Executive Summary
Richmond Regional Intermodal Transportation Study
Summary Report and Recommendations
Capital Region Airport Commission

and the

Richmond Metropolitan Planning Organization

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BY

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CHAPTER ONE
EXECUTIVE SUMMARY

1.0 INTRODUCTION
The Richmond Intermodal Transportation Study was a cooperative effort between the Richmond
International Airport and the Richmond Area Metropolitan Planning Organization. The study has a dual
focus for the multi-county central Virginia area: to examine the potential for an intermodal freight center in
the greater Richmond area, and to examine and recommend enhancements to the movement of goods,
both now and in the future, through the Richmond area by truck, rail, air and water.

The study was completed in two phases: Phase 1 Report (Data Collection) – January 1999, Phase 2
Report (Forecasting and Summary Recommendations) – February 2002. As a whole, the study examines
the movement of goods through the Richmond area historically, forecasts the future movement of goods
and their impact on the region, and suggests improvements to the transportation system to enhance
goods movement and reduce the impact of goods transportation on the lives of area residents.

Richmond has a long, rich history as a transportation center. This history dates from its founding at the
crossroads of Native American trading routes. This trend continued through colonial days and water
borne freight. In the 19th and early 20th century, the transportation focus shifted to railroads, but
Richmond kept its key role in transportation. In the latter half of the 20th century, goods movement
became increasingly dependent on trucking and airfreight, and Richmond again was a major center.

Through analysis and evaluation, issues and recommendations for each transportation mode were
identified by the study with respect to the existing goods movement system in central Virginia.

1.1 TRUCKING ISSUES
The Richmond Area is crisscrossed by major interstate truck routes; I-85 and I-95 running north/south,
US-64 runs east/west and I-295 and I-895 loop through the area. The amount of truck traffic within the
area is a concern for the MPO. Over twenty percent of the traffic along I-295 from I-95 to SR 10 is truck
traffic. Of the total vehicle volume on SR-40 and I-95 between 15-19 percent is truck traffic. Truck traffic
is heavy on all the major routes; however, the largest percentage of truck traffic is local in nature. Local
truck traffic contributes to congestion on local streets as well as the interstates.

Trucking freight is the most flexible mode available. All description of goods, size, weight, and
perishability can be picked up at the producers’ door and delivered across the street or across the nation.
Truck sizes vary from the smallest pickup to tandem semi-trucks. Because of this flexibility, trucking is
key to all the modes of goods transportation. And, therefore, the benefit is lower cost, speed, product
sensitive delivery system; the detriment is trucks, all kinds of trucks are seen everywhere. Since they are so universal, they compete with personal vehicles for roadway capacity.

Restricting the flow of trucks restricts commerce and is therefore undesirable. Attention should be paid to the interactions between trucking and all other vehicular traffic and pedestrians. Efforts should be made to facilitate safe, convenient, and fast transport of goods.

Because trucking can carry a variety of goods; including hazardous truck routing can be an issue. Creating alternative routes for trucking increases the safety net should an incident occur.

1.1.1 Trucking Forecast
Trucking throughout the nation has increased annually by 12-14 percent since the 1980s. Virginia's central geographic location on the East Coast puts it in line to experience similar traffic volume increases. The Richmond Area should continue to see growth in truck volumes similar to national trends. For Richmond, this means roughly double 1997 rates, from 12,000 daily through truck trips to 24,000 daily through trips for the year 2020. Total trips (through and local) are forecast at 56,000 daily truck trips in the Richmond area based on a medium growth rate. Trucking volume is dependent on many factors: land use, economic trends, population growth, mode market share, innovations in trucking, and new regulations being among them.

1.1.2 Trucking Recommendations
In order to provide alternative routes to more evenly distribute truck volumes and to add to system-wide capacity, a feasibility study is recommended for a limited-access roadway connecting Interstate-85 and Interstate-295 on the southwest side of Petersburg, as shown in Exhibit 1. Also, the study recommends performing a feasibility study for a limited-access roadway connecting Interstate-85 and Virginia SR 288 in Chesterfield County. Other recommendations for road system improvements are listed by the mode most effected by the improvements: rail, air or port.

1.2 Railroad Issues
The Richmond Area is served primarily by the CSX railroad, and to a lesser extent by Norfolk and Southern. The CSX Railroad system is dominated by coal shipments through Richmond from the coal fields in eastern Kentucky and West Virginia to the ports at Hampton Roads and Norfolk. These shipments absorb much of the rail system capacity due to constraints through Acca, Collier (Petersburg), and Fulton Yards. Any remaining capacity is used by shipments to and from area industries.
For west/south and south/west trains, there are long delays in the heart of the city due to the configuration of the existing James River crossing. These delays impact not only freight movement, but community circulation as well by blocking existing at-grade rail crossings.

There are two locations in the CSX system in Richmond where low vertical clearance over the railroad tracks prevent the use of double-stack container cars.

