

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

Commuter Connections Subcommittee  
Tuesday, September 15, 2015

C. Patrick Zilliacus

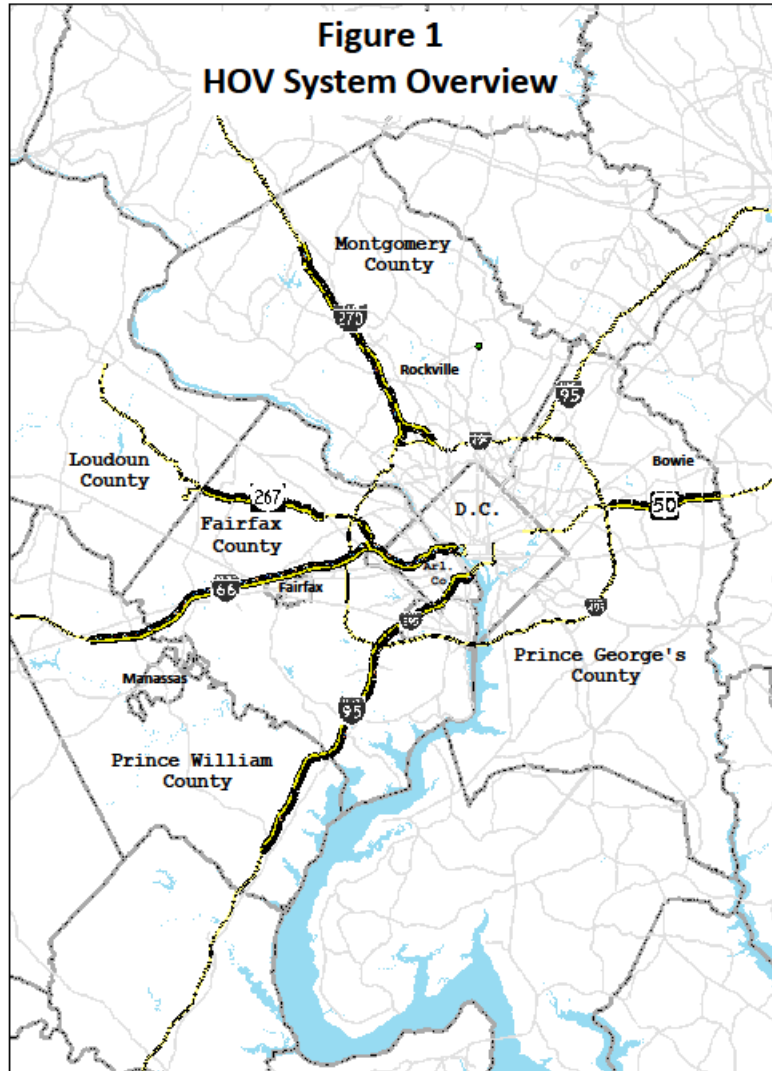
# Background

These data have been presented to the TPB Travel Forecasting Subcommittee and to the TPB Technical Committee.

Data were collected in Spring and Fall of 2014.

Final revision of the report is in review now - will share a link to it with Nick when available.

