

APPENDIX B

Summary of Previous and Current Transportation Studies

B. SUMMARY OF PREVIOUS AND CURRENT TRANSPORTATION STUDIES

The major passenger and freight transportation corridors in Virginia have been evaluated in recent years by the Commonwealth, Multi-State Coalitions, and a variety of transportation advocacy groups representing all modes of transportation (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.1] relevant data sources, assumptions, and analytical methodology, [c.7] alternatives analyzed, [c.8] application of benefit cost methodology for each project, [c.6.iii] condition, [c.9], and [c.9.i] partnership and funding). A brief summary of several key multi-modal transportation studies which included existing and future passenger and freight rail improvements in Virginia for highway congestion relief (passenger and trucks) and air quality improvements in urban regions are presented below. Full copies of these reports can be downloaded from DRPT’s website (www.drpt.virginia.gov).

B.1 Governor’s Commission on Rail Enhancement for the 21st Century Report

The special blue-ribbon commission report prepared in 2004 stated that a transportation crisis was facing the nation and Commonwealth. Excerpts from the executive summary contained the following observations and recommendations that were made by the Commission:

At the National Level

“While traffic congestion threatens the quality of life in our most populous areas, highway systems in most metropolitan areas, especially along the East Coast, are approaching the limit of planned construction. New highway infrastructure is constrained by lack of funding as well as environmental issues, anti-growth perspectives, and less space in which to retrofit new highway lanes.

Many states have successfully partnered with freight railroads in order to provide commuter and intercity passenger rail alternatives. Attempts to accommodate ridership growth and address on-time performance are often difficult, as freight railroads struggle with their own challenges. When the local and state governments have made significant investments to add capacity and increase speeds on the freight rail lines, such as the Cascades Corridor in Washington and Oregon and the Capital Corridor in California, rail service has experienced substantial increases in ridership.

Throughout the past decades highway miles have increased and rail miles have declined. Between 1970 and 2003, Class 1 railroad miles were reduced by approximately 50%, many of them going to short-line railroads. From 1975 to 2003, freight carloads handled by railroads increased from 22.9 million to 28.9 million per year. Rail traffic density indicates higher utilization with “ton miles” per mile of track tripling.

In over 25 years, the Federal government has spent approximately three-quarters of a billion dollars on transportation, of which only 4% has been for rail.”

In Virginia

“From 1930 to 1990, highway miles in Virginia have increased almost tenfold. Still, severe traffic congestion affects the quality of life of many communities, and threatens to thwart economic development. In Virginia, alternatives to highway travel include bus service,

Metrorail (in Northern Virginia) and the Virginia Railway Express (VRE) commuter rail system, which operates on Norfolk Southern and CSX tracks. While the partnership was rocky at first, VRE has become a success story and has benefited from public/private investments in its host railroads' infrastructure.

Transportation planners have long sought highway opportunities to divert truck traffic from congested highway corridors. The potential for rail alternatives has essentially not been considered as part of the equation.

Rail, in the meantime, has the potential for increasing its capacity, but has its own challenges in order to address choke points and clogged main lines. If the quality of rail transportation is not improved, some Virginia companies could be forced to relocate outside the Commonwealth in order to accommodate their shipping requirements.

The Virginia State Rail Plan (2004) has developed an unconstrained estimate of rail needs in the Commonwealth that totals \$2.7 billion through 2010 and up to \$8.1 billion through 2025. Passenger-only and joint passenger-freight needs account for 81% of this total, while freight only needs represent 19%.

Currently, rail only receives \$5-6 million each year for industrial access and the rail preservation fund. Virginia has no trust fund allocation for rail. Increased rail funding could provide substantial benefits to the public. For instance, in the Richmond to Washington DC corridor, an investment of \$400 million could reduce train travel time along that corridor by a half hour and would, at a minimum, double the ridership from approximately 700,000 to 1.5 million annually.

In struggling to address these challenges, Virginia continues to operate under funding laws essentially unchanged since their enactment 18 years ago. The Commission urges a fundamental cultural and policy shift, with rail as a major component in a multimodal solution to the transportation challenge; in response to its charge, the Commission recommends:

1. Adoption of following Virginia Rail Vision and Goals:

Vision

- Virginia's rail system – a key component of the Commonwealth's intermodal system for the movement of people and goods – will be a partner in the mid-Atlantic region, providing higher-speed intercity passenger and commuter service along major corridors, and accommodating significant increases in freight movement supportive of the Commonwealth's economic development goals. Virginia's rail system will enhance safety, reduce congestion and achieve environment goals.

Goals

- Significantly increase both freight and passenger rail capacity and reliability in the I-81, I-64, US 460, I-95, and US 29 corridors.
- Working with the partner transportation commissions (NVTC and PRTC) and local participating jurisdictions, expand the Virginia Railway Express (VRE) to accommodate increased ridership and demand, improve service, and expand coverage both within their existing transportation commission boundaries and beyond.

- Establish the TransDominion Express (TDX) passenger rail service that would link Southwestern Virginia to Richmond via Lynchburg, and Southwestern Virginia to Washington, DC via Lynchburg and Charlottesville.
- Improve freight rail service to the Hampton Roads/Newport News ports.
- In coordination with the Federal government and other mid-Atlantic states, establish the infrastructure for higher-speed passenger rail between Washington, D.C. and Richmond as a spine that would connect to both Hampton Roads and North Carolina.
- Develop regional rail intermodal terminal facilities (e.g., in Petersburg, Roanoke and other areas).
- Continue strong and sustained support for Virginia's short-line railroads.
- Whenever railway rights-of-way are being considered for abandonment, ensure that those that may be needed in the future are preserved for future rail use.

2. Endorse the Virginia State Rail Plan as an excellent document providing an out standing history of the rail industry and a cataloging of rail needs and projects in the Commonwealth, further recognizing, however, that it needs continued work by senior management to prioritize projects, to identify where public-private investments would be most beneficial and to shape the details of a rail implementation plan for the Commonwealth.

3. Reaffirm rail development responsibilities with the Department of Rail and Public Transportation, ensuring that adequate senior-level staffing is provided to achieve the rail vision and goals.

4. Designate the Commonwealth Transportation Board (CTB) as the entity authorized to issue bonds or other indebtedness to support rail enhancements, subject to bonding, statutory and constitutional requirements.

5. Create a permanent Rail Advisory Commission, chaired by an at-large member of the CTB designated by the Governor. The Commission would advise the Secretary of Transportation and the Director of Rail and Public Transportation (DRPT). In consultation with the Director of DRPT, it would also have the responsibility of making recommendations to the CTB as to distributions or grants from the Railway Preservation and Development Fund. Further, it would be charged with providing the focus and advocacy for rail issues needed to realize the Virginia rail vision and goals outlined in this report. The Commission would periodically review, update and assist with prioritization of projects in the Virginia State Rail Plan. The Commission would provide an annual progress report to the Governor, the Director of DRPT, the CTB and the Secretary of Transportation on progress being made to achieve the vision and goals, along with any needed recommendations.

6. Pursue dedicated and sustained funding mechanisms for rail enhancements with the goal of making funds available for leveraging through public-private partnerships, matching Federal funds and/or servicing debt. The Commission recommends and urges that this be a new source of funding, one that does not detract from the already modest funding allocated to transit in the Commonwealth.

7. Seek an amendment to the Code of Virginia (Section 33.1), Railway Preservation and Development Fund, to provide a matching requirement, or in-kind contribution, when monies

in this Fund are used to partner with private railroad companies on projects that have a public benefit, as determined by the CTB upon recommendation from the Rail Advisory Commission.

8. Recommend that rail (both passenger and freight) be incorporated into Virginia's Commonwealth and metropolitan planning organization (MPO) planning processes.

9. In partnership with other states, pursue with the Federal government the inclusion of rail as a key element in national transportation policy and funding, with a view to its criticality in addressing the increasing freight demands, the need for higher-speed intercity passenger and commuter service, and environmental concerns.”

Great (But Realistic) Expectations: This fundamental cultural and policy shift will not happen overnight. Rail development progress in the United States and in the Commonwealth in particular, must necessarily be viewed as the continuation of successive steps leading to amore significant role for intercity passenger, commuter, and freight rail in a comprehensive intermodal transportation structure and service matrix. Public expectations for dramatic, near term improvement in rail service should be tempered by the recognition that the rail mode of transportation has not enjoyed the public investment and policy support that has been accorded highways and aviation. Rebalancing this inequity in the transportation market place will take many years to achieve and will require a combination of executive and legislative initiatives that go substantially beyond the recommendations of this report. These expectations can only be met if there is active cooperation and partnership with railroads.

The benefits can be great, however. Mobility challenges, which threaten our quality of life and economic vitality, will best be met by investing in and connecting the mosaic of transportation modes and alternatives serving the Commonwealth.”

