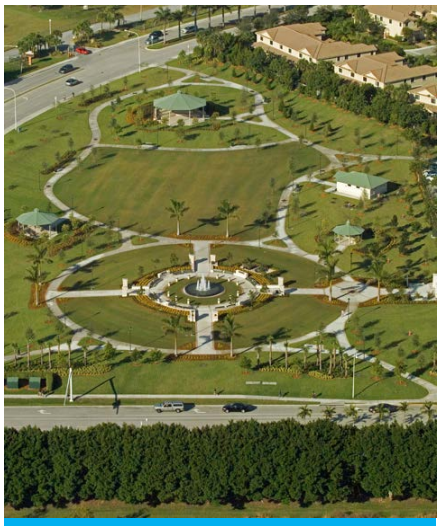
THE
CITY OF WESTON

BICYCLE MASTER PLAN

JANUARY 2013



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CHAPTER 1

INTRODUCTION

Bicycling is an efficient form of transportation that can improve personal health, improve outdoor air quality, and reduce congestion.

The City is committed to making Weston the premiere bicycling city in the State of Florida.

Bicycling is an efficient and inexpensive form of transportation that can improve personal health, improve outdoor air quality, and reduce roadway congestion. Every day, hundreds of Weston residents bicycle to work, to school, to buses, to go shopping, to visit friends, and for recreation. Since its incorporation in 1996, the City has been very supportive of providing transportation alternatives to all types of users. The term "Complete Streets" is relatively new to Broward County, but the City has been applying these principles since its beginning. In addition to the extensive network of bicycle lanes on arterial and collector roadways, nearly all local streets have either sidewalk on both sides of the roadway or a shared use path on one side of the roadway. This commitment to engineering excellence has made the City a very popular place to bicycle. However, no formal bicycle master plan was previously developed for prioritizing and recommending future bicycle facilities and programs. This plan serves to provide guidance in prioritizing the next steps in continuing to make the City of Weston one of the premiere bicycling cities in the nation.

What makes the City of Weston an attractive bicycling community?

The City of Weston is well known throughout South Florida as an ideal place to cycle. It is common for many local cycling teams throughout the County to ride and train in the City of Weston. It has become a popular riding location for many reasons, some of which are described as follows:

- **Dedicated bicycle lanes on most arterial streets**. Approximately 90% of arterial streets have either a bicycle lane or a paved shoulder. Additionally, most key collector roadways have a bicycle lane.

- **Wide bicycle lanes**. Nearly all bicycle lanes in the City are at least five feet wide and many are as wide as six feet. This is noticeably wider than the State required minimum bicycle lane width of four feet.

- **Low traffic congestion.** All roadways within the City operate within traffic volume capacity thresholds outlined in the City Comprehensive Plan. Many roadways have a significant capacity excess. This is not common in South Florida where many roadways are heavily congested. Weston is bordered by two major freeways to the north and east of the City and a conservation area to the west of the City. These borders, along with the western Broward County location, help to minimize cut-through traffic and limit the amount of vehicle traffic that enters the City.

Six foot bike lanes on Manatee Isles Drive

- **Extensive Landscaping.** The City of Weston started as a master planned community so most of the roadways throughout the City are lined with extensive landscaping along the sides of the roadway and in the medians. The tree canopy is not only aesthetically pleasing but also provides shade to bicyclists.

- **Maintenance of roadways**. All roadways, bike lanes, shared use paths, and sidewalks within the City are cleaned and maintained on a regular basis. Street sweeping occurs daily within the public right of way. It is very rare to find debris or any other hindrance within the roadway or bicycle lane. This consistency makes Weston a very attractive city for bicycling.

The Bicycle Master Plan will evaluate how Weston is managing the League of American Bicyclists' "five E's".

- ✓ Engineering
- ✓ Education
- ✓ Encouragement
- ✓ Enforcement
- ✓ Evaluation

Bicycle Friendly Community

Focus of the Bicycle Master Plan

The League of American Bicyclists is the nation's premier bicycling education and advocacy organization. They are committed to providing local communities with guidance in becoming more bicycle friendly. The League of American Bicyclists mission statement is "to promote bicycling for fun, fitness and transportation and work through advocacy and education for a bicycle-friendly America."

The League of American Bicyclists focuses on what they consider the five E's of a bicycle friendly community. The "five E's" are engineering, education, encouragement, enforcement, and evaluation. This plan will evaluate how the City is currently managing the five E's and identify where there is room for improvement in the City's quest to be designated a Bicycle Friendly Community.

CHAPTER 2

GOALS

The City of Weston's Comprehensive Plan outlines the City's goals, policies, and objectives for numerous planning elements including land use, housing, transportation, parks and recreation, infrastructure, and others. Within the Transportation Element of the Comprehensive Plan, several policies pertaining to bicycling are included. A synopsis of these existing policies is included below.

The City's Comprehensive Plan is supportive of encouraging and expanding bicycling use.

The Bike Master Plan builds on the policies in the Comprehensive Plan to provide additional goals and benchmarks.

- Provide a safe multimodal transportation system.
- Continue to provide bicycle and pedestrian safety education.
- Provide safe bikeways and pedestrian ways to schools.
- Enforce bicycle laws.
- Encourage installation of bicycle facilities in public places.
- Maintain and improve the area of the bicycle facility network.
- Address missing bicycle facility links.
- Improve the bikeway network such that all significant commercial, employment and recreational centers are accessible via a bikeway route along at least one collector or arterial roadway route serving the center.
- Encourage improved access to public transit terminals through the provision of bicycle facilities at appropriate locations.
- Continue to provide bicycle facilities at commercial and recreation areas and other appropriate locations.
- Maintain or improve the modal split attributable to bicycles and pedestrians through such strategies as walkable and bikeable compact, mixed use developments.

The Bicycle Master Plan will build on the Comprehensive Plan to provide additional goals and benchmarks. Table 1 identifies the goals and benchmarks of this Master Plan.

Table 1
Goals and Benchmarks

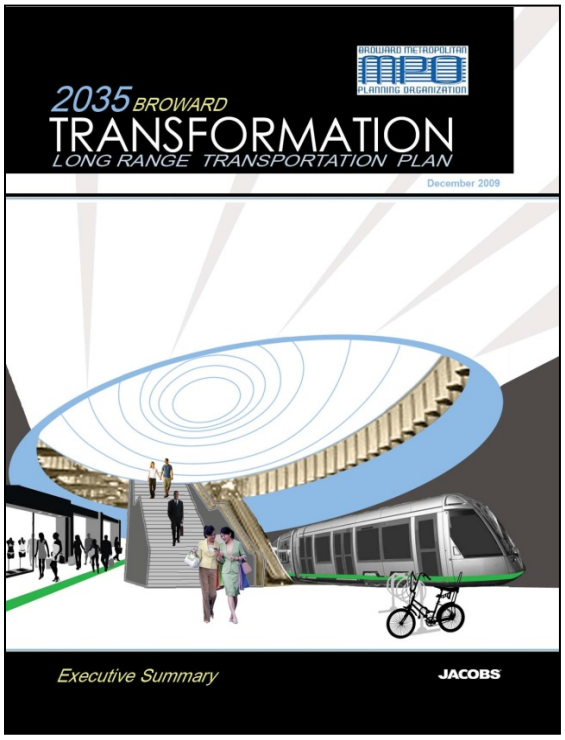
Goal	Benchmark
Increase the use of bicycling to work.	Strive to increase the amount of workers who bicycle to work to 2% by Year 2015.
Continue to prioritize bicycle safety for bicyclists of all ages throughout the City.	Create a program to notify the City traffic engineer whenever a bicycle crash has occurred.
	Provide additional training above standard academy training to 100% of law enforcement personnel that serve the City of Weston.
	Provide bicycle education to youth and adults during at least two City events a year.
	Provide bicycle education through Bike Rodeos or similar training exercises at schools on an annual basis.
	Provide education to City residents and businesses regarding motorists and bicycle laws at least once a year.
Increase the amount of bicycle parking facilities.	Work with private property owners to encourage the installation of new bicycle parking spaces at existing developments by Year 2015.
	Ensure that all public parks and governmental buildings have bicycle parking by Year 2013.

Table 1 Continued
Goals and Benchmarks

Goal	Benchmark
Continue providing a well-connected and comprehensive network of bicycle facilities throughout the City.	Where appropriate, install shared lane use markings.
	Continue to maintain a Bicycle Level of Service of D or better for at least 90% of all major roadways.
	Prioritize bicycle improvements that provide connectivity to transit and major trip generators.
	Where appropriate, coordinate with other local jurisdictions and Broward County regarding bicycle connectivity to and from the City of Weston.
	Install bicycle way finding signage by Year 2015.
Promote the use of bicycling throughout the City.	Offer bicycle education courses at least twice a year to City residents.
	Host at least one bicycle event annually to promote and encourage bicycling.
	Maintain a bicycle section on the City webpage that includes educational pamphlets and maps of the City bicycle network.
	Provide information on bicycling in the City's "Newsday Tuesday" on a quarterly or more frequent basis.
	Promote State of Florida and National Bike Month. Host an annual event in celebration of Bike Month.
Secure funding to implement bicycle improvements.	Review bicycle funding opportunities on an annual basis. Apply for grants when applicable.
	Prioritize bicycle improvements that serve underserved populations.

Consistency with Regional Plans

In addition to the bicycle supportive policies provided in the Weston Comprehensive Plan, other regional plans in South Florida are also very supportive of bicycling. The 2035 Broward County Long Range Transportation Plan (LRTP) puts significant emphasis of multi-modal forms of transportation. The vision of the 2035 Broward LRTP includes economic vitality for the region, a better environment, and enhanced quality of life. A major focus in the LRTP is to increase the number of transit routes and opportunities throughout the County.



In the City of Weston, Broward County provides one fixed bus route. Broward County route 23 runs the entire length of Weston Road and provides connectivity to several other locations of interest outside the City. The 2035 Broward LRTP does not identify any new transit routes within the City. However, due to the increased transit facilities throughout the region, including transit hubs, transit usage is expected to grow significantly by 2035. Therefore, it is important that the City's future bicycle network provide connectivity to Weston Road whenever possible to allow for safe and convenient access to the available fixed bus route.

The 2035 Broward LRTP identifies three bicycle segment priorities within the City: Weston Road from Indian Trace to SR 84 (only part of this roadway segment is located within the City limits), Saddle Club Road from west of Lakeview Drive to Weston Road, and Bonaventure Boulevard from Indian Trace to SR 84.

CHAPTER 3

EXISTING CONDITIONS

All existing bicycle related facilities within the City of Weston were inventoried as part of this Bicycle Master Plan. The facilities inventoried include bicycle lanes, paved shoulders, shared use paths, sidewalks, bicycle racks, and bicycle routes.

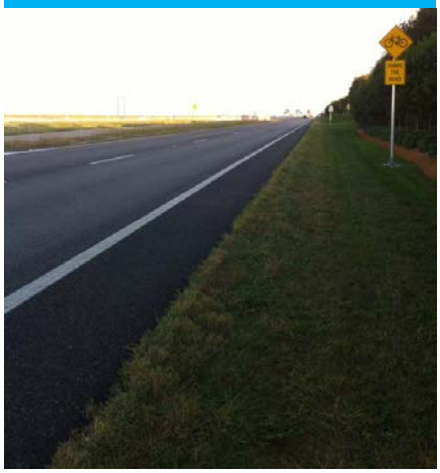
The City currently has 26 miles of marked bicycle lanes.

Approximately 90% of arterials have either a bike lane or paved shoulder.

On-Street Facilities

A bicycle lane, by definition, is a striped portion of the roadway that includes designated pavement markings and signage for bicycle travel. Typically, bicycle lanes are four to six feet in width. The City of Weston has an extensive bicycle lane network that includes approximately 26 centerline miles of bicycle lanes. The roadways identified below currently have dedicated bicycle lanes and the respective bicycle lane widths are included in Table 2.

- Royal Palm Boulevard
- Indian Trace
- Bonaventure Boulevard
- Weston Road
- South Post Road
- Saddle Club Road
- Manatee Isles Road
- Racquet Club Road
- Three Village Road
- Country Isles Road
- Emerald Estates Drive



A paved shoulder, by definition, is the portion of the roadway to the right of the striped edge line. Shoulder widths of four to five feet are considered suitable for bicycle travel by engineering and industry standards. Paved shoulders are similar to bicycle lanes except there are no designated pavement markings or signage exclusively related to bicycle travel. Paved shoulders are provided on US-27 and SR 84. Approximately 90% of all arterial

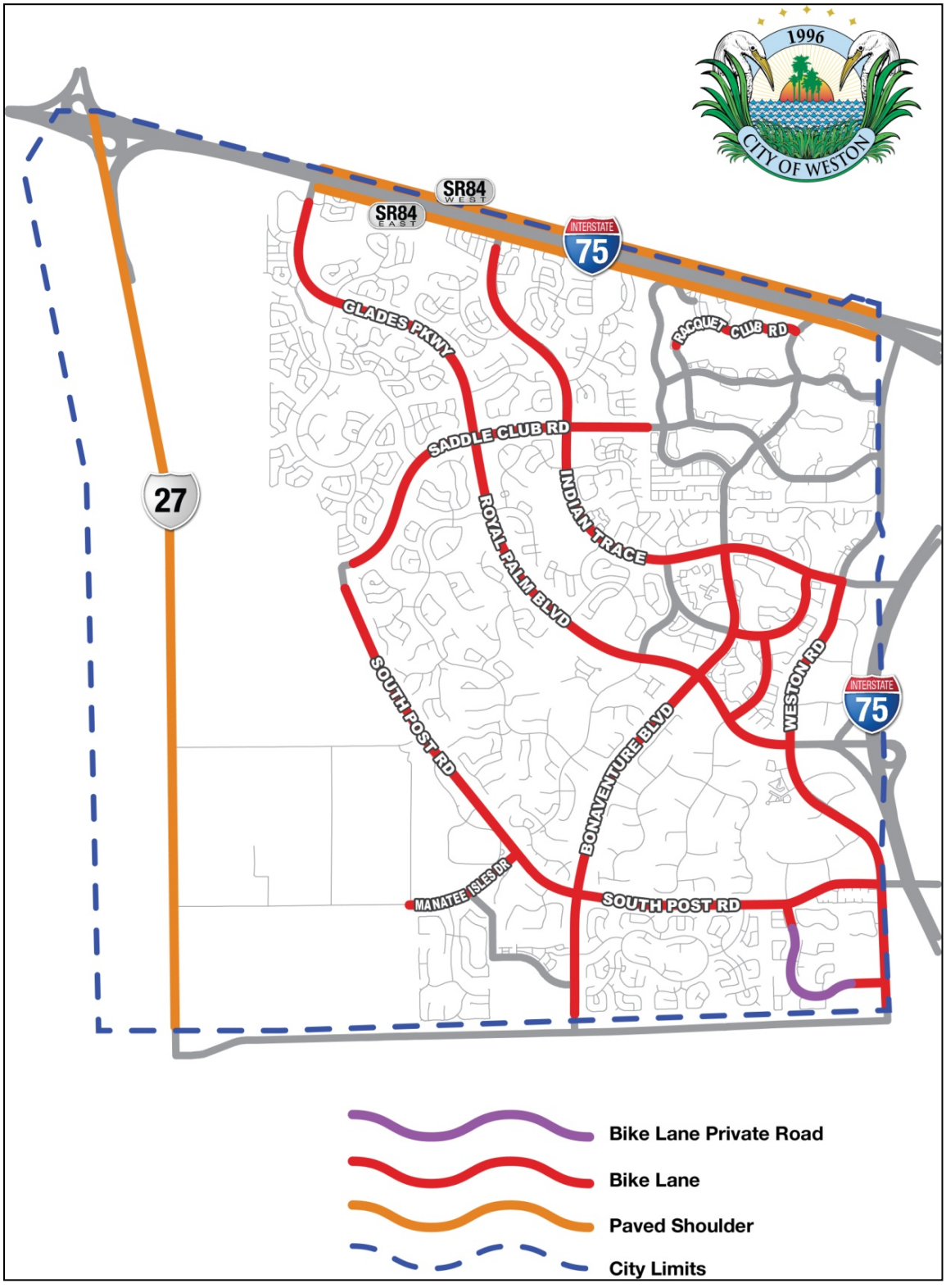
roadways within the City of Weston have either a dedicated bicycle lane or paved shoulder. The existing bicycle facilities are shown in Figure 1.

Table 2
Dedicated Bicycle Lane Widths

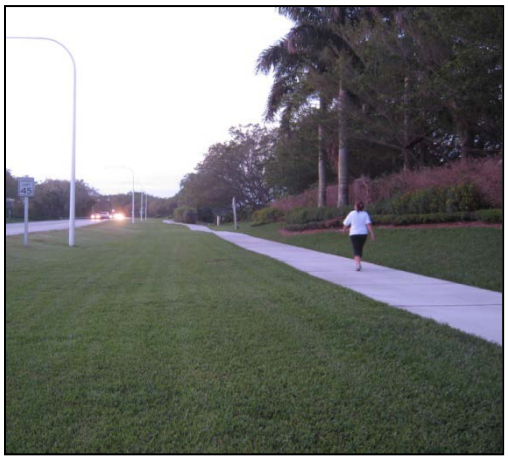
Road	From	To	Centerline Distance (mi)	Bike Lane Width (ft)
Bonaventure Blvd	Griffin Rd	Indian Trace	3.32	5
Country Isles Rd	Royal Palm Blvd	Three Village Rd	0.63	6
Emerald Estates Dr(1)	South Post Rd	Weston Rd	1.13	4
Glades Pkwy	Glades Cir	Saddle Club Rd	2.09	5
Indian Trace	San Sebastian Blvd	Saddle Club Rd	1.35	5
	Saddle Club Rd	Bonaventure Blvd	1.59	6
	Bonaventure Blvd	Weston Rd	0.77	5
Manatee Isles Dr	SW 196th St	South Post Rd	0.77	6
Racquet Club Rd	S. of Danielle Ct	Bonaventure Blvd	0.89	6
Royal Palm Blvd	Saddle Club Rd	Weston Rd	3.02	5
Saddle Club Rd	E. of Saddle Club Rd	W. of Lakeview Dr	2.24	5
South Post Rd	S. of Saddle Club Rd	Weston Rd	4.42	5
Three Village Rd	Bonaventure Blvd	Indian Trace	0.75	6
Weston Rd	Griffin Rd	Indian Trace	3.10	5

(1) A portion of Emerald Estates Drive is private only access.

