

Working Paper No. 2013-08

**Outlook for the I-95 Corridor in Fairfax and  
Prince William Counties**

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November 2013



# Outlook for the I-95 Corridor in Fairfax and Prince William Counties

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## Abstract

The Interstate 95 corridor in Fairfax and Prince William counties is a critical component of the Northern Virginia economy and transportation network. At the present time the corridor is primarily characterized by low-density residential development, with most of its residents utilizing the corridor's road and/or transit infrastructure to access jobs in other locations. Over the next two decades the corridor is expected to experience significant employment and population growth, most of which is planned to occur in a small number of densely-built nodes. The expected emergence of these urban centers along the corridor over the next two decades will present government and business leaders in the region with a variety of critical challenges related to transportation, economic development, and land use.

## Profile of the I-95 Corridor

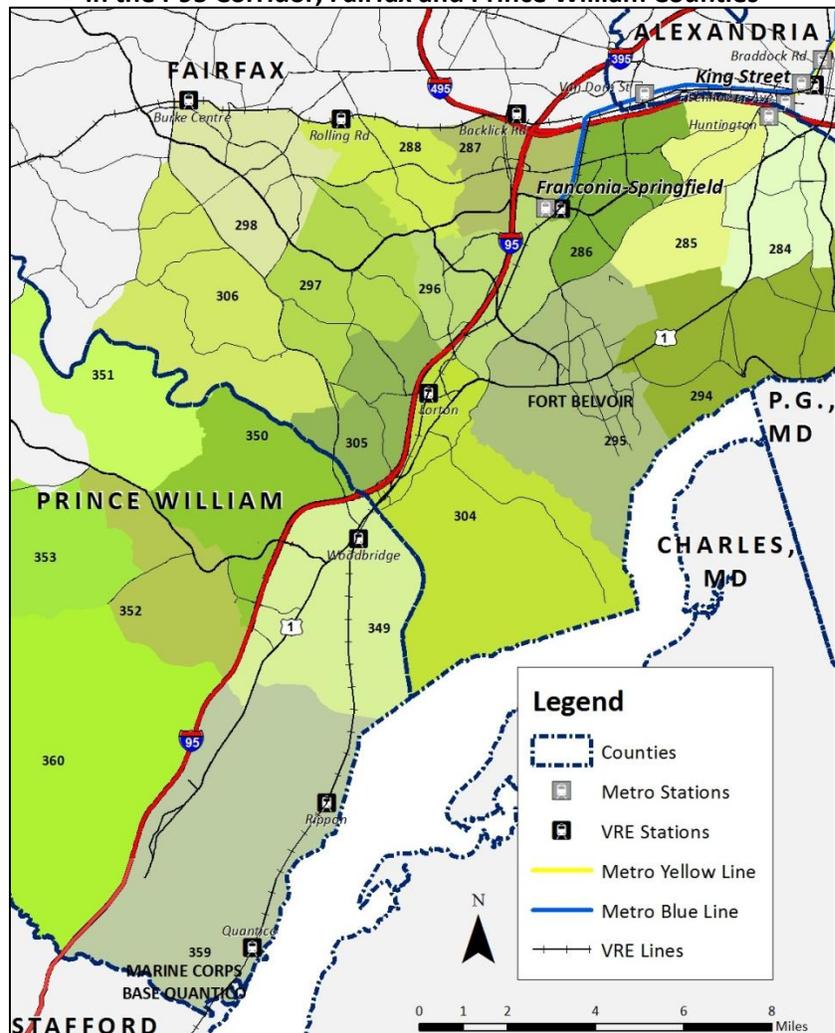
Interstate 95 is the primary north-south transportation corridor along the eastern seaboard of the United States, stretching more than 2,000 miles from Maine to Florida. For most of its length I-95 is paralleled by railroad tracks and surface highways, particularly U.S. Route 1. This transportation corridor is critical to the movement of people and goods along the east coast. The I-95 corridor traverses many major urban centers, including Boston, New York, Philadelphia, Washington, Richmond, Savannah, Jacksonville, and Miami. Within these metro areas the I-95 corridor takes on the role of a commuter route.

The I-95 corridor is particularly important in Northern Virginia, as it is the region's only major north-south transportation corridor. For most people who live or work in the 21-mile stretch of the corridor located in Fairfax and Prince William counties the transportation infrastructure located around I-95 represents the only connection to their places of employment.

In addition to I-95 itself the corridor also includes a segment of US Route 1, which parallels I-95 as far north as Lorton, and then turns eastward, forming the primary connection with Fort Belvoir, the corridor's largest employment center. In addition, the corridor includes the Metrorail Blue Line, the Virginia Railway Express (VRE) Fredericksburg and Manassas lines, and numerous express commuter bus routes.

Within Fairfax and Prince William counties there are 20 Traffic Analysis Districts (TADs), as defined by the Metropolitan Washington Council of Governments (MWCOC). The corridor is predominantly comprised of single-family residential neighborhoods, and its demographics are typical of a suburban bedroom community. More than 26 percent of its residents are children under the age of 18, and 67 percent of residents are in the primary working age group (25-64).

**Figure 1: Transportation Infrastructure and Traffic Analysis Districts in the I-95 Corridor, Fairfax and Prince William Counties**



More than 70 percent of the corridor’s households own their homes. The corridor has a very high rate of labor force participation: 84 percent of those aged 16 to 64 are in the labor force. Though it is generally affluent—49 percent of its households earn more than \$100,000 per year—it does have a fairly high share of households earning below \$50,000 per year (22 percent). This income structure is related to the divergent industries in which its residents work. While more than half of the corridor’s residents work in higher wage industries such as Public Administration, Professional and Business Services, Education and Health Services, and Financial Services, significant shares also work in lower-wage industries like Retail Trade, Leisure and Hospitality, and Construction.

