FLORIDA DEPARTMENT OF TRANSPORTATION

District One Rail Traffic Evaluation Study

Florida Department of Transportation District One

RAIL TRAFFIC EVALUATION STUDY

Passenger Rail Options Technical Memorandum

November 2009

Florida Department of Transportation
District One

Rail Traffic Evaluation Study

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Table of Contents

1. Introduction ... 1
1.1 Document Purpose ... 1
1.2 Study Overview ... 1
2. Existing & Future Conditions ... 2
2.1 Existing Conditions ... 2
2.1.1 Demographics ... 4
2.1.2 Land Use ... 6
2.1.3 Transportation ... 6
2.1.3.1 Amtrak ... 6
2.1.3.2 Greyhound Bus ... 9
2.1.3.3 Lakeland Area Mass Transit District and Winter Haven Area Transit ... 9
2.1.3.4 Polk County Transit Services Division ... 13
2.2 Future Conditions ... 13
2.2.1 Demographics ... 13
2.2.2 Land Use ... 15
2.2.3 Transportation ... 16
3. Previous Studies and Future Initiatives ... 21
3.1 Florida High Speed Rail ... 21
3.2 SunRail ... 21
3.3 Florida Department of Transportation Freight and Passenger Rail Plan ... 21
3.4 Strategic Regional Transit Needs Assessment ... 22
3.5 Tampa Bay Area Regional Transportation Authority ... 22
3.6 Coast to Coast Rail System Feasibility Study ... 23
3.7 I-4 Study ... 23
4. Study Corridor Travel Market ... 24
5. Study Corridors ... 27
5.1 I-4 Median ... 29
5.2 CSX A Line ... 29
6. Passenger Rail Vehicle Technologies ... 29
6.1.1 Commuter Rail ... 31
6.1.2 Intercity Rail ... 31
7. Development of Passenger Rail Options ... 32
8. Passenger Rail Options Considered ... 32
8.1 CSX Corridor Regional Rail Option ... 39
8.2 I-4 Corridor Regional Rail Option (to Orlando Airport) ... 39
8.3 I-4 Corridor Regional Rail Option (to Orlando CBD via CSX) ... 40
8.4 Tampa to Polk County Rail Option ... 40
8.5 SunRail to Polk County Option ... 41
9. Capital Improvements ... 42
9.1 CSX Corridor Regional Rail Option ... 43
9.1.1 Infrastructure (Track and Signals) ... 43
9.1.2 Facilities ... 43
9.1.3 Vehicles ... 44
9.1.4 Crossings ... 44
9.1.5 Structures ... 44
9.1.6 Property Acquisition ... 44
9.2 I-4 Corridor Regional Rail Option (to Orlando Airport) ... 44
9.2.1 Infrastructure (Track and Signals) ... 45
9.2.2 Facilities ... 45

9.2.3 Vehicles ... 45
9.2.4 Crossings ... 45
9.2.5 Structures ... 46
9.2.6 Property Acquisition ... 46
9.3 I-4 Corridor Regional Rail Option (to Orlando Central Business District via CSX) ... 46
9.3.1 Infrastructure (Track and Signals) ... 46
9.3.2 Facilities ... 46
9.3.3 Vehicles ... 47
9.3.4 Crossings ... 47
9.3.5 Structures ... 47
9.3.6 Property Acquisition ... 47
9.4 Tampa to Polk County Rail Option ... 48
9.4.1 Infrastructure (Track and Signals) ... 48
9.4.2 Facilities ... 48
9.4.3 Vehicles ... 48
9.4.4 Crossings ... 49
9.4.5 Structures ... 49
9.4.6 Property Acquisition ... 49
9.5 SunRail to Polk County Option ... 49
9.5.1 Infrastructure (Track and Signals) ... 49
9.5.2 Facilities ... 49
9.5.3 Vehicles ... 50
9.5.4 Crossings ... 50
9.5.5 Structures ... 50
9.5.6 Property Acquisition ... 50
10. Conceptual Operations ... 50
10.1 CSX Corridor Regional Rail Option ... 51
10.2 I-4 Corridor Regional Rail Option (to Orlando Airport) ... 51
10.3 I-4 Corridor Regional Rail Option (to Orlando Central Business District via CSX) ... 52
10.4 Tampa to Polk County Rail Option ... 52
10.5 SunRail to Polk County Option ... 52
11. Environmental Considerations ... 53
12. Market Assessment ... 54
12.1 Methodology ... 55
12.1.1 Regional Rail/Intercity Options ... 55
12.1.2 Tampa-Polk County Rail Option ... 56
12.1.3 SunRail- Polk County Rail Option ... 56
12.2 Results ... 57
12.2.1 CSX Corridor Regional Rail Option ... 57
12.2.2 I-4 Corridor Regional Rail Option (to Orlando Airport) ... 58
12.2.3 I-4 Corridor Regional Rail Option (to Orlando Central Business District (CBD) via CSX) ... 59
12.2.4 Tampa to Polk County Rail Option ... 60
12.2.5 SunRail Extension to Polk County Option ... 61
13. Opportunities and Challenges ... 62
13.1 Freight Corridor Options ... 64
13.1.1 Coordination ... 64
13.1.2 Physical Improvements for Mixed Traffic Operations ... 64
13.1.3 Vehicles ... 65
13.1.4 Grade Crossings ... 65

13.2 I-4 Corridor Options 67
13.2.1 Development Patterns & User Access 67
13.2.2 Alignment Termini 67
13.2.3 Maximizing Capital Investment 67
14. Summary 67
14.1 Summary of Options 67
14.2 Next Steps 70

Tables

Table 1: Population Estimates for Polk County 4
Table 2: Seasonal and Migratory Populations 5
Table 3: Employment Trends in Polk County 5
Table 4: Amtrak Rail (Silver Star Service – Daily) 7
Table 5: Amtrak Motorcoach (Daily) 8
Table 6: Summary of Existing Amtrak Travel Times and Mileage 8
Table 7: 2007 Annual Ridership (Boardings and Alightings) 8
Table 8: Greyhound Bus Travel Times and Fares 9
Table 9: Projected Regional Population and Employment for Polk County 13
Table 10: 2002 Survey Sample Results for Intercity Market Estimates 24
Table 11: Projected 2010 Intercity Market Estimates 25
Table 12: Typical Passenger Rail Capital Costs 43
Table 13: Typical Passenger Rail Annual Operating and Maintenance Costs 51
Table 14: Projected 2010 Intercity Market Estimates 55
Table 15: Projected 2010 Intercity Market Estimates 56
Table 16: Total 2030 Market Potential for Passenger Rail Alternatives 57
Table 17: Total Boardings 58
Table 18: Destinations for Boardings on Westbound (Tampa-Bound) Service 58
Table 19: Destinations for Boardings on Eastbound (Orlando-Bound) Service 58
Table 20: Total Boardings 59
Table 21: Destinations for Boardings on Westbound (Tampa-Bound) Service 59
Table 22: Destinations for Boardings on Eastbound (Orlando-Bound) Service 59
Table 23: Total Boardings 60
Table 24: Destinations for Boardings on Westbound (Tampa-Bound) Service 60
Table 25: Destinations for Boardings on Eastbound (Orlando-Bound) Service 60
Table 26: Total Boardings 61
Table 27: Westbound Boardings (Morning Peak and Midday) 61
Table 28: Eastbound Boardings (Morning Peak and Midday) 61
Table 29: Total Boardings 62
Table 30: Westbound Boardings (Morning Peak and Midday) 62
Table 31: Eastbound Boardings (Morning Peak and Midday) 62
Table 32: Opportunities and Challenges of Study Options 63
Table 33: Summary of Passenger Rail Options 68
Table 34: Comparable Corridors 70

Figures

Figure 1: Polk County Location Map 3
Figure 2: Citrus Connection Route Map 11
Figure 3: W.H.A.T. Route Map 12
Figure 4: Projected Population Density in the Tampa Bay Region in 2030 14
Figure 5: One Bay Scenario D 17
Figure 6: Priority Bus Stop Locations from 2030 Transportation Plan 18
Figure 7: Intermodal Facilities from 2030 Transportation Plan 20
Figure 8: Orlando – Tampa Corridor Travel Market Map 26
Figure 9: Passenger Rail Corridors 28
Figure 10: Passenger Rail Equipment Types 30
Figure 11: CSX Corridor Regional Rail Option 34
Figure 12: I-4 Corridor Regional Rail Option (to Orlando Airport) 35
Figure 13: I-4 Corridor Regional Rail Option (to Orlando CBD) 36
Figure 14: Tampa to Polk County Rail Option 37
Figure 15: SunRail Extension to Polk County Option 38
Figure 16: Typical Double Track Right of Way Section 66
Figure 17: FTA Project Development Process 72

1. Introduction

1.1 Document Purpose

The following technical memorandum examines passenger rail and transit options for the Florida Department of Transportation (FDOT) District One *Rail Traffic Evaluation* study. The purpose of this report is to:

- Identify the needs and opportunities to provide a public transportation connection from Polk County to either/both the metropolitan areas of Orlando and Tampa;
- Identify if there are passenger rail options that should be examined;
- Assess the physical and operational feasibility;
- Estimate the number of people who would potentially ride each option; and
- Assess the relative opportunities of each alternative and typical capital and operating costs.

1.2 Study Overview

The purpose of the *FDOT District One Rail Traffic Evaluation* study is to identify potential projects, improvements or strategies to address community concerns related to rail services in Polk County. The study focuses on identification of opportunities in three key areas: 1) impact mitigation strategies, 2) freight service options, and 3) passenger rail options.

The first analysis area evaluates impact mitigation strategies. The study identifies the potential impacts related to increased freight rail operations within Polk County, focusing on safety; increased travel delay; and increased emergency service response time at highway rail grade crossings. Potential mitigation for any identified impacts was investigated.

Under the second analysis area, freight service options were evaluated. The full range of potential routings in the study area for freight services was explored.

The third analysis area, which is the subject of this report, involved the exploration of the increasing mobility options for commuters and residents in Polk County. The evaluation determined if a potential exists for passenger rail service for inter-city and/or commuter travel.

A significant stakeholder public outreach effort was conducted throughout the study process. This public engagement effort involved an on-going exchange of information between the project team and the public to identify solutions that are likely to carry public support.

1.3 Study Context

The planning context in which a study is performed, in this case a study year of 2030, requires that a series of assumptions be agreed upon at the onset. The environment we plan in is ever changing and is in many cases influenced by other decisions and undertakings. For this reason, FDOT and the Study Team was charged with performing this technical analysis given a number

of conditions and assumptions regarding other transportation initiatives being considered within the region as a whole.

Specific assumptions utilized by the study team for the technical analysis contained herein included:

- Construction and operation of the CSX Integrated Logistics Center (ILC) in Winter Haven;
- The shifting of freight traffic from CSX's "A" Line to the "S" Line as reported by CSX;
- The construction and operation of SunRail, formerly known as the Central Florida Commuter Rail Project; and
- Miscellaneous transportation improvements programmed in the Polk County TPO planning model.

The results of the technical analysis found in this report as well as the associated reports made part of this study represents the findings of the Study Team given the context described above and the technical assumptions described within each of the reports.

Another important consideration in this study is that the potential freight relocation and the implementation of passenger rail within the CSX right of way must consider the fact that CSX is not a public entity and that outcomes of this study are subject to reaching agreement with CSX, as with any private property owner. CSX has been an active stakeholder throughout the study and remains a cooperative partner. CSX has indicated that any freight rail relocation and/or a proposal to implement passenger rail within their right of way will result in many challenges and is subject to their corporate principals being maintained. These principals include:

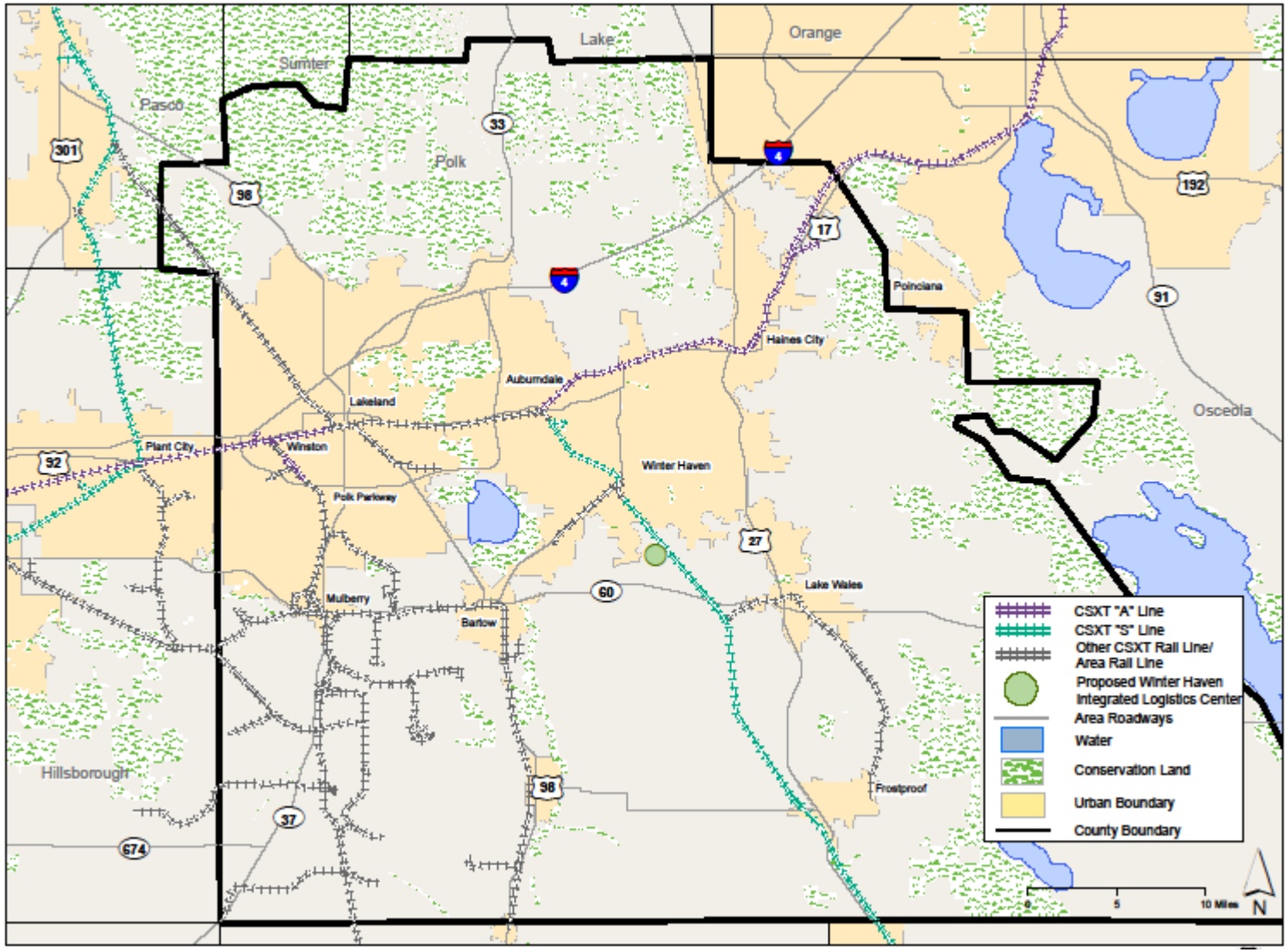
- Ensuring safety;
- Maintaining and growing freight rail capacity;
- Addressing liability issues; and
- Providing for compensation.

2. Existing & Future Conditions

2.1 Existing Conditions

Polk County is located in center of the Florida peninsula, southwest of Orlando in Orange County and east of Tampa in Hillsborough County. Interstate Route 4 (I-4) traverses the northern portion of the county, providing the main east-west travel corridor connecting Orlando and Tampa. CSX Corporation (CSX), a freight rail operator, operates freight service along a rail corridor south of and paralleling I-4 from Tampa east to Orlando, continuing north through Seminole County into Georgia and points north. There is no major highway crossing Polk County north to south. The nearest north-south thoroughfare is Interstate 75 (I-75), which crosses through Pasco and Hillsborough Counties to the west of Polk County (Figure 1).

Figure 1: Polk County Location Map



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2.1.1 Demographics

Residential Population

Demographic data for 2000 is provided by the U.S. Census (www.census.gov). More recent data is provided by the University of Florida's Bureau of Economic and Business Research (BEBR), which provides data for 2006 as well as projected demographic information. Projected demographic data is found in section 2.2, under "Future Conditions."

Polk County is composed of 17 municipalities, ranging in estimated 2007 population from 246 in Highland Park to 93,428 in Lakeland, as depicted by Table 1.

Table 1: Population Estimates for Polk County

Municipality	2000 Population	2007 Estimated Population
Auburndale	11,032	13,883
Bartow	15,340	16,515
Davenport	1,924	2,439
Dundee	2,912	3,324
Eagle Lake	2,496	2,702
Fort Meade	5,691	5,987
Frostproof	2,975	2,900
Haines City	13,174	18,748
Highland Park	244	246
Hillcrest Heights	266	262
Lakeland	78,452	93,428
Lake Alfred	3,890	4,517
Lake Hamilton	1,304	1,405
Lake Wales	10,194	13,039
Mulberry	3,230	3,495
Polk City	1,516	1,798
Winter Haven	26,487	33,569

Source: Central Florida Development Council. 2008. Demographic Profile: Polk County, Florida.

Total county population as of the 2000 census was 483,924. Estimates based on BEBR analysis place the county population as of 2007 at 581,058. The greatest population by age is those aged 25 to 54, representing an estimated 220,221 individuals in 2007. This segment of the population is also the most likely to commute to work. Individuals over 65 and those 14 years old and younger comprise the next two greatest segments of the population. The estimated median age of Polk County in 2007 was 38.4.

Polk County also experiences seasonal population fluctuations as a result of part-time residents and migrant farm workers. Part time residents occupy Polk County during the winter months while migratory farm workers populations fluctuate with the growing season and anticipated labor demands of growers. The Polk County Comprehensive Plan (2002) provides the most recent

estimation for these populations, as summarized in Table 2. These populations are not incorporated in the subsequent demographic employment data unless specifically noted.

Table 2: Seasonal and Migratory Populations

Year	Total Permanent Population	Annual Seasonal Resident Population	Migratory Population Estimate
1990	405,382	12,051	10,000
2000*	515,069	15,845	6,861
2010*	612,897	21,152	7,000
2020*	721,601	29,139	7,000

Source: 2002 Polk County Comprehensive Plan

**Polk County Comprehensive Plan was published in 2002 and did not have final 2000 census data.*

The greatest population densities in Polk County occur within and between Lakeland and Winter Haven, south of I-4 and north of State Route 60, which runs through Bartow. Population density in and near Lakeland and Winter Haven ranges from 2-4 persons per acre to small areas of 12-14 persons per acre, mostly concentrated in the more urbanized sections of the two municipalities. With the minor exceptions of small increases in density in Bartow and Lake Wales, population density throughout the remainder of the county is less than two persons per acre.

Employment Data

Employment data is reported by the Central Florida Development Council and considers total available workforce, total employment, and unemployment rate. The economic data for 2007 reflects a continuing stabilizing trend in employment in Polk County that began in the early 1990's after a decade-long decline in employment resulting from a changing economy and several years of poor agricultural conditions.

In the recent past, the closure of a major manufacturing facility in Lakeland combined with a slowing of the phosphate industry and trouble with the citrus crop pushed unemployment over 10 percent. However, in the last ten years, Polk County has adjusted to a new service and retail-based economy. Table 3 summarizes employment trends between 1992 and 2007. The increase in unemployment between 2006 and 2007 is characteristic of recent national employment trends.

Table 3: Employment Trends in Polk County

Year	Average Workforce	Average Employment	Unemployment	Unemployment Rate
1992	200,301	177,763	22,538	11.3%
1995	199,783	185,259	14,524	7.3%
2000	231,280	221,751	9,539	4.1%
2005	259,783	249,357	10,426	4.0%
2007	269,074	257,057	12,017	4.5%

As a result of the diversification of employment opportunities growing out of the downturn in traditional industries, the average annual wage for Polk County workers rose from $22,302 in 1994 to $33,526 in 2006, outpacing the rate of inflation. The largest employer of Polk County residents is the board of education, followed by Publix supermarkets and retailer Wal-Mart.

The majority of residents work within Polk County (84.3 percent) and most drive alone to work (79.9 percent); carpooling, at 14.3 percent, is the next most popular means of travel to work[1]. The remaining Polk County residents commute primarily to either Orange County or Hillsborough County. The travel patterns of these commuters are discussed in Section 4.

2.1.2 Land Use

Significant wetland and surface water features and agriculture dominate land use in Polk County. Approximately seven percent of the county's total land area is occupied by 554 natural lakes, totaling 135 square miles of the county's total 2,010 square-miles. The Green Swamp, a critical water quality resource that feeds many regional rivers, occupies 220,000 acres in northern Polk County, north of I-4, and west of U.S. Route 27. Agricultural uses occupy more than half (52 percent) of the county's land area (area not covered by lakes). About 980 square miles of the county's 1,875 square miles are in agricultural production, including citrus groves and beef and dairy cattle[2].

The remaining land area is occupied by built uses, including residential, commercial, industrial, and institutional uses. Development densities increase in the cities, including Lakeland, Winter Haven, and Bartow, and decline as development moves outward from the city's center. Some mining and associated industrial uses persist in the southwest sector or Polk County, extending as far north and east as Bartow.

Land use along the I-4 corridor includes several locations of regional importance, including commercial and mixed-use developments. A second, greater area of mixed-use development is located on the northeastern boundary of Polk County and Osceola County, south of I-4. North of I-4, land use is restricted primarily to open space and conservation related to the Green Swamp, with the exception of the Four Corners area, which has experience growth in residential development in recent decades.

2.1.3 Transportation

2.1.3.1 Amtrak

Polk County is currently served by Amtrak intercity rail service referred to as the Cross Florida Service, the Silver Star and Silver Meteor, providing daily service between New York City and Miami. From Auburndale, *Silver Meteor's* follows a direct route south to Miami, while the *Silver Star* travels southwest to Tampa and then back to Auburndale where it retraces the Silver Meteor's route to Miami.

[1] Florida Department of Transportation. 2007. *Strategic Regional Transit Needs Assessment Technical Memorandum: Existing Transportation and Land Use Plans, General Trends, and Markets Summary*
[2] Polk County Board of County Commissioners. 2008. "Polk's Profile" http://www.polk-county.net/subpage.aspx?menu_id=8&nav=gov&id=120

Until recently, three trains each day served the study area. Service has been reduced to two trains. The Silver Star and the Silver Meteor services operate one trip in each direction daily through Polk County (Table 4). Amtrak also offers motorcoach, or bus service, between Orlando, Lakeland and Tampa (Table 5). A summary of Amtrak operating statistics including mileage and average travel times in presented in Table 6.

Amtrak stations are located in downtown Lakeland at 600 East Main Street, and in Winter Haven on 7th Street SW. Other nearby Amtrak stations outside Polk County include Tampa Union Station (601 North Nebraska Avenue on the east end of the Tampa Central Business District), Kissimmee (111 East Dakin Avenue), and Orlando (1400 Sligh Boulevard).