Figure 1 - Existing Bicycle Lanes



Off-Street Facilities



Eight foot shared use path

In general, a shared use path is a paved facility that does not allow for motorized vehicles. Typically, shared use paths are eight to 12 feet in width. The larger width is what distinguishes shared use paths from standard sidewalks. The American Association of State Highway and Transportation Officials (AASHTO) allows for a minimum shared use path of eight feet provided that there are low volumes of bicyclists and pedestrians on the shared use path. Shared use paths are utilized by walkers, joggers, bicyclists, skaters, and others not utilizing a motorized vehicle. When development was in the early stages in Weston, developers saw the benefits of providing larger facilities than the minimum five foot sidewalk that Broward County required. In this sense, the City of Weston began implementing facilities more suitable for bicycles earlier than many other cities. Eight foot shared use paths are generally available throughout the City adjacent to roadways where sidewalks are not present on both sides of the roadway. Shared use paths are currently available adjacent to the following roadways:

- South Post Road
- Royal Palm Boulevard
- Indian Trace
- Vista Park Boulevard
- Bonaventure Boulevard
- Weston Road
- Three Village Road
- Country Isles Road
- E. Mall Road

Additionally, shared use paths are provided at several parks throughout the City including:

- Weston Regional Park
- Emerald Estates Park
- Peacemound Park
- Gator Run Park
- Country Isles Park

In addition to shared-use paths, the City maintains an extensive sidewalk network. Generally, sidewalks are provided on at least one side of the roadway and, in the majority of cases, on both sides of the roadway throughout the City. In addition to accommodating pedestrians, sidewalks are also a critical component of the Safe Route to Schools program. Each year, thousands of children walk and bike to school using the sidewalks and shared use paths provided by the City. The State of Florida does not prohibit the use of bicycles on sidewalks. Rather, Florida law states that bicyclists riding on a sidewalk have the rights and duties of a pedestrian.

The shared use path and sidewalk network adjacent to major roadways within the City are shown in Figure 2.

Figure 2 - Sidewalks and Shared Use Paths Adjacent to Major Roads

Mountain Biking

Markham Park

Natural mountain biking trails are not something commonly associated with South Florida due to the mostly level terrain. However, the City of Weston borders one of the premier mountain biking trail networks in Florida. Located just north of SR 84 and Weston Road, Markham Park is easily accessible from the City by bike. A location map of Markham Park relative to the City of Weston is provided on the following page. Additionally, a mountain bike trail map of Markham Park is included in Appendix A.

Markham Park has a variety of recreational activities available to the public including boat rentals, campgrounds, playgrounds, tennis courts, and mountain bike trails. There are over 10 miles of mountain bike trails for novice, moderate, and expert cyclists at Markham Park and the City of Weston is very proactive in promoting the availability of this nearby mountain biking resource. Broward County maintains Markham Park and provides mountain bike camps, events, and other programs frequently throughout the year.

Everglades Conservation Levee Trail

The Everglades Conservation Levee is located at the northern and western limits of the City of Weston. The 27-mile levee loop just north of the City is a popular bicycle trail ride that can provide up close encounters with a variety of wildlife. Access to the trail for mountain bikers is available near Markham Park.

Everglades Conservation Levee Trail

Markham Park and Everglades Conservation Levee Trail Location Map

Velodrome

Florida's only Velodrome is located near the City of Weston at Brian Piccolo Park in Cooper City. The park is maintained and operated by Broward County and is open to Weston residents. The 333.3-meter concrete track was built in 1992.

Velodrome at Brian Piccolo Park

The majority of bicycle parking facilities within the City conform to recommendations from the Association of Pedestrian and Bicycle Professionals (APBP)

Bicycle Parking Facilities

Bike Racks are currently provided at all parks owned and maintained by the City of Weston. Bike racks are present at numerous other locations throughout the City as well including commercial, office, and public locations.

The majority of bicycle parking facilities within the City conform to recommendations from the Association of Pedestrian and Bicycle Professionals (APBP). A list of their recommendations is provided below:

- Support the bicycle upright by its frame in two places.
- Prevent the wheel of the bicycle from tipping over.
- Enable the frame and one or both wheels to be secured.
- Allow front-in and back-in parking.
- The bicycle rack element should resist being cut or detached using common hand tools.

General examples of common bicycle racks that conform to APBP are shown in Figure 3.

Figure 3

General Examples of APBP Compliant Bicycle Racks

Wave

Ring

Helix

Inverted "U"

Custom Design

Ballard

Bicycle Routes

A bicycle route is a combination of bicycle lanes, shared use paths, multi-use trails, and shared travel lanes that are designated for bicycle travel by signage or mapping. Generally, bicycle routes assist bicyclists to attractive destinations using preferred travel routes. Currently the City does not have any designated bicycle routes.

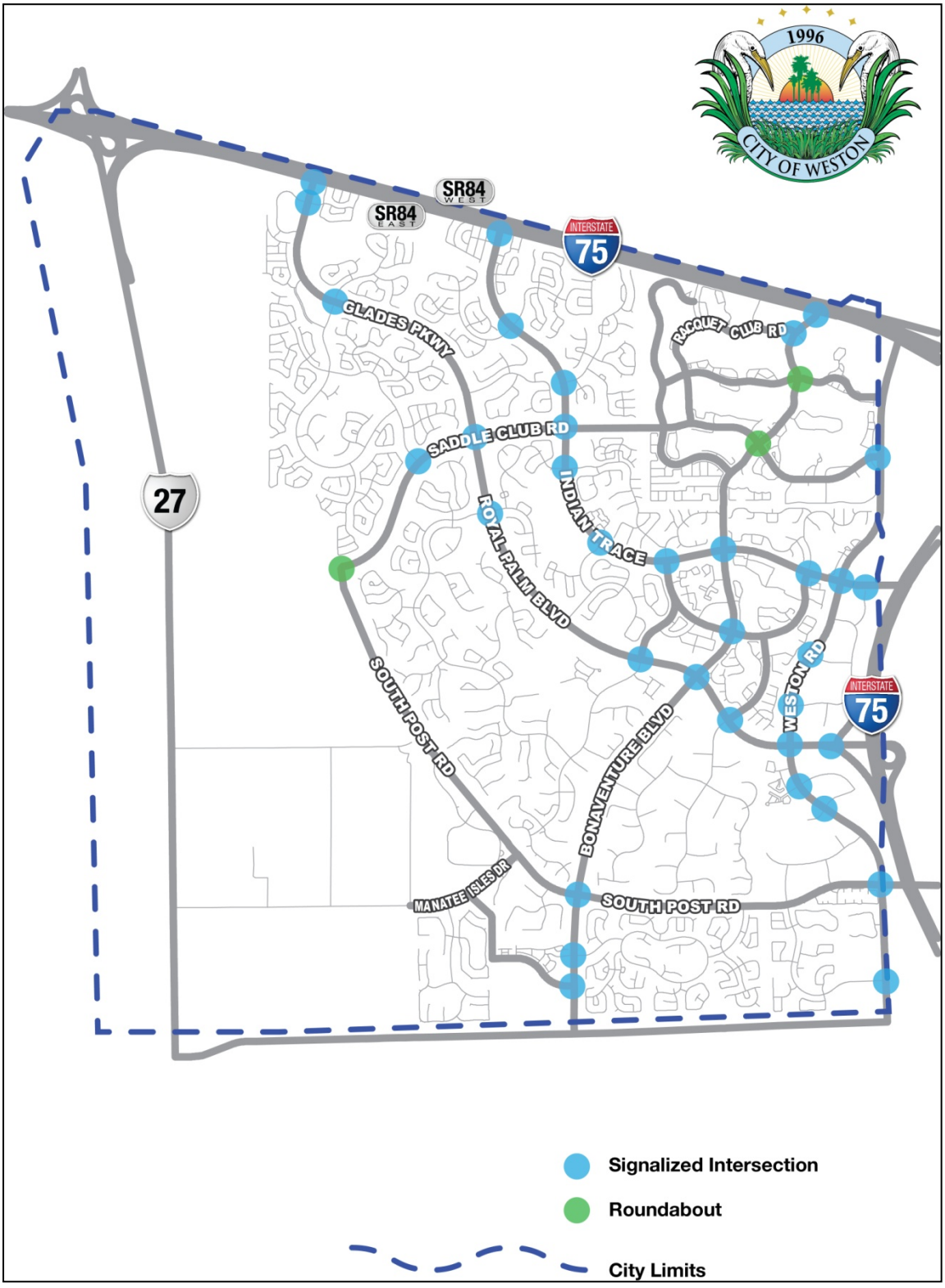
Bicycle way-finding signage consists of comprehensive signage to guide bicyclists to their destinations using preferred routes. Typically, bicycle way-finding signage can be found at decision points along bicycle route intersections. Currently the City does not have any bicycle way-finding signage.

Signalized Intersections

There are 35 signalized intersections in the City of Weston. The majority of the traffic signals operate in a semi-actuated mode which allows the signal timing to adjust based on vehicle demand. Video detection, which determines the presence of a vehicle and adjusts for traffic demand, is provided at 34 of the 35 traffic signal locations. The only intersection that is not equipped with video detection is located on Indian Trace at Town Center Boulevard. This traffic signal utilizes microwave detection. The location of all 35 traffic signals in the City of Weston is shown in Figure 4.

Video detection technology has the capability of detecting bicyclists in standard travel lanes and dedicated bicycle lanes. All signalized intersections within in the City of Weston are maintained and operated by the Broward County Traffic Engineering Division (BCTED). BCTED has indicated that although they currently do not have a standard policy on the matter, dedicated bicycle lanes and paved shoulders are sometimes included in the video detection zone to determine the presence of a bicycle.

Figure 4 - Signalized and Roundabout Intersections

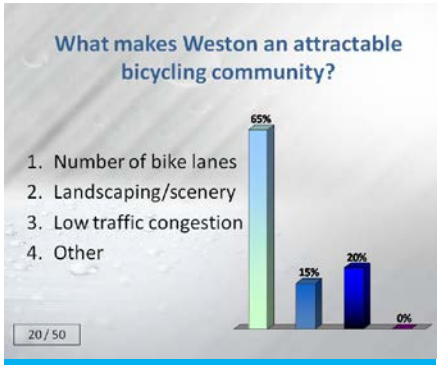


Transit Facilities

Broward County Transit

Broward County currently provides one fixed bus route service within the City of Weston. Broward County Transit (BCT) Route 23 provides service along Weston Road and connects to several points of interest located within and outside of the City limits including Pembroke Lakes Mall, Sawgrass Mills Mall, Cleveland Clinic Hospital, Memorial Hospital-West, Academic Village/Broward College, and Markham Park. All buses are wheelchair accessible and equipped with bike racks. Connections to other buses through transfer stations are also available on BCT Route 23. Broward County also funds and administers the Transportation Options Program, which provides door to door service, upon request for persons with physical, cognitive, emotional, visual or other disabilities that functionally prevent them from using the BCT fixed route bus system.

The City of Weston recently constructed 14 bus stop shelters along Weston Road to improve the quality of the transit service available to Weston residents. Bicycle racks are provided at each of these new bus stop shelters. Bicycle lanes are provided on Weston Road from Griffin Road to Indian Trace. Only a short segment of Weston Road, from Indian Trace to the northern City limits, is currently without dedicated bicycle lanes. Bicycle lanes are also provided on the major connecting streets of South Post Road, Royal Palm Boulevard, and Indian Trace. Additionally, sidewalks and shared use paths are available throughout the City, providing pedestrian access to the bus stops.



CHAPTER 4

WESTON BICYCLE ALLIANCE

As part of the City of Weston's ongoing efforts to maintain an open line of communication with the bicycling community, the Weston Bicycle Alliance was formed in April of 2012. The Weston Bicycle Alliance consists of members who have an interest in promoting the use of bicycling for transportation and recreation within the City. The Weston Bicycle Alliance works directly with the City's Traffic Engineer who serves as a liaison to the City Manager and Commissioners on behalf of the Alliance.

The Weston Bicycle Alliance formed in April 2012.

The purpose of the Bicycle Alliance is to provide input on an assortment of bicycle related issues within the City.

The City has worked with the Alliance to gain insight directly from the bicycling community regarding how the City can best serve the needs of the community. The City has also coordinated community outreach efforts with the Alliance, such as bringing in representatives from the Broward Sheriff's Office who provides law enforcement services for the City to discuss how enforcement officers and bicyclists can work together to improve the bicycling environment in the City.

In addition to coordinating directly with the City, the Alliance continues to reach out to the Weston bicycling community through ongoing education and recreational activities.

CHAPTER 5

ENGINEERING

The most visible and tangible evidence of a bicycle friendly community is the presence of good infrastructure that supports bicycling. Encouraging residents to utilize bicycles as a form of transportation is dependent on the availability of well-maintained streets, clear roadway signage, adequate roadway lighting, and a roadway network that provides logical connectivity.

Since its incorporation, the City of Weston has continued to provide not only well designed transportation infrastructure that meets or exceeds design standards, but also a progressive and ongoing commitment to planning for and funding future transportation infrastructure projects.

Some of the most visible and tangible evidence of a bicycle friendly community is the presence of good infrastructure that supports bicycling.

Complete Streets

Complete Streets is a term used to describe roadways that have been designed to not only accommodate motorized vehicles but also bicyclists, pedestrians, and others not utilizing a motorized vehicle. Complete Streets typically incorporate bicycle lanes, sidewalks and/or shared use paths in addition to travel lanes. A Complete Streets network provides multi-modal connectivity throughout the community which can lead to improvements in sustainability, personal health, and economic development.

Since its incorporation, the City of Weston has been very supportive of providing transportation alternatives to all types of users. The term "Complete Streets" is relatively new, but the City has been applying similar principles for years.

The City of Weston is constantly improving infrastructure either specifically for bicycling or accommodating bicyclists in new construction.

Transportation Projects Completed Recently

The City of Weston includes accommodations for bicyclists in new construction projects and works to ensure bicyclists are accommodated within private developments as well. The transportation infrastructure projects outlined below were all completed in the past few years and highlight the City's commitment to the bicycling community.

- Single lane roundabouts were recently constructed on Bonaventure Boulevard at Saddle Club Road and Blatt Boulevard, replacing the previous all-way stop-control at both intersections. These modifications resulted in a significant reduction in the number of potential vehicle conflict points and dramatically improved the operational efficiency of the intersections for motorists and bicyclists. Roundabouts installed in a series along a corridor, such as these, have also been shown to reduce vehicle speeds along the corridor which also benefits bicyclists.

- New six-foot bike lanes were constructed on Manatee Isles Drive from SW 196th Avenue to South Post Road. The new bike lanes provide connectivity to the citywide bike lane network for residents on Manatee Isles Drive as well as Manatee Bay Elementary school.

Six-foot bicycle lanes on Manatee Isles Drive

- Bus stop shelters were installed in 2010 on Weston Road to provide shelter for transit riders accessing Broward County Transit Route 23. Each of the 14 bus stop shelters are equipped with bicycle racks.

Bus Stop Shelters on Weston

- New traffic signage and sign posts are being installed to replace all existing signage throughout the City. The new sign posts were custom designed for the City of Weston to withstand significant storm events. All replacement signage conforms with current standards set forth in the Manual of Uniform Traffic Control Devices (MUTCD) and include bicycle signage where appropriate.

Transportation Projects Planned and Funded

1. Installation of a single lane roundabout on Saddle Club Road at Lakeview Drive. The City is currently in the process of converting this all-way stop-controlled intersection to a roundabout. Studies have shown that roundabouts can significantly reduce the frequency and magnitude of intersection collisions. Additionally, the roundabouts recently installed nearby have been a great success in reducing traffic congestion and improving the aesthetics of the roadway. Saddle Club Road from just west of Lakeview Drive to Weston Road is one of the few major roadway segments in the City that is currently without a bicycle lane or paved shoulder. Since the roundabout on Saddle Club Road at Lakeview Drive will be close to the roundabout on Saddle Club Road at Bonaventure Boulevard, corridor speeds in the vicinity will likely decrease. The increased safety and slower speeds along Saddle Club Road will benefit bicyclists who travel this primary corridor.

2. Milling and resurfacing projects on Royal Palm Boulevard and Weston Road. Royal Palm Boulevard from Saddle Club Road to Weston Road and Weston Road from Griffin Road to the north City limits are scheduled for resurfacing in

2013. These milling and resurfacing projects will provide a smoother roadway surface for motorists and bicyclists.

Capital Improvement Projects Funding

The City recognizes the importance of bicycling to the community and is committed to providing the necessary resources to reach its goal of being recognized as one of the premiere bicycling communities in the nation. In addition, the availability of other funding resources are explored whenever possible. There are numerous grant programs and funding opportunities for bicycle facilities available through Federal, State, and local agencies. A list of potential funding sources is included in Appendix B.

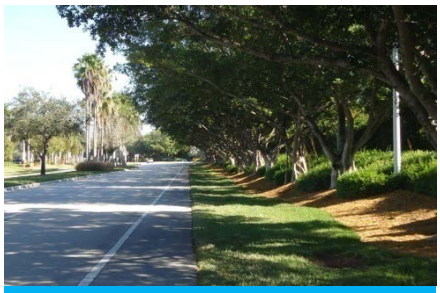
Funding sources are available for both infrastructure and non-infrastructure improvements. Infrastructure improvements typically include on-street or separated bicycle facilities, shared use paths, and bicycle storage facilities. Non-infrastructure improvements typically include the implementation of programs pertaining to bicycling encouragement, education, and enforcement. The City will likely continue to pursue these funding opportunities for future bicycling projects.

Federal funding for bicycle and pedestrian facilities has increased substantially over the past decade. Table 3 illustrates Federal Funding distributed in the State of Florida for bicycle and pedestrian facilities.

Table 3
State of Florida Federal Aid Program Funding for Bicycle and Pedestrian Facilities*

1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
19.6	13.7	13.6	46.0	13.7	11.6	27.9	26.0	29.4	23.9	113.1	78.0	79.1

Source: Florida Highway Administration (FHWA)
*In millions



CHAPTER 6

BICYCLE FACILITY DESIGN GUIDELINES

Historically, the design of on-street bicycle facilities and sidewalks within the City of Weston has conformed to all applicable local, regional and national design standards, including the following:

- American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets
- Minimum Construction Standards Applicable to Public Rights-of-Way Under Broward County Jurisdiction
- Manual of Uniform Traffic Control Devices (MUTCD)
- FDOT Design Standards

Definitions of bicycle facilities and guidelines for selection criteria are described in detail in the *AASHTO Guide for the Development of Bicycle Facilities, 1999*. Highlights of this important reference material follows.

Types of Bicycle Facilities

Selection of the most advantageous bicycle facility is dependent on a number of factors including the ability of the user, the specific conditions of the roadway, and facility costs. An overview of each facility type is included in this section.

The selection of the most advantageous bicycle facility is dependent on a number of factors, such as:

1. Ability of the user
2. Specific conditions of the roadway
3. Facility cost

- Shared Roadway (No Bikeway Designation). Most bicycle travel in the United States occurs on shared roadways without a bikeway designation. There are many reasons why a roadway may be designed or remain without a bikeway designation. Many roadways are suitable and safe for bicycle travel without any designation such as low traffic residential streets. Additionally, there are some roadways that are unsuitable for bicycle travel and it would inappropriate to designate the street as a bicycle facility. The presence of a four foot paved shoulder along these roadways can significantly improve bicyclists and motorists safety.

- Signed Shared Roadway. Signed shared roadways are designated by bike route signs to provide continuity to other bicycle facilities or designate preferred routes through high demand corridors. Designation of a signed shared roadway should indicate that these particular roadways have advantages to bicyclists than alternative routes.

- Bicycle Lane. Bicycle lanes are established by providing appropriate signing and markings on a designated roadway lane. Bike lanes are established to improve conditions for bicyclists on corridors where there is significant bicycle demand. Bicycle lanes designate right of way for both bicyclists and motorists and encourage much more predictable movements by each. Bike lanes can increase the capacity of roadways where there is a mix of motor vehicle and bicycle traffic. It is important that bicycle safe drainage inlets and facilities are used alongside designated bicycle lanes. Bicycle lanes should provide a smooth surface for bicyclists and be free of potholes, glass, or other types of debris.

