



WEST PALM BEACH

Bike Master Plan Update

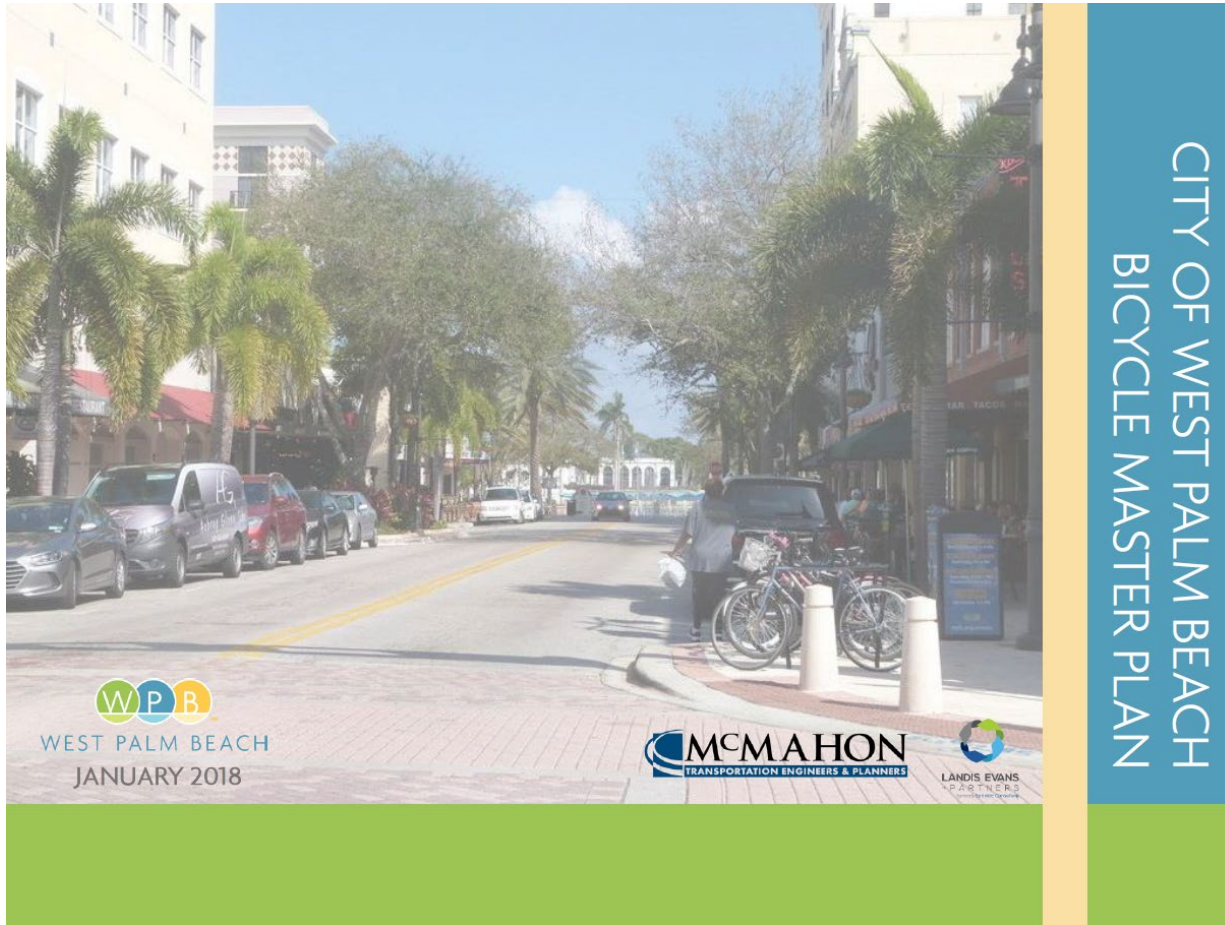
Project Steering Committee Meeting #1

NOVEMBER 14, 2024

Project Overview



Project Purpose



- Revise bikeway recommendations for the city.
- Are needs and priorities related to biking the same or have things changed?
- How are new traffic patterns influencing multimodal travel in the City?
- New industry standards are expanding the type of bikeways that can be designed.



Project Scope

Inventory and Analysis

- Community Profile
- Safety Analysis
- Equity Analysis
- Bike Network Base Map

Low-Stress Bikeway Network Analysis

- Evaluate today's network
- Evaluate future network with proposed changes

Priority Intersection Map and Concept Plans

- Up to 10 concepts for priority intersections

Photo Simulations

- Up to 10 illustrations

Public Engagement

- 3 project steering committee meetings
- 1 online interactive map
- 5 neighborhood meetings
- 1 open house

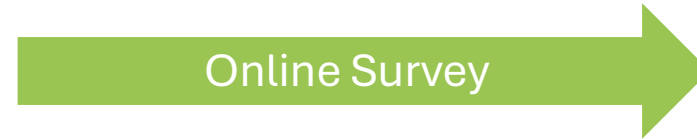
Plan Update Document

- Summary of findings, input, and recommendations



Community Engagement Schedule

Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
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Project Stakeholder Committee Responsibilities

- Provide technical input related to recommendations
- Confirm and provide feedback on policy, program, and project recommendations
- Help with community input advertisement – help get word out about survey and public meetings
- Meet three times during the planning process
 - Meeting 1: Provide input on needs and priorities related to biking in West Palm Beach
 - Meeting 2: Provide more detailed input on bikeway network development
 - Meeting 3: Provide feedback on draft recommendations



Trends and Travel Patterns



Bike trips are consistently a small share of all trips.

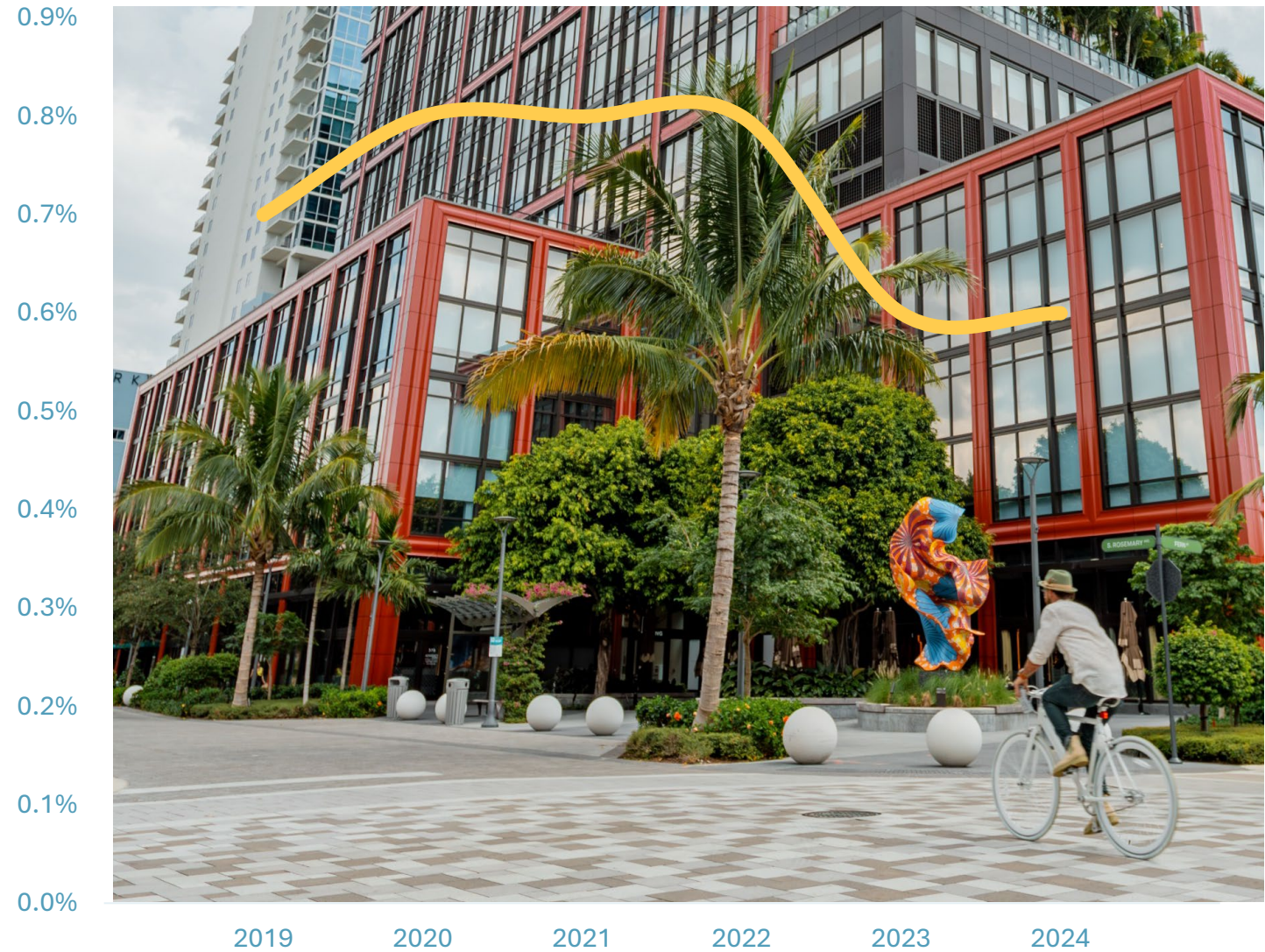
Riding a bike is a regular part of daily travel in West Palm Beach, but it persistently remains a small share of all trips.

