EXECUTIVE SUMMARY

1.0 Proposed Action and Purpose and Need

The Virginia Department of Rail and Public Transportation (DRPT) is proposing to improve transportation capacity and reliability in the Richmond to Hampton Roads travel corridor by providing higher-speed and more frequent passenger rail service. The Federal Railroad Administration (FRA) is the lead federal agency for this environmental review and DRPT is the lead state agency.

1.1 Proposed Action

The proposed action is to implement higher-speed passenger rail service within the Richmond to Hampton Roads travel corridor. Elements of the proposed action include increased frequency and speeds of existing and new passenger service and the identification of potential station locations along identified routes. For purposes of this EIS, various routes and speed alternatives were evaluated for potential implementation of higher-speed passenger rail when compared to the Status Quo and No Action Alternatives.

1.2 Study Area Description

The study area encompasses a broad region between Hampton Roads and Richmond, roughly bordered by the CSX Transportation (CSXT) railroad line parallel to I-64 on the north on the Peninsula, the Norfolk Southern (NS) railroad line parallel to Route 460 on the south, and the CSXT "A" Line between Petersburg and Richmond on the west. The eastern boundary is the Chesapeake Bay. The study area is divided by the James River. The project evaluates two principal transportation facilities: the existing CSXT/Amtrak route from Richmond to Newport News north of the James River on the Virginia Peninsula (Peninsula/CSXT route), and the Norfolk Southern rail route south of the James River between Petersburg and Norfolk (Southside/NS route).

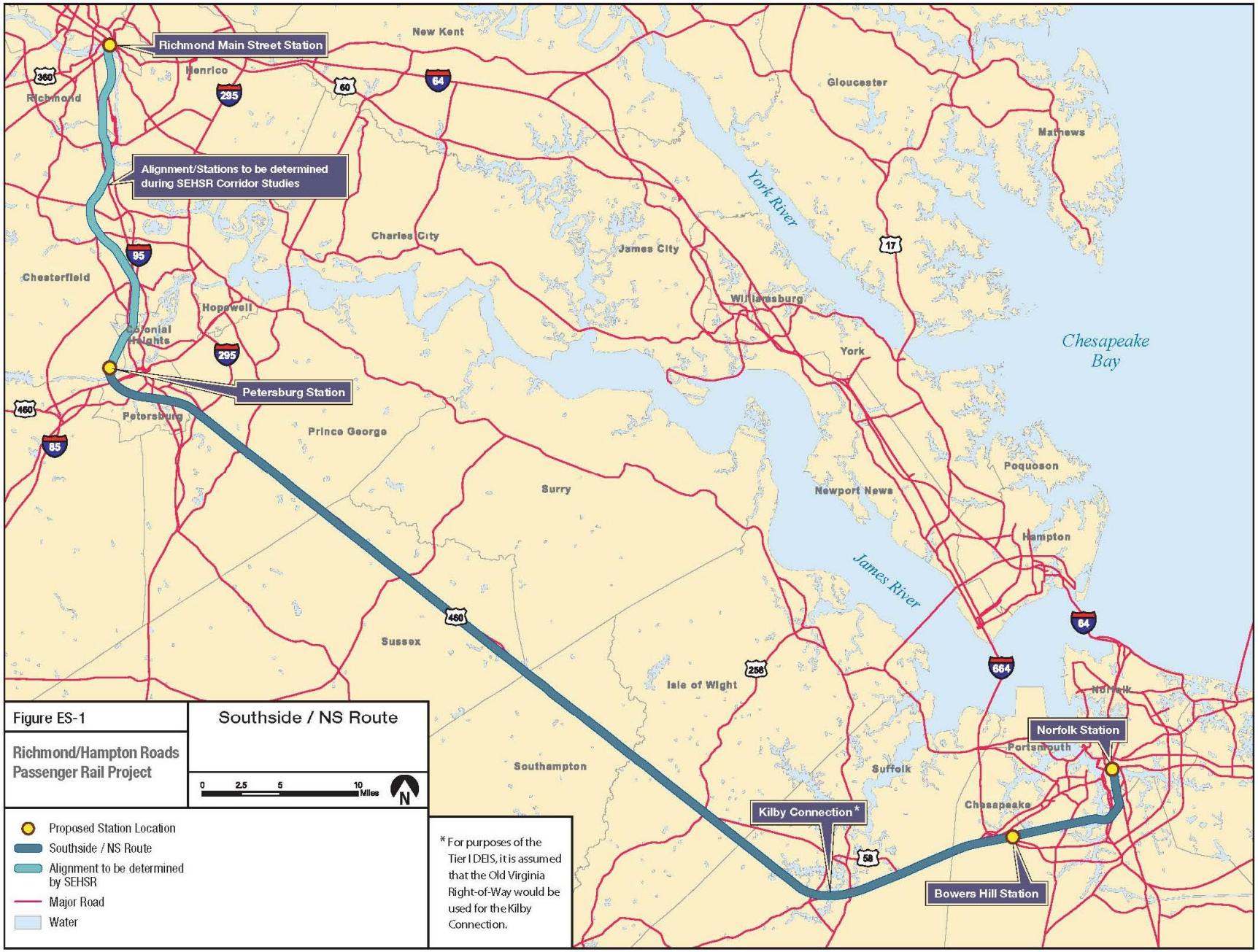
Starting in Richmond, the Southside/NS route (Figure ES-1) would use the existing CSXT "A" Line between Richmond and Petersburg, with a required connection in Petersburg to the NS freight railroad line between Petersburg and Norfolk. The DRPT has determined that the connection from the CSXT "A" Line to the Southside/NS route will occur at the northeast quadrant of the off grade railroad crossing between CSXT and Norfolk Southern just north of Collier Yard in south Petersburg.

The railroad improvements and environmental impacts between Richmond and Petersburg and the connection at Petersburg are being evaluated by the Southeast High-Speed Rail Project (SEHSR). SEHSR is one of the five original federally designated high-speed rail corridors. The SEHSR Corridor stretches from Washington, DC, through Richmond, Petersburg to Raleigh and Charlotte, NC. The SEHSR will include operations at top speeds of 110 mph and average speeds between 85-87 mph. Virginia, North Carolina, South Carolina and Georgia have joined together to form a four-state coalition to plan, develop and implement the system, which will be developed incrementally, upgrading existing rail rights-of-way. Detailed analysis of this segment is contained in the SEHSR Tier I Documents and the Tier II document under development. The SEHSR Tier II EIS will determine environmental impacts, preliminary engineering and station locations for the Richmond to Petersburg section. The Tier I documents and current information about the Tier II documents can be found at www.sehsr.org.[1]

For the Southside/NS route the Richmond/Hampton Roads Passenger Rail Project Tier I Draft EIS concentrates primarily on the issues related to intercity passenger and freight rail operations between Petersburg and Norfolk. Once the SEHSR alignment is finalized, this project and subsequent analyses will

[1] The Tier II EIS for SEHSR is expected to be available for review and comment in 2010.

determine in detail the necessary engineering to provide the connection. However, should the SEHSR project be deferred or canceled, any costs associated with rail infrastructure improvements in the Richmond to Petersburg segment of the SEHSR project would have to be absorbed by the Richmond/Hampton Roads Passenger Rail Project and allocated to the Southside/NS route if that route is selected. Consequently, those costs have been included in this Tier I Draft EIS for comparison. This project provides generalized cost estimates for the Richmond - Petersburg – Norfolk sections should SEHSR not advance to implementation.


Richmond Main Street Station
Alignment/Stations to be determined during SEHSR Corridor Studies
Petersburg Station
Kilby Connection*
Norfolk Station
Bowers Hill Station
New Kent
Henrico
Richmond
Gloucester
Mathews
York River
Charles City
James City
Chesterfield
Hopewell
Colonial Heights
Williamsburg
York
Chesapeake Bay
Petersburg
Prince George
Surry
Newport News
Poquoson
Hampton
James River
Sussex
Isle of Wight
Portsmouth
Suffolk
Chesapeake
Southampton
Figure ES-1
Richmond/Hampton Roads Passenger Rail Project
Southside / NS Route
0 2.5 5 10 Miles
N
Proposed Station Location
Southside / NS Route
Alignment to be determined by SEHSR
Major Road
Water
* For purposes of the Tier I DEIS, it is assumed that the Old Virginia Right-of-Way would be used for the Kilby Connection.

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DRPT has determined that the connection from the CSXT "A" Line to the Southside/Norfolk Southern route will occur at the northeast quadrant of the CSXT/NS off-grade railroad crossing just north of Collier Yard in south Petersburg. This option allows direct linkage to the SEHSR CSXT main line from the Norfolk Southern line from Norfolk, reduces the number of passenger rail lines going through Petersburg, and maximizes the dual benefit opportunity of utilizing the SEHSR Tier II EIS alignment analysis through Petersburg. The North Collier connection allows the Norfolk trains to use the SEHSR Petersburg routing alternative and station location, limits potential freight and passenger train conflicts within the yard itself, and limits potential conflicts and congestion that arises from Norfolk Southern freight trains stopping and working at Poe Yard, the only other potential access to the Norfolk line. The SEHSR project will select the routing though Petersburg along with station location options.

From Petersburg, the Southside/NS route parallels the existing Route 460 roadway passing through Suffolk and Chesapeake before terminating in Norfolk. In general, the route is predominantly rural between Petersburg and Suffolk and transitions to a more suburban/urban environment in Chesapeake and Norfolk. Successful implementation of service on the Southside/NS route would also require reactivation of the former Virginian Railway tracks near Kilby. The Southside/NS route currently supports freight and Amtrak passenger operations between Richmond and Petersburg. Freight trains operate exclusively between Petersburg and Norfolk, although passenger trains previously operated along this route until 1971.

Starting in Richmond, the Peninsula/CSXT route (Figure ES-2) on the north side of the James River would use the existing CSXT line between Richmond and Newport News. Currently, both freight and Amtrak passenger rail service operate along this route. This route is generally parallel to Interstate 64 and passes through Providence Forge and Williamsburg before terminating in Newport News. In general, the route is predominantly rural east of Richmond to Williamsburg, where the study area transitions to a more suburban/urban setting. This route includes passenger rail stations at Main Street Station, Williamsburg and Newport News.

In accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, DRPT and the FRA are preparing this Tier I Draft EIS to evaluate the potential social and environmental impacts of the proposed action. DRPT and the FRA determined that a program-level or "tiered" environmental document was the most appropriate due to the large study area to be evaluated. In tiered documents, the Tier I analysis is more general and is conducted at a more programmatic level than that of a project-specific, alignment level (Tier II) environmental document. The intent of this document is to provide enough information on potential benefits and adverse impacts to assist decision-makers in selecting a Preferred Alternative that would be further defined at future stages of project development. More detailed analysis and documents would be conducted and prepared in subsequent analysis once a Preferred Alternative is selected, as appropriate.

1.3 Purpose and Need

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) authorized a program of high-speed rail corridors nationwide. In 1992, the U.S. Department of Transportation (USDOT) designated the SEHSR Corridor as one of five national high-speed rail corridors in the United States. At the time, the SEHSR Corridor extended between Washington, DC and Charlotte, NC via Richmond, Petersburg and Raleigh, NC. It has since been extended to include South Carolina, Georgia and Florida. At the urging of the Commonwealth of Virginia, the SEHSR Corridor also was extended to include a link between Richmond and the Hampton Roads area. All ridership and revenue forecasts completed for this Tier I Draft EIS assume the operation of the SEHSR project.

The purpose of the proposed action is to provide a competitive and more reliable transportation choice for people traveling to and from the Hampton Roads region, a choice that would effectively and efficiently expand the region's transportation system capacity and provide residents, tourists and visitors with a broader array of transportation options. The proposed action represents a response to numerous transportation-related needs in the corridor, arising from the growth of the regional population and economy.

