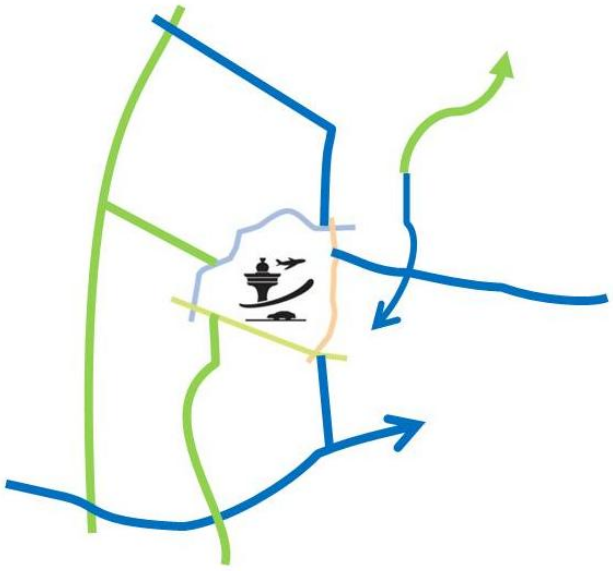
Connections between Washington Dulles International Airport



and

Corridors of Statewide Significance in 2035

Connections between Washington Dulles International Airport and Corridors of Statewide Significance in 2035

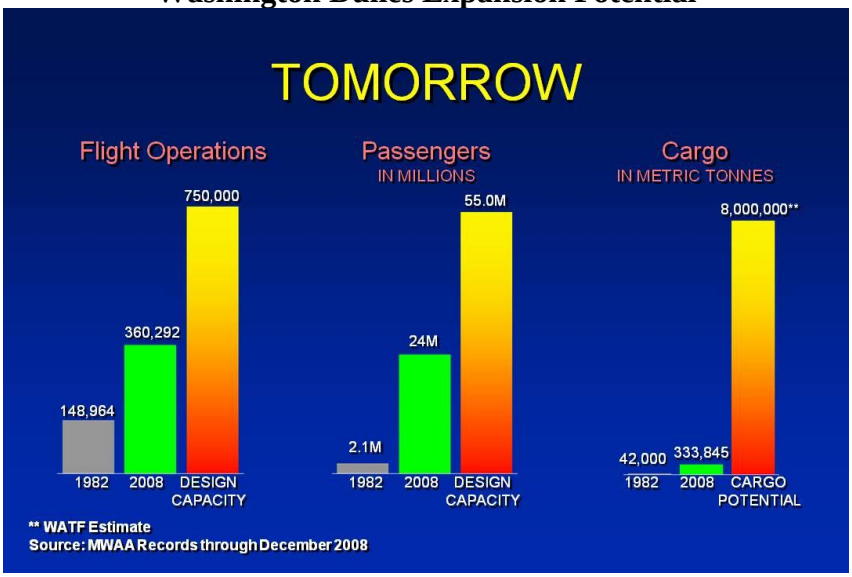
Virginia's Potential Reach to World Markets

Hampton Roads and Washington Dulles International Airport drive much of Virginia's economy, as they:

a) provide access to world markets for Virginia's commerce, and
b) make Virginia a bridge state between world markets and other states. The combination of Virginia's commercial needs, when added to those of other states, expands the volume of sea and air connections to world markets, attracting new business to the Commonwealth.

Washington Dulles, like Hampton Roads, provides Virginia and the mid-Atlantic region with major economic expansion potential (Figure 1).

Figure 1
Washington Dulles Expansion Potential



There is a direct correlation between inward investment from overseas countries and the availability of air service between Virginia and the countries from which the investment came. Each new nonstop air service to a major international market typically is the equivalent of a $300 million commercial investment in Virginia, in its ability to stimulate good paying new jobs and economic growth. [1]

Washington Dulles will also likely be handling a significant volume of air freight by 2035. Air freight is multi-modal with the predominant surface connection provided by truck from origin points as much as 1,000 miles away.

Washington Dulles and Hampton Roads provide Virginia with twin engines of prosperity in today's global economy.[2] But excellent ports don't do the Commonwealth much good if people and goods cannot easily reach them. Virginia can only reap the full economic potential of its ports if they are connected to the Commonwealth and neighboring states by efficient ground transportation links – road and rail.

