



I-95 Corridor Transit and TDM Plan

Technical Memorandum #3: I-95 Corridor Transit and TDM Plan Recommendations

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Prepared for:



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1.0 Introduction

Virginia is addressing critical transportation needs for the I-95 Corridor. Through a concurrent package of improvements, the Commonwealth will deliver congestion relief, enhance transit and provide new choices on I-95. These concurrent efforts related to the overall strategy to enhance travel and safety are listed below.

1. I-95 HOT/HOV Lanes
2. VDOT Seminary HOV/Transit ramp
3. Transit Improvements

The *I-95 Corridor Transit and TDM Plan* is being developed to provide the Commonwealth of Virginia with recommendations for transit and Transportation Demand Management (TDM), including both operations and capital investments, to complement the I-95 HOT/HOV lanes improvements. It pivots off of the 2008 DRPT *I-95/I-395 Transit/TDM Study*. This plan is being developed with the intent of maximizing utilization of the HOT/HOV lanes network and responding to the demand for increased public transportation and ridesharing.

The *I-95 Transit and TDM Plan* is being developed in collaboration with the Secretary of Transportation and the Virginia PPTA (Public-Private Transportation Act) Office. A multi-jurisdictional Stakeholder Group was formed early in the study process to provide technical input into the study, with meetings at three key points during the course of the study.

This Technical Memorandum is the third and final work product of the *I-95 Corridor Transit and TDM Plan*. It recommends a program of I-95 transit and TDM improvements. Phasing of the transit recommendations and their associated capital and operating costs is proposed in five-year increments between now and 2035. Proposed phasing gives consideration to the opening year of the Phase 1 of the I-95 HOT/HOV lanes project to Garrisonville Road (2015) and the opening year for Phase 2 of the I-95 HOT/HOV Lanes project to US Highway 17 (2018).

Costs and phasing are presented for improvements for which funding is committed and for new proposed transit and facility improvements directly associated with maximizing capacity of the I-95 HOT/HOV lanes south of I-495. Also included are costs and phasing for off-site improvements at the Franconia-Springfield Metrorail Station, which would benefit SOV commuters who must exit the HOT lanes to complete their trips via Metrorail. Other corridor service needs, such as VRE service and facility expansion needs, have been identified in *Technical Memorandum #2*, but are not included in this study's Plan Recommendations, for they do not directly maximize capacity of the I-95 HOT/HOV lanes.

2.0 Non-Rail Park-and-Ride Recommendations

As discussed in *Technical Memorandum #2*, the district-level assessment of existing park-and-ride lot utilization and anticipated expansion needs resulted in the determination of needs that are greater than what was proposed in the prior *I-95/I-395 Transit and TDM Study*. Expansion needs that are anticipated to be needed to address existing lot capacity deficiencies and anticipated population growth within the I-95 travel shed corridor are as follows:

Additional Space Needs in North Corridor Area	4,000 spaces
Additional Space Needs in South Corridor Area	5,575 spaces
Total Estimated Park-and-Ride Space Requirement	9,575 spaces

As noted in previous Technical Memoranda, VDOT is proceeding with plans to construct 3,300 spaces. Thus, the estimated net additional need is for **6,275 spaces** (or 9,575 minus 3,300).

2.1 Recommended Phasing of Park-and-Ride Lots

The park-and-ride phasing recommendations acknowledge that the 3,300 spaces VDOT is proceeding with for the I-95 corridor (funded spaces) are anticipated to be complete by approximately 2015, with the 1,300 spaces in the north corridor area (i.e., Telegraph Road and Saratoga lot) complete in 2012-2013 and the 2,000 spaces in the south corridor area (i.e., Route 3/Gordon Road and Garrisonville Road/Staffordborough Blvd.) complete by approximately 2015.

The remaining 6,275 spaces needed for the corridor are assumed to be implemented in five-year increments from 2020 to 2030, as shown in **Table 2-1** and **Figure 2-1**. Phasing of these spaces is cognizant of bus transit service phasing discussed in the next section, as well as discussions with VDOT regarding park-and-ride priorities.

Between 2020 and 2024, a total of 2,075 additional spaces are recommended, consisting of 1,600 in the north corridor area (Fairfax District and Prince William County Districts 2 and 3) and 475 in the south corridor area (Stafford District 2). Between 2025 and 2029, a total of 1,863 spaces are recommended, with the emphasis shifting to the south corridor area. In this five-year increment, 550 spaces are recommended in the north corridor area (Prince William District 1) and a total of 1,313 are recommended in the south corridor area (Stafford District 1 and Fredericksburg & Spotsylvania District). Finally, beginning in 2030, 2,338 additional spaces are recommended, consisting of 550 spaces in the north corridor area (Prince William District 1) and 1,788 spaces in the south corridor area (all three districts).

As noted in this Tech Memo, park-and-ride lot spaces have been recommended by geographic area/district. However, it is important that there be flexibility for VDOT and local jurisdictions to work together to adjust locations of additional park-and-ride spaces as necessary during more detailed park-and-ride lot siting analyses, based on more current estimates of demand, land availability and transit service. Further, FAMPO is presently finalizing a park-and-ride lot study that is identifying potential locations for new park-and-ride lots and/or expansion of existing lots. Recommendations from that study effort should be utilized when identifying potential locations for the additional park-and-ride spaces that are recommended from this study effort.

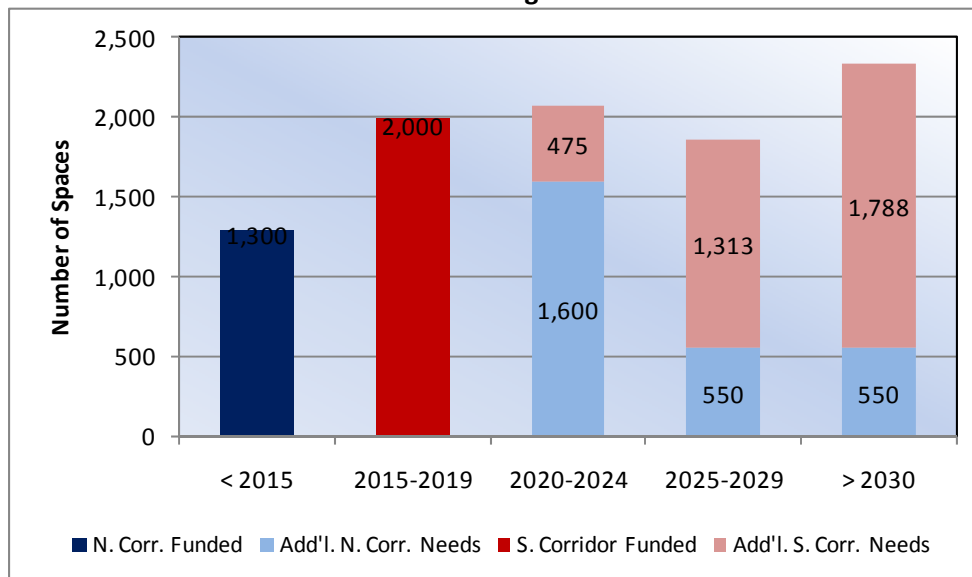
**Table 2-1
Park-and-Ride Lot Phasing Recommendations
(Number of Spaces)**

Geographic Area	Improvement Description	< 2015	2015-2019	2020-2024	2025-2029	2030-2034	Total
Fairfax District	Saratoga Lot* (2013) Additional Needs	600		250			600 250
Prince William District 1	Additional Needs				550	550	1,100
Prince William District 2	Telegraph Rd* (2012) Additional Needs	700		950			700 950
Prince William District 3	Additional Needs			400			400
Stafford District 1	Staffordborough Rd. Lot Expansion* (2015) Additional Needs		1,000		650	650	1,000 1,300
Stafford District 2	Additional Needs			475		475	950
Fredericksburg & Spotsylvania District	Route 3 (2017)* Additional Needs		1,000		663	663	1,000 1,325
TOTALS		1,300	2,000	2,075	1,863	2,338	9,575
<i>Previously Committed Spaces:</i>		1,300	2,000	0	0	0	3,300
<i>Additional Recommended Spaces:</i>		0	0	2,075	1,863	2,338	6,275

Notes:

1. Lots with (*) are already programmed for construction by VDOT.

**Figure 2-1
Park-and-Ride Lot Phasing Recommendations**



*North Corridor defined as Fairfax and Prince William Counties
South Corridor defined as Spotsylvania and Stafford Counties*

2.2 Park-and-Ride Lot Capital Cost Estimates

Total capital costs are estimated to be \$121.7 million for the 9,575 park-and-ride spaces needed in the I-95 travel shed corridor (in 2011 dollars). As shown in Table 2-2, of that, \$22.8 million is committed towards the 3,300 spaces with which VDOT is proceeding, leaving \$98.9 million to be added to the Six-Year Improvement Program. Capital cost estimates for the Saratoga, Telegraph Road, and Staffordborough Blvd. lots were provided by VDOT, and the capital costs for the Route 3 lot were assumed to be similar to the Staffordborough Blvd. lot (a capital cost estimate for this committed VDOT project is not yet available). Capital costs for the additional space needs in Prince William District 2 (Horner Road expansion) were suggested by VDOT staff. All other additional needs were based on a per space cost of \$15,000 recommended for use by VDOT staff, to account for construction, right-of-way acquisition and site access improvements.

