FLORIDA STATE UNIVERSITY

FLORIDA’S HIGH SPEED RAIL: An Analysis of Options

AN ACTION REPORT SUBMITTED TO THE FACULTY OF THE COLLEGE OF SOCIAL SCIENCES IN CANDIDACY FOR THE DEGREE OF MASTER IN PUBLIC ADMINISTRATION

REUBIN O’D ASKEW SCHOOL OF PUBLIC ADMINISTRATION AND POLICY

BY

ELIZABETH PETERSEN

Tallahassee, Florida
August 2003
Executive Summary

In 2000, Florida voters approved by popular vote an amendment that called for the implementation of high speed ground transportation designed to reduce traffic congestion and provide alternatives to the traveling public in Florida. Florida has tried to construct a high speed rail before, but has always faced political opposition and insufficient funding. This is the first time that the Department of Transportation has released an RFP that will require interested parties to specify their design, build and maintenance plans as well as finance the rail; prior to this release the government would provide the operating and financing plans.

At the present time there are two private companies competing for a bid to build the rail, although four companies initially placed bids. These four companies are: ET3.com, Florida High Speed Project Holding Company, LLC (Fluor Bombardier), Georgia Monorail Consortium, Inc. and Global Rail Consortium, LLC.

Information for this report was collected by unstructured interviews and telephone contacts, analysis of the 2000 Florida Constitutional Amendment, Florida Statutes from the years 1980-2003 and an assessment of literature published on other high speed ground transportation systems.

This report presents three policy options for analyzing the four competing private sector companies: Overall Cost, Economic Impact and Necessity of implementing a rail. Each option was evaluated against ET3.com, Fluor Bombardier, Georgia Monorail Consortium and Global Rail Consortium.

Based on assessment of the alternatives using the three evaluative criteria, Global Rail Consortium is recommended. The Consortium proposes a Rolling Stock technology
that allows travel at the speed of 185+ mph and 17 scheduled round trips per day. The estimated travel time between Tampa and Orlando via high-speed rail would be 43 minutes. Current travel time with existing vehicle transportation is approximately 90 minutes, almost half an hour longer. Although Fluor Bombardier is just as capable as the Consortium, Global Rail Consortium is the better choice according to the concluding matrix. The other two companies were unable to continue in the bidding process because according to the Department of Transportation, they were unable to prove financial stability and sufficient economic resources, a critical component of the RFP. Global rail Consortium would offer the public improved transposition options and would bring needed economic resources to the area and the state.
# TABLE OF CONTENTS

**LETTER OF TRANSMITTAL**

**LIST OF TABLES** iii

**EXECUTIVE SUMMARY** iv

## Chapter

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. PROBLEM STATEMENT</td>
<td>2</td>
</tr>
<tr>
<td>II. BACKGROUND AND LITERATURE REVIEW</td>
<td>3</td>
</tr>
<tr>
<td>- Background</td>
<td>3</td>
</tr>
<tr>
<td>- Literature Reviews</td>
<td>8</td>
</tr>
<tr>
<td>III. METHODOLOGY AND EVALUATION CRITERIA</td>
<td>11</td>
</tr>
<tr>
<td>- Methodology</td>
<td>11</td>
</tr>
<tr>
<td>- Evaluation Criteria</td>
<td>13</td>
</tr>
<tr>
<td>IV. MANAGEMENT POLICY OPTIONS</td>
<td>15</td>
</tr>
<tr>
<td>- ET3.com</td>
<td>15</td>
</tr>
<tr>
<td>- Fluor Bombardier</td>
<td>18</td>
</tr>
<tr>
<td>- Georgia Monorail Consortium.</td>
<td>21</td>
</tr>
<tr>
<td>- Global Rail Consortium</td>
<td>23</td>
</tr>
<tr>
<td>V. CONCLUSION</td>
<td>27</td>
</tr>
</tbody>
</table>

**REFERENCES** 30

**APPENDIX** 33

**ABOUT THE AUTHOR** V
LIST OF TABLES

Table

1. Implementing a High-Speed Rail System in Florida, *Choosing a Private sector Partner*  
   25

2. Comparison Chart of the Four Private Sector Partners Who Have Submitted to the DBOM F (RFP)  
   33
In 1998, the Constitution Revision Commission approved placing an amendment on the 2000 ballot that would allow voters the opportunity to approve a high-speed ground transportation system designed to reduce traffic congestion and provide alternatives to the traveling public. It further mandated that, if approved by the popular vote, construction was to begin on or before November 1, 2003. The Constitutional Amendment stated:

To reduce traffic congestion and provide alternatives to the traveling public, it is hereby declared to be in the public interest that a high-speed ground transportation system consisting of a monorail, fixed guide-way or magnetic levitation system, capable of speeds in excess of 120 miles per hour, be developed and operated…The Legislature, the Cabinet and the Governor are hereby directed to proceed with the development of such a system by the state and/or by a private entity pursuant to state approval and authorization, including the acquisition of right-of-way, the financing of design and construction of the system, and the operation of the system, as provide by specific appropriation and by law, with construction to begin on or before November 1, 2003.

To the detriment of the voters, this amendment failed to address the cost of the proposed project, the economic impact on the State of Florida, the cost of implementation, and necessary steps needed to create such an enormous mass transit system.

This Action Report will address the cost of the project, the economic impact associated with a mass transit system and the necessity, if any, of implementing such a project. The need for such analysis is due to the simple fact that many individuals
associated with the Legislature and across the state are against the High Speed Rail (HSR) and the adopted Constitutional Amendment (North, 2003). This analysis will address the cost, economic impact, and necessity of creating a High Speed Rail in the State of Florida. The purpose is to examine the four proposals for the Design, Build, Operate and Maintain, and Finance (DBOM F) Contracts submitted to the Florida Legislature regarding the implementation and creation of the High Speed Rail. Proposals were submitted by the organizations on February 10, 2003: Global Rail Consortium, LLC; Florida High Speed Project Holding Company, LLC; Georgia Monorail Consortium, Inc; and ET3. com, Inc. in order to display their intent and means of building Florida’s High Speed Rail.