- People biking, as a share of all trips, went up during COVID years and has now decreased.
- Bike trips over the past 15 years have ranged from 0.7% to 0.9% of all trips.
- Coming out of pandemic, bike trips as a share of all trips has dipped back to historical norms.

Without an expanding network of connected low-stress bikeways, riding a bike will remain a small part of daily travel in the city.



Bicycle Trips as Share of All Trips



Source: US Census; Replica

Most biking trips in the city are short.

Most people in West Palm Beach are riding their bike within their neighborhood or between neighborhoods. Trips are generally short in distance and time.

By time:

- 59% of bike trips are 20 minutes or less

By distance:

- 60% of bike trips are 4 miles or less

These travel trends highlight the need for well connected bikeway networks that provide direct and convenient routes between neighborhoods.



Riding from...

...TriRail Station to Waterfront.

...Northwood Village to Downtown.

...Port of Palm Beach to Downtown.

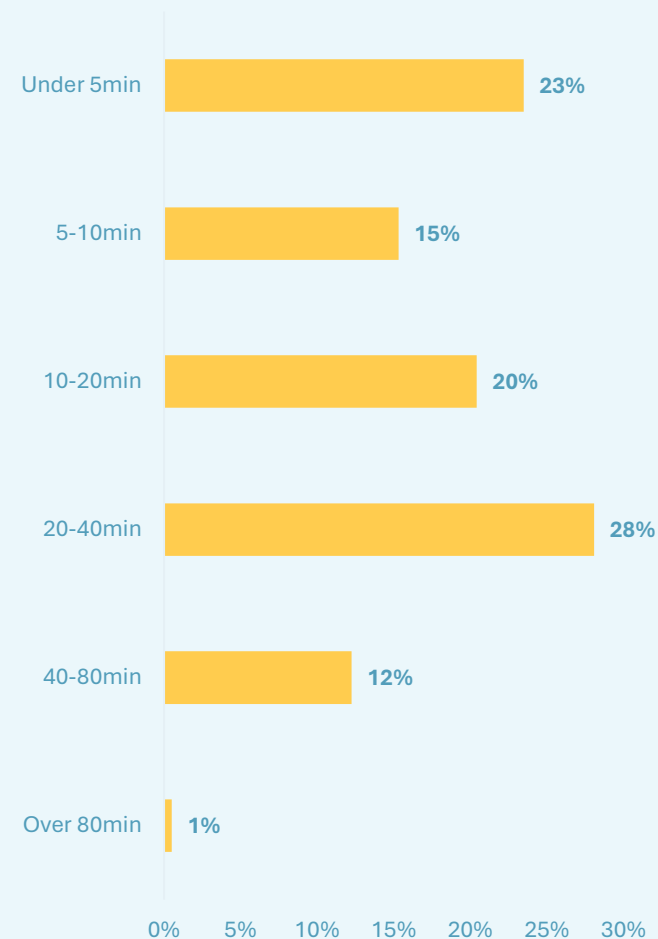
22 minutes

Average bike trip time in West Palm Beach

4 miles

Average bike trip distance in West Palm Beach

Share of Bike Trips by Travel Time



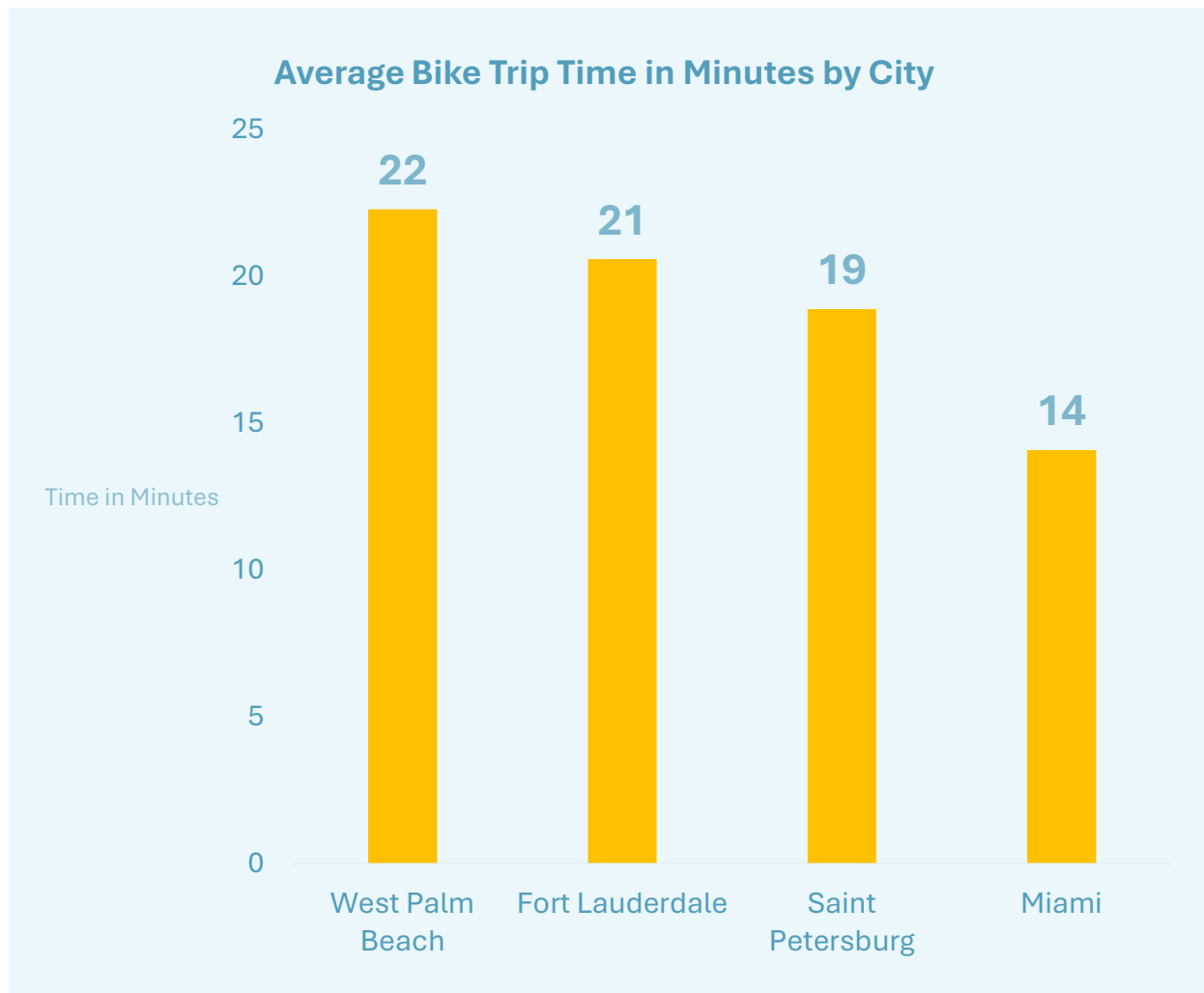
Source: Replica

People have shorter bike trips in peer cities.

