

# RAIL AND TRANSIT

## OVERVIEW

### Rail

While highway miles in Virginia have shown a significant increase, active rail miles have actually decreased since 1930. For the vast majority of the railway, freight and passenger rail generally share the same network. Eleven freight and two passenger railroads operate on more than 3,200 miles of railway throughout Virginia. Over the next two decades, the forecast is for significant growth in the demand for freight movement into, out of, within and through Virginia. One of the largest driving factors to this anticipated increase is the growth of the Virginia Ports.

Much of the Commonwealth's railway infrastructure will be challenged by the growth due to the amount, type and location of freight movement as well as the increased passenger traffic over the shared rail corridors. The largest commodity in tonnage carried by rail is coal (61%) and it is carried primarily by two Class I freight operators, CSX and Norfolk Southern.

The two passenger railroads operating in Virginia have experienced explosive growth in annual ridership and they will be challenged by capacity constraints such as increasing freight rail operations on the shared railway and capital needs increases. According to the most recent data from the Association of American Railroads (2012), Virginia ranked 4<sup>th</sup> and 16<sup>th</sup> for tonnage of freight terminated and originated while ranking 19<sup>th</sup> for most miles of rail within the 50 states. This volume imbalance per mile of track emphasizes the importance of each mile of rail within the Commonwealth. Realizing the importance of rail to Virginia's movement of goods and economic vitality, Virginia developed its first dedicated source of funding, the Rail Enhancement Fund, for freight and passenger rail improvements in 2005.

### Transit

In many areas of the Commonwealth, transit services are an essential part of the transportation infrastructure. Transit increases access and mobility for Virginia residents by enabling more efficient use of the transportation network, saving time, conserving energy, and providing economic benefits to the customers and communities served. Nationally, transit ridership growth is far exceeding population growth and, "since 1995, transit ridership is up 37.2%, which outpaces the national population growth of 20.3%," says Michael Melaniphy, APTA president and CEO.

Transit ridership in Virginia grew by 20 percent between FY2002 and FY2006 and as of the latest numbers in 2011, this trend continued with 6.4% growth between 2010 and 2011.

Funding levels at the federal level for transit have not grown proportionally with the demand for transit forcing Virginia and local municipalities to fund the deficit.

# Introduction and Background

## Rail History

Railroads are a significant part of Virginia's present and a critical part of the future solutions for effective movement of people and goods, especially as energy costs and fuel prices continue to rise. In 2012 (most current data available) Virginia moved more than 1,000,000 rail carloads that terminated in Virginia and ranked 8<sup>th</sup> out of the 50 states for this measure. Amtrak, Virginia's largest passenger rail agency carried a record 31.6 million passengers in Fiscal Year 2013 and recorded its 10<sup>th</sup> ridership record over 11 years. With 3,200 miles of shared railway throughout Virginia, the rail infrastructure has been built on a complex history of smaller companies responding to economic and transportation needs.

Virginia's rail system dates from the 1800's. The records indicate that the first railroad incorporated in Virginia was the Richmond and Danville Railroad in 1847. Its main line, connecting Richmond and Danville, was opened in 1856. Because its charter prohibited the acquisition of any but connecting lines, the Richmond and Danville Railroad created the Richmond and West Point Terminal Railway and Warehouse Company in 1880, to acquire properties not directly connected with it. The Richmond and Danville Railroad and the Richmond Terminal Company went into receivership in the mid-1890s, were reorganized and emerged from bankruptcy in 1894 as the Southern Railway Company, which controlled over 4,000 miles of line at its inception.

The Norfolk and Western Railroad was organized in 1881 from the Atlantic, Mississippi and Ohio Railroad. The Atlantic, Mississippi and Ohio had been created in 1870 by the merger of three Virginia railroads with antebellum origins: the Norfolk and Petersburg (connecting these two cities), the Southside (running from Petersburg to Lynchburg), and the Virginia and Tennessee (running from Lynchburg to Bristol on the Tennessee border). The Norfolk and Western Railroad rapidly became associated with the mineral development of the southwestern part of Virginia and West Virginia. In mid-1881 it acquired the franchises to four other lines: the New River Railroad; the New River Railroad, Mining and Manufacturing Company; the Bluestone Railroad; and the East River Railroad. In 1890, it acquired the Shenandoah Valley Railroad, which ran from Roanoke, Virginia, to Hagerstown, Maryland. Its program of expansion in the early 1890s, coupled with the economic depression of the 1890s, forced the railroad into receivership in 1895. It emerged as the reorganized Norfolk and Western Railway the next year, in 1896.