**Table 1**  
**Demographic and Economic Profile of I-95 Corridor Residents<sup>1</sup>**

<b>Median Age</b>	35
<b>% of Households that are Owner Occupied</b>	70.4%
<b>Age Profile</b>	
Under 18	26.1%
18-24	7.8%
25-44	30.0%
45-64	26.7%
65+	9.3%
<b>% of Population Age 16-64 in Labor Force</b>	84.0%
<b>Household Income</b>	
Less than \$50,000	21.7%
\$50,000-74,999	15.6%
\$75,000-99,999	14.0%
\$100,000-149,999	21.7%
\$150,000 or more	26.9%
<b>Primary Work Industries</b>	
Public Administration	18.7%
Professional and Business Services	18.5%
Education and Health Services	17.6%
Retail Trade	8.5%
Leisure and Hospitality	8.4%
Construction	6.2%
Financial Services	5.7%

Source: 1-Year Census Public Use Microdata Sample (PUMS), 2011

<sup>1</sup> Includes Public Use Microdata Areas (PUMAs) 302 and 303 in Fairfax County and 502 in Prince William County; this area is roughly contiguous with the 20 TADs in the study area.

## Existing and Planned Land Uses

Current and planned future land use patterns in the I-95 corridor are explained in detail in each county's Comprehensive Plan, as outlined below.

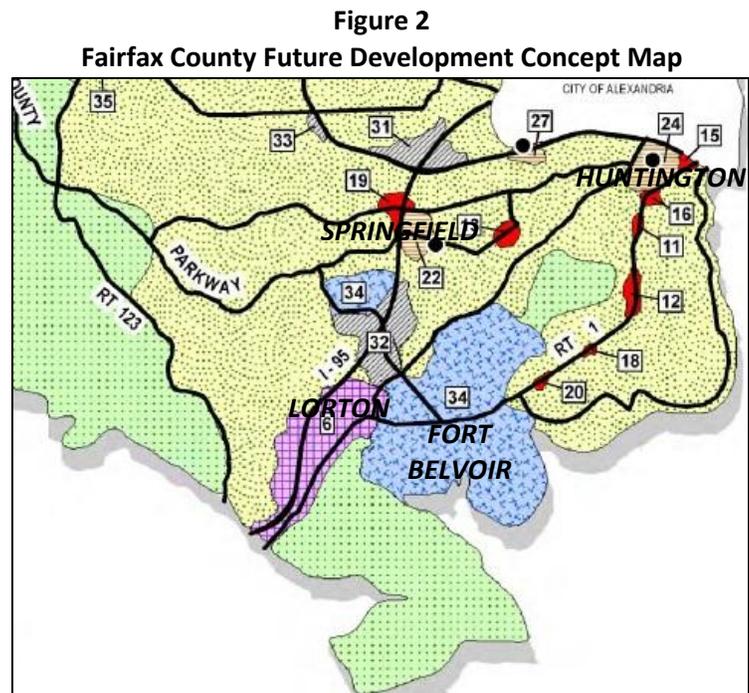
### Fairfax County Comprehensive Plan

The corridor's Fairfax County portion is largely built-out and primarily consists of low to moderate density residential development. Its one major employment center is Fort Belvoir (#34 in Figure 2), which employs about 25,000 people at its Main Post and another 8,500 at its North Area, which is located on the west side of I-95. Most of Fort Belvoir's employees are white-collar civilians working in offices. The corridor's major commercial district is Springfield (#19 and 22), which encompasses a regional shopping hub and a substantial base of office development. The corridor also includes the Richmond Highway (#11, 12, 15, 16, 18, and 20), Lorton (#6), and Kingstowne (#13) commercial areas, the Newington Industrial Area (#32), and a high-intensity—but primarily residential—area around the Huntington Metro station (#24).

Fairfax County's Comprehensive Plan envisions the overall character of the I-95 corridor to remain stable, with most of its land area envisioned to remain as low-density suburban residential neighborhoods (the areas shown in yellow in Figure 2). While the footprints of the existing commercial and industrial areas are planned to remain the same, the county does envision revitalization in several locations.

The most intensive development is planned for the areas around the three Metrorail stations in the corridor: Huntington (#24), Franconia-Springfield (#22) and Van Dorn Street (#27). Each of these areas is planned to accommodate high-density commercial and residential

development in transit-oriented developments (TODs). Some additional—and denser—development is also envisioned in the corridor's Community Business Centers (shown in red in Figure X), specifically in Central Springfield (#19), and the northern segment of Richmond Highway (#11, 12, 15, and 16). Lorton (#6) is designated as a Suburban Center, and is expected to accommodate a modest amount of lower-density development in the future. Additional development is anticipated at Fort Belvoir as well, though this is dependent upon future strategic decisions by the Department of Defense.



Source: Fairfax County Department of Planning and Zoning

## Prince William County Comprehensive Plan

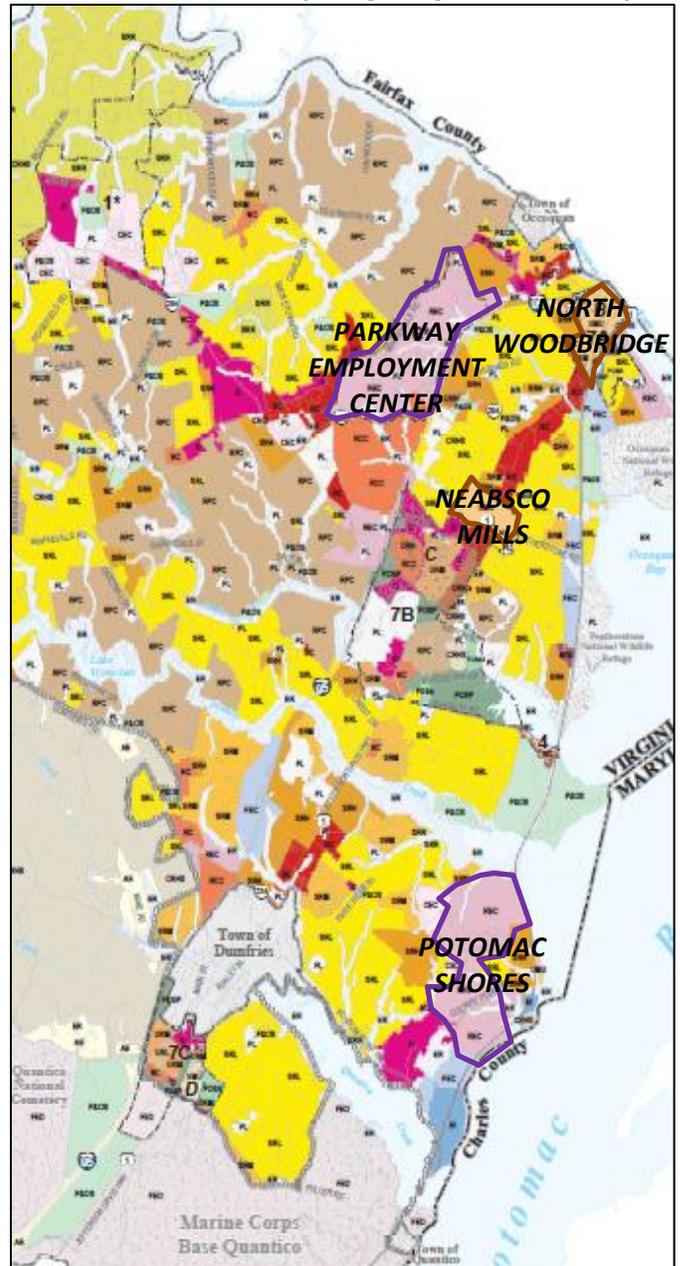
Current land uses in the Prince William County section are mostly similar to those in Fairfax. As with the Fairfax portion the I-95 corridor in Prince William contains primarily low and moderate density housing, has a large military installation (Marine Corps Base Quantico), a regional commercial center (Potomac Mills/Potomac Town Center), and several smaller commercial districts (Woodbridge, Dumfries, Occoquan). The Prince William section differs from Fairfax in two key regards, though: 1) it has a much smaller base of professional office jobs; and 2) there are still some significant undeveloped areas.

