MIAMI-DADE MPO

FLORIDA EAST COAST (FEC)

TRANSIT CONNECTION STUDY

FROM DADELAND NORTH METRORAIL STATION TO MIAMI INTERNATIONAL AIRPORT (MIA)

EXECUTIVE SUMMARY

Prepared by

Kimley-Horn and Associates, Inc.

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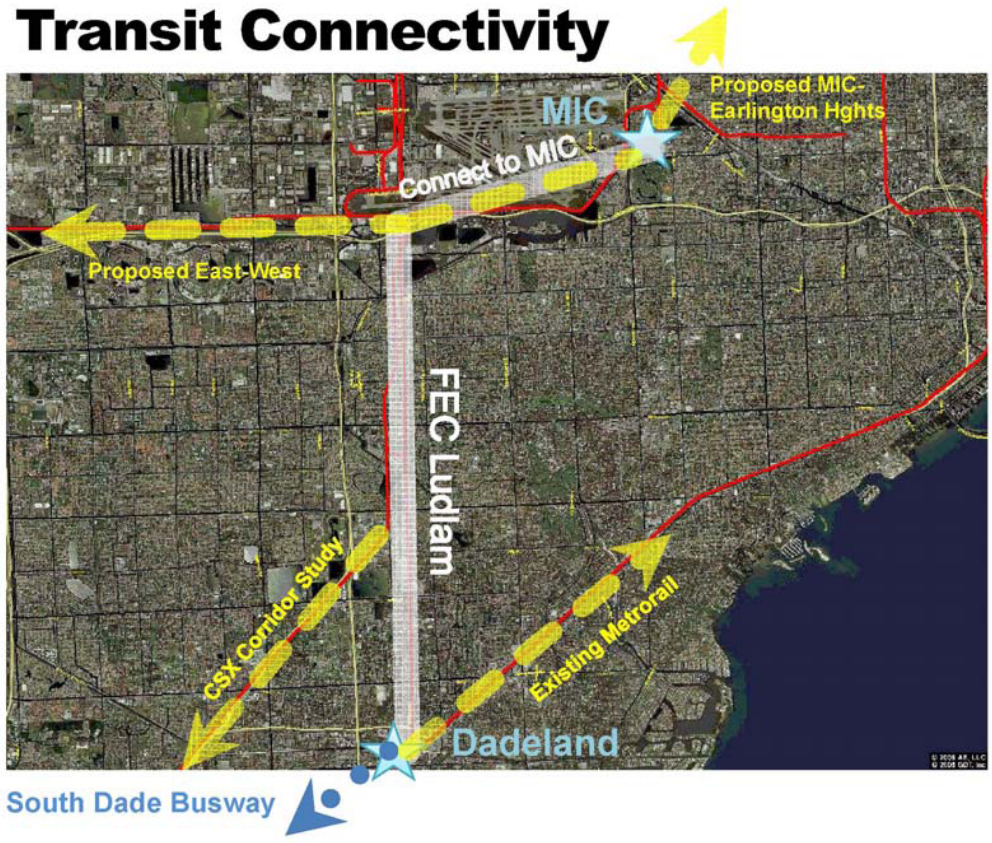
Study Purpose

The Florida East Coast (FEC) Ludlam Corridor Transit Connection Study examines the potential for integrating transit into future plans for this inactive rail corridor. The study began in September 2008 based on the Miami-Dade Metropolitan Planning Organization (MPO) Governing Board's resolution relating to the Kendall Link Alternatives Analysis (AA) Study, which directed staff to evaluate transit service along the FEC Ludlam Corridor from the Dadeland North Metrorail Station to Miami International Airport (MIA). The main purpose of this study is to assess the integration of a transit service component into future plans for this inactive rail corridor.



Background

The FEC Ludlam Corridor is a partially-abandoned railroad corridor connecting the Dadeland area with the existing South Florida Rail Corridor (SFRC) south of MIA. The railroad track has been removed along the majority of the Ludlam Corridor's length. The project corridor is approximately seven miles long and is located parallel to and west of NW/SW 67th Avenue (Ludlam Road). The FEC Ludlam Corridor represents a significant opportunity to expand alternative transportation modes in Miami-Dade County due to its length, connectivity, and strategic location. Although initial studies in the Ludlam Corridor examined rail transit service, recent studies have focused on bicycle

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and pedestrian improvements based on the "Rails-to-Trails" Conservancy program. Prior studies that have examined the corridor include:

- Palmetto Corridor Light Rail Transit Feasibility Study, Miami-Dade MPO (1997)
- North Dade Greenways Master Plan, Miami-Dade MPO (1997)
- Ludlam Trail Non-Motorized Corridor Study, FDOT (2003)
- Rail Convertibility Study, Miami-Dade MPO (2004)

The Miami-Dade MPO's 2035 Needs Plan identifies the FEC Ludlam Corridor as a "premium transit service with non-motorized trail facility" between the Dadeland North area and the Miami Intermodal Center (MIC).

Successful Examples of Rails-with-Trails

A 2002 USDOT report entitled *Rails-with-Trails: Lessons Learned* documented 65 rail-with trail examples from around the country in 30 different states. Two (2) rail-with-trail projects were documented in Florida including a section of the West Orange Trail in Winter Park and St. Marks Trail near Tallahassee. A few examples are listed below compiled from the USDOT report as well as additional research efforts conducted for this study.

Hiawatha Light Rail and Trail, Minneapolis, Minnesota

- Popular shared-use trail located along a 19-station urban light-rail line
- Rail-with-trail opened in 2004
- Trail is integrated within a 56-mile urban greenway bicycle trail system
- The Hiawatha Light Rail operates over 200 trains per day on weekdays and carries more than 28,000 daily passengers


Hiawatha Light Rail and Trail, Minneapolis, Minnesota

Springwater Corridor Trail, Portland, Oregon

- Bicycle and pedestrian rail-with-trail
- Part of a 40-mile loop with heavy bicycle commuter traffic
- Metro, the Portland regional government, owns the corridor
- Oregon Pacific Railroad (OPR) operates freight trains in the winter and tourist excursion trains in the summer

Burlington Waterfront Bikeway, Burlington, Vermont

- Trail opened in 1985 beside an active railroad line
- 7.5 miles in length
- Vermont Agency of Transportation (VTRANS) owns the corridor
- Construction of the trail helped to reduce the problem of people crossing the railroad tracks at undesignated locations

