Ludlam Trail Non-Motorized Corridor Study

Planning and Environmental Study
Phase I

FM No. 252074-1-12-01

Florida Department of Transportation
District Six

Reynolds, Smith and Hills, Inc.

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Prepared for

Florida Department of Transportation

District 6

Prepared by

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EXECUTIVE SUMMARY

The Ludlam Trail is a major non-motorized transportation route through the urban core of Miami-Dade County. The Trail would expand the travelers' choice of transportation mode, enhance the quality of life, and reduce the dependency on the single-occupancy automobile. The Trail would run from the Dadeland North Metrorail Station north to NW 12th Street/Perimeter Road adjacent to the Miami International Airport. The project corridor is approximately seven miles long and follows the Florida East Coast (FEC) Railway parallel to and west of Ludlam Road/67th Avenue.

The purpose of this study is to advance the results from the "Ludlam Trail Research Memorandum" to the next level of implementation by conducting the Planning and Environmental Study (Phase I) for the Ludlam Trail Non-Motorized Corridor. Phase I includes all data collection, as well as the development and evaluation of alternatives. Phase I also initiated an extensive agency and public involvement program that involved the coordination with the various stakeholders along the corridor. Public involvement activities for the Ludlam Trail included two highly attended workshops, three bilingual newsletters, numerous meetings and presentations, a website specifically designed for the project, and a survey questionnaire study. The final product includes this report with Master Plans for the alternatives along with recommendations for an implementation strategy. Phase II, not yet scheduled, is expected to be the Project Development and Environmental (PD&E) study. The Ludlam Trail would fill the need to provide a safe and useful route for pedestrians and bicyclists to travel on.

Existing data was collected and includes the necessary information to develop and evaluate the build alternatives. The data was obtained from state, county, and local agencies and includes: aerial mapping and surveys, right-of-way maps, land use maps, bus routes, safe school routes, railroad operations parameters, and environmental data.

Two alternatives were developed and evaluated for the corridor. A Master Plan of the alternatives showing the typical sections and alignment design characteristics was also

developed as a separate document. Typical sections for the Ludlam Trial were developed for two alternatives: (1) Rail-with-Trail and (2) Rail-to-Trail. Alternative 1, the Rail-with-Trail option, would leave the existing FEC Railway tracks in place, with the Trail being constructed alongside the tracks within the FEC right-of-way. The Trail would be 12 to 14 feet wide and be separated from the tracks by a landscaped buffer. Rest areas would be located at strategic locations.

Alternative 2, the Rail-to-Trail option, would include removing the FEC Railway tracks. The Ludlam Trail would then be constructed along the existing alignment of the current tracks. The Trail would be 16 to 18 feet wide and would contain a landscaped buffer on both sides. As with the first alternative, the Trail would be linked to the adjacent parks. It would also have rest areas at strategic locations. Typical sections for both alternatives are also included in the Master Plans.

Alignments were developed for the two alternatives within the FEC right-of-way based on the available right-of-way, existing rail location and alignment, and street and canal crossings. The alignment for Alternative 1 (Rail-with-Trail) would be on the west side of the FEC tracks, except at locations with easement constraints at SW 8th Street and SW 40th Street. The alignment for Alternative 2 (Rail-to-Trail) would replace the FEC railroad tracks. The alternative alignments were developed incorporating features such as trailheads, bridges and overpass structures, trail connections, lighting, signing and pavement markings, and landscaping which are shown in the Master Plans.

A comparative analysis was conducted for both alternatives. The quantifying and qualifying factors used to compare the alternatives included land use, travel demand, alignment, street crossings, environmental impacts, cost and funding strategies, design characteristics, and safety considerations. Overall, there is a slight difference between the two alternatives, with the right-of-way costs and safety being the major factors. An evaluation matrix was developed that incorporates the evaluation criteria in order to present a quantified comparative analysis of the alternatives. The following table shows the results of the comparative analysis of both alternatives.

Summary of Alternatives Comparison

	Alternative 1 (Rail-with-Trail)	Alternative 2 (Rail-to-Trail)
Construction Cost	$5.6 million	$6.7 million
Right-of-Way Cost	$39.2M - $54.7M	$53.2M - $74.1M
Annual Users	386,949	455, 234
Evaluation Score	2.59	2.87

Although the evaluation score shows the preferred alternative to be Rail-to-Trail Alternative, the associated right-of-way acquisition cost is significant. Therefore, another option was recommended that is a hybrid of both alternatives. The third option consists of the Rail-to-Trail Alternative starting at A.D. Barnes Park and continuing south to the Dadeland Station. In this alternative, the estimated value is based on acquiring the corridor from Dadeland Mall north to A.D. Barnes Park. The estimated value for acquiring only the southern portion of study area ranges from $26.5 million to $36.9 million. This hybrid option provides opportunity for future expansion to complete the Rail-with-Trail segment in the northern section from A.D. Barnes Park to NW 12th Street/Perimeter Road. The missing northern section could eventually be converted to a Rail-with-Trail blanket easement, thus minimizing the impacts to businesses along this section, which would have been impacted negatively with a Rail-to-Trail Alternative. Ultimately, the eventual construction of the pedestrian overpasses could also be phased in as the Trail becomes popular and sufficient financial resources are obtained.

A final meeting was held with FEC representatives to discuss the findings of the preliminary cost estimate report. The FEC stated that the estimate given in the report might fall within the range acceptable to FEC. However, a detailed right-of-way cost estimate would have to be prepared by FEC in order to determine the actual costs. FEC also indicated their willingness to sell the southern portion of the corridor but would prefer to enter into an easement or lease agreement for the northern section in order to protect the business interests of the customers they service in that portion. In addition, FEC stressed the importance of the timeliness of any future negotiations with them regarding the Trail. FEC can not promise to hold out indefinitely for a bid to buy the

land for the Ludlam Trail if an offer is presented to them from another buyer, as could occur in the Dadeland area. FEC would like to see the betterment of the community with a linear transportation/recreational use for this corridor, but does not want to have to wait for the project to begin many years from now.

An implementation strategy was developed for the project that provides an outline of the necessary steps to advance the project to Phase II that includes adoption in Miami-Dade County's Metropolitan Planning Organization Long Range Plan and the formation of a citizen trail group. Miami-Dade County's Bicycle Pedestrian Advisory Committee's (BPAC) support for the Ludlam Trail has been invaluable during this phase of the project and seems a likely candidate to continue monitoring the progress of the Ludlam Trail in the subsequent phase of the project.

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1.0 INTRODUCTION

The Ludlam Trail is a major non-motorized transportation route through the urban core of Miami-Dade County. The Trail would expand the travelers' choice of transportation mode, enhance the quality of life, and reduce the dependency on the single-occupancy automobile. The Trail would run from the Dadeland North Metrorail Station north to NW 12th Street adjacent to the Miami International Airport. The project corridor is approximately seven miles long and follows the Florida East Coast (FEC) Railway parallel to and west of Ludlam Road/67th Avenue. The study boundary was set by creating a 0.25-mile buffer on both sides of the FEC Railway. This buffer zone is created by the two major parallel arterials available for pedestrians and bicyclists: 72nd Avenue and 67th Avenue. The study area traverses three municipalities – Miami, West Miami, and South Miami – and unincorporated Miami-Dade County. Figure 1 shows the project corridor.

2.0 BACKGROUND

The passage of the first Intermodal Surface Transportation Efficiency Act (ISTEA), as well as its successor Transportation Equity Act for the 21st Century (TEA-21), and the Clean Air Act Amendments (CAAA) have renewed incentive for planning agencies to emphasize bicycling and walking as significant components of the transportation mix. In 1995, the Bicycle Facilities Plan (a countywide Master Plan) was adopted by Miami-Dade County's Metropolitan Planning Organization (MPO) and was later supplemented by the North and South Dade Greenways Plans. The plans developed a network of greenway or bike/pedestrian paths that will allow people to enjoy and traverse South Florida without the need for automobiles. They also identified where bicycle facilities are needed, and whether they should be on-road or off-road designs, based upon expected use.

Figure 1
Project Study Area

The North Dade Greenways network traverses the more-urbanized part of the County, linking diverse locations that include Bayside Market Place, Vizcaya, Port of Miami, Miami International Airport, Miami Beach, several shopping malls, numerous colleges and universities including Florida International University's two campuses, six campuses of Miami-Dade Community College, and the University of Miami. It encompasses the area north of Kendall Drive, to the Broward County line, and Biscayne Bay on the east to Krome Avenue on the west. The North Dade Greenways Master Plan calls for 24 trails covering more than 300 miles. The Ludlam Trail is one of these trails proposed in the Plan. However, the Ludlam Trail is not listed in Miami-Dade County's MPO 2020 Long Range Transportation Plan (LRTP) for funding and prioritization.

In June 2001, the "Ludlam Trail Research Memorandum" was completed. The purpose of the memorandum was to collect, review, and extract pertinent information from previously prepared resource data and reports that relate to the trail concept. The purpose of this study is to advance the results from the Research Memorandum to the next level of implementation by conducting the Planning and Environmental Study (Phase I) for the Ludlam Trail Non-Motorized Corridor. Phase I includes all data collection, as well as the development and evaluation of alternatives. Phase I also initiated an extensive agency and public involvement program that involved the coordination with the various stakeholders along the corridor. The final product includes this report with Master Plans for the alternatives along with recommendations for an implementation strategy. Phase II, not yet scheduled, is expected to be the Project Development and Environmental (PD&E) study.

3.0 PROJECT NEED

Recreational trails increase the overall quality of life for residents of an area. In some cases, even a short stretch of trail can provide an important connection in a network. Previous research has shown that the majority of bike trips involve distances of less

than four miles. Many pedestrians, from children to the elderly, currently utilize the FEC Railway right-of-way for short trips in its current unsafe condition.

During field visits of the corridor, teenagers were spotted using the FEC tracks as a route to fast-food restaurants located along Bird Road. Also, adults were seen picking up children from South Miami Elementary and Middle Schools next to the tracks. The Ludlam Trail could provide a safe, dedicated, and direct route to shopping, schools and parks that is currently not provided by the local street network.

Bird Road Crossing

The "MPO's Bicycle Parking Plan for Miami-Dade Transit" reinforced the idea that by integrating bicycling with transit, transit agencies can significantly increase their service area. According to a survey from that report, the Dadeland North and South Metrorail stations have the highest reported number of bicyclists compared to the other Metrorail stations. Clearly, providing a bicycle/pedestrian trail that would connect to the Dadeland North Metrorail Station would help to increase ridership. The study also found that when not using their bicycles to get to transit stations, almost 30 percent of respondents walk to the stations. However, 35 percent of respondents continue to bicycle despite feeling unsafe during the bicycling portion of their trip. The primary reasons for feeling unsafe are traffic conditions and fear of crime. According to the existing roadway conditions documented in the Miami-Dade Bicycle-Pedestrian Program, 72nd and 67th Avenues generally provide marginal to poor provisions and conditions for bicycling. Bicyclists that preferred using shared-use paths or separated bicycle paths stated that more of those types of facilities need to be built and connected to transit stations.

