

ARTERIAL HIGHWAY SYSTEM PERFORMANCE IN THE METROPOLITAN WASHINGTON REGION

FY 2008 CONGESTION MONITORING AND ANALYSIS

Travel Forecasting Subcommittee Meeting

July 18, 2008

Arterial Highway Travel Time/Speed Monitoring Study

Purpose

- To identify the location, severity and extent of congestion on the major arterial highway routes in the region

Overview of the monitoring program

- Monitor 43 major arterial highway routes totaling 365 miles (see Table1)
- Begun in 2000, routes monitored on a three year cycle (e.g., 2001 routes repeated in 2004, and 2007 (Table2 shows additional detail)
- Four cars equipped with Global Positioning system (GPS) and Pocket PC were used to record travel time and speed data on each route between 1 PM to 8 PM on week days covering the PM peak period and off-peak period

Performance Analysis /Methodology

- Level of Service (LOS) for the routes is determined using speed data and the 2000 Highway Capacity Manual procedure
- LOS E & F is considered as congested condition
- LOS was determined for entire route as well as the segments within during the PM peak hour, peak period and off-peak period
- Results compared with 2002 and 2005 surveys

Table 1
Monitored Routes Shown By Years Within 3 Year Cycle
(page 1 of 2)

Juris.	FY 2000,2003 &2006		FY 2001,2004 &2007		FY 2002,2005 &2008	
	Routes	Mileage	Routes	Mileage	Routes	Mileage
Maryland	MD 355	15.3	MD 4	11.5	Georgia Ave.	9.5
	MD 198	5.0	MD 586	5.4	MD 5	11.9
	MD 117	6.8	MD 450	12.8	MD 28	9.0
	MD 197	14.7	MD 144	4.1	MD 193 (University Blvd.)	4.2
					Randolph Rd	9.1
	Total	41.8		33.8		43.7
Virginia	US 50	23.0	VA 234	22.4	FFX Co. Parkway	19.7
	VA 123	27.7	VA 28	17.0	US 1	18.8
	US 15	12.5	VA 120	8.1	US 29	20.9
			VA 7	29.3		
	Total	63.2		76.8		59.6

Table 1
Monitored Routes Shown By Years Within 3 Year Cycle
(page 2 of 2)

Juris.	FY 2000,2003 &2006		FY 2001,2004 &2007		FY 2002,2005 &2008	
	Routes	Mileage	Routes	Mileage	Routes	Mileage
District of Columbia	Wisconsin Ave.	4.1	Canal Rd/M St.	3.7	Connecticut Ave.	4.0
	Pennsylvania Ave.	1.1	7th St./Georgia Ave	3.4	K St./New York Ave.	4.2
	17th Street	0.7	Georgia Ave.	3.3	Nebraska Ave./	2.5
	Independence Ave.	1.9	Constitution Ave/Louisiana Ave.1	2.4	Military Road	
	I St.	0.8	Penn Ave./Branch Ave.	3.7	Pennsylvania Avenue	0.8
	H St.	0.6			14th Street NW	1.0
	15th St.	0.7			16th Street NW *2	6.1
					L Street NW *3	1.1
	Total	9.9		16.5		19.8
TOTAL		114.9		127.1		122.9

Note: 16th Street and L Street were monitored in FY 2006 due to construction activities in 2005

Table 2

Routes & Limits for FY 2008

Jurisdiction	Route	Route Limits		Distance (miles)
		From	To	
MD	Georgia Avenue - Segment 1	Eastern Avenue	University Blvd.	4.3
	Georgia Avenue - Segment 2	University Blvd.	MD Route 28	5.2
	MD Route 5	Suitland Parkway	Accokeek Road	11.9
	MD Route 28	Viers Mill Road	New Hampshire Ave.	9.0
	MD 193 (University Blvd.)	Connecticut Avenue	US 29	4.2
	Randolph Road	MD Route 355	Columbia Pike	9.1
MD Total				43.7
VA	Fairfax Co. Parkway - Segment 1	Sunrise Valley Road	Lee Hwy	7.2
	Fairfax Co. Parkway - Segment 2	Lee Hwy	Rolling Road	12.5
	US 1 - Segment 1	20th Street	Boswell Avenue	8.1
	US 1 - Segment 2	Boswell Avenue	VA Route 123	10.7
	US 29 - Segment 1	M Street NW	Park Road	7.9
	US 29 - Segment 2	Park Road	Village Drive	6.5
	US 29 - Segment 3	Village Drive	Bull Run PO	6.6
VA Total				59.5
DC	14th Street NW	Independence Ave	K Street NW	1.0
	16th Street	K Street NW	Eastern Av.	6.1
	Connecticut Avenue NW	K Street NW	Nebraska Avenue	4.0
	K Street NW/New York Avenue	21st Street NW	Bladensburg Road	4.2
	Military Road/ Nebraska Av.	Connecticut Avenue	Georgia Avenue	2.5
	Pennsylvania Avenue NW	Constitution Avenue	15th Street NW	0.8
	L Street NW	Pennsylvania Avenue	14th Street NW	1.1
	DC Total			
Regional Total				122.9

