

---

## Chapter 7: Transit Recommendations and Next Steps

---

This Transit Policy Plan is one of a number of efforts that FAMPO has undertaken to address the Region's overall transportation needs. As part of the update of the Region's Long Range Transportation Plan (LRTP), FAMPO has also been determining roadway, bicycle, and pedestrian needs. One of the key findings of the Transit Policy Plan and the Long Range Transportation Plan is that the Region's transportation future is closely tied to development patterns. As described in the 2035 LRTP:

“The future land use maps in the Introduction continue to show a widely dispersed Regional development pattern through 2035. The parts of the Plan dealing with highways and transit show that the Regional highway system will continue to experience severe congestion during this period, and the transit system will continue to lack concentrated areas of Regional employment and housing to afford an economical transit solution to continued highway widening.”

This Transit Policy Plan presents transit recommendations and a discussion of next steps for the development and financing of a regional transit entity that are based on those current projections of future conditions. However, based upon the above findings, FAMPO is now embarking upon efforts to examine different future land use scenarios. This work may ultimately result in land use changes that could provide for the development of more effective transit services than are envisioned in this plan. Thus, the transit recommendations presented herein represent the types of improvements that should be pursued based on current conditions and the current projections of future growth. If meaningful changes can be made to development patterns, then more significant transit improvements could be developed. In that case, these transit recommendations would then represent a starting point for more broad-based improvements.

### **TRANSIT RECOMMENDATIONS**

---

As described above, one of the key findings of the evaluation of the service scenarios is that the George Washington Region is a particularly challenging area in which to provide public transit. This is because the effectiveness of transit is closely related to land use patterns and commute patterns. Transit is most

effective in densely developed areas with concentrated development. However, the density of most development in the George Washington Region is low. Relatively few areas currently have, or will have, the population and employment densities necessary to support convenient levels of transit service.

In addition, nearly all transit riders walk to and from transit, and thus are also pedestrians. The George Washington Region’s built environment is not particularly conducive to walking (few sidewalks, wide roads to cross, large parking lots between bus stops and stores, etc.) and further discourages transit use. Still, as described below, significant improvements to local and regional services are possible.

One very large exception to the above, however, is the travel market between the George Washington Region and Washington, D.C. This market includes very large, concentrated commuter volumes that, as evidenced by the success of existing commuter services, can be well served by transit. Furthermore, as indicated by overflowing commuter lots, this commuter market is currently underserved by transit. Over the next 25 years, these commuter travel volumes are expected to increase dramatically, as will the demand for more transit. The George Washington Region will have two key assets in place to facilitate improvements to the DC commuter market. These assets are the Virginia Railway Express (VRE) and the I-95 HOT Lanes. An expansion of VRE and the development of HOT Lanes transit services provide the potential to develop very high quality commuter rail, commuter bus and ridesharing, which can significantly increase transit and ridesharing use.

---

## **TRANSIT SERVICE RECOMMENDATIONS**

---

As described in Chapter 4, multiple alternatives were developed as part of “High,” “Medium,” and “Low” scenarios that included a variety of types of service (FRED, VRE, commuter bus, rideshare, etc.). The combinations and permutations of these scenarios represent literally hundreds of alternatives for residents and policy makers. Based on current development projections, stakeholder and FAMPO Board review, as well as professional analysis, the many alternatives were reduced to the present “preferred alternative,” presented herein.

The result is that the recommendations of this document represent elements of each scenario determined to be most effective in terms of ridership, utilization cost and Regional policy preferences. So in addition to the rigor of national tests, these recommendations also reflect the input of the project’s many

stakeholders, including the public, City and County elected officials and staff, transit operators, FRED’s Public Transit Advisory Committee (PTAB) and the FAMPO Board and its Committees.

Two sets of recommendations are presented: one for 2017 and a second for 2035. Each is comprised of different combinations of FRED, VRE, express bus, volunteer driver and TDM improvements and associated facility improvements. Note that the 2017 and 2035 time horizons are intended to be illustrative, and it would likely be beneficial to the Region to implement some or many of the improvements earlier than those time horizons. In other words, if an improvement or service presented for 2017 or 2035, that improvement or service could be implemented earlier, depending on Regional policy.

---

## **2017 Transit Recommendations**

The 2017 transit recommendations represent a moderate level of improvements to services within the George Washington Region, as well as between the Region and the Washington D.C. area. These improvements would provide much better service to the Region’s neediest residents and to commuters.

### **2017 Transit and TDM Elements**

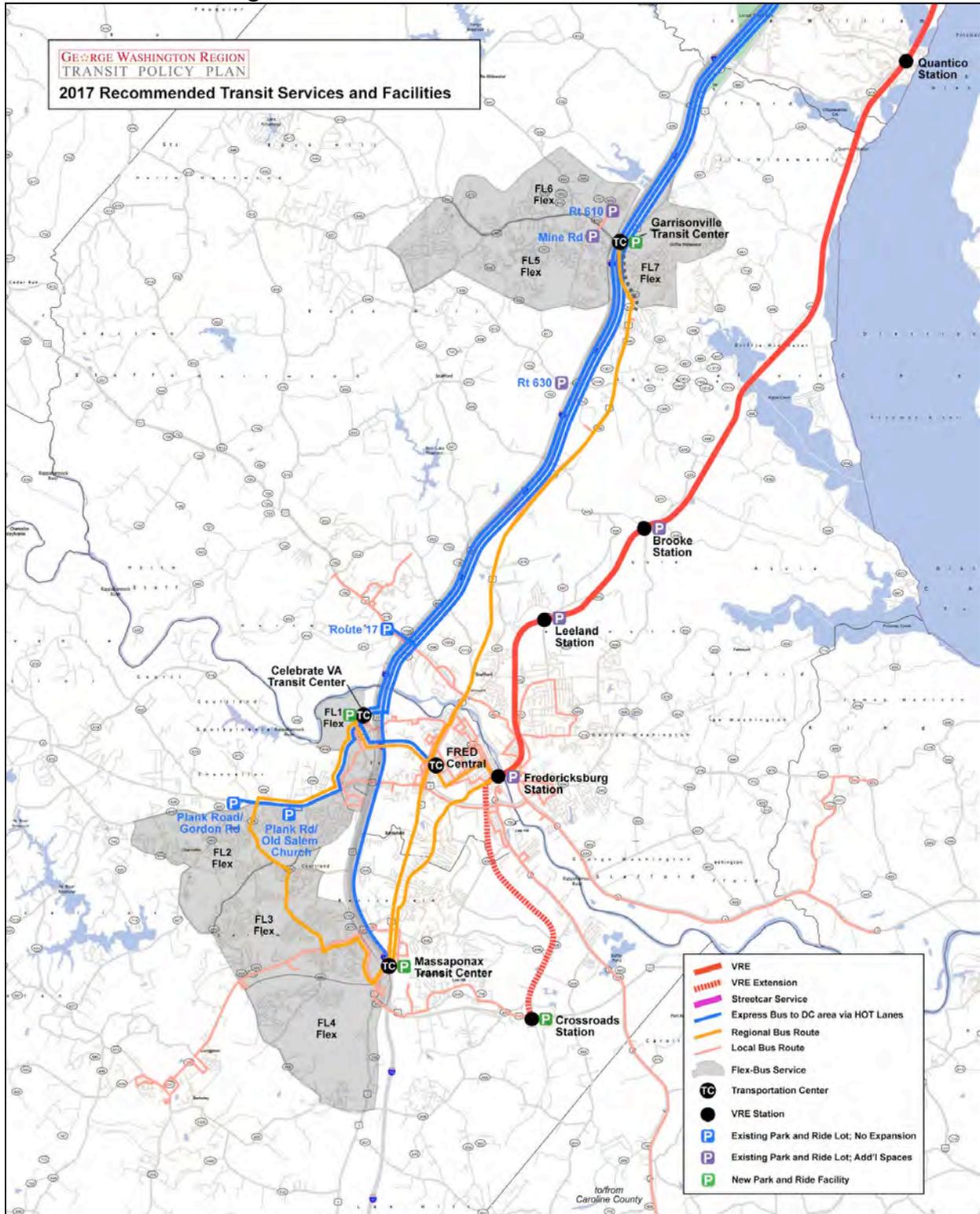
Recommended 2017 transit and TDM would be as summarized below and detailed in Appendix B (see also Figures 7-1 and 7-2):