Table 2-2 and **Figure 2-2** present estimates of capital costs by phasing increment. Total estimated capital costs (in current year dollars) for the additional recommended parking spaces by five-year increment are as follows:

- Between 2015 and 2020, \$35.9 million
- Between 2020 and 2025, \$27.9 million
- Between 2025 and 2030, \$35.1 million

Park-and-ride costs are also presented in Year of Expenditure dollars in Appendix A.

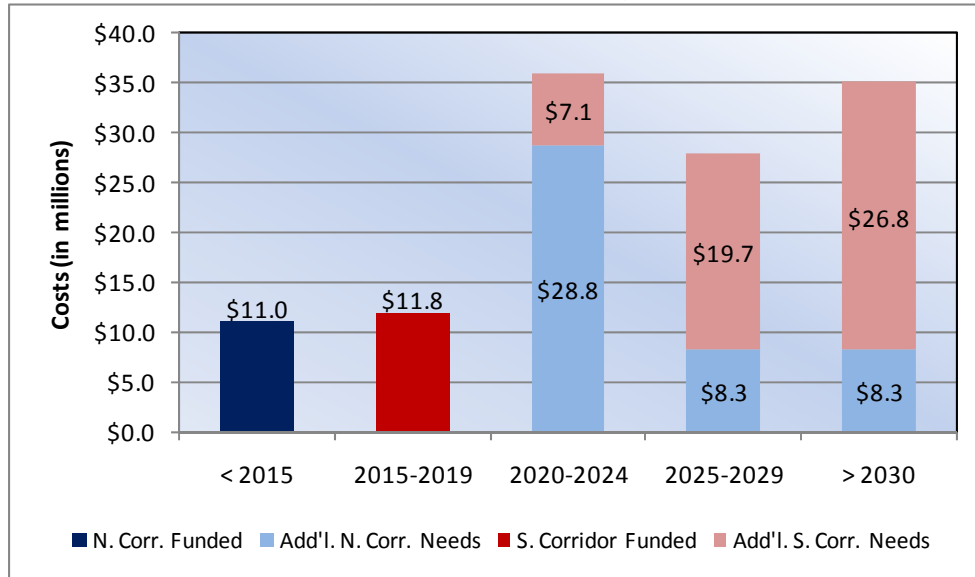
**Table 2-2
Park-and-Ride Lot Capital Cost Estimates (in 2011 dollars) and Phasing**

Geographic Area	Improvement Description	Number of Parking Spaces	Cost/Space	Total Cost	Funding Committed	Remaining Amount	Costs in Current Year Dollars						Total	
							< 2015	2015-2019	2020-2024	2025-2029	2030-2035	2035		
Fairfax District	Saratoga Lot* (2013)	600	\$5,000	\$3,000,000	\$3,000,000		\$3,000,000							\$3,000,000
	Additional Needs	250	\$15,000	\$3,750,000		\$3,750,000			\$3,750,000					\$3,750,000
Prince William District 1	Additional Needs	1,100	\$15,000	\$16,500,000		\$16,500,000				\$8,250,000	\$8,250,000			\$16,500,000
Prince William District 2	Telegraph Rd* (2012)	700	\$11,429	\$8,000,000	\$8,000,000		\$8,000,000							\$8,000,000
	Additional Needs (Horner Road Expansion)	950	\$20,000	\$19,000,000		\$19,000,000			\$19,000,000					\$19,000,000
Prince William District 3	Additional Needs	400	\$15,000	\$6,000,000		\$6,000,000			\$6,000,000					\$6,000,000
Stafford District 1	Staffordborough Rd. Lot Expansion* (2015)	1,000	\$5,900	\$5,900,000	\$5,900,000			\$5,900,000						\$5,900,000
	Additional Needs	1,300	\$15,000	\$19,500,000		\$19,500,000				\$9,750,000	\$9,750,000			\$19,500,000
Stafford District 2	Additional Needs	950	\$15,000	\$14,250,000		\$14,250,000			\$7,125,000		\$7,125,000			\$14,250,000
Fredericksburg & Spotsylvania District	Route 3 (2017)*	1,000	\$5,900	\$5,900,000	\$5,900,000			\$5,900,000						\$5,900,000
	Additional Needs	1,325	\$15,000	\$19,875,000		\$19,875,000				\$9,937,500	\$9,937,500			\$19,875,000
TOTALS		9,575		\$121,675,000	\$22,800,000	\$98,875,000	\$11,000,000	\$11,800,000	\$35,875,000	\$27,937,500	\$35,062,500	\$0	\$0	\$121,675,000
<i>Previously Committed Funds:</i>							<i>\$11,000,000</i>	<i>\$11,800,000</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$22,800,000</i>
<i>Additional Recommended Funding:</i>							<i>\$0</i>	<i>\$0</i>	<i>\$35,875,000</i>	<i>\$27,937,500</i>	<i>\$35,062,500</i>	<i>\$0</i>	<i>\$0</i>	<i>\$98,875,000</i>

Notes:

1. Lots with (*) are already programmed for construction by VDOT.
2. Capital costs for the Route 3 park-and-ride lot are assumed to be similar to cost identified for Staffordborough lot expansion.
3. Cost for additional needs for Prince William District 2 (Horner Road Expansion) suggested by VDOT staff.
4. For all other spaces, \$15,000 per parking space was recommended for use by VDOT staff, to account for construction, ROW acquisition and site access improvements.

**Figure 2-2
Park-and-Ride Lot Phased Capital Cost Estimates
(Costs in 2011 dollars)**



*North Corridor defined as Fairfax and Prince William Counties
South Corridor defined as Spotsylvania and Stafford Counties*

3.0 Bus Transit Service Expansion Recommendations

The prior *I-95/I-395 Transit and TDM Study* identified a need for significant expansion of bus services in the corridor. As discussed in *Technical Memorandum #2*, the process of validating and modifying the prior study's stated bus service needs involved comparing the prior recommendations to current service plan proposals, understanding existing bus service utilization (e.g., bus loads), assessing demographic forecasts for each district in relation to transit service levels, and discussing potential service needs with service provider staff. From this effort, *Technical Memorandum #2* identified a refined set of bus service needs for the corridor.

The recommendations for bus transit service expansion include only those route improvements that would directly utilize the I-95 HOT/HOV lanes. The recommended improvements include expansion of commuter services from Spotsylvania, Stafford, Prince William and Fairfax counties. These improvements would serve destinations such as D.C., the Pentagon area, Rosslyn, Mark Center, Tysons Corner, Fort Belvoir North and the Franconia-Springfield Metrorail Station.

3.1 Recommended Phasing of Bus Service Expansion - Operations

Table 3-1 presents the estimated annual revenue hours and proposed implementation year for the bus service expansion routes. The listing of route improvements are divided between committed service improvements and those that are additional service needs. Committed service improvements are assumed to be implemented prior to 2015, and include routes in Fairfax and Prince William County, as well as BRAC-related service improvements. The additional service needs have been phased into 5-year increments from 2015 through 2030, drawing from adopted TDPs and population growth projections. The total proposed increase in annual revenue hours for services that would operate in the I-95 HOT/HOV lanes is 45,008. **Figure 3-1** summarizes the estimated increase in annual revenue hours by service type or provider. **Table 3-2** and **3-3** identify the recommended increase in commuter bus service trips by county of origin, and by destination.

The service plans recommended in this Tech Memo are based on an analysis of needs that took into consideration existing service utilization, corridor demographic growth, and discussions with corridor service providers. As service providers proceed with implementation of expanded service, flexibility for the local service providers will be important, with service patterns and service levels adjusted as necessary based on a more current assessment of ridership demand.

