

**-DRAFT-**  
**2013 VIRGINIA STATEWIDE  
RAIL PLAN**



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## From the Director



DRPT is pleased to provide this 2013 Virginia Statewide Rail Plan (VSRP). The plan documents game-changing developments in rail policy at the state and national level, and how Virginia positioned itself to weather the changes with unprecedented new service and funding. In the years since the 2008 Virginia Statewide Rail Plan and accompanying Resource Allocation Plan, DRPT worked with the Federal Railroad Administration (FRA) and other states to implement the federal requirements of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA), and prepared for state-level responsibility to fully fund regional intercity passenger rail service starting in October of 2013. Virginia quickly set the national pace by creating the Intercity Passenger Rail Operating and Capital Fund (IPROC) in 2011, which established a legislative basis to fund Virginia-sponsored regional passenger rail operations. The Virginia General Assembly's landmark bi-partisan transportation funding legislation of 2013 reinforced our standing as a leader in

transportation funding across modes, and created a sustainable revenue stream for IPROC. IPROC is expected to provide \$44 million in FY 2014 with growth upwards to \$56 million annually by FY2018. This represents approximately an 86 percent increase in rail funding.

In the midst of planning for future funding changes, DRPT simultaneously worked to develop framework agreements with its two Class I railroad stakeholders, CSX and Norfolk Southern, that have expedited freight and intercity passenger rail projects identified in the 2008 Resource Allocation Plan. Also during this period, DRPT was directly engaged in two of the nation's top four transportation infrastructure projects identified by *Governing Magazine* in April 2012, the Dulles Metro Rail Extension Project and the Norfolk Southern Crescent Corridor Project.

In 2009, DRPT joined with Amtrak as the 15<sup>th</sup> state to support regional intercity rail service expansion. Known as Amtrak Virginia, it began with a service extension from Lynchburg to Washington, D.C. Additional state-sponsored service from Richmond to Washington, D.C. was added in 2010, and by 2012 Amtrak Virginia had re-established rail service to Norfolk for the first time since the 1970's.

The Commonwealth continues to support the Virginia Railway Express (VRE) commuter rail as it has since its inception in 1992. In 2013 the Virginia General Assembly granted DRPT a weighted vote on the VRE Operations Board, commensurate to the Commonwealth's investment, and equal to the highest contributing local jurisdiction.

DRPT advanced the federal planning process for high speed rail through its completion and receipt of a Federal Record of Decision (ROD) for the Richmond to Hampton Roads Passenger Rail Project. The Southeast High Speed Rail (SEHSR) Tier II Environmental Impact

Statement (EIS) continued in the corridor segment between Richmond and Raleigh, NC, in partnership with the North Carolina Department of Transportation (NCDOT). DRPT initiated projects in the Richmond to Washington, D.C. corridor segment as well, including the 100% federally funded Arkendale to Powell's Creek third track construction project, which will remedy a known choke point on the former RF&P line. In addition, DRPT also initiated the 80% federally funded Richmond Area to Potomac River (RAPS) Tier II EIS, SEHSR's link to Amtrak's Northeast Corridor.

Virginia and North Carolina have the only bi-state high speed rail compact in America, the Virginia-North Carolina High Speed Rail Compact, and Virginia lies host to the only right-of-way slated for true 110 MPH exclusive high speed intercity passenger rail service in the SEHSR corridor. In another pace-setting effort, the 2013 Virginia General Assembly granted DRPT the right to acquire and hold title to land necessary for rail line construction that will ease roadway congestion by shifting people and goods to rail transportation. DRPT will work with CSX to purchase its retired S-line south of Petersburg to preserve it for future high-speed rail development.

Recent freight rail achievements supported increased truck to rail diversions, and further secured the Port of Virginia as a global gateway to U.S. Midwest and Southwest. Projects included completion of Norfolk Southern's Heartland Corridor, Commonwealth Railway connections, improved rail access on-dock at APM Terminal and Norfolk International Terminal, and significant project advancements along the Crescent Corridor and National Gateway. The Commonwealth's Rail Enhancement Fund has proven to be a successful funding tool that provides for public and private resources to be applied to projects that have the positive public benefit of shifting highway traffic to rail. DRPT also continued shortline railway rehabilitation projects through the Shortline Railway Preservation and Development Program and furthered economic development through its Rail Industrial Access program.

DRPT's rail programs provided a viable, efficient transportation choice for the movement of people and goods, reducing Virginians dependence on congested highways and laying the groundwork to accommodate future growth. Through DRPT's sound stewardship of limited state resources and the ability of DRPT to implement its planning horizon confidently with transportation partners, the Commonwealth's freight and passenger rail transportation network will continue to serve its integral role in the Commonwealth's transportation system through 2040 and beyond.

Thelma Drake

Director

Virginia Department of Rail and Public Transportation

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# Acronyms and Abbreviations

AADT	average annual daily traffic
APMTVA	APM Terminal Virginia
ARRA	<i>American Recovery and Reinvestment Act</i>
BB	Buckingham Branch Railroad
BCR	Bay Coast Railroad
BTU	British thermal unit
CA	Chesapeake and Albemarle Railroad
CHW	Chesapeake Western Railway
CMAQ	Congestion Mitigation and Air Quality
COSS	corridors of statewide significance
CSX	CSX Transportation
CTB	Commonwealth Transportation Board
CWRY	Commonwealth Railway
CY	calendar year
DGVR	Durbin & Greenbrier Valley Railroad
DHS	U.S. Department of Homeland Security
DMV	Virginia Department of Motor Vehicles
DOAV	Virginia Department of Aviation
DRPT	Virginia Department of Rail and Public Transportation
EDA	U.S. Economic Development Administration
EIS	environmental impact statement
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HRTPO	Hampton Roads Transportation Planning Organization
HRT	Hampton Roads Transit
HSPR	High Speed Intercity Passenger Rail
ICC	Interstate Commerce Commission
ICCTA	<i>ICC Termination Act of 1995</i>
IPROC	Intercity Passenger Rail Operating and Capital Fund
ISO	International Organization for Standardization
ISTEA	<i>Intermodal Surface Transportation Efficiency Act of 1991</i>

LOS	level of service
MAP-21	Moving Ahead for Progress in the 21st Century
MPO	metropolitan planning organization
NCDOT	North Carolina Department of Transportation
NCVA	North Carolina & Virginia Railroad
NEC	Northeast Corridor
NEPA	<i>National Environmental Policy Act</i>
NIT	Norfolk International Terminal
NNMT	Newport News Marine Terminal
NPBL	Norfolk & Portsmouth Belt Line
NS	Norfolk Southern
NTAD	National Transportation Atlas Database
NVTC	Northern Virginia Transportation Commission
OIPI	Virginia Office of Intermodal Planning and Investment
PDC	regional planning district commission
PMT	Portsmouth Marine Terminal
PPP	public-private partnership
PPTA	<i>Public-Private Transportation Act</i>
PRIIA	<i>Passenger Rail Investment and Improvement Act of 2008</i>
PRTC	Potomac and Rappahannock Transportation Commission
RAPS	Richmond Area to Potomac Segment
REF	Rail Enhancement Fund
RIA	Rail Industrial Access Fund
ROD	record of decision
RPP	Rail Preservation Program
RRIF	Railroad Rehabilitation and Improvement Financing
SEHSR	Southeast High-speed Rail
SOV	single occupant vehicle
STB	U.S. Surface Transportation Board
STIP	<i>Statewide Transportation Improvement Program</i>
STP	Surface Transportation Program
STRACNET	Strategic Rail Corridor Network
SV	Shenandoah Valley Railroad
SYIP	<i>Six-Year Improvement Program</i>
TDM	transportation demand management
TEA-21	<i>Transportation Efficiency Act for the 21st Century</i>

TEU	20-foot equivalent unit
TIFIA	<i>Transportation Infrastructure Finance and Innovation Act</i>
TIH	toxic inhalation hazard
TIP	transportation improvement program
TTF	Transportation Trust Fund
USDOT	U.S. Department of Transportation
VSCC	Virginia State Corporation Commission
VDOT	Virginia Department of Transportation
VEDP	Virginia Economic Development Partnership
VIP	Virginia Inland Port
VIT	Virginia International Terminals, Inc.
VPA	Virginia Port Authority
VRE	Virginia Railway Express
VSRP	<i>Virginia Statewide Rail Plan</i>
VTIB	Virginia Transportation Infrastructure Bank
WMATA	Washington Metropolitan Area Transit Authority
WW	Winchester and Western Railroad

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# Executive Summary

## ES.1. Introduction and Purpose

The primary purpose of the *Virginia Statewide Rail Plan* (VSRP) is to provide a defined vision for rail transportation in the Commonwealth of Virginia through 2040. It represents a business plan that is consistent with both the Commonwealth's Six-Year Improvement Program (SYIP) and the statewide multimodal long-range plan known as VTrans2035. The VSRP is being prepared in conjunction with a Resource Allocation Plan that details project selection and prioritization, funding, and implementation schedules. Elements of the Resource Allocation Plan are incorporated into Chapter 5 of the VSRP.

In 2008, the United States Congress passed PRIIA for the purpose of improving passenger rail transportation throughout the U.S. PRIIA requires states to have a Federal Railroad Administration (FRA) approved state rail plan as a condition for qualifying for future federal rail funding—freight as well as passenger. The VSRP has been developed to comply with both the VTrans2035 state planning process and the federal requirements of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA).

### ES.1.1 Stakeholder Outreach

The Virginia Department of Rail and Public Transportation (DRPT) planning process actively sought public review and comments throughout the development of the VSRP and its related documents. Public involvement for the VSRP consisted of a three-pronged approach—virtual outreach, direct outreach, and targeted stakeholder outreach.

- **Virtual outreach**—A dedicated project website ([www.varailplan.org](http://www.varailplan.org)) was launched in July 2012 and linked to DRPT's agency website. The project website included a project description, purpose, and background; it hosted project deliverables and updates; and it allowed visitors to provide input via email.
- **Direct public outreach**—The project team hosted multiple public meetings. These meetings included information displays, presentations, comment sheets, and the opportunity for stakeholders and members of the public to offer input directly to project team members.
- **Targeted outreach**—Stakeholders, including other Commonwealth transportation agencies, interest groups, railroad owners, operators, and organizations that interact or have a business interest in rail were specifically contacted to provide input into plan development.

### ES.1.2 Virginia's Strategic Planning Process

The VSRP supports DRPT's core transportation mission, which is to improve the mobility of people and goods while expanding transportation choices in the state.

VTrans2035 was updated by the Commonwealth's Office of Intermodal Planning and Investment (OIPI) with the support of the five state transportation modal agencies. The VSRP was a key input into the VTrans2035 Update.

The Commonwealth Transportation Board (CTB) adopts the SYIP each year as priorities are revised, project schedules and costs change, and study results become known. Projects in the SYIP that are eligible for federal funding through FHWA or FTA will be included in the *Statewide*

*Transportation Improvement Program (STIP)*, which documents how Virginia will obligate its share of federal funds.

### **ES.1.3. Virginia Department of Rail and Public Transportation and Public Sector Involvement with Rail in Virginia**

DRPT was established in 1992 as an agency under the Secretary of Transportation working closely with other modal state transportation agencies. DRPT has three primary areas of operational activity—rail, public transportation, and transportation demand management (also called mobility management)—all of which focus on the movement of people and goods throughout Virginia. DRPT's responsibilities include the following programs:

- **Rail**—These programs provide support for infrastructure improvements that benefit freight service, passenger service, or both. DRPT also funds Virginia state-sponsored Amtrak routes. It also provides expert advisory services, conducts research, and performs as an advocate for rail improvements.
- **Public transportation**—These programs are directed toward managing traffic congestion by providing transportation choices while ensuring the safe transportation of people across the Commonwealth.
- **Transportation demand management (TDM)**—Referred to as mobility management, these programs and services help manage travel demand and increase the efficiency of the Commonwealth's transportation system. These programs promote and support transit, carpools, vanpools, telework, and alternate work schedules to Virginia's commuters and employers.

Other public agencies that also play a role in rail transportation in the Commonwealth include the following:

- Metropolitan planning organizations (MPO) and planning district commissions (PDC) have transportation planning responsibilities for urbanized areas, which includes rail.
- The Virginia Economic Development Partnership and other economic development agencies assist with economic development initiatives, some of which may have a rail component.
- The Virginia Department of Transportation (VDOT) administers the federal highway-rail safety program.
- The Virginia Port Authority (VPA) owns or leases and operates marine terminals associated with the Port of Virginia. The VPA works closely with the DRPT to improve rail access to Virginia's ports.
- The Virginia State Corporation Commission (VCC) Division of Utility and Railroad Safety has responsibility for responding to citizen complaints regarding rail crossings in addition to inspecting tracks, bridges, locomotives, and cars to ensure compliance with safety standards.

## **ES.2. Context of Virginia Statewide Rail Plan**

The VSRP is framed in the context of the multimodal passenger and freight transportation corridors in the Commonwealth, including rail lines, highways, airways, and waterways.



## ES.2.1 Past Accomplishments (2008–2013)

Among DRPT’s major accomplishments for the period 2008 to 2013 are the following:

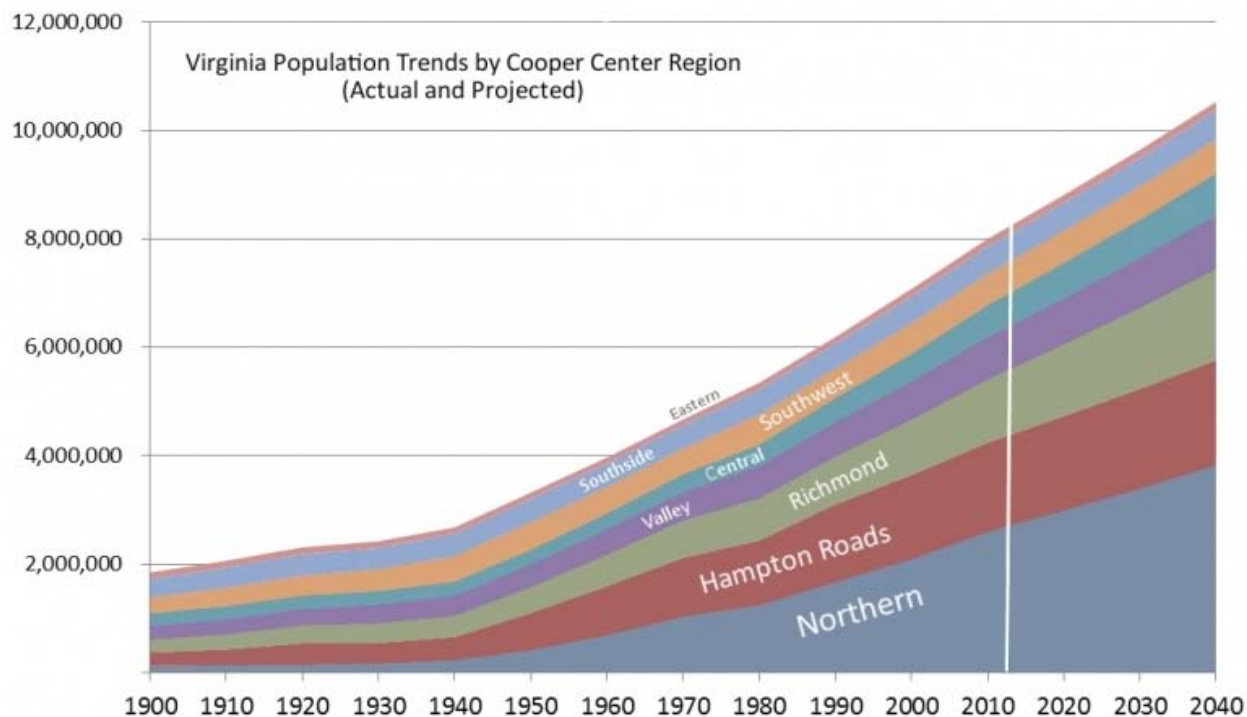
- In 2011, the Virginia General Assembly created the Intercity Passenger Rail Operating and Capital Fund (IPROC), the first of its kind in the nation that establishes a legislative basis to fund the continued operation of Amtrak’s Virginia-sponsored regional trains, expand regional service, invest in the Commonwealth’s development of passenger rail infrastructure, and match federal high-speed rail funding. IPROC is expected to provide \$44 million in FY 2014 with growth upwards to \$56 million annually by FY2018. This represents approximately an 86 percent increase in rail funding.
- Rail enhancement fund projects were initiated that included the following:
  - Expansion of VPA Norfolk International Terminal’s rail yard
  - Expansion and rehabilitation of the CSX Transportation (CSX) Kilby Support Yard to improve rail operation to and from the Port of Virginia
  - Upgrade and construction of infrastructure necessary to support intercity passenger service between Norfolk and Petersburg
  - Improvements to Norfolk Southern Railway (NS) line in Berryville and Elkton to enable higher train speeds and provide increased capacity for trains on the NS Crescent Corridor, parallel to I-81
  - Improvements to the train control system on the rail line used by Virginia Railway Express (VRE)
  - Raising of vertical clearances to permit double stack intermodal trains to travel between the Port of Virginia and the Midwest on the Heartland Corridor route, which is 200 miles and 24 hours shorter than the alternative routing
- Virginia’s shortline railroads were preserved and developed through the Rail Preservation Program, including tie replacement, rail and crossover rehabilitation, and signal improvement projects.
- Economic development was supported by funding improved rail access to Virginia businesses through the Rail Industrial Access fund.
- New extensions of Amtrak’s Northeast Regional services were launched, extending single train access to the Northeast Corridor (NEC) to parts of Virginia, including
  - October 2009—Initiated daily service between Lynchburg and the NEC
  - July 2010—Increased daily service between Richmond and the NEC
  - December 2012—Initiated service between Norfolk and the NEC

## ES.2.2 Demographic Trends

Between 2010 and 2040, Virginia’s population is expected to increase from the 2010 Census estimate of over 8 million to close to 11 million residents, a 37percent increase (source: Research Council, based on Weldon Cooper Center data). The Commonwealth’s expected population growth rate far exceeds that of the U.S. as a whole (25 percent) during the same time period. In many of the state’s urban areas, where 7 out of 10 Virginians currently reside, growth is projected to be even higher. The concentration is heaviest in the metropolitan regions of Washington, D.C., Richmond, and Hampton Roads. These regions are connected by the I-64 and I-95 transportation

corridors. These two corridors intersect to form a “crescent,” and hence this geography has been named the Urban Crescent.

**Figure ES-1: Virginia Population Trends**



(Source: Weldon Cooper Center)

### ES.2.3. Roadways

Highway congestion is a major issue within the Commonwealth.

- According to *2012 Virginia Performs*, Virginia’s average commute time to work in 2011 was 27.7 minutes, the sixth highest in the nation and about 9 percent higher than the national average of 25.5 minutes. The average commute in Virginia has been increasing, rising from 26.8 minutes in 2007 to 27.7 minutes in 2010.
- According to another report by the Texas Transportation Institute,<sup>1</sup> the Washington, D.C., metro area, including Northern Virginia, was the most congested area in the nation in 2011, costing the average commuter 67 hours of delay and approximately 32 gallons of excess fuel (\$1,398 annually). Traffic congestion presents more than a headache for commuters; it has a negative impact on the delivery of goods and services and on the general well-being of citizens.
- The Hampton Roads area also experiences high levels of congestion. The Virginia Beach metro area was the seventh worst among metro areas of 1 to 3 million people, costing the average commuter 43 hours of delay and 19 gallons of excess fuel (\$877 annually).
- The Richmond metro area was the 16th worst among metro areas of 500,000 to 1 million people, costing the average commuter 29 hours of delay and 12 excess gallons of fuel (\$581 annually).

<sup>1</sup> Texas Transportation Institute, *2012 Urban Mobility Report*.

Data from the Virginia statewide travel demand model suggests that, assuming no improvements to the highway capacity and an increase in travel demand based on current travel patterns and mode choices, the level of congestion will spread from the metro areas into the main transportation corridors causing traffic delays statewide.

Truck traffic on Virginia's roadways is expected to increase dramatically. Table ES-1 displays daily truck traffic on three of Virginia's most heavily used truck corridors. I-81 is expected to have the highest increase in truck traffic, roughly doubling between 2011 and 2040.

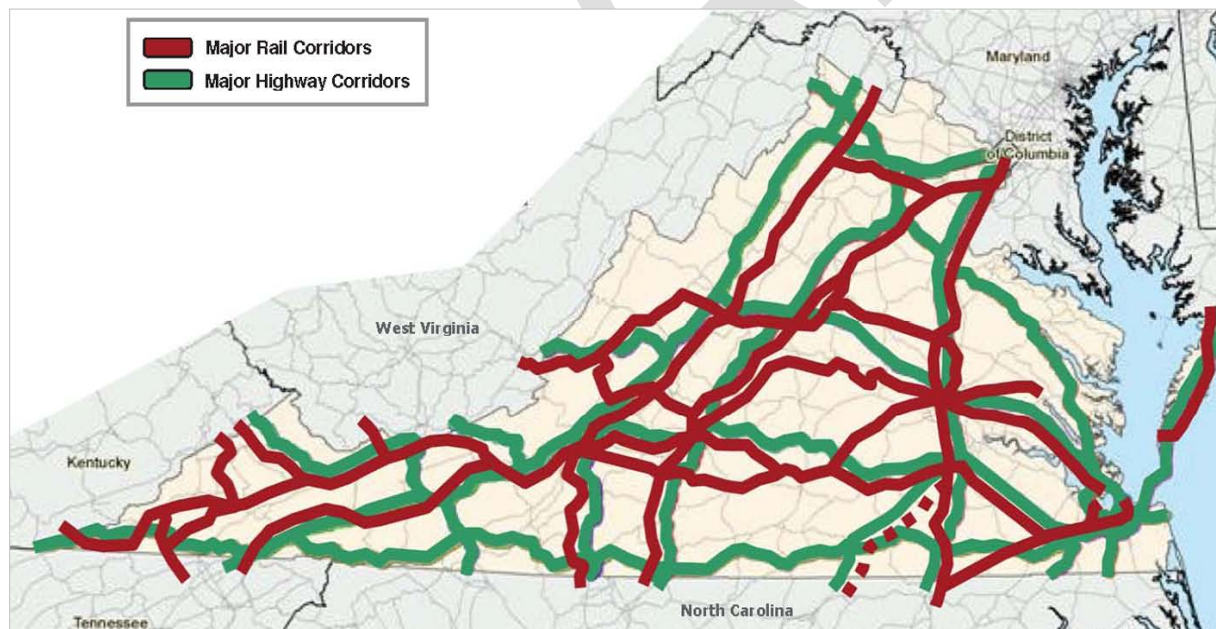
**Table ES-1: Average Annual Daily Truck Traffic on Virginia's Primary Truck Corridors**

Corridor	2011	2040	% Chg
I-64	6,969	11,766	69%
I-81	14,172	28,397	100%
I-95	15,448	27,420	78%

(Source: Federal Highway Administration (FHWA) FAF3.4, January 10, 2013)

The relatively close proximity of the rail network in the Commonwealth to major highway transportation corridors is shown in Figure ES-2. Implementation of key rail improvements provides cost-effective and environmentally friendly alternatives to remove passenger cars from congested highway systems by providing improved passenger rail service and to remove trucks from congested highway systems by providing improved freight rail service.

**Figure ES-2: Major Virginia Rail and Highway Corridors**



#### ES.2.4. Ports

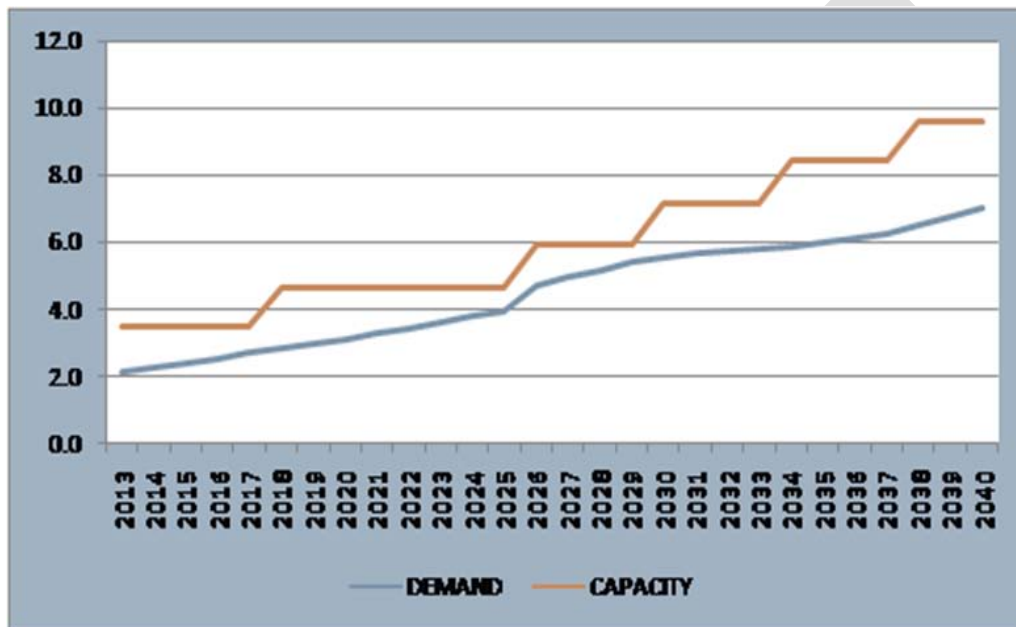
The Port of Virginia consists of facilities owned or operated by the Virginia Port Authority and its terminal operating subsidiary, Virginia International Terminals, Inc. (VIT), and includes:

- Norfolk International Terminals (NIT)
- Portsmouth Marine Terminal (PMT)

- Newport News Marine Terminal (NNMT)
- APM Terminal in Portsmouth (owned by APM Terminals, leased by VPA, operated by VIT)
- Virginia Inland Port (VIP) in Front Royal
- Port of Richmond (owned by the City of Richmond, leased by VPA, operated by Port Contractors, Inc.)

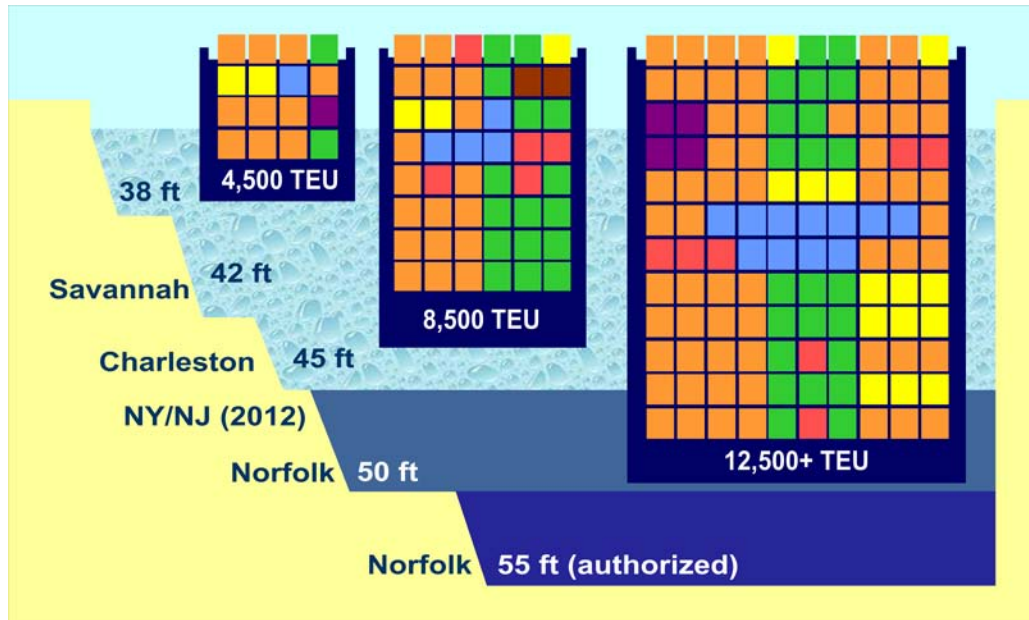
Also within the port area are privately owned and operated marine facilities, such as the NS Lambert’s Point Coal Terminal, a high-capacity coal loading terminal. The Port of Virginia is the eighth largest port on the East Coast by container volume and second largest by tonnage. The Port’s container traffic, as measured by 20-foot equivalent units (TEU), is expected to increase by 330 percent between 2013 and 2040 (Figure ES-3).

**Figure ES-3: Increase of Containerized Cargo (Million TEUs) at Virginia Ports**



The Port of Virginia is well positioned to take advantage of changes in international trade. The average size of container vessels continues to increase. The Panama Canal is currently undergoing major upgrades so that the maximum allowed ship size will increase from a 4,400-TEU ship to a 12,500-TEU ship. This will allow the East Coast to compete for Post-Panamax (over 4,400 TEUs) vessels from Asia. However, these large ships require 50- to 55-foot channels and large cranes at port facilities. Virginia is fortunate to have the deepest, obstruction free harbor on the East Coast (Figure ES-4).

The Port of Virginia is more dependent upon rail than its rival seaports. Rail access is a key strategic advantage for the port. At 30 percent, a much higher proportion of containers leave or arrive at the Port of Virginia by rail than other East Coast ports. The Port of Virginia is one of three large ports on the East Coast to provide on-dock rail access.

**Figure ES-4: Water Depth of Port of Virginia and Competing Ports****ES.2.5. Aviation**

Other than a few select cities, most Virginia residents are served by airports with a limited number of direct flights, so when flying to medium-distance destinations, airline travelers must first fly to a hub airport in another state and then return to Virginia by a connecting flight. Table ES-2 gives the typical travel time (not including the time required for advance check-in at each departure), connections, and costs for flights originating in Bristol, Roanoke, Lynchburg, Charlottesville, and Newport News and terminating in either Washington, D.C., or Richmond. This has led intercity passenger rail to be an increasingly competitive choice for medium-distance destinations, especially in terms of door-to-door travel time and cost.

**Table ES-2: Sample Time and Costs for Airline Trips to Washington, D.C., and Richmond from Selected Virginia Cities**

Departure	Connecting Flight(s)	Destination <sup>1</sup>	Cost <sup>2</sup>	Time <sup>3</sup>
Roanoke	Nonstop	Washington, D.C.	\$396	1 hr 8 mins
Roanoke	Charlotte, NC	Washington, D.C.	\$145	2 hr 48 mins
Charlottesville	Nonstop	Washington, D.C.	\$203	46 mins
Charlottesville	Philadelphia, PA	Washington, D.C.	\$195	3 hr 43 mins
Richmond	Nonstop	Washington, D.C.	\$328	48 mins
Richmond	Philadelphia, PA	Washington, D.C.	\$140	3 hrs 33 mins
Lynchburg	Charlotte, NC	Washington, D.C.	\$138	3 hrs 11 mins
Bristol (Tri-Cities)	Charlotte, NC	Washington, D.C.	\$364	3 hrs 12 mins
Newport News	Philadelphia, PA	Washington, D.C.	\$429	3 hrs 1 mins
Norfolk	Nonstop	Washington, D.C.	\$70	58 mins
Norfolk	Charlotte	Washington, D.C.	\$71	3 hrs 39 mins
Washington, D.C.	Philadelphia, PA	Richmond, VA	\$140	2 hrs 59 mins
Washington, D.C.	Nonstop	Richmond, VA	\$328	46 mins
Roanoke	Charlotte, NC	Richmond, VA	\$600	3 hrs 30 mins
Charlottesville	Washington, D.C.	Richmond, VA	\$532	2 hrs 53 mins
Lynchburg	Charlotte, NC	Richmond, VA	\$695	2 hrs 33 mins
Bristol (Tri-Cities)	Charlotte, NC	Richmond, VA	\$337	2 hrs 31 mins
Newport News	Charlotte, NC, Washington, D.C., and Philadelphia, PA	Richmond, VA	\$553	7 hrs 30 mins

(Source: Travelocity, April 2013 for travel in June 2013)

Flights leaving from or destined for Washington, D.C., could depart from or arrive at Ronald Reagan International Airport (3 miles from downtown), Dulles International Airport (23 miles from downtown), or Baltimore-Washington International Airport (28 miles from downtown).

Time does not include the 1.5 hours recommended before departure for check-in and security screening for each departure (an additional time of approximately 3 hours per trip).

### ES.3. The Virginia Rail System

Founded as a trading colony, freight and passenger movements remain a critical part of the Commonwealth of Virginia's economy. A summary of railroad owners, classification, and rail mileage in Virginia is shown in Table ES-3.

**Table ES-3: Rail Mileage in Virginia (2012)**

Railroad Classification/Name	Miles Operated in Virginia	
	Excluding Trackage Rights	Including Trackage Rights
<b>Class I RR</b>		
Norfolk Southern	2,020	2,100
CSX	850	1,054
<b>Shortline RR (Class III)</b>		
Bay Coast Railway	68	68
Buckingham Branch	275	275
Chesapeake and Albemarle	29	29
Chesapeake Western	43	43
Commonwealth Railway	17	17
Norfolk & Portsmouth Beltline	34	61
North Carolina and Virginia	4	4
Shenandoah Valley	25	25
Winchester & Western	29	29
<b>Total</b>	<b>3,394</b>	<b>3,705</b>

(Source: DRPT)

#### ES.3.1 Overview of the Virginia Rail System

Virginia's rail system dates from the 1800s and has evolved continually since then. Today, it consists of nearly 3,400 route miles (excluding trackage rights), most of which are operated by two Class I railroads—the Norfolk Southern Railway Company (NS) (2,020 miles) and CSX Transportation (CSX) (850 miles). The remaining nine freight railroads are Class III (shortline) railroads (line-haul carriers with annual revenues less than \$34.7 million in 2011 revenues as defined by the U.S. Surface Transportation Board), two of which are primarily switching railroads serving marine terminals and industrial facilities. There are no Class II Railroads in Virginia. Two passenger systems—Amtrak and VRE—provide service over this private freight railroad system. Major lines run north-south and east-west, with important rail lines converging at key nodes—Norfolk, Richmond, Lynchburg, Roanoke, and Alexandria.

**Figure ES-5: Virginia Rail System**

According to the most recent data from the Association of American Railroads, a total of 159.9 million tons was carried by rail in Virginia in 2010 (this includes freight passing through Virginia, without an origin or destination in the state). In terms of originating and terminating tonnage, coal was the most significant commodity, followed by stone, sand, and gravel as depicted in Table ES-4. Rail is a vital component of the supply chain for electricity generation, coal mining, construction materials production, agriculture, and a variety of other industries within the state.

**Table ES-4: Freight Railroad Traffic in Virginia**

Tons Originating in Virginia (2010)			Tons Terminating in Virginia (2010)		
Type	Tons	%	Type	Tons	%
Coal	24,728,000	67	Coal	48,853,000	71
Stone, sand, gravel	5,087,000	14	Stone, sand, gravel	3,649,000	5
Intermodal	1,211,000	3	Chemicals	3,224,000	5
Chemicals	1,199,000	3	Farm products	2,649,000	4
Coke and metallic ores	1,104,000	3	Waste and scrap	2,462,000	4
Other	3,680,000	10	Other	7,921,000	12
<b>Total</b>	<b>37,009,000</b>	<b>100</b>	<b>Total</b>	<b>68,758,000</b>	<b>100</b>

(Source: Association of American Railroads website, accessed April 2013)

Shortlines have become a critical component of the rail industry and produce benefits to shippers and local communities trying to support economic development to industries. Shortlines act as the originating and terminating railroads for approximately one-third of all rail shipments. It is critical that shortline tracks adequately handle at least 286,000-pound-capacity railcars and double stack container shipments in order to interface with the Class I railroads.

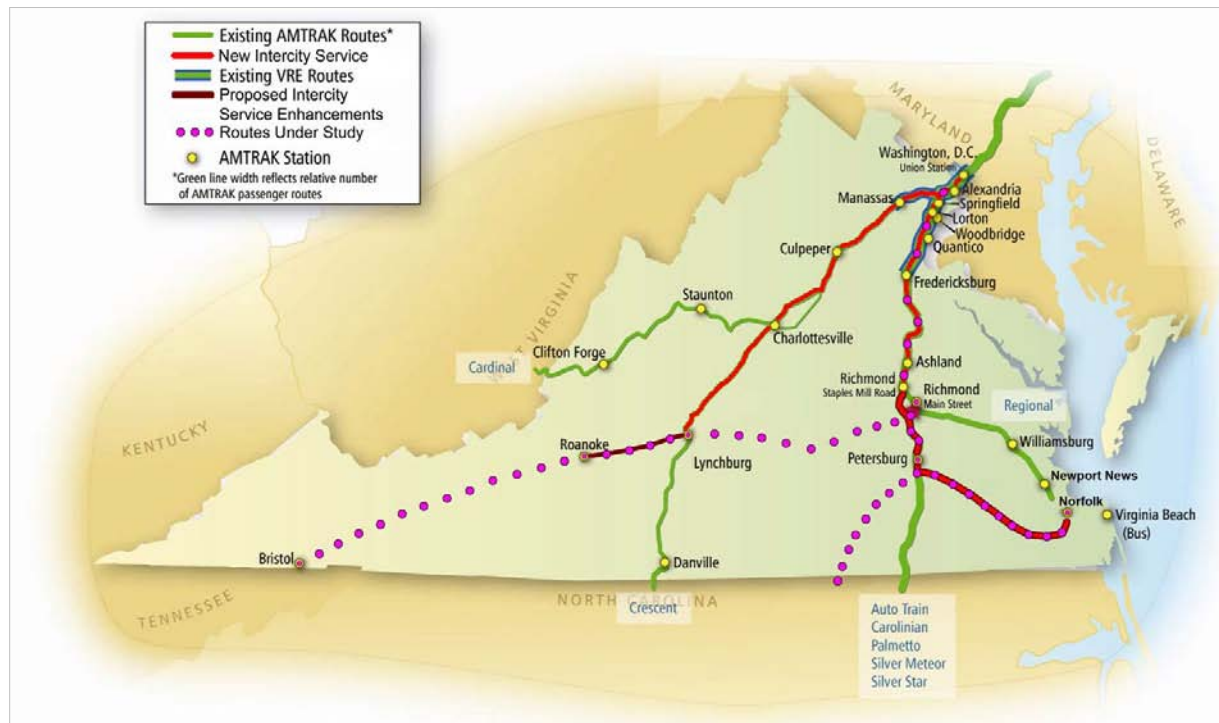


### ES.3.2. Virginia's Freight Intermodal Connections

Within Virginia are currently three truck/rail container terminals. Two are located in the Hampton Roads area. These handle a combination of domestic and international cargo. The other is the Virginia Inland Port (VIP) in Front Royal, which serves as an extension of the maritime terminals of the Port of Virginia in the Hampton Roads area. Another intermodal terminal is planned for the Roanoke region. Virginia is also the site of several major initiatives, aimed not only at improving the efficiency of rail intermodal movements that originate or terminate in Virginia but also that pass through Virginia. The Heartland Corridor project improved the efficiency of container movements between the Port of Virginia and the Midwest by allowing double stack intermodal containers to travel a more direct route. Additional clearance on the NS Altavista Line will further increase the capacity between Norfolk and the Midwest. The CSX National Gateway initiative will improve the efficiency of container movements between the Mid-Atlantic and the Northeast/Midwest by clearing obstructions that currently limit double stack train operations in the I-95 corridor, as well as improving train operations to and from the Port of Virginia. The NS Crescent Corridor initiative is enhancing the efficiency of train movements between the Northeast and Southeast, removing trucks from Virginia's highways, particularly I-81. Intermodal connections in Virginia are also facilitated by numerous non-containerized truck/rail transload facilities.

### ES.3.3. Intercity Passenger Rail in Virginia

In 2012, Amtrak operated 24 daily intercity trains and 2 tri-weekly trains in the Commonwealth with 1,466,965 passengers either boarding or alighting within Virginia and another 5,013,991 boarding or alighting in Washington, D.C. Amtrak ridership in Virginia has grown 77 percent between FY2004 and FY2012, much more than the 24-percent ridership increase Amtrak has seen on the National System in that same time. The efforts of Amtrak Virginia to bring expanded Northeast Regional rail service into Virginia are responsible for a large portion of the growth in ridership for routes serving Virginia. Recent increases in fuel and energy prices since 2008 have also generated a higher demand for passenger rail nationwide that has resulted in higher annual ridership increases since 2008 than in the first half of the decade. Amtrak has set annual ridership records every fiscal year from 2003 to 2012, except in 2009.

**Figure ES-6: Virginia Passenger Rail**

In 2009, Virginia became the 15th state to partner with Amtrak to provide state-supported train service. The Amtrak and DRPT partnership, Amtrak Virginia, has since brought Northeast Regional service through Washington, D.C., and into cities in Virginia. In October 2009, a Northeast Regional daily train was extended from Washington, D.C., to Lynchburg via Alexandria, Burke Centre, Manassas, Culpeper, and Charlottesville. One year later, the train had already carried 126,072 passengers, surpassing the budgeted estimate of 48,182. The FY2011 ridership estimate of 114,650 was also surpassed as the route carried 162,051 riders that year. In July 2010, Amtrak Virginia launched a rebranded Northeast Regional service from Washington, D.C., to Richmond. Two Northeast Regional trains make the journey from the NEC to Newport News via Richmond, and an additional six Northeast Regional trains stop in Richmond, up from one previously. DRPT most recently worked with Amtrak, CSX, and NS to bring passenger rail to South Hampton Roads with a terminus in downtown Norfolk. This service began in December 2012. Similar to the other Northeast Regional services into Virginia, riders have a single-seat journey as far north as Boston. Current Virginia Passenger Rail service is shown above in Figure ES-6.

### ES.3.4. High-Speed Rail

Fast, efficient passenger rail service is important for Virginia. The Commonwealth has initiated environmental studies and preliminary design associated with high-speed rail corridors passing through Virginia and has participated in multi-state coalitions to improve passenger rail services in the mid-Atlantic region. Because of the high capital cost associated with high-speed rail systems, the Commonwealth has been following an incremental approach to plan for and construct rail improvements that eliminate key rail chokepoints and to increase rail speeds and on-time performance on existing passenger rail corridors.

The Southeast High-Speed Rail (SEHSR) corridor, originally designated in the *Intermodal Surface Transportation Act of 1991* (ISTEA) and the *Transportation Efficiency Act for the 21st Century* (TEA-21), would extend high-speed rail service south from Washington, D.C., to Richmond and on to Raleigh and Charlotte. The SEHSR corridor would later expand further south from Charlotte to New Orleans via Atlanta and from Raleigh to Jacksonville and east from Richmond to Hampton Roads. Figure ES-7 displays the progress on segments of the SEHR corridor.

DRPT and the North Carolina Department of Transportation (NCDOT) jointly completed the Tier I National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) for SEHSR from Washington, D.C., to Charlotte, North Carolina (almost 500 miles), in 2002. The study recommended high-speed rail in Virginia along the I-95 corridor north of Petersburg, continuing south via a reconstructed former CSX rail line that parallels I-85 to Norlina, North Carolina.

**Figure ES-7: Southeast High-Speed Rail Corridor**



### ES.3.5. Virginia Railway Express Commuter Rail

VRE was founded in 1992 with a vision to provide a safe, convenient, energy-efficient public transportation alternative to driving congested highways from the Northern Virginia suburbs to the business districts of Alexandria, Crystal City, and Washington, D.C. Each weekday, VRE now operates 31 trains over two lines, covering 90 route miles and serving 18 stations in 8 Northern Virginia jurisdictions, carrying upwards of 18,000 passenger trips per day. VRE service is highly reliable with on-time performance close to 87 percent. Ridership growth has averaged 6 percent year over year between 2002 and 2012, with the existing system operating at full capacity, including parking and midday train storage at its northern terminus. Capacity is a big concern as VRE is predicted to grow between 60 and 85 percent by 2025.

### **ES.3.6. Safety**

Rail safety is a critical issue for rail operators and public agencies that have an oversight role for transportation safety. The total number of train-related accidents and incidents in Virginia has generally trended downward over the past decade. Most rail-related fatalities result from either trespassers on rail lines struck by trains or by collisions at highway/rail at-grade crossings.

Operation Lifesaver is a non-profit, international continuing public education program first established in 1972 to end collisions, deaths, and injuries at places where roadways cross train tracks and on railroad rights-of-way. Operation Lifesaver programs are sponsored cooperatively by federal, state, and local government agencies, highway safety organizations, and the nation's railroads.

VDOT administers the federally funded Highway-Rail Safety Improvement Program, aimed at improving the safety of highway/rail at-grade crossings. The focus of this program is on installing or improving train-activated warning devices. Funding for the Section 130 program varies by year but averages about \$4.5 million per year. The number of projects completed will depend upon type and cost of the projects, but typically between 15 and 40 projects will be completed in a year.

## **ES.4. Rail Funding in Virginia**

### **ES4.1 Overview**

Virginia has made significant advancements in recent years in providing dedicated funding for rail investments, and DRPT's existing funding programs provide a strong foundation for future funding aimed at further rail improvements. DRPT's FY2013 budget includes \$109.4 million in funding for rail improvements in Virginia, which represents 22 percent of DRPT's overall \$509-million budget. Funding for DRPT's rail programs has been supported through several funding sources: FRA program, General funds, Intercity Passenger Rail Operating and Capital (IPROC) funds, Rail Enhancement funds (REF), Rail Industrial Access (RIA) funds, Rail Preservation Program (RPP) funds, Transportation Capital Projects Revenue Bond funds, Transportation Trust Fund (TTF), and Virginia Transportation Act of 2000 (VTA 2000) funds. The distribution of anticipated expenditures falls into five general categories: rail freight, shortline program, port-related projects, the RIA Program, and passenger service.

Freight rail improvements are generally funded through REF, RIA, and RPP and require a benefit-cost analysis that shows substantial public benefit projected for the project. Since passenger rail service shares track infrastructure with freight in Virginia, improvements to freight tracks have added benefit for passenger rail as well.

Virginia's 2013 landmark comprehensive transportation funding legislation, Virginia's Road to the Future (HB 2313), further solidified the Commonwealth's commitment to transportation funding, including rail funding. This historic bi-partisan legislation will provide over \$3.4 billion in additional statewide transportation funding over the next five years by shifting the primary source of transportation funding away from the gasoline tax, and tying it instead to the sales tax. To meet anticipated intercity passenger rail capital and operating needs, HB 2313 established a dedicated revenue source that is expected to increase rail allocations by 86 percent.

## **ES.4.2. State Rail Funding in Virginia**

### **ES.4.2.1. Intercity Passenger Rail Operating and Capital Fund**

IPROC (§33.1-221.1:1.3) was created by the General Assembly in 2011 as a strategy to sustain Virginia's share of Amtrak Virginia's operating budget in preparation for PRIIA. The legislation gave the CTB and the General Assembly the flexibility to allocate existing transportation revenues to the fund. In 2012, the General Assembly provided \$28.7 million of the FY2011 General Fund surplus for the operating and capital needs of Virginia intercity passenger rail services, and authorized a transfer of \$26.1 million of REF for passenger needs for 2013 and 2014. To help fund future needs to maintain and develop new and expanded intercity passenger rail operations with a dedicated revenue source, the 2013 General Assembly dedicated a portion of sales tax revenue to IPROC. This is expected to yield \$44 million in FY 2014 with growth upwards to \$56 million annually by FY2018. This represents approximately an 86 percent increase in rail funding.

### **ES.4.2.2. Rail Enhancement Fund**

Created by the General Assembly in 2005, the REF (§33.1-221.1:1.1) provides for the planning and implementation of freight and passenger rail projects in the Commonwealth. This fund is the primary source for the implementation of large rail improvement capital projects. Allocations are based on a public benefit analysis and require a minimum 30 percent match from non-state sources. The source of revenues for the REF is a 3-percent portion of the vehicle rental tax, estimated at about \$27 million annually. In addition, state funds are provided to freight and passenger rail projects in accordance with VTA2000 Appropriations and Capital Project Revenue Bonds.

### **ES.4.2.3. Rail Preservation Program**

Created in 1992 and codified in 2006, the Shortline Railway Preservation and Development Fund (§33.1-221.1:1.2) provides funding for the preservation and continuation of existing rail service to increase productivity, safety, and efficiency of shortline railway transportation in Virginia. Funds are distributed through DRPT's RPP. The RPP is allocated \$3 million annually for shortline rail improvement projects. Funds are administered by the DRPT Director subject to the approval of the CTB. Availability of rail bonds through 2018 has increased the amount of funding available through the RPP.

### **ES.4.2.4. Rail Industrial Access Grants**

This program (codified in §33.1-221.1:1) is administered by DRPT, and funding for projects is approved by the CTB. The purpose of the program is to provide rail freight trackage between existing rail lines and existing or proposed commercial sites. Rail access funding under this program varies from year to year depending on the applications received by DRPT from all segments of the program and funds available; but, in recent years, the RIA has been budgeted an average of approximately \$2.4 million per year.

### **ES.4.2.5. Commuter Funding (Virginia Railway Express)**

Funding for commuter rail service is supported by federal and state transportation funds and local matching funds. The federal funds are administered by the Commonwealth and are apportioned annually to DRPT from FTA. The state funds are provided from the Mass Transit Trust Fund, the Mass Transit Priority Transportation Fund, the Transportation Capital Fund, and the REF. Over the past six years, the Commonwealth has provided an average of 22 percent of the annual funding for VRE.

#### ES.4.2.6. Capital Project Bonds

Capital Project Bonds for transit and rail improvements provides \$12.9 million per year in bond funding until all bonds are fully allocated in FY2018. The rail projects funded with capital bond proceeds are administered through the REF or the RPP for rail capital projects and do not provide funding for passenger rail operations.

#### ES.4.3. Federal Passenger Rail Programs and Funding Options

##### ES.4.3.1. Federal Commuter Rail Funding

In Virginia, only the passenger rail services operated by VRE meet the Federal Transit Administration (FTA) definition of commuter rail service. VRE services are eligible for FTA funds under both the Section 5307 (urbanized area) and Section 5309 (fixed guideway modernization) federal programs that are used for transit capital projects.

