REPORT OF THE
SECRETARY OF TRANSPORTATION ON

THE FEASIBILITY OF CONSTRUCTING CERTAIN MULTI-MODAL TRANSPORTATION INTERCHANGE FACILITIES

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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PREFACE

As requested in House Joint Resolution 409 passed by Virginia's General Assembly in its 1997 session, the Secretary of Transportation directed this study of the feasibility of constructing certain multi-modal transportation interchange facilities. The study group was composed of Kenneth E. Lantz, Jr., Irene E. Shuman, Gerald W. Sears, W. Ronald Mustain II, Herbert L. Pegram, Mark D. Rickards, and Anne E. Oman of the Virginia Department of Transportation and Heather L. Wishart of the Virginia Transportation Research Council. George Alexiou and Julie Rush of Parsons Brinckerhoff contributed summaries and information. Representatives of Newport News/Williamsburg International Airport, Richmond International Airport, Virginia Department of Aviation, Hampton Roads Planning District Commission, Richmond Regional Planning District Commission, City of Richmond, Virginia Bus Association, Peninsula Transit (PENTRAN), CSX Corporation, Greater Richmond Transit Company, Groome Transportation, and Amtrak also contributed. The Transportation Planning Division and the Virginia Transportation Research Council of the Virginia Department of Transportation were responsible for the preparation of this report, which was authored by Heather L. Wishart.

EXECUTIVE SUMMARY

In its 1997 session, the General Assembly of Virginia requested that the Secretary of Transportation, through House Joint Resolution 409, "study the feasibility of constructing certain multi-modal transportation interchange facilities, including rail, highway, and air transportation modes, in the vicinity of Newport News/Williamsburg International Airport (PHF) and Richmond International Airport (RIC)." This report provides the results of the Secretary's work pursuant to that request.

Engineering feasibility studies are costly. Because there are three ongoing major investment studies (MISs) in the study region that have a combined cost of almost $9 million, the Secretary felt it was premature to initiate another high cost study in the region before the results of the others became available.

This report summarizes and synthesizes the results to date of three ongoing MIS for access adjacent to or near the locations targeted for review: (1) the CSX Corridor MIS, (2) the I-64 MIS, and (3) the Hampton Roads Crossing Study MIS. It also includes input from affected agencies and transportation providers.

CSX Corridor MIS

The CSX Corridor MIS was undertaken to identify transportation needs and to develop alternative transportation strategies within the CSX corridor to handle expected growth in population and employment. Access to the Newport News/Williamsburg International Airport is included in this study. Several public transportation alternatives in the vicinity of PHF have been proposed, including busway, light rail transit (LRT), and automated guideway transit (AGT). *LRT* is a general term used to describe any electrically powered vehicle operating on steel rails, and *AGT* describes a computer-driven automatic vehicle operating on a dedicated right of way. This study began in December 1996 and Phase I will be completed in December 1997. Completion of the entire study is projected for summer 1999.

I-64 MIS

The I-64 MIS was initiated to address mobility problems for the 120-kilometer (75-mile) section of I-64 between I-664 in Hampton Roads/Newport News and I-95 in Richmond arising from the decreasing performance of the transportation system and the increasing growth in population and employment. To fulfill the study objectives of strengthening intermodal linkages and enhancing access to the transportation system, the I-64 MIS is considering improved access to both the Newport News/Williamsburg International Airport and Richmond International Airport along the I-64 and CSX facilities. Access improvements to be studied for each airport include improved, more direct access from I-64; new passenger rail stations to accommodate high-speed passenger rail service; and capacity improvements to I-64. The I-64 MIS was initiated June 20, 1996, and is anticipated to be completed in March 1998.

Hampton Roads Crossing Study MIS

The Hampton Roads Crossing Study MIS is investigating methods of relieving congestion at the existing I-64 Hampton Roads Bridge Tunnel and is addressing major transportation deficiencies in the region. Eleven transportation corridors have been identified as potential sites for a new crossing in the region, and several provide significant time savings for motorists between PHF and the surrounding region. The construction of a third crossing would increase available routes to PHF. The Hampton Roads MPO, at its meeting on July 16, 1997, endorsed Alternative 9 as the locally preferred alternative. By resolution dated July 22, 1997, the Virginia Port Authority also endorsed the adoption of Corridor 9 as the preferred alternative for the third crossing of Hampton Roads. The Commonwealth Transportation Board passed a resolution at its September 18, 1997 meeting expressing its good faith intent to facilitate and develop the Hampton Roads Transportation Crossing identified as Transportation Corridor 9, which consists of a facility that includes a Bridge/Tunnel from I-564 in Norfolk to I-664 in Newport News with a connection from this facility to the Western Freeway (Route 164) in Portsmouth.

Corridor 9 provides a new interchange located south of the existing I-664 Monitor Merrimac Memorial Tunnel and a new crossing from I-664 to Norfolk. It also provides a new connection across Craney Island to Route 164 in Portsmouth, and provides a new transportation facility along the CSXT railroad corridor from downtown Newport News to I-64 near Bland Boulevard.

Conclusion

Our analysis indicates that results from ongoing studies could aid in the feasibility determination for multi-modal interchange facilities. The CSX Corridor MIS (completion date December 1998), I-64 MIS (completion date March 1998), and Hampton Roads Crossing Study MIS (completion date September 1997) include access to PHF and RIC in their scope of potential transportation improvements. Access improvements being investigated are intended to provide a more seamless transfer of goods and people, which is also the objective of a multi-modal transportation interchange facility. Results from these three studies, as well as from the RIC Intermodal Transportation Facility Study (completion date December 1997), the Eastern Virginia Regional Airport System Study (Phase I completed May 1995, Phase II completion date September 1998), and the I-64/I-895 Direct Airport Access Road Corridor Feasibility Study (completion date late 1998), which are ongoing and are expected to be completed during the next three to five years, will assist transportation officials in determining the requirements for a multi-modal transportation interchange facility.

The General Assembly may wish to request that the Secretary of Transportation, and other relevant transportation officials and authorities, keep the transportation committees informed as to ongoing developments relevant to multi-modal interchange facilities in the vicinity of the two airports and that opportunities for a more seamless connection among modes be pursued.

TRANSPORTATION STUDY
OF THE
FEASIBILITY OF CONSTRUCTING CERTAIN
MULTI-MODAL TRANSPORTATION INTERCHANGE FACILITIES

PURPOSE

As requested by House Joint Resolution 409 (provided in Appendix A), passed by the General Assembly of Virginia in its 1997 session, the Secretary of Transportation conducted a study of ongoing projects that affect mobility issues and, therefore, the feasibility of constructing certain multi-modal transportation interchange facilities in the vicinity of the Newport News/Williamsburg International Airport (PHF) and the Richmond International Airport (RIC). Figure 1 shows the region and existing transportation facilities included in this study. Figures 2 and 3 show the particular airports in more detail.