- Shared Use Path. Generally, shared use paths should be used to serve corridors that are not served by streets or where sufficient right of way exists away from the influence of parallel streets. The most common applications for this type of facility are along rivers, lakes, utility rights of way, and at parks. Design of shared use paths should consider that other users such as pedestrians and skateboarders may utilize the shared use path in addition to bicyclists. Shared

use paths can either provide a recreational opportunity or as a direct bicycle route between destinations.

Selection of a Bicycle Facility

The *AASHTO Guide for the Development of Bicycle Facilities, 1999* identifies many factors that should be considered when selecting the appropriate bicycle facility.

- Skill Level of Users. Consideration should be given to the skills and preferences of the types of bicyclists who will use the facility. Facilities near schools, parks and residential neighborhoods are likely to attract a higher percentage of basic and child bicyclists than advanced bicyclists.

- Motor Vehicle Parking. The turnover and density of on-street parking can affect bicyclist safety (e.g., opening car doors and cars leaving parallel parking spaces). Diagonal and perpendicular parking arrangements are not compatible with bicycle facilities because of restricted sight distance and the related potential for bicycle-motor vehicle conflicts. They should be avoided wherever possible.

- Barriers. In some areas, there are physical barriers to bicycle travel caused by topographical features, such as rivers, railroads, freeways or other impediments. In such cases, providing a facility can create new opportunities for bicycling.

- Crash Reduction. The reduction or prevention of bicycle crashes (i.e., bicycle/motor vehicle, bicycle/bicycle, bicycle/pedestrian and single bicycle crashes) is important. Therefore, the potential for reducing crash problems through the improvement of a facility should be assessed. Plans for constructing new bicycle facilities should be reviewed to identify and resolve potential safety issues.

- Directness. Particularly for utilitarian bicycle trips, facilities should connect traffic generators and should be located along a direct line of travel that is convenient for users.

- Accessibility. In locating a bicycle facility, consideration should be given to the provision for frequent and convenient bicycle access, especially in residential areas. Adequate access for emergency, maintenance, and service vehicles should also be considered. Other major traffic generators such as educational facilities, office buildings, shopping areas parks, and museums should be considered when evaluating bicycle accessibility.

- Aesthetics. Scenery is an important consideration along a facility, particularly for a facility that will serve a primarily recreational purpose. Trees can also provide cooler riding conditions in summer and can provide a windbreak.

- Personal Safety/Security. The potential for criminal acts against bicyclists, especially along isolated shared use paths, and the possibility of theft or vandalism at parking locations, should be considered.

- Stops. Bicyclists have a strong inherent desire to maintain momentum. If bicyclists are required to make frequent stops, they may avoid or disregard traffic control devices.

- Conflicts. Different types of facilities introduce different types of conflicts. Facilities on the roadway can result in conflicts between bicyclists and motorists. Shared use paths can involve conflicts between bicyclists, horseback riders, skaters, runners and pedestrians on the facility. Conflicts between bicyclists and motorists may also occur at the highway and driveway intersections.

- Maintenance. Design which facilitates and simplifies maintenance will improve the safety and use of a facility. A local or regional bikeway maintenance program is essential.

- Pavement Surface Quality. Bikeways should be free of bumps, holes, and other surface irregularities if they are to attract and satisfy the needs of bicyclists. Utility covers and drainage grates should be at grade and, if possible, outside the expected path of travel. Railroad crossings should be improved as necessary to provide for safe bicycle crossings.

- Truck and Bus Traffic. Because of their width, high-speed trucks, buses, and motor homes and trailers can cause special problems for bicyclists. Where bus stops are located along a bicycle route, conflicts with bus loading and unloading and pavement deterioration, such as asphalt pavement shoving, may be problems.

- Traffic Volumes and Speeds. For facilities on roadways, motor vehicle traffic volumes and speeds must be considered along with a roadway width. Commuting bicyclists frequently use arterial streets because they minimize delay and offer continuity for long trips. If adequate width for all vehicles is available on the more heavily traveled streets, it can be more desirable to improve such streets than adjacent streets. When this is not possible, a nearby parallel street may be improved for bicyclists, if stops are minimal and other route conditions are adequate. When such a parallel facility is improved, care must be taken that motor vehicle traffic is not diverted. While inexperienced bicyclists prefer more lightly-traveled streets, it should be remembered that preferred routes may change over time as skill levels change.

- Bridges. Bridges can serve an important function by providing bicycle access across barriers. However, some bridge features restrict bicycle access and/or create unfavorable conditions for bicyclists. The most common of these are curb-to-curb widths that are narrower than the approach roadways (especially where combined with relatively steep grades), open grated metal decks found on many spans, low railing or parapets, and certain types of expansion joints such as finger-type joints, that can cause steering difficulties.

- Intersection Conditions. A high proportion of bicycle crashes occur at intersections. Facilities should be selected so as to minimize the number of crossings, or intersections should be improved to reduce crossing conflicts. At-grade intersections on high-volume (or high-speed) roadways and mid-block crossing should be analyzed with bicyclists' needs in mind to determine the most appropriate crossing design treatments.

- Costs/Funding. Facility selection normally will involve a cost analysis of alternatives. Funding availability can limit the alternatives; however, it is very important that a lack of funds not result in a poorly designed or constructed facility. The decision to implement a bikeway plan should be made with a conscious, long term commitment to a proper level of maintenance. When funding is limited, emphasis should be given to low-cost improvement such as bicycle parking, removal of barriers and obstructions to bicycle travel, and roadway improvements. Facility selection should seek to maximize user benefits per dollar funded.

- State and Local Laws and Ordinances. Bicycle programs must reflect state and local laws and ordinances. Bicycle facilities must not encourage or require bicyclists to operate in a manner that is inconsistent with these laws and ordinances.

Source: AASHTO Guide for the Development of Bicycle Facilities, 1999

Design Elements

After careful evaluation of the many factors that affect choosing the appropriate bicycle facility, the selected facility should be designed to safely and conveniently accommodate the intended users. This can be achieved by adhering to the following design guidelines, where practical.

Shared Roadways

Bicycles will generally be used to a varying degree on all roadways where bicyclists are permitted. The vast majority of roadways in the United States are considered shared roadways. Roadway width is the most critical variable of a roadway when accommodating bicycle travel.

Paved Shoulders

Paved shoulders are the preferred treatment to accommodate bicyclists on shared roadways. A minimum shoulder width of four feet is needed to sufficiently accommodate bicycle travel. Five foot paved shoulders are recommended from the face of guardrail, curb, or other roadside barriers. Larger shoulder widths are recommended where bicycle traffic is high, where motor vehicle speeds exceed 50 mph, or heavy vehicle percentages are high. If a four foot paved shoulder is not practical, any shoulder width is preferable to not providing a shoulder Rumble strips should not be utilized on shoulders where bicycle travel is expected.

Increased Lane Width

When paved shoulders are not provided, wider curbed lanes are preferred to accommodate bicycles. A minimum width of 14 feet for curb lanes is recommended for shared use. Florida law states that a minimum of three feet is required for motorized vehicles to pass bicyclists. Travel lane widths of less than 14 feet are generally not considered wide enough to accommodate both motorized vehicles and bicyclists side by side. The minimum effective width of 14 feet should include only the paved portion of the roadway exclusive of the attached curb and gutter.

Signed Shared Roadways

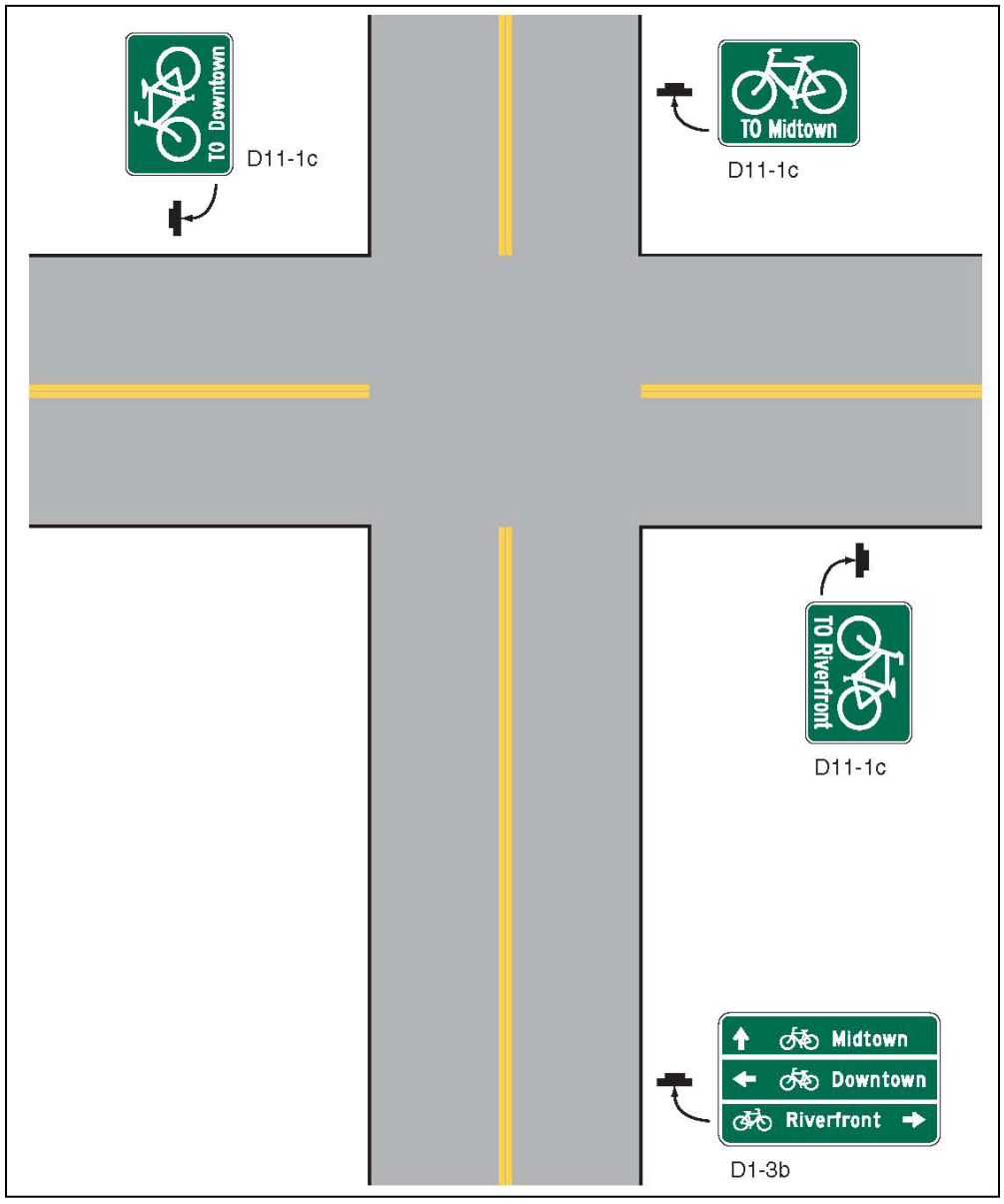
Signed shared roadways are streets designated with bicycle route signage to indicate they are a preferred bicycle route. There are several reasons that roadways can be designated a signed shared roadway:

- The route provides continuity to other bicycle facilities.
- The road is a common bicycle route on a high demand corridor.
- In rural areas, the bicycle route is preferred due to low motorized traffic vehicle volumes or the presence of a paved shoulder.

Additionally, bicycle route signage can be used on roadways that have dedicated bicycle lanes and shared use paths. It is recommended that the bicycle routes are accommodated with appropriate destination signage as shown in Figure 5.

Signed shared roadways inform bicyclists that there are advantages to utilizing this particular route as opposed to alternative routes. Therefore, the roadway conditions should be suitable for bicycle travel.

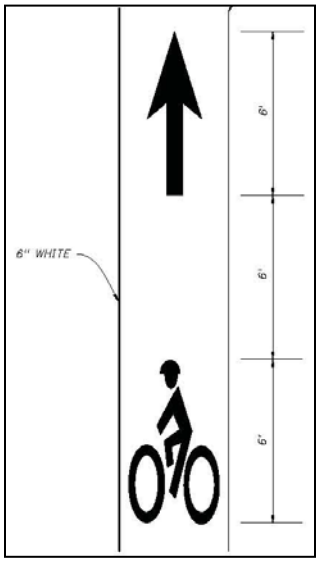
Figure 5
Typical Bicycle Guide Signing



Source: Figure from MUTCD, 2009

Bicycle Lane

Bicycle lanes are established by providing appropriate signing and markings on a designated roadway lane. They improve conditions for bicyclists on corridors where there is significant bicycle demand and delineate right-of-way for both bicyclists and motorists.



Bike Lane detail from *FDOT Design Standards, 2009*

Bicycle lanes should be one-way facilities and carry bicycle traffic in the same direction as adjacent motor vehicles. Bike lanes generally should be provided along the right side of the road as bike lanes on the left side of the road are unfamiliar and could cause confusion to motorists.

Minimum Width

The minimum width requirements for bicycle lanes vary depending on roadway characteristics. The minimum bicycle lane width is four feet for roadways where no curb and gutter are present. The minimum bicycle lane width is five feet for roadways where on-street parking is present or where curb or guardrail is present. A concrete gutter may be present as long as 3 feet of rideable surface is provided and the joint between the gutter and pavement is smooth. Bike lanes should always be placed between the motor vehicle travel way and on-street parking. These bicycle lane widths are only the minimal widths and in many cases, wider bicycle lanes are desired. Bike lanes should be delineated from the motor vehicle travel lane by a six inch solid white stripe.

R3-17
MUTCD, 2009

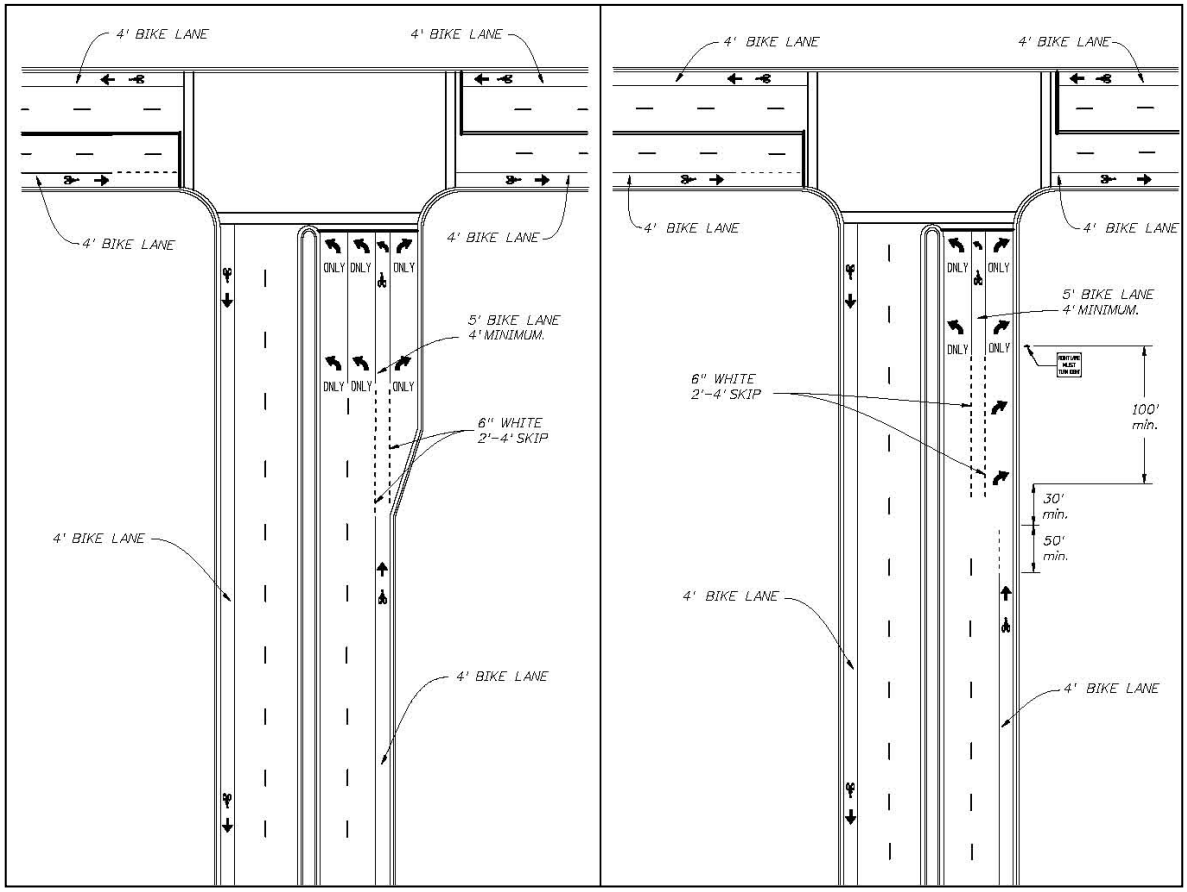
Intersections

Bicycle lane striping should not run through pedestrian crosswalks or through intersections. Bicycle lane striping should stop at the beginning of the intersection and resume after the intersection. Dashed guideline markings may be used through complex or offset intersections. Caution must be utilized when designing

bicycle lanes that conflict with dedicated right turn lanes at intersections. Six inch white 2-foot/4-foot skip markings should be utilized to warn motorists and bicyclists of potential conflict points. Examples of bicycle lane treatments at intersections are shown in Figure 6.

Figure 6

Bicycle Lane Treatments at Intersections



Source: Figure from FDOT Design Standards, 2009

Shared Use Paths

Design of shared use paths should consider that other users such as pedestrians and skateboarders may utilize the shared use path in addition to bicyclists. Shared use paths are most commonly designed as two-way facilities and are a complimentary component of the total transportation system for bicyclists and other non-motorized uses. These facilities are supplemental to the on-road bicycle transportation system. Although some design characteristics for shared use paths are similar to those of roadways, many of the requirements for these facilities can be designed for bicycle speeds rather than faster moving motor vehicles.

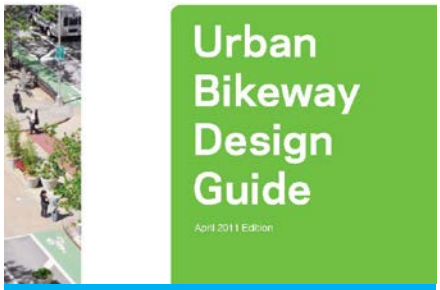
It is not desirable to provide shared use paths immediately adjacent to roadways since operational problems may occur. If it is not possible to provide a minimum distance of five feet between the edge of the roadway shoulder and the shared use path, a suitable physical barrier is recommended. The physical barrier should not impair sight distance and should be a minimum of 42 inches high to prevent bicyclists from toppling over it.

