

City of Doral



Bikeway Network Plan





CITY OF
DORAL

For all the right reasons!™

City of Doral Bicycle Network Plan Plan de la Bicicleta

Prepared for:

The City of Doral
Miami-Dade County, Florida



Prepared by:



Kimley-Horn
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Kimley-Horn and Associates, Inc.

in conjunction with
Alta Planning and Design



Executive Summary

The City of Doral's vision for transportation and recreation options includes providing a connected network of trails that can be utilized for traveling around the City and is consistent with promoting healthy, active lifestyles. Therefore, the City of Doral prepared a *Bikeway Network Plan* to identify potential trail projects that would provide



transportation and recreation opportunities for residents, employees, and visitors. Kimley-Horn and Associates, Inc., in conjunction with Alta Planning and Design, was commissioned by the City to develop the *Bikeway Network Plan*.

Doral incorporated on June 24, 2003, and is home to approximately 29,685 residents according to 2004 population estimates from the Bureau of Economics and Business Research (BEBR). In addition, approximately 100,000 people work in Doral. As a newly-incorporated community, Doral is striving to plan for the future of the community by developing master plans such as the *Bikeway Network Plan*. The *Bikeway Network Plan* is part of Doral's effort to provide exceptional value to local stakeholders. As Doral continues to attract positive attention from top employers, young families, and retirees, a network of bikeways that provide transportation and recreation opportunities will be seen as a unique community amenity.

Doral recognizes the benefits that bicycling and other recreational activities can bring to the community. Although many local neighborhood streets exhibit low traffic volumes and are appropriate for bicyclists of all skill levels, no bike lanes or bike paths currently exist. The purpose of the Plan is to develop a network of proposed multi-use trails that will provide dedicated facilities for a variety of users including bicyclists, pedestrians, and rollerbladers. The proposed multi-use trails are intended to be recognizable community assets that conform to the needs of the community. Users of the proposed multi-use trails will be able to enjoy activities such as exercising, accessing the park system, biking to work, and experiencing tranquil outdoor settings.

The *Bikeway Network Plan* identifies seven off-street bikeways that connect to residential neighborhoods, schools, parks, shopping areas, and other community facilities.



- Atlas Trail (Ruta Morada)
- Beacon Trail (Ruta Rosada)
- Dressel's Dairy Trail (Ruta Azul)
- Greenway Trail (Ruta Verde)
- Limestone Trail (Ruta Plata)
- Sunshine Trail (Ruta Amarilla)
- Turnpike Trail (Ruta Roja)

The Doral *Bikeway Network Plan* represents a balanced approach as prescribed in the League of American Bicyclists' national Bicycle Friendly Communities (BFC) model. The BFC approach includes the "Four E's" of Engineering, Education, Encouragement, and Enforcement. When applied in a coordinated approach, the "Four E's" can create a community where bicycling becomes a safe, fun, and healthy form of transportation and recreation for residents and visitors of all ages and abilities. The *Bikeway Network Plan* includes recommended outreach programs for Doral to implement for developing a complete community bicycling program such as establishing a Safe Routes to School program and connecting the *Bikeway Network Plan* with the Get Fit Doral program.

In addition to developing a Plan that was consistent with the Four E's, the *Bikeway Network Plan* included a local outreach component that included presentations to the Doral City Council, a presentation to the Miami-Dade County Bicycle Pedestrian Advisory Committee (BPAC), an advertised public meeting, and meetings with partner agencies such as the Miami-Dade Metropolitan Planning Organization (MPO) and the Miami-Dade Park and Recreation Department (MDPR). Comments and guidance that were received through these activities were included in the Plan.

The implementation plan includes working with public and private sector partners to create the trails envisioned in the Plan. Four "early win" projects were identified as potential demonstration projects based on the opportunity to serve existing users and having fewer identified implementation constraints. These "early win" projects include the Greenway Trail between NW 117th Avenue and NW 107th



Avenue, Dressel's Dairy Trail between NW 87th Avenue and NW 79th Avenue, the Sunshine Trail, and the Limestone Trail between NW 107th Avenue and NW 97th Avenue.



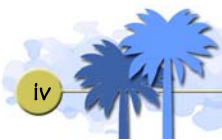




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CHAPTER 1:

Introduction


Kimley-Horn and Associates, Inc., was commissioned by the City of Doral to develop a Bikeway Network Plan. The purpose of the Plan is to develop a network of proposed shared use trails for the City and to serve as an implementation guide for proposed trails and bike lanes. Shared use trails can be utilized by a variety of users including bicyclists, pedestrians, and rollerbladers. The following is a small sampling of activities that can be accommodated by shared use trails.

- Access the park system
- Exercise
- Bike to work
- Walk to a shopping center
- Observe local vegetation and wildlife
- Meet neighbors
- Experience tranquil outdoor settings

The City of Doral recognizes the benefits that trails offer as transportation and recreational enhancements, and desires to develop a Plan to implement a coordinated system of trail improvements. The primary opportunity for the trail network is to develop linkages to recreational parks, such as Doral Park, Miami West Park, Doral Meadow Park, and the new park being planned for the area northwest of the intersection of NW 74th Street and NW 97th Avenue. Additional opportunities include the need to conform with the desires of the community, to develop connections to employment centers, and to develop intermodal transportation linkages.

INITIAL BIKEWAY NETWORK MAP

The initial bikeway network map was developed using geographic information system (GIS) data and land use data for the City of Doral. The purpose of the initial bikeway network map is to identify potential bikeway corridors that will be evaluated throughout the remainder of the study. The network



was designed to take advantage of existing open space, easements, and public rights-of-way. The proposed trails connect residential neighborhoods of Doral to schools, parks, retail centers, and employment centers. Two primary different types of facilities were identified for Doral.

- Off-street trails (shared use paths)
- On-street bicycle facilities

Off-street Trails (Shared Use Paths)

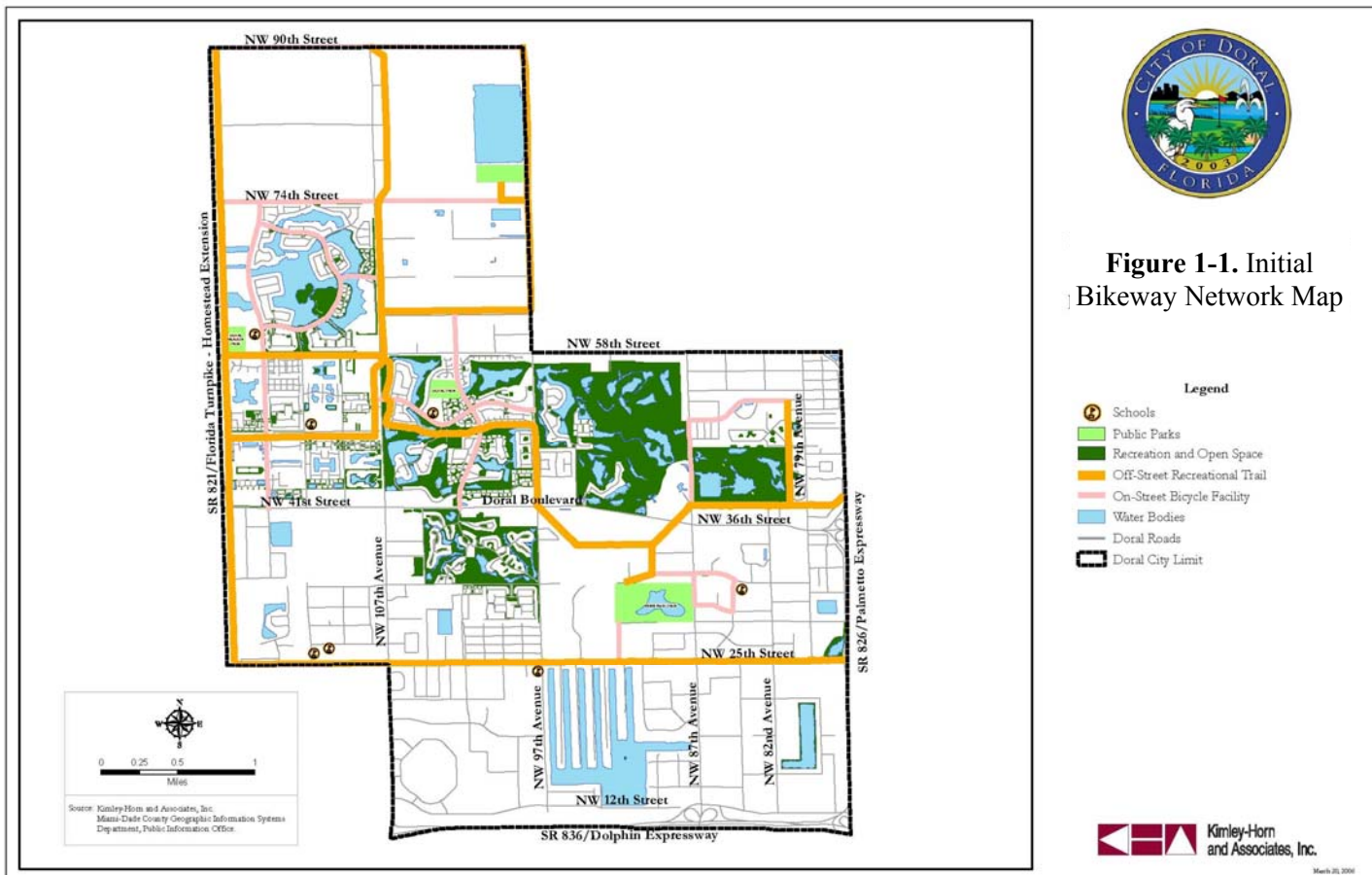
When planning the network, the primary objective was to serve as many areas of Doral as possible with off-street trails (shared use paths). Shared use paths are physically separated from motorized traffic by an open space or a barrier. Shared use paths may be used by bicyclists, pedestrians, and rollerbladers, and typically are used for both transportation and recreational purposes. These trails are desirable because of the buffer from motorized traffic afforded by off-street trails. Opportunities for developing off-street bicycle trails within Doral include the following.

- Utility easements
- Canal rights-of-way
- Public open space
- Open space within future developments

The potential off-street trails identified for the City of Doral include proposed greenway trails identified in the North Dade Greenways Master Plan (NDGMP), as well as additional trail opportunities identified by studying the easements, rights-of-way, and open space within Doral. The NDGMP was adopted by Miami-Dade County in 1998 to establish the vision for an integrated system of greenways in the northern portion of the County.

The following potential trails were identified on the initial bikeway network map, presented in Figure 1-1.

- NW 25th Street canal right-of-way (identified as the Beacon Trail in the NDGMP), which runs east-west across Doral.
- Florida's Turnpike right-of-way (identified as the Turnpike Trail in the NDGMP), which runs north-south along the western boundary of Doral.



- Canal right-of-way paralleling Doral Boulevard, NW 53rd Street, and NW 58th Street. This canal meanders across the entire City of Doral from east to west and passes through several important activity centers and residential neighborhoods.
- Florida Power & Light (FPL) easement along the south side of NW 50th Street running east-west between Florida's Turnpike and NW 107th Avenue.
- FPL easement along NW 107th Avenue running north-south between NW 50th Street and NW 90th Street.
- FPL easement north of and parallel to NW 58th Street between NW 107th Avenue and NW 97th Avenue.
- NW 97th Avenue right-of-way between the FPL easement and NW 90th Street.
- FPL easement west of and parallel to NW 79th Avenue running north-south between the Doral Boulevard canal and NW 53rd Street.
- Connection to the new park northwest of the NW 74th Street / NW 97th Avenue intersection.

On-street Bicycle Facilities

On-street bicycle facilities were developed within the network to supplement the off-street shared use paths. On-street bicycle facilities provide connections to residential neighborhoods and potential bicycle trip attractors that are not served by easements or open public rights-of-way. Several types of on-street bicycle facilities may be appropriate for implementation within Doral as described below.

- Bike lanes form a portion of the roadway and have been designated for exclusive use by bicycles. Bike lanes are not physically separated from traffic, but are marked through pavement markings, striping, and signage.
- Unmarked lanes are similar to bike lanes but are not marked or signed as standard bike lanes. Although separated from motorized travel lanes by striping, unmarked lanes typically do not meet minimum width requirements for classification as bike lanes.
- Wide curb lanes provide a portion of the roadway that can be used by bicyclists, typically in the outside portion of the outer travel lane (curb lane), but are not designated by striping or pavement markings. Bicyclists must share the roadway with motorized vehicles.
- Paved shoulders are separated from travel lanes by the striping representing the outside edge of the outermost travel lane. Paved shoulders are meant to provide space for vehicle breakdowns and correction for driver error. Bicyclists may use the paved shoulder for travel, although the pavement surface is often not as smooth and is sometimes littered with debris if not maintained. Paved shoulders do not exist along roadways with curb-and-gutter drainage systems.

Proposed on-street bicycle facilities were identified along several key roadways including NW 114th Avenue, NW 102nd Avenue, NW 87th Avenue, NW 52nd Street, NW 53rd Street, and NW 74th Street.

Supplemental Trail Infrastructure

In addition to implementing a network of trail facilities, providing trail infrastructure is important to enhance recreational and transportation options. Trail infrastructure can include supplemental amenities that enhance the experience of the user and encourage greater use. It is important to combine trail facilities and trail infrastructure into an integrated system that augments recreational and alternative transportation options.



Examples of trail infrastructure that should be implemented to enhance recreational opportunities include the following.

- Benches are basic amenities that provide opportunities for trail users to rest, stretch, and enjoy the views offered along the trails. Benches should highlight a trail's variety including taking advantage of sunlight, shade, tranquil spots, and busy high-visibility intersections.
- Shelters with roofs and protected seating areas should be placed along the trail to provide opportunities for trail users to escape from elements such as rain and intense sun while providing a pleasant place to rest. Shelters may include a picnic table and are often constructed on concrete pads to avoid bare spots in the vegetation.
- Trash receptacles should be placed at strategic locations along a trail, especially near where people may naturally gather such as picnic tables, shelters, entrances to neighborhoods, activity centers, and parks.
- Interpretive signs provide additional information about features of interest along trails including wildlife, vegetation, and areas of historical significance.
- Trailheads are sites with a cluster of amenities along a trail corridor. Trailheads generally serve as locations that provide trail access from the surrounding community. Trailheads should be developed where possible in high visibility locations next to parks, shopping centers, and residential neighborhoods.

Bicycle infrastructure includes bicycle parking racks, bicycle transport racks, lockers, and even workplace showers. Bicycle racks and lockers are used for bicycle parking and are typically available at schools, libraries, government buildings, and public transit terminals. Traditional bike racks provide little security; bicycle storage lockers provide additional security from theft and protection from the elements. Bicycle transport racks are facilities provided on public transit vehicles that allow transit patrons to bring their bicycle along with them and therefore allow the user to bring the bicycle from trip origin to trip destination. In addition, the availability of showers and lockers at a workplace encourages bicycle commuting by providing facilities that allow employees to maintain a professional appearance. Bicycle infrastructure should be provided along the network to allow greater recreational and transportation options.



CHAPTER 2:

Existing Conditions Analysis & Data Inventory

This chapter of the *Bikeway Network Plan* presents the results of the Data Collection and Existing Conditions Inventory task. The purpose of this task is to (1) build upon the results of prior planning efforts, (2) collect data that will allow the study team to properly assess the existing conditions of alternative travel modes in the City, and (3) determine the bikeway infrastructure needs of the City. At the conclusion of the Existing Conditions Inventory, a list of opportunities and constraints will be developed for the proposed bikeway network in Doral.

PRIOR TRANSPORTATION PLANNING STUDIES

Three prior transportation planning studies were reviewed to determine the applicability of previous recommendations to the initial bikeway network developed for the City of Doral. These prior planning studies were county-wide in nature and did not specifically focus on serving the bicycling needs of the citizens, employees, and visitors of Doral. Regional bicycling mobility and connectivity was a more pertinent concern in each of the three county-wide studies reviewed in this task. Furthermore, each of the three prior planning studies was completed before the incorporation of the City of Doral. The three prior transportation planning studies reviewed for this study are listed below.

- *North Dade Greenways Master Plan*
- *Miami-Dade MPO Bicycle Facilities Plan*
- *2030 Long Range Transportation Plan*

North Dade Greenways Master Plan

The *North Dade Greenways Master Plan* (NDGMP) was prepared in 1998 by Florida International University's Graduate Program in Landscape Architecture and adopted by the Miami-Dade County Board

of County Commissioners. The NDGMP provides for an extensive network of regional urban greenway corridors with connections to major activity centers. The NDGMP study area is bounded on the south by Kendall Drive, on the west by Krome Avenue, on the north by the Broward County Line, and on the east by the Atlantic Ocean. Greenway users are expected to be comprised of bicyclists, rollerbladers, joggers, equestrians, and pedestrians along more than 300 miles of urban corridor. The NDGMP identified two trails that would serve the City of Doral– the Beacon Trail and the Turnpike Trail.

The Beacon Trail is a proposed greenway path to run along the canal right-of-way on the north side of NW 25th Street. The path alignment was conceptually identified within the southerly portion of the NW 25th Street canal easement. Connection opportunities identified along the Beacon Trail include the Beacon Tradeport (current location of the Dolphin Mall), Miami International Mall, and the Airport West employment area.

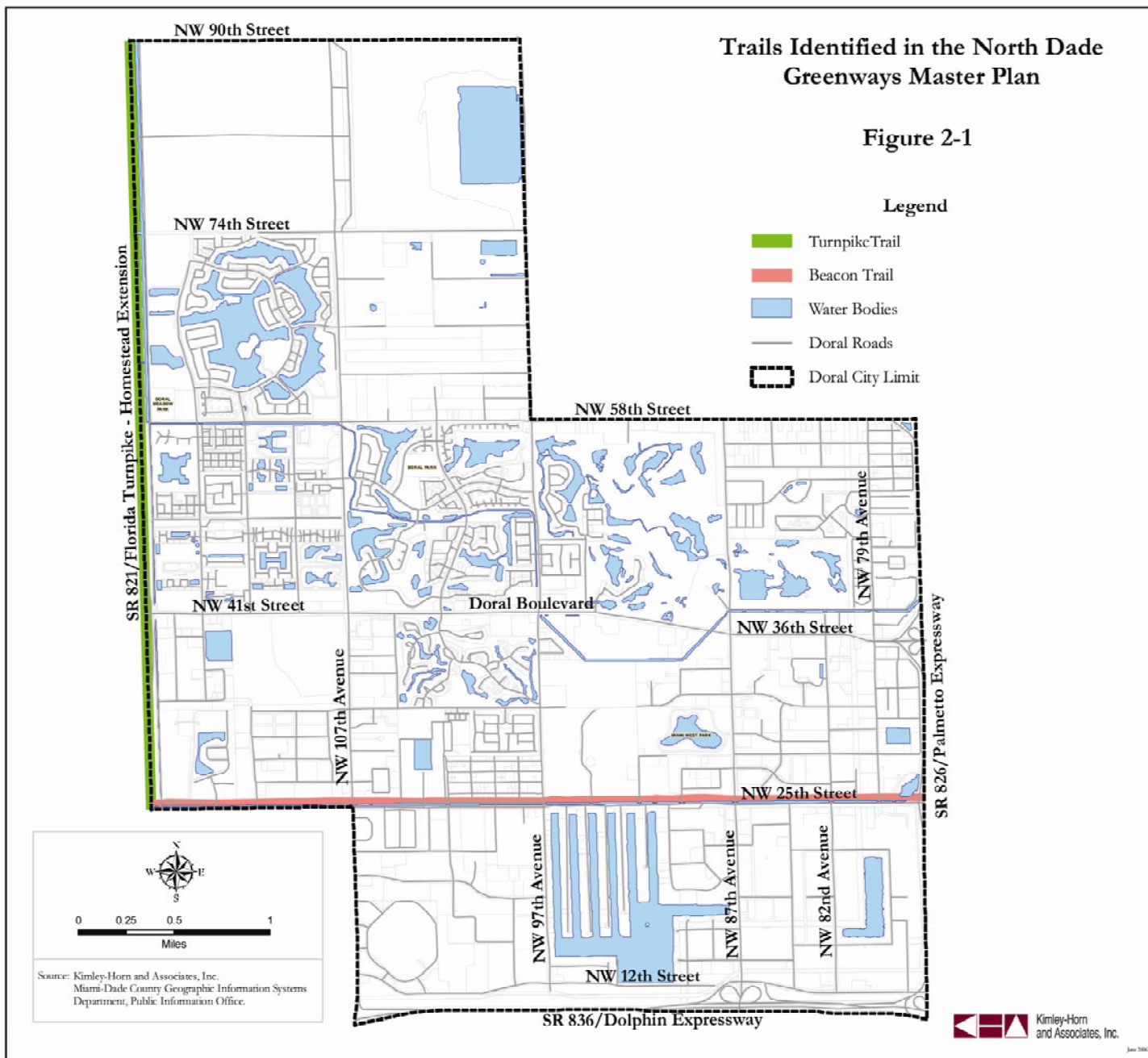
The Turnpike Trail was proposed to run along the Florida’s Turnpike right-of-way between NW 25th Street (the Beacon Trail) and the Broward County Line. The NDGMP identified the Turnpike Trail as running along the western side of the Florida’s Turnpike right-of-way; however, locating the trail along the eastern side of the right-of-way would allow the trail to be better situated to serve potential trail users. The sparsely populated area west of the Turnpike consists primarily of industrial uses and is outside the Urban Development Boundary (UDB).

Figure 2-1 presents the two trails identified in the *North Dade Greenways Master Plan* (NDGMP) located within or adjacent to the City of Doral.

Miami-Dade MPO Bicycle Facilities Plan

The *Bicycle Facilities Plan* was adopted by the Miami-Dade Metropolitan Planning Organization (MPO) Governing Board in December 2001. The purpose of the *Bicycle Facilities Plan* was to update and expand prior bicycle planning efforts, to prioritize bicycle facility projects, and to develop a *Minimum Revenue Plan* based on projected funding. Whereas the NDGMP primarily evaluated off-road shared use trails, the *Bicycle Facilities Plan* evaluated roadways with the potential for developing bicycle projects. Both off-road and on-road bicycle projects were listed in the *Minimum Revenue Plan* for Miami-Dade County. However, the *Minimum Revenue Plan* developed in the *Bicycle Facilities Plan* did not include any off-road nor on-road bicycle projects located within the boundaries of Doral. Only one on-road

bicycle project located partially within Doral was identified as a “candidate project” in the *Bicycle Facilities Plan*– NW 36th Street between NW 87th Avenue and NW 27th Avenue. However, this “candidate project” was deemed not feasible due to an identified right-of-way constraint. Both the Beacon Trail and the Turnpike Trail (as proposed in the NDGMP) were listed as Unfunded Greenway Projects in the *Bicycle Facilities Plan*.



2030 Long Range Transportation Plan

The *2030 Long Range Transportation Plan* (LRTP) was adopted by the Miami-Dade MPO Governing Board in December 2004. The LRTP identifies “cost feasible” and “unfunded needs” projects for various transportation modes including roadway, transit, and bicycle. The 2030 LRTP includes a Greenway and Trail component. Off-road bicycle and pedestrian facilities were identified and included in the “cost feasible” plan. However, no greenway or trail projects were included in the *2030 Cost Feasible Plan* within the City of Doral. The 2030 LRTP does not include other non-motorized transportation projects (such as on-road bike lanes and sidewalks). These projects are considered by the LRTP process to be part of standard roadway design and should be funded and implemented through projects such as roadway widening or reconstruction.

The roadway projects presented in Table 2-1 were identified by the 2030 LRTP “cost feasible” plan within the City of Doral. These projects are candidates for bicycle improvements (such as bike lanes) in conjunction with the proposed roadway improvements identified in the 2030 LRTP. The City should coordinate with the County to include appropriate bicycle facilities as part of the roadway widening and construction process.

Summary of Prior Planning Studies

In summary, few bicycle projects have been identified within the City of Doral by prior transportation planning studies. The two greenway trails that were identified in the *North Dade Greenways Master Plan* are regional in nature and provide little connectivity with Doral’s residential neighborhoods and activity centers. Figure 2-1 presents the trails identified in the NDGMP– the Beacon Trail and the Turnpike Trail. Future roadway construction and widening projects offer opportunities to provide bicycle facilities along key roadways, and the City should coordinate with the County on those opportunities.



