Category 1: Filling in the Gaps

The street network in South Beach is one of the best in the world. Despite the challenges presented by over designing the streets for cars, a network of tree-lined residential streets, and a robust bicycle culture have developed. The short-term plan proposes an aggressive expansion of protected paths around South Beach. There are also opportunities to dovetail with upcoming reconstruction projects, such as the project planned for West Avenue.

1 Build shared path along the Atlantic Trail from 3 Street to 5 Street.

6 Protected bike lane facilities along West Avenue, between 20 Street and 5 Street.

7 Protected bike lanes along Meridian Ave, between Dade Boulevard and 16 Street.

8 Protected bike lanes along MacArthur Causeway between the Fisher Island Ferry Terminal and 5th/ Alton Intersection.

10 Protected bike lane along 21 Street between Atlantic Trail and Washington Avenue.

14 Bike lane along Convention Center Drive between 17 Street and Dade Blvd.

23 Greenway along 11 Street from West Avenue to the Atlantic Trail.

24 Greenway along Meridian Ave south of 16 Street.

29 Extend the existing bike lanes from Ocean Drive to the Atlantic Trail.

30 Extend bike lanes from Collins to the Atlantic Trail along 5th Street.

Category 2: Improvement to existing facilities

1 Protected bike lanes along Washington Avenue between South Pointe Drive and Dade Blvd.

5 Protected bike lane along 16 Street, from Collins to Bay walk

10 Protected bike Lanes on South Pointe Drive, between Atlantic Trail and Alton Road.

17 Upgrade to a protected bike lane along Euclid Avenue.

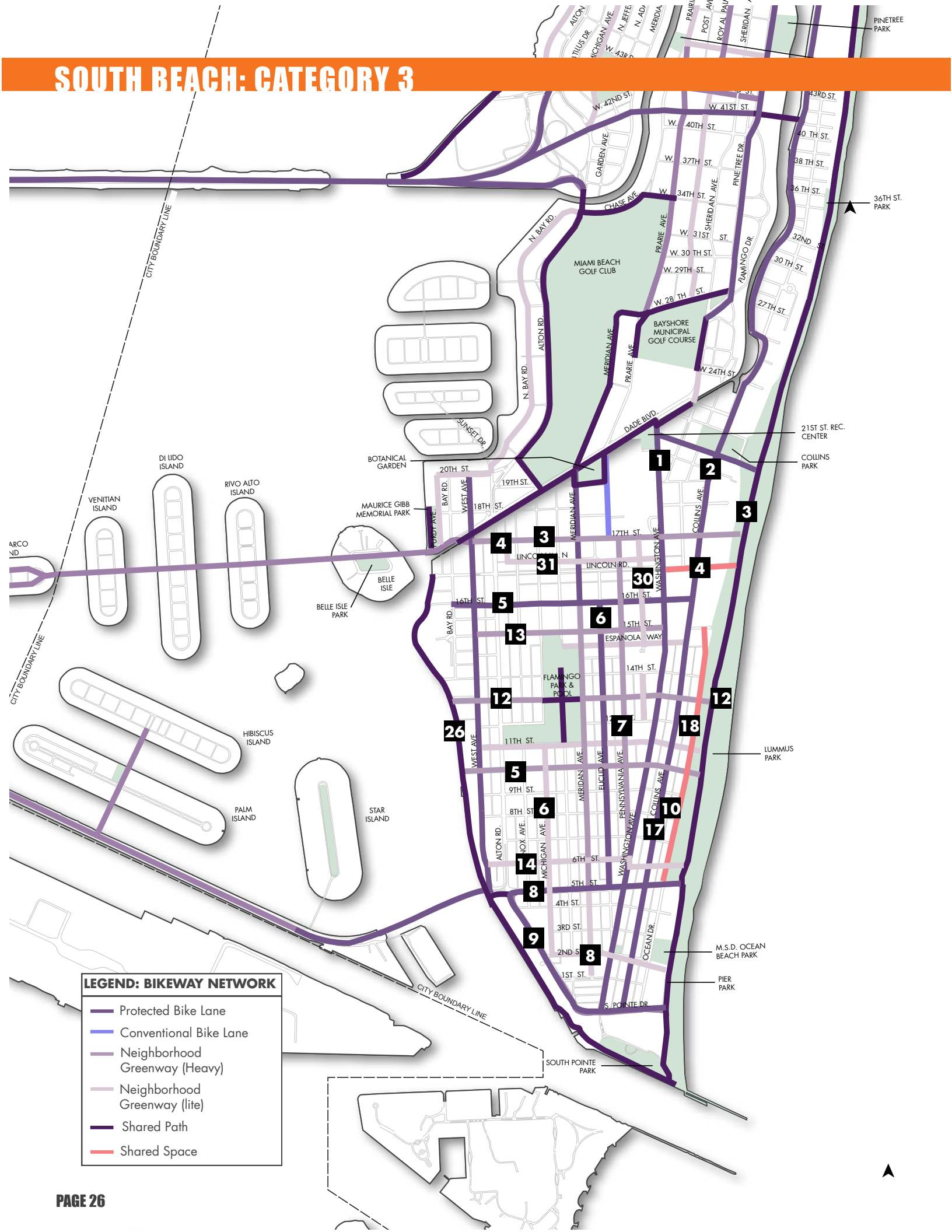
21 Intersection improvement on Alton Road from at 5 Street intersection.

23 Protected bike lanes along Alton Road from South Pointe Drive to 5 Street.

Meridian Avenue attracts bicyclists for several reasons, including it's beautiful, consistent tree canopy.

The eastern terminus of the 16th Street bicycle lane directs bicyclists into a row of parked cars.

SOUTH BEACH: CATEGORY 3



Category 3: Aspirational

The longer term view on South Beach sees significant increases in investments in transit infrastructure, and along with them investments in bicycle and pedestrian infrastructure. Regarding the former, we are looking specifically at three connections because they are major pinch points for connectivity between the hospitals and North Beach/Collins corridor.

- Macarthur Causeway
- Venetan Causeway

3 Greenway along 17 Street from Atlantic Trail to West Avenue.

4 Lincoln Road Shared space from Washington Avenue to Atlantic Trail.

5 Greenway along 10 Street from Bay Walk to Atlantic Trail.

6 Greenway along Michigan Ave, between 11 and 2 Streets.

7 Greenway along Pennsylvania Avenue, between 7 and 17 Streets.

8 Greenway along 2 Street, between Ocean Drive and Michigan Avenue.

12 Greenway along 13 Street from Bay Walk to Atlantic Trail.

13 Greenway along 15 Street, between Washington Avenue and West Avenue.

14 Greenway along 6 Street, between Atlantic Trail and West Avenue.

17 Protected bike lanes along Collins Avenue from South Point to mid- beach.

18 Shared space on Ocean Drive, between 5 and 15 Streets.

26 Bay walk along sea wall from 5 to16 Streets.

30 Greenway along Drexel between 17 and 12 Streets.

31 Bike Lanes along Lincoln Lane North.

A short segment of Euclid Avenue now includes bicycle lanes, curb extensions/rain gardens, and enhanced crosswalks.

DecoBike is one of the most successful bicycle sharing programs in the country. The City Hall DecoBike station is shown above.

Miami Beach Community Bike Ride participants set off down Washington Avenue.

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

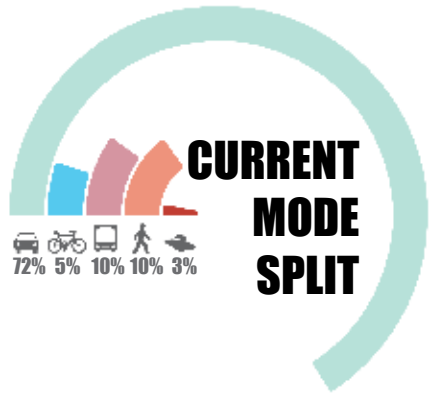
The plan in these pages seeks as its main goal to increase the number of people who safely bike and walk around Miami Beach.

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).

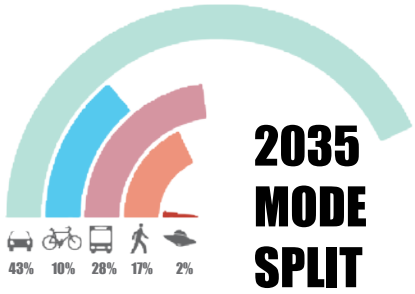
The projects and implementation strategy shared within reflect the desire of the Mayor, City Commission, and City Manager and Staff to increase the proportion of city residents who walk and bike as their main form of transportation from 15% today **up to 27% in 2035.**

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.



15% Bike/Ped
5% Bike
10% Ped



27% Bike/Ped
10% Bike
17% Ped

SETTING GOALS

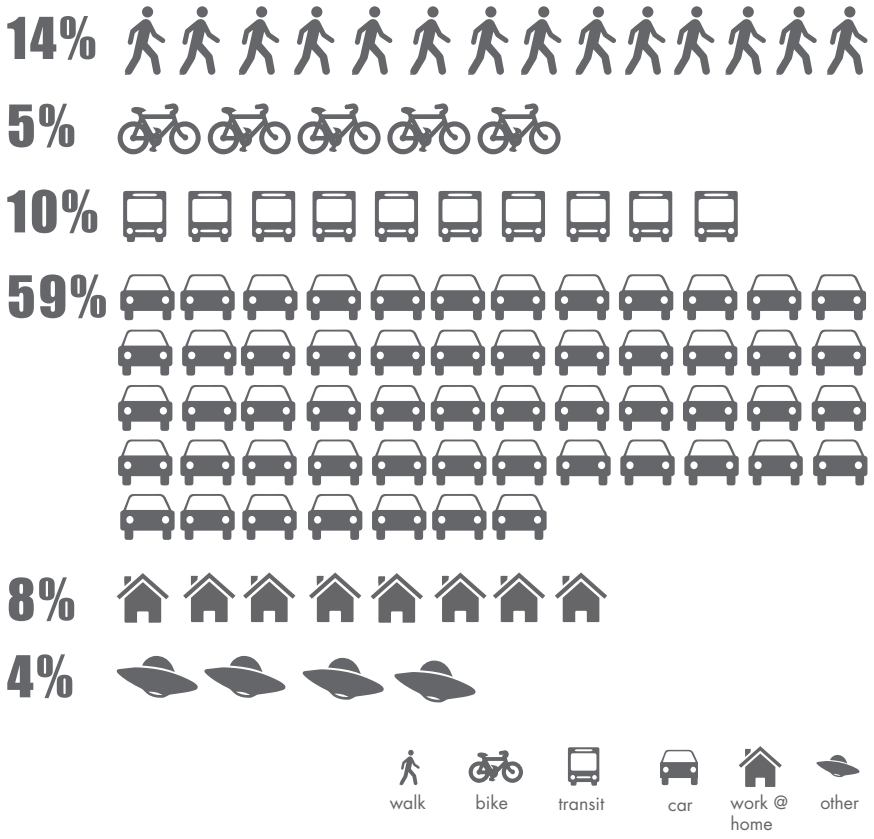
CALCULATING BASELINE

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:	90,588*
Total Area:	18.7 Sq Mi.
Est. Annual Tourists: ◊	12.6 Million
Est Daily Tourists:◊	34,500
Est. Daily Commuters:	
Total Daily Population:	205,915
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)

* 2014 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.

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.

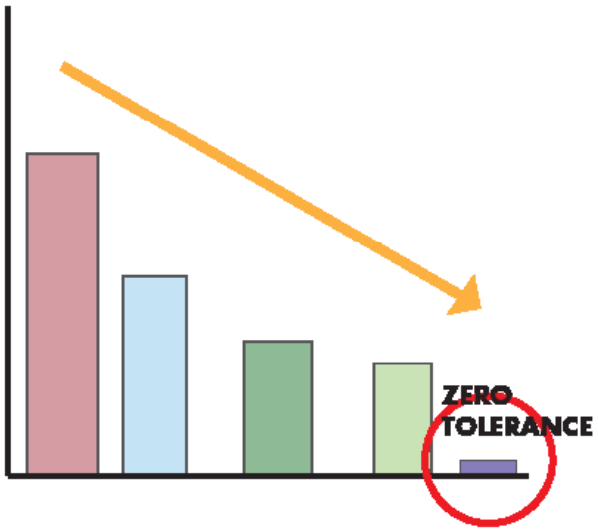
The first is the **percentage of the total street network that has some designated bicycle facility**, either protected or unprotected. Research shows that cities can achieve a basic level of bicycle modeshare of X% if the ratio of bicycle facility lane miles to total lane miles exceeds .2. That means 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

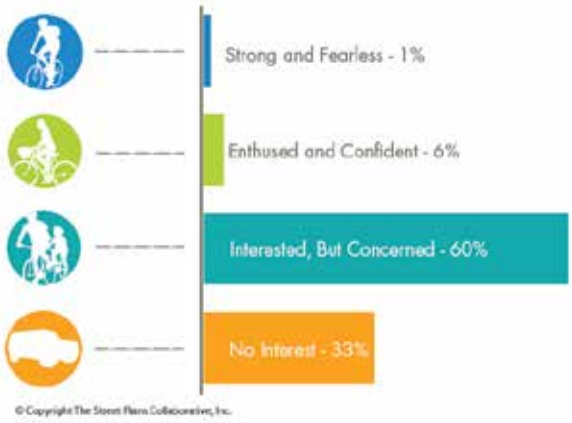
- Experienced riders who bike regularly;
- More likely to use bicycles to complete longer trips;
- Commuters, racers, messengers, recreational cyclist;
- Prefer route that provides direct access to destination;
- Comfortable sharing roadway with vehicular traffic;
- More aware of traffic rules as they 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.

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

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.

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.

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

(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 and systems that track and report progress in implementing projects. Consider also using an interactive online map as part of this effort.

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.

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.

Goal 5: Education - Design marketing, education, 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.

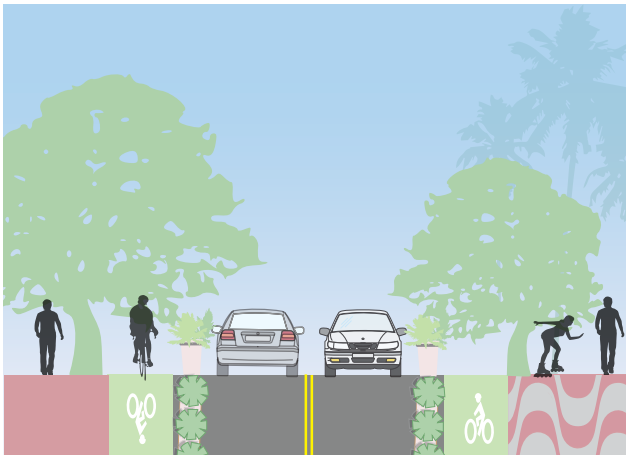
While the city should take lead on local bicycle safety issues, most education, encouragement and enforcement campaigns require regional cooperation. The City should partner with the county and MPO whenever possible.

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



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

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

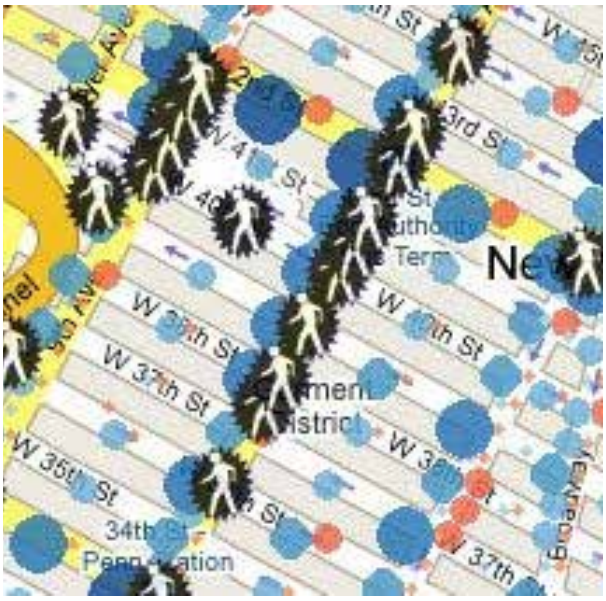
Action 5.2: Educate Residents about New Facility Types
Use all of the methods listen in action #1 to educate Miami Beach motorists and bicyclists about new bikeway network facility and countermeasure types as they are implemented. These include, but are not limited to share use lane markings, protected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

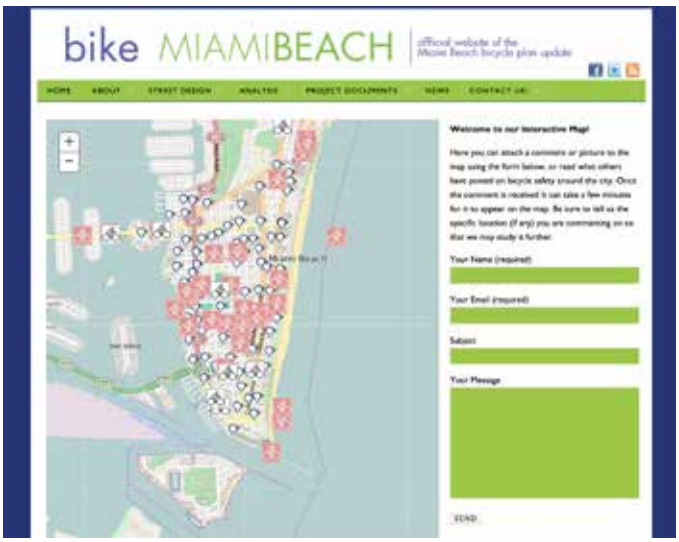
Action 6.4: Increase Number of Officers on Bicycles and Foot

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

Commission 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

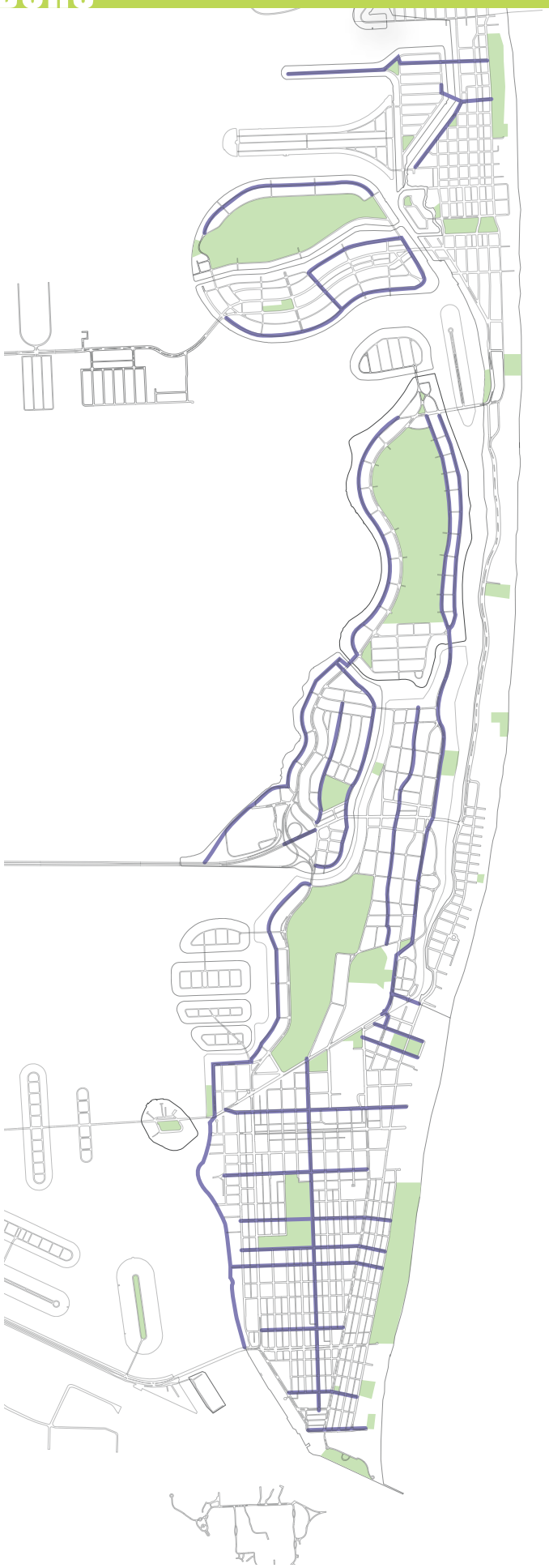
A citizen-led campaign for a Complete Streets law enacted not by a body of elected officials but by direct ballot by the general voting public. Ballot measures create strong community support however, important stakeholders like transportation departments and elected officials may be left out of the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

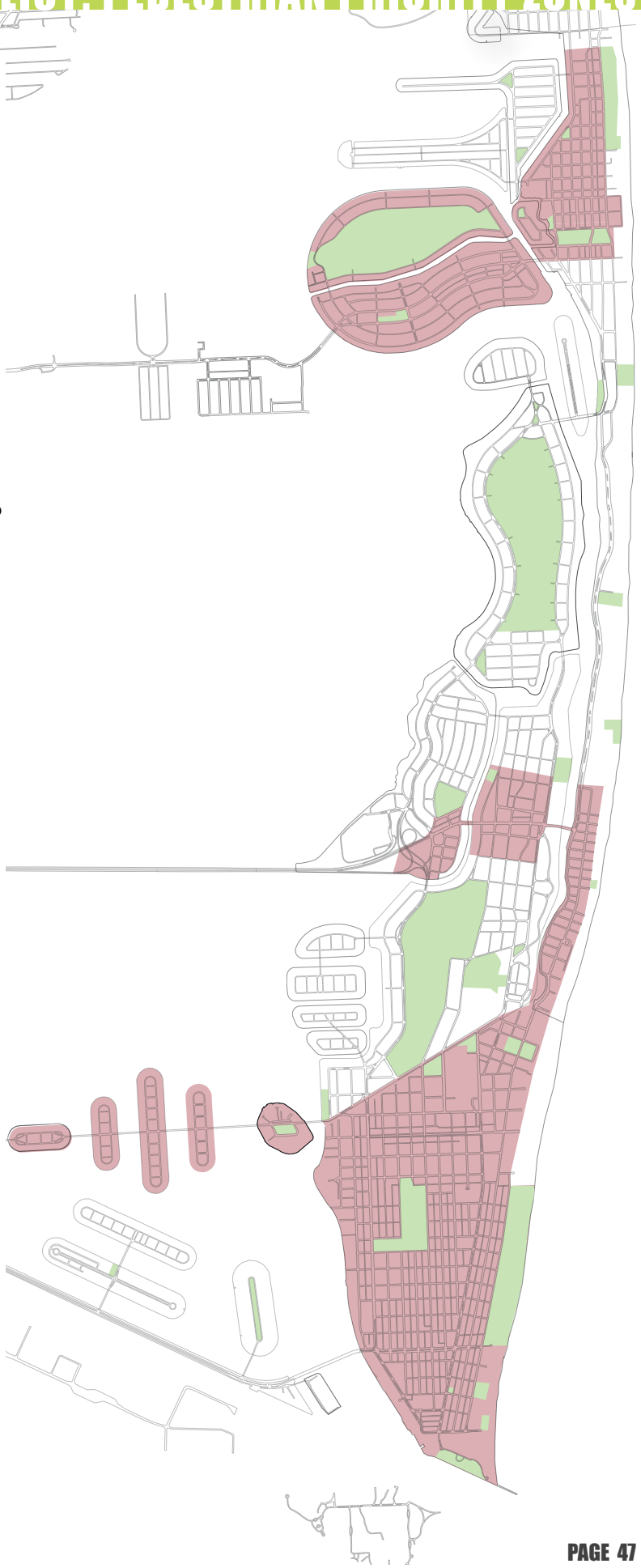


PEDESTRIAN PRIORITY ZONES (PPZ)

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 everywhere 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.

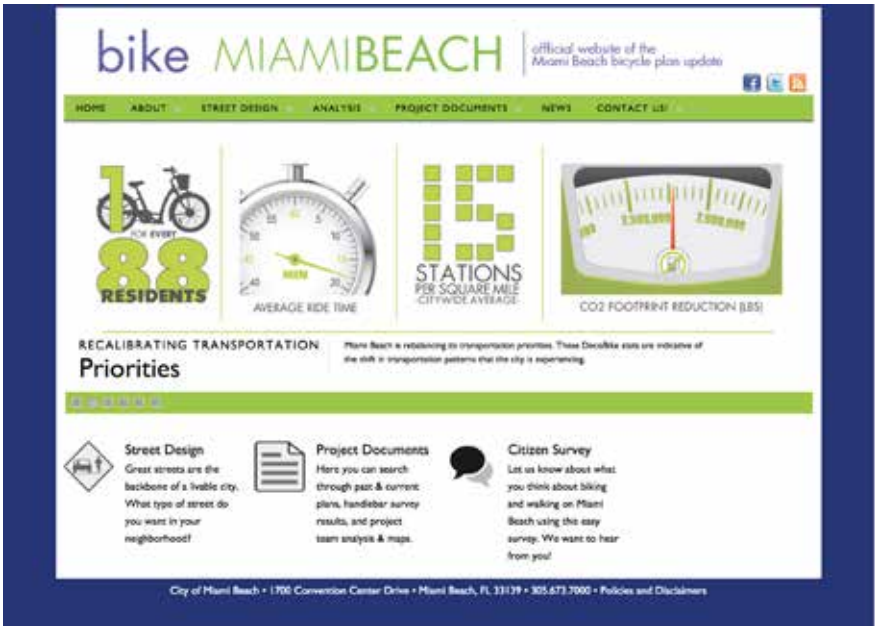
One major result of the project has been the creation of the Bike Miami Beach Website, a portal for all things bicycle on Miami Beach. We've used the website as a planning and input tool, but we also intend to leave it to city staff to continue the dialogue about bicycles on Miami Beach.

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.

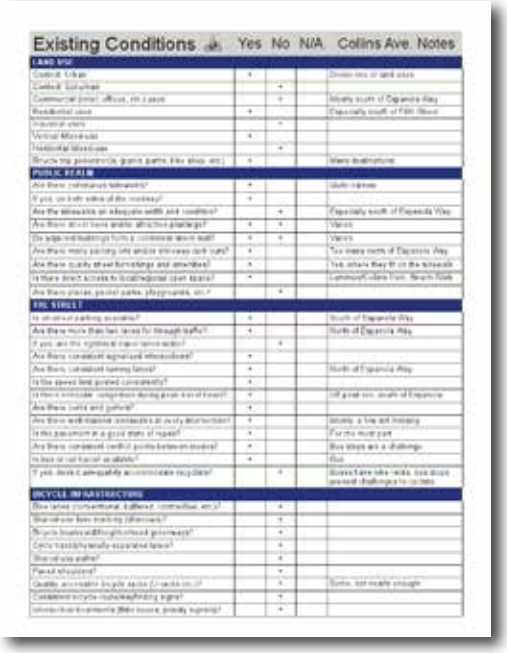
HANDLEBAR SURVEY

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.



Existing Conditions	Yes	No	N/A	Collins Ave. Notes
LAND USE				
Central Urban	+			Down into or and east
Central Suburban		+		
Commercial (retail, offices, etc.) space		+		Mostly south of Dijanerio Way
Residential uses	+			Especially south of Fifth Street
Industrial uses		+		
Vertical Mixed-use	+			
Horizontal Mixed-use		+		
Bicycle trip generators (public parks, bike shops, etc.)	+			Many destinations
PUBLIC REALM				
Are there continuous sidewalks?	+			Quite narrow
If yes, on both sides of the roadway?	+			
Are the sidewalks of adequate width and condition?		+		Especially south of Dijanerio Way
Are there direct have pedestrian amenities?	+	+		Varies
Do adjacent buildings form a continuous street wall?	+	+		Varies
Are there many parking lots and/or driveway curb cuts?	+			Too many north of Dijanerio Way
Are there quality street furnishings and amenities?	+			Yes, where they're on the sidewalk
Is there direct access to local/regional open space?	+			Lummus Park/Lots from North Walk
Are there plazas, pocket parks, playgrounds, etc.?		+		
THE STREET				
Is on-street parking available?	+			South of Dijanerio Way
Are there more than two lanes for through traffic?	+			North of Dijanerio Way
If yes, are the optimal lane dimensions?		+		
Are there consistent signalized intersections?	+			
Are there consistent turning lanes?	+			North of Dijanerio Way
Is the speed limit posted consistently?	+			
Is there adequate congestion during peak travel times?	+			Off peak too, south of Dijanerio
Are there curbs and gutters?	+			
Are there well-marked crosswalks at every intersection?	+			Mostly, a few are missing
Is the pavement in a good state of repair?	+			For the most part
Are there consistent conflict points between modes?	+			Bus stops are a challenge
Is bike or car travel acceptable?	+			Fine
If yes, does it adequately accommodate bicycles?		+		Sometimes bike racks, but still several challenges to cyclists
BICYCLE INFRASTRUCTURE				
Bike lanes (conventional, buffered, contraflow, etc.)?		+		
Shared-use lane marking (sharrows)?		+		
Bicycle boulevard/bicycle friendly roadway?		+		
Cycle track/physically separated lanes?		+		
Shared use paths?		+		
Paved shoulders?		+		
Quality and visibility bicycle signs (J-marks, etc.)?		+		Some, not nearly enough
Consistent bicycle route/wayfinding signs?		+		
Intersection treatments (bike boxes, priority signals)?		+		

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)

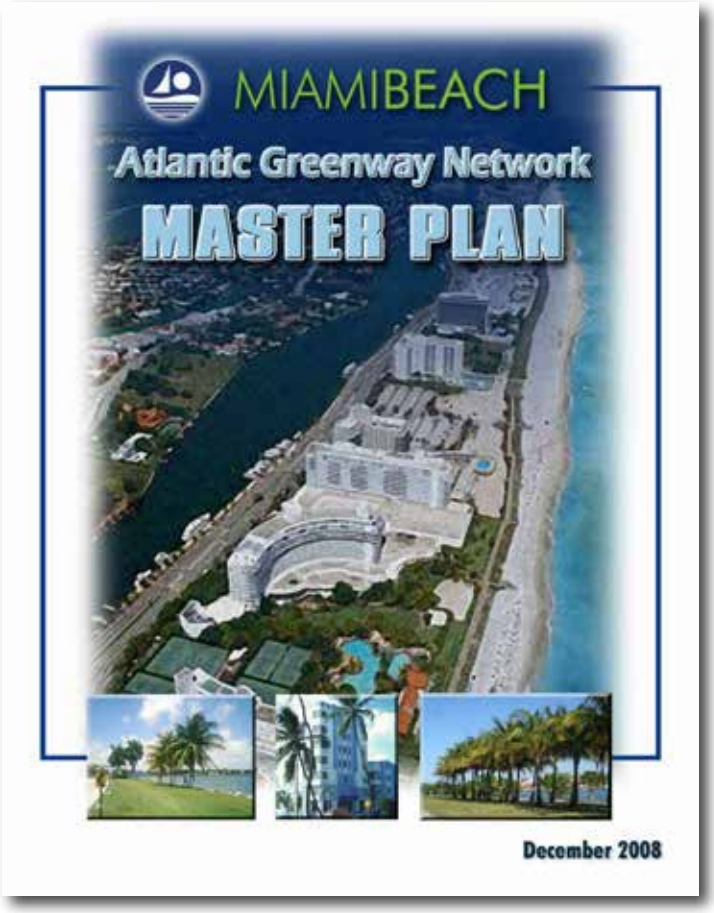
Summary: Adopted in December of 2008, the Atlantic Greenway Master Plan (AGN) is the guiding planning documenting for the development of bicycle facilities in Miami Beach.

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.

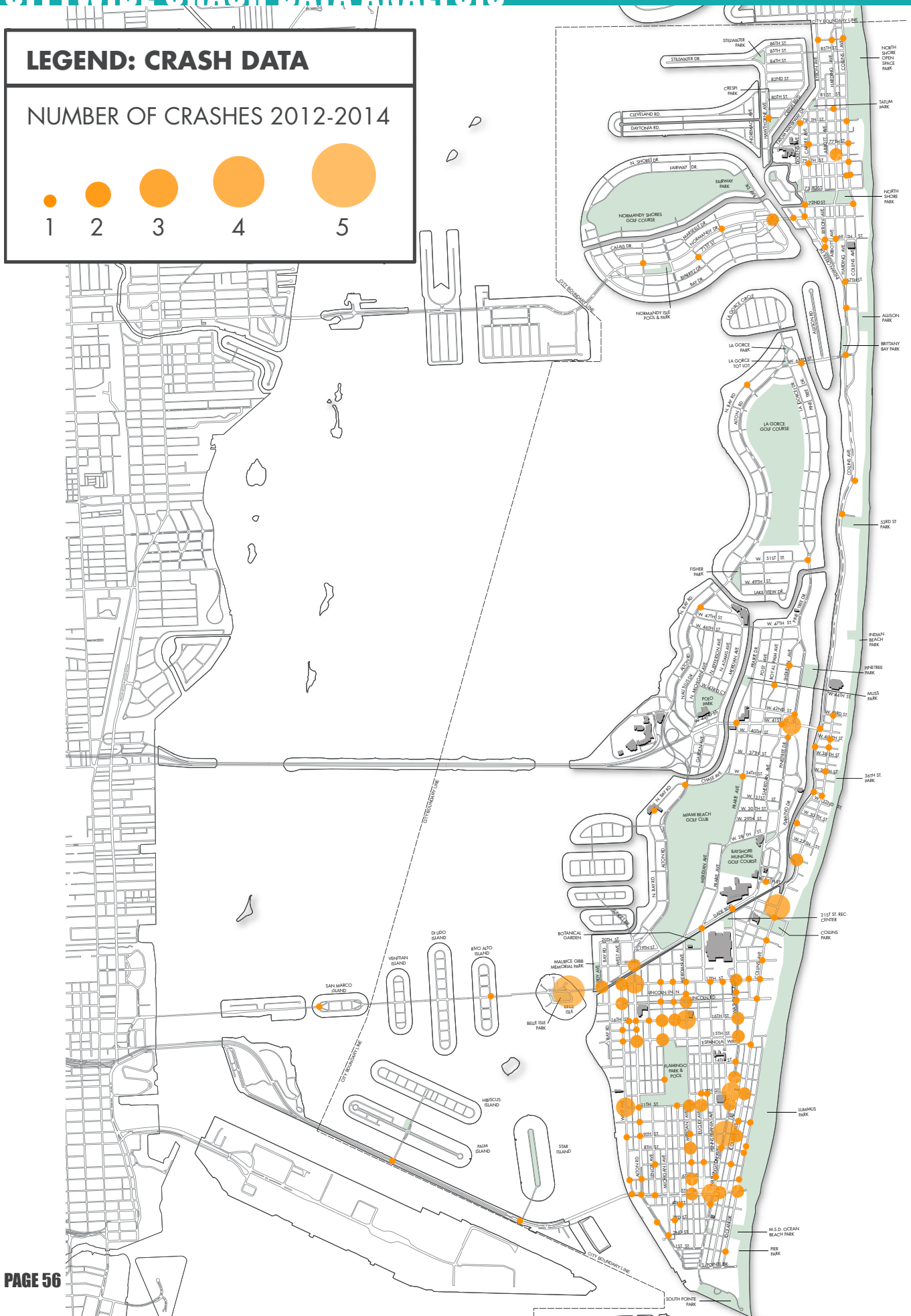
Paying special attention to areas of high transit use is a priority of this plan. Miami-Dade Transit bus ridership information (based on boardings) for locations within the City of Miami Beach was synthesized into this transit intensity graph.

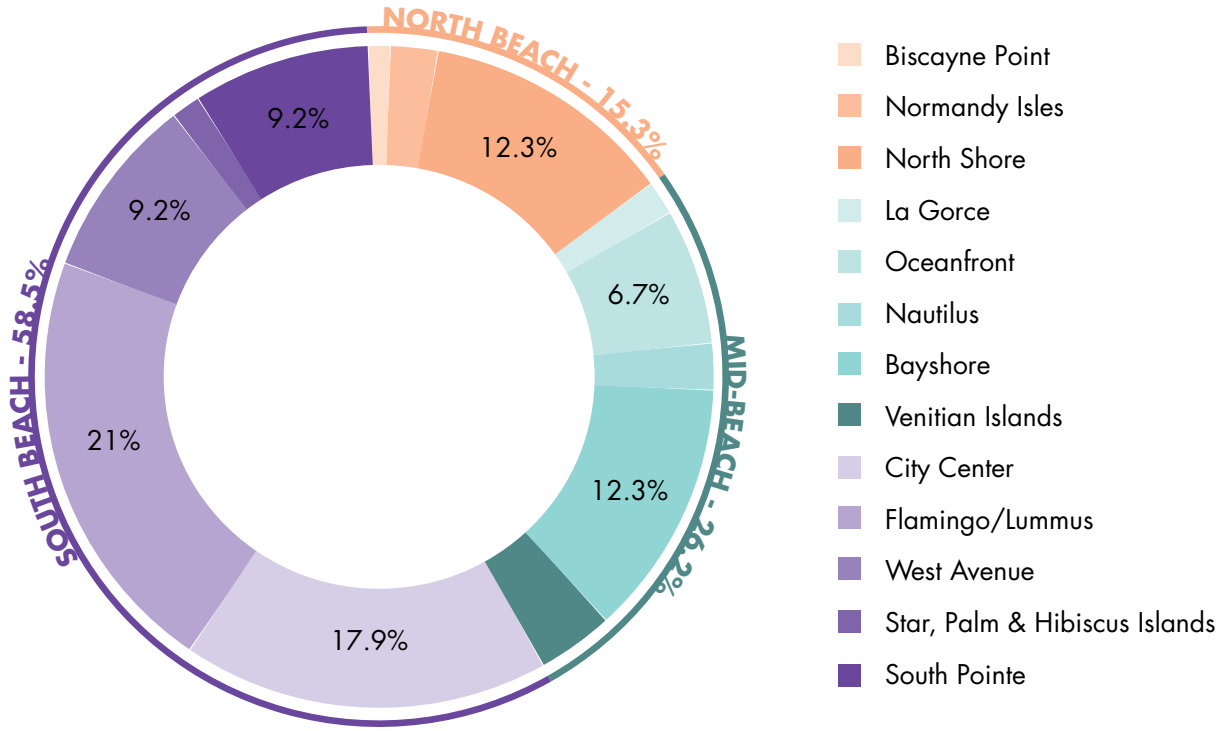
Average Weekday Transit Ridership	44,212 total rides
Metrobus‡	24,212
Trolley	20,000

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

LEGEND: RIDERSHIP INTENSITY

- 3,000 - 4,000
- 2,000 - 3,000
- 1,000 - 2,000
- 500 -1,000
- 100 - 500


LEGEND: CRASH DATA
NUMBER OF CRASHES 2012-2014
1
2
3
4
5
CITY BOUNDARY LINE
STILLWATER PARK
STILLWATER DR.
CRESPI PARK
CLEVELAND RD.
DAYTONA RD.
N. SHORE DR.
FAIRWAY DR.
FAIRWAY PARK
NORMANDY SHORES GOLF COURSE
MARSEILLE DR.
NORMANDY DR.
CALAIS DR.
BIARRITZ DR.
BAY DR.
NORMANDY ISLE POOL & PARK
NORTH SHORE OPEN SPACE PARK
TATUM PARK
NORTH SHORE PARK
ALLISON PARK
BRITTANY BAY PARK
LA GORCE PARK
LA GORCE TOT LOT
LA GORCE GOLF COURSE
53RD ST PARK
FISHER PARK
INDIAN BEACH PARK
PINETREE PARK
MUSS PARK
POLO PARK
36TH ST. PARK
MIAMI BEACH GOLF CLUB
BAYSHORE MUNICIPAL GOLF COURSE
21ST ST. REC. CENTER
COLLINS PARK
BOTANICAL GARDEN
MAURICE GIBB MEMORIAL PARK
BELLE ISLE
BELLE ISLE PARK
SAN MARCO ISLAND
VENITIAN ISLAND
DI LIDO ISLAND
RIVO ALTO ISLAND
HIBISCUS ISLAND
PALM ISLAND
STAR ISLAND
FLAMINGO PARK & POOL
LINCOLN LN. N.
LINCOLN RD.
ESPANOLA WAY
LUMMUS PARK
M.S.D. OCEAN BEACH PARK
PIER PARK
SOUTH POINTE PARK
S. POINTE DR.



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.

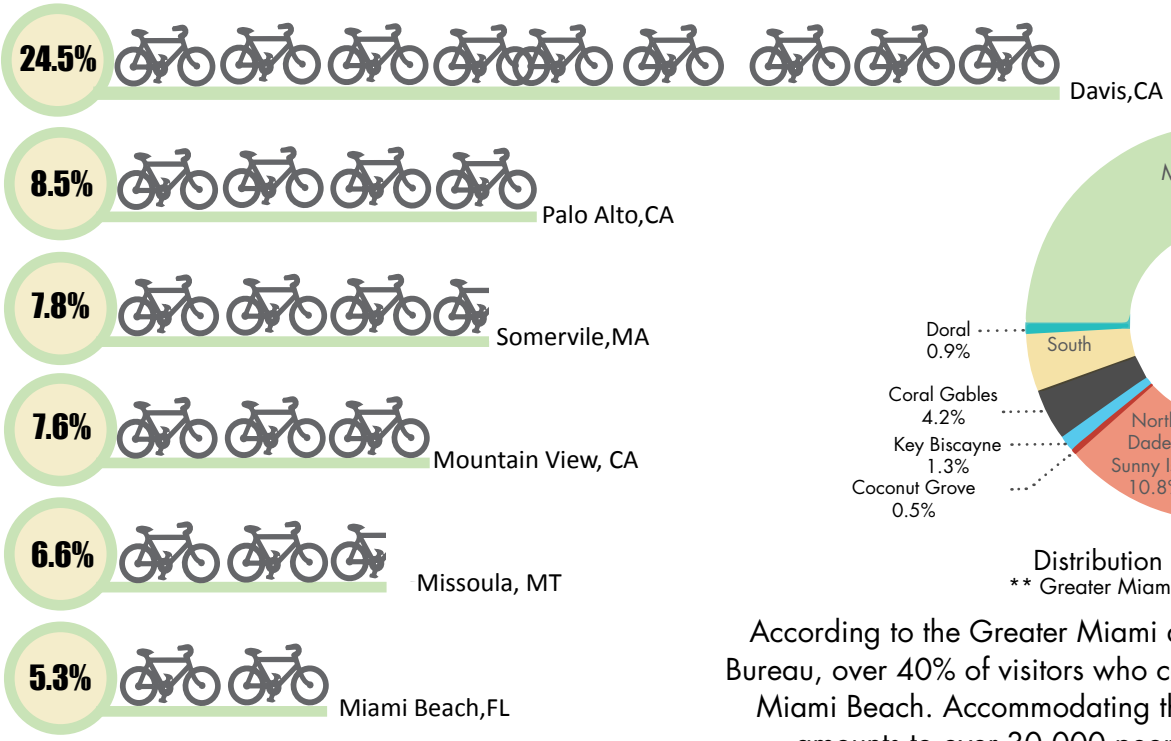
The first, and most obvious pattern is that most of the crashes happen on state roads, or at intersections with state roads. This is not surprising, since these are also the roads which carry the highest volume of automotive traffic, and thus require a higher standard of bicycle facility than what is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

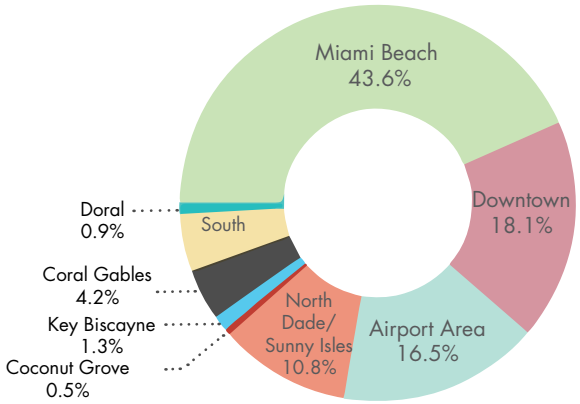
EXISTING BICYCLE CONTEXT



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.

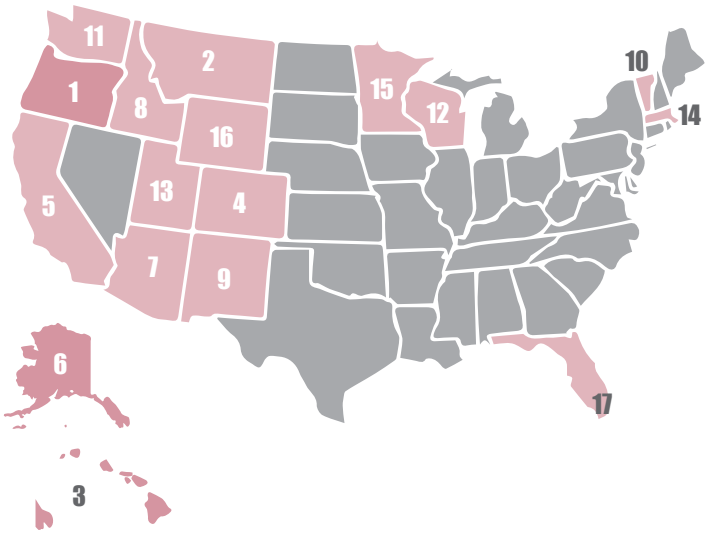
Florida ranks #17 in a 2013 analysis of bicycle commuting in American cities, but it also ranks worst in the county with regard to bicycle and pedestrian safety. A quick look at the crash data maps show that the majority of reported crashes happen on high speed and high capacity roads.

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

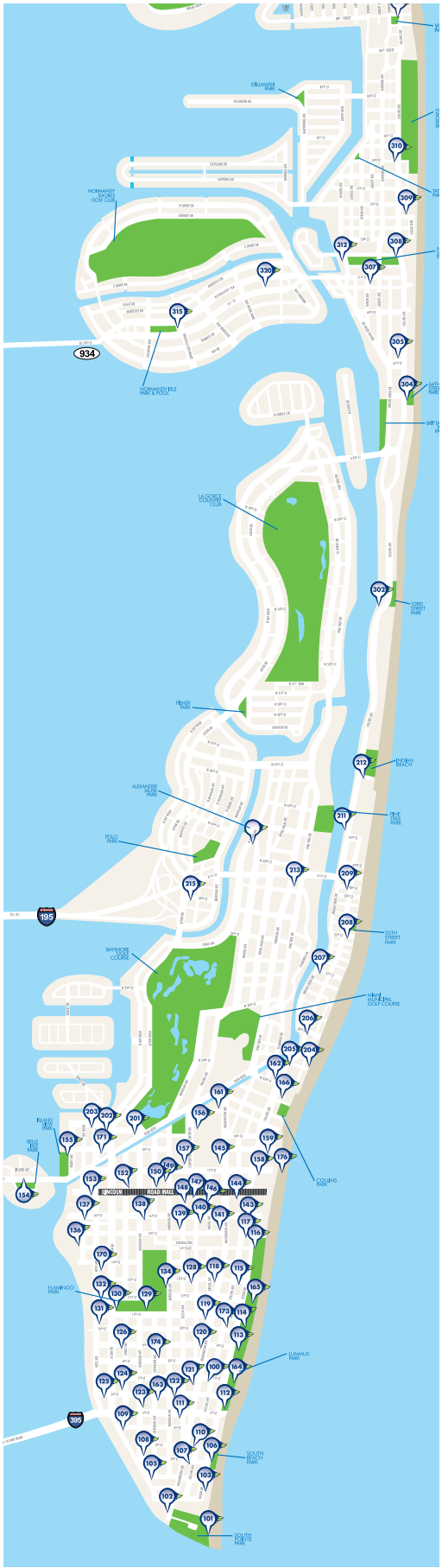
The CitiBike bicycle share program has been embraced by City of Miami Beach residents in an unprecedented manner since it launched in 2011. According to the CitiBike Blog, CitiBike ridership between March 2011 and June 2012 accomplished the following:

· 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

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.

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 transit 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 estimate:

- 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

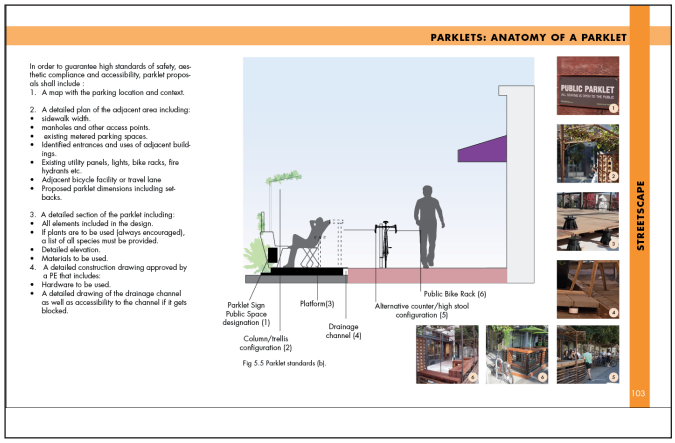
- 0 points for a project that is inconsistent with the standards set in the street design guide, and up to 2 points for projects that greatly enhance the attractiveness of the streetscape.

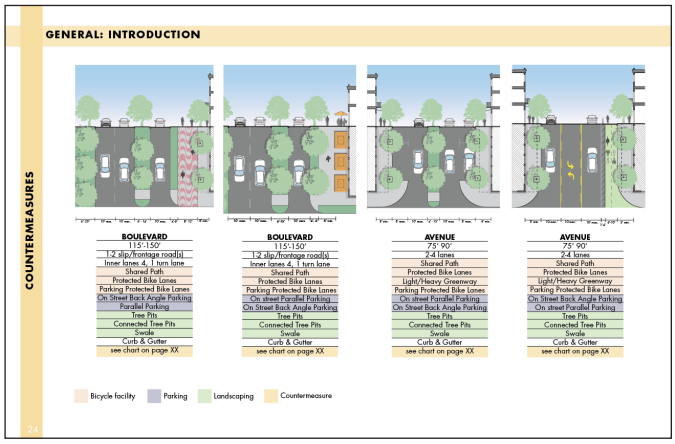
The Miami Beach Bicycle Master Plan is paired with The Miami Beach Street Design Guide. The Street Design Guide serves as the technical guide for the implementation of bicycle and pedestrian facilities along with general streetscape recommendations based on complete street guidelines.

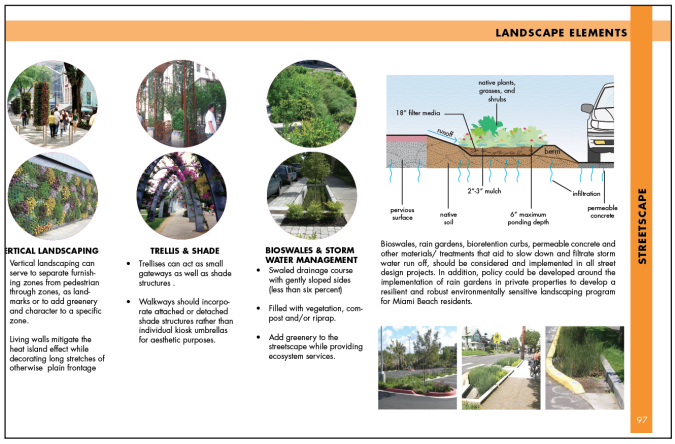
The Miami Beach Street Design Manual has been drafted to address the needs of the growing population and a desire to improve pedestrian and bicycle facilities to create more walkable communities. The guide has been developed to address the following needs:

- 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.

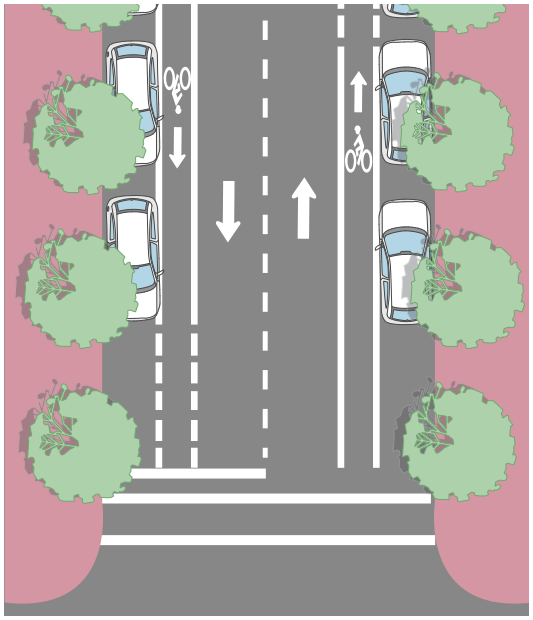
Bicycle Box: a section of pavement aimed at preventing bicycle/car collisions at intersections, particularly between drivers turning right and cyclists traveling through an intersection within an existing Bicycle Lane. To improve its visibility, a Bicycle Box is often colored and includes a standard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

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

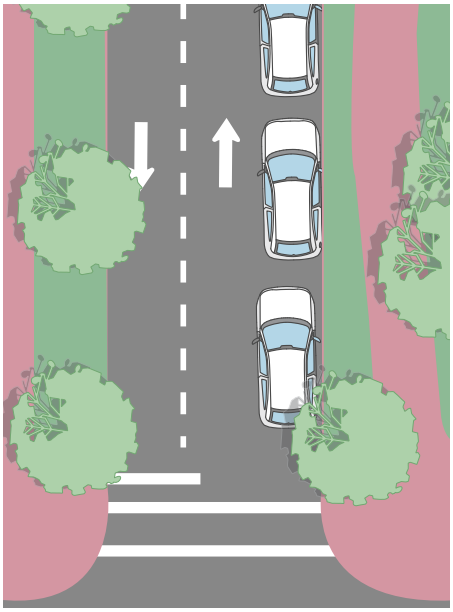
Bicycle Route: A route marked with signage to be amenable to bicycling. A Bicycle Route may just be a set of coordinated signage, but it may also include other types of Bicycle facilities over its trajectory.

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.

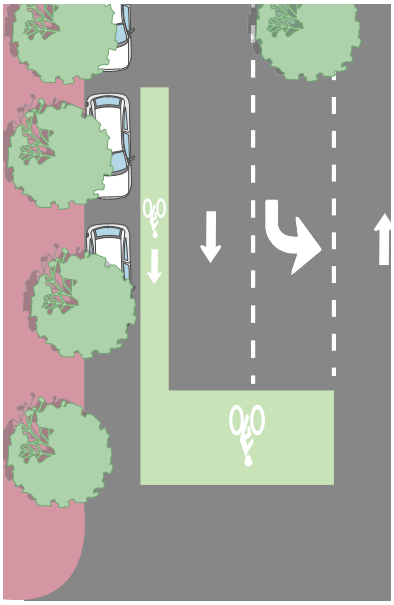
Contra-Flow Bicycle Lane: A designated Bicycle Lane marked to allow bicyclists to travel against the flow of traffic.



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.

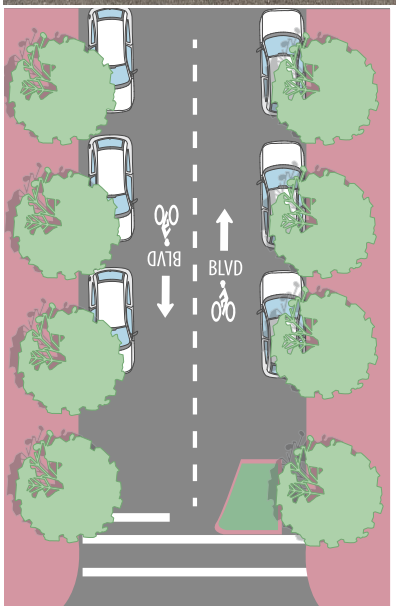
Neighborhood Greenway: A low-speed and low-volume thoroughfare with shared vehicular lanes that give movement priority to bicyclists, designed for commuting and recreational bicyclist as well as pedestrian use.
Neighborhood Greenway Lite : Low to medium intervention, possible light construction. IE: 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)

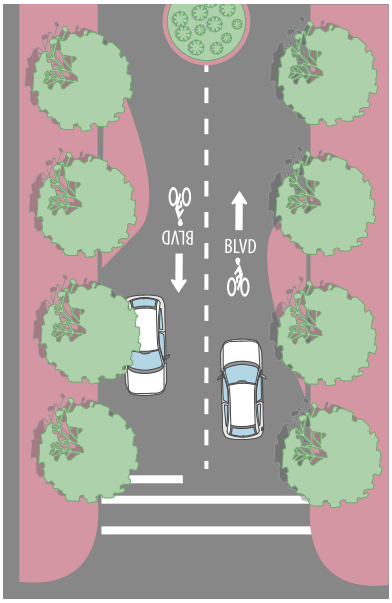
Road Diet: A road treatment that removes either on-street parking, or travel lanes, reduces travel lane width, adds bike lanes, or widen sidewalk. Also known as traffic calming.

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)

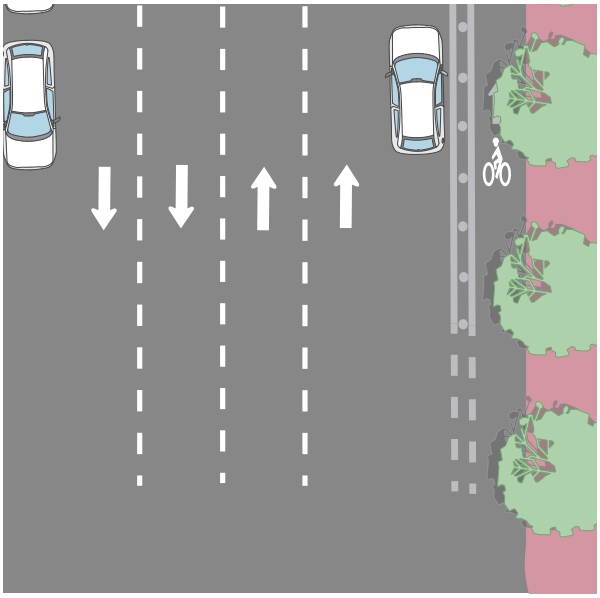
Shared-Use Path: A two-way physically separated facility from motor vehicular traffic with an open space or barrier (AASHTO, 2012). Shared-use paths should always be designed to include pedestrians even if the primary anticipated users are bicyclists.



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

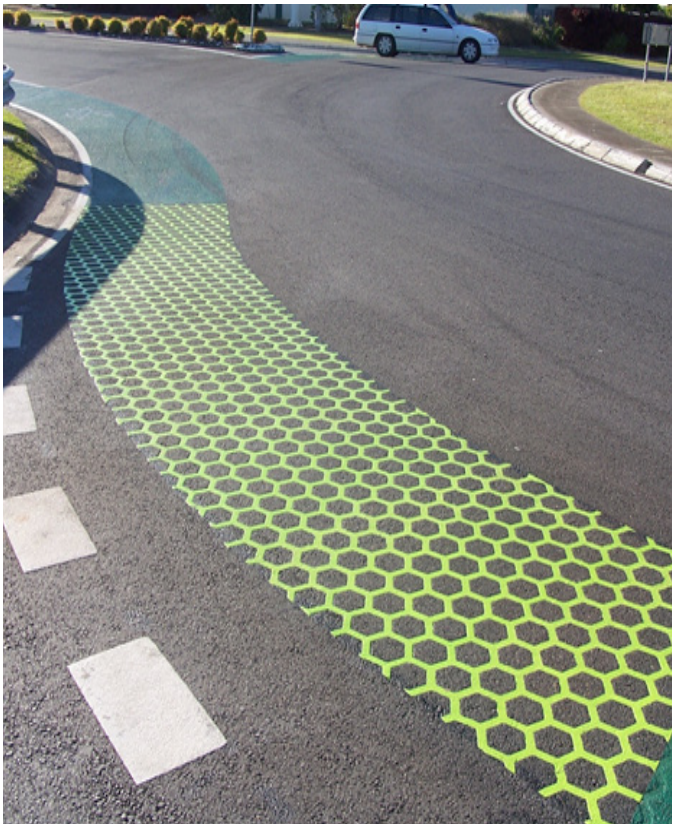
As an initial first step in implementing this plan, the City of Miami Beach will be embarking on a Green Bike Lane Project, which as mentioned above, will make multimodal transportation more appealing and safe for all users. A chart on this project can be found in the implementation section.

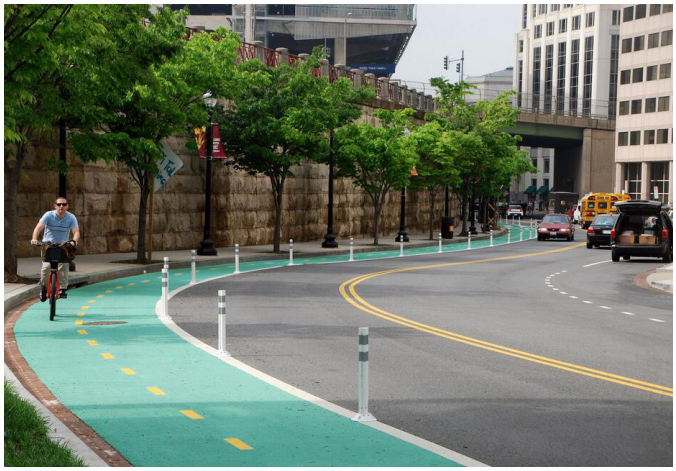
Green-painted bike lanes make cycling safer, by reminding car drivers to watch out for cyclists when driving across bike lanes. Green bike lanes send the clearest-possible message that roads are not only for cars.

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.





LEGEND:
BIKEWAY NETWORK
EXISTING
Bike Lane
Bike Lane Pair
1 Inch = 1, 200 Ft.
0 In.
1 In.
2 In.
0 Ft.
1,200 Ft.
2,400 Ft.
N
NORTH SHORE OPEN SPACE PARK
TATUM PARK
NORTH SHORE PARK
NORTH SHORE PARKING LOT
ALLISON PARK
BRITTANY BAY PARK
53RD ST
INDIAN BEACH PARK
PINEVREE PARK
MUSS PARK
36TH ST. PARK
COLLINS PARK
21ST ST. REC. CENTER
ILLMANUS PARK
M.S.D. OCEAN BEACH PARK
PIER PARK
SOUTH POINTE PARK
STILLWATER PARK
CRESTPARK
NORMANDY SHORES GOLF COURSE
NORMANDY ISLE POOL & PARK
LA GORCE PARK
LA GORCE TOT LOT
LA GORCE GOLF COURSE
FISHER PARK
POLO PARK
MIAMI BEACH GOLF CLUB
BAYSHORE MUNICIPAL GOLF COURSE
BOTANICAL GARDEN
MAURICE GIBB MEMORIAL PARK
BELLE ISLE PARK
FLAMINGO PARK & POOL
DI LIDO ISLAND
RIVO ALTO ISLAND
VENETIAN ISLAND
SAN MARCO ISLAND
HIBISCUS ISLAND
PALM ISLAND
STAR ISLAND
CITY BOUNDARY LINE

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. Implementation of all Category 1 projects will result in an anticipated mode shift incease of at least 2% over a five year horizon.

2% 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 2: IMPROVEMENTS TO EXISTING FACILITIES

The 5 -10 year plan envisions 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. 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.

Notable in the Category 2 projects are improvements to Normandy Drive, Dade Boulevard, 5 Street, Euclid, and Washington, all of which currently have bicycle facilities that are used and should be upgraded to facilitate greater use, comfort and, most importantly, safety.Implementation of all Category 2 projects will result in an anticipated mode shift incease of between 5 - 10%.

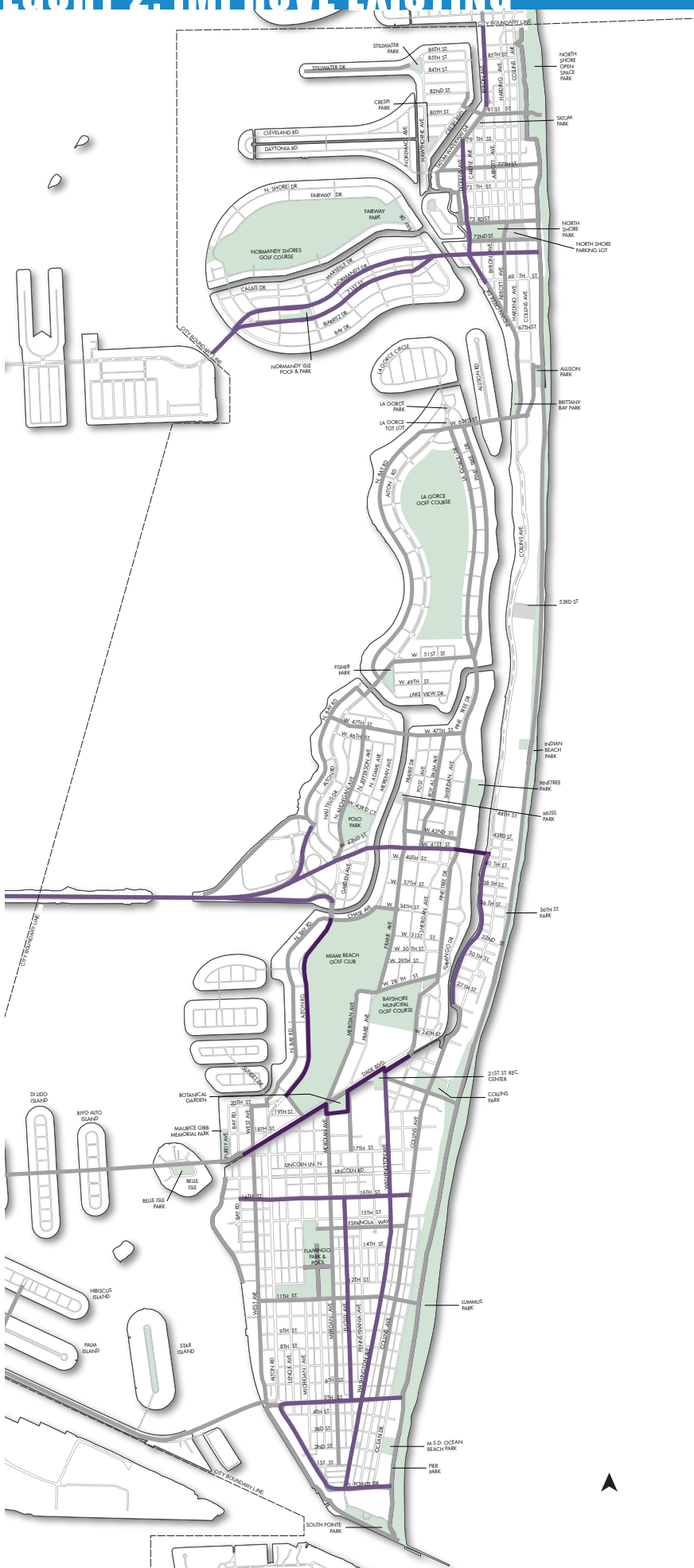
23 PROTECTED BICYCLE LANE MILES

5% 10 -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



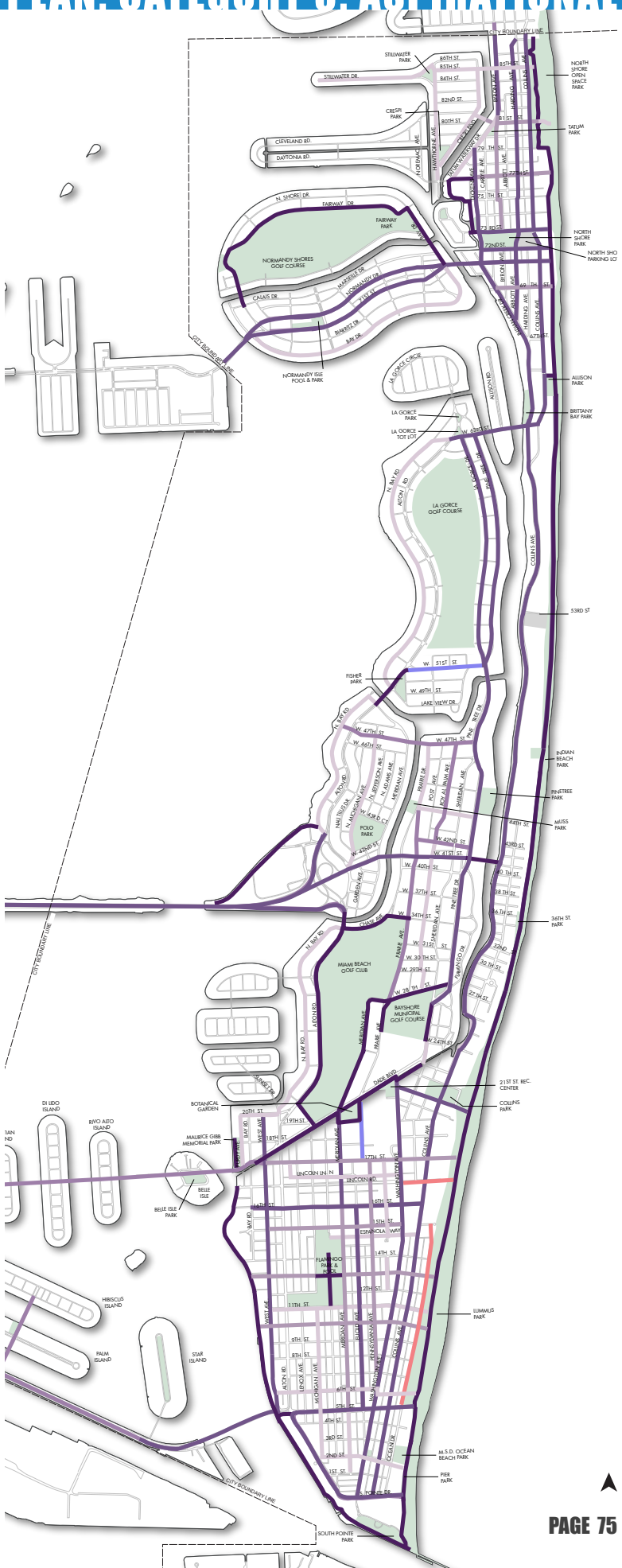
CATEGORY 3: ASPIRATIONAL LONG TERM MASTER PLAN

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 a 10-15% bicycle mode share by 2035.

