The Florida Senate

Interim Project Report 2002-151 *October 2001*

Committee on Transportation Senator Jim Sebesta, Chairman

IMPROVING INTRA-CITY AND INTER-CITY MOBILITY

SUMMARY

Drastic improvement to inter-city and intra-city mobility in Florida in the short term is beyond the control of state government.

There is currently very little control the state has over intra-city traffic movement. Through concurrency requirements, local governments control land use and the permitting of development by setting the level of service (LOS) for both local roads and the majority of state roads in their local comprehensive plans.

Staff finds there is not one answer to improving intra-city and inter-city mobility. This report examines a variety of initiatives which together will help Florida maintain reasonable intra-city and inter-city mobility for people and goods. The continued pursuit of better planning practices; taking full advantage of current technology through intelligent transportation systems; and understanding the value of transit are all part of a comprehensive solution to gridlock.

While transit has made modest gains in ridership, transit does not currently significantly contribute to congestion mitigation. However, staff finds the Florida Statutes reflect the intrinsic value of transit as a progressive pursuit to add to infrastructure capacity in a state with a future of continued growth.

BACKGROUND

Intra-city mobility refers to the movement of people within a metropolitan area, while inter-city mobility refers to the movement of people between metropolitan areas. Intra-city mobility is provided through local and state roads, and when available, by public transit. The main public provider for inter-city mobility in Florida is the Florida Intra-State Highway System (FIHS). This report will first examine the current state of intra-city movement in Florida's urban areas including public transit and roads. The report will then look at inter-city movement and some current initiatives to offer more travel choices for inter-city travelers.

Intra-city Movement—Public Transit

There are 24 public transit systems currently in operation in Florida. Twenty-two of these systems provide fixed-route bus services. Two of the systems, Miami-Dade Transit Agency and Jacksonville Transportation Authority, operate automated guideway systems (people movers) while only Miami-Dade offers a heavy rail system.

Public Transit Financing

The state is statutorily required to dedicate at least 15 percent of the State Transportation Trust Fund (STTF) to public transportation. While the Florida Department of Transportation (FDOT) occasionally exceeds this minimum percentage by a few percentage points, FDOT generally stays within the statutory threshold. Only approximately one-third of these funds (approximately 5 percent of the STTF) are programmed for transit projects. FDOT's Public Transportation Program includes 4 separate offices which share the 15 percent allocation. The distribution of public transportation funds for the last 2 years is demonstrated in the graph below.

State Funding for Public Transportation (15% of STTF)		
	FY 00-01	FY 01-02
Intermodal	$98.5	$43.2
Transit	$76.3	$86.6
Rail	$28.5	$45.1
Aviation	$81.9	$83.5
TOTAL	$285.2	$258.4
*In millions *Figures exclude special seaport security funding		

As with FDOT's other programs, Florida's transit system is financed from a variety of federal, state, and

local funds. All transit agencies in Florida depend on federal funds for capital purchases. In 1999, Florida transit agencies received a total of $364 million in operating funding and $135.5 million in capital funding. Of those funds, 11 percent were federal funds, 13 percent were state funds, 49 percent of the funds were local government contributions, and the remainder is net revenues and other funds from the transit agency. Much of the local funding for transit comes from a county or city's general revenue fund and represents traditional government revenue.

The FDOT's 2020 Transit plan identifies a gap between transit needs and revenues as a major issue facing transit in Florida. According to the plan, "current transit funding levels are inadequate to fund existing as well as expanded capital, maintenance and operating programs, and several funding sources lack stability and flexibility."

Data on transit operations funding from a recent report by the Center for Urban Transportation Research (CUTR) at the University of South Florida underscores the relative changes in the sources of transit funding: Federal funding to public transit has declined from 20 percent in 1984 to 11 percent in 1999. State contributions, however, have increased from about one percent in 1984 to approximately 13 percent in 1999, and local funding has increased from 46 percent in 1984 to 49 percent in 1999. There has also been a decrease in operating revenue from 32 percent in 1984 to 27 percent in 1999.