##### ES.4.3.2. Federal Intercity Passenger Rail Funding

PRIIA was enacted in October 2008 and provided for the reauthorization of Amtrak. PRIIA authorized more than \$3.7 billion to promote the improvement of intercity passenger rail operations, facilities, and services, as well as the development of high-speed rail corridors. The *American Recovery and Reinvestment Act* (ARRA) provided \$1.3 billion to Amtrak for capital grants and \$8 billion for intercity passenger rail programs. Another \$2.3 billion was provided by the *Consolidated Appropriations Act of FY2010*. Virginia received approximately \$75 million for the construction of a third track in the Richmond to Washington, D.C. corridor over a stretch of 11 miles from Arkendale in Stafford County to Powell's Creek in Prince William County. The funds were obligated in September 2012 and must be spent by September 30, 2017.

PRIIA changes the role and methodology for state funding of Amtrak routes. Section 209 of PRIIA requires that states pay operating and capital costs on a fully allocated basis for intercity rail service on Amtrak routes that are either state requested, on designated high-speed rail corridors (outside of the NEC), short-distance corridors, or routes less than 750 miles. Nineteen states are impacted by this change, including Virginia.

#### ES.4.4. Federal Freight Rail Programs and Funding Options

There are several federal freight rail funding options, which include the following:

- **Section 130 Highway-Rail Grade Crossing Program**—The Federal At-Grade Highway-Rail Crossing Program (Section 130 Program) provides federal support in an effort to improve safety at public highway-rail crossings.
- **Railroad Rehabilitation and Improvement Funding**—The Railroad Rehabilitation and Improvement Financing (RRIF) Program provides direct federal loans and loan guarantees to finance development of railroad infrastructure.

Other federal funding programs are primarily intended for highway use, but some rail projects are eligible at the discretion of states with the approval of the administering federal agency. These include funds under the Congestion Mitigation Air Quality (CMAQ) Improvement Program, the Surface Transportation Program (STP), the Transportation Alternatives Program, the *Transportation Infrastructure Finance and Innovation Act* (TIFIA) program, and private activity bonds.

Other federal funding programs that are not administered through the U.S. Department of Transportation (USDOT) are relevant to rail, including U.S. Department of Commerce Economic Development Administration (EDA) grants that are intended to promote job creation and retention in

economically distressed areas, as well as the U.S. Department of Agriculture Community Facility Program and Rural Development Program, which provides grant or loan assistance for community facilities providing essential services to rural areas and towns.

#### **ES.4.5. Local Rail Funding in Virginia**

Some Northern Virginia jurisdictions use local general funds to assist in the implementation and ongoing operations of VRE service, including a state-imposed regional gas tax. However, local jurisdictions often need to consider alternatives to city or county general funds, which can be used for a broad range of public purposes and are often consumed by competing needs (public safety, health, schools, etc.).

#### **ES.5. Investment Program**

The SRP has been prepared in conjunction with the Virginia Statewide Rail Resource Allocation Plan. The Resource Allocation Plan identified nearly \$6.9 billion in capital needs through 2040 resulting from projects that were identified in a needs assessment, stakeholder input, and public outreach. The projects will help the Commonwealth meet the goal of moving people and goods efficiently and effectively. The Resource Allocation Plan followed the steps below.

- Step 1**—Assess each project against the Commonwealth’s policy goals that govern the rail planning process
- Step 2**—Analyze the funding requirements associated with implementing the nearly \$6.9 billion in capital projects and the additional operating costs for new and existing intercity passenger rail services
- Step 3**—Categorize these projects by corridor and divide them into phases that could be implemented based on the policies and priorities established by the Commonwealth and funding limitations
- Step 4**—Develop the Six-Year Improvement Program that allocates funding to the Commonwealth’s top priority projects

Despite additional sustained rail funding identified in HB 2313, the Rail Resource Allocation Plan shows that needs still far outweigh anticipated revenues. A summary of recommendations is provided in Table ES-5. Figure ES-8 shows the locations of the corridor projects.

**Table ES-5: Summary of Long-Range Resource Allocation Plan Recommendations**

Project	Description	Benefits	Total Cost (\$Million 2012)
State Supported Intercity Passenger Service	Increase capacity and provide operating support for passenger routes between Washington, Richmond, Norfolk., Newport News and Lynchburg and extend existing services to new markets	Enhance passenger and freight rail operations with more frequent service, travel time savings and highway congestion relief	\$1,027.0
Federal Southeast High Speed Rail	Conduct environmental studies, make capacity improvements, purchase train sets to provide high speed service on Corridor between Washington, Richmond, Raleigh/Charlotte, with expansion to Hampton Roads	Provide passengers with service that is faster, more reliable rail service	\$3,776.9
Commuter Rail	Increase capacity of rail lines on which VRE service relies, construct new stations, expand station access and parking amenities, construct train storage and maintenance facilities, increase rolling stock	Increase on-time performance of passenger trains, enable VRE to expand along with its ridership	\$1,042.3
Freight/Intermodal Service	Reconstruct and replace multiple bridges, add passing sidings and double track segments, clear tunnels and obstructions for double stack capabilities and upgrade yards	Divert trucks to rail and improve the efficiency of rail freight movements by expanding to double stack capabilities, clearing chokepoints and adding capacity	\$894.6
Port of Virginia	Conduct environmental work and construct rail line to new Craney Island terminal, expand yards at NIT and APMT terminals, upgrade Amoco Power switches	Enable rail operations at the Port of Virginia to keep pace with the growth in maritime trade	\$64.6
Shortline Program	Conduct a range of projects, including tie replacement, bridge rehabilitation, signal improvements, interchange improvements, yard improvements on shortline railroads	Maintain and increase the efficiency of shortline rail network, maintain rail access and quality of service for shippers located on shortline network	\$119.0
<b>Total</b>			<b>\$6,924.6</b>



**Figure ES-8: Location of Recommended Rail Projects by Corridor**

## ES.6. Future of Rail in Virginia

### ES.6.1 Stakeholder Feedback

DRPT received feedback from numerous stakeholders to help guide development of the VSRP. Some of the broad themes included the following:

- Some stakeholders expressed support for passenger rail in the state and recommended specific passenger rail services or improvements. Class I railroads remarked that passenger rail operations in Virginia occur on tracks owned by freight railroads. At certain speeds and with a certain volume of passenger traffic, the operations may need to be separated from freight operations. Several stakeholders were concerned about the long-term cost of passenger rail services.
- Some stakeholders expressed concern over highway/rail at-grade crossings, not only as a safety issue but also as an issue for the efficiency of rail operations.
- Several advocated for a mode-neutral approach to transportation improvements in the Commonwealth, where rail options would have equal consideration to roadway options.
- A few stakeholders advocated expanding the role of DRPT, including involvement in highway/rail at-grade crossing issues, funding, and station planning.
- Several stakeholders stressed the importance of preserving rail rights-of-way of inactive lines for future usage.

## ES.6.2. Vision, Goals, and Strategies

As described in Chapter 1, the VSRP is an element of Virginia’s overall transportation planning framework. VTrans, the state’s long-range visioning resource for transportation, establishes the vision for this framework as “a multimodal transportation system that is safe, strategic, and seamless.”

DRPT’s investment priorities from the Resource Allocation Plan support the VTrans’ goals identified to carry out that vision. Below is a list of each VTrans goal, along with DRPT’s strategy for addressing each through projects in its Resource Allocation Plan.

- **Safety and security** → to provide a safe and secure transportation system
  - Improve safety infrastructure at rail/highway at-grade crossings
  - Separate busy rail and highway rights-of-way
  - Grade separate rail/highway at-grade crossings where possible
- **Maintenance and preservation** → to preserve and maintain the condition of the existing transportation system
  - Assist shortline railroads to maintain their systems at a good state of repair
  - Ensure that passenger rail equipment and station structures are maintained/replaced as needed to sustain a good state of repair
  - Reduce highway maintenance requirements by supporting the diversion of freight from truck to rail
- **Mobility, connectivity, and accessibility** → to facilitate the easy movement of people and goods, improve interconnectivity of regions, and provide access to different modes of transportation
  - Provide Virginia population centers with reasonable intercity rail service, so that major corridors connecting the largest population centers in the state are served by multiple trains per day while corridors connecting secondary population centers are served by at least one train per day
  - Provide Virginia residents with transportation alternatives through high speed rail
  - Improve the efficiency of intermodal freight rail service by helping to enable intermodal corridors within Virginia or on which Virginia shippers rely to accommodate double stack intermodal trains
  - Divert traffic from highway to rail by improving the reliability and speed of both freight and passenger services by improving capacity on key corridors
  - Continue to support efforts to improve mobility and reduce congestion in Northern Virginia by continued support of the VRE
- **Environmental stewardship** → to protect the environment and improve the quality of life for Virginians
  - Support environmental stewardship through reduction of air emissions by congestion reduction and modal shift
- **Economic vitality** → to provide a transportation system that supports economic prosperity

- Support economic development by promoting rail access to current and prospective Virginia employers and supporting improvements to the quality of rail service available
- Improve the Commonwealth’s connections with global markets by supporting intermodal rail connections both at the Port of Virginia and at other inland multimodal facilities
- **Transportation and land use** → to promote livable communities and reduce transportation costs by facilitating the coordination of transportation and land use
- **Program delivery** → to achieve excellence in the execution of programs and delivery of services

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# 1. Introduction and Purpose

## 1.1. Introduction

Virginia's rail network plays a key role in the state's economy by connecting people, places, and products locally, regionally, and globally. The Virginia Department of Rail and Public Transportation (DRPT) is the state agency for rail, transit, and mobility management in Virginia. DRPT has the flexibility to provide diverse transportation solutions to move more people and goods statewide by focusing on projects that deliver public benefits for the investment of public funds. DRPT must periodically identify rail needs, priority corridors, and capacity chokepoints across the state in order to maintain the strategic plan and vision for rail transportation in Virginia.

**The primary purpose of the Virginia Statewide Rail Plan (VSRP) is to provide a defined vision for rail transportation in the Commonwealth of Virginia, with a planning year horizon of 2040. The plan represents a business plan that incorporates principles and planning horizons that are consistent with or ahead of the Commonwealth's *Six-Year Improvement Program (SYIP)* and the vision and goals of the statewide multimodal long-range plan known as *VTrans2035*. The VSRP is being prepared in conjunction with a Resource Allocation Plan that details project selection and prioritization, funding, and implementation schedules. Elements of the Resource Allocation Plan are incorporated into Chapter 5 of the VSRP.**

The VSRP has been developed to comply with both the VTrans2035 state planning process and the federal requirements of the *Passenger Rail Investment and Improvement Act of 2008 (PRIIA)*. In 2008, the United States Congress passed PRIIA for the purpose of improving passenger rail throughout the U.S. PRIIA requires states to have a Federal Railroad Administration (FRA) approved state rail plan as a condition for qualifying for future federal passenger rail funding. The VSRP has been developed to comply with 49 USC 22705 as enacted in PRIIA and addresses the following 12 requirements:

1. Inventory of the existing rail transportation network and rail services and facilities within the state and an analysis of the role of rail transportation within the state's surface transportation system
2. Review of all rail lines within the state, including proposed high-speed rail corridors and significant rail line segments not currently in service in the state
3. A statement of the state's passenger rail service objectives, including minimum service levels, for rail transportation routes in the state
4. General analysis of rail's transportation, economic, and environmental impacts in the state, including congestion mitigation, trade and economic development, air quality, land use, energy use, and community impacts
5. A long-range investment program for current and future freight and passenger rail infrastructure in the state
6. Discussion of public financing issues for rail projects and services in the state, listing current and prospective public capital and operating funding resources, public subsidies, state taxation, and other financial policies relating to rail infrastructure development
7. Identification of rail infrastructure issues within the state that reflects consultation with all relevant stakeholders

8. Review of major freight and passenger intermodal rail connections and facilities and prioritized options to maximize service integration and efficiency between rail and other modes of transportation within the state
9. Review of publicly funded projects that improve rail-related safety and security, including all major projects funded under Section 130 of title 23 (a Virginia Department of Transportation [VDOT] function)
10. Performance evaluation of passenger rail services operating in the state, including possible improvements to those services, and a description of strategies to achieve those improvements
11. Compilation of studies and reports on high-speed rail corridor development within the state not included in a previous state rail plan and a plan for funding any recommended development of such corridors in the state
12. A statement that the plan complies with PRIIA Section 22102

To the extent possible, the VSRP also addresses items identified in preliminary rail plan guidance released by FRA in August 2012. The VSRP is not required to meet these draft guidelines at this time in order to ensure eligibility for federal funding for rail projects.

With a focus on identifying key transportation corridors, scenarios for investment, and project identification for the short term and long term, the VSRP is intended to provide detailed information on existing rail conditions and programs in Virginia and rail needs in the future. Short-term projects are those that could be implemented within 6 years, and long-term projects are those that could be implemented within the 28-year planning horizon of 2040.

## 1.2. Public and Stakeholder Involvement

The DRPT planning process actively sought public review and comments throughout the development of the VSRP and its related documents. Public involvement for the VSRP consisted of a three-pronged approach—virtual outreach, direct outreach, and targeted stakeholder outreach. Through each element of the three-pronged approach, the public involvement effort for the *Virginia Rail and Resource Allocation Plan* was coordinated with other ongoing statewide planning efforts. Specifically, Virginia is updating *VTrans* (the statewide multimodal planning document), the *Surface Transportation Plan* (the statewide multimodal project planning document), and the statewide *Transit and TDM Plan*.

### 1.2.1. Virtual Outreach

A dedicated project website ([www.varailplan.org](http://www.varailplan.org)) was launched in July 2012 and linked to DRPT's agency website. The project website included a project description, purpose, and background; it hosted project deliverables and updates; and it allowed visitors to provide input via email.

### 1.2.2. Direct Public Outreach

The project team hosted multiple public meetings. These meetings included information displays, presentations, comment sheets, and the opportunity for stakeholders and members of the public to offer input directly to project team members. DRPT alerted citizens to these meeting by

- Announcing public meetings in local newspapers
- Posting notices on websites such as [www.varailplan.org](http://www.varailplan.org), [www.drpt.virginia.gov](http://www.drpt.virginia.gov), [www.vtrans.org/public-meetings-announcement](http://www.vtrans.org/public-meetings-announcement), and issuing press releases

Public meetings providing information and seeking input on the VSRP were scheduled as follows:

- Thursday, August 2, 2012, from 4:00 p.m. to 7:00 p.m., at Hidden Valley High School, 5000 Titan Trail, Roanoke, Virginia 24018
- Tuesday, August 7, 2012, from 4:00 p.m. to 7:00 p.m., at Hampton Roads Planning District Commission, 723 Woodlake Drive, Chesapeake, Virginia 23320
- Wednesday, August 8, 2012, from 4:00 p.m. to 7:00 p.m. at Maggie Walker Governor's School, 1000 N. Lombardy Street, Richmond, Virginia 23220
- Thursday, August 9, 2012 from 4:00 p.m. to 7:00 p.m., at Washington-Lee High School, 1301 N. Stafford Street, Arlington, Virginia 22201

Information on the VSRP was provided at other public forums, as well, in order to obtain feedback, including the Annual Virginia Railroad Association meeting in September 2012 and at the Commonwealth's Fall Transportation Meetings in October and November 2012 at the following locations:

- Hampton Roads—October 25, 2012
- Fredericksburg—October 29, 2012
- Northern Virginia—October 30, 2012
- Culpeper—November 1, 2012
- Staunton—November 5, 2012
- Salem—November 7, 2012
- Lynchburg—November 8, 2012
- Bristol—November 14, 2012
- Richmond—November 15, 2012

### 1.2.3. Targeted Outreach

Stakeholders, including other Commonwealth transportation agencies, interest groups, railroad owners, operators, and organizations that interact with or have a business interest in rail, were specifically targeted to provide input into plan development.

DRPT coordinated with other Commonwealth transportation agencies, including the Office of Intermodal Planning and Investment (OIPI), Virginia Department of Transportation (VDOT), the Virginia Port Authority (VPA), the Virginia Department of Aviation (DOAV), and the Virginia Department of Motor Vehicles (DMV). Input was also solicited from major rail stakeholders, including Norfolk Southern (NS), CSX Transportation (CSX), Amtrak, Virginia Railway Express (VRE), regional metropolitan planning organizations (MPO), regional planning district commissions (PDC), Virginia's nine shortline railroads, FRA, and other organizations.

Targeted outreach was performed in person and by phone with these groups between May 2012 and January 2013. A stakeholder meeting was held on January 24, 2013, to review plan methodology, vision, and goals. Results of the stakeholder meeting are detailed in Chapter 6 of this VSRP.

## 1.3. Virginia's Strategic Transportation Planning Process

The VSRP supports DRPT's core transportation mission, which is to improve the mobility of people and goods while expanding transportation choices in the state.

In the development of the VSRP, DRPT remained committed to a comprehensive multimodal strategy which integrates passenger and freight rail needs into the overall transportation network of the Commonwealth. Rail transportation remains an important component of Virginia's evolving transportation network, reducing highway congestion by diverting cargo from trucks to rail and diverting people from cars to passenger rail. The rail system is vital for the Commonwealth's economy, connecting Virginia to the global marketplace both overseas through connections at the Ports of Virginia and in North America through rail connections that extend to the nation's East and West Coasts, north to Canada, and south to Mexico.

The Commonwealth is committed to enhancing partnerships with the private sector, including railroads, local governments, and regional planning organizations, to attract private capital and to achieve its strategic goals.

VTrans2035, the Commonwealth's statewide long-range multimodal transportation plan, was recently updated by OIPI with the support of the five state transportation modal agencies. The VSRP was a key input into the VTrans2035 Update.

The VTrans2035 Update incorporates a validation and update of the major components of the original VTrans2035 plan completed in 2010, including goals and priority initiatives. A major component of the plan is the Corridors of Statewide Significance, which is addressed through specific goals for developing corridor management plans. A major focus of the update is to transition the VTrans planning process toward a performance-based process. The goals outlined in VTrans include:

- **Safety and security** → to provide a safe and secure transportation system
- **Maintenance and preservation** → to preserve and maintain the condition of the existing transportation system
- **Mobility, connectivity, and accessibility** → to facilitate the easy movement of people and goods, improve interconnectivity of regions, and provide access to different modes of transportation
- **Environmental stewardship** → to protect the environment and improve the quality of life for Virginians
- **Economic vitality** → to provide a transportation system that supports economic prosperity
- **Transportation and land use** → to promote livable communities and reduce transportation costs by facilitating the coordination of transportation and land use
- **Program delivery** → to achieve excellence in the execution of programs and delivery of services

### 1.3.1. DRPT Strategic Plan Goals

The VSRP supports the Commonwealth's core transportation mission, which is to improve the mobility of people and goods while expanding transportation choices in the state. DRPT has developed the following strategic plan goals in order to meet the Commonwealth Transportation Goals as outlined in VTrans:

- Assist in managing the growth in congestion on Virginia's highways
- Improve access for the general public and businesses to transportation choices (public transportation, carpools, vanpools, human service transportation, passenger rail, freight rail and telecommuting)



- Provide access and improvements to Virginia’s railways to encourage economic development and reduce traffic on Virginia’s highways
- Seek the highest possible return on investment to maximize limited funding
- Increase communication to the general public, businesses, and community decision-makers on transportation choices and telecommuting
- Implement best practice management tools and techniques to improve customer service and accountability

## 1.4. Role of the Virginia Department of Rail and Public Transportation

### 1.4.1. Background

DRPT was established in 1992 as an agency under the Secretary of Transportation. DRPT works closely with other modal state transportation agencies and has three primary areas of operational activity—rail, public transportation, and transportation demand management (also called mobility management)—all of which focus on the movement of people and goods throughout Virginia. DRPT’s legislative authority was established by Code of Virginia §33.1-391.4, which sets out the general powers of DRPT. Code of Virginia §33.1-391.5 describes the responsibilities of DRPT.

- **Rail**—These programs include both freight and passenger rail activities. Freight rail programs reduce highway congestion and help ensure the economic vitality of businesses and communities through infrastructure improvements that assist the 10 railroads operating in the Commonwealth to provide a cost-effective and reliable way to bring goods to market. DRPT’s passenger rail programs, including the Amtrak Virginia state-sponsored service, provide support and infrastructure improvements that assist the passenger rail providers as they relieve congestion on highways and offer travelers more transportation choices. DRPT supports both passenger and freight rail initiatives through funding options, expert advice, research, and advocacy. To safeguard Virginia’s connections to the national rail network, DRPT represents the state’s interests in interstate and national rail issues.
- **Public transportation**—These programs manage traffic congestion by providing transportation choices while safely transporting people to destinations across the Commonwealth. There are more than 60 public transportation systems in Virginia that range in size from two-bus programs in small towns to larger regional systems like Washington Metropolitan Area Transit Authority (WMATA) in Northern Virginia and Hampton Roads Transit (HRT) in the Hampton Roads Region. By advising, supporting, and funding public transportation programs statewide, DRPT helps provide safe, reliable transportation options for everyone.
- **Transportation demand management (TDM)**—Referred to as mobility management, these programs and services help manage travel demand and make our transportation system more efficient. These programs promote and support transit, carpools, vanpools, telework, and alternate work schedules to Virginia’s commuters and employers. TDM programs can not only save people (and employers) time and money, but they can also help manage traffic congestion and benefit the environment. DRPT currently partners with 16 commuter/ employer service programs operating in the Commonwealth to provide people and employers with information, Guaranteed Ride Home services, and ride-matching services.

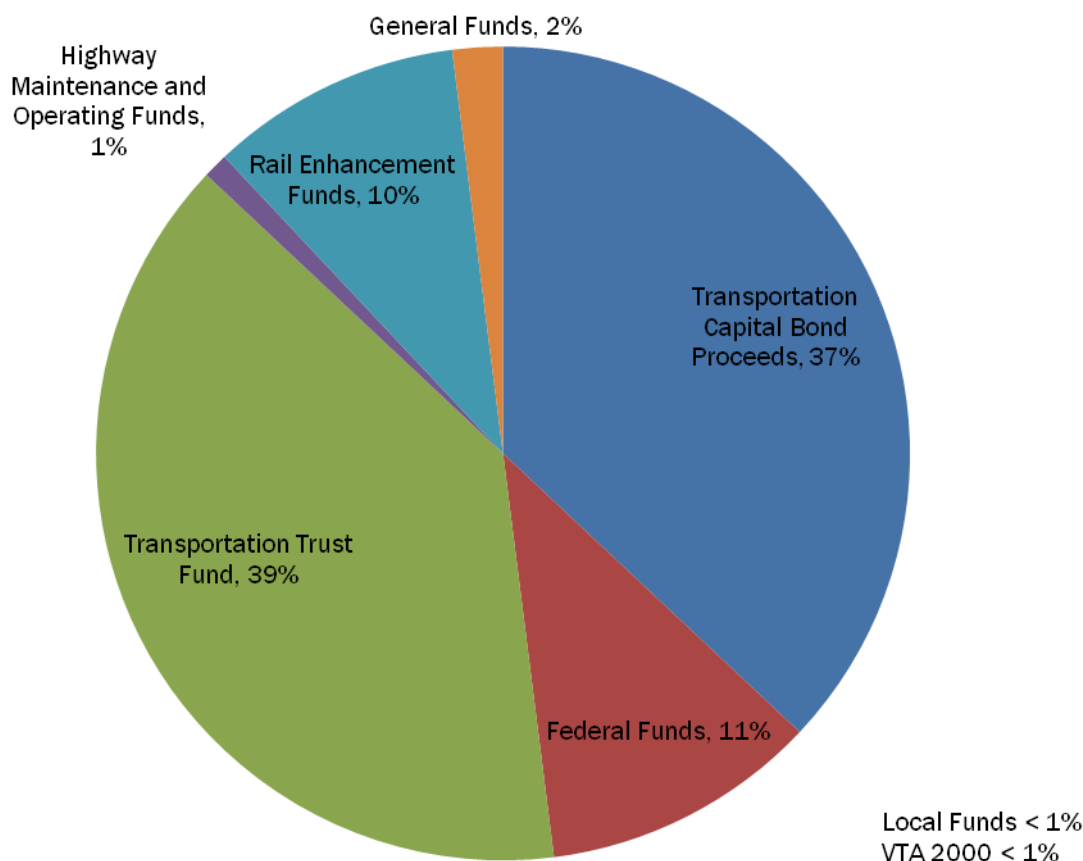
This VSRP only considers the rail transportation for commuter and intercity rail (Amtrak and VRE) and freight movements (NS, CSX, and shortline railroads) in Virginia. Additional planning and programming documents that DRPT produces include

- Strategic Plan
- Business Plan

- Six-Year Improvement Program (SYIP), including rail, transit and TDM components
- Annual Agency Budget
- Virginia Statewide Transit and TDM Plan

Figure 1-1 displays the major DRPT sources of funding. For FY2013, DRPT’s budget anticipates approximately \$509 million in financial support for operating and capital and maintenance costs of public transportation services and rail projects across the Commonwealth. Federal and state aid is provided to supplement revenues collected from fares and local funds provided in support of public transportation operations. For FY 2013, DRPT’s expected funding sources include Transportation Trust Fund (39 percent), Transportation Capital Bond Proceeds (37 percent), federal funds (11 percent), Rail Enhancement Fund (REF) (10 percent), General Fund (2 percent), Highway Maintenance and Operating Fund (6 percent), VTA2000<sup>1</sup> funds (less than 1 percent), and local funds (less than 1 percent).

**Figure 1-1: DRPT Funding Sources for FY2013**



Note: The REF is the only dedicated funding source for rail capital projects.

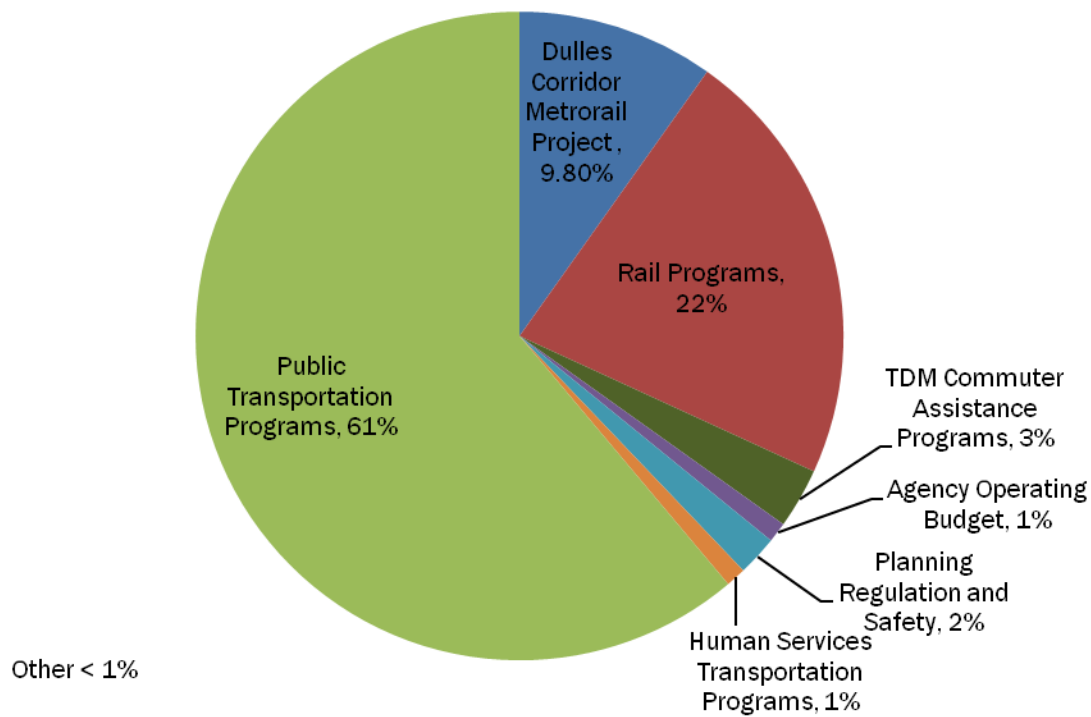
As of 2013, the Commonwealth assumes greater responsibility for funding the capital and operating costs associated with regional intercity passenger rail service originating in Virginia. The historic transportation funding package, passed by the Virginia General Assembly in 2013, commits

<sup>1</sup> VTA2000 funds will not be available after FY2013

a portion of the state sales and use tax for IPROC – the nation’s first dedicated state revenue source for rail. This revenue, which is expected to add \$44 million in FY 2014, allows the Commonwealth to continue to provide successful regional rail service.

As shown in Figure 1-2, rail programs comprise 22 percent of DRPT’s total planned expenditures for FY2013. The vast majority of annual funds are allocated to mass transit projects and operations, with the remaining funds allocated to a variety of programs, including TDM commuter assistance programs and rail programs. The typical annual expenses noted here do not include special appropriations that have been made for rail improvement projects.

**Figure 1-2: DRPT Budgeted Expenditures for FY2013**



#### 1.4.2. Six-Year Improvement Program and Statewide Transportation Improvement Program

The Commonwealth Transportation Board (CTB) adopts the SYIP each year as priorities are revised, project schedules and costs change, and study results become known. All projects in the SYIP that are eligible for federal funding through the Federal Highway Administration (FHWA) or FTA will be included in the *Statewide Transportation Improvement Program (STIP)*, which documents how Virginia will obligate its share of federal funds.

The SYIP includes funding for rail transportation, commuter and public transportation, interstate, primary, secondary, and urban state highway projects that are being studied, designed, and constructed throughout Virginia over six fiscal years. The Commonwealth’s fiscal years start on July 1 and end on June 30. The current SYIP and this VSRP cover the six-year time frame from FY 2013 to FY 2018. The VSRP also covers the long-range planning and vision that will be included in the VTrans 2035 Update.

DRPT provides leadership, advocacy, and funding support for initiatives across the Commonwealth by working with partners at the local, regional, state, and federal levels. The agency

also prepares statewide rail and public transportation plans and conducts studies to assess the feasibility and environmental impacts of new and expanded services in Virginia.

DRPT works closely with private railroads, service operators, and MPOs to plan and program new services and capital improvement projects. DRPT provides technical expertise and assistance in project preparation and then reviews requests for funding when projects are ready for implementation.

## 1.5. Public Sector Rail Planning in Virginia

Local, regional, and state agencies in the Commonwealth have a vested interest in the viability and efficiency of the state rail system. The following agencies contribute to the rail planning process.

### 1.5.1. Virginia Metropolitan Planning Organizations and Planning District Commissions

An MPO is a federally mandated and federally funded transportation policy-making organization in the U.S. that is made up of representatives from federal, state, and local government and other transportation agencies. MPOs are required for any urbanized area with a population over 50,000. An MPO must develop a constrained long-range transportation plan as well as a transportation improvement program (TIP), which is a multi-year program of transportation projects. While DRPT has the primary responsibility for allocating transit and rail funds in Virginia, any regionally significant or federally funded rail projects within MPO boundaries are to appear in MPO plans. MPOs are important partners to be consulted in planning projects within metropolitan areas, and DRPT works closely with these organizations. Each MPO is assigned a DRPT Planning Staff liaison who provides updates on DRPT activities on a monthly basis.

There are 15 MPOs in Virginia, including several that have bi-state agreements (Figure 1-3). The MPOs are as follows:

- New River Valley MPO
- Bristol MPO (multi-state agreement)
- Charlottesville-Albemarle MPO
- Danville (Pittsylvania) MPO
- Fredericksburg Area MPO
- Hampton Roads Transportation Planning Organization
- Harrisonburg-Rockingham MPO
- Kingsport Area MPO (multi-state agreement)
- Central Virginia MPO
- Metropolitan Washington Council of Governments (multi-state agreement)
- Richmond Area MPO
- Roanoke Valley Area MPO
- Staunton-Augusta-Waynesboro MPO (newly identified in 2010 census)
- Tri-Cities MPO
- Winchester-Frederick MPO

Virginia also has 21 PDCs (Figure 1-3). These were created under the Virginia Regional Cooperation Act in 1968. They are made up of elected officials and citizens appointed to the Commission by member local governments. Transportation planning is one of the functions of PDCs. In many cases, PDCs and MPOs are affiliated so that the PDC provides staff for the MPO. Virginia's PDCs are:

- Lenowisco
- Cumberland Plateau
- Mount Rogers
- New River Valley
- Roanoke Valley-Alleghany
- Central Shenandoah
- Northern Shenandoah
- Northern Virginia
- Rappahanock-Rapidan
- Thomas Jefferson
- Region 2000
- West Piedmont
- Southside
- Commonwealth
- Richmond Regional
- George Washington
- Northern Neck
- Middle Peninsula
- Crater
- Accomack-Northampton
- Hampton Roads

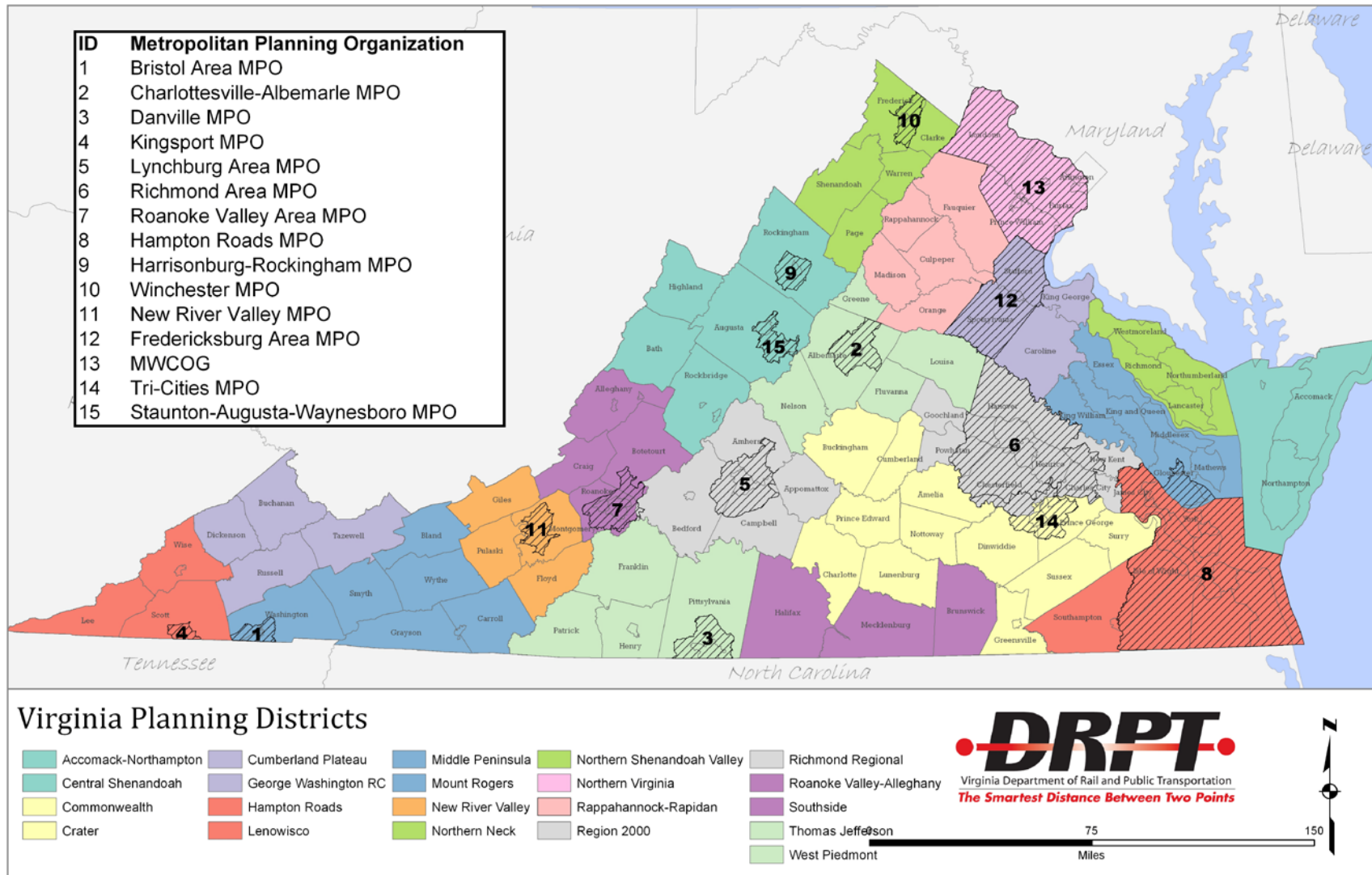
### 1.5.2. Economic Development Agencies

Virginia Economic Development Partnership (VEDP) was established by the Virginia General Assembly in 1995 to foster increased expansion of the Commonwealth's economy by aggressive business recruitment, expansion assistance, and trade development. It has the responsibility for statewide economic development initiatives. The Virginia Economic Developer's Association lists 17 regional economic development organizations within the state. These in turn have a membership comprised of numerous local economic development agencies. Together these state and local agencies offer incentive grants, tax exemptions, credits, site selection services and other means of assistance to attract business.

VEDP maintains a statewide database of industrial and commercial properties, both publicly and privately owned, with detailed infrastructure and demographic data. It has a keen interest in promoting sites with the best transportation access that will stand out among competitor locations. Sites with rail access are in demand by companies for which rail is integral to the supply and distribution network and increasingly for companies exploring rail as a transportation option at their new Virginia location. Assisting those companies with rail access contributes to job creation and economic vitality and also keeps freight on the rail network that would otherwise go by truck. DRPT works closely with Virginia's economic development agencies to promote and administer the Rail Industrial Access Fund (RIA), which offers state funding for industry rail spur improvements with a local match.

In addition to freight access, company executives are interested in locations with optimal passenger access. Passenger rail in Virginia offers business travelers another option for access to the northeast, where the cost of living and cost of doing business is much higher. Dependable, efficient rail service can make a community more attractive to business interests.

**Figure 1-3: Virginia Metropolitan Planning Organizations and Planning Districts**



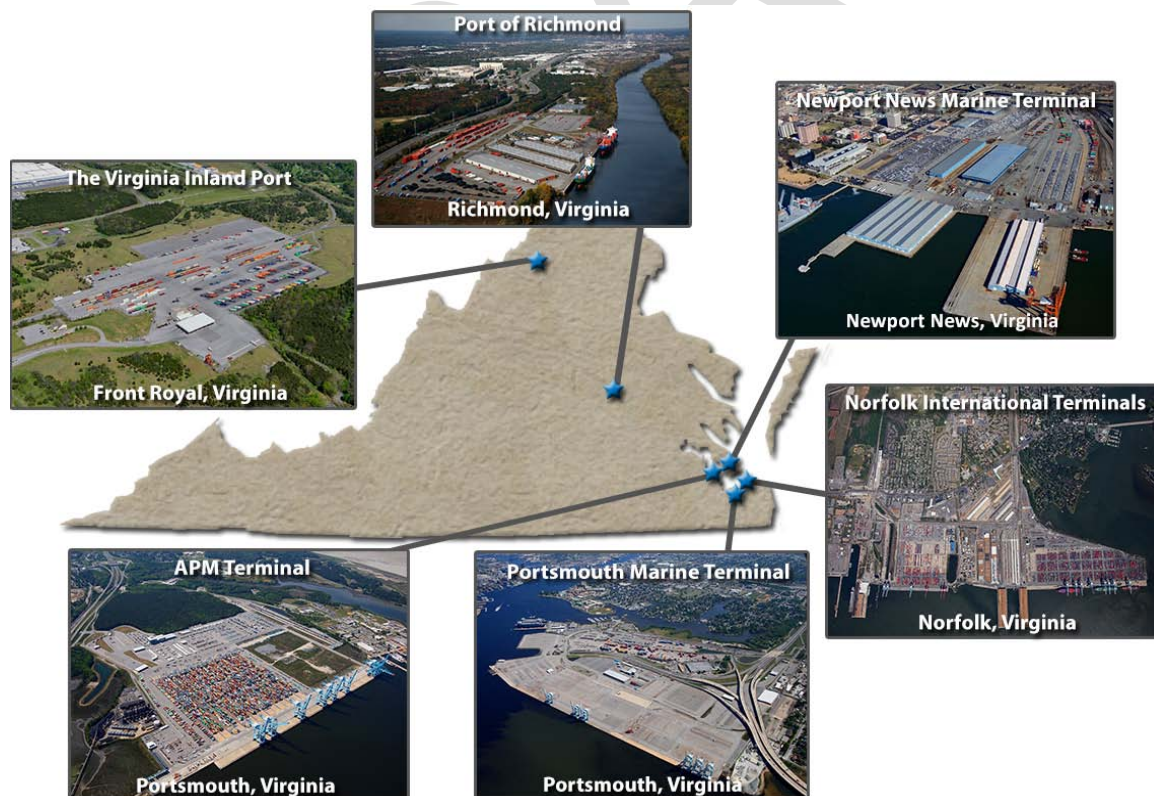
### 1.5.3. Virginia Department of Transportation

As the lead agency for highway transportation, VDOT administers the federal highway-rail crossing safety program. This program entails safety analysis, project selection, and project funding and implementation of grade crossing improvements and closings. These funds are administered through VDOT's Engineering Division as part of the Virginia Highway Safety Improvement Program.

### 1.5.4. Virginia Port Authority and Virginia International Terminals, Inc.

VPA was established in 1952 as a political subdivision of the Commonwealth of Virginia for the purpose of stimulating commerce of the ports of the Commonwealth, promoting the shipment of goods and cargoes through the ports, improving the navigable tidal waters within the Commonwealth, and, in general, performing any act or function which may be useful in developing, improving, or increasing the commerce of the ports of the Commonwealth. VPA owns and is responsible for the operations and security of the Norfolk International Terminals (NIT), Portsmouth Marine Terminal (PMT), Newport News Marine Terminal (NNMT), and an inland intermodal facility, the Virginia Inland Port (VIP), located in Front Royal, Virginia. VPA leases APM Terminal Virginia (APMTVA) located in Portsmouth. These facilities primarily handle import and export containerized and break-bulk cargoes. VPA also leases the Port of Richmond, which handles containers, temperature-controlled containers, breakbulk, bulk, and neo-bulk cargo. The Port of Virginia refers to marine terminals and associated infrastructure within the Hampton Roads area, the Port of Richmond, and the VIP. The Port of Virginia includes terminals that are owned by VPA as well as facilities not owned by VPA, such as the NS's coal terminal and docks located at Lambert's Point, Norfolk.

**Figure 1-4: Port of Virginia Terminals**



(Source: VPA)

Virginia International Terminals, Inc. (VIT), was incorporated as a non-stock, nonprofit corporation on June 30, 1981, for the purpose of operating all the marine terminals owned by VPA. VIT operates the state-owned ports (in addition to APMTVA, which is leased) through a service agreement with VPA. The organization structure of VIT provides it the ability to enter into contracts with union labor (prohibited by state agencies under state law), negotiate and enter into contractual relationships with ship lines and others while not being subject to the *Freedom of Information Act*, and manage the flow of traffic at the marine terminals.

VPA works closely with DRPT to plan and improve rail access to Virginia's ports, while VIT provides operational support of terminals, which impacts rail into and out of terminal areas. Chapter 2 provides an expanded discussion of the port in the context of Virginia's freight rail system.

### **1.5.5. Virginia State Corporation Commission**

The Virginia State Corporation Commission (VCC) has authority over a broad range of business and economic interests in Virginia. Through its Division of Utility and Railroad Safety, VCC investigates citizen complaints regarding the blocking of rail crossings, conducts accident investigations, inspects railroad tracks and bridges to promote safe movement of freight and passengers throughout the state, and inspects rail cars and locomotives to ensure compliance with FRA standards.

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## 2. Context of the Virginia Statewide Rail Plan

### 2.1. Planning Context and Considerations

The VSRP is framed within the context of the multimodal passenger and freight transportation corridors in the Commonwealth, including rail lines, highways, airways, and waterways. The rail plan must also be understood within a multi-state and national transportation environment.

### 2.2. Past Accomplishments (2008–2013)

#### 2.2.1. Major Legislative Accomplishments

The Commonwealth set the national pace in preparation for the October 2013 implementation of the *Passenger Rail Infrastructure Improvement Act* (PRIIA 2008) Section 209 provisions where all regional train service in America must be supported by the states or cease to operate. In 2010, DRPT responded to the General Assembly's request to identify the need for a funding program for the continuation of regional Amtrak service. The General Assembly responded to the Administration's findings in 2011 to create the Intercity Passenger Rail Operating and Capital Fund (IPROC). IPROC is the first of its kind in the nation, as it establishes a legislative basis for supporting state-funded regional Amtrak trains. IPROC is authorized to fund the continued operation of Amtrak Virginia's regional trains, expand regional service, invest in the Commonwealth's development of passenger rail infrastructure, and match federal high-speed rail funding. The 2012 General Assembly provided \$55 million in funding by special appropriation to cover the cost of operating intercity passenger rail service for two years. In 2013, in its landmark transportation funding legislation, the Virginia General Assembly created a dedicated revenue source for IPROC, securing the continuation of Amtrak regional service in Virginia and creating a sustainable revenue stream to develop new intercity rail service enhancements within the strategic corridors identified. IPROC and its dedicated funding source have not been duplicated by any other state in America.

In another pace setting effort, the Virginia General Assembly, in 2013, granted DRPT, by law, the right to acquire and hold title to the land necessary to construct railway lines in order to reduce traffic congestion on highways and shift traffic to rail transportation, including lines for higher speed passenger rail that will shift traffic from the highways to passenger rail and thereby reduce traffic congestion. DRPT will work with CSX to purchase the retired right-of-way between Petersburg and Norlina to preserve this line section for the future development of the high-speed corridor.

#### 2.2.2. Major Projects Underway or Completed

Virginia has been one of the leading states in implementing publicly funded, joint venture freight and passenger rail improvements, including projects to support rail access for businesses and to ensure shortline railroads are maintained in a state of good repair. Virginia has made significant rail investments in the I-95, I-81, and U.S. Route 460 corridors to relieve highway and rail congestion, to increase rail movements from the Port of Virginia, and to advance high-speed rail.

Projects are funded through public-private partnerships relying on a variety of DRPT programs, including the Rail Enhancement Fund, Rail Preservation Program, Rail Industrial Access Fund, Rail Bonds, VTA2000 funds, and IPROC.

### 2.2.2.1. Rail Enhancement Fund Projects

The Rail Enhancement Fund was initiated in 2005 and is the first dedicated source of funding for passenger and freight rail improvements in Virginia history. The fund supports capital improvements for passenger and freight rail transportation throughout Virginia. Total funding between FY2013 and FY2018 was projected to be about \$90 million.<sup>1</sup> REF applicants must provide detailed information regarding projected freight and passenger rail demand, volume, frequency, travel distance, and reductions in at-grade crossing delays as a result of the project. This data populates an extensive benefit cost analysis to ensure that projects have immediate and substantial public benefit equal to or greater than the public investment. Grants require a minimum of 30 percent cash or in-kind matching contribution from a private source, which may include a railroad, a regional authority, a local government source, or a combination of such sources. Funds may be used as matching funds for federal grants to support passenger and freight rail projects. A brief description of some of the major projects completed or underway using public-private partnerships through REF are shown below.

#### NIT Marshalling Yard →

The VPA Norfolk International Terminal's rail yard was expanded to a total capacity of 37,000 track feet through construction of an additional 24,000 feet of railroad track, ties and ballast, several switches, Portsmouth Subdivision clearances, connections to the Commonwealth Railway, heavy-duty pavement in the rail yard area, container handling areas, and associated civil site utility and electrical infrastructure.



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<sup>1</sup> <http://drpt.virginia.gov/about/files/FY13%20SYIP%20Final%20Approved%207-18-2012.pdf>

**Kilby Support Yard →**

The Kilby Support Yard was rehabilitated and expanded along CSX's National Gateway. The project included rehabilitating an existing 5,130-foot siding and extending the siding to a total of 14,600 feet; constructing a #15 Timber Universal Crossover; constructing two new 4,000 support tracks; and extending the signal system through the yard.

**Norfolk Passenger Service →**

Infrastructure necessary to support intercity passenger service between Norfolk and Petersburg was upgraded and constructed, including right-of-way, track, signal, station, train turning, and storage and service facilities. Improvements were made to accommodate three round trips per day at a maximum speed of 79 miles per hour.



### Norfolk Southern Crescent Corridor: Berryville and Elkton →

In Berryville (Clarke County), 10 percent of cross-ties were replaced and the existing passing track surfaced; existing #12 turnouts were replaced with #20 turnouts; and 5,300 feet of new passing track was constructed for a total length of 11,000 feet. In Elkton (Rockingham County), 11,000 feet of new passing track was constructed with #20 turnouts at either end.



### VRE Automatic Train Control →

An automatic train control system was designed and installed with locomotive cab signals on the CSX RF&P Subdivision between milepost CFP 110 in Arlington and CFP 112.3 in Washington D.C. This highly congested section of the 112.3-mile RF&P corridor was the only area without automatic train control systems.



**Heartland Corridor Double Stack →**

Vertical clearances were raised in 28 tunnels and 24 overhead obstructions were removed to clear NS's Heartland Corridor for double stack trains. The project saves NS trains from traveling 200 miles and saves 24 hours of travel time.

**2.2.2.2. Rail Preservation Program Projects**

Since the Shortline Railway Preservation and Development Fund was created in 1992, the Commonwealth has invested between \$3 and \$6 million annually to preserve and develop Virginia's shortline railroad network through the RPP. Example rail preservation projects are shown below.

**Tie Replacement →**

The RPP aims to maintain FRA Class 2 track safety standards. This allows railroads to operate at certain speeds and ensures the rail network is a viable alternative to truck transportation where rail has a competitive advantage. Tie replacement projects are multi-year projects that systematically replace worn out ties and may include ballast, surfacing, and tamping.



### Rail and Crossover Rehabilitation →

The RPP fund improves the capacity of railroads through construction of sidings in strategic locations as well as rehabilitation of switches and crossovers in rail yards.



### Technology Improvements →

The RPP improves the capacity of shortline railroads through upgrading technology. Two recent technology improvement projects are the rehabilitation of the electrical and remote control system of the Elizabeth River Bridge vertical lift span and the upgrade of the signal system on the Buckingham Branch Railroad's North Mountain and Orange Branch Divisions.