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[1] Button/GMU study 2000
[2] A fact stressed by Governor Kaine and every Virginia Governor over the last 30 years.

Current long-range plans envision statewide rail and road corridors terminating at Hampton Roads and extending westward into other states. A similar level of connectivity is required for Washington Dulles.

At present, the I-95, Route 29 and I-66/I-81 corridors do not connect with Washington Dulles, nor are there effective surface links between the Dulles international gateway and neighboring areas in West Virginia, Maryland and southeastern Pennsylvania. This is a serious deficiency, as today the airport only faces east and is largely blind to the south, the west and the north – areas of importance for the rest of the Commonwealth, as well as the airport's evolution as an economic engine.

VTRANS 2035 should include the following proposed missing links to provide the connectivity to rectify these deficiencies.

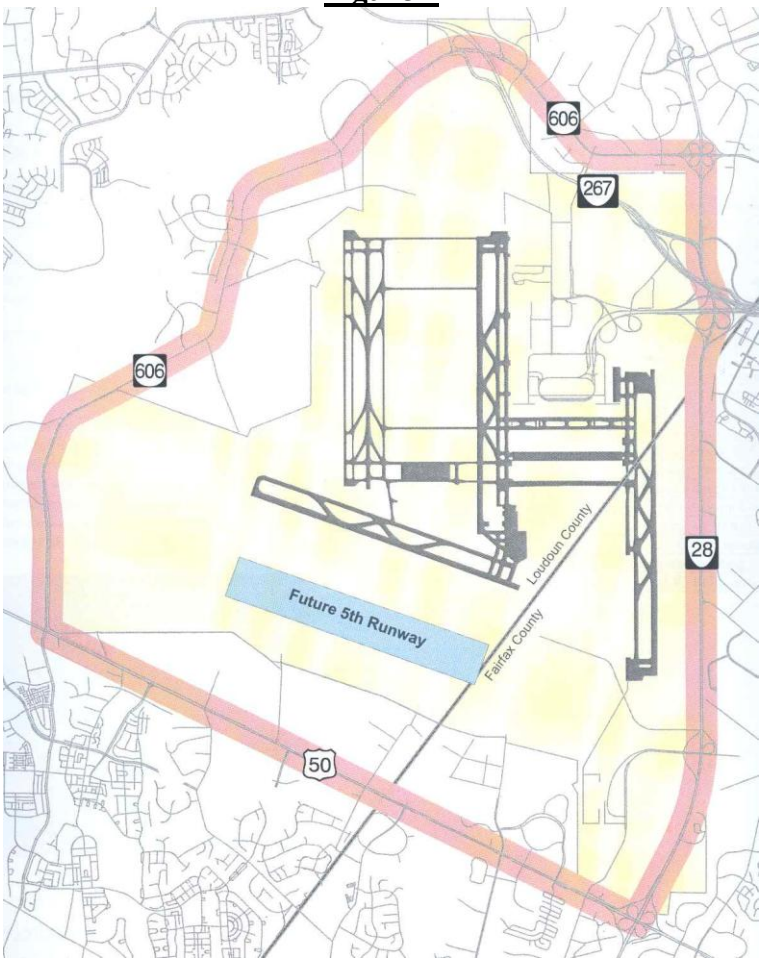
The Missing Links and Required Corridor Improvements

The Dulles Loop and the Route 234/15 corridor are identified as new corridors of statewide significance.

The Dulles Loop

The 18-mile Dulles Loop consists of those portions of Routes 606, 50 and 28 that encircle Dulles Airport (Figure 2). The Loop is a focal point in the area's transportation network. When components of the Loop become congested, traffic backs up on the major arteries leading into the Loop, delaying travelers and shipments from all parts of the Commonwealth and neighboring areas.

Figure 2



Approximately 80% of the traffic on the Loop is citizens going about their daily business. Approximately 20% is airport related. Improvements to the Loop can therefore produce a major payoff in terms of improved local traffic flow, as well as airport access from the southern and western portions of Virginia.

