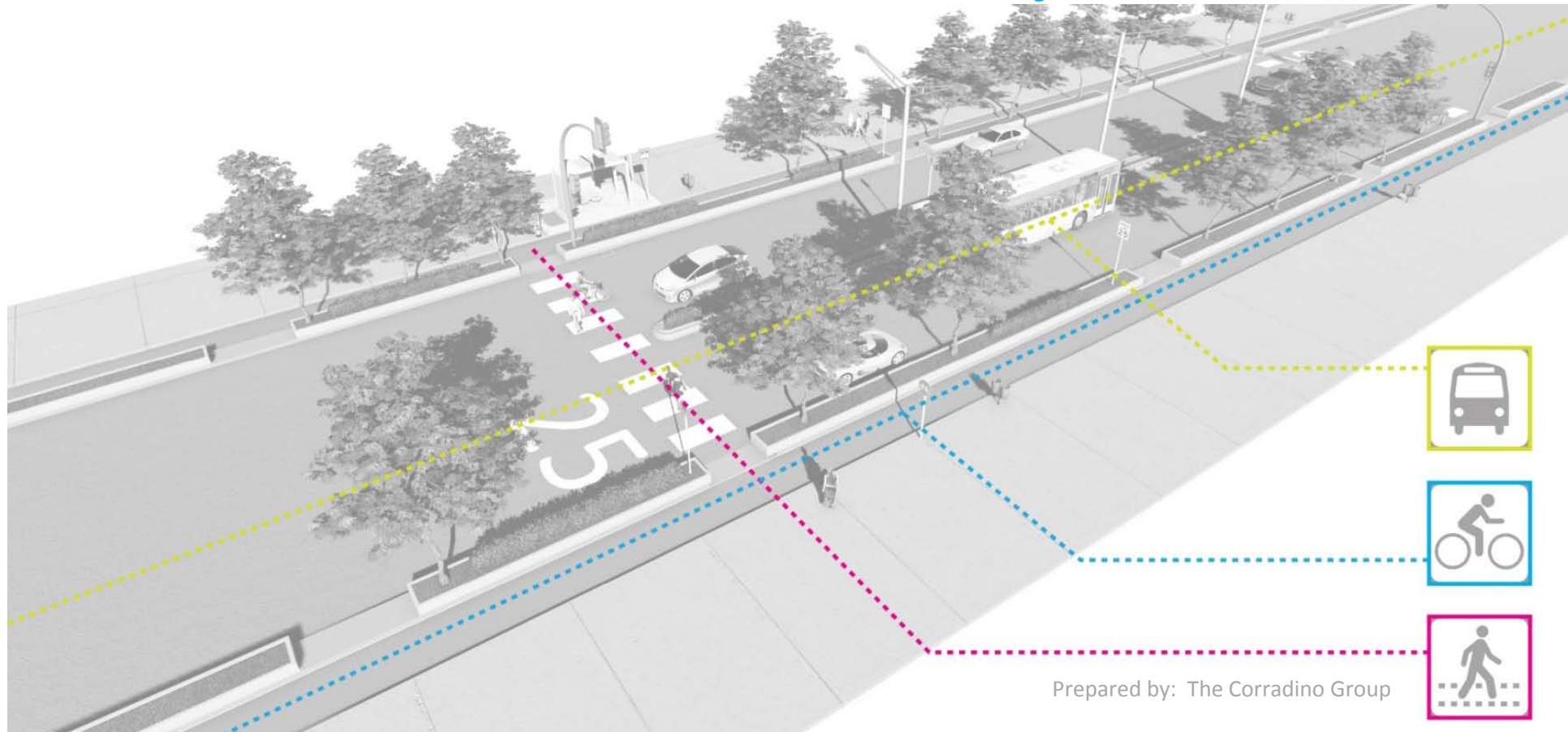


Doral Transit Mobility Plan 2014



Acknowledgments

The City of Doral

City Council:

Mayor	Luigi Boria
Vice-Mayor	Christi Fraga
Councilman	Pete Cabrera
Councilwoman	Ana Maria Rodriguez
Councilwoman	Sandra Ruiz
City Manager	Edward A. Rojas
Asst. City Manager	Albert P. Childress
Interim City Clerk	Connie Diaz
City Attorney	Weiss, Serota, Helfman, Cole, Bierman & Popok

Public Works Department

Public Works Director	Jose Olivo, Jr., PE
Chief of Engineering	Jorge Gomez, PE
Transportation Engineer	Rita Carbonell
Trolley Manager	Andrew Davis

Special thanks to all City Staff and Citizens who contributed to the development of this document.

*The preparation of this report has been financed in part by the U.S. Department of Transportation (USDOT), through the Federal Highway Administration (FHWA) and/or Federal Transit Administration (FTA), the state planning and research program (section 505 of Title 23, US Code) and Miami-Dade County, Florida. The contents of this report do not necessarily reflect the official views of the U.S. Department of Transportation

The Corradino Group

Transit Mobility Plan Team:

President/Project Manager:	Joseph M. Corradino, AICP
Planning Division Manager:	Michelle M. Lopez
Lead Planner:	Edward Ng, MPP, MPL

Supporting Staff:

Donald Shockey, AICP-Certified Urban Designer, LEED GA, CNU-A
Amber Holloway, Urban Planner
Camilo Lopez, Urban Designer
Alexis Matthey, Production



Table of Contents

Executive Summary.....1

Introduction + Vision.....4

Task I Public Involvement.....8

Task II Review of Background Information and Previous Studies12

 Background.....13

 Population and Area.....14

 Comparison with Regional Demographics14

 Transportation Network.....15

 Public Transportation16

 Miami Dade Transit:16

 Doral Trolley System:.....17

 Guiding Policy20

 Miami-Dade MPO’s Long Range Transportation Plan..... 21

 Transportation Improvement Program (TIP)..... 27

 Doral comprehensive plan 28

 Other relevant studies:..... 30

Task III Data Collection.....32

 Land Uses and Development Patterns33

Transportation Rights of Way37

Transit38

 Doral Trolley.....38

 Miami-Dade Transit42

Pedestrian and Bicycle Networks.....44

 Pedestrian Network45

 Sidewalks.....48

 Intersection Crosswalks49

 Building Connections50

 Adjacent Conditions and Amenities.....50

Bicycling Network 51

 Bicycle Level of Service51

 Bicycle Network Qualitative Aspects 54

 Bicycle Intersection and Midblock Crossings55

Vehicular Traffic 56

 Level of Service 56

 Truck Traffic 57

 Signalized Intersection Crash Data58

Task IV Analysis60

 Basis of Analysis:61

 Transit Network Analysis62

 Pedestrian Network Analysis65

Qualitative Aspects.....	66	Transit projects	102
Intersections and Crosswalks	67	Roadway projects.....	119
Building Connections.....	68	Policy projects.....	125
Bicycle Network Analysis.....	69	Task VI Implementation Strategy.....	134
Future Bicycle Path Development	69	Project Area 1 Corridor	138
Qualitative Aspects.....	70	Project Area 2 Corridor	149
Intersections.....	71	Project Area 3 Corridor	156
Connections.....	73	Project Area 4 Corridor	163
Bike Sharing/Bicycle Rentals	73	Project Area 5 Corridor	170
Policy Analysis	74	Proposed Express Trolley Routes.....	170
Task V Project Development.....	78	Task VII Education and Awareness Program.....	180
Pedestrian projects.....	80	The Future of Doral Transit Mobility	182
Bicycling projects.....	91		

Executive Summary

This report primarily focuses on pedestrian, bicycle, and transit aspects of an intermodal transportation system and marks a paradigm shift in transportation planning for the City of Doral, which can be seen as an example for how multi-modal initiatives are undertaken in the region. Since its incorporation, Doral has been playing a progressive role in the development of multimodal mobility in Miami-Dade County.

The goals of this study were to:

- Preserve, maintain, and enhance transportation systems in Doral
- Promote safe and secure multi-modal transportation
- Support intermodal access and connectivity
- Support economic growth
- Preserve quality of life in Doral

Key concepts which arose through the course of this discussion were those of barriers and connectivity. Traditional ways of looking at transportation are predisposed toward an overall systemic evaluation, with a skewed view on the idea of origins and destinations.

Mobility exists throughout all of Doral in some form, though not in all types of mobility—walking, biking, auto, and bus/trolley transit. The accessibility of the transit modes in relation to one another is also a different matter. Solving our mobility issues not only rests in revamping our transportation priorities, but our land development and design priorities. The nexus between land use and transportation will become as critical as it was a hundred years ago. By applying concepts of urban design, landscaping, signage, and identifying key locations to bridge these connections between different transit modes is critical for the success of a well planned transit system. Taking into factor proximity not only to the origins and destinations but also the relationship between the physical aspects of these different modes, we thereby hope to increase mobility and accessibility within the City.

The scope of work for this project incorporated extensive data collection and analysis, an assessment of existing projects and future needs, development of projects, and an implementation plan. Furthermore, it addressed the spatial requirements of elements necessary for effective, safe and secure multi-modal-transportation solutions integrated into normal roadway operations.

The project consisted of eight tasks including:

- Task I: Public Involvement
- Task II: Review of Background Information and Previous Studies
- Task III: Data Collection
- Task IV: Analysis
- Task V: Project Development
- Task VI: Implementation Strategy
- Task VII: Education and Awareness Program
- Task VIII: Reporting

As opposed to a program aimed at general guidelines, this study instead analyzed the specific conditions, objectives of the community, and first hand data which resulted in a plan that is both visionary, strategic, and well founded. This plan will balance the community’s aspirations with the physical and fiscal constraints of the City of Doral, and integrates existing bicycle, pedestrian and transit infrastructure. In addition, the plan will identify, enhance and recommend improvements to pedestrian and bicycle infrastructure in order to develop interconnectivity to public transit.

The remainder of this summary provides an overview of conclusions associated with the underlying transit mobility conditions and support for strategic redevelopment, as well as recommendations based on these findings and conclusions:

Land Use Summary:

- Doral retains its historic primarily suburban land-use pattern which poses challenges for transportation system efficiency;

- Major commercial land uses create employment centers which result in a doubling of the City's workday population with a corresponding impact on the transportation network;
- Developments underway and Future Land Use Map designations are creating areas of higher density mixed-use required to support walking, biking, and high frequency transit;
- Transit generators are dispersed throughout the City, which results in more travel distance and route variability;
- The existing roadway grid system is limited at the local level and new developments need to incorporate a finer grid road pattern to improve connectivity;
- ROW widths have generally been fully utilized for car lanes so ROW usage may have to be shifted to other modes and additional easements will be required from developers to add wider sidewalks, bike lanes, etc.

Transit Summary:

- Three Doral Trolley routes and eight MDT routes provide a significant amount of transit service in the City;
- The three Trolley Routes should be adjusted to improve Route and stop ridership, and underperforming stops should be eliminated;
- For both Trolley and MDT stops, the City should take steps to ensure that minimal sidewalk and ADA connections, as well as minimal amenities like signs and benches, are provided at every stop;

For higher ridership stops and shared Trolley-Metrobus stops, the City should ensure provisions of shelters and other amenities that improve the transit experience.

Pedestrian and Bicycle Networks Summary:

Pedestrian Network:

- Doral's sidewalks exhibit significant deficiencies including missing, narrow, and obstructed sidewalks, few of which are set back from busy roadways, shaded with trees, or lined by active building edges;

- Doral's sidewalks also lack shade in many areas, and streetscape design should be a priority;
- Beyond sidewalks, Doral's Pedestrian Network suffers from poorly marked and un-signalized intersection crosswalks, a lack of connections from street edge to building entrances and between adjacent buildings, and low walk-ability appeal;
- Crosswalks are generally spaced a mile apart which is inadequate;
- There is a lack of appropriate sidewalk design standards for the two main categories of development, urban and community, where urban sidewalks are wider and flush with the street edge while community sidewalks are narrower and set back from roadway traffic as on NW 87th Road.

Bicycle Network:

- Doral's bicycle network is generally very limited and is more recreational than transportation oriented;
- Bicyclists sometimes use sidewalks which is not appropriate or acceptable;
- There are no intersections with full bicycle crosswalk accommodations;
- Bike racks are completely inadequate in number and placement.

Vehicular Traffic Summary:

- Doral's vehicular LOS generally meet adopted levels;
- The concentration of truck traffic on certain roads as a result of it being prohibited on others calls for special attention to bike and pedestrian routes along these roads;
- Intersections with the highest crash rates should be evaluated for possible redesign that should take into account pedestrian and bicycle needs;
- Doral's most congested streets should be evaluated to determine if alternative transit modes can alleviate some of the congestion.

Pedestrian Network Analysis Summary:

To improve its Pedestrian Network, the City needs to:

- Adopt a capital projects program to install sidewalks in all locations where they are warranted, with a prioritization of transit stops and major areas of preexisting development, such as NW 82nd Avenue;
- Adopt specific sidewalk design standards for two conditions: (1) the urban condition with an adjacent building edge or sidewalk café use, and very wide unobstructed sidewalks extending to the curb with tree wells for shade trees; and (2) the community condition with sidewalks set back 4 to 6 feet from higher-speed roadways;
- Adopt a capital projects program to adequately mark and signalize pedestrian crosswalks;
- Adopt policies to prevent obstructions from being placed in sidewalks;
- Adopt policies to require build-to lines with buildings built to a street edge and parking lots on the side or rear;
- Take other steps – creating pocket parks, plazas, public art, and similar elements - to make walking a more inviting experience;
- Implement mid-block crossings.

Bicycle Network Analysis Summary:

To improve the Bicycle Network, the City should:

- Address the incompleteness of the existing system which currently serves as a disincentive for bicycle usage by filling in infrastructural gaps;
- Provide for more bicycle racks and other forms of bicycle amenities within Doral;
- Implement a bike-sharing program;
- Apply bicycle signalization at key intersections along established bicycle routes; and
- Implement connections to the burgeoning regional bicycle network.

We therefore recommend that the City of Doral complete any undergoing efforts and plans for key activity nodes, corridors, and alternative transit modes we have outlined.

Doral Transit Mobility Plan **Introduction + Vision**

Introduction + Visioning

Doral is one of South Florida’s most dynamic cities and has experienced rapid growth and development since its incorporation in 2003. The City is home to a number of large regional employers including Carnival Cruise Lines, the Miami Branch of the Federal Reserve Bank, and the U.S. Southern Command, and its residential population of approximately 46,000 more than doubles during the weekdays. Recent developments like City Place and Downtown Doral have brought new levels of design sophistication and urban density to parts of the City.

Like many formerly suburban areas, the City relies primarily on a vehicular roadway network for its transportation needs. Most roadways have been widened or expanded to the physical right-of-way limits, and the ability to accommodate additional vehicular traffic is limited. While existing vehicular levels of service meet adopted standards, alternative transportation options are limited due to high roadway congestion on weekdays when the population doubles from commuting employees. The primary means of relieving this vehicular congestion is to provide means other than driving for people to reach destinations. Therefore, the City should develop and enhance alternative modes of transport including pedestrian, bicycle, and transit, to ensure a successful transportation network and continued future economic development. These alternative transportation modes also conserve energy, encourage healthy exercise, and reduce pollution and carbon emissions.

The primary goal of the Doral Transit Mobility Plan is to identify multi-modal transportation enhancements that will improve multi-modal connectivity and overall functioning of the City’s transportation network. Specific objectives of the Transit Mobility Plan include the following:

- Identify a comprehensive sidewalk and crosswalk network that enables safe and reasonably comfortable walking trips throughout the City;
- Develop a safe bicycling network that accommodates local short-trip users and connects to regional bike routes for use by cycling commuters; and,
- Identify transit system enhancements that make transit a more effective alternative to driving.

To meet these objectives, the City of Doral needs to adopt policies and implement projects that enhance alternative transportation modes. The Doral Transit Mobility Plan

collected and analyzed transportation data, and recommended projects and policies needed to achieve improvements.

Coming out of the recession, technology is changing rapidly, specifically within the field of transportation. Improved methods of providing mobility in the form of high-capacity mass transit, now exist within Miami-Dade County’s southern and western edges. By improving mobility within Doral and helping plan for its future, we can preserve and



maintain the Multi-Modal Transportation System, support Intermodal Access and Connectivity, support economic growth, and preserve a high quality of life in Doral.

Doral is one of few cities in Miami-Dade County with significant residential, commercial and industrial areas, and is an employment hub which generates tremendous amounts of traffic on a daily basis. Previous efforts have not gone very far in mitigating traditional deficiencies causing automobile traffic congestion. As was understood in the original transportation master planning process, little else can be done to increase the capacity of the roadway network in the traditional sense, aside from adding more travel lanes; however, this is expensive both monetarily and politically, as well as extremely disruptive to the built environment.

Since Doral was incorporated in 2003, the City has focused on working to improve mobility within its boundaries. This once largely undeveloped agricultural land—with a variety of light industrial occupants in close proximity to the Miami International

Airport—is built on a very large grid of streets. This grid has little access inside the 1/2 section line roads, limiting roadway capacity. Doral has established itself as one of the



How do we get from here...

nation's largest centers for international trade along with a major center of office, retail, industrial and residential uses. It is a major employment and residential center in Miami-Dade County, drawing tens of thousands of people each and every day. Having grown immensely since incorporation, it has been listed as one of the top 25 places to live, one of the best places to retire, as well as of one of the top locations to launch a business in the nation. Due to its location at the confluence of major transportation facilities, as well as the rapid development of the surrounding area, Doral contends with an array of multimodal transportation concerns that require immediate and significant attention.

Doral understands the critical nature of focusing future investments in the transportation system on transit, as opposed to projects primarily geared to the single occupancy vehicle. Burgeoning demographic shifts show a more diverse America, and locally, Doral and Miami-Dade County show signs of these trends, with fewer young

people driving and huge increases in demand for more walkable towns and suburbs in the future. Safer streets and healthier communities must be a priority moving forward.



To an improved, often utilized, and vibrant part of Doral?

In this plan, the City focuses on providing alternative to single occupancy vehicular transit as a form to maximize capacity on its roadway network. Little, if any, more space can be dedicated to the single occupancy automobile, while travel trips remain tied to high and increasing activities of the area. In light of controlled levels of capacity, accounting for these trips, then, requires alternative modes to maximize the number of trips relative to the existing infrastructure. The capacity that exists on Doral's roads can be enhanced and expanded without building significant new lane miles if it shifts away from the private automobile towards alternative modes of transit. By using the roadways differently (through incentivizing transit, bicycle and pedestrian mobility) the City can minimize congestion and enhance the quality of life for its residents and businesses.

This Transit Mobility Plan is focused on further linking all modes of transportation together by looking to ensure that roadways have the multimodal capacity for modes such as pedestrian, bicycle, and transit, in addition to the automobile. In doing so, each mode was examined to determine their Level of Service on each street, and projects were developed to connect the modes and enhance mobility.



Task I **Public Involvement**

Task I: Public Involvement



Doral's constituents were given the opportunity to ask questions and learn more about Doral's Plans for the future through multiple workshops.

The purpose of the public involvement task was to discuss and receive public input on key, local-planning issues related to the Transit Mobility Plan. The process began with coordination of a kickoff meeting with the project management team. Initially, the team assisted in the development of a plan of action and a review of pertinent issues. The team then focused on a discussion and review of the draft report for presentation in a public hearing. Finally, the team met to review recommendations and issue the final report.

Two workshops were held. The first workshop, held in two sessions on February 2014, presented background findings to date and solicited feedback from the public on areas of concern for further investigation, as well as potential projects. During these workshops, the audience was invited to ask questions and provide feedback on areas within the City's network they had encountered issues. The audience also provided feedback by placing color coded dots on areas of concern on a map of Doral. The color dots representation were the following:

- Yellow dots - Indicated connections that were missing
- Green dots - represented areas where infrastructure was good
- Red dots - indicated areas where stakeholders felt unsafe and/or in need of improvements
- Blue dots - indicated intersections for further review for the study

Primary focus of feedback from the attendees included concerns regarding bicycling routes, gaps in sidewalks, and missing infrastructure, and missing road linkages, along

with truck routes. The perception of safety and viability of alternative modes of transportation was also discussed.

The second and final workshop was held on September 30th, 2014. The emphasis of this workshop was on the presentation of proposed projects, and acquiring feedback from the public on these projects. The session started with an explanation by The Corradino Group regarding the background analysis, and gave an overview of the types of projects before entering into a Question and Answer session. As part of the workshop, audience members were invited to review the boards, which provided the location of each proposed project in the recommended nodes, and corridor areas and their associated project costs. Audience members were asked to place green dots on projects they liked or felt were important, and red dots on projects which they did not agree with or felt were not as important. Significantly, there were no red dots placed on the proposed projects. This information will help the project team prioritize the projects.

Outreach for the workshops was effected through listserv email blasts from the City, as well as posting of ads on the City's website and in City Hall. Ads were also placed inside City Trolley and on Facebook (social media).

The plan was reviewed and presented in a public hearing on March 2015, where it was formally adopted by the City. It is anticipated that this plan will be used to populate the City's Capital Improvement Element with bicycle, pedestrian, roadway, policy, and transportation projects.

(Right) Doral Public Workshop Flyer – Outreach for the Workshops was conducted via email, word of mouth, and flyers in high foot traffic locations.





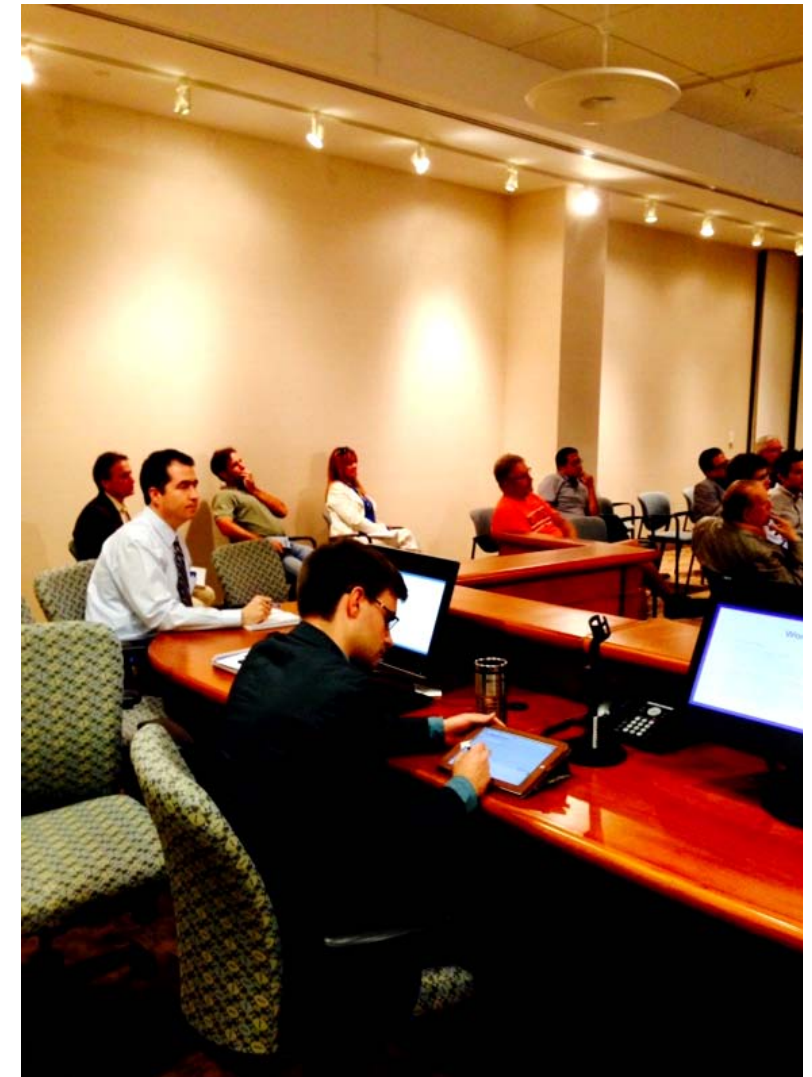
*Doral Public Workshop Boards
February 2014*



Doral Public Workshop – Participants' Feedback



*Doral Public Workshop # 1 Session 1
February 2014*



*Doral Public Workshop # 1 Session 1- Presentation
February 2014*



*Doral Public Workshop # 2 - Presentation
September 2014*



*Doral Public Workshop # 1 Session 1
February 2014*



*Doral Public Workshop # 2
September 2014*

Task II **Review of Background Information and Previous Studies**

Task II: Review Background Information and Previous Studies

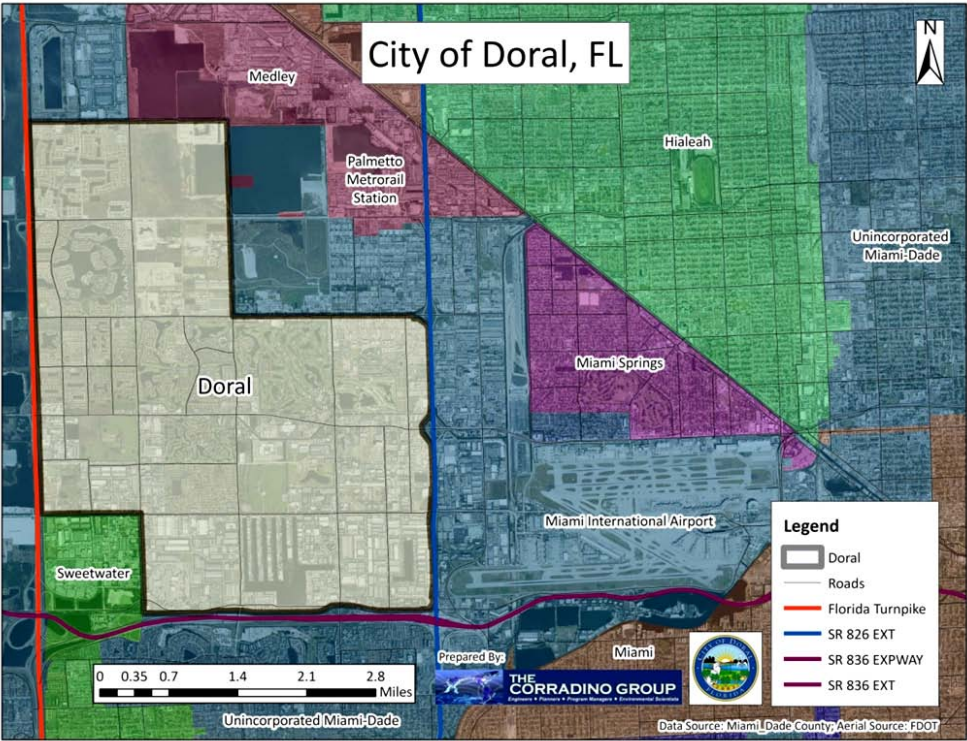
Task II consisted of a thorough review of all transportation studies impacting Doral over the last 20 years, and assessed the regional policy toward multi-modal transportation in this part of Miami-Dade County. Technological advances have expanded the possibilities regarding transit, traffic management and mobility. The old ways are gone, and this must be acknowledged. The most recent federal transportation authorization, “Moving Ahead for Progress in the 21st Century” (MAP-21) speaks to this.

Background

The City is bounded by SR-826 (Palmetto Expressway) to the east, SR-836 (Dolphin Expressway) to the south, SR-821 (Florida’s Turnpike) to the west and NW 90th St/NW 58th St to the north.

Since its creation, City leaders have worked closely with planners from both the public and private sectors to have Doral become a world class city and one of the County’s primary business and residential centers.

The near build out of the northern half of Miami-Dade County, the foresight of local leaders, the continuing population growth, and the renewed focus on infill development along transportation corridors, have made it one of the most heavily travelled areas in South Florida. The City is poised to continue being one of the County’s premiere business and residential centers in coming years. The issue relative to transportation continues to be the lack of roadway capacity. While thousands of drivers converge on the city each day, the roadway system lacks the capacity to maintain an adequate level of service at peak periods. One way to solve this problem is by using alternative modes of transportation to add capacity into the system. By assessing transit, bicycle and pedestrian usage and linking the modes together, multimodal transportation can be addressed, greater mobility can be achieved, and the quality of life for the citizens and businesses in Doral will be improved. The consequences of not supporting multimodal mobility are significant. As the economy rebounds and businesses are seeking greater efficiencies, having employees spend hours of their day in a commute is seen as wasteful. Other locations without a severe traffic congestion may look more attractive.



The City of Doral, FL

The following are descriptions of the important programs and projects comprising this mobility plan. It is important to understand them as they represent the policy and projects with which we must work.

Basic Facts About Doral

Population and Area

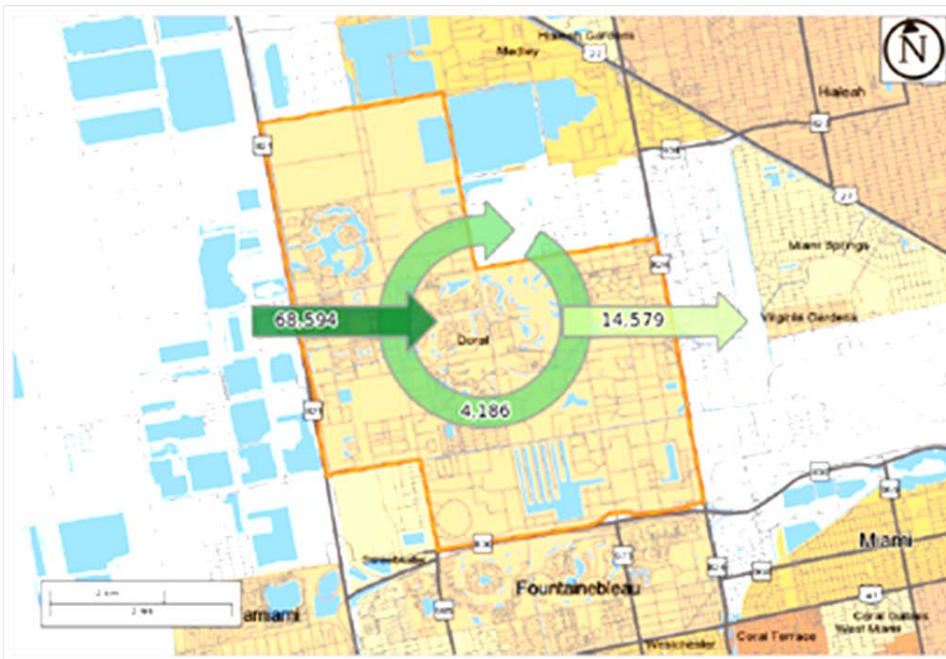
Doral has a population of 47,156 (2012 Est.), with a land area of 15 sq. miles. There are approximately 14,000 households in Doral with an average household size of 3.5 (2012 Census Est.). Families make up 81 percent of the households in Doral, Florida. Of these, married-couple families are 66 percent of the overall population, with other families being 15 percent of the population. Of Doral’s 72,780 jobs (US Census 2011), 94.2 of the workers employed by these positions live outside of Doral, and of Doral’s 18,765 resident workforce (US Census 2011), 77.7 percent are employed outside of Doral. **Primarily, transportation problems exists because of the fact that the day time population of the city more than doubles, with over 100,000 people working and playing within the City of Doral.**

Demographics - Doral vs. Miami-Dade

	Doral	Miami Dade
Youth (< 18 year old) population	31%	21%
Elderly (>65 year old) population	5%	14%
Poverty Rate	8%	21%
Population with Disabilities	3%	10%
Households without Automobile	2.4%	11.6%
Median Household Income	\$ 70,157	\$41,420
Median Age	32.4	38.6

Source: US Census ACS 2012

Youth and elderly members of the population, as well as people without automobiles are important segments of the population to note as these individuals are more likely to require transit/bus services.



Every day, over 68,500 people enter Doral for work, while over 14,500 of Doral’s residents commute out of the City to their place of employment. Another 4,186 people travel within Doral to go to their jobs.
(Source: US Census 2011 OnTheMap)

Comparison with Regional Demographics

Compared to Miami-Dade County, Doral has a higher population of under 18-years-olds (Doral – 31 percent vs. Miami-Dade - 21 percent), a lower percentage of the elderly (over 65) population, (Doral – 5 percent vs. Miami-Dade - 14 percent), a higher median household income (Doral – \$70, 157 vs. Miami-Dade - \$41,420), a lower poverty rate (Doral – 8 percent vs. Miami-Dade - 21 percent), a lower percentage of persons with disabilities (Doral – 3 percent vs. Miami-Dade - 10 percent), and a lower percentage of households without an automobile (Doral – 2.4 percent vs. Miami-Dade – 11.6 percent). The median age of Doral is younger, at 32.4 years (2012 US Census). **Doral is a young, affluent, mobile community!.**

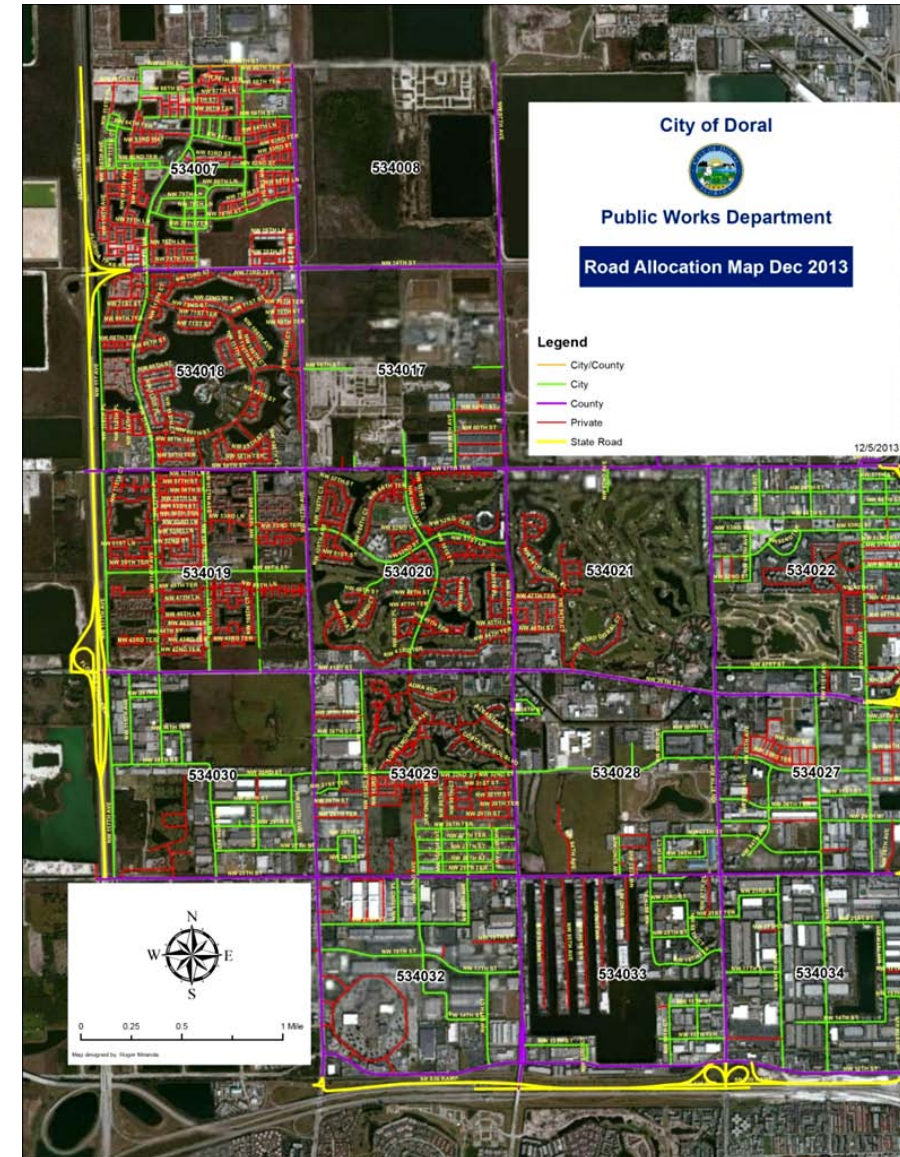
Transportation Network

Approximately 204 miles of roads, including highways, service the City of Doral, which fall into 4 categories of responsibility:

1. State
2. County
3. City
4. Private

Each jurisdiction provides routine maintenance on the roadways, and all roadway traffic controls, such as speed limits signs, stop signs and traffic signals fall under the jurisdiction of and are maintained by Miami-Dade County. Doral must work across multiple jurisdictions to effect systemic changes affecting vehicular, bicycle, and pedestrian traffic.

Doral's maintenance responsibility of 59.83 center line miles includes: policing, paving, sidewalk maintenance and cleaning. Over the years, the City has taken jurisdiction over most of the neighborhood streets through inter-local agreements with the County. Private roads (87.8 miles) compose the largest component of Doral's road infrastructure.



Source: City of Doral

City of Doral

Bicycle Paths

Legend

- Completed Bike Lane: 4 Miles (includes SHARROWS)
- Completed Maintenance Path: 0.5 Mile
- Completed Shared Use Path Off-Road: 4.3 Miles
- Proposed Bike Lane: 16 Miles
- Proposed Shared Use Path Off-Road: 6.2 Miles

Map prepared by: Tiger Media

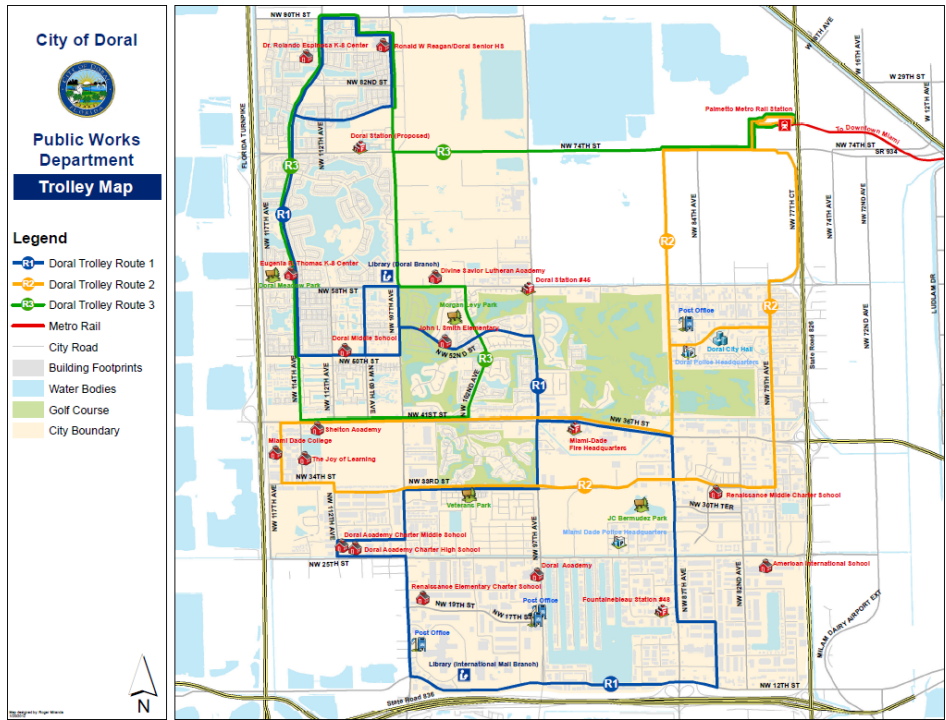
Source: City of Doral

[illegible]

16

Doral Trolley System:

The Doral Trolley System, a free fare service launched on February 1, 2008, is a local circulator which serves the city through three routes (R1, R2, and R3), with route R1 providing connector service to MDT Metrobus routes at Miami International Mall and routes R2 and R3 providing connector service to the Miami-Dade Transit Metrorail service via the Palmetto MetroRail Station in Medley. Doral is in close proximity to the Miami International Airport, therefore extension of the Trolley system should be consider.



City of Doral Trolley Map
Source: City of Doral

The Doral Trolley System was created as a two-year pilot program and as a result of a local circulator planning/feasibility study conducted under a grant from the Miami-Dade County Metropolitan Planning Organization (MPO). As a free service, it does not generate any revenue, and is currently primarily funded with proceeds from the City's share of the People's Transportation Plan funds. The City initially started with a 1-route, locally funded program, with expansion beginning with a Route 2 pilot program in December 2010 and a Route 3 pilot program in February 2012. Over time, the operating times of the routes have been expanded to encompass more hours of the day, and have added weekend days to the routes.

The City of Doral has commissioned trolley surveys starting in 2010. The 2013 Doral Trolley Survey reported varying findings for Route 1, 2, and 3.

- Route 1 experiences a weekly average of 4,025 riders, with 210, 368 riders for FY 2012/2013. In addition, it had increased 11% in ridership from the previous year.
- Route 2 had a weekly average of 690 riders, with a total of 36, 044 riders for the same year.
- Route 3 had a weekly average of 1,272 riders, with a total of 66,450 riders for the same year.

In addition, the survey found that a significant function of the trolley service was transportation for students, especially for Route 1, and that for all routes, most trips began at home (30% for Route 1, 36% for Routes 2 and 3), work (19% for Route 1, 30% for Routes 2 and 3), or school (repeat users, especially daily users, provide a large segment of the ridership for the trolley - 72% of Route 2 and 3 respondents used the service at least several times a week) indicating a large potential for increases in ridership from the non-riding population.

Furthermore, the survey found that most respondents (92% on Route 1, 85% on Routes 2 and 3) did not have an automobile available for the trip, indicating that the trolley is an asset which aids the citizens of Doral in providing transit for potentially disadvantaged citizens and that perhaps more can be done to shift the driving population towards public transit.

The following tables, from the Doral Transit System Performance Report provide the key details for each route:

Route 1 Summary (key features)

Bus Route	Route 1/NW-SE Connector	
Schedule	Weekday	Saturday
Route Length	21.4 miles	21.4 miles
No. of Trolleys	3	1
Average Speed	22	25
Peak Hour Trolley Headway	20 minutes	60 minutes
Off-Peak Hour Trolley Headways	40 minutes	60 minutes
Service Span	6:00 am - 9:20 pm	7:00 am - 6:54 pm
Number of Stops	77	77
Number of Stations	0	0
Proposed spacing of stops	500 to 1,500 feet	
Automatic Vehicle Location/GPS	Exist	
Trolley Tracker	Exist	
Automatic Passenger Counters	Exist	
Interactive Voice Response	Exist	
Interior/Exterior Cameras	Exist	

Source: 2013 Doral Trolley Survey

Route 2 Summary (key features)

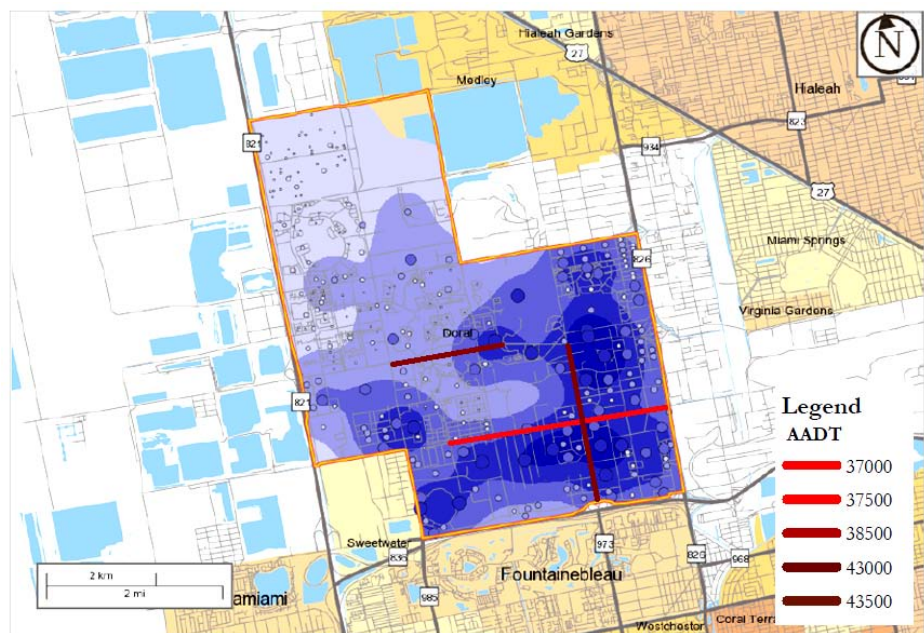
Bus Route	Route 2/Metrorail-College Connector	
Schedule	Weekday	Saturday
Route Length	15.4	service not available
No. of Trolleys	1	service not available
Average Speed	21	service not available
Peak Hour Trolley Headway	60 minutes	service not available
Off-Peak Hour Trolley Headways	60 minutes	service not available
Service Span	6:00 am - 7:42 pm	service not available
Number of Stops	46	service not available
Number of Stations	1	service not available
Proposed spacing of stops	500 to 1,500 feet	
Automatic Vehicle Location/GPS	Exist	
Trolley Tracker	Exist	
Automatic Passenger Counters	Exist	
Interactive Voice Response	Exist	
Interior/Exterior Cameras	Exist	

Route 3 Summary (key features)

Bus Route	Route 3/ Residential-Metrorail Connector	
Schedule	Weekday	Saturday
Route Length	14.7 miles	14.7 miles
No. of Trolleys	1	1
Average Speed	21	21
Peak Hour Trolley Headways	60 minutes	60 minutes
Off-Peak Hour Trolley Headways	60 minutes	60 minutes
Service Span	7:00 AM – 8:12 PM	7:00 AM – 7:11 PM
Number of Stops	40	40
Number of Stations	1	1
Spacing between Stops	500 to 1500 feet	
Automatic Vehicle Location/GPS	Exists	
Trolley Tracker	Exists	
Automatic Passenger Counters	Exists	
Interactive Voice Response	Exists	
Interior/Exterior Cameras	Exists	

Vehicles:

Annual Average Daily Traffic (AADT) in Doral varies depending on the road, ranging from 8,600 to 43,500 (FDOT). The AADT samples from FDOT monitoring sites indicate higher vehicular traffic through the commercial and employment centers in central, south, and particularly southeastern Doral, with the heaviest concentration on the east-west arterials of NW 41 Street/NW 36 Street (AADT – 43,500), NW 25 Street (AADT – 37,500), and north-south arterial of NW 87th Avenue, between NW 12th Street and NW 36th Street (AADT – 38,500) (Florida Department of Transportation, April 2012).



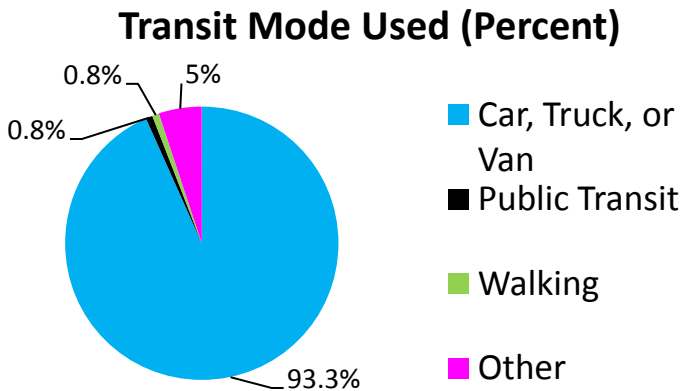
Areas of Heaviest Traffic and Employment Density (by Job Location) within Doral, FL
Much of the areas of heaviest vehicular traffic (red lines) primarily occur along or close to the same area as the major employment centers of Doral (blue, deeper shade of color indicates higher concentration of jobs).

Areas of heaviest traffic in Doral (Data Source: FDOT, April 2012), Location of jobs in Doral, FL (Source: US Census 2011 OnTheMap)

The 2010 Transportation Master Plan also noted heavy bi-directional AADT on the same roads, as well as NW 12th Street, segments of NW 58th Street and NW 107th Avenue between NW 41th Street and NW 58th Street. This pattern of traffic also lends itself to the same conclusion of heavier traffic along the commercial and employment centers in Doral. It should also be noted that with the exception of NW 87th Avenue, all roads listed in this section received a LOS grade of E or F in 2010 and may require transit demand strategies to reduce the amount of vehicles on the roadways.

Commute

93.3 percent of Doral's workers commute by car, truck, or van, 0.8 percent by public transit, 0.8 percent walk or travels by some other means. The average commute time to work was 27 minutes (2012 US Census). In addition, Doral has a pattern of primarily private-vehicle usage trending towards single occupancy in the vehicle, with only 8.4 percent of all commuters carpooling. Compared to Miami-Dade County, a larger proportion of Doral's population uses personal vehicles for transit, and a significantly lower percentage of the population utilizes public transit, walking, or other means of transportation. This has much to do with the mobility choices offered in Doral, as well as those regional opportunities. It is for this reason that the mobility plan is being undertaken. By connecting Doral to the regional transit opportunities, as well as providing various multimodal options within the City, it is believed that these numbers can be positively impacted, so that Doral can function as a more urban environment.



Data Source: American Community Survey, US Census (2012)

Guiding Policy

This section reviews the federal, state and local policies and plans that the City is subject to as it develops and constructs its transportation system.

MAP-21

MAP-21 (Moving Ahead for Progress in the 21st Century) is the Federal Government's rules and funding priorities for national transportation. It is the highest level of transportation funding and policy which guides all else at the state and local levels. The projects developed by FDOT, MDT, MDX, MPO and Doral are all subject to its rules. This sets the rules that communities must follow in order to attain federal dollars for the implementation of their transportation and transit systems. It provides incentives and disincentives for certain activities. Many transportation projects are too large for local, county, or regional governments to plan, design and construct with their own tax dollars, so federal money is needed to develop these initiatives.

Most importantly for Florida, Miami-Dade County, and Doral, this authorization has incentivized bus rapid transit, tolling, transit oriented development and complete streets, but cut funding for walking and biking programs.

The new federal focus on maintenance of existing infrastructure is to boost the economy.

MAP-21 contains many provisions to help move the federal transportation program towards a performance-based approach, including the use of performance measures, targets, and national goals and objectives. This was signed into law at the beginning of July 2012 by President Obama, and went into full effect October 1, 2013 and will continue through September 30, 2014. It is anticipated that future federal authorizations will continue the future direction of MAP 21 and not regress.

MAP-21 provides a steady flow of funding for FTA grantees, it condenses certain transit programs for increased efficiency, increase target funding for improving the state of good repair, and will create new safety requirements for all recipients. It also incentivizes Bus Rapid Transit (BRT) and creates a pilot program for TOD (transit oriented development) planning grants.

MAP-21 establishes a federal complete-streets policy that would ensure that all surface transportation projects adequately accommodate the needs of all users. States may develop their own policies and, in turn, would not be subject to the federal policy. States must report on their implementation of policies and the FTA Secretary determines whether or not they are in compliance.

MAP-21 includes several provisions that will help promote transit-oriented development, by establishing a national goal of "encouraging mixed use, transit-oriented development" for the transit program. This will assist in efforts to improve FTA regulations to promote TOD. It creates a TOD planning grant pilot program, and a new program to provide funding to local communities for planning efforts to encourage TOD. Only local communities with a new or planning a New Starts project are eligible to apply.

The TOD district/zoning designation is intended to promote compact, mixed-use development, including multiple-family residential, office and retail, near proposed or existing transportation infrastructure.



Source: US Department of Transportation

Miami-Dade MPO's Long Range Transportation Plan

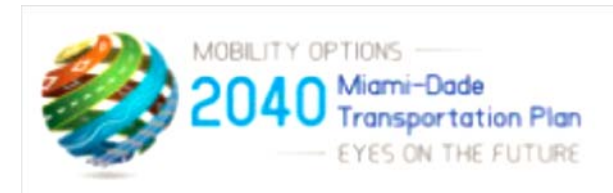
The Miami-Dade County Long Range Transportation Plan (LRTP) to the Year 2040 is the currently approved LRTP. This is like the Comprehensive Plan guiding transportation for the MPO, complete with goals, objectives and projects. The LRTP is a primary activity in Miami-Dade County's transportation planning process to meet federal and state requirements for an update of the Transportation Plan every five years.

The LRTP's objectives which would be of particular use to Doral include its desires to:

- Enhance mobility for people and freight
- Reduce Congestion
- Maximize multimodal travel options and provide travel choices
- Fill transit service gaps
- Increase access to employment and sites
- Augment multimodal access to major activity centers
- Enhance the efficient movement of freight and goods
- Promote projects that support urban infill and densification
- Promote transportation improvements that are consistent with adopted comprehensive development master plans
- Prioritize funding to favor intra-urban (within UDB) improvements
- Promote the use of alternative vehicle technologies
- Apply transportation and land use planning techniques, such as transit-oriented development, that support intermodal connections and coordination
- Improve connectivity to Strategic Intermodal System (SIS) and intermodal facilities
- Facilitate connections between transportation modes
- Improve goods movement by enhanced intermodal access and infrastructure serving major freight origins and destinations in Miami-Dade County
- Improve freight movement operations and reliability by promoting expedient and cooperative practices across all modes
- Continue to examine the provision and utilization of special-use lanes on the existing system
- Identify and implement the best available technologies and innovations to improve the reliability and efficiency of the transportation system



Federal law requires that the LRTP address a minimum 20-year planning horizon from the date of the MPO adoption. The 2035 LRTP was approved by the Metropolitan Planning Organization (MPO) Governing Board in October 2009; with the latest; 2040 LRTP was approved in October 2014.



This plan update includes in-depth consideration of intermodal improvement opportunities, freight movement, Intelligent Transportation System technologies, and Congestion Management Process (per SAFETEA-LU - Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users Transportation, 23 CFR 450.320 and accompanying regulations).

One of the major emphases of this Plan Update is the inclusion of projects that improve the operation of the existing system. In light of the soaring construction costs, this emphasis on increasing the efficiency of the current infrastructure, is embodied in the Congestion Management Process. It was adopted concurrently and incorporated into the LRTP. Congestion management includes the implementation of strategies designed to reduce vehicle trips; shift trips from single-occupancy vehicles to high-occupancy vehicles; and maximize the effectiveness and efficiency of the existing transportation system.

Other emphases of this plan update involve the consideration of non-motorized modes of transportation and freight transportation improvements. The inclusion of non-motorized improvements in the plan promote quality of life issues for the County's residents and visitors and include sidewalk improvements, and pedestrian and bicycle trail improvements. The plan's dedicated section for freight transportation improvements is a critical component of the plan, providing for improvements to the County's economic engine to support the economic growth and prosperity of the County.

The plan addresses all local, state, and federal planning requirements and includes a detailed review of, and compliance with, provisions in SAFETEA-LU regulations.