**VRE:** To better serve Spotsylvania residents and relieve parking shortages in Fredericksburg, VRE service should be extended to Spotsylvania, to a new terminal at Route 17 (Crossroads) with parking. In addition, consistent with VRE’s current six-year plan, one additional peak period round trip would be provided.

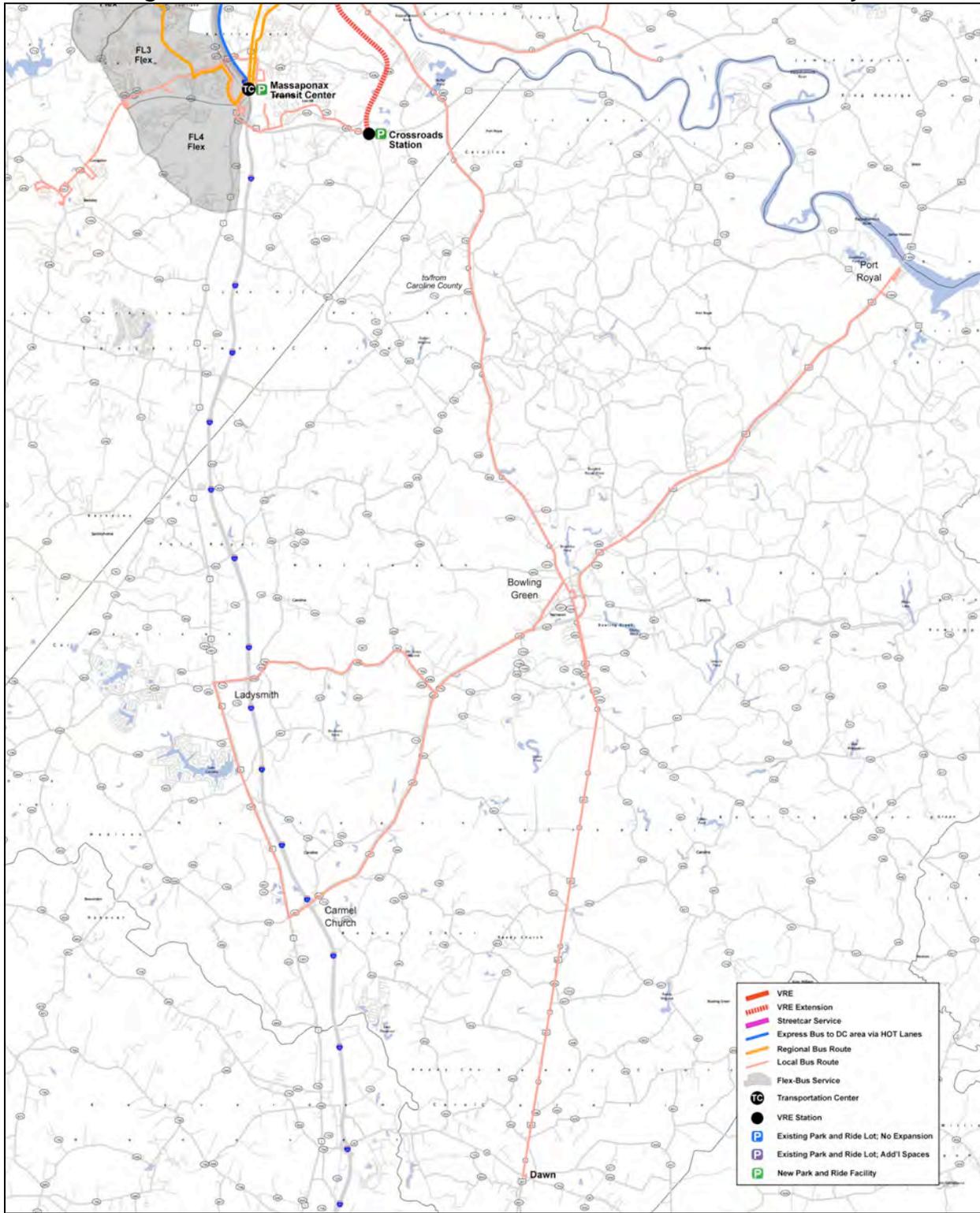
Parking at VRE stations would also be expanded to meet projected demand (see below).

**Transportation Centers:** To provide focal points for transit services and carpooling, vanpooling and slug commuting, the Region should develop as a “system of transit hubs.” The system of transit hubs would consist of the new FRED Central facility, the two locations recommended for HOT Lanes funding and at “Celebrate Virginia!”

**Figure 7-1: 2017 Recommended Transit Services**



**Figure 7-2: 2017 Recommended Transit Services in Caroline County**



- **FRED Central:** This would continue to be the major hub for existing FRED services.
- **Garrisonville Road/Route 610:** This HOT Lanes-funded transportation center would be an “in-line” HOT Lanes Station with 2,700 parking spaces that would provide direct access to and from the HOT Lanes for commuter buses, vanpools and carpools. It would also be served by Regional and local bus routes. This facility would supplement, but not replace, the existing Route 610 commuter lots.
- **Celebrate Virginia:** The Celebrate Virginia Transportation Center would be located in the vicinity of the new proposed interchange on I-95, just south of the Rappahannock River. This transportation center would provide 800 commuter parking spaces and would be served by commuter, regional, local and “flex route” bus services (see below).
- **Massaponax:** The HOT Lanes-funded Massaponax Transportation Center would be located in the vicinity of the intersection of I-95 and Route 1 and would provide 1,000 parking spaces for commuter bus, carpool, vanpool and slug commuters. Existing spaces at the Route 208 park and ride lot would be relocated to this location. The new Massaponax Transportation Center would be served by commuter, regional, local and flex route bus services.