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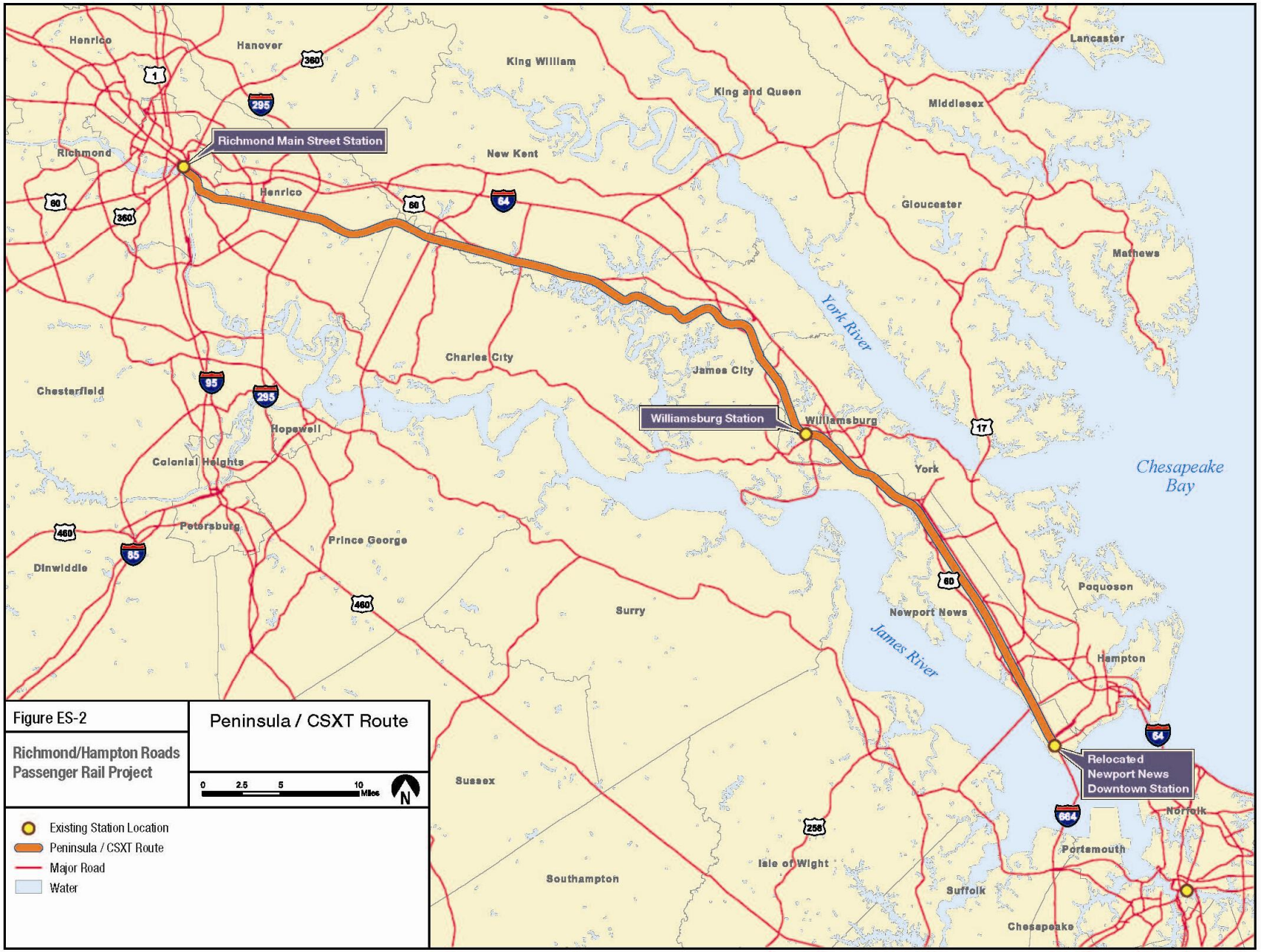
Richmond Main Street Station
Williamsburg Station
Relocated Newport News Downtown Station
Henrico
Hanover
King William
King and Queen
Lancaster
Middlesex
Richmond
New Kent
Gloucester
Mathews
Charles City
James City
York River
Chesterfield
Hopewell
Williamsburg
Colonial Heights
York
Chesapeake Bay
Petersburg
Prince George
Dinwiddie
Surry
Newport News
Poquoson
James River
Hampton
Sussex
Norfolk
Portsmouth
Isle of Wight
Southampton
Suffolk
Chesapeake
Figure ES-2
Richmond/Hampton Roads Passenger Rail Project
Peninsula / CSXT Route
0 2.5 5 10 Miles
N
Existing Station Location
Peninsula / CSXT Route
Major Road
Water

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Currently, few alternatives to the private automobile and only limited air service are available to corridor residents, employees and tourists. This lack of travel choice affects the quality of life in the corridor. Continued dependence on automobile travel contributes to the growing congestion on the principal highway facilities, namely I-64 and Route 460, in addition to contributing to greater demand for transportation fuels and the degrading of the environment by increasing the level of air pollutants and greenhouse gases.

Several interrelated conditions and trends exhibited in the larger travel region and study area contribute to the need for improvements in the transportation system. These needs include the following:

- Establish regional linkages and improve travel time and trip reliability;
- Limit growth in highway congestion;
- Develop the multimodal transportation system;
- Improve safety;
- Improve air quality and energy efficiency;
- Encourage economic development; and
- Help facilitate hurricane evacuation.

Other existing conditions that are of regional concern include rail and automotive transportation noise, adverse changes to the built and natural environment, and operational and infrastructure constraints on existing freight rail service in the study area.

2.0 Alternatives Considered

The development and evaluation of alternatives utilized a two-stage screening approach to identify and evaluate alternatives. Initially, the project team combined comments and concepts from the project scoping process with data from prior studies to prepare a list of initial alternatives and then subjected them to the evaluation screening process. These initial project elements included technology, propulsion, speed options and route alignments.

Four routes were examined initially: Southside/NS, Route 460 highway, Peninsula/CSXT and a route that crossed the James River. These project elements were assessed for their suitability with the known physical and policy constraints of the Richmond to Hampton Roads study area. The purpose of this step was to eliminate any alternative that did not meet the purpose and need, or that had fatal flaws with regard to cost or environmental impact; this was done in order to arrive at a shorter list of alternatives for more detailed evaluation and public review. The result of this screening was an array of detailed definitions of Build alternatives for the corridor, each of which meets the purpose and need. These reasonable alternatives were subjected to the second level of screening in the Tier I Draft EIS.

The initial Build alternatives involved operating trains on any of the four routes with a maximum of nine round-trip trains daily. These trips may be a combination of higher-speed options with maximum authorized speeds (MAS) of either 90 mph or 110 mph and conventional speed passenger service with MAS of 79 mph. The number of round trips is limited by rail system capacity constraints between Washington, DC and Richmond, VA.

Each Build alternative also considered a combination of existing passenger stations with enhanced parking and new or relocated stations. Service and maintenance facilities would be required for any of the Build alternatives. However, specific locations' for service and maintenance yards have not been finalized and would be determined in subsequent analysis.

During the initial screening of alternatives, rail technology and propulsion options were evaluated. The technology and propulsion options that were selected are consistent with the SEHSR. The technology is higher-speed passenger rail, which limits speed to a maximum of 110 mph, and the propulsion system is diesel-electric.

2.1 Alternatives Considered and Eliminated From Further Consideration

The Route 460 Build alternative was designed to be in the median of a proposed new four-lane highway, which was found to be incompatible with higher-speed passenger rail operations and alignment design. Therefore, none of the potential railroad routes located within the improved Route 460 Highway alternatives was carried forward.

The James River route connected the Peninsula/CSXT route to the Southside/NS route with a new river crossing. This route was eliminated from further consideration due to the high cost of the new infrastructure required to cross the navigable James River and also the potentially severe environmental impacts associated with the construction of a new railroad alignment. The new 4.4-mile railroad bridge with movable section and 13-mile overland route alignment were estimated to cost $597.8 million for the 90-mph speed option and $657.1 million for the 110-mph option in 2004 dollars. Since this alternative was not carried forward, the cost estimates were not revised to 2008 dollars. In addition, the new railroad alignment would have significant impacts on sensitive wetlands, native wildlife habitat and other biological resources. More prudent and feasible alternatives exist that do not have these substantial negative cost and environmental impacts.

2.2 Alternatives Carried Forward

Alternatives defined for the Richmond/Hampton Roads Passenger Rail Project include the Status Quo Alternative, No Action Alternative, and three Build alternatives. The Build alternatives include route and speed options. The two viable routes remaining after the initial screening are the Southside/NS route and the Peninsula/CSXT route. Speed options consist of 79 mph, 90 mph and 110 mph MAS. Table ES-1, Characteristics of Alternatives Evaluated, is located at the end of this section and provides a summary of relevant characteristics of all the alternatives considered and evaluated.

2.2.1 Status Quo Alternative

DRPT determined that it would be beneficial to consider an alternative that would provide a true No Build scenario for comparison to the alternatives evaluated in this Tier I Draft EIS. After consultation with the FRA, it was determined that it would be acceptable to add such an alternative for comparison and public comment. This alternative is referred to as the Status Quo. The Status Quo Alternative does not include any operational or physical changes to the existing Amtrak Peninsula passenger rail service. Two daily round-trip trains would continue to operate between Richmond and Newport News at 79 mph MAS. The service would make stops at the existing Richmond Main Street Station, Williamsburg and Newport News Amtrak Stations. The Status Quo Alternative consists of the existing transportation network and existing highway, rail, and public transit systems in the Richmond to Hampton Roads study area. This alternative provides a baseline for comparative evaluation of the advantages and disadvantages of the No Action and Build alternatives.

2.2.2 No Action Alternative

The No Action Alternative consists of the existing transportation network and committed highway, rail and airport improvement projects in the Richmond to Hampton Roads study area. This alternative provides a basis for evaluation of the advantages and disadvantages of the Build alternatives. The No Action Alternative assumes the operation of three daily round-trip Amtrak passenger trains between Newport News and Richmond, including one additional train over the Status Quo Alternative. Amtrak has provided plans that include this enhanced service, and it is included in the regional transportation network. This No Action Alternative service operates at conventional speeds limited to 79 mph MAS on the existing CSXT tracks on the Peninsula/CSXT route. Stations include Richmond Main Street, Williamsburg, and Newport News. In January 2008, Amtrak provided DRPT with the *Advancing Passenger Rail in the Commonwealth of Virginia, Short-Term Action Plan, Part 1*. The Newport News to Washington, DC service corridor was identified as an opportunity to provide enhanced passenger rail service in Virginia. The service expansion provides one additional round-trip train per day on the Peninsula, operating at conventional speeds.

Table ES-1: Characteristics of Alternatives Evaluated (Millions 2008$)

Operating Service Characteristics and Costs of Alternatives	Status Quo 79 mph MAS	No Action 79 mph MAS	Alternative 1		Alternative 2a		Alternative 2b	
			90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS
Peninsula/CSXT Route								
Round-trips	2	3	3[a]	3[a]	6[b]	6[b]	9[b]	9[b]
Stations Newport News[b] Williamsburg Richmond Main Street								
Annual Operating Costs	$16.9	$21.3	$21.3	$21.3	$53.4	$54.9	$71.7	$72.4
Capital Costs	N/a	N/a	N/a	N/a	$330.0	$431.9	$330.0	$431.9
Southside/NS Route[c]								
Round trip trains	0	0	6	6	3[a]	3[a]	0	0
Stations Proposed Norfolk Proposed Bowers Hill Proposed Petersburg Richmond Main Street								
Annual Operating Costs	No train	No train	$58.7	$60.1	$24.5	$24.5	No train	No train
Capital Costs	No train	No train	$475.4	$543.0	$412.3	$412.3	No train	No train
Total Roundtrips	2	3	9	9	9	9	9	9
Total Annual Operating Costs	$16.9	$21.3	$80.0	$81.4	$77.9	$79.4	$71.7	$72.4
Total Capital Costs	0	0	$475.4	$543.0	$742.3	$844.2	$330.0	$431.9

Notes:
[a] 79 mph MAS conventional speed trains.
[b] Status Quo and No Action alternatives use existing Amtrak Station. Higher-speed trains use new Downtown Station in Newport News.
[c] The segment between Richmond and Petersburg along the Southside/NS route has not been evaluated for environmental impact as part of this Tier I Draft EIS. This segment is being evaluated in the SEHSR Tier II EIS. The costs of this route segment are included for the Southside/NS route.
Source: DMJM Harris/Parsons Transportation Group, November 2005, revised March 2008.

2.2.3 Build Alternatives

Each Build alternative consists of several components to include technology, propulsion, route, stations and related facilities, and storage and maintenance yards. Specific locations of storage and maintenance yards will be determined in subsequent analysis if a Build alternative is selected. Several operational characteristics were developed for each route. Each of the Build alternatives being evaluated in this study are described in the following paragraphs and are summarized in Table ES-1.

