



Rail Feasibility Analysis  
Summary Report  
*Tampa Bay to Northeast Florida*

Financial Project ID: 405776-1-12-21



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# Contents

Contents.....	i
Introduction .....	1
Background .....	1
Guiding Principles.....	3
Purpose of Study .....	3
Study Area.....	3
Existing and Historical Conditions.....	4
Socioeconomic Characteristics.....	4
Environmental Features.....	5
Existing Rail Corridors .....	5
Passenger Rail Service.....	6
Existing Passenger Rail Ridership .....	9
Existing Travel Options.....	9
Transit Connectivity .....	10
Future Conditions.....	11
Socioeconomic Growth .....	11
Freight Demand.....	11
Planned Improvements.....	11
Feasibility Analysis Methodology.....	12
Evaluation of Modal Technologies.....	12
Ridership Analysis Methodology.....	14
Passenger Rail Scenarios Considered.....	14
Feasibility Analysis Results.....	15
Projected Ridership Demand .....	15
Qualitative Considerations.....	16
Summary .....	16
<b>Tables</b>	
Table 1. Summary of Existing Travel Modes.....	10
Table 2. Summary of Modal Technologies.....	13
Table 3. Projected Ridership Demand and Travel Time.....	15
<b>Figures</b>	
Figure 1. Tampa Bay to Northeast Florida Study Area & Task Force Initial Focus Area .....	1
Figure 2. Florida Megaregion .....	4
Figure 3. Existing and Historical Rail Corridors .....	7
Figure 4. Existing and Historical Passenger Rail Services.....	8

# Introduction

This *Rail Feasibility Analysis Summary Report* documents the technical analysis conducted by the Florida Department of Transportation (FDOT) to evaluate the **feasibility of enhanced or new intercity passenger rail service** between Tampa Bay and Northeast Florida. Based on recommendations resulting from the I-75 Relief Task Force, the North I-75 Master Plan Study (August 2017) was initiated to evaluate I-75 and parallel corridors as a system and determine their ability to accommodate the future congestion. To supplement that effort, this rail feasibility analysis was initiated to consider the need for enhanced passenger rail and to evaluate the feasibility of this alternative mode to address **future regional travel demand** within the study area. Consistent with the North I-75 Master Plan Study, this evaluation considers interregional transportation needs through the year 2040 planning horizon.

## Background

In 2013, FDOT completed a high-level **Concept Study** that assessed transportation needs in a 19-county area extending from Tampa Bay to Northeast Florida incorporating two of the state's most populated regions (refer to Figure 1). The study identified long-term mobility and connectivity needs include growing demand for moving people and freight; increasing delay and decreasing reliability on I-75 and other existing highways; significant crash rates along portions of I-75, as well as other regional facilities; limited modal options; and limited connectivity to Rural Areas of Opportunity and other places targeted for economic development. The Concept Study recommended FDOT conduct a more detailed Evaluation Study to assess the feasibility of developing a multimodal transportation corridor between the northern portion of the Tampa Bay region and I-75. The study also recommended this corridor be considered in the context of a long-term vision of improving connectivity between Tampa Bay and Northeast Florida. The Concept Study was developed as part of **Florida's Future Corridors** planning process, a cooperative effort between FDOT and statewide, regional and local partners to envision and plan Florida's major statewide, multimodal transportation corridors.

In October 2015, based on the results of the Concept Study, FDOT Secretary Jim Boxold established the **I-75 Relief Task Force** (Task Force) for the purpose of providing consensus recommendations for maximizing existing and developing new high-capacity transportation corridors to serve the Tampa Bay to Northeast Florida study area, with initial emphasis on the area along and to the west of I-75. The Task Force included 21 members representing state agencies, local governments, Regional Planning Councils (RPCs), environmental organizations, businesses, economic development interests, and the public. The Task Force's primary focus was on developing strategies to provide congestion relief on I-75, which serves as a critical gateway to Florida for both people and freight. The Task Force focused on identifying mobility needs in six counties along and to the west of I-75 through their Initial Focus Area (Alachua, Citrus, Hernando, Levy, Marion, and Sumter counties). As a result of data collected during the Task Force, the study noted that I-75 faces significant safety, efficiency, and reliability issues today—all of which are anticipated to become more significant as the state's population, visitors, economy, and trade flows continue to grow.

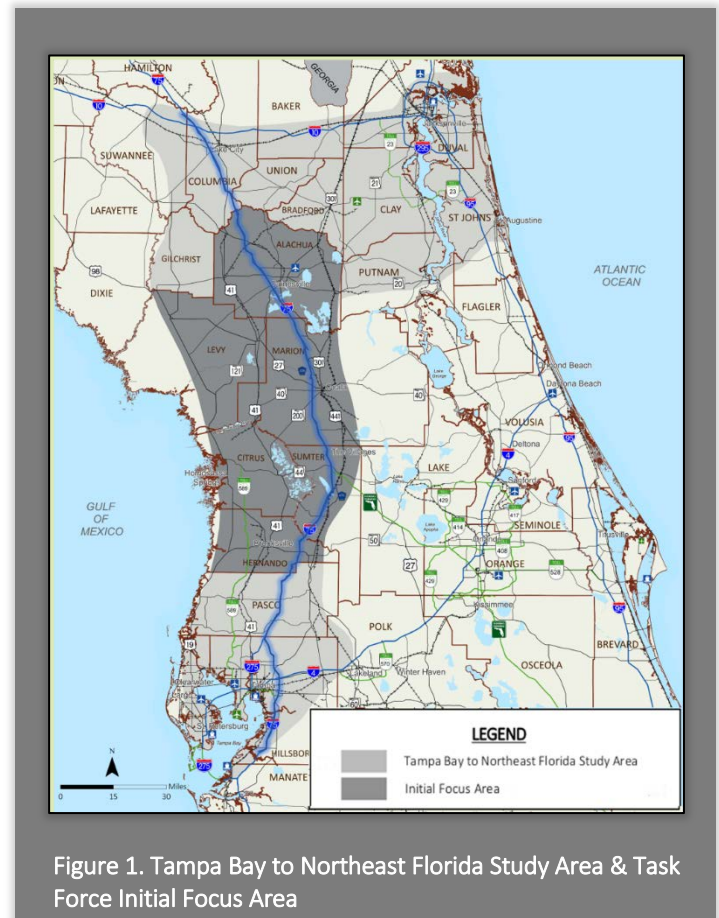


Figure 1. Tampa Bay to Northeast Florida Study Area & Task Force Initial Focus Area

The Task Force developed a **framework of potential short, medium, and long-term solutions** for enhanced and new high-speed, high-capacity transportation corridors for further study. The primary and immediate strategy recommended by the Task Force was to further evaluate the transformation of I-75 from Hernando to Columbia counties through capacity and operational improvements. Additionally, the range of options included both maximizing the use of existing transportation facilities and developing new transportation facilities, with consideration of multiple modes. These Task Force recommendations included consideration of potential regional and interregional multimodal transportation solutions for further evaluation. The Task Force also reiterated the longer-term goal of providing better connectivity between Tampa Bay and Northeast Florida. As described in the [I-75 Relief Task Force Recommendations Report<sup>1</sup>](#), the Task Force framework included the following freight and passenger mobility strategies for further evaluation and consideration of the multimodal opportunities and constraints within the larger study area between Tampa Bay and Northeast Florida.