A joint plan prepared by Loudoun and Fairfax Counties, the Metropolitan Washington Airports Authority (MWAA), VDOT, and public/private sector stakeholders, projects that the Dulles Loop will need to be a free-flowing, high capacity highway by 2030. Travel projections are (average vehicles per day):

- 98,000 to 125,000 for the Route 50 section requiring six grade-separated, free-flowing lanes;
- 200,000 for the Route 606 section requiring eight grade-separated, free-flowing lanes;
- Approaching 300,000 for the Route 28 section requiring up to five freeway lanes.

The two counties are allowing for this projected demand in their long-range transportation comprehensive plans. Improvements to the existing highways are currently being made in such a manner that additional expansion can be accomplished at minimal cost in the future. Even so, the cost of upgrading all three sections for 2035 will be substantial.

Route 234/15 Corridor

Besides identifying the importance of the Dulles Loop, the Commonwealth will need an additional corridor of statewide significance. The need was defined by the 2006 Dulles Airports Access Study which was based on the projected land uses, and the requirement for access to Washington Dulles from all parts of the Commonwealth, as well as from neighboring states.

The new corridor is identified by the north-south traffic flows associated with the Rt. 234 bypass proposed northward extension and Rt. 15/29/17. The new Rt. 234/15 corridor should be extended from I-95 in the south across the Potomac River to I-270 to the north. This corridor is of critical importance to mobility within the emerging outer suburbs of the National Capital Region, as well as for access to Washington Dulles from the Commonwealth and neighboring states.
As can be seen, the demand for service within the Route 234/15 corridor is considerable. The options are:

1) Ignore the demand and allow traffic to filter through the area on local roads;
2) Expand existing Routes 15/29 and 17 in an ad hoc manner;
3) Develop a new alignment in cooperation with Maryland to link I-270 with I-95.

Options 2 or 3 would connect the Dulles Loop to three corridors of statewide significance within the Commonwealth – I-95, I-66 and I-81 via I-66, as well as to Route 7, which provides access from the northwest and to I-270.
Between Gilberts Corner and Point of Rocks, the existing Route 15 is bordered by properties of historic importance, as well as the Town of Leesburg. Between Gilberts Corner and I-66, Route 15 is being rebuilt as a major arterial providing at-grade access to suburban developments in northern Prince William County. Therefore, a new alignment for a multi-modal surface transportation corridor between the Maryland border and I-95 likely will be the most socially desirable and cost effective option. **The proposed northern extension of the Route 234 bypass into Loudoun County would provide a section of this alternative alignment.**

Prior to 1996, Loudoun County supported Option 3. Current Loudoun policy, however, is opposed to Options 2 and 3, as well as to the creation of new or the widening of existing Potomac River crossings.

Connections to the Dulles Loop and Route 234/15 Corridor

Required connections between the Dulles Loop and corridors of statewide significance including the Route 234/15 corridors are:

1. The Route 29 corridor: As Route 29 between Warrenton and Gainesville has become largely suburban, a Route 29 bypass should be considered running from existing Route 29 in the Remington area, generally paralleling Route 28 and continuing as the proposed Tri County Parkway from Manassas to the Dulles Loop. The Route 29 bypass/Tri County Parkway would connect with the existing Route 234 bypass and Prince William County Parkway.
2. Further expansion of the Route 28 corridor between Route 7 and I-66.
3. A combination of the Route 28 corridor and/or the Fairfax Parkway corridor connecting across the Potomac River to Montgomery County's local road system.

Funding

1. The Route 28 corridor between Route 7 and I-66 was created by Virginia's first taxing district. The second phase of improvements by the taxing district now are nearing completion. A third phase of evolution to accommodate 2035 traffic flows will be required.
2. The Route 234/15 corridor and two new Potomac bridges: The demand even today for these new facilities is substantial. Analysis of 2030 traffic flows shows that a toll of $1.50 one way on the Route 28/Fairfax Parkway bridge, plus a toll of 10¢ a mile on the proposed Route 234/15 corridor, would generate a revenue of more than $1 million a day. These relatively modest tolls did nothing in the modeling to suppress demand. The modeling did, however, show a substantial benefit in reduced traffic volume on the rest of the highway network, i.e. the Route 234/15 corridor and new Potomac bridges would keep the National Capital Beltway and I-95 improvements viable for longer. Providing right-of-way is preserved and a project defined clear of governmental issues, it is highly probable that these facilities could be built by the private sector and funded entirely by tolls.
3. The Route 29 corridor currently is the subject of a major VDOT study. As the proposed bypass between Warrenton and Gainesville would carry a heavy volume of traffic, its cost also could be defrayed by tolls to some extent, provided the right-of-way is preserved.