Since 1984, statewide total operating costs have increased by 168 percent. According to CUTR, a large portion of this increase is attributable to the significant growth in the amount of service provided by Florida's fixed-route transit systems during this time. Between 1998 and 1999, total operating costs increased by approximately four percent while service miles increased by five percent. Operating revenue has financed approximately 30 percent of operating costs over the 16-year period.

Intra-city Movement—Roads

The vast majority of intra-city movement is provided by a combination of local and state roads. There are 62,138 miles of county roads, 40,626 miles of city roads, and 11,961 miles on the State Highway System (SHS). Local roads are typically funded by local option gas taxes or other local funds.

The FIHS comprises approximately 3,750 miles of the SHS, and is the state's major inter-city highway network connecting all of Florida's metropolitan areas and places of commerce and interest. Approximately 1700 miles of the FIHS are arterial highways and the rest are Interstate highways. The Transportation and Land Use Study Committee stated local governments often rely on the FIHS to serve local trips as communities have developed, and it has been observed that in some areas the Interstate serves as a local "Main Street." (For more information on the FIHS see Senate Interim Report 2002-148.)

Arterial Highways are intended to collect and distribute traffic from the FIHS, and provide for highway trips made within urban areas that are not made on the FIHS. Arterial highway are a vital part of FDOT's mission in that arterials complement FIHS activity by providing a collection and distribution function. In the seven largest urbanized counties in Florida, 30 percent of travel on the FIHS is considered heavily congested and 36 percent of the travel on the Interstate is considered heavily congested.

There is currently very little control the state has over intra-city traffic movement. Through concurrency requirements, local governments control land use and the permitting of development by setting the level of service (LOS) for both local roads and the majority of state roads in their local comprehensive plans. Concurrency, as provided in s. 163.3180, F.S., is the requirement that adequate facilities needed to serve development are available within a reasonable time of the impacts of that development.

Compliance with transportation concurrency is determined through the use of LOS standards. Roadway LOS is a qualitative assessment of the road user's perception of the quality of traffic flow. An "A" generally represents the most favorable driving conditions and an "F" represents the least favorable. The LOS reflects the quality of traffic flow as measured by a scale of driver satisfaction.

The FDOT has adopted statewide minimum acceptable LOS standards. These standards, established in Chapter 14-94, Florida Administrative Code, were intended as a method of measuring highway performance. They are intended as a prioritization tools for the FDOT and a reasonable set of criteria for use by local governments and the Department of Community Affairs (DCA) to assist them in their land-use planning efforts.

To aide local governments in setting LOS standards, techniques for computing highway capacity are described in FDOT's LOS Handbook and accompanying LOS Software. Also, the FDOT has produced a set of Generalized LOS Tables to simplify the application of LOS concepts.

Florida Statutes (s.163.3180 F.S.) authorizes Florida's 467 local governments to establish levels of service standards for segments of the SHS in their respective jurisdictions that are not on the FIHS. A calculation of deficiencies and need for these segments of the SHS by FDOT could potentially require 467 individual analyses.

Local governments apply concurrency requirements in day-to-day reviews of applications for development permits to ensure that no permits are issued that would result in the actual LOS falling below the minimum standard for any regulated public facility. Development permits may not be granted by a local government if the proposed development would generate enough traffic to decrease the LOS standard on a road.

In order to encourage development, some local governments (mostly the larger urban areas) do not use FDOT's LOS standards and use their own standards and measurement techniques to set the LOS for state roads. If the LOS is set low for a particular state road, it is easier, and less expensive for the adjacent area to be developed because the developer will pay less to mitigate the increased traffic flow generated by the development.

Inter-city Movement

Publicly owned inter-city mobility is, for the most part, limited to the FIHS, and to Tri-Rail in Palm Beach, Broward and Miami-Dade Counties. Two initiatives, High Speed Rail and The Florida Passenger Rail Service Vision Plan, are currently underway to give inter-city travelers more travel options.