40+ PROTECTED BICYCLE LANE MILES

10% 20 -YEAR BICYCLE MODESHIFT



LEGEND: BIKEWAY NETWORK

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

OFFICE

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.

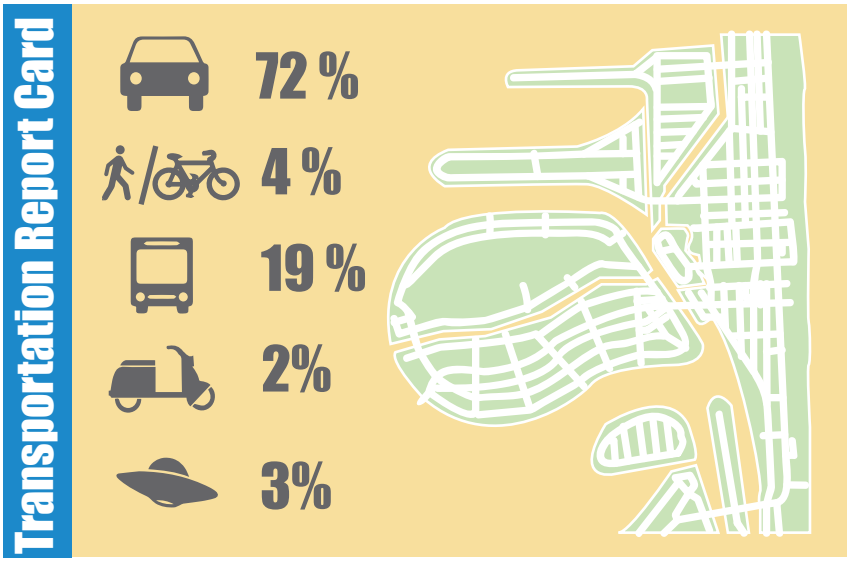
Crash data for the area shows that the main points of conflict are Collins, Indian Creek Drive, 71 Street and 63 Street Bridge. These are locations where protected bicycle facilities should be prioritized. Overall, North Beach accounted for 15.3% of the total crashes citywide over the past three years.

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.

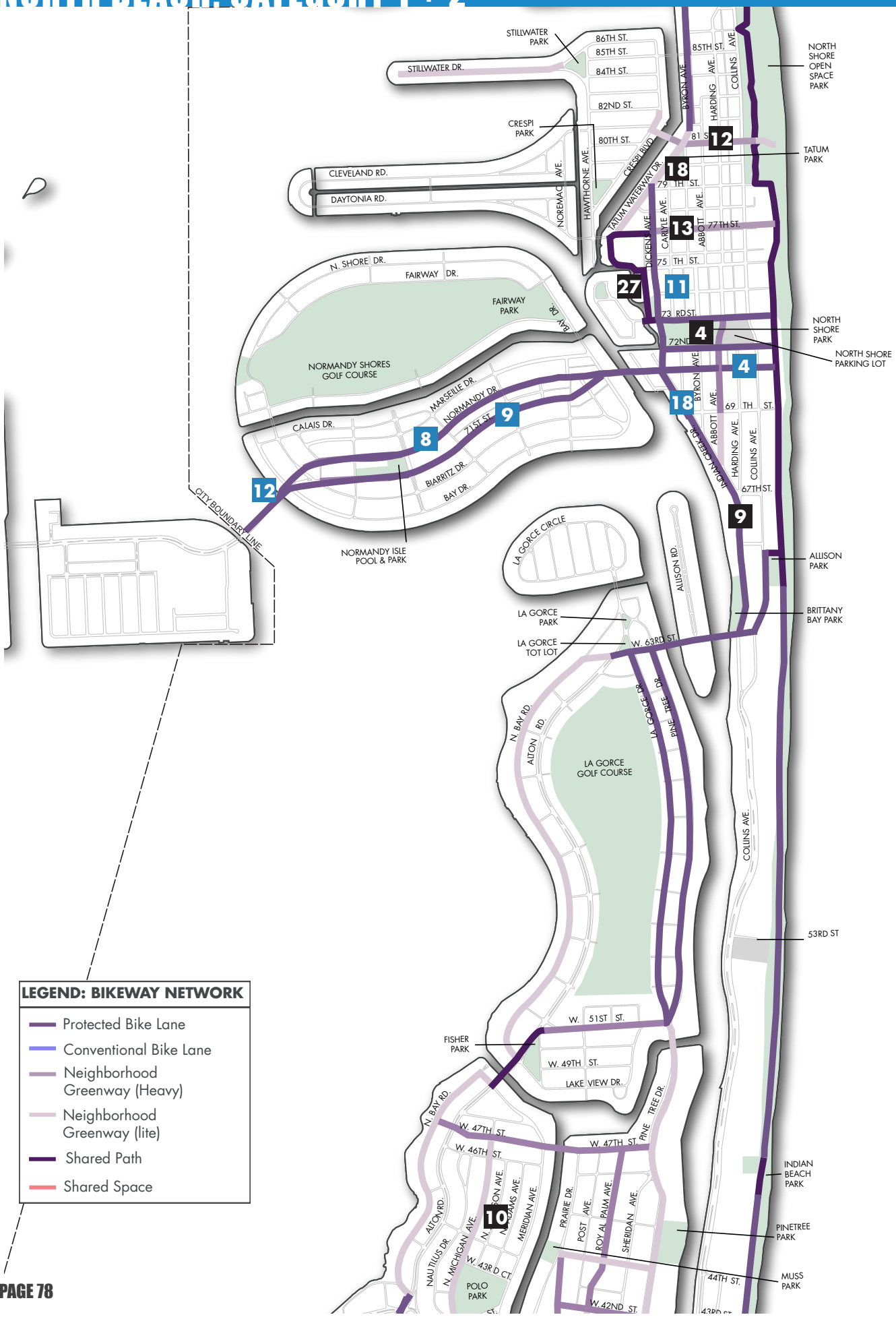


The re-paving of 71st Street included the addition of bicycle lanes. Image: Miami Bike Scene

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 72/ 73 Streets, between Atlantic Trail and Dickens Avenue.

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

12 Medium to light greenway along 81 Street from Atlantic Trail to Crespi Boulevard.

13 Greenway along 77 Street between the Atlantic Trail and Dickens Avenue.

18 Create a greenway along Tatum Waterway Drive.

27 Implement a shared path along the Parkview Island Park, around Biscayne Elementary to Dickens Drive.

Category 2: Improvement to existing facilities

4 Upgrade from sharrows and bike lanes on 71 Street to protected bike lanes from the Atlantic Trail to Normandy Fountain.

8 Upgrade from bike lane to protected bike lane on Normandy Drive from Biarritz to Bay Drive.

9 Upgrade from bike lane to protected bike lane on 71 Street from Biarritz to Bay Drive

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

12 Upgrade to protected bike lanes on 71 Street from Biarritz to City limits.

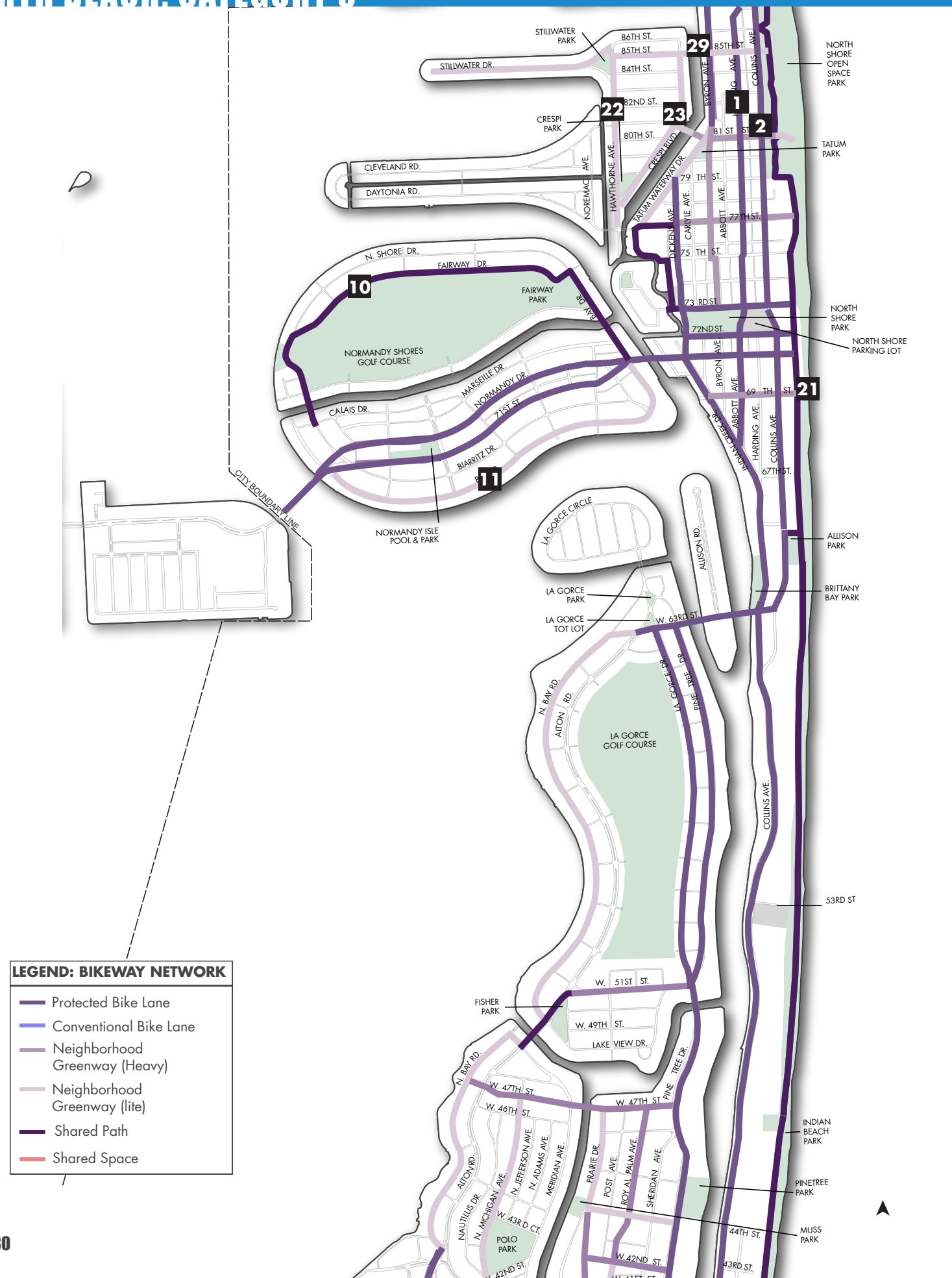
18 Upgrade from bike lane to protected bike lane on Indian Creek, between Abbott Avenue and Dickens Avenue

Existing bike lanes on 71st street are a combination of unprotected bicycle lanes ans sharrows.

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

Bicycle parking at Crespi Park.

NORTH BEACH: CATEGORY 3



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 Avenue from 73 Street to City limits, and from 73 to Indian Creek Drive.

2 Implement a protected bike lane on Collins Avenue from 73 Street to 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 81 to 73 Streets.

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

21 Protected bike lanes along 69 Street, from Indian Creek to the Atlantic Trail.

22 Greenway on Hawthorne Avenue from 77 Street to Stillwater Drive.

23 Greenway on along Crespi Boulevard, between Hawthorne Avenue and 85 Street.

29 Greenway along 85 Street, from Atlantic Trail to Stillwater Drive.

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

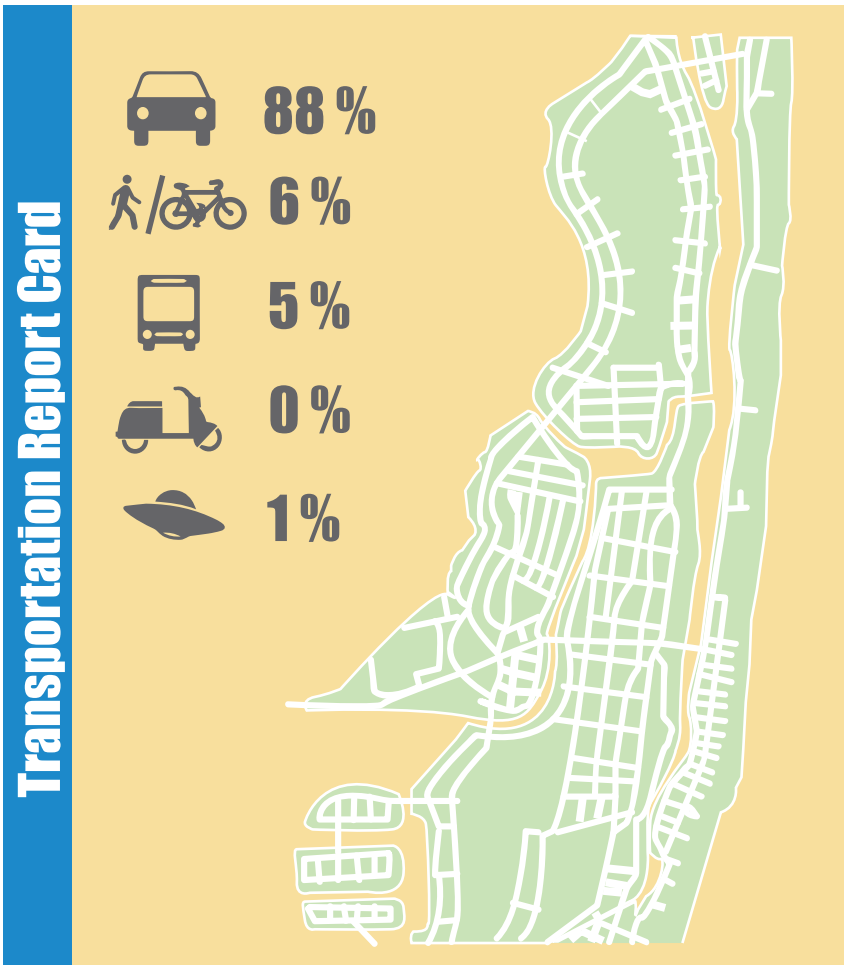
A father and daughter enjoy the Miami Beach Community Ride. As a police escorted ride, dangerous thoroughfares like Collins Avenue temporarily feel safe for cyclists of all abilities.

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

Middle Beach encompasses the neighborhoods between Dade Boulevard in the South to 63 Street in the North, and includes the communities of Allison Island, Bayshore, Nautilus, La Gorce, and Oceanfront. The mid beach community boasts some of the best real estate in the country, with their narrow, tree lined streets and adjacency to the beach.

As the Transportation Report Card Shows, most of the trips in this area are made by car. This is one of the most suburban parts of Miami Beach, and is heavily designed around the car. 41 Street is the only pedestrian corridor in the area, and the beachwalk is the only protected bicycle facility.

Within the network, La Gorce Neighborhood forms a critical connection between Nautilus to the South, and North Beach. There are only 6 north/south corridors in Mid-beach. Four of these converge at 63 street in La Gorce. Alton Road is a critical north-south auto-connection, with volumes and speeds that require protected facilities, but a protected facility along this corridor will be difficult to accomplish in the short term. This plan proposes two alternate low-stress routes that incorporate North Bay Road and the 2- mile Pine Tree/La Gorce pair.

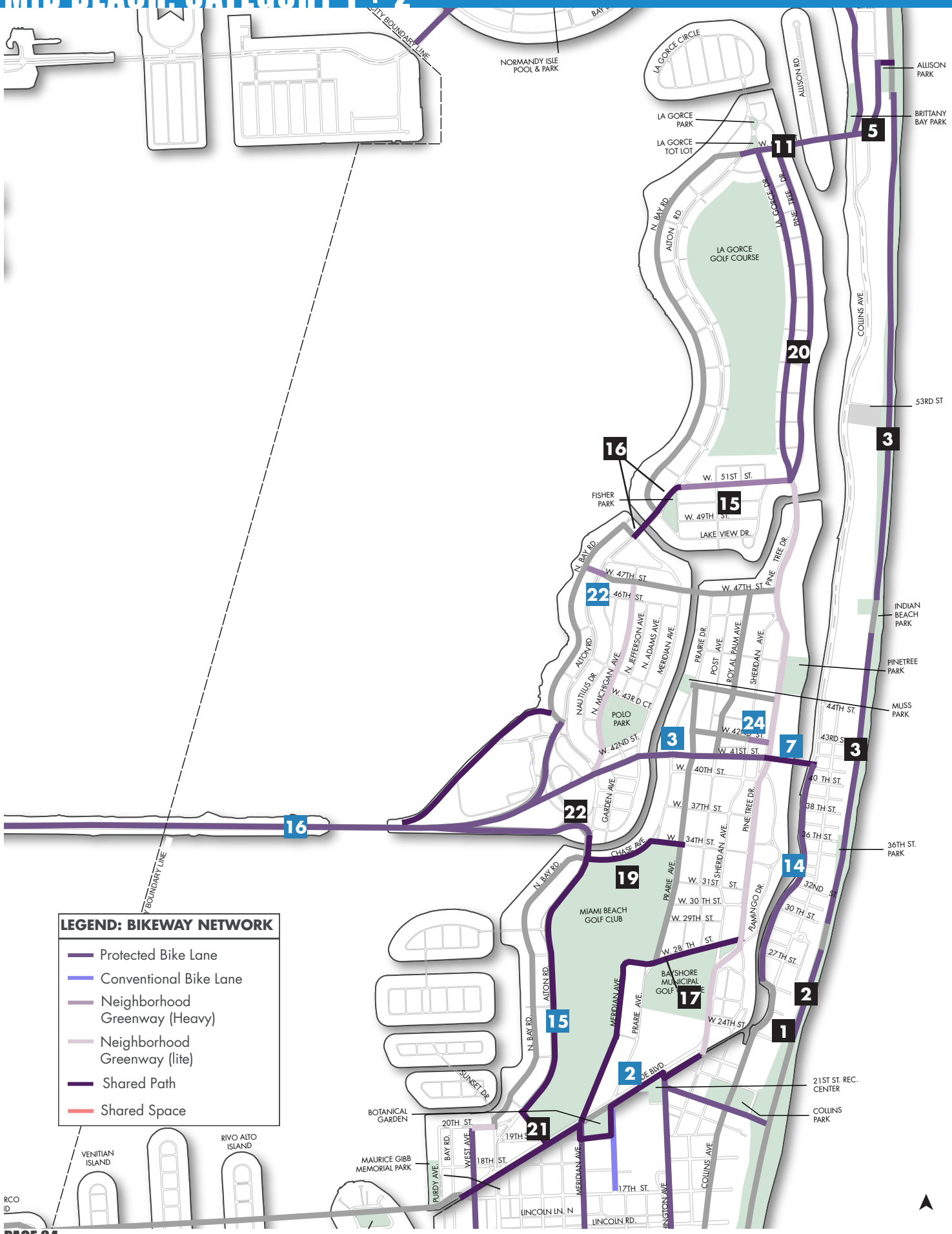


This northbound only Alton Road bicycle lane terminates abruptly at Chase Avenue.

Along 47th Street, bicycle lanes of varying quality connect Pine Tree Drive with Alton Road

Narrow sidewalks along the 41st Street leave little room for bicycle parking or other pedestrian-oriented amenities.

MID BEACH: CATEGORY 1 + 2



Category 1: Filling in the Gaps

2 Design the section of the Atlantic Trail between 24 and 29 Streets with protected bike lanes.

3 Design the section of the Atlantic Trail between 30 Street to Allison park with protected bike lanes.

5 Protected bike lane on 63 Street from Indian Creek to Atlantic Way.

11 Protected bike lane on 63 Street from Indian Creek to Alton Road.

15 Create bike lanes along 51 Street between Alton Road and Pine Tree Drive.

16 Shared Path along Alton Road, between 51 Street and North Bay Road.

17 Shared path Along 28 Street between Prairie Avenue. and Pine Tree Drive.

19 Shared path along Chase Avenue between Praire Avenue and Alton Road to Julia Tuttle junction.

20 Protected bike facilities along Pine Tree Drive and La Gorce Drive between 51 and 63 Street.

21 Shared path along North Michigan between Dade Boulevard and Alton Road.

22 Protected bike lanes @ intersection of North Bay Road, Alton Road and the Julia Tuttle Causeway.

Category 2: Improvement to existing facilities

2 Create a robust shared path along Dade Boulevard between Purdy Avenue and Pine Tree Drive.

3 Protected bicycle facilities along 41st between Pine Tree and Julia Tuttle Causeway.

7 Shared path on 41 Street, between Indian Creek and Pine Tree Drive.

14 Protected bike lane along Indian Creek between 41 and 26 Street.

15 Shared path along Alton Road, between North Michigan and Chase Ave.

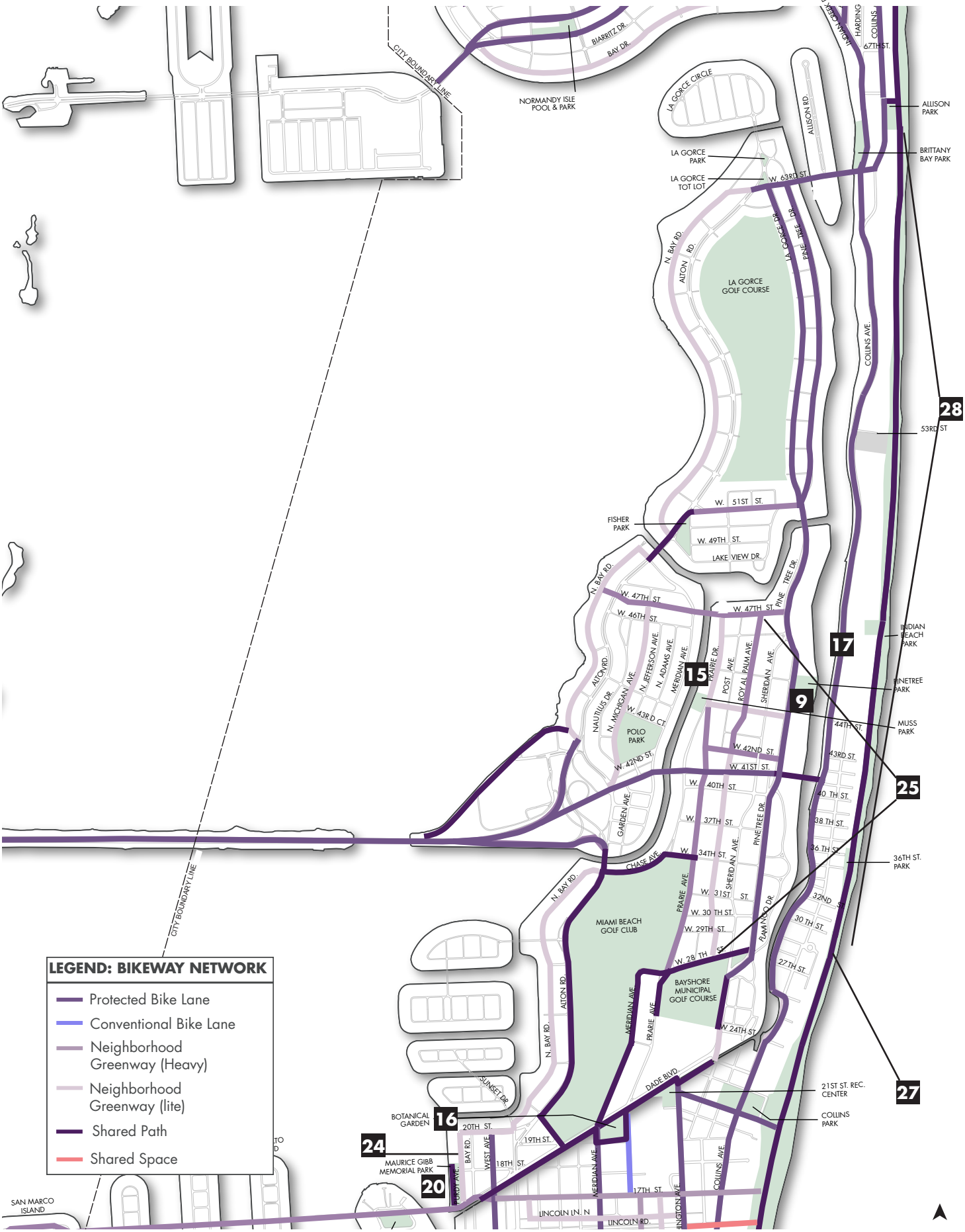
16 Protected bike facilities along Julia Tuttle Causeway from City limits to Alton Road interchange.

20 Establish North Bay Road as a heavy neighborhood greenway.

22 Extend bike lanes on 47 Street from Alton Road to North Bay Road.

24 Extend bike lanes on 42 Street from Sheridan to Pine Tree Drive.

MID BEACH: CATEGORY 3



Category 3: Aspirational

In order to achieve the 2035 modeshare goals, major connections will need to be made in the bicycle network. Among the changes are:

9 Protected bike facilities along Pine Tree Drive between Dade Boulevard and 51 Street.

15 Greenway on Prairie Avenue between 44th and 47 Street.

16 Greenway along 20th St. between Purdy Avenue and North Michigan.

17 Collins Ave, Protected bike lanes from 41 to 63 Street

20 Shared Path along Maurice Gibb Memorial Park

24 Greenway along Purdy Avenue, between the Venetian Causeway and 20 Street.

25 Greenway on Royal Palm Ave. between 28 and 41 Street.

27 Shared path along the Atlantic Trail between 24 and 29 Street.

28 Shared path along the Atlantic Trail from 29 Street to Allison Park.

Digital speed readout signs remind motorists when they are exceeding the speed limit along Alton Road.

An old Bike Route sign along North Bay Road reminds users of the street's history as a preferred alternative to cycling Alton Road.

Looking east along a short residential street located between La Gorce and Pine Tree Drive. Narrow residential streets like this provide a pleasant cycling environment.

Carnival Valor

South Beach has the highest volume of pedestrians and cyclists in Dade County, and competes only with Key West for having the most cyclists per capita than anywhere else in the southeastern United States.

For the purposes of street design, everything south of Dade Boulevard should be considered a pedestrian and bicycle priority zone. In the short term that means certain streets should be converted into bicycle boulevards with limited cut-through traffic, while other streets are wide enough to accommodate parking protected bike lanes now in anticipation of future reconstruction projects.

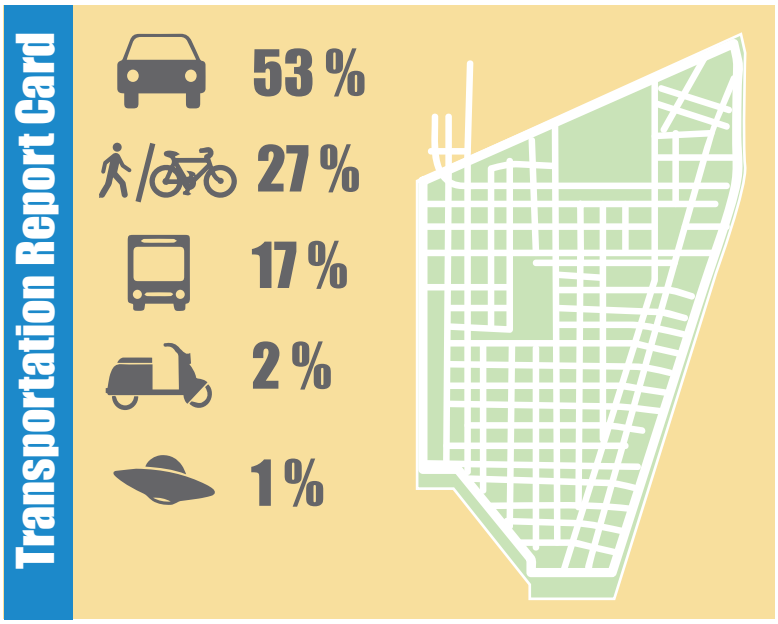
In the long term, the overall strategy on Miami Beach is to provide sidewalk level protected bike lanes on major streets, with parallel bicycle boulevards through Flamingo Park. The long term plan also envisions a shared path loop around south beach using the Baywalk on one side, and Beachwalk on the other.

Crash Data shows that South Beach has the highest concentration of crashes in all of Miami Beach. Major hot spots include the intersection of Alton Road and 17th Street and 5 Street and West Avenue.

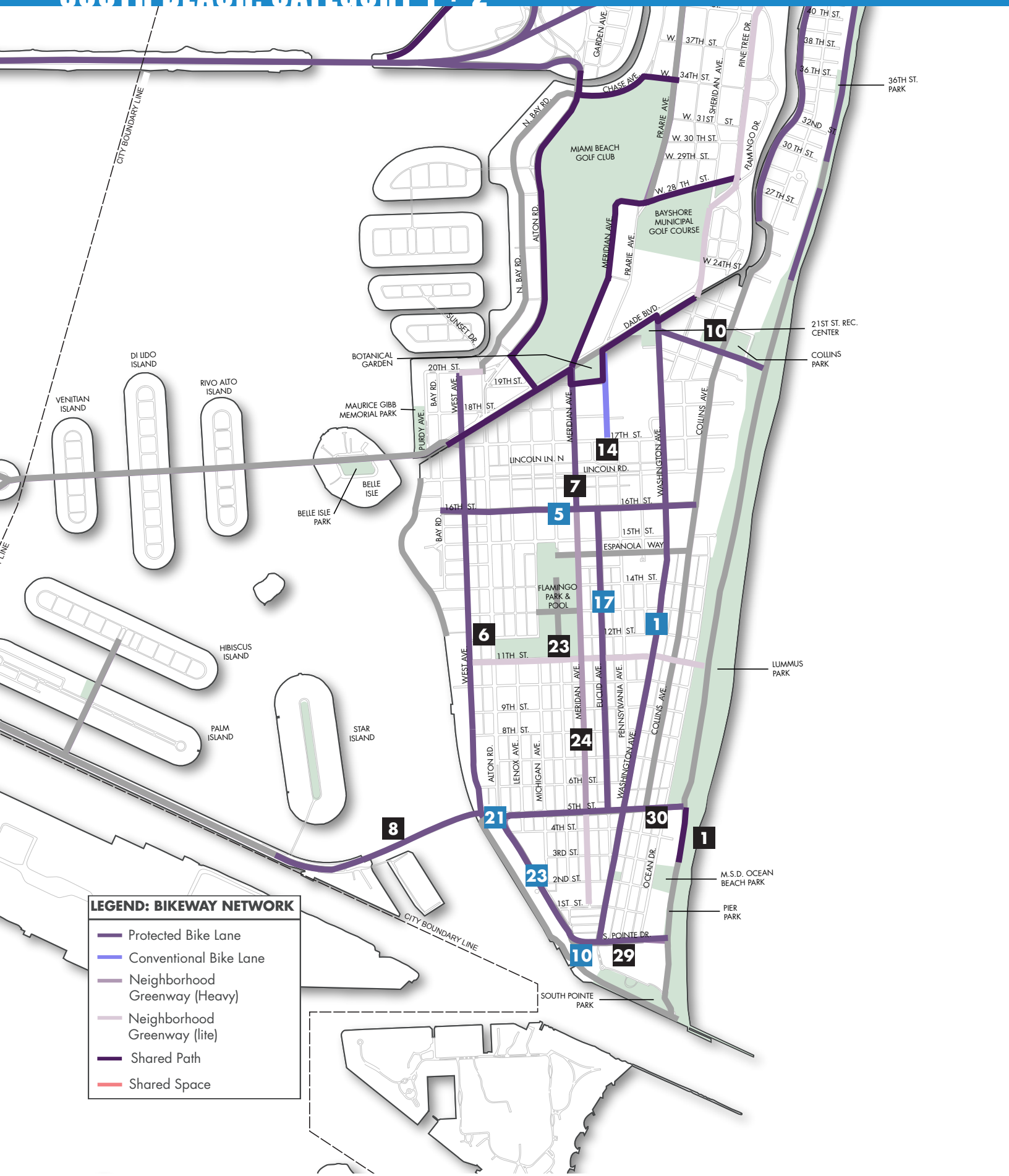
The 16th Street bicycle lane, west of Alton Rd. The use of dashed lines adjacent to the parking lot entrance visually defines a potential conflict point for motorists and cyclists.

New bicycle lanes along 5th St. improve conditions for skilled bicyclists. However, the eastbound lane ends suddenly at Lenox Avenue , and without indication for how cyclists should continue to navigate.

Sharrows on Washington Ave. help guide bicyclists away from the opening doors of parked cars. They also indicate to motorists that the road is a shared space.



SOUTH BEACH: CATEGORY 1 + 2



Category 1: Filling in the Gaps

The street network in South Beach is one of the best in the world. Despite the challenges presented by over designing the streets for cars, a network of tree-lined residential streets, and a robust bicycle culture, the short-term plan proposes an aggressive expansion of protected paths around South Beach. There are also opportunities to dovetail with upcoming reconstruction projects, such as the project planned for West Avenue.

1 Build shared path along the Atlantic Trail from 3 Street to 5 Street.

6 Protected bike lane facilities along West Avenue, between 20 Street and 5 Street.

7 Protected bike lanes along Meridian Ave, between Dade Boulevard and 16 Street.

8 Protected bike lanes along MacArthur Causeway between the Fisher Island Ferry Terminal and 5th/ Alton Intersection.

10 Protected bike lane along 21 Street between Atlantic Trail and Washington Avenue.

14 Bike lane along Convention Center Drive between 17 Street and Dade Blvd.

23 Greenway along 11 Street from West Avenue to the Atlantic Trail.

24 Greenway along Meridian Ave south of 16 Street.

29 Extend the existing bike lanes from Ocean Drive to the Atlantic Trail.

30 Extend bike lanes from Collins to the Atlantic Trail along 5th Street.

Category 2: Improvement to existing facilities

1 Protected bike lanes along Washington Avenue between South Pointe Drive and Dade Blvd.

5 Protected bike lane along 16 Street, from Collins to Bay walk

10 Protected bike Lanes on South Pointe Drive, between Atlantic Trail and Alton Road.

17 Upgrade to a protected bike lane along Euclid Avenue.

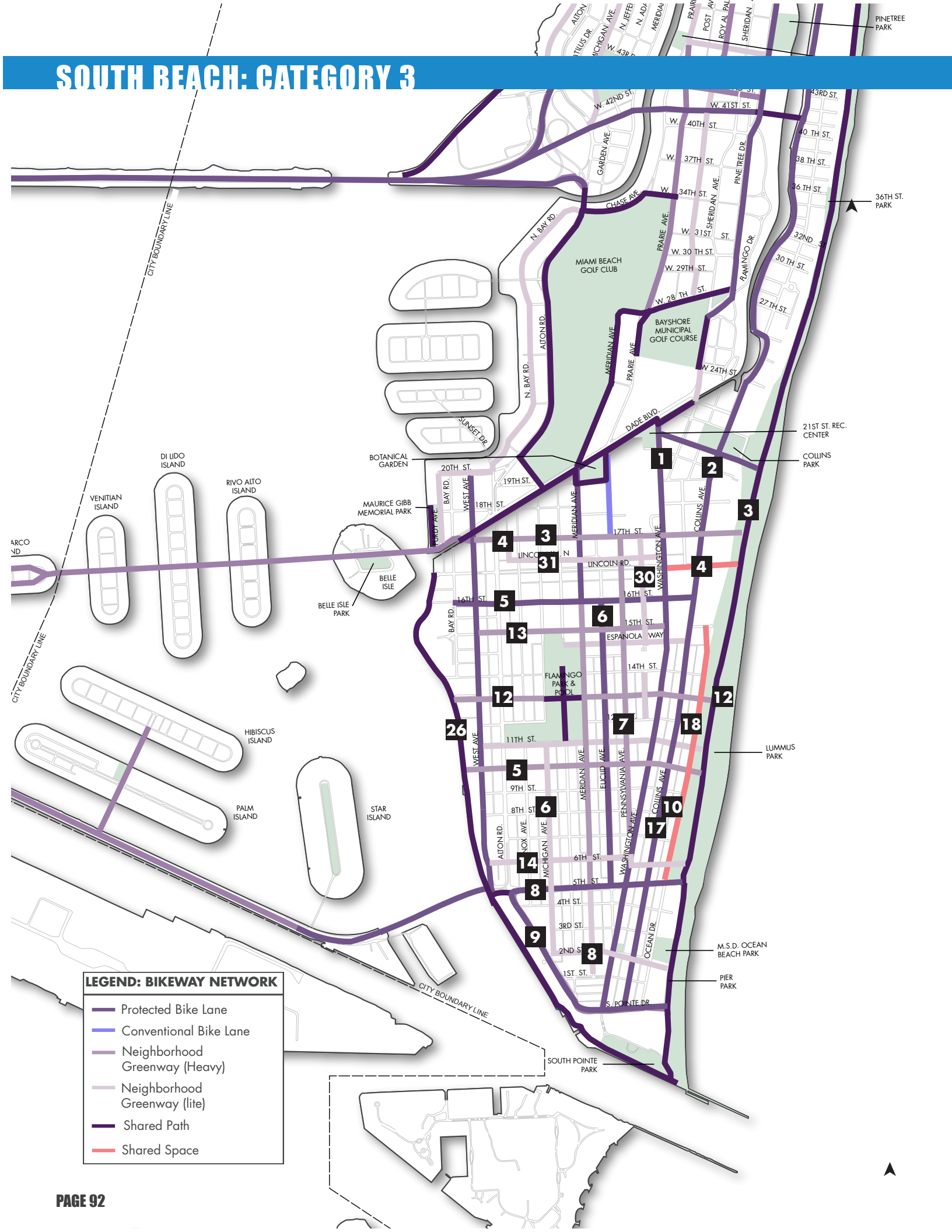
21 Intersection improvement on Alton Road from at 5 Street intersection.

23 Protected bike lanes along Alton Road from South Pointe Drive to 5 Street.

Meridian Avenue attracts bicyclists for several reasons, including it's beautiful, consistent tree canopy.

The eastern terminus of the 16th Street bicycle lane directs bicyclists into a row of parked cars.

SOUTH BEACH: CATEGORY 3



Category 3: Aspirational

The longer term view on South Beach sees significant increases in investments in transit infrastructure, and along with them investments in bicycle and pedestrian infrastructure.

Regarding the former, we are looking specifically at three intersections because they are major pinch points for connectivity between the hospitals and North Beach/ Collins corridor. The intersections are:

3 Greenway along 17 Street from Atlantic Trail to West Avenue.

4 Lincoln Road Shared space from Washington Avenue to Atlantic Trail.

5 Greenway along 10 Street from Bay Walk to Atlantic Trail.

6 Greenway along Michigan Ave, between 11 and 2 Streets.

7 Greenway along Pennsylvania Avenue, between 7 and 17 Streets.

8 Greenway along 2 Street, between Ocean Drive and Michigan Avenue.

12 Greenway along 13 Street from Bay Walk to Atlantic Trail.

13 Greenway along 15 Street, between Washington Avenue and West Avenue.

14 Greenway along 6 Street, between Atlantic Trail and West Avenue.

17 Protected bike lanes along Collins Avenue from South Point to mid- beach.

18 Shared space on Ocean Drive, between 5 and 15 Streets.

26 Bay walk along sea wall from 5 to16 Streets.

30 Greenway along Drexel between 17 and 12 Streets.

31 Bike Lanes along Lincoln Lane North.

A short segment of Euclid Avenue now includes bicycle lanes, curb extensions/rain gardens, and enhanced crosswalks.

DecoBike is one of the most successful bicycle sharing programs in the country. The City Hall DecoBike station is shown above.

Miami Beach Community Bike Ride participants set off down Washington Avenue.

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BIKE PARKING

BICYCLE PARKING: EXISTING CONDITIONS

600+ BICYCLE PARKING LOCATIONS

89 CITIBIKE LOCATIONS

6 BICYCLE PARKING TYPES

INTRODUCTION

The provision of accessible, attractive, and safe bicycle parking options for both short and long-term use is critically important to supporting bicycling as a viable mode of transportation in Miami Beach. In recent years, the City of Miami Beach, private property owners, and business owners have installed hundreds of new, well-designed bicycle racks, particularly for short-term use. This bicycle parking plan makes recommendations for developing high quality, plentiful, and visible bicycle parking options serving residents and visitors for years to come.

EXISTING CONDITIONS

Today, there are more than 600 publicly accessible short-term bicycle parking spaces in Miami Beach, and more being added each year. As the map at left indicates, these spaces are created by a variety of bicycle parking types found throughout the city. Yet, analysis reveals that supply is not meeting the current and coming demand. And in many locations, existing bicycle parking facilities are often under-supplied and/or poorly sited, which detracts from their usefulness and viability.

Not surprisingly, most of the city's current bicycle parking supply is found

where demand is high. These locations include public parks, at civic buildings, and along commercial streets like Washington Avenue, Lincoln Road, 41st Street, and 71st Street.

The bicycle parking intensity use map this page demonstrates where demand is concentrated. In many of these locations, the supply but also the quality of the infrastructure needs to be increased.

For example, bicycle parking at key destinations, like gyms, pharmacies, restaurants, and bars is often oversubscribed or in some cases underused because of a poor selection in bicycle parking type and/or placement. Both conditions cause people to choose to lock their bicycles too other vertical elements, like street signs, parking meters, and fences. When this occurs, the city's high number of pedestrians are inconvenienced and made less comfortable as they navigate around bicycle-strewn sidewalks.

In addition, long-term bicycle parking options, for say three hours or more, are few and far between. Bicycle parking of this kind —covered, high security, easily accessible — is needed within residential neighborhoods and at transit hubs, schools, large residential and commercial developments, and employment hubs. Such facilities will encourage more people to bicycle for transportation.

Without an increase in supply, quality, and type, it will be difficult for Miami Beach to obtain the bicycle mode share goals set forth in this plan. A more detailed analysis is found in the pages ahead for South Beach, Mid-Beach, and North Beach.

BICYCLE PARKING: EXISTING CONDITIONS

The inverted U-rack is an excellent bicycle parking type, yet the above location could be improved.

Well placed, high-quality short-term bicycle parking provides for a clear and accessible public sidewalk in mid-Beach.

Without adequate supply and visibility, bicyclists will lock their bicycles to the nearest vertical element serving their destination.

The bicycle park type is not preferred, but it does provide designated spaces for people traveling by bicycle.

The “comb rack” is not desired because they are difficult to use and do not bicycles efficiently.

Bicycle parking needs to be supplied for bicycles of all shapes and sizes.

+804 NEW LOCATIONS

+5 NEW PARKING TYPES

PROPOSED BICYCLE PARKING

The bicycle parking plan illustrated at right identifies over 800 new locations for bicycle parking. The locations were determined by analyzing land use and urban characteristics, demand, and available space. Each location was then matched with an appropriate type of parking to serve as many users as possible. The analysis revealed that many of the short-term racks found throughout the city do not meet best practice specifications (see page 84) and that long-term parking is almost non-existent. Thus, the following five short and long-term parking facilities types are being recommended.

Short-term Parking Types

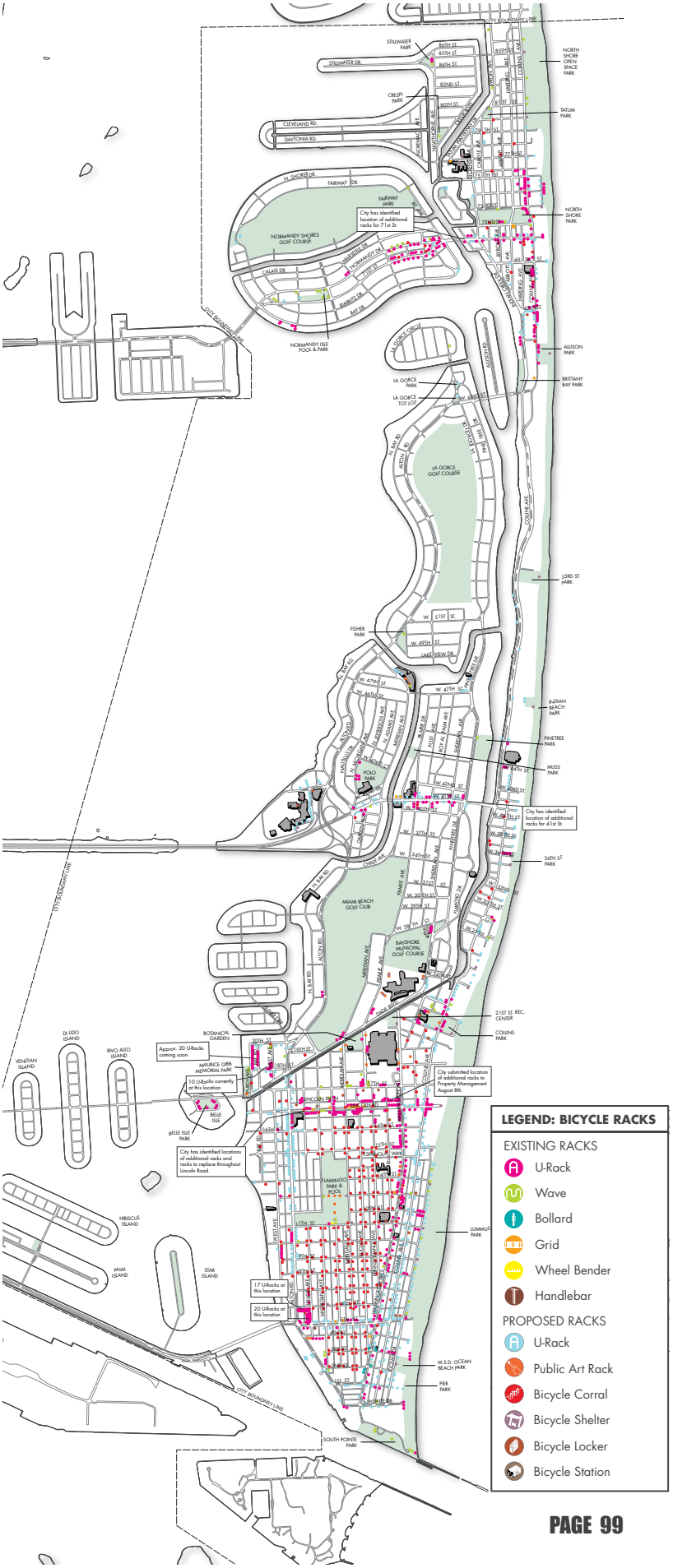
- Bike Corral
- Public Art Rack

Long-term Parking Types

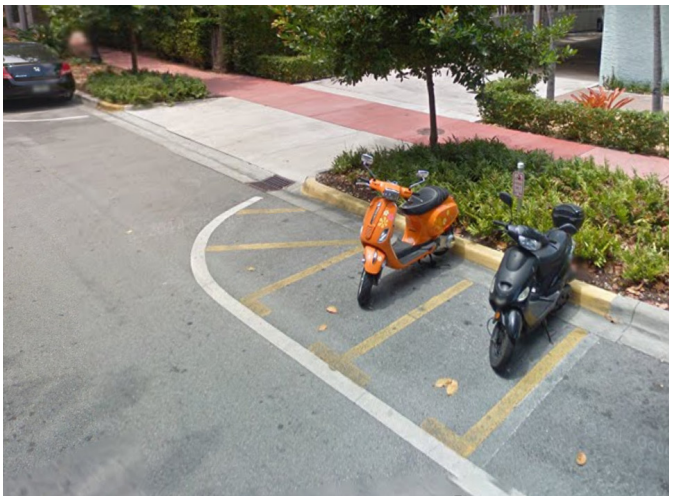
- Bicycle Shelter
- Bicycle Locker
- Bicycle Station

These five types, plus the city's standard inverted-u rack, should comprise the bulk of the city's parking in the future. A definition of short and long-term bicycle parking is located on page 80, and a visual guide to current and proposed parking types is found on page 81.

More detailed recommendations for South, Mid, and North Beach may be found on the following six pages.



Bicycle parking is often oversubscribed and poorly sited, such as the above example limiting pedestrian comfort.



Motorcycle parking is often allowed adjacent to curb cuts and intersections. Bicycle parking should be an additional option.

EXISTING CONDITIONS SUMMARY

Despite hundreds of new bicycle racks, bicycle parking is still in high demand but in low supply. This may be observed by walking along commercial thoroughfares like Collins Avenue, Washington Avenue, 5th Street, Lincoln Road, Ocean Drive, and Alton Road, among others. In these places, bicycle racks, street signs, and parking meters are often jammed with bicycles, which makes the city's most heavily trafficked sidewalks a challenge to navigate on foot. Moreover, bicycles affixed to poorly sited and many a makeshift rack are often unable to be locked properly and subject to damage or theft.

Bicycle parking is also a desired amenity within the neighborhoods of South Beach. The residential streets feature narrow sidewalks with little room to store bicycles, while the area's historic art deco buildings were not initially designed to incorporate this needed amenity. Thus, the prospect of hauling a bicycle in and out of an apartment building, or the threat of theft from poorly sited and poorly selected outdoor racks likely deters many people from making trips by bike.

With few options, bicycle storage has become an issue that needs to be addressed for thousands of residents living in the city's most bicycle-friendly neighborhoods.

PROPOSED PARKING SUMMARY

Numerous opportunities exist for upgrading the supply and quality of bicycle parking in South Beach. In the short-term, the City of Miami Beach can continue to add it's high-quality silver inverted u-racks to the city's streets. The same rack type should be used for short-term parking in parks, public spaces, and schoolyards throughout South Beach.

Given the area's density, physical constraints, and high-bicycle use, one of the big opportunities for increasing supply is to use street space more efficiently. This may be done by adding bicycle racks either within select areas that currently limit automobile parking, but often allow motorcycle parking. These in-street bicycle corrals may be used for short-term parking, or be provided with shelters to add more utility to longer-term use. There are more than 100 hundred such opportunities throughout South Beach and they should be taken advantage of so that more bicycle parking may be added. In select spaces, where demand is the highest as in Crunch Gym at 1259 Washington Avenue, automobile parking may be removed in favor of providing more bicycle parking. This re-allocation of space not only helps build complete streets, but helps retailers, residents, and visitors find more parking conveniently.

BICYCLE PARKING: SOUTH BEACH PLAN

397+ BICYCLE PARKING LOCATIONS

+497 NEW LOCATIONS

Covered bicycle parking at Mount Sinai's Heart Center's parking garage on Meridian Avenue/West 48th Street.

Prairie Avenue at 41st Street would be a good place to add an in-street parking corral to serve local businesses.

EXISTING CONDITIONS SUMMARY

Due to a large amount of single-family housing and the presence of two golf courses, bicycle parking in Mid-Beach is largely concentrated along the 41st Street commercial corridor. Numerous inverted u-racks have been installed in recent years, attracting more bicycle use to this important destination. That said, there is a growing need to implement more parking along the corridor and the half blocks to the north and south that feature commercial land uses. This will only become more important as the bicycle network is strengthened to the north and to the south.

In addition to 41st Street, Mount Sinai's two hospital campuses make Mid-Beach an important employment and service hub for the region. There are currently few safe ways to bicycle to each hospital campus and bicycle parking at both needs to be upgraded to include much more short and long-term parking options.

Finally, there are few bicycle parking options along the Collins Avenue corridor. Specifically, there is a need for more short-term bicycle parking serving the eastern terminus of numerous streets that serve as access points to the beach walk, and parks that line the beach.

PROPOSED PARKING SUMMARY

Bicycle parking in Mid-Beach should be concentrated in four distinct locations: The 41st Street corridor, Collins Avenue and the streets that terminate at the beach/beachwalk/parks, and at the two Mount Sinai hospital campuses. On 41st Street, a small amount of low-lying landscaping could be removed for short-term bicycle parking facilities. With limited space along 41st Street, additional bike parking should be placed along the intersecting streets, such as the north and south side of Prairie Avenue (adjacent to North Beach Elementary School and Montefiore) where underutilized street space could be better used for in-street parking corrals (short-term) or bicycle shelters (long-term).

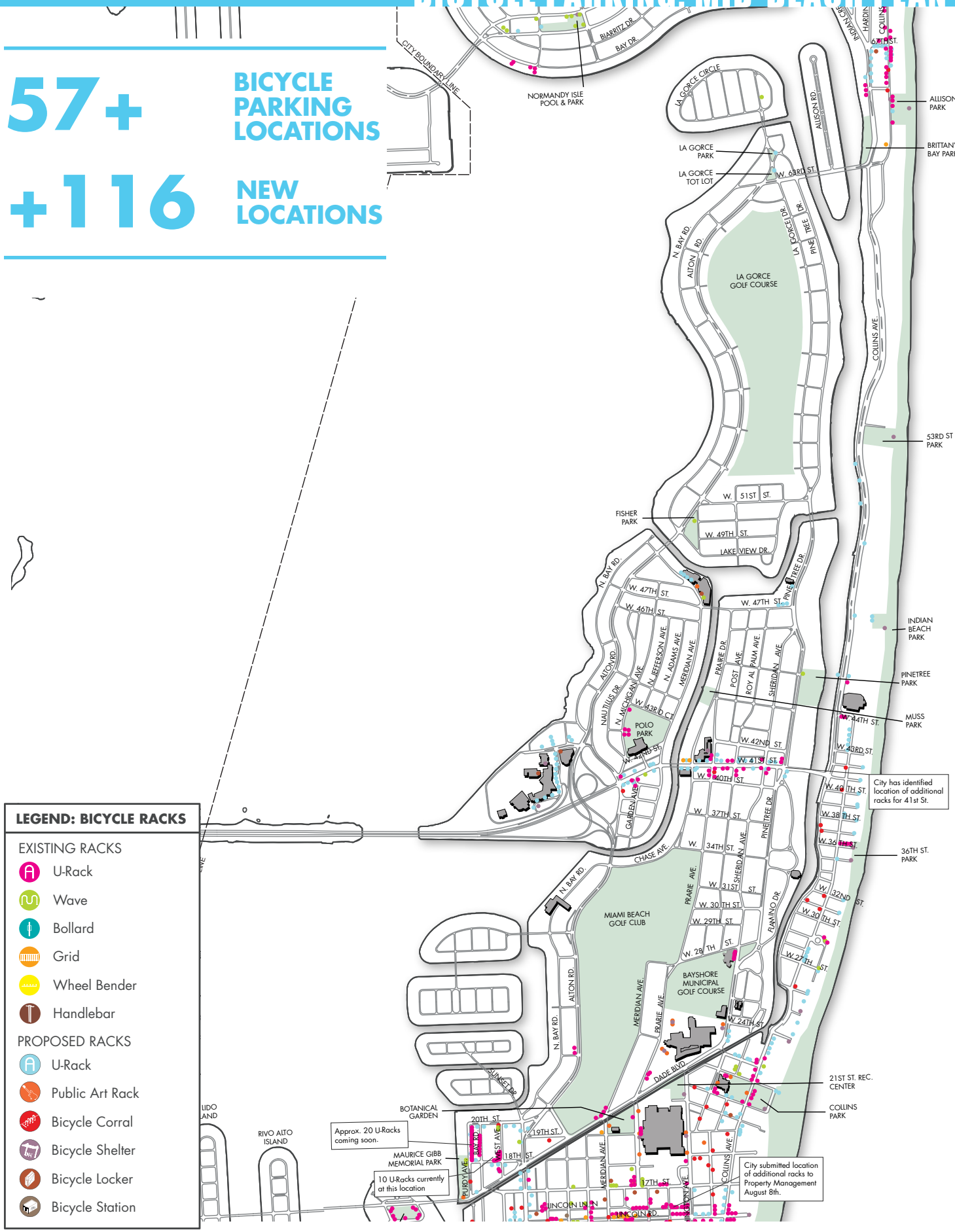
Both hospital campuses should consider a district-wide bicycle parking plan, one that adds short-term parking along walkways, sidewalks, and in other open spaces near building entrances. The plan should also include bicycle lockers for long-term parking, which could be placed judiciously within select parking lots and garages.

Finally, bicycle racks, in-street corrals and a few bicycle shelters should serve residents, shoppers, and beach visitors along or near Collins Avenue.

BICYCLE PARKING: MID-BEACH PLAN

57+ BICYCLE PARKING LOCATIONS

+116 NEW LOCATIONS



LEGEND: BICYCLE RACKS

EXISTING RACKS
- U-Rack
- Wave
- Bollard
- Grid
- Wheel Bender
- Handlebar

PROPOSED RACKS
- U-Rack
- Public Art Rack
- Bicycle Corral
- Bicycle Shelter
- Bicycle Locker
- Bicycle Station

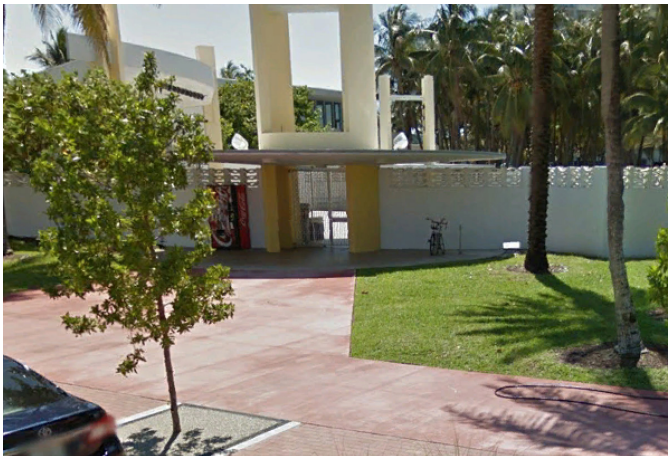
Located along Ocean Terrace, the above rack should provide two parking spaces, but due to its location, it only provides one.

EXISTING CONDITIONS SUMMARY

North Beach is comprised of several different neighborhoods, many of which are in need of additional bicycle parking. While many short-term parking spaces have been added to the 71st/Normandy Drive and Collins Avenue commercial district, more may be implemented, especially between Indian Creek Drive and Collins Avenue, and 63rd Street and 75th Street.

With a residential density similar to that of South Beach and a growing bicycle network, there is also a need to add much more bicycle parking within the area bounded by 72nd Street to the south, Collins Avenue to the east, Tatum Waterway Drive to the west, and the city boundary to the north at 87th Terrace.

Access points to North Beach open space network would benefit from additional bicycle parking, or an upgrade in type. Locations include the Normandy Shores Golf Club, Fairway Park, Normandy Isle Park and Pool, North Shore Park, Parkview Island Park, North Shore Open Space Park, Allison Park, Brittany Bay Park, and the many connection points between east-west streets and the entrance to the beachwalk.



The North Beach bandshell has been a cultural designation for Miami Beach residents for decades. Recent programing of the space and attendance demonstrate the need for bike corrals and bike valet in the area.

PROPOSED PARKING SUMMARY

Diversifying the type and increasing the supply of bicycle parking throughout North Beach should be viewed as a short-term implementation priority. More specifically, the addition of inverted u-racks and bicycle corrals to commercial streets will bring more customers and help declutter the relatively narrow sidewalks in the area's business districts. Moreover, in-street corrals may also be inserted in select residential neighborhoods so that residents and visitors find it easier to park.

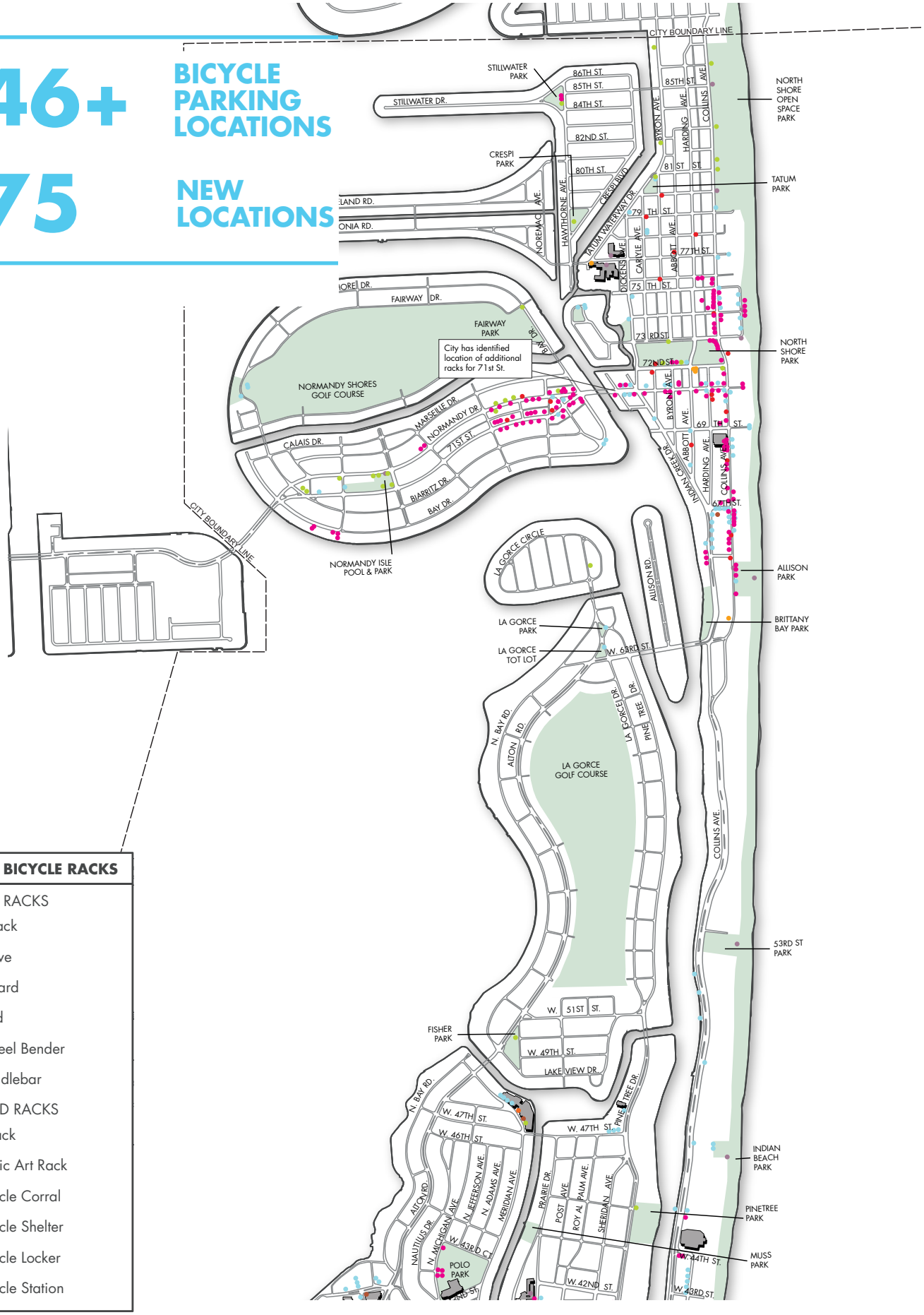
At select parking lots or garages, bicycle lockers or covered bicycle parking could serve as a long-term storage or intermodal commuter option. The new garage on 67th and Indian Creek Drive is one such location.

Allison Park, North Shore Open Space and others would be great places to add well-designed and highly visible bicycle parking shelters, perhaps integrated with bus stops. This would provide a longer-term parking option for intermodal commuters, as well as a safe place semi-protected from the weather to store bicycles for those spending a day at the beach. Finally, school sites like Lehrman Community Day School and Biscayne Elementary Community School should provide more accessible and sheltered parking for students and visitors.