Winter Haven is served directly by both the Silver Star and Silver Meteor service. One train each day arrives and departs (four trips). Lakeland is served directly by the Silver Star, while Silver Meteor service requires a motor coach transfer to reach Lakeland Station.

Although the Amtrak's Atlantic Coast service between New York and Florida is Amtrak's most heavily traveled corridor, service to Florida has been reduced over the last ten years, beginning in 1995. In the past, the Sunset Limited service provided trans-continental passage from Los Angeles to Miami, passing through Polk County. In 1996, the service was reduced, terminating in Orlando. Following Hurricane Katrina, Sunset Limited service east of New Orleans was suspended and remains suspended.

Table 4: Amtrak Rail (Silver Star Service – Daily)

Mile		Read Down		Read Up	
		91		92	
1124	Ar	10:17 A	Orlando	7:24 P	Dp
	Dp	10:31 A	Orlando	7:08 P	Ar
1142		10:55 A	Kissimmee	6:40 P	
1192		11:40 A	Lakeland	5:53 P	
1223	Ar	12:34 P	Tampa	5:17 P	Dp
	Dp	12:45 P	Tampa	5:05 P	Ar
1254		1:21 P	Lakeland	4:30 P	

Source: Amtrak, 2008.

Table 5: Amtrak Motorcoach (Daily)

Mile	Read Down		Read Up
86	1:30	Orlando	1:00
32	2:45	Lakeland	11:25
0	3:30	Tampa	10:40

Source: Amtrak, 2008.

Table 6: Summary of Existing Amtrak Travel Times and Mileage

	Miles	Minutes	MPH
Orlando	0	--	--
Kissimmee	18	28	40.7
Lakeland	50	47	62.6
Tampa	31	36	51.7
TOTAL/AVE.	99	111	53.5

Source: Amtrak, 2008.

The one-way fare between Orlando and Tampa or Orlando and Lakeland is $9.00 for either the Silver Star rail service or the bus service. Amtrak ridership in the Cross Florida corridor in 2007 is presented in Table 7.

Table 7: 2007 Annual Ridership (Boardings and Alightings)

City	Ridership
Orlando	129,469
Kissimmee	34,828
Lakeland	20,276
Tampa	74,984

Source: Amtrak, 2008.

2.1.3.2 Greyhound Bus

Greyhound provides long-distance bus service to and from Polk County, serving terminal stations in Lakeland and Winter Haven. Greyhound also provides inter-city service between Lakeland, Winter Haven, Orlando, and Tampa. Travel times and fares are summarized in Table 8.

Table 8: Greyhound Bus Travel Times and Fares

Origin	Destination	Travel Time (one way)	Fare (one way) (round trip is double)
Lakeland	Orlando	1 hour 35 minutes	$17.00
Lakeland	Tampa	45 minutes	$10.00
Winter Haven	Orlando	1 hour 5 minutes	$17.50
Winter Haven	Tampa	1 hour 15 minutes	$17.50
Orlando	Tampa	1 hour 40 minutes to 2 hours 20 minutes	$20

Source: Greyhound, 2008.

Greyhound is not designed or operated for use as a commuter service, as evidenced by the travel time and one-way ticket price.

2.1.3.3 Lakeland Area Mass Transit District and Winter Haven Area Transit

Two bus systems provide daily and commuter transit service between the major cities in Polk County. The Citrus Connection, a service of the Lakeland Area Mass Transit District (LAMTD), operates within Lakeland and provides routes connecting to Bartow, Auburndale, and Winter Haven. The W.H.A.T. (Winter Haven Area Transit) bus system is operated by contract with LAMTD and serves Winter Haven, with routes connecting to the Citrus Connection in Lakeland.

The Citrus Connection service began in 1982, and today operates two service types: regular inter- and intra-city bus service and an on-demand ADA-compliant door-to-door shuttle service called "Handy Bus." Handy Bus does not travel the traditional bus routes, but provides access and mobility for residents who cannot use the traditional bus service as a result of disability. Riders are required to complete a registration form and submit it to LAMTD to be included on the Handy Bus rider roster. The Handy Bus fleet consists of nine vehicles, and fare is $1.50 one way.

The traditional bus service fleet consists of 38 vehicles and operates within Lakeland and between Lakeland and nearby communities and neighborhoods (refer to Figure 2 for Citrus Connection-only routes). Ridership is estimated to be about 6,000 riders per day[3]. One-way full-price fare is $1. Reduced fares are available for students, senior citizens, and persons with disabilities. LAMTD also encourages the use of the Citrus Connection for senior citizens as a means of staying active in the community and promoting social interaction. The Citrus Connection website

[3] Lakeland Area Mass Transit District. 2008.

offers a discounted 10-ride "VIP" pass for seniors specifically to encourage use of the bus system as a social enrichment service.

With some variation between individual routes, Citrus Connection bus service operates between 6 AM and 7 PM, Monday through Friday. Saturday service for all routes begins later in the day and ends earlier in the evening, but runs on the Monday-Friday schedule during operating hours. The Citrus Connection does not provide service on Sundays or on Federal holidays with the exception of Martin Luther King, Jr. Day and Veterans Day.

In July, 2008, LAMTD opened the first Park & Ride facility for the Citrus Connection, located at East Rose Street and Main Street, under the U.S. 98 overpass, and initiated express bus service between Lakeland and Bartow. The Park & Ride Express is a non-stop service that offers only one inbound and one outbound trip each day. The service departs the Lakeland Park & Ride at 7:15am, arriving in Bartow at 7:45am, and departs Bartow at 5:15pm, arriving back at the Park & Ride at 5:45pm. This service is in addition to the existing Bartow Express Route 22XL, which provides more frequent service to Bartow, but also includes more stops. The Park & Ride Express is designated as a bus rapid transit (BRT) service by Polk County Transportation Planning Organization.

The W.H.A.T. service began in 1999 and now operates nine buses and nine routes (refer to Figure 3 for W.H.A.T.-only routes). The span of service is similar to the Citrus Connection (no service on Sunday, shorter span but same schedule on Saturdays), and fare follows the same structure. Ridership for W.H.A.T. is approximately 2,000 riders per day.

The LAMTD services receive funding from multiple sources, including Federal transportation funds, Florida Department of Transportation, Polk County Board of County Commissioners, and the municipalities served by the bus systems. LAMTD also encourages contributions from the business community and philanthropic individuals for the purchase and installation of bus shelters.

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Figure 2: Citrus Connection Route Map

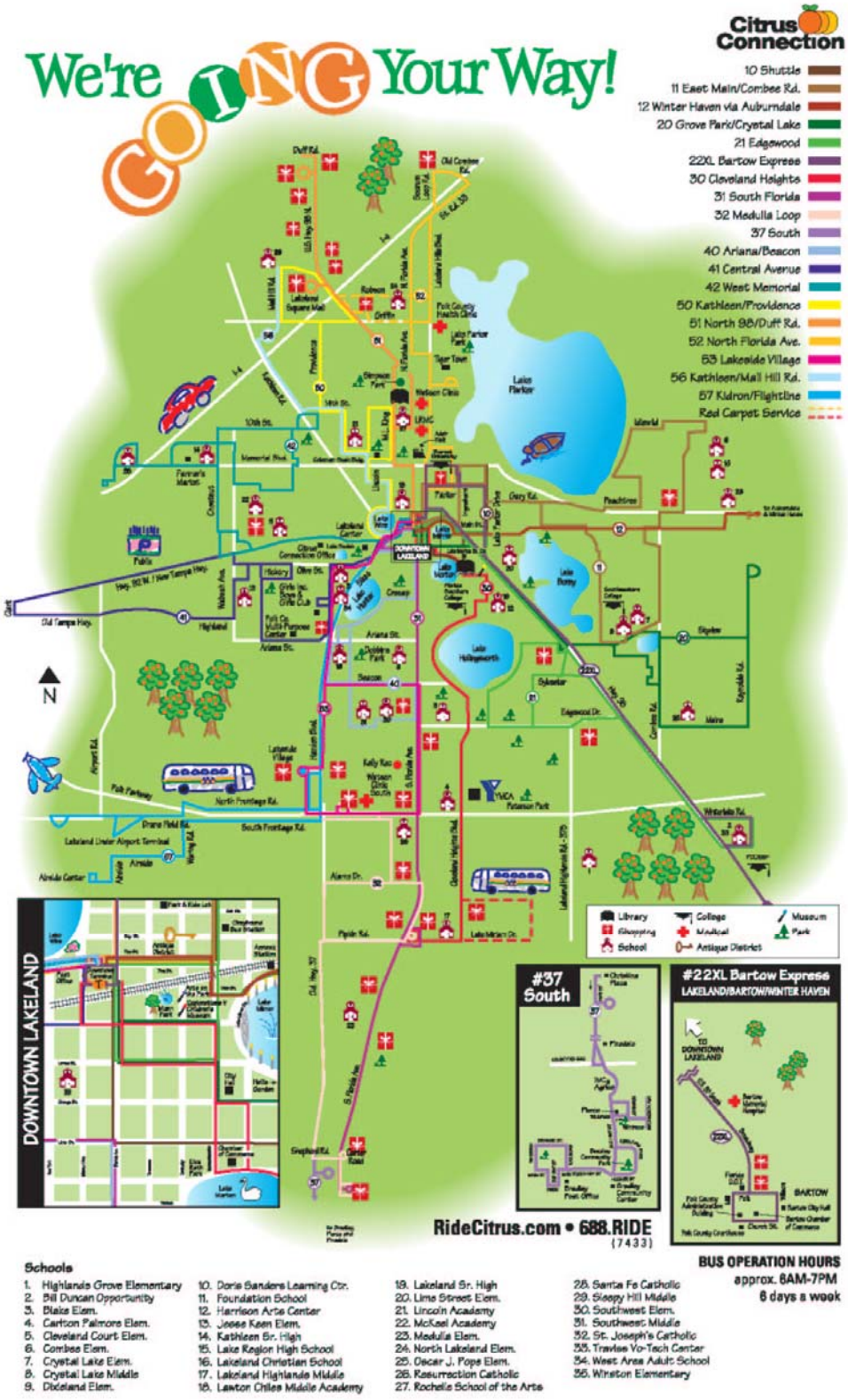
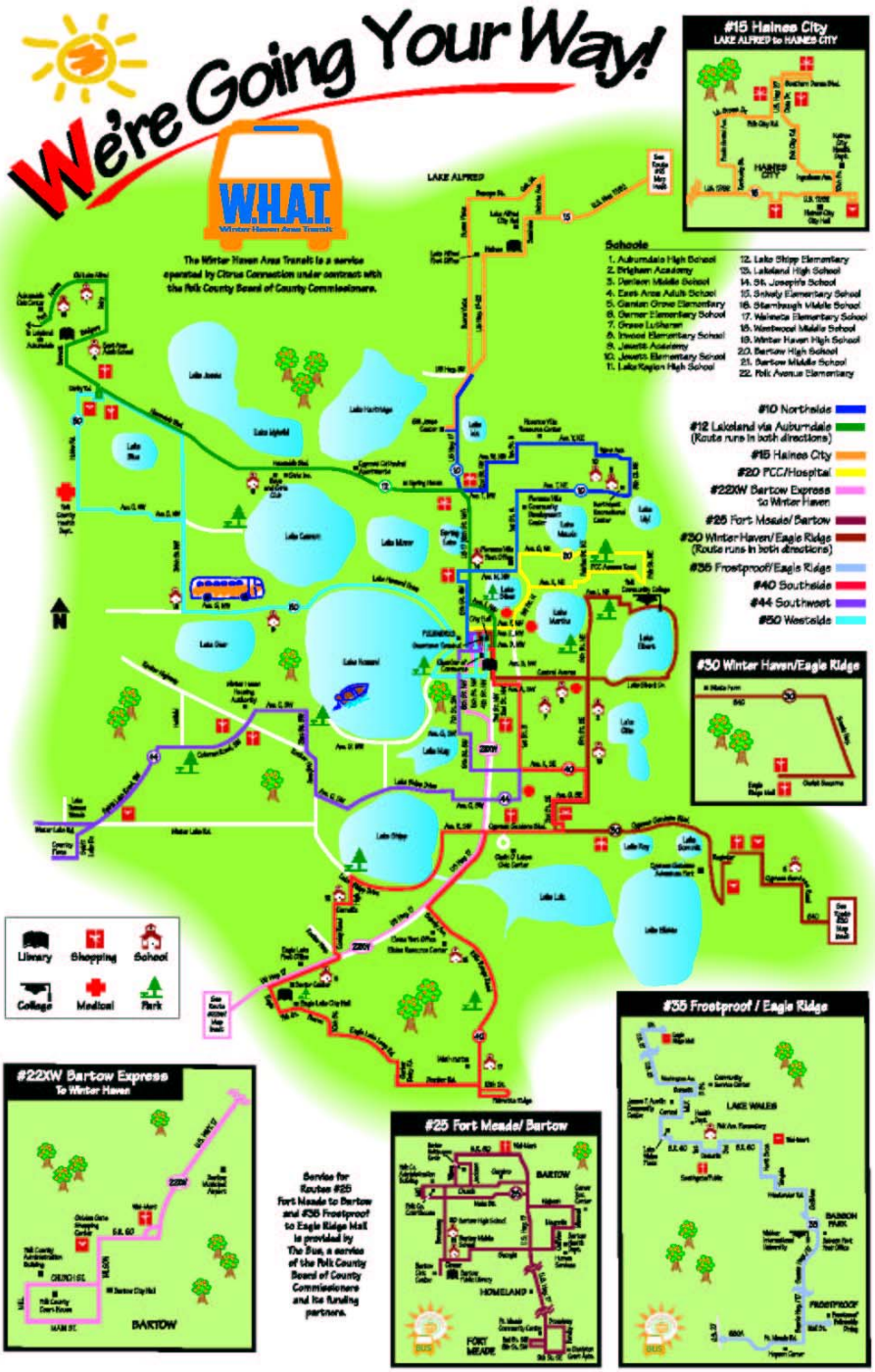


Figure 3: W.H.A.T. Route Map



2.1.3.4 Polk County Transit Services Division

Polk County Transit Services Division (PCTSD) contracts with W.H.A.T. to provide two fixed routes serving rural portions of Polk County. These routes operate weekdays and Saturday, but not Sunday. It is anticipated that these two fixed routes will be replaced by an on-demand service in the near future.

PCTSD also serves as Polk County's Community Transportation Coordinator (CTC), providing transit service to the disabled community under the Transportation Disadvantaged (TD) program. Similar to, but independent of, Handy Bus, the TD program operates as an on-demand door-to-door service for individuals who cannot access the regular transit service. Unlike Handy Bus, TD service is provided by a network of transit providers, and the one closest to the individual requesting the service is dispatched.

2.2 Future Conditions

2.2.1 Demographics

In 2005, the Tampa Bay Partnership estimated that the Tampa Bay region's population was expected to grow by 2.0 million people by 2030[4]. Demographics projections prepared by the University of Florida Bureau of Economic and Business Research and the West Central Florida (WCF) Regional Planning Model for Polk County agree with this estimate, indicating that the population of Polk County is expected to nearly double between 2000 and 2030. Employment projections likewise show notable growth in the economic sector (Table 9).

Table 9: Projected Regional Population and Employment for Polk County

Category	2000	2030
Population	483,924	822,015
Employment	199,703	319,875

Source: U.S. Census Bureau; WCF Regional Planning Model. The population estimates used by Polk County TPO reflect a slightly smaller population (821,440[5]).

The Strategic Regional Transit Needs Assessment, prepared by FDOT, anticipates that on a regional scale, population growth is expected to occur roughly along the I-4 corridor. In Polk County, particularly, growth is expected to occur along and south of the I-4 corridor. Population densities within the existing cities of Lakeland, Winter Haven, and Bartow are expected to increase, and suburban fringe development is expected to continue between the population centers, resulting in a highly developed center third with agricultural and conservation areas occupying the southern and northern third of the county, respectively (Figure 4). Population densities within Polk County are anticipated to be lower than in Tampa and other western

[4] Tampa Bay Partnership. 2005. http://www.tampabay.org/subpage.asp?navid=7&id=7

[5] Polk Transportation Planning Organization. *2003 Transportation Improvement Plan.*

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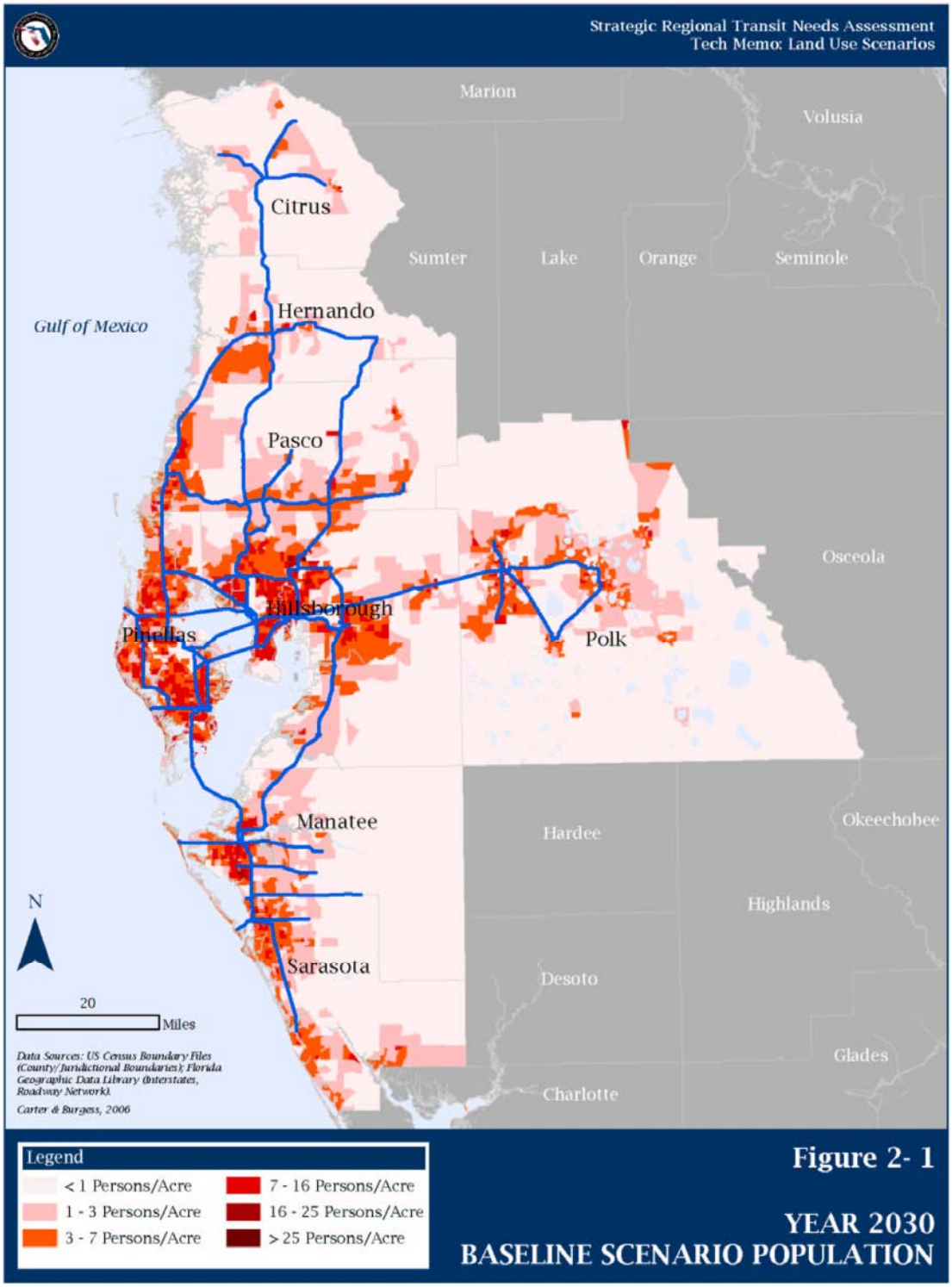
Figure 4: Projected Population Density in the Tampa Bay Region in 2030



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municipalities within Hillsborough and Pinellas Counties, but nonetheless indicate significantly more residential development than is found today in Lakeland.

It is also noteworthy that in 2005, the greatest population cohort showing an increase in Polk County was composed of residents who were 35 to 54 years old. In 20 years, this cohort group will be either retired or approaching retirement. Mirroring trends throughout the United States, aging members of the Baby Boom generation will compose the largest segment of the population, and will require specialized services at a scale not required in previous generations. Future transit planning will need to be mindful of the age and mobility issues present in the service area population, and plan for a variety of transit options, balancing commuter demand with the needs of retirees of varying levels of independence. This is likely to be a region-wide issue.

Also of regional interest is the projected employment ratio. The Polk Transportation Planning Organization's 2030 Transportation Improvement Plan projects a ratio of 2.6 residents per available job in Polk County in 2030. This ratio assumes that all residents would be employed; however, as discussed above in the cohort analysis, population growth in Polk County was greatest (43.6 percent) in the 35 to 54 age range. In 20 years, these residents will likely be retired, so the actual ratio of working resident per job will be less than 2.6 to 1. Still, it is likely that there will be more residents seeking employment than what is available in Polk County. These residents will likely commute along the I-4 corridor to Tampa or Orlando.

2.2.2 Land Use

The Polk County Comprehensive Plan (the Plan), adopted in 1992, and subsequently revised in April 2008, anticipated the need for controlled growth given the existing agricultural and natural resources present in Polk County. The comprehensive plan describes a goal of future development within "multi-nodal, urban-cluster" areas[6]. This approach aims to concentrate urban development in the urban centers of the existing 17 cities within Polk County and limit sprawl-type development.

The Plan further identifies several land use areas within each urban cluster, ranging from neighborhood activity centers to industrial and recreational categories of development and use. The long-term goal is to concentrate trip-generating uses in a core easily serviced by transit and eliminate "linear commercial corridors" that previously characterized the development patterns of the area. The plan further defines the placement of activity centers, locating activity types in accordance with the size of the node and the distance between similar activities. For example, regional activity centers would not be located in adjacent nodes or in small nodes associated with small, less populated municipalities located outside of the main transit corridors. Nodes are also seen as a means of facilitating transit-oriented development, which will allow greater residential housing densities with less reliance on the automobile.

While future land development ideally will occur within the urban nodes, the Plan is realistic about the need for some rural development and establishes development guidelines that require the establishment of utilities and maximum densities for areas outside the nodes. Rural development is balanced by special-area overlay districts that restrict all development in areas of

[6] Polk County Comprehensive Plan. April 2008. *Future Land Use Element.*

important natural value, such as Green Swamp, or important man-made value, such as historic preservation or redevelopment districts.

This approach to future land use development agrees with recent planning proposals recommended by the Tampa Bay Partnership's "One Bay" initiative, which utilized public workshops and demographic data and trends to develop four future development scenarios. The Polk County Comprehensive Plan most closely resembles Scenario D of the One Bay initiative, combining node development with natural resource protection and transit-oriented development (Figure 5).

If effectively implemented, the Polk Comprehensive Plan and the One Bay initiative will encourage a built environment that would complement increased transit service. Per the Polk Plan, activity center types will help determine the type of transit center and service plan. Regional services and recreational activity centers, for example, would require more frequent and non-peak hour service. These locations would also be well-suited for multi-modal transit centers. Smaller nodes supporting local services would act as local stations or stops with less frequent service.