Tri-Rail

The Tri-County Commuter Rail Authority (Tri-Rail) is the only regional inter-city commuter rail system in Florida. Tri-Rail is responsible for the operation of commuter rail service along the 71.7-mile South Florida Rail Corridor. The rail corridor, which is owned by FDOT, extends northward from the Miami Airport Station in Miami-Dade County through Broward County to the northern terminus at the Magnolia Park Station in Palm Beach County.

This rail corridor is currently operating at capacity, with not only Tri-Rail commuter traffic, but also daily CSXT freight trains and Amtrak passenger trains. To address this problem, Tri-Rail has undertaken an aggressive program of projects to improve the corridor system as a whole. The Program, known as the Double Track Corridor Improvement Program, entails the laying of a second mainline track along the current 71.7 miles of rail right-of-way, upgrading the grade crossing and signal systems and modifying stations to accommodate the double track.

High Speed Rail

For over 20 years, FDOT has been studying high-speed rail in Florida. In 1991, Governor Chiles rejected a plan offered by the Florida High Speed Rail Corporation following the assessment the proposed financial plan utilizing extensive development rights, tax increment financing, impact fees and a new gas tax to help fund the system was not tenable.

In 1992, Florida's Legislature transferred high-speed rail responsibilities to FDOT. In 1997 FDOT executed a Franchise and Pre-Certification Agreement with Florida Overland Express (FOX). In 1999, state funding for the FOX project was terminated by Governor Bush following an assessment the financial plan would be a burden on the state.

However, on November 7, 2000, the Florida voters approved a new amendment to the Florida Constitution directing the State Legislature, Governor and Cabinet to proceed with the development of a high-speed ground transportation system in Florida. This system is required to use effective and efficient technologies capable of operating at speeds in excess of 120 miles per hour and must consist of dedicated rails or guideways separated from motor vehicular traffic. The Amendment also dictates the system must ultimately link the five largest urban areas of the State and construction must begin by November 1, 2003.

During the 2001 regular legislative session, the Florida Legislature enacted the Florida High Speed Rail Authority Act. This Act creates a nine member High Speed Rail Authority and charges the Authority with planning, administering and managing the preliminary engineering and preliminary environmental assessment of the intrastate high-speed rail system. It also requires the first segments of the system be developed and operated between St. Petersburg, Tampa and Orlando with future service to Miami. The act also provides an

appropriation of $4.5 million to the Authority for the purpose of performing its duties under the act.

On June 1, 2001, Governor Jeb Bush signed this act into law. The Governor, Speaker of the Florida House of Representatives and the President of the Florida Senate appointed authority members in July of 2001. The Authority has had three meetings to date.

The Florida Passenger Rail Service Vision Plan

FDOT has also been working with Amtrak to expand inter-city rail service. This rail plan was conceived as an alternative strategy to improve intercity rail service in the wake of the Governor's rejection of the FOX high-speed rail initiative. The Florida Passenger Rail Service Vision Plan has been scaled down since the passage of the high-speed rail amendment, however it still proposes significant improvements to Amtrak's long-distance rail services. FDOT has decided to help fund phase one of the original plan, and has set aside $15.5 million dollars and is seeking an additional $23 million in 2002 and $22.3 2003 from the Transportation Outreach Program over the next 2 years.

Phase one of the program includes route changes providing direct service between Jacksonville and Miami along the FEC railroad, additional service between Jacksonville and Tampa, and new service between Orlando and Tampa. Existing CSX railroad right-of-ways will be used, and improvements will be made to enhance safety and eliminate bottlenecks. Full implementation of this phase is proposed for 2002 or 2003. Phase two was to include expanding routes from Miami to Orlando, Tampa to Orlando and Tampa to Miami.