**Express Bus Service:** The I-95 HOT Lanes project provides the opportunity to significantly improve commuter bus service between the George Washington Region and the Washington, D.C. area. The HOT Lanes project will fund peak hour service three new routes (three round trips per weekday on each route) that would supplement existing Martz and Quick’s commuter bus service:

- X1 Massaponax - Downtown DC
- X2 Fredericksburg - Downtown DC
- X3 Fredericksburg - Pentagon/Crystal City

This additional service will improve commuter bus options but will fall short of market potential. To provide more meaningful commuter bus improvements, it is recommended that service on these three new routes be expanded to all day service, with 15 minute peak period headways on the DC routes, 30 peak period service on the Pentagon/Crystal City route, and 120 minute mid-day and evening service on all three routes. Each route would begin at either Fredericksburg Station or Massaponax, and stop at the Route 17 park and ride lot, the Route 630 park and ride lot and the Route 610 In-Line Station. Schedules on the Fredericksburg - Downtown DC and Massaponax – Downtown DC routes would be coordinated so that intermediate stops would be served every 7.5 minutes.

Service on the major private carrier routes would also be reconfigured to provide consistent operating patterns (clockface headways, all trips stop at the same park and ride lots, etc.). These services would likely continue to be provided by Martz and Quick's, but with public subsidies to fund some service and capital improvements. The limited service express bus services provided by Martz and Quick's (for example, to Skyline and the Washington Navy Yards) would continue to operate as they do now, without public subsidy.

**FRED Service:** FRED service currently provides a basic level of one hour headway service, and its primary market consists of the Region's neediest residents. As described earlier, the Region's development patterns preclude the economic implementation of Region-wide transit service that would attract large numbers of "choice" riders. However, a number of relatively simple but key improvements should be implemented to provide better service to existing users and provide opportunities to attract new riders. These include an earlier start and later end to many services, to better serve work trips, and the provision of Saturday service.

***FRED Regional Bus Service:*** Three new regional bus routes should be implemented to provide trunk service in major corridors and provide convenient service to transportation centers:

- R1 Garrisonville Station – Massaponax Station via Route 1 and FRED Central
- R2 Fredericksburg Station – Celebrate Virginia via FRED Central.
- R3 Celebrate Virginia – Massaponax via Route 3 and Leavells Road.

These routes would form the core or "spine" of the FRED system and would replace and improve upon existing FRED Routes F2, F3, S1, and D5. Each route would operate from 6:30 am to 8:30 pm. Routes R1 and R2 would operate Monday through Friday every 30 minutes throughout the day. Route R3 would operate every 30 minutes on weekdays during peak periods and every 60 minutes during off-peak periods and on Saturdays.

***FRED Flex Service:*** Flex Service would be a new type of service that would provide curbside pick-ups and drop-offs in designated Flex Areas and then transport riders between there and one of the Transportation Centers, where connections could be made to other services. This type of service, which can provide more convenient and cost effective service in low density areas, would

be provided along Route 610 and Aquia in Stafford County, in Central Park and in Spotsylvania County, in areas that have sparsely developed in a manner that makes service with traditional fixed-route service difficult. Recommended Flex Routes would be as follows:

- FL1 Central Park Flex
- FL2 Plank Road Flex
- FL3 Leavells Road Flex
- FL4 Massaponax Flex
- FL5 Garrisonville South Flex
- FL6 Garrisonville North Flex
- FL7 Aquia Flex

Routes FL5, FL6, and FL7 in North Stafford County would replace existing FRED fixed-route service in the Garrison Road and Aquia areas on Routes D3, D4, D7, and D8. Each route would operate on weekdays from 6:30 am to 7:30 pm, with the longer span of service designed to better serve work trips. Service would operate every 60 minutes throughout the day.

***FRED Local Bus Service:*** Local bus routes that would not be replaced by either Regional or Flex Routes would continue to operate in a similar manner as at present. However, service on most routes would start earlier, at 6:00 or 6:30 am to better serve work trips, and peak period frequencies on higher ridership routes would be improved from every 60 minutes to every 30 minutes. Saturday service would be offered on higher ridership routes.

**Park and Ride Expansion:** The HOT Lanes project will fund the expansion of park and ride lots for use by VRE riders, express bus riders, vanpool and carpool commuters and slug commuters. As recommended by DRPT and the HOT Lanes Technical Committee, the HOT Lanes project will fund a total of 4,100 new spaces. These 4,100 new spaces will provide much needed relief, but will still fall short of the projected need for nearly 5,500 new spaces.

To meet all projected demand, the Region should expand parking beyond the levels that will be funded by the HOT Lanes project. As shown in Table 7-1, parking supply should be expanded from 6,913 existing spaces to approximately 12,600 in 2017. This would include expansion at most existing park and ride lots and the development of new facilities. Major new facilities would include

**Table 7-1: 2017 Recommended Park and Ride Expansion**

	Existing Spaces	2017 Recommended
<b>VRE</b>		
Brooke	431	631
Leeland Rd	652	1,152
Fredericksburg	702	702
Crossroads		1,000
Subtotal	1,785	3,485
<b>Transportation Centers/Park &amp; Ride</b>		
Route 610		
Stafford Road	827	827
Mine Road	750	750
New In Line HOT Lanes Station		2,700
Subtotal	1,577	4,277
Rt 630	523	650
Rt 17	1,000	1,000
Celebrate Virginia		800
Rt 3 at Rt 639 & Rt 627	707	707
Rt 3 at Rt 627	527	527
Rt 3 near King George Line		500
Rt 208 at Houser Drive	794	0
Massaponax		1,000
Subtotal	5,173	9,461
<b>Total</b>	<b>6,913</b>	<b>12,946</b>

the new Crossroads Station at the end of the Spotsylvania VRE extension, the Garrisonville Road/Route 610 HOT Lanes Station and the Massaponax and Celebrate Virginia Transportation Centers. A new park and ride lot designed primarily for carpool and vanpool commuters for Dahlgren would also be constructed on Route 3 near the King George County Line.

**Volunteer Driver Service:** Volunteer driver service, which would use volunteer drivers who provide their own vehicles and who are reimbursed for mileage but not for labor, can be an effective way to provide transit service in low-density areas to targeted populations, such as seniors and persons with disabilities. The cost of providing such service is low compared to other options in low-density areas, and it is recommended that the Region provide such services for seniors and persons with disabilities in areas that are not served by other types of transit. Service would generally operate during the day on weekdays, but limited service could also be provided at night and on weekends to meet critical needs.