BICYCLE PARKING: NORTH BEACH PLAN

146+ BICYCLE PARKING LOCATIONS

+75 NEW LOCATIONS



LEGEND: BICYCLE RACKS

EXISTING RACKS
- U-Rack
- Wave
- Bollard
- Grid
- Wheel Bender
- Handlebar

PROPOSED RACKS
- U-Rack
- Public Art Rack
- Bicycle Corral
- Bicycle Shelter
- Bicycle Locker
- Bicycle Station

BICYCLE PARKING TYPES

Bicycle parking types range from basic bicycle racks to semi-enclosed bicycle shelters, to full "bike stations" that provide a combination of amenities that include indoor bicycle storage, repair facilities, showers, lockers, changing rooms, rentals, and even café/social gathering spaces. While countless bicycle parking designs and configurations exist, they may be described as two over arching types: short- and long-term parking. Each of these types is explained below.

Short-term parking facilities consist of standard bicycle racks, and temporary event "valet" parking. Long-term parking facilities include semi-enclosed bicycle shelters, fully enclosed bicycle lockers, and fully enclosed bicycle stations/storage rooms. Matching each of these types and the available configurations to the right land use context is not difficult, but requires an analysis of the following conditions.

- intended bicycle user group
- length for which bicycles are likely to be parked
- proposed location and surrounding land uses
- local climate considerations (shade, rain)
- ability of the proposed facility to provide orderly, safe, and attractive bicycle parking
- basic performance standards and parking site guidelines

At present, a range of short-term bicycle parking types serve the needs of bicyclists in Miami Beach with various levels of success. These types are illustrated on the opposite page. Currently, the City of Miami Beach offers no long-term parking facilities.

SHORT-TERM BICYCLE PARKING

The majority of bicycle parking facilities are intended for short-term use, generally less than three hours. Short-term bicycle parking is generally associated with commercial/retail, civic, and/or recreational land uses. As a result, proximity to destination is often prioritized over protection from weather and absolute security. Beyond the use of a personal bicycle lock and the quality of the rack, passive surveillance — otherwise known as "eyes on the street" — is the only security provided.

BICYCLE RACKS

Bicycle racks allow for the temporary storage of bicycles in a safe and organized manner. The most effective types are those which are easy to identify visually, efficient in the their ability to accommodate the intended amount of parked bicycles, allow for easy bicycle maneuverability in and out of the designated bicycle parking space, enable the bicycle to be secured properly by providing at least two points of contact with the bicycle frame, and allow both the frame and the wheel to be secured to the bicycle rack.

Two simple and recommended forms that meet these standards are the inverted "U" Rack and the "Post and Ring." The former comprises the standard Miami Beach city rack.

STANDARD BICYCLE RACK RECOMMENDATION

It is recommended that Miami Beach continue to use its standard silver inverted "U-rack." However, certain contexts may allow or dictate a different parking facility or design type, as described below. In particular, the addition of bicycle corrals may require the city's existing racks to be placed on ground rails.

BICYCLE RACKS LOCATION RECOMMENDATIONS

It is recommended that the city's standard bicycle racks be considered as a replacement to those locations where bicycle racks do not currently

EXISTING BICYCLE PARKING TYPES

SHORT-TERM

INVERTED U-RACK (RECOMMENDED)

WAVE RACK (NOT RECOMMENDED)

BOLLARD RACK (NOT RECOMMENDED)

GRID RACK (NOT RECOMMENDED)

WHEELBENDER RACK (NOT RECOMMENDED)

HANDLEBAR RACK (NOT RECOMMENDED)

PROPOSED BICYCLE PARKING TYPES

SHORT-TERM

INVERTED U-RACK

BICYCLE CORRAL

ART RACK

LONG-TERM

BICYCLE SHELTER

BICYCLE LOCKER

BICYCLE STATION

Bicycle parking corrals help maintain a clear sidewalk, increase overall parking supply, and often become social spaces.
See page 123 of the Street Design Guide for additional information.

meet the design standards included in this plan. For design standards, see the bicycle parking section of the street design guide, for specific location recommendations, see page 73.

BICYCLE CORRAL RECOMMENDATIONS

The bicycle corral is an increasingly common type of short-term bicycle parking type used where bicycle parking demand is high and sidewalk space is either limited or duly accommodates high volumes of pedestrian traffic. Bicycle corrals most commonly replace automobile parking spaces or are placed within site triangle visibility zones, which still allow for motorist a clear view yet also allow the added amenity of bike parking to be added. Depending on the configuration, a single motor vehicle parking space may yield between six and 12 bicycle parking spaces within a single corral.

PUBLIC ART BICYCLE RACKS

The City of Miami Beach standard bicycle rack is already an attractive element in the streetscape. That said, neighborhood, civic, district, non-profit, institutional, or business groups located within Miami Beach should be encouraged to pursue

The above bicycle parking is well-spaced, properly oriented parallel to the curb, and a safe distance from the tree and the curb.
See page 126 of the Street Design Guide for additional information.

bicycle parking facilities that reinforce an existing cultural, historical, business, or social character. In such instances, custom or public art bicycle racks can creatively address bicycle parking needs while simultaneously enhancing the profile of bicycling and the destination served by such racks. While custom bicycle racks do cost more than off-the-shelf racks, they raise the profile and visibility of bicycling in general, and improve the public perception regarding city or organizational/business values. They also bring positive attention to bicyclists for making sustainable and healthy transportation choices.

That said, many art rack designs unintentionally undermine the intended function, often resulting in inefficient, unrecognizable, and undesirable bicycle parking facilities that are avoided by users. Therefore, the provision of art racks must meet or surpass the guidelines and performance standards set forth in this Plan.

BICYCLE RACK SAFETY AND PERFORMANCE STANDARDS

To prevent theft and to ensure public safety, all bicycle racks should meet the following design guidelines:

- support the frame of the bicycle in at least two locations;
- allow the frame and one wheel to be locked to the rack when both wheels remain on the bike;
- allow the frame and both wheels to be locked to the rack if the bicyclist decides to remove the front wheel;
- allow the use of cable, chain, and U-shaped locks;
- be securely anchored to the ground;
- be usable by bicycles with bottle cages, panniers, etc.;
- be usable by a variety of bicycle sizes and types (children's bicycles; tricycles, step-through frames, etc.) keep both wheels on the ground

In addition, all bicycle racks should not be capably compromised by hand tools, especially those that are easily concealed such as wire cutters or screwdrivers. Bicycle racks and the bicycles secured to them should not create a tripping hazard or barrier for pedestrians and the visually impaired (see location standards on page x). Finally, all outdoor bicycle racks and any related facilities should be well-lit and highly visible at night so that users feel safe using them at all hours.

Adding a bike valet can help attract hundreds of cyclists who might have otherwise driven.

EVENT-BASED VALET BICYCLE PARKING

Miami Beach is home to an incredible amount of events that draw thousands and thousands of people to concentrated points. One way to manage the stress on the street network is to encourage other forms of transportation, such a cycling. In many instances, doing so could overwhelm the existing bicycle parking infrastructure. Thus, another option is to seek out organizations, like the Green Mobility Network, to help staff, manage, and promote temporary event bicycle parking.

LONG-TERM BICYCLE PARKING

Long-term bicycle parking facilities are intended for use that generally exceeds two hours (see Table 2). Long-term bicycle parking is associated with residential, workplace, and transit-related land uses where parking for long durations is common. As a result, proximity to the final destination is a lower priority than protection from the elements and guaranteed security.

BICYCLE SHELTERS

Bicycle shelters provide highly visible, semi-enclosed protection from the elements. Bicycle shelters should be placed at highly frequented bicycle destinations where users tend to park for periods of two-hours or more. Such places include, but are not limited to, employment centers, transit stops, civic buildings, parks, and schools.

Bicycle shelters provide an opportunity to display safety information, a map of the regional and local bicycle network, and/or any other relevant bicycle or local information.

The spacing between individual bicycle racks and/or other streetscape elements must be taken into account and should follow the general bicycle parking performance and location standards found on page 124 of the street design guide. Likewise, bicycle shelters should be easily identifiable, well lit at night, and sufficiently protect bicycles from the elements.
Developers of property in Miami Beach may consider pursuing the implementation of bicycle shelters in strategic locations, such as within the grounds of the project. Doing so will raise the profile of bicycling and provide a parking amenity for residents and visitor that provides shelter for longer parking stints.

BICYCLE SHELTER SAFETY AND PERFORMANCE STANDARDS

To ensure public safety and high performance, all bicycle shelters should:

- include bicycle racks that support the frame of the bicycle in at least two locations and
- meet all other bicycle rack performance standards as discussed in this Plan.
- include a roof span of at least eight feet in width to ensure adequate bicycle coverage
- be located to ensure pedestrian sidewalk clearance (six feet minimum)
- be located to maintain adequate visibility clearance at intersections (fifteen minimum)
- comply with local building code requirements
- provide adequate illumination for night-time use

BICYCLE LOCKERS

Bicycle stations are intended to serve as a local/regional hub for all bicycling activities. Such facilities may offer a wide variety of services, such as secure and attended parking facilities; bicycle rentals; showers, lockers and changing facilities; repair services or facilities; and cafe/social space.

BICYCLE STATIONS

Bicycle stations are intended to serve as a local/regional hub for all bicycling activities. Such facilities may offer a wide variety of services, such as secure and attended parking facilities; bicycle rentals; showers, lockers and changing facilities; repair services or facilities; and cafe/social space.

BICYCLE PARKING: LONG-TERM

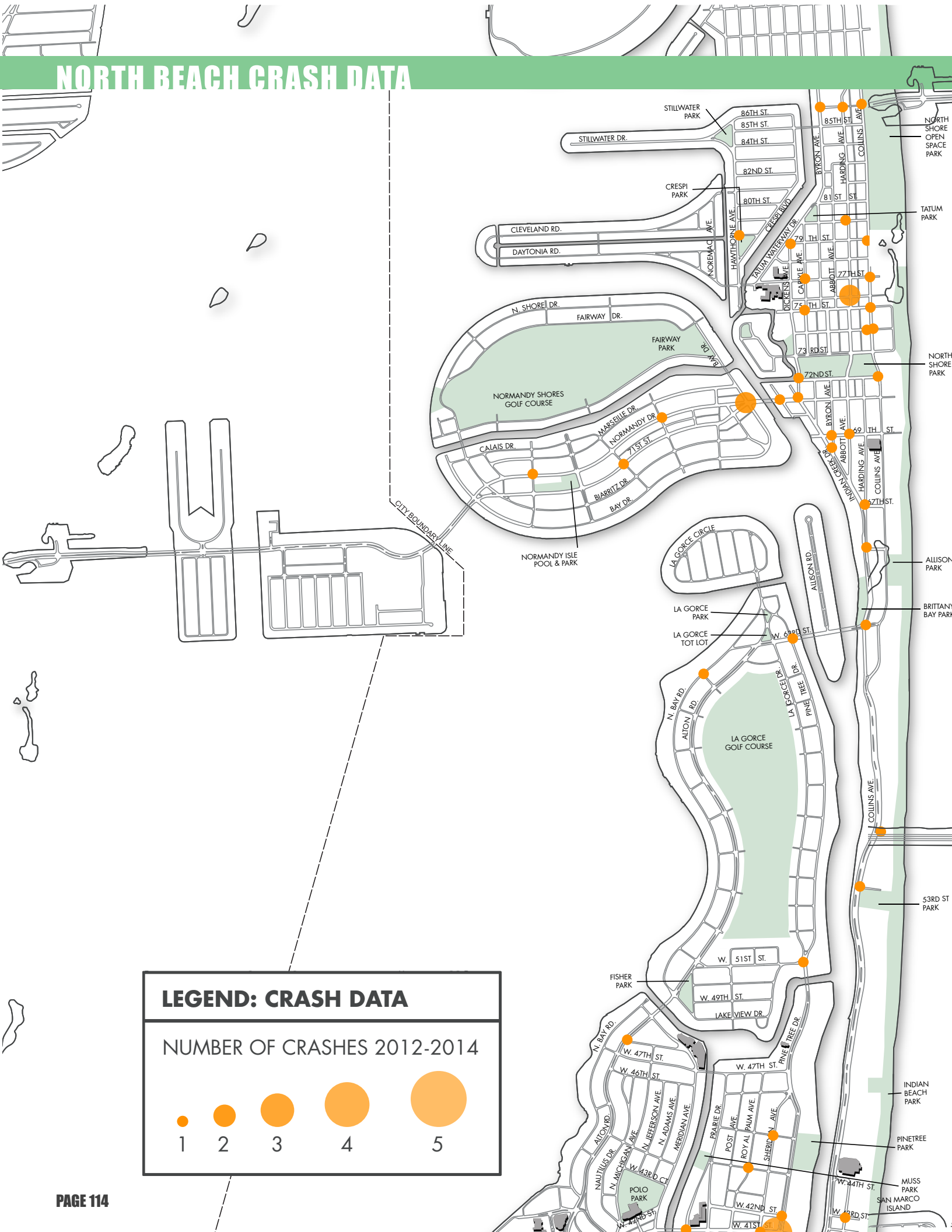
The combination of these facilities provides the highest level of bicycle parking service for long-term and frequent use, and will elevate the visibility and viability of bicycling in Miami Beach.

Bicycle stations are most appropriate in urban core, central business district locations, and at transit hubs where bicycle commuters and tourists may maximize the services offered. Cities such as Chicago, IL, Santa Monica, CA, Cambridge, MA, Washington DC, Berkeley, CA, and Long Beach, CA all provide working models.

It is recommended that the City of Miami Beach pursue a bicycle station-like facility in South Beach, within the center city. An ideal location would be within a short distance of Lincoln Road where such a facility would be highly visible and of utility to bicyclists cycling to work. The exact location, programming, and construction timeline will require further study, but some ideas include a facility within a municipal parking garages, built within a municipal parking lot, or even in a leased storefront.

APPENDIX: CRASH DATA

NORTH BEACH CRASH DATA

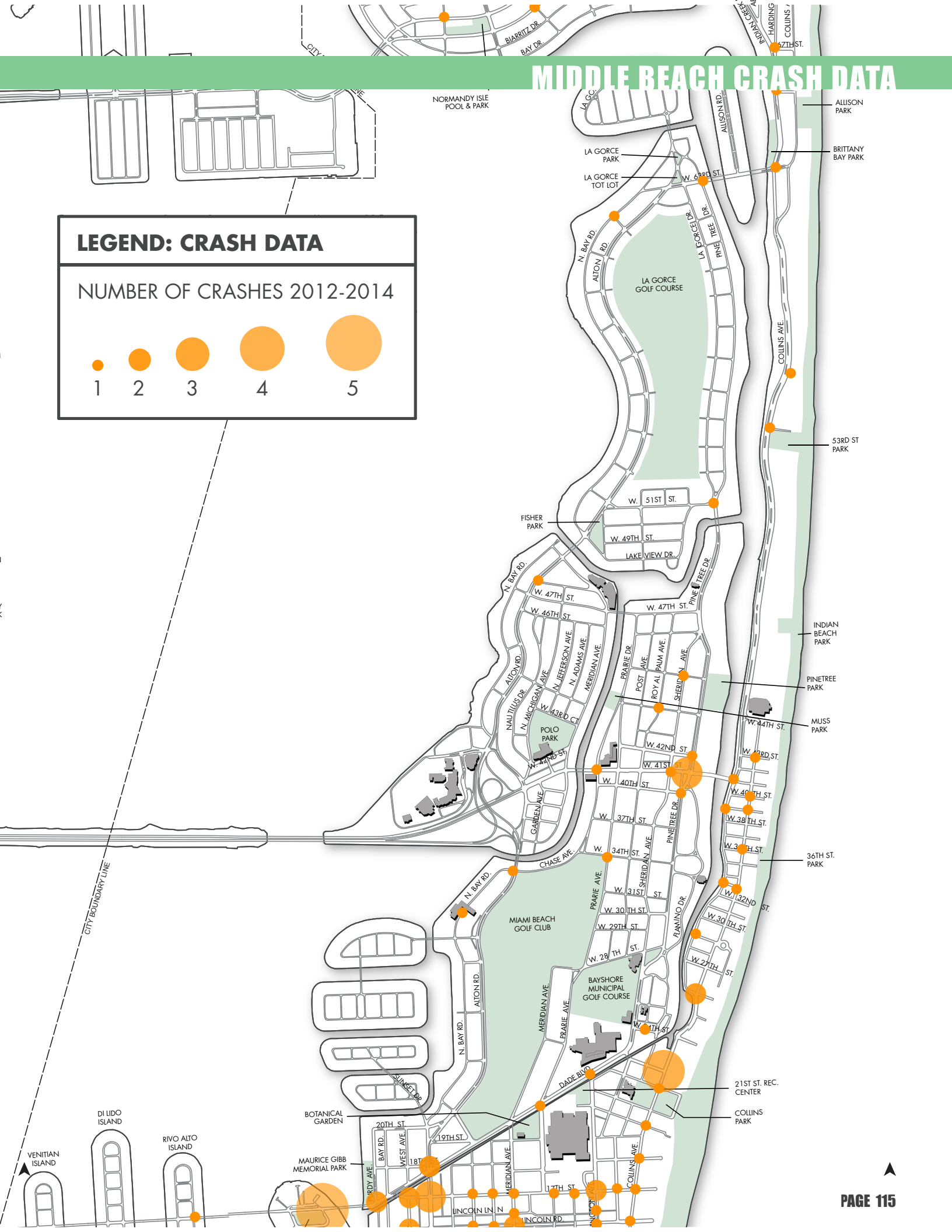


LEGEND: CRASH DATA

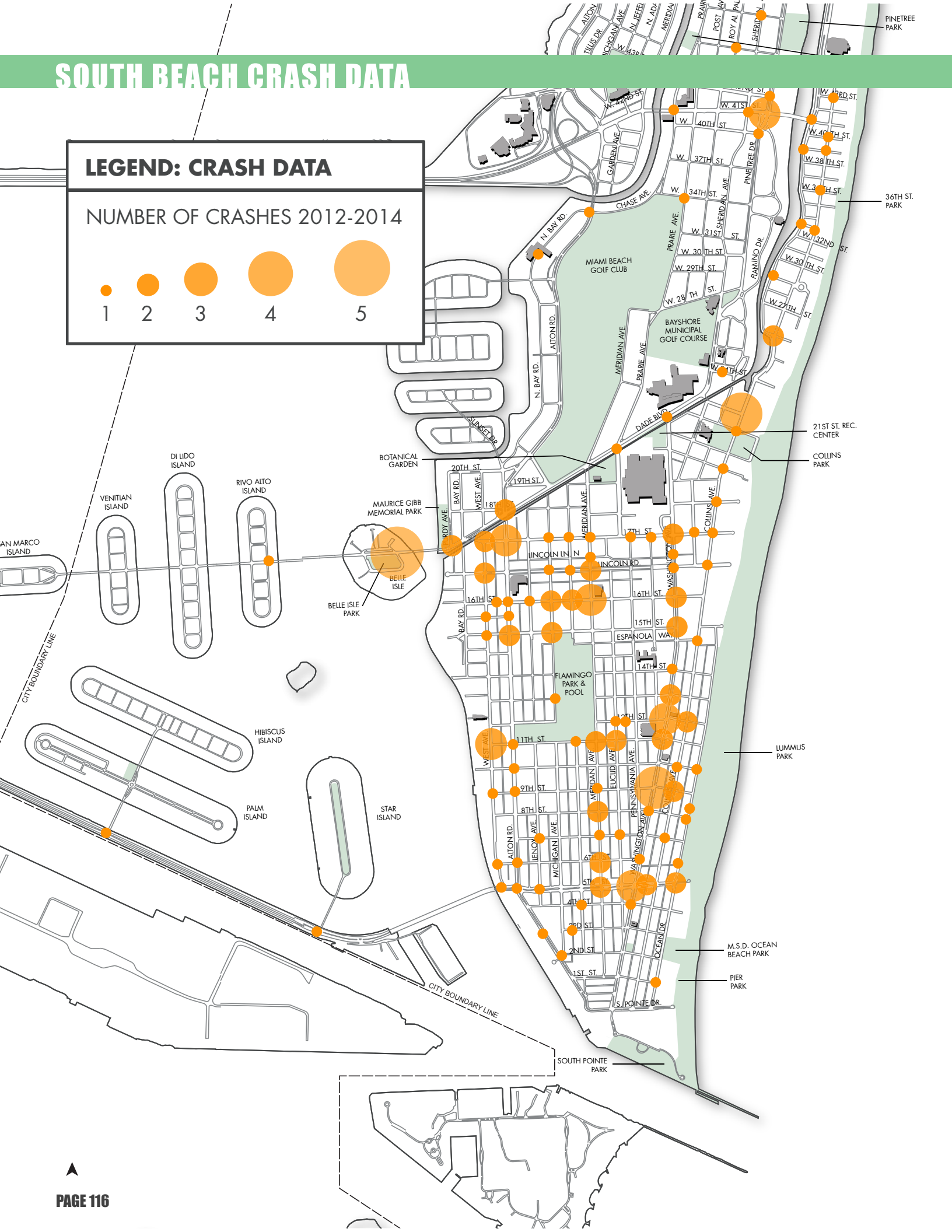
NUMBER OF CRASHES 2012-2014

1 2 3 4 5

MIDDLE BEACH CRASH DATA



SOUTH BEACH CRASH DATA



APPENDIX: LITERATURE REVIEW

LITERATURE REVIEW

In order to become familiar with Miami-Dade County's bicycle planning history, and specifically as it relates to the City of Miami Beach, a review of more than 20 city, county, and state plans was conducted. This effort connects the current 2012 Atlantic Greenway Plan Update planning process with those from the past and is being undertaken to identify lessons learned and key strategies for successful implementation of the City's future master plan. This review begins with the oldest relevant plan: The 1997 Miami-Dade MPO Bicycle Master Plan. This document forms the basis for many subsequent plans and studies conducted over the past fifteen years.

The completion of this review will prevent redundancy, reduce chances of error in determining the placement of planned bikeway infrastructure, and help dovetail this current bicycle master plan process into those planning efforts already underway at the local, county and state level.

The column to the right contains the list of plans reviewed and the year they were completed. Following is a brief summary and analysis focusing on the most germane information pertaining to the ongoing development of the Miami Beach bicycle network.

MIAMI-DADE TRANSPORTATION IMPROVEMENT PROGRAM (2012)

Summary: The Transportation Improvement Program (TIP) is the project funding policy document for Miami-Dade County transportation projects. Updated every five years, the TIP includes investment priority for all modes of travel, including bicycle facilities.

Analysis: Three bikeway projects in Miami Beach were included in the 2012 TIP. They include:

- Beach walk between 46th and 64th Streets
- Beach walk between southern edge of Lummus Park and South Pointe Drive
- 5th Street between Collins Avenue and West Avenue

FDOT EVALUATION OF SHARE LANE MARKINGS IN MIAMI BEACH, FLORIDA (2012)

Summary: FDOT hired researchers from the University of North Carolina Highway Safety Research Center to evaluate how the applications of Shared Lane Markings (sharrows) performed in Miami Beach. More specifically, the researchers recorded hours of videotape to analyze bicyclists on Washington Avenue before and after the application of sharrows. The study results are not just locally significant, but important statewide, as Washington Avenue was the first thoroughfare in Florida to experiment with sharrows.

Analysis: In general, the research team found numerous positive results associated with the use of sharrows. Specifically, bicyclists rode approximately 10.5 inches further away from parked motor vehicles after sharrows were introduced, which means more riders were passing outside of the door zone. The spacing between motor vehicles in the travel lane and those parked also increased about 4.5 inches. This effectively gives cyclists more operating space. Finally, the percentage of bicyclists using the sidewalk decreased from about 55 to 45 percent. All of the findings associated with the evaluation were statistically significant.

FDOT STATE ROUTE A1A BICYCLE MASTER PLAN (2011)

Summary: A 22- mile bicycle plan for the State Route A1A corridor. The route is contained entirely within the FDOT District 6 boundary, and includes the municipalities of Golden Beach, Sunny Isles Beach, unincorporated Miami-Dade County (through Haulover Park), Bal Harbour, Surfside, Miami Beach and the City of Miami via the MacArthur Causeway. The Plan is essentially a segment-by-segment facility plan intended to connect the 6 municipalities through which SR A1A passes with bicycle facilities. The Plan's main components include:

- Design Standards
- Background Info
- Project Approach
- Project Segmentation
- Concept Plan for each segment
- Alternative Routes analysis
- Probable Cost Analysis
- Shared Lane Marking Implementation

Analysis: The SR A1A corridor plays an important role in the City of Miami Beach. It currently provides the main north-south connection for the entire eastern portion of the City. In South Beach, A1A's MacArthur Causeway also offers one of the three primary connections between Miami Beach and the City of Miami. Unfortunately, it is currently one of the more difficult thoroughfares on which to bike in the city. This Plan presents needed opportunities to enhance the corridor's bicycle-friendliness.

Given the wide range of right-of-way and land use characteristics, the Plan does well to connect the entire 22-mile corridor with bicycle facilities. In some areas, the implementation of a context-sensitive facility is clearly feasible and desirable, while in other areas it remains a challenge from an engineering, design, and user perspective.

The Plan is very much conceived at the macro level and does not include details of the needed transitions between facility types/context that would need to be considered closely so that the corridor remains as continuously connected as possible.

Plans, Studies & Documents Reviewed:

- Miami-Dade Bicycle Pedestrian Safety Plan Update (2014)
- Complete Streets Manual (2014)
- 2040 Long Range Transportation Plan (2014)
- Downtown Miami Pedestrian Priority Zone (2014)
- Application of Innovative Bicycle Strategies (2013)
- Miami-Dade TIP (2012)
- FDOT Evaluation of Share Lane Markings in Miami Beach, Florida (2012)
- FDOT State Route A1A Bicycle Master Plan (2011)
- Miami Dade County – Long Range 2035 Transportation Plan (2009)
- Miami Beach - Atlantic Greenway Network Master Plan (2008)
- Miami-Dade MPO Mountain Biking / Unpaved Trails Inventory (2008)
- Miami-Dade MPO Bicyclist Count (2008)
- Miami-Dade MPO Bikeway Map (2008)
- Miami-Dade MPO Bicycle and Pedestrian Crash and Fatality Report (2008)
- Miami Beach – West Avenue Basis of Design Report (2007)
- Miami-Dade MPO Bicycle Facilities Plan (2007)
- Miami-Dade MPO Parks Master Plan (2007)
- Miami Beach – 16th Street Phase I Basis of Design Report (2007)
- Miami-Dade MPO Crash data (2006)
- Miami-Dade MPO Bicycle Safety Plan (2006)
- Miami-Dade MPO Long Range Transportation 2030 Plan (2004)
- Miami-Dade MPO Bikeway Priority Feasibility and Evaluation Study (2003)
- Miami Beach – Nautilus Neighborhood Basis of Design Report (2002)
- Miami-Dade MPO Bicycle Facilities 2025 Plan (2001)
- Miami-Dade MPO LRTP 2025 Bike Suitability Study (2001)
- Miami-Dade MPO Bicycle Facilities Plan (1997)

MIAMI DADE COUNTY – LONG RANGE 2035 TRANSPORTATION PLAN (2009)

Summary: The 25-year planning and policy document for Miami-Dade County transportation. Updated every five years, the plan includes investment priority for all modes of travel, including bicycle facilities.

Analysis: Compared to the previous 2004 plan, the 2035 LRTP takes a more aggressive approach to designing and constructing bikeways. The map of prioritized projects for 2010-2014 demonstrates a fairly equal distribution of projects, including the implementation of Miami-Dade's first bicycle boulevards. On Miami Beach, priority projects include the completion of the beach walks and the development of a bicycle path along Dade Boulevard, which is currently under construction.

The intermodal portion of the plan provides few details, but underscores the importance of investing in bicycle and walking as forms of transportation. Indeed, Florida, and specifically the Miami region, is one of the least safe places to walk or bicycle and is in need of expanding safe, attractive, and connected facilities.

MIAMI-DADE MPO: MOUNTAIN BIKING / UNPAVED TRAILS MAP (2008)

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

Analysis: The Miami-Dade MPO produced a useful map that displays all unpaved trails and routes designed specifically for, or well-suited to off-road biking enthusiasts. Mountain biking is largely a recreational activity that piques the interest of many riders in south Florida for which the map will prove useful. However, within the City of Miami Beach, there currently are no unpaved trails available for such use.

MIAMI-DADE MPO: BICYCLE COUNT (2008)

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

Analysis: Data was gathered on weekday mornings and weekend afternoons in the summer and winter of 2008. Eight counts were taken in Miami Beach. They include:

ter of 2008. Eight counts were taken in Miami Beach. They include:

- Venetian Causeway near Rivo Alto Island
- Washington Avenue & 16 Street intersection
- Collins Avenue near 16 Street
- 5th Street near Meridian Avenue
- Ocean Drive & 10 Street intersection
- Alton Road near 16 Street
- West Avenue near 16 Street
- 71 Street Bridge near Bay Drive

The results reveal that a vast majority of bicyclists in the City of Miami Beach are adult males who don't wear helmets. This has clear implications for future safety countermeasure and education efforts, especially as it relates to creating conditions that attract a more diverse demographic to ride bicycles. Particularly high activity areas included the Venetian Causeway, Washington Avenue, and Ocean Drive.

The systematized data collection method used and count locations now offer a baseline for future bicycle counts in the City that can monitor behavior and activity trends. Use of such counts will provide insight into how improved facilities affect use patterns.

MIAMI-DADE MPO BIKEWAY MAP (2008)

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

Analysis: The map displays a range of bikeway

facilities and routes across Miami-Dade County. The map does not include several new bikeways constructed in Miami Beach since 2008, including the now approved use of sharrows, which can now be found on several Miami Beach streets. Overall, the map is relatively rough and displays a small and discontinuous regional bikeway system.

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. This existing planning effort is an update of the AGN Plan.

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: In 2012, Atkins Global was asked to review the strengths and weaknesses of the existing AGN Plan. 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. The Atkins memo covers many of these, the a lack of accepted bikeway and intersection treatment facilities; lack of integration with other existing transit options; lack of meaningful public participation; and adding a project feasibility analysis are but a few elements that should be included in the AGN Plan Update.

MIAMI-DADE MPO: PARKS, RECREATION AND OPEN SPACES MASTER PLAN (2007)

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

Analysis: Related to bicycling, a primary recommendation is to create network of "Great Streets" by retrofitting the County's existing oversupply of wide, auto-centric arterial and collector roadways. Clearly, Miami-Dade County and the City of Miami Beach must work with FDOT "to move beyond vehicular performance based street design and instead design streets that are defined by their role in the community." In bringing this point to light, the Plan underscores the importance for all residents to have immediate access to bicycling facilities: for recreation, health and utility.

MIAMI-DADE MPO: BICYCLE CRASH DATA – 2005-2007

Summary: A map displaying reported crash data for 2005, 2006, and 2007.

Analysis: Miami Beach bicycle crashes are concentrated in South and North Beach, areas where bicycle activity is higher than in Mid Beach. The map reveals that a vast majority of crashes are occurring at intersections, especially along the FDOT and County roads where motor vehicle speeds are the highest and the street design the least hospitable to people walking or bicycling.

Crashes are likely under reported, as is the case in most official pedestrian or bicycle crash statistics. Bicycle crashes in particular, tend to be minor and caused by the bicyclist, and therefore are often not reported. However, when and where bicycles crashes occur with motor vehicles, there is an increased risk of serious injury or death. In general the general trend line shows a diminishing number of crashes in the city. Instituting a more robust online crash mapping and analysis program, such as www.crashstat.org, would help provide more reliable data and offer clear areas to direct limited dollars for safety improvements.

MIAMI BEACH – 16TH STREET PHASE I BASIS OF DESIGN REPORT (2007)

Summary: This Basis of Design Report (BODR) provides conceptual design plans for permanent right-of-way and infrastructure improvements along 16th Street, from Bay Road to Collins Avenue. The improvements outlined in the BODR are the result of significant and ongoing input from the City's technical staff, Program Manager, Flamingo Park residents and

the consultant team. GO Bond neighborhood projects utilizing the BODR process include: streetscape, bicycle and pedestrian improvements, traffic calming, stormwater upgrades, water and sewer upgrades and street resurfacing.

Analysis: The significant infrastructure improvements outlined in the 16th Street BODR have yet to be realized, save for the striping of 5′ bicycle lanes. While the bicycle lanes are well used and serve as an important east-west connector running parallel to Lincoln Road, there remain operational challenges for bicyclists at intersections. Additionally, people driving frequently double park, which forces bicyclists out into the vehicular lanes. The residents of Flamingo Park continue to advocate for further changes to make the recommendations in the BODR more pedestrian and bicycle-friendly. To date, walking along 16th Street can still be challenging, as sidewalks are narrow, private landscaping encroaches on the sidewalk, and street signs and street light posts further reduce the effective width of the sidewalk. These concerns are legitimate and should be removed so that bicycling and walking are as safe and inviting as possible.

MIAMI-DADE MPO BICYCLE SAFETY PLAN (2006)

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

Analysis: In general, the bicycle crash trend line is decreasing throughout the whole county. As it relates to Miami Beach, the largest clusters of accidents were occurring in the neighborhoods of South Beach and North Beach (high density neighborhoods with high levels of bicycle ridership, but few bicycle facilities). Particular concentrations are found along FDOT and County roads where multiple vehicle lanes and higher traffic volumes/vehicular speeds create more hostile conditions for people bicycling or walking.

Physical engineering recommendations include bicycle lanes, traffic calming measures, and experimental treatments like shared lane use markings (sharrows) and bicycle boxes. The former two are methods are found throughout city, but bicycle boxes have not been used at all in Miami Beach or within Miami-Dade County. Additionally, developing bicycle boulevards or "neighborhood greenways" are nationally recognized as an excellent way to simultaneously calm traffic and create bicycle routes along primarily residential streets. This type of street retrofit has been studied by the County and may be a feasible option for particular areas in the City of Miami Beach, including streets that run parallel to major corridors with high crash rates. Educating City Commissioners and other city/county agencies will help decision makers prioritize these relatively inexpensive safety and quality of life improvements.

MIAMI MPO CRASH DATA (2000 – 2006)

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

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

MIAMI-DADE MPO LONG RANGE TRANSPORTATION 2030 PLAN (2004)

Summary: The 25- year planning and policy document for Miami-Dade County transportation. Updated every five years, the plan includes investment priority for all modes of travel, including freight.

Analysis: The plan still places a primary emphasis on pure mobility and not accessibility. As it relates to bicycles, the plan calls for expanding bicycles lanes and greenways, many of which were identified in previous studies. The plan doesn't assign specific funding stream or priority to any of the proposed projects.

MIAMI BEACH – NAUTILUS NEIGHBORHOOD BASIS OF DESIGN REPORT (2002)

Summary: A Basis of Design Report (BODR) provides conceptual design plans for permanent right-of-way and infrastructure improvements. The

improvements outlined in the Nautilus BODR are the result of significant input from the City's technical staff, Program Manager, residents of Nautilus and the consultant team. GO Bond neighborhood projects utilizing the BODR process include: streetscape, traffic calming, bicycle and pedestrian improvements, storm water upgrades, water and sewer upgrades and street resurfacing.

Analysis: Significant infrastructure improvements have been made in the Nautilus neighborhood since the BODR was approved in 2002. As it relates to bicycling, the report called fore a designated 4' wide bicycle lane along 47th Street, from Pine Tree Drive to Prairie Avenue, and on Prairie Avenue from 47th Street south to 41st Street (Arthur Godfrey Road). Additional bicycle lanes and shared use lane markings have also further improved bicycle mobility in the neighborhood. Neighborhood streets were also narrowed, intersection radii reduced to 15', which effectively reduces the speed of motor vehicles and makes bicycling and walking more comfortable.

MIAMI-DADE MPO: BICYCLE FACILITIES PLAN (2001)

Summary: A comprehensive bicycle facility plan for Miami-Dade County. The plan uses quantitative analysis tools (Bicycle Level of Service) to determine the conditions and suitability of the existing arterial and collector thoroughfare network for bicycling. Of the 1,500 roadway miles analyzed, only 8.6 percent of roadway miles were at an acceptable level of service for bicycling (score of "C" or better). Moreover, over 90 percent of the roadway miles received an unacceptable LOS score of "D" or worse, with approximately 58 percent of all segments receiving an LOS score of "E" and 5.7 percent a LOS of "F" rating. Almost the entire network identified in Miami Beach received a "D" or an "F." As of 2001, The County had less than 12 miles of on-road bicycle lanes that met FDOT criteria, and only recently began implementing more bicycle facility/lane miles.

Analysis: The plan is a robust quantitative survey of existing conditions within the County's bicycle network, but says nothing about the actual qualitative experience. It also ignores the role of land use and urban form in determining the relative bike-friendliness of a thoroughfare. Developed more than 10-years ago, it's time for this plan to be updated with new information and best practices.

MIAMI-DADE MPO: BICYCLE FACILITIES PLAN (1997)

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

Analysis: The 1997 plan was largely a physical needs-based document used to determine future routes, infrastructure needs, and the existing conditions for bicycling within the County, including the City of Miami Beach. The latter was done using a quantitative and objective Roadway Condition Index (RCI). The index found that more than 60% of roadways were unsuitable for safe bicycling in the County. Interestingly, a similar LOS analysis in 2001 indicated that 90% of roadways were unsuitable for such use. The RCI and the subsequent LOS metrics, while intended to correctly identity unsafe conditions and promote bicycle-friendly streets, often do the opposite. For example, as the plan mentions, the RCI promoted wide curb lanes and turn lanes for "more automobile capacity." This directly conflicts with the same RCI notion that lower ADT equals a more bike-friendly street.

MIAMI-DADE MPO BICYCLE AND PEDESTRIAN INJURIES AND FATALITIES (2008)

Summary: A graph displaying reported countywide injury and fatality numbers from 1990 - 2008.

Analysis: While this MPO document does not break out the crash trend lines in Miami Beach, the county as a whole is becoming a safer place to walk and bicycle. Bike crashes did increase slight over 2007, but fatalities continued to decline, and are now at an all-time low.

APPLICATION OF INNOVATIVE STRATEGIES TO IMPROVE BICYCLE SAFETY AND MOBILITY (2012)

Summary: Also known as "Application of Innovative Strategies to Improve Bicycle Safety and Mobility". The study was intended to develop innovative solutions to bicycle transportation

access, safety, and capacity problems including recommendations of the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide and recent experience with bicycle transportation experts from the Netherlands.

Analysis: The report includes a variety of bicycle solutions that correspond with national and international best practices. Where ever possible, this report corroborates many of the same techniques being used in the Miami Beach Street Design Guide.

In addition, the report analyzes dozens of specific intersections and corridors and makes specific recommendations. In Miami Beach it calls for:

- A connection on the MacArthur Causeway between end of bike lane and bike lane on 5 Street/Alton South.
- A colored or advisory bike land on Pine Tree between Dade Boulevard and 51 Street, and a bicycle boulevard north of 51 Street. The report also includes the following volume data for Pine Tree and La Gorce:

  Pine Tree Dr, S of 37th St - 16,200 vpd LOS D

  Pine Tree Dr, S of 51st St - 11,000 vpd LOS C

  Pine Tree Dr, S of 55th St - 5,100 vpd LOS C

  La Gorce Dr, N of 57th St - 4,800 vpd LOS C

MIAMI-DADE COMPLETE STREETS MANUAL (2014)

Summary: A manual documenting complete streets ideas and reviewing select case studies.

Analysis: This is the first complete streets manual produced for Miami-Dade County. While the idea is very positive, the execution of the report leaves too many questions unanswered. The document provides for a very limited view of complete streets, and relies on many of same conventional strategies that prioritize car travel over other modes. Examples include wide shoulders for bicyclists to "share the road", and a 12' travel lane standard. The document also lacks adequate graphics to explain the concepts.

2040 MIAMI-DADE LONG RANGE TRANSPORTATION PLAN (2014)

Summary: The LRTP is a federally mandated policy document that provides a minimum time horizon of 20 years. The LRTP is a comprehensive transportation infrastructure plan that includes, at a minimum, highway and transit infrastructure improvements. The Miami-Dade LRTP includes highway, transit, freight, and non-motorized components.

Analysis: The plan currently lacks any mention of mode share targets or goals. Projects are listed, but no overall transportation goal is made. Mention is made of non-motorized and public transportation, but no attempt is made to prioritize these modes in a verifiable way. The report discusses the performance monitoring program envisioned by the last transportation reauthorization program, MAP-21. This involves the identification of metrics, performance targets for those metrics, and the measurement of the transportation system performance against the metrics. This model has not yet been implemented. Among the projects listed that relate to Miami Beach are:

- Dade Boulevard Path (priority II) - from Meridian to the Atlantic Trail
- Atlantic Trail (priority IV) - Boardwalk replacement between 23 Street and 46 Street)
- Pine Tree / La Gorce (priority IV)

DOWNTOWN MIAMI PEDESTRIAN PRIORITY ZONE PLAN ORDINANCE AND STANDARDS (2014)

Summary: The City of Miami drafted a Pedestrian Zone Plan for Downtown Miami that implemented ten policies and standards to prioritize pedestrians above all other modes.

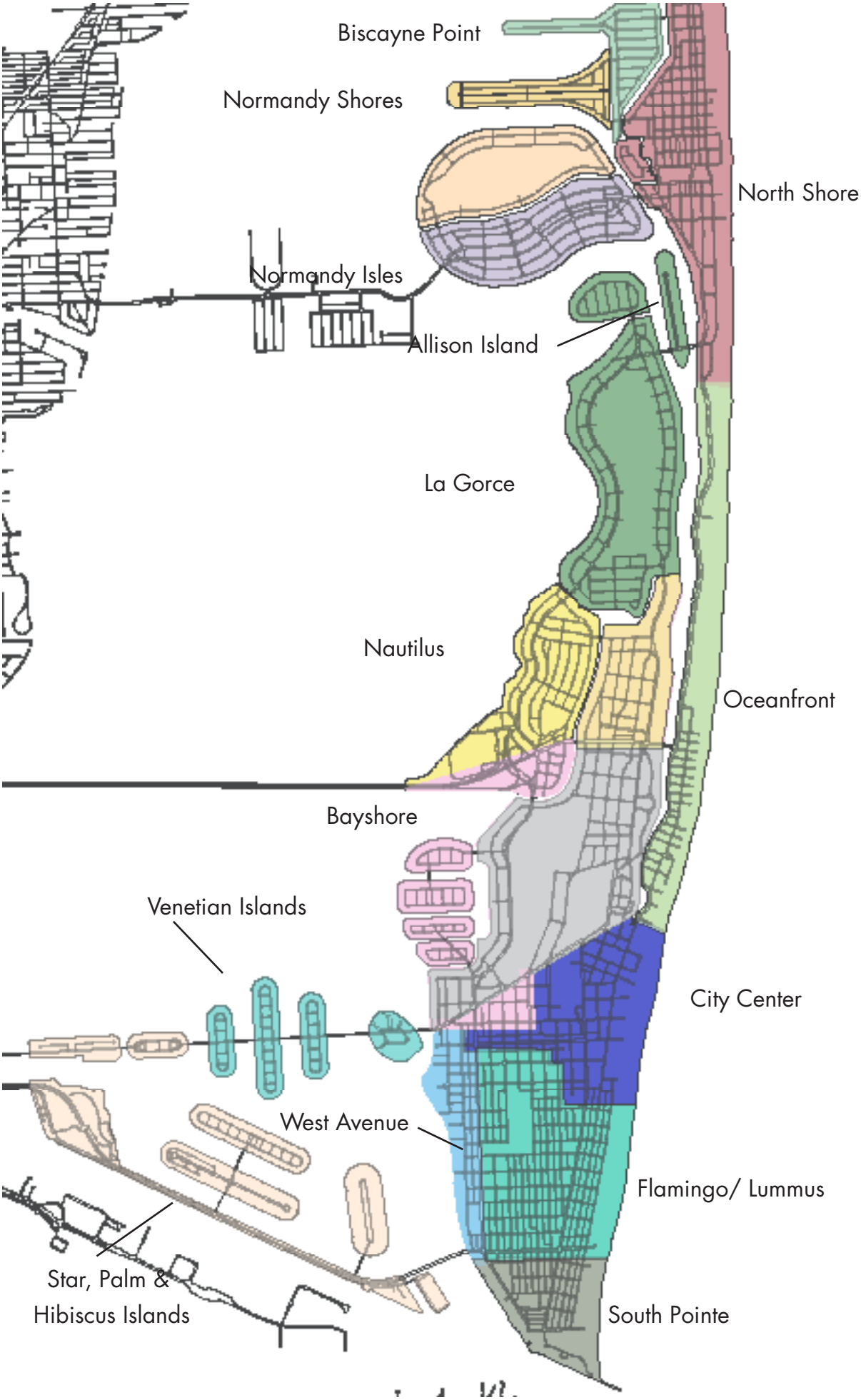
Analysis: The plan calls for both infrastructure based and policy based solutions to enhance pedestrian safety and comfort. No right on red policies, tight curb radii, and narrow travel lanes are among the elements included in the plan. Many of the same elements will be included in the policy and street design sections of the report.

MIAMI-DADE BICYCLE PEDESTRIAN SAFETY PLAN UPDATE (2014)

Summary: In 2014 Mlami-Dade County updated the 2006 Bicycle Safety Program Plan and developed a Pedestrian Safety Program Plan.

The purpose of the Plan is to evaluate and recommend safety countermeasures to improve the conditions for walking and bicycling.

Analysis: The plan calls for both infrastructure based and policy based solutions to enhance pedestrian safety and comfort. No right on red policies, tight curb radii, and narrow travel lanes are among the elements included in the plan. Many of the same elements will be included in the policy and street design sections of the report.


Biscayne Point
Normandy Shores
North Shore
Normandy Isles
Allison Island
La Gorce
Nautilus
Oceanfront
Bayshore
Venetian Islands
City Center
West Avenue
Flamingo/ Lummus
Star, Palm &
Hibiscus Islands
South Pointe

ABOUT THE ANALYSIS

The street sections in the pages that follow include over 30 different intersections and roadway segments calibrated using the Street Design Standards. This analysis focuses on significantly improved bicycle and pedestrian safety and access. Proposals are described with typical plans, sections, and intersection conditions.

NORTH BEACH

North Shore
Byron Avenue
72 Street
73 Street
Harding

Normandy Isles
Normandy Shores

MIDDLE BEACH

Bayshore
Alton Road @ 27 Street
North Bay Road
Royal Palm Avenue
Meridian Avenue
Indian Creek @ 27th Street
Dade Boulevard @ Meridian
Dade Boulevard @ 19 Street
19 Street
20 Street
Purdy Avenue

La Gorce
Alton Road @ 63 Street
63 Street
Pine Tree Drive
La Gorce Drive
51 street
Pine Tree / La Gorce @51 Street
Pine Tree / La Gorce @ 63 Street

Nautilus
Alton Road
Intersection @ 195/Alton

Oceanfront
Collins
Beachwalk

SOUTH BEACH

West Avenue
Intersection @ 16 Street

Flamingo Park/ Lummus
Euclid Avenue
Euclid @ 16 Street
Pennsylvannia
Washington
16 Street
11 Street
10 Street
Meridian
5 Street

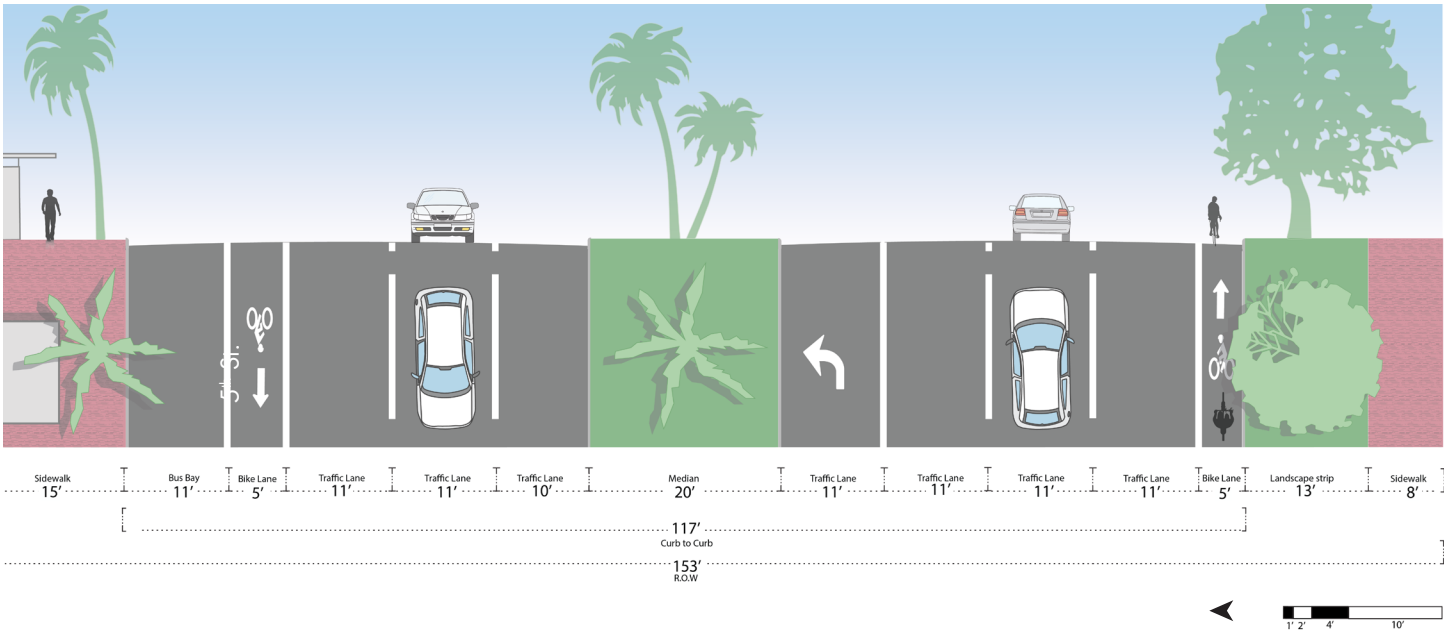
City Center
South Pointe

APPENDIX: STREET DESIGN ANALYSIS

5TH STREET

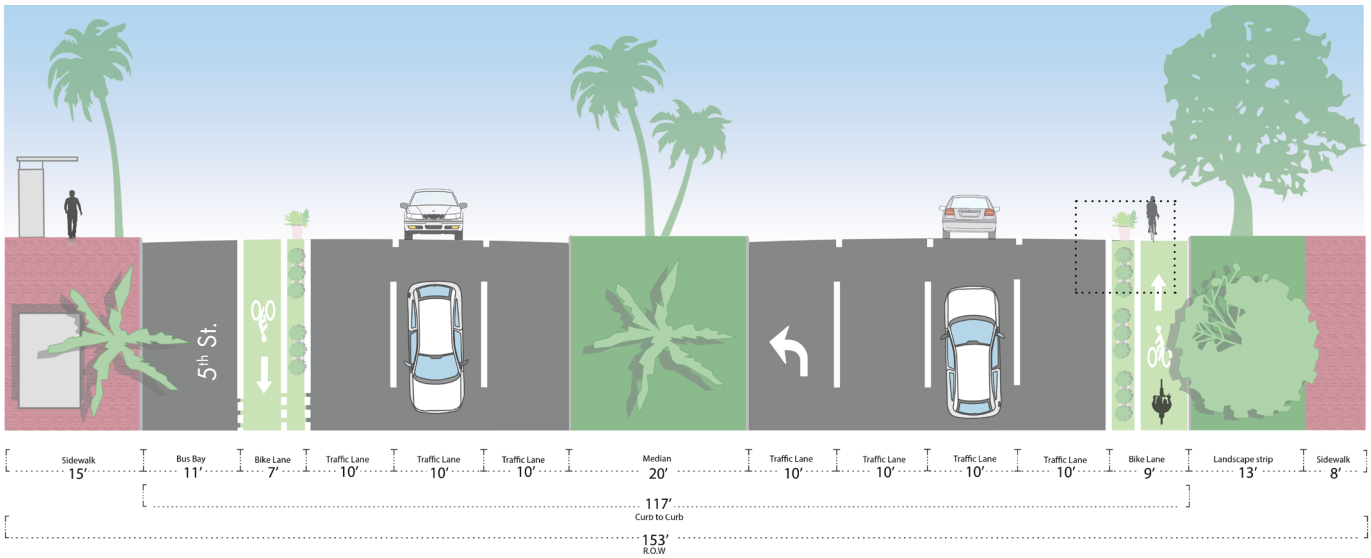
Street Data	
Public Right-of-Way Width	160′
Pavement Width	117′ typical
Posted Speed Limit	35 mph
Daily Volume	67,050 ADT
Project Limits	Between Alton Road and Ocean Drive
Project Length	Approximately 3,000′, 0.56 Miles
Predominant Land Use	commercial
Predominant Development Pattern	high density, low scale commercial
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	Main entrance to Miami Beach; regional connection on MacArthur
Impact on modeshare	high
Upcoming Public Works Project	Yes - Baylink

EXISTING CONDITIONS



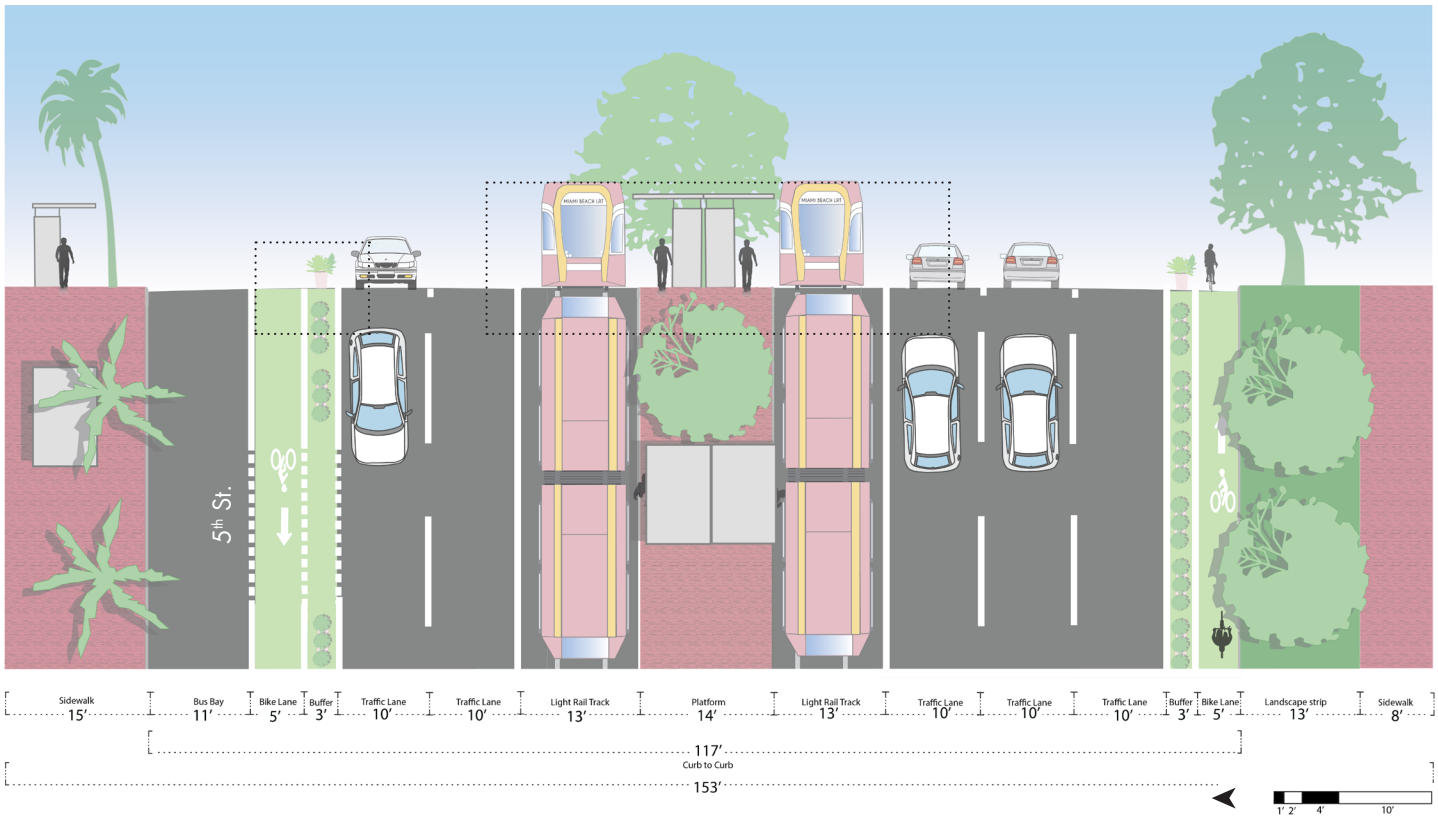
5th Street is the main entrance for most visitors to Miami Beach. It is a wide six lane, palm tree lined boulevard. It currently has on-street bicycle facilities. Given the high volume of traffic and high speeds, upgrading this corridor to a protected facility should be prioritized in the near term. Over the long term, the addition of transit along this corridor will provide an opportunity to implement protected bicycle facilities, more street trees and reduced car capacity.

PROTECTED LANES

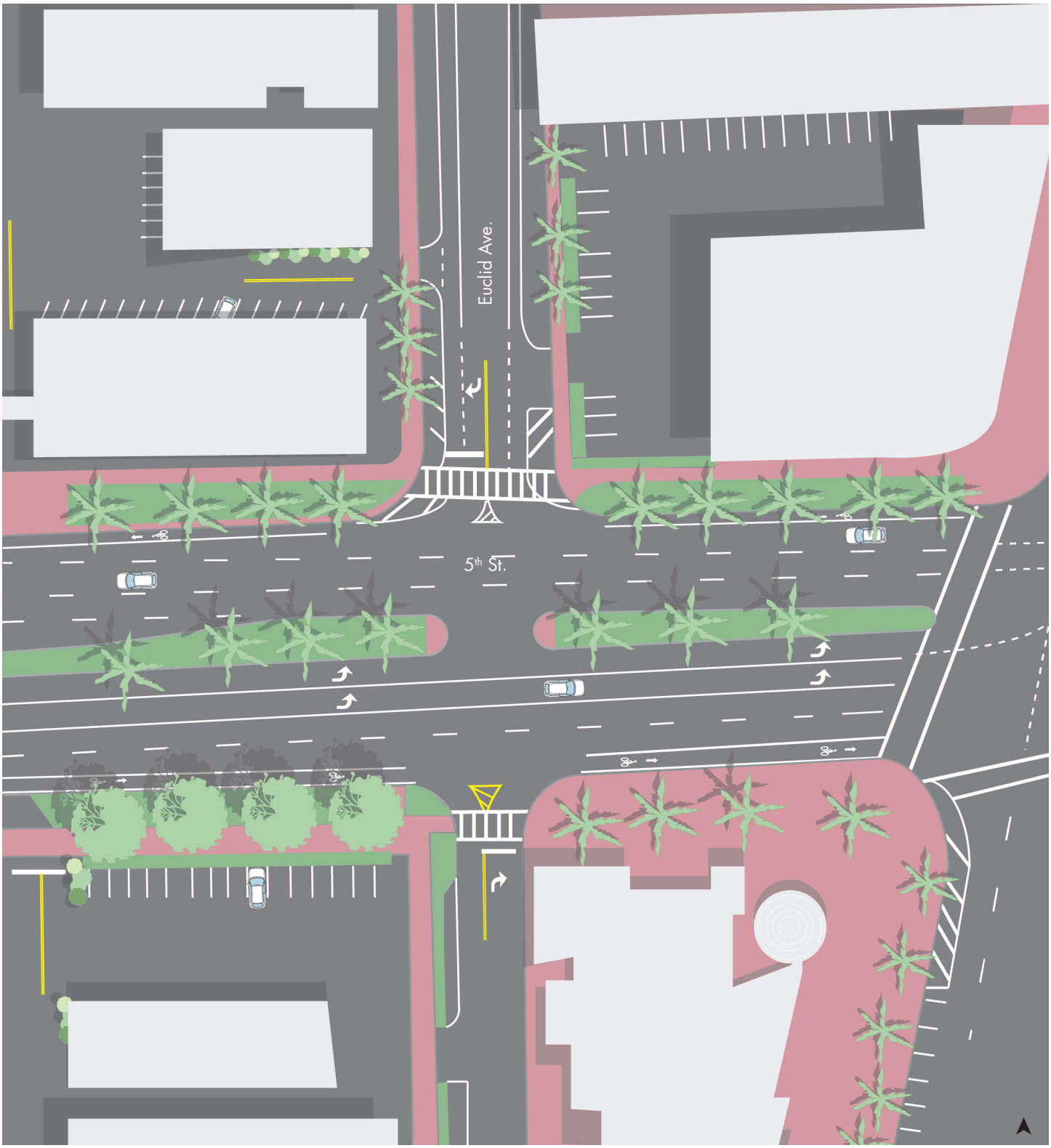


Refer to figure 2.41 - 2.52 of the Street Design Guidelines for additional information on protected bike lanes.

PROTECTED BICYCLE LANES WITH LIGHT RAIL

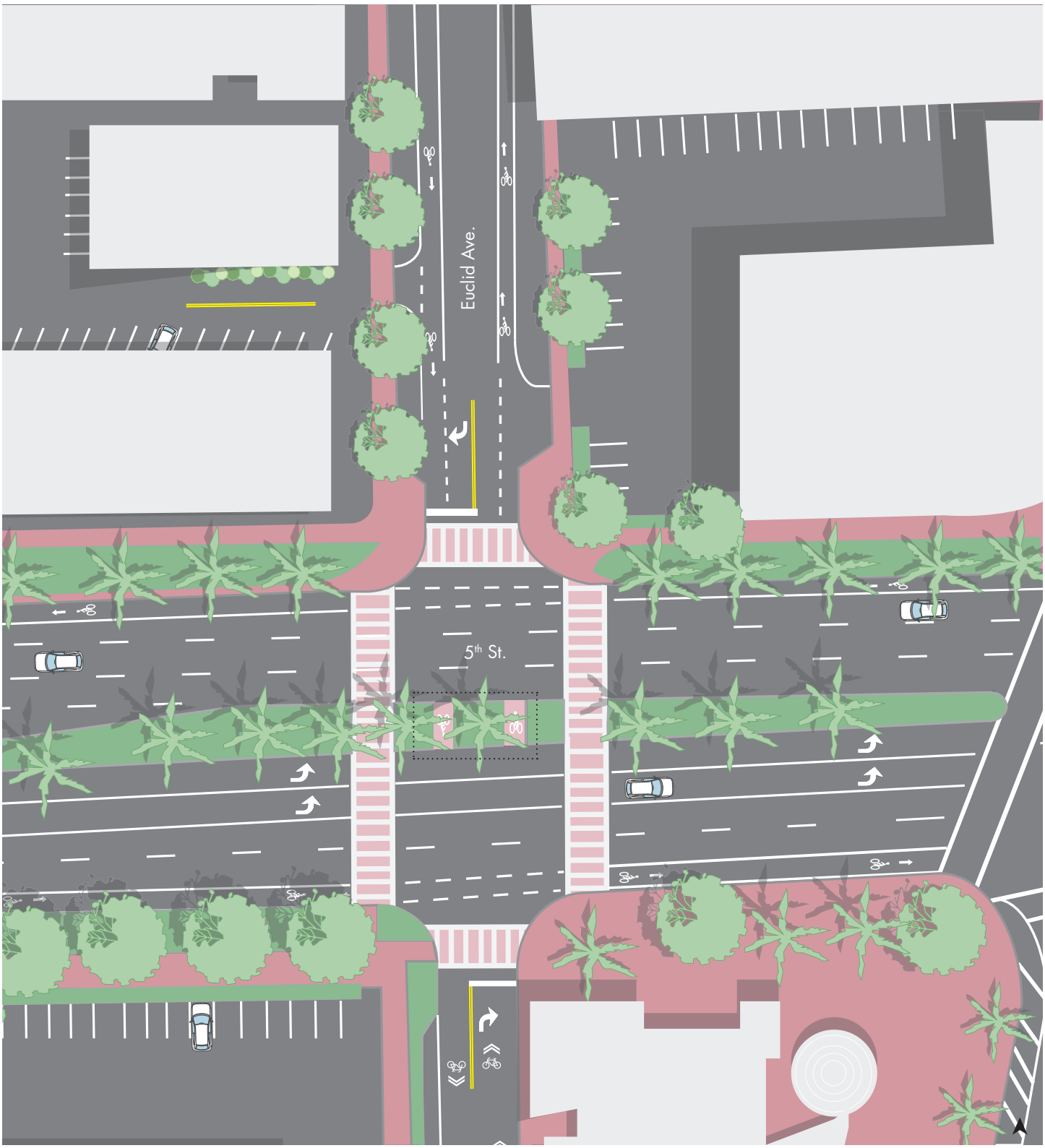


Refer to figure 2.41 - 2.52 of the Street Design Guidelines for additional information on protected bike lanes, and figure 2.91 for the transit station.



On streets with a volume of >3000 ADT, speeds greater than 20 mph, and 2 or more lanes, crosswalks should be the norm at intersections. Frequent crossings, that are wide and visible to motorist, enhance walkability and safety. In addition, crosswalks fuel future demand.

When deciding on the implementation of a crosswalk,consider multiple factors like: present and future demand, speed safety along the corridor, desired crossing locations and crash history. The minimum of 300' spacing might not be enough to determine crosswalk implementation or additional devices that might be installed.



Refer to figure 2.82 of the Street Design Guidelines for additional information.