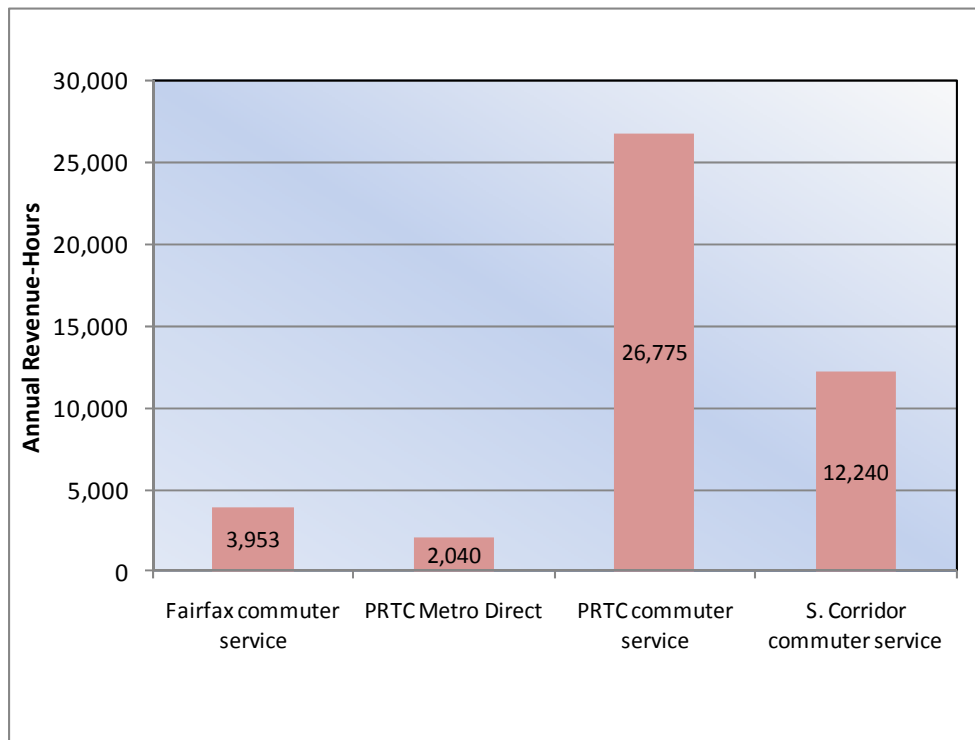
It is important to note that there are capacity constraints at the Pentagon transit center and in the Crystal City/Pentagon City area. As noted in *Technical Memorandum #2*, potential strategies that may need to be explored to accommodate any further expansion at these locations include:

- Careful scheduling management that redistributes bus trips outside of the “peak of the peak” time periods.
- Splitting trips that presently serve multiple destinations into two or more routes, thus increasing seat capacity to each destination.
- Routing new trips to the Franconia-Springfield Metrorail Station instead of the Pentagon, with passengers continuing their trip via the Metrorail Blue Line. This, however, will also require careful coordination with WMATA, Fairfax Connector and DoD services at the station.

- Longer-term, consideration of an off-site bus staging area at the Pentagon and possibly a transit center near the Crystal City Metro Station, with ITS measures in place that could possibly increase bus bay utilization.

Finally, it is important to note this study’s transit service expansion recommendations for Stafford and Spotsylvania Counties assumes continued operation of privately operated transit service in the future, and that demand will exist for these private operators to expand service at a rate consistent with population growth. At some point in the future, consideration may need to be given to public participation in the provision of commuter bus service for Stafford and Spotsylvania Counties, to ensure the continuation and expansion of transit at service levels and service patterns that are beneficial for the I-95 corridor.

Figure 3-1
Increase in Annual Revenue Hours by Service Type/Provider



**Table 3-1
Bus Service Expansion Recommendations - Revenue Hours and Phasing**

Geographic Area	Imprpr. Status	Operator	Improvement Description	Annual Revenue-Hrs.	Impl. Year
Fairfax County	Committed Service Improvements	Fairfax	Re-label Route 380-D as Route 395	Service Plans	< 2015
		Fairfax	I-495 HOT Lane Service - Lorton-Tysons	currently under	< 2015
		Fairfax	I-495 HOT Lane Service - Franconia/Springfield-Tysons	development	< 2015
	Additional I-95 Corridor Service Needs	WMATA	Route 18 G/H/J/P Restructuring	0	2015
		WMATA	Extension of Route 18E/F to Saratoga pnr	1275	2015
		Fairfax	Restructure Tysons service to stop at Saratoga pnr	765	2015
		Fairfax	New: Saratoga-Pentagon Express - 5 a.m. and 5 p.m. trips	1,913	2020
SubTotal			3,953		
Prince William County	Committed Service Improvements	OmniRide	Add 8 morning and three afternoon OmniRide trips to address current overcrowding issues	Service Plans currently under development	< 2015
	Additional I-95 Corridor Service Needs	OmniRide	Lake-Ridge-Washington, D.C. - add 3 a.m. and 4 pm. trips	2,678	2025
		OmniRide	Lake Ridge-Pentagon/Crystal City - add 3 a.m. and 3 p.m. trips	2,295	2025
		OmniRide	New Service - Lake Ridge to Mark Center - 4 a.m. and 4 p.m. trips	3,060	2015
		OmniRide	Dale City/Potomac Mills-Washington, D.C. - add 4 a.m. and 5 p.m. trips	3,443	2020
		OmniRide	Dale City/Potomac Mills-Pentagon/Crystal City - add 3 a.m. and 4 p.m. trips	2,678	2025
		OmniRide	Dale City/Potomac Mills-Rosslyn/Balston - add 2 a.m. and 2 p.m. trips	1,530	2020
		OmniRide	New Service: Dale City/Potomac Mills-Mark Center - 4 a.m. and 4 p.m. trips	3,060	2015
		OmniRide	New Service: Dale City/Potomac Mills-Merrifield - 4 a.m. and 4 p.m. trips	3,060	2020
		OmniRide	Monclair/Dumfries-Pentagon/DC - Add 2 a.m. and 3 p.m. trips	1,913	2030
		OmniRide	New Service: Montclair/Dumfries-Tysons Corner - 4 a.m. and 4 p.m. trips	3,060	2030
		MetroDirect	Prince William MetroDirect - Increase peak period frequencies to 20-min.	2,040	2020
		SubTotal			28,815
Stafford and Spotsylvania Counties	Additional I-95 Corridor Service Needs	Private Op's.	Washington D.C. Service - add 6 trips each peak period	4,590	2020
		Private Op's.	Pentagon/Crystal City Service - add 2 trips each peak period	1,530	2020
		Private Op's.	Mark Center Service - add 2 trips each peak period	1,530	2020
		Private Op's.	Navy Yard/DOT Service - add 1 trip each peak period	765	2025
		Private Op's.	Rosslyn Service - add 2 trips each peak period	1,530	2025
		Private Op's.	Fort Belvoir Service - add 1 trip each peak period	765	2015
		Private Op's.	Tysons Corner Service - new service, 2 trips each peak period	1,530	2025
		SubTotal			12,240
TOTALS				45,008	

Table 3-2
Increase in Commuter Bus Trips by County of Origin

Commuter Trip Origins:	AM Peak Period Trips			PM Peak Period Trips		
	Existing	Proposed	% Change	Existing	Proposed	% Change
Stafford/Spotsylvania Counties	24	40	67%	24	40	67%
Prince William County	82	118	44%	99	139	40%
Fairfax County	33	46	39%	40	53	33%
Total	139	204	47%	163	232	42%

Notes:

Fairfax Connector proposed trips include I-495 Tysons Express Routes

Prince William County trips include MetroDirect service to Franconia-Springfield

Table 3-3
Increase in Commuter Bus Trips by Destination

Commuter Trip Destinations:	AM Peak Period Trips			PM Peak Period Trips		
	Existing	Proposed	% Change	Existing	Proposed	% Change
Central D.C. Area	127	160	26%	150	187	25%
Mark Center	1	11	1000%	1	11	1000%
Tysons	4	22	450%	5	23	360%
Other	7	11	57%	7	11	57%
Total	139	204	47%	163	232	42%

Notes:

Destinations included in "Other" are: Fort Belvoir, Franconia-Springfield

Capacity constraints at Pentagon may necessitate the need for commuter trips to be routed to other destinations, such as Franconia-Springfield

3.2 Recommended Phasing of Bus Service Expansion – Buses Required

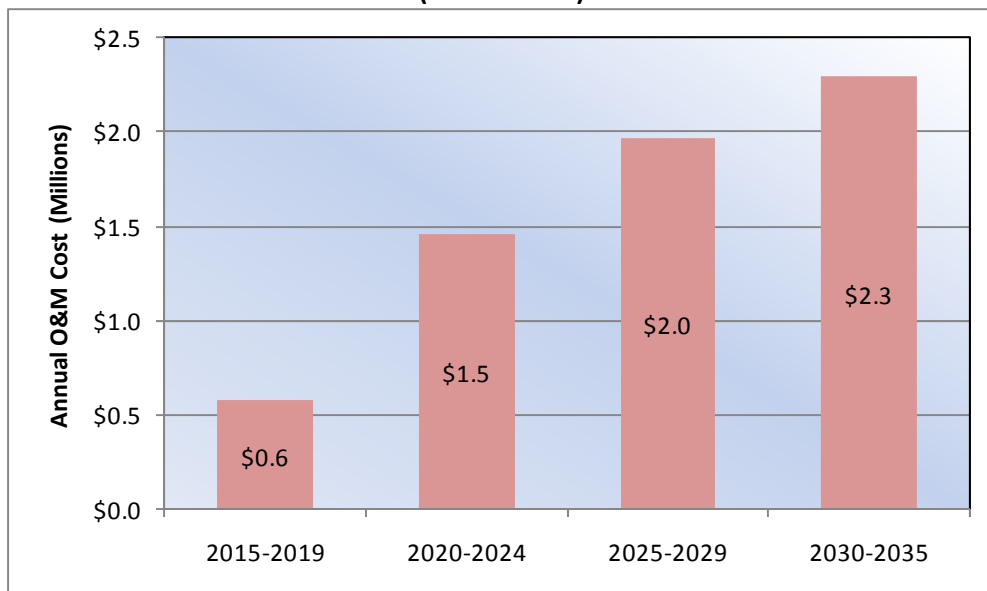
Table 3-4 shows phasing of the additional buses that would be required to implement the bus service expansion identified in the previous section by five-year increment, including both peak buses and spares. Note that these additional bus requirements do not take into account bus life cycles and bus replacement costs over the plan’s time period. A total of 40 additional buses are required to implement the non-committed service improvements that would utilize the I-95 HOT/HOV lanes.