1.2.1 Railroad Forecast
The use of rail to move freight in the Richmond area is unlikely to grow substantially in the near to midterm future. Several factors point to this conclusion. First, nationally total rail tonnage is increasing at a very slow rate. Second, overall coal production is down significantly and particularly coal shipped by rail through the CSX handling facilities in Newport News. Finally, movement of goods by rail continues to face stiff competition by other modes of shipment (truck and barge).

1.2.2 Railroad Recommendations
There is some capacity in the existing CSX rail system in the Richmond area, but the system cannot absorb any substantial increases in rail shipments to or from Richmond. Some improvements can be made to enhance the marginal capacity and increase the efficiency of the rail system. Due to the percentage of capacity that coal consumes as it passes through Richmond; major improvements in system capacity are not possible. The study recommends several system improvements nonetheless:

- Improvements to Acca, Collier and Fulton Yards. These improvements include the construction of secondary mainline tracks and crossovers to allow through rail traffic to avoid the congestion of the yards. Other improvements to enhance yard accessibility are also suggested (Exhibits 2, 3, and 4).

- The removal of the closed low clearance bridge structures at Blue Shingles Road and Platinum Road. Neither of these structures is currently in use as a roadway. Their removal will remove the local restrictions on double-stack container trains. There are other obstructions outside the study area that will still limit double stacking use in the area (Exhibit 5).

- Evaluate the potential to construct a new CSX rail bridge over the James River. This bridge will improve operations for the CSX railroad, and at the same time reduce the long delays caused by trains blocking at grade rail crossings. The construction of the new bridge should be evaluated against the construction of additional grade separated crossings (Exhibit 6).

- Careful coordination with the Virginia High Speed Rail Initiative.
1.3 AIRFREIGHT ISSUES
The Richmond airfreight community is currently served by the Richmond International Airport. The airfreight community consists of airfreight integrators who rely on a vast integrated delivery system of aircraft and ground pickup delivery vehicles such as FedEx and UPS and Freight Forwarders who act as a liaison between shippers and air cargo operators. In both cases, the study analyzed the historical and potential growth of both dedicated freighters and air cargo carried in the belly of scheduled commercial airlines.

Because airfreight is typically low weight, high value and time sensitive material, it ranks as one of the most expensive modes of freight movement. As such, the integrator and freight forwarding community are consistently searching for the least expensive means to ship commodities from point to point while still meeting the desired time frame for delivery.

1.3.1 Airfreight Forecast
The Airfreight forecasts evaluated both historical airfreight volumes at the Richmond International Airport and current trends in the industry that could affect forecast projections for the region. In order to produce a realistic planning tool for the study, three forecasting scenarios were produced and included a high, medium and low growth scenario. The major obstacle for Richmond International Airport to aggressively grow in the air cargo market is its close proximity to nearby international airfreight gateway airports such as Washington Dulles International and John F. Kennedy International Airport. In addition, major companies in the airfreight integrator market such as FedEx and UPS have recently established east coast regional hubs at other facilities. However, all is not lost for the Richmond area. There are several remaining integrators that could be attracted to the geographic location of Richmond International Airport and establish a regional Mid-Atlantic hub and should be marketed aggressively.

1.3.2 Airfreight Recommendations
The Intermodal Study focused on its analysis primarily on the means of moving airfreight to and from the Richmond International Airport and identifies potential improvements to the surface access system. These recommendations will also enhance passenger access to the Airport. In addition, the study recommended additional airside and landside improvements at the Richmond International Airport that will increase capacity and enhance efficiency. These recommendations include:

- Plan and construct a direct connection to and from Interstate 895 and Richmond International Airport to allow for a second Interstate access from the south which will relieve congestion throughout the Richmond Metro area as well as providing additional airport access points (Exhibit 7).
• Access improvements to and from Interstate 64 and Richmond International Airport. This will provide additional travel lanes to South Airport Drive between I-64 and the Airport to reduce congestion during peak usage as well as improvements at the I-64/South Airport Drive interchange to allow for higher traffic speeds and less congestion for vehicle entering and leaving the airport (Exhibit 8).

• Construction of a grade-separated interchange at Williamsburg Road and South Airport Drive to allow for free flow at the current Williamsburg Road/South Airport Drive intersection (Exhibit 9).

• Airfreight area expansion, which will require planning and construction of new cargo access lanes, cargo service roadways, east cargo apron, and future cargo building sites. (Exhibits 10 and 11).

• Designation of the South Airport Industrial Development Area. This requires that the airport re-zone the large 1,000-acre site for the development of industrial and support facilities for the airport (Exhibit 7).

• Lower the CSX rail line south of Richmond International Airport. This adjacent rail line limits runway expansion at the Airport and obstructs the runway approach surfaces when the track is occupied with double-stack operation (Exhibit 12).

1.4 PORT ISSUES
The Port of Richmond currently serves both domestic markets and multiple international markets. It is publicly owned by the City of Richmond and is operated by the Port of Richmond Commission. The Port of Richmond is located on the south side of the City of Richmond at the fall line of the James River. Located on the West Bank of the James River, the Port is in close proximity to the intersection of Interstate 95 and the future Interstate 895 providing good truck access. The Port handles containerized and bulk cargo and serves as a niche port that accommodates small to medium size vessels.

