

# 2010 Regional HOV Study

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Commuter Connections Subcommittee

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# Data Collection 2010

## (previous studies 2007 and 2004)

- Spring months
- Good weather
- Not if serious accidents impact traffic
- Not during holidays
- Tues/Weds/Thurs
- Counts are from side of highways at designated locations
- Travel times are cars driven by floating car method

# Regional HOV Facilities

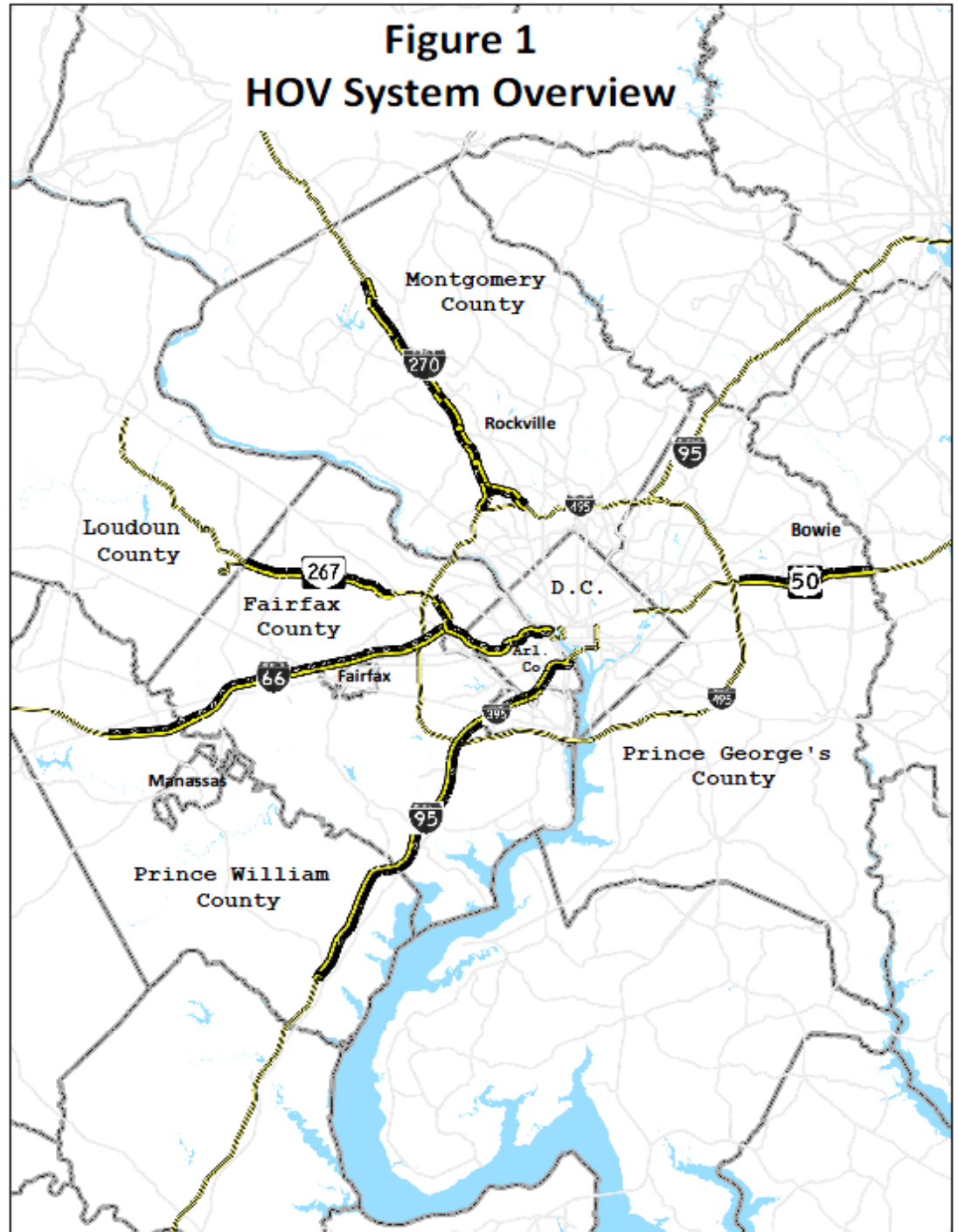
I-95 / I-395

I-66

VA 267

I-270

US 50



# Interstate 395/95

- HOV – 3
- Barrier separated, 2 reversible flow lanes
- 6 – 9 AM and 3:30 – 6 PM
- 28 miles
- 5 Count Stations
- 9 travel time runs (in each direction)

# Interstate 66 (Outside Beltway)

- HOV – 2
- Single concurrent flow lane
- 5:30 to 9:30 AM
- 3:00 to 7:00 PM
- 18 miles of 28 miles total
- 4 Count Stations (outside the Beltway)
- 8 travel time runs (in each direction for entire facility)

# Interstate 66 (Inside Beltway)

- HOV – 2
- Exclusive facility (2 lanes)
- 6:30 to 9:00 AM
- 4:00 to 6:30 PM
- 10 miles of 28 miles total
- 4 Count Stations (inside the Beltway)

# VA 267 (Dulles Toll Road)

- HOV – 2
- Single concurrent flow lane
- 6:30 to 9:00 AM
- 4:00 to 6:30 PM
- 23 miles
- 5 Count Stations
- 7 travel time runs in each direction

# Interstate 270

- HOV – 2
- Single concurrent lane (including I-270 spur)
- 6:00 to 9:00 AM
- 3:30 to 6:30 PM
- 9 miles southbound, 18 miles northbound
- 7 Count Stations
- 13 AM travel time runs
- 14 PM travel time runs



# US 50

- HOV – 2
- Single concurrent flow lane
- 24 hours a day/7 days a week
- 9 miles
- 7 Count Stations
- 5 AM travel time runs
- 6 PM travel time runs

# AM Peak Period Travel Times

Facility	2007 HOV	2010 HOV	2007 non-HOV	2010 non-HOV	2007 Time Saved	2010 Time Saved
I-95/395*	31	35	82	76	51	41
I-66*	48	66	76	102	28	36
VA-267	26	47	33	77	7	30
I-270 & E. Spur	12	12	20	18	8	6
I-270 & W. Spur	13	12	18	16	5	4
US-50	7	7	8	8	1	1

Facilities with an asterisk have a statistically significant travel time savings between the HOV and non-HOV lanes.

# PM Peak Period Travel Times

Facility	2007 HOV	2010 HOV	2007 non-HOV	2010 non-HOV	2007 Time Saved	2010 Time Saved
I-95/395*	33	30	61	73	28	43
I-66*	37	44	55	68	18	24
VA-267	24	27	32	42	8	15
I-270 & E. Spur	22	21	29	31	7	10
I-270 & W. Spur	20	19	29	28	9	9
US-50	7	8	8	10	1	2

Facilities with an asterisk have a statistically significant travel time savings between the HOV and non-HOV lanes.