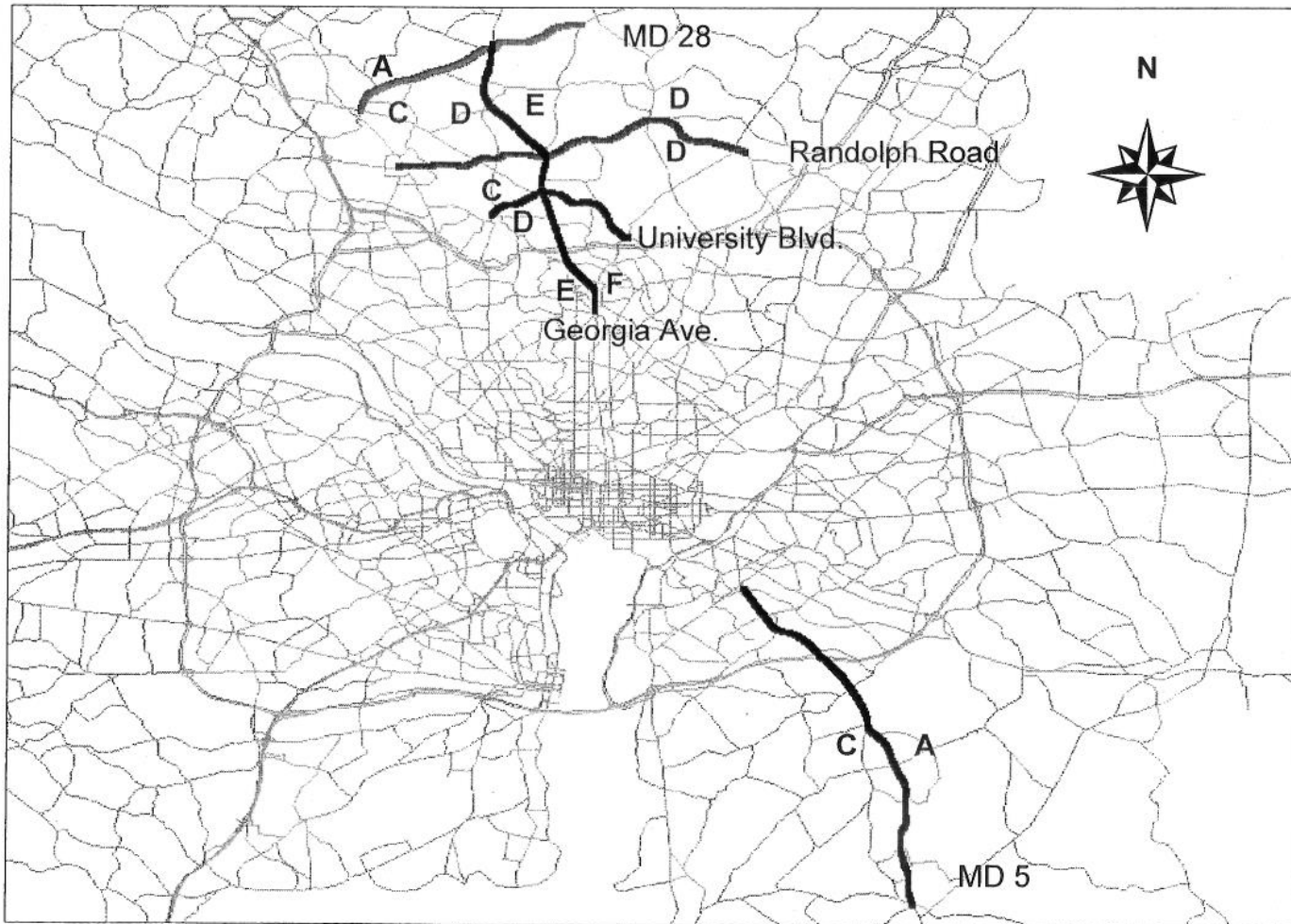
FINDINGS - FY 2008 SURVEY

- The District of Columbia has the highest percentage of LOS “E-F” (35%) during the peak hour (VA 22% & MD 14%)
- The District of Columbia has the highest percentages of LOS “E-F” during the peak period (25%) and off-peak period (7%)
- Increase in miles with LOS E-F during PM peak hour when compared to 2002 and 2005
