

# Virginia Railway Express Transit Development Plan FY2013 - FY2018

## *Executive Summary*



Virginia Department of Rail and Public Transportation

December 2011

**ATKINS**

**CTG** Connetics  
Transportation  
Group

## Executive Summary

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### *Introduction*

Virginia Railway Express (VRE), in cooperation with the Virginia Department of Rail and Public Transportation (DRPT), has completed a Transit Development Plan (TDP) for fiscal years 2013-2018. A TDP is a short-range plan that typically emphasizes and documents the following areas within a transit agency:

- Agency Goals and Objectives
- Existing Service Characteristics
- Near-Term Service and Facility Needs
- Scheduling and Funding of New Services and Facilities

In recent years, the Commonwealth has begun requiring all transit properties to prepare a TDP as a condition for state funding. This is done so that DRPT can take a comprehensive approach when allocating the limited funding it has available for capital projects and operating assistance. Ultimately, the information provided through the various agencies' TDPs can then be used for inclusion in the Statewide Transportation Improvement Program (STIP).

A number of data sources were referenced for inclusion in this TDP. Those inputs include:

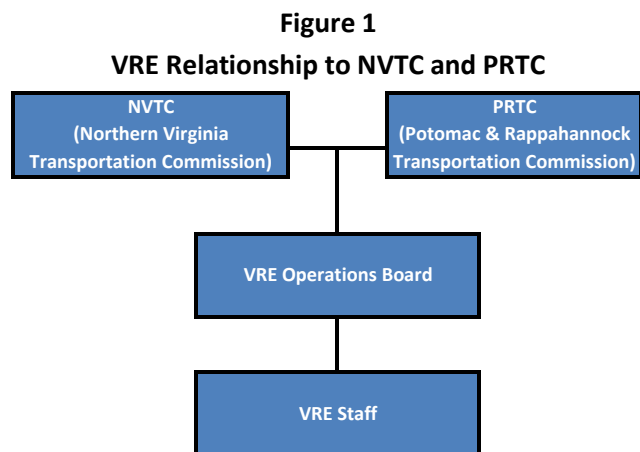
- Strategic Plan
- Capital Improvement Plan
- Fleet Management Plan
- Local Jurisdictions' Comprehensive Plans
- National Transit Database (NTD)
- FTA Triennial Review
- FY 2013 Budget
- Staff Interviews
- Field Observations

As mentioned earlier, this TDP is valid for fiscal years 2013 -2018. However, it is understood that plans and priorities can change from year to year. To supplement this TDP until the next major update, DRPT requests that an annual status update letter be submitted as outlined later in this executive summary.

## ***Transit System Overview***

The Virginia Railway Express (VRE) is headquartered in Alexandria, VA and provides service along the I-66 and I-95 corridors from the Northern Virginia suburbs to Alexandria, Crystal City and Washington, D.C. VRE's service area covers 730 square miles and serves a population of 680,400. The federal government is the largest employer in the region and federal employees are the majority of VRE's ridership.<sup>1</sup> However, the VRE rail corridors are also lined with a mix of residential, commercial and professional uses that generates significant non-federal rail ridership.

VRE is a joint project of the Northern Virginia Transportation Commission (NVTC) and Potomac & Rappahannock Transportation Commission (PRTC) with no independent legal standing (see Figure 1). Agreements with the Commonwealth help provide indemnification to the freight railroads whose tracks VRE uses. NVTC has issued and refinanced \$150 million of appropriations-based bonds for VRE. The commissions, whose board members are comprised primarily of local and state elected officials, are responsible for hiring a Chief Executive Officer (CEO) to lead VRE's staff. They have delegated the authority to approve most VRE policies, fares, budgets and major spending decisions to the VRE Operations Board.

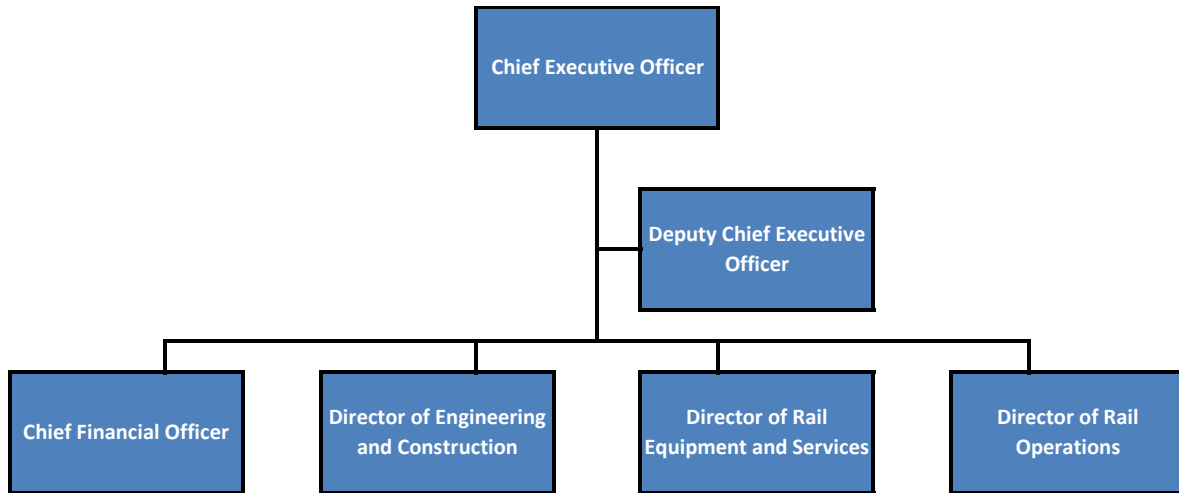


The VRE Operations Board presently consists of 14 board members that represent the VRE member jurisdictions and the Virginia Department of Rail and Public Transportation (DRPT). There are also twelve designated alternates. The VRE Operations Board is responsible for recommending a Chief Executive Officer (CEO) to lead VRE's staff to the Commissions. The CEO oversees a staff of 37 persons. There are five senior-level staff positions that report directly to the CEO – Deputy Chief Executive Officer, Chief Financial Officer (CFO), Director of Engineering and Construction, Director of Rail Equipment and Services and Director of Rail Operations (see Figure 2).

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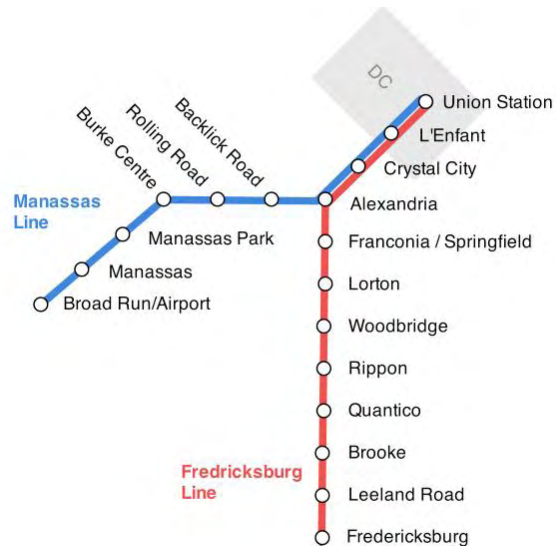
<sup>1</sup> 2009 National Transit Database

**Figure 2**  
**VRE Staff Structure**



VRE operates weekday service along two distinct rail lines – the Fredericksburg Line and the Manassas Line (see Figure 3). There is no weekend or holiday service. Along the two lines there are 18 stations. Eight are dedicated to the Fredericksburg Line and six serve the Manassas Line. The remaining four stations are common to both rail lines. The 32 daily trains (30 revenue trains) operated by VRE are served by 17 locomotives and 101 passenger rail cars. Fares are zone-based, meaning fares are proportional to the distance traveled on each line. While many of VRE’s passengers are park & ride commuters who ultimately walk to their destination after alighting the train, VRE also has a significant number of riders who connect with one of the ten other transit providers in the region.

