



1. CURRENT STATE OF THE RAILROAD

VRE System Overview

The Existing VRE Network

The Virginia Railway Express (VRE) operates passenger trains on an 89 route-mile system connecting Washington, DC with Fredericksburg and Manassas, Virginia. From Union Station in the District of Columbia, the Fredericksburg and Manassas lines share the same right-of-way for approximately 9.6 miles, to just south of Alexandria, Virginia, where they diverge.

The Fredericksburg Line roughly follows Interstate 95 and the Potomac River, using the CSX-owned mainline between Washington and Richmond. The line passes through the District of Columbia, Arlington County, the city of Alexandria, Fairfax County, Prince William County, Stafford County and the city of Fredericksburg.

The Manassas Line runs in a westerly direction from Alexandria, roughly paralleling Interstate 66 approximately five miles to the south of the interstate. After leaving Alexandria, the line serves Fairfax and Prince William counties, passing to the south of the city of Fairfax and going through the cities of Manassas Park and Manassas. The right-of-way is owned by the Norfolk Southern Corporation.

The primary mission of the Virginia Railway Express is to transport commuters between outlying suburbs and the Washington-Arlington urban core. The service is heavily oriented towards the central business district in the morning peak and in the opposite direction in the evening peak. Some tourists and "day-trippers" also ride the trains, but there are limited opportunities for non-commuters and people who work non-traditional hours to ride VRE. The only non-peak service is an early-afternoon return trip from Washington on each line, and two limited-stop reverse-direction trains on the Manassas Line in each peak period. There is no service on weekends and holidays.

VRE serves 18 stations. The two lines share four stations: Washington Union Station and L'Enfant in the District of Columbia, and Crystal City and Alexandria in Virginia. Union Station and Alexandria are also Amtrak stations for intercity passenger trains as well as VRE. MARC commuter trains to Maryland also use Union Station. There are four additional stations that have both Amtrak and VRE service: Woodbridge, Quantico and Fredericksburg on the Fredericksburg Line, and Manassas on the Manassas Line. The rest of the stations serve VRE trains exclusively. Most VRE stations have free parking lots.

VRE is an integral part of the greater Washington region's public transportation network and is linked to all of the other modes that operate in the region. There are connections to Amtrak at six stations. Moreover, certain Amtrak trains honor VRE tickets and become, in effect, additional frequencies between the stations served by the Amtrak train. VRE connects with the Washington Metrorail system at five stations (Union Station, L'Enfant, Crystal City, Alexandria and Franconia/Springfield). Local

bus routes of several operators provide service to and connections with VRE at many stations, often with free transfer to local buses. Connecting service information generally is readily available to the public through the VRE website or by telephone. Every station except Broad Run, Brooke, Leeland Road and Rippon has a connection to some form of public transportation.

A map of the existing VRE network showing the extent of service and the location of stations is shown in Map 1. VRE is a tenant on three railroads (CSX Transportation, Norfolk Southern, and Amtrak) and contracts with Amtrak to operate the trains. The VRE territory is a busy, mixed-traffic environment, which VRE shares with intercity passenger and freight trains. VRE owns rail yards at the two southern ends of its system (Broad Run at Manassas Airport, and Crossroads south of Fredericksburg) for overnight storage of equipment. The Amtrak operating agreement provides for mid-day storage of VRE trainsets at Ivy City in Washington, D.C. During this time, Amtrak also does some light servicing and maintenance. Amtrak maintains VRE locomotives and cars at its Ivy City yard and shops. At Broad Run and Crossroads, a contractor does overnight cleaning, and contractors fuel the locomotives. None of these facilities is equipped for major overhauls or heavy repairs.

VRE operates a total of 32 trains each weekday, primarily inbound to Washington, DC during the morning peak period and outbound from Washington in the afternoon peak, requiring 11 different equipment sets of varying length. The existing VRE fleet, including equipment currently on order but excluding short-term leased equipment, consists of 15 locomotives and 96 coaches. The Washington Terminal Coach Yard, however, can accommodate only 69 VRE units for mid-day storage – 11 locomotives with 58 coaches – which poses a severe capacity constraint for VRE.

History

Unlike most commuter rail operations, VRE was not the direct descendent of a freight railroad's passenger service. The vision for the Virginia Railway Express was born out of the relentless growth of the Northern Virginia suburbs in the Seventies and Eighties and the desire for convenient, energy-efficient, public transportation as a viable alternative for commuters from Virginia to Washington, DC. Commuter service commenced in 1992, superimposed on a railroad infrastructure with already long established traffic patterns for freight and intercity passenger trains.