- Of the routes studied in FY2008, Georgia Avenue is the most congested route in MD, US 29 in VA and K Street/New York Av. in DC.

Findings Cont'd

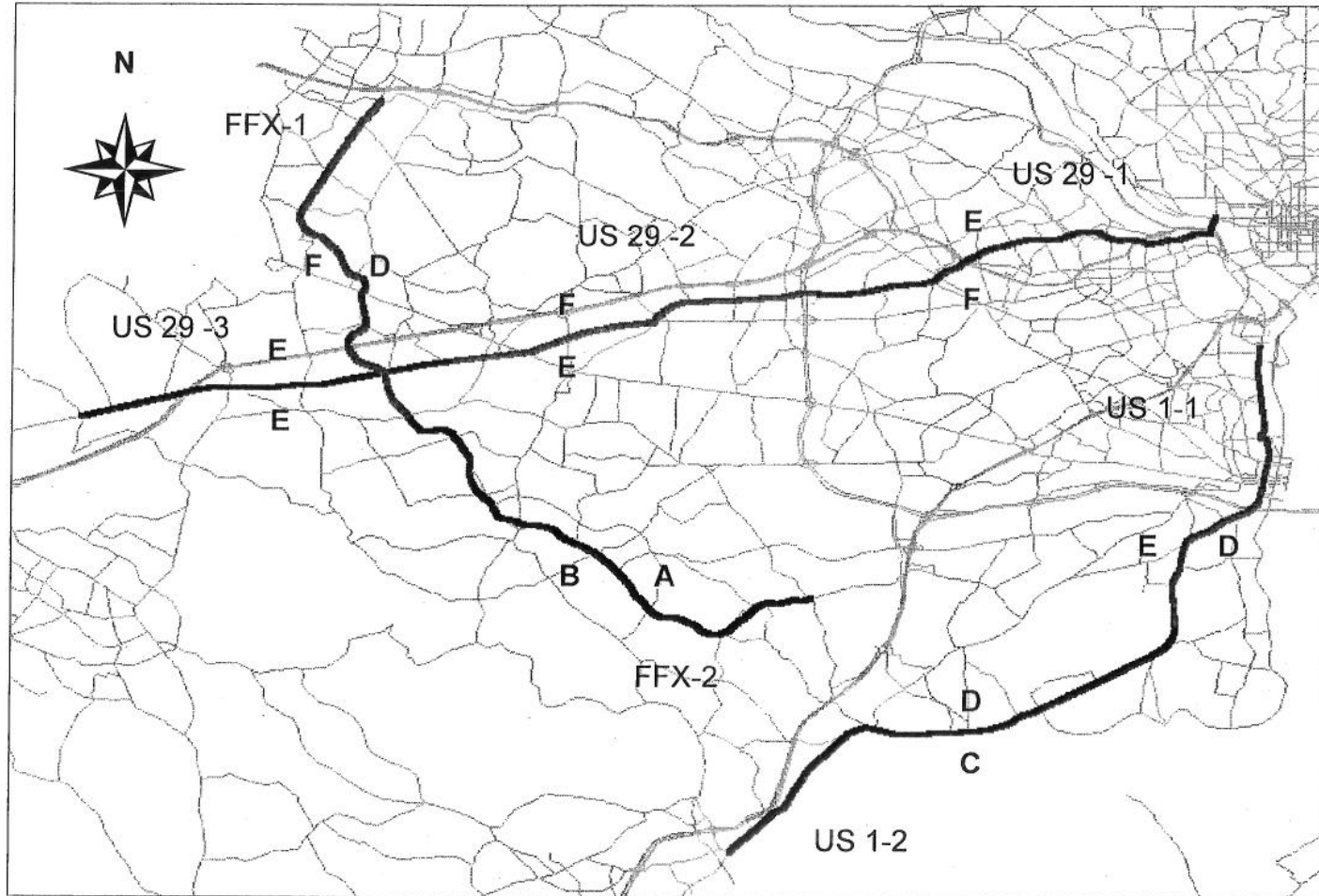
- Georgia Avenue (between Eastern Avenue to MD Route 28)
- US 29 - (Between M Street and Bull Run PO)
- K Street/ new York Avenue (Between 21st Street NW and Bladensburg Road)

