

## V. TRANSPORTATION

Fairfax County is served by an extensive multimodal transportation system comprised of sidewalks, trails, roadways, bus and rail rapid transit, paratransit services, and an international airport. Primary regional access to the study areas that are the subject of this report is provided by twelve interchanges interconnecting the major interstate freeways of the Capital Beltway (I-95/495), and the Shirley Highway (I-95/395) with the primary and secondary road network. The travel patterns within and through this area will be impacted by the Fort Belvoir BRAC actions, as well as future local and regional growth. The arterial and major collector roadways affecting these districts are shown in Map 59.

Transit rail services into the area include Washington Metropolitan Area Transit Authority (WMATA) and the Virginia Railway Express (VRE). Transit bus services are provided by a variety of public and public/private partnerships, including regional, local, and express services by WMATA Metrobus and Richmond Highway Express (REX) Bus, the Fairfax County Connector, and Transportation Association of Greater Springfield's (TAGS) Shuttle. Detailed information for the Fairfax County's Connector Bus Services are provided in Figures 10.3 and 10.4 below, along with a map of the routes for the southern portion of the County in the vicinity of the BRAC APR Study Areas in Map 60 and 61.

### **Transportation Plans**

Various projects within long range plans that may impact traffic congestion and travel characteristics are planned for the transportation system serving the study areas. These projects are showing Figure 10.1, and are grouped by the funding source or plan they fall under:

Virginia Department of Transportation Six-Year Plan. The Commonwealth Transportation Board (CTB) maintains the Six-Year Plan, which allocates funds for transportation projects proposed for construction, development, or study over six fiscal years.

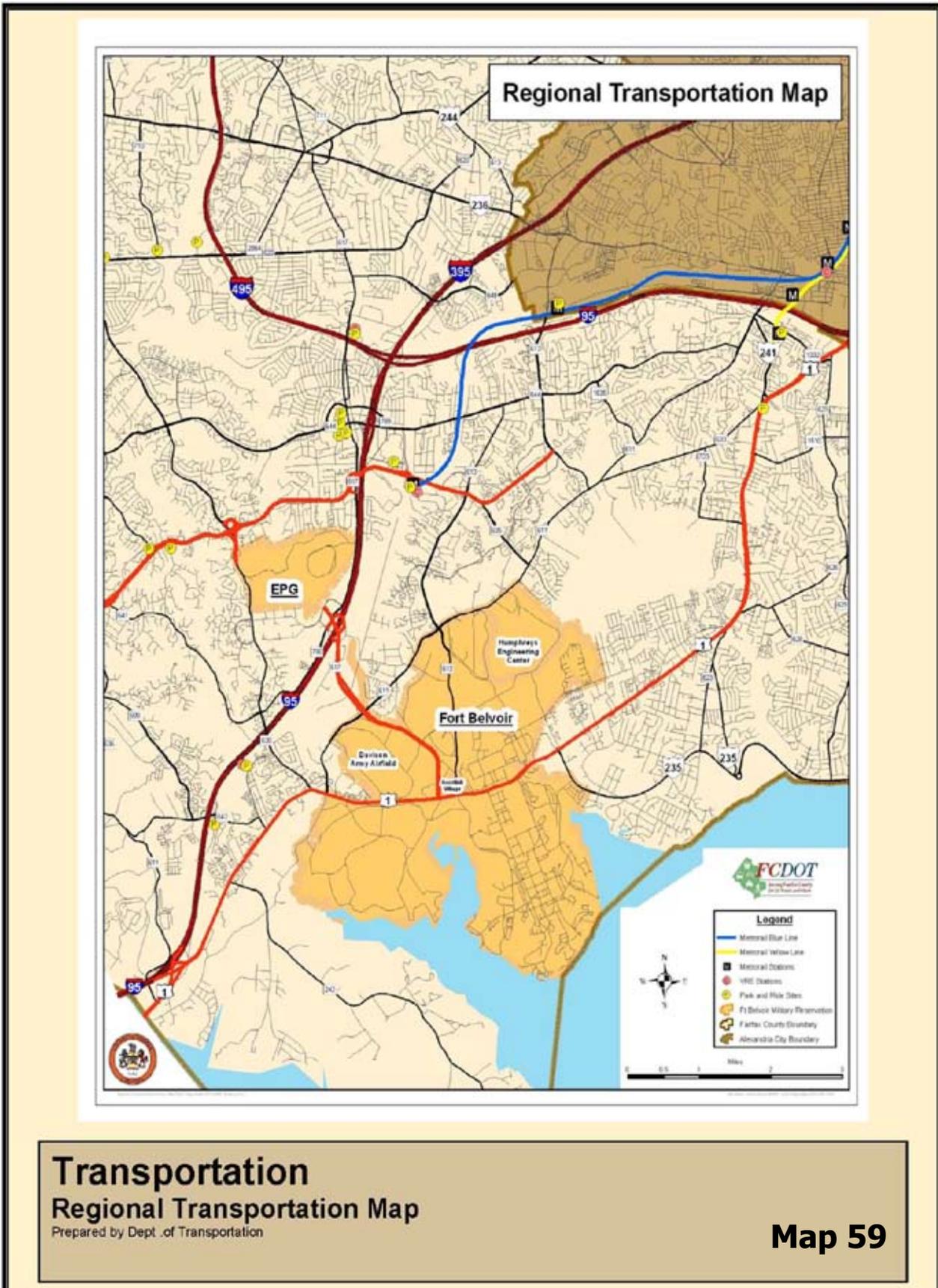
Fairfax County Capital Improvement Program (CIP). The County of Fairfax's five-year plan for creating, maintaining, and funding infrastructure requirements. The plan is reviewed and revised annually. When adopted, the CIP provides decision-makers a framework for managing bond sales, investment planning, and project planning.