There are two mostly undeveloped areas along I-95 in Prince William that are planned for intensive development: Parkway Employment Center and Potomac Shores. These two areas, which are highlighted in Figure 3, are tabbed as future Regional Employment Centers (RECs) in the county's Comprehensive Plan.

- Parkway Employment Center is a 900-acre area located along I-95 near the Prince William Parkway; the Comprehensive Plan calls for the area to become a major employment center for the region, including more than two million square feet of office and R&D space, 900,000 square feet of retail, and 325 housing units.
- Potomac Shores is a master-planned community on the Potomac River, east of Dumfries. This development, which is set to be arranged around a future VRE station, to be added along the Fredericksburg line between Rippon Landing and Quantico, is expected to include a corporate office park, a resort hotel and conference center, destination retail, and about 4,000 housing units.

Aside from these two major projects, other future development in Prince William's I-95 corridor will mostly consist of revitalization along the US Route 1 corridor, particularly in two designated Urban Mixed Use (UMU) areas at North Woodbridge and Neabsco Mills. Each of these areas is envisioned as transforming into walkable, moderate-to-high density urban nodes containing a mix of office, retail, and multi-family residential development.

**Figure 3**  
**Prince William County Long Range Land Use Map**



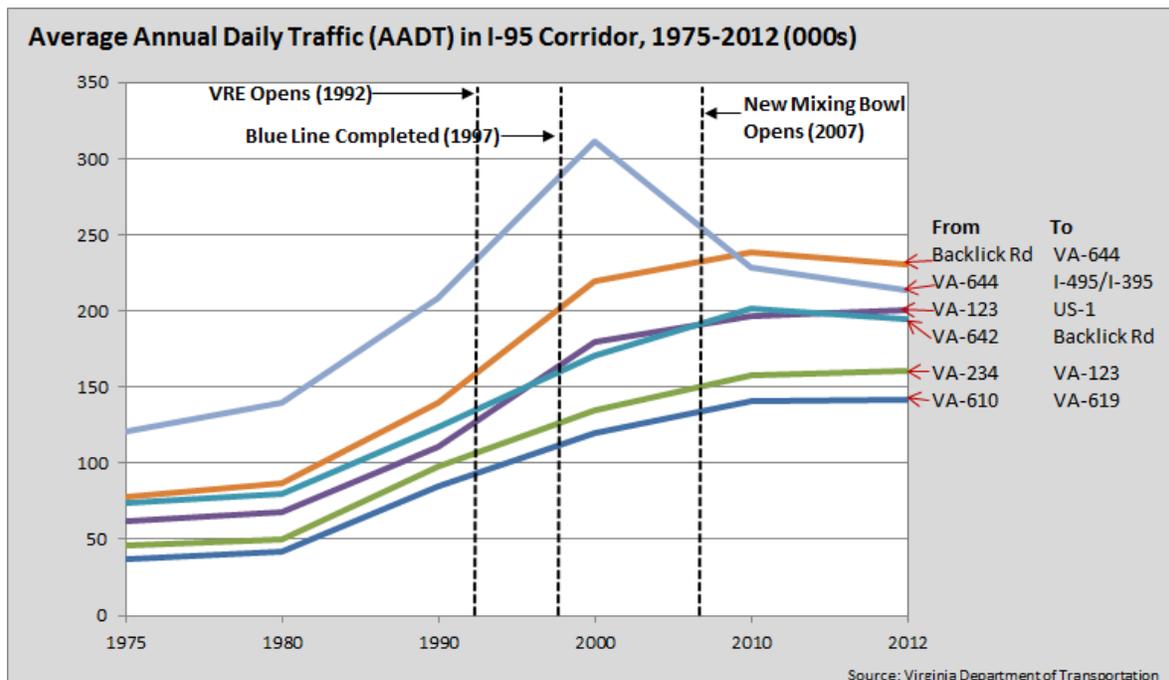
Source: Prince William County Planning Office

## Transportation Situation

### Traffic Patterns

As of 2012, the average annual daily traffic (AADT) count along the 21-mile stretch of I-95 between the Prince William-Stafford County line and the Capital Beltway ranged from 142,000 to 231,000 vehicles.<sup>2</sup> The busiest stretch of I-95 in the corridor is located just south of the VA-644 (Old Keene Mill Road/Franconia Road) interchange. The lowest traffic volume along the corridor was at its southern end, to the south of VA-619 in Quantico (Figure 4).

Figure 4



Between 1975 and 2000 traffic volumes more than doubled for all segments along the corridor between 1975 and 2000, and tripled for two segments: south of VA-619 and between the Prince William Parkway and VA-123. The opening of the Virginia Railway Express (VRE) in 1992 and the completion of the Metrorail Blue Line to Franconia-Springfield in 1997 did not slow traffic volume growth during the 1990s, as the traffic counts on most segments grew by 50 percent or more between 1990 and 2000. Since 2000, though, traffic volume growth has slowed: the counts for most segments only increased by 10-20 percent between 2000 and 2012.