#### 2.2.2.3. Rail Industrial Access Fund Projects

Since RIA was started in 1986, over \$40 million has been invested by the Commonwealth to provide rail access to businesses in Virginia in conjunction with VEDP, local economic development groups, railroads, and private industry. RIA grant projects are available for up to \$450,000 per locality each fiscal year. RIA is an economic incentive program for companies locating or expanding in Virginia that can ship by rail, diverting trucks from Virginia's highways. Grants are often awarded to projects considered for the Governor's opportunity fund.

Companies vary from quarry and mining operations in the mountains to grain shipments out of the Hampton Roads port facilities. Grantees must meet public benefit requirements by achieving specified employment and rail shipment levels.



#### 2.2.2.4. Amtrak Virginia Expansion

In 2009, the Commonwealth of Virginia and Amtrak partnered to form *AmtrakVirginia*, the 15th state-subsidized regional intercity Amtrak service in the United States. This partnership launched three new service expansions between Virginia and the Amtrak Northeast Corridor. These trains serve as extensions of Amtrak's Northeast Regional service and include trains that had previously terminated in Washington, D.C. In October 2009, new daily service was launched between Lynchburg and the Northeast Corridor. On July 20, 2010, Amtrak Virginia increased daily service between Richmond and the Northeast Corridor. Six regional trains serve Richmond, and two of them continue to Newport News. Service between Norfolk and the Northeast Corridor began December 12, 2012. Norfolk service required a new rail connection between CSX and NS in Petersburg. It restored rail service to Norfolk for the first time since 1977 and brought Amtrak Northeast Corridor direct train service to Norfolk for the first time in the history of Amtrak. Norfolk service was made possible by a partnership among DRPT, the City of Norfolk, Amtrak, CSX, and NS.

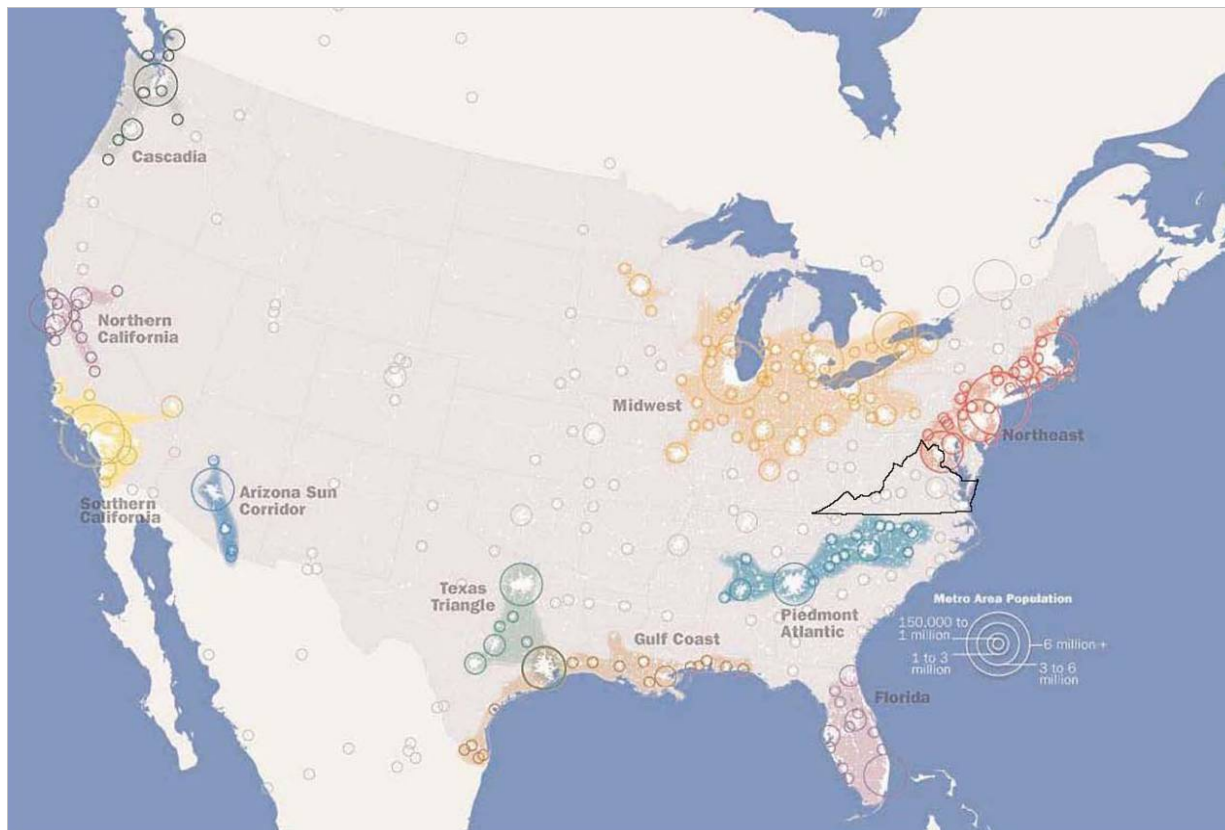
### 2.3. Population Growth Trends

Population growth is a critical driver of passenger and freight needs.

#### 2.3.1. Megaregions

The Regional Plan Association, an urban research and advocacy group, launched an infrastructure research initiative called *America 2050* in 2005. One of the group's initial reports, *America 2050—A Prospectus*, came out in 2006 with the intention of providing a framework for understanding the policies and investments needed to accommodate the United State's growth in the 21st century. According to *America 2050*, most of the nation's rapid population growth, and an even larger share of its economic expansion, is expected to occur in 10 or more emerging megaregions—large networks of metropolitan regions. Megaregions cover thousands of square miles and are located in every part of the country. Megaregions are defined by layers of relationships that together define a common interest. This common interest then forms the basis for policy decisions. The five major categories of relationships that define megaregions are (1) environmental systems and topography, (2) infrastructure systems, (3) economic linkages, (4) settlement patterns and land use, and (5) shared culture and history.

The 10 megaregions in the country are shown in Figure 2-1. Virginia is part of, and a vital link between, the Northeast and Piedmont Atlantic megaregions of the East Coast.

**Figure 2-1: National Megaregions**

(Source: *America 2050—A Prospectus*)

- Northeast**—The Northeast is a powerhouse of density and economic output, producing 20 percent of the nation’s gross domestic product with 18 percent of the population and only 2 percent of the nation’s land area. Over the next generation, the Northeast will add 18 million new residents. This population growth will demand infrastructure investments and economic growth to accommodate these new residents while preserving quality of life. According to the report, Virginia is located within the Northeast megaregion.
- Piedmont Atlantic**—The low cost of living and high quality of life in the Southeast are two reasons for this megaregion’s booming population, which is anchored by Atlanta, Georgia, but stretches east to Raleigh, North Carolina, and west to Birmingham, Alabama. The region is facing challenges associated with its growing population, such as increased traffic congestion, runaway land consumption, and inadequate infrastructure that it hopes to address with sustainable solutions.

Another report was completed in 2011 as part of the *America-2050* initiative, entitled “*High-Speed Rail in America.*” This study evaluated the potential high-speed rail ridership of a series of rail corridors. Seventeen corridors were defined within the Northeast megaregion. Four of those are considered part of Amtrak’s Northeast Corridor (NEC) and include Boston, New York, Philadelphia, Baltimore, and Washington, D.C. The other twelve are considered off the mainline NEC. Of those twelve, the Washington, D.C., to Richmond corridor received exceptional scores for high-speed rail suitability, second only to the New York-Albany corridor in New York State.



Transportation challenges span across multi-state regions and cannot be solved at solely the state level. One example of a challenge that requires coordination at the megaregional scale is that of moving goods efficiently from coastal ports through congested metropolitan areas to reach inland destinations. The *America 2050* report states that one way megaregions can prepare for future population pressures is by marshalling resources to make major investments in high-speed rail and other mobility infrastructure, protecting environmental resources, coordinating economic development strategies, and making land use decisions that encompass all of these.

*America 2050* identified six major trends that will shape America's future. Taken together, these trends provide the need for a national strategy to meet new challenges. These trends are (1) new global trading patterns, (2) rapid population growth and demographic change, (3) inefficient land use, (4) uneven and inequitable growth patterns within and among regions, (5) the mounting energy crisis and global climate change, and (6) metropolitan infrastructure that is reaching the limits of its capacity.

### 2.3.2. Virginia

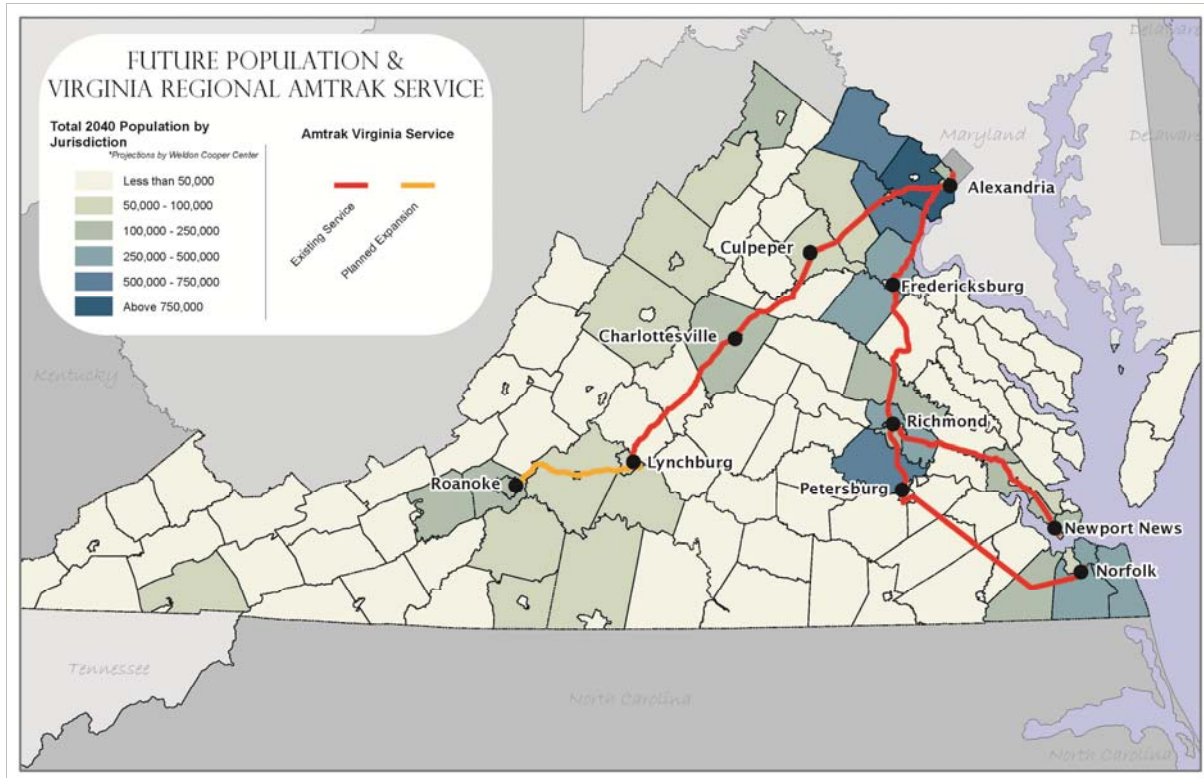
Transportation is an economic and social activity, and increasing demand for transportation infrastructure and services is driven by a number of key factors. Principal among these are growth in population and employment, and changes in economic activity. Population density and growth trends for the future have particular significance for rail transportation services in the Commonwealth.

Between 2010 and 2040, Virginia's population is expected to increase from the 2010 Census estimate of over 8 million to close to 11 million residents, a 37-percent increase (source: Virginia Center for Transportation Innovation and Research, based on Weldon Cooper Center data). Figure 2-2 shows the portion of 2040 population living in Virginia's counties and cities. The Commonwealth's expected population growth rate far exceeds that of the U.S. as a whole (25 percent) during the same time period. In many of the state's urban areas, where 7 out of 10 Virginians currently reside, growth is projected to be even higher. The concentration is heaviest in the metropolitan regions of Washington, D.C., Richmond, and Hampton Roads. These regions are connected by the I-64 and I-95 transportation corridors. These two corridors intersect to form a "crescent," and hence this geography has been named the Urban Crescent.

Most of the growth is due to people immigrating into the state. They are drawn to Virginia because of economic opportunities, largely in urban areas, and contribute to the higher population growth rates in these areas.

The Commonwealth has been consistently rated as one of the fastest growing and best states for business. Virginia is strategically located within the nation's transportation network—Dulles International Airport and the Port of Virginia are important international gateways, I-95 and I-81 represent major north-south arteries for the flow of people and goods throughout the eastern U.S., and I-64 and U.S. Route 460 serve east-west passengers and carry freight to and from the port.

According to the Commonwealth's *2012 Virginia Performs* statistics and the U.S. Bureau of Economic Analysis, Virginia's employment rate shrank less than the national rate from 2008 to 2010 as both the Commonwealth and the nation experienced negative employment growth rates. In 2010, Virginia's employment growth rate was ranked 16th in the nation at -0.033 percent. North Dakota, the fastest growing state, had a growth rate of 2.05 percent. Maryland's employment growth rate (-0.03 percent) was only slightly better than Virginia's, and Tennessee (-0.6 percent) and North Carolina (-0.53 percent) had more negative job growth than Virginia. The national employment growth rate was -0.25 percent. Thirteen states had positive growth rates in 2010. Although Virginia employment grew in 2011 (0.99 percent), growth slightly lagged that of the U.S. (1.27 percent). Virginia's employment growth was slower than peer states: Maryland (1.17 percent), North Carolina (1.26 percent), and Tennessee (1.51 percent).

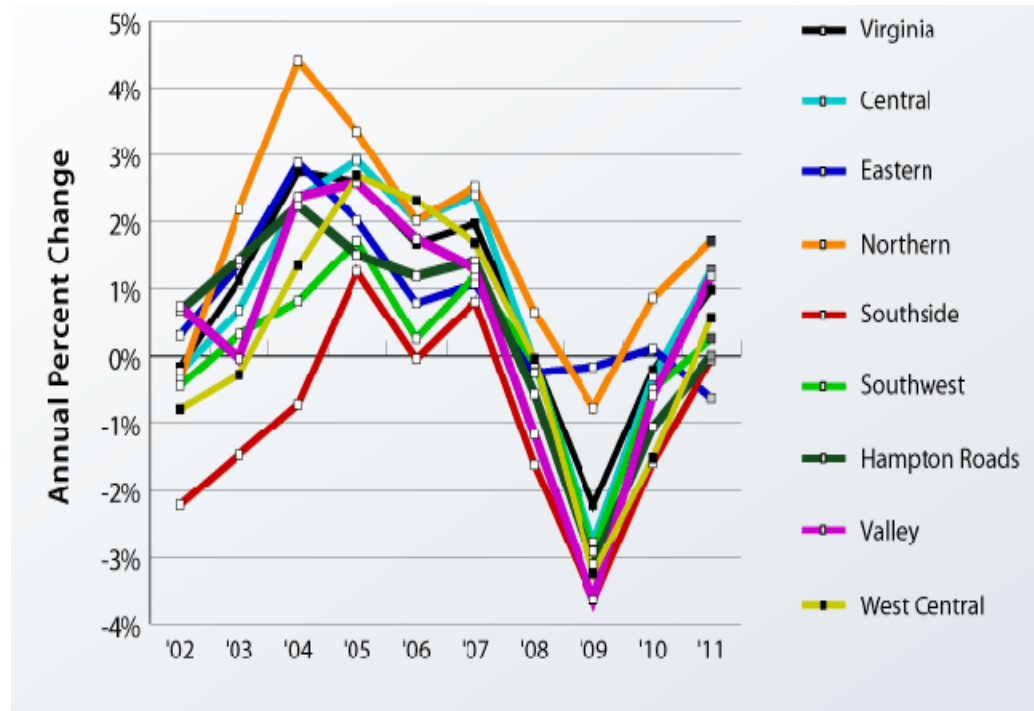
**Figure 2-2: County Percentage of Virginia Population in 2040**

(Source: Weldon Cooper Center)

Regional differences in employment growth within Virginia are illustrated in Figure 2-3. The 2011 data indicate that Northern Virginia (1.72 percent) was the fastest growing region in the state over the previous year. The Central region registered 1.28 percent and the Valley region grew 1.19 percent. The Eastern and Southside regions experienced employment losses, while employment was essentially flat in Virginia's remaining regions. The regions of Virginia are shown on Figure 2-4.

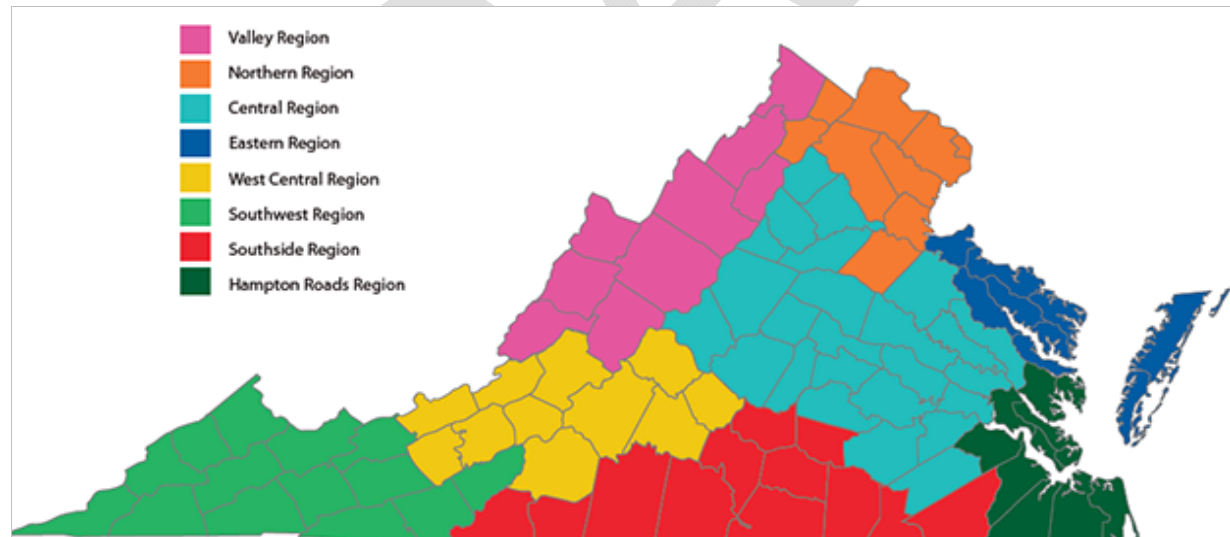
The state's primary role in employment growth is to provide the infrastructure—transportation, education and training, workforce development, and other public services—that reduces the transaction costs associated with economic activity. Adequate infrastructure, including rail, enables private business, the engine of employment growth, to respond better to emerging economic opportunities.

**Figure 2-3: Annual Percentage Change in Employment by Virginia Region**



(Source: 2012 Virginia Performs)

**Figure 2-4: Virginia Regions**



(Source: 2012 Virginia Performs)

## 2.4. Economic Development and Rail Modal Interface

Virginia continues to receive prominent accolades for its business climate and is consistently ranked in the top three best states for business by Forbes.com and CNBC. These rankings consider categories such as cost of doing business, economic growth, quality of workforce, and cost of living. This business-friendly climate is home to nearly 13,000 high-tech companies and 31 Fortune 1,000 firms that contribute to Virginia's robust and growing economy. Effective rail transportation enhances this environment and creates direct economic benefits by reducing the costs of transportation; expanding the accessibility of businesses to suppliers, labor, and consumer markets; and attracting new entrepreneurial opportunities. An efficient transportation network with rail access to major shipping and travel destinations in Virginia and nationwide is a powerful combination for potential economic development.

Virginia's business climate, combined with anticipated growth from the port, makes Virginia a natural choice for port-related economic development, which is reflected in VPA's estimate that over 60 million square feet of additional distribution center space will be needed over the next 25 years to keep pace with containerized exports and imports in Virginia. The Commonwealth's superior rail and highway transportation system will afford companies access to the port, along with the freedom to choose a region of the state that is most suitable in terms of workforce and real estate costs.

Virginia is poised to handle this growth without overtaxing infrastructure and resources by using economic development strategies that match industries with locations that are best suited to handle infrastructure needs. Virginia is known for its strong state economic development program, led by VEDP, and the way it collaborates with communities and other economic development allies statewide to develop economic development sites with access to the most readily available infrastructure, including rail transportation. Specifically, VEDP maintains a searchable database of available sites and buildings, with detailed information about rail access and potential rail access, and coordinates with DRPT to determine how companies may take advantage of existing rail access and potentially upgrade rail access with assistance from the RIA grant program.

Business climate is influenced by a number of factors, including the cost of labor, transportation, and energy; tax and regulatory burdens placed on businesses; and quality of life. Centrally located on the U.S. East Coast, Virginia's integrated transportation system of highways, railroads, airports, and seaports ensures that businesses can reach all global markets and get shipments from suppliers more efficiently. Virginia offers five foreign trade zones designed to encourage businesses to participate in international trade by effectively eliminating or reducing customs duties. Numerous subzones are provided and additional ones can be designated to enhance the trade capabilities of specific companies.

A key component of freight movement in Virginia is the more than 240 port-related distribution centers located throughout the Commonwealth. Major distribution facilities are found in all regions of the Commonwealth—particularly near intermodal facilities, where there is good rail and highway access. Since the mid-1990s, the square footage of these distribution centers has increased by almost 13 percent annually. Many of these distribution centers are rail-served for the import or export of containerized cargo. These distribution centers not only house cargo, but also serve as transfer points for goods moving from the port to intended destinations.

According to VPA's *2008 Master Plan for 2040*, the Port's success has generated huge economic benefits to the Commonwealth. Annually, port-related business sustains 190,000 jobs directly or through business-to-business purchases and induces an additional 153,000 jobs through employee spending, while generating \$13.5 billion in wages and compensation and \$41.1 billion in local and state tax revenues. Since 1996, port-related warehousing and distribution investment has increased by over \$416 million and employed over 12,000 people in the Hampton Roads area alone. The robust rail network provides the connection between the Port of Virginia and interior

markets and is a key component that enables this port-related economic development to happen. VIP, connected to the marine terminals by daily rail service, has attracted some 24 warehousing and distribution centers, which have invested \$748 million with over 8 million square feet of space together with employee levels of over 8,000 workers. Household names like Wal-Mart, Target, Home Depot, Dollar Tree, and Cost Plus have established distribution facilities in the Commonwealth in large measure due to the presence of world-class port facilities coupled with excellent rail and highway access.

The planned NS intermodal facility near Roanoke is estimated to increase annual employment in the area by between 740 and 2,900, raising \$18 million to \$71 million in annual tax revenues.<sup>2</sup> This facility is planned as a component of the NS Heartland Corridor. When fully constructed, the facility is estimated to handle about 30,000 containers per year.

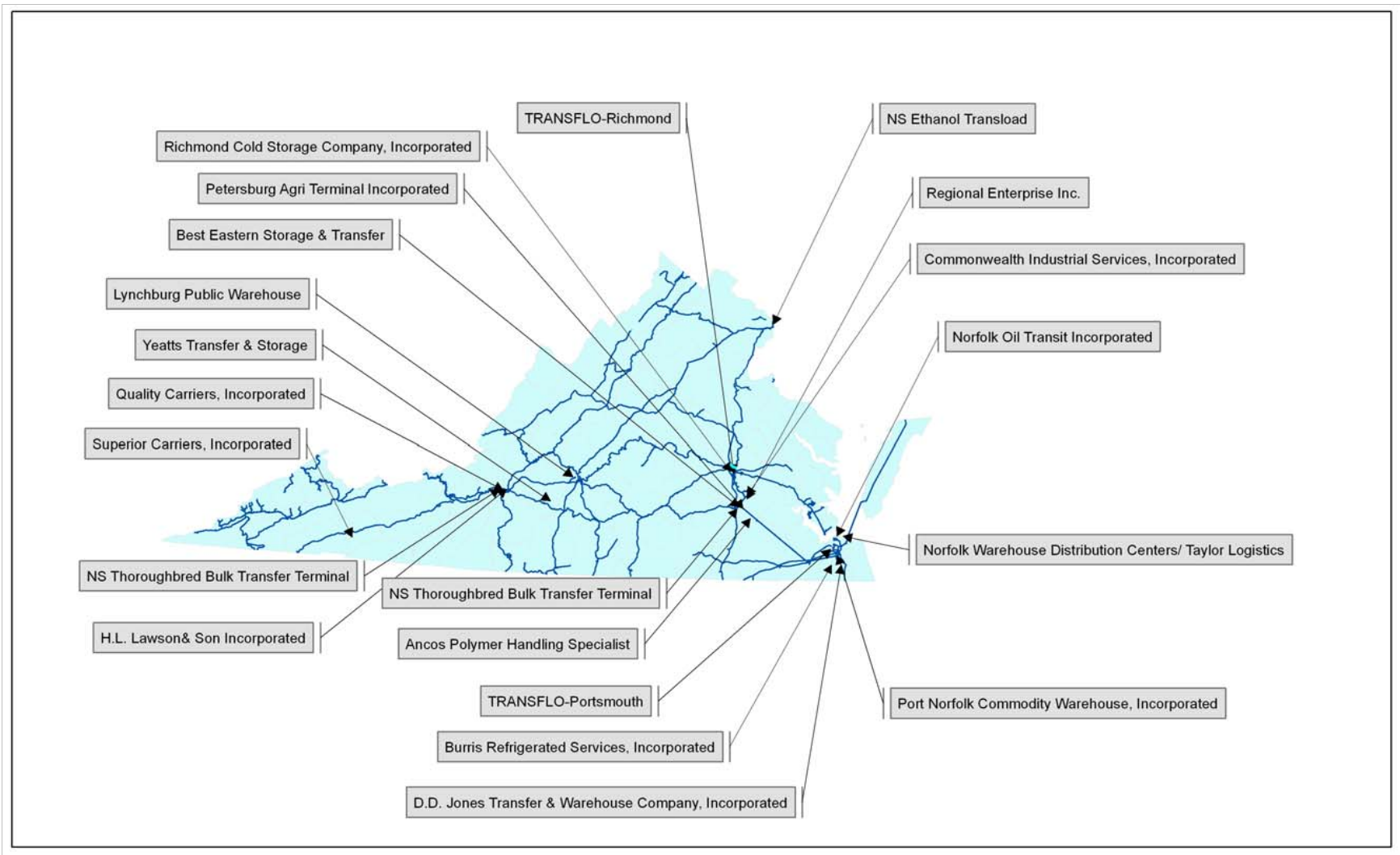
Virginia's rail system, with connections to the Port of Virginia, the Midwest, and the Eastern Seaboard, has helped position communities throughout the Commonwealth to attract business. Distribution facilities are particularly well suited to Virginia's transportation system. Industries are exploring the concept of large intermodal business parks with a central intermodal yard that could serve numerous manufacturing, warehousing, and distribution centers on the same site. Virginia includes several major intermodal rail corridors, including the NS Crescent and Heartland Corridors and CSX's National Gateway. Further development of needed rail infrastructure to support the growing container trade will continue to be a high priority for the Commonwealth, in addition to moving coal exports by rail, as Virginia is home to two of three Mid-Atlantic coal terminals.

In addition to port and containerized truck/rail intermodal connections, numerous non-containerized truck/rail facilities are located within the Commonwealth. Figure 2-5 displays a sampling of non-containerized truck/rail transfer facilities within the state from the U.S. Bureau of Transportation Statistics National Transportation Atlas Database (NTAD). This is based upon a dataset that was originally developed by the Oak Ridge National Laboratory in 2002 from a variety of sources but has been updated since then. Each facility listed on Figure 2-5 has been checked to verify that the facility is still in operation as of May 2012 and that the name of the facility is current and accurate. These facilities have also been compared to non-containerized facilities listed on the CSX and NS websites. This is not an exhaustive list of all non-containerized truck/rail facilities in the Commonwealth.

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<sup>2</sup> Virginia Department of Rail and Public Transportation, *Roanoke Region Intermodal Facility Report*, March 2008.

**Figure 2-5: 2012 Non-Containerized Truck/Rail Transfer Facilities in Virginia**



(Source: National Transportation Atlas Database, verification by PB)

## 2.5. Transportation System Considerations

Virginia must plan today to support its future prosperity. Additional economic and population growth means that travel demand will continue to increase over the next 20 years. The functionality of Virginia's transportation system is a result of investment decisions made more than 10 to 20 years ago. The costs of maintaining roads, rail, transit, port, and aviation networks are increasing and compete with limited dollars for new investments. According to *Virginia Performs*, Virginia's goal is to ensure that the transportation system is safe, enables easy movement of people and goods, enhances the economy, and improves quality of life. Virginia has the third largest state-maintained highway system in the nation. The Port of Virginia, Dulles International Airport, and the I-81, I-95, I-64, I-66, and U.S. Route 460 corridors are gateways to international markets and major economic engines for the state.

### 2.5.1. Highways

Virginia's major transportation corridors are heavily used for both local and long distance travel. Figure 2-6 displays key highways in Virginia.

- I-95 stretches from Washington, D.C., through Richmond to the North Carolina border and is significantly congested in the Washington, D.C., and Richmond areas.
- The I-81 corridor lies in the western half of the state and runs through the mountains from West Virginia in the north to Tennessee in the south. The entire corridor will be experiencing significant congestion in 20 years.
- I-64 traverses the state east to west from Hampton Roads, passing through Richmond, and on to West Virginia. It is significantly congested in Richmond and Hampton Roads today and, in the future, will be congested in the Staunton area.
- U.S. Route 460 is a parallel road to I-64 and serves as more of a local route.
- The I-66 corridor runs from Northern Virginia west to I-81 and allows access to suburban and rural areas west of Washington, D.C., and is extremely congested in Northern Virginia.

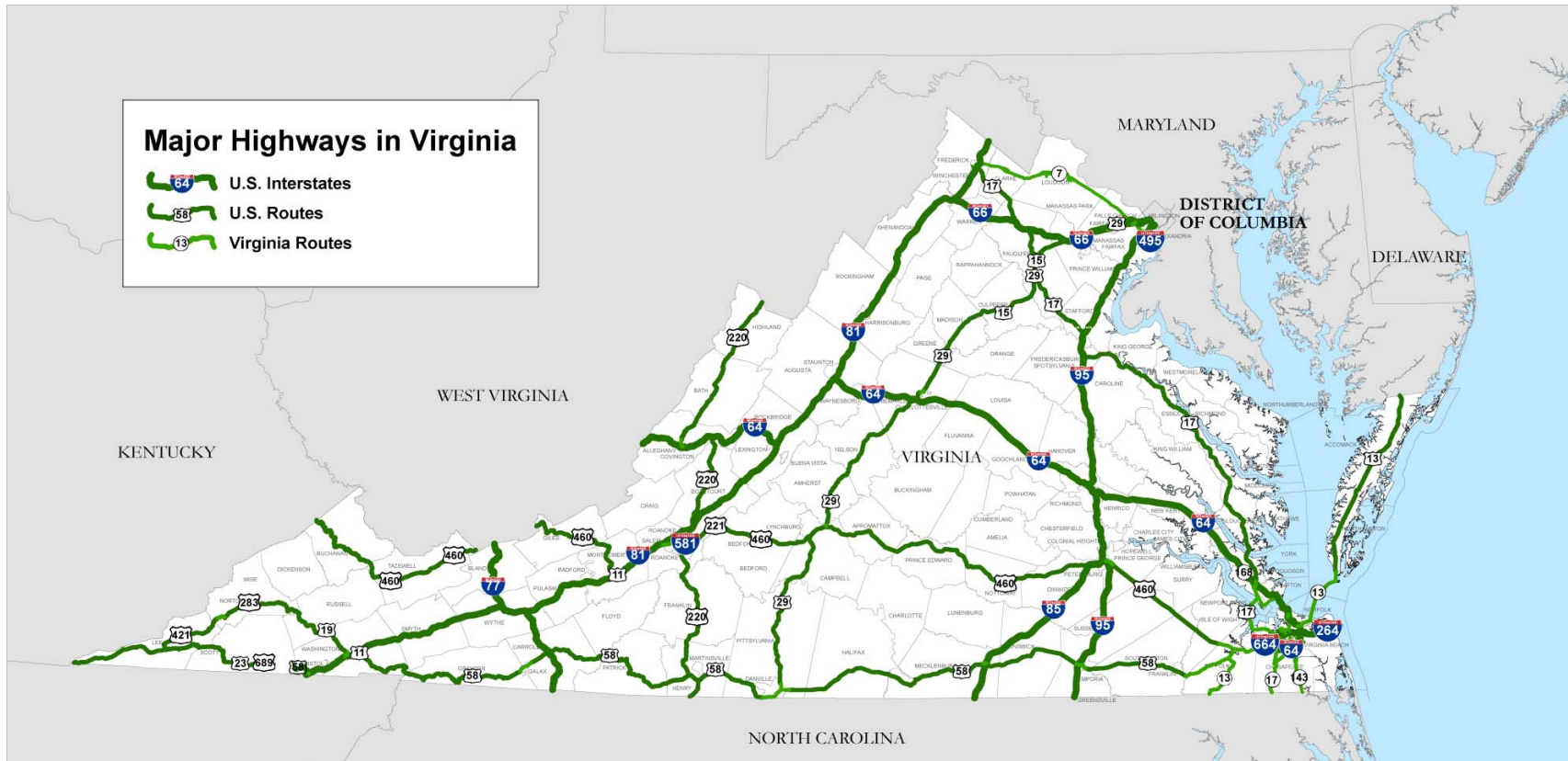
### 2.5.2. Commuting Patterns and Congestion

Highway congestion is a major issue within the Commonwealth.

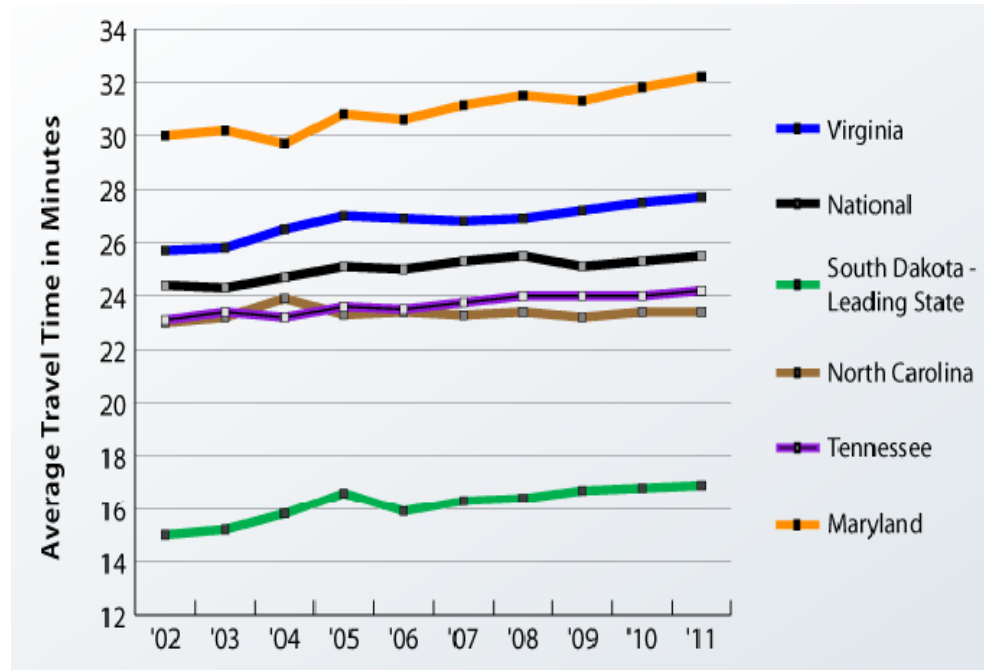
- According to the *2012 Virginia Performs*, Virginia's average commute time to work in 2011 was 27.7 minutes, the sixth highest in the nation and about 9 percent higher than the national average of 25.5 minutes. As shown in Figure 2-7, the average commute in Virginia has been increasing, rising from 26.8 minutes in 2007 to 27.7 minutes in 2011.
- According to another report by the Texas Transportation Institute,<sup>3</sup> the Washington, D.C., metro area, including Northern Virginia, was the most congested area in the nation in 2011, costing the average commuter 67 hours of delay and approximately 32 gallons of excess fuel (\$1,398 annually). Traffic congestion presents more than a headache for commuters; it has a negative impact on the delivery of goods and services and on the general well-being of citizens.
- The Hampton Roads area also experiences high levels of congestion. The Virginia Beach metro area was the seventh worst among metro areas of 1 to 3 million people, costing the average commuter 43 hours of delay and 19 gallons of excess fuel (\$877 annually).

<sup>3</sup> Texas Transportation Institute, *2012 Urban Mobility Report*.

Figure 2-6: Key Virginia Highways





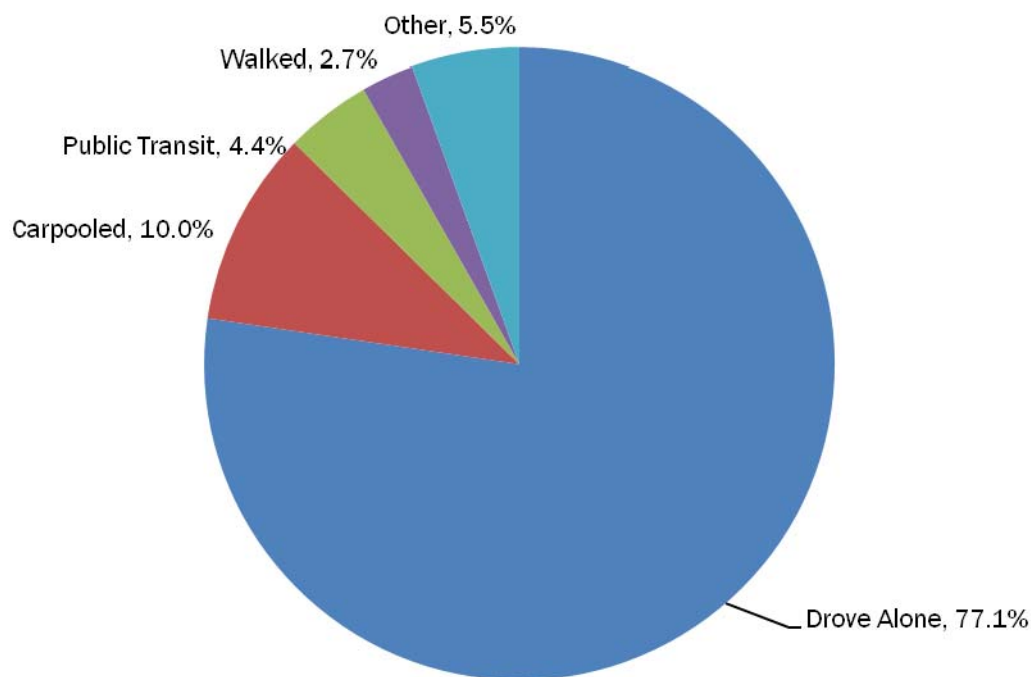
**Figure 2-7: Average Travel Time to Work by State**

(Source: 2012 *Virginia Performs*)

- The Richmond metro area was the 16th worst among metro areas of 500,000 to 1 million people, costing the average commuter 29 hours of delay and 12 excess gallons of fuel (\$581 annually).

Lane-mile use has increased over time; since the mid-1960s, Virginia has experienced a decline in both lane-miles relative to population and lane-miles relative to state gross domestic product. Locally, the U.S. Census measured average commute time for 28 of Virginia's larger counties and cities in 2011. The longest average commute times were all in the Northern region, with Prince William County, Stafford County, and Fauquier County clocking in with commutes at or over 40 minutes. Lynchburg City (16.7 minutes) in the West Central region again had the shortest commute time in the Census study.

The single occupant vehicle (SOV) is the predominant mode of choice for daily commuting (77 percent), followed by carpool (10 percent) and public transportation (4.4 percent), as shown in Figure 2-8. It should be noted that public transportation covers all forms of public transportation, including bus and rail, but not taxis. Virginia's commuting patterns are similar to those of the U.S. (76.6 percent SOV, 9.7 percent carpool, and 4.9 percent public transportation). More people take public transportation in Virginia than Tennessee (0.7 percent) and North Carolina (1 percent) where more people travel by SOV (83.6 and 81.9 percent, respectively), but more people take public transportation in Maryland (8.6 percent) where fewer people choose SOV (73 percent). In Virginia, as in the U.S., commuting patterns for younger workers (16 to 44) are different than older workers (45+). Fewer young workers use SOV (75.1 vs. 79.8 percent), and more young workers carpool (11.0 vs. 8.6 percent) and take public transportation (5.0 vs. 3.6 percent).

**Figure 2-8: 2010 U.S. Census Virginia Commuter Movements by Mode**

(Source U.S. Census Bureau)

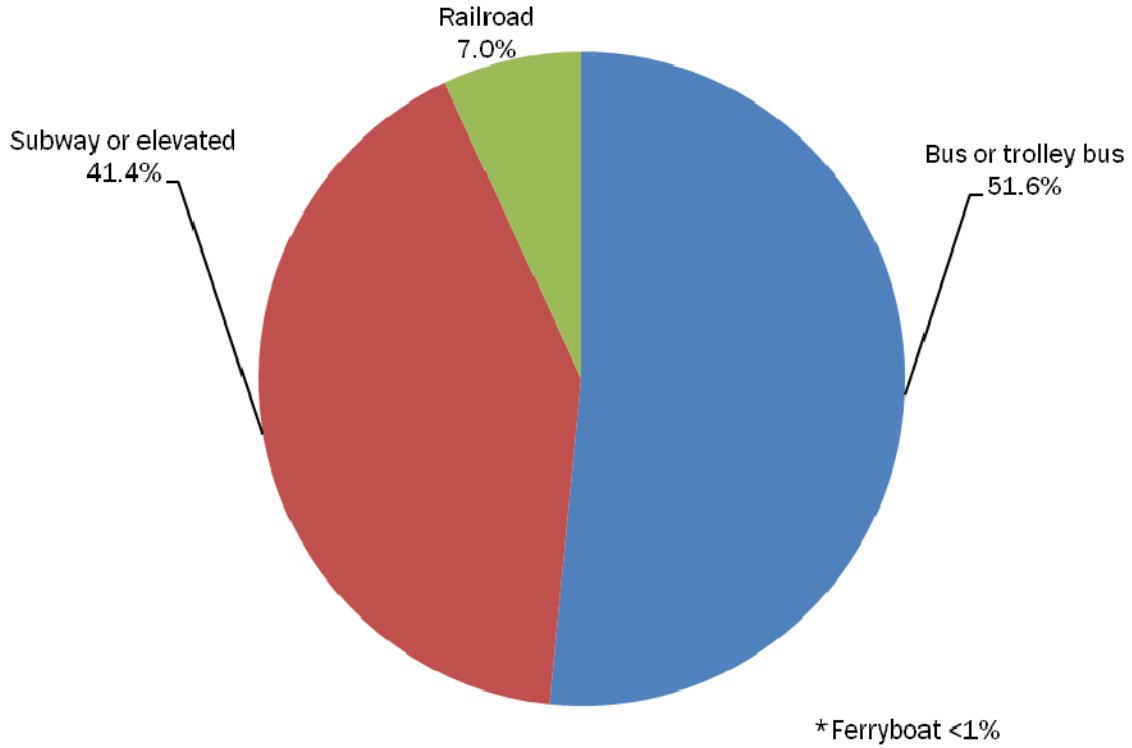
Figure 2-9 breaks the public transit piece of the pie found in Figure 2-8 into the different available modes in Virginia. As can be seen in this graphic, WMATA Metrorail, the only subway/elevated train, has the largest ridership of any of the facilities in the state. The Norfolk Tide light rail service began in August 2011 and its ridership is not included.

Today, as a result of increased travel demand, 47 percent of Virginia interstates and 13 percent of the primary systems lane-miles are deficient in terms of capacity while vehicle miles of travel indicate that travel on Virginia's roads is outpacing the national average. The cost of construction for new roads is challenged by rising maintenance costs that receive the first spending priority and consume approximately 42 percent of VDOT's budget and the declining buying power of construction dollars. If just the highway construction monies are considered, maintenance takes 75 percent of the total. In 2011, 80.3 percent of interstates in Virginia and 77.6 percent of primary roads were in fair or better condition, down from 83 and 84.2 percent, respectively, in 2006. In 2007, 75.8 percent of secondary roads were rated fair or better; by 2011, only 64.2 percent were rated fair or better. This means that the condition of all three classes of roads is falling in Virginia.

Figure 2-10 shows the Virginia average annual daily traffic (AADT) (all vehicle types) for all segments of a given route as bar columns and the corresponding average truck percentages as points with a line for the top 30 transportation corridors and roads in Virginia.

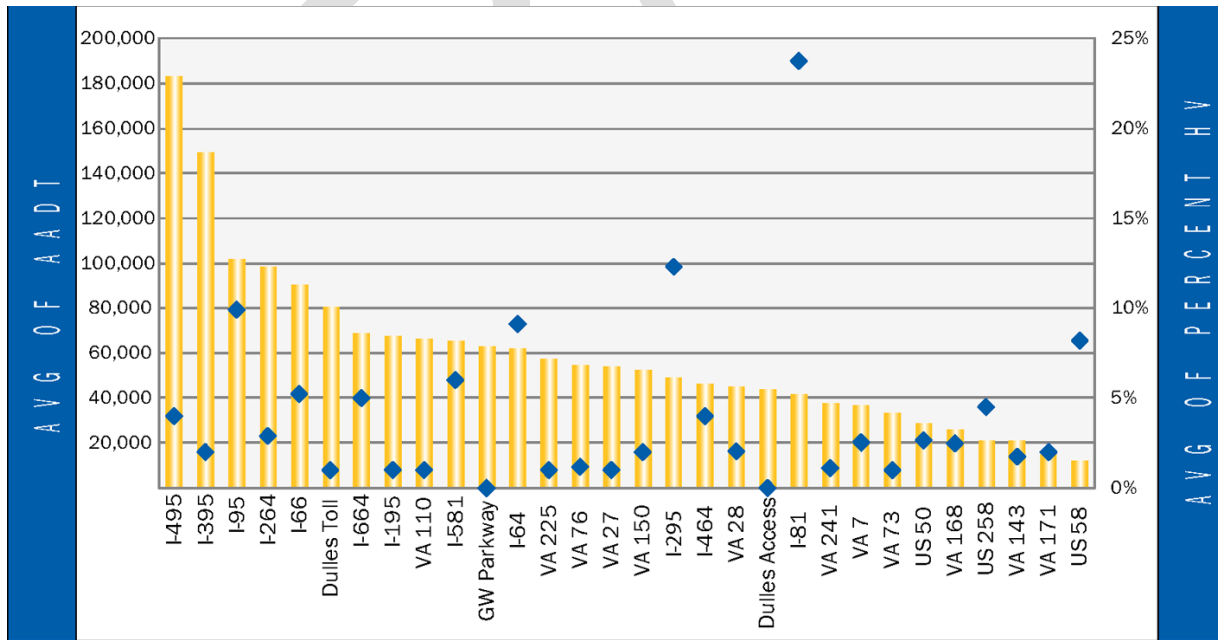
The top 10 routes based on average AADT are I-495 (the Capital Beltway), I-395, I-95, I-264, I-66, the Dulles Toll Road (VA 267), I-664, I-195, VA-110, and I-581. Of these, only I-95 has a truck percentage approaching 10 percent (9.9 percent). Among other top 30 AADT routes, the highest average truck percentages are found on I-81 (24 percent), I-295 (12 percent), and U.S. Route 58 (8 percent). Trucks actually represent a relatively low percentage of AADT on most of Virginia's most heavily used highways.

**Figure 2-9: 2010 U.S. Census Virginia Transit Mode Share**



(Source U.S. Census Bureau)

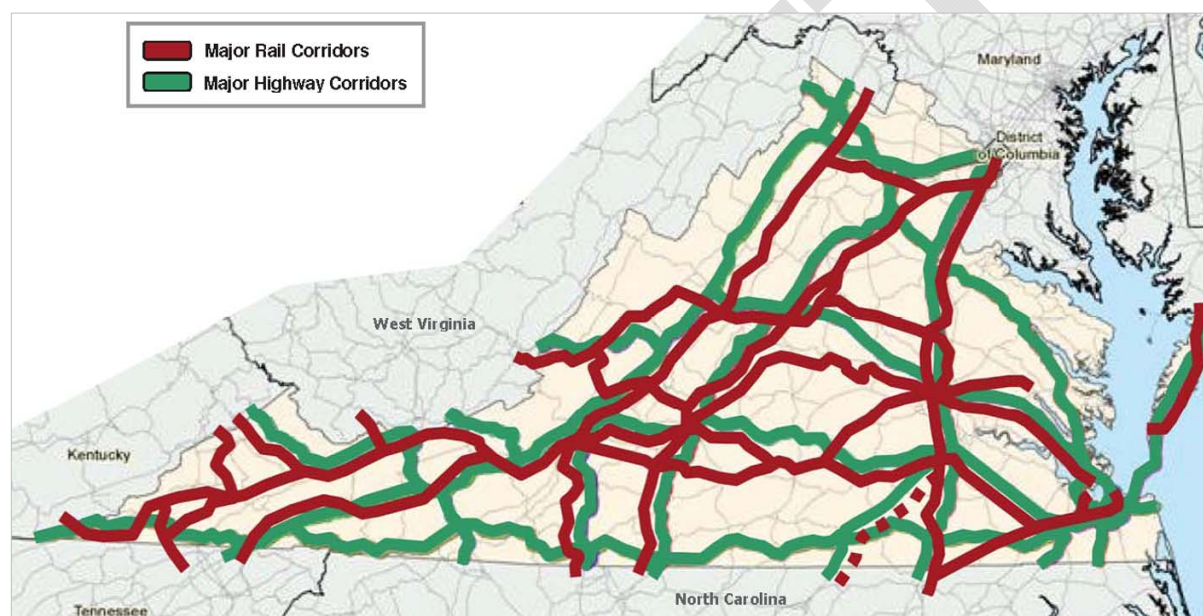
**Figure 2-10: Average Total AADT and Truck Percentages**



(Source: VDOT, 2009 Data, the most recent available at April 2013)

Highway congestion is often evaluated in terms of level of service (LOS) with grades varying from A to F. LOS A is free-flowing traffic with no delays, and LOS F is essentially gridlock. Grades D, E, and F are all associated with significant and increasing congestion. Metropolitan areas like Washington, D.C., Richmond, and Hampton Roads are experiencing a level of congestion that causes traffic delays and backups. Assuming no improvements to the highway capacity and an increase in travel demand based on current travel patterns and mode choices, the level of congestion will spread from the metro areas into the main transportation corridors causing traffic delays statewide.