**Figure 3**  
**VRE System Map**



VRE offers extensive and diverse means to interact with its customers. These outlets include:

- Customer Service
- Social Media
- Monthly Online Forum
- Meet the Management
- Passenger Alliance Coalition
- Public Hearings
- Annual Onboard Survey

### ***Goals and Performance Measures***

VRE has a concise set of Goals and Performance Measures as outlined in the FY 2012 Budget. The goals identified for FY 2012 are:

- Achieve at least 55 percent operating ratio (cost recovery);
- Operate trains on time at least 92 percent of time; and
- Achieve at least 17,350 average daily ridership.

In addition, VRE identified the following five performance measures for FY 2012:

<b>Measure</b>	<b>Performance Measure</b>	<b>Target</b>
Safety	Injuries to Passengers	0
On-Time Performance	Percent On-Time Each Month	92%
Average Daily Seat Occupancy	Utilization of Available Seating	95%
Operating Ratio	Ratio of Fare Income to Operating Costs	55%
Ridership Growth	Minimum Growth over Prior Year	3%

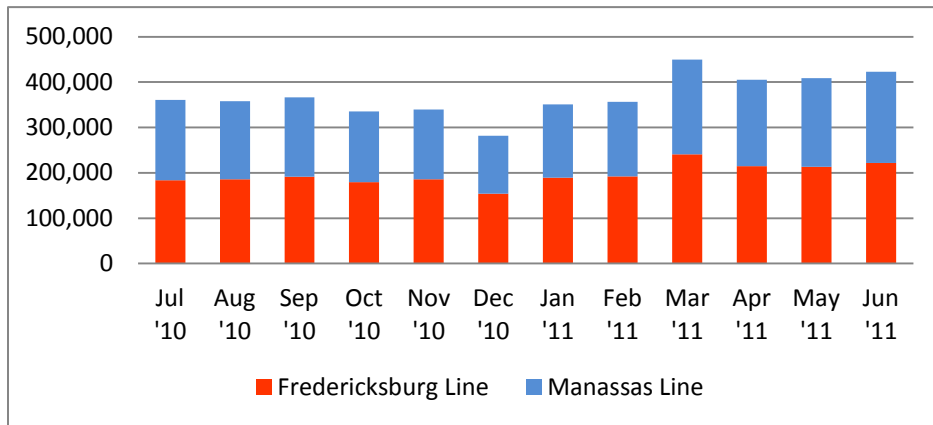
### ***Mission Statement***

The Virginia Railway Express, a joint project of the Northern Virginia Transportation Commission and the Potomac and Rappahannock Transportation Commission, will provide safe, cost-effective, accessible, customer-responsive, reliable rail passenger service as an integral part of a balanced, intermodal regional transportation system.

**Service and System Evaluation**

An analysis of the existing and historical ridership for VRE service was conducted using ridership data collected by VRE. VRE has served over 53 million passengers since inception in FY 1993. In FY 2011, 4,512,176 passengers used VRE services.<sup>2</sup> The Fredericksburg Line served slightly more than half (53%) of these passengers. Figure 4 shows total monthly VRE ridership for FY 2011. March was the month with the highest ridership and December had the lowest level of ridership.

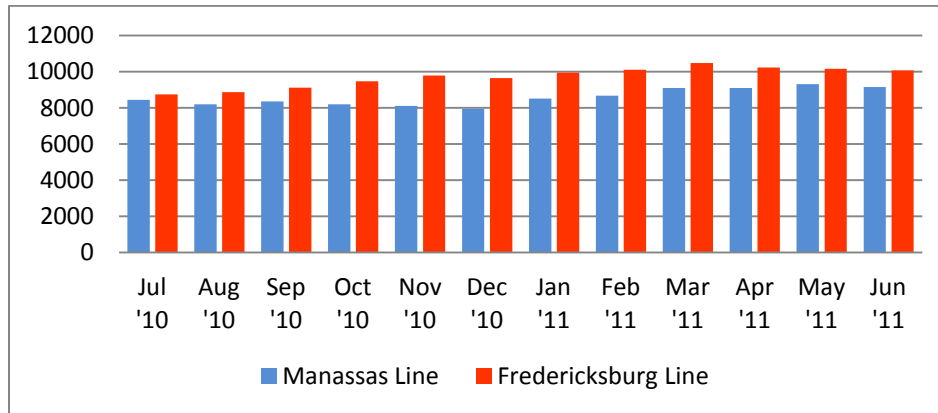
**Figure 4**  
**VRE FY 2011 Total Monthly Ridership**



Source: Ridership data provided by VRE

Figure 5 displays the FY 2011 average daily ridership by line. Average daily ridership for both lines has increased over the course of the year.

**Figure 5**  
**VRE FY 2011 Average Daily Trips by Line**

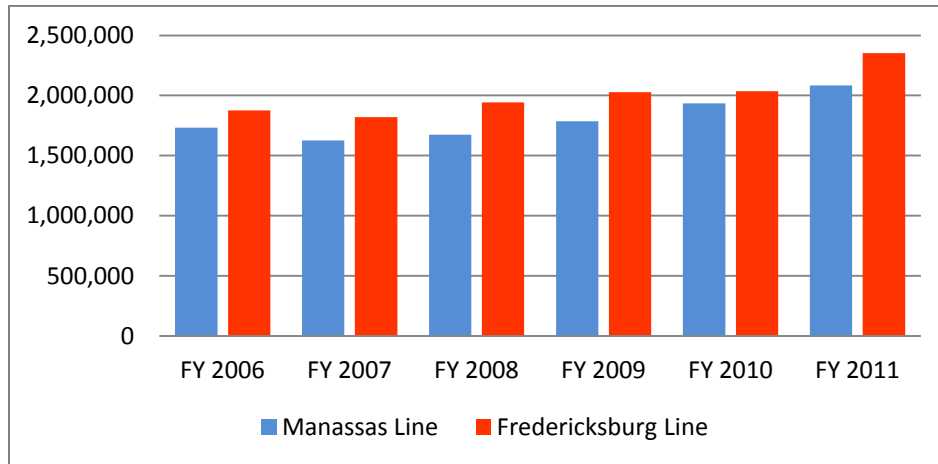


Source: Ridership data provided by VRE

<sup>2</sup> Ridership numbers have been adjusted to include VRE trips taken on Amtrak trains, but do not include "S" schedule days.

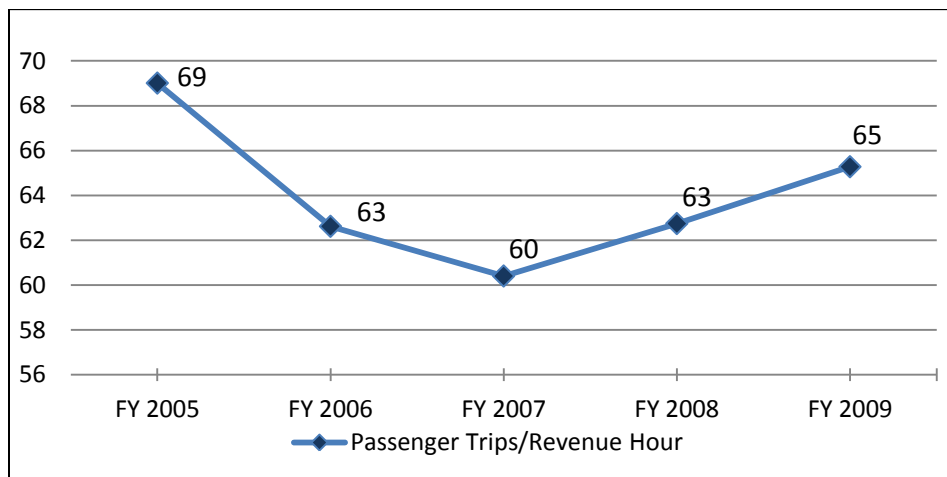
Figure 6 displays VRE’s ridership for the past six years (FY 2006-2011) by line. Despite several fare increases, VRE’s ridership has increased steadily with annual ridership crossing the 4 million mark in FY 2011. There has been an increase of almost 23 percent in total annual ridership in the past five years.