TABLE 2-1. 2030 Long Range Transportation Plan Projects

Priority	Time	Project / Facility	From	To	Project Description
I	2005-2009	NW 25th Street	NW 87th Avenue	SR 826 / NW 77th Avenue	Add lanes and reconstruct (add 1 to existing lanes)
II	2010-2015	NW 74th Street	SR 826 (Palmetto Expressway)	HEFT/ Florida's Turnpike	Widen to 6 lanes
Developer Responsibility		NW 90th Street	NW 107th Avenue	NW 87th Avenue	New 2 lane
II	2010-2015	NW 87th Avenue	NW 36th Street	NW 58th Street	4 to 6 lanes
I	2005-2009	NW 97th Avenue	NW 25th Street	NW 41st Street	Widen from 2 to 4 lanes
III	2016-2020	NW 97th Avenue	NW 58th Street	NW 74th Street	2 to 4 lanes
Developer Responsibility		NW 97th Avenue	NW 74th Street	NW 90th Street	New 4 lane
III	2016-2020	NW 107th Avenue	NW 25th Street	NW 41st Street	4 to 6 lanes
Developer Responsibility		NW 107th Avenue	NW 41st Street	NW 106th Street	New 4 lane


DATA INVENTORY

Previous data collection inventories were researched to determine pertinent information for bicycle planning activities. New data were collected where necessary to supplement the available data. *The City of Doral Comprehensive Plan*, submitted for adoption in August of 2005, contains information on current and future land uses, park locations, school locations, traffic volumes, and bicycle and pedestrian facilities. The data presented in the Comprehensive Plan focuses on the incorporated City of Doral, and is the most recent body of data available on the City's transportation and recreation facilities.

Transit Service

According to the Draft Comprehensive Plan, roughly 2.9 percent of the 2000 working population used public transportation, walked, or used some measure of transportation other than a motorized automobile to travel to work. Furthermore, approximately 3 percent of the 7,692 households in the City of Doral are without a vehicle according to data reported in the 2000 Census. The public transit available within Doral





includes seven Miami-Dade Transit (MDT) bus routes and the Koger/Tri-Rail Shuttle. These routes are illustrated on Map A in the Appendix. It is noted within the Draft Comprehensive Plan that, while the western portion of the City offers a variety of commercial and industrial employment centers, it is not served by public transit.

Providing connections to public transit routes is important for a community's bicycle network to allow increased mobility through bike-and-ride programs such as those offered by MDT. Bike racks are available on Metrobuses to allow bicyclists to extend their rides.

Traffic Level of Service

Results from the level of service (LOS) analysis conducted for the Draft Comprehensive Plan demonstrate adequate traffic operating conditions on most of the arterial network within the City of Doral, as depicted on Map B in the Appendix. However, portions of NW 25th Street, NW 36th Street, and NW 107th Avenue currently operate at LOS F. These facilities carry a high percentage of through trips, serving as primary routes within the countywide traffic circulation system.

High-volume roadway facilities operating at LOS F conditions are not conducive to carrying on-street bicycle trips, according to *FDOT's 2002 Quality Level of Service (QLOS) Handbook*. The prevalence of high-volume roadways within Doral underscores the need to develop off-street bicycle trails.

Sidewalk Locations

According to the Draft Comprehensive Plan, most of the major thoroughfares within the City have sidewalks on at least one side. NW 87th Avenue, most of NW 107th Avenue and most of NW 36th Street/NW 41st Street have sidewalks on both sides. Sidewalks are also present on portions of NW 58th Street, NW 25th Street, and NW 97th Avenue. Sidewalk deficiencies are noted for a majority of the local streets within residential neighborhoods of the City and in the entire northwestern segment of the City. Map C in the Appendix depicts sidewalks inventoried for the Draft Comprehensive Plan.

Shared use trails are meant to supplement existing sidewalks by providing wider and more continuous paths for enhanced transportation and recreation opportunities. However, sidewalks may provide important connector paths for accessing the proposed bikeway network.



Bicycle Facilities

According to the Draft Comprehensive Plan there are currently no designated bicycle facilities in the City of Doral, including bicycle paths or on-street bicycle lanes.

It is apparent that there is a concentration of both traffic and multimodal services within the southeastern area of Doral. On the contrary, the northwestern portion of the City is lacking in both bicycle and pedestrian facilities, in addition to transit service. While the provision of such facilities is needed in underserved areas, it appears that there is an additional demand for increased capacity in the currently serviced area. In addition, there is a lack of connectivity on the bicycle and pedestrian network for east-west traffic and inter-neighborhood travel.

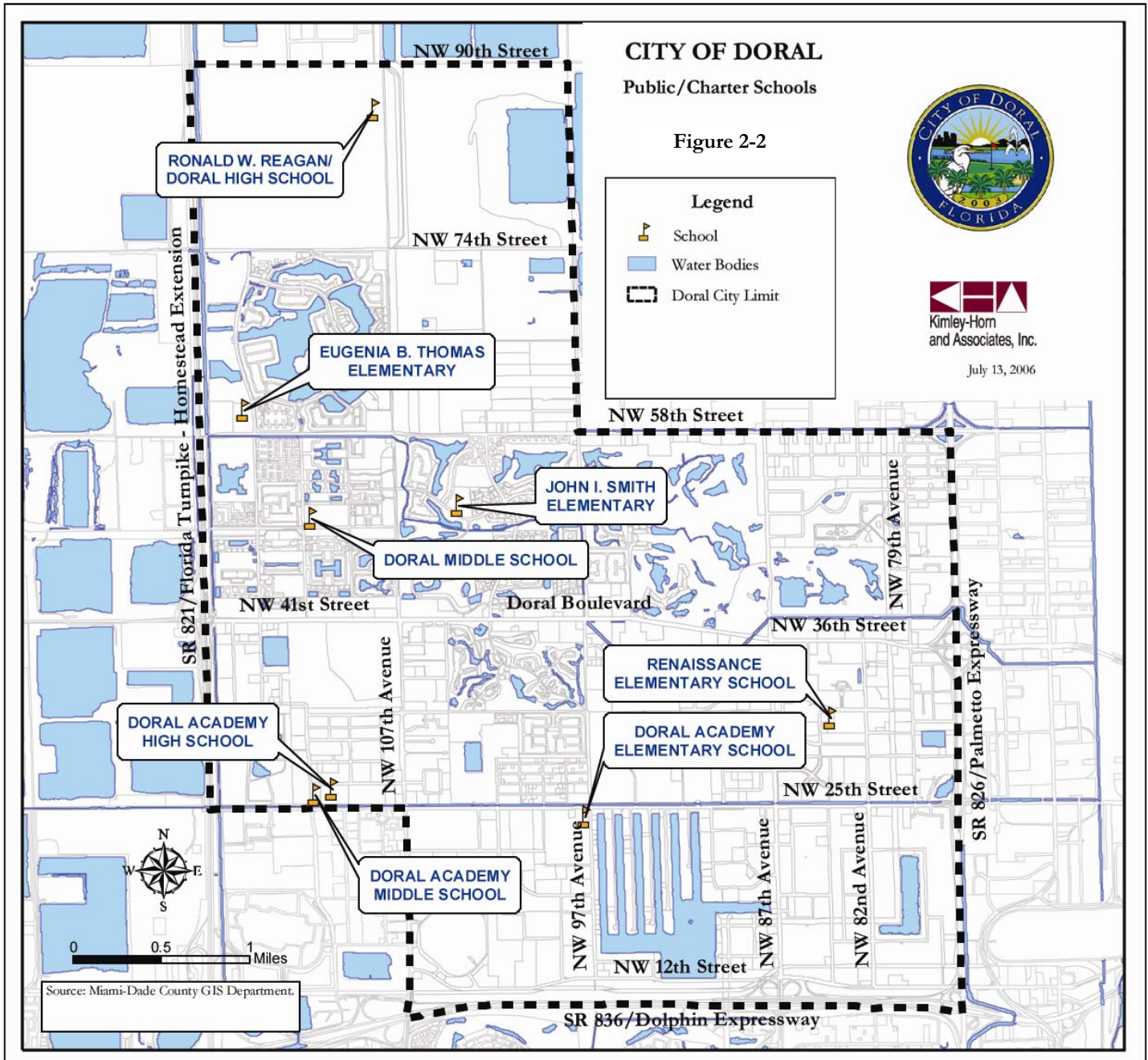
Planned Bicycle Facilities

According to the Draft Comprehensive Plan, an off-street bicycle path is planned in both the northwestern quadrant of the City, primarily along NW 107th Avenue, and in the southeastern portion of the City, primarily along NW 79th Avenue. Map D in the Appendix depicts the planned bicycle facilities identified in the Draft Comprehensive Plan.

Field reviews performed for the *Bikeway Network Plan* have indicated that the NW 79th Avenue path is not feasible south of NW 36th Street due to obstruction of the FPL Easement by surrounding land uses, primarily for driveways and parking areas.

School Locations

The eight schools located in Doral are depicted on the map in Figure 2-2. The School Locations Map presented in the Draft Comprehensive Plan was updated for this study to include Ronald W. Reagan/Doral High School. Of the eight schools currently located in the City of Doral, two lie adjacent to the planned northwestern trail: Ronald W. Reagan/Doral High School and Doral Middle School. None lie adjacent to the planned eastern trail. The remaining schools lie within the central City, bound on the north by NW 58th Street, on the south by NW 25th Street, on the east by NW 79th Avenue and on the west by Florida's Turnpike.



Bicycle Shops

There is currently one known bicycle shop in the City of Doral, R B Cycles. The shop is located on NW 41st Street at NW 114th Avenue. This location is approximately one-half mile from the nearest planned



bicycle trail. Except for the most experienced bicyclists, this location is only primarily accessible by automobile from NW 41st Street.

Land Use

The majority of major trip generators within the City are found within the central area mentioned above, including most residential neighborhoods, schools, civic centers, and employment centers, as depicted on Map E in the Appendix. Many additional commercial, employment and industrial centers are located south of NW 25th Street. In addition, the existing parks lay within the central portion of the City, with another park planned for the northern area, the proposed park on NW 97th Avenue north of NW 74th Street. While the majority of residential neighborhood centers currently lie within the central City, residential growth is demonstrated in the Comprehensive Plan Future Land Use Map in the northern segment of the City, as depicted on Map F in the Appendix. Employment centers are projected to remain concentrated in the south.

Major residential areas are generally located north of NW 41st Street and west of NW 97th Avenue. Future land use expansions call for additional residential areas in the northwestern portion of the City including some mixed-use developments. A major mixed-use development, Downtown Doral, is planned for the area surrounding NW 53rd Street between NW 87th Avenue and NW 79th Avenue. Bikeway connections to planned mixed-use developments are critical to providing an environment for bicycling to flourish as an important recreational activity and a viable transportation option.

CONCLUSION

Combined, the planned bicycle trails designated in the *North Dade Greenways Master Plan* and the Draft Comprehensive Plan for the City of Doral begin to establish the outline for a connected network by designating a western and southern perimeter edge and two rough north-south spines. However, the Draft Comprehensive Plan has identified major trip generators throughout the City, including employment centers, neighborhoods, and parks. The majority of these are in the central area of the City between NW 41st Street and NW 58th Street. There is a lack of connectivity for alternative transportation systems throughout this area and surrounding neighborhoods of the City, both between communities and land uses. Figure 2-3 presents a summary of several critical data inventory elements including schools, parks, and utility easements.

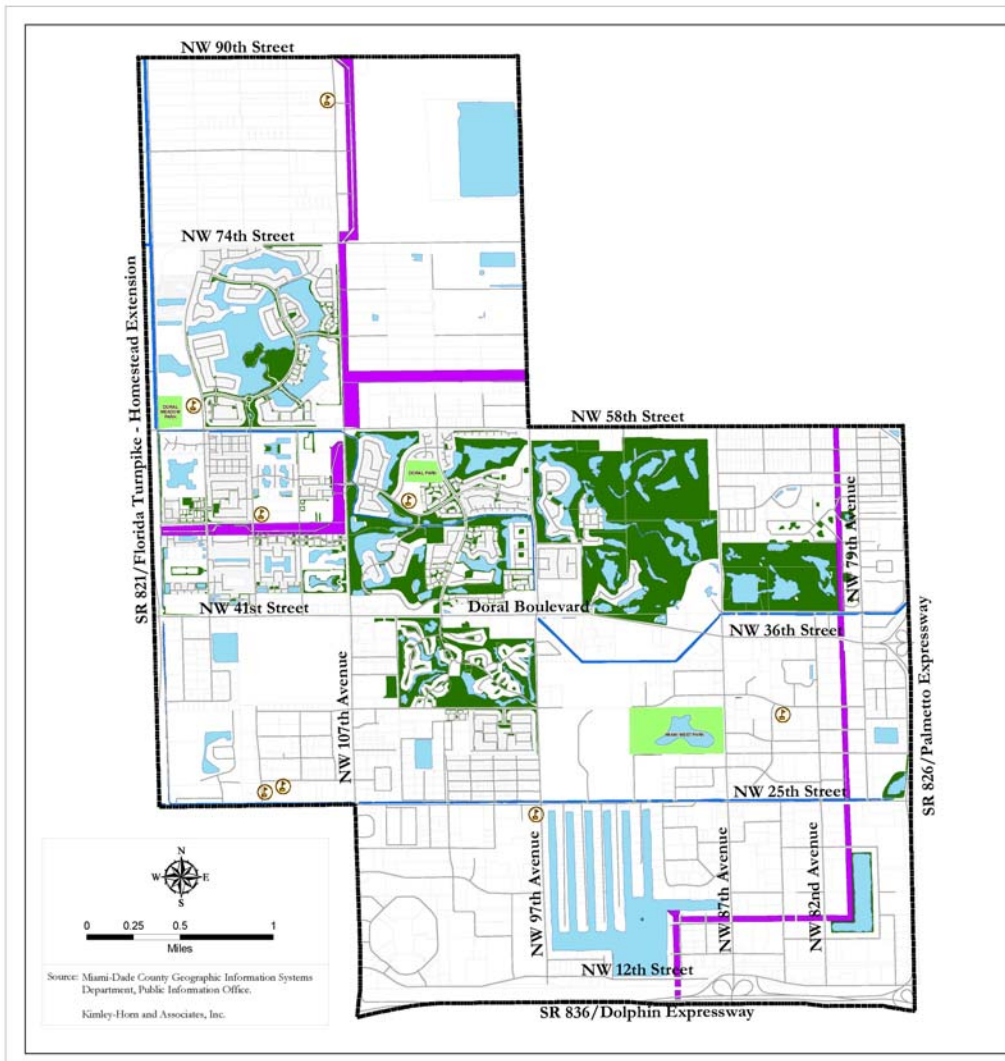


School, Park, and Easement Locations

Figure 2-3

Legend

- Schools
- Public Parks
- Recreation and Open Space
- Florida Power & Light Easement
- Canal Easement
- Water Bodies
- Parcels
- Doral Roads
- Doral City Limit



Based on current land use data, transportation conditions, and planning documents related to the City of Doral, the development of a connected network of bike trails is both beneficial and viable. The existing conditions within the City present several opportunities and constraints for the development of a bicycle transportation and recreation system, as described below.

Constraints:

- Limited connectivity between existing neighborhoods presents a challenge in locating existing trail opportunities.



- The failing Level of Service (LOS) on several of Doral's arterials creates a challenge in safety and access for alternative modes of transportation.
- The land use composition along utility rights of way presents challenges in certain locations for establishing a consistent, safe, and appropriately placed trail system due to inconsistencies in surrounding use and ownership.

Opportunities:

- FPL easements with existing greenway/open space provisions are present within the City and provide an attractive opportunity to utilize the space for bicycle trails separated from automobile traffic.
- Canal and FPL easements span the length and width of the City and represent potential trunk routes for a future bikeway network.
- The success of the City's "Get Fit Doral" program indicates that the community may be receptive to the development of a bikeway network.
- The development of a bikeway network provides the opportunity for the City to work with schools in the creation of Safe Routes to School.
- The failing LOS on several of Doral's primary arterials presents an opportunity for alternative transportation modes to relieve some congestion through the use of bikeways and shared use trails.
- An improvement in the pedestrian and bikeway network will benefit the Transportation Disadvantaged community, who comprised 3 percent of the City's population in 2000.
- Growth within the City of Doral presents the opportunity for the City to work with developers to increase the connectivity and accessibility of bike paths and sidewalks.

CHAPTER 2 APPENDIX:

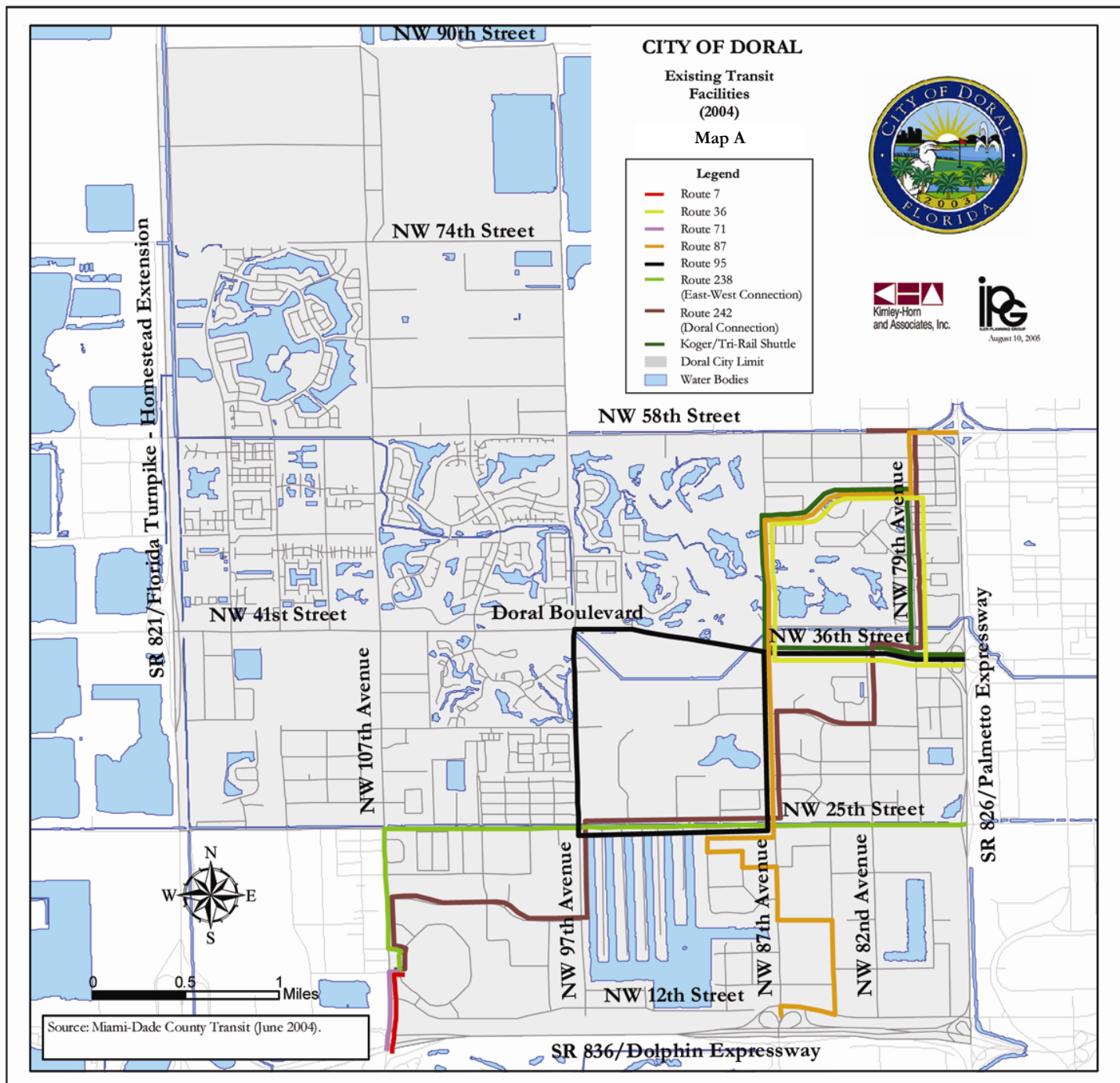
Draft Comprehensive Plan Map Series

The maps included in this section are:

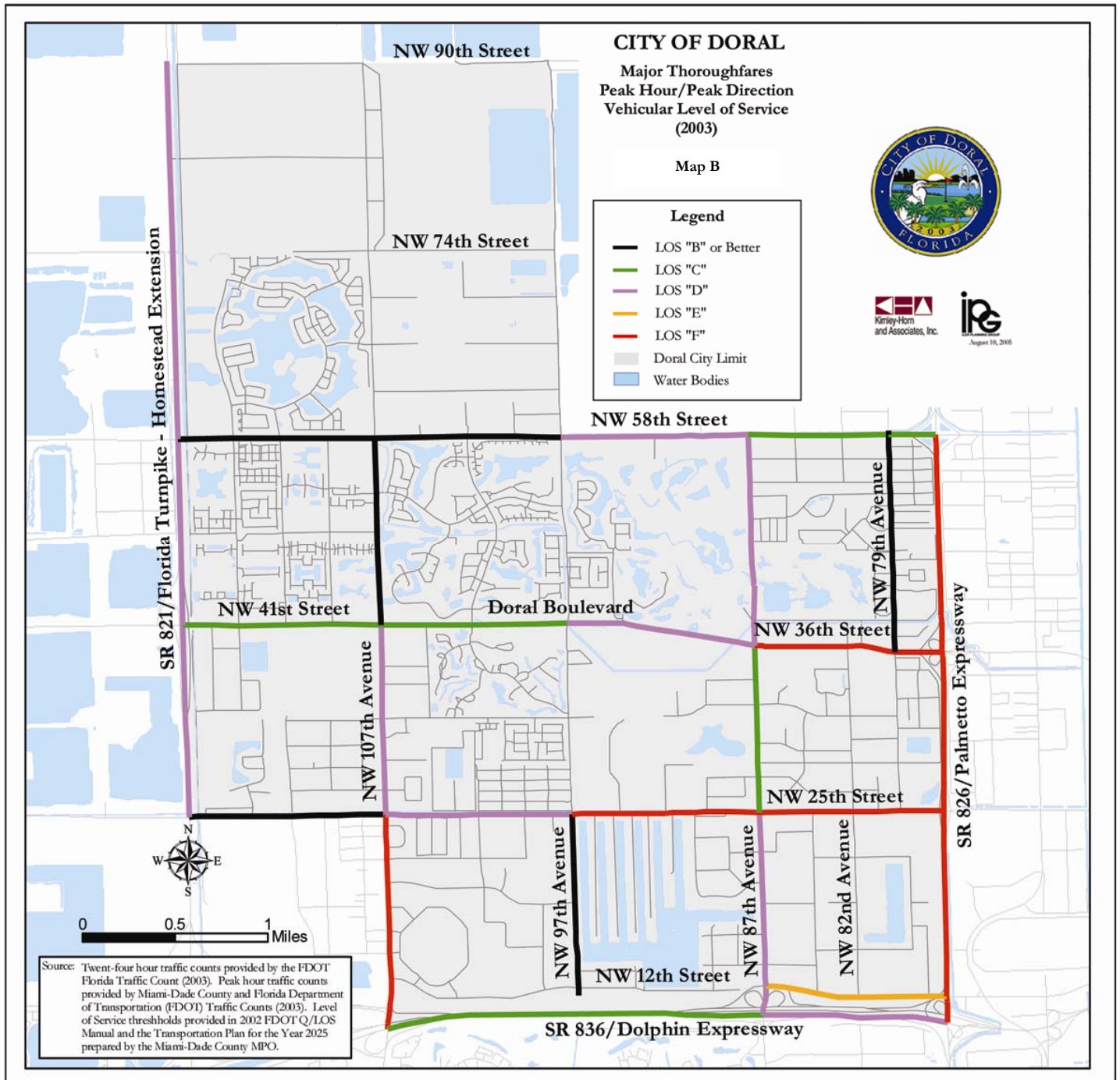
- Map A. Existing Transit Facilities
- Map B. Major Thoroughfares Peak Hour/Peak Direction Vehicular Level of Service
- Map C. Major Thoroughfares Existing Pedestrian Facilities
- Map D. Future Bicycle Facilities
- Map E. Major Trip Generators and Attractors
- Map F. Comprehensive Plan Future Land Use Map



