

**Statewide Bicycle
Facilities Study**

**Executive
Summary**



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EXECUTIVE SUMMARY

Introduction

The Florida Department of Transportation (FDOT) and its transportation partners have been making significant progress in supporting the development of bikeways¹ on state roadways in recent years. For example, five-foot paved shoulders are routinely included in resurfacing, restoration, and rehabilitation (RRR) projects. However, additional progress can be accomplished in order to provide a higher level of bikeway connectivity at the interregional, regional, and local levels.

¹ For the purpose of this study, bike lanes, paved shoulders four feet or greater in width, and paved multiuse trails will be referred to as *bikeways* in order to discuss only those bicycle facilities used for travel (bicycle facilities can also refer to bike racks, lockers, showers, etc.).

There are areas of the State Highway System (SHS) that do not currently have bikeways, both in urban and rural areas. Areas that do not have bikeways – called “gaps” in this study - do not necessarily prevent bicyclists from using roadways; however, gap, in some cases place the bicyclist closer to vehicular traffic increasing the potential for bicyclist/motorist conflicts. Gaps can also discourage users from traveling by bicycle where there is no safe and convenient alternative.

This study identifies implementation strategies and other recommendations with the intent of improving bikeway connectivity in Florida. The provision of bikeways relies on many transportation-related partners throughout the state. These partners include, but are not limited to: FDOT, the Florida Department of Environmental Protection - Office of Greenways and Trails (OGT), Metropolitan Planning Organizations (MPOs), local governments, property owners and citizens, and the private sector. This report offers recommendations as to how the FDOT and its partners can improve bikeway planning, design, and construction throughout the state.

Study Purpose

In May 2005, the Florida Legislature through the passage of HB 1681 requested that FDOT conduct a bicycle system study of bicycle facilities that are on or connected to the State Highway System (SHS). This assessment is the first of its type in the State of Florida, and provides a baseline for the development of proposed performance measures and annual reporting to track progress of bikeway development statewide in the coming years. This study also evaluates state standards, policies, and practices through case study and other research.

This Statewide Bicycle Facilities Study documents the current state of the system by identifying where on-road² and off-road³ bikeways exist, where they do not, and provides recommendations that would help FDOT and its partners to further develop additional facilities. By addressing the need for these facilities on the SHS, Florida can further enhance bicycling facilities in the state.



Bicycles are considered vehicles by Florida law and can operate in the travel lane where on-road bikeways do not exist.

² On-road bikeways refer to bike lanes and paved shoulders four feet or greater in width.
³ Off-road bikeways refer to dedicated paved multiuse trails or shared use paths that prohibit motorized vehicles.



Findings

Standards

Review of existing FDOT bikeway standards show that these standards currently meet the needs of the State’s bicyclists. State standards are consistent with the American Association of State Highway and Transportation Officials (AASHTO) guidelines for bikeway development. In general, current new construction/reconstruction standards for on-road bikeways include a four-foot paved shoulder on curb and gutter urban roadways and a five-foot paved shoulder for rural roads.

In locations where truck traffic, motorist travel speeds, large recreational group bicycle rides, or other factors may contribute negatively to the perceived comfort of bicyclists and motorists, the minimum standard on-road bikeway widths may need to be reevaluated. Where facilities are intended for high speed, high capacity, or where a high percentage of truck traffic is expected, a wider on-road bikeway (potentially separated by rumble strips or similar devices) could allow for more predictable operation of both bicyclists and motorists in these types of areas. Additionally, an off-road bikeway (separated path) may also be a desirable alternative if right-of-way and project budgets permit.

State Highway System On-Road Bikeways Status

The State Highway System (SHS) consists of 12,025 miles⁵ of roads. Section 316.091(2)(4), *Florida Statutes* prohibits a bicyclist from operating on the roadway or along the shoulder of a limited access facility⁶. For this reason, an analysis of on-

⁵ All road lengths are represented in centerline miles.