2.2.3.1 Alternative 1 Peninsula Conventional/Southside Higher-Speed

Alternative 1 would serve both sides of the James River. The south side of the James River would be served by trains operating on the Southside/NS route with six daily round-trip trains operating at either 90 mph or 110 mph MAS. Trains would run mostly on upgraded facilities in the existing right-of-way from Petersburg to downtown Norfolk. The Southside/NS route would have stops at Richmond Main Street Station, Petersburg Station (to be determined by the SEHSR Tier II EIS), the proposed Bowers Hill Station, and the proposed downtown Norfolk Station. A new connection at Kilby between the NS and abandoned Virginian Railway would be constructed to reduce potential freight rail conflicts between Suffolk and Norfolk. All stations would have park-and-ride facilities. In the case of Norfolk, existing downtown parking facilities could be used. Existing parking at the Richmond Main Street Station may be augmented to accommodate more parking spaces. The Peninsula/CSXT route would remain the same as described in the No Action Alternative with

three daily round-trips limited to 79 mph MAS between Richmond and Newport News. The existing stops would remain the same along the Peninsula/CSXT route. Figure ES-3 shows Alternative 1.

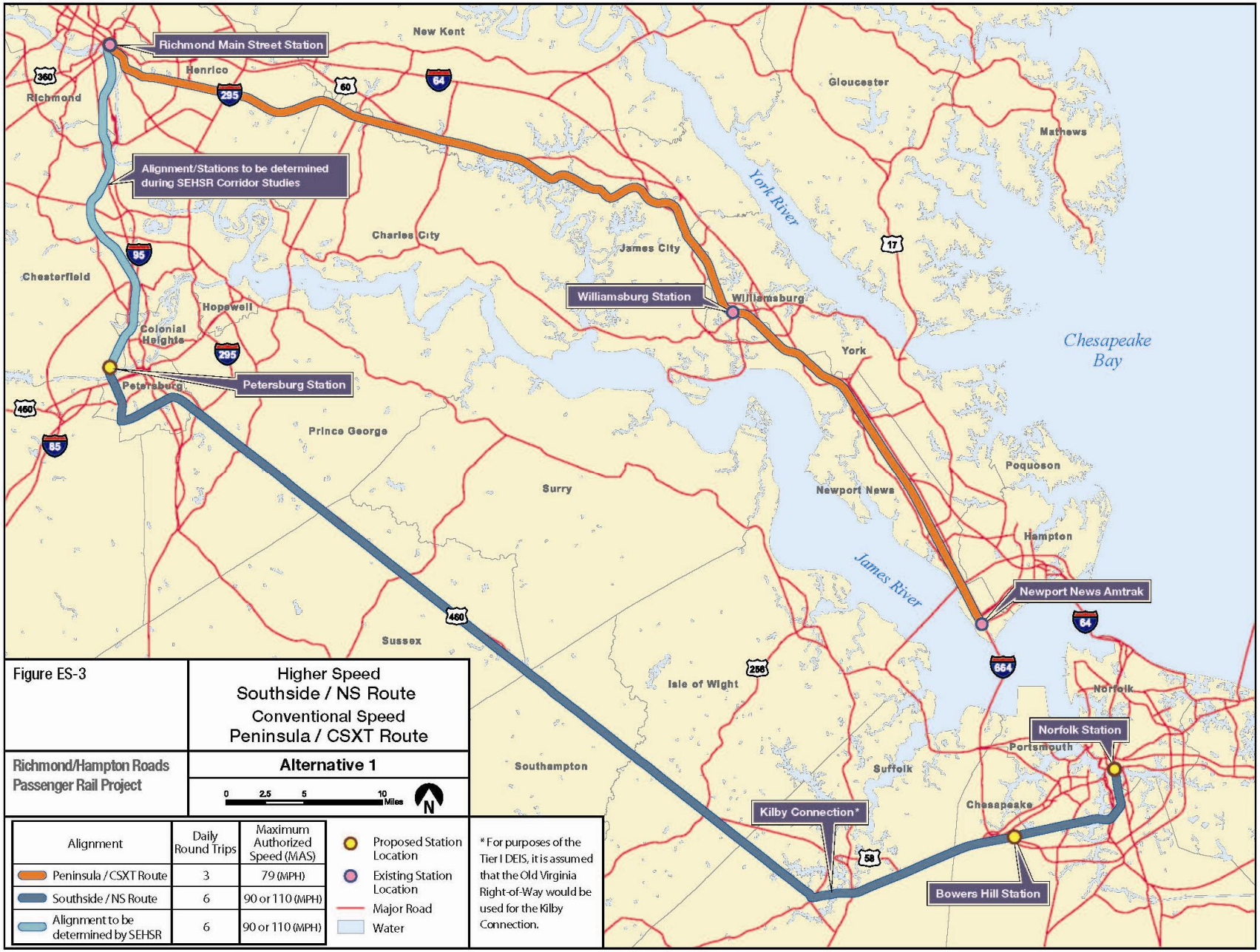
2.2.3.2 Alternative 2a Peninsula Higher Speed/Southside Conventional

Alternative 2a also serves both sides of the James River. The study area north of the James River would be served by six daily round-trip trains operating at higher speeds of either 90 mph or 110 mph MAS along the Peninsula/CSXT route with a new station serving Downtown Newport News rather than the existing Amtrak Station. Other stations would include Williamsburg and Richmond Main Street. All stations would provide some level of parking. The new station in Downtown Newport News would provide park-and-ride facilities while existing stations would receive some level of upgraded parking to their current condition. Figure ES-4 shows Alternative 2a.

The study area south of the James River would be served by three daily round-trip trains operating at MAS 79 mph on the Southside/NS route. The Norfolk Southern rail line parallels current Route 460. Stations would include new stations in Norfolk, and Bowers Hill, and a proposed station in Petersburg, and the existing Richmond Main Street Station. All stations would provide some level of parking. New stations would provide park-and-ride facilities while existing stations would receive some level of upgraded parking to their current condition. The station location in Petersburg are being examined by the SEHSR Tier II EIS. A new connection at Kilby between the NS and abandoned Virginian Railway would be constructed to reduce potential freight rail conflicts between Suffolk and Norfolk.

2.2.3.3 Alternative 2b Peninsula Higher-Speed Only

Alternative 2b, shown in Figure ES-5, would only serve the study area north of the James River. Alternative 2b would operate at higher speeds of either 90 mph or 110 mph MAS along the Peninsula/CSXT route with nine daily round-trip trains. Trains would serve a new station in Downtown Newport News, the existing Amtrak station in Williamsburg, and the Richmond Main Street Station. All stations would provide some level of parking. The new station would provide park-and-ride facilities while existing stations would receive some level of upgraded parking to their current condition. No passenger rail service would be provided in the study area south of the James River.


Richmond Main Street Station
Alignment/Stations to be determined during SEHSR Corridor Studies
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Petersburg Station
Newport News Amtrak
Norfolk Station
Kilby Connection*
Bowers Hill Station
New Kent
Henrico
Richmond
Gloucester
Mathews
York River
Charles City
James City
Williamsburg
Chesterfield
Hopewell
Colonial Heights
Petersburg
York
Chesapeake Bay
Prince George
Surry
Poquoson
Newport News
Hampton
James River
Sussex
Isle of Wight
Norfolk
Portsmouth
Suffolk
Chesapeake
Southampton
Figure ES-3
Higher Speed
Southside / NS Route
Conventional Speed
Peninsula / CSXT Route
Richmond/Hampton Roads Passenger Rail Project
Alternative 1
0 2.5 5 10 Miles
N
Alignment
Daily Round Trips
Maximum Authorized Speed (MAS)
Peninsula / CSXT Route 3 79 (MPH)
Southside / NS Route 6 90 or 110 (MPH)
Alignment to be determined by SEHSR 6 90 or 110 (MPH)
Proposed Station Location
Existing Station Location
Major Road
Water
* For purposes of the Tier I DEIS, it is assumed that the Old Virginia Right-of-Way would be used for the Kilby Connection.

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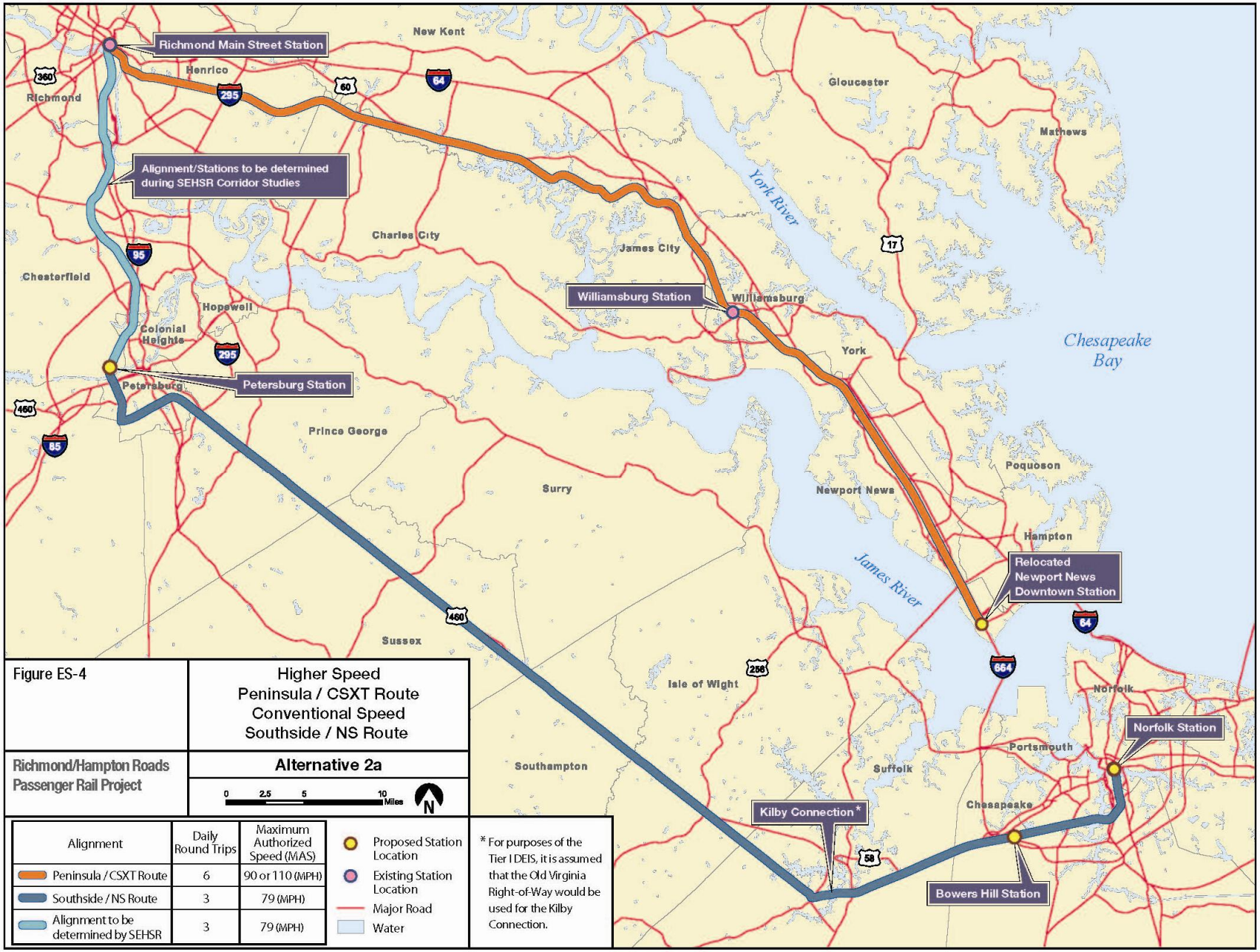
Richmond Main Street Station
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Petersburg Station
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Norfolk Station
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Bowers Hill Station
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Surry
Poquoson
Newport News
Hampton
James River
Sussex
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Norfolk
Portsmouth
Suffolk
Southampton
Chesapeake
Figure ES-4
Higher Speed
Peninsula / CSXT Route
Conventional Speed
Southside / NS Route
Richmond/Hampton Roads Passenger Rail Project
Alternative 2a
0 2.5 5 10 Miles
N
Alignment
Daily Round Trips
Maximum Authorized Speed (MAS)
Peninsula / CSXT Route 6 90 or 110 (MPH)
Southside / NS Route 3 79 (MPH)
Alignment to be determined by SEHSR 3 79 (MPH)
Proposed Station Location
Existing Station Location
Major Road
Water
* For purposes of the Tier I DEIS, it is assumed that the Old Virginia Right-of-Way would be used for the Kilby Connection.