METHODOLOGY

Committee staff conducted an extensive literature review of initiatives dealing with the state of roads and public transportation in Florida, as well as reports which studied the state of roads and public transportation throughout the nation. This review included Florida studies as well as federal documents and professional journals. Current law regarding Florida policies toward state and local roads, public transportation, transportation planning and intelligent transportation systems were reviewed. Staff also interviewed state and local agency managers.

FINDINGS

Drastic improvement to inter-city and intra-city mobility in Florida in the short term is beyond the control of state government. The state's rapid growth rate in resident population, tourism and commerce has put Florida into a game of catch up which the state does not have the financial capacity to win. CUTR projects a 70 percent increase in vehicles operating in the state, a 38 percent increase in resident population, and a 82 percent increase is tourism as compared to an 18 percent increase in construction of new lane miles by 2010.

Section 334.046, F.S., provides the prevailing principles to be considered in planning and developing an integrated, balanced state-wide transportation system are: preserving the existing transportation infrastructure; enhancing Florida's economic competitiveness; and improving travel choices to ensure mobility. The mission of FDOT, as defined by the same section, is to provide a safe statewide transportation system that ensures the mobility of people and goods, enhances economic prosperity, and that preserves the quality of our environment and communities. Does FDOT ensure mobility and provide meaningful travel choices?

Considering the current situation, FDOT has done well with what is within its control, and with the priorities it is given. Local governments control land-use planning which drives how local governments and Metropolitan Planning Organizations prioritize road projects. Developers will continue to build where the market demands, and for at least the past 40 years demand has dictated low-density development which has given dominance to the automobile and highways.

Staff finds there is not one answer to improving intra-city and inter-city mobility. This portion of the report will examine a variety of initiatives which together will help Florida maintain reasonable intra-city and inter-city mobility for people and goods. The continued pursuit of better planning practices; taking full advantage of current technology through intelligent transportation systems; and understanding the value of transit are all part of a comprehensive solution to gridlock.

While transit has made modest gains in ridership, with a few exceptions, transit does not currently significantly contribute to congestion mitigation. However, staff finds the Florida Statutes reflect the intrinsic value of transit as a progressive pursuit to add to infrastructure capacity in a state with a future of continued growth.

Improving Intra-city Movement—Public Transit

One cannot examine the value of transit without submerging in a pool of statistics and counter-statistics. Rhetoric on both sides of the transit debate shows great dedication to the proposition of their own equity. However, before wading through transit statistics, one must consider the statutory requirements concerning public transit.

The statutory mandate requiring a minimum investment in public transportation (s.206.46, F.S.), as discussed earlier in this report, is not contingent upon operating expense per passenger trip, fairbox recovery ratios, or other malleable statistical measurements of effectiveness; nor is the state's statutory commitment to improve travel choices, ensure mobility (s. 334.046, F.S.), provide a balanced transportation system, and coordinate the planning and development of public transportation facilities (s. 334.044, F.S.). Further, the 1990 Census (updated data is not available) shows 9 percent of the households in Florida do not own a vehicle, and an on-board survey of transit riders in the state's smaller transit systems by CUTR found almost 37% of those riders had no vehicle. Further, many disabled and elderly Floridians depend upon public transit for mobility.

In the near future, public transit will not be able to compete with highways to move people within an urban area. Florida's current infrastructure is far too dependent upon highway connections, and any investment in public transit will not take any road building projects off of the work program. As stated earlier, the state cannot keep up with current highway needs. Further, in the near term, transit may not take many people off of the highway. But how will the state provide mobility and travel choices 20 or 30 years from now in Miami, Orlando, Tampa, and other major urban centers when population and vehicle miles continue to increase?

In Florida, according to FDOT's Transit 2020 plan, 85 percent of work trips were made in single-occupant vehicles, and 3 percent were made by transit. Only Miami-Dade County exceeded the national average for transit mode share at 7 percent. However, these numbers are an ineffective, if not misleading, measurement of the effectiveness of transit. The 3 percent transit ridership includes the whole state, even where there are no transit options. Transit, including bus systems, light and heavy rail only service 12,792 route miles in the state, compared to 114,725 miles of roads in the state. Currently, there is no statewide measurement available comparing only the areas where service is provided; however, one can postulate that when put into the proper perspective, these dismal numbers would become somewhat less dismal. Further, some localized ridership numbers are even encouraging.

