

2011 Freeway Congestion Monitoring Program Findings

Transportation Planning Board

December 21, 2011

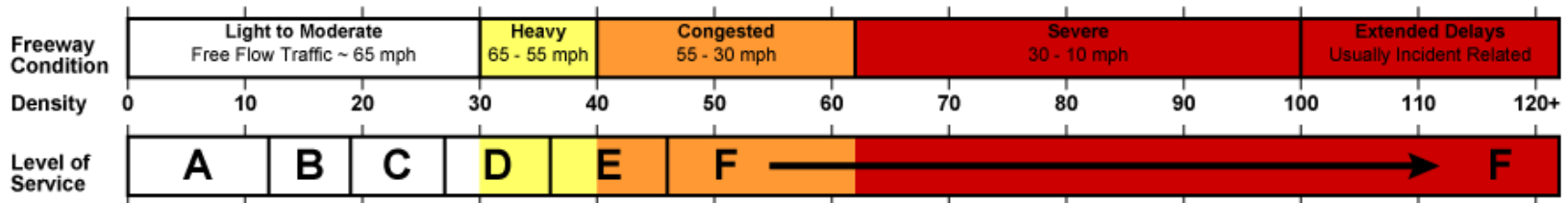
Daivamani Sivasailam
Department of Transportation Planning

- **Purpose**

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

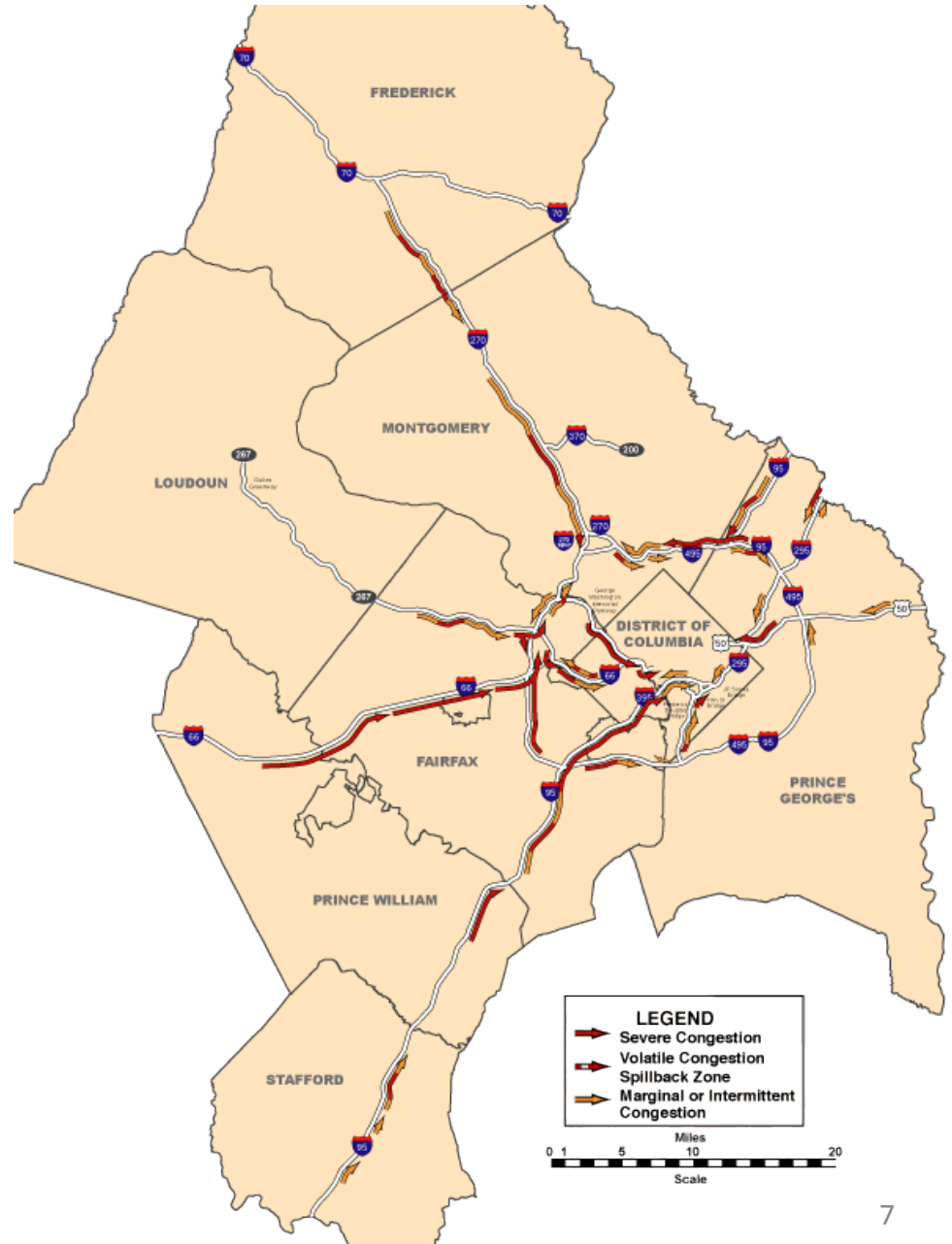
- Analysis
 - “Top Ten” congested locations (bottlenecks) based on density
 - “Top Ten” congested corridors (travel time)
 - Improvement or degradation over time with reasons where possible
 - Comparisons with INRIX speed data on freeways