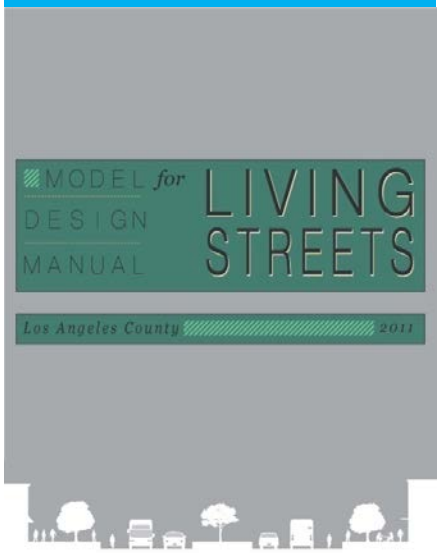
Generally, a two-directional shared use path shall have a minimum pavement width of 10 feet. In some instances, a reduced width of eight feet can be adequate for the shared use path. Bicycle traffic and pedestrian use must be low to allow for the reduced pavement width. It may be advantageous to increase the path width to 12 feet or 14 feet if significant bicycle and pedestrian traffic is anticipated. The minimum width for a one-way shared use path is six feet.

The graded areas surrounding the shared use path should be well maintained and meet the necessary slope requirements as identified in the *AASHTO Guide for the Development of Bicycle Facilities*. Detailed design guidelines, including horizontal and vertical alignment, grade, and sight distance are provided in the *AASHTO Guide for the Development of Bicycle Facilities*.

CHAPTER 7

INNOVATIVE BICYCLE TREATMENTS





Many communities around the United States are looking for new and innovative ways to increase the comfort and safety of bicyclists. The design requirements in AASHTO provide the minimum requirements for bicycle facilities. However, other bicycle guidelines have been established recently that promote state of the practice solutions to complete streets and bicycling. Two of the most prominent innovative bicycle manuals are describe below.

- *National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide, April 2011*. The NACTO Urban Bikeway Design Guide is based on insight and experiences from communities all over the world. Many of the treatments found within this guidebook are not directly referenced in AASHTO or the MUTCD. The guidebook was developed after extensive research and close work with traffic engineers, planners, and academics with a high degree of expertise in urban bikeway design and applications.

- *Los Angeles County Model Design Manual for Living Streets, 2011*. This manual was created to assist other communities in planning and retrofitting existing roadway networks into living streets. The manual is designed so that cities may adopt the entire document or only a portion of the document as they see fit. The document can also be customized to address the unique needs of individual cities.

Provided below is an overview of some of the innovative state of the practice bicycle treatments that can be found in the NACTO design guide and the LA County Model Design Manual for Living Streets.

Colored Bicycle Lanes

Color treated bicycle lanes increase the visibility of the bike lanes and therefore, could potentially increase the safety of the bicycle lane. It is generally expensive to provide color treatment to entire lengths of bike lanes. Therefore, many communities have elected to provide this treatment at common bicycle and vehicle conflict points. The most common use is the merge point at an intersection approach for a dedicated right turn lane.

Source: *NACTO Urban Bikeway Design Guide, 2011*

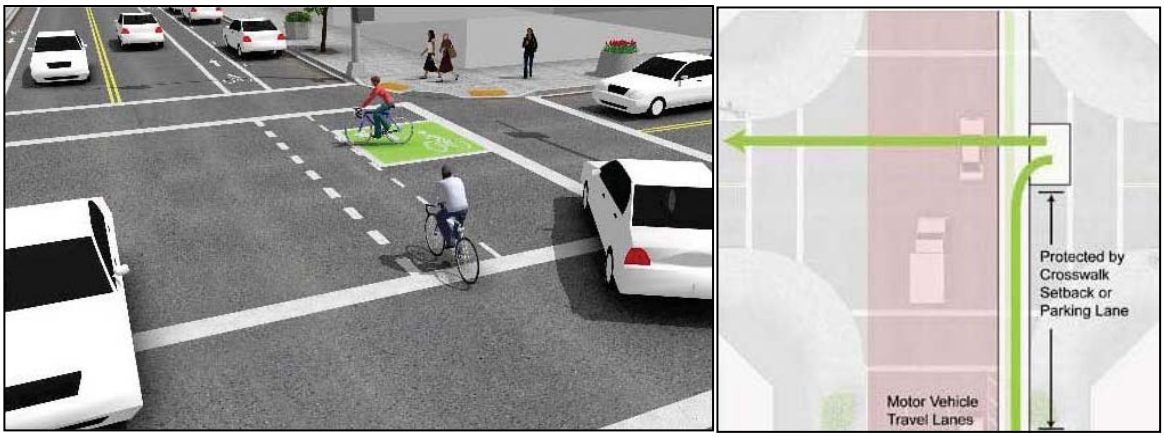
Bike Boxes

A bike box is a designated area in front of the traffic lane that safely allows for bicyclists to get ahead of queuing traffic during the red light phase at a signalized intersection. There are several benefits that are associated with bike boxes. The presence of a bike box increases the visibility of bicyclists, reduces signal delay, provides priority to bicyclists, and allows groups of bicyclists to quickly clear an intersection together. Bike boxes provide an additional benefit of aiding the left turn movement for bicyclists if the bike box extends across the entire approach. Bike boxes are striped on the roadway and have the option of color treatment.

Source: *NACTO Urban Bikeway*

Two-Stage Turn Queue Boxes

Two-stage turn queue boxes are designated areas that allow bicyclists to make a left turn across a signalized intersection in two stages. Some of the benefits of a two-stage turn queue box include improving bicyclists' ability to safely make a left turn, providing a formal queuing space for the maneuver, and reducing turning conflicts between motorists and bicyclists.



Source: *NACTO Urban Bikeway Design Guide, 2011*

Bicycle Signal Heads

Source: *NACTO Urban Bikeway Design Guide, 2011*

Bicycle signal heads are electrically powered traffic control devices that should only be used in conjunction with existing conventional traffic signals or hybrid signal systems. Bicycle signal heads are generally used to improve bicycle operational and safety issues at signalized intersections. One of the benefits of installing bicycle signal heads include the ability to give priority to bicyclists over motorized vehicles at signalized intersections.

High-Intensity Activated Crosswalk (HAWK) Signal Beacons

Hybrid beacons are used to assist non-motorized crossings of major streets where side street volumes would not typically warrant installation of a conventional traffic signal. Hybrid beacons can benefit both bicyclists and pedestrians. HAWK signal beacons are typically applied where bicycle routes intersect major streets without signalized crossings and at mid-block crossings of major roadways with high pedestrian and bicycle volumes Guidelines for installation of hybrid beacons are provided in the MUTCD.

Source: NACTO Urban Bikeway Design Guide, 2011

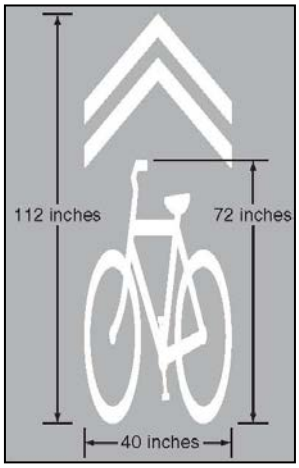
Shared Lane Markings

Shared lane marking guidelines and details are outlined in the MUTCD and FDOT Design Standards. Shared lane markings are pavement markings that complement the existing bicycle network. The MUTCD allows for a shared lane marking to be used for the following reasons:

1. Assist bicyclists with lateral positioning

in a shared lane with on-street parallel parking in order to reduce the chance of a bicyclist's impacting the open door of a parked vehicle,

2. Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane,
3. Alert road users of the lateral location bicyclists are likely to occupy within the traveled way,
4. Encourage safe passing of bicyclists by motorists, and
5. Reduce the incidence of wrong-way bicycling.



Source: *MUTCD, 2009*

Bicycle Detection

Bicycle detection devices are used at signalized intersections to notify the signal controller of bicycle crossing demand. There are four main types of bicycle detection including inductance loop, video, push button, and microwave detection. Benefits of bicycle detection can include improvements in operational efficiency, reduction in intersection delay for bicyclists, and lower incidence of red light running by bicyclists.

Source: *NACTO Urban Bikeway Design Guide, 2011*

Cycle Tracks

Source: *NACTO Urban Bikeway Design Guide, 2011*

A cycle track is an exclusive bicycle facility that is physically separated from the existing roadway network. The facility combines the user experience of a shared use path with the infrastructure of a conventional bike lane. Cycle tracks can be either one-way or two-way facilities. Additionally, cycle tracks can be accommodated parallel to roadways as long as a buffer is provided. Benefits of cycle tracks include increased safety and comfort for bicyclists and a more appealing bicycle facility for all user levels and ages.

CHAPTER 8

EDUCATION & ENCOURAGEMENT

Bicycle education can be a very effective tool in reducing the number of bicycle related accidents. Education should generally be targeted for all age groups and for both bicyclists and motorists.

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School Programs

Safe Routes to School

The first Safe Routes to School (SRTS) program in the United States was started in 1997 in the Bronx in New York City. Shortly afterward, the State of Florida implemented a similar pilot program. Several other pilot programs were started all over the United States in the following years. In 2005, Congress created the Federal-Aid Safe Routes to School Program through comprehensive transportation legislation.

SRTS programs use a variety of techniques through engineering, enforcement, encouragement, education, and evaluation to help make walking and bicycling to school safer for children. Some of the desired outcomes of the SRTS program include the following:

- Increased bicycle, pedestrian, and traffic safety
- More children bicycling and walking to and from school
- Decreased traffic congestion
- Encouragement of healthy lifestyles and activities
- Reduction in fuel consumption and increased air quality
- Increased interest in bicycling and walking throughout the community

In the State of Florida, the SRTS program is funded entirely by the Federal Government and is managed by the Florida Department of Transportation (FDOT). The SRTS program in the City of Weston is managed by District IV of the FDOT.

The City of Weston strongly supports the SRTS program and continually works to improve conditions throughout the City. Most recently, the City constructed additional sidewalk facilities to further enhance connectivity to Country Isles Elementary School, and new bicycle lanes adjacent to Manatee Bay Elementary School.

To enhance intersection safety, the City currently has over 70 crossing guards to ensure that the thousands of children who walk or ride to school each day can safely cross the intersection. Education and outreach for the Safe Routes to School program is provided by the schools as well as at City events such as the Back to School Bash.

Bike Rodeos

In the City of Weston, there are seven public elementary schools, two public middle schools, and one public high school. Bicycle education for the public schools is administered through the School Board of Broward County. The School Board curriculum consists of several programs aimed at promoting bicycle safety and encouraging students to bike to school.

The Broward Sheriff's Office (BSO) provides annual outreach to schools and also hosts Bike Rodeos. The Bike Rodeos incorporate bicycle safety lessons and educational lessons pertaining to bicycling rules and laws. These safety programs

are available to all schools, not just public schools. It is also common for childcare centers and other facilities to request BSO Bike rodeos.

Commit 2B Fit

The *Commit 2B Fit* program was created in 2005 to affect positive change in children and families by encouraging increased physical activities and better nutrition. The *Commit 2B Fit* program has received several awards and was recognized by former Florida Governor Charlie Crist and the Commissioner of Education for the State of Florida as an outstanding community/school based program.

The program is promoted at local schools to children, parents, and teachers. The program offers various nutrition and exercise tips. Users are able to track progress on the *Commit 2B Fit* webpage and are rewarded for the progress that they make.

Programs outside of schools

City Events

In addition to hosting Bike Rodeos and safety training for neighborhood groups and homeowners associations throughout the City of Weston, the BSO also provides bicycle training at local City events such as the Halloween Safety Bash and Back to School Bash. Giveaways such as bicycle helmets, locks, and lights are common at these events to encourage participation.

YMCA

Twice a year, the local YMCA hosts a Healthy Kids Day for children offering a variety of activities which include a Bike Rodeo and bicycle training. The YMCA also has cycling classes periodically for children between the ages of 9 and 12. The classes teach bicycling basics and incorporate an enjoyable Fun Ride.

Bike Giveaways

For the past thirty years, Rick Case automotive dealerships have been collecting bicycles that are no longer of use to people and giving them away to needy children through the Boys and Girls Club and other charities as part of the Bikes for Kids program. This annual program culminates in December as part of the holidays. Rick Case Honda serves the City of Weston at its Weston Road location.

The South Broward Wheelers, a local cycling group, hosts an annual Adopt-a-Bike program that has donated over 2,000 bicycles and helmets to children in Broward County.

Get Fit Challenge

Get Fit Weston is a partnership between the City of Weston, Weston Rotary, YMCA of Broward County, and local fitness businesses. The goal of the program is for Weston to become the fittest City in Florida. Weston residents have access to training programs, classes, health evaluations, screening, testing and online education to help them adopt healthier lifestyles. The Get Fit program promotes bicycling and group bicycle rides is one of the training programs.

Broward County Parks

Numerous bicycle programs and opportunities are available to Weston residents at nearby Broward County parks. Many of the parks are located just outside the City and are accessible by bike. Brian Piccolo Park in Cooper City is home to the only velodrome in Florida and also has skate parks that can be used for BMX bike riding. Bicycle rentals are available at Brian Piccolo Park.

Safety Towns are available at C.B. Smith and Tree Tops parks. Safety Town is a program of Joe DiMaggio's Children's Hospital that is designed for kindergartners and first graders with the goal of reducing accidental injuries and deaths. The child-size town has streets, crosswalks, traffic signals, and signage to teach children the proper techniques and rules for bicycling. The Safety Towns are open year round and available to schools for field trips.

Broward County Parks and Recreation Division's Special Population Section provides a tandem bicycle program for adults who are blind or visually impaired. Skill development classes are taught one day a week for six weeks to learn basic bicycling skills. Graduates of the class are invited to participate in tandem leisure rides every three months. The classes and rides are held at various Broward County parks.

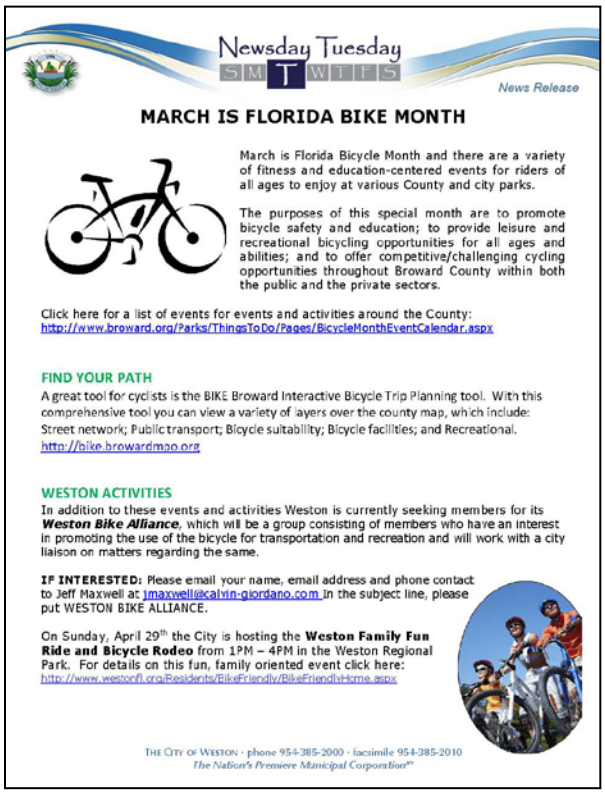
In addition, general bicycle training classes are commonly held at these Broward County park locations for both children and adults.

Other Cycling Training

Weston is a very popular location for cycling teams to train. Many of the teams offer beginner rides once a week for those who are novice cyclists. Local bicycle shops also hold road training rides and training rides for the Everglades Conservation Levee trail.

Marketing and Communication

The City actively promotes the State of Florida Bicycle Month and National Bike Month in March and May, respectively. Educational materials along with upcoming event information are distributed to the community through a variety of outlets including the following:



Newsday Tuesday
S M T W T F S
News Release

MARCH IS FLORIDA BIKE MONTH

March is Florida Bicycle Month and there are a variety of fitness and education-centered events for riders of all ages to enjoy at various County and city parks.

The purposes of this special month are to promote bicycle safety and education; to provide leisure and recreational bicycling opportunities for all ages and abilities; and to offer competitive/challenging cycling opportunities throughout Broward County within both the public and the private sectors.

Click here for a list of events for events and activities around the County:
http://www.broward.org/Parks/ThingsToDo/Pages/BicycleMonthEventCalendar.aspx

FIND YOUR PATH

A great tool for cyclists is the BIKE Broward Interactive Bicycle Trip Planning tool. With this comprehensive tool you can view a variety of layers over the county map, which include: Street network; Public transport; Bicycle suitability; Bicycle facilities; and Recreational.
http://bike.browardmpo.org

WESTON ACTIVITIES

In addition to these events and activities Weston is currently seeking members for its ***Weston Bike Alliance***, which will be a group consisting of members who have an interest in promoting the use of the bicycle for transportation and recreation and will work with a city liaison on matters regarding the same.

IF INTERESTED: Please email your name, email address and phone contact to Jeff Maxwell at jmaxwell@kalvin-giordano.com in the subject line, please put WESTON BIKE ALLIANCE.

On Sunday, April 29th the City is hosting the **Weston Family Fun Ride and Bicycle Rodeo** from 1PM – 4PM in the Weston Regional Park. For details on this fun, family oriented event click here:
http://www.westonfl.org/Residents/BikeFriendly/BikeFriendlyHome.aspx

THE CITY OF WESTON · phone 954-385-2000 · facsimile 954-385-2010
The Nation's Premiere Municipal Corporation®

1. Newsday Tuesday newsletters. These are available on the City webpage and are emailed to residents who sign up to receive them. The City routinely promotes bicycling and provides bicycle safety information and tips in this newsletter.

2. A dedicated Bicycle webpage. This City webpage provides information on upcoming bicycle events, information on bicycle safety and bicycle laws, group riding information, and information on the Mountain Bike Trails at Markham Park. Links are provided to the BIKE Broward Interactive Bicycle Planning tool which allows bicyclists to plan their route based on available bicycle facilities and other criteria.

3. Weston YouTube videos. The City has produced numerous YouTube videos identifying the availability of bicycle facilities within the City as well as safety information for both motorists and bicyclists. The City also routinely creates YouTube videos for local events such as the Weston Family Fun Ride & Bike Rodeo.

4. Weston Government Information Cable Channel, AM radio, and social networking. The City provides information about City events, including bicycle events, as well as safety information through these media outlets.

5. Bicycle safety flyers. Bicycle helmet informational flyers are distributed at City Hall and distributed by the Weston Fire Department and Broward Sheriff's Office.

Cycling Events

Cycling events take place throughout the year in South Florida. Many events in Broward County utilize Weston for a portion of the event due to the bicycle friendliness of the City, the abundance of bicycle lanes, and the relatively low traffic congestion. Just some of the recent events that have utilized Weston bicycle facilities include the following:

- Tour De Cure
- Tour De Broward
- National Alliance on Mental Illness (NAMI) bike race
- South Broward Wheelers Adopt a Bike Ride

Numerous bicycling events are also held at nearby Markham Park including the following:

- Markham 100k
- Rumble in the Jungle
- Arlene's Levee Ride
- 100,000 Bill Boone Pro-AM Classic Series

In addition to the official cycling events, there are hundreds of organized rides that take place in Weston on an annual basis.