**Figure 6**  
**FY 2011 Annual Ridership by Line**



The number of passenger trips per revenue-hour is one measure of how effectively the service is provided. Historically, service effectiveness decreased from FY 2005 to FY 2007 and has since been increasing (see Figure 7).

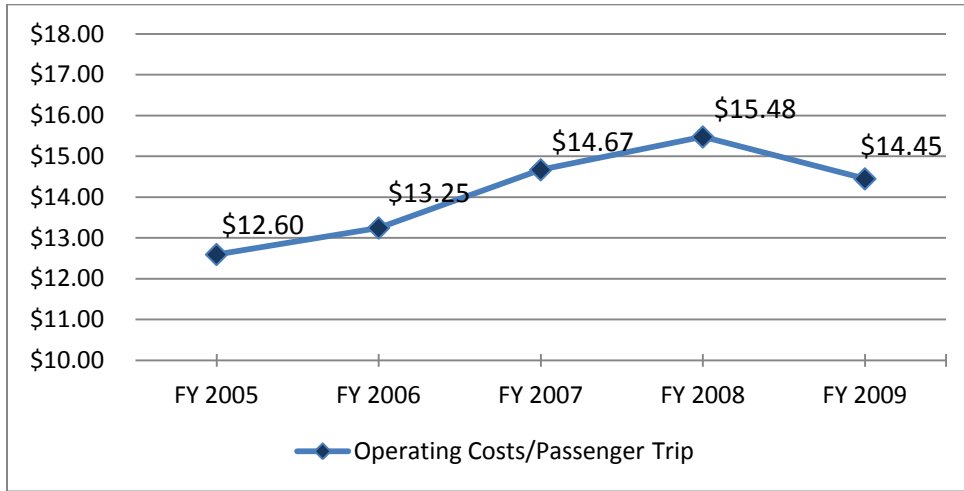
**Figure 7**  
**VRE Service Effectiveness – Passenger Trips per Revenue-Hour**



The ratio of operating costs per passenger trip reflects how cost-effectively the agency is providing the service. Operations and maintenance (O&M) costs were not adjusted for inflation. Figure 8 shows that cost effectiveness has decreased since FY 2005 but increased in FY 2009.

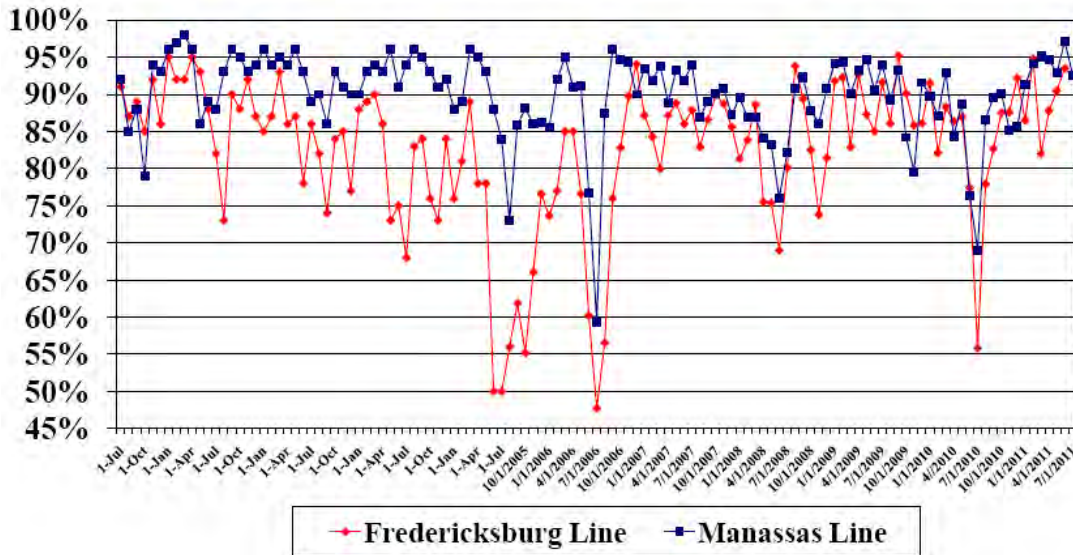


**Figure 8**  
**Cost Effectiveness – Operating Cost per Passenger Trip**



Over the past decade, VRE has maintained on-time performance for the Manassas line better than for the Fredericksburg line. On-time performance dropped significantly for both lines during 2005-2006, and most recently, in July 2010. Figure 9 shows the on-time performance by line.

**Figure 9**  
**VRE On-Time Performance by Line (July 2001 – July 2011)**



Source: Performance measures data obtained from VRE website in September 2011



### Population and Employment

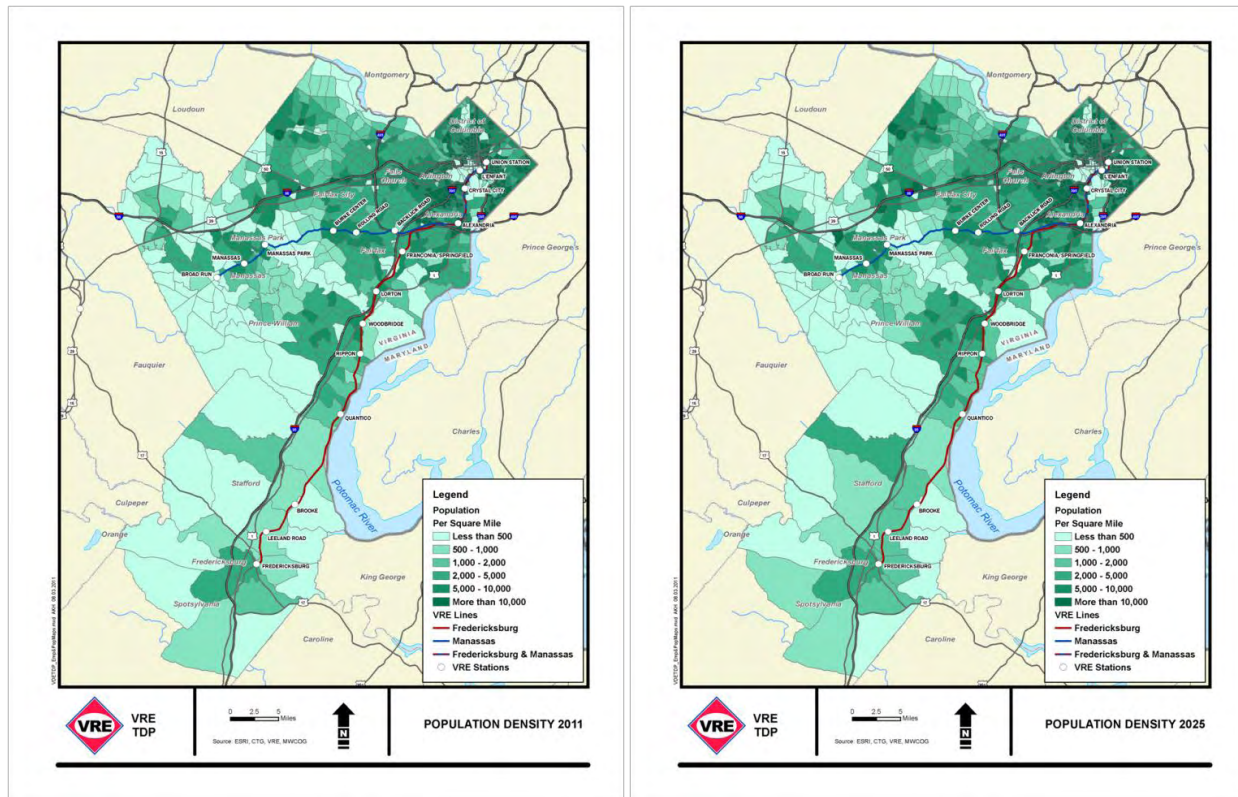
VRE operates in the fast growing Northern Virginia region. Population and employment growth is projected to continue into the future. Estimated population in the VRE study area in 2011 is nearly 3.1 million. Estimated employment is 2.2 million. By 2025, the population is projected to increase to 3.6 million, and employment is projected to increase to 2.6 million. Overall population within the VRE service area is projected to grow by 533,000 between 2011 and 2025 (see Figures 10 and 11), while total employment is projected to grow by 441,000 (see Figures 12 and 13). Between 2011 and 2025, population within the VRE study area is projected to increase by 17.4 percent, and total employment is projected to increase by 20.0 percent.