Because of the current lack of dedicated bicycle facilities (bike lanes and paths), combined with high speeds and volumes on major and minor arterials in the metropolitan Miami-Dade County area, almost 60 percent of the roadways analyzed in the previous study were considered difficult, inadequate or hazardous to ride on. Not all cyclists ride comfortably in traffic, even if the traffic volume is relatively low or the roadway relatively wide. Children and occasional adult cyclists may prefer more separation from traffic. The provision of dedicated, separated facilities may be one of the most important factors contributing to the safety and convenience of these cyclists. The "Miami-Dade Bicycle Facilities Plan" examined the opportunity for off-road facilities, and recommended using selected canal and railroad right-of-ways as recreational facilities. The Ludlam Trail would fill the need to provide a safe and useful route for pedestrians and bicyclists to travel on.

4.0 EXISTING CONDITIONS

Existing data was collected and includes the necessary information to develop and evaluate the build alternatives. The data was obtained from state, county, and local agencies and includes the following items:

- Aerial mapping and survey
- Right-of-way maps
- Land use maps
- Bus routes
- Safe school routes
- Railroad operations parameters
- Environmental data

For purposes of the analysis, data was collected within a set boundary, which was created with a 0.25-mile buffer zone on either side of the FEC Railway.

Major street crossings are located along the following roadways:

- Flagler Street – four lanes, divided
- Tamiami Trail (SW 8th Street) – four lanes, undivided
- Coral Way (SW 24th Street) – four lanes, divided
- Bird Road (SW 40th Street) – six lanes, divided
- Miller Drive (SW 56th Street) – four lanes, undivided
- Sunset Drive (SW 72nd Street) – four lanes, divided

Photographs were taken at several of these crossings and are included in Appendix A. Also observed during the site visits was an asphalt pedestrian path, six feet wide, connecting SW 22nd Street with SW 21st Street.

Pedestrian Path

4.1 Existing Right-of-Way

Existing right-of-way maps were obtained from FDOT and FEC. These maps, originally dated 1932, contained the latest revisions made as of 1971. These were supplemented with the aerial maps and surveys in developing the alternative alignments. The FEC owns the right-of-way in a fee simple type of ownership. The right-of-way width typically is 100 feet wide, with a minimum width of 90 feet, with the tracks generally centered within the right-of-way. FEC has signboard and lease agreements with customers within this right-of-way, which have been reviewed as part of this study and discussed in Section 4.5.

4.2 Land Use Characteristics

Existing and future land use maps were obtained from the Miami-Dade County Planning and Zoning Department. The existing land uses adjacent to the Trail are approximately 50 percent residential with medium density single-family units making up most of that

total. Other minor land uses include commercial services and industrial. The land use in the northern half of the corridor, north of Bird Road, is mixed-use commercial and residential with some industrial uses adjacent to the right-of-way and at the northern terminus near the airport. In the southern portion, there are mostly residential uses with commercial uses at the southern terminus at the Dadeland Mall and Dadeland Station. Figure 2 shows the existing land use within the project corridor and adjacent communities and neighborhoods.

4.3 Bus Routes

Existing and planned Miami-Dade Bus Routes along the corridor including bus stops were obtained from Miami-Dade Transit. The following are existing Miami-Dade Transit Bus routes that intersect the corridor.

- East-West Connection – Earlington Heights Station to Dolphin Mall via Miami International Airport, Blue Lagoon, Airport West, and Miami International Mall
- Route 7 – Dolphin Mall to Downtown via Miami International Mall, Fontainebleau Boulevard, NW 7th Street, Miami Springs, and Little Havana
- Route 73 – Miami Lakes to Dadeland South Station via Milam Dairy Road and Ludlam Road
- Route 11/Flagler MAX – FIU South Campus to Downtown via West Flagler Street/Miami Beach to West Miami-Dade via MacArthur Causeway and West Flagler Street
- Route 8 – FIU South Campus to Downtown via Westchester, SW 8th Street, and Little Havana
- Route 24 – Westchester to Downtown via Coral Way and Brickell Avenue
- Route 40 – West Miami-Dade to Coral Gables via Bird Road
- Route 56 – Coral Gables to Lakes of the Meadow/MDCC South Campus via Miller Road and SW 107th and SW 117th Avenues
- Route 72 – Coral Gables to Kendall Drive via SW 57th Avenue and Sunset Drive

Figure 2
Existing Land Use

At the Dadeland North Metrorail Station, located at the southern terminus of the Trail, the following Metrobus connections exist:

- Route 52
- Bird Road MAX
- Route 87
- Sunset KAT
- Kendall KAT
- Killian KAT

The Miami-Dade Transit Bike and Ride Program allows cyclists to take a single-seat two-wheeler on extended trips around the community using Metrobus and Metrorail. The Bike and Ride Program is featured on the following bus routes: East-West Connection, Sunset KAT, Kendall KAT, and Killian KAT.

The existing South Miami-Dade Busway on US-1 begins at the Dadeland South Metrorail Station and runs south to the South Dade Government Center in Cutler Ridge. Currently, the South Dade Bicycle Trail runs parallel to the South Busway Lane.

Future improvements to the Busway include a Phase II Extension from Cutler Ridge to Florida City, scheduled for completion in December 2004. The Kendall Corridor Bus Rapid Transit is another potential future busway that will travel along Kendall Drive.

Improvements to existing bus routes are shown in Table 1. In addition, a future Metrobus route, the Coral Way MAX, will be implemented along Coral Way from the Douglas Road Station to West Dade by early 2003.

Table 1
Bus Route Improvements

Bus Route	Improvement	Start Date
East-West Connection	Improve peak bus service intervals from 30 to 15 min.	2005
	Improve midday & weekend bus service intervals from 60 to 30 min.	2004
7	Improve daily bus service intervals from 40 to 30 minutes on each branch or 15 minutes on the main line	2004
	Improve weekend bus service intervals from 40/60 to 30 minutes	2004
73	Improve midday bus service intervals from 60 to 30 min.	Aug 2003
	Improve peak bus service intervals from 30 to 15 min.	2004
	Improve weekend bus service intervals from 60 to 30 min.	2004
11	All night service, every 60 minutes, seven days a week. Serves the Government Center station	June 2003
	Extend Mall of Americas leg to FIU	2005
8	All night service, every 60 min., 7 days a week. Serves the Government Center Station.	Sept 2003
	Extend Westchester short trips to FIU South Campus Terminal	2005
	Extend service westward to SW 137 Ave.	2004
24	All night service, every 60 min., seven days a week. Serves the Vizcaya and Government Center Stations.	Sept. 2003
	Extend service westward to SW 147 Ave.	2004
40	Improve Sunday bus service intervals from 60 to 30 minutes	May 2003
	All night service, every 60 minutes, seven days a week. Serves the Douglas Road station	June 2003
56	Improve peak bus service intervals from 30 to 15 min.	2005
72	Improve weekend bus service intervals from 60 to 30 min.	Dec 2003
	Improve midday bus service intervals from 60 to 30 min.	April 2003
	Improve peak bus service intervals from 30 to 15 min.	2005

4.4 Safe School Routes

The following schools, shown in Figure 3, are located within the project study limits:

- Coral Terrace Elementary School, 6801 SW 24th Street
- South Miami High School, 6856 SW 53rd Street
- South Miami Elementary School, 6800 SW 60th Street
- South Miami Middle Community School, 6750 SW 60th Street
- Ludlam Elementary School, 6639 SW 74th Street

Figure 3
Schools

All streets designated as Safe School Routes were identified along the corridor. Three elementary schools have designated Safe Routes that cross the FEC Railway and are included in Appendix B. These are Coral Terrace Elementary, South Miami Elementary, and Ludlam Elementary. The route at Coral Terrace Elementary intersects the FEC Railway at Coral Way. The safe route for South Miami Elementary crosses the FEC Railway at Miller Drive/SW 56th Street and SW 64th Street. The Ludlam Elementary safe school route crosses the FEC Railway at Sunset Drive/SW 72nd Street and SW 80th Street.

Early discussions were held with some of the staff of South Miami Middle School in which they indicated their support for the project and generally thought that the Ludlam Trail was a good idea. There were no issues identified for the record by any staff members of the schools in the area. There were some issues raised by residents living near the schools in question, however, and these were included in the official record as stated in Section 7.7 of this report.

4.5 Railroad Operations Parameters

There are a few active sidings servicing customers in the northern half of the project corridor: two between Flagler Street and SW 8th Street and another one between Bird Road and SW 48th Street. In the southern portion of the corridor, the tracks are rusted and do not exhibit any usage. At the southern terminus near Kendall Drive/SW 88th Street, the tracks appear to be inactive with the tracks terminating on the Snapper Creek Bridge.

Current railroad operations parameters, such as carload traffic, were obtained from the Florida East Coast (FEC) Railway. Carload traffic is defined as traffic moving in traditional freight cars such as boxcars, tank cars and hoppers. The carload traffic handled by the FEC Railway from their Oleander Station near the northern terminus of

the Trail at NW 12th Street to their Kendall Station at the southern terminus of the Trail includes the following:

Table 2
Railroad Operations

Railroad Customer Service	Carload Traffic Handled Per Month
12th Street Heavy Machinery Ramp NW 12th Street, east of NW 72nd Avenue	12 to 30
Everglades Lumber and Building Supply 6991 SW 8th Street	20 to 55
Best Truss Company, Inc. 7035 SW 44th Street	8 to 10

Note: Carload traffic numbers for each customer are as reported by the companies in question; these numbers may be higher than reported by FEC since FEC only reports deliveries assigned through vendors and may not always appear under the company's name.

The 12th Street Heavy Machinery Ramp is a public unloading facility with a majority of its traffic heading to the Port of Miami. The main user of this site, however, Kelly Tractor (8255 NW 58th Street), uses it for domestic transportation. Heavy equipment is unloaded at this ramp and then loaded onto trucks for transport to Kelly Tractor's main facility, located west of the Palmetto Expressway on NW 58th Street. Although the numbers fluctuate, Kelly Tractor usually gets 12 to 30 rail cars per month carrying their machinery. They cannot use the FEC siding at Medley due to most of the tractors needing gravel surface, rather than asphalt, for their unloading operations.

The majority of the carload traffic travels to Everglades Lumber and Building Supply. Per discussions with the owners of Everglades Lumber, they receive 80 to 85 percent of their lumber via rail, equivalent to approximately 55 rail cars per month. The FEC only reports Everglades Lumber receiving approximately 15 to 20 rail cars per month because the rail cars are assigned to other vendors and do not appear under the Everglades Lumber name. The minimum number of rail cars per month that Everglades Lumber normally receives is 20 cars, and they use the rail siding on SW 4th Street for unloading purposes only. In addition, Everglades Lumber leases the right-of-way between SW 8th Street and SW 4th Street for their employee parking.

Best Truss, located just south of Bird Road, uses the rail for their deliveries more often than originally reported by FEC. Through a telephone conversation, the owner made it very clear that he did not want the train tracks to be removed since this would put him out of business. He chose not to meet with FDOT to discuss the project any further. Gulfside Supply, another business located at 7217 SW 44th Street, had a similar reaction. The owners there wanted to state for the public record that removing the railroad tracks would also shut their business down.

The majority consensus by the FEC rail customers was against the removal of the railroad tracks since it would adversely impact their business operations. Listings of the lease agreements and utility easements that FEC has with businesses and property owners along the corridor are included in Appendix C along with carload traffic as reported by FEC. The meetings with FEC and their customers were documented in Section 7.4 of this report under the Public Involvement activities.