Sensitivity

A revised Route 234/15 corridor should be built to a new highway concept which is sensitive to society's requirements for historic preservation and compatibility with suburban neighborhoods. While this requirement is acute in Northern Virginia, it is also applicable to portions of the Route 29 corridor and to the evolution of other corridors of statewide significance.

That major highways can be conceived as intrusive, destructive elements for the communities and the land through which they pass, argues only that they must be designed and conceived with care if they are to meet their objectives long term and gain popular support.

New highway or transportation corridors should be buffered by parkland like the George Washington Parkway, but able to handle trucks. Purpose of the design is to move high volumes of traffic safely in a pleasant driving environment and to:

a) Provide a parkland buffer where neighborhoods or preservation areas border the highway, and a farmland buffer where appropriate.
b) Pragmatically guard against additional, unplanned exits or lanes (federal or state parkland is virtually inviolate).
c) Add and preserve a green space corridor.

Design concepts for such major new highways should be based upon:

- Washington-Baltimore performance.
- Separate lanes for trucks and bus-based transit.
- Right-of-way preserved for rail.
- Safety shoulders-grass but reinforced.
- Landscaping and parkland.

Transit

The high volume of projected demand for intraregional north/south travel in the Route 234/15 corridor makes the provision of a transit option desirable, providing that:

1. Rights-of-way are identified which will link the transit directly to the land uses, and not isolate a system in the median of a major highway.
2. Localities plan modes of density around proposed stations.

Twenty first century transit technologies are evolving to provide localities with greater flexibility to serve suburban areas at lower costs and the rights-of-way for such systems should be defined and preserved.

Rail

Forty percent of the world's exports by value now move by air. Washington Dulles has major cargo expansion potential. While air freight today combines a truck and an airplane, provision should be made in the Route 234/15 corridor right-of-way for a future rail link to Washington Dulles.

Planned Demand Affecting Access to Washington Dulles

The Metropolitan Washington Council of Governments (MWCOG) projects substantial increases in population, households and employment in the western suburbs of the National Capital region, within which Washington Dulles International Airport is located.

MWCOG growth trends to 2030 project that 79% of new jobs and 72% of new households planned by the region's localities will be located in the outer suburbs which affect access to Washington Dulles (Figure 3). The ratio of planned jobs to households indicates which of these localities has the potential to see increased commuting volume between them (Figure 4).

Figure 3

Locality Land Use Plans

79% of New Jobs and 72% of New Households Projected to be in Localities Affecting VA Access to Dulles

(Source: MWCOG Round 7.2 Growth Projection)

Jobs (000)

Western Outer Suburbs	2005	2030	Change	% Change
Loudoun County	130.3	275.2	144.9	*111.20%*
Prince William County	113.6	207.0	93.4	*82.22%*
City of Manassas	23.3	31.8	8.5	*36.48%*
City of Manassas Park	3.0	4.9	1.9	*63.33%*
Frederick County MD	122.2	167.3	45.1	*36.91%*
Stafford County	36.9	65.0	28.1	*76.15%*
Total	429.3	751.2	321.9	*74.98%*
MPO Total	3,056.7	4,219.7	405.5	*13.27%*

Households (000)

Western Outer Suburbs	2005	2030	Change	% Change
Loudoun County	87.5	155.9	68.4	*78.17%*
Prince William County	118.9	191.8	72.9	*61.31%*
City of Manassas	12.8	17.1	4.3	*33.59%*
City of Manassas Park	4.2	5.4	1.2	*28.57%*
Frederick County MD	79.5	123.1	43.6	*54.84%*
Stafford County	30.7	72.7	42.0	*136.81%*
Total	333.6	566.0	232.4	*69.66%*
MPO Total	1,864.6	2,508.1	323.5	*17.35%*

Western Outer Suburbs Share of Total MPO Growth: **79.38% in jobs**
71.84% in households

Note: Airport Access Study assumed more growth being attracted to inner suburbs compared to this MWCOG forecast. If this does not happen, the traffic flows projected by the Airport Access Study will be higher.