# AM and PM Travel Times

Facility	2010 HOV - AM	2010 HOV - PM	2010 non-HOV - AM	2010 non-HOV - PM
I-95/395	35 (+/- 8)	30 (+/- 6)	76 (+/-26)	73 (+/- 19)
I-66	66 (+/- 17)	44 (+/- 7)	102 (+/-29)	68 (+/- 12)
VA-267	47 (+/- 9)	27 (+/- 3)	77 (+/- 17)	42 (+/- 7)
I-270 & E. Spur	12 (+/- 3)	21 (+/- 3)	18 (+/- 3)	31 (+/- 5)
I-270 & W. Spur	12 (+/- 3)	19 (+/- 2)	16 (+/- 5)	28 (+/- 4)
US-50	7 (+/- 1)	8 (+/- 2)	8 (+/- 1)	10 (+/- 4)

Note: margins of error in parentheses and provide a measure, in minutes, of travel time reliability

# AM and PM Travel Time Savings

Facility	AM 2007	AM 2010	PM 2007	PM 2010
I-95/395	51	41	28	43
I-66	28	36	18	24
VA-267	7	30	18	24
I-270 & E. Spur	8	6	7	10
I-270 & W. Spur	5	4	9	9
US-50	1	1	1	2

# Travel Times ☺

- Most time saved on I-95/395 and reliability maintained in HOV lanes
- Better reliability on Dulles Toll Road and on I-66 in the afternoon (than in AM)
- Reliable travel time for both spurs on I-270 in both the morning and afternoon peaks
- US 50 has little congestion at peak periods

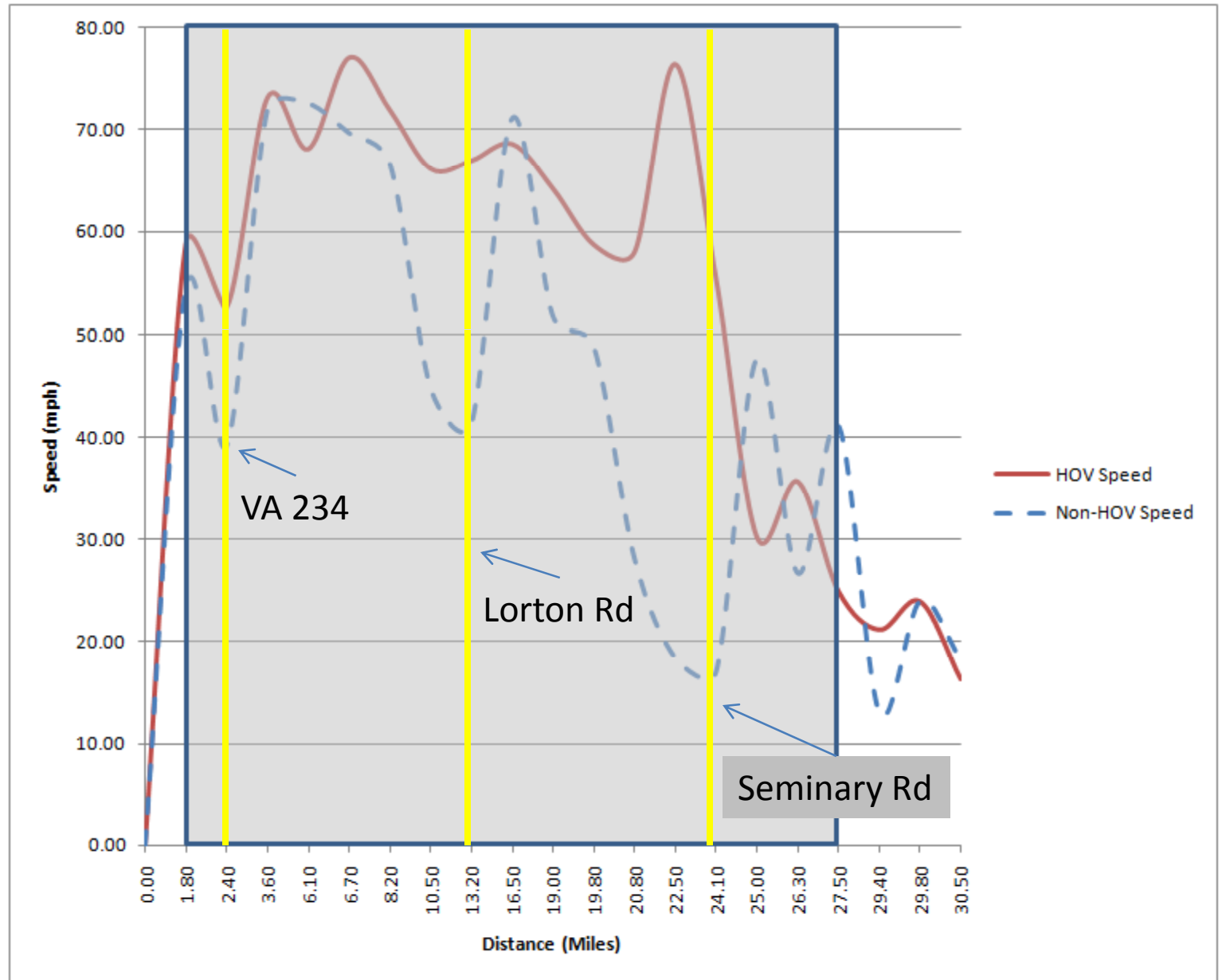
# Travel Times ☹️

- Increase in travel time I-66 on both HOV and non-HOV, but HOV is not as extreme
- Average speeds on I-66 and the Dulles Toll Road are low in the morning
- Travel time reliability on I-66 in the morning is poor (both HOV and non-HOV)
- Time savings on I-66 outside the Beltway is minimal (half of the time savings inside the Beltway over longer distance)

# Sample Travel Speeds on I-95 / I-395 NB (AM)

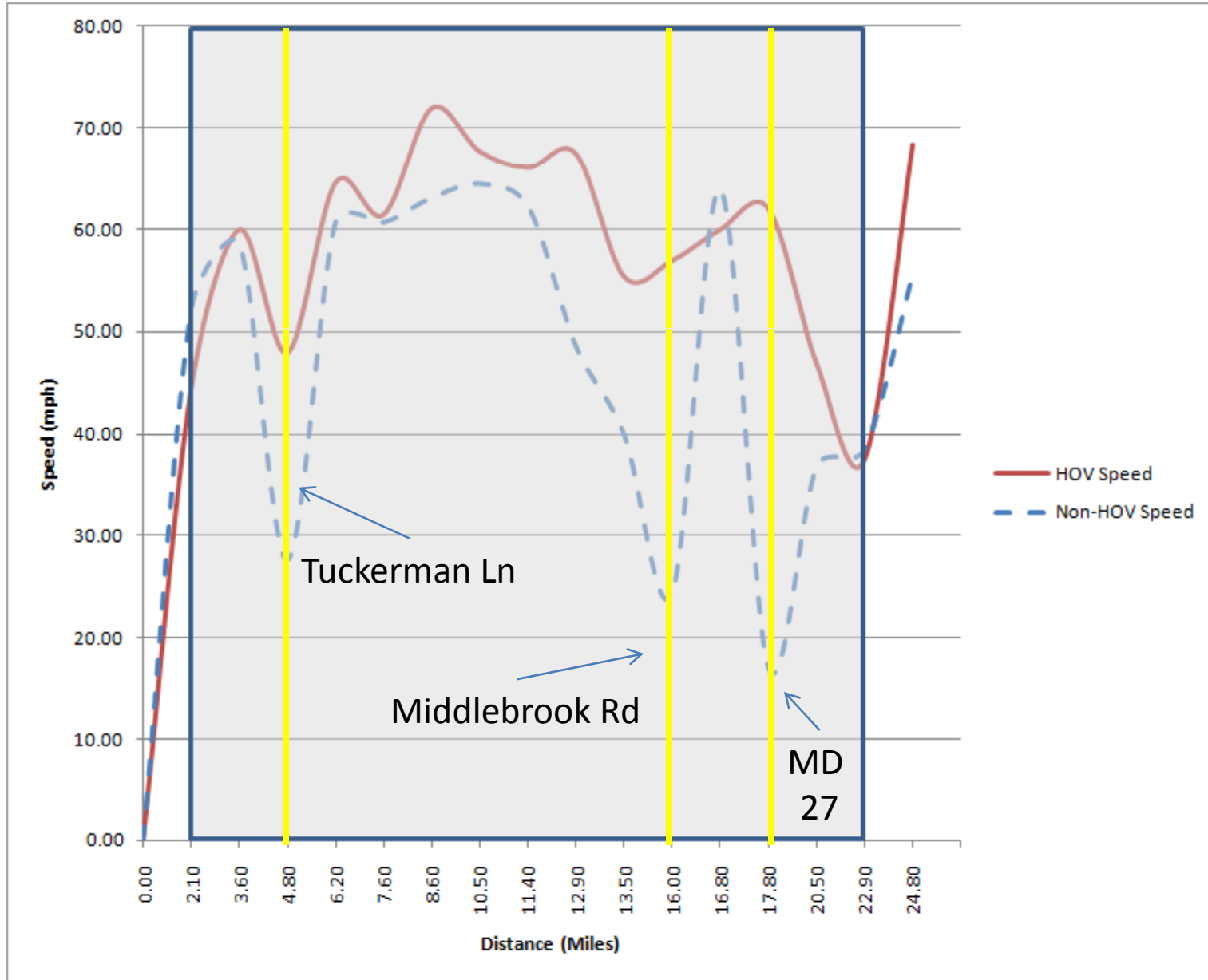
Run starting at  
7:30 AM on  
03/04/2010