Today the Virginia freight rail system is comprised of two classes of railroad companies: two Class I freight railroad systems – Norfolk Southern (2,100 miles) and CSX (1,050 miles); and nine Class III (short-line) line-haul carriers (approximately 489 route miles). The Class I railroads are defined as line-haul freight railroads exceeding \$319.4 million in annual operating revenue. The Class III railroads are defined as line-haul carriers with less than \$24 million in operating revenues. There are no Class II railroads in Virginia. Two passenger systems, Amtrak and Virginia Railway Express (VRE), utilize the private track freight railway system in their operations.

## Transit

In this infrastructure report transit includes traditional mass transit (i.e. bus, fixed route rail, vans, and ferryboats) and passenger rail. The Virginia Department of Rail and Public Transportation (DRPT) is the state agency supporting the state's transit systems. DRPT is the designated recipient and administrator of federal funds for the FTA as well as state grant programs. DRPT also provides technical assistance to local transit systems in the areas of: key corridor and system specific capital and operations planning; financial planning, vehicle purchases and inspections, marketing, training, program project management, project development, and program compliance. Local governments in the Commonwealth are typically the direct owners and operators of the transit systems, making DRPT the state agency coordinating local activities and providing financial support. Based on DRPT statistics, the Commonwealth experienced continued growth in transit ridership and service effectiveness in recent years. Transit operators also outperformed the national averages on key performance indicators.

The Commonwealth of Virginia has more than 50 transit agencies and most only operate buses and/or vans. The largest, Washington Metropolitan Area Transit Authority (WMATA), has a fleet of more than 1,500 buses that cover 325 routes. Hampton Roads Transit (HRT) constructed and completed the first Virginia light transit system in 2010 (called "the Tide") to supplement their existing bus and ferry network. Ridership for the Tide has exceeded original projections (prior to construction) since opening; however, in the last year (2013) ridership has decreased. HRT is working closely with the City of Virginia Beach and the City of Norfolk to plan the next leg of light rail transit, which is anticipated to help connect Norfolk to other areas within Hampton Roads and should also bolster ridership. HRT also operates buses and vans, and a fleet of 3 ferryboats that operate from Norfolk/Portsmouth and James City/Surry County.

In 2007, Amtrak had eight passenger routes serving Virginia and operated 20 daily intercity trains and two tri-weekly trains. Virginia Railway Express, founded in 1992, provides a transportation alternative to driving congested highways from Northern Virginia suburbs to the business districts of Alexandria, Crystal City, and Washington, DC. As more commuters and travelers choose Amtrak for their travel needs, investments need to be made in the tracks, bridges, tunnels, signal systems and other infrastructure or we will be faced with increased infrastructure-related service disruptions that will compromise our state's economy and cause users to reconsider their choices for transportation, reducing ridership.

## CONDITION AND ADEQUACY

### Rail

Today's critical issues for Virginia's railroads include the following:

- Upgrade of existing stations (including platform extensions and park and ride lots) to accommodate higher volumes of rail passengers and changing expectations of the traveling public.
- Continue to develop plans for high-speed rail solutions along Virginia's golden crescent, connecting Virginia into the Southeast High Speed Rail Corridor.

- Maintain and upkeep existing rail infrastructure (rail, signal systems and tunnels) to maintain or improve safety and avoid delays.
- Evaluate bridge and tunnel structures as part of the system maintenance.
- Modernize aging rail infrastructure to handle heavier, larger railcars and higher speeds.
- Improve the accessibility of ports via railways, and connect Inland ports, intermodal yards, and “integrated logistics centers”. Improve the system as necessary to reduce freight costs and travel time.
- Address increased demand for passenger rail service where it conflicts with the private freight railroad business on shared rail lines.
- Continue to promote the diversion of long haul trucks to rail, reducing traffic congestion on roadways and improving safety.