MAP A

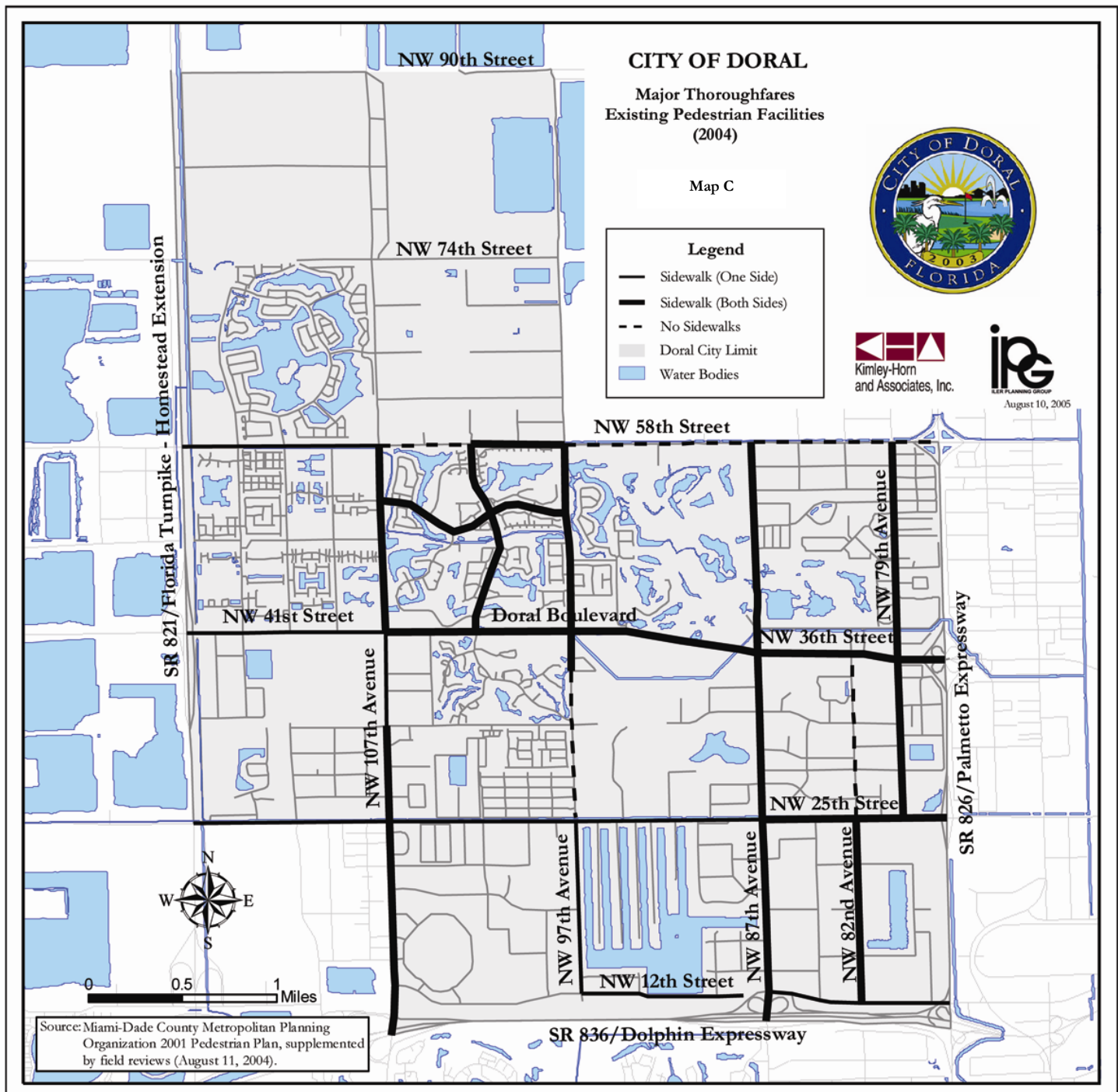


MAP B

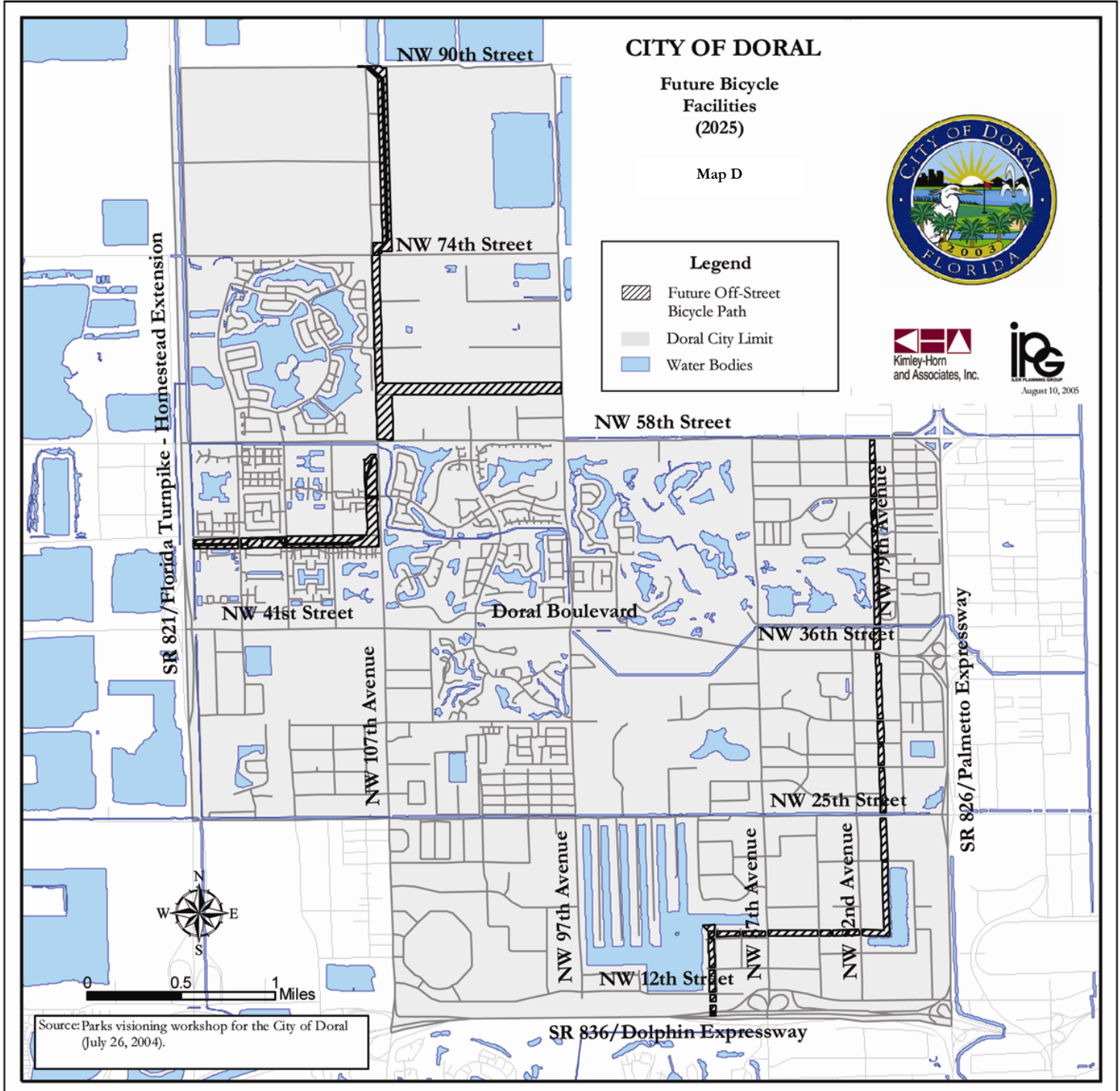




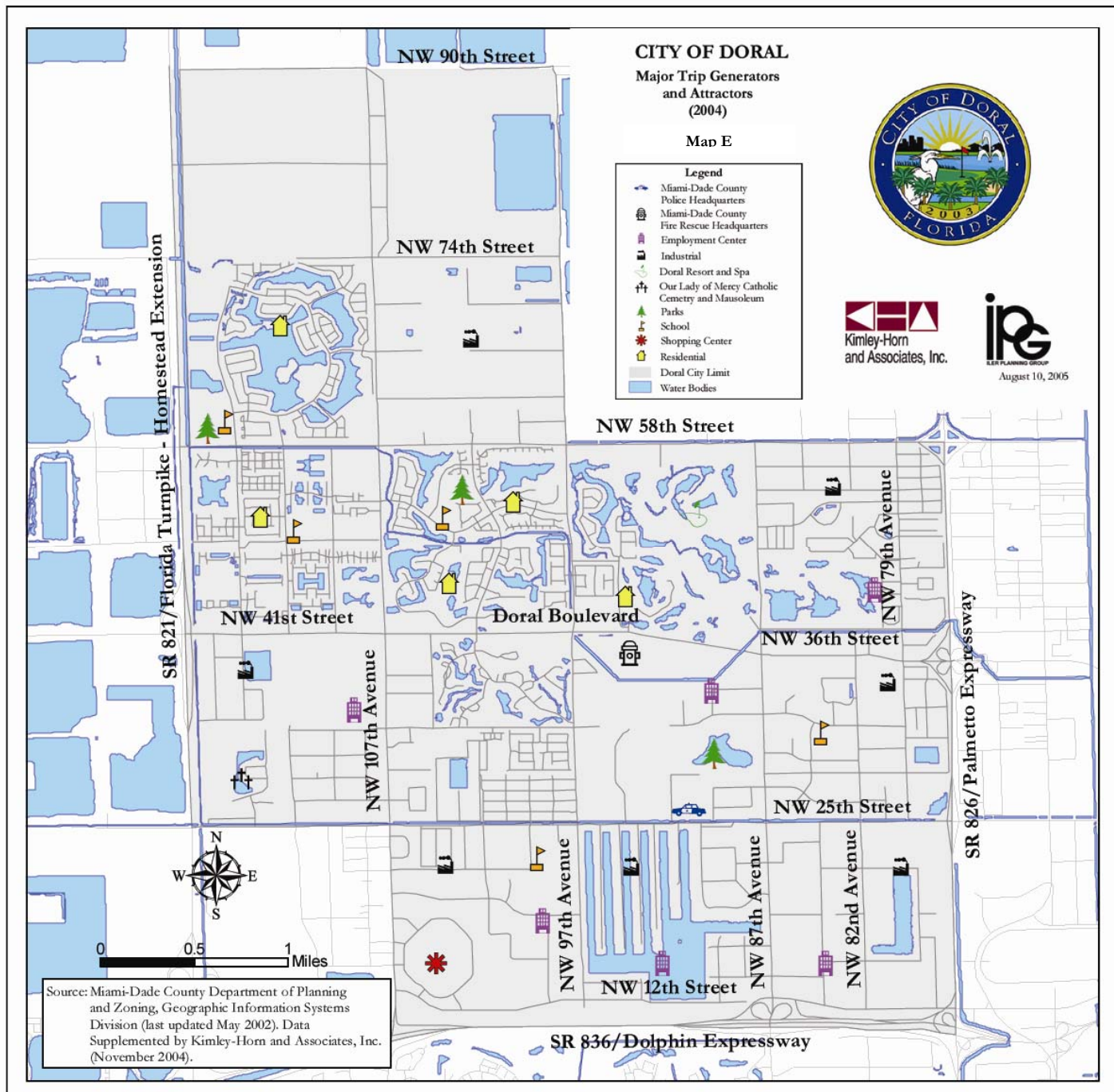
MAP C



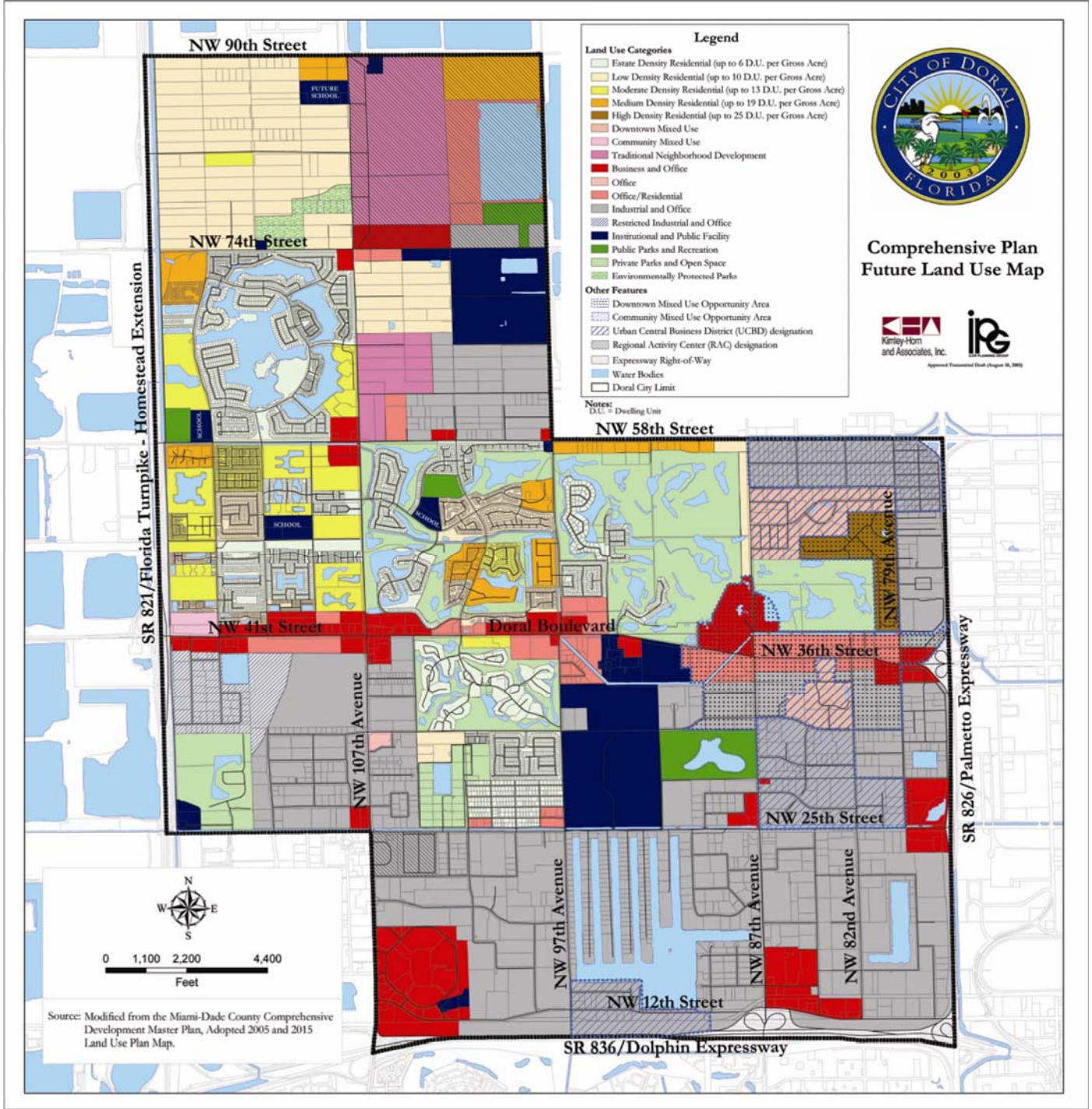
MAP D



MAP E



MAP F



CHAPTER 3:

Creating a Balanced Approach

Public outreach is an important component of a successful bikeway planning effort. As part of the public outreach component for the City of Doral's *Bikeway Network Plan*, a public education, encouragement, and enforcement plan was developed based on the League of American Bicyclists' national Bicycle Friendly Communities (BFC) model.

The Doral *Bikeway Network Plan* represents a balanced approach as prescribed in the BFC model. The BFC approach includes the "Four E's" as listed below.

- Engineering
- Education
- Encouragement
- Enforcement

Each of these categories is essential for developing a complete community bicycle program. The engineering component is represented by several other tasks of the Doral *Bikeway Network Plan* including performing an existing conditions analysis, identifying the proposed bikeway network, and developing a standard trail design. This chapter of the plan focuses on the three E's that are often overlooked when many communities are conducting bicycle planning – education, encouragement, and enforcement.

When applied in a coordinated approach, the "Four E's" can create a community where bicycling becomes a safe, fun, and healthy form of transportation and recreation for residents and visitors of all ages and abilities. A wide variety of existing safety and promotional materials are available for Doral to utilize.

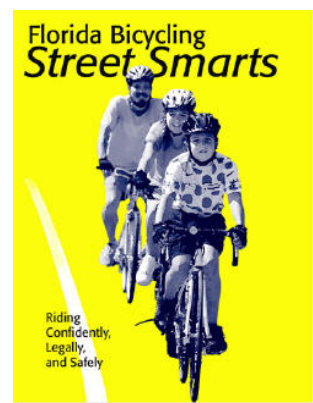


Information on the League of American Bicyclists' "BFC" program is available online at <http://www.bicyclefriendlycommunity.org/>.

Materials are available in English and Spanish. A multi-lingual approach will be important for reaching the South Florida community. This chapter identifies “Share the Road,” Safe Routes to School, Bike Month, and other concepts for Doral to implement. Specific materials and program recommendations are outlined in the following sections of this chapter. The appendix of this chapter includes samples of multi-lingual materials from other communities.

EDUCATION: SHARE THE ROAD

One of the challenges Doral and all Florida communities face is the need to educate motorists, bicyclists, and pedestrians about their respective rights and responsibilities. Even if the City were to build all the bikeways proposed in this plan, it would still be necessary to communicate to the public that all transportation choices have certain rights and obligations under Florida law. Fortunately, the Florida Bicycle Association (www.bikeflorida.org), working in cooperation with the Florida Department of Transportation (FDOT) and other partners, has developed an excellent “Share the Road” program that is available to local communities. The program website provides public service announcements in both English and Spanish, and free brochures and documents. In addition, a local training program is available. Furthermore, “Share the Road” mini-grants are available, which are described on the program website as follows:



The Share the Road Program provides excellent resources to develop a local bicyclist safety education program. License plates, the Street Smarts safety manual, and bilingual public service announcements (including “Get Out and Ride,” and “Go With the Flow”) are available through the Florida Bicycle Association.

Source: <http://www.bikeflorida.org>

“Through the sale of the ‘Share the Road’ specialty license plates, Bike Florida has established a mini-grant program to provide funds to agencies/organizations throughout the state who are promoting bicycle and pedestrian safety programs. The mini-grants, while minimal, provide assistance to purchase equipment (such as road or trail signage, bikes or bike repair for educational programs, etc.), printed materials (printing of bicycle safety information, safety signage for bicycle events, trail maps, etc.) or other safety related

projects.”

(Source: www.bikeflorida.org/ShareTheRoadSpecialtyTags/mini_grant_application.htm)

Since children can only travel independently by walking and bicycling, it is very important to educate them and their parents about the rules of the road. The State of Florida has a nationally recognized program that is available to local schools. This program is described as follows:

“The Florida Traffic and Bicycle Safety Education Program is a state-wide, comprehensive school-based program geared for teaching elementary and middle school children traffic savvy through classroom instruction and on-bike skills. The program teaches educators, youth leaders, and resource officers about bicycle & traffic safety skills and rules of the road. They, in turn, teach children to act predictably and competently in traffic. The program is funded by the Florida Department of Transportation.”

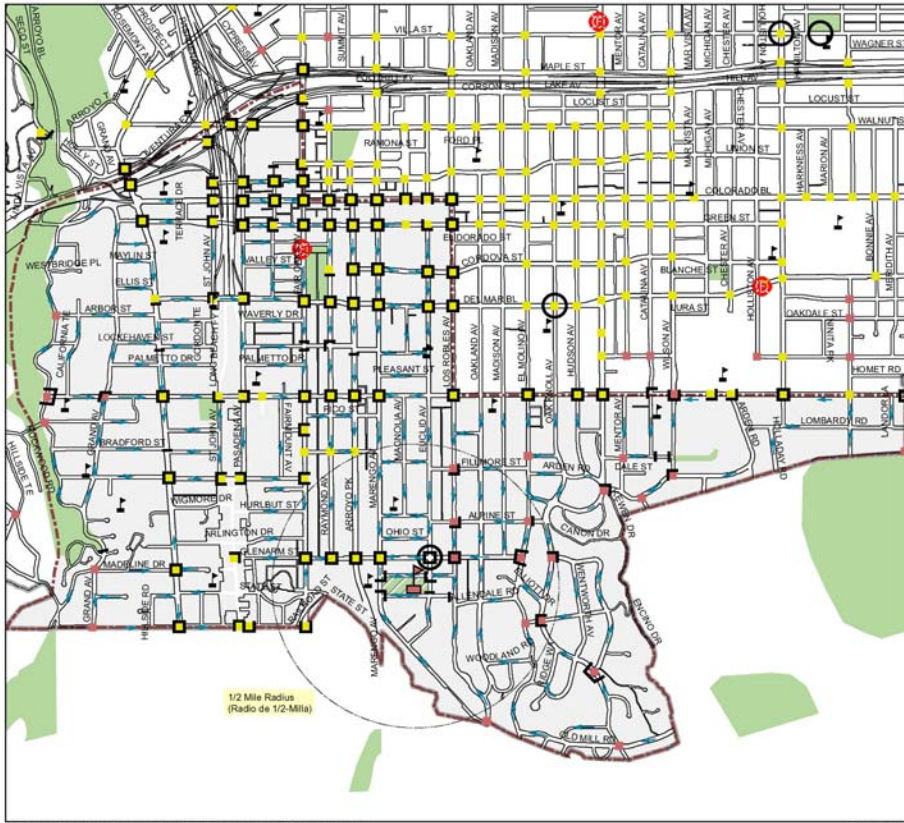
(Source: <http://www.dcp.ufl.edu/centers/trafficsafetyed/>)

EDUCATION: SAFE ROUTES TO SCHOOL

In addition to teaching children and adults to behave safely in traffic, there is a new program evolving to ensure that schools are accessible by children who walk or bicycle. This is part of a national ‘Safe Routes to School’ movement that recognizes the safety, health, and environmental benefits of walking and bicycling to school. Safe Routes programs integrate *engineering, education, enforcement* and *encouragement* to make schools a central part of community-based transportation solutions. Safe Routes to School programs can be initiated by individual schools, school districts, or by the city, county or transportation agency under whose jurisdiction the school is located. Safe Routes to School programs rely on the participation of students, teachers, parents and law enforcement officials to evaluate the existing and proposed routes. Safe Routes to School Programs may be initiated with the help of an advocacy organization or consultant, who can help to develop school-specific route maps for distribution to students, teachers and parents. An example of a walking route map from the City of Pasadena is displayed below. The City of Doral could develop similar maps for bicycling to school.



Information about Florida’s model “Safe Ways to School” program is available at www.dcp.ufl.edu/centers/trafficsafetyed/safeways.htm



WALKING ROUTES Allendale Elementary School

- Walking Route (Ruta Peatonal)
- Allendale School (Allendale Escuela Primaria)
- Traffic Signal (Semáforo)
- All Way Stop (Señal de Alto para toda Vía)
- Crossing Guard (Guardia de Cruce)
- Crosswalk (Paso Peatonal)
- City Limit (Límites de la Ciudad)
- Park (Parque)
- Fire Station (Estación de Bomberos)
- School (Otra Escuela)

0 500 1,000 1,500 2,000 2,500 3,000
Feet (Pies)

This map is intended for information purposes only. The City of Pasadena assumes no responsibility for using these routes. Please refer to the following sources for additional information.

Pasadena Unified School District: www.pusd.us
 Pasadena Dept. of Transportation: www.cityofpasadena.net/trans/
 Pasadena Police Department: www.cityofpasadena.net/police/
 Megan's Law: www.meganlaw.ca.gov
 Pasadena City Bike Map: www.cityofpasadena.net/trans/psdbikeway/bikemapng.asp
 Local Transit Maps: www.cityofpasadena.net/trans/psdbikeway/bikemapng.asp
 Caltrans Safe Routes to School: <http://www.dot.ca.gov/hq/LocalPrograms/saferroutes2.htm>

Prepared by Parisi Associates Transportation Consulting and Alta Planning + Design. February 2006

The City of Doral has two public elementary schools, John I. Smith and Eugenia B. Thomas, one middle school, Doral Middle School, one private school, and three charter schools. The Ronald W. Reagan/Doral High School is located along NW 107th Avenue. Although not located in Doral, Miami Springs Senior High School also serves high-school aged Doral residents. With a land area of 15 square miles, largely flat topography, and a temperate climate, the City of Doral is well-positioned to encourage bicycling to and from school.

With the federal passage of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation in 2005, Safe Routes to School programs are now eligible for federal funding. There is a projected \$4 million dollars available in Florida in 2006 and \$6 million dollars available in 2007. Additional information regarding Safe Routes to School projects and available

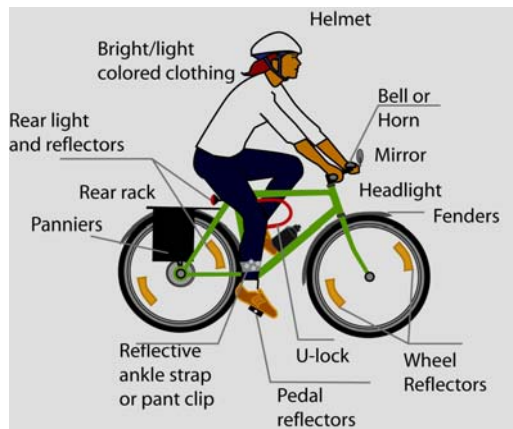
funding can be found at www.saferoutesinfo.org. Examples of Spanish language Safe Routes to Schools materials, developed by the State of California, are located in the appendix of this chapter.