Shaded area  
shows  
Presence of  
HOV Lanes  
(South of VA 234  
to Arlington  
Ridge Rd)





# Sample Travel Speeds on I-270 NB (PM)



Run starting at  
4:15 PM on  
3/30/2010

Shaded area  
shows  
Presence of  
HOV Lanes  
(Beltway / I-270  
Split to MD 121)

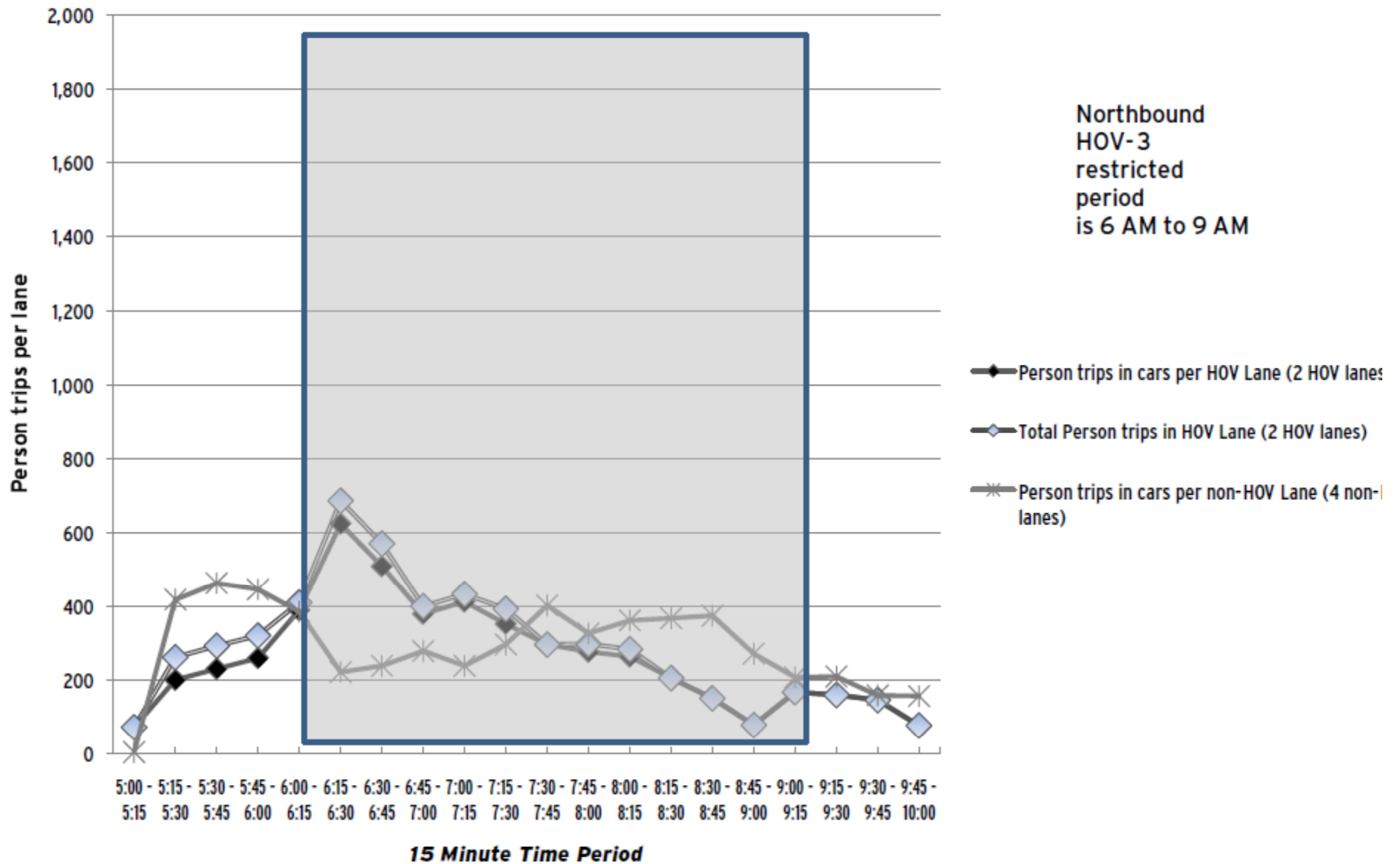
# AM Auto Occupancies

Facility	HOV Ave. Occ.	Non-HOV Ave. Occ.
I-395	2.8	1.1
I-95	2.5	1.1
I-66 (inside Beltway)	1.5	Not applicable
I-66 (outside Beltway)	1.8	1.1
Dulles Toll Road	1.7	1.1
I-270 (max load point)	1.9	1.0
I-270 (East spur)	2.0	1.0
I-270 (West spur)	1.9	1.0
US-50	1.8	1.0