The Governor's Commission in 2004 was a major milestone for rail development in Virginia. In response to the report many of the recommendations above were implemented by the Governor and General Assembly as stated or in a modified form. A Rail Advisory Board was subsequently created, and the Rail Enhancement Fund was established with financial resources to begin tackling major rail chokepoints and issues affecting both freight and passenger rail improvements. Major transportation corridors (I-95 and I-81) have also received additional funding from the General Assembly earmarked through the Rail Enhancement Fund for rail improvements for passenger rail and to encourage the diversion of cargo (particularly containerized cargo) from trucks on the highways to the rail system.

B.2 I-95 Corridor Coalition: Mid-Atlantic Rail Operations Study – Phase II

Phase I of the Mid-Atlantic Rail Operations (MAROP) Study was published in April 2002. The Phase II study was published in December 2009 and examines the condition and performance of the regional rail system, updating the findings of the 2002 MAROps Phase I study. The studies are part of continuing initiative of the I-95 Corridor Coalition, five Mid-Atlantic states (Delaware, Maryland, New Jersey, Pennsylvania, and Virginia) and three railroads (Amtrak, CSX, and Norfolk Southern) to understand the impact of rail choke points on rail freight transportation and the economy of the region.

The study finds that the Mid-Atlantic region faces clear challenges to moving freight in the future. The population of the five-state area is projected to grow from 36 million in 2008 to nearly 45 million in 2035 and employment is expected to grow from 23 million jobs to 31

million jobs. With these changes will come a significant increase in demand for freight transportation to support businesses, households, and government services.

The national and regional economies are weathering a major recession today that has reduced demand across all freight transportation modes, but the eventual economic recovery will quickly return the freight system in the Mid-Atlantic (and the nation as a whole) to where it was in 2007 and early 2008—in the early stages of a capacity crisis. The current fiscal climate encourages state transportation agencies and the railroads to put off challenging questions and long-term investment in favor of addressing short-term needs. But without coordinated planning and additional investment, significant congestion can be expected in the future on both the rail and highway systems. This is especially true for the region's rail system.

Today, 88 percent of freight rail corridor miles in the MAROps region operate below capacity (at levels of service A, B, or C) and three percent operate above capacity (at level of service F). Without further improvements to the rail system, by 2035 only 43 percent of rail corridor miles in the MAROps region are projected to operate below capacity (at levels of service A, B or C), while 30 percent will operate above capacity (level of service F).

Implementing the full MAROps program, estimated to cost about \$12 billion over the 30 year period (up from \$6.2 billion in 2002 MAROps Phase I study, largely because of the increases in energy and material costs), would maintain the capacity of the system. The program would involve implementation of 217 projects, including 110 projects to add mainline capacity and 81 projects to provide doublestack clearance. There would also be projects to expand terminal capacity, remove or rebuild grade crossings, replace or rehabilitate outdated bridges and tunnels, and add new communication and technology to improve safety and the coordination of train movements.

Increasing the capacity of the network has the potential to increase the share of freight captured by rail. The rail share of freight transportation in the Mid-Atlantic region is between one and two percent lower than the national average. Conservative estimates of the potential to shift freight from truck to rail suggest that rail could capture the equivalent of 13 to 55 additional trains per day. This would remove a moderate amount of truck traffic from the region's highways, relieving some of the congestion pressure on the highways.

The additional traffic would—as intended—absorb some of the capacity provided by the MAROps improvements. With implementation of the full MAROps program and a “high” increase in rail mode share, 70 percent of the rail corridor miles in the region are projected to operate below capacity by 2035 and 6 percent would operate above capacity.

Implementing only the 150 priority MAROps improvements—the projects judged by railroad managers and state DOT officials to be critical path projects that would yield the highest near-term benefits—would reduce the cost of the program from \$12 billion to \$6 billion. The rail system would not have as much capacity to attract and absorb new traffic as it would with the full MAROps program, but it would still have sufficient capacity to capture a moderate amount of new freight traffic. Implementing the priority projects only and assuming a “low” increase in rail mode share, 57 percent of the rail system would operate below capacity and 19 percent would operate above capacity.

Implementing the full MAROps program would contribute \$1.3 billion in business output and 9,800 jobs to the five-state region each year. Shippers would see a modest reduction in

transportation costs (around 1 percent), railroads would carry additional freight, increasing their revenue, and freight operators would see overall net reductions in costs of \$40 and \$52 million per year in operating costs.

The benefit/cost ratio of implementing the full MAROps program and achieving a high increase in rail mode share is estimated at 1.86. The benefits include traveler benefits, shipper benefits, and societal economic benefits.

The benefit/cost ratio of implementing only the priority MAROps improvements and achieving a low increase in rail mode share is estimated at 2.9. The ratio is greater because implementing only the priority MAROps improvements would defer several of the highest-cost and most complex improvement projects. Both programs would generate economic growth in all five states and the three major metropolitan areas within the region.

The findings of the MAROps Phase II study reinforce the conclusions of the Phase I study, which found that cooperative action between the states and railroads is critical to improving the system. The MAROps rail network covers five states and serves three major metropolitan areas, each its own jurisdictional roles and responsibilities. However, the network is operated as a system. Improvements in one state alone, while beneficial, would simply shift choke points upstream or downstream and would not necessarily improve overall corridor capacity and travel times. A coordinated program of state- and railroad funded improvements is needed across the network if rail capacity is to be increased and freight traffic shifted from truck to rail.

The MAROps Phase II study also confirms the need for a national support for major rail improvement projects. The MAROps projects range in complexity from relatively simple fixes to extremely complicated and costly projects such as the multi-billion-dollar Baltimore rail tunnel improvements. The states and railroads can address many of the smaller, less costly projects over time, but national action will be required to accomplish the major projects.

The major projects will benefit the region, but they also will improve rail freight and Amtrak passenger rail operations between the Mid-Atlantic and the Midwest, the Southeast, and the West Coast. The full set of MAROps improvements will encourage long-haul truck traffic to shift to improved rail intermodal service. This will reduce logistics costs for shippers and highway congestion across the country, not just within the MAROps region.

In summary, without concerted action to implement the MAROps improvements, the capacity of the rail system will lag behind population and economic growth. Rail freight will be shed to trucks, adding congestion to the region's already overloaded highway system. The cost of freight transportation in the region generally, and the cost of rail freight transportation specifically, will increase. This will drive up the cost of living and cost of doing business in the region, reducing the economic competitiveness of the region in national and global markets. The Mid-Atlantic is one of the nation's largest and most important population and economic regions. It must have balanced and cost effective freight and passenger transportation system. For these reasons, it is recommended that the I-95 Corridor Coalition, its member states, and the railroads advance the MAROps program and look for opportunities to accelerate implementation of the projects.

B.3 Washington, D.C. to Richmond Third Track Feasibility Study (2006)

The study was requested by the 2006 General Assembly session in HB 5012. In addition to an analysis of the feasibility of constructing a third track, this study responded to the General Assembly's direction to expand the scope to:

- Identify needed right-of-way parallel to existing tracks, including right-of-way owned by CSX or by other parties;
- Identify major environmental issues;
- Develop an implementation plan based on the most optimal options, including the schedules for each phase of the project as well as financing for the project;
- Review legal and regulatory issues; and
- Estimate the cost of powering passenger trains by electricity for a Third Track from Washington, D.C. to Richmond.

B.3.1 Previous I-95 Corridor Studies

The 2006 report prepared by DRPT for the General Assembly (House Document No. 78) indicated that three major studies of rail improvements in the Washington, DC to Richmond corridor had been conducted over the past ten years, all of which addressed the feasibility of implementing fast, frequent and reliable passenger rail service. DRPT conducted an initial concept and feasibility study in 1996. This was followed up by a more detailed operational analysis and preliminary engineering study conducted by the Federal Railroad Administration (FRA) and Amtrak in 1999. In 2002, DRPT and the North Carolina Department of Transportation (NCDOT) completed the Southeast High Speed Rail (SEHSR) Tier I Environmental Impact Statement (EIS) which integrated the Washington, D.C. to Richmond improvements into the longer bi-state rail corridor extending through Raleigh, N.C. to Charlotte, N.C. A FRA and FHWA Record of Decision approving the EIS for the rail corridor from Washington, D.C. to Richmond, Raleigh, and Charlotte was issued in 2002.

The approach followed in these previous studies was to establish goals for provision of quality service and then to identify a package of improvements that would be sufficient to achieve those goals. Over time, people have come to use the term "third track" to describe the improvements that are being recommended in these studies. However, the package of improvements identified in these reports includes much more than just a third track. A detailed list of track, signal and station improvements has been recommended which are designed to address the capacity and speed constraints of the existing infrastructure and to accommodate the service goals of reducing travel time, increasing frequency and increasing reliability of passenger trains.

