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Kimley»Horn

MEMORANDUM

To:	Fairfax County DOT
From:	Geoff Giffin, P.E., PTOE Daniel Markham, P.E. Jiaxin Tong, P.E. Kimley-Horn and Associates, Inc.
Date:	January 29, 2016
Subject:	Franconia-Springfield Parkway Addition to the Fairfax County Parkway VISUM Network

Introduction

This memorandum details the update to the VISUM origin-destination estimation of 2014 existing conditions for the Fairfax County Parkway (FCP) Corridor Study[1]. The previous analysis used VISUM to develop a roadway network and generate origin-destination (O-D) trip tables for the FCP corridor study area for the existing conditions weekday AM and PM peak hours. The resulting AM and PM VISUM models of the FCP corridor included O-D traffic assignments, traffic signals, and network geometry data. **This update incorporated Franconia-Springfield Parkway (FSP) into the FCP corridor study area, requiring an expansion to the VISUM models and update of O-D trip tables**.

The FSP study corridor adds approximately 3.5 miles to the cumulative length of study roadways and is a major arterial from the interchange of FCP/FSP west of I-95 to Beulah Street. The FSP study corridor includes 4 interchanges (including entrance ramps, exit ramps, and traffic signals associated with these interchanges) and 7 intersections not considered as part of the aforementioned interchanges (2 signalized intersections and 5 unsignalized intersections).

Consistent with the previous VISUM modeling effort, this analysis utilized the regional travel demand model, Fairfax County subzone system boundaries and socio-economic data, and balanced traffic volumes as inputs. To produce the seed trip tables, a subarea that is larger than the study corridor was generated from the regional travel demand model. However, the O-D estimation analysis was only based on the FCP/FSP corridor along with crossing roads and driveways. Kimley-Horn produced two VISUM model deliverables for Fairfax County DOT:

[1] The FCP VISUM network was completed by CH2M Hill, Inc. on August 10, 2015 as part of VDOT's Fairfax County Parkway Existing Conditions Assessment.

- FCP-FSP expanded network with AM/PM trip assignments (364 zones x 364 zones). This includes parallel facilities to the FCP-FSP corridors.
- FCP-FSP Corridor Network (178 zones x 178 zones) with AM/PM trip assignments *adjusted to align with balanced traffic volumes along the corridor*. This corridor-only network was used for O-D matrix adjustments to match vehicle counts (TFlowFuzzy procedure in VISUM) and for conversion to VISSIM.

Data and Assumptions

Kimley-Horn used the data and assumptions contained in the FCP VISUM model. Specific clarifications for the FSP expansion are:

- The Fairfax County zone system was used to split only zones that are adjacent to the analyzed corridor. Additional zone splits on top of the county subzone system with regard to driveways/connectors to the study corridor were conducted to ensure that seed trips are reasonably loaded to the study corridor network, in both FCP and FSP sections.
- TFlowFuzzy procedure was only applied to the FCP-FSP corridor VISUM network.
- There are two sets of O-D matrices for the FCP-FSP corridor network for AM and PM peak respectively, one for general purpose vehicles and one for HOV vehicles[2].

Network Development Methodology

The VISUM networks were developed using the following process:

1) **MWCOG regional travel demand model run and subarea network extraction (Cube) –** The "2015_Base" and "2015_Final" scenarios[3] of the MWCOG regional travel demand model for the Washington, DC, metropolitan area were run. The built-in subarea network extraction tool in Cube was used to cut out the expanded FCP-FSP study area network from the regional model, as well as a script during the "2015_Final" highway assignment to extract origin-destination (O-D) trip tables for the FCP-FSP study area.

   Figure 1 displays the subarea network that was extracted from the regional model.

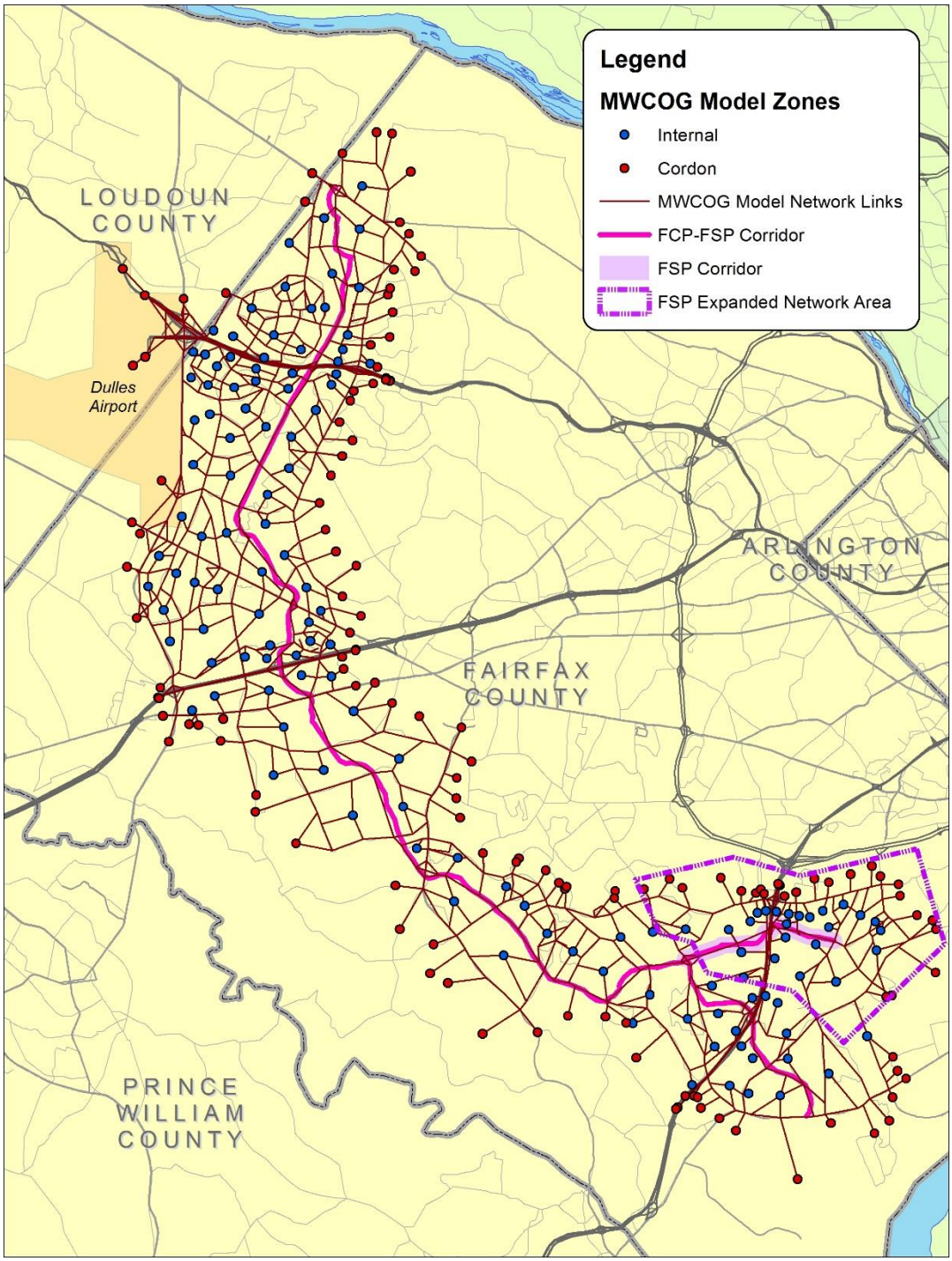
[2] For the purposes of the O-D estimation, "general purpose" vehicles represent trips from the following MWCOG trip tables: single-occupancy vehicle (SOV), trucks, commercial vehicles, and airport passengers. "HOV" vehicles represent trips from the HOV2 and HOV3+ trip tables.
[3] This is the intended use of the MWCOG model, Version 2.3.57, which requires multiple scenarios for the same year to appropriately model high-occupancy toll (HOT) freeway facilities in the region. The "2015_Base" run provides a set of HOV3+ skims to use as inputs for the "2015_Final" run. The "2015_Final" run thus uses the HOV3+ skims as an input to assign toll-paying traffic (non-HOV3+ traffic) to the toll facilities.

- *The result of the Cube subarea network extraction from the MWCOG model was a 276x276 zone network, of which 135 zones were internal and 141 zones were cordon zones.*

2) **Disaggregation of zones according to Fairfax County's zone structure (VISUM)** – The study area extracted from the regional model was reviewed and the zone and connector structure in this area was compared to Fairfax County's further-disaggregated zone structure. Fairfax County has subdivided many zones in the MWCOG zone system to provide more refined and accurate trip loading within the County's model. The County provided mapping between these zones, and using this mapping, a process to split zones where indicated by the County was developed. Where zones needed to be split, trips were proportionally adjusted from the original 276x276 matrix based on the underlying amount of households and total employment. This is again consistent with the process used to split zones in the original FCP study in 2014. Where appropriate, new connectors were coded and connectors from previously existing zones were moved.

   - *The result of this zone disaggregation process was a 325x325 zone network, of which 135 zones were internal from the MWCOG model, 141 zones were cordon zones from the MWCOG model, and 49 additional zones from the County subzone system.*

Figure 1. FCP-FSP expanded network as extracted from MWCOG model (276x276 zones)



3) **Additional zone split according to driveways/connectors to FCP-FSP corridor** – Additional zone splits were warranted if trip loading to the FCP-FSP corridor network was not reasonably captured through the current zone and connector system. In some locations along the FCP-FSP corridor, additional zones needed to be added to the expanded network to ensure connectivity to End nodes in the detailed corridor area[4]. In these locations, a zone from the 325x325 network was split into subzones (in some cases, into several subzones), with each of the subzones being assigned a proportion of the overall trips according to aerial photography. **Figure 2** displays the expanded VISUM study area network, with the FCP-FSP corridor highlighted in pink.

   - *Upon further disaggregation of zones, the final expanded study area network consisted of 364 zones, of which 135 zones were internal from the MWCOG model, 141 zones were cordon zones from the MWCOG model, 49 zones were from the County subzone system, and 39 zones were added for End nodes or more accurate trip loading along the FCP-FSP corridor.*

4) **Geometric coding of expanded network (VISUM)** – In addition to refining the zone and connector structure, the geometric coding of the expanded network was reviewed, including facilities parallel to the FCP-FSP corridor. The geometric coding defined the number of lanes and speed limits for road segments, which are used in VISUM's default equilibrium traffic assignment procedure. The geometric data was transferred from the MWCOG regional model and verified through Bing aerial photography. It was assumed that there were no truck restrictions along the study FCP-FSP corridor and all U-turn movements were prohibited in VISUM. Specific locations with known U-turn movements will be captured in VISSIM model calibration. HOV restrictions along applicable study area links were also coded, including those along I-95, I-66, and Route 267 (Dulles Toll Road). **Table 1** shows the classification of nodes in the expanded network. **Figure 3** shows an example of the different categories of nodes.

[4] Note that this includes some zones which do not result in any loading of trips to the expanded network.

Figure 2 FCP-FSP VISUM expanded study area network (364x364 zones)

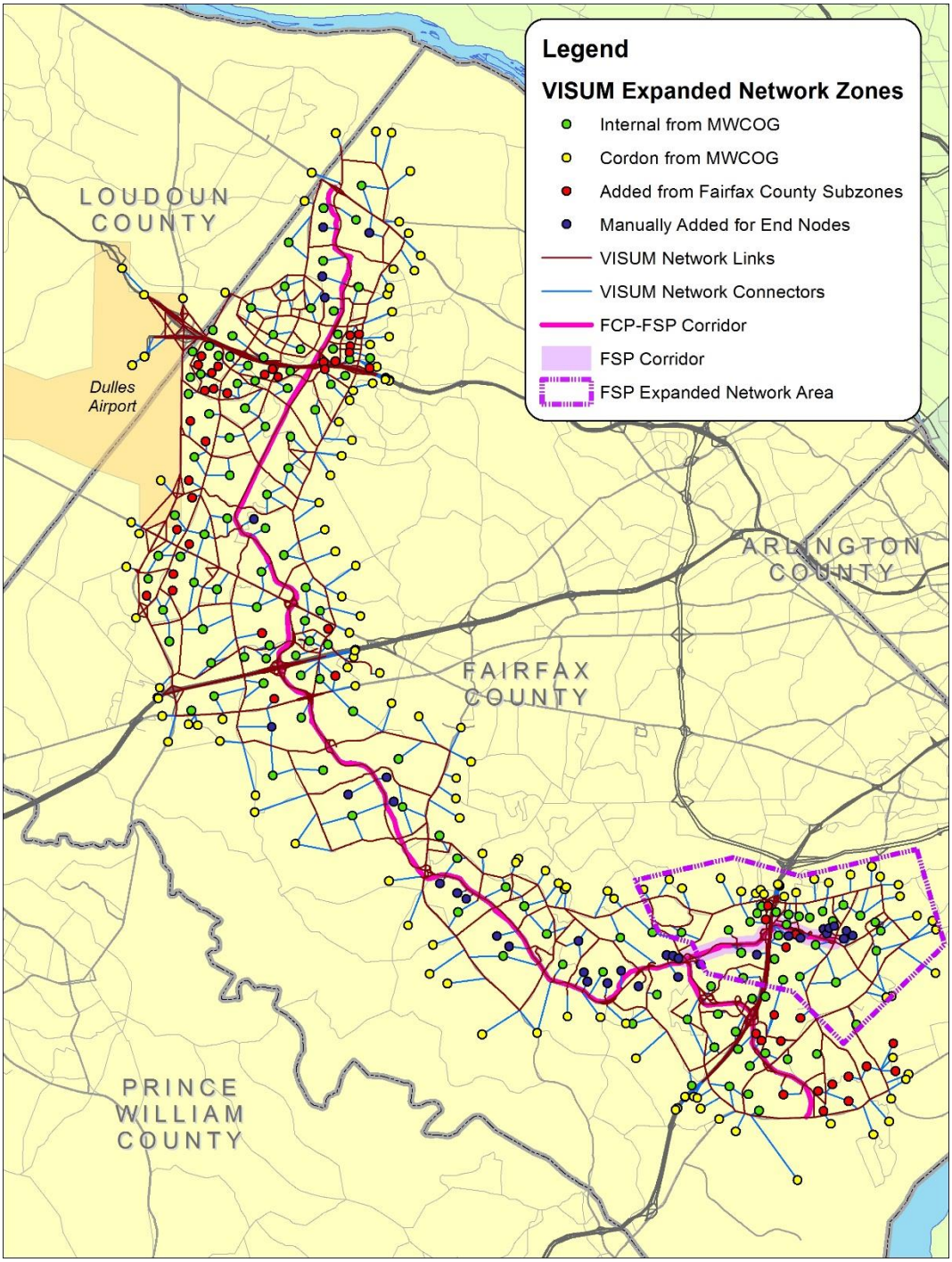
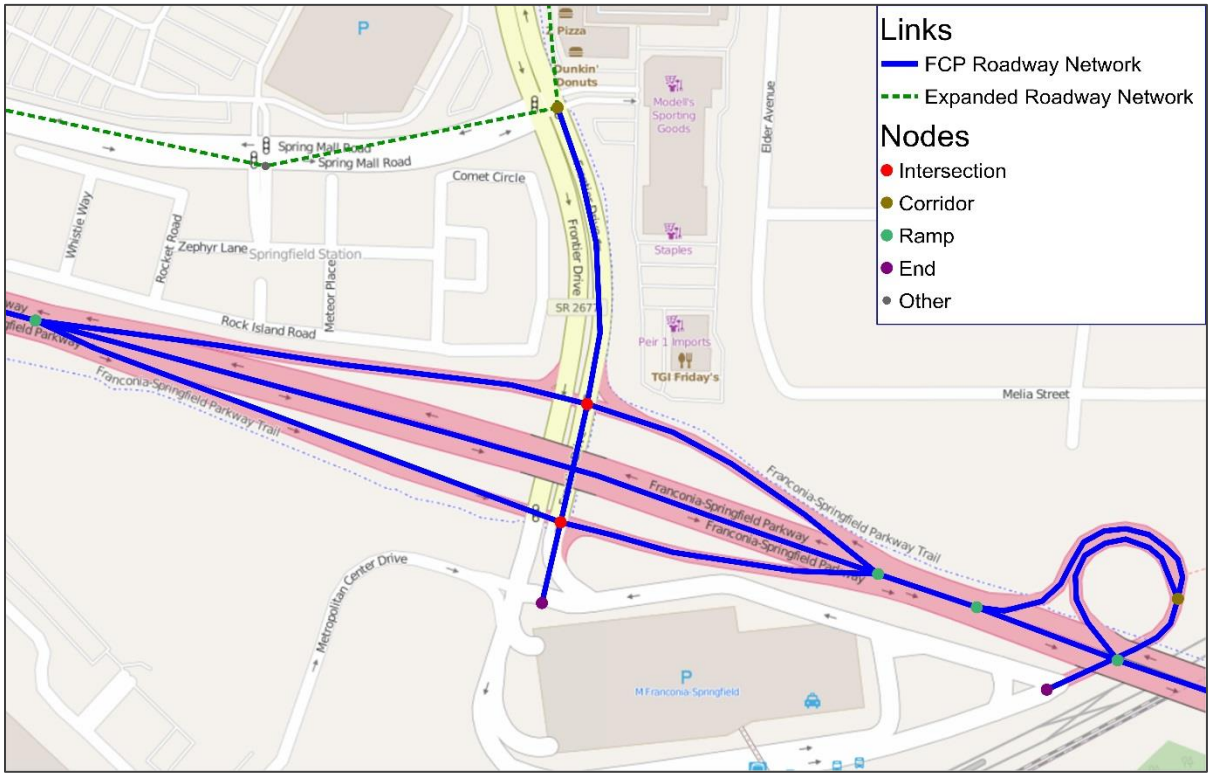


Table 1. Classification of Nodes in the Expanded Network.

Category	Description	With Traffic Counts?
Intersection	Intersections listed in the study scope	Yes
Ramp	Locations where ramps begin or end along FCP/FSP	Yes
End	End of roadways crossing FCP/FSP	No
Corridor	Intersections adjacent to FCP/FSP or locations on FCP/FSP where the number of lanes changes	No
Other	Other nodes in the expanded network	No

Figure 3. Example of Nodes and Links included in Study Corridor.



5) **Detailed coding of FCP-FSP corridor (VISUM)** – Consistent with the previously developed FCP VISUM model, a more detailed network along the immediate FCP-FSP corridors was coded in addition to the basic geometric information in the expanded network. This detailed coding provides specific information on allowable turning movements, and the number of lanes and effective storage length of turn lanes at intersection approaches. It also incorporates traffic signal timings according to VISSIM's built-in Ring-Barrier Controller (RBC) module.

6) **Subarea extraction of FCP-FSP corridor-only network for TFlowFuzzy and export to VISUM** – Upon completing the initial traffic assignment on the expanded study area (364 x 364 zone network), VISUM's subarea network extraction procedure was used to extract only the FCP-FSP corridor to a new model. This model was used for creation of corridor-specific O-D's aligning with balanced traffic counts and ultimately an ANM export to VISSIM for microscopic traffic simulation. The assignment process for this corridor-level model is described in the next section. Attachment A shows the links and nodes of the FCP-FSP corridor network.

   - *The subarea network consisted of 178 x 178 zones.*

7) **Traffic Control** – signal control and traffic control on permissive movements were coded in the FCP-FSP corridor network consistent with the FCP VISUM model. The coding issues with regard to RTOR (right-turn-on-red) and signal cycle length due to the software limitation of VISUM were explained in the FCP VISUM memorandum. For the FSP corridor, only one intersection, FSP and Bonniemill Lane has a cycle length of 310 seconds during AM peak, which exceeds the limitation of VISUM. There are no dual right-turns along the FSP corridor.

O-D Matrix Estimation (ODME)

VISUM was used to estimate O-D patterns for the expanded study area and refined FCP-FSP corridor networks. The key inputs into this process are seed matrices, which are used as a model input for developing a valid O-D estimate that reflects the regional trip patterns. For the initial traffic assignment for the base network, the seed matrices were two 364x364 trip tables – one for general purpose vehicles and one for HOV vehicles. These were developed by taking the original trip tables from the MWCOG extraction (276x276) and proportionally disaggregating trips according to the zone splits described in the previous section. As the matrix from the MWCOG model represented peak-period trips, factors of 41.7 percent and 29.4 percent were used to convert AM and PM peak period trips, respectively, to peak hour trips[5]. Additionally, some links in the network needed to be coded to restrict vehicle types to HOV-only trips (e.g. HOV facilities on the Dulles Toll Road, I-66, and I-95).

Once the initial AM and PM peak hour traffic assignments were completed for the expanded area network, VISUM's subarea network extraction procedure was used to extract only the FCP-FSP corridor to a new model. **Figure 4** shows the process to generate the corridor seed matrix through zone disaggregation and the VISUM corridor network extraction. The following tasks were performed in order to create an O-D matrix estimate reflective of actual traffic patterns:

1) Generate the FCP-FSP corridor network, which includes only the FCP and FSP roadways and immediate adjacent intersection roadways. Most zones in the original expanded network were removed during the subarea extraction; VISUM generates new zones to load trips from the removed network consistent with the traffic assignment from the expanded network, which VISUM uses to create a seed matrix for the corridor network.
2) Import and verify counts on FCP-FSP corridor network. Counts along the new FSP portion of the corridor were balanced to be consistent with the counts from the original balanced volumes on the FCP corridor.
3) Run TFlowFuzzy on the FCP-FSP corridor network. TFlowFuzzy is a built-in ODME tool within VISUM that adjusts a given seed O-D matrix in such a way that the result of the assignment closely matches target volumes at points within the network. In this analysis, TFlowFuzzy was conducted on the O-D tables for general purpose (including trucks) and HOV vehicles, but the volume targets were combined for all vehicles. For HOV vehicles, the 2014 balanced traffic counts at the I-95 ramp intersection were used as targets for ODME to address the inconsistency between the I-95 Express Lane HOV3/Toll trips contained in the MWCOG model and the 2014 traffic counts under HOV2 conditions before the opening of the I-95 Express Lanes. TFlowFuzzy procedures were performed on the seed matrices for the corridor network to make the assignment match the targets within a threshold of ± 50 vehicles for majority of the turning movements and links, consistent with the previously developed FCP VISUM model.

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[5] These factors are taken from MWCOG's model calibration documentation, which provides the proportion of traffic in a given model period which occurs in the peak hour of the period.

4) Calculate the difference between the target and the assignment for nodes and links to show statistical performance of the OD matrix estimation.

Figure 4. Process to Generate Corridor Seed Trip Matrix

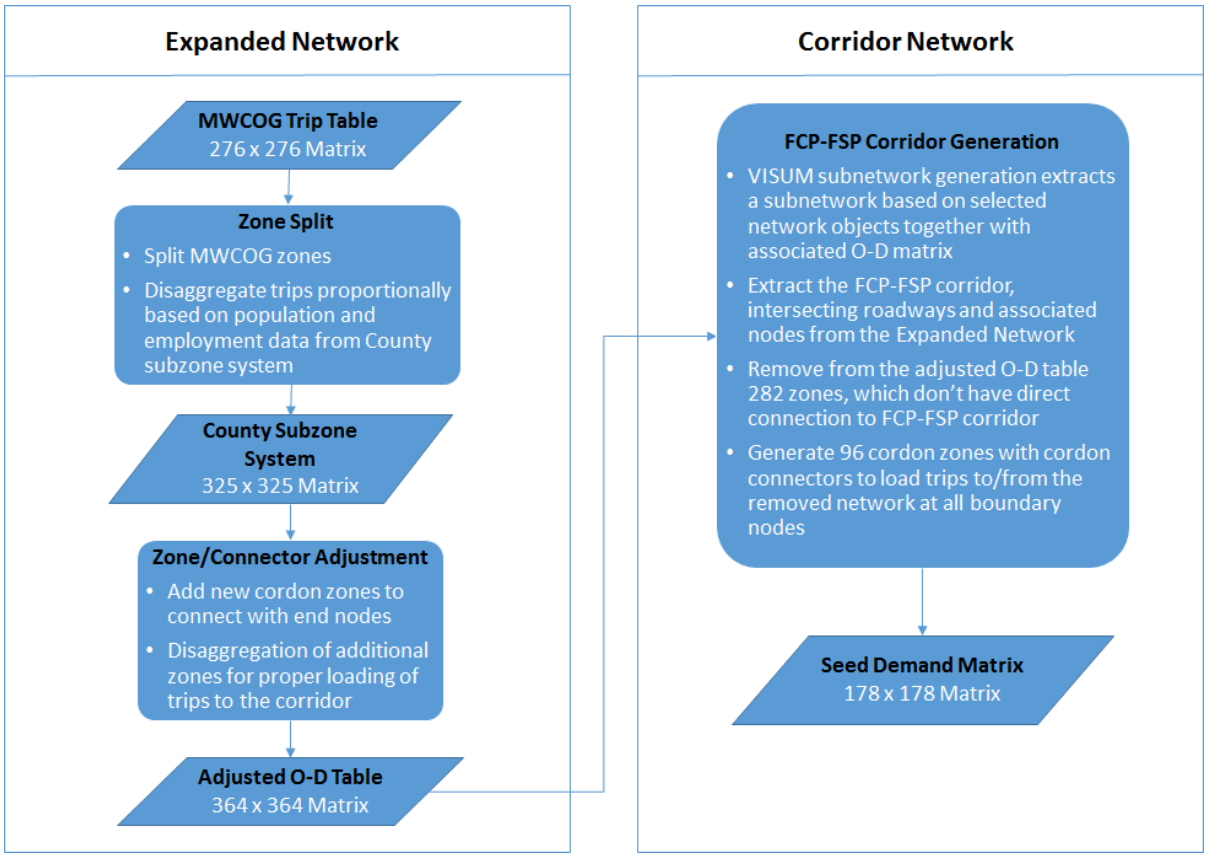


Table 2: Traffic Analysis Zones (TAZs) in Subnetwork

Zone #	Description	Number of Zones included in the FCP/FSP Corridor Network
1 – 135	Internal zones from MWCOG travel demand model	27
136 – 276	Cordon zones from MWCOG travel demand model subarea extraction	8
3731 – 3885	Zones split to match Fairfax County Subzone System	8
3886 – 3924	New added zones to connect the End nodes	36
100XXXX (last four digits are random)	Zones generated by subnetwork generation	99
	Total	**178**

Analysis Results

The results of the ODME were summarized in this section. Overall, the VISUM assignment closely matches the traffic volumes and the O-D matrix properly reflect existing travel pattern along the corridor.

Figure 5 and **Figure 6** illustrate the accuracy of O-D assignment against target volumes for the AM corridor VISUM model. In **Figure 5**, the x-axis represents the balanced target volumes for any particular turning movement and the y-axis represents the volumes generate by model assignment. **Figure 5** illustrates that the model-assigned volumes closely match the target volumes, with a Root Mean Square Error (RMSE) of 2 percent and an R-Square of 1.0. **Figure 6** demonstrates the deviation of vehicle assignments from the targets. The y-axis represents the difference between vehicle assignments and associated targets while each point represents one turning movement. The resultant assignment was generally within 50 vehicles of the target and approximately 98 percent of turns were within 25 vehicles.

The assignment analysis of the PM VISUM corridor model shows similar results as the AM VISUM model (see **Figure 7** and **Figure 8**). Most differences between traffic assignments and targets were within 50 vehicles and approximately 97 percent of turns were within 25 vehicles.

The only exceptions where assignments differ from targets for more than 50 vehicles occur at the Hooes Road / Bonniemill Lane intersection and the FCP / Modisto Lane intersection. The trip assignments for these low volume intersections will be addressed in the VISSIM model calibration.

Figure 5. AM Corridor Model-Assigned Volumes versus Target Volumes

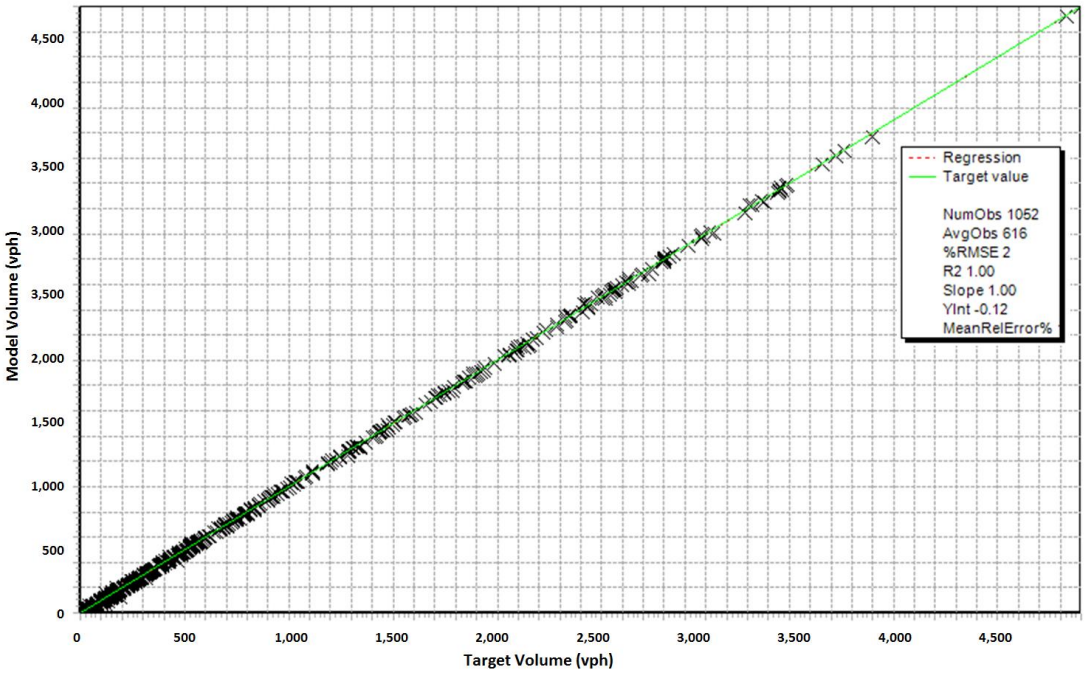


Figure 6. Deviation of AM Corridor Assignment from Target

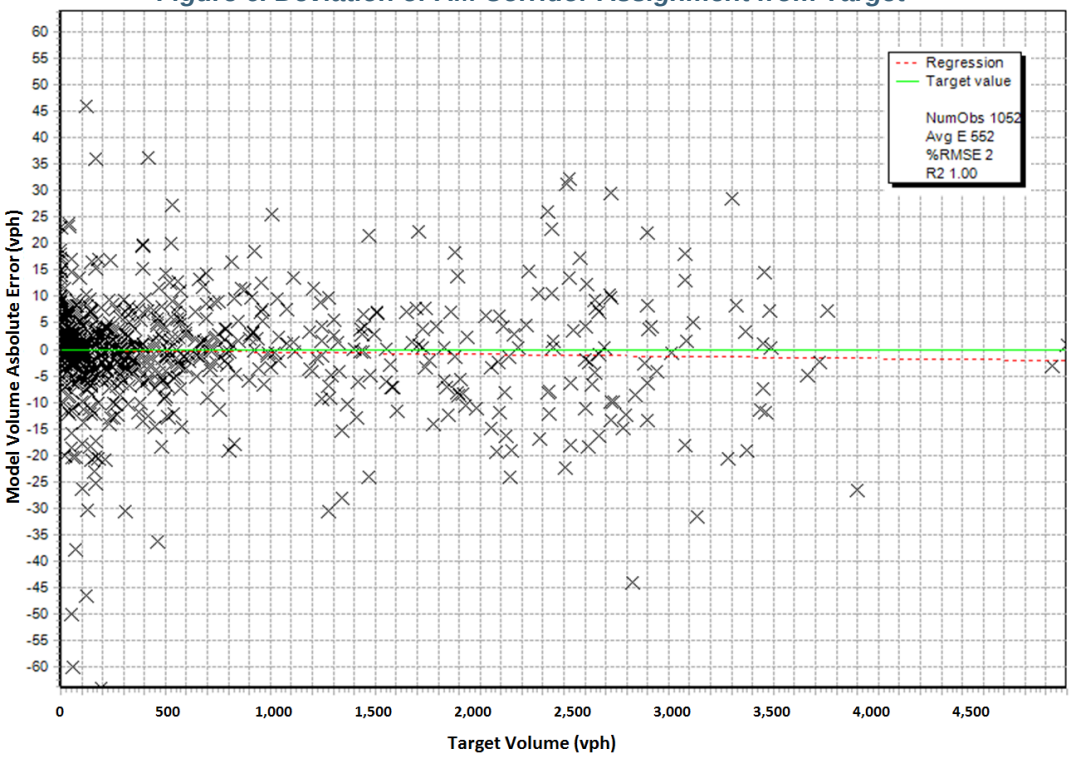


Figure 7. PM Corridor Model-Assigned Volumes versus Target Volumes

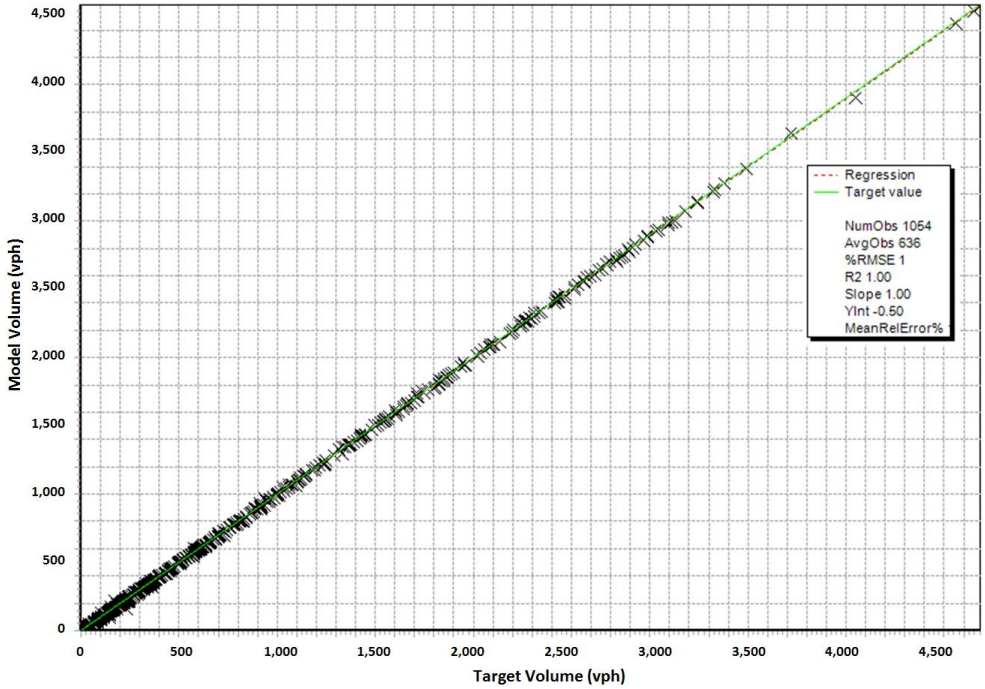
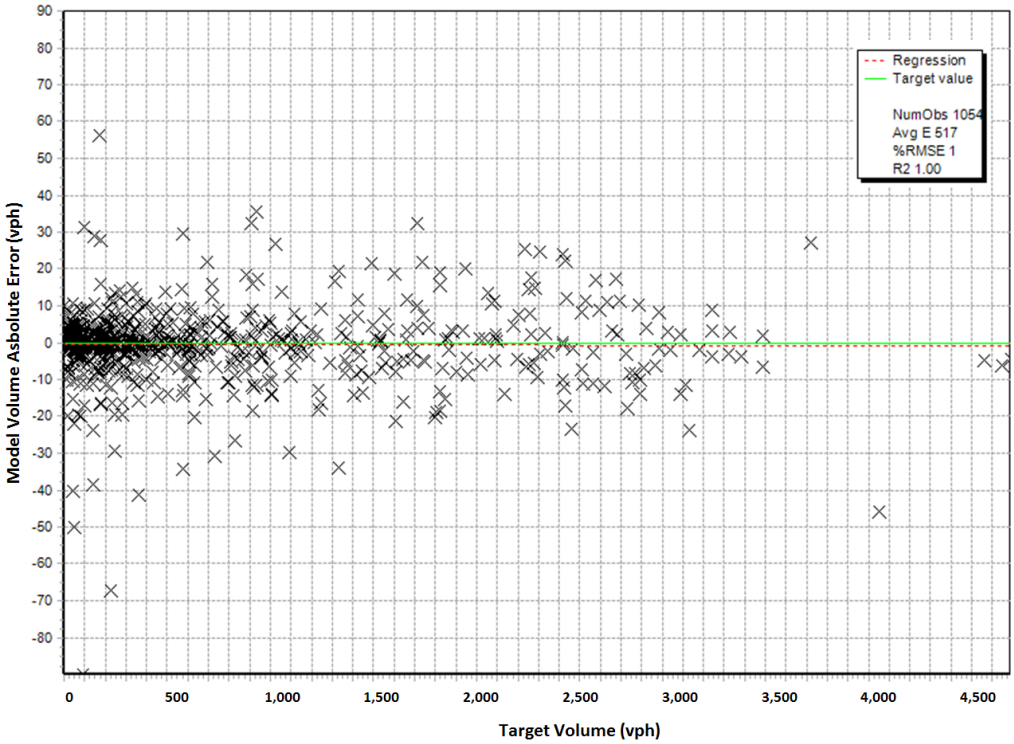


Figure 8. Deviation of PM Corridor Assignment from Target



In Attachment B, a comparison table is provided to illustrate the percent difference between assignment and target for the turning movements of the critical intersections identified for the microsimulation model calibration in the next phase of the project. All of the turning movements at these intersections were found to have volume assignments that match well to the target volume.

Conversion to VISSIM

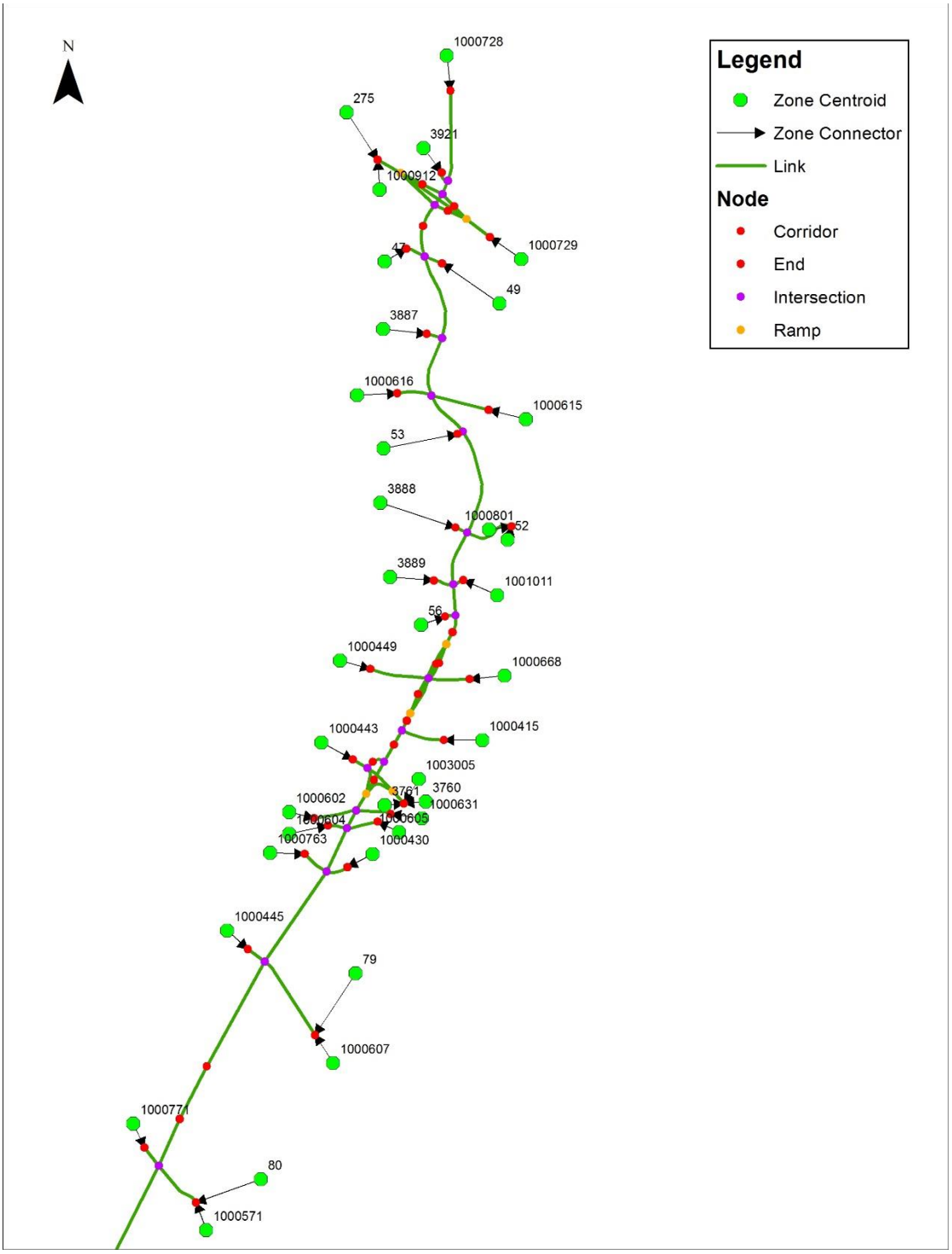
The VISUM models can be directly converted into VISSIM models, the result of which being AM and PM networks with assigned peak volumes and vehicle routes. Issues associated with the conversion and the adjustments that may be required to generate geometrically and operationally accurate VISSIM models are similar to those contained in the FCP VISUM model.

Attachment A

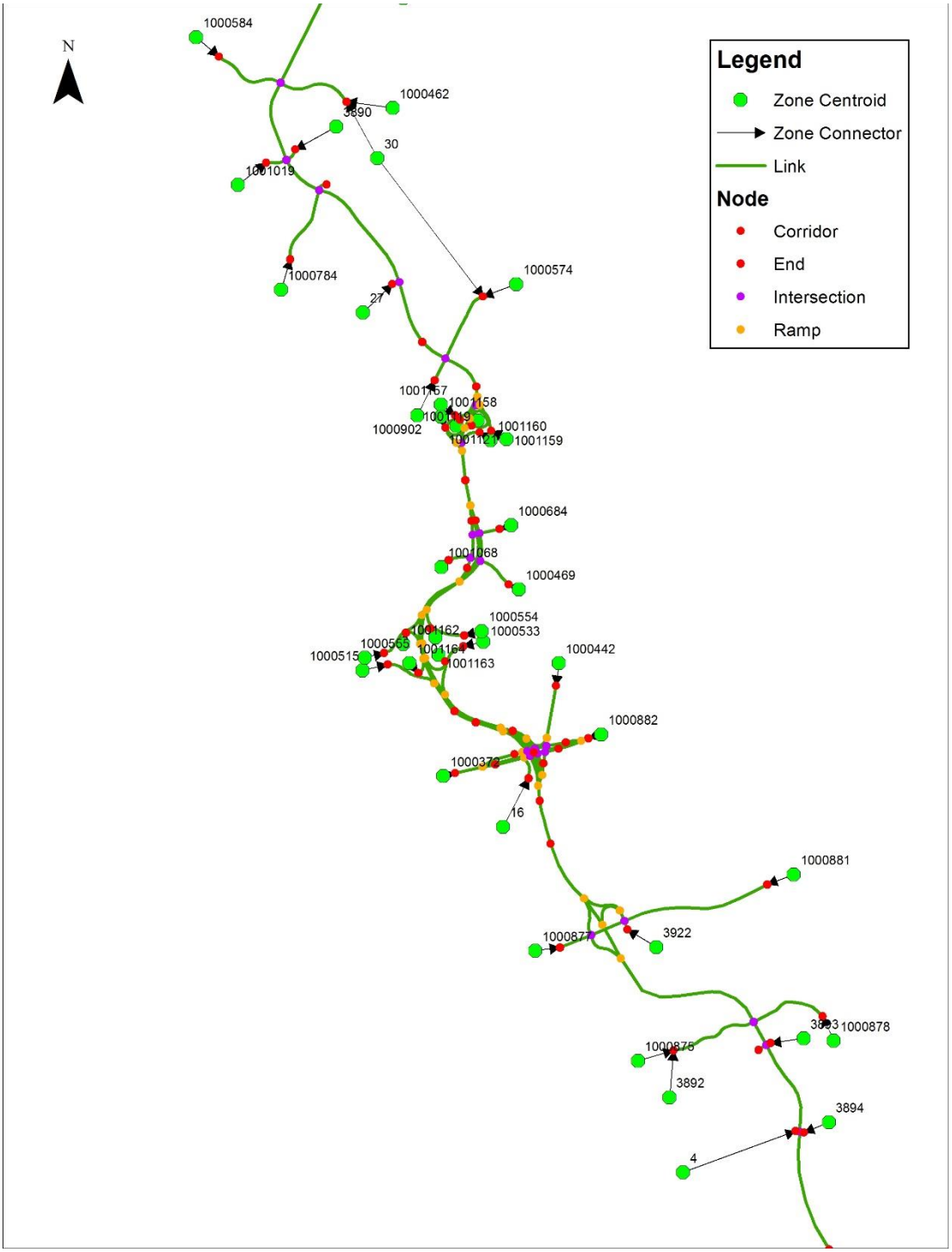
FCP-FSP Corridor Network

Link, Node, and Zone Structure

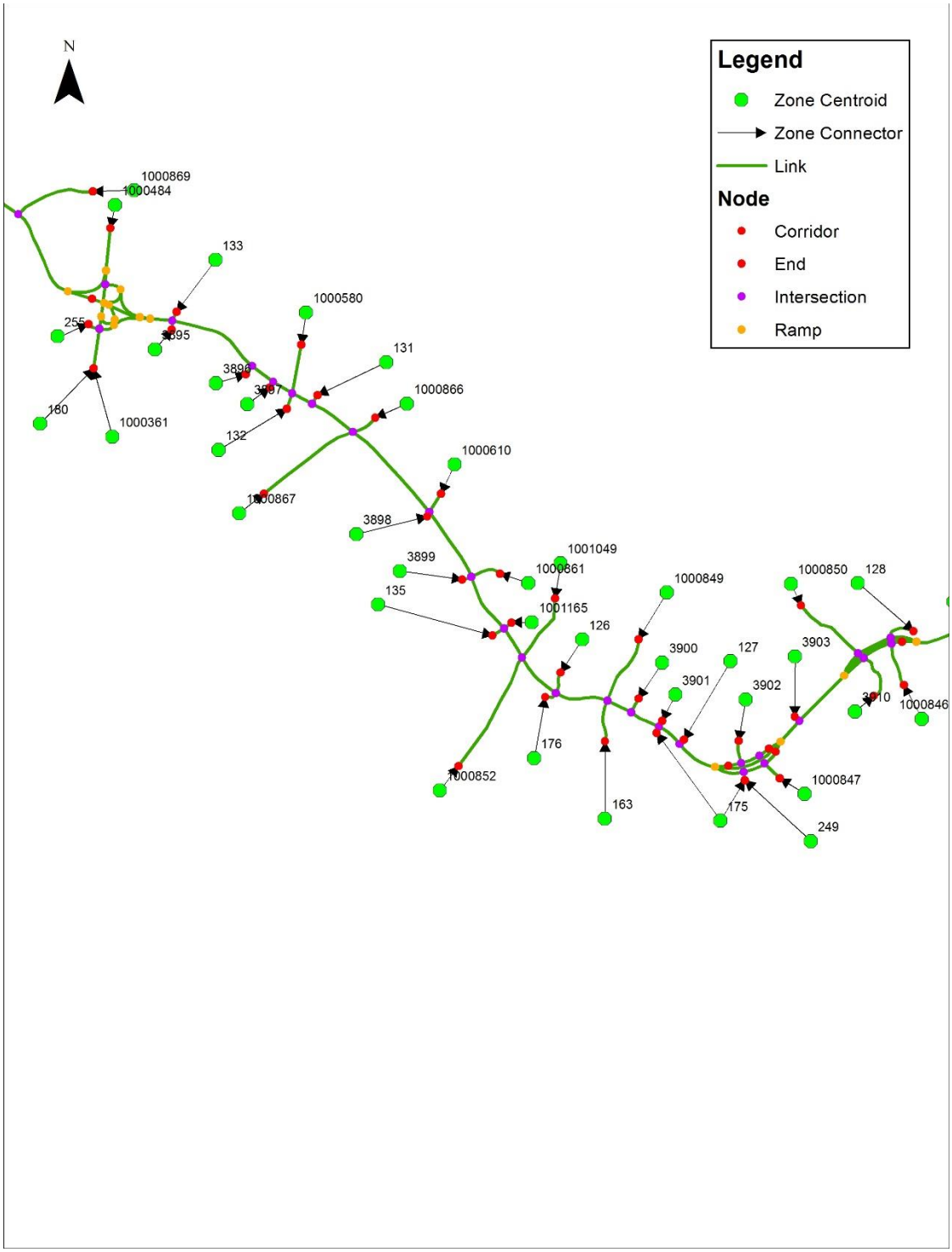
FCP-FSP Corridor Network Section 1 (North Section)



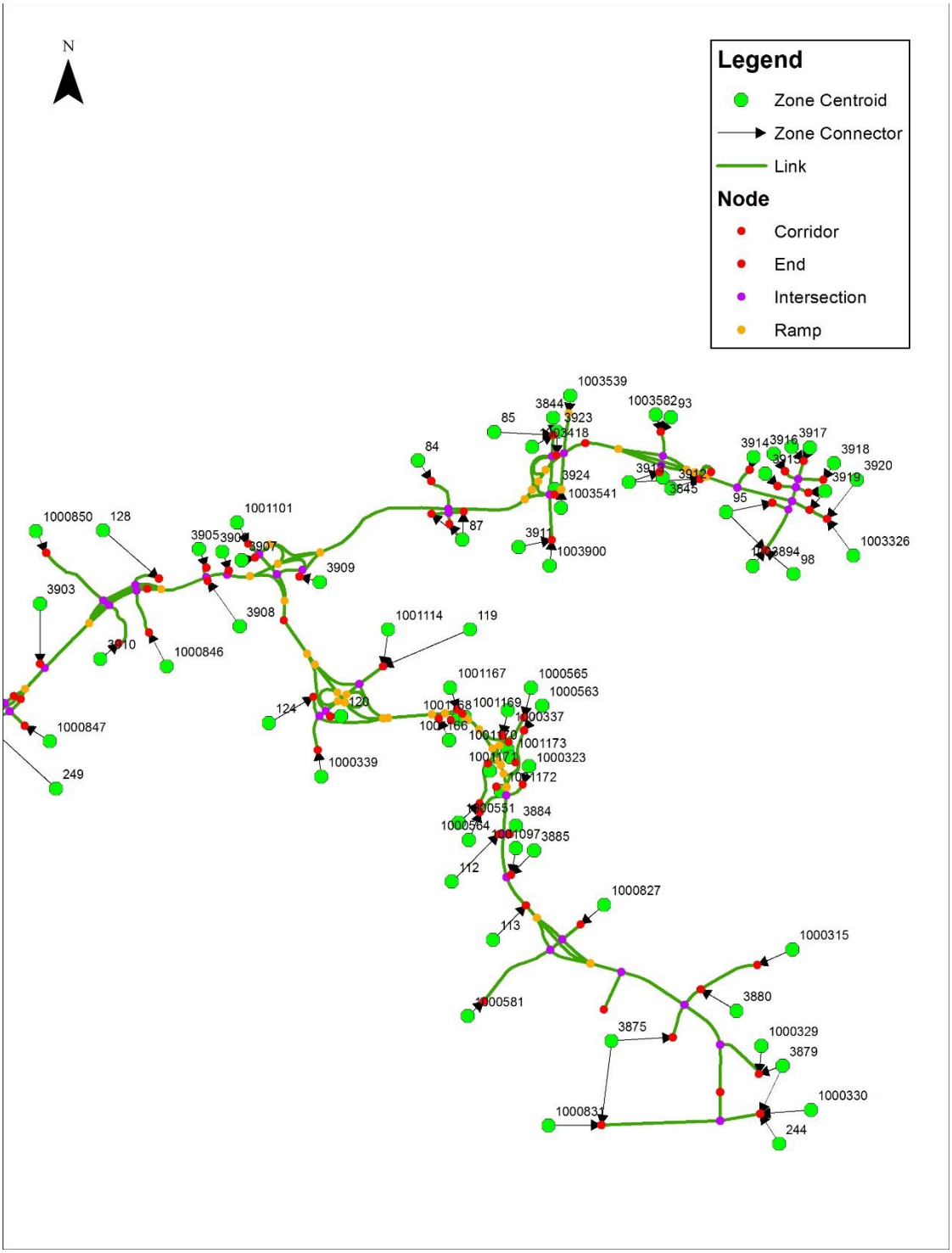
FCP-FSP Corridor Network Section 2 (Middle Section)



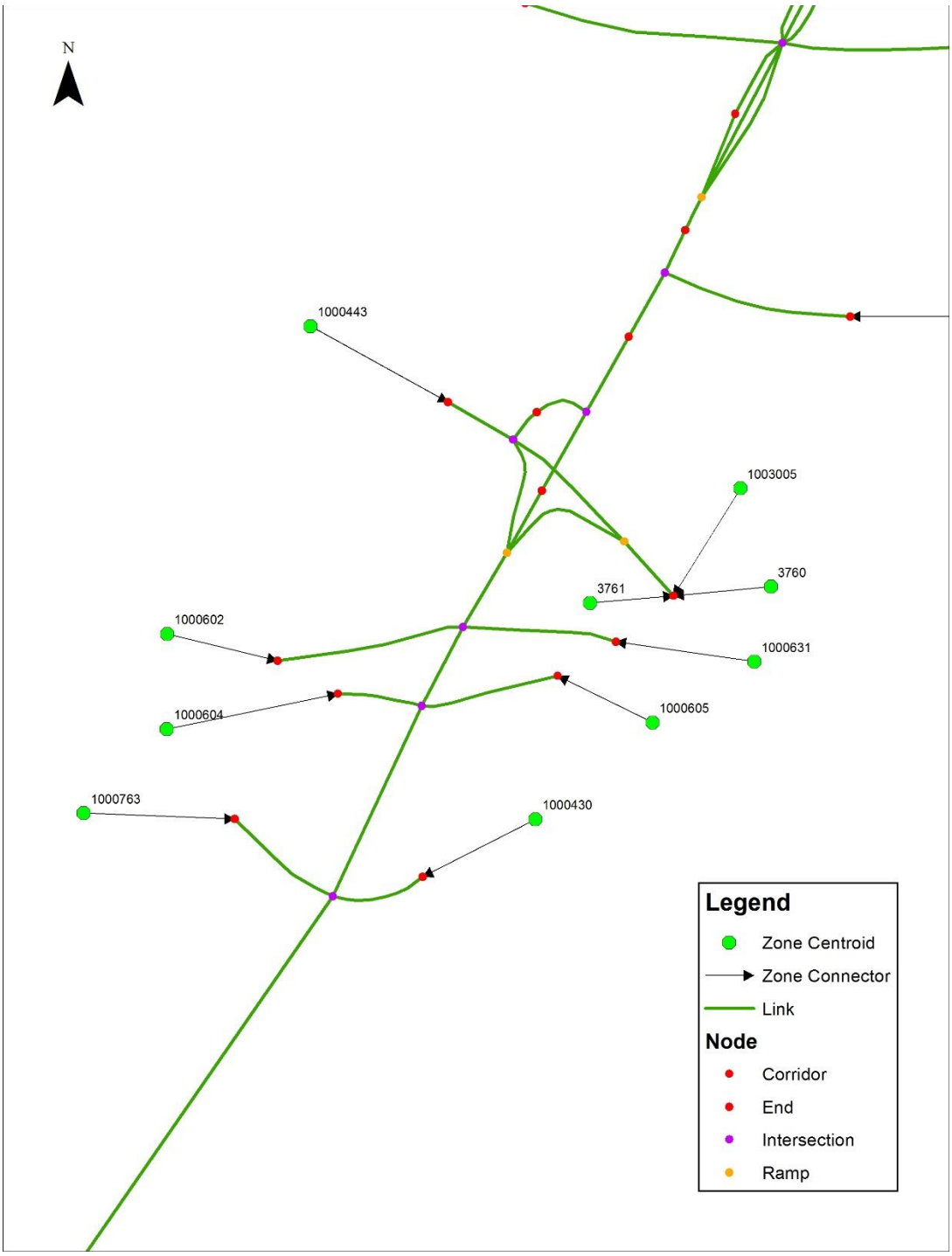
FCP-FSP Corridor Network Section 3 (Middle Section)



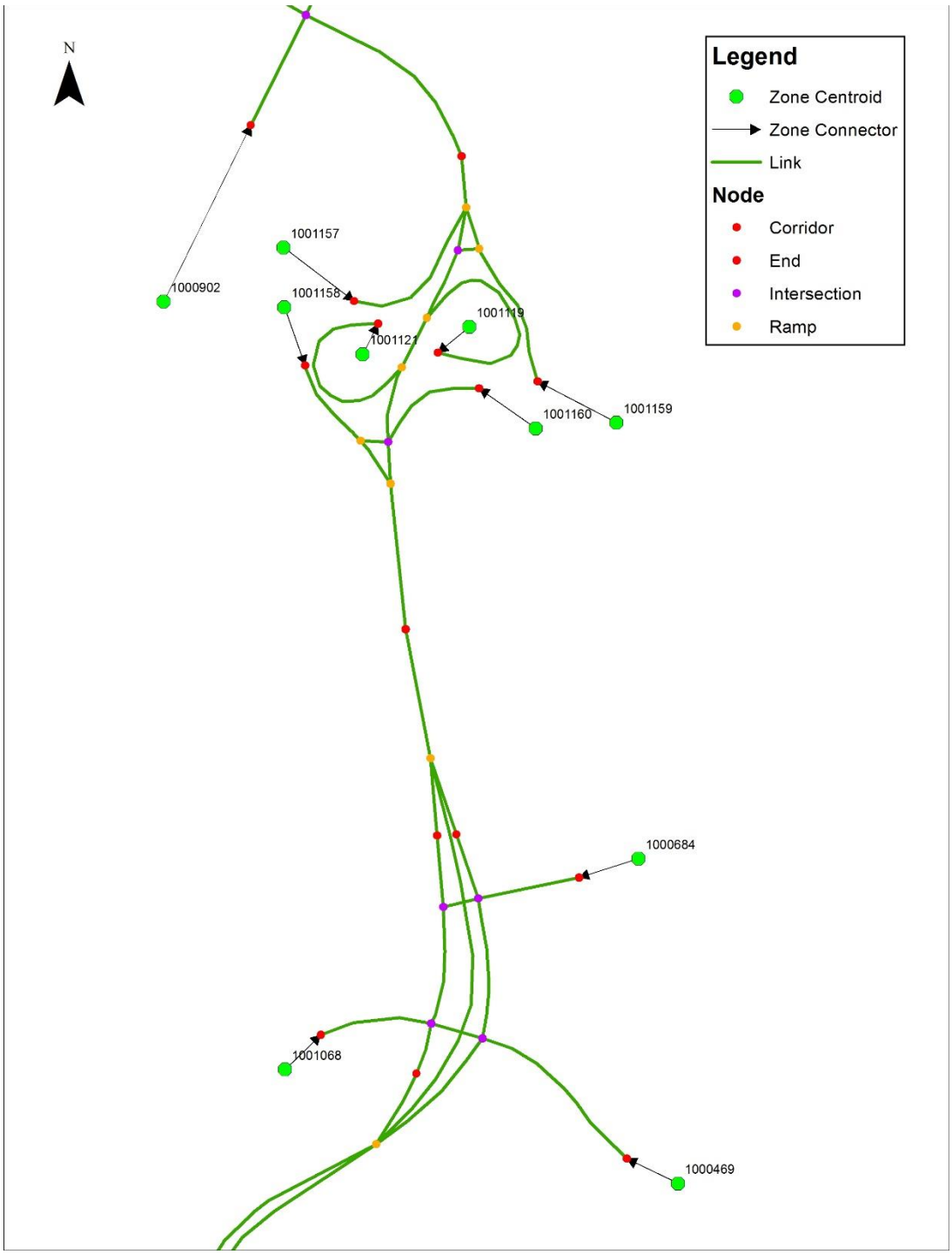
FCP-FSP Corridor Network Section 4 (South Section)