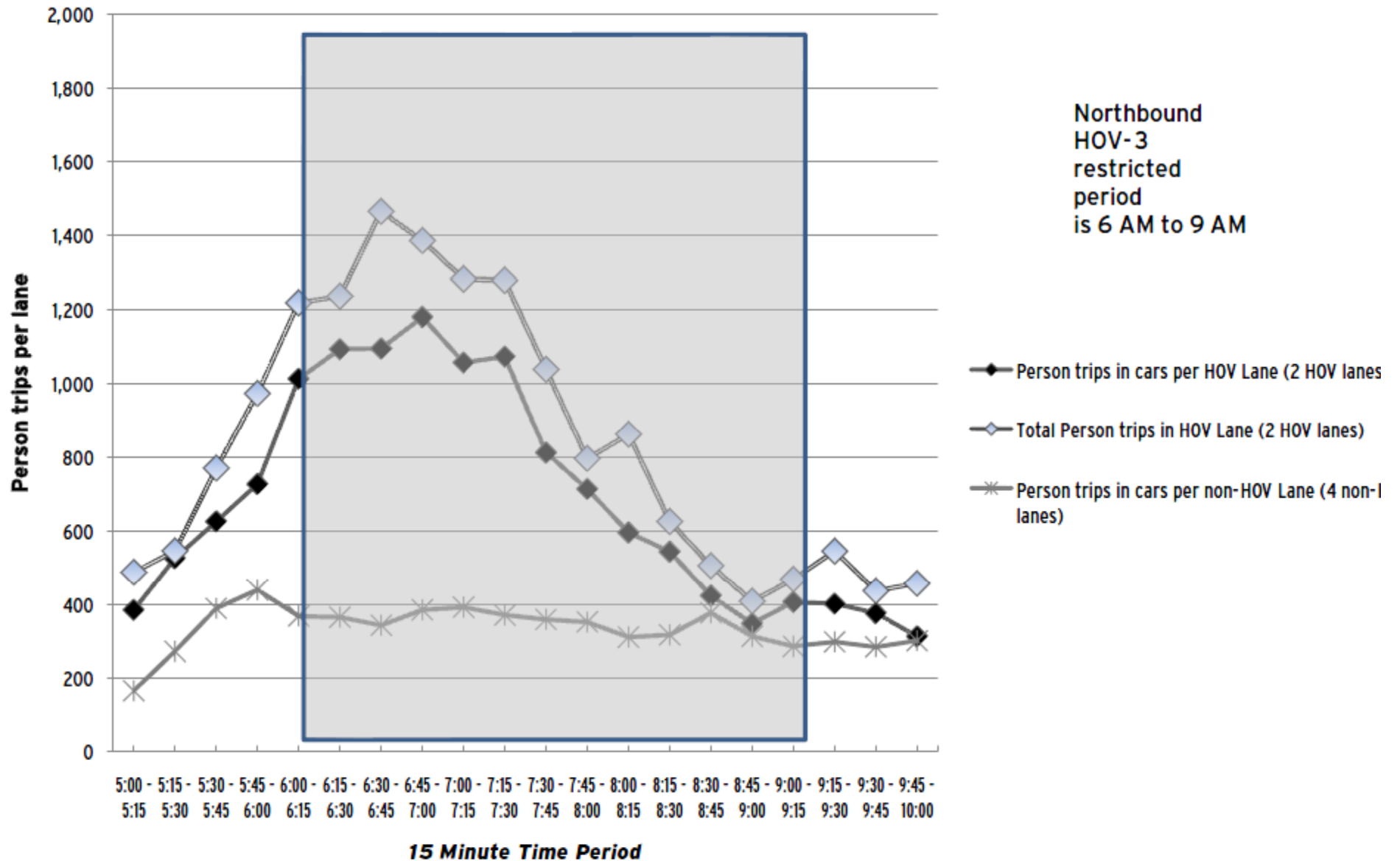
# Observed AM Person-Trips on I-95 / I-395

Per lane by 15-minute intervals

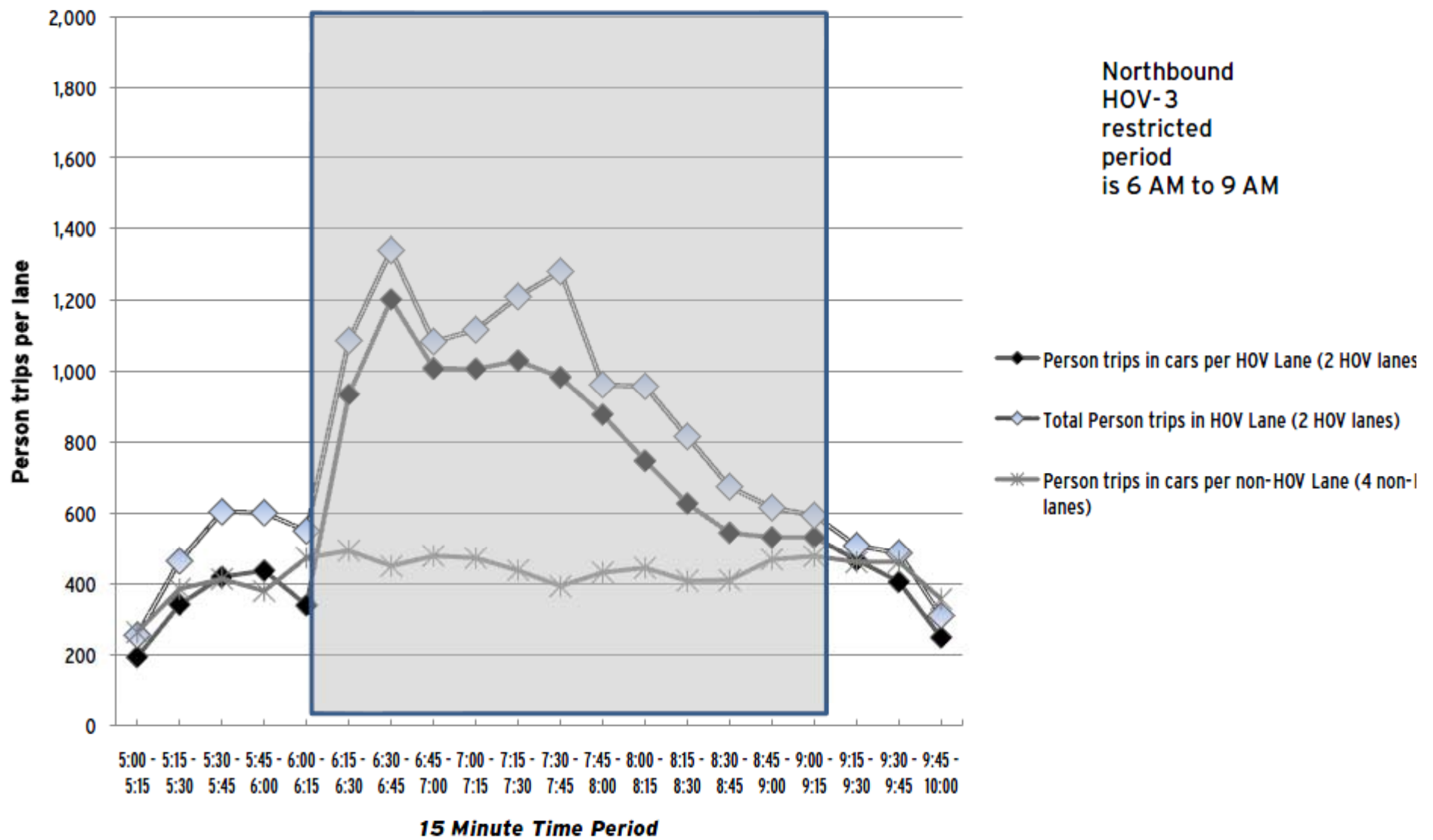
# I-95 Northbound north of Va. 234 (Dumfries Road) A.M. Peak Period - Spring 2010 Observed person trips per lane by 15 minute interval



# I-95 Northbound north of Va. 7100 (Fairfax Co. Parkway) A.M. Peak Period - Spring 2010 Observed person trips per lane by 15 minute interval



