

ARTERIAL HIGHWAY SYSTEM PERFORMANCE IN THE METROPOLITAN WASHINGTON REGION

FY 2010 CONGESTION MONITORING AND ANALYSIS

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Travel Forecasting Subcommittee Meeting

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Arterial Highway Travel Time/Speed Monitoring Study

Purpose

- To identify locations, severity and extent of congestion on major arterial highways in the region as an input to the Congestion Management Process

The monitoring program (2000-2010)

- Begun in FY2000, with annual surveys; all routes are monitored on a three year cycle
- Monitor 57 (9 new) major arterial highway routes totaling 430 center line miles
- Program expanded in FY2009 to include additional routes covering 65 miles
- FY2010 Study surveyed 145 miles including 18 miles of additional routes

Schedule and Routes

Arterial Travel Time Data collection

Jurisdiction	FY 2000 FY 2003 FY 2006 FY 2009	Mileage	FY 2001 FY 2004 FY 2007 FY 2010	Mileage	FY 2002 FY 2005 FY 2008 FY 2011	Mileage	Total
	Routes		Routes		Routes		
Maryland	MD 355	6.6	MD 4	11.5	MD 97	9.5	
	MD 355	8.7	MD 144	4.2	MD 5	11.9	
	MD 117	6.8	MD 450	12.8	MD 28	9.0	
	MD 198	5.0	MD 588	5.4	MD 193 (University Blvd.)	4.2	
	MD 197	14.7	MD 210 *	11.0	Randolph Rd	9.1	
	US-1 (Baltimore Av.) 2 parts *	13.4			Colesville Rd / US29 *	7.3	
	MD 193 *	4.6					
		59.8		44.9		51.0	
Virginia	US 50	13.0	VA 7 (3 parts)	29.2	FFX Co. Parkway	19.8	
	US 50	10.0	VA 234 (2 parts)	22.6	US 1	18.8	
	US 15	12.5	VA 120	8.1	US 29	21.0	
	VA 123	5.9	VA 28 part 1	17.1	US 29 *	11.0	
	VA 123	7.6	VA 28 part 2 *	6.7			
	VA 123	14.2					
	Wilson Blvd *	4.9					
		68.1		83.7		70.6	
District of Columbia	Wisconsin Avenue	4.1	Canal/M St	3.7	Connecticut Ave.	4.0	
	Pennsylvania Avenue	1.1	7 th St./Georgia Ave	3.4	K St./New York Ave.	4.2	
	17th Street	0.7	Georgia Ave	3.3	Nebraska Ave./Military Rd	2.2	
	Independence Avenue	1.9	Louisiana/Constitution Ave	2.4	Pennsylvania Avenue	0.8	
	I Street	0.8	Pennsylvania/Branch Ave	3.7	14th Street NW	1.0	
	H Street	0.6			South Dakota *	2.7	
	15th Street	0.7					
	16th Street NW	6.1					
	L Street NW	1.2					
	US1 (Rhode Island Ave) *	3.3					
	20.5		16.5		14.9	51.9	
TOTAL		148.4		145.1		136.5	430.0

* New Routes added to the system starting in FY 2009

Monitored Routes (FY2010 Study)