There are eight goals and multiple objectives. These include:

Goal 1: Improve Transportation System and Travel

Goal 2: Increase the Safety of the Transportation System for Motorized and Non-motorized Users

Goal 3: Increase the Security of the Transportation System for Motorized and Non-motorized Users

Goal 4: Support Economic Vitality

Goal 5: Protect and Preserve the Environment and Quality of Life and Promote Energy Conservation

Goal 6: Enhance the Integration and Connectivity of the Transportation System, Across and Between Modes, for People and Freight

Goal 7: Optimize Sound Investment Strategies for System Improvement and Management/Operation

Goal 8: Maximize and Preserve the Existing Transportation System

Relevant objectives in each goal include:

Goal 1: Improve Transportation System and Travel

- Objective: Improve accessibility to major health care, recreation, education, employment and cultural facilities
- Objective: Enhance mobility for people and freight
- Objective: Reduce Congestion
- Objective: Maximize multimodal travel options and provide travel choices
- Objective: Fill transit service gaps
- Objective: Promote transit reliability
- Objective: Improve transportation facilities' and services' regional connectivity
- Objective: Include provisions for non-motorized modes in new projects and in reconstructions
- Objective: Promote new non-motorized (bicycle, pedestrian, greenways) projects
- Objective: Increase reverse commute opportunities for disadvantaged communities

- Objective: Promote transportation improvements that provide for the needs of the elderly and disabled
- Objective: Improve transit services that provide access to educational facilities

Goal 2: Increase the Safety of the Transportation System for Motorized and Non-motorized Users

- Objective: Improve safety on facilities and in operations
- Objective: Reduce roadway and multi-modal crashes
- Objective: Increase safety at transit stops and intermodal stations and connections
- Objective: Implement safe route to school

Goal 3: Increase the Security of the Transportation System for Motorized and Non-motorized Users

- Objective: Enhance the capacity of evacuation corridors
- Objective: Improve transportation security for facilities and in operations
- Objective: Ensure transportation options are available during emergency evacuations for the elderly and persons with disabilities
- Objective: Ensure security at ports, airports, and major intermodal centers/terminals

Goal 4: Support Economic Vitality

- Objective: Increase access to employment and sites
- Objective: Enhance tourist travel and access opportunities
- Objective: Increase and improve passenger and good access to airports and seaports
- Objective: Augment multimodal access to major activity centers
- Objective: Enhance the efficient movement of freight and goods
- Objective: Implement projects that support economic development and redevelopment areas

Goal 5: Protect and Preserve the Environment and Quality of Life and Promote Energy Conservation

- Objective: Minimize and mitigate air and water quality impacts of transportation facilities, services, and operations
- Objective: Reduce fossil fuels use
- Objective: Promote projects that support urban infill and densification
- Objective: Minimize adverse impacts to established neighborhoods
- Objective: Promote transportation improvements that are consistent with adopted comprehensive development master plans
- Objective: Prioritize funding to favor intra-urban (within UDB) improvements
- Objective: Promote the use of alternative vehicle technologies
- Objective: Apply transportation and land use planning techniques, such as transit-oriented development, that support intermodal connections and coordination

Goal 6: Enhance the Integration and Connectivity of the Transportation System, Across and Between Modes, for People and Freight

- Objective: Improve connectivity to Strategic Intermodal System (SIS) and intermodal facilities
- Objective: Provide multi-modal options consistent with the local government comprehensive plan
- Objective: Facilitate connections between transportation modes
- Objective: Improve goods movement by enhanced intermodal access and other infrastructure that serve major freight origins and destinations in Miami-Dade County
- Objective: Improve freight movement operations and reliability by promoting expedient and cooperative practices across all modes

Goal 7: Optimize Sound Investment Strategies for System Improvement and Management/Operation

- Objective: Optimize benefits of capital expenditures
- Objective: Optimize operations and maintenance expenses
- Objective: Optimize applications of People's Transportation Plan funding
- Objective: Maximize use of private sector funding sources
- Objective: Maximize use of State and Federal funding sources
- Objective: Promote local improvement projects within the systems improvement context

Goal 8: Maximize and Preserve the Existing Transportation System

- Objective: Continue to examine the provision and utilization of special-use lanes on the existing system
- Objective: Identify and implement the best available technologies and innovations to improve the reliability and efficiency of the transportation system
- Objective: Identify and reserve corridors and right-of-way (on roadways, railways, and waterways) for future transportation facilities and services
- Objective: Expand the use of Transportation Demand Management (TDM) strategies

Miami-Dade L RTP Congestion Management & Non-Motorized Improvements In Doral

Project #	Project Roadway	Limits	Project Description
1	NW 12 ST	NW 87 AVE	Signal Improvements
2	NW 36/41 ST	NW 42 Ave to HEFT	Express Streets (ITS, grade separators, etc.)
3	NW 58 ST	NW 107 AVE to SR 826	Congestion Management
4	NW 87 AVE	SR 836 to NW 58 ST	Improve SR 836/NW 12 ST/NW 87 AVE interconnections: improve intersection to accommodate truck movements
5	NW 112 AVE	NW 84 ST to NW 86 ST	Pedestrian facility improvements
6	NW 74 ST	NW 107 AVE to NW 84 AVE	Bicycle facility improvements
7	NW 82 ST	NW 113 AVE to NW 117 AVE	Pedestrian facility Improvements
8	NW 87 AVE	NW 58 ST to NW 74 ST	Pedestrian facility improvements
9	Eugenia B. Thomas	Safe Routes to School	Non-motorized facility improvements
10	SR 948/NW 36 ST	NW 79 AVE to NW 74 AVE	Pedestrian facility improvements
11	NW 97 AVE	NW 74 ST to NW 58 ST	Bicycle facility improvements

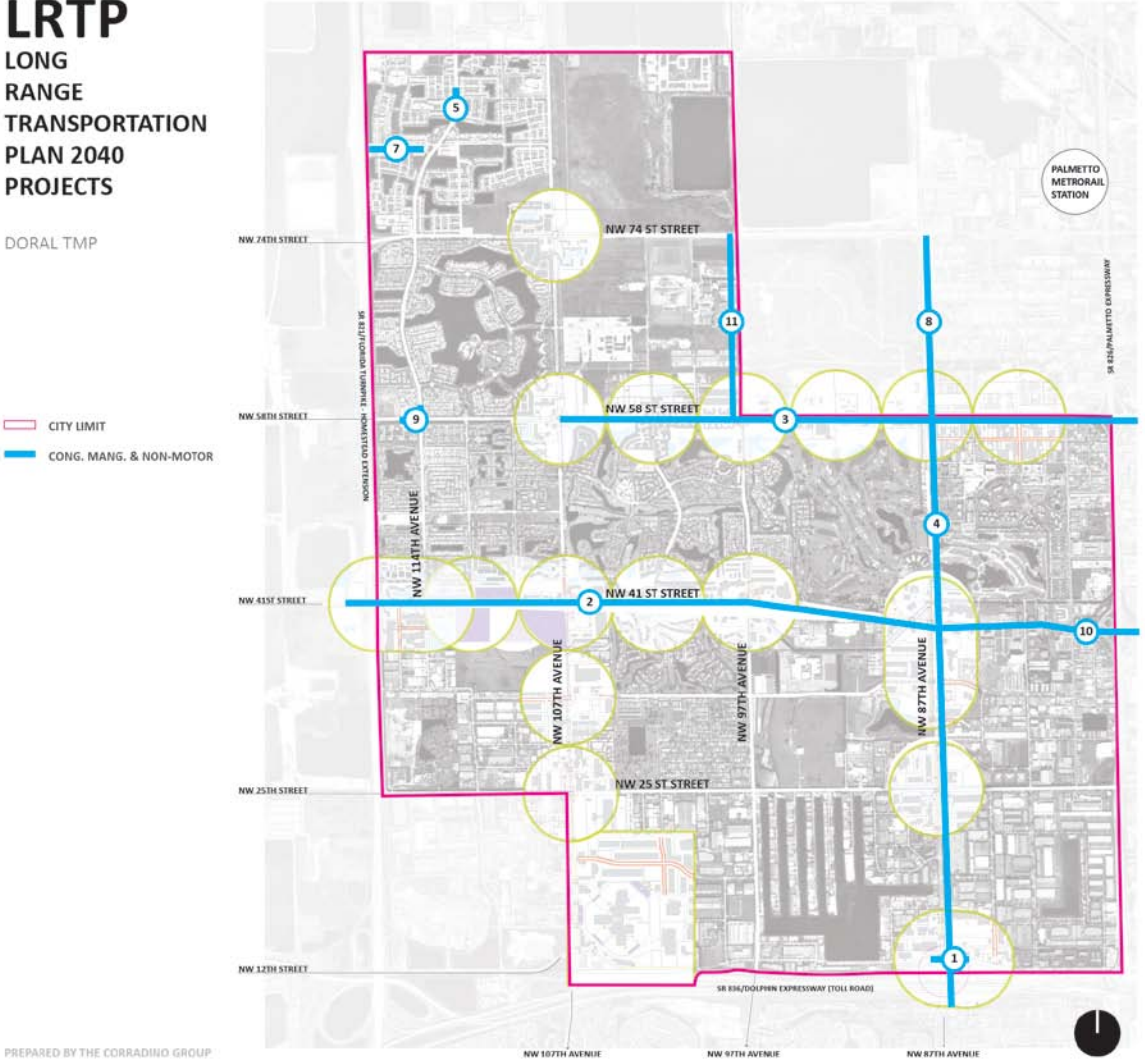
Currently Completed/ Under Construction

L RTP
LONG
RANGE
TRANSPORTATION
PLAN 2040
PROJECTS

DORAL TMF

 CITY LIMIT

CONG, MANG, & NON-MOTOR



Source: Miami-Dade LRTP 2040

Miami-Dade LRTP Roadway Improvements (to be constructed)

Project #	Project Roadway	Limits	Project Description	Priorities/Status
1	NW 74th St	HEFT to 826	New 6 lanes	Under Construction
2	NW 74th St	Ave	New Road Construction	Under Construction
3	NW 33rd St	NW 97th Ave to NW 87th Ave	Widen to 4 Lanes	Under Construction
4	NW 25th St	SR 826 to NW 68th Ave	NW 25th Street Viaduct	Under Construction
5	NW 25th St	SR 826 to NW 67th Ave	Widen to 6 lanes (5 to 6)	Under Construction
6	SR 836/Dolphin EXPY	NW 107th Ave	Construction of Emergency Access Ramp	Priority I
7	SR 836/Dolphin EXPY	NW 137th Ave to I-95	Toll System Conversion to Open Road Tolling	Under Construction
8	SR 821/HEFT	US-1 to I-595	Toll Plaza Conversion to all electronic tolling	Under Construction
9	NW 87th Ave	NW 58th St to NW 74th St	New Road Construction	Under Construction
10	SR 826/Palmetto EXPY and SR 836/Dolphin EXPY Interchnage	NW 87th Ave to NW 57th Ave	Interchange Modification	Under Construction
11	NW 25th St	NW 89th Ct to HEFT	Widen to 6 lanes (4 to 6)	Under Construction
12	NW 25th St Viaduct	SR 826 to NW 87th Ct	Phase 2 - Construction at viaduct from SR-826 to NW 87th Ct	Under Construction
13	NW 107th Ave	NW 41st St to NW 25th St	Widen to 6 lanes (4 to 6)	Priority II
14	NW 87th Ave	NW 36th St to NW 58th St	Widen to 6 lanes (4 to 6)	Priority I
15	NW 87th Ave Extension	NW 58th St to NW 95th St	Extend to connect the freight hubs of Doral and Medley	Priority I
16	SR 826/Palmetto EXPY	SR 836 to NW 87th Ave on I-75	Special Use Lanes/Managed Lanes	Priority I
17	SR 836/Dolphin EXPY	NW 87th Ave	Interchange Improvement	Priority I
18	NW 82nd Ave	NW 8th St to NW 12th St	New 4 lanes	Priority II
19	NW 97th Ave	NW 58th St to NW 74th St	New 4 lanes/Widen to 4 lanes	Priority I
20	Dolphin Station Transit Terminal	West of SR 821/HEFT and North of NW 12th St	Park and Ride with Kiss and Ride, 12 bus bays, 1000 parking spaces	Priority II
21	NW 117th Ave	NW 25th St to NW 41st St	New 2 lane road	Priority II
22	NW 36th St/NW 41st St	NW 42nd Ave (Le Jeune) to SR 821 (HEFT)	Operational Improvements	Priority III
23	NW 58th St	NW 107th Ave to NW 82nd Ave	Corridor Traffic Improvements	Priority III

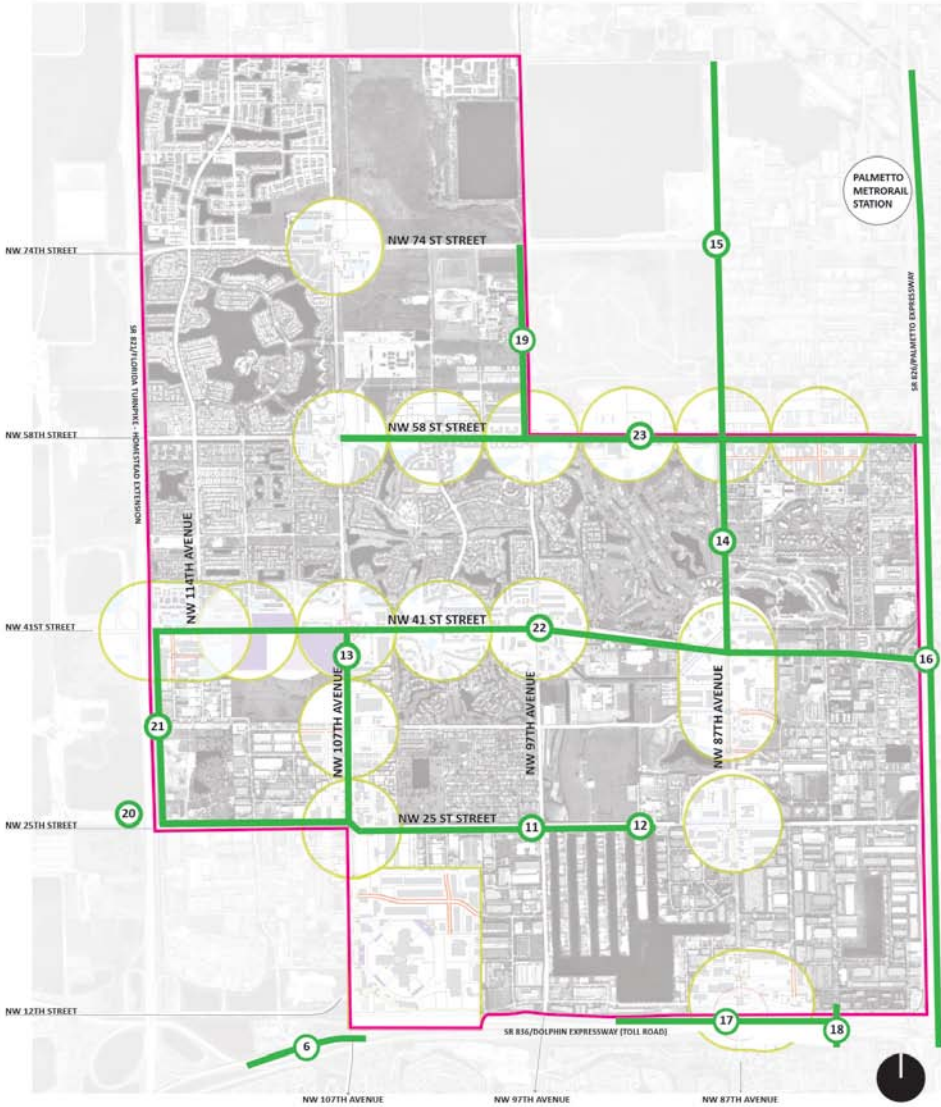
Currently Completed/Under Construction

LRTP
LONG
RANGE
TRANSPORTATION
PLAN 2040
PROJECTS

DORAL TMP

- CITY LIMIT
- LRTP PRIORITY
- Roadway Projects

PREPARED BY THE CORRADINO GROUP



Source: Miami-Dade LRTP 2040

Miami-Dade LRTP Privately Funded Development Improvements

Project #	Project Roadway	Limits	Project Description
1	NW 33 St (South Side)	NW 102 Ave to NW 104 Ave	Matching existing to the east and west
2	NW 66 St	NW 102 Ave to NW 107 Ave	Full Improvement
3	NW 90 St (South Side)	NW 107 Ave to NW 97 Ave	New 2 Lane
4	NW 97 Ave (West Side)	NW 86 St to NW 90 St	New 2 Lane
5	NW 102 Ave (West Side)	NW 62 St to NW 67 St	2 lanes and 1/2 of turn lane
6	NW 107 Ave	NW 90 St to NW 106 St	Widen to 4 Lanes (2 to 4)
7	NW 107 Ave	NW 106 St to NW 41 St	New 4 Lanes

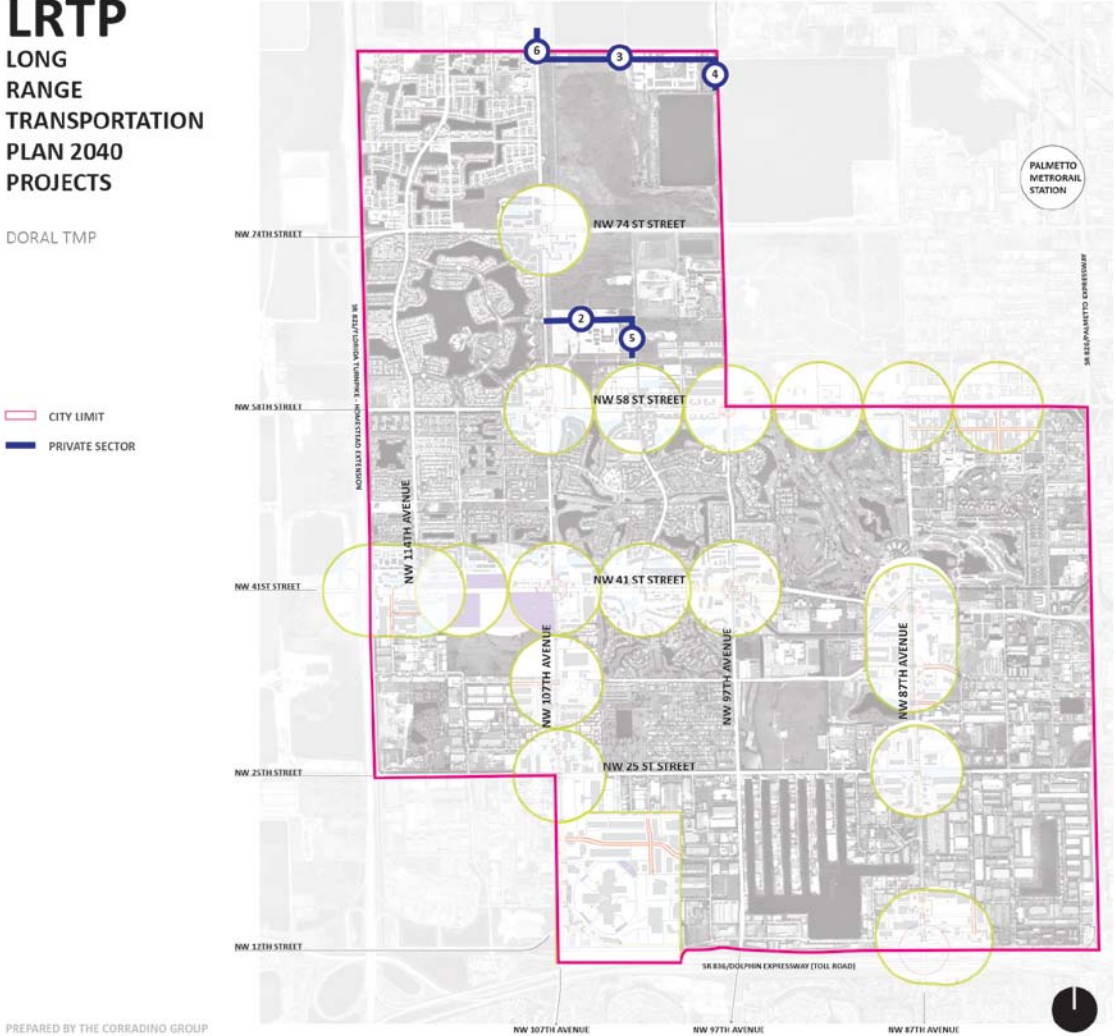
 Currently Completed/Under Construction

L RTP
LONG
RANGE
TRANSPORTATION
PLAN 2040
PROJECTS

DORAL TMP

 CITY LIMIT

PRIVATE SECTOR



Source: Miami-Dade LRTP 2040

Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) is the County’s Transportation Capital Improvement Plan. The document is the short-range element of the Long Range Transportation Plan (LRTP). This plan element consists of a five-year program of projects, of which one year is current (the annual element) and four are proposed. Each year, the TIP is modified by adding a new fifth year and advancing the first of its future years to current status. The improvements identified in the TIP are carried out through orders of priority expressed through technical analyses conducted for the preparation of the Transportation Plan.

The TIP is a staged multi-year program that prioritizes transportation improvement projects for federal, state and local funding. The TIP is also the capital improvements element of the long range transportation plan (LRTP). The TIP has a role in putting the LRTP into action.

The first year of the TIP is funded (the funded annual element); the remaining four are future projected projects, of which the capital funding outlay must be considered for the first two of these four years. Each year adds a new fifth year and advances a new annual period to current funded status. The TIP Identifies funding levels, by source and type, and whether funds are to be used for: road capacity, preservation, bridges, transit capital, safety, non-motorized, right-of-way, study or other. Finally, improvements in the TIP are based on MPO-established priorities from LRTP, and the TIP is consistent with the adopted 2035 Long Range Transportation Plan.

Miami-Dade TIP Projects

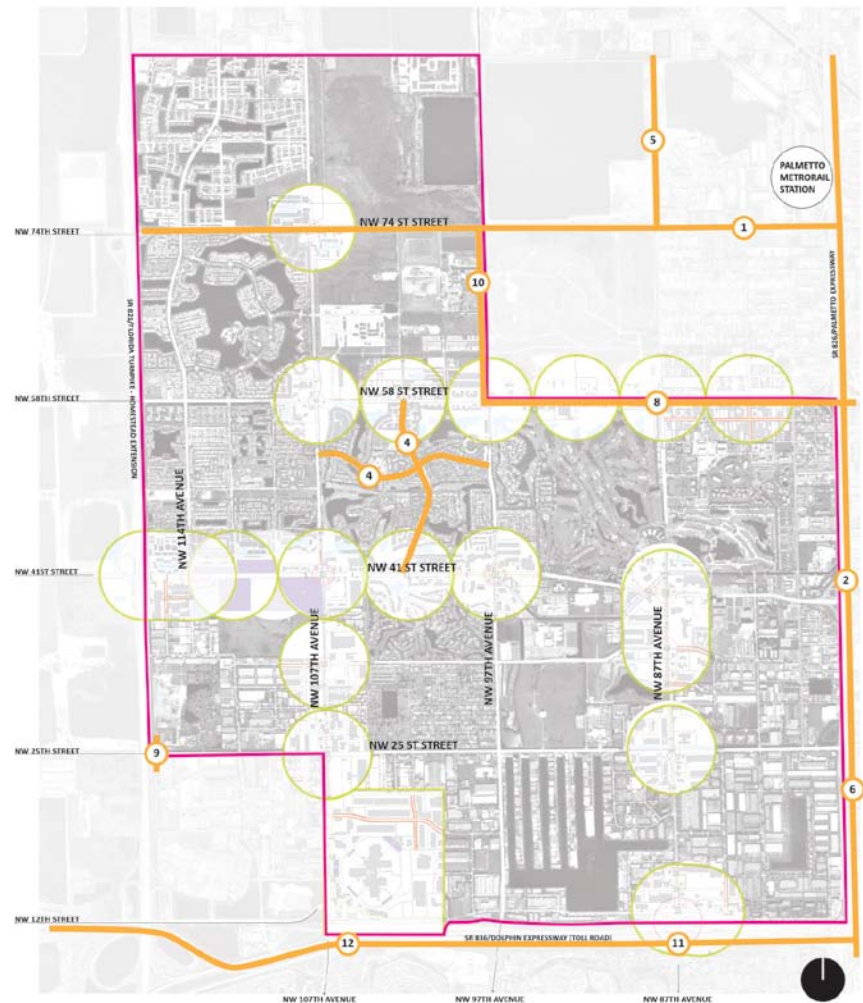
Project #	MPO #	FACILITY	LIMITS	TYPE OF WORK	CONST. YR
FLORIDA DEPARTMENT OF TRANSPORTATION					
1	DT4147315	NW 74 St	from NW 87 Ave till SR 826	Add Lanes & Reconstruction	2013/14
2	DT4326871	SR 826/Palmetto Expy	from Flagler till NW 154 St	High Occupancy Toll Lanes/Express Lanes	2013/14
3	DT2495811	SR 826/836 Expy	from NW 57 Ave till 87 Ave and SW 8 St till NW 25 St	Interchange Reconstruction	2013/14
4	DT4324101	NW 52 St & NW 102 Ave	from NW 97 Ave till NW 107 Ave & from NW 41 St till NW 58 St	Bike Lane/Sidewalk Improvements	2014/15
5	DT4056153	NW 87 Avenue	from NW 74 St till NW 103 St	New Roadway Construction	2015/16
6	DT2491122	SR 826/Palmetto Expy	from NW 14 St till NW 31 St	Landscaping	2017/18
MIAMI-DADE COUNTY PUBLIC WORKS & SOLID WASTE MANAGEMENT DEPARTMENT					
7	PW20040355	NW 74 Street	from SR 826 till HEFT	New 6 Lanes	2013/2014
8	PW000744	NW 58 Street	from SR 826 till NW 97 Ave	Roadway Reconstruction	2014/15
9	PW000745	NW 117 Avenue	at NW 25 Street	Traffic Signal Installation	2014/15
10	PW000746	NW 97 Avenue	from NW 58 St till NW 74 St	New 4 Lanes/Widen to 4 Lanes	2014/15
MIAMI-DADE EXPRESSWAY AUTHORITY					
11	XA83629	SR 836 Expy	at NW 87 Ave	Interchange Improvements	2013/14
12	XA83631	SR 836 Expy	from NW 62 Ave till NW 137 Ave	Infrastructure Modifications for Open Road Tolling	2014
Currently Completed/Under Construction					

TIP
TRANSPORTATION
IMPROVEMENT
PLAN 2015
PROJECTS

DORAL TMP

CITY LIMIT
PROJECTS

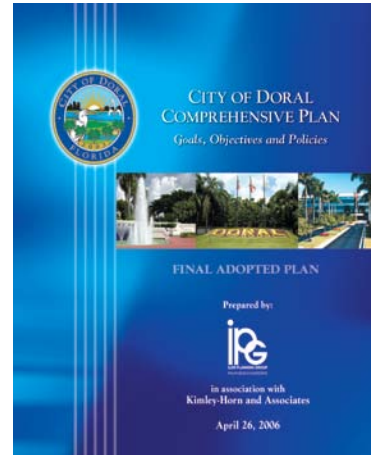
PREPARED BY THE CORRADIINO GROUP



Source: Miami-Dade TIP 2015

DORAL COMPREHENSIVE PLAN

Doral's Comprehensive Plan is the official long-range regulatory policy adopted on April 26, 2006, guiding current and future land development in the City of Doral. Updated on August 2, 2013, the Transportation, Land-Use, Green, and Capital Improvements Element of the comprehensive plan define policy and goals related to various aspects of future growth affecting the development of multimodal transit in Doral. Each of these elements consists of a singular broad Goal, with specific corresponding objectives to meet the overall goal and policy statements designed to guide the City towards meeting stated objectives. Doral's Comprehensive Plan is formally re-evaluated and appraised every 5-7 years.



Transportation Element:

The Transportation Element consists of eight objectives designed to guide the development of the Doral towards the Goal of the development and enhancement of a “safe, convenient, effective, and energy efficient multimodal transportation system” which enhances the mobility of the City’s residents and visitors. It is developed in coordination with the Future Land Use Element in order to aid in planning for impacts on transportation systems as the City develops.

The transportation element provides guidance for the City on land-use to transportation linkages, parking, right-of-way development, Level of Service Standards, and policies aiding modal demand shift, including improvements to pedestrian and bicycle

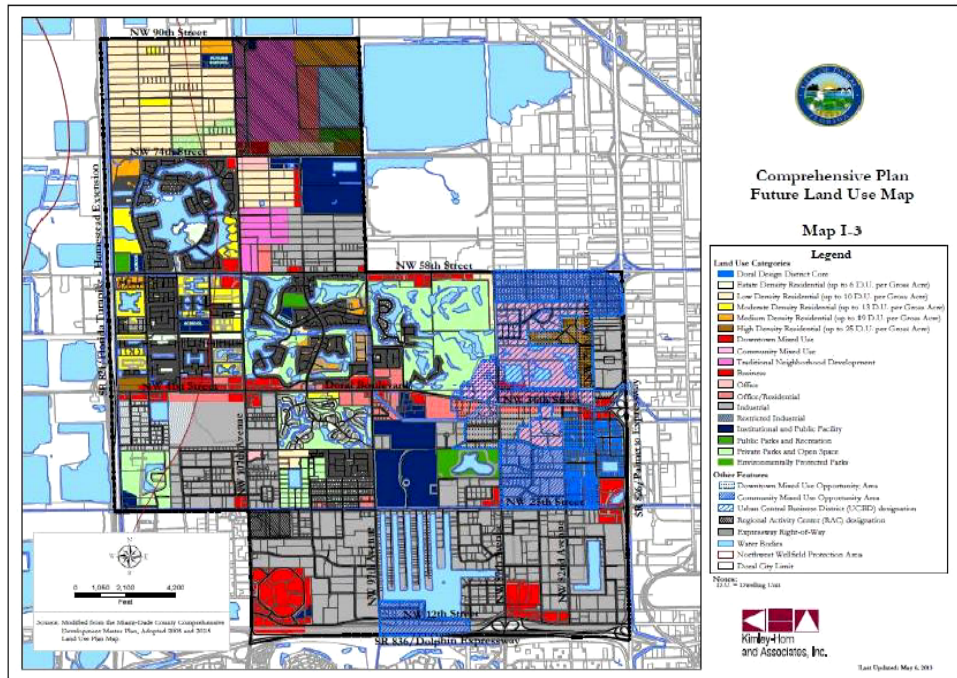
environments and enhanced transit. Doral will work to increase the vehicle occupancy rate from 1.34 to 1.41 per vehicle through amendments to the Land Development Code. This will require development orders to have provisions to implement Transit Demand Management strategies, such as carpooling, vanpooling, and education on commuter tax benefit programs, flex times, staggered work hours, and compressed work weeks.

Land Use Element:

The Land Use Element consists of six objectives developed to guide the balance of future land use within the City of Doral. This section defines the types of zoning, with the future land use map serving as the visionary blueprint for the future development of Doral. The Transportation Element of the Comprehensive Plan is developed in coordination with the Land Use Element, as Doral's development must meet concurrency standards. The Future Land Use aspects of development affect transportation planning and mobility greatly, as the permissible uses and patterns of development create the dispersal pattern of origins and destinations, including density patterns for residency and employment, and dictate the location of sites of interest. Doral wishes to discourage sprawling land-use patterns, and will move toward the development of compact, mixed-use development where appropriate, which will help with developing densities needed to support mass transit.

Green Element:

Doral's Comprehensive Plan's Green Element consists of ten objectives designed to guide the City's development towards sustainable development. Among these objectives are policies which directs the City of Doral to expand mobility options for residents and visitors through utilization of local multi-modal transportation systems and connectivity to regional mobility networks within Miami-Dade County. Evaluation of this objective’s success is measured by the development of bicycle paths, bus-route miles, and ridership and the level of increase in mobility within Doral.



Future Land Use in Doral, FL

Source: City of Doral Comprehensive Plan 2013 Update

This element encourages community education, a vital component of transit planning and development, and involves the creation, by July 2013, of a "one-stop" information center for Doral residents and visitors on "Personal Mobility." This site will offer access to public transit information, ride-sharing and carpooling, and bicycling and pedestrian routes.

Intermodal transit development, as noted in the Transportation Element, is geared toward increasing the usage of public transit, the reduction of personal vehicle usage, and the development of bicycling and pedestrian paths. This policy links up with the policies of those elements by providing the information dispersal goal necessary for intermodal-transportation development.

Capital Improvement Element (CIE):

The Doral Comprehensive Plan's Capital Improvement Elements (CIE) provides for the policies regarding the development of facilities necessary for the achievement of good Level of Service (LOS) and as well as fiscal and debt guidelines which affect the development and/or rehabilitation of infrastructure necessary for concurrency management as Doral grows.

Florida State Law mandates at the Capital Improvements Element's 5-Year Schedule of Program be updated annually with projects listed during the first three years of the 5-Year Schedule of Capital Improvements (SCI) have committed funding sources, while the remaining two years may include both committed and planned funding sources. This Schedule of Capital Improvements provide the means by which Doral can implement projects based on timing, location, cost projections, and associated revenue sources. Doral is required to be able to financially provide for any increases in operating and maintenance costs of a facility before it built or acquired.

The City of Doral has established a Concurrency Management System (CMS) that ensures the availability and sufficiency of public facilities and services at the time the impacts of development occur, and provides a program to prevent reduction in the LOS below adopted standards. The CMS, through the establishment of review procedures, in the land development code, aids Doral in achieving the objectives of the CIE by making development approval contingent on the City's ability to provide facilities and services or may require that the developer provide facilities and services in order to maintain adopted LOS standards, or If LOS will not be maintained, to deny the petition. Evaluation of success in meeting the objectives within the Capital Improvements Element is measured by the number of capital improvements built to meet adopted LOS.

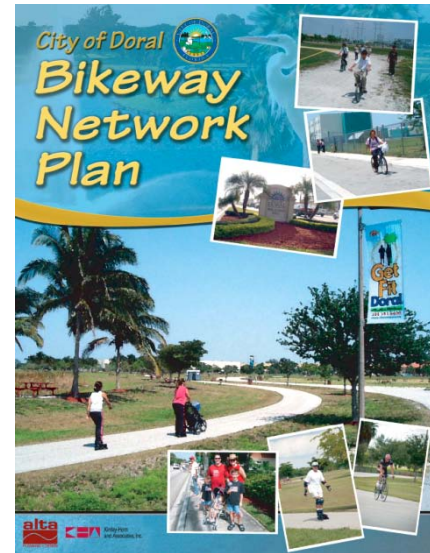
OTHER RELEVANT STUDIES:

Doral Bikeway Network Plan

Doral commissioned a Bikeway Network Plan in 2006 in order to study and develop different trails for bicycles within Doral, for transportation and recreational purposes. The plan presented and evaluated 7 potential trails, and differentiated between off-street and on-street trails and facilities which the City could pursue.

The report also provided detailed examples of supplemental infrastructure, such as benches and shelters, in addition to regular bicycle infrastructure such as workplace showers, lockers, and racks.

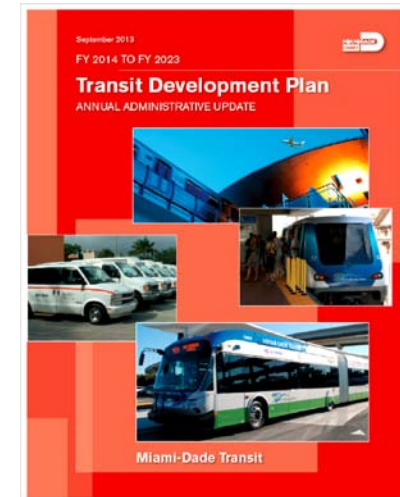
The study notes that mobility is affected by the connectivity of bicycle-transit routes to MDT buses, which provide bicycle racks. While the creation of a system was noted to be beneficial and desirable, the report also noted several challenges to Doral's implementation of a bicycle trail system. These challenges include concerns regarding safety, lack of connectivity between certain neighborhoods, and inconsistencies in land use and ownership posing issues for the development of bikeway trails. However, the report also noted that bikeway development has opportunities presented by potential strong public support, the existence of easements which could support bikeway development, consistencies with the goals noted in the Comprehensive Plan, the need to develop alternative modes of transportation to alleviate demand on the City's arterials with failing LOS, and the potential benefit to disadvantaged communities.



Miami Dade Transit: Transit Development Plan 2014-2023

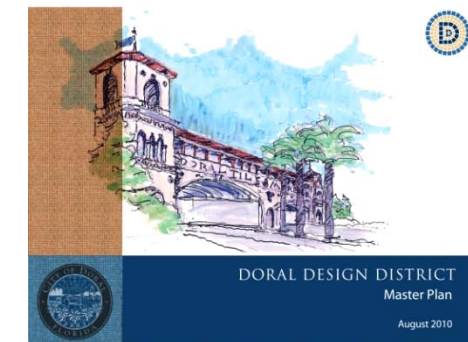
Miami-Dade Transit's Transit Development Plan is the agency's 10-year strategic vision. This plan is designed to "promote the operation of an efficient, responsive and financially sustainable transit system" and notes future hub and potential route developments. Major components of the Transit Development Plan include:

- Annual Performance
- Service Operations
- Capital Program
- Funding

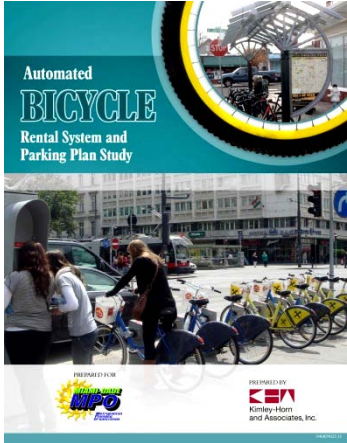


Doral Design District Master Plan

Doral's Downtown District Master Plan provides guidelines for the Downtown Doral and surrounding areas. With elements ranging from wayfare signage to layouts for the district, the plan serves as a blueprint for the urban design of the future Downtown Doral area. Internal circulation and connectivity to the rest of Doral transportation within and to the district is also provided for through streetscape design and an emphasis on walkability and cohesion of the District.



Miami-Dade MPO Automated Bicycle Rental System and Parking Plan Study



The Miami-Dade MPO commissioned a study to study automated bicycle rentals and bicycle parking in 2011. The report evaluates bicycle rental systems in other cities as part of a comparative study in planning for Miami-Dade County. This report also provides recommendations for Miami-Dade County to "Correlate bicycle parking spaces to the number of automobile parking spaces required or land use intensity measures such as number of residential units" and "Develop land use specific bicycle parking requirement criteria."

While the study area does not include Doral, it nonetheless provides useful information in evaluating the various types of bicycle parking facilities, including signage and rack designs ranging from novelty Bike Racks to an appraisal of what it termed "flawed Bike Rack Designs," which may aid Doral as it considers its bicycle facilities. It also differentiates between different levels of Bicycle Parking Transit centers.

In addition, the report involves a study area which includes the airport and the FIU campus. Given Doral's proximity to the study areas, it is important to view the Miami-Dade MPO's plans for infrastructure in both those areas, as their proximity allows for future connectivity for Doral into a regional system. Lastly, Doral can adapt and utilize methodology in ranking destinations within this report to evaluate and rank transit generators within the City for capital improvement prioritization purposes.

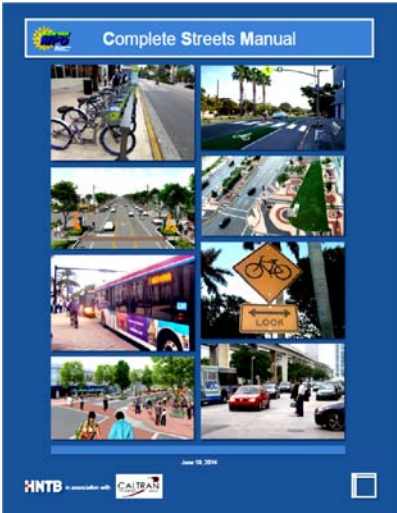
Doral Boulevard Master Plan:

The Doral Boulevard Master Plan, adopted in 2010, provided a vision for the future streetscape beautification and development of NW 41st Street/NW 36th Street, also known as Doral Boulevard. This document provided for streetscape recommendations, including plantlife, the situation of the median, façade, sidewalk development, and included a gateway as part of an overall urban design.



Miami-Dade MPO Complete Streets Manual:

The Miami-Dade MPO's Complete Street Manual is a study of Complete Streets, and reviews examples of its usage in other areas. This document provides guidelines for analysis and toolbox for implementation. This document aims at being site-specific in providing guidelines for planning decisions, acknowledging that in the application of Complete Streets, incorporation of elements encompassing transit, bicyclists, pedestrians, and the automobile to accommodate the needs of all users is tailored to the specifications of the community.



Task III Data Collection

Task III: Data Collection

Task III of the Transit Mobility Plan consisted of collecting and evaluating data on four (4) elements of the transportation system:

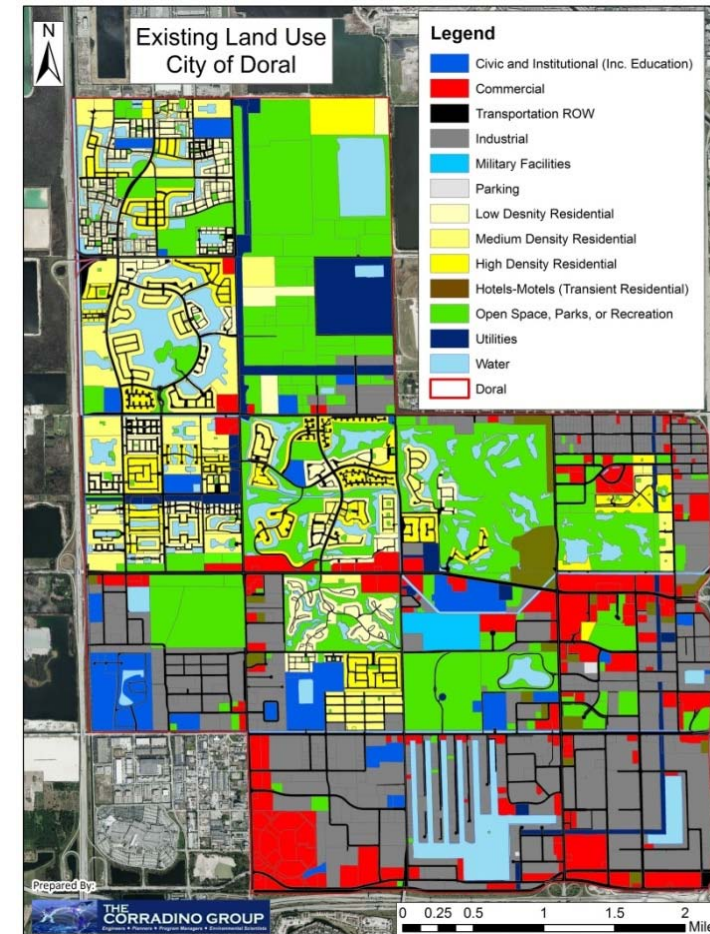
1. Land Use;
2. Transit;
3. Bicycle and Pedestrian Service;
4. Vehicular Traffic.

Land Uses and Development Patterns

Doral was initially developed as a suburb of Miami, and the existing land use reflects this with major separation between residential, commercial, and office use and an overall low density. Multiple-lane roadways were the primary transportation element servicing this suburban land use system. In recent years, Doral has made great strides toward developing a more urban land use condition with higher densities and more mixed use development, both of which are critical in creating a more efficient multi-modal transportation system.

The existing built environment in Doral consists of predominantly commercial and industrial uses in the southern area, with primarily residential and commercial components in the west, central, and northeastern portions of the City. Large golf courses occupy the center of the City and create a dumbbell shape for the development pattern, with the two portions of the dumbbell in the eastern/southeastern and northwestern areas of the City. This configuration presents a challenge for creating efficient connectivity because the City is primarily linked from east to west only by NW 41st /36th Street.

Most buildings in Doral, including strip malls and standalone commercial structures, have parking in the front between the street and the building. Parking is also segregated by property ownership, and there are few public parking facilities. The lack of public parking contributes to additional road trips because people must use their car



*City of Doral
Current Land Use*

*Data Source:
Miami-Dade
County*

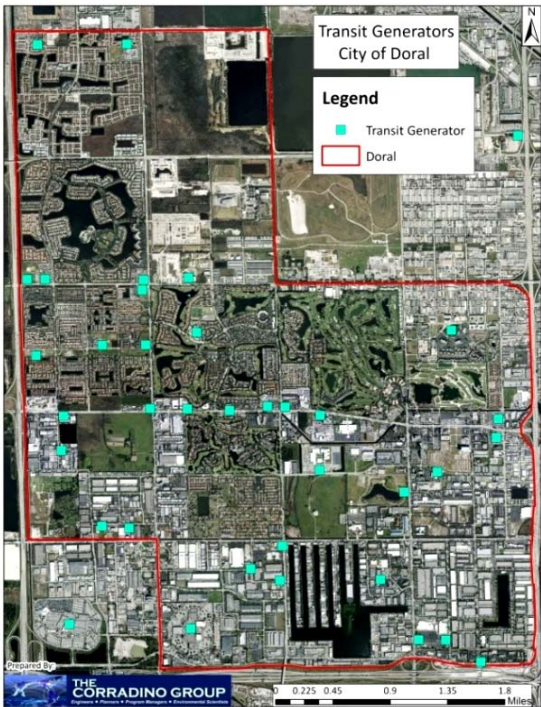
to travel to nearby or even adjoining buildings to avoid being towed. While these destinations may be within walking distance, the threat of ticketing or towing means that people will most likely drive, not walk. As the City moves forward, buildings should be built out to a build-to line at the street edge to encourage a more pedestrian environment, and parking facilities should service more than one building so a user may park and walk to several destinations.

The future land use of the City called for in its Future Land Use Map retains primarily industrial uses in the south and residential in the west, as well as the recreational golf course uses in the center. However, it includes a major Downtown Mixed Use district that will create levels of density required for transit to be more effective. Additionally, the current dispersal of residential and commercial areas are not expected to change, with the exception of mixed-use development in the newer development; thus, transit generators within Doral will continue to be diversely dispersed throughout the City.

Transit generators are physical destinations based on land use designations which generate a significant number of trips and include schools, shopping centers like the International Mall, employment centers like major office buildings and the U.S. Southern Command, and civic facilities such as City Hall and the parks system. Major transit generators are shown below.

With a single cluster or a high concentration of generators in clusters around the City, transit planning would be highly directed, with less variations in available routes, as the number of routes would be concentrated in very specific areas. This concept can be demonstrated with shopping malls. If we consider that each store is a destination, then a mall is a highly concentrated cluster of transit generators – but in this case, the cluster only requires one connection from the origin to the clustered, walkable destination.

Conversely, if these stores were not in a concentrated mall setting, then access to all those stores would necessitate greater variations in how we travel. In Doral, transit generators are



Transit Generators in Doral

dispersed throughout the City, which means that transit routes are more varied and diverse in order to connect origins and destinations.

Simultaneously, in planning system improvements, a corridor approach to development would allow recapturing the benefits of clustering when it comes to multimodal transit. One such example of corridor development is shown on NW 41st Street. A pulse route along this corridor would create a different type of clustering by shortening the connection times between origins and destinations and replicates the same level of mobility and accessibility we find in concentrations of development (like the example of the mall stores noted earlier). This essentially reduces the need to drive short distances between destinations.

Current land use was noted in the development of the nodes and corridors portion of the study. The project-development portion of the study utilized patterns of land development (e.g., residential, commercial, industrial, etc.) as a means to hone in on specific areas where improvements could have the most immediate impact. Such patterns can serve as catalysts for a multi-modal shift in habitual transit behavior. This portion of the project-prioritization assessment was then further augmented through an analysis of the land uses in each node and corridor area.

Transit Supportiveness:

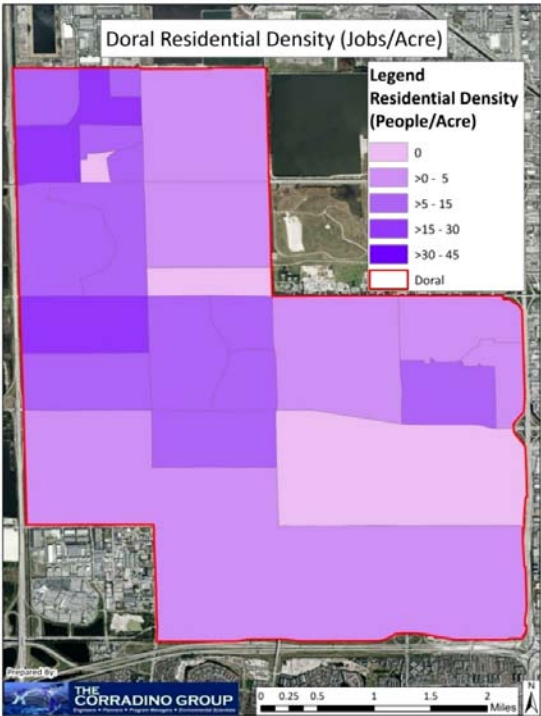
Population Density:

Population density is utilized as a key predictor of potential need and support for transit service operations. In considering land use, an evaluation of the residential density was undertaken to determine general transit supportiveness. While employment also provides a basis for transit supportiveness, this evaluation was undertaken also to address viability of the creation of weekend service to various areas of Doral. The needs of such services are more dependent on the residential population in communities such as Doral, which expects less traffic on the weekends due to higher influx during business days.

Transit supportiveness based on population can be based on the following population thresholds:

- **Low** (15–30 persons per acre) – At this density, basic bus service with 15-30 minute headways can be supported.
- **Medium** (31–45 persons per acre) – At this density, high frequency bus service, with 10 minute headways, and bus rapid transit (BRT) service can be supported.
- **High** (> 45 persons per acre): At this density enhanced transit modes including BRT and light rail can be supported in adjacent areas.

No areas of Doral currently have a residential population density falling into the High density category. The areas of highest residential population density in Doral are in the northwest, where there is no MDT service, and which have upwards of 24 persons per acre. These areas fall into the Low transit supportiveness category, and can support basic bus service with 15-30 minute headways. While some of the surrounding areas do not technically fall into the “Low” category these areas generally have between 14-15 persons per acre and provide a sufficient population base for bus and/or trolley service.



Aerial Source: FDOT

Data Source:
American Community
Survey -US Census (2014)

Employment Density:

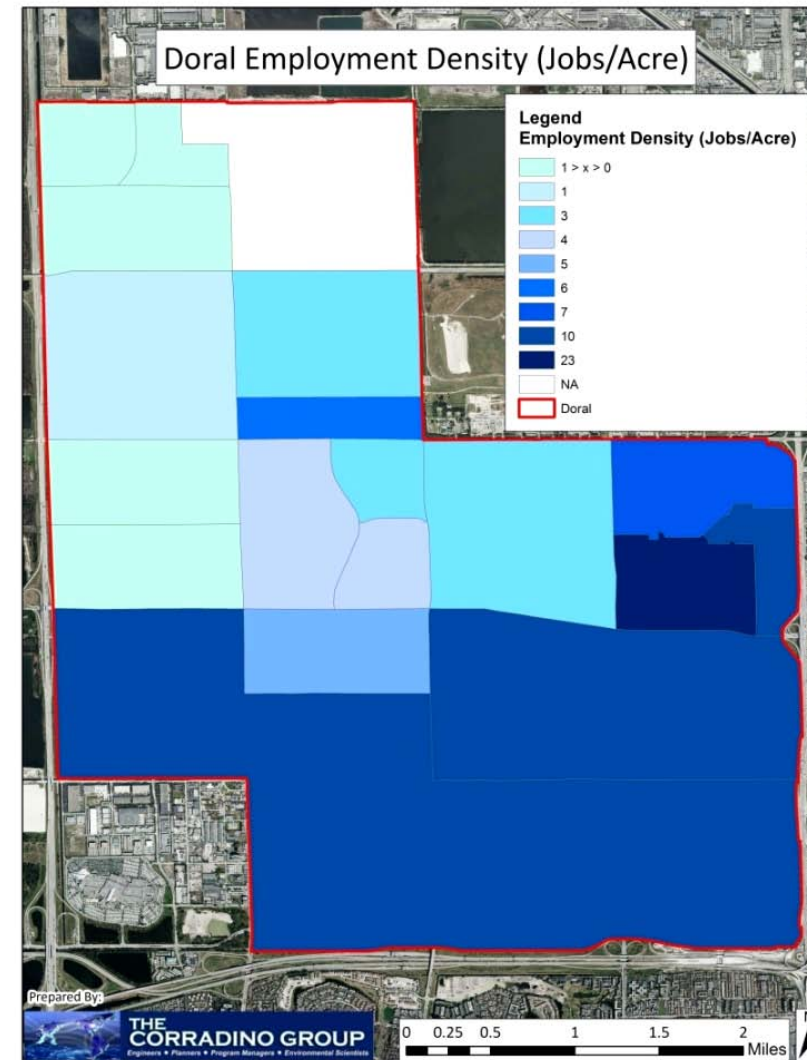
Employment densities also provide a basis for transit supportiveness given the influx and outflow of temporary populations:

Community type	Transit Type	Gross Employment Density (Jobs/Acre)
Regional Center	Heavy Rail	200-250
	Light Rail/Commuter	100-200
	Bus Service/BRT	50-125
Community Center	Heavy Rail	65-90
	Light Rail/Commuter	45-60
	Bus Service/BRT	20-45
Neighborhood Center	Heavy Rail	20-30
	Light Rail/Commuter	15-20
	Bus Service/BRT	10-15

Source: A Framework for Transit-Oriented Development in Florida. Florida Department of Transportation and Florida Department of Community Affairs, March 2011.

Doral, a primarily suburban development, falls in the Neighborhood Center category, as opposed to the more Urban Regional Center or the Transitional area for the Community Center categories.

Most of the City's concentration of employment is in the east and south of Doral, with employment density (jobs/acre) primarily ranging from 10 to 23 in these areas. At this level of development within a Neighborhood Center, Bus Rapid Transit or higher frequency bus route development is supported. The planned Downtown Doral area, with 23 jobs/acre, may provide enough employment density under this current categorization to consider a study of potential light rail/heavy rail upon further densification.



Aerial Source: FDOT

Data Source: American Community Survey - US Census (2014)

Transportation Rights of Way

Like most cities, multiple-lane vehicular roadways are the City’s primary current transportation mode. These roadways, along with adjacent land parcels, shape the urban design of Doral. They primarily form a grid layout at the level of the section. A rectangular grid layout facilitates traffic flow because it distributes vehicles along parallel roads. However, to be effective the grid system must go beyond the section level to provide connectivity within sections. In Doral, grid layouts within sections are blocked in many areas by cul-de-sac and curvilinear roads and by several large golf courses which obviously have no streets through them. The lack of a more developed grid within sections concentrates traffic on a limited number of roads and creates congestion.

While roadways were built primarily to accommodate vehicles, the City right of way (ROW) land allotment must also accommodate other forms of transportation, including: pedestrians, bicycles, and transit. Sidewalks, bike lanes, transit lanes and other multi-modal elements must fit within the City-owned ROW. Roadways have specific ROW widths based on the road’s classification as shown in Table III.1.1 Right of Way Widths.

In many cases, roadway ROW widths have been completely utilized by widened roads with multiple lanes and ideally a sidewalk. As the City moves forward, consideration should be given to reserving remaining unused ROW width for widened sidewalks, bike lanes, or dedicated transit lanes. In areas where ROWs are completely built out with vehicular lanes, additional easements for sidewalks and other modes should be obtained from property owners as parcels are developed or redeveloped. In some cases, existing vehicular lanes may need to be narrowed or redesigned for use by another mode.

Table III.1.1 Right-of-Way Widths	
Roadway	Ultimate Right-of-Way Width (in feet)
Section line road	86
Half section line road	74
Quarter section line road	60
Local road (including private roadways)	50

Source: City of Doral Code of Ordinances

Transit

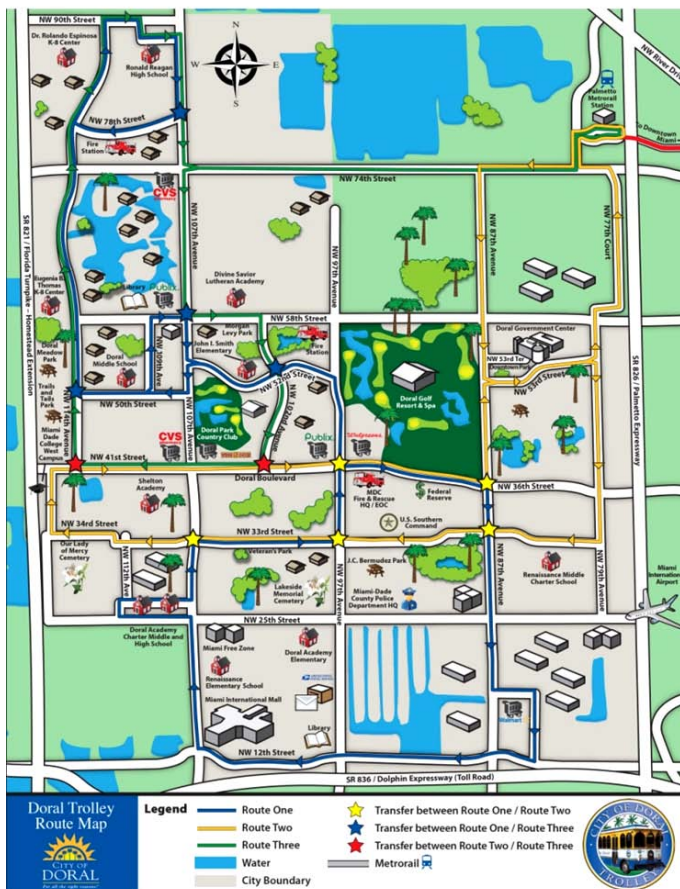
While traditional roadways carry the most transportation users in Doral, the City and County have taken steps to provide some public transit options in the form of the Doral Trolley, Miami Dade Transit, and Metrorail.

Doral Trolley

As previously stated, the City established an internal circulator system, the Doral Trolley, in 2008. The system operates eight (8) trolleys on three routes. While these routes are intended to serve separate areas of the City, there is significant overlap between them. Because there are no dedicated trolley lanes, trolleys operate on the same roadways used by individual vehicles. The City conducts regular trolley ridership surveys which reveal that ridership is varied both in user numbers and trip purpose for all three routes. Ridership details provide insight into the route alignment and stops and Trolley frequency.

- Route 1 is the longest and has the highest ridership. It serves the City's core which also has the highest vehicular traffic. Route 1 has a lower on-time performance as indicated by boarding and alighting data.
- Route 2 serves Downtown Doral and City Hall and the lowest ridership compared to Routes 1 and 3.
- Route 3 primarily serves the City's northwestern quadrant and provides a highly utilized connection to Palmetto Metrorail Station.

Route 1 has the highest ridership, followed by Route 3 and Route 2. Route 2 has a comparatively low overall ridership. Consideration should be given to adjusting Route 2 to generate more ridership, such as changing the route pathways to include more residential coverage.



Source: City of Doral

High ridership boarding locations not only show the locations of high activity and indications of the demographics of route ridership (i.e. Based on the above, students are

Trolley ridership varies greatly by Route and within Routes by stop. Highest ridership stops include the following:

Route 1: Stop# 1006 (Miami International Mall), Stop# 1018 (Walgreens – Corner of NW 41st Street and NW 97th Avenue), and Stop# 1010 (Doral Academy Elementary)

Route 2: Stop# 2001 (Palmetto Station) (Note: All other stops has a significantly lower yearly boarding that Palmetto Station – annual boardings at all other stops were less than 150)

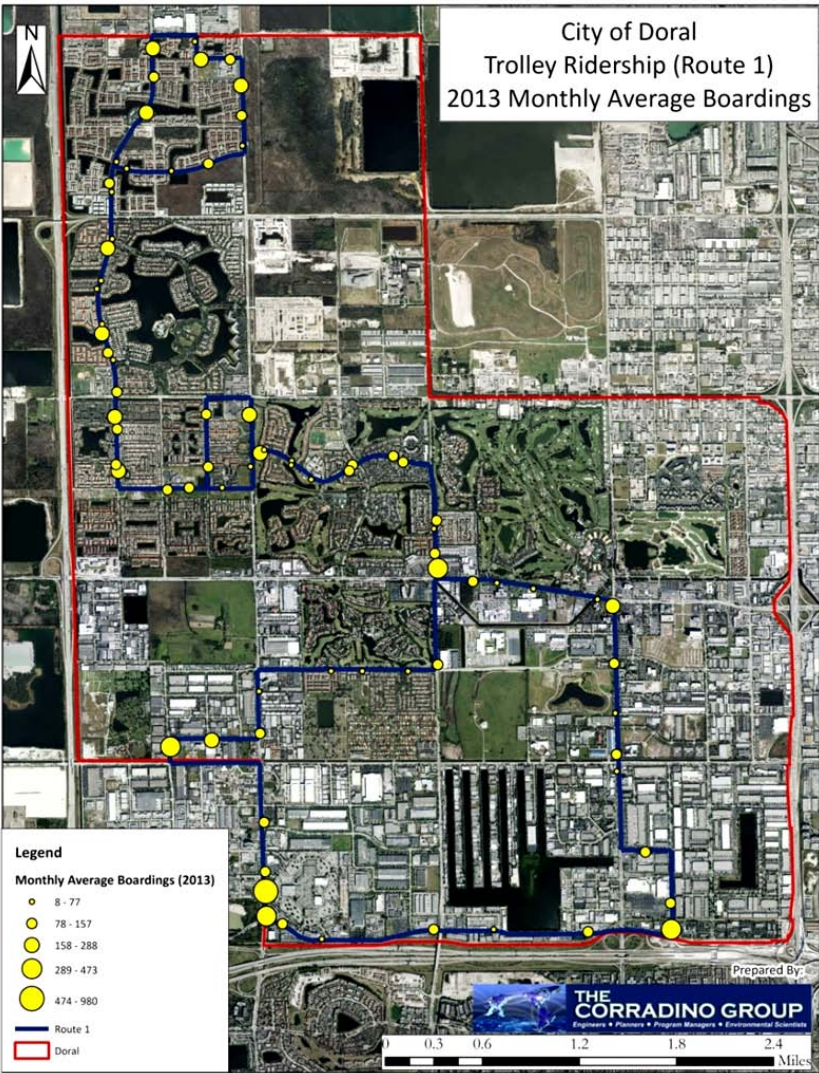
Route 3: Stop# 3001 (Palmetto Station), Stop# 3004 (7407 NW 107th Avenue), Stop# 3030 (Dr. Rolando Espinosa Elementary), Stop# 3034 (Ronald Reagan High School)

expected to be a large component of the ridership of both Routes 1 and 3), but, where the routes intersect, provide insight into potential hub or corridor development areas.

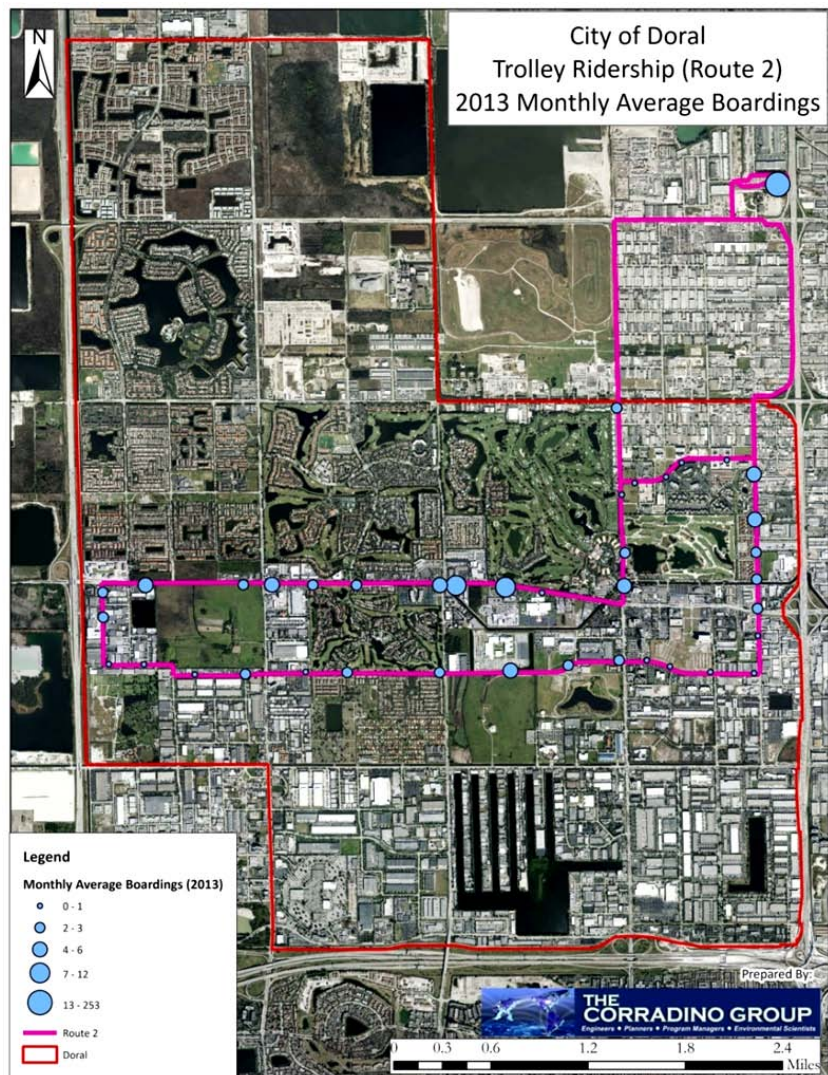
Conversely, very low riderships (in proximity to other stops with much higher ridership) indicate a need to consolidate stops. There are also lower performing stops on all three Routes with some showing 0-1 or 0-10 riders per month. Stops falling into these categories should be specifically examined for elimination in a Route revision.

As can be seen on the following map, when the stops are all “normalized,” and displayed as one large system, Route 2 clearly does not do well in comparison to the Route 1 and 3.