The purpose of this report is to summarize the access issues being examined in on-going studies that relate to the potential role of multi-modal facilities in contributing to the expeditious and efficient transfer of goods and people among modes of transportation, to include rail, highway, transit, and air. The study examined current mobility concerns and proposed improvements through an investigation of ongoing major investment studies (MISs) in the region and through interviews with affected agencies and transportation providers.

INTRODUCTION

PHF and RIC are important transportation facilities. PHF, located in the I-64 corridor, handled 181,971 enplanements in 1995[1]. RIC, located in the I-64 and I-95 corridors, handled 1,066,411 enplanements. Air passengers and visitors to both airports directly and indirectly affect the local economy.

Despite their key locations in interstate corridors, neither airport can be accessed directly from interstate highways, although as RIC in particular, the airport is less than a mile from the interchange. Airport traffic that approaches from the interstates must travel on local roads before reaching the airport. Insufficient capacity on local roads contributes to occasional traffic congestion and delays that may prevent air passengers and freight from reaching the airports by flight time, particularly in future years and with increased development. Driver unfamiliarity associated with infrequent air trips contributes to operational problems and further contributes to the landside access problem. Construction of certain multi-modal transportation interchange facilities has been proposed to deal with airport access concerns.

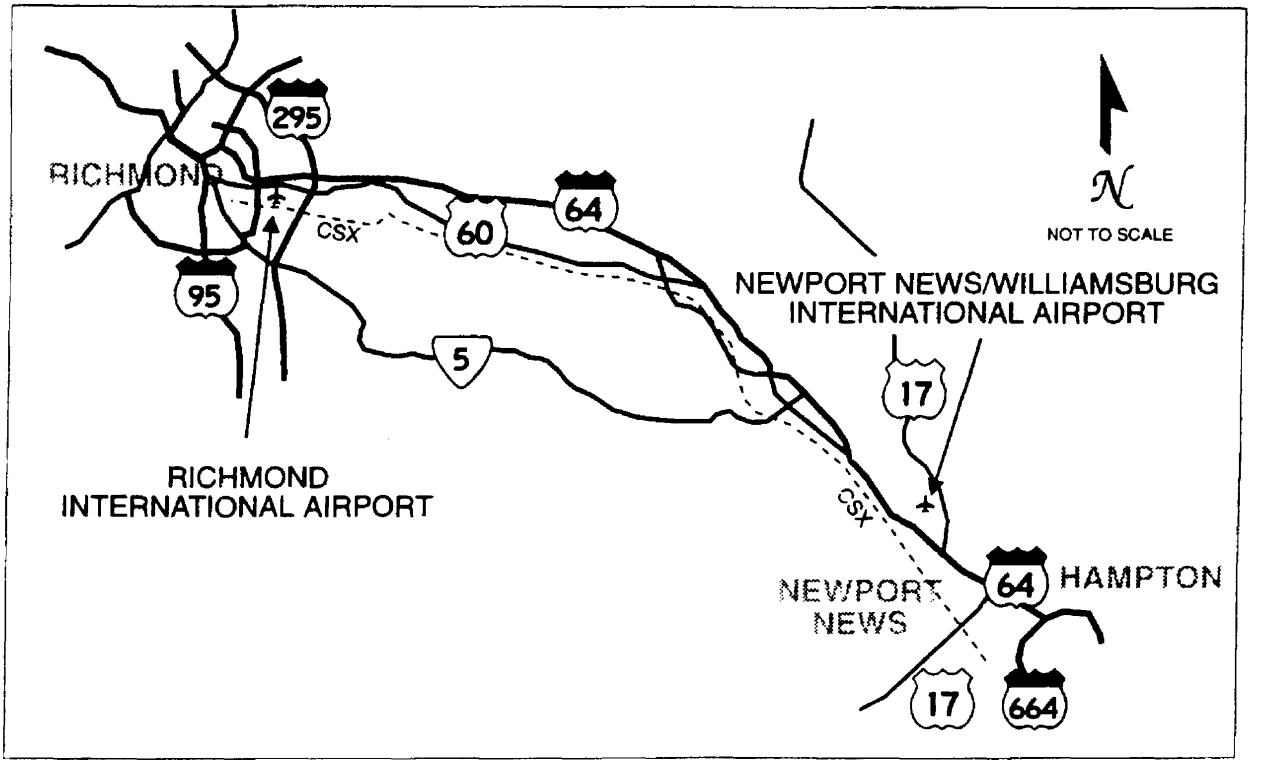

Figure 1. Study Region (includes I-64, CXS, and Hampton Roads Crossing Study Areas)