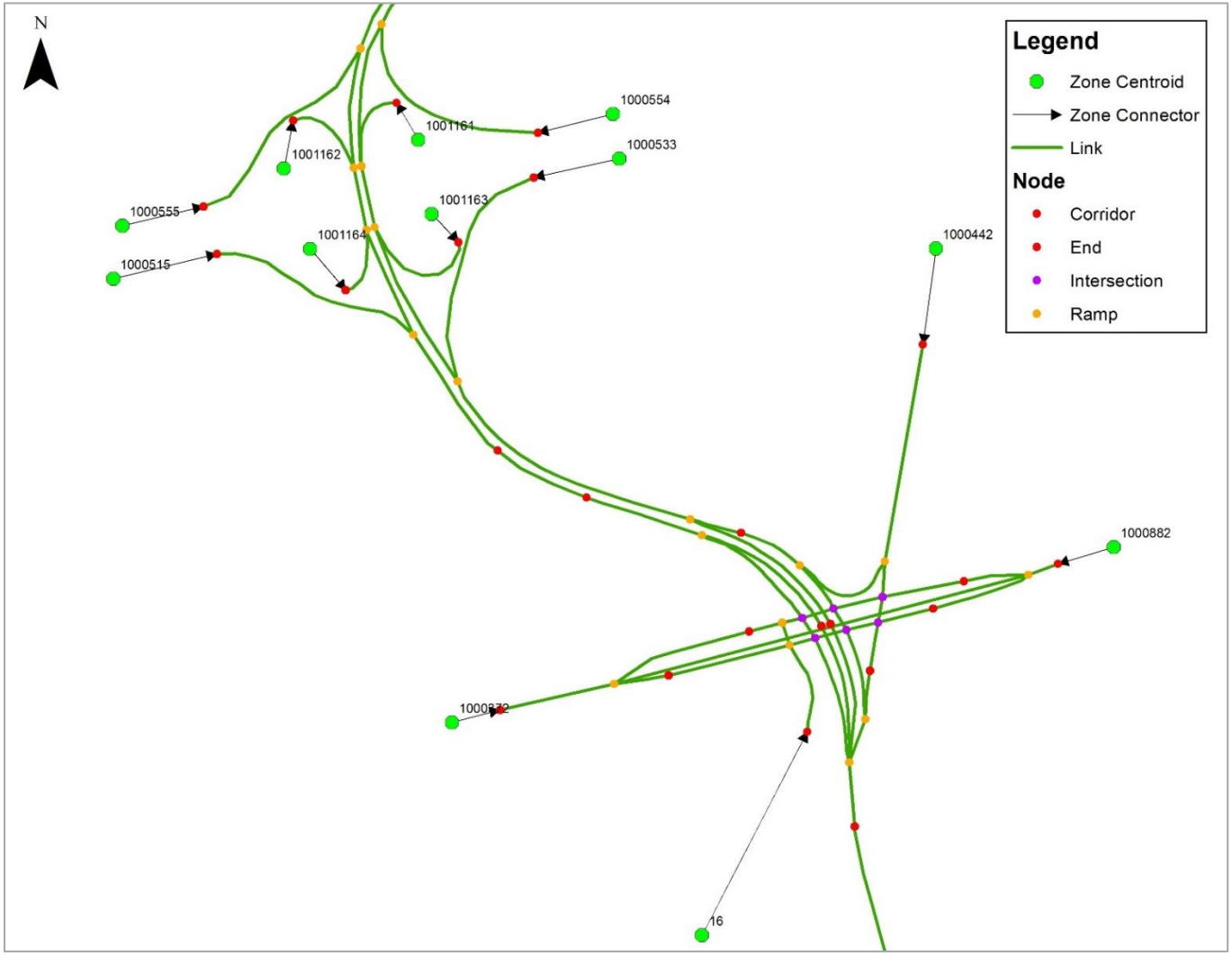
FCP Corridor Interchanges at Route 267 (Dulles Toll Road) and Spring Street



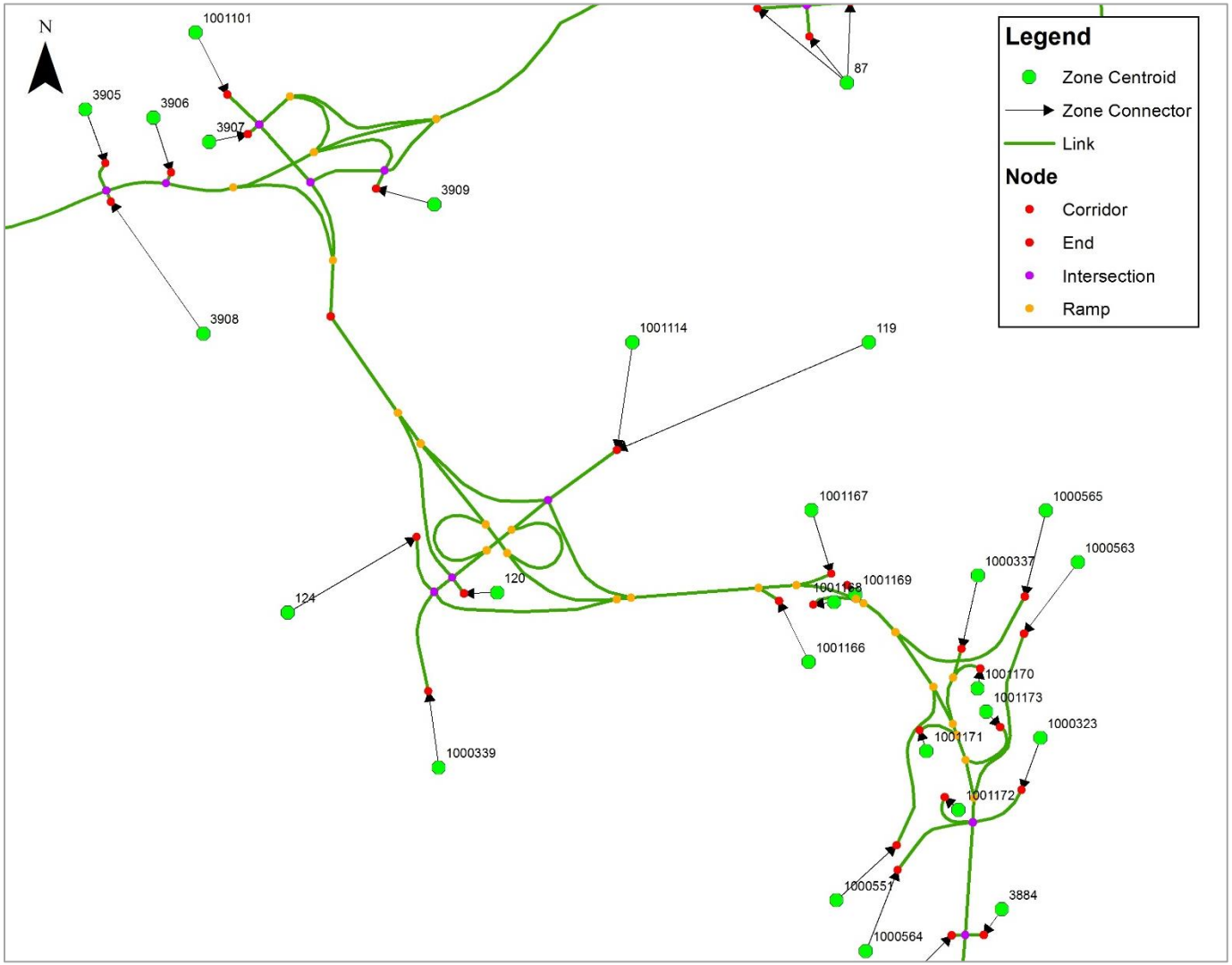
FCP Corridor Interchanges at US 50 and Fair Lakes Parkway



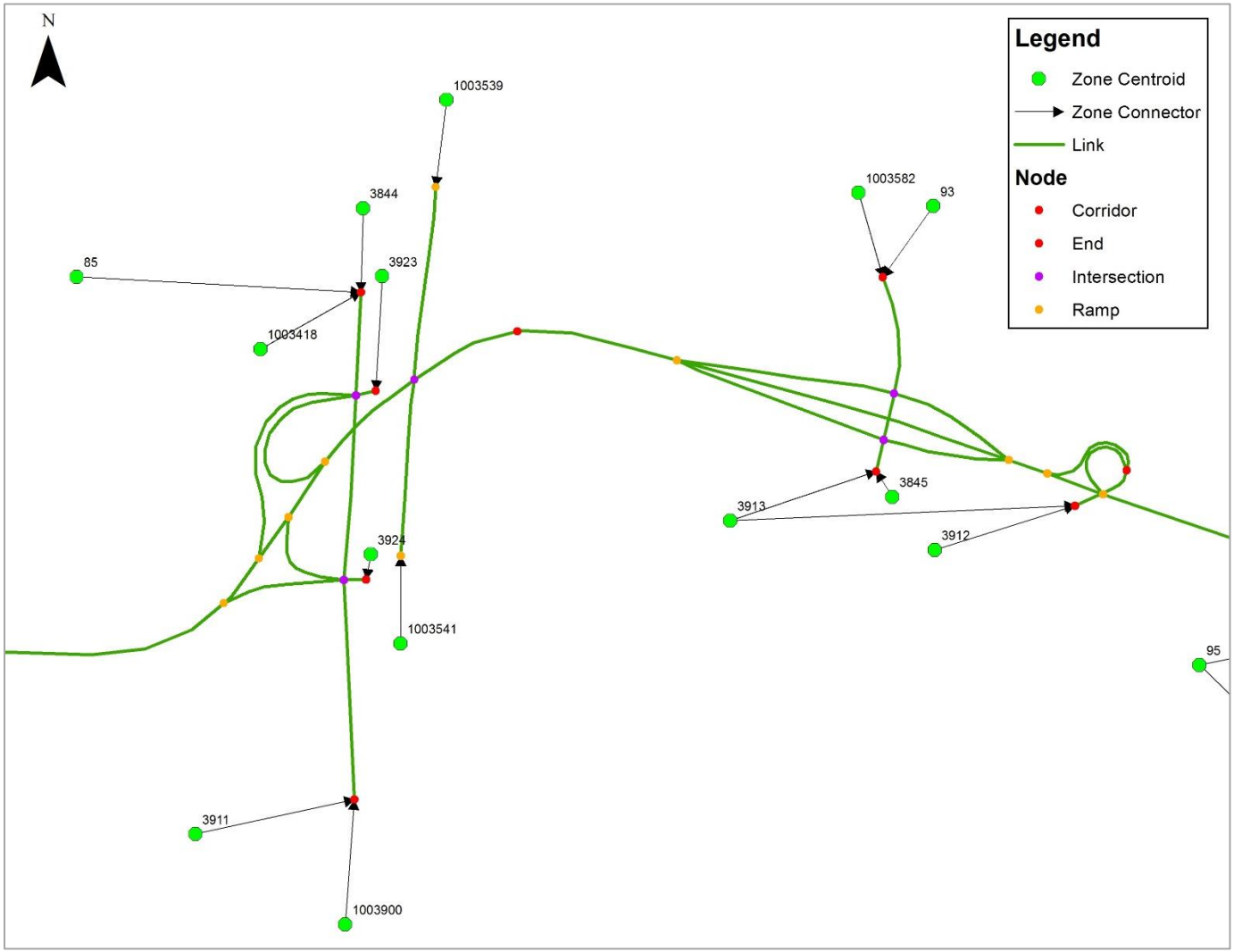
FCP Corridor Interchanges at I-66 and US 29



FCP Corridor Interchanges at FSP, Barta Road and I-95



FSP Corridor Interchanges at Backlick Road and Frontier Drive



Attachment B

Turning Movement Volumes Comparison at Critical Intersections

Critical Intersection AM Peak Hour	Approach	Movement	VISUM Volume (vph)		Balanced Count (vph)		Percent Difference	
Fairfax County Parkway and Route 7 Westbound Ramps	NB	LT	336	515	340	520	-1%	-1%
		TH	179		180		-1%	
	SB	TH	1512	1592	1505	1585	0%	0%
		RT	80		80		0%	
	WB	LT	99	214	100	210	-1%	2%
		TH	0		0		0%	
		RT	115		110		5%	
	Intersection		2321		2315		0%	
Fairfax County Parkway and Route 7 Eastbound Ramps	NB	TH	475	514	480	520	-1%	-1%
		RT	39		40		-3%	
	SB	LT	496	1611	500	1615	-1%	0%
		TH	1115		1115		0%	
	EB	LT	41	1290	40	1285	3%	0%
		TH	0		0		0%	
		RT	1249		1245		0%	
	Intersection		3415		3420		0%	
Fairfax County Parkway and Spring Street Ramp	NB	LT	668	2185	670	2180	0%	0%
		TH	1517		1510		0%	
	SB	TH	2497	2939	2515	2955	-1%	-1%
		RT	442		440		0%	
	EB	LT	107	280	110	280	-3%	0%
		RT	173		170		2%	
	Intersection		5404		5415		0%	
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	NB	LT	91	2442	90	2430	1%	0%
		TH	2351		2340		0%	
	SB	TH	2683	2983	2695	2995	0%	0%
		RT	300		300		0%	
	WB	LT	343	898	345	900	-1%	0%
		TH	0		0		0%	
		RT	555		555		0%	
	Intersection		6323		6325		0%	
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	NB	TH	1703	2123	1695	2115	0%	0%
		RT	420		420		0%	
	SB	LT	781	3026	800	3030	-2%	0%
		TH	2245		2230		1%	
	EB	LT	738	1054	745	1065	-1%	-1%
		TH	0		0		0%	
		RT	316		320		-1%	
	Intersection		6203		6210		0%	
Fairfax County Parkway and Sunrise Valley Drive	NB	LT	151	2121	150	2115	1%	0%
		TH	1498		1495		0%	
		RT	472		470		0%	
	SB	LT	576	2561	570	2555	1%	0%
		TH	1321		1320		0%	
		RT	664		665		0%	
	EB	LT	398	994	400	1000	-1%	-1%
		TH	557		560		-1%	
		RT	39		40		-3%	
	WB	LT	69	596	70	600	-1%	-1%
		TH	300		300		0%	
		RT	227		230		-1%	
	Intersection		6272		6270		0%	
Fairfax County Parkway and US 50 Westbound Ramp	NB	TH	2635	2635	2625	2625	0%	0%
	SB	TH	2052	2052	2055	2055	0%	0%
	WB	LT	60	449	60	450	0%	0%
		RT	389		390		0%	
	Intersection		5136		5130		0%	

Critical Intersection AM Peak Hour	Approach	Movement	VISUM Volume (vph)		Balanced Count (vph)		Percent Difference	
Fairfax County Parkway and US 50 Eastbound Ramp	NB	TH	3164	3164	3185	3185	-1%	-1%
	SB	TH	1676	1676	1675	1675	0%	0%
	EB	LT	69	425	70	425	-1%	0%
		RT	356		355		0%	
	Intersection		5265		5285		0%	
Fairfax County Parkway and I-66 Ramps	NB Off-Ramp to EB	TH	3555	3824	3560	3830	0%	0%
		Ramp	269		270		0%	
	NB Off-Ramp to WB	TH	3268	4593	3265	4605	0%	0%
		Ramp	1325		1340		-1%	
	NB On-Ramp from EB	TH	3555	4593	3560	4600	0%	0%
		Ramp	1038		1040		0%	
	NB On-Ramp from WB	TH	3268	3754	3265	3760	0%	0%
		Ramp	486		495		-2%	
	SB Off-Ramp to EB	TH	1544	1807	1550	1820	0%	-1%
		Ramp	263		270		-3%	
	SB Off-Ramp to WB	TH	1657	2103	1650	2100	0%	0%
		Ramp	446		450		-1%	
	SB On-Ramp from EB	TH	1544	2732	1550	2735	0%	0%
		Ramp	1188		1185		0%	
	SB On-Ramp from WB	TH	1657	1807	1650	1820	0%	-1%
		Ramp	150		170		-12%	
Fairfax County Parkway Southbound Ramp and US 29 Southbound	SB	TH	216	284	220	280	-2%	1%
		RT	68		60		13%	
	WB	LT	386	552	385	555	0%	-1%
		TH	166		170		-2%	
	Intersection		836		835		0%	
Fairfax County Parkway Southbound Ramp and US 29 Northbound	SB	LT	216	602	230	610	-6%	-1%
		TH	386		380		2%	
	EB	TH	704	1051	690	1040	2%	1%
		RT	347		350		-1%	
	Intersection		1653		1650		0%	
Fairfax County Parkway Northbound Ramp and US 29 Southbound	NB	LT	86	310	80	310	8%	0%
		TH	224		230		-3%	
	WB	TH	466	605	460	600	1%	1%
		RT	139		140		-1%	
	Intersection		915		910		1%	
Fairfax County Parkway Northbound Ramp and US 29 Northbound	NB	TH	86	86	90	90	-4%	-4%
	EB	LT	224	920	220	910	2%	1%
		TH	696		690		1%	
	Intersection		1006		1000		1%	
West Ox Road and US 29 Southbound	NB	TH	1285	1285	1290	1290	0%	0%
	SB	TH	20	428	20	430	0%	0%
		RT	298		300		-1%	
		On-Ramp	110		110		0%	
	WB	TH	307	348	310	350	-1%	-1%
		RT	41		40		3%	
	Intersection		2061		2070		0%	
West Ox Road/Fairfax County Parkway Northbound Off-Ramp and US 29 Northbound	NB	TH	720	856	720	860	0%	0%
		RT	136		140		-3%	
	SB	LT	20	20	20	20	0%	0%
	EB	LT	565	695	580	700	-3%	-1%
		TH	130		120		8%	
	Intersection		1571		1580		-1%	

Critical Intersection AM Peak Hour	Approach	Movement	VISUM Volume (vph)		Balanced Count (vph)		Percent Difference	
Fairfax County Parkway and Popes Head Road	NB	LT	20	3355	20	3370	0%	0%
		TH	3329		3340		0%	
		RT	6		10		-40%	
	SB	LT	69	3003	70	3005	-1%	0%
		TH	2914		2915		0%	
		RT	20		20		0%	
	EB	LT	37	138	30	130	23%	6%
		TH	40		40		0%	
		RT	61		60		2%	
	WB	LT	18	290	20	290	-10%	0%
		TH	20		20		0%	
		RT	252		250		1%	
	Intersection		6786		6795		0%	
Fairfax County Parkway and Franconia-Springfield Parkway Westbound Ramps	NB	LT	5	1175	0	1165	-	1%
		TH	597		600		-1%	
		RT	573		565		1%	
	SB	LT	118	1019	120	1010	-2%	1%
		TH	891		880		1%	
		RT	10		10		0%	
	EB	LT	20	50	20	50	0%	0%
		TH	10		10		0%	
		RT	20		20		0%	
	WB	LT	67	207	70	200	-4%	4%
		TH	9		0		-	
		RT	131		130		1%	
	Intersection		2451		2425		1%	
Fairfax County Parkway and Franconia-Springfield Parkway Eastbound Ramps/Rolling Road	NB	TH	840	962	830	960	1%	0%
		RT	122		130		-6%	
	SB	LT	239	978	230	960	4%	2%
		TH	739		730		1%	
	WB	LT	20	355	20	360	0%	-1%
		RT	335		340		-1%	
	Intersection		2295		2280		1%	
Fairfax County Parkway and I-95	NB Off-Ramp to NB I-95	TH	991	1776	990	1770	0%	0%
		Ramp	785		780		1%	
	NB Off-Ramp to SB I-95	TH	831	1574	835	1575	0%	0%
		Ramp	743		740		0%	
	NB On-Ramp from NB I-95	TH	991	1574	990	1575	0%	0%
		Ramp	583		585		0%	
	NB On-Ramp from SB I-95	TH	831	1127	835	1135	0%	-1%
		Ramp	296		300		-1%	
	SB Off-Ramp to SB I-95	TH	2137	2428	2140	2430	0%	0%
		Ramp	291		290		0%	
	SB On-Ramp from SB I-95	TH	2137	3381	2140	3380	0%	0%
		Ramp	1244		1240		0%	
Fairfax County Parkway and I-95 Northbound Ramps/Loisdale Road	NB	TH	1476	1676	1475	1675	0%	0%
		RT	200		200		0%	
	SB	LT	281	3380	280	3375	0%	0%
		TH	2548		2555		0%	
		RT	551		540		2%	
	EB	TH	250	402	250	400	0%	1%
		RT	152		150		1%	
	WB	LT	150	450	150	450	0%	0%
		RT	300		300		0%	
	Intersection		5908		5900		0%	

Critical Intersection AM Peak Hour	Approach	Movement	VISUM Volume (vph)		Balanced Count (vph)		Percent Difference	
Fairfax County Parkway and US 1	SB	LT	992	1028	990	1030	0%	0%
		RT	36		40		-10%	
	EB	LT	407	2521	420	2530	-3%	0%
		TH	2114		2110		0%	
	WB	TH	682	1716	680	1690	0%	2%
		RT	1034		1010		2%	
	Intersection		4273		4260		0%	
Franconia-Springfield Parkway and Beulah Street	NB	LT	721	1445	720	1445	0%	0%
		TH	614		615		0%	
		RT	110		110		0%	
	SB	LT	110	704	110	705	0%	0%
		TH	292		295		-1%	
		RT	302		300		1%	
	EB	LT	603	1825	600	1825	1%	0%
		TH	800		800		0%	
		RT	422		425		-1%	
	WB	LT	90	1155	90	1160	0%	0%
		TH	894		900		-1%	
		RT	171		170		1%	
	Intersection		5129		5135		0%	

Critical Intersection PM Peak Hour	Approach	Movement	VISUM Volume (vph)		Balanced Count (vph)		Percent Difference	
Fairfax County Parkway and Route 7 Westbound Ramps	NB	LT	876	2248	875	2245	0%	0%
		TH	1372		1370		0%	
	SB	TH	391	441	390	440	0%	0%
		RT	50		50		0%	
	WB	LT	79	698	80	695	-1%	0%
		TH	0		0		0%	
		RT	619		615		1%	
	Intersection		3387		3380		0%	
Fairfax County Parkway and Route 7 Eastbound Ramps	NB	TH	2096	2183	2095	2185	0%	0%
		RT	87		90		-3%	
	SB	LT	179	471	180	475	-1%	-1%
		TH	292		295		-1%	
	EB	LT	151	710	150	710	1%	0%
		TH	0		0		0%	
		RT	559		560		0%	
	Intersection		3364		3370		0%	
Fairfax County Parkway and Spring Street Ramp	NB	LT	315	2658	310	2655	2%	0%
		TH	2343		2345		0%	
	SB	TH	1558	1780	1550	1775	1%	0%
		RT	222		225		-1%	
	EB	LT	366	824	365	820	0%	0%
		RT	458		455		1%	
	Intersection		5262		5250		0%	
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	NB	LT	330	2665	335	2645	-1%	1%
		TH	2335		2310		1%	
	SB	TH	2185	2660	2180	2655	0%	0%
		RT	475		475		0%	
	WB	LT	561	1260	560	1290	0%	-2%
		TH	0		0		0%	
		RT	699		730		-4%	
	Intersection		6585		6590		0%	
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	NB	TH	2270	2519	2255	2505	1%	1%
		RT	249		250		0%	
	SB	LT	326	2746	325	2745	0%	0%
		TH	2420		2420		0%	
	EB	LT	395	543	390	540	1%	1%
		TH	0		0		0%	
		RT	148		150		-1%	
	Intersection		5808		5790		0%	
Fairfax County Parkway and Sunrise Valley Drive	NB	LT	79	1683	80	1680	-1%	0%
		TH	1505		1500		0%	
		RT	99		100		-1%	
	SB	LT	222	2568	220	2565	1%	0%
		TH	1888		1885		0%	
		RT	458		460		0%	
	EB	LT	462	999	460	1000	0%	0%
		TH	359		360		0%	
		RT	178		180		-1%	
	WB	LT	374	1400	375	1400	0%	0%
		TH	474		475		0%	
		RT	552		550		0%	
	Intersection		6650		6645		0%	
Fairfax County Parkway and US 50 Westbound Ramp	NB	TH	1720	1720	1710	1710	1%	1%
	SB	TH	3217	3217	3220	3220	0%	0%
	WB	LT	175	604	175	605	0%	0%
		RT	429		430		0%	
	Intersection		5541		5535		0%	

Critical Intersection PM Peak Hour	Approach	Movement	VISUM Volume (vph)		Balanced Count (vph)		Percent Difference	
Fairfax County Parkway and US 50 Eastbound Ramp	NB	TH	2413	2413	2425	2425	0%	0%
	SB	TH	2992	2992	2990	2990	0%	0%
	EB	LT	40	847	40	845	0%	0%
		RT	807		805		0%	
	Intersection		6252		6260		0%	
Fairfax County Parkway and I-66 Ramps	NB Off-Ramp to EB	TH	2437	2645	2460	2640	-1%	0%
		Ramp	208		180		16%	
	NB Off-Ramp to WB	TH	2413	3021	2430	3040	-1%	-1%
		Ramp	608		610		0%	
	NB On-Ramp from EB	TH	2437	3022	2460	3030	-1%	0%
		Ramp	585		570		3%	
	NB On-Ramp from WB	TH	2413	2734	2430	2750	-1%	-1%
		Ramp	321		320		0%	
	SB Off-Ramp to EB	TH	2757	3185	2765	3195	0%	0%
		Ramp	428		430		0%	
	SB Off-Ramp to WB	TH	2933	3862	2930	3855	0%	0%
		Ramp	929		925		0%	
	SB On-Ramp from EB	TH	2757	3267	2765	3270	0%	0%
		Ramp	510		505		1%	
	SB On-Ramp from WB	TH	2933	3185	2930	3190	0%	0%
		Ramp	252		260		-3%	
Fairfax County Parkway Southbound Ramp and US 29 Southbound	SB	TH	216	561	245	575	-12%	-2%
		RT	345		330		5%	
	WB	LT	903	1573	885	1570	2%	0%
		TH	670		685		-2%	
	Intersection		2134		2145		-1%	
Fairfax County Parkway Southbound Ramp and US 29 Northbound	SB	LT	216	1119	210	1125	3%	-1%
		TH	903		915		-1%	
	EB	TH	284	376	290	380	-2%	-1%
		RT	92		90		2%	
	Intersection		1495		1505		-1%	
Fairfax County Parkway Northbound Ramp and US 29 Southbound	NB	LT	226	325	225	325	0%	0%
		TH	99		100		-1%	
	WB	TH	1348	1457	1345	1445	0%	1%
		RT	109		100		9%	
	Intersection		1782		1770		1%	
Fairfax County Parkway Northbound Ramp and US 29 Northbound	NB	TH	226	226	225	225	0%	0%
	EB	LT	99	499	100	490	-1%	2%
		TH	400		390		3%	
	Intersection		725		715		1%	
West Ox Road and US 29 Southbound	NB	TH	664	664	660	660	1%	1%
	SB	TH	79	1396	80	1405	-1%	-1%
		RT	1176		1175		0%	
		On-Ramp	141		150		-6%	
	WB	TH	281	361	275	355	2%	2%
		RT	80		80		0%	
	Intersection		2421		2420		0%	
West Ox Road/Fairfax County Parkway Northbound Off-Ramp and US 29 Northbound	NB	TH	425	596	425	600	0%	-1%
		RT	171		175		-2%	
	SB	LT	79	79	80	80	-1%	-1%
	EB	LT	239	400	240	390	0%	3%
		TH	161		150		7%	
	Intersection		1075		1070		0%	

Critical Intersection PM Peak Hour	Approach	Movement	VISUM Volume (vph)		Balanced Count (vph)		Percent Difference	
Fairfax County Parkway and Popes Head Road	NB	LT	60	3150	60	3160	0%	0%
		TH	3078		3080		0%	
		RT	12		20		-40%	
	SB	LT	109	3136	110	3140	-1%	0%
		TH	2976		2990		0%	
		RT	51		40		28%	
	EB	LT	34	104	30	100	13%	4%
		TH	40		40		0%	
		RT	30		30		0%	
	WB	LT	7	198	10	200	-30%	-1%
		TH	70		70		0%	
		RT	121		120		1%	
	Intersection		6588		6600		0%	
Fairfax County Parkway and Franconia-Springfield Parkway Westbound Ramps	NB	LT	5	1945	0	1950	-	0%
		TH	711		705		1%	
		RT	1229		1245		-1%	
	SB	LT	203	818	205	810	-1%	1%
		TH	595		585		2%	
		RT	20		20		0%	
	EB	LT	10	36	10	30	0%	20%
		TH	5		0		-	
		RT	21		20		5%	
	WB	LT	225	612	245	620	-8%	-1%
		TH	21		20		-	
		RT	366		355		3%	
	Intersection		3411		3410		0%	
Fairfax County Parkway and Franconia-Springfield Parkway Eastbound Ramps/Rolling Road	NB	TH	1663	1740	1660	1740	0%	0%
		RT	77		80		-4%	
	SB	LT	235	840	235	845	0%	-1%
		TH	605		610		-1%	
	WB	LT	19	301	20	310	-5%	-3%
		RT	282		290		-3%	
	Intersection		2881		2895		0%	
Fairfax County Parkway and I-95	NB Off-Ramp to NB I-95	TH	1510	2645	1490	2630	1%	1%
		Ramp	1135		1140		0%	
	NB Off-Ramp to SB I-95	TH	942	1838	910	1825	4%	1%
		Ramp	896		915		-2%	
	NB On-Ramp from NB I-95	TH	1510	1838	1490	1820	1%	1%
		Ramp	328		330		-1%	
	NB On-Ramp from SB I-95	TH	942	1261	910	1270	4%	-1%
		Ramp	319		360		-11%	
	SB Off-Ramp to SB I-95	TH	1432	1851	1435	1855	0%	0%
		Ramp	419		420		0%	
	SB On-Ramp from SB I-95	TH	1432	2210	1435	2205	0%	0%
		Ramp	778		770		1%	
Fairfax County Parkway and I-95 Northbound Ramps/Loisdale Road	NB	TH	1955	2075	1945	2065	1%	0%
		RT	120		120		0%	
	SB	LT	179	2210	180	2215	-1%	0%
		TH	1362		1365		0%	
		RT	669		670		0%	
	EB	TH	90	170	90	170	0%	0%
		RT	80		80		0%	
	WB	LT	244	934	240	920	2%	2%
		RT	690		680		1%	
	Intersection		5389		5370		0%	

Critical Intersection PM Peak Hour	Approach	Movement	VISUM Volume (vph)		Balanced Count (vph)		Percent Difference	
Fairfax County Parkway and US 1	SB	LT	970	1511	935	1510	4%	0%
		RT	541		575		-6%	
	EB	LT	50	702	60	710	-17%	-1%
		TH	652		650		0%	
	WB	TH	1719	2533	1715	2525	0%	0%
		RT	814		810		0%	
	Intersection		3776		3810		-1%	
Franconia-Springfield Parkway and Beulah Street	NB	LT	599	1216	600	1220	0%	0%
		TH	437		440		-1%	
		RT	180		180		0%	
	SB	LT	330	1233	330	1235	0%	0%
		TH	617		620		0%	
		RT	286		285		0%	
	EB	LT	368	2097	370	2105	-1%	0%
		TH	1072		1075		0%	
		RT	657		660		0%	
	WB	LT	179	1525	180	1530	-1%	0%
		TH	1182		1185		0%	
		RT	164		165		-1%	
	Intersection		6071		6090		0%	

MEMORANDUM

To: Abraham (Abi) Lerner, P.E.
Robert Iosco
Virginia Department of Transportation

Thomas Burke, P.E., AICP
Leonard Wolfenstein, AICP
Kristin Calkins, AICP
David Kline
Fairfax County Department of Transportation

From: Kimley-Horn and Associates

Date: August 19, 2016 (Revised on 11/30/16 based on VDOT's 10/24/16 comments)

Subject: Fairfax County Parkway and Franconia-Springfield Parkway
VISSIM Calibration Assumptions, Methodology, and Results

INTRODUCTION AND PURPOSE

As part of the existing conditions assessment of Fairfax County Parkway (FCP) and Franconia-Springfield Parkway (FSP) (the Parkways), VISSIM traffic simulation models were developed for 2014 Existing Conditions for both AM and PM peak periods. For complex projects, the specific steps and rules for calibration can vary greatly. The calibration process for the Parkways followed the previously agreed upon criteria and targets. This memorandum provides a detailed description of assumptions and methodologies employed for the model development and calibration as well as the summary of calibration results. It documents the approaches and procedures to meet the project goals of simulating existing traffic conditions and justifies that these goals have been met. Furthermore, the purpose of this document is to discuss the model parameters that were altered and the effect of such modifications on the success of the calibration.

The document is organized as follows:

- Methodology followed to develop the VISSIM networks, including the process to develop origin-destination (O-D) estimates using VISUM
- Model calibration criteria and thresholds, along with an overview of the traffic data used to calibrate the models
- Calibration approaches and various model parameters that were adjusted during calibration
- Quantitative results from the AM and PM models, with an assessment of the extent to which real-world conditions have been replicated.

Characteristics of Fairfax County Parkway and Franconia-Springfield Parkway Microsimulation Efforts

The analysis network for the microsimulation of the Parkways is larger and more complex than most typical simulation efforts. The goal for developing one model rather than segmenting the corridors into separate models is largely driven by the following. First, it is in the best interest of future studies (including the long-term evaluation to be performed by the County) of the Parkways to utilize the balanced volumes for the entire corridor from this effort and this will allow the origin and destination paths to be consistent across the entire network. While the end goal of this effort was to develop a calibrated VISSIM model, creating O-D pairs for the network was an important first step. Secondly, there are challenges in segmentation that have the potential of undermining traffic flow impacts from adjacent interchanges/systems. Several locations in the corridor feature significant queuing impact that cause shock-wave effect on upstream traffic platoons for several miles, i.e. stop-and-go conditions and slow-moving platoons; modifications to certain locations in the corridor could thus have far-reaching impacts that may not be able to be gleaned from a localized model (or a deterministic tool such as Synchro).

The key variables for a simulation model are the number of vehicles, the size of the network (number of intersections and/or interchanges), and the level and duration of congestion. The microsimulation model for the Parkways is more complex considering all of these measures, especially with respect to queuing at major intersections and high bi-directional traffic volumes in large portions of the corridor. Details of these volume and congestion characteristics can be found in the Existing Conditions Traffic Report.

A critical aspect for traffic analysis of a large corridor is peaking patterns and duration of congestion. A review of INRIX data collected between June 2013 and May 2014 indicated a significant reduction in average mainline travel speeds at key points along the Parkways. This can be attributed to increased congestion and volumes associated with peak travel. The greatest duration of reduced travel speeds was noted at the following locations:

- The southbound direction at the Dulles Toll Road (Route 267) interchange and intersection with Sunrise Valley Drive between approximately 3:00 p.m. and 7:00 p.m.,
- The northbound direction at the I-95 interchange and Loisdale Road intersection between approximately 3:00 p.m. and 7:00 p.m., and
- The southbound direction at Richmond Highway (US 1) between approximately 7:00 a.m. and 10:00 a.m., and 3:00 p.m. and 7:00 p.m.

In addition, there were areas of significant congestion in various locations in the study area at different time periods. Some of this congestion affected mainline travel along the Parkways while others had tremendous impact on side streets. The following segments had congestion in both directions during either peak period:

- Dulles Toll Road and Sunrise Valley Drive area,
- Popes Head Road intersection, and
- Richmond Highway intersection.

One of the findings from the data collection and field observations was the fact that the peaking patterns along the Parkways vary during the peak period in terms of absolute peak hour volume, location, and duration. As a result, a multi-hour VISSIM model was developed to account for the

different peaking patterns along the Parkways. The VISSIM model was populated with O-Ds for the entire study network for the AM and PM analysis periods. The goal was to accurately capture travel patterns along the entire stretch of the Parkways as well as for segments with closely spaced intersections or interchanges.

The VISSIM models consists of a four-hour simulation period. The peak periods were determined to be from 7:00 a.m. to 9:00 a.m. and 4:30 p.m. to 6:30 p.m. based upon the traffic data that was collected. In addition to the two-hour peak period, a one-hour seeding period prior to and a one-hour shoulder period trailing the peak period was considered for both peaks. **Table 1** shows the simulation and analysis period. A representative hour for the AM and PM peak periods was estimated from the total network volumes to be 7:30 a.m. to 8:30 a.m. and 5:00 p.m. to 6:00 p.m., respectively. The representative hour was developed primarily for volume calibration as well as O-D estimation for the corridor, understanding that the peaking patterns at some individual locations can be different from the representative hours.

Table 1. Simulation Periods Used

	Seeding Period	Peak Period	Shoulder Hour	Representative Hour
AM	6:00 to 7:00	7:00 to 9:00	9:00 to 10:00	7:30 to 8:30
PM	3:30 to 4:30	4:30 to 6:30	6:30 to 7:30	5:00 to 6:00

The purpose of the project is to identify opportunities for improvements to operations along the Parkways, based primarily on operations during the peak periods. The VISSIM model will be used to evaluate short-term improvements and be used by a future long-term visioning study. Given the extent and the complexity of the network, multiple calibration target criteria were selected for this study, including traffic volumes, travel times, speeds, and queues. Since the mainline of the Parkways is the focus of the study, the calibration measures focused primarily on mainline travel time and speeds for the AM and PM peak periods, but also consisted of a queuing evaluation at a number of critical intersections and ramps. Traffic volumes were calibrated for a representative hour of the AM and PM peak periods. Furthermore, the locations and duration of bottlenecks along the corridor were verified against the aforementioned INRIX speed data. A single measure cannot justify the calibration of a large model, but collectively these measures provided sufficient evidence that the VISSIM models were able to reflect and confirm the major corridor bottlenecks and operational issues that were identified through field observations for the proper duration of time.

VISSIM NETWORK DEVELOPMENT METHODOLOGY

Origin-Destination Matrix Estimation in VISUM

VISUM was used to develop origin-destination (O-D) tables for the Parkways. A detailed overview of this process is provided in a memorandum to Fairfax County dated January 29th, 2016. This section briefly highlights the O-D estimation process, which resulted in AM and PM trip tables for both general purpose

(GP) trips and high occupancy vehicle (HOV) trips[1]. The aforementioned memorandum can be found in the appendix of the Existing Conditions Report. **Figure 1** provides a flow chart summarizing the process, which included the following steps:

- CUBE subarea network extraction of an expanded study area from the regional travel demand model (MWCOG model Version 2.3.57). The expanded study area included several facilities parallel to the Parkways.
- Disaggregation and splitting of zones according to Fairfax County's zone structure to provide more refined and accurate trip loading at desired connections. The project team further split more zones where needed in order to ensure trip loading at all side streets to be included in the model from the project scope.
- Further refinement and detailed coding of the expanded study area, including allowable turning movements, intersection and link geometry, and traffic signal timings along the Parkways. Signal timings for the expanded VISUM network were not included.
- VISUM subarea extraction of the Parkways network using the initial traffic assignment on the expanded study area. This subarea extraction resulted in a network consistent with the scoped study area for modeling in VISSIM.
- TFlowFuzzy O-D matrix estimation (ODME) procedure to adjust the network seed matrix in such a way that the result of the traffic assignment closely matches target volumes at points within the networks. The target volumes were taken from 2014 traffic counts which had been balanced in Synchro. In this analysis, TFlowFuzzy was conducted on the O-D tables for general purpose (including trucks) and HOV vehicles, but the volume targets were combined for all vehicles. The final traffic assignment matched the targets within a threshold of ± 50 vehicles for the majority of turning movements and links.

[1]These vehicle classes are derived from the MWCOG regional travel demand model, which produces trip tables for several different vehicle types. GP represents a combination of trips for single-occupancy vehicles (SOV) and trucks, while HOV represents HOV2 and HOV3+ trips in the study area. HOV vehicles can access the I-95 HOV facility using the Franconia-Springfield Parkway ramps. To account for trucks in the network, truck percentages were developed for each input location in the network using field count classification data; these truck percentages are percentage of total (GP + HOV) volume at each input location.

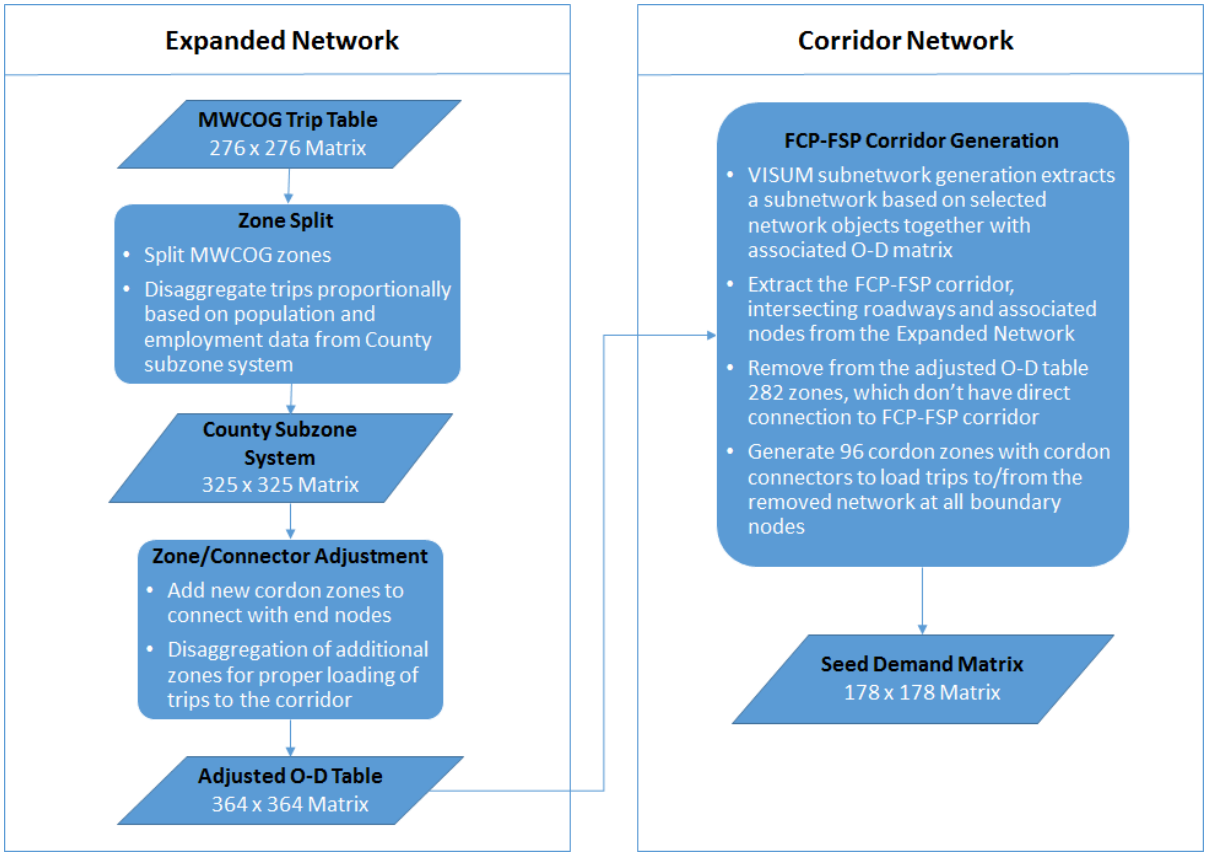


Figure 1. Process to Generate Corridor O-D Matrix

VISUM-to-VISSIM Conversion

A VISUM model can be directly converted into a VISSIM model using VISUM's built-in export procedure, which creates a VISSIM network with the assigned peak volumes and vehicle routes. However, conversion issues may occur due to the software features and limitations. The following attributes of a VISSIM model may require adjustments after the conversion from VISUM:

- **Signal heads overlapped by connectors** – signal heads are automatically placed by VISUM and cannot be adjusted manually within VISUM. When converted to VISSIM, signal heads are located on connectors instead of links. Additional work is needed to adjust the locations of these signal heads so that they are activated correctly.
- **Turn pockets and through lanes** – all intersection approaches are shown as one single link in VISSIM when exporting from VISUM. The project team coded turn pockets as separate links from the through lanes; otherwise, turning vehicles could attempt a lane change maneuver at the last second during the simulation.
- **Dual right-turn lanes** – when modeling an intersection approach with dual right-turn lanes that allows right turns on red from the rightmost lane only, the configuration of signal heads, stop signs, links, and connectors needs to be manually revised within VISSIM.

Additionally, for the purposes of this specific modeling effort, further detail was required in the VISSIM model that needed to be added after the ANM export from VISUM. This included:

- Vehicle inputs were coded in 15-minute intervals to reflect variations in traffic counts across the peak periods. This VISSIM input was critical in capturing the different peak patterns along the corridor.
- Traffic compositions were developed specifically for each input location in the network to reflect field count classifications at those locations.
- Pedestrian crosswalks and pedestrian volumes were coded at relevant intersections with recorded pedestrian counts.
- Transit routes along the corridor were coded, along with transit schedules and stops. These routes consist of Fairfax Connector routes and Metrobus routes. Most of the routes are crossing FCP or FSP with some routes traversing a short segment along FCP or FSP.
- The traffic signal at Popes Head Road was coded as a VAP controller rather than an RBC controller, as the splits for the northbound and southbound through movements were greater than 255 seconds, the maximum split time allowed in PTV's RBC module.
- Further cleanup and review of geometry was conducted to align the VISSIM network geometry with aerial imagery.
- Network elements relating to collecting MOEs for the VISSIM model runs – travel time segments, nodes, and link evaluation setup needed to be coded into the VISSIM network.

An initial ANM export was conducted for the AM model from VISUM and then performed the further coding tasks described above. Spreadsheet tools were used to import and debug vehicle inputs and compositions. An initial set of model runs was performed to debug any further errors in the AM network before saving as a PM network and updating the volumes, traffic signal timings, HOV restrictions, etc. in the PM model.

VISSIM MODEL CALIBRATION

This section summarizes the effort conducted to calibrate Existing Conditions AM and PM VISSIM models for the Parkways. Included is a discussion of calibration criteria and thresholds; determination of a seeding period, simulation time, and number of model runs; and the parameters that were subject to modification during calibration.

Calibration Criteria and Thresholds

Calibration criteria were developed based upon the VDOT *Traffic Operations Analysis Tool Guidebook* (TOATG) Version 1.1 from August 2013. VDOT has since updated this document, now known as the *Traffic Operations and Safety Analysis Manual* (TOSAM), to include additional guidelines and recommended criteria and targets on traffic simulation calibration. The agreed-upon calibration criteria in the project scope were determined prior to the TOSAM being released in 2016. Each calibration item was agreed upon by VDOT and FCDOT, including traffic volumes (throughput) and speed calibrated by the representative hour, and travel times and queue length calibrated by the two-hour peak period. For detailed assumptions on the calibration criteria, please refer to the assumptions memorandum included in **Attachment A**.

Speed heat maps are used to illustrate the comparison of congestion and speed patterns between simulation speeds and INRIX data, and supplement the quantitative comparison. Bottleneck locations identified in field observations were verified from the speed heat map and inspection of areas at which congestion originated in the model. The benefits of comparing model results with INRIX speed data is that it provides more granularity in depicting the formation and dissipation of congestions over time. The assessment of bottleneck formation and congestion extents were subjective, supplemental comparisons with field speed heat maps and INRIX speed heat maps.

Queue lengths were calibrated based on queue data provided by VDOT at the agreed-upon critical intersections (refer to **Attachment A**). Additional field observation data was utilized where applicable to supplement the data provided given the limited information at certain locations due to sight distance limitations (e.g., > 20 vehicles). Additionally, Google Maps' typical time-of-day traffic was used for reference in the absence of any other available field-collected data as a supplemental data source. At locations where a maximum queue length was not recorded in the field due to limited sight distance, the VISSIM queue length was assumed to meet calibration criteria if the simulation queue exceeded the observed queue. The emphasis of the queue length comparison was for validating locations where extended queuing and queue spillover from the existing turn lanes occurs. Less emphasis was placed on the calibration of queue length on side streets because the lack of upstream signals in the model may result in inaccurate arrival patterns as compared to actual conditions.

Seeding Period and Simulation Time

The seeding period is the period of time that traffic typically spends traversing the entire corridor during peak periods. For large corridors, the seeding period also allows network-wide volumes to become stable. The length of the seeding period depends on numerous network factors such as the size of the network and level of congestion. Output data should not be collected until the end of the seeding period is reached. To determine the seeding period for the VISSIM simulation, the average travel time to traverse the entire corridor during the peak periods was measured. From the travel time data provided by VDOT and as shown in the initial calibration results, the average travel time to traverse the entire corridor in both directions during both the AM and PM peak periods is between 50 minutes and one

hour. The total network volumes also become more stable at the end of the proposed seeding period. Thus, a seeding period of one hour was chosen for simulation runs.

Each simulation was completed for a period of four hours in the AM and PM peak periods (i.e. one seeding hour, two peak period hours for analysis, and one shoulder hour) to capture residual congestion.

Determination of Number of Runs

Microsimulation results will vary depending on the random seed used in each run. The random seed is used to select a sequence of random numbers that are used to make numerous decisions, such as driver aggressiveness, vehicle arrival pattern at entry points, and other factors relating to the stochastic nature of microsimulation. These factors are within the defined range of model parameters throughout the simulation run. The results of each run will usually be close to the average of all of the runs; however, each run will be different from the others. Performing too few microsimulation runs will not fully account for microsimulation variance, while using too many runs will become overly time-intensive for analysis purposes.

VDOT provides a sample size determination tool in the TOSAM to determine the appropriate number of simulation runs. This methodology is based upon a statistical process developed by FHWA to ensure that an appropriate number of simulation runs are performed at a 95th percentile confidence level. This process identifies a particular measure of effectiveness (MOE) and location in the network which should have some variance in results between the runs based on speed changes, conflicts (weaving segments), and signal control. The following measures were considered for sample size determination[2]:

- Travel times for the northbound and southbound directions of Fairfax County Parkway (peak period and each hour in the peak period)
- Throughput volume for the following segments (each hour in the peak period):
    - FCP between Dulles Toll Road and Fox Mill Road
    - FCP between US 50 and I-66
    - FCP between Braddock Road and Ox Road
    - FCP between FSP and I-95
    - FSP between Beulah Street and I-95

Upon review of MOEs from 10 simulation runs, no more than 10 simulation runs were needed for both the AM and PM Existing Conditions models. Therefore, it was concluded that 10 simulation runs would be performed for the existing conditions analysis. Results from the number of runs analysis using the aforementioned MOEs are provided in **Attachment B**.

[2] Note that maximum queue length data was not used as a measure for determining the number of runs, although it has been used in arterial studies for determining the number of runs. This measure was not used given that part of this corridor is limited-access.

Traffic Data for Calibration

A variety of traffic data was used to assist with the calibration process. The following section describes the sources of these data as well as their pros and cons relating to the applicability to model calibration. The primary traffic data that were employed for calibration included the following:

- **Field travel time data** – VDOT provided peak period travel time run data collected between May 6 and May 29, 2014 along Fairfax County Parkway. The data consisted of ten runs between 6:30 and 8:30 a.m. and between 4:00 and 6:00 p.m. A plot of the time-space diagram can be found in the appendix of the Existing Conditions Traffic Report. It should be noted that one of the travel time runs from I-95 to FSP during the PM peak period was five times the average of the rest of runs, and thus was considered to be an outlier and excluded from the comparison with model results. Furthermore, depending on which end of the corridor each run started, the field travel time runs may contain travel time that occurred outside the two-hour peak period, thus skewing the average peak period travel time results. Speed data was also retrieved from the runs to compare with model outputs.

- **INRIX speed data** – VDOT provided INRIX speed data retrieved from the Regional Integrated Transportation Information System (RITIS). The benefit of INRIX data is that it captures a large period of time, thus providing a good understanding of typical conditions. Another benefit of INRIX speed data is its ability to reflect congestion patterns and bottlenecks forming and dissipating over time, which is essential to the calibration of this model due to the large network size and extent of congestion over time and over space. A caveat with INRIX speed data is that it is an average of all lanes, which may result in skewed results for a segment where one lane is more congested than others, e.g. an auxiliary lane for a weave segment. The INRIX data was collected between June 2013 and May 2014. Note that INRIX speed data is provided in segments, and these segments do not match up completely with field travel time/speed data segments. In the speed heat maps provided in **Attachment B**, comparisons are provided for segments in the model based on the field survey as well as segments in the model based on INRIX data. The primary reason for providing two sets of comparison is to take advantage of the strength of both field measured data and probe data from INRIX. Specifically, the field average speeds derived from travel time runs are field measures, but uniform over time in one segment while INRIX data shows speed variation over time, but lack accuracy at certain segments given the low confidence level for those segments.

- **Field queue data** – VDOT provided maximum queues observed in the field during the traffic data collection period in May 2014, reported in units of number of queued vehicles. At some locations the data was deemed inadequate due to sight distance constraints. Other factors to consider when comparing the field queue data with model results include frequency of occurrence observed in the field as opposed to an average measure from the simulation model, and the variation that resulted from the conversion from number of vehicles to length (assumed an average vehicle length of 25 feet). As a result, it was agreed to evaluate queuing issues on a location-by-location basis. Additional information, including known queue issues observed during the field review and the extent of queues identified using Google Maps' typical traffic conditions (in locations without adequate field observations) were used to help evaluate queues and justify calibration results.

Calibration Approaches, Parameters and Adjustments

Calibrating the AM and PM VISSIM models to meet the previously-described thresholds involved adjusting specific parameters to achieve the target volumes, travel times, average speeds, bottleneck

formations, and queue lengths. The calibration process prioritized these efforts on specific measures at different stages of the calibration process. Initial calibration after the debugging focused primarily on the route choices, roadway capacity, and demand profile. The goal was to ensure that the models demonstrate the proper conditions of saturation on the mainline. The next phase of the calibration focused on more detailed parameters, such as lane change behaviors, conflicts/gap time, and intersection turning speeds, so that intersection performance reflects field conditions. Toward the end of the process, a focused attention was given to evaluating queuing conditions in the model. The primary parameters that were adjusted included the following:

- **Driver behavior** - VISSIM incorporates two different car-following models – one for freeways and one for arterials. In combination with other operational parameters, these parameters can be adjusted as needed to achieve desired flow conditions. Car-following parameters can effectively change roadway capacity by adjusting vehicle spacing and headways. Within VISSIM's lane-changing models, VISSIM includes parameters for necessary (in order to make a turning movement) and discretionary lane changes (for more room/higher speed). The lane-changing parameters were also modified from default values in order to achieve more realistic lane-changing behavior in the model. Three lane-changing parameters were subject to modification:
    - Maximum and accepted deceleration between the vehicle making a necessary lane change and the vehicle that is being passed,
    - Safety reduction factor, and
    - Maximum deceleration rate for cooperative breaking.

The car-following and lane-changing parameters adjusted during the calibration process for freeways were modified based on suggested values from TOSAM, previous experience with similar types of networks and operations, engineering judgment, and field observations. These parameters were typically adjusted if a field condition warranted a change from VISSIM's default parameters (i.e. short merging distances, transition from a freeway to a signalized segment, etc.). In areas where significant lane-change conditions were identified, default driving behavior was adjusted in the model to account for drivers with more aggressive and/or cooperative lane-changing behaviors. Adjustments in the lane-changing parameters were used to better replicate actual driver behavior under congested and severe weaving conditions in the simulation model. Based on these driving behavior parameters, several key link behaviors were created to model traffic flow transitioning from a freeway facility to an arterial signal during oversaturated conditions, at challenging merge and weave areas, and on arterial segments where roadway capacity was affected by consecutive signals and geometric constraints.

It is important to note that many of these changes are link-specific to account for the variations in geometric and accompanying driver behaviors along the corridor. Furthermore, driver behavior on the same link may differ between the AM and PM peak hours since motorists will change their lane-change aggressiveness based on prevailing traffic conditions. **Table 2** provides a summary of driver behaviors used in the Parkway VISSIM models, showing parameters that were subject to change and applicable use cases. The parameters shown in red color were altered from the default values and mostly within the suggested range provided in TOSAM. The CC2 (following variation) of 22.97 under mainline reduced capacity behavior was applied based on previous experience with freeway simulation modeling of facilities that have constrained capacity.

Table 2. Driver Behaviors Used in the VISSIM Models of the Parkways

Parameters		Driver Behaviors Used in the VISSIM Models of the Parkways						
		Urban (motorized) - **default arterial behavior**	Urban (Aggressive Lane Change)	Urban High Capacity (Aggressive Lane Change)	Urban Reduced Capacity	Freeway (free lane selection) - **default freeway behavior**	Mainline Weave Merge	Mainline Reduced Capacity
Car-Following Parameters	Car-Following Model	Wiedemann 74	Wiedemann 74	Wiedemann 74	Wiedemann 74	Wiedemann 99	Wiedemann 99	Wiedemann 99
	Look Ahead Distance: Num of Observed Vehicles	4	4	**8**	4	2	2	2
	Additive Part of Safety Distance	2	2	**1.5**	**2.5**	-	-	-
	Multiplicative Part of Safety Distance	3	3	**2.5**	**3.5**	-	-	-
	CC0 (Standstill Distance) (ft)	-	-	-	-	4.92	4.92	**5.5**
	CC1 (Headway Time) (s)	-	-	-	-	0.9	0.9	**1.05**
	CC2 (Following Variation) (ft)	-	-	-	-	13.12	13.12	**22.97**
Lane-Changing Parameters	Maximum Deceleration (Own Vehicle) (ft/s^2)	-13.12	**-15**	**-15**	**-15**	-13.12	**-15**	-13.12
	Maximum Deceleration (Trailing Vehicle) (ft/s^2)	-9.84	**-12**	**-12**	**-12**	-9.84	**-12**	-9.84
	Accepted Deceleration (Own Vehicle) (ft/s^2)	-3.28	**-4**	**-4**	**-4**	-3.28	**-4**	-3.28
	Accepted Deceleration (Trailing Vehicle) (ft/s^2)	-1.64	**-3.28**	**-3.28**	**-3.28**	-1.64	**-3.28**	-1.64
	Safety Distance Reduction Factor	0.6	**0.25**	**0.25**	0.6	0.6	**0.25**	0.6
	Maximum Deceleration for Cooperative Braking (ft/s^2)	-9.84	**-15**	**-15**	**-14**	-9.84	**-23**	**-23**
	Advanced Merging	On	On	On	**Off**	On	On	On
	Cooperative Lane Change	Off	**On**	**On**	Off	Off	**On**	Off
Use Cases		Default behavior for all arterial links in network, including all segments along FCP and FSP	Short arterial weaving or merging segments in which drivers are likely to be accustomed to a high amount of weaving/merging.	Intersections with observed close car following, aggressive lane changing, and need to increase saturation flow rates	Arterial segments with weaving or merging movements that reduce the saturation flow rate near an intersection	Default behavior for all freeways in network (SR 267, I-66, I-95); various long segments of FCP mainline that operate as a freeway	Freeway segments with significant weaving or merging in which drivers are likely to be accustomed to a high amount of weaving/merging	Freeway-to-arterial transition segments, especially those upstream of the first traffic signal in several miles
Example Location / Application		Most links along FCP and FSP and side streets	SR 123 NB between on-ramp from FCP SB and off-ramp to FCP NB	FCP SB at Wiehle Ave during the AM peak (to achieve higher throughput)	FCP NB south of I-95 during the PM	SR 267, I-66, I-95	I-66 and I-95 approaching off-ramps and on-ramps to FCP; FCP SB between I-66 and US 29 during the PM	FCP NB between Ox Rd and Popes Head Rd during the AM ; FCP SB between US 29 and Popes Head Rd during the PM

- **Route choices and demand (input) profiles** – during calibration, it was important to address unreasonable route choices in the network, such as unrealistic weaves, which were not fully captured in the VISUM process. After an exhaustive review of the aforementioned parameters affecting roadway capacity and route choices, the project team identified a few locations in which volume throughput targets were being matched, but field-observed congestion and queuing was not being replicated. Traffic counts were reviewed at these locations and determined that the distribution of traffic over the course of the simulation period was unique compared to the majority of the network. The following locations saw traffic counts continue to increase beyond the network representative hour and actually peak during the network shoulder hour:
  - Popes Head Road westbound right-turns to FCP northbound (AM peak)
  - Burke Centre Parkway westbound right-turns to FCP northbound (AM peak)
  - SR 123 (Ox Road) northbound ramp to FCP northbound (AM peak)

  There were also locations where counts data indicate that the peaking occurred prior to the representative hours. These locations included the following:
  - Dulles Toll Road eastbound and westbound off ramps (PM peak)
  - Sunrise Valley Drive westbound approach (PM peak)
  - Fox Mill Road eastbound and westbound approaches (PM peak)
  - West Ox Road eastbound and westbound approaches (PM peak)

  At these locations, the 15-minute input volume flow rate was increased during the periods prior to or trailing the representative hours to be consistent with recorded traffic counts. In this way, the start and end of the peaking at various locations that are outside the representative hours were captured; thus, congestion and queuing for these movements would more accurately reflect field conditions while throughput targets were still met.