2.2.3 Transportation

The 2030 Transportation Improvement Plan (the 2030 Plan), adopted by the Polk Transportation Planning Organization, outlines several public transit needs to be met over the period between 2005 and 2030. The needs cover a wide spectrum of transit issues, including:

- Centralization of on-demand services operated by PCTSD.
- Unification of Polk County transit options, using a consolidated map, consistent branding, fares, and reciprocity between systems (passes could be interchangeably used on all systems).
- Increased service frequency and initiation of Sunday service
- Coordination with Tampa Bay Area Commuter Services, particularly guaranteed ride home services
- Bus stop improvements
- Intermodal centers

Of particular interest in analyzing future transit options are the improvement items pertaining to significant service areas and intermodal opportunities, particularly the "bus stop improvements" and "intermodal centers" items.

LAMTD estimates that there are about 2,000 bus stops throughout the Citrus Connection and W.H.A.T. service areas. Presently, only 11 of these stops provide shelters for waiting riders. The 2030 Plan prioritizes bus stop improvements by identifying the 100 busiest bus stops. These stops were identified based on a combined analysis of existing demand in terms of ridership, potential for future ridership demand based on nearby land uses, and proximity to community facilities. Figure 6 illustrates the location of these facilities within Polk County. The identification of heavily-used bus routes indicates areas of relatively high transit demand.

Figure 5: One Bay Scenario D

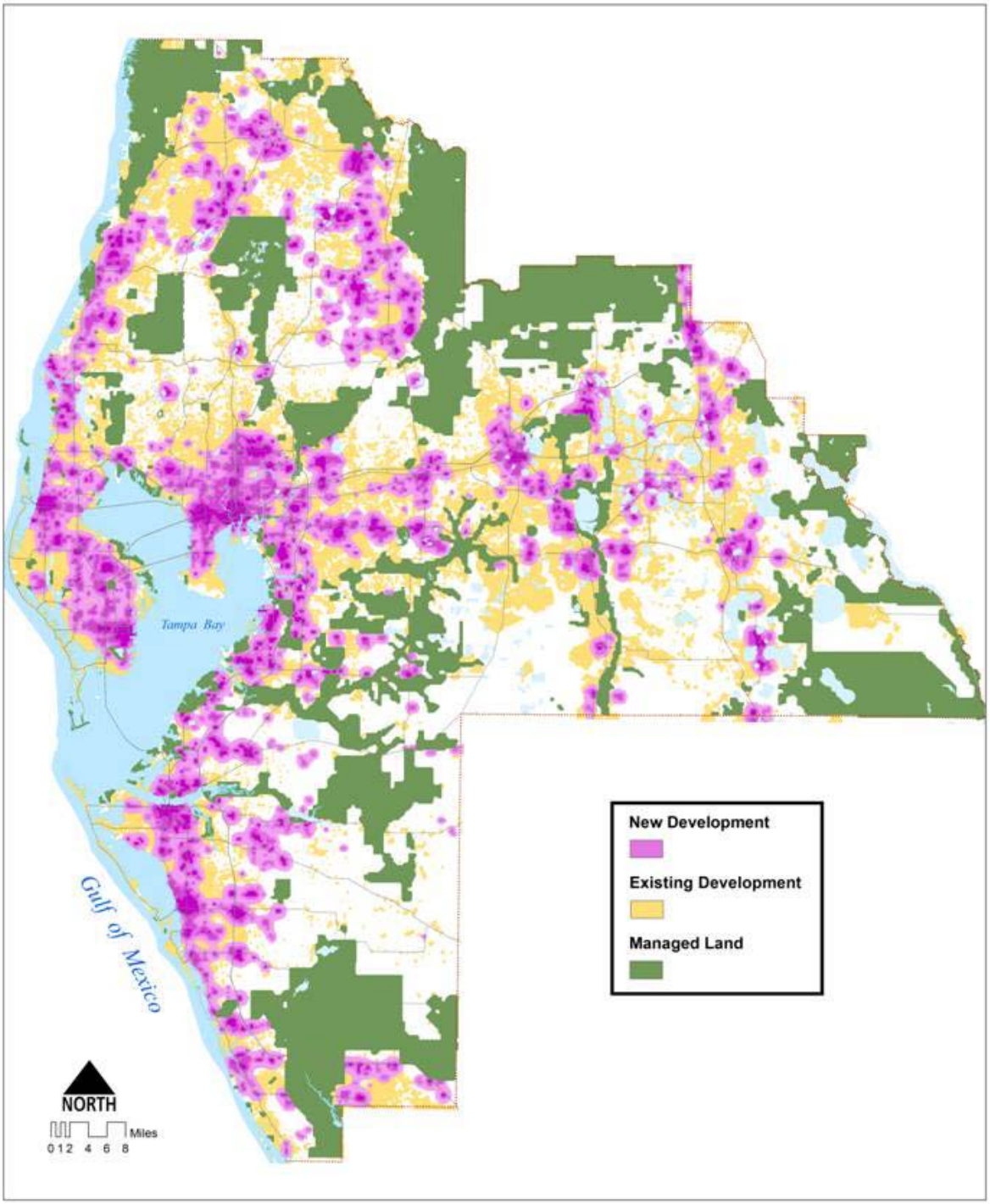
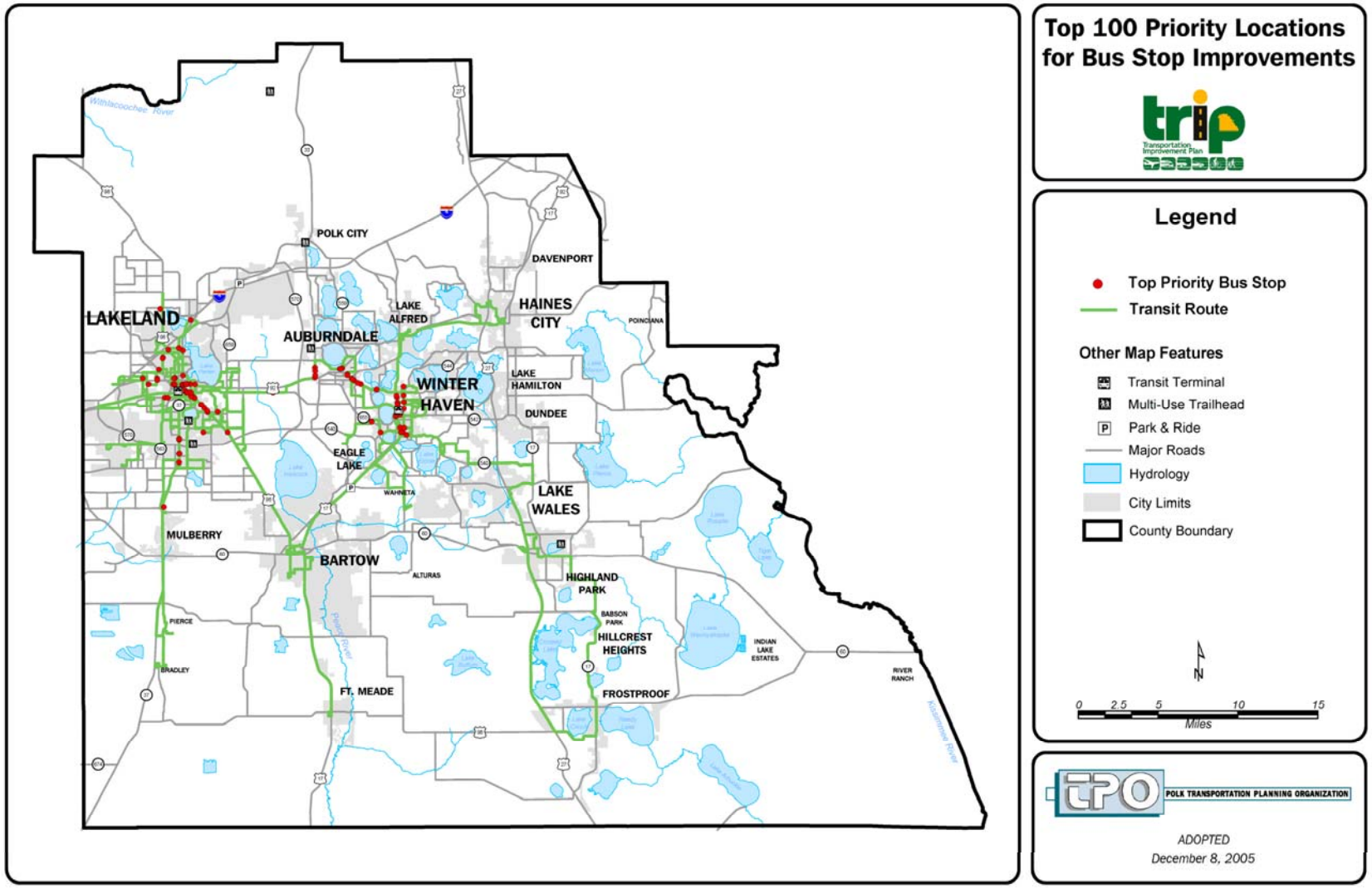


Figure 6: Priority Bus Stop Locations from 2030 Transportation Plan



The 2030 Plan also identifies specific locations for intermodal centers. The sites are envisioned as park & ride lots with access to regional express bus services and accommodations for car pool service. The locations are as follows (identified graphically on Figure 7):

- I-4 at Socrum Loop Road
- I-4 near the convergence of I-4/County Line Road/Polk Parkway
- SR 60 at US 98
- I-4 at US 98 (Bartow Road) in the area between Crystal Lake Drive and SR 540
- US 17 at SR 544 (Avenue T, NW)
- Vicinity of Downtown Lakeland
- I-4 at US 27
- Vicinity of Downtown Winter Haven
- I-4 at SR 559
- US 17 at US 98 in Fort Meade
- US 27 at SR 60
- Lake Wales near Eagle Ridge Mall

The 2030 plan discusses one potential BRT-to-rail service, connecting the existing Lakeland Park & Ride to a potential high-speed rail line station on the nearby I-4 corridor. Although funding was stopped for the most recent high-speed rail initiative in 2004, the analysis leading to this recommendation remains worthy of consideration in future transit planning efforts, which may consider modified passenger transportation service in the I-4 corridor. Some of the intermodal facilities itemized in the 2030 plan may have potential as future passenger rail stations, linking heavily-used activity centers or densely populated residential areas with employment and recreation centers.

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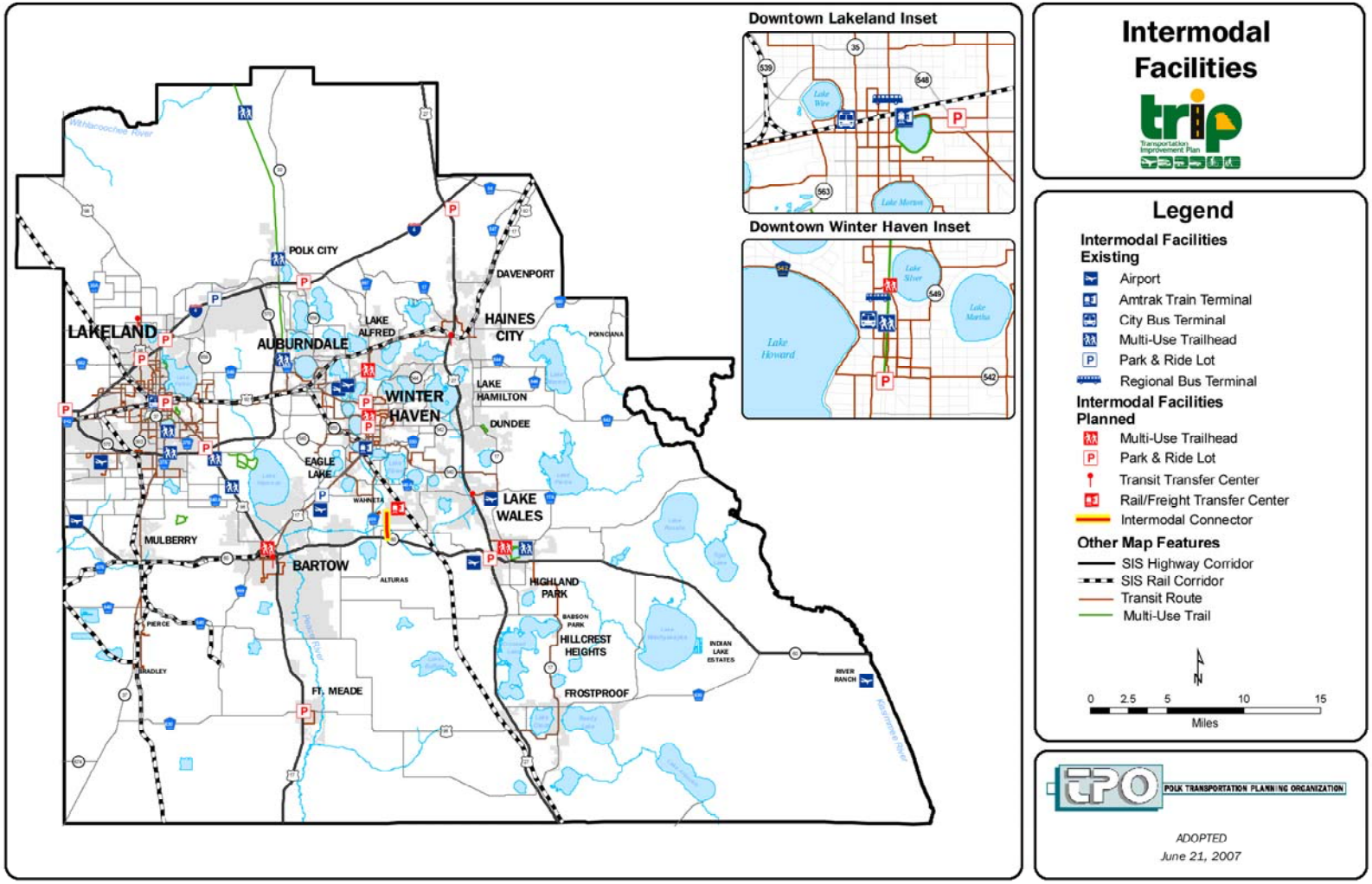
Figure 7: Intermodal Facilities from 2030 Transportation Plan



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3. Previous Studies and Future Initiatives

Previous studies and planned improvements have been examined to identify the concepts examined in past efforts in the study area. The following sections summarize the key aspects of these studies and improvement plans, particularly as they relate to the potential for providing regional transit service.

3.1 Florida High Speed Rail

Since the 1970's there have been a variety of proposed high speed rail initiatives in Florida, several of which advanced the concept of a high-speed rail corridor connecting Orlando and Tampa through Polk County. Funding was stopped for the most recent initiative in 2004. That initiative envisioned high-speed rail service operating along the median of Interstate 4 from the Orlando area to Tampa, through Polk County.

The FDOT District One Rail Traffic Evaluation Study analysis assumes that the rail envelope in the median of I-4 (discussed below) which has been reserved for multimodal transportation use is an alignment which could potentially be examined further for passenger rail.

3.2 SunRail

FDOT, in cooperation with the federal government and local officials in Orange, Seminole, Volusia and Osceola counties and the city of Orlando, is advancing a commuter rail transit project, SunRail to run along a 61-mile stretch of existing rail freight tracks in that four-county area.

The FDOT District One Rail Traffic Evaluation Study analysis assumes full build out of the SunRail system for the analysis year of this project, 2030. SunRail will use diesel rail vehicles. The service, when completely built-out, will incorporate 17 stations with weekday-only service. Headways will be 15 minutes during peak hours and 30 minutes off-peak. The Poinciana Industrial Park Station will be the southern-most terminus and is the closest planned station to Polk County. The first phase, scheduled to begin operation in 2011, includes 12 stations and 30-minute peak, 120-minute off-peak headways.

3.3 Florida Department of Transportation Freight and Passenger Rail Plan

The Florida Rail System Plan, required by §341.302 of the Florida Statutes, is developed based on statewide needs and consistent with the Florida Transportation Plan. The plan identifies capital improvements and priorities for funding needed to ensure the efficient movement of people and goods by rail. The 2009 Florida Rail System Plan is being developed in two parts: 1) a Policy Element that defines the overall policy direction for state involvement in the rail system and 2) an Investment Element that defines statewide rail needs and, by using the Policy Element, determines how taxpayer funds will be applied to those needs. The Policy Element, developed based on recommendations of a 30-member Rail Stakeholder Advisory Committee, was adopted

by the Department in April, 2009. The Investment Element is scheduled to be completed by June 30, 2009.

3.4 Strategic Regional Transit Needs Assessment

The Strategic Regional Transit Needs Assessment (SRTNA), May 2007, addresses transit and mobility needs in the West Central Florida region. Historically, there had been no regional entity coordinating development of the region's transit service, and FDOT's Strategic Intermodal System (SIS) Plan did not include many transit improvements in the West Central Florida region. As the region lacked an organizing local or regional agency, FDOT assumed responsibility for identifying regional travel patterns, transit operations, and infrastructure, and recommending long-term transportation solutions to satisfy mobility needs over the next 50 years.

The SRTNA recommends five regional transit connections:

- North (West) – St. Petersburg to Gateway, North Pinellas, and New Port Richey
- North (Central) – Westshore to Northwest Hillsborough, Central Pasco, and Brooksville
- North (East) – Tampa to University of South Florida, East Pasco, and Brooksville (future connection)
- East – St. Petersburg to Gateway to Westshore, Tampa, Lakeland, and points east (future connection)
- South – St. Petersburg to Bradenton and Sarasota

It was the goal of the SRTNA to continue to develop these corridors through an alternatives analysis that examines specific alignments, transit modes, and service plans.

3.5 Tampa Bay Area Regional Transportation Authority

The Tampa Bay Area Regional Transportation Authority (TBARTA), established by legislation in July of 2007, is charged with developing, constructing, operating, and financing multimodal transit systems in Citrus, Hernando, Hillsborough, Manatee, Pasco, Pinellas, and Sarasota Counties. As part of its founding requirements, TBARTA must develop a transportation master plan by July 2009. The Master Plan is being conducted in three phases; Phase One is currently complete and Phase 2 is under public discussion. In Phase 1, "Connection 6" linked Tampa to Polk County using Interstate 4 (I-4), long distance rail lines, or a combination, traversing Tampa, Plant City, and terminating in Lakeland.

Connection 6 has been further refined in Phase Two with two options that would service Polk County: Alternative 6.33 (links Lakeland to Tampa via a freight rail corridor), Alternative 6.34 (links Lakeland to Tampa via Interstate 4).

Alternative 6.34 examined a combination of light rail and express bus on managed lanes along I-4. Express bus service was examined every 30 minutes; light rail was examined every 10 minutes. The recommendation of this alternative was express bus on managed lanes. Alternative 6.33 examined a combination of light rail and commuter rail on existing freight rail right of way. Light rail was examined every 10 minutes; commuter rail was examined every 30 minutes. The recommendation of this alternative was a combination light rail and commuter rail service. Light

rail would operate between Tampa and Brandon, and commuter rail would continue from Brandon to Lakeland. Light rail service would operate every 10 minutes; commuter rail service would operate every 30 minutes.

The FDOT District Rail Traffic Evaluation Study analysis assumes that the TBARTA network will be in place in 2030, however because a recommendation has not yet been made, specific assumptions about alignment and mode have not been made as part of this analysis. This analysis assumes for planning purposes that the alternatives examined could be integrated with TBARTA plans.

3.6 Coast to Coast Rail System Feasibility Study

The FDOT Coast to Coast Rail System Feasibility Study examined the potential for instituting passenger rail service from St. Petersburg to Port Canaveral. This study concluded that the I-4 median envelope represented the best option for connecting St. Petersburg to Port Canaveral. The study recommended the Bee Line Alternative as it was the most cost-effective option.

3.7 I-4 Study

FDOT's SIS Plan identifies right-of-way improvements to I-4. In the short term, improvements are identified as one additional lane in each direction. I-4 contains a center median reserved for transit or high-occupancy vehicle/ high-occupancy toll (HOV/HOT) commuter use. The median is reserved as a dedication of land and may accommodate a transit/HOV/HOT lanes, or it may be used to shift existing lanes of I-4 so that transit/HOV/HOT can be accommodated on the shoulders or existing outer lanes, which reduces access issues associated with median-running services.

4. Study Corridor Travel Market

Identifying viable transit service necessitates an understanding of the existing travel demands or travel market within the study area. Demographic data described earlier in the report indicated that, given the population-to-jobs ratio, it was likely that some residents of Polk County commuted to Hillsborough or Orange County for work. Additionally, both Tampa and Orlando are destinations for non-work trips, such as visits to the recreational areas and sports venues.

A 2002 sample survey of drivers on I-4 provided a baseline for assessing near-future origin, destination, and trip purpose data for users of the I-4 corridor. The data is broken down into two categories, Resident and Non-Resident, and then further refined by trip purpose. "Resident" indicates that the driver lives in Lakeland, Tampa, Orlando, or another location within the corridor composed of Hillsborough, Polk, and Orange Counties. Non-Resident includes all drivers who do not live in Hillsborough, Polk, or Orange County, and may include residents of other states who are driving rental cars.

Trip purpose is divided into three categories for Residents and two categories for Non-Resident. "Commute" is unique to the "Resident" data set. This trip purpose indicates that the driver makes this trip to go to and from his or her place of business. Commute trips are made daily or several times each week, and typically occur during the morning and evening peak, but are not exclusively confined to those times as some commuters may perform off-peak shift work. "Business" is common to both the "Resident" and "Non-Resident" data sets. This trip purpose indicates that the driver makes the trip infrequently, but the trip is for a business-related purpose, such as a meeting with a client or attorney. "Other" is also common to both "Resident" and "Non-Resident." This category includes trips for all purposes other than commuting to and from work or for business purposes. It may include day trips to the recreational and leisure facilities in the study area, visiting friends and family, or shopping.

The results of the 2002 survey are presented below in Table 10. The table shows annual person-trips in thousands (1,182-thousand annual person-trips equals 1,182,000 trips each year). Daily trips are given in their actual units (55,833 daily trips is equal to the number as shown, 55,833).

Table 10: 2002 Survey Sample Results for Intercity Market Estimates

		Resident Non-Re			sident		Total Annual Trips in Thousands	Total Daily Trips - Not in Thousands
		Commute	Busine ss	Other	Business	Other		
		Thousands of Annual Person-Trips						
2002	**Orlando-Tampa**	1,182	2,784	9,770	327	6,316	20,379	55,833
	% of Annual Total	*6%*	*14%*	*48%*	*2%*	*31%*		
	Lakeland-Orlando	1,354	1,500	1,793	91	728	5,466	14,975
	% of Annual Total	*25%*	*27%*	*33%*	*2%*	*13%*		
	Lakeland-Tampa	4,081	1,240	7,773	60	1,333	14,487	39,690
	% of Annual Total	*28%*	*9%*	*54%*	*0%*	*9%*		
Total		**6,617**	**5,524**	**19,336**	**478**	**8,377**	**40,332**	**110,499**

Source: AECOM, 2008

Demographic data and standard growth projection models were applied to the 2002 survey sample results to estimate intercity market demand in 2010. The results of this analysis are presented in Table 11. The Orlando – Tampa corridor total travel market is depicted in Figure 8.