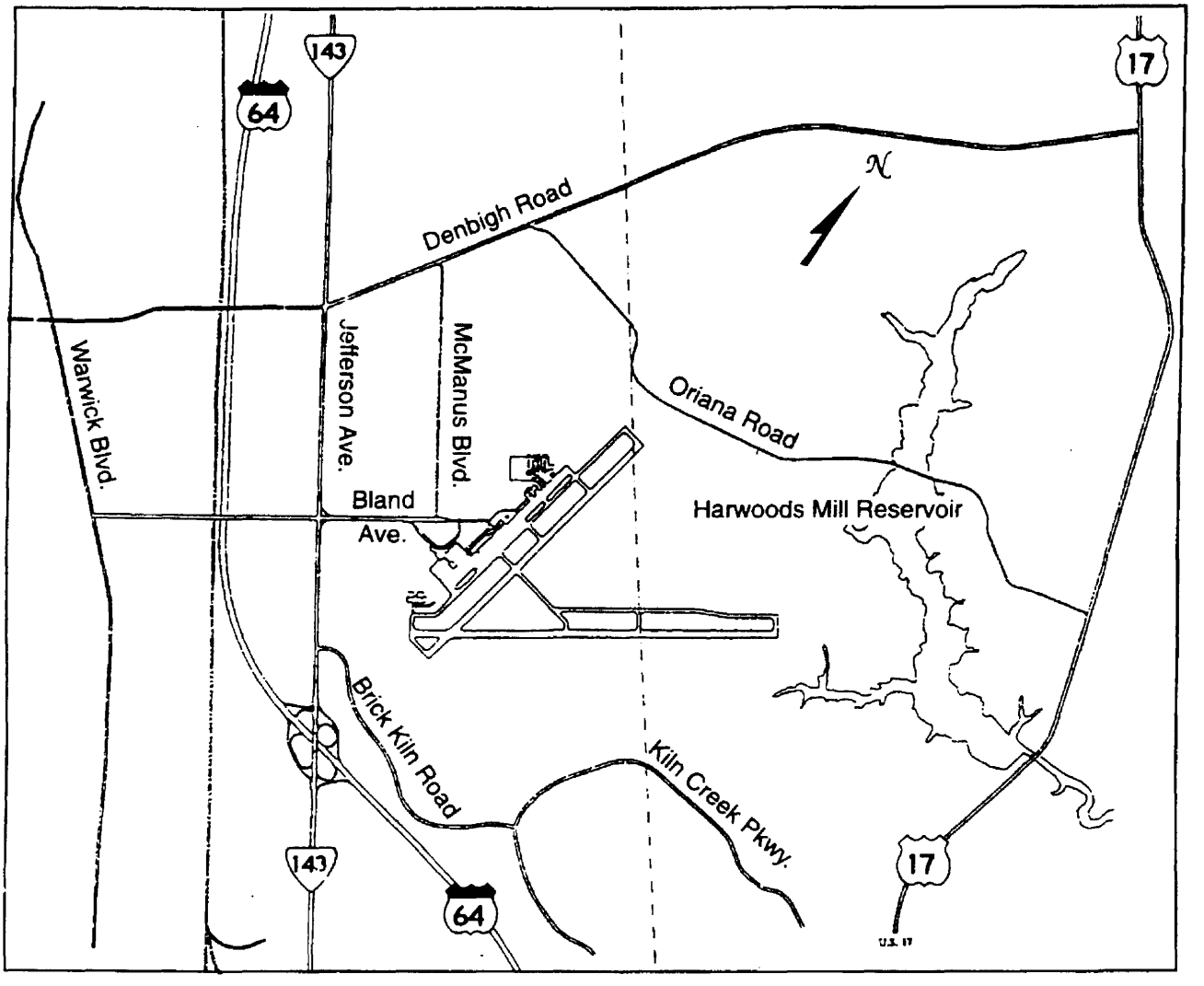

Figure 2. Newport News/Williamsburg International Airport

Source: Newport News/Williamsburg International Airport Master Plan

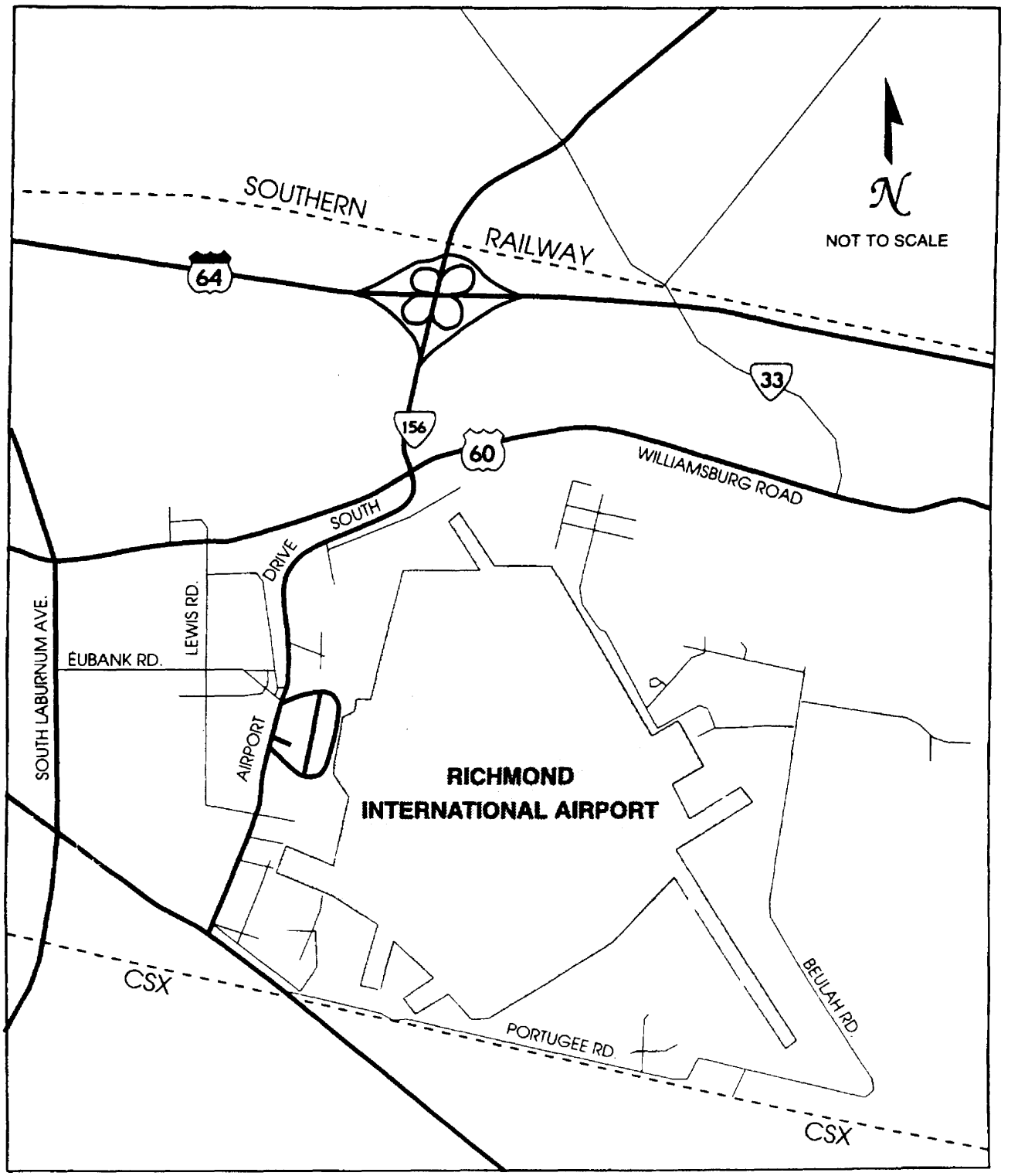

Figure 3. Richmond International Airport

Source: Richmond International Airport Master Plan Update

Three ongoing MISs are addressing mobility issues in the region, including airport access. Summaries were obtained from consultants working on these studies. Informal telephone interviews with representatives of affected agencies and transportation providers were conducted as part of this study to solicit input and to identify regional access problems and potential interest in an intermodal facility. Mobility issues that relate to the need for and feasibility of constructing multi-modal interchange facilities were investigated through these sources. Input obtained from the affected transportation agencies through interviews does not represent an official agency position and is provided in Appendix B.

DESCRIPTION OF AIRPORTS

Newport News/Williamsburg International Airport

PHF primarily serves commercial and general aviation needs in the Peninsula Region of Hampton Roads. This region comprises Hampton, Newport News, Williamsburg, Poquoson, Gloucester County, James City County, and York County. In addition, the airport serves areas south of the James River. The airport is approximately 6.4 kilometers (4 miles) northwest of the Newport News business district, 19.2 kilometers (12 miles) from Hampton, and 27.2 kilometers (17 miles) from Colonial Williamsburg. Airport access is provided off Bland Boulevard and McManus Boulevard. Access from I-64 is provided via connections to these local roads. The airport offers flights for travelers and freight to national and international destinations and makes the region accessible to incoming visitors. However, air cargo levels are not sufficiently large to impact the ground access system. PHF also serves as a military training facility[2].