II. BACKGROUND AND LITERATURE REVIEW

Background

This section examines Florida’s previous attempts at creating a high-speed rail by discussing its initial and subsequent attempts of the rail construction. Since the 1980’s, both the public and private sectors have initiated partnerships to propose systems with top speeds of 150-200 miles per hour between Miami, West Palm Beach, Orlando and Tampa. Although none resulted in the implementation of passenger services, the significant resources invested in these partnerships testified to the underlying strength of the high-speed rail concept.

In 1976, the Legislature mandated a Florida Transit Corridor Study, which evaluated the feasibility for a high-speed rail system to operate between Daytona
Beach and St. Petersburg. This study not only concluded the feasibility of building a high-speed rail but also recommended using the existing interstate highway system as a corridor. At this time the capital cost was estimated at only $585 million dollars, today’s cost is estimated at $1.3 billion. Following the discovery that the use of existing interstate corridors would allow for feasible high-speed rail construction, Governor Bob Graham encouraged the Legislature to enact the Florida High Speed Rail Transportation Commission Act. This act included strong legislative findings regarding the need for a high-speed mass transit system.

The Commission created a seven-member commission that was further charged with implementation of Florida’s high-speed rail. In 1996 the FOX Consortium, consisting of Flour Daniel, Odebrecht Contractors, Bombardier and GEC Alsthom, was selected by the Department of Transportation to build Florida's High-Speed Rail connecting Miami, Orlando and Tampa. The system capital cost was estimated at $6.1 billion with year 2010 ridership projected at 8.5 million annually. By 1998, FOX had completed approximately 10% of the preliminary engineering and environmental work. Unfortunately, in fiscal year 1999 all state funding was terminated because of insufficient political support in both the legislative and executive branches of government.

Most recently, a project called "Florida Overland Express" failed when it was denied funding by Governor Jeb Bush in his 1999-2000 budget. At that time the Governor cited several risks involved with the project and much concern regarding financing, environmental impact, and ridership. The strongest proponent of the project was Lakeland businessman C.C. "Doc" Dockery. He strongly appealed to those
Floridians who were tired of wasting time in traffic, as well as the three million elderly who no longer carried driver's licenses. By emphasizing the potential impact of a system that may encourage high tech industries to establish facilities along the Interstate 4 corridor, which the current system would parallel. Dockery was able to place an amendment on the 2000 ballot that would allow voters the opportunity to approve a high-speed ground transportation system, thus taking the decision out of the government’s hands and placing it into the people’s. One of the first opponents of the original amendment was the Florida Transportation Builders Association (FTBA). The FTBA was unsuccessful in its attempt to block inclusion of the amendment on the ballot, touting a study written by a Washington, D.C., based non-profit program that advocated for "increased cost-efficient and convenient transit" to reduce Florida's congestion, but not a high-speed train (United States Department of Transportation; Bureau of Transportation Statistics, 1997).

Groups like the FTBA and Floridians for Better Transportation continued to be concerned that voters were not completely informed of the important issues such as the estimated cost and expected time line for completion when they approved the amendment, but nevertheless the amendment was approved in 2001. The Legislature took action as required by the Florida Constitution and created the High Speed Rail Authority in S. 341.821, F.S. Once created, this Authority was made up of nine voting members within the Florida Department of Transportation (FDOT). FDOT provided the technical and administrative support, but the Authority was granted the ability to administer and manage the preliminary engineering and environmental assessments of the interstate high-speed rail system, exercise all powers granted to corporations under
the Florida Business Corporation Act as provided in chapter 607, Florida Statute, seek federal matching funds or any other funds to fulfill the requirement of the Act, and have perpetual succession as a political body and corporation.

The High Speed Rail Authority’s powers were further enhanced in S 341.823,F.S., by developing and applying the following preliminary engineering and assessment criteria: the system created must be capable of speeds in excess of 120 mph and consist of dedicated rails or guideways separate from motor vehicle traffic; the initial segments of the system will be developed and operated between St. Petersburg, Tampa and Orlando with future services to Miami, Jacksonville, and Pensacola; and, non-governmental funding, to the maximum extent feasible, is to be used for designing, constructing and operating the system.

The High Speed Rail Authority's operating plan included the following: proposed passenger and freight fare structure; proposed trip times, system capacity, passenger accommodations and amenities; methods to ensure compliance with applicable environmental regulations; an investment grade ridership study; consideration of non-fare revenues that may be derived from the sale of development rights at the stations; licenses, franchises and lease fees, as well as the sale of advertising space on the trains or in the stations; and, an estimate of the total cost of the entire system, including, but not limited to, the cost to design and build stations and fixed guide-ways, acquire any necessary right-of-way, purchase or lease rolling stock and other equipment necessary to link, operate and maintain the system, and the value of assets the state or its political subdivisions may provide. Florida Statue section 341.823 states that the Authority shall develop a marketing plan, a detailed
planning level ridership study, and an estimate of the annual operating and maintenance costs for the system and all other associated expenses.

In 2001, a Request For Proposal (RFP) was released by the Florida Department of Transportation to hire an independent consultant that would monitor two necessary studies prior to construction: the Investment Grade Ridership Study, which would calculate the degree of public interest, and The National Environmental Protection Act, which would hopefully gather the necessary environmental permits required for installing a massive transportation system.

The Design, Build, Operate, and Maintain and Finance (DBOM F) RFP responses were received on February 10, 2003. This is the first time in the long history of the high-speed rail that a group was asked to show plans on all the above stages. Prior to the release of the “DBOM F” RFP, interested parties were only required to specify their design, build, and maintain plans, relying on the government for operation and financing.

The implementation of Florida's high-speed rail is currently tied down with political acceptability and/or rejection rather than factual and economic content. It is up to Legislators to decide how to implement the constitutional amendment; currently a few legislators are trying to repeal the Amendment with the belief that Floridians were uninformed as to the costs at the moment of introduction. Like any proposed project, it is up to the Legislature to enact and allocate funds for the project, and without its support, the high-speed rail will continue to face an uncertain future. At the present time, there are two private companies left from the original four competing for a bid to build the rail; although all four companies in this analysis are being analyzed by their overall cost, economic impact and necessity of the rail and their system. Four companies are being
analyzed, because each of the companies has supplied insightful and creative ideas that will further enhance the implementation of the rail. In summary, Florida voters have called for the creation of high-speed ground transportation, and it is the Legislatures responsibility to implement it. This move by Floridians to put an amendment on the ballot is the first attempt by citizens to create the rail rather than previous attempts discussed in this section that were initiated by government officials.