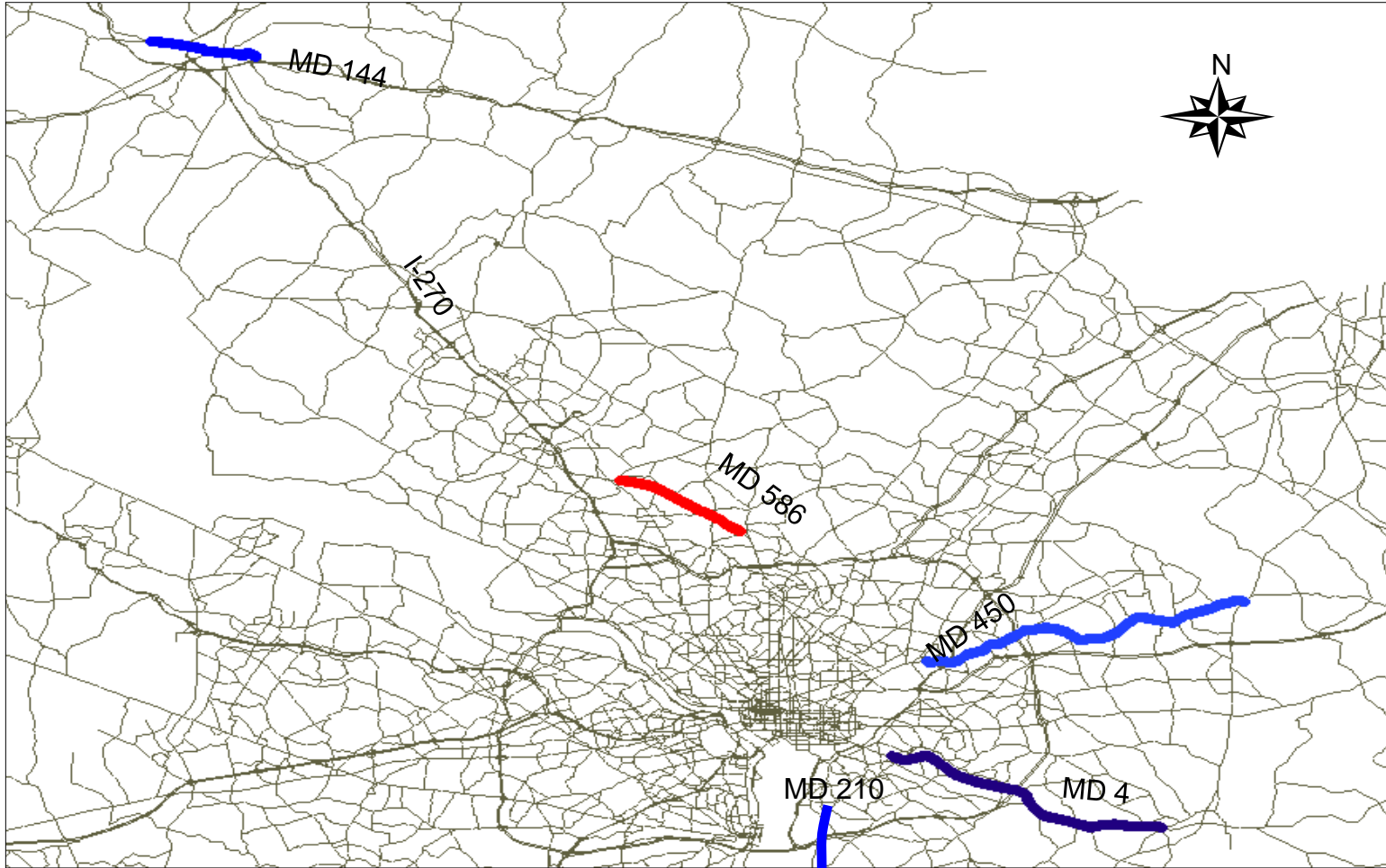
Jurisdiction	Route	Route Limits		Distance
		From	To	(miles)
MD	MD 4	Alabama	Old Crain	11.5
	MD 144	Waverly	Monocacy	4.2
	MD 450	Landover	Crain Hwy	12.8
	MD 586	1st St	University Blvd	5.4
	MD 210 *	Southern Av	Livingston Rd (Accokeek)	11.0
MD Total				44.9
VA	VA 7 (3 parts)	Menokin/Van Dorn	Cochran Mill	29.2
	VA 234 (2 parts)	VA 7	Lovettsville Road	22.6
	VA 120	Mt Vernon	Chain Bridge	8.1
	VA 28 part 1	Compton	VA 7	17.1
	VA 28 part 2 *	Compton Rd.	Route 234 bypass	6.7
VA Total				83.7
DC	Canal/M St	30th St NW	Chain Bridge	3.7
	7th St./Georgia Ave	Independence Ave	New Hampshire Ave	3.4
	Georgia Ave	New Hampshire Ave	Eastern Av.	3.3
	Louisiana/Constitution Ave	North Capital	21st St NE	2.4
	Pennsylvania/Branch Ave	Independence Ave	Southern Ave	3.7
DC Total				16.5
Regional Total				145.1