In 1992, VRE operated 16 trains on a \$21 million operating and capital budget; in 2003, VRE operated 32 trains on a \$55 million operating and capital budget.

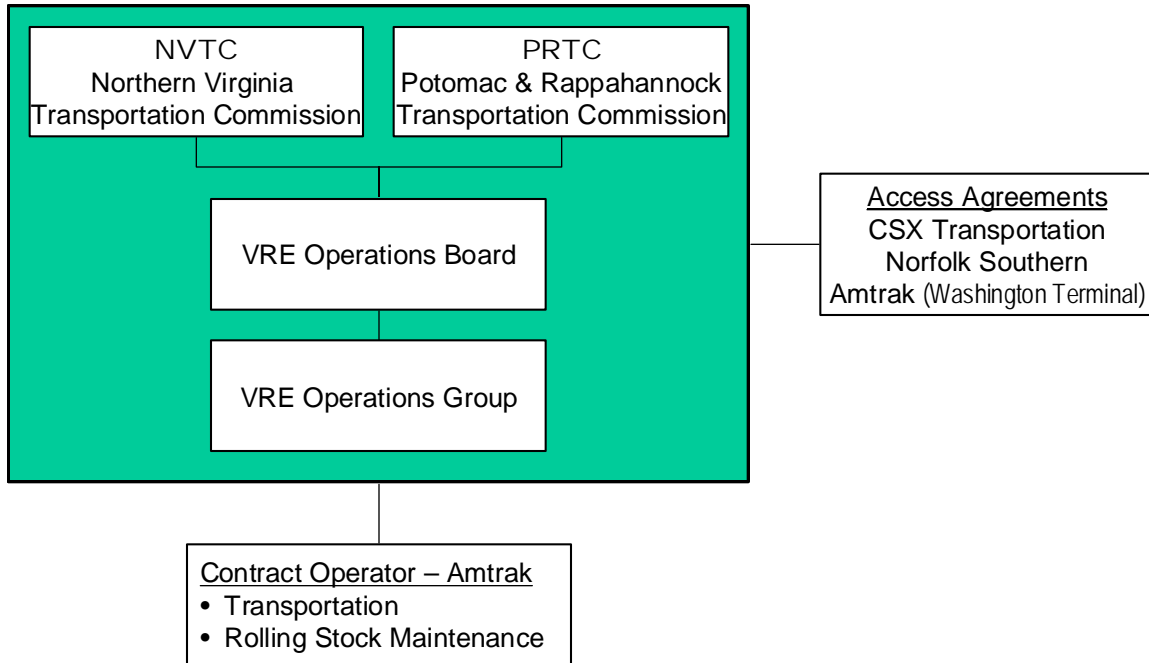
Over the first ten years of its existence, VRE's capital needs have been concentrated on stations and rolling stock, taking advantage of the existing railroad infrastructure and the initial construction of its two outlying train storage yards. As the system has begun to reach its capacity, VRE has accommodated ridership growth primarily by expanding parking at its stations and expanding its rolling stock fleet, through a combination of short-term leases of equipment and acquisition of available second-hand coaches from other commuter rail properties.

Organizational and Financial Structure

The Virginia Railway Express (VRE) is a joint project undertaken by the Northern Virginia Transportation Commission (NVTC) and the Potomac and Rappahannock

Transportation Commission (PRTC). NVTC is a state-created entity of Arlington, Fairfax, and Loudon counties and the cities of Alexandria, Fairfax and Falls Church. PRTC's member jurisdictions are Prince William and Stafford counties and the cities of Fredericksburg, Manassas, and Manassas Park. The geographic boundaries of the two commissions and member jurisdictions are highlighted in Map 1. Figure 1-1 presents a simplified chart of VRE's organizational structure and relationships with its contract operator and host railroads.

**Figure 1-1
VRE Organizational Structure**



Under the Master Agreement, NVTC and PRTC jointly own and operate the VRE. Service started on both the Manassas and the Fredericksburg lines in 1992. Currently, VRE operates 32 trains per weekday, primarily in the morning and evening commuter peak periods.