The most recent Master Plan update includes forecasts from the year 1995 to the year 2030. Enplanement forecasts were developed for three scenarios: (1) low (the airport would continue to operate as it has historically, with primarily local origin and destination passengers, minimum or nonexistent connecting passenger activity, and growth in airline service resulting primarily from growth in local population and economy); (2) linear hub (the airport would become an origin and destination hub for one or more low-cost regional airlines, with growth primarily due to expansion of the short-haul market base by the regional hubbing airline); and (3) connecting hub (one or more major air carriers would establish a regional connecting hub at PHF, resulting in significant growth in response to increased opportunities for connections). Enplanement forecasts for the three scenarios were based on: (1) historical and projected demographic and economic data; (2) historical and existing air traffic patterns at PHF and other regional hub and major hub airports nationwide; and (3) airport service levels and other key factors that affect future airline traffic. Table 1 shows enplanement forecasts from the Master Plan update. Percentages of connecting passengers are included in this table since growth projected in the linear hub and connecting hub scenarios results primarily from connecting passengers, who rarely enter the ground access system and therefore do not impact ground access needs[2].

Table 1: Enplanement Forecasts for PHF (Source: 2)

	Historical	Forecast			
	1992	1995	2000	2010	2030
Low:					
% Connections	--%	--%	--%	--%	--%
Enplanements	163,126	195,000	256,000	396,000	642,000
Linear Hub:					
% Connections	--%	0%	5%	8%	10%
Enplanements	163,126	195,000	1,080,000	1,698,000	2,831,000
Connecting Hub:					
% Connections	--%	0%	5%	50%	65%
Enplanements	163,126	195,000	1,080,000	3,632,000	8,462,000

Richmond International Airport

RIC is situated east of Richmond in Henrico County. The airport is approximately 12 kilometers (7.5 miles) east/southeast of Richmond's central business district. Access between RIC, Richmond, and the region at large is provided via a number of arterial roadways and interstate highways. Access from the east and west is provided by I-64 and U.S. Highway 60 (Williamsburg Road). The most direct access from the north is provided via I-95 to I-295, with airport access provided from I-295 via the I-64 interchange to Airport Drive (Route 156 South) or the U.S. Highway 60 (Williamsburg Road) interchange. Access from the south is provided by I-295 or by northbound I-95 to I-64.

The airport serves the Richmond metropolitan area and significant sections of central and southeastern Virginia. Growth in passenger and air cargo volumes has been forecast and is expected to have a great impact on both airside and landside capacities. The Capital Region Airport Commission has initiated an Intermodal Transportation Facility study, which is in the preliminary stages of development[3].

The Master Plan Update produced forecasts for two levels of projections. The baseline forecasts are founded primarily on a variety of historical trends. The planning forecasts utilized the analysis and output from the baseline forecasts but also incorporate "uncertainty" factors to generate possible ranges of activity. Table 2 shows enplanement forecasts until the year 2030. Air cargo plays a large role in operations at RIC, and air cargo forecasts were also developed based on historical data and air cargo trends. Several different forecast methods were employed, resulting in different levels of total annual cargo growth. Despite these differences, each method resulted in a projected total cargo Compound Annual Growth Rate (CAGR) of 4.9-5.0% until at least the year 2030[3].

Table 2: Enplanement Forecasts for RIC (Source: 3)

Year	Total Enplanements
1995	1,302,000
2000	1,743,000
2005	2,123,000
2015	2,870,000
2030	3,873,000

MULTI-MODAL TRANSPORTATION INTERCHANGE FACILITIES

Multi-modal transportation interchange facilities, also called ground transportation centers, have been proposed to provide a more seamless transfer of passengers and freight, and to promote the use of public transportation to airports. These facilities are intended to improve passenger and freight performance by providing a convenient central pickup and drop-off location for all transportation modes, including automobiles, trucks, bus, and rail. Shifting more passengers to high occupancy vehicle (HOV) modes such as bus and rail relieves demand on the roadway system that may translate into shorter travel times and decreased congestion. The facility may be located in the terminal, adjacent to airport property, or some distance away near a population center (called off-airport terminals). Interchange facilities not located inside the terminal must be connected by an efficient shuttle service. A successful multi-modal transportation interchange facility can improve the intermodal connection, ease airport congestion, improve transportation service, and lead to secondary benefits relating to quality of life and the environment.

From a passenger perspective, multi-modal transportation interchange facilities have many benefits. To encourage patronage, parking rates may be lower than at the airport. Taxi fares may be lower if an off-airport terminal location is closer to population centers than the airport itself. Traffic congestion and related emissions from airport trips may be relieved by the diversion of passengers to HOV modes for a portion of the trip. This may also benefit the airport by reducing parking requirements and increasing the area available for airport expansion. This type of facility appears to offer the most favorable prospect for reducing access vehicle miles of travel at many airports. However, placement such that a significant market is served is required for benefits to be realized. To be economically feasible, intermodal facilities must provide a high level of service to be competitive with the private automobile and attract a sufficient number of travelers.

Another benefit of multi-modal transportation interchange facilities is improved freight transfer. They may provide a more seamless transfer between two or more modes of transportation. Freight that arrives at PHF or RIC may be transported to a facility and transferred to truck or rail. Freight shipments at a facility may also be divided for shipment to a variety of destinations or consolidated to transport goods with similar destinations more efficiently. A high volume of freight arrives through the ports of Norfolk, Newport News, and Portsmouth, and a multi-modal transportation interchange facility might expedite the transfer and distribution of

goods. Given sufficient demand, a well-planned and suitably placed facility could streamline freight transfer and capture more of the freight market that currently originates in Miami and New York. However, sufficient interest by shippers is required for this aspect of an intermodal facility to become viable.

Variations of the multi-modal transportation interchange facility concept exist in coordination with some airports. A satellite station that serves the Orlando, Florida, airport makes it possible for passengers' baggage to be checked directly through to the off-airport site, located in a convenient destination area for travelers. When passengers do not have to worry about baggage until they reach their destination, public transportation is made more convenient and more popular to use. The Marin Airporter in Larkspur Landing, California is a private bus terminal built with private funds that serves the San Francisco airport. Until security concerns made this impossible, airlines checked baggage through to the airport from the terminal. On-airport transportation centers in Pittsburgh and Atlanta are other examples of centralized ground transportation locations that provide a variety of access choices to the air passenger. Expansion plans at Miami International Airport include developing the Miami Intermodal Transportation Center, to include links to a seaport, a parking facility, an automated guideway transit (AGT) system, commuter rail, and numerous transportation modes. Both the Orlando and Miami systems are funded with Passenger Facilities Charges.

MAJOR INVESTMENT STUDIES

CSX Corridor MIS

The CSX Railroad corridor links Hampton, Newport News, York County, James City County, and Williamsburg. Population and employment forecasts indicate the need for improved access and transportation in the CSX corridor to meet anticipated growth rates. The CSX Corridor MIS was undertaken to identify transportation needs in the region and to develop alternative transportation strategies within the CSX corridor[4].