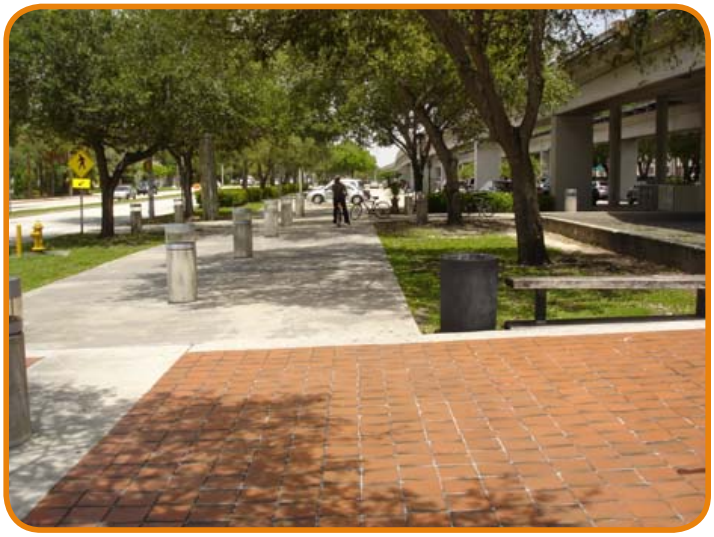
Springwater Corridor Trail, Portland, Oregon

Burlington Waterfront Bikeway, Burlington, Vermont

Local Transit-with-Trail Experience

Local Miami-Dade experience for transit-with-trail projects has been positive. Both the South Dade Trail and the M-Path exist within transit rights-of-way. These two trails represent two of the longest and most heavily utilized multi-use trails in Miami-Dade County. The M-Path was constructed below and sometimes adjacent to the elevated Metrorail guideway between the Miami River and SW 67th Avenue. A few other sections of Metrorail have M-Path as well. The South Dade Trail runs alongside the South Dade Busway from Dadeland South to Florida City and provides connectivity to busway stations.

South Dade Trail



M-Path

Existing Conditions and FEC Ludlam Right-of-Way Assessment

Existing data were collected and include the necessary information to develop and evaluate the possible options for incorporating a transit component into the FEC Ludlam Corridor. A detailed field review of the FEC Ludlam Corridor was conducted to prepare an inventory of the existing conditions, identify opportunities for multimodal connectivity, and identify potential constraints such as right-of-way encroachments.

Major street crossings are located along the following roadways:

- Perimeter Road (NW 12th Street) – two lanes, undivided
- Flagler Street – four lanes, divided
- SW 4th Street – two lanes, undivided
- Tamiami Trail (SW 8th Street) – four lanes, undivided
- SW 12th Street – two lanes, undivided
- SW 16th Street – two lanes, undivided
- SW 21st Street – two lanes, undivided
- SW 22nd Street – two lanes undivided
- Coral Way (SW 24th Street) – four lanes, divided
- North Waterway Drive – two lanes, undivided
- Bird Road (SW 40th Street) – six lanes, divided
- Miller Drive (SW 56th Street) – four lanes, undivided
- SW 60th Street – two lanes, undivided
- Hardee Drive (SW 64th Street) – two lanes, divided
- Sunset Drive (SW 72nd Street) – four lanes, divided
- Davis Road (SW 80th Street) – two lanes, undivided
- SR 878 Eastbound Exit Ramp – three lanes, undivided

Railroad tracks remain in place north of SW 12th Street

Railroad tracks have been removed south of SW 12th Street

Right-of-way observations along the FEC Ludlam Corridor:

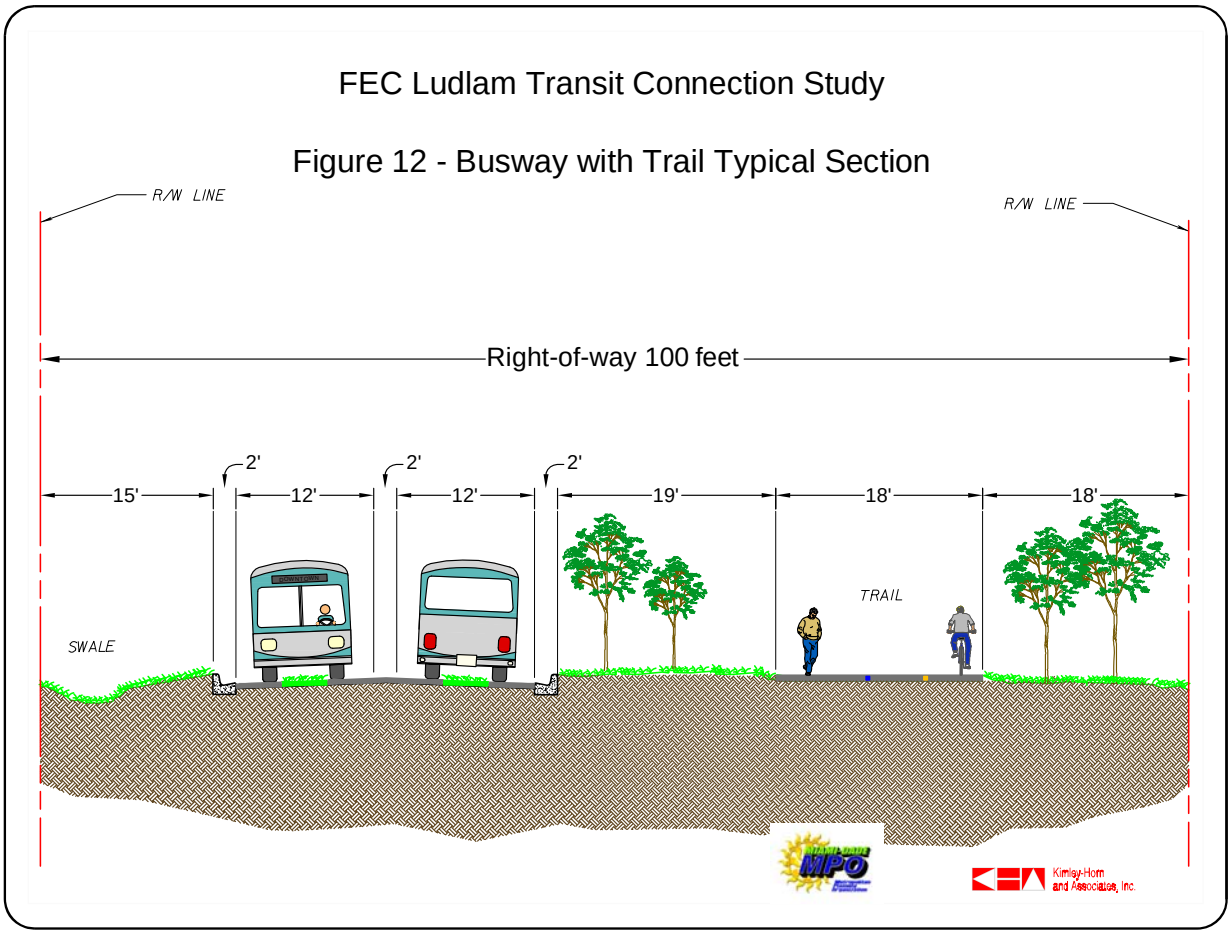
- The typical right-of-way width is 100 feet.
- South of Oleander Junction (where the corridor meets the South Florida Rail Corridor) the FEC Ludlam Corridor is owned by the FEC's development corporation, Flagler Development.
- The railroad track has been removed from SW 12th Street to the southern end of the study corridor in the Dadeland area.
- In several locations documented in this study, surrounding land uses appear to be utilizing portions of the FEC Ludlam Corridor right-of-way for activities such as warehousing, parking, driveways, fencing, etc.
- The FEC Ludlam Corridor right-of-way was observed to be completely consumed by Braman Honda parking area on the south side of SW 24th Street. According to discussions with Flagler Development staff, Braman Honda has a lease agreement for this use.
- Various landscaping and fencing encroachments exist associated with private residences.