Amtrak operates the VRE trains over its own lines in Washington Terminal and over the existing lines of CSX Transportation, Inc. (CSXT) and Norfolk Southern Corporation (NS) pursuant to individual operating and access agreements with the freight railroads. An Operating Agreement between VRE and Amtrak covers the use of Amtrak operating crews, facilities, and maintenance of equipment employees.

An Operations Board governs VRE with delegated authority from the commissions. This board was established under the Master Agreement to coordinate the development and operation of VRE. The Operations Board consists of seven appointed members: three commissioners from NVTC, three commissioners from PRTC, and an *ex officio* representative from the Virginia Department of Rail and Public Transportation. The Board serves as an advisory body to the NVTC and PRTC commissioners and oversees the development and operation of VRE. It is responsible, within the scope of approved budgets, for the management of all monies attributable to VRE, including federal and commonwealth grant funds as well as local contributions.



The Master Agreement makes the Operations Board responsible for the annual preparation and revision of VRE's budget, as well as a six-year financial plan for approval by the commissions.

The Operations Board established the Operations Group in 1991 to oversee day-to-day operations and to participate in strategic and financial planning for the system. Currently, the Operations Group consists of approximately 30 full-time professional/technical staff. VRE is financed with bond proceeds, federal and Commonwealth of Virginia grants, appropriations from participating and contributing jurisdictions, and with the revenue derived from ridership. VRE currently spends an average of \$13-\$15 million per year on capital projects. Many of these projects receive federal funding, which can cover up to 80 percent of the total cost, with the remainder comprising the "non-federal share."

VRE's direct operating expenses were approximately \$24.8 million in FY03, of which approximately 62% is covered by passenger fares. The bulk of the non-federal share for VRE capital projects falls primarily to local jurisdictions. The overall level of local financial support remained stable at approximately \$5.8 million annually for several years, with VRE able to fund a portion of its annual expenses from its debt service reserve. With overall annual costs increasing and the debt service reserve funds fully expended, the level of local financial support in FY 2004 increased to \$6.4 million.

The Strategic Planning Process

The fundamental objectives of the VRE Strategic Plan are as follows:

- Enable the service owners to establish a future vision for the VRE system.
- Define the future extent and level of VRE service that is supportable by projected ridership demand.
- Define the appropriate level of long term public investment in VRE commensurate with the ridership and mobility benefits realized.
- Identify capital investment requirements, both in terms of short-term priorities and long-term needs.
- Identify opportunities for funding partnerships and organizational changes that can help enable the vision to be achieved.

A strategic plan is needed now because VRE has been very successful in accomplishing its primary mission, and that success has brought ridership growth beyond the original vision of 10,000 trips per day. Ridership has been growing steadily since FY 1999 and is projected to reach or exceed 18,000 riders by 2010, which is almost twice the level of ridership envisioned in the original VRE planning. Without a comprehensive strategic plan and the actions that result from it, constraints in railroad line capacity, train storage capacity, rolling stock equipment ownership, and station parking availability will severely dampen or limit projected growth.



