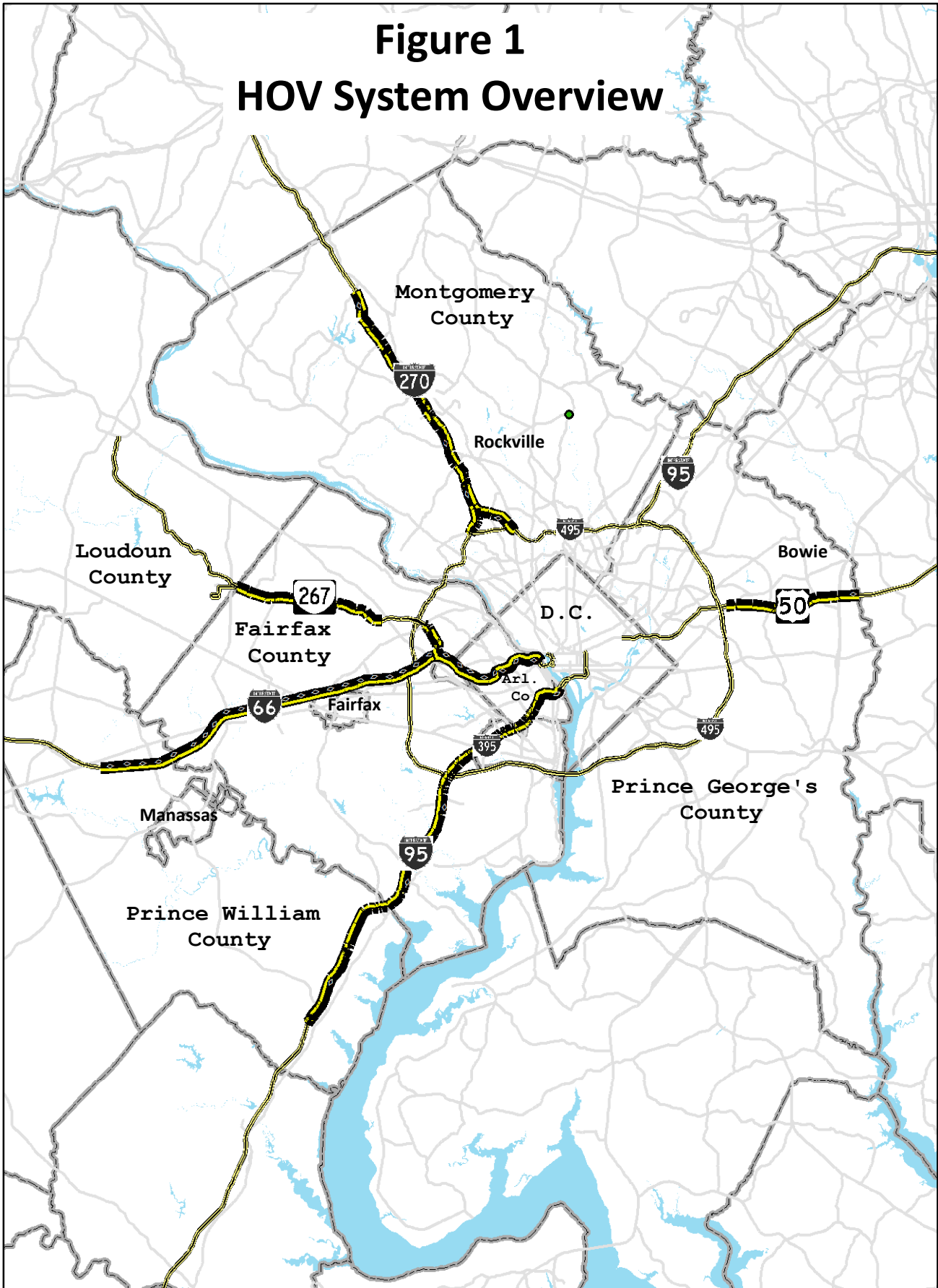


2014 PERFORMANCE OF HIGH-OCCUPANCY VEHICLE FACILITIES ON FREEWAYS IN THE WASHINGTON REGION

TPB Technical Committee
Friday, June 5, 2015

C. Patrick Zilliacus

**Figure 1
HOV System Overview**



What was measured

- **Vehicle occupancies and traffic in HOV and non-HOV lanes**
- **Travel times, using GPS units and a revised processing methodology**