Table 11: Projected 2010 Intercity Market Estimates

		Resident Non-Resident					Total Annual Trips in Thousands	Total Daily Trips - Not in Thousands
		Commute Business		Other Business		Other		
		Thousands of Annual Person-Trips						
2010 Orlando-Tampa		1,419	3,479	12,623	404	8,337	26,262	71,951
	% of Annual Total	*5%*	*13%*	*48%*	*2%*	*32%*		
	Lakeland-Orlando	1,642	1,881	2,353	119	985	6,980	19,123
	% of Annual Total	*24%*	*27%*	*34%*	*2%*	*14%*		
	Lakeland-Tampa	4,832	1,557	9,834	75	1,664	17,962	49,211
	% of Annual Total	*27%*	*9%*	*55%*	*0%*	*9%*		
Total		**7,893**	**6,917**	**24,811**	**598**	**10,986**	**51,204**	**140,285**

Source: AECOM, 2008

The results of the survey and projections indicate that a significant portion of drivers on I-4 are traveling for reasons other than daily commuting, but the greatest portion of drivers on I-4 in Polk County are traveling between Orlando and Tampa. This regional travel suits itself to a variety of transit modes and corridor options, which are described in the following sections.

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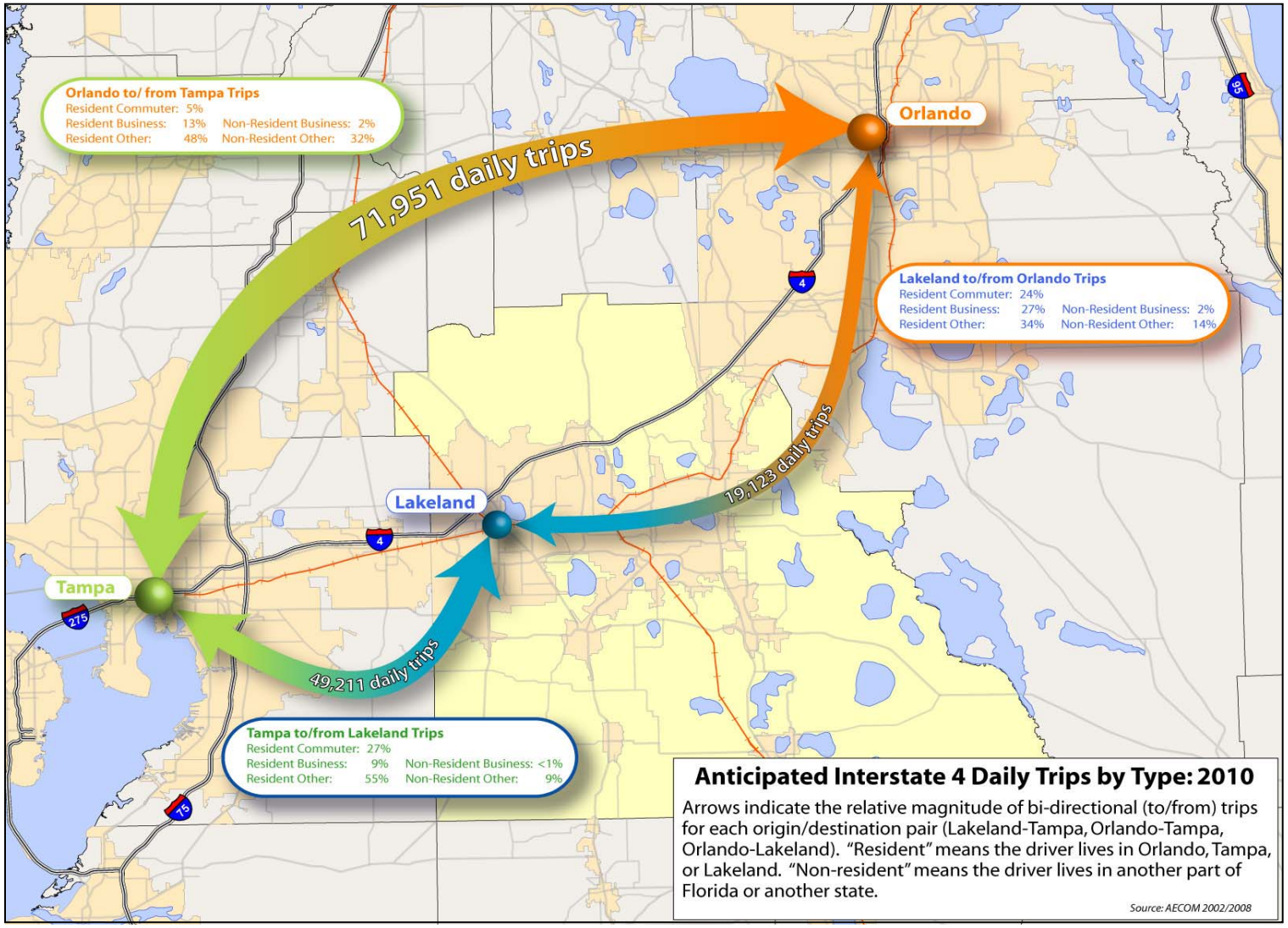
Figure 8: Orlando – Tampa Corridor Travel Market Map



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5. Study Corridors

The travel market identified in Section 4 indicated that the greatest regional transportation need is east-west travel through Polk County, connecting to Hillsborough County and Orange County. Polk County is crossed by a number of railroad rights-of-way; however, the majority of these are oriented north-south, reflective of the development pattern of the county. These corridors would not serve the primary study area travel market identified above, which is east-west in nature.

Existing transportation rights-of-way, either highway or rail, provide options for joint transportation use and avoid the need for the identification of new rights-of-way, which require the acquisition of significant amounts of property and typically result in impacts to both the natural and built environment. This analysis therefore focused on existing transportation rights-of-way.

As a result, two potential east-west corridors in the study area were identified for examination in this study and are described below: the I-4 Median and the CSX A-Line (see Figure 9).

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Figure 9: Passenger Rail Corridors

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5.1 I-4 Median

FDOT has been reserving a 44-foot wide section of I-4 right-of-way in the study area for future transportation use. This section of right-of-way could accommodate median-running transit service or could be used to shift existing travel lanes to provide for transit service on the shoulder of I-4.

5.2 CSX A Line

The CSX "A" Line is a major freight corridor in the State of Florida which spans approximately 200 miles from Callahan, north of Jacksonville, to Tampa. The "A" Line, formerly known as the Atlantic Coast Line, travels through a number of cities including Jacksonville, Sanford, Orlando, and Kissimmee as well as Haines City, Auburndale and Lakeland within Polk County. The line extends from the northeast quadrant of Polk County in the vicinity of Loughman, Florida to the Polk County / Hillsborough County boundary west of Winston, Florida. The "A" Line, consisting of approximately 33.3 miles of track within the project study area, generally traverses the county parallel to Interstate 4 (I-4). The line is predominantly single-track with sidings with the exception of a 4.2-mile double-track length between South Lakeland Milepost (MP) A851.8 and South Winston. Five (5) sidings along this route comprise approximately 3.8 miles of track within the county. The right-of-way width along the "A" Line corridor varies from 30 to 100 feet, averaging between 50 and 60 feet along the majority of the corridor.

This report has assumed that passenger rail can operate within the CSX right of way between Tampa and Orlando. It should be noted, however, that CSX has indicated that the sharing of this right of way between freight and passenger rail is limited by CSX's need to ensure freight rail capacity, safety, compensation and liability indemnification. CSX has stated that they are not agreeable to allowing new passenger/commuter operations between Lakeland and Auburndale above the current Amtrak service at existing levels, as such additional movements would compromise a vital freight artery.

6. Passenger Rail Vehicle Technologies

The following section provides an overview of the passenger rail vehicle technologies that would have applicability in the study corridors and could serve the travel market described in the preceding section. All forms of passenger rail require significant levels of capital investment, typically requiring upgraded rail infrastructure, the purchase of rail vehicles and the installation of stations. The anticipated ridership demand needs to be balanced with the capacity provided by passenger rail vehicle technology selected for use in the capital project under consideration. The final vehicle technology selection typically occurs during the design phase of the project when detailed investment and demand estimates have been quantified in sufficient detail and after the project concept has been fully vetted with the public and other stakeholders. Examples of various passenger rail vehicles that could have applicability in the study area are presented in Figure 10.

Figure 10: Passenger Rail Equipment Types

Locomotive Hauled Coaches

Self Propelled Diesel Multiple Units

Amtrak Intercity Train

6.1.1 Commuter Rail

Commuter rail utilizes passenger trains which operate between a central city, its suburbs and/or another central city. It may be locomotive-hauled like Tri-Rail or operate with self-propelled diesel multiple units (DMUs). Commuter rail tends to operate with conventional railroad employment practices, and usually serves only one or two stations in the central business district.

Conventional commuter rail trains are built to Federal Railroad Administration (FRA) standards, allowing them to share track or right-of-way with intercity or freight trains. The newer DMU trains operate with smaller vehicles, but are also FRA compliant and can safely operate on existing freight corridors.

Typical system characteristics of commuter rail include:

- Capacity: 80 – 110 passengers for single-level cars and 145-170 for double-level cars
- Maximum Operating Speed: 30-100 mph
- Service Frequency: 15-60 minute headways
- Operate on standard gauge track which can be shared with freight and/or other passenger trains
- Power Supply : diesel or electric

From an infrastructure perspective, commuter rail has applicability in Polk County. The county is traversed by CSX freight rail lines that connect to Orange and Hillsborough Counties. With upgrades to the freight tracks to enable higher speed passenger service, FRA compliant commuter rail vehicles could provide service across Polk County.

6.1.2 Intercity Rail

Intercity rail vehicles are characterized as being relatively fast trains that have good acceleration and deceleration performance. For conventional 79-110 mph service, locomotive-hauled single or bi-level coaches with good acceleration and deceleration capabilities are typically used. In some corridors, 110-mph tilting trainsets are used. For higher speed 110-mph service, a locomotive-hauled passive tilt train, such as the Talgo T21 trainset or a turbine-hauled active tilt train such as the Jet Train, can be used.

Typical system characteristics of intercity rail include:

- Capacity: 80 – 110 passengers for single-level cars and 145-170 for double-level cars
- Maximum Operating Speed: 79 - 125 mph
- Service Frequency: 3 – 12 round trips per day
- Operate on standard gauge track which can be shared with freight and/or other passenger trains
- Power Supply : diesel or electric

From an infrastructure perspective, intercity rail has applicability in Polk County. The county is traversed by two corridors that connect to Orange and Hillsborough Counties, the CSX freight rail line and I-4, where intercity rail could potentially be used.

7. Development of Passenger Rail Options

The objective of this study was to test if there is a market for rail passenger transportation in the Polk County area. To most completely test this market, several factors were analyzed as unconstrained in the development of the options for evaluation. These assumptions that were held constant for all options are:

- Right of way location – A generalized placement of the alignment to be used by options was assumed. Specific alignments, such as the detailed nature of the physical use of a railroad corridor or highway median, would be analyzed in the future if market potential is identified through this analysis.
- Right of way capacity – Limitations by other users were not placed on the options.
- New station locations – Generalized station locations were assumed. Specific parcels would be analyzed in the future if market potential is identified through this analysis.
- SunRail infrastructure, operations and station locations – The infrastructure necessary and the station locations proposed by SunRail were assumed to be constructed and operational.
- TBARTA was assumed to be capable of being integrated with the proposed options.
- Peak period – Defined as arrival at the AM end destination between 6:30 AM and 9 AM and departures at the PM end origin between 3:30 PM and 6 PM.
- Off-peak – All trains that do not fall within the peak period.
- Projection year – The year 2030 was used as the forecast year for the analysis.
- Mode/vehicle – A specific vehicle has not been selected at this time. Should the market test yield a feasible result, there are a variety of passenger rail vehicle technologies as described in Section 6 that could be applied such as locomotive hauled coaches or diesel multiple units (DMUs). The appropriate vehicle technology would typically be selected after more detailed technical analysis has been conducted.

8. Passenger Rail Options Considered

The following section describes the range of passenger rail options identified for examination in this study (Figures 11 -15). These options were each developed using one of two potential alignments (CSX or I-4), or combinations thereof, in order to serve a market from Polk County to Tampa on the west and/or Orlando on the east. These options are:

- CSX Corridor Regional Rail Option
- I-4 Corridor Regional Rail Option (to Orlando Airport)

- I-4 Corridor Regional Rail Option (to Orlando Central Business District (CBD) via CSX)
- Tampa to Polk County Rail Option
- SunRail Extension to Polk County Option

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Figure 11: CSX Corridor Regional Rail Option

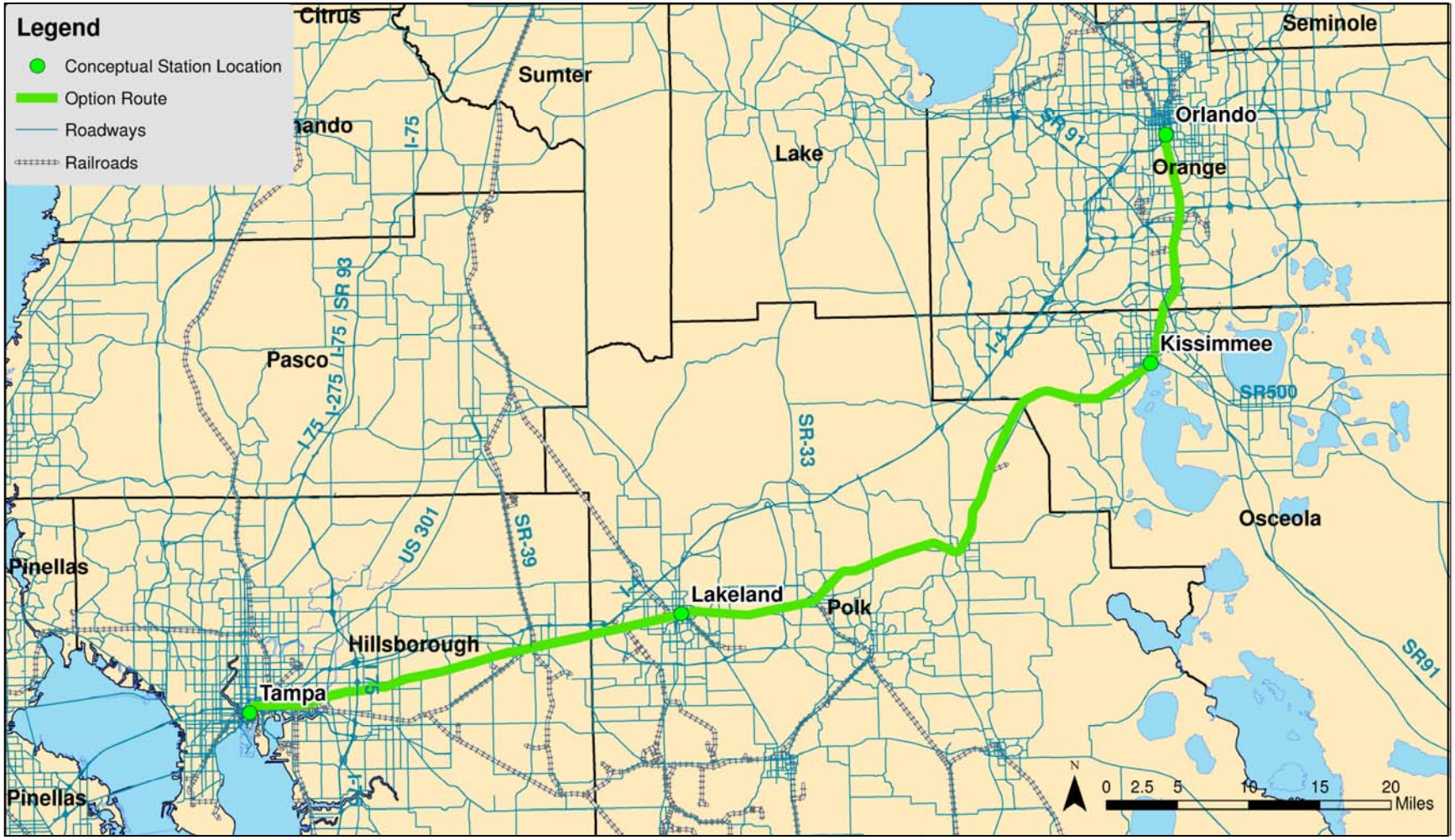

Figure 12: I-4 Corridor Regional Rail Option (to Orlando Airport)

Figure 13: I-4 Corridor Regional Rail Option (to Orlando CBD)

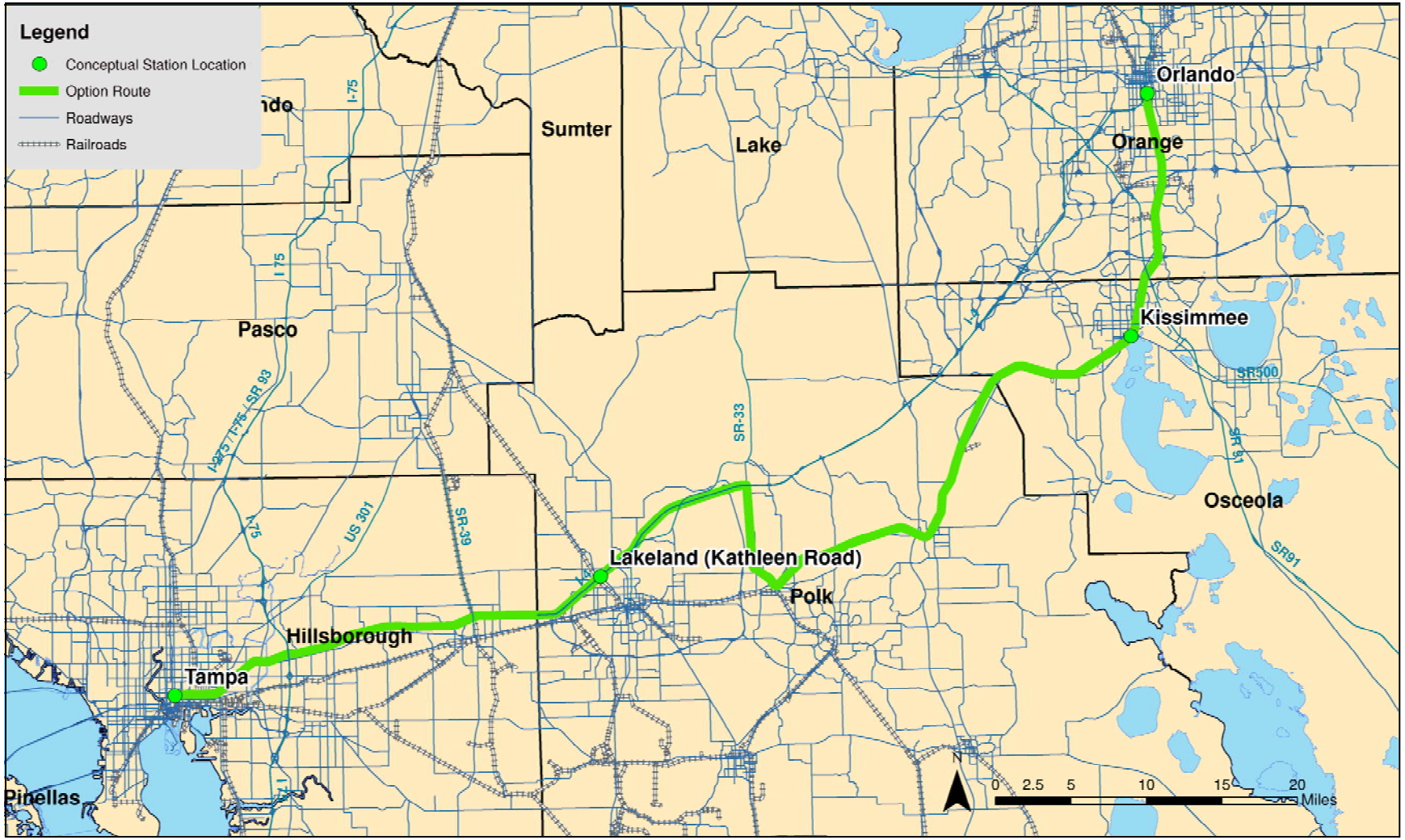

Figure 14: Tampa to Polk County Rail Option

Figure 15: SunRail Extension to Polk County Option

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8.1 CSX Corridor Regional Rail Option

The CSX Corridor Regional Rail Option would be a passenger rail service between the cities of Tampa, Lakeland and Orlando over the existing freight line, the CSX A Line. Trains would originate both in Orlando and Tampa. All day service would be provided, oriented toward the intercity/business/recreational market between the three cities, as well as capturing the peak commuter market.

Stations proposed to be used for this option would be at existing Amtrak rail stations, as follows:

- Tampa Union Station: 601 North Nebraska Avenue, Tampa, FL. (existing railroad passenger station used by Amtrak on the east end of the Tampa Central Business District.)
- Lakeland: 600 E. Main Street, Lakeland, FL. (existing Lakeland passenger rail station used by Amtrak in Downtown Lakeland)
- Kissimmee: 111 East Dakin Avenue, Kissimmee, FL. (existing railroad passenger station currently used by Amtrak as an intercity station and proposed to also be used by SunRail as a commuter rail station.)
- Orlando Downtown: 1400 Sligh Boulevard, Orlando, FL. (existing railroad passenger station currently used by Amtrak as an intercity station and proposed to also be used by SunRail as a commuter rail station.)

8.2 I-4 Corridor Regional Rail Option (to Orlando Airport)

For comparative purposes, an alternative was developed to have similar operating characteristics as the CSX Corridor Regional Rail Option, but using instead the I-4 corridor and terminating at the Orlando Airport. The I-4 Corridor Regional Rail Option to Orlando Airport (I-4 Airport Option) would be a passenger rail service between the cities of Tampa, Lakeland and Orlando utilizing the median of I-4, which as described above, has been reserved for multimodal transportation use. New right of way would be utilized from I-4 to reach the Orlando Airport. Trains would originate both in Orlando and Tampa. All day service would be provided, oriented toward the intercity/business/recreational market between the three cities, as well as capturing the peak commuter market.

A similar station stopping pattern was used as in the CSX Corridor Regional Rail Option. Mostly new stations would be required for this option, as follows:

- Tampa: New station near I-275 in Downtown Tampa, or potential use of the existing Amtrak rail station via a CSX rail right-of-way from I-4 to downtown.
- Lakeland: New station on I-4 at the Kathleen Road interchange in Lakeland, FL.
- County Line: New station on I-4 in the vicinity of the Orange County Line.
- Orlando Airport: New station at Orlando Airport.

8.3 I-4 Corridor Regional Rail Option (to Orlando CBD via CSX)

For comparative purposes, an alternative was developed to have similar operating characteristic as the CSX Corridor Regional Rail Option, but using instead part of the I-4 corridor and terminating in downtown Orlando. The I-4 Corridor Regional Rail Option to the Orlando Central Business District (CBD) (I-4 CBD Option) would be a passenger rail service between the cities of Tampa, Lakeland and Orlando, and is a hybrid of the CSX Regional Rail Option and the I-4 Airport Regional Rail Option. This Option was crafted to test the downtown Orlando Option, and also avoid the congested area of the CSX corridor between Tampa and Auburndale by using the I-4 alignment instead in that segment. This option would utilize the median of I-4 from Tampa to eastern Polk County, which has been reserved for multimodal transportation use. In eastern Polk County in the vicinity of Auburndale, a new connection would be made onto former rail right-of-way which would be restored for approximately seven miles to Auburndale, where a connection would be made to the CSX A Line. The A Line would be used to reach to downtown Orlando. Trains would originate both in Orlando and Tampa. All day service would be provided, oriented toward the intercity/business/recreational market between the three cities, as well as capturing the peak commuter market.