Doral Trolley Route 1 Ridership



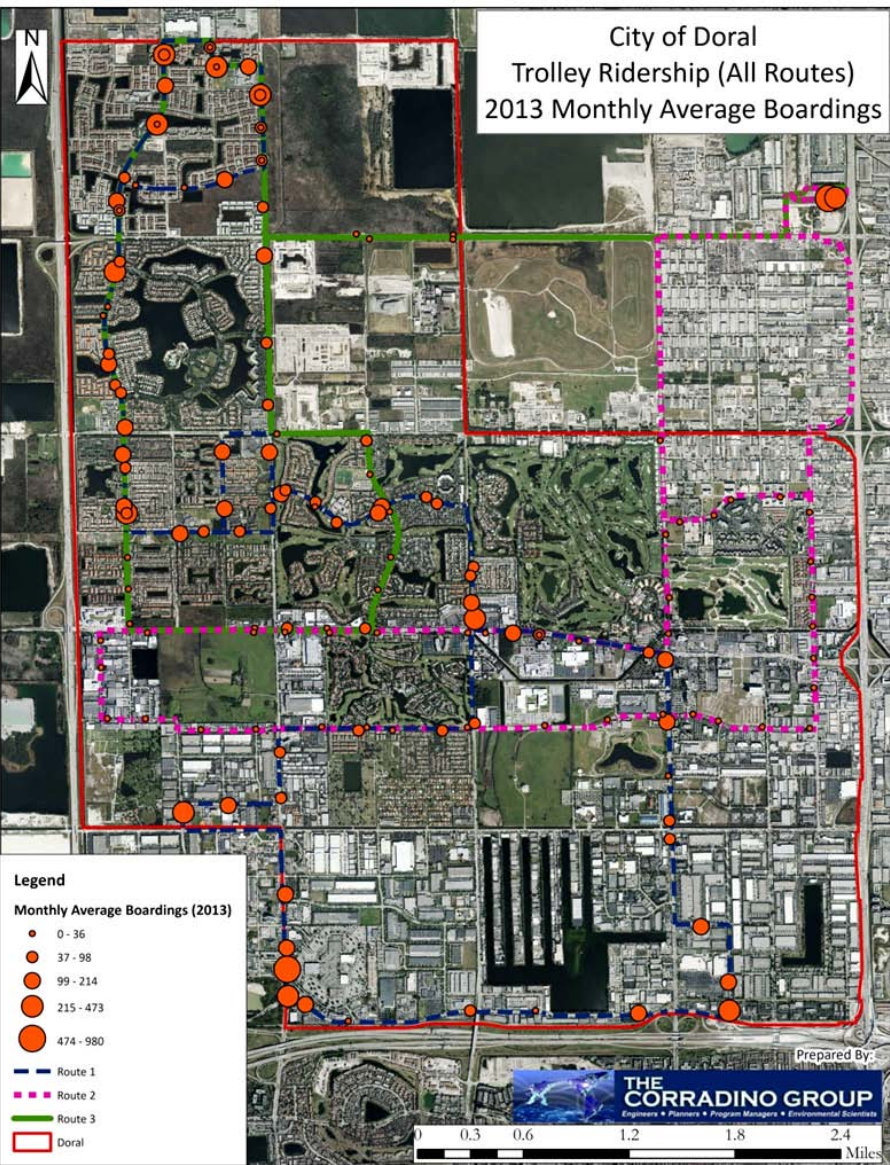
Doral Trolley Route 2 Ridership



Doral Trolley Route 3 Ridership



Doral Trolley Boarding's – All Stops as Compared to Each Other



Factors which affect both the level of ridership and the quality of trips include access to and amenities at Trolley stops. Trolley Stop accessibility includes a sidewalk to the stop that meets ADA requirements including curb cuts, a lift area, and minimum unobstructed sidewalk widths. Site visits revealed that at least 27 of 155 stops are not ADA compliant. The City needs to take immediate steps towards making trolley stops easily accessible and ADA compliant.

Amenities may include the Trolley guide and associated signage, benches, shelters, and trash cans. It would be ideal for all stops to have full amenities but, failing this, there should be a hierarchy of stops so that those with highest ridership have full amenities and lower-ridership stops would have the basic amenities such as system maps and benches.



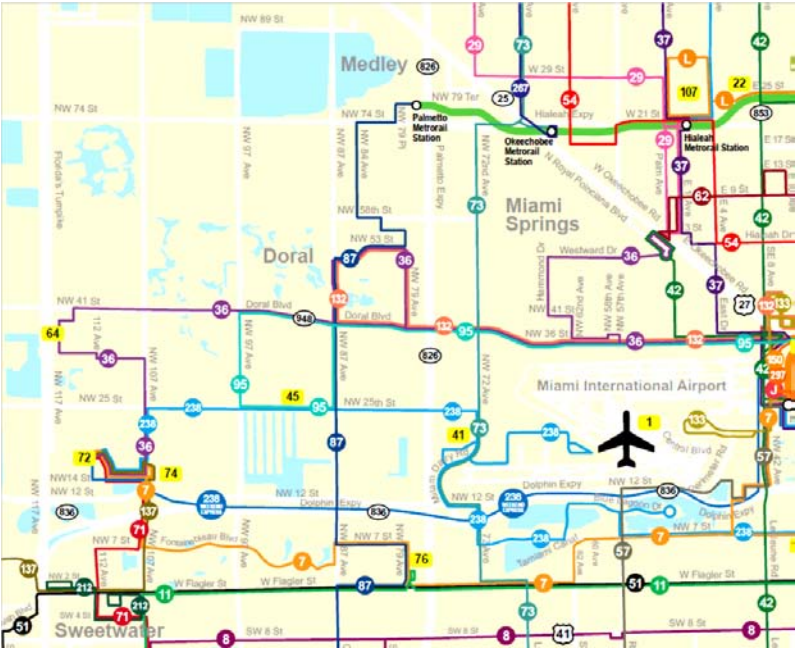
Bus stop amenities utilized within Doral include well designed trolley maps for wayfinding (Top Left), distinct bus signs and benches for transit riders waiting for the Trolley (Top Right), bus shelters at some stops, providing shade and seating and trash cans (Bottom Left). Some stops serve as transfer points between the Trolley and MDT buses, with shared amenities such as seating and waste disposal (Bottom Right).

Improvements can be made at some of these stops through the addition of shade around the benches, to reduce exposure to the elements.

Miami-Dade Transit

Miami-Dade Transit (MDT) provides bus service to various parts of Doral. Doral transportation users can also access MDT’s MetroRail at Palmetto Station in Medley via MDT buses and the Doral Trolley.

Eight (8) MDT Bus Routes provide service within Doral: Routes 7, 36, 71, 87, 95, 132, 137, and 238. As shown below, the routes primarily serve the eastern, middle, and southern sections of the City. No routes service the City’s primarily residential northwestern area; the Doral Trolley Route 1 and 3 connects this neighborhood to MDT routes and the Palmetto Metrorail Station, respectively.



MDT Routes in Doral
Source: Miami-Dade Transit

As shown in the total monthly boarding data, most of the routes have moderate to high ridership. However, while all of the routes run through Doral, none are entirely within the City, and ridership data is available only by route rather than by individual stops. It is therefore difficult to determine the specific impact of the service on trips originating or ending within the City. Nonetheless, overall ridership data indicates that the service is providing an alternative transportation mode for a significant number of trips within or through the City and thereby likely reducing vehicular congestion. MDT bus headways and ridership for Doral routes are shown below. MDT route headways in Doral are generally 30 minutes or less, and provides an adequate transit level of service.

MDT Doral Route Headway

Peak Headway	7	36	71	87	95	132	137	238
Headway	30 minutes	1 hour for 1st 4 stops, every 15min between NW 36th and NW 57th AVE and Route end	30 minutes	20 minutes	5-8 minutes	1 hour, only 5/6 shuttles specific times (7-9am, 3-6pm)	20 minutes	40 minutes, 1 hour weekends

Source: Miami-Dade Transit

MDT Doral Route Ridership

Route	7	36	71	87	95	132	137	238
Dec-13	122646	81921	29106	50890	46421	764	61512	11902
Nov-13	115409	72300	31615	50715	45598	1062	61448	12194
Oct-13	133955	83612	37774	56188	56484	1393	68154	13488
Sep-13	126973	82423	34435	50474	50706	1077	61801	11894
Aug-13	127490	82537	29969	51513	50625	1126	61387	12101
Jul-13	118841	78462	27933	48745	4677	1150	59624	11789
Jun-13	115413	77937	26719	47274	45736	889	57232	9776
May-13	124641	84174	28166	52818	55028	560	60392	11763
Apr-13	126254	84764	33418	53881	56184	314	61735	12050
Mar-13	126790	87620	32073	51446	52450	690	63487	11931
Feb-13	120032	83612	32265	50978	51236	427	57817	11400
Jan-13	123775	86674	33978	52175	51349	736	61796	121128
Average Monthly Boardings 2013	123518.3	82169.67	31454.25	51424.75	50716.17	849.25	61365.42	11868

Source: Miami-Dade Transit

Like the Doral Trolley, factors which affect both ridership and the quality of MDT trips include access to and amenities at stops. Access to stops include the presence of a sidewalk to the stop that meets ADA requirements including curb cuts, a lift area, and minimum un-obstructed sidewalk widths. For example, on NW 25th, there are at least three (3) stops which are not ADA compliant; these stops, between NW 97th Avenue and NW 87th Avenue, are missing sidewalk access or cross walks. The City needs to work with the County and MDT in bus-stop planning to ensure that such stops are easily accessible and ADA compliant.

Stops with only signage and no other amenities are more prevalent for MDT stops than for Doral Trolley stops. Amenities for MDT stops and the Trolley should be the same, and may include the route map and associated signage, benches, shelters, and trash cans and these currently vary by stop. It would be ideal for all stops to have full amenities but failing this, there should be a hierarchy of stops so that those with highest ridership have full amenities and lower ridership stops would have the basic amenities like a system map and a bench.



These two MDT stops in Doral only provide part of the amenities and can be improved. Trash receptacles at the site can help improve the potential cleanliness at the stop in the left image (note red cups), while on the right, a transit shelter will provide additional protection from the elements. Route map signage will also aid transit way finding.

Stops that are shared by the Doral Trolley and Metrobus should be the highest priority for providing full amenities.



While these stops on NW 25th Street in Doral are somewhat accessible, transit riders have to walk across long areas of uneven grass to reach them or disembark from them. As there are no landing pads, nor connected sidewalks, these stops are non ADA compliant.

For these stops, improvements should first be sidewalk installation, followed by seating and shade. For mid-block stops, considerations of and provisions for crossing locations before or after the transit usage is extremely important.

As part of the process the existing Trolley Stops amenities were evaluated and any deficiencies were noted. Please refer to the recommendations project sheets for a complete list of Trolley Stops and/or MDT Stops existing amenities and deficiencies.

Pedestrian and Bicycle Networks

Pedestrian Network

A pedestrian network typically consists of the basic elements of sidewalks, crosswalks, building connections, and adjacent conditions and amenities:

- **Sidewalks:** Hardscape paths of a sufficient width, unobstructed by obstacles, and well maintained to be free of cracks and weeds for use only by pedestrians.
- **Intersection Crosswalks:** Properly marked, signalized, safe pedestrian crossings of roadways.
- **Building Connections:** Designated, safe, marked pedestrian paths connecting sidewalks at the street edge through parking lots or landscaped areas to building entrances.
- **Adjacent Conditions and Amenities:** Setbacks of sidewalks from roadways (4 to 6 feet on high speed roads, up to curb on lower speed urban roads) shade trees, active building edges, miscellaneous sidewalks amenities like signage, trash cans, plazas, urban amenities, public art.

For walking to truly be an viable alternative to driving, the experience of walking must go beyond being possible—which requires that sidewalks, crosswalks, and connections be present and meet minimal design standards—to being appealing, which requires wider, unobstructed shaded sidewalks set back from streets and lined with active building edges rather than seemingly endless parking lots. Plazas, pocket parks, public art and similar elements can also encourage walking when it might not otherwise take place.

As would be expected from a historically car-oriented community, Doral’s pedestrian network is somewhat limited although major improvements have been made in recent years. The network follows the roadway system and is subject to the same connectivity issues noted in Section 1. Land Use. Pedestrian traffic within Doral varies widely by area and is related to land use with residential and recreational uses.

Overall, the pedestrian network is very limited and exhibits the following issues and deficiencies:

- **Sidewalks:** Missing major segments, cracked and poorly maintained in some locations, not ADA-compliant, too narrow and obstructed in many locations.



*Issues encountered during a Field Analysis included (From Left to Right):
Non-ADA compliant sidewalks, infrastructure obstacle course, missing sidewalks, uneven sidewalks, post maintenance issues, cracked sidewalks*

- **Intersection Crosswalks:** Not properly marked, lacking signalization, inadequately spaced, and unsafe.



While some of Doral's intersections have clearly marked crosswalks with crossing signals (Top Left), the majority of intersections reviewed in this study were either missing crosswalk striping (Bottom Left), were too far away from transfer points (Upper Right), or were in need of crosswalk striping repainting or missing crossing signals (Bottom Right).

- **Building Connections:** Lacking in most locations or only partially complete.
- **Adjacent Conditions and Amenities:** Sidewalks are not set back from the curb and traffic in most locations on high speed roads, there are few areas where trees provide shade, and almost no areas where buildings are built to a build-to line to create an inviting activity edge for pedestrians; amenities are very lacking.

Pedestrian Level of Service

Level of Service (LOS) standards are heavily used to evaluate roadway conditions for traffic flow. Similar Pedestrian LOS standards are much less common, but for this study the following standards—based on sidewalk conditions, supporting amenities, and the overall pedestrian environment quality—were developed:

- LOS A:** Highly pedestrian oriented and attractive for pedestrian trips, with sidewalks, pedestrian friendly intersection design, low-vehicular traffic volume, and ample pedestrian amenities.
- LOS B:** Similar to A, but with fewer amenities and low to moderate level of interaction with motor vehicles.
- LOS C:** Adequate for pedestrians, some deficiencies in intersection design, moderate interactions with motor vehicles.
- LOS D:** Adequate for pedestrians but with deficiencies in intersection design and pedestrian safety and comfort features, may be some gaps in the sidewalk system, moderate to high interactions with motor vehicles.
- LOS E:** Inadequate for pedestrian use, deficient pedestrian facilities, high interactions with motor vehicles.
- LOS F:** Inadequate for pedestrian use, no pedestrian facilities, high interactions with motor vehicles.

The following chart, **Doral Pedestrian LOS Grades** provides a ranking of all segments of the Pedestrian Network for the whole City of Doral. More specific observations were also made about the specific elements of the Pedestrian Network.

Doral Pedestrian LOS Grades

	Road	From	To	LOS
1	NW 117th Avenue	NW 25th Street	NW 36th Street	C
2		NW 41st Street	NW 58th Street	B
3	NW 114th Avenue	NW 41st Street	NW 58th Street	C
4		NW 58th Street	NW 74th Street	C
5	NW 114th Avenue/NW 112th Avenue	NW 74th Street	NW 90th Street	C
6	NW 107th Avenue	NW 12th Street	NW 25th Street	C
7		NW 25th Street	NW 41st Street	C
8		NW 41st Street	NW 58th Street	C
9		NW 58th Street	NW 74th Street	B
10	NW 102nd Avenue	NW 74th Street	NW 90th Street	C
11		NW 58th Street	NW 41st Street	C
12		NW 12th Street	NW 25th Street	D
13		NW 25th Street	NW 41st Street	D
14	NW 97th Avenue	NW 41st Street	NW 58th Street	D
15		NW 58th Street	NW 74th Street	F
16		NW 12th Street	NW 25th Street	C
17	NW 87th Avenue	NW 25th Street	NW 36th Street	C
18		NW 36th Street	NW 58th Street	C
19	NW 82nd Avenue	NW 41st Street	NW 25th Street	F
20		NW 25th Street	NW 12th Street	C
21	NW 79th Avenue	NW 25th Street	NW 36th Street	C
22		NW 36th Street	NW 58th Street	C
23	NW 12th Street	NW 107th Avenue	NW 97th Avenue	C
24		NW 97th Avenue	NW 87th Avenue	C
25		NW 87th Avenue	NW 79th Avenue	C

26	NW 12th Street	NW 79th Avenue	SR-826	C
27	NW 25th Street	NW 117th Avenue	NW 107th Avenue	D
28		NW 107th Avenue	NW 97th Avenue	C
29		NW 97th Avenue	NW 87th Avenue	E
30		NW 87th Avenue	NW 79th Avenue	D
31	NW 34th Street/NW 33rd Street	NW 117th Avenue	NW 107th Avenue	E
32	NW 33rd Street	NW 107th Avenue	NW 97th Avenue	C
33		NW 97th Avenue	NW 87th Avenue	C
34		NW 87th Avenue	NW 79th Avenue	F
35	NW 36th Street	NW 87th Avenue	NW 79th Avenue	C
36		NW 79th Avenue	SR-826	C
37	NW 41st Street/NW 36th Street	NW 97th Avenue	NW 87th Avenue	D
38	NW 41st Street	NW 117th Avenue	NW 107th Avenue	D
39		NW 107th Avenue	NW 97th Avenue	D
40		NW 87th Avenue	SR-826	D
41	NW 50th Street	NW 117th Avenue	NW 107th Avenue	B
42	NW 52nd Street	NW 107th Avenue	NW 97th Avenue	C
43	NW 53rd Street	NW 87th Avenue	NW 79th Avenue	A
44	NW 54th Street	NW 87th Avenue	NW 79th Avenue	F
45	NW 58th Street	NW 117th Avenue	NW 107th Avenue	B
46		NW 107th Avenue	NW 102nd Avenue	D
47		NW 102nd Avenue	NW 97th Avenue	C
48		NW 97th Avenue	NW 87th Avenue	F
49		NW 87th Avenue	NW 79th Avenue	E
50	NW 74th Street	NW 114th Avenue	NW 107th Avenue	C
51		NW 107th Avenue	NW 97th Avenue	C
52	NW 90th Street	NW 114th Avenue	NW 107th Avenue	B

Sidewalks

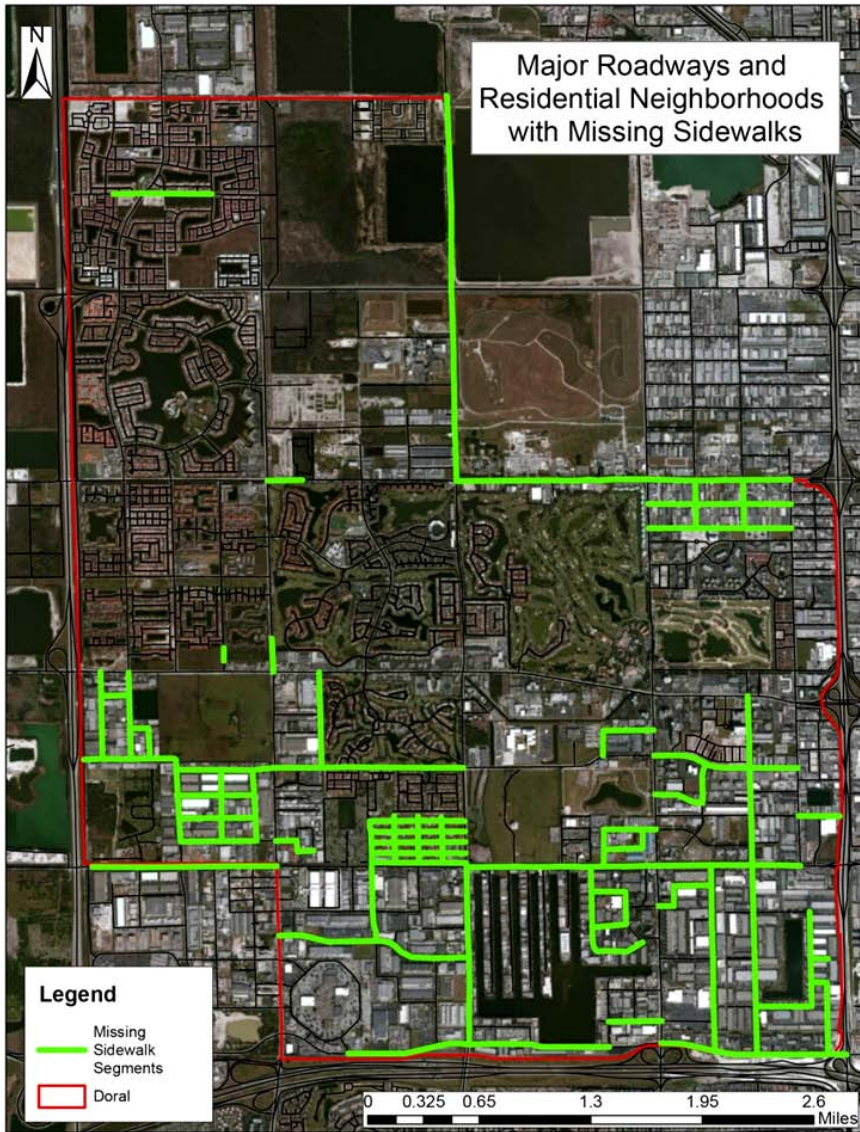
Missing Sidewalks

Some areas of the City are missing sidewalk segments as shown in **Missing Sidewalk Segments (Right)**. Sidewalks are generally necessary for residential and commercial areas related to retail and services, but not needed for certain areas, such as businesses in areas far removed from residential areas where the only traffic is heavy trucks making deliveries. Sidewalks in these areas are expected to receive little use and should be a lower priority than in other areas. However, sidewalks in mixed-use, commercial, and higher-density areas like NW 82nd Avenue are a requirement.

Sidewalk conditions, such as cracks, weeds, uneven segments, and similar issues, vary throughout the City and may be related to jurisdiction. In areas primarily under City jurisdiction, the sidewalks are generally well maintained. However, along NW 36th Street/NW 41st Street, NW 107th Avenue, and other County roads, cracked and uneven sidewalks pose serious issues which hinder multi-modal development and potentially expose the City or County to litigation. Some sidewalks were observed to be blocked or affected by adjacent construction or utilities work. Entrances to an active construction site on NW 25th Street were observed to create pedestrian/vehicle conflicts.

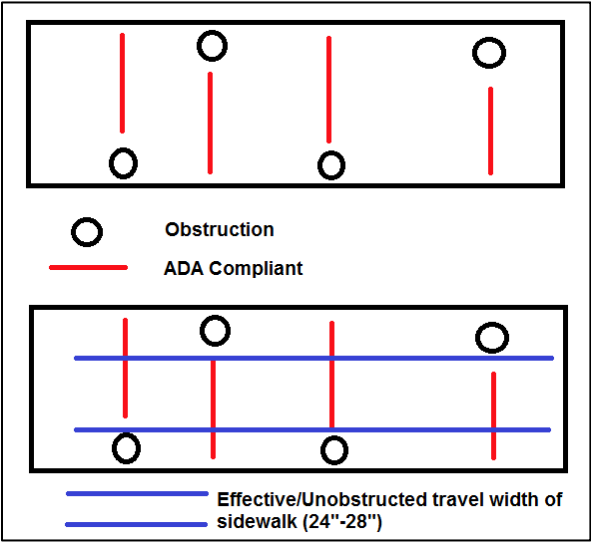
Average sidewalk width within Doral ranges between 5' and 6' which is an acceptable width that allows for either bi-directional traffic or for two pedestrians to walk side by side. However, this minimum width is constrained in many locations by signs and other obstacles which requires pedestrians to walk in a zigzag pattern and is a major problem for disabled pedestrians and a potential liability for the City.

Description of the missing segments are noted in in the Project Sheets PD2 and PD4 (Task V).



Sidewalk Obstructions:

Fire hydrants, benches, signs, power poles, guy-wires, red-light cameras and similar obstructions are pervasive, particularly along NW 41st/NW 36th Streets and other County roads. While these items are often placed in technical compliance with the minimum 32 -36 inch clearance requirements, the visual and physical interference are a major impediment to sidewalk use. Red-light cameras recently installed on the sidewalk at the corners of NW 41st and NW 97th Streets, NW 97th Avenue and NW 41st Street, and NW 87th Avenue and NW 36th Street all could have been placed off the sidewalk. While red light cameras can increase pedestrian crossing safety, they should not be installed at the expense of the use of the sidewalk itself. The extra cost of placing these items off the sidewalk is negligible compared to the negative impact on sidewalk use. Furthermore, in the case of red-light cameras, pedestrian safety would be more effectively increased by marking and signaling crosswalks.



(L) In the upper portion of the image, a cross section of a portion of sidewalk within Doral, it can be seen that technically, the space is ADA compliant.

Unfortunately, as can be seen by the blue lines, a person in a wheelchair cannot travel in a straight line on this segment of sidewalk.

Bus stop benches also constrain sidewalk space. Many benches are angled into the sidewalk to allow those seated a view of approaching buses or to provide greater visibility for bus-bench advertising signs. The limbs of those seated extend even further into the sidewalk than the bench. In these cases, the bench should be set back several more inches off the sidewalk.



Observed sidewalk obstructions include utility poles in the middle of the sidewalk, with additional cables blocking the path for an alternate route (Top Left, Image source – Google Earth), Utility boxes and fire hydrants in sidewalks (Top Right), traffic signs (Bottom Left), and fire hydrants in sidewalks at curb areas (Bottom Right), all of which present issues for pedestrians, and some of which are non ADA compliant.

Intersection Crosswalks

Since pedestrians must cross streets to reach their destinations, intersection crosswalks are a critical part of the Pedestrian Network. Intersections should be adequately striped with on-demand pedestrian signalization. Many of Doral's intersections are lacking proper markings and signalization, which is a major disincentive to walking and a potential safety issue.

Crosswalk lines generally need to be repainted and defined with more visible markings. Two parallel lines are not sufficient; there need to be numerous solid cross bars in keeping with basic crosswalk marking designs. Crosswalk designs may even have a decorative element which enhances the identity and urban design of the City. At many major intersections, there is a need to install crosswalk signalization. In other areas, crosswalks are non-existent and a new intersection design will have to be implemented. Some intersections should have a pedestrian refuge in the median to provide a safe mid-point for those who can't make it across the intersection in the time provided by the signal.



A family waits by the median as they were not able to complete their crossing in one cycle. Here, the family has moved from the crosswalk to the raised median in order to avoid being in the path of turning vehicles. The addition of a pedestrian island area would have reduced the exposure of the family to oncoming traffic.

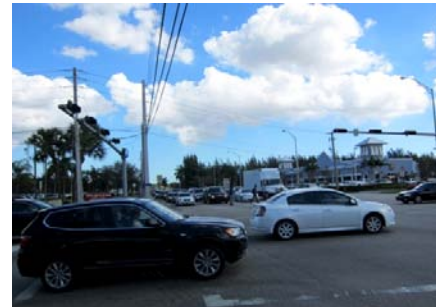


Jaywalking is a prevalent problem in Doral, an effect of having crosswalks too widely spaced from each other. As a result, people become accustomed to crossing at the most convenient point.

(L) Joggers cross on NW 41st Street to go from the southern to the northern portion of the NW 117th Corridor shared-use path.

(R) Children coming home from school cross at NW 58th Street and NW 109th Street. Field observations on different days at this location indicated regular crossing by residents at this intersection, which has no crosswalks. NW 58th Street has a posted speed limit of 35 mph.

In order for a Pedestrian Network to be minimally responsive, crosswalks need to be close enough so that people can get to a destination across the street without having to walk too far to an intersection crosswalk and back on the other side. Crosswalks in Doral are generally spaced a mile apart at the major intersections which is far too long a distance to expect a pedestrian to walk. This distance should be at most 0.5 miles (and optimally, 0.25 miles or less) from significant points on entry onto that segment of the sidewalk system such as schools, parks, bus stops, minor intersections, and commercial centers. This lack of adequately-spaced crosswalks is a major cause of jaywalking, which is a pervasive problem in the City. Jaywalking may be curtailed by the use of policing, but such an approach does nothing to improve pedestrian connectivity. Mid-block crossings spaced between intersection crossings are required to address this serious impediment to walking.



Most intersections encountered during the field study was deficient in at least one, if not more, aspect(s) of pedestrian infrastructure. As observed at the intersections of NW 33rd Street/NW 87th Avenue (TR) NW 52nd Street and NW 107th Avenue (MR), and NW 41st Street/NW 97th Avenue (BR), crosswalk striping need to be repainted. At intersections such as NW 41st Street/NW 97th Avenue and NW 58th Street/NW 102nd Avenue (ML) need crossing signal installation, and crosswalks need to be installed at NW 33rd Street and NW 82nd Avenue (TL) and NW 25th Street/NW 82nd Avenue (BL).

Building Connections

Connections to building entrances from the sidewalks along the street are another important Pedestrian Network element. Most buildings in Doral are separated from the sidewalk at the street by a large parking lot or landscaping area. Traveling across these parking lots and landscape areas requires following an indirect unmarked route that poses safety conflicts with vehicles. Some newer developments have incorporated marked, dedicated pedestrian connections directly across parking lots to building entrances. Some of the developments on NW 41st Street have incorporated striping and/or additional sidewalks from the road to the entrance of the establishment. While pedestrian injuries from vehicular conflicts in parking lots are less problematic than those on high-speed streets, it is still critical that these connections be provided to create an environment that not just allows, but encourages, walking.



(Above) Sidewalk connection from the main sidewalk to the business increases connectivity, as seen here on NW 41st Street, and are a positive improvement to the pedestrian environment.

Adjacent Conditions and Amenities

Plazas, pocket parks, public art and similar elements can also encourage walking. Doral's pedestrian network is almost completely devoid of these additional walkability elements. Sidewalks are set back from the curb in few locations on high speed roads, and very few areas where trees or awnings provide shade. Almost no areas exist where buildings are constructed to a build-to line to create an inviting activity edge for pedestrians.

Bicycling Network

While bicycling in Doral is utilized for transit and recreational purposes, the existing bicycle network is more oriented toward recreation than transportation. Recreational bicycling is particularly prevalent in the primarily residential northwest area of Doral on streets with no marked bike paths. While a good recreational biking network is desirable for a city, it does not significantly advance multi-modal transportation goals which require a bike network in the central high traffic areas of the City.



Bicycle Level of Service

Bicycle LOS was evaluated for specific road segments within Doral. This rating took into account the location and type of bicycle path as well as vehicular traffic in cases of bicycle lanes. Sidewalks were not evaluated as appropriate for bicycling under this study due to the potential for injury from conflicts with pedestrians and with low height signs installed on the sidewalk. Bicycling LOS is inherently more qualitative than quantitative in nature because of the disproportionate effect of perceptions of safety. Bicycle LOS evaluation involves determining if there is separation of traffic, the level of traffic, the width of a bike lane or path, if there are gaps in the system and how well a bicyclist can manage these gaps, as well as intersection issues. The following definitions served as the basis for the assignment of LOS grades for the bicycle network in Doral as shown in the following chart, **Doral Bicycle Level of Service**.

- LOS A:** On and off street facilities, low level of interaction with motor vehicles, appropriate for all riders;
- LOS B:** Low level of interaction with motor vehicles, appropriate for all riders
- LOS C:** Appropriate for most riders, some supervision may be required, moderate interaction with motor vehicles
- LOS D:** Appropriate for advanced adult bicyclists, moderate to high interactions with motor vehicles
- LOS E:** Cautious use by advanced adult riders, high interactions with motor vehicles
- LOS F:** Generally not safe for bicycle use, high level of interactions with motor vehicles.

The City currently does not have a set LOS standard for bicycling.

Doral Bicycle Level of Service

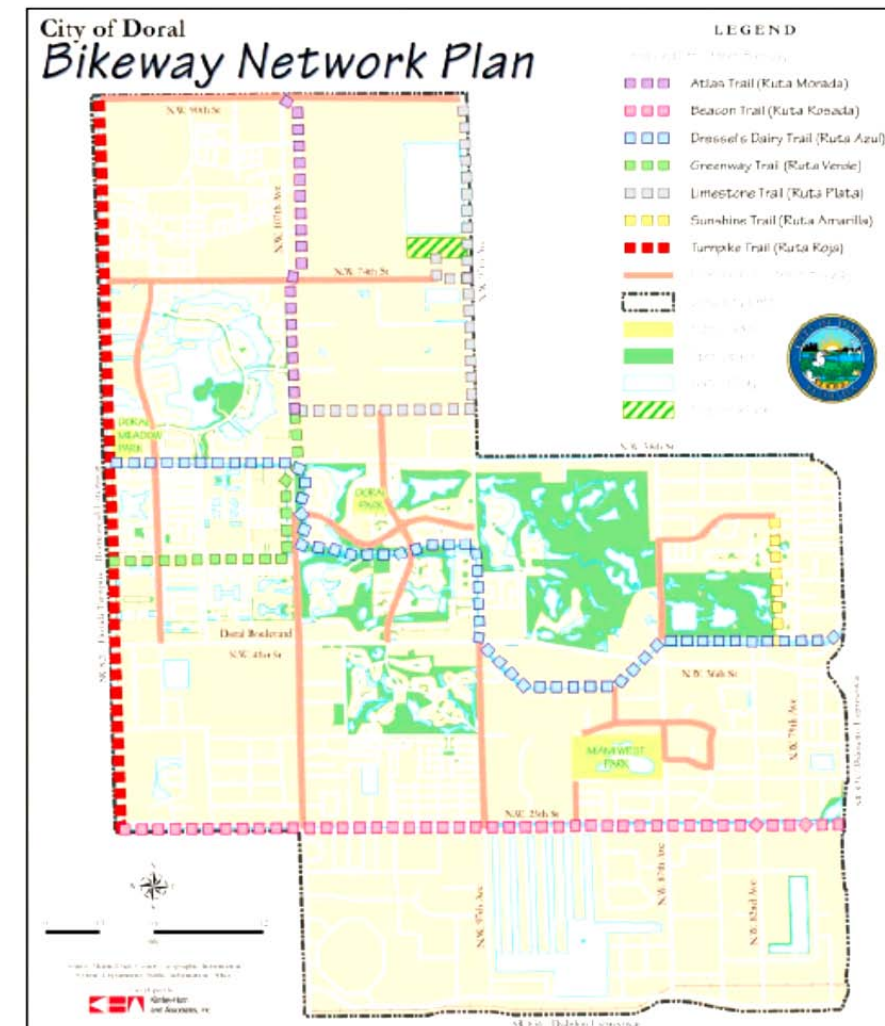
	Road	From	To	LOS
1	NW 117th Avenue	NW 25th Street	NW 36th Street	A
2		NW 41st Street	NW 58th Street	A
3	NW 114th Avenue	NW 41st Street	NW 58th Street	C
4		NW 58th Street	NW 74th Street	B
5	NW 114th Avenue/NW 112th Avenue	NW 74th Street	NW 90th Street	B
6	NW 107th Avenue	NW 12th Street	NW 25th Street	D
7		NW 25th Street	NW 41st Street	D
8		NW 41st Street	NW 58th Street	C
9		NW 58th Street	NW 74th Street	C
10		NW 74th Street	NW 90th Street	C
11	NW 102nd Avenue	NW 58th Street	NW 41st Street	C
12	NW 97th Avenue	NW 12th Street	NW 25th Street	E
13		NW 25th Street	NW 41st Street	E
14		NW 41st Street	NW 58th Street	D
15	NW 87th Avenue	NW 58th Street	NW 74th Street	E
16		NW 12th Street	NW 25th Street	D
17		NW 25th Street	NW 36th Street	D
18	NW 82nd Avenue	NW 36th Street	NW 58th Street	C
19		NW 41st Street	NW 25th Street	D
20	NW 79th Avenue	NW 25th Street	NW 12th Street	D
21		NW 25th Street	NW 36th Street	D
22	NW 74th Street	NW 36th Street	NW 58th Street	D
23		NW 25th Street	NW 36th Street	D
24		NW 36th Street	NW 58th Street	D
25	NW 12th Street	NW 107th Avenue	NW 97th Avenue	E
26		NW 97th Avenue	NW 87th Avenue	E
27		NW 87th Avenue	NW 79th Avenue	E

26	NW 12 th Street	NW 79th Avenue	SR-826	E
27	NW 25th Street	NW 117th Avenue	NW 107th Avenue	E
28		NW 107th Avenue	NW 97th Avenue	C
29		NW 97th Avenue	NW 87th Avenue	E
30		NW 87th Avenue	NW 79th Avenue	E
31	NW 34th Street/NW 33rd Street	NW 117th Avenue	NW 107th Avenue	C
32	NW 33rd Street	NW 107th Avenue	NW 97th Avenue	D
33		NW 97th Avenue	NW 87th Avenue	C
34		NW 87th Avenue	NW 79th Avenue	D
35	NW 36th Street	NW 87th Avenue	NW 79th Avenue	F
36		NW 79th Avenue	SR-826	F
37	NW 41st Street/NW 36th Street	NW 97th Avenue	NW 87th Avenue	F
38	NW 41st Street	NW 117th Avenue	NW 107th Avenue	F
39		NW 107th Avenue	NW 97th Avenue	F
40		NW 87th Avenue	SR-826	F
41	NW 50th Street	NW 117th Avenue	NW 107th Avenue	A
42	NW 52nd Street	NW 107th Avenue	NW 97th Avenue	C
43	NW 53rd Street	NW 87th Avenue	NW 79th Avenue	B
44	NW 54th Street	NW 87th Avenue	NW 79th Avenue	D
45	NW 58th Street	NW 117th Avenue	NW 107th Avenue	A
46		NW 107th Avenue	NW 102nd Avenue	C
47		NW 102nd Avenue	NW 97th Avenue	C
48		NW 97th Avenue	NW 87th Avenue	D
49		NW 87th Avenue	NW 79th Avenue	E
50	NW 74th Street	NW 114th Avenue	NW 107th Avenue	C
51		NW 107th Avenue	NW 97th Avenue	D
52	NW 90th Street	NW 114th Avenue	NW 107th Avenue	C

Based on the bicycle LOS and the map of the existing network, Doral's bicycle network is generally very limited. There are some short segments on NW 25th Street and just off of NW 33rd Street which require further development to become part of a larger system as they provide little use in their current state. The bicycle network as it exists and planned is more oriented toward recreation than transportation, and results from the 2006 Bikeway Network Plan adopted by the City (Right).

Bicycling connectivity is generally good in a north-south direction in the western portion of Doral, but east-west connectivity is almost non-existent. East-west connections as envisioned in the City's development plans would result in bicyclists traveling in either areas with high trucking activity, high vehicular activity, or both.

Future bicycle connections to and from the Downtown Doral are likely, and some paths through the neighborhood have already been planned and partially implemented. The regional bicycle network is relatively underdeveloped. To the south, bike lanes extend along SW 8th Street between the Turnpike and the Palmetto Expressway, and the Coral Way Sidewalk provides an east-west trail between Florida International University and Coral Terrace. To the east, the Miami Springs Greenway connects to Miami Springs, and with further planned development, to Virginia Gardens, Hialeah, and the City of Miami.



The Bikeway Network Plan proposed 7 routes, complemented by an on-road system.

Source: City of Doral Bikeway Network Plan

Bicycle Network Qualitative Aspects

Shared off-road bicycle paths in the City are typically 10-feet wide and bi-directional. Bike lanes in the City vary from sharing the whole width of the road on specific roads, such as portions of NW 114th Avenue, to a designated 4 to 6 feet at the same grade as the roadway. These bicycle lanes on the roadway are grade separated from the sidewalks next to it. Sidewalks are utilized by bicyclists at times which are not an acceptable system; sidewalks should be for pedestrians only. When bicyclists are told to use sidewalks because using streets is unsafe, this only perpetuates unsafe conditions and a reliance on vehicular transportation.

General conditions of existing bicycle paths indicate a system with regular maintenance, with some exceptions, including gravel debris along NW 117th Avenue. Paths are generally free of cracks and have clear striping. However, several maintenance problems, including gravel runoff and foliage were noted along the bicycle path along NW 117th Avenue. Shade for bicycle paths is a provided by foliage and tree cover in some places but this must be tempered by the recognition that clearance height for persons on bicycles is generally much higher than pedestrians.



*Bicycle Racks at
Miami International Mall*

For a bicycle network to be effective, there needs to be numerous safe, accessible places to lock bikes. Bicycles around the City were found to be chained to fences due to the scarcity of bike racks which were generally found at the parks. Other bicycle racks were found at LA Fitness, the bicycle store at the shopping plaza at NW 107th Avenue and NW 41st Street, and at the International Mall which was heavily utilized (Image, left). Existing racks are inadequate and the City needs significant numbers of additional bike racks at building entrances. A bike rack or a rack that holds eight (8) bicycles can be installed in lieu of one parking space, as demonstrated in the image to the left, which was taken at Miami International Mall during the field analysis.



Limited bicycle parking facilities can be found in Doral, but do exist, as with the bicycle rack by the Bicycle shop at NW 41st Street and NW 114th Avenue (Right). Nobody likes to have their bicycle stolen, and in other areas of the City, bicycles can be observed locked to chain-link fences and other anchored infrastructure due to the lack of adequate bicycle parking facilities within Doral (Left).

Where trees overgrow the path, a maintenance program for the trimming of these trees is necessary to avoid collisions with branches. In addition, given the location of paths along canals, where the elevation of the side of the path is higher, runoff issues exist on the path; in one instance, a portion of the path was covered with gravel. There were no rest areas or water fountains along the current bicycle trails. People who wish to stop at certain points could stand to the side but more often would end up blocking the path. No cleaning or showering facilities exist along the route.

Lighting of bicycle and shared off-road paths is generally low; bicycle lanes on streets are generally better lit. No riders are expected on the shared paths past sunset, however, as the trails are considered closed after dusk and are not lit. Lighting is required for bicycle networks to be used for transportation purposes.

Bicycle Intersection and Midblock Crossings

Currently, bicyclists can either ride through an intersection in the same manner as vehicles, or stop and walk with pedestrians. Many bicyclists were observed doing the latter, indicating a potentially negative perception of safety. However, bicyclists using crosswalks would encounter the same issues as pedestrians which are crosswalks missing either signalization or striping. Intersections with inadequate crosswalks—those missing at least one feature such as striping or crossing signals—were noted by participants during the public workshops and included NW 107th Avenue and NW 41st Street and NW 97th Avenue and NW 41st Street.

On roads with bicycle lanes, such as NW 114th Avenue, the bike lane is on the right side of the road; bicyclists will have to shift to the left-most lane to make a left-hand turn.

Midblock crossings are difficult for bicyclists for the same reasons as pedestrians. Where a bicyclist needs to cross a road to reach their final destination, the preferred pathway is a direct route; however, this may run across traffic. Thus, many cyclists (especially children and those less experienced) will generally dismount and walk their bicycle to their final destination. Others may wait at a crosswalk signal and ride across when the opportunity presents itself.

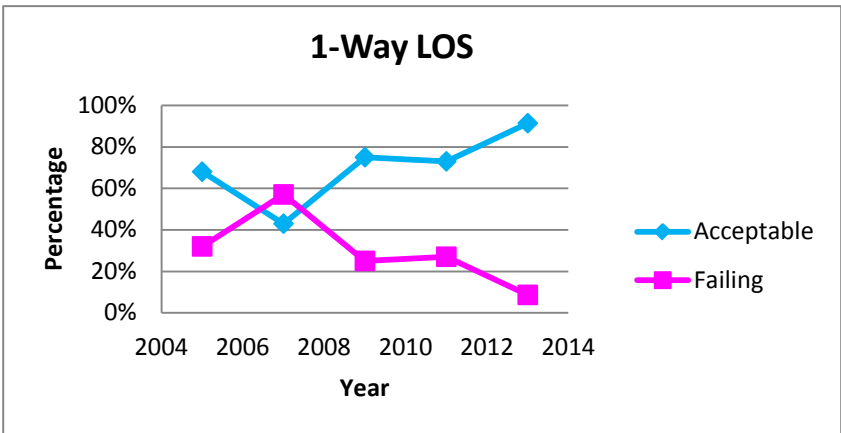
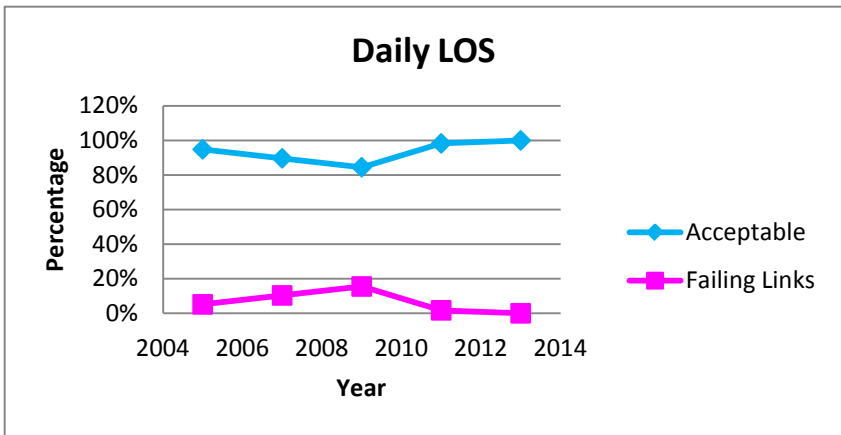
Intermodal connectivity for bicycling is limited by the lack of bicycle routes to intermodal centers and the lack of on-site bicycle parking. In addition, while transfers to MDT vehicles are possible because they have bike racks, there are no bicycle racks on Doral Trolleys.



(Above) Mid-block crossings exist in select areas in Doral, but are in need of repainting as can be seen on NW 52nd Street. (Below) Bicyclist riding through intersection of NW 58th Street and NW 114th Avenue as observed during field study.

Vehicular Traffic

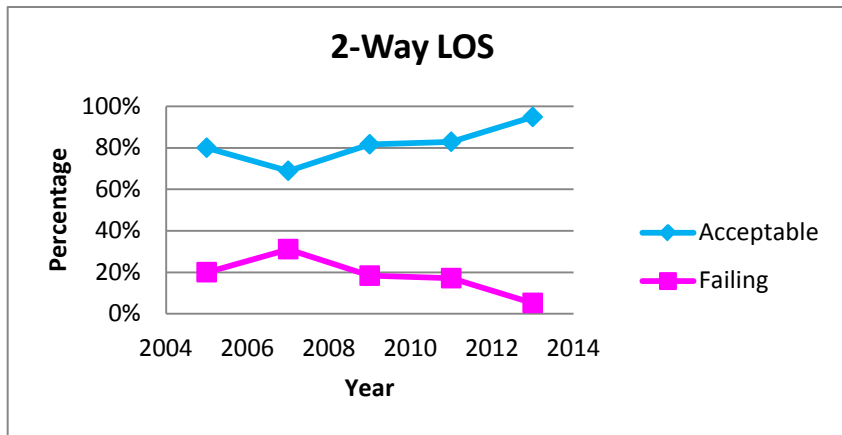
While the Doral Transit Mobility Plan is not intended to address vehicular traffic improvements, there are aspects of the vehicular traffic system which affect planning for enhancements to alternative transportation modes. Particularly congested intersections or routes may have an impact on possible bus or bike routes, or be a specific target for diverting some users to another mode.



Level of Service

Vehicular LOS on the City's roadways is regularly evaluated by the City. The City has made considerable strides in improving its road network to maintain adopted LOS.

During public workshops held for the Doral Mobility Plan, participants mentioned missing roadway segments on NW 117th Avenue and NW 97th Avenue, as well as several connections around NW 84th Avenue, between NW 25th Street and NW 12th Street. These segments should be evaluated for possible future construction.

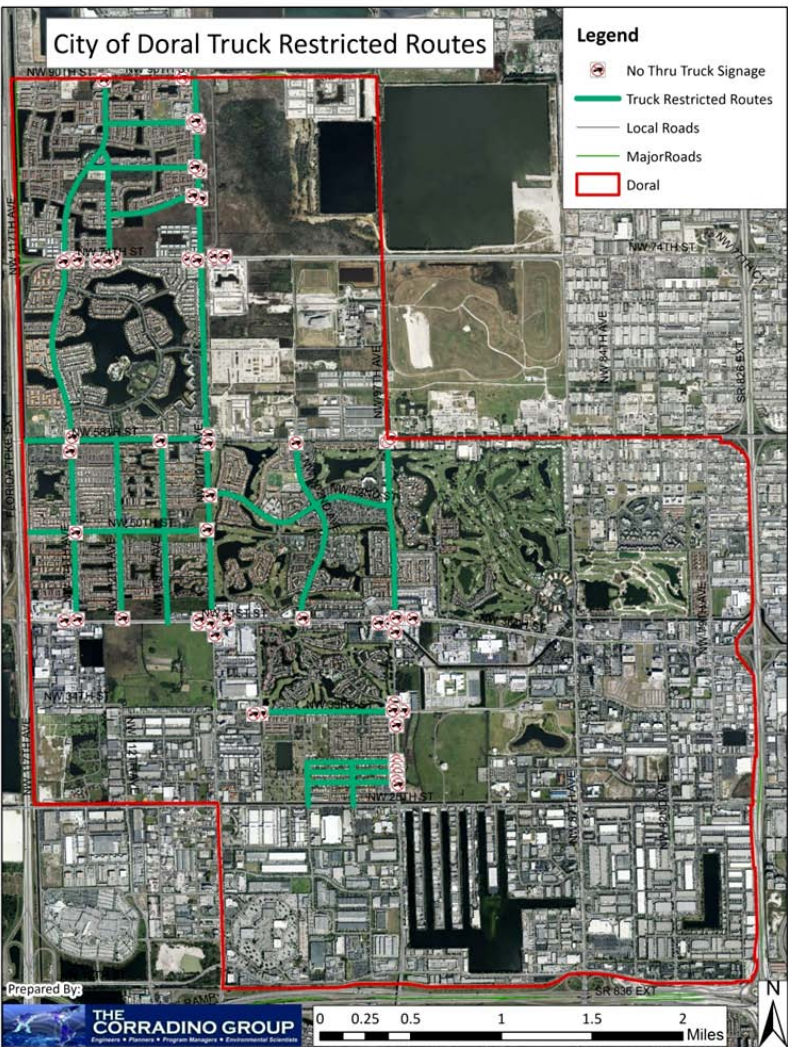


LOS evaluation of roads can be approached from different viewpoints: The capacity of a road in handling daily volume, peak hour peak direction (1-Way LOS), and peak hour, bidirectional (2-Way LOS) levels of traffic. Cities must have acceptable levels of service to meet concurrency, and at the current levels, Doral is afforded the opportunity to think and act progressively by positioning itself to consider rededication of the right-of-way towards a greener, more sustainable multi-modal transit future.

Data Source: City of Doral

Truck Traffic

Truck traffic in Doral is prohibited on the routes shown in **City of Doral Restricted Truck Routes (below)**.



Data Source: Miami-Dade County, City of Doral

This policy concentrates truck traffic on specific streets which poses a challenge for walking and biking on those streets. Truck traffic is generally high along some portions of NW 58th Street which is primarily a residential area. NW 90th Street will need much more work and redesign to be able to handle higher levels of truck traffic; thus, truck traffic cannot be pushed further north. NW 74th Street in the north of the City, and NW 25th Street and 12th Street in the south, will remain the primary east-west trucking routes. Additional considerations for bicyclist and pedestrians may be necessary at mid-block crossings and intersections on these streets. Primary north-south truck routes will likely be the Turnpike (SR-821) and the Palmetto Expressway (SR-826) neither of which serves pedestrian or bicycle traffic. Once infrastructure on NW 25th Street is completed trucks will by-pass local traffic, therefore allowing for safer routes and pedestrian traffic.

On routes with high truck traffic such as NW 74th Avenue between NW 107th Avenue and NW 97th Avenue, bicycle lanes should not have been developed, and existing lanes should be moved to other streets. At some intersections on routes used by trucks, turning radii are too small to accommodate turning trucks and need to be reevaluated.

(Right): Truck making a left hand turn onto NW 58th Street after heading Southbound on NW 97th Avenue. Truck-intensive businesses, such as freight services, such as warehousing, form an integral portion of Doral's economy, and waste management facilities exist to the north of Doral. Both contribute to heavy truck traffic in Doral.



(Left): Turning radii are important at intersections; here, the diagram demonstrates spatial clearance in a turn. Issues arise with extended turn radii for trucks due to intersection design, as this may affect opposing vehicular and bicycling traffic making a turn.

Image Source: Federal Highway Administration, US Department of

Signalized Intersection Crash Data

Doral regularly evaluates its Police Department intersection crash data. The rankings of signalized intersections by crashes for April 2012 - April 2014 are shown in the map to the left. Crash rates have declined over the past two years, from approximately 63 to 50 crashes per month. No fatalities were recorded. Intersections with high levels of crashes are a priority for remedial action, to be determined after additional studies given different needs in design for each intersection. The top 5 intersections in the ranking should be further evaluated:

- NW 12th Street/NW 87th Avenue
- NW 36th Street/NW 79th Avenue
- NW 41st Street/NW 107th Avenue
- NW 41st Street/ NW 97th Avenue
- NW 36th Street/ NW 87th Avenue

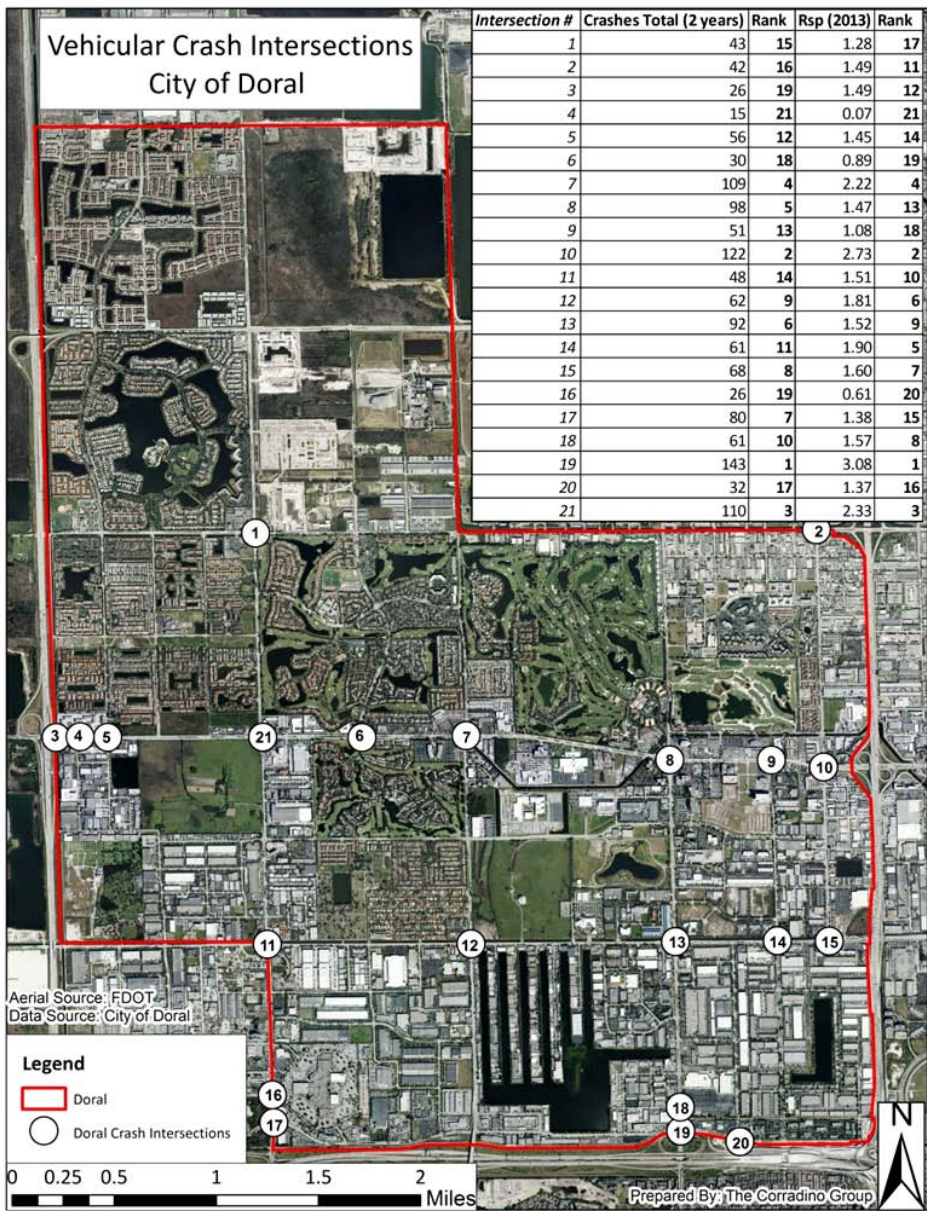
In cases where intersection redesign is required, the City should consider taking a holistic approach which involves the inclusion of pedestrian and bicycling oriented designs.

Spot accident rates (Rsp) compare the number of accidents with the number of vehicles at the location. Based on spot accident rates, Doral should further evaluate the following five intersections which have the highest levels of crashes:

- NW 12th Street/NW 87th Avenue
- NW 36th Street/NW 79th Avenue
- NW 41st Street/ NW 107th Avenue
- NW 41st Street/NW 97th Avenue
- NW 25th Street/NW 82nd Avenue

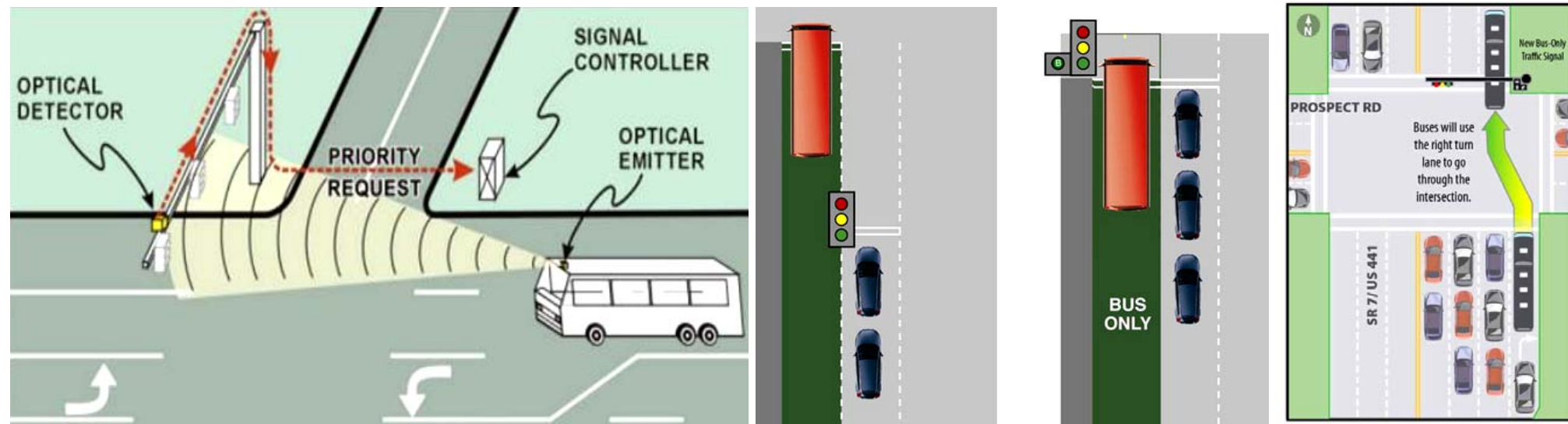
Name of Intersections Evaluated

- | | | |
|----------------------------|-----------------------------|-----------------------------|
| 1. NW 58th ST/NW 107th AVE | 9. NW 36th ST/NW 82nd AVE | 17. NW 12th ST/NW 107th AVE |
| 2. NW 58th ST/NW 79th AVE | 10. NW 36th ST/ NW 79th AVE | 18. NW 13th TER/NW 87th AVE |
| 3. NW 41st ST/NW 117th AVE | 11. NW 25th ST/NW 107th AVE | 19. NW 12th ST/NW 87th AVE |
| 4. NW 41st ST/NW 115th AVE | 12. NW 25th ST/NW 97th AVE | 20. NW 12th ST/NW 84th AVE |
| 5. NW 41st ST/NW 114th AVE | 13. NW 25th ST/NW 87th AVE | 21. NW 41st ST/NW 107th AVE |
| 6. NW 41st ST/NW 102nd AVE | 14. NW 25th ST/NW 82nd AVE | |
| 7. NW 41st ST/ NW 97th AVE | 15. NW 25th ST/NW 79th AVE | |
| 8. NW 36th ST/NW 87th AVE | 16. NW 14th ST/NW 107th AVE | |



Traffic Considerations for Alternative Transportation Modes

Significant vehicular congestion exists along NW 12th Street, NW 25th Street, NW 41st/NW 36th Street, and NW 87th Avenue at various points of the day. This affects the Trolley and MDT routes that intersect or use these routes. Rerouting may not be an option; thus, technology to assist the flow-through of bus traffic at intersections and these corridors such as dedicated lanes and intersection signalization should be explored. These routes are therefore logical targets for diverting some vehicular traffic to alternate modes. As the congestion is heavy at lunch time due to lack of pedestrian connectivity, these routes would be a good place to begin pedestrian network improvements.



Different technology and traffic engineering techniques exist for bus priority signalization, which may be effected via detection devices as a bus approaches an intersection, allowing for a delayed red or an extended green (Left), by providing a separate green signal for the bus lane (Middle), or, as recently tested in Tamarac, FL in September 2014, by allowing buses to utilize a right turn lane to jump ahead in traffic (Right).