Of peer cities in Florida, West Palm Beach has the longest average bike trip time. This means that people riding a bike have to travel further to get to daily destinations.

- Miami's average bike trip time is 37% less than West Palm Beach.
- In St. Petersburg, the city has roughly the same land area as West Palm Beach, yet the average bike trip time is 12% less.
- Fort Lauderdale has a similar trip time to West Palm Beach.

Peer cities have more connected street networks, more extensive bikeways, or both, which contribute to the shorter average trip times when compared to West Palm Beach.



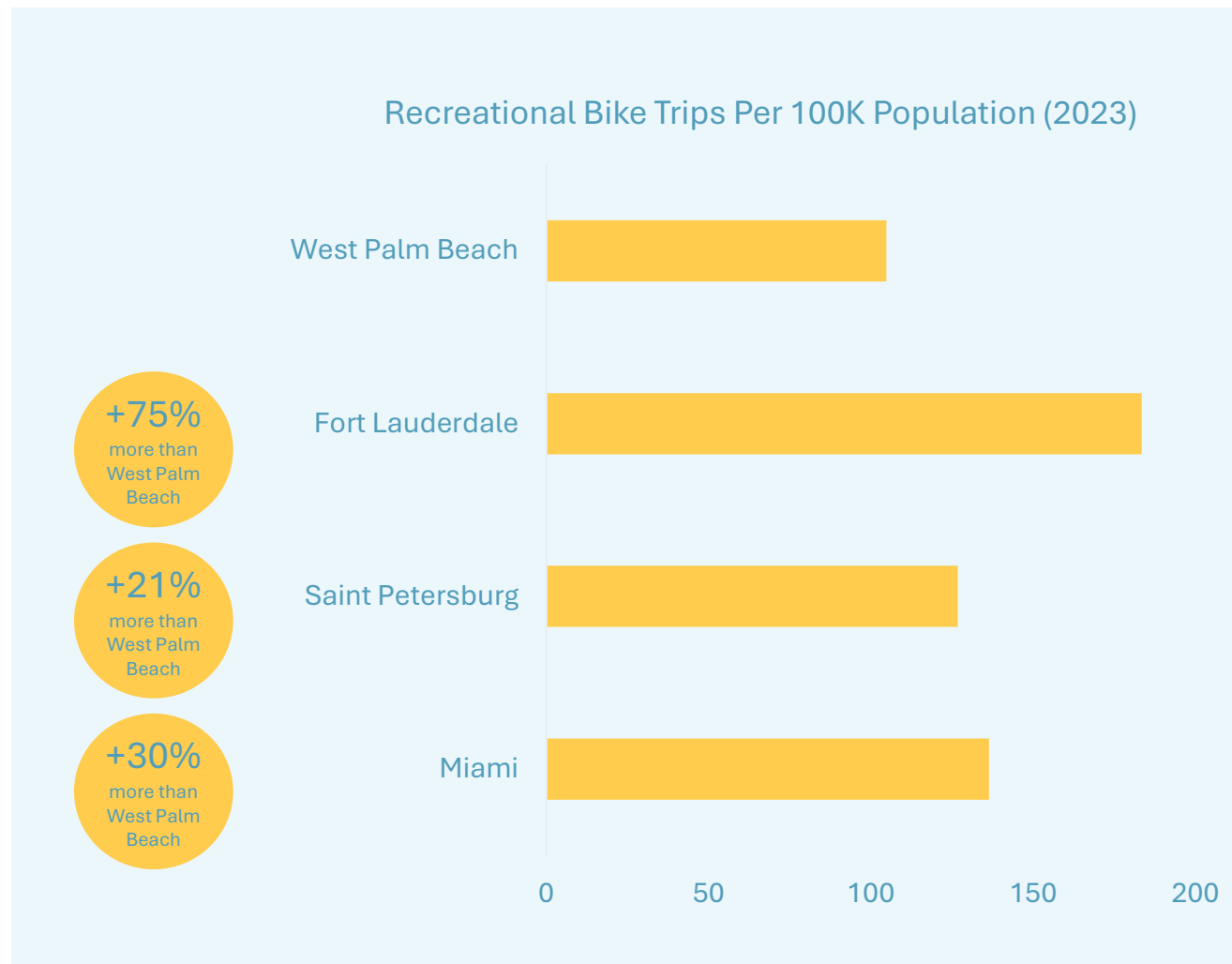
Source: Replica



Peer cities have more fun riding bikes.

In West Palm Beach, recreational bike trips account for 4% of all bike trips in the city. When compared to peer cities, West Palm Beach has the lowest per capita rate of recreational trips.

For people to choose to ride a bike for recreation, they need places to ride that feel safe and fun. By these measures, peer cities have more of these places than West Palm Beach.



Source: Replica



Bicycle Safety

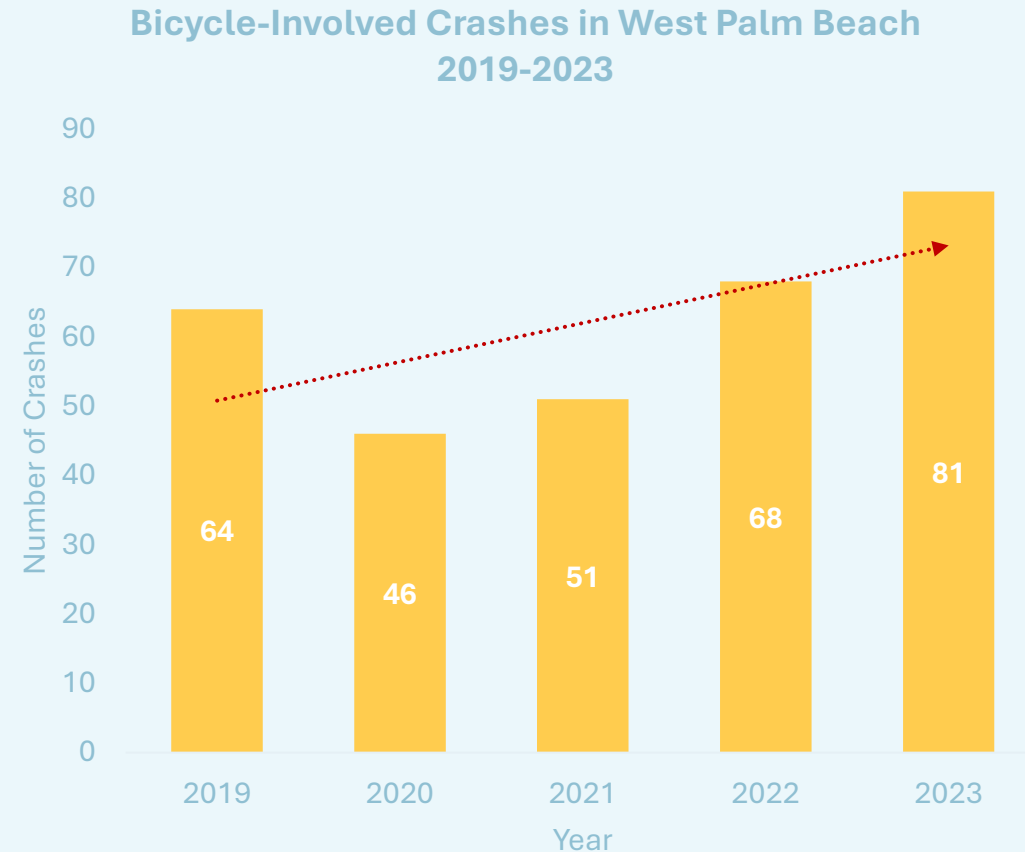


Bicycle crashes are on the rise.

Like many cities across the US, bicycle crashes decreased during the pandemic. Crashes now are above pre-pandemic numbers.