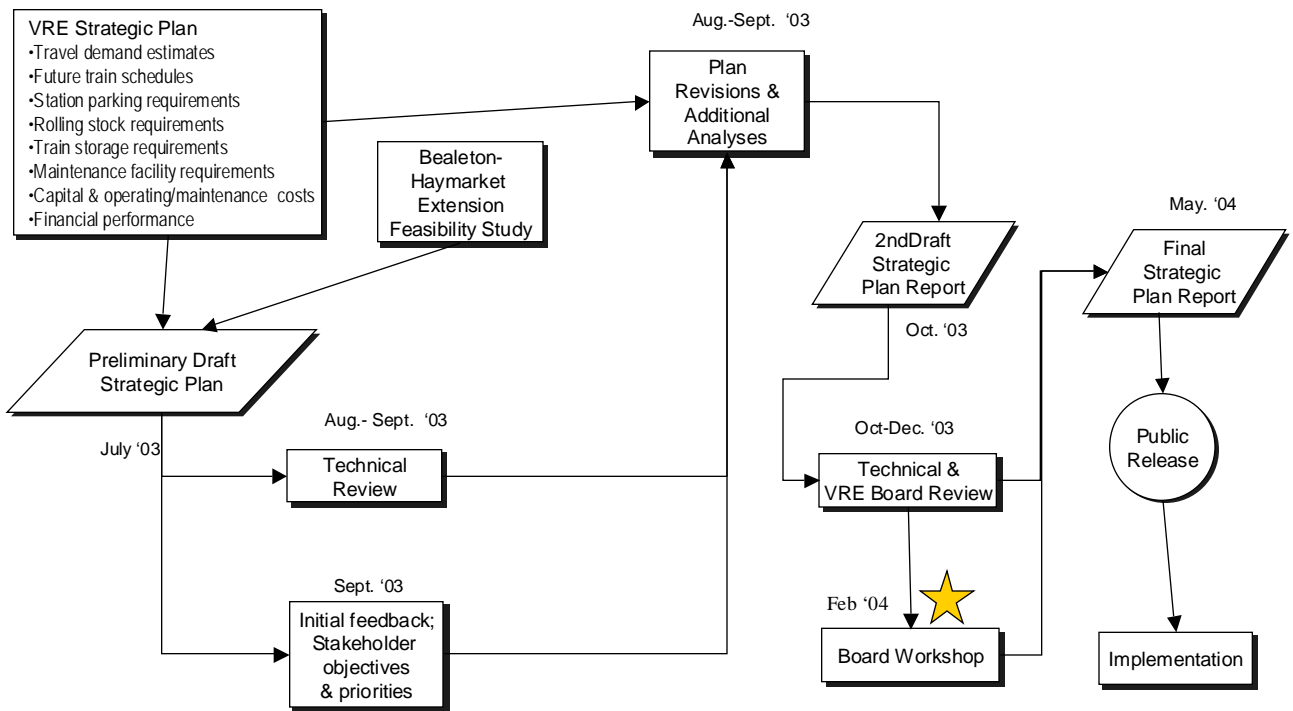
Key elements of the strategic plan include:

- A vision for the future role of VRE in the region's transportation system
- An operating plan (in other words, a description of the proposed service)
- Tabulation of infrastructure and rolling stock fleet requirements
- Estimates of projected ridership and fare revenue
- Estimates of capital costs and annual operations and maintenance costs
- An evaluation of alternative network, service and investment scenarios, including lower-cost and higher-cost options
- A program of phased capital investments, service growth and expansion.

The planning process has been a two-phase effort. The **Phase 1 Preliminary Plan** was documented in a report dated June 2002 and addressed immediate short-term needs and identified early action items prior to the completion of the full comprehensive long-range plan. Its focus was on the existing VRE service territory – identifying and prioritizing projects that were deemed essential for maintaining a high level of service quality while accommodating increasing ridership demands through 2010.

The **Phase 2 Full Strategic Plan**, diagrammed in Figure 1-2, addresses service improvement alternatives and associated capital investment requirements and operational and institutional issues over a longer horizon period – through 2025. This system plan provides a blueprint for shaping the extent of the VRE network, the frequency and type of service to be offered, and the most cost-effective strategies for procuring and maintaining the rolling stock fleet. Service designs and operating plans have been developed for a range of alternative scenarios.

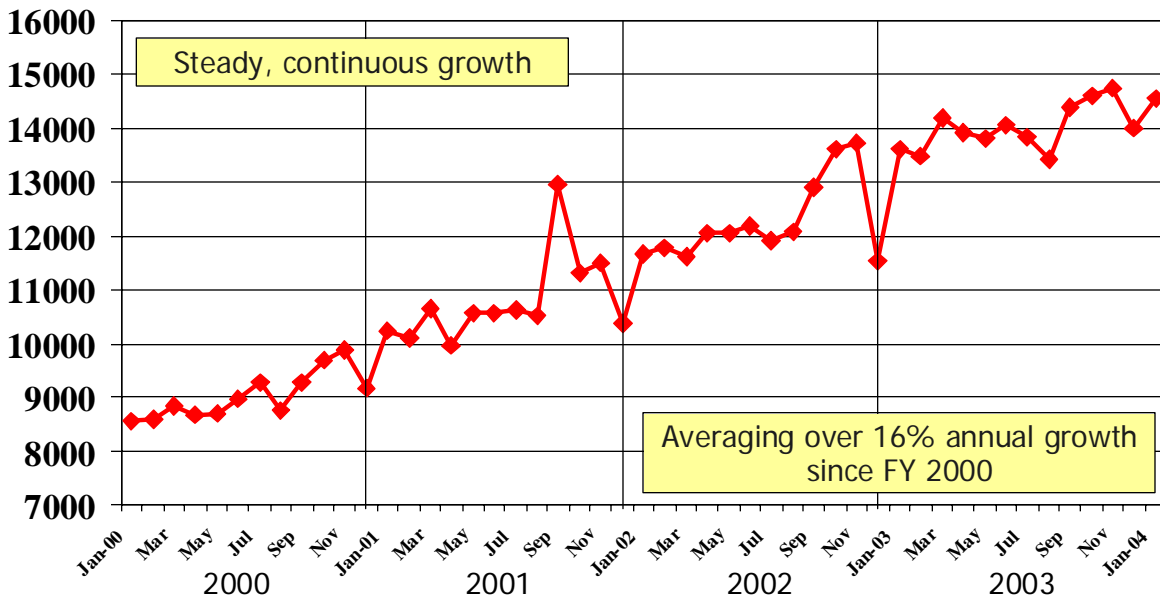
**Figure 1-2
The Strategic Plan Process**