FEC Ludlam Corridor Options

The FEC Ludlam Corridor can be a potential candidate for premium transit service because the corridor connects from the south side of Miami International Airport (MIA) to the Dadeland area. In the north, several options exist for connecting the FEC Ludlam Corridor to the Miami Intermodal Center (MIC) site, which will serve as the major transit hub in the area and provide passenger connections to Metrorail, Metrobus, Tri-Rail commuter rail, a consolidated rental car facility, and to the MIA passenger terminals. Local traffic can be reduced with a proper implementation of transit service on this corridor. Based on the available right-of-way and the existing and future proposed transportation network near the FEC Ludlam Corridor, the corridor options were grouped into four major categories:

- Multi-use trail only (Ludlam Trail Design Guidelines project)
- Multi-use trail with busway transit
- Multi-use trail with at-grade passenger rail transit
- Multi-use trail with elevated passenger rail transit

The elevated passenger rail transit option was removed from consideration through technical analysis conducted during the initial screening stage of this study.



A Closer Look at the Multi-use Trail with Busway Option

- The busway option provides the most flexibility for transit service at a lower cost than the other transit options. The buses would utilize the FEC Ludlam Corridor right-of-way to avoid operating in mixed-traffic conditions on the local streets.
- The busway option has the potential to extend the existing South Dade Busway at Dadeland South Station and also to provide a one-seat busway ride from Florida City to the MIC.
- The busway option has the potential to extend the proposed Kendall Drive Bus Rapid Transit (BRT) project to the MIC via the FEC Ludlam Corridor.
- Trail users will experience safety enhancements at major intersections because signalized crossings are proposed for the trail/busway corridor.
- Ridership modeling conducted for the CSX Corridor Evaluation Study showed significant ridership demand along the FEC Ludlam Corridor.
- The busway option accounts for a minimal additional signal delay on cross streets.
- Countywide transit efficiency strategies, such as Transit Signal Priority (TSP), can also be applied at intersections to provide additional travel time benefits for buses.

