

2011 Freeway Congestion Monitoring Program Findings

TPB Technical Committee
December 2, 2011

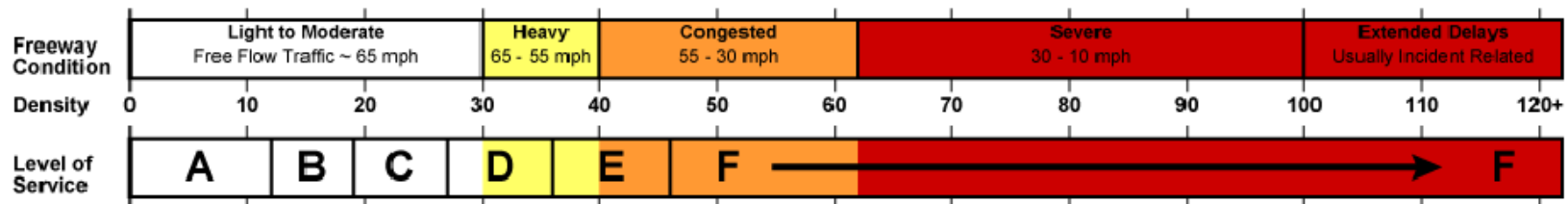
Greg Jordan, SKYCOMP, Inc & Daivamani Sivasailam, DTP

- **Purpose**

- Identify severity and extent of congestion on major highways in the region as an input to the Congestion Management Process
- Identify bottlenecks, operational issues
- Obtain speed, volume, delay data for model (travel demand/emissions) validation
- Review trends and changes over time

- Background (Methodology)
 - Congestion Monitoring once in three years since 1993
 - Entire freeway system, parkways and other facilities
 - 4 days of overlapping pictures during 3 hours of AM and PM peak period
 - Vehicles counted and “Density” (passenger cars, per lane, per mile) of the facility calculated
 - Volume and speed estimated from Density
 - Levels of service estimated and reported
 - Performance compared with previous surveys

Levels of Service – Speed Chart



LEGEND	
	Severe Congestion
	Volatile Congestion Spillback Zone
	Marginal or Intermittent Congestion

Severe Congestion – Seen during all survey observations
 Volatile Congestion Spillback Zone – Severe congestion seen during some observations
 Marginal or Intermittent Congestion – Not severe congestion

- Analysis
 - “Top Ten” congested locations (bottlenecks) based on density
 - “Top Ten” congested corridors based on travel time
 - Improvement or degradation over time with reasons where possible
 - Comparisons with INRIX speed data on freeways