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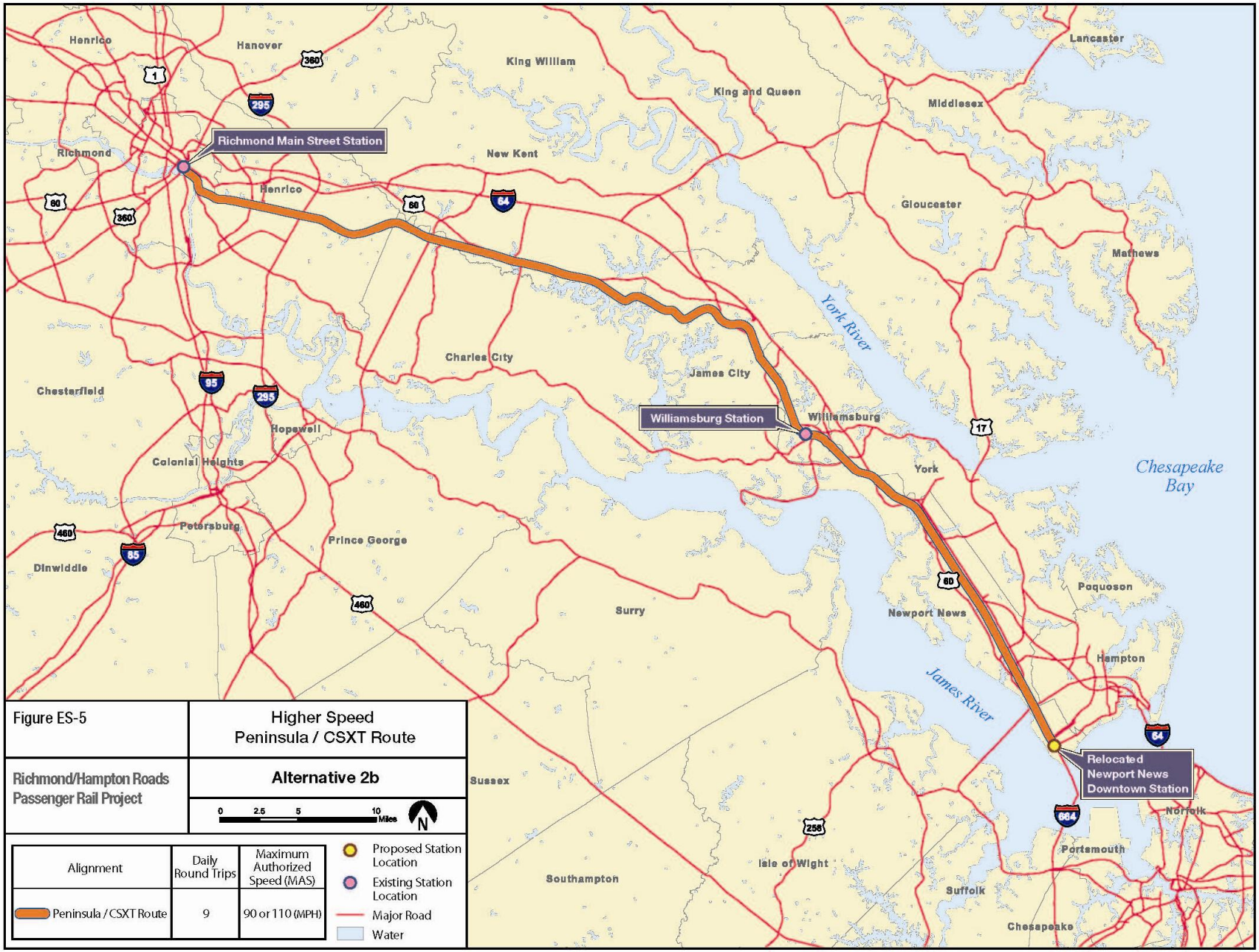
Henrico
Hanover
King William
King and Queen
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Richmond Main Street Station
Richmond
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York River
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James City
Chesterfield
Williamsburg Station
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Colonial Heights
York
Chesapeake Bay
Petersburg
Prince George
Dinwiddie
Surry
Poquoson
Newport News
Hampton
James River
Relocated Newport News Downtown Station
Norfolk
Sussex
Portsmouth
Isle of Wight
Southampton
Suffolk
Chesapeake
Figure ES-5
Higher Speed Peninsula / CSXT Route
Richmond/Hampton Roads Passenger Rail Project
Alternative 2b
0 2.5 5 10 Miles
N
Alignment
Daily Round Trips
Maximum Authorized Speed (MAS)
Peninsula / CSXT Route
9
90 or 110 (MPH)
Proposed Station Location
Existing Station Location
Major Road
Water

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3.0 Summary of Potential Effects

In accordance with NEPA, potential impacts to the social and natural environment have been assessed as part of this Tier I Draft EIS. As previously stated, impacts have been identified on a more general and qualitative basis consistent with a Tier I level review. If a Build alternative is selected, more detailed analysis will be conducted during subsequent environmental studies. Table ES-3 at the end of this section provides an overview of the potential impacts identified.

As part of this Tier I Draft EIS, various aspects of the social and natural environment were evaluated. In terms of the social environment, the following reviews were conducted: socioeconomic characteristics, including population, housing, and employment; potential Environmental Justice communities; community facilities and services; park and recreational areas; visual quality and historic resources. Potential impacts to these resources were also evaluated. See Sections 3.7 Land Use, 3.8 Community Impacts and Environmental Justice, 3.9 Parklands, 3.11 Visual and Aesthetic Quality, 3.14 Cultural Resources, and 3.15 Section 4(f)/6(f). for discussions regarding the affected environment and potential impacts to the social environment.

As part of this study, reviews were undertaken of the existing natural environment including geology, soils, prime farmland, water resources, terrestrial and aquatic habitats, protected species, air quality, noise, vibration, hazardous materials, and energy. Detailed information on the affected environment, as well as potential impacts, can be found in Sections 3.4 Air Quality, 3.5 Noise and Vibration, 3.6 Energy, 3.10 Farmlands and Agriculture, 3.13 Contamination and Hazardous Materials, 3.15 Geologic Resources, 3.16 Hydrologic Resources and 3.17 Biological Resources.

Below is a brief summary of the resources identified and the potential of the project to affect these resources.

3.1 Potential Transportation Impacts

Passenger rail travel demand is the primary measurement of transportation benefits for this project. Ridership travel demand measures the potential attractiveness of a new passenger rail service investment for the traveling public when compared to the Status Quo. A range of passenger rail ridership forecasts is presented that highlights the sensitivity to key assumptions in the ridership forecasting model regarding: 1) the on-time performance of the proposed passenger rail service; 2) the future highway speeds outside the Richmond/Hampton Roads study area; 3) number of trains operating; and 4) the speed of the trains.

The forecasts at the lower end of the range assume that the on-time performance of the proposed service will not improve from the existing 72 percent in the study area today, and that the highway speeds outside the Richmond/Hampton Roads study area will not change in the future.

The forecasts at the higher end of the range assume that: the future on-time performance of the proposed service will be 90 percent and that the future highway travel times outside the Richmond/Hampton Roads study area will increase in a similar magnitude as the increase in future highway travel times within the Richmond/Hampton Roads study area, as shown by the MPO models.

Table ES-2 summarizes the estimated range of probable annual 2025 ridership to/from Hampton Roads for the proposed alternatives. All ridership results are shown in total and relative to the Status Quo and No Action alternatives that provide conventional (79 mph maximum) speed service along the existing Amtrak Peninsula/CSXT route.

Table ES-2: Estimated Range of Probable Annual Passenger Rail Ridership (2025)

	Status Quo 79 mph	No Action 79 mph	Alternative 1		Alternative 2a		Alternative 2b	
			90 mph	110 mph	90 mph	110 mph	90 mph	110 mph
Peninsula/CSXT high	262,300	464,800	223,400	222,300	914,600	968,400	1,101,100	1,147,000
Peninsula/CSXT low	245,500	425,700	212,500	211,200	732,200	768,000	897,800	937,000
Southside/NS high	0	0	886,700	939,900	209,700	193,000	0	0
Southside/NS low	0	0	727,100	773,000	192,500	187,000	0	0
Total High	262,300	464,800	1,110,100	1,162,200	1,124,300	1,161,400	1,101,100	1,147,000
Total Low	245,500	425,700	939,600	984,200	924,700	955,000	897,800	937,000
Difference from 79 mph Status Quo Alternative								
High		202,500	847,800	899,900	862,000	899,100	838,800	884,700
Low		180,200	694,100	738,700	679,200	709,500	652,300	691,500
Difference from 79 mph No Action Alternative								
High			645,300	697,400	659,500	696,600	636,300	682,200
Low			513,900	558,500	499,000	529,300	472,100	511,300

Source: Travel Demand Methodology and Results Report, May 2009.

The forecast annual passenger rail ridership results for 2025 reflect the changes in train frequencies; improved connections; population and employment growth over the planning time horizon; improved on-time performance; and highly competitive rail travel times when compared to highway travel times. Future highway travel times between Richmond and Hampton Roads and the Northeast Corridor are predicted to increase, which enhances the attractiveness of rail, increases the overall rail mode share, and decreases the attractiveness of highway travel.

The Build alternatives save travelers time compared with highway travel in all cases, with time savings increasing as the trip length increases. Though the total rail travel time is less than highway time in all the markets and alternatives, the attractiveness of rail is less in the shorter distance travel markets. Compared to the longer distance markets between Hampton Roads and the Northeast Corridor, the expected rail market share is lower in the Richmond/Hampton Roads study area. In shorter distance markets (50-100 miles), intercity rail service is much less competitive with the door-to-door automobile travel time. In the shorter distance markets, the access/terminal time is a larger component of the total travel time than in the longer trips. The option that includes an increase in speed from 90 mph to 110 mph does not improve travel time savings significantly due to factors such as speed restricted zones[2] encountered along the routes and the fact that the amount of speed increase over the distance being analyzed results in a smaller ratio of time savings as compared to the time savings that could be achieved by other alternatives. In this analysis, the estimated potential travel time savings at 90 mph would have a significant positive effect on the competitive position of the Hampton Roads region within the broader statewide and national economy.

3.2 Regional Highway and Localized Traffic Impacts

The traffic, transit, circulation and parking analyses for this Tier I Draft EIS focused on a broad comparison of potential impacts on intercity travel demand, traffic, transit, circulation and parking along the routes and at stations for the alternatives. Regional and corridor impacts on highway congestion are measured through changes in vehicle miles traveled (VMT), levels of service for freeways, street lanes and intersections. When compared to the No Action Alternative, the Build alternatives would generate an incremental increase in passenger trips of approximately 1,400 riders. This diversion to rail would amount to only approximately seven-tenths of one percent of I-64 traffic and a much smaller fraction of I-95 traffic. This fraction is small enough that the resultant decrease in traffic would not be measurable, given the normal daily and seasonal

[2] Speed restricted zones are areas where operating speeds are reduced.

fluctuations in traffic volume. Nevertheless, the reduction of automobile traffic contributes capacity to these transportation corridors.

The potential traffic impacts at the rail stations proposed along each of the Build alternative routes was evaluated. Along the Peninsula/CSXT route, traffic characteristics around three stations would be affected under one or more alternatives. Traffic volumes would increase in the No Action Alternative at the Newport News Amtrak Station due to the proposed increase in service. In Alternatives 2a and 2b, the station would be closed, shifting some or all baseline traffic and parking demand away from the existing station area. A new Newport News Downtown Station, proposed under Alternatives 2a and 2b, would generate new traffic, requiring further investigation of potential localized traffic effects. The Williamsburg Amtrak Station is anticipated to be able to accommodate ridership growth, though further investigation of potential traffic safety issues at local intersections would be necessary in future Tier II analysis.

Along the Southside/NS route, the proposed Downtown Norfolk Station would be located near the Harbor Park baseball stadium, requiring further investigation of traffic circulation characteristics and parking needs. Likewise, additional traffic and parking investigations would be required for the proposed Bowers Hill Station to assess appropriate operational and safety needs on local roadways in the vicinity of the station.

Very minimal to no negative impacts on existing, local parking spaces are anticipated by construction of the passenger rail alternatives. There is no anticipated loss of existing parking spaces in front of existing businesses and residences. Each rail station would be constructed or modified to enhance existing station parking and facilities. Or, they would add parking spaces where none currently exist, spaces that offer safe, convenient access to the station.

3.3 Grade Crossing Safety Impacts and Railroad Operations

Safety concerns at highway-rail grade crossings and pedestrian safety associated with higher-speed rail service were examined in general terms in this Tier I Draft EIS. Both the Peninsula/CSXT route and the Southside/NS route contain numerous highway-rail grade crossings. The increase in rail traffic frequency and the higher speeds associated with the Build alternatives would increase the risk exposure for automobile collisions with trains at highway-rail crossings. Both the FRA and the Federal Highway Administration (FHWA) have responsibility for highway-rail grade crossing safety. The FRA regulations and guidelines prescribe safety measures for at-grade crossings that take into consideration rail traffic frequency and speeds. These measures can include one or more of the following strategies: use of protection devices and grade separation or elimination, where warranted. On the basis of the FRA regulations, the number of at-grade crossings should be reduced to improve safety. A more detailed analysis after the selection of a specific alternative will identify specific concerns and appropriate mitigation.