The relatively close proximity of the rail network in the Commonwealth to major highway transportation corridors is shown on Figure 2-11. Implementation of key rail improvements provides cost-effective and environmentally friendly alternatives to remove passenger cars from congested highway systems by providing improved passenger rail service and to remove trucks from congested highway systems by providing improved freight rail service.



**Figure 2-11: Virginia Rail and Highway Corridors**

### 2.5.3. Port/Intermodal

The Virginia Port Authority (VPA) is a political subdivision of the Commonwealth of Virginia with the purpose of stimulating commerce of the ports of the Commonwealth, promoting the shipment of goods and cargoes through the ports, improving the navigable tidal waters of the Commonwealth, and, in general, performing any act or function that may be useful in developing, improving, or increasing the commerce of the ports of the Commonwealth. VPA owns and is responsible for the operations and security of three marine terminals—Norfolk International Terminals (NIT), Portsmouth Marine Terminal (PMT), and Newport News Marine Terminal (NNMT)—and an inland intermodal facility, the Virginia Inland Port (VIP) located in Front Royal. These facilities primarily handle import and export containerized and break-bulk cargoes. Virginia International Terminals, Inc. (VIT) is a non-stock, nonprofit corporation that operates marine terminals owned by VPA. Virginia is also home to two additional general cargo marine terminals—APM Terminal in Portsmouth and the Port of Richmond, both leased by VPA. Together these six facilities are known as

the Port of Virginia and represent the second largest port on the U.S. East Coast by tonnage and the third largest by 20-foot equivalent units (TEU). It is the eighth largest port by tonnage in the U.S.

The APM Terminal was opened in 2007 as the most expensive privately owned terminal in the country and marked the first time that a shipping line invested its own capital to construct a marine terminal from the ground up. The terminal is expected to generate \$6.4 billion in economic impact to the Commonwealth over its first 15 years of operation. The APM Terminal is expected to help Virginia meet future marine freight demand through 2027. APMTVA is provided dual CSX/NS rail access over the Commonwealth Railway (CWRY). In addition, NIT and PMT have dual access to CSX and NS through Norfolk and Portsmouth Belt Line (NPBL), but through different commercial terms than APM's dual rail access. On July 6, 2010, the VPA executed a 20-year lease with APM Terminals North America, allowing VPA to assume operations at the Portsmouth. VPA manages all aspects of the Portsmouth terminal through VIT, its private operating company.

The Port of Richmond is owned by the City of Richmond, and is leased and managed by VPA. Port Contractors, Inc., the operator, provides stevedoring services on a full range of supply chain services, including export packaging and transfer, and warehouse and inland distribution services. The Port handles containers, temperature-controlled containers, breakbulk, bulk, and neo-bulk cargo. The James River Barge Line provides twice-weekly Marine Highway service from Hampton Roads to Richmond. The Port of Richmond has rail service provided by CSX with connection over CSX to NS destinations.

In 2012, the Port of Virginia handled 2.11 million TEUs, just shy of the Port's all time high of 2.12 million in 2007. The 1.92 million TEUs handled in 2011 represented 4.5 percent of the nation's 42.7 million TEUs and the first growth in volume at the Port since the volume of trade began to decline in 2009. The Port's TEU growth in containerized cargo is expected to increase by 330 percent between 2013 and 2040.

This growth trend is expected to continue with the opening of the Heartland Corridor in 2010 that provided a more direct double stack route between the Port of Virginia and Chicago through the Appalachian Mountains, the recent clearance of the CSX double stack rail route to Atlanta, the start of CSX National Gateway service, and the planned addition of a third series of locks in the Panama Canal by 2015. To meet the projected increase in volume of container traffic in the future, VPA has developed a multi-faceted strategy to increase the capacity and efficiency of its terminals. This includes replacing obsolete and aged infrastructure through a series of projects that will increase the number of ship berths, expand container yards, and increase rail capacity.

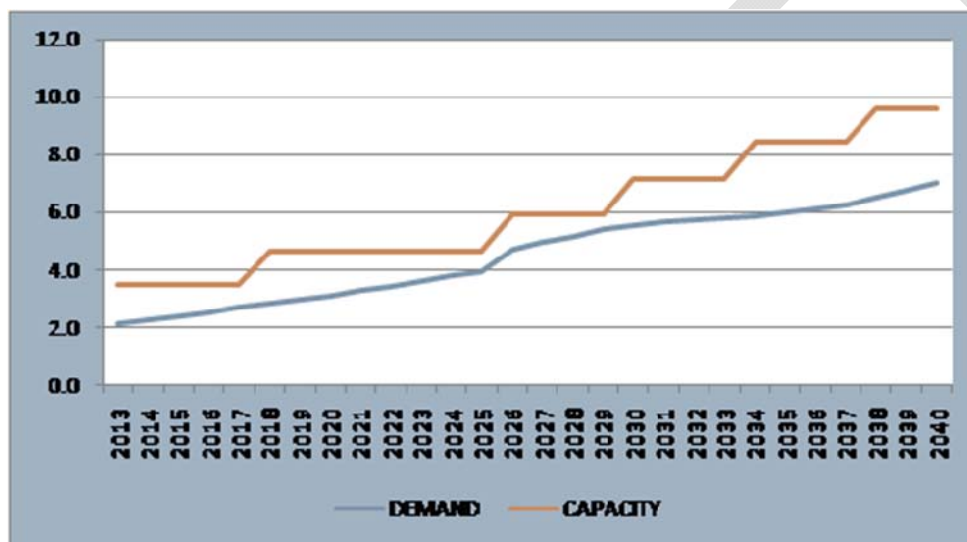
VPA plans to construct a fifth terminal—Craney Island Marine Terminal—which is scheduled to open its first phase in 2026 and second phase in 2038, doubling the terminal's 2026 capacity. This new facility, coupled with expansions and renovations at existing facilities, such as NIT, will allow the Port of Virginia to accommodate over 9.5 million TEUs per year by 2038. This capacity will position the port as the largest on the East Coast based on current TEUs. The possibility of increasing the capacity of APM Terminals in Portsmouth by 1.2 million TEUs has also been raised. An illustration of the planned increased capacity of the port in relation to expected demand is shown in Figure 2-12.

In 2012, NIT handled 600,000 TEUs (over 30 percent of total TEU volume at the terminal) by rail—this is equivalent to 345,000 trucks taken off the highway system. VPA expects the total TEU volume at NIT to increase to 1.4 million TEUs by the year 2017. When fully developed by 2038, the Craney Island Marine Terminal will have the capacity to handle approximately 5 million TEUs per year. VPA's goal is to ship 50 percent of TEUs at Craney Island by rail, removing 5,700 trucks per day from roadways just from this one terminal.

The new generation of containerships can carry 8,000 to 12,000 TEUs per vessel but are so large that they can only be accommodated by port facilities with deepwater (50 to 55 feet deep)

channels and large specialized container cranes to rapidly load and unload vessels. These ships cannot fit through the Panama Canal and thus are called Post-Panamax class vessels. Because of the restriction in Panama, these ships from Asia must call on ports on the West Coast and the goods must be moved across the country by truck or rail to reach East Coast markets. Goods travelling to Asia from the East Coast must make the reverse journey. The Panama Canal is currently undergoing major upgrades to create passages for these large vessels. This will allow the East Coast to compete for Post-Panamax vessels from Asia. Virginia is fortunate with its access to the Atlantic sea-lanes, 50- to 55-foot channels, and world-class terminals at NIT and APM Terminal operated by VPA. The port is equipped with the largest and fastest cranes in the world and is capable of receiving, loading, and unloading Post-Panamax vessels. As of 2012, the Port of Virginia is able to receive larger ships than any other East Coast port. Fifty-foot-deep, warm-water, unobstructed channels provide easy access and maneuvering room for the largest of today's container ships. The port is fully prepared to accommodate 10,000+ TEU ships. Virginia ports are located just 18 miles from the open sea in a year-round ice-free harbor.

**Figure 2-12: Increase of Containerized Cargo (Million TEUs) at Virginia Ports**



The Port of Virginia's largest trade partners by weight in 2011 for exports were Brazil, the Netherlands, Italy, India, and China. The largest import trading partners were China, Columbia, Brazil, Germany, and India. As a result, the Port of Virginia has a large share of foreign trade and is the seventh largest port in the U.S. by tonnage of foreign trade.

The use of rail is a significant part of VPA's plan to enhance the efficiency and cost effectiveness of shipping. In fact, the port already moves a higher percentage of containers by rail than any other East Coast port. Rail volume in 2012 increased to 30 percent of all cargo, though the majority of cargo moving in and out of the Port is transported by trucks. The Port of Virginia is one of three large ports on the East Coast to provide on-dock rail access.

A number of developments have increased the usage of rail at the Port of Virginia's marine terminals. Among these are the following:

- The Heartland Corridor project has increased the use of rail at the Port by providing a shorter double stack train route from Hampton Roads to Chicago, cutting 250 miles and a day's travel for containers moving to the Midwest.
- New and expanded on-dock rail access has been added at AMPT and NIT.

- The CSX National Gateway project, which includes improvements to Kilby Support Yard, enables traffic from the Portsmouth intermodal ramp to be combined with traffic from the APM Terminal. When clearances for double stack service are achieved, it is anticipated that new shipping opportunities will further increase rail volume at the port. The National Gateways initiative involves 61 clearance projects in 6 states, most of which will affect shipments from the Port of Virginia.

In addition to the on dock rail service at the Port of Virginia marine terminals, CSX and NS each operate their own truck/rail intermodal ramps in the Hampton Roads area. The CSX ramp is located in Portsmouth, while the NS terminal is located in Chesapeake. The majority of containers handled at both terminals are domestic. These are larger, 53-foot containers that have higher capacity than the 20-, 40-, or 45-foot ISO (International Organization for Standardization) containers used for international shipping. In some cases, the domestic containers are used for shipping freight between shippers and consignees within the U.S. In other cases, shipments in domestic containers actually contain international trade that is transferred to or from ISO containers at facilities near the port. The NS and CSX terminals also handle limited numbers of international containers that are trucked to/from the Port of Virginia marine terminals.

#### 2.5.4. Aviation

Historically, fuel represented approximately 25 percent of the airline industry costs. Between January 2008 and April 2012, the cost of a gallon of airline fuel has increased by approximately 24 percent. This has created a challenge for the airline industry. Table 2-1 gives the typical travel time (not including the time required for advance check-in at each departure), connections, and costs for flights originating in Bristol, Roanoke, Lynchburg, Charlottesville, and Newport News, terminating in either Washington, D.C., or Richmond. Additionally, a few of the aviation routes are shown graphically on Figure 2-13 along with their travel time and cost versus the same trip via Amtrak passenger rail service. Other than a few selected cities, there are few direct flights, so airline travelers must first fly to a hub airport in another state and then return to Virginia by a connecting flight. This has led intercity passenger rail to be an increasingly competitive choice for medium-distance destinations, especially in terms of door-to-door travel time and cost.

Air cargo occupies a position within the U.S. transportation network that differs significantly from that of rail. Movement of goods between the air cargo and rail modes is rare. Air cargo is a far more expensive freight mode than rail and is used when shipment speed and reliability are at a premium. Conversely, rail is used when transportation cost is a higher concern and expectations for speed and reliability are lower. This relationship is illustrated in Figure 2-14.

**Table 2-1: Sample Time and Costs for Airline Trips to Washington, D.C., and Richmond from Selected Virginia Cities**

Departure	Connecting Flight(s)	Destination <sup>1</sup>	Cost <sup>2</sup>	Time <sup>3</sup>
Roanoke	Nonstop	Washington, D.C.	\$396	1 hr 8 mins
Roanoke	Charlotte, NC	Washington, D.C.	\$145	2 hr 48 mins
Charlottesville	Nonstop	Washington, D.C.	\$203	46 mins
Charlottesville	Philadelphia, PA	Washington, D.C.	\$195	3 hr 43 mins
Richmond	Nonstop	Washington, D.C.	\$328	48 mins
Richmond	Philadelphia, PA	Washington, D.C.	\$140	3 hrs 33 mins
Lynchburg	Charlotte, NC	Washington, D.C.	\$138	3 hrs 11 mins
Bristol (Tri-Cities)	Charlotte, NC	Washington, D.C.	\$364	3 hrs 12 mins
Newport News	Philadelphia, PA	Washington, D.C.	\$429	3 hrs 1 mins
Norfolk	Nonstop	Washington, D.C.	\$70	58 mins
Norfolk	Charlotte	Washington, D.C.	\$71	3 hrs 39 mins
Washington, D.C.	Philadelphia, PA	Richmond, VA	\$140	2 hrs 59 mins
Washington, D.C.	Nonstop	Richmond, VA	\$328	46 mins
Roanoke	Charlotte, NC	Richmond, VA	\$600	3 hrs 30 mins
Charlottesville	Washington, D.C.	Richmond, VA	\$532	2 hrs 53 mins
Lynchburg	Charlotte, NC	Richmond, VA	\$695	2 hrs 33 mins
Bristol (Tri-Cities)	Charlotte, NC	Richmond, VA	\$337	2 hrs 31 mins
Newport News	Charlotte, NC, Washington, D.C., and Philadelphia, PA	Richmond, VA	\$553	7 hrs 30 mins

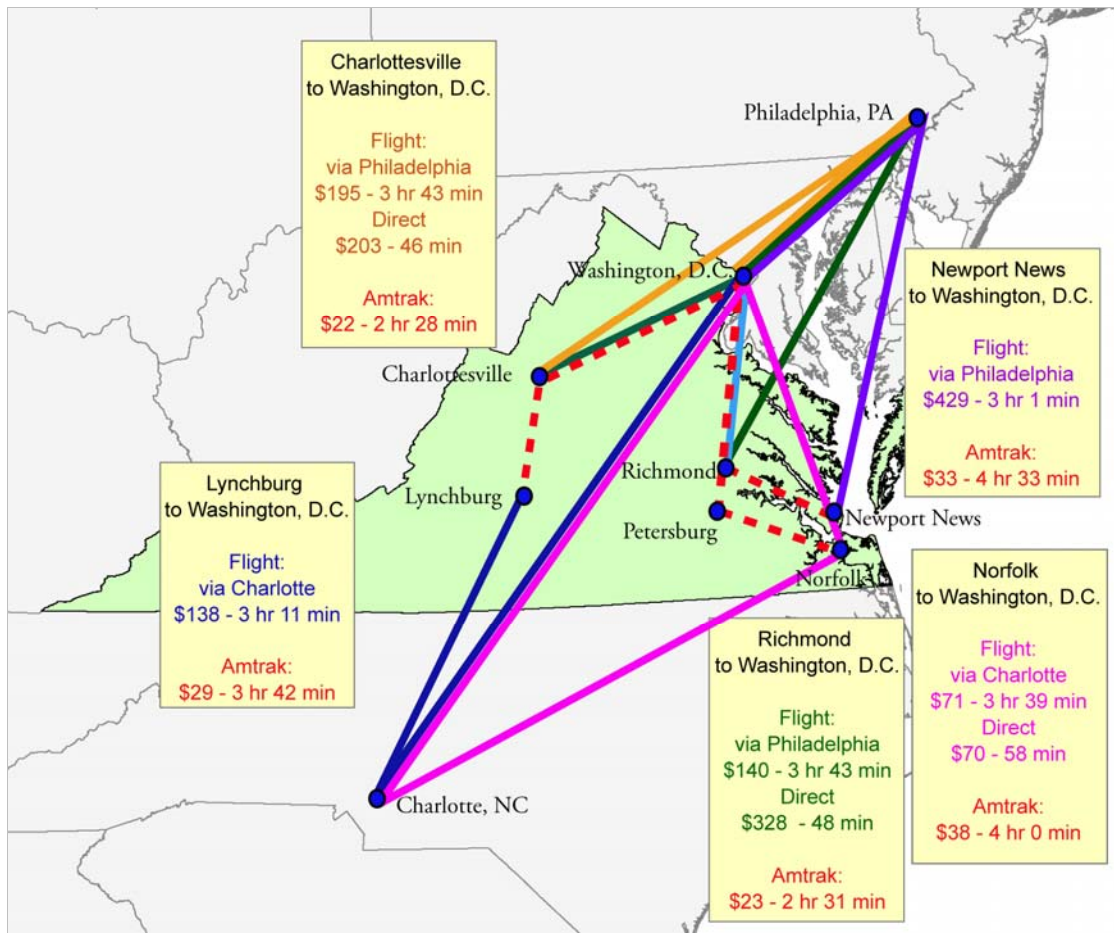
(Source: Travelocity, April 2013 for travel in June 2013)

<sup>1</sup> Flights leaving from or destined for Washington, D.C., could depart from or arrive at Ronald Reagan International Airport (3 miles from downtown), Dulles International Airport (23 miles from downtown), or Baltimore-Washington International Airport (28 miles from downtown).

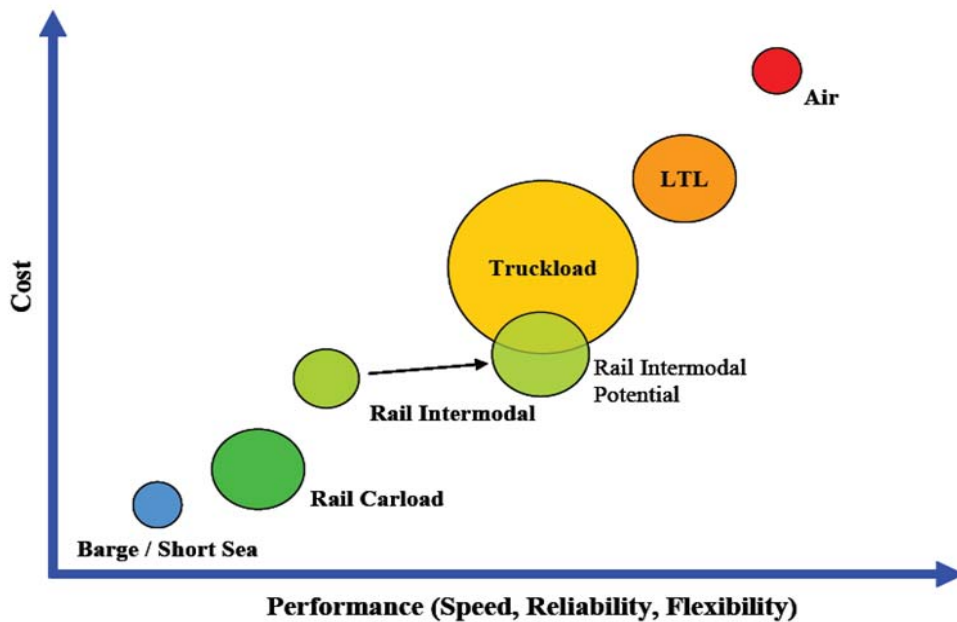
<sup>2</sup> Time does not include the 1.5 hours recommended before departure for check-in and security screening for each departure (an additional time of approximately 3 hours per trip).



**Figure 2-13: Sample Time and Costs for Airline Trips to Washington, D.C., and Richmond from Selected Virginia Cities**



**Figure 2-14: Cost and Performance of Transportation Modes**



(Source: Arizona Statewide Freight Plan, 2009)

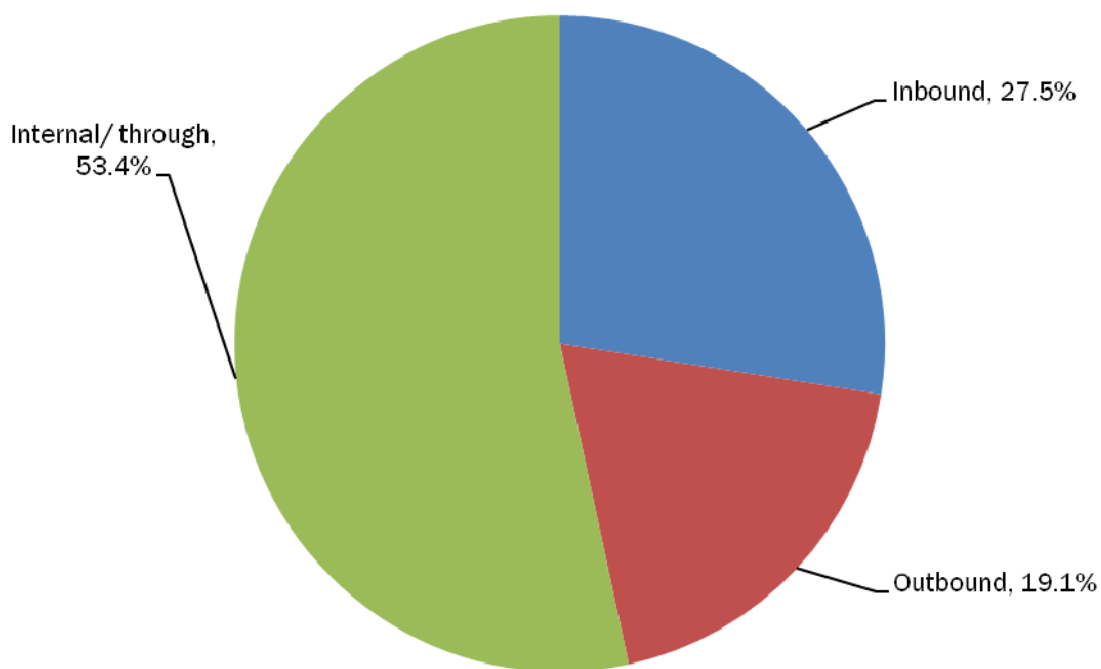
## 2.6. Freight

Freight transportation has grown dramatically with the growth and spread of population and economic activity within the U.S. and with increasing interdependence of economies across the globe brought about by foreign trade. A significant impact on transportation patterns and economic development has been brought about by the global use of containerized cargo for the shipment of goods by trucks, rail, and large specialty container ships calling at major ports. Cargo in the nation is expected to increase from 17.6 billion tons in 2011 to approximately 28.5 billion tons in 2040.

To accommodate the movement of freight, Virginia hosts one of the nation's leading seaports, two Class I railroads, numerous local and regional railroads, four major cargo airports, and some of the nation's most heavily used truck corridors. Over the next two decades, demand for freight movement into, out of, within, and through Virginia is forecast to grow. Some of the Commonwealth's freight infrastructure is well positioned to accommodate this growth. But much of its infrastructure will be challenged—from normal wear and tear; growth in the amount, type, and location of freight movement; increased passenger traffic over shared highway and rail corridors; and environmental pressures associated with higher freight volumes and denser settlement patterns in and around major freight facilities and corridors. A significant portion of freight is simply passing through Virginia on its way to and from other states—so growth and freight improvements in other states, or the lack thereof, could significantly affect conditions in Virginia.

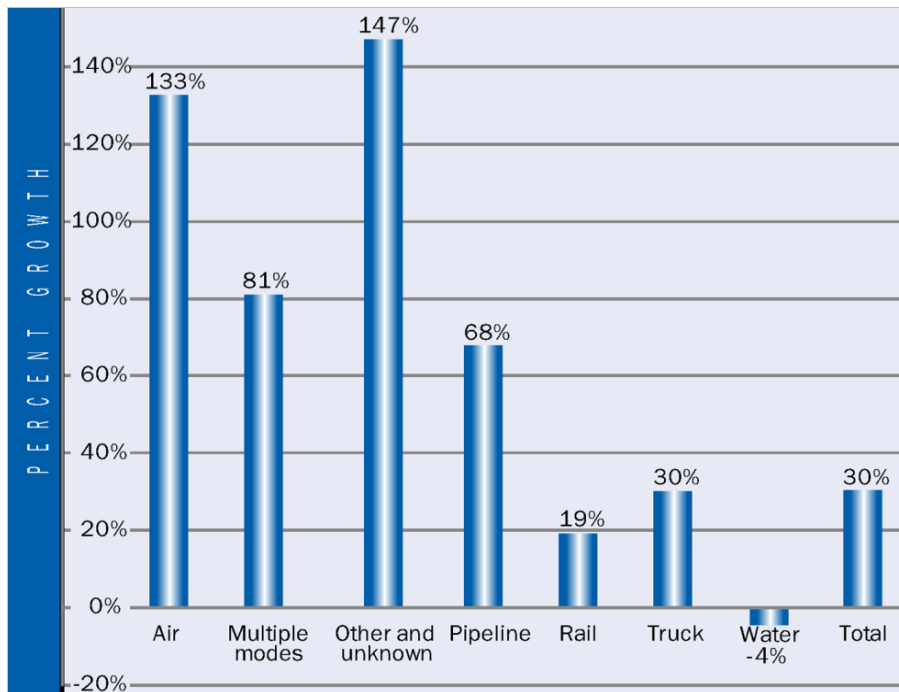
Today, around 50 percent of Virginia's output, 28 percent of its gross state product, and 34 percent of its employment are from industries that depend heavily on the movement of raw materials, intermediate goods, and finished products. The movement of existing freight tonnage by direction is depicted in Figure 2-15 and the projected increase in tonnage by mode to 2040 is depicted in Figure 2-16.

**Figure 2-15: 2011 Virginia Freight Tonnage by Direction from the FHWA FAF3 Database**



Not including through volume, which is not modeled in FAF3  
(Source: FHWA FAF3.4, January 10, 2013)

**Figure 2-16: Virginia Freight Projections by Mode in Tons from the FHWA FAF3 Database (2010–2040)**



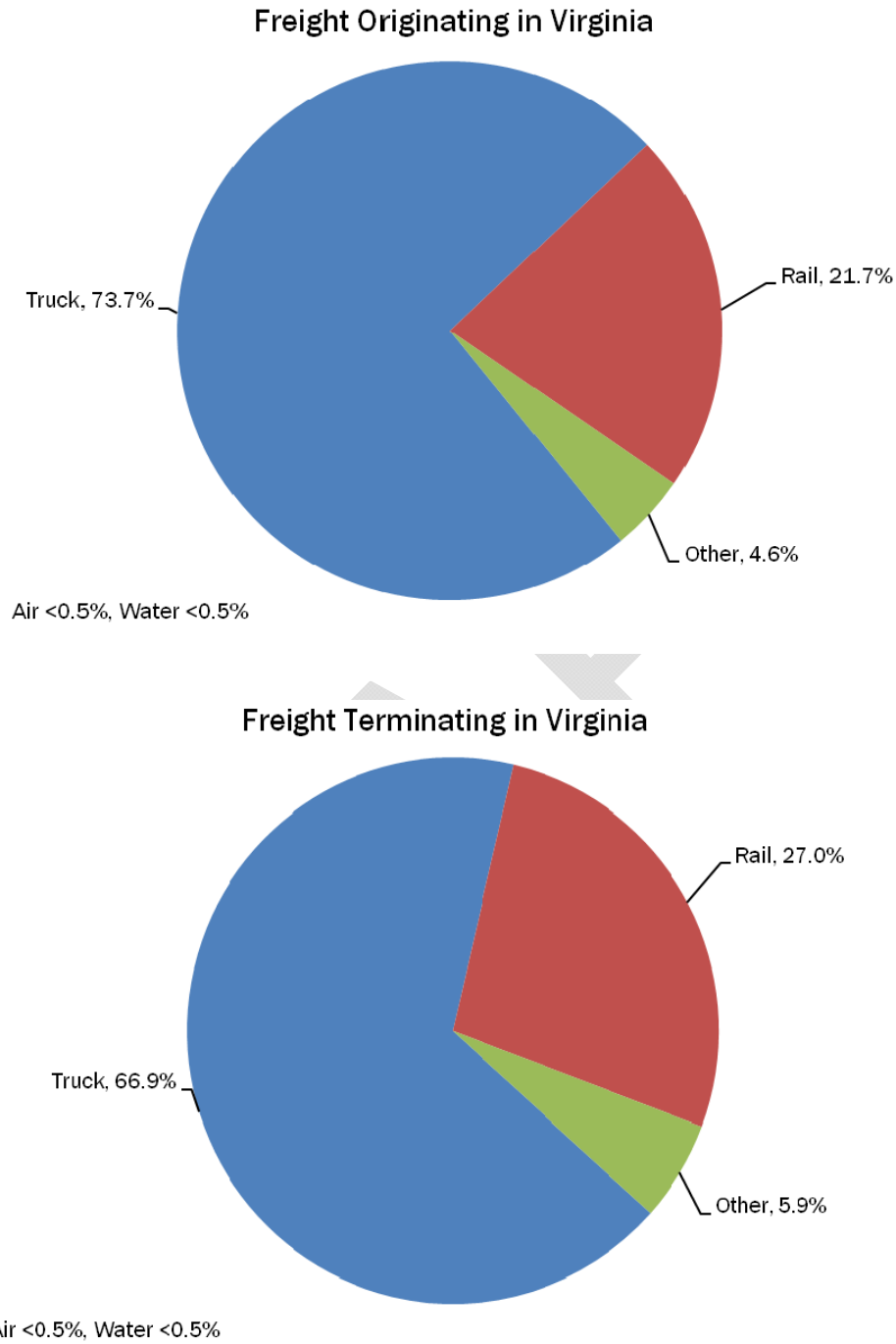
(Source: FHWA, FAF3.4 January 10, 2013)

A significant portion of the freight tonnage affecting the state rail system is coal from the Appalachian Coalfields in Southwestern Virginia to NS-owned and CSX-served marine terminals in Hampton Roads for export and intermodal containerized cargo exports and imports from the deepwater container ports of the Port of Virginia.

The vast majority of freight is moved by truck, followed by rail, as shown in Figure 2-17. This graphic depicts that, by far, most freight is presently moved by truck. Rail carries about a third of the freight trucks carry by tonnage.

Looking at several of Virginia's primary truck freight corridors, I-81 is expected to have the highest increase in truck traffic between 2011 and 2040, with the average number of trucks along the corridor roughly doubling during that timeframe (Table 2-2).

**Figure 2-17: Virginia Freight Movements by Mode 2011**



(Source: FHWA FAF3.4 January 10, 2013)

**Table 2-2: Average Annual Daily Truck Traffic on Virginia's Primary Truck Corridors**

Corridor	2011	2040	% Chg
I-64	6,969	11,766	69%
I-81	14,172	28,397	100%
I-95	15,448	27,420	78%

(Source: FHWA FAF3.4, January 10, 2013)

## 2.7. The Business of Freight Rail

In addressing the rail needs of the Commonwealth, it is critical to understand that, unlike the nationalized railroads in some other countries, the freight railroads in the U.S. are for the most part private companies with complete ownership of their rail rights-of-way. These companies have a fiduciary responsibility to conduct their businesses in such a manner as to maximize fiscal returns for their owners. In developing effective public-private partnerships, it is important to consider railroad business models so that a “win-win” situation is created. The solution should enable railroads to meet their responsibility to minimize risk and maximize profits for their shareholders, while at the same time the public need for effective and efficient rail service is provided.

The two Class I rail carriers that operate in Virginia, NS and CSX, operate in many other states as well. Corporate decisions on which rail improvement projects are to be financed within any particular year are based on the best interests of the respective railroads with consideration of the business climate, risk, and return on investment. Rail projects important to the Commonwealth are in competition with projects in other states requesting NS’s and CSX’s limited financial resources.

The position of the freight railroads with respect to non-Amtrak passenger rail service has been clear and consistent:

- Passenger rail service must be complementary to, not in conflict with, freight rail development.
- Freight railroads should be fully compensated for the use of their property by passenger trains.
- Freight railroads should not be forced to give passenger rail operators access to their property without voluntary negotiated agreements.
- Freight railroads should not be expected to subsidize passenger rail.
- Freight railroads do not want any liability associated with passenger train service or, at a minimum, some enforceable limits on freight rail liability. Without such limits set at a policy level by the federal government, this will remain a major obstacle in the growth of passenger rail service.

Based on Association of American Railroad data, the issue of full compensation has become more important in recent years as rail capacity has become more constrained. When Amtrak was created in 1970, there were few commuter trains providing corridor services. By 2009, average freight rail density had increased 418 percent, with the result that available train “slots” on major rail corridors have become very scarce.<sup>4</sup> If passenger trains fill these slots at below-market prices, the result is a major subsidy from freight to passenger rail. This also limits the ability of freight railroads to serve those areas because slots are not available to freight trains.

Amtrak pays fees to freight railroads to cover some of the costs associated with Amtrak corridor and long-distance intercity passenger train operations on freight tracks, but according to the freight industry, these do not come even close to the full costs incurred by freight railroads for hosting Amtrak trains. Passenger trains run at higher speeds, have rigorous schedules, and require certain track standards and design to be able to do so. Freight operations can benefit from the higher speeds necessary to carry out passenger rail operations, particularly for faster freight services, such as intermodal.

<sup>4</sup> A “train slot” refers to the scheduling of a train on a rail line. In order for a train to be slotted into the schedule, capacity must be available to accommodate that train.

### 2.7.1. Preemptive Rights: The Railroad's Right to Build Facilities

Class I railroads are regulated by the Surface Transportation Board (STB) (the former Interstate Commerce Commission [ICC]), not by local or state governments. The *ICC Termination Act of 1995* (ICCTA) (Pub. L. No. 104-88, 109 Stat. 803) shields railroad operations and facilities from the application of most state and local laws. This is known as the federal preemption provision and is contained in 49 USC 10501(b). While railroads can be required to comply with some local health and safety rules, such as fire and electric codes, this provision exempts railroads from local land use and zoning requirements. Preemptive rights, however, do not exempt railroads from certain federal environmental statutes, such as the *Clean Air Act* (locomotive emissions) and the *Clean Water Act* (e.g., wetlands protection).

Rail Projects that utilize federal funds must be in compliance with appropriate *National Environmental Policy Act* (NEPA) requirements as administered by FRA, the Federal Highway Administration (FHWA), or, in the case of commuter projects, the Federal Transit Administration (FTA). Since most rail improvement projects are within existing rights-of-way with minimal environmental impacts, the majority of rail projects qualify for a Categorical Exclusion in accordance with federal NEPA requirements and regulations. In situations where the anticipated environmental impacts might be moderate, FRA or FHWA may require the preparation on an environmental assessment; for large projects, with portions of the project outside of existing rail rights-of-way and where the anticipated environmental impacts might be significant, an environmental impact statement may be required. Railroads have the right of eminent domain, meaning that railroads can seize private property for public use as a railroad right-of-way or other use necessary to provide railroad transportation (Virginia Code §56-347). Railroads must provide property owners with just compensation.

### 2.7.2. Indemnification

It is standard practice for railroads to request indemnification and hold harmless contractual language in access agreements with public entities. Such access agreements may be required for passenger rail operations on freight rails, rails to trails, etc. The request to be indemnified and held harmless is often broad and includes coverage for events that are attributable to gross negligence or unsafe practices by the host railroad. This language is problematic for special transportation districts but can be a “deal breaker” for state governments that are unwilling to waive sovereign immunity. Typically, states require activity by their Legislatures before allowing a state agency to enter into an agreement that holds a private company harmless from liability for damages, loss, or injuries caused by the sole or joint negligence of the private company.

The cost of insurance for public entities that enter into these agreements is typically very expensive, especially in the early years of operation given that there is insufficient accident information for an insurance carrier to assess risk. VRE, for example, has paid \$2.5 million per year for \$250 million of general liability coverage, plus \$600,000 per year for special coverage related to terrorist acts. A key benefit to investing in intercity passenger rail service with Amtrak is based on its national operations. For three decades, Amtrak has been paying liability claims associated with passenger rail accidents, regardless of fault, as a condition for using freight lines' tracks.

## 2.8. Passenger Rail

DRPT works with two types of passenger rail service—intercity passenger rail and commuter rail. This section focuses on intercity passenger rail. The American Public Transportation Association defines commuter rail as referring to passenger trains operated on main line railroad track to carry riders to and from work in city centers. The trains are normally made up of a locomotive and a number of passenger coaches. The coaches are dimensionally similar to intercity (Amtrak) coaches, but typically have higher density seating, as the average ride is shorter. Commuter rail lines are

considered “mass transit,” and their operations are funded through the FTA and state public transit programs. These commuter rail lines normally extend an average of 10 to 50 miles from their downtown terminus. There is one commuter rail operation within the Commonwealth—the VRE. Commuter rail is addressed in the State Transit and TDM Plan. Intercity passenger rail travels between metropolitan areas.

### 2.8.1. Amtrak Intercity Passenger Rail

Amtrak is the main intercity passenger rail carrier in the continental U.S. Figure 2-18 depicts the existing Amtrak national passenger service map. Amtrak has operated a similar national network since the 1970s. The majority of the approximately 22,000 miles over which Amtrak operates is owned by the Class I freight railroads. (Amtrak owns approximately 750 miles of railroad, primarily from Boston to Washington, D.C., known as the Northeast Corridor or NEC). In most locations, Amtrak trains are pulled by diesel locomotives, except on the NEC, which is fully electrified. By law, freight railroads must grant Amtrak access to their track upon request and give priority status to Amtrak trains over other customers. Amtrak pays fees to freight railroads to cover the incremental costs of Amtrak’s use of freight railroad tracks.

When established in 1971, Amtrak was required to operate a basic system of corridor and long-distance routes as designated by USDOT. Amtrak’s enabling legislation (the *Rail Passenger Service Act*) provided for states to contract for additional service. Under this provision, known as Section 403(b), the percentage of costs paid by states changed many times. From 1971 to 1995, Amtrak bore the majority of operating losses attributable to state-supported service as states paid only a percentage of avoidable costs. However, Section 403(b) was repealed in 1997, and subsequent legislative directives and current funding levels preclude Amtrak from operating additional services unless those services are state-supported. Any expansion of rail passenger service in Virginia therefore, would have to be state-supported.

Figure 2-18: Amtrak National Passenger Rail Routes

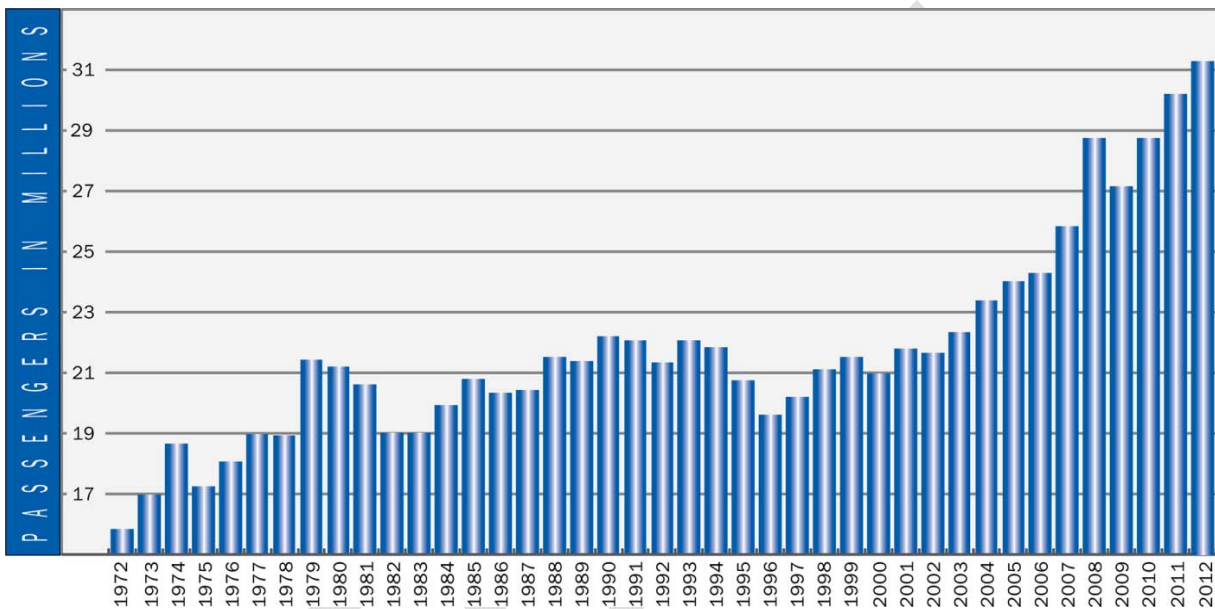


(Source: Amtrak)



Figure 2-19 shows Amtrak's annual ridership for each year from its inception in 1971 through 2012. With increased fuel prices during 2008, Amtrak ridership spiked to 28.7 million passengers. Ridership in 2009 fell 5.2 percent below 2008 record levels but still higher than every other year since 1971. Amtrak's ridership continued to climb in 2010, 2011, and 2012; in 2012, ridership grew 3.49 percent to 3,124,565. Since 2007, Amtrak's ridership has grown 20 percent. See Section 2.2.2.4 for information about recent passenger rail accomplishments in Virginia, including Amtrak Virginia and IPROC. See Chapter 3 for more information on Amtrak Virginia and other Virginia-specific passenger rail trends.

**Figure 2-19: Amtrak Annual Ridership (1971–2012)**



Note: 2012 estimated based on fall 2011 to spring 2012 ridership increases

## 2.8.2. National Trends

Numerous studies of passenger rail have been conducted in recent years at the federal, state, multi-state coalition, Amtrak, and industry group levels. The unanimous consensus is that the nation is in critical need of efficient (on time) and cost-effective intercity regional and long distance passenger rail service to relieve both highway and airport congestion and that a strong federal role is needed to assist in the development of such a national rail system (similar to the large federal investments used to develop the interstate highway system and network of major public-use airports throughout the nation).

In 2008, Congress passed PRIIA. The purpose of the act was to improve U.S. passenger rail service by providing incentives for Amtrak, U.S. Department of Transportation (USDOT), FRA, and other stakeholders to improve infrastructure, facilities, and operations. PRIIA focuses on intercity passenger rail, including Amtrak's long-distance routes and the NEC, state-sponsored services, and the development of high-speed rail corridors. PRIIA has significant ramifications for state-supported passenger rail services. Amtrak and USDOT, states, and the District of Columbia were required to develop and implement a single, nationwide standardized methodology for establishing and allocating the operating and capital costs of providing intercity rail passenger service among the states and Amtrak for the trains operated on designated high-speed rail corridors (outside the NEC), short-distance corridors, or routes of not more than 750 miles and for services operated at the request of a state, regional, or local authority or another person. The methodology has developed to ensure equal treatment in the provision of comparable services of all states and groups of states. It

is to allocate to each route the costs incurred only for the benefit of that route and a proportionate share, based upon factors that reasonably reflect relative use, of costs incurred for the common benefit of more than one route. The state pricing methodology has been approved by STB and will become effective on October 1, 2013.

To summarize, PRIIA divides the U.S. passenger rail transportation system into several categories:

- The continuous NEC railroad line between Boston and Washington, D.C.—PRIIA distinguishes the NEC from other portions of the passenger rail network, since the NEC accounts for over half of Amtrak’s annual revenue, and because the operating features of this corridor are different from other areas where Amtrak operates.
- Regional routes—Under 750 miles between endpoints
- Long distance routes—Greater than 750 miles between endpoints

PRIIA also distinguishes corridors that have been designated as high-speed rail corridors outside of the NEC.

Corridor services dominate intercity passenger rail travel within the U.S. where about 81 percent of all intercity passenger trips are between 100 and 500 miles. Corridor trips are generally characterized by:

- Short distances and travel times
- Frequent or regular travel
- Significant business travel market
- Many single-day round trips

Intercity passenger rail offers advantages in serving corridor markets, providing

- Direct service to and from densely developed central cities, which may otherwise involve either travel on congested highways or long, unreliable access trips to and from airports located in suburban areas—particularly since 9/11 when airport security requirements have greatly increased the overall air travel time to travel between cities
- Service to and from communities not served by air

Rail corridors offer a variety of potential economic benefits, particularly rail corridors that link metropolitan economies that have close economic ties, such as the Hampton Roads, Richmond, and Washington, D.C., I-95/I-64 transportation corridor. It has been estimated that over 80 percent of the nation’s population lives in a metropolitan area. Because of such population density, intercity passenger rail has the potential to support growth and enhance regional economic competitiveness through

- Direct employment benefits due to service expansion
- Visitor expenditures and tourism
- Station or terminal development impacts
- Government revenues
- Amenity gains (including needed capacity in congested highway corridors, fewer accidents, and reduced pollution emissions)
- Rapid emergency response in the event of a natural disaster requiring the movement of large volumes of people and for relief operations

The long-distance passenger market is served by trains traveling distances greater than 500 miles that are usually multi-state and operate with sleeping cars when traveling overnight. Long-distance trains are generally characterized by significantly longer average passenger trip length than those associated with corridor services. In some cases, long-distance trains also provide service in corridor markets; however, their schedules and primary functions are oriented around the needs of the endpoint passenger. Such trains are generally scheduled to serve major cities and tourist destinations at attractive times, but most markets are limited to one round trip per day or even less than daily service.

Although long-distance trains capture a relatively small segment of the long-distance passenger market, they occupy a critical role in the nation's overall rail and transportation network by providing

- **National connectivity**—Long-distance trains form most of the national network that links different intercity passenger rail services and markets throughout the U.S.
- **Essential services**—Many long-distance trains serve rural communities with limited or no significant air or bus service.
- **Transportation system redundancy**—Long-distance trains provide an alternative form of travel during periods of severe weather conditions or emergencies that affect other modes of transportation.

On a local level, passenger rail is a proven engine of economic development and growth. Studies show that when passenger rail service is introduced into a community using sound planning principles, retail establishments flourish, commercial and residential property values may increase, and people enjoy the transportation choices they are able to make in their daily lives.

On a regional level, passenger trains can provide cost-effective and convenient intermodal connections between communities and other modal choices, such as bus, trolley, light rail, bicycle, airport, and park-and-ride facilities. Passenger rail can also provide expanded economic development opportunities.

On a national level, passenger trains provide an economic means of expanding capacity, transportation options and connectivity, mobility for underserved populations, congestion mitigation, local air quality attainment improvements, and jobs—not just in the railroad industry, but also in secondary support industries which enable and stimulate economic development activity.

On a global level, passenger rail conserves energy, helps reduce greenhouse gas emissions, reduces airborne particulate and toxic emissions, and provides an environmentally benign land-use alternative to impermeable asphalt surfaces that contribute to the pollution of the nation's waterways.

## 2.9. High-speed Rail

The U.S. government has several definitions of what constitutes high-speed rail. FRA has defined high-speed rail as service “that is time-competitive with air and/or auto for travel markets in the approximate range of 100 to 500 miles.”<sup>5</sup> In the High-Speed Corridor Development Program, the U.S. Congress defined high-speed rail as “reasonably expected to reach speeds of at least 110 miles per hour.”<sup>6</sup> In its *Vision for High-Speed Rail in America* of 2009, FRA described three categories of high-speed rail:

- **Emerging high-speed rail**—Top speeds of 90 to 110 miles per hour
- **Regional high-speed rail**—Top speeds of 110 to 150 mph on grade-separated track
- **Express high-speed rail**—Top speeds of at least 150 mph on grade-separated track dedicated to passenger service

High-speed rail represents an increase in train speeds compared to most intercity Amtrak services today. Except for the NEC and a few other segments nationwide, Amtrak trains operate over rail lines that are owned by freight railroads. STB has jurisdiction over the minimum requirements of freight railroads that host Amtrak trains in terms of train speeds and on-time performance. Much of the mainline freight track in the U.S. is built and maintained to FRA Class 4 standards with a maximum speed for passenger trains of 80 miles per hour, thus falling below any of the definitions of high-speed rail listed above. Only on Amtrak’s NEC do trains reach maximum speeds of up to 150 miles per hour, similar to the FRA definition of “regional high-speed rail” above. There are two options for developing high-speed rail service:

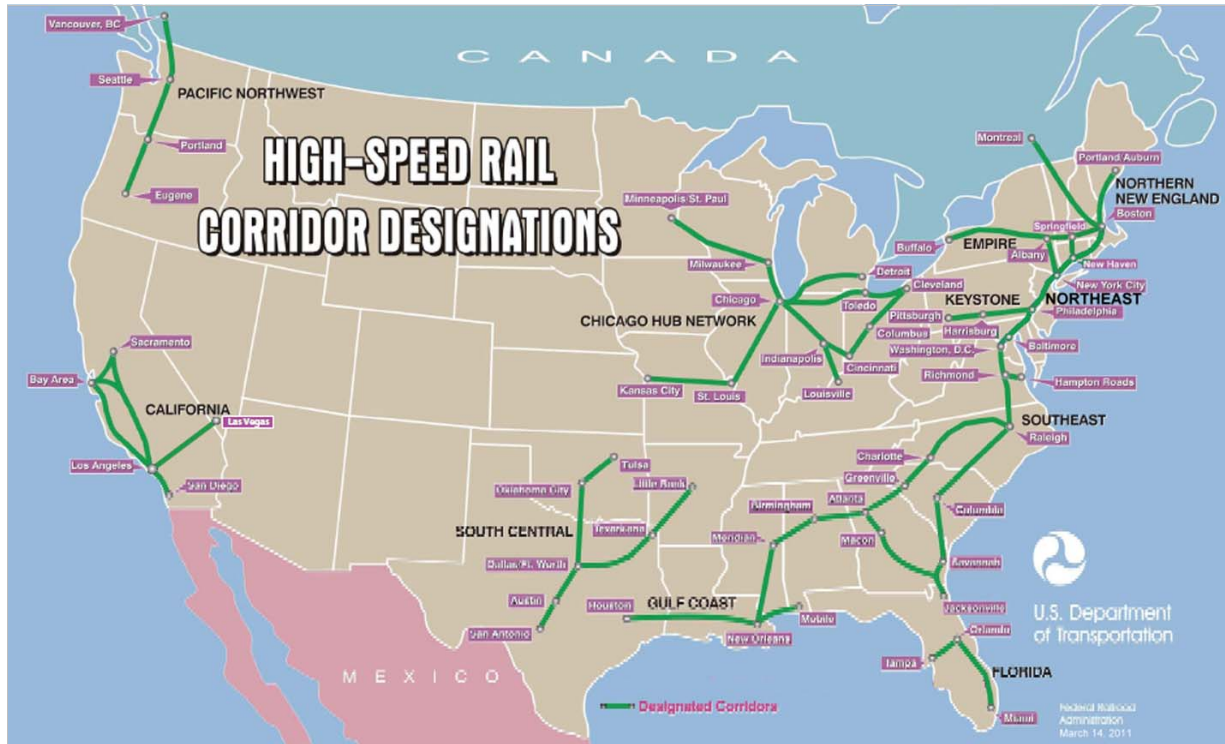
1. Upgrading existing track, signaling systems, and equipment to enable trains to travel somewhat faster over the existing rail network: this option has a much lower cost but has restrictions on train speed, including curves and at-grade crossings. In most cases, this would correspond to FRA’s definition of “emerging high-speed rail” above.
2. Building new rail lines that enable trains to travel at much higher speeds than are possible over the existing rail network, which is shared with freight rail: this would correspond to FRA’s “express high-speed rail” definition above. The downside of this approach is that it is more expensive. One estimate puts the cost at five times the cost of upgrading the existing network.<sup>7</sup> Furthermore, it has the potential to be disruptive, since land must be taken for the new right-of-way. This increases the likelihood of environmental impacts and adds time to the process.