By 2035 Virginia will have to decide how to handle a doubling of rail traffic, while offsetting investment needs in other modes of transportation, to have comprehensive solutions to meet all needs.

## Transit

Virginia’s transit operators are performing well against the national averages and that of neighboring states as born out by the following results of the 2007 Virginia Transit Performance Report.

**Ridership.** From FY2002 to FY2006, transit ridership in Virginia grew by 20 percent compared to a national growth rate of 4 percent and in 2011 alone, 6.3 percent growth was achieved. The Virginia transit agencies reporting the highest ridership growth were Williamsburg Area Transit (2,875 percent) and Loudon County Transit (184 percent). The Virginia transit systems with the most annual passenger trips were the Washington Metropolitan Area Transit Authority (WMATA) at 115.7 million passenger trips and Hampton Roads Transit (HRT) at 21.2 million.

**Total Transit Miles Operated.** Between FY2002 and FY2006, the total transit miles operated in Virginia, measured in vehicle revenue miles, grew by 13.1 million, or 20 percent. The nation’s growth in vehicle revenue miles for the same period was 7 percent.

**System Efficiency.** Measured as the operating cost per passenger trip, system efficiency is higher for transit systems which serve passengers at a lower operating cost. From FY2002-FY2006, Virginia’s operating cost per passenger trip grew from \$2.34 to \$2.73, a 17 percent increase. However, this was a slower cost increase than the national increase of 24 percent. For the same period the operating cost per passenger trip was lower in Virginia, than in the three neighboring states of North Carolina (\$3.42), Maryland (\$3.95), and Tennessee (\$4.15). The Williamsburg Area Transit decreased its operating cost per passenger trip by 89 percent from \$10.63 to \$1.13 per trip, the lowest in the state, due mainly to increases in ridership. Loudoun County Transit experienced a 39 percent decrease in the operating cost per passenger trip, for the same reason.

**System Effectiveness.** System effectiveness is measured in terms of the number of passenger trips served per vehicle revenue hour. Therefore, the more trips served per hour, the more

effective the transit system. Between FY2002 and FY2006, passenger trips per vehicle revenue hour in Virginia increased one percent compared to a national decline of three percent. In FY2006 the national average was 38 trips per vehicle revenue hour compared to 37 passenger trips per revenue hour served by Virginia transit operators. At 63 passenger trips per vehicle hour, Virginia Railway Express had the highest number of trips served per hour among Virginia transit agencies. Williamsburg Area Transit had the greatest system effectiveness among Virginia bus operators with 44 trips per hour and the greatest increase at 529 percent. Loudoun County Transit saw a 127 percent increase.

**State Funding.** In FY2006 the level of state government funding available to transit operators was 42 percent higher than in FY2002. Nationally, state funding available to transit operators grew 13 percent from FY2002 to FY2006. In Virginia the state funding for capital and operating expenses has fluctuated from year to year. In 2007 the General Assembly passed House Bill 3202 which was anticipated to provide a record increase of about \$103 million in state and regional transit funding.

**Local Government Funding.** Combined local government capital and operating funds available for transit operators in Virginia grew by 38 percent from FY2002 to FY2006. When broken down, the available local operating funds grew by 28 percent and the available local capital funds grew by 98 percent between FY2002 and FY2006. For the same period local government funding, nationally, for transit operators grew by 20 percent with an 18 percent decline in capital funds and a 40 percent increase in operating funds.

**Farebox Recovery.** Farebox recovery is significantly impacted by fare policies adopted on the local level. Transit operators in Virginia paid for approximately 41 percent of their operating cost through collection of fares in FY2006 which was equal to the percent of costs paid through fares nationally. This represented an 11 percent growth rate from FY2002. The national growth rate was only 5 percent between FY2002 and FY2006. Of the Virginia transit agencies Loudoun County had the highest rate of farebox recovery at 77 percent. The City of Fairfax CUE bus system had the greatest increase in the percentage of operating expenses covered by fares collected at 98 percent. Williamsburg Area Transit had an increase of 93 percent.