A similar station stopping pattern was used as in the CSX Corridor Regional Rail Option. Stations proposed to be used for this option would be mostly at existing Amtrak rail stations, with the exception of a new station Lakeland, as follows:

- Tampa: New station near I-4 in Downtown Tampa, or potential use of the existing Amtrak rail station via a CSX rail right-of-way from I-4 to downtown.
- Lakeland: New station along I-4 at the Kathleen Road interchange in Lakeland, FL.
- Kissimmee: 111 East Dakin Avenue, Kissimmee, FL. (existing railroad passenger station currently used by Amtrak as an intercity station and proposed to also be used by SunRail as a commuter rail station.)
- Orlando Downtown: 1400 Sligh Boulevard, Orlando, FL. (existing railroad passenger station currently used by Amtrak as an intercity station and proposed to also be used by SunRail as a commuter rail station.)

8.4 Tampa to Polk County Rail Option

The Tampa to Polk County Rail Option (Tampa-Polk Option) would be a passenger rail service from Lakeland to Tampa. All day service would be provided, but would be oriented primarily toward the peak commuter market in Tampa. This option assumes that a TBARTA system is in place and would offer connections; however, it does not make any specific assumptions regarding the recommendations that will be made by TBARTA in 2009 when their plan is complete.

Stations proposed to be used for this option would be partially at existing Amtrak rail stations, as well as several new intermediate stations in western Polk County and eastern/central Hillsborough County, as follows:

- Tampa Union Station: 601 North Nebraska Avenue, Tampa, FL. (existing railroad passenger station used by Amtrak on the east end of the Tampa Central Business District.)

- Mango/I-75 – new station along the CSX A Line in the vicinity of I-75 in the Mango area.
- Plant City – new station along the CSX A Line in the vicinity of Plant City.
- County Line Road – new station along the CSX A Line in the vicinity of the Polk County Line.
- Lakeland: 600 E. Main Street, Lakeland, FL. (existing Amtrak Lakeland passenger rail station in Downtown Lakeland)

8.5 SunRail to Polk County Option

The SunRail Extension to Polk County Option (SunRail-Polk Option) would be a passenger rail service from Lakeland to Orlando. This service option would be a rail extension to Polk County of the planned SunRail line from its proposed terminus in Poinciana. All day service would be provided, but would be oriented primarily toward the peak commuter market in Orlando.

Stations proposed to be used for this option would be the proposed SunRail stops and the existing Lakeland Amtrak rail station, as well as several new intermediate stations in eastern Polk County, as follows:

- SunRail Stations (assumed to be existing; listed from north to south):
    - DeLand Amtrak
    - DeBary
    - Sanford/State Road 46
    - Lake Mary
    - Longwood
    - Altamonte Springs
    - Maitland
    - Winter Park
    - Florida Hospital
    - Orlando LYNX Central
    - Orlando Church Street
    - Orlando Health/Amtrak
    - Sand Lake Road
    - Meadow Woods
    - Osceola Parkway
    - Kissimmee Amtrak
    - Poinciana
- Haines City– new station along the CSX A Line in the vicinity of Haines City.
- Auburndale– new station along the CSX A Line in the vicinity of Auburndale.
- Lakeland Downtown - 600 E. Main Street, Lakeland, FL. (existing Amtrak Lakeland passenger rail station in Downtown).

9. Capital Improvements

The implementation of passenger rail projects involves significant capital investments. Most passenger rail projects will require investments in each of the following ten general categories of capital items:

- **Guideway and Track Elements:** This category includes all improvements to the mainline tracks from the ballast up to the rails, including crossovers and sidetrack turnouts, and the bridges and tunnels on the right of way.
- **Stations, Stops, Terminals, Intermodal:** This category includes station platforms and facilities.
- **Support Facilities: Yards, Shops, Administration Buildings:** This category includes storage yards and maintenance facilities for the passenger operation and the existing freight carriers, new sidetracks for additional freight car storage, and relocation of the interchange track.
- **Sitework & Special Conditions:** This category includes brush cutting and clearing and grubbing of out of service track areas, excavation, fill and retaining walls for new tracks, and improvements to grade crossing surfaces and the paving of parking lots, as well as environmental mitigation.
- **Systems:** This category includes new train control systems, new grade crossing protection devices, and station communication systems.
- **ROW, Land, Existing Improvements:** This category includes the purchase of new land, or the transfer of parcels to consolidate land into useful lots.
- **Vehicles:** This category includes the purchase of all new rail vehicles for the rail options.
- **Professional Services:** This category includes preliminary and final design, project management, contract administration, insurance, legal services and permitting, and surveying.
- **Finance Charges:** This category includes the finance charges to pay the interest on the bonds or other funding mechanism(s) used to finance the project, where necessary.

A generalized range of the typical cost of each of these capital items is presented in Table 12.

Table 12: Typical Passenger Rail Capital Costs

Category	Project within Existing Rail Right-of-Way	Project in New Corridor (Highway or New Alignment)
Guideway, Track & Systems[7]	$5M - $7M per mile	$20M - $50M per mile
Stations	$1M - $3M per station	$3M - $5M per station
Yards/Maintenance Facilities	$1M - $3M per layover yard $30M-$40M per maintenance facility	$1M - $3M per layover yard $30M-$40M per maintenance facility
Vehicles	$3M - $4M per powered unit $1.5M - $2M per coach	$3M - $4M per powered unit $1.5M - $2M per coach
Sitework & Special Conditions	Variable	Variable
Right-of-Way/Land Acquisitions & Improvements	Variable	Variable
Design & Construction Management	18%-28% of construction costs	18%-28% of construction costs

Source: Jacobs Engineering, from various national passenger rail studies.

The following section highlights the major capital improvements associated with each Option under consideration in this study.

9.1 CSX Corridor Regional Rail Option

The CSX Corridor Regional Rail Option would use the CSX "A" Line right-of-way, an existing and active railroad alignment. This Option is 92 miles in length.

9.1.1 Infrastructure (Track and Signals)

In previous discussions with CSX on other initiatives, CSX had indicated that they would not consider any track sharing option with passenger service in the segment of the A Line between Tampa and Auburndale. If this CSX position continues in the future, new infrastructure would be required for this option from Tampa to Auburndale (42 miles.) From Auburndale to Orlando (50 miles), the existing infrastructure used by CSX, Amtrak and the proposed SunRail project could potentially be used, with upgrades as necessary. Further evaluation of the physical conditions, special trackwork needs and geometry of the right-of-way, and coordination with CSX, to accommodate this option is required if it is further pursued.

9.1.2 Facilities

This option would utilize the four existing railroad passenger station facilities (building, platform and parking) used by Amtrak in Tampa, Lakeland, Kissimmee and Orlando. This option would likely require some upgrades at the stations for this service, such as platforms, ticketing, shelters, signage and lighting. Additional parking may also be necessary to accommodate riders. Further

[7] Costs are typical; engineering is required to understand corridor specific costs such as areas of highway reconstruction or relocation/modification of structures. Costs do not include acquisition of property from freight railroads or other public or private entities.

evaluation of these station facilities, and coordination with Amtrak and local communities, to accommodate this Option is required if it is further pursued.

A vehicle base facility to store, clean and perform light maintenance on vehicles would be necessary for this option on both the eastern and western ends of the study corridor due to the corridor's length. A facility for the heavy maintenance on the equipment would also be required. Further evaluation of the locations and requirements of these vehicle facilities, and coordination with Amtrak, CSX and the potentially affected communities, to accommodate this option is required if it is further pursued.

9.1.3 Vehicles

Vehicle technologies to be explored for this option would likely be intercity-style equipment. Further evaluation of the amount of equipment needed and the type to accommodate this Option is required if it is further pursued.

9.1.4 Crossings

Grade crossings along the A Line may need to be upgraded to accommodate passenger rail service. Further evaluation of the location and nature of grade crossing improvements and evaluation of any necessary grade separation structures to accommodate this option is required if it is further pursued.

9.1.5 Structures

Improvements to, or expansions of, existing structures may be required, particularly in the area where a new track may be constructed between Tampa to Auburndale. Further evaluation of improvements to existing or construction of any potential new structures over the entire alignment is required if it is further pursued.

9.1.6 Property Acquisition

Minor property acquisition would be required for station parking and vehicle base facilities. Property acquisition for right-of-way widening to accommodate passenger tracks may be required in some areas. Further evaluation of the exact location of property acquisitions for the entire alignment is required if it is further pursued.

9.2 I-4 Corridor Regional Rail Option (to Orlando Airport)

The I-4 Corridor Regional Rail Option would use the I-4 right-of-way, an existing interstate roadway. This Option would require the construction of an all new passenger rail infrastructure within the reserved right of way envelope within I-4. In order to reach the Central Business District of Tampa, this Option assumes a connection to an existing rail right-of-way in Tampa from I-4 to downtown. In order to reach the Orlando Airport, this Option assumes a connection to a new right-of-way from I-4 to the Airport. This Option is 86 miles in length.

9.2.1 Infrastructure (Track and Signals)

A significant capital investment would be required under this Option to construct all new passenger rail infrastructure within the reserved right of way envelope within I-4. This Option would require all new infrastructure (track and signals) for 86 miles from Tampa to Orlando. In addition, a significant amount of sitework would be necessary to establish a new rail right-of-way along I-4, and into downtown Tampa and to Orlando Airport, which does not currently exist. A significant unknown is the exact placement of the new rail right-of-way and the impact that may have on existing infrastructure, such as overhead roadway piers, bridge abutments and other structures. Further evaluation of the physical conditions of the I-4 right-of-way, exploration of available corridors to reach downtown Tampa and the Orlando Airport, and geometry of the right-of-way to accommodate this Option is required if it is further pursued.

9.2.2 Facilities

This option could potentially utilize one existing railroad passenger station facility (building, platform and parking) used by Amtrak in Tampa, or alternately, could create a new station facility in Tampa. This option would require new stations and parking facilities along I-4, potentially at Lakeland in the vicinity of Kathleen Road and in the vicinity of the Orange County Line. This option would also require a new station at Orlando Airport. Further evaluation of these station locations and their facilities, and coordination with the local communities (and Amtrak if their Tampa Station is utilized), to accommodate this Option is required if it is further pursued.

A vehicle base facility to store, clean and perform light maintenance on vehicles would be necessary for this option on both the eastern and western ends of the study corridor due to the corridor's length. A facility for the heavy maintenance on the equipment would also be required. Further evaluation of the locations and requirements of these vehicle facilities, and coordination with the potentially affected communities, to accommodate this option is required if it is further pursued.

9.2.3 Vehicles

Vehicle technologies to be explored for this option would likely be intercity-style equipment. Further evaluation of the amount of equipment needed and the type to accommodate this Option is required if it is further pursued.

9.2.4 Crossings

While there would not be grade crossings along the I-4 portion of the corridor, grade crossings may be a consideration along the new alignments on either end to reach downtown Tampa and Orlando Airport. Further evaluation of the location and nature of grade crossing improvements and evaluation of any necessary grade separation structures to accommodate this option is required if it is further pursued.

9.2.5 Structures

Improvements to, or expansions of, existing structures may be required, for the length of this Option from Tampa to Orlando Airport. Further evaluation of improvements to existing or construction of any potential new structures over the entire alignment is required if it is further pursued.

9.2.6 Property Acquisition

Property acquisition would likely be required for stations, parking and vehicle base facilities. Property acquisition for widening of the I-4 right-of-way accommodate passenger tracks may be required in some areas. On the western end of the option in Tampa, property acquisition may be necessary to make the connection from I-4 into the right-of-way to downtown Tampa to reach the station. On the eastern end of the option in Orlando, significant property acquisition would be required to establish a new right-of-way for the rail service from I-4 to reach Orlando Airport. Further evaluation of the exact location of property acquisitions for the entire alignment is required if this Option is further pursued.

9.3 I-4 Corridor Regional Rail Option (to Orlando Central Business District via CSX)

The I-4 Corridor Regional Rail Option would use the I-4 right-of-way, an existing interstate roadway. This Option would require the construction of an all new passenger rail infrastructure within the reserved right of way envelope within I-4. In order to reach the Central Business District of Tampa, this Option assumes a connection to an existing rail right-of-way in Tampa from I-4 to downtown. In order to reach the Central Business District of Orlando, this Option assumes a connection from I-4 to a new right-of-way in Polk County to the existing CSX A Line rail right-of-way to reach downtown Orlando. This Option is 93 miles in length.

9.3.1 Infrastructure (Track and Signals)

A significant capital investment would be required under this Option to construct all new passenger rail infrastructure within the reserved right of way envelope within I-4. This Option would require all new infrastructure (track and signals) for 93 miles from Tampa to Orlando. In addition, a significant amount of sitework would be necessary to establish a new rail right-of-way along I-4, and into downtown Tampa and to the CSX rail line in eastern Polk County. A significant unknown is the exact placement of the new rail right-of-way and the impact that may have on existing infrastructure, such as overhead roadway piers, bridge abutments and other structures. Further evaluation of the physical conditions of the I-4 right-of-way, exploration of available corridors to reach downtown Tampa and Orlando, and geometry of the right-of-way to accommodate this Option is required if it is further pursued.

9.3.2 Facilities

This option could potentially utilize the three existing railroad passenger station facilities (building, platform and parking) used by Amtrak in Tampa, Kissimmee and Orlando, or

alternately, could create a new station facilities in some of these locations. This option would require new station and parking facility along I-4, potentially at Lakeland in the vicinity of Kathleen Road. Further evaluation of these station locations and their facilities, and coordination with the local communities (and Amtrak if their stations are utilized), to accommodate this Option is required if it is further pursued.

A vehicle base facility to store, clean and perform light maintenance on vehicles would be necessary for this option on both the eastern and western ends of the study corridor due to the corridor's length. A facility for the heavy maintenance on the equipment would also be required. Further evaluation of the locations and requirements of these vehicle facilities, and coordination with the potentially affected communities, to accommodate this option is required if it is further pursued.

9.3.3 Vehicles

Vehicle technologies to be explored for this option would likely be intercity-style equipment. Further evaluation of the amount of equipment needed and the type to accommodate this Option is required if it is further pursued.

9.3.4 Crossings

While there would not be grade crossings along the I-4 portion of the corridor, grade crossings would be a consideration along the new alignments on either end to reach downtown Tampa and Orlando. Further evaluation of the location and nature of grade crossing improvements and evaluation of any necessary grade separation structures to accommodate this option is required if it is further pursued.

9.3.5 Structures

Improvements to, or expansions of, existing structures may be required, from Tampa to Orlando. Further evaluation of improvements to existing or construction of any potential new structures over the entire alignment is required if it is further pursued.

9.3.6 Property Acquisition

Property acquisition would likely be required for stations, parking and vehicle base facilities. Property acquisition for widening of the I-4 right-of-way accommodate passenger tracks may be required in some areas. On the western end of the option in Tampa, property acquisition may be necessary to make the connection from I-4 into the right-of-way to downtown Tampa to reach the station. On the eastern end of the option to use the existing railroad to downtown Orlando, significant property acquisition would be required for new right-of-way in Polk County from I-4 to the existing CSX rail right-of-way. Further evaluation of the exact location of property acquisitions for the entire alignment is required if this Option is further pursued.

9.4 Tampa to Polk County Rail Option

The Tampa to Polk County Rail Option would use the CSX "A" Line right-of-way from Polk County to Tampa, an existing and active railroad alignment. This Option is 31 miles in length. This Option assumes that the TBARTA network will be in place in 2030, however because a recommendation has not yet been made, specific assumptions about alignment and mode have not been made as part of this analysis. This analysis assumes for planning purposes that the alternatives examined could be integrated with TBARTA plans.

9.4.1 Infrastructure (Track and Signals)

In previous discussions with CSX on other initiatives, CSX had indicated that they would not consider any track sharing option with passenger service in the segment of the A Line between Tampa and Auburndale. If this CSX position continues in the future, new infrastructure would be required for this option from Tampa to Lakeland (31 miles.) As noted in Section 5.2, CSX has stated that they are not agreeable to allowing new passenger/commuter operations between Lakeland and Auburndale above the current Amtrak service at existing levels, as such additional movements would compromise a vital freight artery. Further evaluation of the physical conditions, special trackwork needs and geometry of the right-of-way, and coordination with CSX, to accommodate this option on a separate new track is required if it is further pursued.

9.4.2 Facilities

This option would utilize the two existing railroad passenger station facilities (building, platform and parking) used by Amtrak in Tampa and Lakeland. This option would likely require some upgrades at the station for this service, such as platforms, ticketing, shelters, signage and lighting. Additional parking may also be necessary to accommodate riders. This option assumed construction of three additional new intermediate stations and parking facilities along the alignment, one in western Polk County in the County Line Road vicinity, and two in eastern/central Hillsborough County in the Mango/I-75 and Plant City vicinity. Further evaluation of these station facilities, and coordination with Amtrak and local communities, to accommodate this Option is required if it is further pursued.

A vehicle base facility to store, clean and perform light maintenance on vehicles would be necessary for this option on the eastern end of the study corridor. A facility for the heavy maintenance on the equipment would also be required. Further evaluation of the locations and requirements of these vehicle facilities, and coordination with Amtrak, CSX and the potentially affected communities, to accommodate this option is required if it is further pursued.

9.4.3 Vehicles

Vehicle technologies to be explored for this option would likely be commuter-style equipment. Further evaluation of the amount of equipment needed and the type to accommodate this Option is required if it is further pursued.

9.4.4 Crossings

Grade crossings along the A Line would need to be upgraded to accommodate passenger rail service. Further evaluation of the location and nature of grade crossing improvements and evaluation of any necessary grade separation structures to accommodate this option is required if it is further pursued.

9.4.5 Structures

Improvements to, or expansions of, existing structures may be required, particularly in the area where a new track may be constructed between Tampa and Lakeland. Further evaluation of improvements to existing or construction of any potential new structures over the entire alignment is required if it is further pursued.

9.4.6 Property Acquisition

Minor property acquisition would be required for stations, parking and vehicle base facilities. Property acquisition for right-of-way widening to accommodate passenger tracks may be required in some areas. Further evaluation of the exact location of property acquisitions for the entire alignment is required if it is further pursued.

9.5 SunRail to Polk County Option

The SunRail to Polk County Rail Option would use the CSX "A" Line right-of-way from Polk County to Poinciana, an existing and active railroad alignment. This Option is 37 miles in length.

9.5.1 Infrastructure (Track and Signals)

In previous discussions with CSX on other initiatives, CSX had indicated that they would not consider any track sharing option with passenger service in the segment of the A Line between Tampa and Auburndale. If this CSX position continues in the future, new infrastructure would be required for this option from Lakeland to Auburndale (11 miles.) As noted in Section 5.2, CSX has stated that they are not agreeable to allowing new passenger/commuter operations between Lakeland and Auburndale above the current Amtrak service at existing levels, as such additional movements would compromise a vital freight artery. From Auburndale to the connection to SunRail at Poinciana (26 miles), the existing infrastructure used by CSX and Amtrak could potentially be used, with upgrades as necessary. This alternative is assumed to be an extension of the proposed SunRail project from Poinciana. Further evaluation of the physical conditions, special trackwork needs and geometry of the right-of-way, and coordination with CSX and SunRail, to accommodate this option is required if it is further pursued.

9.5.2 Facilities

This option would utilize the existing railroad passenger station facility (building, platform and parking) used by Amtrak in Lakeland. This option would likely require some upgrades at the station for this service, such as platforms, ticketing, shelters, signage and lighting. Additional parking may also be necessary to accommodate riders. This option would require two to three

additional new intermediate stations and parking facilities along the alignment in eastern Polk County. Further evaluation of these station facilities, and coordination with CSX, Amtrak, SunRail and local communities, to accommodate this Option is required if it is further pursued.

A vehicle base facility to store, clean and perform light maintenance on vehicles would be necessary for this option on the western end of the study corridor. A facility for the heavy maintenance on the equipment may be required, or could potentially use the facility proposed for SunRail. Further evaluation of the locations and requirements of these vehicle facilities, and coordination with Amtrak, CSX, SunRail and the potentially affected communities, to accommodate this option is required if it is further pursued.

9.5.3 Vehicles

Vehicle technologies to be explored for this option would be the same commuter-style equipment to be used by SunRail. Further evaluation of the amount of equipment needed to accommodate this Option is required if it is further pursued.

9.5.4 Crossings

Grade crossings along the A Line would need to be upgraded to accommodate passenger rail service. Further evaluation of the location and nature of grade crossing improvements and evaluation of any necessary grade separation structures to accommodate this option is required if it is further pursued.

9.5.5 Structures

Improvements to, or expansions of, existing structures may be required, between Lakeland and Poinciana. Further evaluation of improvements to existing or construction of any potential new structures over the entire alignment is required if it is further pursued.

9.5.6 Property Acquisition

Minor property acquisition would be required for stations, parking and vehicle base facilities. Property acquisition for right-of-way widening to accommodate passenger tracks may be required in some areas. Further evaluation of the exact location of property acquisitions for the entire alignment is required if it is further pursued.

10. Conceptual Operations

In order to test the market potential for passenger rail services to, from and through Polk County, conceptual service plans were developed for the range of options under consideration in this study. These conceptual service plans were required to establish assumptions for each Option regarding probable frequencies and travel times in order to test the potential market demand in the study corridor. The conceptual service plans for each option can be found in Appendix A.

The annual cost to operate passenger rail service and maintain the equipment, facilities and infrastructure includes expenses for fuel, operating personnel, maintenance personnel and

materials. Table 13 presents the range typical costs for these passenger rail operations and maintenance expenses.

Table 13: Typical Passenger Rail Annual Operating and Maintenance Costs

Category	Range of Typical Cost
Train Operations – Staffing	$200 - $350 per train hour
Train Operations – Propulsion[8]	$5-$10 per train mile
Vehicle Maintenance	$1 - $2 per vehicle mile
Maintenance of Way	$75,000 - $100,000 per track mile
Yard Operations	$500,000 - $2M per yard
Station Operation and Maintenance	$150,000 - $250,000 per station

Source: Jacobs Engineering, from various national passenger rail studies.

The following sections describe for each of the options the conceptual service plans assumed in the study analysis.

10.1 CSX Corridor Regional Rail Option

This option assumes a service plan would be used that would serve the entire market between the three cities relatively evenly throughout the day. The market this option is crafted to capture would be the intercity, business and recreational travelers between the three cities. Service plans would also be prepared to capture the peak commuter market.

In order to test the market potential for this option, a service plan was developed based on peak period headways of 1 hour 30 minutes and off-peak headways of 2 hours 30 minutes. These headways would yield approximately eight round-trip trains per day (16 combined both directions.) The corridor travel time for this option from Tampa to Orlando was assumed to be approximately 1 hour 30 minutes on average.