Of the three studies conducted, the Amtrak/Federal Railroad Administration (FRA) report, which was submitted to Congress in May 1999, provided the most comprehensive analysis of the proposed improvements. The stated purpose of that study was to specify, "... the infrastructure improvements that would enable the Washington-Richmond Corridor to accommodate reliably the mix and volume of higher speed intercity passenger, commuter and freight services that the line's operators and public partners foresee for the year 2015." An assessment of then current facilities, services and operating conditions was conducted as part of that study.

Subsequent to the above studies, all of the key parties in this corridor, including DRPT, FRA, Amtrak, CSX and the Virginia Railway Express (VRE), the commuter railroad operating between the Northern Virginia suburbs and Washington, D.C., worked together to

characterize the service needs for a study planning year of 2015. An operational analysis was conducted to simulate the performance of future services over various configurations of infrastructure.

From that analysis, a set of infrastructure investments was developed that would allow operations that achieve the intended service quality and train volumes with satisfactory reliability. The operational report concluded that "Reliable high-speed passenger train service between Washington and Richmond is a feasible goal provided that requisite infrastructure improvements are constructed."

The most recent evaluation completed for continuing the third track program in the corridor was the Third Track Conceptual Location Study completed by DRPT in June 2004. That study identifies the conceptual location of a third mainline track in the corridor between Richmond Staples Mill Road Station and the Ravensworth Interlocking, a crossover which is located south of Franconia in the Northern Virginia suburbs of Washington, D.C. The corridor examined in that study was 92.7 miles in length and accounted for 78% of the total mileage between Richmond Main Street Station and Washington Union Station. The conceptual third track location identified in the study lies principally on the west side of the existing two-track corridor. The objective of that study, which took into account existing and planned rail infrastructure, was to help guide planners and engineers in formulating the location and design of individual future improvements and ultimately the location of the third track.

DRPT also prepared a Richmond Area Master Plan in 2003 that addressed needed improvements on CSX between the Amtrak Staples Mill Road Station, located north of the city, and Main Street Station in downtown Richmond. That study analyzed a number of Amtrak intercity passenger rail issues including better transit times, options to bypass the congested CSX freight switching operations at Acca Yard, and passenger train layover and turning locations necessary for increased service to Main Street Station. All of these improvements would be critical to providing enhanced intercity passenger service to downtown Richmond.

B.3.2 Implementation of Third Track Projects

With passage of the Virginia Transportation Act of 2000 (VTA2000), the Commonwealth began design and construction of several sections of third track in the corridor and a number of the improvements supporting the third track program. These projects, carried out in accordance with a Memorandum of Understanding signed by the Commonwealth, VRE and CSX, included approximately 12.8 miles of mainline third track at:

- Crystal City in Arlington County (1.1 miles)
- L'Enfant Plaza in Washington, DC (1.0 mile)
- Franconia Hill in Fairfax County (7.6 miles)
- Fredericksburg in Stafford County (3.1 miles)

In addition, other infrastructure supporting the third track was also implemented under VTA2000. Most notable was the construction by VRE of the second CSX bridge spanning Quantico Creek (which was completed in 2007). This new bridge eliminated the single

largest bottleneck in the Washington to Richmond corridor by adding second and third track capacity to what was a single-track crossing of the creek.

Other improvements noted in the 2006 report that were completed, under design or in construction that provided immediate benefit to passenger and freight train movements, as well as support of three-track operations in the corridor, included:

- Train crossovers between mainline tracks at Elmont (Hanover County), Arkendale (Stafford County), Possum Point (Prince William County), and Slaters Lane (City of Alexandria).
- The new AF Interlocking 3 in Alexandria where CSX and Norfolk Southern tracks meet.
- 4.7 miles of third track between AF Interlocking and SRO Interlocking in Crystal City.
- New and upgraded signal and communication systems.
- A new railroad bridge and extension of Amtrak's Auto Train lead track at Lorton.
- Relocation and triple tracking of CSX tracks at Potomac Yard in Alexandria/Arlington.

The completed or currently programmed sections of third track account for 17.5 miles, or 15%, of the 118-mile Washington to Richmond rail corridor. This 2006 study did not include these completed or programmed miles in the total package of identified work required to finish the entire three track system. Likewise, costs for these completed or nearly completed projects are not included in the cost estimates presented in this report.

B.3.3 Recommendations of the 2006 Report

The Department of Rail and Public Transportation (DRPT) is charged with ensuring that the Commonwealth of Virginia achieves the highest public benefit for the dollars invested in our rail programs. There is no doubt that I-95 is a high priority freight and passenger rail corridor that will require significant investment in order to maintain and improve mobility for people and goods. DRPT is taking a strategic approach to studying this high priority corridor. Our new approach is based on establishing public benefits, identifying public/private partnership opportunities, and providing realistic cost estimates based on a comprehensive plan that identifies all of the improvements and issues that need to be addressed in the provision of reliable, sustainable, expandable, and efficient freight and passenger rail operations.

The report provides a minimum/partial cost estimate of \$684 million in 2006 dollars for capital improvements to construct a nearly continuous third track along the entire length of the corridor and improvements to the connection between Richmond's Main Street Station and the Staples Mill Road Station in Henrico County. However, this minimum cost estimate omitted key cost drivers such as the cost of right-of-way use or acquisition, utility relocation, escalation costs, and other important improvements such as the construction of a new bridge across the Potomac River between Arlington and Washington, D.C. to eliminate a critical bottleneck for operations.

The \$684 million minimum/partial estimate also did not include the cost of electrification of the corridor. This option was analyzed in the report and the cost of electrification was estimated to be at least \$953 million in 2006 dollars, which is in addition to the cost of the third track. It should also be noted that heat restrictions are not eliminated as a result of the

capital improvements reviewed in this study. Heat restrictions often lead to significant delays to passenger rail operations in the corridor due to CSX policy that limits train speeds during warm weather periods.

Significant investments have been made in the corridor with funds from the Virginia Transportation Act of 2000 (VTA 2000). Two new crossovers and major signal upgrades have been completed at Arkendale in Stafford County and Elmont in Hanover County. The new bridge across Quantico Creek (completed in 2007), and construction of approximately one mile of third track at L'Enfant Plaza is underway. Three additional sections of third track are in final design, and preliminary plans have been completed for track improvements in Richmond that will improve access to Main Street Station. Completion of these projects allows the operation of four new passenger train round trips, reduced travel time and improved reliability of all trains operating in the corridor.

The 2006 report noted that there was a funding shortfall of approximately \$20 million to complete these important projects. The shortfall was the result of the lack of preliminary engineering when the initial cost estimates were prepared, cost escalations, and adjustments to the projects to optimize their effectiveness. It was highly recommended that additional funding be provided to complete these projects.

Previous funds provided by the Commonwealth for these projects were not matched by CSX and the Commonwealth did not obtain an agreement that would protect the public investment by specifically establishing performance standards such as on-time performance for passenger rail service. Moving forward, DRPT highly recommends that the Commonwealth fully explore all options in this corridor. As part of this approach, the Commonwealth should identify opportunities for sharing costs and benefits of improvements in this corridor through public/private partnerships.

DRPT recommended that the Commonwealth take the following actions to advance passenger rail service in the Washington, D.C. to Richmond corridor:

- 1) Complete the VTA 2000 Program of Projects. An additional \$20 million is needed to complete all of the Washington, D.C. to Richmond corridor projects that are currently under final design.
- 2) Complete a Comprehensive Alternatives Analysis. This will include operational modeling, a review of alternate right-of-ways, and the analysis of public and private benefits that will lead to the identification of opportunities for cost sharing and leveraging of public and private resources. The Public Private Transportation Act (PPTA) may offer the opportunity to identify alternative right-of-ways. It is estimated that this effort will cost \$1 million and take 12 months to complete.
- 3) Conduct Environmental Review and Preliminary Engineering. A minimum of 30% engineering must be completed in order to determine the specific design for proposed improvements and to develop an accurate estimate of total costs. This task will include the preparation of all necessary environmental documentation. The estimated total cost is \$40 million and this will take 24 months to complete.
- 4) Establish Agreements. The Commonwealth has a long-term interest in this corridor and will need to assume a lead role if passenger rail is going to be successful in the corridor. Agreements must be executed between the Commonwealth and other stakeholders to

establish the roles and responsibilities of each party in the construction, operations, management and governance of this rail corridor. These agreements must protect the Commonwealth's interests, allocate costs and benefits, and ensure long term access and performance for passenger rail service.

5) Identify a dedicated source of funding for capital and operating costs in the corridor. The Washington, D.C. to Richmond rail corridor represents an excellent opportunity for the Commonwealth to utilize rail to reduce traffic congestion and truck traffic in the I-95 corridor, where road expansion is very challenging due to cost and environmental concerns. Passenger rail, similar to highways, requires maintenance and incurs ongoing operating costs. Without funding and leadership from the Commonwealth, this corridor will never achieve its potential in terms of providing a viable alternative to the automobile. A source of funding must be secured before a comprehensive program of improvements can be finalized and construction can commence.