**Average Age of Vehicles.** The average age of transit vehicles in Virginia rose from 6.1 to 7.4 years (not including WMATA's vehicles which were not included in the survey) from FY2002 to FY2006, a 22 percent increase. However, the national average age of vehicles was 9.4 years in FY2006. Therefore, the average age of Virginia vehicles are 21 percent below the national average.

## INVESTMENT NEEDS AND FUNDING DEDICATED

### Rail

Virginia needs to invest in upgrades to the freight rail system infrastructure to accommodate the increasing levels of traffic for both freight and passenger rail. There are significant limitations throughout Virginia's railroad system that prevent the railroads from routing traffic over the

primary corridors. According to the Association of American Railroads study released in September 2007, the most heavily used rail line in Virginia is the CSX north-south line, which combines freight and passenger movements. The CSX north-south line is the only line in Virginia's railroad system that is considered to be operating at Level of Service (LOS) D, near capacity. Other rail lines have significant unused or "latent" capacity which can be utilized if certain improvements are made. The most pressing rail infrastructure improvements where the investment of funds would yield significant results are:

- Assess current bridge and tunnel inventory for condition and ability to meet double-stacking and increasing freight loads, and make investments where warranted.
- Perform asset management of rail, supporting ballast and other infrastructure needs and promptly perform necessary maintenance.
- Develop rail improvements to reduce congestion and improve reliability in the most heavily traveled corridors with bypass and parallel lines
- Upgrade track speed, weight capacity, and clearances to reduce travel time, improve reliability and safety.
- Improve track alignments to increase reliability and reduce accidents
- Improve short-haul rail to increase speed, capacity, and reliability.

Four funding sources are specifically authorized to support Virginia's capital improvements on privately owned rail lines.

1. The Rail Enhancement Fund – Established in 2005 to provide dedicated state funding for acquiring, leasing, and/or improving railways or railroad equipment, rolling stock, rights of way, or facilities for freight and/or passenger rail transportation. Source: a portion of the three percent vehicle rental tax and the interest earned on cash balances.
2. The Rail Preservation Fund – Established in 1991 to provide state financial support to preserve, continue, and increase the productivity, safety and efficiency of shortline railway transportation logistics. Source: \$3 million annual allocation of highway construction funds and the interest earned on cash balances.
3. Capital Project Bonds – Established in 2007, includes a minimum of 4.3 percent of available bond funds specifically for rail transportation until a total of \$3 billion of authorized bonds are fully allocated in FY2018.
4. The Rail Industrial Access Fund – Established in 1986 to provide financial support for projects that provide freight rail access to businesses in conjunction with the Virginia Economic Development Partnership, County and Municipal Economic Development Departments, railroads and private industry. Funding for this program is expected to average \$1.5 million per year in future years.
5. Intercity Passenger Rail Operating and Capital Fund – Passed by the General Assembly in 2011. While no money has been appropriated to the fund yet, the legislation gave the Commonwealth Transportation Board and General Assembly the flexibility to allocate existing transportation revenues into the fund.

The DRPT 2008 Statewide Rail Resource Allocation Plan was developed to provide a clear vision and strategy to address the rail needs in the Commonwealth. The plan identifies several potential projects to address rail needs in Virginia. A Rail Action Plan was developed to provide funding strategies and detailed implementation plans.

## Transit

Virginia provides financial support for public transportation systems in the Commonwealth to support capital and operating expenses for transit systems through DRPT. State funding is often used to help provide matching funds for federal grants from the Federal Transit Administration. Local governments are typically the direct owners and operators of the transit systems and provide significant financial support to maintain transit systems in their localities. Transit increases access and mobility for Virginia residents by enabling more efficient use of the transportation network. The growing demand for transit will only increase with unmet needs. Therefore, a sustainable source of funding for new or expanded transit services is critical to the future success of rail transit in Virginia. The state should consider additional funding for fixed route transit providers where the population densities justify the investment. Additionally, the United States Congress should authorize new federal surface transportation policies utilizing a needs-based approach to determine funding.