Corridors

- I-95/I-395 (before conversion to 95 Express Lanes)
- I-66
- Va. 267
- I-270
- U.S. 50
- Did not include 495 Express Lanes or Md. 200 (ICC)

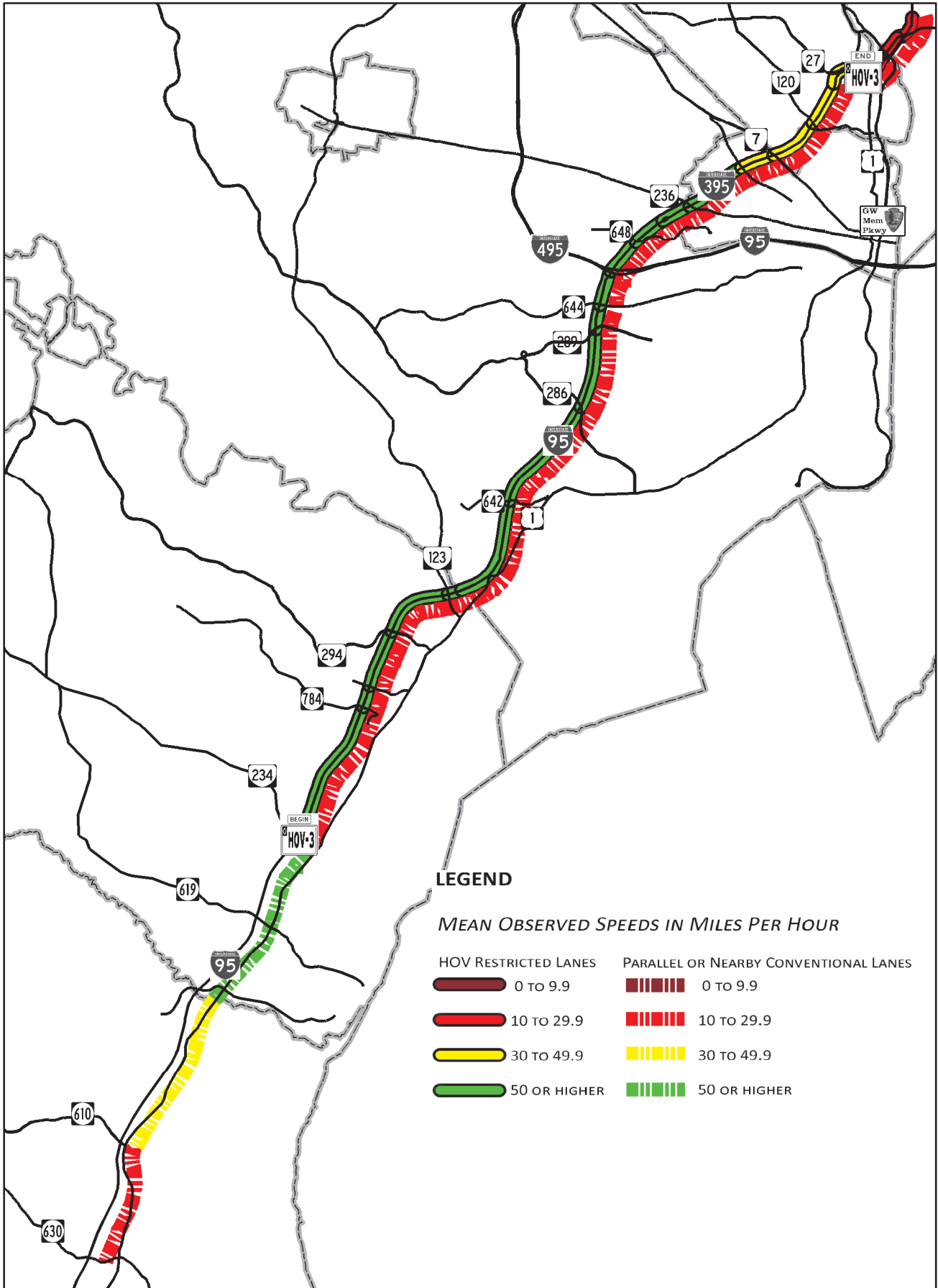
When

- A.M. Only
- Inbound movements except on U.S. 50, John Hanson Highway (both directions - HOV restrictions there are 24/7)
- Data Collected Spring 2014 and Fall 2014