In Florida, a model program has been developed that can assist Doral in enhancing safety and mobility in neighborhoods and school zones. It is described as follows:

“The program, which is administered by the Florida Traffic and Bicycle Safety Education Program in the Department of Urban and Regional Planning at the University of Florida, has developed a set of tools to help schools assess and improve hazardous conditions that exist around school sites and in surrounding neighborhoods. The project is implemented by creating school-based safety teams that work with parents, students, school staff and city/county officials to carry out various assessments, surveys, and an on-going educational component.” The Florida Traffic and Bicycle Safety Education Program used the information obtained from a two year pilot program to create a "tool kit" that can be used by schools throughout the state and nation to create a safer bicycling and walking environment for children. The tool kit (available in Florida) includes a student travel survey, a school site design assessment, a neighborhood site assessment, parent and student attitudinal surveys, a video, "How To" manual, clipboard, pen and file folders, all in a schoolhouse box carrying case.”



The Florida Department of Greenways and Trails also publishes a children's activity booklet, “The Greenways and Trails Journey” which educates children about the importance of greenways and trails and teaches good trail practices, such as staying on the trail and showing courtesy to other trail users. The full booklet can be found at www.dep.state.fl.us/gwt/ed/.

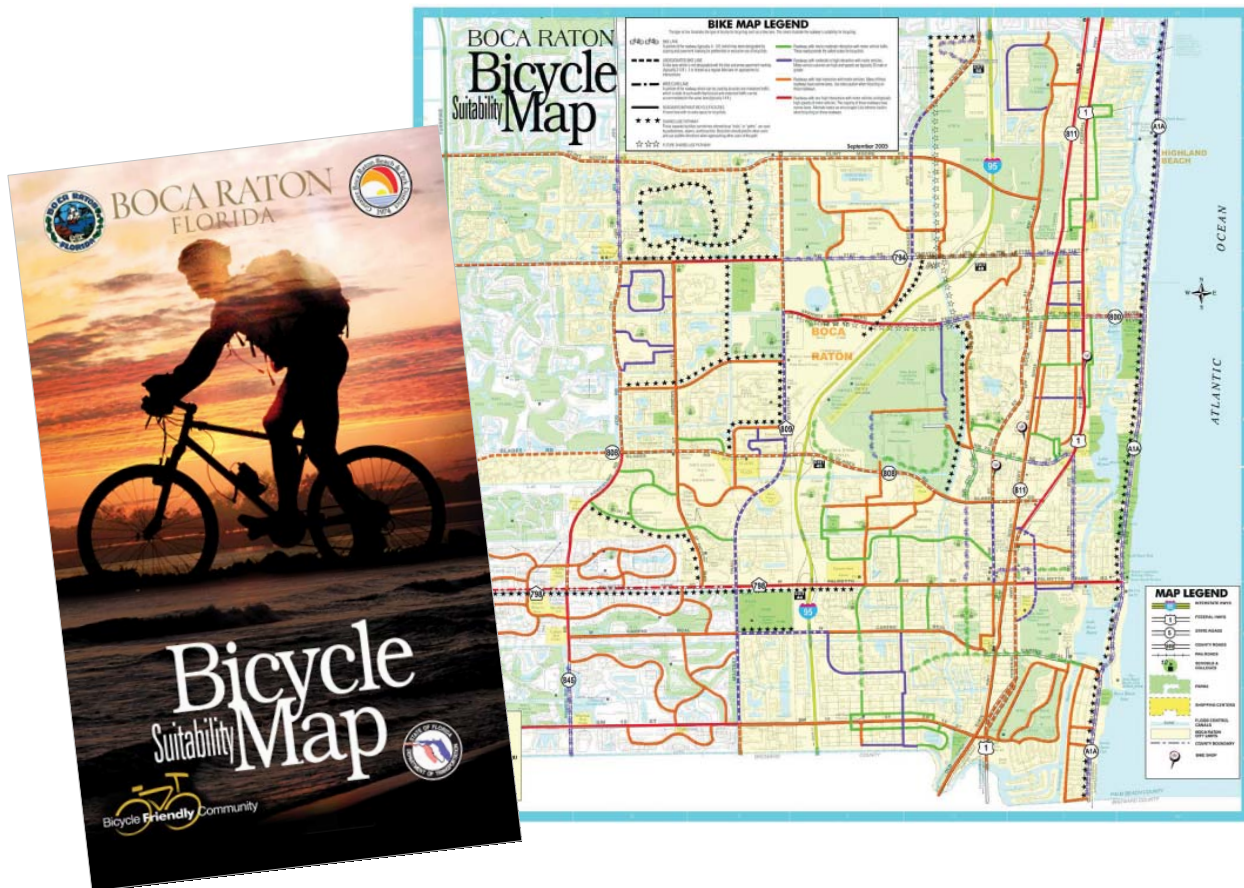


Graphics depicting recommended cycling gear for commuting, may be included on a bicycle user map.

EDUCATION: BICYCLE USER MAPS

Bicycle user maps provide cyclists with the knowledge needed to navigate the area on bicycle. Bicycle user maps may include information regarding the location of bicycle facilities, the amount of interaction with traffic, the location of bicycle repair shops, transit stations and popular cycling destinations such as school and parks.

Bicycle user maps can also provide general cycling information such as tips for commuting by bicycle, contact information for local bicycle clubs and advocacy organizations. Bicycle user maps should be designed for ease of use while cycling, and may be printed on durable, water-resistant coated paper.



An example of a bicycle user map is the Boca Raton Bicycle Suitability Map, which depicts bike trails, bike lanes, bicycle repair shops, and bicycle suitability ratings for arterial and collector roadways based on the amount of interaction with traffic. Boca Raton is designated by the League of American Bicyclists as a Bicycle Friendly Community (BFC).



ENFORCEMENT: THE RULES OF THE ROAD

Law enforcement is a critical part of ensuring a community's mobility and safety. For bicyclists, this includes both enforcing motorists' behavior towards cyclists, and ensuring that bicyclists follow the rules of the road. It is common to see bicyclists riding the wrong way (against traffic), proceeding through red traffic signals, and riding on the sidewalk. In many cases this is because bicyclists have never been taught the rules of the road, or because they perceive the roadway system to be unsafe. At the same time, motorists often intimidate cyclists, don't yield the right-of-way, and act as if bicyclists don't have a legal right to ride on the road. Appropriate enforcement of the law is necessary to create a level playing field for all modes of transportation. The Florida Bicycle Association provides several excellent resources for law enforcement, including the following:

- *Florida Bicycle Law Enforcement Guide* – This booklet was created specifically to help familiarize law enforcement officers with portions of the Florida vehicle code that relate to two-wheeled human-powered vehicles.
- *New Bicycle Law Enforcement Video* – “Ride on By” a video program that places the law enforcement professional in the key position of modifying bicyclist behavior. It raises officer awareness of needless serious injuries and fatalities that occur due to illegal riding behaviors. Palm Beach County Sheriff's Office assisted in the production of this program. (Source: <http://www.bikeflorida.org>)

The National Highway Traffic Safety Administration (NHTSA) offers training programs for law enforcement officers, ranging from two-hour multi-media presentations to two-day hands on workshops. A description of available programs can be found at www.bicyclinginfo.org/ee/enforce_officer.

While school-aged cyclists may receive cycling education as part of a Safe Routes to School program or through participation in a school or parks and recreation department bike rodeo (typically a bike safety clinic featuring bike inspections and safety lessons on a miniature “chalk street” course), adult cyclists rarely have the opportunity to review traffic laws and safe bicycling practices. As a response to this problem, some jurisdictions may choose to develop a “bicycle traffic school” program for adult cyclists who receive traffic tickets for violations incurred while riding a bicycle. Bicycle traffic school programs are run by local law enforcement agencies and may be spearheaded by the agency's bicycle patrol unit.



Law enforcement officials can send a positive signal and improve community policing by utilizing Police Bicycle Patrols. This is common in downtown areas, public parks, and neighborhoods. In addition, the Doral Police Department participates in a bicycle theft reduction program called the National Bike Registry (NBR). Bikes registered with NBR can be identified by police and returned to owners instead of being sold at an auction. Additional information is available at www.nationalbikeregistry.com.



ENFORCEMENT: POLICE ON BIKES



One of the most effective ways to provide support for bicycling is to have police and other community services use bicycles for their routine activities. Studies of community policing activities have shown that police on bikes are very effective in deterring crime. Officers have a chance to connect with residents when they are in the community on bikes. In addition, law enforcement officers can be great models to encourage more people to ride their bikes more often. The International Police Mountain Bike Association (IPMBA) provides training and resources for police, EMS, and other community service workers on bikes.

ENCOURAGEMENT: "¡FIESTA BICICLETA!"

It is important to recognize that creating a Bicycle Friendly Community includes promoting bicycling for transportation and recreation. Public events including Bike to Work Day, Bicycle Month, and Safe Routes to School Week encourage local residents, visitors, and businesses to make bicycling part of the community. Nationally, the League of American Bicyclists promotes Bike Month and provides community resource kits for events, proclamation, and promotions. Many communities host special Bike to Work events, with commuter breakfast stations, contests (such as a race across



The annual Cyclefest in West Palm Beach is a good example of successful promotion of bicycling. Source: <http://www.cyclefest.org>

town during rush hour between a bicyclist, a bus, and a private automobile to demonstrate the speed and efficiency of a bicycle in urban traffic).

In Palm Beach County, the annual West Palm Beach Cyclefest is gaining a national reputation for its racing and recreational riding events. This kind of event can be capitalized on by Doral through the promotion of local bicycle events and other activities throughout the year. For example, a “¡Fiesta Bicicleta!” could combine a bicycle rodeo, community bike rides, classes in bicycle repair, a bike design contest, and a bicycle parade through Doral. As a first phase effort, these ideas could be combined with other city-sponsored annual events.



In northeastern Florida, the Suwannee Bicycle Association hosts numerous bicycle events in Suwannee. Their annual calendar features bicycle festivals, tandem bicycle rides, trail building days, a “peddle and paddle” event along the Suwannee River, and a “fat-tire” festival. The diversity of such events provides Suwannee area cyclists with opportunities for mountain biking, road cycling and racing, trail work and general outdoor activities.

The coordination of such encouragement programs and events can be undertaken in part by City staff. The “Get Fit Doral” program is a great example of encouragement, and could include a ‘frequent-rider’ group, bike-to-work days, or other components that support bicycling and physical activity. These programs could be linked to the President’s Council on Physical Fitness or other model programs. However, advocacy groups may also have a role to play. The establishment of a bicycle club or alternative transportation advocacy group can help to raise community awareness of bicycling and can provide organized political support for bicycle friendly policies and plans in Doral.



The City’s “Get Fit Doral” program could include a bicycling component to encourage physical activity for residents and visitors of all ages.

RECOMMENDATIONS

A recent Federal Highway Administration (FHWA) report, “Promoting Pedestrian and Bicyclist Safety to Hispanic Audiences” provides an excellent background for developing education, encouragement, and enforcement programs in Doral. The report emphasizes word-of-mouth marketing as an important means of outreach in the Hispanic Community. The full document is available on-line at:

http://safety.fhwa.dot.gov/ped_bike/toc.htm

The following sections from the FHWA report provide an overview of key concepts related to outreach programs that could be utilized in Doral.

Audience

The following audiences may be more at risk as pedestrians or bicyclists or may be groups that should be targeted by pedestrian/bicycle campaigns to “get the word out” through word-of-mouth marketing:

- New residents
- Children
- Seniors
- Male members of the household
- Families

Safety Issues to Include in Campaign

Recommended pedestrian and bicycle safety issues to be included in the outreach campaigns can be split into the following two categories:

- *Educational issues:*
 - ✓ Basic rules of the road and how they are enforced.



Many school-aged children already ride bicycles to and from school in Doral.



- ✓ Meaning of traffic signs and signals.
- *Informational issues:*
 - ✓ How to be a safe pedestrian/bicyclist <and motorist>.
 - ✓ Ridership groups that are especially at risk for crashes.

Messages

Based on the FHWA research, messages about pedestrian and bicycle safety should:

- Focus on the value of family and impact on family.
- Be realistic, with relationships to peoples' lives.
- Have an emotional component (e.g., description of the dangers of crashes).

It is recommended that these messages:

- Use graphics, photos, and other visuals.
- Be concise.
- Be clear and free of jargon.

Materials/Media

Use of a variety of materials (messages should be seen and heard in a variety of places) is recommended, rather than focusing on one type of media. It should be noted that the use of both Spanish-language and English-language media is important. The recommended media to be included in an outreach campaign include:

- Television
- Radio
- Newspaper
- Magazines
- Brochures/flyers/handouts
- Internet via appropriate websites

Suggested Methods of Dissemination of Materials

One of the most important recommendations from the research is that materials alone are not enough to change behavior. Due to the importance of family and community, commitment to safety practices are more likely to occur when the materials are used in combination with at least one community outreach activity, with the most impact coming from multiple activities held within the community and when respected leaders of the community as well as family members reinforce the messages through:

- Person-to-person contact.
- Word-of-mouth campaigns.

Based on the principles presented in the FHWA report, and other proven education, encouragement, and enforcement programs, it is recommended that Doral initially focus on the following outreach programs:

Education

1. Establish a Safe Routes to School program, utilizing the Florida model.
2. Initiate a bilingual Share the Road safety campaign based on the Florida Bicycling Coalition materials.
3. Create a bike safety education program for children using the Florida curriculum in all local schools.
4. Develop a training program to reach adult cyclists, especially bicyclists who ride the wrong way (against traffic), on sidewalks, and without proper lighting at night.

Enforcement

1. Expand the use of police on bicycles.
2. Utilize targeted enforcement for both motorists and bicyclists to ensure that the rights of both groups are respected.
3. Develop a bicycle registration program to reduce theft.
4. Develop a “bicycle traffic school” program for adult cyclists who have violated the vehicle code on their bicycle, with the purpose of teaching safe bicycling practices.



Encouragement

1. Connect the *Bikeway Network Plan* with Doral's healthy community programs such as "Get Fit Doral."
2. Support a local "¡Fiesta Bicicleta!" in Doral.
3. Host local events for National Bike Month and Bike to Work Day.
4. Work with local bicycle clubs and advocacy groups to organize additional bicycle-related community events and to act as an information source for bicyclists in Doral.
5. Work with local faith-based organizations and churches to promote bicycling.

CHAPTER 3 APPENDIX:

Multi-Lingual Materials

Kids Bike Safe in Illinois/

Los Chicos y la Bicicleta en Illinois

Illinois Department of Transportation

Division of Traffic Safety

3215 Executive Park Drive, PO Box 19245

Springfield, IL 69274

(217) 524-5338

<http://www.dot.state.il.us/bikemap/kidsonbikesspanish/front.pdf>

What You Can Do...As a Driver/

Lo que Usted Puede Hacer Como Conductor

California Department of Health

EPIC – Epidemiology and Prevention for Injury Control

(916) 445-4171

Santa Ana Pedestrian Safety Project

www.dhs.ca.gov/routes2school

Share the Road/

Comparta el Camino

Tucson – Pima County, Arizona

<http://www.dot.pima.gov/tpcbac/share.htm>

www.dot.pima.gov/tpcbac/

Pima County Bicycle and Pedestrian Program: (520) 740-6746

USDOT Materials for Hispanic Pedestrians and Bicyclists

Brochures, Publications, PSA's, including the marketing plan report *Promoting Pedestrian and Bicyclist Safety to Hispanic Audiences*

Report No.: FHWA-SA-05-024

November 2005

FHWA Office of Highway Safety

http://safety.fhwa.dot.gov/ped_bike/materials/ped_hisp.htm

Sheldon Brown's Spanish-English Bicycle Dictionary

An excellent on-line resource for all bicycle-related terms and translations

<http://www.sheldonbrown.com/eng-es.html>



LOS CHICOS Y LA BICICLETA



GRATIS
GRATIS

Andar por las aceras
páginas 1-2

Dónde andar en las calles
páginas 3-4

Cómo mirar a tu alrededor
páginas 5-6

Cómo girar en las esquinas
páginas 7-8

Para padres y maestros
páginas 9-10



EN ILLINOIS

Kids Bike Safe in Illinois/Los Chicos y la Bicicleta en Illinois is sponsored by the Illinois Department of Transportation. Information can be at <http://www.dot.state.il.us/bikemap/kidsonbikesspanish/front.pdf>.

Lo que usted puede hacer...

como conductor



Comparta el camino

- Las calles se hicieron para que las usaran los peatones, los ciclistas y los vehículos.
- Obedezca las reglas de tráfico y permita que todos circulen en forma segura.
- Para muchos peatones caminar es su única forma de transporte. Sea cortés y respete el derecho que tienen los demás de compartir la calle.

Respete a los peatones

- Los peatones tienen la prioridad de paso en los cruces peatonales que hay marcados en la mitad de las cuadras, en los cruces peatonales, marcados o sin marcas, y cuando el semáforo en verde diga "WALK"
- ¡El semáforo en amarillo significa que debe prepararse para parar, no que debe acelerar!
- Pare y tenga cuidado con los peatones que cruzan cuando doble a la derecha con un semáforo en rojo.

¡SIEMPRE PARE CUANDO UN PEATÓN ENTRE AL CRUCE PEATONAL!

Disminuya a la velocidad y tenga cuidado

- Las calles residenciales fueron creadas para uso local. Utilice las vías principales lo más que pueda.
- Esté preparado para sorpresas y para parar en forma repentina si hay niños.
- Tenga cuidado con los peatones al salir de la entrada de las casas, cuando maneja cerca de camiones que venden cosas, autobuses, parques y escuelas.

RECUERDE

- Los peatones no pueden controlar los efectos del clima, ni los malos conductores, ni los puntos ciegos, etc.
- Los niños son muy jóvenes para decidir qué hacer cuando el tráfico es peligroso.
- Es posible que las personas de edad avanzada no puedan cruzar con rapidez, ni ver ni oír los vehículos que se aproximan.
- Maneje menos y camine más.

*¡Su vehículo es un arma mortal contra un ser humano!
¡Manténgase alerta al manejar y tenga cuidado!*

Prepared by: Santa Ana Pedestrian Safety Project



This information is located on California's Safe Routes to Schools website: www.dhs.ca.gov/routes2school

No hace mucho tiempo atrás...

Los niños andaban por sus vecindarios a pie o en bicicleta. Hoy en día, las madres y padres conducen a sus hijos llevándolos a casi todas sus actividades, temiendo por su seguridad ante el crimen y el tráfico. La imagen común de niños caminando o andando en bicicleta ha desaparecido de muchas comunidades.

Con menos niños a pie y en bicicletas, hay más vehículos en las calles. Los padres que llevan a sus niños a la escuela conforman entre el 20 y 25 por ciento de la gente que viaja en automóvil por la mañana. Mientras más vehículos hay en las calles, más padres creen que es poco seguro para sus hijos el caminar o andar en bicicleta, agregando así más automóviles al caos matutino.

¿Por qué necesitamos caminos más seguros?

- Los niños corren riesgos en las calles inseguras.
- Los niños están perdiendo su independencia.
- Los niños están menos activos.
- Nuestro medio ambiente se está contaminando.

Tú puedes ayudar a romper este ciclo. Un movimiento de Seguridad para la ida a la Escuela está logrando que los niños vuelvan a andar a pie o en bicicleta.



Algunas ideas para ayudarlo a disfrutar de caminar o andar en bicicleta para ir a la escuela

- 🏠 Siempre siga las leyes de tránsito y explique a su hijo por qué la seguridad vial es importante. Use casco cuando ande en bicicleta asegurándose de que le quede bien.
- 🏠 Practique el detenerse en los cruces, el mirar a la izquierda, derecha, adelante y atrás, prestando atención al sonido del tráfico y haciendo contacto visual con los automovilistas.
- 🏠 Encuentre todas las señales de tránsito en su ruta. Hable de lo que esas palabras y símbolos significan.
- 🏠 Observe la gente que camina, que monta en bicicleta y que anda en automóvil. Hable con su hijo acerca de la manera en que puede evitar o minimizar los peligros que encuentra en el camino. Por ejemplo, qué hacer en las intersecciones o cuando hay automóviles estacionados.
- 🏠 Mire a su alrededor – conozca su vecindario – la gente, los edificios, los animales, la jardinería, etc. que hay en su camino.

Póngase en contacto con nosotros para averiguar más acerca de estas ideas para mejorar las vías que sus niños usan para ir a la escuela y para que su vecindario sea más apto para ser recorrido a pie.



Iniciativa de California de Caminos Seguros para Ir a la Escuela
 un programa del Departamento de Servicios de Salud de California, con fondos adicionales otorgados por la Oficina de California para la Seguridad del Tráfico. Llamadas sin cargo: 1-888-393-0353 sitio de web: www.dhs.ca.gov/routes2school



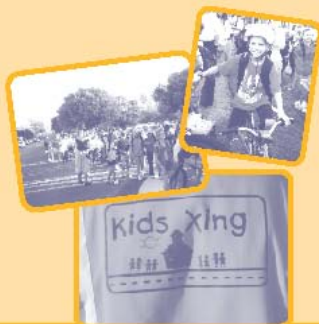
-- Caminar +
 -- Montar bicicleta =
 Niños saludables
 y alertos



Creando rutas más Seguras a la escuela

Cualquiera puede dar el primer paso para obtener caminos más seguros para ir al colegio. He aquí algunas sugerencias:

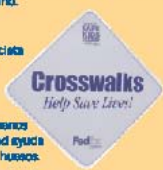
- 🏠 Camine o vaya en bicicleta hacia la escuela y/o de regreso, al menos parte del viaje – al menos algunos días a la semana. Anime a sus vecinos a que lo acompañen.
- 🏠 Forme un "Autobús Escolar a Pie" o un "Tren de Bicicletas." Es una actividad divertida y activa de ir todos juntos a la escuela.
- 🏠 Anime a su comunidad para que haga que el Día Internacional de la Caminata Escolar sea también el primer miércoles de octubre, o durante el Día de Ir en Bicicletas a la Escuela en mayo.
- 🏠 Brinde su apoyo a las calles de poco tránsito, a los guardias de cruces, a la implementación de la seguridad vial en los caminos que llevan a las escuelas y a la educación de la seguridad vial.



10 Buenas Razones para Caminar o ir en Bicicleta a la Escuela

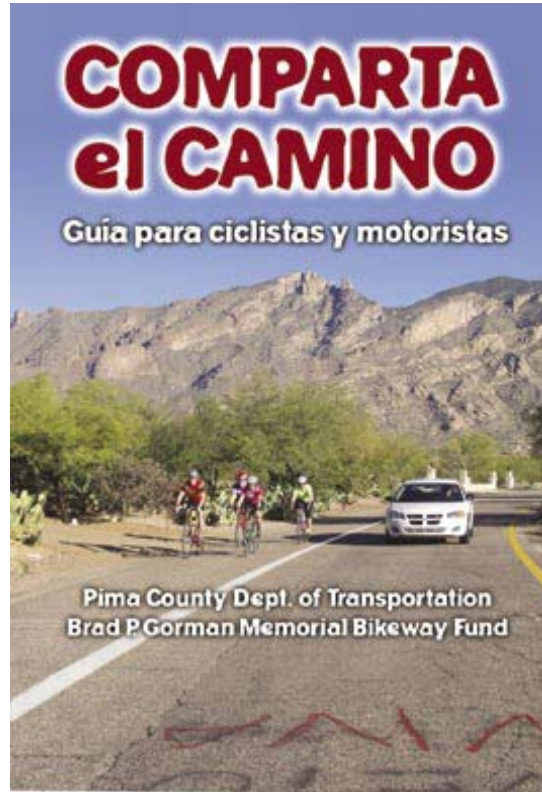


1. **¡Es divertido!**
El caminar y andar en bicicleta son formas divertidas de transportarse. Hay muchas cosas para ver, oír, tocar, pasar y hablar en el camino.
2. **Es saludable**
El caminar y andar en bicicleta son actividades menores de mantenerse saludable y en forma. Cuando se hace ejercicio de forma regular, por lo menos a 10 minutos a la vez, usted ayuda a su corazón, pulmones y huesos.
3. **Es educacional**
Una forma activa de comenzar el día mejora el estado de ánimo, la concentración, la creatividad y les ayuda a los niños a resolver problemas. (¡Por eso es verdad para los adultos también!) La educación no tiene por qué comenzar dentro del portón de la escuela, los niños pueden aprender acerca de su vecindario y convertirse en seres más independientes.
4. **No Contaminamos el Medio Ambiente**
El caminar y andar en bicicleta no causan emisiones de gases. Además, los que caminan y los ciclistas respiran una menor cantidad de aire contaminado que la gente que viaja en un automóvil que está detenido o que se mueve lentamente.
5. **Es de Buenos Vecinos**
El caminar permite que los niños –y adultos– hagan nuevos amigos y conozcan a sus vecinos. Una menor cantidad de automóviles frente a la escuela puede mejorar los problemas de circulación de tránsito de la misma y hacer un lugar más seguro para otros niños que caminen con regularidad.
6. **Es Menos Estresante**
El coordinar horarios para dejar a los niños en la escuela y recogerlos y el manejar en horarios de mucho tráfico pueden ser una molestia tanto para los niños como para los adultos.
7. **Es una Oportunidad de Enseñar y Aprender Habilidades en los Caminos**
Los adultos pueden enseñar seguridad vial y salirse de la perspectiva del conductor para obtener el punto de vista de los niños. Los niños pueden practicar habilidades de seguridad vial antes de lanzarse a andar por su cuenta.
8. **Es Conveniente**
Los niños que caminan y andan en bicicleta pueden ir a donde sea, cuando sea. Puede ser la escuela, de regreso a casa, al la biblioteca o al campo de juegos.
9. **Es Económico**
Menos viajes en automóvil equivalen a menos gastos de gasolina. Cada vez que usted camina o utiliza su bicicleta en lugar del automóvil, usted ahorra dinero de la gasolina y mantenimiento del auto. Cuando hay más niños que caminan y andan en bicicleta regularmente, las escuelas pueden ahorrar dinero teniendo menos autobuses.
10. **Es más Seguro**
La presencia de gente caminando y de ciclistas dan la oportunidad a los automovilistas de que deben disminuir la velocidad y manejar con precaución. Los vecindarios se convierten en un lugar donde todos pueden jugar, vivir y viajar durante toda la semana, no solamente a la hora de ir y regresar de la escuela.