One goal of the CSX MIS is to provide access for PHF, which includes consideration of public transit linkage to PHF and coordination with airport long-range planning. Connection to the airport from CSX right of way is being examined, along with an alternate alignment. Travel demand forecasting is also included[5].

Linkage Between CSX Right of Way and Airport

The CSX MIS is examining a number of alternatives. The transit "no-build" option includes a modification to existing Peninsula Transit (PENTRAN) Route 11 to provide service from Patrick Henry Mall via Jefferson Avenue and Bland Boulevard to the PHF passenger terminal, continuing via McManus Boulevard (or its replacement, when modifications to the airport roadway system are implemented) to Denbigh Boulevard to provide service to

employment centers on and near the airport perimeter. Off-peak service frequency would be increased to equal the present peak-hour frequency of 30 minutes.

The transit "build" options for the CSX MIS propose extending PENTRAN Route 11 from Patrick Henry Mall to the transit stop at Oyster Point Road. These options include busway, light rail transit (LRT), and AGT on the CSX right of way along the Peninsula in the vicinity of PHF. *LRT* is a general term used to describe any electrically powered vehicle operating on steel rails, and *AGT* describes a computer-driven automatic vehicle operating on a dedicated right of way. Each mode under consideration would have a stop at Oyster Point Road for connection to Route 11 as previously described. In addition, the Busway mode includes a provision for bus access/egress at Oyster Point Road that would allow buses from Williamsburg, Newport News, or Hampton to operate nonstop from those areas to the off-ramp at Oyster Point Road, then to the airport via surface streets. Additionally, each mode has a stop at Bland Boulevard with auto access that could facilitate linkage to the airport terminal and employment areas by shuttle buses or vans, possibly operated by employers, a transportation management association (TMA), or the airport authority.

The PHF Master Plan forecasts a dramatic increase in passenger activity, airside capacity, terminal facilities, and number of gates. To accommodate the higher volumes of passengers, meeters and greeters, and employees associated with this projected high growth, an automated people-mover has been proposed from the airport terminal to a major intermodal terminal at Bland Boulevard and the CSX right of way (a distance of approximately 1 mile). This multi-modal terminal would include regional rail service and be located in one of the quadrants of the proposed interchange at I-64 and Bland Boulevard. This concept would complement the transit build alternatives under consideration. It could become an attractive alternative to private automobile use for airport employees and air passengers and partially relieve terminal roadway congestion that would result from the shuttle vans previously described.

Alternate Alignment Concept Near Airport

Another alignment option that is being considered in the CSX MIS in the vicinity of PHF would remove the LRT and AGT alternatives from the CSX alignment between Denbigh Boulevard and J. Clyde Morris Boulevard. Stops would include the intersection of Jefferson Avenue and Denbigh Boulevard, the intersection of McManus Boulevard and Denbigh Boulevard, the PHF terminal, Patrick Henry Mall, the intersection of Canon Boulevard and Oyster Point Road, the Jefferson Nuclear Accelerator Facility (JNAF) on Canon Boulevard, the City Hall Annex at Canon Boulevard and Omni Boulevard, Thimble Shoals at Canon Boulevard at Pilot House Drive, and the intersection of Jefferson Boulevard and J. Clyde Morris Boulevard.

Travel Demand

Travel demand forecasting models for the region account for work trips associated with PHF in a manner similar to that of other employment centers. Forecasts produced by the

Hampton Roads Planning District Commission (HRPDC) include projected employment in the traffic analysis zone (TAZ) at PHF. TAZ projected employment is input to the trip generation and distribution modeling process and is included as a component of the forecast overall work trip tables. Non-work trips are forecast in a manner similar to that of other trip generators. Considering the range of destinations served by transit and the relative convenience of other modes, airline passengers are not expected to represent a significant portion of the passenger load on the transit facility under existing conditions[6].

I-64 MIS

The I-64 MIS was initiated to address mobility problems for the 120-kilometer (75-mile) I-64 travel-shed between I-664 in Hampton Roads/Newport News and I-95 in Richmond. Alternatives that focus on improving access and mobility along the Peninsula are needed to address the decreasing performance of the transportation system and the increasing growth in population and employment. These alternatives must maximize the utility and efficiency of the movement of goods and people. To fulfill the study objectives of strengthening intermodal linkages and enhancing access to the transportation system, the I-64 MIS includes consideration of improved access to both PHF and RIC along the I-64 and CSX facilities. The I-64 MIS was initiated June 20, 1996, and is anticipated to be completed in March 1998[7].

Recommendations of I-64 MIS

Based on traffic data collected on the mainlines and at all interchanges on I-64 between I-95 in Richmond and I-664 in Hampton, several preliminary recommendations have been made. A focus on the 14.4 km (9-mile) segment of I-64 between Route 143 (Jefferson Boulevard just east of PHF) and I-664 resulted in recommended design modifications to several interchanges to accommodate projected traffic, specifically at Mercury Boulevard. A recommendation for bidirectional HOV lanes to be placed in the median of I-64 was adopted by HRPDC in March 1997[8].

An overview of the full 120 km (75-mile) corridor between Richmond and Newport News focused on providing alternatives to the use of single-occupant vehicles and sustaining economic growth through access improvements to the existing transportation system. The product of this overview was a collection of 10 improvement alternatives and an evaluative framework to measure and compare performance. These ten alternatives include a no build alternative (future conditions without improvement) and a Transportation System Management (TSM) alternative (largely operational improvements without major capital investment) in addition to major investment alternatives. The alternatives are multi-modal and, therefore, consist of packages of transportation improvements that emphasize different modes and travel markets. These improvements include intelligent transportation systems (ITS); high-speed, intercity passenger rail service; general purpose travel lanes; and HOV lanes.

Each alternative currently contains interchange improvements and other design characteristics, such as additional rail stations, an express bus, and shuttle services, needed to maximize their performance. The final set of 6 alternatives includes the no build alternative, the TSM alternative, and 4 build alternatives. In-depth analyses of these alternatives are being conducted and will result in a locally preferred alternative being selected in the spring of 1998.

Airport Access Improvements at PHF Proposed in I-64 MIS

The following improvements will be studied for PHF:

- *The need for a new interchange at Bland Boulevard to provide more direct access from I-64 to PHF.* If a new interchange at Bland Boulevard is warranted based on projected traffic volumes and other criteria, geometric design and "order of magnitude" cost estimates will be produced.

- *The need for a new passenger rail station to accommodate high-speed passenger rail service in the CSX right of way near PHF.* A footprint and primary location for the new rail station will be developed as part of the analysis. In addition, a bus feeder or shuttle service connecting the rail station to major activity centers, including the airport, will be analyzed. The results of this aspect of the I-64 MIS will provide additional information related to House Joint Resolution 409.