Figure 1
Maryland Tours
LOS for PM Peak Hour (FY 2008)
5:00 PM - 6:00 PM



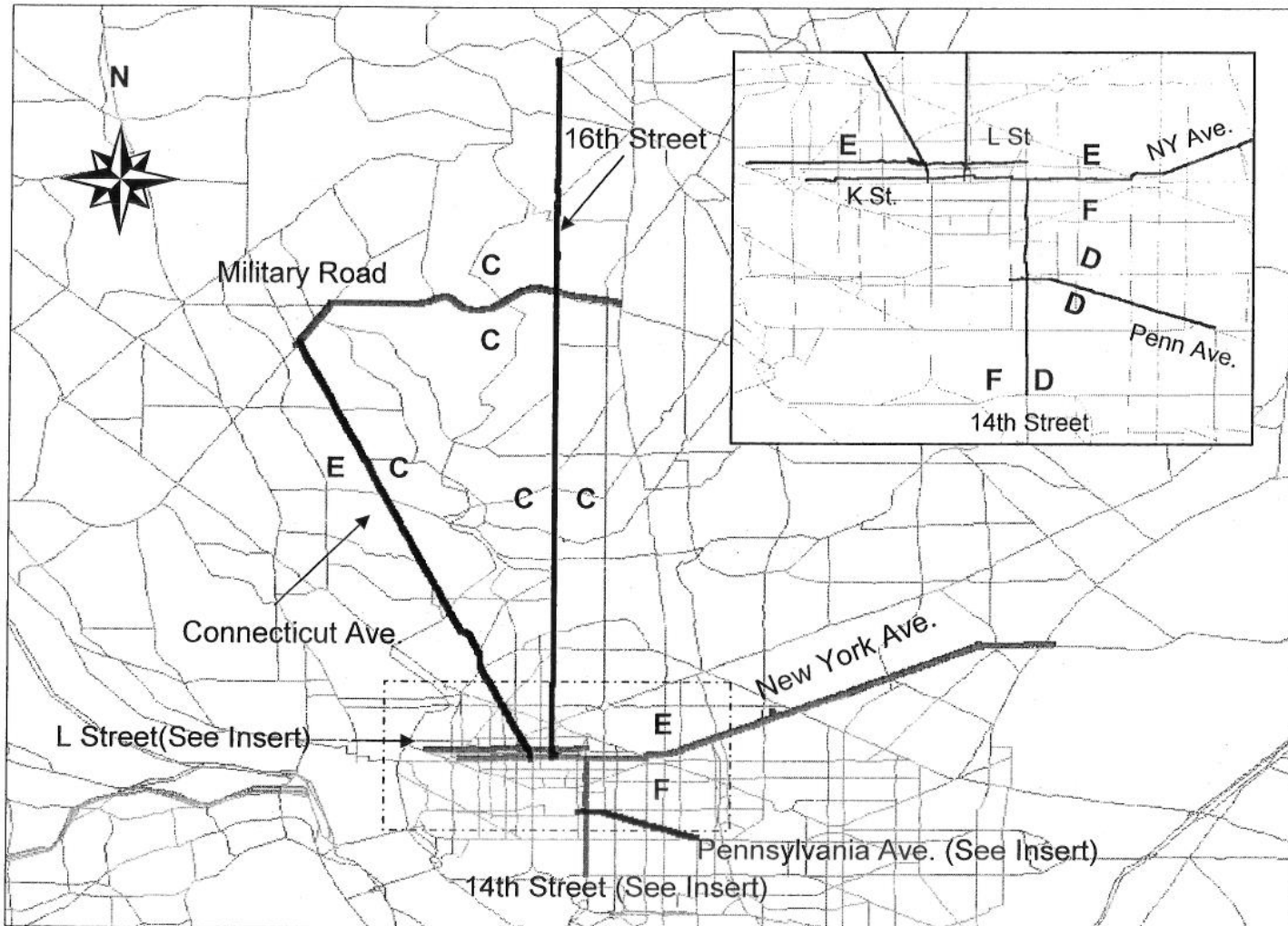
- 1) Georgia Avenue - Segment 1 (Eastern Avenue to University Boulevard)
- 2) Georgia Avenue - Segment 2 (University Boulevard to MD Route 28)
- 3) MD Route 5 (Suitland Parkway to Accokeek Road)
- 4) MD Route 28 (Viers Mill Road to Layhill Road)
- 5) Randolph Road (MD Route 355 to Columbia Pike)
- 6) University Boulevard (Connecticut Avenue to US29)