**Literature Review**

The applicable literature regarding Florida's High-Speed rail address the following topics: one, the overall cost of implementing a high-speed rail system; two, the necessity of building a rail; and three, the economic impact of a rail in Florida. These topics are clarified by the representative works discussed below and answer the three criterion questions of cost, necessity and economic impact.

The Department of Transportation and the High Speed Rail Authority’s Design, Build, Operate, Maintain and Finance RFP begins this literature review, because each of the RFPs specify the proposer, the type of technology, the right of way, the date of operation, and the cost for both the private and public sectors. The four private sector companies and issuers of the proposals are Global Rail Consortium, LLC, Florida High Speed Project Holding Company, LLC (Flour Bombardier), Georgia Monorail Consortium, Inc., and ET3.com, Inc.

Overall cost is analyzed through the four proposals and is broken down by the cost for the private and public sector, and the cost associated to the Greenway Route and the Beeline Route. Exact numbers are provided by each proposal and charted next to the
expected speed of the rail and number of routes that can be provided. Average costs for
the rail as defined by the above proposals range from $1.5 to $2.3 billion. According to
the economic impact analysis prepared by Lynch (2002), the estimated costs for the
Tampa-Orlando-Miami Corridor are $5.4 to $8.2 billion. This study further noted that
operating costs are among the hardest costs to estimate as they need to reflect both the
managing and running costs; without the implementation of the rail, exact operating costs
will not be known (Lynch, 2002).

Second, the literature reviews the necessity of the rail. By approving a
constitutional amendment on the 2000 ballot, Florida demanded it; thus, it is the
Legislature’s obligation, per the Constitution, to implement the most economical and
most efficient system possible. The report prepared by the Department also notes the
growth of air flight and personal vehicle travel, and the economic and environmental
issues facing the country because of this increase. It reviews the benefits a high-speed
ground transportation system can offer, analyzing data and proposing that the same
amount, if not less, relies on Florida’s highways even with the expected growth projected
over the next years.

The 1995 American Travel Survey notes the number of miles Americans travel
yearly, and the benefits that could arise as a result of new mass transit systems (United
States Department of Transpiration; Bureau of Transportation Statistics, 1997).
Necessity of the rail can also be understood through a study on ridership prepared by
AECOM Consulting and Wilbur Smith Associates (2002), which notes a direct
relationship between necessity and ridership. According to AECOM Consulting and
Wilbur Smith Associates’ 2002 Investment Grade Ridership Study, ridership can be
explained through the demand of existing travel volumes, growth in population, employment, hotel availability and airport passengers. One must further understand that the primary means of travel between Tampa and Orlando is by automobile, and studies state that the uncongested time for vehicular travel between downtown Tampa and Orlando International Airport is 82 minutes, while the congested time is estimated at 91 minutes (AECOM Consulting & Wilbur Smith Assoc., 2002). Tampa-Orlando is also served by one round trip air flight per day and is estimated at 45 minutes gate to gate (AECOM Consulting & Wilbur Smith Assoc., 2002). The factor that separates the necessity of the rail is further outlined in the two different proposed routes for the Tampa-Orlando rail system. If an agreement is reached with the Walt Disney Company, then the total ridership on the Greenway route in 2010 (according to the Investment Grade Ridership Study) could range from 3.8 to 4.1 million riders per year; similarly, the Beeline route is estimated in 2010 to range from 2.5 to 2.8 million riders per year. These studies are critical to analyzing the necessity of the rail, and understanding if it will indeed save time and provide a better means of travel for Floridians looking to commute between the Tampa, Lakeland and Orlando areas.

Economic impact is additionally a critical issue to examine when proposing the idea of building a high-speed rail in Florida. Florida is an ever-growing and expanding state, bringing in a 3.1% increase of tourists yearly (Metcalf, 2001). It is further estimated that the high-speed rail in Florida will result in 41,267 new jobs, $11.7 billion in wages and salaries, $34.1 billion in additional economic activity, and $5.7 billion in other benefits (Lynch 2002). These numbers are indeed very high and have offered relief to many individuals who have been against the construction of the rail. “Benefits from
implementing a version of high-speed ground transportation across the most highly populated urbanized areas of Florida will, over time, generate benefits that are considerably in excess of system costs” (Lynch, 2002, p.1).

In summary, the literature review finds critical material on how to implement the rail and examines the four companies offering to build and maintain it. However, the literature does not present the political feasibility of the rail. The current literature builds upon the cost acceptance and revenues that can be generated from the High Speed Rail, and demonstrates the use of the annual reports released by the Authority, and research studies from independent firms. Specific recommendations will be made to help policy leaders determine the best designer and most appropriate contractor by the use of relevant literature and unstructured interviews.

III. METHODOLOGY AND EVALUATION CRITERIA

Methodology

Information for this report was collected using the following methods:

- Unstructured interviews and telephone contact with staff from the Florida Senate, Florida House of Representatives, Florida Department of Transportation, strong proponents of the rail (C.C. "Doc" Dockery, Senator Paula Dockery, Senator Jim Sebesta), strong opponents of the rail (FTBA, Floridians for Better Transportation, Representative Bob Allan), Reynold Meyer (Staff Director of the Senate Committee on Transportation), Senator Dudley (Chair of the High Speed Rail Authority), Secretary Jose Abreu, (Department of Transportation), and representatives from the Global Rail
Consortium, LLC, Florida's High Speed Project Holding Company, LLC, ET3.Com, Inc. and Georgia Monorail, Inc. The length of each unstructured interview varied from five minutes to one hour.

- Analysis of the 2000 Florida Constitutional Amendment in order to gain further insight on the amendment’s intent and expectations. Florida Senate attorney recommendations were read in order to gain a clear understanding of the caliber and viability of the amendment.
- Florida Statutes (1980-2003), Florida Transportation Department’s laws and regulations, Federal Government reports, and Florida House and Senate bills filled in previous years (1980-2003), and California’s High Speed Rail Report regarding the state’s progress (1998-2003), were reviewed and examined.
- Assessment of literature published on other high-speed ground transportation systems, including economic impact reports and ridership studies; literature originated from internet search engines and stakeholders following the issue.