- *Improved bus service (improvements to frequency and routes) to serve PHF better and provide additional linkages to the Peninsula and Southside.*

- *Capacity improvements to I-64 that are intended to relieve congestion and would thus provide a time savings to motorists using I-64 to travel to and from the airport.*

Airport Access Improvements at RIC Proposed in I-64 MIS

The following improvements will be studied for RIC:

- *The need for modifications to the existing interchange at I-64 and Airport Drive based on 2015 traffic forecasts, safety, and design considerations.* As part of this analysis, geometric sketches and "order of magnitude" cost estimates will be produced for any proposed modifications.

- *Possible extension or reconfiguration of the I-64 and I-295 interchange collector distributor system to serve RIC and other travel needs better based on 2015 traffic forecasts.*

- *New passenger rail station in the CSX right of way near RIC to serve the proposed intercity passenger rail service.*

- *Capacity improvements to I-64 intended to relieve congestion, thus providing a time savings to motorists using I-64 to travel to and from RIC.* Capacity improvements along I-64 would also help accommodate the additional truck movements that would likely occur once RIC expanded cargo capabilities[8].

Hampton Roads Crossing MIS

Congestion at the Hampton Roads Bridge Tunnel has been a concern for several years. A VDOT study in response to Virginia General Assembly Joint Resolution 132, which directed VDOT to conduct a study on the Hampton Roads Bridge Tunnel, stated that short-term measures would not solve congestion at the Hampton Roads Bridge Tunnel and that a long-term large-scale solution would be required. This study began as a demonstration project included in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and was initiated in late 1993.

The Hampton Roads Crossing MIS is investigating methods of relieving congestion at the existing I-64 Hampton Roads Bridge Tunnel and is addressing major transportation deficiencies in the region. The MIS is examining financial requirements for, and the effectiveness of, various solutions to address the transportation problem and, as required by regulations, is evaluating potential environmental effects so that a preferred transportation corridor or corridors may be selected.

Transportation Deficiencies Identified in Hampton Roads Crossing MIS

Transportation deficiencies in the region relate to access concerns for PHF since restricted mobility hinders present and future PHF passenger and freight movement. The following major transportation deficiencies in the study area have been identified:

- From the I-664 interchange in Chesapeake to the Ft. Eustis Boulevard interchange in Newport News, 57 percent of I-64 currently operates at LOS F in the peak period. By 2015, 100 percent of the same section of I-64 will be functioning at LOS F in the peak period.

- Delays of 30 minutes or more at the I-64 Hampton Roads Bridge Tunnel have increased 150 percent from 80 occurrences in 1993 to 200 occurrences in 1995.

- HOV facilities do not link Southside and the Peninsula.

- Light rail facilities do not exist in the study area.

- Passenger rail does not directly access Southside.
- Port facilities need improved highway and rail access to accommodate growth.
- Only two transit connections exist between Southside and the Peninsula.

Improvements Considered in Hampton Roads Crossing MIS

The MIS process initially identified 45 potential mobility solutions. These solutions included various options to construct new transportation facilities, upgrade existing roadways, and implement congestion management strategies. The criteria used to select a proposed solution were:

- Will the solution reduce peak hour volumes at the Hampton Roads Bridge Tunnel by 10 percent or more?
- Will the solution address existing origin and destination patterns between Southside and the Peninsula?
- Will the solution address future origin and destination patterns between Southside and the Peninsula?
- Will the solution provide a direct connection to the major ports or serve as a major freight corridor?
- Will the solution connect to an existing expressway on the Peninsula and Southside?
- What is the relative cost of the solution?
- What is the relative ease of implementing the solution?

Based on the application of these criteria to the potential solutions, 11 transportation corridors were identified as potential sites for a new crossing. A no-build alternative is also being considered. These options are being studied for their potential effects on travel time, cost, social and environmental consequences, air quality, and other areas of impact. Table 3 shows peak-hour travel time savings from the no-build alternative for various trips in the region. Several of the transportation corridors provide significant time savings between PHF and the surrounding region. The final alternative selected has the potential to increase the number of trips made in the region and could increase trips to PHF[9].

TABLE 3

PEAK HOUR TRAVEL TIME SAVINGS FROM THE NO-BUILD

(in minutes)

HAMPTON ROADS CROSSING STUDY

From	To	No-Build Travel Time	TRAVEL TIME SAVINGS TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	TC 10	TC 1
I-64/Bland Blvd. Interchange	Norfolk Naval Base[1]	42	10	15	14	3	19	18	3	12	11	18	16
I-64/Bland Blvd. Interchange	Norfolk International Terminals[2]	42	10	13	13	3	16	16	3	11	10	17	15
I-64/Bland Blvd. Interchange	I-64/I-264/Rt. 44 Interchange	49	11	7	10	3	10	9	3	4	3	9	7
I-64/Bland Blvd. Interchange	I-64/I-464 Interchange	45	2	2	2	2	6	6	6	1	2	5	4
I-64/Bland Blvd. Interchange	Downtown Norfolk[3]	59	12	12	14	5	12	11	5	8	4	13	9
I-64/ I-664 Interchange	Norfolk Naval Base	31	11	15	15	2	15	14	2	13	12	12	13
I-64/ I-664 Interchange	Norfolk International Terminals	30	11	13	12	2	13	12	2	11	10	10	11
I-64/ I-664 Interchange	I-64/I-264/Rt. 44 Interchange	38	11	8	8	3	7	6	3	5	4	14	5
I-64/ I-664 Interchange	I-64/I-464 Interchange	33	1	1	1	1	1	1	1	1	1	1	1
I-64/ I-664 Interchange	Downtown Norfolk	48	13	13	13	5	13	12	5	8	5	7	7
Downtown Newport News[4]	Norfolk Naval Base	36	11	24	24	3	24	24	3	23	23	23	23
Downtown Newport News	Norfolk International Terminals	37	11	22	22	3	22	22	3	21	20	21	20
Downtown Newport News	I-64/I-264/Rt. 44 Interchange	42	8	13	13	4	13	13	4	12	11	12	11
Downtown Newport News	I-64/I-464 Interchange	30	0	0	0	1	0	0	1	1	1	1	1
Downtown Newport News	Downtown Norfolk	39	0	6	6	1	6	6	0	5	4	5	4
Total Time Savings for All Destinations			122	164	165	41	179	170	44	132	121	168	147

1. Intersection of Hampton Boulevard and Admiral Taussig Boulevard
2. Intersection of Hampton Boulevard and International Terminal Boulevard
3. Intersection of City Hall Avenue and St.Paul Boulevard
4. Intersection of 26th Street and Warwick Boulevard

Assumption: Peak period condition with no delays caused by incidents

Source: Hampton Roads Crossing Study MIS

The Hampton Roads MPO, at its meeting on July 16, 1997, endorsed Alternative 9 as the locally preferred alternative. By resolution dated July 22, 1997, the Virginia Port Authority also endorsed the adoption of Corridor 9 as the preferred alternative for the third crossing of Hampton Roads. The Commonwealth Transportation Board passed a resolution at its September 18, 1997 meeting expressing its good faith intent to facilitate and develop the Hampton Roads Transportation Crossing identified as Transportation Corridor 9, which consists of a facility that includes a Bridge/Tunnel from I-564 in Norfolk to I-664 in Newport News with a connection from this facility to the Western Freeway (Route 164) in Portsmouth.