### 1. Immediately optimize existing transportation corridors

*The Task Force recommended FDOT continue to implement and evaluate these strategies as near-term opportunities where feasible.*

- **Improve intercity bus and rail connectivity and service.** Intercity bus and rail connections from Tampa to Jacksonville primarily occur through Orlando rather than the Initial Focus Area. Projected growth in population, jobs, and visitors is anticipated to increase demand for a range of transportation choices. The Task Force recommended FDOT work with federal agencies, local governments, and the private sector to facilitate intercity bus and rail services, such as providing access for intercity bus operators at I-75 rest areas or Turnpike service plazas and supporting connectivity and interoperability between intercity bus, rail, and local public transportation systems to enable customers to complete end-to-end trips using a single ticket.

### 2. Evaluate potential enhancements to, or transformation of, existing transportation corridors

*Both the consideration of freight and passenger rail enhancements were identified as medium-term strategies that could be implemented based on evaluation studies after further analysis of travel demand and feasibility.*

- **Expand freight rail capacity and connectivity, with emphasis on the S-line.** CSX Transportation invested in improvements during the past decade to add capacity to the S-line, and estimates the S-line has sufficient capacity to accommodate anticipated growth in freight demand for the foreseeable future. In view of planned seaport expansions and intermodal logistics centers, the Task Force encouraged FDOT to work with CSX to identify future S-line capacity needs both within and outside of the Initial Focus Area, including additional sidings or spot improvements, improved intermodal terminal capacity, and enhanced connectivity to seaports and industrial sites. The Task Force also encouraged FDOT to work with CSX and the Florida Northern Railroad to explore opportunities for the use of existing and abandoned rail right of way for freight service, while maintaining prior investments in converting rail to trails. The Task Force recommended FDOT work with local governments and railroads to minimize potential impacts of expanded freight rail operations on existing communities by improving rail/highway intersections and by ensuring compatible land uses around rail corridors and terminals; and
- **Provide more choices for long-distance travel by residents and visitors, including enhancing intercity bus services and creating passenger rail services.** The Task Force recommended FDOT work with the rail industry to evaluate opportunities for linking cities such as Gainesville and Ocala to the statewide and national passenger rail network. These options could build on existing corridors such as the S-line, reuse of shortline and abandoned rail right of way, and/or development of new rail corridors.

<sup>1</sup> [http://i75relief.com/docs/finalReport/Final%20TF%20Report\\_09302016.pdf](http://i75relief.com/docs/finalReport/Final%20TF%20Report_09302016.pdf)



## Guiding Principles

As part of FDOT's Future Corridors planning process, FDOT collaborated closely with state, regional, and local agencies; environmental stakeholders, business and economic development organizations; private landowners; and the public to develop **Guiding Principles** for corridor planning and recommendations on where future corridors should be located, and give guidance on how to balance considerations of conservation, countryside, and centers and communities when making decisions about the future of the study area's transportation corridors. The Task Force refined and recommended [20 Guiding Principles](#)<sup>2</sup> including the following multimodal strategies:

- Improve connectivity for transportation and other infrastructure to established and emerging regional population and employment centers.
- Make optimal use of existing transportation facilities before adding new capacity to existing facilities or developing new facilities.
- Direct strategic investments to transportation corridors that will provide better access to regional employment centers and other economic assets or provide better connectivity to global markets.
- Plan enhanced or new transportation corridors, where appropriate, to accommodate multiple modes of transportation, including opportunities for active transportation, and to accommodate multiple uses, including utility infrastructure.
- Plan rail and transit elements of future transportation corridors to support compact development locations and to encourage public transportation ridership.

## Purpose of Study

In response to the Task Force recommendation to evaluate providing more choices for long-distance travel, this rail feasibility study was initiated to analyze the feasibility of enhanced or new intercity passenger rail services. This *Rail Feasibility Analysis Summary Report* evaluates the **future need for enhanced or new intercity passenger rail** between Tampa Bay and Northeast Florida, including an analysis of existing and historical rail corridors. The feasibility analysis considered existing and planned multimodal connections, freight rail connectivity, and consideration of regional and interregional transit linkages that could support regional trips between the two metropolitan areas. This summary report includes documentation of existing and future conditions and an evaluation of qualitative and quantitative criteria to analyze the potential feasibility of enhanced passenger rail including ridership demand, service benefits, cost considerations, and environmental factors.

## Study Area

To further evaluate the Task Force's recommendation of providing **enhanced regional connectivity** between Tampa Bay and Northeast Florida, the study area for this passenger rail feasibility analysis encompasses the counties between the two metropolitan regions. The study area is consistent with the Tampa Bay to Northeast Florida study area previously analyzed as part of the Concept Study (see Figure 1 shown previously).

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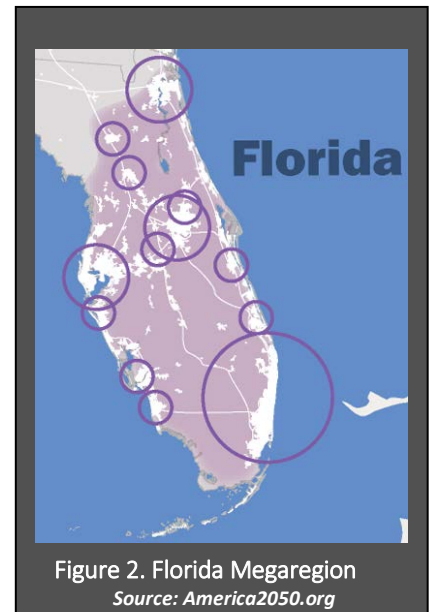
<sup>2</sup> [http://i75relief.com/docs/062416/presentations/I-75\\_Relief\\_Guiding%20Principles\\_033016vs2.pdf](http://i75relief.com/docs/062416/presentations/I-75_Relief_Guiding%20Principles_033016vs2.pdf)

# Existing and Historical Conditions

## Socioeconomic Characteristics

Historically, intercity passenger rail was a predominant mode of travel within the state. Although Tampa and Jacksonville are two of Florida's largest metropolitan areas today, the catalyst of economic growth and development for both areas is owed in large part to the construction of rail lines to these cities during the 1880's. During the late 1800's, Henry B. Plant's newly constructed rail line and hotels attracted visitors and industries to Tampa Bay<sup>3</sup>, while Jacksonville served as the gateway to Florida's east coast resort towns along Henry Flagler's Florida East Coast Railway<sup>4</sup>. The area connecting these two metropolitan areas is historically rural in nature when compared to Tampa Bay and Jacksonville, and the average population density between the urban areas is lower than Central and South Florida<sup>5</sup>. Numerous small towns and communities exist between the larger cities of Tampa, Ocala, Gainesville and Jacksonville within the study area. These communities generally follow the patterns of historical rail lines, although many of these railroads have since been abandoned or exclusively serve freight.

According to the socioeconomic projections, Hillsborough County's population, inclusive of the Tampa Bay region, is expected to increase by nearly 700,000 people from 2010 to 2040 (56% increase)<sup>6</sup>. Similarly, the population in Duval County surrounding the Jacksonville metropolitan area is expected to grow by over 300,000 people by 2040 (37% increase)<sup>6</sup>. Between these metropolitan regions and within the study area, the Villages, Ocala, and Gainesville serve as centralized residential and employment hubs, each with unique socioeconomic characteristics and **continued population growth**. The Villages and the Sumter County metro area have experienced the fastest-growing population in the country for multiple consecutive years<sup>7</sup>, with a median age of 66<sup>8</sup> characteristic of the significant retirement community population. Ocala in Marion County is a growing freight hub with several existing and planned large distribution centers as well as a key tourist destination (known as the horse capital of the world). Gainesville and Alachua County are home to the University of Florida and a recognized hub for biotech industries. The large student population introduces seasonal fluctuations in population and substantial traffic demand during events and holidays. The socioeconomic diversity, unique land use characteristics, and varying travel markets within these large cities create a distinct opportunity for increased population growth and **interregional transportation connectivity**.