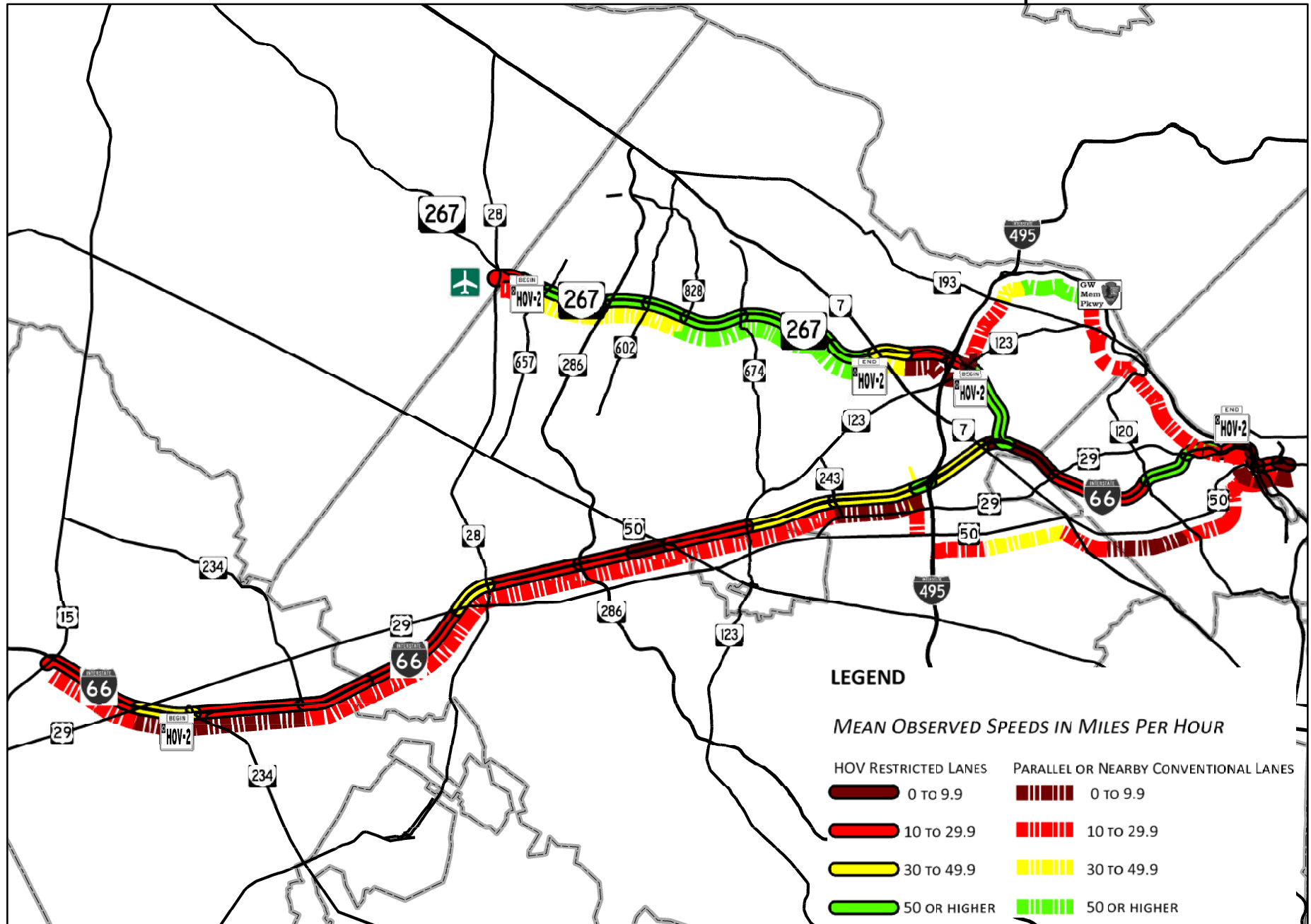
Speeds

- Travel time runs were done in each HOV corridor - HOV and non-HOV trips
- The barrier-separated HOV lanes along I-95/I-395 performed well
- The inside-the-Beltway HOV lanes on I-66 were congested in places
- Concurrent-flow HOV lanes along I-66 (outside Beltway) and along I-270 did not perform especially well.