* FY 2010 New Routes

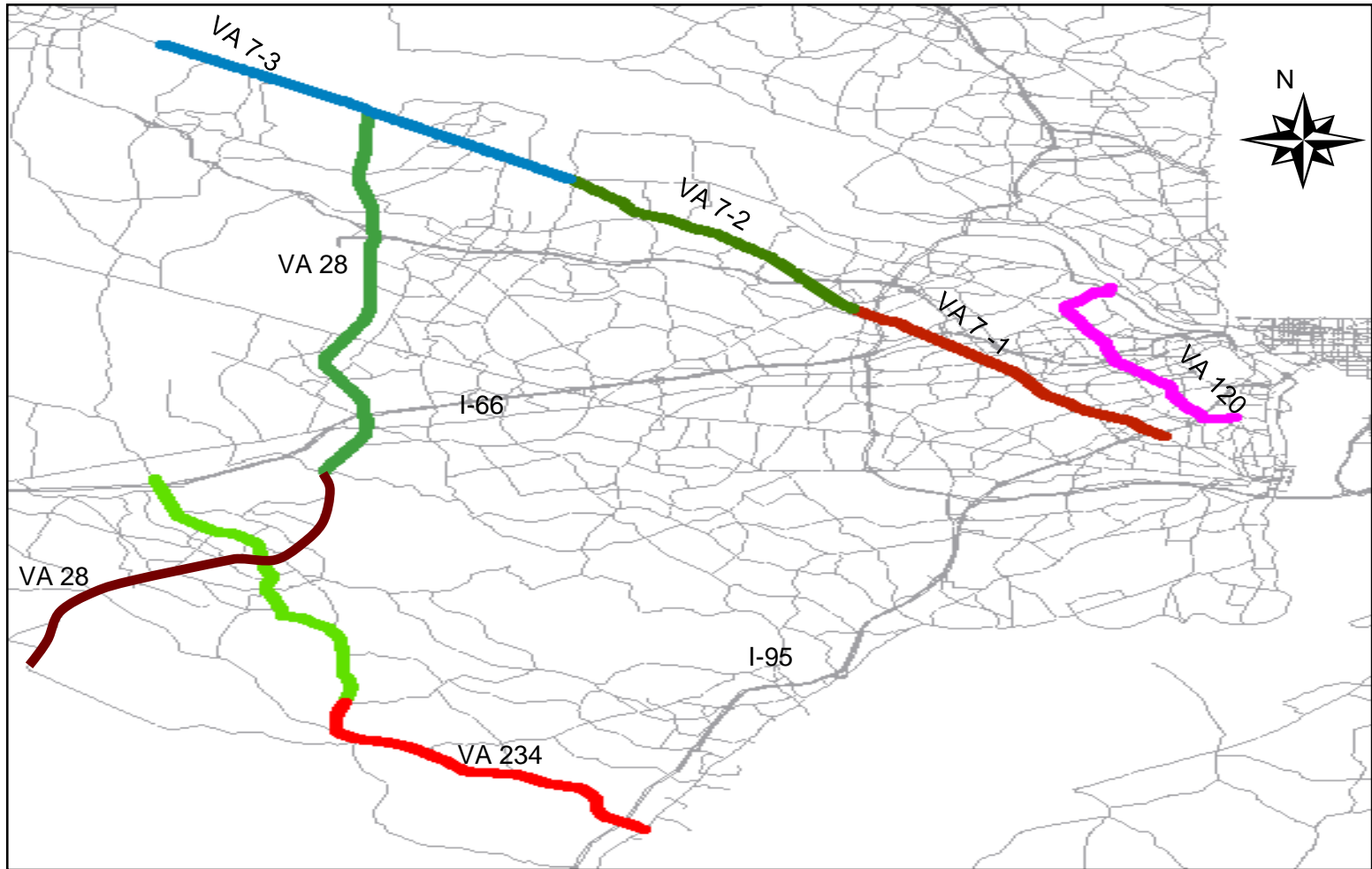
Performance Analysis / Methodology

- Four cars equipped with Global Positioning system (GPS) 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
- Level of Service (LOS) for the routes is determined using speed data and the 2000 Highway Capacity Manual procedure
- LOS E & F are considered as congestion
- Average travel speed between segments along the route used to determine segment LOS during the PM peak hour, peak period and off-peak period
- Results compared with the findings of previous survey