Most of the nation's rapid population growth and economic expansion is expected to occur in 11 megaregions (large networks of metropolitan regions). The Florida megaregion, with the principal cities of Miami, Orlando, Tampa and Jacksonville, is one of the **fastest growing megaregions** in the nation<sup>9</sup>. Florida's projected population growth and increasing demand for economic linkages between Southeast Florida's global business hub, Central Florida's internationally known destinations and the diverse industries of Tampa Bay and Northeast Florida create a unique

<sup>3</sup> <https://myfloridahistory.org/frontiers/article/75>

<sup>4</sup> <https://myfloridahistory.org/date-in-history/april-15-1896/first-train-henry-flagler%E2%80%99s-florida-east-coast-railroad-arrived-miami>

<sup>5</sup> <https://www.bibr.ufl.edu/population/website-article/measuring-population-density-counties-florida>

<sup>6</sup> <https://www.bibr.ufl.edu/population>, 2017 Population Estimates

<sup>7</sup> <https://www.census.gov/newsroom/press-releases/2016/cb16-43.html>;

<https://www.census.gov/content/dam/Census/newsroom/press-kits/2017/Top%2025%20Fastest%20Metros.pdf>

<sup>8</sup> [https://factfinder.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml?src=bkml](https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml?src=bkml)

<sup>9</sup> <http://www.america2050.org/florida.html>

opportunity for improved interregional connectivity<sup>10</sup>. These changing demographic patterns and the trend towards more compact urban centers generate potential opportunities for enhanced transportation connections between these regions.

## Environmental Features

*Florida has more than 10 million acres of land conserved to protect our natural landscape for recreation and habitat. Connectivity both between and within these resources is an important aspect of Conservation.*

*Source: I-75 Task Force Conservation Briefing Book (February 2016)*

The I-75 Relief Task Force's *Recommended Guiding Principles for Planning Future Transportation Corridors* require consideration of conservation, countryside, and centers and communities when evaluating existing and future transportation corridors. For example, one of the key Guiding Principles is avoidance and minimization of potential impacts to conservation lands. Given Florida's sub-tropical climate and abundance of natural resources, numerous **environmental features** are present within the study area.

As part of the I-75 Task Force work, **Briefing Books** documenting existing environmental resources, opportunities and constraints related to corridor planning, and statewide policies and initiatives were prepared for the four themes of [Conservation](#), [Countryside](#), [Centers and Communities](#), and [Corridors](#). Each Briefing Book contains an overview map of significant environmental features within the study area for each of the four resource areas. The Briefing Books were developed using planning-level analysis and input from government agencies, property owners, residents, agricultural interests, business and economic development organizations, and environmental organizations during the I-75 Task Force.

Environmentally sensitive areas within the study area involving natural resources documented in the [Conservation Briefing Book](#) include public lands, parks and recreation areas, and conservation areas such as the Starkey Wilderness Preserve, Withlacoochee State Forest, Goethe State Forest, Ocala National Forest, Orange Lake, Lochloosa Lake, Paynes Prairie Preserve State Park, Newnans Lake, Santa Fe Swamp Conservation Area, Branan Field Wildlife and Environmental Area, military lands, and the St. Johns River. Local jurisdictions within the study area have established policies and initiatives influencing future land use for conservation and recreation areas. These policies impose limitations on development within or near sensitive lands. The goals of the feasibility study include the consideration of conservation and recreation areas, connectivity between environmentally sensitive areas, maintaining a balanced ecosystem for wildlife and habitat, and preserving recreational facilities and diverse habitats for wildlife. The protection of environmentally sensitive lands is a significant consideration for the feasibility of new or enhanced passenger rail service.

## Existing Rail Corridors

The existing, active rail corridors within the study area **exclusively serve freight operations**. Three major freight rail operators in Florida have tracks that converge in Jacksonville: CSX Transportation (CSX), Norfolk Southern Corporation (NS), and Florida East Coast Railway (FEC). A detailed summary of the existing freight network within the study area is documented in the [Corridors Briefing Book](#) prepared during the I-75 Task Force. The existing and historical rail corridors are illustrated on Figure 3.

Major rail corridors in the study area include the CSX "S-Line" which is a Class 1 freight corridor and additional minor freight connections (Class III lines). The CSX S-Line rail corridor traverses north – south for the length of the study area from Tampa Bay to Jacksonville. Other CSX facilities within the study area include the CSX "A-Line" connecting Tampa and Jacksonville via an eastern route through Orlando, the CSX Brooksville Line" running from Tampa Bay to Brooksville, and a CSX spur connecting Newberry, Alachua, Gainesville and Starke<sup>11</sup>. CSX railroads serve both the Port of Tampa and the Port of Jacksonville.

*Florida contains approximately 2,800 rail line miles and roughly 2,650 of these miles are owned and operated by 15 private freight railroad entities. Railroads are unlike highways, seaports, and airports as these transportation systems are primarily owned by public entities, whereas most of Florida's rail network is privately owned.*

<sup>10</sup> Tampa Bay to Northeast Florida Study Area Concept Report (October 2013)<sup>11</sup>  
<https://www.csx.com/index.cfm/customers/maps/csx-system-map/>

<sup>11</sup> <https://www.csx.com/index.cfm/customers/maps/csx-system-map/>

In addition to the three major freight railroads, the Florida Northern Railroad (FNOR) is a local or shortline railroad serving customers in Alachua, Citrus, Levy, and Marion counties. FNOR operates 24.3 route miles between Lowell and Candler in Marion County with an interchange with CSX at Ocala; 76 miles of track between High Springs and Red Level, with an interchange with CSX at Newberry; and 2.7 miles of industrial track in Ocala<sup>12</sup>.

Many **historical rail corridors** used to span the study area and have since been abandoned, as shown in Figure 3. Most abandoned rail lines have been removed, with corridor ownership divided amongst many land owners, or converted to trails. Overall, it is estimated that in Florida approximately 768 miles of historical rail corridors were repurposed into 54 multiuse trails to support enhanced pedestrian and bicyclist mobility<sup>13</sup>. Approximately 431 additional miles of potential historical rail corridors have been identified as opportunities for multimodal trail development by the Rails-to-Trails Conservancy, with seventeen of these trails located within the 12-county study area.

There are several **existing and planned intermodal facilities** within the study area that serve freight mobility. Key rail terminals include CSX intermodal truck-to-rail transfer terminals in Winter Haven, Tampa and Jacksonville; NS and FEC intermodal terminals in Jacksonville; intermodal port facilities; and freight distribution facilities with rail access.

CSX has designated the Ocala/Marion County Commerce Park in Ocala as a “Select Site” as part of their network-wide economic development initiative, and is considered a rail-served, ready-to-build location for industrial development and expansion<sup>14</sup>. Additionally, other ILCs are planned for construction in the area, which include the Keystone ILC Terminal (City of Jacksonville, Duval County), Alliance Florida at Cecil Commerce Center (City of Jacksonville, Duval County), and Sumter County ILC (Sumter County)<sup>15</sup>. Additionally, with the opening of the Central Florida ILC in Winter Haven and the beginning of SunRail commuter rail operations in Central Florida in 2014, which operates along the CSX A-Line, CSX shifted a significant portion of its daily freight traffic from the A-Line to the S-Line. The continued growth in freight mobility results in increased freight traffic on the railroads serving the increased freight demand.