- 25% increase in crashes comparing pre and post pandemic numbers.
- 75% increase in bicycle crashes from 2020 to 2023

Additionally, people biking experience crashes at a much higher rate than their share of all trips. Bike trips account for 0.6% of all trips in West Palm Beach yet bike crashes account for 1.6% of all crashes. Bike crashes occur more than three times the rate of bike trips in the City.



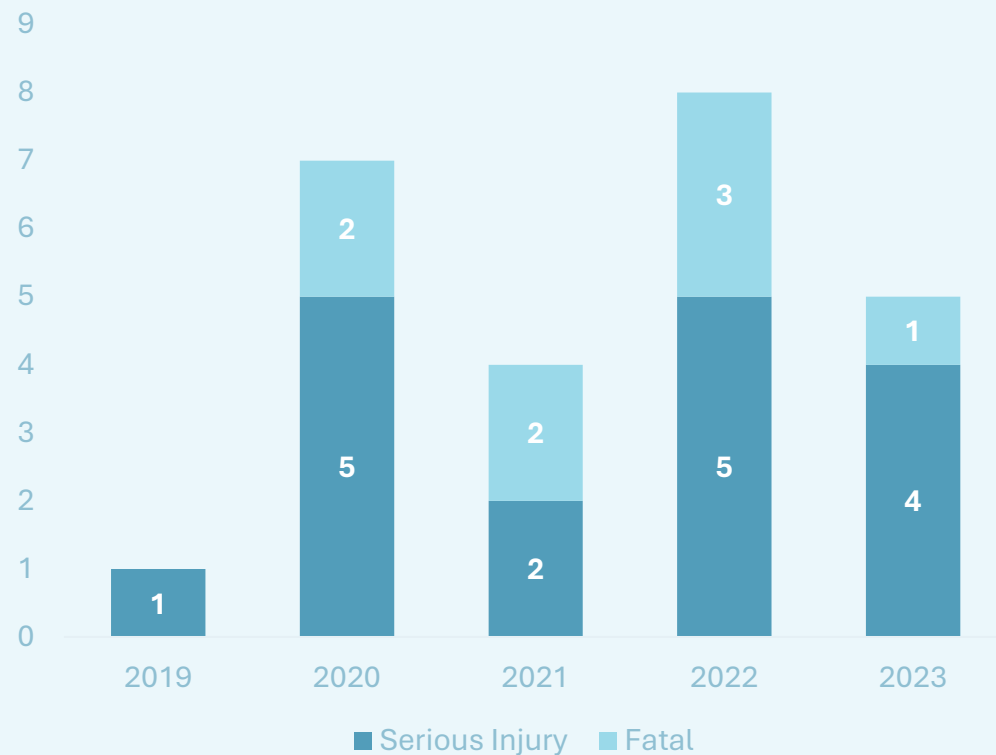
Source: FDOT

The most severe bike crashes are a persistent trend in the city.

While serious injury and fatal crashes vary from year to year, they are a regular part of life in West Palm Beach.

On average, there is one bicycle-related serious injury or fatal crash in West Palm Beach every month.

Serious Injury and Fatal Bicycle-Involved Crashes in West Palm Beach 2019-2023



Source: FDOT



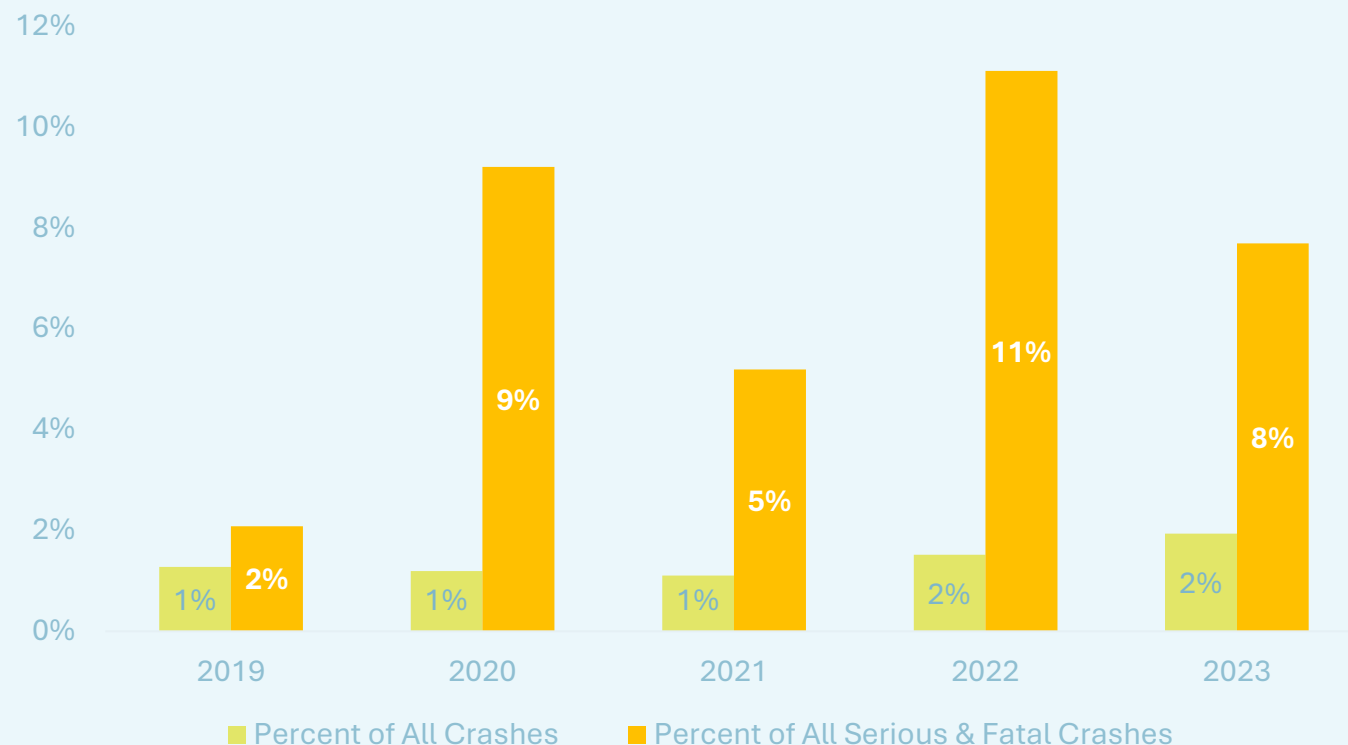
People riding bikes are disproportionately involved in severe crashes.

When people riding a bike are involved in a crash, their chance of being severely injured or killed is very high compared to other modes of travel.

- In 2023, the bicycle serious and fatal crash rate was 300% higher than the bicycle crash rate of all crashes in the city.

People riding bikes are more vulnerable to severe injury by people driving, and thus require more separation and protection from vehicles to keep them safe.

Percentage of All Bicycle Crashes vs. Bicycle Serious Injury & Fatal Bike Crashes in West Palm Beach