10.2 I-4 Corridor Regional Rail Option (to Orlando Airport)

For comparative purposes, a service plan was developed for this Option that was similar to the CSX Regional Rail Option. This option assumes a service plan would be used that would serve the entire market between the three cities relatively evenly throughout the day. The market this option is crafted to capture would also be the intercity, business and recreational travelers between the three cities. Service plans were also prepared to capture the peak commuter market. In addition to the travel markets tested in the other options, this option was specifically crafted to test the demand to Orlando Airport via I-4.

In order to test the market potential for this option as compared to the CSX Corridor Regional Rail Option, a service plan was developed based on peak period headways of 1 hour 30 minutes and off-peak headways of 2 hours 30 minutes.[9] These headways would yield approximately eight

[8] *Variable, depending on fuel cost.*

[9] Service plans for the Regional Rail Options were held constant in this study in order to permit direct comparison of their relative market potential. Actual schedules that would be developed for any Regional Rail Option should one be advanced would be modified in order achieved a balance between the level of capital investment required and the appropriate service frequency.

round-trip trains per day (16 combined both directions.) The corridor travel time for this option from Tampa to Orlando Airport was assumed to be approximately 1 hour 16 minutes on average.

10.3 I-4 Corridor Regional Rail Option (to Orlando Central Business District via CSX)

Similar to the CSX Regional Rail Option and the I-4 Orlando Airport Option, this option assumes a service plan would be used that would serve the entire market between the three cities relatively evenly throughout the day. The market this option is crafted to capture would also be the intercity, business and recreational travelers between the three cities. Service plans were also prepared to capture the peak commuter market. In addition to the travel markets tested in the other options, this option was specifically crafted to test the demand in the I-4 Corridor to downtown Orlando, to permit comparison to the Airport as a terminus.

In order to test the market potential for this option, a service plan was developed based on peak period headways of 1 hour 30 minutes and off-peak headways of 2 hours 30 minutes.[10] These headways would yield approximately eight round-trip trains per day (16 combined both directions.) The corridor travel time for this option from Tampa to Orlando Airport was assumed to be approximately 1 hour 24 minutes on average.

10.4 Tampa to Polk County Rail Option

This option assumes a service plan would be used that would serve the market throughout the day between Polk County and Tampa, with increased service during peak periods for the commuter market to and from Tampa.

In order to test the market potential for this option, a service plan was developed based on peak period headways of 15 minutes and off-peak headways of 30 minutes. These headways would yield approximately 45 round-trip trains per day (90 combined both directions.) The corridor travel time for this option from Tampa to Lakeland was assumed to be approximately 41 minutes on average.

10.5 SunRail to Polk County Option

This option assumes a service plan would be used that would serve the market throughout the day between Polk County and Orlando, with increased service during peak periods for the commuter market to and from Orlando. This service plan would be an extension to Polk County of the planned SunRail services currently proposed to terminate in Poinciana.

[10] As noted above, service plans for the Regional Rail Options were held constant in this study in order to permit direct comparison of their relative market potential. Actual schedules that would be developed for any Regional Rail Option should one be advanced would be modified in order achieved a balance between the level of capital investment required and the appropriate service frequency.

In order to test the market potential for this option, a service plan was developed based on peak period headways of 15 minutes and off-peak headways of 30 minutes. These headways would yield approximately 36 round-trip trains per day (72 combined both directions.) The corridor travel time for this option from Orlando to Lakeland was assumed to be approximately 1 hour 17 minutes on average.

11. Environmental Considerations

The National Environmental Policy Act (NEPA) of 1969, as amended, requires that proposed federal projects and activities include environmental impact analyses and the preparation of documentation for public review. The sponsors of most major transportation projects of the nature being considered by the options included in this study ultimately seek federal funding for their construction through the U.S. Department of Transportations (USDOT), such as Federal Transit Administration (FTA) New Starts Program funds or Federal Railroad Administration (FRA) funds. NEPA document preparation is therefore required for most new passenger rail projects as they advance through the project development process.

There are three classes of action under NEPA:

- Categorical Exclusions (23 C.F.R 771.117): Categorical Exclusions (CEs) are granted for actions that do not individually or cumulatively involve significant social, economic or environmental impacts. These projects require little or no construction and involve minimal or no effects off-site. Examples of the types of typical projects that are categorically excluded are studies, utility installation, transfer of lands, installation of noise walls, bike paths, fences, traffic signals, signage, landscaping, ridesharing activities, vehicle rehabilitation and existing right of way maintenance. Once FTA has determined that a CE applies, it may act on the application for financial assistance.
- Environmental Assessments (23 C.F.R 771.119): FTA or FRA may require an applicant for financial assistance to prepare an Environmental Assessment (EA) when the significance of the environmental impact is not clearly established. An EA can result in either a Finding of No Significant Impact (23 C.F.R. 771.121) requiring no further environmental evaluation, or identification of potentially significant impacts requiring the applicant to conduct an Environmental Impact Statement.
- Environmental Impact Statements (23 C.F.R 771.123 et seq.): Depending on the nature of the proposed project, FTA or FRA may immediately require applicants to develop an Environmental Impact Statement (EIS), or request an EIS based on the outcome of an EA. Successful completion of an EIS results in FTA signing a Record of Decision (ROD). The USDOT environmental impact regulations requires an EIS for projects that have significant affects on the environment, such as new construction or extension of fixed rail transit facilities.

Any of the options described in this study would typically require either an EA or an EIS. The lead federal agency, often FTA or FRA, will make the ultimate determination for the project which type of NEPA documentation required, but in general, an EIS is prepared when there are known significant

impacts that will result from the project and an EA is prepared when the applicant and the FTA or FRA are relatively confident that the environmental analysis will not result in "significant" impacts that cannot be mitigated. The technical analysis areas are the same for an EA or an EIS.

The passenger rail options discussed in this study mostly use existing right-of-way in the form of either existing railroad infrastructure, such as the CSX right-of-way, or the Interstate 4 median. Use of existing right-of-way can decrease, though not eliminate, many potential environment issues. In some instances, new right-of-way may need to be acquired to link I-4 with Orlando Airport and/or the CSX right- of-way to Tampa and/or eastern Polk County. These of area new right-of-way areas have more potential for environmental impacts.

Environmental impacts cannot be determined until a detailed environmental analysis (EIS or EA) has been performed. Environmental areas that would be analyzed in an EIS or EA would include:

- Land Use, Zoning and Consistency with Local Plans
- Land Acquisitions and Displacements
- Community Facilities and Parks
- Historic Resources
- Archaeology
- Visual
- Transportation (Traffic, Pedestrians, Parking, Transit and Rail)
- Air Quality
- Noise and Vibration
- Energy
- Safety and Security
- Geology, Soil, and Topology
- Water Quality/Stormwater Management
- Wetlands/Streams
- Floodplains
- Endangered Species
- Hazardous Waste
- Environmental Justice
- Construction
- Cumulative Effects and Indirect Impacts

12. Market Assessment

A market assessment was prepared based on a conceptual service plan for each option. Service plan factors that affect ridership include the frequency of service (headways), running time, and number of stops. Infrequent service with many stops and a long running time attracts less riders than frequent service with fewer stops and a shorter running time.

Consistency with recent or ongoing studies was a priority. TBARTA is currently doing long-range planning efforts, and is examining the Lakeland-Tampa corridor. Work is being finalized for the Orlando Commuter Rail system connecting Volusia, Seminole, Orange and Osceola Counties. A high-profile study in 2002 examined the ridership potential for high-speed rail

between Tampa, Orlando and other Florida cities. To the extent possible, this effort applied the technical tools and/or assumptions used in those studies.

The market potential of each of the alternatives was assessed using a travel demand model. The assessment required the integration or "stitching" of several travel demand models:

- West Central Florida Regional Planning Model
- Central Florida Regional Planning Model
- Tampa – Orlando Intercity Passenger Rail Model

12.1 Methodology

This section describes the methodology used to develop ridership forecasts. Three readily-available travel models were employed for this study due to the different service areas being proposed. An intercity approach was applied for the three alternatives connecting Tampa and Orlando. The West Central Florida urban model was used for the Tampa-Lakeland scenario. A combined Polk County and Central Florida urban model was applied for the Orlando-Lakeland alternative.

12.1.1 Regional Rail/Intercity Options

The regional rail, or intercity, alternatives utilized an updated version of the model applied to the 2002 Florida High Speed Rail Study (HSR).[11] The model used in the 2002 HSR study was developed based on socio-economic, travel market, travel service characteristic, and travel behavior data collected in the Tampa-Orlando corridor during 2002. The data was based on surveys conducted in the corridor and data provided by the corridor's three MPOs.

For simplicity and efficiency purposes, the same stations used in the 2002 study were applied in the current analysis. Table 14 summarizes the stations by alternative:

Table 14: Projected 2010 Intercity Market Estimates

Station	CSX Alternative	I-4 Alternative	CSX/I-4 Alternative
Downtown Tampa	X	X	X
Lakeland-Kathleen		X	X
Lakeland-Amtrak	X		
Osceola Parkway		X	
Kissimmee	X		X
Orlando Airport		X	
Downtown Orlando	X		X

While most of the 2002 locations represent the exact stations in the current analysis, there are a couple minor variations. The main difference is that the existing Tampa Amtrak station is used in

[11] More detailed documentation of the model used in the intercity analysis, including data collection and model development; can be found in the AECOM Consulting/Wilbur Smith Associates *Investment Grade Ridership Study* (2002), prepared for the Florida High Speed Rail Authority.

all alternatives (instead of serving the Multimodal location in the I-4 and CSX/I-4 options). This simplification does not have a significant impact on the ridership forecasts.

Intercity rail fares are based on distance and actual FY2008 Amtrak non-NEC corridor route fares. Table 15 summarizes one-way fares for a selection of key markets.

Table 15: Projected 2010 Intercity Market Estimates

Market	One Way Fare
Tampa – Lakeland	$8.00
Tampa – Orlando Airport	$11.50
Tampa – Downtown Orlando	$12.50
Lakeland – Orlando Airport	$9.50
Lakeland – Downtown Orlando	$10.50

The intercity travel model considers travel by auto and rail in the corridor. All components of the trip are incorporated into the mode choice calculation, including access/egress time and cost, line haul time, fare, frequency, and time of day, and differences among trip purposes. The model assumes access/egress by walking or auto at the home-end portion of rail trips. Non home-end access options, including walking, transit, taxi, and shuttles, differ by trip purpose and are limited to certain distances from the stations.

Service plans for the Regional Rail Options were held constant in this study in order to permit direct comparison of their relative market potential. Actual schedules that would be developed for any Regional Rail Option should one advance would be modified in order achieved a balance between the level of capital investment required and the appropriate service frequency.

12.1.2 Tampa-Polk County Rail Option

Ridership for the Tampa-Polk County Option was prepared using a slightly modified West Central Florida Regional Planning Model (WCFRPM). The WCFRPM includes the Tampa/St. Petersburg urban areas, Polk County, all of FDOT District VII, Sarasota-Manatee MPO, Hardee MPO, Highlands County, Charlotte County and DeSoto County. It was selected for use on this project because it included the Tampa/St. Petersburg urban areas as well as Polk County and it is currently being used for long-rang planning efforts led by the Tampa Bay Area Regional Transportation Authority (TBARTA).

The WCFRPM model was modified in several ways to improve the model's performance during the TBARTA work. These changes are described in the technical memo "Travel Demand Modeling for WCFRPM" prepared for the TBARTA study.

12.1.3 SunRail- Polk County Rail Option

A combined Polk County and Central Florida Regional Planning Model (CFRPM) was used to prepare forecasts for the SunRail-Polk County Option. The CFRPM includes the Orlando urban area, Volusia County MPO, Brevard MPO, Lake/Sumter MPO, and the Marion TPC. The Polk County model is the approved MPO model used its Long-Range Transportation Plans. The CFRPM is the adopted model for the Volusia, Brevard and Lake/Sumter MPOs and the Marion TPC. It was decided to join the CFRPM and Polk Models because they included the geographic

areas served by the alternative, they both represented adopted models by most MPOs in the service area, and they were readily-available.

The process of combining Polk County model area to CFRPM model involved three broad tasks: extracting the Polk County model region and associated data from the WCFRPM model (n.b., the Polk County Model was incorporated into the WCFRPM), integrating the external-external (EE) and external-internal (EI) trips from both the model areas into one, and adding data and parameters from the Polk County to the final combined model (CFRPM+Polk model).

The new highway network was prepared by combining the CFRPM and Polk County networks and adding the speed/capacity relationships, turn penalties, and tolls from both the models to the new highway network. Several minor adjustments had to be made to the model to incorporate the increase of zones. The same tasks were involved in developing the future year alternative. Even though the Polk County base networks (highway and transit) were of the year 2006, they were stitched to the 2000 year CFRPM network since the original Polk County model did not undergo any major change between 2000 and 2006. The 2025 year CFRPM network was combined with the 2030 Polk County network since these were the closest available future year networks.

The Polk County transit network was taken directly from the WCFRPM. Once the model and networks were assembled, the Polk County mode choice results were calibrated to match closely with the corresponding data from the WCFRPM model. The reasonableness of the CFRPM+Polk base year model was checked by comparing its model results with the appropriate CFRPM or WCFRPM results. Trip generation, external trip, mode choice, highway assignment and transit assignment results were all reviewed.

12.2 Results

Table 16 summarizes the ridership resulting from this market assessment. Details on the market assessment can be found in the following section.

Table 16: Total 2030 Market Potential for Passenger Rail Alternatives

Milea	ge	Total Daily Riders - All Day, Both Directions, 2030
CSX Corridor Regional Rail Option	92	3,106
I-4 Corridor Regional Rail Option (to Orlando Airport)	86	3,086
I-4 Corridor Regional Rail Option (to CBDs via CSX) *	93	3,204
Tampa - Polk Rail Option	31	3,732
SunRail Extension to Polk Option	37	2,130

12.2.1 CSX Corridor Regional Rail Option

As a regional service between several cities, in this option there is no peak direction. Ridership is expected to remain more or less constant throughout the operating hours of the service. It is estimated that the CSX Corridor Regional Rail Option would be used by a total of 3,106 riders each day, traveling in both directions (to Orlando and to Tampa). Of this total ridership, approximately 1,466 would travel eastbound toward Orlando and 1,640 would travel westbound toward Tampa. An estimated 734 boardings would occur in Polk County. The remaining 2372

boardings would occur within Hillsborough County and Orange County. The following tables summarizes the estimated number of riders who would board the service at each stop (Table 17), and destination of these boardings in both the westbound (Table 18) and eastbound (Table 19) direction each day.

Table 17: Total Boardings

Station Riders	Boarding
Tampa Union Station	1,231
Lakeland	734
Kissimmee	456
Orlando Downtown	685

Source: AECOM, 2008

Table 18: Destinations for Boardings on Westbound (Tampa-Bound) Service

Boarding Location	Number	Percentage	Destination
Origins in Orange County	1,141	70%	Destinations in Orange County
Origins in Polk County	499	30%	Destinations in Polk County
Origins in Hillsborough County	0		Destinations in Hillsborough County

Source: AECOM, 2008

Table 19: Destinations for Boardings on Eastbound (Orlando-Bound) Service

Boarding Location	Number	Percentage	Destination
Origins in Orange County	0		Destinations in Orange County
Origins in Polk County	235	16%	Destinations in Polk County
Origins in Hillsborough County	1,231	84%	Destinations in Hillsborough County

Source: AECOM, 2008

12.2.2 I-4 Corridor Regional Rail Option (to Orlando Airport)

As with the CSX Corridor Regional Rail Option, the I-4 Airport Option would provide a regional service between several cities, and as a result, there is no peak direction. Ridership is expected to remain more or less constant throughout the operating hours of the service. It is estimated that the I-4 Airport Option would be used by a total of 3,086 riders each day, traveling in both directions (to Orlando and to Tampa).[12] Of this total ridership, approximately 1,524 would travel eastbound toward Orlando and 1,562 would travel westbound toward Tampa. An estimated 754 boardings would occur in Polk County. The remaining 2,332 boardings would occur within Hillsborough County and Orange County. The following tables summarizes the estimated number of riders

[12] As previously mentioned, service plans for the Regional Rail/Intercity Options were held constant in this study in order to permit direct comparison of their relative market potential. Actual schedules that would be developed for any Regional Rail Option should one be advanced would be modified in order achieve a balance between the level of capital investment required and the appropriate service frequency. Further analysis of the increased market potential that would accompany increased frequency, examined in conjunction with the Option's required capital investment, should be examined in detail if it is further pursued.

who would board the service at each stop (Table 20), and destination of these boardings in both the westbound (Table 21) and eastbound (Table 22) direction each day.

Table 20: Total Boardings

Station Riders	Boarding
Tampa	1,280
Lakeland	754
County Line	656
Orlando Airport	396

Source: AECOM, 2008

Table 21: Destinations for Boardings on Westbound (Tampa-Bound) Service

Boarding Location	Number	Percentage	Destination
Origins in Orange County	1,052	67%	Destinations in Orange County
Origins in Polk County	510	33%	Destinations in Polk County
Origins in Hillsborough County	0		Destinations in Hillsborough County

Source: AECOM, 2008

Table 22: Destinations for Boardings on Eastbound (Orlando-Bound) Service

Boarding Location	Number	Percentage	Destination
Origins in Orange County	0		Destinations in Orange County
Origins in Polk County	244	16%	Destinations in Polk County
Origins in Hillsborough County	1,280	84%	Destinations in Hillsborough County

Source: AECOM, 2008

12.2.3 I-4 Corridor Regional Rail Option (to Orlando Central Business District (CBD) via CSX)

As with the previous two options, the I-4 CBD Option is a regional service between several cities, and as such, there is no peak direction. Ridership is expected to remain more or less constant throughout the operating hours of the service. It is estimated that the I-4 CBD Option would be used by a total of 3,204 riders each day, traveling in both directions (to Orlando and to Tampa).[13] Of this total ridership, approximately 1,527 would travel eastbound toward Orlando and 1,677 would travel westbound toward Tampa. An estimated 725 boardings would occur in Polk County. The remaining 2,479 boardings would occur within Hillsborough County and Orange County. The following tables summarizes the estimated number of riders who would board the service at each stop (Table 23), and destination of these boardings in both the westbound (Table 24) and eastbound (Table 25) direction each day.

[13] Further analysis of the increased market potential that would accompany increased frequency, examined in conjunction with the Option's required capital investment, should be examined in detail if it is further pursued.

Table 23: Total Boardings

Station Riders	Boarding
Tampa	1,293
Lakeland	725
Kissimmee	476
Orlando Downtown	710

Source: AECOM, 2008

Table 24: Destinations for Boardings on Westbound (Tampa-Bound) Service

Boarding Location	Number	Percentage	Destination
Origins in Orange County	1,186	71%	Destinations in Orange County
Origins in Polk County	491	29%	Destinations in Polk County
Origins in Hillsborough County	0		Destinations in Hillsborough County

Source: AECOM, 2008

Table 25: Destinations for Boardings on Eastbound (Orlando-Bound) Service

Boarding Location	Number	Percentage	Destination
Origins in Orange County	0		Destinations in Orange County
Origins in Polk County	234	15%	Destinations in Polk County
Origins in Hillsborough County	1,293	85%	Destinations in Hillsborough County

Source: AECOM, 2008

12.2.4 Tampa to Polk County Rail Option

The Tampa-Polk Option assumed an operating plan with more frequent headways and greater ridership during the peak periods in the peak direction. Service between peaks would operate at a longer headway and would serve fewer riders. The peak direction for the Tampa-Polk Option would be westbound (toward Tampa) in the morning and eastbound (toward Lakeland) in the evening.

The Tampa-Polk Option would be used by a total of 3,732 riders each day, traveling both eastbound and westbound. An estimated 341 boardings would occur in Polk County. Peak service would be used by 1,866 riders. Of these peak riders, 88% percent, or 1,633 riders, would be traveling in the peak direction, westbound in the morning and eastbound in the evening. An additional 233 riders (12 percent) would use the service during the peak period, but these riders would travel against the peak (eastbound in the morning and westbound at night). The remaining 1,866 riders would use the service at off-peak hours.

Table 26 summarizes the total number of riders who would board the service at each stop, all day, including peak periods. Tables 25 and 26 summarize the destinations of these boardings in both the westbound (Table 27) and eastbound (Table 28) direction each day.

Table 26: Total Boardings

Station Riders	Boarding
Tampa Union Station	1,649
Mango/I-75	1,122
Plant City	620
County Line Road	95
Lakeland	246

Source: AECOM, 2008

Table 27: Westbound Boardings (Morning Peak and Midday)

Boarding Location	Number	Percentage	Destination	Number	Percentage
Origins in Polk County	161	10%	Destinations in Polk County	16	1%
Origins in Hillsborough County	1,472	90%	Destinations in Hillsborough County	1,617	99%

Source: AECOM, 2008

Table 28: Eastbound Boardings (Morning Peak and Midday)

Boarding Location	Number	Percentage	Destination	Number	Percentage
Origins in Hillsborough County	222	95%	Destinations in Hillsborough County	80	34%
Origins in Polk County	11	5%	Destinations in Polk County	153	66%

Source: AECOM, 2008

12.2.5 SunRail Extension to Polk County Option

Like the Tampa-Polk Option, the SunRail-Polk Option assumed an operating plan with more frequent headways and greater ridership during the peak periods in the peak direction. Service between peaks would operate at a longer headway and would serve fewer riders. The peak direction for the SunRail-Polk Option would be eastbound (toward Orlando) in the morning and westbound (toward Lakeland) in the evening.

The SunRail-Polk Option would be used by a total of 2,130 riders each day, traveling both eastbound and westbound. An estimated 1,445 boardings would occur in Polk County. Peak service would be used by 1,065 riders. Of these peak riders, 61% percent, or 647 riders, would be traveling in the peak direction, eastbound in the morning and westbound in the evening. An additional 418 riders (39%) would use the service during the peak period, but these riders would travel against the peak (westbound in the morning and eastbound at night). The remaining 1,065 riders would use the service at off-peak hours.

Table 29 summarizes the total number of riders who would board the service at each stop, all day, including peak periods. Tables 30 and 31 summarize the destinations of these boardings in both the westbound (Table 30) and eastbound (Table 31) direction each day.

Table 29: Total Boardings

Station Riders	Boarding
SunRail	684
Haines City	673
Auburndale	500
Lakeland Downtown	273

Source: AECOM, 2008

Table 30: Westbound Boardings (Morning Peak and Midday)

Boarding Location	Number	Percentage	Destination	Number	Percentage
Origins in Orange County, etc.	84	20%	Destinations in Orange County, etc.	N/A	
Origins in Polk County	334	80%	Destinations in Polk County	418	100%

Source: AECOM, 2008

Table 31: Eastbound Boardings (Morning Peak and Midday)

Boarding Location	Number	Percentage	Destination	Number	Percentage
Origins in Orange County, etc.	N/A		Destinations in Orange County, etc.	601	93%
Origins in Polk County	647	100%	Destinations in Polk County	46	7%

Source: AECOM, 2008

13. Opportunities and Challenges

The following section discusses some of the challenges for each of the corridors under study. A summary of the opportunities and challenges of each Option is presented in Table 32.