Emerald Epress Busway, Eugene, Oregon

Plan View of Busway with Trail

FEC Ludlam Transit Connection Study
Figure 14 - Plan View of Busway with Trail

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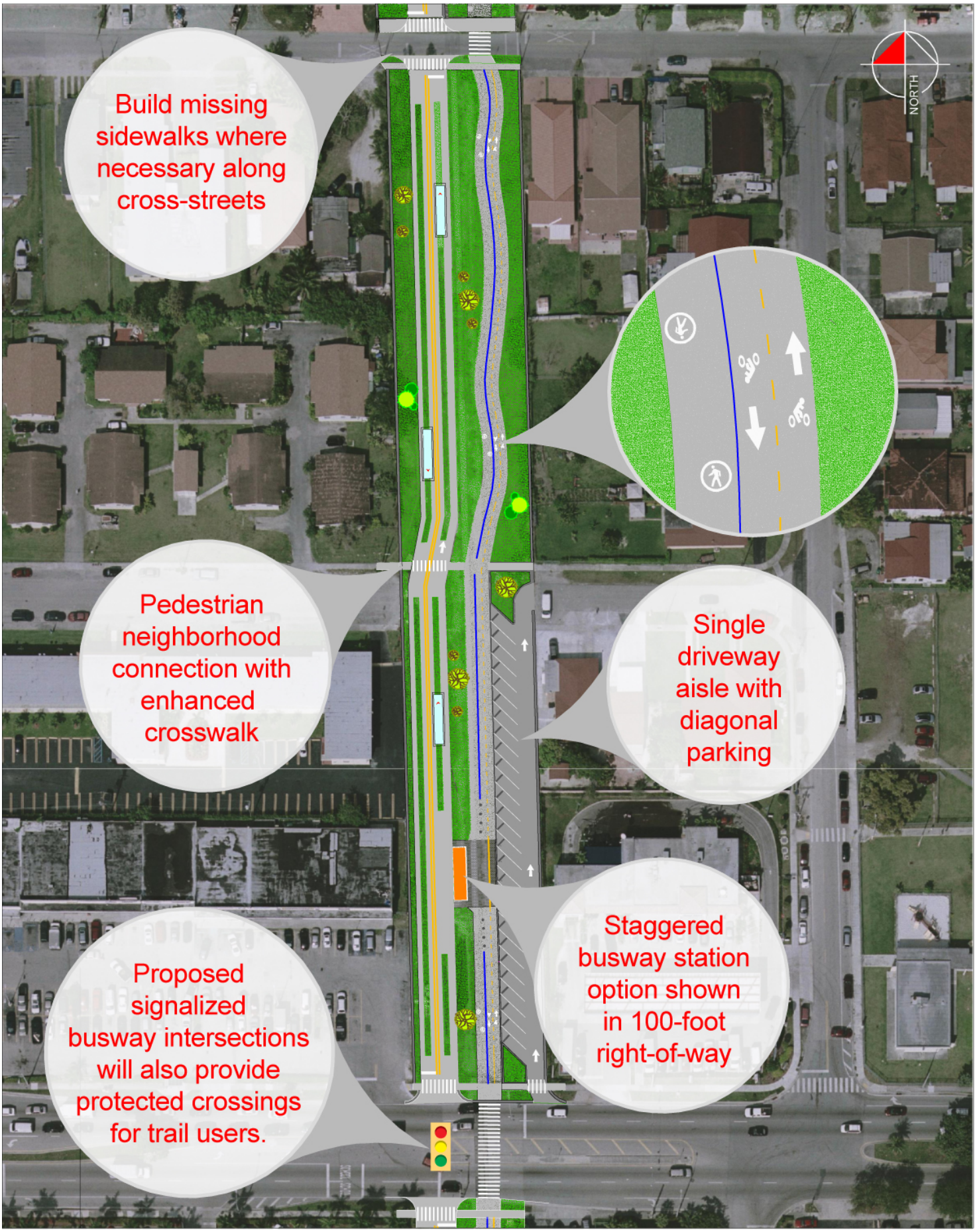
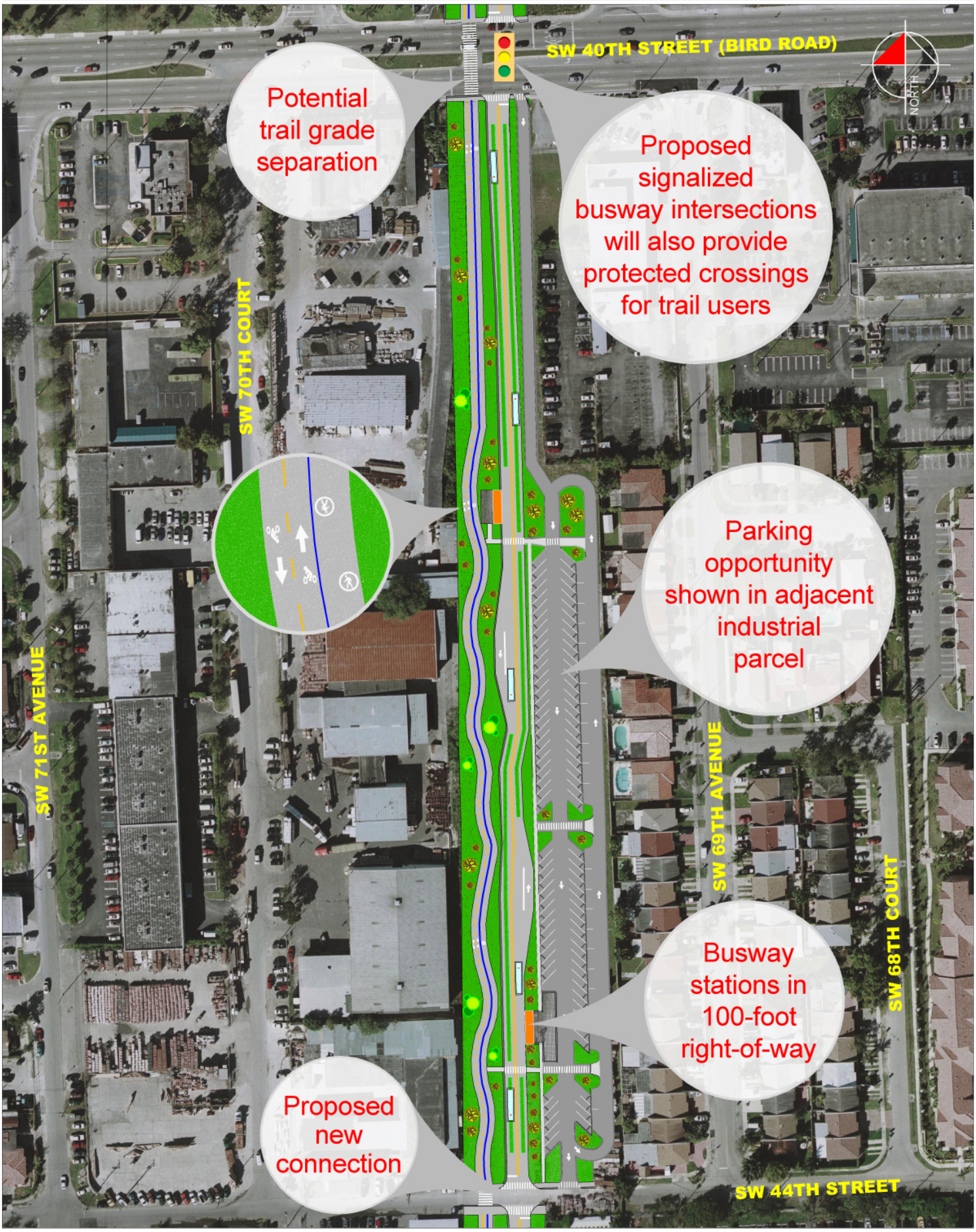

Build missing sidewalks where necessary along cross-streets
NORTH
Pedestrian neighborhood connection with enhanced crosswalk
Single driveway aisle with diagonal parking
Staggered busway station option shown in 100-foot right-of-way
Proposed signalized busway intersections will also provide protected crossings for trail users.