Figure 2
Virginia Tours
LOS for PM Peak Hour (FY 2008)
5:00 PM - 6:00 PM



- 1) Fairfax County Parkway - Segment 1 (Sunrise Valley to Braddock Road)
- 2) Fairfax County Parkway - Segment 2 (Braddock Road to Rolling Road)
- 3) US Route 1 - Segment 1 (20th Street to Boswell Avenue)
- 4) US Route 1 - Segment 2 (Boswell Avenue to VA Route 123)
- 5) US Route 29 - Segment 1 (M Street NW to Park Road)
- 6) US Route 29 - Segment 2 (Park Road to Village Drive)
- 7) US Route 29 - Segment 3 (Village Drive to Bull Run PO)

Figure 3
District of Columbia Tours
LOS for PM Peak Hour (FY 2008)
5:00 PM - 6:00 PM



- 1) 14th Street NW (Independence Avenue to K Street NW)
- 2) 16th Street NW (K Street NW to Eastern Avenue)
- 3) Connecticut Avenue (K Street NW to Nebraska Avenue)
- 4) K Street / New York Avenue (21st Street to Bladensburg Road)
- 5) L Street NW (Pennsylvania Avenue to 14th Street NW)
- 6) Military Road (Connecticut Avenue to Georgia Avenue)
- 7) Pennsylvania Avenue (15th Street NW to Constitution Avenue)



Figure 4

Georgia Avenue - Segment 1

(between Eastern Avenue to University Blvd.)

LOS for PM Period

Peak hour: 5:00 – 6:00 pm
Peak period: 4:00 – 7:00 pm



Figure 12

Georgia Avenue - Segment 1

Between Eastern Avenue and University Boulevard

LOS for PM Period

Segment Length: 4.3 miles

Southbound

FY 02			FY 05			FY 08			FY 02			FY 05			FY 08		
D	D	C	D	E	C	D	D	E	D	D	D	D	D	D			
B	B	C	B	B	C	B	B	C	B	B	C	B	B	C			
C	B	C	C	B	C	D	C	D	C	B	D	C	B	D			
D	D	E	E	D	E	E	D	E	E	D	D	E	D	D			
C	B	D	B	B	D	F	E	D	F	C	D	F	C	D			
E	F	F	D	E	F	C	C	D	D	C	C	D	C	C			
B	C	E	C	C	E	E	D	C	E	E	C	E	E	C			
E	D	E	E	D	E	F	D	D	F	D	D	F	D	D			
E	E	F	C	F	F	E	D	D	E	D	D	E	D	D			

Northbound

PM Peak Period

PM Peak Hour

PM Peak Hour

PM Peak Period

Figure 5

US 29 - Segment 2

(Between Village Drive and Park Road)

LOS for PM Period

Peak hour: 5:00 – 6:00 pm
 Peak period: 4:00 – 7:00 pm



Figure 23
US 29 - Segment 2
 Between Village Drive and Park Road
 LOS for PM Period