4.6 Environmental Data

Current environmental data such as potential contaminated sites with prior history and biological data were obtained from various agencies, such as the United States Environmental Protection Agency (EPA), Florida Department of Environmental Protection (DEP), and Miami-Dade County Department of Environmental Resources Management (DERM).

4.6.1 Potential Contaminated Sites

Discussions with FEC representatives revealed no records of contamination spills within the FEC right-of-way. An identification of environmentally sensitive sites within the project corridor is shown on Figure 4. Data was obtained from the Florida Geographic Data Library (FGDL) within the project boundary zone set at 0.25 miles (from 72nd Avenue to 67th Avenue).

Figure 4
Environmental Data

According to the FGDL data, a groundwater contamination site is located at Gold Coast Oil Corporation, 2835 SW 71st Avenue, south of Coral Way and west of the FEC Railway. The site is also listed as a U.S. EPA National Priority Site. The figure also shows 42 other sites listed as EPA Regulated Facilities. These are facilities for which the EPA maintains a comprehensive historical profile of inspections, enforcement actions, penalties assessed, toxic chemicals released, and emergency hazardous spills. None of the sites shown in Figure 4 are within the FEC right-of-way. However, there are 6 sites, which are contiguous to the right-of-way:

- Anthony's Paint and Body Shop, 810 SW 69th Avenue
- Oscar Paint and Body Inc., 940 SW 69th Avenue
- Viva-Liz Inc., 994 SW 69th Avenue
- Joal Framing Supply and Molding Inc., 1011 SW 69th Avenue
- Apache Products Company, 1020 SW 69th Avenue
- Dyplast Foam Insulation Industries, Inc., 1020 SW 69th Avenue

The sites directly adjacent to the right-of-way are highlighted in Figure 5. Of the six sites, Apache Products, located south of SW 8th Street, is also listed as an EPA Toxic Release Location. Although, it is adjacent to the FEC right-of-way, this EPA site most likely would have no affect on the Ludlam Trail. Although no other records were found within the right-of-way and therefore not listed in any agency monitoring program, these sites may have experienced an unreported contamination spill. Further investigation of the identified sites needs to be made in the next phase of the project.

4.6.2 Ecosystems

Vegetative communities include wet to dry prairie marshes on marl and rockland from NW 12th Street to Coral Way. Florida Slash Pine forests can be found throughout the corridor south of Coral Way to the southern terminus at Dadeland. These forests are protected and endangered. Figure 6 shows the vegetative communities in the area based on the data collected in 1967. The figure shows the natural state of the environment as it was back then. However, today the vegetative communities would show disturbed, urban land with some pockets of the original vegetation.

Figure 5
EPA Sites

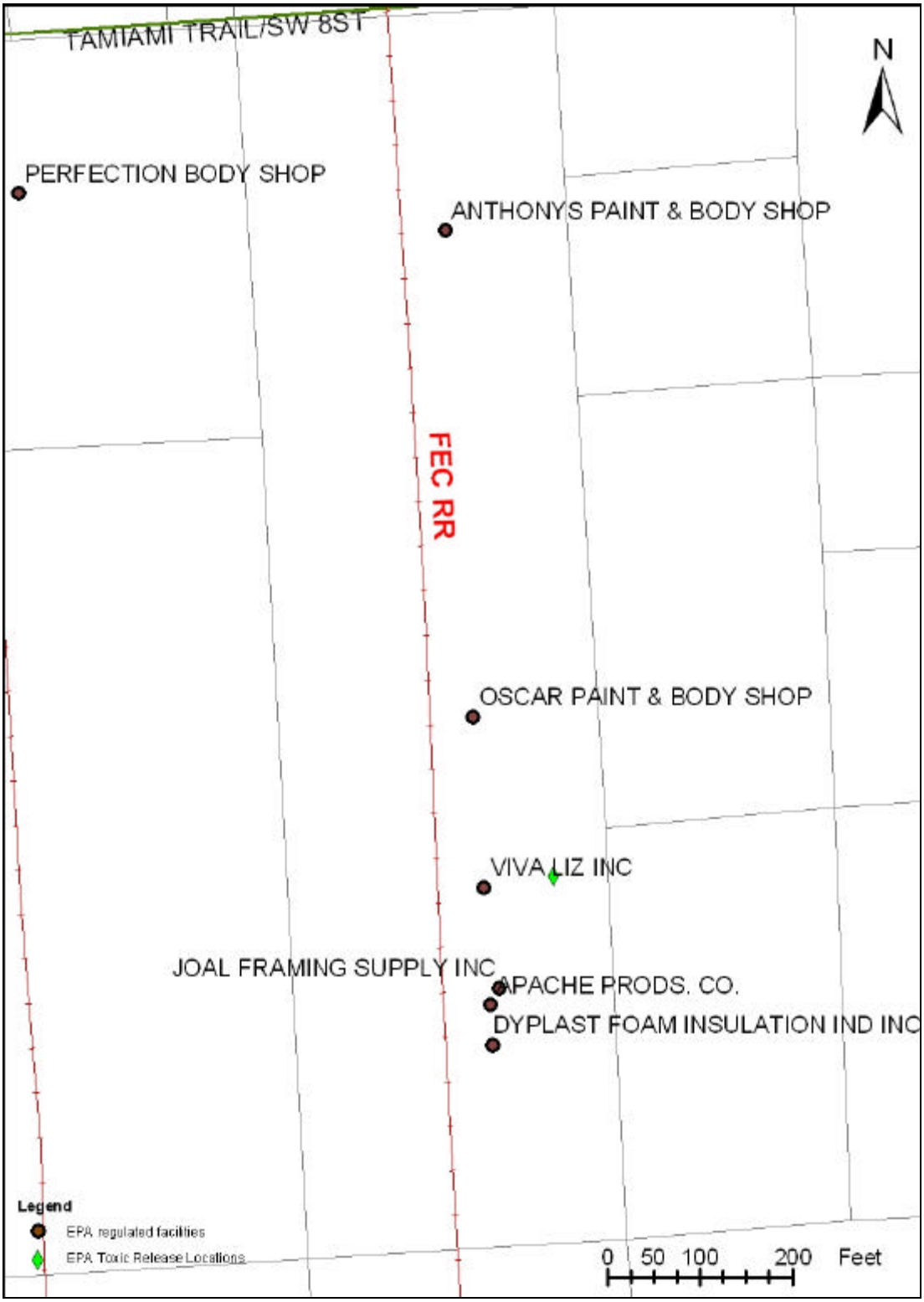


Figure 6
Vegetative Communities

5.0 DEVELOPMENT OF ALTERNATIVES

Two alternatives were developed and evaluated for the corridor. A Master Plan of the alternatives showing the typical sections and alignment design characteristics was also developed as a separate document. The following sections summarize the development of the alternatives.

5.1 Design Criteria

Although not yet common in South Florida, trails can be found throughout the rest of the state and the nation. No national standards or guidelines dictate trail facility design. Guidance must be pieced together from standards related to shared use paths, pedestrian facilities, railroad facilities, and/or roadway crossings of railroad rights-of-way. Useful documents include the Manual on Uniform Traffic Control Devices (MUTCD), the AASHTO Guide for the Development of Bicycle Facilities (1999), Americans with Disabilities Act (ADA) publications for trails and pedestrian facilities, and numerous Federal Railroad Administration (FRA) documents. Additionally, interviews with other trail planners were conducted for this study. Their experience and recommendations were taken into account when designing the alternatives.

Alternative typical sections were developed that considered the possibility of incorporating the bicycle and pedestrian trail as an exclusive, off-street trail. The design of the trail alternatives was based on the AASHTO Guide, which recommends a minimum paved width of 10 feet for a two-way, directional shared-use path. The AASHTO Guide also recommends that a graded area, 3 feet or wider, be maintained adjacent to both sides of the pavement to provide clearance from any trees, poles, walls, fences, guardrails, or other lateral obstructions. The range of trail setback on existing rail-with-trails throughout the country varies from less than 7 feet to as high as 100 feet, with an average of almost 33 feet of setback from the centerline of the nearest track. The term ‘setback’ refers to the distance between the edge of a rail-with-trail and the centerline of the closest active railroad track, while ‘separation’ refers to the

treatment of the space between a rail-with-trail and the closest active railroad tracks, including fences, vegetation, ditches, and other items. The design of setback distance associated with Alternative 1 (Rail-with-Trail) included the following technical factors:

- Type, speed, and frequency of trains in the corridor
- Separation technique
- Topography
- Sight distance
- Maintenance requirements
- Historical problems

Barrier types such as vegetation, ditches, or berms can be used to provide separation, where the Trail is further than 25 feet from the centerline of the closest track. In constrained areas, use of various separation techniques, such as fencing and vegetation, may allow narrower acceptable setback distances. For moderate or high train speed and frequency, rail-with-trails should be separated by a fence or other separation technique when less than 25 feet exists between the trail and a track. The Trail operator is uniformly responsible for barrier installation and maintenance. The following minimum setbacks were used in the design of Alternative 1.

Table 3
Minimum Setback Distances

Low Density/Low Speed Branchlines - less than one train per day; max. speed (35 mph)	-Recommended: 20 ft or more -Minimum: 10 ft
In constrained areas e.g., cut/fill, bridges, trestles	-Minimum: 10 ft, with fence or other separation technique

Another determining factor in the design of the Trail that should be considered is corridor ownership. Since Alternative 1 is proposed to be built on privately owned property, it must comply with FEC's standards. Based on the almost non-existent record of claims, crashes, and other problems on existing rail-with-trails, a direct correlation between setback distance and trail user safety was not established. However, even though there are very few cases of reported injuries on trails and the chances of accidents are low, the risk of injury should a train derail will be high, even for

slow-moving trains. Thus, discussions about liability assignment need to be factored in. For example, a rail-with-trail in a constrained area with a low frequency, low speed train could be located as close as 10 feet from the track centerline assuming that (a) the agency indemnifies the railroad for any rail-with-trail related incidents, (b) separation (e.g., fencing or solid barrier) is provided, (c) the railroad has no plans for additional tracks or sidings that would be impacted by the trail, and (d) the trail is available to the railroad for routine and emergency access. Liability issues are covered in more detail in section 6.10.

Trail-roadway intersections are covered in detail by both the AASHTO Bicycle Guide and the MUTCD. The variables to consider when designing trail-roadway intersections include: right-of-way alignment, traffic control devices, sight distances, access control, pavement markings, turning movements, traffic volume, speed, and number of lanes. There are three different methods for handling at-grade trail-roadway crossings:

1. Reroute shared use path users to nearest signalized intersection.
2. Provide new signal across roadway.
3. Provide unprotected crossing.
4. Elevated pedestrian overpass (grade-separated)

Another possible scenario (although undesirable) has trail users crossing both the roadway and tracks.

FEC needs to have access to their tracks for routine and emergency maintenance and other activities. FEC can service their track drainage systems, bridges, and other structures from the tracks if needed, though they would prefer landside access. FEC prefers a distance of 20 feet from nearest track centerline for maintenance activities. This allows ample room for truck access, turning, and tie replacement. A trail located closer than 20 feet from the track centerline must assume that the trail itself will become the maintenance road for the railroad, and that the railroad will need the trail operator to close the trail for routine and emergency maintenance activities.