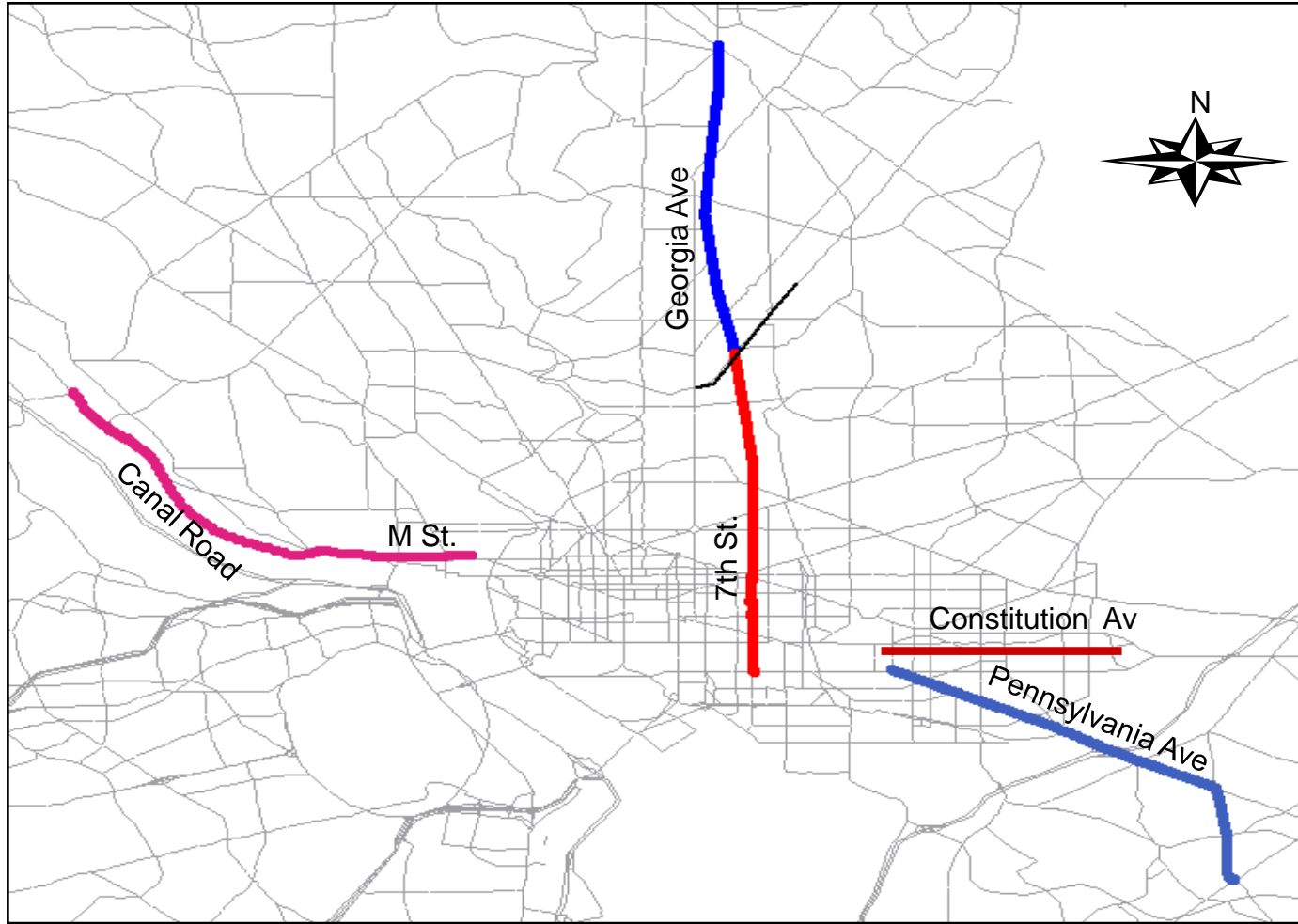
Maryland Routes



Virginia Routes



DC Routes



Summary of LOS (FY 2010)

Jurisdiction	Route	LOS (Peakhour)		LOS (Off Peak Period)		LOS (Peak Period)	
		North/ Eastbound	South/ Westbound	North/ Eastbound	South/ Westbound	North/ Eastbound	South/ Westbound
MD	MD Route 4	C	B	B	B	C	B
	MD Route 144	D	C	D	C	D	C
	MD Route 450	C	C	C	C	C	C
	MD Route 586	D	D	C	C	C	D
	MD 210 *	C	D	B	B	C	D
VA	VA 7 - Segment 1	D	D	D	C	D	D
	VA 7 - Segment 2	E	B	C	B	D	B
	VA 7 - Segment 3	C	B	B	A	C	B
	VA 234 - Segment 1	B	C	C	C	B	C
	VA 234 - Segment 2	A	B	A	A	A	A
	VA Route 120	E	E	D	D	D	E
	VA Route 28 - Seg 1	C	C	A	A	B	C
	VA Route 28 - Seg 2 *	C	D	C	C	C	D
DC	Canal/M St	-	F	-	E	-	F
	7th St/Georgia Ave	D	E	D	D	D	E
	Georgia Ave	C	C	C	C	C	C
	Louisiana/Constitution Ave	D	D	C	D	D	D
	Pennsylvania/Branch Ave	E	D	E	D	E	D