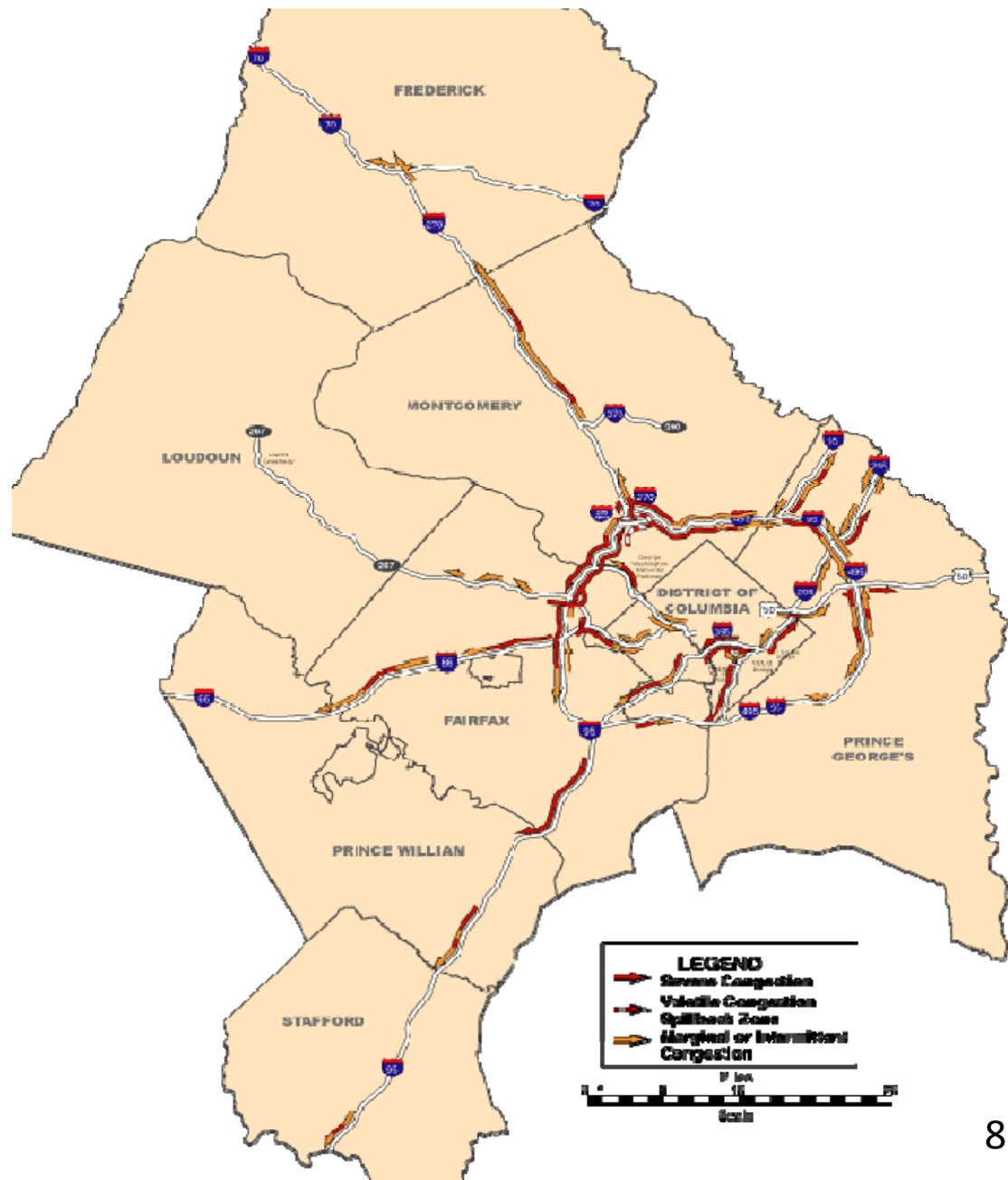
INRIX

- A private provider of real-time(24/7) and historical traffic speed and travel time data on major highways since 2008
- Analysis provides daily, monthly, seasonal variations, and travel time reliability
- Comparison with SKYCOMP data indicates good match on bottleneck locations (6 out of top 10) and congested corridors
- Further integration of INRIX and SKYCOMP data in congestion monitoring will be studied for the future