Segment Length: 6.5 miles

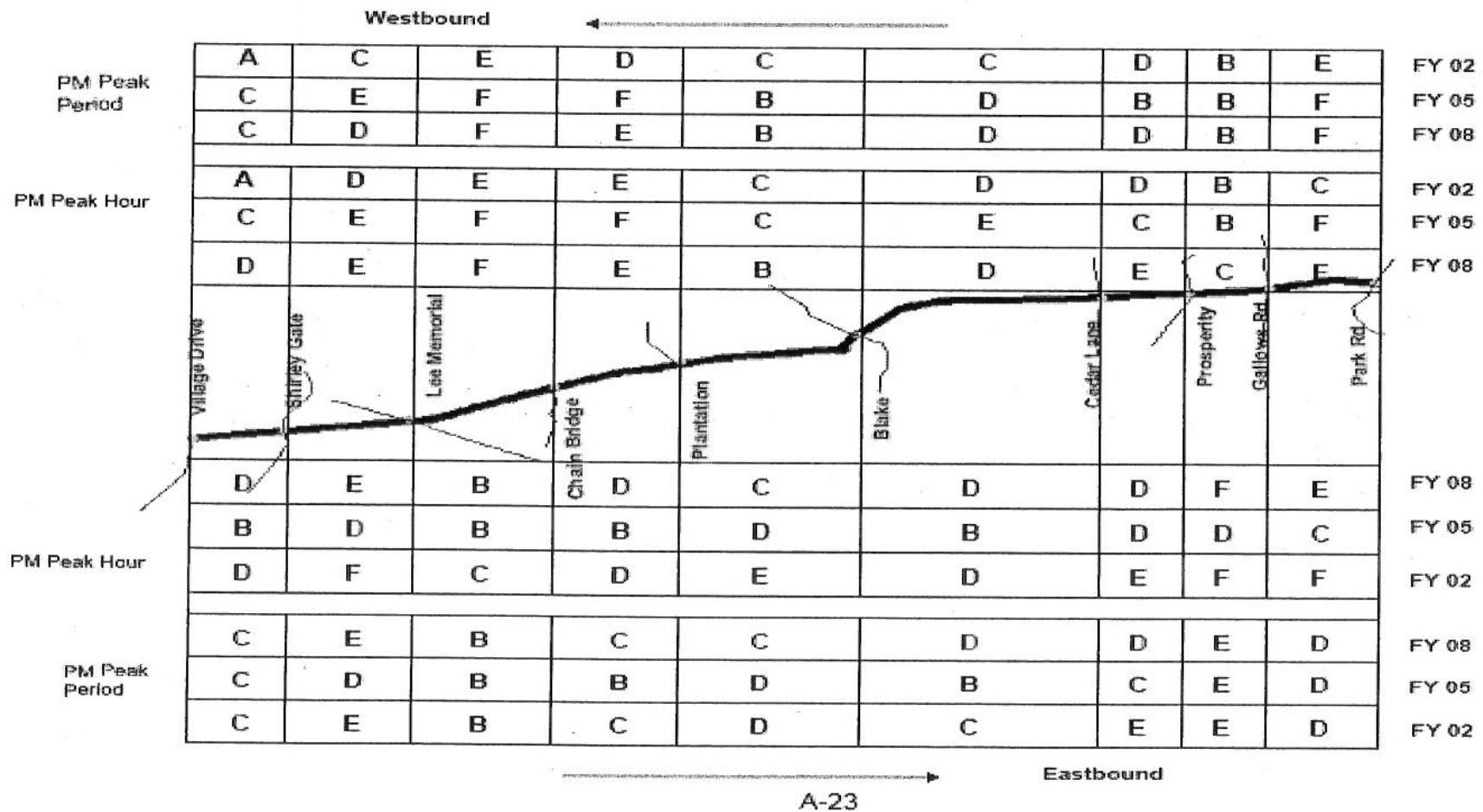


Figure 6

K Street/ new York Avenue

(Between 21st Street NW and Bladensburg Road)