* FY 2010 New Routes



Figure 15 Maryland Route 450

Between MD Route 202 and MD Route 3
LOS for PM Period

Segment Length: 12.8 miles
Peak hour: 5:00 – 6:00 pm
Peak period: 4:00 – 7:00 pm

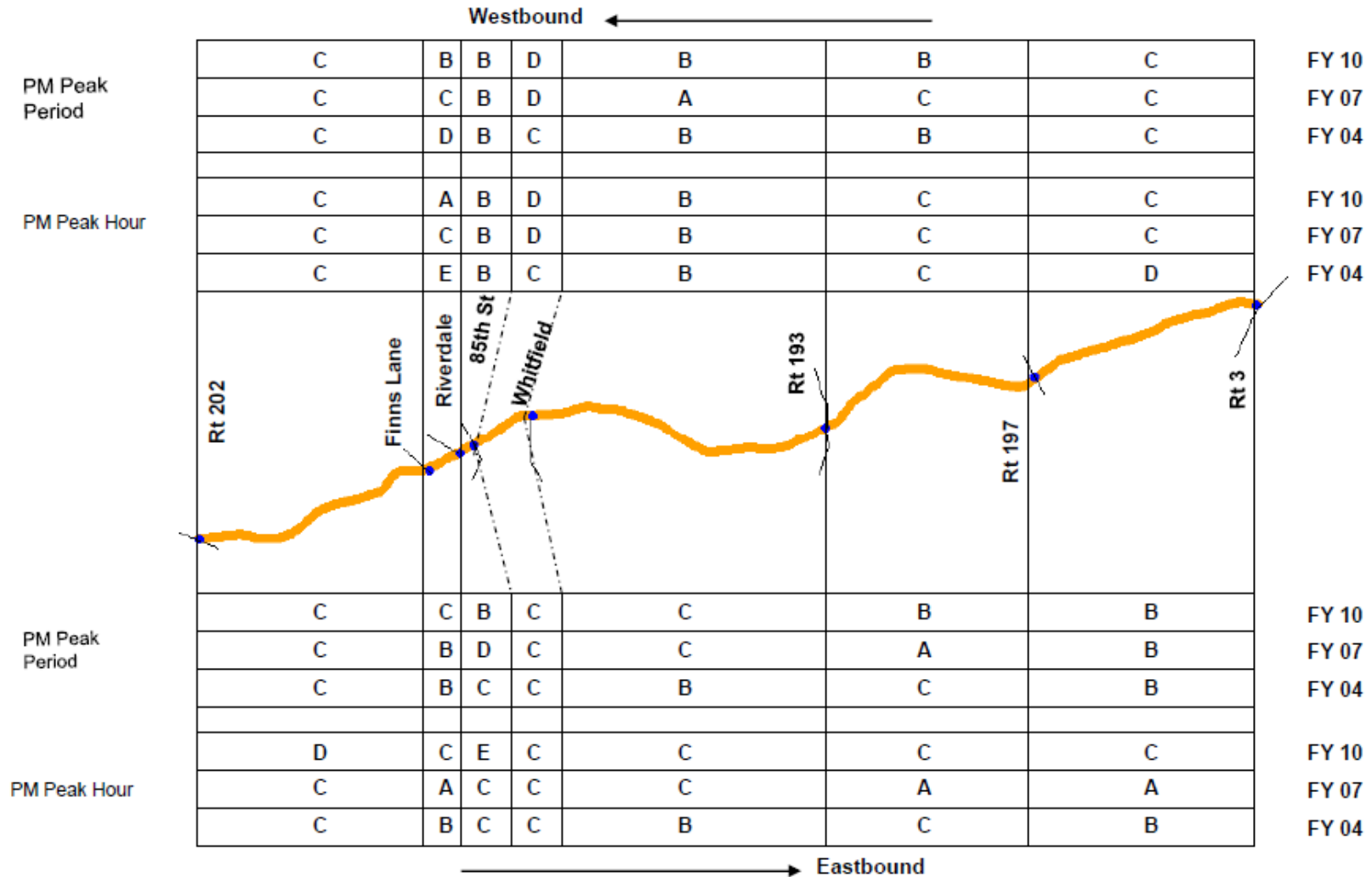




Figure 16
Maryland Route 586
 Between University Blvd. And 1st St.
 LOS for PM Period

Segment Length: 5.3 miles
 Peak hour: 5:00 – 6:00 pm
 Peak period: 4:00 – 7:00 pm