<sup>2</sup> <http://www.virginiadot.org/info/ct-trafficcounts.asp>. Counts are in both directions.

A key shift in the corridor's traffic patterns occurred in 2007, following the completion of a major reconstruction of the I-95/I-395/I-495 "Mixing Bowl" interchange in Springfield. Until 2007 all vehicles traveling to or from VA-644 had to use the segment of I-95 just south of the Beltway, even if they proceeded to I-395 or I-495.<sup>3</sup> The new ramp configuration allows traffic entering or exiting any of the three highways at VA-644 to bypass this segment. As a result the AADT on the segment between VA-644 and the Beltway declined from 311,000 in 2000 to 214,000 by 2012.

Another aspect of the I-95 corridor is its reversible express lanes. The first two-lane segment of these lanes, stretching along I-395 and I-95 from the Washington, DC line to VA-644 in Springfield, was completed in the early 1970s. At that time, the lanes were restricted to buses and vehicles with four or more occupants (HOV-4); this was later reduced to HOV-3, and motorcycles were also allowed to use the lanes. In 1989, construction began on a 19-mile extension of the HOV-3 lanes to Dumfries; this project was completed in 1997.<sup>4</sup>

According to VDOT the current express lanes carry between 10 and 20 percent of all traffic in the corridor, depending upon the location.<sup>5</sup> The most heavily traveled section of the Express Lanes is the segment between US-1 and Lorton Road, which had an AADT of 36,000 in 2012. The AADT to the north of Lorton Road is 32,000, and then just 24,000 to the north of the VA-289 (Franconia Springfield Parkway) interchange. The declines in traffic to the north of Lorton and VA-289 suggest that a significant number of vehicles using the express lanes are using the lanes either to travel to jobs at or near Fort Belvoir or to the Franconia-Springfield Metro station.

A final consideration is the impact of truck traffic, given I-95's status as a primary trucking corridor for the eastern U.S. VDOT estimates that, as of 2012, 6.4 percent of the vehicles traveling in the Fairfax and Prince William sections of I-95 are tractor-trailers. The highest volume of trucks in the corridor was at its northernmost point, between VA-644 and the Mixing Bowl; in 2012 the AADT for tractor-trailers was 14,400.

### **Congestion and Planned Interventions**

The section of Interstate 95 that traverses Prince William and Fairfax counties is one of the most heavily traveled and congested highway segments in the United States. In addition to having very high traffic counts, several segments in the corridor's general purpose (GP) lanes are already operating at Level of Service (LOS) E or F—signifying failure—four at AM peak and eight during PM peak. The study found that, if the express lanes project is not undertaken, by 2035, seven more GP segments would fail during AM peak, as would four additional segments during PM peak. The existing HOV lanes, if left unchanged, would continue to operate at LOS D or better, though.<sup>6</sup>

Several initiatives aimed at reducing congestion and improving traffic flow in the corridor have been recently undertaken or are currently under way. These projects all fall under VDOT's "Megaprojects"

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<sup>3</sup> [http://www.roadstothefuture.com/Springfield\\_Interchange\\_Project.html](http://www.roadstothefuture.com/Springfield_Interchange_Project.html)

<sup>4</sup> [http://www.roadstothefuture.com/Shirley\\_Highway.html](http://www.roadstothefuture.com/Shirley_Highway.html)

<sup>5</sup> Virginia DOT traffic counts page: <http://www.virginiadot.org/info/ct-trafficcounts.asp>

<sup>6</sup> Virginia DOT, "Interstate 95 HOV/HOT Lanes Project Interchange Justification Report," November 2011, available at: <http://www.vamegaprojects.com/fagsdocuments/>

program, which encompasses a broader slate of major transportation improvements in Northern Virginia. Summaries of these projects are adapted from the Megaprojects website.<sup>7</sup>

The first of the recent interventions was the widening of the six-mile segment of I-95 between VA-123 and VA-286 (Fairfax County Parkway). This project, which added a fourth travel lane in each direction, was completed in 2011. VDOT reports that its completion has reduced bottlenecks in this section of I-95.

Another intervention was spurred by the 2005 Base Realignment and Closure (BRAC) initiative, which consolidated 8,500 National Geospatial Intelligence Agency (NGA) employees at the Fort Belvoir North Area. This action resulted in the completion of the final segment of the Fairfax County Parkway between I-95 and Rolling Road, along with several new interchanges, trail improvements, and a new park and ride lot. The entire project was finished in 2012.

VDOT is also undertaking a \$40 million project to upgrade the shoulders of I-95 between Prince William Parkway and Dumfries Road. This project will create wider shoulders for emergency use, longer acceleration and deceleration lanes for easier merging, and auxiliary lanes around the truck scale facility near Dumfries Road. Work is under way and is planned for completion in 2015.

VDOT's largest current project in the corridor, a \$1 billion expansion of the I-95 express lanes, is under construction and scheduled for completion in 2015. VDOT also has plans to extend the express lanes into Spotsylvania County, but no timetable has been announced for this project. The current project includes the following components:

- Extend the express lanes nine miles to the south, past VA-610 in Stafford County;
- Convert the express lanes into high-occupancy or toll (HOT) lanes from Stafford County, past the Mixing Bowl, and north to Edsall Road—non-HOV users will be able to pay a toll in these lanes;
- Connect the express lanes with the existing HOT lanes on I-495 between Springfield and Tysons;
- Add or enhance several access points and park and ride lots; and
- Add a third express lane between Prince William Parkway and Edsall Road.<sup>8</sup>

VDOT's engineering review of the proposed express lanes project, which was completed in November 2011, predicted mostly positive outcomes from the project. Examining the expected effects of the express lanes in 2035, the study concluded that the project would "have a positive effect on the corridor's safety performance,"<sup>9</sup> and "will result in shorter queues and the length of the peak period."<sup>10</sup>

While the general conclusions were optimistic, the study did caution that several currently failing road segments would remain at LOS E or F if the express lanes were built, and that the project would result in the merge area between the I-95 and I-495 HOT lanes to decline to LOS F by 2035.<sup>11</sup> These caveats

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<sup>7</sup> <http://www.vamegaprojects.com/>

<sup>8</sup> <http://www.95expresslanes.com/>

<sup>9</sup> Virginia DOT, "Interstate 95 HOV/HOT Lanes Project Interchange Justification Report," op. cit., pp. 238-239

<sup>10</sup> Ibid., p. 215

<sup>11</sup> Ibid., p. 215

illustrate that, while a \$1 billion infrastructure project would certainly help improve traffic flow and reduce overall congestion, it alone will not solve all of the corridor’s transportation problems.