**Transportation Demand Management (TDM) Program Improvements:** The HOT Lanes project will also fund a number of TDM improvements throughout the HOT Lanes Corridor. These improvements, in addition to existing GWRideConnect activities, will include the following:

- Capital Assistance For Vanpools: Financial assistance for the purchase or lease of vans for vanpools, IT monitoring and reporting of vanpool mileage, and free electronic toll transponders to vanpools.
- Enhanced Guaranteed Ride Home: Enhanced promotion and operation of Guaranteed Ride Home (GRH) services in the Region to provide free taxi or rental car transportation to registered commuters who use alternative modes and have a personal emergency during the workday.
- Carpool Incentives: Rewards and incentives for carpoolers.
- Rideshare Program Operational Support: Additional staff for commuter assistance programs in the corridor and feeder markets to promote TDM programs and transit.
- TDM Programs Marketing: Expand marketing efforts touting TDM programs and non-single occupancy vehicle (SOV) commute modes in the corridor and feeder markets.
- Telework Program Assistance: Financial incentives and assistance to increase the number of workers teleworking.
- Vanpool Driver Incentives to attract new drivers and retain existing drivers for vanpools.
- VanStart/VanSave: Additional financial support will cover the cost of vacant seats for new vanpools during start-up operations, and established vanpools that have temporary vacancies. Support is short-term, one to four months, until regular riders are found to fill vacant seats.

The George Washington Region's ridesharing programs are extremely effective, and the net program cost per ridesharing participant is less than 20¢ per trip (compared to \$5.00 or more per transit trip). As such, ridesharing efforts should be expanded well beyond the levels that will be funded by the HOT Lanes project, with the increase at approximately twice the HOT Lanes funded levels.

## **2017 Ridership**

With the recommended 2017 improvements, annual transit ridership would double over the next nine years from 1.5 million to 3.2 million passengers. This increase in ridership would be due to the introduction of Flex and Regional bus service, Volunteer Driver service for senior and disabled

passengers not served by transit, a VRE extension into Spotsylvania County and evening and Saturday service on local and Regional routes.

As shown in Table 7-2, the largest increase in transit ridership would be in Regional and local FRED ridership. With the introduction of Regional service and other changes to local service, ridership would increase from 410,000 trips per year to nearly one million. Commute trips to the Washington D.C. area would also increase significantly. VRE service in the region would undergo two changes—the extension to Spotsylvania and one additional peak period round trip. Combined with Regional growth, these two changes would increase VRE ridership from 1.0 to 1.6 million passengers per year. Commuter bus ridership to points in and around Washington, D.C. would increase from 160,000 per year to 400,000. Volunteer driver service would provide transportation to 65,000 elderly and disabled persons.

**Table 7-2: 2017 Ridership**

Service	Existing (2008)	2017
<b>Transit</b>		
DC Commuter Services		
VRE (GWR Region)	965,954	1,615,643
Express Bus	159,390	503,723
Subtotal	1,125,344	2,119,366
FRED Services		
Regional Bus	-	348,782
Local Bus	410,000	503,723
Flex Bus	-	138,846
Subtotal	410,000	991,188
Volunteer Driver	-	65,582
<b>Total Transit</b>	<b>1,535,344</b>	<b>3,176,136</b>
<b>TDM</b>		
Formal Carpools/Vanpools	2,187,000	3,518,551
Slug Carpools	600,000	840,000
Subtotal TDM	2,787,000	4,358,551
<b>Total</b>	<b>4,322,344</b>	<b>7,534,687</b>

Carpooling and vanpooling use increase from 2.8 million passenger trips per year to 4.6 million trips per year. Formal and informal carpooling and vanpooling would increase due to population growth, increased TDM efforts and park and ride expansion. In total, transit ridership and carpool/vanpool usage would increase by 75% from 4.3 million trips per year to 7.5 million.

## 2017 Operating and Capital Costs

Annual net operating costs (total operating costs minus fare revenue) for the 2017 recommended improvements would be approximately \$22.3 million per year in 2008 dollars (see Table 7-3). The higher operating costs would be largely attributable to the expansion of FRED service and the extension of VRE to Spotsylvania County:

**Table 7-3: 2017 Net Annual Transit Operating Costs (\$2008; Millions)**

	Existing Service	2017 Recommended
<b>Transit</b>		
DC Commuter Services		
VRE (Total Regional Cost)	\$6.2	\$9.8
<i>Local Contributions to Total</i>		
Stafford County	\$2.4	\$3.1
Fredericksburg	\$0.3	\$0.5
Spotsylvania County	\$0.0	\$2.1
Subtotal	\$2.8	\$5.7
Express Bus	\$0.7	\$2.7
Subtotal	\$6.9	\$12.5
FRED Services		
Regional Bus		\$3.0
Local Bus	\$4.0	\$3.8
Flex Bus		\$1.6
Subtotal	\$4.0	\$8.4
Volunteer Driver		\$0.5
Subtotal	\$10.9	\$21.4
<b>TDM</b>	\$0.4	\$0.9
<b>Total</b>	<b>\$11.3</b>	<b>\$22.3</b>

- FRED’s net operating costs would increase from \$4.0 million per year to \$8.4 million per year.
- The provision of additional VRE service and the extension to Spotsylvania would increase the Region’s share of the Net Operating Costs for the Fredericksburg Line from \$6.2 million to \$9.8 million.<sup>1</sup> Note that the extension to Spotsylvania would require Spotsylvania County to become a member of VRE,, which would require that a number of institutional issues be addressed<sup>2</sup> With Spotsylvania County as a VRE member, local costs for VRE service would be \$3.1 million for Stafford County, \$0.5 million for Fredericksburg, and \$2.1 million for Spotsylvania County.

<sup>1</sup> The \$9.8 million represents the George Washington Region’s share of net operating costs for the entire Fredericksburg Line, much of which would be funded with Federal, State, and other operating subsidies. Local contribution amounts, which as presented above would be much lower, would cover the gap between the Region’s share of net operating costs and the funding available from other sources.

<sup>2</sup> See Appendix C for a summary of these institutional issues and related financial impacts.

- The expansion of express bus service would increase annual operating costs to approximately \$2.7 million per year.
- The implementation of Volunteer Driver service for elderly and disabled residents who live beyond other transit services would be relatively inexpensive compared to other options, at \$0.5 million.

Capital costs for these improvements would be \$206.0 million in 2008 dollars (see Table 7-4). The most expensive capital cost elements would be the development of the Route 610/Garrisonville In-Line HOT Lanes Station (\$37.0 million), VRE rolling stock for expanded service (\$33.4 million), expansion of parking at current and new VRE stations (\$26.5 million), and over-the-road commuter coaches for expanded express bus service (\$21.0 million) and the development of a Regional bus maintenance facility and one small satellite location at Route 610 (\$16.3 million). Total costs would be \$81 million for VRE improvements,<sup>3</sup> \$40 million for FRED (new rolling stock and maintenance facility) and \$92 million other Regional improvements (express bus rolling stock, transportation centers, and park and ride expansion).