In 2002, FRA designated 10 high-speed corridors under Section 101-0 of the *Intermodal Surface Transportation Act of 1991* (ISTEA) and Section 11-03(c) of the *Transportation Efficiency Act for the 21st Century* (TEA-21) for passenger rail service in high population density and congested intercity sections of the nation. This designation allows a corridor to receive specially targeted funding for highway-rail grade crossing safety improvements and recognizes the corridor as a potential center of high-speed rail activity. These designated corridors are depicted on Figure 2-20 and includes the Southeast High-speed Rail Corridor in Virginia, which follows the I-95 and I-85 highway corridors, as well as a connection to Hampton Roads.

<sup>5</sup> Department of Transportation, Federal Railroad Administration, *High-Speed Ground Transportation for America*, September 1997.

<sup>6</sup> 40 USC 26106(b)(4)

<sup>7</sup> Passenger Rail Working Group of the National Surface Transportation Policy and Revenue Study Commission, *Vision for the Future: U.S. Intercity Passenger Rail Network through 2050*, December 6, 2007

**Figure 2-20: FRA-designated High-speed Rail Corridors in the U.S.**

(Source: FRA Website)

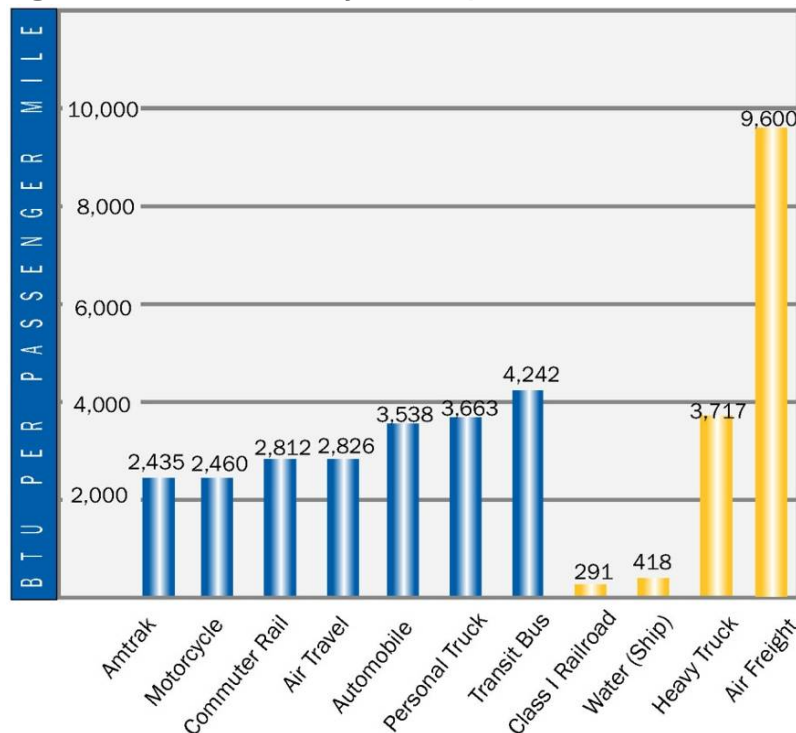
## 2.10. Natural Resources and Environmental Influences

The nation is in the early stages of a major change in transportation, the economy, and ultimately quality of life. There is global competition for finite resources of oil and coal. Crude oil prices averaged \$94.88 per barrel in 2011, rising to nearly the record high annual average price set in 2008 at \$99.67 per barrel after dropping dramatically in 2009 to \$61.95 during the uncertainty of the early recession. The cost of crude oil is expected to continue rising in the near future; the average price per gallon in 2012, through June, was \$96.80. China and India are making significant investments in infrastructure and are emerging as strong competitors in the global economy. Ways to become more energy efficient and reduce greenhouse gases must be implemented. This section discusses land use, natural resources, and the environment within the context of statewide transportation goals and multimodal planning process.

According to the Association of American Railroads, greater use of freight and passenger rail offers a simple and relatively immediate way to reduce greenhouse gas emissions without adverse impacts on the economy. To compare the fuel efficiency of various modes using different fuel sources (electric-traction-powered commuter rail and a gasoline-powered passenger vehicle, for example) the fuel sources are converted into British thermal units (BTU). A BTU is the approximate amount of energy required to heat one pound of water from 39 to 40 degrees Fahrenheit, and it compares the efficiency of different fuel types if they are put to use accomplishing the same task. Figure 2-21 shows the fuel efficiency of various modes by the number of BTUs expended per passenger mile for vehicles with an average passenger load for passenger modes and the number of BTUs expended per ton-mile for freight modes. In 2009, Amtrak was the most efficient form of motorized passenger transport, requiring 2,435 BTUs per passenger mile. Continued ridership increases mean that Amtrak is transporting more passengers for the same number of rail cars, increasing overall fuel efficiency. The average load on an Amtrak car, in the U.S. Department of Energy's calculation, carried 20.9 passengers. On the NEC and within Northern Virginia and the

Richmond area, it is not uncommon for sold-out trains to carry 84 passengers per car. A private automobile requires 3,538 BTUs per passenger-mile with an average load of 1.55 passengers.

**Figure 2-21: Fuel Efficiency in Transportation**



(Source: U.S. Department of Energy)

Class 1 railroads are twelve times more fuel-efficient than trucks (291 BTUs per ton-mile vs. 3,717 BTUs per ton-mile). Double stack railroads are even more efficient. Freight transported by water requires only 418 BTUs per ton-mile, but air freight requires 9,600 BTUs per ton-mile. Railroads also have a smaller carbon footprint. Every ton-mile of freight that moves by rail instead of truck emits 67 percent fewer greenhouse gas emissions, or less. Based on U.S. Environmental Protection Agency (EPA) data, freight railroads account for 2.6 percent of the nation's greenhouse gas emissions from transportation sources and just 0.7 percent from all sources. Based on data from AASHTO, diverting 1 percent of long-haul freight that currently moves by truck to rail would result in annual fuel savings of 110 million gallons and annual greenhouse gas emissions would fall by approximately 1.2 million tons.

Railroads represent the most fuel-efficient mode of ground transportation. In 2011, freight railroads moved a ton of cargo an average of 469 miles per gallon of fuel. According to the Association of American Railroads, railroad fuel efficiency rose 106 percent between 1980 and 2010 due to new locomotive technologies, advanced research and development, innovative operating practices, employee training, and diligence in complying with environmental laws and regulations. In order to qualify for high-speed rail funding, other federal programs, such as the *American Recovery and Reinvestment Act* (ARRA) programs, and Virginia's own REF, applicants or those reviewing applications often must quantify the benefits of rail projects and place a monetary value on those benefits. Environmental benefits are generally among those that are quantified since pollution reduction represents one significant advantage of rail improvements.

Virginians have communicated that they do not want to sacrifice the environment or quality of life for transportation improvements. Virginia's transportation agencies are dedicated to designing and operating a system that seamlessly integrates into communities while protecting the assets of

every community throughout the Commonwealth. DRPT's rail planning and programming efforts, in particular, include projects that can improve national energy efficiency and contribute reduced pollution levels, as described above.

Maximizing the use of existing rights-of-way or property immediately adjacent to existing tracks for these projects will preserve existing land uses, protect natural resources, and lead to environmental improvements by reducing air emissions and reducing potential pollutants to Virginia's valuable waterway system as compared to truck and highway impacts.

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# 3. The Virginia Rail System

## 3.1. Overview of the Virginia Rail System

Founded as a trading colony, freight and passenger movements remain a critical part of the Commonwealth of Virginia’s economy. A summary of railroad owners, classification, and rail mileage in Virginia is shown in Table 3-1.

**Table 3-1: Rail Mileage in Virginia (2012)**

Railroad Classification/Name	Miles Operated in Virginia	
	Excluding Trackage Rights	Including Trackage Rights
<b>Class I RR</b>		
Norfolk Southern	2,020	2,100
CSX	850	1,054
<b>Shortline RR (Class III)</b>		
Bay Coast Railway	68	68
Buckingham Branch	275	275
Chesapeake and Albemarle	29	29
Chesapeake Western	43	43
Commonwealth Railway	17	17
Norfolk & Portsmouth Belt Line	34	61
North Carolina and Virginia	4	4
Shenandoah Valley	25	25
Winchester & Western	29	29
<b>Total</b>	<b>3,394</b>	<b>3,705</b>

(Source: DRPT)

Virginia’s rail system dates from the 1800s and has evolved continually since then. Today, it consists of nearly 3,400 route miles (excluding trackage rights), most of which are operated by two Class I railroads—the Norfolk Southern Railway Company (NS) (2,020 miles) and CSX Transportation (CSX) (850 miles) and nine shortline railroads. Major lines run north-south and east-west, and important rail lines converge at key nodes: Norfolk, Richmond, Lynchburg, Roanoke, and Alexandria. The STB defines Class I national railroads as line-haul freight railroads exceeding \$433.2 million in 2011 annual operating revenue, and Class III shortline railroads are line-haul carriers with annual revenues less than \$34.7 million in 2011 revenues. Two of Virginia’s nine shortlines are primarily switching railroads serving marine terminals and industrial facilities. There are no Class II Railroads in Virginia. Two passenger systems—Amtrak and VRE—provide service over this private freight railroad system.

Figure 3-1 shows the various freight and passenger lines in the state. A detailed copy of the 2012 Virginia Rail Map with enlargements of major urban areas, track ownership identification, and passenger service routes can be downloaded from DRPT’s website ([www.drpt.virginia.gov](http://www.drpt.virginia.gov)). Single track railroads are bottlenecks, require careful dispatching procedures for safety reasons, and can cause significant capacity constraints and on-time performance delays.

According to the most recent data from the Association of American Railroads, a total of 159.9 million tons was carried by rail in Virginia in 2010 (this includes freight carried through Virginia, without an origin or destination in Virginia). The largest commodity carried by tonnage in terms of originated and terminating traffic was coal, followed by stone, sand, and gravel. Rail is a vital component of the supply chain for electricity generation, coal mining, construction materials, agriculture, and a variety of other industries within the state.

FRA maintains a database of freight rail densities, which is distributed by the U.S. Bureau of Transportation Statistics. These were applied to the Virginia State Rail Map. Figure 3-2 suggests that the areas with the highest rail density within Virginia are near locations of coal production, such as the NS Christiansburg District or the CSX Alleghany Subdivision, both near the Virginia/West Virginia border. The highest density rail corridors within the state are the lines that run east-west from the Port of Virginia, including the NS and CSX primary coal corridors and the NS Heartland Corridor, as well as the CSX National Gateway Corridor, which runs north-south and roughly parallel to I-95.

Coal is the number one commodity originating and terminating by rail in Virginia. As power plants across the U.S. add equipment to remove sulfur dioxide pollutants to meet air quality standards, these plants become capable of burning higher sulfur content coal. This benefits Virginia's coal mining industry. Additionally, after a period of relatively low coal exports, recent years have seen a rapid growth in coal exports due to increased global demand for coal, used primarily to generate electricity, while falling domestic natural gas prices have impacted domestic coal movements for electricity production. Historic coal movements through the Port of Virginia are shown on Figure 3-3.

With direct access to the Appalachian coal fields via rail, the Port of Virginia is a major exporter of coal. Although the amount of coal being delivered by rail to the Port of Virginia for shipment to other domestic markets has been declining rapidly, the total amount of coal shipped has been growing due to foreign demand. Today, mineral fuels make up the largest export commodity from the Port of Virginia. According to the Virginia Maritime Association, between 2007 and 2012, coal loaded for export at the Port of Virginia grew 77 percent, from 28.3 million net tons to 50.0 million net tons. Coal represented 67 percent of all rail cargo by weight originating in Virginia and 71 percent of all rail cargo by weight terminating in Virginia in 2010, which is high compared to the national average of 46 percent. In 2011, coal represented 46 percent of all goods (by weight) carried by Class I railroads originating in the U.S.

Figure 3-1: State Rail Map



**Figure 3-2: Density of Virginia Rail Lines in Gross Tons per Mile (2009)**

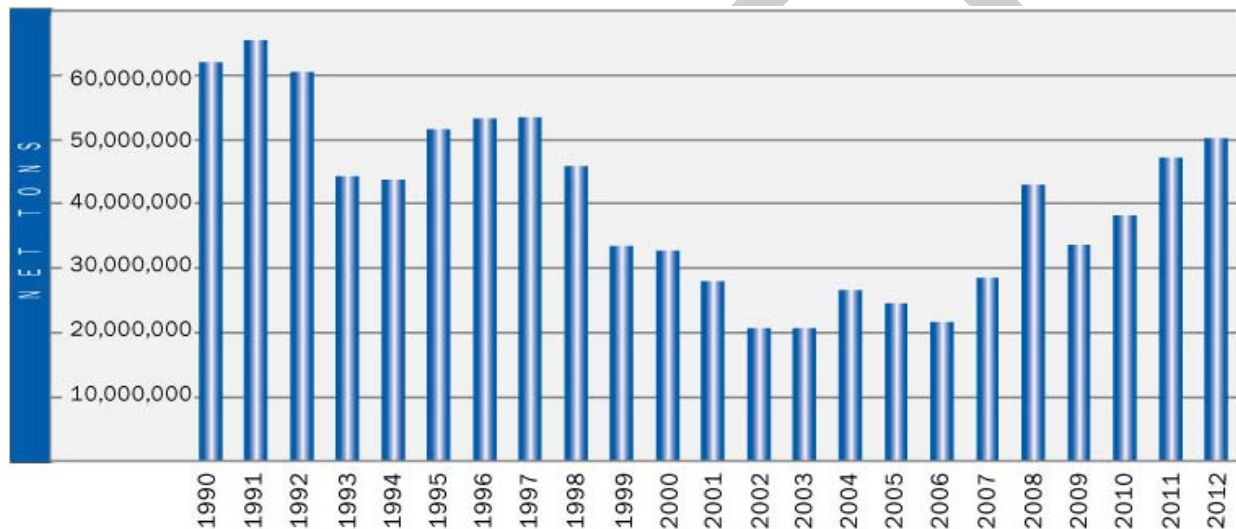


(Source: DRPT map file, densities from U.S. Bureau of Transportation Statistics, 2012 *National Transportation Atlas Database*)

**Table 3-2: Freight Railroad Traffic in Virginia**

Tons Originating in Virginia (2010)			Tons Terminating in Virginia (2010)		
Type	Tons	%	Type	Tons	%
Coal	24,728,000	67	Coal	48,853,000	71
Stone, sand, gravel	5,087,000	14	Stone, sand, gravel	3,649,000	5
Intermodal	1,211,000	3	Chemicals	3,224,000	5
Chemicals	1,199,000	3	Farm products	2,649,000	4
Coke and metallic ores	1,104,000	3	Waste and scrap	2,462,000	4
Other	3,680,000	10	Other	7,921,000	12
<b>Total</b>	<b>37,009,000</b>	<b>100</b>	<b>Total</b>	<b>68,758,000</b>	<b>100</b>

(Source: Association of American Railroads website, accessed May 2013)

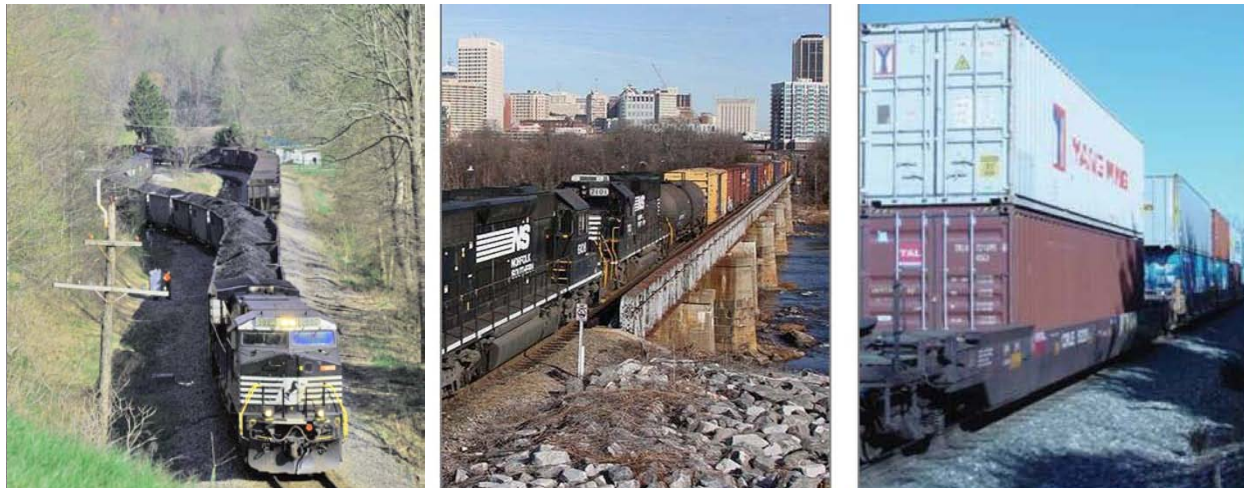
**Figure 3-3: Coal Shipments through the Port of Virginia (1990–2012)**

(Source: Virginia Maritime Association)

### 3.2. Rail Services and Railcar Types

Virginia's rail network is almost entirely privately owned, as are the terminals and "rolling stock" (locomotives and railcars) moving over the system. Virginia's rail freight traffic, as illustrated in Figure 3-4, can be generally classified as

- **Unit trains**—These are long trains of 7,500 to 10,000 feet consisting of a single commodity, like coal. On a tonnage basis, coal accounts for more than two-thirds of all Virginia rail freight traffic. Most of this is moving east-west between the coalfields of Appalachia and Hampton Roads or between the coalfields and Tennessee/North Carolina. About one-half of the coal moving over Virginia's rail system is through-traffic.
- **General Merchandise Trains**—These are trains of varying lengths, consisting of different commodities and car types, such as tank cars, hopper cars, flatcars, or traditional boxcars. Carload traffic (agricultural products, chemicals, paper, lumber, food, etc.) represents more than 25 percent of Virginia tonnage and moves primarily in the north-south direction, paralleling I-95 and I-81. Like coal, about half of this is through-traffic.

**Figure 3-4: Examples of Unit Coal Train, Merchandise, and Double-Stack Intermodal Rail Services**

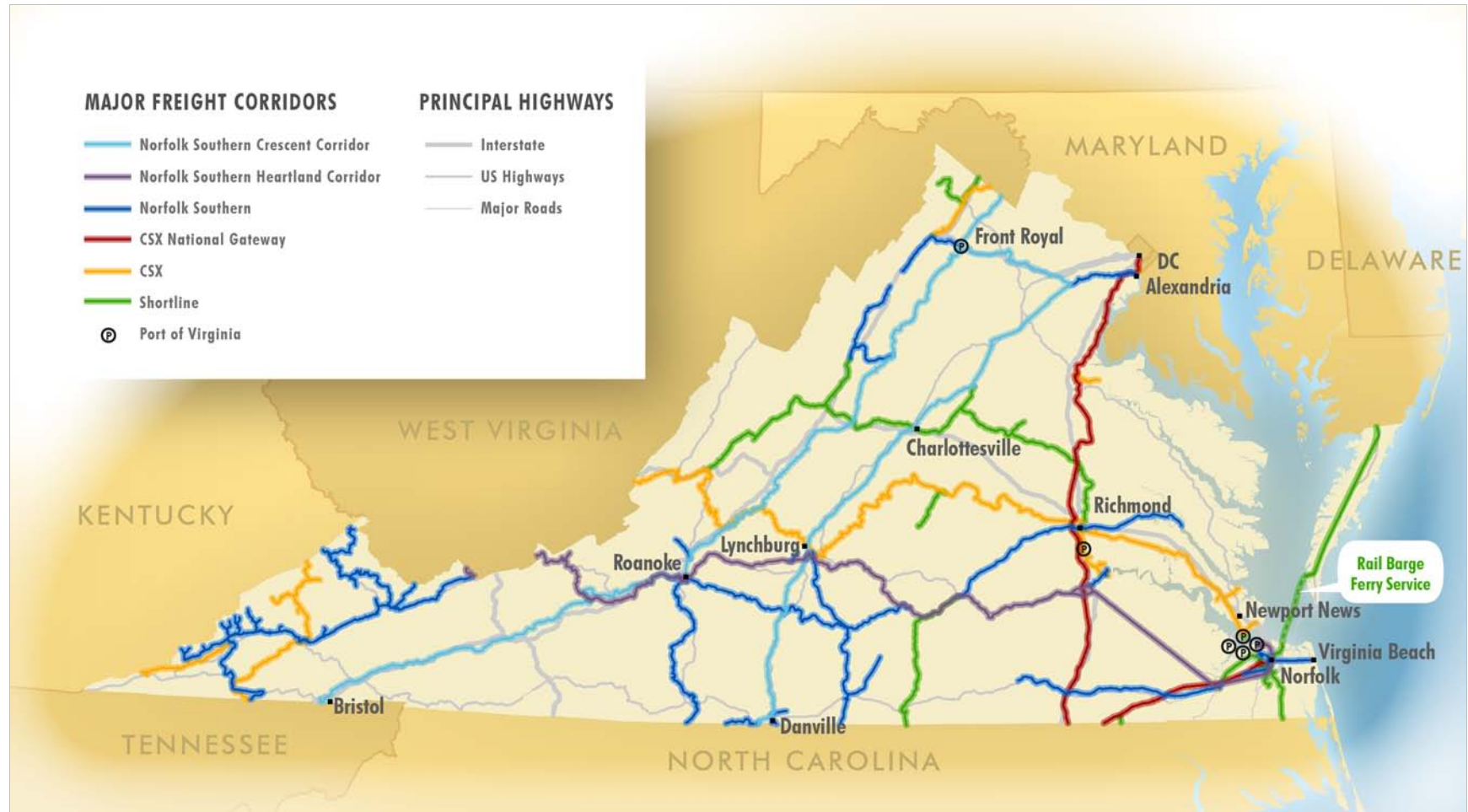
(Sources: Coal train courtesy of Eric Miller; merchandise, double stack photos courtesy of Jeff Hawkins)

- Intermodal/Auto Trains**—These are long trains of 6,000 to 13,000 feet consisting of specialized railcars designed to carry intermodal shipping containers or automobiles. Intermodal containers represent about 19 percent of Virginia’s rail freight traffic on a per-unit basis but only 3 percent on a per-ton basis because containers tend to carry lower weight, higher value commodities. Intermodal traffic moves both north-south and east-west over Virginia’s rail network. Approximately half the traffic is moving between Virginia origins and destinations (Port of Virginia facilities and other intermodal terminals) and Illinois, where it may interchange with the western Class I carriers. The remainder consists mostly of through-traffic in the Florida-New Jersey and Illinois-North Carolina corridors.

### 3.3. Class I Railroads—NS and CSX

The vast majority of Virginia’s freight rail infrastructure is owned by the two Class I railroads—CSX (approximately 25 percent) and NS (approximately 60 percent)—and the remaining 15 percent consists of shortline railroad trackage (Figure 3-5). The Virginia Class I network includes approximately 2,870 miles of privately owned and operated track. Both freight railroads offer major east-west connections between Hampton Roads and West Virginia/Kentucky/Tennessee. The majority of Virginia’s freight rail network within the national network runs roughly north-south, while the major lines in terms of Virginia tonnage run east-west.

**Figure 3-5: Class I Rail Corridors in Virginia—NS and CSX (green lines represent shortline railroads)**



### 3.3.1. CSX Transportation

CSX Corporation, based in Jacksonville, Florida, owns companies providing rail, intermodal, and rail-to-truck transload services that are among the nation’s leading transportation companies, connecting more than 70 river, ocean, and lake ports as well as more than 200 shortline railroads (Figure 3-6). Its principal operating company, CSX Transportation, operates one of the largest railroads in the eastern U.S. with a 21,000-mile rail network linking commercial markets in 23 states, the District of Columbia, and two Canadian provinces. CSX owns 850 miles and operates over a total of 1,054 miles of rail in Virginia, including trackage rights.

**Figure 3-6: CSX Transportation System Map**



(Source: CSX)



CSX’s north-south intermodal mainline in Virginia is known as the National Gateway Corridor and runs from Alexandria to Richmond and then farther south via Petersburg and Emporia, generally paralleling I-95. At Weldon, south of the Virginia/North Carolina border, the mainline has an eastward extension to the Port of Virginia facilities in Hampton Roads. The National Gateway Corridor is the primary intermodal train corridor connecting the Port of Virginia to national markets and is currently being improved to handle double-stack intermodal trains. The CSX line with the heaviest use is the coal corridor, which carries east-west unit trains of coal from the Appalachian coalfields through Richmond, and down the Virginia Peninsula to the CSX-served Coal Marine Terminals in Newport News and return of empty coal trains back to the mines.

### 3.3.2. Norfolk Southern

Norfolk Southern Corporation is a Norfolk-based company that controls NS, a Class I freight railroad (Figure 3-7). NS operates approximately 21,000 route-miles in 22 eastern states and the District of Columbia. NS owns 2,020 miles and operates on a total of 2,100 miles of track in Virginia, including trackage rights. NS serves all major eastern ports and connects with rail partners in the West and Canada, linking customers to markets around the world. NS operates two intermodal corridor routes in Virginia.

**Figure 3-7: Norfolk Southern System Map**



(Source: NS)

NS's north-south intermodal mainlines in Virginia are known as the Crescent Corridor. One segment runs through Virginia from Hagerstown, Maryland, southward through Front Royal, Manassas, and Danville to the Carolinas (the Piedmont line). The Crescent Corridor second mainline segment parallels I-81 from Hagerstown, Maryland, through Front Royal, Roanoke, and Bristol (the Shenandoah line) and serves the Commonwealth's Virginia Inland Port near Front Royal. The principal train types on the Crescent Corridor are domestic intermodal, general merchandise, and auto trains.

NS's east-west intermodal mainline in Virginia, known as the Heartland Corridor, runs from the Port of Virginia, through Roanoke, to the West Virginia border in Southwest Virginia and then to Midwest markets in Ohio, Illinois, and other states. The Heartland Corridor is the primary NS international intermodal train corridor connecting the Port of Virginia to national markets. The line with the heaviest use is the Coal Corridor that carries east-west unit trains of coal from the Appalachian coalfields to the NS Coal Marine Terminal at Lamberts Point in Norfolk. The Coal Corridor is a dual-line section consisting of the former Virginian Line and the Norfolk and Western Line from the coalfields to Abilene, where both lines merge to continue eastward to Norfolk. Significant segments of the NS Coal Corridor and Heartland Corridor overlap.

### **3.4. Shortline Railroads**

Shortlines have become a critical component of the rail industry and produce benefits to shippers and local communities trying to support economic development to industries. Shortlines act as the originating and terminating railroads for approximately one-third of all rail shipments. It is critical that shortline tracks adequately handle at least 286,000-pound capacity railcars in order to interface with the Class I railroads.

In Virginia, the shortline industry is comprised of five independent shortline railroads, two shortline divisions, two Class I wholly or jointly owned subsidiary shortline railroads, and two terminal and switching railroads that collectively operate 524 route-miles in the Commonwealth. Figure 3-8 provides the locations of the shortline system in the Commonwealth, and Table 3-3 provides a list of the number of carloads carried in Virginia's fiscal year 2012 (July to June) by the shortline operators by commodity. Shortlines often serve as the first or last link in business-to-business delivery by providing the intensive switching operations that are not profitable for the Class I railroads.

Many of the shortlines were built over 100 years ago using the then-standard lighter weight rail sections and a road bed of cinders or limited ballast. In many cases, they have experienced track settlement and, consequently, operational problems due to postponement of regular maintenance (i.e., deferred maintenance). Many of the lines were previously owned by Class I railroads that divested them as a result of low traffic volumes or declining revenues.

The combination of deferred maintenance and the trend toward the use of newer and heavier 286,000-pound railcars has created a need to invest in shortline infrastructure. Deferred maintenance of a railroad is a costly continual operation, and the smaller Class III shortline railroads are constrained by the financial challenges of balancing operating and track maintenance needs.

Over the past decade, the industry has generally moved from railcars with a weight and capacity equaling 256,000-pound cars to 263,000-pound cars and now to the current standard of 286,000-pound railcars for transporting heavy bulk materials (like coal, grain, and lumber). Portions of the Class I system have even been designed for 315,000-pound railcars. Studies have shown that the 286,000-pound railcars can operate on rail sections weighing as little as 90 pounds per yard if all the other track components are in good shape with tight rail joints. Given the typically poor soil conditions in Virginia, it is more cost effective to install a heavier weight rail section to better distribute the loads to the soil and to protect the investment to the rail infrastructure.

**Figure 3-8: Shortline Railroad System**



**Table 3-3: Shortline Railroads—Summary of Annual Carloads (July 1, 2011–June 30, 2012)**

Commodity	Bay Coast Railroad	Buckingham Branch Railroad	Chesapeake & Albermarle Railroad	Chesapeake Western Railway	Commonwealth Railway	Norfolk & Portsmouth Belt Line Railroad	North Carolina & Virginia Railroad	Shenandoah Valley Railroad	Winchester & Western Railroad Co.
Base metals							✓		✓
Milled grain products	✓	✓	✓	✓		✓	✓	✓	✓
Gravel and crushed stone	✓	✓	✓			✓			✓
Plastic and rubber		✓				✓	✓		✓
Wood products	✓	✓	✓			✓	✓	✓	✓
Waste and scrap		✓				✓	✓	✓	✓
Miscellaneous manufactured products			✓						✓
Nonmetallic minerals		✓				✓			✓
Paper		✓				✓	✓		✓
Basic chemicals	✓				✓	✓	✓		
Transportation equipment	✓	✓				✓			
Metallic ore and concentrates	✓	✓							
Machinery						✓	✓		
Cargo—not otherwise specified	✓	✓	✓		✓	✓	✓	✓	✓
<b>Totals</b>	<b>885</b>	<b>558,699</b>	<b>3,474</b>	<b>8,000</b>	<b>115,976</b>	<b>22,612</b>	<b>21,116</b>	<b>1,133</b>	<b>12,357</b>

Bridges and trestles prove to be more of a constraint to handling larger cars than the track. Whereas operating at slower speeds on lightweight rail will support the movement of heavier cars, older bridges may not be able to bear the heavier loads at any speed.

### 3.4.1. Bay Coast Railroad

Bay Coast Railroad (BCR) operates the former Eastern Shore Railroad line. BCR operations began on October 1, 1981, over the former Virginia and Maryland line from Pocomoke City, Maryland, to Norfolk. This north-south route on the Delmarva Peninsula was originally established in 1884 and is still the most direct route between the Northeast and Norfolk. The rail line is unique in its ability to handle special over-height and width rail shipments—shipments that cannot be accommodated on the NS and CSX mainline corridors because of tunnel and bridge restrictions (particularly in urban city areas). BCR consists of 68 miles of FRA track safety Class I and II mainline and a 26-mile car float (ferry) operation from Cape Charles, on the Delmarva Peninsula, across the Chesapeake Bay to Little Creek on the mainland. A tug boat is used to move the car floats, which has a 25-car capacity. This float operation is one of only two remaining in the Eastern U.S. and is the

longest water route in the country. This car float operation has been in continuous service since April 1885.

BCR interchanges with NS and the Norfolk & Portsmouth Belt Line Railroad in Norfolk and the NS in Pocomoke City, Maryland, with rail yards in Cape Charles and Little Creek.

### **3.4.2. Buckingham Branch Railroad**

Buckingham Branch Railroad (BB) is a family-owned shortline railroad operating 275 miles of historic track in Central Virginia. The Bryant family owns and operates a 17.3-mile-long line between Dillwyn and Bremo known as the Buckingham Division. BB also leases and operates a 200-mile-long line of railroad from Richmond to Clifton Forge, owned by CSX. This line is known as the Richmond Alleghany Division and is further divided into the North Mountain, Washington, and Piedmont Subdivisions. The company's headquarters is in Dillwyn, in the former Chesapeake and Ohio Railroad station, a historic landmark in the community. In addition, BB leases and operates an approximately 56-mile line from NS between Burkeville and Clarksville. This former section of Southern Railway's Richmond Division is known as the Virginia Southern Division.

The BB receives freight cars from CSX at Strathmore on the Buckingham Division and at Doswell and Clifton Forge. It also receives railcars from NS at Charlottesville, Orange, and Waynesboro on the Richmond Alleghany Division. The Shenandoah Valley Railroad also interchanges freight cars with the BB at Staunton.

Outbound freight on the Buckingham Division consists mainly of wood chips, lumber, crushed slate, and kyanite ore. Inbound freight includes fertilizer. The Richmond Alleghany Division carries both inbound and outbound products, including plastic pellets for film production, lumber and gypsum board for local building suppliers, coal for a university steam plant, and newsprint for Richmond newspapers.

CSX uses the Richmond Alleghany Division to move unit trains of empty coal cars between Richmond and Clifton Forge. CSX also originates unit rock trains that operate on the line between Verdon and Richmond. Amtrak operates the Cardinal passenger train route between Orange and Clifton Forge three days a week, providing local station service at Charlottesville, Staunton, and Clifton Forge. BB also partners with the National Railway Historic Society to offer excursion rides departing from Dillwyn station.

The Virginia Southern Division of BB is an approximately 56-mile line that runs from Burkeville southward to Clarksville. The portion of the line between Clarksville and Oxford, North Carolina, is owned by NS. It has not been in use for more than a decade and is overgrown with vegetation. The southernmost portion of this segment is owned by NS.

The Virginia Southern Division is located in Keysville and interchanges with NS at Burkeville. Current customers include Mecklenburg Co-Gen.

### **3.4.3. Chesapeake & Albemarle Railroad**

Chesapeake & Albemarle Railroad (CA) is a shortline railroad and is part of the North Carolina and Virginia Railroad (NCVA), which is owned by Genesee & Wyoming, Inc. CA started operations on April 2, 1990, and operates on 82 miles of track from Chesapeake to Edenton, North Carolina. CA owns and operates 29 miles of rail in Virginia along this route. It is headquartered in Ahoskie, North Carolina, and interchanges with both NS at Chesapeake and CSX at Portsmouth (via

Norfolk & Portsmouth Belt Line). CA was spun off from NS operations in the 1980s as part of its Thoroughbred Shortline Program.<sup>1</sup>

Current customers include Albemarle Builders, Albemarle Distribution, Royster Clark, Central Grain, Universal Forest Products, Currituck Grain, Hobbs Implement, Lebanon Agricorp, C.A. Perry & Sons, Commercial Ready-Mix, Coastal Ready-Mix, Roberts Bros., Southern States, United Piece & Die, IMC, Vulcan Materials, and F.P. Wood & Son.

#### **3.4.4. Chesapeake Western Railway**

Chesapeake Western Railway (CHW) is an intrastate railroad operating subsidiary of NS, including 43 miles of track, located in west-central Virginia. The CHW has a north-south line which extends between Mt. Jackson and Pleasant Valley and an east-west line which extends between Elkton and Harrisonburg. The two lines intersect in Harrisonburg and carry milled grain products for the poultry industry.

#### **3.4.5. Commonwealth Railway**

Commonwealth Railway (CWRY) is a shortline railroad operating 17 miles of track of the former Norfolk, Franklin and Danville Railway line from Suffolk to Portsmouth. Its local office is in the Wilroy area of Suffolk. CWRY is owned by Genesee & Wyoming, Inc. CWRY was spun off from NS in the 1980s as part of its Thoroughbred Shortline Program. In May 2008, CWRY purchased the remaining interest in the line from NS with funding assistance from DRPT's Rail Enhancement Program. From 2007 to 2009, VPA and CWRY worked to complete the Commonwealth Railway Mainline Safety Relocation Project. This project removed 4.5 miles of railway with 14 at-grade crossings traveling through the densely developed areas of Chesapeake and Portsmouth to the APM Terminal at the Port of Virginia in Portsmouth. The heavily used rail corridor was relocated to the median of Route 164, which had been constructed in the 1980s anticipating the need for a freight rail corridor in the future. The project cost \$60 million and in September 2010, an additional \$9 million in ARRA Stimulus funding was approved to add a second track to the median.

CWRY is the primary rail carrier to the new APM Terminal in Portsmouth providing double-stack rail service to the new container terminal and the future Craney Island Marine Terminal under construction by VPA. The mainline relocation improvements will allow CWRY to continue to serve the APM Terminal with a high-density freight rail with improved safety and less interference with traffic in the communities. Existing industries, such as the BASF Chemical plant in the West Norfolk area of Portsmouth, are also served by CWRY.

CWRY provides dual Class I railroad access to the marine terminals and industries in Portsmouth, with rail connections to both NS and CSX near Suffolk. CWRY also operates a new rail marshalling yard near Suffolk to assemble intermodal train segments from the APM Terminal into full unit trains for transit to various inland locations.

#### **3.4.6. Norfolk & Portsmouth Belt Line Railroad**

Norfolk & Portsmouth Belt Line Railroad (NPBL) is a shortline railroad that has been operating in Norfolk, Portsmouth, and Chesapeake since 1898. The NPBL is owned 57 percent by NS and 43 percent by CSX. NPBL interchanges with CA, CSX, BCR (formerly the Eastern Shore Railroad), and NS. It is a terminal switching company that owns 34 miles of track (plus 27 miles of trackage rights) and links commerce around the deepwater port from Sewells Point to Portsmouth Marine Terminal, including the Southern Branch of the Elizabeth River. All locomotives are leased

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<sup>1</sup> Genesee & Wyoming, Inc. has acquired the shortlines owned by RailAmerica.

from NS. Some of the Belt Line customers are A & R Logistics, Portsmouth Marine Terminal, ARREFF Terminals, Elizabeth River Terminals, and Perdue Agribusiness.

### 3.4.7. North Carolina and Virginia Railroad

North Carolina and Virginia Railroad (NCVA) is a 54-mile shortline switching railroad owned by Genesee & Wyoming, Inc., that started in 1987 on the former Seaboard Coast Line Railroad from Boykins to Tunis, North Carolina. NCVA operates 4 miles of rail in Virginia from Boykins to the North Carolina state line. It is headquartered in Ahoskie, North Carolina, and interchanges with CSX in Boykins.<sup>2</sup>

Current customers include Ahoskie Fertilizer, Colerain Peanut, Southern States, Georgia-Pacific, Golden Peanut Co., Kerr Plastic, Perdue Farms, Resinall Corp., Rich Square Cotton Gin, Royster Clark, and Severn Peanut.

### 3.4.8. Shenandoah Valley Railroad

Shenandoah Valley Railroad (SV) is a privately owned shortline railroad extending for 25 miles northward from Staunton in Augusta County through Rockingham County to Pleasant Valley. The line was originally built by the Baltimore and Ohio Railroad and later purchased in 1942 by the Chesapeake Western Railway. The new shortline was formed in 1993 by several major shippers and adopted the old historic name which was not in use. SV is operated under contract. BB was the contract operator between 1993 and 2003, and BCR was the contract operator between April 2003 and August 2006. As of September 1, 2006, the Durbin & Greenbrier Valley Railroad (DGVR) became the contract operator. DGVR operates four excursion trains on scenic routes in nearby West Virginia. The railroad interchanges with BB in Staunton, along with NS in Pleasant Valley. The major commodities hauled include soy beans and salt.

### 3.4.9. Winchester & Western Railroad Co.

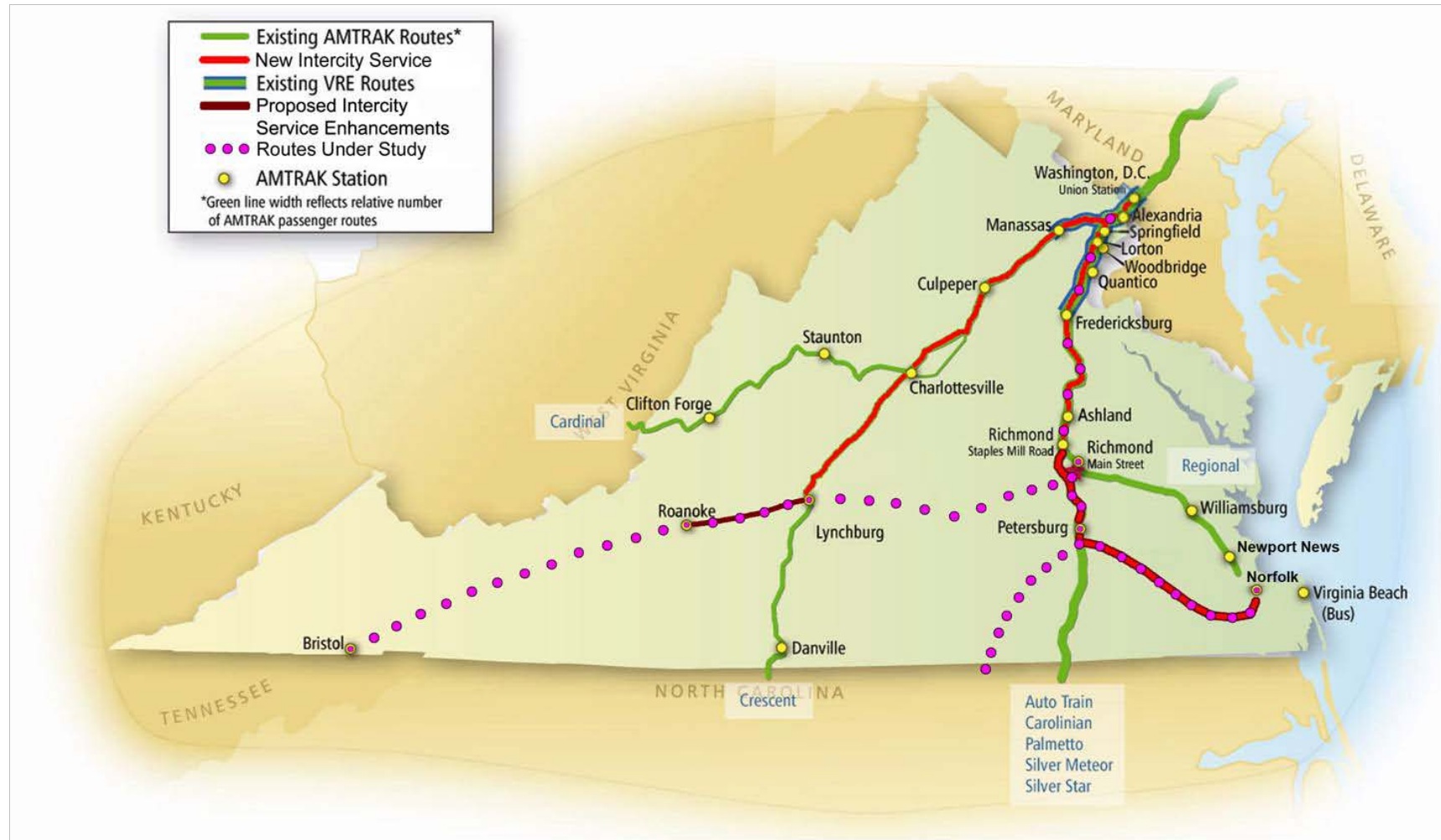
Winchester & Western Railroad Co. (WW) is Virginia's oldest operating shortline, beginning operations in 1917. The 54-mile FRA Class III railroad, with 29 miles of rail in Virginia, operates between Gore and Winchester and from Winchester, up through the Eastern Panhandle of West Virginia, to Hagerstown, Maryland. WW is exclusively a freight line with connections to CSX and NS. In Virginia, WW handles sand, paper, plastics, and various food products. It provides service to H.H. Omps Trucking, which transloads bulk materials from Omps' facilities in Winchester.

## 3.5. Passenger Rail

Amtrak expended \$103 million in Virginia in Amtrak FY2012 (ended September 2012) employing 865 Virginia residents in 2012 and carrying 30.2 million passengers. Figure 3-9 depicts the existing Amtrak routes serving Virginia. The numbers for ridership by station and Amtrak route are shown in Table 3-4 and Table 3-5. Figure 3-10 depicts the annual ridership on Amtrak routes in Virginia between Amtrak fiscal year 2004 and 2012. Ridership has continued to increase each year since 2004, with the exception of 2009.

<sup>2</sup> On July 23, 2012, Genesee & Wyoming, Inc. announced that it was acquiring the shortlines owned by RailAmerica.

**Figure 3-9: Virginia Passenger Rail**





**Table 3-4: FY2012 Amtrak Boardings and Alightings by Virginia Station and Route**

Station Code	Virginia Station Name	Northeast Regional Rt 47	Northeast Regional Rt 46	Western SBU Rt 96*	Carolinian Tr 79/80	Palmetto Tr 89/90	Silver Star Tr 91/92	Silver Meteor Tr 97/98	Auto Train Tr 52/53	Crescent Tr 19/20	Cardinal Tr 50/51	Total
ALX	Alexandria	92,110	19,224		18,687	12,291	8,345	6,365		8,996	3,728	169,746
ASD	Ashland	24,041										24,041
BCV	Burke Centre		4,099									4,099
CLF	Clifton Forge										2,879	2,879
CLP	Culpeper		8,249							2,809	1,550	12,608
CVS	Charlottesville		84,271	1,200						22,200	19,853	127,524
DAN	Danville									8,228		8,228
FBG	Fredericksburg	72,104			8,195	21						80,320
LOR	Lorton (Auto Train)								264,096			264,096
LYH	Lynchburg		75,070							11,428		86,498
MSS	Manassas		15,250							5,914	2,759	23,923
NPN	Newport News	136,369										136,369
PTB	Petersburg			600	6,126	5,985	6,770	2,906				22,387
QAN	Quantico	32,228			3,736	6						35,970
RVM	Richmond (Main St.)	35,002										35,002
RVR	Richmond (Staples Mill)	242,294			33,193	31,236	24,073	14,861				345,657
STA	Staunton										6,930	6,930
WBG	Williamsburg	58,894										58,894
WDB	Woodbridge	21,794										21,794
<b>Total Virginia Ons &amp; Offs</b>		<b>714,836</b>	<b>206,163</b>	<b>1,800</b>	<b>69,937</b>	<b>49,539</b>	<b>39,188</b>	<b>24,132</b>	<b>264,096</b>	<b>59,575</b>	<b>37,699</b>	<b>1,466,965</b>

(Source: Amtrak)

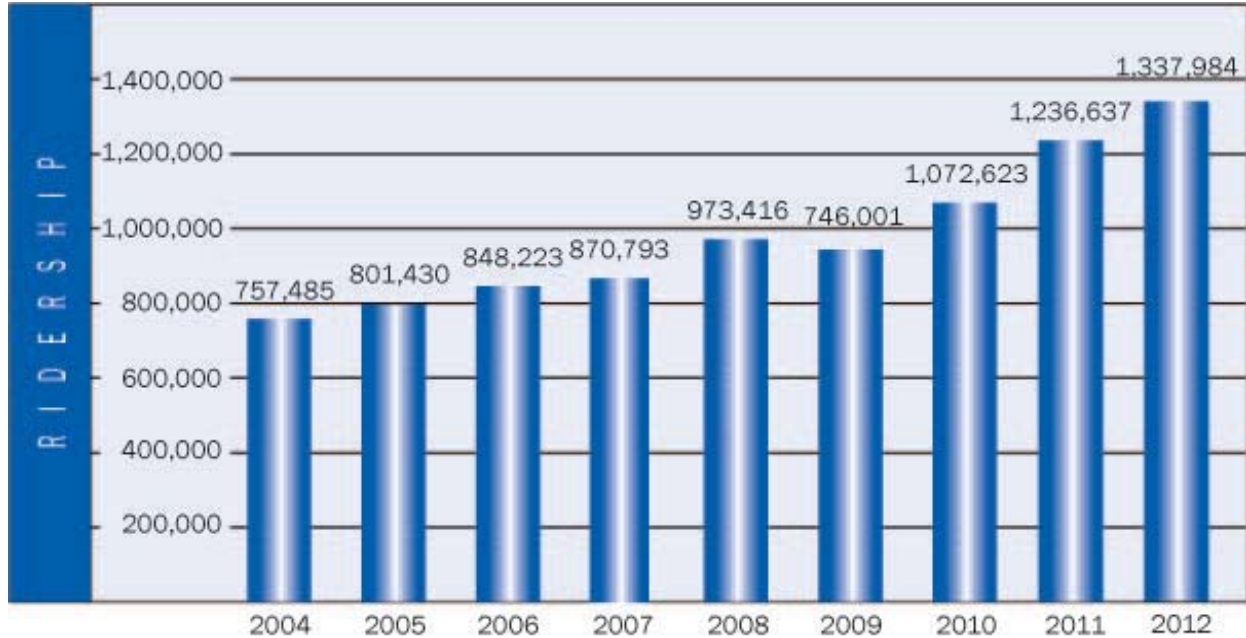
\*Western Strategic Business Unit (SBU) Rt. 96 refers to special excursion trains that were offered by the Roanoke Chapter of the National Railway Historical Society in partnership with Norfolk Southern and Amtrak.