INRIX

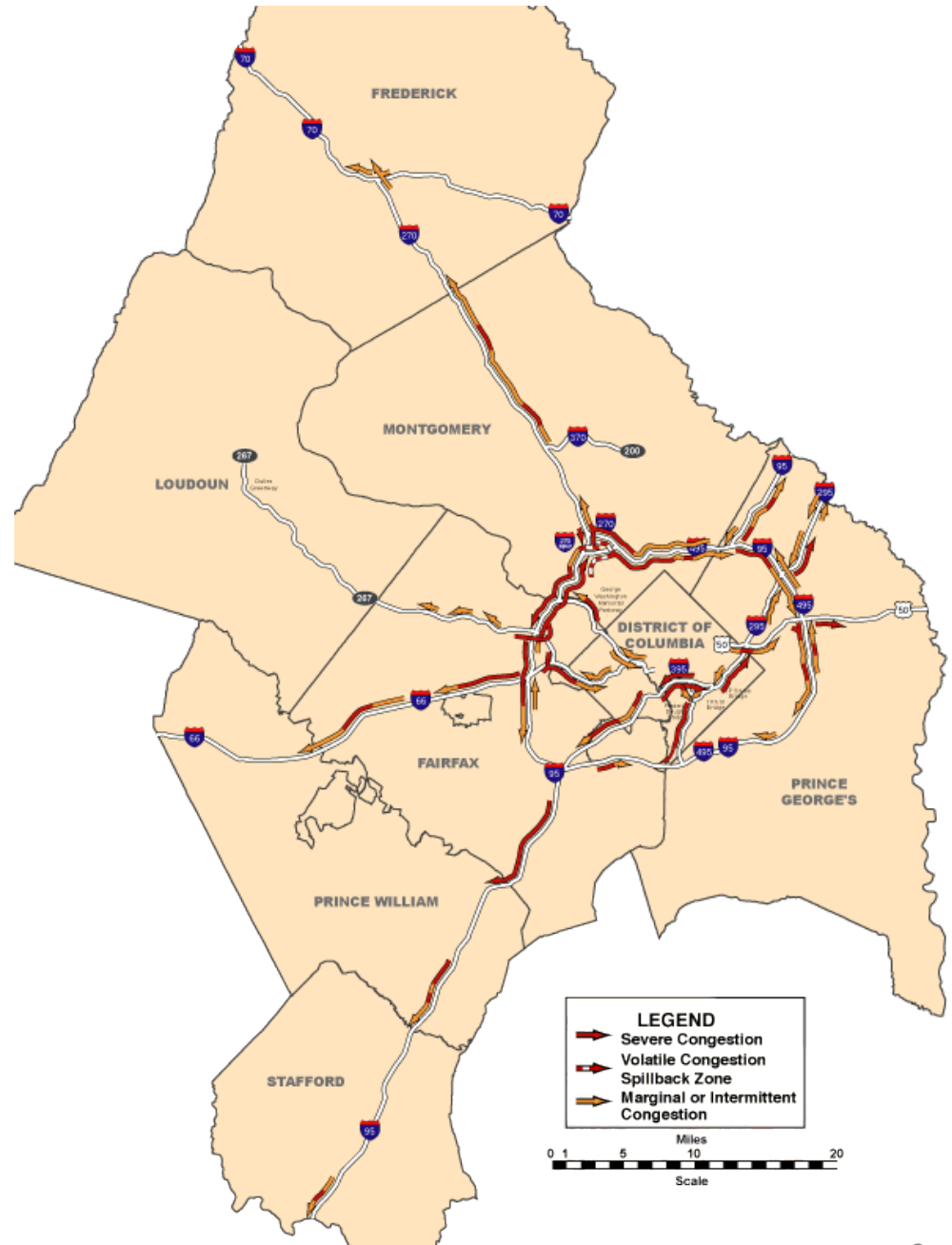
- A private provider of real-time(24/7) and historical traffic speed and travel time data on major highways
- Analysis provides daily, monthly, seasonal variations, and travel time reliability
- Comparison with SKYCOMP data indicates good match on bottleneck locations (6 out of top 10) and congested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