3.3 Bus Service Expansion O&M Cost Estimates

Figure 3-2 summarizes the estimated annual O&M costs for the bus service expansion routes. **Table 3-5** presents estimated O&M costs for bus service expansion routes. This table does not include costs associated with service improvements that are already committed for implementation. An average annual O&M cost of \$120 per revenue hour has been assumed based on a review of current costs for WMATA, Fairfax Connector and PRTC. The calculations of net O&M costs reflect net O&M costs after fare collection, based on assumed farebox recovery ratios for the various services/operators (noted in footnotes of the tables).

The total estimated annual net O&M cost for all improvements associated with routes that operate in the I-95 HOT/HOV lanes is \$2.29 million (2011 dollars). **Table 3-3** also presents the cumulative O&M costs through 2035, taking into account the proposed implementation year (e.g., an improvement proposed for 2020 would have 15 cumulative years of O&M). The additional net O&M costs through 2035 are estimated at \$31.5 million for routes that would operate in the I-95 HOT/HOV lanes (2011 dollars). Bus O&M costs are also presented in Year of Expenditure dollars in Appendix A.

Figure 3-2
Net Annual O&M Costs for Bus Service Recommendations by Five-Year Increment
(2011 dollars)



**Table 3-4
Bus Needs Associated with Service Expansion Recommendations by Five-Year Increment**

Geographic Area	Operator	Improvement Description	Est'd. Buses Required	2015	2020	2025	2030	2035
Fairfax County	WMATA	Route 18 G/H/J/P Restructuring	0					
	WMATA	Extension of Route 18E/F to Saratoga pnr	0					
	Fairfax	Restructure Tysons service to stop at Saratoga pnr	0					
	Fairfax	New: Saratoga-Pentagon Express - 5 a.m. and 5 p.m. trips	4		4			
	Spares							
SubTotal			4	0	4	0	0	0
Prince William County	OmniRide	Lake-Ridge-Washington, D.C. - add 3 a.m. and 4 pm. trips	3			3		
	OmniRide	Lake Ridge-Pentagon/Crystal City - add 3 a.m. and 3 p.m. trips	3			3		
	OmniRide	New Service - Lake Ridge to Mark Center - 4 a.m. and 4 p.m. trips	3	3				
	OmniRide	Dale City/Potomac Mills-Washington, D.C. - add 4 a.m. and 5 p.m. trips	4		4			
	OmniRide	Dale City/Potomac Mills-Pentagon/Crystal City - add 3 a.m. and 4 p.m. trips	2			2		
	OmniRide	Dale City/Potomac Mills-Rosslyn/Balston - add 2 a.m. and 2 p.m. trips	2		2			
	OmniRide	New Service: Dale City/Potomac Mills-Mark Center - 4 a.m. and 4 p.m. trips	3	3				
	OmniRide	New Service: Dale City/Potomac Mills-Merrifield - 4 a.m. and 4 p.m. trips	4				4	
	OmniRide	Monclair/Dumfries-Pentagon/DC - Add 2 a.m. and 3 p.m. trips	2				2	
	OmniRide	New Service: Montclair/Dumfries-Tysons Corner - 4 a.m. and 4 p.m. trips	4		4			
	MetroDirect	Prince William MetroDirect - Increase peak period frequencies to 20-min.	1		1			
	Spares		5	1	2	2		
SubTotal			36	7	13	10	6	0
TOTALS			40	7	17	10	6	0

Notes:

1. Bus needs for improvements that are shaded reflect services that would use the I-95 HOT/HOV lanes.
2. Table reflects initial buses for proposed new service, and does not include any additional bus replacements.

**Table 3-5
Bus Service Expansion Recommendations - O&M Cost Estimates (2011 dollars)**

Geographic Area	Impr. Status	Operator	Improvement Description	Annual O&M Cost	Potential Farebox	Net O&M Cost	Impl. Year	Total O&M thru 2035	Farebox thru 2035	Net Costs thru 2035		
Fairfax County	Committed Service Improvements	Fairfax	Re-label Route 380-D as Route 395	Service Plans currently under development			< 2015			Committed Project		
		Fairfax	I-495 HOT Lane Service - Lorton-Tysons				< 2015			Committed Project		
		Fairfax	I-495 HOT Lane Service - Franconia/Springfield-Tysons				< 2015			Committed Project		
	Additional I-95 Corridor Service Needs	WMATA	Route 18 G/H/J/P Restructuring	\$0	\$0	\$0	2015	\$0	\$0	\$0		
		WMATA	Extension of Route 18E/F to Saratoga pnr	\$153,000	\$46,000	\$107,000	2015	\$3,060,000	\$920,000	\$2,140,000		
		Fairfax	Restructure Tysons service to stop at Saratoga pnr	\$92,000	\$28,000	\$64,000	2015	\$1,840,000	\$560,000	\$1,280,000		
		Fairfax	New: Saratoga-Pentagon Express - 5 a.m. and 5 p.m. trips	\$230,000	\$69,000	\$161,000	2020	\$3,450,000	\$1,035,000	\$2,415,000		
SubTotal				\$475,000	\$143,000	\$332,000		\$8,350,000	\$2,515,000	\$5,835,000		
Prince William County	Committed Service Improvements	OmniRide	Add 8 morning and three afternoon OmniRide trips to address current overcrowding issues	Service Plans currently under development			< 2015	Committed Project				
		OmniRide	Lake-Ridge-Washington, D.C. - add 3 a.m. and 4 pm. trips	\$321,000	\$144,000	\$177,000	2025	\$3,210,000	\$1,440,000	\$1,770,000		
	Additional I-95 Corridor Service Needs	OmniRide	Lake Ridge-Pentagon/Crystal City - add 3 a.m. and 3 p.m. trips	\$275,000	\$124,000	\$151,000	2025	\$2,750,000	\$1,240,000	\$1,510,000		
		OmniRide	New Service - Lake Ridge to Mark Center - 4 a.m. and 4 p.m. trips	\$367,000	\$165,000	\$202,000	2015	\$7,340,000	\$3,300,000	\$4,040,000		
		OmniRide	Dale City/Potomac Mills-Washington, D.C. - add 4 a.m. and 5 p.m. trips	\$413,000	\$186,000	\$227,000	2020	\$6,195,000	\$2,790,000	\$3,405,000		
		OmniRide	Dale City/Potomac Mills-Pentagon/Crystal City - add 3 a.m. and 4 p.m. trips	\$321,000	\$144,000	\$177,000	2025	\$3,210,000	\$1,440,000	\$1,770,000		
		OmniRide	Dale City/Potomac Mills-Rosslyn/Balston - add 2 a.m. and 2 p.m. trips	\$184,000	\$83,000	\$101,000	2020	\$2,760,000	\$1,245,000	\$1,515,000		
		OmniRide	New Service: Dale City/Potomac Mills-Mark Center - 4 a.m. and 4 p.m. trips	\$367,000	\$165,000	\$202,000	2015	\$7,340,000	\$3,300,000	\$4,040,000		
		OmniRide	New Service: Dale City/Potomac Mills-Merrifield - 4 a.m. and 4 p.m. trips	\$367,000	\$165,000	\$202,000	2020	\$5,505,000	\$2,475,000	\$3,030,000		
		OmniRide	Monclair/Dumfries-Pentagon/DC - Add 2 a.m. and 3 p.m. trips	\$230,000	\$104,000	\$126,000	2030	\$1,150,000	\$520,000	\$630,000		
		OmniRide	New Service: Montclair/Dumfries-Tysons Corner - 4 a.m. and 4 p.m. trips	\$367,000	\$165,000	\$202,000	2030	\$1,835,000	\$825,000	\$1,010,000		
		MetroDirect	Prince William MetroDirect - increase peak period frequencies to 20-min.	\$245,000	\$49,000	\$196,000	2020	\$3,675,000	\$735,000	\$2,940,000		
		SubTotal				\$3,457,000	\$1,494,000	\$1,963,000		\$44,970,000	\$19,310,000	\$25,660,000
		Stafford and Spotsylvania Counties	Additional I-95 Corridor Service Needs	Private Op's.	Washington D.C. Service - add 6 trips each peak period	\$551,000	\$551,000	\$0	2020	\$8,265,000	\$8,265,000	\$0
Private Op's.	Pentagon/Crystal City Service - add 2 trips each peak period			\$184,000	\$184,000	\$0	2020	\$2,760,000	\$2,760,000	\$0		
Service Needs	Private Op's.		Mark Center Service - add 2 trips each peak period	\$184,000	\$184,000	\$0	2020	\$2,760,000	\$2,760,000	\$0		
	Private Op's.		Navy Yard/DOT Service - add 1 trip each peak period	\$92,000	\$92,000	\$0	2025	\$920,000	\$920,000	\$0		
	Private Op's.		Rosslyn Service - add 2 trips each peak period	\$184,000	\$184,000	\$0	2025	\$1,840,000	\$1,840,000	\$0		
	Private Op's.		Fort Belvoir Service - add 1 trip each peak period	\$92,000	\$92,000	\$0	2015	\$1,840,000	\$1,840,000	\$0		
	Private Op's.		Tysons Corner Service - new service, 2 trips each peak period	\$184,000	\$184,000	\$0	2025	\$1,840,000	\$1,840,000	\$0		
	SubTotal				\$1,471,000	\$1,471,000	\$0		\$20,225,000	\$20,225,000	\$0	
TOTALS				\$5,403,000	\$3,108,000	\$2,295,000		\$73,545,000	\$42,050,000	\$31,495,000		