Transit service quality and frequency are considered inadequate to attract people with a choice of modes. Transit also suffers from a poor image. For some, there is a social stigma associated with transit use, especially bus transportation. Many people have a strong attachment to their cars, and the loss of use of a car is associated with a loss of independence.

Transit, however, has made recent gains. In the last 3 years the growth in transit ridership has outpaced both population growth and vehicle miles traveled on the highway system. According to FDOT, in 1999 transit ridership grew 4.57 percent, population grew 2.14 percent, and vehicle miles traveled grew 2.95 percent. A recent national survey conducted by the Federal Highway Administration found that 64 percent of the respondents called for local communities to offer more public transportation services. The same amount of respondents wanted expansion of existing highways.

In the search to provide capacity, Broward County's 2025 Plan calls to spend more money on transit than on roads. Jacksonville recently passed a one-half cent sales tax that, over the next ten years, will generate approximately $750 million for road construction and improvements and $100 million for advanced right-of-way acquisition in transit. Since deciding not to build anymore student parking at the University of Florida, Gainesville has relied heavily on bus transit to move students. Gainesville's transit agency averages over 30,000 passengers per weekday.

According to a report prepared by Florida Agriculture & Mechanical University (FAMU) for FDOT, innovative financing of transit systems is being used to help fill financing gaps by many transit agencies. The LYNX system in Orlando uses bus wrap advertising to not only generate substantial advertising revenue, but to cross-promote city events that will generate additional ridership (twelve other agencies use bus wrap advertising). Miami-Dade Transit Agency has a very successful revenue generating joint development program. The transit system's effort to attract large business such as hotels are an example of how a transit system can raise revenues while providing transit service.

Despite any modest gains made in ridership in Florida, staff finds the value of transit lies in the proactive, subjective assessment of future capacity needs. Rail systems (or dedicated bus routes) can drastically increase their capacity by simply adding additional rolling stock (train cars or buses). During peak morning hours, the Metro-Rail in Miami-Dade County runs 10 trains, six cars each, six minutes between each train and carries approximately 3,200 people per hour. At full capacity, Metro-Rail could carry approximately 16,500 people per hour. Obviously, Miami-Dade Transit would like to improve their current peak ridership, but having that kind of reserve capacity with little or no additional cost to the STTF, the environment, or communities is very valuable.

With traditional funding levels, FDOT has not been able to keep up with expanding road capacity let alone consider moving funds to other modes of transportation. If, for example, FDOT considered more of an emphasis on public transportation, could the state afford the cost to the highway infrastructure?

The chart below shows the five-year projections of the STTF, not including any new funds, the 15 percent of the STTF for Public Transportation, and the breakdown of the funding for the Public Transportation Program (aviation, rail and intermodal funding have been combined.

Projected State Funding for Public Transportation (15%of STTF in millions)					
	Program Plan Level				
	2003	2004	2005	2006	2007
STTF	$2,093.7	$2,161.1	$2,220.9	$2,295.2	$2,370.1
15%	$314.1	$324.2	$333.1	$344.3	$356.6
Aviation, rail, intermodal	$220.8	$228.3	$234.6	$243.5	$252.9
Transit	$93.3	$95.9	$98.5	$100.8	$103.7

As an example, even if FDOT wanted to reprioritize 10 to 20 percent (approximately $210 – $420 million) more per year of the STTF to other modes it would have consequences on the state's highway infrastructure which the state can't afford.

Improving Intra-city Movement—Roads

As stated earlier, there is very little control the state has over intra-city movement. This is especially true in a tight budget year. Communities will continue to drive local development; however, the state has made some recent improvements in concurrency and LOS requirements to encourage local governments to include other modes of transportation when setting LOS standards, and to not discourage transit related development.