2011 AM Peak Period Performance

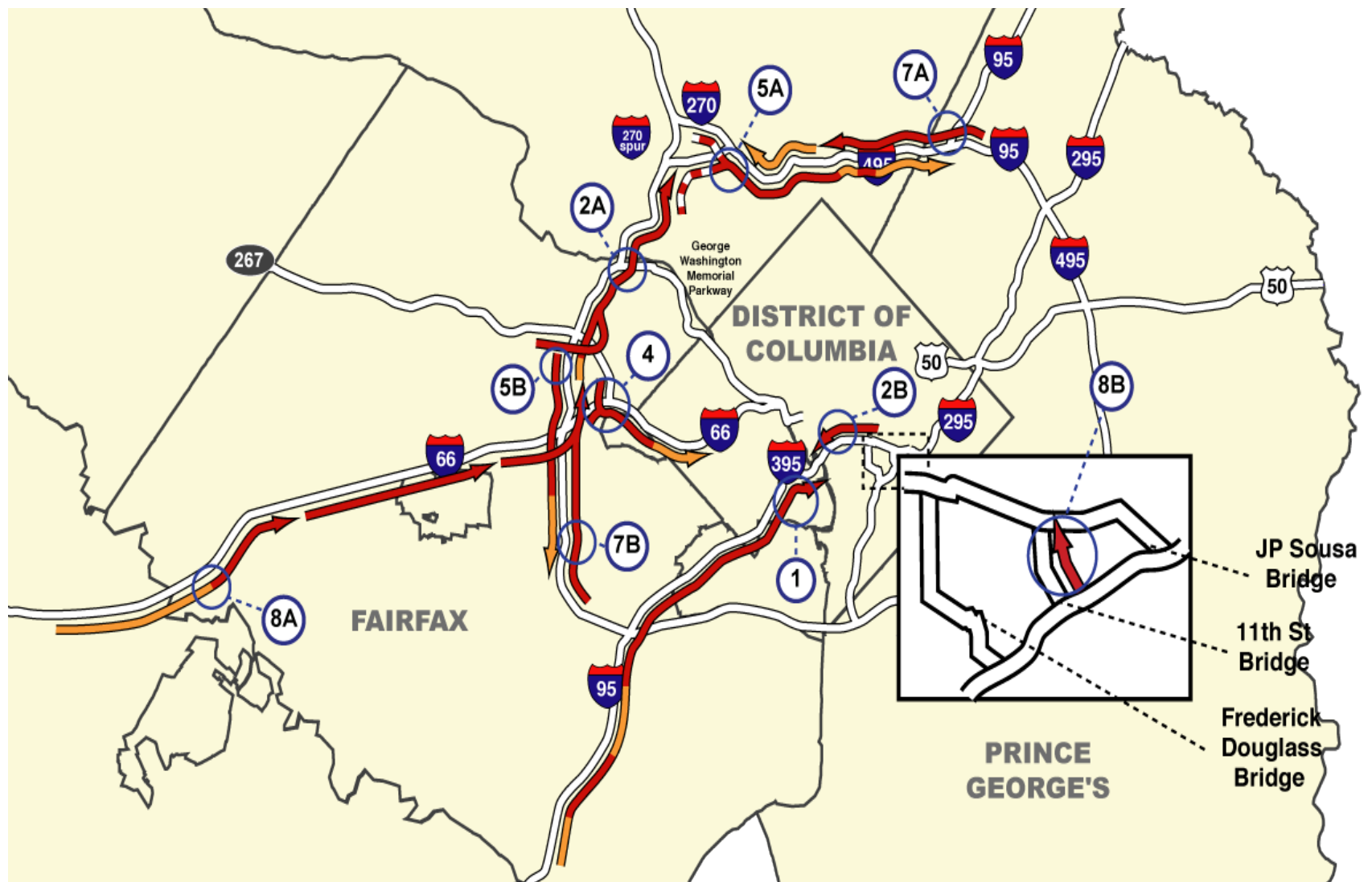
Volatile congestion spill back zone –
severe congestion on some days only