Source: (L) www.streetsblog.org, (M) www.buspriority.co.nz, (R) www.tamaractalk.com

Task IV **Analysis**

Task IV: Analysis

During Task III Data Collection of the Doral Transit Mobility Plan, extensive information on Doral's transportation system was obtained and documented. In this section of the report, that information is analyzed to identify transportation system enhancements to be achieved through capital projects and policy changes in four areas: Transit Network Analysis, Pedestrian Network Analysis, Bicycle Network Analysis, and Policy Analysis.

Basis of Analysis:

The Needs Assessment and the Analysis herein takes a multidisciplinary approach which takes into account the ideas of Complete Streets in the creation of a more "Complete System" which incorporates policy and transit by design. In evaluating the transit system, this analysis objectively applies standards for the various components of a multimodal system, expanding to include qualities of regulations which dictate land use, the placement or design of infrastructure, or incentive programming in transit demand management.

A singular, primary question arises at the core of all transit evaluations: "Can I get from my point of origin to my intended destination?" In evaluating mobility and accessibility, connectivity is a key element within a trip, which determines the viability of transfers between modes. The degrees of continuity of these trips vary among the myriad of points of origins and destinations, including transfers. Furthermore, the measure of these degrees of difference is dependent on the placement of infrastructure along the transit pathway. Beyond this, the qualities of such connections are of paramount importance, and thus provide a second main condition by which we evaluated the transportation system. Each mode of transit has innate qualities that lend to their attractiveness as a mode of transportation, and range from timeliness of transit, to the perceived and actual distance of the trip, to the amenities involved with each mode.



Transit Network Analysis

As noted in Task III., public transit in Doral is currently provided by the Doral Trolley and Miami-Dade Transit.

Doral Trolley



The analysis of ridership information for the Trolley suggests a need for route and stop modifications.

Route 1 is approximately 17.6 miles long, and consideration should be given towards splitting it into two (2) different routes in order to provide better service. Route 1 trolleys experience delays due to traffic congestion. A route serving the same general destinations, but utilizing less traveled roads, could be more efficient. Dividing Route 1 into two smaller loops (Northwest, East and Southeast) with a

connecting transfer point should be evaluated (refer to map on following page).

Stop spacing should be incorporated in the route modification process. Each stop in a bus system adds time to the overall completion of the route. Stops are currently spaced fairly closely on much of the routes and should probably be farther spread out. In redistributing stops, considerations of coverage area are important. Generally, people will walk up to 0.25 miles to reach a destination. Stops should therefore generally be at least 0.5 miles apart, so that the midpoint between each stop is 0.25 miles.

Route 2's ridership is low, primarily because it is aligned to serve a future neighborhood rather than an existing one. It also overlaps with Routes 1 and 3 and with MDT routes. While Route 2 could be successful in the future when Downtown Doral is further developed.

At minimum, current overlaps with the other routes should be reduced. With multiple route systems, high levels of accessibility can be effected with a healthy balance of transfer and minimal route overlaps. While it is ideal to reach one's destination with no transfers, this goal may not be practically achievable in the long run due to limitations in transit funding resources. In the long term, higher efficiency in light of limited resources

will allow for more flexibility in transit programming and thus better mobility. Given Doral's geography and size, and dispersal of transit generators, it is acceptable to have one or two transfers as the benchmark goal assuming appropriate headways to reduce transfer wait times. In some instances, this may lead to lower in-transit time for the travelers, thereby improving their perception of transit efficiency as well as their willingness to switch from a car to transit.

Long range planning should position the Doral Trolley to be the exclusive transit for the City, with regional connections emanating from a local hub in the City. Currently, regional transit hubs proposed by Miami-Dade Transit around Doral do not fulfill the need for a local hub that would likely arise if Downtown Doral reaches planned density levels. Such a hub would serve as a central point for the Trolley system as well as offer express MDT routes to regional hubs.

In planning for the future, considerations should be given to utilizing light prioritization technology for the Doral trolleys, especially along NW 36th Street and NW 41st Streets, due to the ongoing prevalence of congestion.

Additionally, a express route to the Palmetto Metrorail Station should be developed; if not, considerations of transfer service and relative convenience of using Route 87 should be considered. However, unless necessary, Route 87 would be a less preferential choice for travelers since the Trolley provides free service.

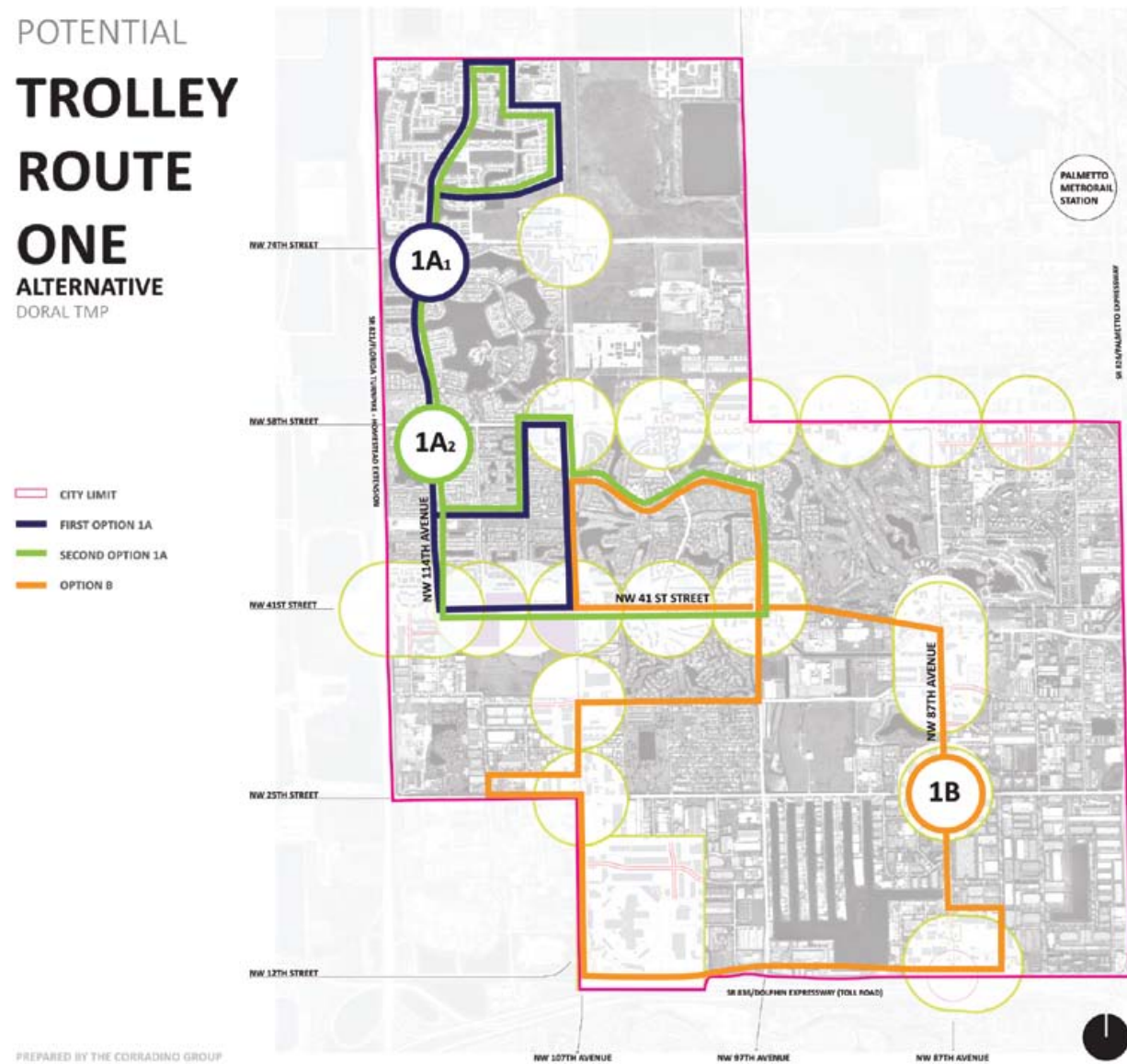
Miami Dade Transit



The current MDT route system within Doral is partially based on the grid, but is also circuitous in some areas. This system's service and efficiency could be improved by transitioning to a grid-based-route structure with base routes on the major arterial. Such a system within the City would allow most trips to be completed with one transfer. Some cities that have switched from circuitous routes to a grid pattern have experienced increased efficiency. Regionally, a grid-based system may also reduce travel times.

Source: Miami-Dade Transit

Route 1 Smaller Loops with Connecting Transfer Points at Overlaps Alternative



MDT routes also overlap Doral Trolley routes

The City should coordinate Trolley routes with MDT so that the greatest level of service is provided to Doral transit users. Ideally, route overlaps can be beneficial for both MDT and the Doral Trolley system. Arranged properly, especially in a grid system, MDT can serve as the express routes into, and through, parts of Doral, with the Doral Trolley providing local circulation.

Doral should also support the development of additional MDT routes which will run near or across the City, and connect to regional hubs proposed by MDT.

MDT service can be improved through upgraded bus-stop amenities. For example, better service along NW 25th Street could be achieved by building sidewalks to the bus stops, instead of the existing stops that have no sidewalk connections, or where other stops are non-ADA compliant.

Support of future Bus Rapid Transit into Doral should be a priority for the City

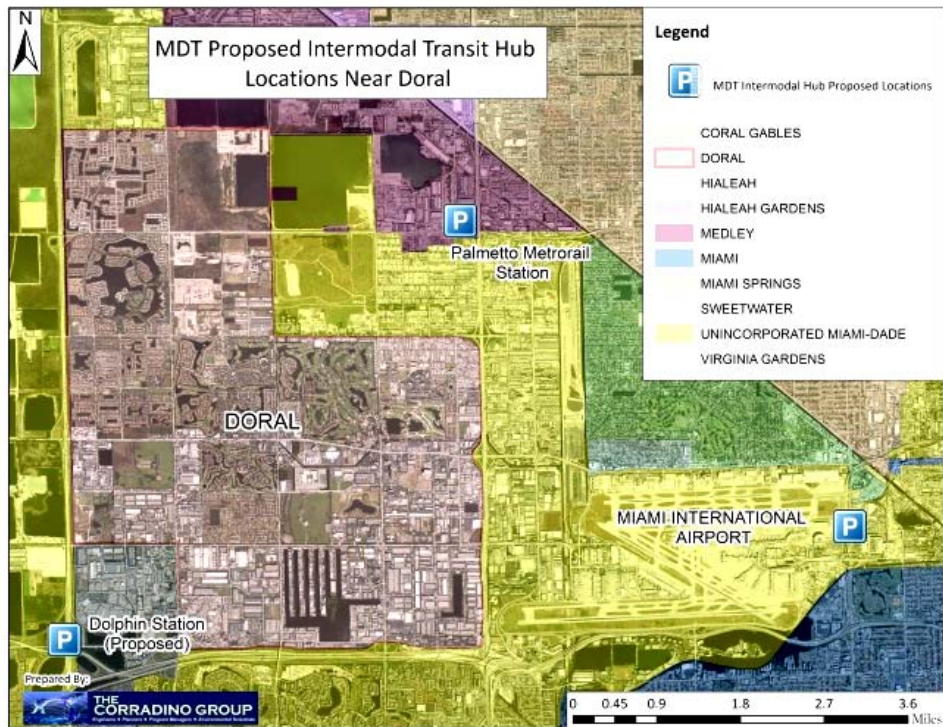
Miami-Dade Transit currently has 3 proposed intermodal transit hubs that are close to Doral:



The Miami Intermodal Center, above, was envisioned regional hub located less than 4 miles from Doral, and as of 2014, most of its components is complete.

Miami Intermodal Center (MIC): Currently in development at Miami International Airport, the MIC will offer connections to MetroRail, Metrobus, Tri-Rail, Greyhound, Amtrak as well as extensive bus and Metrorail connections to Miami-Dade County and beyond. A Express route from Doral to the MIC is one consideration that the City should pursue.

Dolphin Station: MDT is reviewing a site adjacent to Dolphin Mall at SW 12th Street and the HEFT for a park-and-ride facility that would potentially also be an Intermodal Transit Center connecting to the SR 836 Express Enhanced Bus. This hub could help ease vehicular traffic on NW 25th Street and NW 12th Street. The development of park and ride facilities is necessary for Doral to reduce roadway congestion.



(Above) 3 MDT Proposed Intermodal Transit Hubs (Blue Icons) would be located within the vicinity of Doral (Pink).

Palmetto Intermodal Center: An Intermodal Station is under consideration at Palmetto Metrorail Station linking to Metrorail, Miami Gardens and eventually to a Tri-Rail connection at the proposed Multimodal Terminal at Golden Glades. The proposed Metrobus Palmetto Express Bus would connect Palmetto Station with a proposed FDOT park-and-ride facility at I-75 and Miami Gardens Drive. Implementation of this route would support the development of the Station as a transfer point from Doral for the northwest of Miami-Dade County. A express route connecting Palmetto Station to the Trolley routes should be considered. Two potential routes to be evaluated are:

- From Palmetto Station, West on NW 74th Street and thence South on NW 97th Avenue

- From Palmetto Station, West on NW 74th Street and thence South on NW 87th Avenue

The best route will be dependent upon viable transfer points to the Trolley. For example, under the current route system, a pulse route utilizing option 1 above will allow for a transfer to the current Trolley routes R1, R2, and R3 at NW 41st Street.

During the public workshops, attendees brought up the issue of paying for parking at Palmetto Station. High transit station parking rates will discourage transit usage. General policy to encourage more transit ridership should be to create a disparity in costs—the costs should be higher at the destination, and lower at the transit station. Consideration should be made for existing technology which aids in verification purposes, such as parking-fee reductions or parking validation for taking MetroRail.

Pedestrian Network Analysis

An analysis of a pedestrian and bicycle transportation network can be undertaken in the context of three levels of connection:

Basic Network: Based on the section and half-section line grid, ROWs created by this grid are generally at least 50' wide, and need to accommodate all public infrastructure, including sidewalks and bike routes. Much of Doral is serviced by a Basic Network grid, but some sections are not connected due to their use for recreational golf courses (which are not crossed by roadways).

Local Connectivity: A smaller scale of connections with the section grid of the Basic Network, especially important for pedestrian and bike routes typically used for shorter trips.

Regional Access: Connectivity across the City that links to routes through adjacent municipalities to regional destinations.

As noted in Section III “Data Collection,” a Pedestrian Network consists of the main four elements of **Sidewalks, Intersection Crosswalks, Building Connections, and Other Walk-ability Considerations.**

Sidewalks

Sidewalks were noted in the Data Collection section as being missing in some areas, in varying condition, and obstructed by numerous items.

LOS grades are significantly impacted by the lack of crosswalks at regular intervals, resulting in large blocks with no close crossing points. This forces pedestrians to either jaywalk or cross at intersections lacking proper and installation signalization.

The following represents areas of specific concern noted by multiple workshop participants:

NW 58th Street – Participants mentioned missing sidewalks on NW 58th Street, between NW 97th Avenue and SR-826. Field analysis indicates that there are some sidewalk segments here, but they are not connected to the larger network. However, current land use does not seem to indicate a need for sidewalk access to these areas. Future development of Doral, including the Community Mixed Use Opportunity Area abutting NW 58th Street (including any annexation of areas within what was called Section 16 in the City Hall Feasibility report), would merit sidewalk development on the south side of NW 58th Street. Current and projected land use patterns, however, indicate pedestrian travel flow would orient south and east, not west while on this road. Additionally, the mention of the missing sidewalks on these segments during the public meeting may be related to a desire for grade separation for bicycling purposes—a sidewalk would, for bicyclists, provide a form of grade separation which currently does not exist. This would increase perceptions of safety. A Shared-Use off-road path on the south side may benefit the city’s current residents.

NW 58th Street between NW 102nd Avenue and NW 107th Avenue – One participant brought up missing sidewalks between the local school and the corner of NW 107th Avenue. Field analysis indicated approximately 300ft of missing sidewalk on the north side of NW 58th Street. This gap results from an unfinished development with a fence which eliminates any easement or right-of-way usage for pedestrians. This is a concern because after-school students heading west to home, or Publix, do not have a safe sidewalk at this location. Furthermore, the closest crosswalks are at the intersections of NW 58th Street and NW 97th Avenue and NW 107th Avenue and NW 58th Street, the latter of which does not currently have a complete sidewalk connection to the school. Additionally, the road has a moderate to high level of traffic, with heavy congestion at

school closing time. Providing better walk-ability in the area could potentially alleviate the current traffic situation at the school. NW 33rd Street between NW 87th Avenue and NW 82nd Avenue – Participants brought up the issue of missing sidewalks on both north and south sides of NW 33rd Street. Both sides of the road will require sidewalks; the northern side of the road will have new residential development. Currently, the southern portion of the road has commercial buildings and a school. Pedestrians have been observed at this location on both sides of the street, either tightrope walking on the north side’s curb, or walking through the grass on the south side. A random interview with one individual indicated that she works at the commercial buildings near the corner of SW 82nd Avenue and NW 33rd Street, takes the bus into Doral from Westchester, and would feel safer and more comfortable if she did not have to walk on the grass five days a week.



(L) Construction fence eliminates possible pedestrian pathway on NW 58th Street. (R) Though the sidewalk is closed, the expanse of the construction makes it difficult to determine an appropriate detour route. The lack of a crosswalk also complicates matters here on NW 25th Street.

Temporary Sidewalk Closures - Construction projects need to ensure that pedestrian access is maintained at all times during construction. A “Sidewalk Closed” sign does not provide an alternative path; additional planning is necessary to accommodate pedestrians by providing a marked, clear path. This may require a temporary detour or temporary rededication of right of way, utilizing barriers to create a separation between vehicular and pedestrian traffic.

Qualitative Aspects

Qualitative aspects of the sidewalk network include condition, maintenance, obstructions, and shade. The highest priority qualitative aspect to be addressed is the common presence of obstacles in the pedestrian right of way. Fire hydrants were



Transit rider crossing at NW 41st Street/NW 104th Avenue

observed in many locations in the middle of sidewalks, allowing for 19 inches and 22 inches clearance, which is functionally and legally inadequate. ADA compliance, which requires a minimum of 32 inches, is a serious issue needing resolution through the City’s capital improvement program as well as code revisions.

The pervasiveness of this issue shows that Doral should dedicate time towards creating a Master Plan to remedy these problems and ensure ADA compliance for projects in the future. However, part of this effort is coordination with the County for county-maintained roads. The City should first adopt a justified standard and work with the County to fix current issues.

Ultimately, however, the City must consider if the solution is to request a transfer of these roads from the County to the City.

In urban areas with buildings constructed out to the street, the sidewalk should extend from building to street with tree-planting areas. For the City's less urban areas, sidewalks should be set back from the street by a 6' strip with tree plantings, as part of a complete-streets system.

Shading for pedestrians generally does not exist in Doral, and can be remedied by adding trees along walkways and shared-use paths.

There are three primary commercial areas that would benefit from improved Local Connectivity: the corners of NW 97th Avenue and NW 41st Street, NW 25th Street and NW 87th Avenue and the International Mall. These types of business areas would often focus on facilitating direct portals from the commercial corridors to the communities behind them. These could consist of safe and secure pedestrian gateways or pathways from residential neighborhood to commercial centers. Primary use would come from residents within a ¼ mile who choose to walk or bike for short shopping trips instead of drive.

Intersections and Crosswalks

Crosswalks are generally lacking signalization, crosswalk markings, or both, resulting in prevalent jaywalking. Crosswalks should be added at some of the bus stops, where there are no close means of crossing after disembarking. In the case of the image to the right, there was no crosswalk facility at the intersection next to the bus stop on NW 41st Street. 44 of the 54 intersections require additional facilities, and are noted on the subsequent map (Following page). Intersections noted in yellow are in need of either crosswalk striping, crosswalk signal installation, or both. Intersections in green provide necessary infrastructure for the pedestrian environment. The solution to inadequately-space crosswalks are midblock crossings which are on demand marked signalized crossings located at 0.25 miles intervals within streets of high vehicular activity, such as, NW 25th St and NW 41th St. Doral needs to consider creating numerous mid-block crossings, the location of which may be guided by evaluation of pedestrian "desire lines"—an observable metric of human patterns of travel behavior. These "desire lines" can be observed or indicated in unofficial paths where walkers and runners go around

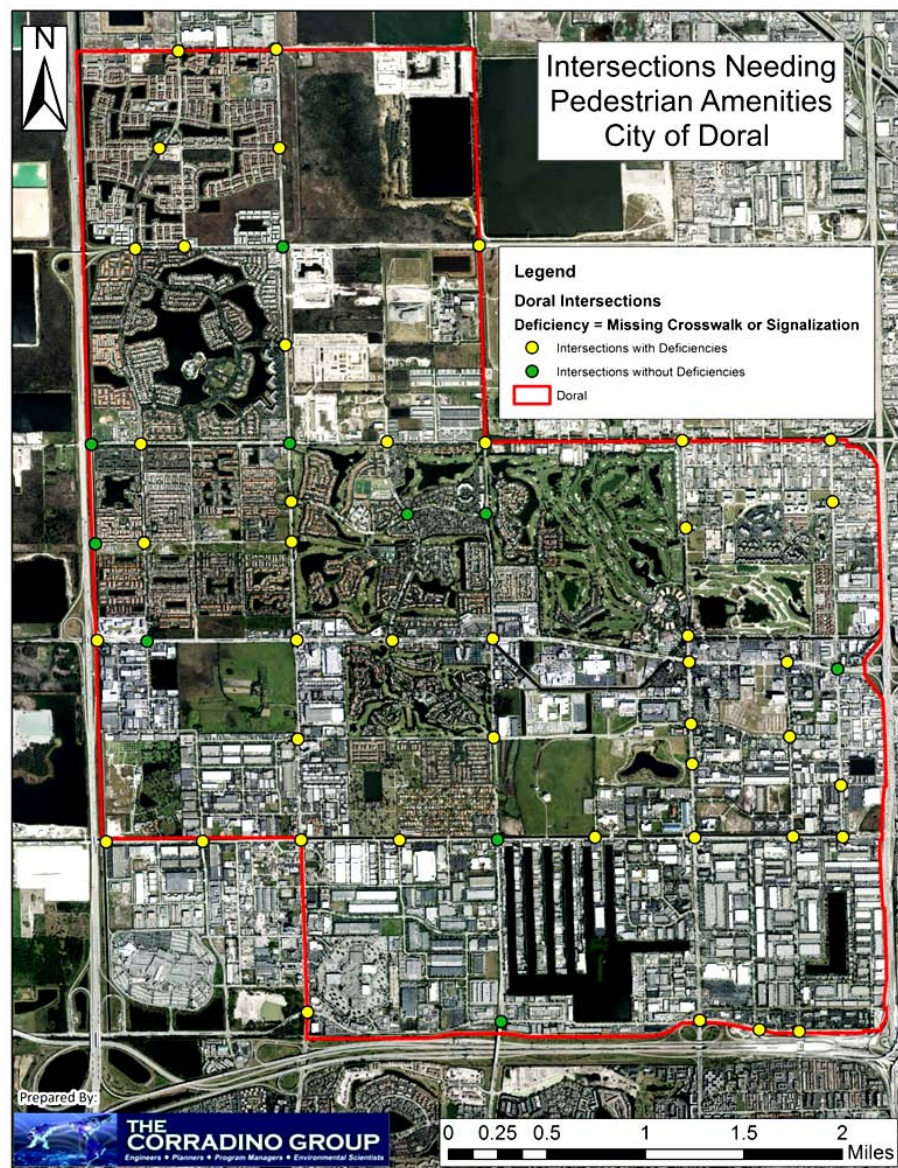
the guardrails and through landscaping. On roadways, where the grooves would not be as obvious, observations at key sections of the roads will indicate natural tendencies to cross, such as at entrances to communities or retail destinations.



Pedestrian jaywalking on NW 107th Avenue. Observations of jaywalking can be an indication of "desire lines" on roadways. Such areas should be studied further for possibility of a mid-block crossing.



"Desire Line" groove pathway off of Shared-Use Path by NW 58th Street and NW 114th show where people normally walk into order to access the sidewalk .



Building Connections

Doral’s high levels of daytime population from employment imply that business-to-business connections are necessary, especially for the food-service industry. The lack of good local connectivity to commercial centers (either at the pedestrian level or from a quick, direct-mass transit option) narrows the ability of an individual to entertain other choices in a multi-modal system. As such, people are not presented with the ability to walk, but rather forced to take automobile trips. This is also reflected in the levels of parking found at these commercial strips with eateries (or “establishments”) around lunchtime. A trolley lunch route can be explored as part of the solution for mid-day traffic. The success of this route, however, is not only dependent on the speed of the route, but also on the connections between the buildings, and whether the trolley stops on the road instead of pulling up to the building.

Connections to buildings from the street right of way generally require travel across a parking lot which fronts the establishment, especially in shopping centers. Connections to buildings from the right-of-way can be implemented without redevelopment; rather, a reallocation of parking spaces and the addition of landscaping, striping and/or sidewalk panels could create pathways from the road and bus stops to the buildings. New development could also be required to provide these pathways.

The distance between the building’s entrance and the road can also be shortened. Doral’s general pattern of development has buildings away from the road. However, if parking was situated behind the building (and buildings were required to be situated close, or next to, the roadway and the sidewalks), there would be no need to add additional pathways to reach the establishment.

Bicycle Network Analysis



Bicyclist on NW 114th Avenue, Doral

While bicycling in Doral is utilized for transit and recreational purposes, the bicycle network is more oriented toward recreation than transportation. While a good recreational biking network is desirable for a city, it does not advance multi-modal transportation goals. The currently existing network primarily services the northwest sector of Doral: cross-town trips would require persons with more experience due to the lack of infrastructure. Additional future bike routes, either as shared off-road paths or bike

lanes, have been noted by the City or are based on the existing Bikeway Network Plan.

The City of Doral currently does not have a set LOS standard for bicycling. It is recommended that the City adopt a standard definition for LOS evaluation of bicycling within the City. Based on the above qualities, the City should adopt a level of standard similar to LOS B above, depending on how the City defines its standards.

Future Bicycle Path Development

Doral's bicycle network should be redeveloped to account for more origin-destination trips. The network should reflect the need for local connections between residences and commercial areas and regional routes:

Doral developed a Bicycle Network Plan in 2006. Some of the routes were planned concurrently with future development and could be built by developers. Future bike-route development involves routes through areas of high vehicular traffic where the current land use and right of way dedication are constrained and will be more costly than in prior phases.

The Bicycle Network Plan proposed several long scenic routes, some along the canal. In addition, it primarily proposed on-road bicycle paths for north-south destinations. Given the high-traffic volumes, as well as accident rates at specific intersections, the usage of

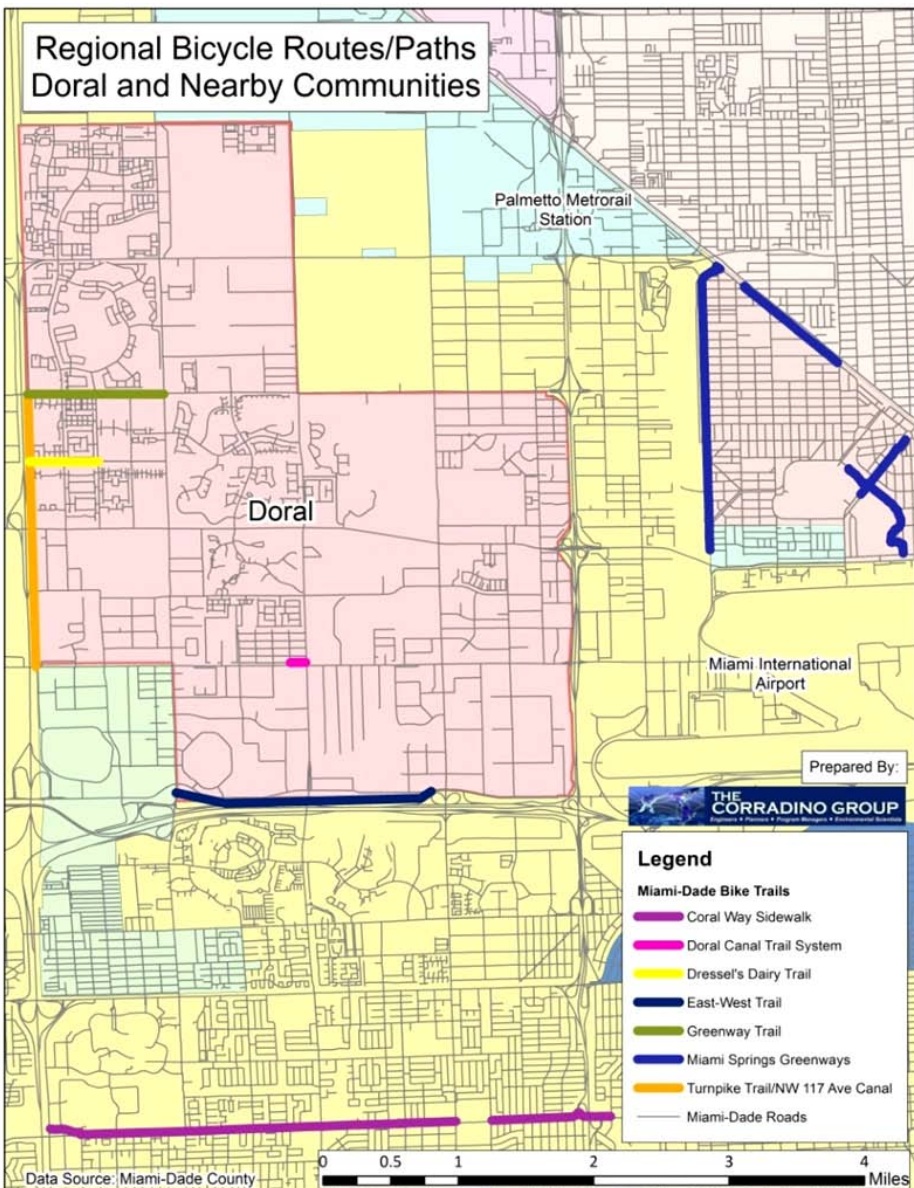
on-road bicycle paths should be reconsidered in favor of off-road shared use paths when completing the City's linkages. While the Plan's coverage is theoretically sound, the lack of cross-directional links at small intervals is the equivalent of the same large block issue which has negatively affected the pedestrian environment. It is unrealistic to expect an individual to take a more circuitous route to reach their destination; people generally take the shortest route possible. The map also needed to be adjusted to account for changes in development, including road linkages and newly proposed residential and commercial areas, as well as small gaps, which are noted in the recommendations.

Based on a more utilitarian approach, with additional considerations for regional connectivity, the existing and planned bicycle-route system should be expanded to the City's edge, and should be far more extensive than currently planned, especially in connecting to current and projected future-transit generators.

Bicycling connectivity is generally good in a north-south direction; however, east-west connectivity is virtually non-existent, and should be the next step in development. This would be expected to change in the future as Downtown Doral area is developed. Given its size, and the nature of current development of the Downtown Doral area, a more walk-able, low traffic speed area may be able to utilize bicycling as an internal form of traffic circulation. Future connections to and from the Doral Downtown area for bicycling would focus on the residents living there, as well as traffic.

Furthermore, the current network is heavily fragmented; east-west connectivity would result in bicyclists traveling in either areas with high trucking activity, high vehicular activity, or both. In some cases, the fragmentation of routes has, and will continue to, lead to lower than normal usage of existing infrastructure. The incompleteness of the current system serves as a disincentive for bicycle usage.

Regional access can be provided by connecting on-road and off-road bicycle facilities through the City to other communities on all sides, particularly to bike routes and paths in other areas of the County. While implementation of bike lanes on roads in Doral would be at a level more appropriately planned for a more experienced and sophisticated cyclists seeking longer trips or commuting trips; shared off-road paths provide enough separation that allows for safer long-distance travel and will allow for more widespread usage.



While the regional network is currently underdeveloped, Doral can make future preparation by scheduling the implementation of routes to the City's edge at strategic

areas, and coordinating with neighboring municipalities and the County. To the east, the City should aim to connect to the Miami Springs Greenways. Due to freight rail lines running parallel to NW 67th Avenue, this connection could only be made at NW 36th Avenue or NW 74th Avenue. A NW 74th Avenue connection would also link to the Palmetto Metrorail Station in Medley, but would conflict with heavy truck traffic. Off-street shared routes either east-west on NW 74th Avenue, or north-south along the Palmetto Expressway (SR 826), would address this safety concern.

Connections to the south may be developed to both the wide curbed lanes currently adjoining the Dolphin Mall, and to the park-and-ride facility proposed at the intersection of NW 12th Street and the Florida Turnpike. Connectivity to this area can occur along NW 117th Avenue, NW 107th Avenue, or NW 97th Avenue. Regional access to Fontainebleau and areas south of Fontainebleau to Coral Way are also available along NW 117th Avenue and NW 97th Avenue.

Qualitative Aspects

The sense of security along pre-established secure paths for bicyclist tend to be positive, and the paths are well utilized; however, the bike lanes along NW 74th Street cause bicyclists to share the road with heavy trucks, and grade separation should be considered. The width of the shared off-road paths are wide enough to accommodate both pedestrians and cyclists.

The lack of shelters or trees along most paths indicate low amounts of shading for bicyclists. While bicyclists may require less shade than pedestrians, shading provides areas of rest for bicyclists and should be incorporated into design.

Lighting: At night, lighting of bicycle and shared-off street paths are generally low in Doral. Lighting conditions are better in areas where the bicycle paths of travel are bicycle lanes, since lighting on these roads are shared with vehicular traffic. No riders are expected on the shared paths past sunset, however. Lighting, however, is a consideration for bicycle networks for commuting aspects of bicycling. There are bicyclists at night in Doral.

Infrastructure: Bicycle racks were noticeably missing or inconspicuous throughout the City. Informal interviews with residents during the workshop, and while in the field, indicated that there are no bicycle racks at many of the shopping areas, which serve as points of destination for residents.

At a minimum, Doral should adopt policies which will lead to the installation of bicycle racks at major transit generators. The City is also interested in developing a bike-sharing program; bicycle racks for these programs should be co-located, or close to, where bike racks are normally installed. Bicycle racks should adhere to the following considerations:

- Bicycle racks should keep the bicycle upright by supporting the frame in at least two places and allow both wheels to be secured.
- Racks should be installed so as to have sufficient room between parked bicycles. “U” racks, if utilized, should be installed with at least 15 inches minimum between racks.
- Bicycle racks should be installed outside of a walkway’s clear zone.
- Where possible, parking for bicycle racks should be installed in areas covered and protected from the elements.

Land Use or Location	Physical Location	Capacity
City Park	Adjacent to restrooms, picnic areas, fields, or other attractions	8 bicycles per acre
City School	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, Industrial, retail > 10,000 SF	Near main entrance with good visibility	1 bicycle per 15 employees, or 8 bicycles per 10,000 SF
Shopping Centers > 10,000 SF	Near main entrance with good visibility	8 bicycles per 10,000 SF
Commercial District	Near main entrance with good visibility; not to obstruct pedestrian or auto movement	2 bicycles every 200 feet
Transit Stations	Near platform or security	1 bicycle per 30 parking spaces

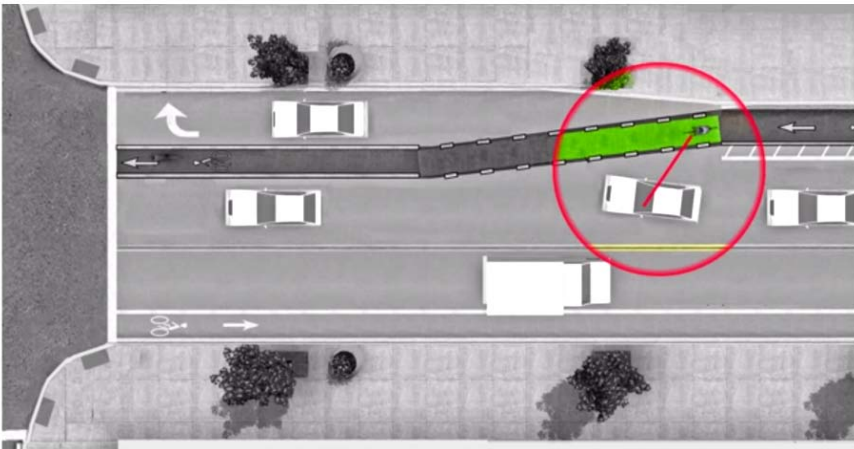
Source: City of Doral 2006 Bike Network Plan

- Bicycle racks should be located near entrances and have sufficient capacity based on the use of the property:

Other infrastructure which can be included as part of the bicycle-network development include water fountains, rest areas with seating and/or shade, and locational maps and signage. These amenities are generally lacking along the current paths. Other facilities which may be included at specific juncture points may include bicycle lockers and shower facilities.

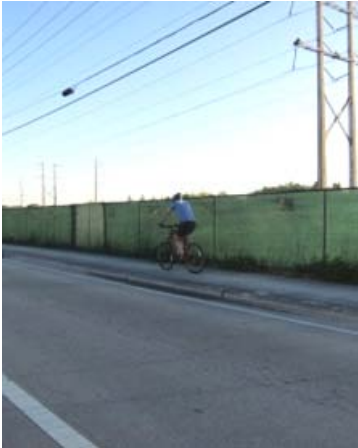
Intersections

Intersections are noted by the local bicycling community in Doral to be a major issue. The ability to safely cross or make turns are difficult at many intersections. Roadway design often poses a challenge for bicyclists. Right-turn-only lanes force bicyclists into the middle of the road on the approach to an intersection where they do not wish to turn, creating serious safety and comfort issues. Even without a bicycle path on the road, the effect is similar to that described in the diagram below, where a vehicular-bicycle point of conflict exists (in red circle) due to the angle of approach to the intersection.



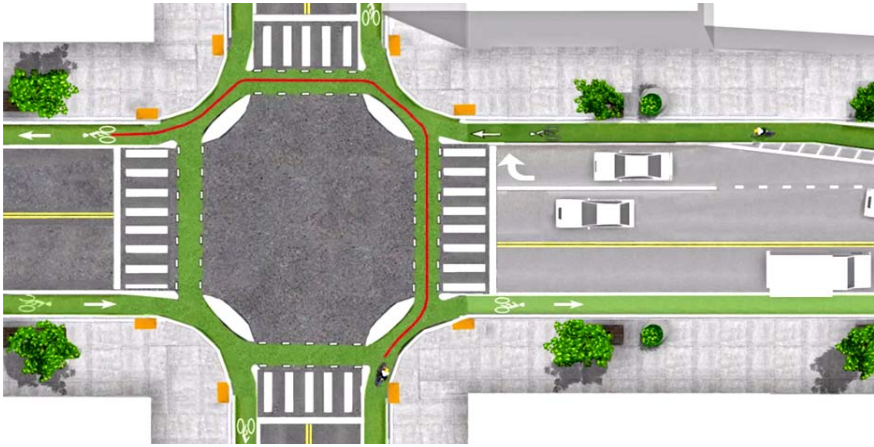
(Above): When bicycle lanes crosses with a right turn only lane, a bicycle/vehicular conflict point is created. Source: Video- Junction design the Dutch - cycle friendly – way -<http://bicycledutch.wordpress.com>

For the bicyclist, there is also the feeling of being exposed—bicyclists in Doral tend to ride close to, or on, the sidewalk because of safety perceptions. Left turns also pose the same issue for bicyclists; where oncoming opposing traffic exists, there may be a need to stop in the middle of the intersection during the turn, in the same manner a car would at an intersection. Crossing intersections together with vehicular traffic, therefore, poses major concerns for the average bicyclist, especially on roads with moderate to high travel speeds normally found on arterials and some collector roads.



(Left) A bicyclist rides on the sidewalk due to perceptions of safety. Unfortunately, bicyclists take at least 2.5 feet of space. On a 5' sidewalk, as can be found in Doral, this then leaves little to no room for pedestrians.

(Right) A family waits to cross at the intersection. Not only do bicyclists wait to cross with pedestrians due to perceptions of safety, but, as with pedestrians, they also contend with missing crosswalks, and some cases, non-working crossing signals.



(Above): This design minimizes conflict points between vehicles and bicyclists. A bicycle rider, by using the green lane, is able to make a left turn in one fluid motion, without going through the middle of the intersection. At the island areas, they have refuge points.

Source: Video- Junction design the Dutch - cycle friendly – way - <http://bicycledutch.wordpress.com>

Bicycle intersection crossings include overpasses, signalization, and intersection design. Generally, overpasses tend to be expensive and cost-prohibitive. Different light signalization for bicyclists is a method which has been utilized in other cities. This involves dedicated paths for bicyclists to travel in, including travel lanes. Outside of the United States, intersection designs with dedicated bicycle lanes and bike-turning systems (such as that employed in the Netherlands) provide innovative designs which merit further consideration by the City.

In the preceding image, crosswalks are provided for pedestrians, with bicycle paths painted (green) to clearly mark the lane. By extending the bike lane around the corner, and adding an island for protection, the bicyclist has a point of refuge when crossing and having to check for oncoming motorists. In addition, with proper signalization, the bicyclist could utilize the circular path as noted to make the left turn in one turning movement, without stopping.

Several utilizable options for crossing intersections exist in addition to the aforementioned design and can be applied to Doral.

Bicycle Signalization Infrastructure:

Loop Detectors currently exist at intersections, but for vehicles. Standard loop detectors will detect bicyclists, but two (2) factors influence their effectiveness: placement in a location where the movement of a bicyclist can be registered; and possible adjustments in sensitivity to detect the bicyclist. However, this system is best served by utilizing a bicycling signal in conjunction with these loop detectors.

Doral can make use of existing installed infrastructure also by adding bicycle signals as a separate signal. Miami-Dade County has moved to require such signals at all intersections where bicycle pathways cross intersections. This signal is separate from the vehicle's signal, and generally uses red, yellow, and green bicycle icons. This method will require adjustments to the overall signalization of the intersections where this technology is applied.



Bicycle signals can be installed with distinct images to differentiate these signals from vehicular traffic, and have been incorporated in cities such as Portland, OR (Left), and Long Beach, CA (Right), among others.

Source: (L) www.bikeportland.org, (R) www.lbreport.com

Connections

Intermodal connectivity for bicycling in Doral could be easily improved by installing bicycle racks on trolleys, and providing good pedestrian paths between the bicycle racks and the entrance of buildings.

Bike Sharing/Bicycle Rentals

Bicycle rental/sharing systems are a major component of a more sustainable and intermodal transportation system in many cities in the region, such as with CitiBike in Miami Beach and Miami, and B-cycle in Fort Lauderdale. Bike sharing provides an additional affordable means of transportation in a multi-modal system. Bike share



systems are a healthier transportation option given that biking requires physical exercise. Bike trips also obviously reduce transportation energy use and associated pollution and carbon emissions compared to similar vehicular trips. However, bike sharing systems require careful planning and continued management to be successful. Further, a certain level of density is required for feasibility. It is recommended that the City contact several bike share-system providers for a feasibility analysis to create such a system in Doral. If the City decided to pursue a system, the procurement process would have to be followed to select a provider. It's not feasible for the City to develop a system on its own; however, once the provider is selected, the City will have to consider implementation and placement of racks.

Citibike bike share station. Citibike currently operates in the cities of Miami and Miami Beach.

Source: www.miamiandbeaches.com

Policy Analysis

Doral's Comprehensive Plan provides for goals and policy direction for future transportation development. Within the Transportation Element, Doral addresses multi-modal transportation development via pedestrian and bicycling network development, and will need to implement policy via city-code development to implement changes in parking requirements. Further work is necessary to meet the City's vehicle occupancy-rate goals, and pedestrian and bicycling trips, as well as the completion of the public road network. Doral should also continue to work with Miami-Dade Transit (MDT) in coordinating transit; as a general policy, it should support additional funding for transit by other agencies to achieve the goals stated in its Master Plan. One aspect of Doral's Comprehensive Plan which can be strengthened in the Transportation section is the adoption of a bicycling and pedestrian LOS rating.

To date, Doral has not completed the development of a "one stop" information center for Doral residents and visitors on "Personal Mobility." This was projected for July 2013 and should be implemented.



Bulbouts are curb extensions which can serve as neckdowns for traffic, and can be utilized to shorten crossing distances for pedestrians (Columbus, OH - Top Right). With innovation, they can also provide a rest area in a mini park, where people can sit (Keene, NH - Top Left), and city beautification, making walking a more enjoyable experience (Davis, CA - Bottom Left). Source: <http://contextsensitivesolutions.org/>

In meeting its goals to expand mobility and connectivity as part of the City's Green Element, the City should review its Land Development Code and Code Enforcement, and appoint a Bicycle and Pedestrian Coordinator to aid in the time-lining and assessment of pedestrian and bicycling infrastructures.

A brief review of Doral's existing code of ordinances, including land development, was also undertaken to identify more specific areas of potential policy review. Areas which the City should amend include portions of the Land Development Regulations such as parking, design code, utilities placement, and vegetation/landscaping.



Painted/textured crosswalks can be achieved through the application of thermoplastic striping, and applied to raised crosswalks as well.

Source: <http://westseattleblog.com/>

Traffic Calming:

Doral has long segments of roadways that have no means of mid-section crossing for pedestrians other than jaywalking across roads with 35 to 40 mph speed limits in some cases. Along major corridors such as NW 41st Street, where the speed limit is 40 mph, there may be a need to reduce the speed to 30 mph. In addressing some of these needs, there could potentially be pedestrian overpasses at some areas. However, it will be cost prohibitive to install a pedestrian overpass at crossing point, and underpasses are not viable options due to high water tables. Traffic calming measures, such as the reduction of actual and posted travel speeds in some sections, should be considered to improve the pedestrian and bicycling environment in Doral, especially around schools and parks.

Currently, Doral allows four (4) types of traffic calming measures in its Land Development Regulations: traffic circles at intersections, median islands, tangents with delta angles greater than 30 degrees, and chokers, which slightly constrain the tools with which they can utilize to address the need for mid-section crosswalks. When appropriately applied, chokers (as mid-block reductions of road width) can be designed to allow for crosswalks within the City. Additional considerations for inclusion into the City's land development code (to employ at crossing areas, particularly at schools and some bus stops) are curb extensions, neckdowns, painted/textured roads, and raised sidewalks or sidewalk tables, which current codes do not explicitly allow for.



The creation of a sense of place enhances the pedestrian realm and is achieved through urban design and streetscaping. Common elements include wide sidewalks, with potential for interactions with landscaping that provides visual appeal and shade, seating areas, pedestrian oriented signage, and potential lighting at night. Vehicular traffic is clearly separated from the pedestrian realm, while transit is still accessible and modes of transportation are still connected. People are social creatures and tend to like being able to see other people. Wide sidewalks allow for people, friends, family, to walk side-by-side as they enjoy their day, while outdoor seating and vibrant plant life provide ambiance and character to the community.

Photo Location and Source: (Top Left: Houston, TX - EPA Office of Smart Growth), (Top Right: Portland, OR – www.raisethehammer.org), (Bottom Left: Southampton Village, NY - <http://architectdenied.blogspot.com/>), (Bottom Right: Atlanta, GA - <http://www.pedbikeimages.org/>)

Design in City Code:

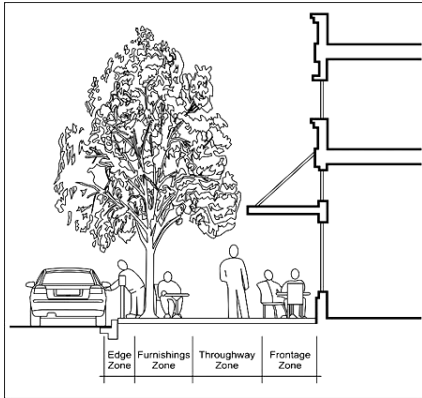
Doral has currently adopted a specific design for Doral Boulevard, and should continue to support efforts to create a more pedestrian-friendly environment. However, it does not have a basic design pattern adopted for the rest of the City. Given the effect of aesthetics on the desirability of walking as a mode of transit, building façade and landscaping should be utilized. These elements should be incorporated within the physical needs of the pedestrian and bicycle environment, as Doral currently lacks shade and outdoor seating areas other than bus-stop benches.

Streetscaping, Landscaping, and Vegetation:

Doral should implement specific policies that will guide the development of its streets and their maintenance. The inclusion of trees and other vegetation will provide a visual buffer and enhance the aesthetics of the pedestrian environment. These setbacks and landscaping items should be implemented with new developments, or redevelopment, as a requirement under the land-development regulations.

As part of its design code, the City of Doral should consider means by which it can acquire buffer space between sidewalks and vehicular Right-of-Way's (ROWs) for developed areas as well. These areas are part of the public right of way, and acquiring more land may be needed in order to redesign the streets. In addition, Doral may need to revisit its currently mandated ROW numbers and see how it compares to the concept of Complete Streets. The Complete Streets Initiative is a transportation-planning policy that focuses on the design of roadways to incorporate all potential users. In an urban area, a Complete Street might consist of a lane dedicated solely to buses, proper bus stops, a bicycle lane or wide paved shoulder, sidewalks, traditional or raised crosswalks, and a median island (all crosswalks & sidewalks should be American Disabilities Act (ADA) compliant.) Each of the elements of a Complete Street will require specific amounts of dedicated right of way, though this may vary based on how these elements are applied. Two bike lanes and two sidewalks may be utilized with the intent of a full separation of pedestrian and bicycle realms, but will require at least 20' – 22' to implement. At the same time, a shared use path and an additional sidewalk on the other side of the vehicular ROW only needs a minimum of 16' of ROW.

The City should also consider code-enforcement measures to deal with vegetation growing in front of crosswalk signals and over paths.



(Left) Streetsides have 4 functional zones:

1. **Edge:**Area between curb and Furnishing zone.
2. **Furnishing:** Buffer between walkway and vehicular traffic, can be used for benches, landscaping, etc.
3. **Thoroughway** The walking thoroughfare:
4. **Frontage:** Storefronts, café areas, signage

Source: Concept by Community, Design + Architecture, illustration by Digital Media Productions.

Obstructions in Pedestrian ROW:

The City needs to develop additional regulation of objects’ placement on sidewalks or through code enforcement. Currently, Doral regulates the placement of newspaper racks as well as communications facilities within the right of way. However, given the zig-zag nature of the pedestrian environment, and the placement of items such as traffic cameras within the sidewalk right of way, the City of Doral should adopt more stringent measures to curtail such negative development on the pedestrian right of way. These regulations may range from prohibition of item placement in sidewalks, to require sidewalk widening for accommodating the installation of certain objects.

Parking Infrastructure:

Where there are parking lots, however, Doral can institute policies which will mandate the need for pedestrian walkways from the road to the entrance of the stores. In some places, this may require the re-dedication of parking spaces as pedestrian paths or associated landscaping through the parking lots. In addition, the development of parking behind a building, either as a lot or a parking structure will allow for better pedestrian access to businesses which currently does not exist in Doral. These can specifically be applied in mixed-use districts design standards, as well as commercial corridors where there should be higher levels of pedestrian travel to support business development. Parking requirements may have to be reduced to allow for the additional landscaping and pedestrian paths from the road to the front of the building.

Where possible, Doral should also consider enacting regulations that, with new and particularly mixed-use development, parking be placed to the side or to the rear of the building, creating a more pedestrian-friendly environment by reducing the need for walking across large parking lots.

Additionally, Doral should undertake a parking study of the City; utilizing this study, the City should then begin to reduce or re-concentrate parking within Doral, as well as consider where park-and-ride facilities can exist on the edge of the City.

Transit Policy - Transit Demand Management:

Transit demand management techniques (which include flex time or varying work start times, traveler information tools, alternative transit, altering the price and distribution of parking, and toll road pricing) can all contribute to less vehicular congestion and should be further explored.

Inter-governmental Policies:

Intergovernmental coordination is a vital aspect of Doral’s transportation mobility development due to the high daytime population, and because of jurisdictional issues. Effective coverage of busing in Doral is contingent on the service areas of both the trolley and Miami-Dade Transit, and efficient usage of funding is contingent on minimizing overlap while maximizing service. This requires coordination between two agencies, and should be a specific policy adopted as part of the Comprehensive Plan.

Cooperation with Sweetwater, Miami-Dade County, the City of Miami, and Miami Springs are all necessary to further regional bicycle route development; this could be specifically included in the Comprehensive Plan as an objective toward more general policy statements. Furthermore, continued coordination with the County can help address current issues such as sidewalk obstacles, which are generally on county-maintained roadways.

Capital Improvements Element:

Implementation of projects in the Project Bank of this Plan will require additions to the Schedule of Capital Improvements. In addition, amendments to this section that include LOS maintenance for pedestrian and bicycling implementation should be considered.

Roadway Policies:

Managed Lanes:



Source: Florida Department of Transportation

Managed Lanes are an important aspect of Doral's future transportation system given that its eastern, western, and southern borders are the Palmetto Expressway, the Florida Turnpike, and the Dolphin Expressway. Managed Lanes are actively managed through pricing, vehicle eligibility, or access control. Managed Lanes can be utilized to regulate demand, to separate different types of traffic, or to utilize available unused capacity.

One example of express managed lanes can be found on I-95 (pictured, above), which uses a separate toll lane with peak and off-peak pricing. High Occupancy Vehicle (HOV) or High Occupancy Toll (HOT) lanes have been utilized as well. Another form of vehicular eligibility utilized in managed lane systems are preferential treatment provided to cars that are environmentally friendly, such as hybrids and electric cars.

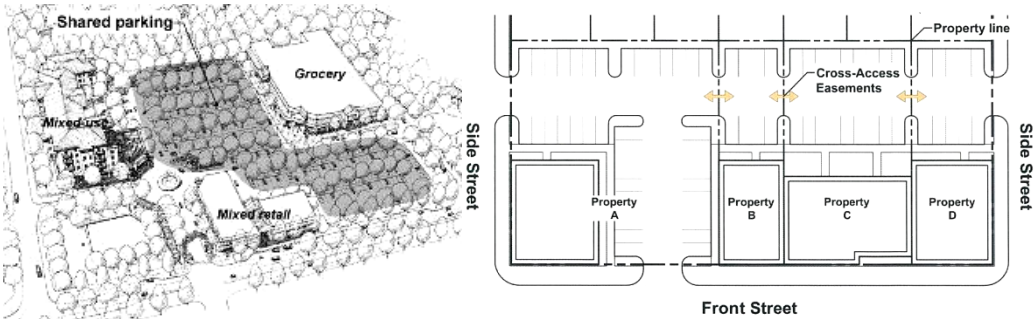
Doral should consider supporting the quick implementation of a tolling system by exit instead of mile points on SR-836. Currently, the SR-836 toll is assessed at NW 107th Avenue; as a result, some drivers on SR-826 opt to take the closest exit before the toll assessment, and drive locally. The NW 12th Street/NW 87th Avenue intersection has a high concentration of crashes, which also contributes to delays, and is an area of high congestion. Allowing the traffic to spread out over a larger area of the City will likely reduce congestion.

Reducing Traffic through Shared Parking:

Parking in Doral is decentralized, and primarily relies on the lots in front of buildings, with property owners having the right to tow vehicles of persons who leave the property without their vehicle. Thus, people must utilize their cars in order to travel between businesses even if these businesses are within walking distance.

In addition, other than in Downtown Doral, street parking generally does not exist. It is important for Doral to consider the creation of parking that allows for individuals to leave their vehicle in place during multi-purpose trips. This can be achieved in the form of a centralized, public parking facility, either within the City, or, if transit is of good quality and development becomes more compact, on the City's edge. Alternatively, metered street parking will also provide Doral with parking that allows for multi-purpose trips to be completed without having to drive to every destination.

In some areas, the promotion of shared parking policies will allow for people to park in a single location and reach multiple destinations without high levels of infrastructure investment. This may require working with private property owners, and in some cases, utilizing cross access easements, such as those found on the north side of NW 41st Street west of Publix.



(L) A single parking lot can service retail, groceries, and a mixed-use development.

(R) By allowing access across different properties, parking is pooled and shared, allowing for drivers to stay in one place while visiting different businesses.

Source: (L) www.monadnocktma.org, (R) City of Yonkers Code of Ordinances

Task V **Project Development**

Task V: Project Development

This chapter introduces the actual projects, each of which are listed in the accompanying Project Bank with a stated purpose, need, description of the project, and an estimated cost. The Transit Mobility Plan has identified multimodal transportation and mobility issues across the community by talking with the citizens and analyzing transit and roadway data and existing pedestrian and bicycling facilities. A set of multimodal projects were developed based on both of these levels of analysis, focused on identifying the major facilities or the movement of people.

The development of projects for implementation is both an art and a science. Planners, decisions makers, and citizens all dream of what can be, and all of these stakeholders may hold differing viewpoints of how to progress into the future. To gain consensus and implement projects, a community must agree to, and want, what is being planned. This project placed great effort into both the art (finding out what is wanted), and the science (finding out what is needed). Through the analysis of existing conditions and needs, the Needs of the community from a technical standpoint are developed. What is wanted then stems from discussions and feedback resulting from significant engagement of the public in building consensus.

Projects were listed in the following categories:

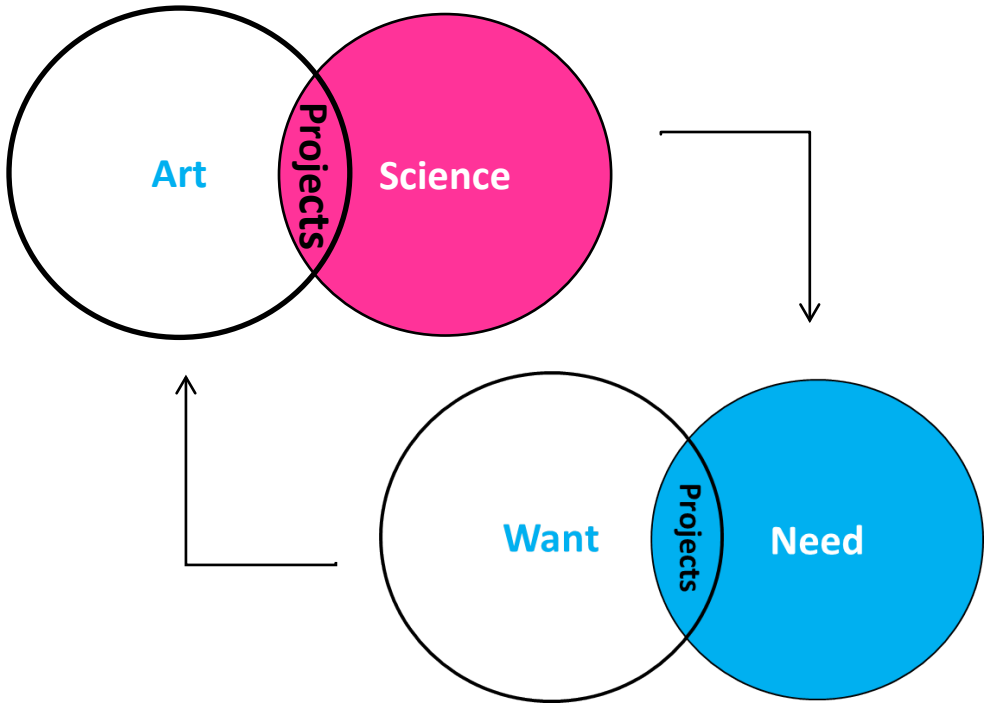
- Pedestrian
- Bicycling
- Transit
- Roadway
- Policy

As part of this process the issues that were initially discussed and presented in the previous chapter were organized, streamlined and defined as projects. First, the projects were evaluated for based on cost, benefits, needs, and community desire in the creation

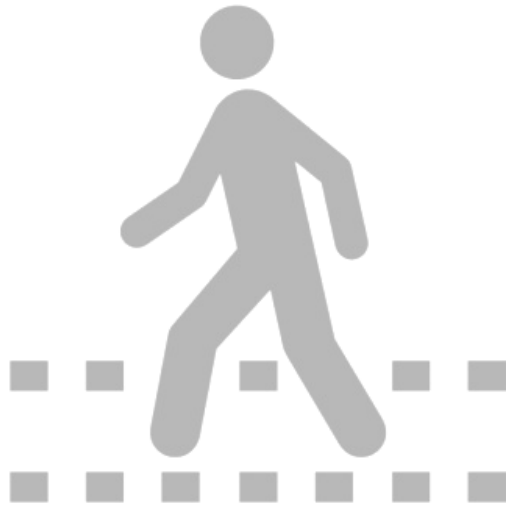
of the overall project bank. After detailed consideration of these criteria, ideas from the initial lists were either utilized, consolidated, or dropped.