Corridor 9 provides a new interchange located south of the existing I-664 Monitor Merrimac Memorial Tunnel and a new crossing from I-664 to Norfolk. It also provides a new connection across Craney Island to Route 164 in Portsmouth, and provides a new transportation facility along the CSXT railroad corridor from downtown Newport News to I-64 near Bland Boulevard. The alignment would be designed to accommodate SOV, HOV, trucks and transit and would be designed with a three-tube tunnel crossing. Two of the tubes would carry two travel lanes each for conventional traffic. The third tube would be used for multimodal purposes. These uses could include reversible HOV lanes, an exclusive busway, exclusive truck lanes, and/or a passenger rail system.

OTHER RELEVANT STUDIES

Results of the CSX Corridor MIS, I-64 MIS, and Hampton Roads Crossing Study MIS will provide insight into the need for and feasibility of constructing multi-modal transportation interchange facilities at PHF and RIC. Other studies are underway that will also answer questions of need and feasibility. Related studies include the RIC Intermodal Transportation Facility study, the Eastern Virginia Regional Airport System Study, the Norfolk-Virginia Beach light rail study and the I-64/I-895 Direct Airport Access Road Corridor Feasibility Study.

RIC Intermodal Transportation Facility Study

The objective of the RIC Intermodal Transportation Facility Study is to provide the documentation necessary for a decision on the type, design, and location of transportation system linkage improvements relating to cargo and passenger movements at RIC. The proposed facility would link all forms of transportation in a unified, interconnected transportation system to provide for enhanced mobility, intermodal efficiency, and effectiveness for the movement of passengers and goods associated with RIC. Transportation modes and services being studied include air service, surface freight, surface passenger, and maritime modes. This study is also addressing need and feasibility. A consultant was recently selected for this study, and the final phases will be conducted over the next 3 to 5 years.

Eastern Virginia Regional Airport System Study

The Eastern Virginia Regional Airport System Study intends to enhance international and long-haul air service in Eastern Virginia by developing existing airports and, potentially, a new commercial service airport. It is examining a series of airport demand management alternatives for distributing future demand between existing and potential airports in the region and determining long-range needs. The intended product of this study is a determination of the optimal system of airports in Eastern Virginia. Phase I was completed in May 1995; work on Phase II has recently begun and anticipated to be completed in December 1998.

Norfolk-Virginia Beach Light Rail Study

The Norfolk-Virginia Beach Light Rail Study includes a recently let $5 million preliminary engineering contract to determine the appropriate corridor for a light rail line in the area, and the location of stops along the rail line. It is possible that the 3rd multi-modal tube of the proposed 3rd Hampton Roads Crossing could be used to connect this light rail line with the CSX line on the north side of the Peninsula. The study is expected to take 2 ½ years. If the results are positive, construction could begin by 2001.

I-64/I-895 Direct Airport Access Road Corridor Feasibility Study

The I-64/I-895 Direct Airport Access Road Corridor Feasibility Study includes the study of an intermodal freeway to provide improved vehicular access to RIC for passengers, air cargo, and other traffic movements. If feasible, the proposed freeway would connect with I-64 in the vicinity of Airport Drive and continue to an interchange with the proposed I-895.

CONCLUSIONS

Our analysis indicates that results from ongoing studies could aid in the feasibility determination for multi-modal interchange facilities near RIC and PHF. The CSX Corridor MIS, I-64 MIS, and Hampton Roads Crossing Study MIS, to be refined during the EIS, include access to PHF and RIC in their scope of potential transportation improvements. Access improvements being investigated have the potential to provide a more seamless transfer of goods and people, which is also the objective of a multi-modal transportation interchange facility. Results from these three studies, and from the RIC Intermodal Transportation Facility Study, the Eastern Virginia Regional Airport System Study, and the I-64/I-895 Direct Airport Access Road Corridor Feasibility Study, will assist transportation officials in determining options available for enhanced multi-modal connectivity at PHF and RIC and identifying and clarifying the many issues associated with project feasibility.

REFERENCES

1. Primary Airport Enplanement Activity Summary for CY1995. FAA DOT/TSC CY 1995 ACAIS Database. Http://www.faa.giv/ARP/vp.htm

2. Newport News/Williamsburg International Airport New Airport Master Plan, Talbert & Bright, Inc.

3. Richmond International Airport Master Plan Update Draft Report, Campbell & Paris Engineers in cooperation with Reynolds, Smith & Hills, Inc. and Transportation Solutions, Inc.

4. CSX Corridor Draft Purpose and Needs Statement.

5. CSX Corridor Goals and Objectives, December 1996, Parsons Brinckerhoff.

6. CSX Corridor MIS summary.

7. MIS Draft Purpose and Needs Statement, February 1997, Parson Brinckerhoff.

8. MIS summary, written by Julie Rush of Parsons Brinckerhoff.

9. Hampton Roads Crossing Study MIS Draft Executive Summary, March 1997, VDOT and FHWA.

10. Notes taken during meeting with Jim Smith and Suzanne Houck of PHF, May 27, 1997, George Alexiou of Parsons Brinckerhoff.

11. Notes taken during meeting with Todd Sheller, Tim Dole, and Ronald Mustain, May 29, 1997, George Alexiou of Parsons Brinckerhoff.

12. Commonwealth Transportation Board resolution adopted September 18, 1997 relating to the 3rd Crossing.

APPENDIX A

HOUSE JOINT RESOLUTION NO. 409

Requesting the Secretary of Transportation to study the feasibility of constructing certain multi-modal transportation interchange facilities.

Agreed to by the House of Delegates, February 20, 1997
Agreed to by the Senate, February 19, 1997

WHEREAS, a safe, efficient, modern transportation system is a prime prerequisite to economic development and the quality of life in Virginia; and

WHEREAS, the expeditious movement of goods and people from place to place often requires the use of several modes of transportation; and

WHEREAS, the trouble-free transfer of cargoes and passengers from one mode of transportation to another is essential to overall transportation system efficiency; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Secretary of Transportation be requested to study the feasibility of constructing certain multi-modal transportation interchange facilities, including rail, highway, and air transportation modes, in the vicinity of the Newport News/Williamsburg International Airport and the Richmond International Airport. In conducting this study, the Secretary shall solicit input from and review by public transportation entities and related industries in the affected areas. This study shall address development to accommodate growth in demand and shall be conducted to serve as a prototype for similar studies of other such facilities.