Notes:

1. Costs in 2011 dollars
2. Costs based on a cost per revenue hour assumption of \$120
3. Assumed farebox recovery ratios for each operator are as follows:
 - a. Local routes 20% Assuming 20% farebox recovery/80% subsidy
 - b. Fairfax express 30% Assuming 30% farebox recovery/70% subsidy
 - c. PRTC 45% Consistent with PRTC TDP assumptions
 - d. Stafford/Spotsy 100% Assumes 100% recovery under private operations

3.4 Bus Service Expansion Capital Cost Estimates

Table 3-6 presents capital cost estimates associated with the additional bus purchases by five-year increment. A total of \$19.4 million would be required to purchase peak buses and spares for the non-committed service improvements utilizing the I-95 HOT/HOV lanes (2011 dollars). The bus costs are based on a unit cost of \$450,000 for Fairfax County and unit costs per the TDP for PRTC. Note that these additional bus requirements do not take into account bus life cycles and bus replacement costs over the plan's time period. Bus purchase costs are also presented in Year of Expenditure dollars in Appendix A.

**Table 3-6
Capital Costs for Bus Needs Associated with Service Expansion Recommendations (2011 dollars)**

Geographic Area	Operator	Improvement Description	Capital Costs	2015	2020	2025	2030	2035
Fairfax County	WMATA	Route 18 G/H/J/P Restructuring	n/a					
	WMATA	Extension of Route 18E/F to Saratoga pnr	n/a					
	Fairfax	Restructure Tysons service to stop at Saratoga pnr	\$0					
	Fairfax	New: Saratoga-Pentagon Express - 5 a.m. and 5 p.m. trips	\$1,800,000		\$1,800,000			
	Spares		\$0	\$0				
SubTotal			\$1,800,000	\$0	\$1,800,000	\$0	\$0	\$0
Prince William County	OmniRide	Lake-Ridge-Washington, D.C. - add 3 a.m. and 4 pm. trips	\$1,620,000			\$1,620,000		
	OmniRide	Lake Ridge-Pentagon/Crystal City - add 3 a.m. and 3 p.m. trips	\$1,620,000			\$1,620,000		
	OmniRide	New Service - Lake Ridge to Mark Center - 4 a.m. and 4 p.m. trips	\$1,290,000	\$1,290,000				
	OmniRide	Dale City/Potomac Mills-Washington, D.C. - add 4 a.m. and 5 p.m. trips	\$2,160,000		\$2,160,000			
	OmniRide	Dale City/Potomac Mills-Pentagon/Crystal City - add 3 a.m. and 4 p.m. trips	\$1,080,000			\$1,080,000		
	OmniRide	Dale City/Potomac Mills-Rosslyn/Balston - add 2 a.m. and 2 p.m. trips	\$1,080,000		\$1,080,000			
	OmniRide	New Service: Dale City/Potomac Mills-Mark Center - 4 a.m. and 4 p.m. trips	\$1,290,000	\$1,290,000				
	OmniRide	New Service: Dale City/Potomac Mills-Merrifield - 4 a.m. and 4 p.m. trips	\$1,720,000				\$1,720,000	
	OmniRide	Monclair/Dumfries-Pentagon/DC - Add 2 a.m. and 3 p.m. trips	\$1,080,000				\$1,080,000	
	OmniRide	New Service: Montclair/Dumfries-Tysons Corner - 4 a.m. and 4 p.m. trips	\$1,720,000		\$1,720,000			
	MetroDirect	Prince William MetroDirect - Increase peak period frequencies to 20-min.	\$430,000		\$430,000			
Spares		\$2,480,000	\$496,000	\$992,000	\$992,000			
SubTotal			\$17,570,000	\$3,076,000	\$6,382,000	\$5,312,000	\$2,800,000	\$0
TOTALS			\$19,370,000	\$3,076,000	\$8,182,000	\$5,312,000	\$2,800,000	\$0

Notes:

1. Table reflects initial buses for proposed new service, and does not include any additional bus replacements.
2. PRTC bus unit capital costs consistent with those used in the PRTC TDP.
3. Fairfax County bus unit costs assume an average of \$450,000 per bus (standard coach).

4.0 Transportation Demand Management Program Recommendations

As discussed in *Technical Memorandum #2*, the transportation demand management (TDM) needs from the prior *I-95/I-395 Transit and TDM Study* have been revisited and refined in light of new programs, updated plans for existing programs and discussions with corridor TDM staff. The identified TDM needs can be categorized as follows:

- Vanpool Program Assistance
 - VanStart/VanSave
 - Vanpool Insurance
 - NTD Program
- Telework Program Assistance
- I-95 Corridor Marketing/Education
 - Annual Marketing Campaigns
 - HOT/HOV Start-up Campaigns
- TDM Program Staffing
- Technology Upgrades
- Supporting Programs
 - Guaranteed Ride Home
 - Incentive Programs

Currently, Transportation Efficiency Improvement Fund (TEIF) monies are utilized to fund the local TDM programs. No additional funding is available to implement these recommendations. The TDM recommendations detailed in *Technical Memorandum #2* will be implemented to the extent possible using any unobligated TEIF funds that remain at the end of each fiscal year or any other funding that becomes available. Since available funding will vary from year to year, it is not possible to determine the timeframe or extent of implementation of these recommendations.

5.0 Destination End Facility Recommendations

As discussed in *Technical Memorandum #2*, it is important not to lose sight of potential infrastructure impacts and needs at I-95 commuter trip destinations both south and north of I-495. Within the I-95 corridor, the assessment revealed the destination end facility needs as summarized below.

Mark Center

Although technically not within the I-95 Corridor, this facility has been included because it is located just north of the defined corridor, and is anticipated to be a major travel destination for trips from the corridor. As noted in *Technical Memorandum #1*, actions taken through the 2005 Base Realignment and Closure (BRAC) Act are resulting in 6,400 additional military personnel at the Mark Center. A Transportation Management Plan was prepared that includes actions intended to reduce single occupant vehicle trips to/from the Mark Center. To encourage transit usage, a transit center has been constructed within the Mark Center that includes five bus bays. WMATA and DASH already have plans in place to serve the Mark Center (discussed in *Technical Memorandum #2*). Potential service expansion plans presented in this study will increase commuter bus trips to/from the Mark Center, with those bus trips being able to utilize the planned I-95 HOV ramp to/from Seminary Road. A review of proposed bus service levels indicate that there should be sufficient capacity to accommodate commuter bus service expansion, as proposed in this study. However, there is little room for further expansion of bus service, and bus operations at the transit center will need to be carefully managed.