Constrained Long Range Plan (CLRP). The CLRP is a comprehensive plan of transportation projects and strategies that the Transportation Planning Board realistically anticipates can be funded over a 30 year time period.

TransAction 2030. Sponsored by the Northern Virginia Transportation Authority, the plan is a regional planning effort serving Arlington, Fairfax, Loudon, and Prince William counties; and the cities of Alexandria, Falls Church, Manassas, and Manassas Park. This plan identifies short- and long-term transportation needs in Northern Virginia.

**Figure 10.1: Planned Transportation Projects**

<b>Long-Range Transportation Improvements</b>		<b>From</b>	<b>To</b>	
<b>FUNDED PROJECTS</b>	Virginia Department of Transportation Six-Year Plan			
	Highway: I-95/395/495 – Reconstruct Interchange (Phase II-VII)			
	Highway: I-95 – Widen to eight lanes	Newington	VA-123	
	Highway: VA-7100 (Fairfax County Parkway) – Construct four lanes	Rolling Road	Fullerton Road	
	Highway: Mulligan Road – Construct new connector road (Woodlawn replacement)	US-1 (Richmond Highway)	Telegraph Road	
	Transit: US-1 (Richmond Highway) Bus Priority Project			
	Fairfax County SPOT Improvements per CIP			
	Highway: US-1 – Additional NB turn lane for left turns at Engleside Post Office			
	Highway: US-1 – Additional turn lanes at Harrison Lane and Kings Highway			
	Highway: US-1 – Additional turn lane for NB Mt. Vernon Highway movement			
	Highway: Roberts Road – Additional turn lane at Braddock Road			
	Transit: Park and Ride lots at Franconia-Springfield Parkway			
	Transit: Burke VRE – New parking garage			
	Transit: US-1 transit initiatives			
	Transit: Huntington Station – Expanded parking structures			
<b>2004 Constrained Long Range Plan Highway Projects</b>				
<b>CLRP PROJECTS</b>	I-95 – Reconstruct Lorton Road interchange			
	I-95 – Add interchange connections at Franconia-Springfield Parkway	General purpose lanes to and from west	General purpose lanes to and from north	
	US-1 – Location study	Alexandria south city limits	Stafford County line	
	US-1 – Widen, four to six lanes	Armistead Road	Lorton Road	
	US-1 – Widen, three lanes NB; four SB	Lorton Road	Telegraph Road	
	US-1 – Intersection improvement	Huntington Ave		
	US-1 – Intersection reconstruction	Joplin Road		
	US-1 – Widen, four to six lanes (Neabsco Creek Bridge)	Neabsco Road	Neabsco Mills	
	US-1 – Reconstruct interchange	Russell Road		
	US-1 – Widen, four to six lanes	VA-235 South	VA-235 North	
	US-1 – Widen, four to six lanes	Stafford County Line	VA-235 South	
	US-1 – Widen, six to eight lanes (bus/turn lanes)	VA-235 North	Alexandria south city limits	
	VA-123 – Widen, six to eight lanes	US-1	Occoquan Road	
	VA-123 – Construct interchange	US-1		
	VA-7100 – Construct two, six lanes	VA-640	VA-7900	
	<b>2004 Constrained Long Range Plan Transit and HOV Improvements</b>			
	I-95 HOV – Extend HOV lanes	Stafford County Line	Quantico Creek	
	I-95 HOV – Re-stripe to three lanes	Quantico Creek	I-395/495	
	I-95/395/495 HOV – Access to I-495, HOV			
	US-1 – Widen to add transit exclusive lanes			
Fairfax County Parkway HOV – Construct two lanes	VA-640	VA-7900		
Franconia-Springfield Parkway HOV – Construct lanes	VA-7100	Frontier Drive		
US-1 – Traffic signal preemption (transit)	Mt. Vernon Hwy	Ft. Hunt Road		
US-1 – Transit improvements	Gunston Road	Huntington Ave		
US-1 – Transit improvement study	Stafford County Line	Pentagon		
US-1 – Bus rapid transit study	Stafford County Line	Pentagon		
US-1 – Priority bus study	Stafford County Line	Alexandria south city limits		