This information is located on California's Safe Routes to Schools website: www.dhs.ca.gov/routes2school

Share the Road: Pima County, AZ



Ideas para Compartir el Camino Legalmente y con Seguridad

Esta guía del bolsillo demuestra como los ciclistas y motoristas pueden "Compartir el Camino" legalmente y con seguridad dentro del Condado de Pima.

Favor de leer esta guía para tener un mejor entendimiento de la perspectiva de la otra persona en el camino y para aprender más acerca del ciclismo y a manejar con más seguridad en nuestra gran región.

Entre más entendamos nuestras necesidades, aún mejor nos podremos respetar y cooperar unos con otros en los caminos.

CHAPTER 4: Trail Network

The *Bikeway Network Plan* identifies seven off-street bikeways that connect to residential neighborhoods, schools, parks, shopping areas, and other community facilities. The seven trails identified in the Plan are:

- Atlas Trail (Ruta Morada)
- Beacon Trail (Ruta Rosada)
- Dressel's Dairy Trail (Ruta Azul)
- Greenway Trail (Ruta Verde)
- Limestone Trail (Ruta Plata)
- Sunshine Trail (Ruta Amarilla)
- Turnpike Trail (Ruta Roja)



ATLAS TRAIL

Ruta Morada

Trail Description

- One and one-half mile off-street bikeway trail
- North-south spine trail through northern section of the City
- Alignment generally follows the Florida Power & Light (FPL) utility easement along NW 107th Avenue between NW 62nd Street and NW 90th Street.
- The FPL easement is approximately 200 feet in width

Bikeway Network Connections

Off-Street Connectivity

- Greenway Trail (Ruta Verde)
- Limestone Trail (Ruta Plata)

On-Street Connectivity

- NW 90th Street
- NW 74th Street
- NW 66th Street

Land Uses Linkages

North of NW 74th Street

- Single family residential neighborhoods to the west
- Traditional neighborhood design (TND) areas with a downtown mixed-use development to the east (Future Land Use Map)

South of NW 74th Street

- Mix of single family and multi-family residential
- Planned office/residential space and TND development

The Ronald W. Reagan/Doral High School

- Located on the west side of NW 107th Avenue 500 feet west of trail
- Potential access via a connector path east from the proposed Atlas Trail

Connections To Citywide Off-street Network At Southern Terminus

- Junction is located within the FPL easement east of NW 107th Avenue and north of NW 58th Street
- Could serve as a trailhead for junction of the three off-street trails

Opportunities

The existing FPL easement remains open with no gates or walls throughout, and therefore offers favorable opportunity for implementation of an off-street shared use path. It is critical that the City work with land owners and developers to coordinate future development plans with a continuous trail facility. North of NW 74th Street, the FPL easement is offset from NW 107th Avenue by approximately 300 feet and thus provides a buffer between the proposed trail alignment and NW 107th Avenue traffic. In addition, there is an opportunity to include the trail in plans for the Atlas Property development, which may have buildings on both sides of the FPL easement. Efficient connections to the traditional neighborhood development areas and residential areas near NW 107th Avenue should be provided to encourage a base of trail users.

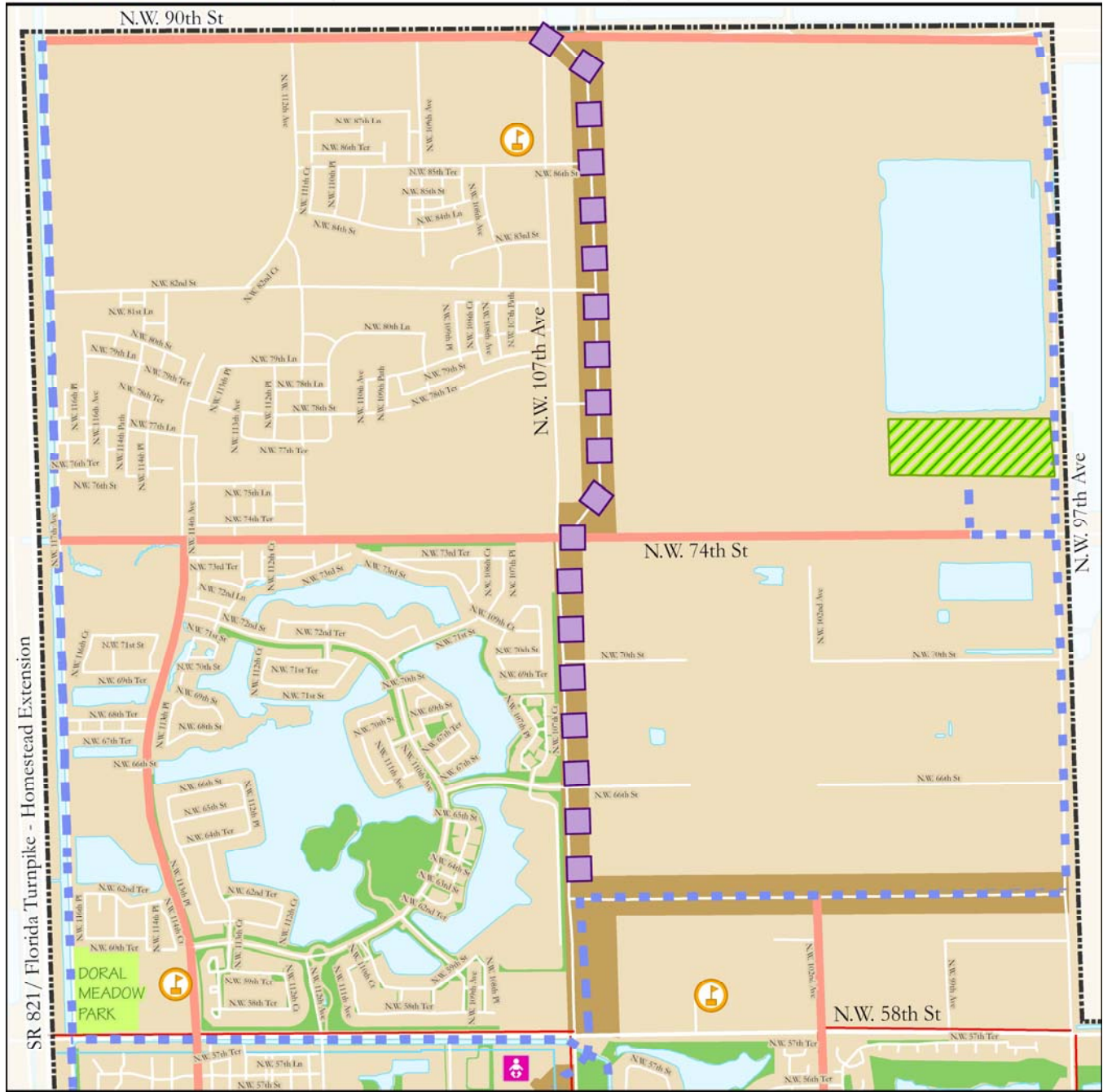


Utility easements, such as the one along NW 107th Avenue in Doral, offer some of the few continuous greenway corridors in urban environments.













Constraints

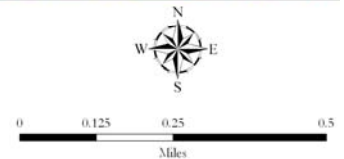
Since the surrounding land is largely undeveloped, few constraints exist for the development of an off-street shared use trail. An intersection crossing design will be required for the Atlas Trail at NW 74th Street across one approach of the intersection.

Atlas Trail (Ruta Morada)



LEGEND

-  Atlas Trail (Ruta Morada)
-  Proposed Off-Street Bikeway
-  Proposed On-Street Bikeway
-  Existing Sidewalk
-  Florida Power & Light (FPL) Easement
-  Doral City Limits
-  Public Parks
-  Open Space
-  Proposed Park
-  Water Body
-  School
-  Childcare Center



Source: Miami-Dade County Geographic Information Systems Department, Public Information Office.

Developed by:
 Kimley-Horn and Associates, Inc.
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BEACON TRAIL

Ruta Rosada

Trail Description

- Four-mile off-street bikeway trail
- East-west spine trail through the southern portion of the City
- Alignment generally follows southerly portion of the NW 25th Street canal easement, between Florida's Turnpike and the Palmetto Expressway
- Open space along the canal easement adjacent to NW 25th Street measures approximately 12 feet in width

Bikeway Network Connections

Off-Street Connectivity

- Turnpike Trail (Ruta Roja)

On-Street Connectivity

- NW 92nd Avenue
- NW 97th Avenue
- NW 107th Avenue

Land Uses Linkages

- Connect the industrial, office, and institutional land uses to citywide bikeway network via the Turnpike Trail.
- Connect southern employment area to residential neighborhoods via several on-street bikeways.
- Connect the adjacent Doral Academy Elementary, Middle, and High Schools to the citywide bikeway network.
- Major shopping destinations located within a one-half mile radius of the proposed Beacon Trail include the Dolphin Mall and Miami International Mall.

Opportunities

There is an opportunity to connect three schools to the off-street bikeway network via the Beacon Trail. There is potential to connect regional shopping centers to the network from the south. The Beacon Trail is part of a longer regional trail that was identified in the North Dade Greenways Master Plan to connect the Lake Belt Recreational Area with the Perimeter Trail proposed around Miami International Airport (MIA).

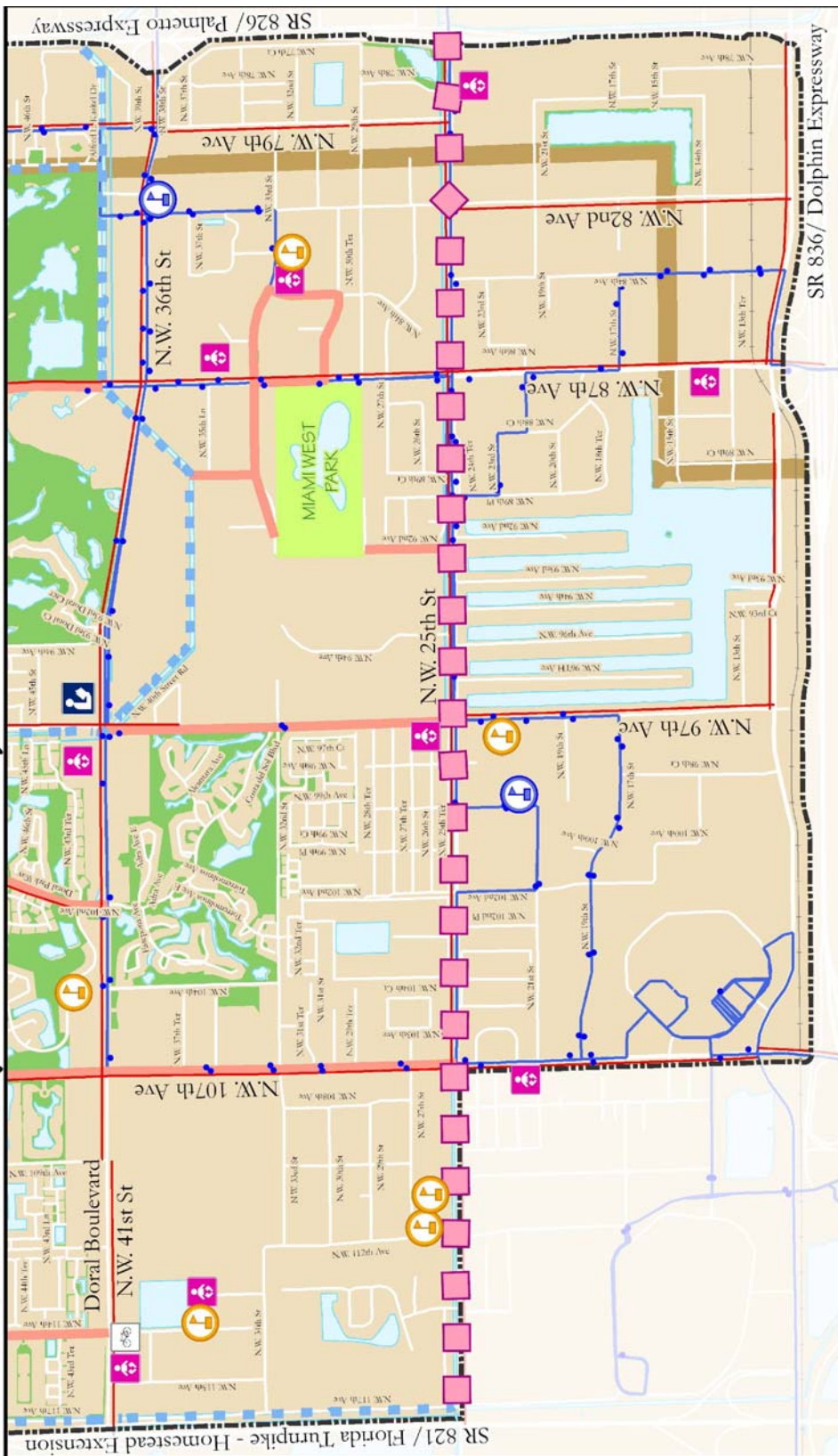
Constraints

FDOT expansion plans for NW 25th Street could claim the canal right-of-way necessary for the development of the Beacon Trail. In addition, a high volume of trucks use NW 25th Street in this area due to the proximity of the Airport West Industrial Area. Therefore, there is an enhanced need for safety standards in the design of Beacon Trail.



The NW 25th Street Canal right-of-way includes an open space along the southern bank of the canal.

Beacon Trail (Ruta Rosada)



LEGEND

	Beacon Trail (Ruta Rosada)		School
	Proposed Off-Street Bikeway		College or University
	Proposed On-Street Bikeway		Library
	Existing Sidewalk		Childcare Center
	Florida Power & Light (FPL) Easement		Bike Shop
	Doral City Limits		
	Public Parks		
	Open Space		
	Water Body		
	Transit Route		
	Transit Stop		



Source: Miami-Dade County Geographic Information Systems Department, Public Information Office.
 Developed by: **Kimly-Horn and Associates, Inc.**
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DRESSEL'S DAIRY TRAIL

Ruta Azul

Trail Description

- Five-mile off-street bikeway trail
- East-west spine trail across the City
- Alignment follows the east-west canal that bisects the City from Doral Meadow Park to the vicinity of NW 79th Avenue
- Trail to generally follow the north bank of the canal in most areas



The Dressel's Dairy Canal passes through residential, employment, and recreational areas.

Bikeway Network Connections

Off-Street Connectivity

- Sunshine Trail (Ruta Amarilla)
- Greenway Trail (Ruta Verde)
- Turnpike Trail (Ruta Roja)

On-Street Connectivity

- NW 87th Avenue
- NW 102nd Avenue
- NW 52nd Street
- NW 107th Avenue
- NW 114th Avenue

Land Uses Linkages

East of NW 97th Avenue

- Commercial employment areas
- Pockets of multi-family residential

West of NW 97th Avenue

- Mix of single and multi-family residential
- Doral Park Golf Course



Miami West Park

- 1,400 feet south of the trail
- Accessed via proposed on-street bikeway
- Bicycle/pedestrian bridge needed near NW 89th Court
- Bicycle/pedestrian only entrance on the north side of the park from NW 33rd Street

Doral Golf Resort and Spa

- Trail entrance near NW 87th Avenue

Doral Meadow Park

- Significant trail destination
- Potentially serve as a western trailhead

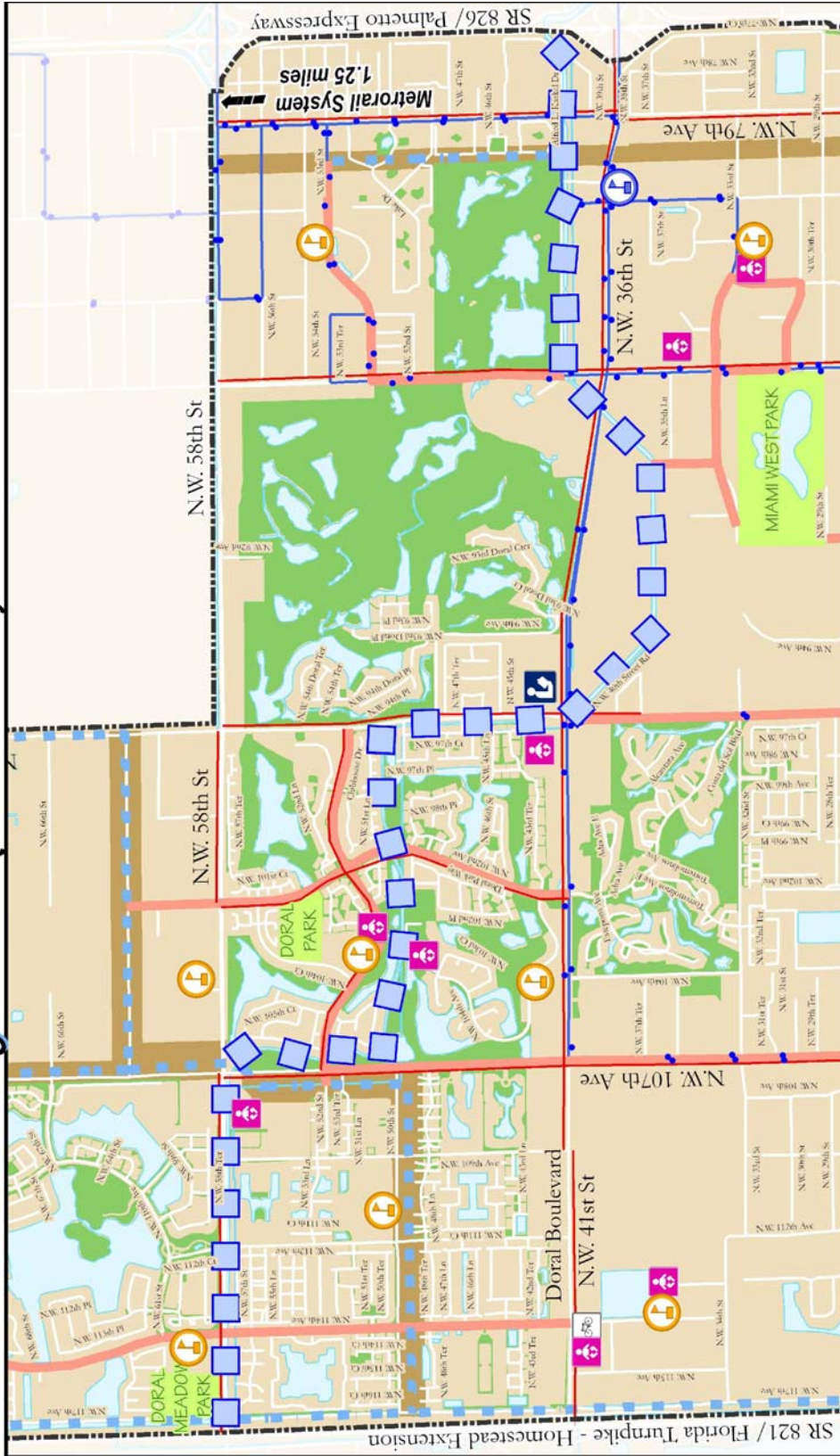
Opportunities

The eastern portion of the proposed Dressel's Dairy Trail (east of NW 87th Avenue) offers the best opportunity for implementation of an off-street shared use path. The grass right-of-way between the Dressel's Dairy Canal and NW 41st Street (between NW 79th Avenue and NW 87th Avenue) could be utilized to construct the trail. This portion of the trail may even serve as a "demonstration project." Efficient connections to the multi-family residential areas near NW 79th Avenue should be provided to encourage a base of trail users.

Constraints

Portions of the Dressel's Dairy Canal right-of-way are narrow and currently overgrown (especially west of NW 87th Avenue and east of NW 97th Avenue). The canal passes through the Doral Park Golf Course, which may present compatibility issues of mixing golf course users and trail users – one potential alternative is to route the trail along NW 52nd Street as the east-west alignment through Doral Park. The Dressel's Dairy Trail would have to cross several major roadways and intersections to provide continuous east-west mobility.

Dressel's Dairy Trail (Ruta Azul)



LEGEND

- Dressel's Dairy Trail (Ruta Azul)
- Proposed Off-Street Bikeway
- Proposed On-Street Bikeway
- Existing Sidewalk
- Florida Power & Light (FPL) Easement
- Doral City Limits
- Public Parks
- Open Space
- Water Body
- Transit Route
- Transit Stop
- School
- College or University
- Library
- Childcare Center
- Bike Shop

Scale: 0 to 0.8 Miles

Source: Miami-Dade County Geographic Information Systems Department, Public Information Office.

Developed by: **Kirby-Horn and Associates, Inc.**

GREENWAY TRAIL

Ruta Verde

Trail Description

- Two-mile off-street bikeway trail
- Connector trail through the central/western section of the City
- Alignment generally follows the Florida Power & Light (FPL) utility easement along the south side of NW 50th Street, and the FPL utility easement along NW 107th Avenue, between NW 50th Street and NW 62nd Street
- The FPL easement varies from approximately 200 to 300 feet in width

Bikeway Network Connections

Off-Street Connectivity

- Atlas Trail (Ruta Morada)
- Limestone Trail (Ruta Plata)
- Dressel's Dairy Trail (Ruta Azul)
- Turnpike Trail (Ruta Roja)

On-Street Connectivity

- NW 114th Avenue
- NW 107th Avenue
- NW 52nd Street



Schoolchildren currently use the maintenance path within the FPL easement to access Doral Middle School along NW 50th Street.