Franconia-Springfield Metrorail Station

There are presently five bays at Franconia-Springfield Metrorail station, with these bays utilized by Metrobus, Fairfax Connector and PRTC. The Department of Defense will also be operating shuttle service from this station to the Mark Center and Fort Belvoir North. WMATA staff is presently in the planning process for adding two or three bays at this station through a TIGER Grant. Potential service expansion plans presented in this study will increase PRTC and possibly commuter bus trips to/from this station. A review of proposed bus service levels indicate that there should be sufficient capacity to accommodate bus service expansion at this station, as proposed in this study. However, coordination will still be needed in the assignment of bus service to bus bays at this station, for there are also planned service increases at this station by the Fairfax Connector and by DoD shuttles.

There are also over 5,100 on-site parking spaces that are fully-utilized. There are no travel demand forecasts available to determine potential additional parking demands at this station. However, concern has been expressed by stakeholders about potential increased demands from Single Occupant Vehicle (SOV) commuters that might exit the HOT lanes on I-95 and complete their trip via the Blue Line (since the HOT lanes will end north of I-495 and there is a reduction from 3 to 2 HOV lanes). To address this need, a strategy has been identified to expand off-site parking and provide shuttle service between the off-site parking and the Franconia-Springfield Station. For purposes of this study, 750 off-site spaces have been assumed as structured parking. Specific demand will need to be determined through further analysis with the regional travel demand model. **Table 6-1** presents estimated costs (capital and O&M) associated with this strategy.

Costs for the proposed 750 off-site parking spaces total \$22.5 million, based on a typical unit cost of \$30,000 per structured parking space. This would be a one-time capital cost with implementation

assumed in 2020 (ideally should be coordinated with completion of the I-95 HOT/HOV lane project into Spotsylvania County). Shuttle service would be implemented once the new off-site parking facility is opened, and has been estimated at an annual cost of \$551,000. Thus, the total cost of the parking expansion from 2020 through 2035 would be \$31.3 million. Franconia-Springfield off-site parking-and-ride costs (for the parking structure and shuttle service) are also presented in Year of Expenditure dollars in Appendix A.

**Table 6-1
Franconia-Springfield Off-Site Parking Recommendations - Estimated Costs (in 2011 dollars)**

Location	Improvement Description	Impl. Year	Project Cost
Franconia-Springfield	Add off-site parking - 750 spaces	2020	\$22,500,000
Metrorail	Shuttle Service to off-site parking	Annual cost	\$551,000
	(2 vehicles, 9 hours/day - 255 days/year)	Cost thru 2035	\$8,265,000
TOTALS			\$31,316,000

Notes:

1. Cost for off-site parking is based on \$30,000 per parking space, reflecting a typical parking structure unit cost
2. Shuttle operation cost based on a unit cost of \$120 per revenue hour.

6.0 Summary of Costs

This final section presents summaries of the costs detailed in the prior sections of this technical memorandum. **Table 7-1** presents an overall plan summary matrix, breaking down the costs by plan element (i.e., capital costs, O&M costs, TDM costs and Franconia-Springfield Station costs). It further breaks down costs by funding commitment status. Costs presented in this table are for the plan’s entire time period (through 2035).

Table 7-1
Summary of Estimated Costs for Plan Recommendations (2011 dollars)

Plan Element	Plan Cost
Capital Costs	
Current Funded Park & Ride Spaces	\$22,800,000
Additional Park & Ride Spaces	\$98,875,000
Bus Fleet Expansion	\$19,370,000
O&M Costs (thru 2035)	\$31,495,000
TDM Program Costs (thru 2035)	TBD
Franconia Springfield Station	
Off-Site Parking	\$22,500,000
Off-Site Parking Shuttle	\$8,265,000
Total Costs	\$203,305,000
<i>Previously Committed Funds:</i>	<i>\$22,800,000</i>
<i>Recommended for Six-Year Program</i>	<i>\$180,505,000</i>

Table 7-2 focuses only on costs recommended for inclusion in the State’s Six-Year Program by plan element and five-year increment for I-95 related costs. Total costs by plan element and by time period are also illustrated in **Figure 7-1** and **Figure 7-2**.

The total cost (capital and O&M) is estimated to be \$180.5 million between 2015 and 2035. By time period, total costs increase significantly from the 2015-2019 period to the 2020-2024 period and then taper off somewhat in the last two time periods. The expansion of park-and-ride spaces along I-95 is by far the largest component of the recommendations, at \$98.9 million (or 55%). A summary table of plan costs is also presented in Year of Expenditure dollars in Appendix A.

**Table 7-2
Summary of Recommended Funding by Plan Element and Time Period (2011 dollars)**

Plan Element	Time Period				TOTAL
	2015-19	2020-24	2024-2029	2030-2035	
Total Corridor Service/Project Needs					
Previously Funded P&R Spaces	\$22,800,000	\$0	\$0	\$0	\$22,800,000
Additional P&R Spaces	\$0	\$35,875,000	\$27,937,500	\$35,062,500	\$98,875,000
Bus Purchase Needs	\$3,076,000	\$8,182,000	\$5,312,000	\$2,800,000	\$19,370,000
Add'l. Bus O&M (Net)	\$2,875,000	\$7,310,000	\$9,835,000	\$11,475,000	\$31,495,000
TDM Programs	TBD	TBD	TBD	TBD	TBD
F-S Station Off-Site Parking	\$0	\$22,500,000	\$0	\$0	\$22,500,000
F-S Station Parking/Shuttle	\$0	\$2,755,000	\$2,755,000	\$2,755,000	\$8,265,000
Total (Funded and Recommended)	\$28,751,000	\$76,622,000	\$45,839,500	\$52,092,500	\$203,305,000
Total for Six-Year Program:	\$5,951,000	\$76,622,000	\$45,839,500	\$52,092,500	\$180,505,000

**Figure 7-1
Summary of Recommended Funding by Plan Element (2011 dollars)**

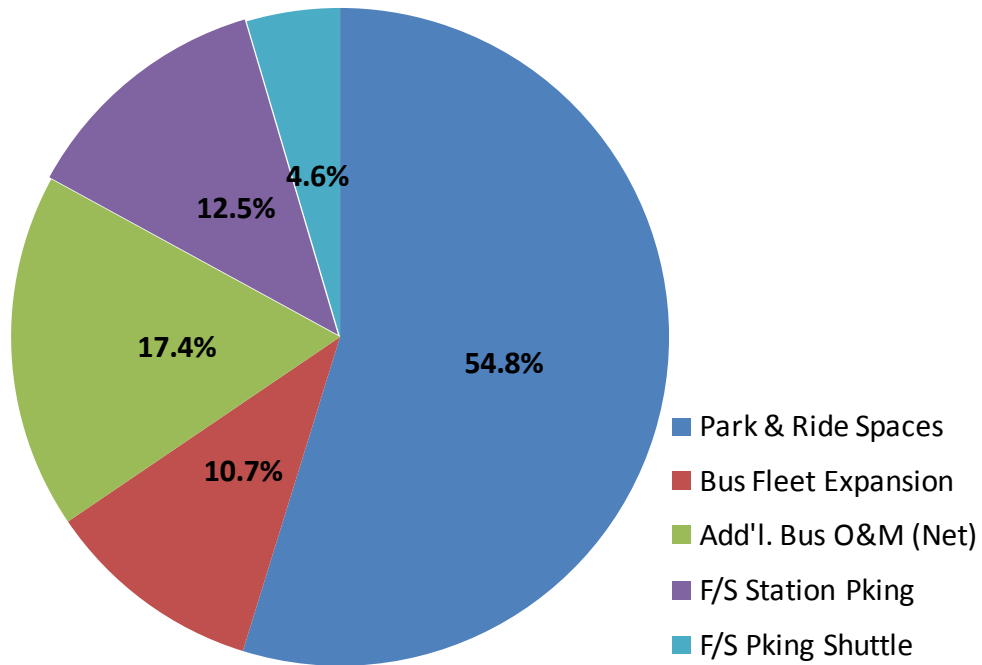
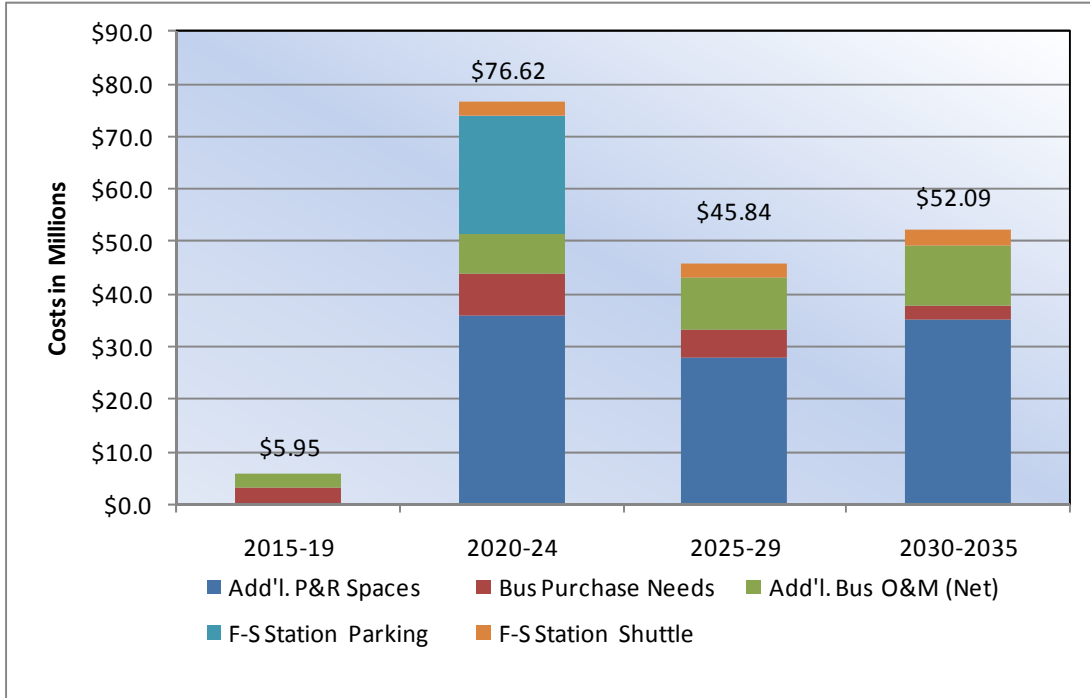