## Passenger Rail Service

Between 1971 and 2004, the study area was served by the Amtrak *Silver Palm* passenger rail service (renamed *Palmetto* in 2002). The *Silver Palm* operated on the CSX S-Line and provided passenger rail connectivity at stations in Waldo, Ocala, Wildwood and Dade City. After 2004, direct intercity passenger rail service within the study area from Tampa to Northeast Florida through the study area was discontinued.

*Passenger rail service within the study area has remained largely unchanged since 2004. Two Amtrak daily trains serve passengers between Tampa and Jacksonville via an indirect connection through Orlando (either rail or Thruway Bus Service).*

The *Palmetto* service was rerouted through Florida (becoming the *Silver Star*) to the more easterly route through Central Florida on the CSX A-Line between Tampa and Jacksonville via Orlando. Amtrak replaced rail service to the former stations on the CSX S-Line with Thruway Bus service. The Amtrak *Silver Meteor* passenger service from Miami to Jacksonville (operational since 1971), along the CSX A-Line, also provided connectivity to Tampa via a transfer to Thruway Bus service at the Orlando station. Existing and historical rail services in the study area are shown in Figure 4.

This addition of the Silver Star service essentially doubled the frequency of service to Jacksonville and Miami via Orlando from one to two daily trains. As of 2018, the existing Amtrak *Silver Service/Palmetto* provides passenger service (two daily trains) between Tampa and Jacksonville connecting to stations in Lakeland, Kissimmee, Orlando, Winter Park, DeLand, and Palatka, with continuing service to Miami. Passenger rail service within the study area has remained largely unchanged since 2004. As of January 2018, Amtrak operates the Silver Star (train 91 is southbound and 92 is northbound) and the Silver Meteor (train 97 is southbound and 98 is northbound). Both routes connect New York and other cities along the east coast to the Jacksonville, Orlando and Miami markets.

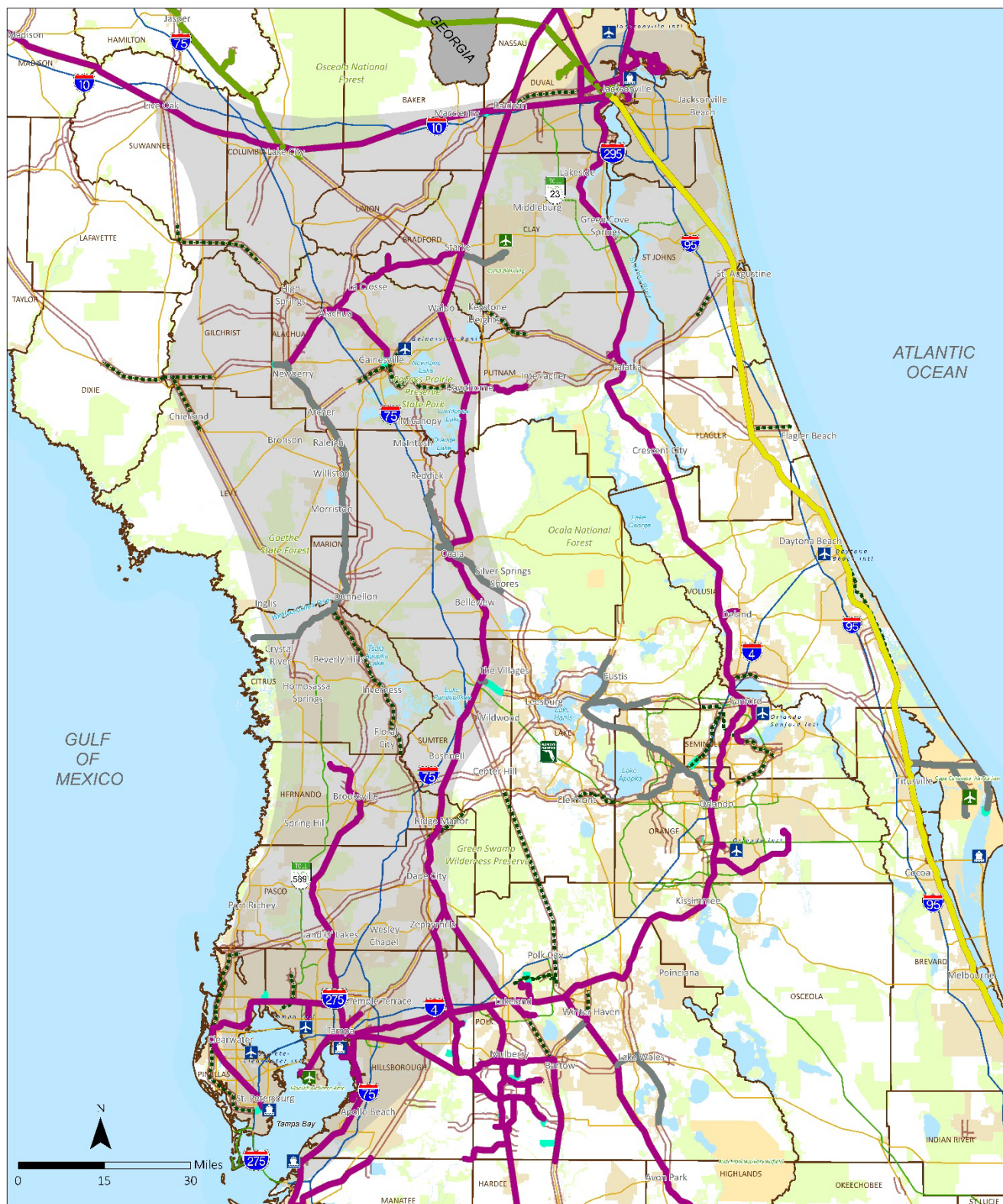
<sup>12</sup> [http://www.pinsly.com/wp-content/uploads/2016/08/Florida\\_Map.pdf](http://www.pinsly.com/wp-content/uploads/2016/08/Florida_Map.pdf)

<sup>13</sup> <https://www.railstotrails.org/our-work/united-states/florida/#state>

<sup>14</sup> <https://www.csx.com/index.cfm/about-us/media/press-releases/ocala-marion-county-commerce-park-site-receives-csx-select-site-designation/>

<sup>15</sup> <http://www.fdot.gov/planning/systems/programs/mspi/pdf/ILCSupportOppsFinal.pdf>