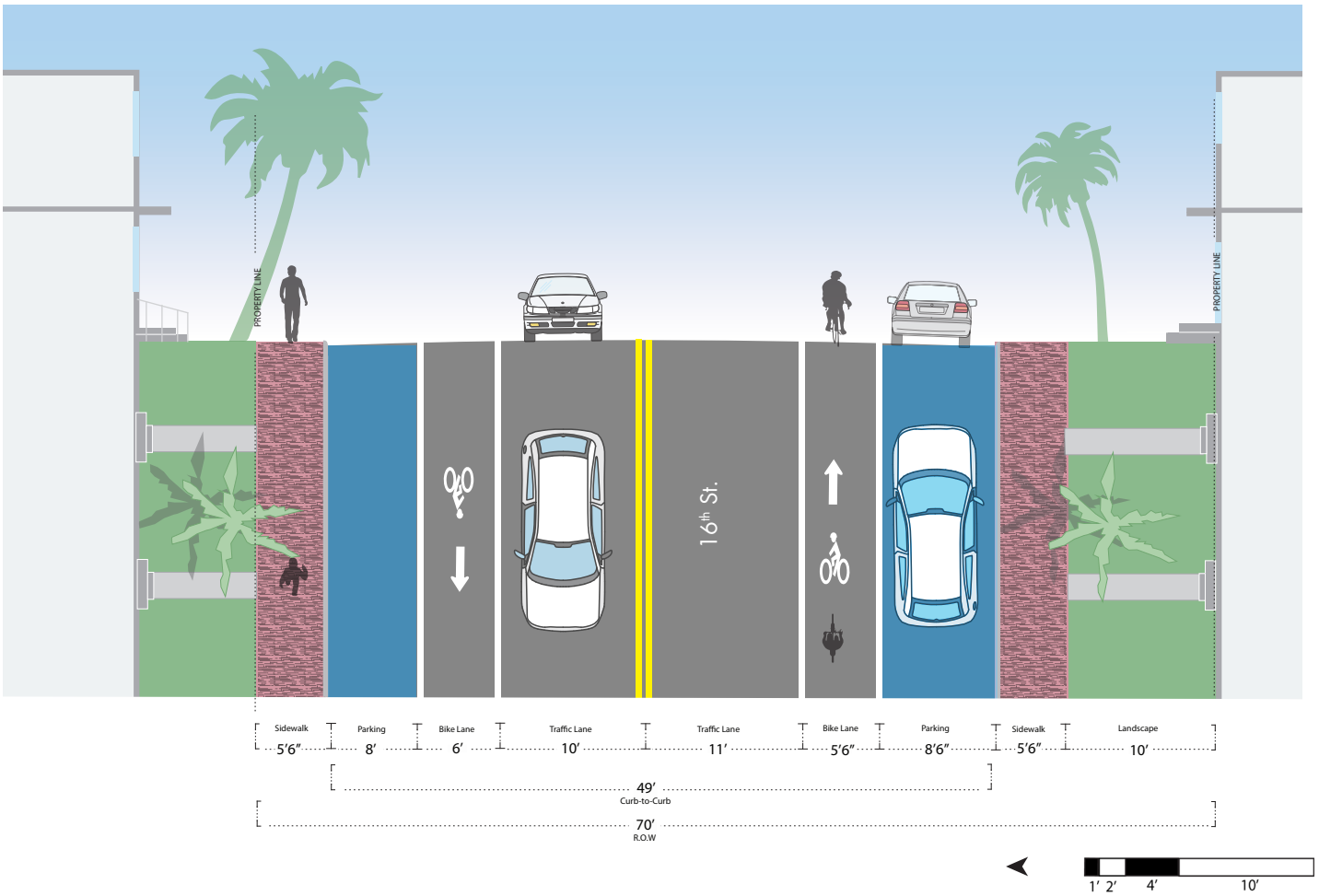
Discouraging pedestrian/bicyclists crossings by leaving uncontrolled crossings unmarked is not a valid safety measure. Instead, it encourages unsafe, risk-taking behavior and discourages walking citywide. Efforts should be made to enhance or highlight desired crossings as much as possible. Hybrid beacons, rapid flash beacons (RFBs), raised crossings, medians, and other safety counter-measures may be suitable and less expensive than full signalization. These should all be considered before leaving an uncontrolled crossing unmarked.

Wherever a pedestrian crossing is granted, bicycle crossing must be present in order to maintain connectivity.

16TH STREET

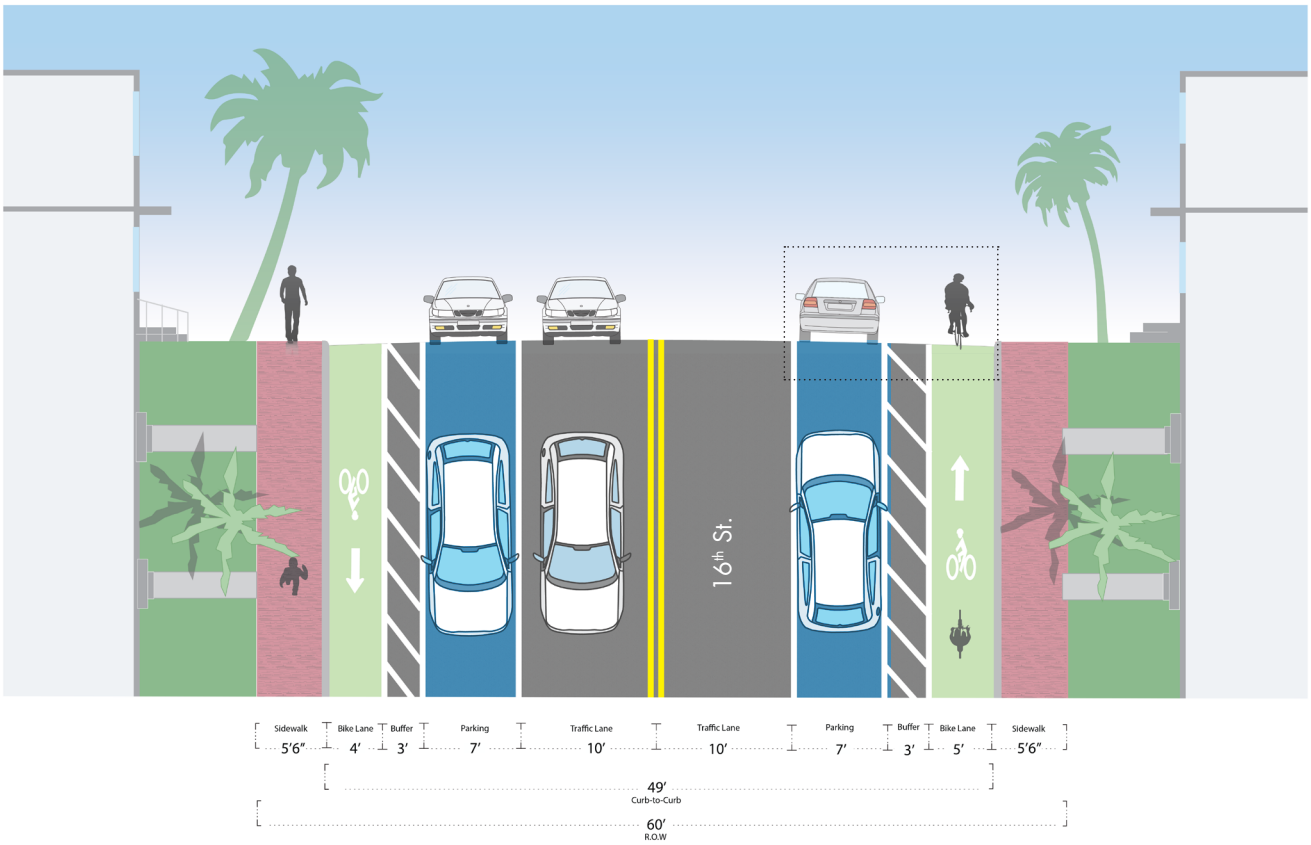
Street Data	
Public Right-of-Way Width	70′
Pavement Width	49′ typical
Posted Speed Limit	25 mph
Project Limits	Between Alton Road and Washington
Project Length	Approximately 3,500′, 0.66 Miles
Daily Volume	9,200 -16,500 ADT
Predominant Land Use	multifamily residential
Predominant Development Pattern	Compact urban apartment types
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	With a conventional bike lane, 16 Street is one of the most heavily used bike corridors in the city.
Impact on modeshare	high
Upcoming Public Works Project	Yes - CIP

EXISTING CONDITIONS

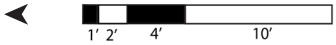


16th Street is one of the most popular bicycle routes in Miami Beach. Making it as safe as possible, and attracting even more people to ride on this street is one of the best opportunities The City has to encourage a robust bicycle network.

PROTECTED BIKE LANE



Refer to figure 2.41 - 2.52 of the Street Design Guidelines for additional information.

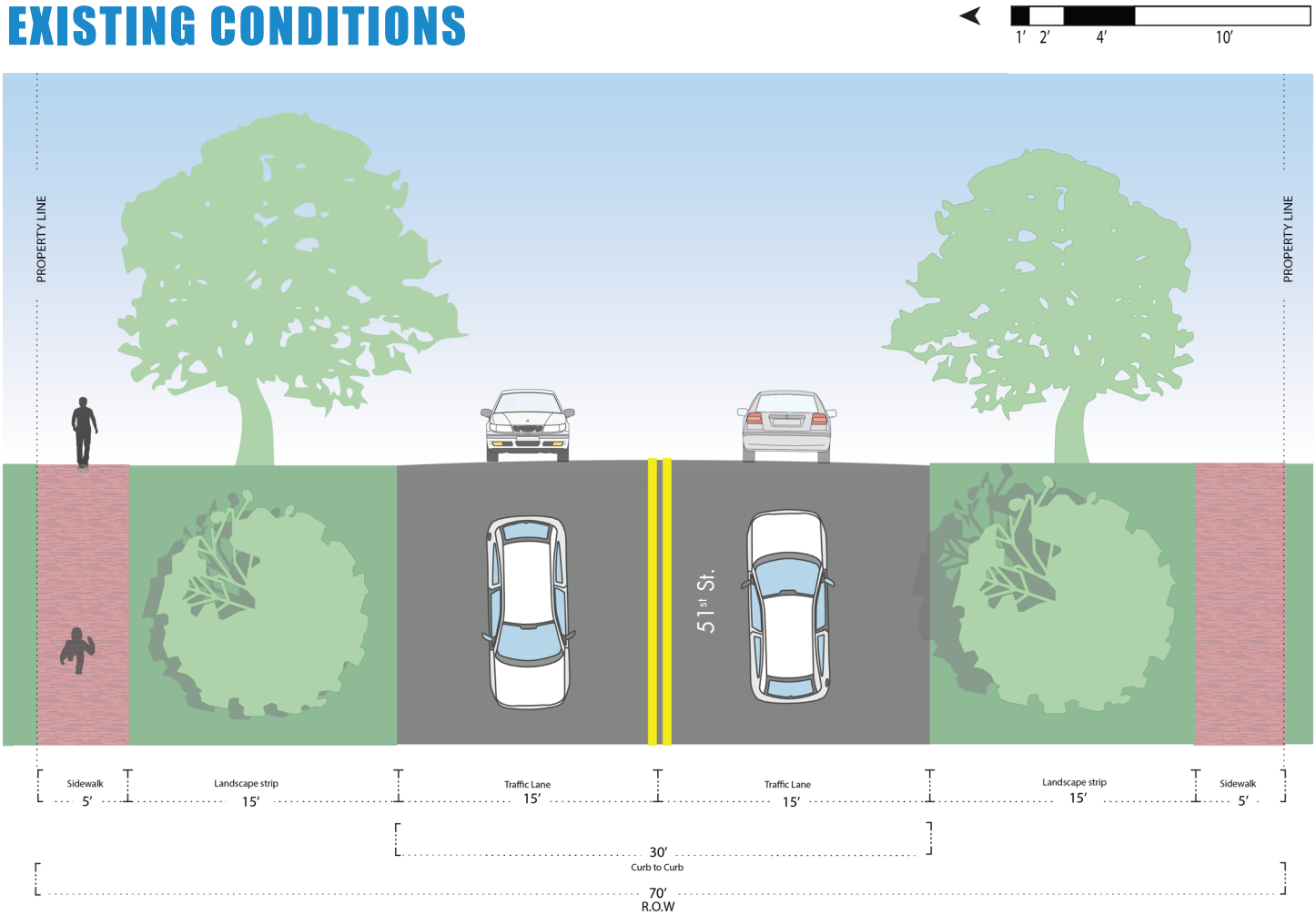


Creating a parking protected bike lane on 16th Street should be a priority. Either at the sidewalk level or street level, the volume of cyclists on this route warrant a higher level of service.
In the protected bicycle lane recommendation, gutters have been relocated to the buffer area of the bike lanes.

51ST STREET

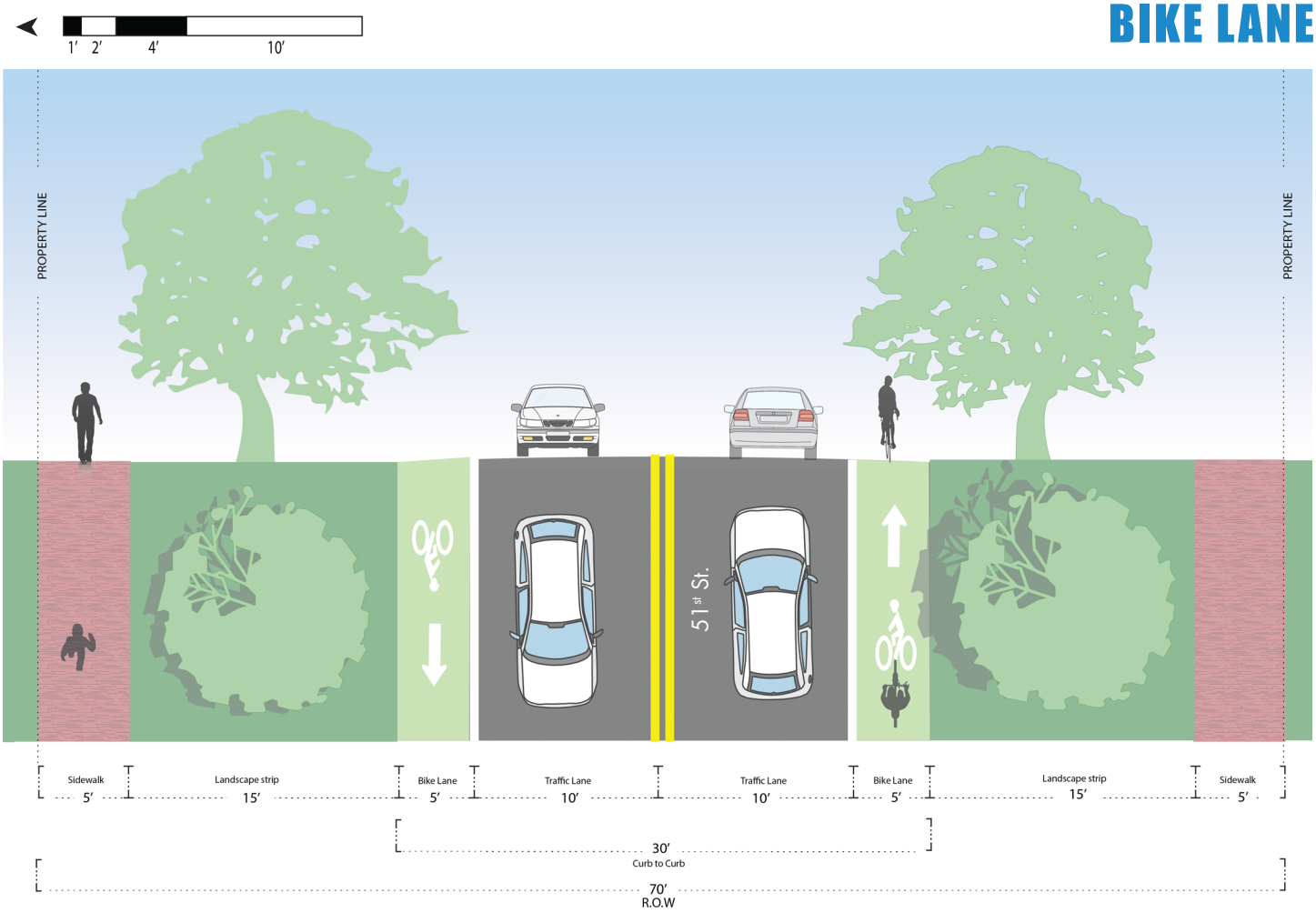
Street Data	
Public Right-of-Way Width	70′
Project Limits	Between Alton Road and Pine Tree Drive
Project Length	2,000′, 0.4 Miles
Pavement Width	30′ typical
Posted Speed Limit	25 mph
Daily Volume	N/A
Predominant Land Use	Single Family Residential
Predominant Development Pattern	Suburban Detached
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	There is a small park on the corridor. The value of this corridor is in the connectivity between routes.
Impact on modeshare	moderate
Upcoming Public Works Project	No

EXISTING CONDITIONS

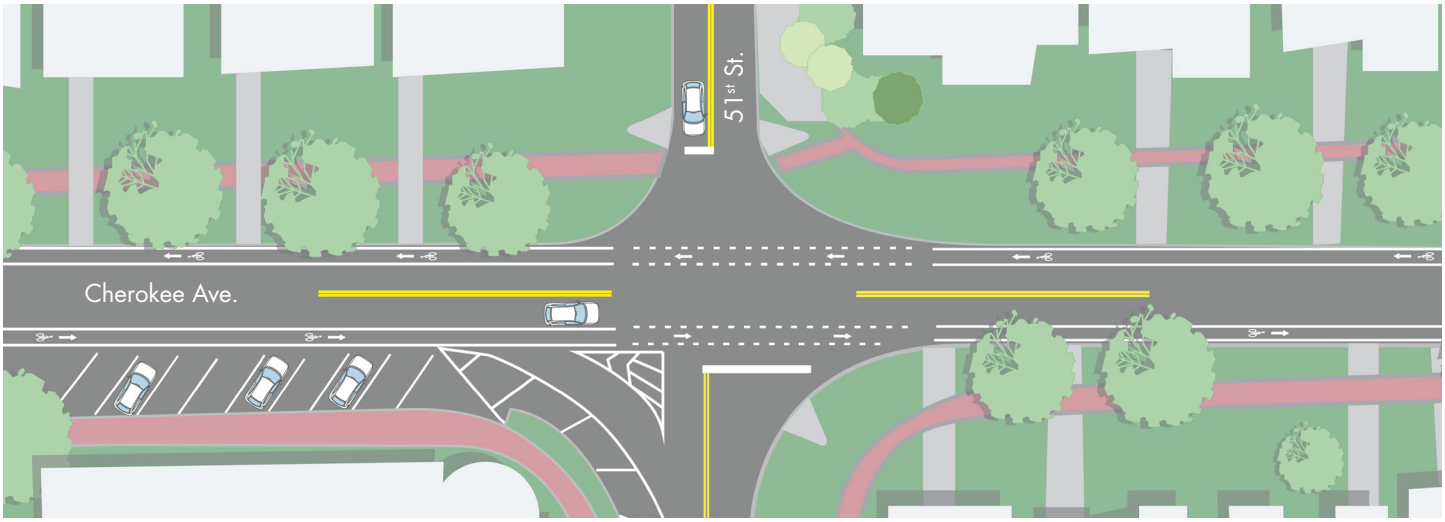


51 Street is an important 3.41 - 3.52 of the Street Design Guidelines for additional information on protected bike lanes. east /west connection in the bicycle network. It connects Alton Road and Pine Tree / La Gorce pair.

BIKE LANE



5′ Bike lanes on this 28′ roadway surface can be implemented in the short term with no pavement expansion. Given the observed speeds and volumes on this route, the criteria allow for a conventional bike lane.

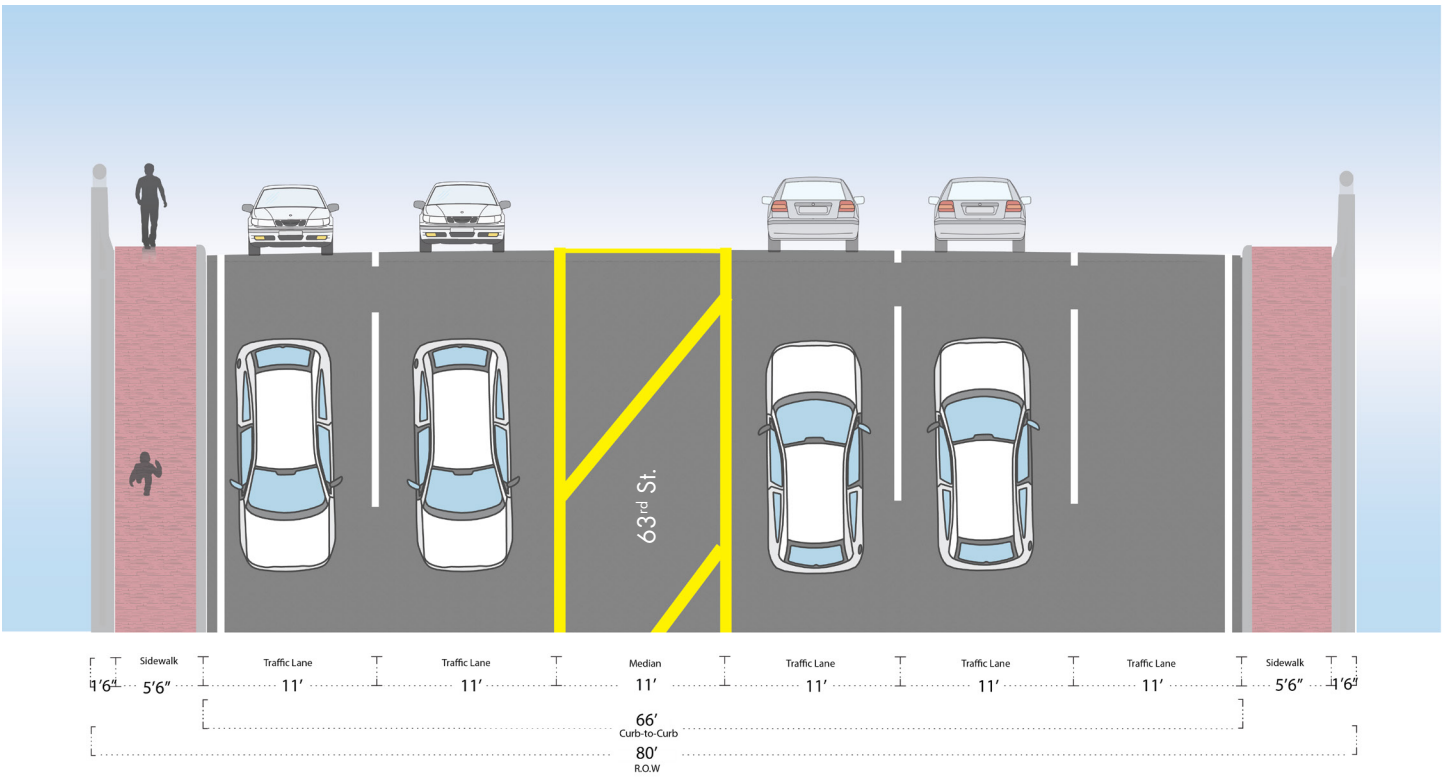


Cherokee Avenue is the site of a unique condition. A combination of angled parking and small scale retail allow for bicycle lanes that serve the neighborhood in addition to overall network connectivity. By reconfiguring the existing angled parking into back- angle parking, bicyclist are more visible to motorists.

63RD STREET

Street Data	
Public Right-of-Way Width	80′ on Bridge, 100′ typical to the West of bridge
Pavement Width	66′ typical
Project Limits	Between Alton Road and Indian Creek Drive
Project Length	2,000′ 0.4 Miles
Posted Speed Limit	35 mph
Daily Volume	32,960 ADT
Predominant Land Use	Single Family Residential / multifamily residential
Predominant Development Pattern	Suburban Detached/ small apartment buildings
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	High density residential apartment buildings and the beach are both major pedestrian and bicycle generators in this area.
Impact on modeshare	High
Upcoming Public Works Project	Yes - FDOT

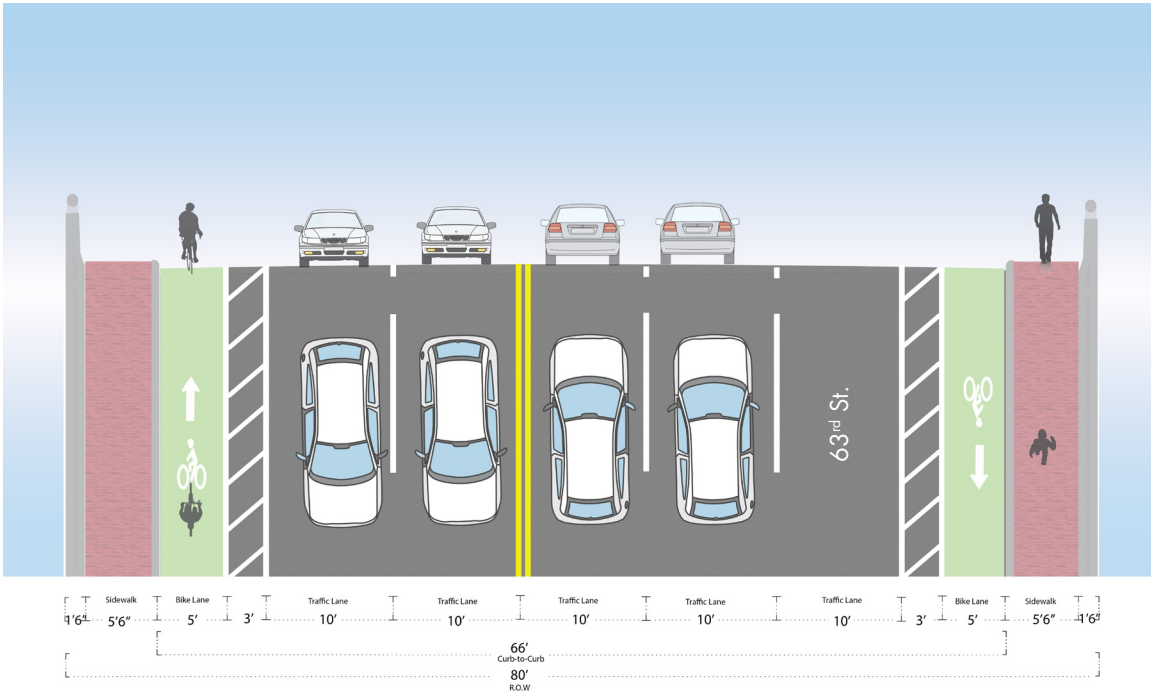
EXISTING CONDITIONS



63 Street is a critical connection between mid/south beach and the communities of north beach. The street is the subject of an upcoming FDOT road redesign, and preliminary designs are headed in the right direction. A reduction in lane widths is a good step, but there are serious concerns regarding the proposed section's ability to provide much needed connectivity for cyclists where they need it most. While traffic volumes approaching the bridge are very high, the proposed sections do little to alleviate the comfort of cycling. Unfortunately, there is no parallel option here, as North Bay and/or La Gorce/Pine Tree all empty out onto this point. For this reason, and because the volume of traffic is high, the most emphasis should be placed here on safe and comfortable bicycle and pedestrian infrastructure, not the least.

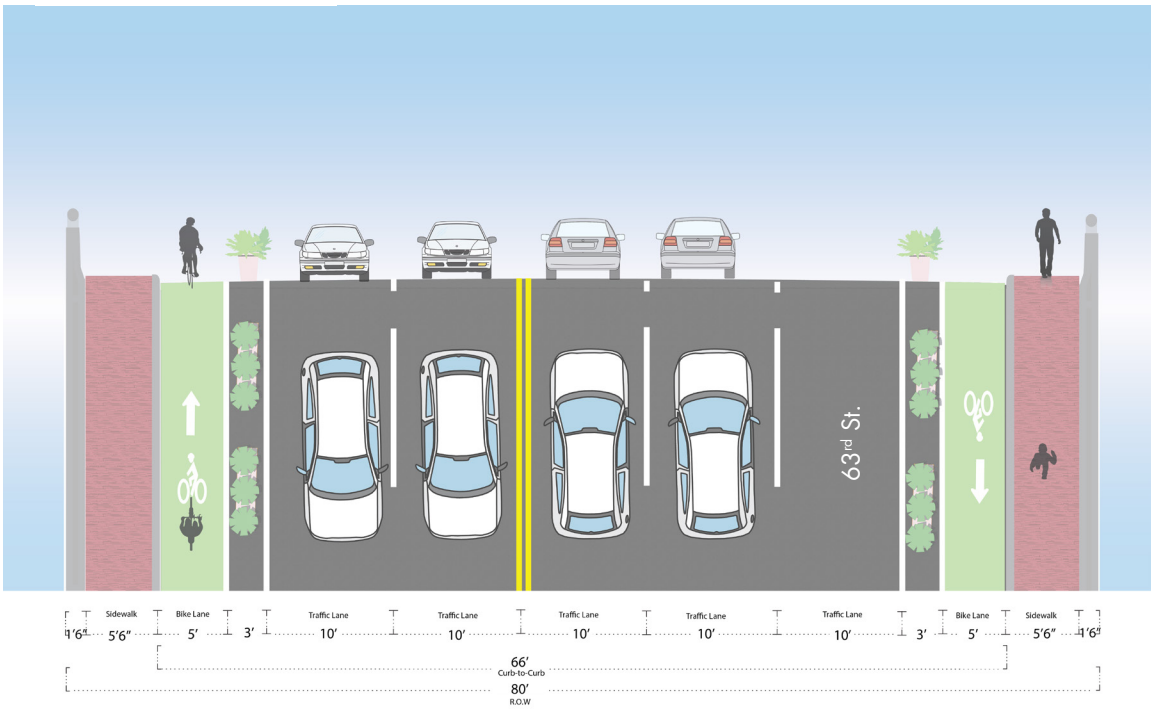
OPTION 1: PROTECTED BIKE LANE

Reductions in lane widths to 10′, along with the elimination of a center turn lane provide the space needed to expand bicycle and pedestrian facilities. In the short term, a bike lane can be striped with a buffer or a temporary physical separation.

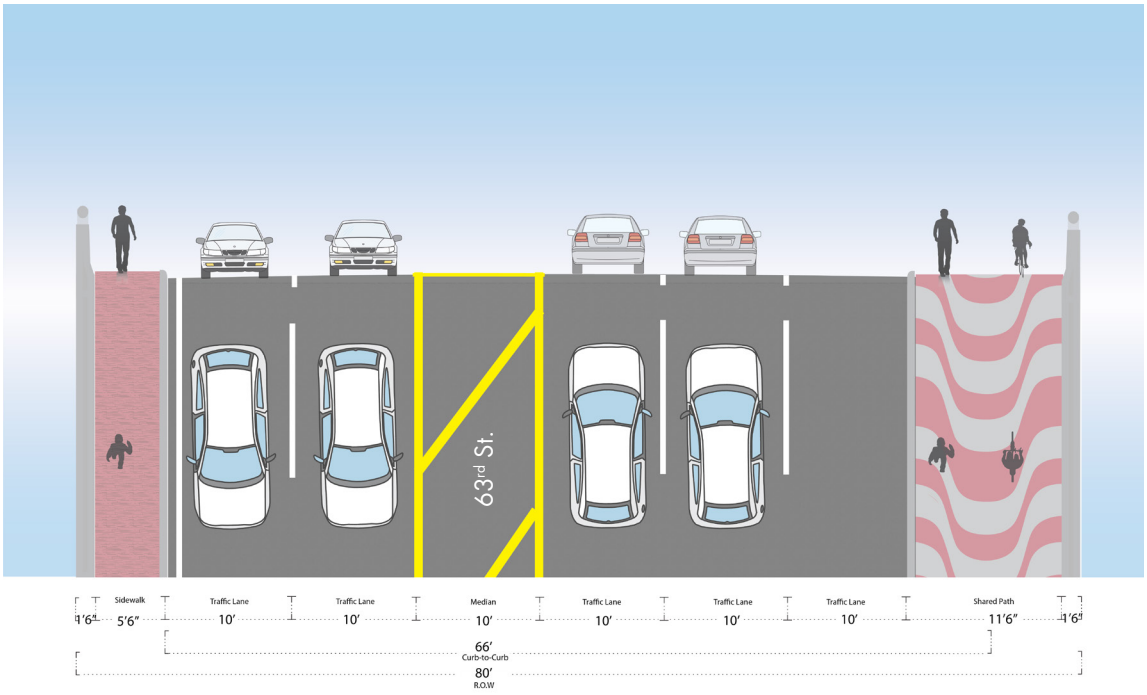


OPTION 2: PROTECTED BIKE LANE

A variation of the protected bike lane could contain planters with shrubs or flowers.



OPTION 3: SHARED PATH



This last option shows a shared path on the south side of the street and a protected lane on the north side. This provides for ample protected facilities for those coming from points north through the westbound protected bike lane. Travelers coming from points south take the shared path. At a minimum, the shared path can provide a critical off-street connection.

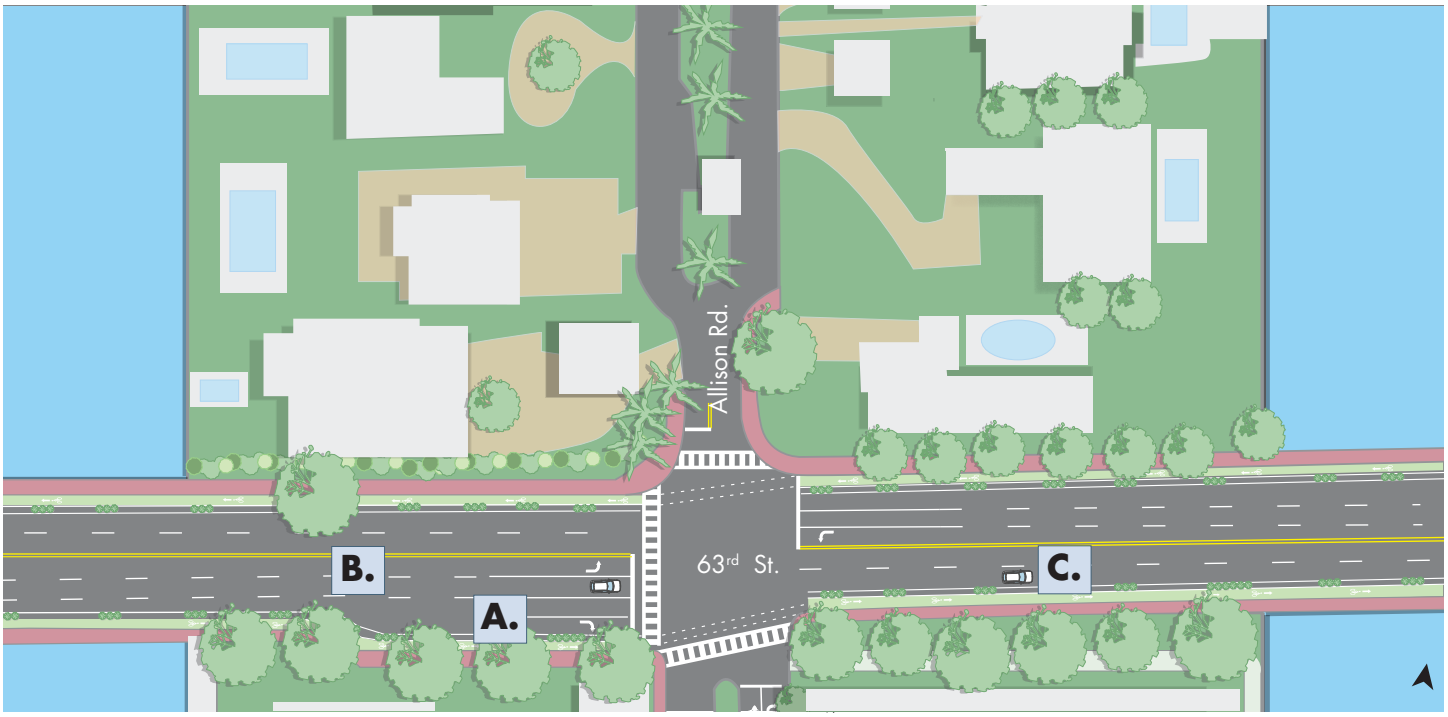
ALLISON ISLAND EXISTING CONDITIONS

The proposal to add pedestrian and bicycle space to 63rd Street comes from the idea that this critical connection between the communities of Middle and North Beach needs a low-stress connection for the Type 3 riders. 63RD is a high speed, high volume corridor that requires a protected facility.

ALLISON ISLAND SHARED PATH

In this proposal a shared path is located on the south side of the bridge. Travel lanes have been narrowed to accommodate the needed bicycle pedestrian space.

ALLISON ISLAND PROTECTED BIKE LANE

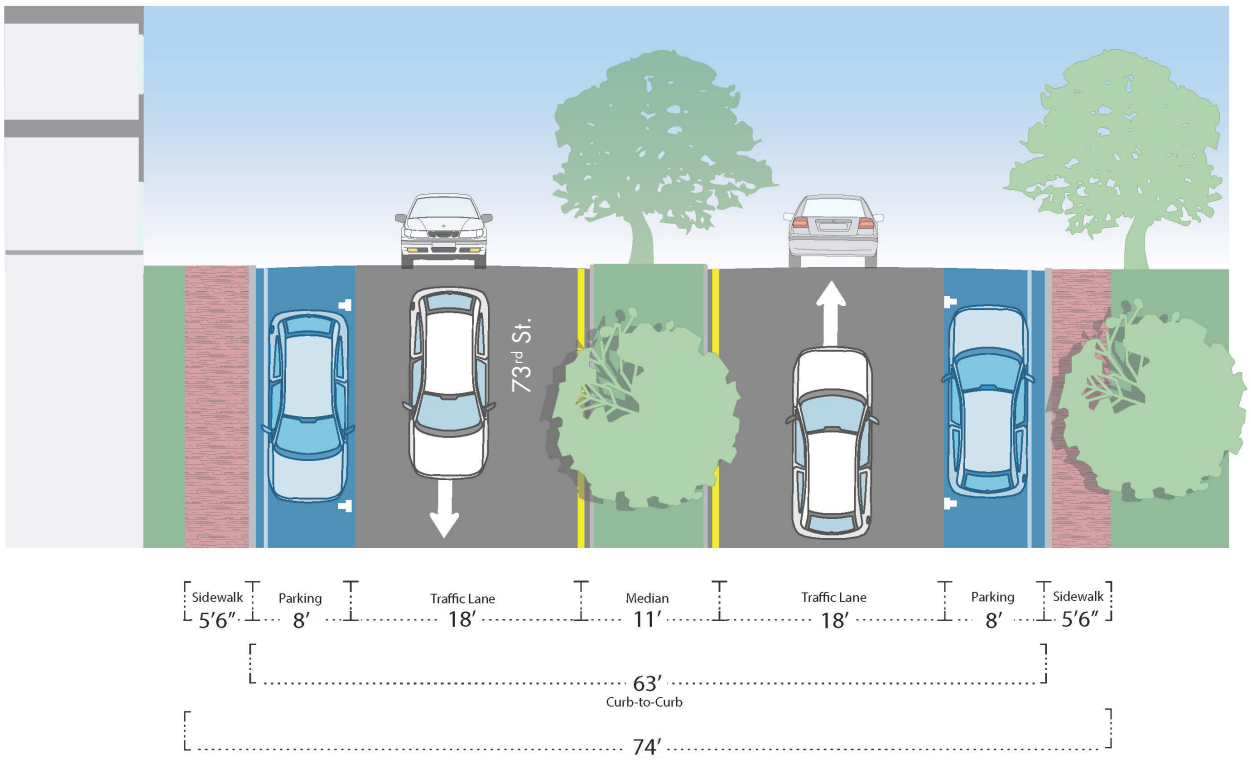


In this proposal a protected bike lanes are on both sides of the bridge. **A.** The right turn into Allison Island is still there. **B.** Travel lanes have been narrowed, **C.** East-Bound lane eliminated to accommodate the needed bicycle pedestrian space.

73RD STREET

Street Data	
Public Right-of-Way Width	74′
Pavement Width	63′ typical
Project Limits	Between Collins and Dickens
Project Length	1,800′ or 0.35 Miles
Posted Speed Limit	25 mph
Daily Volume	NA
Predominant Land Use	Compact Urban
Predominant Development Pattern	2 - 3 story apartment buildings
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	The high density residential apartment buildings, North Shore Park, and the beach are both major pedestrian and bicycle generators in this area.
Impact on modeshare	low
Upcoming Public Works Project	Yes

EXISTING CONDITIONS

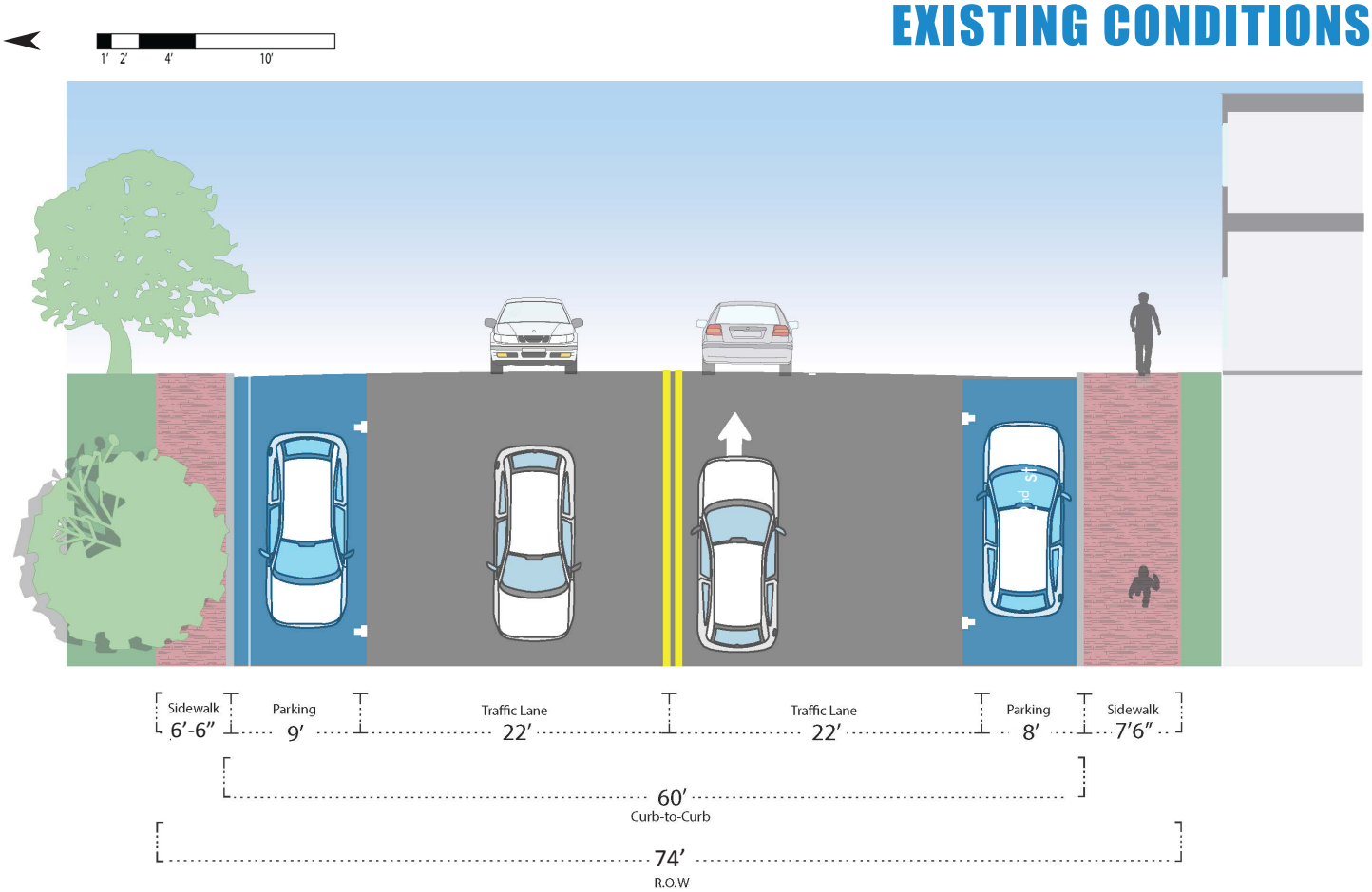


The adjacency to both North Shore Park and the 71 Street commercial district make the 73 Street/72 Street Pair an important east west axis, connecting Park View Island, Carlyle Avenue, Harding, Collins and the Beachwalk. The ample roadway dimensions (70′ and 74′) allow for several different variations of protected and unprotected bicycle facilities on both corridors, shown on pages 44 - 45. Most of the crashes shown on page 36 for the North Shore area occur on 71 Street, but several are on 72 (at Collins and Dickens).

A Basis Of Design Report for the North Shore area was created in 2003 and reviewed as part of this effort. The report proposes increases in sidewalk width on the south side of the street and increases the median width for 73 street. These

Street Data	
Public Right-of-Way Width	74′ (70′ Typical, 74′ at times)
Pavement Width	60′ typical
Project Limits	Between Collins and Dickens
Project Length	1,800′ or 0.35 Miles
Posted Speed Limit	25 mph
Daily Volume	NA
Predominant Land Use	Compact Urban
Predominant Development Pattern	1 - 2 Commercial Buildings
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	North Shore Park and recreational center and the Beachwalk are major bicycle /pedestrian trip generators in this area.
Impact on modeshare	low
Upcoming Public Works Project	Yes

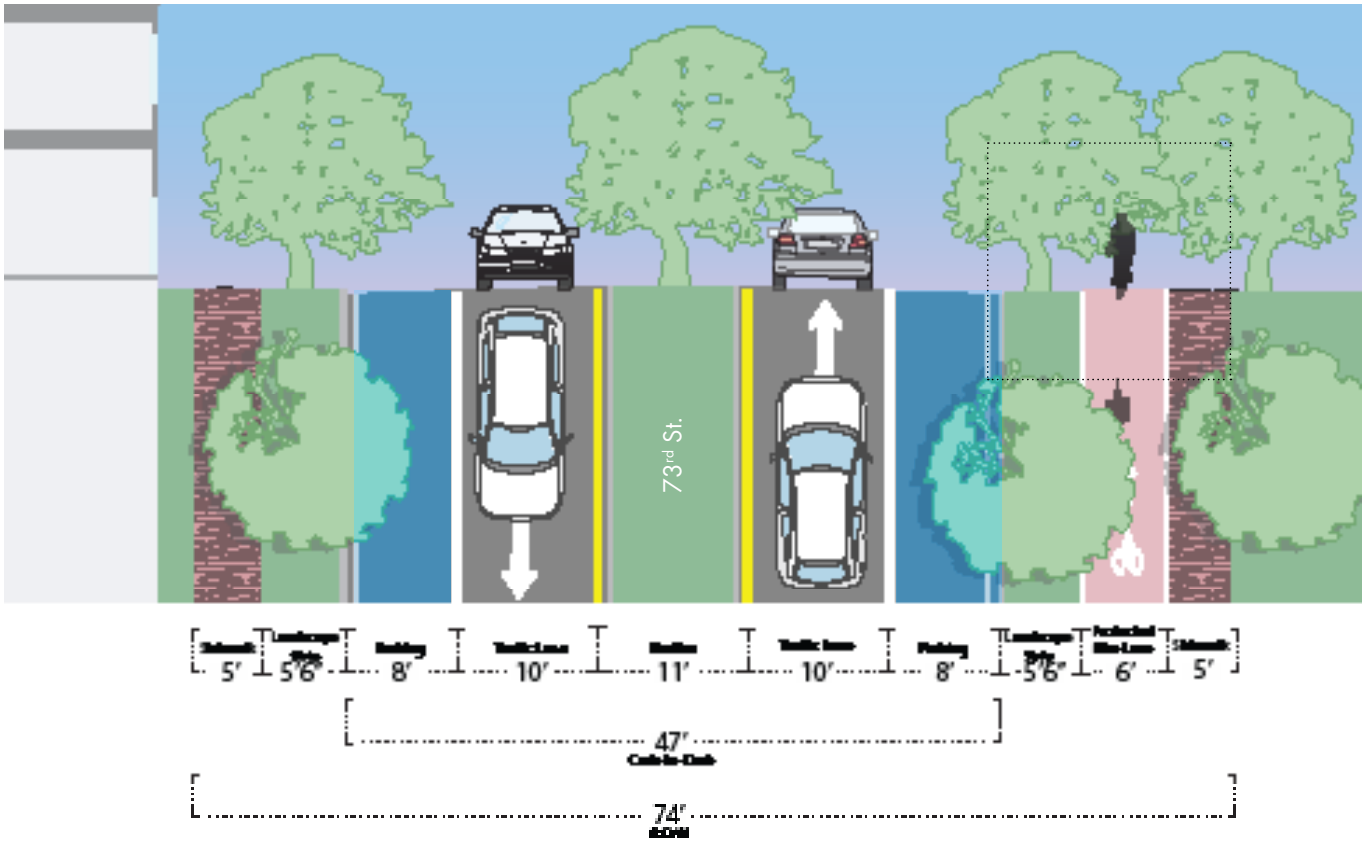
EXISTING CONDITIONS



are great starts. For 72 Street, the report takes a currently wide street with on-street parking on both sides, and introduces angled parking in the median. The plan results in a net increase of 10 parking spaces (from 85 spaces currently to 95 spaces) at the expense of a wide swath of potential pedestrian and bicycle roadway surface.

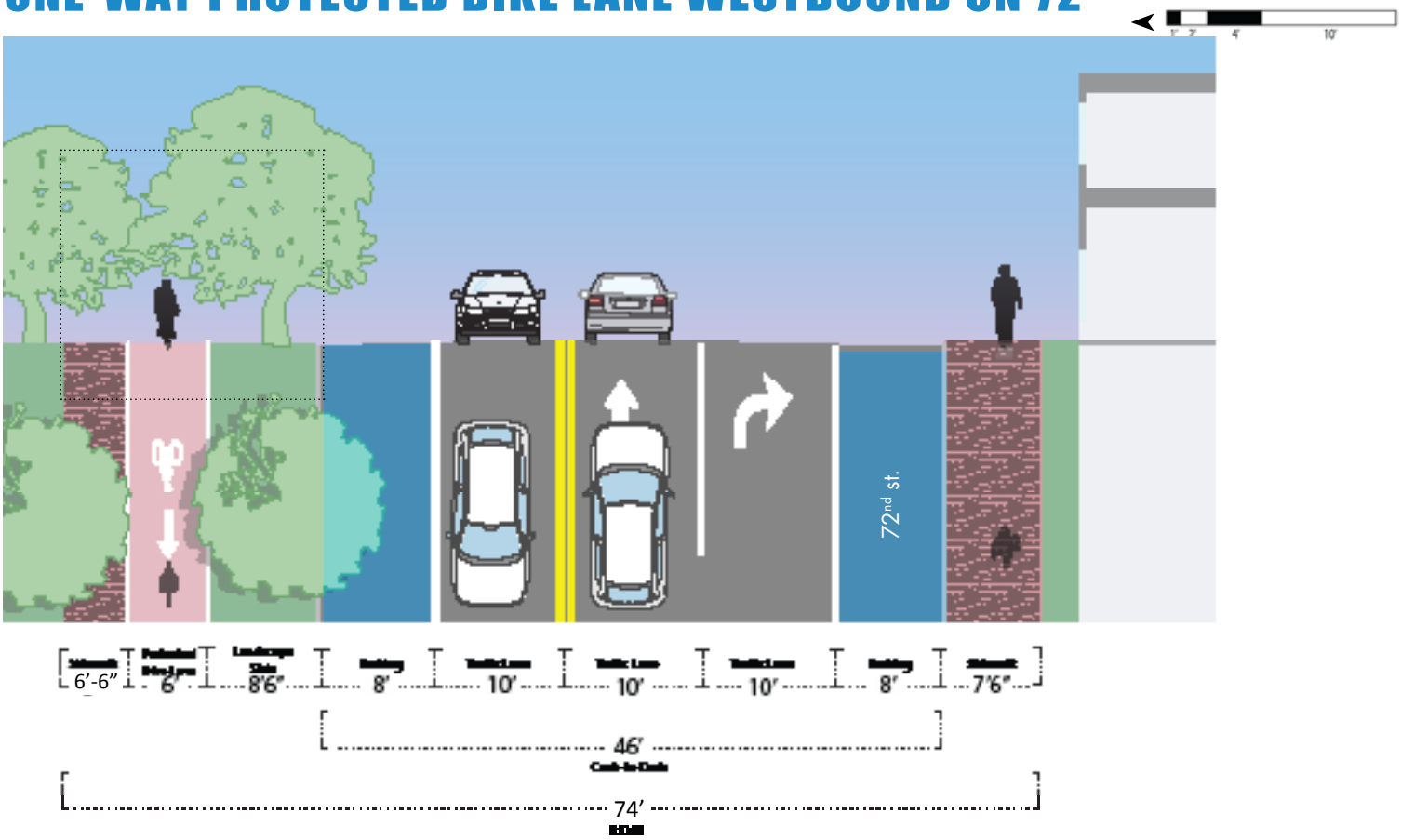
The proposals described on the following pages approach the design of 72nd and 73rd Street as a one way pair of facilities. The first phase proposes parking protected bike lanes without reconstructing the street between the parallel parking and the sidewalk. In the long term, the street can be redesigned with street trees, narrow lanes, wider sidewalks and a sidewalk level bicycle facility going westbound. These are steps in the right direction.

ONE-WAY PROTECTED BIKE LANE EASTBOUND ON 73RD



Refer to figure 2.41 - 2.52 of the Street Design Guidelines for additional information.

ONE-WAY PROTECTED BIKE LANE WESTBOUND ON 72ND

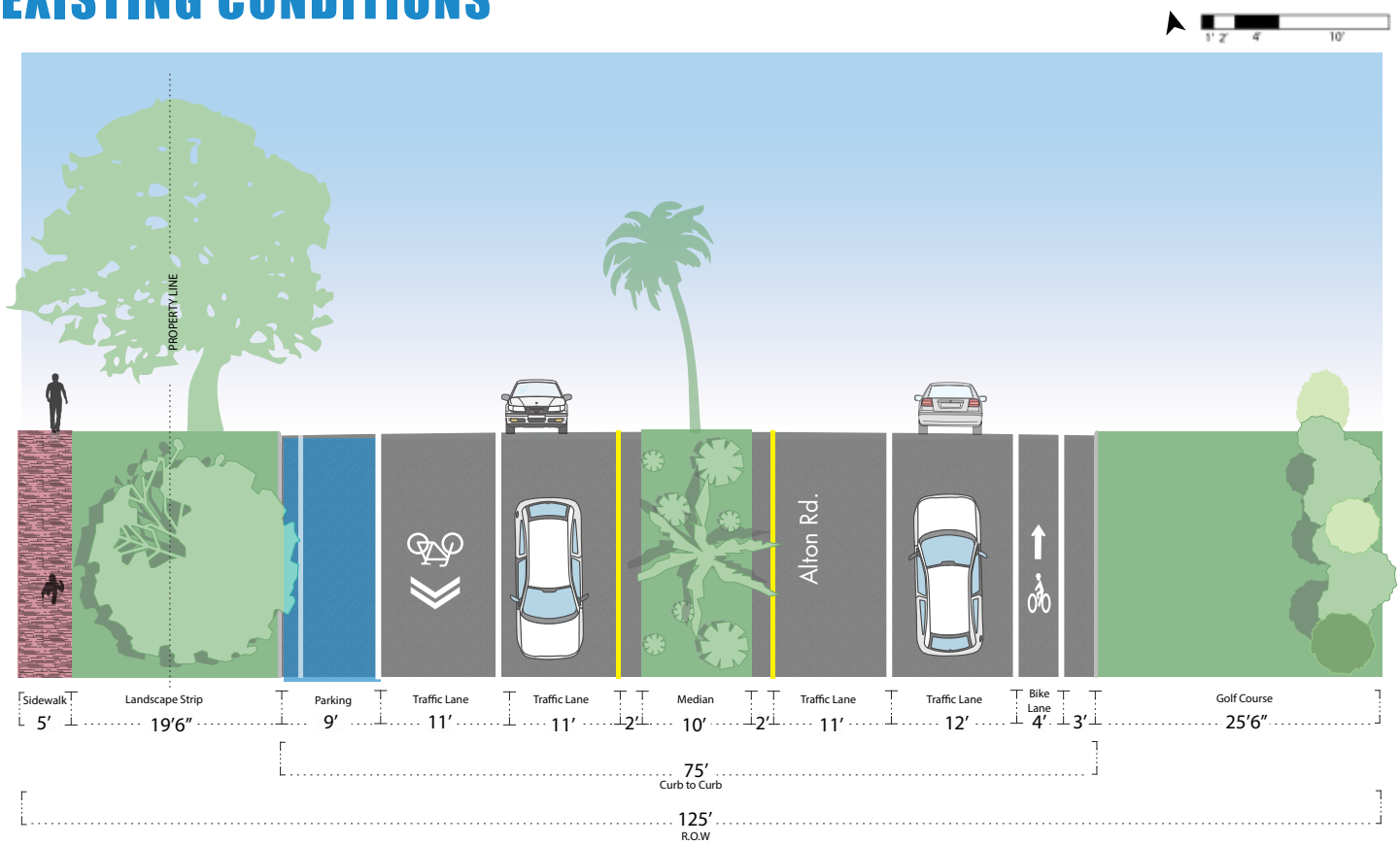


Refer to figure 2.41 - 2.52 of the Street Design Guidelines for additional information.

ALTON ROAD

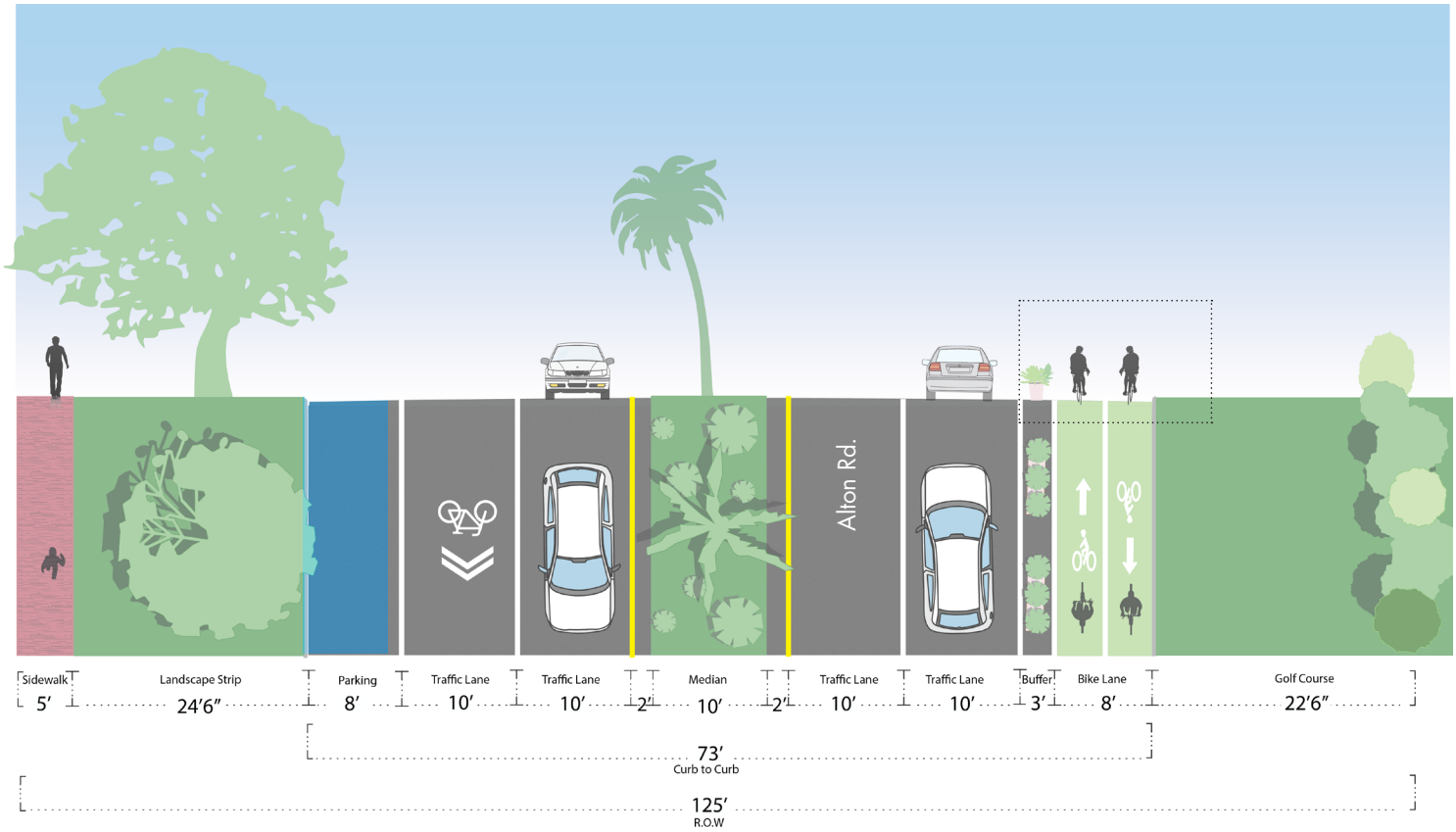
Street Data	
Public Right-of-Way Width	125′
Pavement Width	75′ typical
Posted Speed Limit	35 mph
Daily Volume	32,000 ADT
Predominant Land Use	Single Family Residential
Project Limits	Between Chase Avenue And North Michigan Avenue
Project Length	Approximately 4,500′, 0.8 Miles
Predominant Development Pattern	Detached single family homes with driveways, and a municipal golf course.
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	The appeal of this corridor is that it is a direct north/south connector. It is also a high volume street that make it a candidate for protected facilities.
Impact on modeshare	High
Upcoming Public Works Project	Yes - FDOT resurfacing

EXISTING CONDITIONS



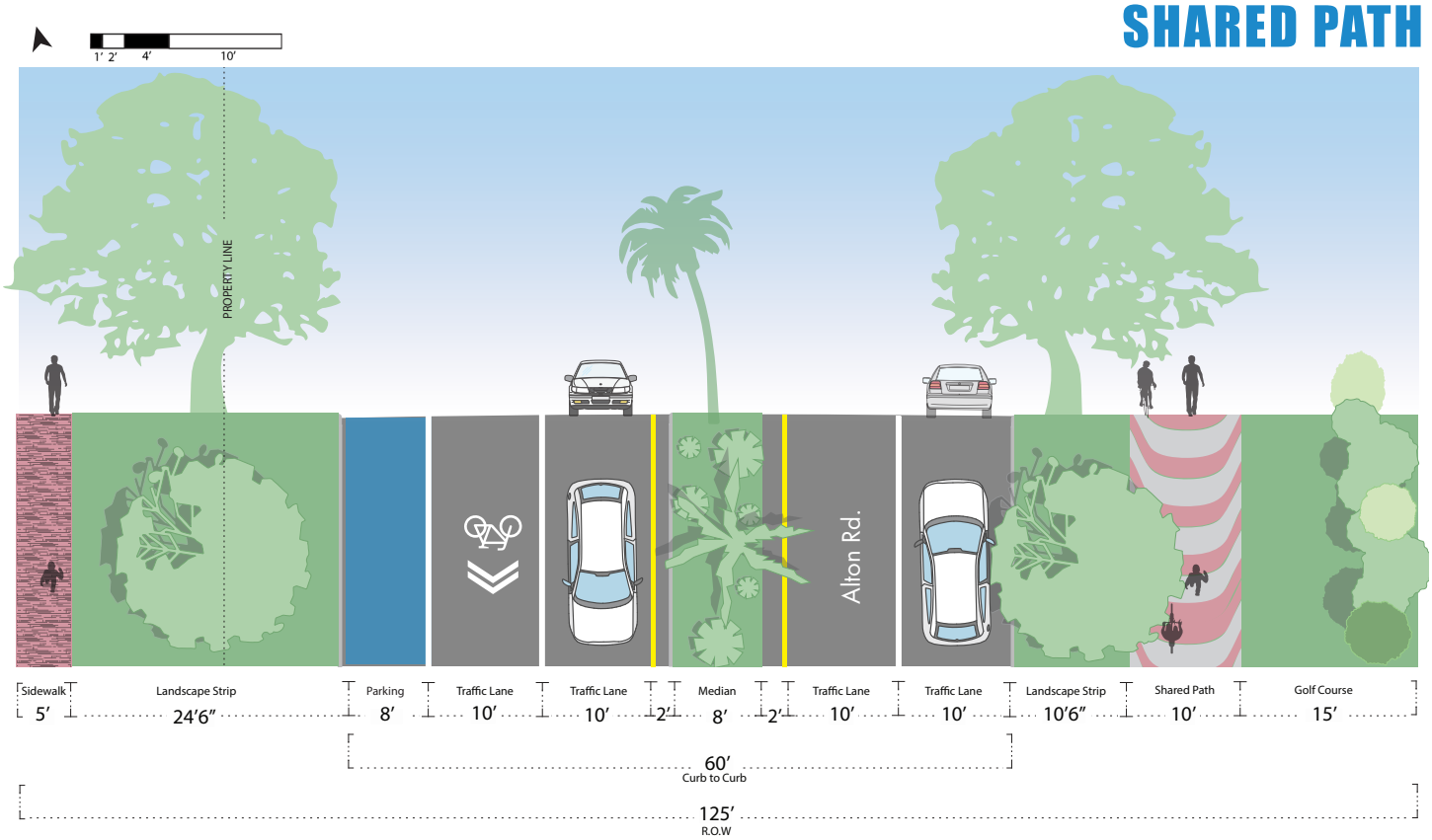
The upcoming reconstruction of Alton Road by the Florida Department of Transportation provides an opportunity to improve bicycle access on one of the city's main north/south thoroughfares. For a street of this volume and speed the Street Design criteria recommend an off street or protected on-street facility. The corridor currently has a bike lane going north and a sharrow going south. These facility types are not likely to attract the vast majority of users. Our primary recommendation for this corridor is a shared path, or other protected facility like the two-way protected bike lane (shown on page 121). The proposals envision a reduction in lane widths from those proposed by the FDOT to 10′ standard, together with a reduction of the median area. These facilities take advantage of the minimal number of conflicts on the golf course side of the corridor.

TWO WAY BIKE LANE



Refer to figure 2.41 - 2.52 of the Street Design Guidelines for additional information.

SHARED PATH



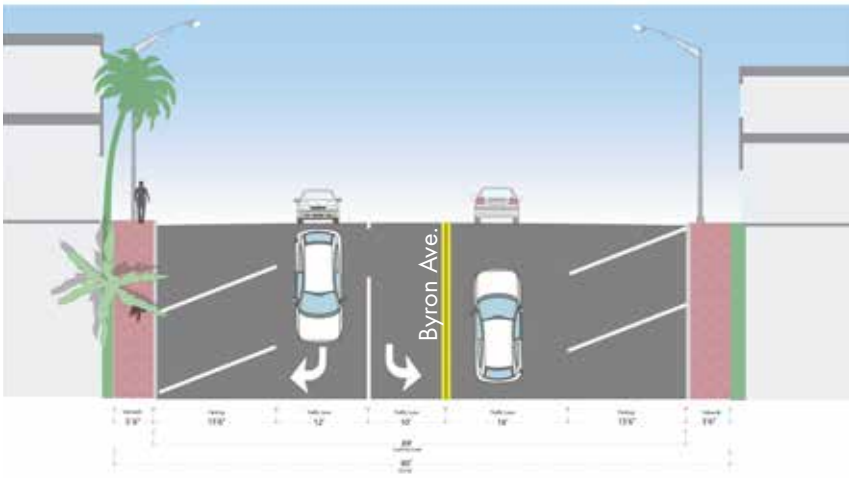
BYRON AVENUE

Street Data	
Public Right-of-Way Width	80′
Pavement Width	69′
Posted Speed Limit	25 mph
Daily Volume	NA
Predominant Land Use	Compact Urban
Predominant Development Pattern	2 - 5 Story Apartment Buildings
Project Limits	Between Tatum Waterway Drive and 73 Street
Project Length	3,000′, 0.05 Miles
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	Medium density residential apartment buildings and the beach are both major pedestrian and bicycle generators in this area.
Impact on modeshare	low
Upcoming Public Works Project/Study	Included for study in BODR

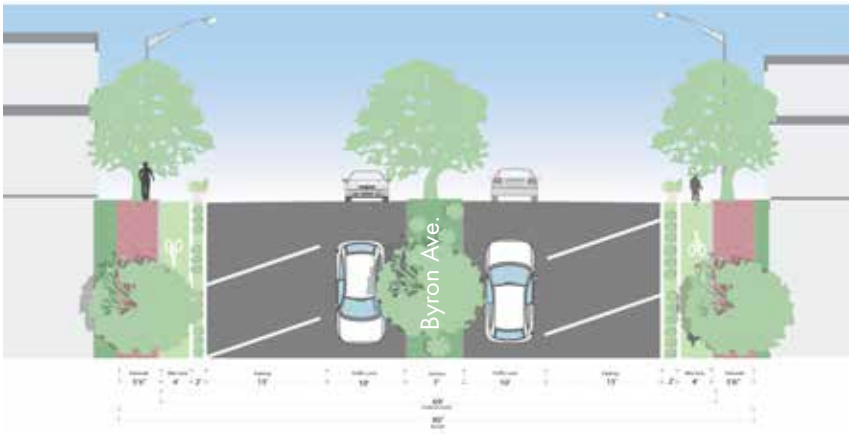
EXISTING CONDITIONS

Byron Avenue at 73rd Street is an 80′ wide three lane street with angled parking. There is ample room here to create a great street, and an important connection within the bicycle network. Given the low volume of traffic and low speeds, this route is a good candidate for a bike lane or neighborhood greenway.