Figure 7-1
Summary of Recommended Funding by Five-Year Increment (2011 dollars)



APPENDIX A
I-95 TRANSIT AND TDM RECOMMENDATIONS:
COST TABLES IN YEAR OF EXPENDITURE DOLLARS

I-95 CORRIDOR TRANSIT & TDM NEEDS PLAN SUMMARY OF COSTS FOR PLAN ELEMENTS

Plan Summary

Plan Element	Plan Cost
Capital Costs	
Current Funded Park & Ride Spaces	\$22,800,000
Additional Park & Ride Spaces	\$150,550,000
Bus Fleet Expansion	\$27,081,000
O&M Costs	\$50,725,000
TDM Program Costs (thru 2035)	TBD
Franconia Springfield Station	
Off-Site Parking	\$29,357,000
Off-Site Parking Shuttle	\$13,371,000
Total Costs	\$293,884,000
<i>Funded Costs</i>	<i>\$22,800,000</i>
<i>Unfunded Costs</i>	<i>\$271,084,000</i>

Costs in year of expenditure dollars.

Capital Costs

Plan Element	Scenario A Costs (YOE Dollars)		
	Total Cost	Funds Committed	Additional Recommended
Park & Ride Spaces (6,275 spaces)	\$173,350,000	\$22,800,000	\$150,550,000
Bus Fleet Expansion	\$27,081,000	\$0	\$27,081,000
Franconia-Springfield Off-Site Parking	\$29,357,000	\$0	\$29,357,000
TOTALS	\$229,788,000	\$22,800,000	\$206,988,000

Costs in year of expenditure dollars.

O&M Costs

Service	Costs in 2011 dollars			YOE dollars
	Annual O&M Cost	Potential Farebox	Net O&M Cost	Net O&M Over 20 yrs.
Bus Service Costs	\$5,403,000	\$3,108,000	\$2,295,000	\$50,725,000
Franconia-Springfield Parking Shuttle	\$551,000	\$0	\$551,000	\$13,371,000

Costs in year of expenditure dollars.

**I-95 CORRIDOR TRANSIT & TDM NEEDS PLAN
CAPITAL COST ESTIMATES FOR PARK & RIDE SPACES**

							<i>Costs in Year of Expenditure Dollars</i>					
Geographic Area	Improvement Description	Number of		Total Cost	Funding Committed	Remaining Unfunded	< 2015	2015-2019	2020-2024	2025-2029	2030-2035	Total
		Parking Spaces	Cost/Space									
Fairfax District	Saratoga Lot* (2013)	600	\$5,000	\$3,000,000	\$3,000,000		\$3,000,000					\$3,000,000
	Additional Needs	250	\$15,000	\$3,750,000		\$3,750,000		\$4,893,000				\$4,893,000
Prince William District 1	Additional Needs	1,100	\$15,000	\$16,500,000		\$16,500,000			\$12,479,000	\$14,466,000		\$26,945,000
Prince William District 2	Telegraph Rd* (2012)	700	\$11,429	\$8,000,000	\$8,000,000		\$8,000,000					\$8,000,000
	Additional Needs (Horner Road Expansion)	950	\$20,000	\$19,000,000		\$19,000,000		\$24,791,000				\$24,791,000
Prince William District 3	Additional Needs	400	\$15,000	\$6,000,000		\$6,000,000		\$7,829,000				\$7,829,000
Stafford District 1	Staffordborough Rd. Lot Expansion* (2015)	1,000	\$5,900	\$5,900,000	\$5,900,000		\$5,900,000					\$5,900,000
	Additional Needs	1,300	\$15,000	\$19,500,000		\$19,500,000			\$14,748,000	\$17,097,000		\$31,845,000
Stafford District 2	Additional Needs	950	\$15,000	\$14,250,000		\$14,250,000		\$9,297,000		\$12,494,000		\$21,791,000
Fredericksburg & Spotsylvania District	Route 3 (2017)*	1,000	\$5,900	\$5,900,000	\$5,900,000		\$5,900,000					\$5,900,000
	Additional Needs	1,325	\$15,000	\$19,875,000		\$19,875,000			\$15,031,000	\$17,425,000		\$32,456,000
TOTALS		9,575		\$121,675,000	\$22,800,000	\$98,875,000	\$11,000,000	\$11,800,000	\$46,810,000	\$42,258,000	\$61,482,000	\$173,350,000
<i>Previously Committed Funds:</i>							\$11,000,000	\$11,800,000	\$0	\$0	\$0	\$22,800,000
<i>Additional Recommended Funding:</i>							\$0	\$0	\$46,810,000	\$42,258,000	\$61,482,000	\$150,550,000

Notes:

1. Lots with (*) are already programmed for construction by VDOT staff. Cost per space derived by dividing VDOT-supplied total cost into planned # of spaces.
2. Capital costs for the Route 3 pnr lot are assumed to be similar to cost identified for Staffordborough lot expansion.
3. Costs for Additional Needs for Prince William District #2 (Horner Road Expansion) suggested by VDOT staff.
4. For all other spaces, \$15,000 per parking space was recommended for use by VDOT staff, to account for construction, ROW acquisition and site access improvement costs.
5. Annual Inflation Factor = 3%
6. Costs for committed park & ride projects were not inflated.