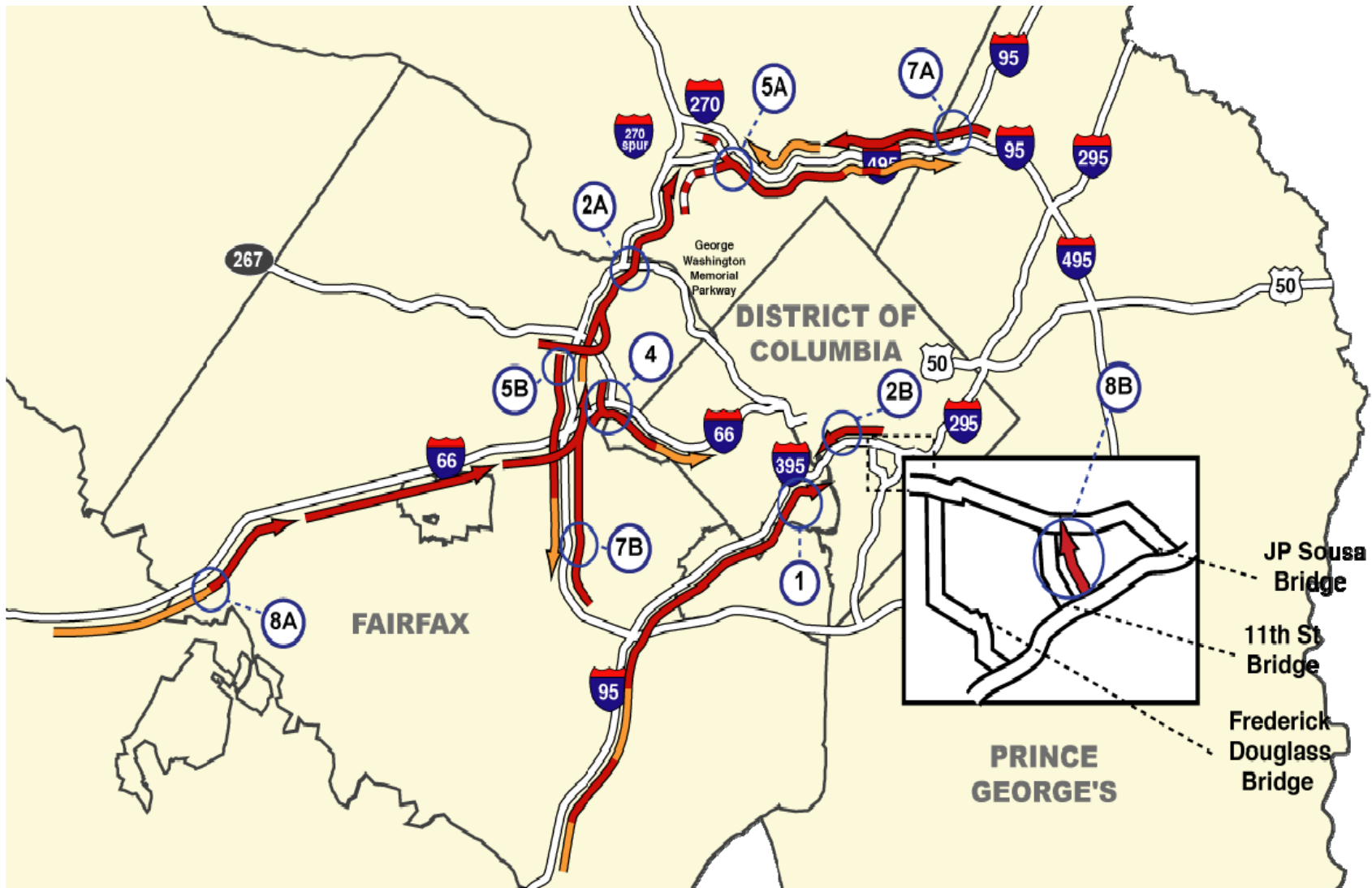
2011 AM Peak Period Performance



2011 PM Peak Period Performance



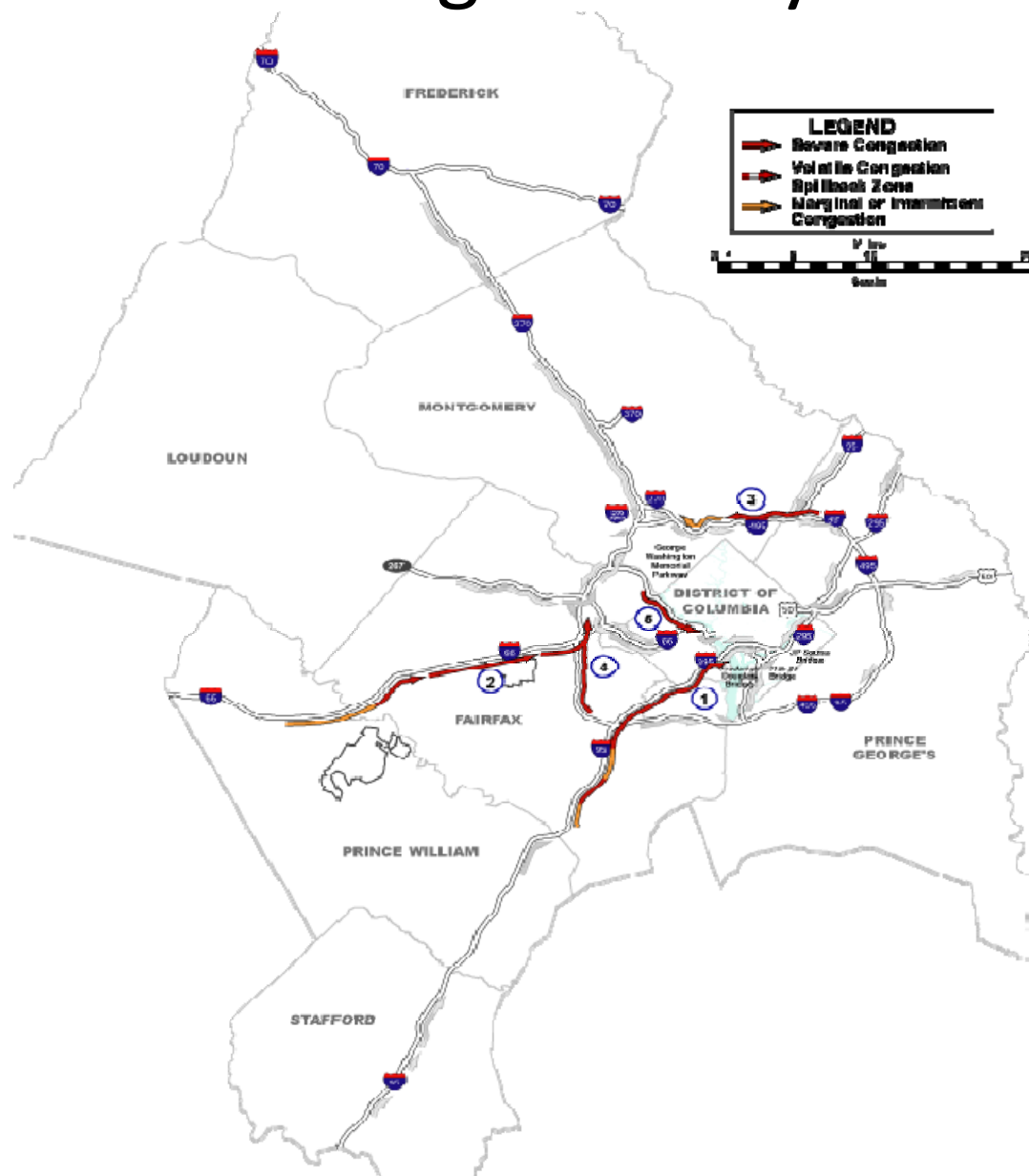
2011 Top Ten Bottlenecks



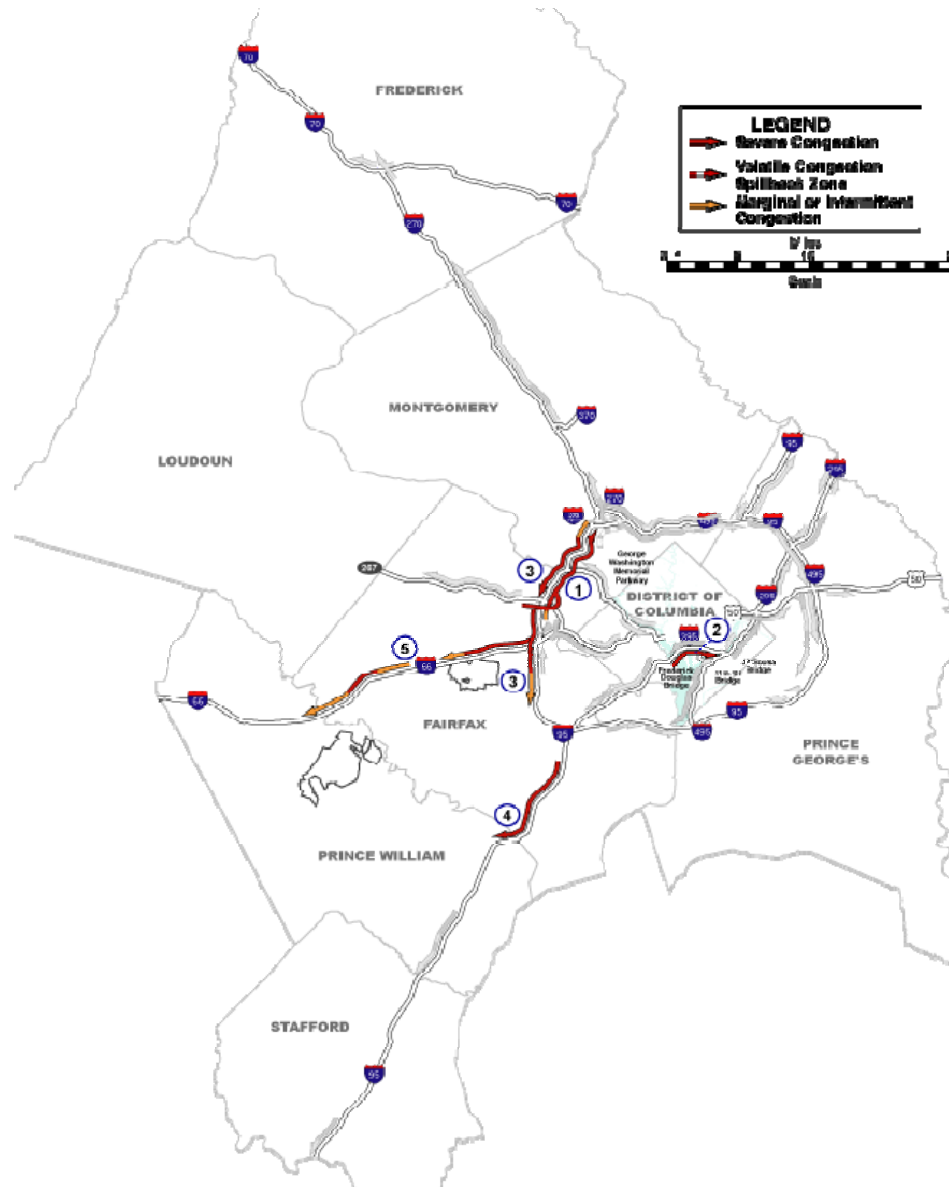
2011 Top Ten Bottlenecks

Rank	Route	From	To	Density (pcplpm)	Speed Range
1*	NB I-395 (8:30 to 9:30 AM)	VA 27 (Washington Blvd)	VA 110 (Jefferson Davis Hwy)	145	5 MPH
2A*	IL I-495 (5:30 to 6:30 PM)	VA 193 (Georgetown Pike)	George Washington Mem Pkwy	125	5 to 10 MPH
2B	SB I-395/SW Fwy (6:00 to 7:00 PM)	4th St	12th St	125	5 to 10 MPH
4*	EB I-66 (6:00 to 7:00 PM)	VA 7 (Leesburg Pike)	Dulles Access	115	7 to 12 MPH
5A*	IL I-495 (4:30 to 5:30 PM)	MD 355 / I-270	MD 185 (Connecticut Ave)	110	10 to 15 MPH
5B	OL I-495 (5:30 to 6:30 PM)	VA 267 (Dulles Toll Rd)	VA 123 (Chain Bridge Rd)	110	10 to 15 MPH
7A*	OL I-495 (8:00 to 9:00 AM)	I-95	MD 650 (New Hampshire Ave)	105	12 to 20 MPH
7B*	IL I-495 (8:00 to 9:00 AM)	Gallows Rd	US 50 (Arlington Blvd)	105	12 to 20 MPH
8A	EB I-66 (7:00 to 8:00 AM)	VA 234 Bypass	VA 234 (Sudley Rd)	95	15 to 25 MPH
8B	WB 11th St Bridge (7:30 to 8:30 AM)	I-295	Southeast Fwy	95	15 to 25 MPH
* These bottleneck locations were flagged in the INRIX analysis					