In creating a formal project listing, projects from the initial lists that had no significant impact because they were not addressing a formal need were generally dropped from consideration. Some projects fell into the same overall category and were consolidated in order to create a more easily read report, but have individual components which may be implemented separately, such as the infill of specific gaps in the sidewalk system, the addressing of crosswalk issues at intersections, and the implementation of various aspects of the bicycle network system. Projects or ideas that approached a similar problem in different ways were also consolidated after evaluation.

The forty-seven (47) projects developed on a City-wide basis are attached as project bank items. In Task VI, these projects were then grouped further into specific corridor and hub areas for prioritization and implementation purposes.



PEDESTRIAN PROJECTS



Project Category: Pedestrian

Project Number: PD1

Project Name: Pedestrian Safety Improvements @ Intersections

Purpose: The purpose of this project is to implement safety improvements at intersections across the City which would mitigate hazardous conditions. Improvements would include adjusted vehicular turning radii, revised signalization, including pedestrian phases, high visibility cross walks, curb extensions, and other interventions.

Need: Doral's rights of way are wide; however, traffic volumes are high. Pedestrian activity can be high at certain locations, and should be encouraged with safer conditions. These conditions include clearly marked crossing points, particularly at intersections, as well as crosswalk signals, many of which are conspicuously missing in Doral, leading pedestrians into a guessing game as to timing their crossing in relation to oncoming traffic.

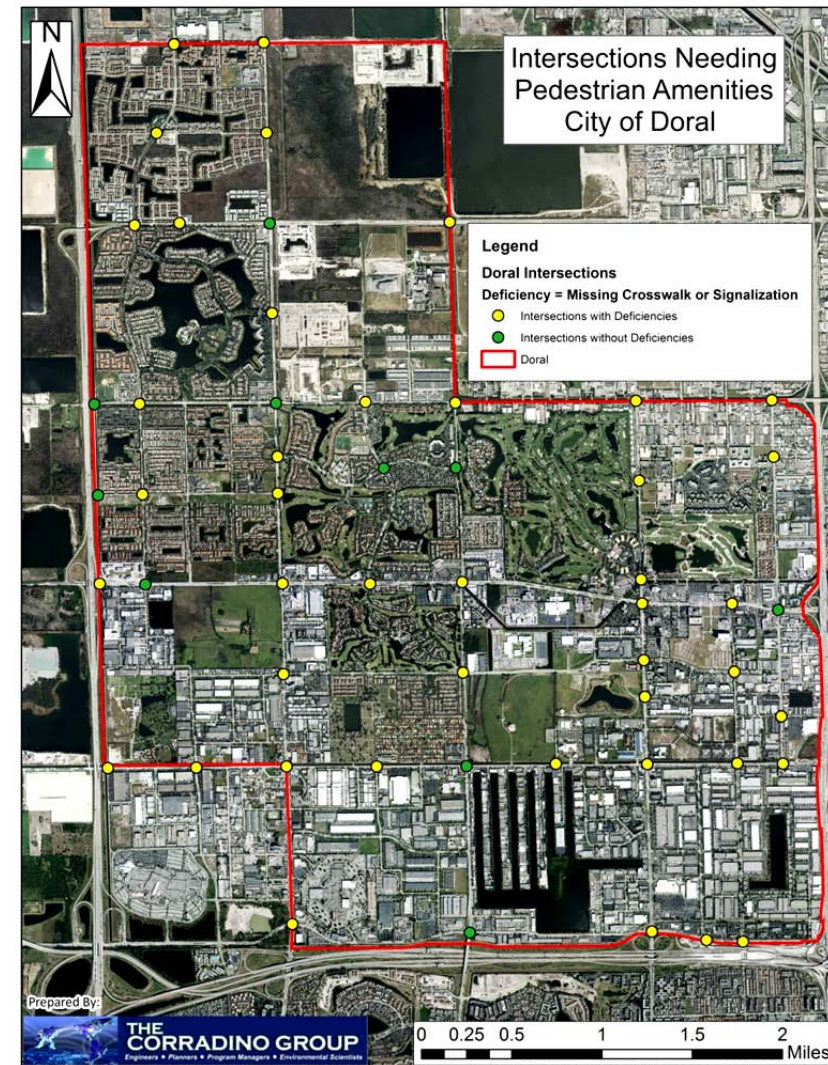
Description: 44 locations have been noted as intersections with deficiencies, about 81% of the intersections examined through this analysis. Each intersection should undergo an individual pedestrian safety evaluation to explore the # of crashes, operational characteristics, signal timing, geometry, etc. This is necessary in order make specific recommendations for each improvement, some of which may face further deterioration or weathering over time; in particular, additional budgetary planning and regular cursory reviews are required for maintenance of crosswalk striping in the City. Work should be conducted with Miami-Dade County Public Works Department to have approved studies and move to Design and Construction.

Cost:

Planning: \$ 293,000

Design: \$ 880,000

Construction: TBD (Due to differences in need for each intersection)



Intersections
NW 12th St. and NW 82nd Ave.
NW 12th St. and NW 84th Ave.
NW 12th St. and NW 87th Ave.
NW 12th St. and NW 107th Ave.
NW 25th St. and NW 79th Ave.
NW 25th St. and NW 82nd Ave.
NW 25th St. and NW 87th Ave.
NW 25th St. and NW 92nd Ave.
NW 25th St. and NW 102nd Ave.
NW 25th St. and NW 107th Ave.
NW 25th St. and NW 112th Ave.
NW 25th St. and NW 117th Ave.
NW 29th St. and NW 79th Ave.
NW 30th Terrace and NW 87th Ave.
NW 33rd St. and NW 82nd Ave.
NW 33rd St. and NW 87th Ave.
NW 33rd St. and NW 89th Ct.
NW 33rd St. and NW 97th Ave.
NW 33rd St. and NW 107th Ave.
NW 36th St. and NW 82nd Ave.
NW 36th St. and NW 87th Ave.
NW 41st St. and NW 87th Ave.

NW 41st St. and NW 97th Ave.
NW 41st St. and NW 102nd Ave.
NW 41st St. and NW 107th Ave.
NW 41st St. and NW 117th Ave.
NW 50th St. and NW 107th Ave.
NW 50th St. and NW 114th Ave.
NW 52nd St. and NW 107th Ave.
NW 53rd St. and NW 79th Ave.
NW 53rd St. and NW 87th Ave.
NW 58th St. and NW 79th Ave.
NW 58th St. and NW 87th Ave.
NW 58th St. and NW 97th Ave.
NW 58th St. and NW 102nd Ave.
NW 58th St. and NW 114th Ave.
NW 66th St. and NW 107th Ave.
NW 74th St. and NW 97th Ave.
NW 74th St. and NW 112th Ave.
NW 74th St. and NW 114th Ave.
NW 82nd St. and NW 107th Ave.
NW 82nd St. and NW 114th Ave./NW 112th Ct.
NW 90th St. and NW 107th Ave.
NW 90th St. and NW 112th Ct.

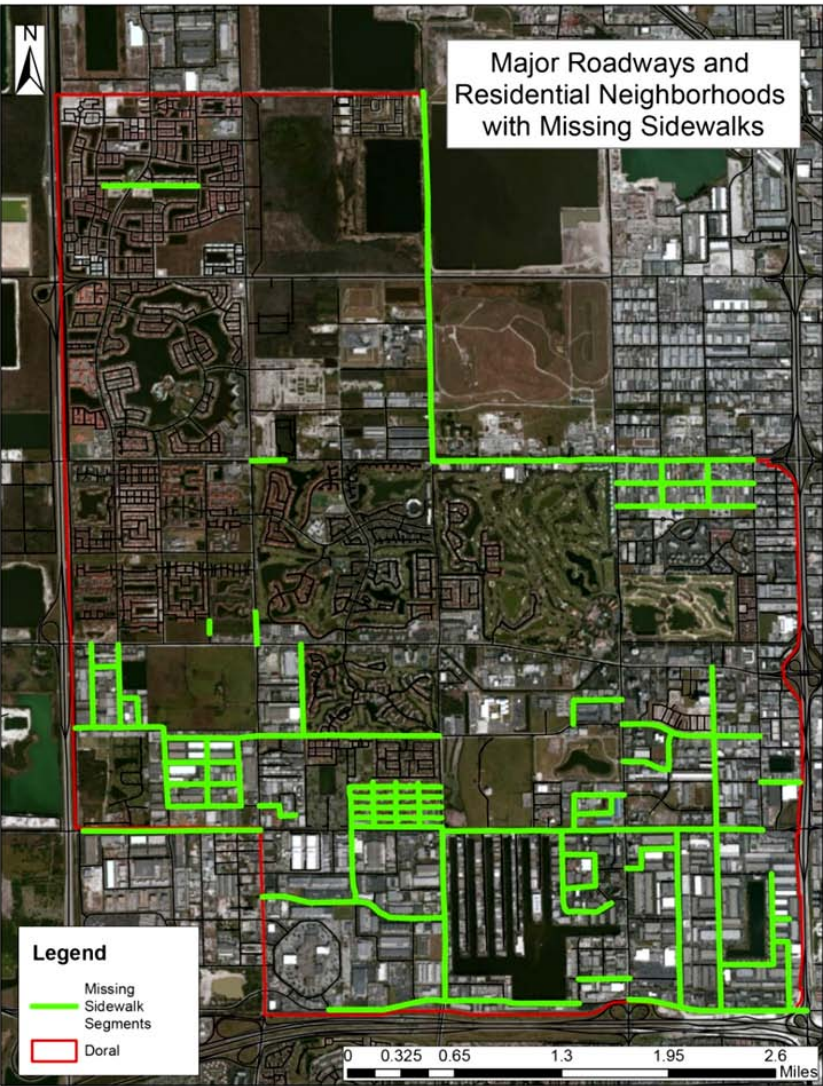
Project Category: Pedestrian
Project Number: PD2
Project Name: Sidewalk Infrastructure Gap Infill

Purpose: The purpose of this project is to fill in the gaps in the sidewalk infrastructure. A primary objective of this plan is to provide mobility. The ability to walk in an unobstructed manner is inherent in every trip taken, and gaps in the sidewalk system significantly hamper this ability.

Need: The Data collection and Analysis of this Transit Mobility Plan have shown significant gaps in the sidewalk system totaling approximately 255,000 linear feet (As of April 2014). These gaps hinder pedestrian and multimodal transit mobility in Doral by creating more circuitous walking paths, creating non-ADA compliant bus stops due to a lack of sidewalk connectivity to these stops, and in some instances creating situations where the only alternative for pedestrians is to walk on a non-separated grassy area or in the roadway.

Description: Locations of missing gaps are noted in the map and attached table. Prioritization of these sidewalk improvements should be based on proximity to residential areas, schools, parks, and bus or trolley stops, and then to existing businesses. Primarily, the purpose is to create a cohesive, connected walking network; thus, in some cases, the need for sidewalks can be bundled with a bicycle path to develop a shared use off-road path.

Cost:
Planning: Completed
Design: \$ 183,600
Construction: \$3, 060,000



Road	From	To	Gaps
NW 97th Avenue	NW 12th Street	NW 25th Street	+/- 3350' NB
NW 82nd Avenue	NW 41st Street	NW 25th Street	+/- 5400' NB and SB
NW 13 th Terrace	NW 89 Ct	NW 87 Ave	+/- 1360' EB & WB
NW 12th Street	NW 107th Avenue	NW 97th Avenue	+/-3875' EB
	NW 97th Avenue	NW 87th Avenue	+/- 500' EB, '+/- 3200' WB
	NW 87th Avenue	NW 79th Avenue	+/- 1225' WB, '+/- 4575' EB
	NW 79th Avenue	SR-826	+/- 525' EB & WB
NW 14 St	NW 84 Ave	NW 79 Ave	+/- 2487' EB & WB
NW 15 th Street	NW 89 Ct	NW 87 Ave	+/- 1336' EB & WB
NW 17/19 St	NW 97 Ave	NW 107 Ave	+/- 5278' EB & WB
NW 17 th Street	NW 87 Avenue	NW 82 nd Avenue	+/- 2478' EB & WB
NW 20 th Street	NW 89 Place	NW 88 Court	+/- 851' EB & WB
NW 21 St	NW 84 Ave	NW 79 Ave	+/- 2649' EB & WB
NW 25th Street	NW 117th Avenue	NW 107th Avenue	+/- 5200' WB
	NW 97th Avenue	NW 87th Avenue	+/- 5200' WB
	NW 87th Avenue	NW 79th Avenue	+/- 3970' WB
NW 29 th Street	NW 112 Ave	NW 108 Ave	+/- 2090' EB & WB
NW 29 Street	NW 82 Ave	NW 77 Ct	+/- 18302' EB & WB
NW 30 th Street	NW 112 Ave	NW 108 th Ave	+/- 2434' EB & WB
NW 34th Street/NW 33rd Street			
	NW 117th Avenue	NW 107th Avenue	+/- 5400' EB & WB
NW 33rd Street	NW 107th Avenue	NW 97th Avenue	+/- 5300' WB
	NW 87th Avenue	NW 79th Avenue	+/- 4000' EB & WB
NW 35 th Lane	NW 87 Avenue	NW 89 th Court	+/- 1271' EB & WB
NW 39 th Street	NW 115 Avenue	NW 114 Avenue	+/- 675' EB & WB
NW 36 St	NW 107 Ave	NW 104 Ave	+/-1130' EB & WB
NW 36 St	NW 114 Ave	NW 113 Ct	+/- 405' EB & WB
NW 113 Ct	NW 34 St	NW 36 St	+/- 800' NB & SB
NW 54th Street	NW 87th Avenue	NW 79th Avenue	+/- 3950' EB & WB
NW 56 th Street	NW 87 th Avenue	NW 79 th Avenue	+/- 3828' EB & WB
NW 58th Street	NW 107th Avenue	NW 102nd Avenue	+/- 300' WB
	NW 87th Avenue	NW 79th Avenue	+/- 5200' EB & WB
	NW 97th Avenue	NW 87th Avenue	+/- 5200' EB & WB
NW 107th Avenue	NW 41st Street	NW 58th Street	+/- 350 SB
NW 108 Ave	NW 27 St	NW 33 St	+/- 1900' NB & SB
NW 84th Avenue	NW 12th Street	NW 25th Street	+/- 5069' SB& NB
NW 30th Terrace	NW 87th Avenue	NW 82 nd Avenue	+/- 1300' EB & WB
NW 84th Avenue	NW 33rd Street	NW 30th Terrace	+/- 1000' NB & SB

Road	From	To	Gaps
NW 15 St	NW 79 Ave	NW 78 Ave	+/- 350' EB & WB
NW 78 Ave	NW 12 St	NW 15 St	+/- 1865' NB & SB
NW 79 Ave	NW 14 St	NW 21 St	+/- 2400' NB & SB
NW 88 Ct	NW 18 th Terrace	NW 23 rd Street	+/- 3000' NB & SB
NW 89 Place	NW 25 th Street	NW 18 th Terrace	+/- 2271' NB & SB
NW 87 Ct	NW 26 th Street	NW 27 th Street	+/- 440' NB & SB
NW 88 Ave	NW 15 St	NW 13 Terr	+/- 811' EB & WB
NW 89 Ct	NW 25 th Street	NW 27 th Street	+/- 930' NB & SB
NW 89 Ct	NW 33 rd Street	NW 35 th Lane	+/- 560' NB & SB
NW 86 Ave	NW 21 Ter	NW 23 St	+/- 460' NB & SB
NW 89 Ct	NW 12 th Street	NW 15 th Street	+/- 1433' NB & SB
NW 23 St	NW 86 Ave	NW 84 Ave	+/- 916' EB & WB
NW 21 St	NW 107 Ave	NW 99 Ave	+/- 3676' EB & WB
NW 21 Ter	NW 88 Ct	NW 86 Ave	+/- 1210' EB & WB
NW 23 St	NW 89 Pl	NW 88 Ct	+/- 835' EB & WB
NW 28th Terrace	NW 97th Avenue	NW 102nd Avenue	+/- 2550' EB & WB
NW 27th Terrace	NW 97th Avenue	NW 102nd Avenue	+/- 2550' EB & WB
NW 27th Street	NW 97th Avenue	NW 102nd Avenue	+/- 2550' EB & WB
NW 27 th Street	NW 107 Avenue	NW 104 Court	+/- 1159' EB & WB
NW 27 Street	NW 107 Ave	NW 112 Ave	+/- 2501' EB & WB
NW 27 th Street	NW 89 th Court	NW 87 th Avenue	+/- 1330' EB & WB
			+/- 2550' EB and WB
NW 26th Street	NW 97th Avenue	NW 102nd Avenue	+/- 1036' EB & WB
NW 26 St	NW 89 Ct	NW 87 Ct	+/- 1036' EB & WB
NW 25th Terrace	NW 97th Avenue	NW 102nd Avenue	+/- 2550' EB & WB
NW 102nd Avenue	NW 15th Terrace	NW 28th Terrace	+/- 1100' NB & SB
NW 99th Avenue	NW 21 st Street	NW 28th Terrace	+/- 1100' NB & SB
NW 98 Ct	NW 12 ST	NW 17 St	+/- 2366' NB & SB
NW 100th Avenue	NW 25th Terrace	NW 28th Terrace	+/- 1100' NB & SB
NW 104 Ave	NW 33 rd Street	NW 41 Street	+/- 2516' NB & SB
NW 109 th Avenue	NW 27 th Street	NW 30 th Street	+/- 1163' NB & SB
NW 112 Ave	NW 25 St	NW 34 ST	+/- 2855' NB & SB
NW 115 Ave	NW 41 St	NW 34 St	+/- 2284' NB & SB
NW 98th Avenue	NW 25th Terrace	NW 28th Terrace	+/- 1100' NB & SB
NW 114 Ave	NW 41 Street	NW 34 St	+/- 2272' NB & SB

Project Category: Pedestrian

Project Number: PD3

Project Name: ADA Compliant Sidewalks

Purpose: The purpose of this project is to assure that pedestrian ways are unobstructed by other necessary public infrastructure.

Need: There are multiple locations in the City where fire hydrants and other public infrastructure (e.g., benches, shelters, traffic cameras, signage, and utility poles) are on pedestrian paths and presenting obstacles. In some cases, these obstacles present issues for disabled persons in wheelchairs, as well as families with children in strollers and casual cyclists.

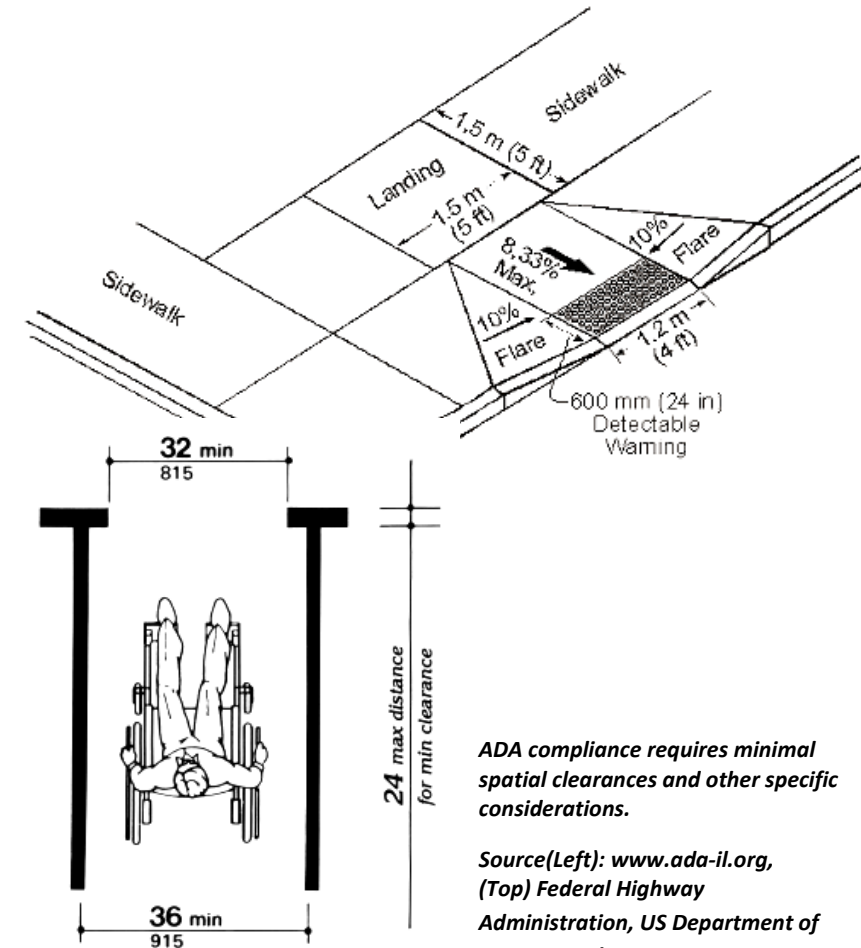
Description: Work with Miami-Dade County to determine which of these locations can have the fire hydrants or obstacles located out of the pedestrian paths. These locations will be confirmed, and then the owner of said infrastructure will be coordinated with to effect the removal of the obstacle. Similarly this would also be included in the Complete Streets Guidelines to ensure that, to the extent possible, new obstructions are not located in this manner for future projects.

Cost:

Planning: \$7,650

Design: \$9,200

Construction: \$153,150



ADA compliance requires minimal spatial clearances and other specific considerations.

*Source(Left): www.ada-il.org,
(Top) Federal Highway
Administration, US Department of
Transportation*

Project Category: Pedestrian
Project Number: PD4
Project Name: Sidewalk Repair

Purpose: The purpose of this project is to repair or replace damaged, uneven, or cracked sidewalks.

Need: Through the data and analysis section of this study about 1,750 ft. of sidewalks in need of remediation were identified on NW 97th Avenue, NW 33rd Street, NW 25th Street, NW 107th Avenue, NW 41st Street/NW 36th Street, and NW 58th Street. These create impediments to pedestrian mobility and present trip hazards where the paths are uneven.

Description: Sidewalk locations will be prioritized then repaired. During the repair and replacement process, planning and design should be reviewed in regards to the materials being used, as well as areas such as contraction joints and whether there are existing tree roots which may eventually impact the sidewalk.

Cost:

Planning: \$ 500
Design: \$ 1,500
Construction \$ 25,000



Project Category: Pedestrian
Project Number: PD5
Project Name: Pedestrian Islands at Intersections

Purpose: The purpose of this project is to select the locations for pedestrian safety islands at various intersections throughout the City.

Need: Through the analysis and public involvement of this study, it became evident that the public would like safer pedestrian access to and from various locations. From site reconnaissance it was noticed that pedestrian street crossings are difficult, with pedestrians not having appropriate time to cross at intersections, poorly marked intersections or pedestrians J-Walking at mid-block. A primary solution is to provide pedestrian islands in the middle of the typically wide rights of way in the City.

Description: 31 locations are provided for immediate consideration for construction of pedestrian islands. All locations currently have medians. Some intersections may require additional pedestrian islands at specific crossings, but would need median work, and thus were excluded. Work should be coordinated with Public Works and MDCPW to confirm high-access locations in order to propose crossings for approval, design, and construction.

Cost:
Planning: \$ 2,200
Design: \$ 6,700
Construction: \$ 112, 000

Intersections	
NW 12th Street and NW 107th Avenue	NW 41st Street and NW 102nd Avenue
NW 25th Street and NW 87th Avenue	NW 41st Street and NW 107th Avenue
NW 33rd Street and NW 87th Avenue	NW 41st Street and NW 114th Avenue
NW 33rd Street and NW 97th Avenue	NW 41st Street and NW 117th Avenue
NW 36th Street and NW 79th Avenue	NW 41st Street and NW 97th Avenue
NW 36th Street and NW 82nd Avenue	NW 58th Street and NW 107th Avenue
NW 36th Street and NW 87th Avenue	NW 74th Street and NW 107th Avenue



Project Category: Pedestrian
Project Number: PD6
Project Name: Mid-block crosswalks

Purpose: Provide safe pedestrian mid-block crossings across major corridors.

Need: The spatial design of Doral's Streets are inherently un-walkable and unsafe. The City is built on a grid of super blocks at the 1 mile and the ½ mile scale. The typical ROW of the major corridor is between 74' and 86', consisting of roads between 4 and 6 lanes. Pedestrian crossing as they exist are typically inadequate, and are only located at intersections, which means that pedestrians wishing to cross the streets need to walk up to a mile to reach a destination.

Often the land-use patterns place origins (office uses) and destinations (restaurants) on opposite sides of the street. The implementation of mid-block crossings up to every 1/4 mile would provide pedestrians safe access to cross streets at five locations per block. The fact that there are so few safe crossings discourages pedestrianism, and encourages auto trips. This project will encourage pedestrianism and help incrementally manage congestion, particularly during mid-day periods.

Description: Begin work on major dividers. Locate areas where origins and destination land uses are on opposite sides of the street. Evaluate crossing volumes and accessibility. Design appropriate crossings as necessary to include high visibility striping, reflectors, signage, pedestrian islands, countdown pedestrian signals, etc. Work with local owners and connect via pedestrian paths on private property.

Cost:
 Planning: \$20,000
 Design: TBD
 Construction: TBD



Midblock crossings allow for safe and convenient passage for pedestrians, and can be developed to enhance the visual environment.

*Source: (Top)
www.grandboulevard.net,
 (Middle) FHWA - USDOT,
 (Bottom)
www.landscapeonline.com*



Project Category: Pedestrian/Policy

Project Number: PD7

Project Name: Complete Streets Design Guidelines

Purpose: The purpose of this project is to create specific and consistent guidelines for streets in order to provide adequate capacity for all modes of travel to the fullest extent possible.

Need: Many roads in Doral predominantly prioritize automobile capacity over all other modes. A set of Complete Streets Design Guidelines would foster the design and redevelopment of all streets.

Description: Complete Streets represent an incremental approach to enhancing the safety of the street network. Over time, it will have great impact on Doral. Develop a handbook of design guidelines for Complete Streets, which would provide measurements for sidewalks, bike lanes, street furniture, and landscaping and transit infrastructure to be applied to Doral's streets. Utilize these design guidelines by codifying relevant ordinances in the City's Land Development Code. Segments which may be completed include NW 87th Avenue, NW 102nd Avenue, NW 33rd Street and NW 50th Street. An example of Complete Streets can be found on NW 114th Avenue between NW 58th Street and NW 74th Street. Future projects can utilize these concepts as a method of integrating this critical infrastructure.

Cost:

Planning: \$25,000

Design: NA

Construction: NA



Complete Streets can be incorporated along roadways of varying widths.

Source: www.streetmix.net

Project Category: Pedestrian
Project Number: PD8
Project Name: Streetscape Improvements

Purpose: The purpose of this project is to enhance the pedestrian environment within Doral.

Need: Shading for pedestrians generally does not exist in Doral, and can be remedied by adding trees along walkways and shared-use paths. The pedestrian environment can be improved through the addition of visually appealing infrastructure.

Description: The implementation of shading and rest areas along pedestrian is essential toward improving the quality of walkability, especially in warmer climates. In urban areas with buildings built out to the street, the sidewalk should extend from building to street with tree planting areas. For the less urban areas of the City, sidewalks should be set back from the street by a 6' strip with tree plantings, as part of a complete streets system. The City can begin to implement the addition of shade by adopting specific sidewalk design standards which includes these streetscape elements. Additional streetscape improvements which will increase the appeal of walking within Doral include the creation of pocket parks, plazas, public art, and other similar elements.

Cost:

Planning: 35,000
Design: TBD
Construction: TBD



Streetscape improvement can vary from the application of public art, like these visually stunning etched sidewalks in San Francisco (Top), to landscape architecture combining both function and form, as seen with the design of this parklet (Middle), and incorporates considerations of shading, seating, and safety in a fully integrated, aesthetically pleasing environment (Bottom). Source: (Top) www.artandarchitecture-sf.com, (Middle) www.digital.vpr.net, (Bottom) www.studio-111.com

BICYCLING PROJECTS



Project Category: Bicycle

Project Number: B1

Project Name: Bicycling Safety and Education Programs

Purpose: The purpose of this project is to assure that cyclists and motorists alike are practicing safe and courteous behavior to minimize accidents and therefore encourage more people to cycle.

Need: South Florida is one of the most dangerous places in the nation to ride a bicycle, in large part for lack of bicycle facilities and the spatial and operational characteristics of our cities. Educating cyclists how to properly ride on our streets, as well as educating motorists how to be aware of and treat cyclists, will assist in making the roads safer.

Description: Develop a bicycle / driver educational pamphlet, work to educate the public on bicycle and driver safety.

Cost:

Planning: \$5,000

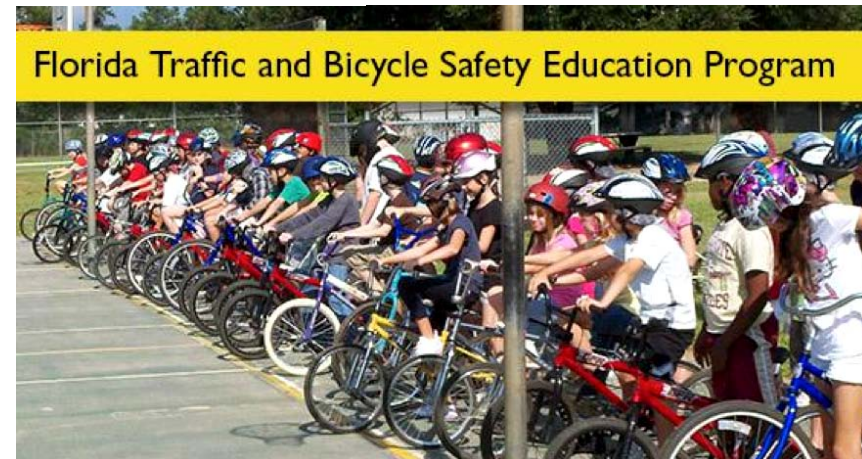
Design: \$10,000

Construction: TBD



The Florida Traffic and Bicycle Safety Program was developed by the University of Florida, utilizing a grant from the Florida Department of Transportation.

Source (Left, bottom): floridabicycle.org



Project Category: Bicycling

Project Number: B2

Project Name: Complete Bicycling System

Purpose: The purpose of this project is to complete the planned bicycle route system in Doral.

Need: In 2006, the City approved a bicycle master plan. This plan had approximately 21 miles of off-road facilities and approximately 12 miles of bike-lane travel connecting a variety of origins and destinations. The City currently has plans to develop 33 miles of the network, and to date 8.8 miles have been implemented. 24.2 miles remain. Various gaps within the current proposed bicycle system have also been identified. In addition, additional routes under the current plan are necessary as the plan does not provide for adequate east-west connections, or connections to the City's boundaries in areas where they can then be connected to a future Miami-Dade network.

Description: Work to implement the remaining facilities, through ROW acquisition, design and constructions.

Cost:

Planning: \$242,000

Design: \$726,000

Construction: \$ 12,100,000



Project Category: Bicycle/Policy

Project Number: B3

Project Name: Bicycle Racks and Lockers Installation

Purpose: The purpose of this project is to increase bicycling mobility by installing bicycle racks and lockers throughout the City.

Need: Bicycle parking is scarce in Doral, and does not exist in some key places. Bicycles have been observed attached to chain-link fences, and the lack of available parking places at many major commercial areas discourage bicycling as a form of transit when an individual is running errands.

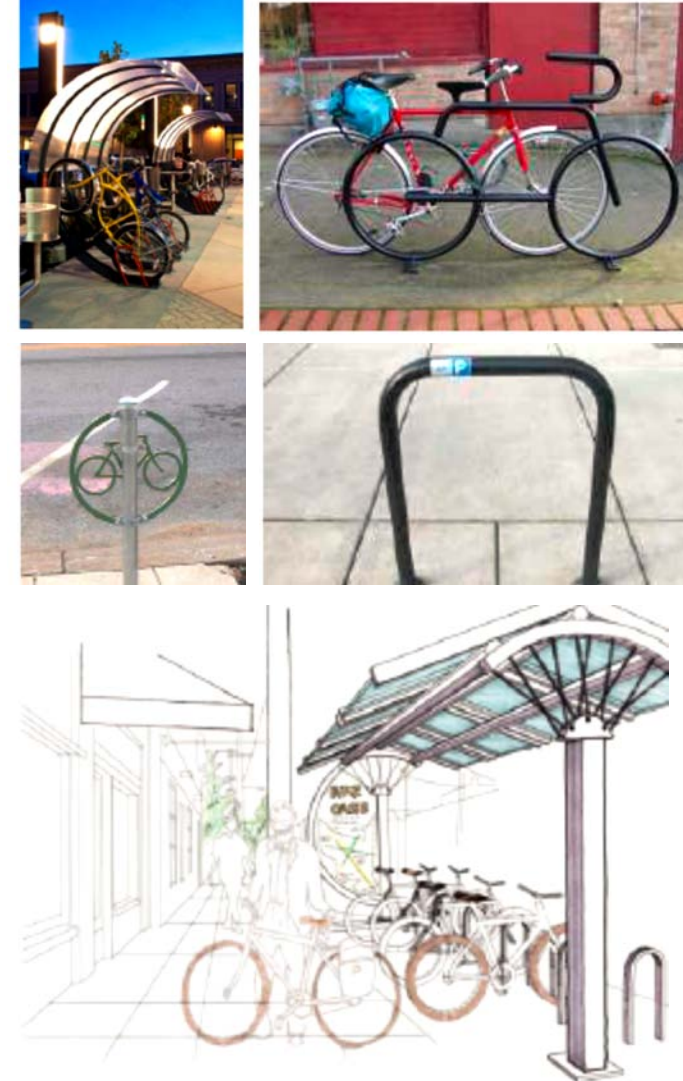
Description: Bicycle rack locations need to be determined based on proximity of bicycling facilities and potential usage. Priority in installation should be given to destinations adjacent to currently existing pathways which do not have bicycle racks and commercial areas. Initial installation of bicycle racks should be at schools, transit-hub transfer areas, and at shopping centers such as the strip malls at NW 97th Avenue and NW 41st Street, the Publix shopping area at NW 58th Street and NW 107th Avenue, the retail area at NW 107th Avenue and NW 41st Street, and the strip mall at NW 87th Avenue and NW 25th Street. Further implementation in other areas would occur as funding becomes available. In some instances, the installation of bicycle racks must undergo coordination with a private property owner.

Cost:

Planning: \$10,000

Design: TBD

Construction: TBD



Source: Miami-Dade MPO Automated Bicycle Rental And Parking Plan Study, 2011

Project Category: Bicycling/Roadway

Project Number: B4

Project Name: Eastern Connection to Miami International Mall

Purpose: The purpose of this project is to provide a more direct connection for bicyclists and pedestrians to the Miami International Mall, thereby increasing mobility.

Need: Opening this path will provide a less circuitous route to the Mall, and will provide a viable alternative when driving to the mall. Currently, residents ride their bicycles to the Miami International Mall, which has bicycle racks in its parking area.

Description: Acquisition of a small amount of right of way and path planning and development are necessary to develop this path. In addition, landscaping a pedestrian walkway and additional bicycle racks would make this an attractive option which would be closer to existing bicycling-network segments already constructed in Doral. Roadway construction could also be considered as part of this project, and would alleviate some traffic caused by circuitous vehicular routes to reach the mall. Depending on the path of the trolley, a stop or bus hub could be effected near this entrance as well, thereby avoiding the need to route the trolley through roadways with higher roadway congestion. Efforts need coordination with the Miami International Mall and surrounding businesses and property owners.

Cost:

Planning: \$3,000

Design: \$9,000

Construction: \$150,000



Project Category: Bicycling

Project Number: B5

Project Name: Bicycle Rental Program

Purpose: The purpose of this project is to provide bicycle rentals in Doral.

Need: Increased bicycle access may lead to increased bicycling and increased mobility.

Description: Bicycle rental/sharing systems are a major component of a more sustainable and intermodal transportation system in hundreds of cities around the world including Miami Beach and Fort Lauderdale; a system in Miami is expected to open in summer 2014. Bikesharing provides an additional affordable means of transportation in a multi-modal system. It is recommended that the City contact several bikeshare system providers for a feasibility analysis of creating a system in Doral. The City is currently studying implementing a program. If the City decided to pursue a system, the procurement process would have to be followed to select a provider, and vendors will be selected through a bid and selection process. The City should then identify specific locations for implementation of bicycle rental racks. This will be based on proximity to destinations in the City, the needed capacity for bicycle parking in the area, and the ability to regularly maintain the system through manual repositioning of bicycles as necessary.

Cost:

Planning: \$35,000

Design: TBD

Construction: TBD



(Top) Bicycle rentals are utilized in the Miami area via an automated system

(Bottom) Decobike station in Miami Beach

Source: (Top) www.citibikemiami.com, (Bottom) Miami-Dade MPO Automated Bicycle Rental and Parking Plan Study, 2011

Project Category: Bicycle

Project Number: B6

Project Name: NW 74th Street Bike Lane Conversion

Purpose: The purpose of this project is to convert the current Bicycle Lane on NW 74th Street between NW 97th Avenue and NW 107th Avenue to a multi-use path.

Need: The current bicycle lane on NW 74th St would route bicyclists on the same road with heavy trucking and no separation, and poses a safety concern. Currently, observed behavior on NW 74th St. Bicycle Lanes show runners in the bicycle lanes, and bicycles on the adjacent sidewalks.

Description: Projects will involve developing a conceptual plan, scoping that plan, bidding the design, and construction of a shared-use off road bike/ped path on NW 74th St. at +/- 5200 ft. for the corridor.

Cost:

Planning: \$ 10,000

Design: \$ 25,000

Construction: \$ 400,000



Project Category: Bicycling

Project Number: B7

Project Name: Bicycle Signalization Program

Purpose: The purpose of this project is to promote bicycling safety at intersections.

Need: Public response during workshops indicated concerns for safety at intersections, which were noted to be difficult for the average rider, especially at intersections with high vehicular traffic. Miami-Dade County is requiring special signal phasing where bicycle paths intersect with signalized intersections.

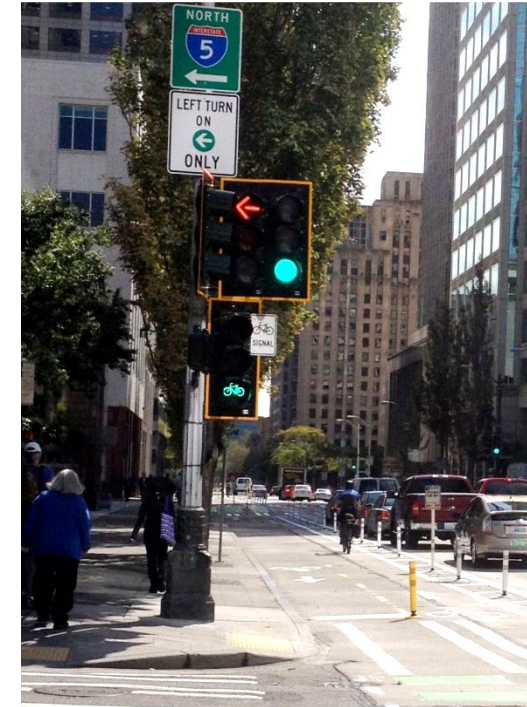
Description: Bicycle signalization is a technology which has been successfully applied in other US cities and internationally. This form of signalization separates the bicyclist from vehicular traffic, allows them to pass or turn in an intersection, and thereby reduces the level of vehicular-bicycle conflict in a manner similar to left turn lane signalization. Signals are also differentiated through the usage of colored bicycle icons. Select specific intersections for implementation, and apply. Implementation will create a separate signalization system; thus traffic timing for the intersection will have to be reviewed and adjusted as necessary. In addition, signalization may require the addition of dedicated rights of way for bicyclists, and should be applied to intersections with existing bicycle lanes or shared paths which have crossings at wide intersections.

Cost:

Planning: \$50,000

Design: NA

Construction: NA



Intersection improvements benefiting bicycling include bike boxes, which allow for a better stopping area for multiple bicyclists (Bottom Left), clear and bright path markings (Bottom Right), and different signalization for bicyclists (Top Right).

Source (Top Left)

www.seattlebikeblog.com,

(Bottom Left)

www.slobikelane.org,

(Bottom Right)

www.averagejoecyclist.com



Project Category: Bicycle

Project Number: B8

Project Name: Bicycle Connections to Miami-Dade System

Purpose: The purpose of this project is to promote bicycling mobility by connecting Doral's bicycling network to the Miami-Dade regional system.

Need: Public Workshops indicated the public's desire to have connections planned and existing regional bicycle planning.

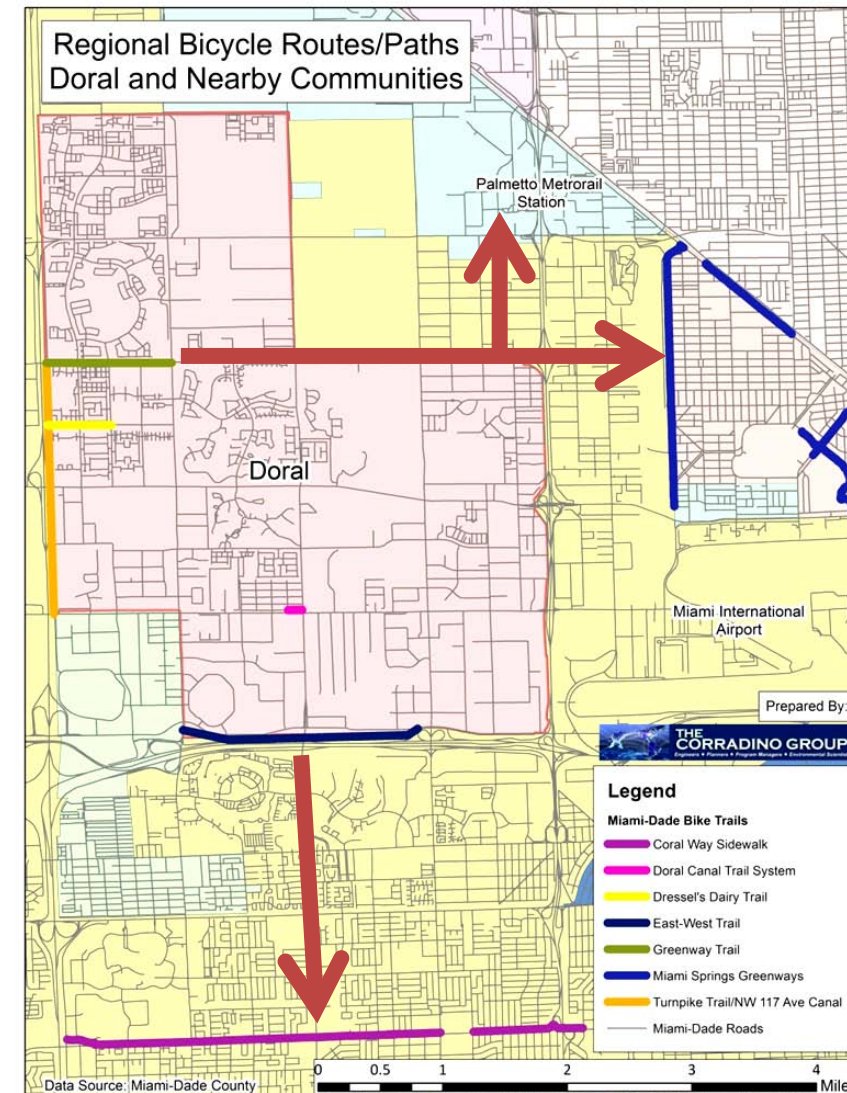
Description: The City should determine which routes to connect to, and prioritize building of bicycle-network lines to the City's perimeter at points conducive to continued pathway development to existing bicycle lanes and shared-use paths. The City should also continuously work with the County and neighboring municipalities to ensure continuous connections to regional pathways to the South, East, and North of the City.

Cost:

Planning: TBD

Design: TDB

Construction: TDB



Project Category: Bicycle

Project Number: B9

Project Name: Off-road Bicycle Path Maintenance and Rest Area Development

Purpose: The purpose of this project is to enhance bicycle network and mobility.

Need: Few rest areas exist along current bicycle paths or shared-use paths. On some paths, the existence of a rest area will provide necessary shade lacking along some of the paths. Water facilities, such as bathrooms or drinking fountains, do not exist, causing individuals to haul their own water for the duration of the trip. Path maintenance is also necessary in order to remove rubble which may result from rain runoffs.

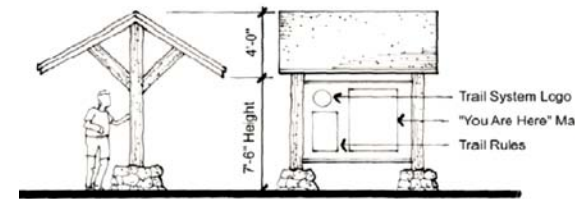
Description: Rest areas should be developed along existing shared use off-road paths at approximately every 0.5 miles. These areas should be off of the path, and provide seating, shade, and water fountains. There should be a shaded area with water facilities incorporated into the site, along with bicycle racks in cases where there are public facilities, such as parks, along the route. Planning of future routes should also incorporate these items into the design of the bikeways.

Cost:

Planning: \$10,000

Design: TBD

Construction: \$100,000 (Future TBD)



(Top): Signage for way finding would aid travelers, and allows for informational display of bicycle route amenities.



(Left): A bicycle rest area provides shade and respite, and locker area for bicyclists, as well as potential water facilities such as water fountains, as shown.

Source: (Top) City of Doral 2006 Bikeway Network Plan, (Left) <http://parkchelseanews.blogspot.com/>

Project Category: Bicycle/Transit/Policy
Project Number: B10
Project Name: One Stop Personal Mobility Information Center

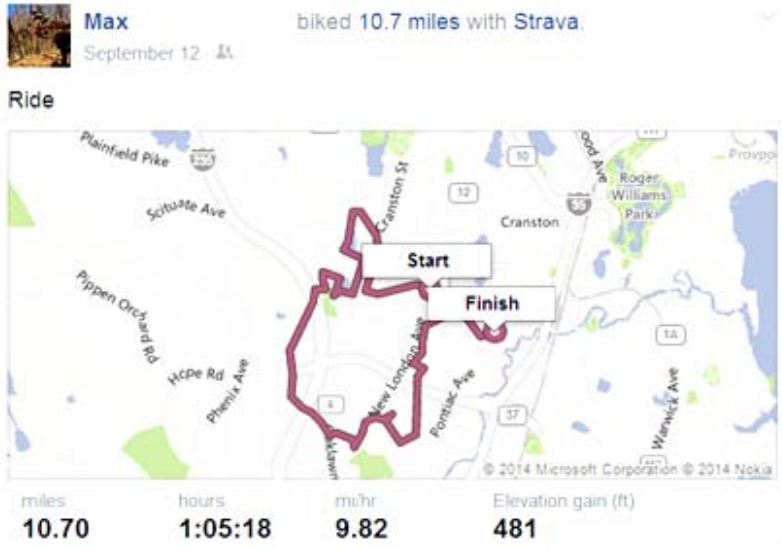
Purpose: Provide a portable or website app for usage by the general public for multimodal trip timing and planning purposes. The purpose of this project is to provide a traffic data-collection device for the City with bicycle user data.

Need: The development of this application will fulfill an objective in the City’s Comprehensive Plan to provide for a "one-stop" information center for Doral residents and visitors on "Personal Mobility," which should offer access to public transit information, ride-sharing and carpooling, and bicycling and pedestrian routes. The easy availability of such information should allow for better trip planning, which will encourage utilization of alternative modes of transit.

Procurement of real-time bicycling data is possible through user-generated GPS data, and will allow the City to respond faster to the needs of bicycling in the community, which will aid its positioning of bicycle rental stations and future-path development and prioritization. Data collection for bicycling data is very expensive to count, and this would potentially provide a more budget-friendly snapshot of evolving usage.

Description: Develop a mobile application and incorporate the specifications of personal mobility, such as pathways, and travel and transfer time estimates. Applications such as “Cycletracks” and Stava Metro can be utilized by bicyclists to record their paths by utilizing their phone’s GPS. This has been used in cities such as San Francisco, London, Orlando, and other cities to understand cycling needs. Theoretically, these apps could also be tied into bicycle route planning applications, thereby providing an additional benefit and incentive for usage by a bicyclist.

Cost:
Planning: \$100,000
Design: NA
Implementation: NA



Source: (Top) www.facebook.com, (Bottom) San Francisco County Transportation Authority

TRANSIT PROJECTS



Project Category: Transit

Project Number: T1

Project Name: Bicycle Racks on Trolley

Purpose: The purpose of this project is to facilitate cycling and provide for increased multi-modal connectivity.

Need: The Doral Trolley is one of the most successful municipal circulators in the County. Meanwhile, the demographic make-up of Doral is such that it may have a proclivity to utilize bicycles. While the on-road bicycle network is lacking, the ability to utilize a bike and transfer to alternative modes of transit would increase personal mobility. The provision of these transfers is also important in multi-modal development. Particularly, the “first” and “last” mile aspects of transit are serviced by the installation of bicycle racks.

Description: Continue the funding for installation of bike racks on each transit bus. Each new trolley acquired by the City should be equipped with a bicycle rack. Bicycle racks for trolleys exist in other Miami-Dade County trolleys, such as in Coral Gables. These trolleys utilize racks which hold 2 bicycles, and are attachable to the trolley without compromising the trolley’s design. Bicycle racks should be placed in the front of the Trolleys. Future Trolleys should also be equipped with bicycle racks, as currently planned by the City.

Cost:

Planning: NA

Design: NA

Implementation: \$7250



An example of bicycle racks on a Trolley.

Source: www.coralgables.com

Project Category: Transit
Project Number: T2
Project Name: Wifi on Trolleys

Purpose: The purpose of this project is to facilitate higher trolley ridership.

Need: The Doral Trolley is one of the most successful municipal circulators in the County. Access to Wifi on the trolley will allow for riders to more easily access information for timing and transfers, and will provide for a more attractive rider experience. Any form of transit is viable if it is competitive. Typically this means competitive with the car in travel time or cost. As times change, technology advances and people (particularly younger individuals) give up their automobiles, amenities, and increase productivity and connectivity and comfort as needed.

The auto industry is working to recapture transit riders with self-driving cars. The provision of high-end amenities like Wi-Fi are one important aspect toward incentivizing the increasing transit-to-transit modal change.

Description: Doral is currently funding the installation of Wi-Fi transmitters on each bus. Future trolleys acquired by the City should also have Wi-Fi capabilities.

Cost:

Planning: NA

Design: NA

Implementation: TBD



Image Source: <http://motors.mega.mu/>

Project Number: T3

Project Name: Bus Stop Amenities Improvements

Project Category: Transit

Purpose: The purpose of this project is to make transit more attractive to potential riders by providing amenities.

Need: Transit ridership has been increasing, and automobile use has been decreasing for nearly a decade particularly among the young. Transit must increase its attractiveness to take advantage of this momentum and not allow the transit ridership to be recaptured by the automobile. Transit is no longer able to compete by serving captive riders or the purely transit dependent. The future of transit will be for the traveler who has a choice. Bus-stop amenities are a critical component. Shelter, shade from the sun, protection from the rain, safety, seating, trash receptacles, and real-time travel information are all critical components of the system. Some trolley stops have vandalized shelters which need to be repaired. Stops which average less than 1 person boarding per day should be eliminated.

Description: Determine the location, cost and feasibility of implementing these options at various transit stops in Doral. These amenities will vary based on the existing amenities at the stop, with at least 38 shelters and 25 benches needed. In addition, bicycle racks should be installed at major hubs, including bicycle rental stations and bicycle racks. Prioritization of improvements within this list should be based on existing and future ridership.

The City can also explore installing real-time information signs at all bus stops similar to how a bus transit information system like NextBus operates, which would involve an updatable electronic sign linked to the current real-time system utilized by the City's website and app. Initial locations for the implementation of real-time bus information display systems should be at transfer hub locations, such as NW 87th Avenue and NW 36th Street, NW 58th Street and NW 107th Avenue, Miami International Mall, and NW 97th Avenue and NW 41st Street.

All of the routes have spacing for stops which are too close. Utilizing the maps and boarding's data, stops should be re-spaced to 0.25 miles from each other. This is particularly evident on Route 1, where stops can occur at less than 0.25 miles from the

last stop; in these cases stops are too close and can be eliminated, especially as the intermediate stops between 0.25 mile intervals have very low daily average boarding's.

Cost:

Planning: \$7,000

Design: TBD

Construction: TBD



Bus stop amenities include shelters, benches, waste receptacles, and signage (Top Right, Bottom Left, and Bottom Right), as well as potential real time estimates of the next bus/trolley's arrival displayed at the stop (Top Left).

Image Source: (Top Left) www.munidiaries.com

Stop	Street	Location	Landmark	ADA Accessible	Recommended
1001	NW 12 St	West of NW 89 Ct		No	Shelter
1005	NW 12 St	West of MI Mall West Entrance	Miami International Mall	Yes	Shelter
1006	NW 107 Ave	North of NW 12 St	Miami International Mall	Yes	Shelter
1010	NW 112 Ave	North of NW 25 St	Doral Academy Middle School	Yes	Shelter
1011	NW 27 St	East of NW 112 Ave	Doral Academy High School	No	Shelter
1020	NW 52 St	West of NW 99 Ct	Doral Oaks	Yes	Shelter
1021	NW 52 St	West of NW 102 Ave	Doral Greens	Yes	Shelter
1025	NW 50 St	West of NW 108 Ave	Doral Terrace	No	Bench
1027	NW 114 Ave	North of NW 51 Tr	Doral Landings	No	Shelter
1028	NW 114 Ave	North of NW 55 St	Las Cascadas	No	Bench
1030	NW 114 Ave	North of NW 60 St	Doral Isles	Yes	Shelter
1033	NW 114 Ave	North of NW 72 St	Polynesian	Yes	Shelter
1035	NW 114 Ave	North of NW 80 St		Yes	Shelter
1036	NW 112 Ave	North of NW 83 St		Yes	Shelter
1038	NW 112 Ave	North of NW 89 St		Yes	Shelter
1039	NW 109 Ave	South of NW 90 St			Bench
1042	NW 107 Ave	South of NW 86 St	Islands of Doral II	Yes	Shelter
1044	NW 107 Ave	North of NW 80 Ln		Yes	Shelter
1045	NW 78 St	West of NW 109 Ave		Yes	Shelter
1048	NW 114 Ave	South of NW 77 Ln	Windward at Doral (The Islands)	Yes	Shelter
1049	NW 114 Ave	South of NW 72 St	Barbados	Yes	Shelter
1051	NW 114 Ave	South of NW 64 St	The Courts	Yes	Shelter
1053	NW 114 Ave	South of NW 57 St	Brisas of Doral	No	Shelter
1054	NW 114 Ave	South of NW 51 Tr	Doral Landings	No	Shelter
1055	NW 50 St	East of NW 112 Ave	Doral Middle School	No	Shelter
1056	NW 109 Ave	North of NW 51 Ln	Doral Terrace	Yes	Shelter
1057	NW 109 Ave	North of NW 56 St	Costa Linda	Yes	Shelter
1058	NW 107 Ave	South of NW 58 St	Sedano's Supermarket	Yes	Shelter
1059	NW 52 St	East of NW 107 Ave	Doral Sands	No	Shelter
1061	NW 52 St	West of NW 104 Ave	John I Smith Elementary School	Yes	Shelter
1062	NW 52 St	West of NW 102 Ave	Doral Cove	Yes	Shelter
1063	NW 52 St	West of NW 99 Ave	Doral Lakes	Yes	Shelter
1064	NW 97 Ave	South of NW 46 Ln		Yes	Shelter
1066	NW 41 St	East of NW 97 Ave		Yes	Shelter

1074	NW 87 Ave	South of NW 25 St		Yes	Shelter
1076	NW 84 Ave	South of NW 14 St	Sam's Club	Yes	Shelter
2003	NW 53 ST	East of 87 Ave		No	Shelter
2004	NW 53 ST	East of 84th Ave		No	Shelter
2005	NW 53 ST	West of 8300	City Hall	No	Shelter
2006	NW 53 ST	West of 8100	Barry University	No	Shelter
2013	NW 33 ST	West of 79 Ave		No	Bench
2014	NW 33 ST	West of 82 Ave		No	Bench
2015	NW 33 ST	West of 84 Ave	Opp. Renaissance Elementary	No	Bench
2016	NW 33 ST	East of 87 Ave	Carnival Cruise Line	No	Bench
2021	NW 33 ST	East of 102 Ave	Opp. Veteran's Park	No	Bench
2022	NW 33 ST	East of 107 Ave	Abby Mini Storage	No	Bench
2023	NW 33 ST	West of 107 Ave	Abaco	No	Bench/Sidewalk
2024	NW 33 ST	East of 112 Ave		No	Bench/Sidewalk
2025	NW 34 ST	West of 113 CT		No	Bench/Sidewalk
2026	NW 34 ST	West of 115 Ave		No	Bench/Sidewalk
2027	NW 115 AVE	South of 39 St	Miami-Dade Community College	No	Bench/Sidewalk
2028	NW 115 AVE	South of 41 St	Opp. Las Vegas Cuban Cuisine	No	Bench
2029	NW 41 ST	East of 114 Ave	Denny's	Yes	Bench
3010	NW 102 Av	South of 52 St		Yes	Bench
3011	NW 102 Av	South of 48 St		Yes	Bench
3012	NW 102 Av	North of 43 Ter		Yes	Bench
3018	NW 114 Av	North of 44 St	b/w curb and SW	Yes	Bench
3019	NW 114 Av	North of 47 St		Yes	Bench
3038	NW 107 Av	North of 75 Ln		Yes	Shelter

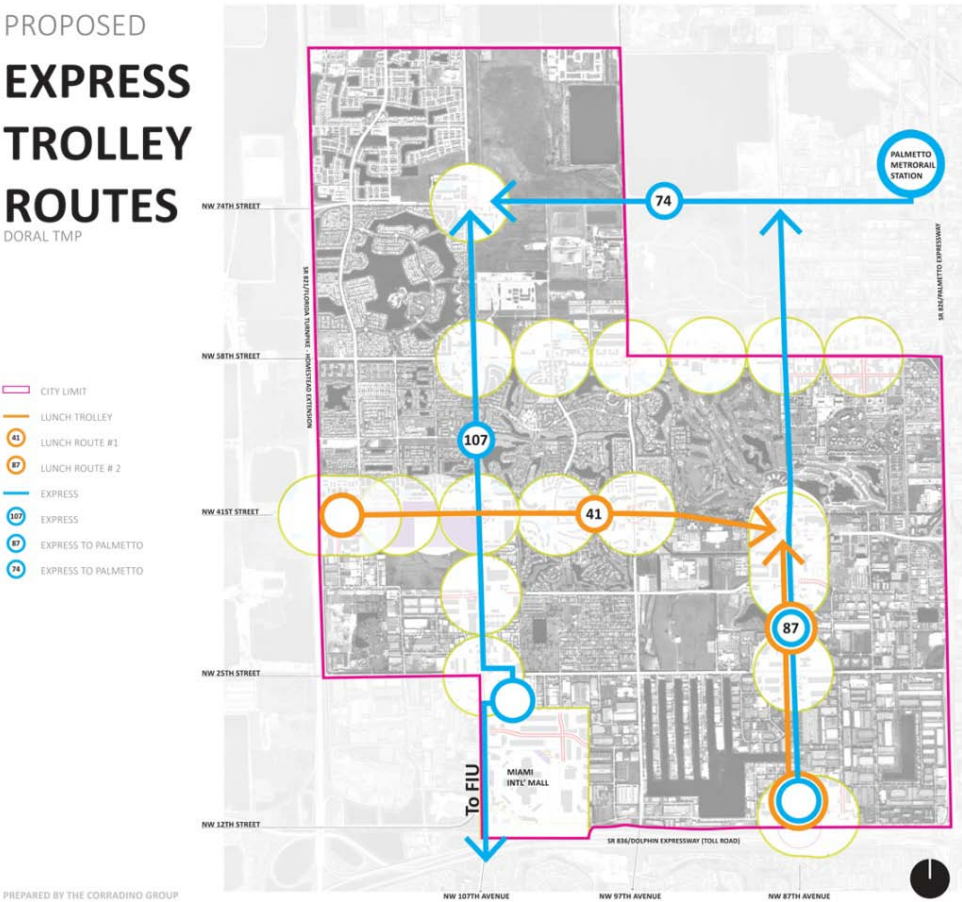
Project Category: Transit
Project Number: T4
Project Name: Express Route to/from Palmetto Station

Purpose: The purpose of this project is to increase mobility by connecting the Doral Trolley more directly to the Metrorail.

Need: This study has shown that people desire multi-modal mobility. Connecting the Doral Trolley more directly to the Metrorail would increase mobility and provide alternatives for those entering and exiting the City on a daily basis. In implementing this project, Doral’s citizens will have easier access to the locations that Metrorail serves. This will also build a synergy with the managed-lanes concepts that are being studied and implemented.