Design criteria used in developing Alternative 2 was the same as Alternative 1 regarding the trail width. However, setback and separation techniques were not applicable since they only apply if a train is present. Alternative 2 would replace the railroad tracks, eliminating the need for designing separation and setback distances.

5.2 Typical Sections

Typical sections for the Ludlam Trial were developed for two alternatives: (1) Rail-with-Trail and (2) Rail-to-Trail. Alternative 1, the Rail-with-Trail option, would leave the existing FEC Railway tracks in place, with the Trail being constructed alongside the tracks within the FEC right-of-way as seen in Figure 7. The Trail would be 12 to 14 feet wide and be separated from the tracks by a landscaped buffer. Rest areas would be located at strategic locations.

Alternative 2, the Rail-to-Trail option, would include removing the FEC Railway tracks. The Ludlam Trail would then be constructed along the existing alignment of the current tracks as shown in Figure 8. The Trail would be 16 to 18 feet wide and would contain a landscaped buffer on both sides. As with the first alternative, the Trail would be linked to the adjacent parks. It would also have rest areas at strategic locations. Typical sections for both alternatives are also included in the Master Plans.

5.3 Alignments

Alignments were developed for the two alternatives within the FEC right-of-way based on the available right-of-way, existing rail location and alignment, and street and canal crossings. Both alternative alignments are straight throughout the corridor. The horizontal alignment is in a north/south direction. No significant change in vertical alignment is required since the trail is at-grade throughout the corridor, even over the canals. The alignment for Alternative 1 (Rail-with-Trail) would be on the west side of the FEC tracks, except at locations with easement constraints at SW 8th Street and SW 40th Street. The alignment for Alternative 2 (Rail-to-Trail) would replace the FEC railroad tracks. The alternative alignments were developed incorporating the following features and are shown in the Master Plans.

Figure 7
Alternative 1 – Rail-with-Trail
Typical Section

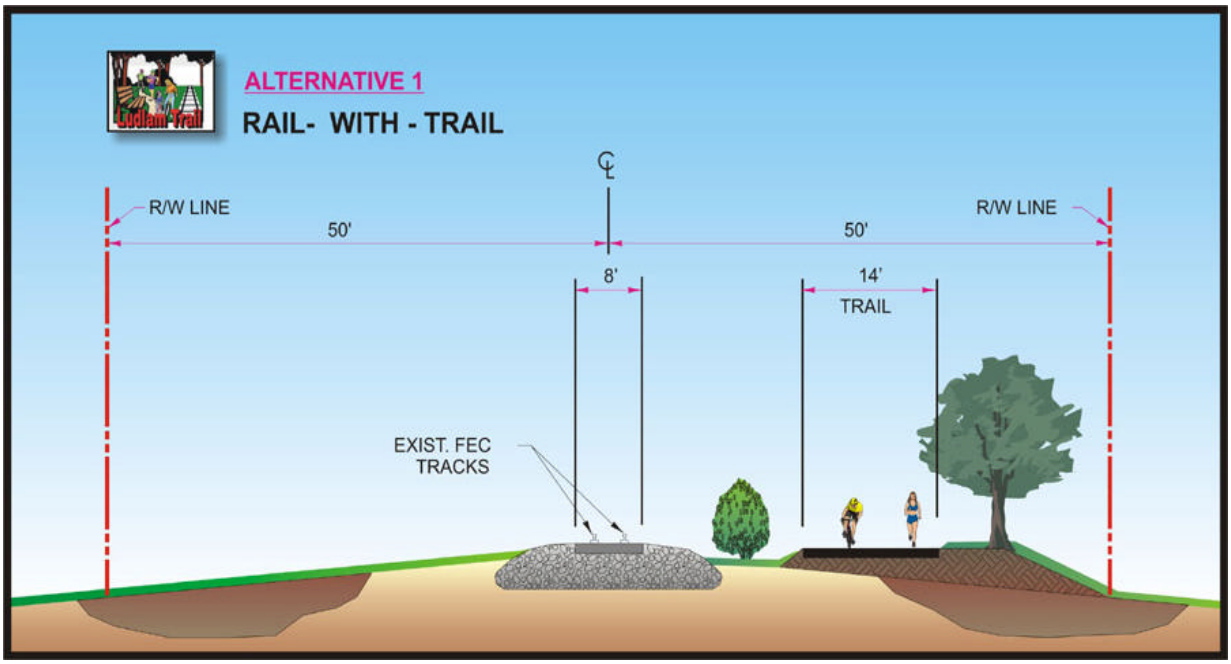
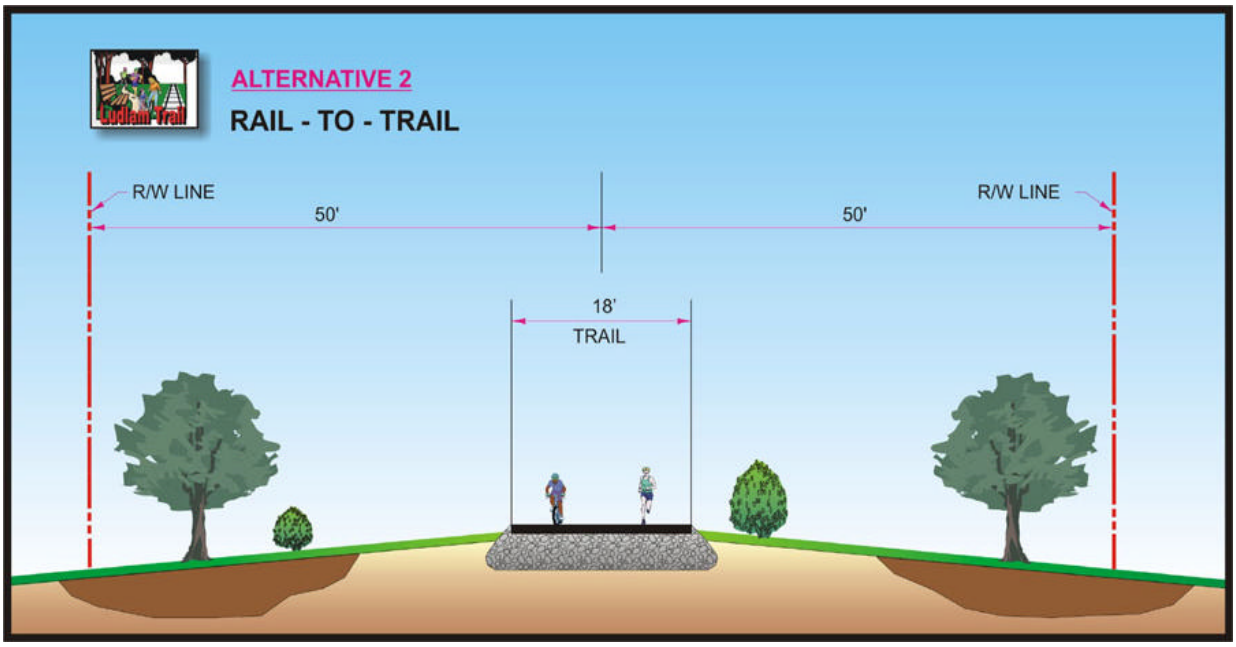


Figure 8
Alternative 2 – Rail-to-Trail
Typical Section



5.3.1 Trailheads

Any new trail will attract people to drive and park near the facility, potentially impacting local neighborhoods. Trailheads provide access to the trail from local communities. Aside from parking, trailheads also offer amenities such as restrooms, entrance signs and maps, kiosks, drinking fountains, and other features.

Potential trailhead locations were identified throughout the corridor. Two possible locations for major trailheads include an Airport Overlook at NW 12th Street and one at Dadeland Mall/North Metrorail Station. The Trail offers the opportunity to provide a trailhead at the northern terminus at NW 12th Street/Perimeter Road at the junction of the Trail with the proposed Perimeter Trail. Another trailhead at Dadeland could be located south of the Snapper Creek Canal. Graphical renderings depicting the trailheads with facilities and parking for Airport Overlook and Dadeland are shown in Figures 9 and 10. A typical rest area is shown in Figure 11.

5.3.2 Structures

Structure types were evaluated for street and canal crossings along the corridor. A typical grade-separated street crossing (as shown) would require additional right-of-way and impact adjacent properties such as A.D. Barnes Park and Robert King High Park. For purposes of this study, a grade-separated street crossing was considered a non-viable alternative at the present time due to the design geometry and construction cost. Grade-separated street crossings could be phased in as the Ludlam Trail gains popularity. This was the case with the Pinellas Trail, a rail-to-trail located in Pinellas County, Florida, which was used as an example for designing the Ludlam Trail.

Typical Street Crossing Structure

Figure 9
Airport Overlook Trailhead

Figure 10
Dadeland Trailhead

Figure 11
Typical Rest Area

Typical Grade-Separated Street Crossing

The Ludlam Trail would cross four canals along the corridor. The canal crossing structure would be a typical concrete slab bridge as shown in Figure 12. The Tamiami Canal, located adjacent to Robert King High Park, is a navigable waterway; therefore, vertical clearance requirements must be incorporated into the bridge design. Also, a permit will be required from the U.S. Army Corps of Engineers. The bridge over the Tamiami Canal leading into the Carlos Arboleya Campground was designed to accommodate a future trail crossing on the south side of the bridge. The Coral Gables Canal Crossing at A.D. Barnes Park for the Rail-with-Trail alternative is shown in Figure 13. The Snapper Creek Canal crossing is shown in Figure 14.

5.3.3 Connections to Other Destinations and Trails

Ludlam Trail would connect to the following existing and proposed trails:

Perimeter Trail

Due to its central location and loop design, the proposed 9-mile Perimeter Trail is a nodal point within the North Dade Greenways. It serves as a central hub from which several other trails radiate. The trail would occupy the right-of-way of NW 12th Street/Perimeter Road and the rights-of-way of the FEC and CSX railroads circling Miami International Airport (MIA). It would run from Curtis Parkway at the Miami River north of MIA to the west and southeast to the Miami Intermodal Center (MIC) site, a planned transportation hub that will facilitate connections to future mass transit systems. By occupying designated road and railroad rights-of-way, this trail will provide a recreational and utilitarian non-motorized corridor for airport employees and local residents alike.

Figure 12
Canal Crossing Structure

Figure 13
Coral Gables Canal Crossing at A.D. Barnes Park
Rail-With-Trail

Figure 14
Snapper Creek Canal Crossing

East-West Trail

A non-motorized transportation corridor, the proposed 7.9-mile East-West Trail will provide access from the University Park Campus of Florida International University to the Blue Lagoon area south of the Miami International Airport. This trail facility will occupy the ground level right-of-way along several segments of the proposed east-west rail line.

Merrick Trail

Functioning as an east-west trail linking Coconut Grove, South Miami, and portions of Coral Gables with west-central Dade County, this proposed 10.4-mile corridor follows existing bike routes on Riviera Drive and Granada Avenue in Coral Gables. The North Dade Greenways Master Plan proposes the enhancement of the existing facilities on these streets by creating dedicated bike lanes.