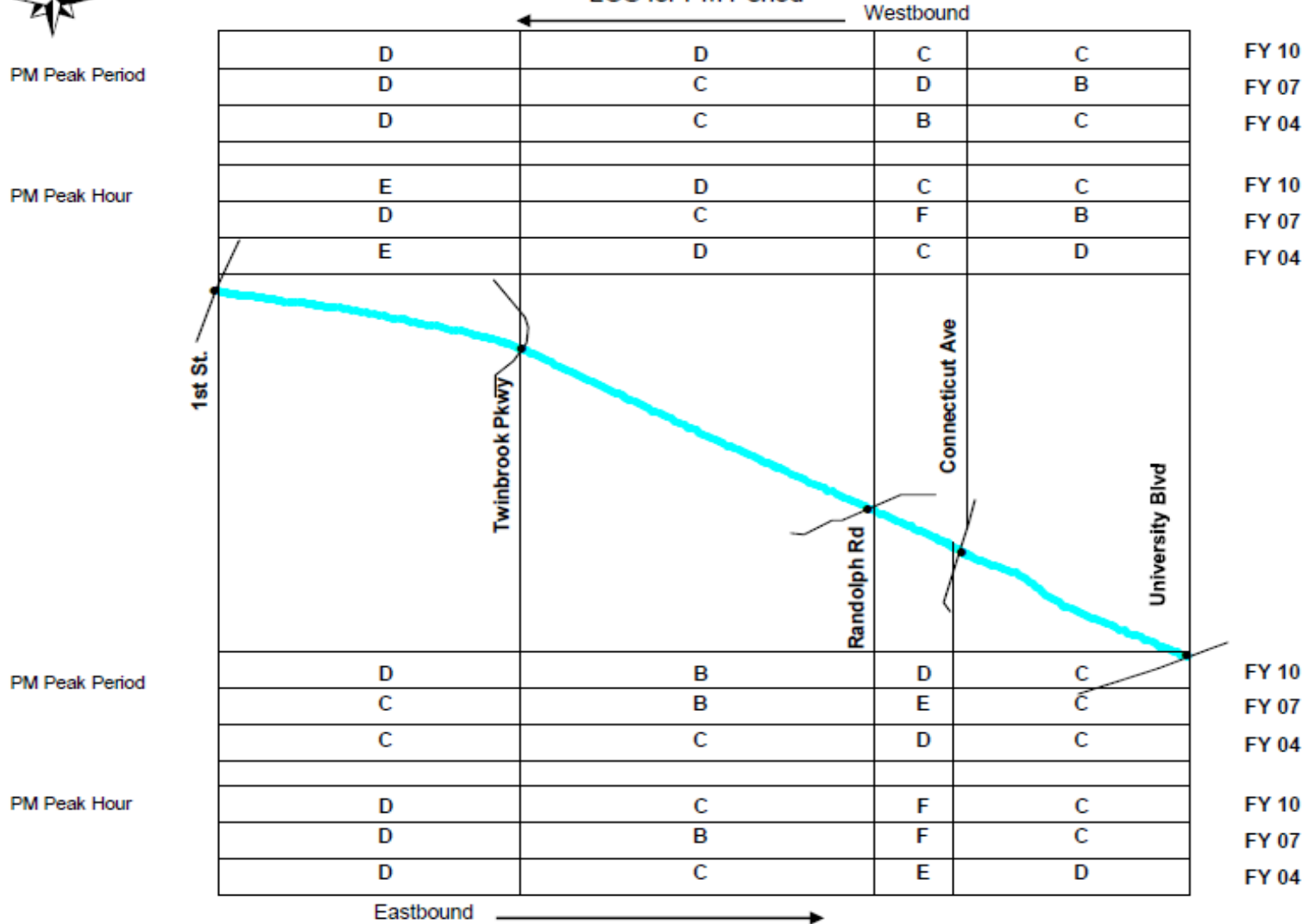




Figure 19
Virginia Route 7 (Seg-2)
 Between International Drive and Georgetown Pike
 LOS for PM Period

Segment Length: 9.0 miles
 Peak hour: 5:00 – 6:00 pm
 Peak period: 4:00 – 7:00 pm

			FY 10	FY 07	FY 04				FY 10	FY 07	FY 04				FY 10	FY 07	FY 04	
Southbound			B	B	C		B	B	C			E	E	B		C	D	B
			A	A	B		A	A	A			E	E	B		E	D	B
			B	C	B		B	B	B			C	B	B		C	B	B
			D	F	E		D	F	F			F	F	B		E	F	F
	PM Peak Period																	
	PM Peak Hour																	
												PM Peak Hour						
																		PM Peak Period



