



and, consequently, VRE would capture a smaller share of the CBD work trip market, and development in the locations beyond the reach of the VRE network would tend to be less transit-focused than if VRE expansion progressed more rapidly.

## 7. PHASED CAPITAL INVESTMENT PLAN

The VRE Strategic Plan includes a three-phase program of capital investments to support and enable the planned steps in increased service and to respond to increasing levels of demand. The planned investment program corresponds with the three-phase evolution of the VRE operating plan described in the preceding section and attempts to keep pace with projected ridership demand. These costs exclude current projects for which funding already has been committed, such as the CSX MOU rail infrastructure capacity projects and the current parking lot expansion projects at Manassas and Woodbridge.

Three illustrative scenarios have been developed for the phased implementation of VRE capital projects, corresponding to the three potential strategies outlined in Section 3:

1. Targeted Growth
2. Aggressive Growth
3. Deferred Growth

These scenarios bracket the low and high ends of the range of investment levels that will achieve VRE's long-term objectives. All three fully invest in VRE's core network needs – providing for parking expansion, new rolling stock, yard storage and fleet maintenance facilities. They vary with respect to the pace of investment and service expansion.

Through 2025, total required capital investment is projected to average in the range of \$35 million to as high as \$100 million per year in the case of the Aggressive Growth scenario (in constant 2003 dollars). Approximately \$10 million per year is currently available for discretionary capital projects. Unfortunately, Federal funds available to support the capital program are not keeping pace with ridership growth. This gap will need to be closed and the level of funding increased if VRE is to satisfy the increasing demands for its service and maintain its high standards of service quality.

The first scenario – Targeted Growth – spends capital money at an increasing rate through 2015 and focuses investment on the core network. It includes a phased program of line extensions that is limited in the early years, while core network needs are being addressed. However, it targets initial expansion into the Gainesville corridor, where the early presence of VRE can encourage transit-oriented development and provide a viable public transportation option for commuters to the central business district as well as reverse commuters. This is the “middle-of-the-road” scenario that matches the phased service improvement plan outlined in the previous section. Estimated capital costs by category of projects for this scenario are presented in Table 7-1. Capital needs are approximately \$47 million per year through the first six-year period (2009), and grow to approximately \$76 million per year in the 2010-2015 period. This program defines the investment that will be required, even in a fiscally-constrained



environment, to maintain a high level of service quality and improve VRE's market share as the region continues to develop and expand.

The second scenario – Aggressive Growth – front loads more of the investment, with the intent of bringing on line the service extension projects sooner, taking full advantage of the opportunity for VRE to influence regional development and travel patterns in a way that maximizes VRE's market potential. In this scenario, service extensions to Spotsylvania and Fauquier Counties, as well as run-through service to Maryland, are in place by 2015. This high-end plan requires investment over the next six years at an average of \$64 million per year, increasing to \$100 million per year between 2010 and 2015, as shown in Table 7-2.

The third scenario – Deferred Growth – is at the other end of the spectrum. It responds to today's financially-constrained environment and builds up the VRE service more slowly. Core network needs are still addressed, but projects are phased over a longer period of time, and line extensions are deferred until after 2015. Table 7-3 presents a summary of capital costs by time period. The plan estimates the minimum level of capital investment that will be necessary to preserve VRE's historical market share and maintain its level of service. Because the market for work trips to the business district continues to grow, the average annual level of capital expenditure in the early years will still need to increase to approximately \$35 million per year, significantly above the current level of \$10 to \$13 million per year. Over the long term, the lower level of investment in this scenario will make it difficult for the VRE to have a positive impact on development and travel patterns. In addition, in this scenario VRE will have greater difficulty staying ahead of the demand for its service, which will mean more crowded conditions on trains and in stations, greater reliance on modes other than drive-and-park for station access, and perhaps a lowering of overall service quality as perceived by VRE's riders, compared with the other two scenarios.

A more detailed breakdown of the major line items of capital investment requirements is provided in the Appendix. Each of the Strategic Plan scenarios assumes that station parking will have to be continually expanded over the 20-25 year period to keep pace with growing demand. New coaches and locomotives also will need to be acquired in stages over the next 20 years, initially to replace leased equipment and ultimately to keep pace with growing ridership and replace the single-level Mafersa cars.