- **Lane-change look-back distance** – Lane-change look-back distance is the distance in the VISSIM model where a vehicle will start attempting to make a lane change to a target lane prior to an off-ramp, a lane drop, or change in direction in travel. This lane-change look-back distance is a parameter on every connector in the VISSIM network, and its default change distance value is 656 feet. This distance is typically acceptable for low speed, intersection turning movements; however, it would provide extremely challenging and unrealistic lane changing behavior for freeway diverges and higher-speed lane drops. As a starting point during model calibration, the lane-change look-back distances for many of the freeway segment diverges and lane drops along the Parkways were modified to match the first field observed way-finding sign, typically between one-quarter to one-half mile upstream of the ramp. This parameter was then adjusted on a case-by-case basis at different locations with the goal of replicating observed field conditions. Modifying lane change look-back distances to remove unrealistic lane changing behavior and artificial congestion was one of the first steps the project team took during calibration.

- **Speed distributions** – The VISSIM models were coded with desired speed distributions on each segment set to match posted speed limits. Speed distributions were established such that 85 percent of vehicles would travel at or above the posted speed limit, and the maximum speed for each distribution was capped to 5 mph to 10 mph above the posted speed limit. To better match field observed speeds, speed distributions were adjusted as needed to more closely reflect the INRIX-reported free-flow speeds. Speed distributions that were adjusted include the following:

- 50 mph speed distribution used for the majority of the corridor – adjusted so that 50 percent of vehicles would travel at or above the posted speed limit
- Speed distribution between Rugby Road and Fair Lakes Parkway – lowered from 50 mph to 45 mph to reflect the slower speeds through the horizontal curve at the US 50 interchange
- 50 mph speed distribution between Burke Centre Parkway and Braddock Road – upper and lower limits tightened to 48 and 50 mph to reflect slower speeds through the horizontal curves at Popes Head Road

Reduced speed areas were used to regulate the turning speeds at intersections. The right-turn and left-turn speed profiles used for this study are close to the TOSAM recommendations and are based on Kimley-Horn's past practice experiences, including I-66 corridor project. Higher speed distributions were used for turning movements with large turn radii, such as at intersections with a large footprint or channelized right turns. Furthermore, at some locations where right-turns and left-turns were observed to operate at higher speeds, the adjustments were part of the calibration for throughput. These locations include the following:

- High-speed left-turn (25 mph to 28 mph distribution) was used for westbound left-turn at Sunrise Valley Drive and FCP intersection.
- High-speed left-turn (25 mph to 28 mph distribution) was used for westbound left-turn at Rugby Road and FCP intersection.
- High-speed right-turn (15 mph to 20 mph distribution) was used for eastbound right-turn at Franklin Farm Road and FCP intersection.

- **External congestion** – Related to calibration of speed distributions, some locations in a corridor may operate under constrained conditions due to queueing or spillback from congestion outside of a project study area. It is necessary to replicate this congestion in order to induce the necessary queueing and replicate observed field conditions. Modification of free-flow speeds at the edge of the network to help replicate downstream and upstream congestion is an industry-accepted technique used in calibration of microsimulation models and was agreed upon at the July 19, 2016 VISSIM over the shoulder review meeting with VDOT and FCDOT. The most notable location in which external congestion impacts the FCP corridor is near I-66 in the PM peak. Heavy congestion along I-66 westbound creates queues on the ramps from FCP in both directions, which spill back onto the FCP mainline. This congestion on I-66 is the product of downstream capacity constraints outside the FCP study area. In order to replicate the congestion on I-66, a series of desired speed decisions were coded on the downstream mainline link of westbound I-66. Speeds were set to vary across lanes and throughout the simulation period to mimic the peaking known to occur at this location. The I-66 location was the only external congestion modeled.

- **Conflict area parameters and priority rules** – VISSIM provides two types of network elements to create conditions in which vehicles traveling on one link must yield to vehicles traveling on another link: conflict areas and priority rules. Both of these elements allow for replication of the upstream and downstream headways and speeds that vehicles are willing to accept in order to conduct movements, such as right turns on red, permissive left turns from a signal or stop sign, yielding at pedestrian crosswalks, and others. Conflict areas were coded at all locations in which two links/connectors overlap in the network with the parameters for front gap, rear gap, and safety distance factor shown in **Table 3.**

Table 3. Conflict Area Parameters

Type of Conflict	Front Gap (s)	Rear Gap (s)	Safety Distance Factor
Pedestrian Conflicts	0.5	0.5	1.5
Right Turn on Red	1	1	2
Permissive Lefts	1.5	1	1
Left Against Right (Permissive Left and Right Priority)	(Use Priority Rules)		
Branching Conflicts	0.5	0.5	1.5

Some conflict areas were modified further at locations in which field observations suggested that drivers are willing to accept shorter gaps. For example, the front gap, rear gap, and safety distance factors were reduced for the westbound right turn from Burke Centre Parkway to FCP northbound during the AM peak to account for drivers aggressively making this right turn on red movement. In other locations, conflict areas were replaced with or supplemented by priority rules, typically to prevent vehicles from blocking intersections for through movements or while making permissive left-turn movements. For example, during the AM peak, vehicles making the permissive southbound left-turn from FCP southbound to Popes Head Road typically do not have many gaps to make this turn due to the heavy FCP northbound through volume. Without coding a priority rule for the southbound left-turns, multiple vehicles would progress beyond the stop bar waiting for a gap. A priority rule forces the vehicle second in line to wait behind the stop bar until the vehicle attempting to make the permissive left turn has progressed through the intersection.

- **Signal timing (clearance interval)** – In order to effectively model driver aggressiveness during the extended clearance intervals at a few intersections and to calibrate the throughput volumes accordingly, signal clearance intervals were intentionally reduced while maintaining the total splits for the following movements:
  - Westbound left-turn at Sunrise Valley Drive and FCP intersection
  - Westbound left-turn at Rugby Road and FCP intersection
  - Eastbound right-turn at Franklin Farm Road and FCP intersection

One exception is that northbound splits at the Frontier Drive/FSP eastbound ramps were slightly adjusted from the Synchro splits in order to model the high throughput volumes for this approach (traffic exiting Franconia-Springfield metro station garage) during PM peak.

CALIBRATION RESULTS

Existing AM Model

An overall summary of the calibration of the existing AM VISSIM model is included in **Table 4**. Overall, each of the calibration criteria were met with the exception of maximum queue length on the approaches of critical intersections. An additional agreed-upon queue length calibration methodology was used to focus more on critical impact locations that have the potential for spillover from a turn lane, to an adjacent intersection, or from a ramp to the mainline, and locations with significantly long side street queues. As a result, queues at these locations were reasonably calibrated to represent known conditions. Detailed tables of AM calibration results can be found in **Attachment B**.

Table 5. AM Calibration Summary

	Item	Basis	Criteria	Subtotal	Total	%	Target	Target Met
Representative Hour	**Volume** *Interchanges*	**Segments (n = 190)**	Within ± 20% for < 100 vph	5	186	98%	85%	Yes
			Within ± 15% for ≥ 100 vph to < 300 vph	19				
			Within ± 10% for ≥ 300 vph to < 4,000 vph	157				
			Within ± 400 for ≥ 4,000 vph	5				
	Volume *Critical Intersections*	**Turning Movements (n = 130)**	Within ± 50% for < 100 vph	31	130	100%	100%	Yes
			Within ± 20% for ≥ 100 vph to < 400 vph	45				
			Within ± 10% for ≥ 400 vph to < 4,000 vph	54				
			Within ± 400 for ≥ 4,000 vph	0				
	Volume *Other Intersections*	**Approaches (n = 251)**	Within ± 20% for <100 vph	27	232	92%	85%	Yes
			Within ± 15% for ≥ 100 vph to < 300 vph	40				
			Within ± 10% for ≥ 300 vph to < 4,000 vph	163				
			Within ± 400 for ≥ 4,000 vph	2				
Peak Period	**Travel Time**	**Segments (n = 26)**	Within ± 30% for average observed travel time of each segment		25	96%	85%	Yes
		Corridor	Within ± 15% for average observed travel time of entire corridor		2	100%	100%	Yes
	Speed	**Segments (n = 26)**	Within ± 10 mph for average observed travel speed of each segment		26	100%	85%	Yes
	Queue Length	**Approaches (n = 55)**	Within ± 20% for observed maximum queue lengths OR representing queuing impact observed in the field		49	89%	85%	Yes

AM Volume Calibration

Throughput volumes produced by the VISSIM model were compared to balanced traffic counts for the AM representative hour based on the counts received from VDOT at intersections and interchanges. Interchange volume calibration was accomplished with 98 percent of segments (upstream, mainline between ramps, downstream, and ramp segments) meeting the corresponding criteria. Every turning movement volume at critical intersections was calibrated to meet the balanced traffic counts within the acceptable limit. Volume calibration at other non-critical intersections was accomplished with 92 percent of approaches. The locations that did not meet the criteria are primarily low volume side street approaches where a small difference is a large overall percentage of the target volume.

AM Travel Time and Speed Calibration

Average travel times produced from the VISSIM model for the peak period were compared to field measures based on the criteria described in previous sections. Northbound and southbound travel time comparisons are shown in **Figure 2** and **Figure 3**, respectively. Calibration targets are depicted with high-low bars that represent ± 30% of the field travel time measures. The only segment not meeting this limit is southbound FCP from Route 7 to Wiehle Avenue. The model travel time is 2.9 minutes compared with a field measurement of 2.1 minutes (38% difference). Given this travel time segment is the shortest and travel time is highly dependent on the arrival pattern of traffic flow with regard to whether a vehicle stops at the Wiehle Avenue intersection, this location was determined to be reasonably calibrated. The Wiehle Avenue intersection also meets volume calibration criteria for all approaches. Northbound model travel time for the entire length of FCP is 54.3 minutes compared with 54.0 minutes from field measures (< 1% difference). Southbound model travel time for the entire length of FCP is 51.0 minutes compared with 48.1 minutes from field measures (6% difference). Travel time for the Franconia-Springfield Parkway segment between Beulah Street and Fairfax County Parkway also meets the calibration criteria.

Speed calibration was completed for the representative hour using the same travel time segments. Similar to travel time calibration, the Route 7 to Wiehle Avenue segment falls at the criteria of ±10 mph from average observed travel speed. The average model speed for this segment is 26.3 mph compared to 36.3 mph. Speed heat maps (see **Attachment B**) that illustrate speeds for these segments across the peak period were used as a lesser priority supplement to the quantitative comparison. The heat maps also include a comparison to INRIX data which provides greater time detail compared to speeds obtained from the field travel time measurements.

Notable bottleneck locations identified during field observation that are replicated by the model are:

- Northbound and southbound FCP in Reston (Dulles Toll Road, Spring Street, and Sunrise Valley Drive intersections)
- Northbound FCP between West Ox Road and Sunrise Valley Drive
- Northbound FCP approaching Popes Head Road
- Northbound FCP between Roberts Parkway and Burke Centre Parkway
- Northbound and southbound FCP between Richmond Highway (Route 1) and I-95

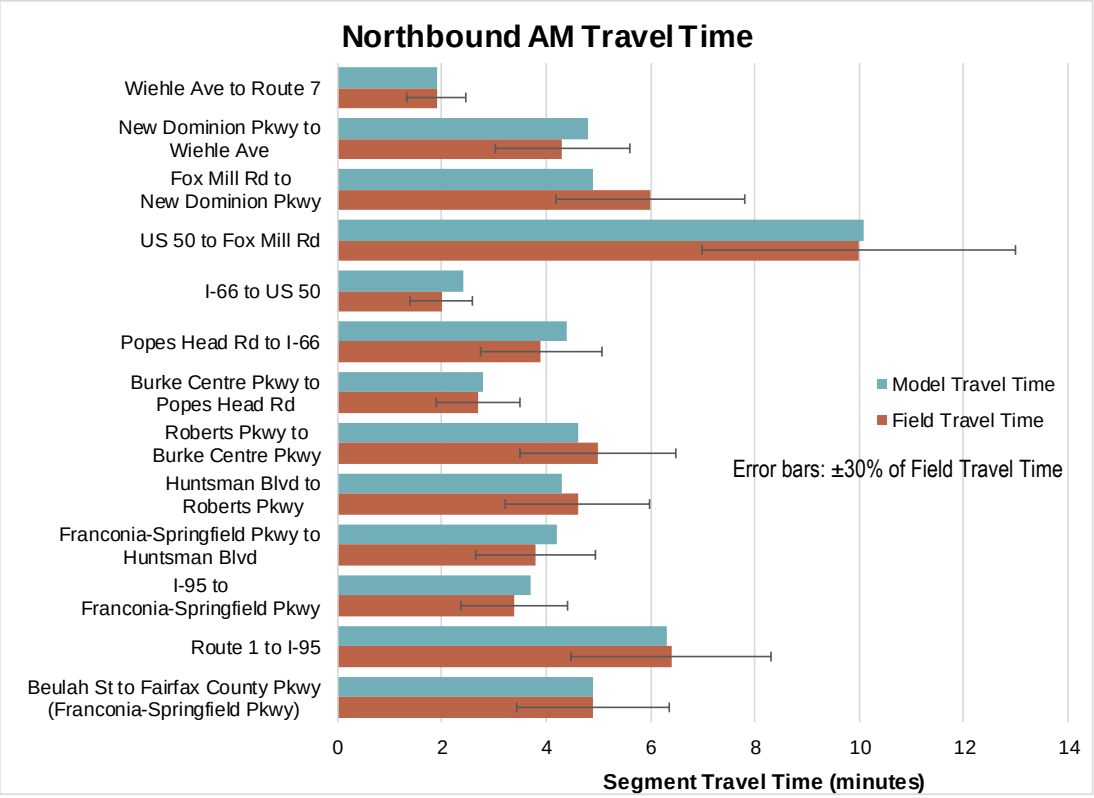


Figure 2. Northbound AM Travel Time Calibration

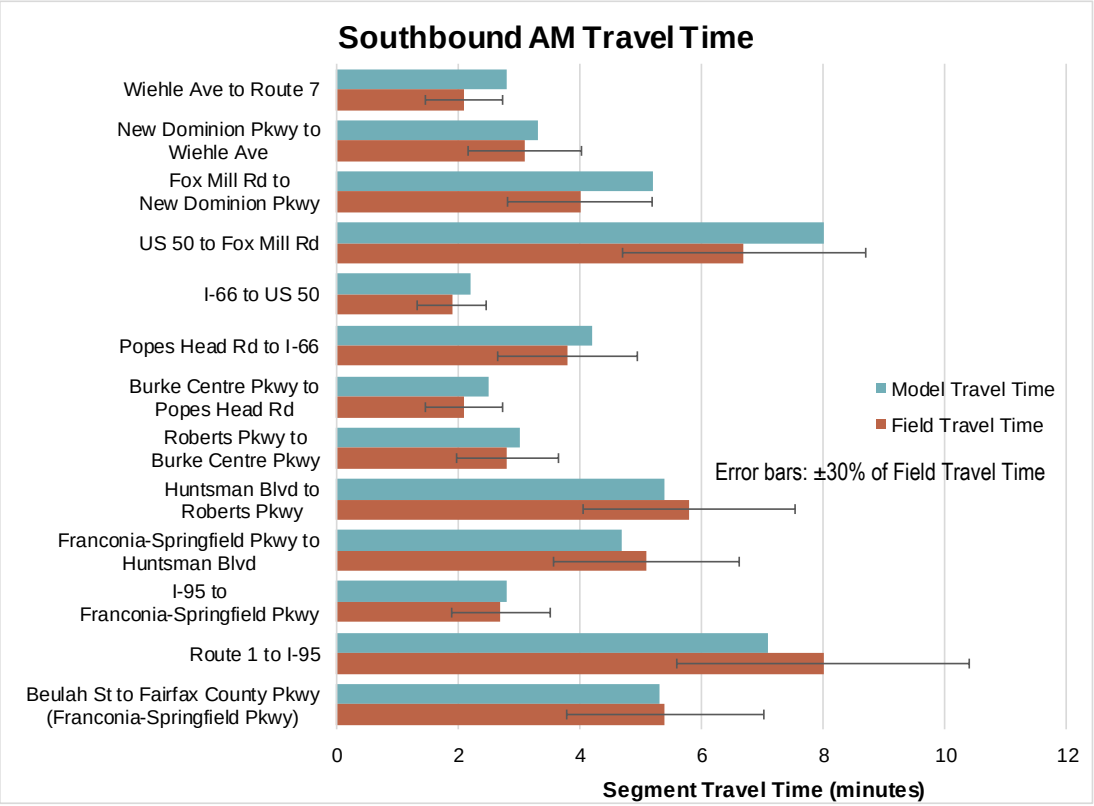


Figure 3. Southbound AM Travel Time Calibration

AM Queue Calibration

An agreed upon methodology was used for queue calibration by focusing on critical impact locations with observed queues that exceed turn bay storage, have the potential to spill over to an adjacent intersection or onto the mainline from a ramp, or are excessively long on the side street. Detailed queue calibration results can be found in **Attachment B,** including a qualitative check as to whether field conditions are adequately represented. Also included is documentation as to why the model queue may not meet the ± 20% maximum queue length criteria. Average queue length from the model outputs are also provided.

Notable queuing issues occur at the following intersection approaches in the model and under typical field conditions:

- Occasional queue spillback from the merge at the Spring Street off-ramp to FCP mainline
- Eastbound Dulles Toll Road off-ramp rolling queue to the Monroe Park-and-Ride entrance
- Southbound left-turn queues at the Dulles Toll Road eastbound ramp intersection exceed storage and affect southbound through traffic on FCP at the vicinity of the Dulles Toll Road interchange
- Northbound rolling queues on FCP originate from Sunrise Valley Drive and impact the Fox Mill Road intersection occasionally.
- Southbound and eastbound left-turn queues at the Sunrise Valley Drive intersection exceed the available storage
- Eastbound left and westbound right-turn queues at the Franklin Farm Road intersection exceed the available storage
- There are significant rolling queues along northbound FCP between Popes Head Road and Roberts Way, although none of the queues have a direct impact to adjacent intersections.
- Significant queue spillback on westbound Popes Head Road from FCP approaching the intersection
- Westbound right-turn queues at Burke Centre Parkway extend as far as 600 feet
- Eastbound right-turn queues at the FCP southbound ramp/Hooes Road intersection exceed the available storage
- Northbound right and southbound left-turn queues at the FCP/John Kingman Road intersection exceed the available storage and cause significant queues on FCP mainline between Richmond Highway (Route 1) and I-95

Detailed FCP and FSP mainline and intersection MOEs for each hour of the two-hour AM peak period can be found in **Attachment C**.

Existing PM Model

An overall summary of the calibration of the existing PM VISSIM model is included in **Table 6**. As with the AM model, each of the calibration criteria were met with the exception of maximum queue length on the approaches of critical intersections. Queues at these locations were reasonably calibrated to represent known conditions. Detailed tables of PM calibration results can be found in **Attachment B.**

Table 7. PM Calibration Summary

	Item	Basis	Criteria	Subtotal	Total	%	Target	Target Met
Representative Hour	**Volume** *Interchanges*	**Segments (n = 190)**	Within ± 20% for <100vph	5	184	97%	85%	Yes
			Within ± 15% for ≥ 100 vph to < 300 vph	12				
			Within ± 10% for ≥ 300 vph to < 4,000 vph	165				
			Within ± 400 for ≥ 4,000 vph	2				
	Volume *Critical Intersections*	**Turning Movements (n = 130)**	Within ± 50% for < 100 vph	26	130	100%	100%	Yes
			Within ± 20% for ≥ 100 vph to < 400 vph	49				
			Within ± 10% for ≥ 400 vph to < 4,000 vph	55				
			Within ± 400 for ≥ 4,000 vph	0				
	Volume *Other Intersections*	**Approaches (n = 251)**	Within ± 20% for <100vph	27	240	94%	85%	Yes
			Within ± 15% for ≥ 100 vph to < 300 vph	31				
			Within ± 10% for ≥ 300 vph to < 4,000 vph	180				
			Within ± 400 for ≥ 4,000 vph	2				
Peak Period	**Travel Time**	**Segments (n = 26)**	Within ± 30% for average observed travel time of each segment		25	96%	85%	Yes
		Corridor	Within ± 15% for average observed travel time of entire corridor		2	100%	100%	Yes
	Speed	**Segments (n = 26)**	Within ± 10 mph for average observed travel speed of each segment		23	88%	85%	Yes
	Queue Length	**Approaches (n = 55)**	Within ± 20% for observed maximum queue lengths OR representing queuing impact observed in the field		47	85%	85%	Yes

PM Volume Calibration

Throughput volumes produced by the VISSIM model were compared to balanced traffic counts for the PM representative hour based on the counts received from VDOT at intersections and interchanges. Interchange volume calibration was accomplished with 97 percent of segments (upstream, mainline between ramps, downstream, and ramp segments) meeting the corresponding criteria. Every turning

movement volume at critical intersections was calibrated to meet the balanced traffic counts within the acceptable limit. Volume calibration at other non-critical intersections was accomplished with 96 percent of approaches. The locations that did not meet the criteria are primarily low volume side street approaches where a small difference is a large overall percentage of the target volume.

PM Travel Time and Speed Calibration

Average travel times produced from the VISSIM model for the peak period were compared to field measurements based on the criteria described in previous sections. Northbound and southbound travel time comparisons are shown in **Figure 4** and **Figure 5**, respectively. Calibration targets are depicted with high-low bars that represent ± 30% of the field travel time measures. Two segments fall near or slightly outside of this limit: northbound between Huntsman Boulevard and Roberts Parkway and southbound between I-66 and Popes Head Road. The average model travel time between Huntsman Boulevard and Roberts Parkway is 4.2 minutes compared to a field measurement 5.8 minutes (27.6% difference). While the travel time and queuing south of Huntsman Boulevard is reasonably represented in the model, the demand constrained at this intersection bottleneck may contribute to the lower travel time in the next segment to Roberts Parkway. A similar observation is made for the southbound segment between I-66 and Popes Head Road. Average model travel time is 6.6 minutes compared to a field measurement of 10.4 minutes (36.8% difference). The most likely reason for this discrepancy, given that queues and volume are adequately calibrated, is that many of the field travel time runs were conducted during the first half of the peak period. The congestion in this location peaks during the second half of the peak period. Northbound model travel time for the entire length of FCP is 57.1 minutes compared with 63.1 minutes from field measures (9.5% difference). Southbound model travel time for the entire length of FCP is 57.1 minutes compared with 60.7 minutes from field measures (6.0% difference). Travel time for the Franconia-Springfield Parkway segment between Beulah Street and Fairfax County Parkway also meets the calibration criteria.

Speed calibration was completed for the representative hour using the same travel time segments. Three FCP segments have average model speeds that are more than 10 mph faster than average observed speeds. The model speed from Huntsman Boulevard to Roberts Parkway is 42.4 mph compared to 30.5 mph. The model speed from I-66 to Popes Head Road is 29.8 mph compared to 18.8 mph. The same justifications described for travel time apply here. Additionally, the model speed from US 50 to I-66 is 46.8 mph compared to 35.9 mph. The primary location of congestion in this segment is in the rightmost lanes due to queue spillback from the ramp to westbound I-66. The field travel time runs and speeds are therefore very dependent on lane choice whereas model speeds are averaged across all lanes. Model speeds in this segment are similar to INRIX data. Speed heat maps (see **Attachment B**) that illustrate speeds for these segments across the peak period were used as a lesser priority supplement to the quantitative comparison. The heat maps also include a comparison to INRIX data which provides greater time detail compared to speeds obtained from the field travel time measurements.

Notable bottleneck locations identified during field observation that are replicated by the model are:

- Southbound FCP in Reston (Dulles Toll Road, Spring Street, and Sunrise Valley Drive intersections)
- Southbound FCP between Sunrise Valley Drive and Franklin Farm Road
- Southbound FCP approaching I-66
- Southbound FCP from I-66 to Popes Head Road
- Northbound FCP between Huntsman Boulevard and FSP
- Northbound FCP between Telegraph Road and the I-95 northbound on-ramp

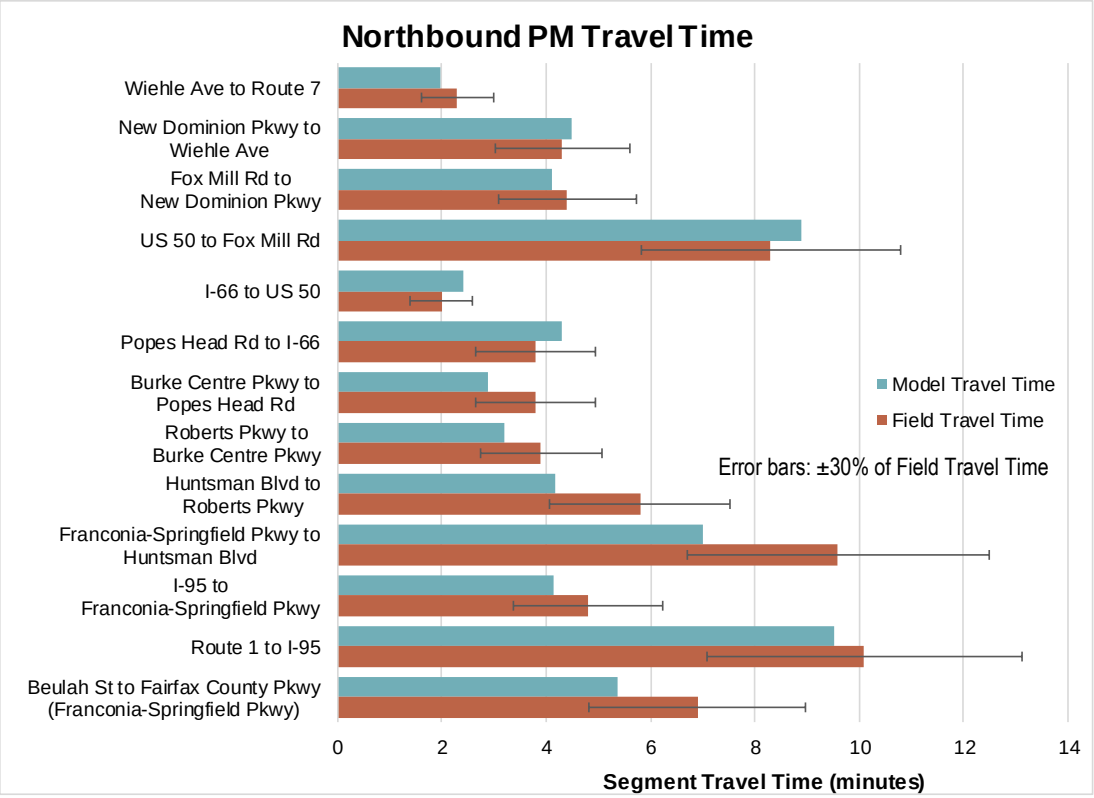


Figure 4. Northbound PM Travel Time Calibration

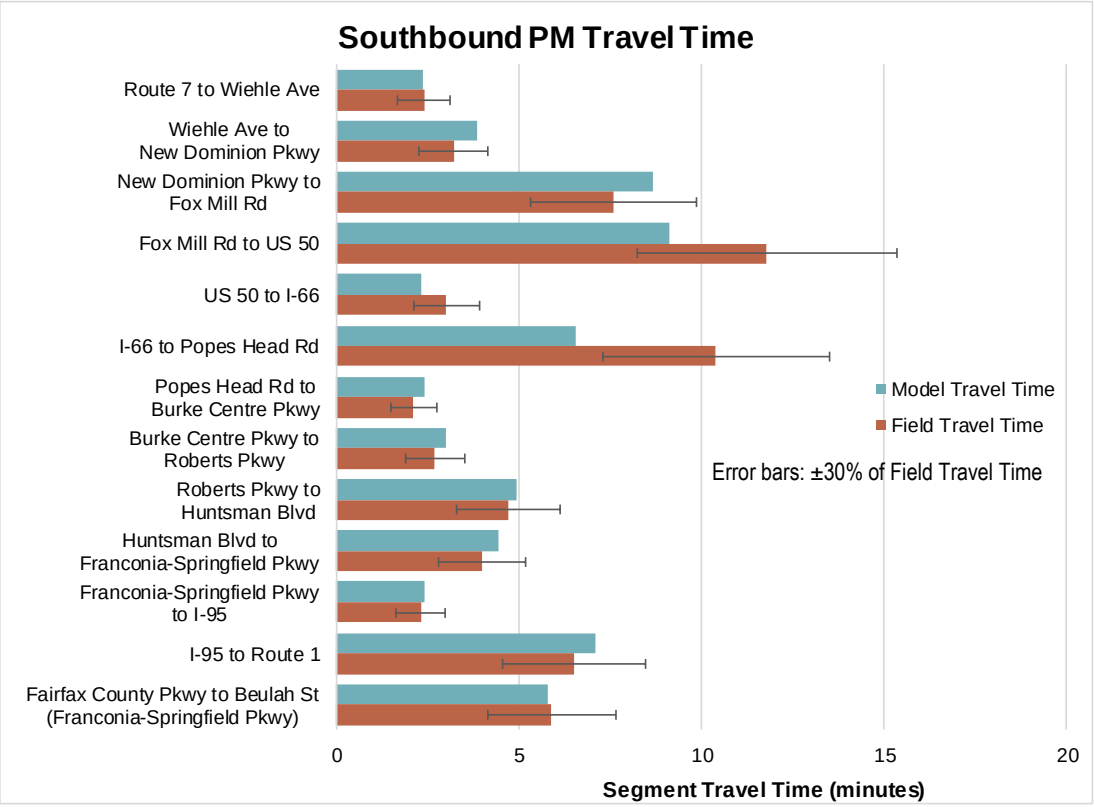


Figure 5. Southbound PM Travel Time Calibration

PM Queue Calibration

Similar to the calibration of the AM model, queue calibration focused on critical impact locations. Detailed queue calibration results can be found in **Attachment B** including a qualitative check of whether field conditions are adequately represented and notes justifying why the model queue may not meet the ± 20% maximum queue length criteria. Many of the approach queue lengths for critical intersection that do not meet this criteria have relatively short observed queues where a difference of a few vehicles is a large percentage. Queues at critical impact locations are reasonably represented in the model. This includes the following notable queuing locations:

- Queue spillback from the I-66 westbound on-ramp onto southbound and northbound FCP
- Southbound FCP mainline queues from Popes Head Road through the Braddock Road and US 29 interchanges
- Northbound left-turn spillover at Lee Chapel Road
- Northbound FCP rolling queue from Huntsman Boulevard to the Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way interchange
- Northbound FCP rolling queue from the I-95 northbound on-ramp to Telegraph Road
- Significant side street queues on westbound Sunrise Valley Drive, eastbound West Ox Road, eastbound Franklin Farm Road, and westbound Rugby Road
- Significant southbound and westbound queues at the FCP/Richmond Highway (Route 1) intersection

Detailed FCP and FSP mainline and intersection MOEs for each hour of the two-hour PM peak period can be found in **Attachment C**.

CONCLUSION

Based on the results obtained from the VISSIM AM and PM models and their comparison with field data for all the calibration measures listed in previous sections, it can be concluded that the models are reasonably calibrated to the project standards and guidelines established by VDOT and Fairfax County.

ATTACHMENT A – VISSIM CALIBRATION AND MODELING ASSUMPTIONS SUMMARY

VISSIM CALIBRATION AND MODELING ASSUMPTIONS SUMMARY

Calibration Measures

The following section outlines the proposed methods and targets for calibration of the existing conditions Fairfax County Parkway (FCP) and Franconia-Springfield Parkway (FSP) VISSIM simulation model. The calibration process will quantify how well the model represents existing traffic conditions in the study corridor. Kimley-Horn will calibrate the models for the AM and PM network peak hours (see Table 1: simulation will be performed for the four hours in the AM and PM peak periods – one seeding hour, two peak period hours, and one shoulder hour).

Table 1 Proposed Simulation Periods

Proposed Simulation Periods				
	Seeding Period	Peak Period	Shoulder Hour	*Representative Hour*
AM	6:00 to 7:00	7:00 to 9:00	9:00 to 10:00	7:30 to 8:30
PM	3:30 to 4:30	4:30 to 6:30	6:30 to 7:30	5:00 to 6:00

Kimley-Horn will use four calibration items as required in the VDOT Traffic Operations Analysis Guidebook version 1.1 (*TOTAG*). Kimley-Horn understands that the TOTAG update is under development and will become the Traffic Operations and Safety Analysis Manual (*TOSAM*). The proposed calibration target thresholds have been modified to be consistent with original project scope while taking into consideration the latest development in the state-of-the-practice of microsimulation model calibration in Virginia. Each calibration item is summarized below and the proposed thresholds are contained in Table 3.

1. Traffic volumes (throughput) – calibrated by the representative hour. Link throughput will be calibrated only for the FCP and FSP interchange areas (including upstream, mainline between ramps, downstream, and ramp segments) while calibration of arterial segments of the corridor will focus on bi-directional intersection approach volumes. This approach will provide a technically sound model that is consistent with the project scope. A list of the interchanges is provided below.

Fairfax County Parkway

- Baron Cameron Avenue/Elden Street
- US 50
- Monument Drive/Fair Lakes Parkway
- I-66
- US 29
- Braddock Road
- Ox Road
- Seabrook lane/Hooes Road/Pohick Road
- Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way
- Franconia Springfield Parkway/Rolling Road
- Barta Road
- Boudinot Drive
- I-95
- Telegraph Road

Franconia Springfield Parkway

- Backlick Road
- Frontier Drive

Throughput calibration will focus on turning movement volumes for the critical intersections listed below, and focus on intersection approach volumes (both approaching and departure link) for the remaining arterial segment intersections.

- Route 7 ramp intersections (2)
- Spring Street ramp intersection
- Route 267 (Dulles Toll Road) ramp intersections (2)
- Sunrise Valley Drive
- Route 50 ramp intersections (2)
- I-66 interchange
- Route 29 interchange
- Popes Head Road
- Franconia-Springfield Parkway interchange
- I-95 interchange (at Fairfax County Parkway)
- Route 1
- Beulah Street/Franconia-Springfield Parkway

A detailed comparison of turning movement volumes between simulation model and balanced counts will be provided in the appendix of the Technical Memorandum 1a - Existing Conditions in Task 4.5.

2. Travel times – calibrated by two-hour peak period. The average time for vehicles to traverse a specific segment can be aggregated for an entire corridor and/or specific segment of interest throughout the network. The model travel time output will be compared with field travel time data provided by VDOT. Heavy truck data will be precluded from the travel time evaluation because the field travel time run was done in a car. The proposed segments of the corridor for travel time calibration are summarized in Table 2. The segmentation is based on field travel time data provided by VDOT, signal coordination blocks observed in the existing condition Synchro files, as well as the characteristics of the corridor (limited access vs. signalized).

Table 2 Proposed Travel Time/Speed Calibration Segments

	Corridor Segment	Arterial Characteristics - AM Peak	Arterial Characteristics - PM Peak
1	Route 7 to Wiehle Ave	Actuated Signals	
2	Wiehle Ave to New Dominion Pkwy	Coordinated Signals - 190 sec cycle	Coordinated Signals - 170 sec cycle
3	New Dominion Pkwy to Fox Mill Rd	Coordinated Signals - 105/210 sec cycle	Coordinated Signals - 110/220 sec cycle
4	Fox Mill Rd to US 50	Coordinated Signals - 105/210 sec cycle	Coordinated Signals - 110/220 sec cycle
5	US 50 to I-66	Limited Access	
6	I-66 to Popes Head Rd	Limited Access	
7	Popes Head Rd to Burke Centre Pkwy	Actuated Signals	Actuated Signals
8	Burke Centre Pkwy to Roberts Pkwy	Limited Access/Unsignalized	
9	Roberts Pkwy to Huntsman Blvd	Coordinated Signals - 210 sec cycle	Coordinated Signals - 240 sec cycle
10	Huntsman Blvd to Franconia-Springfield Pkwy	Limited Access/Unsignalized w/1 Actuated Signal to the South	
11	Franconia-Springfield Pkwy to I-95	Limited Access w/2 Actuated Signals to the North	
12	I-95 to Route 1	Coordinated Signals - 190 sec cycle AND 1 Actuated Signal	Coordinated Signals - 180 sec cycle AND 1 Actuated Signal
13	Fairfax County Pkwy to Beulah St (Franconia-Springfield Pkwy)	Actuated Signals	Independent Coordinated Signal Operations

3. Speed/congestion – calibrated by the representative hour. Speed calibration will focus on the quantitative comparison between VISSIM link speed and speed data from field travel time runs (provided by VDOT) for the segments in Table 2. Speed heat maps will be used to illustrate the comparison of congestion and speed patterns between simulation speeds and INRIX data, and supplement the quantitative comparison. A directional speed heat map with time on Y axis and FCP/FSP mainline segments on X axis will be developed to compare model outputs with INRIX speed data provided by the RITIS system from the University of Maryland. Bottleneck locations identified in field observations will be verified from the speed heat map and inspection of areas at which congestion originated in the model.

4. Queue lengths – calibrated by two-hour peak period. Queue length will be calibrated based on queue data provided by VDOT at the critical intersections (refer to section #1 for the list of intersections). Additional field observations may be needed to supplement the current data given the limited information at certain locations. The purpose for such comparison is to validate locations where extended queuing and queue spillover from the existing turn lanes occurs. Less emphasis will be placed on the calibration of queue length on side streets

because the lack of upstream signals in the model may result in inaccurate arrival patterns as compared to actual conditions.

Table 3. Calibration Items and Targets

Calibration Item	Calibration Thresholds
Traffic Volume (Critical Intersections) Difference targets must be met for 100% of the unique intersection turning movements;	Within ± 50% for <100vph
	Within ± 20% for ≥100vph to <400vph
	Within ± 10% for ≥400vph to <4,000vph
	Within ± 400 for ≥4,000vph
Traffic Volume (Other Intersections, Ramps, and Freeway Segment Mainlines) Difference targets must be met at a minimum for 85% of the unique network links;	Within ± 20% for <100vph
	Within ± 15% for ≥100vph to <300vph
	Within ± 10% for ≥300vph to <4,000vph
	Within ± 400 for ≥4,000vph
Travel Time Difference targets must be met at a minimum for 85% of the chosen segments;	Within ± 30% for average observed travel time of each segment identified above Within ± 15% for average observed travel time of entire corridor
Average Speed Difference targets must be met at a minimum for 85% of the FCP/FSP mainline segments identified above;	Within ± 10 mph Average segment speed data from field travel time runs will be the main source for speed/congestion calibration while INRIX data will supplement the calibration effort.
Queue Length Difference targets must be met at a minimum for 85% of the approaches at the critical intersections;	Within ± 20% for observed maximum queue lengths
Note: 1. In the case that the minimum targets above cannot be achieved written justification should be provided and approved by the VDOT project manager.	

Due to the length and complexity of the corridor the calibration effort may not satisfy all the targets. If this is the case and there is convincing evidence that the model is reasonably calibrated, Kimley-Horn will notify VDOT and FCDOT staffs to provide justification and discuss a mutually agreeable resolution.

Kimley-Horn will summarize model calibration procedures and results in a VISSIM calibration memorandum that will be incorporated in the appendix of the Technical Memorandum 1a - Existing Conditions in Task 4.5. The technical memorandum will document modifications that were made to the simulation model to meet the calibration targets as well as the quantitative results of the calibration of

each items, and justify why if any target(s) is not satisfied while the model can still be considered reasonably calibrated (if necessary).

Other VISSIM Modeling Assumptions

Simulation Runs and MOEs

Kimley-Horn will report results from an average of multiple simulation runs due to randomness associated with microsimulation. Kimley-Horn will determine the exact number of runs based on the Sample Size Determination Tool in the *TOTAG* with a maximum of 15 runs due to the large size of network and extensive run time anticipated for each run.

Travel time and traffic volumes will be used as the two measures to determine the number of simulation runs necessary for the analysis. The rationale is to consider different MOEs at different locations of the corridor over different periods of analysis without introducing too many variables to this process given the budgetary and resource constraints. Specifically, directional travel time will be evaluated for the entire FCP corridor (NB and SB directions) for both peak hours and peak period. Volumes will be evaluated for each hour of the two-hour peak period at the following locations.

- FCP between Route 267 and Fox Mill Road
- FCP between US 50 and I-66
- FCP between Braddock Road and Ox Road
- FCP between FSP and I-95
- FSP between I-95 and Beulah Street

Peak period queue length will be considered as a third indicator for the number of runs required if there is a large discrepancy between the number of runs required using travel times and volume. Up to five movements that have extensive queues at the critical intersections identified in the Calibration Memorandum under item #4 will be evaluated to supplement the process to determine the number of runs required.

The level of confidence for the number of runs for the analysis is 95%. A disclaimer will be provided to indicate 95% confidence level is not achieved if the number of runs deemed necessary exceeds the maximum of 15 runs defined in the scope.

Kimley-Horn will use an Excel spreadsheet template to produce standardized tabular reports for inclusion in the technical report. The following measures-of-effectiveness (MOEs) will be reported hourly during the AM and PM peak periods for the study intersections and corridor.

1. Intersection: delay by movement and overall intersection with descriptive performance measures, average and maximum queue length by approach;
2. FCP/FSP mainline (limited access facilities/interchange area): mainline density (including upstream, mainline between ramps, downstream), travel time for the designated routes

(Table 2) and average link speed; Please refer to the interchange locations in #1 traffic volumes/throughput calibration section.

3. FCP/FSP mainline (arterial segments): intersection MOEs (delay and queue length) will be provided.

Signal Control

All signal controllers will be ring barrier controllers (RBC) unless otherwise specified. There are a few signalized intersections that operate with a cycle length of more than 255 seconds, which exceeds the capabilities of an RBC controller type. These intersections include:

- Fairfax County Parkway at Popes Head Road (AM and PM)
- Fairfax County Parkway at John J. Kingman Road/Farrar Drive (AM only)
- Franconia-Springfield Parkway at Spring Village Drive/Bonniemill Lane (AM only)

These intersections will be modeled during the peak period models noted above as a vehicle actuated programming (VAP) controller to allow for splits and cycle lengths to exceed the 255 second limitation.

Software

The VISSIM software to be used in this task is VISSIM 7.

ATTACHMENT B – CALIBRATION RESULTS

AM Peak Period Calibration Summary

Calibration Item	Time Period	Basis	Criteria	Subtotal	Total	Percent	Target	Target Met
Volume (Interchanges)	**Representative Hour**	**Segments (n = 190)**	Within ± 20% for <100vph	5	186	98%	85%	Yes
			Within ± 15% for ≥ 100 vph to < 300 vph	19				
			Within ± 10% for ≥ 300 vph to < 4,000 vph	157				
			Within ± 400 for ≥ 4,000 vph	5				
Volume (Critical Intersections)	**Representative Hour**	**Turning Movements (n = 130)**	Within ± 50% for < 100 vph	31	130	100%	100%	Yes
			Within ± 20% for ≥ 100 vph to < 400 vph	45				
			Within ± 10% for ≥ 400 vph to < 4,000 vph	54				
			Within ± 400 for ≥ 4,000 vph	0				
Volume (Other Intersections)	**Representative Hour**	**Approaches (n = 251)**	Within ± 20% for <100vph	27	232	92%	85%	Yes
			Within ± 15% for ≥ 100 vph to < 300 vph	40				
			Within ± 10% for ≥ 300 vph to < 4,000 vph	163				
			Within ± 400 for ≥ 4,000 vph	2				
Travel Time	**Peak Period**	**Segments (n = 26)**	Within ± 30% for average observed travel time of each segment		25	96%	85%	Yes
		Corridor	Within ± 15% for average observed travel time of entire corridor		2	100%	100%	Yes
Speed	**Peak Period**	**Segments (n = 26)**	Within ± 10 mph for average observed travel speed of each segment		26	100%	85%	Yes
Queue Length	**Peak Period**	**Approaches (n = 55)**	Within ± 20% for observed maximum queue lengths OR representing queuing impact observed in the field		49	89%	85%	Yes

Volume Calibration (Interchanges)

AM Representative Hour (7:30-8:30 AM)

	Volume Criteria	Subtotal	Total	Percent	Target	Target Met
Segments (n = 190)	Within ± 20% for <100vph	5	186	98%	85%	Yes
	Within ± 15% for ≥ 100 vph to < 300 vph	19				
	Within ± 10% for ≥ 300 vph to < 4,000 vph	157				
	Within ± 400 for ≥ 4,000 vph	5				

NORTHBOUND

Interchange	Segment	Segment Type	VISSIM Link ID	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Baron Cameron Avenue/Elden Street	Upstream	Diverge	830	930	938	8	1%
	Off-Ramp	Ramp	362	490	504	14	3%
	Between Ramps	Basic Freeway	817	440	452	12	3%
	On-Ramp	Ramp	40048	130	125	-5	-4%
	Downstream	Merge	819	570	571	1	0%
US 50	Upstream	Diverge**	773	3275	3372	97	3%
	Off-Ramp to EB US 50	Ramp	264	90	96	6	7%
	Between Ramps	Diverge	878	3255	3388	133	4%
	Off-Ramp to WB US 50	Ramp	765	630	607	-23	-4%
	Between Ramps	Basic Freeway**	768	2625	2714	89	3%
	On-Ramp from WB US 50	Ramp	771	450	433	-17	-4%
	Downstream	Merge	219	3015	3231	216	7%
Monument Drive/Fair Lakes Parkway	Upstream	Weave	418	3760	3921	161	4%
	Off-Ramp	Ramp	228	960	966	6	1%
	Between Ramps	Basic Freeway	423	2800	2977	177	6%
	On-Ramp	Ramp	575	470	458	-12	-3%
	Downstream	Merge	256	3270	3423	153	5%
I-66	Upstream	Weave	196	3830	3968	138	4%
	Off-Ramp to EB I-66	Ramp	168	270	263	-7	-3%
	Between Ramps	Basic Freeway	879	3560	3735	175	5%
	On-Ramp from EB I-66	Ramp	888	1040	1010	-30	-3%
	Between Ramps	Weave	880	4600	4723	123	3%
	Off-Ramp to WB I-66	Ramp	852	1340	1296	-44	-3%
	Between Ramps	Basic Freeway	849	3265	3430	165	5%
	On-Ramp from WB I-66	Ramp	172	495	502	7	1%
	Downstream	Weave	418	3760	3921	161	4%
US 29	Upstream	Weave	935	4295	4554	259	6%
	Off-Ramp	Ramp	20046	945	969	24	3%
	Between Ramps	Basic Freeway	914	3350	3548	198	6%
	On-Ramp	Ramp	949	470	470	0	0%
	Downstream	Weave	916	3825	3966	141	4%
Braddock Road	Upstream	Diverge	430	3620	3877	257	7%
	Off-Ramp	Ramp	569	240	213	-27	-11%
	Between Ramps	Basic Freeway	437	3390	3646	256	8%
	On-Ramp	Ramp	319	900	889	-11	-1%
	Downstream	Weave	419	4290	4564	274	6%
Ox Road	Upstream	Diverge	882	2125	2124	-1	0%
	Off-Ramp	Ramp	558	345	345	0	0%
	Between Ramps	Basic Freeway	885	1780	1769	-11	-1%
	On-Ramp	Ramp	551	960	1198	238	25%
	Between Ramps	Merge	851	2740	2947	207	8%
	On-Ramp	Ramp	258	60	60	0	0%
	Downstream	Merge	552	2800	2922	122	4%
Seabrook Lane/Hooes Road/Pohick Road	Upstream	Diverge	606	1385	1363	-22	-2%
	Off-Ramp	Ramp	610	180	171	-9	-5%
	Between Ramps	Basic Freeway	597	1205	1229	24	2%
	On-Ramp	Ramp	616	680	675	-5	-1%
	Downstream	Merge	588	1885	1894	9	0%
Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way	Upstream	Diverge	641	1435	1411	-24	-2%
	Off-Ramp	Ramp	642	190	175	-15	-8%
	Between Ramps	Basic Freeway	595	1245	1255	10	1%
	On-Ramp	Ramp	624	140	133	-7	-5%
	Downstream	Merge	630	1385	1388	3	0%
Franconia Springfield Parkway/Rolling Road	Upstream (FCP)	Diverge	682	1165	1155	-10	-1%
	Upstream (FSP*)	Diverge	1037	960	964	4	0%
	FSP* Off-Ramp to Rolling Road	Ramp	44	210	200	-10	-5%
	Between Ramps	Basic Freeway	670	750	720	-30	-4%
	FCP Ramp to NB FCP	Ramp	698	700	684	-16	-2%
	Downstream	Merge	673	1450	1454	4	0%

NORTHBOUND

Interchange	Segment	Segment Type	VISSIM Link ID	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Barta Road	Upstream	Diverge	706	830	774	-56	-7%
	Off-Ramp	Ramp	726	310	258	-52	-17%
	Between Ramps	Basic Freeway	729	520	510	-10	-2%
	On-Ramp	Ramp	732	415	400	-15	-4%
	Between Ramps	Merge	705	940	910	-30	-3%
	On-Ramp	Ramp	725	20	23	3	15%
	Downstream	Merge	711	960	928	-32	-3%
Boudinot Drive	Upstream	Weave	891	1130	1094	-36	-3%
	Off-Ramp	Ramp	783	370	384	14	4%
	Between Ramps	Basic Freeway	781	760	706	-54	-7%
	On-Ramp	Ramp	784	70	62	-8	-11%
	Downstream	Merge	779	830	774	-56	-7%
I-95	Upstream	Diverge**	18	1770	1654	-116	-7%
	Off-Ramp to NB I-95	Ramp	170	780	771	-9	-1%
	Between Ramps	Basic Freeway	794	990	966	-24	-2%
	On-Ramp from NB I-95	Ramp	797	585	578	-7	-1%
	Between Ramps	Weave	708	1580	1571	-9	-1%
	Off-Ramp to SB I-95	Ramp	792	740	740	0	0%
	Between Ramps	Basic Freeway	789	835	814	-21	-3%
	On-Ramp from SB I-95	Ramp	381	300	273	-27	-9%
	Downstream	Weave	891	1135	1094	-41	-4%
Telegraph Road	Upstream	Diverge	752	1070	1034	-36	-3%
	Off-Ramp	Ramp	756	150	161	11	7%
	Between Ramps	Basic Freeway	759	920	892	-28	-3%
	On-Ramp	Ramp	33	640	644	4	1%
	Downstream	Merge	743	1560	1540	-20	-1%
Backlick Road*	Upstream	Diverge	1001	990	994	4	0%
	Off-Ramp	Ramp	1013	280	290	10	4%
	Between Ramps	Basic Freeway	1006	710	685	-25	-4%
	On-Ramp	Ramp	1055	330	334	4	1%
	Downstream	Merge	998	1040	969	-71	-7%
Frontier Drive*	Upstream	Diverge	1022	1560	1505	-55	-4%
	Off-Ramp	Ramp	1032	780	769	-11	-1%
	Between Ramps	Basic Freeway	1024	780	795	15	2%
	On-Ramp	Ramp	1031	250	243	-7	-3%
	Downstream	Merge	1076	1030	1031	1	0%

*Westbound Franconia-Springfield Parkway
**Not an actual freeway segment because of signal

SOUTHBOUND

Interchange	Segment	Segment Type	VISSIM Link ID	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Baron Cameron Avenue/Elden Street	Upstream	Diverge	40044	2930	2748	-182	-6%
	Off-Ramp	Ramp	302	380	317	-63	-17%
	Between Ramps	Basic Freeway	818	2550	2522	-28	-1%
	On-Ramp	Ramp	826	570	545	-25	-4%
	Downstream	Merge	828	3120	3078	-42	-1%
US 50	Upstream	Diverge	218	2075	2018	-57	-3%
	Off-Ramp to WB US 50	Ramp	263	20	21	1	5%
	Between Ramps	Diverge	40222	2120	2020	-100	-5%
	Off-Ramp to EB US 50	Ramp	762	450	444	-6	-1%
	Between Ramps	Basic Freeway**	876	1675	1658	-17	-1%
	On-Ramp from EB US 50	Ramp	777	425	424	-1	0%
	Downstream	Weave	257	2030	1994	-36	-2%
Monument Drive/Fair Lakes Parkway	Upstream	Weave	257	2030	1994	-36	-2%
	Off-Ramp	Ramp	572	600	585	-15	-3%
	Between Ramps	Basic Freeway	422	1430	1407	-23	-2%
	On-Ramp	Ramp	358	660	615	-45	-7%
	Downstream	Weave	167	2090	2072	-18	-1%
I-66	Upstream	Weave	167	2095	2072	-23	-1%
	Off-Ramp to WB I-66	Ramp	166	450	436	-14	-3%
	Between Ramps	Basic Freeway	846	1650	1639	-11	-1%
	On-Ramp from WB I-66	Ramp	854	170	150	-20	-12%
	Between Ramps	Weave	772	1820	1779	-41	-2%
	Off-Ramp to EB I-66	Ramp	1249	270	262	-8	-3%
	Between Ramps	Basic Freeway	874	1550	1524	-26	-2%
	On-Ramp from EB I-66	Ramp	165	1185	1161	-24	-2%
	Downstream	Merge	950	2735	2685	-50	-2%
US 29	Upstream	Diverge	244	2735	2693	-42	-2%
	Off-Ramp	Ramp	919	290	273	-17	-6%
	Between Ramps	Basic Freeway	918	2445	2416	-29	-1%
	On-Ramp	Ramp	921	730	726	-4	-1%
	Downstream	Merge	933	3175	3143	-32	-1%
Braddock Road	Upstream	Diverge	20084	3175	3117	-58	-2%
	Off-Ramp	Ramp	432	670	632	-38	-6%
	Between Ramps	Basic Freeway	431	2505	2458	-47	-2%
	On-Ramp	Ramp	436	490	487	-3	-1%
	Downstream	Merge	429	2995	2925	-70	-2%
Ox Road	Upstream	Diverge	220	2805	2789	-16	-1%
	Off-Ramp	Ramp	796	520	516	-4	-1%
	Between Ramps	Basic Freeway	884	2280	2245	-35	-2%
	On-Ramp	Ramp	543	260	250	-10	-4%
	Downstream	Merge	259	2540	2486	-54	-2%
Seabrook Lane/Hooes Road/Pohick Road	Upstream	Diverge	587	3045	3005	-40	-1%
	Off-Ramp	Ramp	584	320	347	27	8%
	Between Ramps	Basic Freeway	596	2725	2688	-37	-1%
	On-Ramp	Ramp	613	1110	1061	-49	-4%
	Downstream	Merge	608	3835	3738	-97	-3%
Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way	Upstream	Diverge	185	3800	3629	-171	-5%
	Off-Ramp	Ramp	632	140	121	-19	-14%
	Between Ramps	Basic Freeway	158	3660	3591	-69	-2%
	On-Ramp	Ramp	649	1080	1087	7	1%
	Downstream	Merge	638	4740	4676	-64	-1%
Franconia Springfield Parkway/Rolling Road	Upstream (FCP)	Diverge	627	4805	4698	-107	-2%
	FCP Ramp to SB FCP	Ramp	262	1585	1535	-50	-3%
	Downstream (FCP)	Weave	15	2335	2291	-44	-2%
	Between Ramps (FSP*)	Basic Freeway	672	3220	3168	-52	-2%
	FSP* Off-Ramp to Rolling Rd	Ramp	700	240	218	-22	-9%
	Between Ramps (FSP*)	Basic Freeway	671	2980	2933	-47	-2%
	FSP* On-Ramp from Rolling Rd	Ramp	701	490	468	-22	-4%
	Downstream (FSP*)	Merge	45	3470	3382	-88	-3%

SOUTHBOUND

Interchange	Segment	Segment Type	VISSIM Link ID	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Barta Road	Upstream	Diverge	11	2335	2240	-95	-4%
	Off-Ramp	Ramp	720	780	761	-19	-2%
	Between Ramps	Basic Freeway	710	1555	1530	-25	-2%
	On-Ramp	Ramp	733	50	36	-14	-28%
	Between Ramps	Merge	728	1605	1567	-38	-2%
	On-Ramp	Ramp	1078	380	374	-6	-2%
	Downstream	Weave	707	1985	1940	-45	-2%
Boudinot Drive	Upstream	Weave	707	1985	1940	-45	-2%
	Off-Ramp	Ramp	782	220	205	-15	-7%
	Between Ramps	Basic Freeway	778	1760	1732	-28	-2%
	On-Ramp	Ramp	894	670	660	-10	-1%
	Downstream	Merge	892	2435	2395	-40	-2%
I-95	Upstream	Diverge	788	2435	2290	-145	-6%
	Off-Ramp to SB I-95	Ramp	171	290	290	0	0%
	Between Ramps	Basic Freeway	791	2140	1954	-186	-9%
	On-Ramp from SB I-95	Ramp	793	1240	1213	-27	-2%
	Between Ramps	Weave	709	3380	3118	-262	-8%
	Off-Ramp to NB I-95	Ramp	798	540	542	2	0%
	Between Ramps	Basic Freeway**	20	2710	2596	-114	-4%
	On-Ramp from NB I-95	Ramp	678	150	149	-1	-1%
	Downstream	Weave	727	2860	2768	-92	-3%
Telegraph Road	Upstream	Diverge	742	2460	2416	-44	-2%
	Off-Ramp	Ramp	738	310	306	-4	-1%
	Between Ramps	Basic Freeway	758	2150	2091	-59	-3%
	On-Ramp	Ramp	24	420	412	-8	-2%
	Downstream	Weave	753	2570	2445	-125	-5%
Backlick Road*	Upstream	Diverge	993	3625	3451	-174	-5%
	Off-Ramp	Ramp	996	1340	1308	-32	-2%
	Between Ramps	Basic Freeway	997	2285	2231	-54	-2%
	On-Ramp	Ramp	1007	340	334	-6	-2%
	Downstream	Merge	1005	2625	2574	-51	-2%
Frontier Drive*	Upstream	Diverge	1079	2530	2420	-110	-4%
	Off-Ramp	Ramp	1018	1245	1197	-48	-4%
	Between Ramps	Basic Freeway	1023	1285	1245	-40	-3%
	On-Ramp	Ramp	50	550	538	-12	-2%
	Downstream	Merge	1021	1835	1804	-31	-2%

*Eastbound Franconia-Springfield Parkway
**Not an actual freeway segment because of signal

Volume Calibration (Critical Intersections)

AM Representative Hour (7:30-8:30 AM)

	Volume Criteria	Subtotal	Total	Percent	Target	Target Met
Turning Movements (n = 130)	Within ± 50% for < 100 vph	31	130	100%	100%	Yes
	Within ± 20% for ≥ 100 vph to < 400 vph	45				
	Within ± 10% for ≥ 400 vph to < 4,000 vph	54				
	Within ± 400 for ≥ 4,000 vph	0				