**Table 3-5: FY2012 Amtrak Ridership by Route in Virginia**

Route	Northeast Regional Rt 47*	Northeast Regional Rt 46*	Carolinian Tr 79/80	Palmetto Tr 89/90	Silver Star Tr 91/92	Silver Meteor Tr 97/98	Auto Train Tr 52/53	Crescent Tr 19/20	Cardinal Tr 50/51	Total
One endpoint in Virginia	532,891	163,651	62,205	43,879	36,290	23,088	264,096	52,999	31,703	<b>1,210,802</b>
Both endpoints in Virginia	90,973	21,256	3,866	2,830	1,449	522		3,288	2,998	<b>127,182</b>
Total Virginia ridership	623,864	184,907	66,071	46,709	37,739	23,610	264,096	56,287	34,701	<b>1,337,984</b>
No endpoints in Virginia			240,348	151,551	388,055	351,554		247,979	81,672	<b>1,461,159</b>
Total route ridership	<b>623,864</b>	<b>184,907</b>	<b>306,419</b>	<b>198,260</b>	<b>425,794</b>	<b>375,164</b>	<b>264,096</b>	<b>304,266</b>	<b>116,373</b>	<b>2,799,143</b>

(Source: Amtrak)

\*Amtrak Route 47 has at least one endpoint south of Washington on Northeast Regional trains going to/from Richmond or Newport News. Amtrak Route 46 has at least one endpoint south of Washington on Northeast Regional trains going to/from Lynchburg.

**Figure 3-10: Amtrak Annual Virginia Ridership (FY 2004–FY 2012)**

(Source: Amtrak)

In 2012, Amtrak operated 24 daily intercity trains and two tri-weekly trains in the Commonwealth with 1,466,965 passengers either boarding or alighting within Virginia and another 5,013,991 boarding or alighting in Washington, D.C. Amtrak ridership in Virginia has grown 76.6 percent between FY2004 and FY2012, much more than the 24 percent ridership increase Amtrak has seen on the National System in that same time. The efforts of Amtrak Virginia to bring expanded Northeast Regional rail service into Virginia are responsible for a large portion of the growth in ridership for routes serving Virginia. Recent increases in fuel and energy prices since 2008 have also generated a higher demand for passenger rail nationwide that has resulted in higher annual ridership increases since 2008 than in the first half of the decade. Amtrak has set annual ridership records every fiscal year from 2003 to 2012, except in 2009.

Table 3-6 displays the frequency of train service on passenger rail corridors in Virginia. The Washington, D.C., to Richmond corridor has the most frequent train service. This corridor is served by five Northeast Regional trains and four long distance trains. Two of the Northeast Regional trains travel between Richmond and New York or Boston, while two trains travel between Boston and Newport News via Richmond, and one train provides service between Boston and Norfolk via Richmond. Four long distance trains travel between New York and points south, passing through Virginia along the I-95 corridor. Table 3-6 does not include the Auto Train, which provides daily service transporting people and their automobiles between Lorton, Virginia, and Sanford, Florida.

**Table 3-6: Train Frequency on Passenger Rail Corridors in Virginia**

Corridor	Daily Round Trips
Washington, D.C., to Richmond	9
Richmond to VA/NC Border	4
Richmond to Norfolk	1
Richmond to Newport News	2
Washington to Lynchburg	2
Washington to Charlottesville/Clifton Forge*	1
Lynchburg to Danville	1

\*Amtrak *Cardinal* service is three days per week.

In 2009, Virginia became the 15th state to partner with Amtrak to provide additional state-supported train service. The Amtrak and DRPT partnership, Amtrak Virginia, has since brought Northeast Regional service through Washington, D.C., and into cities in Virginia. In October 2009, a Northeast Regional daily train was extended from Washington, D.C., to Lynchburg via Alexandria, Burke Centre, Manassas, Culpeper, and Charlottesville. One year later, the train had already carried 126,072 passengers, surpassing the budgeted estimate of 48,182. The FY2011 ridership estimate of 114,650 was also surpassed as the route carried 162,051 riders that year. In July 2010, Amtrak Virginia launched a rebranded Northeast Regional service from Washington, D.C., to Richmond. Two Northeast Regional trains make the journey from the NEC to Newport News via Richmond, and an additional six Northeast Regional trains stop at Richmond, up from one previously. DRPT most recently worked with Amtrak, CSX, and NS to bring passenger rail to South Hampton Roads with a terminus in downtown Norfolk. This service began in December 2012. Similar to the other Northeast Regional services into Virginia, riders have a single seat journey as far north as Boston. Amtrak passenger routes in the state are listed in Table 3-7.

Figure 3-11 shows the relative ridership of Amtrak routes within the state, while Table 3-67 provides a snapshot of the various routes in Virginia as well as the typical ridership share for each service.

### 3.5.1. Intercity Passenger Rail Trends

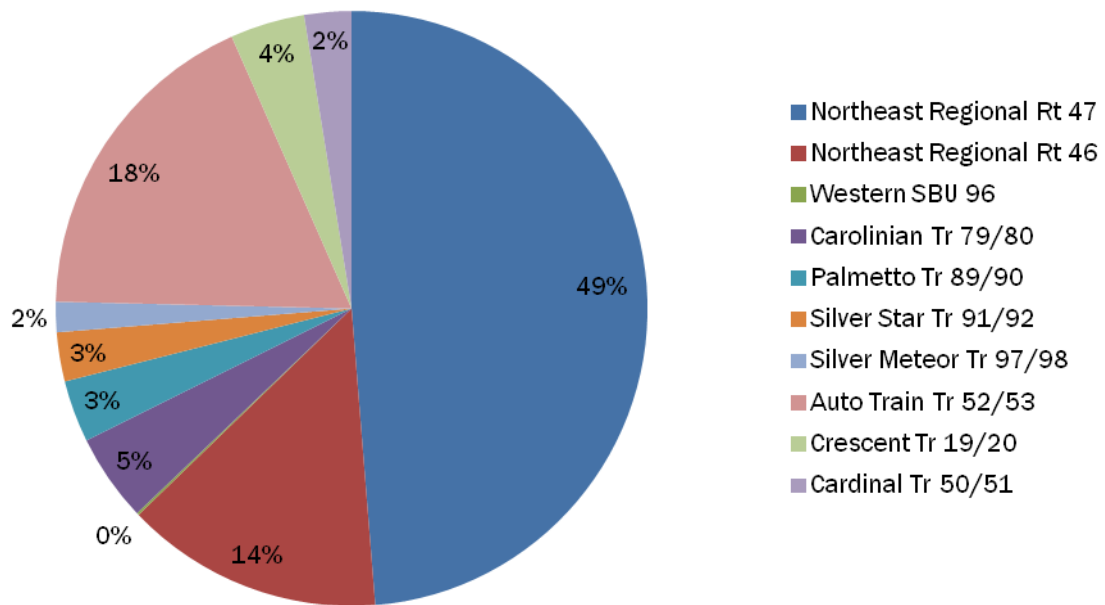
The growth in ridership on Amtrak in Virginia can be explained in part by the same trends that have led to the growth in ridership nationwide: rising fuel prices, changing lifestyle and car-ownership attitudes among young adults, rising awareness of environmental issues, and the increased hassle of post-9/11 airline travel, among others. These trends do not explain, necessarily, why Amtrak growth in Virginia has more than doubled that of the national trend since 2002. Amtrak and Amtrak Virginia are making improvements to the infrastructure and the quality of service. The addition of new Northeast Regional service to Lynchburg and expanded service to Richmond and Newport News has fueled a large portion of the growth in ridership in Virginia. Amtrak has also made investments in the infrastructure in Virginia to make Amtrak travel more attractive to new and existing riders.

The trend in annual delay for Amtrak trains is depicted in Figure 3-12. In FY2012, the national system had an on-time percentage of 83 percent, meaning that 83 percent of trains arrived at their endpoint destination on time. The systemwide on-time performance for Amtrak trains improved from FY2011—when only 78.1 percent of trains arrived at their end point station on time, ending a 3-year decline in performance. For Amtrak routes serving Virginia, as depicted in Figure 3-13, the on-time performance of routes has varied when comparing performance in December 2012 to the 12 months prior (calendar year [CY] 2012). For all routes serving Virginia, except the Auto Train, on-time performance in December 2012 exceeded the previous 12-month average. This means that December's on-time performance exceeded the 12-month rolling average, showing improvement.

**Table 3-7: Amtrak Characteristics of Passenger Rail Routes Serving Virginia**

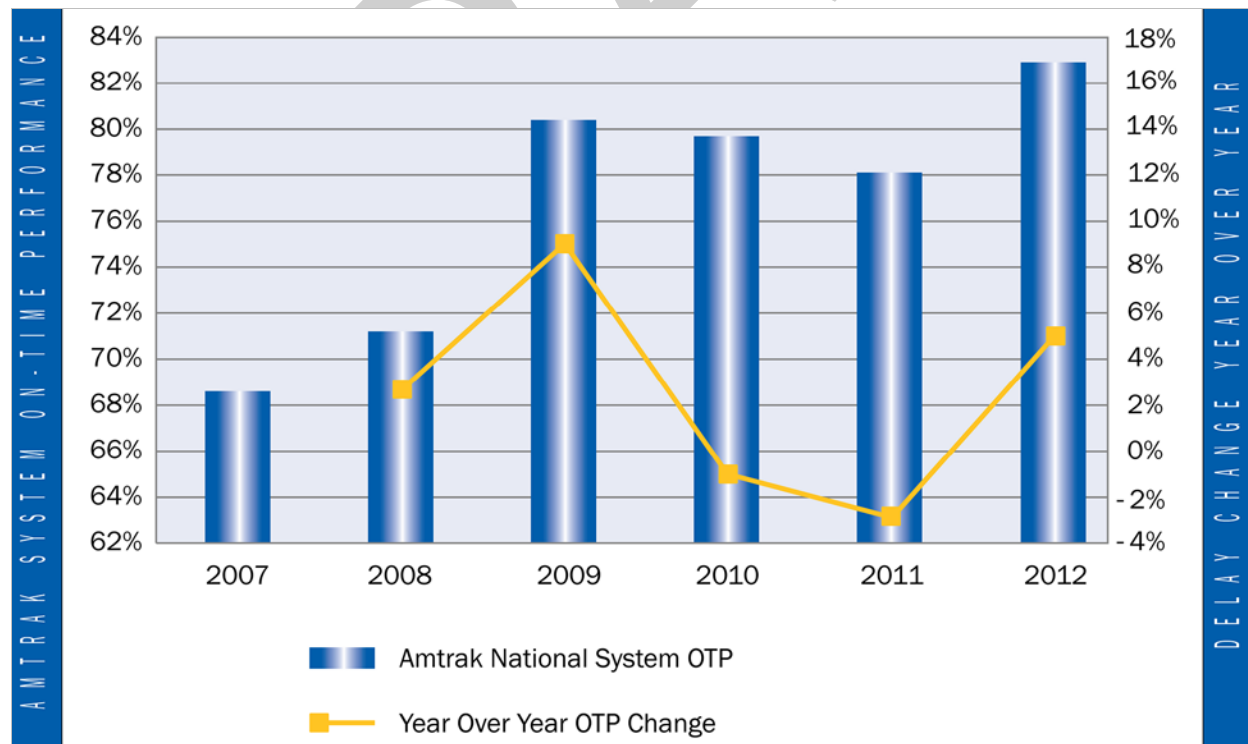
Route Name	Service Type	Virginia Stations Served	Host Railroad in Virginia	Ridership FY 2012	On-Time Performance FY 2012	Corridors Served
Northeast Corridor Regional	Daily—Washington, D.C., to Boston	Washington, D.C., Alexandria, Woodbridge, Quantico, Fredericksburg, Ashland, Richmond (Staples Mill and Main Street), Williamsburg, Newport News, Norfolk, Lynchburg, Burke Center, Manassas, Culpeper, Charlottesville, Norfolk	CSX, NS	8,014,175	86.5%	I-95, I-64
Carolinian	Daily—Charlotte to New York City	Petersburg, Richmond, Fredericksburg, Quantico, Alexandria, Washington, D.C.	CSX	306,419	73.6%	I-95
Palmetto	Daily—Savannah to New York City	Washington, D.C., Alexandria, Petersburg, Richmond (Staples Mill)	CSX	198,260	77%	I-95
Silver Star	Daily—Miami/Tampa to New York City	Petersburg, Richmond (Staples Mill), Alexandria, Washington, D.C.	CSX	425,794	66.8%	I-95
Silver Meteor	Daily—Miami to New York City	Petersburg, Richmond (Staples Mill), Alexandria, Washington, D.C.	CSX	375,164	65.8%	I-95
Auto Train	Daily Passenger and Automobile Shuttle—Lorton to Sanford, FL	Lorton	CSX	264,944	86.5%	I-95
Crescent	Daily—New Orleans to New York City	Danville, Lynchburg, Charlottesville, Culpeper, Manassas, Alexandria, Washington, D.C.	NS, CSX	304,266	82.2%	I-81, Route 29
Cardinal	3 times/week—Chicago to New York City	Clifton Forge, Staunton, Charlottesville, Culpeper, Manassas, Washington, D.C.	NS, BB, CSX	116,373	43%	I-81, Route 29

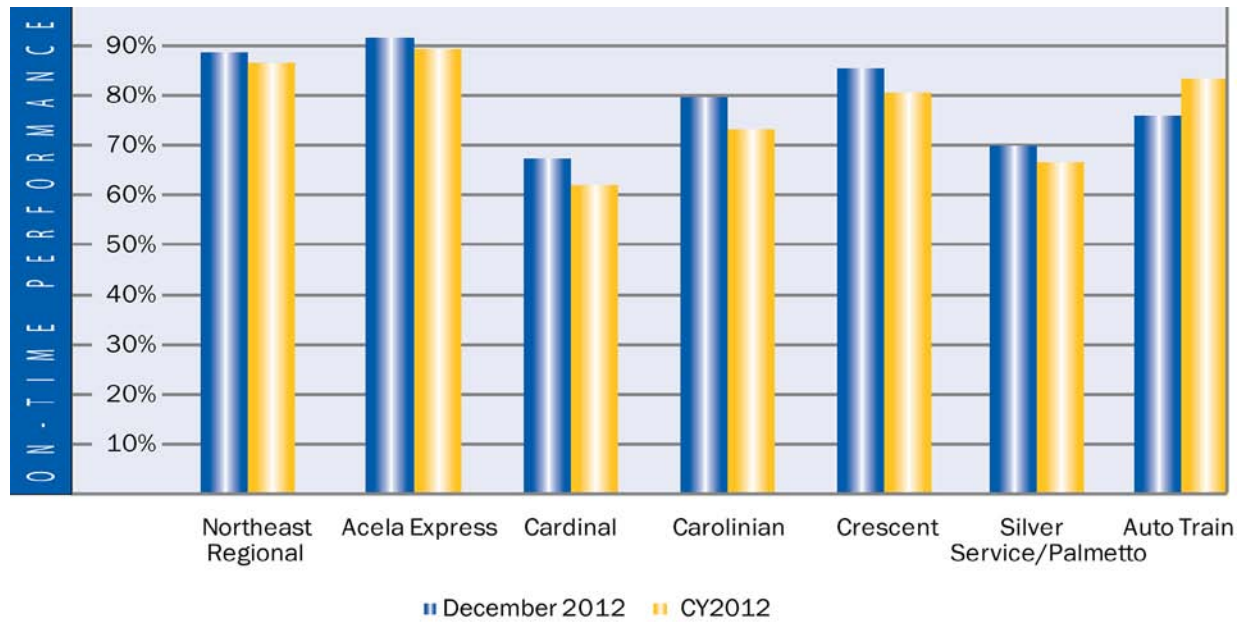
**Figure 3-11: Amtrak—FY2012 Virginia Ridership**



(Source: Amtrak)

**Figure 3-12: Amtrak Annual Delay Change from Previous Year (FY 2007–FY2012)**



**Figure 3-13: CY2012 Amtrak On-time Performance (percentage)**

(Source: Amtrak)

The primary causes of delay on all of the routes serving Virginia are train interference and track and signal problems.

Because the rail infrastructure used for passenger rail operations in Virginia is owned by freight railroads, the Commonwealth's approach has been to negotiate for train capacity rather than to build or acquire rail assets to be used specifically for intercity or commuter passenger service. The Commonwealth helps to fund capacity improvements that will enable freight rail lines to accommodate passenger trains. Virginia is also fortunate in its proximity to Amtrak's NEC. Starting in Washington, D.C., and extending to Boston, the NEC is the only rail line within the U.S. built to FRA track classification standards which allow passenger operations up to 150 miles per hour in some locations. Amtrak's Acela Express trains reach speeds of up to 150 miles per hour while Amtrak Regional service trains reach speeds of up to 120 miles per hour. The new state-supported trains to Norfolk, Lynchburg, Richmond, and Newport News each connect to the NEC and allow Virginians to benefit from the NEC infrastructure through a single-seat journey.

### 3.5.2. High-Speed Rail in Virginia

Fast, efficient passenger rail service is important for Virginia. The Commonwealth has initiated environmental studies and preliminary design associated with high-speed rail corridors passing through Virginia and has participated in multi-state coalitions to improve passenger rail services in the Mid-Atlantic region. Because of the high capital cost associated with high-speed rail systems, the Commonwealth has been following an incremental approach to plan for and construct rail improvements that eliminate key rail chokepoints and to increase rail speeds and on-time performance on existing passenger rail corridors.

The Southeast High-speed Rail (SEHSR) corridor, originally designated in ISTE and TEA-21, would extend high-speed rail service south from Washington, D.C., to Richmond and on to Raleigh and Charlotte. The SEHSR corridor would later expand farther south from Charlotte to New Orleans via Atlanta and from Raleigh to Jacksonville and east from Richmond to Hampton Roads. Figure 3-14 displays the progress on segments of the SEHR corridor.

DRPT and the North Carolina Department of Transportation (NCDOT) jointly completed the Tier I NEPA Environmental Impact Statement (EIS) for SEHSR from Washington, D.C., to Charlotte, North Carolina (almost 500 miles) in 2002. The study recommended high-speed rail in Virginia along the I-95 corridor north of Petersburg, continuing south via a reconstructed former CSX rail line that parallels I-85 to Norlina, North Carolina.

**Figure 3-14: Southeast High-speed Rail Corridor**



(Source: Virginia/North Carolina SEHSR Compact 2012)

Below is a summary and illustration of the recent and ongoing SEHSR-related projects in Virginia:

- Richmond to Hampton Roads Passenger Rail Study**—Tier I EIS that recommends high-speed rail along the Route 460 corridor and continued conventional speed rail on the I-64 corridor to the Virginia Peninsula. The Record of Decision (ROD) was signed in December 2012.



- **Richmond to Raleigh Tier II EIS**—Currently underway and to be complete in 2014. Rail recommendations were approved by both states in April 2012. This study will result in preliminary design of the Tier I-recommended corridor and will identify potential environmental impacts.
- **Richmond Area to Potomac Segment Tier II EIS (RAPS)**—In 2010, DRPT was awarded an FRA grant for \$44.3 million to complete environmental studies and preliminary engineering on the Richmond to Potomac Area segment of SEHSR. This study is currently underway.
- **Long Bridge Study**—In 2012, Washington, D.C.’s District Department of Transportation began the Long Bridge study to identify improvements for the only railroad bridge that connects the District of Columbia and the Commonwealth of Virginia and marks the northern terminus of the RAPS study area.

### 3.5.3. Virginia Railway Express Commuter Rail

VRE was founded in 1992 with a vision to provide a safe, convenient, energy-efficient public transportation alternative to driving congested highways from the Northern Virginia suburbs to the business districts of Alexandria, Crystal City, and Washington, D.C. Each weekday, VRE now operates 31 trains over two rail lines, covering 90 route-miles, and serves 18 stations in 8 Northern Virginia jurisdictions—carrying upwards to 18,000 passenger-trips per day. VRE currently operates with an annual overall on-time performance of close to 87 percent. Ridership growth has averaged 6 percent year over year between 2002 and 2012, and the existing system is currently operating at full capacity in all areas, including parking and midday train storage at its northern terminus. Capacity is a big concern because VRE is on target to grow another 63 to 85 percent by 2025. A route map of the VRE system is depicted in Figure 3-15.

Organizationally, VRE is a joint operation undertaken by two commissions—the Northern Virginia Transportation Commission (NVTC) and the Potomac and Rappahannock Transportation Commission (PRTC)—which represent the Northern Virginia counties and municipalities in the service area. Members of both entities sit on the VRE Operations Board, which governs VRE. Daily operations and capital projects are financed from a combination of federal, state, and local grants and through the sale of tickets (often referred to as the fare box revenues).

In FY2012 (July through June), VRE reported a total ridership of 4,771,987 passengers. This represented an average of 11 trains per day in each direction on the Fredericksburg Line with 2,491,500 passengers per year (I-95 corridor) and an average of 9 trains per day in each direction on the Manassas Line with 2,280,487 passengers per year (I-66 and Route 29 corridors). VRE operates on NS tracks for the Manassas route and CSX tracks for the Fredericksburg Route. VRE commuter trains are operated by Keolis Rail Services America under contract to NVTC and PRTC. VRE operations had been run by Amtrak from 1992 to 2010, when the new 5-year contract was awarded. On-time performance during FY2012 was 95 percent. This represents an improvement in on-time performance from 2010, when system performance was 87 percent, and a major improvement over 2006 when the system reached an all-time low of 77 percent on-time performance.

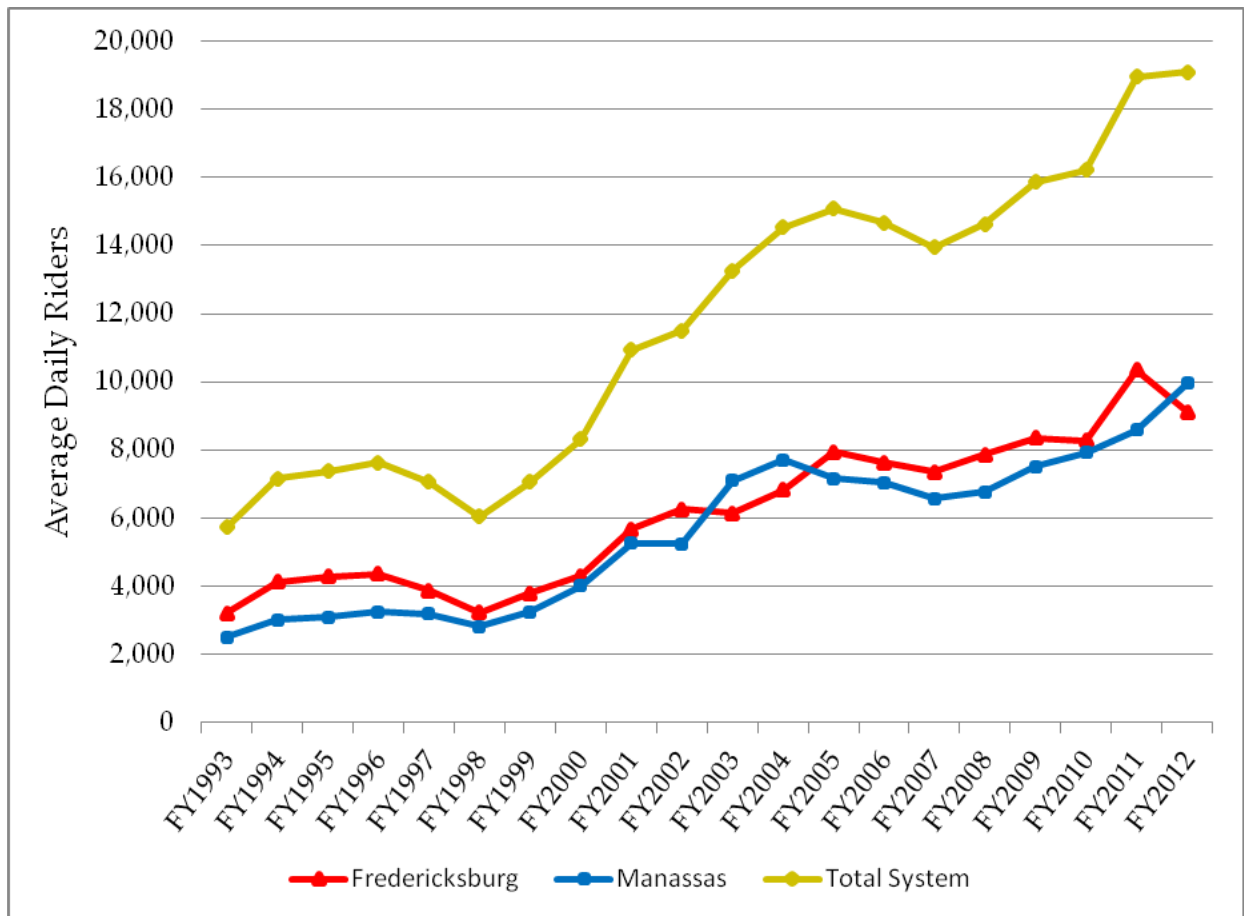
Figure 3-15: VRE System Map



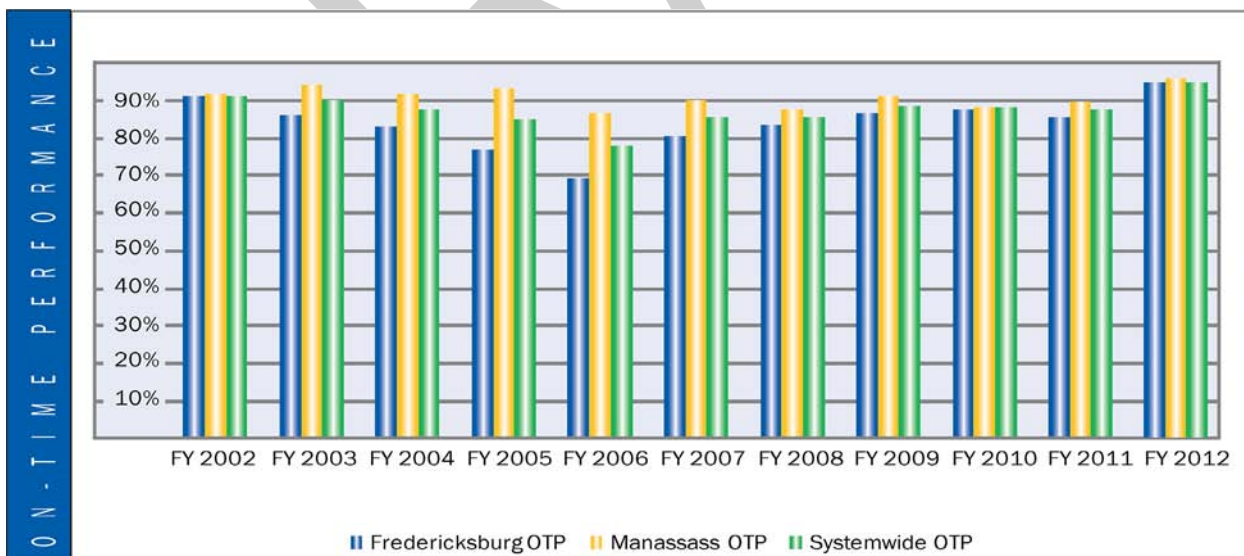
(Source: VRE)

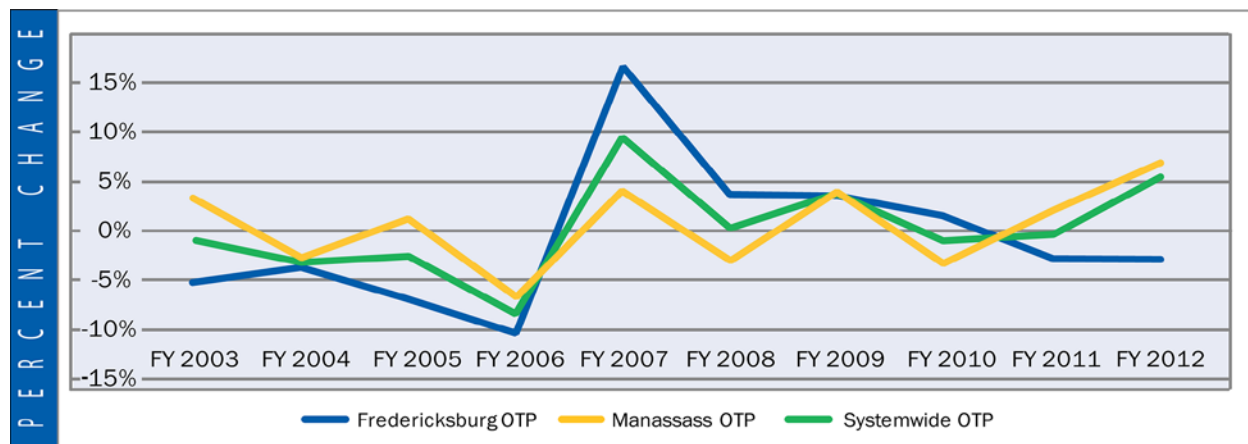
As illustrated in Figure 3-16, VRE has been successful in providing an alternative to driving. Since 1993, daily trips have increased from close to 6,000 to upwards of 19,000 passengers by FY2012. From 2005 to 2007, VRE experienced some declines in ridership due to lowered on-time performance brought about by equipment breakdowns, train traffic congestion, heat, and other weather-related delays. The delays led to an on-time performance of 50 percent for trains on the Fredericksburg line in June and July 2006 and 48 percent in July 2007 and an on-time performance of 59 percent on the Manassas line in July 2007. Figure 3-17 displays annual on-time performance for each of the VRE routes between the fiscal year ending June 2002 and the fiscal year ending June 2012. Increasing fares and service cutbacks also affected VRE ridership during this 3-year period. The rising price of gas has led to increased commuter rail ridership across the country and, since 2007, VRE has seen ridership gains every year. VRE saw a total ridership gain of 1,318,426 between FY2007 and FY2012, Total system ridership has grown 70 percent since 2002. Figure 3-18 displays annual changes in ridership between the fiscal year ending June 2002 and the fiscal year ending 2012.

**Figure 3-16: VRE Ridership (FY1993–FY2012)**



**Figure 3-17: VRE On-time Performance (FY2002–FY2012)**



**Figure 3-18: Change in VRE Ridership (FY2003–FY2012)**

VRE's improved performance today can be attributed in part to investments made by the Commonwealth that provided funding for projects to add capacity and improve operational efficiency in VRE's I-95 corridor service area. VRE supported the costs of adding a third track, improving signals, and building a new bridge over Quantico Creek. In exchange for these investments, the Commonwealth was able to secure four round trip train slots to operate expanded passenger rail service on freight tracks. In addition, CSX performed significant rail infrastructure improvements and on-time performance was improved by mitigating heat-related slow orders. These slow orders occur when high temperatures cause rail to expand, thus causing a "sun kink." In order to avoid derailments, railroads issue "slow orders" where passenger trains are subject to a maximum speed limit of 40 miles per hour instead of the usual limit of 70 miles per hour on VRE routes. Freight trains, which use the same lines, are limited to 10 miles per hour below their usual maximum speed. As these slow orders were mitigated, VRE on-time performance improved.

In 2008 and 2009, VRE entered into contracts to purchase 60 new Gallery rail cars and placed an additional order for 8 cars in FY2012. Since FY2007, VRE has spent \$223 million on new railcars. Federal grants have helped finance the purchase of 20 new diesel locomotives that are more fuel efficient and will require less maintenance than the older fleet. By the end of FY2012, VRE had 22 locomotives available, up from 19 in 2007, and 91 passenger cars, up from 90. The purchase of new cars and locomotives has allowed VRE to increase capacity and sell old equipment. Since FY2007, VRE has also spent \$17.6 million to improve stations and add parking; 1,540 parking spots have been added at stations since 2007, 2,844 since 2002, making the system a more attractive alternative to driving.

VRE is currently in the process of designing and building a 2.6-mile third track project adjacent to the CSX mainline in Spotsylvania County between Crossroads and Hamilton. The project will also construct a longer yard lead to accommodate a new VRE Spotsylvania Train Station. The project benefits VRE's current operations by supporting the operation of additional daily VRE Fredericksburg Line trains that originate at the VRE Crossroads yard. The VRE Spotsylvania County station enabled by this project is expected to increase VRE ridership by 2,000 daily trips by 2015 and 3,000 trips by 2025.

### 3.5.4. Virginia Passenger Rail Intermodal Connections

Amtrak and VRE networks within Virginia connect with highway, transit, pedestrian, and bicycle modes at railway stations within the state. Stations not only can be locations where passengers get on and off trains, but can also serve as catalysts for economic development and efforts to promote certain types of land use. Stations can either be platforms with or without shelter or enclosed structures with waiting areas. There are 21 Amtrak stations located in Virginia (Table 3-8). Of these, 13 are buildings with enclosed waiting areas and 7 are unmanned platforms. One additional connecting bus facility is displayed in Table 3-8. There are 16 VRE stations located in Virginia (Table 3-9). Many of these have connections to WMATA's Metrobus or local bus services. Several are co-located with Amtrak stations or nearby to Metrorail stations.

### 3.5.5. Excursion Trains and Tourism

Excursion trains contribute to tourism in states where scenic routes or special attractions exist (such as routes along rivers, mountains, “wine” trains). Often, the locomotive is steam-powered and the cars are restored antique parlor cars. The primary purpose of an excursion trip is the passenger's experience and enjoyment of this unique means of transportation. As a full-time operation, close ties to an attraction or a museum are often required for excursion trains to survive. In Virginia, there are no full-time excursion trains, but several shortlines currently provide excursion train opportunities on a limited basis. These include:

- The Roanoke Chapter of the National Railway Historical Society offers excursion trains in partnership with Norfolk Southern and Amtrak in Southwest Virginia. Because of the partnership with Amtrak, ridership for these trains is included in the Amtrak ridership data, and referred to as Special Trains/Western Strategic Business Unit (SBU) in Table 3-4.
- BB, in cooperation with the Old Dominion Chapter of the National Railway Historical Society, provides a charter excursion service when requested, as well as scheduled spring trips in May, fall excursions in October, and the Santa Train in December. All BB excursion trains operate out of the historic railway station in Dillwyn.
- BCRY has restored a 1913 Interurban railcar that operates round trip dining excursions on the rails of the Eastern Shore of Virginia, operating on the same rail lines that Bay Coast railroad operates freight service. On most weekends throughout the year, BCRY provides round trip lunch and dinner excursions originating in Cape Charles and will make special excursions when reserved in advance for private charter.

At present in Virginia, the burden of running a tourist train operation rests solely on the operating entity. Funding for such excursion trains comes primarily from the patrons and not the Commonwealth or federal government. Liability issues are of paramount importance on such excursion train operations.

**Table 3-8: Amtrak Stations in Virginia**

	Alexandria	Ashland	Burke Center	Charlottesville	Clifton Forge	Culpeper	Danville
Address	110 Callahan Dr Alexandria, VA 22301	112 North Railroad Avenue Ashland, VA 23005	10399 Premier Court Virginia Railway Express Station Burke, VA 22015	810 West Main St Charlottesville, VA 22903	307 East Ridgeway St CSX Office Bldg Clifton Forge, VA 24422	109 South Commerce St Culpeper, VA 22701	677 Craghead St Danville, VA 24541
Served by	Cardinal/Hoosier State, Crescent, Carolinian/ Piedmont, Silver Service/Palmetto, Northeast Regional	Northeast Regional	Northeast Regional	Cardinal/Hoosier State, Crescent, Northeast Regional	Cardinal/Hoosier State	Cardinal/Hoosier State, Crescent, Northeast Regional	Crescent
Shelter	Station building (with waiting room)	Platform with shelter	Platform with shelter	Station building (with waiting room)	Station building (with waiting room)	Platform (no shelter)	Station building (with waiting room)
ADA	Fully accessible	Accessible waiting room, platform	Dedicated park- ing, accessible platform	Fully accessible	Accessible platform	Accessible platform	Mostly accessible, no wheelchair service
Parking	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)
Depot hours	6 AM to 9 PM	NA	NA	6 AM to 9:30 PM	Wed, Fri, Sun 11 AM to 6 PM	Mon–Fri 8:30 AM to 5 PM Sat–Sun 9 AM to 5 PM	Midnight–1 AM 4 to 6 AM 11 to 11:59 PM
Baggage Service	Checked baggage service	No baggage services	No baggage services	No baggage services	No baggage services	No baggage services	No baggage services
Ticket Office	Yes	No	No	No	No	No	No
Restrooms	Yes	No	No	Yes	Yes	No	Yes
Telephone	Yes	Yes	No	Yes	No	No	No
Intermodal Connections	VRE Fredericks- burg and Manas- sas Line, King St Metro Station, DASH Bus	NA	VRE Manassas Line	Greyhound, Charlottesville Area Transit (Bus)	NA	NA	NA

**Table 3-8: Amtrak Stations in Virginia (continued)**

	Fredericksburg	Lorton	Lynchburg	Manassas	Newport News	Norfolk (Harbor Park)	Petersburg
Address	200 Lafayette Blvd Fredericksburg, VA 22401	8006 Lorton Rd Lorton, VA 22079	825 Kemper St Lynchburg, VA 24501	9431 West St Manassas, VA 20110	9304 Warwick Blvd Newport News, VA 23601	Park Avenue, Norfolk, VA 23504	3516 South St Ettrick Station Petersburg, VA 23803
Served by	Carolinian/Pied- mont, Northeast Regional	Auto Train	Crescent, Northeast Regional	Cardinal/Hoosier State, Crescent, Northeast Regional	Northeast Regional	Northeast Regional and bus connection to Newport News	Carolinian/Pied- mont, Silver Service/Palmetto
Shelter	Platform with shelter	Station building (with waiting room)	Station building (with waiting room)	Station building (with waiting room)	Station building (with waiting room)	No shelter, station to be built	Station building (with waiting room)
ADA	Dedicated parking, accessible waiting room and platform	Dedicated parking, accessible waiting room, water fountain and platform	Fully accessible	Dedicated parking, accessible waiting room and platform	Fully accessible	NA	Fully accessible
Parking	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)
Depot hours	NA	8 AM to 4 PM	5 AM to 1 PM 4 to 11:59 PM	Mon–Fri 5 AM to 10 PM Sat–Sun 8 AM to 7:30 PM	Mon–Thurs 7:30 AM to 8 PM Fri 7:30 AM to 10:15 PM Sat–Sun 7:30 AM to 9:15 PM	NA	10 AM to 6:30 PM
Baggage Service	No baggage services	Baggage assistance	Checked baggage service, baggage assistance and storage	No baggage services	Baggage assistance	No baggage service initially	Checked baggage service, baggage assistance and storage
Ticket Office	No	Yes	Yes	No	Yes	No	Yes
Restrooms	No	Yes	Yes	Yes	Yes	No	Yes
Telephone	No	Yes	Yes	No	Yes	No	Yes
Intermodal Connections	VRE Fredericksburg Line	VRE Fredericksburg Line	Greater Lynchburg Transit Company Bus, Greyhound, Valley Metro's Smart Way Connector to Roanoke	VRE Manassas Line	Thruway Connection (Bus) to Norfolk, Virginia Beach, Hampton Roads Transit (Bus)	Hampton Roads Transit bus and LRT	NA

**Table 3-8: Amtrak Stations in Virginia (continued)**

	Quantico	Richmond— Main Street	Richmond— Staples Mill	Staunton	Virginia Beach (Bus)	Williamsburg	Woodbridge
Address	550 Railroad Ave at Potomac Ave inside Marine Corps base Quantico, VA 22134	1500 East Main St Richmond, VA 23219	7519 Staples Mill Rd Richmond, VA 23228	1 Middlebrook Ave Staunton, VA 24401	19th St and Pacific Ave Virginia Beach, VA 23451	468 North Boundary St Williamsburg, VA 23185	1040 Express Way Woodbridge, VA 22194
Served by	Carolinian/Pied- mont, Northeast Regional	Northeast Regional	Carolinian/Pied- mont, Northeast Regional, Silver Service/Palmetto	Cardinal/Hoosier State	Bus connection from Newport News Station	Northeast Regional	Northeast Regional
Shelter	Platform with shelter	Station building (with waiting room)	Station building (with waiting room)	Station building (with waiting room)	Platform with shelter	Station building (with waiting room)	Platform with shelter
ADA	Accessible platform	Mostly accessible, no wheelchair service	Fully accessible	Accessible platform	NA	Fully accessible	Dedicated parking, accessible waiting room and platform
Parking	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (with attendant)	Short/long-term parking (no attendant)	NA	Short/long-term parking (no attendant)	Short-term parking (with attendant)
Depot hours	NA	Mon–Thurs 9:30 AM to 6:30 PM Fri 9:30 AM to 9 PM Sat–Sun 8:30 AM to 8:30 PM	24 hours	Wed, Thurs, Sun 12:45 PM to 4 PM	NA	Mon–Thurs 7:30 AM to 8:30 PM Fri, Sat, Sun 7:30 AM to 10 PM	NA
Baggage Service	No baggage services	No baggage services	Checked baggage service, baggage assistance and storage	No baggage services	No baggage services	Baggage assistance	No baggage services
Ticket Office	No	No	Yes	No	No	Yes	No
Restrooms	No	Yes	Yes	Yes	No	Yes	No
Telephone	Yes	Yes	Yes	Yes	No	No	No
Intermodal Connections	VRE Fredericksburg Line	GRTC Transit	NA	NA	Hampton Roads Transit (Bus)	Greyhound, Hampton Roads Transit (Bus), Williamsburg Area Transport (Bus)	Greyhound, VRE Fredericksburg Line



**Table 3-9: VRE Stations in Virginia**

	Alexandria	Backlick Road	Broad Run/Airport	Brooke	Burke Center	Crystal City
Address	110 Callahan Dr Alexandria, VA 22301	6900 Hechinger Dr Springfield, VA 22151	10399 Premier Ct Virginia Railway Express Station Burke, VA 22015	810 West Main St Charlottesville, VA 22903	10399 Premier Ct Virginia Railway Express Station Burke, VA 22015	1503 South Crystal Dr Arlington, VA 22202
Served by	Fredericksburg and Manassas Line	Manassas Line	Manassas Line	Fredericksburg Line	Manassas Line	Fredericksburg and Manassas Line
Shelter	Station building (with waiting room)	Platform with shelter	Platform with shelter	Station building (with waiting room)	Station building (with waiting room)	Platform (no shelter)
ADA	Platform is ADA accessible	Platform is ADA accessible	Platform is ADA accessible	Platform is ADA accessible	Platform is ADA accessible	Platform is ADA accessible
Parking	No parking available at this station	Free surface parking	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Free surface parking and garage parking	No parking available at this station
Ticketing	Cash sales vendor near this location, ticket vending machines (only accept credit or debit cards)	Ticket vending machines (only accept credit or debit cards)	No	No	Ticket vending machines (only accept credit or debit cards)	No
Telephone	Yes	Yes	No	Yes	Yes	No
Intermodal Connections	Amtrak, King St Metro Station, DASH Bus	NA		Greyhound, Charlottesville Area Transit (Bus)	NA	Arlington ART Bus, Metrobus and Metrorail

**Table 3-9: VRE Stations in Virginia (continued)**

Location	Franconia/ Springfield	Fredericksburg	Leeland Road	Lorton	Manassas	Manassas Park
Address	6880 Frontier Dr Springfield, VA 22150	200 Lafayette Blvd Fredericksburg, VA 22401	8006 Lorton Rd Lorton, VA 22079	8006 Lorton Rd Lorton, VA 22079	9451 West St Manassas, VA 20110	9300 Manassas Dr Manassas Park, VA 20111
Served by	Fredericksburg Line	Fredericksburg Line	Fredericksburg Line	Fredericksburg Line	Manassas Line	Manassas Line
Shelter	Waiting concourse	Platform with shelter	Station building (with waiting room)	Station building (with waiting room)	Station building (with waiting room)	Station building (with waiting room)
ADA	Platform is ADA accessible	Platform is ADA accessible	Platform is ADA accessible	Platform is ADA accessible	Platform is ADA accessible	Platform is ADA accessible
Parking	Parking at this station is owned and operated by Metro	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Short/long-term parking (no attendant)	Free surface parking and garage with valid permit	Free surface parking
Ticketing	Cash sales vendor near this location, ticket vending machines (only accept credit or debit cards)	No	Yes	Yes	Ticket vending machines (only accept credit or debit cards)	Ticket vending machines (only accept credit or debit cards)
Telephone	No	No	Yes	Yes	Yes	Yes
Intermodal Connections	Amtrak Cross Honor Train, Metrobus and Metrorail	Amtrak, FRED		Amtrak	Amtrak	Thruway Connection (Bus) to Norfolk, Virginia Beach, Hampton Roads Transit (Bus)

**Table 3-9: VRE Stations in Virginia (continued)**

	Quantico	Rippon	Rolling Road	Woodbridge
Address	550 Railroad Ave at Potomac Ave inside Marine Corps base Quantico, VA 22134	1500 East Main St Richmond, VA 23219	9016 Burke Rd Burke, VA 22015	1040 Express Way Woodbridge, VA 22194
Served by	Fredericksburg Line	Fredericksburg Line	Manassas Line	Fredericksburg Line
Shelter	Platform with shelter	Station building (with waiting room)	Station building (with waiting room)	Platform with shelter
ADA	Accessible platform	Mostly accessible, no wheelchair service	Platform is ADA accessible	Dedicated parking, accessible waiting room and platform
Parking	Short/long term parking (no attendant)	Short/long term parking (no attendant)	Free surface parking	Short term parking (with attendant)
Ticketing	No	No	Ticket vending machines (only accept credit or debit cards)	No
Telephone	Yes	Yes	Yes	No
Intermodal Connections	Amtrak, Quantico Base VRE Shuttle		NA	Amtrak, Greyhound

### 3.6. Rail Safety

Rail safety is a critical issue for rail operators and public agencies that have an oversight role for transportation safety. Rail safety issues are focused in several primary areas:

- Highway-rail at-grade crossings
- Trespassers on rail lines
- Equipment inspection
- Movement of hazardous materials
- Testing of new operating practices

The total number of train-related accidents and incidents in Virginia has generally trended downward over the past decade (Table 3-10). Of the 23 fatalities that occurred on the Virginia rail network during 2010 and 2012, 14 were associated with trespassers struck by trains on rail lines or bridges, 7 were struck by trains at highway-rail at-grade crossings (public and private), 1 occurred during a derailment, while the other was a fall or other cause. Most injuries were associated with railroad employees.

**Table 3-10: Total Rail-Related Accident/Incidents in Virginia (2002–2012)**

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Fatalities	13	4	5	7	5	9	11	10	10	13
Injuries/illness	166	132	154	132	133	135	130	144	127	117
Property only accidents/incidents	58	75	80	79	60	61	53	52	46	47
Total accidents/incidents	237	211	239	218	198	205	194	206	183	177

(Source: FRA Safety Data, <http://safetydata.fra.dot.gov/OfficeofSafety/default.aspx>, Reflects annual data available at 1/8/2012)

FRA classifies rail-related accidents/incidents as “train accidents,” “highway-rail incidents,” and “other.” Train accidents are defined as an “event involving on-track rail equipment that results in monetary damage to the equipment and track above a certain threshold.” A highway-rail incident is considered to be “any impact between a rail and a highway user at a crossing site, regardless of severity.” Other incidents are “events other than train accidents or crossing incidents that caused a death or nonfatal condition to any person.” As can be seen from Table 3-11, most accidents/incidents within Virginia fall within the “other” category.

**Table 3-11: Rail-Related Accidents/Incidents in Virginia, Categorized by Type**

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Train accidents	57	39	55	53	41	40	32	34	31	29
Highway-rail incidents	57	65	51	44	35	44	35	39	31	32
Other accidents/incidents	123	107	133	121	122	121	127	133	121	116
Total accidents/incidents	237	211	239	218	198	205	194	206	183	177

(Source: FRA Safety Data, <http://safetydata.fra.dot.gov/OfficeofSafety/default.aspx>, Reflects annual data available at 1/8/2012)

### 3.6.1. Operation Lifesaver

Operation Lifesaver is a non-profit, international continuing public education program first established in 1972 to end collisions, deaths, and injuries at places where roadways cross train tracks and on railroad rights-of-way. Operation Lifesaver programs are sponsored cooperatively by federal, state, and local government agencies; highway safety organizations; and the nation's railroads. DRPT is an active participant in Virginia Operation Lifesaver Inc., a non-profit organization established in 1979 to address the need in Virginia to eliminate death and injuries at highway-rail grade crossings and on railroad rights of way and properties.

Virginia Operation Lifesaver is made up of volunteer presenters who give free presentations regarding highway-rail grade crossing safety and trespass prevention on railroad rights of way and properties to schools, drivers training classes, professional drivers, school bus drivers, public safety personnel, civic groups, and any other organization that has an interest. According to Operation Lifesaver statistics for 2011, the national level there were 1,963 collisions, 980 injuries, and 265 fatalities associated with highway-rail grade crossings. There were 427 fatalities associated with trespassers on railroad rights-of-way.

### 3.6.2. Highway-Rail Grade Crossings

The Commonwealth, through VDOT, has received approximately \$6.7 million in federal funds under Section 1103(f) since 1993 for its portion of the designated Southeast High-Speed Corridor. These funds have been used to install lights, gates, and constant warning time devices at 36 crossings, construct a pedestrian overpass over the high-speed corridor in Prince William County, and support design and construction of three grade separations completed with Section 130 funds.

Highway-rail at-grade crossings are among the most visible safety concerns to the general public. Motorist actions are responsible for the vast majority of highway-rail at-grade crossing collisions. A freight train moving at 55 miles an hour can take a mile or more to stop. According to a June 2004 report issued by USDOT's Inspector General, 94 percent of all grade crossing accidents are caused by risky driver behavior, and about half of all grade crossing accidents occur at crossings that are already equipped with active warning devices such as bells, gates, and lights.