**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

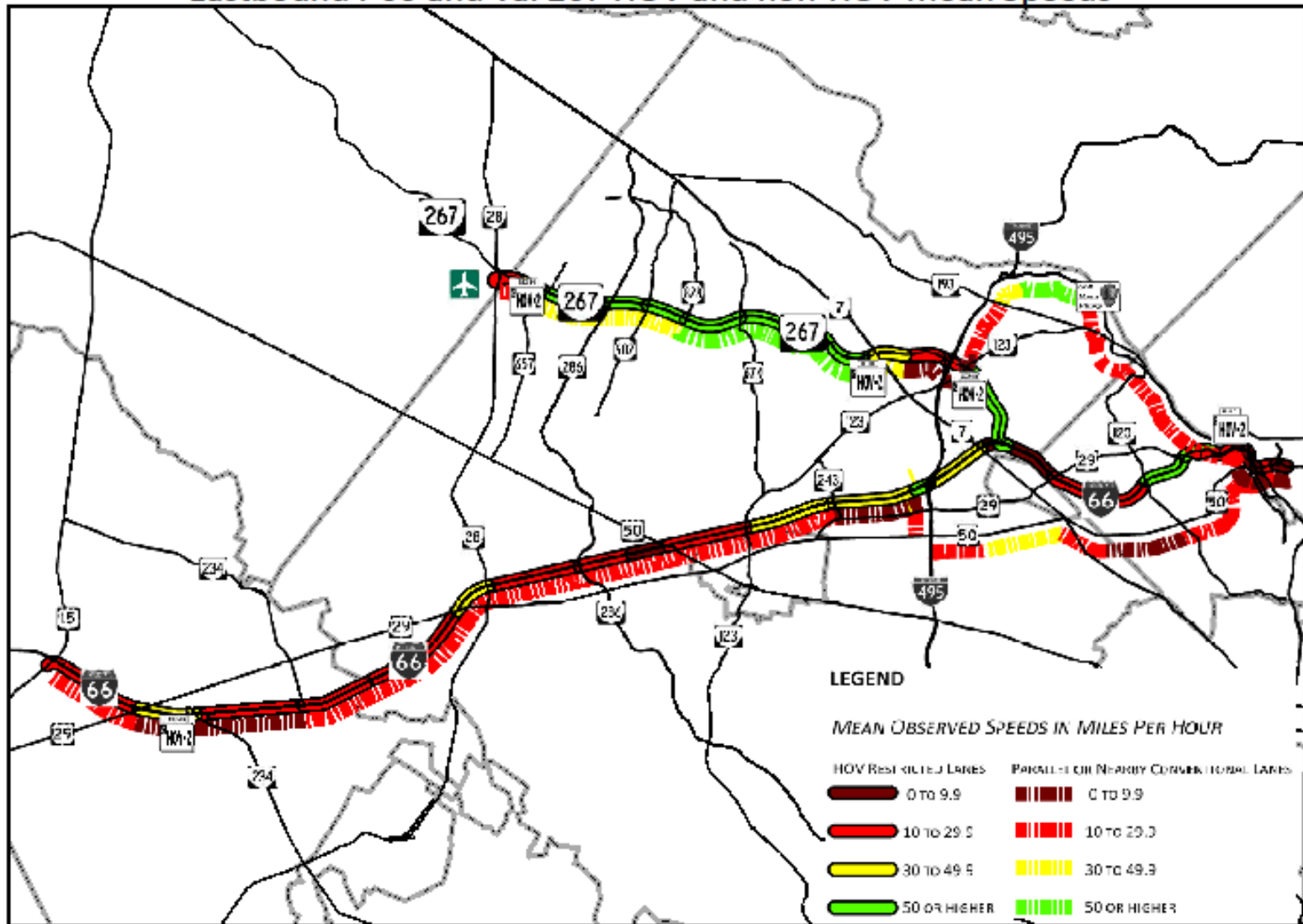
# Speeds

- 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.