Snapper Creek

Plans for the proposed 10.5-mile Snapper Creek Trail include the enhancement of the existing path west of Southwest 107th Avenue, and its extension east toward Matheson Hammock Park. Approximately 6.5 miles in length, the existing facility will be enhanced by an easterly extension that will create a continuous ten-mile route to paths on Red Road and Old Cutler Road. Located in a predominantly residential area, the Snapper Creek Trail will provide connections to approximately nine public schools and nine public parks. The Snapper Creek Trail would occupy both Snapper Creek Canal and various road rights-of-way where required starting in the west at Florida International University running parallel to the Turnpike, south to the Snapper Creak Canal, and east to Old Cutler Road at Matheson Hammock Park

M-Path Trail

The enhancement of this existing South Dixie Bikeway facility provides an uninterrupted connection along its ten-mile length. By linking those segments not constructed concurrent with the Metrorail system with existing segments, this urban greenway will

provide a non-motorized corridor from Downtown Miami to the Dadeland South Metrorail station. The M-Path Trail will connect to the South Dade Trail of the South Dade Greenway Network. Opportunities for the completion of undeveloped segments can be found in parallel road rights-of-way, such as Ponce de Leon Boulevard.

South Dade Trail

Part of the South Dade Greenways network, this 18.4 mile trail is a 10-foot wide, off-road bike lane paralleling the U.S. 1 Exclusive Bus Lane. It serves as a commuter corridor, connecting south Dade to the Kendall area, starting at the Cutler Ridge Mall. It runs through mostly commercial and industrial areas, with some scattered residential areas and is a vital link to most of the other trails in the South Dade Greenway Network.

Potential connections from the Ludlam Trail to other destinations include Dadeland Mall, Tropical Park, Palmer Park, Bird Road/Ludlam and Tamiami Post Offices, Fairlawn Public Library, Radisson Mart and Expo Center, and the future Miami Intermodal Center at Miami International Airport. The Trail would also be linked to the adjacent Robert King High Park and A.D. Barnes Park. Figure 15 shows the connections to other destinations and routes from the Ludlam Trail.

5.3.4 Lighting, Signing and Pavement Markings

Signing and pavement marking plans were developed for each of the street crossing locations. High emphasis Thermoplastic pavement markings will be used at the major street crossings. Advanced warning signs will be placed on the Trail and the street. Pedestrian flashers could be used on the major streets depending on FDOT and Miami-Dade County review and approval. Examples of the street crossing signing and pavement markings are shown in Figures 16 and 17. The signing and pavement markings for both alternatives are included in the Master Plans.

Figure 15
Trail Connections

Figure 16
Flagler Street Crossing
Rail-with-Trail

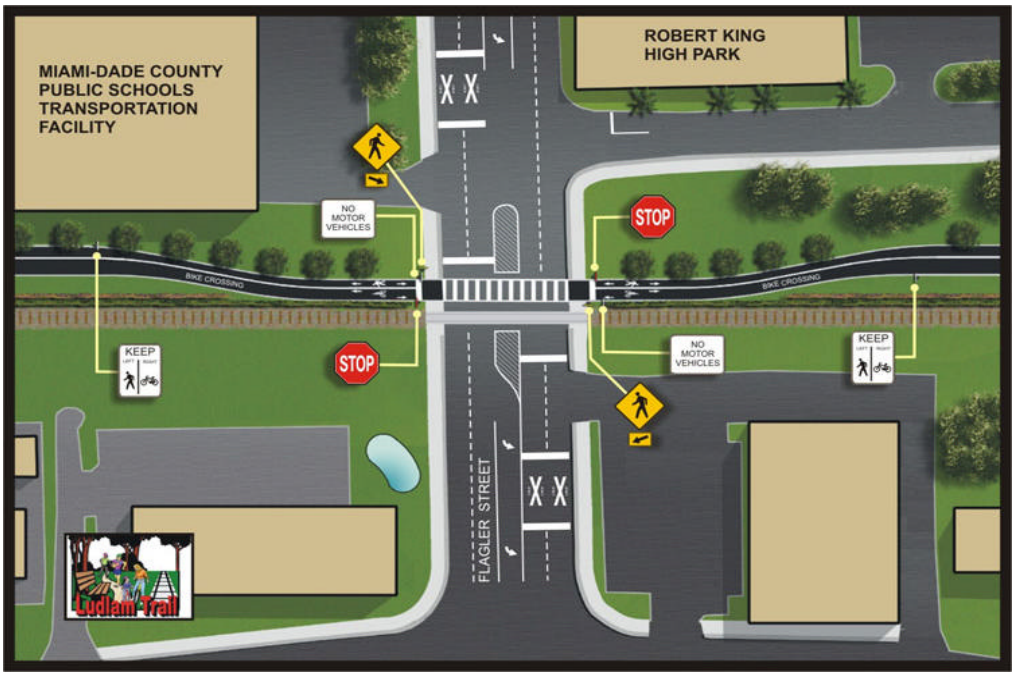
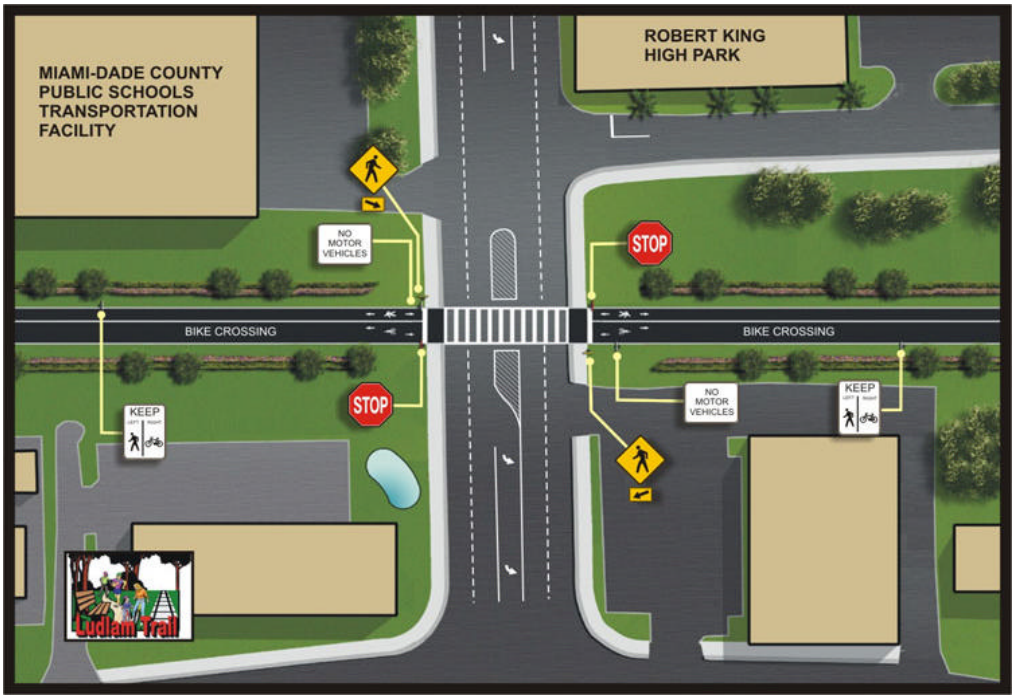


Figure 17
Flagler Street Crossing
Rail-to-Trail



Low-level fluorescent lighting would be used along the Trail. The type and location would be coordinated with the local residents along the Trail. A typical lighting plan is shown in Figure 18.

Typical Low-Level Lighting

Typical Low-Level Lighting

5.3.5 Landscape/Trailscape Features

Landscaping will be used to buffer the Trial throughout the corridor. Native habitat will be used as much as possible to minimize the use of mechanical irrigation along the Ludlam Trail. As mentioned in the preceding section, decorative low-level lighting fixtures will enhance the trailscape features. Proper landscaping is considering a critical component to a successful Trail. Figure 18 depicts a typical landscaping and lighting layout.

6.0 Comparative Analysis

The alternatives were evaluated on the basis of design features such as alignment, typical section, connectivity, and adjacent development compared to design characteristics of similar trails summarized in the “Ludlam Trail Research Memorandum” and the “Rails-with-Trails: Lessons Learned” report. Table 4 shows a comparison of trail characteristics of similar trails used in the comparison analysis. These characteristics were considered in the comparative analysis of the two alternatives.

Figure 18
Typical Landscaping and Lighting

Table 4
Comparison of Trail Characteristics

Trails	Ludlam Trail	Pinellas Trail	West Orange Trail
Location	Miami-Dade County, from Kendall to Miami International Airport	Pinellas County, FL from Tarpon Springs to St. Petersburg	Orange County, FL from Winter Garden to Apopka.
Length	7 miles	34 miles	19 miles
Trail width	14 to 18 feet (asphalt)	15 feet (asphalt)	14 feet (asphalt)
Activities	Walking, jogging, bicycling, in-line skating, and wheelchair activities	Walking, hiking, bicycling, in-line skating, and wheelchair activities	Walking, hiking, bicycling, in-line skating, equestrian, and wheelchair activities
Crossings	6 major street crossings	80 intersections	Numerous minor street crossings
Overpasses	To be scheduled in the future	8 at major street crossings	Bridge crossing over the Florida Turnpike
Estimated Annual Users	455,230	1,080,000	659,990
Description	2 proposed alternatives: Rail-with-Trail along active FEC corridor or Rail-to-Trail along abandoned FEC corridor.	Built on abandoned railroad corridor, links parks, scenic coastal areas and residential neighborhoods	Built along abandoned railroad corridor
Amenities	2 trail heads, trail pavilion, rest stops, security, and lighting	Bike racks and refreshment stops provided by the Pinellas Trails, Inc., a not-for-profit citizen's group	7 trailheads; Equestrian trail parallels the paved trail for 10 miles

The comparative analysis was conducted for both alternatives. The quantifying and qualifying factors used to compare the alternatives included land use, travel demand, alignment, street crossings, environmental impacts, cost and funding strategies, design characteristics, and safety considerations. Overall, there is a slight difference between the two alternatives, with the right-of-way costs and safety being the major factors. The following sections show the results of the comparison.

6.1 Land Use

The most active generators of potential trail users were identified along with the routes to and from the Trail. These include the following:

- Radisson Mart and Expo Center, 711 NW 72nd Avenue (commercial trips)
- Robert King High Park, 7025 West Flagler Street (recreational trips)
- A.D. Barnes Park, 3701 SW 72nd Avenue (recreational trips)
- South Miami High School, 6856 SW 53rd Street (school trips)
- South Miami Elementary School, 6800 SW 60th Street (school trips)
- South Miami Middle Community School, 6750 SW 60th Street (school trips)
- Dadeland Station Shopping Complex, 8300 South Dixie Highway (commercial trips)
- Dadeland North Metrorail Station, 8300 South Dixie Highway (transit trips)
- Dadeland Mall, 7535 North Kendall Drive (commercial trips)

The land uses are generally the same for both alternatives, and therefore, the generators of the Trail are not affected by the selection of either alternative. Except for the southern terminus in the Kendall Downtown area, the land use is not expected to change much. There, the area is expected to develop additional pedestrian-friendly commercial and residential uses in the near future, thereby attracting more Trail users.