Operational relationships between passenger and freight rail service would be assessed during subsequent analysis. Appropriate infrastructure, such as passing sidings, would be provided to improve operations between freight and passenger rail services.

3.4 Air Quality

The Richmond/Hampton Roads Passenger Rail Project is expected to benefit regional air quality by reducing regional vehicle travel as automobile drivers switch to passenger rail. To the extent that this project reduces the amount of automobile travel, a reduction in regional emissions and concentrations of carbon monoxide, volatile organic compounds, nitrogen oxides and particulate matter would be expected. A detailed air quality assessment was not conducted as part of this Tier I analysis; project emissions and concentrations at localized intersections would be determined during subsequent analysis. However, due to the likely diversion of travelers from motor vehicles to passenger rail, air quality impacts are expected to decrease everywhere along the project routes. As the amount of automobile trip diversions would be small in comparison to total regional trips, air quality improvement benefits also would be small.

3.5 Noise and Vibration

The noise assessment was conducted in accordance with the FRA *High-Speed Ground Transportation Noise and Vibration Impact Assessment* guidelines. A screening assessment was conducted to estimate the potential for impact. The screening assessment gives a conservative estimate of the potential noise and vibration impacts and helps define the areas along the rail routes where future impacts are most likely. For purposes of this Tier I Draft EIS, the acreage of potentially sensitive land uses was identified within a 900-foot screening width. More detailed assessments would be conducted during subsequent evaluations.

The existing ambient environment along the Southside/NS route is fairly typical of less developed rural communities divided by a heavily-used freight route. The existing noise conditions along the Southside/NS route include several ambient sources, ranging from traffic noise along roadways to existing freight train activity. Nearly 2,037 acres along the Southside/NS route may be potentially impacted due to noise as a result of the proposed action.

The existing ambient environment along the Peninsula/CSXT route is fairly typical of developed urban and suburban communities. The existing noise conditions along the Peninsula/CSXT route include several ambient sources, ranging from traffic noise along roadways to existing freight and passenger train activity. Over 1,544 acres along the Peninsula/CSXT route may be potentially impacted due to noise as a result of the proposed action.

The vibration assessment was conducted in accordance with the FRA's *High-Speed Ground Transportation Noise and Vibration Impact Assessment* guidelines. The screening assessment provides a conservative estimate of the potential impacts and helps define the areas along the selected rail routes where future impacts may occur. As with the noise assessment, a more detailed assessment will be completed as part of the subsequent analysis.

As with noise, the existing ambient environment along the Southside/NS route is fairly typical of less developed rural communities divided by a heavily-used freight corridor. The existing vibration conditions along the Southside/NS route include several ambient sources, ranging from traffic along roadways to existing freight and passenger train activity. Nearly 510 acres along the Southside/NS route may be impacted due to vibration as a result of the proposed action if the Southside/NS route was selected.

The existing ambient environment along the Peninsula/CSXT route also is fairly typical of developed urban and suburban communities. The existing vibration conditions along the Peninsula/CSXT route include several ambient sources, ranging from traffic along roadways to existing freight and passenger train activity. Approximately 390 acres along the Peninsula/CSXT route may be impacted due to vibration as a result of the proposed Richmond/Hampton Roads Passenger Rail Project.

3.6 Energy

A preliminary qualitative energy assessment was included as part of this Tier I Draft EIS. The assessment focused on annual energy consumption based on the number of round-trip miles traveled annually for each alternative. Energy use per passenger mile was also determined. In comparison to the Status Quo and No Action alternatives, each of the Build alternatives would result in higher energy consumption for the rail operations. However, given that some aircraft and automobile trips would be diverted to passenger rail trips by the Build alternatives, overall energy consumption in the region would be expected to be less under the Build alternatives.

3.7 Land Use

Existing and future land use characteristics along each of the proposed routes were identified in the Tier I Draft EIS. A determination as to the consistency of each alternative with local planning was made, as was a determination of the potential effects on land use of possible land conversions due to new right-of-way acquisition for each alternative.

The Build alternatives would primarily utilize existing rail lines and stay within the railroad rights-of-way for both the Peninsula/CSXT and the Southside/NS routes, with the exception of one area near Kilby and in the vicinity of several stations, which would require additional right-of-way. In these areas, a conversion of land use may occur. These areas would be investigated further during subsequent analysis.

Passenger rail service would be consistent with policies and actions stated in plans for cities located along the study routes. Each plan emphasizes the development of intercity rail service, reducing the reliance on cars for transportation and transit-oriented development. No potentially adverse land use impacts are anticipated. The Status Quo Alternative would not be consistent with some of the land use plans reviewed for the study routes because it would not meet specified goals and objectives related to transportation, regional connectivity and economic growth.

3.8 Community Impacts and Environmental Justice

In general, population and employment have increased between 1990 and 2000 for both study routes. Fifty-one percent of the Southside/NS route and 38 percent of the Peninsula/CSXT route populations are minority populations. In addition, approximately 18 percent of the population for both study routes is considered low-income.

Implementing additional passenger rail service along the Peninsula/CSXT route could create both beneficial and adverse impacts on all populations along the route, including environmental justice populations. Increased service would provide a mobility benefit, while also likely increasing noise from train warning horns at existing at-grade crossings. These noise impacts would not likely be considered disproportionate, since horn blows are required for all grade crossings.

All populations within the Southside/NS route study area would likely experience both benefits and impacts from new passenger rail service along the route. All populations have the potential to experience more impacts than those within the Peninsula/CSXT route study area due to the introduction of a new service to the Southside/NS route. Possible adverse impacts to all populations, including environmental justice populations, would be related to quality of life, which could include noise and vibration impacts, barrier effects, aesthetics, and safety, particularly near at-grade crossings. In this Tier I Draft EIS analysis, disproportionate impacts on potential environmental justice populations have not been identified.

In contrast, within the Southside/NS route study area, all populations, including environmental justice populations, would benefit from improved mobility options and the greater accessibility that would be provided by new passenger rail service along the route. Moreover, much of the route would be located within the existing right-of-way, which would serve to reduce the potential for adverse effects regarding land conversions to rail use.

All populations along the Southside/NS route would experience no benefit or direct impacts from improvements to passenger rail service that are limited to the Peninsula/CSXT route in Alternatives 2b, the No Action Alternative and the Status Quo Alternative. No disproportionate effect on environmental justice communities along the Southside/NS route would occur under these alternatives.

The greatest potential for impacts to community facilities and services, and community cohesion are related to potential grade crossing modifications. Grade crossing closures and consolidations could result in restricting access to community facilities and services, while grade separations could improve traffic circulation and access. Analysis of road closures, consolidations, and separations has not been conducted and would be done during subsequent analysis.

3.9 Open Space, Parklands, State Forests and Wildlife Refuges

Parks and recreation areas have been identified along both routes. Most are likely to be unaffected by the proposed action, but some could experience minor proximity effects. Detailed analysis of property boundaries and ownership has not been conducted and would be done during subsequent analysis to ensure that any

area of improvement that may require additional right-of-way is not impacting parklands, national or state forests, wildlife refuges and conservation easements.

3.10 Farmlands and Agriculture

Prime farmlands and soils of statewide importance have been identified within the study area along both the Peninsula/CSXT route and Southside/NS route. Potential to impact these soils would occur in the vicinity where additional right-of-way would be required, such as the proposed Kilby rail connection along the Southside/NS route, where additional right-of-way would be needed to accommodate a new connection between the existing NS freight line and the Virginia Railway.

3.11 Visual and Aesthetic Quality

Potentially visually sensitive resources identified within the study area include parklands, recreational areas and cultural resources. Minimal changes to the existing visual and aesthetic setting are expected. The greatest potential for changes to the visual settings would occur where new visual elements would be added or existing visual elements would be altered, such as existing and proposed stations and parking accommodations. More detailed analysis would be undertaken for the selected alternative to determine the extent of adverse impacts on the visual and aesthetic quality of the study route that may require mitigation. However, impacts to the visual environment could be minimized through context-sensitive design and plantings around new facilities.

3.12 Utilities

The study area for both routes contains infrastructure for water treatment and supply, sanitary sewer collection and treatment, storm water collection and discharge, electric generation and distribution, communication facilities and cabling, natural gas storage and distribution, petroleum storage and trans-flo facilities, solid waste collection and management facilities, and interstate pipelines. Many utilities run adjacent to roadway and rail rights-of-way. Potential impacts to utilities depend on many factors, such as location, depths, criticality of utilities and the location and depths of proposed construction of passenger rail facilities. Coordination with utility operators would be undertaken after the selection of an alternative to determine potential utility impacts and develop appropriate mitigation strategies to avoid or minimize service disruptions during project construction.

3.13 Hazardous Materials

A database records search was completed by screening specific federal and state on-line databases of sites located within and proximate to a 1/2-mile radius of each of the proposed stations in order to identify the presence of any potential or existing sources of contaminated/hazardous materials. Based on the database searches conducted, the greatest potential for encountering hazardous materials is within the more urbanized areas of both routes. Greater study will be needed to determine specific impacts during subsequent analysis.

3.14 Cultural Resources

Cultural and historic resources exist along both routes. Since the majority of improvements are proposed within the existing railroad right-of-way, adverse impacts are unlikely. Some historic resources that are directly adjacent to the tracks may experience minor proximity affects. More detailed analysis and coordination with the Virginia Department of Historic Resources will be undertaken to determine specific potential impacts and would be part of subsequent analysis.

3.15 Geologic Resources

The study routes lie primarily within the Atlantic Coastal Plain Physiographic Province, with a small portion of the western part of the study area infringing on the Piedmont Province. Characteristics of these provinces include relatively flat, low-lying areas with some rolling hills. Areas of prime farmland were identified throughout both study routes. In addition, mines were identified in both study routes. Generally no impacts to the topography or geology are expected for either route. In areas where prime farmland or soils of state

importance may be impacted, coordination with the appropriate local and state agencies would be required. To determine specific impacts to inactive mines identified within the study routes, coordination with the Virginia Department of Mines, Minerals, and Energy would be required during the Tier II analysis.

3.16 Hydrologic Resources

Numerous water resources, including surface waters, wetlands, floodplains, and coastal zones, have been identified for both study routes. Existing water quality conditions were also identified. It is expected that impacts to these resources will be minimized because the majority of proposed improvements will be within the existing rail right-of-way. Both study routes exist within the coastal zone of Virginia and, therefore, a federal consistency determination could be required. As planning for the project progresses, more detailed analyses, to include wetland delineations, would be undertaken to ascertain the extent of potential impacts. Coordination with federal, state and local agencies would be required.

3.17 Biological Resources

Aquatic and terrestrial habitats were identified along both study routes. Aquatic habitats are associated with surface waters and wetlands. Terrestrial habitats within the study routes consist mostly of active and fallow farmland and some forested areas. Both federally and state protected species have been identified in the cities and counties through which the study routes pass. Although it is unlikely that any protected species would be impacted, a more thorough investigation of critical habitats and the potential for species impacts may be required during future stages of project development.

3.18 Section 4(f)/6(f) Involvement

Based on the preliminary analysis conducted for this Tier I Draft EIS, it is unlikely that any of the recreational resources identified along the Peninsula/CSXT route or the Southside/NS route would experience a permanent use of property. The most probable effects along either route could be proximity effects from increased train frequencies and speeds. Based on preliminary coordination with the Virginia Department of Historic Resources (VDHR), there is a high probability that proximity effects to historic resources could occur with implementation of higher-speed rail along either route. However, it is unlikely that direct impacts to these resources would occur.