**Transportation**  
**Regional Transportation Map**  
Prepared by Dept. of Transportation

**Map 59**

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Transaction 2030 – Beyond CLRP			
Project Beyond CLRP	Highway: Construct US-1 interchange	Rippon/Dale Blvd	
	Highway: Construct US-1 interchange	Fairfax County Pkwy	
	Highway: Construct US-1 interchange	Kings Highway	
	Highway: Construct US-1 interchange	Huntington Ave	
	Highway: Construct US-1 interchange	Ft. Hunt Road	
	Highway: Old Colchester Road improvements	US-1	Points south
	Highway: Telegraph Road, widen	Beulah Street	Capital Beltway
	Highway: Old Telegraph Road improvements	North and south of Hayfield	
	Highway: Improve I-95 interchange	VA-7100	
	Highway: Rolling Road-Pohick Road, widen	VA-7100	US-1
	Highway: Lorton Road, widen	Laurel Hill	US-1
	Highway: Silverbrook Road, widen	Laurel Hill	Lorton Road
	Transit: Metrorail extension	Franconia-Springfield	Potomac Mills
	Transit: US-1 Light rail transit	Huntington Metrorail station area	Fort Belvoir

Partial content from Belvoir New Vision Planners

### **Operational Efficiency of Selected Intersections**

Roads are designed, constructed and improved based upon volume demands and future anticipated capacity needs. One important commonly used measure of effectiveness for determining a road networks capacity is measuring the existing volume/capacity ratio of intersections. This mathematical analysis provides the ability to monitor intersections "level of service" and assign a "grade" to report its relative operational efficiency as compared with standard capacities for similar intersections. These grades are typically A through F, with "A" being a free-flow condition and "F" or worse being a heavily congested condition. Figure 10.2 below provides recent analysis of selected intersections in the vicinity of the BRAC Study Areas.