**Table 7-1**  
**Estimated Capital Costs of VRE Strategic Plan**  
**Mid-Range -- Targeted Growth**

(All costs expressed in millions of 2003 dollars)

<u>Project Category</u>	2004- 2009	2010- 2015	2016- 2025	Total Cost
Station Parking Expansion	\$ 47.3	\$ 13.4	\$ 9.0	\$ 69.7
Suburban Station Improvements	\$ 19.7	\$ 33.1	\$ 39.6	\$ 92.4
Central Business District Stations	\$ 5.0	\$ 120.0	\$ 40.0	\$ 165.0
New Suburban Stations	\$ -	\$ 7.2	\$ 11.0	\$ 18.2
VRE Network Expansion	\$ 38.2	\$ 19.8	\$ 30.6	\$ 88.6
Train Storage and Maintenance Facilities	\$ 20.0	\$ 107.0	\$ -	\$ 127.0
Rail Infrastructure	\$ 6.0	\$ 34.1	\$ 126.4	\$ 166.5
Rolling Stock	\$ 174.1	\$ 118.0	\$ 100.2	\$ 392.3
<b>TOTAL CAPITAL COST</b>	<b>\$ 310.3</b>	<b>\$ 452.6</b>	<b>\$ 356.8</b>	<b>\$ 1,119.7</b>
<b>Average Annual Capital Cost</b>	<b>\$ 51.7</b>	<b>\$ 75.4</b>	<b>\$ 35.7</b>	<b>\$ 50.9</b>

**Table 7-2**  
**Estimated Capital Costs of VRE Strategic Plan**  
**High end of Range -- Aggressive Growth**

(All costs expressed in millions of 2003 dollars)

<u>Project Category</u>	2004- 2009	2010- 2015	2016- 2025	Total Cost
Station Parking Expansion	\$ 57.1	\$ 13.3	\$ 11.1	\$ 81.5
Suburban Station Improvements	\$ 19.7	\$ 45.6	\$ 28.7	\$ 94.0
Central Business District Stations	\$ 75.0	\$ 90.0	\$ -	\$ 165.0
New Suburban Stations	\$ -	\$ 16.9	\$ 4.1	\$ 21.0
VRE Network Expansion	\$ 38.2	\$ 45.4	\$ 5.0	\$ 88.6
Train Storage and Maintenance Facilities	\$ 45.0	\$ 107.0	\$ 5.0	\$ 157.0
Rail Infrastructure	\$ 6.0	\$ 109.1	\$ 191.6	\$ 306.7
Rolling Stock	\$ 174.1	\$ 162.5	\$ 104.8	\$ 441.4
<b>TOTAL CAPITAL COST</b>	<b>\$ 415.1</b>	<b>\$ 589.8</b>	<b>\$ 350.3</b>	<b>\$ 1,355.2</b>
<b>Average Annual Capital Cost</b>	<b>\$ 69.2</b>	<b>\$ 98.3</b>	<b>\$ 35.0</b>	<b>\$ 61.6</b>

**Table 7-3**  
**Estimated Capital Costs of VRE Strategic Plan**  
**Low End of Range -- Deferred Growth**

(All costs expressed in millions of 2003 dollars)

<u>Project Category</u>	2004- 2009	2010- 2015	2016- 2025	Total Cost
Station Parking Expansion	\$ 30.1	\$ 20.0	\$ 12.8	\$ 62.9
Suburban Station Improvements	\$ 19.2	\$ 15.5	\$ 18.1	\$ 52.8
Central Business District Stations	\$ 2.0	\$ 60.0	\$ 60.0	\$ 122.0
New Suburban Stations	\$ -	\$ 6.2	\$ 1.8	\$ 8.0
VRE Network Expansion	\$ -	\$ -	\$ -	\$ -
Train Storage and Maintenance Facilities	\$ 12.0	\$ 25.0	\$ 25.0	\$ 62.0
Rail Infrastructure	\$ -	\$ -	\$ 25.0	\$ 25.0
Rolling Stock	\$ 174.1	\$ 78.0	\$ 45.8	\$ 297.9
<b>TOTAL CAPITAL COST</b>	<b>\$ 237.4</b>	<b>\$ 204.7</b>	<b>\$ 188.5</b>	<b>\$ 630.6</b>
<b>Average Annual Capital Cost</b>	<b>\$ 39.6</b>	<b>\$ 34.1</b>	<b>\$ 18.9</b>	<b>\$ 28.7</b>