Intersection	Approach	Movement	Balanced Count (vph)		VISSIM Throughput (vph)		Difference (vph)		Difference (%)	
Fairfax County Parkway and Route 7 Westbound Ramps	NB	LT	340	520	335	512	-5	-8	-1%	-2%
		TH	180		177		-3		-2%	
	SB	TH	1505	1585	1501	1589	-4	4	0%	0%
		RT	80		88		8		10%	
	WB	LT	100	210	101	211	1	1	1%	0%
		TH	0		0		0		0%	
		RT	110		110		0		0%	
	Intersection		2315		2312		-3		0%	
Fairfax County Parkway and Route 7 Eastbound Ramps	NB	TH	480	520	487	528	7	8	1%	2%
		RT	40		41		1		3%	
	SB	LT	500	1615	480	1591	-20	-24	-4%	-1%
		TH	1115		1111		-4		0%	
	EB	LT	40	1285	43	1236	3	-49	8%	-4%
		TH	0		0		0		0%	
		RT	1245		1193		-52		-4%	
	Intersection		3420		3355		-65		-2%	
Fairfax County Parkway and Spring Street Ramp	NB	LT	670	2180	706	2347	36	167	5%	8%
		TH	1510		1641		131		9%	
	SB	TH	2515	2955	2470	2921	-45	-34	-2%	-1%
		RT	440		451		11		3%	
	EB	LT	110	280	105	276	-5	-4	-5%	-1%
		RT	170		171		1		1%	
	Intersection		5415		5544		129		2%	
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	NB	LT	90	2430	90	2603	0	173	0%	7%
		TH	2340		2513		173		7%	
	SB	TH	2695	2995	2620	2913	-75	-82	-3%	-3%
		RT	300		293		-7		-2%	
	WB	LT	345	900	350	925	5	25	1%	3%
		TH	0		0		0		0%	
		RT	555		575		20		4%	
	Intersection		6325		6441		116		2%	
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	NB	TH	1695	2115	1847	2297	152	182	9%	9%
		RT	420		450		30		7%	
	SB	LT	800	3030	766	2955	-34	-75	-4%	-2%
		TH	2230		2189		-41		-2%	
	EB	LT	745	1065	723	1028	-22	-37	-3%	-3%
		TH	0		0		0		0%	
		RT	320		305		-15		-5%	
	Intersection		6210		6280		70		1%	
Fairfax County Parkway and Sunrise Valley Drive	NB	LT	150	2115	157	2302	7	187	5%	9%
		TH	1495		1631		136		9%	
		RT	470		514		44		9%	
	SB	LT	570	2555	522	2481	-48	-74	-8%	-3%
		TH	1320		1266		-54		-4%	
		RT	665		693		28		4%	
	EB	LT	400	1000	428	1000	28	0	7%	0%
		TH	560		532		-28		-5%	
		RT	40		40		0		0%	
	WB	LT	70	600	70	616	0	16	0%	3%
		TH	300		317		17		6%	
		RT	230		229		-1		0%	
	Intersection		6270		6399		129		2%	
Fairfax County Parkway and US 50 Westbound Ramp	NB	TH	2625	2625	2814	2814	189	189	7%	7%
	SB	TH	2055	2055	2042	2042	-13	-13	-1%	-1%
	WB	LT	60	450	61	505	1	55	2%	12%
		RT	390		444		54		14%	
	Intersection		5130		5361		231		5%	

Intersection	Approach	Movement	Balanced Count (vph)		VISSIM Throughput (vph)		Difference (vph)		Difference (%)	
Fairfax County Parkway and US 50 Eastbound Ramp	NB	TH	3185	3185	3351	3351	166	166	5%	5%
	SB	TH	1675	1675	1650	1650	-25	-25	-1%	-1%
	EB	LT	70	425	72	429	2	4	3%	1%
		RT	355		357		2		1%	
	Intersection		5285		5430		145		3%	
Fairfax County Parkway Southbound Ramp and US 29 Southbound	SB	TH	220	280	204	274	-16	-6	-7%	-2%
		RT	60		70		10		17%	
	WB	LT	385	555	385	555	0	0	0%	0%
		TH	170		170		0		0%	
	Intersection		835		829		-6		-1%	
Fairfax County Parkway Southbound Ramp and US 29 Northbound	SB	LT	230	610	203	588	-27	-22	-12%	-4%
		TH	380		385		5		1%	
	EB	TH	690	1040	715	1063	25	23	4%	2%
		RT	350		348		-2		-1%	
	Intersection		1650		1651		1		0%	
Fairfax County Parkway Northbound Ramp and US 29 Southbound	NB	LT	80	310	86	311	6	1	8%	0%
		TH	230		225		-5		-2%	
	WB	TH	460	600	468	609	8	9	2%	2%
		RT	140		141		1		1%	
	Intersection		910		920		10		1%	
Fairfax County Parkway Northbound Ramp and US 29	NB	TH	90	90	86	86	-4	-4	-4%	-4%
	EB	LT	220	910	225	916	5	6	2%	1%
		TH	690		691		1		0%	
	Intersection		1000		1002		2		0%	
West Ox Road and US 29 Southbound	NB	TH	1290	1290	1318	1318	28	28	2%	2%
	SB	TH	20	430	20	426	0	-4	0%	-1%
		RT	300		300		0		0%	
		On-Ramp	110		106		-4		-4%	
	WB	TH	310	350	309	350	-1	0	0%	0%
		RT	40		41		1		3%	
	Intersection		2070		2094		24		1%	
West Ox Road/Fairfax County Parkway Northbound Off-Ramp and US 29 Northbound	NB	TH	720	860	749	887	29	27	4%	3%
		RT	140		138		-2		-1%	
	SB	LT	20	20	20	20	0	0	0%	0%
	EB	LT	580	700	569	693	-11	-7	-2%	-1%
		TH	120		124		4		3%	
	Intersection		1580		1600		20		1%	
Fairfax County Parkway and Popes Head Road	NB	LT	20	3370	21	3548	1	178	5%	5%
		TH	3340		3522		182		5%	
		RT	10		5		-5		-50%	
	SB	LT	70	3005	72	2957	2	-48	3%	-2%
		TH	2915		2866		-49		-2%	
		RT	20		19		-1		-5%	
	EB	LT	30	130	37	138	7	8	23%	6%
		TH	40		41		1		3%	
		RT	60		60		0		0%	
	WB	LT	20	290	19	309	-1	19	-5%	7%
		TH	20		21		1		5%	
		RT	250		269		19		8%	
	Intersection		6795		6952		157		2%	
Fairfax County Parkway and Franconia-Springfield Parkway Westbound Ramps	NB	LT	0	600	5	585	5	-15	-	-3%
		TH	600		580		-20		-3%	
	SB	LT	120	1010	118	1018	-2	8	-2%	1%
		TH	880		892		12		1%	
		RT	10		8		-2		-20%	
	EB	LT	20	50	19	49	-1	-1	-5%	-2%
		TH	10		10		0		0%	
		RT	20		20		0		0%	
	WB	LT	70	200	70	210	0	10	0%	5%
		TH	0		8		8		-	
		RT	130		132		2		2%	
	Intersection		1860		1862		2		0%	
Fairfax County Parkway and Franconia-Springfield Parkway Eastbound Ramps/Rolling	NB	TH	830	960	831	936	1	-24	0%	-3%
		RT	130		105		-25		-19%	
	SB	LT	230	960	241	986	11	26	5%	3%
		TH	730		745		15		2%	
	WB	LT	20	360	22	346	2	-14	10%	-4%
		RT	340		324		-16		-5%	
	Intersection		2280		2268		-12		-1%	

Intersection	Approach	Movement	Balanced Count (vph)		VISSIM Throughput (vph)		Difference (vph)		Difference (%)	
Fairfax County Parkway and I-95 Northbound Ramps/Loisdale Road	NB	TH	1475	1675	1462	1658	-13	-17	-1%	-1%
		RT	200		196		-4		-2%	
	SB	LT	280	3375	267	3323	-13	-52	-5%	-2%
		TH	2555		2504		-51		-2%	
		RT	540		552		12		2%	
	EB	TH	250	400	253	413	3	13	1%	3%
		RT	150		160		10		7%	
	WB	LT	150	450	143	443	-7	-7	-5%	-2%
		RT	300		300		0		0%	
	Intersection		5900		5837		-63		-1%	
Fairfax County Parkway and US 1	SB	LT	990	1030	972	1005	-18	-25	-2%	-2%
		RT	40		33		-7		-18%	
	EB	LT	420	2530	403	2640	-17	110	-4%	4%
		TH	2110		2237		127		6%	
	WB	TH	680	1690	663	1713	-17	23	-3%	1%
		RT	1010		1050		40		4%	
	Intersection		5250		5358		108		2%	
Franconia-Springfield Parkway and Beulah Street	NB	LT	720	1445	728	1477	8	32	1%	2%
		TH	615		639		24		4%	
		RT	110		110		0		0%	
	SB	LT	110	705	107	714	-3	9	-3%	1%
		TH	295		296		1		0%	
		RT	300		311		11		4%	
	EB	LT	600	1825	586	1796	-14	-29	-2%	-2%
		TH	800		790		-10		-1%	
		RT	425		420		-5		-1%	
	WB	LT	90	1160	83	1141	-7	-19	-8%	-2%
		TH	900		885		-15		-2%	
		RT	170		173		3		2%	
	Intersection		5135		5128		-7		0%	

Volume Calibration (Other Intersections)

AM Representative Hour (7:30-8:30 AM)

	Volume Criteria	Subtotal	Total	Percent	Target	Target Met
Approaches (n = 251)	Within ± 20% for <100vph	27	232	92%	85%	Yes
	Within ± 15% for ≥ 100 vph to < 300 vph	40				
	Within ± 10% for ≥ 300 vph to < 4,000 vph	163				
	Within ± 400 for ≥ 4,000 vph	2				

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway and Cup Leaf Holly Court	**NB**	300	287	-13	-4%
	SB	1490	1512	22	1%
	EB	160	159	-1	-1%
	Intersection	1950	1958	8	0%
Fairfax County Parkway and Sugarland Road	**NB**	520	526	6	1%
	SB	2370	2312	-58	-2%
	EB	80	79	-1	-1%
	WB	70	71	1	1%
	Intersection	3040	2988	-52	-2%
Fairfax County Parkway and Heather Way	**NB**	520	529	9	2%
	SB	2425	2352	-73	-3%
	EB	80	82	2	3%
	Intersection	3025	2963	-62	-2%
Fairfax County Parkway and Wiehle Avenue	**NB**	560	579	19	3%
	SB	2455	2381	-74	-3%
	EB	960	957	-3	0%
	WB	310	291	-19	-6%
	Intersection	4285	4208	-77	-2%
Fairfax County Parkway and Sugarland Valley Drive	**NB**	560	564	4	1%
	SB	2625	2562	-63	-2%
	EB	30	32	2	7%
	Intersection	3215	3158	-57	-2%
Fairfax County Parkway and Lake Newport Road	**NB**	585	585	0	0%
	SB	2640	2580	-60	-2%
	EB	170	174	4	2%
	WB	220	224	4	2%
	Intersection	3615	3563	-52	-1%
Fairfax County Parkway and N Walnut Branch Road	**NB**	580	576	-4	-1%
	SB	2820	2768	-52	-2%
	EB	50	54	4	8%
	WB	50	59	9	18%
	Intersection	3500	3457	-43	-1%
Fairfax County Parkway and N Walnut Branch Road (South)	**NB**	560	575	15	3%
	SB	2865	2781	-84	-3%
	EB	80	86	6	8%
	WB	0	0	0	0%
	Intersection	3505	3442	-63	-2%
Fairfax County Parkway and Baron Cameron Ave	**NB**	490	494	4	1%
	SB	385	317	-68	-18%
	EB	1125	1101	-24	-2%
	WB	1020	1043	23	2%
	Intersection	3020	2955	-65	-2%
Fairfax County Parkway and New Dominion Parkway	**NB**	1610	1752	142	9%
	SB	3125	3102	-23	-1%
	WB	420	423	3	1%
	Intersection	5155	5277	122	2%
Fairfax County Parkway and Spring Street/Sunset Hills Road	**SB**	1110	1150	40	4%
	EB	1310	1317	7	1%
	WB	590	588	-2	0%
	Intersection	3010	3055	45	1%
Fairfax County Parkway and Fox Mill Road	**NB**	2190	2402	212	10%
	SB	1430	1379	-51	-4%
	EB	680	691	11	2%
	WB	690	694	4	1%
	Intersection	4990	5166	176	4%

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway and West Ox Road	NB	2540	2736	196	8%
	SB	1555	1523	-32	-2%
	EB	710	739	29	4%
	WB	420	423	3	1%
	Intersection	5225	5421	196	4%
Fairfax County Parkway and Franklin Farm Road	NB	2735	2986	251	9%
	SB	1600	1608	8	1%
	EB	710	731	21	3%
	WB	350	371	21	6%
	Intersection	5395	5696	301	6%
Fairfax County Parkway and Springhaven Drive/Tuckaway Drive	NB	2740	2957	217	8%
	SB	1780	1798	18	1%
	EB	250	274	24	10%
	WB	110	113	3	3%
	Intersection	4880	5142	262	5%
Fairfax County Parkway and Stringfellow Road	NB	2540	2798	258	10%
	SB	1930	1979	49	3%
	EB	330	338	8	2%
	WB	0	0	0	0%
	Intersection	4800	5115	315	7%
Fairfax County Parkway and Old Plains Road	NB	2545	2807	262	10%
	SB	1900	1925	25	1%
	EB	50	50	0	0%
	Intersection	4495	4782	287	6%
Fairfax County Parkway and Rugby Road	NB	3020	3237	217	7%
	SB	1935	1964	29	1%
	EB	460	450	-10	-2%
	WB	480	527	47	10%
	Intersection	5895	6178	283	5%
Fairfax County Parkway SB Ramps and Monument Drive	SB	610	590	-20	-3%
	WB	190	200	10	5%
	Intersection	800	790	-10	-1%
Fairfax County Parkway NB Ramps and Monument Drive	NB	415	408	-7	-2%
	EB	190	188	-2	-1%
	WB	380	382	2	1%
	Intersection	985	978	-7	-1%
Fairfax County Parkway SB Ramps and Fair Lakes Parkway	SB	610	594	-16	-3%
	EB	1080	1078	-2	0%
	WB	440	435	-5	-1%
	Intersection	2130	2107	-23	-1%
Fairfax County Parkway NB Ramps and Fair Lakes Parkway	NB	960	970	10	1%
	EB	810	818	8	1%
	WB	280	277	-3	-1%
	Intersection	2050	2065	15	1%
Fairfax County Parkway NB Ramps/Community Center and Braddock Road	NB	0	0	0	0%
	SB	220	216	-4	-2%
	EB	2505	2518	13	1%
	WB	960	958	-2	0%
	Intersection	3685	3692	7	0%
Fairfax County Parkway SB Ramps and Braddock Road	SB	670	675	5	1%
	EB	2400	2402	2	0%
	WB	560	563	3	1%
	Intersection	3630	3640	10	0%
Fairfax County Parkway and Colchester Meadow Lane	NB	3360	3559	199	6%
	SB	2975	2939	-36	-1%
	EB	0	0	0	0%
	WB	0	20	20	-
	Intersection	6335	6518	183	3%
Fairfax County Parkway and Ladues End Lane/Nomes Court	NB	3350	3603	253	8%
	SB	2980	2945	-35	-1%
	EB	10	32	22	220%
	WB	0	10	10	-
	Intersection	6340	6590	250	4%
Fairfax County Parkway and Burke Centre Parkway	NB	2795	2951	156	6%
	SB	2995	2965	-30	-1%
	WB	590	685	95	16%
	Intersection	6380	6601	221	3%

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway SB Ramps/Robert Carter Road and Ox Road	NB	510	497	-13	-3%
	SB	80	87	7	9%
	EB	2580	2867	287	11%
	WB	540	527	-13	-2%
	Intersection	3710	3978	268	7%
Fairfax County Parkway NB Ramps and Ox Road	NB	350	345	-5	-1%
	EB	1575	1540	-35	-2%
	WB	510	495	-15	-3%
	Intersection	2435	2380	-55	-2%
Fairfax County Parkway and Fred Oaks Road	NB	2095	2104	9	0%
	SB	2545	2498	-47	-2%
	EB	30	32	2	7%
	WB	80	79	-1	-1%
	Intersection	4750	4713	-37	-1%
Fairfax County Parkway and New Road	NB	2100	2082	-18	-1%
	SB	2535	2496	-39	-2%
	EB	60	63	3	5%
	Intersection	4695	4641	-54	-1%
Fairfax County Parkway and Wendy Ann Court	NB	2085	2079	-6	0%
	SB	2565	2529	-36	-1%
	EB	0	4	4	-
	Intersection	4650	4612	-38	-1%
Fairfax County Parkway and Karmich St/Roberts Parkway	NB	2360	2356	-4	0%
	SB	2565	2513	-52	-2%
	EB	0	26	26	-
	WB	240	243	3	1%
	Intersection	5165	5138	-27	-1%
Fairfax County Parkway and Knolls Pond Lane	NB	2350	2347	-3	0%
	SB	2625	2600	-25	-1%
	WB	20	16	-4	-20%
	Intersection	4995	4963	-32	-1%
Fairfax County Parkway and Burke Lake Road	NB	2145	2145	0	0%
	SB	2635	2609	-26	-1%
	EB	530	527	-3	-1%
	WB	270	273	3	1%
	Intersection	5580	5554	-26	0%
Fairfax County Parkway and Burke Lake Park Ent./Old Keene Mill Road	NB	1970	1969	-1	0%
	SB	2575	2547	-28	-1%
	EB	0	14	14	-
	WB	280	304	24	9%
	Intersection	4825	4834	9	0%
Fairfax County Parkway and Portside Drive/Waterline Drive	NB	1950	1944	-6	0%
	SB	2365	2377	12	1%
	EB	0	10	10	-
	WB	60	42	-18	-30%
	Intersection	4375	4373	-2	0%
Fairfax County Parkway and Rolling View Drive/Pilothouse Road	NB	1925	1918	-7	0%
	SB	2370	2363	-7	0%
	EB	50	54	4	8%
	WB	40	38	-2	-5%
	Intersection	4385	4373	-12	0%
Fairfax County Parkway and Lee Chapel Road	NB	1925	1925	0	0%
	SB	2400	2381	-19	-1%
	EB	1110	1137	27	2%
	WB	350	328	-22	-6%
	Intersection	5785	5771	-14	0%
Fairfax County Parkway and South Run Park Ent./Reservation Drive	NB	1960	1996	36	2%
	SB	2920	2909	-11	0%
	EB	40	41	1	3%
	WB	130	143	13	10%
	Intersection	5050	5089	39	1%
Fairfax County Parkway and Huntsman Boulevard	NB	1880	1880	0	0%
	SB	2925	2916	-9	0%
	EB	160	169	9	6%
	WB	370	373	3	1%
	Intersection	5335	5338	3	0%

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway and Huntsman Court	NB	1920	1932	12	1%
	SB	3015	3023	8	0%
	WB	10	12	2	20%
	Intersection	4945	4967	22	0%
Fairfax County Parkway and Modisto Lane	NB	1930	1929	-1	0%
	SB	3020	3030	10	0%
	EB	50	50	0	0%
	WB	20	26	6	30%
	Intersection	5020	5035	15	0%
Fairfax County Parkway and Cervantes Lane	NB	1890	1905	15	1%
	SB	3035	3047	12	0%
	WB	30	38	8	27%
	Intersection	4955	4990	35	1%
Fairfax County Parkway SB Ramps and Hooes Road	SB	310	346	36	12%
	EB	1330	1311	-19	-1%
	WB	190	188	-2	-1%
	Intersection	1830	1845	15	1%
Fairfax County Parkway NB Ramps and Hooes Road	NB	400	406	6	2%
	EB	420	408	-12	-3%
	WB	100	98	-2	-2%
	Intersection	920	912	-8	-1%
Fairfax County Parkway SB Ramps and Pohick Road	SB	1125	1111	-14	-1%
	EB	410	419	9	2%
	WB	40	32	-8	-20%
	Intersection	1575	1562	-13	-1%
Fairfax County Parkway NB Ramps and Pohick Road	NB	180	172	-8	-4%
	EB	270	268	-2	-1%
	Intersection	450	440	-10	-2%
Fairfax County Parkway and Hooes Road	NB	1385	1391	6	0%
	SB	3830	3746	-84	-2%
	WB	30	50	20	67%
	Intersection	5245	5187	-58	-1%
Fairfax County Parkway SB Ramps and Shady Palm Drive	SB	150	120	-30	-20%
	EB	70	69	-1	-1%
	WB	570	581	11	2%
	Intersection	790	770	-20	-3%
Fairfax County Parkway NB Ramps and Shady Palm Drive/Sydensticker	NB	280	266	-14	-5%
	EB	110	105	-5	-5%
	WB	590	618	28	5%
	Intersection	980	989	9	1%
Fairfax County Parkway SB Ramps and Gambrill Road	SB	655	631	-24	-4%
	EB	675	700	25	4%
	WB	120	116	-4	-3%
	Intersection	1450	1447	-3	0%
Fairfax County Parkway NB Ramps and Gambrill Road/Old Lantern Way	NB	180	176	-4	-2%
	EB	170	162	-8	-5%
	WB	70	73	3	4%
	Intersection	420	411	-9	-2%
Fairfax County Parkway and Walnut Knoll Drive/Whittlers Creek	NB	1445	1443	-2	0%
	SB	4750	4682	-68	-1%
	EB	70	70	0	0%
	WB	30	31	1	3%
	Intersection	6295	6226	-69	-1%
Fairfax County Parkway and Stream Way	NB	1450	1461	11	1%
	SB	4800	4730	-70	-1%
	WB	0	8	8	-
	Intersection	6250	6199	-51	-1%
Franconia-Springfield Parkway EB Ramp/Barkers Court and Rolling Road	NB	270	279	9	3%
	SB	250	226	-24	-10%
	EB	360	346	-14	-4%
	Intersection	880	851	-29	-3%
Fairfax County Parkway SB Ramps and Barta Road	NB	20	6	-14	-70%
	SB	780	764	-16	-2%
	EB	530	517	-13	-2%
	WB	110	76	-34	-31%
	Intersection	1440	1363	-77	-5%

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway SB Ramp and Rolling Road/Barta Road	NB	0	0	0	0%
	SB	120	120	0	0%
	EB	880	856	-24	-3%
	WB	500	466	-34	-7%
	Intersection	1500	1442	-58	-4%
Fairfax County Parkway NB Ramps and Barta Road	NB	290	261	-29	-10%
	EB	500	489	-11	-2%
	WB	60	61	1	2%
	Intersection	850	811	-39	-5%
Fairfax County Parkway and Terminal Road	NB	1510	1495	-15	-1%
	SB	2860	2798	-62	-2%
	EB	230	229	-1	0%
	WB	130	126	-4	-3%
	Intersection	4730	4648	-82	-2%
Fairfax County Parkway and Backlick Road	NB	1570	1542	-28	-2%
	SB	2565	2518	-47	-2%
	WB	100	99	-1	-1%
	Intersection	4235	4159	-76	-2%
Fairfax County Parkway SB Ramps and Telegraph Road	SB	320	311	-9	-3%
	EB	1600	1601	1	0%
	WB	385	398	13	3%
	Intersection	2305	2310	5	0%
Fairfax County Parkway NB Ramps and Telegraph Road	NB	160	162	2	1%
	EB	1460	1456	-4	0%
	WB	560	554	-6	-1%
	Intersection	2180	2172	-8	0%
Fairfax County Parkway and Ehlers Road	NB	1075	1068	-7	-1%
	SB	2565	2514	-51	-2%
	EB	0	0	0	0%
	Intersection	3640	3582	-58	-2%
Fairfax County Parkway and Farrar Drive/John J. Kingman Road	NB	1510	1516	6	0%
	SB	2560	2513	-47	-2%
	EB	40	62	22	55%
	WB	170	175	5	3%
	Intersection	4280	4266	-14	0%
Fairfax County Parkway and Backlick Road (South)	NB	1435	1452	17	1%
	SB	1330	1327	-3	0%
	WB	70	70	0	0%
	Intersection	2835	2849	14	0%
Franconia-Springfield Parkway and Bonniemill Lane/Spring Village Drive	NB	250	215	-35	-14%
	SB	140	144	4	3%
	EB	3465	3430	-35	-1%
	WB	1050	1052	2	0%
	Intersection	4905	4841	-64	-1%
Bonniemill Lane and Hooes Road	NB	50	50	0	0%
	SB	90	68	-22	-24%
	EB	60	63	3	5%
	WB	130	136	6	5%
	Intersection	330	317	-13	-4%
Franconia-Springfield Parkway EB Ramps and Backlick Road	NB	1120	1127	7	1%
	SB	650	668	18	3%
	EB	1340	1328	-12	-1%
	WB	0	25	25	-
	Intersection	3110	3148	38	1%
Franconia-Springfield Parkway WB Ramps and Backlick Road	NB	2195	2191	-4	0%
	SB	800	792	-8	-1%
	EB	285	296	11	4%
	WB	10	29	19	190%
	Intersection	3290	3308	18	1%
Franconia-Springfield Parkway and I-95 HOV Ramp	NB	160	161	1	1%
	EB	2630	2603	-27	-1%
	WB	1025	1042	17	2%
	Intersection	3815	3806	-9	0%
Franconia-Springfield Parkway EB Ramps and Frontier Drive	NB	370	394	24	6%
	SB	850	859	9	1%
	EB	1250	1240	-10	-1%
	Intersection	2470	2493	23	1%

AM Volume Calibration (Other Intersections)

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Franconia-Springfield Parkway WB Ramps and Frontier Drive	NB	800	799	-1	0%
	SB	955	982	27	3%
	WB	780	765	-15	-2%
	Intersection	2535	2546	11	0%
Franconia-Springfield Parkway and Walker Lane	SB	150	144	-6	-4%
	EB	1830	1821	-9	0%
	WB	1910	1932	22	1%
	Intersection	3890	3897	7	0%
Beulah Street and Alforth Ave	NB	1445	1463	18	1%
	SB	800	798	-2	0%
	EB	20	14	-6	-30%
	Intersection	2265	2275	10	0%
Beulah Street and Lewin Drive/Shopping Center	NB	1385	1389	4	0%
	SB	695	704	9	1%
	EB	0	0	0	0%
	WB	130	127	-3	-2%
	Intersection	2210	2220	10	0%
Beulah Street and Metro Park Drive/Charles Arrington Drive	NB	1440	1435	-5	0%
	SB	800	791	-9	-1%
	EB	20	28	8	40%
	WB	230	229	-1	0%
	Intersection	2490	2483	-7	0%

TRAVEL TIME AND SPEED CALIBRATION

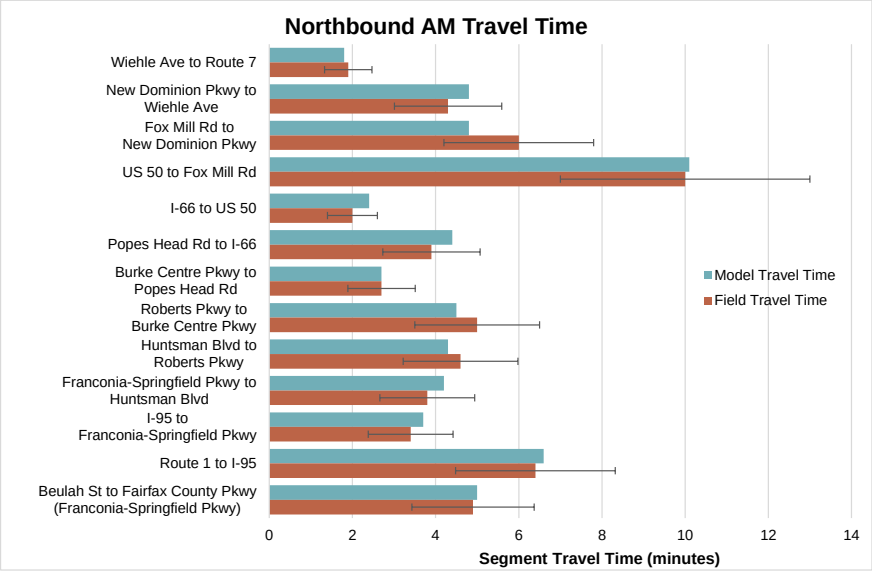
AM Peak Period (7:00-9:00 AM)

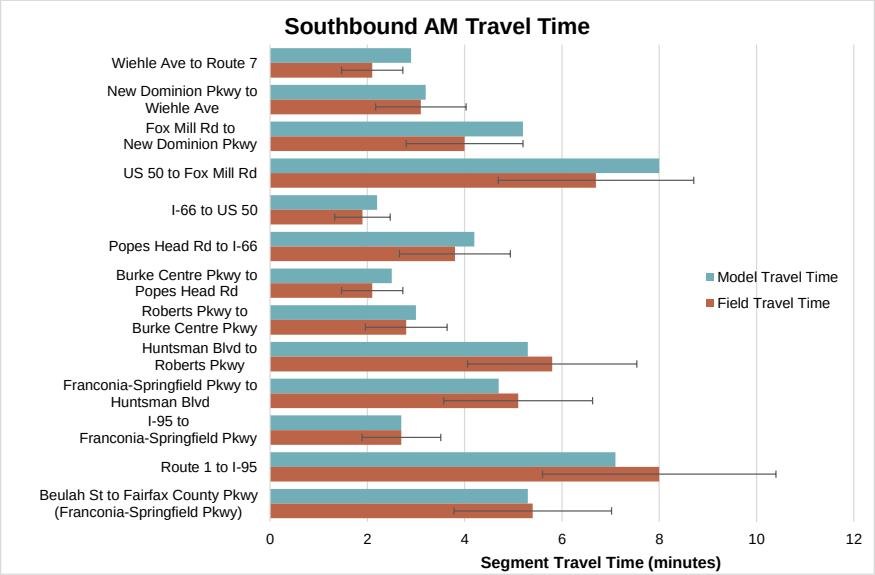
	Travel Time Criteria	Total	Percent	Target	Target Met
Segments (n = 26)	Within ± 30% for average observed travel time of each segment	25	96%	85%	Yes
Corridor	Within ± 15% for average observed travel time of entire corridor	2	100%	100%	Yes

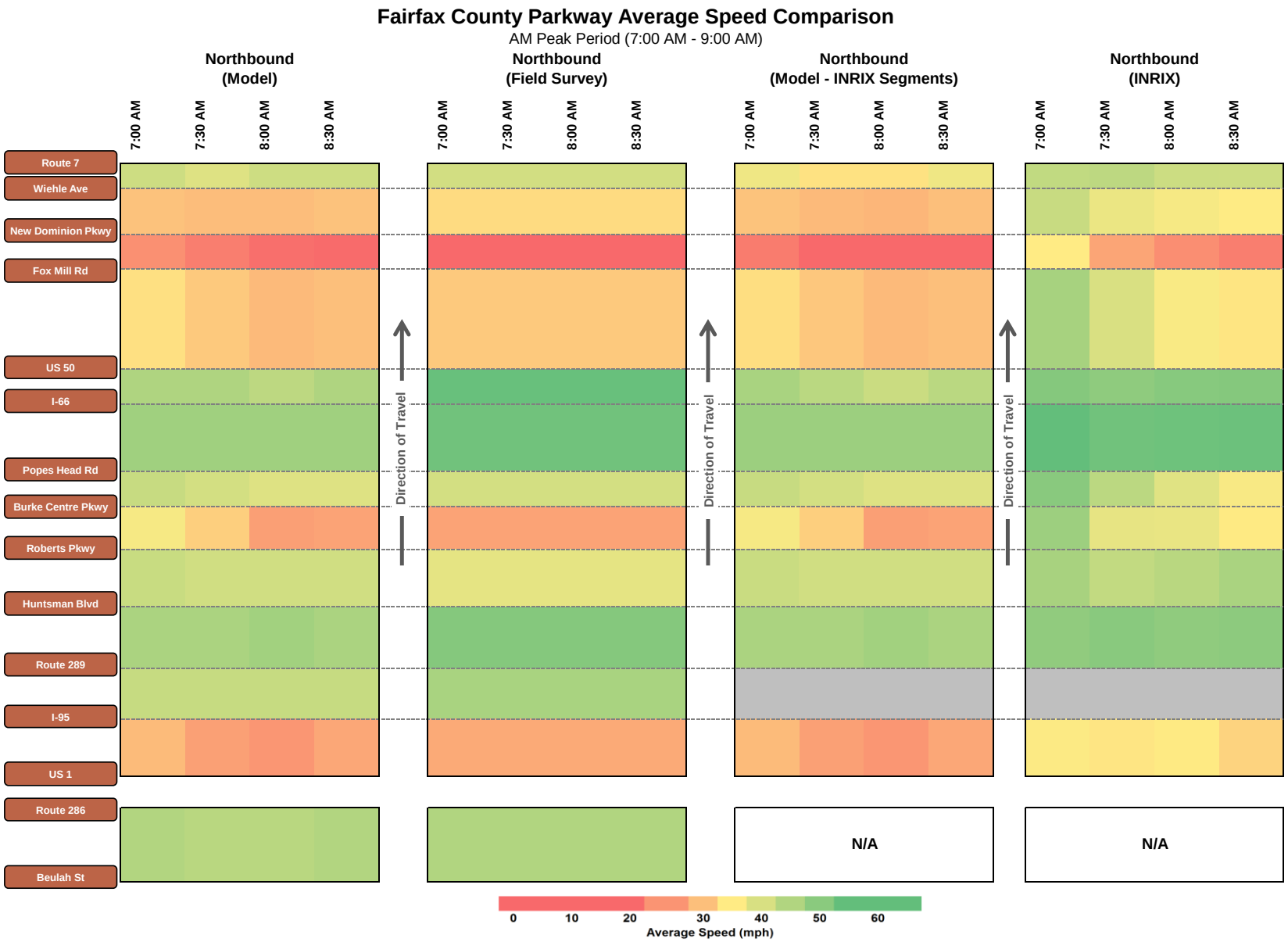
	Speed Criteria	Total	Percent	Target	Target Met
Segments (n = 26)	Within ± 10 mph for average observed travel speed of each segment	26	100%	85%	Yes

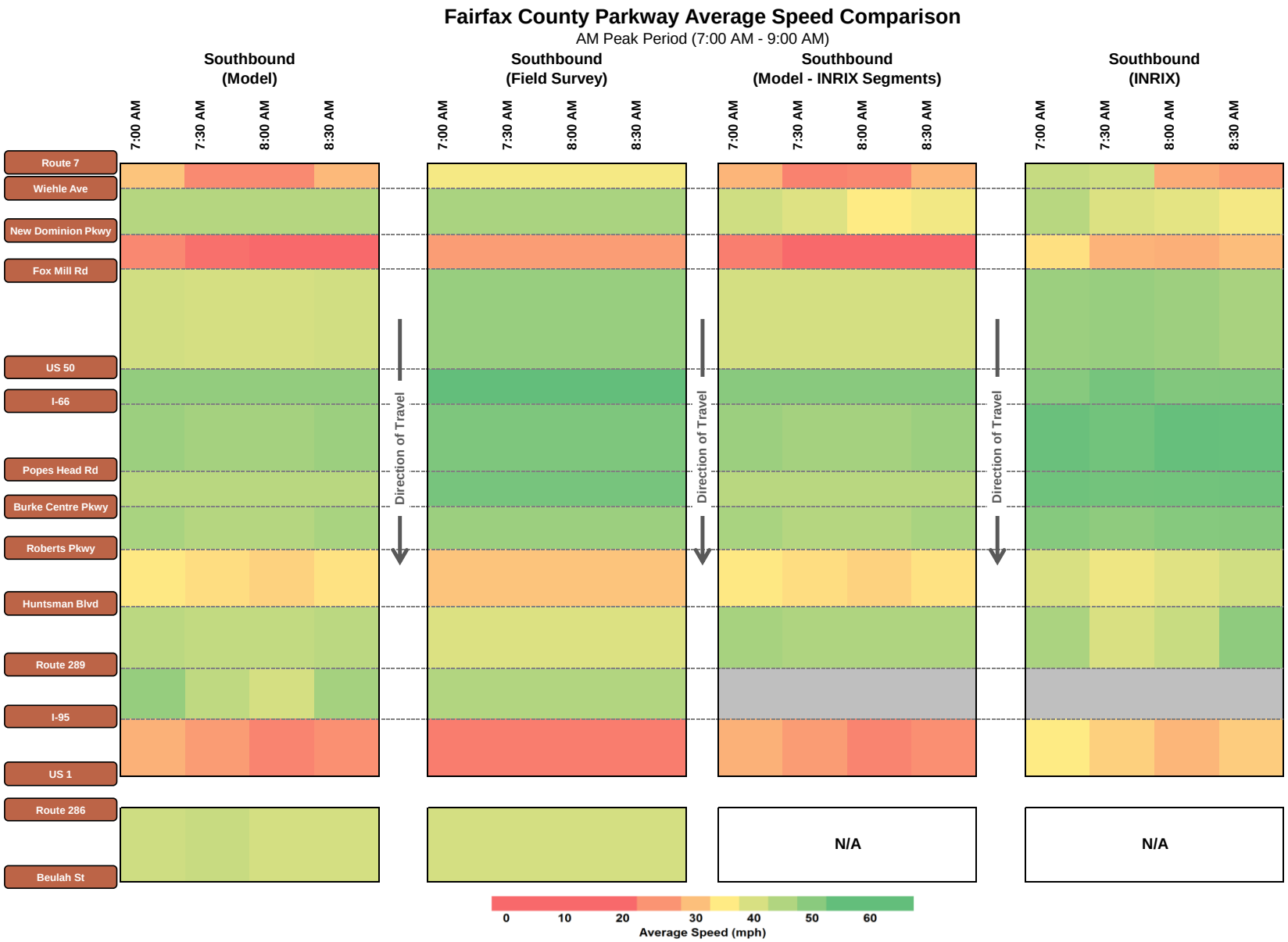
Segment ID	Corridor Segment	Northbound									
		VISSIM ID	VISSIM Segment (min.)	VISSIM Cumulative (min.)	Field Segment (min.)	Field Cumulative (min.)	Field Average Speed (mph)	VISSIM Average Speed (mph)	Travel Time Segment Difference (min.)	Travel Time Segment Difference (%)	Speed Segment Difference (mph)
1	Wiehle Ave to Route 7	101	1.8	54.3	1.9	54.0	40.8	41.4	-0.1	-5%	0.6
2	New Dominion Pkwy to Wiehle Ave	201	4.8	52.5	4.3	52.1	33.2	29.7	0.5	12%	-3.5
3	Fox Mill Rd to New Dominion Pkwy	301	4.8	47.7	6.0	47.8	17.6	22.0	-1.2	-20%	4.4
4	US 50 to Fox Mill Rd	401	10.1	42.9	10.0	41.8	31.1	30.8	0.1	1%	-0.3
5	I-66 to US 50	501	2.4	32.8	2.0	31.8	54.4	45.3	0.4	20%	-9.1
6	Popes Head Rd to I-66	601	4.4	30.4	3.9	29.8	53.3	47.2	0.5	13%	-6.1
7	Burke Centre Pkwy to Popes Head Rd	701	2.7	26.0	2.7	25.9	40.7	40.7	0.0	0%	0.0
8	Roberts Pkwy to Burke Centre Pkwy	801	4.5	23.3	5.0	23.2	26.8	29.7	-0.5	-10%	2.9
9	Huntsman Blvd to Roberts Pkwy	901	4.3	18.8	4.6	18.2	38.4	41.1	-0.3	-7%	2.7
10	Franconia-Springfield Pkwy to Huntsman Blvd	1001	4.2	14.5	3.8	13.6	50.7	45.9	0.4	11%	-4.8
11	I-95 to Franconia-Springfield Pkwy	1101	3.7	10.3	3.4	9.8	46.1	42.4	0.3	9%	-3.7
12	Route 1 to I-95	1201	6.6	6.6	6.4	6.4	27.6	26.8	0.2	3%	-0.8
13	Beulah St to Fairfax County Pkwy (Franconia-Springfield Pkwy)	1301	5.0		4.9		45.0	44.1	0.1	2%	-0.9
Total	Entire Corridor (Fairfax County Parkway)			54.3		54.0	35.2	34.9	0.3	1%	-0.3

Segment ID	Corridor Segment	Southbound									
		VISSIM ID	VISSIM Segment (min.)	VISSIM Cumulative (min.)	Field Segment (min.)	Field Cumulative (min.)	Field Average Speed (mph)	VISSIM Average Speed (mph)	Travel Time Segment Difference (min.)	Travel Time Segment Difference (%)	Speed Segment Difference (mph)
1	Route 7 to Wiehle Ave	102	2.9	2.9	2.1	2.1	36.3	26.3	0.8	38%	-10.0
2	Wiehle Ave to New Dominion Pkwy	202	3.2	6.1	3.1	5.2	46.0	44.6	0.1	3%	-1.4
3	New Dominion Pkwy to Fox Mill Rd	302	5.2	11.3	4.0	9.2	26.0	20.0	1.2	30%	-6.0
4	Fox Mill Rd to US 50	402	8.0	19.3	6.7	15.9	48.3	40.5	1.3	19%	-7.8
5	US 50 to I-66	502	2.2	21.5	1.9	17.8	56.7	48.9	0.3	16%	-7.8
6	I-66 to Popes Head Rd	602	4.2	25.7	3.8	21.6	51.6	46.7	0.4	11%	-4.9
7	Popes Head Rd to Burke Centre Pkwy	702	2.5	28.2	2.1	23.7	52.5	44.1	0.4	19%	-8.4
8	Burke Centre Pkwy to Roberts Pkwy	802	3.0	31.2	2.8	26.5	47.7	44.6	0.2	7%	-3.1
9	Roberts Pkwy to Huntsman Blvd	902	5.3	36.5	5.8	32.3	30.5	33.4	-0.5	-9%	2.9
10	Huntsman Blvd to Franconia-Springfield Pkwy	1002	4.7	41.2	5.1	37.4	39.5	42.8	-0.4	-8%	3.3
11	Franconia-Springfield Pkwy to I-95	1102	2.7	43.9	2.7	40.1	44.9	44.9	0.0	0%	0.0
12	I-95 to Route 1	1202	7.1	51.0	8.0	48.1	22.4	25.2	-0.9	-11%	2.8
13	Fairfax County Pkwy to Beulah St (Franconia-Springfield Pkwy)	1302	5.3		5.4		40.6	41.4	-0.1	-2%	0.8
Total	Entire Corridor (Fairfax County Parkway)			51.0		48.1	38.9	36.7	2.9	6%	-2.2


Northbound AM Travel Time
Wiehle Ave to Route 7
New Dominion Pkwy to Wiehle Ave
Fox Mill Rd to New Dominion Pkwy
US 50 to Fox Mill Rd
I-66 to US 50
Popes Head Rd to I-66
Burke Centre Pkwy to Popes Head Rd
Roberts Pkwy to Burke Centre Pkwy
Huntsman Blvd to Roberts Pkwy
Franconia-Springfield Pkwy to Huntsman Blvd
I-95 to Franconia-Springfield Pkwy
Route 1 to I-95
Beulah St to Fairfax County Pkwy (Franconia-Springfield Pkwy)
Model Travel Time
Field Travel Time
0
2
4
6
8
10
12
14
Segment Travel Time (minutes)


Southbound AM Travel Time
Wiehle Ave to Route 7
New Dominion Pkwy to Wiehle Ave
Fox Mill Rd to New Dominion Pkwy
US 50 to Fox Mill Rd
I-66 to US 50
Popes Head Rd to I-66
Burke Centre Pkwy to Popes Head Rd
Roberts Pkwy to Burke Centre Pkwy
Huntsman Blvd to Roberts Pkwy
Franconia-Springfield Pkwy to Huntsman Blvd
I-95 to Franconia-Springfield Pkwy
Route 1 to I-95
Beulah St to Fairfax County Pkwy (Franconia-Springfield Pkwy)
Model Travel Time
Field Travel Time
0
2
4
6
8
10
12
Segment Travel Time (minutes)


Fairfax County Parkway Average Speed Comparison
AM Peak Period (7:00 AM - 9:00 AM)
Northbound (Model)
Northbound (Field Survey)
Northbound (Model - INRIX Segments)
Northbound (INRIX)
7:00 AM
7:30 AM
8:00 AM
8:30 AM
Route 7
Wiehle Ave
New Dominion Pkwy
Fox Mill Rd
US 50
I-66
Popes Head Rd
Burke Centre Pkwy
Roberts Pkwy
Huntsman Blvd
Route 289
I-95
US 1
Route 286
Beulah St
Direction of Travel
N/A
0
10
20
30
40
50
60
Average Speed (mph)


Fairfax County Parkway Average Speed Comparison
AM Peak Period (7:00 AM - 9:00 AM)
Southbound (Model)
Southbound (Field Survey)
Southbound (Model - INRIX Segments)
Southbound (INRIX)
7:00 AM
7:30 AM
8:00 AM
8:30 AM
Route 7
Wiehle Ave
New Dominion Pkwy
Fox Mill Rd
US 50
I-66
Popes Head Rd
Burke Centre Pkwy
Roberts Pkwy
Huntsman Blvd
Route 289
I-95
US 1
Route 286
Beulah St
Direction of Travel
N/A
0
10
20
30
40
50
60
Average Speed (mph)

Queue Length Calibration (Critical Intersections)

AM Peak Period (7:00-9:00 AM)

	Queue Criteria	Total	Percent	Target	Target Met
Approaches (n = 55)	Within ± 20%* for observed maximum queue lengths OR representing queuing impact	49	89%	85%	Yes

*If an absolute maximum queue length was not recorded in the field due to limited sight distance, a check on whether the VISSIM queue length exceeds the maximum observable queue is used for the calibration criteria.

A check (Yes/Mostly/No) on whether observed queues are adequately represented in VISSIM is provided.

Intersection	Approach	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Route 7 Westbound Ramps	**NB**	275	267	54	-8	-3%	Y	
	SB	400	416	44	16	4%	Y	
	WB	175	158	23	-17	-10%	Y	
Fairfax County Parkway and Route 7 Eastbound Ramps	**NB**	225	240	13	15	7%	Y	
	SB	>300	425	63	*	*	Y	
	EB	75	99	11	24	32%	Y	Acceptable
Fairfax County Parkway and Spring Street Ramp	**NB**	>350	408	105	*	*	Y	
	SB	>500	1059	161	*	*	Y	
	EB	150	123	23	-27	-18%	Y	Acceptable
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	**NB**	>250	487	61	*	*	Y	
	SB	>450	1901.36	377.74	*	*	Y	
	WB	250	454	64	204	82%	Y	WB off-ramp queues are easily contained within the storage of the ramp.

AM Queue Length Calibration (Critical Intersections)

Intersection	Approach	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	NB	>500	900	236	*	*	Y	
	SB	400	1647	355	1247	312%	M	SBL queues exceed storage capacity (250'); VISSIM queues also exceed the storage capacity during the peak hour, consistent with field observations.
	EB	350	1292	267	942	269%	M	VISSIM queues are consistent with project team field experience at this location
Fairfax County Parkway and Sunrise Valley Drive	NB	>600	2578	735	*	*	Y	VISSIM queues are consistent with project team field experience at this location
	SB	>475	2443	850	*	*	Y	
	EB	>525	770	199	*	*	Y	
	WB	>150	390	114	*	*	Y	
Fairfax County Parkway and US 50 Westbound Ramp	NB	175	330	10	155	89%	Y	Acceptable
	SB	>325	470	23	*	*	Y	
	WB	100	81	14	-19	-19%	Y	Acceptable
Fairfax County Parkway and US 50 Eastbound Ramp	NB	150	411	22	261	174%	Y	NBT queue for a signal with the US 50 EB ramp, no left turns at this signal and queue does not block upstream right-turn for US 50 EB on-ramp
	SB	300	308	6	8	3%	Y	
	EB	125	150	18	25	20%	Y	
Fairfax County Parkway SB Ramp and US 29 SB	SB	300	242	36	-58	-19%	Y	Acceptable; queues are not creating gridlock along the signalized portion of this 3-level interchange.
	WB	200	69	2	-131	-66%	M	Acceptable; queues are not creating gridlock along the signalized portion of this 3-level interchange.
Fairfax County Parkway SB Ramp and US 29 NB	SB	200	191	28	-9	-5%	Y	
	EB	375	403	80	28	7%	Y	

AM Queue Length Calibration (Critical Intersections)

Intersection	Approach	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway NB Ramp and US 29 SB	NB	200	233	15	33	17%	Y	
	WB	200	145	25	-55	-28%	Y	Acceptable; queues are not creating gridlock along the signalized portion of this 3-level interchange.
Fairfax County Parkway NB Ramp and US 29 NB	NB	125	131	11	6	5%	Y	
	EB	150	175	6	25	17%	Y	
West Ox Road and US 29 Southbound	NB	n/a	0	0	*	*		
	SB	n/a	99	4	*	*		
	WB	n/a	174	36	*	*		
West Ox Road/Fairfax County Parkway NB Off-Ramp and US 29 NB	NB	275	371	50	96	35%	Y	
	SB	100	69	3	-31	-31%	Y	Acceptable
	EB	175	145	17	-30	-17%	Y	Acceptable
Fairfax County Parkway and Popes Head Road	NB	>400	3613	603	*	*	Y	VISSIM queues are consistent with project team field experience at this location
	SB	>525	1369	76	*	*	Y	
	EB	175	174	33	-1	-1%	Y	
	WB	>300	883	293	*	*	Y	VISSIM queues are consistent with project team field experience at this location
Fairfax County Parkway and Franconia-Springfield Parkway Westbound Ramps	NB	275	227	15	-48	-17%	Y	Acceptable
	SB	225	212	13	-13	-6%	Y	
	EB	75	89	5	14	19%	Y	
	WB	100	95	13	-5	-5%	Y	

AM Queue Length Calibration (Critical Intersections)

Intersection	Approach	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Franconia-Springfield Parkway Eastbound	NB	375	251	23	-124	-33%	M	Acceptable
	SB	250	199	44	-51	-20%	Y	
	WB	225	209	38	-16	-7%	Y	
Fairfax County Parkway and I-95 Northbound Ramps/Loisdale Road	NB	2725	1358	203	-1367	-50%	M	NB queues are observed back to upstream signal with terminal road, consistent with field experience
	SB	3000	2959	850	-41	-1%	Y	SB queues for this signal spill back onto I-95 SB to FCP SB ramp and occasionally reach the I-95 mainline, consistent with field observations.
	EB	n/a	795	145	*	*		
	WB	n/a	456	117	*	*		
Fairfax County Parkway and US 1	SB	1050	1289	468	239	23%	Y	
	EB	3750	1862	288	-1888	-50%	M	Congestion and queueing observed in the field along US 1 NB/EB; difficult to replicate rolling queues at this signal without significantly increasing EB inputs on US 1 given that upstream and downstream intersections were not modeled, which would affect platooning at this intersection; too much congestion will affect the EBL throughput onto FCP NB, which is undesirable. This intersection and US 1 are currently undergoing major expansion.
	WB	n/a	369	65	*	*		
Franconia-Springfield Parkway and Beulah Street	NB	475	406	154	-69	-15%	Y	
	SB	250	258	69	8	3%	Y	
	EB	575	615	151	40	7%	Y	
	WB	550	522	129	-28	-5%	Y	

Queue Length Calibration (Critical Impacts)

AM Peak Period (7:00-9:00 AM)

Additional evaluation of queue lengths was completed by focusing on field observed queues that exceed turn bay storage, have the potential to spillover to an adjacent intersection or onto the mainline from a ramp, or are excessively long on the side street. A check (Yes/Mostly/No) on whether these observed queues are adequately represented in VISSIM is provided.

*If an absolute maximum queue length was not recorded in the field due to limited sight distance, a check on whether the VISSIM queue length exceeds the maximum observable queue is used for the calibration criteria.

Intersection	Approach	Movement	Storage (feet)	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Observed Queues Exceeding Turn Bay Storage										
Fairfax County Parkway and Wiehle Avenue	SB	LT	390	1975	2353	668	378	19%	Y	SBT queueing in model is reflective of field conditions
	SB	RT	430	1975					Y	SBR volume is low and the right turn bay is blocked by the SBT queue
	EB	RT	375	625	867	232	242	39%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Baron Cameron Ave	EB	LT	235	325	165	23	-160	-49%	M	Queues in VISSIM not spilling out of turn bay - arguably not a critical movement in AM (and at a recently-constructed interchange)
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	WB	LT	160	250	454	58	204	82%	Y	Queues in VISSIM are within storage on the overall ramp and do not spill back onto the Dulles Toll Road mainline.
		RT	160	200	448	64	248	124%	Y	Queues in VISSIM are within storage on the overall ramp and do not spill back onto the Dulles Toll Road mainline.
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	EB	LT	160	1200	1292	267	92	8%	Y	Queues in VISSIM are within storage on the overall ramp and do not spill back onto the Dulles Toll Road mainline. Queues are consistent with Google Maps typical AM traffic. Previous queue data (350 ft) is likely under-representative of field conditions.
		RT	220	1200	1292	267	92	8%	Y	
	SB	LT	325	400	470	355	70	18%	Y	SBL queues exceed storage capacity (300'); VISSIM queues also exceed the storage capacity during the peak hour, consistent with field observations.

AM Queue Length Calibration (Critical Impacts)

Intersection	Approach	Movement	Storage (feet)	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Sunrise Valley Drive	SB	LT	275	1525	2443	850	918.13	60%	Y	Observed max queue exceeds storage, as seen in VISSIM
	EB	LT	240	800	712	140	-88	-11%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Fox Mill Road	NB	LT	375	3700	2110	264	-1590	-43%	N	Observed max queue exceeds storage, as seen in VISSIM
	WB	LT	185	275	338	46	63	23%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Franklin Farm Road	EB	LT	230	400	573	103	173	43%	Y	Observed max queue exceeds storage, as seen in VISSIM
	WB	RT	350	425	371	99	-54	-13%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Springhaven Drive/Tuckaway Drive	EB	LT	190	200	181	28	-19	-10%	Y	
Fairfax County Parkway and Rugby Road	NB	RT	325	475	1026	51	551	116%	Y	Observed max queue exceeds storage, as seen in VISSIM; Google Traffic shows typical congestion extending about 1500' upstream
	EB	RT	135	175	567	75	392	224%	Y	Observed max queue exceeds storage, as seen in VISSIM
	WB	LT	185	275	271	75	-4	-1%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway SB Ramps/Robert Carter Road and Ox Road	NB	LT	450	500	550	170	50	10%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Lee Chapel Road	EB	RT	420	1450	1256	106	-194	-13%	Y	Observed max queue exceeds storage, as seen in VISSIM, and matches Google Traffic typical conditions

AM Queue Length Calibration (Critical Impacts)

Intersection	Approach	Movement	Storage (feet)	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and South Run Park Ent./Reservation Drive	EB	RT	50	125	67	1	-58	-46%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Huntsman Boulevard	EB	LT	230	300	248	55	-52	-17%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway SB Ramps and Hooes Road	EB	RT	245	475	604	176	129	27%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway NB Ramps and Hooes Road	EB	LT	95	100	69	4	-31	-31%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Walnut Knoll Drive/Whittlers Creek	EB	LT	65	125	65	6	-60	-48%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway SB Ramps and Barta Road	SB	RT	200	275	242	30	-33	-12%	Y	Observed max queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Farrar Drive/John J. Kingman Road	NB	RT	390	1500	1741	271	241	16%	Y	Observed max queue exceeds storage, as seen in VISSIM
	SB	LT	470	1525	2399	391	874	57%	Y	Observed max queue exceeds storage, as seen in VISSIM
Franconia-Springfield Parkway & Beulah Street	NB	LT	450	475	406	154	-69	-15%	Y	

AM Queue Length Calibration (Critical Impacts)

Intersection	Approach	Movement	Storage (feet)	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Queues With Potential for Spillover to Adjacent Signalized Intersection										
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	SB	TH	1825	800	1499	329	699	87%	Y	SBL queues exceed storage capacity (250'); VISSIM queues also exceed the storage capacity during the peak hour, consistent with field observations.
Fairfax County Parkway and Sunrise Valley Drive	NB	TH	3550	3550	2578	735	-972	-27%	M	NB queue is lesser in the model than observed in the field, but still significant.
	SB	TH	1450	1500	1593	330	93	6%	Y	SB queueing at this intersection are consistent with field experience
Fairfax County Parkway and Popes Head Road	NB	TH	9875	4225	3613	603	-612	-14%	M	This rolling queue is observed in the model, as noted by the consistency in travel times between the field observations and the model results.
Fairfax County Parkway and Burke Lake Road	SB	TH	2300	2340	1643	206	-697	-30%	N	Queuing is observed to impact the adjacent intersection; the model shows similar impact to a lesser degree
Queues with Potential for Spillover to Mainline from Ramp										
Fairfax County Parkway and Spring Street/Sunset Hills Road	SB	RT	600	425	1012	230	587	138%	Y	The merge for vehicles getting onto the on-ramp occasionally causes this ramp to spill back onto FCP SB in VISSIM. This is observed in the field.
Franconia-Springfield Parkway EB Ramps and Backlick Road	EB	LT	875	1125	1508	333	383	34%	M	Congestion is observed at the diverge to this ramp in the field and in the VISSIM model.
Significant Side Street Queues										
Fairfax County Parkway and Popes Head Road	WB	RT	325	800	883	293	83	10%	Y	This long WBR queue is present in the AM in the field and in the VISSIM model.
Fairfax County Parkway and Burke Centre Parkway	WB	RT	600	600	632	185	32	5%	Y	This WBR queue extends to Fairview Woods Drive in the field and in the VISSIM model.