Figure 4

Planned Locality Ratio: Jobs to Households

*(Historic Ratio is **1.6** Jobs/Household)*

County	Jobs	HH	Ratio	
Loudoun	144.9	68.4	**2.12**	(33% shortfall in HH)
Prince William	93.4	72.9	**1.28**	(20% excess in HH)
Frederick	45.1	43.6	**1.03**	(36% excess in HH)
Stafford	28.1	42	**0.67**	(58% excess in HH)
	311.5	226.9	**1.37**	

Loudoun is not planning sufficient households to support planned job growth.
The other localities are planning dormitory suburbs.
This will lead to increased north-south commuting in corridors providing Dulles access as well as increased east-west commuting.

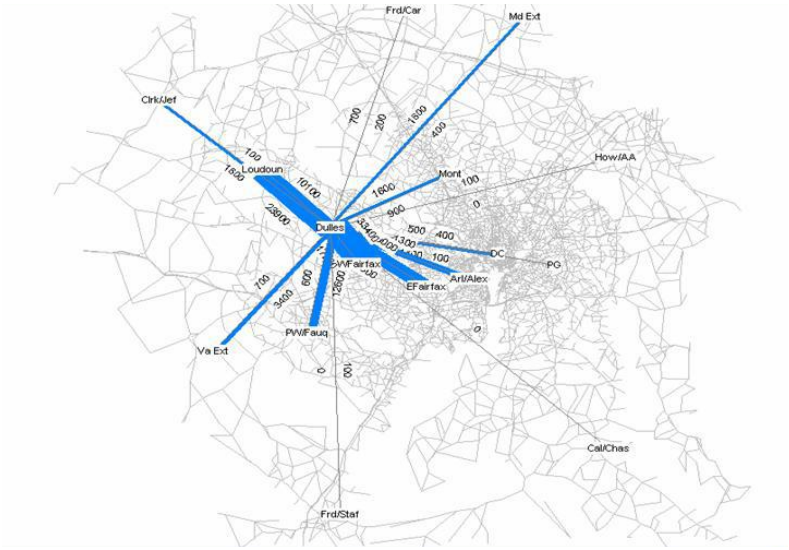
The MWCOG's land use projections are prepared in consultation with its member localities. These include Fairfax and Loudoun, which border Washington Dulles, Prince William and Stafford, as well as Frederick County in suburban Maryland.

MWCOG projections show the Dulles Neighborhood – areas within 20 minutes of the airport's terminal or contiguous with the airport – becoming a substantial employment center. A 2006 airport access study (based on MWCOG forecasts) conducted by the Washington Airports Task Force (WATF) in conjunction with the MWAA projected a 100% increase in jobs and a 70% increase in households in the Dulles Neighborhood by 2030, compared with the 2005 baseline.

The demand lines for travel from the Commonwealth and other parts of the National Capital Region to the Dulles Neighborhood in 2005 and 2030 (Figures 5 and 6). These demand lines were generated through use of the MWCOG transportation and air quality planning model.

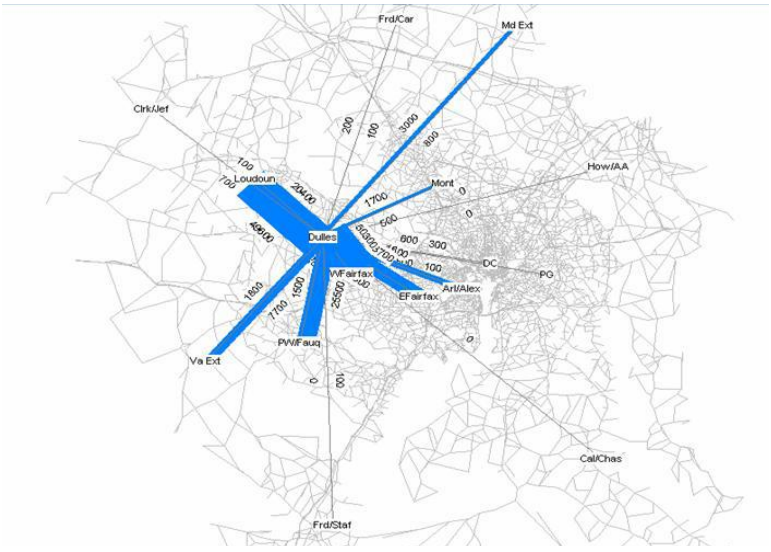
Transportation demand is based upon land uses. As can be seen, work and non-work trip demand between the Dulles Neighborhood and other parts of the region will expand significantly between 2005 and 2030.