Description: Route plan the connection and develop multiple route options. Evaluate each option for ridership, cost, operations and maintenance, capital, and timing, and select preferred option. Work with Miami-Dade Transit to have approved. Develop a timeline for implementation. A potential route may be run along Palmetto Expressway; this would allow for a regional route to South Dade/Kendall areas. Currently, SR 826 is undergoing PD & E for a HOT lane. Within Doral, a route can be planned along NW 74th Street.

Cost:
Planning: NA
Design: NA
Implementation: NA



Project Category: Transit

Project Number: T5

Project Name: Signal Priority for Buses/Trolleys

Purpose: Implement a system where buses and trolleys receive priority signals in order to improve on-time performance and transit reliability.

Need: Doral's trolleys are projected to have lower on time performance for a variety of factors, including cumulative dwell time. This is particularly evident with Route 1, the longest route. On-time transit reliability and in-transit time are both factors for riders. Signal prioritization may allow for better transit-time performance for buses and trolleys in Doral by reducing dwell time at intersections.

Description: Signal prioritization requires the adoption of the type of prioritization (Early Green, Delayed Red, etc.) to be applied after consideration of options in a study. Considerations in this study should include an evaluation of bus route priorities for implementation, based on time performance, ridership, and rider in-transit time on the bus/trolley. Implementation involves installation of technology at intersections with bus routes and a transponder on the buses/trolleys. Impact to traffic flow should be examined and acknowledged as part of the evaluation. Coordination with MDCPW and MDT is important. Potential intersections include:

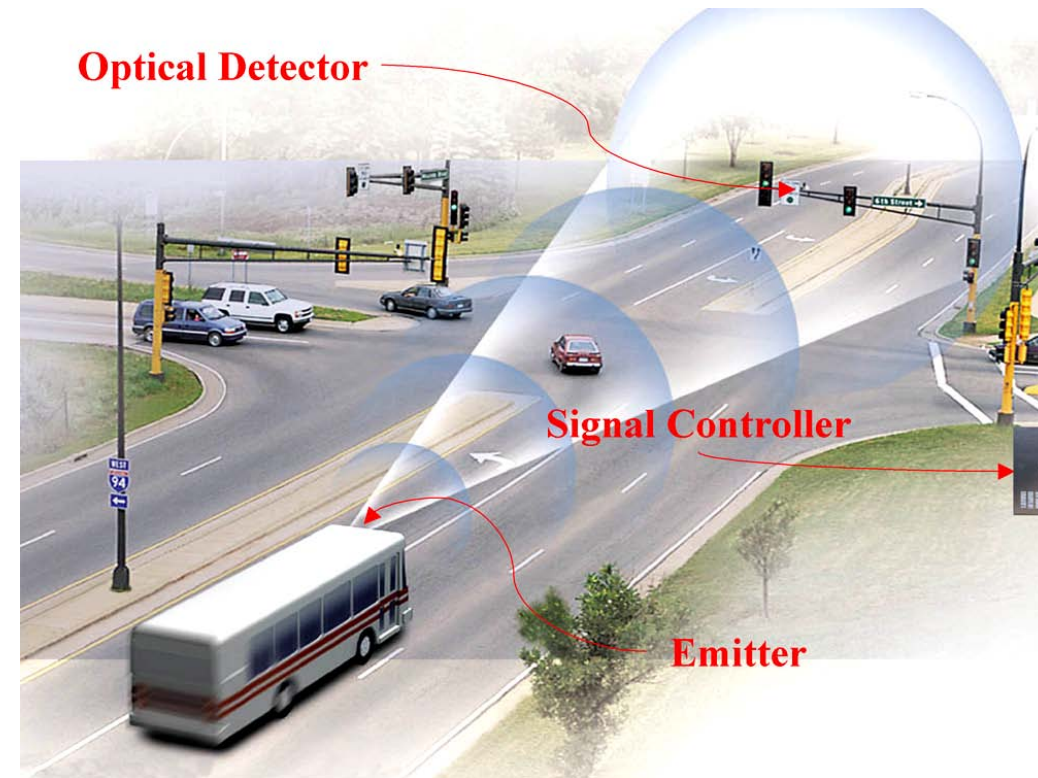
- NW 41st Street and NW 97th Avenue
- NW 36th Street and NW 87th Avenue
- NW 25th Street and NW 87th Avenue
- NW 25th Street and NW 97th Avenue
- NW 12th Street and NW 107th Avenue

Cost: \$13,500 per intersection, \$75 per transponder per bus

Planning: \$ 30,000

Design: NA

Implementation: TDB



Source: www.busrise.com

Project Category: Transit

Project Number: T6

Project Name: Trolley Comprehensive Operations Analysis

Purpose: The purpose of this project is to ensure the efficiency and effectiveness of the Doral Trolley, and provide increase mobility by increasing the frequency of the occurrence of buses on the routes.

Need: It is customary for transit systems to re-evaluate their routes on a periodic basis. This helps provide responsiveness to shifts in ridership and rider characteristics, and provides a picture of whether current capital investments are necessary. Through the public involvement portion of this study it was identified that people desire more frequent trolley service. Typically the increase of frequency would increase ridership, further shifting the mode split towards transit, and taking automobile trips off the roads.

Description: Using the data available and possibly collecting new data on headways, ridership, boardings and alightings by route and stop, as well as public involvement through ridership surveys or workshops, evaluate the performance of the current routes and stops. Recommendations can then be made for changes, with provided costs for the needed capital, operations and maintenance of the changes. Proposed recommendations should note the transit access areas, based on a ¼ mile walking distance from a stop with trolley service with at least 30 minutes or less headways, and should streamline the operations of the trolley in coordination with the MDT bus lines.

Cost:

Planning: \$25,000

Design: NA

Implementation: TBD



Source: Playindoral.blogspot.com

Project Category: Transit

Project Number: T7

Project Name: Doral Trolley Sunday Service

Purpose: Increase mobility by extending service hours through the provision of service on Sundays for the Doral Trolley.

Need: The public involvement portion of this study showed a desire for more adequate Sunday transit service.

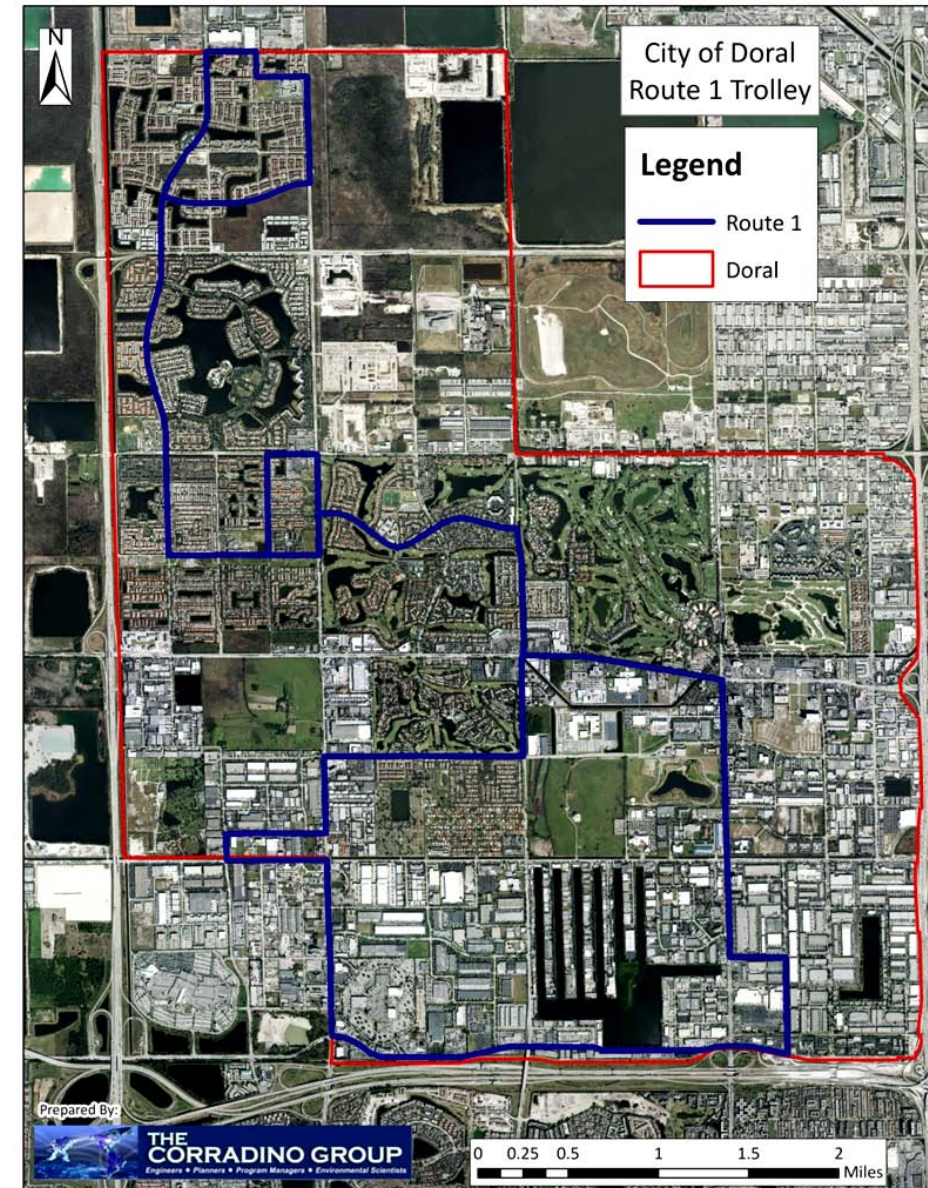
Description: Develop Sunday service route options. Evaluate the cost in capital, operations and maintenance. Evaluate headways, buses needed, and potential ridership. Select the service to be provided and test it for a period of 3 months. Post pilot program, make a determination on the service's adequacy, and reconfigure route as necessary. Based on current ridership and transit coverage areas, Route 1 is proposed as the pilot route for Sunday service. This route currently serves most of the City, including the northwestern quadrant which currently has no MDT bus service.

Cost:

Planning: \$ 5,000 (or as part of COA # T2).

Design: N/A

Implementation: TBD



Project Category: Transit

Project Number: T8

Project Name: Express Route to Miami International Airport/Miami Intermodal Center

Purpose: The purpose of this project is to increase the mobility of Doral's citizens to the current Miami-Dade County regional hub.

Need: For transit to be attractive when compared with other modes of transportation, particularly the automobile, it needs to be competitive in travel time, cost, and amenities. Transit has to be convenient with easy transfers for mid-and long-distance trips to be competitive.

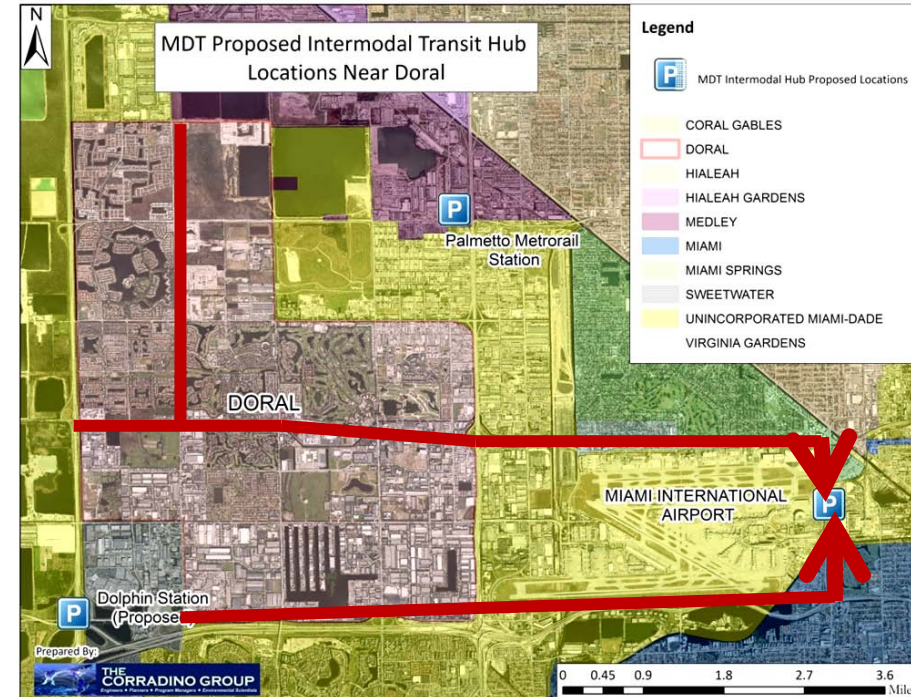
Description: Coordinate w/MDT if this provision is acceptable to them; evaluate the cost in capital, operations, and maintenance. The route's configuration will be based on demand, and thus may be on-demand service.

Cost:

Planning: \$6,000 (Or as part of COA)

Design: NA

Implementation: TBD



Project Category: Transit
Project Number: T9
Project Name: Trolley Lunch Route Pilot Program/Express Routes

Purpose: Increase mobility by extending service hours through the provision of service during lunch hours for the Doral trolley. Expansion of this service later to provide Express Routes.

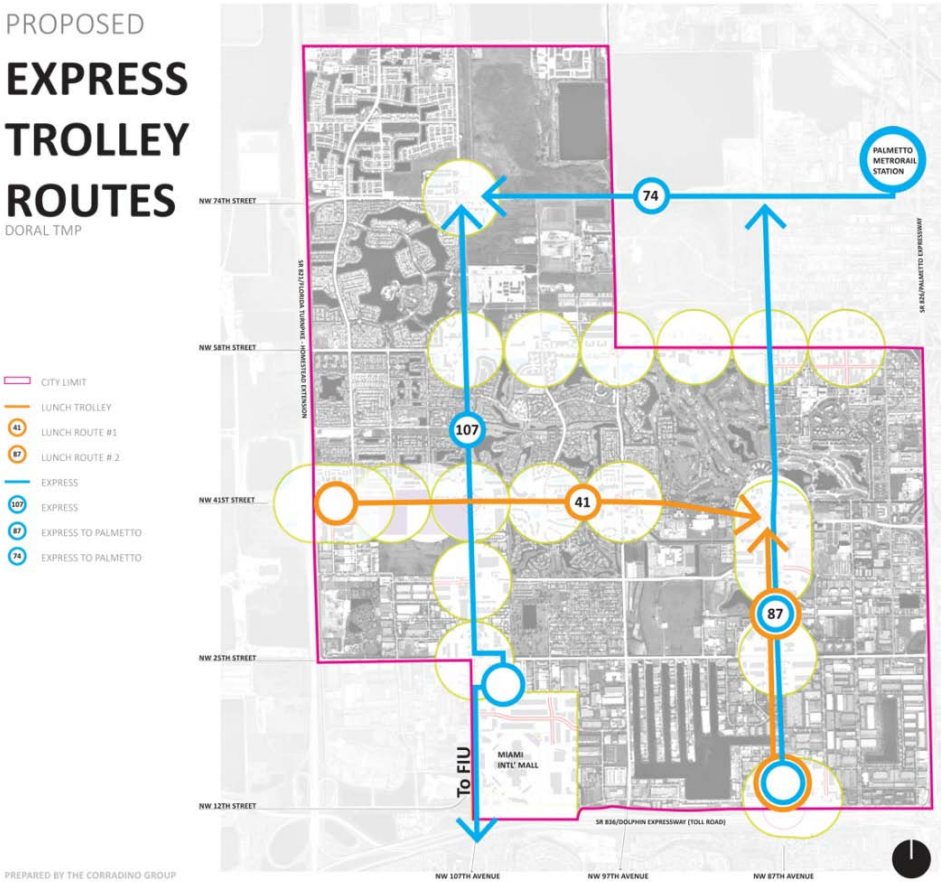
Need: The public involvement portion of this study showed a desire for more adequate lunch transit service. Increased lunch service will aid in reducing vehicular traffic during lunch hours.

Description: Develop lunch service-route-option alternatives for the trolley. These routes would only run during lunch hours. Identify generators, evaluate the cost in capital, operations and maintenance. Evaluation of headways, buses needed, and potential ridership are necessary in order to predict usage, which would be dependent on the linkages to businesses and timing for lunch breaks. Based on current analyses, the route should run from 11:30 AM to 1:30 PM, with two dedicated routes with stops every quarter mile. These two routes should have short headways (7 minutes) in order to adequately service the lunch hour, and should run on the following routes:

- NW 41st/NW 36th Street between NW 87th Avenue and NW 114th Avenue
- NW 87th Avenue between NW 36th Street and NW 25th Street

Post evaluation, a service should be selected and tested for a period of 3 months. At the conclusion of the pilot program, a determination on the service’s adequacy and a reconfiguration of the route as necessary should be conducted. These routes can be further develop to extend the NW 107th AVE Route to FIU at lunch hour initially and then on a more permanent basis if demanded necessity by the City.

Cost:
Planning: \$5,000 (As part of COA)
Design: NA
Implementation: TBD



Potential Trolley Lunch Routes in Orange.

Project Category: Transit/Policy

Project Number: T10

Project Name: Encourage MDT to Implement Mass Transit Ridership Incentive Programs

Purpose: Incentivizing fare reductions either in parking costs or through lower boarding fares will allow for better cost advantages versus private automobile usage. Increased outreach regarding MDT's available fare discount programs for corporations, students, and the elderly.

Need: Transit must be compatible w/ the automobile in travel line and cost to become a viable alternative for the choice riders. This would manage travel costs. Public involvement during the study indicated a partial aversion to transit due to parking prices and fares over time for frequent riders.

Description: Various means exist to present transit as a more financially viable method of transportation. People typically tend to treat parking prices in a disproportionate manner, as an extra surcharge to the transit fare; providing free parking in riding transit provides an incentive, especially if the driver would have had to pay for parking at their destination.

Additionally, many transit fare programs exist through MDT, but are not necessarily known by people who qualify or by businesses, and additional outreach may aid enrollment in these programs. The City may also elect to create its own incentive program through partnerships with local businesses, either through the creation of promotional rewards programs for riding public transit or through recognition of businesses within Doral which makes conscious, green efforts in reducing vehicular use.

Cost:

Planning: NA

Design: NA

Implementation: TBD



A portion of the public may take public transit, but is deterred by its unfamiliarity. While regional systems cannot make all rides free like the Doral Trolley system, due to funding, programs such as a free day or rideshare week can allow mass transit to be showcased to the public.

Source (Left) www.doralfamilyjournal.com, (Right) www.omnitrans.org

Project Category: Transit/Policy

Project Number: T11/P5

Project Name: Support City-Edge Park and Ride Facilities

Purpose: The purpose of this project is to increase mobility, decrease traffic congestion within the City at certain times, and provide multimodal access to commuters to and from Doral.

Need: Doral is one of Miami-Dade County's leading business districts. Doral is the County's westernmost city in the area and attracts people from across the region as they pulse in and out daily. Roadway congestion can be severe, thereby lowering the quality of life. Utilization of Park and Ride lots may help alleviate traffic congestion in Doral by intercepting vehicle trips at the City's perimeter and distributing people via transit to their destinations. This can be coupled with the proposed municipal circulator, or various other transit opportunities. Being able to provide transfer points, intermodal centers or park and ride locations at the city's edge, allowing mode shifts and access to internal businesses via transit may be method by which congestion is mitigated.

Description: Explore options for providing parking and ride lots, intermodal transfer centers at the edges of the city. Synergy can be gained by linking with the Managed Lanes concepts and projects where Bus Rapid Transit and Variable Tolling are combined on expressway lanes. Typically a lane or lanes are cordoned off from the general use lanes on an expressway. At the termini of these routes or stops, there may be a need to either park a car to utilize the transit or transfer to another mode of transit to get from the managed lane to the final destination. Develop the concept and work with the Miami-Dade MPO, FDOT, MDX to identify managed lanes projects. Along those routes seek potential locations for these facilities. Estimate the cost to acquire, build, design, construct, operate and maintain each. Select an alternative and implement. This project would be a good candidate for an MPO municipal grant, typically due in January of each year.

Potential locations include:

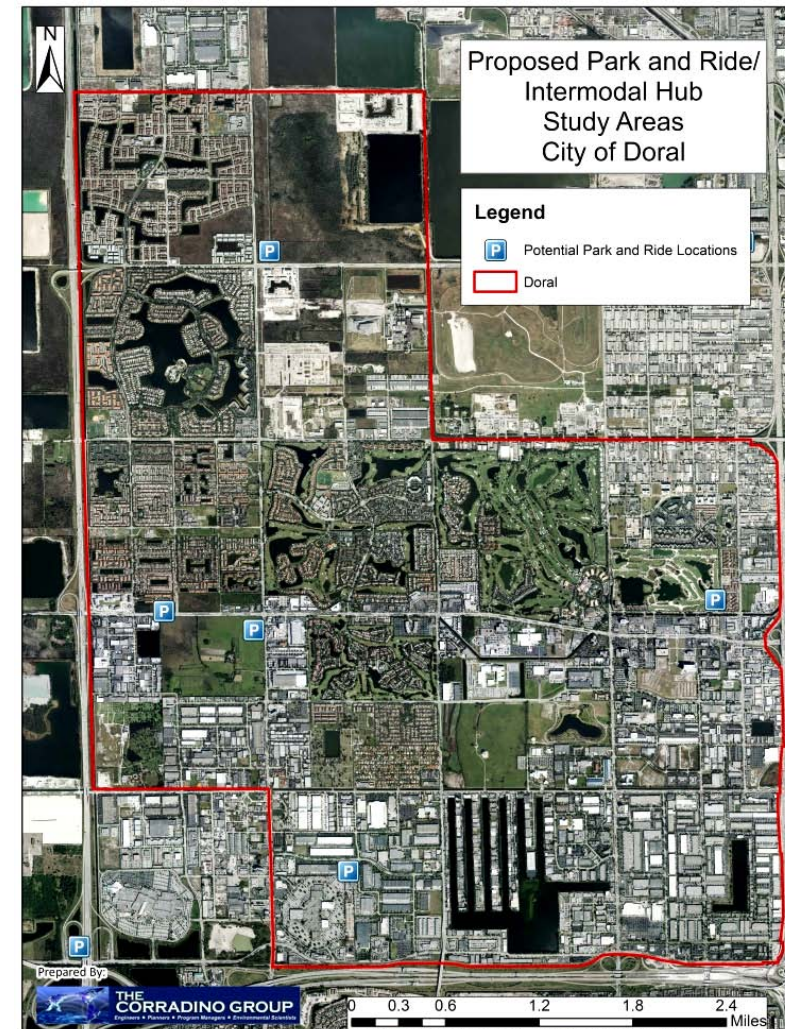
- Dolphin Mall
- Miami International Mall
- Palmetto MetroRail Station
- Corner of NW 107th Avenue and NW 41st Street
- Current Doral White area
- Future transit hub sites within/near Doral's City boundaries.

Cost:

Planning: \$50,000

Design: TBD

Construction: TBD



Project Category: Transit/Policy

Project Number: T 12

Project Name: Support MDT Palmetto Station Redevelopment/Development of Palmetto Intermodal Center

Purpose: The purpose of this project is to increase the attractiveness of the Palmetto Metrorail Station as a viable launching or landing point for a transit trip or a mode transfer.

Need: It is believed that for transit to be attractive when compared with other modes of transportation (particularly the automobile), it needs to be competitive in travel time, cost, and amenities. The fact is that automobile use, particularly among the young has been decreasing since 2005. Automakers have are responding with the development of driverless cars. Transit proponents need to respond with the types upgrades in attractions. Airport-like amenities would further increase the attractiveness of transit.

Description: Work with MDT to lend support either politically or financially to such an effort.

Cost:

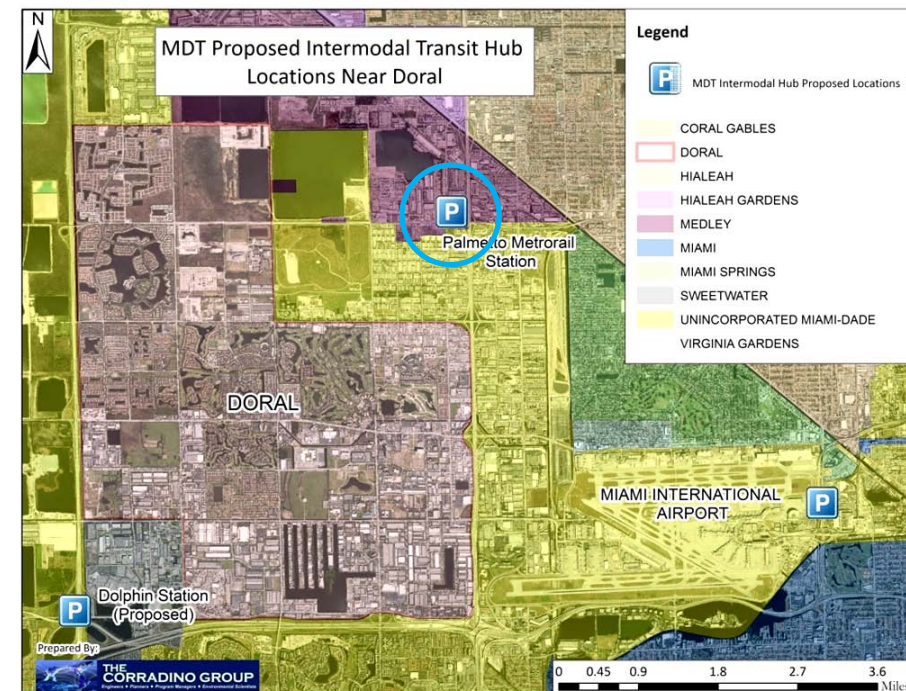
Planning: NA

Design: NA

Construction: NA



(Left) Palmetto MetroRail Station



Project Category: Transit/Policy

Project Number: T13

Project Name: Support MDT Development of Dolphin Mall Station Park and Ride/Transit Hub

Purpose: The purpose of this project is to encourage MDT to advance the evaluation of the proposed Dolphin Mall Station Park and Ride.

Need: MDT is evaluating the feasibility of a Park and Ride location in the area of 12th St and the Florida Turnpike. This would be part of the future East/West BRT line running along the Dolphin Expressway. There are multiple planned transit corridors in the county, all vying for funding. The faster components of this corridor advances the more likely the project gets funded and congestion is mitigated by transit.

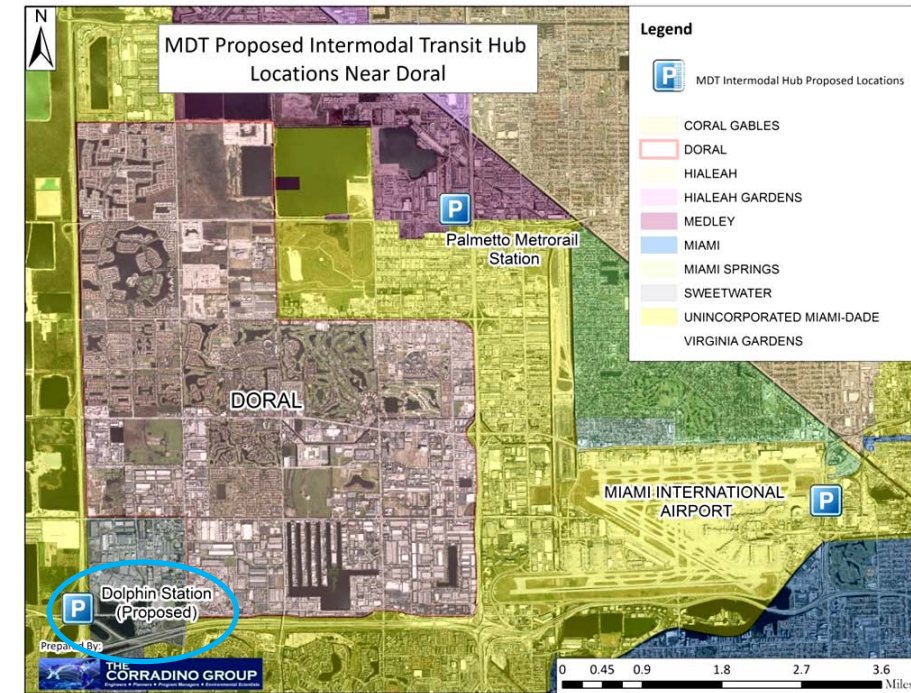
Description: Work with MDT to lend support either politically or financially to such an effort.

Cost:

Planning: NA

Design: NA

Construction: NA



Two examples of intermodal transit hubs: Wonderland Intermodal Hub, Boston, MA (Left) and Dadeland North Metrorail Station, Miami, FL (Right). Facilities like these provide drivers with a transfer point to mass transit, helping reduce congestion.

Source: (Left) Massachusetts Bay Transit Authority, (Right) www.wikipedia.org

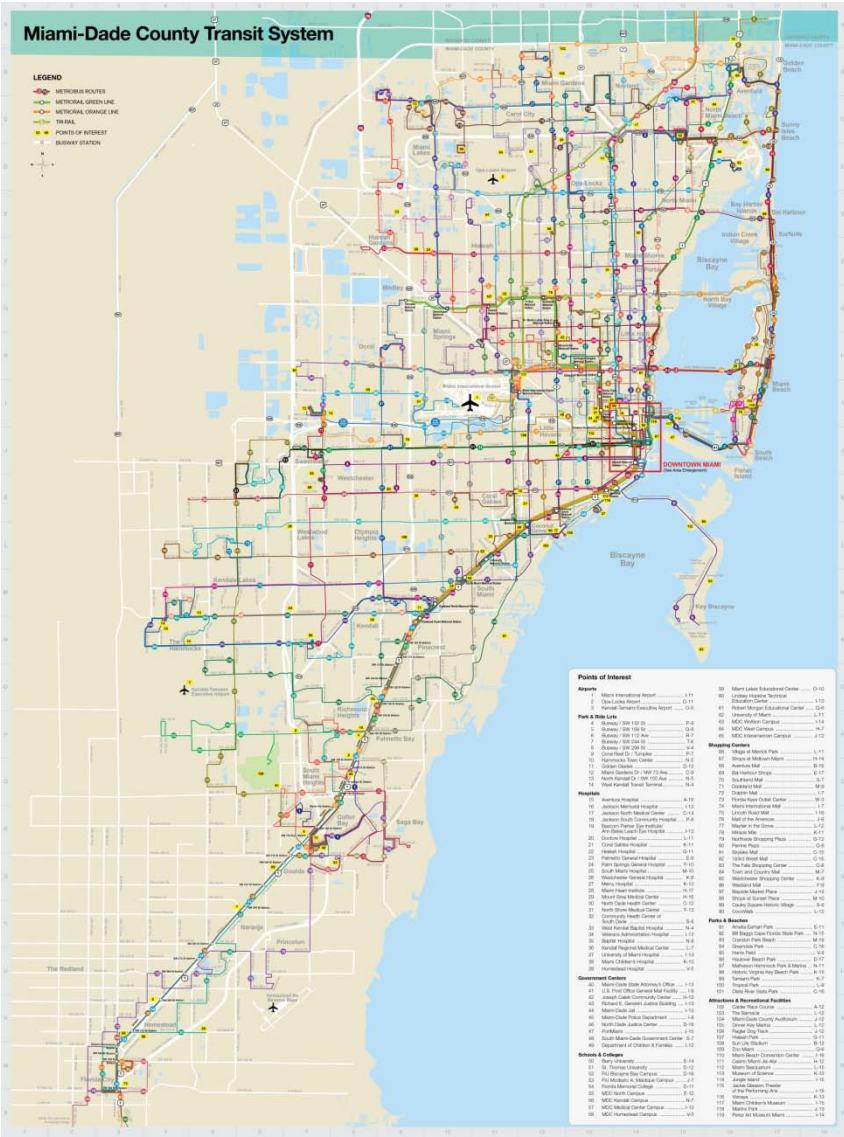
Project Category: Transit/Policy
Project Number: T14
Project Name: MDT Operational Analysis

Purpose: The purpose of this project is to align the location of MDT stops with ridership trends.

Need: It is customary for transit agencies to reevaluate their systems on a periodic basis. This project would encourage MDT to evaluate boarding's and alighting's in the City of Doral, coordinate with the Doral Trolley and potentially locate its stops in more advantageous positions.

Description: Encourage MDT to conduct an operational analysis and gain efficiency in its system. In particular, a movement to a linear/grid oriented system will help Doral by allowing for highly predicable travel routes in the City, given that Doral operates on a mile section grid system.

Cost:
Planning: NA
Design: NA
Construction: NA



Source: Miami-Dade Transit

Roadway Projects



Project Category: Roadway

Project Number: R1

Project Name: Extend NW 117th Avenue

Purpose: The purpose of this project is to fill in a gap in the existing roadway infrastructure to connect the westernmost North/South corridor.

Need: This would fill-in gaps between NW 74th Street and NW 12th Street, providing for a complete connection. This consists of +/- of new roadway between NW 74th Street and NW 58th Street as well as crossings @ NW 58th St. and NW 41st Street. This would add capacity to the roadway network and mitigate congestion.

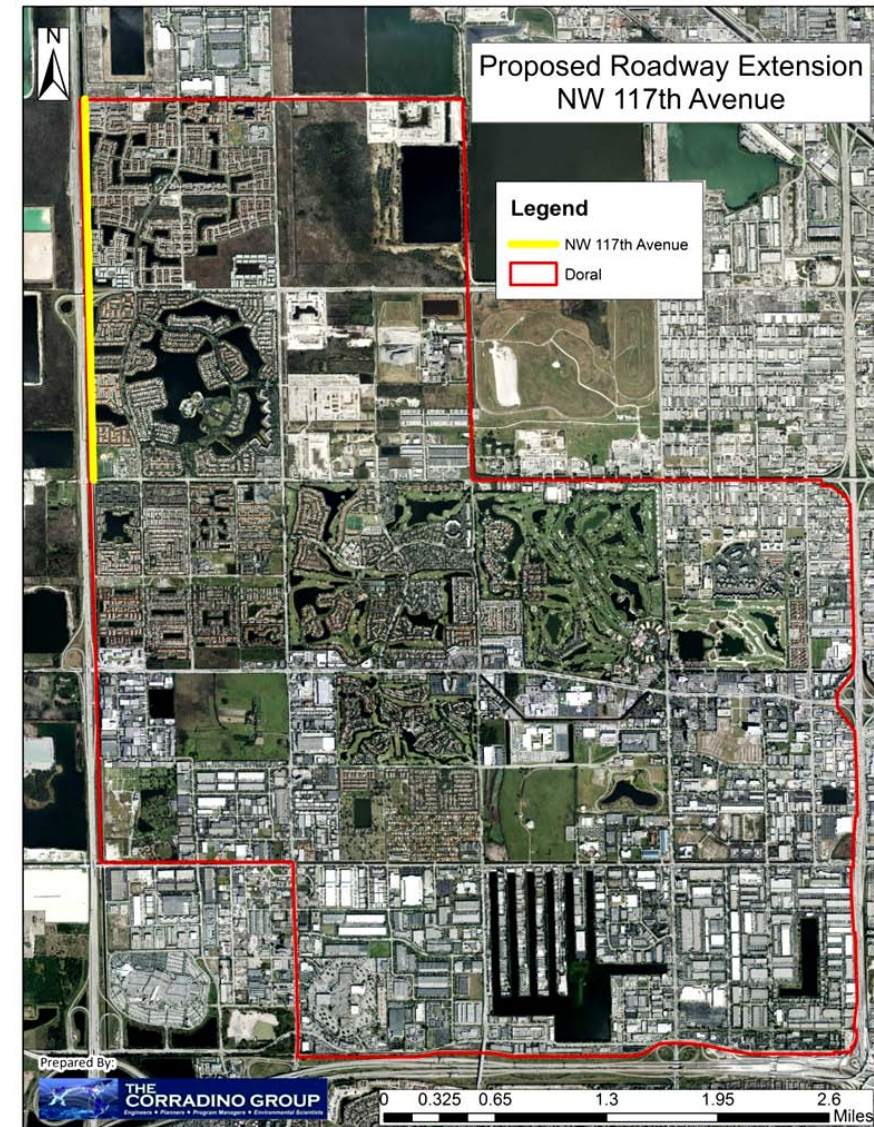
Description: This project will involve bidding the Project Development and Environment, preliminary engineering/final design and construction of the roadway.

Cost:

Planning: \$ 45,000

Design: \$135,000

Construction: \$ 2,250,000



Project Category: Roadway

Project Number: R2

Project Name: Extend NW 97th Avenue

Purpose: The purpose of this project is to fill in a gap in the existing roadway infrastructure at NW 97th Avenue between Doral Park North to NW 90th Street.

Need: An approximately 6,700 ft. sidewalk and roadway gap results in pedestrians, bicyclists, and vehicles having to travel longer distances.

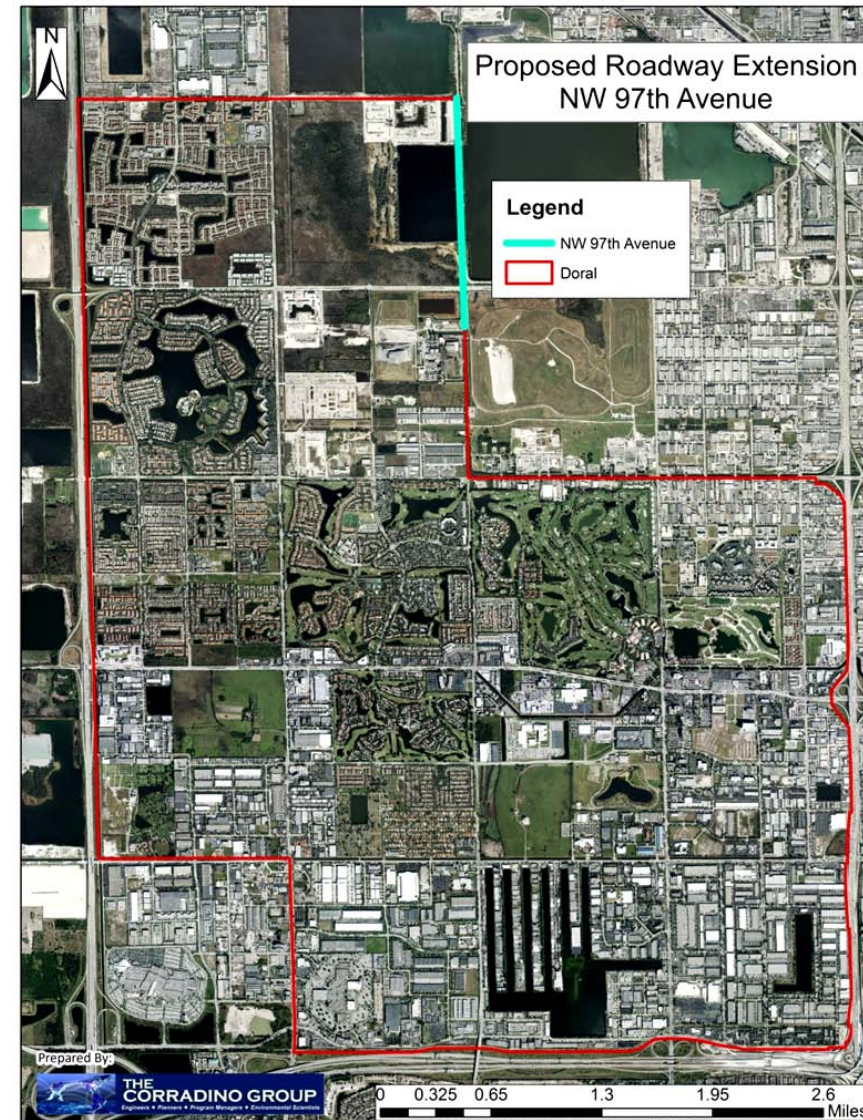
Description: Project will involve bidding the design and construction of the roadway. A portion of the roadway is currently under design, and construction is to commence by the end of 2014.

Cost:

Planning: \$ 62, 200

Design: \$ 518, 000

Construction: \$ 3, 110, 000



Project Category: Roadway

Project Number: R3

Project Name: NW 36th St/NW 41st St Corridor Safety Study (Between NW 97th Ave. and NW 87th Ave.)

Purpose: The purpose of this project is to evaluate safety on the NW 36th/NW 41st Corridor between NW 87th Ave and NW 97th Ave for both vehicles and pedestrians crossing the road.

Need: For the period March 2013 to March, 2014, the Doral Police Department has 171 traffic crash case numbers reported on the NW 36th/ NW 41st Street corridor between NW 87th Ave and NW 97th Ave. This equates to a crash approximately once every 2 days. Potentially, pedestrians are crossing the roadway in order to get to a bus stop.

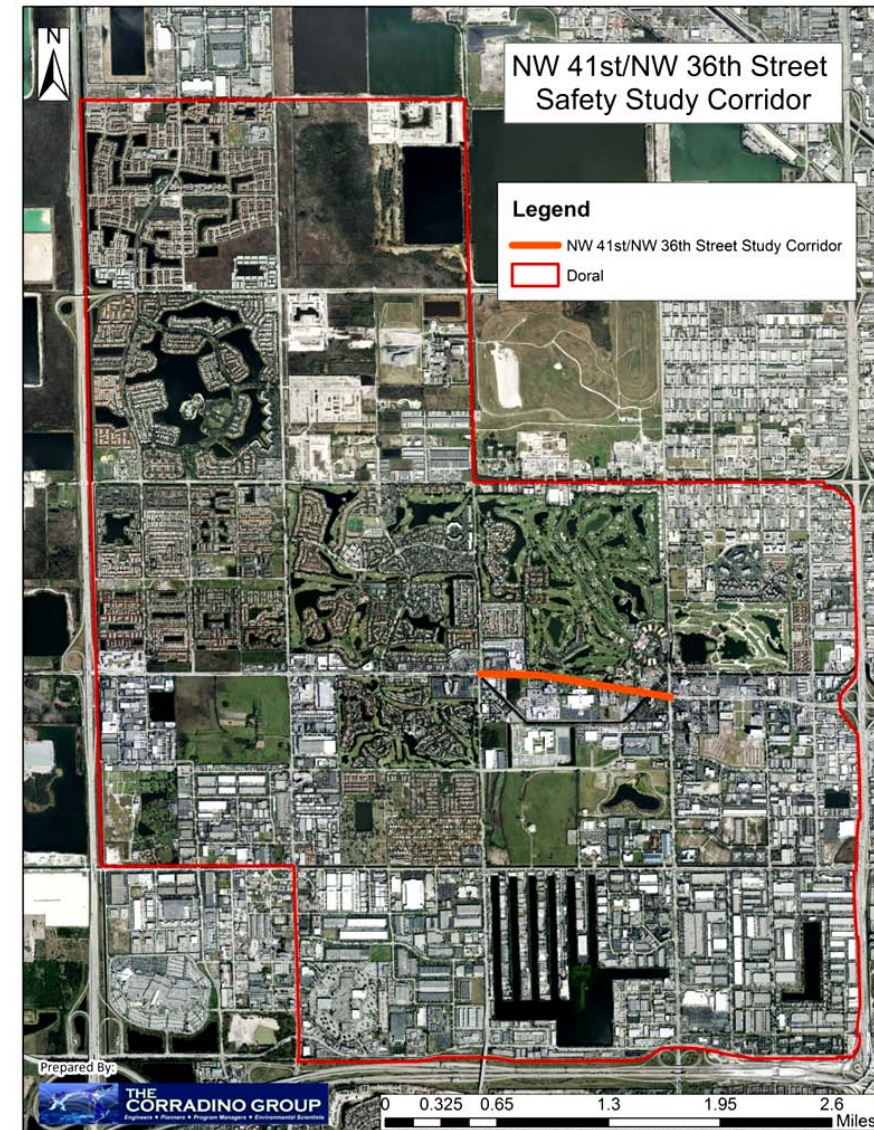
Description: A preliminary safety study should be conducted on this corridor to determine the cause of crashes and possible remediating actions which can be undertaken. Additionally, this study should incorporate a look into whether pedestrian crossings will be issue mid-block, especially by the bus stops. In particular, the bus stop across from Univision should be evaluated, along with the NW 97th Avenue/NW 41st Street and NW 87th Avenue/NW 36th Street intersections.

Cost:

Planning: \$25,000

Design: NA

Construction: NA



Project Category: Roadway

Project Number: R4

Project Name: Extend NW 109th Avenue

Purpose: The purpose of this project is to fill in a gap in the existing roadway infrastructure.

Need: An approximately 350 ft. sidewalks and roadway gap results in pedestrians, bicyclists, and vehicles having to travel longer distances.

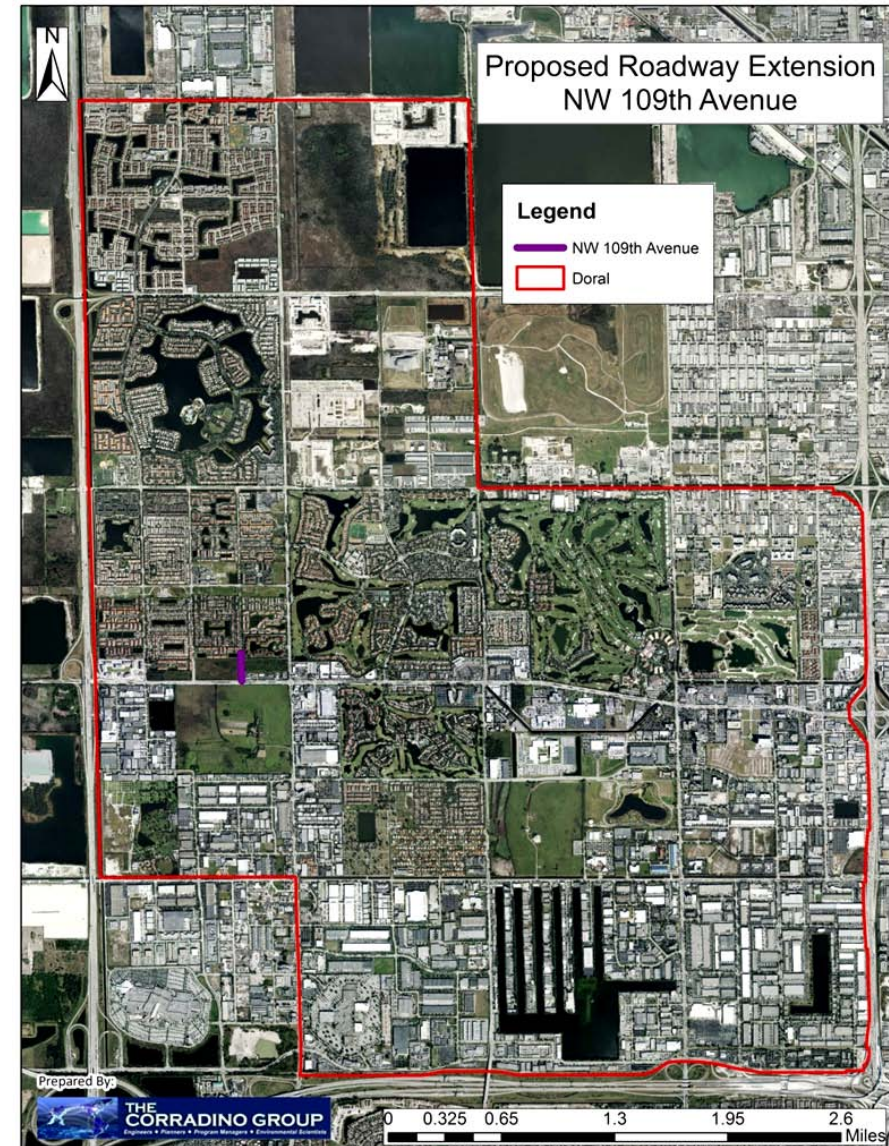
Description: Project will involve bidding the design and construction of the roadway, and is currently being pursued by the City.

Cost:

Planning: \$ 6,000

Design: \$18,500

Construction: \$307,000



Project Category: Roadway
Project Name: Intersection Safety Studies
Project Number: R 5

Purpose: The purpose of this project is to provide for safety analyses at 5 intersections to make adjustments at high-crash locations.

Need: Crash data at these intersections show a high number of crashes, based on the spot rate, which are crashes per AADT per million vehicles.

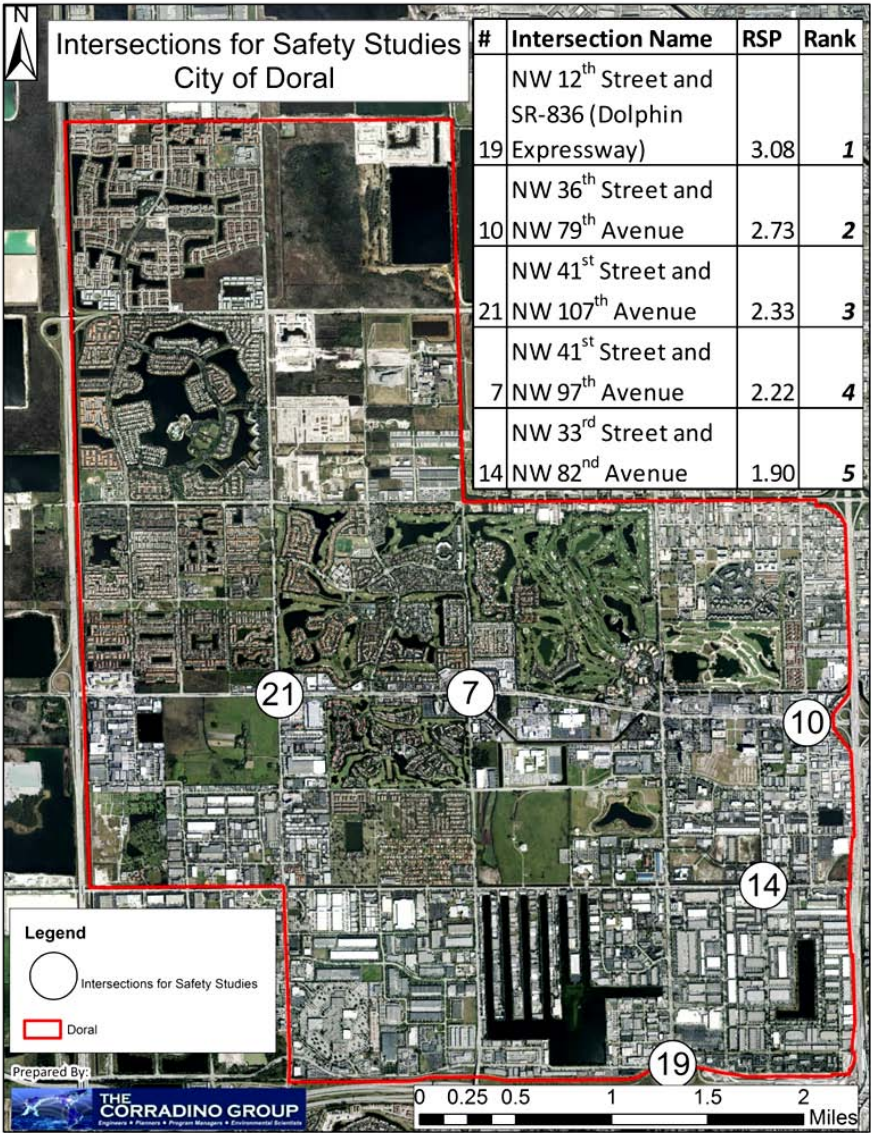
Description: Preliminary Safety Studies are necessary at each of these intersections to determine what changes, if any, may be needed at the intersection. Should the intersection merit further review based on criteria, additional study and implementation of corrective measures should be undertaken at these intersections.

Intersections:

1. NW 12th Street and SR-836 (Dolphin Expressway)
2. NW 36th Street and NW 79th Avenue
3. NW 41st Street and NW 107th Avenue
4. NW 41st Street and NW 97th Avenue
5. NW 33rd Street and NW 82nd Avenue

Cost:

Planning: \$125,000
Design: TDB
Construction: TDB



POLICY PROJECTS



Project Category: Policy/Transit

Project Number: P1

Project Name: Support Managed Lanes

Purpose: The purpose of this project is support and encourage the planning, design and implementation of Managed Lands as a transit/mobility alternative in Miami-Dade County.

Need: Miami-Dade County is a congested place with a lack of mobility options. It is widely recognized that the solution to this problem cannot be arrived at by building roadway capacity in the ratio it has been built relative to transit in the past. Physical space for roadway and transit facilities is lacking. It is highly likely that the consumption of right of way for new transportation corridors is viewed as expensive and politically unpalatable. Over the past several decades few new transit lines have been built. The County has shifted its preferred mode from heavy rail to light rail or bus rapid transit. Much of Miami-Dade County, specifically the southern and western edges do not have the density or intensity to support ridership for more intensive modes of transit like light rail. The managed-lanes concept captures automobile capacity and utilizes it for potential transit. A lane or lanes is cordoned off from the general purpose lanes. A variable priced toll is implemented, with the idea of utilizing the roadway for Bus Rapid Transit, and allowing automobiles. The lanes are tolled so that the LOS remains at C and the speed at 55mph. The most recent example of the I-95 Express Lanes has had impressive results. These lanes are used by everyone some of the time, and not by certain people all of the time.

Description: Pass a resolution in support of Managed Lanes.

Cost:

Planning: NA

Design: NA

Construction: NA



Managed lanes can be utilized to allow for mass transit to run, on a more timely system even with congestion. This greatly helps bus systems with regional routes.

Source: 95express.com

Project Category: Policy

Project Number: P2

Project Name: Comprehensive Plan Amendments

Purpose: The purpose of this project is for the City to commit to increasing mobility by increasing pedestrianism, bicycling, and transit by amending the transportation element and intergovernmental elements of the Comprehensive Plans Goals, Objective and Policies.

Need: The Comprehensive Plan is the primary policy document of the City. Goals, Objectives and Policies of the document assure that projects will be prioritized.

Description: Make a text amendment to the Comprehensive Plans Transportation Element by Developing an additional objectives with multiple policies, taken from this document. Have these ratified by the City council. Specific amendments would include:

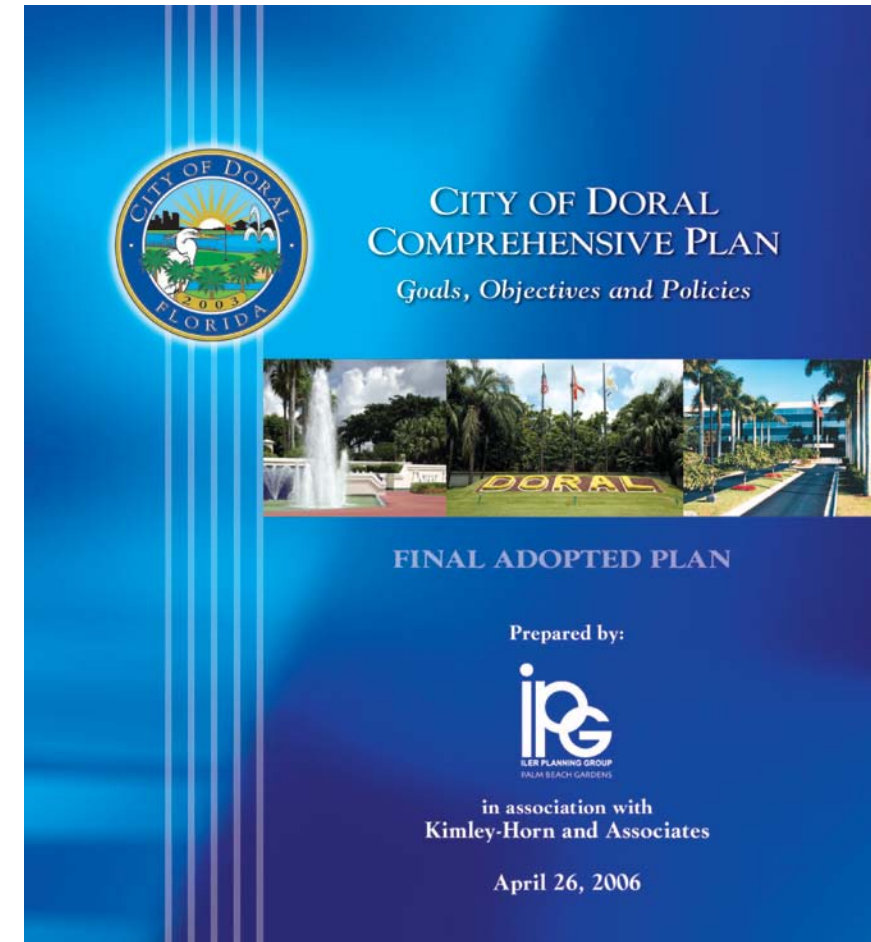
- Pedestrian Level of Service
- Bicycle Level of Service

Cost:

Planning: \$5,000

Design: NA

Construction: NA



Project Number: P3
Project Name: Support MDX Reallocation of Resources to Transit
Project Category: Policy/Transit

Purpose: The purpose of this project is to request a shift in funding towards transit and away from roadway projects.

Need: It is widely acknowledged that the region cannot build its way out of congestion with roadway projects. While roadway projects are absolutely necessary, there is a lack of funding for transit projects. The Miami-Dade Expressway Authority (MDX) receives funding from tolls. This funding stays in the county for county projects. It is suggested that a certain percentage of this funding be allocated for the funding of transit projects, so that transit can take advantage of its surging popularity.

Description: Resolution or other support for the shift in MDX funding.

Cost:
Planning: NA
Design: NA
Construction: NA



Source: mdxway.com

Project Category: Policy/Transit
Project Number: P4
Project Name: Support MDT Grid Initiative

Purpose: To implement greater mobility within the parameters of the existing transit cost structure.

Need: Miami-Dade Transit, like most transit agencies, faces challenges resulting from a number of factors including the recent recession. Capital and operating dollars are stretched. The irony is that the population is becoming more receptive to transit for multiple reasons. It is customary for transit systems to evaluate their route performance on a periodic basis. Miami-Dade Transit is considering reorganizing its route from a system that is more linear to a system that is based on connecting on the gridded street network. More simply put, routes would no longer wind through communities in a serpentine manner using multiple streets, but would typically run east and west or north and south on the street grid, not departing that street. Connections would be made at the cross streets. Reorganization of the MDT routes would provide more direct routes for Doral residents, and potentially provide Doral with an opportunity to sync its Trolley with the MDT system for cost and service efficiency improvements.

Description: It is suggested a city council resolution supporting this be adopted, and sent to the County Commission, MPO, and MDT.

Cost:
Planning: N/A
Design: N/A
Construction: N/A

Project Category: Policy

Project Number: P6

Project Name: Incentivize Programs for Carpooling, Alternative Transit

Purpose: The purpose of this project is to accelerate a mode shift by incentivizing the use of carpooling or alternative modes of transportation.

Need: Roadway capacity is almost completely consumed by automobiles. It is recognized that the right of way will need to be used in a different way if any meaningful impacts to congestion or travel time will be made. The most logical step is to first encourage people to ride together in higher capacity vehicles, primarily carpools. At the same time, as alternative mode and transit linkages are made, encourage people to use those instead of the automobile.

Description: Continue to work with South Florida Commuter Services (SFCS) to determine appropriate programs to put in place for the city and explore working with the private sector to encourage these alternatives. The City has recently worked with the SFCS (May 2013).

Cost:

Planning: TBD

Design: NA

Construction: NA

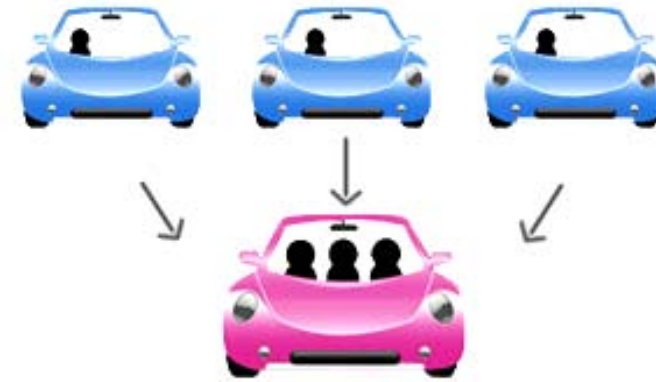


Image source: autoorb.com

Project Category: Policy/Roadway
Project Number: P7
Project Name: Truck Traffic Re-route

Purpose: The purpose of this project is to assist in the movement of trucks onto routes in order to promote overall mobility and enhance pedestrian and bicycling environments.

Need: Levels of service on roadways have deteriorated due to levels of trucks. In addition, truck travel requires specific design aspects to be incorporated at intersections, where turning radii will affect the width of the intersection, and pose additional design considerations for the pedestrian and bicycling aspects of intersection design and development. Heavy truck activity is also not conducive for bicyclists where bicyclists share the road in bicycle lanes, and provision of predicable routes will allow for better bicycle route and facilities planning.