Plan View for Busway Greenway with Trail at Bird Road Station



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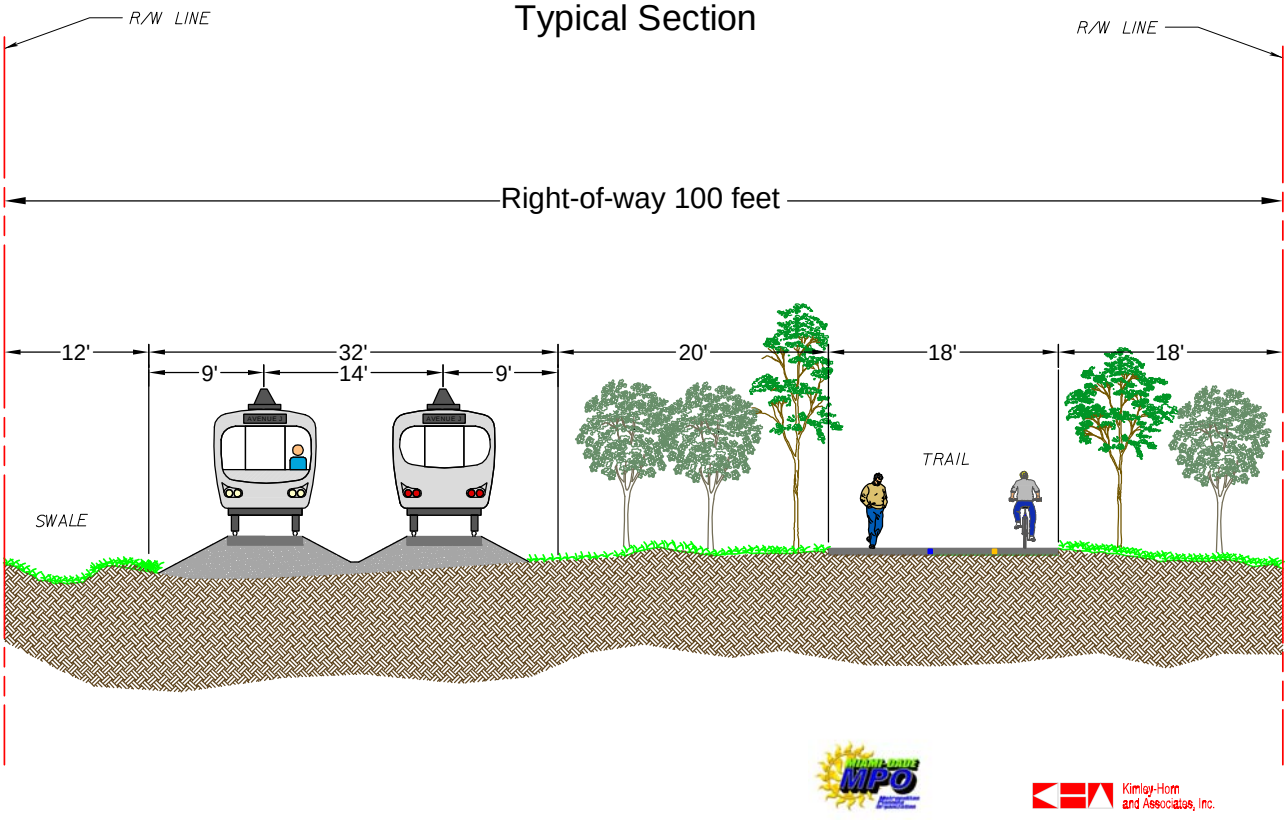
A Closer Look at the Multi-Use Trail with At-Grade Passenger Rail Option

- The at-grade passenger rail option provides higher system travel speeds than the busway option, but at a higher cost and with less flexibility of scheduling and route design.
- The at-grade passenger trains would utilize the FEC Ludlam Corridor right-of-way between Oleander Junction and Dadeland North and continue along Kendall Drive and CSX Corridor to the Metro Zoo, as proposed by the Kendall Link Study.
- Signal pre-emption gate technology would provide transit travel time benefits, but would limit the ability of trail users to benefit from signalized crossings at major intersections.
- The footprint width of the at-grade rail option is essentially the same as the busway option.
- The South Florida Rail Corridor (SFRC) could be utilized from Oleander Junction to connect to the MIC. Federal Railroad Administration (FRA) compliance for mixed passenger and freight operations would need to be achieved north of Oleander Junction.

FEC Ludlam Transit Connection Study

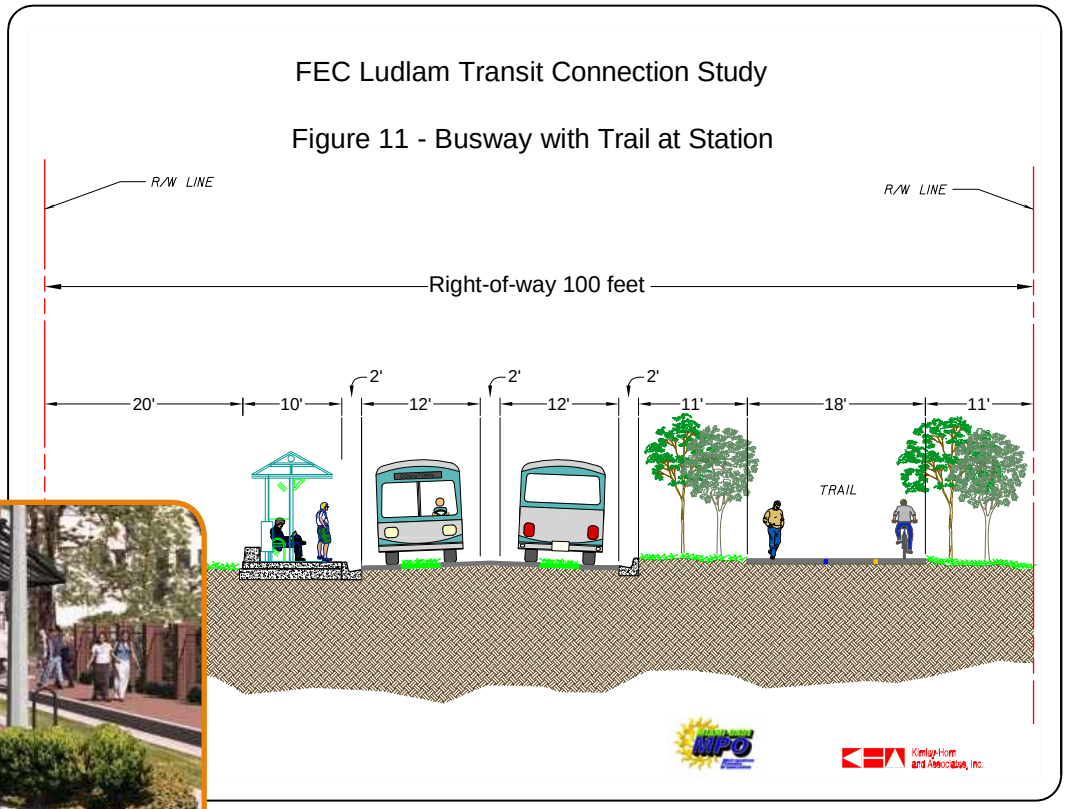
Figure 18 - At-Grade Rail with Trail Option
Typical Section



Proposed Station Locations

Nine (9) stations were proposed for the Busway with Trail option along the FEC corridor right-of-way. The list below does not include the terminal stations at the MIC, Dadeland North, and Dadeland South, nor any stops/stations associated with connections off of the FEC corridor right-of-way.