### Transit Ridership

There are many existing high-capacity and/or express transit options for residents of the I-95 corridor to travel to and from work, including Metrorail, Metrobus, Virginia Railway Express (VRE), and county-funded bus service in both counties: Fairfax Connector and PRTC OmniRide Express. At present, about 27,000 people make use of these transit options to commute to work each day (Table 2). This does not include those making use of local bus routes.

**Table 2**  
**Current Daily Commuter Transit Boardings in I-95 Corridor (AM Boardings in Corridor)<sup>1</sup>**

Mode	Total Boardings	Destination			
		DC/Maryland	Arlington	Alexandria	Ffx/PrWm
Metro (Franconia-Springfield)	9,089	5,491	2,976	484	138
VRE (Both Lines) <sup>2</sup>	6,413	4,168	1,332	673	240
Metrobus Express Service <sup>3</sup>	2,703	-	2,703	-	-
Fairfax Connector Express Service <sup>3</sup>	2,606	-	2,359	-	247
PRTC OmniRide Express <sup>4</sup>	6,128	3,174	2,812	-	142
<b>Total Ridership</b>	<b>26,939</b>	<b>12,833</b>	<b>12,181</b>	<b>1,157</b>	<b>768</b>
<i>Percent of Total</i>	<i>100%</i>	<i>48%</i>	<i>45%</i>	<i>4%</i>	<i>3%</i>

<sup>1</sup> Based on average weekday ridership for most recently reported period: May 2012 for Metrorail, Metrobus and PRTC, April 2013 for VRE and Fairfax Connector.

<sup>2</sup> Includes boardings at Burke Centre, Rolling Road, and Backlick Road (Manassas Line); Quantico, Rippon Landing, Woodbridge, Lorton, and Franconia-Springfield (Fredericksburg Line). These boardings represent about 32 percent of total VRE ridership.

<sup>3</sup> Includes Metrobus 17 (Kings Park/Kings Park Express); Metrobus 18 (Springfield/Orange Hunt/Burke Centre); Fairfax Connector Routes 394/395 (Pentagon); and Fairfax Connector Routes 493/494/495 (Tysons). Figures only include Metrobus 17 or 18 routes that terminate at the Pentagon transit center.

<sup>4</sup> Includes all PRTC OmniRide routes that originate in eastern Prince William County and terminate in Arlington or DC.

Source: WMATA; VRE; Fairfax County DOT; PRTC; GMU Center for Regional Analysis

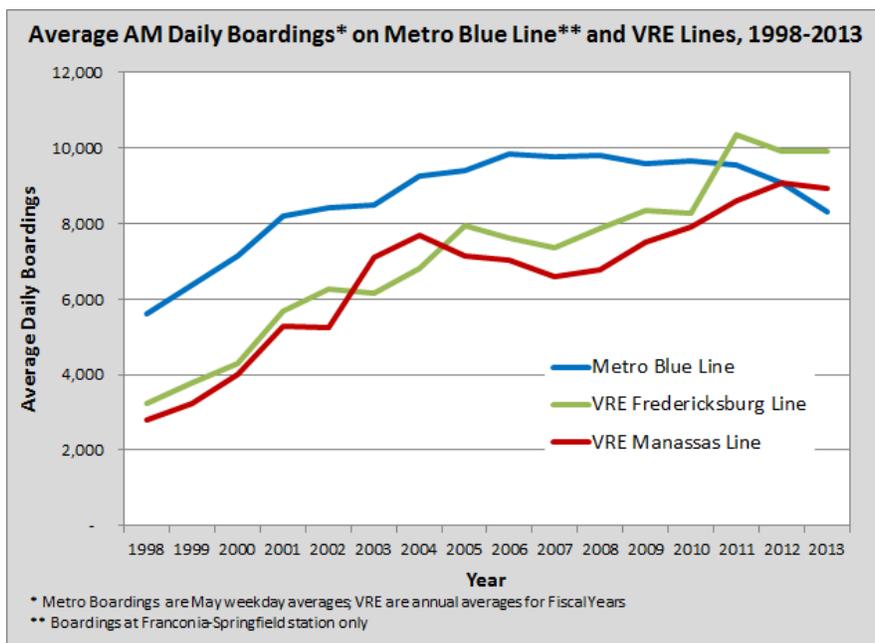
About 25,000 people (93 percent of riders) take these trains or buses each day either to Arlington or across the Potomac River into Washington, DC or Maryland. Metrorail and VRE together carry nearly 14,000 riders each day from the corridor into Arlington or DC, and the three bus services carry the remaining 11,000. PRTC, which carries about 6,000 people per day into Arlington and DC, is the largest of these. Only three percent of commuters living in the corridor use transit to commute to jobs in Fairfax or Prince William; most either use the VRE Fredericksburg Line to connect to bus service for Fort Belvoir or use the Fairfax Connector’s new Tysons Express bus routes.

Ridership in the corridor has been shifting from Metrorail to VRE in recent years (Figure 5). From 1998 to 2006, boardings for both the Metro Blue Line at Franconia-Springfield (+75 percent) and the two VRE lines<sup>12</sup> (+140 percent) increased significantly. Metro boardings at Franconia peaked in 2006 and have since declined 16 percent. During the same period VRE boardings continued to increase, albeit at a

<sup>12</sup> This counts all VRE boardings, including those in the Manassas area and those further south along I-95.

slower rate (29 percent from 2006 to 2013). As of 2013 more people now board each VRE line than board the Metro Blue Line at Franconia-Springfield during the morning commute. This increased ridership has begun to strain the system's capacity, with many peak-hour trains operating over capacity. The 4:10 train from Union Station to Fredericksburg is the most crowded: it averages 22 percent more riders than available seats.