Currently, because of the methods used to establish and measure LOS, transportation concurrency is generally focused on automobile mobility; public transit and other modes are not considered.

According to the Transportation and Land Use Study Committee, planning and building communities with sufficient multi-lane, high-speed roadways to maximize automobile and freight mobility tends to create communities that are unfriendly to transit, expensive to serve, prone to traffic congestion, and dangerous to pedestrians. Therefore, land planning, as based on current transportation concurrency practices, increases the state's reliance on automobiles and discourages the use of transit.

Until 1999, transit facilities were subject to transportation concurrency requirements, and other modes of transportation were not considered in setting LOS standards. Florida's growth management concurrency requirements were revised in 1999 to exempt transit facilities from concurrency requirements and to allow local governments to create Multi-Modal Transportation Districts in designated areas. Section 163.3180, F.S., was revised to provide "FDOT should develop methods for multi-modal performance measurement and provide them to local governments…In addition, the use of single-mode, link-based LOS and concurrency management systems, which is the most common practice today, should be discouraged in favor of multi-modal, zone- or district-based LOS and concurrency management systems."

The law further recommends "FDOT should consider multi-modal performance measures currently in use or under development elsewhere." The Department of Community Affairs is directed to review proposed Multi-Modal Transportation Districts to ensure they rely on professionally acceptable multi-modal LOS methodology, and addresses transportation needs. Currently there are no MMTDs in Florida, however, FDOT has recently completed a multi-modal LOS model for MMTDs and hopes to begin developing MMTDs throughout the state.

ITS

Intelligent transportation systems have the potential to play an integral part in moving intra-city traffic. Many local governments in Florida have invested in

transportation management systems (TMS). A TMS is a technologically advanced electronic traffic monitoring and signalization system that makes efficient use of available roadway space by altering traffic signal timing to best match traffic conditions at any given time.

Tallahassee has the most advanced TMS in the state. The Tallahassee Advanced Transportation Management System monitors and controls 256 signalized intersection in Leon County. The system currently uses 56 strategically placed remote controlled field cameras installed at heavily traveled intersection throughout the city, working in tandem with electronic traffic sensors placed in the roadway.

The cameras are monitored from a transportation management center in city hall on a wall of monitors which enables traffic operation engineers to watch for traffic problems. When a problem arises, they can adjust traffic signal timing at an intersection or a series of intersections to compensate and provide for the most efficient flow of traffic. The backbone of Tallahassee's system (and TMS in general) is 70 miles of fiber optic network which provides fast, reliable and multifunctional information back to the transportation management center. Traffic camera video, system sensor data, intersection traffic controller polling, fire department signal pre-emption activity and other ITS component data are received second-by-second through the fiber optic cable.

A reliable communication system such as fiber optic cable is essential to any effective traffic management system, and the cost can be prohibitive especially for larger metropolitan areas. The cost for the city of Tallahassee's system for 70 miles of fiber optic cable was $2.4 million. Further, there is currently no way to quantify the effectiveness of these systems. Constant increases in population and vehicles compounds this problem.

Improving Inter-city Movement

Tri-Rail

Tri-rail projects the double tracking project will increase ridership from the current 9,500 people per day to 42,000 by 2015. The main problem with Tri-Rail ridership has been the fact that CSX rail has priority on the line which causes delays in Tri-Rail service, making Tri-Rail's travel times unpredictable. Tri-Rail has also improved connections to airports by providing direct shuttle service to the Palm Beach, Hollywood and Miami International Airports. Tri-Rail will eventually connect directly with the Miami Intermodal Center (MIC).

A mainline public transit facility is only as good as its connections to places of commerce. The MIC, which is under construction, will bring together Tri-Rail, high-speed rail, and Miami-Dade Transit Agency. The heavy volume of traffic in the Miami International Airport area has led to congestion that exceeds acceptable levels. Even with roadway improvements, as identified in Miami-Dade County's long-range transportation plans, the system is expected to become increasingly saturated.