2011 AM Longest Delay Corridors



2011 PM Longest Delay Corridors



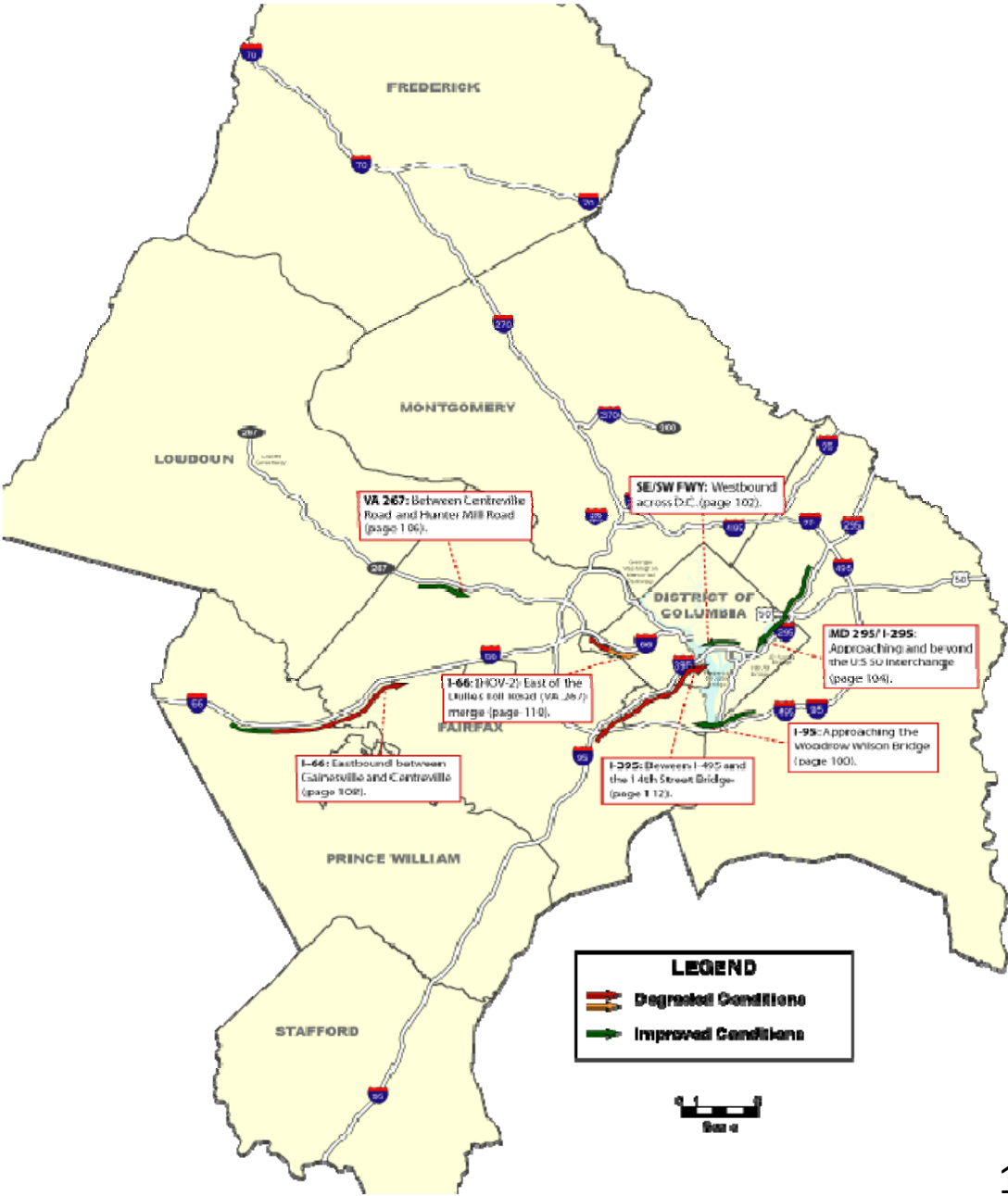
AM Peak

No	Road	Time	Direction	From	To	Queue Length (miles)	Estimated Travel Time (minutes)	Estimated Speed (mph)	Estimated Delay (minutes)
1	I-95/I-395	7:30 – 8:30	Northbound	US 1	GWMP	18.3	62.8	18	44.4
2	I-66	7:00 – 8:00	Eastbound	VA 234 Bypass	I-495	19.4	48.0	24	28.6
3	I-495	7:00 – 8:00	Outerloop	US 1	I-270	10.0	28.7	21	18.7
4	I-495	8:00 – 9:00	Innerloop	I-95	I-66	8.0	24.9	19	16.9
5	GWMP	7:30 – 8:30	Eastbound	Chain Bridge Rd	I-66	5.3	16.5	19	11.2