Figure 5



Source: WMATA; VRE; GMU Center for Regional Analysis

Recent surveys of VRE and PRTC riders offer further insight into the demographics and preferences of commuters in the Prince William portion of the I-95 corridor. The most recent VRE survey<sup>13</sup> produced a number of important findings, including:

- 94 percent of riders arrived at stations by car; 81 percent drove alone, eight percent were dropped off, and five percent carpooled.
- 89 percent of riders use VRE at least four days per week, and 71 percent of riders use it five days per week.
- 63 percent of VRE riders are Federal employees.
- 53 percent of riders have household incomes in excess of \$125,000.

The PRTC survey<sup>14</sup> produced very similar results to the VRE survey. Key findings included:

- 85 percent of riders drove to their bus stops, and nearly all drove alone.

<sup>13</sup> VRE rider survey, conducted on inbound trains, May 9, 2012; a total of 6,288 passengers were surveyed.

<sup>14</sup> Conducted on PRTC OmniRide buses during March and April 2013; a total of 882 passengers were surveyed.

- 87 percent of riders use the service at least four days per week; 73 percent of riders use it five days per week.
- 60 percent are Federal employees.
- 51 percent of riders' household incomes exceeded \$100,000.

### **Commuting Trends**

The transportation situation in the I-95 corridor has been greatly affected by changing patterns of where people live relative to their jobs, particularly with the continued spread of jobs to suburban areas. From 1990 to 2010, while the number of employed people living in Fairfax or Prince William counties increased by 26 percent, the number commuting to jobs in the District of Columbia, Arlington, or Alexandria remained virtually unchanged. As a result, the share of Fairfax and Prince William commuters who worked in these “inside the Beltway” locations declined from 33 percent in 1990 to 27 percent by 2010.<sup>15</sup>

Commuting patterns in the two counties were most heavily affected by job growth within Fairfax County. Between 1990 and 2010 the number of Fairfax residents who worked within the county increased from 268,100 to 335,400, a net gain of 67,300 (+25 percent). The number of Prince William residents commuting to Fairfax also increased substantially, from 41,900 in 1990 to 68,700 in 2010, an increase of 26,800 (+64 percent). Since these figures include all areas of both counties, they do not fully explain changes to traffic patterns in the I-95 corridor. They do, however, underscore how the hub-and-spoke rail and bus transit options are not effectively serving residents of the corridor who do not work in D.C., Arlington, or Alexandria.

The dispersion of jobs away from the center of the metropolitan area has occurred alongside a decline in carpooling in the I-95 corridor. Between 2000 and 2012 the share of commuters traveling via carpool decreased from 19 percent to 15 percent in Prince William and from 13 percent to 10 percent in Fairfax.<sup>16</sup> The decline in carpooling is also likely tied to increases in transit subsidies for Federal employees, which have increased from \$60/month in 2000 to \$245/month in 2013, and made it more attractive for commuters to use transit. Additionally the traditional practice of “slugging” has become more difficult, as several park & ride lots in Prince William County are over capacity<sup>17</sup>, and would-be carpoolers cannot find riders. The pending conversion of the I-95 express lanes to HOT lanes, will allow single-occupancy vehicles to use the lanes for a fee, further reducing the appeal of carpooling in the corridor.

Another factor impacting transportation in the I-95 corridor is the commuting habits of those living further south along the corridor, particularly from Stafford County, Spotsylvania County, and the City of

<sup>15</sup> Commuting data are adapted from the Census Transportation Planning Products website: [http://www.fhwa.dot.gov/planning/census\\_issues/ctpp](http://www.fhwa.dot.gov/planning/census_issues/ctpp)

<sup>16</sup> As reported by American Community Survey journey to work data.

<sup>17</sup> VDOT reports that the Potomac Mills and Montclair lots are both over capacity and the Lake Ridge lot is at capacity as of 2013.

Fredericksburg. The number of residents of these three jurisdictions who worked in Fairfax, Alexandria, Arlington, or D.C. increased from 16,300 in 1990 to 30,100 in 2010, a net gain of 13,800 (+85 percent). There are presently few viable options for these commuters aside from driving on I-95 or using the VRE Fredericksburg line, and the two VRE stations in Stafford are situated in rural areas several miles east of I-95, making them inconvenient for most county residents. The completion of the I-95 HOT lanes to northern Stafford County will make commuter bus service more feasible, though.

## Growth Trends and Forecasts

As of 2010 the I-95 corridor's 20 Traffic Analysis Districts (TADs) included about 566,000 residents living in 194,000 households. Among current corridor residents 58 percent live in Fairfax County and 42 percent live in Prince William. MWCOG estimates that about 187,000 people work within the corridor, a ratio of just one job to every three residents. Most of the current jobs (64 percent) in the corridor are located in the Fairfax County portion.

**Table 3**  
**Population, Household and Employment Change in I-95 Corridor, 1990-2030**

	1990	2000	2010	Forecasts		Change		% Change	
				2020	2030	1990-2010	2010-2030	1990-2010	2010-2030
<b>Population</b>	<b>421,915</b>	<b>505,915</b>	<b>565,982</b>	<b>630,773</b>	<b>691,553</b>	<b>144,067</b>	<b>125,571</b>	<b>34%</b>	<b>22%</b>
Fairfax	252,421	292,732	327,475	348,753	376,118	75,054	48,643	30%	15%
Pr. William	167,482	213,180	238,507	282,020	315,435	71,025	76,928	42%	32%
<b>Households</b>	<b>139,646</b>	<b>170,518</b>	<b>193,568</b>	<b>217,889</b>	<b>241,693</b>	<b>53,922</b>	<b>48,125</b>	<b>39%</b>	<b>25%</b>
Fairfax	87,628	102,882	115,653	123,438	133,983	28,025	18,330	32%	16%
Pr. William	51,094	67,416	77,915	94,451	107,710	26,821	29,795	53%	38%
<b>Employment</b>	<b>128,072</b>	<b>157,282</b>	<b>186,487</b>	<b>227,573</b>	<b>271,541</b>	<b>58,415</b>	<b>85,054</b>	<b>46%</b>	<b>46%</b>
Fairfax	86,520	100,754	119,799	143,667	166,069	33,279	46,270	39%	39%
Pr. William	41,560	56,527	66,688	83,906	105,472	25,128	38,784	61%	58%

Source: Metropolitan Washington Council of Governments; GMU Center for Regional Analysis

The corridor has experienced substantial growth since 1990; from 1990 to 2010 it added 144,000 residents, 54,000 households and 58,000 jobs. Though each county added similar numbers of people, households, and jobs, the rates of growth were significantly higher in Prince William, which had smaller bases of each in 1990. From 1990 to 2010 the Prince William portion's population increased 42 percent and its employment base increased by 61 percent.