B.4 I-81 Corridor Improvement Study Tier I Final Environmental Impact Statement

The Federal Highway Administration (FHWA) and the Virginia Department of Transportation (VDOT) signed a process streamlining agreement in 2003 that defined the decision-making and approval process to be followed for a tiered environmental study of the Interstate 81 (I-81) corridor in Virginia. In accordance with the agreement, FHWA and VDOT prepared a Tier 1 Final Environmental Impact Statement (FEIS) for the I-81 Corridor Improvement Study. The Tier I FEIS, prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), identifies needs, develops solutions, and evaluates potential impacts associated with conceptual-level improvements along the entire 325-mile I-81 corridor in Virginia, as well as improvements to Norfolk Southern's Shenandoah and Piedmont rail lines in Virginia. A Record of Decision approving the Final I-81 Corridor EIS by FHWA was issued in June 2007.

I-81 in Virginia extends 325 miles in a southwest to northeast direction in Western Virginia from the Tennessee border north to the West Virginia border, passing through 21 cities and towns and 13 counties. Conceptual-level improvements to the entire 325-mile length of I-81 in Virginia were evaluated based on the Purpose and Need. For purposes of characterizing the affected environment, the I-81 study area ranges in width depending on the environmental resource considered, but generally extends 500 feet from either side of the I-81 outside edge of pavement. This width was used based on the needs, to represent the maximum area within which potential highway improvements may be developed.

In addition to addressing the needs with highway improvements, the study evaluated the effectiveness of four rail improvement concepts in meeting the identified needs. Potential improvements to Norfolk Southern's Shenandoah and Piedmont rail lines were evaluated. Since the Piedmont rail line is geographically distant from I-81, a separate rail study area was also created. The rail study area consisted of 13 discrete sections along Norfolk Southern's existing Piedmont and Shenandoah rail lines in Virginia. The length of the rail improvement sections range from less than ½ mile to 10 miles long, but most of the sections were between one and two miles long. For each rail section, environmental resources were generally identified within 500 feet on either side of the rail centerline. This width included the limits where potential rail improvements might occur.

Capacity deficiencies stated in the report included:

- Traffic volumes have doubled and, in some cases, tripled since 1978.
- 2004 traffic volumes are expected to almost double by 2035.
- Truck traffic is projected to grow at a faster rate than general traffic.
- Over 90 percent of I-81 is projected to operate below the level of service standard in 2035.

The potential to divert trucks to rail was evaluated as part of the I-81 study. All rail alternatives were based on Norfolk Southern's Crescent Corridor rail system (Figure 18-4), which roughly parallels the I-81 highway system. Rail Alternative 3 was deemed the most feasible option with rail improvement costs varying from \$500 million (2005 cost data) to \$700 million (estimated 2015 cost data). If implemented, the rail improvements would divert approximately 3.5% of truck traffic off of I-81 in 2035.

B.4.1 The Northeast – Southwest – Midwest Corridor Marketing Study (2003)

The VDOT I-81 FEIS contained in its documentation an earlier study conducted in 2003 by Reebie Associates for DRPT which evaluated potential freight diversion on I-81 considering all states affected by the interstate. The study indicated that a medium-term investment for rail improvements in Virginia only would cost approximately \$500 million, and would divert approximately 9.8 to 10.4 percent of total truck traffic off of I-81. If all states impacted by I-81 would make similar medium-term rail improvements, the total cost would be \$2.6 to \$2.8 billion (including Virginia's \$500 million) and truck diversion in Virginia would increase to approximately 13.7 to 14.6 percent of total annual truck traffic. Stated another way, after investing an estimated \$500 million in improvements to achieve 9.8 to 10.4 percent diversion of trucks on I-81 in Virginia, additional I-81 investments in rail improvements in Virginia would not take additional trucks off of the interstate unless surrounding states invested \$2.1 to \$2.3 billion to remove rail chokepoints located in their respective states.

Rail and highway capacity modeling conducted by VDOT during the I-81 EIS indicated that the Reebie Study costs were appropriate, but that the potential diversion of trucks would be a lower percentage (particularly in the longer 2035 planning horizon).

B.4.2 Opportunities for Truck to Rail Diversion in Virginia's I-81 Corridor

Cambridge Systematics is currently under contract to the VDOT Transportation and Mobility Division to conduct a detailed assessment of the maximum feasible truck-rail diversion on I-81, and determine what necessary steps in terms of rail improvements and freight operations are required to achieve that diversion. The study process is summarized in Figure B-4. Although the final report will be completed this Summer (2008), the result of the maximum feasible truck-rail diversion portion of the study has been completed and is estimated to be approximately 4.6 % of the total annual truck traffic in 2035. This would equate to approximately 1.5 million trucks per year diverted from I-81. The maximum feasible truck-rail diversion analysis assumes that the necessary rail infrastructure improvements would be made on the I-81 transportation corridor to support the diversion of freight from truck to rail operations in a cost-effective manner.

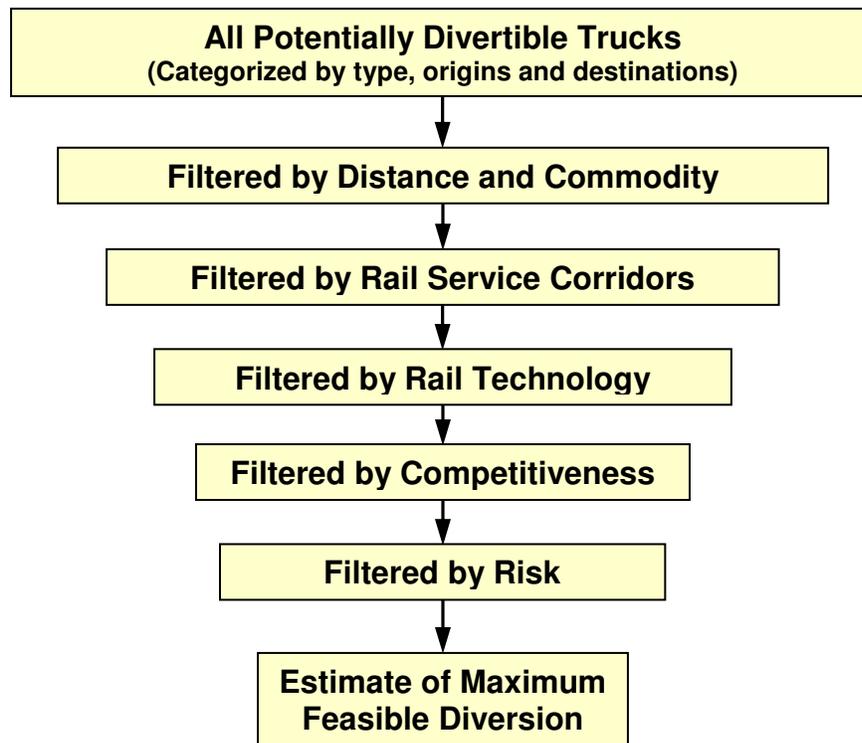


Figure B-4. Overview of the I-81 Truck-Rail Diversion Estimation Process
(Source: Cambridge Systematics)

B.5 TransDominion Express (TDX) Studies (2007 Update)

In 2007, DRPT prepared House Document No. 2 for the Governor and General Assembly entitled *TransDominion Express Status Update*. TDX is a proposed relatively high speed passenger rail service between Bristol, Roanoke, and other Southwestern Virginia communities to Washington, D.C. and Richmond. A map of the proposed rail route is shown in Figure B-5. The service would require a new passenger service route on the NS Crescent Corridor from Bristol to Roanoke and then to Lynchburg, where it would connect to the existing Amtrak passenger route running north to Washington, D.C. on the NS Crescent Corridor. At Lynchburg a new passenger service route would also run east-west using portions of the NS Heartland Corridor and other NS tracks to connect to Richmond's Main Street Station. In several small areas CSX and Amtrak tracks would also be utilized.

No funds have been allocated for operating TDX or making related capital improvements, except for an allocation of slightly more than \$9 million for capital projects as part of the Virginia Transportation Act of 2000. Several Rail Enhancement Fund grants totaling less than \$200,000 have been provided to NS to conduct analysis and an evaluation of the improvements needed for the proposed passenger service.



Figure B-5 Proposed TransDominion Express Route Map

Five studies of TDX have been conducted during the past 10 years:

- 1996, by DRPT at the request of the General Assembly (Virginia Department of Rail and Public Transportation)
- 1998, by Frederic R. Harris, Inc., at the request of DRPT in response to funding made available for such a study by the General Assembly in 1996 (Frederic R. Harris, Inc.)
- 2000, by the National Passenger Railroad Corporation (Amtrak) at the request of DRPT (National Railroad Passenger Corporation)
- 2002, by The Woodside Consulting Group, Inc. (Woodside Consulting), at the request of Norfolk Southern and DRPT (Woodside Consulting)
- 2005, *Status of the TransDominion Express Passenger Rail Service, House Document No. 37* by DRPT (Virginia Department of Rail and Public Transportation).