Interviews and telephone contacts have provided the most valuable insight regarding the status of Florida's High Speed Rail. Through the above contacts, essential insight on both the pros and cons of the proposed system as well as behind-the-scenes access to RFP reviews and critiques has been gained. Reviews of applicable laws and regulations of all levels of government have provided the necessary background on high-speed ground transportation systems that have been implemented and that are in the works. These regulations set the stage for all HSGT systems and allow for expert information and guidelines regarding relative policy options.
**Evaluation Criteria**

Three criteria were used to evaluate the implementation of Florida's High Speed Rail: one, overall cost of the project, both private and public; two, economic impact; and, three necessity of such a system. Each criterion will be assigned a weight percentage as to its relevant importance. Each private sector partner will then be given a score of one to five, with one being very negative and five being very positive. Options are given a proportion of that total score based on evaluation criteria. Scores are then multiplied by the criterion’s relative weight and added together for a final score. The criterion ranking for each category will be assessed and based on the feasibility of implementing such a project, leading to the overall conclusion of which proposals should be eliminated.

- Overall costs show the expenses to implement each HSR option for both the private and public sector: cost of the rail tracks, cost of the rail cars, required building and environmental permits, right-of-way, operation, and maintenance. Data sources originated from the Department of Transportation, Florida’s High Speed Rail Authority, and each proposal’s offer.

- Economic impact includes the amount to be generated from the implementation of the HSR, the ability to recoup the money used to finance the project. These data have been collected from economic impact studies and the Department of Transportation. It must be further noted that this criterion takes into account the calculation of per cost trip for each proposal, because the overall economic impact of the rail will bring about the same benefits in
wages, jobs, and economic activity no matter which private partner is selected to construct and maintain the rail.

- Necessity is determined by whether commuters, visitors and residents would accept the new rail system, given other options exist for travel. Will the rail supplement travel, or take away ridership from the aviation, automotive and cruising industries? Questions to consider will be ridership and estimated travel time between cities.

These criteria were selected as representative of the considerations made in the evaluation of mass transit alternatives and the implementation of Florida’s High Speed Rail. Other criteria such as environmental impact (air quality around rail and disturbance to natural habitats), energy savings, and business complexities (disputes between which corridors to build, potential benefits to Disney or Universal regarding which route is chosen) could not be evaluated. These criteria, while important, are secondary and data are unavailable because the High Speed Rail does not exist.

The most pressing limitation to this study is that many stakeholders have not accepted the notion of building the rail and therefore critical data have not yet been compiled. Additionally, the scope and magnitude of the implementation of the proposed project has little documented literature, thus much of this study originated from first-hand interviews and analysis.
IV. MANAGEMENT POLICY OPTIONS

Section IV explains the four private sector partner’s contributions and proposals to the rail evaluating overall cost, economic impact, and necessity. The options are designed to guide policy makers toward the most viable proposal and most stable private sector partnership to create Florida’s High Speed Rail.

**Option One: ET3. com**

ET3.com claims to have developed a new form of travel technology using an Evacuated Tube Transport (ETT) that requires less than two percent of the energy of current transportation methods. The system works by eliminating all friction normally associated with travel, reaching speeds from 200 mph to 4,000 mph. ET3.com was deemed non-responsive to the RFP according to the Department of Transportation because they were unable to prove financial viability and in turn removed from the list of potential private contractors in 2003. Although ET3.com was removed, it is useful to analyze the ideas and proposals ET3.com brought to Florida’s rail.

**Overall Cost:** Overall cost shows the expenses to implement the high-speed rail option for both the private and public sector, which are further broken down into cost of the rail, cost of the rail cars, cost of required building and environmental permits, cost of right-of-way, cost of operation, and cost of maintenance. By the estimates provided by ET3.com, the total cost of the system is estimated at approximately $1.2 billion, encompassing, but not excluding, $2 million per mile of guideway, $25 million for each station and $27,000 for each transport vessel. The Department of Transportation and the state is currently facing a tight budget year thus it is critical that
the company chosen presents the Department with practical estimates of cost that is manageable and realistic for the state to fund. ET3.com’s cost for implementing the rail is realistic, but unfortunately, ET3.com can not provide the private matching funds needed to participate in the project and has asked that the High Speed Rail Authority pay costs for the construction and operation of its system, relying on the state for total funding.

According to the RFP released by the Department of Transportation, each private sector company was required to provide the mechanisms and sourced founding, relying only partially upon the state. ET3.com failed to meet this criterion earning a zero in overall cost.

**Economic Impact:** Economic impact analyzes the amount to be generated from the implementation of the high-speed rail, the ability to recoup money used to finance the project, and the amount of money that can be generated from the state’s budgets. The high-speed rail is expected to lead in the creation of 41,267 jobs, $11.7 billion in wages, and $34.1 billion in additional economic activity (Lynch 2002). Aside from this, ET3.com projects to provide the capacity of 500 passengers per hour with on-demand 24-hour services, seven days a week. Job creation will be boosted by the need to employ 200 skilled workers for four years to build the system with guaranteed retention in future positions if desired.

ET3.com’s on-demand service provides a cost-efficient, cost-generating service for all riders and employees and generates sufficient revenue to boost the economy and sustain the system, in that the train will only run when needed rather then on scheduled times with or without riders. The demand and retention of 200 extra
skilled workers has positioned them to score a five on a criterion as they are projected to bring extensive benefits to the state.

**Necessity of the System:** Necessity is determined by whether Floridians would accept the new rail system given other options i.e. automobile and airplane travel exists between Orlando and Tampa. ET3.com guarantees rail travel at a minimum of 350 mph, limiting speed because of the defined I-4 corridor requirement. This allows for travel between Tampa and Orlando in 20 minutes. This fast and achievable system is guaranteed to provide quality ridership and travel, increasing the necessity of such a rail because of the minimum travel time needed to commute from Tampa to Orlando; current travel is estimated at over an hour between Tampa and Orlando. In short, the travel time associated with ET3.com’s system allows this option to score high on necessity, as it was determined by whether Floridians would accept the new transportation system. ET3.com’s travel time is more than four times faster than present travel options and can accommodate an increase of residents and tourists traveling, positioning the company to score extremely well on necessity as it offers a faster, more efficient, mean of travel.