Over the next two decades the corridor is expected to experience somewhat slower population and household growth rates, but sustained employment growth rates. The population is forecasted to increase by 126,000, a growth rate of 22 percent, and the corridor is expected to add 48,000 households. Employment is forecasted to grow more than twice as rapidly as population; the corridor is expected to add about 85,000 more jobs by 2030, a 46 percent increase from its current level.

For all categories, more rapid growth is expected in the Prince William portion of the corridor than in the Fairfax portion. The Prince William portion is forecasted to add about 77,000 residents and 39,000 jobs between 2010 and 2030, representing growth rates of 32 percent and 58 percent, respectively. Though the Fairfax portion is expected to experience slower growth, it still is forecasted to add 49,000 residents and 46,000 jobs by 2030.

The individual TADs expected to experience the most population and household growth are primarily located in Prince William County. TAD 349 (Woodbridge) alone is forecasted to add about 12,000 households and 28,000 people between 2010 and 2030. Two other TADs in Prince William are expected to add more than 14,000 residents by 2030: TAD 359 (Quantico/Rippon Landing) and TAD 350 (Occoquan/Lake Ridge). The only TADs in Fairfax expected to add more than 10,000 residents between 2010 and 2030 are TAD 284 (Huntington/Groveton) and TAD 287 (Central Springfield). Since there is little vacant land in either of these TADs future growth in these areas will primarily occur via redevelopment, specifically around the Huntington and Franconia-Springfield Metro stations.

The TAD with the largest forecasted increase in jobs is TAD 296 (Newington) in Fairfax County, which is expected to add about 17,500 jobs between 2010 and 2030. This area, located immediately to the southwest of the Franconia-Springfield Metro station, is well positioned to add high-paying professional jobs both for Federal employees and government contractors. It includes the Fort Belvoir North Area, which already hosts the National Geospatial Intelligence Agency (NGA), and has significant land available for future expansion. It also contains the General Services Administration warehouse complex, which is presently under consideration for the future Federal Bureau of Investigation headquarters facility. Finally, there are several office buildings that have either recently been constructed or are planned to be developed in the near future; most tenants in this area are government contractors. No other TAD in the Fairfax portion of the corridor is forecasted to add more than 8,000 jobs.

In Prince William three TADs (349, 350, 359) are forecasted to add 8,000 or more jobs apiece. TADs 349 and 350 are the closest-in locations to Washington in Prince William County, encompassing the Woodbridge and Occoquan/Lake Ridge areas. These areas are all expected to experience significant population growth as well, potentially allowing residents to have shorter commutes to their jobs. Employment growth in TAD 349 is likeliest to occur in the two Urban Mixed Use (UMU) areas along US Route 1 identified in the county's Comprehensive Plan in Woodbridge and at the Prince William Parkway intersection. There is also some growth potential in the Regional Employment Center (REC) area at Belmont Bay, as well as opportunity for commercial redevelopment opportunities along Route 1 between the two UMUs. Future growth potential in TAD 350 is largely concentrated in the designated Parkway Employment Center on the west side of I-95.

Growth in TAD 359 will mainly occur at Marine Corps Base Quantico, but will also include some development around the Potomac Town Center at I-95 and Fuller Road, and in the proposed Potomac Shores development, which could include a new VRE station between Rippon Landing and Quantico.

## Potential Impacts of Growth on the Transportation System

The roads, buses, and trains along the I-95 corridor in Fairfax and Prince William counties are already very heavily used, making commuting very challenging for residents and workers in the area. Though recent and current investments in the corridor's transportation systems will produce some congestion relief, continued growth in the corridor and points south will increasingly strain the functionality of Interstate 95 and its supporting network of surface highways and rail transit lines.

Between 2010 and 2030 the corridor is expected to add 85,000 jobs and 48,000 households. Each county's Comprehensive Plan envisions most of the future growth to occur in a small number of densely-built nodes clustered around the existing transportation infrastructure, particularly its Metro and VRE stations. While clustering growth around existing infrastructure will limit the need to invest in new transportation facilities in outlying areas, it will present a complex set of challenges to the region. These include:

### **Changes to job types and hours**

The use of commuter transit service is closely tied to the types of jobs and hours worked by employees. The majority of corridor residents who travel to work via VRE and commuter buses are Federal employees who work in Arlington or the District of Columbia. Since most of these routes only run during morning and afternoon rush hours, their effectiveness is limited to workers with regular and predictable hours. Most future employment growth in the Washington metro area is expected to occur in the private sector, where jobs tend to have less predictable hours. In order for the current transit system to be effective, it will need to respond to the more diverse schedules of private sector workers.

### **The dispersion of employment**

A related problem is that Northern Virginia's existing "hub and spoke" transit system does not do an effective job of serving those who do not work at or near the center of the region. According to a recent study by the Center for Regional Analysis<sup>18</sup> 56 percent of economic growth in the Washington metro area to 2040 will occur outside of the region's 61 designated activity centers, and even many of these activity centers are not accessible by transit. The completion of the I-495 HOT lanes will help address this issue, as there is now express bus service between Springfield and Tysons; this service will connect to the Metrorail Silver Line when it opens in 2014. Still, the number of people who will commute to jobs that are not transit accessible will continue to grow, further straining the region's network of highways and surface roads.

### **The decline of carpooling**

Carpooling activity along the I-95 corridor has already decreased in recent years, likely due to a shift away from the historic model of large numbers of Federal employees who travel to the same destinations each day. In addition to this factor, the conversion of the HOV lanes to HOT lanes will diminish the incentive for commuters to travel in carpools, as they can choose to pay

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<sup>18</sup> McClain, J., "Connecting Transportation Investment and the Economy in Metro Washington."

tolls instead of having to find carpooling partners. If, as expected, this shift increases the number of single-occupancy vehicles on I-95, it will exacerbate congestion by necessitating a greater number of vehicles to move the same number of people. If the existing HOV lanes on I-395 north of Edsall Road are ever converted to HOT lanes the shift away from carpooling would be even more acute.