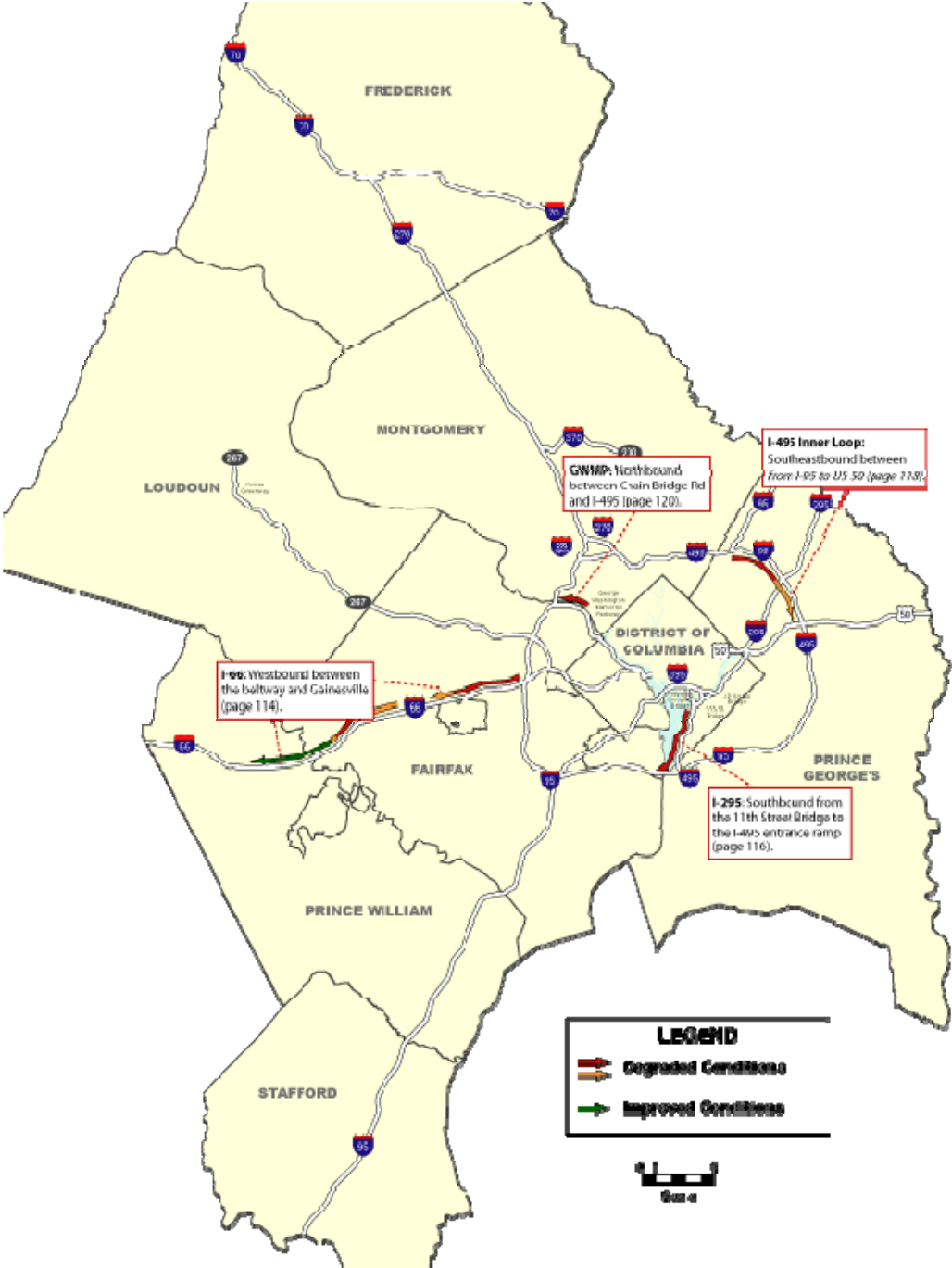
PM Peak

No	Road	Time	Direction	From	To	Queue Length (miles)	Estimated Travel Time (minutes)	Estimated Speed (mph)	Estimated Delay (minutes)
1	I-495	5:30 – 6:30	Innerloop	VA 7	I-270 Spur	10.3	41.8	15	31.5
2	I-395	5:00 – 6:00	Northbound	VA 110	Pennsylvania Ave	4.3	19.2	13	14.9
3	I-495	4:30 – 5:30	Outerloop	MD 187	VA 236	8.8	22.6	23	13.8
4	I-95	4:30 – 5:30	Southbound	I-495	VA 123	9.7	22.4	26	12.8
5	I-66	4:30 – 5:30	Westbound	I-495	VA 234	16.8	28.3	36	11.5