### Projected Population and Employment in the Study Area (2011 and 2025)

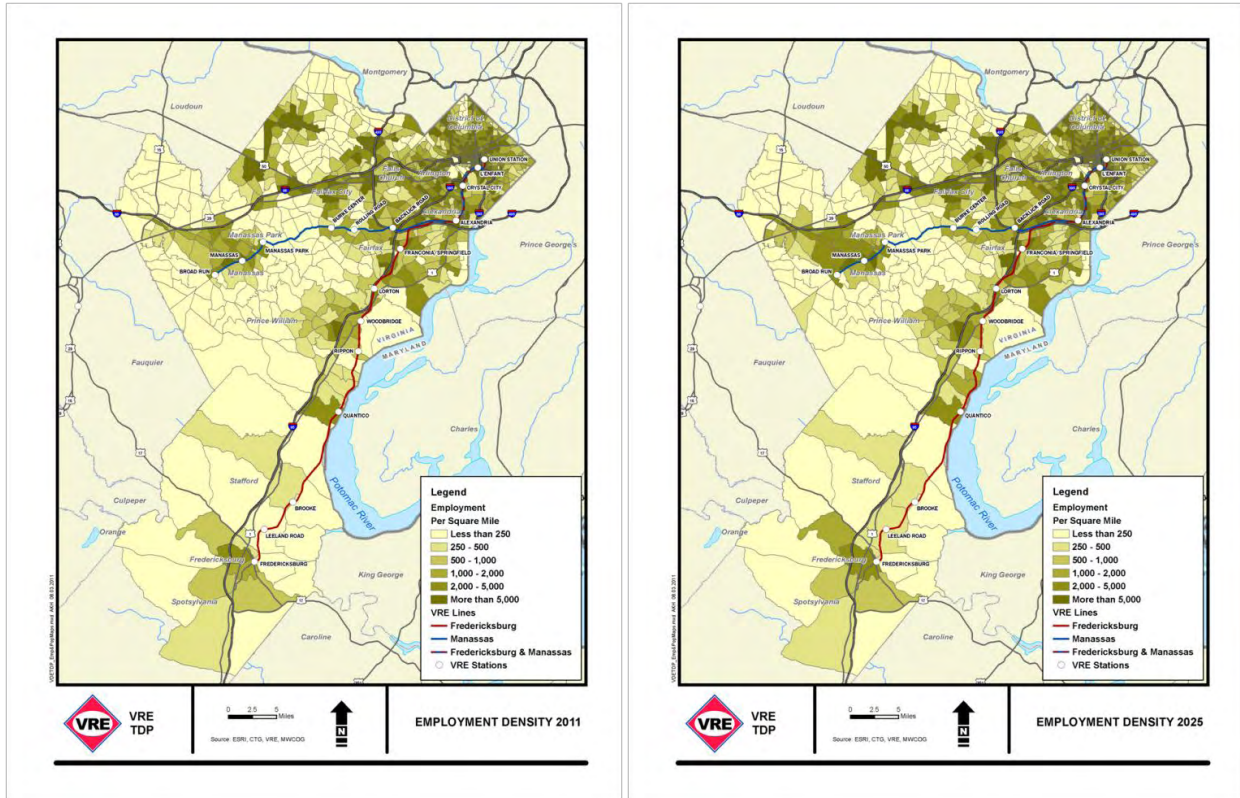
Population	2011	2025
Total	3,074,398	3,607,848
Annual % Growth	n/a	1.1%
% Change from 2011	n/a	17.4%
Employment	2011	2025
Total	2,204,167	2,645,180
Annual % Growth	n/a	1.2%
% Change from 2011	n/a	20.0%

Source: MWCOG. FAMPO

**Figures 10 and 11**  
**Projected Population Density Growth (2011 and 2025)**



**Figures 12 and 13**  
**Projected Employment Density Growth (2011 and 2025)**



**Peer Review**

A peer system review was prepared to compare VRE’s system characteristics and performance measures with five other transit systems that exhibited comparable operational and financial characteristics. The primary source of data was the Federal Transit Administration’s National Transit Database (NTD) for Fiscal Year 2009. While no two train systems are alike, the following commuter rail systems were selected as peers to VRE:

- Maryland Transit Administration (MARC)
  - Central Puget Sound Regional Transit Authority (Sounder)
  - South Florida Regional Transportation Authority (Tri-Rail)
  - North County Transit District (Coaster)
  - Dallas Area Rapid Transit and Fort Worth Transportation Authority (Trinity Railway Express)
- (Note: Data for DART & TRE systems is the sum of both systems, unless otherwise noted)*

Key findings of the peer review were as follows, although it should be noted when making comparisons that all peers except Sounder operate a greater number of daily trains than VRE including midday, reverse flow and weekend service:

- **Vehicle Utilization:** VRE’s revenue-miles and revenue-hours per peak vehicles were about half the peer average, respectively. All the peers except MTA exhibited higher spare ratios than the FTA guidelines of 20 percent spares.

- **Service Supplied:** In comparison to its peers, VRE operates more service miles per capita, and more service hours and revenue-miles per square mile than the peer averages. However, VRE operated significantly fewer service hours per capita.
- **Ridership Productivity:** The passenger trips per capita for VRE are much higher than the peer average. Despite the fact that VRE has fewer revenue hours per capita than most of its peers, the productivity of those revenue hours is better than the peer average. VRE's productivity in terms of passenger-trips per revenue-hour is 19 percent higher than the peer average. VRE serves 29 percent more passenger-trips per revenue-mile than its peers. The high incidence of employer-sponsored commuting benefits in the DC region has a significant impact on these measures.
- **Cost Efficiency:** VRE was less cost efficient than the peer average on an operating cost per passenger trip, operating cost per revenue-hour, and operating cost per revenue-mile basis.
- **Farebox Revenues:** VRE's farebox recovery rate was 20 percent more than the peer average.
- **O&M Funds:** VRE's FY2009 operating budget was similar to the peer average. VRE derived a significant share of its operating revenue from fares (46 percent).
- **Capital Funds:** VRE's capital budget was 19 percent less than the peer average.

The peer review analysis determined that VRE's productivity is higher than its peers. Although VRE's cost efficiency is lower, as a result of a higher operating budget along with fewer revenue hours and revenue miles being operated compared to the peers, the VRE farebox recovery rate is much higher than the peer average due to higher ridership and more expensive fare structure compared to the peers.