6.2 Travel Demand

The expected travel demand for the Trail was estimated for pedestrian and bicycle traffic. The methodology used to estimate travel demand was based on the Bicycle and Pedestrian Travel Demand Forecasting Guidelines by the Texas Transportation Institute's research report titled "Development of a Methodology to Estimate Bicycle and Pedestrian Travel Demand". This report categorized the trip generation rates by area type. Bicycle trips may be expected to begin or end 2 to 3 miles from the facility being considered, and pedestrian trips may begin or end within 0.5 to 1 mile of the facility. The influence area along the corridor was defined as 2 miles on either side of the Trail for bicyclists and 0.5 miles on either side of the Trail for pedestrians. The trip generation rates used were based on mixed-use urban land use for the whole corridor.

Based on this methodology, a maximum potential of 595 pedestrians and 652 bicyclists are projected to use the Ludlam Trail on a daily basis. The following table shows a comparison of the estimated number of Ludlam Trail users with other similar trails.

Table 5
Comparison of Estimated Ridership

Trails	Average Daily Total	Average Monthly Total	Average Annual Total
Ludlam Trail, FL (7 miles)	1,247	37,936	455,234
Heritage Trail, OH (7 miles)	656	19,949	239,388
Northern Central Rail Trail, MD (20 miles)	1,002	30,477	365,720
West Orange Trail, FL (19 miles)	1,808	54,999	659,990
Pinellas Trail, FL (34 miles)	2,959	90,000	1,080,000

Based on feedback from the residents in the area, the perceived safety benefits associated with Alternative 2 Rail-to-Trail is greater than Alternative 1 Rail-with-Trail. Therefore, Alternative 2 would generate the maximum potential travel demand. Due to the safety limitations of Alternative 1, it is assumed that the travel demand will be approximately 15 percent less than the maximum potential calculated. Based on that assumption, 506 pedestrians and 554 bicyclists are projected to use Alternative 1 on a daily basis. The travel demand calculations are included in Appendix D.

6.3 Level of Service

A Level of Service (LOS) analysis was conducted using techniques outlined in the Highway Capacity Manual 2000 for pedestrians and bicycles. The FDOT LOS methodology was not used for this study since it does not consider trail use, but rather sidewalks and bike lanes. The Trail was analyzed as an uninterrupted, exclusive off-street path. Even though the facility will have signals/stop signs at the crossings, these types of intersections are not common in the United States and have not been

researched extensively. The LOS for a pedestrian path is based on the number of events, or bicycles meeting or passing a pedestrian. The LOS criteria for bicycle paths are based on the frequency of events, or the total number of bicycles and pedestrians passing in the same direction and opposing direction. The pedestrian LOS for both alternatives is B. This meets the recommended minimum LOS of C. The bicycle LOS for both alternatives is D which is the recommended minimum level of service. The LOS worksheets are included in Appendix D.

6.4 Alignment

The alternative typical sections and alignments were evaluated based on the necessary right-of-way along the railway, as well as at canal crossings and street intersections. For the majority of the corridor, the existing centerline of the Trail is not altered significantly, and the acquisition of additional right-of-way outside the FEC limits is not required with either alternative. The section between SW 4th and SW 8th Streets requires that the alignment for the Rail-with-Trail alternative be shifted to the east of the rail line due to the existing rail siding at Everglades Lumber. Shifting the alignment to the east within the existing right-of-way, however, would not require additional property acquisition. Also, the alignment would be shifted east of the tracks south of Bird Road due to the existing siding west of the FEC tracks. Although the alignment varies slightly for both alternatives, the Alternative 2 alignment is better than Alternative 1 alignment at the sections with the existing sidings. The alignment plans for both alternatives are included in the Master Plans.

6.5 Street Crossings

Both alternatives were evaluated at the designated street crossings to assure the ability to provide sufficient signing and pavement markings for pedestrian and bicycle operations and safety across the intersection. Both alternatives pose the same challenges at the street crossings. For now, advanced warning signs are proposed at the trail-roadway crossings in order to promote safety. Signals for bicycle/pedestrians

crossings have never been used in Miami-Dade County and therefore, would require additional coordination with the County.

Where a proposed trail crosses a major roadway carrying heavy traffic volumes (typically more than 20,000 vehicles per day) and/or traffic at speeds greater than 45 mph, grade separation should be explored regardless of where the adjacent railroad tracks are located. However, pedestrian overpasses are not deemed feasible at this time for either alternative due to the higher construction costs associated and/or additional right-of-way necessary to provide the pedestrian overpass structure at the cross streets. Alternative 1 would require more additional right-of-way than Alternative 2. Detailed street crossings are shown in the Master Plans for Sunset Drive, Miller Drive, Bird Road, Coral Way, Tamiami Trail, and Flagler Street.

6.6 Environmental Impacts

Potential environmental impacts associated with the project were evaluated for both alternatives. A fatal flaw analysis was completed using the available data. Research was collected by Environmental Data Resources within a 0.125-mile area of influence of the Trail. This area of influence was set to include properties that reside one block on either side of the FEC right-of-way. The following summarized their findings.

- The Resource Conservation and Recovery Act database (RCRIS) lists seven sites that generate, store, treat, or dispose of hazardous waste.
- The Leaking Underground Storage Tank Incident Reports (LUST) lists five sites with reported leaking underground storage tank incidents.
- A review of the Underground Storage Tank database list (UST) revealed eight registered UST sites within the area of influence.
- There are seven sites listed in the Facility Index System (FINDS).
- A review of the PCB Activity Database (PADS) identified one site that generates, transports, stores commercially and/or disposes PCBs and required to notify the US EPA of its activities.

- There is one site listed on the Aboveground Storage Tank database (AST) with registered ASTs.
- A review of FL Sites List, which summarizes the status report of the compilation and revision of other existing lists found one site within the area of influence.

A complete listing of these sites along with their status is included in Appendix E; however, there were no contaminated sites found within the FEC right-of-way. The environmental impacts are potentially the same for both alternatives with more flexibility for avoidance of any possible contaminated sites provided by Alternative 2 Rail-to-Trail. In addition to the research summarized above and the interviews with FEC representatives, no records of contamination spills were found within the FEC right-of-way. A recommendation for further analysis to refine the data listings and eliminate the possibility of contamination sites should be conducted in the next phase of the project.

The Ludlam Trail is adjacent to a Natural Forest Community, A.D. Barnes Park, which is located at 3401 SW 72nd Avenue, on the west side of the FEC railway. On the east side, between the FEC right-of-way and SW 69th Avenue is a property that contains several populations of *Amorpha herbacea var*. *crenulata*, a federally listed, endangered plant species. The developer of this site has worked with DERM to relocate several of the *Amorpha* plants to A.D. Barnes Park and has preserved other *Amorpha* plants on site in conjunction with the preservation of several specimen sized live oak trees and slash pines. All future activities within the FEC right-of-way should be designed to eliminate any potential impacts to the preserved specimen trees, *Amorpha* plants, or the Natural Forest Community at A.D. Barnes Park. Vegetation within the park (i.e. hardwood hammocks and pinelands) is suited to environmental education programs, and for development of a model species list for reforestation within the North Dade Greenways system.

6.7 Cost Analysis

Estimated right-of-way and construction costs were developed for each alternative. The costs include, but were not limited to, trailheads, structures, lighting, signing and pavement markings, etc. All costs were developed for the year, 2002.

An independent analysis of the right-of-way costs was prepared by the Rails-to-Trails Conservancy Florida Field Office. There were too few current and truly comparable rail corridor transactions to fairly represent the comparable market conditions in the Miami-Dade County area. Therefore, value estimates compiled for the right-of-way cost estimates are based on a modified across-the-fence methodology. In the across-the-fence approach, market value is determined by the prices of the adjoining land. Many appraisers conclude that the across-the-fence methodology best accommodates the local market conditions by using readily available information to extrapolate value. Others argue that this methodology is inappropriate for railroad corridors because the adjacent property values are based on land uses that in many cases are impossible to recreate on a narrow and linear corridor. Therefore, the methodology was adjusted for land use, location, and its linear nature. The value for a blanket trail easement (Alternative 1 Rail-with-Trail) was estimated to be 73.8 percent of the fair market value of the corridor or $39.2 million to $54.7 million. The estimated value for acquiring the entire seven-mile corridor from Dadeland Station to NW 12th Street/Perimeter Road (Alternative 2 Rail-to-Trail) would range from $53.2 million to $74.1 million. A copy of the report is included in Appendix F.

The construction costs for Alternative 1 were estimated to be $5.6 million, while Alternative 2 was estimated to cost $6.7 million to construct. These costs take into account landscaping, lighting, and other amenities such as benches, water fountains, and emergency telephones. Also, the construction of four bridges at the canal crossings is included in this estimate. Obviously, more amenities and landscaping can be incorporated with Alternative 2 since there is more right-of-way provided by the Rail-to-Trial option. Therefore, the construction cost is higher for Alternative 2 than Alternative 1. The detailed cost estimates are included in Appendix G.

6.8 Funding Strategies

Potential funding sources and/or strategies were identified for the project. Both alternatives were evaluated on their ability to attract the funding sources. These programs are listed in detail in the Rail-to-Trails Conservancy report in Appendix F. The following funding sources are available for trail acquisition specifically.

6.8.1 Federal Funding Sources

Recreational Trails Program – Provides $3.8 million annually to Florida as part of the federal transportation legislation funding program, TEA-21 and administered by the Florida Office of Greenways and Trails (OGT). It is a competitive grant program, and therefore, only projects that meet certain criteria are eligible for funding. Maximum grants are $250,000. Maintenance and restoration of existing trails, development or rehabilitation of trailside and trailhead facilities and linkages, acquisition of necessary easements, associated administrative costs, new trails and educational programs are all eligible. Match requirements are (Federal: Local) 80:20, 60:40 and 50:50 with other options available. This is one of the few programs that funds maintenance activities.

Transportation Enhancements Program (TE) – Also part of the federal TEA-21 legislation, this program is managed by the Environmental Management Office of Florida DOT and provided $40,000,000 in 2002. The TE program is a reimbursement program and funds activities in twelve eligible categories including rail-trail acquisition and development. Only government agencies are eligible to apply. Maintenance activities are not eligible for funding under this program. This program requires a match of (Federal: Local) of 80:20. However, FDOT provides 10 percent of the matching funds and, in some cases, provides the entire 20 percent of the required match. Increasingly, the state uses toll credits to match all projects in the TE program, eliminating the need for local sponsors to provide matching funds in many cases. FDOT District Secretaries make final project selections for locally sponsored projects, and central office staff make recommendations for statewide projects and those sponsored by other state/federal agencies. The FDOT Secretary has final approval of these project selections.

6.8.2 State Funding Sources

Greenways and Trails Acquisition Program – This program is a component of Florida Forever, the successor to Preservation 2000, and provides approximately $4.5 million annually. The purpose of this program is to acquire land to help create a statewide system of greenways and trails. Municipalities, non-profit organizations, and individual citizens of the state of Florida are eligible to nominate acquisition projects to this program.

Florida Recreational Development Assistance Program (FRDAP) – This is a competitive grant program that provides grants for acquisition or development of land for public outdoor recreational use, including trails. The Florida Department of Environmental Protection administers the program. The Bureau of Design and Recreation Services of DEP's Division of Recreation and Parks has direct responsibility for FRDAP. Municipal or county governments or other legally constituted entities with the legal responsibility to provide public outdoor recreation may apply for FRDAP funds. The applicant is required to supply a match based upon the total project cost.