### **2035 Transit Recommendations**

---

Based on the assumption that growth patterns will occur as presently projected, the 2035 recommendations generally consist of increases and expansion of the recommend 2017 services and facilities to keep pace with growth. These services and elements are summarized below and detailed in Appendix B (see also Figures 3 and 4).

**VRE:** Consistent with Phase 2 Low Scenario of VRE’s Strategic Plan, VRE service would be expanded slightly from 8.5 round trips per day in 2017 to 9 round trips per day, and all service would operate to and from the Crossroads Station in Spotsylvania County.

Parking at VRE stations would also be expanded to meet projected demand (see below).

---

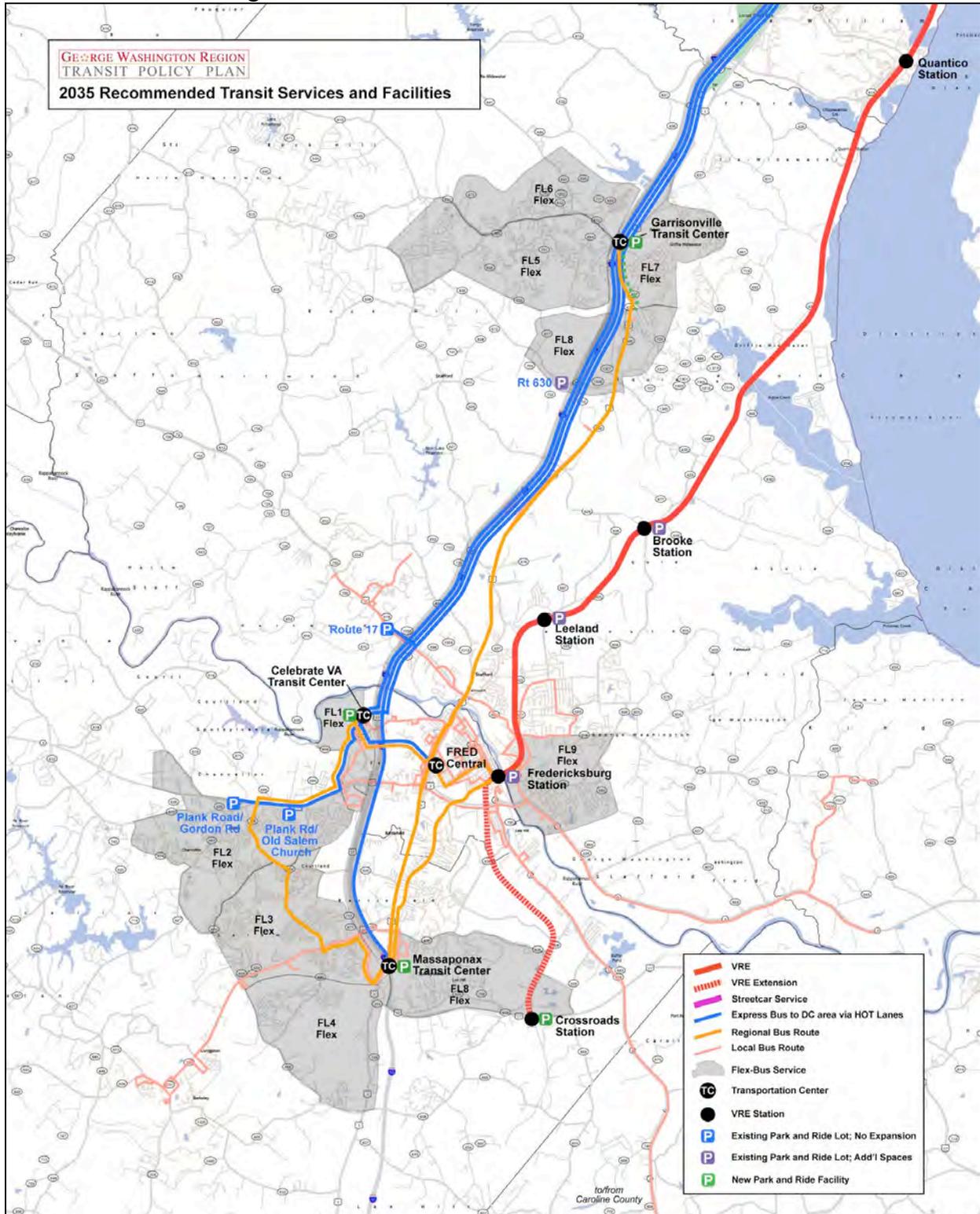
<sup>3</sup> VRE costs include all capital costs for parking expansion within the George Washington Region and the cost of the Spotsylvania extension, plus one additional coach on existing train sets to accommodate increased ridership.