Sample Size Determination

Summary

Criteria	# Runs Needed
Travel Time (Northbound) Hour 1	10
Travel Time (Southbound) Hour 1	10
Travel Time (Northbound) Hour 2	10
Travel Time (Southbound) Hour 2	10
Travel Time (Northbound) Peak Period	10
Travel Time (Southbound) Peak Period	10
Segment 1 Volume Hour 1	10
Segment 2 Volume Hour 1	10
Segment 3 Volume Hour 1	10
Segment 4 Volume Hour 1	10
Segment 5 Volume Hour 1	10
Segment 1 Volume Hour 2	10
Segment 2 Volume Hour 2	10
Segment 3 Volume Hour 2	10
Segment 4 Volume Hour 2	10
Segment 5 Volume Hour 2	10
NUMBER OF RUNS NEEDED	**10**

Travel Time

Run Number	Hour 1		Hour 2		Peak Period	
	Travel Time (Northbound)	Travel Time (Southbound)	Travel Time (Northbound)	Travel Time (Southbound)	Travel Time (Northbound)	Travel Time (Southbound)
1	50.7	49.6	52.1	50.7	51.4	50.1
2	51.0	49.6	50.7	53.9	50.8	51.9
3	50.9	49.6	51.4	51.0	51.2	50.3
4	50.5	50.4	50.8	51.5	50.7	51.0
5	51.0	50.4	51.3	54.6	51.2	52.6
6	51.8	49.7	51.8	50.6	51.8	50.2
7	50.3	49.0	50.5	50.0	50.4	49.5
8	51.1	50.0	50.7	50.3	50.9	50.2
9	50.5	50.2	51.0	53.0	50.7	51.6
10	51.2	50.1	50.5	50.7	50.8	50.4

Volume

Run Number	Hour 1					Hour 2				
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
1	3299	4018	6205	2406	3631	3371	4060	6095	2379	3529
2	3331	3974	6021	2401	3592	3324	4068	6151	2437	3523
3	3331	4027	6055	2455	3615	3364	4042	6138	2447	3540
4	3263	4063	6204	2452	3657	3281	4105	6100	2406	3470
5	3305	4059	6058	2362	3753	3381	4095	6161	2422	3587
6	3242	4106	6252	2471	3551	3434	4067	6182	2383	3633
7	3324	4022	6062	2466	3590	3263	3985	6069	2368	3547
8	3350	3985	6093	2444	3699	3340	4150	6206	2506	3533
9	3277	4061	6028	2406	3608	3418	4083	6205	2463	3553
10	3374	3991	6170	2463	3621	3346	4151	6129	2437	3493

Segment	Description	NB Link #	SB Link #
1	FCP between Route 267 and Fox Mill Road	227	230
2	FCP between US 50 and I-66	423	422
3	FCP between Braddock Road and Ox Road	455	457
4	FCP between FSP and I-95	705	728
5	FSP between I-95 and Beulah Street	1035	1036

PM Peak Period Calibration Summary

Calibration Item	Time Period	Basis	Criteria	Subtotal	Total	Percent	Target	Target Met
Volume (Interchanges)	**Representative Hour**	**Segments (n = 190)**	Within ± 20% for <100vph	5	184	97%	85%	Yes
			Within ± 15% for ≥ 100 vph to < 300 vph	12				
			Within ± 10% for ≥ 300 vph to < 4,000 vph	165				
			Within ± 400 for ≥ 4,000 vph	2				
Volume (Critical Intersections)	**Representative Hour**	**Turning Movements (n = 130)**	Within ± 50% for < 100 vph	26	130	100%	100%	Yes
			Within ± 20% for ≥ 100 vph to < 400 vph	49				
			Within ± 10% for ≥ 400 vph to < 4,000 vph	55				
			Within ± 400 for ≥ 4,000 vph	0				
Volume (Other Intersections)	**Representative Hour**	**Approaches (n = 251)**	Within ± 20% for <100vph	27	240	96%	85%	Yes
			Within ± 15% for ≥ 100 vph to < 300 vph	31				
			Within ± 10% for ≥ 300 vph to < 4,000 vph	180				
			Within ± 400 for ≥ 4,000 vph	2				
Travel Time	**Peak Period**	**Segments (n = 26)**	Within ± 30% for average observed travel time of each segment		25	96%	85%	Yes
		Corridor	Within ± 15% for average observed travel time of entire corridor		2	100%	100%	Yes
Speed	**Peak Period**	**Segments (n = 26)**	Within ± 10 mph for average observed travel speed of each segment		23	88%	85%	Yes
Queue Length	**Peak Period**	**Approaches (n = 55)**	Within ± 20% for observed maximum queue lengths OR representing queuing impact observed in the field		47	85%	85%	Yes

Volume Calibration (Interchanges)

PM Representative Hour (5:00-6:00 PM)

	Volume Criteria	Subtotal	Total	Percent	Target	Target Met
Segments (n = 190)	Within ± 20% for <100vph	5	184	97%	85%	Yes
	Within ± 15% for ≥ 100 vph to < 300 vph	12				
	Within ± 10% for ≥ 300 vph to < 4,000 vph	165				
	Within ± 400 for ≥ 4,000 vph	2				

NORTHBOUND

Interchange	Segment	Segment Type	VISSIM Link ID	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Baron Cameron Avenue/Elden Street	Upstream	Diverge	830	2790	2718	-72	-3%
	Off-Ramp	Ramp	362	705	700	-5	-1%
	Between Ramps	Basic Freeway	817	2085	2073	-12	-1%
	On-Ramp	Ramp	40048	430	409	-21	-5%
	Downstream	Merge	819	2515	2474	-41	-2%
US 50	Upstream	Diverge**	773	2500	2427	-73	-3%
	Off-Ramp to EB US 50	Ramp	264	90	89	-1	-1%
	Between Ramps	Diverge	878	2450	2407	-43	-2%
	Off-Ramp to WB US 50	Ramp	765	740	723	-17	-2%
	Between Ramps	Basic Freeway**	768	1710	1654	-56	-3%
	On-Ramp from WB US 50	Ramp	770	605	588	-17	-3%
	Downstream	Merge	219	2140	2112	-28	-1%
Monument Drive/Fair Lakes Parkway	Upstream	Weave	418	2745	2631	-114	-4%
	Off-Ramp	Ramp	228	995	913	-82	-8%
	Between Ramps	Basic Freeway	423	1750	1727	-23	-1%
	On-Ramp	Ramp	575	760	744	-16	-2%
	Downstream	Merge	256	2510	2466	-44	-2%
I-66	Upstream	Weave	196	2640	2599	-41	-2%
	Off-Ramp to EB I-66	Ramp	168	180	198	18	10%
	Between Ramps	Basic Freeway	879	2460	2422	-38	-2%
	On-Ramp from EB I-66	Ramp	888	570	572	2	0%
	Between Ramps	Weave	880	3030	2975	-55	-2%
	Off-Ramp to WB I-66	Ramp	852	610	590	-20	-3%
	Between Ramps	Basic Freeway	849	2430	2366	-64	-3%
	On-Ramp from WB I-66	Ramp	172	320	272	-48	-15%
	Downstream	Weave	418	2750	2631	-119	-4%
US 29	Upstream	Weave	935	3105	3101	-4	0%
	Off-Ramp	Ramp	20046	825	801	-24	-3%
	Between Ramps	Basic Freeway	914	2280	2283	3	0%
	On-Ramp	Ramp	949	365	336	-29	-8%
	Downstream	Weave	916	2645	2592	-53	-2%
Braddock Road	Upstream	Diverge	430	3225	3292	67	2%
	Off-Ramp	Ramp	569	695	737	42	6%
	Between Ramps	Basic Freeway	437	2530	2545	15	1%
	On-Ramp	Ramp	623	575	557	-18	-3%
	Downstream	Weave	419	3105	3119	14	0%
Ox Road	Upstream	Diverge	882	2560	2520	-40	-2%
	Off-Ramp	Ramp	558	310	303	-7	-2%
	Between Ramps	Basic Freeway	885	2250	2210	-40	-2%
	On-Ramp	Ramp	551	535	543	8	1%
	Between Ramps	Merge	851	2785	2751	-34	-1%
	On-Ramp	Ramp	258	20	18	-2	-10%
	Downstream	Merge	552	2805	2703	-102	-4%
Seabrook Lane/Hooes Road/Pohick Road	Upstream	Diverge	606	3400	3412	12	0%
	Off-Ramp	Ramp	610	1070	1091	21	2%
	Between Ramps	Basic Freeway	597	2330	2397	67	3%
	On-Ramp	Ramp	616	505	503	-2	0%
	Downstream	Merge	588	2835	2836	1	0%
Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way	Upstream	Diverge	641	4475	4524	49	1%
	Off-Ramp	Ramp	642	1195	1228	33	3%
	Between Ramps	Basic Freeway	595	3280	3369	89	3%
	On-Ramp	Ramp	624	195	192	-3	-2%
	Downstream	Merge	630	3475	3563	88	3%
Franconia Springfield Parkway/Rolling Road	Upstream (FCP)	Diverge	682	1950	1954	4	0%
	Upstream (FSP*)	Diverge	1037	3750	3885	135	4%
	FSP* Off-Ramp to Rolling Road	Ramp	44	610	591	-19	-3%
	Between Ramps	Basic Freeway	670	3140	3085	-55	-2%
	FCP Ramp to NB FCP	Ramp	698	1450	1422	-28	-2%
	Downstream	Merge	673	4590	4674	84	2%

NORTHBOUND

Interchange	Segment	Segment Type	VISSIM Link ID	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Barta Road	Upstream	Diverge	706	1305	1288	-17	-1%
	Off-Ramp	Ramp	726	300	300	0	0%
	Between Ramps	Basic Freeway	729	1005	982	-23	-2%
	On-Ramp	Ramp	732	430	451	21	5%
	Between Ramps	Merge	705	1435	1435	0	0%
	On-Ramp	Ramp	725	315	317	2	1%
	Downstream	Merge	711	1750	1747	-3	0%
Boudinot Drive	Upstream	Weave	891	1275	1270	-5	0%
	Off-Ramp	Ramp	783	180	210	30	17%
	Between Ramps	Basic Freeway	781	1095	1055	-40	-4%
	On-Ramp	Ramp	784	210	224	14	7%
	Downstream	Merge	779	1305	1288	-17	-1%
I-95	Upstream	Diverge**	18	2630	2444	-186	-7%
	Off-Ramp to NB I-95	Ramp	170	1140	1101	-39	-3%
	Between Ramps	Basic Freeway	794	1490	1464	-26	-2%
	On-Ramp from NB I-95	Ramp	797	330	337	7	2%
	Between Ramps	Weave	708	1820	1837	17	1%
	Off-Ramp to SB I-95	Ramp	792	915	901	-14	-2%
	Between Ramps	Basic Freeway	790	910	843	-67	-7%
	On-Ramp from SB I-95	Ramp	381	360	338	-22	-6%
	Downstream	Weave	891	1270	1270	0	0%
Telegraph Road	Upstream	Diverge	752	1805	1764	-41	-2%
	Off-Ramp	Ramp	756	400	403	3	1%
	Between Ramps	Basic Freeway	759	1405	1400	-5	0%
	On-Ramp	Ramp	33	265	280	15	6%
	Downstream	Merge	743	1670	1682	12	1%
Backlick Road*	Upstream	Diverge	1001	3060	3127	67	2%
	Off-Ramp	Ramp	1013	440	462	22	5%
	Between Ramps	Basic Freeway	1006	2620	2596	-24	-1%
	On-Ramp	Ramp	1055	1330	1343	13	1%
	Downstream	Merge	998	3950	4029	79	2%
Frontier Drive*	Upstream	Diverge	1022	2710	2671	-39	-1%
	Off-Ramp	Ramp	1032	810	820	10	1%
	Between Ramps	Basic Freeway	1024	1900	1946	46	2%
	On-Ramp	Ramp	1031	1100	1092	-8	-1%
	Downstream	Merge	1076	3000	3028	28	1%

*Westbound Franconia-Springfield Parkway
**Not an actual freeway segment because of signal

SOUTHBOUND

Interchange	Segment	Segment Type	VISSIM Link ID	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Baron Cameron Avenue/Elden Street	Upstream	Diverge	40044	950	909	-41	-4%
	Off-Ramp	Ramp	302	200	185	-15	-8%
	Between Ramps	Basic Freeway	818	750	751	1	0%
	On-Ramp	Ramp	826	565	602	37	7%
	Downstream	Merge	828	1315	1379	64	5%
US 50	Upstream	Diverge	218	3240	3116	-124	-4%
	Off-Ramp to WB US 50	Ramp	263	20	17	-3	-15%
	Between Ramps	Diverge	40222	3390	3256	-134	-4%
	Off-Ramp to EB US 50	Ramp	762	400	455	55	14%
	Between Ramps	Basic Freeway**	876	2990	2920	-70	-2%
	On-Ramp from EB US 50	Ramp	777	805	826	21	3%
	Downstream	Weave	257	3795	3712	-83	-2%
Monument Drive/Fair Lakes Parkway	Upstream	Weave	257	3800	3712	-88	-2%
	Off-Ramp	Ramp	572	860	834	-26	-3%
	Between Ramps	Basic Freeway	422	2940	2868	-72	-2%
	On-Ramp	Ramp	358	915	826	-89	-10%
	Downstream	Weave	167	3855	3734	-121	-3%
I-66	Upstream	Weave	167	3855	3734	-121	-3%
	Off-Ramp to WB I-66	Ramp	166	925	856	-69	-7%
	Between Ramps	Basic Freeway	846	2930	2850	-80	-3%
	On-Ramp from WB I-66	Ramp	854	260	252	-8	-3%
	Between Ramps	Weave	772	3190	3080	-110	-3%
	Off-Ramp to EB I-66	Ramp	1249	430	411	-19	-4%
	Between Ramps	Basic Freeway	874	2765	2676	-89	-3%
	On-Ramp from EB I-66	Ramp	165	505	600	95	19%
	Downstream	Merge	950	3270	3257	-13	0%
US 29	Upstream	Diverge	244	3270	3251	-19	-1%
	Off-Ramp	Ramp	919	575	508	-67	-12%
	Between Ramps	Basic Freeway	918	2695	2737	42	2%
	On-Ramp	Ramp	921	1005	993	-12	-1%
	Downstream	Merge	933	3700	3726	26	1%
Braddock Road	Upstream	Diverge	20084	3705	3689	-16	0%
	Off-Ramp	Ramp	432	880	926	46	5%
	Between Ramps	Basic Freeway	431	2825	2737	-88	-3%
	On-Ramp	Ramp	436	315	347	32	10%
	Downstream	Merge	429	3140	3065	-75	-2%
Ox Road	Upstream	Diverge	220	2745	2677	-68	-2%
	Off-Ramp	Ramp	796	1100	1030	-70	-6%
	Between Ramps	Basic Freeway	884	1645	1637	-8	0%
	On-Ramp	Ramp	543	245	264	19	8%
	Downstream	Merge	259	1890	1895	5	0%
Seabrook Lane/Hooes Road/Pohick Road	Upstream	Diverge	587	1745	1737	-8	0%
	Off-Ramp	Ramp	584	610	604	-6	-1%
	Between Ramps	Basic Freeway	596	1135	1161	26	2%
	On-Ramp	Ramp	613	405	397	-8	-2%
	Downstream	Merge	608	1540	1556	16	1%
Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way	Upstream	Diverge	185	1545	1528	-17	-1%
	Off-Ramp	Ramp	632	160	161	1	1%
	Between Ramps	Basic Freeway	158	1385	1405	20	1%
	On-Ramp	Ramp	649	455	465	10	2%
	Downstream	Merge	638	1840	1870	30	2%
Franconia Springfield Parkway/Rolling Road	Upstream (FCP)	Diverge	627	1865	1894	29	2%
	FCP Ramp to SB FCP	Ramp	262	500	524	24	5%
	Downstream (FCP)	Weave	15	1115	1150	35	3%
	Between Ramps (FSP*)	Basic Freeway	672	1365	1369	4	0%
	FSP* Off-Ramp to Rolling Rd	Ramp	700	255	227	-28	-11%
	Between Ramps (FSP*)	Basic Freeway	671	1115	1130	15	1%
	FSP* On-Ramp from Rolling Rd	Ramp	701	320	326	6	2%
	Downstream (FSP*)	Merge	45	1435	1447	12	1%

SOUTHBOUND

Interchange	Segment	Segment Type	VISSIM Link ID	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Barta Road	Upstream	Diverge	11	1130	1128	-2	0%
	Off-Ramp	Ramp	720	615	610	-5	-1%
	Between Ramps	Basic Freeway	710	515	545	30	6%
	On-Ramp	Ramp	733	180	188	8	4%
	Between Ramps	Merge	728	695	739	44	6%
	On-Ramp	Ramp	1078	200	202	2	1%
	Downstream	Weave	707	895	940	45	5%
Boudinot Drive	Upstream	Weave	707	900	940	40	4%
	Off-Ramp	Ramp	782	90	86	-4	-4%
	Between Ramps	Basic Freeway	778	810	855	45	6%
	On-Ramp	Ramp	894	1045	1058	13	1%
	Downstream	Merge	892	1850	1921	71	4%
I-95	Upstream	Diverge	788	1855	1831	-24	-1%
	Off-Ramp to SB I-95	Ramp	171	420	433	13	3%
	Between Ramps	Basic Freeway	791	1435	1381	-54	-4%
	On-Ramp from SB I-95	Ramp	793	770	792	22	3%
	Between Ramps	Weave	709	2200	2261	61	3%
	Off-Ramp to NB I-95	Ramp	798	670	673	3	0%
	Between Ramps	Basic Freeway**	20	1530	1647	117	8%
	On-Ramp from NB I-95	Ramp	678	80	78	-2	-3%
	Downstream	Weave	727	1680	1733	53	3%
Telegraph Road	Upstream	Diverge	742	1685	1737	52	3%
	Off-Ramp	Ramp	738	685	696	11	2%
	Between Ramps	Basic Freeway	758	1000	1027	27	3%
	On-Ramp	Ramp	24	230	234	4	2%
	Downstream	Weave	753	1230	1235	5	0%
Backlick Road*	Upstream	Diverge	993	1595	1543	-52	-3%
	Off-Ramp	Ramp	996	610	613	3	0%
	Between Ramps	Basic Freeway	997	985	979	-6	-1%
	On-Ramp	Ramp	1007	580	576	-4	-1%
	Downstream	Merge	1005	1565	1584	19	1%
Frontier Drive*	Upstream	Diverge	1079	1465	1445	-20	-1%
	Off-Ramp	Ramp	1018	490	489	-1	0%
	Between Ramps	Basic Freeway	1023	975	977	2	0%
	On-Ramp	Ramp	50	1120	1096	-24	-2%
	Downstream	Merge	1021	2095	2108	13	1%

*Eastbound Franconia-Springfield Parkway
**Not an actual freeway segment because of signal

Volume Calibration (Critical Intersections)

PM Representative Hour (5:00-6:00 PM)

	Volume Criteria	Subtotal	Total	Percent	Target	Target Met
Turning Movements (n = 130)	Within ± 50% for < 100 vph	26	130	100%	100%	Yes
	Within ± 20% for ≥ 100 vph to < 400 vph	49				
	Within ± 10% for ≥ 400 vph to < 4,000 vph	55				
	Within ± 400 for ≥ 4,000 vph	0				

Intersection	Approach	Movement	Balanced Count (vph)		VISSIM Throughput (vph)		Difference (vph)		Difference (%)	
Fairfax County Parkway and Route 7 Westbound Ramps	NB	LT	875	2245	853	2186	-22	-59	-3%	-3%
		TH	1370		1333		-37		-3%	
	SB	TH	390	440	387	435	-3	-5	-1%	-1%
		RT	50		48		-2		-4%	
	WB	LT	80	695	78	678	-2	-17	-3%	-2%
		TH	0		0		0		0%	
		RT	615		600		-15		-2%	
	Intersection		3380		3299		-81		-2%	
Fairfax County Parkway and Route 7 Eastbound Ramps	NB	TH	2095	2185	2046	2129	-49	-56	-2%	-3%
		RT	90		83		-7		-8%	
	SB	LT	180	475	172	463	-8	-12	-4%	-3%
		TH	295		291		-4		-1%	
	EB	LT	150	710	149	694	-1	-16	-1%	-2%
		TH	0		0		0		0%	
		RT	560		545		-15		-3%	
	Intersection		3370		3286		-84		-2%	
Fairfax County Parkway and Spring Street Ramp	NB	LT	310	2655	320	2620	10	-35	3%	-1%
		TH	2345		2300		-45		-2%	
	SB	TH	1550	1775	1567	1779	17	4	1%	0%
		RT	225		212		-13		-6%	
	EB	LT	365	820	375	830	10	10	3%	1%
		RT	455		455		0		0%	
	Intersection		5250		5229		-21		0%	
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	NB	LT	335	2645	321	2613	-14	-32	-4%	-1%
		TH	2310		2292		-18		-1%	
	SB	TH	2180	2655	2167	2629	-13	-26	-1%	-1%
		RT	475		462		-13		-3%	
	WB	LT	560	1290	574	1277	14	-13	3%	-1%
		TH	0		0		0		0%	
		RT	730		703		-27		-4%	
	Intersection		6590		6519		-71		-1%	
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	NB	TH	2255	2505	2248	2498	-7	-7	0%	0%
		RT	250		250		0		0%	
	SB	LT	325	2745	318	2776	-7	31	-2%	1%
		TH	2420		2458		38		2%	
	EB	LT	390	540	388	536	-2	-4	-1%	-1%
		TH	0		0		0		0%	
		RT	150		148		-2		-1%	
	Intersection		5790		5810		20		0%	
Fairfax County Parkway and Sunrise Valley Drive	NB	LT	80	1680	75	1677	-5	-3	-6%	0%
		TH	1500		1503		3		0%	
		RT	100		99		-1		-1%	
	SB	LT	220	2565	215	2616	-5	51	-2%	2%
		TH	1885		1931		46		2%	
		RT	460		470		10		2%	
	EB	LT	460	1000	453	996	-7	-4	-2%	0%
		TH	360		355		-5		-1%	
		RT	180		188		8		4%	
	WB	LT	375	1400	395	1359	20	-41	5%	-3%
		TH	475		444		-31		-7%	
		RT	550		520		-30		-5%	
	Intersection		6645		6648		3		0%	
Fairfax County Parkway and US 50 Westbound Ramp	NB	TH	1710	1710	1721	1721	11	11	1%	1%
	SB	TH	3220	3220	3212	3212	-8	-8	0%	0%
	WB	LT	175	605	173	588	-2	-17	-1%	-3%
		RT	430		415		-15		-3%	
	Intersection		5535		5521		-14		0%	

Intersection	Approach	Movement	Balanced Count (vph)		VISSIM Throughput (vph)		Difference (vph)		Difference (%)	
Fairfax County Parkway and US 50 Eastbound Ramp	NB	TH	2425	2425	2399	2399	-26	-26	-1%	-1%
	SB	TH	2990	2990	2925	2925	-65	-65	-2%	-2%
	EB	LT	40	845	37	833	-3	-12	-8%	-1%
		RT	805		796		-9		-1%	
	Intersection		6260		6157		-103		-2%	
Fairfax County Parkway SB Ramp and US 29 SB	SB	TH	245	575	213	510	-32	-65	-13%	-11%
		RT	330		297		-33		-10%	
	WB	LT	885	1570	892	1551	7	-19	1%	-1%
		TH	685		659		-26		-4%	
	Intersection		2145		2061		-84		-4%	
Fairfax County Parkway SB Ramp and US 29 NB	SB	LT	210	1125	213	1105	3	-20	1%	-2%
		TH	915		892		-23		-3%	
	EB	TH	290	380	284	392	-6	12	-2%	3%
		RT	90		108		18		20%	
	Intersection		1505		1497		-8		-1%	
Fairfax County Parkway NB Ramp and US 29 SB	NB	LT	225	325	221	317	-4	-8	-2%	-2%
		TH	100		96		-4		-4%	
	WB	TH	1345	1445	1330	1436	-15	-9	-1%	-1%
		RT	100		106		6		6%	
	Intersection		1770		1753		-17		-1%	
Fairfax County Parkway NB Ramp and US 29 NB	NB	TH	225	225	221	221	-4	-4	-2%	-2%
	EB	LT	100	490	97	497	-3	7	-3%	1%
		TH	390		400		10		3%	
	Intersection		715		718		3		0%	
West Ox Road and US 29 Southbound	NB	TH	660	660	663	663	3	3	0%	0%
	SB	TH	80	1405	79	1374	-1	-31	-1%	-2%
		RT	1175		1161		-14		-1%	
		On-Ramp	150		134		-16		-11%	
	WB	TH	275	355	276	355	1	0	0%	0%
		RT	80		79		-1		-1%	
	Intersection		2420		2392		-28		-1%	
West Ox Road/Fairfax County Parkway NB Off-Ramp and US 29 NB	NB	TH	425	600	421	583	-4	-17	-1%	-3%
		RT	175		162		-13		-7%	
	SB	LT	80	80	79	79	-1	-1	-1%	-1%
	EB	LT	240	390	242	400	2	10	1%	3%
		TH	150		158		8		5%	
	Intersection		1070		1062		-8		-1%	
Fairfax County Parkway and Popes Head Road	NB	LT	60	3160	57	3182	-3	22	-5%	1%
		TH	3080		3104		24		1%	
		RT	20		21		1		5%	
	SB	LT	110	3140	105	3078	-5	-62	-5%	-2%
		TH	2990		2922		-68		-2%	
		RT	40		51		11		28%	
	EB	LT	30	100	34	105	4	5	13%	5%
		TH	40		42		2		5%	
		RT	30		29		-1		-3%	
	WB	LT	10	200	8	198	-2	-2	-20%	-1%
		TH	70		69		-1		-1%	
		RT	120		121		1		1%	
	Intersection		6600		6563		-37		-1%	
Fairfax County Parkway and Franconia-Springfield Parkway Westbound Ramps	NB	LT	0	705	4	718	4	13	-	2%
		TH	705		714		9		1%	
	SB	LT	205	810	212	838	7	28	3%	3%
		TH	585		605		20		3%	
		RT	20		21		1		5%	
	EB	LT	10	30	10	36	0	6	0%	20%
		TH	0		5		5		-	
		RT	20		21		1		5%	
	WB	LT	245	620	222	618	-23	-2	-9%	0%
		TH	20		23		3		15%	
		RT	355		373		18		5%	
	Intersection		2165		2210		45		2%	
Fairfax County Parkway and Franconia-Springfield Parkway Eastbound Ramps/Rolling	NB	TH	1660	1740	1673	1755	13	15	1%	1%
		RT	80		82		2		3%	
	SB	LT	235	845	241	850	6	5	3%	1%
		TH	610		609		-1		0%	
	WB	LT	20	310	21	302	1	-8	5%	-3%
		RT	290		281		-9		-3%	
	Intersection		2895		2907		12		0%	

Intersection	Approach	Movement	Balanced Count (vph)		VISSIM Throughput (vph)		Difference (vph)		Difference (%)	
Fairfax County Parkway and I-95 Northbound Ramps/Loisdale Road	NB	TH	1945	2065	1901	2014	-44	-51	-2%	-2%
		RT	120		113		-7		-6%	
	SB	LT	180	2215	185	2288	5	73	3%	3%
		TH	1365		1417		52		4%	
		RT	670		686		16		2%	
	EB	TH	90	170	87	171	-3	1	-3%	1%
		RT	80		84		4		5%	
	WB	LT	240	920	257	958	17	38	7%	4%
		RT	680		701		21		3%	
	Intersection		5370		5431		61		1%	
Fairfax County Parkway and US 1	SB	LT	935	1510	1007	1562	72	52	8%	3%
		RT	575		555		-20		-3%	
	EB	LT	60	710	51	705	-9	-5	-15%	-1%
		TH	650		654		4		1%	
	WB	TH	1715	2525	1682	2509	-33	-16	-2%	-1%
		RT	810		827		17		2%	
	Intersection		4745		4776		31		1%	
Franconia-Springfield Parkway and Beulah Street	NB	LT	600	1220	615	1243	15	23	3%	2%
		TH	440		444		4		1%	
		RT	180		184		4		2%	
	SB	LT	330	1235	337	1250	7	15	2%	1%
		TH	620		629		9		1%	
		RT	285		284		-1		0%	
	EB	LT	370	2105	381	2124	11	19	3%	1%
		TH	1075		1102		27		3%	
		RT	660		641		-19		-3%	
	WB	LT	180	1530	180	1589	0	59	0%	4%
		TH	1185		1241		56		5%	
		RT	165		168		3		2%	
	Intersection		6090		6206		116		2%	

Volume Calibration (Other Intersections)

PM Representative Hour (5:00-6:00 PM)

	Volume Criteria	Subtotal	Total	Percent	Target	Target Met
Approaches (n = 251)	Within ± 20% for <100vph	27	240	96%	85%	Yes
	Within ± 15% for ≥ 100 vph to < 300 vph	31				
	Within ± 10% for ≥ 300 vph to < 4,000 vph	180				
	Within ± 400 for ≥ 4,000 vph	2				

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway and Cup Leaf Holly Court	**NB**	2000	1929	-71	-4%
	SB	290	288	-2	-1%
	EB	170	165	-5	-3%
	Intersection	2460	2382	-78	-3%
Fairfax County Parkway and Sugarland Road	**NB**	2215	2153	-62	-3%
	SB	860	837	-23	-3%
	EB	40	44	4	10%
	WB	60	62	2	3%
	Intersection	3175	3096	-79	-2%
Fairfax County Parkway and Heather Way	**NB**	2235	2161	-74	-3%
	SB	840	812	-28	-3%
	EB	50	55	5	10%
	Intersection	3125	3028	-97	-3%
Fairfax County Parkway and Wiehle Avenue	**NB**	2305	2187	-118	-5%
	SB	845	828	-17	-2%
	EB	405	411	6	1%
	WB	925	913	-12	-1%
	Intersection	4480	4339	-141	-3%
Fairfax County Parkway and Sugarland Valley Drive	**NB**	2315	2241	-74	-3%
	SB	940	916	-24	-3%
	EB	20	16	-4	-20%
	Intersection	3275	3173	-102	-3%
Fairfax County Parkway and Lake Newport Road	**NB**	2495	2473	-22	-1%
	SB	930	920	-10	-1%
	EB	100	103	3	3%
	WB	190	189	-1	-1%
	Intersection	3715	3685	-30	-1%
Fairfax County Parkway and N Walnut Branch Road	**NB**	2525	2490	-35	-1%
	SB	990	976	-14	-1%
	EB	40	47	7	18%
	WB	110	112	2	2%
	Intersection	3665	3625	-40	-1%
Fairfax County Parkway and N Walnut Branch Road (South)	**NB**	2510	2494	-16	-1%
	SB	975	957	-18	-2%
	EB	40	43	3	8%
	WB	0	0	0	0%
	Intersection	3525	3494	-31	-1%
Fairfax County Parkway and Baron Cameron Ave	**NB**	710	713	3	0%
	SB	200	188	-12	-6%
	EB	1430	1393	-37	-3%
	WB	1465	1537	72	5%
	Intersection	3805	3831	26	1%
Fairfax County Parkway and New Dominion Parkway	**NB**	2715	2668	-47	-2%
	SB	1310	1358	48	4%
	WB	1165	1147	-18	-2%
	Intersection	5190	5173	-17	0%
Fairfax County Parkway and Spring Street/Sunset Hills Road	**SB**	525	533	8	2%
	EB	1635	1622	-13	-1%
	WB	1640	1616	-24	-1%
	Intersection	3800	3771	-29	-1%
Fairfax County Parkway and Fox Mill Road	**NB**	1705	1669	-36	-2%
	SB	2445	2509	64	3%
	EB	925	947	22	2%
	WB	600	582	-18	-3%
	Intersection	5675	5707	32	1%

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway and West Ox Road	NB	1790	1731	-59	-3%
	SB	2480	2536	56	2%
	EB	1030	1017	-13	-1%
	WB	340	345	5	1%
	Intersection	5640	5629	-11	0%
Fairfax County Parkway and Franklin Farm Road	NB	2020	1978	-42	-2%
	SB	2580	2671	91	4%
	EB	1010	890	-120	-12%
	WB	435	440	5	1%
	Intersection	6045	5979	-66	-1%
Fairfax County Parkway and Springhaven Drive/Tuckaway Drive	NB	2000	2008	8	0%
	SB	2985	2997	12	0%
	EB	330	317	-13	-4%
	WB	150	144	-6	-4%
	Intersection	5465	5466	1	0%
Fairfax County Parkway and Stringfellow Road	NB	1935	1946	11	1%
	SB	3170	3197	27	1%
	EB	245	253	8	3%
	WB	0	20	20	-
	Intersection	5350	5416	66	1%
Fairfax County Parkway and Old Plains Road	NB	1935	1911	-24	-1%
	SB	2935	2888	-47	-2%
	EB	30	28	-2	-7%
	Intersection	4900	4827	-73	-1%
Fairfax County Parkway and Rugby Road	NB	2145	2094	-51	-2%
	SB	2925	2822	-103	-4%
	EB	210	213	3	1%
	WB	925	948	23	2%
	Intersection	6205	6077	-128	-2%
Fairfax County Parkway SB Ramps and Monument Drive	SB	860	848	-12	-1%
	WB	305	301	-4	-1%
	Intersection	1165	1149	-16	-1%
Fairfax County Parkway NB Ramps and Monument Drive	NB	790	762	-28	-4%
	EB	200	193	-7	-4%
	WB	515	507	-8	-2%
	Intersection	1505	1462	-43	-3%
Fairfax County Parkway SB Ramps and Fair Lakes Parkway	SB	970	949	-21	-2%
	EB	1255	1184	-71	-6%
	WB	1345	1255	-90	-7%
	Intersection	3570	3388	-182	-5%
Fairfax County Parkway NB Ramps and Fair Lakes Parkway	NB	985	927	-58	-6%
	EB	810	768	-42	-5%
	WB	1180	1138	-42	-4%
	Intersection	2975	2833	-142	-5%
Fairfax County Parkway NB Ramps/Community Center and Braddock Road	NB	50	48	-2	-4%
	SB	695	741	46	7%
	EB	1165	1243	78	7%
	WB	1960	1962	2	0%
	Intersection	3870	3994	124	3%
Fairfax County Parkway SB Ramps and Braddock Road	SB	875	975	100	11%
	EB	845	856	11	1%
	WB	2135	2193	58	3%
	Intersection	3855	4024	169	4%
Fairfax County Parkway and Colchester Meadow Lane	NB	3140	3209	69	2%
	SB	3030	2970	-60	-2%
	EB	0	0	0	0%
	WB	0	11	11	-
	Intersection	6170	6190	20	0%
Fairfax County Parkway and Ladues End Lane/Nomes Court	NB	3140	3199	59	2%
	SB	3010	3004	-6	0%
	EB	0	8	8	-
	WB	0	11	11	-
	Intersection	6150	6222	72	1%
Fairfax County Parkway and Burke Centre Parkway	NB	2815	2779	-36	-1%
	SB	3025	2978	-47	-2%
	WB	385	430	45	12%
	Intersection	6225	6187	-38	-1%

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway SB Ramps/Robert Carter Road and Ox Road	NB	1065	1004	-61	-6%
	SB	90	105	15	17%
	EB	1125	1140	15	1%
	WB	1545	1534	-11	-1%
	Intersection	3825	3783	-42	-1%
Fairfax County Parkway NB Ramps and Ox Road	NB	310	303	-7	-2%
	EB	605	580	-25	-4%
	WB	1445	1417	-28	-2%
	Intersection	2360	2300	-60	-3%
Fairfax County Parkway and Fred Oaks Road	NB	2590	2553	-37	-1%
	SB	1895	1908	13	1%
	EB	30	34	4	13%
	WB	60	64	4	7%
	Intersection	4575	4559	-16	0%
Fairfax County Parkway and New Road	NB	2605	2586	-19	-1%
	SB	1870	1897	27	1%
	EB	40	40	0	0%
	Intersection	4515	4523	8	0%
Fairfax County Parkway and Wendy Ann Court	NB	2595	2582	-13	-1%
	SB	1875	1909	34	2%
	EB	0	5	5	-
	Intersection	4470	4496	26	1%
Fairfax County Parkway and Karmich St/Roberts Parkway	NB	2680	2664	-16	-1%
	SB	1885	1907	22	1%
	EB	0	16	16	-
	WB	500	493	-7	-1%
	Intersection	5065	5080	15	0%
Fairfax County Parkway and Knolls Pond Lane	NB	2700	2679	-21	-1%
	SB	2075	2085	10	0%
	WB	0	4	4	-
	Intersection	4775	4768	-7	0%
Fairfax County Parkway and Burke Lake Road	NB	2570	2576	6	0%
	SB	2065	2094	29	1%
	EB	210	205	-5	-2%
	WB	630	622	-8	-1%
	Intersection	5475	5497	22	0%
Fairfax County Parkway and Burke Lake Park Ent./Old Keene Mill Road	NB	2295	2306	11	0%
	SB	1940	1947	7	0%
	EB	0	13	13	-
	WB	385	383	-2	-1%
	Intersection	4620	4649	29	1%
Fairfax County Parkway and Portside Drive/Waterline Drive	NB	2295	2298	3	0%
	SB	1735	1728	-7	0%
	EB	0	10	10	-
	WB	50	48	-2	-4%
	Intersection	4080	4084	4	0%
Fairfax County Parkway and Rolling View Drive/Pilothouse Road	NB	2375	2365	-10	0%
	SB	1715	1704	-11	-1%
	EB	50	51	1	2%
	WB	40	36	-4	-10%
	Intersection	4180	4156	-24	-1%
Fairfax County Parkway and Lee Chapel Road	NB	2735	2726	-9	0%
	SB	1690	1692	2	0%
	EB	465	475	10	2%
	WB	590	594	4	1%
	Intersection	5480	5487	7	0%
Fairfax County Parkway and South Run Park Ent./Reservation Drive	NB	2895	2902	7	0%
	SB	1730	1729	-1	0%
	EB	150	155	5	3%
	WB	140	148	8	6%
	Intersection	4915	4934	19	0%
Fairfax County Parkway and Huntsman Boulevard	NB	2705	2687	-18	-1%
	SB	1755	1742	-13	-1%
	EB	130	136	6	5%
	WB	525	520	-5	-1%
	Intersection	5115	5085	-30	-1%

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway and Huntsman Court	NB	2795	2783	-12	0%
	SB	1795	1769	-26	-1%
	WB	20	24	4	20%
	Intersection	4610	4576	-34	-1%
Fairfax County Parkway and Modisto Lane	NB	2835	2800	-35	-1%
	SB	1790	1769	-21	-1%
	EB	20	19	-1	-5%
	WB	20	24	4	20%
	Intersection	4665	4612	-53	-1%
Fairfax County Parkway and Cervantes Lane	NB	2830	2802	-28	-1%
	SB	1740	1758	18	1%
	WB	20	27	7	35%
	Intersection	4590	4587	-3	0%
Fairfax County Parkway SB Ramps and Hooes Road	SB	605	602	-3	0%
	EB	515	524	9	2%
	WB	970	1003	33	3%
	Intersection	2090	2129	39	2%
Fairfax County Parkway NB Ramps and Hooes Road	NB	1240	1266	26	2%
	EB	250	257	7	3%
	WB	90	89	-1	-1%
	Intersection	1580	1612	32	2%
Fairfax County Parkway SB Ramps and Pohick Road	SB	545	540	-5	-1%
	EB	355	380	25	7%
	WB	110	117	7	6%
	Intersection	1010	1037	27	3%
Fairfax County Parkway NB Ramps and Pohick Road	NB	1075	1093	18	2%
	EB	280	295	15	5%
	Intersection	1355	1388	33	2%
Fairfax County Parkway and Hooes Road	NB	3470	3564	94	3%
	SB	1535	1561	26	2%
	WB	20	28	8	40%
	Intersection	5025	5153	128	3%
Fairfax County Parkway SB Ramps and Shady Palm Drive	SB	160	158	-2	-1%
	EB	60	59	-1	-2%
	WB	415	426	11	3%
	Intersection	635	643	8	1%
Fairfax County Parkway NB Ramps and Shady Palm Drive/Sydensticker	NB	900	907	7	1%
	EB	120	120	0	0%
	WB	420	438	18	4%
	Intersection	1440	1465	25	2%
Fairfax County Parkway SB Ramps and Gambrill Road	SB	420	440	20	5%
	EB	415	440	25	6%
	WB	510	551	41	8%
	Intersection	1345	1431	86	6%
Fairfax County Parkway NB Ramps and Gambrill Road/Old Lantern Way	NB	1190	1227	37	3%
	EB	230	236	6	3%
	WB	40	44	4	10%
	Intersection	1460	1507	47	3%
Fairfax County Parkway and Walnut Knoll Drive/Whittlers Creek	NB	4550	4667	117	3%
	SB	1845	1875	30	2%
	EB	50	49	-1	-2%
	WB	30	32	2	7%
	Intersection	6475	6623	148	2%
Fairfax County Parkway and Stream Way	NB	4590	4694	104	2%
	SB	1875	1912	37	2%
	WB	0	8	8	-
	Intersection	6465	6614	149	2%
Franconia-Springfield Parkway EB Ramp/Barkers Court and Rolling Road	NB	160	167	7	4%
	SB	250	236	-14	-6%
	EB	310	320	10	3%
	Intersection	720	723	3	0%
Fairfax County Parkway SB Ramps and Barta Road	NB	20	5	-15	-75%
	SB	615	608	-7	-1%
	EB	440	458	18	4%
	WB	370	385	15	4%
	Intersection	1445	1456	11	1%

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Fairfax County Parkway SB Ramp and Rolling Road/Barta Road	NB	0	0	0	0%
	SB	100	101	1	1%
	EB	700	707	7	1%
	WB	980	969	-11	-1%
	Intersection	1780	1777	-3	0%
Fairfax County Parkway NB Ramps and Barta Road	NB	305	299	-6	-2%
	EB	30	31	1	3%
	WB	270	300	30	11%
	Intersection	605	630	25	4%
Fairfax County Parkway and Terminal Road	NB	1680	1617	-63	-4%
	SB	1680	1760	80	5%
	EB	395	409	14	4%
	WB	140	145	5	4%
	Intersection	3895	3931	36	1%
Fairfax County Parkway and Backlick Road	NB	1670	1638	-32	-2%
	SB	1665	1721	56	3%
	WB	160	164	4	3%
	Intersection	3495	3523	28	1%
Fairfax County Parkway SB Ramps and Telegraph Road	SB	685	706	21	3%
	EB	530	550	20	4%
	WB	1305	1345	40	3%
	Intersection	2520	2601	81	3%
Fairfax County Parkway NB Ramps and Telegraph Road	NB	385	408	23	6%
	EB	735	746	11	1%
	WB	1175	1203	28	2%
	Intersection	2295	2357	62	3%
Fairfax County Parkway and Ehlers Road	NB	1805	1813	8	0%
	SB	1235	1274	39	3%
	EB	0	0	0	0%
	Intersection	3040	3087	47	2%
Fairfax County Parkway and Farrar Drive/John J. Kingman Road	NB	1015	1035	20	2%
	SB	1230	1272	42	3%
	EB	140	155	15	11%
	WB	1380	1442	62	4%
	Intersection	3765	3904	139	4%
Fairfax County Parkway and Backlick Road (South)	NB	865	877	12	1%
	SB	1645	1724	79	5%
	WB	155	160	5	3%
	Intersection	2665	2761	96	4%
Franconia-Springfield Parkway and Bonniemill Lane/Spring Village Drive	NB	180	140	-40	-22%
	SB	220	222	2	1%
	EB	1440	1469	29	2%
	WB	3940	4052	112	3%
	Intersection	5780	5883	103	2%
Bonniemill Lane and Hooes Road	NB	40	31	-9	-23%
	SB	310	295	-15	-5%
	EB	70	60	-10	-14%
	WB	110	90	-20	-18%
	Intersection	530	476	-54	-10%
Franconia-Springfield Parkway Ramps C/D and Backlick Road	NB	1400	1437	37	3%
	SB	1170	1209	39	3%
	EB	605	636	31	5%
	WB	20	25	5	25%
	Intersection	3195	3307	112	4%
Franconia-Springfield Parkway Ramps A/B and Backlick Road	NB	1675	1710	35	2%
	SB	2205	2269	64	3%
	EB	445	469	24	5%
	WB	70	68	-2	-3%
	Intersection	4395	4516	121	3%
Franconia-Springfield Parkway and I-95 HOV Ramp	SB	405	417	12	3%
	EB	1560	1591	31	2%
	WB	2995	3085	90	3%
	Intersection	4960	5093	133	3%
Franconia-Springfield Parkway EB Ramps and Frontier Drive	NB	1200	1232	32	3%
	SB	945	981	36	4%
	EB	485	498	13	3%
	Intersection	2630	2711	81	3%

PM Volume Calibration (Other Intersections)

Intersection	Approach	Balanced Count (vph)	VISSIM Throughput (vph)	Difference (vph)	Difference (%)
Franconia-Springfield Parkway WB Ramps and Frontier Drive	NB	1130	1165	35	3%
	SB	1505	1554	49	3%
	WB	805	821	16	2%
	Intersection	3440	3540	100	3%
Franconia-Springfield Parkway and Walker Lane	SB	635	638	3	0%
	EB	2095	2122	27	1%
	WB	2065	2142	77	4%
	Intersection	4795	4902	107	2%
Beulah Street and Alforth Ave	NB	1235	1263	28	2%
	SB	1445	1449	4	0%
	EB	20	12	-8	-40%
	Intersection	2700	2724	24	1%
Beulah Street and Lewin Drive/Shopping Center	NB	970	987	17	2%
	SB	1230	1247	17	1%
	EB	0	0	0	0%
	WB	130	130	0	0%
	Intersection	2330	2364	34	1%
Beulah Street and Metro Park Drive/Charles Arrington Drive	NB	955	991	36	4%
	SB	1505	1527	22	1%
	EB	70	75	5	7%
	WB	155	157	2	1%
	Intersection	2685	2750	65	2%

TRAVEL TIME AND SPEED CALIBRATION

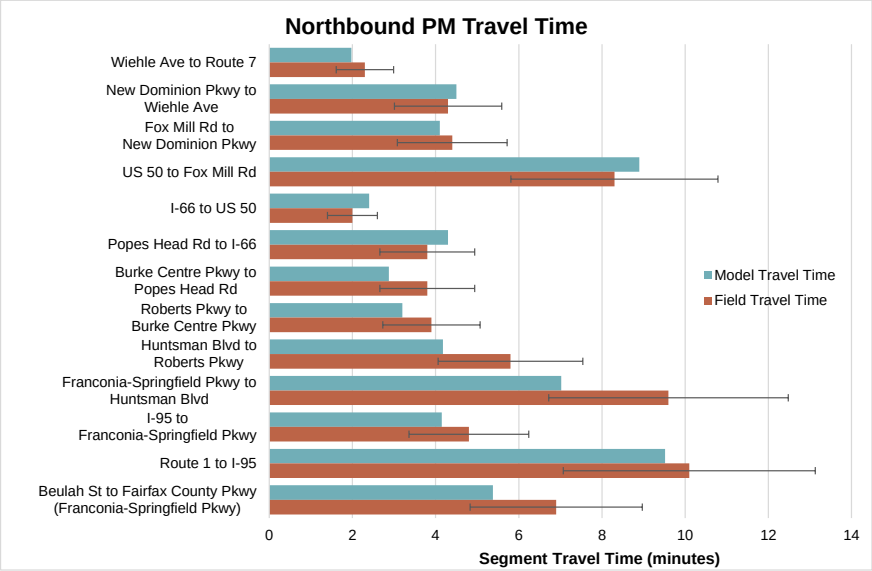
PM Peak Period (4:30-6:30 PM)

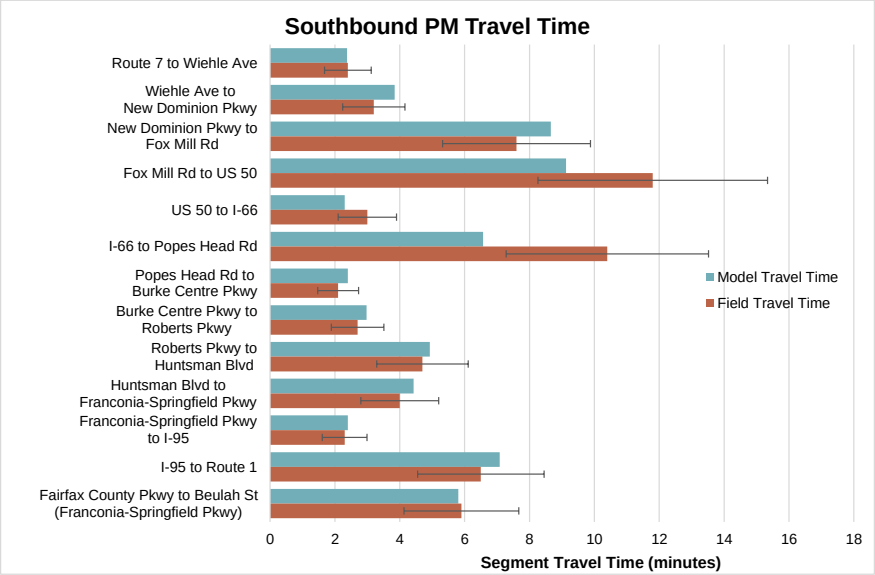
	Travel Time Criteria	Total	Percent	Target	Target Met
Segments (n = 26)	Within ± 30% for average observed travel time of each segment	25	96%	85%	Yes
Corridor	Within ± 15% for average observed travel time of entire corridor	2	100%	100%	Yes

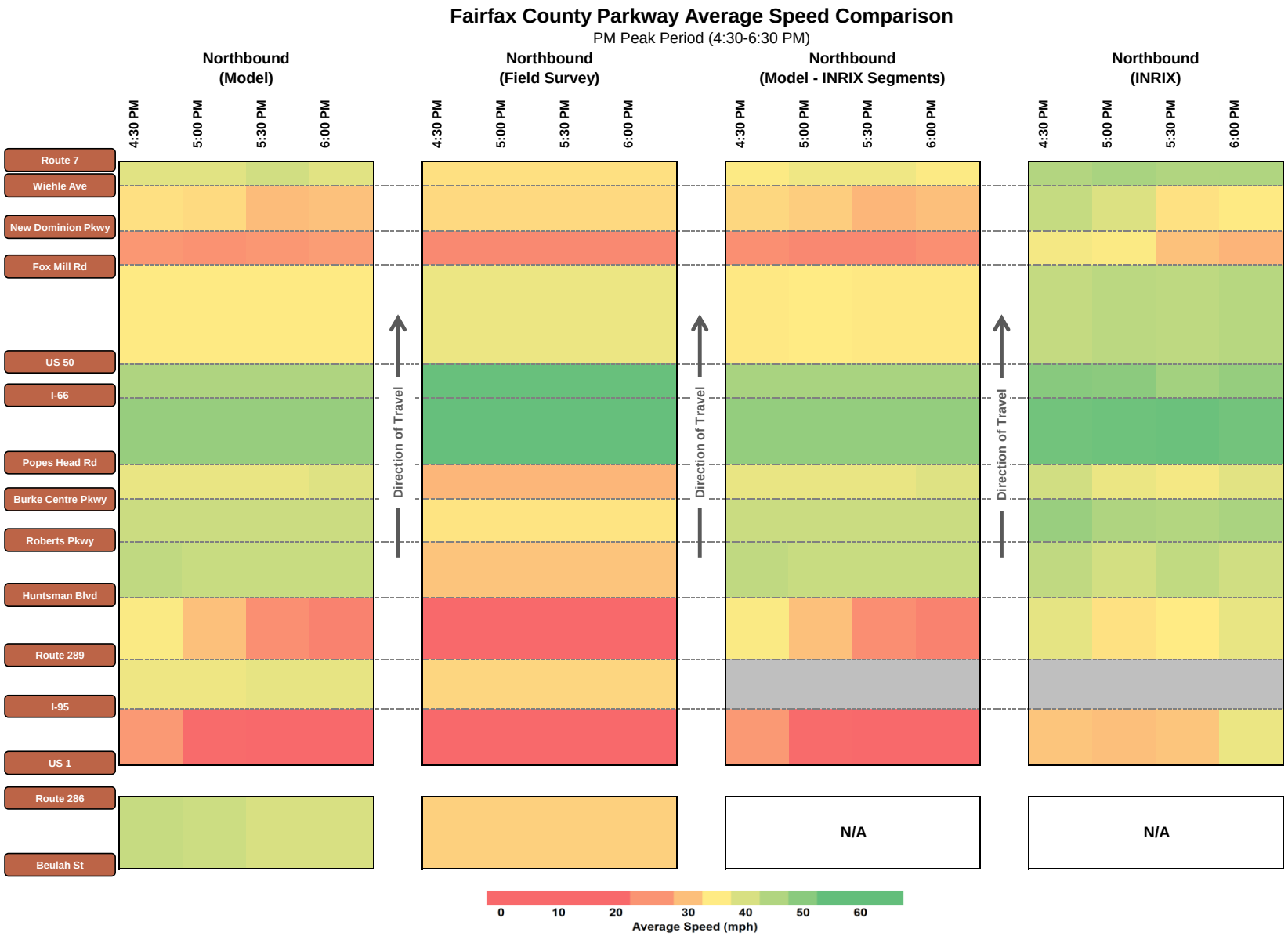
	Speed Criteria	Total	Percent	Target	Target Met
Segments (n = 26)	Within ± 10 mph for average observed travel speed of each segment	23	88%	85%	Yes

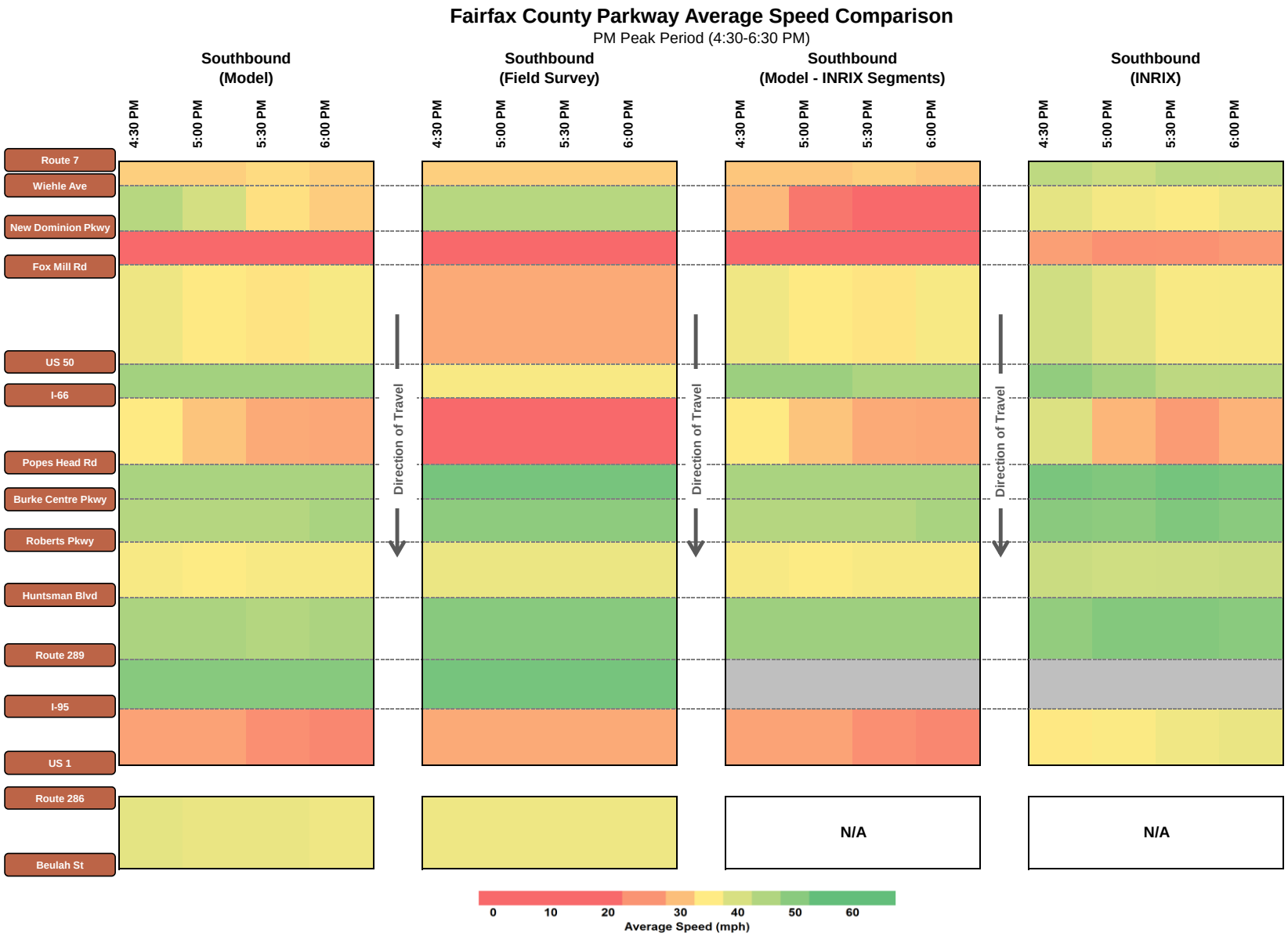
Segment ID	Corridor Segment	Northbound									
		VISSIM ID	VISSIM Segment (min.)	VISSIM Cumulative (min.)	Field Segment (min.)	Field Cumulative (min.)	Field Average Speed (mph)	VISSIM Average Speed (mph)	Travel Time Segment Difference (min.)	Travel Time Segment Difference (%)	Speed Segment Difference (mph)
1	Wiehle Ave to Route 7	101	2.0	57.1	2.3	63.1	33.8	39.4	-0.3	-14%	5.6
2	New Dominion Pkwy to Wiehle Ave	201	4.5	55.1	4.3	60.8	33.0	31.6	0.2	5%	-1.4
3	Fox Mill Rd to New Dominion Pkwy	301	4.1	50.6	4.4	56.5	23.7	25.4	-0.3	-7%	1.7
4	US 50 to Fox Mill Rd	401	8.9	46.5	8.3	52.1	37.5	34.9	0.6	7%	-2.6
5	I-66 to US 50	501	2.4	37.6	2.0	43.8	54.4	45.3	0.4	20%	-9.1
6	Popes Head Rd to I-66	601	4.3	35.2	3.8	41.8	54.7	48.3	0.5	13%	-6.4
7	Burke Centre Pkwy to Popes Head Rd	701	2.9	30.9	3.8	38.0	28.9	38.3	-0.9	-24%	9.4
8	Roberts Pkwy to Burke Centre Pkwy	801	3.2	28.1	3.9	34.2	34.3	41.7	-0.7	-18%	7.4
9	Huntsman Blvd to Roberts Pkwy	901	4.2	24.9	5.8	30.3	30.5	42.4	-1.6	-28%	11.9
10	Franconia-Springfield Pkwy to Huntsman Blvd	1001	7.0	20.7	9.6	24.5	20.1	27.5	-2.6	-27%	7.4
11	I-95 to Franconia-Springfield Pkwy	1101	4.1	13.7	4.8	14.9	32.6	37.7	-0.7	-14%	5.1
12	Route 1 to I-95	1201	9.5	9.5	10.1	10.1	17.5	18.6	-0.6	-6%	1.1
13	Beulah St to Fairfax County Pkwy (Franconia-Springfield Pkwy)	1301	5.4		6.9		31.9	41.0	-1.5	-22%	9.1
Total	Entire Corridor (Fairfax County Parkway)			57.1		63.1	30.1	33.2	-6.0	-9%	3.1

Segment ID	Corridor Segment	Southbound									
		VISSIM ID	VISSIM Segment (min.)	VISSIM Cumulative (min.)	Field Segment (min.)	Field Cumulative (min.)	Field Average Speed (mph)	VISSIM Average Speed (mph)	Travel Time Segment Difference (min.)	Travel Time Segment Difference (%)	Speed Segment Difference (mph)
1	Route 7 to Wiehle Ave	102	2.4	2.4	2.4	2.4	31.8	32.1	0.0	-1%	0.3
2	Wiehle Ave to New Dominion Pkwy	202	3.8	6.2	3.2	5.6	44.3	36.9	0.6	20%	-7.4
3	New Dominion Pkwy to Fox Mill Rd	302	8.7	14.9	7.6	13.2	13.7	12.0	1.1	14%	-1.7
4	Fox Mill Rd to US 50	402	9.1	24.0	11.8	25.0	27.5	35.5	-2.7	-23%	8.0
5	US 50 to I-66	502	2.3	26.3	3.0	28.0	35.9	46.8	-0.7	-23%	10.9
6	I-66 to Popes Head Rd	602	6.6	32.9	10.4	38.4	18.8	29.8	-3.8	-37%	11.0
7	Popes Head Rd to Burke Centre Pkwy	702	2.4	35.3	2.1	40.5	52.5	45.9	0.3	14%	-6.6
8	Burke Centre Pkwy to Roberts Pkwy	802	3.0	38.2	2.7	43.2	49.5	44.9	0.3	10%	-4.6
9	Roberts Pkwy to Huntsman Blvd	902	4.9	43.2	4.7	47.9	37.6	35.9	0.2	5%	-1.7
10	Huntsman Blvd to Franconia-Springfield Pkwy	1002	4.4	47.6	4.0	51.9	50.3	45.5	0.4	11%	-4.8
11	Franconia-Springfield Pkwy to I-95	1102	2.4	50.0	2.3	54.2	52.6	50.4	0.1	4%	-2.2
12	I-95 to Route 1	1202	7.1	57.1	6.5	60.7	27.5	25.2	0.6	9%	-2.3
13	Fairfax County Pkwy to Beulah St (Franconia-Springfield Pkwy)	1302	5.8		5.9		37.2	37.8	-0.1	-2%	0.6
Total	Entire Corridor (Fairfax County Parkway)			57.1		60.7	30.8	32.8	-3.6	-6%	2.0


Northbound PM Travel Time
Wiehle Ave to Route 7
New Dominion Pkwy to Wiehle Ave
Fox Mill Rd to New Dominion Pkwy
US 50 to Fox Mill Rd
I-66 to US 50
Popes Head Rd to I-66
Burke Centre Pkwy to Popes Head Rd
Roberts Pkwy to Burke Centre Pkwy
Huntsman Blvd to Roberts Pkwy
Franconia-Springfield Pkwy to Huntsman Blvd
I-95 to Franconia-Springfield Pkwy
Route 1 to I-95
Beulah St to Fairfax County Pkwy (Franconia-Springfield Pkwy)
Model Travel Time
Field Travel Time
0
2
4
6
8
10
12
14
Segment Travel Time (minutes)


Southbound PM Travel Time
Route 7 to Wiehle Ave
Wiehle Ave to New Dominion Pkwy
New Dominion Pkwy to Fox Mill Rd
Fox Mill Rd to US 50
US 50 to I-66
I-66 to Popes Head Rd
Popes Head Rd to Burke Centre Pkwy
Burke Centre Pkwy to Roberts Pkwy
Roberts Pkwy to Huntsman Blvd
Huntsman Blvd to Franconia-Springfield Pkwy
Franconia-Springfield Pkwy to I-95
I-95 to Route 1
Fairfax County Pkwy to Beulah St (Franconia-Springfield Pkwy)
Model Travel Time
Field Travel Time
0
2
4
6
8
10
12
14
16
18
Segment Travel Time (minutes)


Fairfax County Parkway Average Speed Comparison
PM Peak Period (4:30-6:30 PM)
Northbound (Model)
Northbound (Field Survey)
Northbound (Model - INRIX Segments)
Northbound (INRIX)
4:30 PM
5:00 PM
5:30 PM
6:00 PM
Route 7
Wiehle Ave
New Dominion Pkwy
Fox Mill Rd
US 50
I-66
Popes Head Rd
Burke Centre Pkwy
Roberts Pkwy
Huntsman Blvd
Route 289
I-95
US 1
Route 286
Beulah St
Direction of Travel
N/A
N/A
0
10
20
30
40
50
60
Average Speed (mph)


Fairfax County Parkway Average Speed Comparison
PM Peak Period (4:30-6:30 PM)
Southbound (Model)
Southbound (Field Survey)
Southbound (Model - INRIX Segments)
Southbound (INRIX)
4:30 PM
5:00 PM
5:30 PM
6:00 PM
Route 7
Wiehle Ave
New Dominion Pkwy
Fox Mill Rd
US 50
I-66
Popes Head Rd
Burke Centre Pkwy
Roberts Pkwy
Huntsman Blvd
Route 289
I-95
US 1
Route 286
Beulah St
Direction of Travel
N/A
0
10
20
30
40
50
60
Average Speed (mph)

Queue Length Calibration (Critical Intersections)

PM Peak Period (4:30-6:30 PM)

	Queue Criteria	Total	Percent	Target	Target Met
Approaches (n = 55)	Within ± 20%* OR representing queuing impact observed in the field	47	85%	85%	Yes

*If an absolute maximum queue length was not recorded in the field due to limited sight distance, a check on whether the VISSIM queue length exceeds the maximum observable queue is used for the calibration criteria.
A check (Yes/Mostly/No) on whether observed queues are adequately represented in VISSIM is provided.