EXISTING CONDITIONS

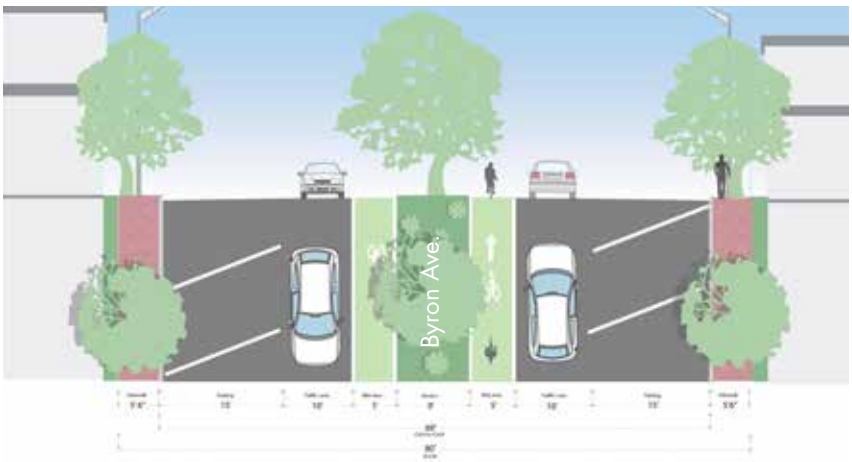


BIKE LANE



This section of Byron has angled parking. In cases with angled parking, conventional bike lanes are not ideal. One potential tool to use is the protected bikeway. Here a 4′ bike lane is protected by a 3′ buffer between the angled parking and the sidewalk.

PROTECTED BIKE LANE

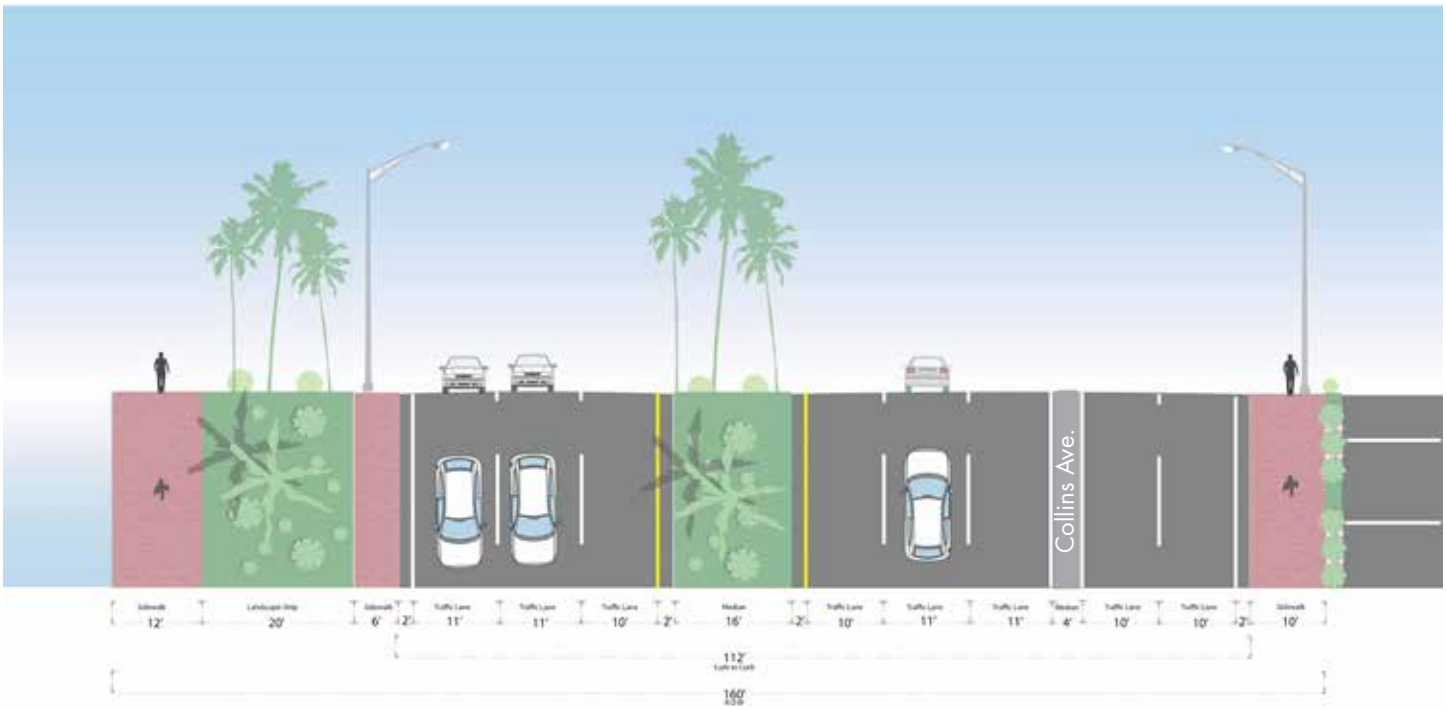


This variation on the idea of conventional bike lanes on the driver side of the travel lane provides more visibility to riders in the street, and the green paint alerts motorists that this is a bicycle priority corridor.

COLLINS AVENUE

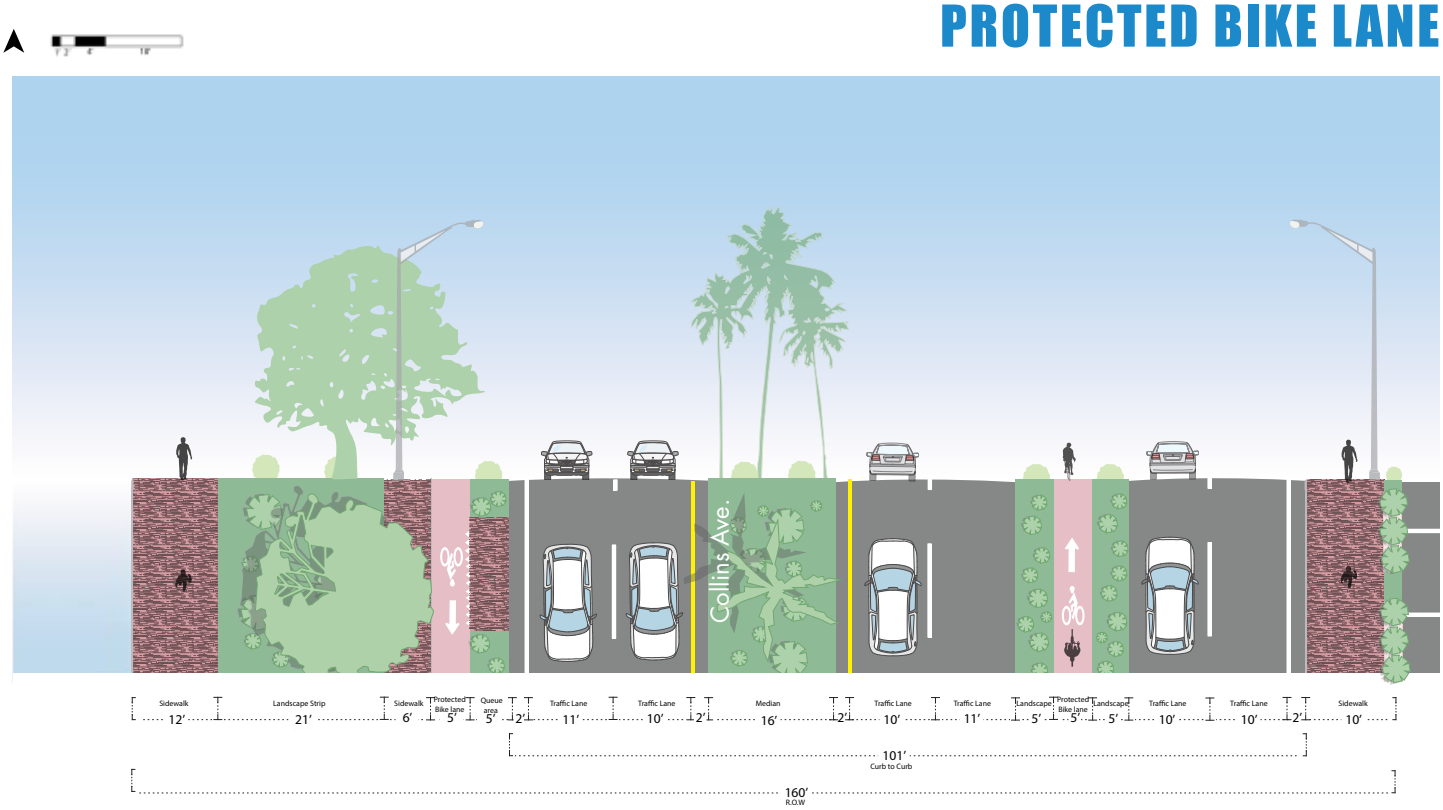
Street Data	
Public Right-of-Way Width	Ranges from 130′ - 160′
Project Limits	Between 41 Street and 63 Street
Project Length	11,400′, 2.2 Miles
Pavement Width	112′ typical
Posted Speed Limit	35 mph
Daily Volume	15,120 - 32,520 ADT
Predominant Land Use	High Density Residential
Predominant Development Pattern	Resort style mid rise and high rise apartment buildings with no ground level commercial.
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	The high density residential apartment buildings and the beach are both major pedestrian and bicycle generators in this area.
Impact on modeshare	High
Upcoming Public Works Project	Yes

EXISTING CONDITIONS



Collins Avenue between 41 Street and 71 Street is the heart of Mid-Beach and the main point of access for thousands of Miami Beach residents. The ample roadway dimensions, daily volumes and speeds suggest that this should be a priority corridor both for transit access and for protected bicycle facilities. From a mode share perspective, this corridor could provide critical connectivity to thousands of residents with the thoughtful redesign of the street to accommodate protected bicycle facilities and additional street trees as shown in the drawings on the following pages.

PROTECTED BIKE LANE

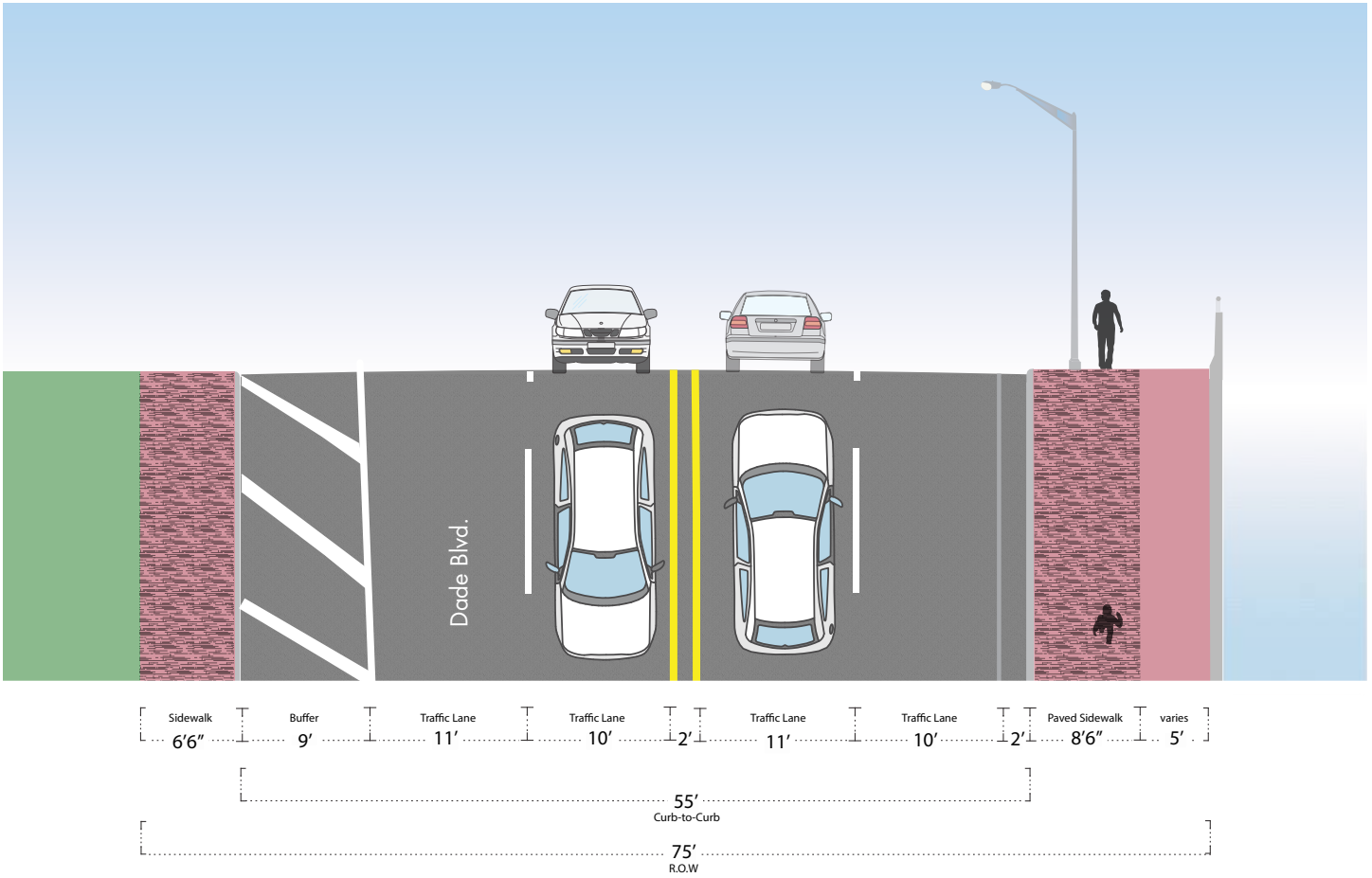


This treatment suggests the removal of a travel lane in either direction to create new landscape protected bike lanes. The design repurposes the median on the northbound side of the street to accommodate a protected bike lane. Entrance/exits from the slip lane can maintain their current geometries with additional treatments for the bike lane. Travel lanes have been reduced to 10′ for interior lanes, and 11′ for outer lanes. New street trees should be added along the new south bound bike lane, on the median, and along the northbound sidewalk.

DADE BOULEVARD

Street Data	
Public Right-of-Way Width	74′
Pavement Width	55′ typical
Posted Speed Limit	35 mph
Project Limits	Between 20 Street and Sheridan
Project Length	Approximately 5,500′, 1.0 Miles
Daily Volume	44,330 ADT
Predominant Land Use	Single Family Residential, multifamily, civic
Predominant Development Pattern	Suburban Detached
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	There are several schools, museums, and small parks that generate pedestrian activity along this route.
Impact on modeshare	High
Upcoming Public Works Project	Yes - CIP

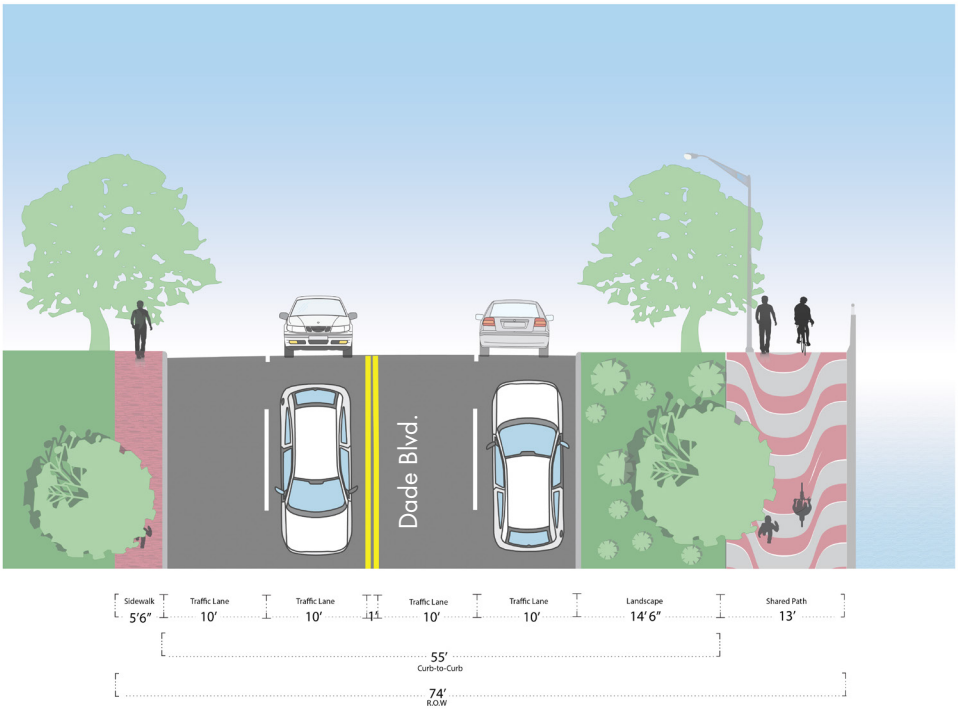
EXISTING CONDITIONS



Dade Boulevard is one of the most important corridors in the bicycle network. It divides South Beach from Mid-beach, and has ample right-of-way space to accommodate a premium protected bicycle facility. The recent sea wall reconstruction project produced a street section that lacked street trees and quality bicycle pedestrian facilities. For most of the corridor, the center turn lane can be removed. The ideal proposal for this street should include a wide tree-lined sidewalk along with a comfortable, protected bicycle facility.

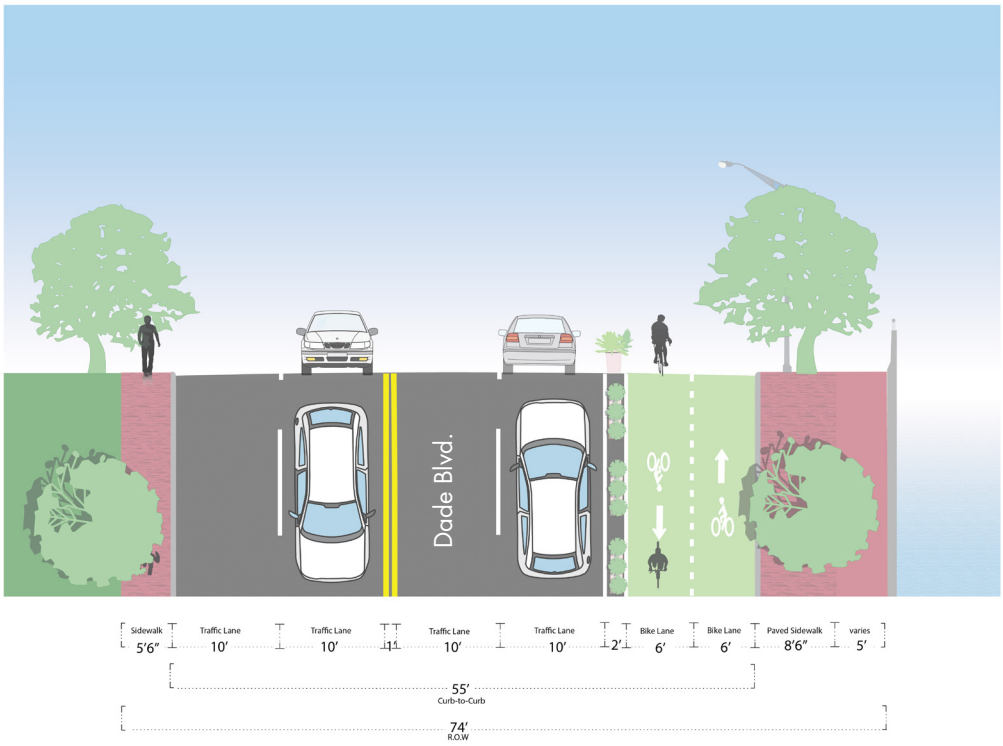
SHARED PATH WITH LANDSCAPING

One of the signature projects included in this plan, the creation of a grand row of trees in a wide landscape strip between the shared path and Dade Boulevard. The center turn lane is removed for most of the corridor.

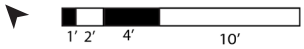


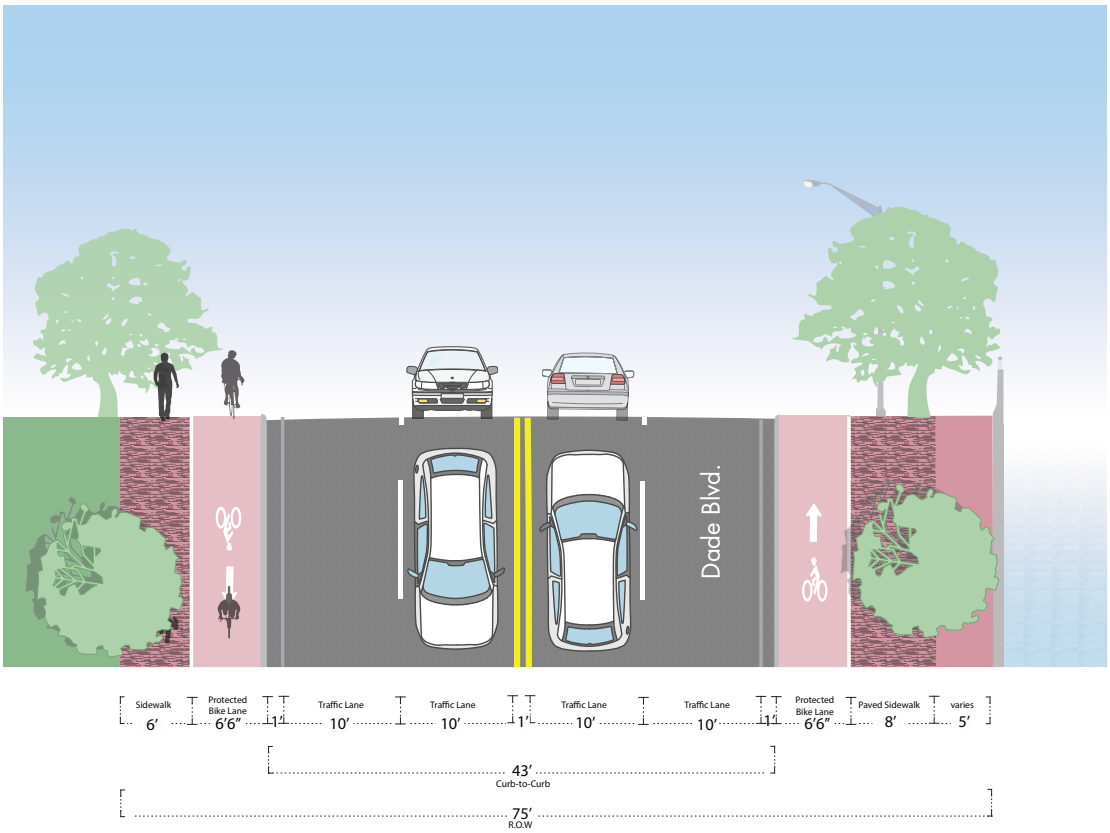
PROTECTED BIKE LANES

Given the volumes and speeds on Dade Boulevard, a protected bicycle facility is required, either as a shared path or protected bike lane. This are two way protected bike lanes. Any number of variations to Dade Boulevard exist. These were all calibrated using street design methods outlined in the street design guide and are on the pages that follow.

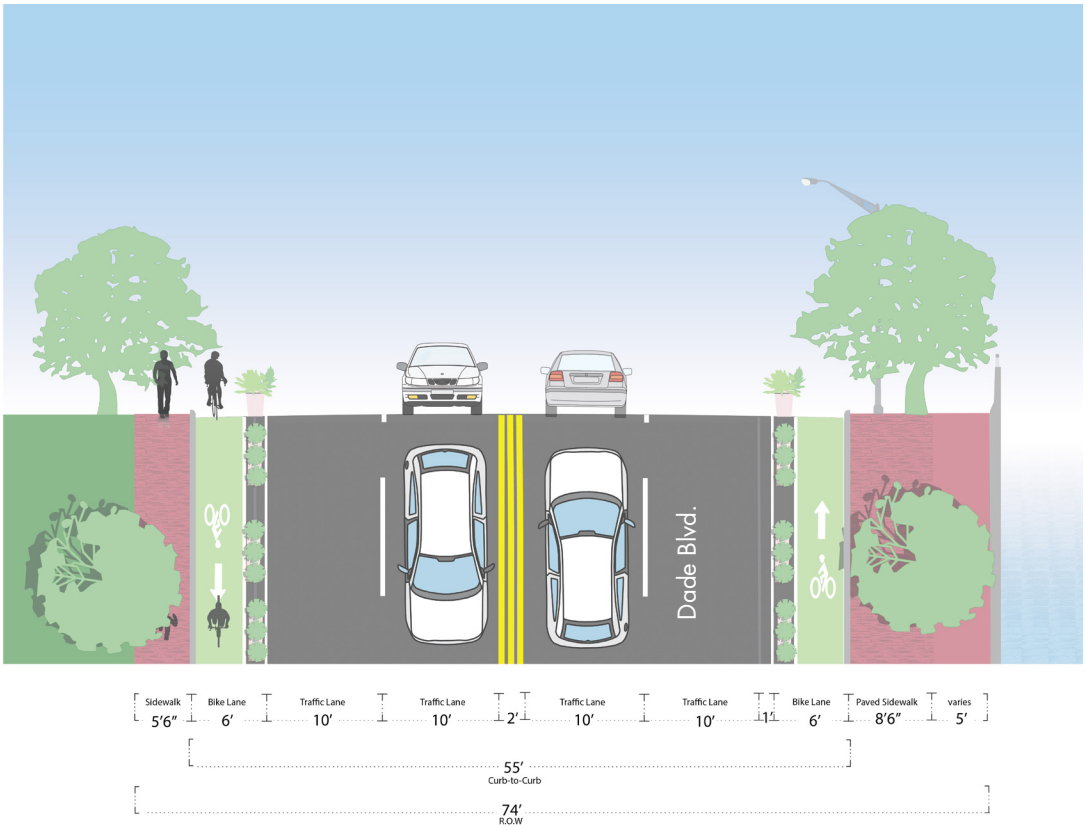


SIDEWALK LEVEL PROTECTED BIKE LANES

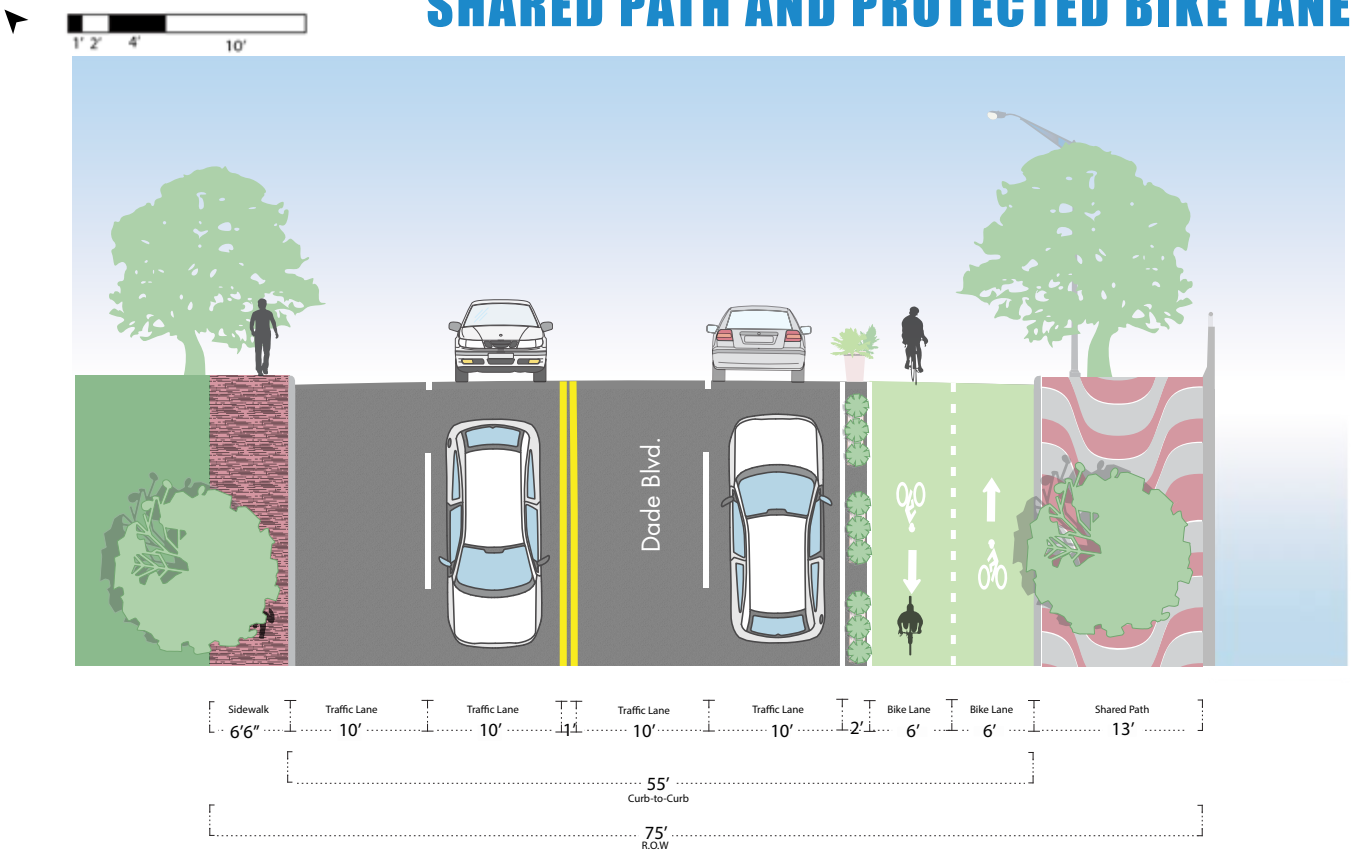




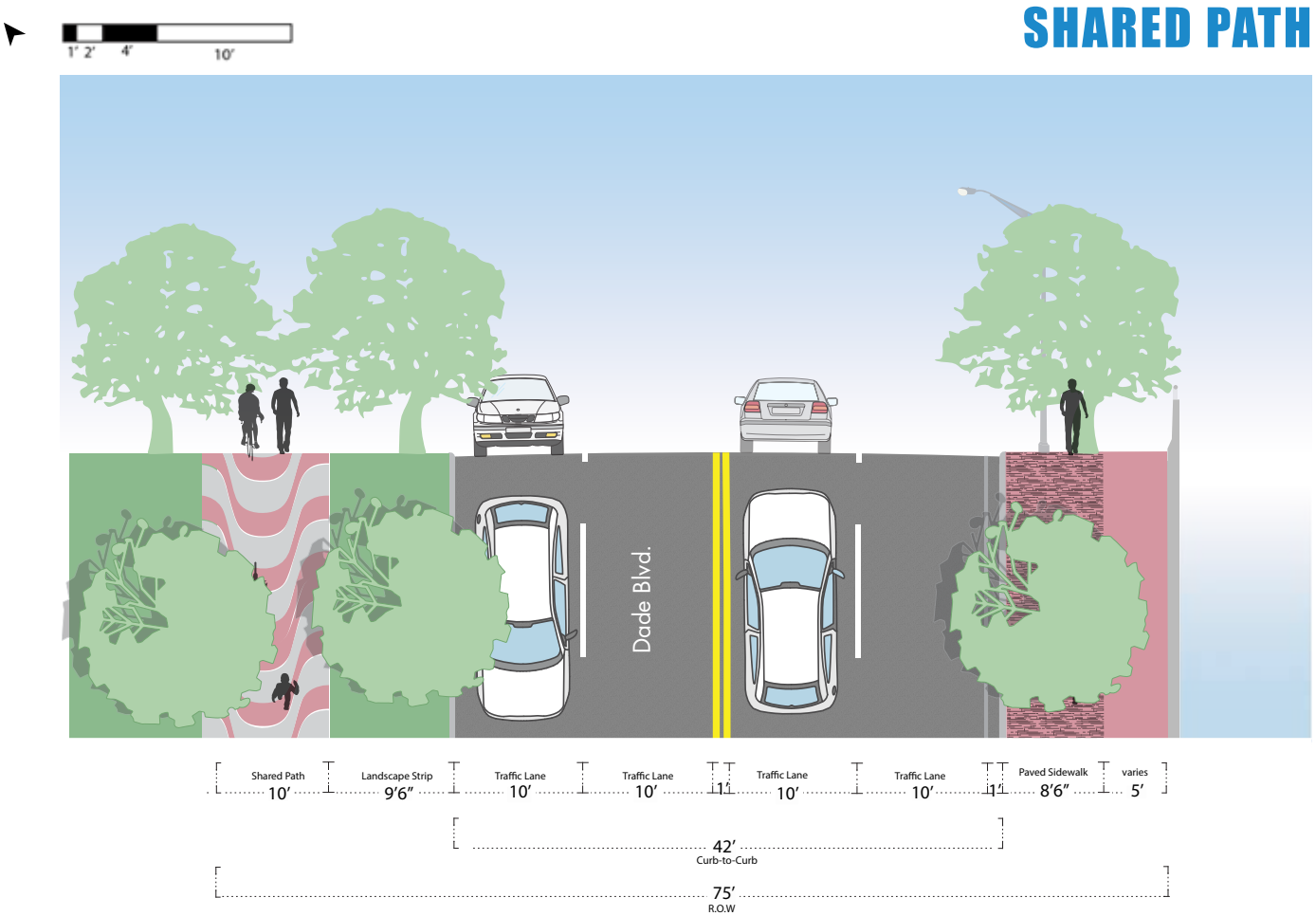
PROTECTED LANES

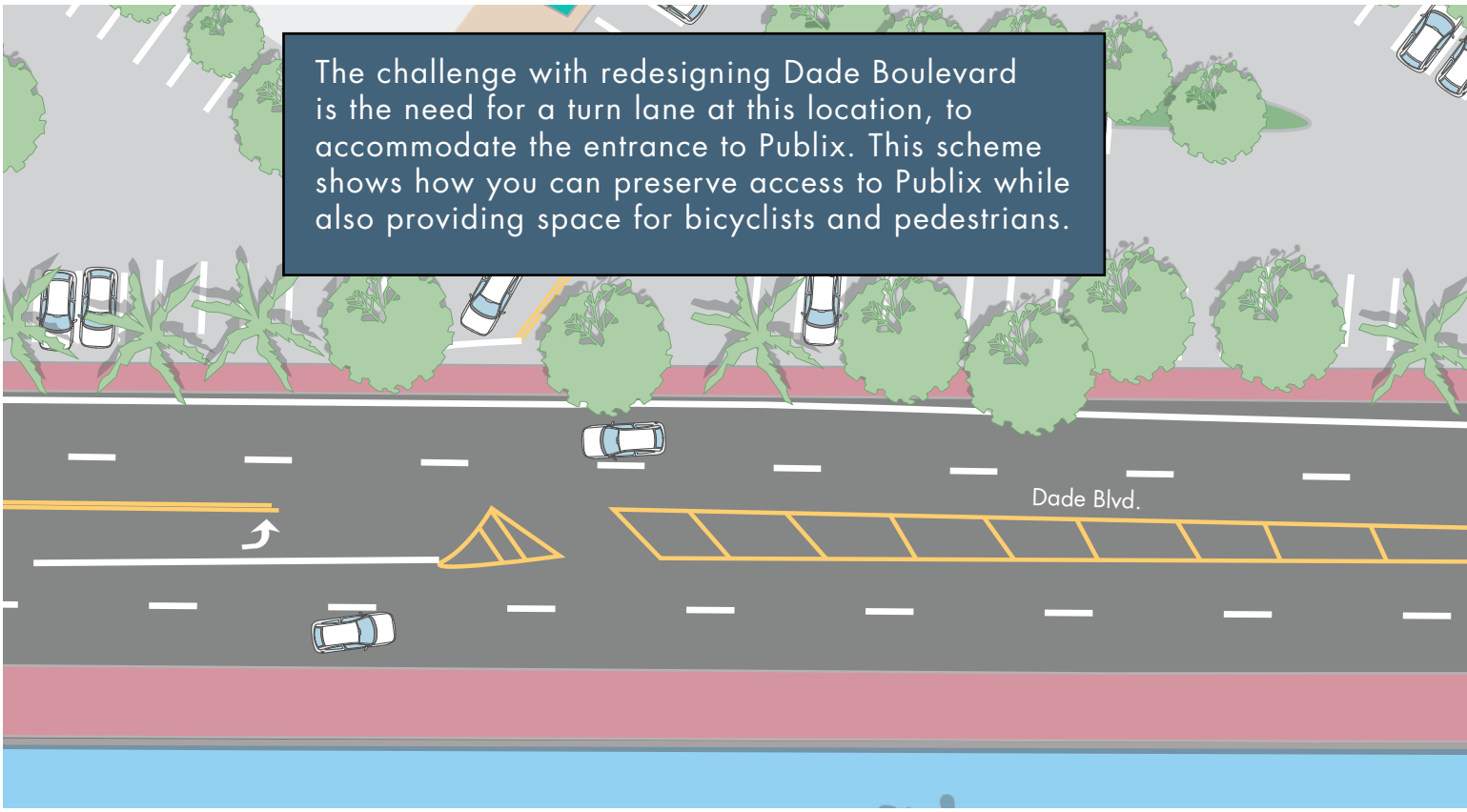


SHARED PATH AND PROTECTED BIKE LANES

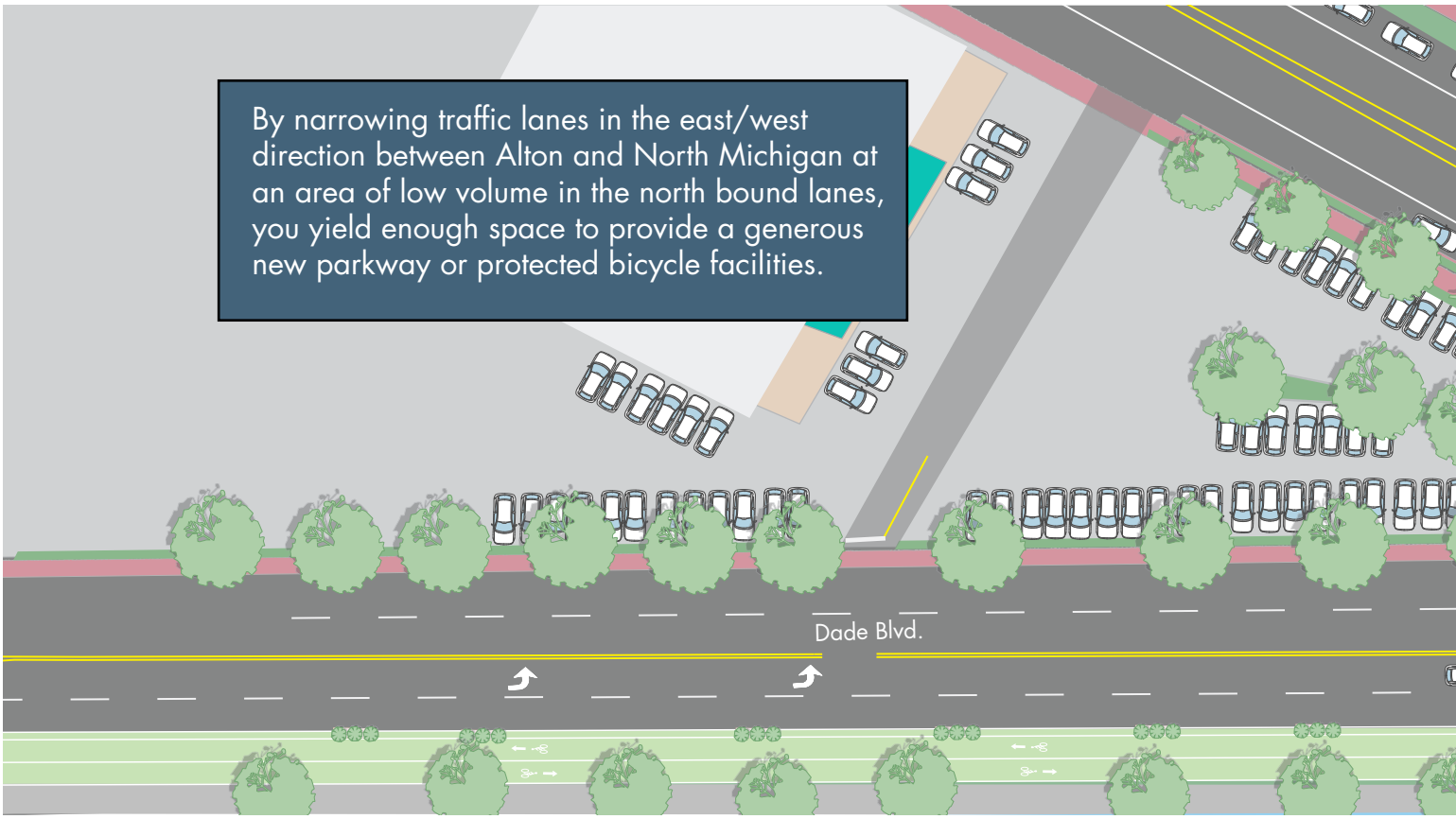


SHARED PATH



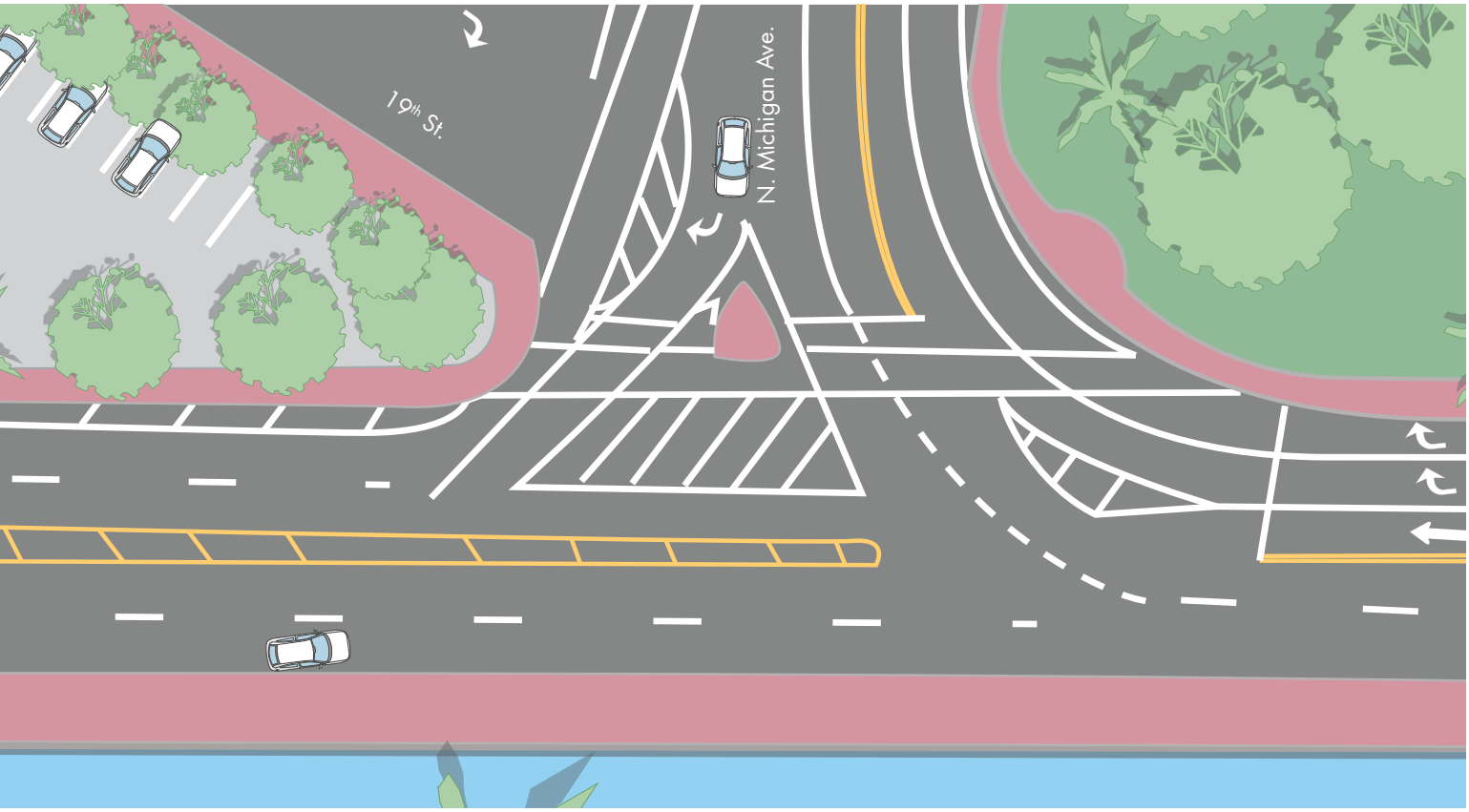


Existing Conditions, Dade Boulevard between Alton Road and North Michigan



Proposed Condition

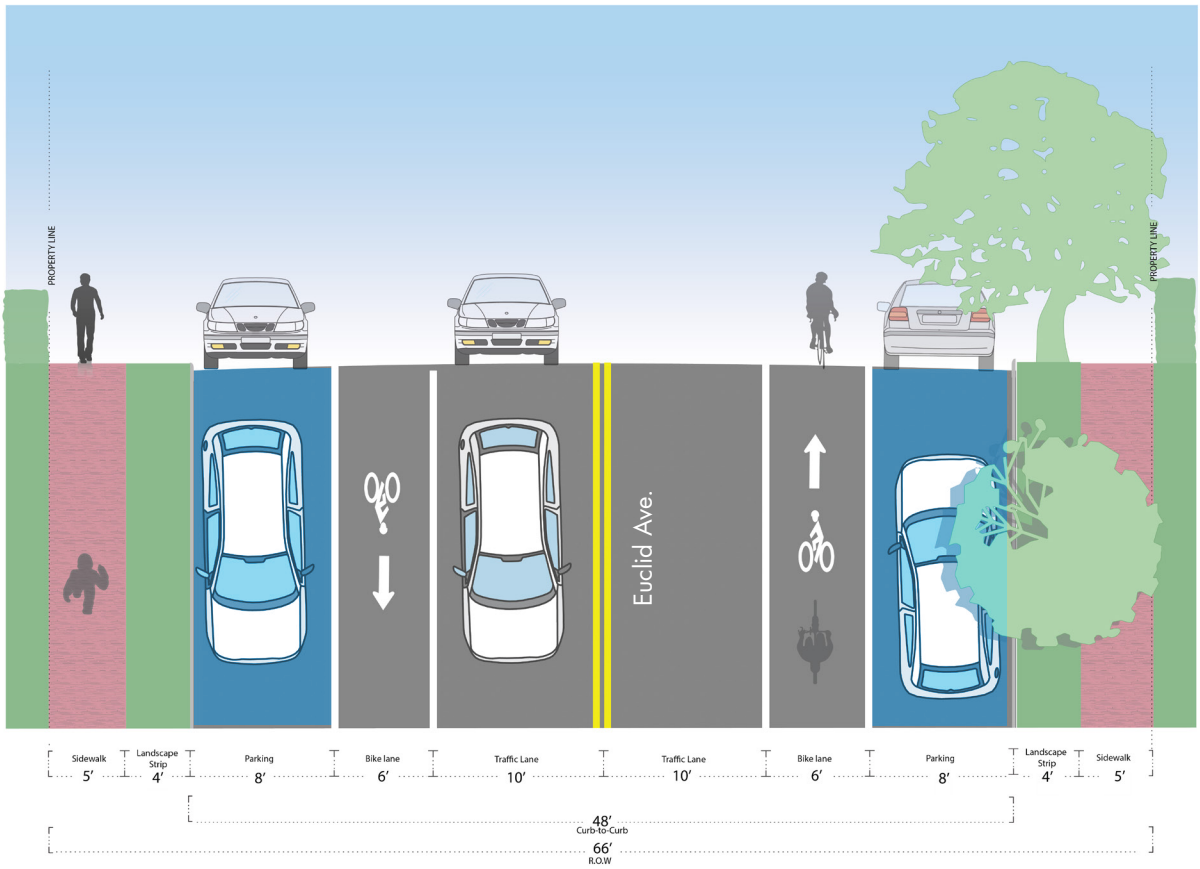
DADE BOULEVARD BETWEEN ALTON AND NORTH MICHIGAN



EUCLID AVENUE

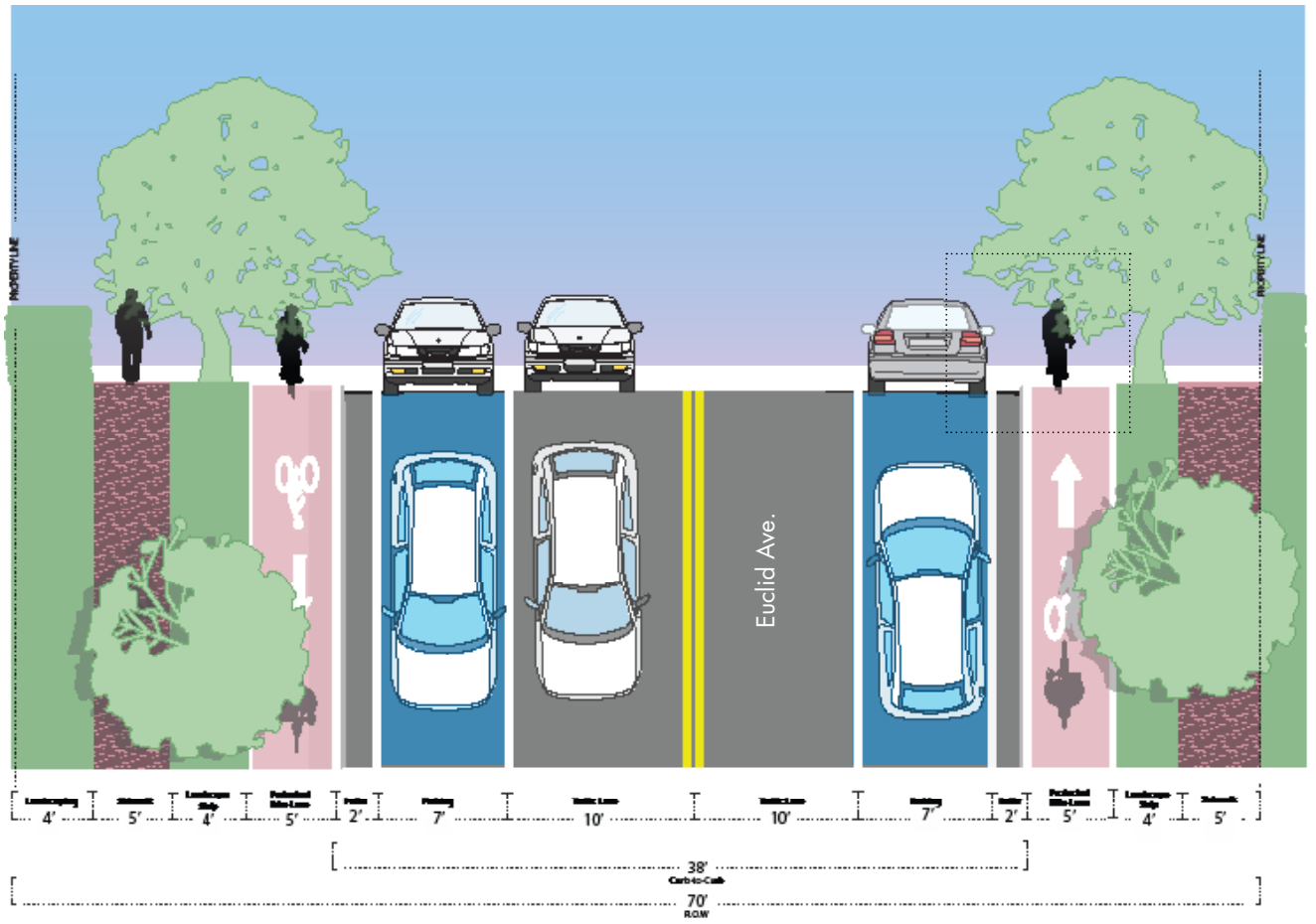
Street Data	
Public Right-of-Way Width	70′
Pavement Width	48′ typical
Posted Speed Limit	25 mph
Daily Volume	NA
Project Limits	Between 17 Street and 5 Street
Project Length	Approximately 6,500′, 1.23 Miles
Predominant Land Use	Mutlifamily Residential
Predominant Development Pattern	Compact urban apartment types
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	
Impact on modeshare	moderate
Upcoming Public Works Project	Yes

EXISTING CONDITIONS



Euclid Avenue is one of the most popular bicycle routes in Miami Beach. Making it as safe as possible, and attracting even more people to ride on this street is one of the best opportunities the city has to encourage a robust bicycle network.

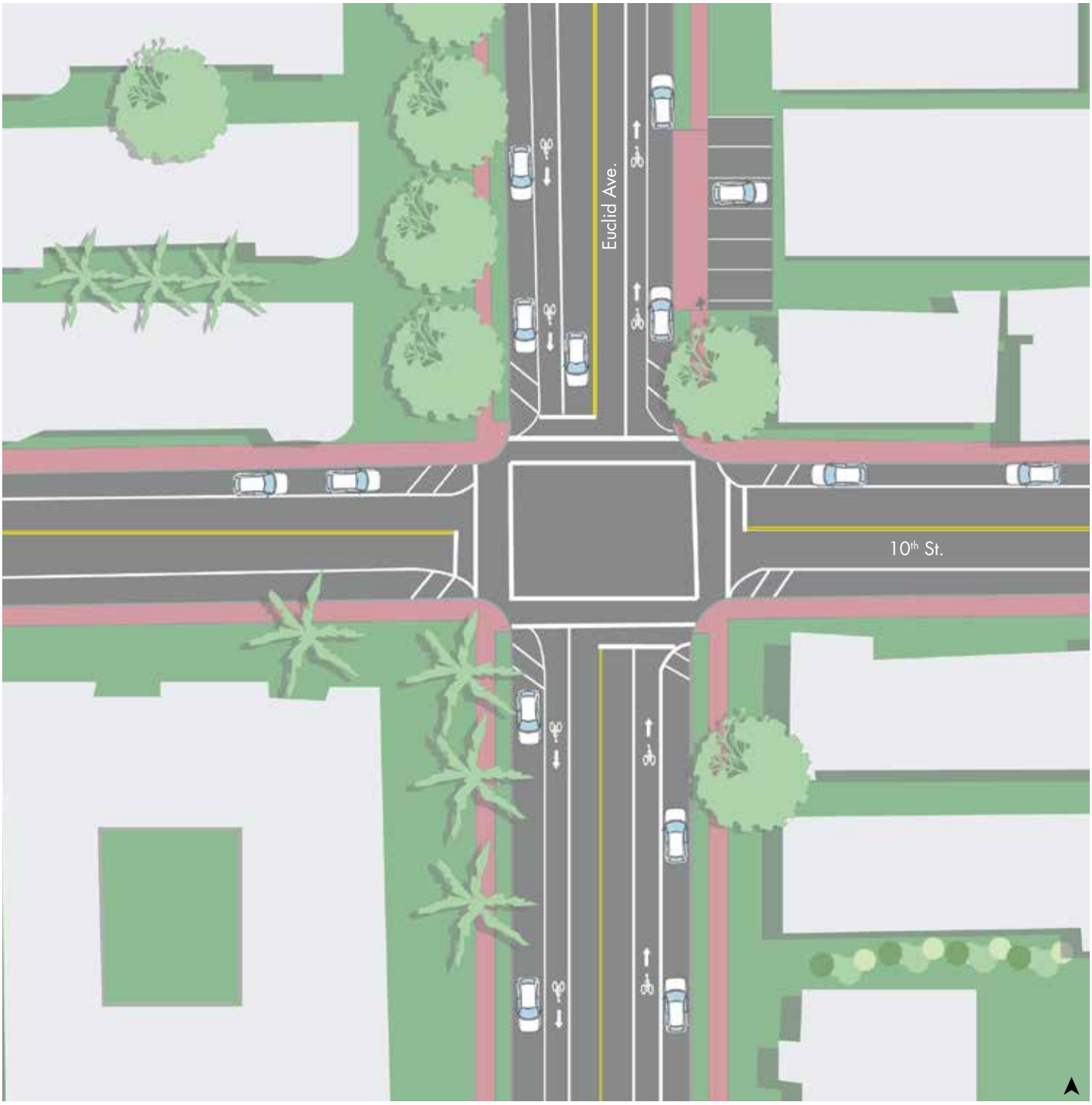
SIDEWALK-LEVEL PROTECTED BIKE LANES



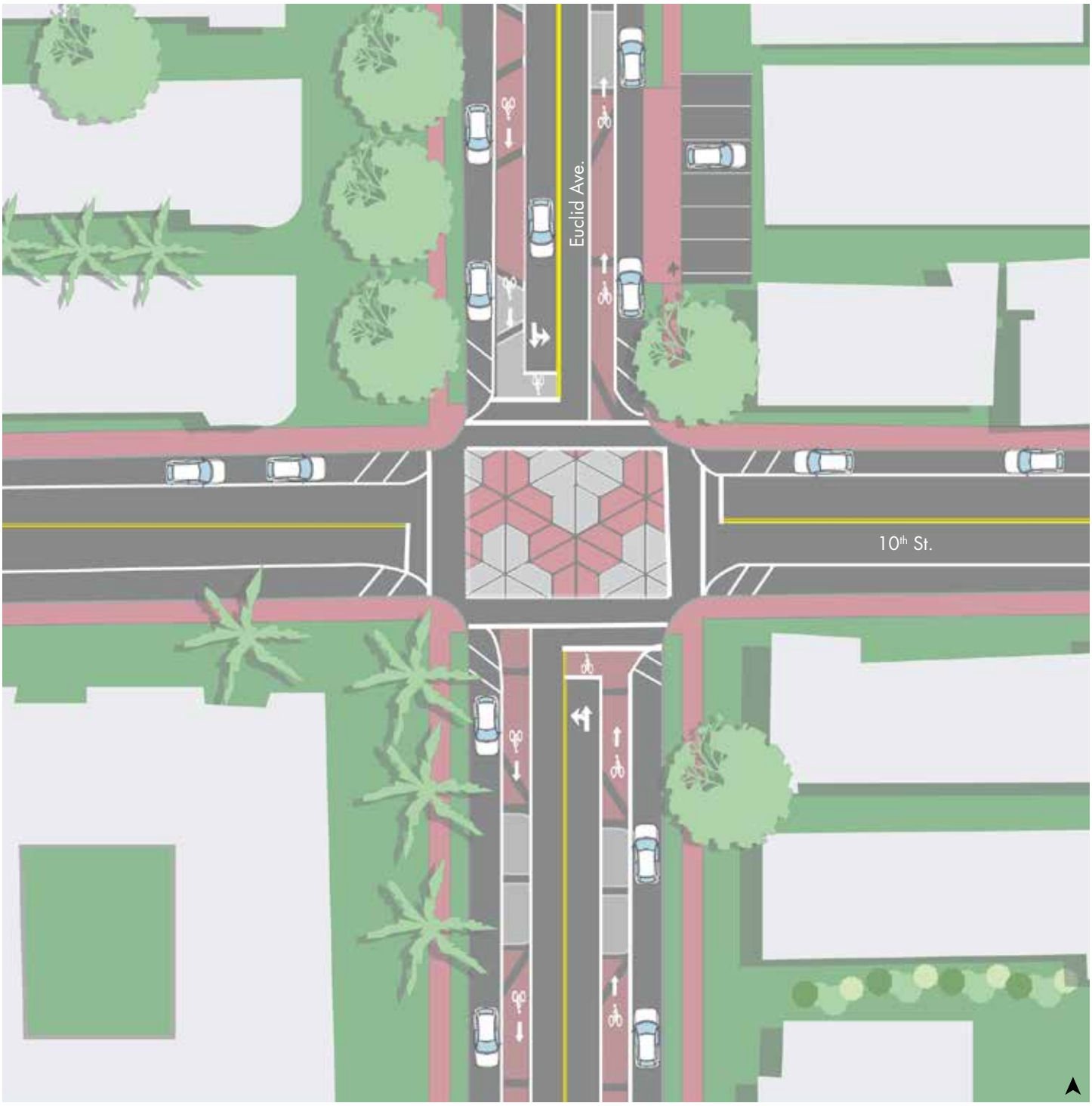
Refer to figure 2.41 - 2.52 of the Street Design Guidelines for additional information.

Over the long term, Euclid Avenue should be narrowed as much as possible, and the sidewalk expanded to provide additional street trees. The widened sidewalk area can be designated as a protected bicycle facility or not. With a narrow cross section, low volumes, and a bicycle priority designation, Euclid would also make for easy on-road cycling that is physically separated from the travel lane.

EXISTING EUCLID AVE. AND 10TH ST. INTERSECTION



PROPOSED EUCLID AVE. AND 10TH ST. INTERSECTION

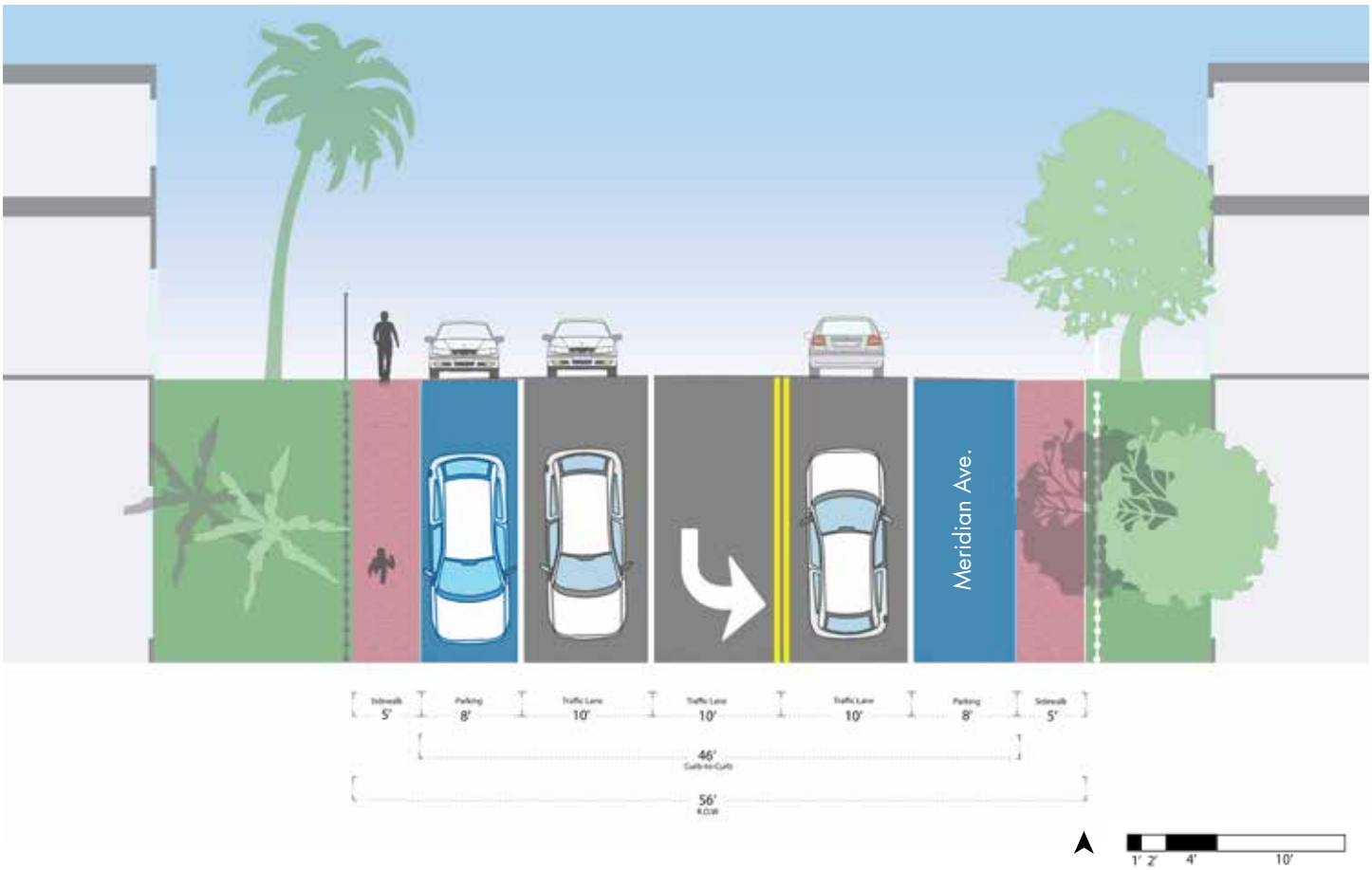


Intersections throughout Flamingo Park could have colorful designs/patterns painted in them. This safety measure would not only provide for improved pedestrian visibility, but would also encourage drivers to slow down as they pass through the intersection.

Bicycle boxes at intersections provide an additional safety for bicyclists and increases their visibility to motorists by shortening crossing distances at intersections. Bicycle boxes are placed first at intersections, while motor vehicles stop behind them. Bicycle boxes and intersection treatments can be found on the street design guide.