Florida Communities Trust (FCT) - Funded from the state's Preservation 2000 Act and Florida Forever Act, this program helps local governments implement comprehensive plans through the acquisition of land. The Florida Communities Trust differs from other acquisition programs because it focuses exclusively on locally selected acquisition projects. Each year, the program makes grants to local governments to help them buy coastal, conservation, recreation, greenways and open space land. Trust staff also provides technical assistance related to real estate negotiations and transactions and development of grant applications.

6.8.3 Acquisition Strategies

There are three primary ways of using or acquiring the corridor right-of-way for the Trail. These three ways are: obtaining easements for having trails along active lines;

purchasing the corridor through the railbanking method; and purchase through the abandonment procedure. Easements allow trail operators to construct and operate the trail on rail right of way. Rail banking and abandonment procedures are outlined below.

Railbanking is a program created by Congress in 1983 when Section 8(d) of the National Trails System Act was amended. Railbanking allows corridors which are proposed for abandonment to be preserved intact or put in a "bank" for future transportation use, allowing the rail corridor to be used for trails. The banked rail line is not considered abandoned under federal or state law, thereby keeping easements in place. A Statement of Willingness to Assume Financial Responsibility is filed by the interested trail party. A Certificate of Interim Trail Use (CITU) or Notice of Interim Trail Use (NITU) is filed by the Surface Transportation Board (STB) when the railroad agrees to railbanking. The trail operator negotiates with the railroad for the sale and transfer of the corridor. A railbanked corridor is subject to possible future restoration of rail use. Fair market value, set by the STB, would be provided to the trail operator for the corridor and improvements made should the rail usage return.

Abandonment of a rail line follows one of three procedures, Regulated Abandonment, Notice of Exemption Abandonment, and Petition for Exemption Abandonment. Section 809(c) of the 4R Act contains the "Public Use Condition" (PUC). This condition prevents the railroad from selling off or otherwise disposing of any property or structures without first offering the property at reasonable terms for public use. For Fee Simple Right-of-Way, the STB uses Across-The-Fence (ATF) methodology to determine the land value. This method considers the cost of similar land cost adjacent to or across-the-fence from the railway.

For the Ludlam Trail a combination of railbanking and easement may be possible. The southern section may be suitable for railbanking and/or acquisition due to the lack of usage (Alternative 2 Rail-to-Trail), with the northern section utilizing easements with an active rail line (Alternative 1 Rail-with-Trail). Railbanking may not be an available option

since the FEC has not indicated this as a strategy for negotiating the right-of-way for the Ludlam Trail.

6.9 Maintenance

Typically, government agencies maintain 94 percent of existing trails throughout the country, with local trail user groups maintaining the rest. For about six percent of trails, the railroad does offer some maintenance assistance. The average trail maintenance cost is about $17,000 per year (or $2,600 per mi). However, maintenance costs range considerably, from a few hundred dollars annually when relying on volunteer labor to a reported $50,000 annually. Maintenance activities for the Ludlam Trail would include mowing, sweeping, cutting debris, landscaping, fixing trail problems, replacing signs, and replacing deteriorating surface. These activities are expected to cost approximately $18,200 annually.

Maintenance agreements between agencies and organizations and the cost associated with these will need to be fine-tuned in subsequent phases of the project's development. Discussions were held with City of Miami and Miami-Dade County park officials regarding maintenance responsibilities and costs. Although no agreements have been confirmed, there is some indication that the parks departments would enter into a maintenance agreement corresponding to the portion of the Ludlam Trail adjacent to the parks. The specifics of any agreement would be documented in the next phase of the project. Trail maintenance responsibilities are expected to be the same for both alternatives. However, there would be a marginal decrease in costs associated with landscaping in Alternative 1 since the right-of-way is less than in Alternative 2.

6.10 Liability

In the context of a trail, liability refers to the obligation of a trail manager or railroad to compensate a person who is harmed through some fault of the trail manager or railroad.

Railroads have a number of liability concerns about the intentional location of a trail near an active railroad corridor:

- Trail users may not be considered trespassers if a railroad permits trail use within a portion of their right-of-way, and thus the railroad would owe a higher duty of care to trail users.
- Incidents of trespassing and injuries to trespassers will occur with greater frequency.
- Trail users may be injured by railroad activities, such as falling or protruding objects, hazardous materials, or a derailment.
- Injured trail users might sue railroad companies even if the injury is unrelated to railroad operations, incurring expensive legal costs.

The level of railroad company concern is dependent in part on the class of railroad and the type of operations they perform. Privately-owned railroads are more conservative about non-rail usage of their rights-of-way because they often plan future expansion and because their perceived deep financial pockets make them a frequent target of lawsuits.

According to the "Rail-with-Trail: Lessons Learned" report, there is a range of options that can reduce railroad liability exposure. These include:

State-enacted Recreational Use Statutes (RUS) and Rails-to-Trails Statutes. All 50 States have Recreational Use Statutes, which provide protection to landowners who allow the public to use their land for recreational purposes. An injured person must prove the landowner deliberately intended to harm him or her. Additionally, about 20 states, including Florida, have laws specific enacted to clarify, and in some cases, limit, adjacent landowner liability. This can range from protecting adjacent landowners from liability to making the Recreational Use Statute for the State specifically applicable to a Rails-to-Trails program.

Property acquisition. Governments under civil law are treated differently from those of private landowners due to their unique status as sovereign entities. Many states have recently enacted statutes that limit the amounts or kinds of damages recoverable

against governments. Public agencies considering Rail-with-Trails should be prepared to identify financial incentives for a railroad to consider. This may be in the form of land transfers, tax breaks from donated land, cash payments, zoning bonuses on other railroad non-operating property, taking over maintenance of the right-of-way and structures, and measurably reducing the liability a railroad experiences.

Easement and license agreements that indemnify the railroad owner against certain or all potential claims. In most cases, the railroad will retain property control, thus the form of legal agreement will be an easement or license agreement that, to the extent permissible under State law, reduces the railroad's liability exposure. Because of the many jurisdictions that have some involvement in a rail-with-trail—including the owner of the right-of-way, the operator of the railroad, and the trail manager(s)—the license or easement agreement should identify liability issues and responsible persons through indemnification and assumption of liability provisions.

Insurance. Railroads may be concerned that trail users might sue them regardless of whether the injuries were related to railroad operations or the proximity of the trail. In most instances, the trail management entity should provide or purchase comprehensive liability insurance in an amount sufficient to cover foreseeable railroad liability and legal defense costs.

The following table lists the existing Florida state laws and statutes related to liability issues associated with a rail-with-trails alternative. These laws have been specifically enacted to clarify, and in some cases, limit adjacent landowner liability.

Table 6
Applicable State Laws and Statutes

Recreational Use Statute (RUS)	Trail, Rails-to-Trails Program, Recreational Trails System, or Similar Statute	Government Tort Liability Act
Fla. Stat. ch. 375.251 (2000).	Fla. Stat. ch. 260.011 et seq. (2000).	Fla. Stat. Ann. § 768.28 et seq. (West 2000).
	Recreational Trails System Statute	Tort Claims Act
	§ 260.012(4) of the Recreational Trails System Chapter makes the Recreational Use Statute (RUS)	
	§ 375.251 is applicable to the Recreational Trails System Chapter	

According to Table 6, Florida has state-enacted RUS and statutes for which both alternatives would comply with. Property acquisition with Alternative 2 (Rail-to-Trail) would be more beneficial since it would eliminate the liability for the railroad completely. With Alternative 1 (Rail-with-Trail), easements and license agreements would have to be created.

6.11 Joint Development Opportunities

Joint development opportunities are a key component in gathering local support and momentum necessary to move the project to the next phase. The potential joint development opportunities were identified along the corridor. These include several bicycle shops located near the Trail. Discussions were held in which the bike shop owners/managers expressed their support for the project as well as interest in possible joint development opportunities. Opportunities identified for joint development consist of advertising throughout the Trail, and setting up “Adopt-a-Trail” programs and kiosks.

6.12 Evaluation Matrix

An evaluation matrix was developed that incorporates the evaluation criteria in order to present a quantified comparative analysis of the alternatives. Based on the criteria, the evaluation matrix assigned a value of 1 (worst) to 5 (best) to each alternative. Table 7 shows the results of the evaluation matrix.

Table 7
Evaluation Matrix

		Alternative 1 Rail-with-Trail		Alternative 2 Rail-to-Trail	
Evaluation Criteria	**Weight**	**Rating**	**Score**	**Rating**	**Score**
ROW Costs	15%	2	0.30	1	0.15
Street Crossings	13%	1	0.13	2	0.26
Security	11%	2	0.22	3	0.33
Funding Sources	9%	4	0.36	3	0.27
Safety/Liability	9%	2	0.18	4	0.36
ROW Impacts	8%	3	0.24	5	0.40
Alignment	6%	3	0.18	4	0.24
Construction Costs	6%	4	0.24	3	0.18
Travel Demand/LOS	5%	3	0.15	3	0.15
Business Damages	5%	5	0.25	2	0.10
Environmental Impacts	5%	2	0.10	3	0.15
Trail Maintenance	4%	3	0.12	3	0.12
Trail Amenities	2%	3	0.06	4	0.08
Joint Development	2%	3	0.06	4	0.08
Total Score	**100%**		**2.59**		**2.87**
Rank			**2**		**1**

6.13 Class of Action Determination

Based on the results of the study, a preliminary Class of Action determination was recommended for the Ludlam Trail. A meeting was held with the FDOT District Six Environmental Management Office and FHWA staff to recommend the preliminary determination for the next phase of the project. The Ludlam Trail Non-Motorized Corridor Project may be categorized as a Programmatic Categorical Exclusion per FHWA approval on March 1, 1995, as amended September 4, 1996. Programmatic CEs include the preservation of abandoned railway corridors, including the conversion

and use for pedestrian, equestrian, or bicycle trails. FDOT recommended that a public hearing be conducted for the next phase regardless of the Class of Action.

7.0 AGENCY/PUBLIC INVOLVEMENT

A Public Involvement Plan (PIP) was developed for the project that included a preliminary list and schedule of events to be updated as necessary throughout the project. The results of the PIP are summarized in this section.

7.1 Mailing List

As part of the PIP, the stakeholders along the corridor were identified. A mailing list for property owners including businesses and residents located along the corridor was developed and maintained throughout the study. The property owners mailing list included approximately 5,000 people who were notified of the project and invited to the public workshops. Additionally, a separate, mailing list included federal, state, and local agencies, municipalities, and also bicycle advocacy groups, Rails-to-Trails Conservancy (RTC), the National Audubon Society, etc. The agency mailing list was used to notify agency and organization representatives of the project and the public workshops, as well as to send the newsletters. This list is included in Appendix H.

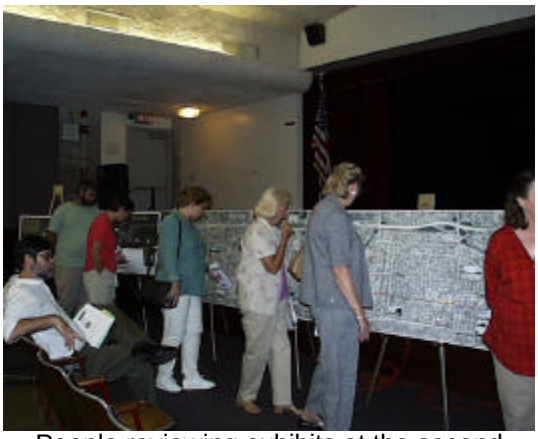
7.2 Workshops

For this project, FDOT notified those whose properties lie, in whole or in part, within 500 feet of the centerline on either side of the FEC track. In total approximately 5,000 property owners were notified of the public workshops.