In summary, ET3.com provides the fastest interstate travel with limited cost traveling at speeds of 350 mph and total estimated cost at $1.2 billion. Unfortunately, after analysis from the Department of Transportation and the High Speed Rail Authority, ET3.com was unable to provide its financial backing, instead relying on public dollars and noting that private financing sources have been identified but none guaranteed. Proposing that advertising along guideways should bring in revenue to assist in the overall cost of the rail. Private funding mechanisms are a critical
component of the DBOM F RFP that must be met to continue participating in the RFP process. In order for ET3.com to display its enhanced commuter technology it would first need to provide, a substantial funding source before seeking contracts with the state in the future.

**Option Two: Fluor Bombardier**

Fluor Corporation and Bombardier Transportation make up the partnership known as Florida High Speed Project Holding Company, LLC, which offers innovative solutions with conventional infrastructures with their creation of the JetTrain. According to the Federal Government, JetTrain is a diesel-fueled jet-turbine high-speed rail system designed and built to meet North America’s most stringent passenger rail standards.

Fluor Corporation is a publicly owned engineering company that provides high quality capital projects with operational excellence. Bombardier Inc. has a workforce of 80,000 people in countries all over the world. Its global rail equipment manufacturing and servicing industry allows the corporation to provide a full range of vehicles for urban, commuter/regional, and high-speed operation services (Flour Bombardier, 2003), but has more specifically, in this proposal, exemplified the JetTrain, a high-speed transportation service.

**Overall Cost:** According to the High Speed Rail Authority (2002), the Fluor Bombardier team includes a broad range of financially strong, experienced contractors with a commitment of providing safe, reliable and economic solutions. Its private sector finance plan includes a $50 million set-aside for debt coverage in the case that
ridership is low as well as a $50 million enhancement credit when the train takes full speed (Flour-Bombardier, 2002). This debt coverage and enhancement credit separates this proposal from all others, except Global Rail Consortium, ensuring the stability and commitment of Fluor Bombardier, which will allow the Department of Transportation to offset some of the expected costs.

Total cost is estimated at $2.2 billion for the public sector encompassing infrastructure, equipment and right of way while the private sector’s investment is estimated at $1.3 billion for operations, maintenance, and train equipment for the Greenway route; and the Beeline route is estimated at 2.6 billion for the public sector and $945 million for the private sector. Furthermore, the Federal government has committed $24 million annually during the construction phase to help offset cost of the rail, and financial assistance from the Lehman Brothers. This commitment is a critical component of the proposal, understanding that the Federal government is an untapped financial source. In short, Fluor Bombardier scores high on overall cost even with the large cost associated to the rail because of debt coverage, enhancement credits and federal commitment.

A critical component of this plan is the 30-year commitment to operation and maintenance within the State; a commitment that goes beyond the necessary requirements and illustrates Flour-Bombardier’s commitment to the rail enabling them to score a four on Economic Impact.

**Economic Impact:** On top of the stated economic benefits of creating a high-speed rail system which includes an estimated $3.4 billion in additional economic activity, Fluor-Bombardier guarantees a 30-year commitment to operation and
maintenance, guaranteeing the long-term survival of the rail with or without public support. Economic impact displays the ability to recoup dollars spent on the rail; a 30-year commitment helps to ensure that dollars will be recouped eventually. Fluor-Bombardier’s analysis determined that the estimated travel time from Tampa to Orlando with a one-minute stop at intermediate stations in Lakeland will be 58 minutes via the Greenway corridor and 63 minutes via the Beeline corridor, almost 40 minutes faster than present travel. Fluor-Bombardier additionally guarantees 14 trips per day with inter-modal stations in Tampa, Orlando International Airport, Lakeland, Disney area in Orlando Florida, and the Orange County Convention Center, which are analyzed to bring extended profits to areas surrounding the rail, in hopes of superseding current economic expectations (Fluor-Bombardier, 2002).

Necessity of the System: Fluor-Bombardier implemented a Train Performance Calculation Analysis to identify projected trip times and necessity of the rail. Beyond the requirement from the Florida High Speed Rail Authority to provide a trip with a maximum time of 1 hour and 10 minutes between Tampa and Orlando, Fluor-Bombardier has designed inter-modal stations throughout the route guaranteeing stopovers and indirect destinations to allow commuters the option of riding the train to the airport as well as the office. This commuter environment is critical to the success of the rail and plays a large role in the overall necessity of the system ensuring the acceptance of the rail even with other travel options available. Estimated travel times are as followed: Tampa to Orlando, 22 minutes; Lakeland to Disney area, 22.6 minutes; Disney area to Orlando International Airport, 13.8 minutes; Disney area to Orange County Convention Center, 6.9 minutes; Beeline route, 65 minutes and
Greenway corridor, 58 minutes. These quick commuter times and convenient stations allow the system to appeal to office commuters and appeal to the overall necessity of the rail. These trip times should, in fact, bring ridership even with other travel options that are currently available.

In summary, Fluor-Bombardier provides a commuter-friendly environment with the creation of multiple stations along the route, offering commuters and residents the opportunity to travel to and from work, amusement locations and the airport in turn scoring high on economic impact, necessity and overall cost

**Option Three: Georgia Monorail Consortium**

Georgia Monorail Consortium is part of the Owen Transit Group that claims to offer a technological tool to provide relief to the everyday gridlock of the highways, using a technology that allows the simultaneous transport of passengers in two directions and a third commuter beam for non-peak hours (Georgia Monorail Consortium, 2002). The Consortium has proposed an electric rail that provides quiet transit and an environmentally friendly atmosphere without the use of gasoline and discharge of fuel exhaust.