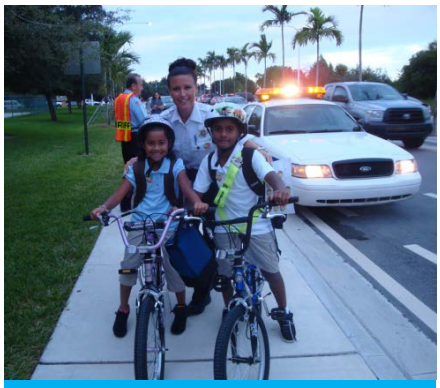
The City initiated the annual Family Fun Ride & Bicycle Rodeo in 2012.

Weston Family Fun Ride & Bike Rodeo

The City has initiated an annual Family Fun Ride & Bike Rodeo held at Weston Regional Park. The Weston Family Fun Ride & Bike Rodeo includes a variety of events and entertainment for all ages. A portion of the South Post Road arterial roadway is closed for the event to allow for a recreational family fun ride with one, two, and three mile loop options. Bicycle safety rodeos are held for four different age groups.

Additional activities for the event include DJ music, bounce houses, bike safety information and booths, prizes and giveaways, and concession food. The City advertises the event extensively utilizing various media outlets including electronic newsletters, flyers available at City buildings, YouTube videos, AM radio, Twitter, and the Weston Government Information Channel.

In addition to the Weston Family Fun Ride & Bike Rodeo, the City promotes bicycling at other City events. Bike Rodeos geared towards children have been requested at other events in the past. Additionally, the Weston Bicycle Alliance has plans to provide education and safety information to residents through other City events throughout the year.



CHAPTER 9

ENFORCEMENT

All bicyclists, motorists, and pedestrians must abide by the State of Florida laws.

The Broward Sheriff's Office initiated a bicycle training program to ensure that officers have a better understanding of bicycle laws and the importance of law enforcement for bicyclists.

Enforcement of bicycle and motorist laws and regulations is of vital importance to ensure safety to all multi-modal users. However, enforcement of bicycle laws is dependent on the local police jurisdiction knowing and thoroughly understanding all bicycle laws. Historically, officers have received training on bicycle laws through standard introductory training. The Broward Sheriff's Office (BSO), which oversees law enforcement in Weston, has committed to additional bicycle specific training that will ultimately benefit both law enforcement and the City's residents.

The BSO has recently started a new bicycle training program to ensure that officers have a comprehensive understanding of bicycle laws and their importance to bicyclists and motorists alike. Educational tools including interactive instructional videos are available for law enforcement officers through the National Highway Safety Administration (NHTSA) and the Florida Bicycle Association. These videos provide training specific for bicycle laws and tips for enforcing these laws with respect to both motorists and bicyclists.

State Laws

State of Florida laws pertaining to bicyclists, motorists, and pedestrians prevail in the City of Weston. The State of Florida bicycle laws are linked on the City's bicycle webpage for residents to view. An overview of these bicycle laws is provided below.

- A bicycle is classified as a vehicle. A person in control of a vehicle on a street or highway is a driver. As a driver, a cyclist must follow the traffic rules common to all drivers. As the driver of a bicycle, he must also obey regulations adopted specially for bicycles. A person riding a bicycle has all the rights applicable to any driver, except as to special regulations for bicycles.

- A driver must obey all traffic controls and signals.

- A bicycle rider or passenger under 16 years of age must wear a bicycle helmet.

- A person operating a bicycle on a roadway at less than the normal speed of traffic under the conditions existing must ride in the lane marked for bicycle use or, if no lane is marked for bicycle use, as close as practicable [safe] to the roadway's right-hand curb or edge, except under any of the following situations:
    1. when passing another vehicle
    2. when preparing for a left turn
    3. when reasonably necessary to avoid conditions including (but not limited to), a fixed or moving object, parked or moving vehicle, pedestrian, animal, or surface hazard
    4. when a lane is too narrow for a bicycle and another vehicle to travel safely side by side

- When a lane is too narrow for a bicycle and a car to share safely, the cyclist is entitled to the use of the entire lane.

- The FDOT Manual of Uniform Minimum Standards recommends an outside lane width of 14 feet as the minimum width that will allow passenger cars to safely pass bicyclists within a single lane. The legal minimum passing clearance for an overtaking vehicle is three feet.

- Persons riding bicycles upon a roadway shall not ride more than two abreast except on paths or parts of roadways set aside for the exclusive use of bicycles.

Persons riding two abreast shall not impede traffic when traveling at less than the normal speed of traffic at the time and place and under the conditions existing, and shall ride within a single lane.

- Bicyclists on a sidewalk or crosswalk have the rights and duties of a pedestrian, as well as certain other duties.

- Except when necessary to avoid conflict with other traffic, or in compliance with law or the directions of a police officer or official traffic control device, no person shall stand or park a vehicle, whether occupied or not, in a bicycle lane, except momentarily to pick up or discharge a passenger or passengers.

Source: FDOT, Florida Bicycle Association & Florida Bicycle Law Enforcement Guide, 2010

In a national study, the following violations were identified as common contributing factors in bicycle motor vehicle crashes.

Table 4

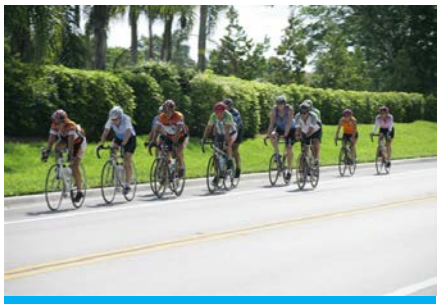
Common Contributing Factors in Bicycle/Motor Vehicle Crashes

Cyclist	
Riding against traffic on roadway	15%
Failure to yield, entering roadway midblock	12%
Failure to yield at stop or yield sign	10%
Cycling at night without lights	5-15%
Failure to yield, signalized or uncontrolled	7%
Motorist	
Failure to yield at stop or yield sign	10%
Failure to yield, entering roadway from driveway	7%
Failure to yield, turning left in front of oncoming	6%
Failure to yield, signalized or uncontrolled	4%
Improper right turn in front of cyclist	4%

Source: W.W. Hunter, W.E. Pein, and J.C. Stutts, *Bicycle Crash Types: A 1990's Informational Guide*, Report No. FHWA-RD-96-104, Federal Highway Administration, 1997

Bike Track Registration System

The Broward Sheriff's Office (BSO) has developed a Bike Track Registration System for all Broward County residents to help reduce the number of bicycle thefts. Bicycle registration can be completed online and is free of charge. The Bike Track Registration System assists law enforcement officers in recovering lost or stolen bicycles.



CHAPTER 10

EVALUATION

There are numerous evaluation measures to determine how well a city's bicycle program is performing. Some of these include the percentage of workers who bike to work, bicycle accident data, and bicycle Levels of Service. This chapter focuses on how well Weston is performing in these evaluation criteria to help identify areas for potential improvement.

Evaluation of existing bicycle conditions will provide insight into what the City can do to continue providing a bicycle friendly environment.

Year 2000 Journey to Work Data

Many of Weston's residents commute to work locations outside of the City. Year 2000 Journey to Work data compiled by the U.S. Census Bureau demonstrated that 56.9% of eligible workers who do not work at home travel over thirty minutes to work. This long distance makes it difficult for many people to bicycle to work. Only 0.21 percent of workers over the age of 16 living in Weston bicycled to work according to the Year 2000 Journey to Work data. However, this is not atypical for South Florida, given the extreme heat and humidity experienced for much of the year.

BICYCLE CRASH ANALYSIS

A list of all bicycle crashes within the City of Weston between January 1, 2006 and December 31, 2011 was obtained from the Florida Department of Highway Safety & Motor Vehicles. The data demonstrate that a total of 42 bicycle crashes occurred within the six year time frame. Of the 42 bicycle crashes, two resulted in fatalities. The crash data are further broken down by year, age, and time of day on the figures below.

Figure 7
Bicycle Crashes by Year

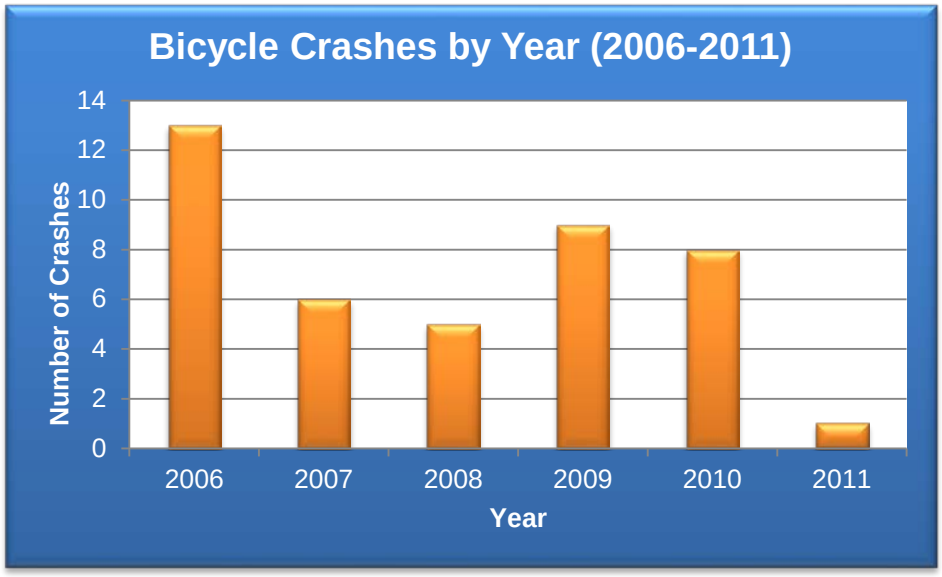


Figure 8
Bicycle Crashes by Age

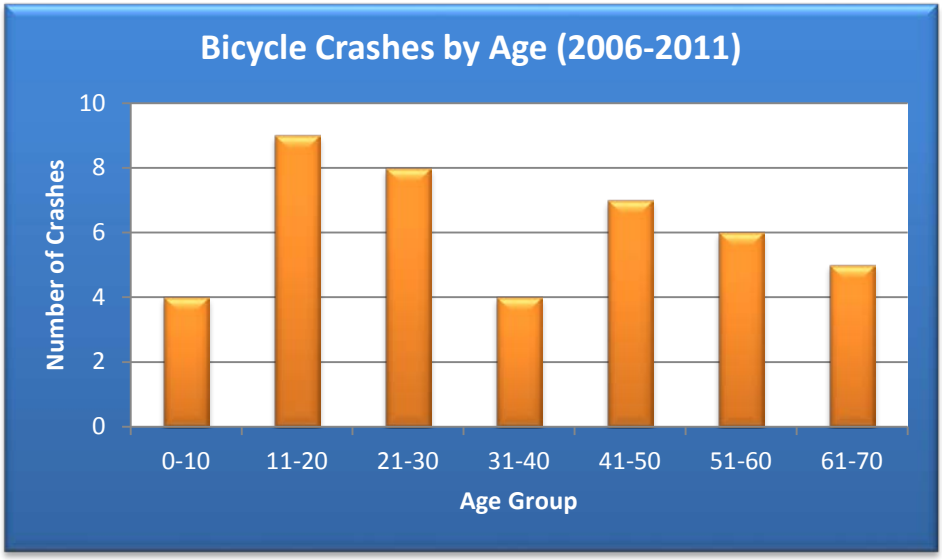
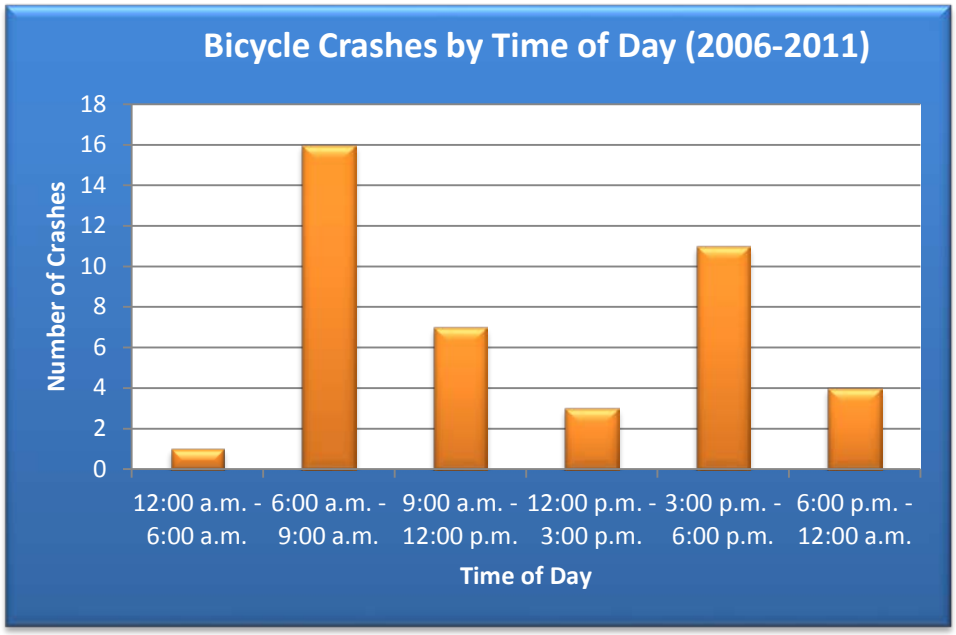
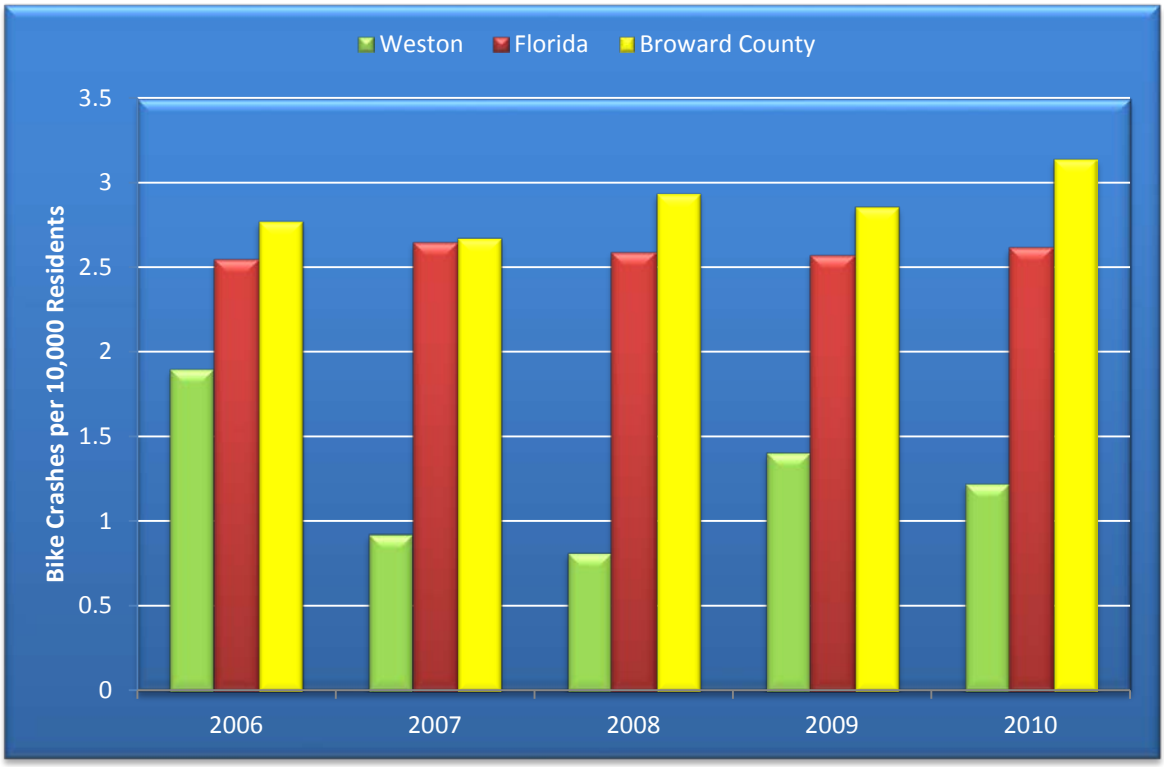


Figure 9
Bicycle Crashes by Time of Day



The bicycle crashes from 2006-2010 were also compared to the number of bicycle crashes in Broward County and Florida. The bicycle crashes reported in Figure 10 are based on the number of crashes per 10,000 residents. The results demonstrate that the per capita bicycle crash rates for the City of Weston have historically been significantly lower than the number of crashes in Broward County and in Florida. However, it is likely that the number of bicycle riders in the Weston far exceeds the averages for Broward County and the State of Florida on a per capita basis. This is further confirmed by recent bicycle count data collected in the City, which is further discussed later in this chapter.

Figure 10
Bicycle Crashes Per Capita



The Bicycle LOS Model is based on five variables:

1. Average effective width of the outside through lane
2. Motorized vehicle volumes
3. Motorized vehicle speeds
4. Heavy vehicle volumes
5. Pavement condition

The relatively low number of bicycle crashes that have occurred is a testament to the City's ongoing engineering, education, and enforcement programs. Since Weston is a relatively new master planned community, proper access management practices are in place. Roadways are not overburdened with excessive driveway locations. Additionally, there are minimal on-street parking facilities and generally low traffic congestion which helps to minimize bicycle-motorist conflict points. However, the City continues to improve upon the existing bicycle network infrastructure and programs. The City is embarking upon the following initiatives:

- **Increase bicycle education and safety to the public.** The City has continued to increase bicycle safety marketing through online newsletters, handouts, the City bicycle webpage, and other community outreach techniques.

- **Formation of the Weston Bicycle Alliance.** The Weston Bicycle Alliance not only helps to promote bicycle safety and education throughout the community but also helps the City identify where improvements may be needed.

BICYCLE LEVEL OF SERVICE ANALYSIS

A Bicycle Level of Service (LOS) Analysis was conducted for all major traveled roadways within the City of Weston. The methodology chosen for the analysis was based on recommendations outlined in the *2009 FDOT Quality/Level of Service Handbook*. The FDOT has concluded that the Bicycle LOS Model (*Landis, 1997*) is the best analytical methodology. This methodology has successfully been applied to roadways throughout the State of Florida and the United States. Levels of

Service are designated as A through F with A being most desirable.

The Bicycle LOS Model is based on bicyclists' perception in the roadway environment and is only applicable to on-street facilities. The Bicycle LOS Model is based on five variables in the following order of importance:

- average effective width of the outside through lane
- motorized vehicle volumes
- motorized vehicle speeds
- heavy vehicle volumes
- pavement condition

The majority of the data utilized to calculate the Bicycle LOS was taken from the 2010 FDOT Roadway Classification Index (RCI). Default values provided in the *2009 FDOT Quality/Level of Service Handbook* were utilized when data was unavailable. The results of the Bicycle LOS analysis are shown on Table 5 and in Figure 11. More detailed calculations for the Bicycle LOS are provided in Appendix C.

The analysis demonstrates that most of the roadways within the City of Weston operate at a very good Level of Service. This is largely due to the high percentage of bike lanes throughout the City since the average effective width of the outside through lane is the most important statistical parameter in the Bicycle LOS Model.