Intersection	Approach	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Route 7 Westbound Ramps	**NB**	375	420	109	45	12%	Y	
	SB	125	114	15	-11	-9%	Y	
	WB	175	145	18	-30	-17%	Y	
Fairfax County Parkway and Route 7 Eastbound Ramps	**NB**	>275	847	88	*	*	Y	
	SB	150	138	24	-12	-8%	Y	
	EB	250	217	32	-33	-13%	Y	
Fairfax County Parkway and Spring Street Ramp	**NB**	375	387	61	12	3%	Y	
	SB	>500	1061	441	*	*	Y	
	EB	275	342	56	67	24%	Y	Acceptable
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	**NB**	>275	639	97	*	*	Y	
	SB	>450	1891	1499	*	*	Y	
	WB	>250	634	128	*	*	Y	

PM Queue Length Calibration (Critical Intersections)

Intersection	Approach	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	NB	>500	917	204	*	*	Y	
	SB	>275	643	80	*	*	Y	
	EB	325	334	81	9	3%	Y	
Fairfax County Parkway and Sunrise Valley Drive	NB	675	696	163	21	3%	Y	
	SB	>475	1520	287	*	*	Y	
	EB	>525	788	230	*	*	Y	
	WB	>200	3825	2311	*	*	Y	
Fairfax County Parkway and US 50 Westbound Ramp	NB	>250	223	10	*	*	M	Acceptable
	SB	>325	646	35	*	*	Y	
	WB	150	158	34	8	5%	Y	
Fairfax County Parkway and US 50 Eastbound Ramp	NB	200	291	10	91	46%	Y	Acceptable
	SB	175	222	6	47	27%	Y	Acceptable
	EB	100	105	11	5	5%	Y	
Fairfax County Parkway SB Ramp and US 29 SB	SB	>300	454	39	*	*	Y	
	WB	>25	250	30	*	*	Y	
Fairfax County Parkway SB Ramp and US 29 NB	SB	150	221	55	71	47%	Y	Acceptable
	EB	250	168	24	-82	-33%	Y	Acceptable; EB throughput matches target volume
Fairfax County Parkway NB Ramp and US 29 SB	NB	200	163	6	-37	-19%	Y	Acceptable
	WB	>300	365	107	*	*	Y	

PM Queue Length Calibration (Critical Intersections)

Intersection	Approach	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway NB Ramp and US 29 NB	NB	375	249	36	-126	-34%	M	Acceptable; NB throughput matches target volume and queue is contained on the ramp
	EB	25	58	1	33	132%	Y	Acceptable
West Ox Road and US 29 Southbound	NB	n/a	2	0	*	*		Field data is not available; significant queues are not observed in the model
	SB	n/a	256	24	*	*		Field data is not available; significant queues are not observed in the model
	WB	n/a	199	47	*	*		Field data is not available; significant queues are not observed in the model
West Ox Road/Fairfax County Parkway NB Off-Ramp and US 29 NB	NB	300	196	27	-104	-35%	M	Acceptable; NB throughput matches target volume and queue is contained on the ramp
	SB	125	141	15	16	13%	Y	
	EB	175	128	9	-47	-27%	Y	Acceptable
Fairfax County Parkway and Popes Head Road	NB	>425	1078	217	*	*	Y	
	SB	>375	3460	480	*	*	Y	
	EB	200	204	37	4	2%	Y	
	WB	300	298	61	-2	-1%	Y	
Fairfax County Parkway and Franconia-Springfield Parkway Westbound Ramps	NB	300	634	37	334	111%	Y	Acceptable
	SB	250	171	12	-79	-32%	M	Acceptable; SB throughput matches target volume
	EB	25	87	4	62	248%	Y	Acceptable
	WB	200	198	36	-2	-1%	Y	

PM Queue Length Calibration (Critical Intersections)

Intersection	Approach	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Franconia-Springfield Parkway Eastbound	NB	>1075	537	75	*	*	N	
	SB	225	189	48	-36	-16%	Y	
	WB	175	353	58	178	102%	Y	Queue is contained on ramp
Fairfax County Parkway and I-95 Northbound Ramps/Loisdale Road	NB	4525	5126	2978	601	13%	Y	Queue matches field observations; extends through multiple intersections back to the Telegraph Road interchange
	SB	n/a	672	87	*	*		Field data not available; significant queuing is not observed
	EB	n/a	132	34	*	*		Field data not available; significant queuing is not observed
	WB	600	555	157	-45	-8%	M	Queue nearly extends back to Newington Road as observed in the field
Fairfax County Parkway and US 1	SB	1800	1891	654	91	5%	Y	
	EB	n/a	268	31	*	*		Field data not available; significant queuing is not observed in the eastbound direction during the PM
	WB	2925	5555	3110	2630	90%	M	Queue matches field observations; extends back to Gunston Road
Franconia-Springfield Parkway and Beulah Street	NB	400	408	179	8	2%	Y	
	SB	650	513	244	-137	-21%	Y	Queue extends back to Metro Park Drive; VISSIM queues that spillback to multiple intersections are reported individually at each node
	EB	700	896	186	196	28%	Y	
	WB	500	753	217	253	51%	M	Queue extends back to Silver Lake Road/Shopping Center entrance; this matches Google Maps typical traffic.

Queue Length Calibration (Critical Impacts)

PM Peak Period (4:30-6:30 PM)

Additional evaluation of queue lengths was completed by focusing on field observed queues that exceed turn bay storage, have the potential to spillover to an adjacent intersection or onto the mainline from a ramp, or are excessively long on the side street. A check (Yes/Mostly/No) on whether these observed queues are adequately represented in VISSIM is provided.

*If an absolute maximum queue length was not recorded in the field due to limited sight distance, a check on whether the VISSIM queue length exceeds the maximum observable queue is used for the calibration criteria.

Intersection	Approach	Movement	Storage (feet)	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Observed Queues Exceeding Turn Bay Storage										
Fairfax County Parkway and Wiehle Avenue	NB	LT	390	1630	2067	764	437	27%	Y	The NB queue does not extend to the adjacent intersection at Lake Newport Road, as seen in VISSIM.
	WB	RT	320	500	603	126	103	21%	Y	
Fairfax County Parkway and N Walnut Branch Road	WB	LT	120	125	144	11	19	15%	Y	
Fairfax County Parkway and Baron Cameron Ave	EB	LT	235	375	305	53	-70	-19%	Y	Observed maximum queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and New Dominion Parkway	WB	LT	220	500	650	128	150	30%	Y	Observed maximum queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Spring Street Ramp	EB	LT	215	275	342	56	67	24%	Y	Observed maximum queue exceeds storage, as seen in VISSIM
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	NB	LT	185	600	622	64	22	4%	Y	Field observation shows that westbound off-ramp queue stay within toll booth (max queue approximately 600 feet)
	WB	LT	160	600	634	128	34	6%	Y	
		RT	160	600	609	104	9	2%	Y	

PM Queue Length Calibration (Critical Impacts)

Intersection	Approach	Movement	Storage (feet)	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	EB	LT	240	275	327	76	52	19%	Y	
		RT	220	325	334	81	9	3%	Y	
Fairfax County Parkway and Fox Mill Road	WB	LT	185	200	258	36	58	29%	Y	
Fairfax County Parkway and West Ox Road	EB	LT	370	550	138	21	-412	-75%	M	The observed EBL queue likely contains EBT/EBR traffic given that EBT and EBR queue blocks left turn bay and EBL volume is low.
		RT	470	2000	3003	917	1003	50%	M	Queue extends past McLearen Road as seen in the field and Google Maps typical traffic and the EBR queue blocks the left turn bay most the time.
Fairfax County Parkway and Franklin Farm Road	EB	LT	230	5000	4901	3854	-99	-2%	Y	
	WB	LT	170	300	344	58	44	15%	Y	
		RT	350	375	441	122	66	18%	Y	
Fairfax County Parkway and Rugby Road	EB	RT	135	175	93	6	-82	-47%	Y	EBT queue blocks right turn bay; EB approach throughput matches target volume
	WB	LT	185	800	1151	437	351	44%	M	Field observed queue extends beyond the adjacent Alder Woods Drive intersection; The WBL is a heavily used route for traffic to go to I-66 from Reston Parkway/West Ox Road; Google map shows congestion during PM peak.
Fairfax County Parkway NB Ramps and Fair Lakes Parkway	WB	RT	200	250	171	7	-79	-32%	M	Queues in VISSIM not spilling out of turn bay; arguably not a critical movement in PM
Fairfax County Parkway SB Ramps/Robert Carter Road and Ox Road	NB	LT	1350	700	1344	226	644	92%	Y	Field observation shows that the ramp queue does not extend to FCP mainline, as seen in VISSIM.
Fairfax County Parkway and Karmich St/Roberts Parkway	WB	LT	390	475	380	121	-95	-20%	M	Queues in VISSIM fill storage of turn bay

PM Queue Length Calibration (Critical Impacts)

Intersection	Approach	Movement	Storage (feet)	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Lee Chapel Road	NB	LT	530	1000	1470	287	470	47%	Y	The queue extends close to Reservation Drive as observed in the field (queue data previously collected indicated >625 ft).
	WB	LT	340	250	212	64	-38	-15%	M	Field data (450' queue) is an outlier. Typical queue is 250'.
Fairfax County Parkway and South Run Park Ent./Reservation Drive	EB	RT	50	125	81	2	-44	-35%	Y	Observed maximum queue exceeds storage, as seen in VISSIM
	WB	LT	150	200	244	55	44	22%	Y	
Fairfax County Parkway and Huntsman Boulevard	SB	LT	365	550	538	116	-12	-2%	Y	Observed maximum queue exceeds storage, as seen in VISSIM
	EB	LT	230	250	251	62	1	0%	Y	
	WB	LT	250	300	441	100	141	47%	Y	Observed maximum queue exceeds storage, as seen in VISSIM
		RT	320	350	574	110	224	64%	Y	WBR queue exceeds storage, as seen in VISSIM
Fairfax County Parkway SB Ramps and Hooes Road	SB	RT	255	350	379	28	29	8%	Y	
Fairfax County Parkway NB Ramps and Hooes Road	NB	LT	570	575	546	105	-29	-5%	M	NB approach throughput matches target demand
	EB	LT	95	100	49	4	-51	-51%	M	Queue is contained on bridge; EB approach throughput matches target demand
Fairfax County Parkway NB Ramps and Pohick Road	NB	LT	540	525	322	30	-203	-39%	M	NB approach throughput matches target demand; queue is contained on ramp
Fairfax County Parkway NB Ramps and Gambrill Road/Old Lantern Way	NB	LT	575	600	583	104	-17	-3%	Y	

PM Queue Length Calibration (Critical Impacts)

Intersection	Approach	Movement	Storage (feet)	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Walnut Knoll Drive/Whittlers Creek	EB	LT	65	75	66	5	-9	-12%	Y	
Fairfax County Parkway SB Ramps and Barta Road	SB	RT	200	400	250	56	-150	-38%	M	Observed maximum queue exceeds storage, as seen in VISSIM; SB throughput matches target volume
Franconia-Springfield Parkway and Bonniemill Lane/Spring Village Drive	SB	LT	225	241	330	80	89	37%	M	Observed maximum queue exceeds storage, as seen in VISSIM
Franconia-Springfield Parkway and I-95 HOV Ramp	WB	LT	400	625	1425	285	800	128%	M	Observed maximum queue exceeds storage, as seen in VISSIM
Franconia-Springfield Parkway and Beulah Street	SB	LT	220	350	503	149	153	44%	M	Observed maximum queue exceeds storage, as seen in VISSIM
	EB	LT	525	375	756	124	381	102%	M	Observed maximum queue is contained in the taper, as seen in VISSIM
Beulah Street and Metro Park Drive/Charles Arrington Drive	SB	LT	225	275	303	28	28	10%	Y	Observed maximum queue exceeds storage, as seen in VISSIM
Queues With Potential for Spillover to Adjacent Signalized Intersection										
Fairfax County Parkway and Lake Newport Road	SB	TH	1725	1800	1439	122	-361	-20%	Y	Field observed queue does not extend to the adjacent intersection of Wiehle Avenue, as seen in VISSIM.
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	SB	TH	1825	2400	3166	2057	766	32%	Y	The queue consistently extends beyond the Spring Street ramp intersection, as seen by the significant average queue from the model.
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	NB	TH	1450	1400	600	204	-800	-57%	N	Maximum field observed queue extends close to Sunrise Valley Drive. Model shows queuing impact to a lesser degree.
Fairfax County Parkway and Sunrise Valley Drive	SB	TH	1450	1500	1700	299	200	13%	Y	Maximum field observed queue extends to the Route 267 eastbound ramps.

Intersection	Approach	Movement	Storage (feet)	Observed Maximum Queue (feet)	VISSIM Maximum Queue (feet)	VISSIM Average Queue (feet)	Maximum Queue Difference (feet)	Maximum Queue Difference (%)	Field Conditions Represented (Y/M/N)	Notes
Fairfax County Parkway and Franklin Farm Road	SB	TH	5500	3500	2610	404	-890	-25%	Y	
Fairfax County Parkway and Huntsman Boulevard	NB	TH	775	6200	6420	2834	220	4%	Y	
	SB	TH	1650	>475	878	98	*	*	M	SB queue does not extend to the adjacent intersection at Reservation Drive (less than 1500 feet)
Fairfax County Parkway and I-95 Northbound Ramps/Loisdale Road	NB	TH	1225	4525	5126	2978	601	13%	Y	Queue matches field observations; extends through multiple intersections back to the Telegraph Road interchange
Queues with Potential for Spillover to Mainline from Ramp										
Fairfax County Parkway Southbound Off-Ramp to Westbound I-66	SB	RT	2275	4800	5859	3338	1059	22%	Y	
Franconia-Springfield Parkway Westbound Ramps and Frontier Drive	WB	RT	900	1300	411	7	-889	-68%	M	Construction impacted field collected queue length; VISSIM queue is contained on the ramp
Significant Side Street Queues										
Fairfax County Parkway and Sunrise Valley Drive	WB	TH/LT	575	3000	3825	2311	825	28%	Y	Field observed queue extends to just west of USGS driveway. Local knowledge confirms that maximum queue extends to east of the USGS driveway.
Fairfax County Parkway and West Ox Road	EB	TH	350	2000	3003	917	1003	50%	Y	Observed queue extends beyond McLearen Road, as seen in VISSIM.
Fairfax County Parkway and Franklin Farm Road	EB	RT	650	5000	4950	4089	-50	-1%	Y	Observed maximum field queue extends close to the intersection of Centreville Road, as seen in VISSIM model.
Fairfax County Parkway and Rugby Road	WBL	LT	350	800	1151	437	351	44%	Y	Field observed queue extends beyond the adjacent Alder Woods Drive intersection; The WBL is a heavily used route for traffic to go to I-66 from Reston Parkway/West Ox Road; Google map shows congestion during PM peak.
Fairfax County Parkway SB Ramps/Robert Carter Road and Ox Road	NB	LT	1350	700	1344	226	644	92%	Y	Field observation shows that the ramp queue does not extend to FCP mainline, as seen in VISSIM.

Sample Size Determination

Summary

Criteria	# Runs Needed
Travel Time (Northbound) Hour 1	10
Travel Time (Southbound) Hour 1	10
Travel Time (Northbound) Hour 2	10
Travel Time (Southbound) Hour 2	10
Travel Time (Northbound) Peak Period	10
Travel Time (Southbound) Peak Period	10
Segment 1 Volume Hour 1	10
Segment 2 Volume Hour 1	10
Segment 3 Volume Hour 1	10
Segment 4 Volume Hour 1	10
Segment 5 Volume Hour 1	10
Segment 1 Volume Hour 2	10
Segment 2 Volume Hour 2	10
Segment 3 Volume Hour 2	10
Segment 4 Volume Hour 2	10
Segment 5 Volume Hour 2	10
NUMBER OF RUNS NEEDED	**10**

Travel Time

Run Number	Hour 1		Hour 2		Peak Period	
	Travel Time (Northbound)	Travel Time (Southbound)	Travel Time (Northbound)	Travel Time (Southbound)	Travel Time (Northbound)	Travel Time (Southbound)
1	52.0	51.7	51.1	53.7	51.5	52.7
2	51.0	49.6	50.7	53.9	50.8	51.9
3	50.9	49.6	51.4	51.0	51.2	50.3
4	50.5	50.4	50.8	51.5	50.7	51.0
5	51.0	50.4	51.3	54.6	51.2	52.6
6	51.8	49.7	51.8	50.6	51.8	50.2
7	50.3	49.0	50.5	50.0	50.4	49.5
8	51.1	50.0	50.7	50.3	50.9	50.2
9	50.5	50.2	51.0	53.0	50.7	51.6
10	51.2	50.1	50.5	50.7	50.8	50.4

Volume

Run Number	Hour 1					Hour 2				
	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
1	4098	4622	6228	2134	4688	4099	4521	6001	2078	4629
2	4142	4581	6075	2154	4760	3976	4640	6046	2092	4645
3	4128	4660	6092	2184	4783	3899	4554	6007	2061	4605
4	4161	4691	6195	2179	4739	3957	4587	5987	2052	4573
5	4059	4703	6309	2196	4784	4148	4793	6077	2077	4589
6	4127	4600	6135	2078	4682	4131	4597	6081	2066	4605
7	4159	4542	6099	2156	4786	3965	4588	6012	2107	4592
8	4204	4781	6106	2171	4792	4081	4623	6018	2077	4684
9	4149	4603	6075	2121	4736	3876	4548	6065	2132	4558
10	4066	4529	6096	2154	4745	4037	4542	6033	2022	4594

Segment	Description	NB Link #	SB Link #
1	FCP between Route 267 and Fox Mill Road	227	230
2	FCP between US 50 and I-66	423	422
3	FCP between Braddock Road and Ox Road	455	457
4	FCP between FSP and I-95	705	728
5	FSP between I-95 and Beulah Street	1035	1036

ATTACHMENT C – MEASURES OF EFFECTIVES

Mainline Volume, Density, and Speed

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Direction	Interchange	Segment	Segment Type	AM Hour 1			AM Hour 2		
				Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)	Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)
Northbound Fairfax County Parkway	Baron Cameron Avenue/Elden Street	Upstream	Diverge	918	37	6.2	898	38	6.0
		Off-Ramp	Ramp	482	35	6.9	495	35	7.1
		Between Ramps	Mainline	434	51	2.9	433	51	2.9
		On-Ramp	Ramp	121	32	1.9	120	32	1.9
		Downstream	Merge	552	50	3.7	548	50	3.6
	US 50	Upstream	Diverge**	3346	39	17.1	3332	39	17.3
		Off-Ramp to EB US 50	Ramp	93	30	3.1	96	30	3.2
		Between Ramps	Diverge	3352	45	18.7	3351	44	19.5
		Off-Ramp to WB US 50	Ramp	584	25	23.2	612	25	24.2
		Between Ramps	Mainline**	2707	43	21.4	2664	41	25.4
		On-Ramp from WB US 50	Ramp	422	27	15.5	414	26	20.1
		Downstream	Merge	3204	27	33.0	3146	25	42.9
	Monument Drive/Fair Lakes Parkway	Upstream	Weave	3874	47	20.5	3873	47	20.5
		Off-Ramp	Ramp	939	47	10.1	925	47	9.9
		Between Ramps	Mainline	2961	50	19.9	2962	50	19.9
		On-Ramp	Ramp	459	32	7.1	438	33	6.7
		Downstream	Merge	3402	44	19.3	3390	44	19.2
	I-66	Upstream	Weave	3874	49	19.6	4001	49	20.3
		Off-Ramp to EB I-66	Ramp	262	30	8.7	253	30	8.4
		Between Ramps	Mainline	3641	48	25.2	3780	48	26.2
		On-Ramp from EB I-66	Ramp	1000	24	42.4	977	24	41.5
		Between Ramps	Weave	4623	39	29.8	4727	38	30.8
		Off-Ramp to WB I-66	Ramp	1238	23	53.4	1309	23	56.7
		Between Ramps	Mainline	3395	50	22.8	3411	50	22.9
		On-Ramp from WB I-66	Ramp	480	29	16.7	482	29	16.7
		Downstream	Weave	3874	47	20.5	3873	47	20.5
	US 29	Upstream	Weave	4394	38	38.5	4525	37	41.0
		Off-Ramp	Ramp	932	39	12.1	965	39	12.5
		Between Ramps	Mainline	3449	48	35.9	3581	48	37.3
		On-Ramp	Ramp	460	38	12.0	449	38	11.8
		Downstream	Weave	3870	49	26.2	3993	49	27.0
	Braddock Road	Upstream	Diverge	3766	47	26.9	3851	47	27.1
		Off-Ramp	Ramp	210	27	7.8	215	27	7.9
		Between Ramps	Mainline	3530	48	36.6	3621	48	37.6
		On-Ramp	Ramp	866	30	28.8	840	30	27.9
		Downstream	Weave	4409	49	30.0	4503	49	30.6
	Ox Road	Upstream	Diverge	1988	42	15.8	2042	41	16.7
		Off-Ramp	Ramp	319	29	10.8	333	30	11.3
		Between Ramps	Mainline	1662	43	19.5	1702	28	30.7
		On-Ramp	Ramp	1262	21	60.8	1181	10	120.4
		Between Ramps	Merge	2914	22	45.5	2898	11	92.1
		On-Ramp	Ramp	57	36	1.6	58	36	1.6
		Downstream	Merge	2896	33	29.9	2888	17	57.1
	Seabrook Lane/Hooes Road/Pohick Road	Upstream	Diverge	1309	49	13.3	1311	49	13.4
		Off-Ramp	Ramp	166	27	3.1	165	28	3.0
		Between Ramps	Mainline	1178	50	11.8	1185	50	11.9
		On-Ramp	Ramp	657	45	14.6	648	45	14.5
		Downstream	Merge	1822	49	12.4	1827	49	12.4
	Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way	Upstream	Diverge	1357	48	9.4	1360	48	9.4
		Off-Ramp	Ramp	172	11	7.9	172	11	7.8
		Between Ramps	Mainline	1201	50	12.0	1210	50	12.1
		On-Ramp	Ramp	128	39	3.3	130	39	3.4
		Downstream	Merge	1330	50	8.9	1339	50	9.0
	Franconia Springfield Parkway/Rolling Road	Upstream (FCP)	Diverge	1124	36	10.5	1122	35	10.7
		Upstream (FSP)	Diverge	931	48	4.9	926	48	4.9
		FSP Off-Ramp to Rolling Road	Ramp	195	30	6.6	189	30	6.3
		Between Ramps	Mainline	692	51	4.6	692	51	4.6
		FCP Ramp to NB FCP	Ramp	660	28	23.3	656	28	23.2
		Downstream	Merge	1402	48	7.3	1394	48	7.2
	Barta Road	Upstream	Diverge	766	51	5.0	759	51	5.0
		Off-Ramp	Ramp	247	28	8.9	259	27	9.6
		Between Ramps	Mainline	513	51	5.0	494	51	4.9
		On-Ramp	Ramp	382	24	16.2	376	24	15.9
		Between Ramps	Merge	901	50	6.1	870	50	5.8
		On-Ramp	Ramp	19	33	0.6	22	33	0.7
		Downstream	Merge	916	51	4.5	888	51	4.4

Mainline Volume, Density, and Speed

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Direction	Interchange	Segment	Segment Type	AM Hour 1			AM Hour 2		
				Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)	Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)
Northbound Fairfax County Parkway	Boudinot Drive	Upstream	Weave	1077	50	5.4	1063	50	5.4
		Off-Ramp	Ramp	374	38	9.9	364	38	9.7
		Between Ramps	Mainline	700	51	4.6	695	51	4.5
		On-Ramp	Ramp	62	31	2.0	58	31	1.8
		Downstream	Merge	768	51	3.8	760	51	3.7
	I-95	Upstream	Diverge*	1614	28	19.7	1593	27	19.6
		Off-Ramp to NB I-95	Ramp	754	35	21.7	750	35	21.6
		Between Ramps	Mainline	944	46	10.4	926	46	10.2
		On-Ramp from NB I-95	Ramp	562	30	19.1	553	30	18.8
		Between Ramps	Weave	1531	35	14.8	1504	36	14.1
		Off-Ramp to SB I-95	Ramp	716	36	20.0	701	36	19.3
		Between Ramps	Mainline	801	51	5.2	793	51	5.2
		On-Ramp from SB I-95	Ramp	270	48	5.6	262	48	5.4
		Downstream	Weave	1077	50	5.4	1063	50	5.4
	Telegraph Road	Upstream	Diverge	1001	45	7.4	1009	44	7.6
		Off-Ramp	Ramp	150	36	4.2	156	36	4.4
		Between Ramps	Mainline	871	49	8.9	875	49	8.9
		On-Ramp	Ramp	638	45	14.3	612	45	13.7
		Downstream	Merge	1517	47	10.7	1491	47	10.6
Westbound Franconia-Springfield Parkway	Backlick Road	Upstream	Diverge	965	45	5.4	945	45	5.3
		Off-Ramp	Ramp	285	37	7.8	271	37	7.4
		Between Ramps	Mainline	664	50	4.4	657	50	4.4
		On-Ramp	Ramp	327	34	9.6	319	34	9.3
		Downstream	Merge	941	50	4.7	928	50	4.7
	Frontier Drive	Upstream	Diverge	1466	34	10.9	1400	35	10.0
		Off-Ramp	Ramp	751	38	20.0	727	38	19.3
		Between Ramps	Mainline	770	51	5.1	741	51	4.9
		On-Ramp	Ramp	233	34	3.5	235	34	3.5
		Downstream	Merge	993	51	4.9	978	51	4.8
Southbound Fairfax County Parkway	Baron Cameron Avenue/Elden Street	Upstream	Diverge	2649	46	14.5	2675	46	14.7
		Off-Ramp	Ramp	310	36	4.3	305	36	4.3
		Between Ramps	Mainline	2432	48	16.9	2460	48	17.2
		On-Ramp	Ramp	533	27	10.0	507	27	9.3
		Downstream	Merge	2991	21	28.2	2973	21	29.4
	US 50	Upstream	Diverge	1953	43	11.3	1988	43	11.5
		Off-Ramp to WB US 50	Ramp	19	27	0.7	22	27	0.8
		Between Ramps	Diverge	1948	32	15.6	1986	31	16.2
		Off-Ramp to EB US 50	Ramp	424	25	17.0	429	25	17.3
		Between Ramps	Mainline**	1593	36	14.6	1630	37	14.7
		On-Ramp from EB US 50	Ramp	429	31	14.1	394	31	12.9
		Downstream	Weave	1960	48	10.2	1954	48	10.2
	Monument Drive/Fair Lakes Parkway	Upstream	Weave	1960	48	10.2	1954	48	10.2
		Off-Ramp	Ramp	573	44	13.1	584	44	13.4
		Between Ramps	Mainline	1391	50	9.2	1372	50	9.1
		On-Ramp	Ramp	616	33	6.3	578	33	5.9
		Downstream	Weave	2045	50	10.3	2000	50	10.1
	I-66	Upstream	Weave	2045	50	10.3	2000	50	10.1
		Off-Ramp to WB I-66	Ramp	422	30	14.1	417	30	13.9
		Between Ramps	Mainline	1617	50	10.7	1584	50	10.5
		On-Ramp from WB I-66	Ramp	145	25	5.7	144	25	5.7
		Between Ramps	Weave	1750	49	9.0	1722	49	8.9
		Off-Ramp to EB I-66	Ramp	269	25	10.8	243	25	9.7
		Between Ramps	Mainline	1490	50	10.0	1483	50	10.0
		On-Ramp from EB I-66	Ramp	1147	28	40.3	1115	29	39.2
		Downstream	Merge	2631	49	13.5	2591	49	13.3
	US 29	Upstream	Diverge	2635	49	18.0	2600	49	17.9
		Off-Ramp	Ramp	272	39	6.9	264	39	6.7
		Between Ramps	Mainline	2358	49	23.9	2334	49	23.7
		On-Ramp	Ramp	721	28	13.1	676	28	12.2
		Downstream	Merge	3076	47	16.4	3016	47	16.1
	Braddock Road	Upstream	Diverge	3049	48	21.3	3006	48	21.0
		Off-Ramp	Ramp	614	35	17.6	605	36	17.0
		Between Ramps	Mainline	2410	49	24.5	2383	49	24.2
		On-Ramp	Ramp	481	35	13.6	464	35	13.1
		Downstream	Merge	2868	45	21.3	2832	45	20.8
	Ox Road	Upstream	Diverge	2672	47	28.3	2683	47	28.4
		Off-Ramp	Ramp	489	33	15.0	503	33	15.4
		Between Ramps	Mainline	2167	49	22.2	2193	49	22.5
		On-Ramp	Ramp	248	32	7.8	245	32	7.6
		Downstream	Merge	2405	44	18.1	2434	44	18.3

Mainline Volume, Density, and Speed

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Direction	Interchange	Segment	Segment Type	AM Hour 1			AM Hour 2		
				Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)	Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)
Southbound Fairfax County Parkway	Seabrook Lane/Hooes Road/Pohick Road	Upstream	Diverge	2839	41	23.0	2912	39	24.9
		Off-Ramp	Ramp	323	32	5.1	322	32	5.1
		Between Ramps	Mainline	2558	48	26.8	2619	48	27.6
		On-Ramp	Ramp	1048	14	76.7	1043	12	88.2
		Downstream	Merge	3602	21	58.4	3671	20	62.2
	Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way	Upstream	Diverge	3502	47	18.7	3592	47	19.2
		Off-Ramp	Ramp	119	11	5.6	120	12	5.2
		Between Ramps	Mainline	3459	48	35.8	3568	48	37.0
		On-Ramp	Ramp	1075	41	26.2	1032	41	25.1
		Downstream	Merge	4523	46	32.9	4596	46	33.2
	Franconia Springfield Parkway/Rolling Road	Upstream (FCP)	Diverge	4533	38	39.4	4629	38	40.8
		FCP Ramp to SB FCP	Ramp	1454	31	23.5	1525	31	24.6
		Downstream (FCP)	Weave	2203	50	11.0	2239	50	11.2
		Between Ramps (FSP)	Mainline	3076	48	31.9	3108	48	32.3
		FSP Off-Ramp to Rolling Rd	Ramp	220	27	4.1	222	27	4.2
		Between Ramps (FSP)	Mainline	2835	49	29.0	2871	49	29.3
		FSP On-Ramp from Rolling Rd	Ramp	471	28	8.3	439	28	7.8
		Downstream (FSP)	Merge	3287	49	16.8	3292	49	16.8
	Barta Road	Upstream	Diverge	2162	36	12.2	2192	35	12.5
		Off-Ramp	Ramp	732	43	8.5	745	43	8.6
		Between Ramps	Mainline	1479	48	10.2	1498	48	10.4
		On-Ramp	Ramp	36	25	0.8	33	25	0.7
		Between Ramps	Merge	1515	51	10.0	1539	51	10.1
		On-Ramp	Ramp	378	43	8.8	356	43	8.2
		Downstream	Weave	1892	50	9.5	1899	50	9.5
	Boudinot Drive	Upstream	Weave	1892	50	9.5	1899	50	9.5
		Off-Ramp	Ramp	200	36	5.6	210	36	5.9
		Between Ramps	Mainline	1687	51	11.1	1692	51	11.1
		On-Ramp	Ramp	653	30	22.2	621	30	21.1
		Downstream	Merge	2341	47	12.5	2320	48	12.2
	I-95	Upstream	Diverge	2233	40	20.3	2221	36	22.7
		Off-Ramp to SB I-95	Ramp	281	31	9.2	276	31	9.0
		Between Ramps	Mainline	1890	26	38.6	1917	23	51.6
		On-Ramp from SB I-95	Ramp	1191	20	60.6	1183	17	76.4
		Between Ramps	Weave	3020	17	60.4	3075	16	70.8
		Off-Ramp to NB I-95	Ramp	536	47	11.5	526	47	11.3
		Between Ramps	Mainline**	2498	36	35.2	2579	35	37.2
		On-Ramp from NB I-95	Ramp	143	29	5.0	138	29	4.8
		Downstream	Weave	2658	28	32.1	2738	28	33.3
	Telegraph Road	Upstream	Diverge	2347	47	16.6	2401	46	17.3
		Off-Ramp	Ramp	291	44	6.6	302	44	6.9
		Between Ramps	Mainline	2035	49	20.8	2079	49	21.2
		On-Ramp	Ramp	408	41	9.9	391	41	9.5
		Downstream	Weave	2386	47	16.9	2416	47	17.1
Eastbound Franconia-Springfield Parkway	Backlick Road	Upstream	Diverge	3345	34	24.5	3374	33	26.0
		Off-Ramp	Ramp	1270	23	56.6	1272	23	55.3
		Between Ramps	Mainline	2155	50	14.5	2201	50	14.8
		On-Ramp	Ramp	334	33	10.1	318	33	9.7
		Downstream	Merge	2493	49	12.6	2530	49	12.9
	Frontier Drive	Upstream	Diverge	2324	48	12.2	2391	44	14.0
		Off-Ramp	Ramp	1145	30	21.1	1184	22	39.8
		Between Ramps	Mainline	1198	51	7.9	1237	51	8.1
		On-Ramp	Ramp	536	42	12.8	504	42	11.9
		Downstream	Merge	1755	48	9.1	1761	48	9.1

**Not an actual freeway segment because of signal

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Cup Leaf Holly Court	NB	LT	16	289	43.3	5.2	4	82	17	278	41.3	5.2	4	82
		TH	273		3.0				261		2.8			
	SB	TH	1476	1496	9.0	8.9	22	228	1412	1429	8.6	8.5	20	189
		RT	20		4.4				17		4.9			
	EB	LT	57	156	37.5	37.4	33	190	58	149	36.2	35.5	29	180
		RT	99		37.4				91		35.1			
	Intersection		1941		10.6				1856		10.2			
Fairfax County Parkway and Route 7 Westbound Ramps	NB	LT	323	498	52.1	44.9	54	260	316	488	52.1	45.1	54	246
		TH	175		31.5				172		32.3			
	SB	TH	1490	1571	15.8	15.0	47	386	1427	1504	14.8	14.0	41	356
		RT	81		0.1				77		0.1			
	WB	LT	97	211	44.8	21.8	23	150	96	201	44.1	22.2	22	143
		RT	114		2.2				105		2.2			
	Intersection		2280		22.1				2193		21.7			
Fairfax County Parkway and Route 7 Eastbound Ramps	NB	TH	467	508	13.6	12.6	12	232	464	500	14.4	13.5	13	218
		RT	41		1.5				36		1.4			
	SB	LT	482	1575	28.3	15.5	66	416	462	1525	28.0	14.8	60	392
		TH	1093		9.9				1063		9.1			
	EB	LT	42	1226	50.2	4.7	11	93	40	1168	47.9	4.2	10	85
		RT	1184		3.1				1128		2.6			
	Intersection		3309		11.1				3193		10.7			
Fairfax County Parkway and Sugarland Road	NB	LT	25	505	74.0	10.8	10	313	23	503	70.8	9.7	9	294
		TH	455		7.8				454		7.1			
		RT	25		1.2				26		1.1			
	SB	LT	32	2273	61.6	11.6	80	818	28	2196	60.5	11.7	77	800
		TH	2220		10.9				2148		11.1			
		RT	21		5.3				20		3.6			
	EB	LT	20	80	63.3	38.7	7	109	19	74	64.5	41.2	7	111
		TH	9		70.0				9		76.7			
		RT	51		23.6				46		24.7			
	WB	LT	36	70	69.2	39.1	14	92	39	66	67.3	42.3	15	110
		TH	1		45.3				0		90.5			
		RT	33		6.0				27		6.1			
	Intersection		2928		12.8				2839		12.8			
Fairfax County Parkway and Heather Way	NB	LT	25	506	30.1	2.2	6	90	23	495	22.7	1.7	4	71
		TH	481		0.7				472		0.7			
	SB	TH	2267	2288	13.1	13.0	36	578	2239	2260	11.8	11.7	22	457
		RT	21		3.2				21		3.8			
	EB	LT	20	79	28.6	25.9	7	98	19	77	23.9	23.1	6	108
		RT	59		25.0				58		22.8			
	Intersection		2873		11.5				2832		10.3			
Fairfax County Parkway and Wiehle Avenue	NB	LT	101	565	78.0	79.2	118	359	101	555	77.4	80.3	117	352
		TH	405		90.3				400		91.1			
		RT	59		5.5				54		5.8			
	SB	LT	304	2308	76.3	44.3	717	2358	313	2314	76.3	44.9	689	2238
		TH	1966		40.0				1961		40.6			
		RT	38		12.1				40		12.8			
	EB	LT	33	932	103.2	77.5	241	851	33	908	102.4	74.4	224	788
		TH	439		84.5				424		79.7			
		RT	460		68.9				451		67.3			
	WB	LT	65	282	87.7	53.9	35	177	63	277	91.5	54.6	33	170
		TH	144		59.3				144		59.1			
		RT	73		13.3				70		12.2			
	Intersection		4087		57.4				4054		57.0			
Fairfax County Parkway and Sugarland Valley Drive	NB	LT	0	552	0.0	0.3	0	0	0	543	0.0	0.3	0	0
		TH	552		0.3				543		0.3			
	SB	TH	2476	2483	1.0	1.0	0	0	2469	2475	1.0	1.0	0	0
		RT	7		1.9				6		1.9			
	EB	LT	11	30	27.1	21.0	2	64	8	30	29.7	19.5	2	68
		RT	19		17.5				22		15.8			
	Intersection		3065		1.1				3048		1.1			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Lake Newport Road	NB	LT	26	568	88.5	13.7	16	170	23	552	88.5	13.4	15	177
		TH	465		11.2				449		11.3			
		RT	77		3.7				80		3.8			
	SB	LT	48	2476	95.4	9.1	46	524	48	2495	96.2	8.6	42	434
		TH	2409		7.4				2427		6.9			
		RT	19		5.7				20		4.7			
	EB	LT	39	173	80.3	33.6	18	197	38	164	77.7	31.2	18	147
		TH	39		6.7				37		4.0			
		RT	95		25.4				89		22.6			
	WB	LT	159	223	88.2	73.4	96	448	158	216	82.7	70.6	87	390
		TH	9		93.2				11		88.8			
		RT	55		27.5				47		25.7			
	Intersection		3440		15.3				3427		14.4			
Fairfax County Parkway and N Walnut Branch Road	NB	LT	26	559	92.5	11.2	19	210	26	549	91.8	11.2	18	191
		TH	516		7.4				503		7.4			
		RT	17		2.5				20		2.3			
	SB	LT	26	2666	78.3	5.0	22	516	26	2685	80.3	4.8	22	509
		TH	2634		4.3				2653		4.1			
		RT	6		3.3				6		2.6			
	EB	LT	20	53	92.1	50.0	10	78	19	50	96.6	52.1	10	99
		TH	1		83.4				1		86.8			
		RT	32		22.6				30		22.7			
	WB	LT	18	59	81.5	44.9	8	103	18	57	79.4	45.5	8	104
		TH	9		77.1				8		79.7			
		RT	32		15.3				31		17.0			
	Intersection		3337		7.5				3341		7.3			
Fairfax County Parkway and N Walnut Branch Road (South)	NB	TH	558	558	0.3	0.3	0	0	550	550	0.3	0.3	0	0
	SB	TH	2663	2682	1.3	1.3	2	209	2686	2707	1.3	1.3	0	38
		RT	19		1.9				21		0.8			
	EB	RT	84	84	21.7	21.7	11	111	82	82	20.2	20.2	10	122
	Intersection		3324		1.7				3339		1.6			
Fairfax County Parkway and Baron Cameron Ave	NB	LT	265	476	55.3	32.0	51	216	281	500	57.3	33.3	55	233
		RT	211		2.8				219		2.6			
	SB	LT	124	310	53.0	21.9	29	132	129	312	55.5	23.7	29	135
		RT	186		1.2				183		1.2			
	EB	LT	48	1093	68.1	17.1	58	450	48	1030	67.8	16.6	53	402
		TH	781		18.8				732		18.0			
		RT	264		2.7				250		2.6			
	WB	LT	303	1019	61.5	25.0	62	224	289	983	60.6	24.6	57	214
		TH	641		10.5				620		10.6			
		RT	75		0.8				74		0.8			
	Intersection		2898		22.8				2825		23.1			
Fairfax County Parkway and New Dominion Parkway	NB	TH	837	1711	22.7	22.4	91	632	824	1729	22.4	22.0	86	622
		RT	874		22.2				905		21.7			
	SB	LT	484	3017	56.8	18.7	175	810	484	2989	57.8	20.9	190	847
		TH	2533		11.4				2505		13.8			
	WB	LT	316	415	55.4	43.3	63	251	306	401	55.3	43.3	61	266
		RT	99		4.6				95		4.8			
	Intersection		5143		21.9				5119		23.1			
Fairfax County Parkway and Spring Street Ramp	NB	LT	682	2274	50.0	16.6	104	367	693	2320	49.2	16.2	106	379
		TH	1592		2.3				1627		2.2			
	SB	TH	2397	2833	22.2	20.8	133	891	2412	2843	29.2	26.9	189	1038
		RT	436		12.9				431		13.7			
	EB	LT	108	278	54.5	21.3	25	117	96	259	53.0	19.8	22	111
		RT	170		0.2				163		0.2			
	Intersection		5385		19.0				5422		22.0			
Fairfax County Parkway and Spring Street/Sunset Hills Road	SB	LT	261	1113	45.1	34.2	235	978	251	1126	43.4	33.0	225	930
		RT	852		30.9				875		30.0			
	EB	LT	88	1304	55.4	13.8	46	417	74	1243	57.0	13.4	43	346
		TH	907		14.0				876		13.9			
		RT	309		1.4				293		1.0			
	WB	TH	390	583	23.2	15.8	26	173	372	557	22.7	15.4	25	167
		RT	193		0.8				185		0.8			
	Intersection		3000		21.8				2926		21.3			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	NB	LT	90	2516	46.1	13.2	61	481	82	2553	43.7	13.1	61	436
		TH	2426		12.0				2471		12.1			
	SB	TH	2540	2831	29.6	27.1	200	1175	2589	2876	43.0	39.5	556	1830
		RT	291		5.0				287		8.1			
	WB	LT	335	891	41.9	35.8	66	409	338	876	45.1	37.4	62	389
		TH	0		0.0				0		0.0			
		RT	556		32.2				538		32.6			
	Intersection		6238		22.7				6305		28.5			
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	NB	TH	1786	2220	46.4	40.3	221	868	1880	2315	49.5	43.0	250	879
		RT	434		15.3				435		15.0			
	SB	LT	744	2878	66.4	31.8	558	1988	758	2933	68.1	44.6	1141	2378
		TH	2134		19.8				2175		36.4			
	EB	LT	714	1022	52.2	49.1	205	1014	701	1002	62.3	65.6	328	1184
		TH	0		0.0				0		0.0			
		RT	308		41.8				301		73.4			
	Intersection		6120		37.8				6250		47.4			
Fairfax County Parkway and Sunrise Valley Drive	NB	LT	148	2276	102.1	50.9	503	2326	143	2343	94.9	62.8	967	2569
		TH	1621		52.1				1683		66.0			
		RT	507		32.0				517		43.3			
	SB	LT	500	2424	146.8	55.6	479	1487	515	2464	189.4	65.1	764	1608
		TH	1258		38.4				1266		39.2			
		RT	666		19.8				683		19.4			
	EB	LT	412	974	96.5	90.9	197	692	398	949	97.5	92.8	200	734
		TH	522		91.6				517		93.8			
		RT	40		23.1				34		23.2			
	WB	LT	63	593	97.5	64.4	119	370	66	577	95.4	61.8	110	339
		TH	309		102.2				292		99.4			
		RT	221		2.1				219		1.6			
	Intersection		6267		60.2				6333		68.1			
Fairfax County Parkway and Fox Mill Road	NB	LT	225	2321	143.2	29.0	250	1589	224	2346	142.9	29.7	277	1905
		TH	1971		17.2				2001		18.3			
		RT	125		9.3				121		9.5			
	SB	LT	156	1363	122.3	44.3	170	652	161	1370	168.8	52.1	196	719
		TH	1169		35.1				1172		37.5			
		RT	38		5.4				37		6.4			
	EB	LT	97	682	70.1	67.0	119	373	106	678	76.2	65.7	109	329
		TH	352		101.4				341		97.1			
		RT	233		13.6				231		14.6			
	WB	LT	101	686	73.1	68.0	114	380	105	676	77.3	70.0	114	360
		TH	360		89.4				359		89.5			
		RT	225		31.5				212		33.3			
	Intersection		5052		43.5				5070		46.0			
Fairfax County Parkway and West Ox Road	NB	LT	573	2686	93.1	41.9	187	1561	576	2751	97.0	47.2	372	2142
		TH	2067		28.5				2126		34.6			
		RT	46		9.0				49		10.9			
	SB	LT	49	1468	105.0	32.5	129	686	50	1527	105.1	31.5	123	710
		TH	1176		35.6				1218		34.5			
		RT	243		3.1				259		3.2			
	EB	LT	174	724	73.2	48.7	107	467	168	704	67.7	47.5	105	433
		TH	231		73.9				217		76.7			
		RT	319		17.0				319		17.0			
	WB	LT	40	418	66.5	70.4	169	566	38	407	73.6	71.6	168	603
		TH	288		90.6				282		91.1			
		RT	90		7.6				87		7.7			
	Intersection		5296		42.5				5389		44.7			
Fairfax County Parkway and Franklin Farm Road	NB	LT	346	2910	134.8	41.1	472	1765	369	2920	164.7	45.7	536	1761
		TH	2506		29.0				2490		29.0			
		RT	58		5.6				61		6.5			
	SB	LT	13	1539	142.3	10.9	29	613	15	1552	137.1	11.7	33	697
		TH	1353		10.4				1365		11.2			
		RT	173		4.6				172		5.1			
	EB	LT	170	721	92.0	61.4	150	542	181	730	94.4	62.9	142	610
		TH	209		95.5				209		95.9			
		RT	342		25.3				340		25.8			
	WB	LT	68	367	80.6	89.6	100	321	71	363	77.7	88.6	98	351
		TH	267		93.9				260		93.9			
		RT	32		73.0				32		69.4			
	Intersection		5537		38.6				5565		41.3			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Springhaven Drive/Tuckaway Drive	NB	LT	58	2923	24.4	18.9	328	1564	59	2973	30.2	22.3	421	1562
		TH	2823		18.9				2876		22.3			
		RT	42		10.4				38		12.7			
	SB	LT	21	1772	70.0	7.5	14	236	20	1787	65.7	7.8	14	260
		TH	1731		6.8				1747		7.2			
		RT	20		4.5				20		4.3			
	EB	LT	62	271	73.2	41.0	28	200	64	264	75.3	42.2	29	177
		TH	42		85.5				40		89.4			
		RT	167		17.9				160		17.2			
	WB	LT	40	111	74.8	76.0	29	180	43	105	71.0	73.6	25	158
		TH	38		85.6				36		87.2			
		RT	33		66.3				26		59.2			
	Intersection		5077		17.4				5129		19.4			
Fairfax County Parkway and Stringfellow Road	NB	LT	47	2743	24.8	11.6	66	1038	43	2788	28.4	19.1	191	1450
		TH	2696		11.4				2745		19.0			
		RT	0		0.0				0		0.0			
	SB	LT	0	1937	0.0	9.0	40	327	0	1956	0.0	8.4	38	339
		TH	1798		9.4				1814		8.8			
		RT	139		3.4				142		3.4			
	EB	LT	229	330	100.6	75.0	150	497	225	324	99.4	74.3	142	471
		TH	0		0.0				0		0.0			
		RT	101		16.8				99		17.2			
	WB	LT	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0
		TH	0		0.0				0		0.0			
		RT	0		0.0				0		0.0			
	Intersection		5010		14.8				5068		18.5			
Fairfax County Parkway and Old Plains Road	NB	TH	2743	2743	0.5	0.5	0	0	2747	2747	0.5	0.5	0	0
	SB	TH	1858	1878	0.5	0.5	0	0	1914	1932	0.5	0.5	0	0
		RT	20		1.0				18		1.0			
	EB	RT	50	50	10.1	10.1	4	99	47	47	10.2	10.2	4	98
	Intersection		4671		0.6				4726		0.6			
Fairfax County Parkway and Rugby Road	NB	LT	9	3181	120.2	47.3	560	1839	9	3241	117.9	47.1	708	1829
		TH	2387		55.5				2440		54.8			
		RT	785		21.6				792		22.5			
	SB	LT	177	1928	127.3	26.4	129	380	164	1937	127.7	25.9	127	447
		TH	1691		16.7				1709		17.0			
		RT	60		2.7				64		2.4			
	EB	LT	216	439	182.3	128.6	329	718	218	438	222.1	161.4	424	831
		TH	137		101.6				132		128.8			
		RT	86		36.8				88		60.1			
	WB	LT	230	515	92.3	87.4	85	349	228	491	93.1	87.0	76	297
		TH	139		97.4				130		95.6			
		RT	146		70.2				133		68.2			
	Intersection		6063		50.0				6107		51.8			
Fairfax County Parkway and US 50 Westbound Ramp	NB	TH	2805	2805	1.8	1.8	4	236	2752	2752	4.6	4.6	16	259
	SB	TH	1973	1973	5.1	5.1	22	412	2014	2014	5.2	5.2	24	462
	WB	LT	59	492	51.2	6.3	15	75	58	483	49.8	7.7	14	74
		RT	433		0.2				425		1.9			
	Intersection		5270		3.5				5249		5.1			
Fairfax County Parkway and US 50 Eastbound Ramp	NB	TH	3316	3316	4.0	4.0	21	350	3322	3322	4.3	4.3	23	388
	SB	TH	1595	1595	2.5	2.5	6	272	1633	1633	2.3	2.3	5	262
	EB	LT	69	431	48.0	7.9	18	136	67	398	48.7	8.4	18	124
		RT	362		0.2				331		0.2			
	Intersection		5342		3.9				5353		4.0			
Fairfax County Parkway SB Ramps and Monument Drive	SB	LT	177	576	14.1	12.2	20	225	185	590	14.4	11.4	19	209
		TH	399		11.3				405		10.0			
	WB	LT	195	195	3.2	3.2	3	30	183	183	3.7	3.7	3	28
	Intersection		771		9.9				773		9.6			
Fairfax County Parkway NB Ramps and Monument Drive	NB	LT	0	403	0.0	2.8	4	83	0	391	0.0	2.5	4	63
		TH	276		3.5				261		3.2			
		RT	127		1.2				130		1.2			
	EB	TH	178	178	52.4	52.4	36	177	190	190	51.8	51.8	38	176
	WB	TH	195	378	38.3	30.9	42	227	183	359	38.6	32.1	42	236
		RT	183		23.1				176		25.4			
	Intersection		959		23.1				940		23.8			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

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Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway SB Ramps and Fair Lakes Parkway	SB	LT	194	589	52.4	23.3	45	189	196	583	54.9	24.0	45	177
		TH	118		27.2				106		27.4			
		RT	277		1.3				281		1.2			
	EB	TH	600	1060	11.3	7.6	15	149	586	1012	11.5	7.8	16	154
		RT	460		2.8				426		2.6			
	WB	LT	79	410	80.1	21.2	30	195	82	417	84.3	22.4	31	202
		TH	331		7.2				335		7.2			
	Intersection		2059		14.8				2012		15.5			
Fairfax County Parkway NB Ramps and Fair Lakes Parkway	NB	LT	243	944	52.8	18.1	49	185	249	931	51.2	18.4	48	185
		TH	63		50.4				67		51.1			
		RT	638		1.7				615		1.6			
	EB	LT	252	794	35.7	16.2	41	205	233	777	35.7	15.7	40	195
		TH	542		7.2				544		7.2			
	WB	TH	179	269	15.9	12.2	8	75	173	263	15.8	12.1	8	68
		RT	90		4.8				90		5.1			
	Intersection		2007		16.6				1971		16.5			
Fairfax County Parkway SB Ramp and US 29 SB	SB	TH	208	272	31.8	25.4	37	215	199	265	32.1	25.3	36	231
		RT	64		4.7				66		4.9			
	WB	LT	386	549	7.3	6.0	2	61	360	531	6.7	5.6	2	60
		TH	163		2.9				171		3.3			
	Intersection		821		12.4				796		12.2			
Fairfax County Parkway SB Ramp and US 29 NB	SB	LT	208	594	1.5	9.6	28	188	200	560	1.8	9.9	27	186
		TH	386		14.0				360		14.4			
	EB	TH	695	1038	25.6	23.2	85	403	671	994	25.0	22.4	76	349
		RT	343		18.4				323		17.0			
	Intersection		1632		18.3				1554		17.9			
Fairfax County Parkway NB Ramp and US 29 SB	NB	LT	82	303	0.7	6.7	15	229	91	307	0.7	6.6	15	228
		TH	221		8.9				216		9.1			
	WB	TH	467	602	15.8	12.5	26	137	439	575	16.5	12.8	25	135
		RT	135		1.0				136		1.0			
	Intersection		905		10.5				882		10.7			
Fairfax County Parkway NB Ramp and US 29 NB	NB	TH	82	82	28.5	28.5	10	106	91	91	28.7	28.7	12	116
	EB	LT	221	904	5.7	3.1	5	128	216	871	5.9	3.1	6	160
		TH	683		2.2				655		2.2			
	Intersection		986		5.2				962		5.5			
West Ox Road and US 29 Southbound	NB	TH	1278	1278	0.3	0.3	0	0	1277	1277	0.3	0.3	0	0
	SB	TH	21	317	4.4	4.3	4	81	18	303	4.8	4.5	4	98
		RT	296		4.3				285		4.5			
	WB	TH	307	350	36.0	31.7	37	165	290	328	35.0	31.0	34	158
		RT	43		0.6				38		0.6			
	Intersection		1945		6.6				1908		6.2			
West Ox Road/Fairfax County Parkway NB Off-Ramp and US 29 NB	NB	TH	724	855	21.2	19.0	49	328	743	877	21.8	19.5	52	355
		RT	131		6.6				134		6.6			
	SB	LT	21	21	29.7	29.7	4	67	18	18	30.2	30.2	3	55
	EB	LT	554	682	6.9	7.3	18	136	533	654	6.0	6.6	16	136
		TH	128		8.8				121		9.1			
	Intersection		1558		14.0				1549		14.2			
Fairfax County Parkway NB Ramps/Community Center and Braddock Road	NB	LT	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0
		TH	0						0					
		RT	0		0.0				0		0.0			
	SB	LT	43	211	101.5	20.9	18	95	38	215	97.0	17.4	15	93
		TH	0		0.0				0		0.0			
		RT	168		0.3				177		0.3			
	EB	TH	2127	2457	3.2	9.9	55	397	2063	2383	3.0	9.7	53	393
		RT	10		2.1				8		3.9			
	WB	LT	0	940	0.0	4.6	7	198	0	908	0.0	4.2	6	200
		TH	378		6.9				370		6.5			
	Intersection		3608		9.2				3506		8.8			
Fairfax County Parkway SB Ramps and Braddock Road	SB	LT	551	658	71.3	60.3	131	485	544	647	69.1	58.6	125	451
		TH	0		0.0				0		0.0			
		RT	107		3.7				103		3.1			
	EB	TH	1915	2374	18.1	15.1	95	948	1835	2274	17.1	14.2	85	793
		RT	459		2.4				439		2.3			
	WB	LT	24	545	20.7	6.1	8	147	27	547	20.3	6.4	8	158
		TH	521		5.4				520		5.7			
	Intersection		3577		22.0				3468		21.3			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Popes Head Road	NB	LT	18	3560	59.9	10.4	516	2937	22	3584	76.7	12.4	690	3474
		TH	3536		10.2				3557		12.0			
		RT	6		2.8				5		5.0			
	SB	LT	61	2891	147.2	10.3	72	1153	71	2862	162.8	11.9	81	1223
		TH	2811		7.4				2772		8.1			
		RT	19		5.0				19		3.9			
	EB	LT	35	130	163.7	86.5	36	162	37	134	152.3	88.1	31	158
		TH	35		146.3				41		142.3			
		RT	60		6.5				56		6.1			
	WB	LT	17	268	184.1	129.5	209	666	20	315	278.1	199.9	376	883
		TH	17		172.6				20		256.2			
		RT	234		122.4				275		190.1			
	Intersection		6849		16.5				6895		22.2			
Fairfax County Parkway and Colchester Meadow Lane	NB	LT	0	3553	0.0	8.0	169	1817	0	3596	0.0	10.1	262	2410
		TH	3547		8.0				3590		10.1			
		RT	6		3.3				6		1.2			
	SB	LT	4	2890	27.3	1.2	1	72	6	2849	27.6	1.3	2	64
		TH	2886		1.2				2843		1.2			
		RT	0		0.0				0		0.0			
	EB	LT	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0
		TH	0		0.0				0		0.0			
		RT	0		0.0				0		0.0			
	WB	LT	14	20	75.2	70.0	6	70	13	18	98.8	94.8	8	82
		TH	0		0.0				0		0.0			
		RT	6		58.0				5		84.3			
	Intersection		6463		5.2				6463		6.4			
Fairfax County Parkway and Ladues End Lane/Nomes Court	NB	LT	4	3537	42.1	0.6	2	58	4	3611	24.8	0.6	1	47
		TH	3517		0.6				3590		0.6			
		RT	16		0.3				17		0.2			
	SB	LT	25	2920	56.4	1.3	9	90	23	2857	66.3	1.3	10	100
		TH	2881		0.8				2817		0.8			
		RT	14		0.4				17		0.4			
	EB	LT	5	31	49.2	64.8	11	144	5	32	49.4	70.0	8	124
		TH	9		142.1				9		171.9			
		RT	17		28.5				18		24.7			
	WB	LT	5	10	86.6	59.1	3	49	4	8	130.7	90.9	3	50
		TH	0		197.2				0		0.0			
		RT	5		31.5				4		51.0			
	Intersection		6498		1.3				6508		1.4			
Fairfax County Parkway and Burke Centre Parkway	NB	TH	2925	2933	26.7	26.7	1641	5443	2949	2959	29.3	29.2	5568	7151
		RT	8		9.2				10		9.1			
	SB	LT	185	2841	127.6	19.0	134	1791	193	2851	129.6	20.0	139	1835
		TH	2656		11.4				2658		12.0			
	WB	LT	18	638	110.3	90.0	180	597	22	677	100.0	89.8	190	597
		RT	620		89.4				655		89.5			
	Intersection		6412		29.5				6487		31.5			
Fairfax County Parkway SB Ramps/Robert Carter Road and Ox Road	NB	LT	459	470	99.3	99.2	167	487	480	491	98.6	98.6	173	539
		TH	11		94.9				11		99.1			
	SB	LT	20	83	94.8	70.8	23	134	18	81	95.6	75.6	25	134
		TH	43		89.4				43		98.9			
		RT	20		6.8				20		7.5			
	EB	LT	10	2986	101.2	27.2	419	1269	10	2771	107.7	47.1	647	1273
		TH	2869		27.5				2655		47.8			
		RT	107		12.5				106		23.9			
	WB	LT	99	525	91.9	30.4	37	187	96	497	90.4	29.5	35	187
		TH	406		16.8				382		15.6			
		RT	20		1.9				19		2.1			
	Intersection		4064		36.8				3840		52.0			
Fairfax County Parkway NB Ramps and Ox Road	NB	LT	32	321	89.3	10.0	15	69	31	337	86.8	9.1	14	71
		RT	289		1.2				306		1.2			
	EB	TH	1626	1626	3.6	3.6	11	284	1487	1487	3.2	3.2	8	266
	WB	TH	493	493	1.5	1.5	1	73	465	465	1.3	1.3	1	66
	Intersection		2440		4.0				2289		3.7			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