Existing Conditions – VRE at Capacity

From a modest beginning of 16 trains and 1,800 riders per day in 1992, VRE now operates 32 trains carrying approximately 15,500 daily riders on a service that was designed and sized for 10,000 riders a day. VRE’s ridership has been steadily increasing at an average rate of about 16 percent per year over the past four years (Figure 1-3), which places VRE near the top of all U.S. commuter railroads in terms of the rate of ridership growth. A total of over 3 million passenger trips per year are made on the VRE. Ridership demand continues to grow, despite fare increases and increasingly crowded trains and station parking lots.

**Figure 1-3
VRE Ridership, 1997-2002**



Overall, on-time performance (OTP) is above 90 percent. Through the first three quarters of FY 2004, monthly Fredericksburg Line OTP ranged from 74 to 89 percent. The Manassas Line achieved a higher level of OTP than the Fredericksburg Line – between 86 and 93 percent. The Fredericksburg line, owned and operated by CSX, has a greater traffic density and presents a greater operating challenge because of the relatively heavy mix of commuter, intercity passenger and freight traffic, when compared with the Manassas Line. The Manassas Line is owned and dispatched by Norfolk Southern west of the junction of the two lines at Alexandria and has a lower level of freight and overall traffic than the Fredericksburg Line.

One factor contributing to the VRE’s recent success has been its strong focus on customer service and the one-on-one relationship that it has built with many of its riders. Some original VRE riders continue to ride today, a notable achievement in an area as product sensitive as Northern Virginia where there are alternative transportation choices. The underlying VRE philosophy that drives VRE’s excellent relationship with its riders is that VRE is committed to make commuting on its trains as efficient, reliable, and stress free as possible-- safe transportation on time. Without investment, however, the traditionally high level of customer satisfaction offered by VRE will gradually erode as increasing numbers of commuters have difficulty finding available parking and seats on the trains.

Rail Infrastructure. Over the first ten years of its existence, VRE has focused its capital investment primarily on stations and rolling stock, taking advantage of the existing railroad infrastructure. VRE trains operate in a mixed traffic environment, with commuter, intercity passenger and freight trains sharing the same tracks and rights-of-way. By their very nature, commuter rail operations such as VRE consume a major share of the available railroad line capacity during weekday peak commute hours, and relatively less at other times. Demand for rail freight is increasing in the Northeast

U.S., with the need to maintain high levels of performance and reliability to enable rail to compete with the over-the-road mode, and increasing pressure to operate passenger and freight trains in mixed traffic during the weekday commuter peak periods. This in turn will drive the need for additional capacity improvements to ensure that all rail operators are able to offer reliable service to their customers.

VRE participated in the recent \$12.5 million upgrade to the CSX railroad infrastructure at AF Interlocking in Alexandria, the junction where the Fredericksburg and Manassas Lines converge. This was VRE's first public-private partnership in cooperation with CSX, the Commonwealth of Virginia, and the two Commissions. The agreement that fostered this project also committed other line capacity improvements over the next five years that provide the framework for VRE expansion up to as many as 40 trains per day, as is discussed in Phase I of the Strategic Plan.