Table 32: Opportunities and Challenges of Study Options

	Alternative 1: CSX Corridor Regional Rail	**Alternative 2: I-4 Corridor Regional Rail (to Orlando Airport)**	**Alternative 3: I-4 Corridor Regional Rail (to Orlando CBD via CSX)**	**Alternative 4: Tampa to Polk County Rail**	**Alternative 5: SunRail to Polk County**
Opportunities					
Existing rail right-of-way with Amtrak service	√		√	√	√
Existing rail stations	√		√	√	√
Serves established town centers	√			√	√
Median of I-4 has been reserved for high-capacity transport		√	√		
Park and ride potential		√	√		
Existing rail right-of-way to Tampa downtown		√	√		
Potential future availability of rail right-of-way capacity from Auburndale to Poinciana	√		√		√
Builds off investment in SunRail systems, expanding regional benefits					√
Challenges					
Integration with CSX and Amtrak	√	√	√	√	√
Integration with SunRail	√		√		√
Sections along I-4 would be isolated from established communities		√	√		
Expense to connect I-4 median into downtown Tampa, Orlando and/or Orlando Airport		√	√		

13.1 Freight Corridor Options

All of the proposed options under consideration could involve operating passenger service on freight rail tracks, either in their entirety or in some portion of their proposed alignment. The advantage of the options using the CSX A Line rail right-of-way is that it provides connectivity directly into the central business districts of Orlando, Lakeland and Tampa. These are several unique requirements, however, in a shared rail right-of-way as compared to a dedicated highway right-of-way. These issues are a greater consideration in options with a lengthy segment of shared right-of- way with freight, such as the CSX Regional Rail Option (92 miles), I-4 Orlando CBD Option (53 miles), Tampa-Polk Option (31 Miles) and the SunRail Polk Option (37 miles) and a lesser consideration in the I-4 Airport Option which may not use freight right-of-way at all or only use it for approximately 3 miles to reach downtown Tampa. Some of the unique requirements of a shared environment include coordination with the freight operators, physical improvements for mixed traffic operations, limitations on types of rail vehicles available for passenger use and grade crossing considerations.

13.1.1 Coordination

The operation of freight and passenger service within the same right-of-way requires significant coordination between the freight and passenger service providers. Where right-of-way is shared, operating agreements are negotiated between the freight and passenger operators. These operating agreements ultimately balance the desire for passenger service with requirements of the freight service operator to maintain their business and serve their customers. Daily service issues, such as dispatching, emergency management and schedule coordination, are also spelled out in operating agreements that become standard operating procedures.

In addition to CSX, the options would all require coordination with Amtrak regarding the portion of right-of-way shared with them and where shared stations are proposed. The CSX Regional Rail Option, I-4 Orlando CBD Option and the SunRail Polk Option would also require coordination with SunRail for the portion of the right-of-way that would be shared with that service between Poinciana and Orlando. The SunRail Polk Option would require extensive coordination, and integration, with SunRail as it is proposed as an extension of that project. The Tampa-Polk Option will require coordination with future improvements proposed by TBARTA, which are yet to be determined. All options should also be coordinated with the local transit operators for coordinating bus access to and from proposed stations.

13.1.2 Physical Improvements for Mixed Traffic Operations

Mixed traffic operations can take two general forms: separate infrastructure and shared infrastructure. Some projects consist of a blend of the two over different segments of the project. Physical improvements are typically necessary for both types, but differ in the extent of the investment.

In a separate infrastructure arrangement, entirely new infrastructure (tracks, signals, structures) is constructed for the passenger service within the same right-of-way. Figure 16 depicts a typical section of right-of-way used by freight and passenger rail on separate tracks. The freight service

operates on its own independent track. Often this arrangement still requires some interface points between the freight and passenger service, in order to reach freight customers or to cross to reach other types of adjoining rail routes or facilities.

In a shared infrastructure arrangement, the existing freight tracks are used and typically need to be upgraded for passenger service. Train speed is limited by the class of tracks over which the train rides. Track class is a representation of track quality - better quality track enables higher speeds. Freight trains, which operate at a lower speed as a result of the weight of the train and the power required to move them, can operate on lower quality track than passenger trains, which are lighter, shorter, capable of higher speed and must provide for passenger comfort. Sharing infrastructure also requires balancing the volume of freight traffic with the volume of passenger traffic. This will be a significant consideration in areas in which existing and future freight traffic volumes have been the subject of considerable public discussion.

Schedule coordination is particularly important in a shared track arrangement. Freight operator delays can impact passenger schedules. Coordinated dispatch would be essential to the dependable operation of passenger service for these options.

13.1.3 Vehicles

Vehicle compatibility is a requirement in a mixed-traffic right-of-way. The Federal Railroad Administration (FRA) regulates the types of rail vehicles permitted on mixed-traffic tracks. Passenger rail vehicles must be able to hold up to an impact by a freight train in the unlikely event of a collision. Mixed traffic requires intercity rail vehicles, traditional commuter locomotives and coaches, or some diesel-multiple unit vehicles. Certain models of the diesel multiple units (DMU) meet the FRA's crashworthiness criteria and can operate in mixed traffic. Other vehicles, such as light rail trains, are made of lighter materials, which are not designed to withstand the impact of a heavy rail, commuter, or freight train. Light rail vehicles do not meet the FRA's crashworthiness test for use in mixed traffic and have not been a consideration for use in any of the options included in this study.

13.1.4 Grade Crossings

New passenger rail service will result in additional grade crossing closures for the period of time when the trains pass. This would be a consideration for the passenger rail service with or without the presence of freight operations in the corridor. It is important to note that passenger trains are shorter and would therefore clear a crossing in less time than would be required for a freight train. Further demand forecasting and service planning work would be required to determine the frequency of any proposed passenger rail service in order to understand the level of occurrence of closures during the hours of operation of the passenger service. Further engineering analysis would be required to determine where and what grade crossing improvements would be required for each Option.

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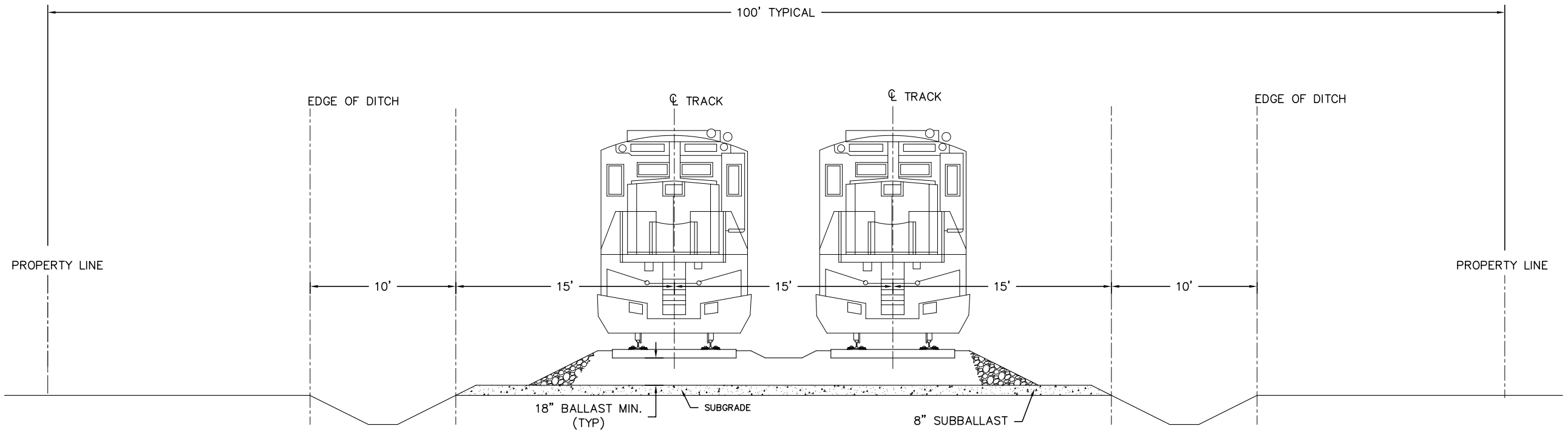

STANDARD SECTION FOR DOUBLE TRACK
RIGHT-OF-WAY ON TANGENT

NOTE:

1. CROSS-SECTION IS BASED ON CSX STANDARD PLANS 2601 AND 2602.

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13.2 I-4 Corridor Options

The I-4 Airport Option and the I-4 Orlando CBD Option propose operating passenger service within the I-4 right-of-way. These are several unique considerations with regard to these options.

13.2.1 Development Patterns & User Access

The traditional development of Polk County was oriented along the railroad. Interstate 4 was a later addition, and runs north of the downtown areas and the densely settled residential neighborhoods of Polk County. As a result, I-4 Option would not be operating in the area of Polk County in which the people reside or work. Access to the alignment will therefore be a consideration. The majority of patrons would need to drive to regional park-and-ride facility along I-4, with little to no opportunity for pedestrian access.

13.2.2 Alignment Termini

While the I-4 median could be used to traverse the majority of the length of the study corridor, reaching a desirable, centralized terminus on either end of the alignment in Tampa or Orlando is a challenge in both I-4 Options. On the Tampa end, it was assumed that the alignment would leave I-4 onto an existing CSX rail right-of-way for the final three miles to reach downtown Tampa. On the Orlando end, two options were tested, one leaving I-4 onto the existing CSX rail right-of-way to reach downtown Orlando, and one leaving I-4 onto a new right-of-way to reach Orlando International Airport. All of these termini options will have significant capital cost and environmental issues to consider should they be pursued further.

13.2.3 Maximizing Capital Investment

Utilizing the envelope within I-4 that is reserved for passenger rail would require a significant investment in order to establish the infrastructure necessary for passenger rail operations. The cost of this investment should provide the maximum possible public benefit. Therefore, future passenger rail planning in the I-4 corridor should seek to maximize the ridership potential for the level of investment required. This may involve examination of increased service frequencies, technologies and engineering designs to reduce travel times and modifications to other operational variables.

14. Summary

14.1 Summary of Options

The following table summarizes the characteristics of each Option studied in this report (Table 33.)

Table 33: Summary of Passenger Rail Options

	Alternative 1: CSX Corridor Regional Rail	Alternative 2: I-4 Corridor Regional Rail (to Orlando Airport)	Alternative 3: I-4 Corridor Regional Rail (to Orlando CBD via CSX)	Alternative 4: Tampa to Polk County Rail	Alternative 5: SunRail to Polk County
Physical Features					
Number of Miles from Lakeland to Tampa	31	32	32	31	N/A
Number of Miles from Lakeland to Orlando	61	54 (to airport)	61	N/A	61
Number of Miles from Tampa to Orlando	92	86 (to airport)	93	N/A	N/A
Uses CSX Corridor	√		√	√	√
Uses I-4 Corridor		√	√		
Uses New ROW		√	√		
Market					
Serves Polk County to/from Tampa Market	√	√	√	√	
Serves Polk County to/from Orlando Market	√	√	√		√
Serves Tampa to/from Orlando Market	√	√	√		
Estimated Market Potential – Total (all day, both directions)	3,106	3,086	3,204	3,732	2,130
Estimated Market Potential – Polk County (all day, both directions)	734	754	725	341	1,445
Estimated Market Potential – Polk County to Tampa Market	499	510	491	341	N/A
Estimated Market Potential – Polk County to Orlando Market	235	244	234	N/A	1,445

Table 33: Summary of Passenger Rail Options (continued)

Operations[14]					
Travel Time Lakeland – Tampa	0:29	0:26	0:26	0:41	N/A
Travel Time Lakeland – Orlando	1:01	0:50 (airport)	0:58	N/A	1:17
Travel Time Tampa - Orlando	1:30	1:16 (airport)	1:24	N/A	N/A
Peak Headways	1:30	1:30	1:30	0:15	0:15
Off-Peak Headways	2:30	2:30	2:30	0:30	0:30
Round Trips Per Day	8	8	8	45	36
Capital Improvements					
Miles of New Track & Signals	42	86	43	31	37
Miles of Improved Track & Signals	50	0	50	0	
Number of Stations	4	4	4	5	3
Number of Maintenance Facilities	1	1	1	1	1
Number of Layover Facilities	2	2	2	1	1
New Rail Equipment	√	√	√	√	√
Special Trackwork	√	√	√	√	√
Grade Crossing Improvements	√		√	√	√
Grade Separation Structures		√	√		
Property Acquisition		√	√		
Environmental Mitigation	√	√	√	√	√
Soft Costs	√	√	√	√	√
Contingency	√	√	√	√	√
Stakeholder Considerations					
CSX Operations	√	√	√	√	√
Amtrak Operations	√		√	√	√
SunRail	√		√		√
TBARTA	√			√	

[14] Travel time and headways are indicated as "hours:minutes."

14.2 Next Steps

The conceptual review of the passenger rail options contained in this study indicates that there may be a market in this study corridor for new or increased passenger rail service. The findings of this study indicate that the options under consideration in this corridor would be similar to projects in operation or being considered in other parts of the country (Table 34.)

Table 34: Comparable Corridors

Milea	ge	Total Daily Riders (both directions) 2030
Comparable Regional Rail Corridors		
Amtrak Hiawatha (Chicago-Milwaukee)	86	2,876
Amtrak Capitols (Sacramento-Oakland)	90	4,461
Amtrak Piedmont & Carolinian (Raleigh-Charlotte)	173	518
Amtrak Keystone (Philadelphia-Harrisburg)	104	3,264
Comparable Commuter Rail Corridors		
SunRail (Orlando, proposed)	61	14,500
Kendall Corridor Commuter Rail (Miami, proposed in AA study)	9	3,800
Lackawanna Passenger Rail (Scranton–New York, proposed in EA study)	133	7,040
Quakertown Passenger Rail (Philadelphia, proposed in AA study)	20	4,011
NJ TRANSIT Atlantic City Line (Philadelphia-AC, 2008 ridership)	60	3,500
Study Passenger Rail Options		
CSX Corridor Regional Rail Option	92	3,106
I-4 Corridor Regional Rail Option (to Orlando Airport)	86	3,086
I-4 Corridor Regional Rail Option (to CBDs via CSX) *	93	3,204
Tampa - Polk Rail Option	31	3,732
SunRail Extension to Polk Option	37	2,130

Each of these services in Table 34 are unique and cannot be directly compared to the Orlando/Polk County/ Tampa corridor, as this corridor is comprised of a unique combination of market segments not found in other places, including a high percentage of recreation and visitor travel. While the figures in Table 34 are relevant for context, it is important to note that the FTA judges the merits of potential passenger rail projects on a variety of factors, such travel time savings and local financial commitment, therefore this is merely one indicator of the relative strength of the Polk County market.

Should decision-makers determine that these options warrant further consideration, the recommended next step would be for the region to perform an Alternatives Analysis in accordance with FTA rules and requirements.

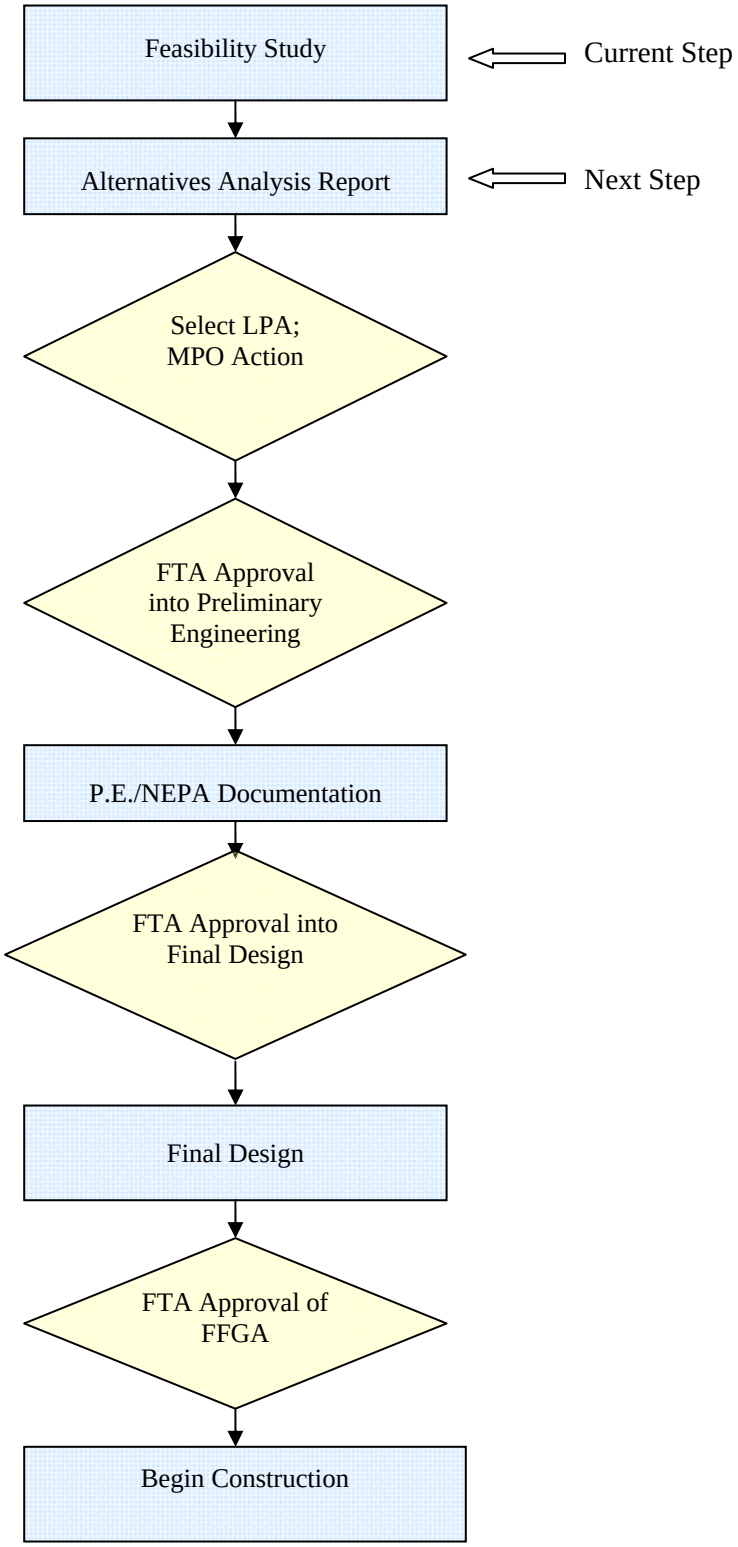
In the established USDOT Federal project development process for new passenger transportation projects, this study is considered a feasibility study. Feasibility studies are performed by interested parties in a study area to determine the nature of available options, possible corridors and generalized option characteristics. If a feasibility study yields favorable or encouraging results, local parties would next pursue an Alternatives Analysis (AA) with the FTA to evaluate in detail the technical components of a full range of modal options in a given study area. Projects

that advance beyond the AA phase then go through increasingly detailed engineering and environmental analyses until they are constructed and put into operation (Figure 17.)

An Alternatives Analysis Report would include written and graphic information describing a range of alternatives studied, and will typically indicate a selected preferred alternative. A sample list of the contents of an AA Report is:

- Introduction
- Study Purpose and Need, Goals and Objectives
- Public Involvement
- Study Alternatives
- Physical Characteristics
- Operating Plans
- Capital Costs
- Operating and Maintenance Costs
- Ridership
- Benefit Analysis
- Financial and Funding Analysis
- Environmental Screening
- Alternative Evaluation
- Implementation Plan
- Recommendations and Next Steps

Figure 17: FTA Project Development Process



Appendix:

Option Service Plans

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FDOT District One Rail Traffic Evaluation Study

Conceptual Schedules for Test of Market Potential

CSX Corridor Regional Rail Option

Peak Headways (hours: minutes) *1:30*

Off-Peak Midday (hours: minutes) *2:30*

Maximum Speed *79 mph*

Travel Time Between Stations (hours: minutes)

Westbound to Tampa		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Orlando CBD		6:30 AM	8:00 AM	10:30 AM	1:00 PM	3:30 PM	6:00 PM	7:30 PM	9:00 PM
Kissimmee	*0:21*	6:51 AM	8:21 AM	10:51 AM	1:21 PM	3:51 PM	6:21 PM	7:51 PM	9:21 PM
Lakeland	*0:40*	7:31 AM	9:01 AM	11:31 AM	2:01 PM	4:31 PM	7:01 PM	8:31 PM	10:01 PM
Tampa Union	*0:29*	8:00 AM	9:30 AM	12:00 PM	2:30 PM	5:00 PM	7:30 PM	9:00 PM	10:30 PM
	1:30								

Eastbound from Tampa		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Tampa Union		6:30 AM	8:00 AM	10:30 AM	1:00 PM	3:30 PM	6:00 PM	7:30 PM	9:00 PM
Lakeland	*0:29*	6:59 AM	8:29 AM	10:59 AM	1:29 PM	3:59 PM	6:29 PM	7:59 PM	9:29 PM
Kissimmee	*0:40*	7:39 AM	9:09 AM	11:39 AM	2:09 PM	4:39 PM	7:09 PM	8:39 PM	10:09 PM
Orlando CBD	*0:21*	8:00 AM	9:30 AM	12:00 PM	2:30 PM	5:00 PM	7:30 PM	9:00 PM	10:30 PM
	1:30								

FDOT District One Rail Traffic Evaluation Study

Conceptual Schedules for Test of Market Potential

I-4 Corridor Regional Rail Option (to Orlando Airport)

Peak Headways (hours: minutes)	*1:30*
Off-Peak Midday (hours: minutes)	*2:30*
Maximum Speed	*110 mph*

Travel Time Between Stations (hours: minutes)

Westbound to Tampa		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Orlando Airport		6:30 AM	8:00 AM	10:30 AM	1:00 PM	3:30 PM	6:00 PM	7:30 PM	9:00 PM
County Line	*0:17*	6:47 AM	8:17 AM	10:47 AM	1:17 PM	3:47 PM	6:17 PM	7:47 PM	9:17 PM
Lakeland Kathleen	*0:33*	7:20 AM	8:50 AM	11:20 AM	1:50 PM	4:20 PM	6:50 PM	8:20 PM	9:50 PM
Tampa	*0:26*	7:46 AM	9:16 AM	11:46 AM	2:16 PM	4:46 PM	7:16 PM	8:46 PM	10:16 PM
	1:16								

Eastbound from Tampa		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Tampa		6:30 AM	8:00 AM	10:30 AM	1:00 PM	3:30 PM	6:00 PM	7:30 PM	9:00 PM
Lakeland Kathleen	*0:26*	6:56 AM	8:26 AM	10:56 AM	1:26 PM	3:56 PM	6:26 PM	7:56 PM	9:26 PM
County Line	*0:33*	7:29 AM	8:59 AM	11:29 AM	1:59 PM	4:29 PM	6:59 PM	8:29 PM	9:59 PM
Orlando Airport	*0:17*	7:46 AM	9:16 AM	11:46 AM	2:16 PM	4:46 PM	7:16 PM	8:46 PM	10:16 PM
	1:16								

FDOT District One Rail Traffic Evaluation Study

Conceptual Schedules for Test of Market Potential

I-4 Corridor Regional Rail Option (to Orlando CBD via CSX) *

Peak Headways (hours: minutes)	*1:30*
Off-Peak Midday (hours: minutes)	*2:30*
Maximum Speed	*110 mph*

Travel Time Between Stations (hours: minutes)

Westbound to Tampa		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Orlando CBD		6:30 AM	8:00 AM	10:30 AM	1:00 PM	3:30 PM	6:00 PM	7:30 PM	9:00 PM
Kissimmee	*0:21*	6:51 AM	8:21 AM	10:51 AM	1:21 PM	3:51 PM	6:21 PM	7:51 PM	9:21 PM
Lakeland Kathleen	*0:37*	7:28 AM	8:58 AM	11:28 AM	1:58 PM	4:28 PM	6:58 PM	8:28 PM	9:58 PM
Tampa	*0:26*	7:54 AM	9:24 AM	11:54 AM	2:24 PM	4:54 PM	7:24 PM	8:54 PM	10:24 PM
	1:24								

Eastbound from Tampa		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Tampa		6:30 AM	8:00 AM	10:30 AM	1:00 PM	3:30 PM	6:00 PM	7:30 PM	9:00 PM
Lakeland Kathleen	*0:26*	6:56 AM	8:26 AM	10:56 AM	1:26 PM	3:56 PM	6:26 PM	7:56 PM	9:26 PM
Kissimmee	*0:37*	7:33 AM	9:03 AM	11:33 AM	2:03 PM	4:33 PM	7:03 PM	8:33 PM	10:03 PM
Orlando CBD	*0:21*	7:54 AM	9:24 AM	11:54 AM	2:24 PM	4:54 PM	7:24 PM	8:54 PM	10:24 PM
	1:24								

* Uses CSX A Line to CBD via a new connection from I-4 to the A Line in the vicinity of Auburndale and Tampa.