**Figure 10.2: Intersection Levels of Service**

Intersection Location	AM Peak Hour <sup>a</sup>			PM Peak Hour <sup>a</sup>		
	V/C	LOS	Delay <sup>b</sup>	V/C	LOS	Delay
Commerce Street/Old Keene Mill Rd	0.59	B	16.3	0.8	C	20.5
Commerce Street/Amherst Ave.	0.65	C	27.1	0.79	D	36.6
Commerce Street/Backlick Rd	0.29	C	22.1	0.7	D	38.5
Commerce Street/Franconia Rd EB	0.45	C	30.6	0.78	C	31.6
Commerce Street/Franconia Rd. WB	0.55	E	59.4	0.57	D	45
Backlick Road/Calamo St	0.68	A	5.6	0.73	B	17.4
Loisdale Road/Spring Mall Dr	0.42	C	21.8	0.8	D	36.4
Franconia-Springfield Parkway/Spring Village Dr	1.08	E	72.1	1.06	F	72.7
Franconia-Springfield Parkway EB Ramp/Backlick Rd	0.93	E	55.6	0.78	D	36
Franconia Springfield Parkway WB Ramp/Backlick Rd	0.85	B	10.3	0.77	B	19.4
Franconia Springfield Parkway/I-95 HOV Ramps	0.94	D	40.2	1.3	F	123
Franconia Springfield Parkway EB Ramp/Frontier Dr	0.61	C	28.3	0.82	D	39.4
Franconia Springfield Parkway WB Ramp/Frontier Dr	0.45	C	24.3	0.75	F	99.3
Franconia Springfield Parkway/Beulah St	1.02	E	76.1	1.13	F	109.1
Fairfax County Parkway/Fullerton Rd	1.23	F	304.1	1.66	F	349.6

Fairfax County Parkway/Terminal Rd	0.84	D	40.5	0.82	C	21.9
Fairfax County Parkway SB Ramps/Telegraph Rd	0.45	B	18	0.68	D	50.7
Fairfax County Parkway NB Ramps/Telegraph Rd	0.49	B	14.3	0.66	C	21.8
Fairfax County Parkway/John J. Kingman Rd	0.75	D	40	0.99	F	83.6
Telegraph Road/Beulah St	0.56	D	35.2	0.54	C	28.1
Telegraph Road/S. Van Dorn St	0.73	C	21.3	0.9	D	42.4
U.S. Route 1/Telegraph Road—Old Colchester Rd	0.76	D	47.6	0.74	D	43.8
U.S. Route 1/Fairfax County Parkway	0.94	D	36.2	0.87	C	32.8
U.S. Route 1/Backlick Road—Pohick Rd	0.85	C	29.3	1.06	F	107.4
U.S. Route 1/Belvoir Rd	0.8	B	16.1	0.57	B	11.7
U.S. Route 1/Woodlawn Rd	0.7	A	6.2	0.72	B	11.9
U.S. Route 1/Old Mill Rd	1.37	F	187.8	1.08	F	118.5
Loisdale Road./GSA Access Rd <sup>b</sup>	0.5	A	1.5	0.3	A	1.1

<sup>b</sup>Intersection analyzed as unsignalized intersection.

Data Provided by Belvoir New Vision Planners – PBS&J Consultants, 2006.

**Figure 10.2 Notes:**

V/C = Volume over capacity ratio.

LOS = Level of Service, which is a measure of how efficiently the intersection moves traffic.

Delay = the average number of seconds a vehicle is delayed from free-flow conditions.

<sup>a</sup>AM Peak Hour: 7:15 AM to 8:15 AM; PM Peak Hour: 4:30 PM to 5:30 PM.

**LOS Defined:**

The measures defined below indicates how well the roadway accommodates traffic flow.

Level of Service A (LOS-A) describes free-flow conditions. The operation of a vehicle is virtually unaffected by the presence of other vehicles, and operations are constrained only by geometric features of the highway and driver preference.