2011 PM Peak Period Performance



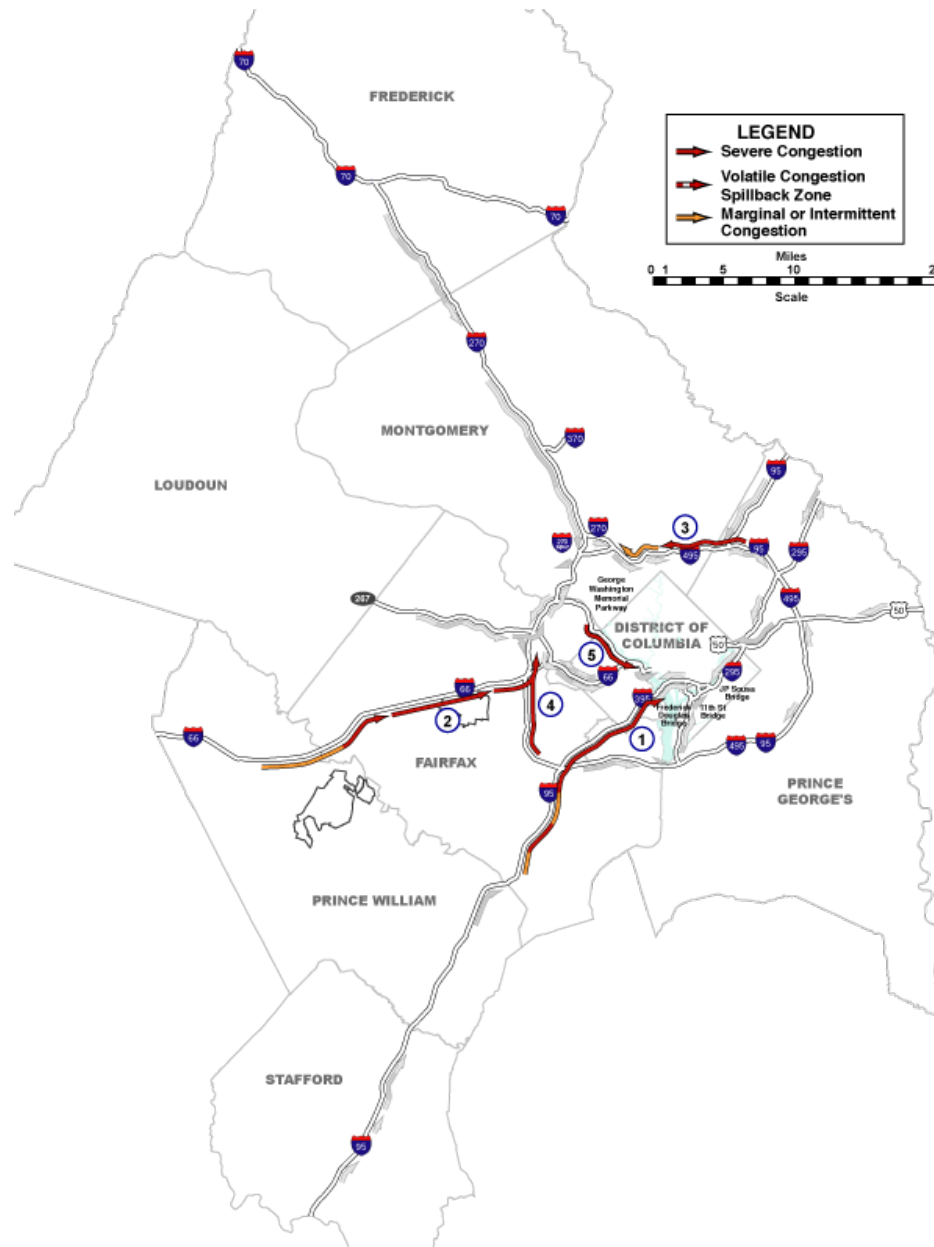
2011 Top Ten Bottlenecks