The estimated annual operating subsidies varied in these studies, ranging from \$9 million to \$23 million depending on the type of service presumed and the ridership level. Capital costs were estimated in the greatest detail in the 2002 study and those capital costs were generally used in the 2005 DRPT study.

The greatest variation in the studies, however, concerned their ridership estimates: the lowest estimated annual ridership was in the 2000 Amtrak study (slightly more than 26,000) and the highest was in the 1996 DRPT study (slightly more than 500,000). Differences in ridership projections are attributed to: (1) the service levels that would be provided (earlier studies suggested that modern tilt equipment was feasible, which would offer faster service, whereas the studies since 2000 suggested such equipment may not be used and thus slower service times would result); (2) the sensitivity of ridership to varying service levels

(e.g., a travel time of “x” between two stations will yield the portion of total number of passengers choosing to use rail); and (3) assumptions regarding the impact of freight on passenger travel schedules (since any TDX passenger service would be subject to freight movements by Norfolk Southern, the owner of the rail on which TDX would operate).

The primary findings of the 2007 TDX update were:

- Capital costs for improvements for infrastructure to support full service between Bristol, Richmond, and Washington, DC, are estimated at approximately \$206 million (in 2010 dollars). Rolling stock cost estimates vary depending on the type of passenger cars acquired.
- Annual operating costs for full service are estimated at \$19 million (in 2010 dollars), assuming two round trip visits to all stations.
- Ridership is estimated at 14,000 to 58,000 persons annually, assuming service levels proposed by Woodside Consulting in 2002, which were more conservative (e.g., lower) than those assumed in the preceding study in 1998. The 2002 service levels entail comparable travel times between the auto and the train for a few routes (such as Charlottesville to Alexandria) but often longer times for train as compared to the auto for most routes. Data from other locations (e.g., the Downeaster Line from Maine to Boston, the Cascades Corridor in Washington State, and the Capitol Corridor in California) suggest that service times alone are rarely changed; rather, improvements such as providing electrical outlets for business travelers, using wider seats, offering better beverage service, and offering other amenities are often made in tandem with such changes. Thus, determining sensitivity to changes in service levels alone is difficult, necessitating presentation of forecasts as a range rather than a point estimate.
- Ridership varies by station location. For example, it is estimated that 70% of TDX ridership would occur at stations between Lynchburg and Alexandria, inclusive. While each additional station may add riders, some stations add more riders than others.
- Based on the estimated ridership levels, revenue is projected to be between \$0.4 million and \$1.8 million annually in 2010 dollars. Based on operating costs of \$19 million annually (in 2010 dollars), a subsidy of between \$17.2 and \$18.6 million will be required. This means that about 6% of the cost to operate TDX will be borne by users of the service. Elsewhere, users pay between 43% and 51% of the cost for similar passenger service.
- TDX offers little benefit in terms of reducing travel congestion. Daily traffic volumes on some roads, such as Route 29 in Prince William County, are higher than the estimated annual passenger travel on TDX. However, TDX may offer benefits in terms of providing an alternative mode of transportation to a variety of travel markets, including tourists, college students, and households without vehicles, and within specific corridors. For example, proposed service levels suggest that TDX would offer faster service than the automobile for the segment between Charlottesville and Alexandria.
- The status of TDX has not changed since the publication of the 2005 report (DRPT, 2005).
- Two external circumstances affecting the feasibility of TDX have changed. First, Norfolk Southern has received Rail Enhancement Funds of \$22.35 million over a 3-

year period to make improvements to Norfolk Southern track between Walton, Virginia, and Glen Lyn, Virginia (which will allow double-stacked freight by improving clearances in four tunnels) and to construct a proposed intermodal terminal in Roanoke (DRPT, 2006; Martinez, 2005). This set of improvements is a part of a larger plan by Norfolk Southern to improve freight capacity between Hampton Roads and Columbus, Ohio, and is generally known as the Heartland Corridor Double-Stack Initiative. Second, the Commonwealth is studying ways to reduce truck traffic in the I-81 corridor, by diverting cargo on to Norfolk Southern lines. These improvement projects may increase freight traffic on existing Norfolk Southern lines that would be used by TDX, thereby making passenger service operations more problematic. Whether either item will lead to any capacity improvements that benefit passenger operations is not known at this time, and the impact of these efforts is not reflected in studies performed to date.

B.5.1 Air Taxi Intermodal Link with the TransDominion Express

The near-term start-up of passenger rail service on the proposed TDX system from Bristol has many challenges due to its relatively low projected ridership. As an interim measure, or possible alternative transportation option, the feasibility of using an “air-taxi” service has been evaluated by the Virginia Department of Aviation in a report entitled *Air Taxi Intermodal Link with the TransDominion Express, A Feasibility Analysis, April 2008*. The multi-modal concept consists of using local air carriers operating from general aviation airports in Southwestern Virginia (Virginia Highlands, Mountain Empire, New River Valley, Virginia Tech, and Roanoke) to shuttle passengers to and from Lynchburg, where they would connect with the existing Amtrak passenger rail service connecting to Washington D.C. and from there to other national destinations.

Key findings of the analysis were:

- Annual Passenger Forecast (Rail Ridership) 21,000 passengers/year
- Average Daily Passenger Forecast 58 passengers/day
- Daily Aircraft Trip Demand (3 passengers/aircraft) 20 aircraft trips/day
- Per Seat Cost, Loaded SR22 Aircraft \$200/passenger
- Daily TDX Air Taxi Carrying Cost (minimum) \$12,000/day
- Annual TDX Air Taxi Carrying Cost (minimum) \$4.38 million/year

According to the report, under existing conditions, an intermodal link between air taxi vendors and the TransDominion Express does not appear to be feasible. This is not; however, a final decision for halting further pursuit of the concept since TDX is still being evaluated with no deployment decision or service start date having been established. The questionable feasibility is based on the following existing conditions:

- Absence of available fleet size in the air taxi sector
- The FAA regulatory hindrance that exists in linking a scheduled service to that which is “on-call”
- The logistical issue of a modal link transferring a quantity of passengers from a single vehicle from one mode (rail) into many multiple vehicles in a second mode (small commuter aircraft).

The feasibility question is focused on logistical ramifications, not necessarily on reasons of budget or political will. These logistical impediments could conceivably be worked through on the regulatory front as well as with modal interface issues. The future could offer possible success to attain modal linkage feasibility, based on the following potential developments:

- Growth of an available air taxi fleet.
- Greater financial stability in an emerging air taxi sector.
- Reliable operational statistics upon which to formulate and plan for a business case and logistics for the modal link.

Another alternative would be a blending of concepts using aviation sector assets. Should rail passenger demand for Southwestern Virginia increase, yet still not reach a level that warrants full deployment of a rail connection, consideration could be given to an aviation link that could use a variant of the air taxi model in which a single vendor is competitively selected to provide service on a long term contractual basis. In this way, larger aircraft could be used that would provide efficiencies relating to per-seat/operating costs. An example of such an aircraft would be the Cessna Caravan, which can be outfitted with up to fourteen seats. Furthermore, the vendor could schedule the service, avoiding the very large impediment that now is inherent to the air taxi model. In addition, FAA regulations by this time may have caught-up with the dynamics of the marketplace.

It is important to note that a TDX operational subsidy to sustain the aviation link would still likely be required (estimated as approximately \$4.38 million per year based on the passenger demand shown above).

Air Taxis and similar utilization of smaller General Aviation aircraft to General Aviation airports is gaining in popularity. Linking these sorts of services and assets with traditional bulk modes like rail represent innovative approaches, resulting in transportation linkages of benefit to consumers.

B.6 Southeast High Speed Rail Corridor – Tier I EIS & Tier II EIS

B.6.1 Project History

The need for a national high speed rail system has been recognized by the federal and state governments. Existing high speed rail corridors authorized by the federal Rail Administration (FRA) are shown in Figure B-6. Although primarily for passenger service, the high speed rail network would also be used for freight operations, and would operate on existing freight rail corridors.

Because of its tremendous economic and population growth, a proposed Southeast High Speed Rail Corridor extending from Washington, D.C. to Atlanta was established to provide a comprehensive, multi-modal transportation system. High-speed rail service will provide business and leisure travelers with a competitive alternative to air and auto for trips between 100-500 miles.