⁶ Some bridges within the SHS are limited access facilities.

road bikeways on interstates and Florida’s Turnpike System was excluded from this study. Thus, the study concentrates on the remaining 10,454 miles of SHS roads.

Of the 10,454 miles studied, the state currently has 6,538 miles of on-road bikeways, which represents 63 percent of the SHS. In this Executive Summary and in the supporting data and analysis of this study, recommendations are provided to address the remaining 37 percent of the SHS roadways that currently do not have on-road bikeways (see Table 1).

Table 1
State Highway System On-road Bikeways and Gaps

Study Area	Miles of Roads	On-road Bikeway Miles	Percent On-road Bikeways	Without On-road Bikeways Miles	Percent Miles Without On-road Bikeways
SHS	10,454	6,538	63%	3,916	37%
Urban	5,759	3,194	56%	2,565	44%
Rural	4,695	3,344	71%	1,351	29%

Another significant finding of this study is that the percentage of roads without on-road bikeways is significantly higher in urban areas (45 percent) than rural areas (29 percent). Furthermore, many of the urban area on-street bikeway gaps are dispersed in short segments, which reduce the connectivity of the overall system of on-street bikeways. These short gaps in urban bikeways may be attributed to right-of-way constraints, commercial access issues, parking requirements or concerns, etc. In many urbanized areas, the SHS provides the transportation spine that supports other regional and local roads. Thus, completing these shorter system gaps is essential

and offers the greatest opportunity for FDOT and its transportation partners to improve bicycle system connectivity.

Strategic Intermodal System On-Road Bikeways Status

Strategic Intermodal System (SIS⁷) highway corridors (excluding limited access and turnpike facilities) were evaluated in a separate analysis because of their statewide importance. The portion of the SIS evaluated includes 1,622 miles of highway corridors. Currently there are 1,231 miles of on-road bikeways and 391 miles of roadways without on-road bikeways on the SIS. These figures represent 76 percent with bikeways and 24 percent without bikeways, respectively (see Table 2).

Table 2
Strategic Intermodal System (SIS)
Roadways With and Without On-road Bikeways

Study Area	Miles of Roads	On-road Bikeway Miles	Percent On-road Bikeways	Without On-road Bikeways Miles	Percent Miles Without On-road Bikeways
SIS Roadways	1,622	1,231	76%	391	24%

These figures illustrate that FDOT has been successful in providing on-road bikeways on a higher percentage of SIS facilities compared to the overall SHS. However, because of the percent of truck traffic, travel speeds, and traffic volumes characteristic of the SIS, these roads will usually not be the most ideal routes for bicyclists. Off-road bikeways separated from the roadway, such as OGT’s existing and planned network of Opportunity Corridors, or other safe and convenient

⁷ All references to “SIS” include existing SIS highway corridors.

alternatives, need to be considered on or adjacent to SIS highways.

Off-Road Bikeways Status

The OGT is working to establish a statewide system of greenways and trails for recreation, conservation, and transportation purposes. Their efforts are guided by a legislatively adopted plan titled "Connecting Florida's Communities." The OGT works directly with local communities, developers, private landowners, non-profit organizations, and state and federal agencies to facilitate the establishment of the statewide system of greenways and trails. Together, they identified a statewide network of off-road bikeway (sometimes referred to as paved multiuse/shared use paths) corridors in 1999 and revised the network in 2004. The



The Marjorie Harris Carr Cross Florida Greenway, an off-road bikeway corridor located in Central Florida, features a "land bridge" that provides a safe place for non-motorized vehicles to cross I-75. When completed, the greenway will connect the Gulf of Mexico to the Atlantic Ocean.

existing off-road bikeway network consists of approximately 1,900 miles of existing off-road bikeways and 6,300 miles of planned off-road bikeway corridors. Existing off-road bikeways in this report (see Figures 4.1 – 4.7) refer to paved multiuse trail corridors where right-of-way has been acquired

and funding has been programmed and the bikeway will be operational within the next two years.