#### *2011 Customer Survey*

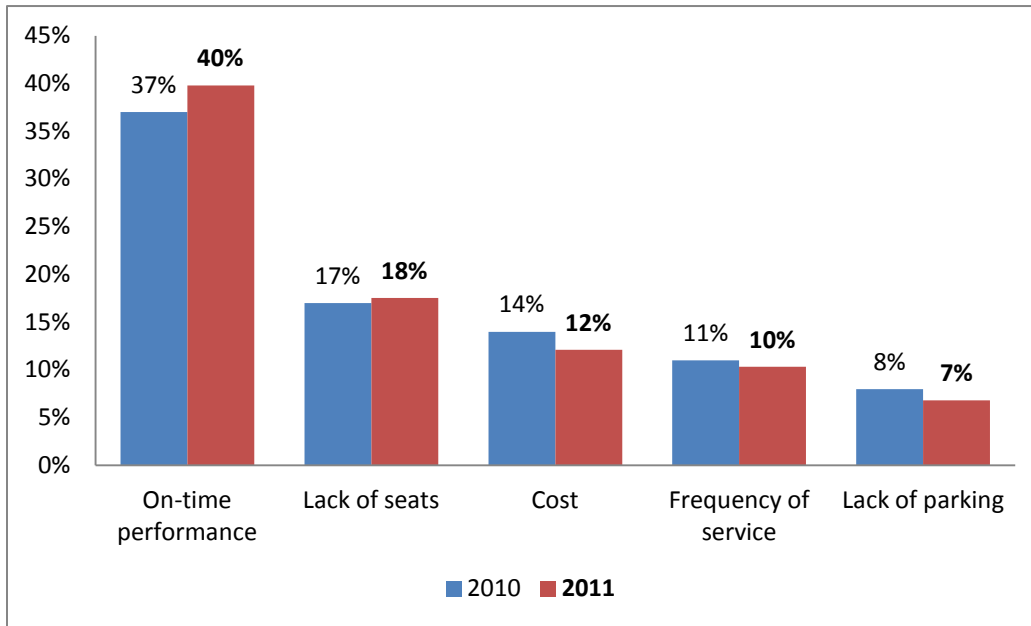
VRE conducted its 2011 customer on-board customer survey in the morning of May 11, 2011. The survey provided riders an opportunity to evaluate VRE operations and performance as a system. More than 5,600 passengers completed the survey, which is comparable to the participation levels in 2010. The demographic composition of VRE's riders can be characterized as follows:

- 61 percent are male
- 85 percent are between 35 to 64 years old
- 88 percent earn \$75,000 or more per year
- 86 percent are homeowners
- 82 percent own two cars or more
- 71 percent are Caucasian, 15 percent African American, 6 percent Asian, 4 percent Hispanic
- 25 percent of riders are proficient in another language, in addition to English
- 64 percent are federal government employees

When asked about their number one concern about VRE service (Figure 14), 40 percent of riders in 2011 stated it is on-time performance (compared to 37 percent in 2010), followed by 18 percent who claimed it is lack of seats (17 percent on 2010), and lesser percentages citing cost, frequency of service, and lack of parking.

**Figure 14**

**VRE Customer Service Survey: What is your number one concern about VRE service? (2010 and 2011)**



#### *Stakeholder Participation*

VRE has an established VRE Coordinating Committee (VCC) which consists of staff members from local jurisdictions. The purpose of this committee is to provide review and input related to the monthly Board actions and the Annual Capital and Operating Budgets development process. Throughout the development of the VRE TDP, staff has been coordinating the development of the Annual Operating and Capital Budgets with the VCC and the Chief Administrative Officers (CAO) Task Force, also comprised of staff from local jurisdictions. Both the VRE six year Capital Improvement Program (CIP) and Annual Operating Budget are used as the basis for the development of the TDP. Consequently the process used for review and comment from the VCC and CAO Task Force is utilized for the purpose of vetting comments of the driving elements of the TDP and the VRE Annual Budgets.

#### *Parking and Station Capacity*

Meeting growing parking demand at the existing stations is one of VRE's most pressing capital needs. Although 8,877 parking spaces are currently available systemwide, demand exceeds capacity at many VRE stations, especially mid-week (Tuesdays through Thursdays) when VRE ridership is greatest. As of September 2011, average monthly parking utilization exceeds capacity at the Manassas Park and Rolling Road stations on the Manassas line, and parking demand is near capacity at the Fredericksburg and Leeland Road stations on the Fredericksburg line, and Broad Run and Manassas City on the Manassas line. There is no parking provided for VRE patrons at the four innermost stations (Alexandria, Crystal City, L'Enfant, and Union Station). Parking is available at the Franconia Springfield station through WMATA. Parking expansion has been viewed as one of the priorities by VRE. VRE recently constructed a five-level, 532 space parking garage in the City of Manassas for VRE patrons and other drivers. Use of that garage is split between VRE (319 spaces) and the City of Manassas (213 spaces). The agency has

also programmed expansion of the existing parking lots at the Brooke and Leeland Stations. This expansion will add approximately 430 new parking spaces to the stations: 196 spaces at Leeland and 234 spaces at Brooke.

**Existing Parking Supply and Demand at VRE Stations**

VRE Station	Available Parking Spaces	Average Utilization (%)
<b>Fredericksburg line</b>		
Fredericksburg	860	92%
Leeland Road	827	90%
Brooke	499	97%
Quantico	258	72%
Rippon	676	70%
Woodbridge	738	68%
Lorton	567	64%
Franconia/Springfield	0	
<b>Total Fredericksburg line</b>	<b>4,425</b>	
<b>Manassas line</b>		
Broad Run	1,065	93%
Manassas City	683	88%
Manassas Park	600	108%
Burke Centre	1,516	56%
Rolling Road	368	102%
Backlick Road	220	71%
<b>Total Manassas line</b>	<b>4,452</b>	

*Note: No parking is available for VRE patrons at the Alexandria, Crystal City, L-Enfant, and Union Station. Parking at the Franconia-Springfield station is managed by WMATA. Parking utilization at Fredericksburg and Leeland Road includes spaces in gravel overflow lots.*

*Source: VRE, September 2011*

**Rolling Stock**

Fleet utilization is challenging given the nature of the VRE services, which is focused on meeting peak demand loads. The VRE equipment utilization, based on planned operations through 2018, is shown in the table below. The projected number of available passenger seats is shown in the table that follows. While the total locomotive fleet is projected to remain constant in the next couple of years, the number of passenger coaches is projected to decrease slightly beginning in 2015, due to the expected sale of the remaining Legacy Gallery coaches. The projected number of available passenger seats is expected to drop between today and 2016 as the Legacy Gallery coaches leave the fleet.