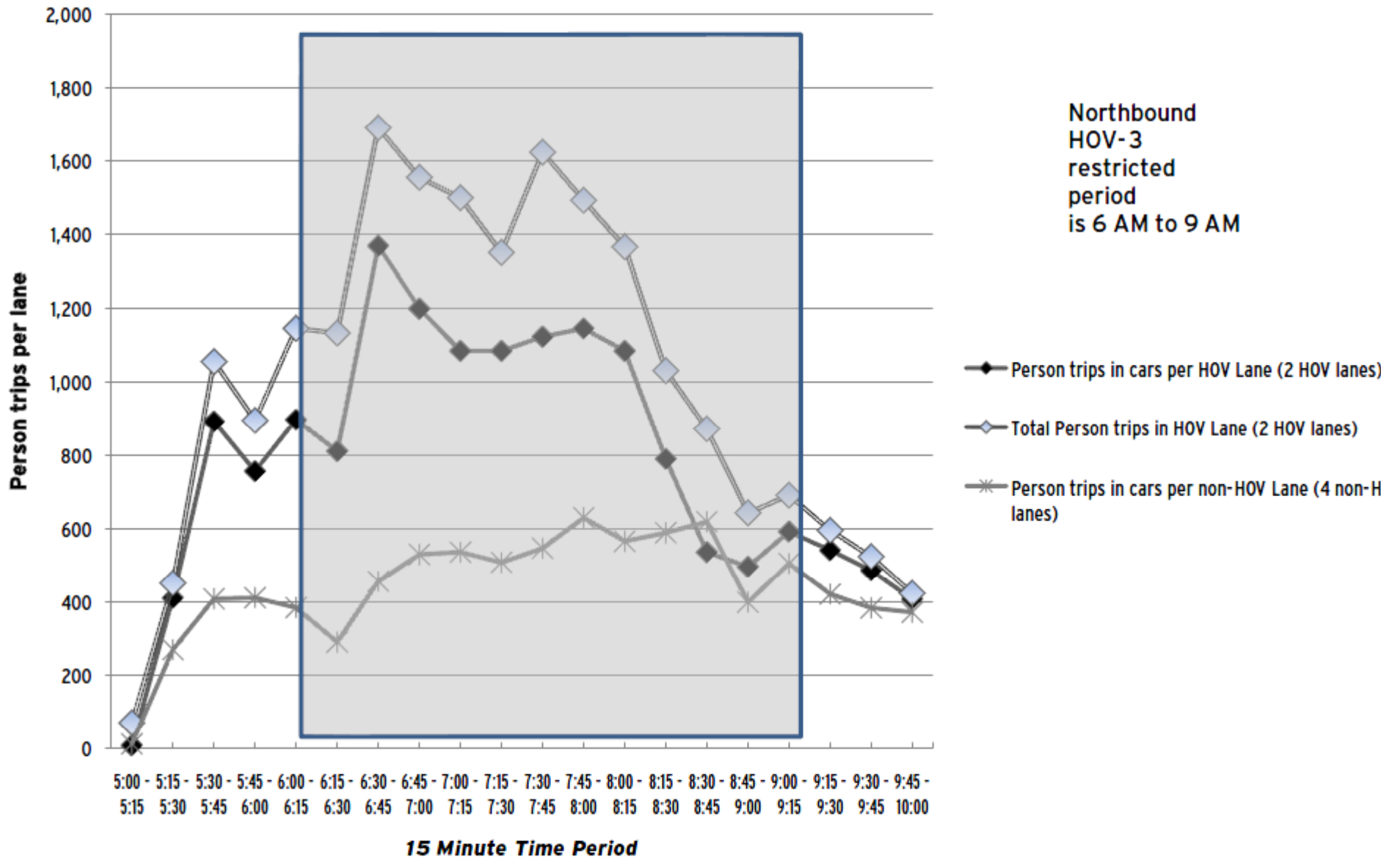
# I-395 Northbound between Va. 648 (Edsall Road) and Va. 236 (Duke Street) Peak Period - Spring 2010 Observed person trips per lane by 15 minute interval



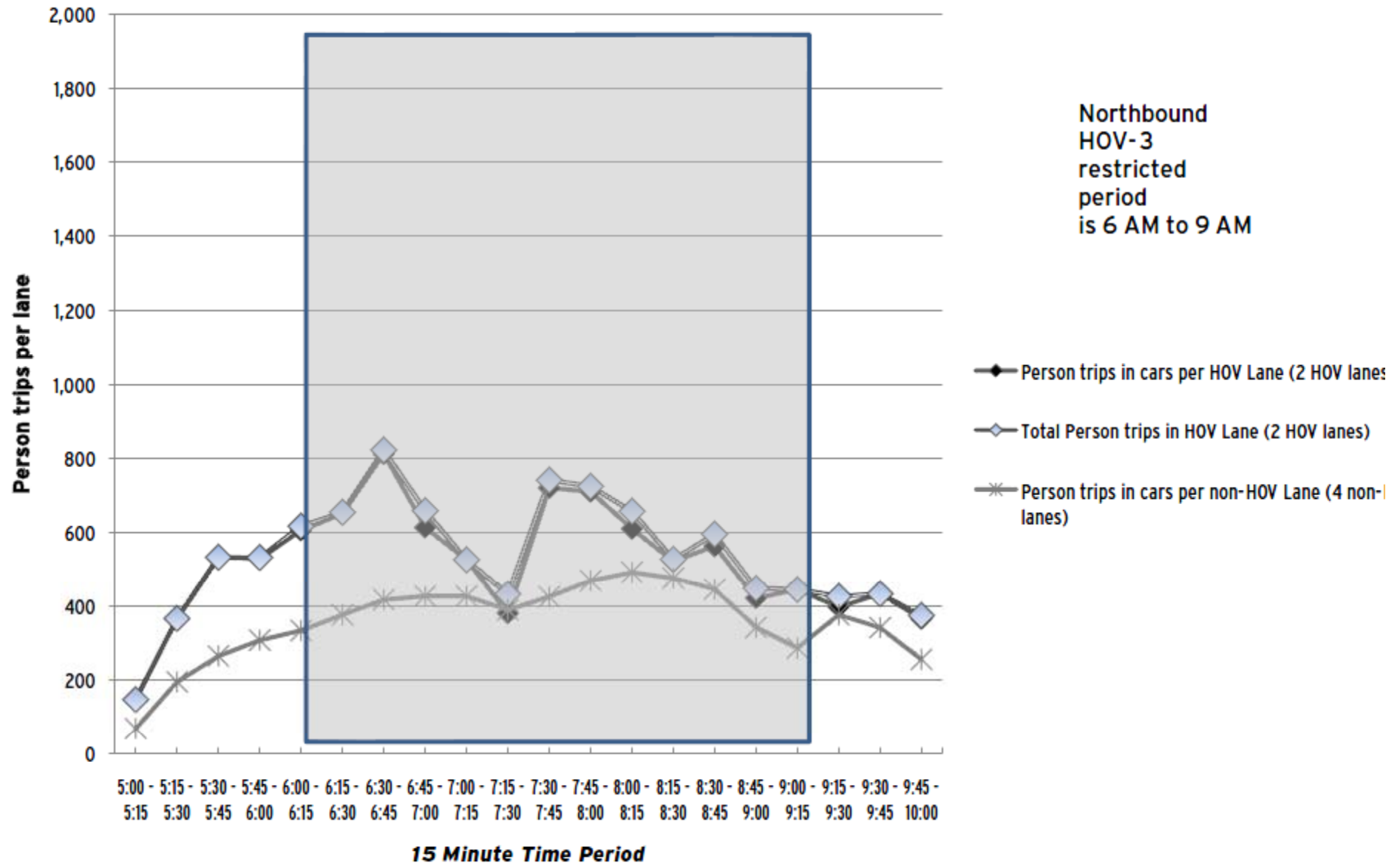
# I-395 Northbound at Va. 120 (S. Glebe Road)