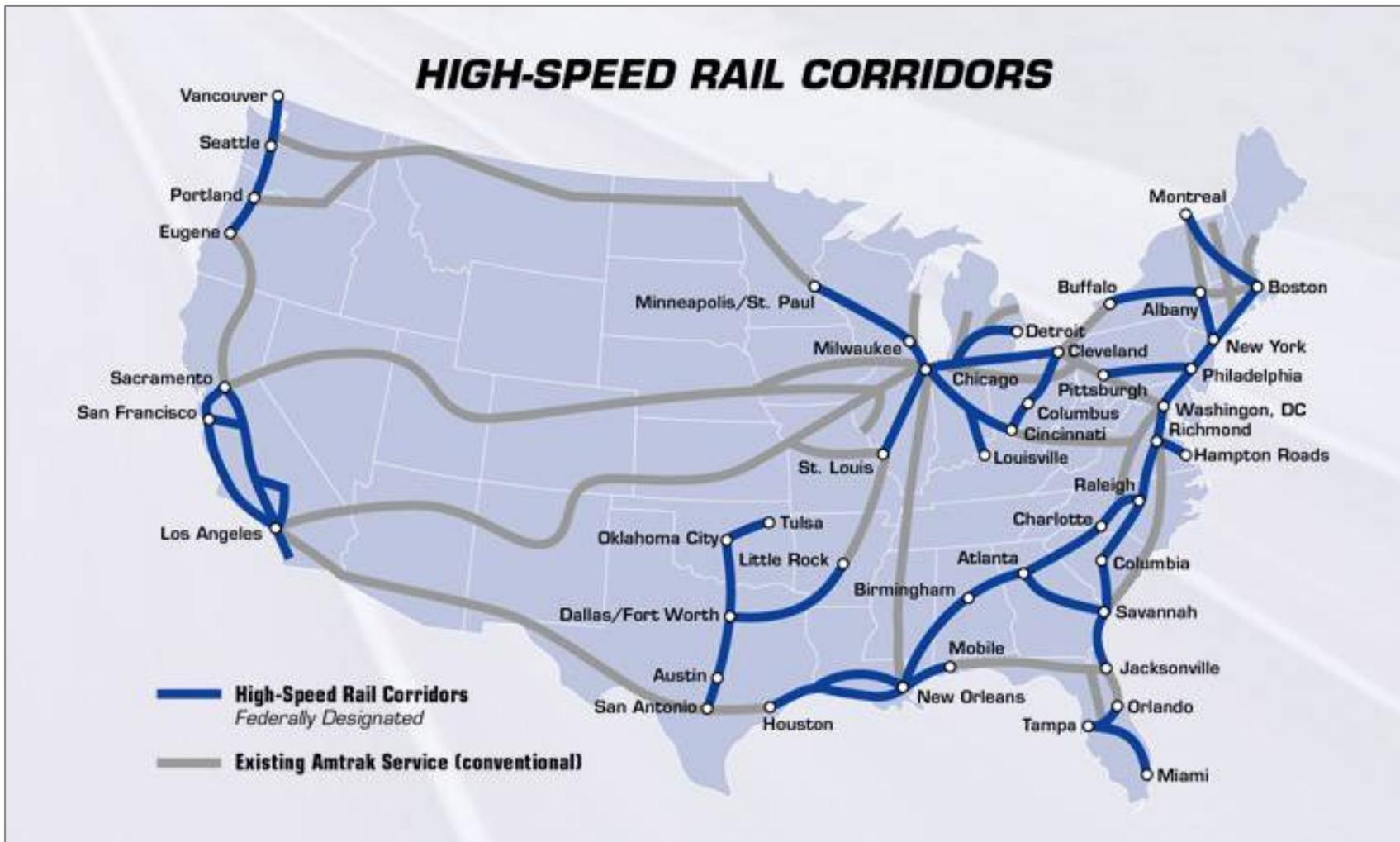


Figure B-6. National High Speed Rail Corridors
(Source: Federal Railroad Administration)

High speed rail in the southeast will mean top speeds of 110 mph and average speeds between 85-93 mph. Virginia, North Carolina, South Carolina and Georgia have joined together with the business communities in each state to form a four-state coalition to plan, develop and implement high speed rail in the Southeast. The system will be developed incrementally, upgrading existing freight rail rights-of-way.

B.6.2 Tiered Environmental Process

Developing the Southeast High-Speed Rail Corridor will take several years. All transportation projects that use public funds must examine potential environmental impacts and involve the public in the decision-making process.

Virginia, North Carolina, and the FHWA and FRA completed the vital first part of a two-part environmental study for the Washington, DC to Charlotte, NC portion of the Southeast High Speed Rail Corridor (SEHSR) in October 2002.

The first study phase - referred to as the Tier I Environmental Impact Statement (EIS) - examined the need for the project and looked at potential impacts on both natural and man made environments along nine possible routes. Public involvement was critical during this phase with 26 public information workshops and 18 public hearings held in North Carolina and Virginia to solicit feedback about the project. Throughout the Tier I EIS process, meetings with the public, political leaders, planners, resource agencies, railroads and other interested parties were held to obtain input on the project.

The Tier I EIS identified the preferred corridor shown in Figure B-7, and the following project purpose and need.

- Provide transportation options
- Ease the rate of congestion growth in the corridor
- Improve safety and energy effectiveness
- Improve air quality
- Improve transportation efficiency while minimizing impacts

The Final Environmental Impact Statement, which outlines why the recommended alternative was selected, was completed in June 2002, and a formal Record of Decision was issued in October 2002. This federal document confirms the preferred corridor recommended by the Tier I EIS.

The Washington, DC to Charlotte, N.C. portion of the SEHSR corridor could be implemented by 2015 depending on funding availability. In the meantime, other rail improvement projects which will reduce travel time are being implemented within the next few years. Implementation of the remainder of the SEHSR into South Carolina, Georgia and Florida will follow by several years.



Figure B-7. Southeast High Speed Rail Corridor (Washington, D.C. to Charlotte, N.C.)

Virginia and North Carolina are now proceeding with the next phase, Tier II, which provides a detailed analysis on the impacts, including track location, station arrangement and detailed design. Rather than a single large document, smaller Tier II environmental studies will be conducted for specific segments of the route where track work will be needed. The first segment is the SEHSR Corridor between Richmond, VA and Raleigh, N.C. as shown in Figure B-8. The Tier II project schedule and milestones are summarized below:

- 2003: -The Tier II EIS initially began for the segment from Petersburg, VA to Raleigh, NC. The document looks in detail at specific designs and their potential impacts within this segment. Nine meetings (called Public Information Workshops) were held between June and August, and 636 citizens attended. As part of the current (Tier II) EIS process, citizens had the opportunity to pose questions and comments, as well as gather information. Input from these citizens is being incorporated into the planning.
- 2004 to 2006: The Draft Tier II EIS is being compiled. (Note: The Federal Railroad Administration released the *Transportation Planning Report for the Richmond-Charlotte Corridor*. This independent engineering study examined specific infrastructure improvements needed to implement high-speed rail between Richmond and Charlotte to achieve a travel time goal of 4 hours and 25 minutes. The FRA report supports and complements the findings of the Tier I EIS for the Southeast High Speed Rail Corridor between Washington, D.C. and Charlotte. It also provided technical assistance that will be used in developing the Tier II documents for the corridor.
- 2007: The Draft Tier II EIS continues. In January, the Virginia Department of Rail and Public Transportation approved a grant agreement to allow extension of project study area to include Richmond Main Street Station (previous study limits stopped south of Petersburg.) The study area is now approximately 168 miles long from Richmond, VA to Raleigh, NC.

- 2010: Completion of the Draft Tier II EIS, Richmond to Raleigh, is expected in August 2009 with public hearings scheduled in December of that year.
- 2011: The Final Tier II EIS and Record of Decision are expected to be completed by the end of the year. Right-of-way and permit acquisition can then begin.
- 2010-2013: Final design, permitting, right-of-way acquisition, and final construction plans developed for project bidding based on segmenting the corridor into smaller projects.
- 2013-2017: Construction of the rail improvements. This is the goal for passenger service to begin over the preferred alternative as identified by the SEHSR Tier I EIS, Richmond to Raleigh, NC, dependent upon funding availability.

Project costs will be developed as part of the Tier II EIS and preliminary design. Although the costs are unknown at present, a rough project budget of \$7.5 to \$10 million per mile seems reasonable, which would result in a total cost of the capital improvements of approximately \$1.3 to \$1.7 billion between Richmond and Raleigh. This cost does not include the cost of the required passenger trainsets that would also be required for the new service. Operating costs would also be required for the passenger service. The EIS ridership forecasts estimated that there would be sufficient ridership once the high speed connection is completed between Charlotte and Washington D.C. to cover all annual operating expenses for the SEHSR route without state subsidies.



Figure B-8. Southeast High Speed Rail Corridor (Richmond to Raleigh)

B.7 Richmond/Hampton Roads Passenger Rail Tier I EIS

The Virginia Department of Rail and Public Transportation (DRPT) is currently investigating improved passenger rail service between Richmond and Hampton Roads to ultimately connect to the Southeast, Northeast and Mid-Atlantic regions as an extension of the Southeast High Speed Rail Corridor (SEHSR). This could include improvements to existing service or the development of new rail service to accommodate frequent passenger trains.