**Projected Equipment Utilization (2011-2018)**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Locomotives</b>								
Locomotives in Service	12	12	12	12	13	13	13	13
Protect Locomotives	3	3	3	3	3	3	3	3
Spares	5	5	5	5	4	4	4	4
<b>Total Locomotive Fleet</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>
<b>Passenger Coaches</b>								
Coaches in Service	75	75	75	75	79	79	79	79
Spares	16	16	16	16	7	7	7	7
<b>Total Coach Fleet</b>	<b>91</b>	<b>91</b>	<b>91</b>	<b>91</b>	<b>86</b>	<b>86</b>	<b>86</b>	<b>86</b>

*Note: Assumes two locomotives and six coaches are out of service at any one time for regular servicing/maintenance. It also assumes the VRE fleet includes 20 MP36 locomotives and excludes ten legacy gallery coaches for which a sale is pending. The procurement of up to 50 additional coaches was authorized in May 2011 – the table reflects acquisition of only 15 of the 50 coaches.*

*Source: Fleet Management Plan*

**Projected Passenger Seats (2011-2018)**

<b>Type of Coach</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Sumitomo Gallery IV	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543
Pullman Legacy Gallery	4,500	3,000	3,000	2,250	1,500	0	0	0
New Procurement	0	0	0	750	1,500	2,160	2,160	2,160
Number of Coaches	91	91	91	91	86	86	86	86
<b>Total Seats</b>	<b>14,043</b>	<b>12,543</b>	<b>12,543</b>	<b>12,489</b>	<b>11,715</b>	<b>11,703</b>	<b>11,703</b>	<b>11,703</b>
<b>Total Seats in Daily Operation</b>	<b>10,266</b>	<b>10,266</b>	<b>10,266</b>	<b>10,236</b>	<b>10,749</b>	<b>10,782</b>	<b>10,782</b>	<b>10,782</b>

*Note: Total seats represent all seats within the fleet, including spares. Total seats in daily operation represent only those seats in revenue service on any given day. The reduction in total seats beginning in FY 2014 is a result of the replacement of Legacy Gallery coaches with new Gallery IV coaches that have a lower seating capacity.*

*For more detailed information regarding VRE's locomotive and passenger car fleet, please refer to the Fleet Management Plan in Appendix A.*

*Source: VRE*

*Title VI Program*

Title VI provides that "no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." (42 U.S.C. Section 2000d). Since 1972, the Federal Transit Administration (FTA) has required applicants for and recipients and sub-recipients of Federal assistance to certify compliance with the requirements of Title VI as part of the grant approval process.



PRTC's Title VI program covers both the bus system and VRE. It is updated every three years and includes the following elements:

- Several public outreach activities between May 2006 to September 2008 by PRTC and VRE, the majority of which were public hearings related to fare increases or yearly budget approvals.
- In 2005, PRTC embarked on a long range strategic plan for bus service. The plan was adopted in October 2007.
- The 2008 Language Assistance Plan.
- PRTC has documented internal procedures for handling and processing Title VI Complaints. Three complaints were registered and investigated in 2008-09; none were deemed to be Title VI violations.
- PRTC uses various media to make public notifications in both English and Spanish.

Since PRTC provides service to a geographic area with a population of more than 200,000 people, the Title VI report also includes the following in order to comply with 49 U.S.C. Chapter 53.

- Demographic and service profile maps and charts, and recent PRTC and VRE Customer Surveys.
- System-wide Service Standards.
- Two fare increase evaluations for PRTC bus system - one that was implemented on April 2, 2007 and the other that was implemented on December 15, 2008.
- Customer Satisfaction Surveys for PRTC done three times a year and for VRE done annually.

#### *Triennial Review*

The triennial review is one of the FTA's management tools for examining grantee performance and adherence to current FTA requirements and policies. It was mandated by Congress in 1982. Every three years, the review examines how recipients of Urbanized Area Formula Program funds meet statutory and administrative requirements, especially those that are included in the Annual Certifications and Assurances that grantees submit. The review also gives FTA an opportunity to provide technical assistance on the latest FTA requirements and aids FTA in reporting to the Secretary, Congress, other oversight agencies, and the transit community on the Urbanized Area Formula Program.

VRE is not a legal entity under Virginia law and, therefore, is not an FTA grantee. PRTC is the grantee for FTA funds on behalf of VRE.

A Triennial Review of PRTC was completed in August 2008. Deficiencies were found in 2 review areas: Maintenance; and Planning/Program of Projects. PRTC undertook corrective actions subsequent to this report and provided a letter to FTA documenting the completion of these actions. The FY 2008 Triennial Review for PRTC was closed on December 22, 2008. A full copy of FTA's draft FY 2008 Triennial Review report, the PRTC letter listing corrective actions, and the close-out letter are available at PRTC's offices.

#### *ITS Program*

ITS is a wide-ranging set of technology applications that are intended to add information and communications technology to transportation infrastructure and vehicles, to improve the efficiency, effectiveness, and safety of transportation systems. Benefits of implementing ITS technology include improved customer service and satisfaction, better on-time performance, and reduced capital and operating costs.

Based on the ITS survey conducted for DRPT's ITS Strategic Plan, dated August 2009, VRE currently has the following ITS infrastructure:

- Automatic Vehicle Location (AVL) and/or Computer Aided Dispatch (CAD): VRE uses TRIPS software, a custom application developed for VRE, on all VRE locomotives.
- Maintenance and Yard Management Systems: VRE uses MicroMain for all commuter rail equipment.
- Driver Assignment and Workforce Management Systems: Keolis is the contractor that operates VRE trains (engineers and conductors). Keolis utilizes their own system for assigning personnel.
- Automated Stop Announcement/Message Signs: Audio is available in all passenger coaches. Announcements are made through a central audio system in each passenger cab car. Message signs integral to Sumitomo passenger cabs/coaches. There are message signs in approximately 78% of fleet.
- Vehicle "Black Box" Monitoring System: Pulse systems are installed in 100% of their locomotives and Bach-Simpson systems are installed in all cab cars.
- In-Station/Stop Security Cameras and Emergency Alarms: Indigo Vision cameras are installed in 5 stations, and the camera feed is provided in the VRE Communications Center. Emergency alarms are installed at 4 stations and the call buttons are linked to an answering service. There is no direct connection to 911.
- Next Bus/Train Display/Annunciation: Video displays are provided at stations, and station announcements are manually activated by VRE staff.
- Real Time Information Available On-Line and through Personal Communication Devices: VRE uses Rail Time, a custom application utilizing TRIPS data and Microsoft MapPoint. Persons with internet access via PDA can access Rail Time on device via the VRE web site.
- Interactive Voice Response (IVR): VRE uses Interaction Client for the internal phone system.

The ITS survey also documented the following future plans for VRE:

- Voice Transmission System: VRE plans to implement 2-way VHF radio communications system (complete).
- VRE is currently expanding station cameras to an additional 4 locations (for a total of 10 stations), both Virginia yards and the yard warehouse.
- VRE is evaluating options to bring smart card payment technology to the VRE fare collection system that is compatible with the WMATA SmarTrip technology and/or allows access to the WMATA SmartBenefits program.
- Multimodal Real-Time Traveler Info for I-95 and I-395 Corridors: VRE will partner in this project with VDOT, Transurban, and PRTC. Project timeline includes planning in the near-term (1-2

years), and deployment/ oversight in the mid-term (2-6 years). Project costs: \$20,000 (planning) and \$50,000 (deployment/oversight).

- VRE will coordinate with DRPT for future use of Google products for trip planning. The WMATA Trip Planner currently includes VRE trains.

### ***Service Expansion Projects (Unconstrained)***

A listing of unconstrained service and facility needs for the VRE Commuter Rail Network through 2025 was compiled as part of the TDP. Those needs were identified based on the evaluation conducted in earlier chapters of the TDP, meetings with VRE staff, and programmed projects from the 2004 VRE Strategic Plan (Strategic Plan). The 2004 VRE Strategic Plan identifies operating and capital improvement projects through year 2025. The plan identifies core network needs, such as stations, rolling stock, rail infrastructure, and train dispatching/operational control, and potential network expansion needs.

This listing includes both projects programmed for inclusion in the six-year TDP timeframe and those that are outside that timeframe. The projected operating and capital funding requirements for the projects planned for implementation between 2013 and 2018 and the proposed implementation schedules are defined in greater detail in Chapters 5 and 6 of the TDP.