Rolling Stock. Throughout most of VRE's history, capacity growth was met by a significant amount of equipment leased for relatively short terms to supplement the equipment VRE owned. Most recently, VRE took advantage of the excess equipment owned by Sound Transit (the new-start commuter rail system in the Seattle region) to lease 18 high capacity bi-level cars, enough for three train sets. In addition, a number of bi-level Gallery cars formerly in service on Chicago commuter lines have been refurbished and put into VRE service. Even so, the practical carrying capacity of the existing fleet and system has effectively been reached, with several peak period trains having standees approaching Washington Union Station and a number of station parking lots filled to capacity.

Although VRE has been able to accommodate its ridership demand up until now, the continued dependence on borrowed or leased equipment means that available seats will peak by 2006, and then drop off unless VRE invests in additional new rolling stock. VRE's lease on the three sets of Sounder cars is short term and relatively costly, so it will make sense to return this equipment to Seattle as soon as sufficient other rolling stock is available. Putting the full complement of 45 Gallery cars in service will compensate for the loss of the Sounders and the prospective sale of the Mafersa single level cars, but the Gallery cars themselves are just a stop-gap measure. They have only a limited life-expectancy and will need to be replaced in the 2010-to-2015 timeframe.

VRE must acquire additional railcars and locomotives to maintain its current operation and sustain growth. Without a new procurement, the combination of increasing ridership demand and an aging existing fleet will lead to VRE seat shortages by the end of the decade. As a start, \$100 million is urgently needed to acquire approximately 50 bi-level railcars. In addition, the entire diesel locomotive fleet will need to meet new Federal clean air standards, which recently have become more restrictive, and VRE will have to either upgrade its existing fleet or acquire new clean, high-horsepower locomotives.

Station Parking. As of March, 2004, eight of VRE's 13 rail station parking lots reach or exceed their practical capacity (85% or better utilization) before the end of the morning peak period. This is the case despite a steady program of parking expansion at VRE stations over the past several years. In response, many passengers are now arriving for earlier trains, or parking illegally, or circling in vain to find a parking spot.

The end of the line stations, Fredericksburg and Broad Run, continue to see parking demand well in excess of the available supply, with recently-expanded parking lots



almost immediately filling to capacity. Woodbridge, currently at 90 percent utilization, is scheduled to have additional surface parking capacity added in 2004, with a second parking garage to follow. Plans are underway for new parking structures at Burke Centre and Manassas, both of which are at or over full capacity. The only three stations with substantial quantities of available parking, Manassas Park, Rippon and Lorton, have all seen a recent doubling of available surface parking – and at the first two locations the expansion lots are rapidly filling up. Seven existing stations, divided between the two lines, are of concern with respect to parking capacity in the short to medium term. Analysis of VRE ridership survey data indicates that passengers are quite willing to drive from five to ten miles to reach the rail station. In the near future, no further parking expansion will be possible without additional capital funding.

Train Storage. After the morning peak period, all 11 VRE train sets end up at Amtrak's Ivy City Coach Yard where they are stored and serviced until they are required for the afternoon trains. Midday storage has become critical since there is no additional space for passenger car storage. The VRE area of Ivy City can accommodate 69 units (locomotives and coaches), which is exactly how many units are currently operated and stored.

To accommodate additional trains for ridership growth, or even additional cars on existing trains, more storage space will have to be created in or near Washington Terminal. This requires capital investment and new construction. VRE is working with Amtrak and CSX on a plan for increasing train storage capacity at Washington.

Addressing these capital needs will directly benefit VRE's riders, but it also will have an impact on the entire region. VRE's commuter rail service is part of the larger Northern Virginia transportation network and provides a travel option for commuters throughout Northern and Central Virginia, including approximately 4,200 government and military workers. Passengers who use VRE create capacity on other modes such as highway and Metrorail.

In addition, VRE is a critical part of the region's transportation infrastructure for regional mobility and for evacuation in the event of an emergency. As an energy efficient mode, VRE also helps address critical air quality and congestion issues in a metropolitan region that has been designated as a severe non-attainment area for ground level ozone and is consistently ranked as one of the nation's most congested regions.

In general, the current VRE system is stretched to the limit of its available capacity and must expand that capacity in the near term if it is going to satisfy growing ridership demand. The pressure of increasing population, poor air quality, and rising traffic congestion, coupled with employer subsidies of public transportation fares, will continue to push VRE beyond the limits of its capacity. The VRE Operations Board and Commissions are now faced with having to justify and obtain the level of investment in infrastructure and operating subsidy necessary to sustain growth and maintain high-quality service. This will be a challenge, since these decisions will extend VRE beyond its historical level of funding commitments.