Land Uses Linkages

South of NW 58th Street

- Connect moderate density residential neighborhoods to the north and south
- Connect to Doral Park Golf Course to the east

North of NW 58th Street

- Serve a proposed traditional neighborhood development (TND) with a mixed-use downtown development

Doral Middle School

- Located on the north side of NW 50th Street and FPL easement

Northern Terminus

- Connection to the Limestone Trail and the Atlas Trail
- Junction is located within the FPL easement east of NW 107th Avenue and north of NW 58th Street
- Could serve as a trailhead for the three trails

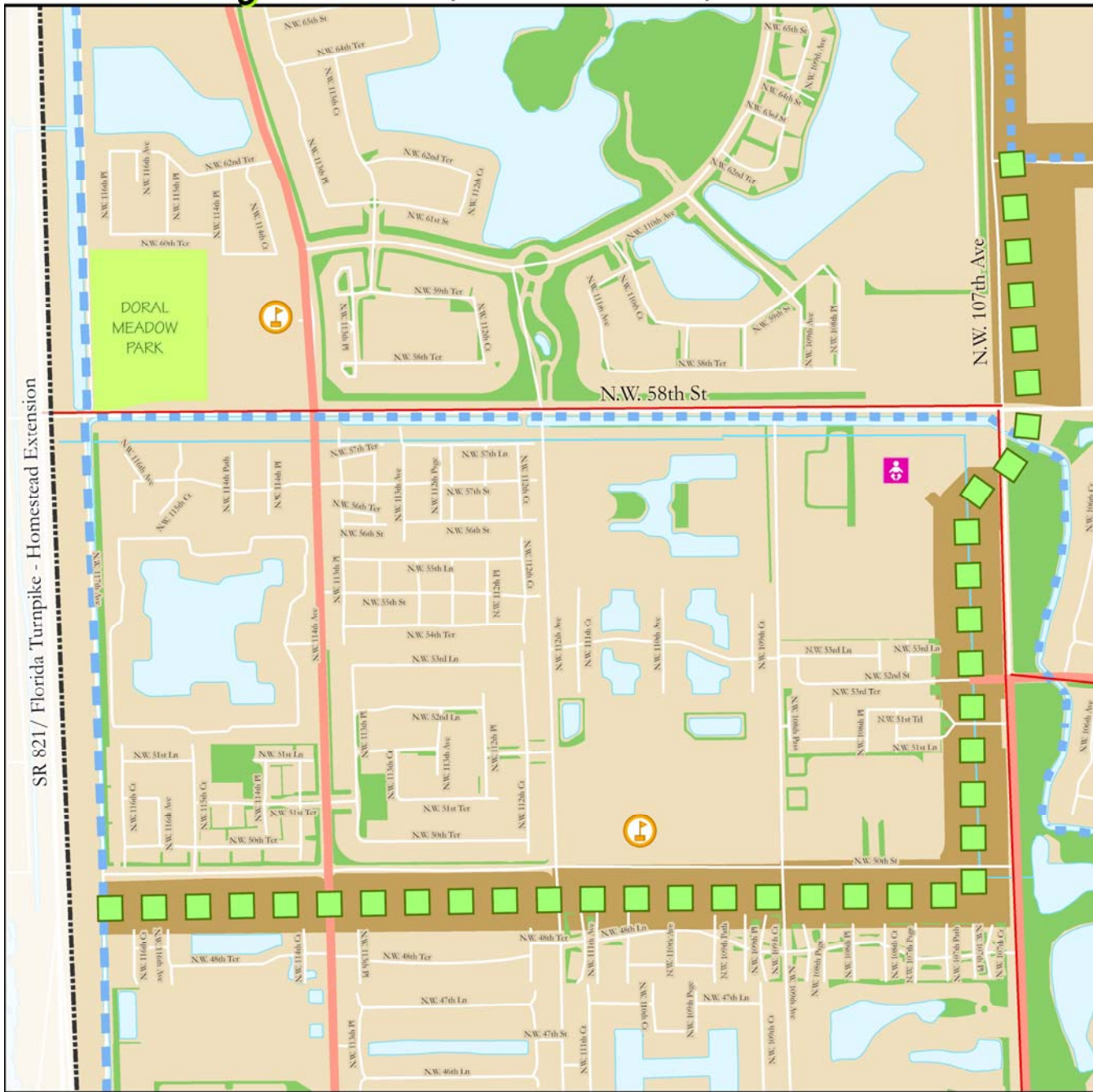
Opportunities

The existing east-west FPL easement between Florida's Turnpike and NW 107th Avenue exhibits strong potential as a short-range trail project with few obstructions and an existing base of users. The proximity of the proposed trail to Doral Middle School will provide a safe alternative to the makeshift path students currently use through the area to walk/bicycle to and from school. Within the wide FPL easement, opportunities exist to develop small park facilities adjacent to the trail, such as a dog park. In addition, the Greenway Trail would connect the Atlas Trail, the Limestone Trail, and the Turnpike Trail to the citywide off-street bikeway network via the Dressel's Dairy Trail.

Constraints

The north-south segment of the FPL easement along the west side of NW 107th Avenue has gates and fences that would obstruct the continuity of the proposed trail. The gates and fences are associated with gated residential communities and would require access modification to allow a continuous trail. Additionally, an intersection crossing would need to be designed to connect the Greenway Trail from the southwest to the northeast at the intersection of NW 107th Avenue and NW 58th Street across two approaches of the intersection.

Greenway Trail (Ruta Verde)

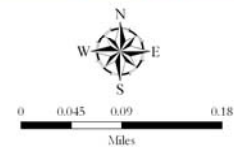


LEGEND

- Greenway Trail (Ruta Verde)
- Proposed Off-Street Bikeway
- Proposed On-Street Bikeway
- Existing Sidewalk
- Florida Power & Light (FPL) Easement

- Doral City Limits
- Public Parks
- Open Space
- Water Body

- School
- Childcare Center



Source: Miami-Dade County Geographic Information Systems Department, Public Information Office.

Developed by:
 Kimley-Horn and Associates, Inc.
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LIMESTONE TRAIL

Ruta Plata

Trail Description

- Three-mile off-street bikeway trail
- Spine trail through the northeastern section of the City
- Alignment follows the Florida Power & Light (FPL) utility easement
- East-west along theoretical NW 62nd Street between NW 107th Avenue and NW 97th Avenue
- North-south along NW 97th Avenue between NW 62nd Street and NW 90th Street adjacent to the retired limestone quarry
- The east-west section of the FPL easement is approximately 300 feet in width
- Eastern area has a paved parking area constructed within a portion of the easement, which narrows the open space to approximately 150 feet in width



The east-west portion of the proposed Limestone Trail is within an FPL easement north of NW 58th Street between NW 107th Avenue and NW 97th Avenue.

Bikeway Network Connections

Off-Street Connectivity

- Atlas Trail (Ruta Morada)
- Greenway Trail (Ruta Verde)

On-Street Connectivity

- NW 102nd Avenue
- NW 74nd Street
- NW 90th Street



Land Uses Linkages

Northern Terminus

- Planned traditional neighborhood development (TND) connection to the proposed public park and moderate-density residential neighborhoods near the northern terminus

Central

- Employment access within an industrial/office area via the central segment of the trail
- Southern Terminus
- Junction of the Limestone Trail and the Greenway Trail within the FPL easement could serve as a trailhead for the three trails

Opportunities

The existing east-west FPL easement between NW 107th Avenue and NW 97th Avenue is free from obstacles to the establishment of a continuous trail. There is strong potential to work with the developers of the adjacent Grand Bay property to include a bike path along the easement in their plans. Finally, the Limestone Trail would serve to connect the proposed new public park north of NW 74th Street to the bikeway network.

Constraints

A section of the proposed Limestone Trail along NW 97th Avenue is currently behind a fence separating the road from a County landfill. The FPL easement currently appears to be behind the fence; therefore, the secure area would need to be moved from the west side to the east side of the easement to accommodate an off-street shared use path. Additionally, an intersection crossing would need to be designed to allow a continuous trail across NW 74th Street.

Limestone Trail (Ruta Plata)



LEGEND

- | | | | | | |
|--|--------------------------------------|--|-------------------|--|------------------|
| | Limestone Trail (Ruta Plata) | | Doral City Limits | | School |
| | Proposed Off-Street Bikeway | | Public Parks | | Childcare Center |
| | Proposed On-Street Bikeway | | Open Space | | Bike Shop |
| | Existing Sidewalk | | Proposed Park | | |
| | Florida Power & Light (FPL) Easement | | Water Body | | |



Source: Miami-Dade County Geographic Information Systems Department, Public Information Office.



SUNSHINE TRAIL

Ruta Amarilla

Trail Description

- Two-thirds mile off-street bikeway trail
- Serve as a connector trail through the eastern-central segment of the City
- Located between the proposed Dressel's Dairy Trail and the proposed Downtown Doral area
- Alignment follows the north-south Florida Power & Light (FPL) easement
- Open width of the FPL easement is approximately 100 feet in the northern portion of the proposed trail
- Open width of the FPL easement ranges from 20 to 60 feet in the southern portion of the proposed trail

Bikeway Network Connections

Off-Street Connectivity

- Dressel's Dairy Trail (Ruta Azul)

On-Street Connectivity

- NW 53rd Street



The southern portion of the proposed Sunshine Trail runs along the FPL easement between the White Course and the multi-family residential area along NW 79th Avenue. The golf course fence runs along the western border of the easement.

Land Uses Linkages

- Proposed Downtown Doral development is located at northern terminus of the trail
- Connect the proposed high-density residential and downtown mixed-use areas of Doral to the citywide bikeway network
- Provide a shared use path connection between the multi-family residential area along NW 79th Avenue and the proposed Downtown Doral

Opportunities

Open greenspace has been preserved along the FPL easement with only minor modifications required to establish a continuous trail (i.e. open maintenance gates and clear overgrown areas). The proposed Sunshine Trail affords the opportunity to connect the proposed Downtown Doral area to existing residential areas and the citywide bikeway network.

Constraints

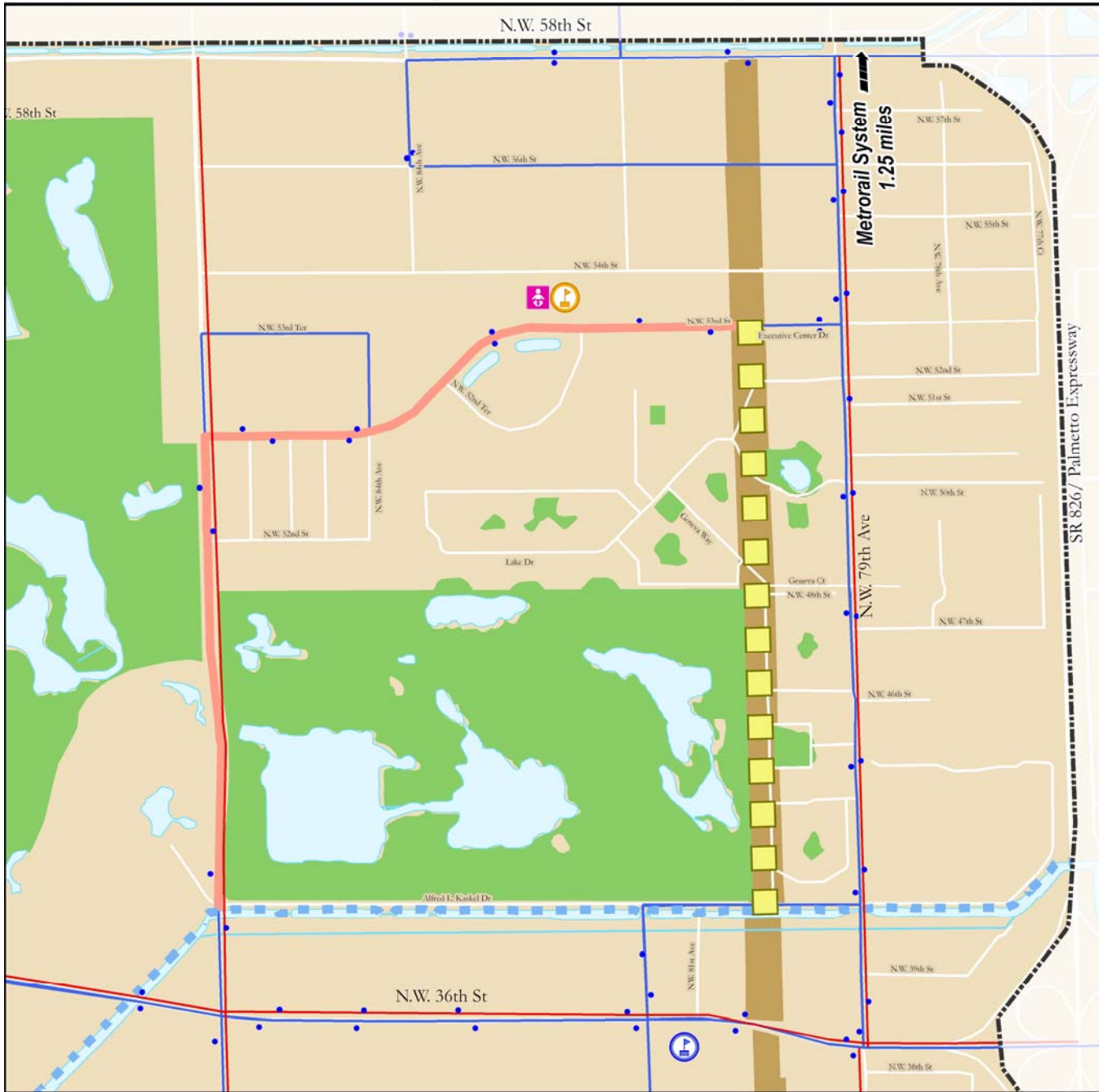
The southern half of the proposed Sunshine Trail is currently within a fenced maintenance area, while the northern portion is open with no fences or gates along the FPL easement. Two maintenance fences must be modified to allow bicycle/pedestrian access – one at the southern end of the trail where the FPL easement crosses NW 41st Street, and the other approximately where the FPL easement crosses Geneva Court.



The northern portion of the proposed Sunshine Trail runs along the FPL easement with existing multi-family residential buildings on both sides, which would provide a great recreational opportunity for area residents.

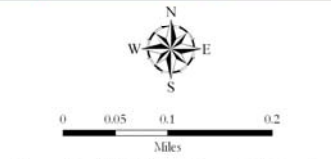


Sunshine Trail (Ruta Amarilla)



LEGEND

- Sunshine Trail (Ruta Amarilla)
- Proposed Off-Street Bikeway
- Proposed On-Street Bikeway
- Existing Sidewalk
- Florida Power & Light (FPL) Easement
- Doral City Limits
- Open Space
- Water Body
- Transit Route
- Transit Stop
- School
- College or University
- Childcare Center



Source: Miami-Dade County Geographic Information Systems Department, Public Information Office.

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TURNPIKE TRAIL

Ruta Roja



South of NW 58th Street, a canal exists between the NW 117th Avenue frontage road and the residential areas to the east.



The Turnpike Trail could utilize the NW 117th Avenue right-of-way or open space along the canal.

Trail Description

- Four-mile off-street bikeway trail
- North-south spine trail along the western boundary of the City
- Alignment generally follows the frontage road along the Homestead Extension of Florida's Turnpike, between NW 25th Street and NW 90th Street
- Local frontage road (NW 117th Avenue) exists parallel to the corridor south of NW 58th Street

Bikeway Network Connections

Off-Street Connectivity

- Beacon Trail (Ruta Rosada)
- Greenway Trail (Ruta Verde)
- Dressel's Dairy Trail (Ruta Azul)

On-Street Connectivity

- NW 74th Street
- NW 90th Street



Land Uses Linkages

NW 90th Street to NW 41st Street

- Recreational opportunities for low- to medium-density residential neighborhoods
- Potential connection to Doral Meadow Park

South of NW 41st Street

- Traverse industrial areas and open space west of the cemetery

Opportunities

The unpaved maintenance roadway along the east side of the Turnpike canal could be developed into a shared use trail. Doral Meadow Park could serve as a western trailhead for Dressel's Dairy Trail and the Turnpike Trail. Right-of-way exists between the low-volume frontage roadway south of NW 58th Street and the Turnpike right-of-way to create a trail. Alternatively, the proposed Turnpike Trail could utilize the open space along the canal. The proposed Turnpike Trail provides the opportunity to create a western connection between the proposed Beacon, Greenway, and Dressel's Dairy Trails.

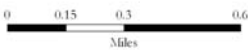
Constraints

There is an enhanced need for safety standards in the design of the Turnpike Trail because of traffic speed and truck traffic along NW 117th Avenue. To provide a continuous Turnpike Trail, a crossing of NW 41st Street would have to be designed near the Turnpike interchange. Although the crossing of NW 41st Street is the most significant existing intersection along the proposed Turnpike Trail, roadway crossing provisions would also be required at NW 58th Street near Doral Meadow Park. An additional constraint would be providing connector paths to the residential neighborhoods that exist on the east side of NW 117th Avenue, which would be required to generate a significant base of trail users.

Turnpike Trail (Ruta Roja)

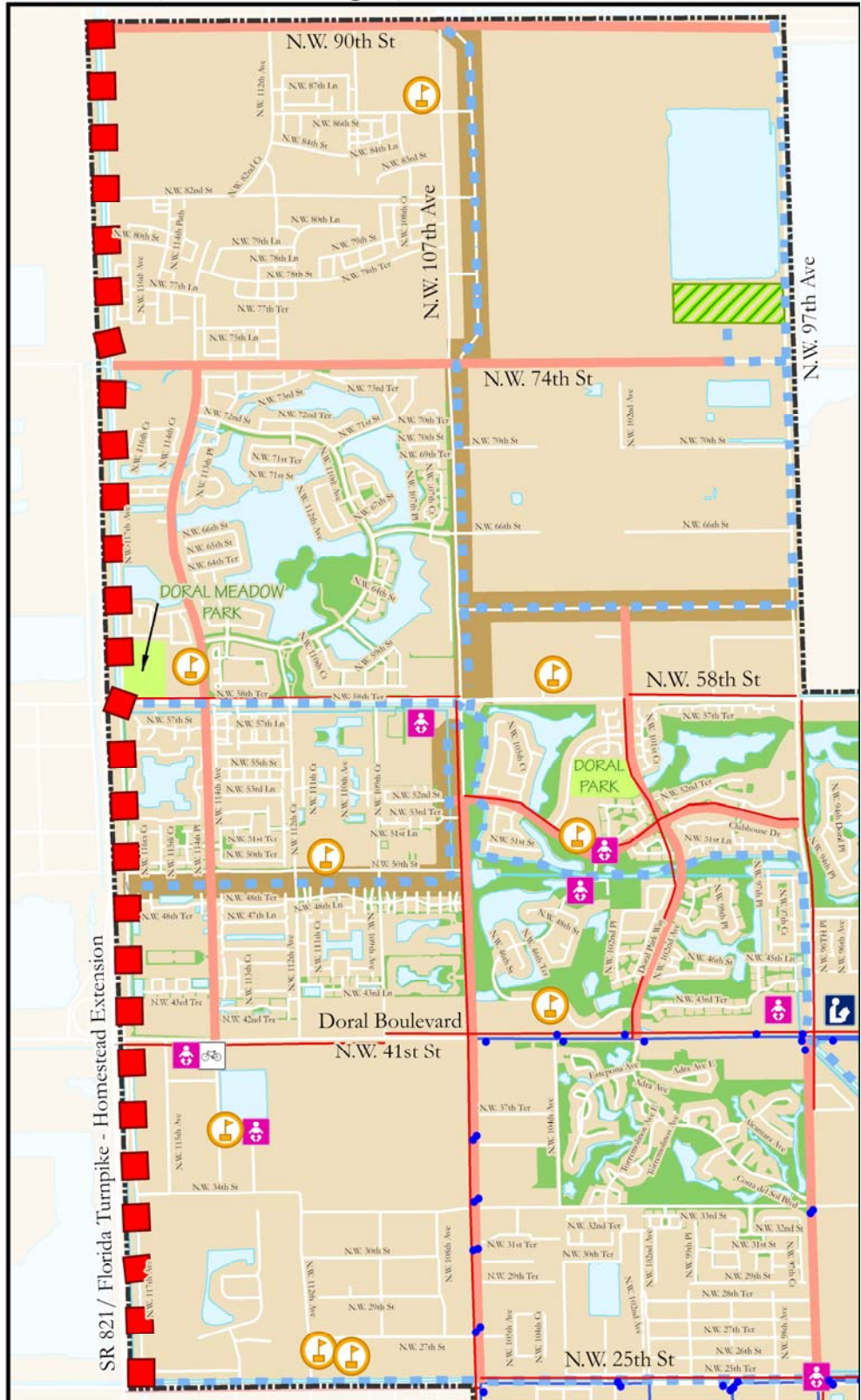
LEGEND

-  Turnpike Trail (Ruta Roja)
-  Proposed Off-Street Bikeway
-  Existing Sidewalk
-  Transit Route
-  Transit Stop
-  Florida Power & Light (FPL) Easement
-  Doral City Limits
-  Public Parks
-  Open Space
-  Proposed Park
-  Water Body
-  School
-  Library
-  Childcare Center
-  Bike Shop



Source: Miami-Dade County Geographic Information Systems Department, Public Information Office.

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CHAPTER 5:

Implementation Guidelines

ACTION & IMPLEMENTATION PLAN

One of the main purposes of the bikeway network planning process has been to create a Plan that is realistic and can be implemented efficiently. To this end, the following general actions are recommended:

1. **Adopt the Doral *Bikeway Network Plan*:** The City of Doral should adopt the *Bikeway Network Plan* as a policy for the City’s future bikeway and shared use trail network.
2. **Establish Projects, Programs, & Policies:** It is important to create capital projects, to include bicycling in the community’s programs, and to adopt policies that support implementation of the proposed bikeway network through public and private projects.
3. **Establish an Implementation Schedule:** The bicycle network can be built over time through several different projects, with a range of initiatives for the short-term, near-term, and long-term.
 - a. **Phase I: Priority Projects & Programs:** These ‘early win’ projects are the building blocks of the network, and are projects and programs that can be implemented in the first 2-3 years. Examples are (1) including a bicycle component in the “Get Fit Doral” program, and (2) implementing the proposed Greenway Trail along the FPL easement between NW 117th Avenue and NW 107th Avenue.
 - b. **Phase II: Completing the Network:** These are mid-term projects that can be developed in the next 3-10 years, including a Safe Ways to School program and implementing remaining sections of the trail network. Several sections of the network can be implemented as development occurs, such as the Atlas Trail and the Limestone Trail.
 - c. **Phase III: Beyond Doral:** These projects involve regional connections to adjacent communities in Miami-Dade County as part of the *North Dade Greenways Master Plan* network.
4. **Treat the *Bikeway Network Plan* as a living document that can be updated as future opportunities arise.**

Projects are listed below by Phase. The trails were described in detail in the previous chapter of this report.

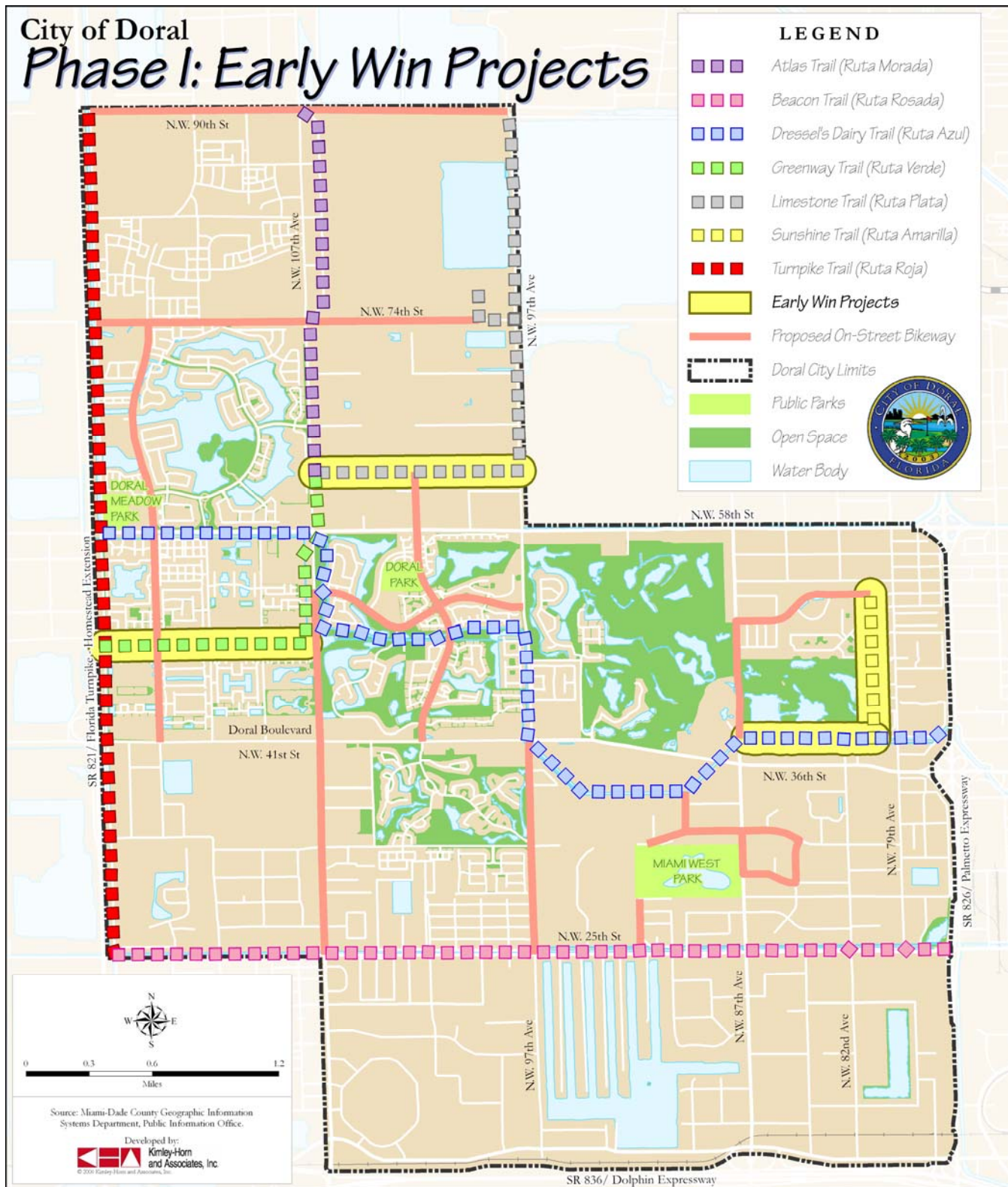
PHASE I: PRIORITY PROJECTS & PROGRAMS

Priority Trail Projects:

- *Ruta Verde* – Greenway Trail between NW 117th Avenue and NW 107th Avenue
- *Ruta Azul* – Dressel’s Dairy Trail between NW 87th Avenue and NW 79th Avenue
- *Ruta Plata* – Limestone Trail between NW 107th Avenue and NW 97th Avenue
- *Ruta Amarilla* – Sunshine Trail

The Priority Trail Projects are shown in Figure 5-1 on the following page.