MERIDIAN AVENUE

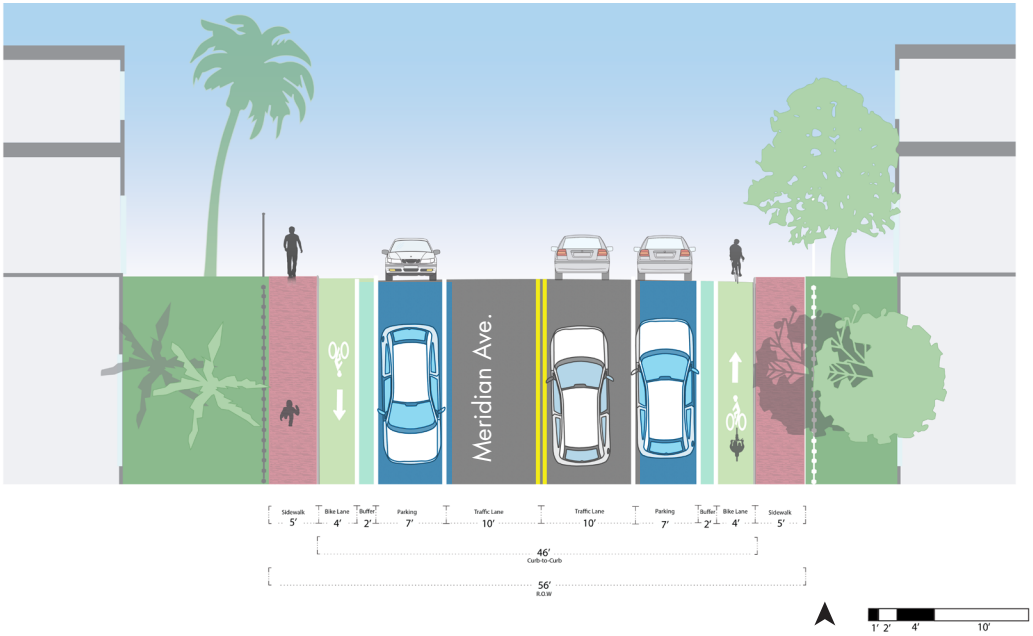
Street Data	
Public Right-of-Way Width	70′, 56′ from sidewalk to sidewalk
Pavement Width	46′ typical
Posted Speed Limit	25 mph
Daily Volume	9,600-12,000 ADT
Project Limits	Between Dade Boulevard and 4 Street
Project Length	Approximately 3,000′, 0.56 Miles
Predominant Land Use	Mutlifamily Residential
Predominant Development Pattern	Compact urban apartment types
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	Lincoln Road, Flamingo Park



Meridian Between Dade Boulevard and 5th Street is another one of the main bicycle corridors in Miami Beach. The Crash data shows that it is one of the corridors with the most crashes over the past two years. The context of the street goes from mixed-use with a center turn lane in the north, to medium density residential with no center turn lane. Each has its own approach.

PROTECTED LANE

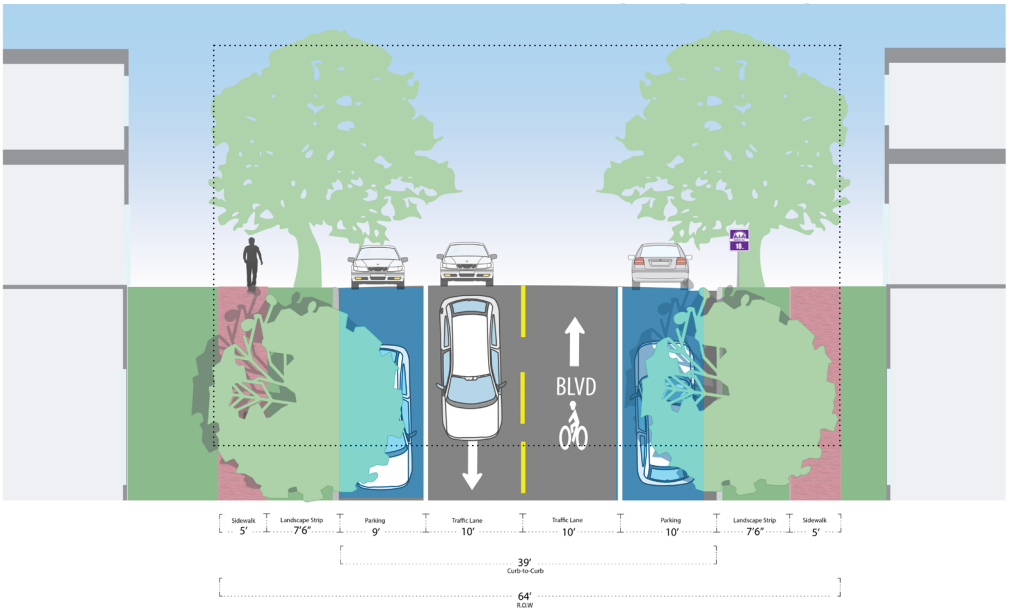
In the northern section of Meridian, where it currently has a center turn lane, a parking protected bike lane has been implemented.



NEIGHBORHOOD GREENWAY

Further south, traffic would have to be diverted from this corridor to prioritize bicycle travel in the street. Already compact conditions call for an on-street neighborhood greenway.

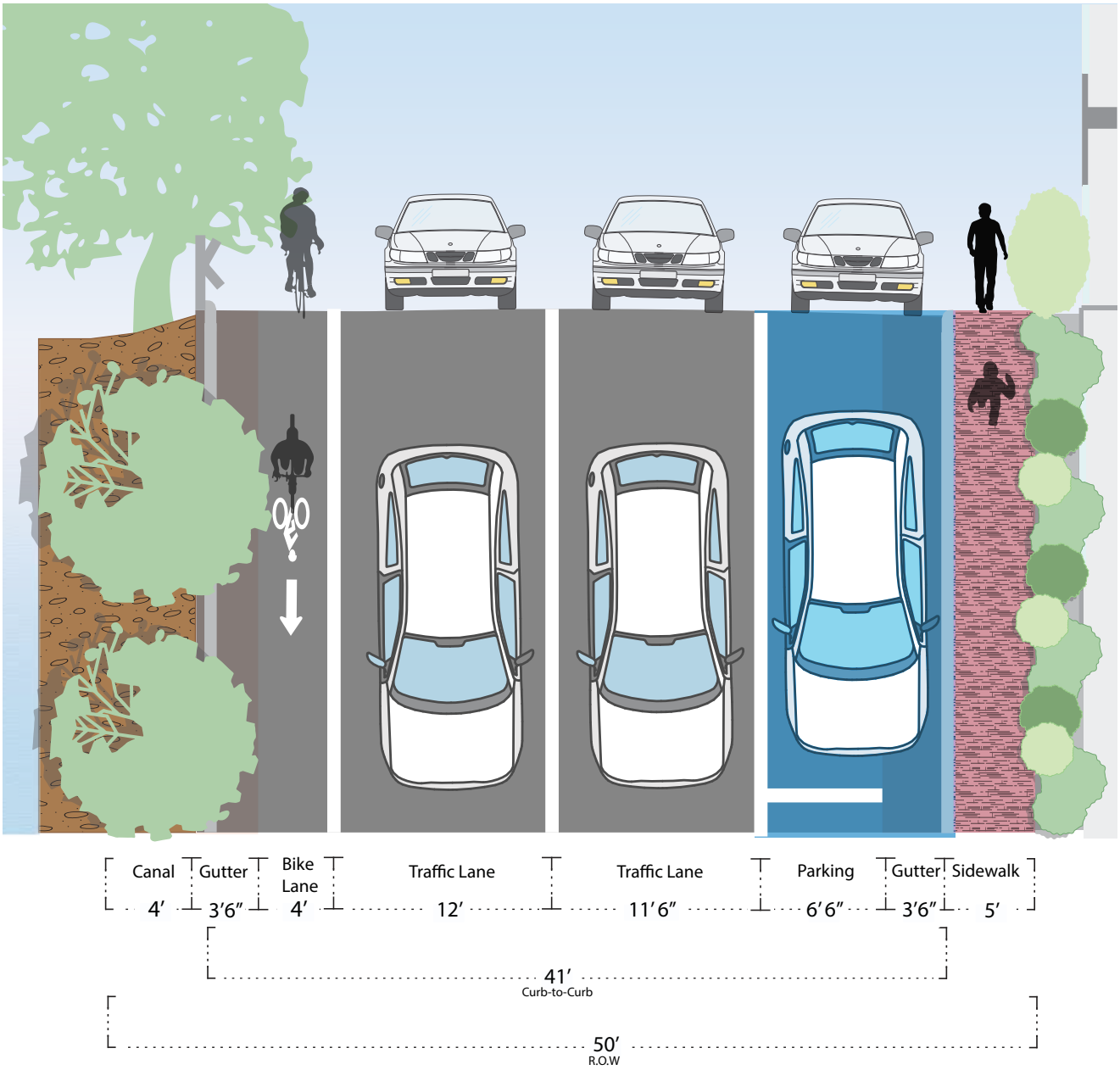
This segment of Meridian would become a designated greenway through interventions like signalization, reduced speeds and intersection treatments.
Refer to the Street Design Guide for more information.



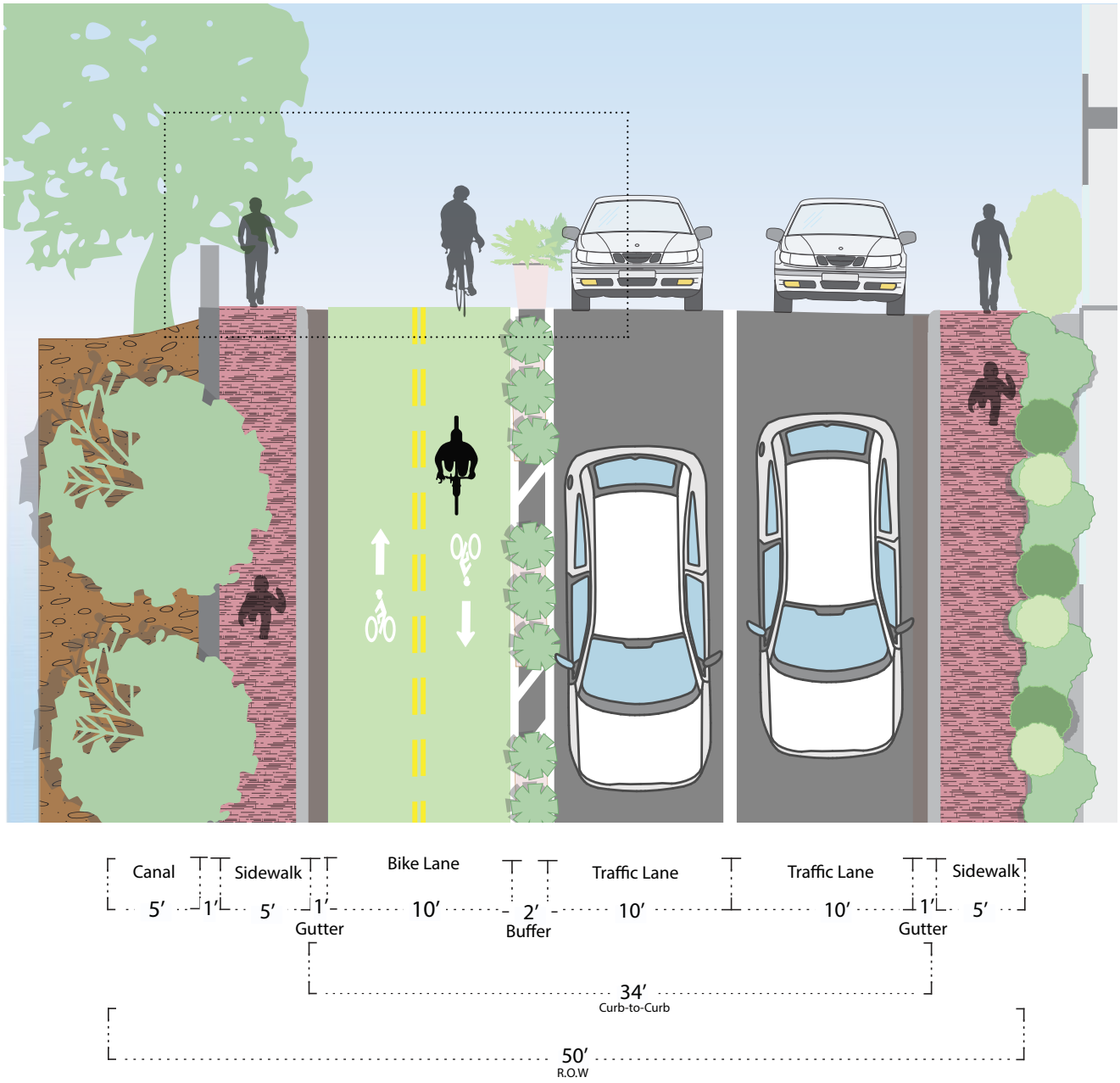
Refer to pages 38- 42 of the Street Design Guidelines for additional information.

LOWER INDIAN CREEK

Street Data	
Public Right-of-Way Width	50′
Pavement Width	41′ typical
Posted Speed Limit	35 mph
Daily Volume	NA
Project Limits	Between 41st and 26th Street
Project Length	Approximately 4,205′, 0.80 Miles
Predominant Land Use	Multifamily Residential
Predominant Development Pattern	Compact urban apartment types/ Small hotels
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	Beach



TWO WAY PROTECTED BIKE LANE



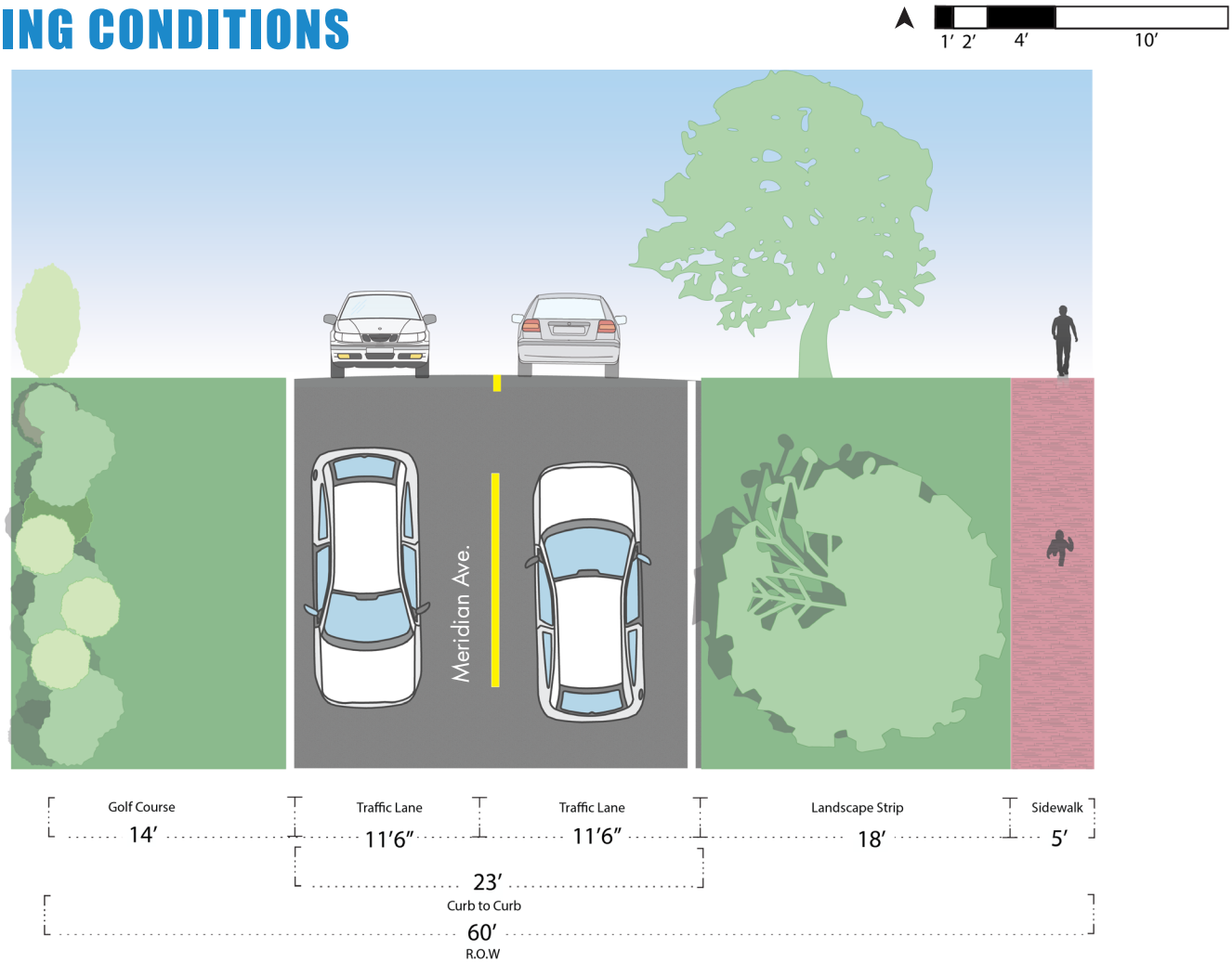
Refer to figure 2.41 - 2.52 of the Street Design Guidelines for additional information on protected bike lanes.

Lower Indian Creek Drive, from 41st street to 26th street can support a street-level protected bicycle lane by eliminating the parallel parking, and reducing the size of the gutters and travel lanes. This segment of Indian Creek currently has one south-bound conventional bike lane that does not connect to any other route, leaving the bicyclist stranded.

MERIDIAN AVENUE

Street Data	
Public Right-of-Way Width	70′
Pavement Width	23′ typical
Posted Speed Limit	25 mph
Daily Volume	9,600-12,000 ADT
Project Limits	Between 28 Street and Dade
Project Length	Approximately 3,000′, 0.56 Miles
Predominant Land Use	Single Family Residential
Predominant Development Pattern	Suburban Detached
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	Miami Beach High School
Impact on modeshare	low
Upcoming Public Works Project	Yes - CIP

EXISTING CONDITIONS

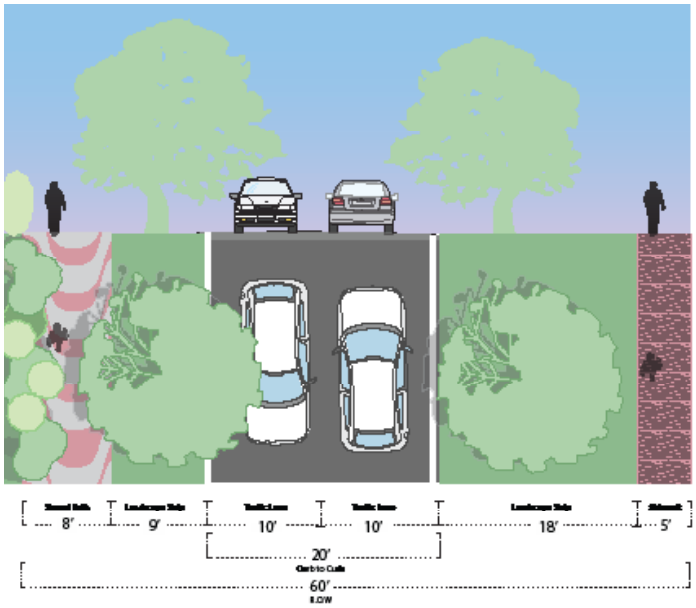


Meridian is a quiet neighborhood street. This segment is adjacent to the golf course and provides north/south connectivity parallel to Prairie Avenue.

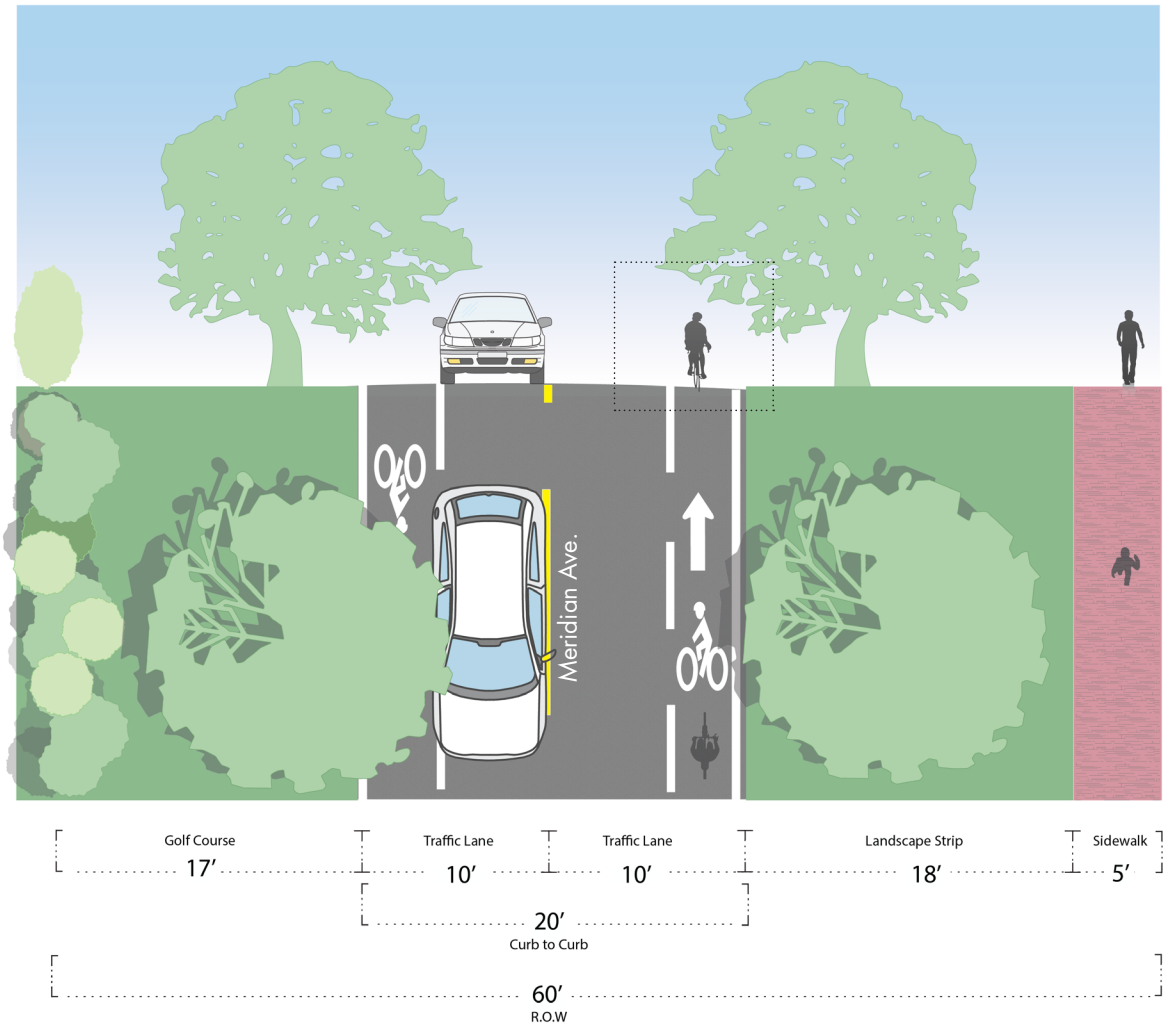
SHARED PATH

The most obvious option along this segment of Meridian is to provide some type of bicycle/pedestrian access adjacent to the golf course. Though high winds can often be a nuisance when riding this corridor, additional street trees and landscaping would be a benefit to any street redesign.

The option below tries to narrow the pavement as much as possible wit an advisory bike lane. This allows for an increase the amount of green space and street trees.



ADVISORY BIKE LANE

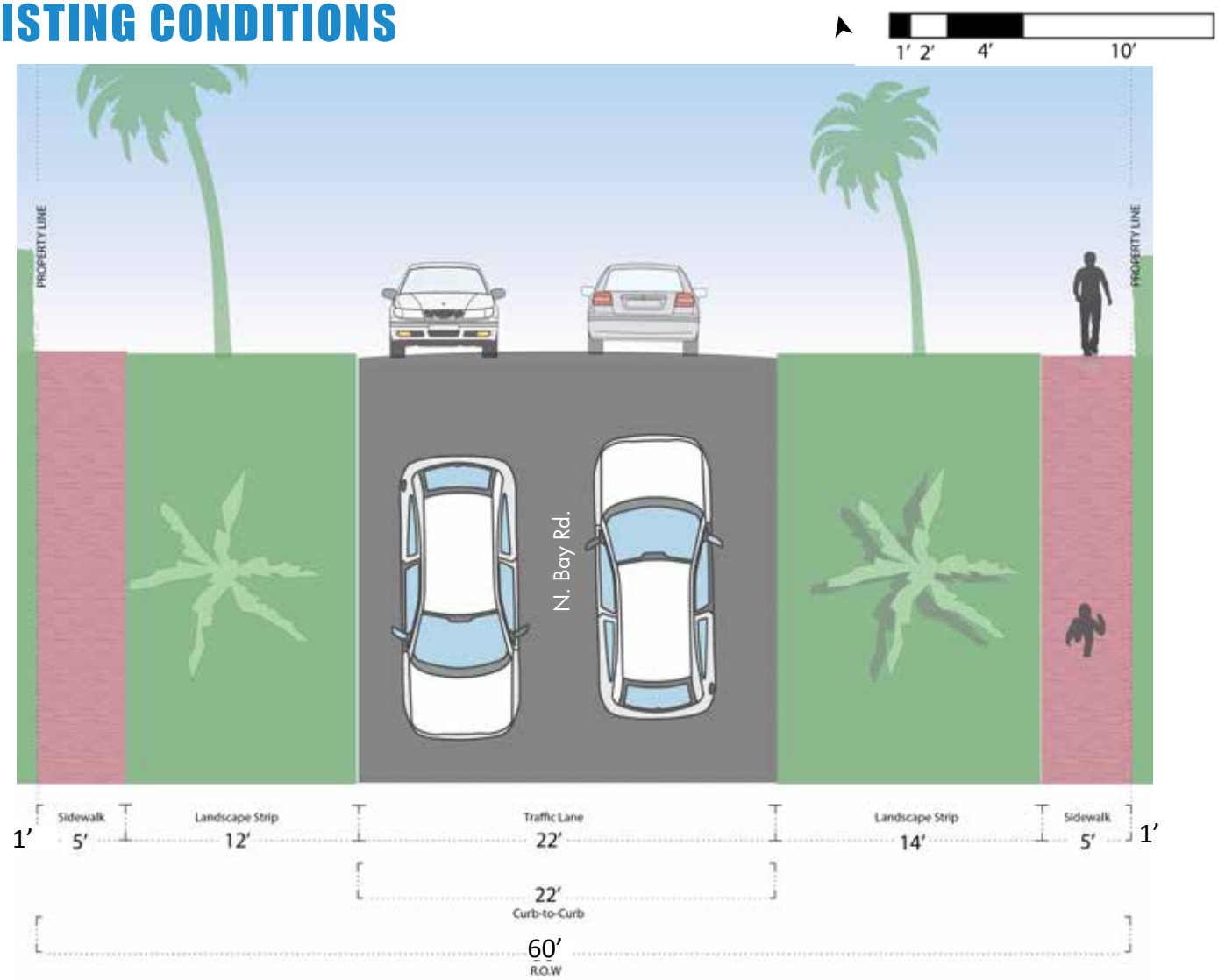


Refer to figure 2.40 of the Street Design Guidelines for additional information.

NORTH BAY ROAD

Street Data	
Public Right-of-Way Width	60′
Pavement Width	22′ typical
Posted Speed Limit	25 mph
Daily Volume	NA
Predominant Land Use	Single Family Residential
Project Limits	Between Alton Road and Alton Road
Project Length	Approximately 5,500′, 1.0 Miles
Predominant Development Pattern	Detached single family homes with driveways.
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	There are several schools and small parks that generate pedestrian activity along this route.
Impact on modeshare	Low
Upcoming Public Works Project	Yes - CIP

EXISTING CONDITIONS



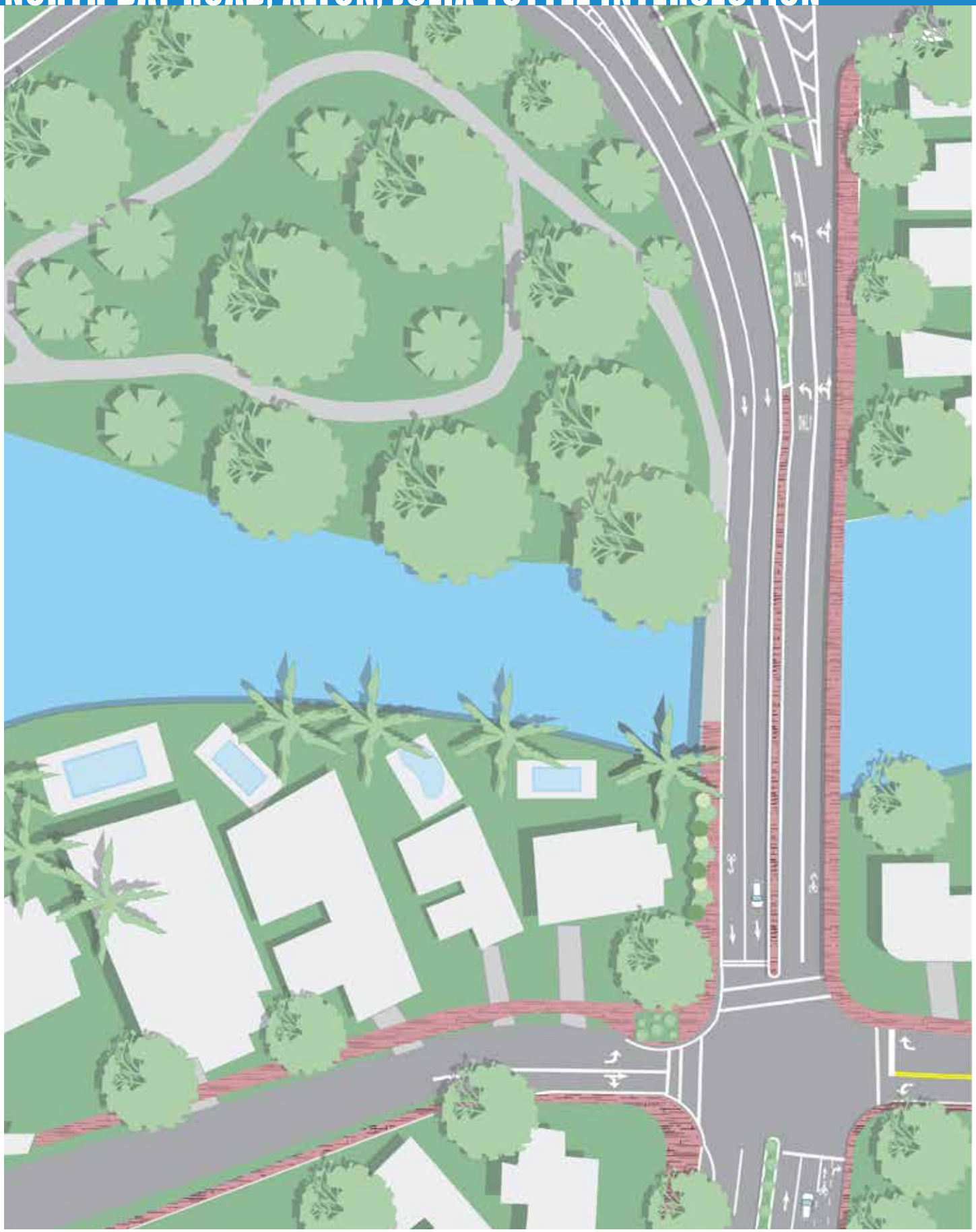
Lower North Bay Road, between Alton @ 20 Street and Alton at Chase Avenue is a well used north/south route that serves as a low stress alternative to the high volume and high speed conditions on Alton Road.

BICYCLE BOULEVARD

In many ways, lower North Bay Road, between Alton @ 20 Street and Alton at Chase Avenue, already functions like a bike boulevard. As described in the Street Design Guide, a bike boulevard is a street design technique that prioritizes bicycle travel on low volume residential streets. Traffic is diverted from these streets, and priority given to the bicyclists in the road. Given the low volume of cars observed on this street, and the existing traffic diversion devices (at the intersection with Chase Avenue), this is a prime candidate for improvements that will help convert this street into a true bicycle boulevard. Among the most important improvements to the corridor is the addition of street trees, bicycle boulevard pavement markings and traffic circles (or other traffic calming devices).

Typical sections in the October 2010 Bayshore BODR Documents show two 10′ lanes and 2′ concrete valley gutters. In general, we should strive for drainage solutions that do not increase the size of the street any more than necessary. The extra 2′ added for the valley gutter rarely results in a well designed street. Any benefit you get from narrowing the lanes to 10′, you effectively give up by widening the driver's field of vision by the extra 2′ on either side. On a street like Lower North Bay Road, where we are proposing an on-street solution, we should do our best to make sure that the street is designed for the slowest speed traffic. Bike route signs have been included at intersections. Signage and pavement markings are specified in the Street Design Guide.

NORTH BAY ROAD, ALTON, JULIA TUTTLE INTERSECTION

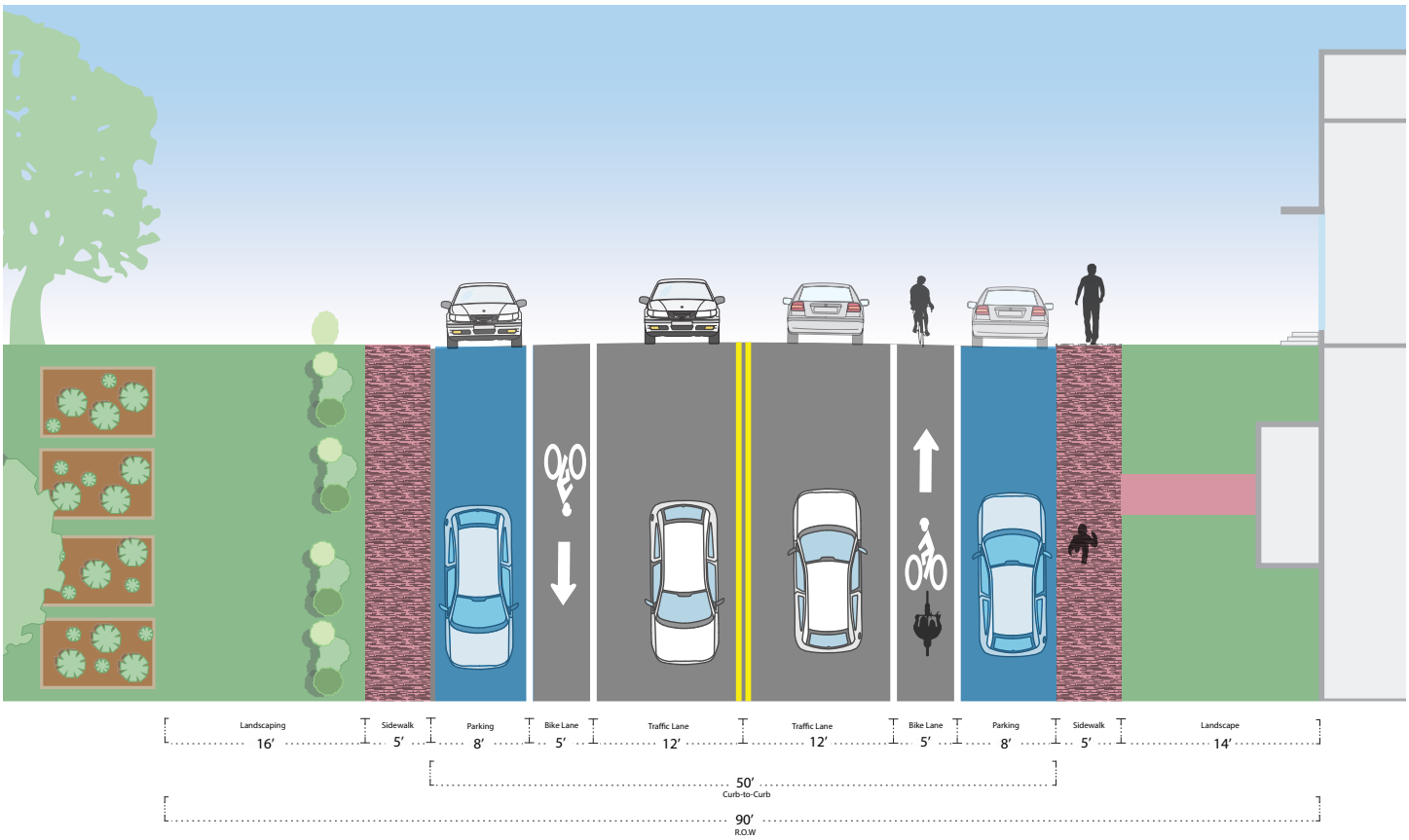


Julia Tuttle Cswy Existing Conditions

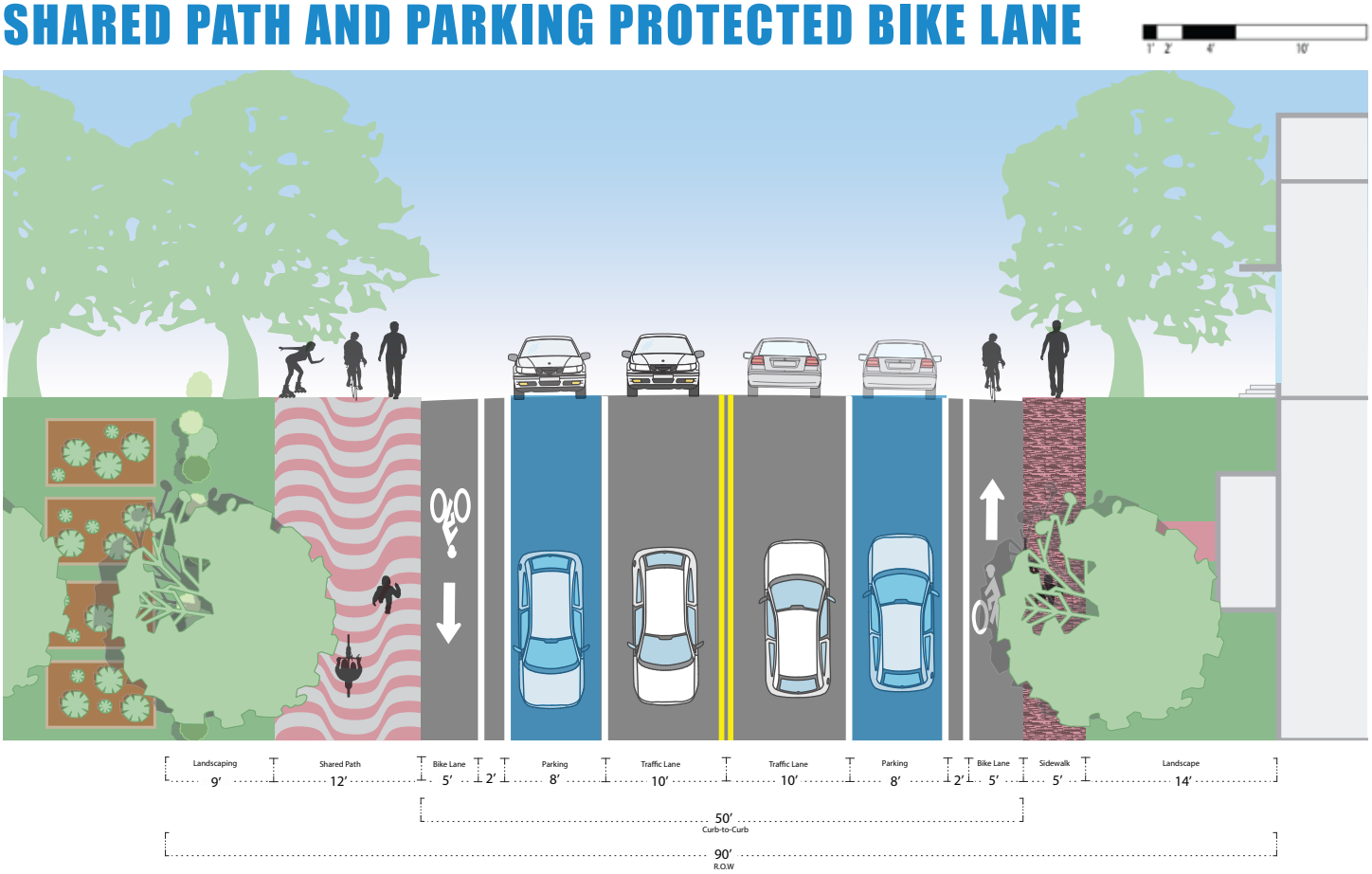
DICKENS DRIVE / PARK VIEW ISLAND PARK

Street Data	
Public Right-of-Way Width	Vaires from 80′ - 50′
Pavement Width	50′ typical
Project Limits	Dickens Between 72nd and 77th Streets
Project Length	1,800′ or 0.35 Miles
Posted Speed Limit	30 mph
Daily Volume	NA
Predominant Land Use	Compact Urban
Predominant Development Pattern	1 - 2 Residential Buildings
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	Park View island Park, Community Garden, Biscayne Elementary , North Shore Park
Impact on modeshare	low
Upcoming Public Works Project	Yes

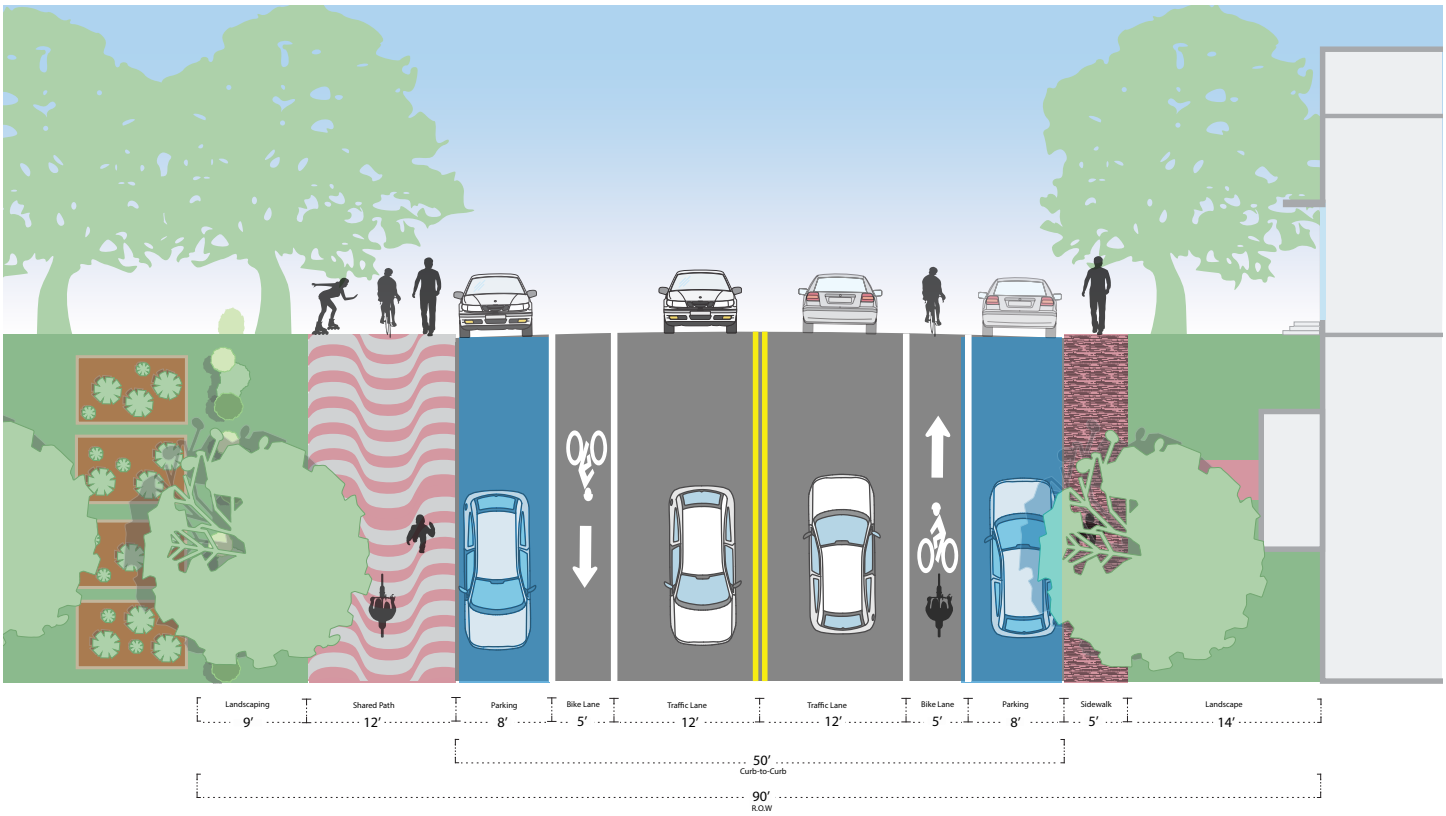
EXISTING CONDITIONS



SHARED PATH AND PARKING PROTECTED BIKE LANE



SHARED PATH AND CONVENTIONAL BIKE LANE



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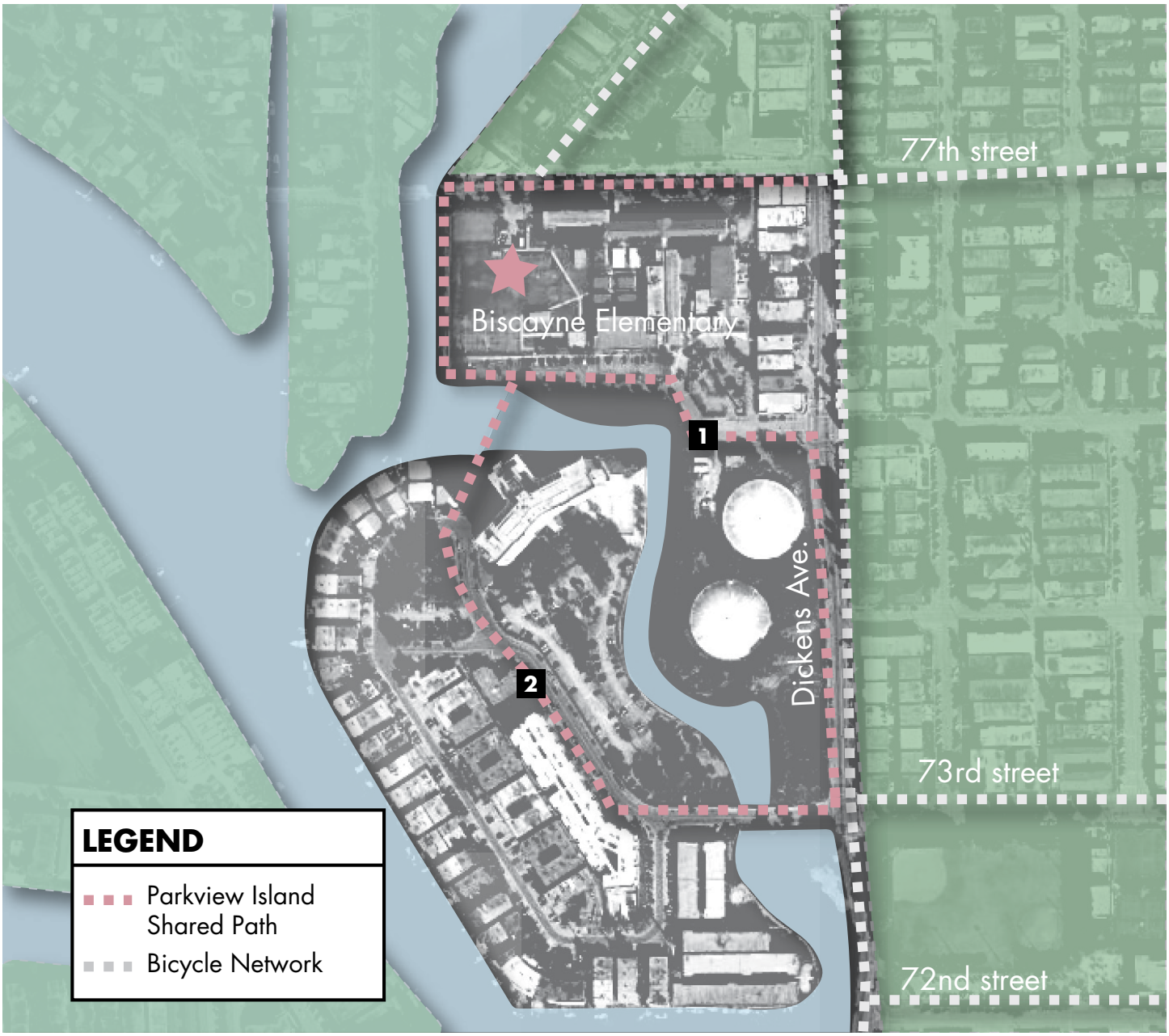


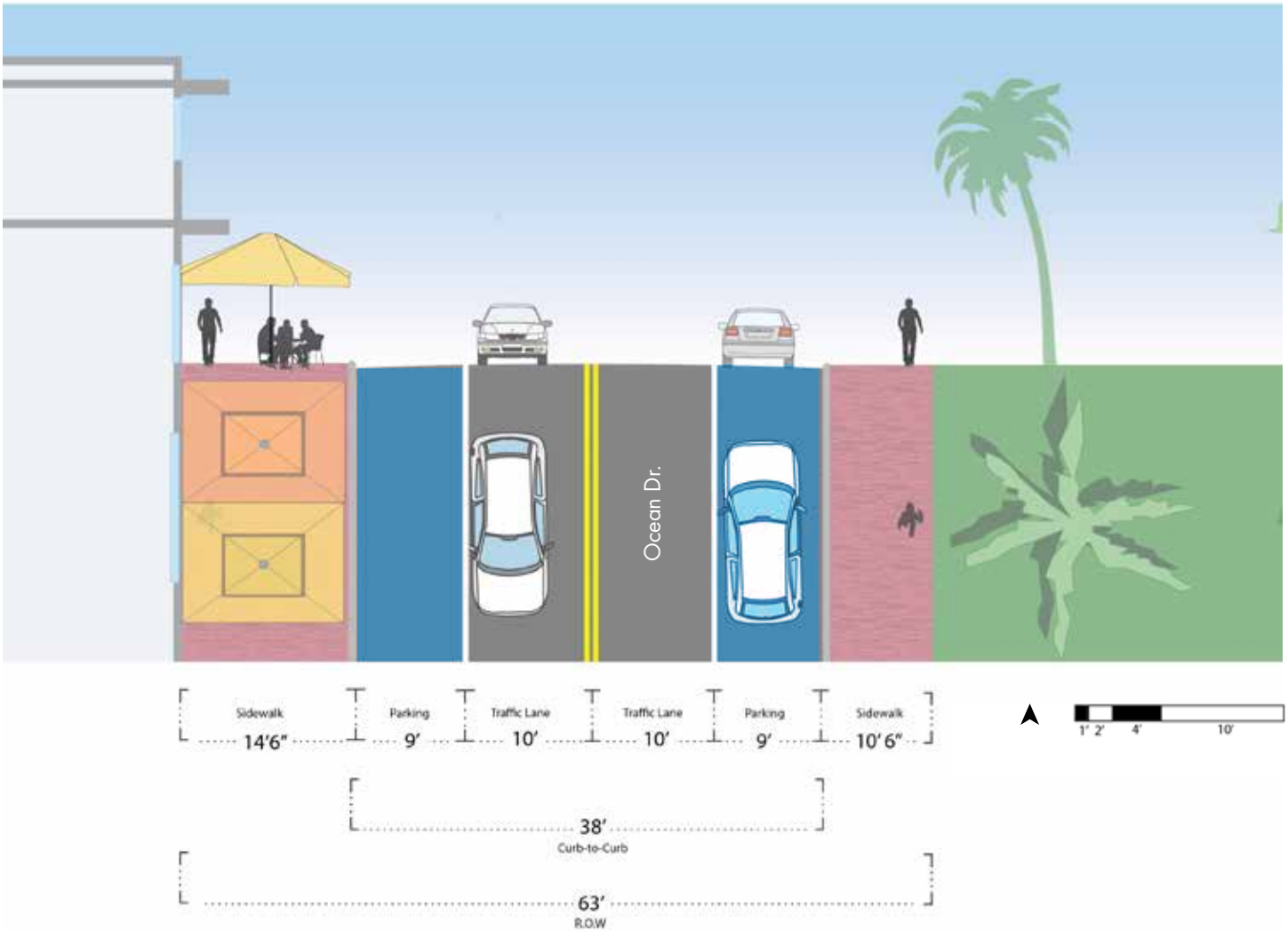
The first phase of the Park View Island shared path extends from Dickens Avenue at 73rd street to 77th street and loops behind Biscayne Elementary. This route provides safer access to the school and surrounding points of interest like the community garden located on Park View Island Park and North Shore Park.

The second phase will connect Park View Island via the bridges and along Wayne Avenue, thus increasing accessibility to Biscayne Elementary and encouraging bicycling to school.

OCEAN DRIVE

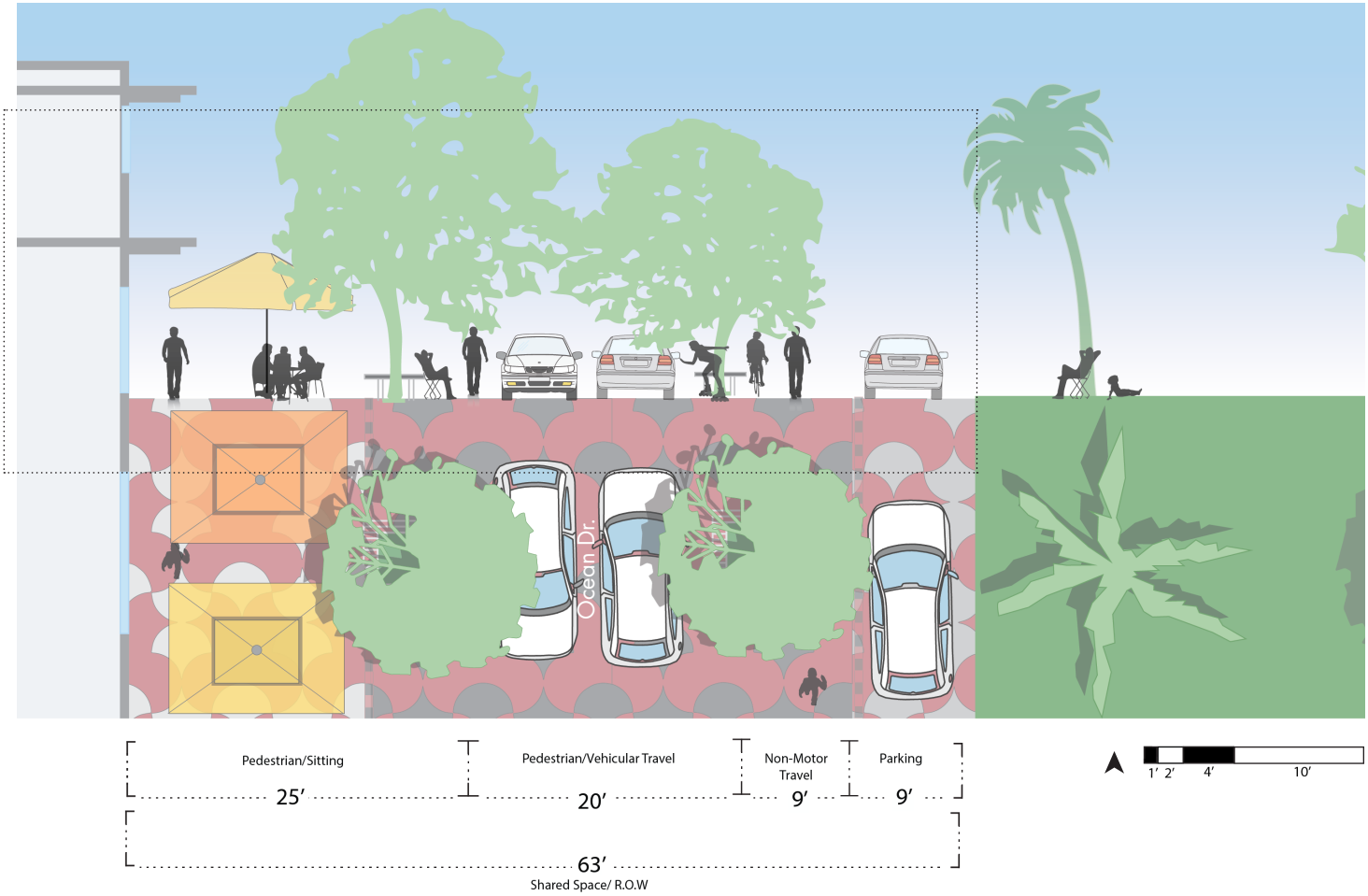
Street Data	
Public Right-of-Way Width	55′
Pavement Width	38′ typical
Posted Speed Limit	25 mph
Project Limits	Between 15 Street and 5 Street
Project Length	Approximately 5,000′, 0.94 Miles
Daily Volume	9,600 ADT
Predominant Land Use	3-12 story hotels with sidewalk cafe.
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	The beach , South Pointe Park
Impact on modeshare	low
Upcoming Public Works Project	Yes

EXISTING CONDITIONS



SHARED SPACE

Ocean Drive is the City's main public space. Recognizable all over the world, it is one of the reasons people come to visit South Florida. The City's main 'drag' has been discussed recently as the candidate for a street redesign. The proposal made here is for the entire ROW to be designed as a shared space. As such there would be minimal pavement markings, and total priority would be given over to pedestrians. There would be more space for sidewalk cafe's and the speed limit would have to drop to 20 MPH or less. In addition the design of the pavement would give the corridor a unique identity. In much the same way that Lincoln Road is one of the premier pedestrian corridors in the world, so too can Ocean Drive elevate its status to one of the great streets of the world with a shared space treatment.

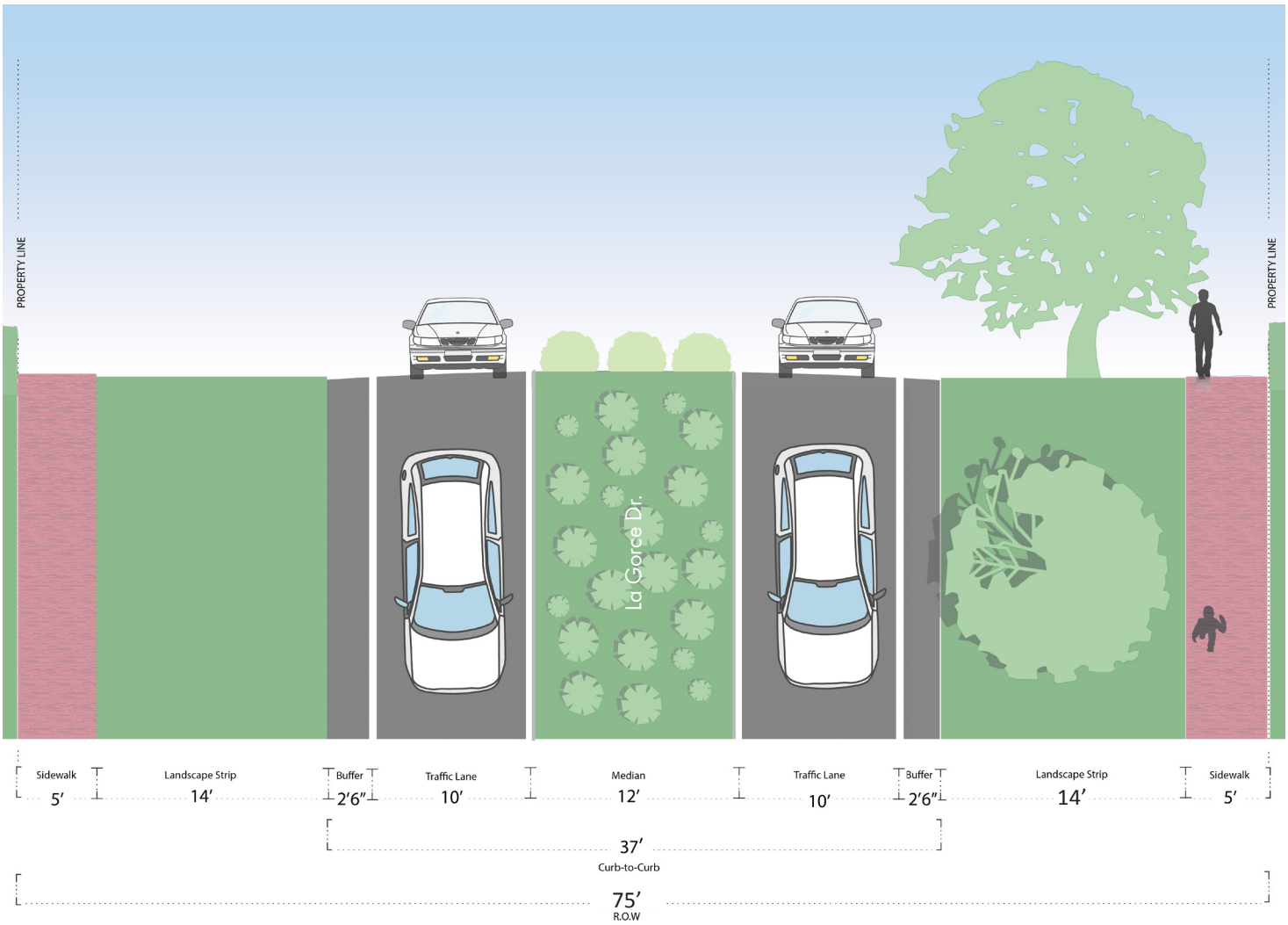


Refer to figure 2.10 of the Street Design Guidelines for additional information.