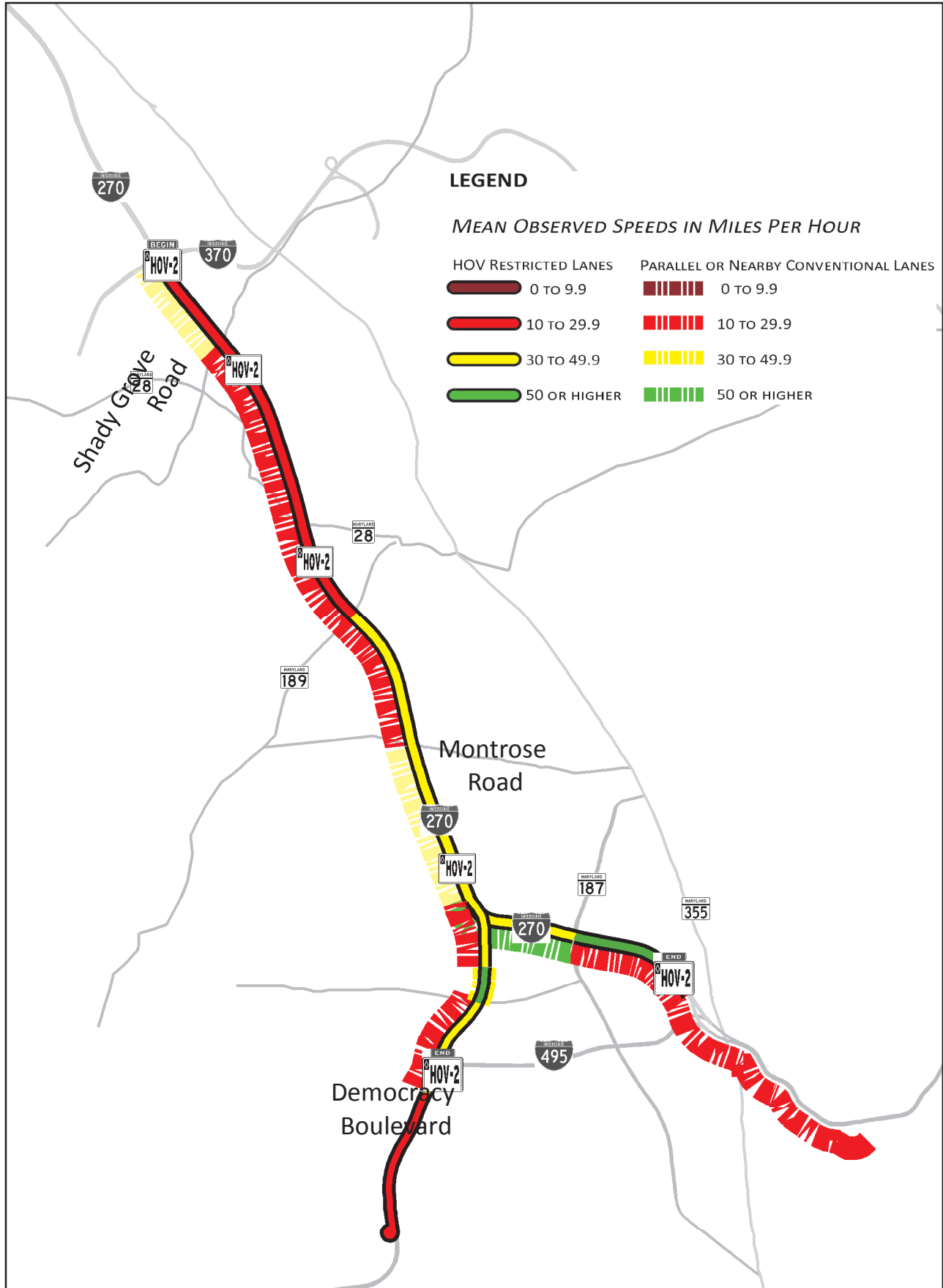
I-95 and I-395 Northbound HOV and Non-HOV Mean Speeds