Table 5

Bicycle Level of Service

Road	From	To	W_t	W_l	SP_p	PR_5	AADT	Score	BLOS
Glades Pkwy	SR 84	Glades Cir	12.0	0.0	40	3.5	15,300	4.190	D
	Glades Cir	Saddle Club Rd	17.0	5.0	40	3.5	15,300	2.490	B
Royal Palm Blvd	Saddle Club Rd[1]	Bonaventure Blvd	17.0	5.0	40	3	12,100	2.579	C
	Bonaventure Blvd[1]	Country Isles Rd	17.0	5.0	40	3	30,500	3.048	C
	Country Isles Rd[1]	Weston Rd	17.0	5.0	35	3	30,500	2.958	C
Indian Trace	SR 84	San Sebastian Blvd	12.0	0.0	40	3.5	15,300	4.051	D
	San Sebastian Blvd	Saddle Club Rd	17.0	5.0	40	3.5	15,300	2.351	B
	Saddle Club Rd[1]	Bonaventure Blvd	17.0	6.0	40	3.5	10,800	1.950	B
	Bonaventure Blvd[1]	Weston Rd	16.0	5.0	40	3.5	22,400	2.760	C
Saddle Club Rd	South Post Rd[2]	Royal Palm Blvd	17.0	5.0	40	3.5	13,100	2.452	B
	Royal Palm Blvd[2]	Indian Trace	17.0	5.0	40	3.5	12,900	2.445	B
	Indian Trace[2]	Lakeview Dr	17.0	5.0	40	3.5	6,700	2.112	B
	Lakeview Dr[2]	Bonaventure Blvd	11.0	0.0	35	3.5	6,700	3.834	D
	Bonaventure Blvd[2]	Weston Rd	10.5	0.0	35	3.5	7,400	3.938	D
South Post Rd	Saddle Club Rd[2]	Manatee Isles Dr	17.0	5.0	45	3.5	8,100	2.633	C
	Manatee Isles Dr[2]	Bonaventure Blvd	17.0	5.0	45	3.5	10,500	2.764	C
	Bonaventure Blvd[2]	Weston Rd	17.0	5.0	45	3.5	8,900	2.680	C
Bonaventure Blvd	Griffin Rd[1]	South Post Rd	16.5	5.0	40	3.5	10,700	2.417	B
	South Post Rd[1]	Royal Palm Blvd	17.0	5.0	40	3.5	12,800	2.399	B
	Royal Palm Blvd[1]	Indian Trace	17.0	5.0	40	3.5	14,900	2.476	B
	Indian Trace[1]	Saddle Club Rd	12.0	0.0	40	3.5	13,000	4.107	D
	Saddle Club Rd	SR 84	12.0	0.0	40	3.5	7,900	3.855	D
Weston Rd	Griffin Rd[1]	South Post Rd	17.0	5.0	45	3	31,500	3.268	C
	South Post Rd[1]	Royal Palm Blvd	17.0	5.0	45	3	23,500	3.119	C
	Royal Palm Blvd[1]	Indian Trace	17.0	5.0	45	3	26,000	3.170	C
	Indian Trace[1]	Saddle Club Rd	12.0	0.0	45	3	17,900	4.681	E
SR 84 EB	Glades Pkwy	Indian Trace	16.0	4.0	55	5	6,600	2.701	C
	Indian Trace[1]	Bonaventure Blvd	16.0	4.0	55	5	10,000	2.912	C
	Bonaventure Blvd[1]	Weston Rd	21.0	9.0	55	5	7,700	0.280	A

Table 5 Continued

Bicycle Level of Service

Road	From	To	W_t	W_l	SP_p	PR_5	AADT	Score	BLOS
SR 84 WB	Glades Pkwy[(1)]	Indian Trace	20.0	8.0	55	5	6,200	0.750	A
	Indian Trace[(1)]	Bonaventure Blvd	20.0	8.0	55	5	9,700	0.977	A
	Bonaventure Blvd[(1)]	Weston Rd	20.0	8.0	55	5	6,600	0.781	A
US 27	Griffin Rd[(1)]	Manatee Isles Dr	16.0	4.0	55	4.5	18,200	5.018	E
	Manatee Isles Dr	I-75	16.0	4.0	55	4.5	13,500	4.867	E
Manatee Isles Dr	US 27[(2)]	SW 196th St	12.0	0.0	40	3	7,200	4.409	D
	SW 196th St[(2)]	South Post Rd	18.0	6.0	40	5	7,200	1.746	B
Racquet Club Rd	Saddle Club Rd[(2,3,4)]	Danielle Ct	12.0	0.0	30	3.5	8,100	4.032	D
	Danielle Ct[(2,3,4)]	Bonaventure Blvd	18.0	6.0	30	3.5	8,100	1.872	B
Lakeview Dr	Bonaventure Blvd[(2,4,5)]	W. Mall Rd	12.0	0.0	30	3.5	4,300	3.709	D
Three Village Rd	Town Center Blvd[(2,3,4)]	Bonaventure Blvd	13.0	0.0	35	3.5	6,200	3.905	D
	Bonaventure Blvd[(2,3,4)]	Indian Trace	18.0	6.0	30	3.5	4,500	1.580	B
Country Isles Rd	Royal Palm Blvd[(2,3,4)]	Three Village Rd	18.0	6.0	30	3.5	4,000	1.516	B
Blatt Blvd	Lakeview Dr[(2,3,4)]	Bonaventure Blvd	12.0	0.0	30	3.5	6,500	3.925	D
Town Center Blvd	Royal Palm Blvd[(2,3,4)]	Three Village Rd	14	0	40	3.5	8,500	3.674	D
	Three Village Rd[(2,3,4)]	Indian Trace	14	0	40	3.5	19,200	4.085	D
Vista Park Rd	Manatee Isles Dr[(2,4,7)]	Vista Grove Ln	11	0	30	3.5	9,600	3.884	D
	Vista Grove Ln[(2,4,6)]	Bonaventure Blvd	12	0	35	3.5	23,500	4.355	D

Source: 2010 FDOT Roadway Classification Index. All AADT volumes are from 2010 unless otherwise noted.

(1) Used T24 from adjacent FDOT TMS since reported T24 not consistent with historical data.

(2) Default DHT of 2.0% was utilized

(3) Vol_{15} manual 2009 Peak Hour Counts. AADT estimated.

(4) Pavement Condition estimated

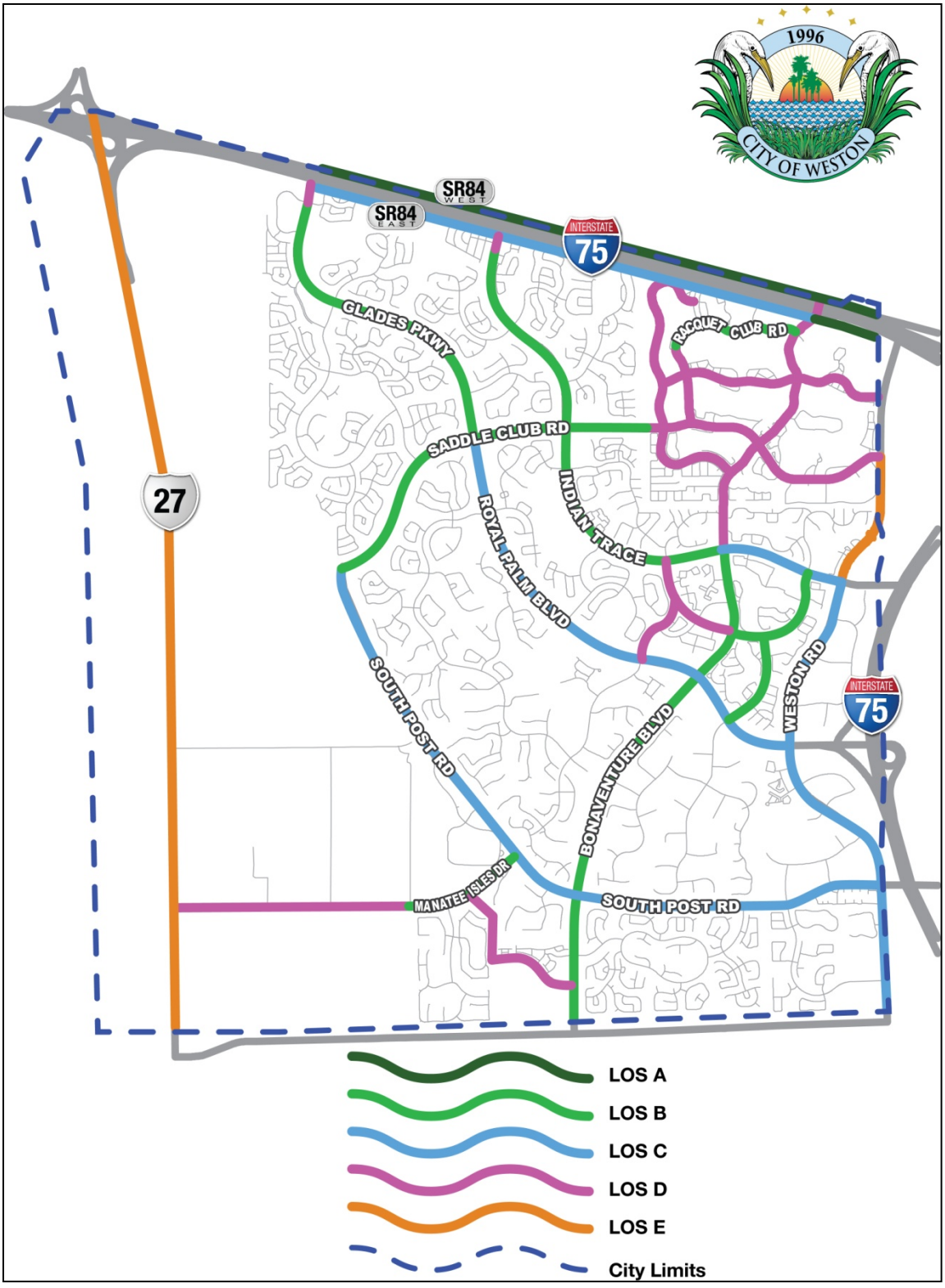
(5) Vol_{15} manual 2010 Peak Hour Counts. AADT estimated.

(6) Vol_{15} manual 2008 Peak Hour Counts. AADT estimated.

(7) Vol_{15} manual 2005 Peak Hour Counts. AADT estimated.

(8) FDOT urbanized area PHF default of 0.925 utilized.

Figure 11 – Bicycle LOS



BICYCLE COUNTS

Bicycle counts were recently conducted to better determine the modal split of bicycles on the City's roadway network. 24-hour bicycle counts were conducted on South Post Road, Saddle Club Road, and Bonaventure Boulevard on June 10, 2012. The bicycle counts were then compared to the Average Annual Daily Traffic (AADT) volumes reported by the FDOT. The results are shown on Table 6.

Table 6
Bicycle Modal Split

Road	AADT	Bike ADT	Bike Modal Split
Saddle Club Rd	13,200	575	4.4%
South Post Rd	10,600	752	7.1%
Bonaventure Blvd	12,800	383	3.0%

The bicycle counts collected confirmed what is well known to the City. Bicycling is very prevalent in the City and the bicycle to vehicle modal split is very high compared to other communities throughout Florida. The City intends to continue tracking bicycle counts to help identify bicycle demand and determine potential future capital improvement projects.

CHAPTER 11

PROPOSED BICYCLE NETWORK

The number of existing bicycle lanes within the City of Weston is one of many of the City's outstanding features that continue to attract the South Florida bicycling community. Although the City's existing bicycle lane network is impressive, encompassing over 90 percent of arterial roadways, it is recommended that the City's future efforts focus on the following objectives:

- Develop strategies to provide bicycle facilities on all arterial roadways.
- Provide additional connectivity for bicyclists from residential land uses to high trip generators such as office and commercial land uses.
- Provide bicyclists with additional connectivity to transit facilities.

With these objectives in mind, it is recommended that the City strive to implement improvements on the following roadway segments:

1. Saddle Club Road from west of Lakeview Drive to Weston Road
2. Bonaventure Boulevard from Indian Trace to SR 84
3. Weston Road from Indian Trace to the northern City limits

Proposed improvements to each of these roadway segments are outlined below.

The proposed bicycle network focuses on providing bicycle lanes on all arterial roadways and connectivity to compatible land uses and transit facilities.

Road Diet on Saddle Club Road

The segment of Saddle Club Road from west of Lakeview Drive to Weston Road does not provide dedicated bicycle lanes. It is recommended that the City consider implementing a Road Diet on this segment of Saddle Club Road in order to provide dedicated bicycle lanes. Road Diets are an innovative treatment to modernize roadways into Complete Streets and provide multi-modal transportation alternatives. The proposed Road Diet would consist of reconstructing the existing four lane facility to a two lane facility with bicycle lanes. The opportunity for a Road Diet is rare in Broward County due to traffic capacity concerns. The proposed project is unique in that existing and expected future traffic volumes are low enough that a reduction in the number of travel lanes will not result in excessive traffic congestion. The Saddle Club Road Diet would provide a number of benefits including the following:

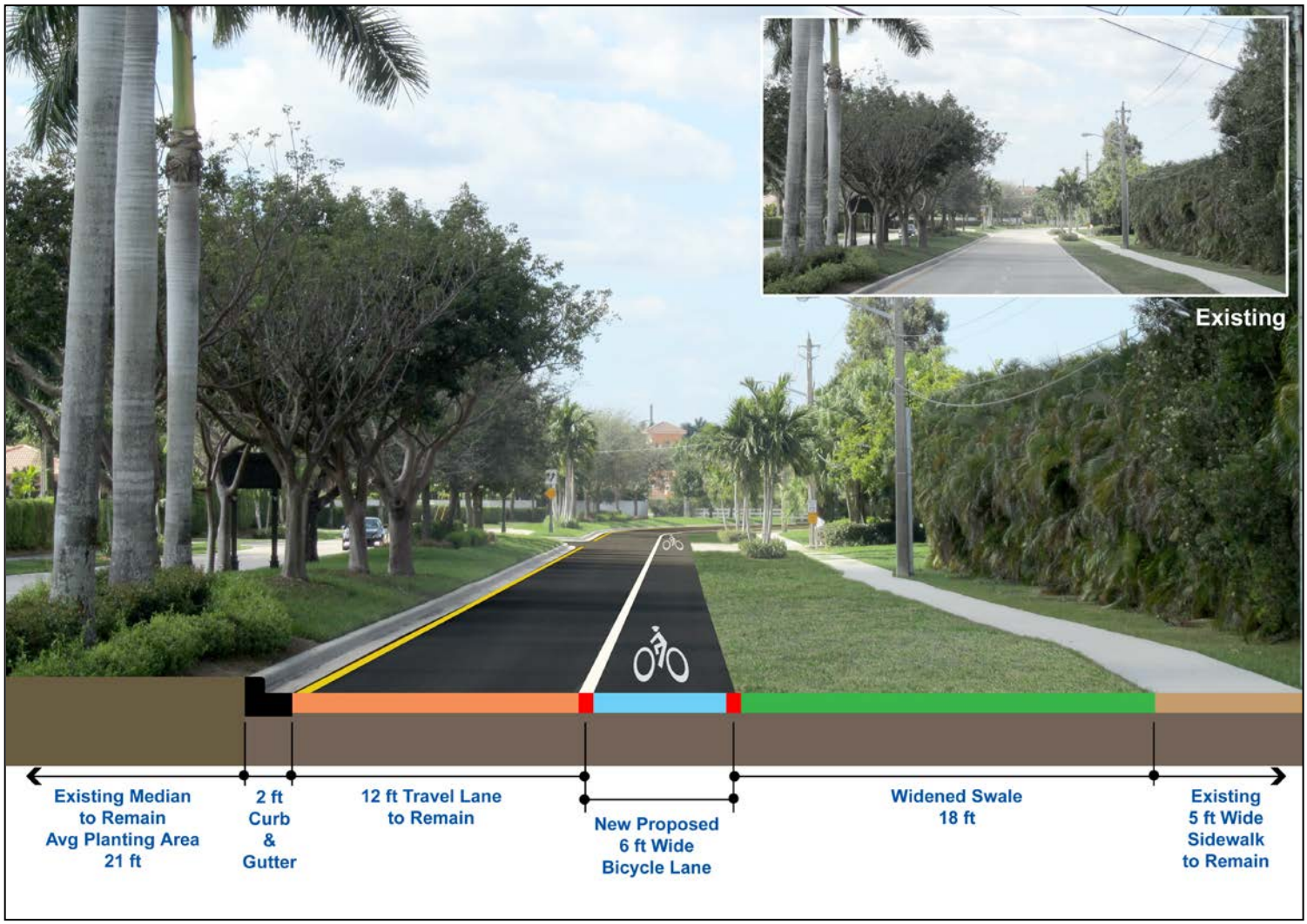
- Provide bicycle connectivity from residential land uses to commercial, industrial, and office land uses on Weston Road.
- Provide bicycle connectivity to Broward County Transit Route 23.
- Create a more scenic environment with additional landscaping.

The Florida Highway Administration (FHWA) has recently endorsed Road Diets as proven safety countermeasures. A Road Diet has multiple safety and operational benefits for vehicles, bicyclists, and pedestrians including the following:

- Reduces rear end and sideswipe accidents
- Improves safety for bicyclists
- Adds a buffer space between pedestrians and motorized vehicles
- Provides a shorter distance for pedestrians to cross vehicle travel lanes
- Improves speed limit compliance and decreases severity of vehicle crashes when they occur

The proposed Saddle Club Road Diet would increase the Bicycle Level of Service from Lakeview Drive to Weston Road from LOS D to LOS B. The conceptual typical section for the Saddle Club Road Diet is shown in Figure 12.

Figure 12
Proposed Saddle Club Road Diet – Lakeview Drive to Weston Road



Bonaventure Boulevard Bike Lanes

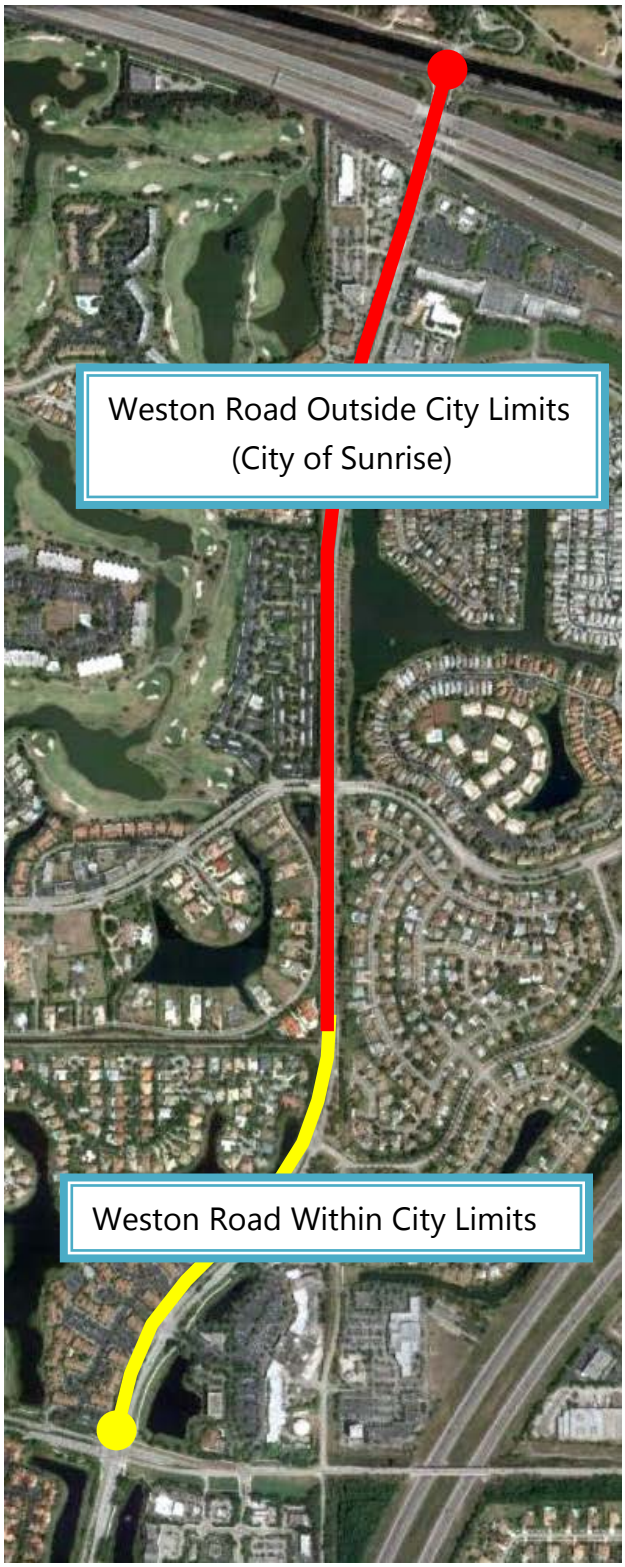
The segment of Bonaventure Boulevard from Indian Trace to SR 84 does not provide dedicated bicycle lanes. It is recommended that the City consider a Road Diet for this segment of Bonaventure Boulevard in order to provide dedicated bicycle lanes.