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Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Fred Oaks Road	NB	LT	24	1968	30.6	2.1	7	84	22	2031	33.2	2.0	7	82
		TH	1924		1.8				1988		1.7			
		RT	20		1.6				21		1.7			
	SB	LT	17	2416	30.5	2.1	5	267	19	2454	34.8	2.1	6	166
		TH	2375		1.9				2409		1.8			
		RT	24		5.0				26		2.6			
	EB	LT	10	33	30.4	24.3	3	53	10	30	33.6	25.9	3	55
		TH	2		64.5				2		72.5			
		RT	21		17.6				18		16.5			
	WB	LT	19	78	39.5	31.0	14	135	21	73	37.6	29.6	12	126
		TH	1		45.9				0		59.4			
		RT	58		28.0				52		26.4			
	Intersection		4495		2.8				4588		2.6			
Fairfax County Parkway and New Road	NB	LT	21	1988	20.4	2.0	2	59	22	2057	25.3	2.1	3	55
		TH	1967		1.8				2035		1.8			
	SB	TH	2410	2416	1.9	1.9	0	46	2444	2451	2.0	2.0	0	55
		RT	6		1.4				7		1.7			
	EB	LT	20	62	33.3	22.7	1	49	21	59	37.7	24.9	2	61
		RT	42		17.7				38		17.9			
	Intersection		4466		2.2				4567		2.3			
Fairfax County Parkway and Wendy Ann Court	NB	TH	1998	1998	1.0	1.0	0	0	2054	2054	1.0	1.0	0	0
	SB	TH	2452	2459	2.1	2.1	8	586	2474	2481	2.2	2.2	9	539
		RT	7		0.7				7		0.5			
	EB	RT	4	4	22.2	22.2	0	23	4	4	19.3	19.3	0	23
	Intersection		4461		1.6				4539		1.7			
Fairfax County Parkway and Karmich St/Roberts Parkway	NB	LT	2	2281	95.2	7.8	38	804	4	2317	91.1	7.9	37	855
		TH	1957		7.6				2004		7.7			
		RT	322		8.8				309		8.3			
	SB	LT	127	2460	91.9	11.9	71	821	122	2472	94.5	12.4	71	819
		TH	2331		7.6				2348		8.1			
		RT	2		4.2				2		3.2			
	EB	LT	2	25	99.9	52.7	8	93	2	24	99.7	47.9	7	66
		TH	6		98.0				6		90.5			
		RT	17		31.1				16		25.4			
	WB	LT	193	237	93.1	78.4	64	216	181	228	92.7	76.4	61	203
		TH	1		88.2				1		80.5			
		RT	43		12.1				46		12.4			
	Intersection		5003		13.4				5041		13.4			
Fairfax County Parkway and Knolls Pond Lane	NB	TH	2257	2266	6.1	6.1	27	734	2295	2305	6.2	6.2	36	845
		RT	9		0.5				10		0.5			
	SB	TH	2541	2541	0.7	0.7	0	6	2547	2547	0.8	0.8	0	103
	WB	RT	16	16	30.0	30.0	3	57	16	16	31.2	31.2	3	62
	Intersection		4823		3.3				4868		3.4			
Fairfax County Parkway and Burke Lake Road	NB	LT	44	2073	114.3	10.8	46	875	47	2091	121.4	11.2	42	778
		TH	2024		8.6				2039		8.7			
		RT	5		1.9				5		1.8			
	SB	LT	121	2536	94.9	25.7	203	1375	127	2553	93.7	25.5	210	1561
		TH	2353		22.6				2369		22.3			
		RT	62		6.3				57		5.4			
	EB	LT	110	523	76.1	73.7	93	316	103	502	80.1	73.9	90	276
		TH	311		89.2				302		87.7			
		RT	102		23.7				97		24.2			
	WB	LT	36	268	72.2	49.4	31	151	29	261	72.7	47.5	28	153
		TH	88		92.0				84		88.3			
		RT	144		17.7				148		19.4			
	Intersection		5400		25.8				5407		25.5			
Fairfax County Parkway and Burke Lake Park Ent./Old Keene Mill Road	NB	TH	1804	1869	6.3	6.6	27	278	1826	1890	6.2	6.4	27	273
		RT	65		13.7				64		12.9			
	SB	LT	212	2462	97.7	16.6	74	1348	230	2504	101.6	17.8	78	1387
		TH	2240		9.0				2264		9.3			
		RT	10		6.1				10		7.2			
	EB	LT	5	14	80.1	62.2	7	86	5	13	92.1	66.9	6	75
		TH	4		82.3				4		80.9			
		RT	5		28.2				4		21.3			
	WB	LT	36	302	101.9	27.3	21	161	36	288	96.9	26.7	19	165
		TH	13		93.0				12		96.5			
		RT	253		13.3				240		12.7			
	Intersection		4647		13.4				4695		13.9			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

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Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Portside Drive/Waterline Drive	NB	LT	12	1851	18.3	1.1	2	54	11	1876	17.2	1.1	2	50
		TH	1822		1.0				1850		1.0			
		RT	17		1.0				15		1.1			
	SB	LT	17	2273	12.5	1.4	2	109	16	2316	14.0	1.4	2	192
		TH	2250		1.3				2296		1.3			
		RT	6		1.1				4		1.0			
	EB	LT	4	10	18.1	16.4	0	27	3	8	25.8	17.8	0	26
		TH	1		13.9				1		18.0			
		RT	5		15.6				4		11.8			
	WB	LT	0	42	0.0	12.4	3	85	0	39	0.0	12.6	3	96
		TH	0		23.2				0		70.0			
		RT	42		12.4				39		12.6			
	Intersection		4176		1.4				4239		1.4			
Fairfax County Parkway and Rolling View Drive/Pilothouse Road	NB	LT	14	1828	24.7	2.1	3	87	10	1875	32.2	2.1	3	59
		TH	1807		1.9				1859		1.9			
		RT	7		1.2				6		1.9			
	SB	LT	0	2234	0.0	15.2	22	756	0	2311	0.0	16.8	22	644
		TH	2214		15.3				2290		16.9			
		RT	20		1.9				21		1.9			
	EB	LT	18	51	28.4	41.0	6	94	18	52	30.2	47.1	6	92
		TH	0		0.0				0		0.0			
		RT	33		47.8				34		56.0			
	WB	LT	16	38	37.9	21.2	5	103	16	36	37.9	21.1	5	84
		TH	0		0.0				0		0.0			
		RT	22		9.1				20		7.7			
	Intersection		4151		9.8				4274		10.7			
Fairfax County Parkway and Lee Chapel Road	NB	LT	83	1840	134.6	21.9	71	503	84	1888	124.6	21.5	72	560
		TH	1633		16.8				1680		16.9			
		RT	124		13.6				124		13.5			
	SB	LT	17	2265	117.4	29.4	311	1104	15	2351	118.2	30.7	323	1110
		TH	2184		29.2				2275		30.7			
		RT	64		11.1				61		9.9			
	EB	LT	195	1123	99.2	69.7	149	1015	187	1077	100.1	71.9	143	879
		TH	478		92.2				459		92.1			
		RT	450		32.9				431		38.1			
	WB	LT	150	321	98.8	86.9	53	175	147	309	98.3	88.2	51	171
		TH	158		82.1				152		83.6			
		RT	13		8.4				10		10.7			
	Intersection		5549		38.4				5625		38.7			
Fairfax County Parkway and South Run Park Ent./Reservation Drive	NB	LT	53	1916	32.0	4.4	10	197	52	1949	37.9	4.4	9	188
		TH	1772		3.7				1810		3.5			
		RT	91		2.7				87		2.5			
	SB	LT	61	2787	17.1	6.9	34	571	63	2835	17.6	8.2	46	831
		TH	2686		6.7				2727		8.0			
		RT	40		6.7				45		8.0			
	EB	LT	21	42	85.2	46.7	10	73	20	40	95.0	51.7	11	80
		TH	0		114.9				0		85.6			
		RT	21		8.2				20		8.3			
	WB	LT	90	142	97.8	66.5	55	227	83	133	99.9	66.6	50	218
		TH	1		142.7				1		91.6			
		RT	51		9.9				49		9.8			
	Intersection		4887		8.0				4957		8.6			
Fairfax County Parkway and Huntsman Boulevard	NB	LT	19	1829	34.7	14.8	83	872	18	1829	41.2	12.9	69	761
		TH	1688		15.1				1692		13.1			
		RT	122		7.1				119		6.2			
	SB	LT	97	2795	37.0	15.0	137	1167	88	2842	38.3	16.2	157	1185
		TH	2676		14.3				2730		15.6			
		RT	22		4.0				24		7.1			
	EB	LT	85	167	107.0	95.1	56	231	81	160	108.4	91.9	54	222
		TH	38		113.5				38		99.4			
		RT	44		56.3				41		52.2			
	WB	LT	177	366	95.1	60.4	71	216	170	356	96.4	60.6	69	209
		TH	25		98.6				23		101.5			
		RT	164		17.2				163		17.6			
	Intersection		5157		20.7				5187		20.4			
Fairfax County Parkway and Huntsman Court	NB	TH	1803	1860	1.1	1.1	0	24	1809	1865	0.9	0.9	0	0
		RT	57		0.4				56		0.4			
	SB	TH	2896	2896	0.7	0.7	0	0	2948	2948	0.8	0.8	0	51
	WB	RT	12	12	10.5	10.5	1	76	12	12	10.5	10.5	1	73
	Intersection		4768		0.9				4825		0.9			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

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Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Modisto Lane	NB	LT	13	1856	26.9	1.6	2	46	14	1864	25.7	1.6	2	42
		TH	1824		1.4				1830		1.4			
		RT	19		1.4				20		1.5			
	SB	LT	21	2879	20.3	2.2	2	67	21	2961	21.3	2.2	2	105
		TH	2846		2.1				2931		2.1			
		RT	12		2.6				9		2.4			
	EB	LT	13	49	50.2	31.2	8	98	16	46	43.7	30.9	7	96
		TH	0		79.7				0		0.0			
		RT	36		24.4				30		24.1			
	WB	LT	5	26	29.3	14.9	2	87	5	25	23.6	13.5	2	80
		TH	0		0.0				0		0.0			
		RT	21		11.5				20		11.0			
	Intersection		4810		2.3				4896		2.3			
Fairfax County Parkway and Cervantes Lane	NB	TH	1819	1829	0.7	0.7	0	68	1826	1837	0.7	0.7	0	79
		RT	10		1.4				11		1.6			
	SB	TH	2880	2880	0.7	0.7	0	0	2965	2965	0.7	0.7	0	56
	WB	RT	38	38	10.9	10.9	3	93	35	35	11.8	11.8	3	86
	Intersection		4747		0.8				4837		0.8			
Fairfax County Parkway SB Ramps and Hooes Road	SB	LT	13	322	78.8	39.4	46	219	11	324	74.0	38.9	46	202
		TH	132		80.1				136		79.6			
		RT	177		6.1				177		5.4			
	EB	TH	391	1285	32.3	30.0	173	601	382	1256	34.4	31.7	178	596
		RT	894		29.0				874		30.5			
	WB	LT	50	185	0.6	4.1	4	29	48	181	0.7	3.8	3	26
		TH	135		5.4				133		4.9			
	Intersection		1792		29.0				1761		30.1			
Fairfax County Parkway NB Ramps and Hooes Road	NB	LT	128	388	61.9	45.0	59	264	129	394	63.1	45.0	59	286
		TH	241		38.6				245		38.2			
		RT	19		12.3				20		10.7			
	EB	LT	376	404	2.7	2.7	4	60	363	393	2.4	2.3	4	59
		TH	28		2.2				30		0.8			
	WB	TH	57	97	79.7	54.2	26	138	52	92	81.1	51.5	25	140
		RT	40		17.9				40		13.0			
	Intersection		889		26.8				879		26.6			
Fairfax County Parkway SB Ramps and Pohick Road	SB	LT	0	1071	0.0	11.6	25	303	0	1064	0.0	17.4	33	344
		TH	916		13.2				899		20.1			
		RT	155		2.3				165		3.0			
	EB	TH	255	415	68.3	46.5	60	210	257	400	69.2	51.9	60	223
		RT	160		11.8				143		20.9			
	WB	LT	0	32	0.0	82.6	14	70	0	30	0.0	84.4	13	66
		TH	32		82.6				30		84.4			
	Intersection		1518		22.7				1494		28.0			
Fairfax County Parkway NB Ramps and Pohick Road	NB	LT	33	166	5.4	5.3	4	73	29	165	4.8	4.9	3	73
		TH	133		5.3				136		4.9			
	EB	LT	255	255	4.9	4.9	5	27	257	257	4.9	4.9	5	35
	Intersection		421		5.1				422		4.9			
Fairfax County Parkway and Hooes Road	NB	TH	1311	1333	0.3	0.3	0	0	1317	1339	0.3	0.3	0	0
		RT	22		0.5				22		0.6			
	SB	LT	34	3611	10.8	1.6	1	55	31	3697	11.9	1.7	1	54
		TH	3577		1.5				3666		1.6			
	WB	LT	15	50	35.6	17.3	3	107	16	47	46.9	24.6	5	132
		RT	35		9.4				31		13.1			
	Intersection		4994		1.4				5083		1.5			
Fairfax County Parkway SB Ramps and Shady Palm Drive	SB	LT	74	118	38.4	34.2	34	163	78	119	32.3	30.3	29	189
		TH	33		34.7				31		33.7			
		RT	11		4.5				10		4.1			
	EB	TH	29	70	46.5	27.2	14	126	27	66	42.8	24.7	12	118
		RT	41		13.5				39		12.1			
	WB	LT	547	574	1.5	1.5	2	43	524	550	1.4	1.4	2	42
		TH	27		0.8				26		0.9			
	Intersection		762		8.9				735		8.1			
Fairfax County Parkway NB Ramps and Shady Palm Drive/Sydenstick er Road	NB	LT	28	260	40.2	12.0	17	130	27	259	39.1	11.2	15	120
		TH	46		41.2				47		37.7			
		RT	186		0.5				185		0.4			
	EB	LT	20	103	1.2	0.4	0	0	21	106	1.3	0.4	0	0
		TH	83		0.2				85		0.2			
	WB	TH	548	611	17.0	16.3	33	238	524	587	17.7	17.0	33	225
		RT	63		10.0				63		11.0			
	Intersection		974		13.5				952		13.6			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway SB Ramps and Gambrill Road	SB	LT	19	623	27.3	26.8	80	334	15	600	33.6	26.5	75	345
		TH	490		29.3				474		28.8			
		RT	114		15.9				111		15.7			
	EB	TH	142	690	29.2	14.2	34	308	140	663	29.2	13.9	31	320
		RT	548		10.3				523		9.8			
	WB	LT	37	115	0.4	1.1	1	25	35	111	0.5	0.8	0	17
		TH	78		1.4				76		0.9			
	Intersection		1428		18.6				1374		18.3			
Fairfax County Parkway NB Ramps and Gambrill Road/Old Lantern Way	NB	LT	78	173	30.8	29.1	23	155	75	173	29.7	28.1	22	145
		TH	81		31.2				84		30.1			
		RT	14		7.6				14		7.3			
	EB	LT	143	162	0.2	1.0	1	27	139	154	0.1	0.9	1	24
		TH	19		7.1				15		8.5			
	WB	TH	38	73	36.6	24.6	10	103	36	71	35.6	23.7	9	114
		RT	35		11.6				35		11.5			
	Intersection		408		17.2				398		16.8			
Fairfax County Parkway and Walnut Knoll Drive/Whittlers Creek	NB	LT	9	1386	64.2	2.2	3	160	8	1390	84.3	2.2	3	162
		TH	1358		1.8				1361		1.7			
		RT	19		2.0				21		1.8			
	SB	LT	10	4518	13.3	4.5	21	792	7	4608	13.3	4.8	21	774
		TH	4486		4.5				4582		4.7			
		RT	22		7.6				19		14.9			
	EB	LT	10	69	87.1	24.9	6	83	9	64	93.1	25.5	6	81
		TH	1		33.7				0		0.0			
		RT	58		14.0				55		14.4			
	WB	LT	19	31	98.7	67.7	11	76	18	28	97.1	69.7	11	68
		TH	1		114.2				1		113.1			
		RT	11		9.9				9		10.0			
	Intersection		6004		4.6				6090		4.7			
Fairfax County Parkway and Stream Way	NB	TH	1385	1405	0.3	0.3	0	2	1383	1403	0.3	0.3	0	2
		RT	20		0.6				20		0.6			
	SB	LT	10	4562	13.1	2.5	5	482	9	4658	12.6	3.1	3	366
		TH	4552		2.5				4649		3.1			
	WB	LT	4	8	15.6	10.2	1	63	4	8	23.2	14.3	1	66
		RT	4		4.8				4		5.3			
	Intersection		5975		2.0				6069		2.5			
Fairfax County Parkway and Franconia-Springfield Parkway Westbound Ramps	NB	LT	5	572	14.2	9.7	16	199	4	570	9.2	9.1	14	210
		TH	567		9.7				566		9.1			
	SB	LT	115	1006	9.0	6.3	14	194	111	960	8.9	6.1	12	189
		TH	882		6.0				838		5.8			
		RT	9		2.0				11		2.2			
	EB	LT	19	50	42.0	27.8	5	83	20	46	42.7	29.1	5	78
		TH	10		40.7				9		38.9			
		RT	21		8.7				17		7.8			
	WB	LT	69	205	34.9	14.4	13	85	67	200	38.7	15.4	13	89
		TH	8		33.9				8		30.6			
		RT	128		2.1				125		2.0			
	Intersection		1833		8.9				1776		8.7			
Fairfax County Parkway and Franconia-Springfield Parkway Eastbound Ramps/Rolling	NB	TH	806	910	11.6	10.4	22	217	804	902	13.1	11.8	25	234
		RT	104		1.2				98		1.3			
	SB	LT	244	971	54.9	16.6	47	195	220	923	53.9	15.8	42	179
		TH	727		3.8				703		3.9			
	WB	LT	22	342	55.1	34.7	37	188	18	336	47.7	35.2	38	201
		RT	320		33.3				318		34.5			
	Intersection		2223		16.9				2161		17.2			
Franconia-Springfield Parkway EB Ramp/Barkers Court and Rolling Road	NB	LT	131	276	10.4	6.9	7	112	125	265	10.1	6.9	6	111
		RT	145		3.8				140		4.0			
	SB	TH	15	228	25.3	2.1	2	42	19	232	24.1	2.3	2	55
		RT	213		0.5				213		0.4			
	EB	TH	330	350	12.5	11.9	14	203	302	319	11.5	11.0	11	187
		RT	20		1.4				17		1.4			
	Intersection		854		7.7				816		7.2			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

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Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway SB Ramps and Barta Road	NB	LT	0	7	0.0	55.9	4	45	0	7	0.0	40.3	3	92
		RT	7		55.9				7		40.3			
	SB	LT	353	733	45.5	31.9	54	236	354	743	43.4	30.9	54	241
		TH	0		0.0				0		0.0			
		RT	380		19.3				389		19.5			
	EB	TH	496	499	4.0	4.0	9	79	491	495	4.0	4.0	8	64
		RT	3		0.5				4		2.4			
	WB	LT	2	76	31.1	15.0	8	96	2	79	5.2	15.9	8	86
		TH	74		14.6				77		16.2			
	Intersection		1315		20.5				1324		20.0			
Fairfax County Parkway SB Ramp and Rolling Road/Barta Road	SB	LT	21	119	0.0	27.8	25	152	21	114	0.0	27.6	24	129
		TH	51		59.5				46		62.4			
		RT	47		5.8				47		5.8			
	EB	LT	36	844	15.5	5.9	25	204	33	814	18.8	5.6	23	196
		TH	480		8.3				471		7.5			
		RT	328		1.3				310		1.2			
	WB	TH	396	454	2.4	2.1	3	61	400	461	2.5	2.2	3	61
		RT	58		0.4				61		0.3			
	Intersection		1417		6.5				1389		6.3			
Fairfax County Parkway NB Ramps and Barta Road	NB	LT	52	250	26.9	11.7	14	198	54	261	27.7	12.9	17	251
		RT	198		7.7				207		9.0			
	EB	TH	464	464	9.2	9.2	13	272	487	487	9.3	9.3	13	270
	WB	TH	63	63	3.6	3.6	1	45	58	58	4.3	4.3	1	41
	Intersection		777		9.5				806		10.1			
Fairfax County Parkway and I-95 Northbound Ramps/Loisdale Road	NB	TH	1418	1608	32.8	32.4	224	1303	1413	1600	28.6	28.2	182	1323
		RT	190		29.6				187		24.9			
	SB	LT	266	3212	97.6	25.3	578	2595	265	3287	99.9	25.9	1127	2872
		TH	2400		20.3				2486		20.7			
		RT	546		11.8				536		13.4			
	EB	TH	241	394	111.4	73.5	142	731	243	391	117.2	79.3	148	714
		RT	153		13.7				148		17.2			
	WB	LT	142	444	125.0	64.3	116	423	141	425	130.0	66.3	118	369
		RT	302		35.7				284		34.7			
	Intersection		5658		33.7				5703		33.2			
Fairfax County Parkway and Terminal Road	NB	LT	80	1459	45.2	13.0	51	556	74	1440	48.9	12.3	50	674
		TH	1358		11.2				1344		10.4			
		RT	21		5.1				22		5.8			
	SB	LT	77	2693	19.3	6.8	85	1187	77	2775	18.1	6.6	79	1169
		TH	2364		7.1				2438		6.9			
		RT	252		0.5				260		0.5			
	EB	LT	175	225	101.7	89.2	151	468	169	217	94.2	81.9	129	465
		TH	0		97.6				0		109.0			
		RT	50		45.5				48		38.5			
	WB	LT	19	126	102.7	38.3	23	118	17	119	90.9	36.1	20	117
		TH	18		96.3				18		90.9			
		RT	89		12.8				84		13.2			
	Intersection		4503		13.8				4551		12.8			
Fairfax County Parkway and Backlick Road	NB	TH	1422	1518	6.1	5.9	28	634	1394	1489	6.1	5.9	28	673
		RT	96		2.3				95		2.4			
	SB	LT	142	2433	19.0	2.5	9	171	161	2507	16.3	2.5	10	205
		TH	2291		1.5				2346		1.5			
	WB	LT	51	99	87.3	51.0	31	158	49	95	89.5	51.4	31	147
		RT	48		12.5				46		10.8			
	Intersection		4050		5.0				4091		4.8			
Fairfax County Parkway SB Ramps and Telegraph Road	SB	LT	150	294	38.5	23.3	31	182	157	308	37.0	22.4	31	185
		TH	0		0.0				0		0.0			
		RT	144		7.4				151		7.2			
	EB	TH	1284	1586	24.5	21.0	71	419	1232	1516	24.1	20.7	68	382
		RT	302		5.9				284		5.8			
	WB	LT	108	389	14.2	9.2	7	139	106	372	14.7	9.7	7	143
		TH	281		7.3				266		7.7			
	Intersection		2269		19.2				2196		19.1			
Fairfax County Parkway NB Ramps and Telegraph Road	NB	LT	23	153	36.6	44.3	34	271	22	156	36.0	41.1	32	276
		TH	0		0.0				0		0.0			
		RT	130		45.7				134		41.9			
	EB	LT	459	1433	39.2	13.8	67	420	440	1388	38.3	13.3	62	403
		TH	974		1.9				948		1.7			
	WB	TH	365	544	19.0	14.7	20	151	351	523	19.4	15.0	20	165
		RT	179		5.9				172		6.0			
	Intersection		2130		16.3				2067		15.8			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

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Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Ehlers Road	NB	LT	0	1032	0.0	0.5	0	0	0	1040	0.0	0.5	0	0
		TH	1032		0.5				1040		0.5			
	SB	TH	2457	2457	1.7	1.7	0	34	2482	2482	1.6	1.6	1	87
		RT	0		0.0				0		0.0			
	EB	LT	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0
		RT	0		0.0				0		0.0			
	Intersection		3489		1.3				3522		1.3			
Fairfax County Parkway and Farrar Drive/John J. Kingman Road	NB	LT	83	1470	79.7	60.0	488	1574	71	1475	80.6	64.9	586	1826
		TH	919		64.5				933		69.2			
		RT	468		47.6				471		53.9			
	SB	LT	1158	2456	45.6	26.7	427	2258	1176	2483	40.5	24.3	354	2092
		TH	1222		10.3				1231		10.1			
		RT	76		3.0				76		2.9			
	EB	LT	10	62	104.2	69.4	18	171	11	59	86.8	61.0	14	142
		TH	20		98.7				19		95.7			
		RT	32		40.2				29		28.4			
	WB	LT	47	174	91.6	49.4	38	139	43	168	83.8	47.6	35	131
		TH	28		85.2				25		96.0			
		RT	99		19.2				100		19.9			
	Intersection		4162		40.0				4185		40.0			
Fairfax County Parkway and Backlick Road (South)	NB	TH	1437	1437	5.6	5.6	14	178	1368	1368	8.2	8.2	14	335
		RT	0		0.0				0		0.0			
	SB	LT	289	1291	65.2	15.2	140	710	306	1310	54.0	13.2	112	553
		TH	1002		0.8				1004		0.8			
	WB	LT	0	68	0.0	18.5	11	134	0	69	0.0	41.1	14	168
		RT	68		18.5				69		41.1			
	Intersection		2796		10.4				2747		11.4			
Fairfax County Parkway and US 1	SB	LT	946	979	87.3	84.8	353	1018	984	1014	108.2	105.4	583	1289
		RT	33		12.1				30		14.6			
	EB	LT	401	2599	77.4	28.3	320	1841	383	2522	76.6	27.7	255	1561
		TH	2198		19.3				2139		19.0			
	WB	TH	650	1694	32.6	15.0	67	336	644	1619	31.0	14.3	63	354
		RT	1044		4.1				975		3.3			
	Intersection		5272		34.5				5155		38.8			
Franconia-Springfield Parkway and Bonniemill Lane/Spring Village Drive	NB	LT	35	211	113.4	36.6	50	202	36	206	105.0	37.3	50	185
		TH	7		113.4				8		121.7			
		RT	169		17.5				162		18.1			
	SB	LT	80	141	129.0	81.7	63	234	81	137	123.1	79.7	60	237
		TH	6		122.7				5		105.7			
		RT	55		8.3				51		8.3			
	EB	LT	80	3319	141.4	15.3	65	1042	79	3341	134.1	14.6	58	991
		TH	3214		12.2				3238		11.8			
		RT	25		6.6				24		5.7			
	WB	LT	38	1020	131.5	11.9	28	270	36	1001	140.5	11.4	29	264
		TH	855		7.8				833		7.0			
		RT	127		3.5				132		3.6			
	Intersection		4691		17.5				4685		16.8			
Bonniemill Lane and Hooes Road	NB	LT	0	49	0.0	15.8	3	97	0	48	0.0	15.2	2	83
		TH	49		15.8				48		15.2			
		RT	0		0.0				0		0.0			
	SB	LT	0	68	0.0	0.0	0	41	0	65	0.0	0.0	0	21
		TH	68		0.0				65		0.0			
		RT	0		0.0				0		0.0			
	EB	LT	62	62	20.4	20.4	6	119	57	57	17.9	17.9	5	90
		TH	0		0.0				0		0.0			
		RT	0		0.0				0		0.0			
	WB	LT	0	136	0.0	22.2	18	180	0	131	0.0	20.8	15	165
		TH	10		23.9				9		23.5			
		RT	126		22.1				122		20.6			
	Intersection		315		16.1				301		14.9			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

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Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Franconia-Springfield Parkway Ramps C/D and Backlick Road	NB	LT	210	1140	36.7	33.6	108	553	203	1061	36.5	32.7	101	517
		TH	927		32.9				855		31.8			
		RT	3		34.3				3		30.9			
	SB	LT	8	668	50.4	42.1	88	392	6	622	47.4	42.6	88	380
		TH	534		50.7				499		51.3			
		RT	126		5.3				117		5.1			
	EB	LT	1185	1252	41.9	40.2	336	1339	1250	1316	39.4	37.9	330	1475
		TH	4		43.0				4		36.8			
		RT	63		8.5				62		8.3			
	WB	LT	6	23	82.0	68.3	13	80	5	22	86.9	71.2	12	86
		TH	12		79.6				12		82.1			
		RT	5		24.9				5		29.4			
	Intersection		3083		38.4				3021		37.3			
Franconia-Springfield Parkway Ramps A/B and Backlick Road	NB	LT	49	2108	15.3	10.0	82	685	48	2120	14.0	9.2	71	644
		TH	2051		9.9				2063		9.1			
		RT	8		6.3				9		8.6			
	SB	LT	11	777	20.7	6.1	14	174	9	750	21.9	5.8	12	145
		TH	500		8.6				484		8.2			
		RT	266		0.7				257		0.7			
	EB	LT	132	290	67.5	39.0	37	168	119	272	70.6	39.8	36	169
		TH	11		61.4				10		71.6			
		RT	147		11.7				143		11.9			
	WB	LT	8	31	85.9	58.4	10	98	8	29	77.8	58.0	9	82
		TH	13		80.1				12		82.2			
		RT	10		8.3				9		8.1			
	Intersection		3206		12.1				3171		11.5			
Franconia-Springfield Parkway and I-95 HOV Ramp	NB	LT	61	159	51.8	50.9	45	238	59	151	52.0	52.2	44	223
		TH	0		0.0				0		0.0			
		RT	98		50.3				92		52.4			
	EB	LT	189	2504	43.7	10.9	48	507	176	2557	45.8	11.6	51	602
		TH	2315		8.2				2381		9.1			
	WB	TH	916	1012	22.4	20.5	44	287	900	996	22.7	20.8	43	274
		RT	96		2.8				96		2.7			
	Intersection		3675		15.3				3704		15.7			
Franconia-Springfield Parkway EB Ramps and Frontier Drive	NB	TH	260	394	64.7	45.5	45	207	249	379	63.8	44.7	43	183
		RT	134		8.3				130		8.1			
	SB	LT	427	855	2.0	1.2	1	20	393	802	1.9	1.1	1	27
		TH	428		0.5				409		0.4			
	EB	LT	509	1177	45.8	39.4	247	950	550	1237	46.5	42.0	450	1349
		TH	0		0.0				0		0.0			
		RT	668		34.5				687		38.4			
	Intersection		2426		26.9				2418		28.9			
Franconia-Springfield Parkway WB Ramps and Frontier Drive	NB	LT	98	768	0.7	2.4	7	58	97	796	0.7	2.4	7	69
		TH	670		2.7				699		2.6			
	SB	TH	828	972	58.9	54.7	102	320	771	918	58.5	54.0	97	315
		RT	144		30.7				147		30.1			
	WB	LT	28	745	49.4	4.4	7	352	28	733	51.2	4.7	7	343
		TH	0		0.0				0		0.0			
		RT	717		2.6				705		2.9			
	Intersection		2485		23.5				2447		22.4			
Franconia-Springfield Parkway and Walker Lane	SB	RT	143	143	6.4	6.4	1	74	137	137	6.2	6.2	1	72
	EB	TH	1775	1775	0.1	0.1	0	0	1779	1779	0.2	0.2	0	0
	WB	TH	1729	1898	0.2	0.3	0	32	1645	1806	0.2	0.3	0	29
		RT	169		0.8				161		0.8			
	Intersection		3816		0.4				3722		0.4			
Franconia-Springfield Parkway and Beulah Street	NB	LT	714	1429	51.5	46.6	161	403	666	1369	50.9	46.2	148	404
		TH	606		48.6				599		48.6			
		RT	109		3.0				104		2.5			
	SB	LT	107	699	69.4	40.1	73	246	95	667	72.4	39.9	65	233
		TH	283		72.0				280		69.8			
		RT	309		0.8				292		0.7			
	EB	LT	562	1750	69.4	38.4	147	573	608	1799	70.3	39.4	154	562
		TH	776		33.6				784		32.9			
		RT	412		5.2				407		5.9			
	WB	LT	88	1153	73.6	39.2	130	509	83	1082	71.6	39.9	129	486
		TH	888		42.1				832		43.4			
		RT	177		7.5				167		6.7			
	Intersection		5031		41.1				4917		41.5			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	AM Hour 1						AM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Beulah Street and Alforth Ave	NB	LT	8	1433	15.5	14.5	34	543	7	1382	16.5	12.6	23	477
		TH	1425		14.5				1375		12.6			
	SB	TH	756	782	0.1	0.1	0	0	743	770	0.1	0.1	0	0
		RT	26		0.0				27		0.0			
	EB	RT	14	14	8.4	8.4	1	79	12	12	8.2	8.2	1	77
	Intersection		2229		9.4				2164		8.1			
Beulah Street and Lewin Drive/Shopping Center	NB	TH	1249	1333	2.8	2.7	2	223	1289	1372	2.5	2.5	1	218
		RT	84		1.9				83		1.7			
	SB	TH	703	703	0.5	0.5	0	0	661	661	0.5	0.5	0	0
		RT	0		0.0				0		0.0			
	EB	RT	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0
	WB	RT	127	127	8.4	8.4	4	88	121	121	8.3	8.3	4	84
	Intersection		2163		2.3				2154		2.2			
Beulah Street and Metro Park Drive/Charles Arrington Drive	NB	LT	296	1385	9.3	2.9	10	247	298	1412	7.2	2.4	6	205
		TH	1070		1.1				1094		1.1			
		RT	19		1.3				20		1.2			
	SB	LT	111	784	13.6	2.4	8	122	105	745	13.0	2.3	8	124
		TH	639		0.4				599		0.4			
		RT	34		2.7				41		2.6			
	EB	LT	9	28	26.5	15.2	1	72	10	27	27.2	15.8	1	65
		TH	0		59.9				0		0.0			
		RT	19		9.9				17		9.1			
	WB	LT	39	227	27.0	13.3	7	108	39	215	25.0	12.9	6	97
		TH	0		37.2				0		20.8			
		RT	188		10.5				176		10.2			
	Intersection		2424		3.8				2399		3.5			

Intersection Volume, Delay, and Queue Length

AM Peak Period (7:00-9:00 AM)

*Results displayed are the average results across 10 microsimulation runs

Direction	Corridor Segment	AM Hour 1 Average Travel Time (min)	AM Hour 2 Average Travel Time (min)
Northbound Fairfax County Parkway	Wiehle Ave to Route 7	1.9	1.8
	New Dominion Pkwy to Wiehle Ave	4.8	4.7
	Fox Mill Rd to New Dominion Pkwy	4.5	5.1
	US 50 to Fox Mill Rd	9.6	10.5
	I-66 to US 50	2.4	2.5
	Popes Head Rd to I-66	4.4	4.4
	Burke Centre Pkwy to Popes Head Rd	2.7	2.8
	Roberts Pkwy to Burke Centre Pkwy	4.0	5.1
	Huntsman Blvd to Roberts Pkwy	4.3	4.3
	Franconia-Springfield Pkwy to Huntsman Blvd	4.2	4.1
	I-95 to Franconia-Springfield Pkwy	3.7	3.7
	Route 1 to I-95	6.4	6.8
	Entire Corridor	**52.6**	**55.8**
Westbound Franconia-Springfield Parkway	Beulah St to Fairfax County Pkwy	5.0	5.0
Southbound Fairfax County Parkway	Route 7 to Wiehle Ave	2.9	2.9
	Wiehle Ave to New Dominion Pkwy	3.2	3.2
	New Dominion Pkwy to Fox Mill Rd	4.7	5.6
	Fox Mill Rd to US 50	8.0	8.0
	US 50 to I-66	2.2	2.2
	I-66 to Popes Head Rd	4.2	4.2
	Popes Head Rd to Burke Centre Pkwy	2.5	2.5
	Burke Centre Pkwy to Roberts Pkwy	3.0	3.0
	Roberts Pkwy to Huntsman Blvd	5.2	5.4
	Huntsman Blvd to Franconia-Springfield Pkwy	4.7	4.7
	Franconia-Springfield Pkwy to I-95	2.7	2.8
	I-95 to Route 1	6.6	7.5
	Entire Corridor	**49.7**	**51.8**
Eastbound Franconia-Springfield Parkway	Fairfax County Pkwy to Beulah St	5.3	5.4

Mainline Volume, Density, and Speed

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Direction	Interchange	Segment	Segment Type	PM Hour 1			PM Hour 2		
				Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)	Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)
Northbound Fairfax County Parkway	Baron Cameron Avenue/Elden Street	Upstream	Diverge	2750	22	30.9	2712	23	29.8
		Off-Ramp	Ramp	709	34	10.5	689	34	10.1
		Between Ramps	Mainline	2053	48	14.3	2044	48	14.2
		On-Ramp	Ramp	420	31	6.7	403	31	6.5
		Downstream	Merge	2451	45	18.0	2425	46	17.8
	US 50	Upstream	Diverge**	2446	44	11.3	2402	43	11.1
		Off-Ramp to EB US 50	Ramp	89	31	2.8	85	31	2.7
		Between Ramps	Diverge	2415	46	13.1	2369	46	12.9
		Off-Ramp to WB US 50	Ramp	710	26	27.7	734	26	28.8
		Between Ramps	Mainline**	1665	29	19.1	1609	30	18.1
		On-Ramp from WB US 50	Ramp	599	29	20.9	579	29	20.2
		Downstream	Merge	2119	42	12.6	2058	42	12.2
	Monument Drive/Fair Lakes Parkway	Upstream	Weave	2672	48	14.0	2678	48	14.0
		Off-Ramp	Ramp	947	47	10.0	951	47	10.0
		Between Ramps	Mainline	1734	50	11.6	1737	50	11.7
		On-Ramp	Ramp	775	32	12.2	720	32	11.2
		Downstream	Merge	2497	45	13.8	2442	45	13.5
	I-66	Upstream	Weave	2599	49	13.3	2609	49	13.3
		Off-Ramp to EB I-66	Ramp	202	30	6.7	198	30	6.6
		Between Ramps	Mainline	2432	49	16.6	2423	48	16.8
		On-Ramp from EB I-66	Ramp	583	24	24.4	574	23	25.7
		Between Ramps	Weave	3010	44	17.3	2974	33	30.7
		Off-Ramp to WB I-66	Ramp	606	15	46.6	602	7	113.6
		Between Ramps	Mainline	2391	50	16.1	2372	50	16.0
		On-Ramp from WB I-66	Ramp	285	29	9.8	315	29	10.9
		Downstream	Weave	2672	48	14.0	2678	48	14.0
	US 29	Upstream	Weave	3075	48	21.6	3096	48	21.7
		Off-Ramp	Ramp	792	40	10.0	801	40	10.1
		Between Ramps	Mainline	2277	49	23.2	2295	49	23.4
		On-Ramp	Ramp	341	38	8.9	335	38	8.7
		Downstream	Weave	2591	49	17.6	2605	49	17.7
	Braddock Road	Upstream	Diverge	3232	46	23.4	3209	47	23.0
		Off-Ramp	Ramp	722	26	27.6	722	26	27.7
		Between Ramps	Mainline	2494	49	25.6	2484	49	25.5
		On-Ramp	Ramp	570	30	18.7	556	30	18.3
		Downstream	Weave	3081	49	20.9	3078	49	20.8
	Ox Road	Upstream	Diverge	2505	43	19.6	2512	43	19.3
		Off-Ramp	Ramp	301	30	10.1	299	30	10.0
		Between Ramps	Mainline	2197	49	22.7	2205	48	22.9
		On-Ramp	Ramp	553	25	22.3	540	25	21.8
		Between Ramps	Merge	2750	36	25.4	2744	35	25.9
		On-Ramp	Ramp	18	36	0.5	19	36	0.5
		Downstream	Merge	2701	49	18.5	2695	49	18.5
	Seabrook Lane/Hooes Road/Pohick Road	Upstream	Diverge	3362	41	40.8	3388	39	44.4
		Off-Ramp	Ramp	1077	23	23.4	1099	23	24.2
		Between Ramps	Mainline	2360	46	26.3	2347	25	66.4
		On-Ramp	Ramp	505	42	12.1	507	30	18.2
		Downstream	Merge	2824	35	31.9	2792	11	92.6
	Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way	Upstream	Diverge	4469	34	44.4	4489	33	46.0
		Off-Ramp	Ramp	1199	13	46.8	1209	13	46.5
		Between Ramps	Mainline	3328	48	34.6	3340	48	34.6
		On-Ramp	Ramp	194	38	5.1	196	39	5.1
		Downstream	Merge	3518	48	24.6	3535	48	24.9
	Franconia Springfield Parkway/Rolling Road	Upstream (FCP)	Diverge	1948	21	31.3	1972	21	32.1
		Upstream (FSP)	Diverge	3812	28	34.2	3855	26	38.1
		FSP Off-Ramp to Rolling Road	Ramp	586	28	20.8	594	28	21.1
		Between Ramps	Mainline	3028	48	21.1	3075	47	21.8
		FCP Ramp to NB FCP	Ramp	1431	28	51.3	1418	28	51.3
		Downstream	Merge	4625	46	25.3	4674	44	27.0
	Barta Road	Upstream	Diverge	1269	49	8.6	1290	49	8.7
		Off-Ramp	Ramp	292	27	10.7	299	28	10.8
		Between Ramps	Mainline	970	50	9.8	982	50	9.9
		On-Ramp	Ramp	453	24	19.2	450	24	19.0
		Between Ramps	Merge	1429	49	9.7	1433	49	9.7
		On-Ramp	Ramp	325	32	10.1	323	32	10.0
		Downstream	Merge	1747	50	8.8	1752	50	8.8

Mainline Volume, Density, and Speed

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Direction	Interchange	Segment	Segment Type	PM Hour 1			PM Hour 2		
				Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)	Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)
Northbound Fairfax County Parkway	Boudinot Drive	Upstream	Weave	1240	50	6.2	1269	50	6.4
		Off-Ramp	Ramp	200	37	5.3	202	38	5.4
		Between Ramps	Mainline	1034	50	6.9	1060	50	7.1
		On-Ramp	Ramp	225	31	7.2	225	31	7.2
		Downstream	Merge	1270	50	6.4	1294	50	6.5
	I-95	Upstream	Diverge*	2440	23	35.3	2457	24	34.4
		Off-Ramp to NB I-95	Ramp	1094	35	31.7	1106	35	32.0
		Between Ramps	Mainline	1466	46	15.9	1478	46	16.0
		On-Ramp from NB I-95	Ramp	330	30	11.0	338	30	11.3
		Between Ramps	Weave	1829	36	17.2	1848	36	17.4
		Off-Ramp to SB I-95	Ramp	902	35	25.6	895	35	25.3
		Between Ramps	Mainline	834	48	8.7	857	48	8.9
		On-Ramp from SB I-95	Ramp	323	47	6.8	326	47	6.9
		Downstream	Weave	1240	50	6.2	1269	50	6.4
	Telegraph Road	Upstream	Diverge	1798	45	13.4	1770	46	12.9
		Off-Ramp	Ramp	408	39	10.5	395	39	10.2
		Between Ramps	Mainline	1424	49	14.7	1407	34	25.3
		On-Ramp	Ramp	284	46	6.2	277	30	12.4
		Downstream	Merge	1703	33	26.6	1652	9	106.2
Westbound Franconia-Springfield Parkway	Backlick Road	Upstream	Diverge	3112	36	21.6	3152	33	24.0
		Off-Ramp	Ramp	459	35	13.0	467	35	13.3
		Between Ramps	Mainline	2585	49	17.7	2614	49	17.9
		On-Ramp	Ramp	1360	34	40.7	1357	34	40.6
		Downstream	Merge	4033	48	20.9	4062	48	21.1
	Frontier Drive	Upstream	Diverge	2682	43	15.6	2676	44	15.3
		Off-Ramp	Ramp	823	40	20.7	817	40	20.4
		Between Ramps	Mainline	1955	50	13.1	1956	50	13.1
		On-Ramp	Ramp	1102	27	20.6	1100	27	20.8
		Downstream	Merge	3025	48	15.9	3050	45	17.1
Southbound Fairfax County Parkway	Baron Cameron Avenue/Elden Street	Upstream	Diverge	925	48	4.8	890	48	4.6
		Off-Ramp	Ramp	190	43	2.2	182	43	2.1
		Between Ramps	Mainline	774	50	5.2	737	49	5.0
		On-Ramp	Ramp	606	27	11.2	582	23	21.0
		Downstream	Merge	1407	39	7.3	1349	33	18.4
	US 50	Upstream	Diverge	3153	42	19.0	3096	42	18.6
		Off-Ramp to WB US 50	Ramp	20	27	0.8	16	27	0.6
		Between Ramps	Diverge	3279	42	19.8	3214	41	19.7
		Off-Ramp to EB US 50	Ramp	467	25	18.8	448	25	18.1
		Between Ramps	Mainline**	2930	39	24.8	2896	40	24.4
		On-Ramp from EB US 50	Ramp	845	30	28.2	814	30	27.2
		Downstream	Weave	3729	47	19.8	3707	47	19.7
	Monument Drive/Fair Lakes Parkway	Upstream	Weave	3729	47	19.8	3707	47	19.7
		Off-Ramp	Ramp	843	45	18.9	817	45	18.3
		Between Ramps	Mainline	2872	49	19.6	2886	47	20.8
		On-Ramp	Ramp	861	28	11.5	792	23	39.2
		Downstream	Weave	3745	39	25.7	3748	27	44.9
	I-66	Upstream	Weave	3745	39	25.7	3748	27	44.9
		Off-Ramp to WB I-66	Ramp	834	10	88.0	920	7	133.4
		Between Ramps	Mainline	2878	49	19.4	2846	49	19.3
		On-Ramp from WB I-66	Ramp	268	25	10.8	291	24	11.9
		Between Ramps	Weave	3138	47	16.7	3118	47	16.6
		Off-Ramp to EB I-66	Ramp	417	25	16.9	394	25	16.0
		Between Ramps	Mainline	2739	44	20.9	2735	45	20.4
		On-Ramp from EB I-66	Ramp	605	29	21.0	593	29	20.6
		Downstream	Merge	3350	48	17.4	3302	43	23.6
	US 29	Upstream	Diverge	3356	40	30.3	3284	31	45.7
		Off-Ramp	Ramp	531	41	13.0	533	39	13.8
		Between Ramps	Mainline	2784	23	68.7	2746	18	90.4
		On-Ramp	Ramp	1010	21	25.9	980	20	24.8
		Downstream	Merge	3750	10	101.8	3736	8	113.5
	Braddock Road	Upstream	Diverge	3688	49	25.4	3698	49	25.4
		Off-Ramp	Ramp	919	40	23.0	934	40	23.4
		Between Ramps	Mainline	2741	49	27.8	2740	49	27.8
		On-Ramp	Ramp	354	36	10.0	346	35	9.8
		Downstream	Merge	3072	46	22.5	3069	45	22.7
	Ox Road	Upstream	Diverge	2685	47	28.5	2704	47	28.7
		Off-Ramp	Ramp	1028	28	37.1	1065	27	39.6
		Between Ramps	Mainline	1643	49	16.8	1642	49	16.8
		On-Ramp	Ramp	266	32	8.4	260	32	8.2
		Downstream	Merge	1902	47	13.4	1893	48	13.2

Mainline Volume, Density, and Speed

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Direction	Interchange	Segment	Segment Type	PM Hour 1			PM Hour 2		
				Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)	Average Volume (vph)	Average Speed (mph)	Average Density (vplpm)
Southbound Fairfax County Parkway	Seabrook Lane/Hooes Road/Pohick Road	Upstream	Diverge	1715	34	16.8	1707	35	16.2
		Off-Ramp	Ramp	598	35	8.5	602	35	8.7
		Between Ramps	Mainline	1138	49	11.6	1129	49	11.5
		On-Ramp	Ramp	399	48	8.4	400	48	8.4
		Downstream	Merge	1534	46	11.0	1528	46	11.1
	Sydenstricker Road/Shady Palm Drive/Gambrill Road/Olde Lantern Way	Upstream	Diverge	1504	48	7.8	1498	48	7.8
		Off-Ramp	Ramp	160	13	6.4	164	12	6.7
		Between Ramps	Mainline	1380	49	14.1	1369	49	14.0
		On-Ramp	Ramp	463	43	10.8	470	43	10.9
		Downstream	Merge	1840	49	12.5	1840	49	12.5
	Franconia Springfield Parkway/Rolling Road	Upstream (FCP)	Diverge	1865	48	13.1	1862	47	13.1
		FCP Ramp to SB FCP	Ramp	524	32	8.3	524	32	8.3
		Downstream (FCP)	Weave	1150	50	5.8	1151	50	5.8
		Between Ramps (FSP)	Mainline	1339	49	13.6	1337	49	13.6
		FSP Off-Ramp to Rolling Rd	Ramp	226	27	4.2	229	27	4.2
		Between Ramps (FSP)	Mainline	1098	50	11.1	1095	50	11.1
		FSP On-Ramp from Rolling Rd	Ramp	331	29	5.8	334	29	5.8
		Downstream (FSP)	Merge	1423	49	7.2	1420	49	7.2
	Barta Road	Upstream	Diverge	1131	41	5.6	1126	40	5.6
		Off-Ramp	Ramp	609	44	6.9	614	44	7.0
		Between Ramps	Mainline	545	49	3.7	537	49	3.6
		On-Ramp	Ramp	186	25	3.8	183	25	3.7
		Between Ramps	Merge	734	50	4.9	722	50	4.8
		On-Ramp	Ramp	200	44	4.6	204	44	4.7
		Downstream	Weave	932	50	4.7	928	50	4.7
	Boudinot Drive	Upstream	Weave	932	50	4.7	928	50	4.7
		Off-Ramp	Ramp	88	36	2.5	85	36	2.4
		Between Ramps	Mainline	845	50	5.6	844	50	5.6
		On-Ramp	Ramp	1067	29	36.8	1062	29	36.6
		Downstream	Merge	1923	47	10.2	1916	47	10.2
	I-95	Upstream	Diverge	1833	48	12.7	1827	48	12.6
		Off-Ramp to SB I-95	Ramp	431	31	14.1	427	31	13.9
		Between Ramps	Mainline	1383	50	14.0	1383	50	14.0
		On-Ramp from SB I-95	Ramp	788	26	30.5	802	26	31.2
		Between Ramps	Weave	2261	41	18.4	2275	41	18.5
		Off-Ramp to NB I-95	Ramp	682	49	14.1	680	49	14.0
		Between Ramps	Mainline**	1636	38	21.4	1655	38	21.7
		On-Ramp from NB I-95	Ramp	77	29	2.6	79	29	2.7
		Downstream	Weave	1722	36	15.9	1745	36	16.0
	Telegraph Road	Upstream	Diverge	1734	43	13.6	1757	42	13.9
		Off-Ramp	Ramp	691	43	16.2	698	43	16.4
		Between Ramps	Mainline	1023	50	10.4	1042	49	10.6
		On-Ramp	Ramp	233	41	5.7	237	41	5.8
		Downstream	Weave	1231	49	8.3	1249	49	8.5
Eastbound Franconia-Springfield Parkway	Backlick Road	Upstream	Diverge	1544	47	8.2	1503	48	7.9
		Off-Ramp	Ramp	618	45	13.8	599	45	13.5
		Between Ramps	Mainline	963	50	6.5	948	50	6.4
		On-Ramp	Ramp	579	33	17.6	587	33	17.8
		Downstream	Merge	1562	48	8.1	1559	48	8.1
	Frontier Drive	Upstream	Diverge	1403	48	7.3	1438	48	7.5
		Off-Ramp	Ramp	469	42	5.6	486	42	5.8
		Between Ramps	Mainline	953	49	6.5	978	49	6.7
		On-Ramp	Ramp	1103	41	26.9	1078	41	26.3
		Downstream	Merge	2100	44	11.9	2091	44	11.9