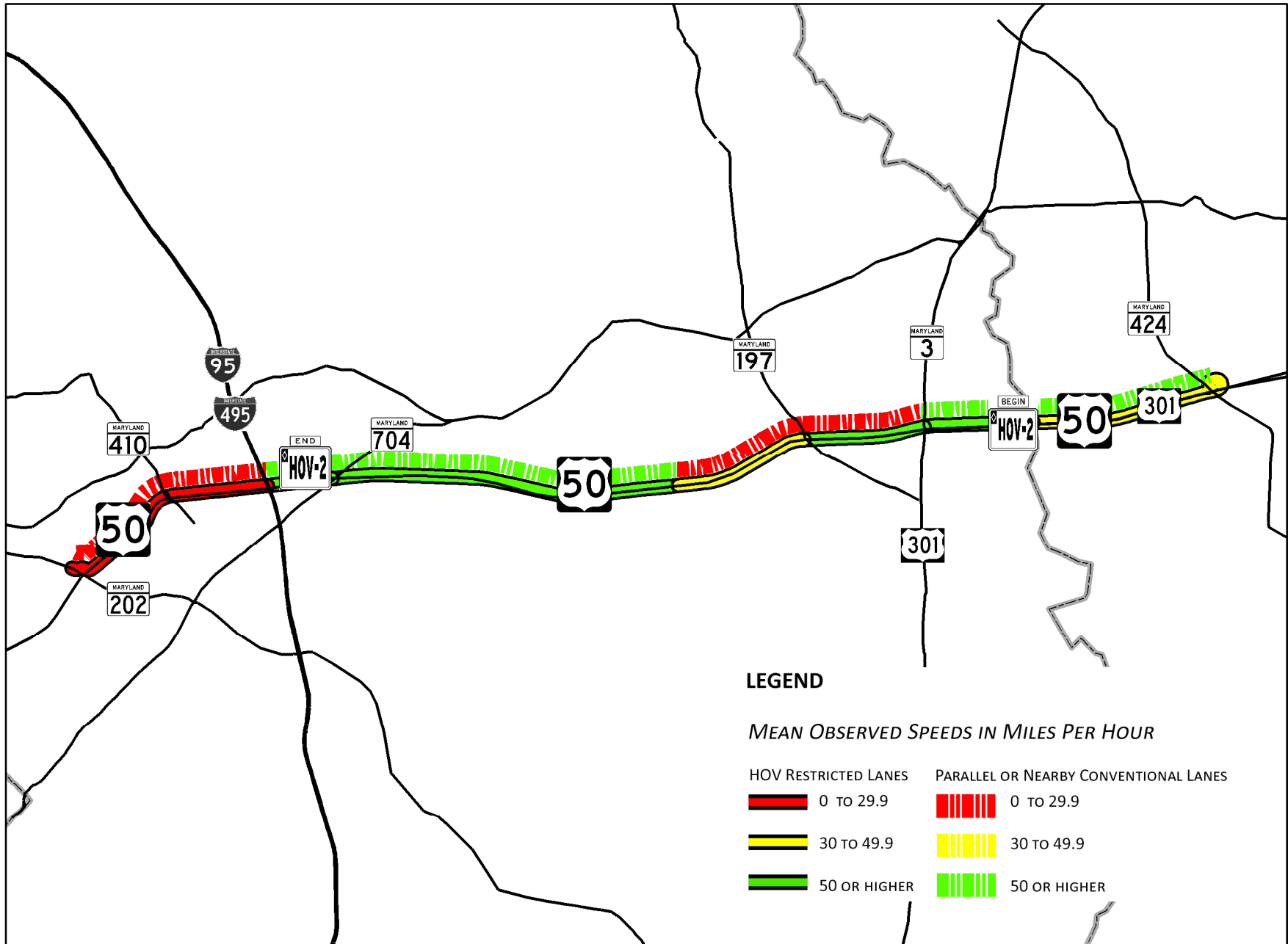
Eastbound I-66 and Va. 267 HOV and non-HOV Mean Speeds