## A.M. Peak Period - Spring 2010

### Observed person trips per lane by 15 minute interval



# I-395 Northbound at the Pentagon A.M. Peak Period - Spring 2010 Observed person trips per lane by 15 minute interval





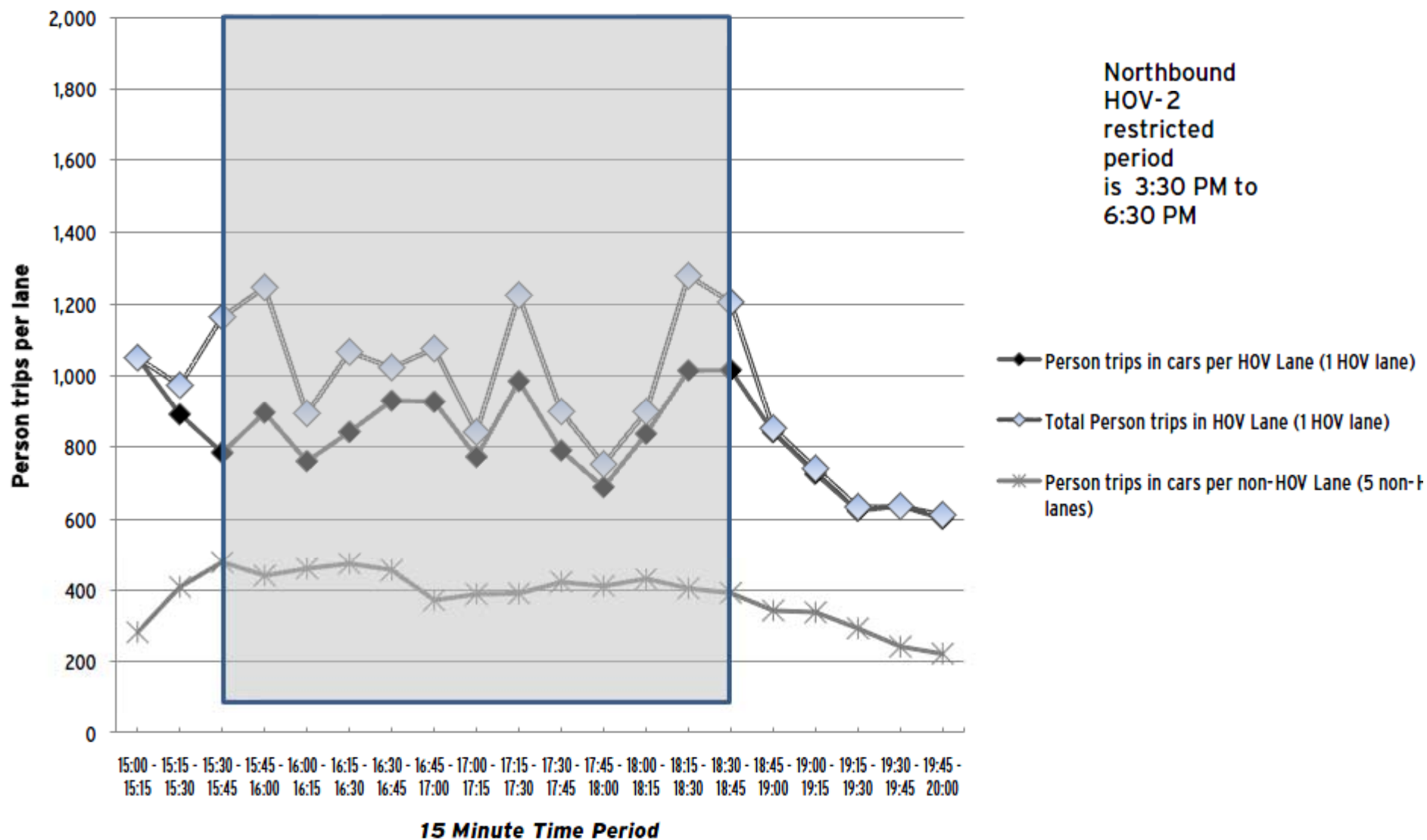
# PM Auto Occupancies

Facility	HOV Ave. Occ.	Non-HOV Ave. Occ.
I-395	2.8	1.1
I-95	2.9	1.1
I-66 (inside Beltway)	1.4	Not applicable
I-66 (outside Beltway)	1.9	1.1
Dulles Toll Road	1.5	1.1
I-270 (max load point)	1.9	1.1
I-270 (East spur)	2.0	1.1
I-270 (West spur)	2.0	1.1
US-50	1.7	1.0