**I-95 CORRIDOR TRANSIT & TDM NEEDS PLAN
ANNUAL O&M COST ESTIMATES FOR BUS SERVICE**

Costs in Year of Expenditure Dollars

Geographic Area	Imprpr. Status	Operator	Improvement Description	Annual O&M Cost	Potential Farebox	Net O&M Cost	Impl. Year	Total O&M thru 2035	Farebox thru 2035	Net Costs thru 2035
Fairfax County	Committed Service Improvements	Fairfax	Re-label Route 380-D as Route 395	Service Plans currently under development			< 2015			Committed Project
		Fairfax	I-495 HOT Lane Service - Lorton-Tysons	Service Plans currently under development			< 2015			Committed Project
		Fairfax	I-495 HOT Lane Service - Franconia/Springfield-Tysons	Service Plans currently under development			< 2015			Committed Project
	Additional I-95 Corridor Service Needs	WMATA	Route 18 G/H/J/P Restructuring	\$0	\$0	\$0	2015	\$0	\$0	\$0
		WMATA	Extension of Route 18E/F to Saratoga pnr	\$153,000	\$46,000	\$107,000	2015	\$4,627,000	\$1,391,000	\$3,236,000
		Fairfax	Restructure Tysons service to stop at Saratoga pnr	\$92,000	\$28,000	\$64,000	2015	\$2,782,000	\$847,000	\$1,935,000
		Fairfax	New: Saratoga-Pentagon Express - 5 a.m. and 5 p.m. trips	\$230,000	\$69,000	\$161,000	2020	\$5,581,000	\$1,674,000	\$3,907,000
SubTotal				\$475,000	\$143,000	\$332,000		\$12,990,000	\$3,912,000	\$9,078,000
Prince William County	Committed Service Improvements	OmniRide	Add 8 morning and three afternoon OmniRide trips to address current overcrowding issues	Service Plans currently under development			< 2015			Committed Project
				Service Plans currently under development						
	Additional I-95 Corridor Service Needs	OmniRide	Lake-Ridge-Washington, D.C. - add 3 a.m. and 4 pm. trips	\$321,000	\$144,000	\$177,000	2025	\$5,566,000	\$2,497,000	\$3,069,000
		OmniRide	Lake Ridge-Pentagon/Crystal City - add 3 a.m. and 3 p.m. trips	\$275,000	\$124,000	\$151,000	2025	\$4,769,000	\$2,150,000	\$2,619,000
		OmniRide	New Service - Lake Ridge to Mark Center - 4 a.m. and 4 p.m. trips	\$367,000	\$165,000	\$202,000	2015	\$11,099,000	\$4,990,000	\$6,109,000
		OmniRide	Dale City/Potomac Mills-Washington, D.C. - add 4 a.m. and 5 p.m. trips	\$413,000	\$186,000	\$227,000	2020	\$10,022,000	\$4,514,000	\$5,508,000
		OmniRide	Dale City/Potomac Mills-Pentagon/Crystal City - add 3 a.m. and 4 p.m. trips	\$321,000	\$144,000	\$177,000	2025	\$5,566,000	\$2,497,000	\$3,069,000
		OmniRide	Dale City/Potomac Mills-Rosslyn/Balston - add 2 a.m. and 2 p.m. trips	\$184,000	\$83,000	\$101,000	2020	\$4,465,000	\$2,014,000	\$2,451,000
		OmniRide	New Service: Dale City/Potomac Mills-Mark Center - 4 a.m. and 4 p.m. trips	\$367,000	\$165,000	\$202,000	2015	\$11,099,000	\$4,990,000	\$6,109,000
		OmniRide	New Service: Dale City/Potomac Mills-Merrifield - 4 a.m. and 4 p.m. trips	\$367,000	\$165,000	\$202,000	2020	\$8,906,000	\$4,004,000	\$4,902,000
		OmniRide	Monclair/Dumfries-Pentagon/DC - Add 2 a.m. and 3 p.m. trips	\$230,000	\$104,000	\$126,000	2030	\$2,141,000	\$968,000	\$1,173,000
		OmniRide	New Service: Montclair/Dumfries-Tysons Corner - 4 a.m. and 4 p.m. trips	\$367,000	\$165,000	\$202,000	2030	\$3,417,000	\$1,536,000	\$1,881,000
			MetroDirect	Prince William MetroDirect - Increase peak period frequencies to 20-min.	\$245,000	\$49,000	\$196,000	2020	\$5,946,000	\$1,189,000
SubTotal				\$3,457,000	\$1,494,000	\$1,963,000		\$72,996,000	\$31,349,000	\$41,647,000
Stafford and Spotsylvania Counties	Additional I-95 Corridor Service Needs	Private Op's.	Washington D.C. Service - add 6 trips each peak period	\$551,000	\$551,000	\$0	2020	\$13,371,000	\$13,371,000	\$0
		Private Op's.	Pentagon/Crystal City Service - add 2 trips each peak period	\$184,000	\$184,000	\$0	2020	\$4,465,000	\$4,465,000	\$0
	Service Needs	Private Op's.	Mark Center Service - add 2 trips each peak period	\$184,000	\$184,000	\$0	2020	\$4,465,000	\$4,465,000	\$0
		Private Op's.	Navy Yard/DOT Service - add 1 trip each peak period	\$92,000	\$92,000	\$0	2025	\$1,595,000	\$1,595,000	\$0
		Private Op's.	Rosslyn Service - add 2 trips each peak period	\$184,000	\$184,000	\$0	2025	\$3,191,000	\$3,191,000	\$0
		Private Op's.	Fort Belvoir Service - add 1 trip each peak period	\$92,000	\$92,000	\$0	2015	\$2,782,000	\$2,782,000	\$0
		Private Op's.	Tysons Corner Service - new service, 2 trips each peak period	\$184,000	\$184,000	\$0	2025	\$3,191,000	\$3,191,000	\$0
SubTotal				\$1,471,000	\$1,471,000	\$0		\$33,060,000	\$33,060,000	\$0
TOTALS				\$5,403,000	\$3,108,000	\$2,295,000		\$119,046,000	\$68,321,000	\$50,725,000

Annual inflation factor =

3%

Weekdays per Year:

255

Cost per Hour Assumptions

USE

\$120.00

Farebox Recovery Ratios

Locals

20%

Assuming 20% farebox recovery/80% subsidy

Fairfax Express

30%

Assuming 30% farebox recovery/70% subsidy

PRTC

45%

Consistent with PRTC TDP assumptions

Stafford/Spotsy

100%

Assume 100% recovery under private operations

**I-95 CORRIDOR TRANSIT & TDM NEEDS PLAN
BUS CAPITAL COST ESTIMATES FOR BUS SERVICE**

Geographic Area	Operator	Improvement Description	Capital Costs	Costs in Year of Expenditure Dollars					Total Costs
				2015	2020	2025	2030	2035	
Fairfax County	WMATA	Route 18 G/H/J/P Restructuring	n/a						
	WMATA	Extension of Route 18E/F to Saratoga pnr	n/a						
	Fairfax	Restructure Tysons service to stop at Saratoga pnr	\$0						\$0
	Fairfax	New: Saratoga-Pentagon Express - 5 a.m. and 5 p.m. trips	\$1,800,000		\$2,349,000				\$2,349,000
	Spares		\$0	\$0	\$0				\$0
SubTotal			\$1,800,000	\$0	\$2,349,000	\$0	\$0	\$0	\$2,349,000
Prince William County	OmniRide	Lake-Ridge-Washington, D.C. - add 3 a.m. and 4 pm. trips	\$1,620,000			\$2,450,000			\$2,450,000
	OmniRide	Lake Ridge-Pentagon/Crystal City - add 3 a.m. and 3 p.m. trips	\$1,620,000			\$2,450,000			\$2,450,000
	OmniRide	New Service - Lake Ridge to Mark Center - 4 a.m. and 4 p.m. trips	\$1,290,000	\$1,452,000					\$1,452,000
	OmniRide	Dale City/Potomac Mills-Washington, D.C. - add 4 a.m. and 5 p.m. trips	\$2,160,000		\$2,818,000				\$2,818,000
	OmniRide	Dale City/Potomac Mills-Pentagon/Crystal City - add 3 a.m. and 4 p.m. trips	\$1,080,000			\$1,634,000			\$1,634,000
	OmniRide	Dale City/Potomac Mills-Rosslyn/Balston - add 2 a.m. and 2 p.m. trips	\$1,080,000		\$1,409,000				\$1,409,000
	OmniRide	New Service: Dale City/Potomac Mills-Mark Center - 4 a.m. and 4 p.m. trips	\$1,290,000	\$1,452,000					\$1,452,000
	OmniRide	New Service: Dale City/Potomac Mills-Merrifield - 4 a.m. and 4 p.m. trips	\$1,720,000			\$3,016,000			\$3,016,000
	OmniRide	Monclair/Dumfries-Pentagon/DC - Add 2 a.m. and 3 p.m. trips	\$1,080,000			\$1,894,000			\$1,894,000
	OmniRide	New Service: Montclair/Dumfries-Tysons Corner - 4 a.m. and 4 p.m. trips	\$1,720,000		\$2,244,000				\$2,244,000
	MetroDirect	Prince William MetroDirect - Increase peak period frequencies to 20-min.	\$430,000		\$561,000				\$561,000
	Spares		\$2,480,000	\$558,000	\$1,294,000	\$1,500,000			\$3,352,000
	SubTotal			\$17,570,000	\$3,462,000	\$8,326,000	\$8,034,000	\$4,910,000	\$0
TOTALS FOR SCENARIO A			\$19,370,000	\$3,462,000	\$10,675,000	\$8,034,000	\$4,910,000	\$0	\$27,081,000

Notes:

1. PRTC bus unit capital costs consistent with those used in the PRTC TDP.
2. Fairfax County bus unit costs assume average of \$450k/bus (standard coach).
3. Costs for Commuter Coaches for S. Corridor not included because of assumption of continued private operations.
4. Table reflects initial costs of buses for proposed new service, and does not include any additional bus replacement costs.
5. Annual inflation factor = 3%

**I-95 CORRIDOR TRANSIT & TDM RECOMMENDATIONS
 COST ESTIMATES FOR FRANCONIA-SPRINGFIELD OFF-SITE PARKING EXPANSION
 AND SHUTTLE SERVICE**

		<i>Costs in Year of Exp. \$</i>	
Location	Improvement Description	Impl. Year	Project Cost
Franconia-Springfield	Add off-site parking - 750 spaces	2020	\$29,357,000
Metrorail	Shuttle Service to off-site parking (2 vehicles, 9 hours/day - 255 days/year)	Annual cost	\$551,000
		Cost thru 2035	\$13,371,000
TOTALS			\$43,279,000

Notes:

1. Cost for off-site parking based on \$30,000 per parking space and reflects typical parking structure unit cost.
2. Other Needed Regional Facility Needs that are outside of I-95 corridor include:
 - a. Pentagon Station bus bays and bus access improvements
 - b. Crystal City transit center
 - c. Managed bus loading/unloading areas in D.C. and Arlington
3. Annual inflation factor = 3%