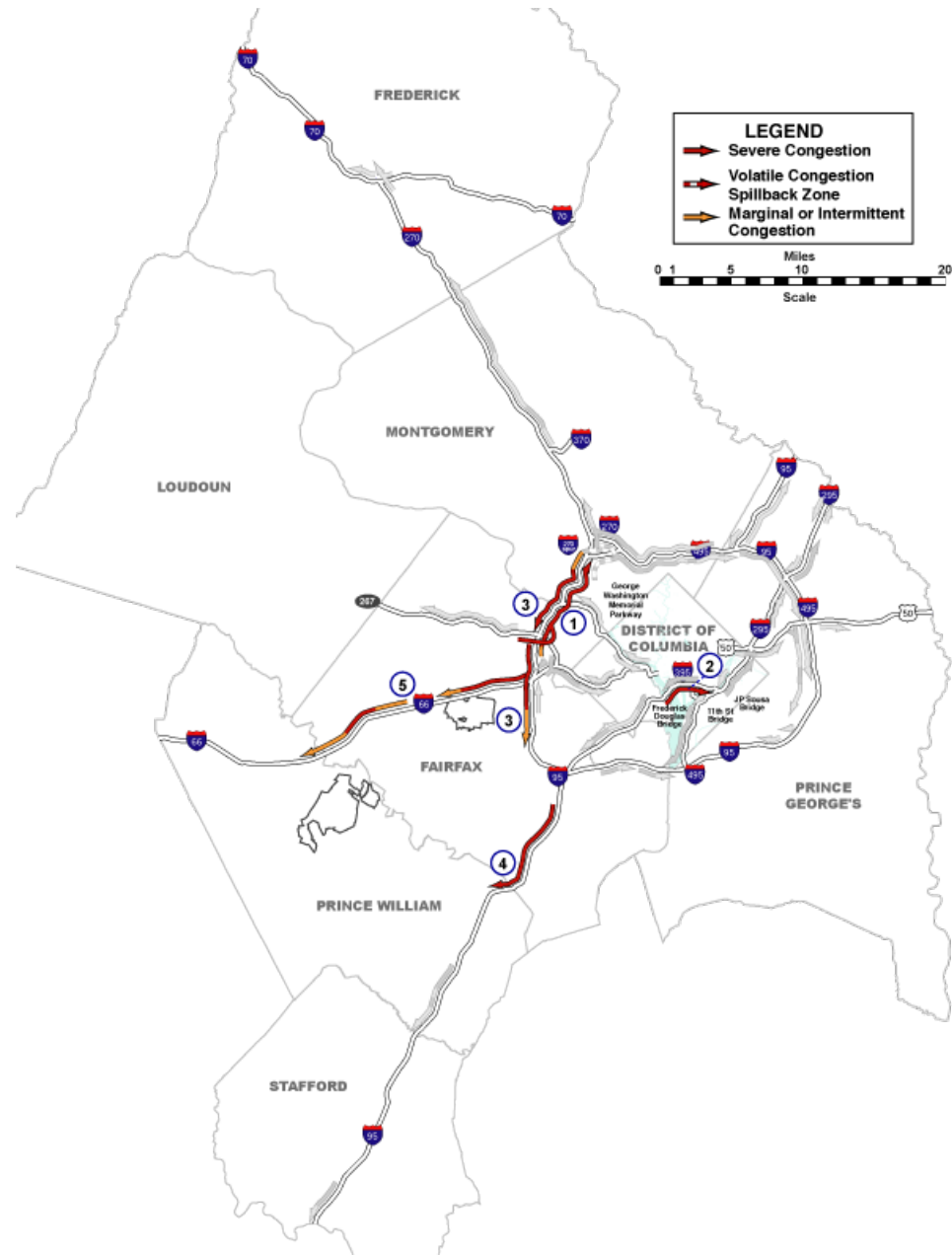
2011 Top Ten Bottlenecks

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