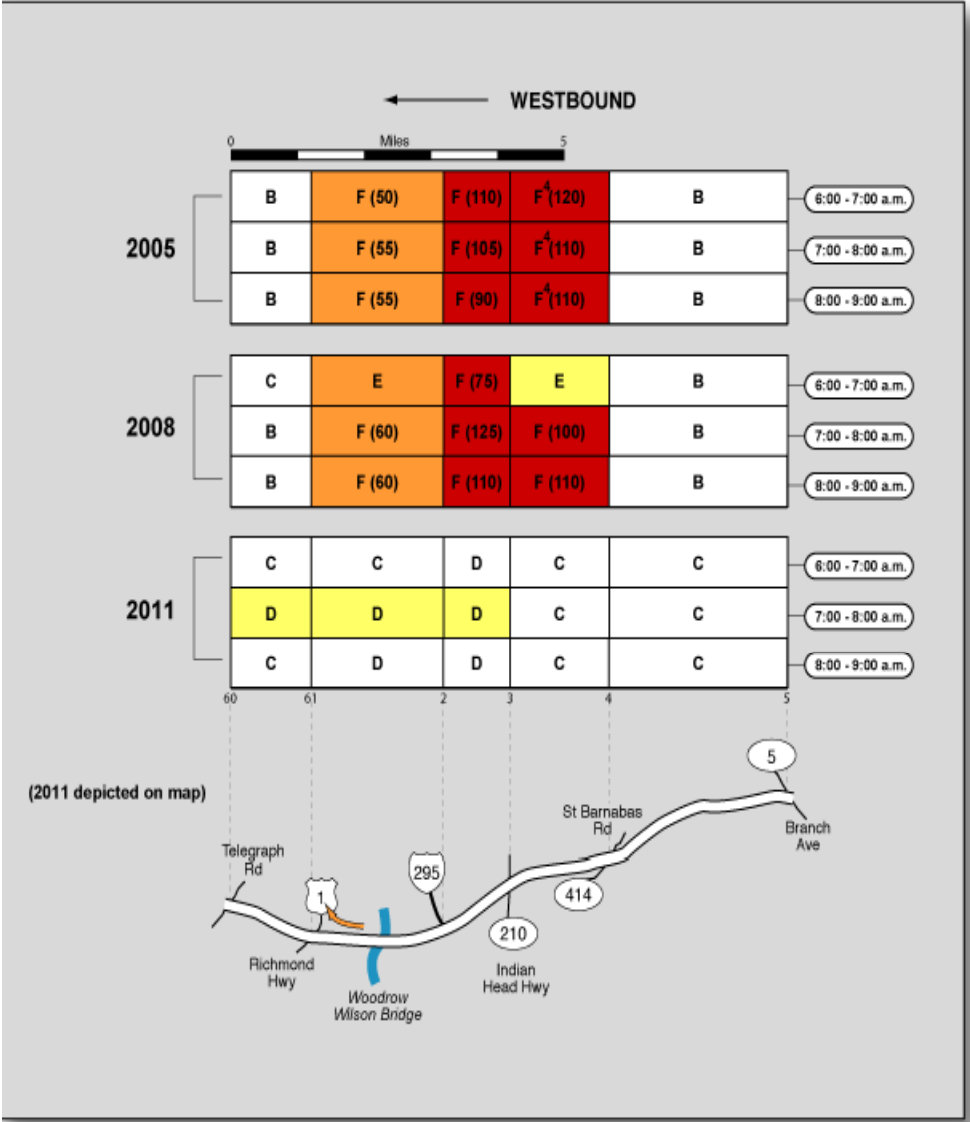
2011 Significant Changes AM Peak Period



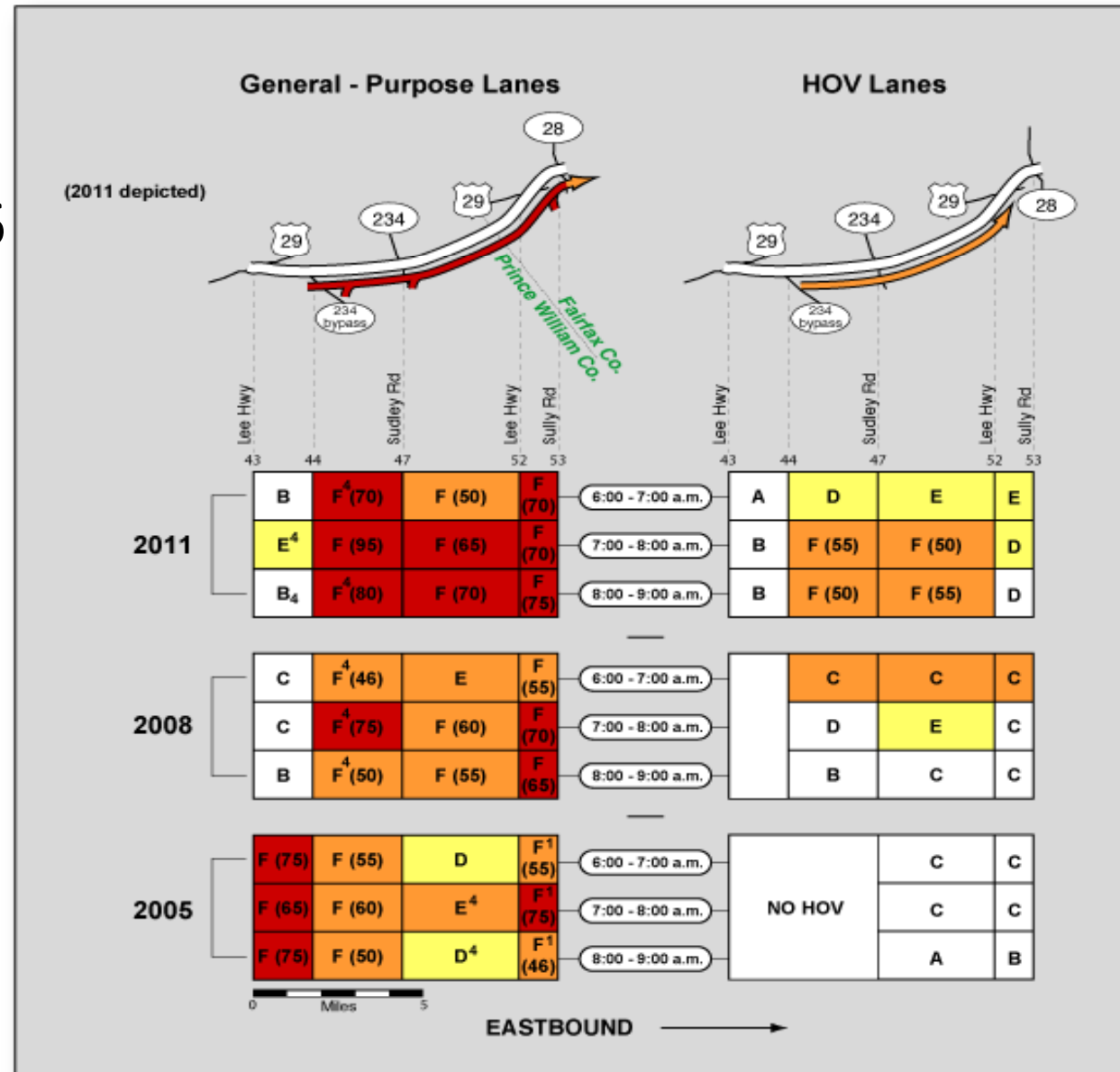
2011 Significant Changes PM Peak Period



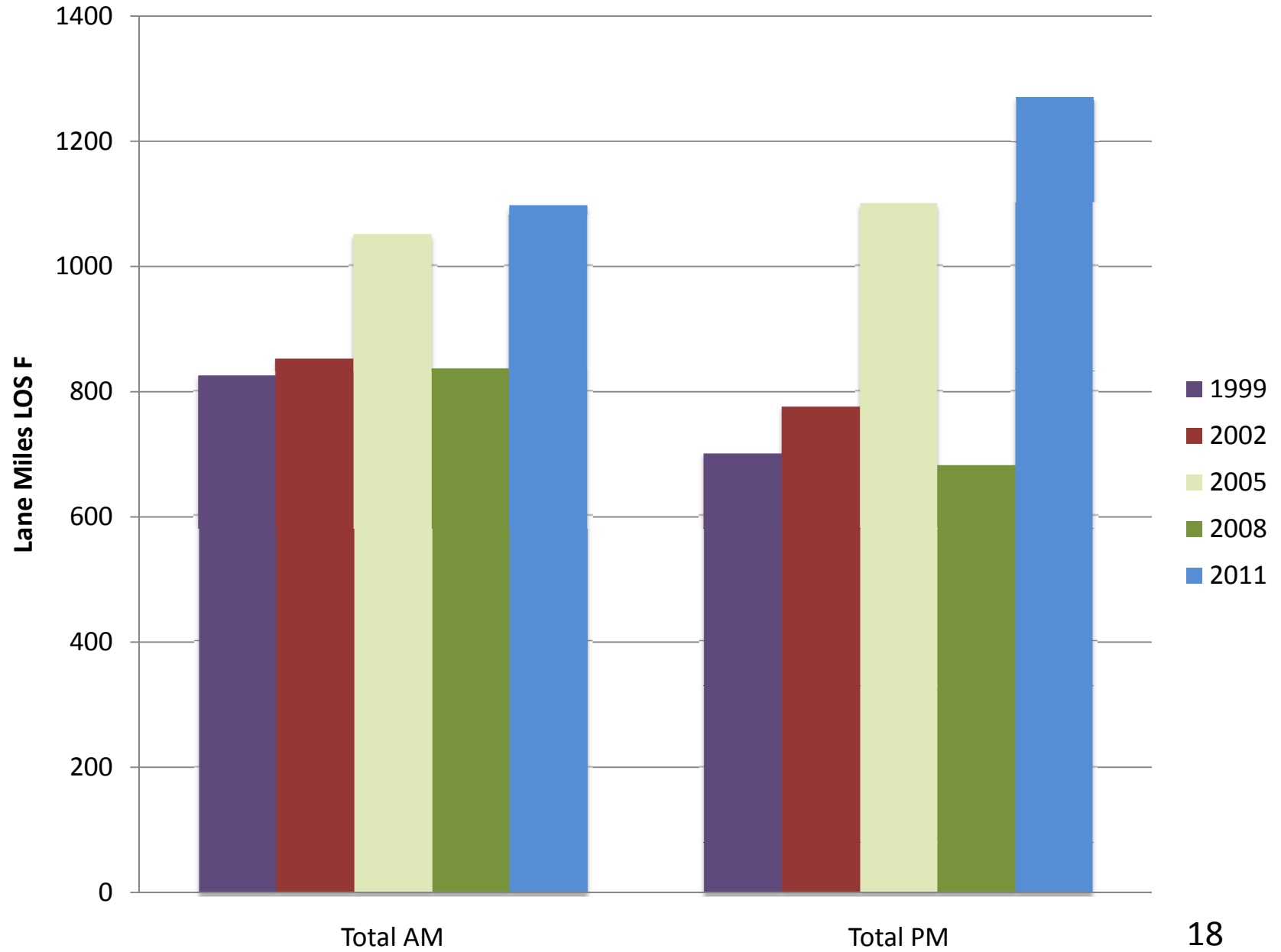
Changes to I-95 as a result of Wilson Bridge Improvements



Changes to I-66



Lane Miles Under LOS F Condition



Summary of Findings

- Lane miles of congestion have increased significantly between 2008 and 2011, after decreasing between 2005 and 2008
- More peak spreading is occurring
- Construction activity results in higher densities and lower speeds
- Projects under construction(I-95 and I-495 HOT Lanes, spot improvements on I-66) should reduce delay and congestion