Description: The implementation of specific truck routes is partially created through the classification of truck restricted routes. Currently, Doral has specific truck restricted routes. However, truck traffic remains a vital component of Doral's economy due to the location of warehousing within the City and their proximity to Miami International Airport, a major regional cargo port. A balance between truck traffic and the pedestrian and bicycling environments requires a more specific approach. Current route traffic was also noted by participants in the public workshops are traveling near residential areas, and still affects mobility in other areas, such as NW 25th St. Evaluate truck routes and make specific recommendations as to their turning radii/segregation/lane width/enforcement.

Locations for review include NW 74th Street and NW 97th Avenue, once the intersection is constructed; the intersection of NW 25th Street and NW 87th Avenue; NW 25th Street, the intersection of NW 58th Street and NW 97th Avenue. In addition, establish a connection for trucks that exit the viaduct on to NW 25th Street and are destined to the HEFT. The connection can be made by traveling along the rest of NW 25th ST and then northbound onto NW 117th AVE and entering the HEFT at the NW 41st ST interchange.

Cost:

Planning: \$ 25,000

Design: NA

Construction: NA



Data Source: Miami-Dade County, City of Doral

Project Category: Policy

Project Number: P8

Project Name: Parking Ordinance Revisions

Purpose: The purpose of this project is to increase the viability of walking as a form of transit and reduce vehicular usage.

Need: Parking is currently highly segregated and based on private lots, which increases short distance vehicle trips which could have been pedestrian trips. In addition, parking lots for commercial areas trend towards parking in the front as opposed to the rear of the establishment, and create partial barriers to access from pedestrian paths along the right-of-way.

Description: Parking ordinances should be reviewed and amended to provide reduced parking during land development. Ideas which have been incorporated in other municipalities include a reduction in parking in return for a contribution to a shared parking structure fund, density bonuses, and other shared parking regulations. Street parking generally does not exist close to existing commercial areas, but would be a form of shared parking that could reduce short distance vehicular trips.

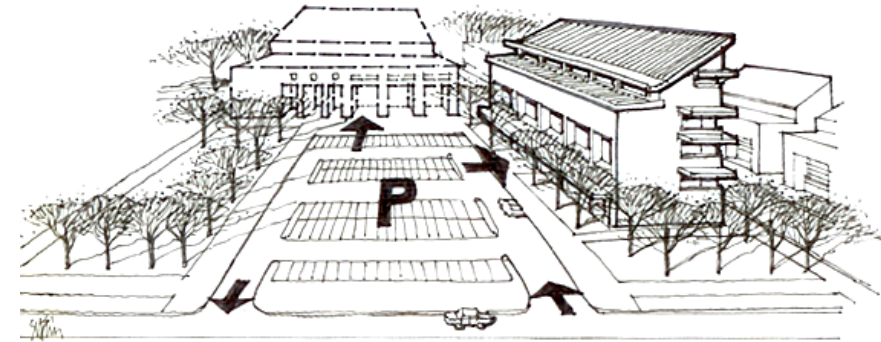
In addition, incorporation of developmental regulations to provide a specific, landscaped pedestrian path to the entrance of the building, which will aid in pedestrian mobility, may require a slight reduction in parking requirements. However, where possible, especially in mixed-use districts, required parking should be reduced, and placed to the rear of the building. This will allow buildings to be built close to the pedestrian right-of-way, and allow for positive development of the pedestrian realm, which will increase walking as a mode of transit over time.

Cost:

Planning: \$7,000

Design: NA

Construction: NA



Shared parking can take the form of lots (Top), or, as seen in Downtown Miami, through street parking (Bottom)

Source: (Top) <http://www.wbdg.org/>, (Bottom) <http://www.miamiurbanist.com/>

Project Category: Policy

Project Number: P9

Project Name: Transportation Demand Management

Purpose: The purpose of this project is to encourage travelers to use the transportation network differently by modifying the times they need to travel to and from work.

Need: The roadway network is highly congested but primarily at peak hours. What is shown is that congestion levels are not as severe outside of peak hours. In more mature communities, congestion is seen well outside of the peaks. In the case of Doral, if some people have the flexibility to travel outside of the peaks it will relieve congestion during the peaks, speeding the travel time and minimizing delay in the peaks.

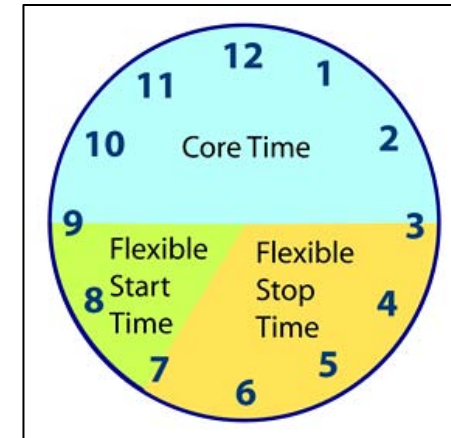
Description: Work with South Florida Commuter Services and City Staff to develop techniques, incentives and programs to encourage transportation demand strategies, including telecommuting, flexible work hours, flexible Fridays, etc.

Cost:

Planning: \$10,000

Design: NA

Implementation: TBD



Flexible start times allow for workers to avoid peak congestion hours (Top), while managed lanes allow for both vehicles and mass transit to make more timely arrivals (Bottom).

Source (Top):

<http://psychologyineverydaywork.blogspot.com/>

(Bottom): Federal Highway Administration, Courtesy of the Florida Department of Transportation



Project Category: Pedestrian/Policy

Project Number: P10

Project Name: Preserve Pedestrian Pathways During and Post Construction

Purpose: The purpose of this project is to review, make any necessary adjustments, and quickly enforce ordinances regarding temporary ROW for pedestrians during construction and utilities work and the repair of pedestrian sidewalks post

Need: Construction temporarily closes off pedestrian pathways, but often does not create clearly marked alternatives to the path. In cases where construction is halted and not resumed, a permanent gap in walkable area has occurred in Doral.

Description: Review processes by which permits are granted to include provisions of clearly marked pedestrian pathways separated from vehicular traffic, as part of each project's maintenance of traffic plans.

Cost:

Planning: TBD

Design: TBD

Construction: TBD



The above represent existing conditions in Doral where adoption of specific policies can enhance the pedestrian environment and encourage walking.

Task VI **Implementation Strategy**

Task VI: Implementation Strategy

This section presents a prioritized subset of projects from the project development presented in Task V, and separates these projects by area in order to assist in their implementation.

After the creation of the project development, as noted in Task V, the individual projects were then applied to specific corridors and transfer “hubs” intersections, with the intent of yielding the highest return and maximizing potential catalytic effects from multimodal project investments. After mapping all of the projects throughout Doral, the development of these hub and corridor locations were based on land use, focusing on current development and population densities, with additional considerations of recommended projects’ geographic concentrations, the potential for immediate impact, and existing mass-transit routing and traffic within the City.

This analysis yielded three (3) corridor areas and six (6) transfer hubs within Doral:

Corridors:

- NW 41st Street
- NW 58th Street
- NW 87th Avenue

Hubs:

- Miami International Mall
- NW 58th Street and NW 102nd Avenue
- NW 58th Street and NW 107th Avenue
- NW 74th Street and NW 107th Avenue
- NW 33rd Street and NW 107th Avenue
- NW 25th Street and NW 107th Avenue

After the specific intersections and corridors were determined by their geographical location and relation to origins and destinations within Doral, as well as their geographical proximity to each other, a buffer area of 0.25 mile from each corridor or intersection was chosen for further evaluation of existing conditions and implementation of projects. The resulting areas and hubs listing shows the specific

location and costs of projects as they apply specifically in the landscape, and serves as a prioritized subset of the overall project development listed in Task V.

While the current approach presents a prioritization on a specific geographic basis, there are still policy and other city-wide programs which may be implemented, and thus were retained within the project development and should still be considered for implementation. Consideration of potential pulse routes for the Doral Trolley is thus included as part of this prioritization.

Because the majority of recommended projects trend toward physical interventions, the hub and corridor development approach undertaken in this report provides a fiscally superior option. Evaluation of the projects as they applied to Doral showed that various improvements could be bundled together instead of being applied separately at different locations and points in time. In some cases, this potentially allows for cost savings from the scale and scope considerations of implementation which affect cost, including considerations of mobilization and maintenance of traffic costs.

Furthermore, holistic application of area improvements allows for a more integrated area design that takes into account the various competing factors in right-of-way dedication for multi-modal transit. By taking a more holistic and mid-range planning approach regarding project implementation, there may also be additional cost savings through the reduction of cost duplication which can be found when prior implemented projects must be temporarily removed and replaced.

This mobility plan should act as a guideline for future project efforts, and it is anticipated that the staff will consider these lists as a component of all the issues that go into the annual budgeting and project prioritization process for project inclusion into the Capital Improvements Program. The hubs and corridors and the projects listed therein should be revisited each year in an effort to consider the completeness of project implementation, to account for any shifts in the mass-transit route system, to match projects with the community’s changing needs, and consideration of available funding resources which may be available for these projects. This document should also be updated every several years to evaluate changes in land development, demographic patterns, and funding streams as well as policy shifts.

Hub and Corridor Prioritization:

The Corridor and Hub maps in this section serve as a prioritized project bank for the City in implementation. In development of the Corridors, not every intersection was necessarily identified for development, as can be seen on the NW 87th Avenue Corridor. The specific intersections which have been highlighted in the following maps should be first developed as a whole before other intersections in the Corridor are slated for improvements.

Of course, the project development and project banks should be implemented with funding availability and limitations in mind. As future City development comes to fruition, the City should continue to evaluate these nodes and other areas of the City utilizing the Project Development sheets and comparing the City's needs in relation to areas of natural transfer points, areas of increasing need, and areas of expected needs in the future, and amend to add or re-order these intersections accordingly.

18 node areas have been identified by the Corridor and Hubs system. There are differences in the land use and geographical location of the nodes in relation to transit routes, which allow for further categorization to create better focus in project implementation. Among the various nodes, we recommend the following prioritization category levels for consideration by the City:

1. "Nexus": Intersections which are natural transfer points for multiple Corridors or Hub concentration areas.
2. "Current High Impact": Intersections where current traffic is high or where land use results in higher density. These improvements are likely to have a better rate of immediate impact.
3. "Future High Impact Areas": Intersections/Areas which merited inclusion for Hubs and Corridor development based on currently developing or expected future development, such as the new mixed-use development expected in the vicinity of NW 74th Street and NW 107th Avenue.

As applied:

1. "Nexus" is recommended that the specific hubs and intersections which intersect with the designated Corridor receive the highest priority as "Nexus" transfer points. These nodes are:

- a. NW 36th Street/NW 41st Street/NW 33rd Street and NW 87th Avenue (+/- \$3,871,000)
- b. NW 58th Street and NW 107th Avenue (+/- \$531,700)
- c. NW 41st Street and NW 107th Avenue (+/- \$1,869,500)

2. "High Impact" area nodes provide relatively high return on investment. The development of these nodes provide the second tier of development which branches the next connection and builds off the "Nexus" nodes. These nodes are:

- a. NW 12th Street and NW 107th Avenue - Miami International Mall (+/- \$361,000)
- b. NW 58th Street and NW 97th Avenue (+/- \$367,200)
- c. NW 25th Street and NW 87th Avenue (+/- \$267,500)
- d. NW 25th Street and NW 107th Avenue (+/- \$1,713,500)
- e. NW 41st Street and NW 97th Avenue (+/- \$876,800)
- f. NW 41st Street and NW 102nd Avenue (+/- \$741,000)
- g. NW 41st Street and NW 114th Avenue (+/- \$1,179,750)
- h. NW 58th Street and NW 102nd Avenue (+/- \$1,004,200)

3. "Future High Impact Areas" area nodes provide areas of needed development to address emerging needs in the immediate future. These nodes are:

- a. NW 74th Street and NW 107th Avenue (+/- \$1,120,800)
- b. NW 58th Street and NW 92nd Avenue (+/- \$32,000)
- c. NW 58th Street and NW 87th Avenue (+/- \$93,800)
- d. NW 58th Street and NW 82nd Avenue (+/- \$122,500)
- e. NW 41st Street and NW 112th Avenue (+/- \$473,150)
- f. NW 33rd Street and NW 107th Avenue (+/- \$1,426,500)
- g. NW 12th Street and NW 87th Avenue (+/- \$223,000)

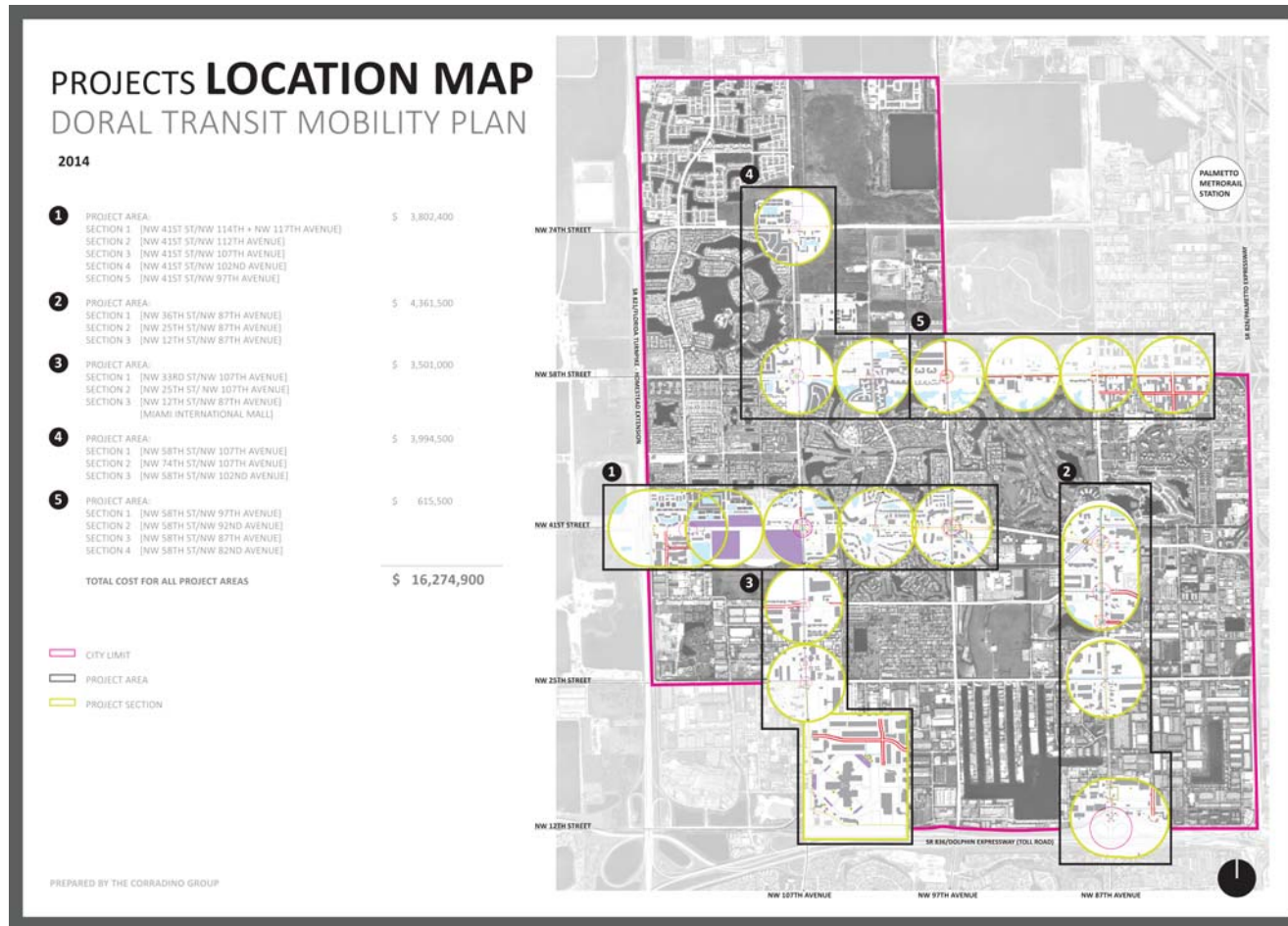


Figure 1. Recommended Projects - Location Map

Project Area 1 Corridor

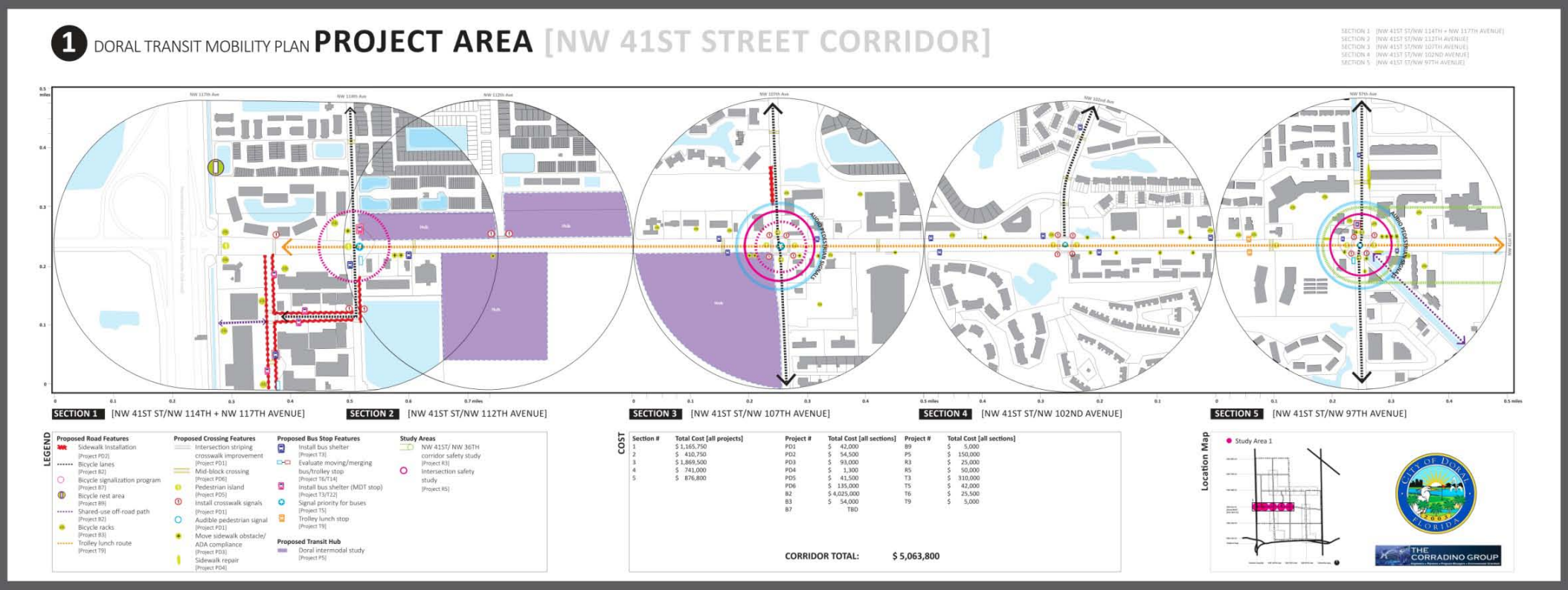


Figure 2. Project Area 1

Node at NW 41st Street/ NW 114th + NW 117th Avenue



Figure 3. Section 1.1 Existing

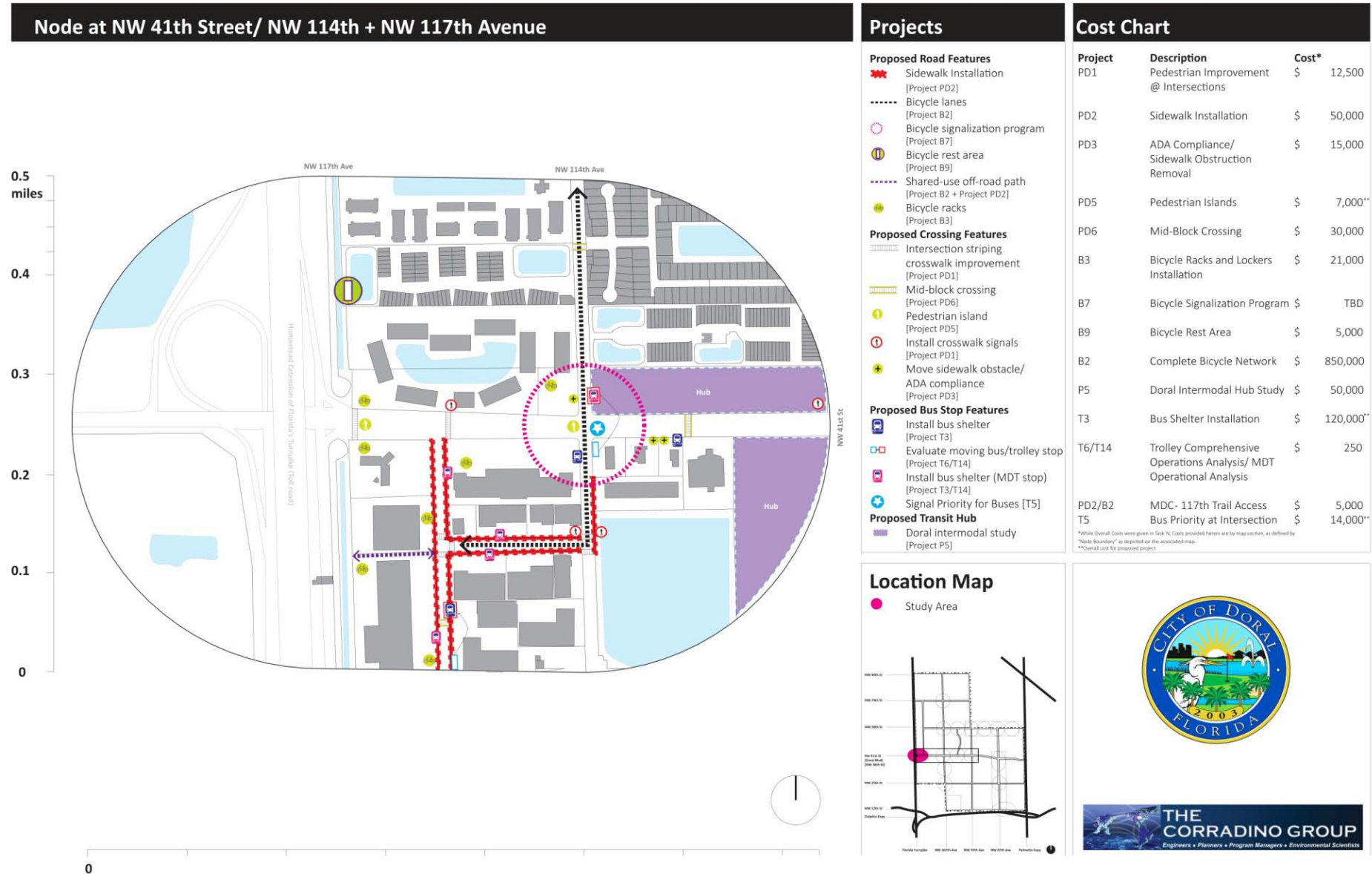


Figure 4. Section 1.1 Recommendations

Node at NW 41st Street/ NW 112th Avenue

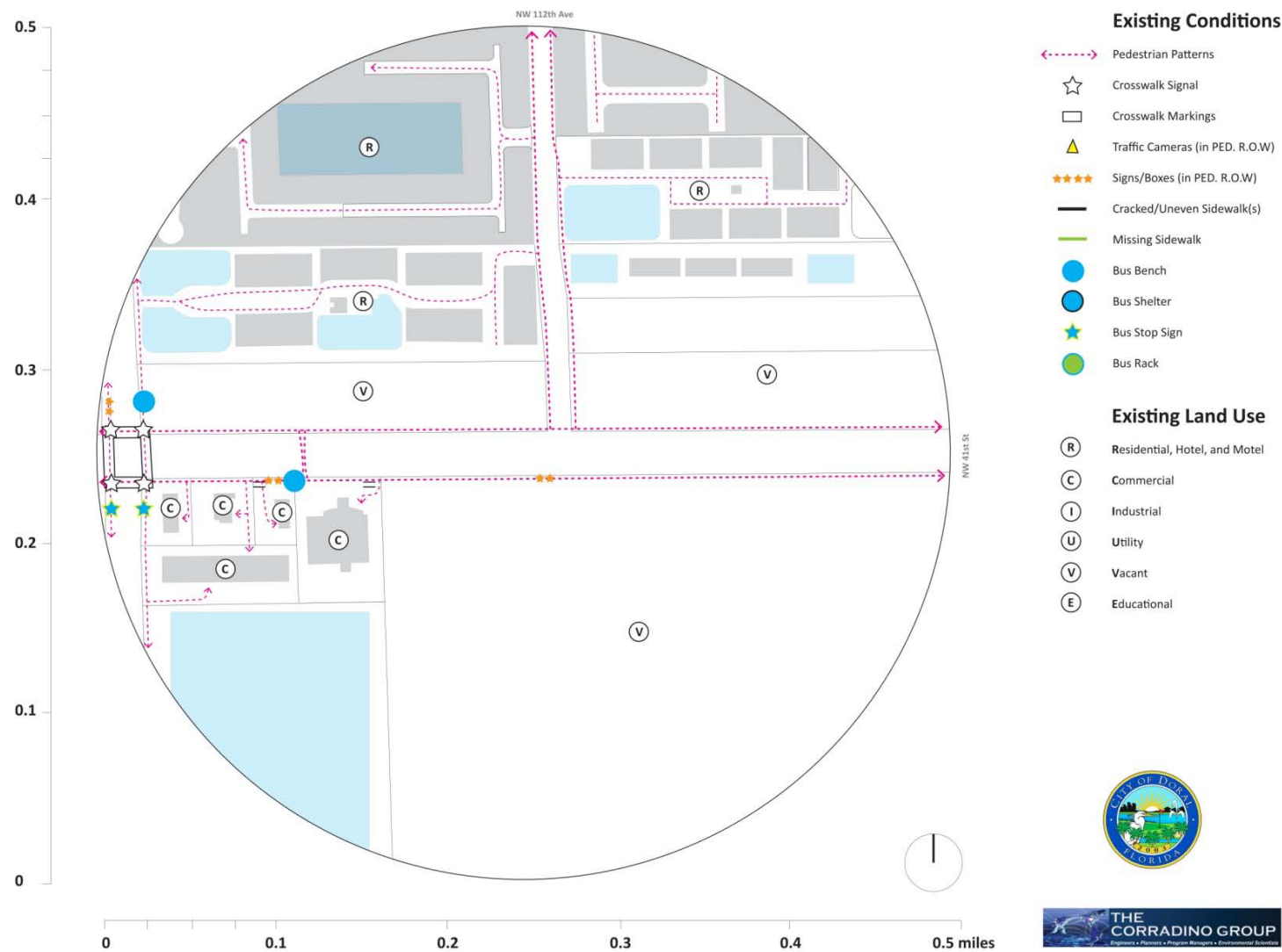


Figure 5. Section 1.2 Existing



Figure 6. Section 1.2 Recommendations

Node at NW 41st Street/ NW 107th Avenue



Figure 7. Section 1.3 Existing

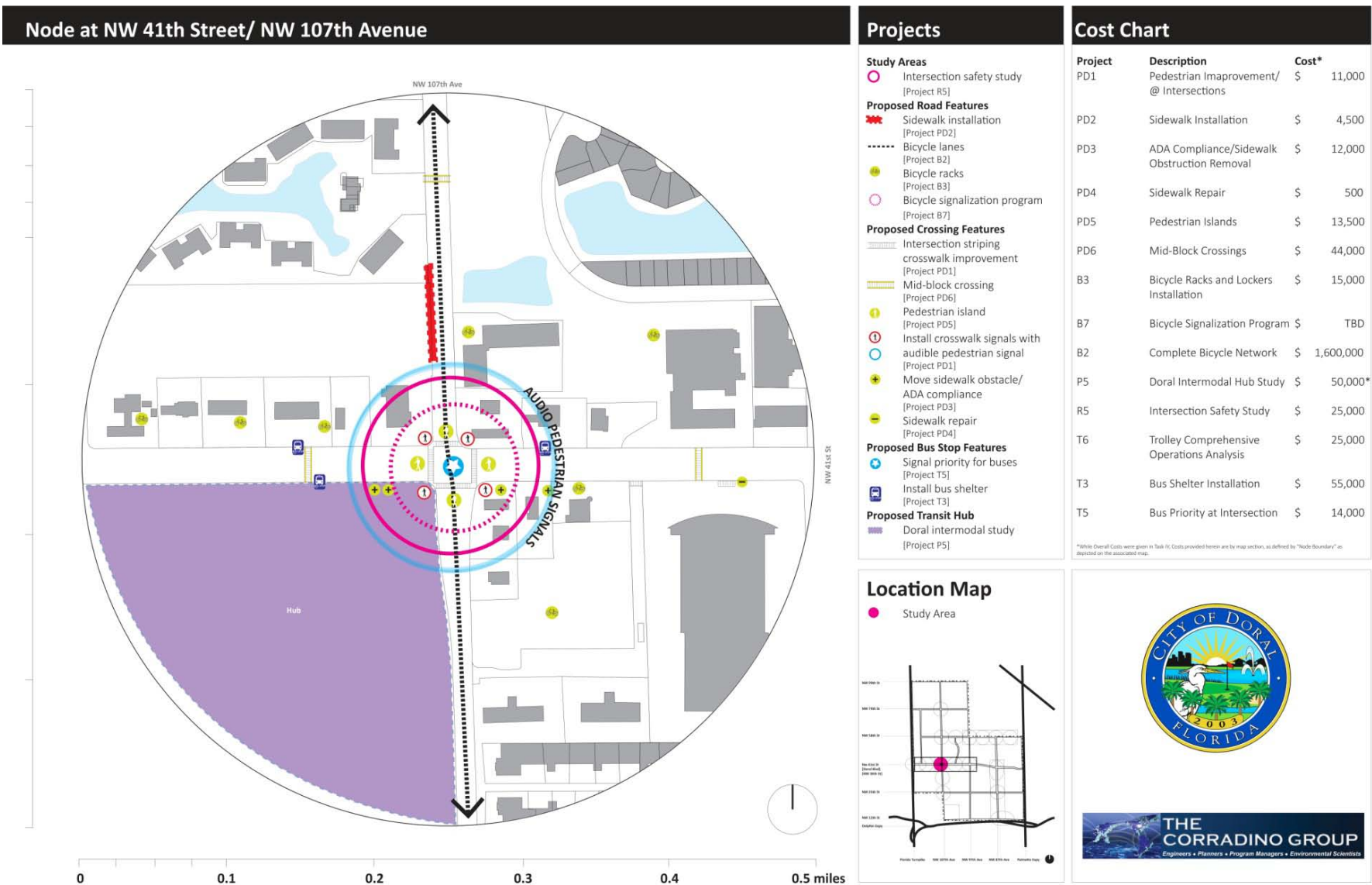


Figure 8. Section 1.3 Recommendations

Node at NW 41st Street/ NW 102nd Avenue

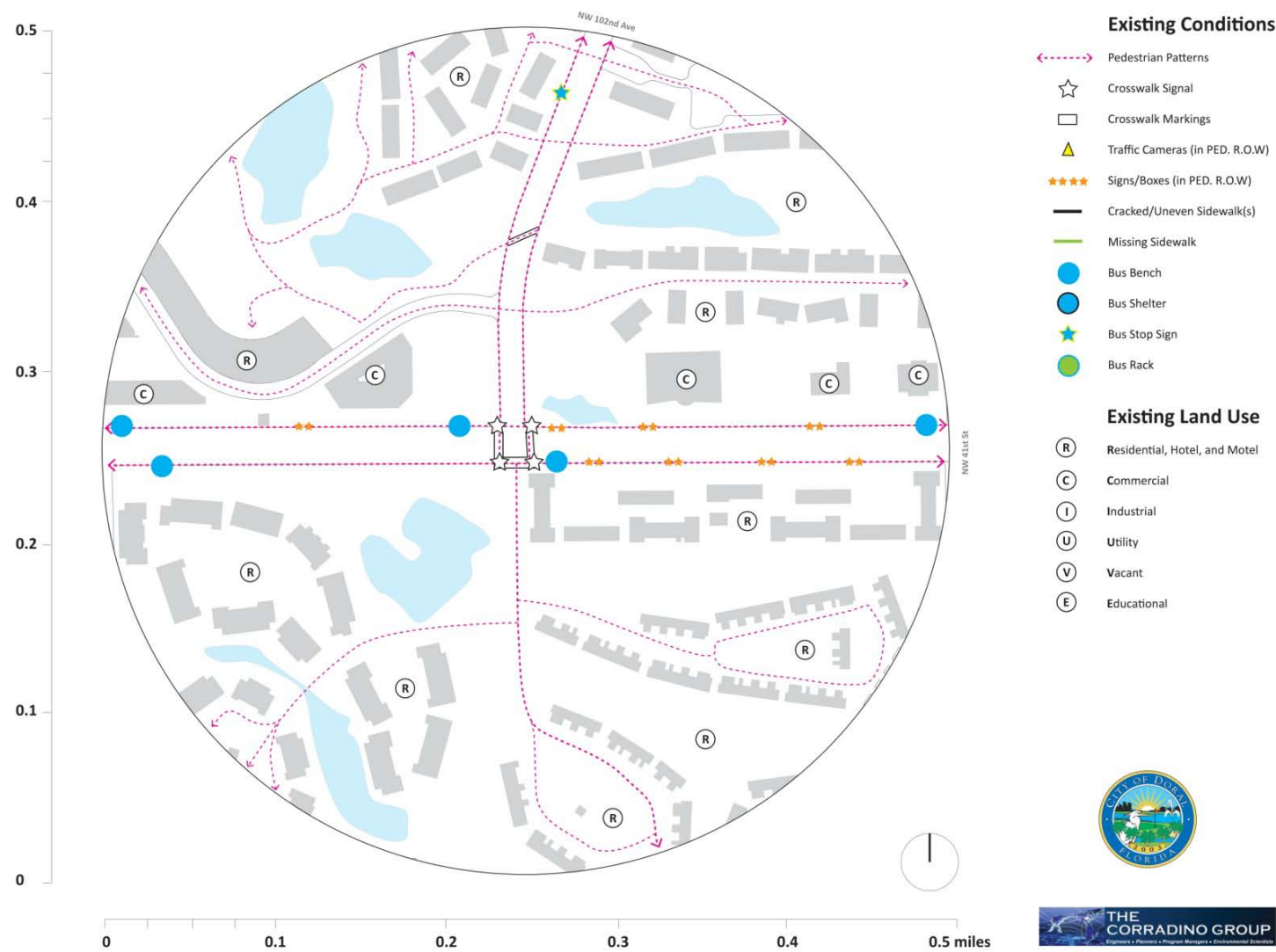


Figure 9. Section 1.4 Existing



Figure 10. Section 1.4 Recommendations

Node at NW 41st Street/ NW 97th Avenue

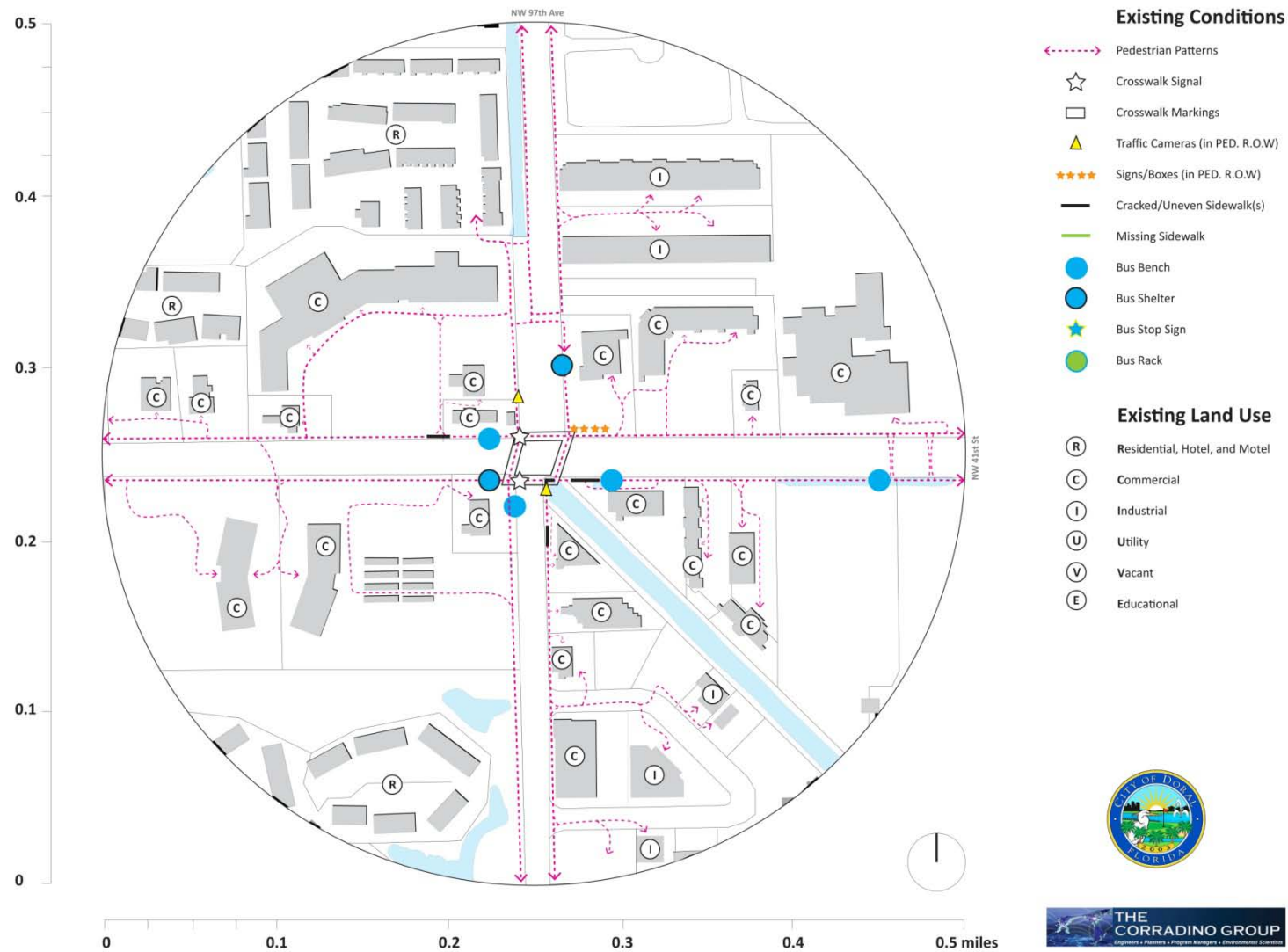


Figure 11. Section 1.5 Existing

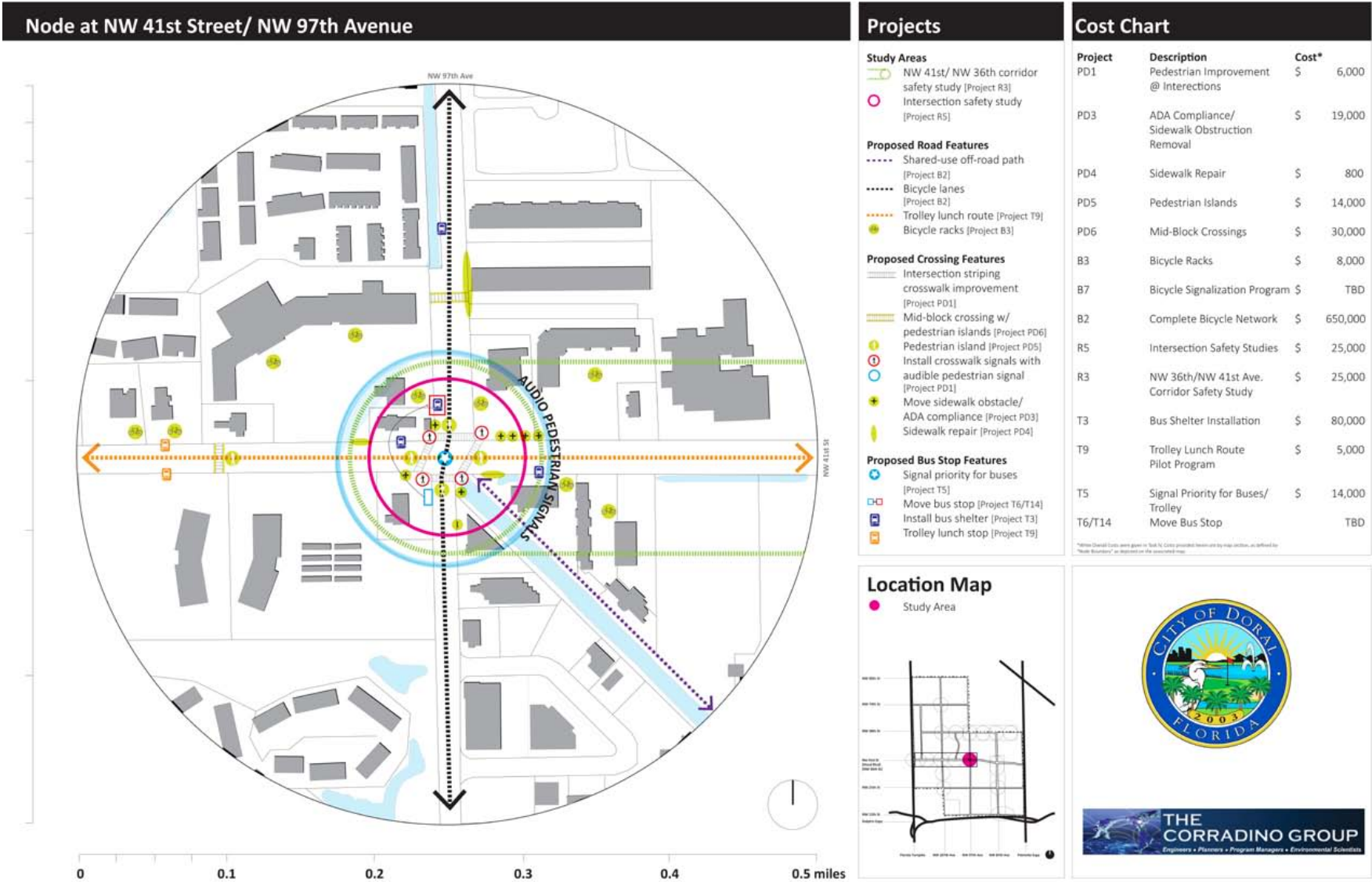


Figure 12. Section 1.5 Recommendations

Project Area 2 Corridor

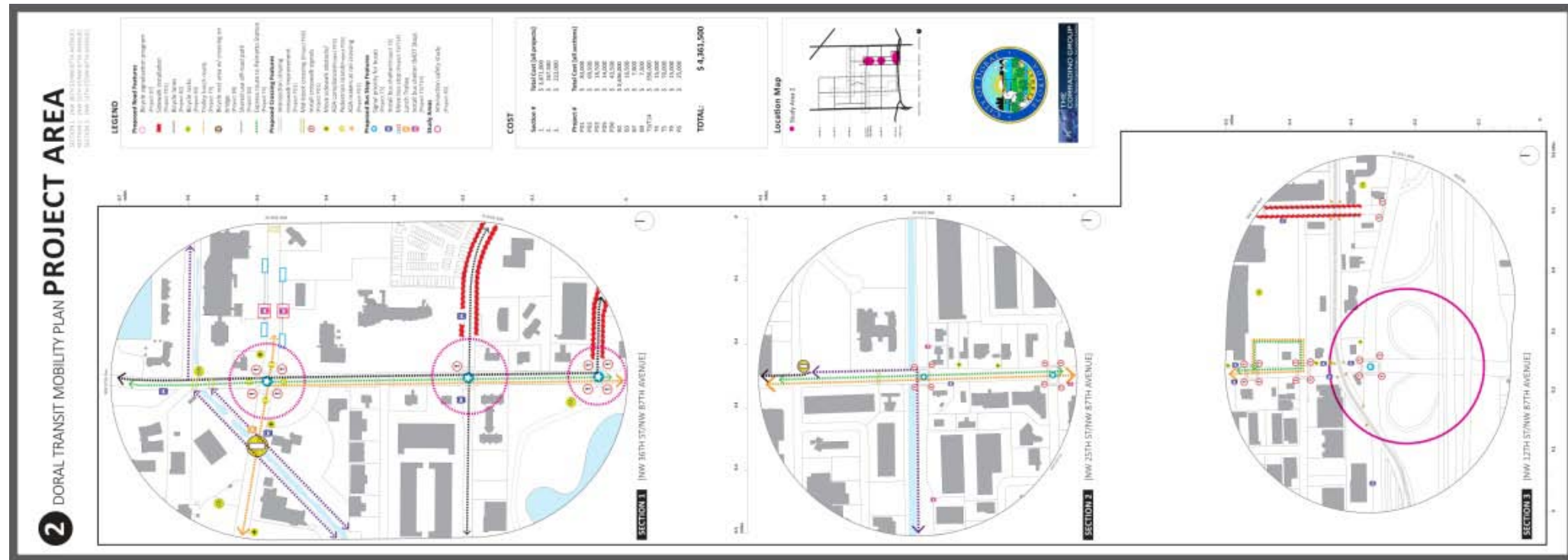


Figure 13. Project Area 2

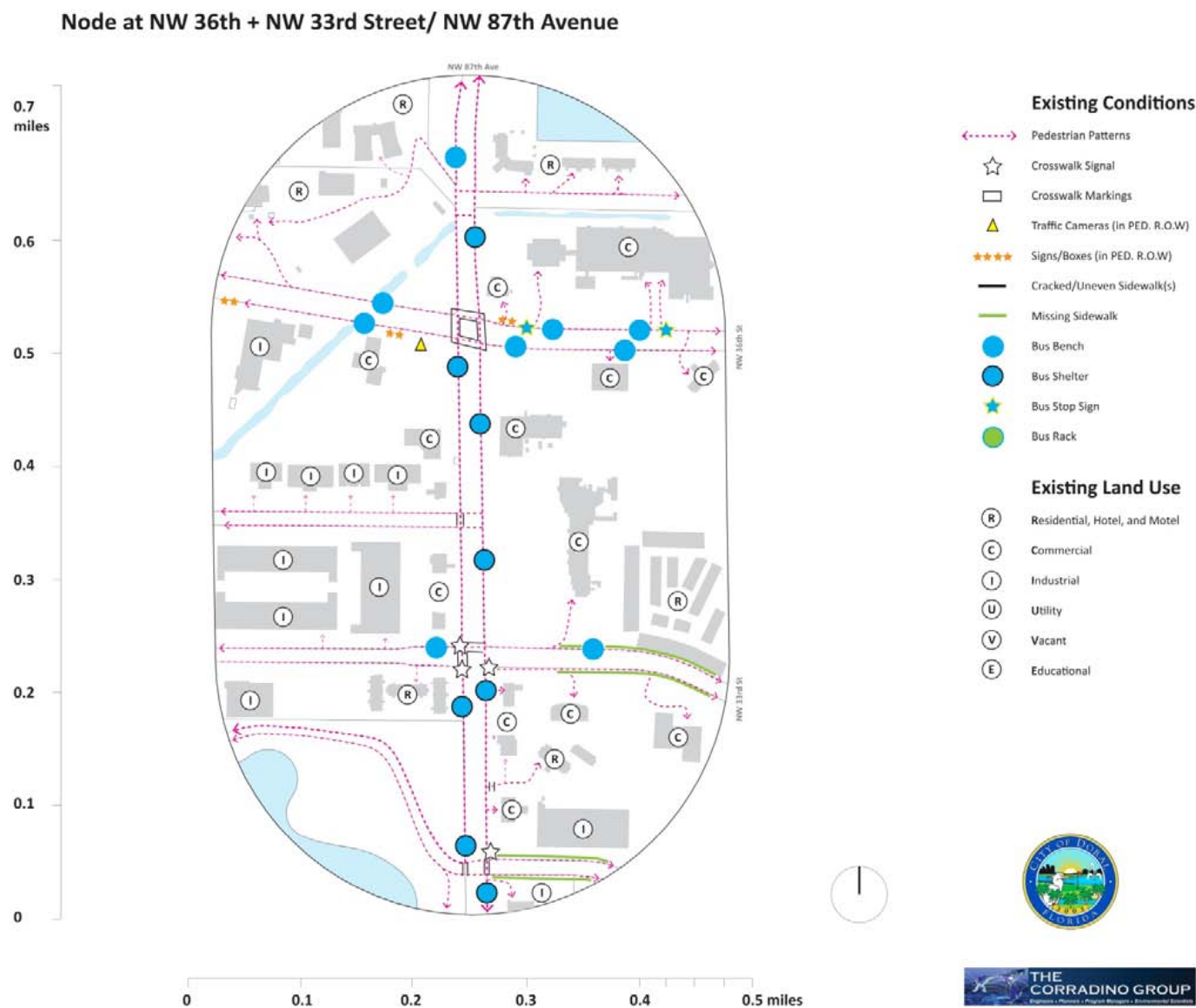


Figure 14. Section 2.1 Existing

Node at NW 25th Street/ NW 87th Avenue

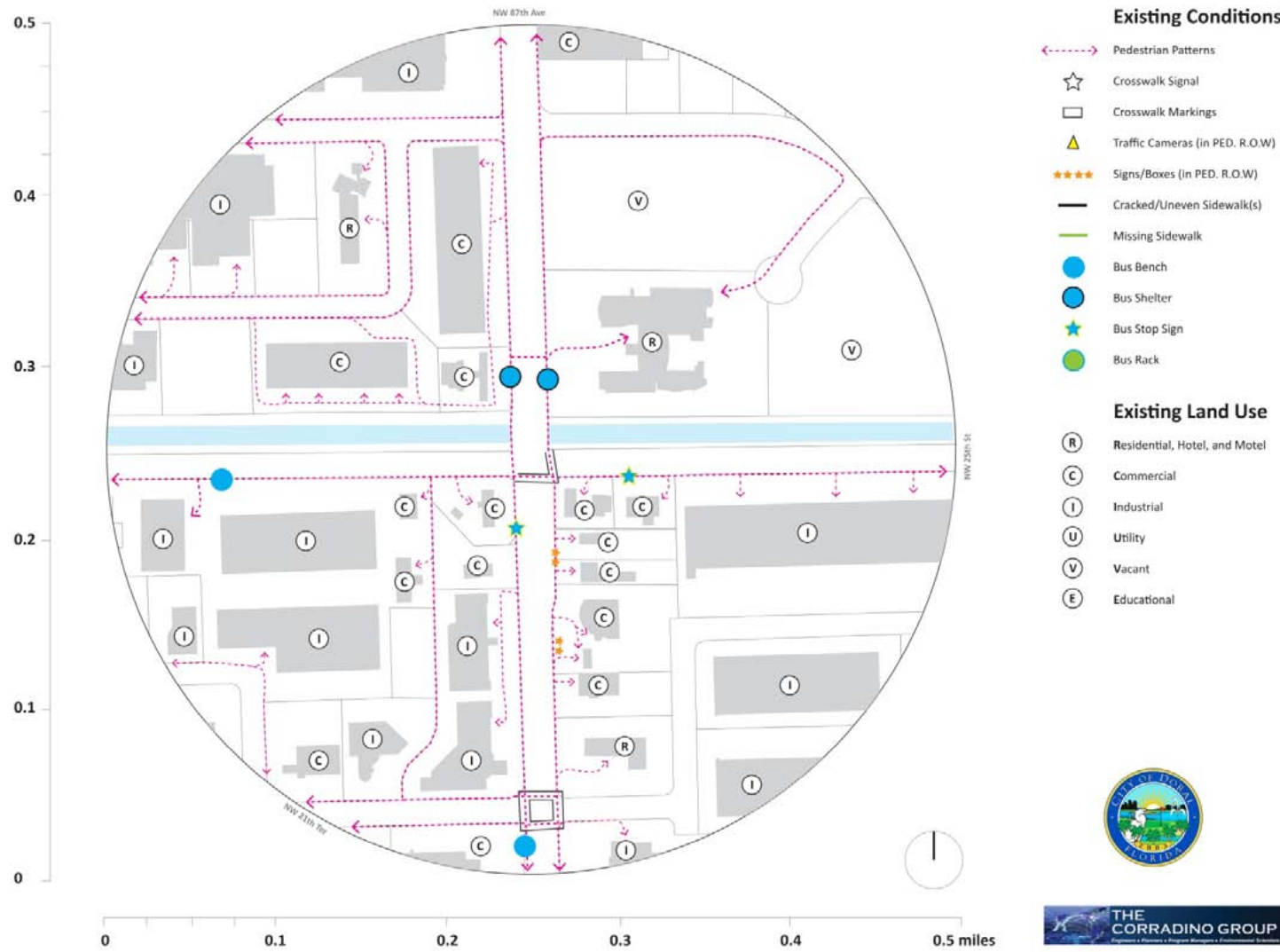


Figure 16. Section 2.2 Existing

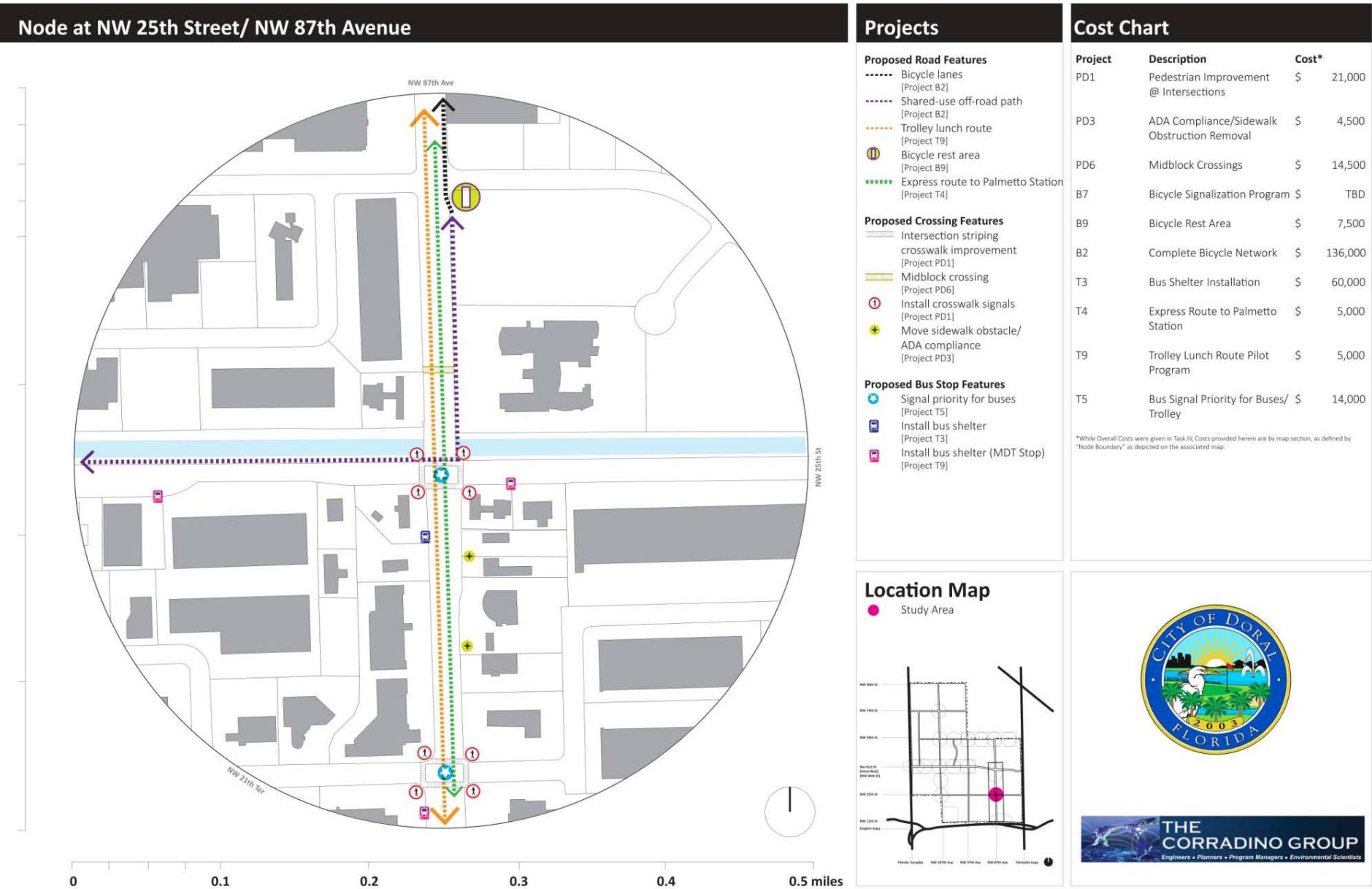


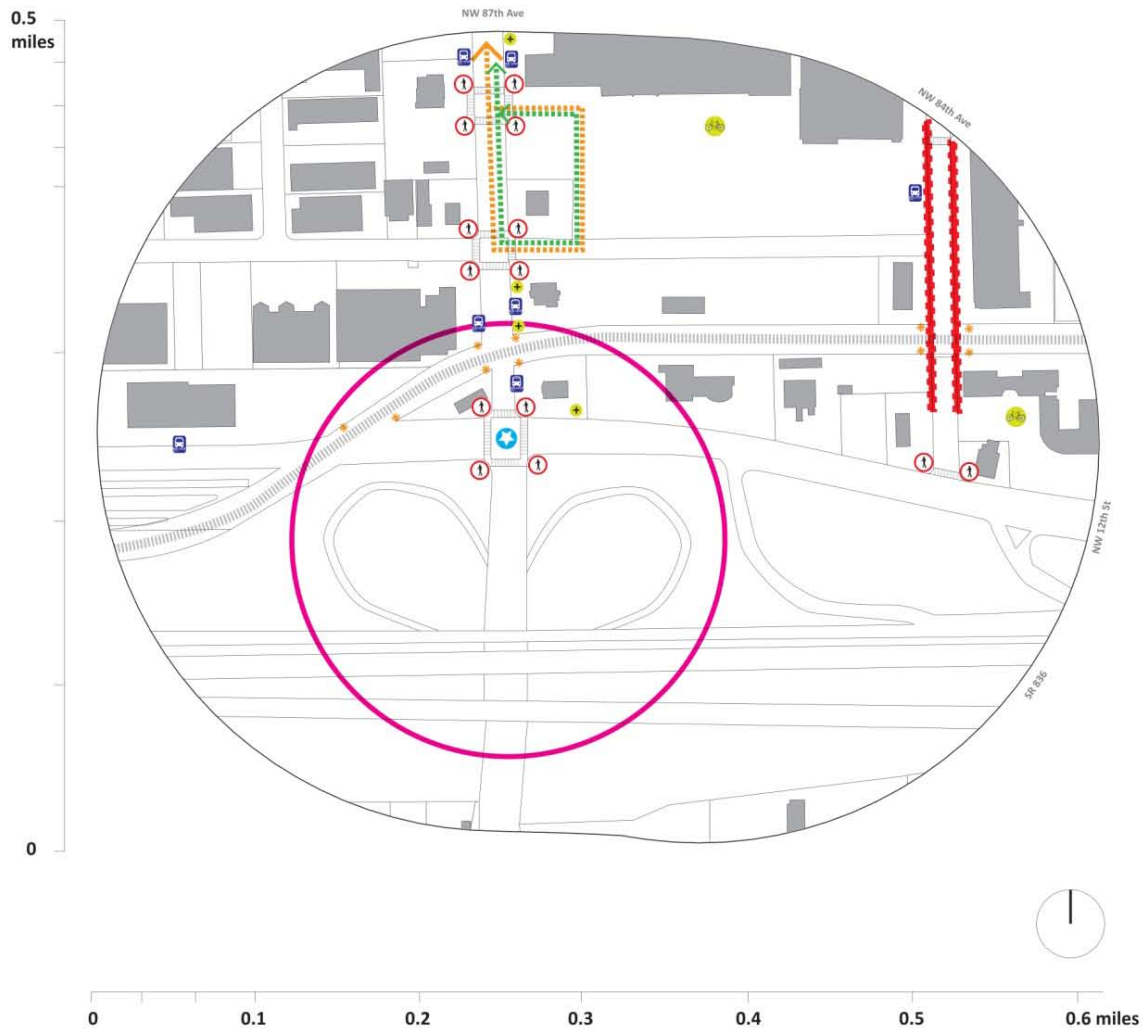
Figure 17. Section 2.2 Recommendation

Node at NW 12th Street/ NW 87th Avenue














Figure 18. Section 2.3 Existing

Node at NW 12th Street/ NW 87th Avenue



Projects

-  Intersection safety study
[Project R5]
 - Proposed Road Features**
 -  Bicycle racks
[Project B3]
 -  Trolley lunch route
[Project T9]
 -  Sidewalk installation
[Project PD2]
 -  Express route to Palmetto Station
[Project T4]
 - Proposed Crossing Features**
 -  Intersection striping
crosswalk improvement
[Project PD1]
 -  Install crosswalk signals
[Project PD1]
 -  Move sidewalk obstacle/
ADA compliance
[Project PD3]
 -  ADA markers at rail crossing
[Project PD1]
 - Proposed Bus Stop Features**
 -  Signal priority for buses
[Project T5]
 -  Install bus shelter
[Project T3]

Cost Chart

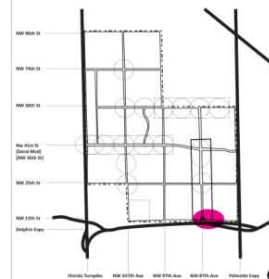
Project	Description	Cost*
PD1	Pedestrian Improvement @ Intersections	\$ 32,000
PD2	Sidewalk Installation	\$ 30,000
PD3	ADA Compliance/ Sidewalk Obstruction Removal	\$ TBD
B3	Bicycle Racks and Lockers	\$ 7,000
T3	Bus Shelter Installation	\$ 105,000
T4	Express Route to Palmetto Station	\$ 5,000
T9	Trolley Lunch Route Pilot Program	\$ 5,000
T5	Signal Priority for Buses/ Trolley	\$ 14,000
R5	Intersection Safety Studies	\$ 25,000
PD1	ADA Markers at Rail Crossing	\$ TBD

*While Overall Costs were given in Task IV, Costs provided herein are by map section, as defined by "Node Boundary" as depicted on the associated map.