**Table 7-4: 2017 Capital Costs (Millions)<sup>4</sup>**

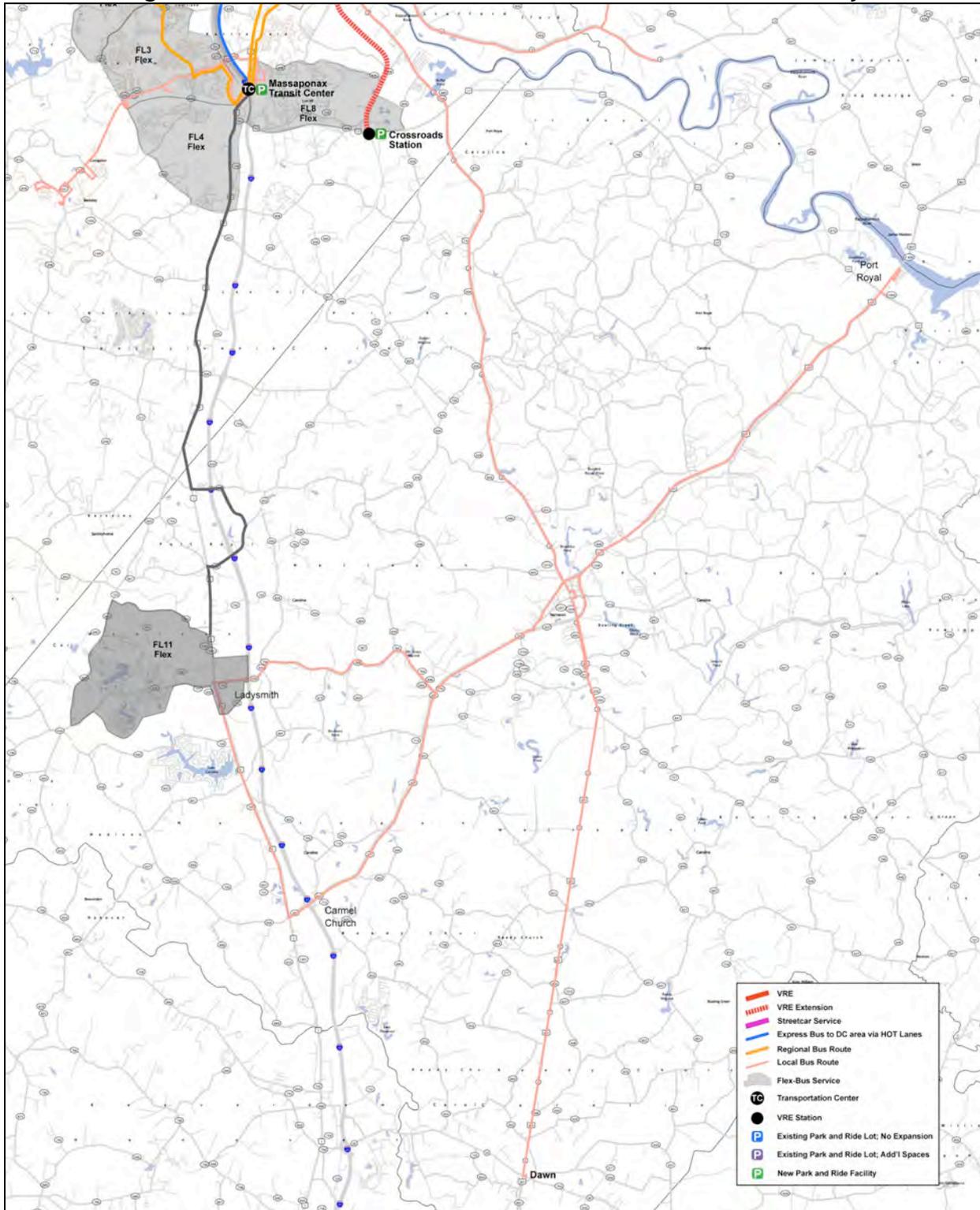
	Existing	2017 Rec	Total Costs			
			VRE	FRED	Other	Total
<b>PARKING SPACES</b>						
<i>VRE</i>						
Brooke	431	631	\$3.0			\$2.0
Leeland Rd	652	1,152	\$7.5			\$5.0
Fredericksburg	702	702	\$0.0			\$0.0
Crossroads		1,000	\$15.0			\$10.0
Subtotal	1,785	3,485	\$25.5			\$17.0
<i>Transportation Centers/Park &amp; Ride</i>						
Rt 610 In-Line Sta		2,700			\$27.0	\$27.0
Rt 630	523	650			\$1.3	\$1.3
Rt 17	1,000	1,000				\$0.0
Celebrate Virginia		800			\$8.0	\$8.0
Rt 3 at Rt 639 & Rt						
627	707	707				
Rt 3 at Rt 627	527	527				
Rt 3 near King						
George County Line		500			\$5.0	\$5.0
Rt 208 at Houser Dr	794	0				
Massaponax		1,000			\$10.0	\$10.0
Subtotal	5,128	9,461	\$0.0		\$51.3	\$51.3
Total	6,913	12,948	\$17.0	\$0.0	\$51.3	\$68.3
<b>STATIONS &amp; TRANSP CENTERS (not including parking)</b>						
Crossroads			\$7.0			\$7.0
Rt 610 In-Line Station					\$10.0	\$10.0
Celebrate Virginia					\$5.0	\$5.0
Massaponax					\$5.0	\$5.0
Subtotal			\$7.0	\$0.0	\$20.0	\$27.0
<b>FLEET</b>						
<i>VRE</i>						
Locomotives	6	7	\$4.8			\$4.8
Bi-Level Coaches	36	49	\$28.6			\$28.6
55' Commuter Buses	7	49			\$21.0	\$21.0
30' Transit Bus	0	47		\$23.5		\$23.5
FRED BOC Buses	0	12		\$0.5		\$0.5
Subtotal	7	108	\$33.4	\$24.0	\$21.0	\$78.4
<b>FACILITIES</b>						
Regional Bus						
Maintenance Facility	0	1		\$15.3		\$15.3
Route 610 Bus						
Layover/Crew Facility	0	1		\$1.0		\$1.0
VRE Crossroads						
Layover Facility	0	1	\$15.0			\$15.0
Subtotal			\$15.0	\$16.3	\$0.	\$31.3
<b>TOTAL COSTS</b>						
Total			\$80.9	\$40.3	\$92.3	\$206.0

<sup>4</sup> Costs do not include land acquisition.

**Figure 7-3: 2035 Recommended Transit Services**



**Figure 7-4: 2035 Recommended Transit Services in Caroline County**



**Transportation Centers:** The 2035 transit recommendations would use the same transportation centers as in 2017. As described in detail in the Park and Ride Expansion section, below, parking supply at all transportation centers with parking (all except FRED Central) should be expanded to keep pace with population growth.

**Express Bus Service:** Express bus services should be expanded to accommodate projected growth. Compared to the 2017 recommendations, this could be done by supplementing the Route X1 Massaponax – Downtown DC and X2 Fredericksburg – DC with:

- A new Route X3 Garrisonville Road – Washington DC route that would operate between the two Garrisonville Road park and ride lots and Washington via the Garrisonville Road HOT Lanes Station. This route would serve overflow commuters from the HOT Lanes Station and supplement service at the HOT Lanes Station. This route would operate on weekdays from 5:00 am to 6:30 pm, every 30 minutes during peak periods and every 120 minutes midday.
- More frequent Route X3 Massaponax – Pentagon/Crystal City service. As in 2017, service would operate on weekdays from 5:00 am to 6:30 pm. By 2035, service would be increased from every 30 minutes during peak periods to every 15 minutes. Midday service would continue to operate every 120 minutes.

**FRED Service:** FRED service would operate in a similar manner as in 2017, but with peak period service provided on all services in Fredericksburg, Stafford County and Spotsylvania County. Two new Flex Routes would also be added: one in the Stafford Courthouse area and a second in Ladysmith.

**FRED Regional Bus Service:** Service would be provided on the same three Regional routes as in 2017, which would be:

- R1 Garrisonville Station – Massaponax Station via Route 1 and FRED Central
- R2 Fredericksburg Station – Celebrate Virginia via FRED Central.
- R3 Celebrate Virginia – Massaponax via Route 3 and Leavells Road.

These routes would continue to form the core of the local system and replace existing FRED Routes F2, F3, S1, and D5. As in 2017, each route would operate from 6:30 am to 8:30 pm. However, whereas Route R3 would operate every 60 minutes on weekdays during the midday, and all routes would operate every 60 minutes on Saturdays, service on all routes would operate every 30 minutes throughout the day on weekdays and Saturdays.