**Overall Cost:** The Consortium estimates the public cost between $434 million to $550 million for infrastructure, operation, maintenance and right of way and a private sector investment of $1.2 billion for infrastructure, operations, maintenance and train equipment (Georgia Monorail Consortium, 2002). Unfortunately, the Consortium was deemed non-responsive to the RFP and removed from the list of potential private contractors (Nazi Hadad, Florida High Speed Rail Authority,
personal communication, June 2003). The specialty that the Georgia Monorail Consortium could have provided in addition to the rail was a high-speed lightweight monorail vehicle adding 25 additional miles to serve as a city transit system in Tampa and Orlando, with an estimated cost of $2 billion. This lightweight monorail vehicle is the component that keeps the Consortium in this report as it offers a different approach to the implementation of the rail with an economically efficient monorail that travels at 70mph.

The Department of Transportation’s RFP clearly stated that a private sector contribution had to be made. The Consortium provided the infrastructure for the cost breakup between the private and public sectors but was unable to recruit a financial lender to assist in the private sector investment, earning a zero on overall cost.

**Economic Impact**: Installing a light rail commuter train is invaluable to the community’s affected by the high-speed rail. Many commuters have criticized the rail because of the lack of transportation available once the commuter reached their destination. Florida is unlike other metropolitan states in the nation, because instead of growing upward Florida has been able to grow outward. Because Florida has grown outward rather than upward, many critics have been skeptical about the value of the rail, but the additional commuter rail will serve the commuters and increase the value of the rail in turn providing a beneficial economic environment to its communities. Georgia Monorail Consortium proposes 10 round trips per day and additional commuter stations to draw in extra ridership and commuters. Aside from additional travel options, commuter stations will draw extra revenue, which has been unmeasured before this idea.
This supplemental rail is unfortunately not enough, as 10 round trips per day do not begin to compete with existing transportation needs and other rail proposals that offer a minimum of 14 trips per day at faster commuter times. Georgia Monorail Consortium earns a two on economic impact.

**Necessity of the Rail:** Georgia Monorail Consortium offers a unique rail system for Floridians implementing both a high-speed rail reaching speeds up to 214 mph and a 25-mile commuter train traveling at 70 mph. Georgia Monorail Consortium offers a more practical approach to the rail system but is limited by speed and passenger vehicle size, thus it scores low on the necessity of the overall system because if the rail is going to be excepted it must offer something that current travel options do not.

In summary, the Consortium was unable to prove its financial responsibility to the Department and the Authority and subsequently was removed from the list of potential partners. The Consortium proved not to be as competitive as the other three partners on speed, trip scheduling, cost and necessity thus it scored low on all rankings of this analysis.

**Option Four: Global Rail Consortium**

Global Rail’s mission regarding the implementation of Phase I of Florida’s High Speed Rail is to provide “enhanced transportation alternatives to citizens of Florida, and lessening environmental impact created by carbon fuel emissions, while creating seamless integration with existing transportation modes” (Global Rail Consortium, presentation to Senate Transportation Committee, 2003, p.2). The rail
runs on overhead electric power with a double track system and utilizes TGV Rolling stock, a technology currently in operation in France, Korea, England, Spain and the Netherlands. Because their operation currently exists in other countries, the Consortium brings experience to Florida and is made up of ARCADIS Management and Korea Railroad Technical Corporation.

**Overall Cost:** Global Rail Consortium is a true private/public partnership, providing almost equal breakup between the money provided by both the public and private sectors with an estimated cost of $2.35 billion for the Greenway Route and $2.07 for the Beeline Route, a partnership also recognized by Fluor-Bombardier. Public sector cost is the infrastructure, right-of-way and operation is $2.4 billion while private sector cost is estimated at $1.8 billion for infrastructure, operations, maintenance and train equipment. The Consortium has capped the state’s risk in the event the rail is unsuccessful, a critical characteristic of this proposal as only one other company has capped the state’s risk, in turn enhancing the feasibility of the system.

As noted in the constitutional amendment voted on by Floridians, the rail must be funded by both public and private entities, a critical component seen here and an underlying reason the Consortium received high marks in overall cost. Additionally, the Consortium has capped the state’s risk and given the Department of Transportation an incentive and an “out” if the rail was in fact unsuccessful, as public dollars would not have to be spent on an unsuccessful project. A cap on risk ensures that the Department will not loose a substantial amount of dollars.

**Economic Impact:** The Consortium included an annual ridership study in their presentation to the Florida Senate Transportation Committee this year, estimating both
gross revenue and ridership. The proposed gross revenue for the rail ranges from $42,657,734 to $50,560,613 with 17 scheduled trips per day. Studies have noted that the economic impact of the rail is to bring in only 34.1 billion dollars, a lower projection then the Consortium’s. This expectation is the underlying reason the Consortium received high marks in economic impact, as economic impact was determined by the amount to be generated with implementation of the rail. The proposed gross revenue of the Consortium’s system is double the expected gross revenue and an important characteristic that enables the Consortium to receive high marks in this analysis.

Necessity of the Rail: The Consortium will operate the rail between the hours of 5:47 am to 11:15 pm with an average travel time between Tampa and Orlando of 43 minutes, offering residents and visitors more scheduled services than other proposed rails with increased dependability on the system for travel and commuting a key component of necessity. Establishing an operating plan that includes safe, reliable and convenient transportation services to and from a high-speed rail terminal and the passenger’s end destination allows commuter and travelers to feel safe and have a desire to ride the rail, accepting this option even with other means of transportation currently available. The Consortium has contracted with RailNet, Inc., a subsidiary of the Mears Transportation Group to provide ticket booth operators and internet sales technicians, understanding that many tourists and executives rely on the internet to purchase their travel packages. The Mears Transportation Group currently operates 50% of the shuttle services between Orlando International Airport and tourist areas. The Consortium is the only partner to go as far as planning the ticketing phase of the
operation, an identifier that this partner has thought things all the way through. The Consortium additionally projects a travel time less than current travel time and greater operating hours than other proposed systems increasing the necessity of its proposed system

In summary, Global Rail Consortium ranked the highest in the combination of all categories and has demonstrated by the above analysis that their proposal has covered more ground than others have and has proposed ideas that should enable ridership and economic prosperity, all the while decreasing cost. The Consortium has offered additional operating hours, more scheduled trips and has expected almost double the revenue projected by the High Speed Rail Economic Impact Analysis.
V. CONCLUSION

The report presented four private sector partners seeking to create Florida’s High Speed Rail. Each private sector partner was evaluated based on overall cost, economic impact, and necessity of a high-speed rail in Florida. Table 1 summarizes the results.