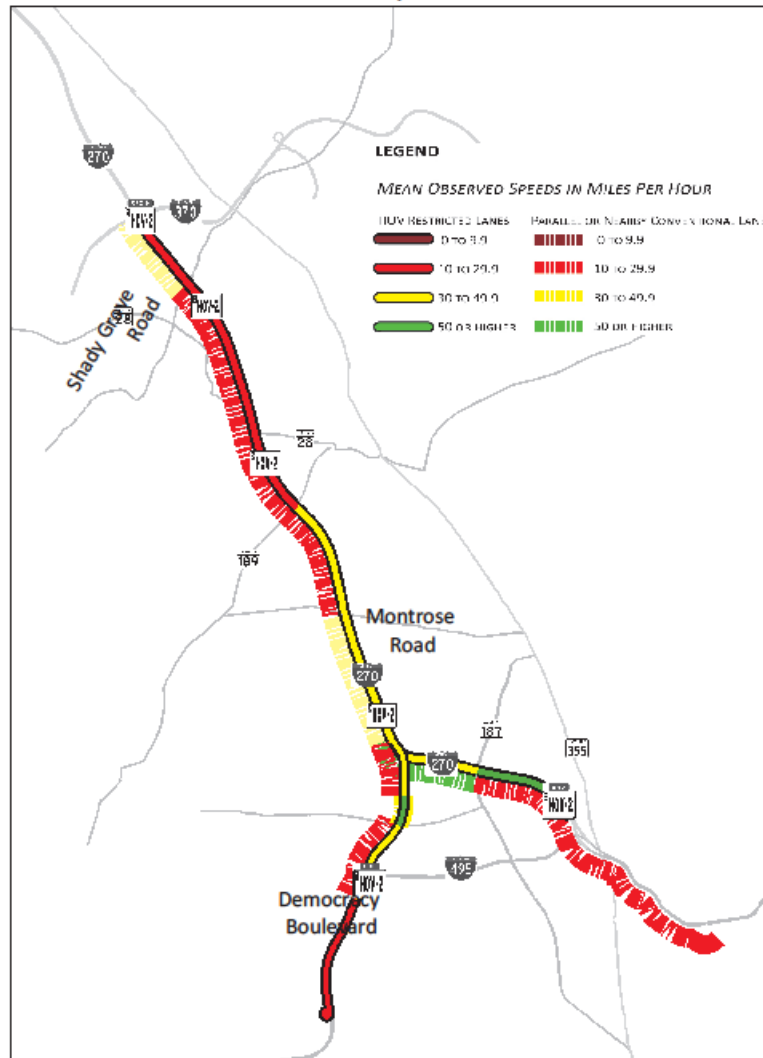




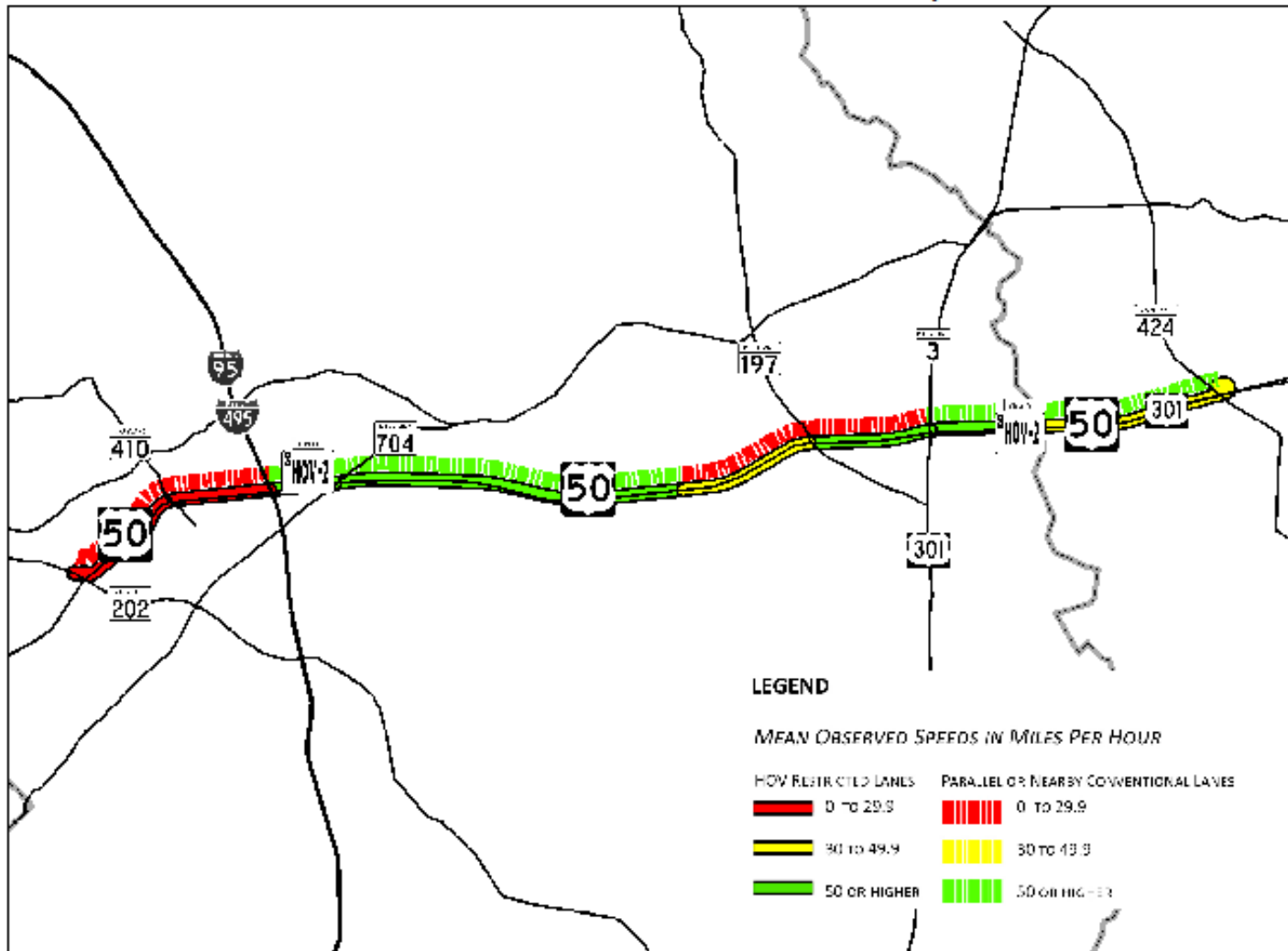
## Eastbound I-66 and Va. 267 HOV and non-HOV Mean Speeds