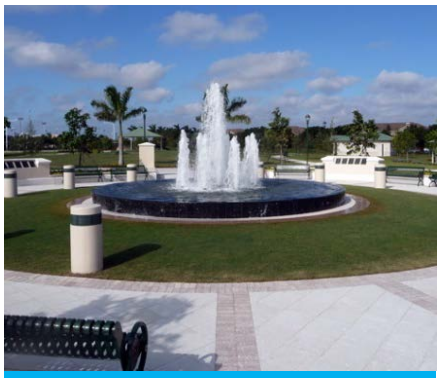
Portions of this segment on Bonaventure Boulevard are already narrowed down from four lanes to two lanes at the roundabouts at Saddle Club Road and Blatt Boulevard. Additionally, a review of historical traffic data for this roadway segment indicates that Bonaventure Boulevard will operate efficiently and within acceptable Levels of Service with only two through lanes from Indian Trace to SR 84. Adding the proposed Bonaventure Boulevard bike lanes would increase the bicycle level of service from LOS D to LOS B.

Weston Road Bike Lanes

Weston Road from Indian Trace to the City limits north of Indian Trace does not provide dedicated bicycle lanes. The City limits on Weston Road extend approximately ½ mile north of the Indian Trace intersection. The entire segment on Weston Road from Indian Trace to westbound SR 84 encompasses approximately 1.7 miles.

It is recommended that the City coordinate with the City of Sunrise and Broward County to construct dedicated bicycle lanes on Weston Road from Indian Trace to westbound SR 84. This would provide additional bicycle connectivity from the City of Weston to Markham Park. These Weston Road improvements would increase the bicycle level of service from Indian Trace to Saddle Club Road from LOS E to LOS C.





CHAPTER 12

RECOMMENDATIONS

Recommendations include:

1. New policies
2. Bicycle routes
3. Way-finding signage
4. Crash reporting
5. Bicycle detection
6. Bicycle classes
7. Bicycle promotion
8. Bicycle network
9. New bicycle parking facilities
10. Bicycle Counters
11. Consider a bicycle sharing program

1. **Adopt additional bicycle supportive policies and ordinances into the City Comprehensive Plan and Land Development Code**. The Comprehensive Plan outlines policies that guide the City's goals and objectives. The Land Development Code contains requirements that implement the plan's policies. Bicycle supportive policies are a vital part of the planning process to ensure that bicycle infrastructure is sufficiently provided for in the future. Supportive policies that should be included are:

- Complete Streets. Complete Streets are roadways that are designed to accommodate all types of multi-modal users including, motorists, bicyclists, pedestrians, and transit users. Complete Streets generally incorporate travel lanes, bicycle lanes, and sidewalks. The majority of public roadways within the City of Weston are already Complete Streets. Complete Streets policies and code requirements will ensure that, when practical, all new or redeveloped roadways are designed to accommodate multi-modal uses.

- A local bicycle accommodation policy. This policy would ensure that bicycles are reasonably accommodated in future roadway and development projects.

- Bicycle parking and end of trip facility ordinances. This code requirement would make it mandatory that all future land development or redevelopment projects include end of trip bicycle facilities such as bicycle racks.

- Design guidelines requiring that all new bicycle racks are compliant with the Association of Pedestrian and Bicycle Professionals (APBP) bicycle parking guidelines.

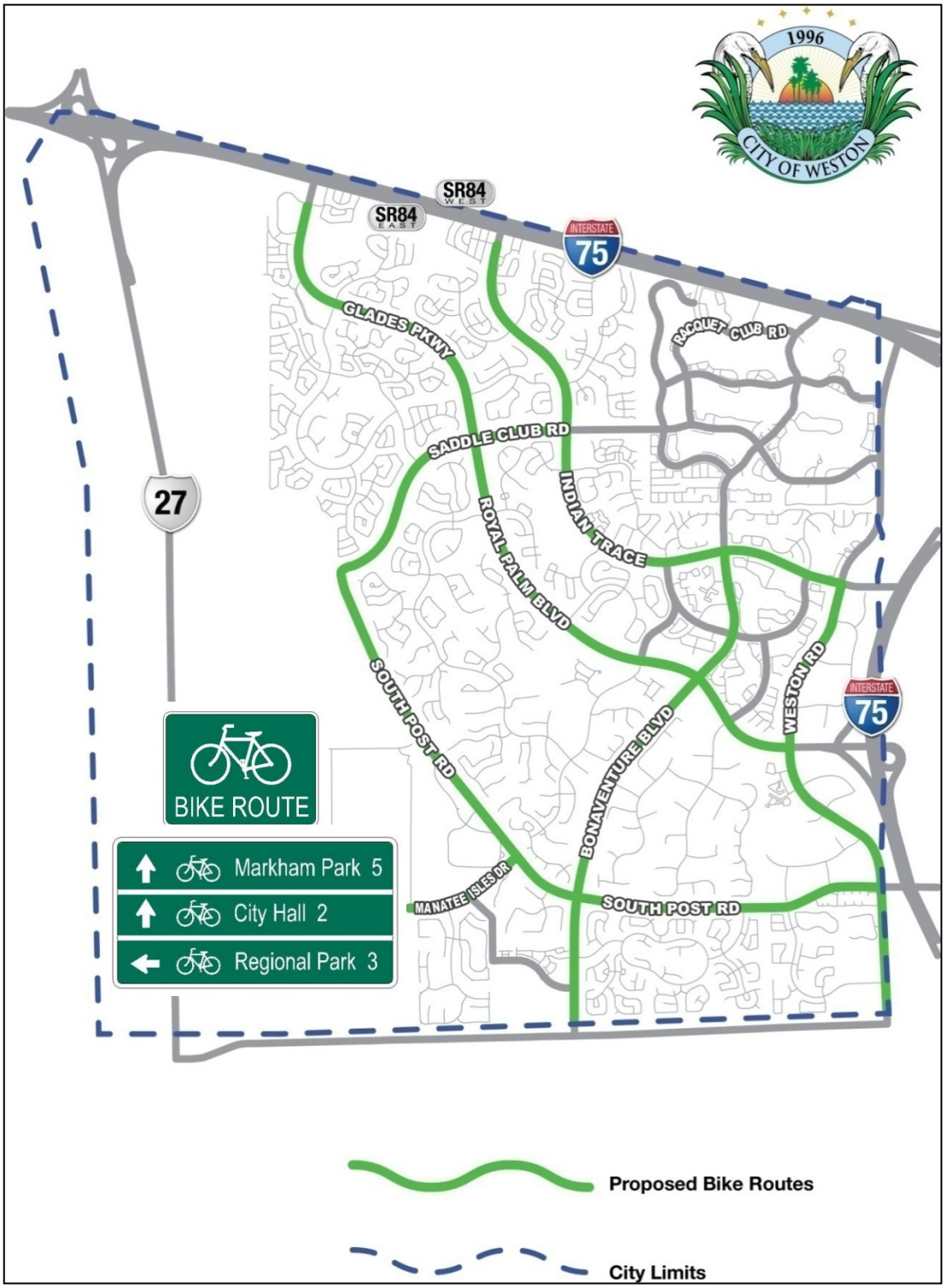
2. **Designate bicycle routes as identified in this plan.** The City does not currently designate bicycle routes despite the high number of bicycle lanes available throughout the City. Designated bicycle routes will provide guidance on the most advantageous routes for bicyclists. The proposed Bicycle Route map is shown in Figure 13.

3. **Install bicycle way-finding signage in correspondence with the bicycle routes identified in this plan**. Bicycle way-finding signage will provide bicyclists directions and distances to popular locations throughout the City.

4. **Continue to coordinate with law enforcement officials in monitoring occurrences of bicycle accidents**. Coordination with law enforcement officials ensures the City can evaluate each bicycle accident to determine if additional safety measures may be appropriate.

5. **Work with BCTED to ensure that signalized intersections include bicycle detection**. Bicycle detection will minimize intersection delay for bicyclists. All signalized intersections within the City of Weston are maintained by Broward County Traffic Engineering Division (BCTED). The City should work with BCTED to ensure the existing video detection equipment on signalized intersections is calibrated for bicycle detection.

Figure 13 - Proposed Bicycle Routes with Way-Finding Signage



Bicycle way-finding signage to be installed on bicycle routes where appropriate

6. **Offer League of American Bicyclists certified bicycling courses such as Traffic Skills 101**. Certified instructors from the League of American Bicyclists are available to teach various courses for bicyclists of all skill levels. The City should coordinate to offer these courses to City residents periodically.

7. **Continue to actively promote national and local Bike Month activities**. The City should continue to promote the State of Florida Bike Month in March and the national Bike Months in May

8. **Work to Complete the Proposed Bicycle Network improvements identified in this Plan when funding permits**. If the City implements the Bicycle Network improvements identified in this report, bicycle lanes will be available on all arterial roadways throughout the City which would be a remarkable accomplishment.

9. **Continue to ensure that all public owned facilities provide bicycle racks**. Bicycle racks are currently provided at all City owned parks. The City should continue to work to ensure that bicycle racks are provided at all City facilities. Additionally, all City operated buildings should all have bicycle facilities installed.

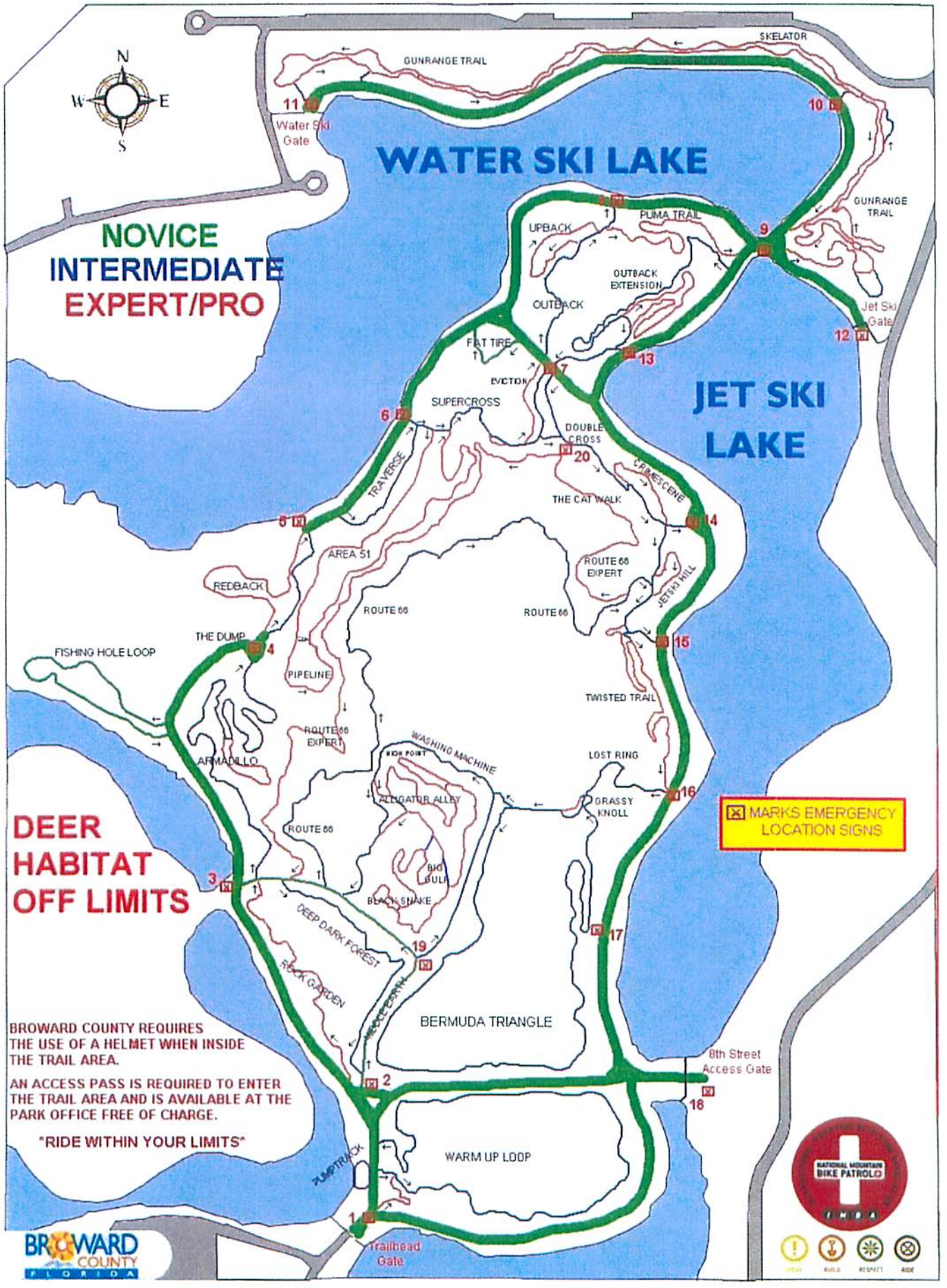
10. **Install permanent bicycle traffic counters when funding permits**. The installation of permanent bicycle traffic counters, such as the Eco-Totem or similar, would have multiple benefits to the City including the ability to determine the modal split of bicyclists. Several communities utilize Eco-Totem style counters as a tool to reach target goals for bicycle ridership numbers and to promote bicycling in the community.

Eco-Totem

11. **Consider implementing a bicycle sharing program**. The bicycle sharing program, Broward B Cycle, officially began operations in Broward County on December 14, 2011. Bicycle sharing is a relatively new concept in the United States with only a handful of cities having implemented bicycle sharing programs in the past few years. However, Broward B Cycle is the first county-wide bicycle sharing program in the United States. The Broward B Cycle program does not currently have any stations within the City of Weston.

APPENDIX A

Markham Park Mountain Bike Trails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WATER SKI LAKE
JET SKI LAKE
NOVICE
INTERMEDIATE
EXPERT/PRO
DEER HABITAT OFF LIMITS
SKELATOR
GUNRANGE TRAIL
Water Ski Gate
PUMA TRAIL
UPBACK
OUTBACK EXTENSION
OUTBACK
Jet Ski Gate
FAT TIRE
EVICTION
SUPERCROSS
DOUBLE CROSS
TRAVERSE
CRESCENT
THE CAT WALK
AREA 51
REDBACK
ROUTE 66
ROUTE 66 EXPERT
JETSKI HILL
THE DUMP
FISHING HOLE LOOP
PIPELINE
TWISTED TRAIL
ARMADILLO
WASHING MACHINE
LOST RING
ALLIGATOR ALLEY
GRASSY KNOLL
BIG BULA
BLACK SNAKE
DEEP DARK FOREST
ROCK GARDEN
BERMUDA TRIANGLE
8th Street Access Gate
WARM UP LOOP
PUMPTRACK
Trailhead Gate
MARKS EMERGENCY LOCATION SIGNS
BROWARD COUNTY REQUIRES THE USE OF A HELMET WHEN INSIDE THE TRAIL AREA.
AN ACCESS PASS IS REQUIRED TO ENTER THE TRAIL AREA AND IS AVAILABLE AT THE PARK OFFICE FREE OF CHARGE.
"RIDE WITHIN YOUR LIMITS"
NATIONAL MOUNTAIN BIKE PATROL
IMBA
BROWARD COUNTY FLORIDA

APPENDIX B

Potential Funding Sources

Agency*	Grant program/funding source	Acronym	Apply to	Who is eligible?	Infrastructure	Non-infrastructure (enforcement, education, encouragement)	Min award	Max award	More information
FHWA	Transportation Enhancement	TE	M/TPO	local governments or state or federal agencies	on road or separate bike/ped facilities, parking, bike storage/service center	encouragement, education, materials, bike/ped staff, bike racks on buses	$250,000	varies by MPO, $750,000 to $1 mil.	http://www.fhwa.dot.gov/environment/te/index.htm
FHWA	Safe Routes to School	SRTS	FDOT (D4 Traffic Operations)	Public or private Schools, CTST Coordinators, School Boards	on road or separate bike/ped facilities, parking, bike storage/service center, traffic calming, any infrastructure that can increase number of children walking or biking to school	enforcement, encouragement, education, materials, bike/ped staff	$250k for infrastructure	varies	http://safety.fhwa.dot.gov/saferoutes/
FHWA	National Scenic Byways	NSB	FDOT (Environmental Management Office)	Government agencies along designated scenic highways	on road or separate bike/ped facilities, including parking				http://www.bywaysonline.org/grants/
FHWA	Federal Lands Highway Program	FLHP		Indian reservations, national parks or forests	on road or separate bike/ped facilities				http://flh.fhwa.dot.gov/
FHWA	Recreational Trails Program	RTP	DEP (Office of Greenways and Trails, OGT)	local governments, state or federal agencies, or organizations approved by the state	recreational mountain biking or hiking trails, shared use paths	training and materials		$200,000	http://www.fhwa.dot.gov/environment/rectrails/index. htm
FHWA	Transportation, Community, and System Preservation Program	TCSP		states, MPOs, local governments, public transit agencies, school boards	bike storage/service center, traffic calming	bike/ped planning, bike/ped staff			http://www.fhwa.dot.gov/tcsp/
FHWA	Highway Safety Improvement Program	HSIP	FDOT (D4 Traffic Operations)	Any local agency. If the improvement takes place in a local road, the local agency needs to be LAP certified	safety improvements on roadways or shared use paths		$250k for local roads		http://safety.fhwa.dot.gov/hsip/
NHTSA	Highway Safety Grant Program, Section 402		FDOT (Safety Office)	local governments		safety programs, enforcement, education			
FTA	Transit Enhancement Activity, s. 5307			State DOTs, transit agencies	on road or separate bike/ped facilities, bike storage facilities	bike racks on buses			https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307
FTA	Transportation Investment Generating Economic Recovery Program	TIGER		state or local governments, transit agencies	on road or separate bike/ped facilities, bike sharing				https://www.transit.dot.gov/funding/grants/better-utilizing-investments-leverage-development-build-transportation-grants-program
FTA	Transit Investments for Greenhouse Gas and Energy Reduction	TIGGER		State DOTs, transit agencies	on road or separate bike/ped facilities, bike storage facilities				https://www.transit.dot.gov/regulations-and-guidance/legislation/arra/transit-investments-greenhouse-gas-and-energy-reduction
FTA	Urbanized Area Formula Program, s. 5307			State DOTs, transit agencies	on road or separate bike/ped facilities, bike storage facilities. Ped facilities must be within 0.5 mi and bike facilities within 3 mi. catchment area.				https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307
FTA	New Starts and Small Starts Major Capital Investment Programs, s. 5309 (b) (1)			states, MPOs, local governments, public transit agencies	on road or separate bike/ped facilities, bike storage facilities. Ped facilities must be within 0.5 mi and bike facilities within 3 mi. catchment area.				https://www.transit.dot.gov/funding/grants/major-capital-investments-new-starts-small-starts-5309b1
FTA	Fixed Guideway Modernization Program, s. 5309 (b) (2)			states, MPOs, local governments, public transit agencies	on road or separate bike/ped facilities, bike storage facilities. Ped facilities must be within 0.5 mi and bike facilities within 3 mi. catchment area.				https://www.transit.dot.gov/funding/grants/grant-programs/fixed-guideway-modernization-5309-b2