The statewide off-road trails network would be comprised of eight regional networks. An analysis of three of the eight regional networks conducted by the Rails-to-Trails Conservancy in 2004, estimated the approximate number of trail users within the three regions at 11.5 million annually. This off-road network of bikeways would complement the on-road bikeway system along the SHS, laying the foundation for many local and regional trips. Additionally, the off-road bikeway network would provide an alternative to bicyclists traversing SIS and other facilities prone to increased traffic speeds, volumes, and a higher percentage of truck traffic.

Designated Bicycle Lanes

Designated bicycle lanes refer to on-road bikeways in urban areas with bicycle logo/arrow pavement markings (person on bike symbol) and signs indicating that it is a bicycle lane. Designation of on-road bikeways occurs at the local level and FDOT and its partners do not usually designate on-road bikeways on rural roads. A feature code in FDOT's Roadway Characteristics Inventory (RCI) database was recently developed for on-road bikeway information, including designation status. Because of recent implementation, on-road bikeway information in the RCI database is currently not complete statewide.

Because there are no current comprehensive data statewide, FDOT RCI video logs were used to estimate the extent of designated on-road bikeways. A sample of all existing on-road bikeways in urban areas statewide was evaluated and the



results illustrate that approximately 19 percent of on-road bikeways in urban areas have pavement markings and signs. These data were also verified in the field. While this figure represents a sample, it shows that approximately 2,500 miles of existing on-road bikeways in the state's urban areas could be designated with standard pavement markings and signs. Designated bicycle lanes should encourage use of such facilities by bicyclists.

Electronic Mapping of On-Road Bikeways

A Geographic Information Systems (GIS) dataset has been provided in an electronic file format to FDOT. All on-road and off-road bikeways and gaps are now included in the data set. The dataset also includes information from a variety of sources, and it is intended to serve as a starting point from which other future datasets are developed and maintained. Data in the dataset include, but are not limited to: the Office of Greenways and Trails existing and proposed off-street bikeway corridors, design and construction phase projects in the FDOT Adopted Five-Year Work Program, and roadway locations that are suitable for re-striping existing wide curb lanes with on-road bikeways based on the data and analysis in this study.

Bikeway Needs

The analysis indicates that the greatest area of opportunity for adding bikeways to SHS facilities is in or within one mile of urban areas. Over 65 percent of the roads without on-road bikeways statewide are in urban areas. Some of these



conditions exist because of right-of-way constraints such as existing curb and gutter and on-street parking or commercial land uses. Other areas are the result of local government and/or adjacent landowner preferences.

In urban areas, SHS facilities not on the SIS are generally expected to be used more by bicyclists and motorists because they provide convenient routes, serve as the spine of local roadway networks, and usually are located near the most desirable land uses such as commercial and places of work. Because of these factors, planning for and implementing on-street bikeways in urban areas should be given the highest priority in terms of available funding, as priorities are developed by local and regional entities. In addition, off-road facilities may be appropriate on some SIS highway facilities.

For SIS hubs with significant passenger volumes, bicycle, as well as transit and pedestrian services, can be key elements in a fully interconnected transportation system. Bicycle, transit, and pedestrian routes provide connectivity between the SIS and local economic centers such as downtown areas and tourist attractions.

Bikeway Funding

Section 335.065(1)(a), *Florida Statutes* requires that, “Bicycle and pedestrian ways shall be established in conjunction with the construction, reconstruction, or other change of any state transportation facility, and special emphasis shall be given to projects in or within 1 mile of an urban area.” Funding mechanisms are in place to establish on-road bikeways in conjunction with state roadway projects as part of the development of the FDOT five-year work program.



Bicyclists on this SR5 bridge in District Seven illustrate bikeway needs on some of the State’s bridges.