***FRED Flex Service:*** As in 2017, Flex Service would be provided in areas that have developed in a manner that makes service with traditional fixed-route service difficult. The eight Flex Routes that are recommended for 2017 would continue to operate in 2035, which would be:

- FL1 Central Park Flex
- FL2 Plank Road Flex
- FL3 Leavells Road Flex
- FL4 Massaponax Flex
- FL5 Garrisonville South Flex
- FL6 Garrisonville North Flex
- FL7 Aquia Flex

In addition, two new Flex Routes would be provided to areas that are projected to become more developed between 2017 and 2035. These two new routes would be:

- FL8 Stafford Courthouse Flex
- FL11 Ladysmith Flex

The Fredericksburg, Stafford County and Spotsylvania County Flex Routes would operate on weekdays from 6:30 am to 7:30 pm, with 30 minute peak period service and 60 minute midday service. The Caroline County Flex Route (FL11) would operate every 60 minutes throughout the day.

***FRED Local Bus Service:*** Local bus routes that would not be replaced by either Regional or Flex Routes would continue to operate in a similar manner as in 2017 and would have sufficient capacity to accommodate increased loads.

**Park and Ride Expansion:** Between 2017 and 2035, projected population growth will increase park and ride demand by over 40%. Recommended park and ride expansion between 2017 and 2035 to meet the increases in demand will increase the Regional park and ride lot stock from approximately 12,600 spaces in 2017 to 18,100 in 2035 (see Table 7-5). All of the expansion would be at facilities that would be constructed by 2017.

**Table 7-5: 2035 Recommended Park and Ride Expansion**

	Existing Spaces	2017 Recommended	2035 Recommended
<b>VRE</b>			
Brooke	431	631	1,104
Leeland Rd	652	1,152	2,016
Fredericksburg	702	702	1,229
Crossroads		1,000	1,750
Subtotal	1,785	3,485	6,099
<b>Transportation Centers/Park &amp; Ride</b>			
Route 610			
Stafford Road	827	827	827
Mine Road	750	750	750
New In Line HOT Lanes Station		2,700	3,700
Subtotal	1,577	4,295	5,277
Rt 630	523	650	827
Rt 17	1,000	1,000	750
Celebrate Virginia		800	3,700
Rt 3 at Rt 639 & Rt 627	707	707	900
Rt 3 at Rt 627	527	527	1,300
Rt 3 near King George County Line		500	700
Rt 208 at Houser Drive	794	0	1,100
Massaponax		1,000	850
Subtotal	5,173	9,024	12,027
<b>Total</b>	<b>6,913</b>	<b>12,646</b>	<b>18,526</b>

**Volunteer Driver Service:** As in 2017, volunteer driver service would also be provided to seniors and persons with disabilities in areas that are not served by other types of transit. Program growth would be related to population growth.

**TDM Program Improvements:** As with other services, TDM efforts would need to expand, as there would be more residents to serve. Similar programs are recommended for 2035 as for 2017, with growth in program expenditure proportional to population and employment growth.

## 2035 Ridership

With the recommended 2035 improvements, annual transit ridership would increase from 1.5 million passenger trips in 2008 to 5.2 million passengers in 2035 (see Table 7-6). This increase in ridership would be due to the projected increase in the Region’s population, to the VRE extension to Spotsylvania County, a very large expansion of commuter bus service, the introduction of Flex and Regional bus service, and evening and Saturday service on local and Regional routes.

**Table 7-6: 2035 Ridership**

Service	Existing (2008)	2017	2035
<b>Transit</b>			
DC Commuter Services			
VRE (GWR Share)	965,954	1,615,643	2,550,204
Express Bus	159,390	503,723	906,761
Subtotal	1,125,344	2,119,366	3,674,003
FRED Services			
Regional Bus	-	348,782	538,908
Local Bus	410,000	497,609	808,716
Flex Bus	-	138,846	294,188
Subtotal	410,000	985,237	1,641,714
Volunteer Driver	-	65,582	93,585
<b>Total Transit</b>	<b>1,535,344</b>	<b>3,170,185</b>	<b>5,192,263</b>
<b>TDM</b>			
Formal Carpools/Vanpools	2,187,000	3,518,551	4,929,769
Slug Carpools	600,000	840,000	1,201,200
Subtotal TDM	2,787,000	4,358,551	6,130,969
<b>Total</b>	<b>4,322,344</b>	<b>7,528,736</b>	<b>11,323,232</b>

The largest increase in transit ridership would be in commuter ridership to and from the Washington, D.C. area, with large increases on both VRE and commuter buses. Growth in FRED would be smaller in absolute terms, but higher in percentage terms, and would quadruple from 410,000 trips per year to nearly 1.6 million.

Carpooling and vanpooling would increase from 2.8 million trips per year to 6.1 million trips per year. Formal and informal carpooling and vanpooling would increase due to population growth, increased TDM efforts and park and ride expansion. In total, transit ridership and carpool/vanpool usage would increase by 267% from 4.3 million trips per year to 11.5 million.

## 2035 Operating and Capital Costs

Annual net operating costs (total operating costs minus fare revenue) for the 2035 recommended improvements would be approximately \$26.2 million per year (in 2008 dollars). The higher costs would be spread across additional VRE service (including the extension to Spotsylvania County), at \$10.8 million,<sup>5</sup> FRED service, at \$9.8 million, and express bus service, at \$3.6 million. Volunteer Driver service costs for elderly and disabled residents who live beyond other transit services would be \$0.7 million per year.

**Table 7-7: 2035 Net Operating Costs (\$2008; Millions)**

	Existing Service	2035 Recommended
DC Commuter Services		
VRE (Total Regional Cost)	\$6.2	\$10.8
<i>Local Contributions to Total</i>		
Stafford County	\$2.4	\$3.5
Fredericksburg	\$0.3	\$0.6
Spotsylvania County	\$0.0	\$2.3
Subtotal	\$2.8	\$6.4
Express Bus	\$0.7	\$3.6
Subtotal	\$6.9	\$14.4
FRED Services		
Regional Bus		\$3.5
Local Bus	\$4.0	\$3.9
Flex Bus		\$2.4
Subtotal	\$4.0	\$9.8
Volunteer Driver		\$0.7
Subtotal	\$10.9	\$24.9
TDM	\$0.4	\$1.3
Total	\$11.3	\$26.2

Capital costs for the 2035 system would be \$336 million in 2008 dollars (see Table 7-8). *(Note that these costs are cumulative costs through 2035, and not in addition to 2017 capital costs.)* The most expensive elements would be the development of the Route 610/Garrisonville In-Line HOT Lanes Station (\$47.0 million), VRE rolling stock for expanded service (\$93.6 million), and the expansion of parking at current and new VRE stations (\$53.7 million). By operator, total costs would be \$188 million for VRE improvements, \$45 million for FRED improvements and \$120.3 million for other regional improvements (primarily park and ride expansion).