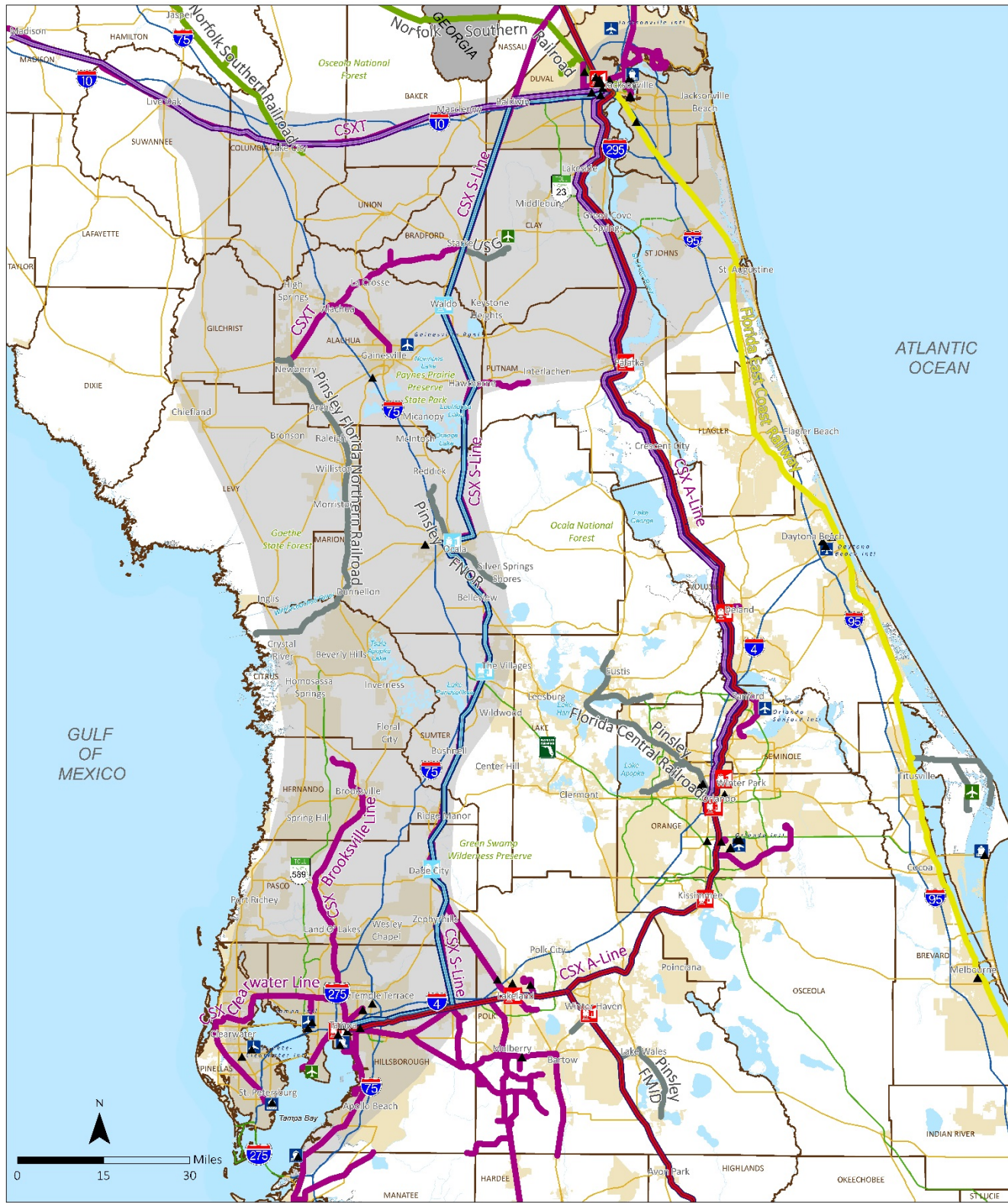


- |   |  |  |                                     |                            |
|---|--|--|-------------------------------------|----------------------------|
| Historical Rail Corridors*                      | <b>Active Rail Corridors</b>           | Study Area                             | Interstate Highway                  | Public Storage             |
| Abandoned Rail Line**                           | CBX Transportation (Class II)          | Census Places                          | Toll Limited Access Facility        | Commercial Service Airport |
| Existing Trails along Historical Rail Corridors | Norfolk Southern Corporation (Class I) | Military Lands                         | Future Toll Limited Access Facility | Military Airport           |
|   | Florida East Coast Railway (Class I)   | Conservation and Other Protected Lands | Major Roads                         |                            |
|   | Class III Railroads                    |  |                                     |                            |

\* Track has been physically removed and ROW primarily sold to private land owners  
 \*\* Recently abandoned rail corridor where rail operators have discontinued services. ROW may still be owned by railroad

Figure 3. Existing and Historical Rail Corridors





- Legend**
- Amtrak Silver Meteor and Silver Star Lines (Existing Service)
  - Amtrak Stations Served by the Silver Meteor and Silver Star Lines (Existing Service)
  - Previous Amtrak Service (Various Lines) (1971 - 2004)\*
  - Amtrak Stations Previously Served by Various Lines (1971 - 2004)\*\*
  - Previous Amtrak Sunbelt Limited Line (1988 - 2005)
  - CSX Transportation (Class I)
  - Norfolk Southern Corporation (Class I)
  - Florida East Coast Railway (Class II)
  - Class II Railroads
  - Interstate Highway
  - Toll/Unimod Access Facility
  - Future Toll Limited Access Facility
  - Major Roads
  - ▲ Intermodal Freight Facilities
  - Public Seaports
  - Commercial/General Airport
  - Military Airport
  - Study Area
  - Census Places

Figure 4. Existing and Historical Passenger Rail Services

The Silver Star provides indirect rail service to Tampa via Orlando and the Silver Meteor provides connectivity to Tampa via Thruway Bus service. The Silver Star provides Thruway Bus service to the historical stops of Waldo, Ocala, Wildwood and Dade City and additional bus stops in Gainesville and the Villages. Bus schedules are timed to meet northbound and southbound trains at Jacksonville and Lakeland, respectively. However, bus service cannot be booked independent of a trip by train. For example, it is not possible to use Amtrak as a service provider if the intent of your trip is intercity travel between Tampa or Jacksonville and any of the previous intermediate stops along the CSX S-line such as Jacksonville to Gainesville.

## Existing Passenger Rail Ridership

*Passengers traveling between Tampa & Jacksonville make up a small percentage of total trips on the existing Silver Service in Florida.*

As part of this rail feasibility analysis, existing annual **ridership data** (station boardings and alightings) was obtained from Amtrak for 2016. The existing 2016 ridership shows that nearly 70% of the ridership in Florida (origin and destinations) involves trips north of Jacksonville (out-of-state trips). Additionally, a large portion of these out-of-state travelers (approximately 40%) are originating from or destined for Orlando. Approximately 13% of these out-of-state travelers use the Tampa station. Based on the ridership data, intra-Florida trips are dominated by Tampa, Orlando, and Jacksonville with those three stops making up two-thirds of the intra-Florida boardings and alightings. However, the average 2016 ridership showed

only 69 persons boarding or alighting at the Tampa station per day (to or from stations between Tampa and Jacksonville). Although the exact travel patterns of final trip destinations are not known as station-pair data was not available, it can be derived from the station boardings that passengers traveling between Tampa and Jacksonville make up a small percentage of total trips on the existing Silver Service in Florida.

## Existing Travel Options

Within the study area, existing intercity travel from Tampa Bay to Northeast Florida is accomplished through plane, auto, intercity passenger rail, and privately-owned regional bus services. A summary of the existing travel options is provided in Table 1 and described below. The primary option for high-speed, high-capacity highway travel between Tampa Bay and Northeast Florida is the existing interstate system from I-75 in Tampa to I-10 in Jacksonville. As noted in the I-75 North Master Plan, traffic congestion occurs due to both recurring congestion (traffic bottlenecks) and non-recurring congestion (incidents, seasonal and special events, and weather). The combination of recurring and non-recurring congestion is contributing to unsatisfactory traffic operations witnessed in both the existing and future conditions on I-75. Existing air service results in a slightly lower travel time (considering airport security clearance timeframes) at a higher cost and involves additional baggage restrictions not associated with personal auto travel. As of 2017, Silver Airways is the sole airline carrier currently offering direct flights between Tampa and Jacksonville<sup>16</sup>.

As shown in Table 1, travel between Tampa and Jacksonville on existing Amtrak service takes about 5 hours and 30 minutes. However, as the *Silver Meteor* requires a transfer to the Thruway Bus, exact travel times are affected by highway traffic. The average travel time for the *Silver Star* service is approximately 5.25 hours which is **not competitive with the auto travel time** of approximately 3.5 hours. In peak conditions, the auto travel time has the potential to be impacted by existing traffic congestion or incidents. Similarly, the on-time performance for passenger rail is affected by incidents and heavy freight traffic on the shared freight and passenger corridors that the *Silver Service* operates on.