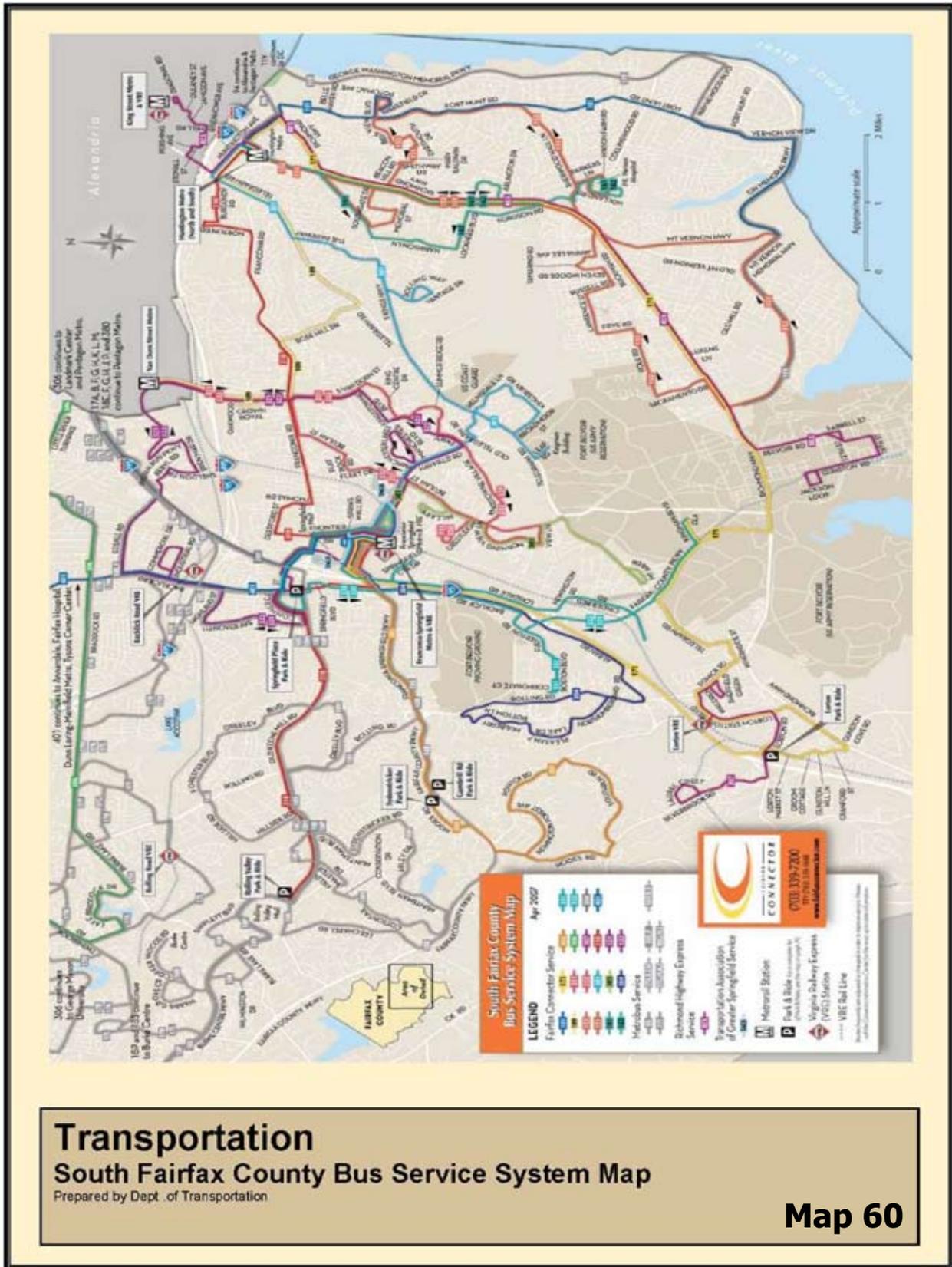
LOS-B indicates free-flow, however the presence of other traffic becomes noticeable. Travel speeds are the same of LOS-A, but drivers have slightly less freedom to maneuver.

LOS-C indicates an influence of density of traffic on operations. The ability to maneuver within traffic is affected by other vehicles. A minor disruption could cause serious service deterioration and queuing traffic may develop.