1. Flagler Street
2. SW 8th Street
3. SW 24th Street
4. SW 40th Street
5. SW 56th Street
6. SW 72nd Street (not included in at-grade rail option)

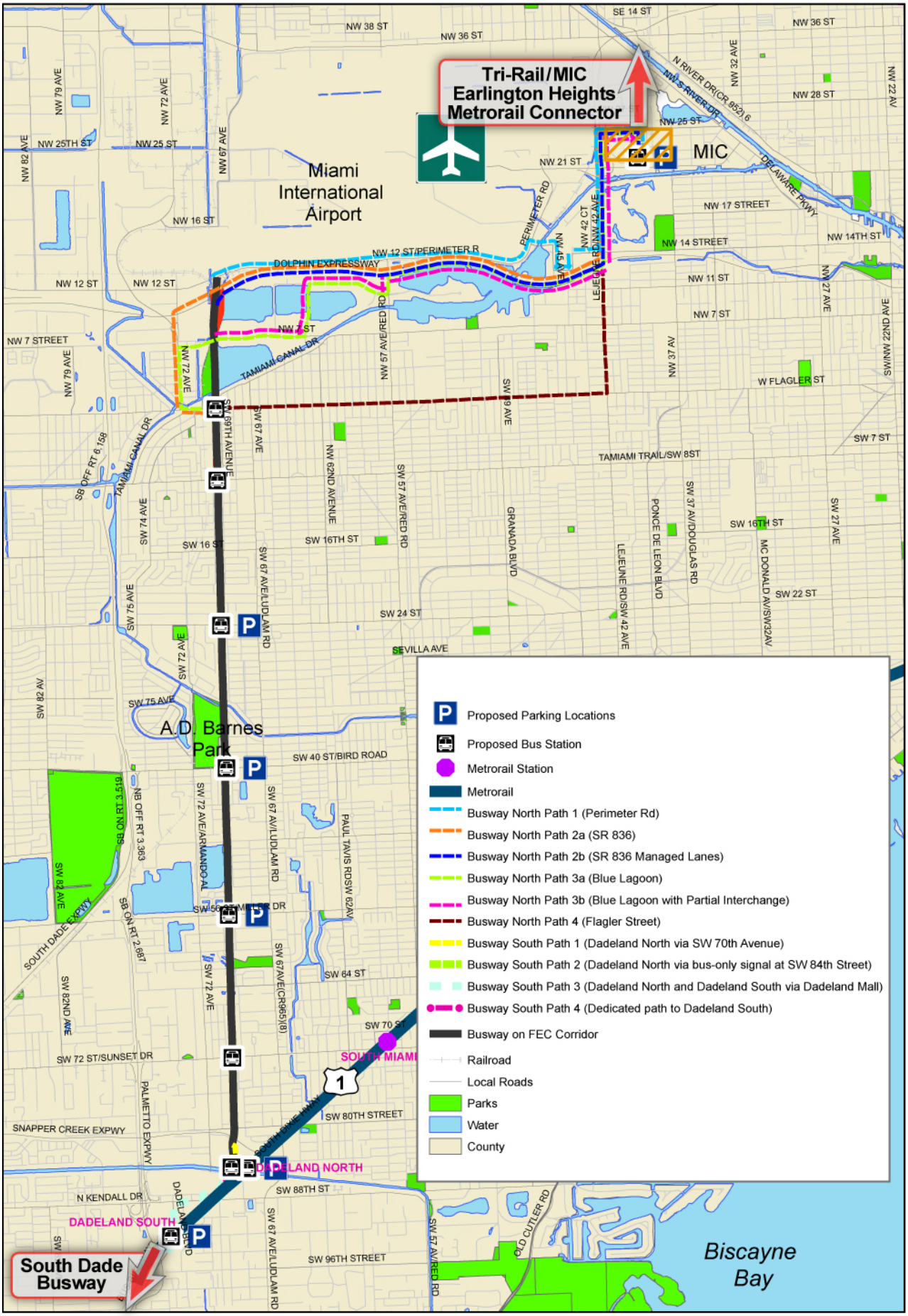


Emerald Express Busway Station, Eugene, Oregon

Parking

The corridor right-of-way was analyzed to determine if station-area parking could be provided within the right-of-way. The analysis determined that a one-lane parking aisle could be provided if all corridor components were designed to fit seamlessly (trail, busway, station platform, parking, and driveway). Larger park-and-ride lots may be feasible if off-site parking improvements can be accommodated on adjacent parcels. The study recommended surface parking be provided at three key stations near the center of the study area since parking garages are provided at the terminal stations on either end. Surface parking is recommended at SW 24th Street, SW 40th Street, and SW 56th Street. Most ridership is anticipated to be walk-up or transfer patrons.