### **The “first mile” problem**

The greatest challenge for many I-95 corridor commuters is not traveling along the corridor itself, but the difficulty in reaching it in the first place. The suburban transportation model of arterials, collectors, and subdivisions, concentrates traffic congestion around a few choke points where arterials intersect with collectors and each other. Since most of the corridor’s transit infrastructure is clustered around I-95, it can be a long and difficult journey for many commuters just to reach a park and ride lot or commuter rail station. Since the headways for most commuter transit service can be in excess of 30 minutes, a commuter who misses a transit connection by a few minutes will often choose to continue driving to work instead of waiting for the next bus or train.

### **The “last mile” problem**

A related challenge concerns the work end of the commute. While many of the new jobs added in the I-95 corridor over the next two decades will be within a reasonably short distance from Metro stations, VRE stations, or commuter bus lines, the existing stations are primarily oriented to moving cars and buses, rather than pedestrians or bicycles. For example, the VRE and Metro platforms at the Franconia-Springfield Metro station are located nearly one-half mile away from the closest commercial buildings, and walking to those buildings requires going around a parking garage and under an elevated highway. Though this problem is partially addressed by the presence of several circulator bus routes from the station to nearby employment centers, the addition of an extra “seat” to the ride adds commuting time and reduces the appeal to potential transit users.

### **Limited capacity in the transit system**

As noted above, many peak-hour VRE trains on the Fredericksburg Line are already operating at standing-room capacity. The potential addition of thousands of new households around the Lorton and Woodbridge stations, along with the potential development of a new station to serve Potomac Shores, would drive additional ridership along this line. In order to effectively serve its customers, VRE will need to add additional trains during rush hour. Many commuter bus routes in the corridor face a similar issue, as do park and ride lots where would-be carpoolers form their “slug lines.”

A different sort of capacity issue affects the Metrorail Blue Line—limited tunnel capacity in Rosslyn. WMATA has already reduced Blue Line service to allow the Yellow Line RushPlus service to expand to Franconia-Springfield, and a further reduction will occur to accommodate

the Silver Line when it opens in early 2014.<sup>19</sup> As a result of these reductions rush hour Blue Line service will be reduced from ten<sup>20</sup> to five trains per hour, doubling the average wait time from six to 12 minutes. While the extra six minutes is a minor inconvenience, it can affect the ability of commuters to make other bus and train connections, and become a disincentive to use transit. WMATA has discussed building a “bypass” tunnel around Rosslyn, but this is not likely to occur in the next 20 years due to its high cost and complicated nature.<sup>21</sup>

### **Potential spatial mismatch between jobs and housing**

Future development and transportation patterns in the I-95 corridor depend as much on the types of jobs that will be added in the area as on the sheer number of jobs. If most of the new jobs are lower-wage retail, service, or hospitality jobs, the housing budget of workers will be very limited. Conversely, if the corridor is able to attract higher-wage professional jobs, these workers will have far better access to housing. If each county implements plans to concentrate future infrastructure investments and development around a few nodes, the value of land in these areas will likely increase dramatically, leading to higher housing prices. If workers filling the jobs in these areas cannot afford to live nearby, though, they will be forced to commute from other areas, thus increasing the burden on the corridor’s transportation system.

### **Congestion beyond the local area**

Much of the growth that will impact the I-95 corridor will occur to the south, particularly in Stafford and Spotsylvania counties. Due their lower land values and supplies of undeveloped land these areas offer something that Fairfax and Prince William cannot offer: new single-family housing that is attainable for moderate-income families. As of September 2013, the median sale price for single-family detached homes in Stafford and Spotsylvania counties were \$300,000 and \$244,950, respectively, compared with \$615,000 in Fairfax and \$389,900 in Prince William.<sup>22</sup> Continued low-density growth in these areas will increase traffic on I-95 and ridership on VRE trains and commuter buses.

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<sup>19</sup> <http://planitmetro.com/2013/03/12/what-will-happen-to-the-rail-schedule-when-the-silver-line-opens/>

<sup>20</sup> There were ten Blue Line trains per hour before RushPlus was implemented; there are currently seven.

<sup>21</sup> <http://greatergreaterwashington.org/post/17498/metros-stuffed-full-at-rosslyn-what-can-be-done>

<sup>22</sup> As reported by RealEstate Business Intelligence, Inc.

## Key Findings

- Though it does have some existing employment centers, the I-95 corridor in Fairfax and Prince William counties remains primarily a suburban residential area at this time.
- Regional forecasts and local plans point to future residential and employment growth in the corridor being concentrated around a small number of densely-developed nodes: Springfield, Huntington, the Parkway Employment Center, North Woodbridge, Neabsco Mills, and Potomac Shores.
- Growth in the volume of vehicular traffic along the I-95 corridor has slowed since 2000, and traffic flow has improved somewhat since the completion of the Mixing Bowl reconstruction and other related projects; in spite of this, congestion remains a serious issue.
- Though the \$1 billion project to extend the I-95 express lanes and convert them to HOT lanes will have generally positive effects on traffic flow in the corridor, several segments of I-95 will still operate at failing levels after its completion.
- About 27,000 people use rail or express bus service in the corridor each day; nearly all of these riders commute to jobs in Arlington or the District of Columbia.
- Ridership on all of the corridor's rail transit lines has increased significantly over the past 15 years, particularly for the VRE lines.
- Carpooling activity has decreased in the corridor and the completion of the HOT lanes in 2015 is likely to further reduce carpooling.
- Most VRE and commuter bus riders in the corridor are Federal employees with regular weekday hours who typically ride the buses or trains four or five days each week.
- The number of corridor residents commuting to Arlington, Alexandria, or DC has not increased since 1990, but the number commuting to jobs in Fairfax County has increased significantly.
- The expected concentration of growth in a few nodes along the I-95 corridor will create a set of difficult transportation, economic development, and land use challenges for Fairfax and Prince William counties over the next 20 years, including:
  - Providing transit that serves workers with irregular hours and/or in dispersed locations;
  - Improving access to transit hubs from nearby neighborhoods and employment centers;
  - Attracting high-paying office jobs to planned suburban employment nodes;
  - Working regionally to help address transportation problems that originate elsewhere but affect the corridor

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