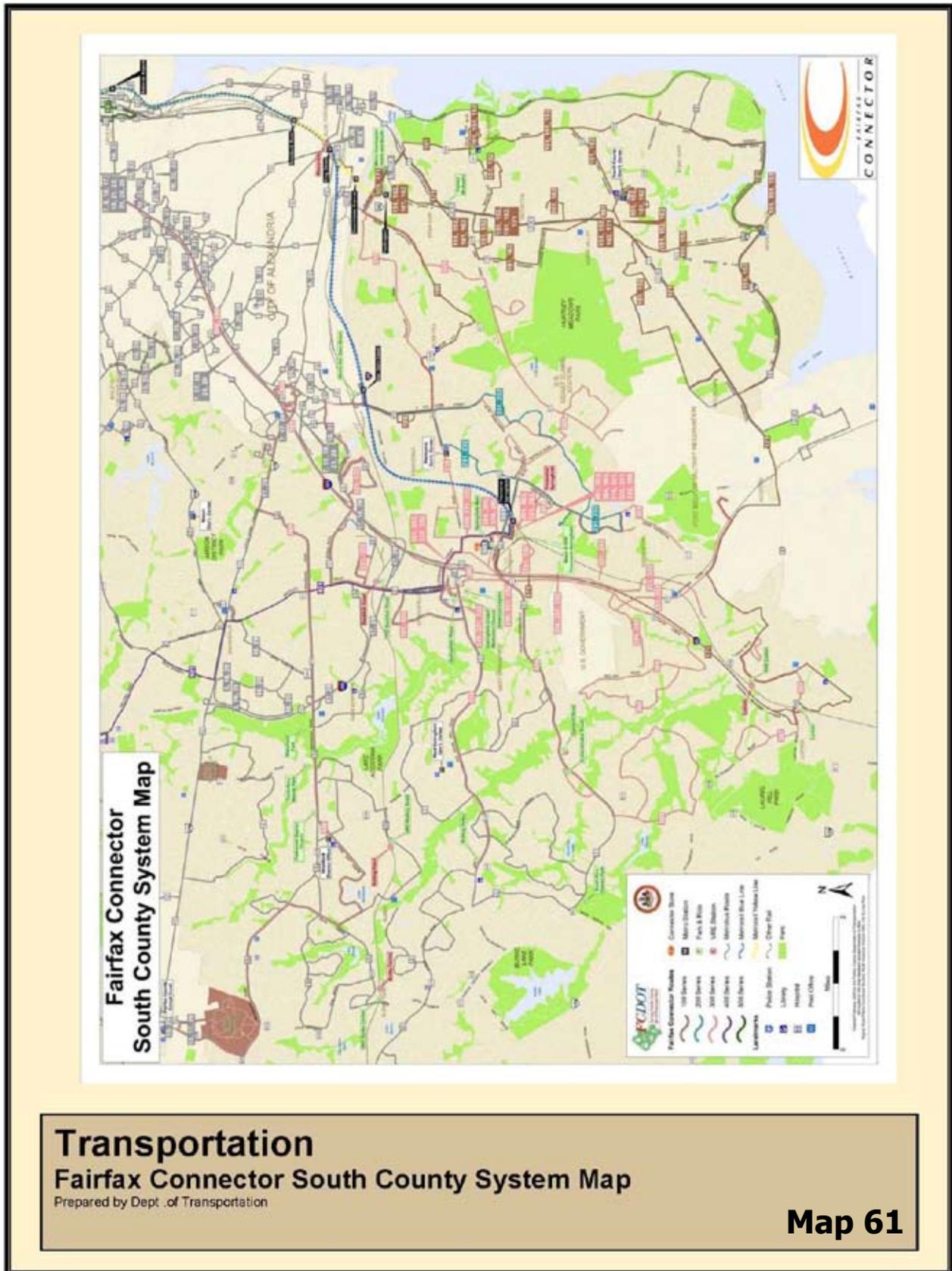
LOS-D indicates maneuverability is severely restricted due to traffic congestion. Travel speed is reduced by the increasing traffic volume.

LOS-E represents operations at or near facility capacity, an unstable level. The densities vary, depending on free-flow speed. Vehicles operate with the minimum spacing for maintaining uniform flow. Disruptions cannot be dissipated readily, often causing queues and service deterioration to LOS-F.