Similar to Amtrak service, travel between Tampa and Jacksonville using Greyhound and Megabus intercity bus services requires a stop or transfer in Orlando, and depending on the route, the service may stop in additional locations like Daytona Beach. Greyhound is the sole bus service providing a continuous service route between Tampa and





*Within the study area, both existing intercity bus service and Amtrak service require a stop or transfer in Orlando for service between Tampa and Jacksonville. The limited intercity bus service is likely reflective of the need to capture the Orlando area market demand.*

<sup>16</sup> [www.silverairways.com](http://www.silverairways.com)

Jacksonville<sup>17</sup>. Presently, Greyhound operates six daily routes between the cities (three routes in each direction). Greyhound provides service from Tampa to Jacksonville on a single-ticket, but the route choice may include a transfer in Orlando. Greyhound has other stops within the study area (including Chiefland, Crystal River, Gainesville, Lake City, Ocala, Palatka, Plant City and Spring Hill) but these do not include direct service between Tampa and Jacksonville on a single ticket.

Megabus, another privately-owned carrier, offers connecting (non-continuous) service between Tampa, Gainesville, and Jacksonville in the study area. This service requires a two “leg” trip with an intermediate stop in Orlando, a resulting layover, and a total trip time from Tampa to Jacksonville of approximately 13 hours. RedCoach previously served two locations in Jacksonville that are no longer active as of 2017. RedCoach does offer daily service between Tampa, Ocala, and Gainesville.

Table 1. Summary of Existing Travel Modes

<i>Travel Mode/Operator</i>	<i>Service Type</i>	<i>Trips per day per direction</i>	<i>Travel Time* (hh:mm)</i>	<i>Distance (miles)</i>	<i>Cost per person (approximate)</i>
 Silver Airways	Direct service from Tampa to Jacksonville	2 or more	1:06	221	\$90
 Automobile	Via I-75/I-10	n/a	3:30	250	\$20
	Amtrak Silver Meteor	1	5:15	246	Up to \$226
	Amtrak Silver Star	1	5:24	246	Up to \$161
	Greyhound	3	5:40	133	Up to \$40
	Megabus <sup>18</sup>	2 or more	13:47	139	Up to \$30

Notes: Travel times do not include stops or airport security/check-in times. Travel times are without traffic congestion and are approximate for all modes. Routes, costs, and airlines were reviewed for travel dates between 1/15/17 to 1/21/17. Auto travel times were extrapolated from the Florida’s Turnpike Enterprise (FTE) I-75 Relief Study Model (RSM). Average fuel cost based on travel distance (January 2018).

## Transit Connectivity

Within the interregional study area between the Tampa and Jacksonville metropolitan areas, most of the local transit service is concentrated within the urban areas of Tampa, Ocala, Gainesville, and Jacksonville, where there is higher ridership potential. While inter-county local transit connectivity exists in the Tampa Bay and Northeast Florida regions, there are inter-county gaps in the North Central region, including missing connections between Alachua and Marion counties, from Marion to Citrus or Sumter counties, and from Citrus /Sumter counties to Hernando/Pasco counties. Gilchrist, Union and Bradford counties are not served by any public transit service, aside from trips provided specifically for transportation disadvantaged populations.

Enhanced or new passenger rail service within the study area would necessitate additional investments in transit improvements to provide system connectivity and interoperability between intercity bus, rail, and local public transportation systems where there are gaps in connectivity or increased service demand. Enhanced multimodal connectivity to improve passenger mobility between local transit services and passenger rail service would require further planning and coordination with local governments, regional transit agencies, Regional Planning Councils and Metropolitan Planning Organizations (MPOs). Passengers using new or restored rail service within the study area could

<sup>17</sup> <https://www.greyhound.com/en/ecommerce/schedule>

<sup>18</sup> <https://us.megabus.com>



also utilize transportation network companies (TNCs) such as Uber or Lyft for first/last mile service from stations in select areas where these services are offered.

# Future Conditions

## Socioeconomic Growth

Florida became the third most populous state in 2014<sup>19</sup> and growth is anticipated to exceed 26 million residents by the year 2040<sup>20</sup>. As noted previously, many of the counties in the study area are experiencing continued population growth. Two of the largest Metropolitan Statistical Areas (MSAs) in the state of Florida contain the cities of Tampa and Jacksonville. The Tampa-St. Petersburg-Clearwater MSA had an estimated population of 3,032,171 in 2016, whereas, the Jacksonville MSA has an estimated population of 1,478,212.<sup>21</sup> As congestion and travel demand increases, system-wide transportation capacity issues are a growing concern. As documented in the *Tampa Bay to Northeast Florida Study Area Concept Report*, anticipated transportation system needs within the study area include:

- Long-term mobility and connectivity needs to address growing demand for moving people and freight; increasing delay and decreasing reliability on I-75 and other existing highways;
- Improving safety conditions to reduce the number of fatal traffic crashes, enhancing emergency access and evacuation routes throughout the state;
- Continued focus on coordinating transit investment with urban development decisions to enhance multimodal connectivity
- Enhanced high-speed, high-capacity transportation corridors, and
- Connectivity to emerging economic centers.

## Freight Demand

Florida is a significant gateway for international trade imported and exported within the U.S. Approximately 20% of all the U.S. exports originate from Florida and the state is the second-largest Foreign Trade Zone network in the nation<sup>22</sup>. In addition to international trade, a significant amount of freight (70% of all freight flows) are distributed within the state rather than imported or exported<sup>23</sup>. Over the next 20 years, the total weight (tonnage) of goods imported into and exported out of Florida is anticipated to increase by 64% from 232 Million tons in 2011 to 381 Million tons in 2040<sup>23</sup>. In the same timeframe, the total value of goods imported into and exported out of Florida is anticipated to increase by 198%. As freight demand increases, growth in demand for freight rail is anticipated resulting in lower capacity for passenger service operating windows on shared freight/passenger rail corridors within the study area.

## Planned Improvements

Planned rail facilities within the study area were reviewed to consider connectivity to existing or planned rail corridors during the development of concepts.

### *TBARTA Commuter Rail*

The Tampa Bay Area Regional Transportation Authority (TBARTA) published a Long-Range Transportation Master Plan which was adopted June 2015. A key element of the TBARTA Master Plan is to provide transit connectivity across the Howard Frankland Bridge (I-275/SR 93) corridor, linking Hillsborough and Pinellas counties via transit stations. As part of the Howard Frankland Bridge Project Development and Environment (PD&E) Study, FDOT is evaluating this transit linkage to Hillsborough County's Westshore Regional Multimodal Center and Pinellas County's proposed Gateway

<sup>19</sup> <https://www.census.gov/newsroom/press-releases/2014/cb14-232.html>

<sup>20</sup> Bureau of Economic and Business Research. Projections of Florida Population by County (2020-2045), medium-range estimates. January 2018.

<sup>21</sup> <https://www.census.gov/data/tables/2016/demo/popest/total-metro-and-micro-statistical-areas.html> (2010-2016 populations)

<sup>22</sup> <https://www.enterpriseflorida.com/thefutureishere/logistics-distribution>

<sup>23</sup> Florida Freight Mobility and Trade Plan (2014)

station. Transit connectivity to these stations would allow uninterrupted transit movements from St. Petersburg and Clearwater across the bridge to Tampa's Central Business District. This transit corridor is being evaluated in conjunction with the PD&E Study and is anticipated to be complete in Spring 2018.<sup>24</sup> The Hillsborough Regional Transit Authority (HART), in partnership with FDOT, is conducting a regional premium transit feasibility plan to evaluate transit corridors to provide key transit linkages in urban areas in Hillsborough, Pinellas and Pasco counties and is studying rail, light rail, and BRT options. The study is anticipated to be complete in 2018.