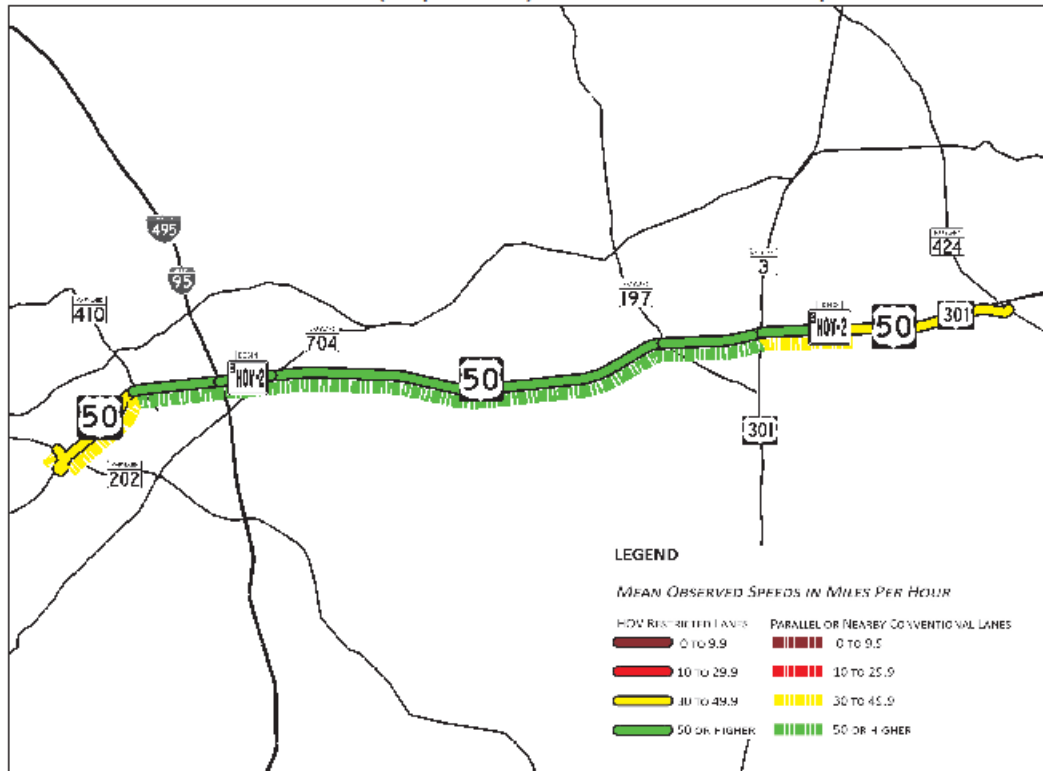
## I-270 Southbound HOV and non-HOV runs Mean Speeds



## 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

<b>Table 3 Observed average auto occupancies in the A.M. peak direction during HOV-restricted periods (Spring, 2014)</b>				
<b>Facility</b>	<b>HOV lane average auto occupancies</b>	<b>Number of autos needed to move 1000 persons at HOV occupancy rate</b>	<b>Non-HOV lane average auto occupancies</b>	<b>Number of autos needed to move 1000 persons at non-HOV occupancy - rate</b>
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

Note:  
- Average auto occupancy rounded to nearest 1/10.

<b>Table 4</b>							
<b>2014 Observed average HOV auto occupancies in the A.M. Peak Direction Over Time</b>							
<b>Facility</b>	<b>Year</b>						
	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2004</b>	<b>2007</b>	<b>2010</b>	<b>2014</b>
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.

<b>Table 5</b> <b>Observed person movements in the A.M. peak direction</b> <b>during HOV-restricted periods (Spring, 2014)</b>						
<b>Facility</b>  <b>And Hours of HOV-restricted operation</b>	<b>Number of HOV lanes</b>	<b>HOV lane person movements (autos, vans, pools, motorcycles and buses) during HOV-restricted period</b>	<b>HOV lane persons per lane per hour</b>	<b>Number of non-HOV lanes</b>	<b>Non-HOV lane person movements during HOV-restricted period</b>	<b>Non-HOV lane persons per lane per hour</b>
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 Nowhwy on Freeway 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 (Leesboro 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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