Table ES-3 Summary of Comparative Analysis of Alternatives Environmental Screening and Ratings

Summary of Comparative Analysis of Alternatives
Environmental Screening and Ratings

Richmond/Hampton Roads Passenger Rail Project
Virginia Department of Rail and Public Transportation

Planning Year 2025
Assuming Southeast High-speed Rail Project
15-Aug-08

	79 MPH		90 MPH Option			110 MPH Option		
Environmental Screening	**Status Quo**	**No Action**	**Alt 1**	**Alt 2a**	**Alt 2b**	**Alt 1**	**Alt 2a**	**Alt 2b**
Total Population and (% minority)								
Peninsula/CSXT Route	479,479 (38%)	479,479 (38%)	479,479 (38%)			479,479 (38%)		
Southside/NS	no train	no train	(51%)	(51%)	no train	(51%)	(51%)	no train
Total Population	479,479	479,479						
Qualitative Rating	O	O	++	+ +	+	++	+ +	+
Recreational resources (acreage within 300 feet)								
Peninsula/CSXT Route	269.41	269.41	269.41	269.41	269.41	269.41	269.41	269.41
Southside/NS	no train	no train	57.74	57.74	no train	57.74	57.74	no train
Total for Alternative	269.41	269.41	327.15	327.15	269.41	327.15	327.15	269.41
Qualitative Rating	O	O	-	-	O	-	-	O
Federally-owned Park Lands (number of parks)								
Peninsula/CSXT Route	20	20	20	20	20	20	20	20
Southside/NS	no train	no train	4	4	no train	4	4	no train
Total for Alternative	20	20	24	24	20	24	24	20
Qualitative Rating	O	O	-	-	O	-	-	O
Historic/Cultural Resources (number of resources)								
Peninsula/CSXT Route	48	48	48	48	48	48	48	48
Southside/NS	no train	no train	59	59	no train	59	59	no train
Total for Alternative	48	48	107	107	48	107	107	48
Qualitative Rating	O	O	-	-	O	-	-	O
Land-use Compatibility								
Peninsula/CSXT Route	O	O	O	+	+	O	+	+
Southside/NS	no train	no train	+	+	0	+	+	0
Qualitative Rating	O	O	+	+ +	+	+	+ +	+
Noise and vibration acres (900-feet screening distance)								
Peninsula/CSXT Route	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544
Southside/NS	no train	no train	2,037	2,037	no train	2,037	2,037	no train
Total for Alternative	1,544	1,544	3,581	3,581	1,544	3,581	3,581	1,544
Qualitative Rating	O	O	-	-	O	-	-	O
Biological resources number of protected species)								
Peninsula/CSXT Route	39	39	39	39	39	39	39	39
Southside/NS	no train	no train	43	43	no train	43	43	no train
Total for Alternative	39	39	82	82	39	82	82	39
Qualitative Rating	O	O	-	-	O	-	-	O
Water Resources (acres of wetlands)								
Peninsula/CSXT Route	601	601	601	601	601	601	601	601
Southside/NS	no train	no train	435	435	no train	435	435	no train
Total for Alternative	601	601	1,036	1,036	601	1,036	1,036	601
Qualitative Rating	O	O	-	-	O	-	-	O
Geology and Soils (inactive mines adjacent to tracks)								
Peninsula/CSXT Route	5	5	5	5	5	5	5	5
Southside/NS	no train	no train	3	3	no train	3	3	no train
Total for Alternative	5	5	8	8	5	8	8	5
Qualitative Rating	O	O	-	-	O	-	-	O
Air Quality (qualitative rating from baseline)								
Peninsula/CSXT Route	-	-	-	+	+	-	+	+
Southside/NS	no train	no train	+	+	no train	+	+	no train
Qualitative Rating	O	O	+	++	+	+	+ +	+

Ratings
- - substantial negative impact
- negative impact
O no change from baseline
+ minor positive impact
+ + very postive impact

Waller Mill Park, located along the Peninsula/CSXT route, is the only Section 6(f) property along the study routes. Impacts to this resource would require coordination with U.S. Department of the Interior and meeting all requirements in the Section 6(f) regulations.

4.0 Costs and Funding

The development of a feasible financial plan is contingent upon the identification of secure funding sources with sufficient revenue capacity to support the planning, design, construction and operation of the project. The first component of the financial analysis is the capital plan, which documents the estimate of probable cost for rail infrastructure investment in the study area under investigation. This element of the analysis describes the cost to construct the proposed rail system improvements. The cost estimates do not include a comprehensive analysis of all of the improvement issues related to stations and necessary connections between railroads.

4.1 Capital Costs

Several assumptions have been made by DRPT with regard to funding the capital costs and related infrastructure requirements to support the project.

Through recently established discretionary grant programs, the FRA could award states with capital grants that may fund up to 100 percent of the total project cost of an intercity passenger rail improvement project. American Recovery and Reinvestment Act (ARRA) funds and additional appropriations for the Passenger Rail Improvement and Investment Act of 2008 could provide the federal funding support needed for any of the proposed Build alternatives. However, these programs are discretionary grant programs and the FRA awards grants only through a competitive process. There is no guarantee that Virginia would be awarded a FRA grant through any of the newly enacted programs. In addition, application deadlines for the FRA's ARRA program have passed. Virginia applied for over $XXX million.

At the state level, the Commonwealth's Rail Enhancement Fund provides up to $23 million in annual, dedicated funding for passenger or freight rail improvements in Virginia. Use of these funds will require a minimum matching contribution of at least 30 percent, which must come from non-state sources such as railroads, local governments, or regional authorities.

The costs of necessary improvements between Richmond and Petersburg and track connections between the CSXT "A" Line and the NS line at Petersburg for the Southside/NS route are included in the cost of the proposed action. Capital costs associated with the improvements between Richmond and Petersburg were estimated based on prior studies and range from $54.9 to $148.9 million[3], depending on the connection option selected. For purposes of evaluation and comparison, the highest cost estimate was used. Table ES-4 illustrates the probable capital costs of the Build alternatives being examined. The most costly alternative is Alternative 2a and the least costly is Alternative 2b.

[3] Parsons; *Richmond to Hampton Roads High-Speed Rail Feasibility Study*; Virginia Department of Rail and Public Transportation; Richmond, VA, April 2002. Costs updated to 2008$.

Table ES-4: Estimate of Probable Capital Cost (Millions 2008 $)

Capital Cost Category	Alternative 1		Alternative 2a		Alternative 2b	
	90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS
Peninsula/CSXT Route Subtotal	No Action	No Action	$330.0	$431.9	$330.0	$431.9
Richmond – Petersburg [a]	$148.9	$148.9	148.9	148.9	Status Quo	Status Quo
Petersburg - Norfolk	326.5	394.1	263.4[b]	263.4[b]	No train	No train
Southside/NS Route Subtotal	475.4	543.0	412.3	412.3	No train	No train
Total for Alternative	$475.4	$543.0	$742.3	$844.2	$330.0	$431.9

NOTES
[a] Richmond - Petersburg costs use the high estimate from the Richmond to Hampton Roads High-Speed Rail Feasibility Study; April 2002. All cost estimates were updated to 2008$.
[b] NS between Petersburg and Norfolk would be 79 mph maximum authorized speed (MAS) in Alternative 2a.
Source: Engineering Feasibility Analysis; November 2005, revised March 2008

DRPT has embarked on an ambitious program of passenger and freight rail enhancements that will encumber the limited resources of the existing Rail Enhancement Fund. Funded primarily by car rental taxes, the Rail Enhancement Fund will provide $76.9 million for projects in FY 2010. With over $217 million in Rail Enhancement Funds being requested in support of $430.8 million worth of projects, there is a program shortfall between available funding and demands for funding. DRPT is considering several strategies for addressing this program shortfall, including extending the capital improvement program over a longer period, and allocating the funds among only the highest priority projects.

4.2 Annual Operating and Maintenance Costs

The second component of the funding plan is to examine annual operating costs and revenues. Amtrak and its host freight railroads are responsible, respectively, for operating the existing passenger rail system and maintaining track. Projections of annual operating costs for the proposed system are estimated based on historic costs. The annual operating costs calculated are the cost to operate trains between Hampton Roads and Washington, DC.

The total annual operating and maintenance costs and the incremental cost over the Status Quo and No Action Alternatives are shown in Table ES-5. The No Action Alternative includes Amtrak's planned three daily round-trip trains, operating at 79 mph MAS between the Newport News Amtrak Station and Washington, DC. Adding seven daily round-trip trains to the Status Quo and six daily round-trip trains to the No Action Alternatives increases operating expenses substantially.

Table ES-5: Estimate of Probable Annual Operating & Maintenance Cost (Millions 2008$)

Annual Operating and Maintenance Costs	Status Quo 79 mph MAS	No Action 79 mph MAS	Alternative 1		Alternative 2a		Alternative 2b	
			90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS
Peninsula/ CSXT Route	$16.9	$21.3	$21.3*	$21.3*	$53.4	$54.9	$71.7	$72.4
Southside/NS Route			$58.7	$60.1	$24.5*	$24.5*	No train	No train
Annual Costs			**$80.0**	**$81.4**	**$77.9**	**$79.4**	**$71.7**	**$72.4**
Change from Status Quo		$4.4	$63.1	$64.5	$61.0	$62.5	$54.8	$55.5
Change from No Action			$58.7	$60.1	$56.6	$58.1	$50.4	$51.1
* 79 mph MAS.								

Source: Engineering Feasibility Report, February 2005, revised March 2008.

4.3 Estimate of Annual Operating Revenue

The Richmond/Hampton Roads Passenger Rail Project is considered to be a branch line of the SEHSR under legislation passed designating high-speed rail corridors. The operational plan assumed for this Tier I Draft EIS includes the operation of the SEHSR service between Washington, DC and Charlotte, NC. Passengers from Hampton Roads wishing to travel south on SEHSR trains can transfer either at Richmond Main Street Station or Petersburg depending on which alternative is selected. Passengers traveling to Washington, DC would not have to transfer trains, as the Hampton Roads trains are through-routed to Union Station in Washington, DC. Travelers going north to Baltimore, Philadelphia, New York and Boston would transfer at Union Station for trips on the Northeast corridor.

Table ES-6 outlines the estimated range of probable annual revenue for the 2025 forecast year, using 2008 constant dollars as a unit of measure. The fare structure, used to test the alternatives, is based on Amtrak's 2007 ridership and revenue data in the Richmond/Hampton Roads corridor. In markets with existing service, the fare for a specific station pair equals the 2007 revenue divided by 2007 ridership for the station pair.

Table ES-6: Estimated Range of Probable 2025 Annual Operating Revenue (Millions $2008)

Annual Revenue Range by Route and Total	Status Quo 79 mph MAS	No Action 79 mph MAS	Alternative 1		Alternative 2a		Alternative 2b	
			90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS
Peninsula/CSXT high	$15.95	$28.07	$11.31	$11.23	$59.27	$62.17	$68.01	$70.51
Peninsula/CSXT low	$14.49	$24.95	$10.52	$10.41	$46.60	$48.55	$54.02	$56.08
NS/Southside high	No train	No train	$57.81	$60.89	$9.89	$9.05	No train	No train
NS/Southside low	No train	No train	$45.98	$48.57	$8.84	$8.59	No train	No train
Total High	$15.95	$28.07	$69.12	$72.12	$69.16	$71.23	$68.01	$70.51
Total Low	$14.49	$24.95	$56.50	$58.98	$55.44	$57.14	$54.02	$56.08
Difference from 79 mph MAS Status Quo Alternative								
High		$12.12	$53.17	$56.16	$53.20	$55.28	$52.06	$54.56
Low		$10.46	$42.02	$44.49	$40.95	$42.65	$39.53	$41.59
Difference from 79 mph MAS No Action Alternative								
High			$41.05	$44.04	$41.08	$43.16	$39.94	$42.44
Low			$31.56	$34.03	$30.49	$32.19	$29.07	$31.13

Source: Ridership Methodology and Results Report, May 2009.

Alternative 1 provides marginally higher incremental annual revenue than Alternatives 2a and 2b at all speed options except at 90 mph, where the difference at the high estimate is nearly the same. This is due to the fact that the average trip distance is higher on the Southside/NS route. Fares, which are distance based, are higher for the Southside/NS route, resulting in slightly higher incremental operating revenue for Build alternatives with trains operating on the longer Southside/NS route.

4.4 Estimate of Annual Operating Surplus (Deficits)

Table ES-7 summarizes the annual operating surplus and deficits for the alternatives examined based upon the assumptions indicated in the *Travel Demand Methodology and Results Report (March* 2008) and the annual operating cost assumptions and estimates contained in the *Engineering Feasibility Analysis Report* as revised.