1.4.1 Port Forecasts
Previous growth at the Port of Richmond has been limited by the size of ships it can accommodate. Trends among the port industry indicate that vessel sizes are increasing in an attempt to reduce shipping cost. The Port of Richmond is limited by its capacity to service larger vessels. The study suggests that the Port of Richmond continue to serve as a niche port, and possibly capitalize on providing future barge service to and from the Hampton Roads area thereby relieving congestion in that area while diversifying its market share. In order to produce a realistic planning tool for the study, three forecasting scenarios
were produced for the report that included a high, medium and low growth scenario based on historical freight volumes and industry trends similar to the airfreight forecasts.

1.4.2 Port Recommendations

The study describes the recommended improvements to the Port of Richmond. These improvements include multi-modal enhancements that will enable increased traffic flow and improve connectivity between rail, roadways and the Port. Improvements to the James River will benefit all downstream ports as well as easing shipping congestion throughout the Hampton Roads area. These enhancements include the following:

- **Rail Spur/Rail Service enhancements to the Port.** Acquire existing CSX rail spur and construct a link to Norfolk Southern rail line to introduce competition and choice of railroads (Exhibit 13).

- **Rehabilitation of roadway accesses to the Port.** This would include the rehabilitation of the grade crossing at the CSX railroad, the rehabilitation and enhancement of Deepwater Terminal Road and Bells Road, as well as to widen these roads to meet truck traffic needs, and to study the need for an interchange at Bellemeade Road and I-95 in order to enhance access to the Port (Exhibit 14).

- **Turn Basin Widening in order to allow for the traversing of larger ships desiring the use of the Port of Richmond.** This recommendation requires cooperation with the U.S. Army Corp of Engineers. By widening the turn basin, the Port can continue to remain competitive with other Mid-Atlantic terminals by accommodating larger ships, while providing the ability to use the turn basin while other ships are docked at the Port (Exhibit 13).

- **Channel Deepening to allow larger ships to transit the James River and to enhance marketability toward larger ships.** The study recommends that the current channel depth of 25 feet be deepened to 29 feet to accommodate larger vessels with drafts of up to 26 feet to be able to traverse the James River. This recommendation will not only benefit the Port of Richmond; it will allow larger vessels to transit the James River to other marine terminals that are currently not accessible (Exhibit 13).

1.5 Conclusion – Intermodal Facility Study

The Primary objective of this study was to evaluate the need for an intermodal facility to serve the needs of the Richmond metro area. After detailed analysis, the development of an intermodal facility in the Richmond area is not immediately warranted at this time. However, as suggested in the final report, an intermodal committee should be established and charged with monitoring the demand for intermodal freight facilities for the Richmond area. The development of a committee charged with monitoring demand for an intermodal facility would allow regional agencies to incorporate intermodal analysis into the overall planning process. The intermodal committee should incorporate related improvements to the
various freight modes throughout the region to assist in gauging comprehensive intermodal demand and make an intermodal facility in the region more viable.

Freight movement is important to the growth and prosperity of Richmond. The improvements listed within this report will only improve the vitality of freight movement from mode to mode throughout the Richmond area. While this study identifies specific improvements to be considered, this should be a first step in a continuing process of a new awareness of how freight moves through the region.
Exhibit 1
Richmond Regional Intermodal Transportation Study
I-95 Corridor: Truck Alternative
Exhibit 2
Richmond Regional Intermodal Transportation Study
Acca Yard: Highway and Rail Access
Exhibit 3
Richmond Regional Intermodal Transportation Study
Fulton Yard: Highway and Rail Access
Section 1
- Evaluate Safety of Corridor from Collier to I-85
- Improve Intersections
- Increase Width of Collier Yard Access Road

Section 2
- Construct Additional Yard Tracks

Section 3
- Evaluate Condition of CSX/NS Interchange
Exhibit 5
Richmond Regional Intermodal Transportation Study
Vertical Clearance Limitations
Exhibit 6
Richmond Regional Intermodal Transportation Study
New James River Bridge Connection
Recommended Williamsburg Road/South Airport Drive Separated Interchange

Exhibit 9
Richmond Regional Intermodal Transportation Study
Williamsburg Road/South Airport Drive Improvements (Grade Separation)
Exhibit 11
Richmond Regional Intermodal Transportation Study
Future East Side Air Cargo Facility Improvements

Source: Delta Airport Consultants, 2001
Exhibit 12
Richmond Regional Intermodal Transportation Study
Lower CSX Rail Line Along South Airport Border For Air Clearance
Recommendations:

P1 = Rail Improvements
P2 = Roadway Improvements
P3 = Turn Basin Widening
P4 = Channel Deepening
P5 = Future Expansion

Note: Channel Deepening will span the length of the James River from Richmond to Norfolk, Virginia.

Exhibit 13
Richmond Regional Intermodal Transportation Study
Port of Richmond Improvements Overview

Source: Port of Richmond, 2000