Table 1 – Implementing a High-Speed Rail System in Florida
Choosing a Private Sector Partner

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>ET3.com (option 1)</th>
<th>Flour Bombardier (option 2)</th>
<th>Georgia Monorail Consortium (option 3)</th>
<th>Global Rail Consortium (option 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Cost (50%)</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Score Weighted Score</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Economic Impact (15%)</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Score Weighted Score</td>
<td>.75</td>
<td>.60</td>
<td>.30</td>
<td>.60</td>
</tr>
<tr>
<td>Necessity of a High Speed Rail in Florida (35%) Score Weighted Score</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Total Weighted Score</td>
<td>2.5</td>
<td>3.65</td>
<td>1.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Ranking scale: Each Private Sector Partner has a maximum score of 5, which is the most positive. Private Sector Partners have been given a proportion of that total score based on the evaluation criteria. Scores are then multiplied by the criterion’s relative weight and added together for a final score.

All four of the partners would provide needed partnerships for the State, though some had better proposals and offerings then others. ET3.com, though its funding mechanisms were minimal, offered the most revolutionary, high-tech approach to Florida’s high-speed rail. Unfortunately Florida, like many other states, is not ready for a technology that applies Evacuated Tube Transportation mechanisms that create space-like conditions on the ground.
Georgia Monorail Consortium and ET3.com were unable to prove financial stability and sufficient economic resources according to the Department of Transportation, thus they were removed from the pool of applicants; although the Consortium did provide a means to supplement ridership with the creation of a 25-mile commuter train.

Flour-Bombardier’s plan provides travelers an existing, affordable, appealing alternative to their daily automotive commute, while placing the long-term financial risk in the hands of the private sector. JetTrain technology, the technology used in Flour-Bombardier’s proposal, is better, safer and faster than any other technology in the market, according to the Federal Government, and is the only technology currently approved by the US Federal Railroad Administration for high-speed safety.

Flour-Bombardier seeks to build 885 miles of high-speed line, establishing an estimated travel time of 70 minutes from Tampa to Orlando, including all stops, establishing 14 round trips daily between the hours of 6:00am to 11:00pm with mechanisms to grow with ridership. Flour-Bombardier’s travel time is comparable to Global Rail Consortium’s proposed travel time as they have proposed more scheduled stops between Tamp and Orlando.

Rolling Stock technology separates the Global Rail Consortium’s proposal from all the others, implementing a new generation of TGV technology that was first introduced in France and is now seen and experienced around the world. The Consortium seeks to implement a high-speed rail network that provides enhanced transportation alternatives for citizens by lessening the environmental impact created by carbon fuel emissions, all the while creating seamless integration with existing
transportation modes (Georgia Monorail Consortium, 2002). Its proposal does in fact seek to provide the above mission and is the necessary choice for Florida. Utilizing a double track, overhead electric powered system that allows for environmentally friendly travel. With 17 trains per day, between the hours of 5:47 am to 11:15 pm, and an estimated travel time of 43 minutes between Orlando and Tampa and speeds of 185+mph, Fluor-Bombardier has verified its commitment to the High Speed Rail project.

In conclusion, Global Rail Consortium, like Fluor-Bombardier, offers the most economical and attainable solutions for implementing Florida’s High-Speed Rail. Although the above matrix demonstrates that Global Rail Consortium is the best option, Fluor-Bombardier is just as capable. The proposed contractors have given their unique approach to reducing traffic congestion and providing an alternative to the traveling public, the criteria mandated by the Constitutional amendment voted on and adopted by Floridians in 2001. Florida is at a crossroads, a decision point on what is the most attainable way to implement a high-speed rail in the state. Global Rail Consortium has offered Floridians that approach and has guaranteed a more enhanced transportation alternative that is environmentally friendly and seamlessly integrated with existing transportation modes.

Assessment of the four policy options indicates that Global Rail Consortium would be the most attainable and equitable solution for the implementation of Florida’s High-Speed Rail. Therefore, Global Rail Consortium is recommended to the Department of Transportation and the High-Speed Rail Authority.
REFERENCES


Florida High Speed Rail Authority (January, 2002) Florida High Speed Rail Authority 2002 Report to the Legislature Prepared by HNTB Corporation

Florida High Speed Rail Authority (January, 2003) Florida High Speed Rail Authority 2003 Report to the Legislature Prepared by HNTB Corporation

Florida Department of Transportation (December, 2000) Coast to Coast Rail Feasibility Study Preliminary Report Prepared by STV Incorporated


Tallahassee, Florida: Author.


Jones, Allison North. (April, 2003) *House Stops Bid To Derail High-Speed Train, 7 Local Lawmakers Want Voters To Rethink Ballot.* Tampa Tribune


United States Department of Transportation, Bureau of Transportation Statistics

United States Department of Transportation, Federal Railroad Administration.


United States Department of Transportation, Federal Railroad Administration.


United States Department of Transportation, Federal Railroad Administration


United States Department of Transportation, Federal Railroad Administration


United States Department of Transportation, Federal Railroad Administration.

Appendix

Table 2 – Comparison Chart of the Four Private Sector Partners Who Have Submitted to the DBOM F (RFP)