Table ES-7: Estimate of Probable Annual Operating Surplus (Deficits) (Millions 2008 $)

	Status Quo 79 mph MAS	No Action 79 mph MAS	Alternative 1		Alternative 2a		Alternative 2b	
			90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS	90 mph MAS	110 mph MAS
Peninsula/CSXT Route high	$15.95	$28.07	$11.31*	$11.23*	$59.27	$62.17	$68.01	$70.51
Peninsula/CSXT Route low	$14.49	$24.95	$10.52*	$10.41*	$46.60	$48.55	$54.02	$56.08
Southside/NS Route high	No train	No train	$57.81	$60.89	$9.89*	$9.05*	No train	No train
Southside/NS Route low	No train	No train	$45.98	$48.57	$8.84*	$8.59*	No train	No train
Total High	$15.95	$28.07	$69.12	$72.12	$69.16	$71.23	$68.01	$70.51
Total Low	$14.49	$24.95	$56.50	$58.98	$55.44	$57.14	$54.02	$56.08
Annual Operating Costs by Route and Total								
Peninsula/CSXT Route	$16.9	$21.3	$21.3*	$21.3*	$53.4	$54.9	$71.7	$72.4
Southside/NS Route	No train	No train	$58.7	$60.1	$24.5*	$24.5*	No train	No train
Total O&M Costs	$16.9	$21.3	$80.0	$81.4	$77.9	$79.4	$71.7	$72.4
Annual Operating Surplus (Deficits) by Route and Total								
Peninsula/CSXT Route high	($0.95)	$6.77	($9.99)*	($10.07)*	$5.87	$7.27	($3.69)	($1.89)
Peninsula/CSXT Route low	($2.41)	$3.65	($10.78)*	($10.89)*	($6.80)	($6.35)	($17.68)	($16.32)
Southside/NS Route high	No train	No train	($0.89)	$0.79	($14.61)*	($15.45)*	No train	No train
Southside/NS Route low	No train	No train	($12.72)	($11.53)	($15.66)*	($15.91)*	No train	No train
Total Surplus (Deficit) High	($0.95)	$6.77	($10.88)	($9.28)	($8.74)	($8.17)	($3.69)	($1.89)
Total Surplus (Deficit) Low	($2.41)	$3.65	($23.50)	($22.42)	($22.46)	($22.26)	($17.68)	($16.32)

* denotes 79-mph MAS train service

Source: *Ridership Methodology and Results Report;* May 2009, *and Engineering Feasibility Analysis Technical Memorandum* November 2005, revised March 2008.

Projected annual revenue exceeds operating costs for the No Action Alternative under all travel demand assumptions, which includes three round-trip 79 mph MAS trains and connections to SEHSR and Northeast Corridor trains. Annual operating costs exceed revenue (deficits) for all Build alternatives except for the three round-trip 79 mph MAS trains operating on the Peninsula/CSXT route in Alternative 2a. The planned service on the Peninsula/CSXT route generates an operating surplus for the optimistic travel demand forecast in Alternative 2a, despite higher-speed service operating on the Southside/NS route. The higher-speed 110 mph MAS option train operating on the Southside/NS route in Alternative 2a is the only Southside/NS service that generates a small annual surplus. All other Southside/NS trains generate deficits, ranging from a low of $0.89 million to $15.91 million annually.

Although the financial analysis has defined a likely future based on historic and potential funding trends, there are several operating and capital risks associated with the project that could affect a financial plan. Some additional fiscal capacity-related risks to DRPT are present, which include assumptions regarding capital and operating costs, fare revenue, federal funding availability and local financial support for the project.

5.0 Evaluation of Secondary and Cumulative Effects

The potential exists for secondary and cumulative effects as a result of each alternative under consideration. The effects, however, are not expected to substantially alter development patterns within the study area

outside the vicinity of the proposed station locations. The effects that would be associated with the Build alternatives would primarily be attributable to projects considered part of the Status Quo and No Action alternatives, as well as secondary development that may occur at the proposed station areas with the proposed project. More in-depth evaluations of these topic areas would be conducted during subsequent analysis once an alternative is selected and proposed locations for facilities are more specifically determined.

6.0 Evaluation of Alternatives

The following paragraphs describe comparative features and impacts of each of the alternatives examined in the Tier I Draft EIS.

6.1 Status Quo Alternative

The Status Quo Alternative does not meet the purpose and need defined for the project, which is to provide a critical link to the SEHSR corridor and to improve access between the Hampton Roads and other regions of the country. Maintaining two daily round-trips neither adds any rail service capacity nor attracts many new passengers, the primary measure of transportation benefit.

6.2 No Action Alternative

The No Action Alternative does not meet the purpose and need defined for the project, which is to provide a critical link to the SEHSR corridor and to improve access between Hampton Roads and other regions of the country. The marginal increase in train frequency from two daily round-trips under the Status Quo Alternative to three daily round-trips under the No Action Alternative does not provide the level of frequency needed to entice substantially more riders to the service. Attracting passengers is the primary measure of transportation benefit.

The No Action Alternative includes continued maintenance of the existing Peninsula/CSXT route and improved infrastructure to serve existing and committed future freight rail operations. Other improvements to existing tracks, structures and grade-crossings may be required over the longer term if more frequent freight rail service in instituted. The No Action Alternative may create some temporary rail construction impacts similar to the Build alternatives during the period of time that these planned improvements are being made. The maintenance-related improvements are limited to existing railroad right-of-way and would extend over a longer period of time.

In comparison to the proposed Build alternatives, passenger rail service and reliability only improve if the planned improvements by CSXT on the Peninsula are undertaken. No substantial improvements to safety would occur. From a cost perspective, the No Action Alternative would not incur any additional capital costs not currently planned and budgeted. Annual operating and maintenance costs would be less than those of any proposed Build alternatives. It is reasonable to expect that the No Action Alternative would likely have fewer positive effects on air quality since ridership is significantly lower than for the Build alternatives.

6.3 Build Alternatives

6.3.1 Alternative 1 Peninsula Conventional/Southside Higher-Speed

Alternative 1 would meet the purpose and need of the project. It would provide improved intercity passenger rail service between Richmond and Hampton Roads. Service would consist of six higher-speed passenger rail trains on the Southside/NS route and three conventional speed (79 mph MAS) passenger rail trains on the Peninsula/CSXT route.

By providing access to both routes, Alternative 1 would greatly improve access and potentially improve travel-related safety throughout the region. The majority of improvements would be made within existing railroad right-of-way. However, the Southside/NS route does not currently operate passenger rail service, and would require both infrastructure improvements within the right-of-way to accommodate higher-speed rail operations as well as some infrastructure improvements outside of existing right-of-way. Therefore, the potential for

environmental effects to the Southside area is greater under Alternative 1 than under Alternatives 2a and 2b. Mitigation strategies can be implemented for those impacts that cannot be avoided. A major consideration for Alternative 1 is related to potential for track sharing conflicts on the Norfolk Southern line, especially with the higher- speed options contemplated. In addition, the eligibility of the Southside/NS route for listing on the National Register of Historic Places adds an element of risk with regard to capital costs. All impacts would be examined in greater detail in the subsequent analysis if Alternative 1 is selected.

When compared to the other Build alternatives, Alternative 1 would require a greater capital investment than Alternative 2b, but would be less costly to construct than Alternative 2a. However, Alternatives 1 and 2a would each require costly infrastructure improvements to the Southside/NS route, including improvements to the CSXT "A" Line running between Richmond and Petersburg, the connections at Petersburg, improvements to the NS mainline between Petersburg and Kilby, the construction of the Kilby rail connection, and new railroad constructed between Kilby and Norfolk on the abandoned former Virginian Railway right-of-way. However, Alternative 1 would be more costly to operate and maintain than either Alternative 2a or Alternative 2b. This higher operating cost would not be offset by the higher revenue yields, when compared to Alternatives 2a or 2b. Although revenues would be higher, Alternative 1 would generate larger operating deficits than Alternatives 2a and 2b, with lower average operating farebox recovery ratios.

6.3.2 Alternative 2a Peninsula Higher-Speed/Southside Conventional

Alternative 2a satisfies the purpose and need of the project. It would provide improved passenger rail service between Richmond and Hampton Roads. Service would consist of three 79 mph MAS passenger rail trains on the Southside/NS route and six higher-speed passenger rail trains on the Peninsula/CSXT route. By providing access to both routes, Alternative 2a would greatly improve access and potentially improve travel-related safety throughout the region.

Similar to Alternative 1, the majority of improvements would be made within existing railroad right-of-way. However, the Southside/NS route does not currently operate passenger service and would require infrastructure improvements outside of existing right-of-way. Also, the Peninsula/CSXT route would require infrastructure improvements to accommodate higher-speed rail operations. Therefore, the potential for environmental effects to both the Southside/NS route and the Peninsula/CSXT route is greatest with Alternative 2a. Mitigation strategies can be implemented for impacts that cannot be avoided. A major consideration for Alternative 2a is related to the potential for operations conflicts with the CSXT and NS freight line, especially at the higher-speed options contemplated on the Peninsula/CSXT route. All potential impacts would be examined in greater detail in subsequent analysis if Alternative 2a is selected.

When compared to the other Build alternatives, Alternative 2a would require the most significant investment in infrastructure, including improvements to the CSXT "A" Line between Richmond and Petersburg, the connections at Petersburg, improvements to the NS mainline between Petersburg and Kilby, the construction of the Kilby rail connection and new railroad constructed between Kilby and Norfolk on the abandoned former Virginian Railway right-of-way. In addition to the Southside/NS route improvements, additional capital costs would be incurred as part of the programmed double tracking along the entire length of the Peninsula/CSXT route to support higher-speed operations and improve operating flexibility to mitigate operational conflicts with freight trains running on shared track. All potential impacts would be examined in greater detail in subsequent analysis if Alternative 2a is selected.

Annual operating costs for Alternative 2a would be less than the cost associated with Alternative 1, but greater than that for Alternative 2b. Operating deficits for Alternative 2a would be slightly less than Alternative 1 and more than Alternative 2b.

6.3.3 Alternative 2b Peninsula Higher-Speed Only

Alternative 2b satisfies the purpose and need of the project. Alternative 2b would improve service between Richmond and Hampton Roads. By providing improvements to only one route, Alternative 2b would improve access to the region through more frequent and reliable service on the Peninsula. The improvement on the Peninsula could potentially improve travel-related safety through some portions of the region, notably along

the I-64 highway corridor. Alternative 2b satisfies the project's purpose and need through the increased frequencies and reliability of service resulting in nearly as many riders as Alternatives 1 and 2a at substantially less cost.

Infrastructure improvements would be required to accommodate higher-speed rail operations along the Peninsula/CSXT route. However, since the majority of improvements would be made within existing right-of-way, adverse environmental impacts would be expected to be negligible. Mitigation strategies can be implemented for impacts that cannot be avoided. Alternative 2b, other than the Status Quo and No Action Alternative, would have the least potential for negative environmental effects given that improvements would only occur along one route and primarily within that route's existing right-of-way. A major consideration for Alternative 2b in terms of impacts is related to the potential for operational conflicts with the CSXT freight railroad, especially at the higher-speed options contemplated on the Peninsula/CSXT route. All impacts would be examined in greater detail in subsequent analysis if Alternative 2b is selected.

When compared to the other Build alternatives, Alternative 2b would require the least investment in infrastructure. Operating costs for Alternative 2b would be less than the costs associated with Alternatives 1 and 2a. Ridership and the revenue generated by Alternative 2b would also be lower than that of the other Build alternatives. Alternative 2b is the most cost effective option. Operating deficits for Alternative 2b would be lower than the other Build alternatives.

6.4 Comparative Evaluation of Impacts

The Status Quo and No Action Alternatives are both lower cost solutions that do not address the long-term transportation problems in the Richmond/Hampton Roads study area. Alternatives 1 and 2a would have trains operating from Richmond to Petersburg, where the line diverges east to Norfolk utilizing the Norfolk Southern mainline. Both Alternatives 1 and 2a also would have trains operating on the Peninsula/CSXT route. Alternative 2b would have trains operating only on the Peninsula/CSXT route and no trains operating on the Southside/NS route. Each of these alternatives would serve slightly different market areas and would have different impacts on the environment. The differences in route length and market area translate into differences in costs, ridership, cost effectiveness, and environmental consequences. The following paragraphs highlight the salient differences among the alternatives:

- The Status Quo and No Action Alternatives would have the lowest annualized cost and the best cost effectiveness index of any of the alternatives examined. The Status Quo Alternative has the lowest annual cost of operation. The No Action Alternative has the highest farebox recovery ratio and actually shows a slight operating surplus per rider compared to the other alternatives. Each of the Build alternatives would add substantial deficits to the Amtrak operating budget, which the Commonwealth of Virginia would have to cover with subsidies.
- The Status Quo and No Action Alternatives would have no capital cost shortfalls because there would be no major investments other than those already planned and programmed. All of the Build alternatives would exceed the DRPT long-range capital budget for the project and would require federal participation. Currently, the federal grant program for state supported trains is a discretionary program and there is no guarantee that DRPT would be awarded a grant. The 110-mph MAS options would be the most costly to construct and operate. Under Alternative 1, raising the MAS from 90 mph to 110 mph on the Southside/NS route would cost an additional $47.6 million, and only eight minutes in scheduled travel time savings would be achieved for each train. Alternatives 2a and 2b would necessitate an additional $101.9 million in infrastructure costs in order to save six minutes of scheduled travel time for each train operating on the Peninsula/CSXT route.
- The increase in ridership on the Southside/NS route achieved by the eight-minute trip time savings translates into approximately 53,200 additional annual riders on six daily round-trip trains. This is an increase of 5.9 percent over the 90 mph MAS. The increase in ridership for the higher speed Alternatives 2a and 2b on the Peninsula/CSXT route achieved by the six-minute time savings for six daily round-trip trains equals 53,800 additional riders annually, which is an increase of 5.8 percent over the 90 mph MAS.