#### *First Coast Commuter Rail*

In 2009, the Jacksonville Transportation Authority (JTA) along with First Coast MPO and Northeast Florida Regional Council conducted a study on the feasibility of commuter rail throughout the JTA service area. The study found three feasible preferred alternatives, which included routes from downtown Jacksonville to St. Augustine, downtown to Green Cove Springs, and downtown to Yulee. Preliminary planning efforts were completed in 2014 and included travel demand modeling<sup>25</sup>. The downtown-to-St. Augustine corridor (Southeast Corridor) would run parallel to Florida East Coast Railway's tracks along Philips Highway. It would extend 38 miles and would feature 13 stations. The downtown-to-Green Cove Springs corridor (Southwest Corridor) would run along tracks owned by CSX and Norfolk Southern and would span 29 miles with 12 stations. The North Corridor from downtown to Yulee would be the shortest at 23 miles long but would have 15 stations.<sup>26</sup> As of December 2017, funding is not programmed for further project development and evaluation of the corridors.

#### *Planned Rail Facilities*

The Jacksonville Transportation Authority is developing the Jacksonville Regional Transportation Center (JRTC) to serve multiple passenger transportation modes (buses, Skyway, Greyhound, Megabus, and passenger rail services). As part of the planned improvements, a rail connection would be constructed to connect the JRTC to Amtrak passenger rail services downtown. The Intercity Bus Terminal would be approximately 8,000 sq. ft. with a Bus Transfer Facility consisting of 13 bus bays and a 35,000-sq. ft. administration area. The final phases of construction are anticipated to be completed in 2019<sup>27</sup>.

## Feasibility Analysis Methodology

### Evaluation of Modal Technologies

In order to evaluate the feasibility of intercity passenger rail between Tampa and Jacksonville, the modal technology (or type) of passenger rail infrastructure was analyzed prior to ridership modeling and evaluation of the passenger rail scenarios developed. Various modal technologies were considered based on typical technologies implemented in medium to high-density population areas. Five modal technologies (including bus rapid transit (BRT), light rail transit (LRT), heavy rail transit (HRT), commuter rail (CR), and high-speed rail (HSR)) were used for comparison in this study to identify a recommended technology for further analysis. A summary of the **modal technologies considered** and the key characteristics associated with each modal technology are summarized in Table 2. Each technology was compared based on typical corridor lengths, average passenger capacity, capital cost per mile, operating costs, and general use. The general characteristics of each modal technology were documented from industry sources on project types. While this information is not project or study area specific, it provides a relative comparison of modal technologies.

Based on the summary presented in Table 2, the most cost-feasible modal technology for the purposes of this feasibility analysis is **intercity passenger rail**. High-speed intercity passenger rail would result in significant costs due to the need for grade separations, bridge structures, and the need for an exclusive passenger rail corridor for high-speed, electrified service. Other modal technologies reviewed in this study would generally require entirely new track systems, would not share rail systems with freight rail providers due to incompatible rail design, or would be cost prohibitive.

<sup>24</sup> <http://hfbs.fdotd7studies.com/index.html>; Howard Franklin Bridge PD&E Study Documents, Accessed December 2017

<sup>25</sup> <https://www.jtafla.com/blueprint-2020/commuter-rail/>

<sup>26</sup> <https://coastaljax.com/imagine/first-coast-commuter-rail/>

<sup>27</sup> <http://www.jtafla.com/blueprint/jacksonville-regional-transportation-center/>

Table 2. Summary of Modal Technologies

Characteristics	Service Type				
	Bus Rapid Transit (BRT)	Light Rail	Heavy Rail	Intercity Passenger Rail	High-Speed Rail (U.S. Systems)
Metropolitan Areas Served	Trips within dense urban areas and regional connectivity	Trips within densely developed urbanized areas	Trips within densely developed urbanized areas	Long-distance trips between major metropolitan areas	High-speed, long-distance trips between major metropolitan areas
Typical Route Length (miles)	5 to 15	5 to 15	5 to 15	50 to 2,000	150 to 400
Capital Cost per Mile	\$393,000 (includes right-of-way considerations)	\$110,000	\$508,000	\$571,000	\$53.5 Million (Estimated Average)
Operating Costs (per revenue hour)	\$147	\$268	\$266	\$513	\$2,554
Shares Tracks with Freight/Passenger Rail	No	No	No	Yes	No
Average Maximum Speed (MPH)	45 (Typical urban posted speeds)	50	70	79-90	90-110
Station Spacing (miles)	0.25<	0.25 to 1	<1 to 5	5 to 50	10 to 50
Propulsion System	Gasoline-Hybrid	Electricity	Electricity	Diesel-Electric	Electricity
Right-of-Way Requirements (feet)	11 or more	11 to 33 (single or double track)	25 to 33	37 or more	50 or more
Vehicles	BRT Bus	Modern articulated streetcars	Modern subway or elevated cars	Locomotive-hauled or self-propelled coaches	Locomotive-hauled cars
Length (buses or cars)	1 bus (40 to 60 ft.)	1 to 3	4 to 10	2 to 14	8 to 12

Sources: Capital costs and operating costs were derived from FTA Capital Cost Database<sup>28</sup>

Modal Characteristics: Comparison of Selected Characteristics Among Different Types of Rail Passenger Services Based Upon Typical North American Practice (Table data from SouthEast Wisconsin Regional Planning Commission newsletter, August, 1998, Vol. 38, No. 2, page 10)

Notes: Operating costs for directly operated services include operator wages, other salaries/wages, fringe benefits, services, fuel and lube, tires, other materials and supplies, utilities, casualty and liability, taxes, purchased transportation, and miscellaneous costs; BRT right-of-way cost estimates include projects with guideways with at-grade exclusive right-of-way, at-grade semi-exclusive, at-grade in mixed-traffic, guideways with aerial structure, built-up fill, underground cut-and-cover, and underground tunnels; BRT ROW width is for fixed-guideway minimums.

<sup>28</sup><https://www.transit.dot.gov/capital-cost-database>

Within this study area, intercity passenger rail would have the following benefits when compared to other modal technologies:

- Modal technology is characteristic of long-distance passenger services similar to Amtrak and interregional commuter rail systems in the U.S.
- Average station spacing and route length is representative of regional mobility needs between Tampa Bay and Northeast Florida
- Potential to share the CSX S-Line or a newly constructed rail line with freight rail providers if the railroad owners and operators concur with access rights/track usage resulting in potential right-of-way cost savings (dependent on access/trackage costs negotiated)
- Minimizes environmental impacts associated with an exclusive passenger service rail corridor
- Moderate capital cost investment compared to the other technologies

## Ridership Analysis Methodology

Ridership estimates for passenger rail service for the year 2040 were developed to evaluate the potential travel demand for enhanced passenger rail within the study area. Background data including population, employment, and travel forecasts for the analysis was obtained from the travel demand model used for the North I-75 Master Plan. These traffic forecasts were developed by the Florida's Turnpike Enterprise (FTE) using the I-75 Relief Study Model (RSM). The I-75 RSM was based on socioeconomic data obtained from the local MPOs during model development.

Ridership estimates were developed based on the travel demand model by analyzing potential train schedules, travel time between potential station stops, and frequency of passenger trains. The model evaluates the potential ridership based on the comparison of other modes such as auto travel time.