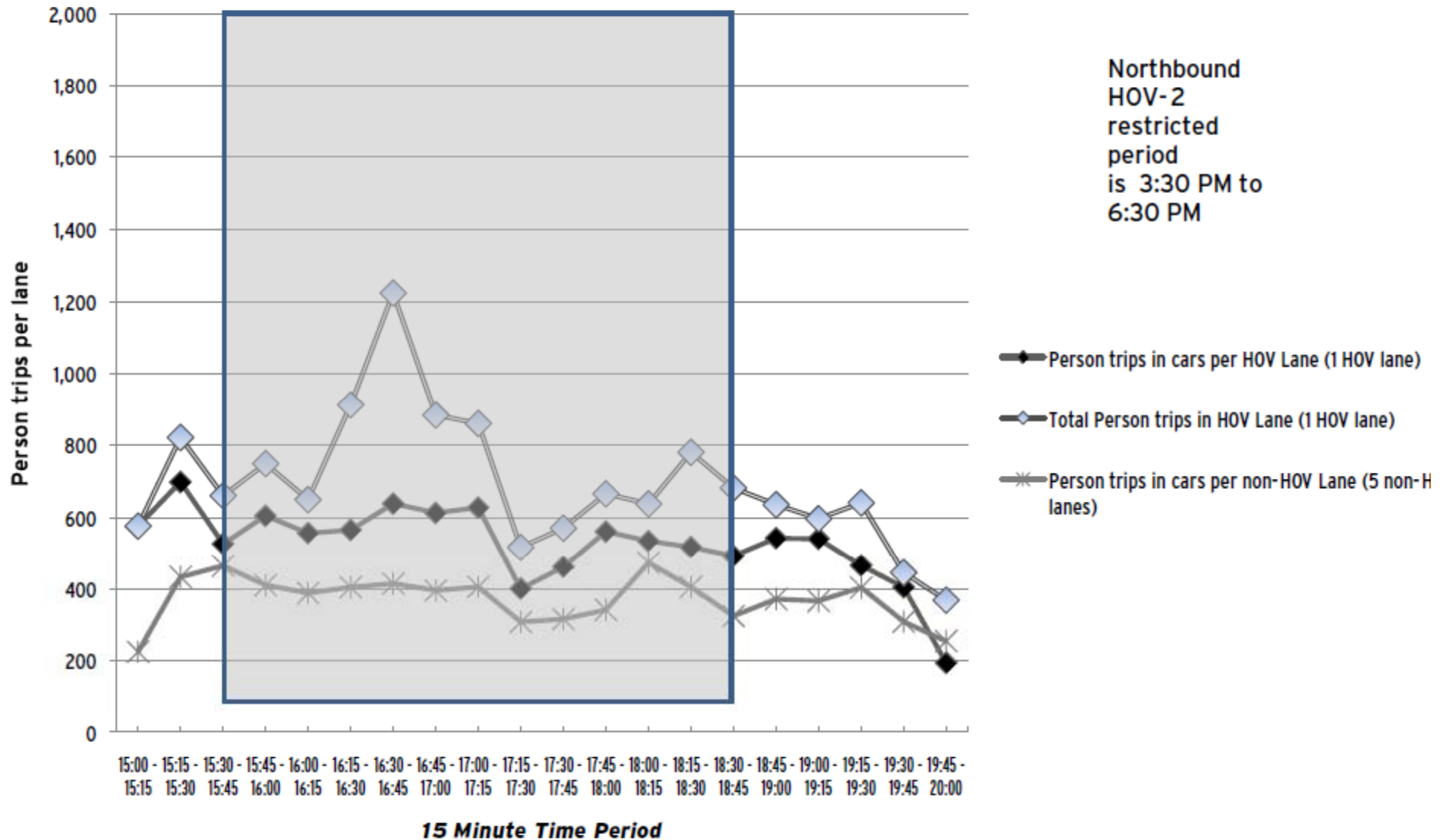
# Observed PM Person-Trips on I-270

Per lane by 15-minute intervals

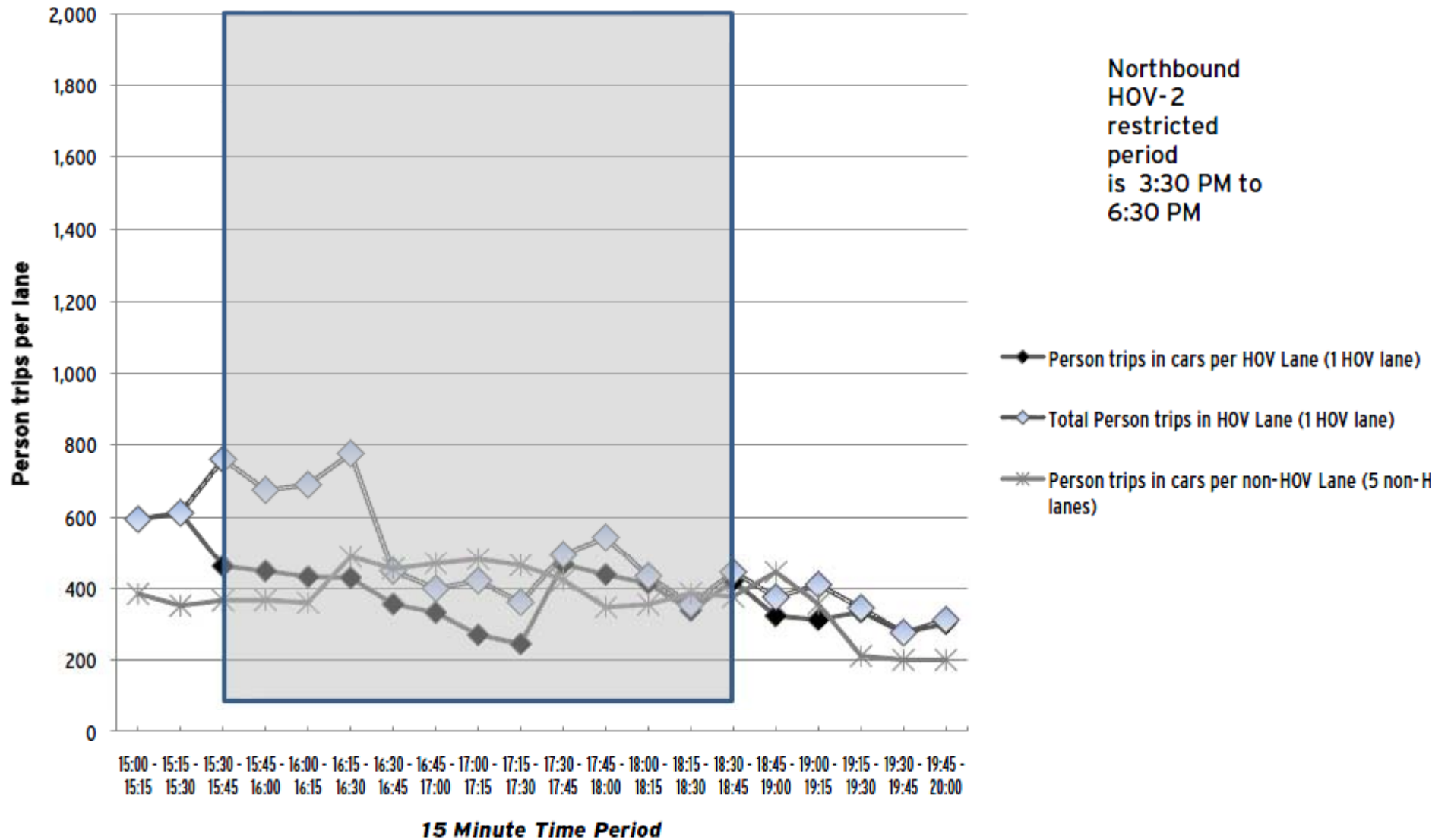
# I-270 Northbound between I-270/I-270 Spur merge and Montrose Road P.M. Peak Period - Spring 2010 Observed person trips per lane by 15 minute interval