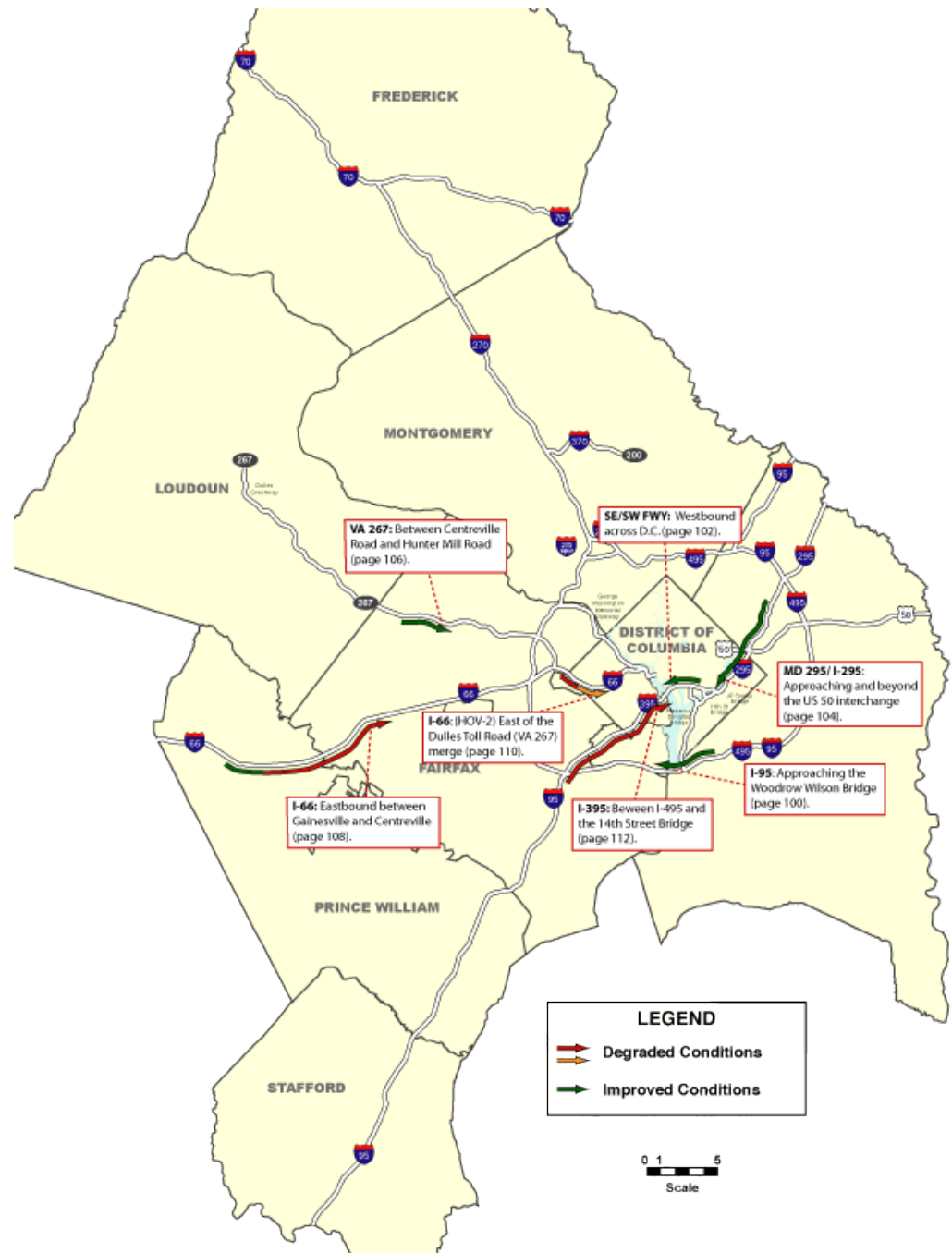
AM Peak

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