<sup>5</sup> As for 2017, local contributions to this total would be the difference between the total regional share of net operating cost and Federal, State, and other operating assistance, which as indicated in Table 7-7, would total \$6.4 million in 2035.

**Table 7-8: 2035 Capital Costs (Millions)**

	Existing	2035 Rec	Total Costs			
			VRE	FRED	Other	Total
<b>PARKING SPACES</b>						
<i>VRE</i>						
Brooke	431	1,104	\$6.7			\$6.7
Leeland Rd	652	2,016	\$13.6			\$13.6
Fredericksburg	702	1,229	\$15.8			\$15.8
Crossroads		1,750	\$17.5			\$17.5
Subtotal	1,785	6,099	\$53.7			\$53.7
<i>Transportation Centers/Park &amp; Ride</i>						
Rt 610 In-Line Sta		3,700			\$37.0	\$37.0
Rt 630	523	650			\$3.8	\$3.8
Rt 17	1,000	1,000				\$3.0
Celebrate Virginia Rt 3 at Rt 639 & Rt 627	707	707			\$11.0	\$11.0
Rt 3 at Rt 627 Rt 3 near King	527	527				
George County Line		500			\$7.0	\$7.0
Rt 208 at Houser Dr	794	0				
Massaponax		1,000			\$12.0	\$12.0
Subtotal	5,128	9,161	\$0.0		\$73.8	\$73.8
<b>Total</b>	<b>6,913</b>	<b>12,646</b>	<b>\$17.0</b>	<b>\$0.0</b>	<b>\$73.8</b>	<b>\$127.4</b>
<b>STATIONS &amp; TRANSP CENTERS (not including parking)</b>						
Crossroads			\$7.0			\$7.0
Rt 610 In-Line Station					\$10.0	\$10.0
Celebrate Virginia					\$5.0	\$5.0
Massaponax					\$5.0	\$5.0
Subtotal			\$7.0	\$0.0	\$20.0	\$27.0
<b>FLEET</b>						
<i>VRE</i>						
Locomotives	6	9	\$14.4			\$14.4
Bi-Level Coaches	36	72	\$79.2			\$79.2
55' Commuter Buses	7	60			\$26.5	\$26.5
30' Transit Bus	0	53		\$25.0		\$25.0
FRED BOC Buses	0	29		\$0.9		\$0.9
Subtotal	7	214	\$93.6	\$25.9	\$26.5	\$146.0
<b>FACILITIES</b>						
Regional Bus Maintenance Facility	0	1		\$18.3		\$18.3
Route 610 Bus Layover/Crew Facility	0	1		\$1.0		\$1.0
VRE Crossroads Layover Facility	0	1	\$15.0			\$15.0
Subtotal			\$15.0	\$19.3	\$0.0	\$51.0
<b>TOTAL COSTS</b>						
<b>Total</b>			<b>\$169.3</b>	<b>\$45.2</b>	<b>\$120.3</b>	<b>\$336.2</b>

**Summary**

In summary, the 2017 and 2035 transit recommendations would significantly increase transit ridership—from 1.5 million passenger trips per year to 5.2 million (see Table 7-9). To achieve these ridership increases, costs would also increase. In 2008 dollars, net operating costs (total operating costs minus fare revenue) would increase from approximately \$11.3 million today to \$22.3 million per year in 2017, and \$26 million in 2035. There would also be significant capital costs associated with the recommendations: \$206 million through 2017 and \$336 million through 2035.

**Table 7-9: Summary of Ridership and Costs Productivity**

	Existing Service	2017 Recommended	2035 Recommended
<b>Annual Ridership</b>			
VRE (GWR Share)	965,954	1,615,643	2,550,204
Express Bus	159,390	503,723	906,761
FRED	410,000	991,188	1,641,714
Volunteer Driver	0	65,582	93,585
Subtotal	1,535,344	3,176,136	5,192,263
Carpool/Vanpool	2,787,000	4,358,551	6,130,969
Total	4,322,344	7,534,687	11,323,232
<b>Operating Costs</b>			
VRE (GWR Share)	\$6,199,556	\$9,828,367	\$10,753,784
Express Bus	\$658,281	\$2,675,572	\$3,642,171
FRED	\$4,000,000	\$8,372,515	\$9,800,653
Volunteer Driver		\$496,782	\$708,907
Carpool/Vanpool	\$10,857,837	\$21,373,236	\$24,905,514
Total	\$445,000	\$878,500	\$1,256,255
<b>Capital Costs</b>			
Parking Expansion			
VRE		\$17,000,000	\$53,667,500
Other		\$51,270,000	\$73,770,000
Stations/Transportation Centers			
VRE		\$7,000,000	\$7,000,000
Other		\$20,000,000	\$20,000,000
Rolling Stock			
VRE		\$33,400,000	\$93,600,000
Express Bus		\$21,000,000	\$26,500,000
FRED		\$25,040,000	\$27,400,000
Maintenance/Storage Facilities			
VRE		\$15,000,000	\$15,000,000
Express Bus			
FRED		\$16,250,000	\$19,250,000
Total		\$205,960,000	\$336,187,500

With only a few exceptions, transit service would also become more productive, in that it would carry more riders per vehicle hour, and costs per passenger for most services would decline (see Table 7-10). In addition, an expansion of TDM efforts, combined with park and ride expansion and population growth, would produce large increases in ridesharing: from current levels of 2.8 million annual trips to nearly 6.1 million trips.

**Table 7-10: Productivity**

	Existing Service	2017 Recommended	2035 Recommended
<b>Passengers/Revenue Vehicle Hour</b>			
VRE (GWR Share)	109.0	165.1	246.1
Express Bus	10.5	9.7	13.8
FRED	5.5	6.5	9.2
Total	15.6	14.5	20.1
<b>Net Operating Cost/Passenger</b>			
VRE (GWR Share)	\$6.42	\$6.08	\$4.22
Express Bus	\$4.13	\$5.31	\$4.02
FRED	\$9.69	\$8.45	\$6.46
Volunteer Driver		\$7.58	\$7.58
Total Transit	\$7.07	\$6.73	\$4.80
Carpool/Vanpool	\$0.16	\$0.20	\$0.20

## GOVERNANCE AND FUNDING

---

As described in the introduction to this chapter, based on the findings of this study and those of the 2035 LRTP, FAMPO is now addressing future transit needs in the context of the Region’s overall transportation needs. This study lays out a number of options for the governance and funding of future transit improvements that can also be used to address roadway, bicycle, pedestrian, and TDM needs. The approach that should ultimately be pursued needs to be addressed within that context of FAMPO’s multimodal transportation planning efforts. Based upon the outcome of those efforts, potential outcomes include the development of a new Regional transit entity and dedicated funding sources, or the development of a broader Regional Transportation Authority that is responsible for Regional transit, roadway, bicycle, and TDM services and facilities.