Two workshops were conducted during the study. The first workshop was held during the initial stages of the study. The purpose of this workshop was to introduce the project and to receive initial input from the community. Approximately 275 people attended the first workshop held at South Miami Middle Community School on

Wednesday, August 7, 2002, to show that they were in favor of using the Florida East Coast (FEC) Railway Corridor for a bicycle/pedestrian route. In attendance were the City of South Miami Mayor Julio Robaina and Miami-Dade Commissioner Rebeca Sosa's Chief of Staff, Raul De La Torre. A PowerPoint presentation was given that included a description of the project, its benefits, alternatives, and examples of successful trails throughout Florida. The public was also given the opportunity to have their remarks officially recorded.

The second workshop was held during the alternatives evaluation stage in order to present the alternatives and receive comments. The workshop was held on Wednesday, October 2, 2002, at the same location as the first workshop. The purpose of the second workshop was to present the community with the status of the project to date and some preliminary concepts. Approximately 120 people were in attendance. The PowerPoint presentation included a description of the project, a summary of the first workshop, user survey results, and proposed typical sections and street crossing designs for the two alternatives. The presentation ended with an opportunity for the public again to have their remarks officially recorded. Among a few of the local officials in attendance was the City of South Miami Mayor Julio Robaina who presented a resolution passed by the City of South Miami showing its support for the Ludlam Trail project. A copy of the resolution is included in Appendix I. The PowerPoint slides for both workshops are included in Appendix J.


People reviewing exhibits at the second workshop.

Mayor Julio Robaina presenting resolution to the Project Manager.

Stemming from the popularity of the workshops, additional media coverage resulted in articles published by the South Miami Times, South Miami News, and the Neighbors newspapers, as well as a radio interview aired on WQBA with then City of South Miami Mayor Robaina.

7.3 Newsletters

Three bilingual newsletters were developed for the project. The first newsletter was distributed at the beginning of the project prior to the first workshop and introduced the project and trail concepts. The second newsletter was distributed prior to the second community workshop and answered some frequently asked questions and provided an update of the project status. The third newsletter was distributed at the end of the Phase I study. The third newsletter summarized the results of the study and informed the public of the next steps to the project. The newsletters were sent to all the government, agency, organization representatives on the agency mailing list, as well as to those individuals who requested to receive the newsletters via mail. Copies of the newsletters in English are included in Appendix K.

7.4 Meetings and Discussions

Numerous meetings were conducted throughout the duration of the project. These meetings included:

- FEC – July 2, 2002; July 31, 2002; February 13, 2003
- FDOT Public Involvement Office – July 8, 2002, August 20, 2002
- FDOT Environmental Management Office – July 15, 2002; January 30, 2003
- Miscellaneous (2 residents) – July, 2002
- Everglades Lumber – August 21, 2002
- Kelly Tractor – August 22, 2002
- FDOT Right of Way Office – August 29, 2002
- Miami-Dade County Public Schools Facility – September 3, 2002

- A.D. Barnes Park – September 18, 2002
- Robert King High Park – September 24, 2002
- Federal Highway Administration – January 30, 2003

Summaries of the meetings are included in Appendix L. In addition, discussions were also held with several elected officials including Miami-Dade County Mayor Alex Penelas, Commissioner Jimmy Morales, Commissioner Rebeca Sosa, City of South Miami Mayor Julio Robaina (now State Representative), and State Representative Juan Carlos Planas. The project team also worked with various organizations such as Florida Bicycling Association, Bikes Belong Coalition, East Coast Greenway Association, and the Rails-to-Trails Conservancy.

7.5 Presentations

Presentations of the project were made to the following committees and individuals during the course of the study.

- MPO Bicycle and Pedestrian Advisory Committee (BPAC) – August 29, 2002 and December 11, 2002
- Commissioner Jimmy Morales – October 1, 2002
- MPO Citizens Technical Advisory Committee (CTAC) – October 23, 2002
- MPO Transportation Planning Council (TPC) – November 7, 2002
- MPO Transportation Plan Technical Advisory Committee (TPTAC) – January 8, 2003

Summaries of the presentations are included in Appendix L.

7.6 Website

A website, www.ludlamtrail.com, was created exclusively for the project. The site provided the latest information on the project status during Phase I. It also includes a description of the project with a location map, copies of the workshop slideshows, and an opportunity for visitors to send comments, fill-out the survey and request to be added

to the mailing list. Project-related documents, which included the three newsletters and the project concepts, were also posted on the site.

7.7 Survey Questionnaire and Comments

A survey questionnaire form was created and distributed at the workshops and on the website. A copy of the survey and the results are included in Appendix M. In total, 149 people filled out the survey. According to results of the survey: an estimated 51 percent of respondents would use the Trail for pedestrian activities such as walking or jogging; 34 percent of respondents would use the Trail for cycling activities; approximately 78 percent were in favor of a bicycle/pedestrian trail within the FEC corridor; and 58 percent would use the trail for social/recreational trips.

A comment sheet was also distributed at the workshops and made available on the website. The majority of the comments received (approximately 32) were in favor the project. Ten of these specifically expressed support for Alternative 2, Rail-to-Trail; while two stated preference for Alternative 1, Rail-with-Trail. Seven other people voiced their opinion against the project. The majority of the comments centered on the security and safety issues. Comments from the public are included in Appendix M.

8.0 CONCLUSIONS

The following table shows the results of the comparative analysis of both alternatives.

Table 8
Summary of Alternatives Comparison

	Alternative 1 (Rail-with-Trail)	Alternative 2 (Rail-to-Trail)
Construction Cost	$5.6 million	$6.7 million
Right-of-Way Cost	$39.2M - $54.7M	$53.2M - $74.1 M
Annual Users	386,949	455, 234
Evaluation Score	2.59	2.87

Note: Annual users for Alt. 1 estimated to be 85% of those estimated for Alt. 2.

Although the evaluation score shows the preferred alternative to be Rail-to-Trail Alternative, the associated right-of-way acquisition cost is significant. Therefore, another option that should be considered is a hybrid of both alternatives.

The third option consists of the Rail-to-Trail Alternative starting at A.D. Barnes Park and continuing south to the Dadeland Station. In this alternative, the estimated value is based on acquiring the corridor from Dadeland Mall north to A.D. Barnes Park. The estimated value for acquiring only the southern portion of study area ranges from $26.5 million to $36.9 million. This hybrid option provides opportunity for future expansion to complete the Rail-with-Trail segment in the northern section from A.D. Barnes Park to NW 12th Street/Perimeter Road. The missing northern section could eventually be converted to a Rail-with-Trail blanket easement, thus minimizing the impacts to businesses along this section, which would have been impacted negatively with a Rail-to-Trail Alternative. Ultimately, the eventual construction of the pedestrian overpasses could also be phased in as the Trail becomes popular and sufficient financial resources are obtained.

A final meeting was held on February 13, 2003, with FEC representatives. The purpose of the meeting was to discuss the findings of the preliminary cost estimate report prepared by the Rails-to-Trails Conservancy. The FEC stated that the estimate given in

the report might fall within the range acceptable to FEC. However, a detailed right-of-way cost estimate would have to be prepared by FEC in order to determine the actual costs. Likewise, the agency or organization that would eventually be operating the Ludlam Trail would also have to perform a more detailed cost estimate.

At the meeting, FEC also indicated their willingness to sell the southern portion of the corridor, but they would prefer to enter into an easement or lease agreement for the northern section in order to protect the business interests of the customers they service in that portion. In addition, FEC stressed the importance of the timeliness of any future negotiations with them regarding the Trail. FEC can not promise to hold out indefinitely for a bid to buy the land for the Ludlam Trail if an offer is presented to them from another buyer, as could occur in the Dadeland area. FEC would like to see the betterment of the community with a linear transportation/recreational use for this corridor, but does not want to have to wait for the project to begin many years from now.

An implementation strategy was developed for the project that provides an outline of the necessary steps to advance the project to Phase II. The following recommendations were based on discussions with agencies and stakeholders along the corridor.

MPO Inclusion

It is recommended that the Ludlam Trail project be adopted by Miami-Dade County's MPO Planning process. The Ludlam Trail would have to be included in the MPO's Bicycle and Pedestrian Facilities Plan elements of the Long Range Transportation Plan (LRTP) before additional project development activity could occur. Non -motorized facilities i.e. off-road greenways and trails, on-road bicycle lanes, and sidewalks are included in this Plan. Once this project is listed in the LRTP, it can then be prioritized in the Minimum Revenue Plan.

The Ludlam Trail also fulfills the requirements under the MPO's Transportation Enhancements Strategies, which include bicycle and pedestrian projects. These projects include bicycle transportation, pedestrian walkways and preservation of

abandoned railway corridors – in particular, those including the conversion and use for pedestrian or bicycle trails.

Miami-Dade County's Bicycle Pedestrian Advisory Committee (BPAC) has been instrumental in recommending projects to be initiated and stimulating the development of greenways for non-motorized travel throughout County. Their support is invaluable to this project, and it would be extremely beneficial for this committee to track the Ludlam Trail and lend support where necessary.

Citizen Trail Group Creation

Community support could help to move the project forward to the next step. The formation of a private, non-profit organization i.e. "Friends of the Ludlam Trail" would be helpful to the long-term success of this project. The single most important function of a citizen trail organization is to act as an advocate for the Trail, and promoting it and defending it when necessary. Citizen trail groups provide many other services to trails such as:

- Physical labor performed through an "Adopt a Trail" program – litter cleanup, sweeping, brush cutting, painting, minor bridge repair, and even construction of support facilities such as benches, picnic tables, and kiosks.
- "Eyes and ears" surveillance and reporting of any problems, dangers, or inappropriate activities taking place on or near the trail.
- Fundraising to pay for trail structures i.e. bridges, amenities i.e. trailside rest areas, or threatened adjacent properties of environmental significance that are not included in the regular budget for the trail.

The purpose and mission of the group should be clearly specified at the onset. Potential members may be drawn from adjacent property owners and businesses, BPAC members, as well as those individuals who have already expressed their support of the Ludlam Trail during this phase of the project.

Furthermore, Florida State Representative Julio Robaina is sponsoring a community budget issue request for $20 million for the Ludlam Trail project. A copy of this request is included in Appendix N.

APPENDIX A
Field Review

APPENDIX B
Safe School Routes

APPENDIX C
FEC RR Lease Agreements and Utility Easements

APPENDIX D
Travel Demand and Level of Service Analysis

Travel Demand

Level of Service Analysis

APPENDIX E
Environmental Data

APPENDIX F
Rails-to-Trails Conservancy Report

APPENDIX G
Preliminary Cost Estimate

APPENDIX H
Mailing List

APPENDIX I
Resolution

APPENDIX J
Public Workshops

APPENDIX K
Newsletters

APPENDIX L
Meetings and Presentations

Meetings

Presentations

APPENDIX M
Survey Questionnaire and Comments

APPENDIX N
Florida State Community Budget Issue Request