Figure 5 – Work Trip Demand, 2005 – Dulles Neighborhood



The width of the line demonstrates the average work day demand in both directions.

Figure 6 – Work Trip Demand, 2030 – Dulles Neighborhood



Fairfax and Loudoun Counties which border the airport restrict commercial and other activities to those being compatible with flight operations. In Loudoun County, for one mile beyond the airport noise zone, housing is allowed, subject to the provision of avigation easements and written disclosure of the probability of aircraft noise being heard by homebuyers.

The growth in transportation demand stimulated by proposed land uses, coupled with the demand for access to Washington Dulles from all parts of the Commonwealth and neighboring states, is significant, as can be seen from the demand lines.

MWCOG Model

The traffic flows in this report were developed using the MWCOG transportation and air quality model, but with two input changes.

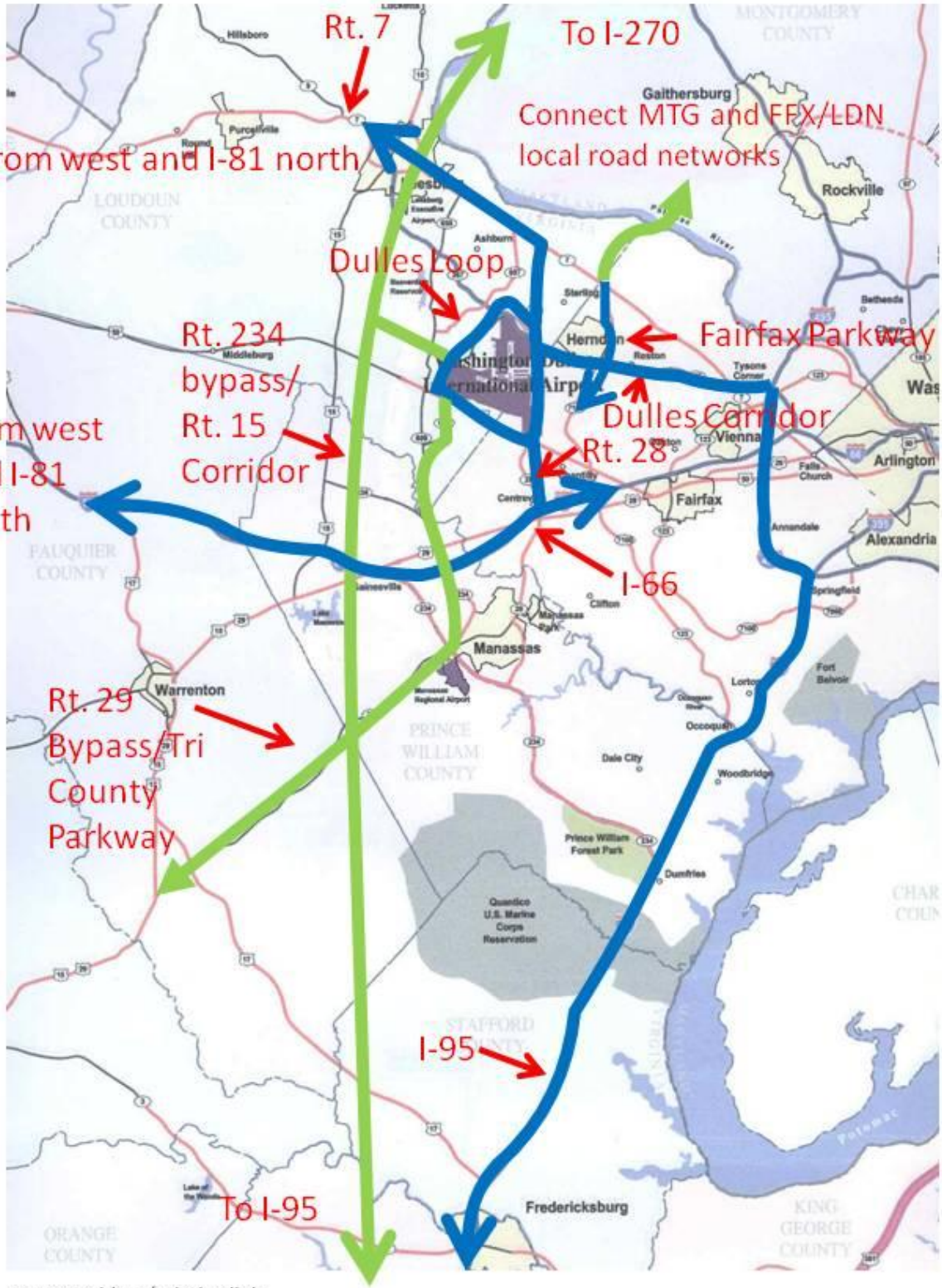
1. The land use was revised by George Mason University to reflect projected changes in market demand. These changes included accommodation of substantial future growth through increased density in the inner suburbs.
2. A range of transportation improvements not currently in the National Capital Region's Constrained Long Range plan. The major improvements comprise the corridor requirements described above and new Potomac bridges.