The Secretary shall complete his work in time to submit his findings and recommendations to the Governor and the 1998 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

APPENDIX B

INPUT FROM AFFECTED AGENCIES

METHOD

Informal telephone interviews were conducted to solicit input from affected public and private transportation agencies and to identify existing airport access problems and potential interest in an intermodal transfer facility. Interest in the facility by passengers and transportation providers is needed to generate sufficient transportation supply and demand. The following sections summarize interviews with representatives of affected agencies.

NEWPORT NEWS/WILLIAMSBURG INTERNATIONAL AIRPORT

The basic intermodal improvements included in the PHF Master Plan are a highway interchange at I-64 and Bland Boulevard, remote airport parking contained within or adjacent to the interchange, and an intermodal facility in one of the quadrants of the interchange that connects rail service (whether intercity or light rail) with an ultimate people mover system that runs along Bland Boulevard to the expanded terminal.

Airport management feels that feasibility of these improvements was demonstrated in the Master Plan, but no demand analysis has been conducted. Justification for these improvements is based on future constraints of highway accessibility. Capacity improvements to Bland Boulevard are not expected to be politically feasible, and McManus Boulevard will be closed when the first parking deck is constructed. Patrick Henry Drive will be extended to Bland Boulevard to replace McManus Boulevard prior to its closure; however, key external roads are also projected to be congested.

Because of predicted highway constraints, the conclusion has been drawn that an alternate means of delivering passengers to the terminal is required for airport growth to occur. Land required for the proposed interchange/intermodal facility is subject to development pressure and may need to be acquired in the near future to ensure the airport's ability to expand. The proposed intermodal facility at PHF would not include freight transfer, and air cargo would continue to be handled on the airfield[10].

RICHMOND INTERNATIONAL AIRPORT

The access problem to RIC is two-fold. Traffic lights located a short distance from the I-64 ramp cause airport traffic to queue up the ramp, especially during the morning peak. In

addition, drivers unfamiliar with accessing the airport terminal share the road with through trucks accessing air cargo areas. Both problems cause operational and safety concerns.

The main priority for RIC is improved access overall. Seventy percent of RIC movements are from the west, and RIC feels that direct access from I-64 East is needed. Two proposals for direct I-64 access have been made. One calls for direct access from the existing interchange in conjunction with depressing Williamsburg Road to avoid the existing traffic lights, and the other calls for a flyover from I-64 from a location just west of the interchange. Freight movements must be considered in any improvement because of the considerable air freight that moves through RIC. A consultant was recently selected for the Intermodal Transportation Facility Study, and results are, therefore, not available for this report[11].

VIRGINIA DEPARTMENT OF AVIATION

Conclusions regarding access and intermodal facilities drawn prior to the release of findings from the three MISs would be premature. These MISs will help to define demand first, before the access solution is studied. In addition, the outcome of the Hampton Roads Crossing Study will have a tremendous impact on airport choice in that area. The Eastern Virginia Regional Airport System Study is another important study, and the best system of airports should be determined prior to the development of access solutions.

HAMPTON ROADS PLANNING DISTRICT COMMISSION

The HRPDC is conducting an intermodal study for the region to identify deficiencies in intermodal connections. Access to PHF is probably adequate under existing conditions, but direct access from I-64 will be necessary if growth occurs. An intermodal facility would require sufficient growth to receive enough support and use.

RICHMOND REGIONAL PLANNING DISTRICT COMMISSION

Existing access to RIC is good, with the exception that direct access from the interstates is not provided. Access from I-64 is good but is poor from I-295. The proposed I-895 does not include a direct connection, but the I-64/I-895 Direct Airport Access Road Corridor Feasibility Study has just been initiated to investigate a possible connection. The need for an intermodal facility is dependent upon airport expansion and increased demand. Large increases in airport demand are forecast, but no studies support this. High-speed rail is necessary to bring support and use to the facility, attract use from a larger area than buses, and provide a higher level of service.

CITY OF RICHMOND

Access choices to RIC are limited. I-64 itself is good, but development between I-64 and the airport must be limited to avoid congestion and access problems. Coordination with renovation efforts regarding bringing rail passenger service back to the Main Street Station and eventually extending it to RIC would be useful. An intermodal facility would be needed only if congestion worsened significantly on I-64. At current levels of demand and congestion, this type of facility would add another transfer, leading to increased trip time and loss of convenience.

VIRGINIA BUS ASSOCIATION

The Virginia Bus Association includes the James River Bus Line, which provides mostly charter service to RIC and one scheduled service past PHF. The main problems at RIC are inconvenient and inadequate loading and unloading areas for buses and expensive bus access charges. They do not expect an intermodal facility to be of service to charter bus providers.

PENINSULA TRANSIT (PENTRAN)

PENTRAN provides local bus service, including hourly service to PHF. As employment and enplanements increase, bus service will have to be increased as well. PENTRAN is also looking into the possibility of placing a satellite operations facility at PHF, and an intermodal facility adjacent to the airport might be beneficial.

CSX CORPORATION

CSX is very involved with PHF regarding busways, commuter rail, and other proposed uses of CSX right of way. The rail line between RIC and Newport News is one of the most important lines in the CSX system. This is single-line track, and commuter rail service on the existing line will not be permitted. CSX will cooperate with efforts to develop new rail, but separate lines must be placed. CSX has no current policy regarding the use of adjacent right of way but is concerned about being blocked off from future industrial development should new rail be placed in their right of way. If the volume of cargo being transferred at an intermodal facility were significant, CSX would be interested in connecting to the facility.

GREATER RICHMOND TRANSIT COMPANY (GRTC)

GRTC currently provides service to RIC on a 1-hour headway. This is a fixed route service and is not frequently used. The demand for an intermodal facility will depend upon the

success of the renovations of the Main Street Station in decreasing taxi and private automobile use.

GROOME TRANSPORTATION

Groome Transportation serves RIC and PHF, in addition to Norfolk International, National Airport, and airports around the country. Fixed route and on-demand service is provided by a variety of vehicles in their fleet. Groome has had no access problems at PHF, and problems at RIC are minimal. However, RIC will have increased highway access problems as enplanements increase, and strong curbside planning will become necessary. Use of an intermodal facility by Groome Transportation would have to be economically viable, based on location, usage, and available transportation modes.

AMTRAK

Based on Amtrak's experience with the station at Baltimore-Washington International Airport (BWI), intermodal stations offering the ability to take a train to a plane usually have good revenue growth potential. However, the distance air passengers would be willing to travel would be dependent upon cost, trip time, frequency, convenience, and other factors, as well as the individual characteristics of competing airports. Amtrak would be interested in conclusions reached in a study of RIC and PHF. In addition to the Amtrak station at BWI, potential Amtrak stations adjacent to the Harrisburg (Pennsylvania), T.F. Green (Rhode Island), and Newark (New Jersey) airports are in various stages of development or study. In Virginia, it is important that CSX be consulted early in the process since the tracks belong to them.