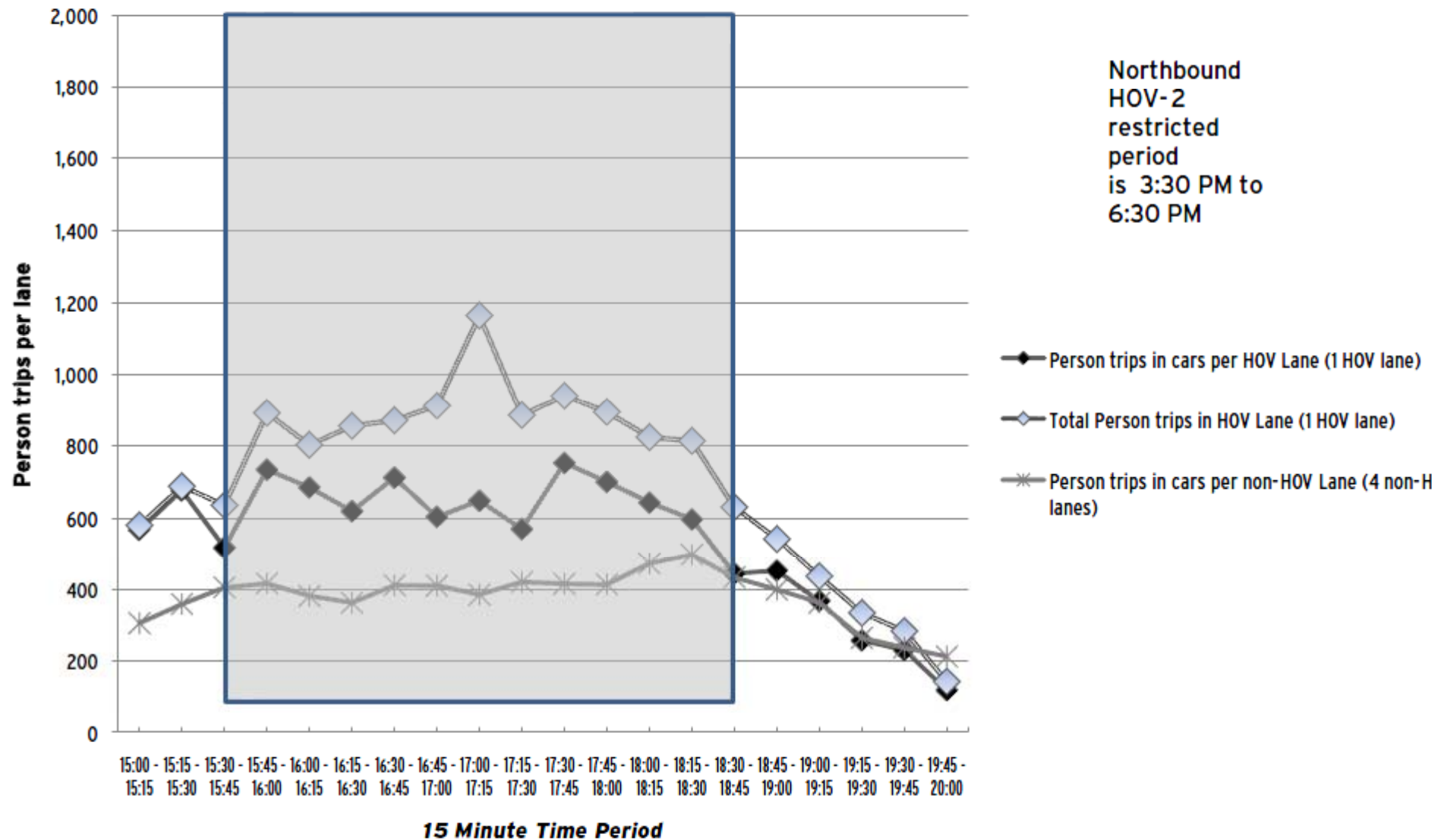
# I-270 Northbound between Montrose Road and Md. 189 (Falls Road) P.M. Peak Period - Spring 2010 Observed person trips per lane by 15 minute interval



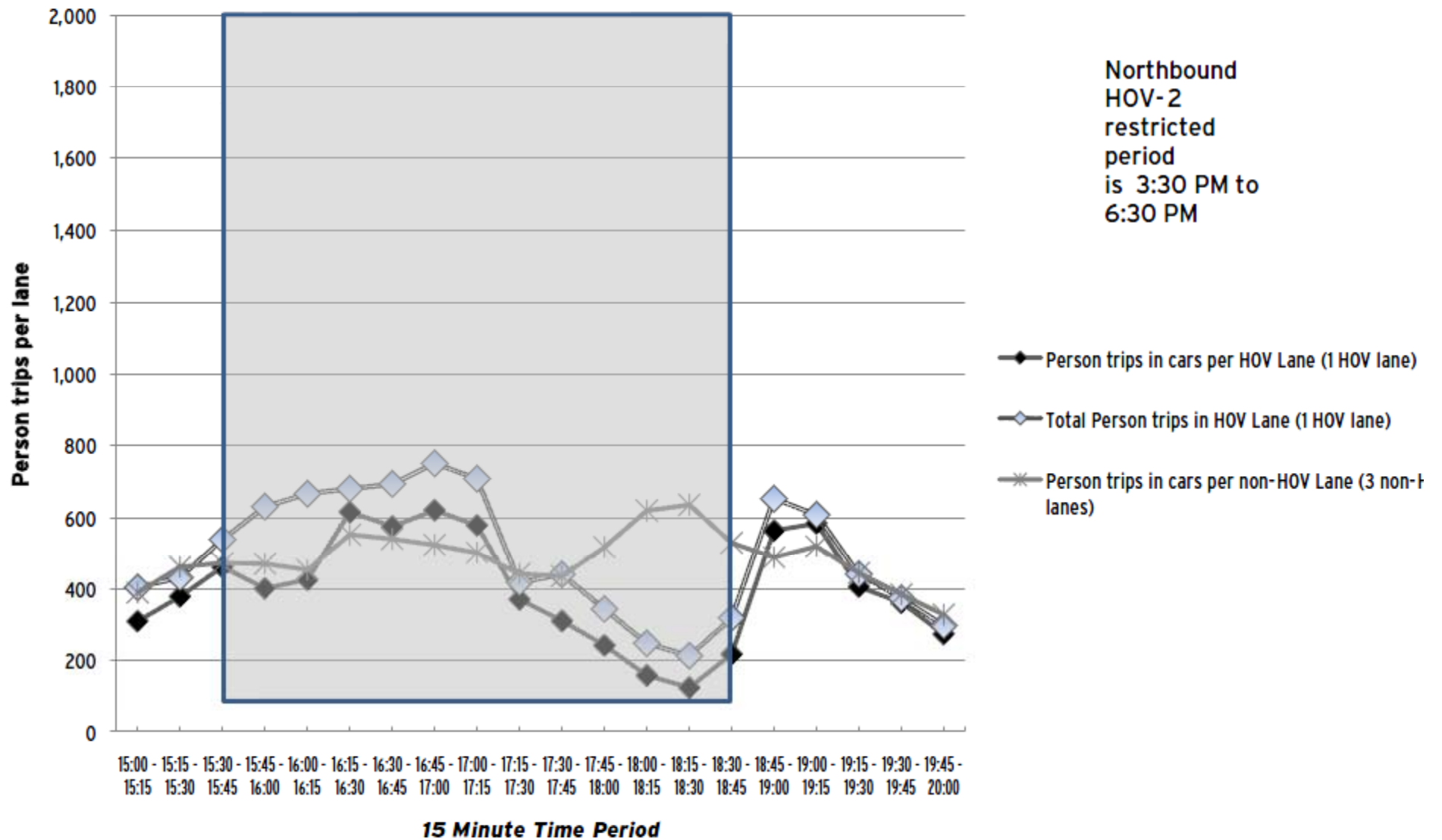
# I-270 Northbound between Shady Grove Road and I-370 P.M. Peak Period - Spring 2010 Observed person trips per lane by 15 minute interval



# I-270 Northbound between Md. 117 (Clopper Road) and Md. 124 (Quince Orchard Road) P.M. Peak Period - Spring 2010 Observed person trips per lane by 15 minute interval



# I-270 Northbound between Middlebrook Road and Md. 118 (Germantown Road) P.M. Peak Period - Spring 2010 Observed person trips per lane by 15 minute interval



# Trends

- Travel Time is much worse on I-66, so HOV is performing better
- Average auto occupancy on monitored facilities in 2010 was little changed from 2004 and 2007
- Variability in 2010 was little changed from 2004 and 2007, but not significant on most facilities



# Issues for the Future

- Introduction of HOT lanes on I-95 and the Beltway
- I-66 operations outside the Beltway
  - Follow-up work to 2009 VDOT study
- Direct access into and out of HOV lanes
- Park and Ride lots availability and capacities

# Acknowledgements

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