- Network Expansion and Track Infrastructure
  - Gainesville-Haymarket Extension
  - Spotsylvania County Extension
  - Cherry Hill Third Track
  - Fauquier County Extension
  - Run-Through Service to Maryland
  - Additional Track Infrastructure
- Rolling Stock
  - 10-Year Railtruck Overhaul
  - Additional Rolling Stock
  - Legacy Gallery Car Rehab
- Maintenance and Storage Yard Facilities
  - Midday Storage
  - Overnight/Yard Storage
  - Heavy Maintenance Repair Facility
- Passenger Facilities – Stations and Parking
  - Cherry Hill Station
  - Alexandria Station Improvements
  - Crystal City Station Improvements
  - L’Enfant Station Improvements
  - Washington Union Station Improvements
  - Suburban Station Platform Improvements
  - Suburban Station Parking
- Other Operational Improvements
  - Fare Collection System
  - Positive Train Control

## ***Operating Plan***

While Chapter 4 identified unconstrained service and facility needs for the VRE Commuter Rail Network, the Operating Plan identifies the cost-feasible transit service improvements that are recommended for inclusion in the TDP time period (FY 2013 through FY 2018). The VRE commuter rail system is generally in a capital replacement, upgrade and expansion mode in response to its continued success. As a result, proposed operating enhancements are limited within the six-year timeframe of this TDP. Recommended service improvements presented in this chapter are financially constrained, based on anticipated funding availability during the TDP time period.

VRE has identified an additional southbound early evening trip to be implemented in FY 2015. Additional service related improvements could potentially include an extension further into Spotsylvania County and train consist expansion/capacity increases, however neither of these additional improvements are currently funded and programmed in the six year period of this TDP.

## ***Capital Improvement Program***

This chapter of the TDP describes capital improvement programs required to carry out the operations and services set forth in the TDP service and facility recommendations. The recommendations for FY 2013-2018 are consistent with the VRE Long Range FY 2012-2018 Capital Plan, the annual VRE budget development process, and the Virginia Department of Rail and Public Transportation Six-Year Improvement Program (SYIP). Capital improvement projects presented in this program are categorized into four types:

1. Rolling stock (fleet) replacement/rehabilitation and expansion
2. Network expansion and track infrastructure
3. Maintenance facilities / storage yards improvements
4. Station /platform improvements

### ***FY 2013 Capital Improvement Program:***

- Rolling Stock – initial 15 car purchase, \$5.5 million (Total estimated project cost: \$60.1 million for 21 cars, including \$22.5 million allocated prior to FY2013.)
- Third Track, Hamilton to Crossroads (Spotsylvania County) - \$8.2 million (Total estimated project cost: \$20.3 million, including \$12.1 million allocated prior to FY2013.) – project to be completed in FY2013.
- Heavy Maintenance Repair Facility - \$100,000 (Total estimated project cost: \$35.0 million).
- Midday Storage, Washington Union Terminal/Washington, DC - \$500,000 for the L’Enfant station track project (Total estimated project cost: \$40.0 million) – L’Enfant track project to be completed in FY2013.
- Fare Collection System - \$1.8 million (Total estimated project cost: \$4.9 million, including \$3.1 million allocated prior to FY2013) – project to be completed in FY2013.
- Facilities Infrastructure Renewal - \$500,000.

### ***FY 2014 Capital Improvement Program:***

- Rolling Stock – initial 15 car purchase, \$6.8 million (Total estimated project cost: \$60.1 million, including \$22.5 million allocated prior to FY2013).
- Heavy Maintenance Repair Facility - \$1.1 million (Total estimated project cost: \$35.0 million).
- Facilities Infrastructure Renewal - \$500,000.

### ***FY 2015 Capital Improvement Program:***

- Rolling Stock – initial 15 car purchase, \$4.8 million (Total estimated project cost: \$60.1 million, including \$22.5 million allocated prior to FY2013.).
- Heavy Maintenance Repair Facility - \$3.5 million (Total estimated project cost: \$35.0 million).
- Facilities Infrastructure Renewal - \$100,000.

### ***FY 2016 Capital Improvement Program:***

- Rolling Stock – additional 6 railcars: \$0.8 million (Total estimated project cost: \$60.1 million, including \$22.5 million allocated prior to FY2013).
- Heavy Maintenance Repair Facility - \$7.4 million (Total estimated project cost: \$35.0 million).
- Facilities Infrastructure Renewal - \$200,000.



FY 2017 Capital Improvement Program:

- Rolling Stock – additional 6 railcars: \$1.7 million (Total estimated project cost: \$60.1 million, including \$22.5 million allocated prior to FY2013).
- 10-Year Rail truck Overhaul - \$1.5 million (Total estimated project cost: \$12.8 million).
- Heavy Maintenance Repair Facility - \$5.1 million (Total estimated project cost: \$35.0 million).

FY 2018 Capital Improvement Program:

- Rolling Stock – additional 6 railcars: \$1.6 million (Total estimated project cost: \$60.1 million, including \$22.5 million allocated prior to FY2013).
- 10-Year Rail truck Overhaul - \$6.4 million (Total estimated project cost: \$12.8 million).
- Facilities Infrastructure Renewal - \$300,000.

## **Financial Plan**

The financial plan is a principal objective of the TDP. It is in this chapter that an agency demonstrates its ability to provide a sustainable level of transit service over the TDP time period, including the rehabilitation and replacement of capital assets. This chapter identifies potential funding sources, annual operating and maintenance costs, funding requirements and funding sources for annual operating and maintenance costs, and funding requirements and funding sources for capital assets. It is based upon the VRE Operating and Capital Budget and Capital Improvement Program (CIP) which is adopted annually by the VRE Operations Board. Assumptions underlying the budget, and the information presented in the TDP Financial Plan, are discussed in detail in the VRE FY 2013 budget documents as adopted on December 16, 2011.

During the six-year timeframe of this TDP, VRE anticipates two additional in-service trains to be added in FY 2015. As described in Chapters 4 and 5 of this TDP, this expansion will involve additional trips on the Manassas Line with a complementary bus bridge to complete corresponding trips on the Fredericksburg Line.

VRE presently uses distance-based zone fares ranging from \$2.90 to \$10.30 per trip. Fares are assumed to be reviewed and adjusted incrementally every two years throughout the TDP time period. Despite these programmed fare adjustments, ridership is still projected to increase on average 2.7% annually throughout the six-year TDP timeframe. Likewise, farebox revenues are expected to increase approximately 5% with the projected fare adjustments and ridership growth. The table below outlines the projected service levels from FY 2013 through FY 2018 including train counts, ridership and average fares.

### **Projected Service Levels**

<b>Description</b>	<b>FY13</b>	<b>FY14</b>	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>	<b>FY18</b>
Number of Trains	32	32	34	34	34	34
Manassas Line	18	18	20	20	20	20
Fredericksburg Line	14	14	14	14	14	14
Average Daily Ridership	19,000	19,400	19,900	20,100	20,200	20,300
Average Fare Price	7.29	7.29	7.58	7.58	7.89	7.89
Potential Operating Ratio	76%	75%	76%	74%	75%	73%

*Source: VRE FY13 Six-Year Financial Forecast, December 8, 2011*

VRE's operating expenses are expected to increase in pace with inflation. However, the amounts dedicated to reserves, insurance and debt services drop significantly starting in FY 2014 and continue to drop in FY 2015. These reductions help offset the increases in general operating, operating contracts, fuel and track leases as shown in the following table.