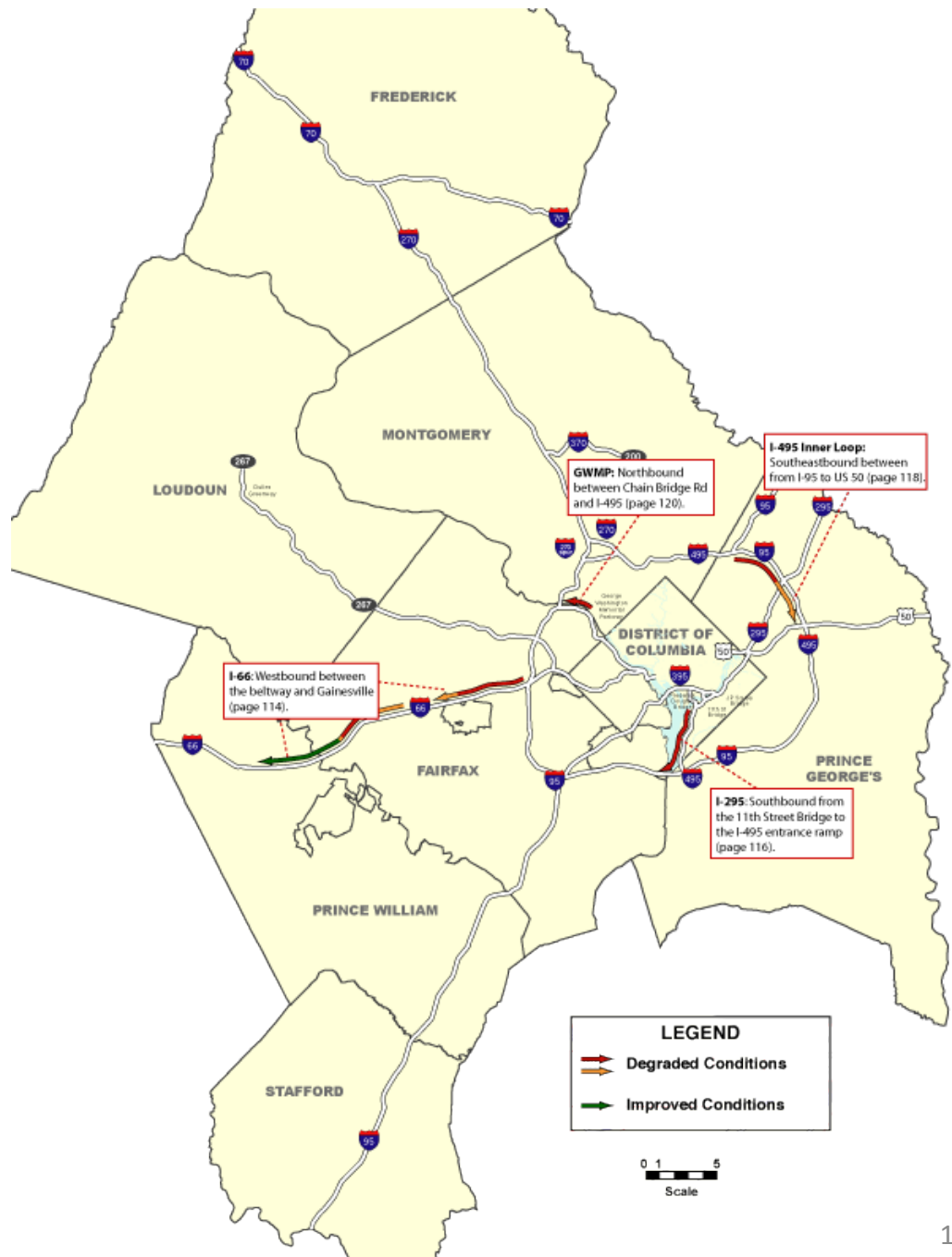
PM Peak

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