Figure 23 Virginia Route 120

Between Chain Bridge Road and Mt. Vernon Avenue
LOS for PM Period

Segment Length: 8.1 miles
Peak hour: 5:00 – 6:00 pm
Peak period: 4:00 – 7:00 pm

	FY 10			FY 07			FY 04				FY 10			FY 07			FY 04			
Southbound ↓	C	B	B	C	C	B	Chain Bridge			D	C	C	D	B	B	Northbound ↑				
	C	B	B	C	B	B	Chesterbrook			B	A	A	B	A	B					
	F	F	E	F	E	E	Old Dominion			C	D	C	C	D	C					
	E	D	E	E	D	E	Lee Highway			E	D	D	E	D	D					
	D	D	E	E	D	D	Wilson Blvd			F	E	F	F	E	F					
	D	D	D	E	D	D	Arlington Blvd			D	D	E	D	D	E					
	E	D	E	E	E	E	I-395			D	C	D	D	C	D					
	PM Peak Period			PM Peak Hour			Mt. Vernon			PM Peak Hour			PM Peak Period							



Figure 26
M St. NW / Canal Road
 Between 30th St. NW and Chain Bridge Road
 LOS for PM Period

Segment Length: 3.7 miles
 Peak hour: 5:00 – 6:00 pm
 Peak period: 4:00 – 7:00 pm

Westbound ←

PM Peak Period	-	D	D	F	E	FY 10
	B	A	D	F	E	FY 07
	B	A	C	E	D	FY 04
PM Peak Hour	-	E	C	F	F	FY 10
	B	A	E	F	E	FY 07
	C	A	C	F	D	FY 04

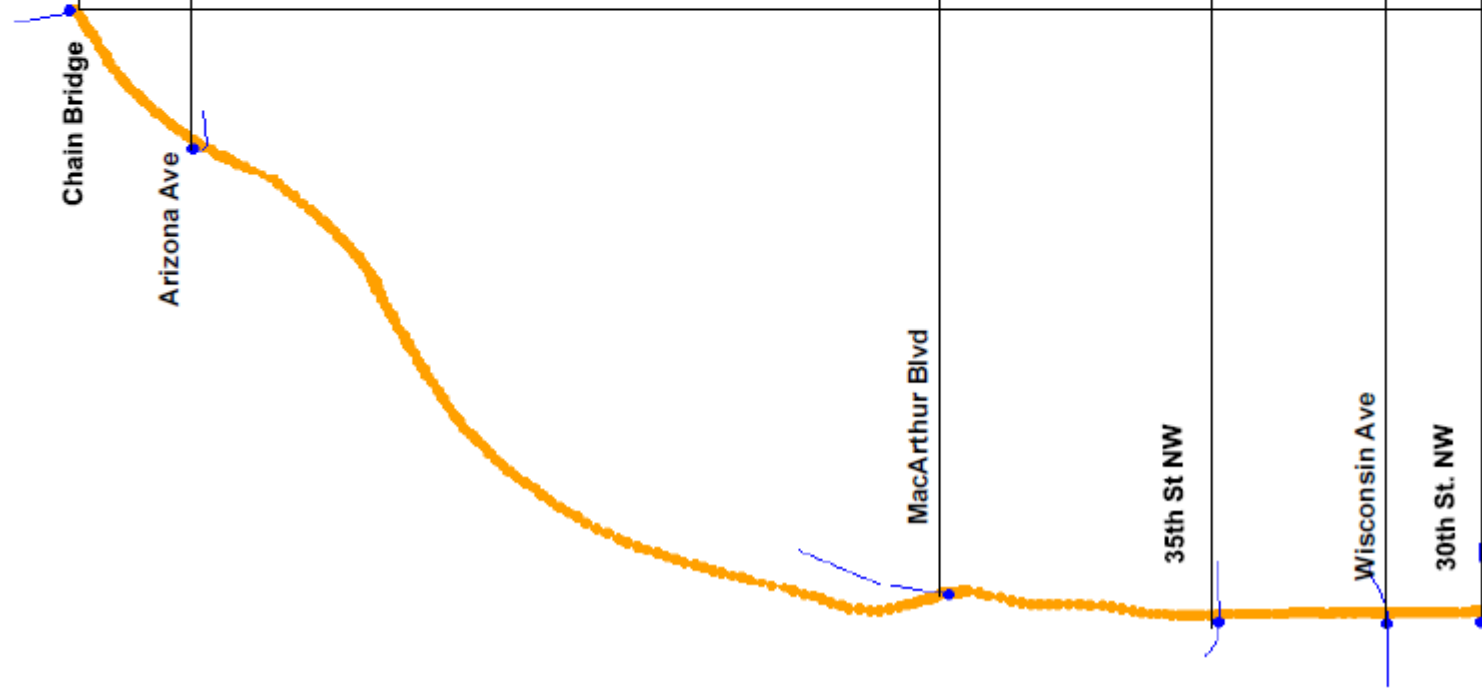




Figure 28
7TH St NW / Georgia Avenue (Seg-2)
 Between Independence Ave and New Hampshire Ave
 LOS for PM Period