### Projected Operating Expenses

Description	FY13	FY14	FY15	FY16	FY17	FY18
Net Operating Expenses	\$ 17,827,110	\$ 18,202,418	\$ 18,671,552	\$ 18,859,206	\$ 18,953,033	\$ 19,046,860
Reserves and Insurance	\$ 6,383,645	\$ 4,856,255	\$ 4,300,000	\$ 4,500,000	\$ 4,500,000	\$ 4,500,000
Amtrak	\$ 4,097,000	\$ 4,342,820	\$ 4,603,389	\$ 4,879,593	\$ 5,172,368	\$ 5,482,710
Keolis	\$ 18,008,591	\$ 18,728,934	\$ 20,119,253	\$ 20,924,023	\$ 21,760,984	\$ 22,631,423
Fuel	\$ 5,550,000	\$ 5,883,000	\$ 6,448,340	\$ 6,835,241	\$ 7,245,355	\$ 7,680,077
Track Lease Expense	\$ 14,000,000	\$ 14,560,000	\$ 15,529,288	\$ 16,150,460	\$ 16,796,478	\$ 17,468,337
Debt Service	\$ 13,898,215	\$ 14,298,890	\$ 7,388,972	\$ 7,386,386	\$ 7,383,800	\$ 7,381,214
Other (Bad Debt/Admin)	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
<b>Total Operating Costs</b>	<b>\$ 79,814,561</b>	<b>\$ 80,922,317</b>	<b>\$ 77,110,795</b>	<b>\$ 79,584,909</b>	<b>\$ 81,862,019</b>	<b>\$ 84,240,621</b>

Source: VRE FY13 Six-Year Financial Forecast, December 8, 2011

As identified above, fare revenues are expected to increase during the six-year TDP time period. During this time Federal Access Lease funding is also expected to increase by nearly 25%. On the other hand, State Capital Grants, which include debt service payments, are expected to decline by nearly two-thirds over the six-year timeframe. Other Federal Operating Revenues also see a modest decrease. The remaining funding sources are expected to remain at their 2013 levels as shown in the table below. Note that any surplus operating revenues are assumed to be forwarded to fund capital projects.

### Projected Operating Revenues

Description	FY13	FY14	FY15	FY16	FY17	FY18
Fare Revenue	\$ 34,500,000	\$ 35,367,787	\$ 37,730,501	\$ 38,109,702	\$ 39,831,275	\$ 40,028,459
Interest Income	\$ 60,300	\$ 60,300	\$ 60,300	\$ 60,300	\$ 60,300	\$ 60,300
Other Income	\$ 126,000	\$ 126,000	\$ 126,000	\$ 126,000	\$ 126,000	\$ 126,000
State Operating Grant	\$ 6,125,013	\$ 6,125,013	\$ 6,125,013	\$ 6,125,013	\$ 6,125,013	\$ 6,125,013
State Capital Grant	\$ 5,585,212	\$ 4,504,396	\$ 1,787,864	\$ 1,836,664	\$ 1,887,064	\$ 1,939,064
Federal Grants:						
Access Lease Funding – SSTP	\$ 11,200,000	\$ 11,648,000	\$ 12,423,431	\$ 12,920,368	\$ 13,437,183	\$ 13,974,670
Federal Operating Funds (Debt service & loans)	\$ 5,446,636	\$ 5,766,636	\$ 5,766,636	\$ 5,766,636	\$ 5,766,636	\$ 5,766,636
Other Federal Revenues	\$ 962,400	\$ 952,776	\$ 943,248	\$ 933,816	\$ 924,478	\$ 915,233
Local Subsidy	\$ 16,428,799	\$ 16,428,799	\$ 16,428,799	\$ 16,428,799	\$ 16,428,799	\$ 16,428,799
<b>Total Operating Revenues</b>	<b>\$ 80,434,360</b>	<b>\$ 80,979,707</b>	<b>\$ 81,391,792</b>	<b>\$ 82,307,298</b>	<b>\$ 84,586,748</b>	<b>\$ 85,364,174</b>
Surplus to be used for Capital	\$ 619,799	\$ 57,390	\$ 4,280,997	\$ 2,722,389	\$ 2,724,729	\$ 1,123,553

Note: State Capital Grant include payments towards debt service.

Source: VRE FY13 Six-Year Financial Forecast, December 8, 2011

The base capital program as described in Chapter 6 of the TDP ranges between \$8.4 and \$8.9 million annually. It is assumed that Federal Grants will cover 80% of the cost of each capital project. The remaining match is expected to be paid through a combination of state and local funds as shown in Projected Capital Program table below.

In FY 2013, the base capital program is projected to be fully funded with no surplus or deficit as shown in the following table. However, the FY 2014 capital program is short by approximately \$0.75 million. This deficit is corrected in subsequent years with capital surpluses ranging from \$0.25 million to \$3.5 million per year.

### Projected Capital Program

Description	FY13	FY14	FY15	FY16	FY17	FY18
<b>Capital Cost Base Program</b>	<b>\$ 8,888,000</b>	<b>\$ 8,463,000</b>	<b>\$ 8,430,000</b>	<b>\$ 8,398,000</b>	<b>\$ 8,366,000</b>	<b>\$ 8,403,000</b>
Federal Grants:	80%	80%	80%	80%	80%	80%
Federal funding - 80% of base program	\$ 7,110,400	\$ 6,770,400	\$ 6,744,000	\$ 6,718,400	\$ 6,692,800	\$ 6,722,400
Matching Funds						
State Capital Grants - non-federal costs	\$ 1,157,800	\$ 871,520	\$ 883,440	\$ 899,040	\$ 901,840	\$ 801,200
Net local subsidy available for capital match	\$ 619,800	\$ 57,391	\$ 4,280,996	\$ 2,722,389	\$ 2,724,728	\$ 1,123,552
<b>Total Sources of Funding for Capital Program</b>	<b>\$ 8,888,000</b>	<b>\$ 7,699,311</b>	<b>\$ 11,908,436</b>	<b>\$ 10,339,829</b>	<b>\$ 10,319,368</b>	<b>\$ 8,647,152</b>

Source: VRE FY13 Six-Year Financial Forecast, December 8, 2011

### Deficit/Surplus Projection

Description	FY13	FY14	FY15	FY16	FY17	FY18
Additional required for operations/base program	\$ -	\$ (763,689)	\$ 3,478,436	\$ 1,941,829	\$ 1,953,368	\$ 244,152
Cumulative Total to Fully Fund Operations and Capital	\$ -	\$ (763,689)	\$ 2,714,747	\$ 4,656,576	\$ 6,609,944	\$ 6,854,097

Note: Negative variance is deficit, positive is surplus

Source: VRE FY13 Six-Year Financial Forecast, December 8, 2011

## ***TDP Monitoring and Evaluation***

The TDP reflects the continued efforts toward future service improvements for VRE. It will be important to coordinate closely with other transportation and land use planning efforts, to continue to monitor service performance, and to provide DRPT with annual updates regarding implementation of TDP service and facility improvements. Implementation of service recommendations presented in this TDP will require close coordination with Northern Virginia Transportation Commission, Potomac and Rappahannock Transportation Commission and the respective member jurisdictions.

### *Service Performance Monitoring*

VRE has been very proactive in the area of service performance monitoring and makes every effort to make this process as transparent as possible. The following performance measures are updated monthly and made available through the VRE website ([www.vre.org](http://www.vre.org)).

- Monthly Ridership
- Parking Lot Utilization
- On-Time Performance
- Ridership Growth
- Line Capacity

In addition, VRE has an extensive public outreach program as outlined in Chapter 1 that provides ample opportunities for customers to express their satisfaction as well as identify areas for improvement.

### *Annual TDP Monitoring*

The DRPT will require submittal of an annual letter that provides updates to the contents of this TDP. Recommended contents of this “TDP Update” letter include:

- A summary of ridership trends for the past 12 months.
- A description of TDP goals and objectives that have been advanced over the past 12 months.
- A list of improvements (service and facility) that have been implemented in the past 12 months, including identification of those that were noted in this TDP.
- An update to the TDP’s list of recommended service and facility improvements (e.g., identify service improvements that are being shifted to a new year, being eliminated, and/or being added). This update of recommended improvements should be extended one more fiscal year to maintain a six-year planning period.
- A summary of current year costs and funding sources.
- Updates to the financial plan tables presented in Chapter 7 of this TDP. These tables should be extended one more fiscal year to maintain a six-year planning period.