Source: FDOT



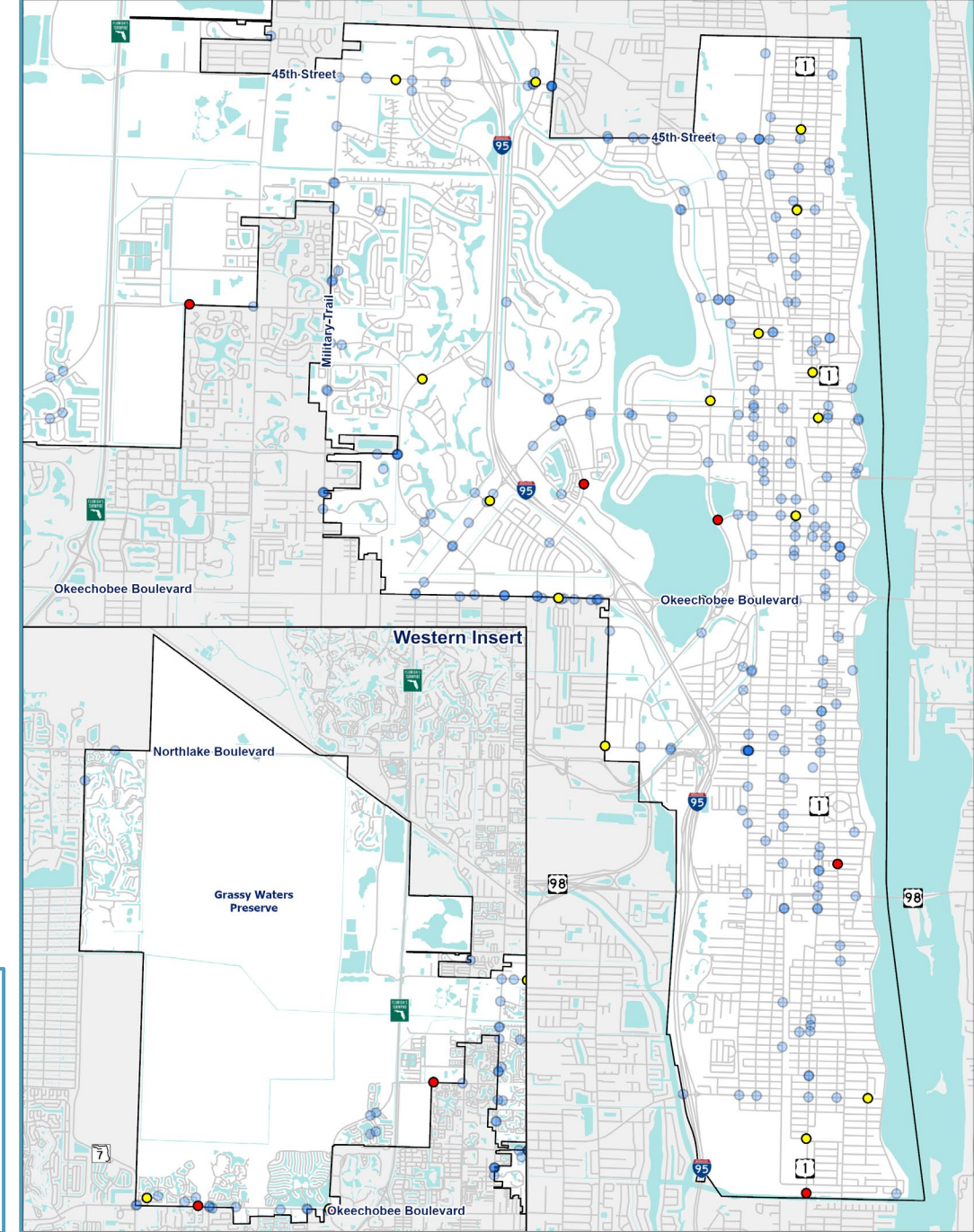
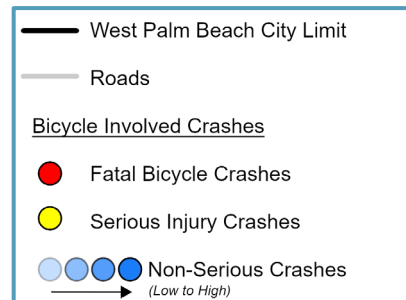
Most bicycle crashes occur along major roads.

Bicycle-involved crashes are clustered along major roads, such as US-1, Okeechobee Boulevard, Palm Beach Lakes Boulevard, and 45th Street.

Additionally, most of the bicycle crashes in the city are occurring east of I-95.



Source: FDOT

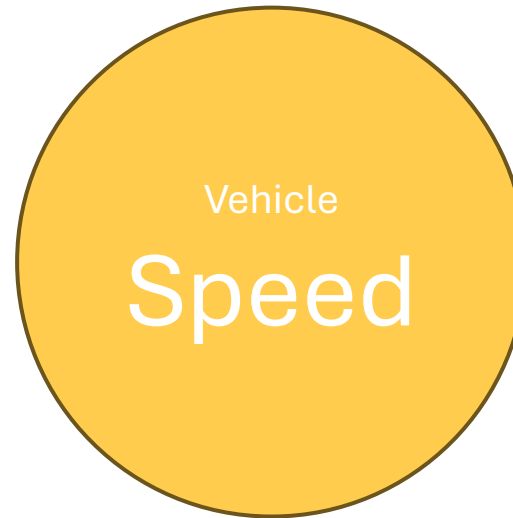


Existing Bikeways



Bikeways should feel safe and comfortable

The primary factors that influence bicycle comfort and safety are:



Bikeways can take several forms.

Bikeways can be streets where people riding bikes and drivers share the same space. This condition is comfortable when vehicle speeds and volumes are very low. As speeds and vehicles increase, so too should the separation and space dedicated to people biking.

The graphic to the left describes the different types of bikeways found in West Palm Beach.



Source: NACTO All Ages & Abilities: Contextual Guidance for High-Comfort Bicycle Facilities.



Low-Speed Shared Streets allow bicyclists to comfortably operate across the entire roadway. Shared streets target very low operating speeds for all users, typically no greater than 10 mph. The volume of people walking and bicycling should be much greater than vehicle volume to maintain comfort. Issues for bicycling in shared environments arise from conflicts with people walking, who may be expected at any point across the street's width. Materials and street edges must be appropriate for bicycling; materials are often varied to delineate road space, but any seams or low mountable curbs must be designed to avoid creating fall hazards for bicyclists.



Bicycle Boulevards (or neighborhood greenways) provide continuous comfortable bicycle routes through the local street network. Bike Boulevards are characterized by slow motor vehicle speeds and low volumes. Sometimes these are present by the very nature of the street and its function (e.g. narrow streets with no major destinations), but sometimes design work is needed, such as adding traffic calming elements, filtering most motor vehicle traffic off, and/or prioritizing bicycles at major and minor street intersections. In this way, bicycling is made comfortable across the entire roadway. Directional markings and wayfinding signage provide riders with intuitive, coherent routing.



Buffered & Conventional Bicycle Lanes provide organized space for bicycling, and are often part of street reconfiguration projects that improve safety and comfort for all users. Bicycle lanes are an important tool to improve comfort and safety on streets where the number of passing events is too high for comfortable mixed-traffic bicycling, but where curbside activity, heavy vehicles, and lane invasion are not significant sources of conflict. Buffered bike lanes are almost always higher comfort than conventional bike lanes. In many cases, cross-sections with room for buffered bicycle lanes also have room for protected bicycle lanes.



Protected Bicycle Lanes (also known as Separated Bike Lanes or Cycle Tracks) use a combination of horizontal separation (buffer distance) and vertical separation (e.g. flex posts, parked cars, or curbs) to protect people bicycling from motor vehicle traffic. The combination of lateral buffer distance and vertical separation elements (such as flexible delineators, curbs or height differences, or vehicle parking) can ameliorate most of the stressors of on-street bicycling. The robustness of bikeway separation often scales relative to adjacent traffic stress.



Shared-Use & Bicycle Paths have in many cities served as the early spines of an All Ages & Abilities network. Paths can provide a continuous corridor, but usually do not take riders to their destinations. High pedestrian volumes, driveways, obtrusive bollards, sharp geometry, and crossings all degrade bicycling comfort, but often require long project timelines to eliminate. To become useful for transportation, paths work best when connected to an on-street network that meets the same high benchmark of rider comfort, and design provides bicycle-friendly geometry. Ideally, bicycles should be separated from pedestrians where significant volume of either mode is present, but where space limitations exist, multi-use paths are still valuable.

Bikeways should feel safe and comfortable.

Just because there is a designated bikeway along a roadway does not make it useful. The roadway context significantly influences the experience and safety of someone riding a bike.

Vehicle speeds and vehicle volumes have the greatest influence on comfort and safety. The city's bikeway policy is that bike routes and facilities need to be low-stress. In simple terms, can a family (children and adults) feel comfortable and safe riding along the street.

The NACTO Designing for All Ages & Abilities guide is used to evaluate the existing street network for bikeability. The matrix to the right was used to analyze the low-stress bikeway network today. It will also be used to develop bikeway recommendations for this plan.