## BASIS OF GRADE

### Rail

The vast majority of Virginia's freight and passenger rail system is privately owned which limits the availability of public information to assess the overall condition. The Virginia Department of Rail and Public Transportation (DRPT) as the leading state agency for rail (and transit), is responsible for providing transportation solutions and focusing on projects that deliver public benefits for the investment of public funds. DRPT has led some key accomplishments recently, including the creation of the first dedicated source of rail funding at the state level – the Rail Enhancement Fund in 2005. The Intercity Passenger Rail Operating and Capital Fund was also passed by the General Assembly in 2011. While no money has been appropriated to the fund yet, the legislation gave the Commonwealth Transportation Board and the General Assembly the flexibility to allocate existing transportation revenues into the fund.

While both funds show significant progress, the current funding is not sufficient to meet the increasing demand for rail and passenger service or to complete the much-needed rail infrastructure improvements and upgrades in the short term. Rail infrastructure projects are competing with other transportation projects for the limited public funds in the midst of an economic recovery. Demand and the ability to accommodate the exponential growth far exceed Amtrak and VRE's ability to provide this valuable service.

The Virginia Section of ASCE gives Virginia's freight and passenger railroads a grade of **D**.

## Transit

Virginia has shown improvement across all performance indicators except for fare box recovery, which remained flat while the costs of providing the service have increased. This creates a significant funding gap.

Funding levels for all modes of transit need to grow in order to meet the increasing demands on the transit infrastructure. Transit agencies have also endeavored to upgrade shelters and other rider amenities to meet evolving safety and ADA compliance measures often without public funding to keep pace with regulatory requirements.

The Virginia Section of ASCE gives transit in Virginia a grade of **C-**.

## CONCLUSIONS AND RECOMMENDATIONS

### Rail

Given the current funding levels for freight and passenger rail, infrastructure upgrades are far behind increasing ridership and freight demands. Given that the increasing demands are primarily on a shared rail system, the need for additional rail infrastructure that also accommodates high speed trains cannot be understated. The demand for rail service continues to outpace state resources not just in Virginia but in neighboring states. Rail tracks are privately owned by freight companies, which is an additional challenge because of the responsibility to return shareholder value. In short, there are competing and contradictory demands for the limited resource of railways in Virginia.

The recommendations of the ASCE Virginia Section are:

- Continue and advance feasibility studies for high speed rail (90mph-110mph) and incorporate the recommended improvements into the overall plan.
- Educate the public and elected officials on the value of rail transportation in addition to highway transportation
- Ensure a multi-modal approach to freight and passenger rail planning and design
- Maintain and improve rail system performance with ongoing evaluation of critical infrastructure such as bridges and tunnels as part of the overall plan.
- Support and encourage entrepreneurial public-private partnerships and transit oriented development which increase ridership and lower operating costs.
- Consider appropriate increases of fares and user fees for passenger rail service;

- Increase state funding to meet identified needs for critical infrastructure projects and move forward on Governor McCauliffe's \$13.1B transportation program announced in 2014.

## Transit

Virginia's transit agencies have been efficient in their use of limited funds to meet the increased demand for service. Virginia's transit operators are performing well when compared with the national average and neighboring states. Transit services have also become an essential part of the transportation infrastructure and provide essential relief to other transportation alternatives. As access to transit increases, mobility for transit customers will increase and reduce the burden on the Virginia's overcrowded highways and roads and reduce the dependence on fossil fuels and provide a significant benefit to the quality of life in Virginia.

ASCE Virginia Section makes the following recommendations for transit:

- Implement a Federal funding framework for high speed rail to improve passenger rail service and connect Virginia to the Southeast Rail Corridor
- Provide additional funding mechanisms to support safety and ADA compliance mandates for bus shelters and other rider amenities
- Promote multi-modal transportation by providing amenities such as bike racks on buses and on shelters
- Continue to identify ways to maximize performance of transit service by increasing the performance indicators: ridership, vehicle revenue miles, system efficiency, and system effectiveness
- Provide additional state and local funding to offset operating and capital costs for fixed route transit where population densities merit
- Consider increasing fare box revenues for all modes of transit as appropriate
- Replace aging transit vehicles to maintain or lower the average vehicle age