Figure 5-1: Priority Phase I “Early Win” Projects



Priority Programs: Education & Encouragement

Share the Road

Share the Road is a nationwide program to encourage automobiles to share space on the highway with cyclists. Signage is recommended where separate pathways or bike lanes are not available along a proposed route forcing cyclists onto the road. Public service announcements and vehicle bumper stickers have also been produced as part of this program. Unique to Florida is the opportunity to spread the word by purchasing a “Share the Road” license plate through the Department of Motor Vehicles.



Florida's "Share the Road" license plate.



**Ideas para
Compartir
el Camino
Legalmente
y con
Seguridad**

Esta guía del bolsillo demuestra como los ciclistas y motoristas pueden "Compartir el Camino" legalmente y con seguridad dentro del Condado de Pima.

Favor de leer esta guía para tener un mejor entendimiento de la perspectiva de la otra persona en el camino y para aprender más acerca del ciclismo y a manejar con más seguridad en nuestra gran región.

Entre más entendamos nuestras necesidades, aún mejor nos podremos respetar y cooperar unos con otros en los caminos.

Multilingual signage and education could be used where appropriate.

Safe Ways to School



Safe Ways to School is Florida's version of a national program called Safe Routes to School. The primary goal of the program is to get children to walk or bike to school for health and provide for

a reduced reliance on every day use of motorized transportation. Any proposed bikeway network routes should take special notice to tying school locations into the network. Funding for network implementation may be available to those routes that could be shown to specifically address safe routes to school. Education programs in the schools can address bicycle and pedestrian safety as well as encouraging the students to walk and bike more.

Health & Fitness

Trails can be used for recreation and transportation routes, but one of the most important reasons to bike and walk is to maintain health. The Doral Bikeway Network should become an integral part of the health and fitness of the community. Existing programs like "Get Fit Doral" can schedule events to





get people out on the trails and play a major role in encouragement of their use. Walk to work days, community walks, adopt-a-trail programs, and other events can also encourage use and develop pride in the community and its resources.

Bicycle / Pedestrian / Trail Advisory Committee

Consider the formation of a Bicycle / Pedestrian / Trail Advisory Committee (BPTAC). The BPTAC would provide guidance and community leadership for implementing the City's *Bikeway Network Plan*. Communities that successfully build a trail network often have a grassroots group that champions the implementation of the network.

Committee Duties could include:

- Establish Project Priorities based on Plan Recommendations
- Coordinate Education & Encouragement Programs
- Provide Leadership and Support to the Community
- Develop Funding Applications

Complete Streets Policy

Although the *Bikeway Network Plan* primarily focused on off-street trails, several roadways were identified for on-street bicycle facilities to supplement the shared use trails and provide additional connectivity. As a follow-up to the *Bikeway Network Plan*, the City should consider adopting a Complete Streets Policy, which typically stipulates that all new construction and reconstruction of streets, roads, and transportation facilities shall include appropriate accommodations for bicycles, pedestrians, and transit riders, as well as for seniors, children, and people with disabilities. Complete streets typically include bike lanes, sidewalks, bus bays, bus stop plazas, bike parking, medians with pedestrian refuges, and crosswalks with enhanced pavement markings.

PHASE II: COMPLETING THE NETWORK

Phase II Trail Projects:

- Ruta Verde – Greenway Trail (remaining sections not included in Phase I)

- Ruta Azul – Dressel’s Dairy Trail (remaining sections not included in Phase I)
- Ruta Plata – Limestone Trail (remaining sections not included in Phase I)
- Ruta Morada – Atlas Trail
- Ruta Rosada – Beacon Trail
- Ruta Rojo – Turnpike Trail

PHASE III: BEYOND DORAL

While the focus of this Plan is the bikeway network within the city limits of Doral, integrating the proposed system into the larger *North Dade Greenways Master Plan* network should be a goal for the City. The trails included in this Plan that were identified in the North Dade Greenways Network are the Beacon Trail and the Turnpike Trail. The following guidelines should be adhered to for enhancing regional connectivity:

- Establish linkages with existing and proposed trails in the North Dade Greenways Network through the Beacon Trail and the Turnpike Trail. The North Dade Greenways Network includes more than 300 miles of trail and 19 greenways, and could connect Doral to other popular locations such as Miami Beach.
- Incorporate the City of Doral’s *Bikeway Network Plan* fully with Metropolitan Planning Organization (MPO) programs and plans. The Miami-Dade MPO prioritizes county-wide transportation improvements through documents such as the Transportation Improvement Program (TIP) and the Long Range Transportation Plan (LRTP).

DESIGN PRINCIPLES

The Design Principles of the City of Doral *Bikeway Network Plan* are based on current state and national documents including the *Florida Bicycle & Pedestrian Facilities Planning and Design Handbooks* (FDOT Office of Bicycle and Pedestrian Transportation, 4/1999 & 4/2000), the *Florida Department of Transportation Greenbook*, 5/2005, and the *AASHTO Guide for Development of Bicycle Facilities*, (AASHTO, 1999). The Doral guidelines use these documents as a baseline for minimum conditions, and are intended to facilitate creative solutions to a wide range of bicycle facility types. It is recognized that on facilities maintained by FDOT, the State’s design guidelines will apply, and that Doral has the



potential to exceed these minimum guidelines where conditions warrant on facilities within their jurisdiction.

The following are key principles for these guidelines:

- 1. Doral will have a complete network of greenways and trails.** The system will be interconnected to make it possible for many destinations in Doral to be accessible by bicycle.
- 2. Bicyclists have a range of skill levels, from “Type B/C” inexperienced / recreational bicyclists (especially children and seniors) to “Type A” experienced cyclists (adults who are capable of sharing the road with motor vehicles).** These groups are not always exclusive – some elite level athletes still like to ride on shared-use paths with their families, and some recreational bicyclists will sometimes use their bicycles for utilitarian travel.
- 3. At a minimum, roads and streets should be designed for the use of Type “A” cyclists, with a goal of providing shared-use paths for Type “B” cyclists to the greatest extent possible.** In areas where specific needs have been identified (for example, near schools) the needs of appropriate types of bicyclists and pedestrians will be accommodated.
- 4. Design guidelines are intended to be flexible and can be applied with professional judgment by designers.** Specific national and state guidelines are identified in this document, as well as design treatments that may exceed these guidelines. These design guidelines will include items such as trail width, cross-section, surface, striping, signage, landscaping, and appearance.
- 5. Roadways in Doral are legal for the use of bicyclists, (except those roads designated as limited access facilities, which prohibit bicyclists).** This means that most streets are bicycle facilities, and will be designed and maintained accordingly. While on-street facilities are not the focus of this document, an on-street bicycle facility system should be pursued to complement the proposed bikeway network.

NATIONAL, STATE, & LOCAL GUIDELINES

The following is a list of references and sources utilized to develop design guidelines for *Doral’s Bikeway Network Plan*. Many of these documents are available online and provide a wealth of useful information and resources available to the public, project designers, and local officials.

AASHTO Guide

Guide for the Development of Bicycle Facilities, 1999.

American Association of State Highway and Transportation Officials, Washington, DC.

www.transportation.org

AASHTO Green Book

Policy on Geometric Design of Streets and Highways, 2001.

American Association of State Highway and Transportation Officials, Washington, DC.

www.transportation.org

Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways – The Florida Greenbook

Florida Department of Transportation, Updated May, 2005

<http://www.dot.state.fl.us/rddesign/FloridaGreenbook/2005/2005FloridaGreenbook.pdf>

Florida Bicycle Facilities Planning and Design Handbook, April, 2000

Florida Department of Transportation Pedestrian and Bicycle Program

http://www.dot.state.fl.us/safety/ped_bike/ped_bike_standards.htm

Florida Pedestrian Facilities Planning and Design Handbook, April, 1999

Florida Department of Transportation Pedestrian and Bicycle Program

http://www.dot.state.fl.us/safety/ped_bike/ped_bike_standards.htm

MUTCD

Manual on Uniform Traffic Control Devices, 2003.

Federal Highway Administration, Washington, DC.

<http://mutcd.fhwa.dot.gov>

PBIC / APBP

Bicycle Facility Selection: A Comparison of Approaches

Michael King, for the Pedestrian and Bicycle Information Center

Highway Safety Research Center, University of North Carolina – Chapel Hill, August 2002

<http://www.bicyclinginfo.org/pdf/bikeguide.pdf>

Trail Intersection Design Handbook

Florida Department of Transportation

http://www.dot.state.fl.us/safety/ped_bike/handbooks_and_research/TRAILINT.PDF

Trail Termini Design Handbook

Florida Department of Transportation

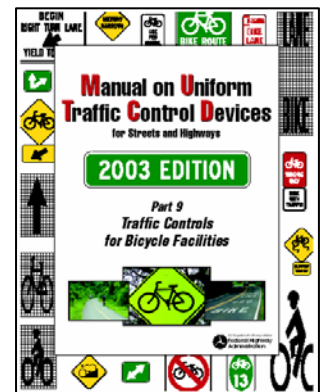
http://www.dot.state.fl.us/safety/ped_bike/handbooks_and_research/termini.pdf

Bike Lane Design Guide (City of Chicago)

http://www.bicyclinginfo.org/pdf/bike_lane.pdf

Bicycle Parking Design Guidelines

<http://www.bicyclinginfo.org/pdf/bikepark.pdf>



City of Doral Transportation Master Plan

<http://www.cityofdoral.com/doral/html/DownloadsPlus-index-req-getit-lid-612.phtml>

Miami-Dade County 2025 Pedestrian Plan.

Miami-Dade Metropolitan Planning Organization, 2001
http://www.miamidade.gov/mpo/docs/MPO_ped_plan_2001.pdf

Miami-Dade County 2025 Bicycle Facilities Plan.

Miami-Dade Metropolitan Planning Organization, 2001
http://www.miamidade.gov/mpo/docs/MPO_bike_facilities_plan_2001.pdf

North Dade Greenways Network Master Plan

Miami-Dade Metropolitan Planning Organization, 1997
http://www.miamidade.gov/mpo/docs/MPO_ndgw_final_1997.pdf

South Dade Greenways Network Master Plan

Miami-Dade Metropolitan Planning Organization, 1994
http://www.miamidade.gov/mpo/docs/MPO_sdsn_master_1994.pdf

SHARED USE PATHS, GREENWAYS, & TRAIL DESIGN

The *North and South Dade Greenways Network Master Plans* identify an extensive network of trails and greenways planned for the region. Miami-Dade County is home to several existing trails that provide opportunities for recreation, commuting, and safe access to major recreational destinations. The *Doral Bikeway Network Plan* recognizes the value of these existing resources and recommends additions to the network for the Doral community. One of the key elements of designing these facilities is to safely



Shared Use Path / Roadway Crossing

integrate these off-street facilities with motor vehicle traffic. This includes crossing features for all roadway/trail intersections, with appropriate warning features both for vehicles and trail users. The type, location, and other criteria are identified in the *Manual on Uniform Traffic Control Devices (MUTCD)*.

In addition to dimensional standards, the following is a discussion of special design considerations unique to shared use paths. Adequate warning distance is based on vehicle speeds and line of sight. Signage should be highly visible; catching the attention of motorists accustomed to roadway signs may require additional devices such as flashing lights, roadway striping or changes in pavement texture. Signing for

trail users must include a standard stop sign and pavement marking, sometimes combined with other features such as bollards or a deflection in the trail alignment to slow bicyclists. Care must be taken not to place too many signs at crossings lest they overwhelm the user and lose their impact.

Directional signing may be useful for trail users and motorists alike. Signs reading "Bicycle Trail X-ing" along with a Doral trail emblem or logo helps both warn and promote use of the trail itself. For trail users, directional signs and street names at crossings help direct people to their destinations.

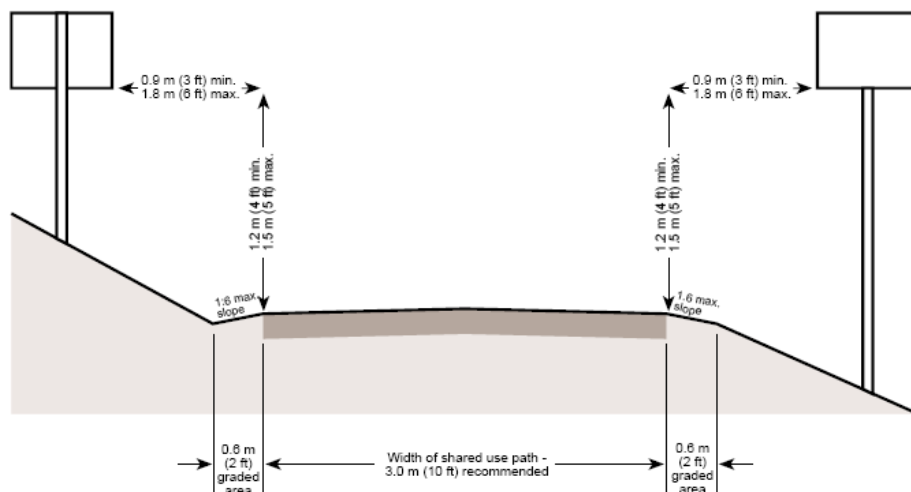
Directional signing should impart a unique graphic identity so trail users know which trail they are following and where it goes. The theme can be conveyed in a variety of ways: engraved stone, medallions, bollards, and mile markers. A central information installation at trailheads and major crossroads also helps users find their way and acknowledge the rules of the trail. Signage can also be useful for interpretive education about plant and animal life, ecosystems, and local history.

A number of striping patterns have emerged over the years to delineate trail crossings. A median stripe on the trail approach will help to organize and warn trail users. High-visibility crosswalk striping may be accompanied by pavement treatments to help warn and slow motorists.

Typical Cross-Sections

The paved width and the operating width required for a shared use path are primary design considerations. The minimum width for a two-way shared use path is 10 feet. Figure 5-2 from the AASHTO *Guidelines for the Development of Bicycle Facilities* depicts a typical cross-section of a shared use path on a separated right-of-way.

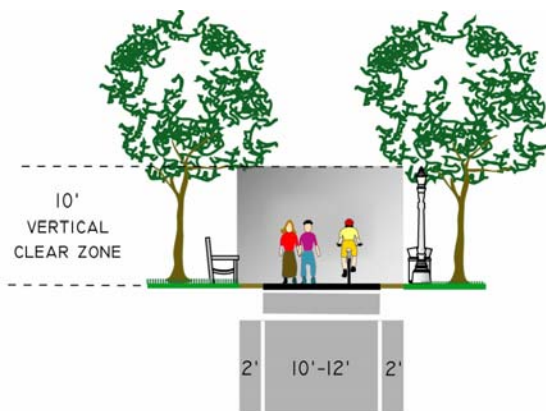
Figure 5-2: Shared Use Path Typical Cross-Section



Shared Use Paths

Figure 5-3 illustrates a typical shared use path design. This path is designed to accommodate two-way bicycle and pedestrian traffic, typically has its own right-of-way, and can accommodate maintenance and emergency vehicles. This type of trail is typically paved (asphalt or concrete) but can also be a crushed stone or other smooth surface, as long as it meets ADA requirements. Wider soft shoulders can be provided for runners/joggers if space allows.

Figure 5-3: Typical Shared Use Path Design



Local Neighborhood Trails

Local neighborhood trails provide access for most, if not all, trail users within neighborhoods, parks, green spaces, and other recreational areas. Local neighborhood trails may be built in Doral to connect the bikeway network of shared use trails to local residential areas, parks, and schools. Local neighborhood trails are similar to shared use paths in that they typically have their own right-of-way and serve only non-motorized users. Local neighborhood trails should be at least 8 feet wide if bicycle use is anticipated. All efforts should be made so that at least one ADA accessible trail is available in each area. Neighborhood and homeowner association groups are encouraged to identify local neighborhood connector trails.

Figure 5-4: Paved Neighborhood Trail

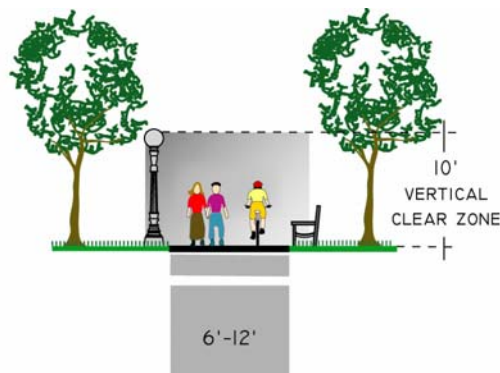
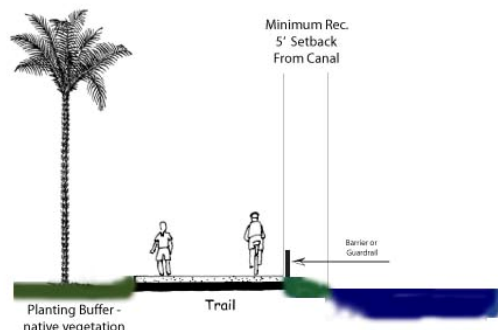


Figure 5-5: Trail Adjacent to Canal

Canal Trails

There are a number of canals and water management corridors in the City of Doral that can serve as rights-of-way for the implementation of shared use paths. Canals that are currently adjacent to roadways have guard rails



between the road and the canal. The recommended minimum setback from the edge of trail to a canal is 5 feet. If this dimension cannot be provided due to physical constraints, fencing or other barriers should be provided between the edge of the trail and the top of the canal slope.

Utility Right-of-Way Trails

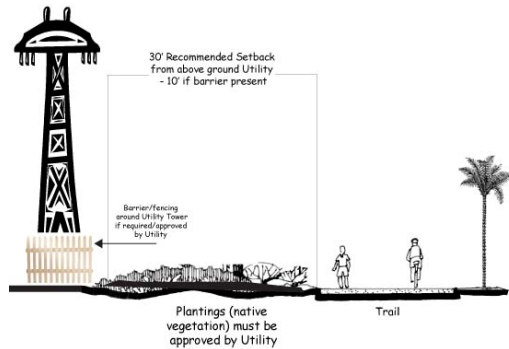


Figure 5-6: Trail in Utility Right-of-Way

There are a number of power line rights-of-way in the City of Doral that could serve as trails. One of the biggest challenges with respect to implementation of an off-road bikeway network is finding intact rights-of-way with as few land owners as possible. Use agreements can be established between the managing agency and the landowner that allow use of the right-of-way while maintaining maintenance and safety standards appropriate and agreed to by the utility. Coordination with Florida Power and Light (FPL) or the appropriate utility owner should take place prior to

developing detailed plans and funding requests for trails in utility rights-of-way. Typical setback distances from towers and equipment will have to be approved by the utility. The State of Florida Recreational Use Statutes indemnifying landowners from liability when opening their lands to recreational use can be found at:

http://tarlton.law.utexas.edu/dawson/recreate/fl_rec.htm.

TRAIL SURFACE

When approaching a trail project, trail designers and local agency representatives often assume their trail will be surfaced with asphalt or perhaps concrete if budget allows. These are some of the most common and acceptable materials used on trails. Shared use paths typically serve a transportation function but trail users often do not want a trail to appear as a “mini-roadway.” This often leads designers into an exploration of possible trail surfacing options. In addition, the potential trail users must be considered when selecting a trail surface.



Schoolchildren riding their bikes in FPL Right-of-Way in Doral



The following surfaces are potential alternatives for the City of Doral:

- traditional asphalt and concrete
- permeable asphalt and concrete
- crushed fines or crushed stone
- organic surfaces, such as bark mulch and soil

In arriving at a recommended trail surface, several key criteria should be considered including:

- *Initial Capital Cost* – Trail surface costs vary dramatically and dollars to build trails are scarce. Construction costs include excavation, sub-base preparation, aggregate base placement, and application of the selected trail surface.
- *Maintenance and Long Term Durability* – The anticipated life of a trail surface can vary from a single year (bark surface in a moist climate) to 25+ years (concrete). In addition, each trail surface has varying maintenance needs that will require regular inspections and follow up depending on the material selected. Some surface repairs can be made with volunteer effort such as on a natural soil surface trail, while other such as a concrete surface will require skilled labor to perform the repair.
- *Existing Soil and Environmental Conditions* – Soil conditions play a critical role in surfacing selection. Some, but not all, projects are gifted with an excellent base to build a trail on. In addition, when considering the use of a permeable concrete or asphalt surface, the success rate of these surfaces is directly correlated to the permeability of the soil and climatic conditions.
- *Availability of Materials* – A great trail surface in one area of the country may prove cost-prohibitive in another area due to availability of materials. Crushed limestone trail surfaces are common in the eastern US. There are also some environmentally sound ideas such as the use of recycled glass or crumb rubber in asphalt.
- *Anticipate Use/Functionality* – Who are the anticipated users of the trail? Will the trail surface need to accommodate equestrians, wheelchairs, maintenance vehicles, bicycles, and other users? Shared use trails attempt to meet the needs of all anticipated trail users. But this may not be feasible with a single trail surface. Consider the shoulder area as a usable surface, making it wide enough for use by those preferring a softer material. Each surface also has varying degrees of



roughness and therefore accommodates varying users. In-line skates, for example, cannot be accommodated on a crushed stone surface.

- *Funding Source* – The funding source for the trail may dictate the trail surface characteristics. If the trail has federal funds and is being administered through FDOT, then FDOT will need to review and approve the selected trail surface.
- *Susceptibility to Vandalism* – Trail surfaces are not usually thought of as being susceptible to vandalism, but the characteristics of the varying surfaces do lend themselves to a variety of vandalism including movement of materials such as gravel or bark, graffiti on hard surfaces, arson (wood and rubber surfaces), and deformation.
- *Aesthetics* – Each trail surface has varying aesthetic characteristics that should fit with the overall design concept desired for the project.

TRAILHEADS

Trailheads and access points may be established at certain points across the city of Doral. Trailhead kiosks can serve to provide visitor information, area interpretation, and education. Multilingual signage is recommended in appropriate areas.

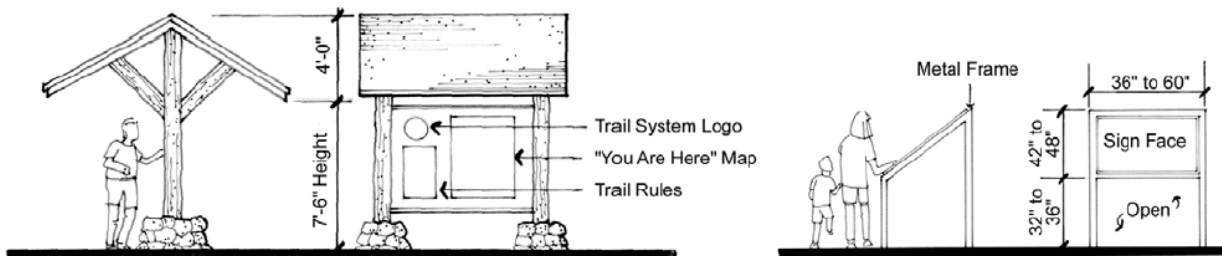


Figure 5-7: Trailhead Information Installation Examples

Key criteria for establishing Trailheads or designated Access/Parking areas:

- Site has an association with an existing resource such as a school or park
- Site is an intersection of trails or heavily traveled roadways
- Site has potential to add to the economy of an area by attracting trail users
- Site can be tied in with existing or proposed commercial or residential developments



- Site can be tied in with existing or proposed Tourism projects (resorts, hotels, convention centers etc.)
- Sites can be linked with existing business that may want to sponsor a trailhead through an “adopt a trailhead” program
- Trailheads in commercial centers can appeal to companies looking to attract employees

Recommended trailheads for the Doral *Bikeway Network Plan* include:

- Miami West Park
- Doral Park
- Doral Meadow Park
- A potential park facility within the FPL right-of-way along NW 50th Street
- Proposed Downtown Doral development

TRAIL / ROADWAY INTERSECTIONS

The State of Florida has developed an extensive *Trail Intersection Guidebook* for dealing with intersections of trails and roadways. It should be referenced as much as possible when dealing with trail-roadway intersections. The following guidelines are taken directly from this resource:

- Design for the full spectrum of trail users—young and old, slow and fast, bicyclists, skaters, and walkers.
- When assigning right-of-way, give trail users at least the same rights as the motoring public, and provide clear right-of-way assignment.
- Provide positive guidance for trail users and motorists to ensure full awareness of the intersection.
- Minimize conflicts and channelize the intersection to separate conflicting movements.
- Unavoidable conflicts should occur at right angles.
- Optimize sight triangles, ensuring stopping, intersection crossing, and decision sight distances. Conflicts should be clearly visible.
- Reduce motor vehicle speed through “traffic calming” techniques as appropriate.
- Minimize trail user crossing distance with a median refuge area or by narrowing the roadway as appropriate.
- Provide adequate staging and refuge areas for trail users.