LOS-F represents forced or breakdown flow. It occurs either when vehicles arrive at a rate greater than the rate at which they are discharged or when the forecast demand exceeds the computed capacity of a planned facility. Queues form behind points of capacity operation; operation within queues are unstable, with vehicles experiencing brief periods of movement followed by stoppages. LOS-F can be used to describe a point of breakdown or the operating



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**Transportation**  
**Fairfax Connector South County System Map**  
Prepared by Dept. of Transportation

**Map 61**

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condition within a queue.

As noted in the Fairfax County Comprehensive Plan, 2007, Transportation Policy section, Fairfax County works to provide a street network level of service as high as practical, recognizing the social, environmental, and financial constraints associated with the diverse areas of the County. At a minimum, level of service D (LOS-D) should be provided, except where a lower level of service has been determined acceptable.

### **Select Inventory of Transit Services**

Public transportation services can be generally categorized into three major types: rail transit, bus transit and paratransit. Countywide transportation planning efforts prioritize improvements of public transportation services and facilities and designate Enhanced Public Transit Corridors where major transit services will be provided in corridors that carry higher volumes of inter-county and/or intra-county vehicular traffic. The county identifies approximate locations for supporting facilities of the existing and planned transit services for the purpose of reserving rights-of-way required by the facility development. Final locations of component facilities are subject to completion of detailed area plans or appropriate studies. Figures 10.3 and 10.4 provide information on the Metrobus and Fairfax Connector bus routes that serve the study areas.

**Figure 10.3: Metrobus Routes in Study Areas**

Line	Route	AM Peak Headway* (minutes)	Midday Headway* (minutes)	PM Peak Headway* (minutes)	Evening Headway* (minutes)	FY-2007 Average Weekday Ridership
Huntington – Pentagon	9A	30	30	30	30	1,719
	9E	This route does not serve any of the study areas.				
Kings Park	17A	This route does not serve any of the study areas.				376
	17B	40	--	60	55	
	17F	This route does not serve any of the study areas.				
	17M	25	--	25	--	
Springfield	18E	30	--	30	--	185
	18F	30	--	30	--	
Orange Hunt	18G	30	--	30	--	587
	18H	30	--	30	--	
	18J	30	--	30	--	
Burke Centre	18P	30	--	30	--	596
	18R	30	--	33	--	
	18S	17	--	21	--	
Richmond Highway Express	REX	15	30	15	30	3,270
Springfield Circulator	S80	15	15	15	15	679
	S91	15	--	15	--	176

\* "Headway" is the interval between consecutive trips in the same direction

**Figure 10.4: Fairfax Connector Bus Routes in Study Areas**

Line	Route	AM Peak Headway* (minutes)	Midday Headway* (minutes)	PM Peak Headway* (minutes)	Evening Headway* (minutes)	FY-2007 Average Weekday Ridership
Fort Hunt	101	30	60	30	60	671
Rose Hill	109	30	60	30	60	682
Richmond Highway Circulator (Counterclockwise)	151	30	60	15 trunk/ 30 full	60	1,393
Richmond Highway Circulator (Clockwise)	152	15 trunk/ 30 full	60	30	60	1,304
Richmond Highway Circulator (Counterclockwise)	161	30	60	30	60	415
Richmond Highway Circulator (Clockwise)	162	30	60	30	60	454
Richmond Highway	171	30	60	30	60	2,984
Kingstowne (Counterclockwise)	231	30	--	30	60	199
Kingstowne (Clockwise)	232	30	--	30	60	239
Telegraph Road	301	30	--	30	65	413
Island Creek	303	30	--	30	60	163
Saratoga	304	30	--	30	--	114
Newington Forest	305	30	--	30	--	132
Laurel Hill / Lorton	307	30	--	30	--	37
Rolling Valley	310	30	60	30	60	1,707
Greater Springfield Circulator (Counterclockwise)	321	30	60	30	60	878
Greater Springfield Circulator (Clockwise)	322	30	60	30	60	958
I-95 Circulator (Counterclockwise)	331	30	60	30	60	215
I-95 Circulator (Clockwise)	332	30	60	30	--	257
Franconia-Springfield / Pentagon Express	380	15	--	15	--	348
Backlick-Gallows Road	401	30	60	30	60	3,272

\* "Headway" is the interval between consecutive trips in the same direction.