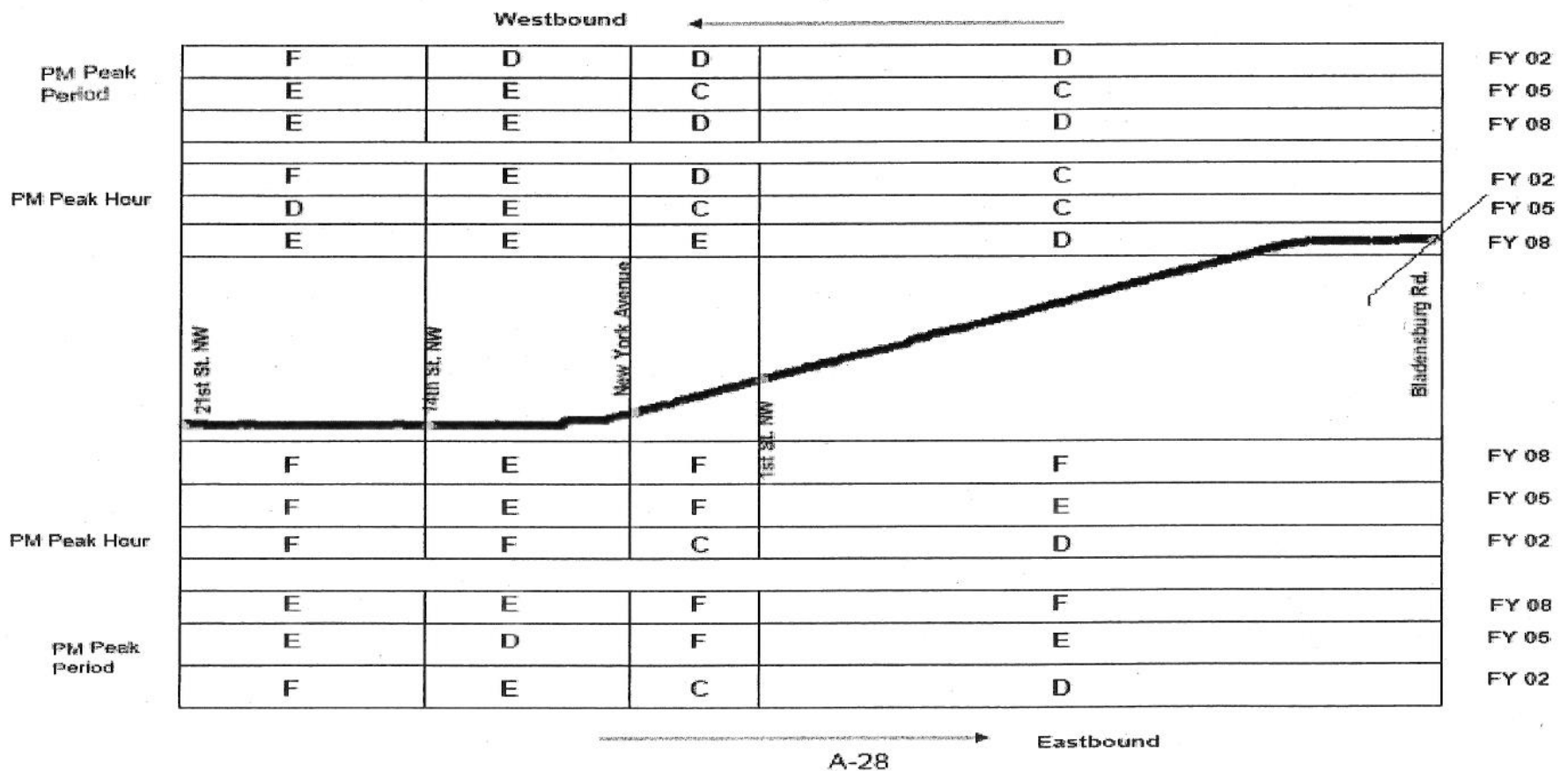
LOS for PM Period

Peak hour: 5:00 – 6:00 pm
 Peak period: 4:00 – 7:00 pm



Figure 28
K Street NW / New York Avenue
 Between 21st Street NW and Bladensburg Road
 LOS for PM Period

Segment Length: 4.2 miles



Observed Bottlenecks (Maryland)

Links that had LOS “E” or “F” during the PM peak hour

Maryland

- Georgia Av. (MD 97)
 - NB: Eastern to Coleville; Spring Drive to Forest Glen
 - Arcola Avenue to Randolph Road; Bel Pre Road to MD 28
 - SB: Spring Drive to Eastern Avenue
- MD 28
 - EB: Gude Drive to Bel Pre; Muncaster Road to Georgia Avenue
 - WB: Georgia to Muncaster; Baltimore to Viers Mills
- Randolph Road
 - EB: MD 355 to Parklawn Road; Parklawn Road to Viers Mills;
 - WB: Fairland to New Hampshire; Parklawn to MD 355
- MD 193 (University Blvd)
 - EB: Viers Mill to Georgia; Dennis to US 29
 - WB: Georgia to Viers Mill