Currently, there are 1,886 public highway-rail at-grade crossings and 2,751 known private at-grade crossings in Virginia. Of the public at-grade crossings, 1,499 (79 percent) have active warning devices while the remaining 387 (21 percent) are passive; of these, 1,178 (62 percent) are on VDOT maintained roads with the remaining 708 (38 percent) maintained by cities and towns.

VDOT administers the Highway-Rail Safety Improvement Program, so-called "Section 130" because it is authorized by Section 130 of U.S. Code 23. Projects are 90 percent funded by the federal government and 10 percent funded by the state. Only public crossings are eligible for improvement by Section 130 funds; private crossings are ineligible. At least half of Section 130 funds must be used for improvements to warning devices at highway-rail at-grade crossings. The remaining can be spent on additional protective devices or on other highway-rail at-grade crossing safety improvements, including sight-distance improvements, crossing closures or consolidations, and grade separation projects. Improvement projects are selected based on applicant-submitted proposals on a statewide competitive basis. Projects are ranked by a crossing's "accident prediction value" as calculated by federally mandated model. Adjustments are made to initial rankings based on field reviews of sight distance, roadway geometry, and adjacent land development.

Funding for the Section 130 program varies by year, but averages about \$4.5 million per year. The number of projects completed will depend upon type and cost of the projects, but typically between 15 and 40 projects will be completed in a year.

### 3.6.3. Hazardous Materials

According to the Association of American Railroads, each year about 1.7 million carloads of hazardous materials are transported by rail in the U.S., or about 5.5 percent of U.S. rail carloads. Rail has a good hazardous material safety records with greater than 99 percent of rail hazardous materials reaching their destinations without a release caused by a train accident. Rail hazardous material accident rates have declined by 91 percent since 1980. Toxic inhalation hazard materials (TIH) materials are a subset of hazardous materials and would be particularly threatening if released into the atmosphere. Each year, railroads carry about 75,000 carloads of TIH and are subject to a common carrier obligation to transport TIH materials. Per USDOT requirements, railroads conduct risk analyses of their primary TIH routes and potential alternative routes. Railroads must use the safest routes based upon these analyses.

### 3.6.4. Security

As the 9/11 Commission noted in its final report “Surface transportation systems such as railroads and mass transit remain hard to protect because they are so accessible and extensive.”<sup>3</sup> The U.S. Department of Homeland Security (DHS) is the primary federal agency responsible for security in the transportation sector, including rail. DHS has developed the *National Infrastructure Protection Plan* in 2009, a component of which is the *Transportation Systems Sector-Specific Plan*, prepared in 2010. The focus of this document and the process which it represents is to develop strategies to reduce the risks to critical transportation infrastructure from known and unknown terrorism threats. DHS has established modal-specific councils to involve sector representatives in developing policies and plans, including rail and mass transit coordinating councils. The Plan’s framework includes a cycle of activities that begin with setting protection and resiliency goals, then identifying assets, systems, and networks, assessing risks, prioritizing focus areas, developing and implementing programs and strategies, and measuring effectiveness. The *Virginia Critical Infrastructure Protection and Resiliency Strategic Plan* has been developed to adhere to the tenets of the *National Infrastructure Protection Plan*. The primary Virginia state agencies responsible for the Plan are the Office of Commonwealth Preparedness, the Department of State Police, the Virginia Department of Emergency Management, and the Virginia Department of Transportation. The Virginia Plan follows a similar framework to that of the *National Infrastructure Protection Plan*. The *National Infrastructure Protection Plan* is intended to be updated every three years.

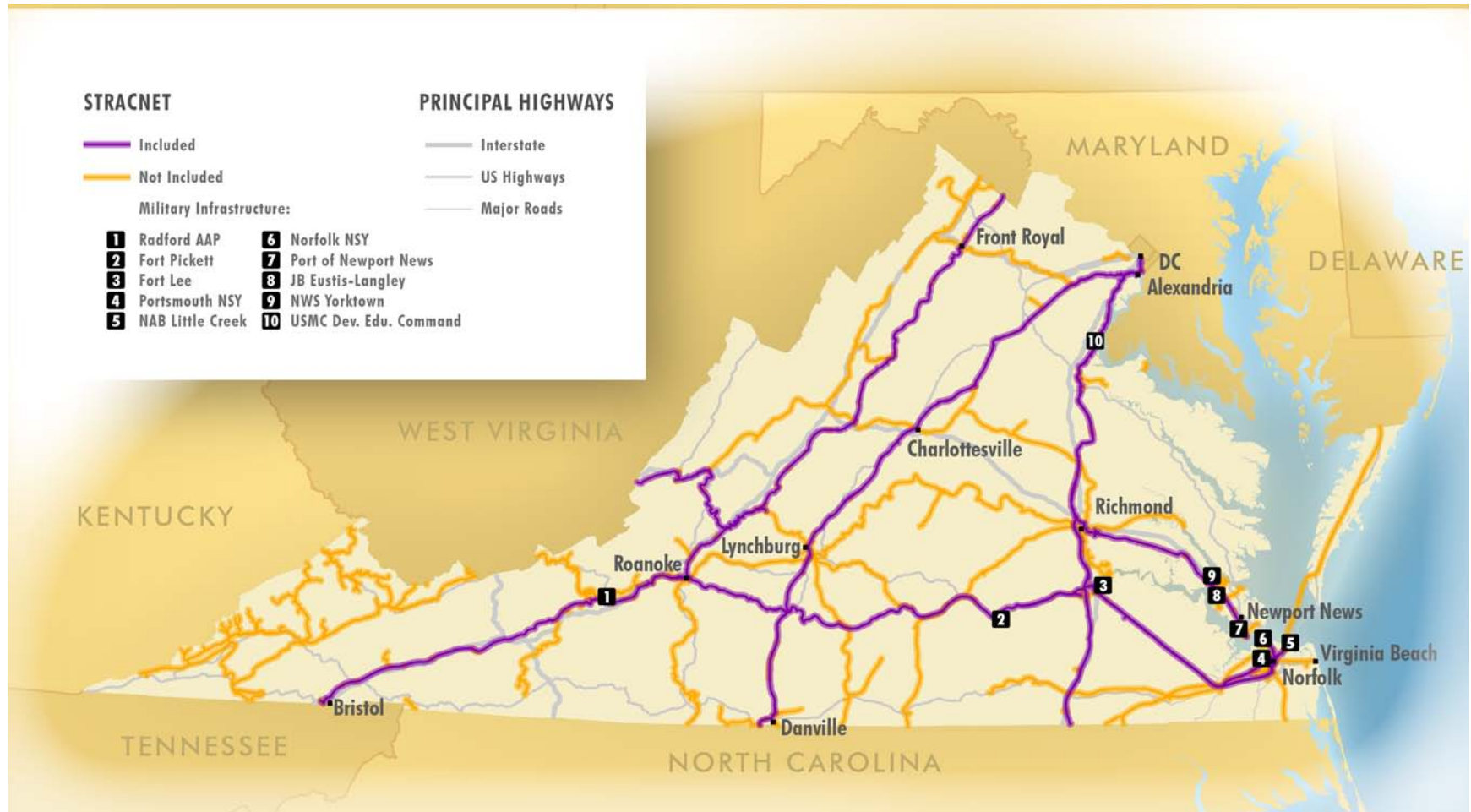
### 3.6.5. Strategic Rail Corridor Network

The Strategic Rail Corridor Network (STRACNET) is a program under the Department of Defense’s Railroad and Highways for National Defense program and is designated to ensure the nation’s rail and highway infrastructure can support defense emergencies. STRACNET consists of 38,800 miles of rail lines that are important for national defense and provide service to 193 defense installations. The program works to integrate defense rail needs into civil sector planning affecting the nation’s railroad system. As a practical matter for rail network planning, location of a STRACNET rail line requires that rail lines maintain clearances of at least 16.92 feet vertically and 12 feet horizontally. Because STRACNET width requirements exceed the width of most passenger coaches, raised passenger station platforms on STRACNET rail lines must be constructed in such a way that they do not conflict with STRACNET requirements. Wide-load trains must be able to route around obstructions (such as on another track), raised station platforms must be constructed so that the edges can be flipped up in case of national emergency, or trains should be able to shift away from station platforms (such as through gauntlet tracks). Figure 3-19 shows STRACNET lines in Virginia.

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<sup>3</sup> *The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks Upon the United States*, New York: Norton, 2004, p. 391.

**Figure 3-19: Virginia Strategic Rail Corridor Network**



## 3.7. Rail Line Abandonments and Rails-to-Trails

### 3.7.1. Rail Line Abandonments

Rail abandonments have been decreasing in both number and length since the 1980s. Railway mileage continues to decline, although the pace has slowed significantly as much of the unprofitable segments and unneeded capacity have already been abandoned. In the period between 1970 and 1991, there were 692.51 route-miles abandoned in Virginia. In the period from 1992 to 2010, there were only 157.72 route-miles abandoned. A list of abandoned rail lines since 2008 in the Commonwealth is shown in Table 3-12. Railway mileage peaked in Virginia at approximately 4,700 route-miles in 1920. Today, there are approximately 3,400-route miles, a loss of roughly 28 percent. Table 3-12 indicates track abandonments and unused rail routes that have occurred in the Commonwealth since the original routes were constructed.

For future rail needs, it is critical that the Commonwealth partner with privately owned railroads to preserve unused and abandoned rail routes when feasible. As future growth occurs in the Commonwealth, rail lines that may not have been economical in the past may prove to be cost-effective and vital to the public interest in the future. As an example, the proposed SEHSR corridor in Virginia will utilize an unused rail route from the North Carolina border to Petersburg adjacent to I-85. If the line had been abandoned and the property sold to residential or commercial interests, the SEHSR corridor development would prove more challenging to achieve under modern environmental requirements.

It is also useful to clarify that while rail route-miles have been decreasing, rail track-miles have been increasing. Route-miles refer to the length of rail right-of-way, while track-miles refer to the length of track that has been installed. If a rail line has two tracks, i.e., is “double tracked,” the number of track-miles will be double the number of route-miles. Railroads have been adding additional tracks to existing rail lines.

**Table 3-12: Rail Line Abandonments and Unused Rail Lines (2008–June 2013)**

Name of Line	Rail Carrier	Miles Abandoned	Date Abandonment Granted
Chesapeake NS 1.40–NS 2.30	NS–NPBL	0.90	June 14, 2008
Portsmouth SA 0.28–SA 0.78	CSXT	0.50	September 16, 2008
Virginia Beach VB 0.12 to VB 15.46	NS	15.30	November 6, 2008
DW 41.6 to DW 45.80, Martinsville, Henry County	NS	4.20	February 4, 2009
CV 277.30 Big Stone Gap to CV 279.11 Appalachia–Wise County	NS	1.81	April 7, 2009
NS Clarksville, VA to Oxford, NC	NS	15.25	May 13, 2009
Brunswick County FD 90.2–FD 95.2 in Lawrenceville	NS	5.00	April 30, 2009
James River Industrial Track in the City of Richmond and Henrico County	CSXT-NS	1.55	June 6, 2013
Total Rail Line Abandonments 2008–June 2013		44.50	



### 3.7.2. Rail Banking and Rails-to-Trails Program

In 1983, Congress amended the 1968 *National Trails Systems Act* to give interested parties the opportunity to negotiate agreements with rail carriers to use railroad rights-of-way for trails, a practice called “rail banking.” The intent of this legislation was to preserve railroad rights-of-way for potential reversion back to railroad use. Recreation trails are considered “interim use.” Rail banking can be requested by either a public agency or a qualified private organization. Rail banking is administered through the STB. The bridges and trestles of the former railroad line must be kept in place, and no permanent structures can be built on the right-of-way. A railroad can apply to the STB to resume rail service on a rail-banked corridor. However, it should be noted that it can often be difficult to get public support for putting rail service back into the corridor once the corridor has been used for other trail-related purposes. A number of rail banking arrangements have converted out-of-service rail lines in Virginia to recreational use.

“Rails-to-trails” (conversion of abandoned rail corridors to recreational use) is eligible for federal funding under the latest transportation act, Moving Ahead for Progress in the 21st Century (MAP-21), under the Transportation Alternatives program. The federal share is 80 percent with a match of 20 percent.

The Virginia Department of Conservation and Recreation is the Commonwealth’s primary agency responsible for coordinating rail trail projects in Virginia—with input from DRPT. Examples of rail trail projects that may be considered eligible for federal transportation alternatives funding include:

- Acquiring railroad rights-of-way
- Planning, designing, and constructing multi-use trails along a railroad right-of-way
- Implementing major reconstructions of trails along a railroad right-of-way
- Developing rails-to-trails projects or railroad corridors for pedestrian walking/hiking/jogging trails, bike paths, parks, or other recreational usage, which includes active rail lines and rail lines that may be temporarily unused where the track is still in place

DRPT’s guidelines related to rails-with-trails are outlined in *Rails with Trails/Pedestrian Crossing Project Initiation, Coordination and Review* as presented to the Governor and the General Assembly in 2009.

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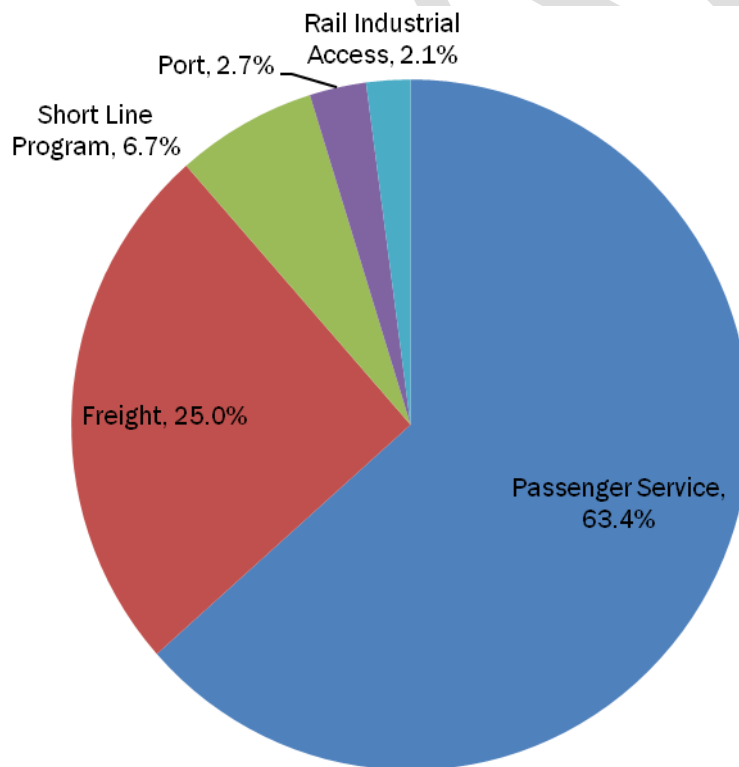
## 4. Rail Funding in Virginia

### 4.1. Overview

Virginia has made significant advancements in recent years in providing dedicated funding for rail investments, and DRPT's existing funding programs provide a strong foundation for future funding aimed at further rail improvements. DRPT's FY2013 budget includes \$109.4 million in funding for rail improvements in Virginia, which represents 22 percent of DRPT's overall \$509 million budget. Funding for DRPT's rail programs has been supported through several funding sources: FRA grant funds, General funds, Intercity Passenger Rail Operating and Capital (IPROC) funds, Rail Enhancement funds (REF), Rail Industrial Access (RIA) funds, Rail Preservation Program (RPP) funds, Transportation Capital Projects Revenue Bond funds, Transportation Trust Fund (TTF), and Virginia Transportation Act of 2000 (VTA 2000) funds. The distribution of anticipated expenditures falls into five general categories: rail freight, shortline program, port-related projects, the Rail Industrial Access Program, and passenger service.

Freight rail improvements are generally funded through REF, RIA, and RPP and require a benefit-cost analysis that shows substantial public benefit projected for the project. Since passenger rail service shares track infrastructure with freight trains in Virginia, improvements to freight tracks have added benefit for passenger rail as well.

**Figure 4-1: FY2013 DRPT Rail Investments**



Funding for passenger rail service in Virginia and throughout the U.S. is going through a significant shift as PRIIA 2008 is implemented. States, Amtrak, and FRA have worked together to

determine a strategy for funding passenger rail operations in the U.S., one of the basic requirements of PRIIA for the states. Virginia's 2013 landmark comprehensive transportation funding legislation, commits a portion of the state sales and use tax to help fund future rail capital and operating needs to maintain and develop new and expanded intercity passenger rail operations.

## 4.2. State Rail Funding in Virginia

### 4.2.1. Intercity Passenger Rail Operating and Capital Fund

IPROC (§33.1-221.1:1.3) was created by the General Assembly in 2011 as a strategy to sustain Virginia's share of Amtrak Virginia's operating budget in preparation for PRIIA. The legislation gave the CTB and General Assembly the flexibility to allocate existing transportation revenues to the fund. This legislation resulted from a report entitled *Funding Strategies for State Sponsored Intercity and High Speed Passenger Rail*, which was submitted by DRPT in response to Senate Joint Resolution 63 in 2010. The report outlined that under Section 209 of PRIIA, six Amtrak regional trains would become the funding responsibility of the Commonwealth effective October 2013.

In 2012, the General Assembly provided \$28.7 million of the FY2011 General Fund surplus for the operating and capital needs of Virginia intercity passenger rail services and authorized a transfer of \$26.1 million from the REF for passenger needs for 2013 and 2014. To help fund future needs to maintain and develop new and expanded intercity passenger rail operations, the 2013 General Assembly passed legislation to identify a dedicated revenue source that will commit a portion of sales tax revenue to IPROC. This is expected to yield \$44 million in FY 2014 with growth upwards to \$56 million annually by FY2018. Despite this additional sustained rail funding, the Rail Resource Allocation Plan shows that rail needs still far outweigh the anticipated revenues.

### 4.2.2. Rail Enhancement Fund

Created by the General Assembly in 2005, the REF (§33.1-221.1:1.1) provides for the planning and implementation of freight and passenger rail projects in the Commonwealth. This fund is the primary source for the implementation of large capital projects for rail improvements. It is based on a public benefit analysis and requires a minimum 30 percent match from non-state sources. The REF is not usually used for subsidizing passenger rail operating costs, with the exception of special appropriation of the General Assembly.

The fund provides dedicated state funding for acquiring, leasing, and improving railways or railroad equipment, rolling stock, rights-of-way, or facilities for freight and passenger rail transportation purposes whenever the CTB determines that it is for the good of a region or for the Commonwealth as a whole. The source of revenues for the REF is a 3 percent portion of the vehicle rental tax, estimated at about \$27 million annually. In addition, state funds are provided to freight and passenger rail projects in accordance with VTA 2000 Appropriations and Capital Project Revenue Bonds.

A \$6-million exception to use REF grant funds for the operational expenses of the Virginia-funded Amtrak service was provided by the General Assembly during its 2010 session. REF funds are also being used for passenger rail programs in FY2013 and FY2014 for IPROC, described above.

The REF program policy goals are generally described below.

- Projects must have immediate and substantial public benefit equal to or greater than the public investment. Projects address the needs identified in the applicable state, regional, or local plans, developed in consultation with public and private partners. Projects encourage competition and economic development by promoting, or not precluding, access by more

than one rail operator and, whenever possible, joint access by freight and passenger operators to optimize the Commonwealth's investment.

- The Program limits long-term Commonwealth funding liability through the development of achievable project schedules and budgets. Consideration is given to funding major projects over a multi-year period. Where feasible, projects optimize public benefits by leveraging funds from sources other than the REF. Projects protect the Commonwealth's public interest in private facilities. The Commonwealth ensures that any improvements made with public funds remain available for the proposed public use for the useful life of the improvement. Projects will contribute to the effectiveness of the entire transportation system.

The following organizations (or any combination) are eligible to apply for REF funding:

- Passenger and freight rail operators
- Private businesses or industries that currently utilize rail or are planning to develop railway facilities in the future
- Regional authorities and local governments
- Non-profit organizations

Eligible expenses may include the following:

- Preliminary service, engineering, or feasibility study
- Final engineering
- Permitting
- Acquisition, lease, or improvement of rights of way or facilities
- Environmental mitigation directly related to the project
- Site preparation, including grading, drainage, and relocation of utilities
- Acquisition, lease, or improvement of railroad equipment and rolling stock
- Public involvement expenses, as agreed

Applicants must agree to allow the Commonwealth to maintain an interest in rail improvements for the life of the public benefit, usually a period of 15 years. New rail facilities cannot preclude competition.

Grant recipients must repay DRPT its contribution to the cost of the construction and materials, less depreciation, if the rail improvements are abandoned, relocated, or sold (without a grant assignment). Grantees also must repay DRPT its contribution to the cost of the rail improvements if the annual public benefits stated in the application for the 15-year time period are not met.

### 4.2.3. Rail Preservation Program

Created in 1992 and codified in 2006, the Shortline Railway Preservation and Development Fund (§33.1-221.1:1.2) provides funding for the preservation and continuation of existing rail service to increase productivity, safety, and efficiency of shortline railway transportation in Virginia. Funds are distributed through DRPT's RPP. The RPP is allocated \$3 million annually for shortline rail improvement projects. Funds are administered by the DRPT Director subject to the approval of the CTB. Availability of rail bonds through 2018 has increased the amount of funding available through the RPP.

The allocation of RPP funds considers project cost in relation to the prospective use, line capacity, and the economic and public benefits and future public uses of the properties. Each application must be accompanied by a resolution from the appropriate local government, MPO, or PDC endorsing the usage of funds for the project.

No more than 50 percent of the funds can be recommended for any single applicant in any fiscal year unless it is determined that there are too few applicants to otherwise use the funds or a project has been determined to be of major significance to the Commonwealth. Freight improvement projects must have a benefit-cost analysis of greater than 1.0, except in the case of safety projects not eligible under another safety program. Passenger projects are selected based on need and available capacity. Funds are provided to local governments, authorities, agencies, MPOs, PDCs, or non-public sector entities for rail projects funded under the program at a maximum 70-percent state and minimum 30-percent local match. Funds provided for Class I rail operators for freight purposes may be in the form of loans. No funds are used for general railroad operating expenses. RPP funds may also be used as a portion of the non-federal share for the utilization of federal funds by public or private parties. Funds may be granted or loaned to the current or prospective owners of a shortline railroad to purchase or refinance operating railway properties. The maximum amount of any loan is limited by the net liquidation value. The Commonwealth retains an interest in the property with an option to buy the balance if the rail operation is not continued as originally intended. The Commonwealth may purchase lines for shortline rail service or other transportation purposes that can be leased to others for rail transportation purposes.

The recipients of funding are contractually committed to the maintenance of such tracks, facilities, and property and to the payment of any costs related to the future relocation or removal of such tracks and facilities for a period of 15 years. The Commonwealth may allow the recipient of funds to purchase the Commonwealth's interest in a railway, equipment, and facilities. RPP funds are intended for projects that obtain a minimum FRA Class II Track Safety Standards and those that develop the viability of the branchline for current and future rail traffic

#### **4.2.4. Rail Industrial Access Grants**

This program (codified in §33.1-221.1:1) is administered by DRPT, and funding for projects is approved by the CTB. The purpose of the program is to provide rail freight trackage between existing rail lines and existing or proposed commercial sites. Rail access funding under this program varies from year to year depending on the applications received by DRPT from all segments of the program and funds available; but, in the past three years, the RIA program has been budgeted an average of approximately \$2.4 million per year.

The Fund for Construction of Industrial Access Railroad Tracks was created by the General Assembly in 1986. Funding is applied in conjunction with the Virginia Economic Development Partnership, county and municipal economic development departments, railroads, and private industry. It is an incentive program to promote economic development. It does not provide funding for passenger rail operations.

Successful candidate projects will produce significant positive economic impacts. The cost of construction of an access track in relation to the prospective volume of rail traffic, capital investment, potential employment, or other economic and public benefits are considered in evaluating projects.

The following organizations are eligible to apply for Industrial Access Railroad Track funding:

- Business, commercial, or industrial enterprises
- Municipal and county governments that apply for funding on behalf of a business, commercial, or industrial enterprise
- Local departments of economic development that apply for funding on behalf of a business, commercial, or industrial enterprise
- Railroads

Funds may be used to construct, reconstruct, or improve part or all of the necessary tracks and related facilities on public or private property currently used or being developed, existing or prospective, for single industries or industrial subdivisions under firm contract or already constructed.

Ineligible project costs include the following:

- Relocation of utilities
- Switches and track to clear point connecting the access track to the main line
- Acquisition of right-of-way

No more than \$450,000 of the funds is allocated to any one county, town, or city in any fiscal year. No more than \$300,000 of unmatched funds is allocated to any one project in any fiscal year. Any funds in excess of \$300,000 must be matched dollar-for-dollar by the recipient or from other non-program sources. The amount of industrial access railroad track funds allocated to a project cannot exceed 15 percent of the capital outlay of the designated business, although this requirement could be waived in certain circumstances.

Grantees must provide the Commonwealth with a contingent interest in that portion of trackage and facilities constructed or improved with the industrial access railroad track funds for 15 years. The project cannot reduce or limit competition. Applicants must certify that they will maintain the tracks and facilities and that the jobs and rail traffic will be as described in the application. Applicants must repay DPRT its contribution if the rail line is abandoned or jobs/traffic levels fall short of 15-year commitment levels.

#### **4.2.5. Commuter Rail Funding**

VRE is currently the only agency that provides commuter rail service in the Commonwealth. Funding for commuter rail service is supported by federal and state transportation funds and local matching funds. The federal funds are administered by the Commonwealth and are apportioned annually to DRPT from FTA. The state funds are provided from the Mass Transit Trust Fund, the Mass Transit Priority Transportation Fund, the Transportation Capital Fund, and the REF. Over the past six years, the Commonwealth has provided an average of 22 percent annual funding for VRE in Northern Virginia as depicted in Table 4-1.

#### **4.2.6. Public-Private Transportation Act**

Code of Virginia §56-55 provides the policy of the General Assembly regarding the *Public-Private Transportation Act of 1995* (PPTA). The PPTA, as amended, is the legislative framework enabling the Commonwealth of Virginia, local governments, and certain other public entities as defined in the PPTA to enter into agreements authorizing private entities to develop or operate qualifying transportation facilities. These implementation guidelines are for VDOT, DRPT, the Department of Aviation, DMV, VPA, and other transportation agencies of the Commonwealth.

**Table 4-1: Annual Expenses for Virginia Railway Express (FY2006 to FY2012)**

Revenue Source	FY2012		FY2011		FY2010		FY2009		FY2008		FY2007		6-Year Summary	
	Revenue (\$)	% of Total	Revenue (\$)	% of Total	Revenue (\$)	% of Total	Revenue (\$)	% of Total	Revenue (\$)	% of Total	Revenue (\$)	% of Total	Revenue (\$)	% of Total
Operating Revenue (Fares)	\$34,721,591	37.48%	\$32,368,123	25.10%	\$30,013,730	29.50%	\$25,909,794	26.30%	\$21,821,334	23.00%	\$19,892,119	26.50%	\$164,726,691	27.83%
<b>Non-operating Revenues (Subsidy)</b>														
VA DRPT	\$12,711,602	13.72%	\$12,806,509	9.90%	\$13,153,781	12.90%	\$13,482,816	13.70%	\$10,795,443	11.40%	\$12,269,884	16.30%	\$75,220,035	12.71%
Federal	\$17,181,121	18.54%	\$16,157,284	12.50%	\$14,525,795	14.30%	\$12,784,123	13.00%	\$12,522,868	13.20%	\$12,741,069	17.00%	\$85,912,260	14.52%
Local	\$15,943,917	17.21%	\$16,070,307	12.50%	\$16,376,968	16.10%	\$17,275,500	17.50%	\$13,379,155	14.10%	\$8,802,762	11.70%	\$87,848,609	14.84%
<i>Subtotal</i>	\$45,836,640	49.47%	\$45,034,100	35.00%	\$44,056,544	43.40%	\$43,542,439	44.10%	\$36,697,466	38.60%	\$33,813,715	45.00%	\$248,980,904	42.07%
<b>Capital Grants and Assistance</b>														
VA DRPT	\$2,027,872	2.19%	\$7,506,606	5.80%	\$10,939,490	10.80%	\$12,228,446	12.4%	\$14,959,850	15.80%	\$9,455,655	12.60%	\$57,117,919	9.65%
Federal	\$9,997,070	10.79%	\$43,444,643	33.70%	\$15,839,667	15.60%	\$14,702,198	14.90%	\$19,218,547	20.20%	\$10,762,936	14.30%	\$113,965,061	19.26%
Local	\$46,924	0.05%	\$406,331	0.30%	\$680,631	0.70%	\$1,903,284	1.90%	\$925,338	1.00%	\$0	0.00%	\$3,962,508	0.67%
<i>Subtotal</i>	\$12,071,866	13.03%	\$51,357,580	39.90%	\$27,459,788	27.00%	\$28,833,928	29.20%	\$35,103,735	37.00%	\$20,218,591	26.90%	\$175,045,488	29.58%
Interest Income	\$17,974		\$15,059		\$89,643		\$406,855		\$1,334,850		\$1,220,780		\$3,085,161	
Total Revenues	\$92,648,071	100.00%	\$128,774,862	100.00%	\$101,619,705	100.00%	\$98,693,016	100.00%	\$94,957,385	100.00%	\$75,145,205	100.00%	\$591,838,244	100.00%
Combined VA DRPT Revenues	\$14,739,474	15.91%	\$20,313,115	15.80%	\$24,093,271	23.70%	\$25,711,262	26.10%	\$25,755,293	27.10%	\$21,725,539	28.90%	\$132,337,954	22.36%

(Source: VRE Annual Financial Statements)



Public and private entities may also propose innovative financing methods, including the imposition of user fees or service payments under the provisions of the PPTA. Financing arrangements may include the issuance of debt, equity, or other securities or obligations. A proposer may enter into sale and leaseback transactions and secure any financing with a pledge of, security interest in, or lien on any or all of its property, including all of its property interests in the qualifying transportation facility.

While procedures incorporated in these guidelines are consistent with those of Code of Virginia §2.2-4301, per §56-573.1, the selection process for solicited or unsolicited project proposals is not subject to the *Virginia Public Procurement Act* (§2.2-4300 et seq.).

The PPTA is one component of the Commonwealth's transportation Public-Private-Partnership (PPP) program. Other financing aspects include the Transportation Partnership Opportunity Fund administered by VDOT, the Virginia Transportation Infrastructure Bank (VTIB) managed jointly by VDOT and the Virginia Resources Authority, and the REF administered by DRPT. The intention of PPP financing (and design-build financial assistance for some financing programs) is to seek innovative funding and risk sharing that will enable transportation projects to be constructed faster, at a lower cost, and improved risk allocation than would be possible if only public or private funding were available. Much of the focus of the PPP program is to leverage private funding for projects that have traditionally only been possible with public funds, while the PPP focus of the REF is to provide public funds to accelerate investments in private rail facilities that provide a public benefit. REF PPP projects include improvements to the NS Heartland Corridor and Crescent Corridor and the CSX National Gateway Corridor. As the changing relationship dynamic for passenger rail becomes more mainstream in the Commonwealth, the PPP program will likely become more widely used, particularly for projects such as passenger rail stations or dedicated passenger corridors. Recent changes to the federal *Transportation Infrastructure Finance and Innovation Act* (TIFIA) program under MAP-21 will also make these relationships more attractive to the private sector, the Commonwealth, and local governments.

#### **4.2.7. Capital Project Bonds**

Capital Project Bonds for transit and rail improvements were established by the General Assembly in 2007 through HB3202. The bond package includes a minimum of 4.3 percent of available bond funds specifically for rail transportation. This equated to approximately \$4.3 million in FY2008 and then about \$12.9 million each year afterward until all authorized bonds are fully allocated in FY2018. The rail projects funded with capital bond proceeds are administered through the REF or the RPP for rail capital projects and do not provide funding for passenger rail operations.

### **4.3. Federal Passenger Rail Programs and Funding Options**

The nature of the passenger rail service determines its eligibility for federal funding. USDOT classifies passenger rail services as either:

- Commuter rail service, which is funded by FTA
- Intercity passenger rail service, which is funded by FRA

### 4.3.1. Federal Commuter Rail Funding

In Virginia, only the passenger rail services operated by VRE meet the FTA definition of commuter rail service. VRE services are eligible for FTA funds under both the Section 5307 (urbanized area) and Section 5309 (fixed guideway modernization) federal programs that are used for transit capital projects. The FTA Section 5307 program provides up to 80 percent federal funding for the following:

- Planning
- Engineering design
- Evaluation of transit projects and other technical transportation-related studies
- Capital investments in bus and bus-related activities, such as crime prevention and security equipment
- Construction of maintenance and passenger facilities
- Capital investments in new and existing fixed guideway systems, including rolling stock, overhaul and rebuilding of vehicles, track, signals, communications, and computer hardware and software

The FTA Fixed Guideway Capital Investment Grants (Section 5309) program provides capital funding for any fixed guideway system that utilizes and occupies a separate right-of-way, or rail line, for the exclusive use of mass transportation and other high occupancy vehicles or uses a fixed catenary system and a right-of-way usable by other forms of transportation. This includes, but is not limited to,

- Rapid rail
- Light rail
- Commuter rail
- Automated guideway transit
- People movers
- Exclusive facilities for buses (such as bus rapid transit) and other high occupancy vehicles

### 4.3.2. Federal Intercity Passenger Rail Funding

Until recently, there was no federal funding program to assist states with intercity passenger rail projects. In the FY2008 USDOT Appropriations Act, Congress established a new pilot program for joint federal-state intercity passenger rail capital investment, known as the Capital Assistance to States—Intercity Passenger Rail Service. The program made \$30 million in federal matching funds available directly to states through grants to fund up to 50 percent of the cost of capital investments and planning activities necessary to achieve tangible improvements or to institute new intercity passenger rail service. The program focuses on projects that lead to an on-time performance of 80 percent or greater, reduce travel times, increase service frequency, or enhance service quality for intercity rail passengers.

PRIIA was enacted in October 2008 and provided for the reauthorization of Amtrak. PRIIA authorized more than \$3.7 billion to promote the improvement of intercity passenger rail operations, facilities, and services, as well as the development of high-speed rail corridors.

PRIIA established three new competitive grant programs for funding intercity passenger rail improvements. For each of the programs, 80 percent of funding is provided by the federal government, while a 20-percent non-federal match is required. Funding for these programs must be appropriated annually. These included the

- **Intercity Passenger Rail Service Corridor Capital Assistance Program**—Provides funding assistance to states, groups of states, interstate compacts, public agencies, and Amtrak. The funds can be used for service development programs and planning projects, infrastructure, and equipment for new or improved intercity passenger rail programs.
- **Intercity Passenger Rail Service Corridor Capital Assistance Program**—PRIIA authorizes \$1.5 billion annually to establish and implement a high-speed rail corridor development program for federally designated high-speed corridors. Within Virginia, the Amtrak route between Washington, D.C. and Richmond, toward Raleigh, North Carolina, as well as the route between Richmond and Hampton Roads, are designated high-speed corridors. Collectively, they are components of the SEHSR corridor.
- **Congestion Grants**—PRIIA authorizes \$325 million annually for grants to states, or to Amtrak in cooperation with states, to fund the capital costs of facilities, infrastructure, and equipment for high-priority rail corridor projects necessary to reduce congestion or facilitate intercity passenger rail ridership growth.

ARRA provided Amtrak with additional funding in the emergency economic stimulus bill in February 2009. Amtrak received \$1.3 billion for capital grants (\$450 million of which was specifically for capital security grants). Congress also provided \$8 billion for the three PRIIA-established intercity passenger rail programs. ARRA made up to 100 percent federal funding available for obligations through fiscal year 2012 and expenditures through fiscal year 2017. Another \$2.345 billion was provided by the Consolidated Appropriations Act of FY2010. These funds require a 20-percent match. No additional intercity passenger rail funding has been provided since FY2010.

Congressional legislation described above provided the framework for FRA's High Speed Intercity Passenger Rail (HSPIR) program. On January 28, 2010, President Obama announced the first round of grants from the \$8 billion for intercity passenger rail and high-speed rail. Virginia received approximately \$75 million for the construction of a third track in the Richmond to Washington, D.C., corridor over a stretch of 11 miles from Arkendale in Stafford County to Powell's Creek in Prince William County. The funds were obligated in September 2012 and must be spent by September 30, 2017.

PRIIA changes the role and methodology for state funding of Amtrak routes. Section 209 of PRIIA required Amtrak, in consultation with USDOT, and states to develop a uniform methodology for allocating the operating and capital costs to states of providing intercity rail service on Amtrak routes that are either state requested, on designated high-speed rail corridors (outside of the Northeast Corridor), short distance corridors, or routes less than 750 miles. Nineteen states are impacted by this change, including Virginia. Amtrak reached an agreement on a new methodology with 18 of these states, including Virginia, with another state being the sole holdout. Per PRIIA, the STB is empowered to resolve any disputes between Amtrak and the states on cost allocation methodology. Amtrak filed a petition with the STB on November 21, 2011, to rule whether the consensus methodology agreed upon between Amtrak and the other 18 of the 19 states is an appropriate cost allocation methodology. In a decision effective April 12, 2012, the STB confirmed the consensus methodology.

## **4.4. Federal Freight Rail Programs and Funding Options**

### **4.4.1. Moving Ahead for Progress in the 21st Century Programs**

MAP-21 reauthorizes the federal-aid highway program at the Congressional Budget Office's baseline level—equal to current funding levels plus inflation—for FY2013 and FY2014. Several programs covered by this legislation are specific to rail and are discussed below.

#### **4.4.1.1. Section 130 Highway-rail Grade Crossing Program**

The Federal At-Grade Highway-Rail Crossing Program (Section 130 Program) provides federal support in an effort to improve safety at public highway-rail crossings. States may utilize funds to improve railroad crossings, including the installation or upgrading of warning devices, the elimination of at-grade crossings through grade separation, or the consolidation or closing of crossings. The federal share of funds is 90 percent. This program, which receives approximately \$4.5 million per year including state matching funds, is administered by VDOT.

#### **4.4.1.2. Railroad Rehabilitation and Improvement Financing**

The Railroad Rehabilitation and Improvement Financing (RRIF) Program provides direct federal loans and loan guarantees to finance development of railroad infrastructure. The funding may be used to acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings, and shops; refinance outstanding debt incurred for the purposes listed above; and develop or establish new intermodal and railroad facilities. Eligible borrowers include railroads, state and local governments, government-sponsored authorities and corporations, and joint ventures that include at least one railroad.

#### **4.4.1.3. Other MAP-21 Programs with Selected Rail Applications**

Other programs are primarily intended for highway use, but some rail projects are eligible at the discretion of states with the approval of the administering federal agency.

- The Congestion Mitigation Air Quality (CMAQ) Improvement Program is intended to fund projects that reduce transportation-related emissions in non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter. CMAQ-funded projects could include the construction of intermodal facilities, diesel engine retrofits, idle reduction projects, or multimodal transportation stations. New language from MAP-21 places considerable emphasis on select project types, including electric and natural gas vehicle infrastructure and diesel retrofits. State departments of transportation and MPOs select and approve projects for funding. The federal matching share is 80 percent. In Virginia, the state provides the required matching funds.
- The Surface Transportation Program (STP) is a general funding program available for improvements on any federal-aid highway, bridge, or transit capital project. Eligible rail improvements include lengthening or increasing the vertical clearance of bridges, eliminating crossings, and improving intermodal connectors. State departments of transportation and MPOs select and approve projects for funding. The federal matching share is 80 percent. In Virginia, the state provides the required matching funds.
- The Transportation Alternatives Program is intended to strengthen the cultural, aesthetic, and environmental aspects of the nation's intermodal transportation system. Eligible projects include the restoration of historic transportation buildings or facilities and the preservation of abandoned rail corridors.

- The TIFIA program provides credit assistance for qualified projects of regional and national significance. Eligible applicants include state and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities.
- Private activity bonds allow state and local governments to issue tax-exempt bonds to finance projects sponsored by the private sector. Eligible projects include privately owned and operated truck-rail transfer facilities, as well as a range of other rail facilities and vehicles.

#### 4.4.2. Other Federal Funding Programs Relevant to Rail

U.S. Department of Commerce Economic Development Administration (EDA) grants are intended to promote job creation and retention in economically distressed areas. To qualify for an EDA grant, projects must be in an EDA-designated redevelopment area or economic development centers. Eligible rail projects include rail spurs and sidings. Grant assistance is available for up to 80 percent of projects, depending upon how economically distressed the area is.

The U.S. Department of Agriculture Community Facility Program and Rural Development Program provides grant or loan assistance for community facilities providing essential services to rural areas and towns. Select rail facilities in rural areas can be eligible.

### 4.5. Local Rail Funding in Virginia

Some Northern Virginia jurisdictions use local general funds to assist in the implementation and ongoing operations of VRE service, including a state-imposed regional gas tax. However, local jurisdictions often need to consider alternatives to city or county general funds, which can be used for a broad range of public purposes and are often consumed by competing needs (public safety, health, schools, etc.). Alternative funding vehicles available for passenger rail capital and operating costs include:

- Private sector partnerships, either through an economic development district or through the joint development of parking or retail.
- A special assessment district.
- Tax increment financing, which involves the issuance of debt against future increased tax revenues, resulting from stimulated economic investment which creates increased property values.
- Utilizing a portion of a local jurisdiction's allocation of state highway funds under the Urban or Secondary Roads program to support passenger rail projects (although these funding sources are currently highly constrained).
- New legislation enables Planning Districts that meet population, transit ridership and other thresholds to raise transportation funds.

#### 4.5.1. Local Jurisdiction and Regional Funding

Local government participation in transportation projects is increasingly important. Such participation may involve a greater cost sharing on projects desired by the local community, but doing so requires that localities meet those expanded obligations. Local jurisdictions usually prefer to see clear local public benefit and equitable cost sharing before they are willing to invest local revenues in transportation projects. For this reason, passenger rail/multimodal stations represent the best opportunity for utilization of local funding in developing a capital plan for passenger rail expansion. Local funds can be used for the initial purchase or lease of pre-existing stations or land, station construction and renovation, construction of parking, and for ongoing station expenses

(cleaning and maintenance, security, etc.). Station investment is often more appealing to localities, since the investment stays within the immediate community. Further, through the application of transit-oriented development principles, local investment can spur creative multi-use destinations and additional economic development, as well as offer the potential for the creation of multimodal connections, such as airport stations or the relocation of intercity bus terminals.

Local jurisdictions or regions often need to consider alternatives to city or county general funds, which can be used on many projects, but which are often consumed by competing needs (public safety, health, schools, etc.). For example, some jurisdictions in the Northern Virginia region use local general funds or levy a 2-percent motor fuels tax to assist in the implementation and ongoing operations of VRE service. The investment of local funds into passenger rail programs is critical as it creates a greater sense of ownership and encourages successful solutions to land use and operational issues related to service frequency and expansion.

In Virginia's largest urbanized areas, local jurisdictions also play a role in the possible use of certain federal funds that are programmed at the regional level through MPOs. The MPO may program certain federal highway allocations to help fund rail capital improvements, such as station improvements.

#### **4.6. Passenger Fares and Other Revenues**

Passenger fares and other revenues are used to defray a portion of passenger rail operating costs. However, as with other transportation modes, both commuter and intercity rail require a subsidy to support capital and ongoing operating costs. The subsidy required ranges based on the type of service desired.

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# 5. Rail Project Prioritization and Funding Plan

## 5.1. Process

To complete a vision of enhancing and expanding freight and passenger rail in Virginia, this chapter outlines the results of the project prioritization process for the approximately \$6.9 billion in needs through 2040 resulting from projects that were identified in a needs assessment, from stakeholder input, and through public outreach. The projects will help the Commonwealth meet the goal of moving people and goods efficiently and effectively. The project prioritization and funding have been put together using the following process:

1. **Step 1**—Assess each project against the Commonwealth’s policy goals that govern the rail planning process
2. **Step 2**—Analyze the funding requirements associated with implementing the \$6.9 billion in capital projects and the additional operating costs for new and existing intercity passenger rail services
3. **Step 3**—Categorize these projects by corridor and divide them into phases that could be implemented based on the policies and priorities established by the Commonwealth and funding limitations
4. **Step 4**—Develop the Six-Year Improvement Program that allocates funding to the Commonwealth’s top priority projects

## 5.2. Rail Planning Policy Goals

The first step of the process to establish the rail project prioritization and funding plan was to assess each project against the Commonwealth’s Rail Planning Policy Goals. This included VTrans, Virginia’s statewide long-range multimodal policy plan that establishes the vision, goals, and investment priorities for the Commonwealth’s transportation systems. The CTB’s policy goals specific to the REF, RPP, RIA, and IPROC also guided this assessment. The recommended projects are consistent with the Commonwealth’s goals as well as DRPT’s approach of making incremental investments that benefit both passenger and freight rail.

## 5.3. Statewide Rail Resource Allocation Plan Funding Analysis

The second step was to analyze the funding requirements associated with implementing the \$6.9 billion in capital projects and the additional operating costs of new and existing intercity passenger rail services.

### 5.3.1. Long-term Capital Funding Analysis

The state’s share of the \$6.9 billion in total costs for the recommended projects cannot be funded on a “pay-as-you-go” basis using just existing funding sources. Significant annual shortfalls occur when the existing revenues that total approximately \$948 million through FY2040 are compared to the estimated eligible \$4.5 to \$5.0 billion state share of the total project costs in 2012 dollars. The Commonwealth would likely need to increase funding if the goal is to fully implement the identified needs or consider alternative funding strategies, including greater reliance on federal funding, to advance elements of the prioritized projects. Despite the expected 86 percent increase

in rail allocations resulting from Virginia's 2013 landmark comprehensive transportation funding bill, the needs still far outweigh the anticipated revenue.

### **5.3.2. Long-term Operating Need**

Amtrak provides state-supported passenger rail service in 15 states, generally offering a turnkey operation that may include rolling stock, on-board operating crews, station staff, management and administrative support, maintenance of equipment, maintenance of way (tracks and signals), marketing and advertising, reservation sales, and ticketing. These services are provided to the state transportation agency or other relevant authority at costs based on services rendered. In total, state-supported services comprise approximately 45 percent of Amtrak's average weekday departures. Legislative directives and current funding levels preclude Amtrak from operating additional services unless the required subsidy to operate those services is funded by the state. Therefore, any expansion of passenger rail service in Virginia would have to be state supported after passenger fares are considered. In total, the FY2013 operating subsidy requirement for initial phases of the I-95/I-64 and the I-81/Route 29 intercity passenger rail services is estimated to be approximately \$31 million. Assuming full operations in the corridors, the annual subsidy rises to an estimated \$188 million by FY2040.

### **5.4. Long-range Rail Resource Allocation Plan**

The third step was to categorize these projects by corridor and divide them into phases that could be implemented based on the policies and priorities established by the Commonwealth and funding limitations. The Commonwealth's REF and available revenues and bonds are expected to generate approximately \$948 million in state funds to support projects over the next 25 years. With the inclusion of \$127 million in federal funds and local matching funds of \$401 million, approximately \$1.5 billion is estimated to be available over the next 25 years. Other public and private entities control much of the planning, design, schedule, and funding for these projects. Table 5-1 summarizes the projects by corridor. Early estimates for Virginia's 2013 transportation funding bill show that rail allocations are expected to increase by 86 percent, yielding \$44 million in FY 2014 with growth upwards to \$56 million annually by FY2018. Despite this additional sustained rail funding, future rail needs will still far outweigh the anticipated revenues.

Projects included in the SYIP are represented as Phase I projects in the long-range resource allocation plan. All other projects included in future phases of the resource allocation plan are unfunded needs, which are proposed for funding in future years.



**Table 5-1: Long-Range Rail Resource Allocation Plan Recommendations**

Projects by Corridor	Total Cost (\$2012)
<b>I-95/I-64 Transportation Corridor</b>	<b>\$5,538,326,476</b>
I-95 Passenger Service Capital Costs	\$287,055,518
Phase I	\$194,141,752
Phase II	\$92,913,766
I-95 Passenger Service Operating Costs	\$108,063,559
Phase I	\$17,279,871
Phase II	\$78,253,593
Phase III	\$12,530,095
Southeast High Speed Rail	\$3,776,971,620
Phase I—Tier II RAPS	\$130,225,119
Phase II—RAPS Improvements	\$1,656,554,650
Phase III—Hampton Roads	\$576,994,923
Phase IV—Richmond to Raleigh Improvements	\$1,413,196,928
National Gateway	\$205,789,400
Phase I	\$53,076,686
Phase II	\$152,712,714
I-64 Passenger Service Capital Costs	\$46,637,139
Phase I	\$11,637,139
Phase II	\$35,000,000
I-64 Passenger Service Operating Costs	\$71,509,240
Phase I	\$12,131,823
Phase II	\$59,377,417
VRE	\$1,042,300,000
Phase I	\$32,500,000
Phase II	\$1,009,800,000
<b>I-81 Transportation Corridor</b>	<b>\$1,142,271,768</b>
Crescent Corridor	\$628,485,743
Phase I	\$186,571,700
Phase II	\$61,800,000
Phase III	\$380,114,043
US 29, 460 & I-81 Passenger Service Capital Costs	\$505,320,063
Phase I—Lynchburg Service	\$103,658,630
Phase II—Extension to Roanoke	\$128,364,197
Phase III—Extension to Bristol	\$47,694,234
Phase IV—Two Roundtrips to Lynchburg	\$91,338,957
Phase V—Two Roundtrips to Roanoke	\$109,786,726
Phase VI—Extension to Richmond	\$24,477,319
US 29, 460 & I-81 Passenger Service Operating Costs	\$8,465,962
Phase I	\$2,049,849
Phase II	\$6,416,113
Route 460 Heartland Transportation Corridor	\$60,375,000
Phase I	\$36,375,000
Phase II	\$24,000,000
Port of Virginia	\$64,618,177
Phase I	\$9,611,806
Phase II	\$55,006,371
Shortline Program	\$119,057,269
Phase I	\$82,312,519
Phase II	\$36,744,750
<b>Total</b>	<b>\$6,924,648,690</b>

## 5.5. Six-Year Improvement Program (SYIP FY2013–18)

The SYIP includes funding for road, rail, and public transportation programmed projects that are being studied, designed, and constructed throughout Virginia over the next six fiscal years (Table 5-2). Fiscal years start on July 1 and end on June 30. The CTB updates the program each year as priorities are revised, project schedules and costs change, and study results are known.