- The increased cost per passenger to achieve these marginal scheduled trip time savings per train is $894 per passenger for Alternative 1 and $1,894 per passenger for Alternatives 2a and 2b.
- Alternatives 1 and 2a would have the most adverse impacts on visual quality, noise, vibration, traffic and community cohesion. These impacts are discussed in Chapter 3. The construction of the third track and Petersburg connection for Alternatives 1 and 2a would likely result in business disruption for the freight railroads involved.
- Alternative 2b would have the least potential for negative environmental effects of the Build alternatives, given that improvements would only occur along one route and primarily within that route's existing right-of-way.
- The 110 mph MAS options may potentially result in the greatest amount of community inconvenience due to the number of at-grade road crossings that would have to be eliminated, although they could be mitigated through the creation of grade separated roads (road or rail bridges and underpasses).
- The 110 mph MAS options are less cost effective than the 90 mph MAS options.
- The 110 mph MAS option would provide the safest environment by eliminating the most at-grade road crossings.

Table ES-8 summarizes the comparative features of the alternatives and the impacts identified in the Tier I Draft EIS associated with each alternative.

Table ES-8: Comparative Analysis of Alternatives

Richmond/Hampton Roads Passenger Rail Project
Virginia Department of Rail and Public Transportation

Comparative Analysis of Alternatives
Performance Measures
Planning Year 2025
Assuming Southeast High-speed Rail Project
15-Aug-08

	79-mph MAS Option		90-mph MAS Option			110-mph MAS Option		
Evaluation Criteria	**Status Quo**	**No Action**	**Alt 1**	**Alt 2a**	**Alt 2b**	**Alt 1**	**Alt 2a**	**Alt 2b**
System Features (Assumes SEHSR Project)								
Route Miles (Hampton Roads to Richmond)								
Peninsula/CSXT Route	73.9	73.9	73.9	73.9	73.9	73.9	73.9	73.9
Southside/NS Route	0.0	0.0	101.0	101.0	0.0	101.0	101.0	0.0
Total Route Miles	73.9	73.9	174.9	174.9	73.9	174.9	174.9	73.9
Frequency of Service - Daily Roundtrips								
Peninsula/CSXT Route	2	3	3	6	9	3	6	9
Southside/NS Route	0	0	6	3	0	6	3	0
Total Daily Roundtrips	2	3	9	9	9	9	9	9
Average Annual Ridership (Planning Year 2025 with SEHSR)								
Peninsula/CSXT Route								
High estimate	262,300	464,800	223,400	914,600	1,101,100	222,300	968,400	1,147,000
Low estimate	245,500	425,700	212,500	732,200	897,800	211,200	768,000	937,000
Southside/NS Route								
High estimate	0	0	886,700	209,700	0	939,900	193,000	0
Low estimate	0	0	727,100	192,500	0	773,000	187,000	0
Total High estimate	262,300	464,800	1,110,100	1,124,300	1,101,100	1,162,200	1,161,400	1,147,000
Total Low estimate	245,500	425,700	939,600	924,700	897,800	984,200	955,000	937,000
Difference from Status Quo - high estimate		202,500	847,800	862,000	838,800	899,900	899,100	884,700
Difference from Status Quo - low estimate		180,200	694,100	679,200	652,300	738,700	709,500	691,500
Difference from No Action - high estimate			645,300	659,500	636,300	697,400	696,600	682,200
Difference from No Action - low estimate			513,900	499,000	472,100	558,500	529,300	511,300
Capital Costs (2008$)								
Peninsula/CSXT Route Subtotal	$0	$0	$0	$330,000,000	$330,000,000	$0	$431,900,000	$431,900,000
Richmond - Petersburg	$0	$0	$148,900,000	$148,900,000	$0	$148,900,000	$148,900,000	$0
Petersburg - Norfolk	$0	$0	$326,500,000	$263,400,000	$0	$394,100,000	$263,400,000	$0
Southside/NS Subtotal	$0	$0	$475,400,000	$412,300,000	$0	$543,000,000	$412,300,000	$0
Total Capital Costs (2008$)	$0	$0	$475,400,000	$742,300,000	$330,000,000	$543,000,000	$844,200,000	$431,900,000
Annualized Capital Costs (2008$)								
Annualized Capital Costs (Peninsula/CSXT)	$0	$0	$0	$26,169,000	$26,169,000	$0	$34,249,670	$34,249,670
Annualized Capital Costs (Southside/NS)	$0	$0	$37,699,220	$32,695,390	$0	$43,059,900	$32,695,390	$0
Total Annualized Capital Costs (Approximated)	$0	$0	$37,699,220	$58,864,390	$26,169,000	$43,059,900	$66,945,060	$34,249,670
Operating & Maintenance (O&M) Costs (2008$)								
Peninsula/CSXT Route	$16,900,000	$21,300,000	$21,300,000	$53,400,000	$71,700,000	$21,300,000	$54,900,000	$72,400,000
Southside/NS Route	$0	$0	$58,700,000	$24,500,000	$0	$60,100,000	$24,500,000	$0
Annual Operating and Maintenance Costs (2008$)	$16,900,000	$21,300,000	$80,000,000	$77,900,000	$71,700,000	$81,400,000	$79,400,000	$72,400,000
Change in Annual O&M Costs from Status Quo		$4,400,000	$63,100,000	$61,000,000	$54,800,000	$64,500,000	$62,500,000	$55,500,000
Change in Annual O&M Costs from No Action			$58,700,000	$56,600,000	$50,400,000	$60,100,000	$58,100,000	$51,100,000
Average Annual Revenue (2008$ assuming SEHSR)								
Peninsula/CSXT Route								
High estimate	$15,950,000	$28,070,000	$11,310,000	$59,270,000	$68,010,000	$11,230,000	$62,170,000	$70,510,000
Low estimate	$14,490,000	$24,950,000	$10,520,000	$46,600,000	$54,020,000	$10,410,000	$48,550,000	$56,080,000
Southside/NS Route								
High estimate	$0	$0	$57,810,000	$9,890,000	$0	$60,890,000	$9,050,000	$0
Low estimate	$0	$0	$45,980,000	$8,840,000	$0	$48,570,000	$8,590,000	$0
Total High estimate	$15,950,000	$28,070,000	$69,120,000	$69,160,000	$68,010,000	$72,120,000	$71,220,000	$70,510,000
Total Low estimate	$14,490,000	$24,950,000	$56,500,000	$55,440,000	$54,020,000	$58,980,000	$57,140,000	$56,080,000
Difference from Status Quo - high estimate		$12,120,000	$53,170,000	$53,210,000	$52,060,000	$56,170,000	$55,270,000	$54,560,000
Difference from Status Quo - low estimate		$10,460,000	$42,010,000	$40,950,000	$39,530,000	$44,490,000	$42,650,000	$41,590,000
Difference from No Action - high estimate			$41,050,000	$41,090,000	$39,940,000	$44,050,000	$43,150,000	$42,440,000
Difference from No Action - low estimate			$31,550,000	$30,490,000	$29,070,000	$34,030,000	$32,190,000	$31,130,000
Operating Ratio (percent O&M costs covered by revenue)								
Peninsula/CSXT Route								
Operating ratio - high revenue estimate	94.4%	131.8%	53.1%	111.0%	94.9%	52.7%	113.2%	97.4%
Operating ratio - low revenue estimate	85.7%	117.1%	49.4%	87.3%	75.3%	48.9%	88.4%	77.5%
Southside/NS Route								
Operating ratio - high revenue estimate	n/a	n/a	98.5%	40.4%	n/a	101.3%	36.9%	n/a
Operating ratio - low revenue estimate	n/a	n/a	78.3%	36.1%	n/a	80.8%	35.1%	n/a
Operating ratio - high revenue estimate	94.4%	131.8%	86.4%	88.8%	94.9%	88.6%	89.7%	97.4%
Operating ratio - low revenue estimate	85.7%	117.1%	70.6%	71.2%	75.3%	72.5%	72.0%	77.5%
Cost Effectiveness (Annualized Cost per Rider)								
Annualized Costs Peninsula/CSXT	$16,900,000	$21,300,000	$21,300,000	$79,569,000	$97,869,000	$21,300,000	$89,149,670	$106,649,670
Annualized Costs Southside/NS	$0	$0	$96,399,220	$57,195,390	$0	$103,159,900	$57,195,390	$0
Total Annualized Costs	$16,900,000	$21,300,000	$117,699,220	$136,764,390	$97,869,000	$124,459,900	$146,345,060	$106,649,670
Peninsula/CSXT Route								
Annualized Cost per rider - high ridership estimate	$64.43	$45.83	$95.34	$87.00	$88.88	$95.82	$92.06	$92.98
Annualized Cost per rider - low ridership estimate	$68.84	$50.04	$100.24	$108.67	$109.01	$100.85	$116.08	$113.82
Southside/NS Route								
Annualized Cost per rider - high ridership estimate	n/a	n/a	$108.72	$272.75	n/a	$109.76	$296.35	n/a
Annualized Cost per rider - low ridership estimate	n/a	n/a	$132.58	$297.12	n/a	$133.45	$305.86	n/a
Annualized Cost per rider - high ridership estimate	$64.43	$45.83	$106.03	$121.64	$88.88	$107.09	$126.01	$92.98
Annualized Cost per rider - low ridership estimate	$68.84	$50.04	$125.27	$147.90	$109.01	$126.46	$153.24	$113.82
Subsidy / Surplus per Rider								
Peninsula/CSXT Route								
(Subsidy) Surplus per rider - high revenue estimate	($3.62)	$14.57	($44.72)	$6.42	($3.35)	($45.30)	$7.51	($1.65)
(Subsidy) Surplus per rider - low estimate	($9.82)	$8.57	($50.73)	($9.29)	($19.69)	($51.56)	($8.27)	($17.42)
Southside/NS Route								
(Subsidy) Surplus per rider - high revenue estimate	n/a	n/a	(1.00)	(69.67)	n/a	0.84	(80.05)	n/a
(Subsidy) Surplus per rider - low estimate	n/a	n/a	(17.49)	(81.35)	n/a	(14.92)	(85.08)	n/a
(Subsidy) Surplus per rider - high revenue estimate	($3.62)	$14.57	($9.80)	($7.77)	($3.35)	($7.98)	($7.04)	($1.65)
(Subsidy) Surplus per rider - low estimate	($9.82)	$8.57	($25.01)	($24.29)	($19.69)	($22.78)	($23.31)	($17.42)
Financial Capacity								
Total Capital Costs (2008$)			$475,400,000	$742,300,000	$330,000,000	$543,000,000	$844,200,000	$431,900,000
Federal Share at 80% of Build Alternative*			380,320,000	593,840,000	264,000,000	434,400,000	675,360,000	345,520,000
Non-federal share			95,080,000	148,460,000	66,000,000	108,600,000	168,840,000	86,380,000
Non-federal share as percent of total cost			20.0%	20.0%	20.0%	20.0%	20.0%	20.0%

6.5 Recommended Preferred Alternative

After public review of and comment on the Tier I Draft EIS, DRPT will review and consider the public comments. The selection of a preferred alternative will be made by the Commonwealth Transportation Board (CTB) at the conclusion of the Tier I Draft EIS process. DRPT will recommend a locally preferred alternative to the CTB for consideration and recommendation to FRA based on all of the information contained within the Tier I Draft EIS and the public comments. Once the CTB selects and approves an alternative, it becomes the Commonwealth's "official" preferred alternative, and will be identified in the Final EIS. FRA will then issue a Record of Decision.

7.0 Public Involvement

An extensive public involvement program has been conducted for this project. The public participation plan has helped to educate a diverse population of stakeholders about the study process; informed them about the study findings; ensured that comments and suggestions have been received on project phases beginning with the project initiation phase; provided opportunities throughout the study to receive comments and suggestions; and assured the openness and fairness of the study process by considering all comments. The process is proactive and responsive to the requirements of National Environmental Policy Act of 1969 (NEPA), as amended. A detailed discussion of the activities conducted to date is provided in Chapter 7, Public Involvement.