If growth is not absorbed by higher densities and if the proposed improvements are not included in the MWCOG Constrained Long-Range Plan, the projected traffic volumes will be higher than those noted in this report.

Also:

- The Dulles Loop projected flows are from the Dulles Loop Implementation Group report.
- The other traffic flows presented are "orders of magnitude" based on modeling for the 2006 Dulles Airport Access Study. A toll was applied to the Route 234/15 corridor and Potomac crossings which only marginally depressed demand.
- Accommodating demand on expanded north-south highways with new Potomac crossings removed traffic from Northern Virginia's existing highways, including the Capital Beltway.

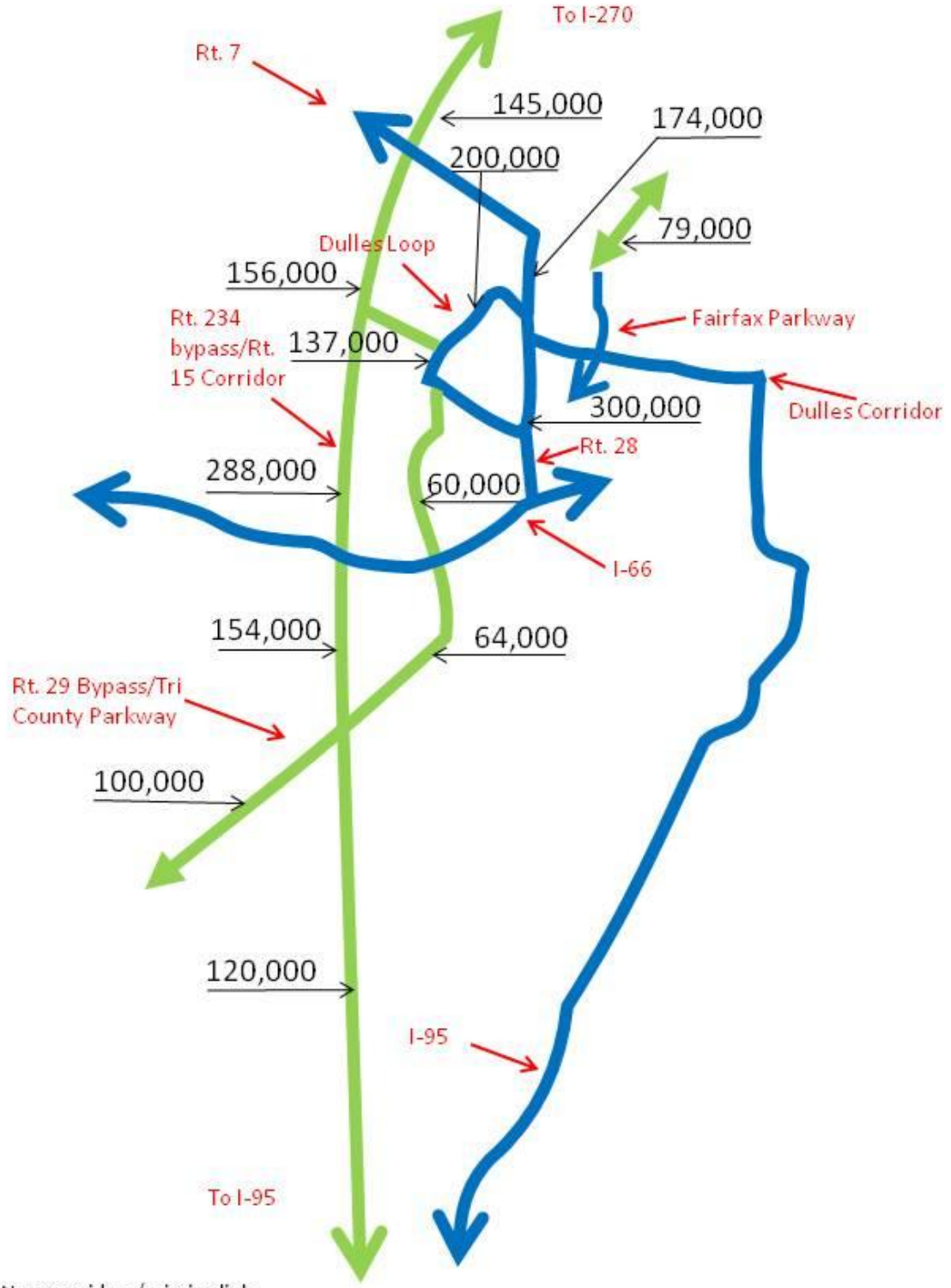
Washington Dulles International Airport and 2035 Connections to Corridors of Statewide Significance



Green - New corridors/missing links

Blue - Existing roads identified as critical links between existing corridors of statewide significance and Washington Dulles International Airport ie. the Dulles Loop, I-66, I-81, I-95, Rts. 7 & 8, the Dulles Corridor

Washington Dulles International Airport and 2035 Connections to Corridors of Statewide Significance Average Vehicles/Day



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North-South Traffic Flows 2030