PINE TREE DRIVE / LA GORCE DRIVE

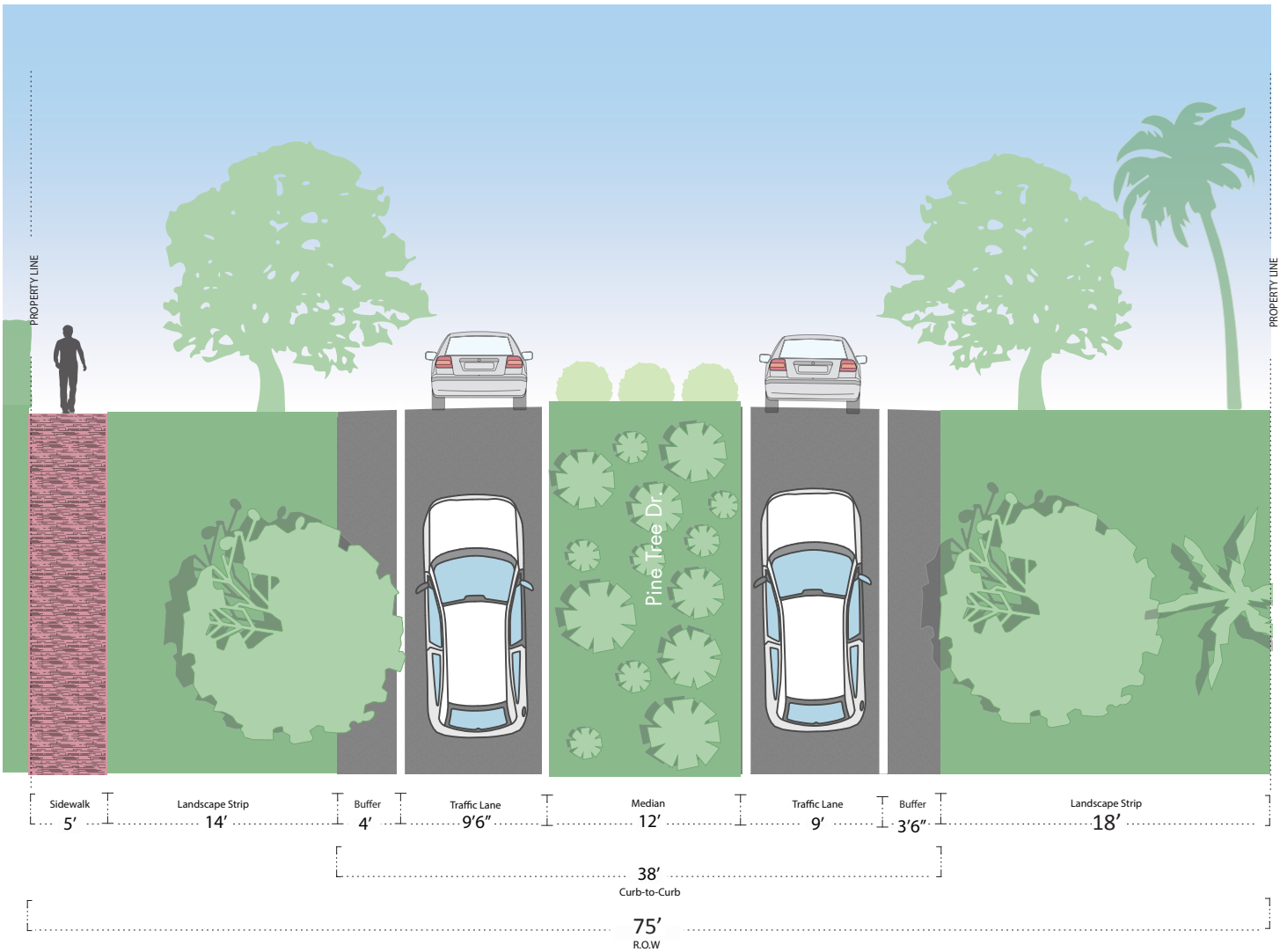
Street Data	
Public Right-of-Way Width	75′
Pavement Width	37′ typical
Posted Speed Limit	35 mph
Project Limits	Between 63 Street and 51 Street
Project Length	6,000′ or 1.1 Miles
Daily Volume	4,800 ADT
Predominant Land Use	Single Family Residential
Predominant Development Pattern	Suburban Detached
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	This route serves as an important north - south connector in the greenway network.
Impact on modeshare	Moderate
Upcoming Public Works Project	Yes - Miami-Dade County

EXISTING CONDITIONS - LA GORCE

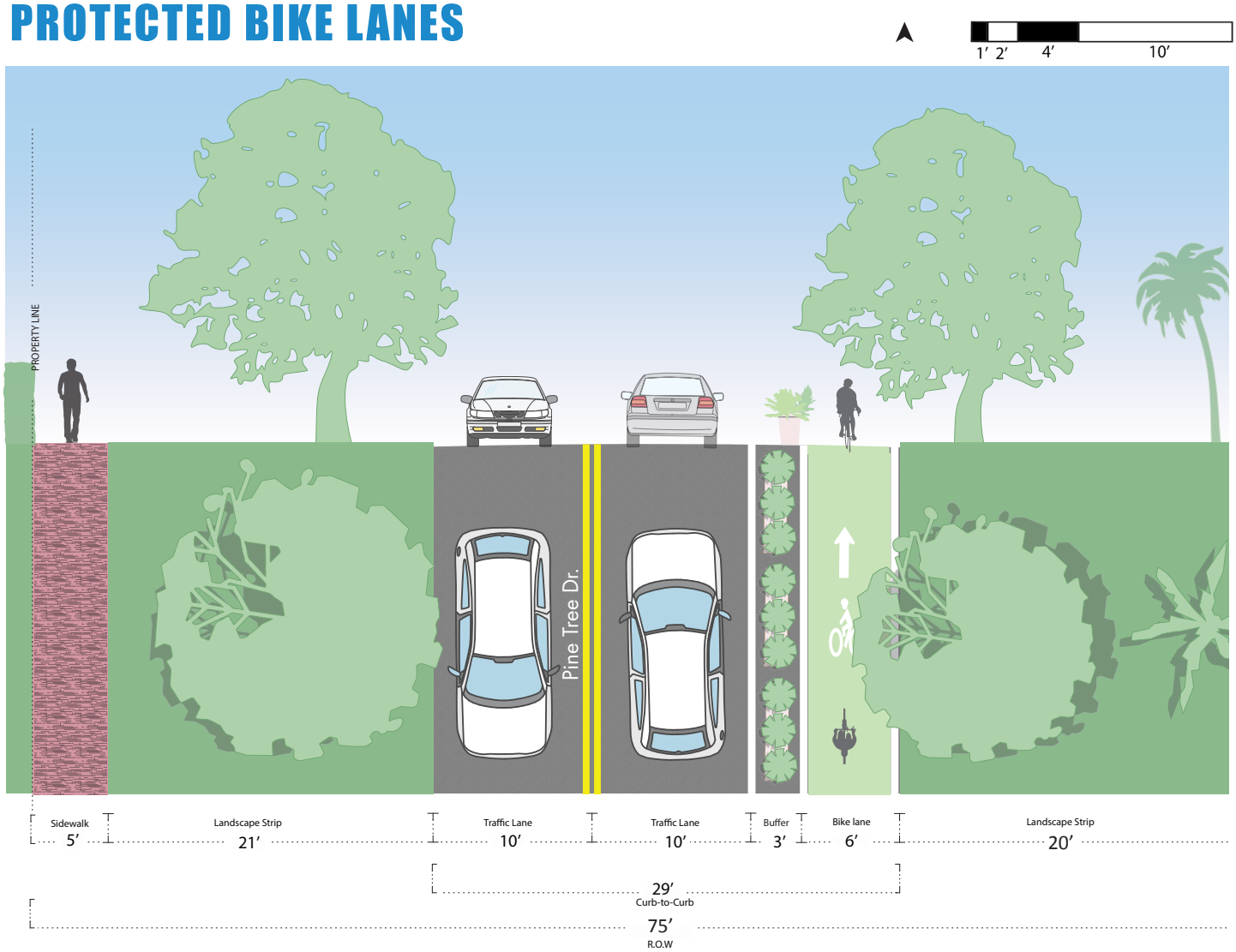


Street Data	
Public Right-of-Way Width	75′
Pavement Width	38′ typical
Project Limits	Between 63 Street and 51 Street
Project Length	6,000′ or 1.1 Miles
Posted Speed Limit	35 mph
Daily Volume	5,1200 ADT
Predominant Land Use	Single Family Residential
Predominant Development Pattern	Suburban Detached
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	This route serves as an important north - south connector in the greenway network.
Impact on modeshare	Moderate
Upcoming Public Works Project	Yes - Miami Dade County

EXISTING CONDITIONS - PINE TREE



PINE TREE / LA GORCE
PROTECTED BIKE LANES

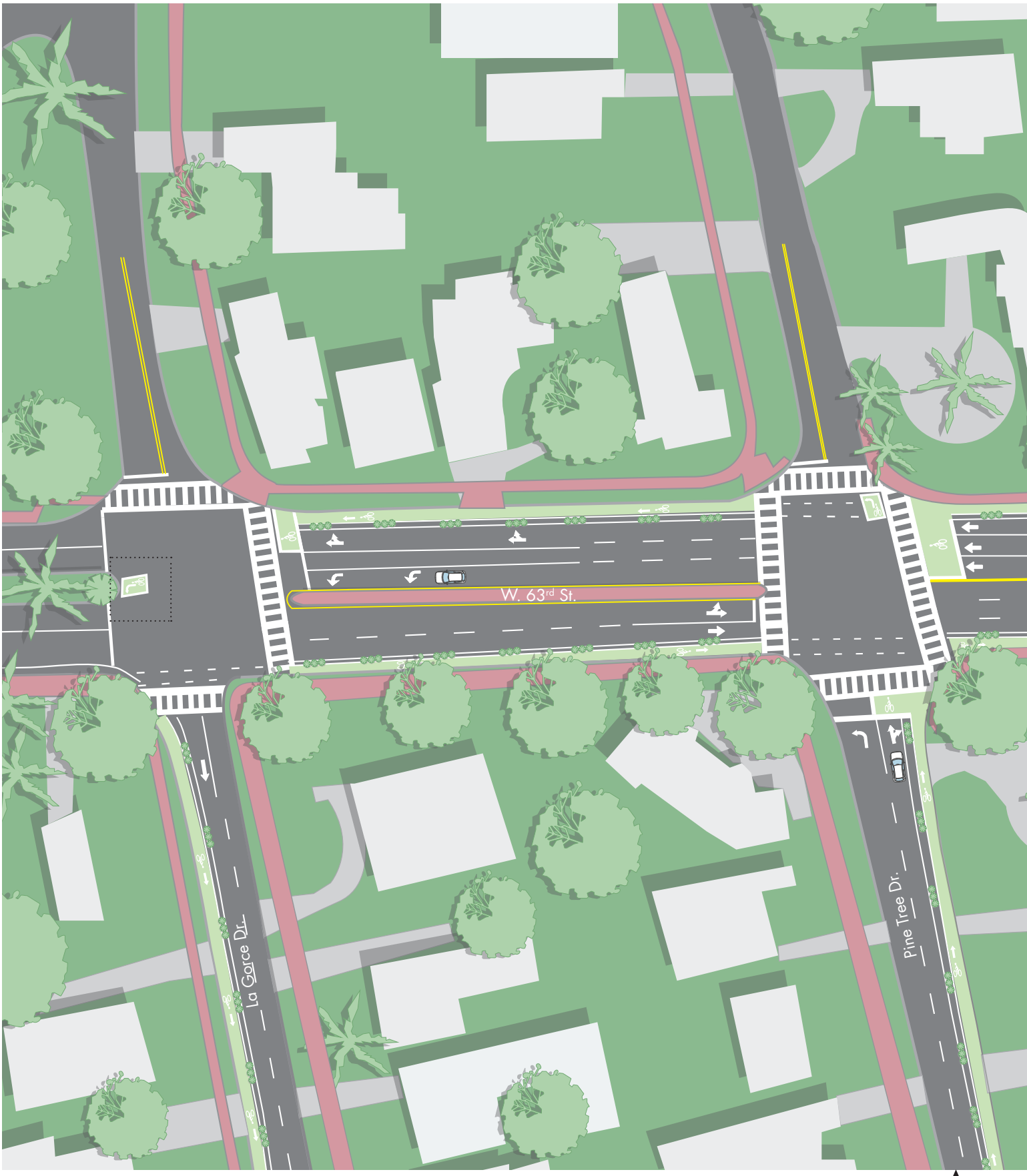


As the most direct route with connections south of 51 Street, a two-way set of protected bike lanes on Pine Tree would allow for the conversion of the street to two-way travel. If this option is chosen, no bicycle facility is needed on La Gorce, and the remaining space can be converted into green space. Any number of treatments found in the Street Design Guide can be used.

63RD STREET / PINE TREE / LA GORCE INTERSECTION

The intersection of 63 Street, Pine Tree and La Gorce is a pivotal moment in the Miami Beach Bicycle Network. It is one of only two places to go north / south. Traffic coming from Pine Tree merge with traffic on Alton to cross the bridge into North Beach. North Bay Road traffic also empty's out on to this corridor.

63RD STREET / PINE TREE / LA GORCE INTERSECTION



Refer to figure 2.65 - 2.72 of the Street Design Guidelines for additional information on intersection treatments used here.

63RD STREET / PINE TREE / LA GORCE INTERSECTION

Refer to figure 2.65 - 2.72 of the Street Design Guidelines for additional information on intersection treatments used here.

PINE TREE / LA GORCE COMBINATIONS

Pine Tree Drive and La Gorce have the potential to provide a critical north/south link between Nautilus to the south and North Shore to then north. The corridors are currently a one-way pair of two car travel lanes with an average daily volume of 7,200 between the two corridors. The low volume and ample roadway surface make for a flexible street design and allow for the inclusion of on-street bicycle facilities and a significant increase in greenway space.

Within the overall network, connections must be made at 51st Street and 63rd Street (see page x-y for intersection details). The corridors are the subject of an upcoming Miami - Dade county capital improvement project, which will allow for their redesign as part of a milling/repaving project. Before then, the Alton Road repaving project will happen requiring a short term and long term strategy.

Given the low traffic volumes, these corridors are prime candidates for a road diet and should be reduced to one lane in each direction, with on-street bicycle facilities and additional street trees and landscape strips. The pages that follow describe several variations in street design for the corridors.

PHASE 1: SHORT TERM - ONE WAY PAIR CAR LANE + BIKE LANE

One-way pair of bike lanes. Southbound on La Gorce, northbound on Pine Tree.

- Replace one car lane in either direction with a bike lane.
- One-way pair of bike lanes. Southbound on La Gorce, northbound on Pine Tree.
- Additional landscaping (moveable or permanent) dividing car lane from bike lane.
- Additional space added to landscape strip (4′ -5′)
- Easy and immediate retrofit from existing condition

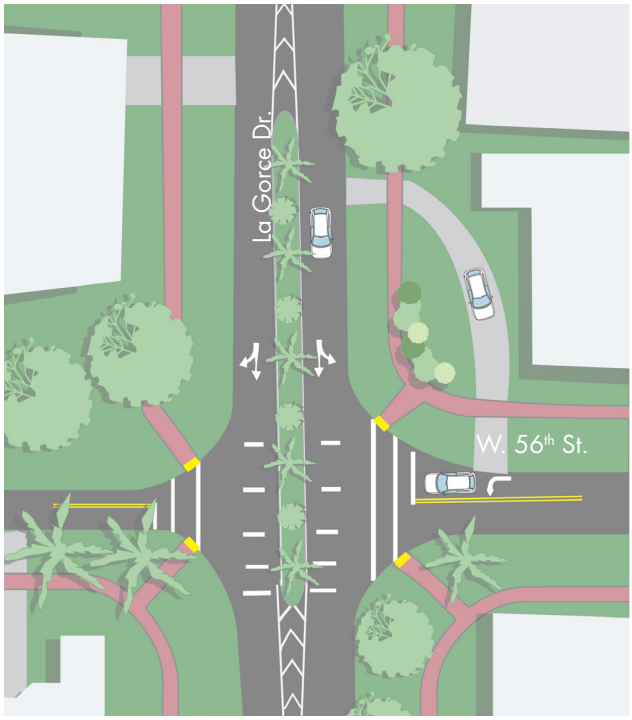
PHASE 2: SHORT TERM - CONVERT BOTH TO TWO WAY CAR TRAVEL, WITH ONE WAY PROTECTED BIKE LANES

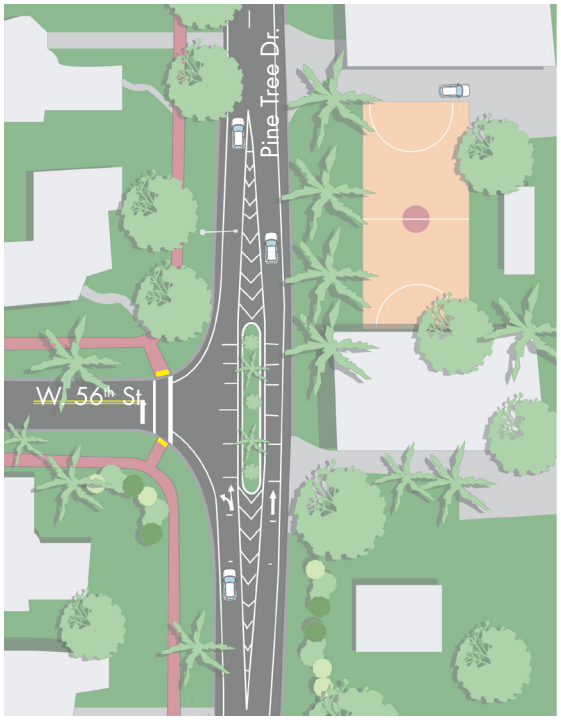
- One-way pair of bike lanes. Southbound on La Gorce, northbound on Pine Tree.
- Two-way car travel on both streets - additional capacity to accommodate for reconstruction of Alton Road, between 51 and 63 Streets.
- Removal of medians at intersections.
- Preliminary Approval by Miami - Dade County
- Increase in car capacity

PHASE 3: LONG TERM - ONE WAY PAIR CAR LANE + BIKE LANE

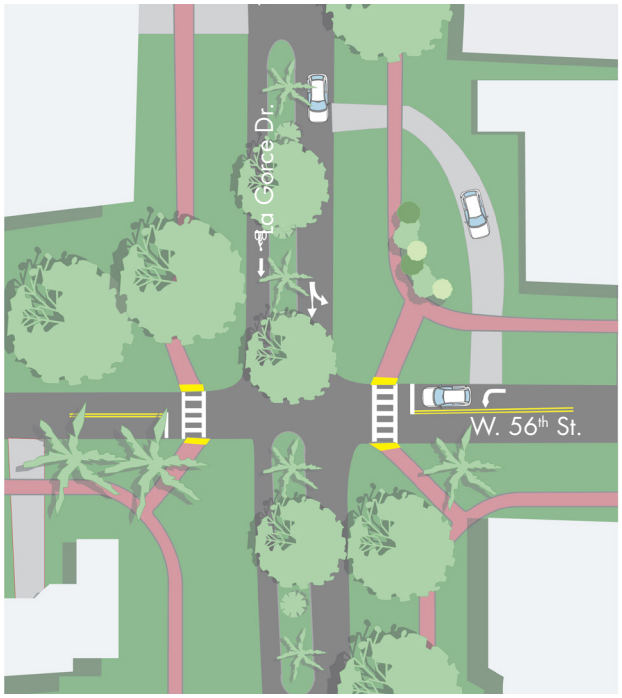
- Revert back to one lane of car travel in each direction.
- One-way pair of bike lanes remains. Southbound on La Gorce, northbound on Pine Tree.
- Addition of medians and landscape space.
- Additional space added to landscape strip

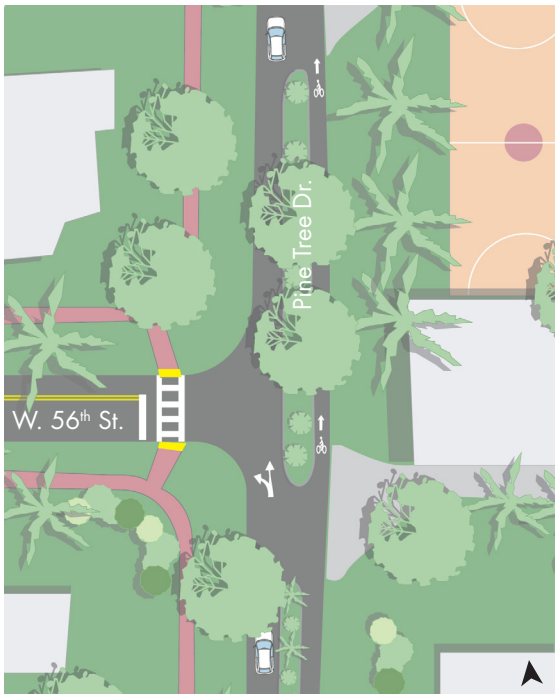
EXISTING CONDITIONS





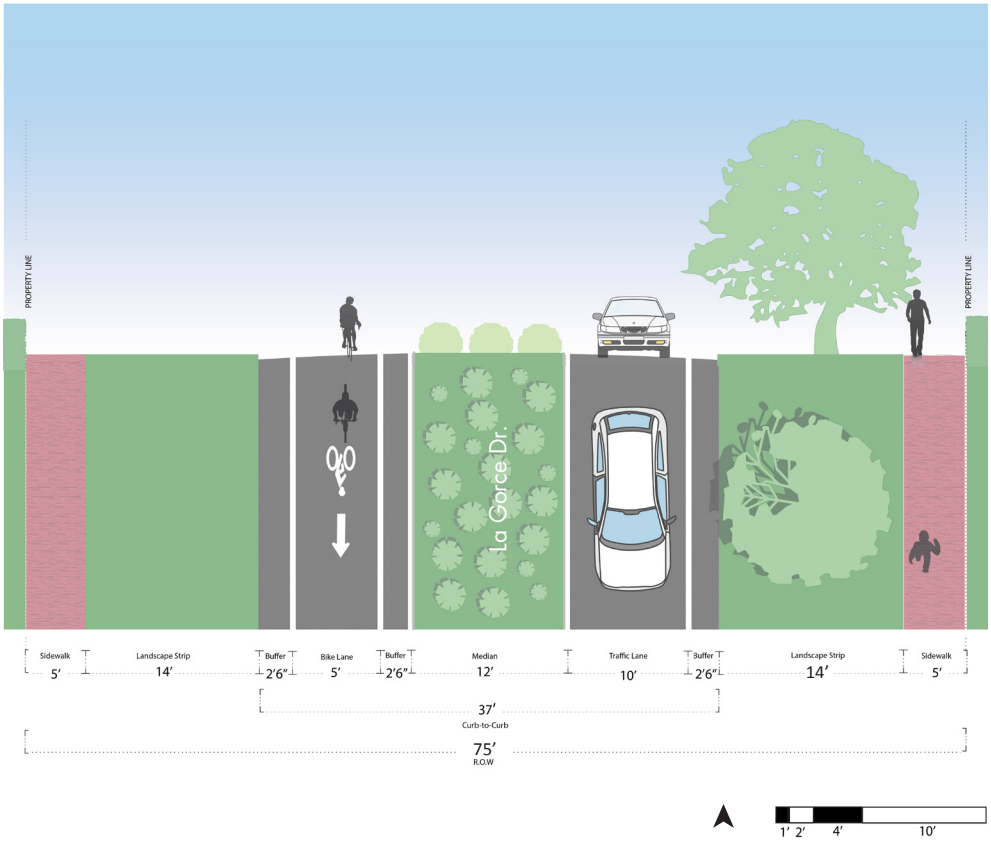
FUTURE CONDITIONS





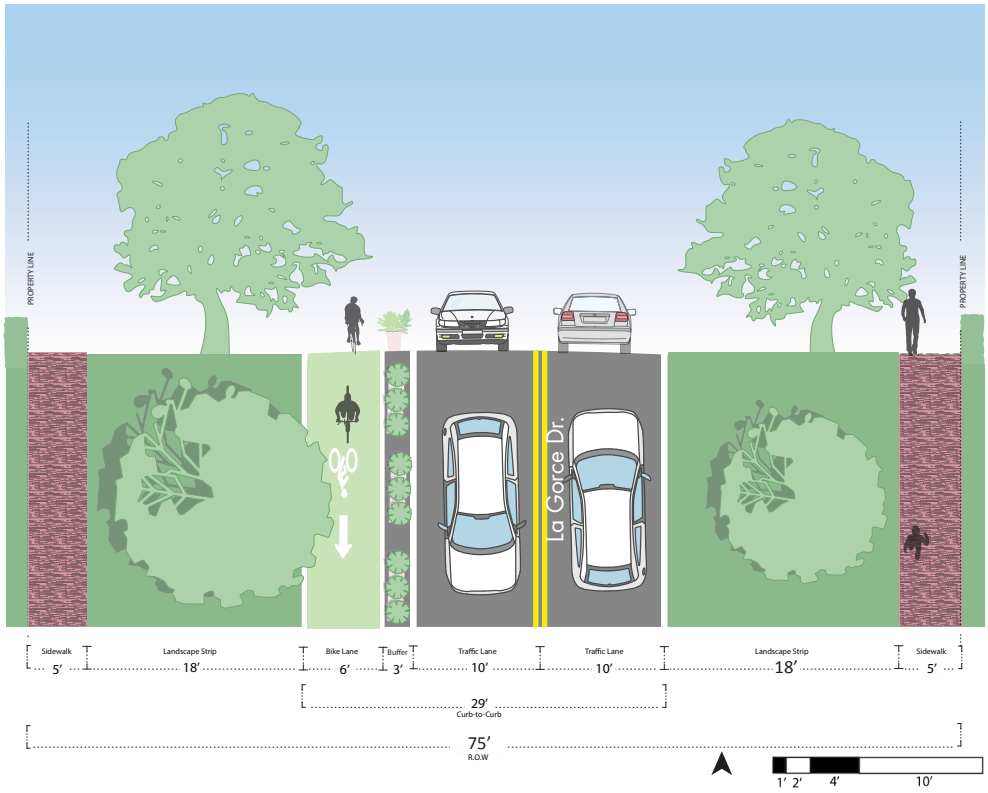
The primary recommendation for these corridors is the removal of one lane of traffic in each direction (from both Pine Tree and La Gorce) and the implementation of buffered and physically protected bike lanes. The data shows that for both Pine Tree and La Gorce there are just under 9,900 average cars per day, well under the 25,000 ADT threshold used to evaluate four lane roads for reduction in capacity. At the time when both Pine Tree and La Gorce are due for reconstruction, their lane widths should be significantly reduced, and more space given over to the landscape strip, or in the case of this design, to a wide, tree-planted median.

PHASE 1: ONE-WAY PROTECTED BIKE LANE



The most immediate thing that can be done to improve connectivity on these two corridors is the removal of one lane of traffic in each direction (from both Pine Tree and La Gorce) and the implementation of buffered and protected bike lanes. Phase 1 results in a net decrease in automobile network capacity, and an increase in greenspace.

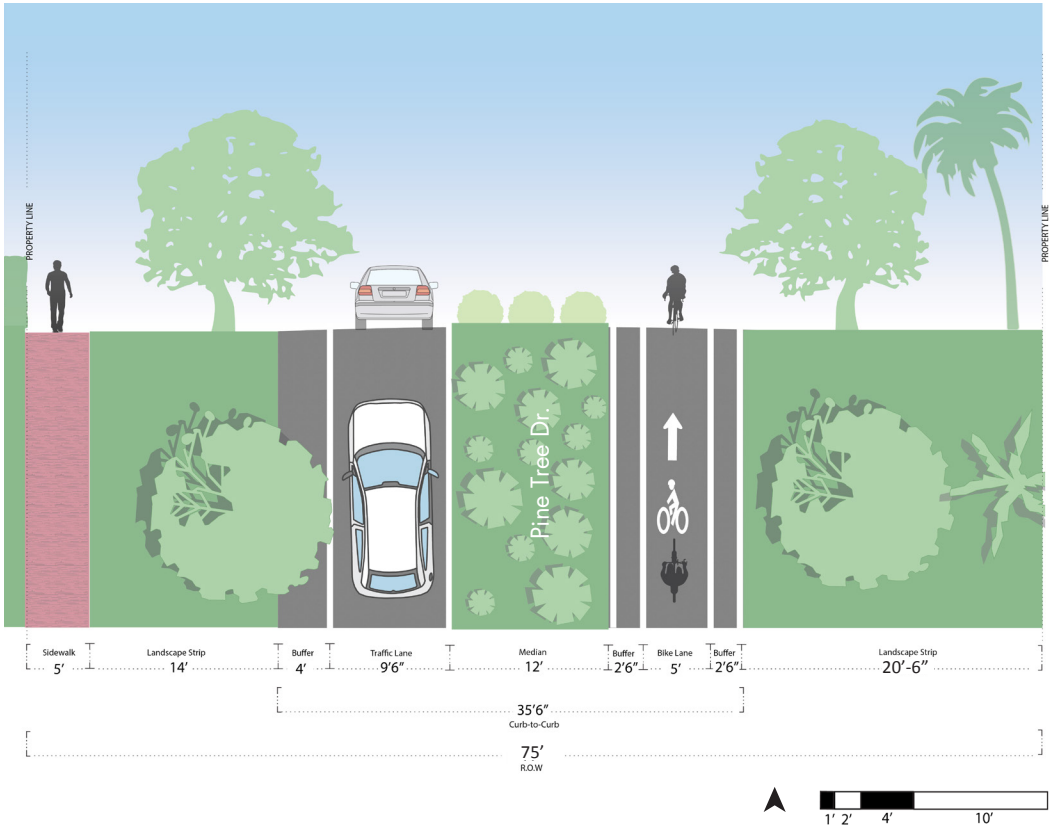
PHASE 2: ONE-WAY PROTECTED BIKE LANE



As with the one-way proposal on Pine Tree, this proposal assumes the creation of a one-way protected bike lane that forms a one-way pair with Pine Tree, which would have a similar configuration. Here, rather than remove car capacity, travel lanes are made two-way. Phase 2 results in a net increase in automobile network capacity.

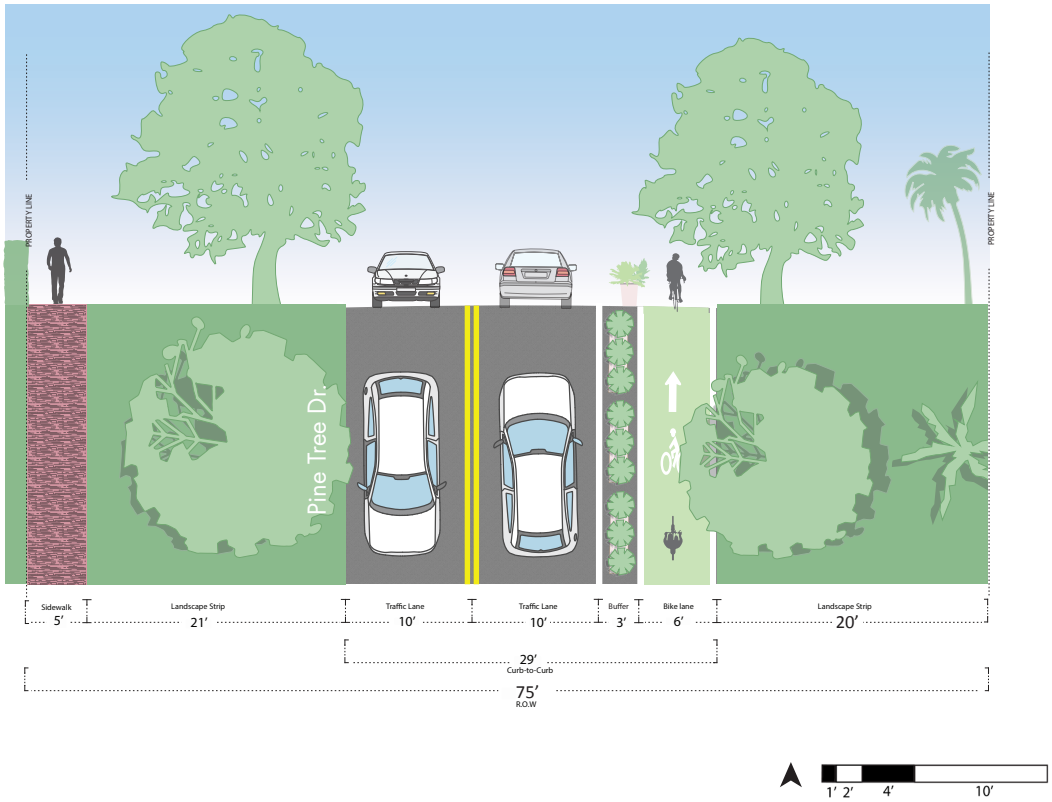
PHASE 1: ONE-WAY PROTECTED BIKE LANE

Without very much investment, a buffered and protected bike lanes can be implemented within the current width of Pine Tree.
Over the long term additional medians and street trees should be added to create a well shaded greenway.



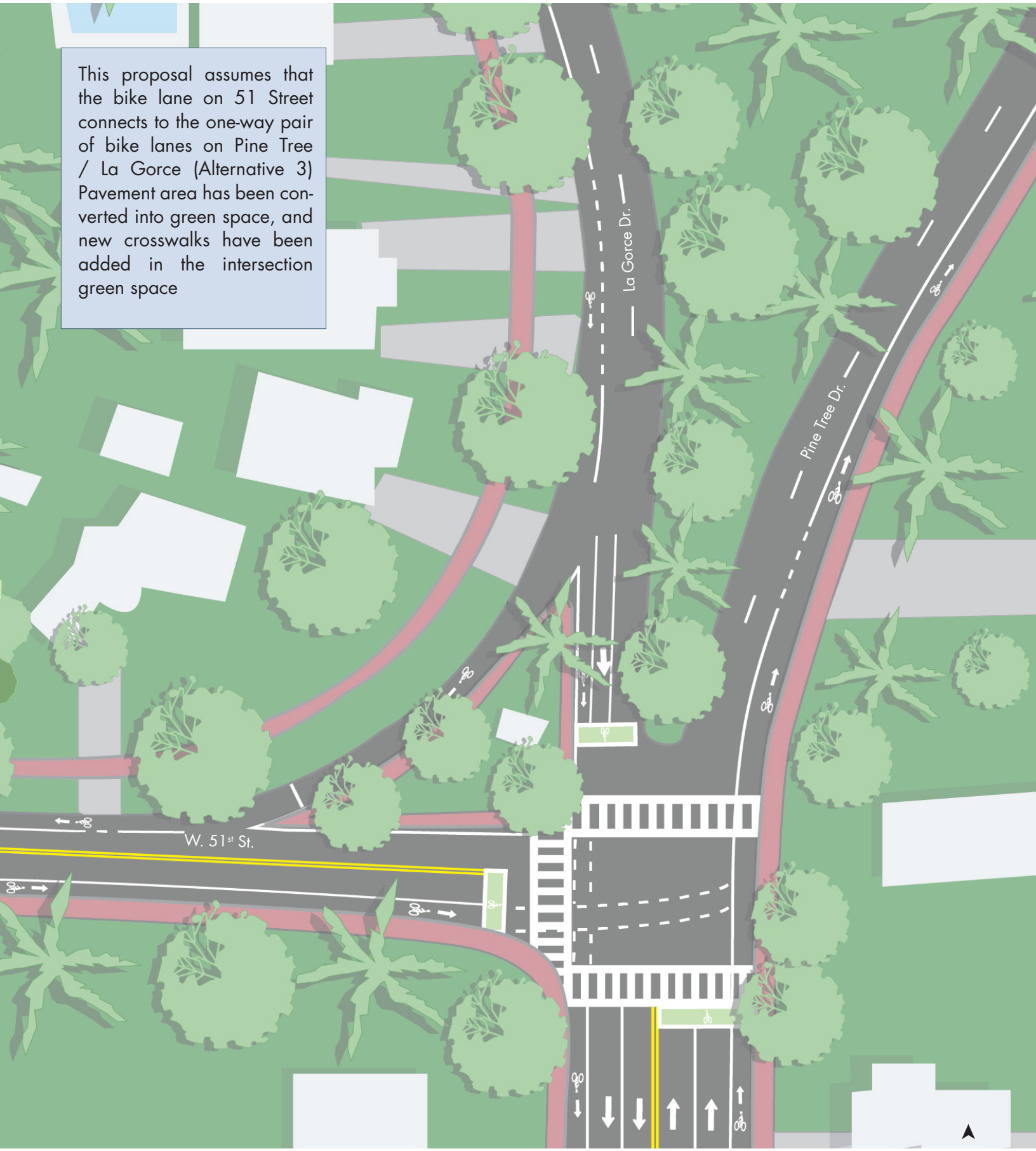
PHASE 2: ONE-WAY PROTECTED BIKE LANE

The existing 36′ pavement width allows for great flexibility in redesigning the street. This proposal assumes the creation of a one-way protected bike lane that forms a one-way pair with Pine Tree, which would have a similar configuration.



51ST STREET / PINE TREE / LA GORCE INTERSECTION - EXISTING

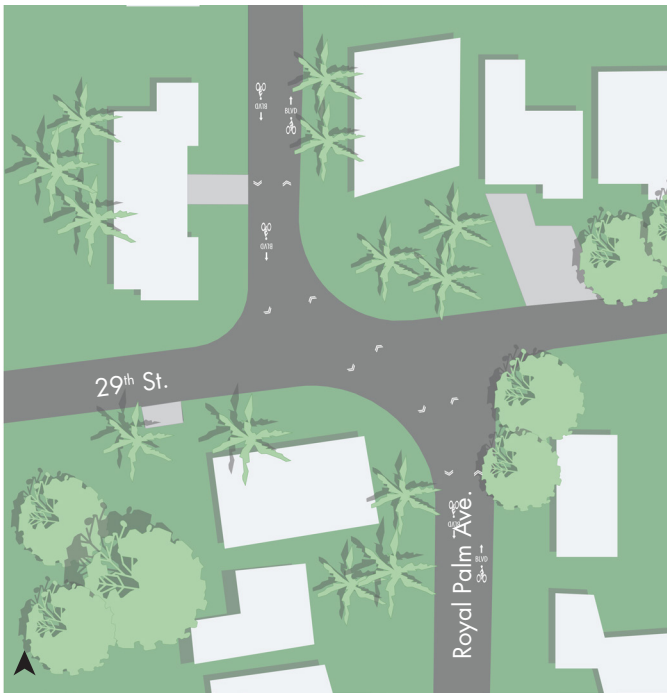
51ST STREET / PINE TREE / LA GORCE INTERSECTION PROPOSED

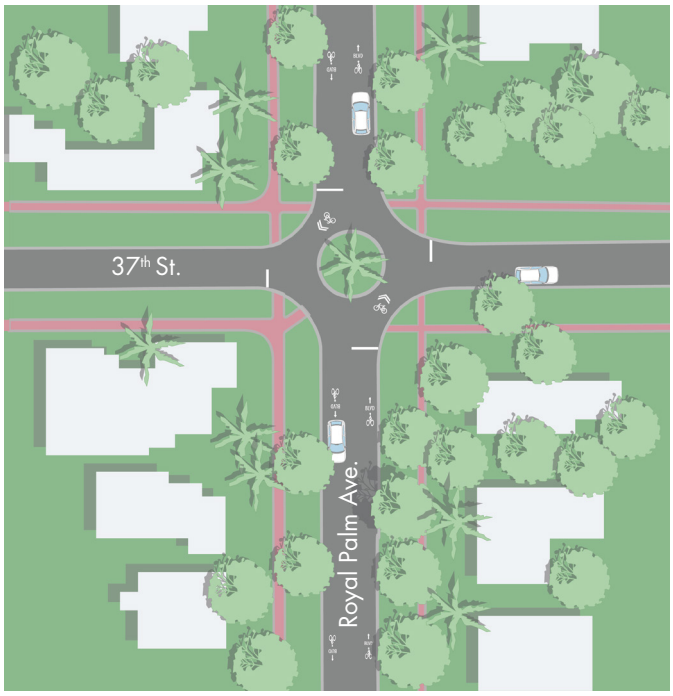


ROYAL PALM AVENUE

Street Data	
Public Right-of-Way Width	70′
Pavement Width	22′ typical
Posted Speed Limit	25 mph
Project Limits	Between 20 Street and Sheridan
Project Length	Approximately 5,500′, 1.0 Miles
Daily Volume	300 ADT
Predominant Land Use	Single Family Residential
Predominant Development Pattern	Suburban Detached
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	This is a neighborhood street in the heart of Bayshore.
Impact on modeshare	low
Upcoming Public Works Project	Yes - CIP

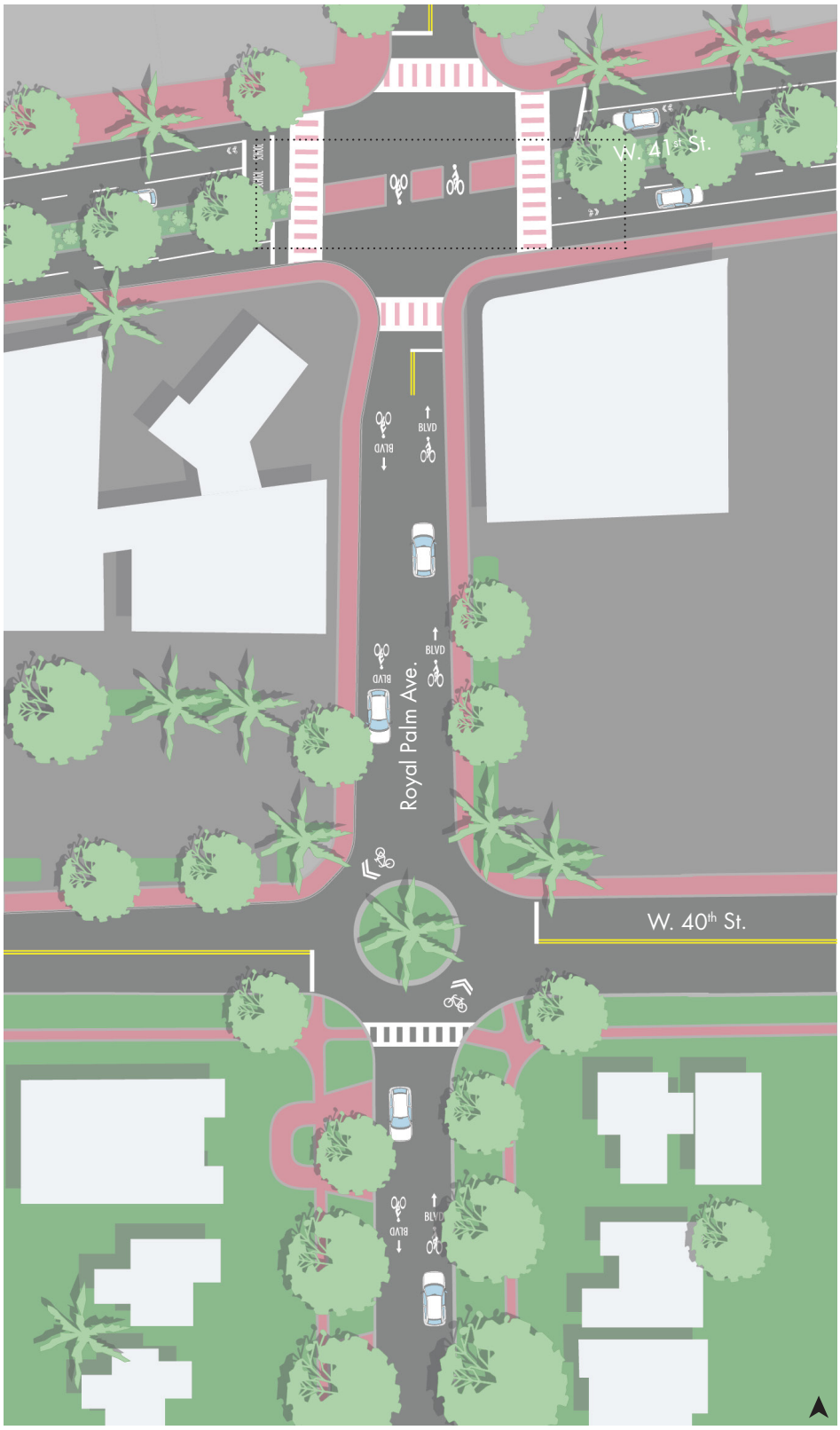
BICYCLE BOULEVARD





Royal Palm Avenue is a slow, low volume street. It provides connectivity to a bike lane north of 41 Street, and to the high school. It also connects to 41 Street, a major commercial corridor. Along the residential portion of the corridor the pavement width is so low that it already provides a substantial traffic calming effect. Additional efforts to make this corridor an official bike boulevard include traffic circles at cross streets like 29 street (above), bicycle boulevard pavement markings and branded signage consistent with the Street Design Guide.

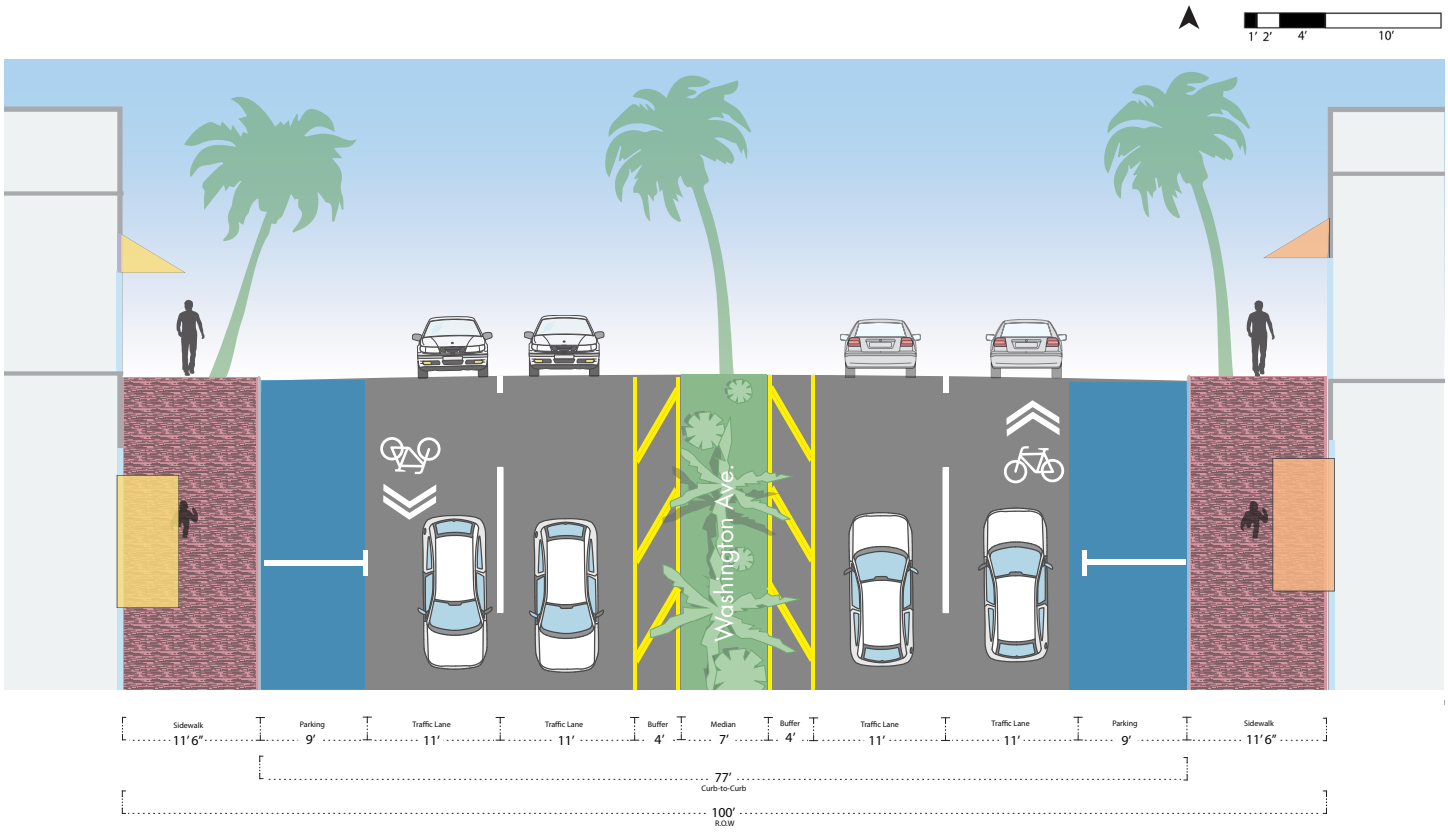
If designed as a bicycle boulevard, left turn lanes from 41 Street would be eliminated and a center median with bicycle and pedestrian refuge.



Refer to figure 2.81 - 2.82 of the Street Design Guidelines for additional information.

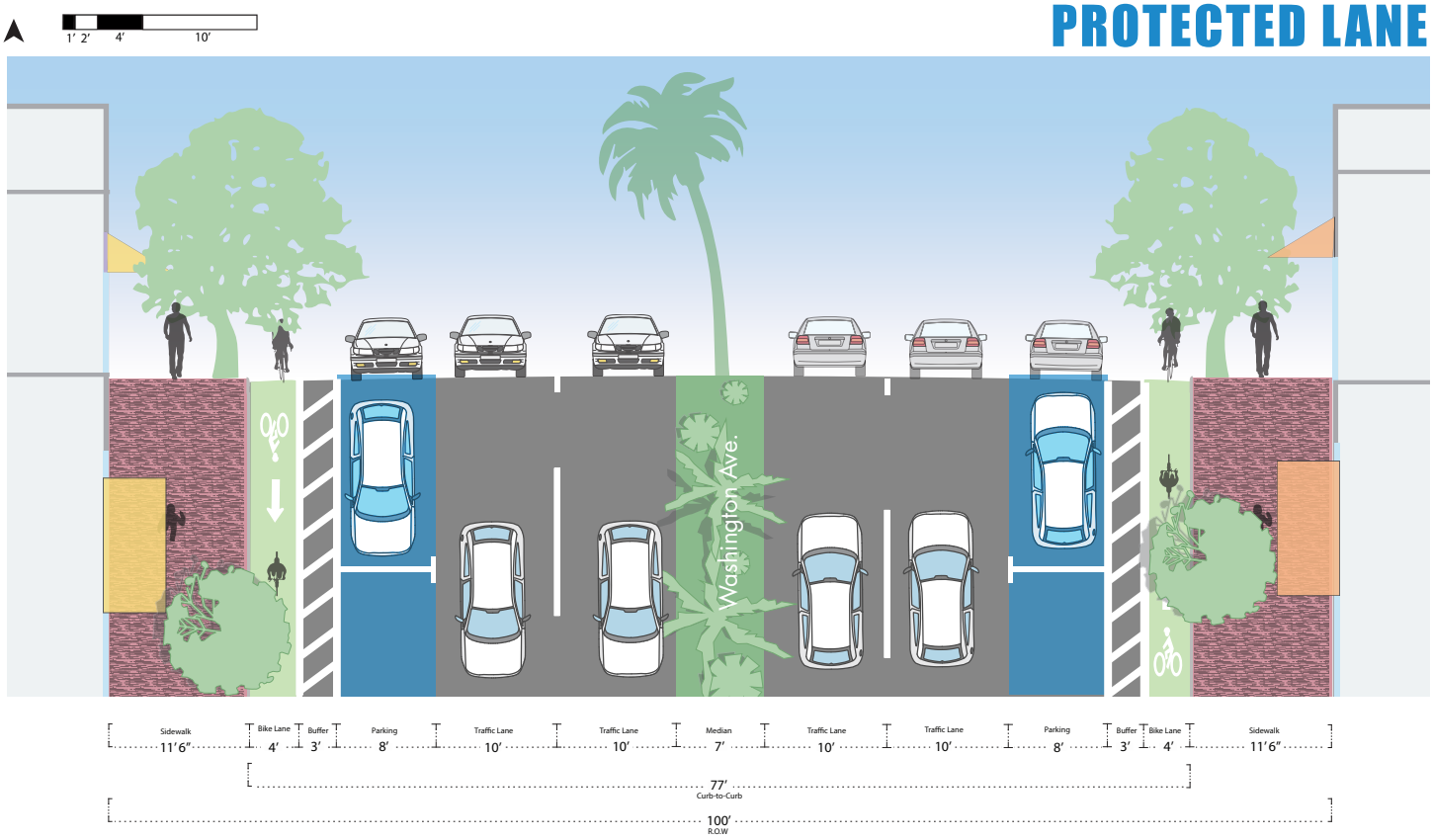
WASHINGTON AVENUE

Street Data	
Public Right-of-Way Width	100′
Pavement Width	74′ typical
Posted Speed Limit	25 mph
Daily Volume	32,550 ADT
Project Limits	Between 15 Street and Dade Boulevard
Project Length	Approximately 9,000′, 1.7 Miles
Predominant Land Use	mixed use commercial
Predominant Development Pattern	small scale main street, larger hotels
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	Miami Beach, commercial, civic uses
Impact on modeshare	high
Upcoming Public Works Project	Yes

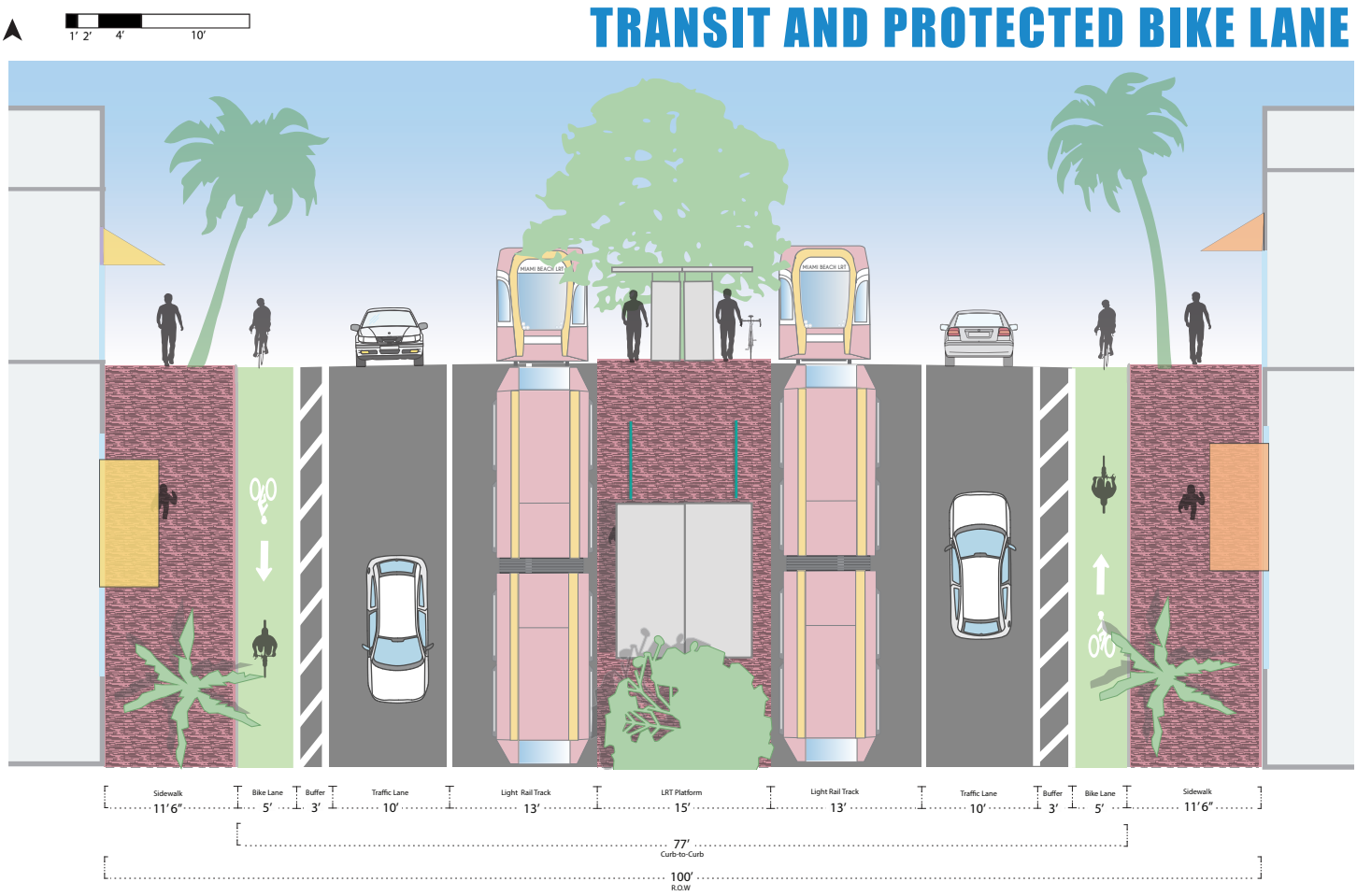


Washington Avenue is another of the iconic Miami Beach Streets. It is also a major transit corridor and a major contributor to bicycle and pedestrian crashes. The proposals on the following page show the short term addition of protected bike lanes by restriping the street, and the long term addition of premium transit down the middle of the street.

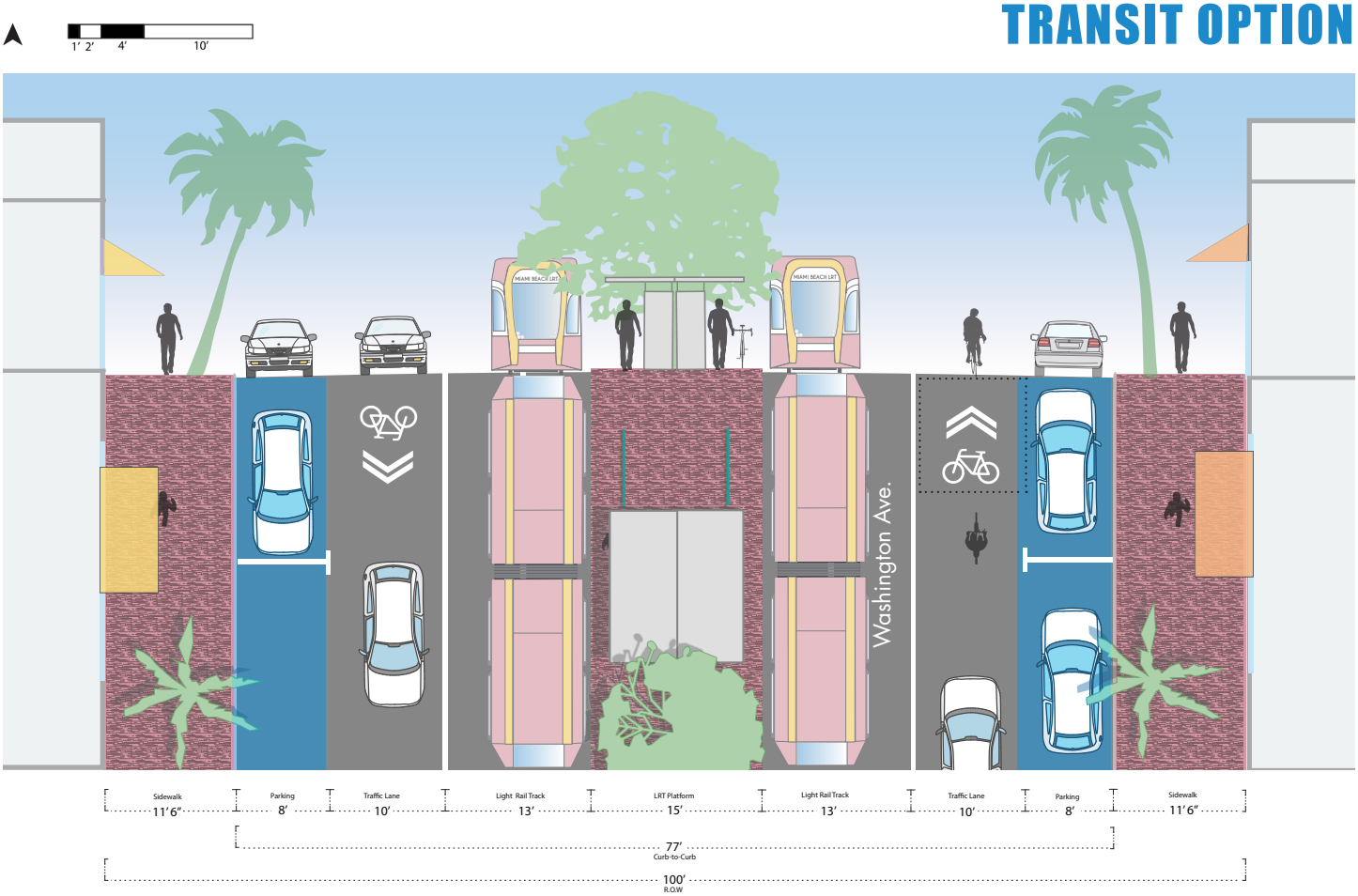
PROTECTED LANE



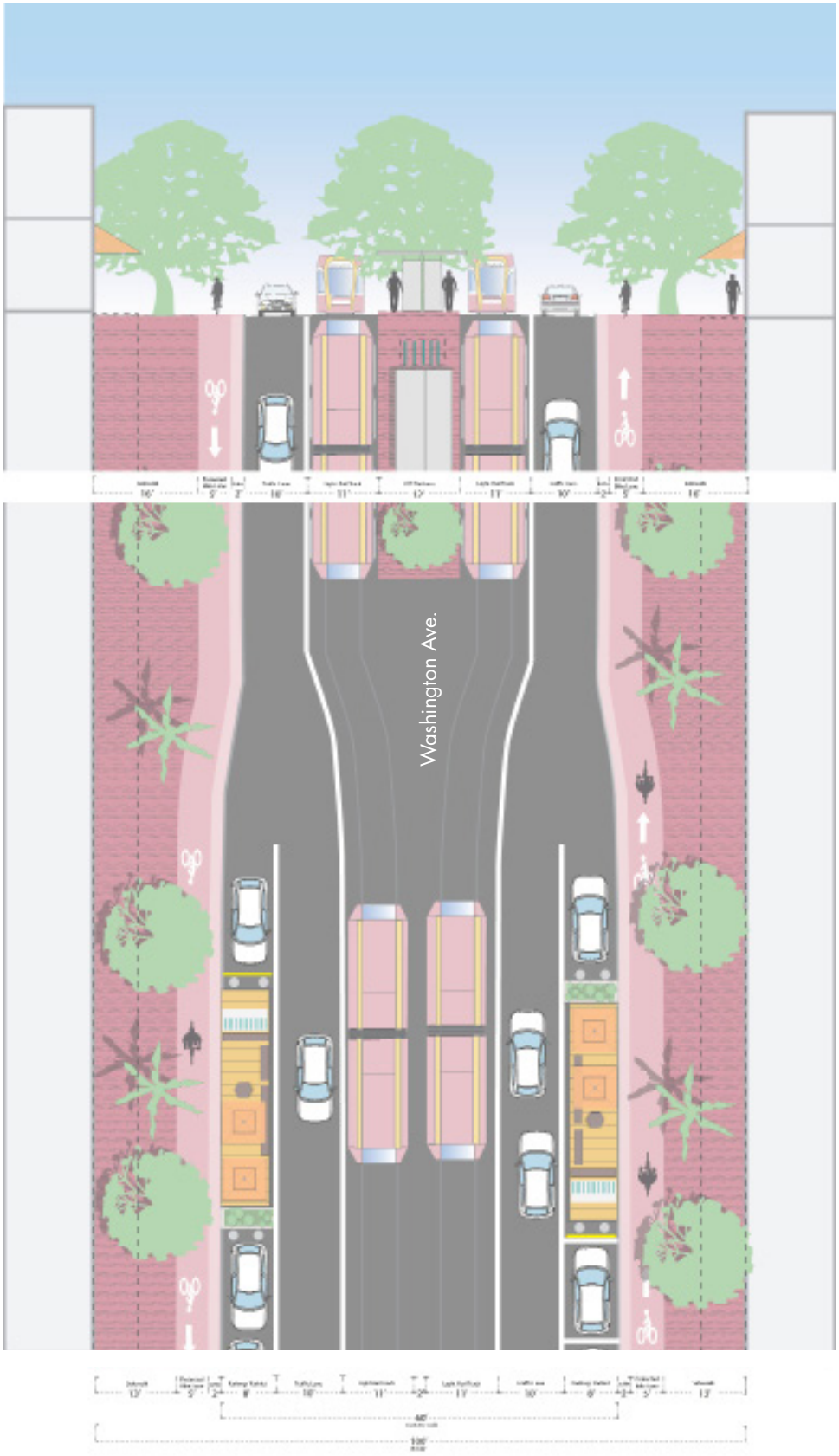
TRANSIT AND PROTECTED BIKE LANE



TRANSIT OPTION



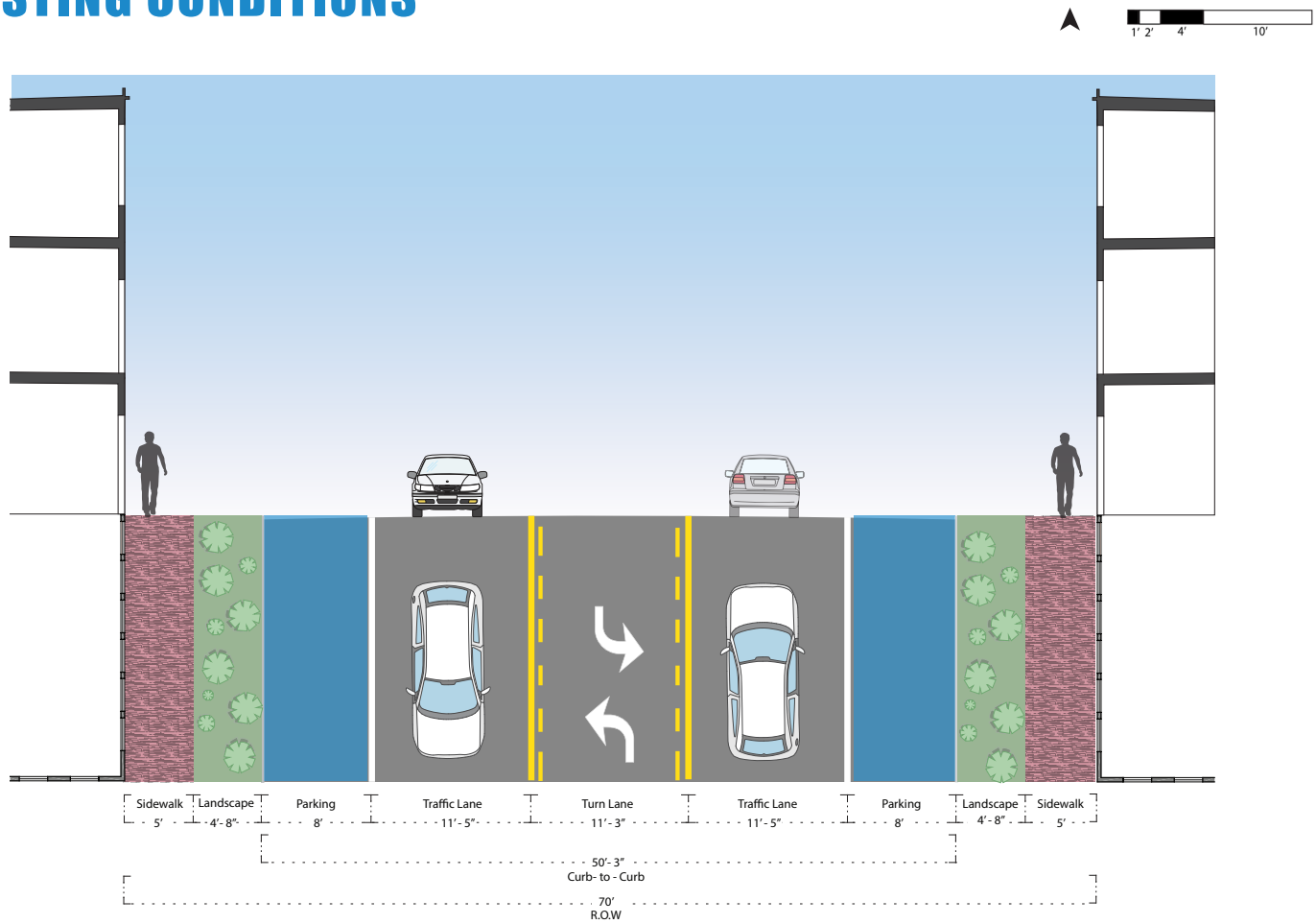
TRANSIT, PARKLETS AND PROTECTED BIKE LANES



WEST AVENUE

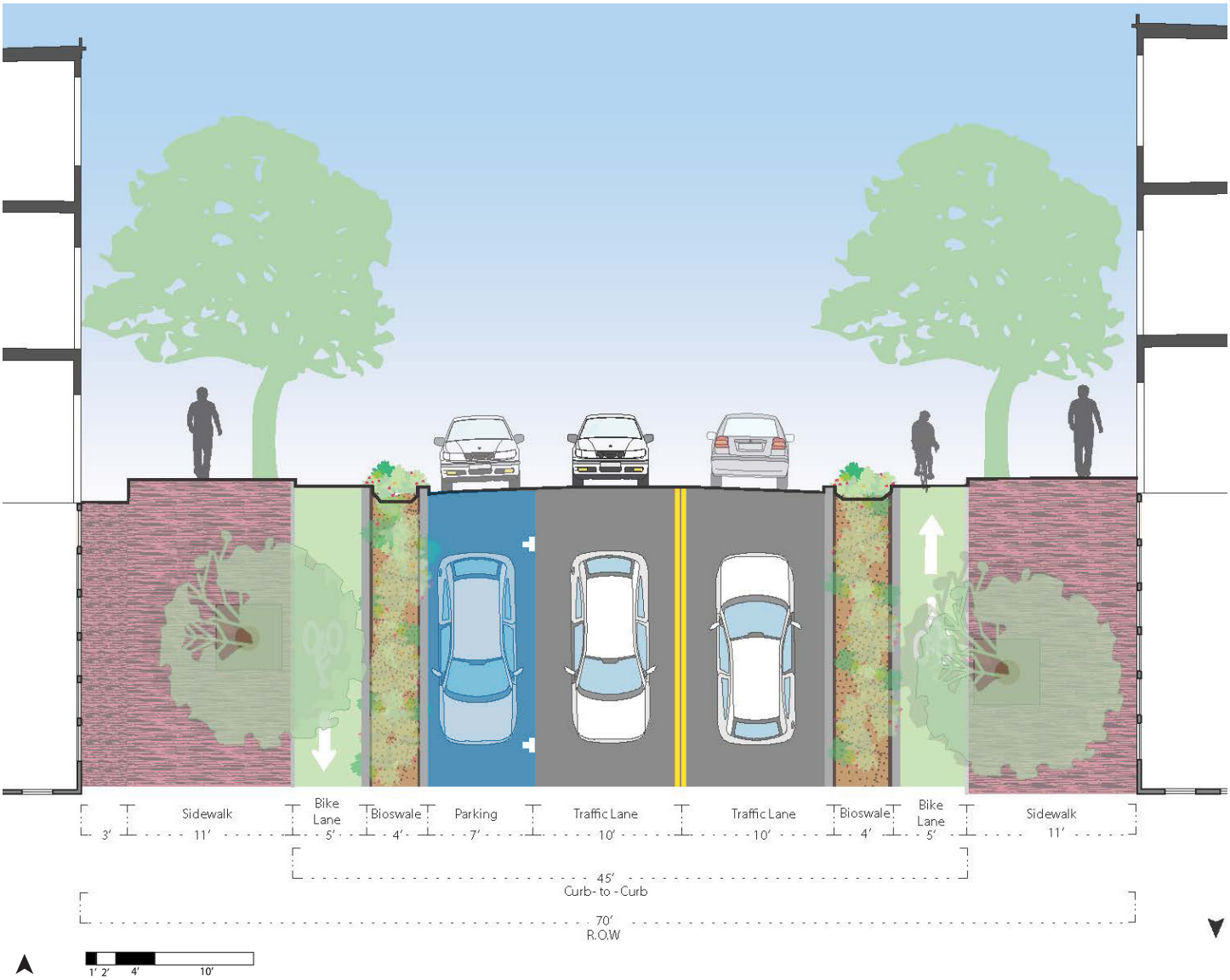
Street Data	
Public Right-of-Way Width	70′ (60′ south of 8 Street)
Pavement Width	50′ typical
Posted Speed Limit	25 mph
Daily Volume	12,000 ADT
Project Limits	Between 20 Street and 5 Street
Project Length	Approximately 7,600′, 1.43 Miles
Predominant Land Use	Single Family Residential
Predominant Development Pattern	Suburban Detached
Bicycle / Pedestrian trip generator(s) (parks, paths, bike shop, etc.)	Lincoln Road, Miami Beach Convention Center
Impact on modeshare	high
Upcoming Public Works Project	Yes - CIP

EXISTING CONDITIONS



West Avenue is one of the most popular bicycle routes in Miami Beach. Making it as safe as possible, and attracting even more people to ride on this street is one of the best opportunities the city has to encourage a robust bicycle network.