- Discourage unwanted motor vehicle intrusion onto the trail while enabling emergency and maintenance vehicle entry.
- Avoid obstacles and visibly highlight unavoidable obstacles.
- At signalized intersections, minimize trail user delay by minimizing traffic signal cycle time.
- Provide adequate signal crossing time for design pedestrians.
- Provide easily accessible tactile/audible pushbuttons.
- Treat every road as a potential trail entrance and exit point, integrated with sidewalks and on-street bicycle facilities as appropriate.
- Design to assist the trail user in looking in the direction of the potential hazard.
- Consider the potential for sun blinding.
- Consider lighting.
- Consider the ease of both construction and maintenance and the initial and lifetime costs for construction and maintenance.
- Be consistent in design.

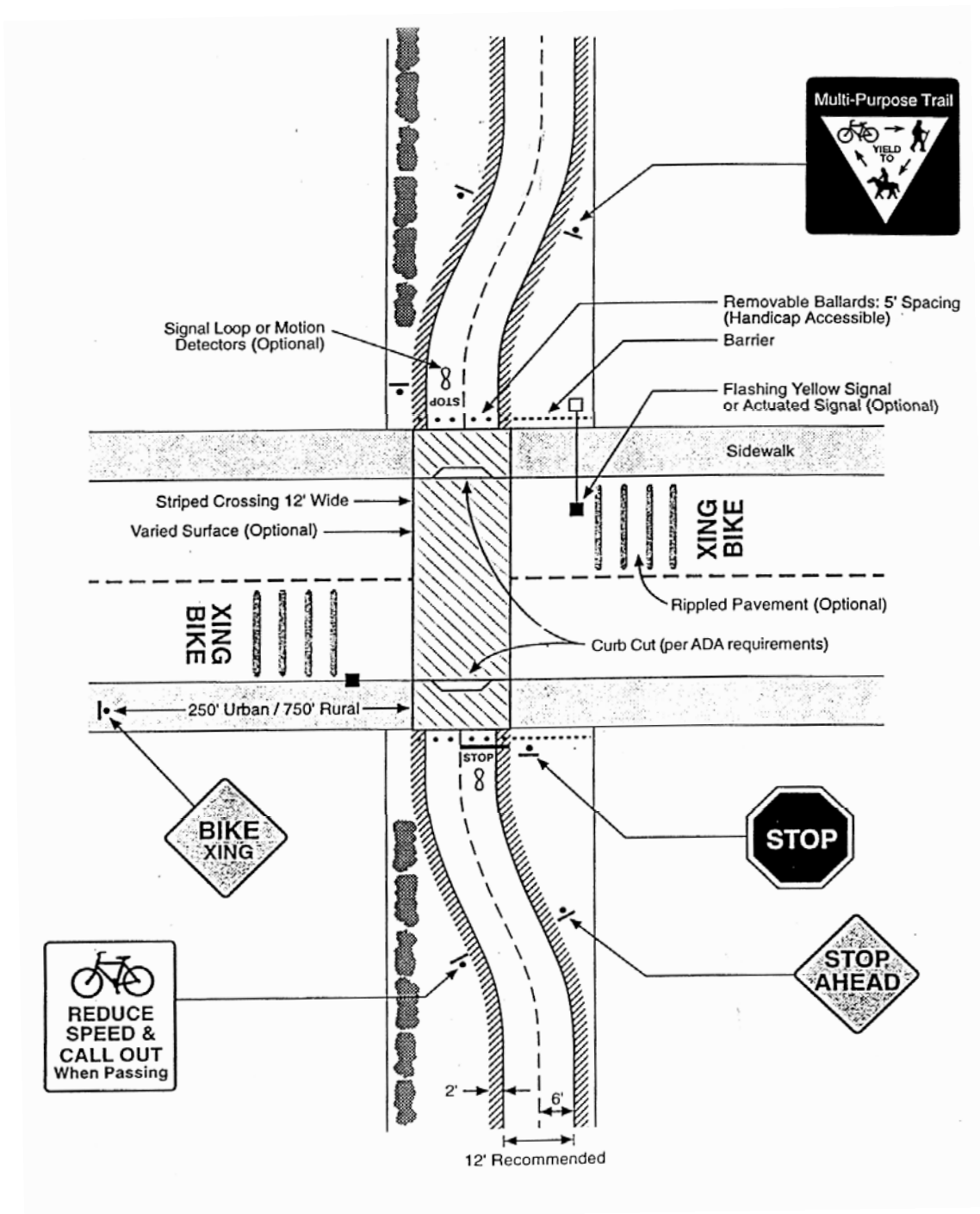
(Source: *Trail Intersection Guidebook*, Florida Department of Transportation)

Types of trail and roadway intersections that are common and are dealt with by the Design Guidebook are:

- Mid-block Crossings
- Intersection Crossings

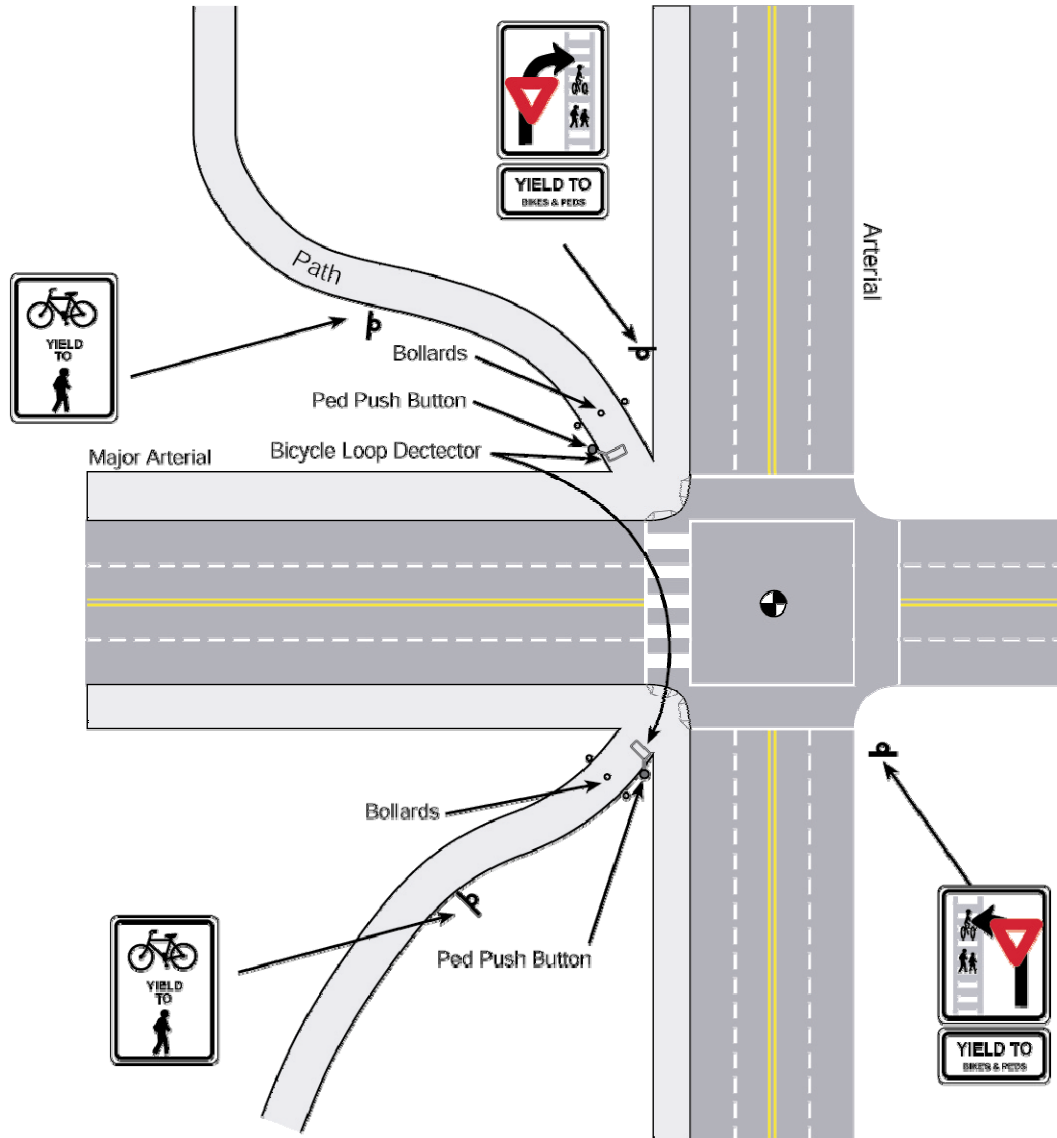
Recommended trail intersection illustrations from the *Trail Intersection Guidebook* are featured as Figure 5-8 and Figure 5-9.

Figure 5-8: Mid-block Shared Use Path Cross Design Recommendations



(Source: *Trail Intersection Guidebook*, Florida Department of Transportation)

Figure 5-9: Intersection Configuration for a Shared Use Path Approach at an Intersection



(Source: *Trail Intersection Guidebook*, Florida Department of Transportation)

SIGNAGE

Implementing a well-planned and attractive system of signing can greatly enhance bikeway facilities by signaling their presence and location to both motorists and existing and potential bicycle users. By leading people to city bikeways and the safe and efficient transportation they offer to local residents and visitors to the county, effective signage can encourage more people to bicycle.

Standard bikeway signing should conform to the signing identified in the Manual on Uniform Traffic Control Devices (MUTCD). This document gives specific information on the type and location of signing for the primary bike system.

Innovative signing is often developed to increase bicycle awareness and improve visibility. San Francisco, CA is an example of a city that has created customized bike route logo signage. The “Share the Road” sign is designed to advise motorists that bicyclists need to share roadways with motor vehicles where bike lanes or other accommodations are not present.

Figure 5-10: Bicycle Signage Examples



Cities can use similar customized logo signs to define bike routes.



Share the Road signs remind motorists that bicyclists have the right to ride on the roadway.



An example of what a Doral trail sign may look like.

USER AMENITIES & SUPPLEMENTAL INFRASTRUCTURE

There are a number of amenities that make a bicycle system inviting to the user. Below are some common amenities that make systems successful.

- **Interpretive Installations** – Interpretive installations and signs can enhance the users experience by providing information about the history of Doral. Interpretive installations can also discuss local ecology, environmental concerns, and other educational information.
- **Water Fountains and Bicycle Parking** – Water fountains provide water for people (and pets, in some cases) and bicycle racks allow recreational users to safely park their bikes if they wish to stop along the way, particularly at parks and other desirable destinations.
- **Pedestrian-Scale Lighting and Furniture** – Pedestrian-scale lighting improves safety and enables the facility to be used year-round. It also enhances the aesthetic of the trail. Lighting fixtures should be consistent with other light fixtures in the city, possibly emulating an historic theme. Providing benches at key rest areas and viewpoints encourages people of all ages to use the trail by ensuring that they have a place to rest along the way. Benches can be simple (e.g., wood slates) or more ornate (e.g., stone, wrought iron, concrete). Benches should be placed at a minimum of every 1,000 feet along the trails.
- **Maps and Signage** – A comprehensive signing system makes a bicycle and pedestrian system stand out. Informational kiosks with maps at trailheads and other pedestrian generators can provide enough information for someone to use the network with little introduction.
- **Art Installations** – Local artists can be commissioned to provide art for the trail system, making it uniquely distinct. Many trail art installations are functional as well as aesthetic, as they may provide places to sit and play on.



BICYCLE PARKING

As more bikeways are constructed and bicycle usage grows, the need for bike parking will climb. Long-term bicycle parking at transit stations and employment sites, as well as short-term parking at shopping centers, schools, and similar sites, can support bicycling for utilitarian transportation. Bicyclists have a significant need for secure long-term parking because bicycles parked for longer periods are more exposed to weather and theft. A local bicycle parking ordinance can be adopted to integrate bicycle parking into the community planning and development process.

When choosing bike racks, there are a number of elements to keep in mind:

- The rack element (part of the rack that supports the bike) should keep the bike upright by supporting the frame in two places allowing one or both wheels to be secured.
- Install racks so there is enough room between adjacent parked bicycles. If it becomes too difficult for a bicyclist to easily lock their bicycle, they may park it elsewhere and the bicycle capacity is lowered. A row of inverted “U” racks should be installed with 15 inches minimum between racks.
- Empty racks should not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway’s clear zone.
- When possible, racks should be in a covered area protected from the elements. Long-term parking should always be protected.

The table below provides basic guidelines on ideal locations for parking at several key activity centers as well as an optimum number of parking spaces.

Figure 5-11: Recommended Guidelines for Bicycle Parking Locations and Quantities

Land Use or Location	Physical Location	Bicycle Capacity
City Park	Adjacent to restrooms, picnic areas, fields, and other attractions	8 bicycles per acre
City Schools	Near office entrance with good visibility	8 bicycles per 40 students
Public Facilities (city hall, libraries, community centers)	Near main entrance with good visibility	8 bicycles per location
Commercial, retail and industrial developments over 10,000 gross square feet	Near main entrance with good visibility	1 bicycle per 15 employees or 8 bicycles per 10,000 gross square feet
Shopping Centers over 10,000 gross square feet	Near main entrance with good visibility	8 bicycles per 10,000 gross square feet
Commercial Districts	Near main entrance with good visibility; not to obstruct auto or pedestrian movement	2 bicycles every 200 feet
Transit Stations	Near platform or security guard	1 bicycle per 30 parking spaces

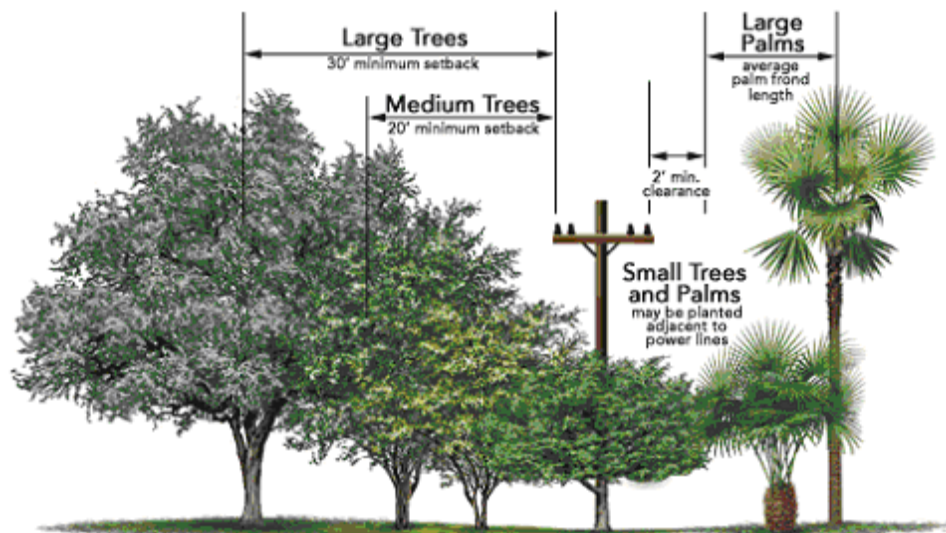
LANDSCAPING

Landscape planting and design plans should be consistent with guidelines established in the City of Doral's *Street Tree Master Plan*, landscaping standards for right-of-way owners such as Florida Power and Light (FPL), and should follow Florida Friendly & hurricane zone guidelines.

The following general guidelines should be followed.

- Work within pre-existing landscape conditions wherever possible.
- Plantings should maintain appropriate water conservation, quality, and storm water management.
- Landscape with native and suitable non-native trees, shrubs and groundcovers that will require minimal maintenance when planted under appropriate conditions.
- Appropriate linear spacing and setbacks should be maintained whenever possible.

Figure 5-12: Power Right-of-Way Tree Planting



(Source: Florida Power & Light)



COST ESTIMATES

The following are cost estimates for the proposed Doral Bikeway Network and associated programs. These estimates are based on asphalt paving of surfaces and would be lower if natural or stone surfaces are chosen for paths or segments. The cost estimates are generated from a planning level opinion of probable cost based on typical per-mile costs for bikeway networks, which are approximately \$300,000 per mile. Please note that the actual cost will vary depending on the type and number of amenities and supplemental infrastructure that are chosen by the City.

BIKEWAY PROJECTS

▪ Greenway Trail – Ruta Verde:	\$600,000
▪ Dressel’s Dairy Trail – Ruta Azul:	\$1,500,000
▪ Limestone Trail – Ruta Plata:	\$900,000
▪ Atlas Trail – Ruta Morada:	\$450,000
▪ Beacon Trail – Ruta Rosada:	\$1,200,000
▪ Sunshine Trail – Ruta Amarilla:	\$200,000
▪ Turnpike Trail – Ruta Roja:	\$1,200,000
Bikeways Cost Per Mile:	\$300,000
Total All Bikeways	\$6,050,000

ASSOCIATED PROGRAMS

▪ Safe Ways to School	\$250,000
▪ Share the Road Campaign	\$50,000
▪ Fitness Education Program	\$50,000
Total Associated Programs	\$350,000

FUNDING

A variety of potential funding sources are available including local, state, regional, and federal funding programs that can be used to construct the proposed bikeway improvements. Most of the Federal, state, and regional programs are competitive and involve the completion of extensive applications with clear documentation of the project need, costs, and benefits. Grant application deadlines are present in almost all the examples.

The primary funding sources are described below.

FEDERAL FUNDING SOURCES

The Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA)

SAFETEA is the third iteration of the transportation vision established by Congress in 1991 with the Intermodal Surface Transportation Efficiency Act (ISTEA) and renewed in 1998 through the Transportation Equity Act for the 21st Century (TEA-21). Also known as the Federal Transportation bill, the \$286.5 million SAFETEA bill was passed in 2005.

SAFETEA funding is administered through the state (FDOT District 6) and regional planning agencies (Miami-Dade MPO). Most, but not all, of the funding programs are oriented toward transportation versus recreation, with an emphasis on reducing automobile trips and providing inter-modal connections. Funding criteria often includes completion and adoption of a bikeway master plan, quantification of the costs and benefits of the system (such as saved vehicle trips and reduced air pollution), proof of public involvement and support, ACA (the Florida Air Compliance Assurance Program) compliance, and commitment of some local resources. In most cases, SAFETEA provides matching grants of 80 to 90 percent. Examples of SAFETEA funding sources for implementing bicycle projects include:

- Transportation Enhancements Program
- Recreational Trails Program
- Land and Water Conservation Fund
- Safe Routes to School Program
- Transportation, Community and System Preservation (TCSP) Program



Transportation Enhancements

Transportation Enhancements (TE) require every State to reserve at least 10 percent of their Federal Surface Transportation Program (STP) funds for designated Transportation Enhancements activities, such as pedestrian and bicycle facilities, pedestrian and bicycle safety, and pedestrian and bicycle education programs.

Recreational Trails Program Funds

The Recreational Trails Program provides funds for developing and maintaining recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized as well as motorized uses.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails (including bike paths);
- Development and rehabilitation of trailside and trailhead facilities and trail linkages;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails (with restrictions for new trails on federal lands);
- Acquisition of easements or property for trails;
- State administrative costs related to this program (limited to seven percent of a State's funds); and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

Land and Water Conservation Fund (LWCF)

The Land and Water Conservation Fund, a program administered by the National Parks Service, allocates money to state and local governments to acquire new land for recreational purposes, including bicycle paths and support facilities such as bike racks. Funding allocated to Florida is administered by the State Department of Environmental Protection. Eligible applicants include cities, counties and districts authorized to acquire, develop, operate and maintain park and recreation areas. For local agencies, funds are provided through a competitive selection process. There is a 50% local match requirement. In FY 2006, Florida was funded at a level of \$1,209,163 out of only just under \$28 million nationwide.

Transportation, Community, and System Preservation (TCSP)

The Transportation, Community, and System Preservation (TCSP) program is intended to address the relationships among transportation and community plans and to identify private-sector based initiatives to improve those relationships. Funds are allocated to states and MPOs by the Federal government and can be used for bicycle and pedestrian projects because of their ability to improve the efficiency of the transportation system, reduce the impacts of transportation on the environment, and provide efficient access to jobs, services, and centers of trade.

STATE FUNDING SOURCES

Safe Ways to School & Florida Traffic & Bicycle Safety Programs

The Florida Department of Transportation (FDOT) Human Resource Development Funds have been used to fund a partnership between FDOT & the University of Florida for administration of the “Safe Ways to School” program and the Florida Traffic & Bicycle Safety Programs. While the ultimate success of the Safe Ways program may be tied to managing the federal dollar allocations, tapping into these existing resources for education and enforcement may be key to a successful program.

Traffic Safety Education Mini-Grant Program

The Florida Traffic and Bicycle Safety Education Program provide funds annually, through the mini-grant program, to help school districts establish, maintain or enhance their traffic safety education programs. The program is committed to providing educational resources necessary to teach the traffic safety education program, and providing the funds necessary to implement and sustain programs throughout the state. The grant is intended to purchase new equipment, replace existing equipment such as bicycles, helmets, ropes, cones, etc., or purchase trailers to transport the equipment.

Florida Communities Trust

The Florida Communities Trust Florida Forever Program provides grants to eligible applicants for the acquisition of land for community-based parks, open spaces, and greenways that further the outdoor recreation and natural resource protection needs identified in local government comprehensive plans. It is



administered by the Florida Department of Community Affairs. The Florida Legislature requires the Florida Communities Trust Florida Forever Program to:

- Emphasize funding projects in low-income or otherwise disadvantaged communities.
- Direct at least 30 percent of its funding to projects in Metropolitan Areas and half of that amount within the built-up urban area.
- Use no less than 5 percent to acquire lands for recreational trail systems.

Florida Recreation Development and Assistance Program

The Florida Recreation Development and Assistance Program is a competitive program which provides grants for acquisition or development of land for public outdoor recreation use. The program is administered by the Florida Department of Environmental Protection (DEP). The Bureau of Design and Recreation Services of DEP's Division of Recreation and Parks has direct responsibility for FRDAP. Funds from FRDAP may be used to acquire or develop land for public outdoor recreation or to construct or renovate recreational trails. Municipal or county governments or other legally constituted entities with the legal responsibility to provide public outdoor recreation may apply for FRDAP funds. FRDAP grant applications may be submitted during an announced submission period, usually early fall each year. The applicant is required to supply a match at certain funding levels. The local match requirement is based upon the total project cost.

OTHER FUNDING SOURCES

Impact Fees

A potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site bikeway improvements that will encourage residents to bicycle rather than drive. Portions of the trail network may actually be built by private sector landowners as surrounding properties are developed. Private landowners who are developing residential real estate properties often desire to implement the portion of the trail that passes through or is adjacent to their development as an amenity to prospective residents. Private sector participation will be key in Doral as many of the proposed trails pass through proposed development or redevelopment projects.



Private Funding Sources

Corporations and non-profit organizations are another common source of private funding sources. Local companies may be interested in a “corporate sponsorship” of a trail or trail segment. An adopt-a-trail sign could be developed to provide the name of the corporate sponsor for trail segments.

Bikes Belong Coalition

An example of a specific bicycle facility funding source is the Bikes Belong Coalition. Bikes Belong seeks to assist local organizations, agencies, and citizens in developing bicycle facilities projects that will be funded by SAFETEA. The Bikes Belong Coalition will accept applications for grants of up to \$10,000 each, and will consider successor grants for continuing projects. Funding decisions are made on a rolling basis.






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