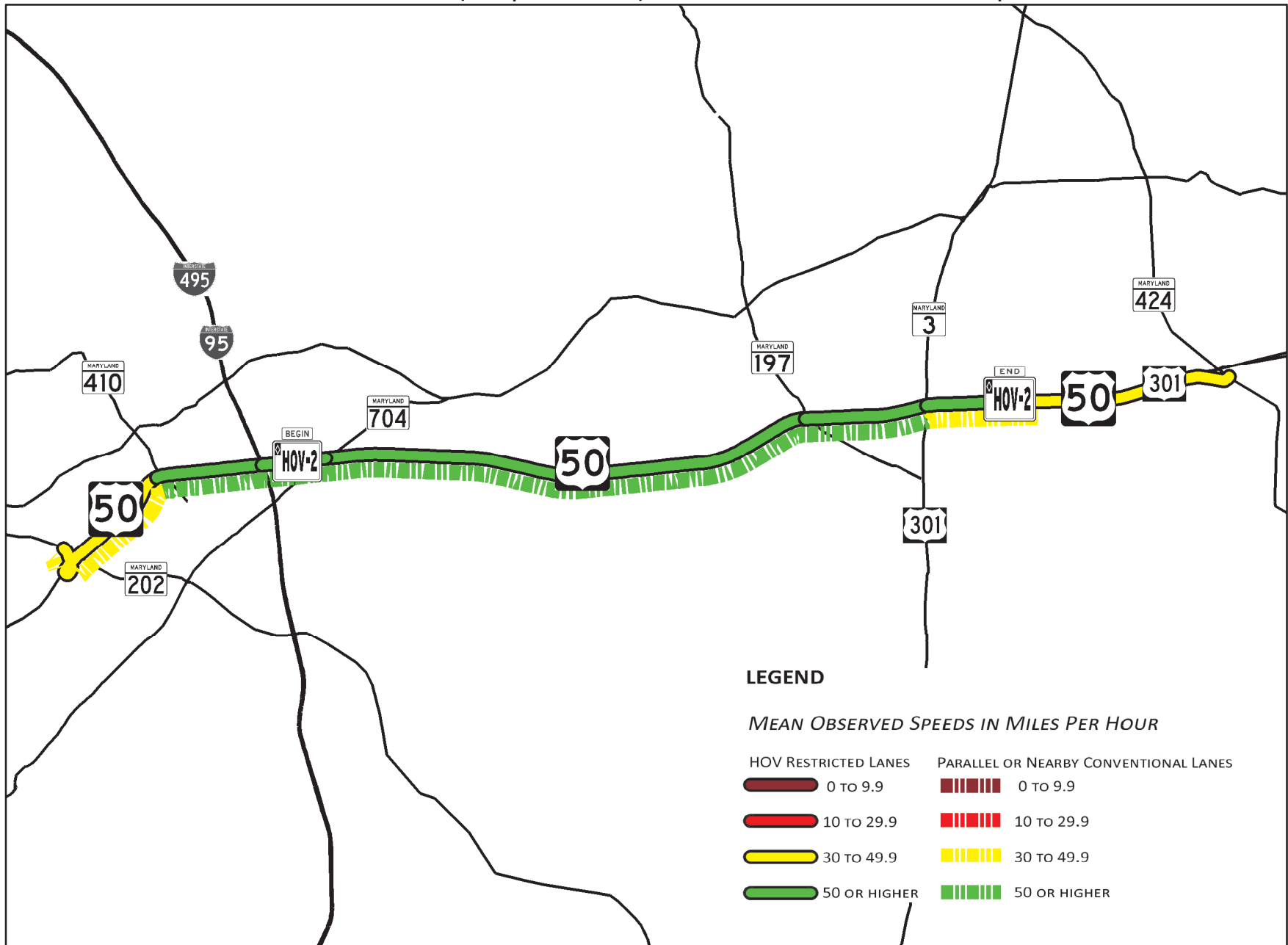
I-270 Southbound HOV and non-HOV runs Mean Speeds



US50 Westbound HOV and Non-HOV Mean Speeds



U.S. 50 Eastbound (off-peak-flow) HOV and Non-HOV Mean Speeds



Counts

- Average auto occupancy in HOV lanes is nearly always less than the HOV requirement
- In Virginia, hybrids are part of the reason for this - and on I-66, the “Dulles” exemption

**Table 3
Observed average auto occupancies in the A.M. peak direction
during HOV-restricted periods (Spring, 2014)**

Facility	HOV lane average auto occupancies	Number of autos needed to move 1000 persons at HOV occupancy rate	Non-HOV lane average auto occupancies	Number of autos needed to move 1000 persons at non-HOV occupancy - rate
I-395 Shirley Highway between Va. 120 (S. Glebe Road) and Arlington Ridge Road	2. 8	360	1. 1	910
I-95 Shirley Highway between Va. 7100 (Fairfax County Parkway) and Va. 7900 (Franconia Springfield Parkway)	2. 6	380	1. 1	910
I-66 between Sycamore Street and Fairfax Drive	1. 7	590	N/ A	N/ A
I-66 between Va. 243 (Nutley Street) and I-495	1. 9	530	1. 1	910
I-270 between the "split" and Rockledge Drive	1. 9	530	1. 0	1000
I-270Y (I-270 Spur) between the "split" and Democracy Boulevard	1. 8	560	1. 0	1000
Va. 267 (Dulles Toll Road) west of Va. 7 (Leesburg Pike)	1. 9	530	1. 1	910
U.S 50 between Md. 197 (Collington Road) and Md. 704 (MLK, Jr. Highway)	1. 6	630	1. 0	1000

1.9

Note:

- Average auto occupancy rounded to nearest 1/10.