## Passenger Rail Scenarios Considered

**Four passenger rail scenarios** were considered to evaluate the feasibility of passenger rail service. The scenarios were developed to address alternate scenarios on increased frequency of existing service, restoration of historical passenger rail service, enhanced passenger service connectivity, and consideration of a new service/route. The purpose of this scenario analysis was to evaluate the increase in ridership potential for each scenario. Specific alignments and station stops were not identified for this preliminary planning effort.

- Scenario 1 uses existing Amtrak *Silver Star* service on the CSX A-Line with existing stations in Jacksonville, Palatka, DeLand, Winter Park, Orlando, Kissimmee, Lakeland, and Tampa. In Scenario 1, the frequency of direct rail service is increased from one train (in the existing condition) to two trains to provide an equal comparison of the scenarios.
- Scenario 2 consists of restored passenger rail service on the CSX S-Line with historical station stops of Jacksonville, Waldo, Ocala, The Villages, Dade City, and Tampa.
- Scenario 3 is similar to Scenario 2, but would replace the Waldo station with a new station and rail line to serve downtown Gainesville, with stations in Jacksonville, Gainesville, Ocala, The Villages, Dade City, and Tampa.
- Scenario 4 includes passenger service with new rail segments connecting the existing Brooksville CSX line, Florida Northern Railroad, and the CSX S-Line with stations in Jacksonville, Gainesville, Dunnellon, Brooksville, and Tampa.

All four alternatives assume shared freight and passenger use of existing railroads where existing within the route. However, use of existing rail corridors would require coordination and access agreements (and associated costs) with private railroads. To provide a comparative analysis, the same frequency (two trains per day) was used for each alternative.



# Feasibility Analysis Results

## Projected Ridership Demand

As noted previously, the ridership model was used to project future ridership demand through the year 2040. These are high level forecasts based on the I-75 Relief Study travel demand model. Similar to the existing condition, the ridership model showed that intra-Florida trips are dominated by Tampa, Orlando, and Jacksonville with those three stops making up two-thirds of projected intra-Florida rail ridership. There is limited end to end Tampa Bay to Jacksonville interaction in the ridership model largely due to the **non-competitive travel time** of the passenger rail scenarios as compared to auto travel times. The travel time resulting from the ridership model and the projected 2040 ridership (total daily station boardings and alightings) are shown in Table 3.

Due to the more direct routes from Tampa to Jacksonville assumed in the analysis, the travel time improves for all scenarios as compared to the existing condition. The potential new service modeled in Scenario 4 reduces the travel time, as compared to Scenarios 1-3. Based on the travel demand model estimates, daily ridership demand forecasted for the year 2040 resulted in a range of between 313 projected daily riders on Scenario 2 (restored passenger service on the S-Line) to a maximum of 531 passengers with Scenario 4 (new rail service/new rail alignment). The ridership estimates showed **minimal growth in ridership demand** through the year 2040 as compared to the existing 2014 ridership of 248 daily riders. The comparison of Scenario 1 (existing service route) and Scenario 2 (restored historical service route) show that the ridership would decrease with Scenario 2. Since the travel time is more competitive with Scenario 2, the lower ridership is likely attributable to the loss of market demand with the Orlando station stop.

Table 3. Projected Ridership Demand and Travel Time

Assumption	Scenario 1: Existing Amtrak Silver Star Service	Scenario 2: Restored CSX S-Line Service (Waldo)	Scenario 3: Restored CSX S-Line Service (Gainesville)	Scenario 4: New Passenger Service
Station Stops	Jacksonville Palatka DeLand Winter Park Orlando Kissimmee Lakeland Tampa	Jacksonville Waldo Ocala The Villages Dade City Tampa	Jacksonville Gainesville Ocala The Villages Dade City Tampa	Jacksonville Gainesville Dunnellon Brooksville Tampa
Frequency	2 trains per direction per day (for all scenarios)			
Jacksonville – Tampa Travel Time	5 hr 23 min	4 hr 25 min	4 hr 30 min	3 hr 50 min
2040 Daily Ridership Forecasts (Boardings and Alightings)	364	313	410	531

## Qualitative Considerations

Based on the limited existing ridership, it is assumed that many people using the existing Amtrak service are not making standard travel time and cost choices, but instead are either captive (they have no other way to make the trip) or are choosing rail as the mode for personal reasons that do not include travel time. Given limited funding for passenger rail nationwide, a direct connection between Tampa and Jacksonville would not provide a significant ridership benefit and the cost to implement service would be substantial. The actions of other private transportation service providers offer additional insight into the potential demand of a direct connection between Tampa and Jacksonville; only one airline provides direct flights between the cities, and there are very limited options for intercity bus service between the cities, with RedCoach recently terminating service to Jacksonville from Tampa, Ocala, and Gainesville. Based on the projected ridership, intermediate stations between the Tampa and Jacksonville areas would not provide significant ridership potential and neither would an end-to-end direct service without intermediate stations.

## Summary

The project team identified **planning-level recommendations** within the study area based on the feasibility analysis documented within this summary report. Based on the analysis conducted, intercity passenger rail service would be the most feasible mode of transportation due its travel speed (up to 90 mph), relatively low average capital cost for each new mile of rail line constructed, relatively low average operating cost per revenue hour, and its ability to share existing CSX S-Line tracks or newly constructed tracks with freight rail providers if access rights and use of tracks is provided by the private railroad owners.

CSX has increased freight tonnage on the CSX S-Line between Tampa and Jacksonville due to SunRail commuter rail implementation along the A-Line. Increased freight tonnage on the S-Line reduces opportunities to incorporate new passenger rail service on the S-Line. Additionally, the S-Line contains single track rail segments, which limit freight service and mobility by allowing one rail provider to operate in one direction at a time. Limiting bi-directional train movement results in potential congestion and freight delays or reductions in trip frequency. There is an increased likelihood of freight interference and customer dissatisfaction from increased delays and travel time resulting from the rail system operating over-capacity. As part of this study, FDOT's coordination with CSX confirmed that future passenger rail service along the CSX S-Line corridor would not be viable due to the existing and planned freight mobility needs. CSX was supportive of potential future passenger rail connectivity between the CSX Brooksville Line and the CSX Gainesville spur if warranted by future travel demand. This connectivity would also require coordination and support of the Pinsley Florida Northern Railroad (FNOR).

Passenger rail capacity could be accommodated if a new rail line was constructed to support passenger rail service between Tampa and Jacksonville. However, even with the maximum projected ridership forecasts, a maximum of approximately 531 daily riders (ons and offs) would be estimated to use the new service by the year 2040. Approximate cost estimates for construction of a new passenger rail line for this long-distance passenger rail service would be cost prohibitive based on average capital costs derived from the National Transit Database and consideration of the extremely **low benefit/cost with the low projected ridership**.

Enhanced or new intercity passenger rail service (whether enhanced or newly constructed) would not be feasible based on the significant capital costs and operations and maintenance costs, in addition to substantial environmental impacts. Ridership demand is minimal, anticipated capital costs of a newly constructed or enhanced rail line would not be justified based on anticipated ridership, and the CSX S-Line would not likely have capacity to accommodate passenger rail services given the existing demand for freight. The low projected ridership indicates that enhanced intercity passenger rail would not provide any significant diversion of auto traffic from I-75 within the study area. Based on existing and future socioeconomic forecasts and projected ridership demand, the results documented within this summary report indicate that enhanced or new passenger rail from Tampa to Jacksonville is not feasible through the year 2040.