*While Overall Costs were given in Task IV, Costs provided herein are by map section, as defined by "Node Boundary" as depicted on the associated map.

Location Map

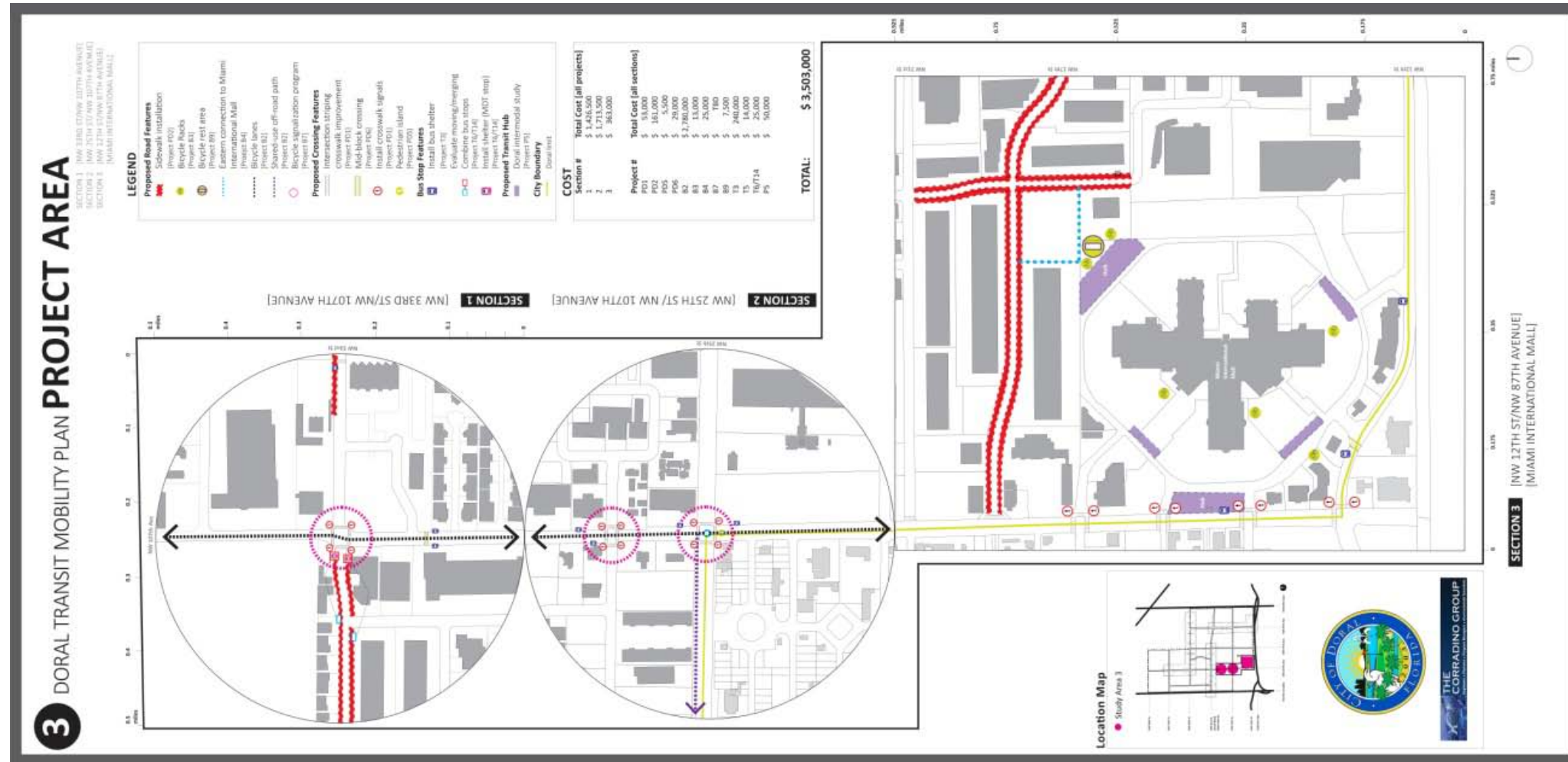
- Study Area



THE CORRADINO GROUP
Engineers • Planners • Program Managers • Environmental Scientists

Figure 19. Section 2.3 Recommendations

Project Area 3 Corridor



Node at NW 12th Street/ NW 107th Avenue - Miami International Mall

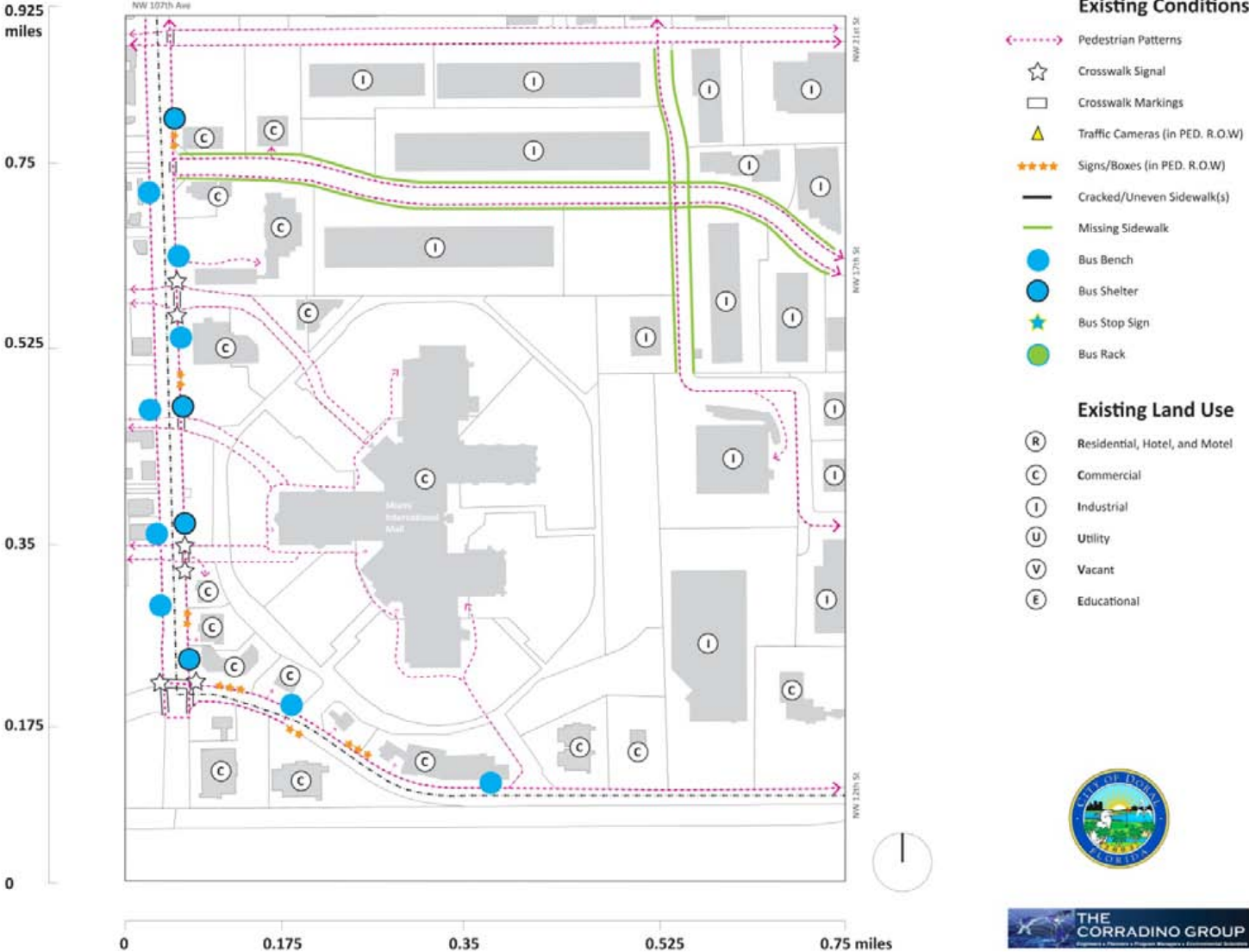


Figure 20. Section 3.1 Existing

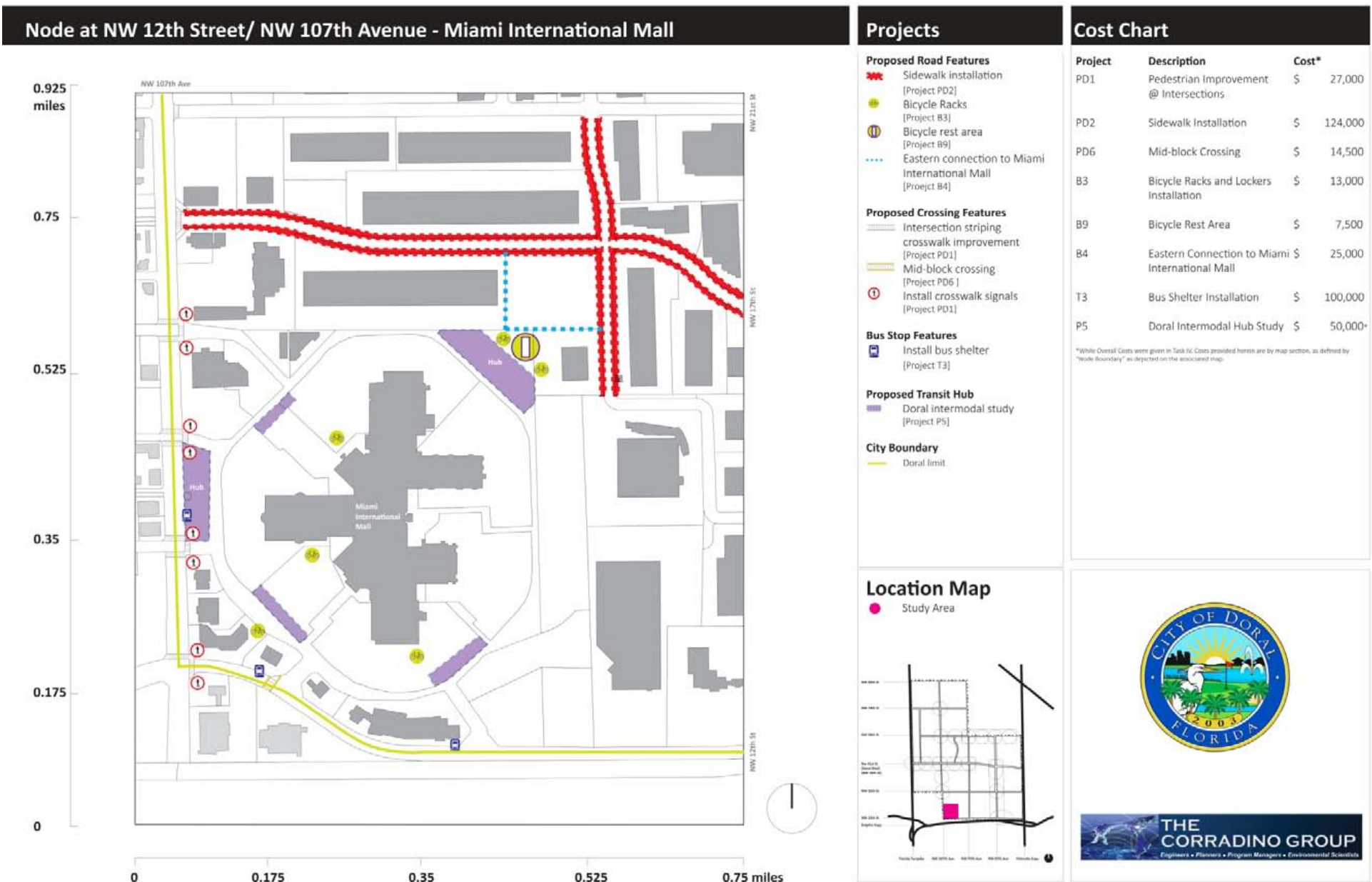


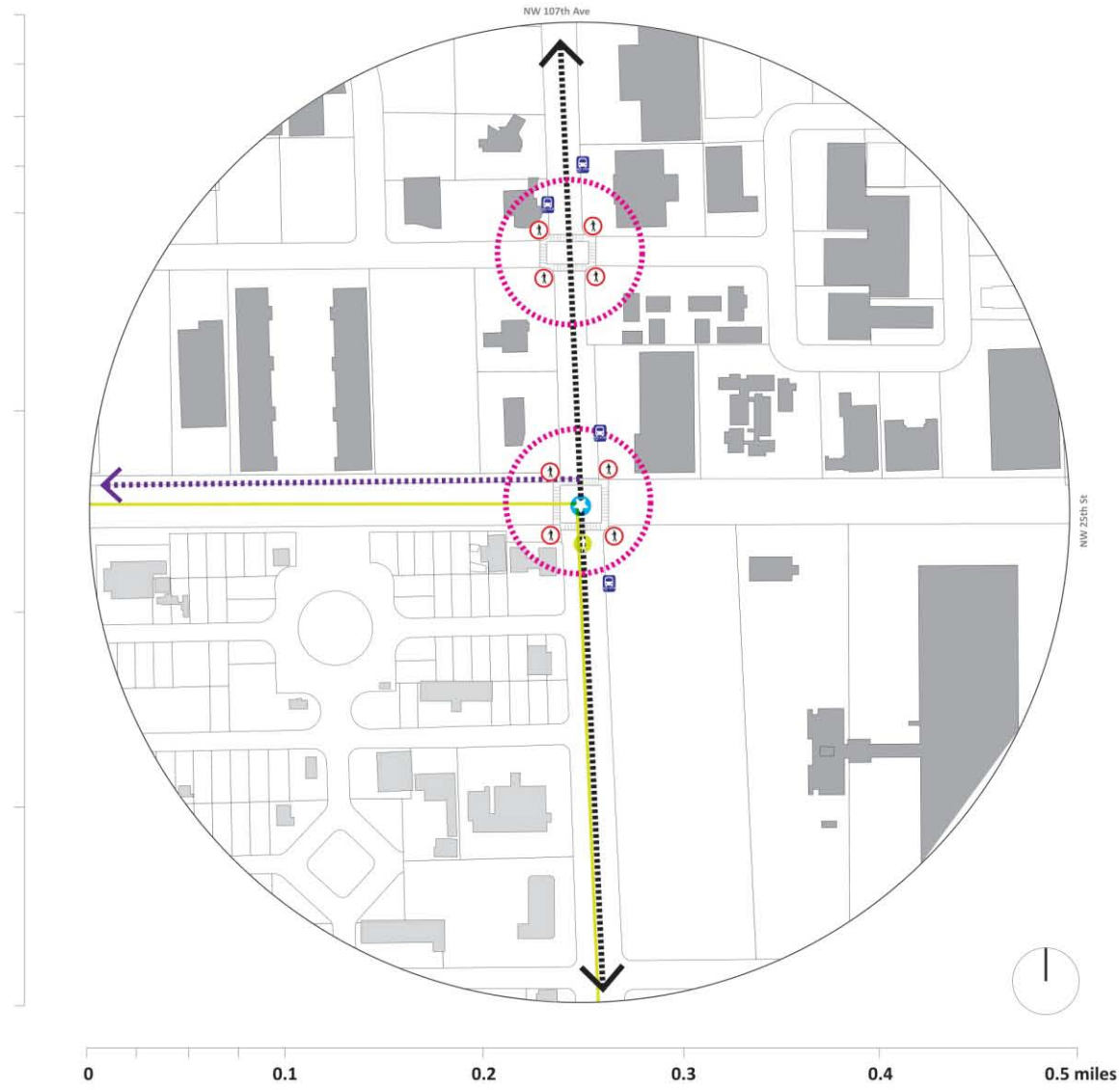
Figure 21. Section 3.1 Recommendations

Node at NW 25th Street/ NW 107th Avenue



Figure 22. Section 3.2 Existing

Node at NW 25th Street/ NW 107th Avenue



Projects

- ### Proposed Road Features
- Bicycle lanes
[Project B2]
 - Shared-use off-road path
[Project B2]
 - ⦿ Bicycle signalization program
[Project B7]
- ### Proposed Crossing Features
- ▤ Intersection striping
crosswalk improvement
[Project PD1]
 - Ⓡ Install crosswalk signals
[Project PD1]
 - Ⓢ Pedestrian island
[Project PD5]
- ### Proposed Bus Stop Features
- ⚡ Signal priority for buses
[Project T5]
 - 🚏 Install bus shelter
[Project T3]
- ### City Boundary
- Doral limit

Cost Chart

Project	Description	Cost*
PD1	Pedestrian Improvement @ Intersections	\$ 16,000
PD5	Pedestrian Islands	\$ 3,500
B7	Bicycle Signalization Program	\$ TBD
B2	Complete Bicycle Network	\$ 1,580,000
T3	Bus Shelter Installation	\$ 100,000
T5	Bus Signal Priority for Buses/ Trolley	\$ 14,000

*While Overall Costs were given in Task IV, Costs provided herein are by map section, as defined by "Node Boundary" as depicted on the associated map.

Location Map

● Study Area



**THE
CORRADINO GROUP**
Engineers • Planners • Program Managers • Environmental Scientists

Figure 23. Section 3.2 Recommendations

Node at NW 33rd Street/ NW 107th Avenue



Figure 24. Section 3.3 Existing

Node at NW 33rd Street/ NW 107th Avenue



Projects

- ### Proposed Road Features
-  Sidewalk installation
[Project PD2]
 -  Bicycle lanes
[Project B2]
 -  Bicycle signalization program
[Project B7]
- ### Proposed Crossing Features
-  Intersection striping
crosswalk improvement
[Project PD1]
 -  Mid-block crossing
[Project PD6]
 -  Install crosswalk signals
[Project PD1]
- ### Proposed Bus Stop Features
-  Install bus shelter
[Project T3]
 -  Evaluate moving bus/trolley stop
[Project T6/T14]
 -  Install shelter (MDT stop)
[Project T3/T14]

Cost Chart

Project	Description	Cost*
PD1	Pedestrian Improvement/ @ Intersections	\$ 10,000
PD2	Sidewalk Installation	\$ 37,000
PD6	Mid-Block Crossings	\$ 14,500
B7	Bicycle Signalization Program	\$ TBD
B2	Complete Bicycle Network	\$ 1,200,000
T6/T14	Trolley Comprehensive Operations Analysis/ MDT Operational Analysis	\$ 25,000*
T3	Bus Shelter Installation	\$ 140,000

*While Overall Costs were given in Task IV, Costs provided herein are by map section, as defined by "Node Boundary" as depicted on the associated map.

Location Map

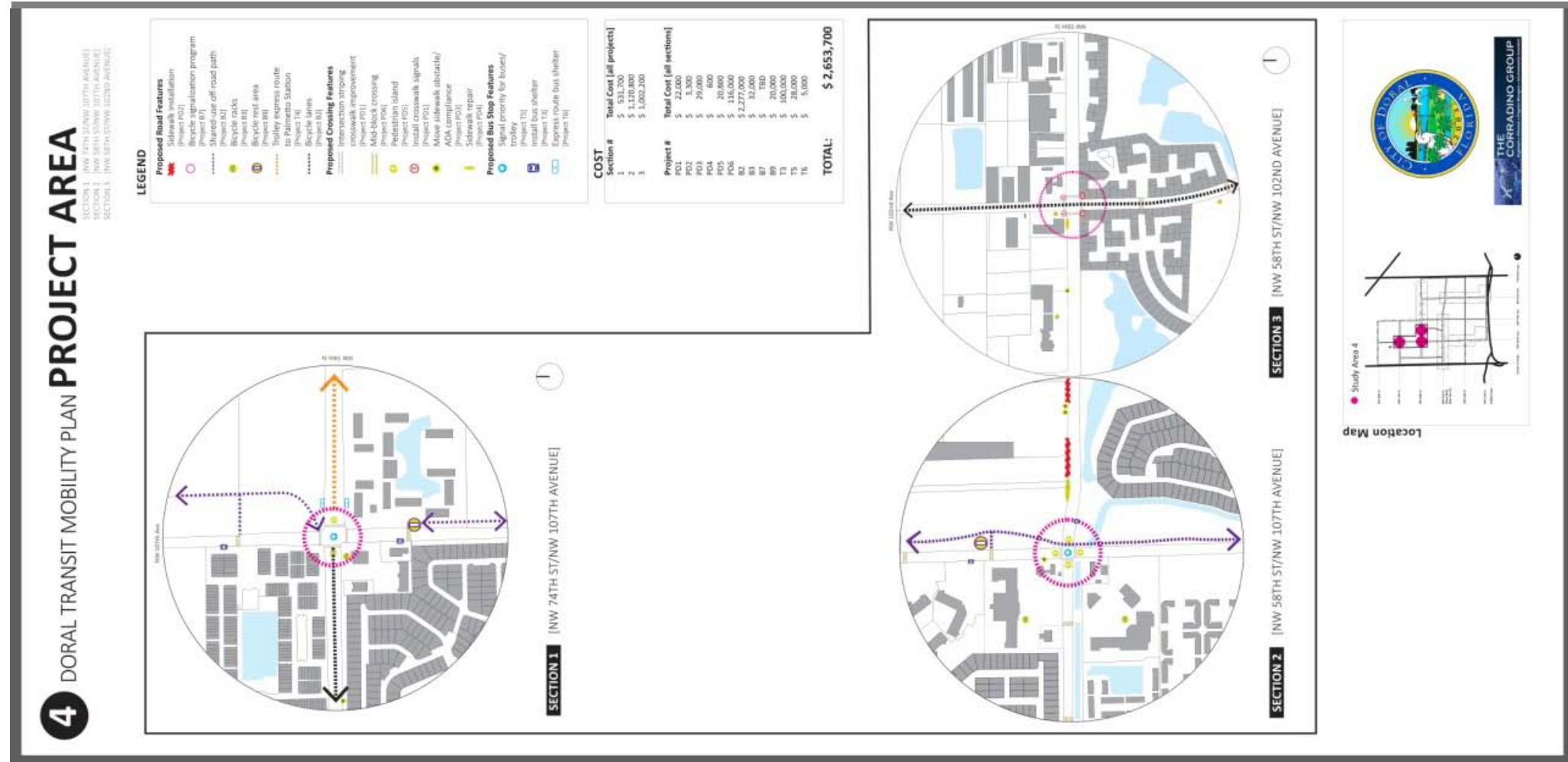
-



**THE
CORRADINO GROUP**
Engineers • Planners • Program Managers • Environmental Scientists

Figure 25. Section 3.3 Recommendation

Project Area 4 Corridor



Node at NW 74th Street/ NW 107th Avenue



Figure 26. Section 4.1 Existing

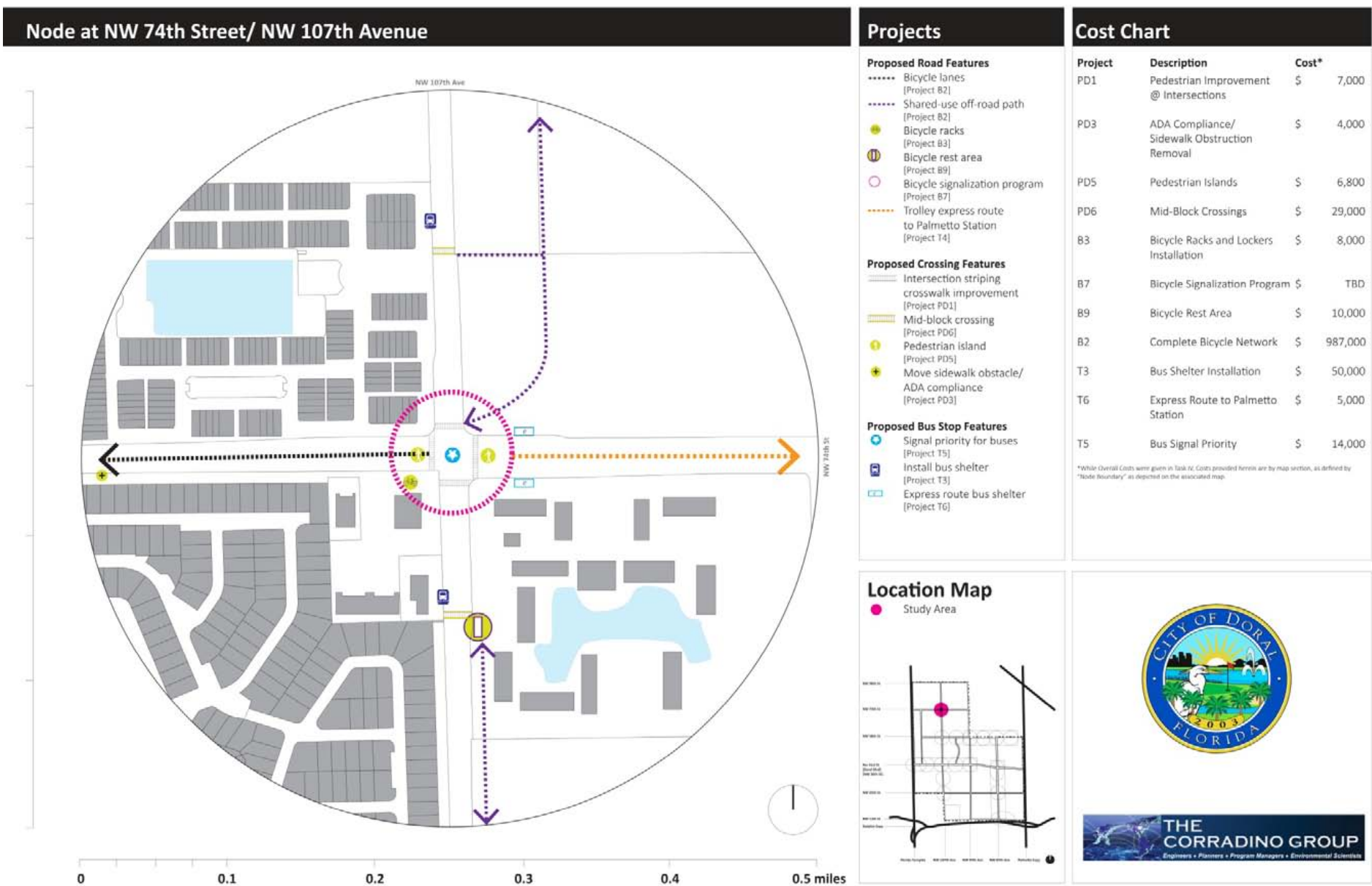


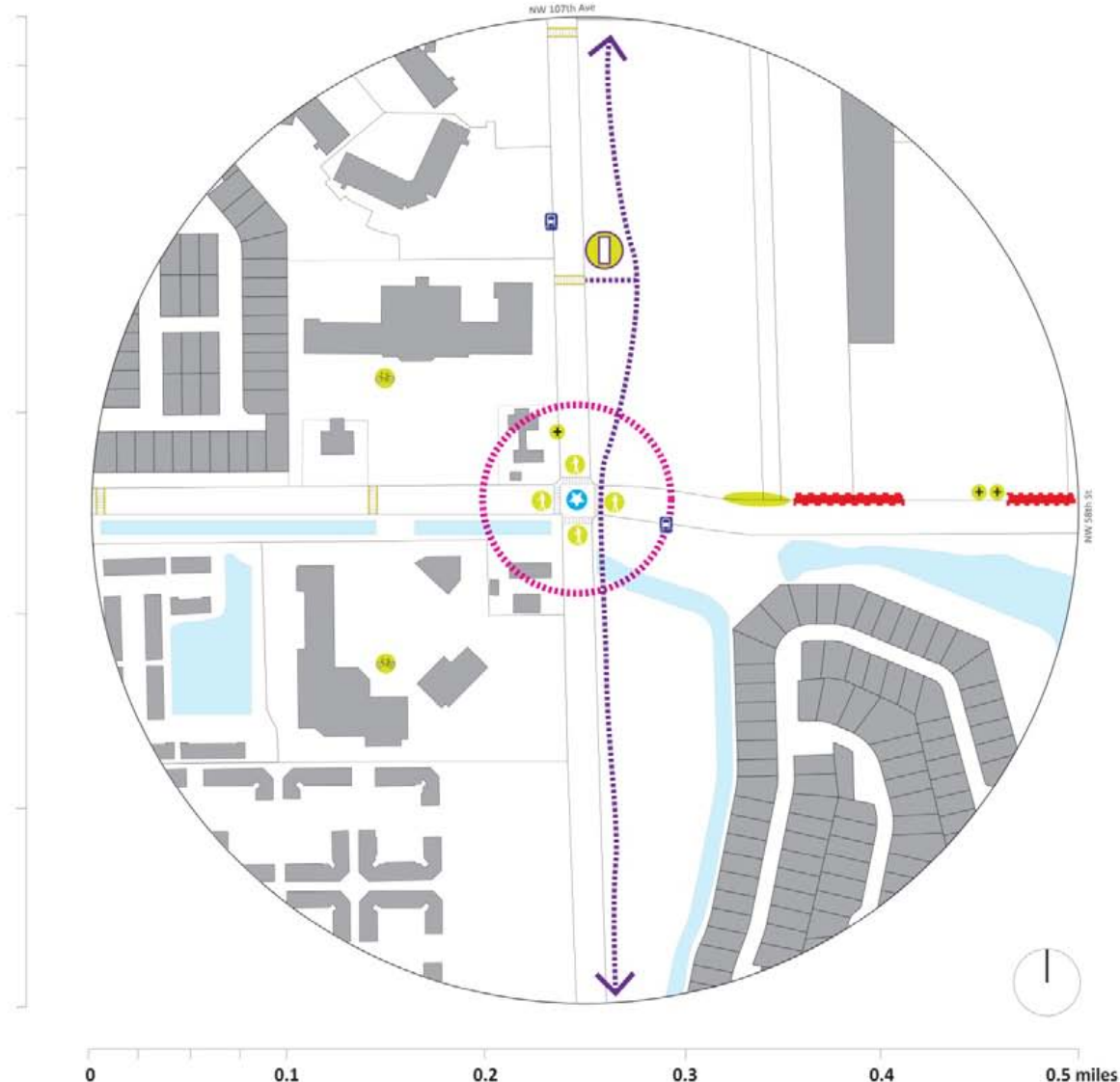
Figure 27. Section 4.1 Recommendations

Node at NW 58th Street/ NW 107th Avenue



Figure 28. Section 4.2 Existing

Node at NW 58th Street/ NW 107th Avenue



Projects

- Proposed Road Features**
- Sidewalk installation [Project PD2]
 - Bicycle signalization program [Project B7]
 - Shared-use off-road path [Project B2]
 - Bicycle racks [Project B3]
 - Bicycle rest area [Project B9]
- Proposed Crossing Features**
- Intersection striping crosswalk improvement [Project PD1]
 - Mid-block crossing [Project PD6]
 - Pedestrian island [Project PD5]
 - Install crosswalk signals [Project PD1]
 - Move sidewalk obstacle/ ADA compliance [Project PD3]
 - Sidewalk repair [Project PD4]
- Proposed Bus Stop Features**
- Signal priority for buses/ trolley [Project T5]
 - Install bus shelter [Project T3]

Cost Chart

Project	Description	Cost*
PD1	Pedestrian Improvement @ Intersections	\$ 6,000
PD2	Sidewalk Installation	\$ 3,300
PD3	ADA Compliance/ Sidewalk Obstruction Removal	\$ 21,000
PD4	Sidewalk Repair	\$ 400
PD5	Pedestrian Islands	\$ 14,000
PD6	Mid-Block Crossings	\$ 58,000
B3	Bicycle Racks and Lockers Installation	\$ 15,000
B7	Bicycle Signalization Program	\$ TBD
B9	Bicycle Rest Area	\$ 10,000
B2	Complete Bicycle Network	\$ 340,000
T3	Bus Shelter Installation	\$ 50,000
T5	Signal Priority for Buses/ Trolley	\$ 14,000

*Whole Overall Costs were given in Task 4. Costs provided herein are by map section, as defined by "Node Boundary" as depicted on the associated map.

Location Map



Figure 29. Section 4.2 Recommendation

Node at NW 58th Street/ NW 102nd Avenue



Figure 30. Section 4.3 Existing



Figure 31. Section 4.3 Recommendations

Node at NW 58th Street/ NW 97th Avenue

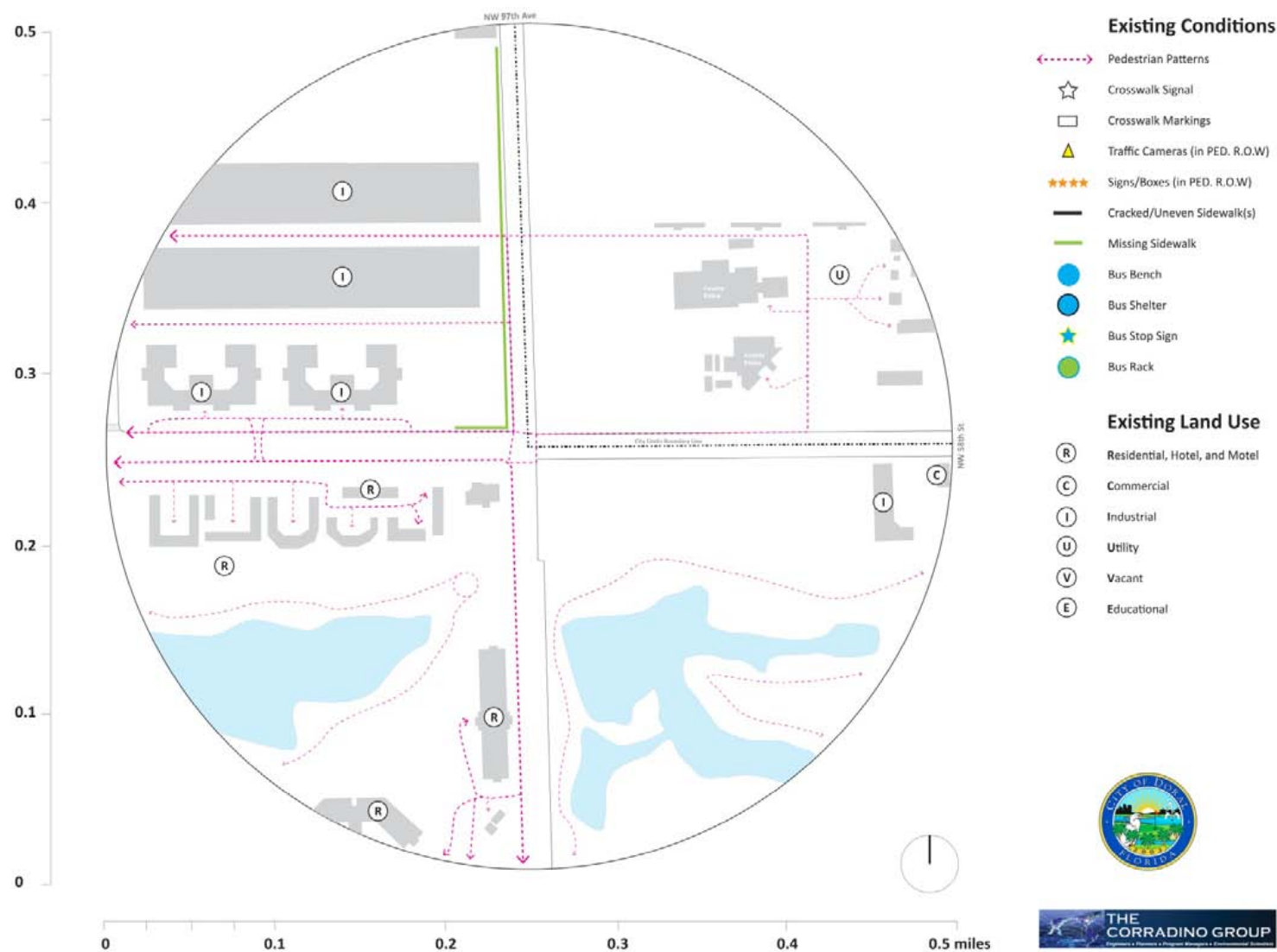


Figure 32. Section 5.1 Existing

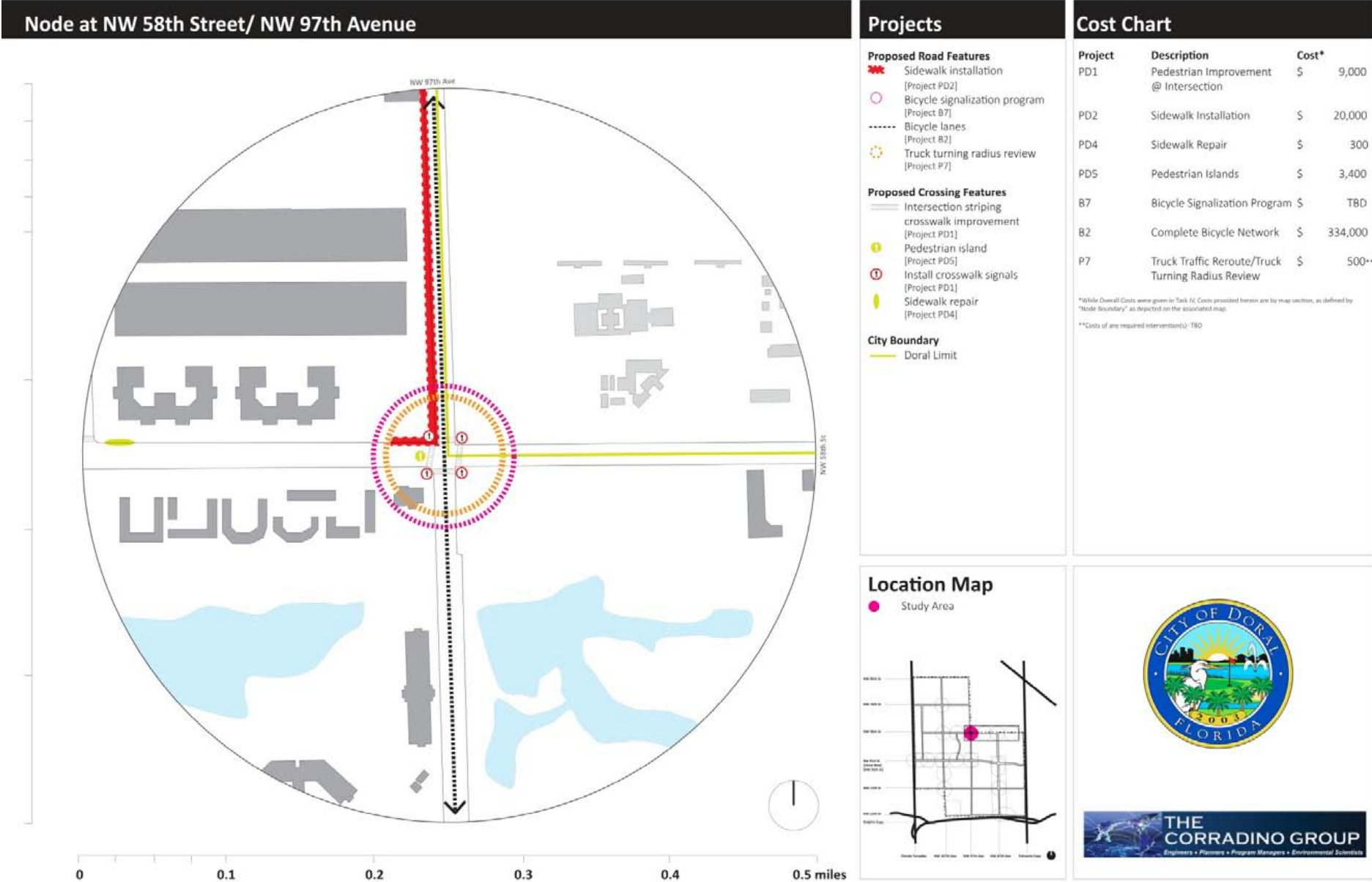
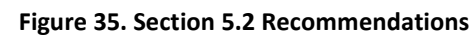


Figure 33. Section 5.1 Recommendations

Node at NW 58th Street/ NW 92nd Avenue



Figure 34. Section 5.2 Existing



Node at NW 58th Street/ NW 87th Avenue



Figure 36. Section 5.3 Existing



Figure 37. Section 5.3 Recommendations

Node at NW 58th Street/ NW 82nd Avenue

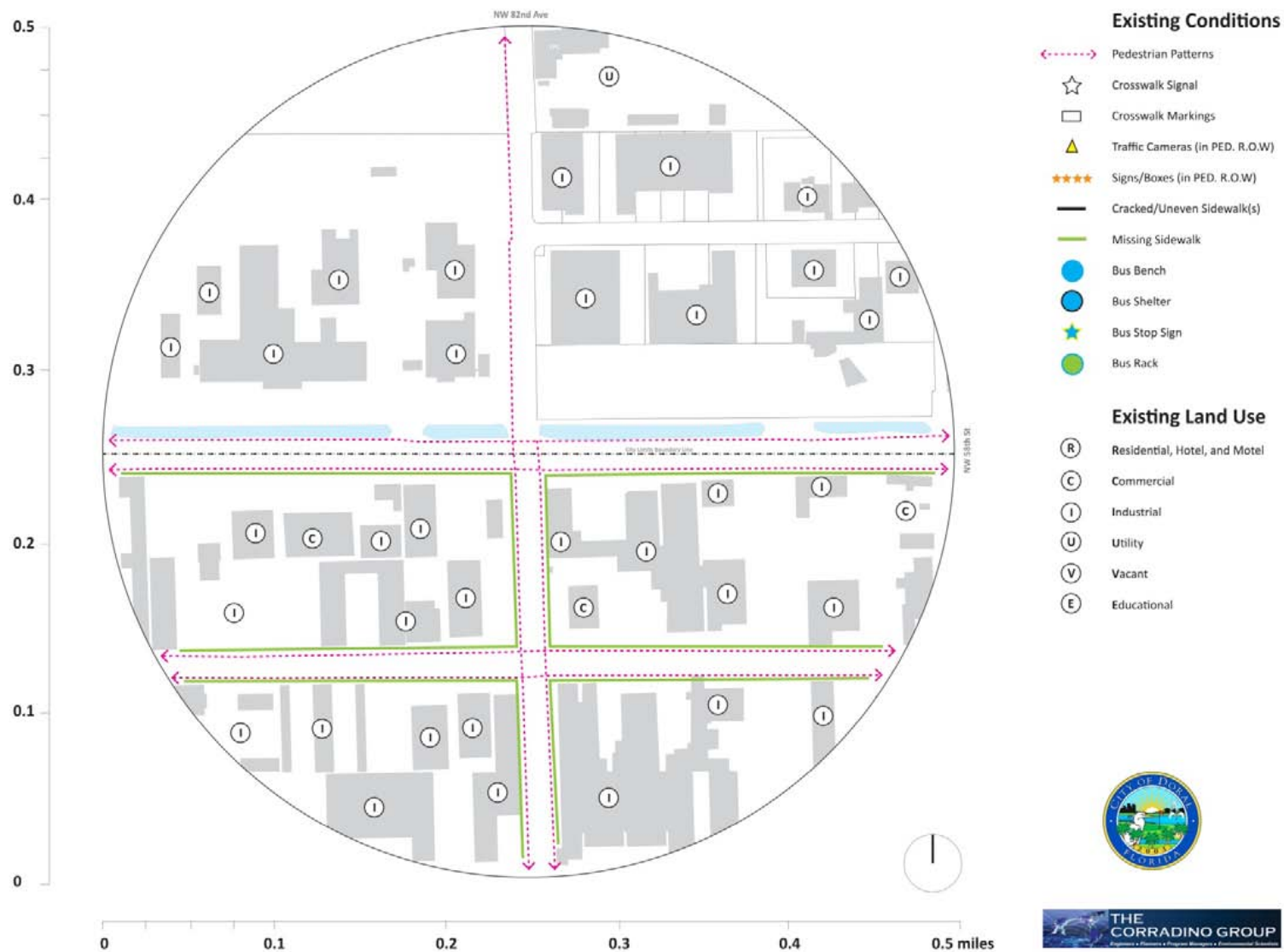


Figure 38. Section 5.4 Existing

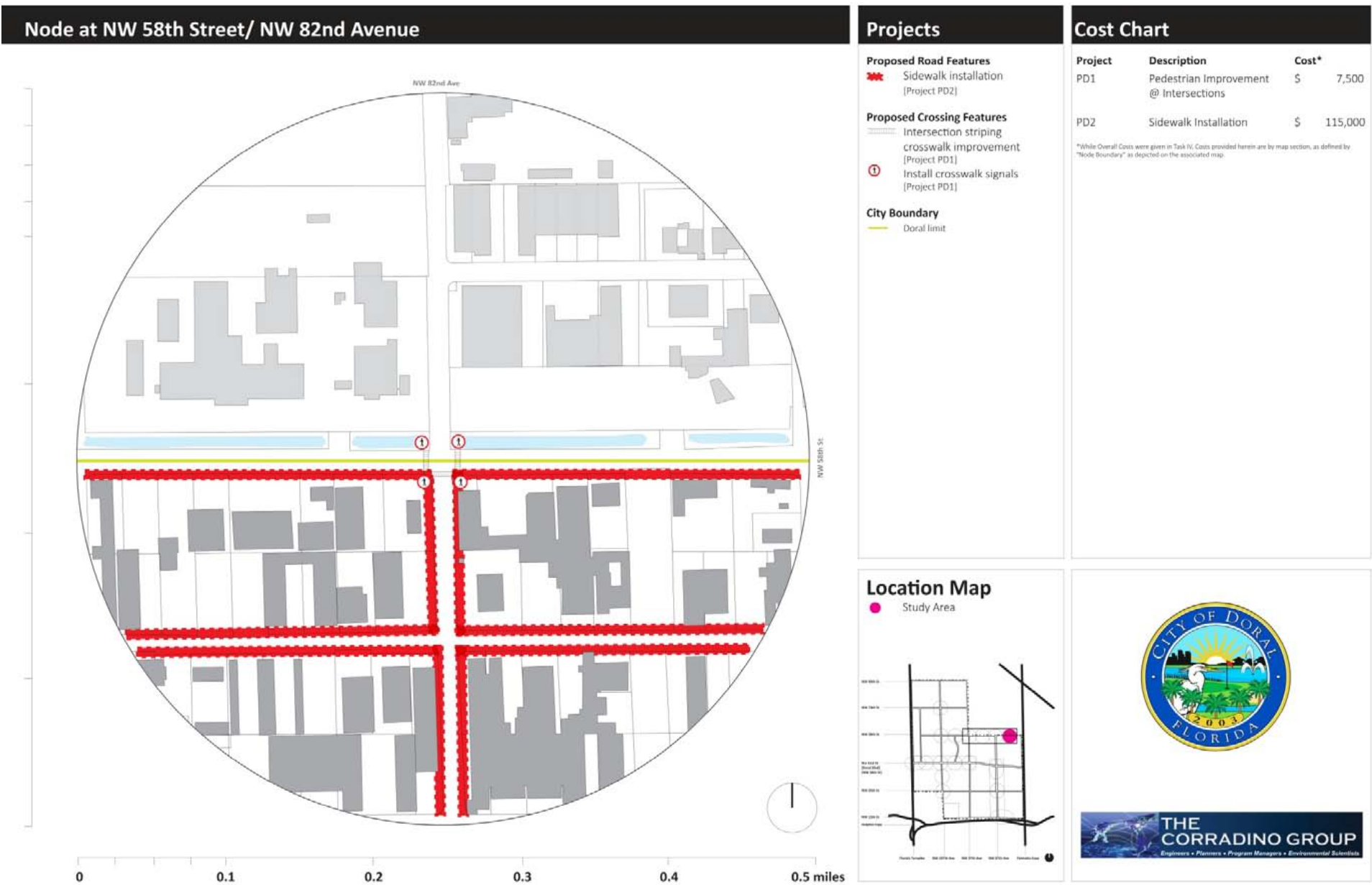
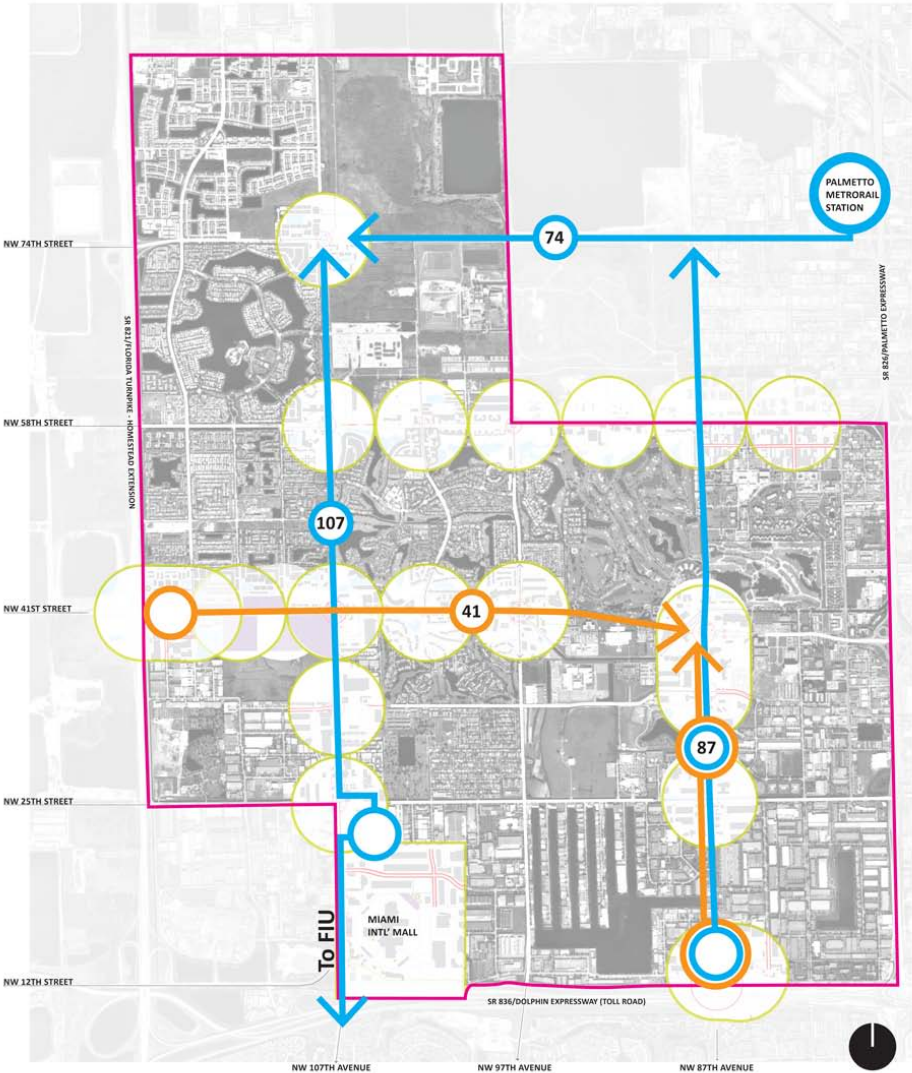


Figure 39. Section 5.4 Recommendation

Proposed Express Trolley Routes

PROPOSED
**EXPRESS
TROLLEY
ROUTES**
DORAL TMP

- CITY LIMIT
- LUNCH TROLLEY
- 41 LUNCH ROUTE #1
- 87 LUNCH ROUTE #2
- EXPRESS
- 107 EXPRESS
- 87 EXPRESS TO PALMETTO
- 74 EXPRESS TO PALMETTO



PREPARED BY THE CORRADINO GROUP

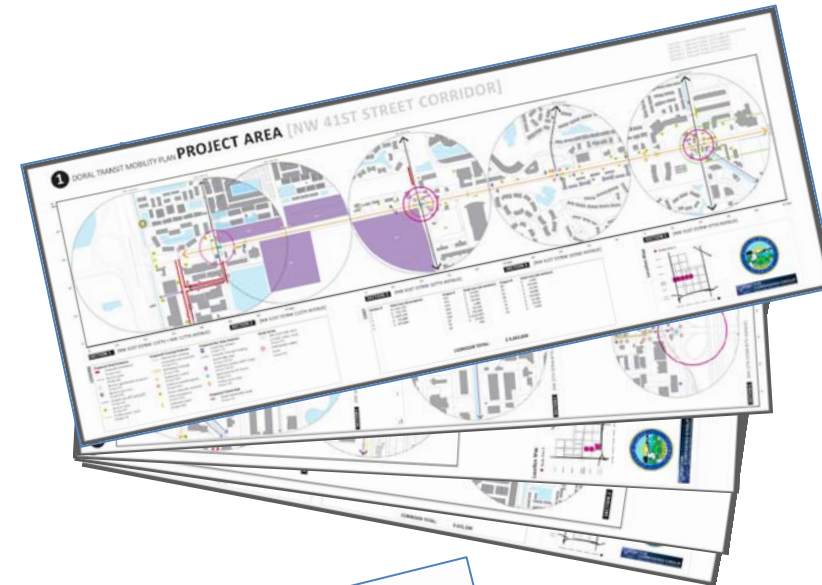
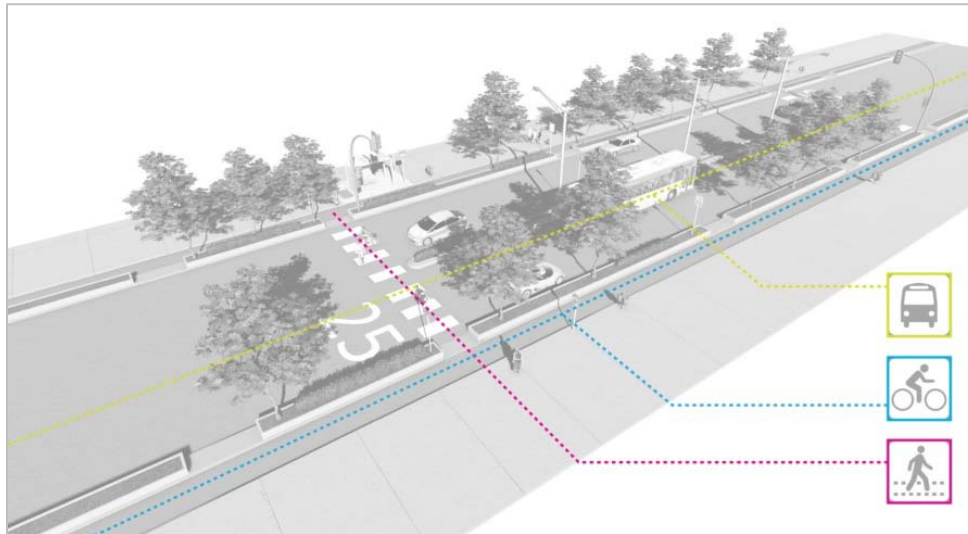
Task VII **Education and Awareness Program**

Doral Transit Mobility Plan

Task VII: Education and Awareness Program

An electronic form of the study areas and recommendations was developed with the intent of educating the public of Doral's multimodal efforts to familiarize them with the resources the City has made available. As part of this effort, information regarding existing and future bicycle and pedestrian facilities, as well as transit routes and schedules, were incorporated into this study.

The electronic brochure, consisting of a book showing the project implementation recommendations, was provided to the City and will be made available to the public. Outlining specific potential projects for Doral, this document's analysis will serve as the rationale behind the implementation of projects resulting from this study.



The Future of Doral Transit Mobility



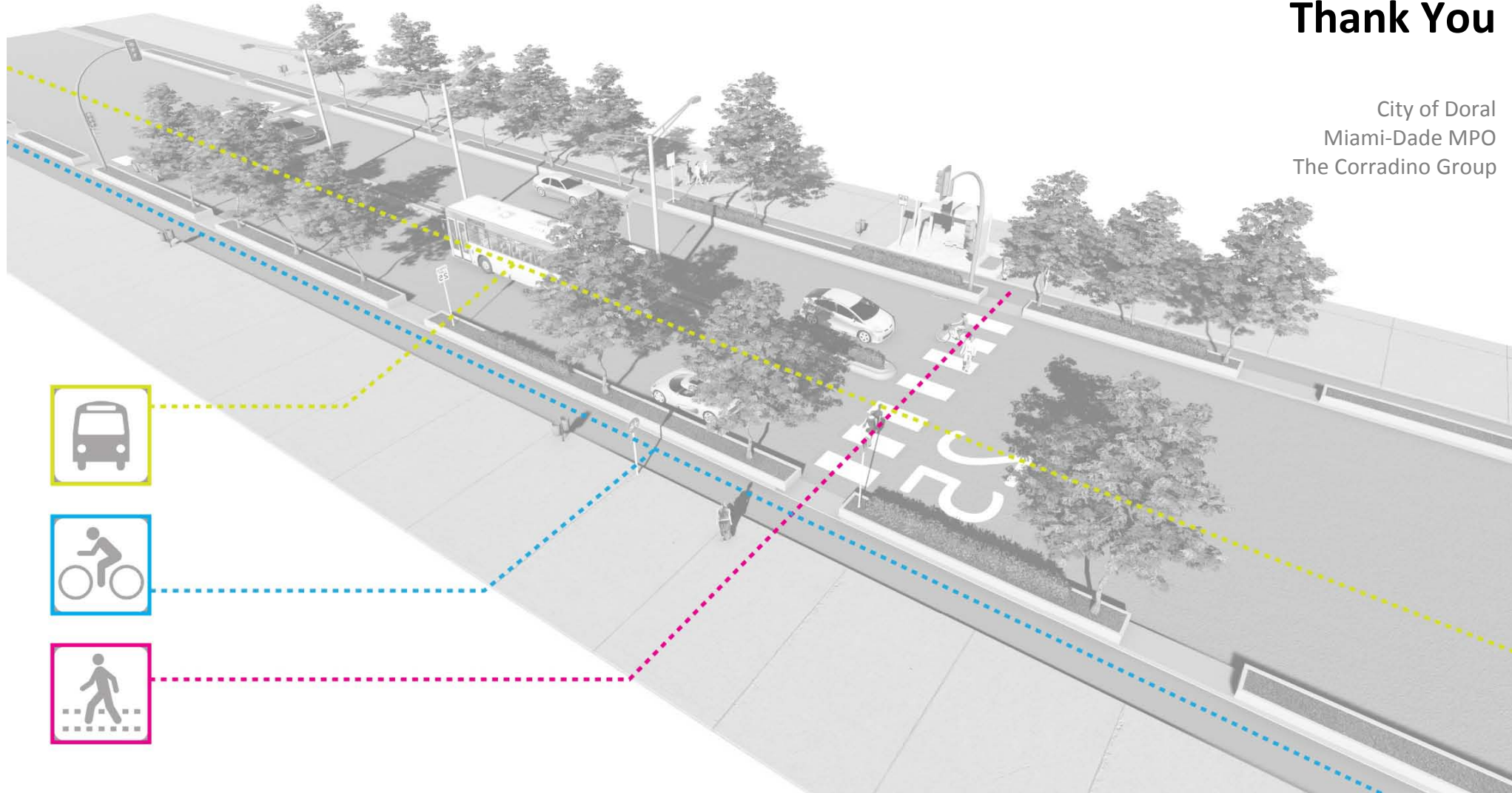






Thank You

City of Doral
Miami-Dade MPO
The Corradino Group



Prepared by: The Corradino Group