Though Miami-Dade is served by several local, regional and intercity transportation modes, no central intermodal transfer facility exists to provide easy connections between them. In addition, only the Metrobus provides direct access to the Miami International Airport area.

The MIC is proposed to serve as a regional hub for public transportation modes. It will serve other transportation modes as well, providing access to taxis, private autos, pedestrians and bicyclists. As a significant component of the region's transportation network, strategically located near and integrated with the Miami International Airport, it should help the mobility problems in the congested and growing South Florida area.

High Speed Rail

Florida High Speed Rail has the potential to become an integral part of an overall congestion mitigation program. In 1998, two ridership estimation studies were completed concerning Florida's proposed HSR project. These studies estimated that approximately 8.25 million fare paying passengers would ride the HSR (baseline route includes Tampa-Lakeland-Orlando-Palm Beach-Fort Lauderdale-Miami) by 2010. See the chart below.

	Est. Annual High Speed Rail Riders		
Sources of FOX Riders	KPMG[1]	SYSTRA[2]	Consensus[3]
Transfer from Autos	4,509,300	3,996,000	4,253,000
Transfer from Air Market:			
Air Connect	1,476,000	1,476,000	1,476,000
Local Air	1,157,7000	1,244,000	1,201,000
Induce (new) Trips	864,600	1,787,000	1,326,000
Total Annual Riders	8,007,600	8,503,000	8,256,000

Sources:
1. KPMG Final Ridership & Revenue Report, April 1998.
2. SYSTRA Ridership & Revenue Study, Final Report, March 1998.
3. Average of two est., as recommended by the Peer Review Committee.

An independent review by Wilbur Smith and Associates of the two ridership studies sponsored by the Transportation Commission concurred and endorsed the overall approach employed by the forecasters and found no fatal flaws in their analytical approach. However the review, (this was a review not a new ridership study) found the ridership estimates to be optimistic. FDOT stands by the original numbers, however, in the future, the High Speed Rail Authority will need to conduct a new ridership estimation study.

Once again, it is important to consider the future capacity which a high-speed rail system can handle. It must be stressed that comparisons between highway capacity or costs and public transit capacity and costs are used only to stress the value added by public transit to help meet future transportation capacity needs.

The capacity of a high-speed rail system depends on the number of trains operating per day, the number of hours of operation per day and the number of seats available per train. Assuming a maximum train headway of 10 minutes (six trains operating per hour in each direction), a maximum eighteen hours of operation per day and maximum 500 seats per train set, the maximum daily capacity is 108,000 (6 trains/hour x 18 hours/day x 2 directions x 500 seats/train). In order to compare this to highway capacity, we assume a 1.5 per automobile occupancy factor to arrive at a total automobile capacity of 72,000 vehicles per day, which is equivalent to a six or seven lane highway. This maximum capacity for high-speed rail will be very useful in the state's bid for the 2012 Olympics.

The system as recommended by STV Inc. in the Coast to Coast Rail Feasibility Study would have a much lower capacity. To satisfy the estimated ridership potential it would operate only 12 trains per day in each direction leading to a maximum capacity of 12,000 seats per day. Dividing that by 1.5-auto occupancy rate leads to 8,000 vehicles per day which is equivalent to less than one highway lane.

Cost projections for building high-speed rail service between Orlando and Tampa is $1.2 billion. Committed funds and proposed funding for the build-out of I-4 from Tampa to the Polk County line (not including the Polk County to Orlando improvements) is projected at a cost of just over $4.8 billion. The total costs for I-4 improvements from Tampa to I-95 are 8.5 billion. It must be noted that building the high-speed rail system will more than likely not prevent having to build any of these road projects.

RECOMMENDATIONS

The Legislature should examine an advanced right-of-way acquisition program for transit, similar to the program for highways.

Encourage and assist transit agencies in the use of innovative financing techniques.

See recommendations from Senate Interim Report 2002-148.