Observed Bottlenecks (Virginia)

Links that had LOS “E” or “F” during the PM peak hour

Virginia

- Fairfax County Parkway
SB: Stringfellow to Fair Lakes Parkway; West Ox to Farm Rd
- US Route 1
NB: Boswell to Lockheed; Sherwood Road to Boswell Avenue
SB: Prince to Kings Hwy; 20th to Glebe South; Old Mill to Fairfax County;
Boswell to Sherwood; Furnace to VA 123
- US 29
EB: Spout Run to M Street; Annandale Road to Sycamore Road; George
Mason to N Glebe; Shirley Gate to Lee Memorial; Gallows to Park;
Prosperity to Gallows; Stone Road to VA 28; Pickwick Road to Clifton Road

WB: Sycamore Road to Annandale Road, from Nelson to N Glebe; Park to
Gallows, Chain Bridge to Lee Memorial; Prosperity to Cedar Lane;
Plantation to Chain Bridge; Lee Memorial to Shirley Gate; Hampton Forest
to Clifton Road; from Pickwick Road to Stone

Observed Bottlenecks (D.C.)

Links that had LOS “E” or “F” during the PM peak hour

District of Columbia

- 14th Street NW
 - NB: New York to Pennsylvania;
 - SB: Pennsylvania to Constitution
- 16th Street
 - NB: Kalmia to Eastern
 - SB: New Hampshire to K St
- Connecticut Avenue NW
 - SB: Nebraska to Calvert; Florida to K St.
- K Street NW/NY Avenue
 - EB: 21st Street to Bladensburg
 - WB: 1st Street NW to 21st Street NW
- Pennsylvania Avenue NW
 - EB: 15th Street NW to 7th Street NW;
 - WB: Constitution Av. to 7th Street NW
- L Street
 - EB: 21st street to Connecticut Av.

Routes With Congestion During the Past Three Surveys

Routes with congestion during the past three surveys

- Georgia Avenue (Northbound) - Segment 1 & 2
- US 1 - Segment 1 (Southbound)
- US 29 - Segment 1 (Northbound & Southbound)
- 14th Street NW (Northbound)
- Connecticut Avenue NW (Northbound)
- K Street NW/New York Avenue (Northbound)
- L Street (Northbound)

Congested Segment Locations Peak Hour (5 pm – 6 pm)

Route Segment	From	To	Pk Hour Speed (mph)	LOS F Speed (mph)	% below LOS F Speed
Georgia Ave (MD)	Silgo	Wayne	4.1	13	68.71%
US 50 (VA)	Jermantown	US 29	4.5	13	65.47%
US 29 (VA)	Park	Gallows	5.3	13	58.98%
MD 355 (MD)	Montgomery	Bradley	6.2	13	52.02%
Georgia Ave (MD)	Spring	16th	6.3	13	51.50%
Independence Ave (DC)	14th NW	17th NW	3.5	7	50.36%
MD 28 (MD)	Muncaster	Georgia	6.6	13	49.58%
FFC Pkwy (VA)	Lee Jackson	Fair Lakes	8.2	16	48.52%
US 123 (VA)	Old Courthouse	Beulah	6.9	13	47.01%
VA 7 (VA)	International	Spring Hill	6.9	13	46.99%

Congested Segments Locations Peak Period (4pm – 7 pm)

Route Segment	From	To	Pk Period Speed (mph)	LOS F Speed (mph)	% below LOS F Speed
US 50 (VA)	Jermantown	US 29	6.2	13	52.53%
Georgia Ave (MD)	Sligo	Wayne	6.6	13	49.19%
FFC Pkwy (VA)	Lee Jackson	Fair Lakes	8.9	16	44.21%
US 29 (VA)	Park	Gallows	7.7	13	40.56%
University (MD)	Viers Mill	Georgia	7.8	13	39.85%
MD 355 (MD)	Wooton Pkwy	Edmonson	8.4	13	35.58%
US 123 (VA)	Main St	US 50	8.4	13	35.52%
US 123 (VA)	Beulah	Lawyers	8.7	13	32.81%
US 29 (VA)	Chain Bridge	Lee Memorial	8.8	13	32.56%
MD 28 (MD)	Muncaster	Georgia	9.1	13	30.25%