Contextual Guidance for Selecting All Ages & Abilities Bikeways				
Roadway Context				All Ages & Abilities Bicycle Facility
Target Motor Vehicle Speed	Target Max. Motor Vehicle Volume (ADT)	Motor Vehicle Lanes	Key Operational Considerations	
Any		Any	Any of the following: high curbside activity, frequent buses, motor vehicle congestion, or turning conflicts [†]	Protected Bicycle Lane
< 10 mph	Less relevant	No centerline, or single lane one-way	Pedestrians share the roadway	Shared Street
≤ 20 mph	≤ 1,000 – 2,000		< 50 motor vehicles per hour in the peak direction at peak hour	Bicycle Boulevard
≤ 25 mph	≤ 500 – 1,500			
	≤ 1,500 – 3,000	Single lane each direction, or single lane one-way	Low curbside activity, or low congestion pressure	Conventional or Buffered Bicycle Lane, or Protected Bicycle Lane
	≤ 3,000 – 6,000			Buffered or Protected Bicycle Lane
	Greater than 6,000			
	Any	Multiple lanes per direction		Protected Bicycle Lane
Greater than 26 mph [†]	≤ 6,000	Single lane each direction	Low curbside activity, or low congestion pressure	Protected Bicycle Lane, or Reduce Speed
		Multiple lanes per direction		Protected Bicycle Lane, or Reduce to Single Lane & Reduce Speed
	Greater than 6,000	Any	Any	Protected Bicycle Lane, or Bicycle Path
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts		Any	High pedestrian volume	Bike Path with Separate Walkway or Protected Bicycle Lane
			Low pedestrian volume	Shared-Use Path or Protected Bicycle Lane

Source: NACTO All Ages & Abilities: Contextual Guidance for High-Comfort Bicycle Facilities.



Most bike trips require navigating high-stress streets.

The map to the right illustrates how far you can ride on a low-stress route by bike before you get to a high-stress street. Each color represents a “low-stress island.”

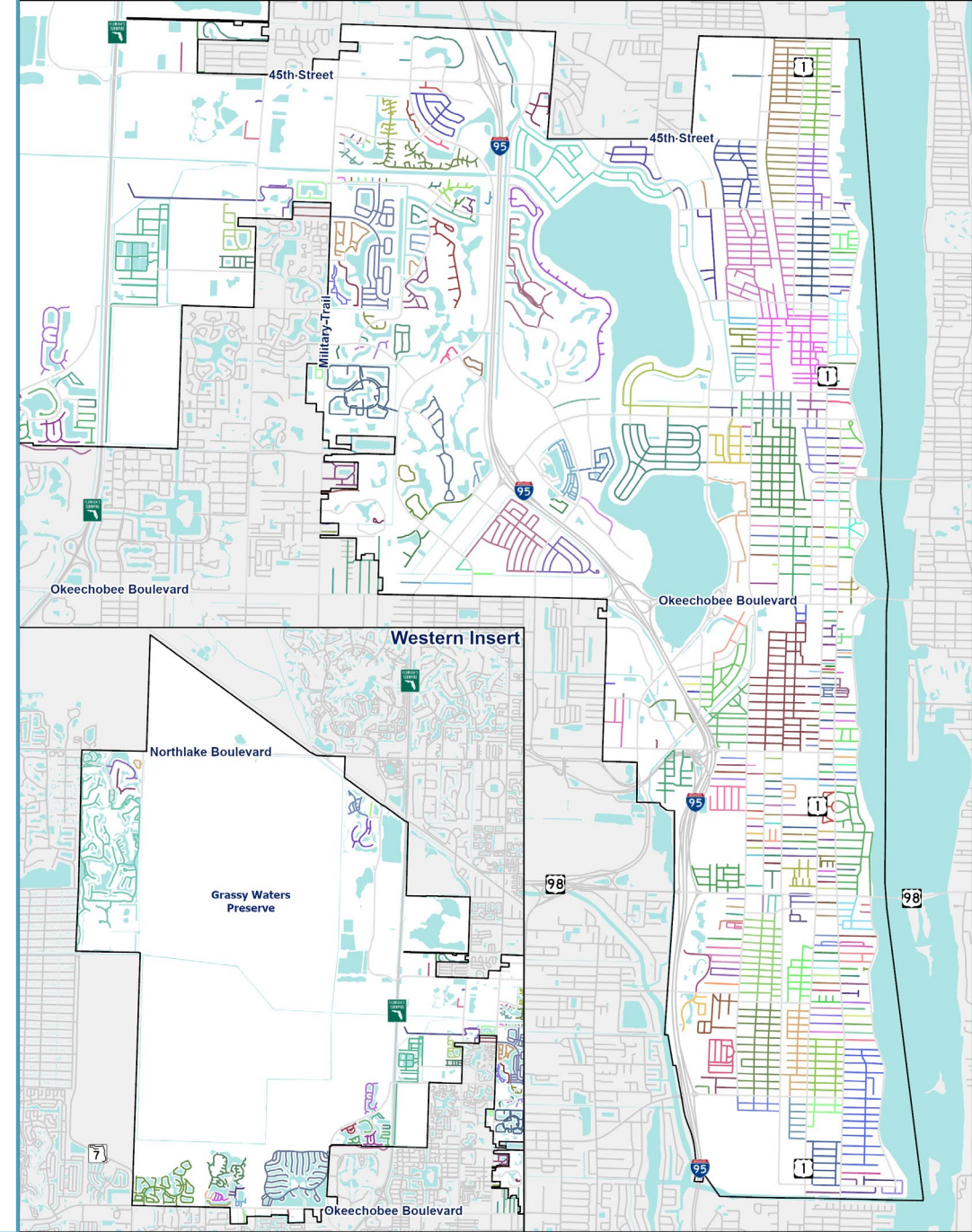
Average Low-Stress
Network Distance:

0.4 miles



Average Bike Trip Distance
in West Palm Beach:

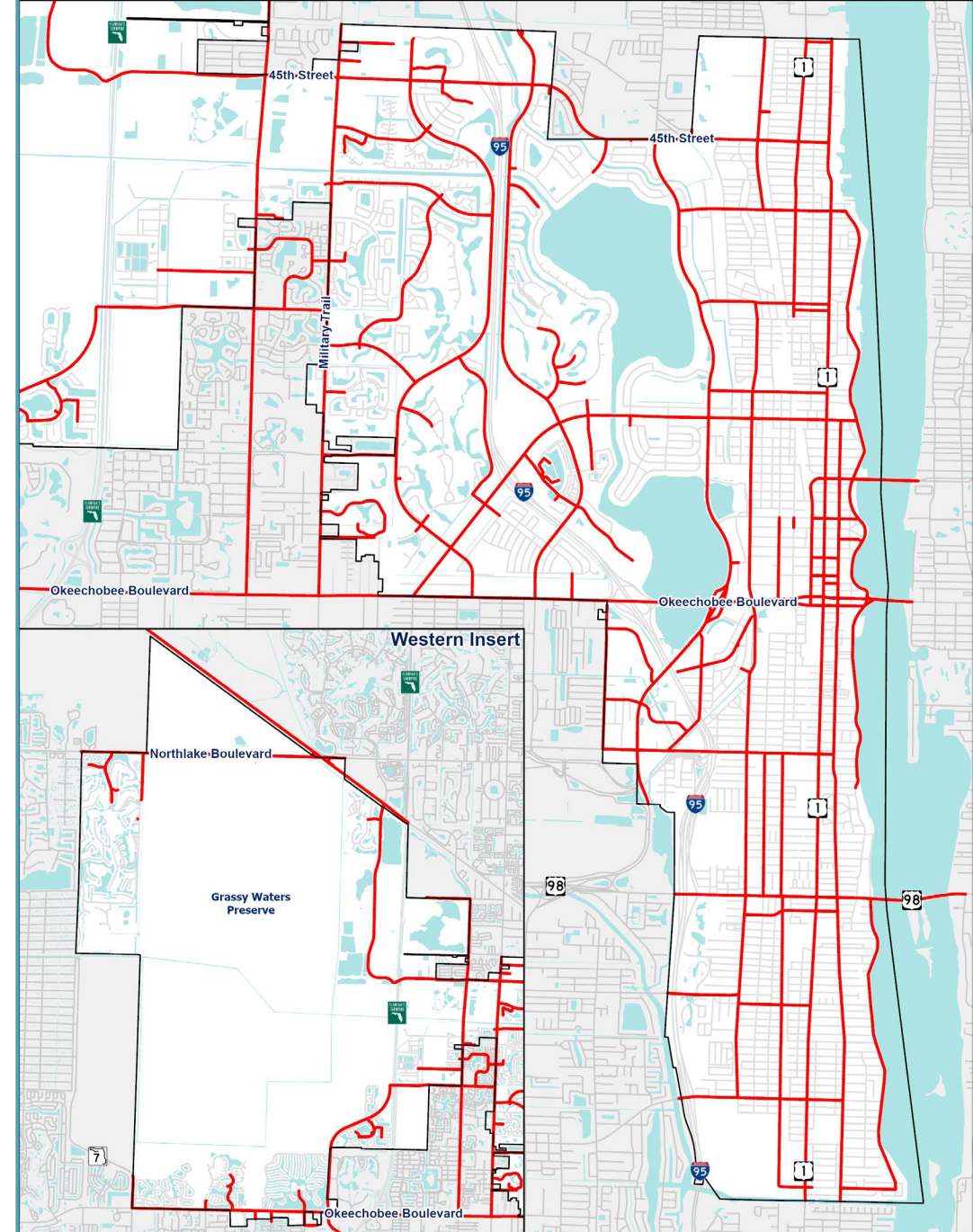
4 miles



High-stress streets represent barriers to connectivity between neighborhoods and daily destinations.

25% of the street network is identified as high-stress. These streets are designated in red on the map to the right.

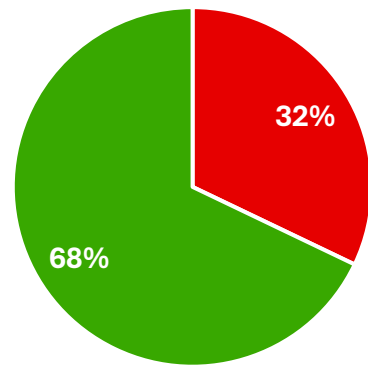
Because of the length of the high-stress network, it breaks up low-stress networks. This pattern discourages people from taking a bike trip in the first place, because a complete route would require crossing a major street. Additionally, many daily destinations for people in West Palm Beach are along these major streets. Getting to one's destination is stressful or requires longer and more circuitous routes, which add travel delay to one's trip.



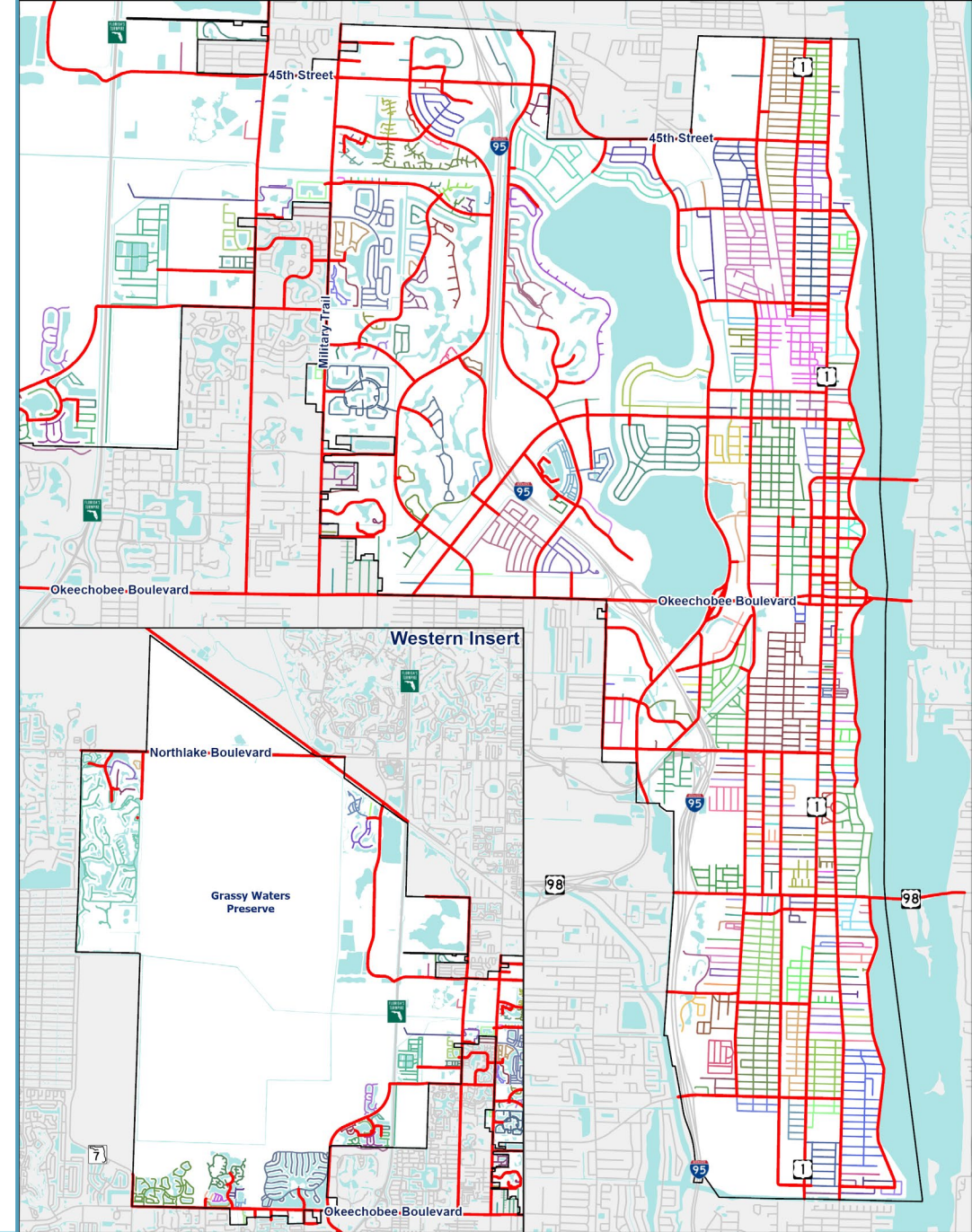
The goal for this plan is to expand the network of low-stress bike routes to daily destinations.

Today, 68% of the street network is low-stress for biking. However, this 68% is broken into 398 “islands” of low-stress networks.

The only way to connect these islands is to create low-stress intersections to cross major roads and create protected bikeways along major streets.



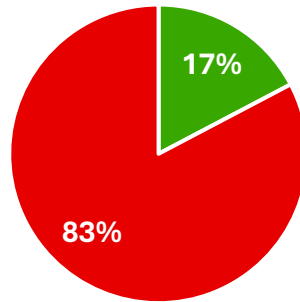
■ High-Stress Streets ■ Low-Stress Streets



Most existing bikeways are deficient.

In West Palm Beach, only 17% of existing bikeways meet the context criteria for low-stress. This means that 8 miles, or just 2% of the street network, can be covered using a designated low-stress bikeway in West Palm Beach.

As a reminder, bike trips account for less than 1% of all trips. With such a small network of low-stress bikeways, few people choose to ride a bike for daily travel.