Agency*	Grant program/funding source	Acronym	Apply to	Who is eligible?	Infrastructure	Non-infrastructure (enforcement, education, encouragement)	Min award	Max award	More information
FTA	Bus and Bus Facilities Discretionary Program, s. 5309			states, local governments, public transit agencies, private companies providing public transit, non-profit agencies	on road or separate bike/ped facilities, bike storage facilities. Ped facilities must be within 0.5 mi and bike facilities within 3 mi. catchment area.	bike racks on buses			https://www.transit.dot.gov/bus-program
FTA	Elderly Individuals and Individuals with Disabilities Formula Program, s.5310		FDOT (D4 Office of Modal Development)	Community Transportation Coordinator (CTC) or a contractor providing service for a CTC	on road or separate bike/ped facilities, bike storage facilities. Ped facilities must be within 0.5 mi and bike facilities within 3 mi. catchment area. Must meet the special needs of older adults and persons with disabilities				https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310
FTA	Non-Urbanized Area Formula Program, s. 5311		FDOT (D4 Office of Modal Development)	Political subdivisions of the State of Florida and agencies thereof, Indian Tribes, CTCs, or contractors providing service for a recipient	on road or separate bike/ped facilities, bike storage facilities. Ped facilities must be within 0.5 mi and bike facilities within 3 mi. catchment area. Must be in rural areas.			$400,000 for District 4	https://www.transit.dot.gov/regulations-and-guidance/legislation/arra/non-urbanized-area-formula-section-5311
FTA	Public Transportation on Indian Reservations, s. 5311 (c)			Indian Tribes	on road or separate bike/ped facilities, bike storage facilities. Ped facilities must be within 0.5 mi and bike facilities within 3 mi. catchment area.				https://www.transit.dot.gov/funding/apportionments/section-5311c-public-transportation-indian-reservations-formula
FTA	Job Access and Reverse Commute, s. 5316	JARC	FDOT (D4 Office of Modal Development)	private non-profit organizations, State or local governments, and operators of public transportation services	bike storage/service center				https://www.transit.dot.gov/funding/grants/grant-programs/job-access-and-reverse-commute-program-5316
FTA	New Freedom Program, s. 5317		FDOT (D4 Office of Modal Development)	private non-profit organizations, State or local governments, and operators of public transportation services	on road or separate bike/ped facilities, bike storage facilities. Ped facilities must be within 0.5 mi and bike facilities within 3 mi. catchment area.				https://www.transit.dot.gov/funding/section-5317-new-freedom-program
FTA	Paul S. Sarbanes Alternative Transportation in Parks and Public Lands, s. 5320			Federal Land Management Agencies (FLMAs) or state or local governments acting with their consent	on road or separate bike/ped facilities, bike storage facilities				https://www.transit.dot.gov/funding/grants/grant-programs/paul-s-sarbanes-transit-parks-program-5320
NPS	Land and Water Conservation Fund Program	LWCF	DEP (Office of Financial Management)	state and local governments	recreational mountain biking or hiking trails, shared use paths				
DEP	Florida Recreational Development Assistance Program	FRDAP	DEP (Office of Fin. Mgmt.)	local governments	recreational mountain biking or hiking trails, shared use paths			$200,000	
FDOT	Intermodal Development Program		FDOT (D4 Office of Modal Development)	local governments	on road or separate bike/ped facilities, parking, bike storage/service center, bike sharing				
FDOT	Sidewalk Box funds		no application process	M/TPOs can use these funds on state and/or local roads depending on funding source	on road or separate bike/ped facilities, parking, bike storage/service center			varies	Contact M/TPO Bike/Ped Coordinator
FBA	Share the Road Mini Grants		FBA	typically non-governmental agencies		motorist and bicyclist education	$500	$5,000	http://www.floridabicycle.org/programs/STRminigrants.html

Agency*	Grant program/funding source	Acronym	Apply to	Who is eligible?	Infrastructure	Non-infrastructure (enforcement, education, encouragement)	Min award	Max award	More information
Bike Florida	Share the Road Mini Grants		Bike Florida			motorist and bicyclist education	$200	$2,000	https://bikeflorida.org/share-the-road/
Bikes Belong	Bikes Belong Grant Program		Bikes Belong	Bicycle Advocacy organizations, nonprofit trails groups, state and local governments	on road or separate bike/ped facilities for transportation or recreation	advocacy			http://www.bikesbelong.org

*Agency abbreviation list

Abbrev.	Agency
FHWA	Federal Highway Administration
NHTSA	National Highway Traffic Safety Administration
FTA	Federal Transit Administration
NPS	National Park Service
DEP	Department of Environmental Protection
FDOT	Florida Department of Transportation
FBA	Florida Bicycle Association

References:

Federal Transit Administration. "Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law" <http://www.gpo.gov/fdsys/pkg/FR-2011-08-19/pdf/2011-21273.pdf>. 2011.

Federal Highway Administration. "FHWA Guidance - Bicycle and Pedestrian Provisions of Federal Transportation Legislation." <http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm> 22 October 2008. 5 October 2011.

Federal Highway Administration. "Bicycle and Pedestrian Provisions of the Federal-aid Program." <http://www.fhwa.dot.gov/environment/bikeped/BP-broch.htm>. 5 October 2011.

APPENDIX C

Bicycle Level of Service Calculations

Bicycle Level of Service

Road	From	To	Di (mi)	W_t	W_l	% OSP	W_e	L	SP_p	SP_t	PR_5	AADT	K	D	T_{24}	DHT	PHF[8]	Vol_{15}	Score	BLOS
Blatt Blvd	Lakeview Dr[2,3,4]	Bonaventure Blvd	1.44	12.0	0.0	0	12.0	1	30	3.389	3.5	6,500	N/A	N/A	N/A	2.0%	N/A	98	3.925	D
Bonaventure Blvd	Griffin Rd[1]	South Post Rd	0.85	16.5	5.0	0	21.5	2	40	4.165	3.5	10,700	9.6%	57.92%	3.6%	1.8%	0.925	161	2.417	B
	South Post Rd[1]	Royal Palm Blvd	1.59	17.0	5.0	0	22.0	2	40	4.165	3.5	12,800	9.6%	57.92%	3.6%	1.8%	0.925	192	2.399	B
	Royal Palm Blvd[1]	Indian Trace	0.88	17.0	5.0	0	22.0	2	40	4.165	3.5	14,900	9.6%	57.92%	3.6%	1.8%	0.925	224	2.476	B
	Indian Trace[1]	Saddle Club Rd	0.74	12.0	0.0	0	12.0	2	40	4.165	3.5	13,000	9.6%	57.92%	3.6%	1.8%	0.925	195	4.107	D
	Saddle Club Rd	SR 84	1.09	12.0	0.0	0	12.0	2	40	4.165	3.5	7,900	9.6%	57.92%	3.6%	1.8%	0.925	119	3.855	D
Country Isles Rd	Royal Palm Blvd[2,3,4]	Three Village Rd	0.63	18.0	6.0	0	24.0	1	30	3.389	3.5	4,000	N/A	N/A	N/A	2.0%	N/A	60	1.516	B
Glades Pkwy	SR 84	Glades Cir	0.15	12.0	0.0	0	12.0	2	40	4.165	3.5	15,300	9.6%	57.92%	3.6%	1.8%	0.925	230	4.190	D
	Glades Cir	Saddle Club Rd	2.09	17.0	5.0	0	22.0	2	40	4.165	3.5	15,300	9.6%	57.92%	3.6%	1.8%	0.925	230	2.490	B
Indian Trace	SR 84	San Sebastian Blvd	0.09	12.0	0.0	0	12.0	2	40	4.165	3.5	15,300	9.6%	57.92%	2.2%	1.1%	0.925	230	4.051	D
	San Sebastian Blvd	Saddle Club Rd	1.35	17.0	5.0	0	22.0	2	40	4.165	3.5	15,300	9.6%	57.92%	2.2%	1.1%	0.925	230	2.351	B
	Saddle Club Rd[1]	Bonaventure Blvd	1.59	17.0	6.0	0	23.0	2	40	4.165	3.5	10,800	9.6%	57.92%	2.2%	1.1%	0.925	162	1.950	B
	Bonaventure Blvd[1]	Weston Rd	0.77	16.0	5.0	0	21.0	2	40	4.165	3.5	22,400	9.6%	57.92%	2.2%	1.1%	0.925	337	2.760	C
Lakeview Dr	Bonaventure Blvd[2,4,5]	W. Mall Rd	1.93	12.0	0.0	0	12.0	1	30	3.389	3.5	4,300	N/A	N/A	N/A	2.0%	N/A	64	3.709	D
Manatee Isles Dr	US 27[2]	SW 196th St	1.49	12.0	0.0	0	12.0	1	40	4.165	3	7,200	9.6%	57.92%	4.0%	2.0%	0.925	108	4.409	D
	SW 196th St[2]	South Post Rd	0.77	18.0	6.0	0	24.0	1	40	4.165	5	7,200	9.6%	57.92%	4.0%	2.0%	0.925	108	1.746	B
Racquet Club Rd	Saddle Club Rd[2,3,4]	Danielle Ct	0.51	12.0	0.0	0	12.0	1	30	3.389	3.5	8,100	N/A	N/A	N/A	2.0%	N/A	121	4.032	D
	Danielle Ct[2,3,4]	Bonaventure Blvd	0.84	18.0	6.0	0	24.0	1	30	3.389	3.5	8,100	N/A	N/A	N/A	2.0%	N/A	121	1.872	B
Royal Palm Blvd	Saddle Club Rd[1]	Bonaventure Blvd	2.23	17.0	5.0	0	22.0	2	40	4.165	3	12,100	9.6%	57.92%	3.6%	1.8%	0.925	182	2.579	C
	Bonaventure Blvd[1]	Country Isles Rd	0.33	17.0	5.0	0	22.0	2	40	4.165	3	30,500	9.6%	57.92%	3.6%	1.8%	0.925	458	3.048	C
	Country Isles Rd[1]	Weston Rd	0.46	17.0	5.0	0	22.0	2	35	3.843	3	30,500	9.6%	57.92%	3.6%	1.8%	0.925	458	2.958	C
Saddle Club Rd	South Post Rd[2]	Royal Palm Blvd	1.24	17.0	5.0	0	22.0	2	40	4.165	3.5	13,100	9.6%	57.92%	4.0%	2.0%	0.925	197	2.452	B
	Royal Palm Blvd[2]	Indian Trace	0.58	17.0	5.0	0	22.0	2	40	4.165	3.5	12,900	9.6%	57.92%	4.0%	2.0%	0.925	194	2.445	B
	Indian Trace[2]	Lakeview Dr	0.61	17.0	5.0	0	22.0	2	40	4.165	3.5	6,700	9.6%	57.92%	4.0%	2.0%	0.925	101	2.112	B
	Lakeview Dr[2]	Bonaventure Blvd	0.64	11.0	0.0	0	11.0	2	35	3.843	3.5	6,700	9.6%	57.92%	4.0%	2.0%	0.925	101	3.834	D
	Bonaventure Blvd[2]	Weston Rd	0.92	10.5	0.0	0	10.5	2	35	3.843	3.5	7,400	9.6%	57.92%	4.0%	2.0%	0.925	111	3.938	D
South Post Rd	Saddle Club Rd[2]	Manatee Isles Dr	2.14	17.0	5.0	0	22.0	1	45	4.415	3.5	8,100	9.6%	57.92%	4.0%	2.0%	0.925	122	2.633	C
	Manatee Isles Dr[2]	Bonaventure Blvd	0.47	17.0	5.0	0	22.0	1	45	4.415	3.5	10,500	9.6%	57.92%	4.0%	2.0%	0.925	158	2.764	C
	Bonaventure Blvd[2]	Weston Rd	1.95	17.0	5.0	0	22.0	1	45	4.415	3.5	8,900	9.6%	57.92%	4.0%	2.0%	0.925	134	2.680	C
SR 84 EB	Glades Pkwy	Indian Trace	1.21	16.0	4.0	0	20.0	2	55	4.792	5	6,600	9.6%	100.00%	4.1%	2.1%	0.925	171	2.701	C
	Indian Trace[1]	Bonaventure Blvd	2.06	16.0	4.0	0	20.0	2	55	4.792	5	10,000	9.6%	100.00%	4.1%	2.1%	0.925	259	2.912	C
	Bonaventure Blvd[1]	Weston Rd	0.54	21.0	9.0	0	30.0	2	55	4.792	5	7,700	9.6%	100.00%	4.1%	2.1%	0.925	200	0.280	A
SR 84 WB	Glades Pkwy[1]	Indian Trace	1.21	20.0	8.0	0	28.0	2	55	4.792	5	6,200	9.6%	100.00%	4.1%	2.1%	0.925	161	0.750	A
	Indian Trace[1]	Bonaventure Blvd	2.06	20.0	8.0	0	28.0	2	55	4.792	5	9,700	9.6%	100.00%	4.1%	2.1%	0.925	252	0.977	A
	Bonaventure Blvd[1]	Weston Rd	0.54	20.0	8.0	0	28.0	2	55	4.792	5	6,600	9.6%	100.00%	4.1%	2.1%	0.925	171	0.781	A
Three Village Rd	Town Center Blvd[2,3,4]	Bonaventure Blvd	0.47	13.0	0.0	0	13.0	1	35	3.843	3.5	6,200	N/A	N/A	N/A	2.0%	N/A	93	3.905	D
	Bonaventure Blvd[2,3,4]	Indian Trace	0.75	18.0	6.0	0	24.0	1	30	3.389	3.5	4,500	N/A	N/A	N/A	2.0%	N/A	68	1.580	B
Town Center Blvd	Royal Palm Blvd[2,3,4]	Three Village Rd	0.5	14	0	0	14.0	2	40	4.165	3.5	8,500	N/A	N/A	N/A	2.0%	N/A	128	3.674	D
	Three Village Rd[2,3,4]	Indian Trace	0.2	14	0	0	14.0	2	40	4.165	3.5	19,200	N/A	N/A	N/A	2.0%	N/A	288	4.085	D

Bicycle Level of Service

Road	From	To	Di (mi)	W_t	W_l	% OSP	W_e	L	SP_p	SP_t	PR_5	AADT	K	D	T_{24}	DHT	PHF[8]	Vol_{15}	Score	BLOS
US 27	Griffin Rd[1]	Manatee Isles Dr	0.94	16.0	4.0	0	20.0	2	55	4.792	4.5	18,200	9.6%	57.92%	17.2%	8.6%	0.925	274	5.018	E
	Manatee Isles Dr	I-75	5.08	16.0	4.0	0	20.0	2	55	4.792	4.5	13,500	9.6%	57.92%	17.2%	8.6%	0.925	203	4.867	E
Vista Park Rd	Manatee Isles Dr[2,4,7]	Vista Grove Ln	0.53	11	0	0	11.0	2	30	3.389	3.5	9,600	N/A	N/A	N/A	2.0%	N/A	144	3.884	D
	Vista Grove Ln[2,4,6]	Bonaventure Blvd	0.51	12	0	0	12.0	2	35	3.843	3.5	23,500	N/A	N/A	N/A	2.0%	N/A	353	4.355	D
Weston Rd	Griffin Rd[1]	South Post Rd	0.85	17.0	5.0	0	22.0	2	45	4.415	3	31,500	9.6%	57.92%	4.8%	2.4%	0.925	473	3.268	C
	South Post Rd[1]	Royal Palm Blvd	1.12	17.0	5.0	0	22.0	2	45	4.415	3	23,500	9.6%	57.92%	4.8%	2.4%	0.925	353	3.119	C
	Royal Palm Blvd[1]	Indian Trace	1.13	17.0	5.0	0	22.0	2	45	4.415	3	26,000	9.6%	57.92%	4.8%	2.4%	0.925	391	3.170	C
	Indian Trace[1]	Saddle Club Rd	0.86	12.0	0.0	0	12.0	2	45	4.415	3	17,900	9.6%	57.92%	4.8%	2.4%	0.925	269	4.681	E

Source: 2010 FDOT Roadway Classification Index. All AADT volumes are from 2010 unless otherwise noted.
(1) T24 from adjacent FDOT TMS since reported T24 not consistent with historical data.
(2) Default DHT of 2.0% was utilized.
(3) Vol_{15} manual 2009 Peak Hour Counts. AADT estimated.
(4) Pavement Condition estimated.
(5) Vol_{15} manual 2010 Peak Hour Counts. AADT estimated.
(6) Vol_{15} manual 2008 Peak Hour Counts. AADT estimated.
(7) Vol_{15} manual 2005 Peak Hour Counts. AADT estimated.
(8) FDOT urbanized area PHF default of 0.925 utilized.

$BLOS = 0.507*\ln(Vol_{15}/L) + 0.199SP_t(1 + 10.38DHT)^2 - 0.005(W_e)^2 + 0.760$
BLOS = Bicycle level of service score
Vol_{15} = Volume of directional motorized vehicles in the peak 15 minute time period = (AADT*K*D)/(4*PHF)
L = Total number of directional thru lanes
SP_t = Effective speed factor = $1.1199*\ln(SP_p - 20) + 0.8103$
SP_p = Posted speed limit
HV = Percentage of heavy vehicles
PR_5 = FHWA's five point pavement surface condition rating
W_e = Average effective width of outside thru lane (which incorporates the existence of a paved shoulder or bicycle lane if present)
W_t = Total width of outside lane (including shoulder and/or bike lane) pavement
W_l = Width of paving between the outside lane stripe and the edge of pavement
%OSP = Percentage of segment with occupied on-street parking
T_{24} = Daily truck percentage
DHT = Design Hour Truck = $T_{24}/2$

BLOS Score
A ≤ 1.5
B >1.5
C > 2.5
D > 3.5
E > 4.5
F >5.5