Busway with Trail Option

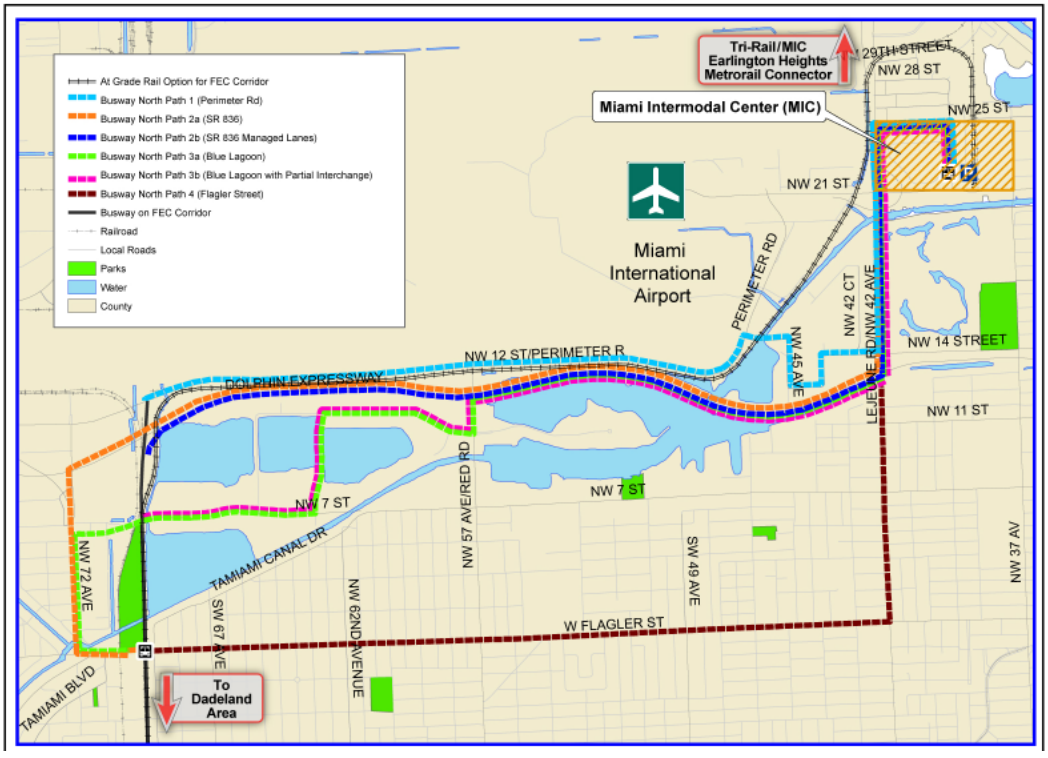


Connectivity to the MIC

The corridor analysis primarily focused on the FEC Ludlam Corridor from Flagler Street south. Six paths were identified for the important connection from Flagler Street to the MIC for the busway option as described below. The map below also depicts the at-grade rail option connectivity to the MIC along the existing South Florida Rail Corridor (SFRC).

- **North Path 1 (Perimeter Road)** – The bus exits the FEC busway corridor at Perimeter Road (NW 12 Street) and connects to the MIC via surface streets.
- **North Path 2a (SR 836)** – This short-term connection path involves a bus exiting the FEC busway corridor to the west at Flagler Street, then turning north on NW 72nd Avenue to take the ramp eastbound to SR 836 (Dolphin Expressway) to access the MIC via LeJeune Road.
- **North Path 2b (SR 836 Managed Lanes)** – This long-term connection path involves a bus exiting the FEC busway corridor below the existing SR 836 flyover to take a proposed center lane ramp to the future SR 836 managed lanes. Access to the MIC is provided via LeJeune Road.
- **North Path 3a (Blue Lagoon)** – This shot-term connection path involves serving Blue Lagoon office park area by exiting the FEC busway corridor at Flagler Street, then turning north on NW 72nd Avenue, then entering the Blue Lagoon office park area on NW 7th Street. Bus service could continue to the MIC by accessing SR 836 at NW 57th Avenue interchange.
- **North Path 3b (Blue Lagoon with new partial interchange)** – This long-term connection path onvolves a bus exiting the FEC busway corridor through a proposed partial interchange at NW 7 Street. The bus then travels east along NW 7th Street to serve the Blue Lagoon office park area before accessing SR 836 at the NW 57th Avenue interchange.
- **North Path 4 (Flagler Street)** – The bus exits the FEC busway corridor at Flagler Street and travels in mixed-traffic along Flagler Street to LeJeune Road where the bus turns north on LeJeune Road, and proceeds north to the MIC.

Northern Terminus Connection Paths

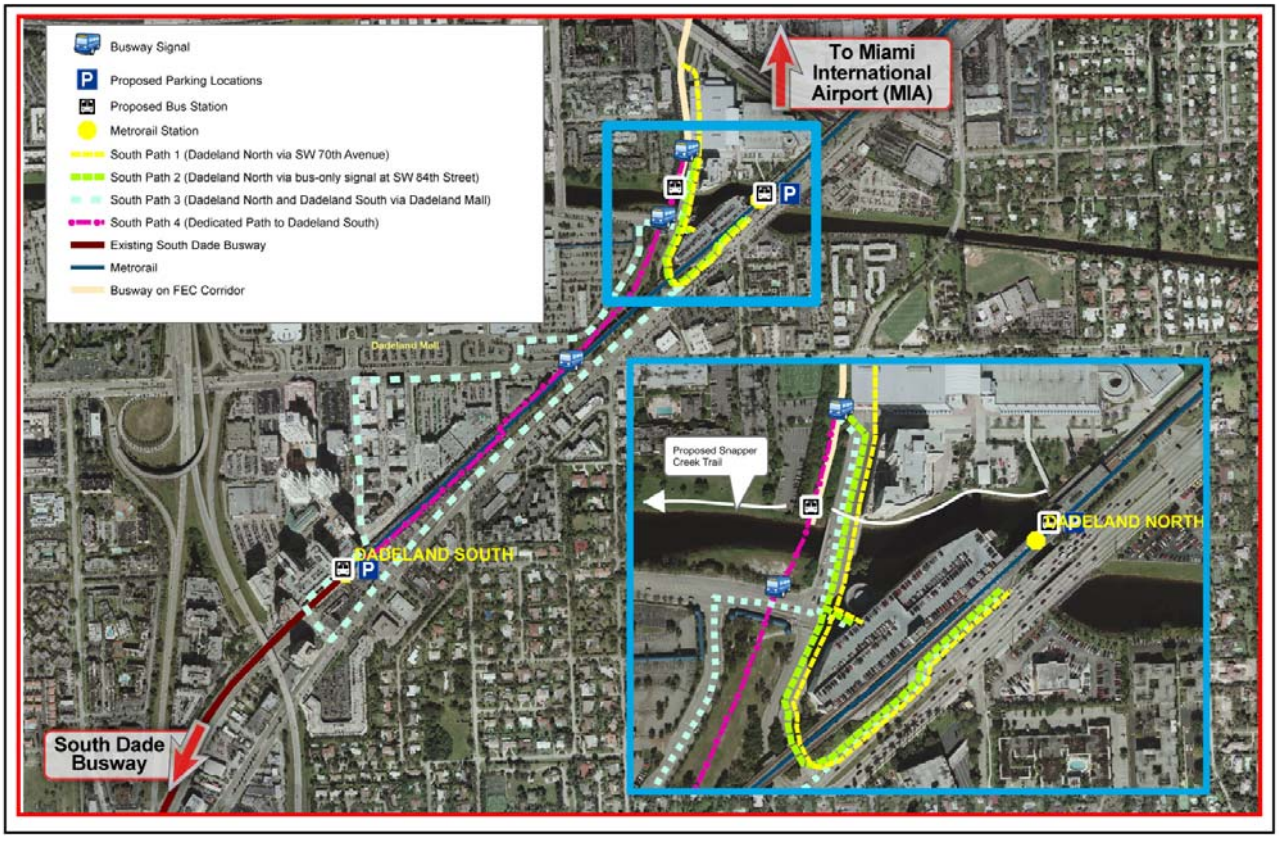


Connectivity to Dadeland

Four paths were proposed to connect the busway to the southern terminus at the Dadeland area from the FEC right-of-way:

- **South Path 1 (Dadeland North via SW 70th Avenue)** – The bus exits the FEC busway at the exisiting SW 70th Avenue intersection (SR 878 exit ramp) and travels south on SW 70th Avenue. The bus then enters the Dadeland North station at the intersection of SW 70th Avenue and SW 85th Street.
- **South Path 2 (Dadeland North via new bus-only signal at SW 84th Street)** – The bus exits the FEC busway corridor at a proposed bus-only signal at SW 70th Avenue across from the entrance to the Dadeland Station shopping center at SW 84th Street. The bus then enters the Dadeland North station at the intersection of SW 70th Avenue and SW 85th Street.
- **South Path 3 (Dadeland North and Dadeland South via Dadeland Mall)** - The bus exits the FEC busway corridor at a proposed bus-only signal at SW 70th Avenue across from the entrance to the Dadeland Station shopping center at SW 84th Street. The bus then enters the Dadeland North station at the intersection of SW 70th Avenue and SW 85th Street. Buses can travel between the Dadeland North Metrorail Station and the Dadeland South Metrorail Station following the same path that existing Metrobus Route 1 utilizes.
- **South Path 4 (Dedicated Path to Dadeland South)** – The busway remains in the FEC corridor right-of-way (which merges into the Miami-Dade Transit Metrorail right-of-way near Kendall Drive). The busway then travels south to Dadeland South below the existing Metrorail alignment by passing through a bus-only signal at Kendall Drive. This path requires a new bridge for the busway over the Snapper Creek Canal.

Southern Terminus Connection Paths



Study Coordination with MDPR Ludlam Trail Design Guidelines Project

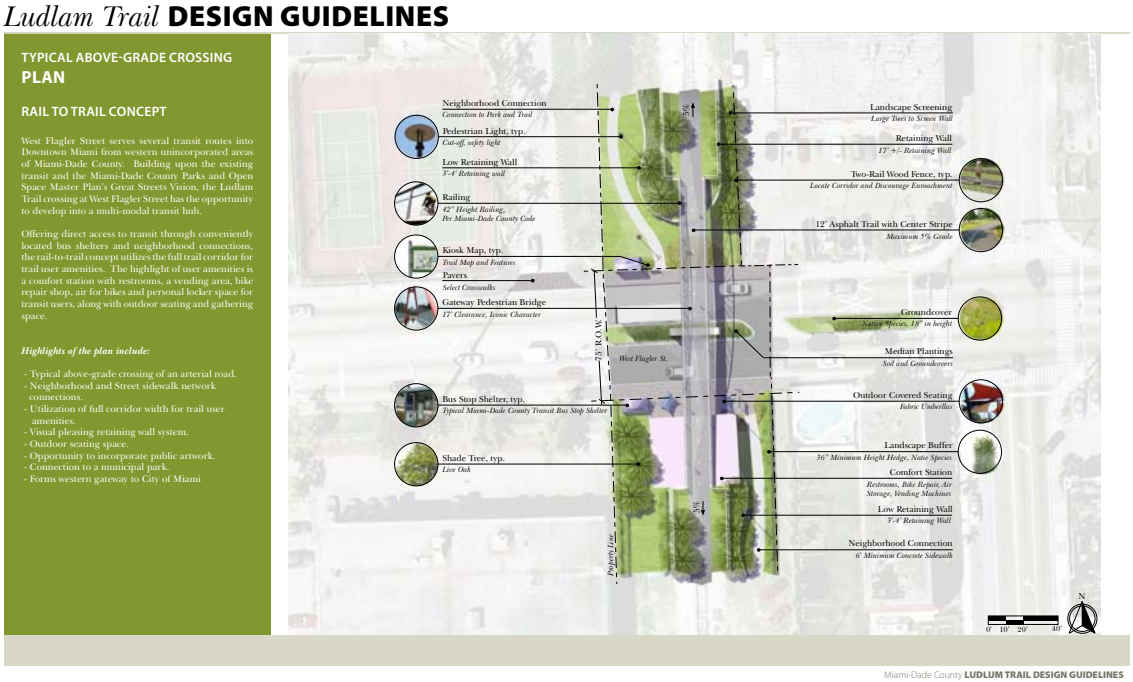
During the course of the Miami-Dade MPO's FEC Transit Connection Study, MDPR initiated the Ludlam Trail Design Guidelines based on the purpose of advancing the trail-only option for the corridor. MPO staff and consultant staff from the Transit Connection Study coordinated numerous times throughout the study process to ensure proper exchange of information, concepts, and ideas. A partial list of the coordination activities is as follows:

- KHA briefing of MDPR project manager (November 2008)
- Ludlam Trail Design Guidelines data-gathering meeting (January 2009)
- Ludlam Trail Design Guidelines kick-off meeting and field tour (February 2009)
- Draft Design Guideline Review Meeting (July 2009)

In addition, the MDPR project manager was invited to the Transit Connection Study Kick-off meeting and review meetings with the Transportation Planning and Technical Advisory Committee (TPTAC).

Items of related interest between the two studies for ongoing coordination as the corridor moves into later phases of development include the following.

- Maintaining a typical minimum 32-foot envelope for transit guideway purposes along the corridor, preferably on the east side of the corridor.
- Maintaining a typical minimum 40-foot area for transit stations.
- Intersection treatments.
- Provision of parking facilities where identified.
- Width of the multi-use trail.
- Placement of the multi-use trail alignment within the right-of-way.



Summary

The FEC Ludlam Transit Connection Study presented a planning level analysis of potential transit connection alternatives on the FEC Ludlam Corridor between Miami International Airport and the Dadeland North Metrorail station.

The busway alternative was found to be a viable alternative to provide transit service from MIA to Dadeland North Metrorail Station for several reasons

- The ability of right-of-way to accommodate the busway option
- Relative flexibility of bus service
- Opportunity to extend the South Dade Busway service
- Lower implementation costs than other transit options
- Opportunity to provide signalized intersection crossings to enhance trail safety

The at-grade rail alternative was also found to be similarly viable with a faster travel speed although at a higher cost, with less flexibility of routes and schedules, and less system-wide compatibility.

The analysis provided in this report identified transit alternatives for operating on the FEC Ludlam corridor right-of-way. However, the advancement of these possible options requires significant investment. Therefore potential funding sources need to be identified for implementation of any of these alternatives. In addition, right-of-way ownership needs to be addressed before any public use is implemented as the majority of the corridor is not publicly owned.