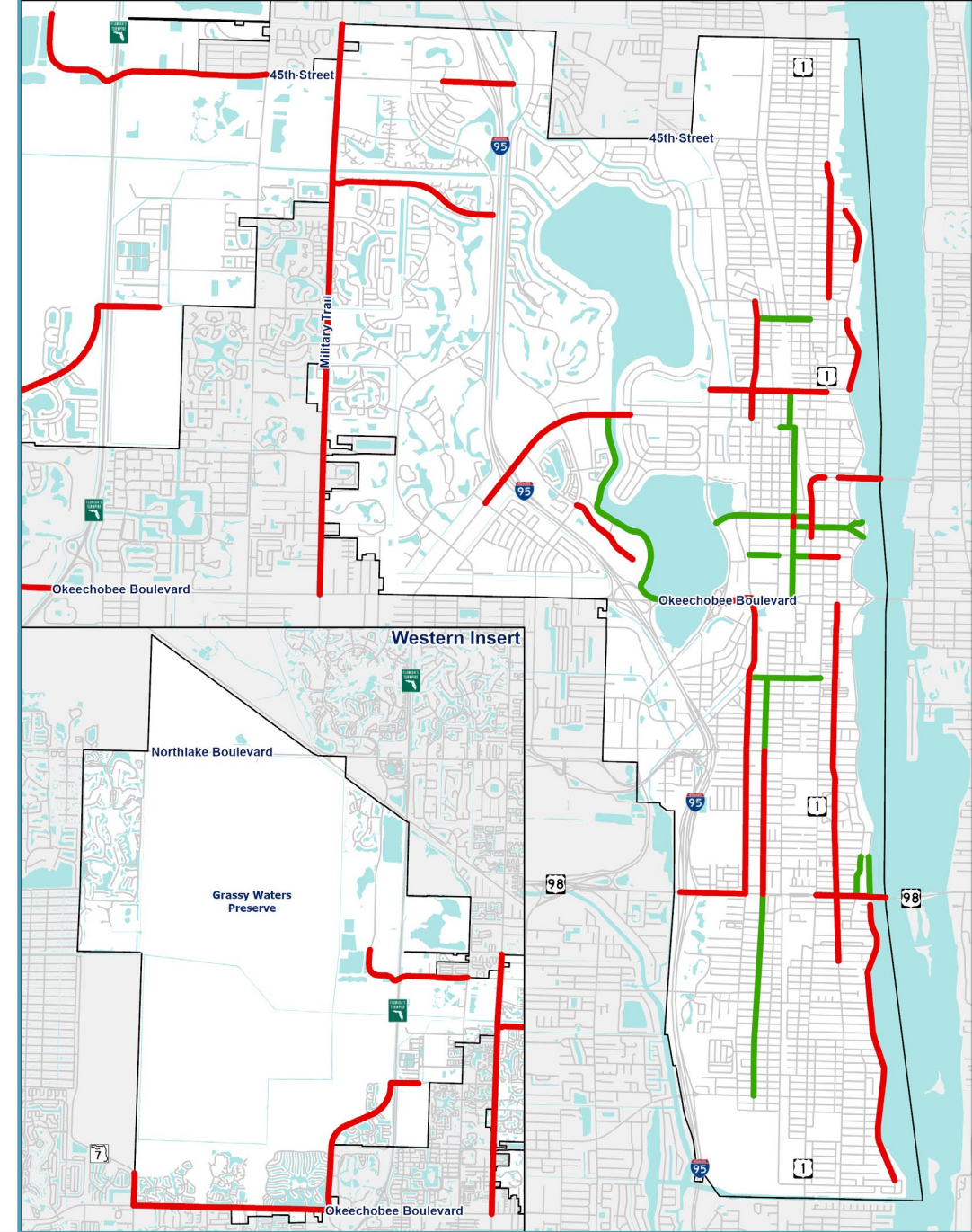


■ Sufficient Bikeway ■ Deficient Bikeway



Deficient Existing Bikeways

— Deficient Bikeway
— Sufficient Bikeway

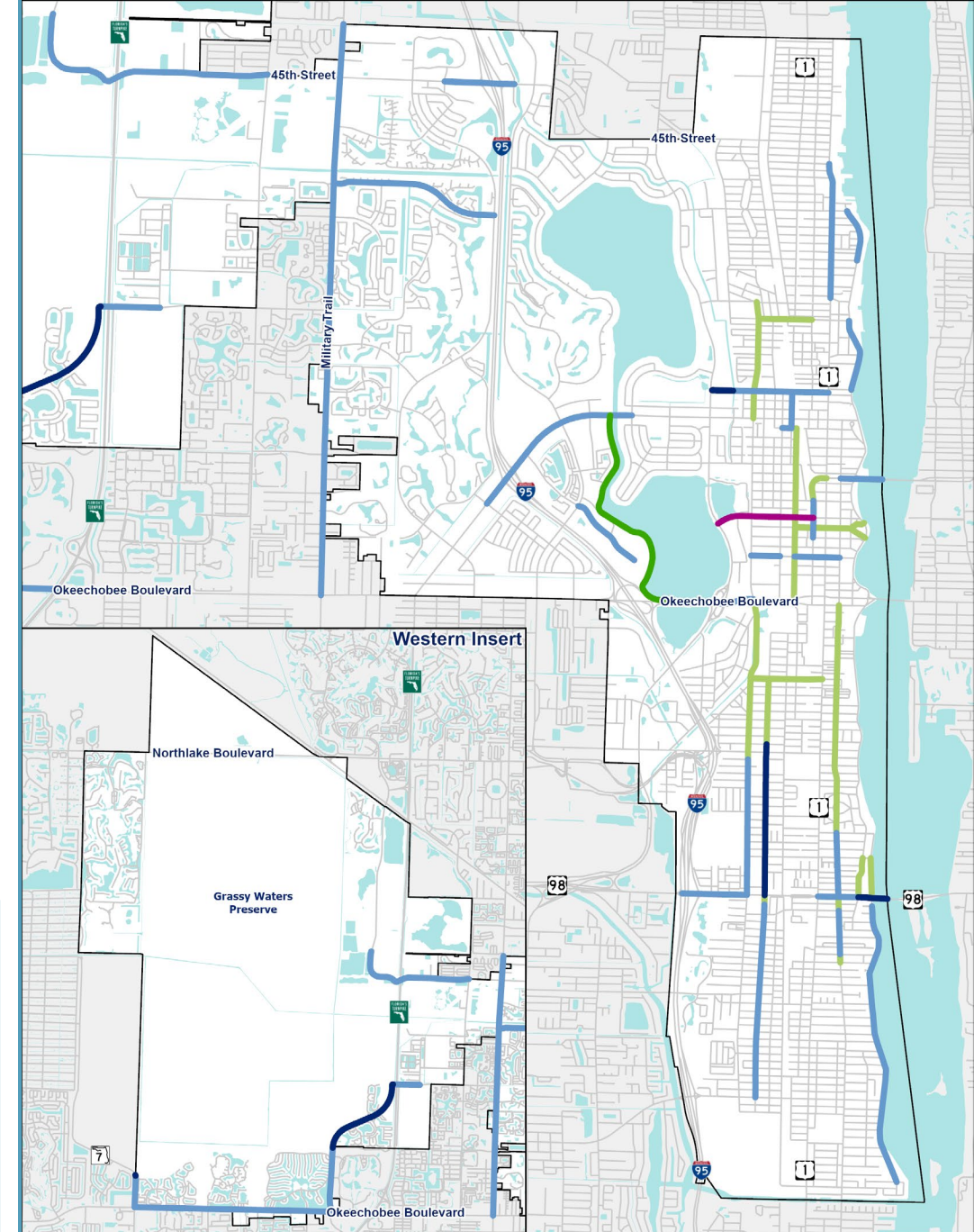


There are a variety of bikeway types in West Palm Beach.

Bikeway Type	% of Existing Bikeways
Shared Lane/Bike Boulevard	19%
Bike Lane	66%
Buffered Bike Lane	8%
Protected/Separated Bike Lane	2%
Shared Use Path	5%

Existing Bikeways

- Shared Street/Bike Boulevard
- Bike Lane
- Buffered Bike Lane
- Protected Bike Lane
- Shared-Use Path



Bikeway Implementation Since Previous Plan Adoption

48%

Increase in
marked
bikeways

2

Miles of low-
stress bikeways
in 2018



8

Miles of low-
stress bikeways
in 2024



Bikeway Type	2018 Bikeways (Miles)	2024 Bikeways (Miles)
Shared Lane/Bike Boulevard	3	8
Bike Lane	21	26
Buffered Bike Lane	2	3
Protected/Separated Bike Lane	0	1
Shared Use Path	1	2
Total	26	39