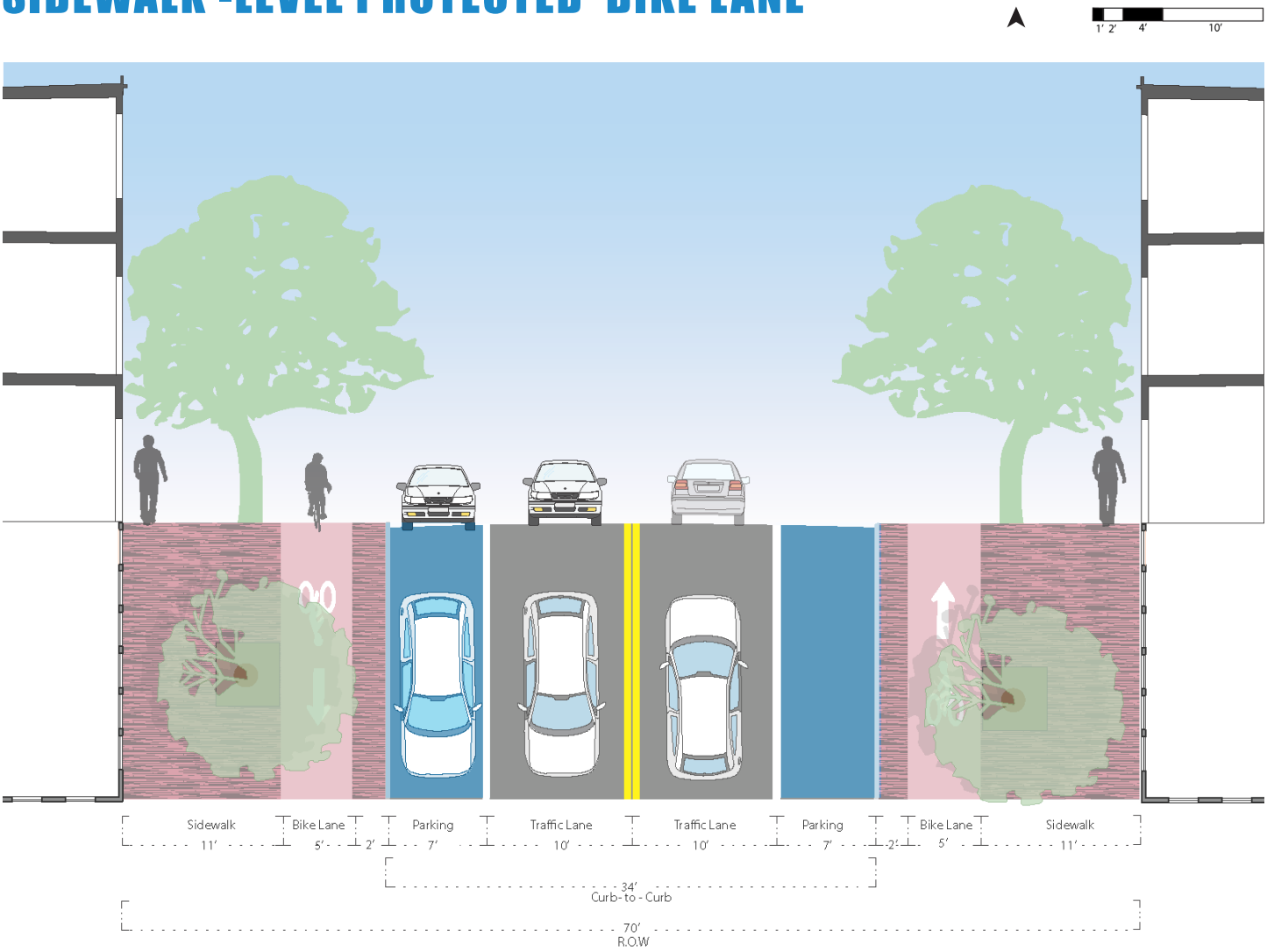
PROTECTED BIKE LANE (BIOSWALE)



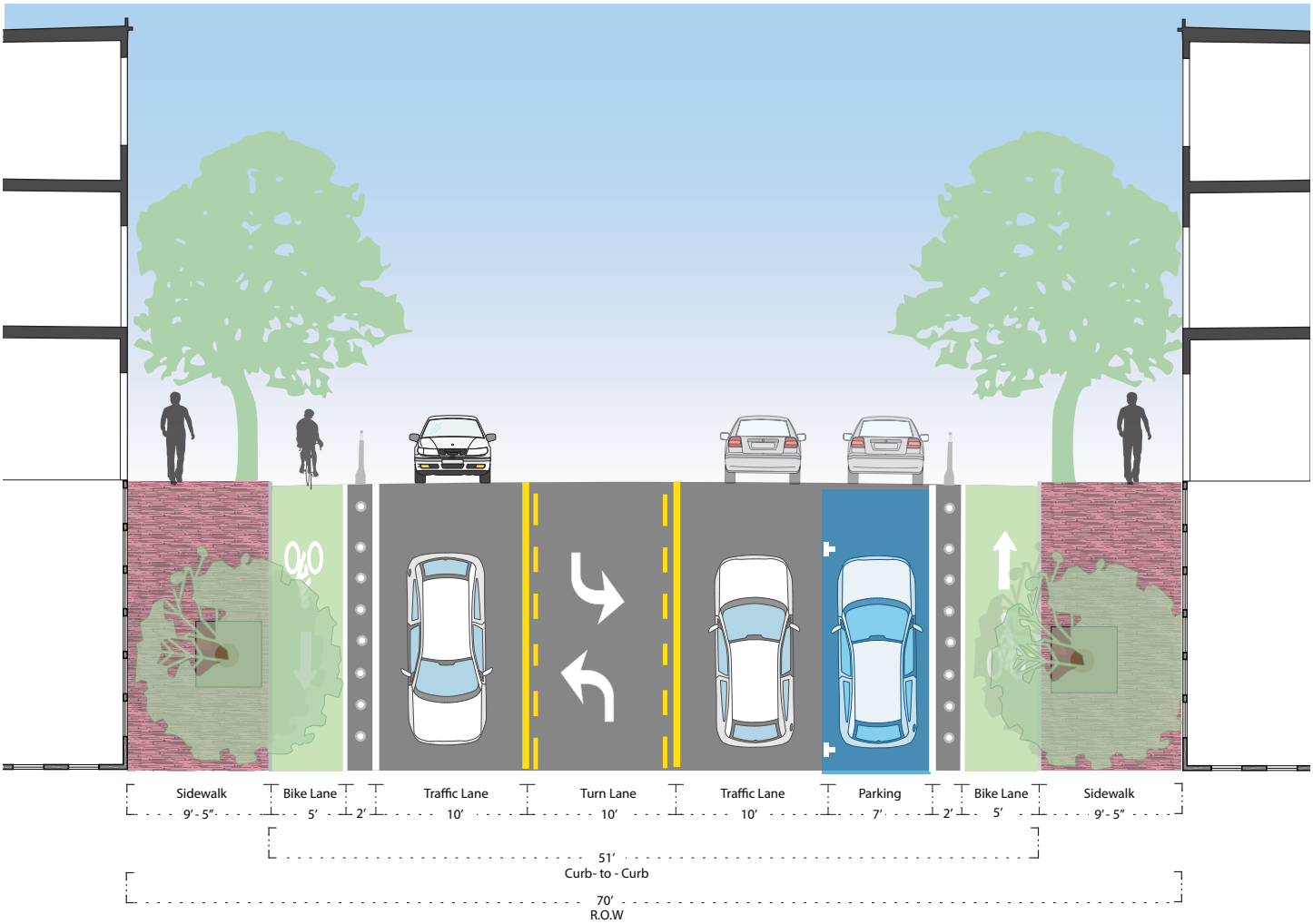
Alternative A, above, shows a parking protected bike lane with green pavement markings and a bioswale. As designed, these new lanes should stretch from 5 Street to Dade Boulevard (inclusive of a new bridge spanning the Collins Canal). Additional east-west connections will also be made between the West Avenue neighborhood and Flamingo Park.

On the pages that follow Alternative B shows a sidewalk level protected bike lane, also with pavement treatment to differentiate it from the sidewalk. In each scenario the travel lanes are narrowed, and additional street trees added to the corridor.

SIDEWALK -LEVEL PROTECTED BIKE LANE

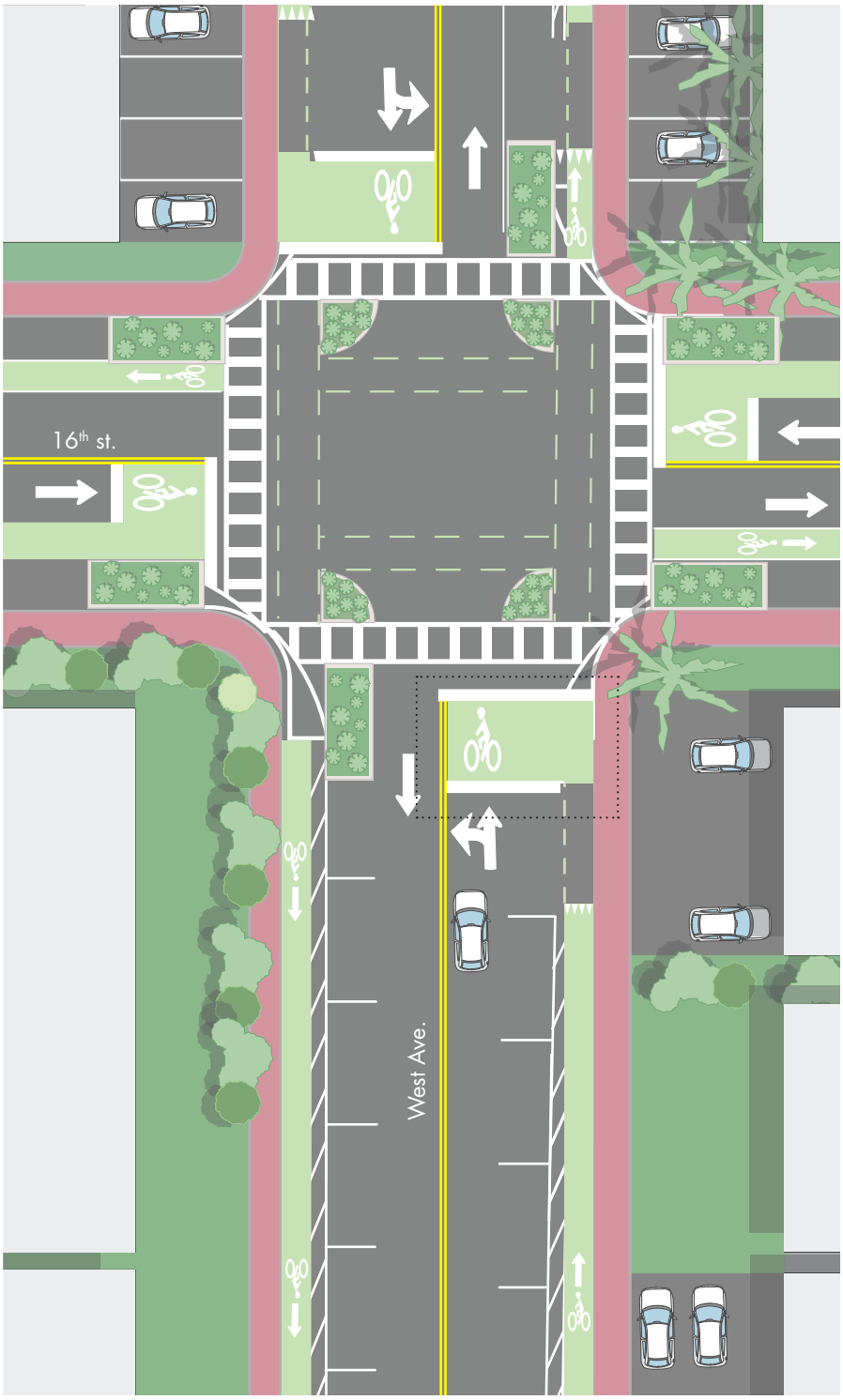


PROTECTED BIKE LANE (BOLLARDS)



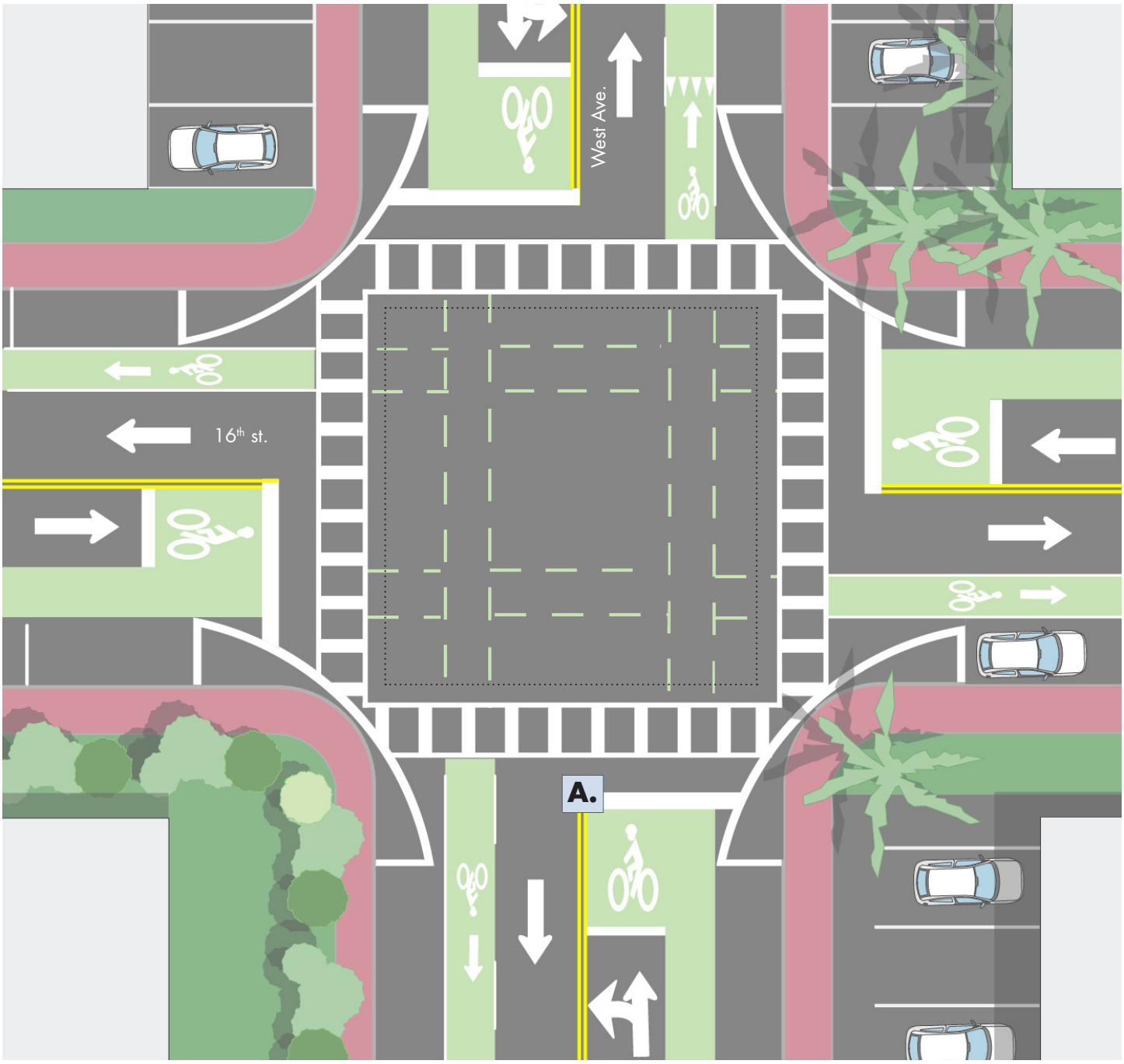
WEST AVENUE

PARKING PROTECTED BIKE LANE & INTERSECTION



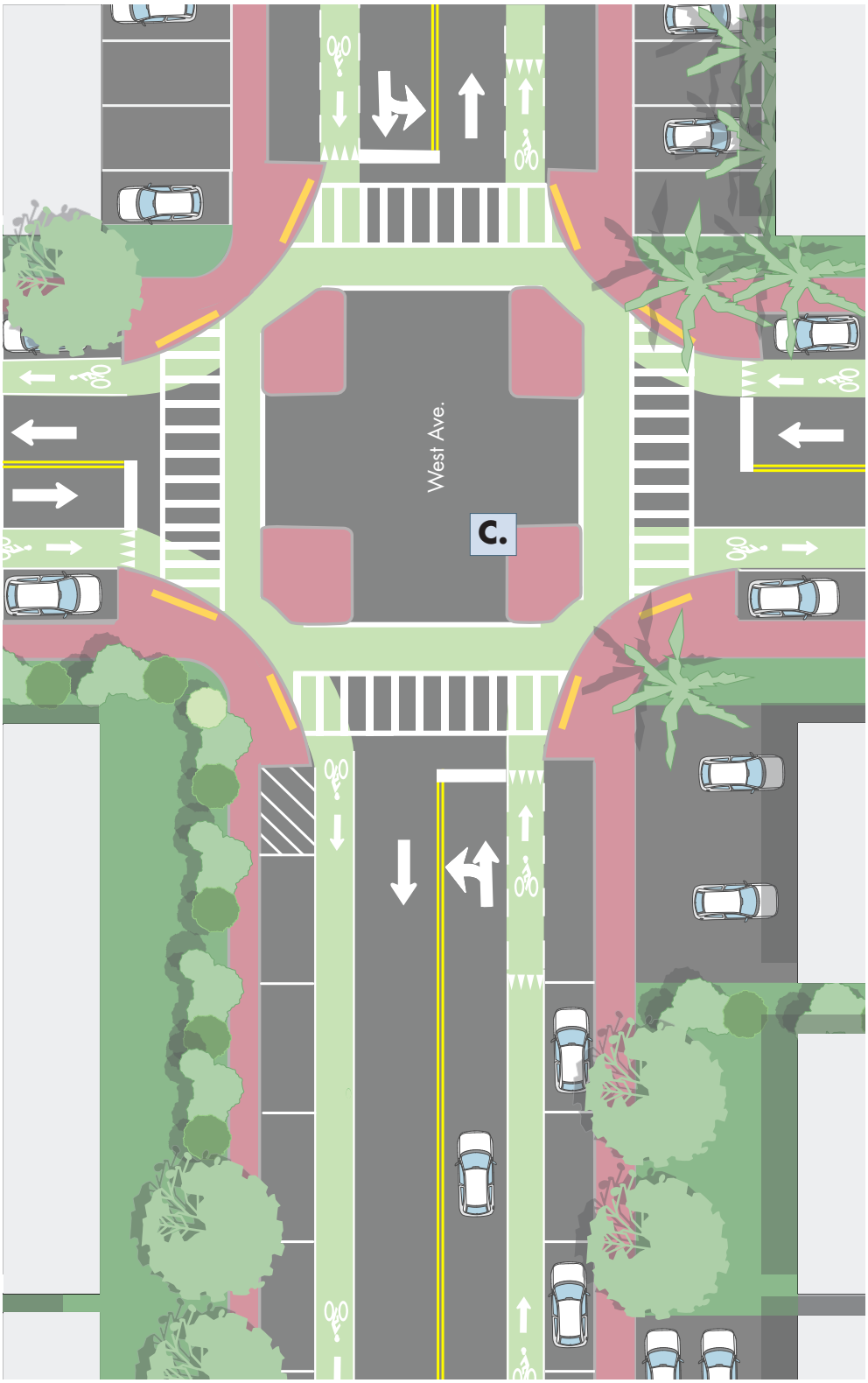
Parking protected bicycle lanes take advantage of existing capacity for on-street parking and rearranges the street configuration, allocating space for bicycle lanes along the curb. Parked cars act as a barrier between cyclists and moving vehicles. A buffer between the bike lane and the passenger side of the parked vehicle provides a "door zone" that helps to avoid collisions and facilitates loading/unloading. The buffer zone varies depending on the ROW with a minimum of 2 feet. Examples are provided on the street design guide.

INTERSECTION TREATMENT - BIKE LANE BIKE BOX



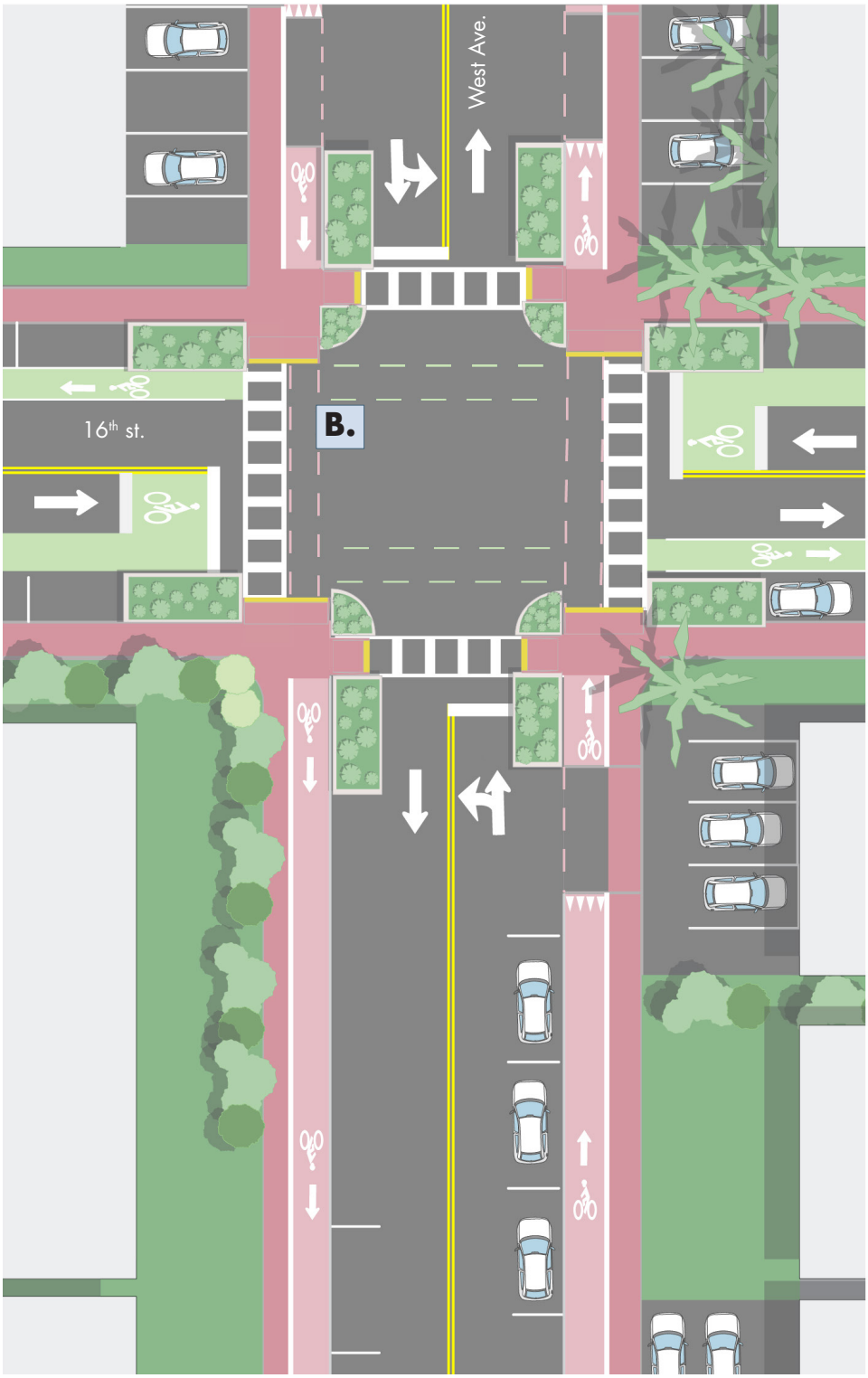
The drawing above shows how a bicycle facility might go through an intersection. In this case, the intersection of 17 Street and West was chosen to demonstrate. A pavement level parking protected bicycle passes through the intersection adjacent to the sidewalk and landscaped planters (B). A stop bar and bicycle signal indicate to the cyclist that they have to stop at the pedestrian crosswalk (A). The bike lane is marked to show the continuity of the lane through the intersection. Maintaining a tight curb radius is key to slowing traffic and providing a safe crossing for pedestrians (C).

CONVENTIONAL BIKE LANE & PROTECTED INTERSECTION



Protected intersections guarantee a high level of safety. These types of intersections might be the most appealing for all kinds of users thus noticeably increasing ridership in combination with protected bike lanes (not shown).Protected intersections accommodate all bicycle movements. Multimodal intersection design is usually enhanced with bicycle signals.(See Street Design Guide: Signals)

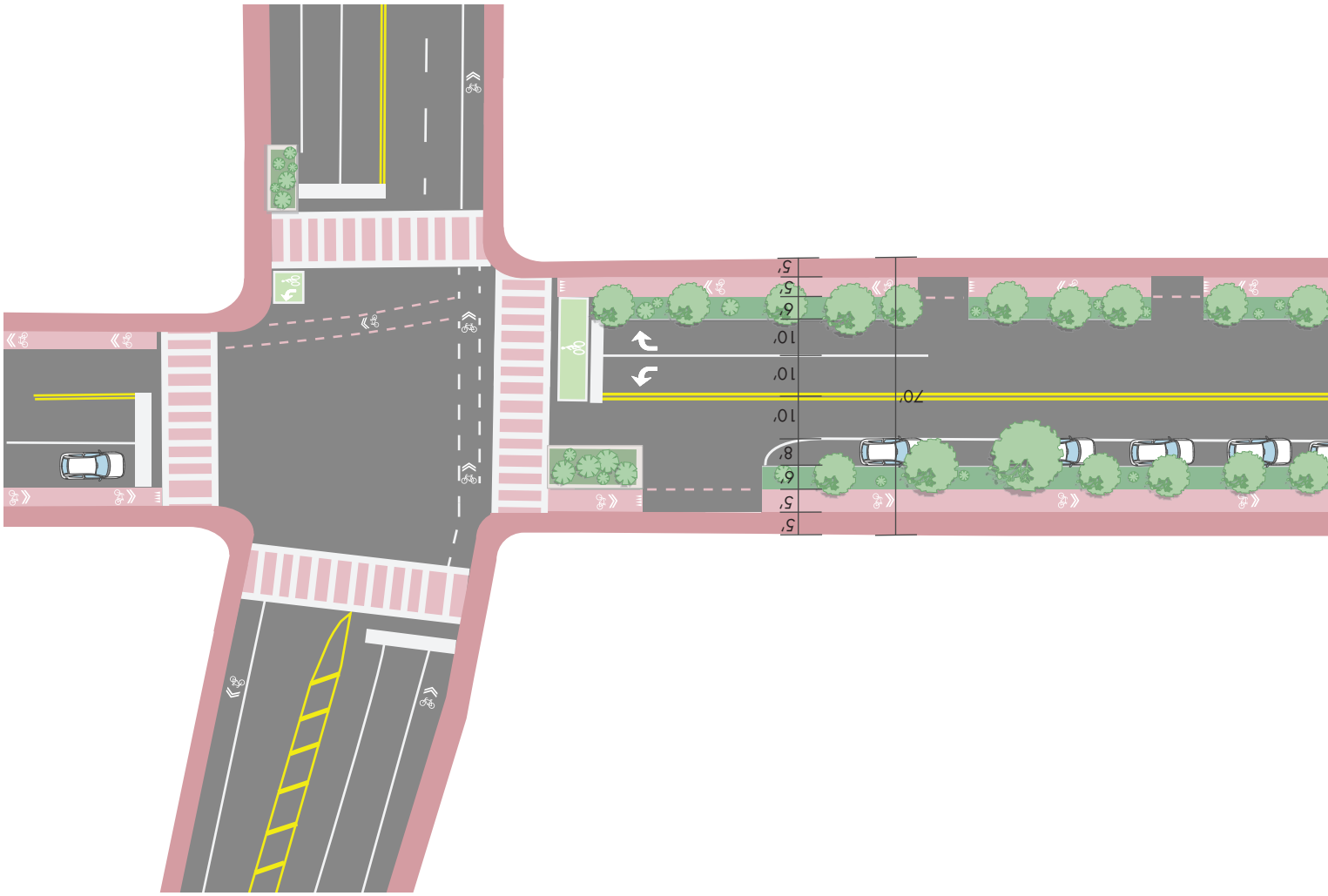
SIDEWALK- LEVEL PROTECTED BIKE LANE & INTERSECTION

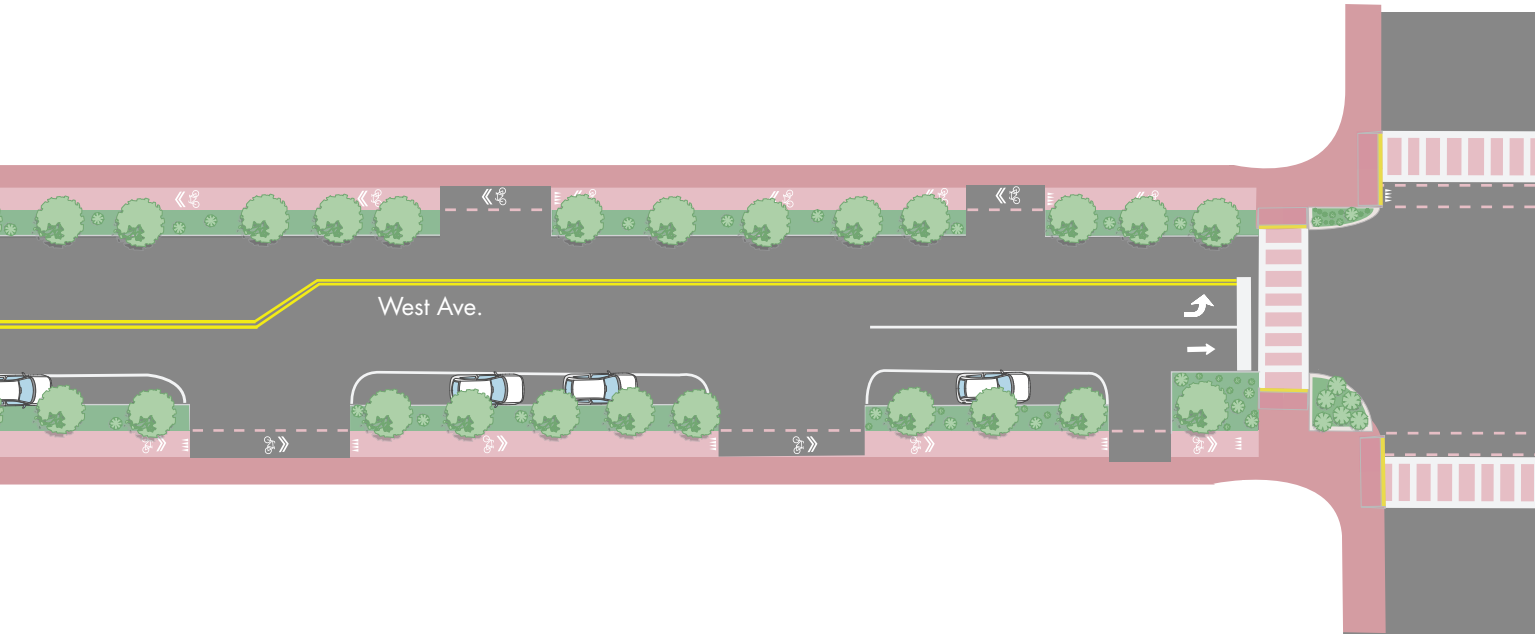


Sidewalk-level bicycle lanes are inherently protected from traffic through vertical separation. In addition, pavement markings or different color treatments help to visually separate pedestrians from bicyclists. In order to protect cyclists from door collisions, this type of facility must accommodate a painted buffer and a 4′ lane, or be wide enough (5′ min.) so as to encourage cyclists to ride in the middle of the lane and avoid conflict.

SIDEWALK- LEVEL PROTECTED BIKE LANE INTERSECTION

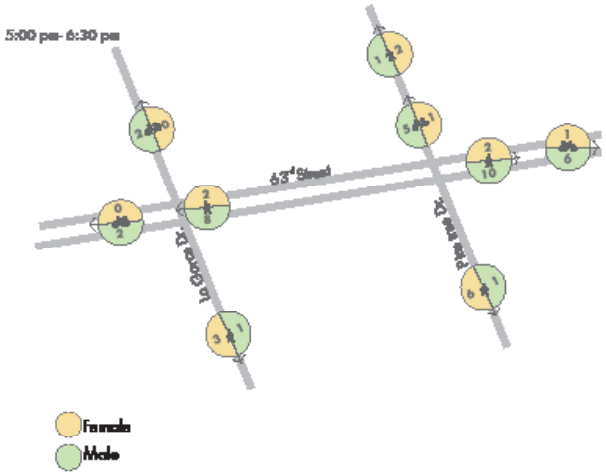
Example of landscaped, sidewalk-level protected bicycle lane along West Avenue, between 17th street and Lincoln Lane.



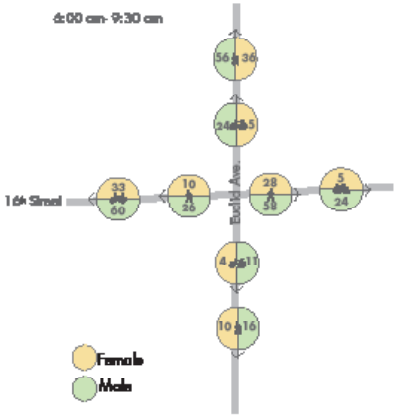

West Ave.

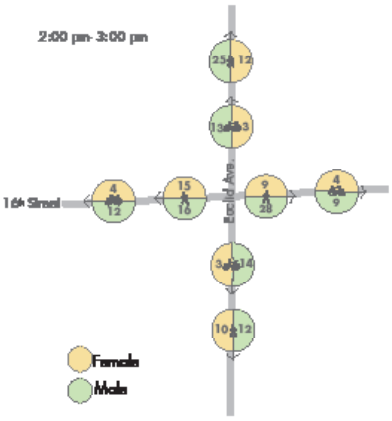
APPENDIX: BICYCLE-PEDESTRIAN COUNTS

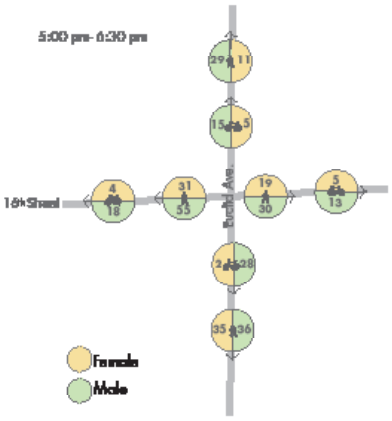
BICYCLE PEDESTRIAN COUNTS



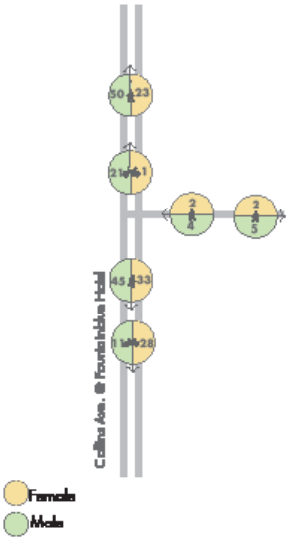
La Gonza Dr./ Pine Tree Dr. @ 63rd Street

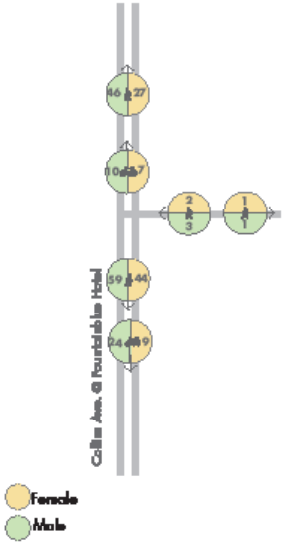






Euclid Ave. @ 16th Street

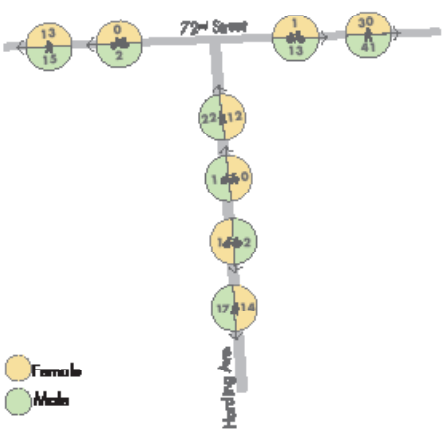




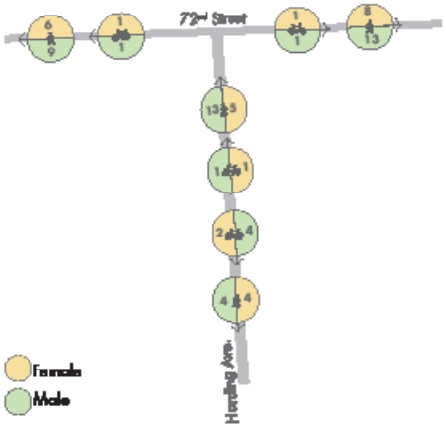
Collins Ave. @ Fountainblue Hotel

The bicycle and pedestrian counts shown here, were conducted from 11/ 7/15 -11/14/15, in order to have a baseline measure before this bicycle pedestrian master plan is implemented. In addition, this count helped to inform decisions regarding bike facilities, landscape and overall streetscape recommendations in some cases.

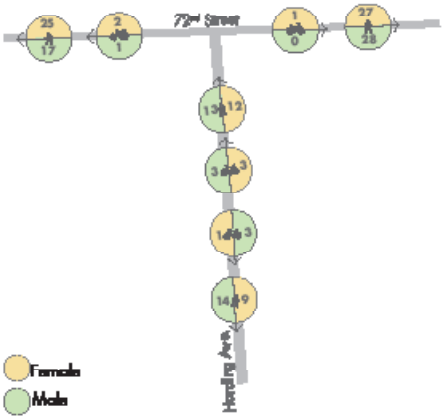
6:00 am- 9:30 am



2:00 pm- 3:00 pm

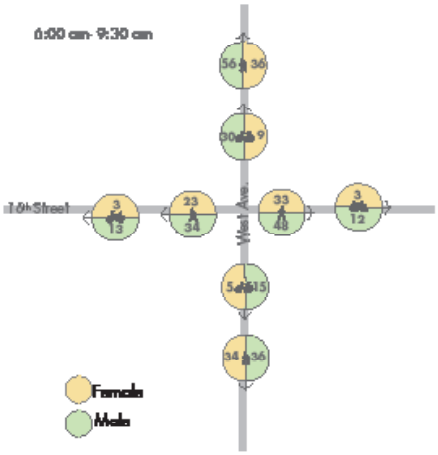


5:00 pm - 6:30 pm

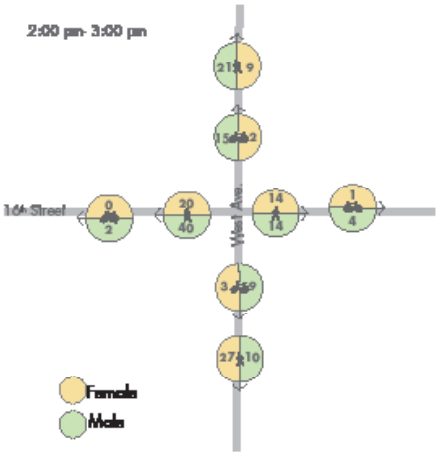


Harding Ave.@ 72nd Street.

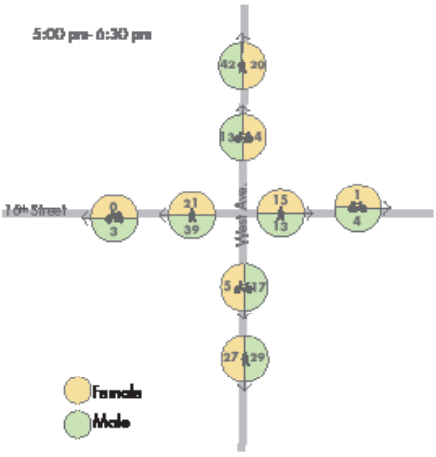
6:00 am- 9:30 am



2:00 pm- 3:00 pm



5:00 pm- 6:30 pm



West Ave. @ 16th Street

6:00 am- 9:30 am

5:00 pm- 6:30 pm

Female

Male

Venetian Causeway.

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APPENDIX: IMPLEMENTATION CHART

MASTER PLAN IMPLEMENTATION MATRIX

PHASE 1: FILLING IN THE GAPS

	Project Information											Impact on Modeshare											Ease of Imp.						
Project Number	Project Street	Project Identification	Beach Area	Project Limits	Public ROW	Pavement Width	Posted Speed Limit	Daily Volume	Type	Order of magnitude cost	TOTAL Project Length	Impact on Modeshare 0-5	Improves Safety 0-4	Safe routes to school 0-3	Community dest. 0-3	Park access 0-3	Beach access 0-3	Impact on traffic 0-3	Access to transit 0-7	Curb appeal 0-2	Connectivity 0-3, + 2 for Causeways	Score	Public Support/ input 0-3	TMP Bicycle Priority Corridor	Space on Road 0-3	Political Support // Other circumstances	Cost Range	EOI Factor	FINAL SCORE
1	Atlantic Trail	MB Short Term Item 2	Middle beach	Between Indian Beach Park (approx. 47 Street) to53 Street Park (approx.53 street)		10'	none		Shared Path		3500 ft / .66 MI	4	4	0.5	0	3	3	3	3	2	3	**25.5**	3	2	3		0	**0.8**	**20.4**
		SB Short Term Item 12	South beach	Between 5 Street and 3 Street		15'	NA		Shared path		2224 ft / .42 MI	4	4	0	3	3	3	3	1	2	3	**26**	3	2	3	2	1	**1.1**	**28.6**
2	Atlantic Trail		Middle beach	Between 24th st to 29th st					Protected bike lane																				
3	Atlantic Trail		Middle beach	Between 30th st to Alison Park					Protected bike lane																				
4	72nd & 73rd street	NB Short Term Item 7	North beach	Between Collins Ave. and Dickens Ave.	74'	35' Typical	25 mph	NA	Protected bike lane	$31,000	1,800 FT / 0.35 MI	2	4	1	3	3	3	1	3	2	3	**25**	0	2	4	0	2	**0.8**	**20**
		NB Short Term Item 7		Between Atlantic Trail. and Dickens Avenue	74'	56'	NA	NA	Protected bike lane		1,800 FT / 0.35 MI	2	4	0.5	3	3	3	1	2	2	3	**23.5**	0	2	4	0	2	**0.8**	**18.8**
5	63 Street	MB Short Term Item 1	Middle beach	Between Atlantic Trail and Indian Creek Dr.	80'	60' Typical	35 mph		Protected bike lane			3	3	1	0	3	3	2	3	2	3	**23**	3	0	2		2	**0.7**	**16.1**
6	West Avenue	SB Short Term Item 7	South beach	Between 20th St. And 5th St.	70'	51' Typical	25 mph	12,000 ADT	Protected bike lane		7,600 FT / 1.43 MI	3	4	0	3	3	0	1	4	2	3	**23**	3	2	2	0	2	**0.9**	**20.7**
7	Meridian Avenue	SB ShortTerm Item 2	South beach	Between Dade Boulevard and 16 Street	70'	58'	NA		protected bike lane		2480 ft / .47 MI	3	4	0	3	3	0	2	3	2	2	**22**	0	0	2	2	2	**0.6**	**13.2**
8	MacArthur Causeway	SB Short Term Item 10	South beach	Between 5th st intersection and Fisher Island Ferry	90'	80'	NA		Protected bike lane		7523 ft / 1.42 MI	2	4	2	2	0	0	2	3	2	5	**22**	0	0	3	0	1	**0.4**	**8.8**
9	Indian Creek	NB Short Term Item 10	North beach	Between Abbott and 63 st	92' typical	74'	30 mph	NA	Protected bike lane		2753 ft / .52 MI	2	3	0.5	3	2.5	1	2	3	2	3	**22**	0	0	1	0	1	**0.2**	**4.4**
10	21 Street	SB Short Term Item 1	South beach	Between Atlantic Trail and Washington Avenue			NA		Protected bike lane		3641 ft/.69 MI	1	1	1	3	3	4	3	2	2	1	**21**	0	0	3	0	1	**0.4**	**8.4**
11	63 Street	MB Short Term Item 1	Middle beach	Between Alton Rd. and Indian Creek Dr.	80'	60' Typical	35 mph	32,960 ADT	Protected bike lane		2,000 FT / 0.4 MI	3	3	1	0	3	0	2	3	2	3	**20**	3	2	2	0	2	**0.9**	**18**
12	81 St	NB Short Term Item 3	North beach	Between east end to Crespi Blvd then north to 82 st	60'	42'	NA	NA	Greenway		1920 ft / .36 MI	2	1	1	1.5	3	3	3	3	1	2	**20.5**	0	0	3	0		**0.3**	**6.15**
13	77 st	NB Short Term Item 3	North beach	Between Collins Ave and Dickens Ave	50'	35'	15 mph school zone	NA	Greenway		1637 ft /.31 MI	2	1	3	0	1	3	3	4	1	2	**20**	0	0	3	0		**0.3**	**6**
14	Convention Center Dive.	SB Short Term Item 3	South beach	Between 17 st and Dade Blvd.	100'	80'			Bike lane		1647 ft / .31 MI	2	3	0	3	3	0	3	2	1	2	**19**	0	0	3	0	3	**0.6**	**11.4**
15	51st St.	MB Short Term Item 5	Middle beach	Between Alton Rd. and Pine Tree Dr.	70'	28' Typical	25 mph		bike lane		2,000 FT / 0.4 MI	2	4	0	0	1.5	0	3	3	2	3	**18.5**	0	2	2	0	3	**0.7**	**12.95**
16	Alton Road	MB Short Term Item 6	Middle beach	Between 51 and Lakeview Drive	48'	20'			shared path			2	4	0	0	1.5	0	3	3	2	3	**18.5**	3	0	2	0	0	**0.5**	**9.25**
		MB Short Term Item 6		Between Lakeview Drive and North Bay Road	48'	20'			shared path		2076 ft / .39 MI	2	4	0	0	1.5	0	3	3	2	3	**18.5**	3	0	2	0	0	**0.5**	**9.25**
17	28 Street	MB Short Ternm Item 16	Middle beach	Between Prairie and Pine Tree Dr.	94'	74'			Shared Path			1	1	3	1	1.5	3	3	2	2	1	**18.5**	0	0	3	0	2	**0.5**	**9.25**
18	Tatum Waterway Drive	NB Short term Item 2	North beach	Between 77st and 81 st	48'	35'	15 mph school zone	NA	Greenway		1787 ft / .34 MI	1	2	3	0	3	1	1	3	1	3	**18**	0	0	3	0	3	**0.6**	**10.8**
19	Chase Ave.	MB Short Term Item 11	Middle beach	Between Prairie ave and Alton Road Junction to Julia Tuttle	40'	30'	NA		Shared path		2143 ft / .09 MI	2	4	1	1	1	0	3	2	2	2	**18**	0	0	2	0	2	**0.4**	**7.2**
20	Pine Tree Drive / La Gorce Drive	MB Short Term Item 4	Middle beach	Between 63 Street and 51 Street	71'	36' Typical	35 mph		protected bike lane		6,000 FT / 1.1 MI	2	3	0	0	1.5	0	3	3	2	3	**17.5**	2	2	3	2	3	**1.2**	**21**
					74'	35' Typical	35 mph	4,800 ADT	protected bike lane		6,000 FT / 1.1 MI	2	3	0	0	1.5	0	3	3	2	3	**17.5**	2	2	3	2	3	**1.2**	**21**
21	N. Michigan Ave.	MB Short Term Item 7	Middle beach	Between Dade Blvd to Alton Rd.	64'	30'	NA		Greenway		3787 ft / .72 MI	1	1	3	0	3	0	3	2	2	2	**17**	0	0	3	0	2	**0.5**	**8.5**
22	Alton Rd. @ N. Bay rd. Intersection	MB Short Term Item 8	Middle beach	Alton Rd. @ N. Bay rd. Intersection			30 mph		Protected bike lane			3	1	1	2	2	0	3	2	1	2	**17**	3		0	0	0	**0.3**	**5.1**
23	11 st	SB Short Term Item 8	South beach	Between West Avenue and Atlantic Way	60'	42'	NA		Greenway		3620ft/.69 MI	2	1	0	2	3	1	3	3	1	1	**17**	0	0	3	0	2	**0.5**	**8.5**
24	Meridian Avenue	SB Short Term Item 8	South beach	South of 16th st.	50'	36'	NA		Greenway		6496 ft / 1.24 MI	3	1	1	0	3	0	3	3	1	1	**16**	1	2	3	0	2	**0.8**	**12.8**
25	Byron Ave.	NB Short Term Item 2	North beach	Between Tatum Waterway Drive and 73 Street	80'	68'	25 mph	NA			3,000 FT / 0.05 MI	1	NA	2	0	3	1	3	2	1	2	**15**	0	0	3	0	2	**0.5**	**7.5**
26	Pine Tree Drive	MB Short Trem Item 10	Middle beach	Between 51st and 23rd st	100'	58'	NA		Greenway		8597 ft / 1.63 MI	2	1	1	2	0	0	3	2	2	1	**14**	0	2	3	0	3	**0.8**	**11.2**
27	Parkview Island Path	NB Short Term	North beach	Between 72 Street and 77 Street			NA		Shared Path			1	3	3	1	2	0	0	0	2	1	**13**	0	0	3	0	2	**0.5**	**6.5**
28	N. Bay Road	MB Short Term Item 13	Middle beach	Between Chase Ave and Alton Rd.	64'	20'	25 mph		Greenway		5355 ft / 1.01 MI	2	1	0	0	0.5	0	3	1.5	1	1	**10**	0	2	3	2	3	**1**	**10**
29	South Pointe Drive		South beach	Ocean Drive to Atlantic Way					Bike lane																				
30	5th st		South beach	Between Collins Ave to Atlantic Way					Bike lane																				

PHASE 2: IMPROVEMENTS TO EXISTING FACILITIES

MASTER PLAN IMPLEMENTATION MATRIX

	Project Information											Impact on Modeshare											Ease of Imp.						
Project Number	Project Street	Project Identification	Beach Area	Project Limits	Public ROW	Pavement Width	Posted Speed Limit	Daily Volume	Type	Order of magnitude cost	TOTAL Project Length	Impact on Modeshare 0-5	Improves Safety 0-4	Safe routes to school 0-3	Community dest. 0-3	Park access 0-3	Beach access 0-3	Impact on traffic 0-3	Access to transit 0-7	Curb appeal 0-2	Connectivity 0-3, + 2 for Causeways	Score	Public Support/ input 0-3	TMP Bicycle Priority Corridor	Space on Road 0-3	Political Support / Other circumstances	Cost Range	EOI Factor	FINAL SCORE
1	Washingt on Ave.	SB Long Term Item 1	South beach	Dade Blvd. to S. Pointe Dr.			NA		Protected bike lane		10908 ft / 2.07 MI	4	4	3	3	2	1	2	5	2	3	**29**	1	0	2	2	2	**0.7**	**20.3**
2	Dade Blvd.	MB Short Term Item 18	Middle beach	Purdy Ave. and Pine Tree	70'	54'			shared path		5473 ft / 1.04 MI	3	4	3	3	3	0	3	3	2	3	**27**	2	0	2	0	3	**0.7**	**18.9**
3	41 street	MB Long Term Item 4	Middle beach	Pine Tree Drive and Julia Tuttle junction	98'	68'	NA		Protected bike lane		4459 ft . .85 MI	3	3	2.5	1	1	3	2	5	2	3	**25.5**	0	0	2	0	0	**0.2**	**5.1**
4	71 street	MB Long Term Item 5	North beach	Atlantic Trail and Abbot Ave	74'	48'	NA		From Sharrows to Protected bike lane		2438 ft / .46 MI	2	2	1	2	2	3	3	4	2	3	**24**	0	0	1	0	3	**0.4**	**9.6**
5	16 Street	SB Long Term Item 5	South beach	Between Bay walk and Collins Ave	66'	48' Typical	25 mph		From Bike Lane to Protected Bike lane		4786 ft / .91 MI	3	3	0	3	0	3	3	4	2	2	**23**	1	2	2	0	3	**0.8**	**18.4**
6	5 Street	SB Long Term Item 8	South beach	Between MacArthur entrance and Atlantic Trail	66'	48' Typical	35 mph	67,050 ADT	Protected bike lane		2880 ft / .55 MI	3	3	3	0	3	0	2	5	2	2	**23**	3	0	1	0	1	**0.5**	**11.5**
7	41 street	MB Short Term Item 12	Middle beach	Between Indian Creek and Pine Tree Dr.	98'	68'	NA		Shared path		797 ft / .15 MI	2	4	1	2	0	2	2	5	2	3	**23**	0	0	2	0	0	**0.2**	**4.6**
8	Normand y Drive (westbou nd)	NB Short Term Item 9	North beach	Between Biarritz Drive and Bay Drive	80'	54'	NA		Protcted bike lane		2438 ft / .46 MI	4	3	0	2	3	0	2	3	2	3	**22**	3	0	3	0	3	**0.9**	**19.8**
9	71 Street (eastbou nd)	NB Long Term Item 4	North beach	Between Biarritz Drive and Bay Drive			NA		Protected bike lane		5460 ft / 1.04 MI	4	3	0	2	3	0	2	3	2	3	**22**	3	0	3	0	3	**0.9**	**19.8**
10	S. Pointe Dr.	SB Short Term Item 11	South beach	Between Atlantic Trail and Alton Rd.	80'	68'	NA		From Bike Lane to Protected Bike lane		1539 ft / .29 MI	2	3	0	3	3	3	3	2	2	1	**22**	0	0	3	0	2	**0.5**	**11**
11	Dickens Drive	NB Cat 2 -	North beach	Between 71 Street and Tatum Waterway Drive			25 mph		From Bike Lane to Protected Bike lane			4	4	1	2	2	0	3	2	2	2	**22**	1	0	2	0	2	**0.5**	**11**
12	71 street	NB Long Term Item 4	North beach	71 st from Biarritz Dr to city limits	74'	48'	NA		Protected bike lane		6271 ft / 1.19 MI	2	3	0	2	3	0	2	4	2	3	**21**	0	0	2	0	2	**0.4**	**8.4**
13	Normand y Drive		North Beach	Between Biarritz Dr. to city limits					Protected bike lane																				
14	Indian Creek	MB Long Term Item 7	Middle beach	Between 41 st and 26 st	60'	48'	NA		protected bike lane		3871 ft / .73 MI	3	3	0	0	3	0	3	3	2	3	**20**	1	0	3	0	3	**0.7**	**14**
15	Alton Road	MB Short Term Item 19	Middle beach	Between North Michigan and Chase	102'	78'			From Bike Lane to Shared path		696 ft / .93 MI	3	4	0	1	2	0	3	3	2	2	**20**	0	0	3	0	1	**0.4**	**8**
16	Julia Tuttle	MB Long Term Item 3	Middle beach	Between city limits and extending into Alton @ 41 st. junction	114'	110'	55 mph		From Bike Lane to Protected Bike lane		7773 ft / 1.47 MI	3	3	0	3	0	0	3	0	2	5	**19**	1	0	2	0	3	**0.6**	**11.4**
17	Euclid Avenue	SB LongTerm Item 6	South beach	Between 15th st and 2nd st	66'	48' Typical	25 mph		From Bike Lane to Protected Bike lane		5452 ft / 1.03 MI	3	4	1	0	2	0	3	2	2	2	**19**	1	2	2	2	3	**1**	**19**
18	Indian Creek	NB Long Term Item 6	North beach	Between Abbott Avenue to Dickens Avenue	92' typical	74'	NA		From Bike Lane to Protected Bike lane			2	2	0.5	1	1	1	2	2	2	2	**15.5**	0	0	1	0	3	**0.4**	**6.2**
19	Byron Ave.	NB Short Term Item 2	North beach	Between Tatum Waterway Drive and 73 Street	80'	68'	25 mph	NA			3,000 FT / 0.05 MI	1	NA	2	0	3	1	3	2	1	2	**15**	0	0	3	0	2	**0.5**	**7.5**
20	N. Bay Road	MB Short Term Item 13	Middle beach	North Bay Road between Chase and Sunset Drive.	64'	20'	25 mph		Greenway		5355 ft / 1.01 MI	2	1	0	0	0.5	0	3	1.5	1	1	**10**	0	2	3	2	3	**1**	**10**
21	Alton @ 5th st intersecti on		South beach	Alton @ 5th st intersection					Protected bike lane																				
22	W 47th st		Middle beach	Alton Rd to North Bay Rd					Bike lane																				
23	Alton Rd.		South beach	South Pointe to 5th street					Protected bike lane																				
24	42nd Street		Middle beach	Between Sheridan and Pine Tree					Bike lane																				

MASTER PLAN IMPLEMENTATION MATRIX

PHASE 3: ASPIRATIONAL

	Project Information												Impact on Modeshare											Ease of Imp.						
Project Number	Project Street	Project Identification	Beach Area	Project Limits	Public ROW	Pavement Width	Posted Speed Limit	Daily Volume	Type	Order of magnitude cost	TOTAL Project Length	Impact on Modeshare 0-5	Improves Safety 0-4	Safe routes to school 0-3	Community dest. 0-3	Park access 0-3	Beach access 0-3	Impact on tarffic 0-3	Access to transit 0-2	Curb appeal 0-2	Connectivity 0-3 + 2 for Causeways	Score	Public Support/ input 0-3	TMP Bicycle Priority Corridor	Space on Road 0-3	Political Support // Other circumstances	Cost Range	EOI Factor	FINAL SCORE
1	Harding Ave.	NB Short Term Item 6	North beach	73 st to north end city limits (86 st.)	56'	44'	30 mph	NA	Protected bike lane		5254 ft / 1MI	1	3	3	0.5	1.5	2	3	3	2	1	**20**	0	0	1	0		**0.1**	**2**
		NB Long Term Item 7	North beach	Between city limit (north) to Indian Creek	56'	44'	30 mph		Protected bike lane		7053 ft / 1.34 MI	1	3	1	3	3	3	3	3	2	2	**24**	0	0	2	0		**0.2**	**4.8**
2	Collins Ave.		North beach	Between city limit (north) to Indian Creek					Protected bike lane																				
3	17 st	SB Short Term Item 4	South beach	From Atlantic to West Ave.	60'	48'			greenway		4700 ft / .89 MI	2	1	0	3			3	3	2	2	**16**	0		2	0		**0.2**	**3.2**
4	Lincoln	SB Short Term Item 5	South beach	East of Washington Ave			NA		shared space		1020 ft / .19 MI	2	4	0	3	2	3	3	4	2	2	**25**	0		3	2		**0.5**	**12.5**
5	10 st	SB Short Term Item 8	South beach	Between Bay walk and Atlantic Way	52'	38'	NA		Greenway		3786 ft / .72 MI	2	1	2		3	1	3	4	1	1	**18**	0		3	0		**0.3**	**5.4**
6	Michigan	SB Short Term Item 8	South beach	Between 11th st to 2nd st	62'	48'	NA		Greenway		3878ft / .73 MI	2	1	3	0	3	0	3	4	1	1	**18**	0		3	0		**0.3**	**5.4**
7	Pennsylvania	SB Short Term Item 8	South beach	Between 7th st and 17th st	50'	38'	NA		Greenway		5475 ft / 1.04 MI	2	1	0	2	2	1	3	5	1	1	**18**	0		3	0		**0.3**	**5.4**
8	2 st	SB Short Term Item 9	South beach	Between Ocean Dr. and Michigan Ave.	50'	36'-30'	NA		Greenway		1767 ft / .34 MI	2	1	3		2	3	3	4	1	1	**20**	0		3	0		**0.3**	**6**
9	Pine Tree Dr.	MB Long Term Item 2	Middle beach	Between 51st and Dade blvd.	100'	58'	NA		protected bike lane		10706 ft / 2.03 MI	2	3	3	3	3	0	3	3	2	3	**25**	0		2	0		**0.2**	**5**
10	Fairway Dr.	NB Short Term Item 4	North beach	Bay Dr @ 71st to Fairway Dr. to Calais Dr.	34'	22'	NA	NA	Shared Path		8235 ft / 1.56 MI	2	4	0	0	3	0	3	0	2	2	**16**	0		2	0		**0.2**	**3.2**
11	Bay Dr.	NB Short Term Item 8	North beach	Bay Dr. @ 71st (east) to Bay Dr. @ 71 st (west)	34'	22'	30 mph	NA	Greenway		6365 ft / 1.21 MI	2	1	0.5	0	0.5	0	3	0	2	1	**10**	0		2	0		**0.2**	**2**
12	13 Street	SB Short Term Item 8	South beach	West from Flamingo park to Bay Walk east from Flamingo park to Atlantic Way			NA		Greenway			2	1					3		1	1	**8**	0	0	3	0		**0.3**	**2.4**
13	15 st	SB Short Term Item 8	South beach	Between Washington and West ave	66'	52'	NA		Greenway		3456 ft / .65 MI	2	1	0	1	2	1	3	4	1	1	**16**	0	0	3	0		**0.3**	**4.8**
14	6th st	SB Short Term lotem 9	South beach	Between Washington Ave and West Ave	48'	38'	NA		Greenway		2268 ft / .43 MI	2	1	0	0	0	1	3	4	1	2	**14**	0	0	3	0		**0.3**	**4.2**
15	Prairie Dr.	MB Short Term Item 9	Middle beach	Between 44st to 47 st	48'	26'	NA		Greenway		2935 ft / .55 MI	2	1	3	1	2.5	0	3	1	1	1	**15.5**	0	0	2	0	3	**0.5**	**7.75**
16	20 st	MB Short Term Item 17	Middle beach	Between Purdy and N. Michigan	64	50'			greenway		1375 ft / .26 MI	1	1	0	0	1.5	0	3	3	1	0	**10.5**	0	0	3	0		**0.3**	**3.15**
17	Collins Ave.	NB Short Term Item 6	North beach	73 st to North end city limits (86 st.)	60'	48'	30 mph	NA	Protected bike lane		5257 ft / 1 MI	3	3	1	3	3	3	2	4	2	2	**26**	0	0	1	0		**0.1**	**2.6**
		MB Long Term Item 1	Middle beach	Between 63rd st to 41st.	60'	44'	35 mph		protected bike lane		11401 ft / 2.16 MI	3	3	0	0	2	3	2	5	2	3	**23**	3	0	2	0		**0.5**	**11.5**
		SB Long Term Item 2	South beach	Between S. Pointe Drive continuous to Middle Beach	76' typical	42' typical	NA		Protected bike lane		11979 ft / 2.27 MI	3	3	0	2		1.5	2	5	2	3	**21.5**	2	0	2	0		**0.4**	**8.6**
18	Ocean Dr.	SB Long Term Item 10	South beach	Between 15th St. and 5th St.	61'	36' Typical	25 mph	9,600 ADT			5,000 FT / 0.94 MI	1	4	0	3	3	3	2	0	2	1	**19**	1	0	2	2	0	**0.5**	**9.5**
19	Byron Ave.		North beach	uth of 81st to 73rd	80'	68'	25 mph	NA	Greenway		1947 ft / .37 MI	1	1	2	2		1	3	3	2	2	**17**	0	0	3	0		**0.3**	**5.1**
20	Maurice Gibb Memorial Park	MB Long Term Item 10	Middle beach	West of Sunset Harbour Dr.			NA		Shared Path		716 ft / .14 MI	2	4	0	0	3	0	3	2	1	1	**16**	0	0	3	0		**0.3**	**4.8**
21	69 st	NB Long Term Item 8	North beach	Indian Creek to Atlantic Way	74'	54' - 44'	NA		Greenway		1109 ft / .21 MI	2	1	0	1	1	2	3	2	2	2	**16**	0	0	3	0		**0.3**	**4.8**
22	Hawthorne	NB Long Term Item 2	North beach	Between 77th st and the north end of Stillwater park	60'	36'	30 mph		Greenway		3246 ft / .61 MI	1	1	1	0	3	0	3	3	1	1	**14**	0	0	3	0		**0.3**	**4.2**
23	Crespi Blvd.	NB Long Term Item 2	North beach	Between Hawthorne ave and 85th st	50'	36'	30 mph		Greenway		2816 ft / .53 MI	2	1	1	0	2	0	3	2	1	1	**13**	0	0	3	0		**0.3**	**3.9**
24	Purdy Ave	MB Short Term Item 17	Middle beach	Between Venetian and 20st	70'	35'			greenway		1309 ft / .25 MI	1	1	0	0	3	0	3	2	1	0	**11**	0	0	3	0		**0.3**	**3.3**
25	Royal Palm	MB Long Term Item 6	Middle beach	Between 26 st and 41 st	70'	20'	NA		greenway		2867 ft / .55 MI	2	1	0	0	2	0	3	2	1	0	**11**	1	0	3	0	3	**0.7**	**7.7**
26	Bay Walk			Between 5th st to 16th st					Shared path																				
27	Atlantic Trail			Between 24th st to 29th st					Shared Park																				
28	Atlantic Trail			30th st and Allison Park					Shared Path																				
29	85th Street		North Beach	Atlantic Trail to Stillwater Drive					Greenway																				
30	6th st		South beach	Between West Ave and Atlantic					Greenway																				
31	Drexel		South beach	Between 17th st to 12th st					Greenway																				
32	Lincoln Ln North		South Beach	Between Washington and 17th St					Greenway																				