Conceptual Schedules for Test of Market Potential

Tampa to Polk County Rail Option

Peak Headways (hours: minutes)	0:15	*Shaded*
Off-Peak Midday (hours: minutes)	0:30	
Late Night (hours: minutes):	1:00	

NOTE: This schedule was developed based on the operating characteristics from TBARTA for the planning purposes of this project; is not the actual operating schedule being proposed by TBARTA.

Travel Time Between Stations (hours: minutes)

Eastbound from Tampa		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
Tampa Union Station		5:00 AM	5:30 AM	6:00 AM	6:30 AM	6:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	8:00 AM	8:15 AM	8:30 AM	8:45 AM	9:00 AM	9:30 AM	10:00 AM	10:30 AM	11:00 AM	11:30 AM	12:00 PM	12:30 PM	1:00 PM
Mango/I-75	*0:10*	5:10 AM	5:40 AM	6:10 AM	6:40 AM	6:55 AM	7:10 AM	7:25 AM	7:40 AM	7:55 AM	8:10 AM	8:25 AM	8:40 AM	8:55 AM	9:10 AM	9:40 AM	10:10 AM	10:40 AM	11:10 AM	11:40 AM	12:10 PM	12:40 PM	1:10 PM
Plant City	*0:16*	5:26 AM	5:56 AM	6:26 AM	6:56 AM	7:11 AM	7:26 AM	7:41 AM	7:56 AM	8:11 AM	8:26 AM	8:41 AM	8:56 AM	9:11 AM	9:26 AM	9:56 AM	10:26 AM	10:56 AM	11:26 AM	11:56 AM	12:26 PM	12:56 PM	1:26 PM
County Line Road	*0:06*	5:32 AM	6:02 AM	6:32 AM	7:02 AM	7:17 AM	7:32 AM	7:47 AM	8:02 AM	8:17 AM	8:32 AM	8:47 AM	9:02 AM	9:17 AM	9:32 AM	10:02 AM	10:32 AM	11:02 AM	11:32 AM	12:02 PM	12:32 PM	1:02 PM	1:32 PM
Lakeland Downtown	*0:09*	5:41 AM	6:11 AM	6:41 AM	7:11 AM	7:26 AM	7:41 AM	7:56 AM	8:11 AM	8:26 AM	8:41 AM	8:56 AM	9:11 AM	9:26 AM	9:41 AM	10:11 AM	10:41 AM	11:11 AM	11:41 AM	12:11 PM	12:41 PM	1:11 PM	1:41 PM
	0:41																						

Eastbound from Tampa (continued)		**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
Tampa Union Station		1:30 PM	2:00 PM	2:30 PM	3:00 PM	3:30 PM	3:45 PM	4:00 PM	4:15 PM	4:30 PM	4:45 PM	5:00 PM	5:15 PM	5:30 PM	5:45 PM	6:00 PM	6:30 PM	7:00 PM	7:30 PM	8:00 PM	8:30 PM	9:00 PM	10:00 PM	11:00 PM
Mango/I-75	*0:10*	1:40 PM	2:10 PM	2:40 PM	3:10 PM	3:40 PM	3:55 PM	4:10 PM	4:25 PM	4:40 PM	4:55 PM	5:10 PM	5:25 PM	5:40 PM	5:55 PM	6:10 PM	6:40 PM	7:10 PM	7:40 PM	8:10 PM	8:40 PM	9:10 PM	10:10 PM	11:10 PM
Plant City	*0:16*	1:56 PM	2:26 PM	2:56 PM	3:26 PM	3:56 PM	4:11 PM	4:26 PM	4:41 PM	4:56 PM	5:11 PM	5:26 PM	5:41 PM	5:56 PM	6:11 PM	6:26 PM	6:56 PM	7:26 PM	7:56 PM	8:26 PM	8:56 PM	9:26 PM	10:26 PM	11:26 PM
County Line Road	*0:06*	2:02 PM	2:32 PM	3:02 PM	3:32 PM	4:02 PM	4:17 PM	4:32 PM	4:47 PM	5:02 PM	5:17 PM	5:32 PM	5:47 PM	6:02 PM	6:17 PM	6:32 PM	7:02 PM	7:32 PM	8:02 PM	8:32 PM	9:02 PM	9:32 PM	10:32 PM	11:32 PM
Lakeland Downtown	*0:09*	2:11 PM	2:41 PM	3:11 PM	3:41 PM	4:11 PM	4:26 PM	4:41 PM	4:56 PM	5:11 PM	5:26 PM	5:41 PM	5:56 PM	6:11 PM	6:26 PM	6:41 PM	7:11 PM	7:41 PM	8:11 PM	8:41 PM	9:11 PM	9:41 PM	10:41 PM	11:41 PM
	0:41																							

Westbound to Tampa		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
Lakeland Downtown		5:00 AM	5:30 AM	6:00 AM	6:30 AM	6:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	8:00 AM	8:15 AM	8:30 AM	8:45 AM	9:00 AM	9:30 AM	10:00 AM	10:30 AM	11:00 AM	11:30 AM	12:00 PM	12:30 PM	1:00 PM
County Line Road	*0:09*	5:09 AM	5:39 AM	6:09 AM	6:39 AM	6:54 AM	7:09 AM	7:24 AM	7:39 AM	7:54 AM	8:09 AM	8:24 AM	8:39 AM	8:54 AM	9:09 AM	9:39 AM	10:09 AM	10:39 AM	11:09 AM	11:39 AM	12:09 PM	12:39 PM	1:09 PM
Plant City	*0:06*	5:15 AM	5:45 AM	6:15 AM	6:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	8:00 AM	8:15 AM	8:30 AM	8:45 AM	9:00 AM	9:15 AM	9:45 AM	10:15 AM	10:45 AM	11:15 AM	11:45 AM	12:15 PM	12:45 PM	1:15 PM
Mango/I-75	*0:16*	5:31 AM	6:01 AM	6:31 AM	7:01 AM	7:16 AM	7:31 AM	7:46 AM	8:01 AM	8:16 AM	8:31 AM	8:46 AM	9:01 AM	9:16 AM	9:31 AM	10:01 AM	10:31 AM	11:01 AM	11:31 AM	12:01 PM	12:31 PM	1:01 PM	1:31 PM
Tampa Union Station	*0:10*	5:41 AM	6:11 AM	6:41 AM	7:11 AM	7:26 AM	7:41 AM	7:56 AM	8:11 AM	8:26 AM	8:41 AM	8:56 AM	9:11 AM	9:26 AM	9:41 AM	10:11 AM	10:41 AM	11:11 AM	11:41 AM	12:11 PM	12:41 PM	1:11 PM	1:41 PM
	0:41																						

Westbound to Tampa (continued)		**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
Lakeland Downtown		1:30 PM	2:00 PM	2:30 PM	3:00 PM	3:30 PM	3:45 PM	4:00 PM	4:15 PM	4:30 PM	4:45 PM	5:00 PM	5:15 PM	5:30 PM	5:45 PM	6:00 PM	6:30 PM	7:00 PM	7:30 PM	8:00 PM	8:30 PM	9:00 PM	10:00 PM	11:00 PM
County Line Road	*0:09*	1:39 PM	2:09 PM	2:39 PM	3:09 PM	3:39 PM	3:54 PM	4:09 PM	4:24 PM	4:39 PM	4:54 PM	5:09 PM	5:24 PM	5:39 PM	5:54 PM	6:09 PM	6:39 PM	7:09 PM	7:39 PM	8:09 PM	8:39 PM	9:09 PM	10:09 PM	11:09 PM
Plant City	*0:06*	1:45 PM	2:15 PM	2:45 PM	3:15 PM	3:45 PM	4:00 PM	4:15 PM	4:30 PM	4:45 PM	5:00 PM	5:15 PM	5:30 PM	5:45 PM	6:00 PM	6:15 PM	6:45 PM	7:15 PM	7:45 PM	8:15 PM	8:45 PM	9:15 PM	10:15 PM	11:15 PM
Mango/I-75	*0:16*	2:01 PM	2:31 PM	3:01 PM	3:31 PM	4:01 PM	4:16 PM	4:31 PM	4:46 PM	5:01 PM	5:16 PM	5:31 PM	5:46 PM	6:01 PM	6:16 PM	6:31 PM	7:01 PM	7:31 PM	8:01 PM	8:31 PM	9:01 PM	9:31 PM	10:31 PM	11:31 PM
Tampa Union Station	*0:10*	2:11 PM	2:41 PM	3:11 PM	3:41 PM	4:11 PM	4:26 PM	4:41 PM	4:56 PM	5:11 PM	5:26 PM	5:41 PM	5:56 PM	6:11 PM	6:26 PM	6:41 PM	7:11 PM	7:41 PM	8:11 PM	8:41 PM	9:11 PM	9:41 PM	10:41 PM	11:41 PM
	0:41																							

FDOT District One Rail Traffic Evaluation Study

Conceptual Schedules for Test of Market Potential

SunRail Extension to Polk County Option

Peak Headways (hours: minutes)	0:15	*Shaded*
Off-Peak Midday (hours: minutes)	0:30	
Late Night (hours: minutes):	1:00	

NOTE: This is an excerpt from the entire system schedule of only the portion related to the current project study area.

Travel Time Between Stations (hours: minutes)

Westbound to Lakeland		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Continues north to other CFRail stops to Fort Florida																			
ORMC/Amtrak	*0:03*	6:20 AM	6:50 AM	7:05 AM	7:20 AM	7:35 AM	7:50 AM	8:05 AM	8:20 AM	8:35 AM	8:50 AM	9:20 AM	9:50 AM	10:20 AM	10:50 AM	11:20 AM	11:50 AM	12:20 PM	12:50 PM
Sand Lake SR 408	*0:08*	6:28 AM	6:58 AM	7:13 AM	7:28 AM	7:43 AM	7:58 AM	8:13 AM	8:28 AM	8:43 AM	8:58 AM	9:28 AM	9:58 AM	10:28 AM	10:58 AM	11:28 AM	11:58 AM	12:28 PM	12:58 PM
Meadow Woods	*0:06*	6:34 AM	7:04 AM	7:19 AM	7:34 AM	7:49 AM	8:04 AM	8:19 AM	8:34 AM	8:49 AM	9:04 AM	9:34 AM	10:04 AM	10:34 AM	11:04 AM	11:34 AM	12:04 PM	12:34 PM	1:04 PM
Osceola Parkway	*0:05*	6:39 AM	7:09 AM	7:24 AM	7:39 AM	7:54 AM	8:09 AM	8:24 AM	8:39 AM	8:54 AM	9:09 AM	9:39 AM	10:09 AM	10:39 AM	11:09 AM	11:39 AM	12:09 PM	12:39 PM	1:09 PM
Kissimmee Amtrak	*0:06*	6:45 AM	7:15 AM	7:30 AM	7:45 AM	8:00 AM	8:15 AM	8:30 AM	8:45 AM	9:00 AM	9:15 AM	9:45 AM	10:15 AM	10:45 AM	11:15 AM	11:45 AM	12:15 PM	12:45 PM	1:15 PM
Poinciana Blvd.	*0:06*	6:51 AM	7:21 AM	7:36 AM	7:51 AM	8:06 AM	8:21 AM	8:36 AM	8:51 AM	9:06 AM	9:21 AM	9:51 AM	10:21 AM	10:51 AM	11:21 AM	11:51 AM	12:21 PM	12:51 PM	1:21 PM
Haines City	*0:18*	7:09 AM	7:39 AM	7:54 AM	8:09 AM	8:24 AM	8:39 AM	8:54 AM	9:09 AM	9:24 AM	9:39 AM	10:09 AM	10:39 AM	11:09 AM	11:39 AM	12:09 PM	12:39 PM	1:09 PM	1:39 PM
Auburndale	*0:13*	7:22 AM	7:52 AM	8:07 AM	8:22 AM	8:37 AM	8:52 AM	9:07 AM	9:22 AM	9:37 AM	9:52 AM	10:22 AM	10:52 AM	11:22 AM	11:52 AM	12:22 PM	12:52 PM	1:22 PM	1:52 PM
Lakeland Downtown	*0:15*	7:37 AM	8:07 AM	8:22 AM	8:37 AM	8:52 AM	9:07 AM	9:22 AM	9:37 AM	9:52 AM	10:07 AM	10:37 AM	11:07 AM	11:37 AM	12:07 PM	12:37 PM	1:07 PM	1:37 PM	2:07 PM
	1:17																		

Westbound to Lakeland		**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**
Continues north to other CFRail stops to Fort Florida																			
ORMC/Amtrak	*0:03*	1:20 PM	1:50 PM	2:20 PM	2:50 PM	3:20 PM	3:50 PM	4:05 PM	4:20 PM	4:35 PM	4:50 PM	5:05 PM	5:20 PM	5:35 PM	5:50 PM	6:20 PM	6:50 PM	7:50 PM	8:50 PM
Sand Lake SR 408	*0:08*	1:28 PM	1:58 PM	2:28 PM	2:58 PM	3:28 PM	3:58 PM	4:13 PM	4:28 PM	4:43 PM	4:58 PM	5:13 PM	5:28 PM	5:43 PM	5:58 PM	6:28 PM	6:58 PM	7:58 PM	8:58 PM
Meadow Woods	*0:06*	1:34 PM	2:04 PM	2:34 PM	3:04 PM	3:34 PM	4:04 PM	4:19 PM	4:34 PM	4:49 PM	5:04 PM	5:19 PM	5:34 PM	5:49 PM	6:04 PM	6:34 PM	7:04 PM	8:04 PM	9:04 PM
Osceola Parkway	*0:05*	1:39 PM	2:09 PM	2:39 PM	3:09 PM	3:39 PM	4:09 PM	4:24 PM	4:39 PM	4:54 PM	5:09 PM	5:24 PM	5:39 PM	5:54 PM	6:09 PM	6:39 PM	7:09 PM	8:09 PM	9:09 PM
Kissimmee Amtrak	*0:06*	1:45 PM	2:15 PM	2:45 PM	3:15 PM	3:45 PM	4:15 PM	4:30 PM	4:45 PM	5:00 PM	5:15 PM	5:30 PM	5:45 PM	6:00 PM	6:15 PM	6:45 PM	7:15 PM	8:15 PM	9:15 PM
Poinciana Blvd.	*0:06*	1:51 PM	2:21 PM	2:51 PM	3:21 PM	3:51 PM	4:21 PM	4:36 PM	4:51 PM	5:06 PM	5:21 PM	5:36 PM	5:51 PM	6:06 PM	6:21 PM	6:51 PM	7:21 PM	8:21 PM	9:21 PM
Haines City	*0:18*	2:09 PM	2:39 PM	3:09 PM	3:39 PM	4:09 PM	4:39 PM	4:54 PM	5:09 PM	5:24 PM	5:39 PM	5:54 PM	6:09 PM	6:24 PM	6:39 PM	7:09 PM	7:39 PM	8:39 PM	9:39 PM
Auburndale	*0:13*	2:22 PM	2:52 PM	3:22 PM	3:52 PM	4:22 PM	4:52 PM	5:07 PM	5:22 PM	5:37 PM	5:52 PM	6:07 PM	6:22 PM	6:37 PM	6:52 PM	7:22 PM	7:52 PM	8:52 PM	9:52 PM
Lakeland Downtown	*0:15*	2:37 PM	3:07 PM	3:37 PM	4:07 PM	4:37 PM	5:07 PM	5:22 PM	5:37 PM	5:52 PM	6:07 PM	6:22 PM	6:37 PM	6:52 PM	7:07 PM	7:37 PM	8:07 PM	9:07 PM	10:07 PM
	1:17																		

Eastbound from Lakeland		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Lakeland Downtown		4:44 AM	5:14 AM	5:29 AM	5:44 AM	5:59 AM	6:14 AM	6:29 AM	6:44 AM	6:59 AM	7:14 AM	7:44 AM	8:14 AM	8:44 AM	9:14 AM	9:44 AM	10:14 AM	10:44 AM	11:14 AM
Auburndale	*0:15*	4:59 AM	5:29 AM	5:44 AM	5:59 AM	6:14 AM	6:29 AM	6:44 AM	6:59 AM	7:14 AM	7:29 AM	7:59 AM	8:29 AM	8:59 AM	9:29 AM	9:59 AM	10:29 AM	10:59 AM	11:29 AM
Haines City	*0:13*	5:12 AM	5:42 AM	5:57 AM	6:12 AM	6:27 AM	6:42 AM	6:57 AM	7:12 AM	7:27 AM	7:42 AM	8:12 AM	8:42 AM	9:12 AM	9:42 AM	10:12 AM	10:42 AM	11:12 AM	11:42 AM
Poinciana Blvd.	*0:18*	5:30 AM	6:00 AM	6:15 AM	6:30 AM	6:45 AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	8:00 AM	8:30 AM	9:00 AM	9:30 AM	10:00 AM	10:30 AM	11:00 AM	11:30 AM	12:00 PM
Kissimmee Amtrak	*0:06*	5:36 AM	6:06 AM	6:21 AM	6:36 AM	6:51 AM	7:06 AM	7:21 AM	7:36 AM	7:51 AM	8:06 AM	8:36 AM	9:06 AM	9:36 AM	10:06 AM	10:36 AM	11:06 AM	11:36 AM	12:06 PM
Osceola Parkway	*0:06*	5:42 AM	6:12 AM	6:27 AM	6:42 AM	6:57 AM	7:12 AM	7:27 AM	7:42 AM	7:57 AM	8:12 AM	8:42 AM	9:12 AM	9:42 AM	10:12 AM	10:42 AM	11:12 AM	11:42 AM	12:12 PM
Meadow Woods	*0:05*	5:47 AM	6:17 AM	6:32 AM	6:47 AM	7:02 AM	7:17 AM	7:32 AM	7:47 AM	8:02 AM	8:17 AM	8:47 AM	9:17 AM	9:47 AM	10:17 AM	10:47 AM	11:17 AM	11:47 AM	12:17 PM
Sand Lake SR 408	*0:06*	5:53 AM	6:23 AM	6:38 AM	6:53 AM	7:08 AM	7:23 AM	7:38 AM	7:53 AM	8:08 AM	8:23 AM	8:53 AM	9:23 AM	9:53 AM	10:23 AM	10:53 AM	11:23 AM	11:53 AM	12:23 PM
ORMC/Amtrak	*0:08*	6:01 AM	6:31 AM	6:46 AM	7:01 AM	7:16 AM	7:31 AM	7:46 AM	8:01 AM	8:16 AM	8:31 AM	9:01 AM	9:31 AM	10:01 AM	10:31 AM	11:01 AM	11:31 AM	12:01 PM	12:31 PM
Continues north to other CFRail stops to Fort Florida																			
	1:17																		

Eastbound from Lakeland (continued)		**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**
Lakeland Downtown		11:44 AM	12:14 PM	12:44 PM	1:14 PM	1:44 PM	2:14 PM	2:29 PM	2:44 PM	2:59 PM	3:14 PM	3:29 PM	3:44 PM	3:59 PM	4:14 PM	4:44 PM	5:14 PM	6:14 PM	7:14 PM
Auburndale	*0:15*	11:59 AM	12:29 PM	12:59 PM	1:29 PM	1:59 PM	2:29 PM	2:44 PM	2:59 PM	3:14 PM	3:29 PM	3:44 PM	3:59 PM	4:14 PM	4:29 PM	4:59 PM	5:29 PM	6:29 PM	7:29 PM
Haines City	*0:13*	12:12 PM	12:42 PM	1:12 PM	1:42 PM	2:12 PM	2:42 PM	2:57 PM	3:12 PM	3:27 PM	3:42 PM	3:57 PM	4:12 PM	4:27 PM	4:42 PM	5:12 PM	5:42 PM	6:42 PM	7:42 PM
Poinciana Blvd.	*0:18*	12:30 PM	1:00 PM	1:30 PM	2:00 PM	2:30 PM	3:00 PM	3:15 PM	3:30 PM	3:45 PM	4:00 PM	4:15 PM	4:30 PM	4:45 PM	5:00 PM	5:30 PM	6:00 PM	7:00 PM	8:00 PM
Kissimmee Amtrak	*0:06*	12:36 PM	1:06 PM	1:36 PM	2:06 PM	2:36 PM	3:06 PM	3:21 PM	3:36 PM	3:51 PM	4:06 PM	4:21 PM	4:36 PM	4:51 PM	5:06 PM	5:36 PM	6:06 PM	7:06 PM	8:06 PM
Osceola Parkway	*0:06*	12:42 PM	1:12 PM	1:42 PM	2:12 PM	2:42 PM	3:12 PM	3:27 PM	3:42 PM	3:57 PM	4:12 PM	4:27 PM	4:42 PM	4:57 PM	5:12 PM	5:42 PM	6:12 PM	7:12 PM	8:12 PM
Meadow Woods	*0:05*	12:47 PM	1:17 PM	1:47 PM	2:17 PM	2:47 PM	3:17 PM	3:32 PM	3:47 PM	4:02 PM	4:17 PM	4:32 PM	4:47 PM	5:02 PM	5:17 PM	5:47 PM	6:17 PM	7:17 PM	8:17 PM
Sand Lake SR 408	*0:06*	12:53 PM	1:23 PM	1:53 PM	2:23 PM	2:53 PM	3:23 PM	3:38 PM	3:53 PM	4:08 PM	4:23 PM	4:38 PM	4:53 PM	5:08 PM	5:23 PM	5:53 PM	6:23 PM	7:23 PM	8:23 PM
ORMC/Amtrak	*0:08*	1:01 PM	1:31 PM	2:01 PM	2:31 PM	3:01 PM	3:31 PM	3:46 PM	4:01 PM	4:16 PM	4:31 PM	4:46 PM	5:01 PM	5:16 PM	5:31 PM	6:01 PM	6:31 PM	7:31 PM	8:31 PM
Continues north to other CFRail stops to Fort Florida																			
	1:17																		