Order of magnitude derived from the Dulles Airport Access Study 2006.

Route 234/15 Corridor
Assumes a new eastern alignment (NEA) to bypass most of the traffic off the existing Route 15 alignment, which is historic.

	Average Daily Traffic (Vehicles per Day)
I-270 to Route 7 across the Potomac River	140,000 to 145,000
Route 7 to Route 50	126,000 to 129,000
Route 50 to I-66	228,000 to 288,000
I-66 to Route 28 west of Manassas	143,000 to 154,000
Route 28 to I-95	82,000 to 120,000

Existing Route 28 Corridor

Dulles Corridor to I-66	174,000 to 229,000

East-West Traffic Flows 2030

	Average Daily Traffic (Vehicles per Day)
Route 7	
Leesburg to Route 28	141,000 to 147,000
Route 50	
Route 15 to new eastern alignment (NEA)	48,000 to 56,000
NEA to Tri County Parkway	52,000
South of Dulles to Route 28	50,000 to 85,000
I-66	
West of Route 15	50,000
NEA to Route 28	80,000 to 100,000
Tri County Parkway	
Route 50 to Route 29	28,000 to 60,000
Route 29 to I-66	51,000 to 89,000
I-66 to Manassas	64,000
Route 29 Existing Alignment	
Route 28 (South of Warrenton) to Warrenton	45,000 to 58,000
Warrenton to I-66	45,000 to 72,000
Route 234 Bypass to Route 28	20,000 to 33,000
Dulles Loop*	
Route 606 section	Over 200,000
Route 28 section	Near 300,000
Route 50 section	98,000 to 125,000

*Figures from Dulles Loop Implementation Plan 2009