Table 4
2014 Observed average HOV auto occupancies
in the A.M. Peak Direction Over Time

Facility	Year						
	1997	1998	1999	2004	2007	2010	2014
I-395 Shirley Highway between Va. 120 (S. Glebe Road) and Arlington Ridge Road	2.7	2.6	2.9	2.5	2.5	2.8	2.8
I-95 Shirley Highway between Va. 286 (Fairfax County Parkway) and Va. 289 (Franconia Springfield Parkway)	2.6	2.8	2.8	2.6	2.6	2.5	2.6
I-66 between Sycamore Street and Fairfax Drive	1.8	1.8	1.8	1.7	1.8	1.5	1.7
I-66 between Va. 243 (Nutley Street) and I-495	2.0	1.7	1.9	2.0	1.9	1.8	1.9
I-270 between the "split" and Rockledge Drive	1.9	1.7	1.7	1.9	1.5	2.0	1.9
I-270Y (I-270 Spur) between the "split" and Democracy Boulevard	1.9	1.8	1.8	1.5	1.8	1.9	1.8
I-270 between Montrose Road and the "split"	N/A	N/A	N/A	1.7	1.6	1.9	1.9
Va. 267 (Dulles Toll Road) west of Va. 7 (Leesburg Pike)	N/A	N/A	1.8	1.8	1.8	1.7	1.6
U.S 50 between Md. 197 (Collington Road) and Md. 704 (MLK, Jr. Highway)	N/A	N/A	N/A	1.6	1.9	1.8	1.9

Notes:

- Data in table are rounded.

Table 5
Observed person movements in the A.M. peak direction
during HOV-restricted periods (Spring, 2014)

Facility And Hours of HOV- restricted operation	Number of HOV lanes	HOV lane person movements (autos, van- pools, motorcycles and buses) during HOV- restricted period	HOV lane persons per lane per hour	Number of non- HOV lanes	Non-HOV lane person movements during HOV-restricted period	Non-HOV lane persons per lane per hour
I-395 Shirley Hwy. between Va. 120 (S. Glebe Rd.) and Arlington Ridge Rd. 6:00 A.M. to 9:00 A.M.	2	27, 200	4, 500	4	21, 600	1, 800
I-95 Shirley Hwy. between Va. 7100 (Fairfax County Pkwy.) and Va. 7900 (Franconia Springfield Pkwy.) 6:00 A.M. to 9:00 A.M.	2 <i>Includes Newington Flyover Ramp</i>	15, 700	2, 600	4	15, 700	1, 300
I-66 between Sycamore Street and Fairfax Drive 6:30 A.M. to 9:00 A.M.	2	16, 300	3, 300	0 <i>No non-HOV lanes</i>	N/A	N/A
I-66 between Va. 243 (Nutley Street) and I-495 5:30 A.M. to 9:30 A.M.	1	11, 700	2, 900	3	19, 900	1, 700
Va. 267 (Dulles Toll Road) west of Va. 7 (Leesburg Pike) 6:30 A.M. to 9:00 A.M.	1	6, 900	2, 800	3	11, 000	1, 500
I-270 between Montrose Road and the "split" 6:00 A.M. to 9:00 A.M.	1	10, 700	3, 600	5	24, 600	1, 600
I-270 between the "split" and Rockledge Drive 6:00 A.M. to 9:00 A.M.	1	4, 700	1, 600	3	12, 100	1, 300
I-270Y (I-270 Spur) between the "split" and Democracy Boulevard 6:00 A.M. to 9:00 A.M.	1 <i>Includes Westlake Drive Ramp</i>	5, 900	2, 000	3	12, 600	1, 400
U.S 50 between Md. 197 (Collington Road) and Md. 704 (MLK, Jr. Highway) 24 Hours, 7 Days/Week (5:00 A.M. to 10:00 A.M. assumed in calculations)	1	4, 400	900	3	19, 500	1, 300

Note:

- All person movements rounded to nearest 100

Wrap-up

- Thanks to Andy Burke, Mark Moran, Wenjing Pu and Rich Roisman
- Questions?
- Comments welcome
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