DRPT is examining potential routes and possible environmental impacts for more frequent conventional service and higher speed rail service. In December 2009, the draft report (Draft EIS) was published by DRPT subject to EPA review and is available for public review and comment. The document is available on the project website and in regional libraries. Public hearings will be held in the project area and announced through e-mail, newspaper advertisements, and press releases to regional media.

Two previous studies of passenger rail service improvements between Richmond and Hampton Roads have been conducted. In 1999 the Virginia Department of Transportation (VDOT) completed *the I-64 Major Investment Study*, which included recommendations for enhanced intercity rail service on the Peninsula. In 2002, DRPT completed *the South Hampton Roads High Speed Rail Feasibility Study* which reviewed the feasibility of high-speed rail between Richmond and South Hampton Roads via Petersburg and the U.S. Route 460 Corridor.

The EIS project area generally follows the Richmond to Hampton Roads Corridor and includes two routes, the existing Amtrak route from Richmond to Williamsburg to Newport News via the CSXT alignment and another route south of the James River along the Norfolk Southern (NS) alignment between Petersburg and Norfolk.

The project is currently focusing on five alternatives: the No Action Alternative, the Status Quo Alternative, Build Alternative 1, Build Alternative 2a, and Build Alternative 2b. A location map is shown in Figure B-9 and additional details are provided below.

- **Status Quo Alternative**
This alternative shows what would happen if no major improvements are made—service would remain exactly as it is today. This alternative includes two daily round trips on the Peninsula only. Trains would continue to operate at a maximum of 79 mph between Newport News and Richmond. The two trains represent Amtrak's existing train service. Amtrak serves the Newport News Amtrak Station, Williamsburg Station and Richmond Main Street Station.
- **No-Action Alternative**
This alternative shows what would happen if no major improvements are made beyond what is included in the existing regional transportation plans. It includes three daily round trips on the Peninsula only. Trains would continue to operate at a maximum of 79 mph between Newport News and Richmond. The three trains represent Amtrak's two existing trains plus one additional daily round trip planned by Amtrak in the future. Trains would serve the Newport News Amtrak Station, Williamsburg Station and Richmond Main Street Station.

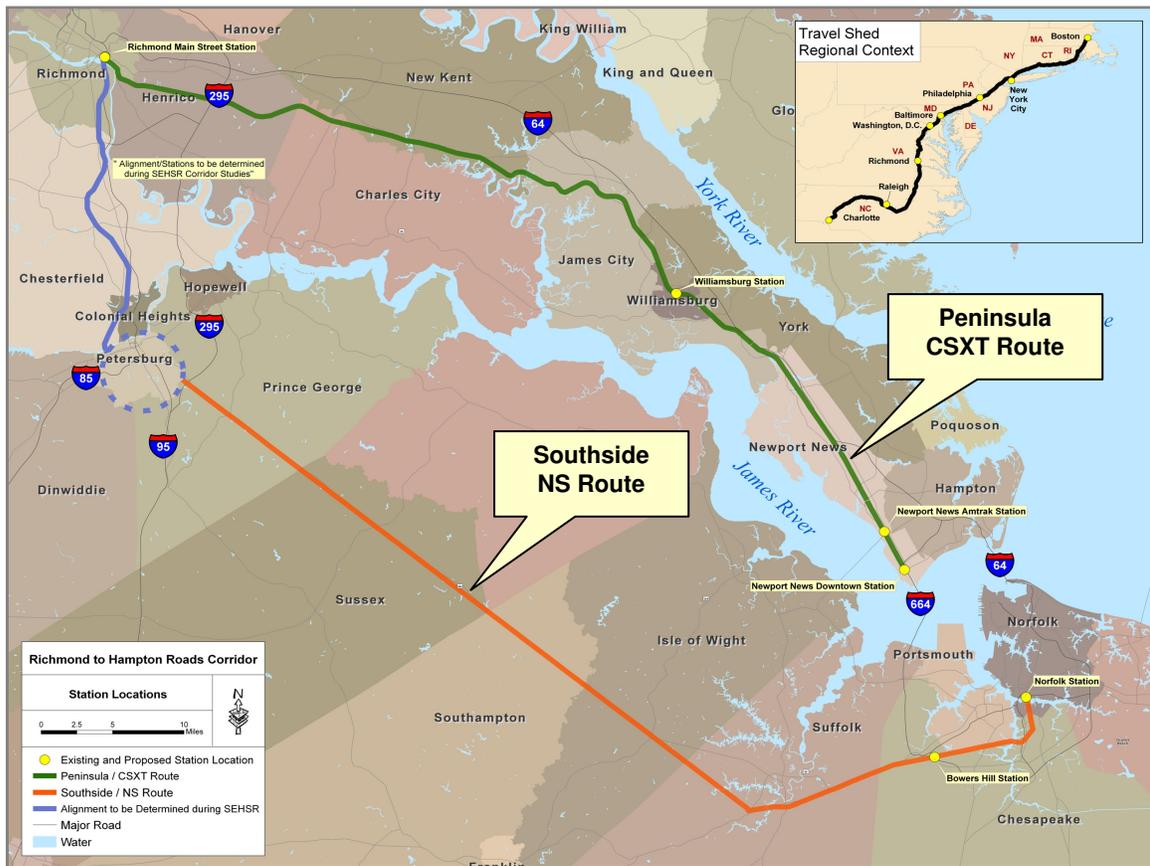


Figure B-9. Richmond/Hampton Roads High Speed Rail Alternative Routes

- Alternative 1**
 Serves both the Peninsula and the Southside, with three daily round trips on the Peninsula and six daily round trips on the Southside. The Peninsula service would remain the same as in the No-Action Alternative, with three 79 mph maximum speed daily round trips between Newport News and Richmond serving the Newport News Amtrak Station, Williamsburg Station and Richmond Main Street Station. The Southside service would include six daily round trips operating at speeds of 90 mph or 110 mph between Downtown Norfolk, Chesapeake (Bower’s Hill Station), Petersburg and Richmond Main Street Station.
- Alternative 2a**
 Serves both the Peninsula and the Southside, with six daily round trips on the Peninsula and three daily round trips on the Southside. The Peninsula service would include six daily round trips operating at maximum speeds of 90 mph or 110 mph. This alternative would serve the proposed Newport News Downtown Station rather than the existing Newport News Amtrak Station. The Peninsula trains continue to provide service to Newport News, Williamsburg and Richmond Main Street Station. The Southside route of Norfolk, Bower’s Hill, Petersburg and Richmond Main Street Station would be served by three 79 mph daily round trips.

- **Alternative 2b**
Serves the Peninsula only, with nine daily round trips. Trains would operate at maximum speeds of 90 mph or 110 mph, providing service to the proposed Newport News Downtown Station rather than the existing Newport News Amtrak Station. Trains would continue to provide service to Williamsburg and Richmond Main Street Station.

The project area generally follows the Richmond–Petersburg–South Hampton Roads route (Southside) and the existing Amtrak route from Richmond–Williamsburg to Newport News (Peninsula). This rail service would help manage traffic congestion between Richmond and Hampton Roads while providing an attractive and competitive new transportation choice, including a connection to the Southeast High Speed Rail Corridor.

Project costs vary depending upon the alternative, but current estimates range from \$233 million to \$497 million for initial capital improvements to rail infrastructure – not including required trainsets and annual operating costs.

B.8 Roanoke Region Intermodal Facility

The Virginia Department of Rail and Public Transportation (DRPT) today released its final report on the Roanoke Region Intermodal Facility in April 2008.

In January 2008, the *DRPT Economic Assessment Report* confirmed that the intermodal facility, as part of the Heartland Corridor initiative, could achieve significant economic benefits for the Roanoke region, including an increase in annual employment of up to 2,900 jobs and tax revenues of up to \$71 million annually. The Heartland Corridor multi-state freight rail initiative will save more than 30 hours over the current freight rail shipping time between the ports of Virginia and the Midwest, provide new access to the global marketplace and remove 150,000 trucks from Virginia’s highways each year. The strategic location of an intermodal facility in the Roanoke region will help manage truck traffic and improve freight shipments along both the I-81 and Route 460 corridors.

DRPT, in coordination with industry experts and resources provided through a variety of relevant state agencies, project partners and engineering firms, conducted a comprehensive 16-month review of the ten proposed site locations. Through this analysis, DRPT has concluded that the Elliston site is the only feasible site for the location of the Roanoke Region Intermodal Facility.

Shown in Figure B-10, the Elliston site is located on the Heartland Corridor rail line, provides unimpeded access for both highway and rail traffic, and supports efficient intermodal operations at a total site cost of \$35.5 million.

The Roanoke Region Intermodal Facility is part of the multi-state Heartland Corridor freight rail initiative, which will increase capacity and reduce freight shipping time between Hampton Roads, Va. and Chicago by up to 1.5 days. Intermodal facilities serve as a transfer point for freight shipping between trucks and rail. Just one intermodal train has the equivalent carrying capacity of 200 long haul trucks, providing a competitive shipping option and reducing the number of trucks on highways.