Segment Length: 3.4 miles
 Peak hour: 5:00 – 6:00 pm
 Peak period: 4:00 – 7:00 pm

Southbound						Northbound					
FY 10	FY 07	FY 04	FY 10	FY 07	FY 04	FY 10	FY 07	FY 04	FY 10	FY 07	FY 04
D	D	D	D	D	C	C	C	C	C	C	C
E	D	E	E	D	D	F	F	E	F	E	E
D	E	D	D	E	E	C	E	C	C	D	C
E	E	D	D	C	E	E	C	D	D	D	D
E	D	F	D	D	D	F	F	D	F	D	D
F	D	D	F	D	D	F	D	D	E	E	D
C	D	C	C	D	C	D	A	D	C	B	B
PM Peak Period			PM Peak Hour			PM Peak Hour			PM Peak Period		

Routes & Segments with PM Peak Hour LOS Improvements (Sample)

Juris	Route	Segments	Direction	2007 LOS	2010 LOS
VA	VA 7 Seg-2	Spring Hill to International	SB	F	D
VA	VA 7 Seg-3	Countryside to Ashburn	NB	E	D
VA	VA 234 Seg-1	Centerville/Lee to Prescott/Grant	NB	E	C
MD	MD 586	Connecticut to Randolph	WB	F	C
DC	Canal RD / M St. NW	35th to MacArthur	WB	E	C
DC	7th St. NW / Georgia Avenue	New York to Rhode Island	NB	E	C

Segments with PM Peak Hour LOS “E” or “F” (FY2010 Survey) (Sample)

Juris	Route	Segments	Direction	2007 LOS	2010 LOS
VA	VA 120 (Glebe Rd)	Wilson to Lee	NB	D	E
VA	VA 120 (Glebe Rd)	Lee Highway to Wilson	SB	D	E
MD	MD 586	Twinbrook to 1st Street	WB	D	E
MD	MD 450	Riverdale Rd to 85th St	EB	C	E
MD	MD 144	Willowdale to Baughmans	EB	D	E
DC	7th St. NW / Georgia Avenue	Massachusetts to New York	NB	C	E
DC	Canal RD / M St. NW	MacArthur to Arizona	WB	A	E
DC	Louisiana/Constitution	3rd St NE to 1st St NE	WB	B	E

Performance Comparison (FY 2007 with FY 2010)

Jurisdiction	Route	LOS (Peakhour)		LOS (Off Peak Period)		LOS (Peak Period)	
		North/ Eastbound	South/ Westbound	North/ Eastbound	South/ Westbound	North/ Eastbound	South/ Westbound
MD	MD 4	No change	No change	No change	No change	No change	No change
	MD 144	Deteriorated	Improved	Deteriorated	No change	Deteriorated	Improved
	MD 450	Deteriorated	No change	Deteriorated	Deteriorated	No change	No change
	MD 586	No change	No change	No change	No change	Improved	Deteriorated
	MD 210*	-	-	-	-	-	-
VA	VA 7 - part 1	Improved	Improved	Deteriorated	No change	No change	No change
	VA 7 - part 2	No change	Deteriorated	Deteriorated	No change	No change	Deteriorated
	VA 7 - part 3	Deteriorated	Improved	No change	Improved	No change	No change
	VA 234 - part 1	Improved	No change	No change	No change	Improved	No change
	VA 234 - part 2	No change	Deteriorated	No change	No change	No change	No change
	VA 120	Deteriorated	Deteriorated	No change	Deteriorated	No change	Deteriorated
	VA 28 - part 1	No change	No change	Improved	No change	No change	No change
	VA 28 - part 2 *	-	-	-	-	-	-
DC	Canal/M St	-	Deteriorated	-	Deteriorated	-	Deteriorated
	7th St/Georgia Ave	No change	Deteriorated	No change	No change	No change	Deteriorated
	Georgia Ave	No change	No change	No change	No change	No change	No change
	Louisiana/Constitution Ave	No change	No change	No change	No change	No change	No change
	Pennsylvania/Branch Ave	Improved	Improved	No change	Deteriorated	No change	No change

* FY 2010 New Routes

Final Comments

- This study has identified congestion and bottlenecks on the routes surveyed
- Additional details available in the full report

Next Step

- Testing of Bluetooth Traffic Monitoring Technology as an additional / alternative to GPS technology will be carried out in FY 2011 ATT Study in association with MD SHA.

Thank You