After 2013, the state will be responsible for funding the capital and operating costs associated with regional intercity passenger rail service originating in Virginia. Current estimates show an approximately \$162 million shortfall for the six Virginia passenger trains in operation.

**Table 5-2: Six-Year Improvement Program**

Project Description	FY2013–18 Total Programmed
I-95/I-64 Transportation Corridor	\$82,269,000
Construction of additional track capacity for VRE service in Spotsylvania County and the SEHSR Tier II EIS from the Richmond area to the Potomac River	
National Gateway	\$53,076,686
Upgrading multiple bridges, Kilby support yard, and the Virginia Avenue Tunnel to accommodate the clearance envelope of double stack trains	
I-64 Passenger Rail	\$114,606,265
Petersburg to Hampton Roads infrastructure improvements to expand passenger rail service	
I-81/Route 29 Intercity Passenger Rail	\$8,527,998
Passenger rail improvements from Alexandria to Manassas and a capacity study for extending passenger service to Roanoke	
I-81 Crescent Corridor	\$186,571,700
Construction of sidings, passing, and double tracks at Berryville, Elkton, Nokesville to Calverton, Bentonville, Sampson, Lipscomb, Solitude, Kinsey, Clark, Glade Spring, and along I-66 and tunnel work at Montgomery to increase freight capacity	
Heartland Corridor	\$36,100,000
Roanoke Intermodal Facility	
Port of Virginia	\$9,611,806
Expand the NIT marshalling yard and preliminary engineering and environmental analysis for the Craney Island Connector	
Intercity Passenger Rail Operating and Capital Program	\$218,039,802
\$218,039,802 is the total intercity passenger rail operating and capital cost. There is currently a \$162,258,676 funding shortfall.	
Shortline Railroad Program	\$82,312,520
Rail Preservation and Development Fund invests in projects to maintain FRA Class 2 track safety standards, such as tie and rail replacements, bridge and signal system upgrades. It also invests in shortline development projects to improve freight capacity and operations.	
<b>Total</b>	<b>\$791,115,776</b>

The FY2013–18 SYIP is based on existing revenues with contribution(s) from public and private sources to support completion of projects on a pay-as-you-go basis. This funding plan assumes that projects will be implemented incrementally and uses available Commonwealth funding sources of \$283 million matched by local and private funds. State participation includes \$18 million in RPP funds, \$77.4 million in bonds, \$159 million from REF, \$29 million in General Funds, \$0.2 million in VTA 2000 funds, and additional carryover funds from previous years. New funding brought about by the 2013 transportation funding legislation is programmed in the FY2014-19 SYIP.

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### 5.6. Location of Recommended Rail Projects by Corridor

Figure 5-1 Statewide Proposed Rail Projects Map



## I-95 Passenger Service

### The project will

- ❖ Enhance passenger and freight rail operations with more frequent service, capacity, and travel time savings between Hampton Roads, Richmond, and Washington, D.C., including service to the Northeast Corridor
- ❖ Expand capacity for intercity rail by improving efficiencies at Collier Yard and providing connection tracks between NS and CSX
- ❖ Support capital and operating costs for multiple Amtrak Virginia train routes

### Key facts

- ❖ The I-95 transportation corridor connects major Virginia population and employment centers and contributes significantly to the Commonwealth's economy.
- ❖ This project will provide highway congestion relief and increase transportation choices through freight and passenger rail improvements between Washington, D.C., Richmond, and Norfolk.
- ❖ With the majority of the state's population and employment centers along this corridor, the I-95 Passenger Rail Project presents the best opportunity for increasing rail ridership in the Commonwealth.

### Project phasing

#### Phase I—Capital

##### Capacity Improvements

\$194.1 M total project cost

- ❖ One new daily round trip train from Norfolk to Washington, D.C., beginning in FY2012
- ❖ Design and construction of capacity improvements from Norfolk to Richmond, including yard rehabilitation and connecting tracks

#### Phase II—Capital

\$92.9 M total project cost

- ❖ Complete yard and capacity improvements from Phase I
- ❖ Alexandria to Washington, D.C., capacity study

#### Phase I—Operating

\$17.3 M total operating cost

- ❖ One new daily round trip train from Norfolk to Washington, D.C., beginning in FY2012
- ❖ Three daily round trips from Richmond to Washington, D.C.



#### Phase II—Operating

\$78.3 M total operating cost

- ❖ Continued support of the Norfolk and Richmond daily round trips

#### Phase III—Operating

\$12.5 M total operating cost

- ❖ Two new daily round trip trains from Norfolk to Washington, D.C., beginning in FY2022

### Project finance

Total project cost: \$395.1 million (\$2012)

- ❖ Proposed FY2013–18 Improvement Program—\$211.4 M total cost for Phase I
- ❖ Phases II and III are unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.

# Southeast High Speed Rail

## The project will

- ❖ Evaluate high-speed rail service along the Southeast High-Speed Rail corridor extending high-speed rail service south from Washington, D.C., to Richmond and on to Raleigh and Charlotte, North Carolina, and will also expand east from Richmond to Hampton Roads
- ❖ Provide passengers with more efficient and reliable service

## Key facts

- ❖ As population grows in major urban corridors, as highway and airline congestion increase, and as energy costs rise, rail ridership is increasing across the U.S.
- ❖ The I-95 corridor has been identified as a priority corridor for high-speed rail in the U.S.
- ❖ Virginia and North Carolina continue to advance the high-speed rail Tier II EIS from Raleigh to Richmond.
- ❖ Virginia submitted the Final EIS for the Richmond to Hampton Roads corridor in August 2012 and received a Record of Decision from FRA in December 2012.
- ❖ Virginia kicked off the Tier II EIS from Richmond to the Potomac River in August 2012.

## Project phasing

### Phase I

*\$130.2 M total project cost*

- ❖ Tier II EIS from the Richmond Area to the Potomac River
- ❖ Complete the third main line from Arkendale to Powell's Creek

### Phase II

*\$1,656.5 M total project cost*

- ❖ Capacity improvements to achieve 90 MAS from the Richmond Area to the Potomac River
- ❖ High speed train sets

### Phase III

*\$577.0 M total project cost*

- ❖ Tier II EIS from Richmond to Hampton Roads
- ❖ Capital improvements from Richmond to Hampton Roads
- ❖ High-speed train sets



### Phase IV

*\$1,413.2 M total project cost*

- ❖ Capacity improvements for the Richmond to Raleigh corridor

## Project finance

Total project cost: **\$3,776.9 million (\$2012)**

- ❖ Proposed FY2013–18 Improvement Program—\$130.2 million total cost for Phase I.
- ❖ Phases II, III, and IV are unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.

## National Gateway

### The project will

- ❖ Improve the efficiency of freight rail shipping for the mid-Atlantic ports of Baltimore, Maryland, Virginia, and Wilmington, North Carolina and markets in Pennsylvania, West Virginia, Ohio, and other Midwestern states
- ❖ Divert freight traffic from highway to rail and double the capacity for freight shipments in the I-95 corridor by providing double-stack clearances for freight containers
- ❖ Increase capacity and service reliability through Washington, D.C., to allow more trains to operate in this heavily congested part of the corridor
- ❖ Support the enhancement of VRE and Amtrak service in the I-95 corridor
- ❖ Add a new freight yard to support increased container traffic originating at Virginia's Ports

### Key facts

- ❖ The multi-state National Gateway Project extends from North Carolina to Ohio and parallels I-95 through Virginia, with a connection to the Port of Virginia.
- ❖ The diversion of freight from highway to rail will benefit from a multi-state initiative involving federal, state, local, and private partners.
- ❖ The project plan focuses on improving clearances to enable double stack intermodal train operations.

### Project phasing

#### Phase I

##### Capacity Improvements

\$53.1 M total project cost

- ❖ Reconstruct Virginia Avenue Tunnel to accommodate double stack clearance envelope
- ❖ Reconstruct multiple bridges along the I-95 corridor to accommodate double stack clearance envelope
- ❖ Upgrade Kilby Marshalling Yard

#### Phase II

##### Capacity Improvements

\$152.7 M total project cost

- ❖ Replace Virginia Avenue Tunnel
- ❖ Construct Mid-Atlantic Manufacturing Center
- ❖ Construct sidings for increased capacity



### Project finance

Total project cost: \$205.8 million (\$2012)

- ❖ Proposed FY2013–18 Improvement Program—\$53.1 M total cost for Phase I.
- ❖ Phase II are unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.

## I-64 Passenger Service

### The project will

- ❖ Enhance passenger and freight rail operations with more frequent service, capacity, and travel time savings between Hampton Roads, Richmond, and Washington, D.C., including service to the Northeast Corridor
- ❖ Provide highway congestion relief and increase transportation choices through freight and passenger rail improvements

### Key facts

- ❖ The I-64 transportation corridor connects major Virginia population and employment centers and contributes significantly to the Commonwealth's economy.
- ❖ With the majority of the state's population and employment centers along this corridor, the I-64 Intercity Passenger Rail Project presents the best opportunity for increasing rail ridership in the Commonwealth.

### Project phasing

#### Phase I—Capital

##### Equipment

\$11.6 M total project cost

- ❖ Amtrak capital equipment

#### Phase II—Capital

##### Capacity Improvements

\$35.0 M total project cost

- ❖ Construction of second main line from Oriana to Bland Boulevard
- ❖ Construction of Newport News Amtrak station

#### Phase I—Operating

\$12.1 M total operating cost

- ❖ Round trip trains from Hampton Roads to Richmond and Washington, D.C.

#### Phase II—Operating

\$59.4 M total operating cost

- ❖ Continued support of the Hampton Roads daily round trips



### Project finance

Total project cost: \$118.1 million (\$2012)

- ❖ Proposed FY2013–18 Improvement Program—\$23.7 M total cost for Phase I.
- ❖ Phase II are unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.



# Virginia Railway Express

## The project will

- ❖ Increase the on-time performance of passenger trains and upgrade the signal system
- ❖ Expand service and passenger stations
- ❖ Provide an automatic train control system to reduce potential accidents through advance warning and collision avoidance technology
- ❖ Add new platforms at several existing stations to increase customer access

## Key facts

- ❖ Population growth and commuter patterns have expanded westward along the I-66 corridor, and the I-95 corridor continues to grow in population and employment.
- ❖ This project will provide congestion relief and new transportation choices in both the I-95 and I-66 corridors.
- ❖ VRE provides the equivalent capacity of one highway lane during peak travel periods.

## Project phasing

### Phase I

#### Capacity Improvements

\$32.5 M total project cost

- ❖ Construct third main from Crossroads to Hamilton

### Phase II

#### Capacity Improvements

\$1,009.8 M total project cost

- ❖ Construct new stations and expand rail infrastructure
- ❖ Expand station access and parking amenities
- ❖ Construct train storage and maintenance facilities
- ❖ Increase rolling stock



## Project finance

Total project cost: \$1,042.3 million (\$2012)

- ❖ Proposed FY2013–18 Improvement Program—\$32.5 M total cost for Phase I.
- ❖ Phase II are unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.

## Crescent Corridor

### The project will

- ❖ Divert freight shipments from highway to rail along I-20, I-40, I-75, I-85, I-81, and Route 29
- ❖ Expand rail capacity
- ❖ Facilitate the expansion of Amtrak service to Roanoke and Bristol
- ❖ Support the enhancement of VRE service from Manassas to Gainesville/Haymarket

### Key facts

- ❖ The multi-state Crescent Corridor extends from New Orleans/Memphis to New Jersey.
- ❖ The success of truck diversion on the Crescent Corridor depends on public-private partnerships with multiple states and will involve federal, state, local, and private parties.
- ❖ In Virginia, the corridor has two distinct rail lines paralleling I-81 that will be used together to increase rail capacity.

### Project phasing

#### Phase I

\$186.6 M total project cost

- ❖ Multiple sidings, passing and double tracks along the Crescent Corridor
- ❖ Montgomery tunnel clearances

#### Phase II

\$61.8 M total project cost

- ❖ Multiple sidings, passing and double tracks along the Crescent Corridor

#### Phase III

\$380.1 M total project cost

- ❖ Multiple sidings, passing and double tracks along the Crescent Corridor



### Project finance

Total project cost: \$628.5 million (\$2012)

- ❖ Proposed FY2013–18 Improvement Program—\$186.6 M total cost for Phase I.
- ❖ Phases II and III represent unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.

# US 29, US 460, and I-81 Passenger Service

## The project will

- ❖ Enhance passenger rail service along the US Route 29, US Route 460, and Interstate 81 corridors
- ❖ Add new passenger rail service to Roanoke and Bristol with connections to Richmond and Washington, D.C.
- ❖ Construct new stations to support the new service
- ❖ Increase capacity through new passing tracks
- ❖ Reduce travel time by improving rail infrastructure for higher speeds

## Key facts

- ❖ This project provides incremental service improvements to enhance passenger rail service in Central and Southwestern Virginia.
- ❖ Annual Amtrak ridership in this corridor totaled 190,668 in 2011. It is one of the country's highest performing routes.

## Project phasing

### Phase I—Operating

\$2.0 M total operating cost

- ❖ Operating costs for the Lynchburg train service and the Roanoke bus bridge

### Phase II—Operating

\$6.4 M total operating cost

- ❖ Continued state support of intercity passenger service in the corridor

### Phase I—Capital

\$103.7 M total project cost

- ❖ Capacity improvements and Amtrak capital equipment to support expanded intercity passenger service

### Phase II—Capital

\$128.4 M total project cost

- ❖ Capacity improvements to extend passenger service to Roanoke

### Phase III—Capital

\$47.7 M total project cost

- ❖ Capacity improvements to extend passenger service to Bristol



### Phase IV—Capital

\$91.3 M total project cost

- ❖ Capacity improvements and additional train sets to accommodate two roundtrip trains to Lynchburg

### Phase V—Capital

\$110.0 M total project cost

- ❖ Capacity improvements and additional train sets to accommodate two roundtrip trains to Bristol

### Phase VI—Capital

\$24.5 M total project cost

- ❖ Capacity improvements to establish passenger service from Lynchburg to Richmond

## Project finance

Total project cost: \$513.8 million (\$2012)

- ❖ Proposed FY2013–18 Improvement Program—\$105.7 M total cost for Phase I
- ❖ Phases II, III, IV, V, and VI are unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.

## Heartland Corridor

### The project will

- ❖ Improve freight service between the Ports of Virginia and markets in the Midwest along the Route 460 and I-81 corridors
- ❖ Complete the Roanoke Region Intermodal Facility, a regional initiative to generate up to 2,900 jobs and up to \$71 million in tax revenues annually
- ❖ Increase tunnel clearances to provide redundant routes on sections of the corridor that host freight and passenger operations

### Key facts

- ❖ The Heartland Corridor will double the intermodal rail capacity along Route 460 and significantly improve freight shipping between markets in the Midwest.
- ❖ This initiative has been identified as a project of national significance.
- ❖ Norfolk Southern, DRPT and Amtrak are exploring the possibility of new passenger service between Bristol, Roanoke, and Washington, D.C., along part of this corridor.

### Project phasing

#### Phase I

\$36.4 M total project cost

- ❖ Relocation of Cove Hollow Road and construction of the intermodal facility
- ❖ Capacity study from Lynchburg to Roanoke

#### Phase II

\$24.0 M total project cost

- ❖ Altavista tunnel clearance



### Project finance

Total project cost: \$60.4 million (\$2012)

- ❖ Proposed FY2013–18 Improvement Program—\$36.3 M total cost for Phase I
- ❖ Phase II are unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.

## Port of Virginia

### The project will

- ❖ Improve rail capacity at the Ports of Hampton Roads, support increased freight truck to rail diversion, and provide economic benefits to the Commonwealth by reducing transportation costs for both domestic and international trade
- ❖ Provide competitive rail access to Virginia's ports to ensure that shippers and consumers benefit from cost-effective transportation choices
- ❖ Relocate rail lines serving the ports to enhance safety
- ❖ Increase container and train handling capacity to streamline freight handling
- ❖ Increase rail capacity to allow more containers to be diverted to rail

### Key facts

- ❖ The project will double the on-dock rail capacity at Norfolk International Terminals with an on-dock rail yard.
- ❖ Additional yard capacity improvements will enhance highway grade crossing safety and reduce highway delays at grade crossings.
- ❖ The proposed Craney Island marine terminal will transport 50 percent of the projected 1.43 million rail containers associated with this project.

### Project phasing

#### Phase I

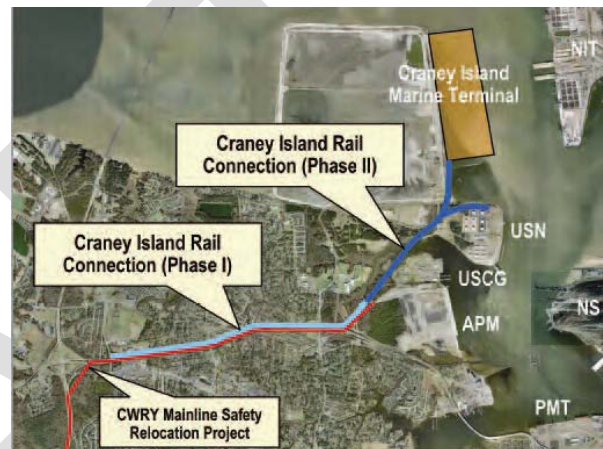
\$9.6 M total project cost

- ❖ Craney Island Connector environmental review and preliminary design
- ❖ NIT marshalling yard

#### Phase II

\$55.0 M total project cost

- ❖ Construct Craney Island Connector
- ❖ APM/Maersk terminal rail yard expansion
- ❖ Upgrade Amoco Power Switches

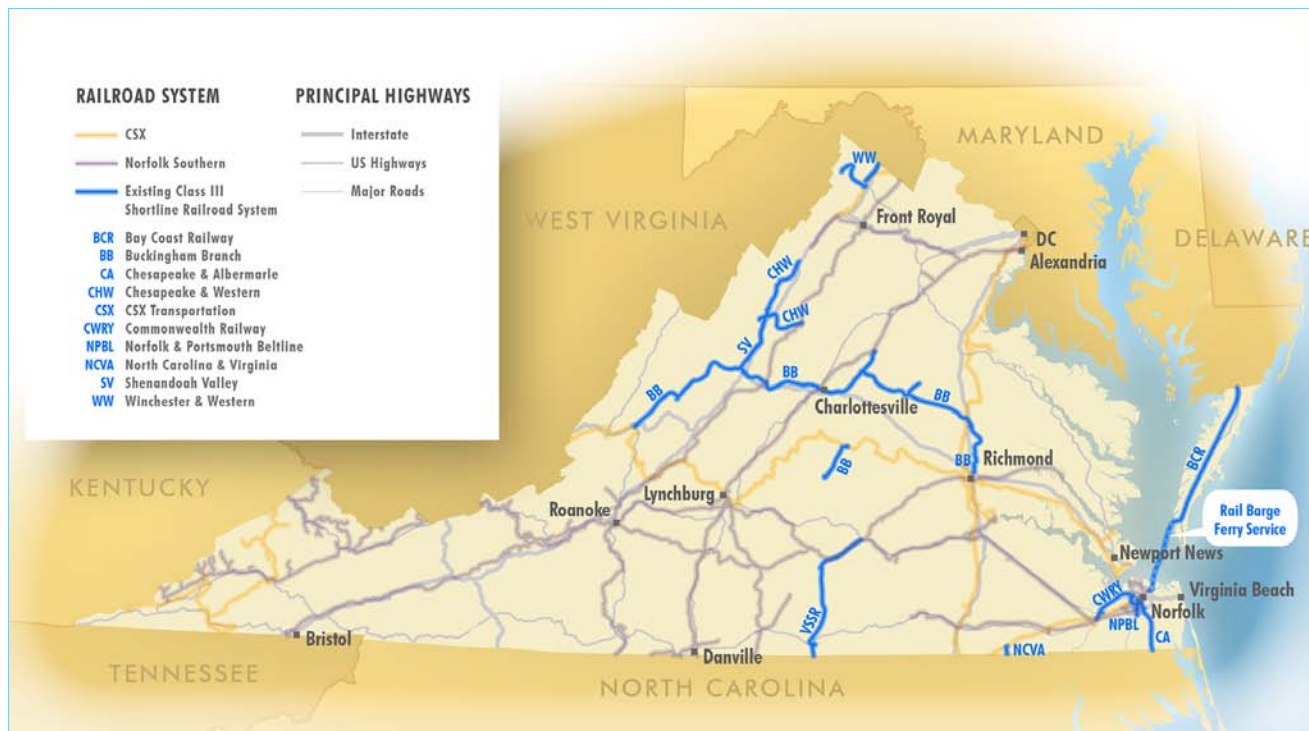


### Project finance

Total project cost: \$64.6 million (\$2012)

- ❖ Proposed FY2013–18 Improvement Program—\$9.6 M total cost for Phase I
- ❖ Phase II are unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.

## Shortline Program



### The project will

- ❖ Improve rail capacity on congested shortlines around the Port of Virginia
- ❖ Improve Amtrak service reliability on the Buckingham Branch Railroad
- ❖ Maintain FRA Class 2 track safety standards to enable reliable service to existing customers
- ❖ Increase economic competitiveness of Virginia shortline rail network
- ❖ Improve signal reliability and efficiency of freight movements

### Key facts

- ❖ Shortlines are important for the “last mile” of rail service reaching industries in rural areas and the industries around the Port of Virginia.
- ❖ Shortlines are line-haul railroads making less than \$32 million in annual carrier operating revenues.
- ❖ Nine shortlines operate in Virginia.
- ❖ Shortlines must handle 286,000-pound leads to interface effectively with Class 1 freight railroads

### Project phasing

#### Phase I

\$82.3 M total project cost

- ❖ Bay Coast—Tie replacement and upgrade
- ❖ Buckingham Branch
  - Tie replacement and upgrade
  - Bridge rehabilitation
  - Signal improvements
  - Surface and rail improvements
- ❖ Chesapeake and Albemarle—Tie replacement and upgrade
- ❖ Commonwealth—Tie replacement and upgrade
- ❖ Norfolk & Portsmouth Belt Line—Yard improvement and expansion
- ❖ North Carolina & Virginia—Interchange improvements
- ❖ Shenandoah Valley
  - Tie replacement and upgrade
  - Bridge rehabilitation
  - Yard improvements
- ❖ Winchester & Western
  - Tie replacement and upgrade
  - Yard and capacity improvements

## Phase II

*\$36.7 M total project cost*

- ❖ Bay Coast
  - Bay Shore Concrete staging tracks
  - Macemie Transload Facility
  - Spur to Wallops Island
- ❖ Norfolk & Portsmouth Belt Line
  - Yard switch replacement
  - Bridge rehabilitation
  - CSX connection track
- ❖ Shenandoah Valley
  - Crossing upgrades
  - Bridge rehabilitation
  - Siding at Weyers Cave
  - Staunton yard expansion

*Project finance*

**Total project cost: \$119 million (\$2012)**

- ❖ Proposed FY2013–18 Improvement Program—\$82.3 M total cost for Phase I
- ❖ Phase II are unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- ❖ All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.
- ❖ Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction, and nongovernmental funding sources.

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## 6. Future of Rail in Virginia

This chapter synthesizes elements from the Virginia Statewide Rail Plan and the planning process that will influence the role of rail in Virginia going forward. These include the stakeholder feedback considered in this plan; rail-related issues and opportunities identified during the course of preparing this plan; the vision and goals adopted by this plan; and next steps.

### 6.1. Feedback from the Outreach Effort

DRPT received feedback from the general public and specific stakeholders throughout the plan's development. The purpose of the outreach effort was to gather input on rail issues and needs in order to more fully develop long-range strategies. Comments were provided through handwritten comment cards, emails to DRPT staff and through the plan's website, and meeting notes from outreach activities. Outreach activities included the Office of Intermodal Planning and Investment's (OIP) March 2012 Combined VSTP Update public meetings; VTRANS and Modal Plan stakeholder workshops; OIP's August 2012 Combined VSTP Update public meetings; and a January 2013 Rail Plan Review and Discussion with service providers, railroads, rail advocates, and transportation planners. In addition, DRPT conducted individual meetings with all of the railroads operating in the state, along with Amtrak and VRE. Comments were aligned along a few general themes as grouped and summarized below.

#### Shared Use Corridors

- Improve coordination between freight and passenger rail operations particularly to enable future growth in passenger rail services.
- Invest in more rail sidings.

#### Passenger Rail Service

- General support for passenger rail in the state, including intercity rail, commuter rail, heavy rail, and light rail.
- Support for the Southeast High-Speed Rail initiative.
- Rail transportation is viewed as a solution to the highway congestion problem and as providing a competitive alternative to automobile travel.
- Anticipate that increased performance associated with higher speed services will attract increased ridership and lower operating subsidies.
- Rail has fewer negative environmental impacts compared to highway travel, including lower air emissions.
- Virginia's passenger services operate on freight railroad-owned infrastructure. Over two-thirds of the capacity on CSX's mainline between Richmond and Washington, D.C. is used for passenger rail operations.
- *CSX comment:* CSX advocates the future separation of passenger and freight operations, particularly if passenger trains are expected to operate at speeds inconsistent with freight rail operations. CSX allows passenger trains to operate at speeds up to 79 miles per hour. At 90 miles per hour, however, passenger and freight operations must be separated to permit safe operations of both services. Short of separating the two types of operations, CSX is also a proponent of locating passenger stations on sidings, so that stopped trains do not interfere with freight trains operating on the mainline.

- Institute train-level boarding platforms for expedited passenger boarding and alighting.

### **Grade Crossings**

- Highway-rail at-grade crossings are not just potential safety hazards, but also interfere with efficient rail and highway operations.
- Highway-rail at-grade crossings limit rail capacity since trains often must slow as they approach crossings.
- Shift responsibility for managing crossing maintenance and improvement programs from VDOT to DRPT.

### **Investment Policies**

- Long-term passenger rail funding support is necessary as near-term investment decisions (example: new passenger rail service) result in long-term financial commitments for the state.
- Adopt a mode-neutral, results-based approach to transportation funding, specifically for corridor-wide investments. In the case of planning for corridors of statewide significance (COSS), begin with an overall framework plan to guide improvements that allows the flexibility to choose the best-fit modal option(s).
- Need a better way to track the performance of transportation investments and change course when investments do not perform as expected.
- Tie rail investments to the Commonwealth's overall vision and goals. Projects should be required to demonstrate a clear contribution to meeting these goals.
- Smaller, local rail projects should be included in the plan, not just the major projects identified in the DRPT Resource Allocation Plan.
- Timing for DRPT's RIA fund review and approval process limits the fund's utility. Most industries will not improve rail access without a signed customer contract to justify the improvements. Once the customer contract is signed, improvements must be made immediately, which is not possible within the RIA program requirements.
- Raise the fuel tax to better support rail projects and index fuel tax to inflation.
- Allocate a larger share of the general sales tax toward transportation, including rail.

### **Station Planning**

- DRPT should be more active in the planning and development of train stations, specifically Carmel Church Station in Caroline County.
- DRPT should work with communities (crossing jurisdictional boundaries) to generate effective grant applications for federal funding of station improvements.

### **Passenger Rail Intermodal Linkages**

- Local transit should be part of the intercity/high-speed rail investment strategy. Improved transit connections would help the performance of the intercity/high speed-rail system by expanding access to the intercity rail system.

### **Rails-with-Trails**

- Support for rails-with-trails.

- Railroads generally opposed to rails-with-trails, citing the need to preserve right-of-way along inactive lines for future use.

### Region-Specific Comments

- Richmond Area—Integrate rail and land use planning, specifically for the I-95 corridor and Main Street Station.
- Lynchburg Service—The Lynchburg service has the highest ridership of any other Northeast Regional service supported by the Commonwealth and is often sold out. Adding an additional Lynchburg frequency should remain a short-term priority (Phase I) in the rail plan.
- Washington-Hampton Roads Service—Treat the Washington, D.C., to Hampton Roads rail routes (known as the “urban crescent”—geographic area that drives economic growth statewide) as an extension of Amtrak’s NEC service. Population density along the Washington, D.C. to Hampton Roads corridor is presumably as dense as along many segments of the existing NEC. Consider this route for true high-speed rail, including a dedicated, electrified passenger rail alignment. Combine the Washington, D.C. to Richmond Tier II EIS and the Richmond to Hampton Roads Tier II EIS into one study in order to save money and provide a more meaningful, corridor-length passenger rail dataset for ridership, revenue and cost recovery.
- New passenger rail services at specific locations or improvements to existing services were recommended, including the following:
  - New east-west connection between Richmond and Charlottesville
  - New east-west connection between the Shenandoah Valley and Hampton Roads
  - Improved service along the entire I-95 corridor
  - Improvements to the US 29 corridor
  - More emphasis on I-81 corridor
  - Expanded choices for commuting on Amtrak in Northern Virginia

### DRPT Organization

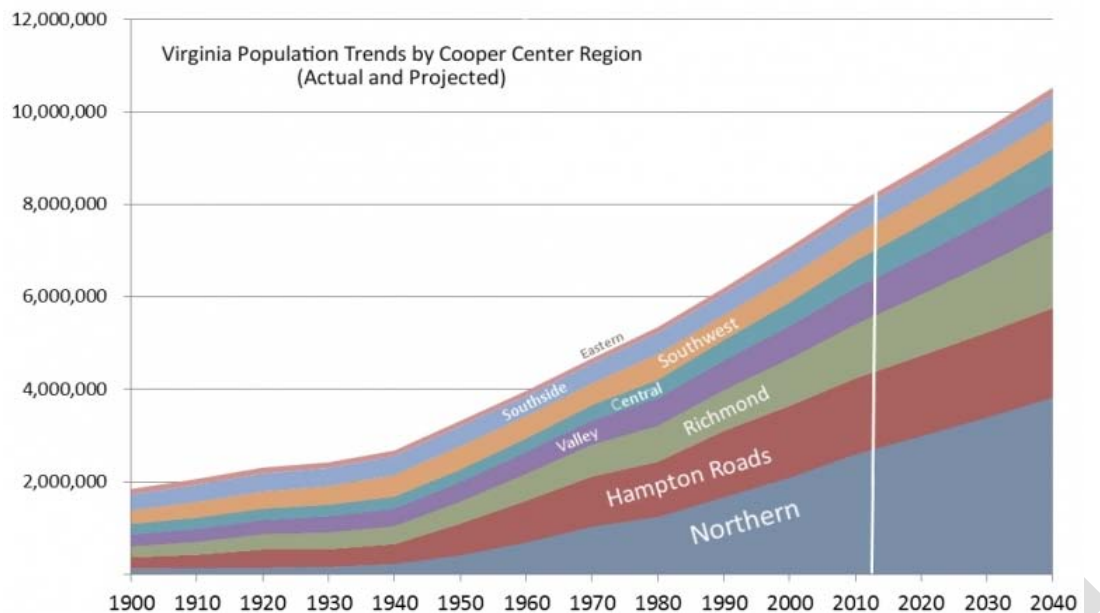
- Increase DRPT staff levels to support the state’s emphasis on rail transportation.

## 6.2. Issues and Opportunities

Key rail issues were identified through discussions with stakeholders and through analysis of data presented in this plan. As DRPT develops investment priorities for the future, it is important to recognize the trends that affect Virginia’s rail system and to develop well-informed policies that turn trends into opportunities. This section highlights some overarching trends and how strategic improvements to Virginia’s rail system can benefit the overall transportation network..

### 6.2.1. Rail as a Transportation Choice

Virginia’s population is fast-growing, and generally follows the geographic growth patterns of the past. In other words, Virginia’s population centers are becoming more dense, causing severe road congestion in areas that do not have capacity to spare. The fact that population is growing proportionally throughout the state creates an advantage for passenger rail, a mode whose success is made on its dependence on not showing signs of “leveling off” in denser areas and

**Figure 6-1: Virginia Population Trends**

Traffic congestion is a major problem in many parts of Virginia. According to the latest *Annual Urban Mobility Report*, the Washington, D.C., metropolitan area has the worst traffic congestion of any metropolitan region in the United States.<sup>1</sup> Hampton Roads is not far behind, ranked number 20. Both freight and passenger rail improvements can alleviate congestion by diverting trips from the highway network. Furthermore, passenger rail can increase mobility by providing an alternative to congested roadways.

Traffic on Virginia's roadways is not only attributable to Virginians but also to trucks and automobiles passing through the state. I-81 and I-95 are the primary freight corridors that link the Northeast to the Southeast. Many of the truck movements in the two corridors are long-distance and potentially divertible to rail. Removing bottlenecks and investing rail and intermodal improvements presents an opportunity to improve capacity by diverting trucks to rail.

Passenger rail can also provide a transportation alternative to short and medium haul air travel. There are several areas within Virginia that are not in close proximity to a major airport with significant direct services, including much of the state south and west of Richmond. While air travel is convenient to distant locations, it is less so for destinations within 600 miles because of the need to change planes. Passenger rail provides a viable travel option.

Distances of intercity travel within Virginia also point to a role for intercity rail. FRA's *National Rail Plan: Moving Forward, A Progress Report*, September 2010, suggests that intercity rail's highest potential is for trips between 100 and 600 miles. Many of Virginia's population centers are separated by distances within this range.

### 6.2.2. Rail's Role in Economic Development

Numerous industries within Virginia rely upon freight rail transportation. Much of the electricity that is generated to power the state is fueled by coal shipments that arrive by rail. Rail is also used to ship from coal mines in the western part of the state to many parts of the country and for export. Building supplies are transported by rail, including stone, sand, and gravel. Chemical

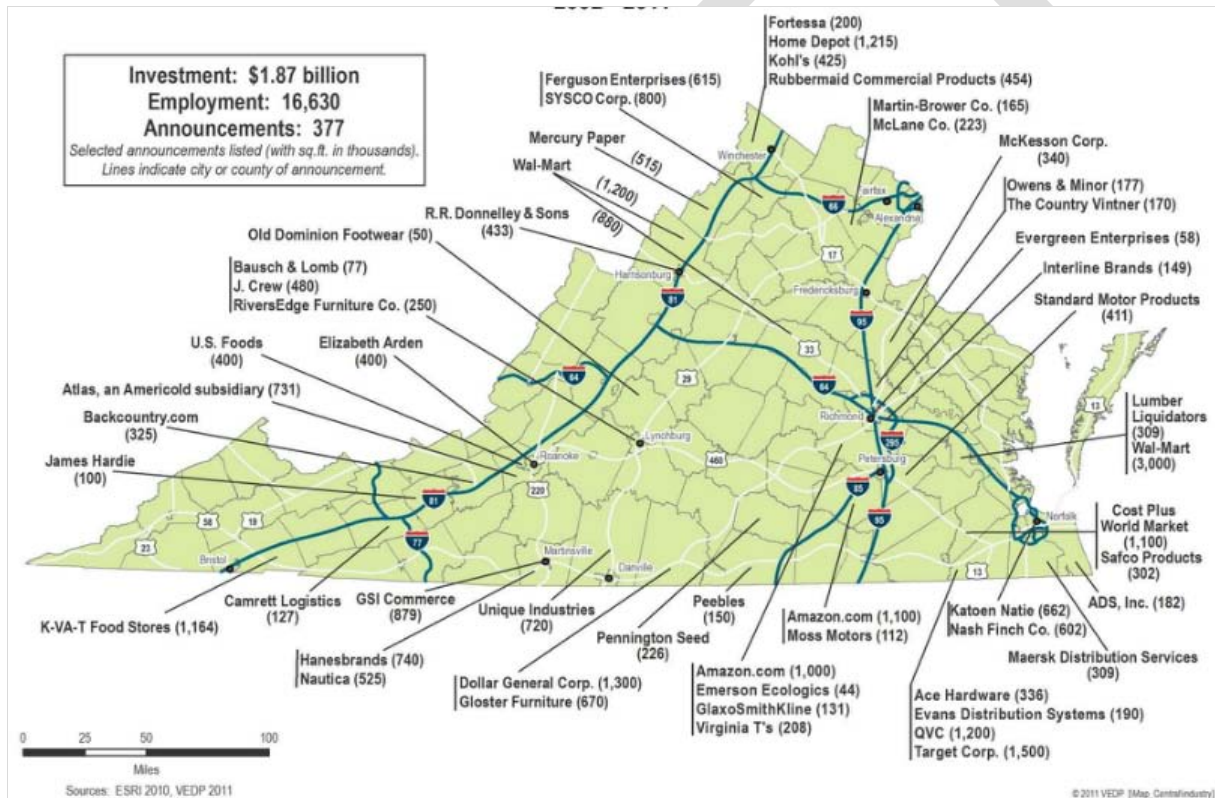
<sup>1</sup> Texas Transportation Institute, *2012 Urban Mobility Report*, December 2012.

producers and agriculture/food processors rely on railroad transportation. Improvements to the rail system will help to boost the efficiency of these industries.

According to the Virginia Economic Development Partnership, the state is home to 6,000 manufacturing establishments. Manufacturing is a targeted growth sector for the state with an emphasis on the aerospace, automotive, food processing, and plastics industries. The latter three are major users of rail transportation. An efficient rail system will help to attract development within these industries. Through its RIA grants, DRPT provides funding for rail access to companies encouraging them to locate or remain in Virginia.

The Virginia Economic Development Partnership is also targeting the global logistics industry. Figure 6-2 shows the locations of new distribution centers that have been announced in Virginia. Distribution centers frequently receive shipments by rail. High volume intermodal terminals can attract logistics companies as these companies seek to reduce truck drayage costs by locating close to rail-truck container transfer facilities.

**Figure 6-2: Distribution Center Announcements (2002–2011)**



(Source: Virginia Economic Development Partnership)

There is potential for additional intermodal rail freight in Virginia, which could support logistics employment as well as help to divert freight from the state's roadways. Existing truck/rail intermodal facilities within Virginia have generated economic development benefits to their surrounding areas. For example, as outlined in Chapter 2, the Port of Virginia estimates that 39 major companies have located near the VIP, investing \$748 million, building 8 million square feet, and employing 8,000 people. The planned NS intermodal facility near Roanoke is projected to increase annual employment by between 740 and 2,900, raising \$18 million to \$71 million in

annual tax revenues.<sup>2</sup> Roanoke is the fourth largest metropolitan area in Virginia after Northern Virginia, Virginia Beach/Hampton Roads area, and Richmond.

Rail is a key component of the Port of Virginia, which in turn is an economic development engine for the Commonwealth. A report by the College of William and Mary in 2008 estimated that 343,000 jobs in Virginia are impacted by the port. Most of these are associated with goods produced in Virginia and exported through the port (93,520 jobs) or the processing or usage of goods imported through the port (213,520 jobs). The Port of Virginia is well positioned for growth. With the planned expansion of the Panama Canal, the size of ships calling on East Coast ports is expected to increase. Although other East Coast ports have plans to either increase the depth of their channels or raise clearance over the channel (Port of New York/New Jersey), the Port of Virginia can currently accommodate larger ships than rival seaports and has a deeper authorized depth.

The Port of Virginia is more dependent upon rail than its rival seaports. Rail access is a key strategic advantage for the port. At 30 percent, a much higher proportion of containers leave or arrive at the Port of Virginia by rail than other East Coast ports. The Port of Virginia lacks the large nearby population of some rivals, such as the Port of New York/New Jersey. As of the 2010 U.S. Census, the New York metropolitan area was home to about 19 million people, compared to 1.7 in the Hampton Roads area. Without as much nearby population, the Port of Virginia is more dependent upon discretionary cargo—international shipments that could potentially be shipped through any one of several ports. Much of this cargo is shipped between the Port of Virginia and interior markets, such as the Ohio Valley or Chicago. While shipments to/from nearby markets tend to leave and arrive at ports by truck, shipments to more distant inland markets move more cost-effectively by rail. This dependence on longer-distance discretionary cargo makes the Port of Virginia more oriented toward rail.

While the outlook for the Port of Virginia appears to be positive, and rail will be an important component to the port's success, the rail infrastructure will need to grow along with the port's traffic volumes. The Port of Virginia expects containerized cargoes handled to more than triple by 2040. The Commonwealth and railroads have been investing and continue to invest in the long-distance corridors connecting the Port of Virginia with inland markets. Several rail carriers consulted in preparing the VSRP, however, identified the need for rail capacity expansion either within or into the Port of Virginia's marine terminals.

### **6.2.3. Condition of Virginia's Rail Infrastructure**

To remain competitive, Virginia's rail infrastructure will need to be maintained at a state of good repair. Currently, some of the rail lines and bridges are in need of upgrade, since they are unable to accommodate 286,000-pound railcars, the current weight standard for the railroads. Shippers on rail lines that are unable to accommodate 286,000-pound railcars are at a competitive disadvantage, since the costs of transporting a product are higher. Research has shown that the Class I carriers' cost per ton of transporting a 286,000-pound railcar is about 8.8 percent lower per ton than the cost of transporting a 263,000 pound car.<sup>3</sup> DRPT's RPP helps shortline carriers in the state to maintain their lines in a good state of repair. Projects aimed at upgrading rail lines to the 286,000-pound standard are included in DRPT's Resource Allocation Plan.

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<sup>2</sup> Virginia Department of Rail and Public Transportation, *Roanoke Region Intermodal Facility Report*, March 2008.

<sup>3</sup> Kenneth Cassavant, Denver Tolliver, *Impacts of Heavy Axle Loads on Light Density Lines in State of Washington*, 2001.

#### 6.2.4. Safety/Highway- Rail At-Grade Crossings

As discussed in Chapter 3, the number of injuries at highway-rail at-grade crossings has trended downward over the last decade, but the number of fatalities has not. Growth in passenger and freight traffic on Virginia’s rail network will create additional risk if no mitigating actions are taken.

As discussed in Chapter 4, VDOT administers the Section 130 Program, a federally funded program to upgrade warning devices at highway-rail at-grade crossings. These funds, along with the efforts of groups such as Operation Lifesaver to educate the public on highway-rail at-grade crossing dangers, help to improve the safety of crossings, in addition to efforts to grade separate highway-rail at-grade crossings through Virginia’s high-speed rail studies.

#### 6.2.5. Passenger Rail Achievements, Challenges, and Opportunities

The Commonwealth has made tremendous strides in providing commuter rail as a viable choice for intercity travel in Virginia and commuter travel in Northern Virginia. As detailed in Chapter 3, VRE ridership has roughly tripled since 1993. VRE system on-time performance has improved and yielded its best performance so far in FY2012. Amtrak ridership in Virginia has grown by over 75 percent since 2004. Virginia has initiated new extensions of the Amtrak Northeast Regional service to Norfolk, Richmond, Lynchburg, and Newport News. The Virginia General Assembly created a historic piece of legislation to commit a portion of the state’s sales and use tax for IPROC. This is the nation’s first dedicated state revenue source for rail and will allow the Commonwealth to continue to provide successful regional rail service.

Virginia has a unique advantage due to its proximity to Amtrak’s Northeast Corridor. Northeast Regional services into Virginia provide a single-seat journey between the Commonwealth and origins and destinations in the Northeast. Once on the Northeast Corridor, these trains can travel at speeds up to 125 miles per hour.

In contrast to the Northeast Corridor between Washington, D.C., and Boston, there are no dedicated passenger rail corridors in Virginia. All passenger rail services in Virginia are provided on rail lines owned by freight railroads. Furthermore, a number of these services are provided over busy freight railroad mainlines with little to no excess capacity. Initiating new passenger rail services is not simply a matter of paying for train equipment and operating expenses. DRPT’s approach is to buy capacity on freight rail lines that each new passenger service will require. Passenger rail services must not interfere with the efficient movement of freight. Service on existing freight lines limits the top potential speeds at which passenger trains can travel. Typically, freight rail carriers will allow passenger trains to travel at speeds up to 79 miles per hour on line segments where these maximum speeds are permitted. It is generally the policy of Class 1 freight railroads to insist that passenger trains exceeding 90 miles per hour operate on separate tracks from their freight trains for both operational and safety reasons. Usage of freight corridors also limits the possibility of electrification of the lines, since freight carriers are typically extremely reluctant to allow electrification along their lines.

Stakeholders in the Hampton Roads area have recommended that the state build a new dedicated rail alignment, which would connect the major population areas of Northern Virginia, Richmond, and the Hampton Roads area—the “Urban Crescent.” Such a significant investment is likely to be cost prohibitive. One source, the Passenger Rail Working Group, estimated in 2007 that

the cost of constructing a new high-speed rail alignment is about \$35 million per mile.<sup>4</sup> Money to fund an initiative of this magnitude would need to be secured.

Passenger rail services in Virginia are typically slower than highway travel, assuming no roadway congestion. Nevertheless, once roadway congestion is considered, rail can be the faster option, even including time required to travel to the train station. Table 6-1 compares travel times between Washington, D.C., and a selection of Virginia cities for train, bus, and automobile. In some cases, such as between Washington, D.C., and Lynchburg, bus travel requires connections, which makes bus travel a slower option than train. If train speeds can be increased so that rail is the fastest surface transportation option, regardless of roadway congestion, ridership increases could be significant.

**Table 6-1: Modal Comparison of Travel Times**

Origin/Destination	Train	Bus	Drive (Free Flow)
Washington, DC to Richmond	2 hr 17 min to 2 hr 24 min	2 hr 10 min to 2 hr 20 min (Megabus)	1 hr 51 min
Washington, DC to Lynchburg	3 hr 39 min to 3 hr 46 min	5 hr 05 min to 5 hr 40 min (Greyhound)	3 hr 33 min
Washington, DC to Newport News	4 hr 10 min to 4 hr 23 min	3 hr 50 min to 3 hrs55 min (Megabus to Hampton)	2 hr 48 min
Washington, DC to Norfolk	4 hr 48 min to 4 hr 56 min	4 hr 45 min to 7 hr 05 min (Greyhound)	3 hr 21 min

### 6.3. Vision and Goals

As described in Chapter 1, the VSRP is an element of Virginia’s overall transportation planning framework. VTrans, the Commonwealth’s long-range multimodal plan, establishes the vision for this framework as “a multimodal transportation system that is safe, strategic, and seamless.”

DRPT’s investment priorities outlined in the VSRP support the VTrans goals that have been identified to carry out that vision. Each VTrans goal is shown below with related VSRP initiatives.

- **Safety and security**
  - Port of Virginia projects will relocate rail lines serving the ports to enhance safety. Additional rail yard capacity improvements will enhance highway grade crossing safety and reduce highway delays at grade crossings.
  - The Shortline Railway Preservation and Development Fund, also known as the Rail Preservation Fund (RPP) will maintain FRA Class 2 track safety standards to enable reliable service to customers.
  - DRPT’s State Rail Safety Oversight function continues to oversee safety and security programs for rail fixed guideway transit systems operating in Virginia.
- **Maintenance and preservation**
  - VRE improvements, construct train storage and maintenance facilities.

<sup>4</sup> Passenger Rail Working Group, *Vision for the Future: U.S. Intercity Passenger Rail Network through 2050*, December 2007.



- The RPP funds shortline railway maintenance and preservation through tie replacement, rail and crossover rehabilitation, and technology improvements.
- Dedicated funding to Amtrak Virginia through IPROC will preserve and maintain valuable train slots on freight lines for passenger rail.
- **Mobility, connectivity, and accessibility**
  - Each initiative listed in the Rail Resource Allocation Plan shares mobility, connectivity, and accessibility as a primary goal. This goal is shared in the evaluation of projects for REF and IPROC.
  - Offering expanded freight and passenger transportation options to the corridors with the highest density and growth potential is paramount in the selection of projects that range from allowing for double-stacked freight containers to creating additional passenger rail frequencies on heavily traveled passenger rail routes to the NEC.
- **Environmental stewardship**
  - Taking vehicles off the road with expanded rail service is inherently beneficial to the environment, as evidenced by lower emissions, higher fuel efficiency, and overall smaller environmental footprint of freight and passenger rail.
  - In addition, Virginia is involved in multi-year NEPA study efforts for SEHSR that will identify and avoid impacts to environmental resources in cooperation with state and federal regulatory agencies.
- **Economic vitality**
  - RIA is an economic incentive program offered by DRPT for companies locating or expanding in Virginia that can ship by rail, diverting trucks from Virginia's highways as they create jobs and capital investment in Virginia.
  - DRPT coordinates with VEDP to administer RIA and to market rail-served sites for economic development throughout the state.
- **Transportation and land use**
  - DRPT considers land use as part of its investigation of alternatives for ongoing SEHSR NEPA studies, promotion of multimodal system design guidelines, and as part of passenger rail ridership analyses.
  - DRPT considers land use as part of its promotion of transit-oriented development in growth areas of Virginia that can support the requisite density and transit service.
- **Program delivery**
  - To improve accountability and increase the efficiency of DRPT's programs, DRPT will continue to improve the grants management process through better reporting, tracking, and monitoring. This will help to manage the agency's growing customer base and help DRPT to achieve the maximum benefits from limited funds for rail, transit, and congestion management projects.
  - DRPT will also respond to customer requests for increased training, advocacy, communications, and expert information in support of rail, transit, and congestion management programs in Virginia.

## 6.4. NEXT STEPS

One of the requirements of PRIIA is that states revise and resubmit their rail plans to the FRA every five years. The next VSRP will also be incorporated into the process of preparing VTrans2040—Virginia’s next multimodal long-range transportation plan. The VSRP will be updated in five years, if not sooner.

The FRA is currently developing a detailed State Rail Plan Guidance to identify the specific requirements for PRIIA-compliant state rail plans. Although this guidance is not applicable to the current plan, which was initiated prior to the guidance, DRPT has sought to address the requirements in the proposed guidance and will seek to comply with these standards for the next version of the VSRP. In the interim, the Six-Year Improvement Program will be reviewed on an annual basis in order to:

- Evaluate rail transportation changes in the context of a multimodal transportation system.
- Respond to any Commonwealth or federal legislation with respect to rail funding programs, safety and security, reporting, environmental, and funding program changes.
- Review the implementation of rail plan priorities based upon goals listed above.
- Evaluate new technologies that could be implemented for rail improvements.