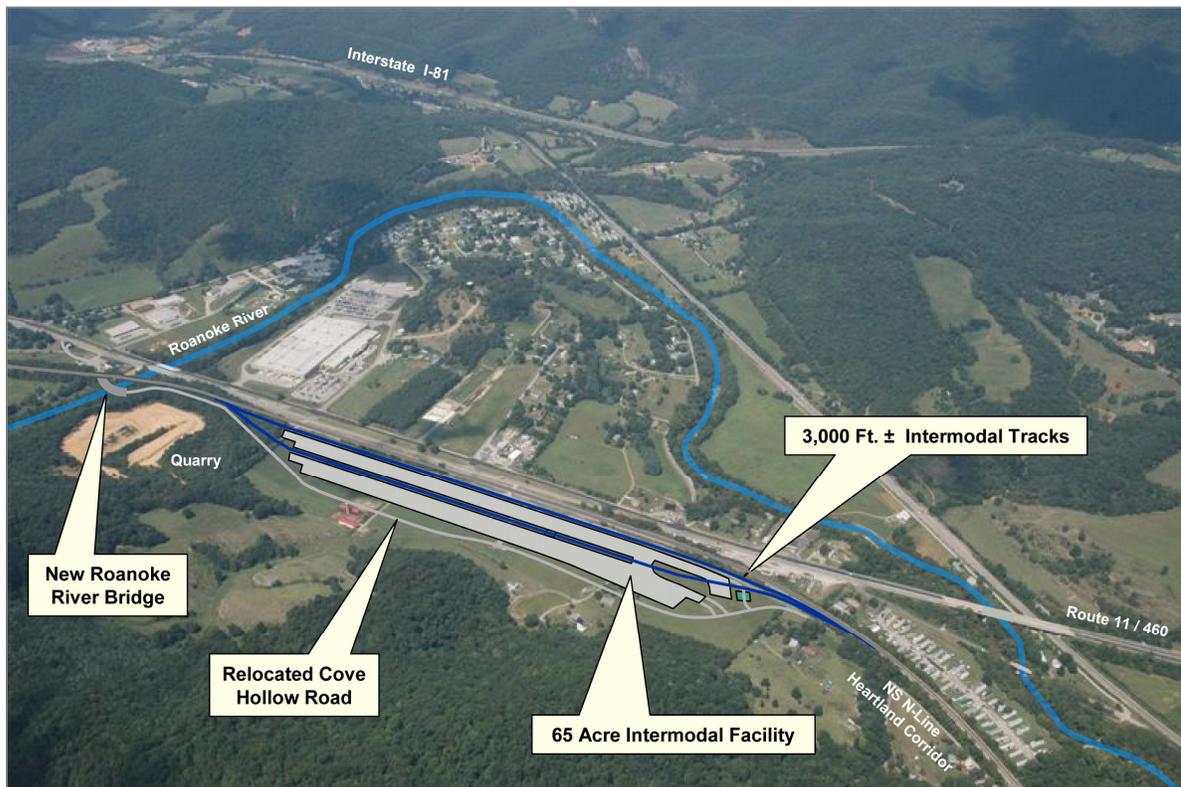


Figure B-10. Proposed Roanoke Region Intermodal Site at Elliston

B.9 Richmond Area Rail Improvements

The Richmond to Washington, D.C. segment of the Tier I Final EIS Record of Decision by FRA and FHWA for High Speed Rail between Charlotte and Washington, D.C. identified and approved two potential passenger rail corridors between Richmond and Doswell. DRPT is currently performing an Environmental Assessment of both alternatives in order to select a preferred alignment as part of the multi-state high speed passenger rail network under development. Additional improvements along the corridor may also be required to accommodate freight rail capacity. Heavy rail traffic and capacity constraints create congestion for both passenger and freight rail operations through Richmond – particularly at the CSX Acca Yard as shown in Figure B-11.

The study evaluation will focus on two routes: the Western Route along the CSX rail line and the Eastern Route along the Buckingham Branch rail line as shown in Figure B-12. The Southeast High Speed Rail project has provided analysis of the Western Route, which will be updated for the purposes of this study. Additional information on this route may be found at www.sehsr.org. On April 6, 2009 DRPT submitted a Decision Brief: Alternative Considered but Dismissed, Richmond to Doswell, VA to the FRA. On May 19, 2009, the FRA wrote that “the Buckingham Branch has been shown to fail as a reasonable alternative and the FRA concurs that this alternative may be dismissed from further consideration”.



Figure B-11. CSX Acca Yard

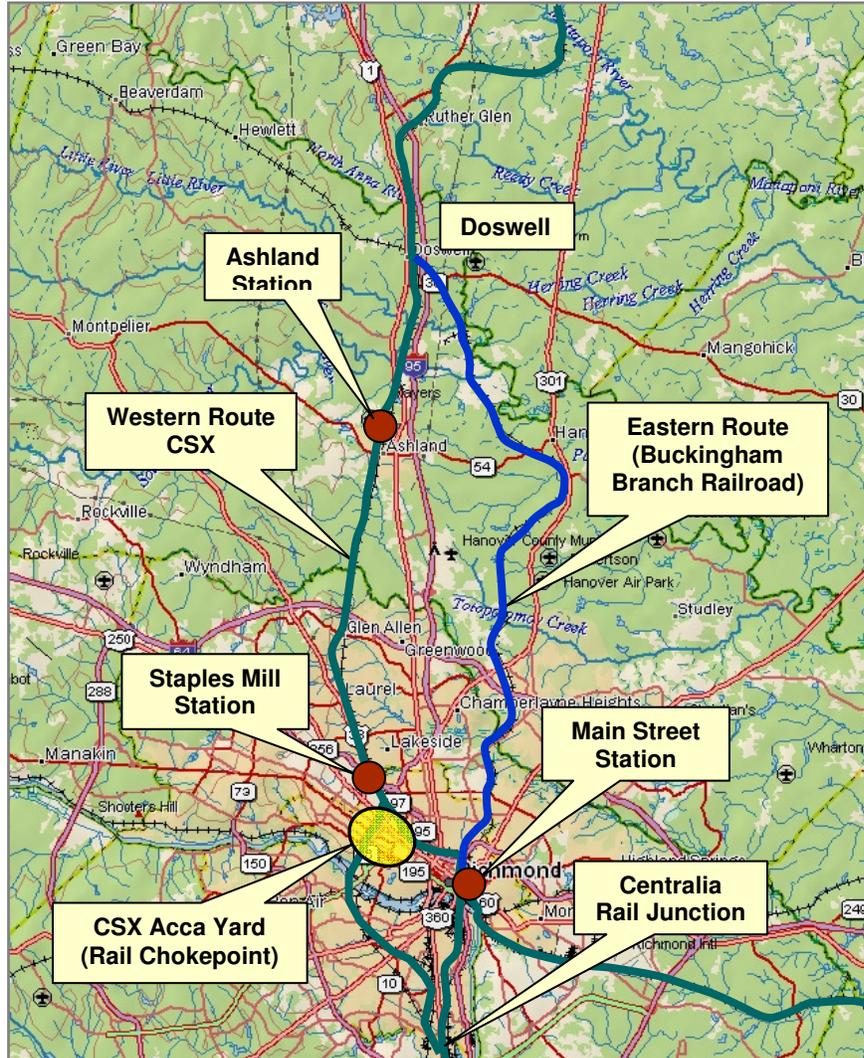


Figure B-12. Richmond Passenger Rail Study (Western and Eastern Routes)

Potential improvements under evaluation in the EA include:

- Signal and crossing improvements in addition to existing track upgrades and six miles of potential new main line tracks within the existing right-of-way along the Buckingham Branch rail line from Hospital Street in Richmond to Doswell.
- Signal and crossing improvements in addition to existing track upgrades within existing right of way between Main St. Station, Staples Mill Station and Doswell, including east mainline evaluation alongside Acca Yard.
- A new five acre multimodal transit center along the Buckingham Branch rail line in Hanover County. Three potential site locations will be identified in the study. Reinstallation of two main line tracks to the east and west along the CSX N and C&O Piedmont line between Main Street Station and AM/Bone Dry Junction. The addition of eight miles of third main line track within existing right-of-way between Doswell and Fredericksburg.
- Evaluation of potential overnight train storage in Newport News for passenger rail trains, including the addition of new tracks within the existing CSX right-of-way. Additional conceptual design and cost estimation of double track improvements on the entire Buckingham Branch rail line from Doswell to Richmond.

Additional evaluation of track segments to the east of Richmond will be performed for the potential addition of passing sidings within the existing right-of-way at a later date.

DRPT's focus for this project is to identify important environmental, engineering and other relevant factors to be considered for each of the potential improvements identified above. Additional study and significant funding will be required to advance these initiatives into construction.