<table>
<thead>
<tr>
<th>Proposition</th>
<th>Global Rail Consortium, LLC</th>
<th>Florida High Speed Project Holdings Company, LLC</th>
<th>Georgia Monorail Consortium Inc.</th>
<th>ET3.com, Inc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposer</td>
<td>Program Management: ARCADIS</td>
<td>Fluor Daniel Florida Rail, Inc., and Bombardier Transit Corporation</td>
<td>Alternatives 1 and 2: Technology: Owen Transit Group, Inc.</td>
<td>Inventor of HTSM: Professor Wang Jiasu</td>
</tr>
<tr>
<td>Type of Technology</td>
<td>Electric powered (TGV) with a speed of 185-225 mph (subject to alignment constraints), 43 minutes (non-stop) Tampa to OIA.</td>
<td>Diesel Jet-train with a maximum operating speed of 125 mph and with a 58 minute (with stops) Tampa to OIA.</td>
<td>Monorail electric system (Two alternatives).</td>
<td>Maglev and motor evacuated tube transport with speed of 350 mph and with a 20 minute non-stop Tampa to OIA (170 mph on curves).</td>
</tr>
<tr>
<td>Greenway Route Costs</td>
<td>The public sector cost is $2.4 billion for infrastructure, operating subsidy (if any), and right of way. The private sector investment is $1.8 billion for infrastructure, operations, maintenance, and train equipment. Credit on the fixed price due to the tax exemption. If tax exemption is not granted then fixed price increases.</td>
<td>The public sector cost is $2.2 billion for infrastructure, equipment, and right of way. The private sector investment is $1.3 billion for operations, maintenance and train equipment. Wants up to $75 million per year in state revenues for 30 years to secure tax credit bonds (requires change in federal laws) and assumes $24 million per year in federal demonstration grants during construction period.</td>
<td>Alternative 1: The public sector cost ranges from $434 million to $550 million for infrastructure, operation, operation subsidy, maintenance and right of way costs which include a federal grant equal to 20% of the construction costs ($281,464,000). The private sector investment of $1.2 billion including infrastructure, operations and train equipment. The proposal is exclusive of any taxes or assessments by governmental agencies.</td>
<td>Does not want to use the Greenway Route. Using the Greenway route would cost an additional $100 million above the Beeline route.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alternative 2: The public sector cost ranges from $580 million to $660 million for infrastructure, operation,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Assumes an owner controlled insurance program. operations subsidy, maintenance and right of way costs which include a federal grant equal to 20% of the construction costs ($506,960,873). The private sector investment of $2.0 billion including infrastructure, operations and train equipment.

<table>
<thead>
<tr>
<th>Global Rail Consortium, LLC</th>
<th>Florida High Speed Project Holdings Company, LLC</th>
<th>Georgia Monorail Consortium Inc.</th>
<th>ET3.com, Inc</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beeline Route Costs</strong></td>
<td>The public sector cost is $2.1 billion for infrastructure, operating subsidy (if any), and right of way. The private sector investment is $2.1 billion for infrastructure, operations, maintenance, and train equipment. Credit on the fixed price due to the tax exemption. If tax exemption is not granted then fixed price increases.</td>
<td>The public sector cost is $2.6 billion for equipment, infrastructure and right of way. The private sector investment is $945 million for equipment, operations and maintenance. Wants up to $75 million per year in state revenues for 30 years to secure tax credit bonds (requires change in federal laws) and assumes $24 million per year in federal demonstration grants during construction period. Revenue subsidy by state or federal government required for the Beeline alignment in addition to the $75 million referred to above. The proposal is exclusive of any taxes or assessments by governmental agencies. Assumes an owner controlled insurance program.</td>
<td>The public sector cost is $508 million for infrastructure and right of way. Federal grants equal to 20% of the total costs. The private sector investment is $2.0 billion for infrastructure, operations, maintenance and train equipment. The proposal is exclusive of any taxes or assessments by governmental agencies. Total cost is $950 million to be paid as follows: Wants a 100 year operating life. Wants the Authority to pay the cost of the bond and insurance or to wave the bonding requirements and assume the liability exposure of construction and operation (estimated $500 million). Wants exclusive right to advertise along both sides of the guideway as it is built and during the 100 year operating life. The guideway cost is estimated to be $2 million per mile (total $176 million) to be paid for by selling exclusive advertising rights for the entire length (see above). The cost of rolling stock is $5 million to be paid for by advertising within the rolling stock. The station costs are estimated to be $50 million to be paid by selling exclusive merchandising, marketing, and advertising privileges within the station confines. Cargo will be sent during low demand times to maintain revenues.</td>
</tr>
</tbody>
</table>

Alternative 1:
The public sector cost ranges from $450 million to $570 million for infrastructure, operation, operation subsidy, maintenance and right of way. Federal grants equal to 20% of the total costs. The private sector investment is $1.2 billion for infrastructure, operations, maintenance and train equipment. The proposal is exclusive of any taxes or assessments by governmental agencies.

Alternative 2:
The public sector cost is $508 million for infrastructure and right of way. Federal grants equal to 20% of the total costs. The private sector investment is $2.0 billion for infrastructure, operations, maintenance and train equipment. The proposal is exclusive of any taxes or assessments by governmental agencies.
<table>
<thead>
<tr>
<th>Global Rail Consortium, LLC</th>
<th>Florida High Speed Project Holdings Company, LLC</th>
<th>Georgia Monorail Consortium Inc.</th>
<th>ET3.com, Inc</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enhancements</strong></td>
<td>Additional 4 round trips per day above the 12 required.</td>
<td>Additional 2 round trips per day above the 12 required.</td>
<td>Operates on a continuous demand basis-no schedules.</td>
</tr>
<tr>
<td></td>
<td>Longer service hours.</td>
<td>38 additional passenger capacity above the 250 passenger requirement</td>
<td>Environmentally friendly</td>
</tr>
<tr>
<td></td>
<td>Direct non-stop service from Tampa to OIA.</td>
<td>Alignment within the median of the Greenway for Alternative C.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operations and maintenance costs include the cost of adding an additional train as passenger demand increases.</td>
<td>Profile refinements to reduce earthwork.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Integration with off-track services to integrate station access with ground transportation.</td>
<td>Optimized structural replacements and design to reduce costs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Station optimizations to reduce costs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heavier brake applications to reduce travel times.</td>
<td></td>
</tr>
<tr>
<td><strong>Right of Way</strong></td>
<td>Uses RFP corridor</td>
<td>Uses RFP corridor with some exceptions</td>
<td>Primarily uses the RFP corridor. However, the Tampa station would need to be moved and other parcels purchased to accommodate curve radius due to higher speed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternative 1: Uses RFP corridors.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternative 2: Uses RFP corridors and additional city transit routes.</td>
<td></td>
</tr>
<tr>
<td><strong>Begin Operation Date</strong></td>
<td>December 2008</td>
<td>December 2009</td>
<td>December 2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>August 2007</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Prepared by the Senate Committee on Transportation, 2003.*