**Not an actual freeway segment because of signal

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Cup Leaf Holly Court	NB	LT	43	1966	40.6	4.7	10	21	438	38	1931	42.8	4.5	20	430
		TH	1923		3.9		21			1893		3.7			
	SB	TH	292	294	7.9	7.8	6	6	72	283	284	8.0	7.9	6	83
		RT	2		2.4		0			1		2.1			
	EB	LT	20	167	34.6	36.0	35	35	192	17	163	37.8	37.3	35	204
		RT	147		36.2		35			146		37.3			
	Intersection		2427		7.3		36			2378		7.2			
Fairfax County Parkway and Route 7 Westbound Ramps	NB	LT	846	875	32.9	32.3	114	114	415	854	879	33.0	32.5	113	413
		TH	29		15.3		114			25		14.8			
	SB	TH	393	438	16.6	14.9	15	15	106	380	428	15.9	14.1	14	104
		RT	45		0.1		0			48		0.1			
	WB	LT	82	689	41.0	7.3	18	18	131	78	661	41.5	7.3	17	119
		RT	607		2.7		0			583		2.7			
	Intersection		2002		19.9					1968		20.0			
Fairfax County Parkway and Route 7 Eastbound Ramps	NB	TH	2042	2124	23.4	22.6	92	92	634	2055	2138	24.6	23.7	107	846
		RT	82		1.5		0			83		1.8			
	SB	LT	179	475	36.5	16.7	24	24	134	175	459	35.0	16.1	23	120
		TH	296		4.7		24			284		4.5			
	EB	LT	153	706	47.9	11.1	34	34	190	144	682	47.3	10.7	31	192
		RT	553		0.9		0			538		0.9			
	Intersection		3305		19.3					3279		19.9			
Fairfax County Parkway and Sugarland Road	NB	LT	43	2146	57.2	8.0	12	42	916	38	2147	56.0	7.5	38	850
		TH	2064		7.1		42			2070		6.7			
		RT	39		3.1		0			39		2.4			
	SB	LT	41	848	60.1	7.7	14	14	193	39	821	67.0	7.8	15	186
		TH	777		5.2		11			754		5.0			
		RT	30		0.9		0			28		0.9			
	EB	LT	21	44	65.3	38.5	8	8	92	19	42	68.1	37.3	7	91
		TH	1		98.0		1			1		81.7			
		RT	22		10.2		2			22		8.6			
	WB	LT	22	65	66.0	29.4	8	8	67	22	62	67.9	31.2	9	69
		TH	1		56.1		0			1		72.2			
		RT	42		9.6		1			39		9.4			
	Intersection		3103		8.8					3072		8.5			
Fairfax County Parkway and Heather Way	NB	LT	40	2171	6.8	0.9	1	1	61	37	2201	6.2	0.8	1	60
		TH	2131		0.8		0			2164		0.7			
	SB	TH	802	822	0.3	0.3	0	0	10	778	799	0.2	0.3	0	2
		RT	20		2.3		0			21		2.2			
	EB	LT	10	56	17.8	9.3	3	3	80	10	54	15.0	8.7	3	82
		RT	46		7.4		3			44		7.3			
	Intersection		3049		0.9					3054		0.8			
Fairfax County Parkway and Wiehle Avenue	NB	LT	370	2235	110.4	48.0	722	722	1944	366	2246	105.4	43.9	598	1887
		TH	1773		36.3		489			1793		32.5			
		RT	92		21.6		0			87		19.2			
	SB	LT	79	861	80.3	39.0	36	83	437	78	826	78.4	37.0	75	436
		TH	730		37.1		83			695		34.9			
		RT	52		3.1		0			53		3.2			
	EB	LT	52	405	82.0	48.9	27	38	244	51	393	79.5	47.7	35	250
		TH	167		57.7		38			154		56.8			
		RT	186		31.8		35			188		31.7			
	WB	LT	25	898	80.6	63.8	12	133	560	26	872	80.1	62.5	120	542
		TH	506		68.2		120			494		67.8			
		RT	367		56.7		133			352		53.8			
	Intersection		4399		49.5					4337		46.7			
Fairfax County Parkway and Sugarland Valley Drive	NB	LT	21	2253	11.0	17.8	0	26	503	21	2263	8.7	11.8	22	248
		TH	2232		17.9		26			2242		11.8			
	SB	TH	900	926	0.5	0.5	0	0	0	892	919	0.5	0.5	0	0
		RT	26		2.1		0			27		2.0			
	EB	LT	0	16	0.0	6.5	0	1	58	0	16	0.0	6.5	1	62
		RT	16		6.5		1			16		6.5			
	Intersection		3195		12.8					3198		8.5			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Lake Newport Road	NB	LT	90	2443	108.1	15.8	72	122	1386	84	2404	104.9	15.9	116	1336
		TH	2187		12.5		122			2151		12.9			
		RT	166		9.1		2			169		9.4			
	SB	LT	57	913	90.9	12.1	30	30	304	57	889	93.2	12.6	30	314
		TH	827		6.9		16			802		7.2			
		RT	29		5.1		1			30		4.6			
	EB	LT	20	105	75.3	18.7	8	8	91	20	101	73.6	18.5	8	91
		TH	28		0.7		0			30		0.5			
		RT	57		7.6		4			51		7.5			
	WB	LT	91	193	64.0	61.0	34	34	224	92	190	63.6	61.1	35	207
		TH	52		72.2		33			48		74.2			
		RT	50		44.0		33			50		43.9			
	Intersection		3654		17.3					3584		17.5			
Fairfax County Parkway and N Walnut Branch Road	NB	LT	67	2471	78.4	13.8	31	129	1162	68	2454	76.4	12.7	113	1102
		TH	2359		12.2		129			2341		11.0			
		RT	45		3.4		1			45		3.4			
	SB	LT	42	973	93.9	10.1	25	25	214	39	953	95.2	9.4	23	192
		TH	913		6.4		16			894		5.8			
		RT	18		1.5		0			20		2.3			
	EB	LT	21	51	83.7	51.2	9	9	99	20	46	80.7	48.3	9	90
		TH	6		85.6		4			5		73.5			
		RT	24		14.2		5			21		11.4			
	WB	LT	31	116	68.8	50.6	12	18	163	27	112	66.1	48.3	18	168
		TH	22		74.2		17			20		70.8			
		RT	63		33.4		18			65		34.0			
	Intersection		3611		14.5					3565		13.4			
Fairfax County Parkway and N Walnut Branch Road (South)	NB	TH	2473	2473	3.8	3.8	0	0	0	2450	2450	3.4	3.4	0	37
	SB	TH	911	968	0.5	0.5	0	0	65	878	937	0.5	0.5	0	74
		RT	57		0.8		0			59		0.8			
	EB	RT	44	44	7.3	7.3	2	2	82	44	44	7.0	7.0	2	76
	Intersection		3485		2.9					3431		2.7			
Fairfax County Parkway and Baron Cameron Ave	NB	LT	363	701	48.0	26.2	58	58	259	358	700	46.5	25.1	55	229
		RT	338		2.7		0			342		2.6			
	SB	LT	96	193	49.9	25.0	20	20	109	91	186	48.6	24.0	19	100
		RT	97		0.4		0			95		0.4			
	EB	LT	172	1419	51.4	19.8	53	62	400	166	1373	51.4	20.4	55	369
		TH	941		19.8		62			915		18.4			
		RT	306		2.2		0			292		9.0			
	WB	LT	340	1564	50.8	21.8	57	57	330	327	1513	57.9	22.8	57	302
		TH	971		17.0		48			944		16.3			
		RT	253		1.0		0			242		1.0			
	Intersection		3877		22.0					3772		22.4			
Fairfax County Parkway and New Dominion Parkway	NB	TH	2263	2708	26.4	23.8	76	76	389	2229	2650	25.4	23.0	72	388
		RT	445		10.4		11			421		10.1			
	SB	LT	165	1391	81.4	31.0	79	79	347	157	1347	78.3	97.1	138	395
		TH	1226		24.2		33			1190		99.6			
	WB	LT	628	1154	55.8	38.7	123	123	593	602	1123	91.4	58.8	142	619
		RT	526		18.3		49			521		21.1			
	Intersection		5253		29.0					5120		50.3			
Fairfax County Parkway and Spring Street Ramp	NB	LT	316	2645	57.2	14.1	62	62	367	304	2570	57.2	14.0	61	346
		TH	2329		8.3		41			2266		8.2			
	SB	TH	1589	1807	64.6	57.2	242	242	793	1568	1778	139.1	123.3	646	1065
		RT	218		3.5		2			210		5.3			
	EB	LT	367	828	41.4	20.9	55	55	252	366	820	43.4	22.4	58	328
		RT	461		4.6		1			454		5.4			
	Intersection		5280		29.9					5168		52.9			
Fairfax County Parkway and Spring Street/Sunset Hills Road	SB	LT	87	534	54.3	26.6	59	59	283	77	519	50.6	25.9	56	267
		RT	447		21.2		59			442		21.6			
	EB	LT	217	1647	51.4	10.9	67	67	372	215	1603	50.5	9.4	65	321
		TH	794		4.4		10			764		3.7			
		RT	636		5.1		2			624		2.2			
	WB	TH	1038	1649	15.8	10.7	50	50	398	988	1593	15.6	10.5	47	385
		RT	611		2.0		0			605		2.1			
	Intersection		3830		13.0					3715		12.2			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Dulles Toll Road Westbound Ramps	NB	LT	311	2596	47.0	17.0	64	101	631	324	2603	45.9	16.7	99	635
		TH	2285		12.9		101			2279		12.5			
	SB	TH	2203	2666	89.6	82.3	1640	1640	2671	2193	2645	89.4	82.3	2432	3153
		RT	463		47.3		1			452		47.6			
	WB	LT	561	1281	47.6	39.6	137	137	642	563	1234	47.2	38.1	127	556
		TH	0		0.0		33			0		0.0			
		RT	720		33.4		128			671		30.4			
	Intersection		6543		48.0					6482		47.5			
Fairfax County Parkway and Dulles Toll Road Eastbound Ramps	NB	TH	2212	2459	40.7	37.0	212	212	848	2185	2444	39.3	35.5	199	784
		RT	247		3.7		1			259		3.8			
	SB	LT	324	2751	41.8	20.5	78	78	631	319	2742	43.4	21.8	80	625
		TH	2427		17.7		68			2423		18.9			
	EB	LT	396	543	44.6	43.6	76	80	283	384	529	45.1	44.5	81	324
		TH	0		0.0		76			0		0.0			
		RT	147		40.8		80			145		42.9			
	Intersection		5753		29.7					5715		29.8			
Fairfax County Parkway and Sunrise Valley Drive	NB	LT	77	1680	101.7	36.8	31	163	671	75	1644	103.6	36.4	167	696
		TH	1505		35.3		163			1474		34.7			
		RT	98		9.2		3			95		9.5			
	SB	LT	221	2599	96.6	33.8	72	298	1477	214	2583	96.6	32.8	333	1573
		TH	1927		31.0		298			1898		30.1			
		RT	451		15.0		4			471		14.9			
	EB	LT	450	985	121.1	96.6	234	234	711	478	1039	118.3	95.7	224	748
		TH	352		103.1		136			379		102.1			
		RT	183		23.8		6			182		23.0			
	WB	LT	388	1364	164.1	118.4	1587	1587	3067	401	1368	162.6	119.6	3041	3782
		TH	447		160.4		1587			447		160.8			
		RT	529		49.4		0			520		51.0			
	Intersection		6628		61.3					6634		61.5			
Fairfax County Parkway and Fox Mill Road	NB	LT	162	1705	162.6	33.1	160	160	986	162	1623	160.8	33.3	160	1032
		TH	1433		20.4		84			1352		20.2			
		RT	110		7.3		2			109		6.4			
	SB	LT	239	2523	113.9	41.1	282	327	1794	239	2485	116.3	38.1	258	1448
		TH	2114		34.7		327			2075		31.0			
		RT	170		18.8		3			171		15.4			
	EB	LT	86	961	73.1	74.6	37	149	590	91	941	73.2	74.3	149	530
		TH	442		98.5		145			441		99.6			
		RT	433		50.4		149			409		47.3			
	WB	LT	78	590	73.3	66.7	35	107	341	82	580	75.1	65.9	103	317
		TH	332		92.8		107			321		90.4			
		RT	180		15.8		13			177		17.1			
	Intersection		5779		46.9					5629		45.6			
Fairfax County Parkway and West Ox Road	NB	LT	343	1715	86.5	51.6	96	200	1067	348	1749	83.8	51.0	202	1071
		TH	1310		44.0		200			1338		44.0			
		RT	62		19.3		0			63		17.8			
	SB	LT	144	2569	117.8	29.0	102	256	1905	151	2572	115.7	28.4	215	1667
		TH	2185		25.7		256			2184		24.9			
		RT	240		5.6		0			237		5.0			
	EB	LT	251	1035	140.1	119.6	623	1498	2942	231	983	144.6	121.0	1950	2982
		TH	340		148.5		1498			331		151.1			
		RT	444		85.9		748			421		84.4			
	WB	LT	48	342	81.3	74.2	20	127	482	53	337	78.0	72.3	123	435
		TH	204		102.2		127			196		100.2			
		RT	90		7.1		2			88		6.8			
	Intersection		5661		55.1					5641		54.2			
Fairfax County Parkway and Franklin Farm Road	NB	LT	325	2000	102.2	44.5	112	254	1202	327	1925	100.3	44.7	248	1212
		TH	1590		34.7		254			1521		34.7			
		RT	85		7.9		1			77		6.5			
	SB	LT	27	2720	133.9	22.6	21	487	2493	30	2641	134.7	17.4	254	2230
		TH	2402		22.9		487			2324		17.0			
		RT	291		9.5		1			287		8.0			
	EB	LT	136	890	239.9	146.2	3743	3910	5061	137	917	243.8	148.2	4318	4943
		TH	228		246.4		3882			243		249.1			
		RT	526		78.5		3910			537		78.2			
	WB	LT	105	442	97.8	94.7	64	119	403	99	453	96.8	95.6	122	377
		TH	309		95.8		117			323		97.4			
		RT	28		70.5		119			31		73.5			
	Intersection		6052		53.3					5936		52.4			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Springhaven Drive/Tuckaway Drive	NB	LT	6	2007	39.4	9.5	0	53	589	4	1979	35.4	8.7	49	540
		TH	1946		9.6		53			1921		8.8			
		RT	55		2.7		1			54		2.7			
	SB	LT	43	3006	31.8	26.3	3	223	2148	39	3002	29.6	23.4	196	2167
		TH	2901		25.1		223			2905		22.3			
		RT	62		77.6		5			58		74.1			
	EB	LT	27	322	89.4	78.6	22	112	474	27	318	85.6	76.1	106	473
		TH	64		100.9		79			64		98.2			
		RT	231		71.2		112			227		68.7			
	WB	LT	56	147	86.8	81.1	29	44	265	57	140	86.2	81.4	42	226
		TH	57		89.4		44			55		91.2			
		RT	34		57.6		40			28		52.2			
	Intersection		5482		24.7					5439		22.6			
Fairfax County Parkway and Stringfellow Road	NB	LT	101	1947	79.1	5.2	35	35	208	96	1901	81.8	5.0	36	198
		TH	1836		1.2		3			1797		0.9			
		RT	10		1.5		0			8		1.1			
	SB	LT	5	3197	37.2	17.7	0	309	1557	5	3195	34.1	16.2	285	1551
		TH	2838		18.7		309			2838		17.1			
		RT	354		9.0		0			352		8.5			
	EB	LT	172	256	106.8	85.2	120	120	394	170	252	108.0	87.0	119	379
		TH	4		107.7		120			4		102.0			
		RT	80		37.5		18			78		40.4			
	WB	LT	10	20	117.5	92.3	10	10	78	9	20	106.9	87.7	10	81
		TH	5		98.7		10			5		115.1			
		RT	5		35.6		6			6		36.2			
	Intersection		5420		16.7					5368		15.8			
Fairfax County Parkway and Old Plains Road	NB	TH	1974	1974	0.3	0.3	0	0	0	1856	1856	0.3	0.3	0	0
	SB	TH	2827	2876	0.4	0.4	0	0	0	2888	2937	0.5	0.5	0	0
		RT	49		1.2		0			49		1.1			
	EB	RT	28	28	23.7	23.7	5	5	93	28	28	20.4	20.4	4	95
	Intersection		4878		0.5					4821		0.5			
Fairfax County Parkway and Rugby Road	NB	LT	38	2148	109.9	30.0	25	113	697	38	2059	101.6	31.3	119	657
		TH	1767		32.8		113			1695		34.6			
		RT	343		6.8		9			326		6.1			
	SB	LT	86	2879	105.4	14.8	53	118	1740	90	2854	106.1	15.9	135	1691
		TH	2688		12.3		118			2659		13.3			
		RT	105		5.1		38			105		4.9			
	EB	LT	40	213	106.9	75.4	27	66	295	41	209	108.6	78.6	65	288
		TH	119		87.5		66			120		90.6			
		RT	54		25.4		7			48		22.9			
	WB	LT	482	926	165.4	118.3	452	452	1112	472	922	158.7	112.4	409	1083
		TH	314		86.7		338			327		80.4			
		RT	130		20.1		5			123		19.8			
	Intersection		6166		37.7					6044		38.1			
Fairfax County Parkway and US 50 Westbound Ramp	NB	TH	1722	1722	3.7	3.7	10	10	195	1668	1668	3.5	3.5	10	213
	SB	TH	3221	3221	4.6	4.6	38	38	640	3169	3169	4.1	4.1	34	654
	WB	LT	183	605	48.1	14.6	35	35	150	168	582	47.6	13.8	33	138
		RT	422		0.1		0			414		0.1			
	Intersection		5548		5.4					5419		5.0			
Fairfax County Parkway and US 50 Eastbound Ramp	NB	TH	2405	2405	2.3	2.3	10	10	261	2358	2358	2.2	2.2	9	232
	SB	TH	2930	2930	1.5	1.5	6	6	188	2920	2920	1.4	1.4	5	208
	EB	LT	40	852	50.2	2.7	11	11	94	38	823	53.6	2.9	11	89
		RT	812		0.4		0			785		0.4			
	Intersection		6187		2.0					6101		1.9			
Fairfax County Parkway SB Ramps and Monument Drive	SB	LT	197	857	15.6	13.8	40	40	303	192	826	15.6	14.1	41	278
		TH	660		13.2		40			634		13.6			
	WB	LT	291	291	4.2	4.2	5	5	55	296	296	4.4	4.4	5	42
	Intersection		1148		11.3					1122		11.5			
Fairfax County Parkway NB Ramps and Monument Drive	NB	LT	0	804	0.0	7.1	20	20	151	0	736	0.0	7.4	20	152
		TH	558		9.4		20			508		9.8			
		RT	246		2.0		1			228		2.0			
	EB	TH	192	192	49.4	49.4	37	37	167	192	192	50.2	50.2	36	159
	WB	TH	290	507	35.4	32.1	62	62	297	297	510	36.6	33.2	60	282
		RT	217		27.8		60			213		28.4			
	Intersection		1503		21.0					1438		22.2			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway SB Ramps and Fair Lakes Parkway	SB	LT	158	956	45.1	14.0	36	36	152	149	921	41.9	13.5	35	144
		TH	80		49.3		36			75		55.4			
		RT	718		3.2		0			697		2.9			
	EB	TH	641	1242	12.6	8.3	17	17	136	585	1129	17.8	35.0	431	595
		RT	601		3.8		5			544		53.6			
	WB	LT	238	1303	78.9	20.1	76	76	368	224	1276	88.8	20.8	73	374
		TH	1065		6.9		76			1052		6.3			
	Intersection		3501		14.2					3326		23.6			
Fairfax County Parkway NB Ramps and Fair Lakes Parkway	NB	LT	504	964	52.1	33.1	89	89	297	488	942	50.8	32.1	87	304
		TH	112		47.1		89			105		48.2			
		RT	348		1.0		0			349		1.0			
	EB	LT	337	805	36.4	20.5	50	50	206	299	737	35.7	20.2	45	212
		TH	468		9.1		50			438		9.6			
	WB	TH	811	1162	21.4	17.1	40	40	210	794	1135	21.2	16.9	39	232
		RT	351		7.2		8			341		7.0			
	Intersection		2931		23.3					2814		22.8			
Fairfax County Parkway SB Ramp and US 29 SB	SB	TH	215	531	31.2	21.4	38	38	316	207	536	31.3	24.5	44	412
		RT	316		14.7		29			329		20.2			
	WB	LT	908	1571	15.7	11.0	31	31	239	879	1536	15.5	10.9	29	234
		TH	663		4.6		31			657		4.7			
	Intersection		2102		13.6					2072		14.4			
Fairfax County Parkway SB Ramp and US 29 NB	SB	LT	215	1123	2.3	6.1	55	55	211	207	1086	2.3	6.2	54	212
		TH	908		7.0		55			879		7.1			
	EB	TH	285	396	21.3	17.9	20	24	147	277	382	21.7	18.0	24	152
		RT	111		9.1		24			105		8.3			
	Intersection		1519		9.2					1468		9.3			
Fairfax County Parkway NB Ramp and US 29 SB	NB	LT	219	317	1.3	4.5	6	6	162	223	319	1.5	4.8	7	163
		TH	98		11.7		6			96		12.3			
	WB	TH	1351	1460	27.0	25.1	109	109	368	1313	1415	27.1	25.3	106	354
		RT	109		1.7		22			102		1.7			
	Intersection		1777		21.4					1734		21.5			
Fairfax County Parkway NB Ramp and US 29 NB	NB	TH	219	219	30.2	30.2	34	34	244	223	223	30.3	30.3	35	251
	EB	LT	98	500	1.9	1.6	1	1	57	96	483	1.6	1.5	1	58
		TH	402		1.5		1			387		1.5			
	Intersection		719		10.3					706		10.6			
West Ox Road and US 29 Southbound	NB	TH	655	655	0.2	0.2	0	0	0	654	654	0.2	0.2	0	0
	SB	TH	83	1261	5.6	9.2	24	25	244	74	1219	5.5	9.0	24	238
		RT	1178		9.5		25			1145		9.2			
	WB	TH	282	367	55.0	42.4	52	52	209	270	349	50.6	39.3	47	193
		RT	85		0.5		0			79		0.5			
	Intersection		2283		12.0					2222		11.1			
West Ox Road/Fairfax County Parkway NB Off-Ramp and US 29 NB	NB	TH	414	577	19.7	15.8	27	27	185	417	580	20.1	16.1	28	184
		RT	163		5.8		4			163		5.9			
	SB	LT	83	83	31.8	31.8	16	16	139	75	75	32.7	32.7	14	123
	EB	LT	241	402	4.3	5.9	10	10	127	237	388	4.2	6.0	9	125
		TH	161		8.3		10			151		8.7			
	Intersection		1062		13.3					1043		13.5			
Fairfax County Parkway NB Ramps/Community Center and Braddock Road	NB	LT	20	48	90.5	57.0	13	13	74	20	47	84.3	62.4	14	79
		TH	8		83.5		13			11		84.0			
		RT	20		12.9		0			16		20.2			
	SB	LT	33	724	92.3	7.4	23	23	113	31	733	75.9	6.5	19	100
		TH	19		84.2		23			19		84.7			
		RT	672		1.1		0			683		1.2			
	EB	LT	110	1232	79.4	10.9	34	34	351	107	1227	77.0	10.4	32	345
		TH	1085		4.2		11			1081		4.1			
		RT	37		2.9		0			39		3.6			
	WB	LT	31	1989	87.7	11.5	15	53	609	31	1938	90.3	11.8	52	555
		TH	1499		12.8		53			1464		13.1			
		RT	459		2.2		1			443		2.1			
	Intersection		3993		11.1					3945		11.0			
Fairfax County Parkway SB Ramps and Braddock Road	SB	LT	623	970	68.6	55.0	141	141	482	636	986	68.0	54.1	142	465
		TH	0		0.0		141			0		0.0			
		RT	347		30.7		58			350		28.9			
	EB	TH	610	870	11.0	8.0	19	19	229	592	845	11.1	8.0	19	214
		RT	260		0.9		0			253		0.9			
	WB	LT	96	2192	5.5	7.2	1	60	844	94	2163	5.8	7.4	65	831
		TH	2096		7.3		60			2069		7.5			
	Intersection		4032		18.9					3994		19.1			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Popes Head Road	NB	LT	55	3229	157.0	12.8	50	218	1070	60	3140	144.8	12.7	224	1075
		TH	3152		10.3		218			3059		10.2			
		RT	22		3.6		82			21		3.4			
	SB	LT	103	3136	183.7	17.8	143	435	2768	102	3073	147.5	17.4	471	2790
		TH	2983		12.3		435			2922		13.0			
		RT	50		7.1		0			49		7.8			
	EB	LT	32	99	165.7	110.8	34	37	160	35	104	154.3	114.3	38	186
		TH	35		156.2		37			41		153.9			
		RT	32		6.1		1			28		6.3			
	WB	LT	7	187	152.3	107.0	7	63	255	6	194	152.5	108.0	63	298
		TH	65		149.2		63			67		149.3			
		RT	115		80.4		61			121		82.9			
	Intersection		6651		19.3					6511		19.4			
Fairfax County Parkway and Colchester Meadow Lane	NB	LT	0	3198	0.0	10.2	0	281	2220	0	3140	0.0	10.4	279	2442
		TH	3194		10.2		281			3136		10.4			
		RT	4		2.6		0			4		0.9			
	SB	LT	7	3023	38.7	0.9	2	2	75	6	2953	32.5	0.9	2	72
		TH	3016		0.8		0			2947		0.8			
		RT	0		0.0		0			0		0.0			
	EB	LT	0	0	0.0	0.0	0	0	0	0	0	0.0	0.0	0	0
		TH	0		0.0		0			0		0.0			
		RT	0		0.0		0			0		0.0			
	WB	LT	5	12	90.6	72.6	3	3	62	5	11	76.8	82.3	3	64
		TH	0		0.0		1			0		0.0			
		RT	7		59.8		3			6		86.9			
	Intersection		6233		5.8					6104		5.9			
Fairfax County Parkway and Ladues End Lane/Nomes Court	NB	LT	5	3159	59.3	0.2	3	3	53	6	3181	54.6	0.2	4	55
		TH	3150		0.1		0			3170		0.1			
		RT	4		0.3		0			5		0.3			
	SB	LT	7	2985	46.6	0.2	2	2	50	6	2945	42.8	0.2	2	43
		TH	2972		0.1		0			2933		0.1			
		RT	6		0.4		0			6		0.4			
	EB	LT	4	8	82.7	47.9	2	2	85	4	9	66.1	35.5	1	85
		TH	0		276.6		1			0		0.0			
		RT	4		13.1		0			5		11.1			
	WB	LT	5	12	61.3	46.2	2	2	47	4	10	65.0	44.1	1	47
		TH	0		169.0		1			0		157.9			
		RT	7		35.4		2			6		30.2			
	Intersection		6164		0.4					6145		0.3			
Fairfax County Parkway and Burke Centre Parkway	NB	TH	2762	2781	19.2	19.1	323	323	2071	2773	2794	18.2	18.1	284	2021
		RT	19		7.1		0			21		6.9			
	SB	LT	298	2970	114.8	18.5	109	109	1487	302	2980	119.0	18.9	119	1471
		TH	2672		7.8		88			2678		7.6			
	WB	LT	21	435	86.0	58.8	10	74	279	18	419	106.7	60.7	74	283
		RT	414		57.4		74			401		58.6			
	Intersection		6186		21.6					6193		21.4			
Fairfax County Parkway SB Ramps/Robert Carter Road and Ox Road	NB	LT	990	1010	54.5	54.5	221	221	1235	1012	1029	54.9	54.8	227	1159
		TH	20		54.3		221			17		49.9			
	SB	LT	45	103	72.7	59.1	20	20	116	45	104	70.3	58.7	18	108
		TH	38		65.1		15			37		70.2			
		RT	20		17.3		2			22		15.4			
	EB	LT	20	1151	71.8	35.5	8	130	533	19	1115	74.8	35.6	126	535
		TH	1062		37.0		130			1035		36.9			
		RT	69		1.2		0			61		1.2			
	WB	LT	160	1546	69.2	31.1	42	127	688	164	1505	69.1	31.6	121	644
		TH	1335		27.5		127			1290		27.8			
		RT	51		7.1		2			51		7.4			
	Intersection		3810		39.4					3753		39.9			
Fairfax County Parkway NB Ramps and Ox Road	NB	LT	110	301	68.0	25.4	32	32	128	109	301	67.8	25.1	32	118
		RT	191		0.8		0			192		0.9			
	EB	TH	582	582	1.6	1.6	2	2	65	564	564	1.7	1.7	2	73
	WB	TH	1441	1441	3.3	3.3	11	11	246	1395	1395	3.2	3.2	11	227
	Intersection		2324		5.7					2260		5.7			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Fred Oaks Road	NB	LT	44	2544	25.7	1.9	10	10	349	43	2551	23.4	1.8	9	338
		TH	2461		1.5		3			2469		1.4			
		RT	39		2.4		3			39		2.1			
	SB	LT	28	1920	40.0	1.4	11	11	101	31	1899	46.2	1.5	14	102
		TH	1872		0.8		1			1848		0.7			
		RT	20		1.3		0			20		1.6			
	EB	LT	9	34	31.3	23.6	3	3	57	9	32	30.1	22.1	3	62
		TH	3		66.6		3			2		68.1			
		RT	22		14.6		3			21		14.3			
	WB	LT	20	64	55.9	44.5	14	15	125	17	61	58.0	44.7	15	118
		TH	4		81.7		13			4		93.7			
		RT	40		35.0		15			40		34.1			
	Intersection		4562		2.5					4543		2.4			
Fairfax County Parkway and New Road	NB	LT	42	2566	17.7	1.2	3	3	196	42	2572	16.8	1.1	3	138
		TH	2524		0.9		1			2530		0.8			
	SB	TH	1914	1924	0.6	0.6	0	0	47	1860	1870	0.5	0.5	0	37
		RT	10		0.8		0			10		0.8			
	EB	LT	19	40	27.5	19.5	1	1	50	20	40	29.1	21.0	1	45
		RT	21		12.3		1			20		12.9			
	Intersection		4530		1.1					4482		1.0			
Fairfax County Parkway and Wendy Ann Court	NB	TH	2566	2566	0.5	0.5	0	0	56	2572	2572	0.4	0.4	1	69
	SB	TH	1783	1788	1.2	1.2	1	1	90	1734	1739	0.9	0.9	0	97
		RT	5		0.6		0			5		1.1			
	EB	RT	3	3	20.5	20.5	0	0	24	3	3	23.2	23.2	0	25
	Intersection		4357		0.8					4314		0.6			
Fairfax County Parkway and Karmich St/Roberts Parkway	NB	LT	11	2652	17.6	7.3	1	48	702	9	2645	23.2	7.3	48	718
		TH	2403		7.6		48			2413		7.6			
		RT	238		4.3		14			223		3.9			
	SB	LT	149	1938	88.5	15.7	76	76	770	143	1877	92.3	15.2	75	758
		TH	1777		9.7		63			1725		8.9			
		RT	12		1.3		0			9		2.2			
	EB	LT	8	16	119.3	98.3	9	10	70	8	15	116.4	98.8	10	60
		TH	3		136.5		9			4		115.8			
		RT	5		41.7		10			3		29.2			
	WB	LT	338	500	103.2	75.3	123	123	369	322	485	105.0	76.4	119	331
		TH	9		111.2		123			11		102.3			
		RT	153		11.5		11			152		13.8			
	Intersection		5106		17.5					5022		17.2			
Fairfax County Parkway and Knolls Pond Lane	NB	TH	2646	2666	2.2	2.2	11	11	650	2644	2664	1.8	1.8	4	341
		RT	20		0.5		0			20		0.6			
	SB	TH	2120	2120	0.4	0.4	0	0	0	2052	2052	0.4	0.4	0	0
	WB	RT	4	4	25.3	25.3	1	1	54	4	4	23.2	23.2	1	55
	Intersection		4790		1.4					4720		1.2			
Fairfax County Parkway and Burke Lake Road	NB	LT	123	2564	112.6	16.6	82	115	1344	119	2561	111.0	15.8	98	1159
		TH	2412		11.9		115			2413		11.3			
		RT	29		3.6		0			29		3.2			
	SB	LT	170	2108	115.1	26.3	117	131	1332	171	2067	117.7	26.0	121	1041
		TH	1854		18.8		131			1812		18.0			
		RT	84		13.3		0			84		11.8			
	EB	LT	53	209	88.4	81.2	26	42	148	47	204	87.6	82.1	43	144
		TH	117		100.6		42			120		100.5			
		RT	39		13.0		2			37		15.7			
	WB	LT	70	630	85.9	93.9	35	122	383	65	614	82.9	94.5	120	384
		TH	354		104.4		122			347		105.3			
		RT	206		78.5		99			202		79.6			
	Intersection		5511		31.6					5446		31.0			
Fairfax County Parkway and Burke Lake Park Ent./Old Keene Mill Road	NB	TH	2230	2290	5.6	5.8	33	33	338	2240	2295	5.9	6.0	35	356
		RT	60		11.4		1			55		10.8			
	SB	LT	276	1946	91.0	19.8	77	77	650	260	1922	92.1	19.2	75	652
		TH	1666		8.1		29			1657		7.8			
		RT	4		3.7		0			5		4.9			
	EB	LT	4	13	113.5	80.3	5	11	89	4	13	131.0	89.2	13	73
		TH	4		118.1		5			4		127.9			
		RT	5		23.4		11			5		24.9			
	WB	LT	53	390	114.1	37.0	28	30	260	57	378	110.1	37.7	29	277
		TH	5		115.0		28			6		108.1			
		RT	332		23.5		30			315		23.3			
	Intersection		4639		14.5					4608		14.4			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway and Portside Drive/Waterline Drive	NB	LT	6	2280	9.2	0.6	0	0	40	6	2284	11.9	0.7	1	57
		TH	2253		0.6		0			2257		0.7			
		RT	21		0.9		0			21		1.1			
	SB	LT	36	1716	21.3	1.3	7	7	161	41	1723	27.6	1.5	9	130
		TH	1675		0.9		1			1678		0.9			
		RT	5		1.2		0			4		1.2			
	EB	LT	4	9	27.1	20.8	1	1	30	3	8	20.3	16.8	0	25
		TH	1		35.1		1			1		40.7			
		RT	4		10.9		1			4		8.1			
	WB	LT	18	49	32.2	24.3	6	6	92	18	47	33.8	25.8	6	105
		TH	1		55.4		4			0		65.3			
		RT	30		18.5		6			29		20.8			
	Intersection		4054		1.3					4062		1.4			
Fairfax County Parkway and Rolling View Drive/Pilothouse Road	NB	LT	64	2339	14.9	1.6	7	7	94	61	2350	13.9	1.5	6	97
		TH	2236		1.2		0			2245		1.2			
		RT	39		1.6		0			44		1.7			
	SB	LT	10	1698	44.6	2.2	1	1	34	10	1699	48.8	2.5	1	52
		TH	1640		2.0		0			1640		2.3			
		RT	48		1.0		0			49		1.1			
	EB	LT	23	52	27.1	19.2	4	4	93	20	51	27.8	18.7	3	83
		TH	0		0.0		1			0		0.0			
		RT	29		13.0		3			31		12.8			
	WB	LT	16	36	39.0	23.8	4	9	96	18	36	35.6	22.9	8	89
		TH	0		0.0		9			0		0.0			
		RT	20		11.7		4			18		10.1			
	Intersection		4125		2.3					4136		2.3			
Fairfax County Parkway and Lee Chapel Road	NB	LT	304	2694	147.4	23.0	275	275	1073	306	2713	146.2	23.3	290	1193
		TH	2232		6.3		16			2241		6.8			
		RT	158		19.3		16			166		19.2			
	SB	LT	16	1683	114.6	11.6	10	46	700	16	1690	112.5	11.7	51	806
		TH	1414		10.6		46			1425		10.9			
		RT	253		10.4		7			249		9.7			
	EB	LT	72	479	115.0	75.2	34	93	274	75	478	113.8	75.4	92	269
		TH	248		108.6		93			250		106.8			
		RT	159		5.0		3			153		5.4			
	WB	LT	157	595	115.7	112.5	64	146	468	158	592	110.4	110.9	143	496
		TH	402		120.0		146			399		119.5			
		RT	36		15.1		0			35		14.8			
	Intersection		5451		33.8					5473		33.7			
Fairfax County Parkway and South Run Park Ent./Reservation Drive	NB	LT	145	2865	21.5	4.4	12	12	554	141	2890	21.3	5.0	13	622
		TH	2596		3.5		9			2621		4.2			
		RT	124		3.9		2			128		4.1			
	SB	LT	67	1732	61.9	16.9	10	56	571	63	1724	60.1	15.9	50	616
		TH	1561		15.3		56			1558		14.4			
		RT	104		11.6		1			103		11.1			
	EB	LT	53	156	109.4	53.6	46	46	296	52	157	113.9	53.6	45	278
		TH	11		112.8		46			10		108.1			
		RT	92		14.4		2			95		14.9			
	WB	LT	86	148	105.3	86.4	55	55	235	83	149	107.6	84.4	54	218
		TH	21		102.5		21			22		93.7			
		RT	41		38.4		23			44		35.9			
	Intersection		4901		12.9					4920		12.8			
Fairfax County Parkway and Huntsman Boulevard	NB	LT	20	2659	29.0	27.1	1	1656	4215	21	2687	29.9	28.5	4533	7054
		TH	2536		27.6		1656			2561		29.1			
		RT	103		13.6		1			105		12.9			
	SB	LT	161	1732	139.0	29.0	111	111	838	167	1739	146.3	31.3	121	902
		TH	1522		18.2		99			1519		19.6			
		RT	49		4.4		0			53		5.4			
	EB	LT	72	135	130.3	110.0	58	58	210	76	136	140.1	120.4	67	239
		TH	39		108.8		32			37		117.0			
		RT	24		51.2		29			23		61.0			
	WB	LT	229	520	104.0	85.0	99	108	465	222	519	104.2	85.3	111	562
		TH	37		106.3		99			40		112.0			
		RT	254		64.8		108			257		64.9			
	Intersection		5046		35.9					5081		37.7			
Fairfax County Parkway and Huntsman Court	NB	TH	2639	2761	25.8	24.7	409	409	1166	2660	2775	30.5	29.3	541	1165
		RT	122		0.7		0			115		0.8			
	SB	TH	1773	1773	0.5	0.5	0	0	0	1765	1765	0.5	0.5	0	0
	WB	RT	24	24	53.2	53.2	5	5	83	24	24	64.3	64.3	5	82
	Intersection		4558		15.4					4564		18.3			
Fairfax County	NB	LT	28	2789	15.6	28.9	1	85	879	28	2790	27.3	54.1	200	877
		TH	2750		29.0		85			2752		53.1			
		RT	11		31.6		4			10		408.9			
	SB	LT	33	1773	80.8	2.5	18	18	132	30	1765	101.9	2.9	22	128
		TH	1720		1.0		0			1714		1.2			
		RT	20		1.7		0			21		1.5			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Parkway and Modisto Lane	EB	LT	7	20	44.0	23.8	2	2	69	7	19	50.1	25.7	2	64
		TH	0		0.0		1			0		0.0			
		RT	13		12.9		2			12		11.5			
	WB	LT	5	23	70.0	61.4	5	7	96	5	25	104.4	79.0	7	83
		TH	0		0.0		4			0		0.0			
		RT	18		59.0		7			20		72.6			
	Intersection		4605		18.9					4599		34.5			
Fairfax County Parkway and Cervantes Lane	NB	TH	2806	2829	9.7	9.7	197	197	1442	2773	2794	37.8	37.6	1878	3747
		RT	23		4.2		125			21		16.0			
	SB	TH	1737	1737	0.4	0.4	0	0	0	1733	1733	0.4	0.4	0	0
	WB	RT	28	28	29.7	29.7	5	5	97	27	27	71.0	71.0	8	88
	Intersection		4594		6.3					4554		23.7			
Fairfax County Parkway SB Ramps and Hooes Road	SB	LT	41	598	74.5	38.9	70	70	321	40	605	70.5	37.4	68	363
		TH	199		78.3		70			202		74.4			
		RT	358		12.9		28			363		13.2			
	EB	TH	213	530	66.7	31.4	73	73	295	215	526	66.6	31.7	75	321
		RT	317		7.6		8			311		7.6			
	WB	LT	30	998	0.8	5.0	0	14	92	32	1011	0.7	5.3	16	99
		TH	968		5.1		14			979		5.4			
	Intersection		2126		21.1					2142		20.8			
Fairfax County Parkway NB Ramps and Hooes Road	NB	LT	941	1261	27.2	28.2	104	104	510	955	1271	27.6	28.4	106	511
		TH	278		33.1		104			275		32.5			
		RT	42		16.9		69			41		18.2			
	EB	LT	193	253	3.8	3.3	4	4	42	200	256	4.5	3.7	4	43
		TH	60		1.6		0			56		0.7			
	WB	TH	56	91	82.0	60.9	23	27	140	58	90	81.6	61.8	26	151
		RT	35		27.2		27			32		25.8			
	Intersection		1605		26.1					1617		26.3			
Fairfax County Parkway SB Ramps and Pohick Road	SB	LT	0	544	0.0	6.6	8	8	290	0	545	0.0	6.4	8	290
		TH	320		7.5		8			318		7.3			
		RT	224		5.4		4			227		5.1			
	EB	TH	298	381	26.9	22.0	27	27	137	295	381	27.4	22.3	27	142
		RT	83		4.3		0			86		4.6			
	WB	LT	0	114	0.0	32.8	15	15	96	0	123	0.0	33.6	17	113
		TH	114		32.8		15			123		33.6			
	Intersection		1039		15.1					1049		15.3			
Fairfax County Parkway NB Ramps and Pohick Road	NB	LT	114	1079	9.4	8.6	29	29	272	123	1101	9.7	8.8	31	301
		TH	965		8.5		29			978		8.7			
	EB	LT	298	298	4.9	4.9	6	6	40	296	296	4.8	4.8	5	36
	Intersection		1377		7.8					1397		8.0			
Fairfax County Parkway and Hooes Road	NB	TH	3430	3517	2.4	2.4	31	31	1030	3456	3541	3.5	3.4	52	1095
		RT	87		1.2		0			85		1.3			
	SB	LT	7	1542	82.6	0.8	3	3	48	4	1534	72.5	0.6	2	26
		TH	1535		0.4		0			1530		0.4			
	WB	LT	8	28	53.2	25.6	3	4	115	7	28	78.9	34.8	6	122
		RT	20		14.5		4			21		20.1			
	Intersection		5087		2.0					5103		2.8			
Fairfax County Parkway SB Ramps and Shady Palm Drive	SB	LT	81	158	31.8	28.9	23	36	186	84	165	33.7	30.2	38	181
		TH	59		32.1		23			61		33.5			
		RT	18		5.1		36			20		5.5			
	EB	TH	40	61	38.6	29.6	10	14	109	39	59	39.9	31.4	15	102
		RT	21		12.5		14			20		14.8			
	WB	LT	355	428	1.3	1.2	1	1	36	361	430	1.7	1.6	2	45
		TH	73		0.8		1			69		0.9			
	Intersection		647		10.6					654		11.5			
Fairfax County Parkway NB Ramps and Shady Palm Drive/Sydenstickker Road	NB	LT	73	909	39.7	8.8	35	35	230	69	913	38.0	8.8	33	211
		TH	92		35.5		35			99		35.0			
		RT	744		2.5		2			745		2.6			
	EB	LT	21	121	1.0	0.3	0	0	0	20	122	1.2	0.4	0	0
		TH	100		0.1		0			102		0.2			
	WB	TH	357	439	20.6	18.6	29	29	178	361	438	21.8	19.8	31	192
		RT	82		10.0		28			77		10.6			
	Intersection		1469		11.0					1473		11.4			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

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Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway SB Ramps and Gambrill Road	SB	LT	18	438	45.6	32.2	57	71	266	19	442	41.7	33.0	73	293
		TH	226		41.0		57			228		42.7			
		RT	194		20.8		71			195		20.9			
	EB	TH	224	443	42.9	24.4	56	56	278	218	442	43.5	24.3	55	290
		RT	219		5.5		8			224		5.6			
	WB	LT	19	525	18.3	2.1	2	4	62	17	534	15.8	2.1	4	58
		TH	506		1.5		4			517		1.6			
	Intersection		1406		18.5					1418		18.6			
Fairfax County Parkway NB Ramps and Gambrill Road/Old Lantern Way	NB	LT	505	1200	23.1	21.6	108	110	558	515	1212	22.1	21.1	107	548
		TH	668		20.7		108			668		20.6			
		RT	27		15.8		110			29		15.8			
	EB	LT	221	243	0.2	0.9	1	1	27	216	238	0.3	1.0	1	42
		TH	22		7.6		1			22		7.7			
	WB	TH	21	44	0.0	0.6	0	0	39	19	43	-0.3	0.7	0	39
		RT	23		1.1		0			24		1.4			
	Intersection		1487		17.6					1493		17.3			
Fairfax County Parkway and Walnut Knoll Drive/Whittlers Creek	NB	LT	64	4613	19.2	7.6	0	55	793	64	4635	21.6	9.0	66	801
		TH	4514		7.4		55			4539		8.7			
		RT	35		15.7		0			32		19.9			
	SB	LT	4	1844	50.3	2.7	0	5	273	6	1847	79.3	3.1	5	317
		TH	1820		2.6		5			1821		2.8			
		RT	20		3.5		0			20		4.7			
	EB	LT	10	50	88.0	26.5	6	6	81	8	50	88.5	21.8	4	78
		TH	1		92.3		6			1		71.9			
		RT	39		9.1		4			41		7.6			
	WB	LT	20	32	99.5	69.3	12	12	78	21	32	101.1	74.5	12	75
		TH	1		65.8		0			1		96.4			
		RT	11		14.6		0			10		16.6			
	Intersection		6539		6.7					6564		7.7			
Fairfax County Parkway and Stream Way	NB	TH	4601	4645	3.7	3.7	32	32	873	4634	4674	4.7	4.7	75	1182
		RT	44		0.4		0			40		0.5			
	SB	LT	9	1879	155.3	0.9	9	9	59	12	1880	221.1	1.6	15	84
		TH	1870		0.2		0			1868		0.2			
	WB	LT	4	8	131.3	73.6	3	7	73	3	7	155.9	76.0	7	70
		RT	4		15.9		7			4		16.0			
	Intersection		6532		3.0					6561		3.9			
Fairfax County Parkway and Franconia-Springfield Parkway Westbound Ramps	NB	LT	5	710	9.1	17.1	0	44	513	5	716	11.9	17.3	41	607
		TH	705		17.2		44			711		17.3			
	SB	LT	213	844	11.6	8.0	7	12	148	208	836	11.9	7.8	11	149
		TH	610		6.9		12			608		6.6			
		RT	21		2.4		0			20		2.5			
	EB	LT	10	36	55.5	26.7	3	4	76	10	36	45.7	24.0	4	82
		TH	5		48.1		2			5		45.9			
		RT	21		7.9		4			21		8.4			
	WB	LT	227	618	38.4	17.0	38	38	170	220	618	37.4	16.4	37	179
		TH	21		38.7		38			21		39.1			
		RT	370		2.7		3			377		2.9			
	Intersection		2208		13.8					2206		13.6			
Fairfax County Parkway and Franconia-Springfield Parkway Eastbound Ramps/Rolling	NB	TH	1665	1745	15.9	15.3	69	69	488	1689	1773	16.9	16.3	75	561
		RT	80		3.1		20			84		3.9			
	SB	LT	249	858	54.4	18.4	48	48	176	243	849	52.6	17.8	46	173
		TH	609		3.7		6			606		3.9			
	WB	LT	21	303	49.4	36.5	6	59	308	20	306	49.3	36.8	60	363
		RT	282		35.5		59			286		35.9			
	Intersection		2906		18.4					2928		18.9			
Franconia-Springfield Parkway EB Ramp/Barkers Court and Rolling Road	NB	LT	85	170	10.3	7.3	4	4	81	89	170	10.9	7.8	5	86
		RT	85		4.3		2			81		4.3			
	SB	TH	18	235	23.0	2.1	2	2	49	19	238	21.7	2.2	2	50
		RT	217		0.4		0			219		0.5			
	EB	TH	249	327	9.1	7.5	8	8	150	257	329	8.6	7.1	8	150
		RT	78		2.3		1			72		1.8			
	Intersection		732		5.7					737		5.7			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Fairfax County Parkway SB Ramps and Barta Road	NB	LT	4	6	46.7	60.1	2	2	46	3	4	59.5	54.2	2	46
		RT	2		86.9		2			1		38.4			
	SB	LT	18	612	41.1	28.5	4	55	208	18	613	40.9	29.0	56	246
		TH	4		57.7		55			4		63.1			
		RT	590		27.9		55			591		28.4			
	EB	TH	460	460	3.9	3.9	8	8	70	462	462	3.6	3.6	7	73
		RT	0		0.0		0			0		0.0			
	WB	LT	0	240	0.0	11.3	0	17	187	0	253	0.0	11.6	16	191
		TH	240		11.3		17			253		11.6			
	Intersection		1318		16.9					1332		16.9			
Fairfax County Parkway SB Ramp and Rolling Road/Barta Road	SB	LT	0	79	0.0	21.1	15	15	101	0	82	0.0	21.6	15	112
		TH	21		58.9		15			21		62.9			
		RT	58		7.4		0			61		7.4			
	EB	LT	88	707	8.8	8.3	1	17	167	93	715	9.6	8.4	17	171
		TH	441		11.1		17			439		11.2			
		RT	178		1.0		0			183		1.0			
	WB	TH	783	964	1.6	2.9	4	17	235	793	979	1.5	2.8	17	252
		RT	181		8.3		17			186		8.2			
	Intersection		1750		5.9					1776		5.9			
Fairfax County Parkway NB Ramps and Barta Road	NB	LT	269	294	12.5	12.1	17	17	195	277	300	11.9	11.5	16	212
		RT	25		7.8		14			23		7.3			
	EB	TH	29	29	7.7	7.7	1	1	34	29	29	7.2	7.2	1	36
	WB	TH	297	297	7.9	7.9	7	7	75	297	297	7.8	7.8	7	72
	Intersection		620		9.9					626		9.6			
Fairfax County Parkway and I-95 Northbound Ramps/Loisdale Road	NB	TH	1883	1996	48.4	47.9	2209	2209	3924	1917	2030	49.1	48.8	4046	5251
		RT	113		40.2		648			113		43.1			
	SB	LT	181	2289	80.3	14.8	86	86	607	182	2300	80.9	14.7	88	586
		TH	1413		13.0		61			1425		12.8			
		RT	695		1.5		16			693		1.3			
	EB	TH	90	173	84.0	43.8	34	34	123	86	171	82.8	41.8	33	123
		RT	83		0.3		0			85		0.3			
	WB	LT	252	967	89.8	55.0	142	142	457	259	959	102.4	59.5	172	520
		RT	715		42.7		116			700		43.6			
	Intersection		5425		35.1					5460		36.1			
Fairfax County Parkway and Terminal Road	NB	LT	18	1605	23.9	55.4	1	669	1399	16	1629	27.0	68.0	1056	1440
		TH	1582		55.9		669			1609		68.6			
		RT	5		2.1		0			4		7.7			
	SB	LT	48	1744	20.6	12.4	3	71	637	48	1772	22.4	13.0	75	662
		TH	1597		12.9		71			1623		13.5			
		RT	99		0.1		0			101		0.1			
	EB	LT	299	406	68.3	59.4	168	168	728	304	411	68.9	60.8	175	713
		TH	10		73.1		2			13		73.0			
		RT	97		30.5		2			94		33.1			
	WB	LT	20	144	88.7	49.9	10	17	156	23	144	86.8	53.9	18	153
		TH	1		71.8		10			1		80.6			
		RT	123		43.4		17			120		47.4			
	Intersection		3899		36.4					3956		42.1			
Fairfax County Parkway and Backlick Road	NB	TH	1584	1656	37.8	36.4	324	324	1262	1549	1616	85.1	82.1	1323	2388
		RT	72		5.9		1			67		13.4			
	SB	LT	61	1712	14.3	1.0	0	1	73	63	1740	20.5	1.3	2	123
		TH	1651		0.5		1			1677		0.6			
	WB	LT	85	165	78.4	61.4	39	39	163	82	166	73.9	83.0	37	168
		RT	80		43.3		17			84		91.8			
	Intersection		3533		20.4					3522		42.2			
Fairfax County Parkway SB Ramps and Telegraph Road	SB	LT	226	699	42.1	31.4	60	89	415	229	709	40.9	32.6	98	435
		TH	0		0.0		60			0		0.0			
		RT	473		26.3		89			480		28.6			
	EB	TH	529	555	25.5	24.6	32	32	164	523	552	25.9	24.8	33	168
		RT	26		5.3		1			29		5.6			
	WB	LT	207	1351	14.9	5.3	16	16	185	208	1346	15.0	5.2	17	181
		TH	1144		3.6		10			1138		3.4			
	Intersection		2605		16.4					2607		16.8			
Fairfax County Parkway NB Ramps and Telegraph Road	NB	LT	269	415	38.7	37.9	62	62	339	260	399	39.2	37.5	61	330
		TH	0		0.0		62			0		0.0			
		RT	146		36.4		31			139		34.2			
	EB	LT	157	753	24.4	18.1	13	28	215	156	753	23.7	17.8	28	209
		TH	596		16.5		28			597		16.3			
	WB	TH	1082	1209	19.8	18.2	63	63	364	1087	1208	19.6	18.1	62	349
		RT	127		4.6		2			121		4.3			
	Intersection		2377		21.6					2360		21.3			
Fairfax County Parkway and Ehlers Road	NB	LT	0	1857	0.0	0.2	0	0	0	0	1824	0.0	0.2	0	0
		TH	1857		0.2		0			1824		0.2			
	SB	TH	1267	1267	0.3	0.3	0	0	0	1288	1288	0.3	0.3	0	0
		RT	0		0.0		0			0		0.0			
	EB	LT	0	0	0.0	0.0	0	0	0	0	0	0.0	0.0	0	0
		RT	0		0.0		0			0		0.0			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
	Intersection		3124		0.2					3112		0.2			
Fairfax County Parkway and Farrar Drive/John J. Kingman Road	NB	LT	28	1080	96.6	45.8	14	154	602	24	1039	92.9	44.6	145	643
		TH	991		46.4		154			951		45.6			
		RT	61		12.5		6			64		11.5			
	SB	LT	237	1265	73.4	42.6	62	126	704	227	1284	71.6	41.7	132	725
		TH	1016		35.9		126			1045		35.6			
		RT	12		4.7		0			12		4.1			
	EB	LT	49	154	85.9	57.3	25	30	232	53	155	81.5	58.7	27	251
		TH	29		75.7		25			31		80.4			
		RT	76		31.9		30			71		32.3			
	WB	LT	615	1453	51.9	45.9	208	208	838	614	1442	55.0	50.6	243	940
		TH	13		57.2		208			9		63.2			
		RT	825		41.3		208			819		47.1			
	Intersection		3952		45.3					3920		46.4			
Fairfax County Parkway and Backlick Road (South)	NB	TH	915	915	0.2	0.2	0	0	0	881	881	0.2	0.2	0	0
		RT	0		0.0		0			0		0.0			
	SB	LT	144	1704	16.4	1.8	11	11	181	137	1736	16.4	1.7	10	180
		TH	1560		0.4		0			1599		0.4			
	WB	LT	0	161	0.0	9.6	0	15	141	0	161	0.0	9.3	15	138
		RT	161		9.6		15			161		9.3			
	Intersection		2780		1.7					2778		1.6			
Fairfax County Parkway and US 1	SB	LT	997	1546	86.1	78.5	478	478	1466	1031	1592	89.4	82.8	569	1588
		RT	549		64.8		264			561		70.7			
	EB	LT	52	712	85.1	20.7	21	31	244	53	708	83.3	20.3	30	257
		TH	660		15.6		31			655		15.2			
	WB	TH	1682	2545	39.3	29.0	1666	1666	3795	1705	2532	41.0	30.7	3905	5713
		RT	863		9.0		0			827		9.4			
	Intersection		4803		43.7					4832		46.3			
Franconia-Springfield Parkway and Bonniemill Lane/Spring Village Drive	NB	LT	33	145	92.2	26.6	21	31	173	36	137	84.5	27.4	30	179
		TH	0		186.3		21			0		12.2			
		RT	112		7.3		31			101		7.0			
	SB	LT	127	225	102.5	73.8	81	81	306	123	224	101.7	72.4	79	286
		TH	13		91.3		7			13		92.7			
		RT	85		28.2		7			88		28.5			
	EB	LT	39	1446	110.8	20.7	26	29	428	42	1430	102.4	20.3	29	423
		TH	1345		18.7		29			1322		18.4			
		RT	62		6.3		2			66		7.0			
	WB	LT	219	4062	78.4	21.1	142	142	1532	235	4047	79.4	22.3	226	1836
		TH	3753		18.0		101			3713		18.9			
		RT	90		12.9		0			99		13.2			
	Intersection		5878		23.2					5838		23.8			
Bonniemill Lane and Hooes Road	NB	LT	0	32	0.0	11.1	2	2	84	0	31	0.0	12.0	2	82
		TH	32		11.1		0			31		12.0			
		RT	0		0.0		0			0		0.0			
	SB	LT	161	294	0.8	0.5	1	1	146	173	312	0.7	0.5	0	147
		TH	49		1.0		0			48		1.0			
		RT	84		-0.3		0			91		-0.3			
	EB	LT	45	61	10.6	10.7	3	3	77	38	58	11.2	11.2	3	82
		TH	16		10.9		3			20		11.2			
		RT	0		0.0		3			0		0.0			
	WB	LT	0	91	0.0	9.6	4	5	90	0	91	0.0	9.7	6	83
		TH	7		11.9		4			8		11.9			
		RT	84		9.4		5			83		9.5			
	Intersection		478		4.3					492		4.2			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Franconia-Springfield Parkway Ramps C/D and Backlick Road	NB	LT	305	1457	28.4	16.2	42	52	452	310	1450	29.2	16.6	53	510
		TH	1143		13.0		49			1132		13.2			
		RT	9		13.0		52			8		12.8			
	SB	LT	5	1227	22.1	15.5	0	59	527	6	1232	22.1	15.5	58	550
		TH	932		18.1		59			933		18.1			
		RT	290		7.1		2			293		7.0			
	EB	LT	561	603	64.9	61.6	129	129	488	575	614	65.4	62.6	131	491
		TH	9		62.2		129			10		70.0			
		RT	33		5.6		0			29		5.5			
	WB	LT	10	24	97.5	78.6	11	16	91	10	24	85.7	71.5	15	95
		TH	9		86.1		11			9		82.6			
		RT	5		27.4		16			5		23.3			
	Intersection		3311		24.7					3320		25.1			
Franconia-Springfield Parkway Ramps A/B and Backlick Road	NB	LT	60	1717	15.2	7.7	2	45	600	64	1717	16.1	8.2	49	620
		TH	1647		7.4		39			1642		7.9			
		RT	10		6.0		45			11		8.1			
	SB	LT	11	2293	19.3	10.1	0	58	595	9	2290	21.2	10.6	60	568
		TH	999		15.2		58			1007		15.6			
		RT	1283		6.1		0			1274		6.5			
	EB	LT	251	460	73.1	47.8	71	71	242	256	467	73.7	48.5	73	265
		TH	18		79.2		71			21		79.6			
		RT	191		11.7		12			190		11.1			
	WB	LT	26	70	76.4	52.8	21	21	109	27	69	78.6	54.0	21	107
		TH	19		79.8		21			19		75.1			
		RT	25		7.8		1			23		7.7			
	Intersection		4540		13.7					4543		14.2			
Franconia-Springfield Parkway and I-95 HOV Ramp	SB	LT	103	420	76.0	53.3	91	127	553	108	416	78.0	56.3	135	600
		RT	317		45.9		127			308		48.7			
	EB	TH	1362	1560	20.4	18.2	64	64	496	1382	1578	22.0	19.6	69	513
		RT	198		2.8		2			196		2.7			
	WB	LT	233	3068	108.7	21.1	238	238	1101	229	3114	123.5	26.2	350	1396
		TH	2835		13.9		135			2885		18.5			
	Intersection		5048		22.9					5108		26.6			
Franconia-Springfield Parkway EB Ramps and Frontier Drive	NB	TH	860	1291	78.3	66.0	222	222	691	829	1233	90.2	76.8	280	704
		RT	431		41.6		163			404		49.4			
	SB	LT	720	962	5.9	4.6	2	2	185	729	976	5.6	4.3	1	188
		TH	242		0.6		1			247		0.3			
	EB	LT	331	486	61.2	44.2	68	68	301	332	494	61.7	44.1	69	310
		TH	0		0.0		68			0		0.0			
		RT	155		8.0		6			162		8.0			
	Intersection		2739		40.6					2703		44.6			
Franconia-Springfield Parkway WB Ramps and Frontier Drive	NB	LT	541	1188	3.1	2.6	0	5	99	525	1163	3.3	3.1	7	105
		TH	647		2.2		5			638		2.9			
	SB	TH	945	1548	62.4	48.1	137	137	427	976	1592	63.3	49.3	139	441
		RT	603		25.7		80			616		27.2			
	WB	LT	18	822	76.6	4.7	8	9	364	18	817	63.4	3.6	7	269
		TH	0		0.0		8			0		0.0			
		RT	804		3.1		9			799		2.3			
	Intersection		3558		22.9					3572		23.8			
Franconia-Springfield Parkway and Walker Lane	SB	RT	642	642	10.1	10.1	36	36	413	643	643	10.3	10.3	38	444
	EB	TH	2128	2128	0.1	0.1	0	0	0	2112	2112	0.1	0.1	0	0
	WB	TH	2121	2153	0.1	0.1	0	0	7	2108	2137	0.1	0.1	0	4
		RT	32		0.5		0			29		0.5			
	Intersection		4923		1.4					4892		1.4			
Franconia-Springfield Parkway and Beulah Street	NB	LT	616	1249	63.7	54.1	176	176	403	615	1259	65.0	54.2	181	404
		TH	449		61.0		95			452		60.1			
		RT	184		5.4		2			192		5.8			
	SB	LT	333	1242	77.5	66.6	178	305	1059	343	1263	79.1	67.3	324	1009
		TH	621		89.5		305			627		90.4			
		RT	288		4.5		0			293		4.3			
	EB	LT	375	2124	81.3	40.1	120	186	810	376	2116	79.6	40.1	180	801
		TH	1083		42.2		186			1082		42.5			
		RT	666		13.6		35			658		13.5			
	WB	LT	185	1601	93.4	45.7	140	220	738	186	1592	96.7	45.3	211	734
		TH	1249		43.6		220			1232		42.8			
		RT	167		8.9		1			174		8.4			
	Intersection		6216		49.7					6230		49.8			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

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Intersection	Approach	Movement	PM Hour 1							PM Hour 2					
			Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)		Maximum Queue Length (feet)	Average Volume (vph)		Average Delay (sec/veh)		Average Queue Length (feet)	Maximum Queue Length (feet)
Beulah Street and Alforth Ave	NB	LT	21	1272	36.0	15.8	47	47	510	17	1275	37.4	16.9	49	528
		TH	1251		15.5		25			1258		16.6			
	SB	TH	1403	1471	0.1	0.1	0	0	0	1409	1473	0.1	0.1	0	0
		RT	68		0.0		0			64		0.0			
	EB	RT	12	12	11.7	11.7	1	1	82	12	12	11.5	11.5	1	79
	Intersection		2755		7.4					2760		7.9			
Beulah Street and Lewin Drive/Shopping Center	NB	TH	854	986	1.6	1.7	1	1	175	862	996	1.6	1.8	2	227
		RT	132		2.7		1			134		3.0			
	SB	TH	1254	1254	13.5	13.5	15	27	214	1262	1262	13.9	13.9	27	214
		RT	0		0.0		27			0		0.0			
	EB	RT	0	0	0.0	0.0	0	0	0	0	0	0.0	0.0	0	0
	WB	RT	133	133	7.7	7.7	6	6	96	132	132	7.7	7.7	6	89
	Intersection		2373		8.3					2390		8.5			
Beulah Street and Metro Park Drive/Charles Arrington Drive	NB	LT	53	993	12.0	1.2	1	1	96	55	1001	13.0	1.3	1	66
		TH	935		0.6		0			941		0.6			
		RT	5		3.4		0			5		3.0			
	SB	LT	351	1541	13.9	7.3	28	36	459	357	1533	14.1	8.5	55	410
		TH	1167		5.4		36			1157		6.9			
		RT	23		2.4		0			19		2.8			
	EB	LT	6	75	29.4	22.7	2	10	93	5	76	45.1	56.8	26	161
		TH	0		9.9		1			0		74.4			
		RT	69		22.1		10			71		57.6			
	WB	LT	22	158	38.9	12.7	4	5	80	23	159	34.1	12.4	5	89
		TH	0		91.1		4			0		21.8			
		RT	136		8.5		5			136		8.7			
	Intersection		2767		5.8					2769		7.5			

Intersection Volume, Delay, and Queue Length

PM Peak Period (4:30-6:30 PM)

*Results displayed are the average results across 10 microsimulation runs

Direction	Corridor Segment	PM Hour 1 Average Travel Time (min)	PM Hour 2 Average Travel Time (min)
Northbound Fairfax County Parkway	Wiehle Ave to Route 7	2.0	1.9
	New Dominion Pkwy to Wiehle Ave	4.2	4.7
	Fox Mill Rd to New Dominion Pkwy	4.1	4.0
	US 50 to Fox Mill Rd	8.9	8.9
	I-66 to US 50	2.4	2.4
	Popes Head Rd to I-66	4.3	4.3
	Burke Centre Pkwy to Popes Head Rd	2.9	2.8
	Roberts Pkwy to Burke Centre Pkwy	3.2	3.2
	Huntsman Blvd to Roberts Pkwy	4.1	4.2
	Franconia-Springfield Pkwy to Huntsman Blvd	5.9	8.1
	I-95 to Franconia-Springfield Pkwy	4.2	4.1
	Route 1 to I-95	7.8	11.2
	Entire Corridor	**54.1**	**60.0**
Westbound Franconia-Springfield Parkway	Beulah St to Fairfax County Pkwy	5.3	5.5
Southbound Fairfax County Parkway	Route 7 to Wiehle Ave	2.4	2.4
	Wiehle Ave to New Dominion Pkwy	3.3	4.3
	New Dominion Pkwy to Fox Mill Rd	7.5	9.9
	Fox Mill Rd to US 50	9.0	9.3
	US 50 to I-66	2.3	2.3
	I-66 to Popes Head Rd	6.0	7.2
	Popes Head Rd to Burke Centre Pkwy	2.4	2.4
	Burke Centre Pkwy to Roberts Pkwy	3.0	2.9
	Roberts Pkwy to Huntsman Blvd	5.0	4.9
	Huntsman Blvd to Franconia-Springfield Pkwy	4.4	4.5
	Franconia-Springfield Pkwy to I-95	2.4	2.4
	I-95 to Route 1	6.7	7.5
	Entire Corridor	**54.4**	**59.8**
Eastbound Franconia-Springfield Parkway	Fairfax County Pkwy to Beulah St	5.8	5.9