Section 335.065(3) *Florida Statutes* also states that, “The department, in cooperation with the Department of Environmental Protection, shall establish a statewide integrated system of bicycle and pedestrian ways... bicycle facilities may be established as part of or separate from the actual roadway.” OGT receives Transportation Enhancement (TE) funds on a project-specific basis for off-road bikeway development. Because the competition for this funding is high and many projects are not funded, it does not sufficiently address OGT’s development funding needs.

Implementation Plan

An implementation strategy is necessary to improve bikeway development and continue to work towards a statewide integrated system of bikeways. Florida’s network of bicycle facilities is dynamic and changing. As Florida’s population continues to grow, urbanized areas will increase in size and the types of facilities that are provided will need to change as well.

Transportation decisions must also increase transportation choices and modal options that provide accessibility to and connectivity among Florida’s economic, community, and recreational assets. This can be implemented through three major types of trips – those between regions and states, those between communities within a region; and those within communities.

Mobility between Regions and States: Florida’s Strategic Intermodal System (SIS) serves as the state’s highest priority for statewide mobility. The SIS includes the transportation hubs, corridors, and connectors that are most important to Florida’s economic competitiveness.

Mobility within Regions: Regional transportation investments should reflect the balance between facilitating efficient travel and transport and maintaining unique community and environmental resources within each region.

Mobility within Communities: Local transportation investments primarily should reflect the importance of community-building, based on the unique vision of each urban or rural community.

As evident in case studies presented in this study, local governments and the public can influence the provision of on-street bikeways and the extent to which the FDOT design standards are implemented. However, FDOT’s participation in accommodating or constructing bicycle facilities is guided by the Florida Transportation Plan (FTP), which is the highest level policy document for the State’s transportation system. The FTP long-range goals and objectives provide guidance as

to how transportation investment decisions are made in the State for approximately \$150 billion over the next 20 years. Transportation decisions for the SIS are also guided by the SIS Strategic Plan.

FDOT has statutory direction, bikeway standards, bikeway development guidelines, bicycle coordinator staff, and design flexibility to implement a more integrated bikeway system statewide as project priorities are identified. The findings of this report illustrate the need for a more concentrated effort for allowing bikeway facilities in regional and local projects. When standards cannot be achieved or where constraints present excessive costs, clearly defined alternatives should be identified and implemented.

Some key components of the implementation strategy could include performance measures, improved data collection efforts, and roadway project accountability checklists. These strategies, supported further in the following recommendations and in the body of the report, will allow FDOT and its partners to continue to develop an integrated statewide bikeway system.



Study Recommendations

The following section outlines study recommendations that represent opportunities for improvement. There are more suggestions for FDOT to review in the *Other Considerations* section located in the body of the report, which may need further analysis and research, but are based on the expert opinion of the consultant team preparing this report and on other studies developed in the State of Florida.

FDOT should develop a performance measure based on a targeted percentage of all state highways to include on-road or off-road bikeways within right-of-way. The current percentage of on-road bikeways on the state highway system is 63 percent. This performance measure should be consistent with the adopted 2025 Florida Transportation Plan that is currently under development, as well as the adopted SIS Strategic Plan.

FDOT should establish a requirement to document design decisions on bikeways in roadway project design (from the Efficient Transportation Decision Making (ETDM) process if applicable). Documented justification should be required when bikeways are not provided or if there were design modifications made to incorporate bikeways. Periodic assessment of all FDOT Districts should be performed to assure their compliance with this requirement.

Local governments, along with FDOT and other transportation partners, should address on-road bikeway needs in urban areas as a high priority. If there are

constraints making the cost disproportionate to the need or probable use, a safe, convenient, and realistic alternative should be provided.

FDOT should re-stripe existing wide curb lanes (greater than 14 feet) to provide for separate bike lanes whenever practical. This is currently allowed under existing FDOT design criteria for RRR projects.