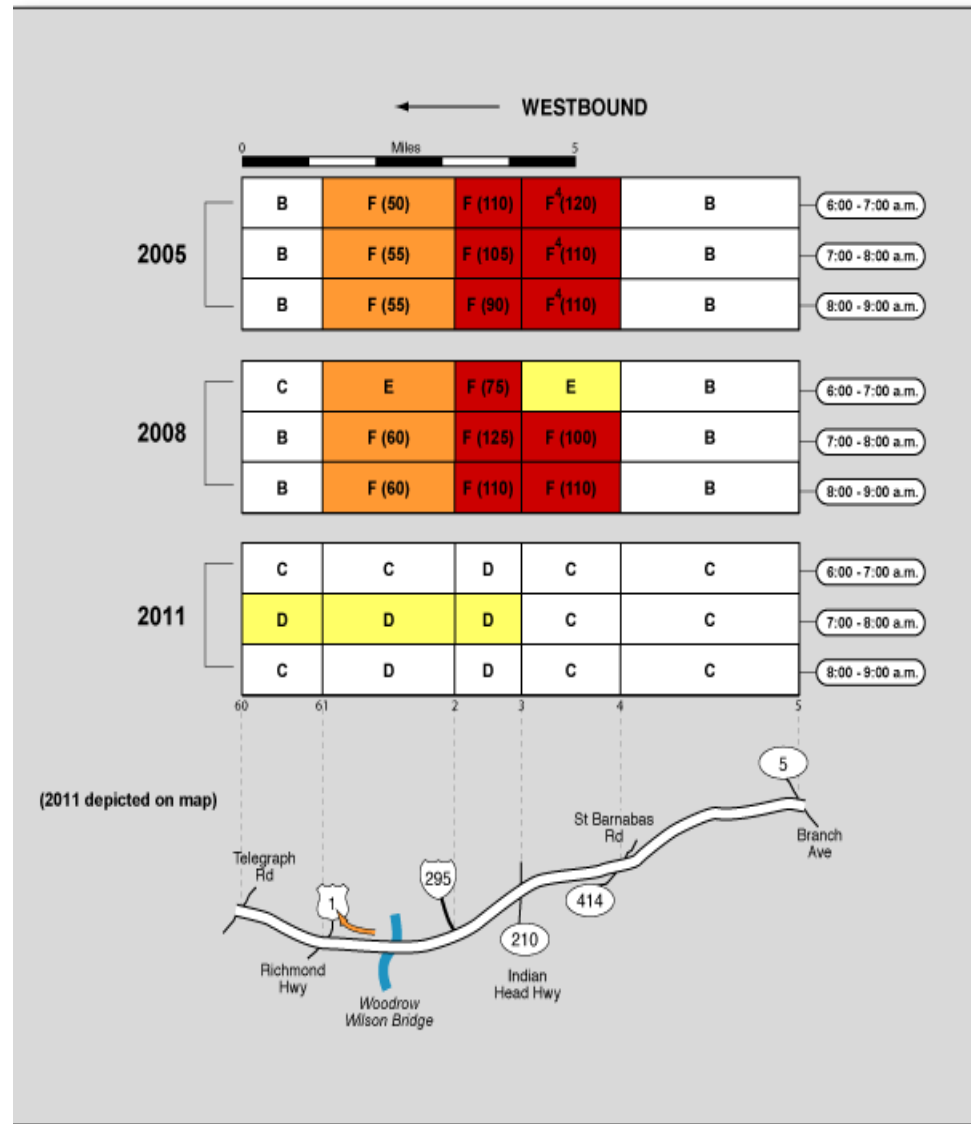
2011 Significant Changes AM Peak Period



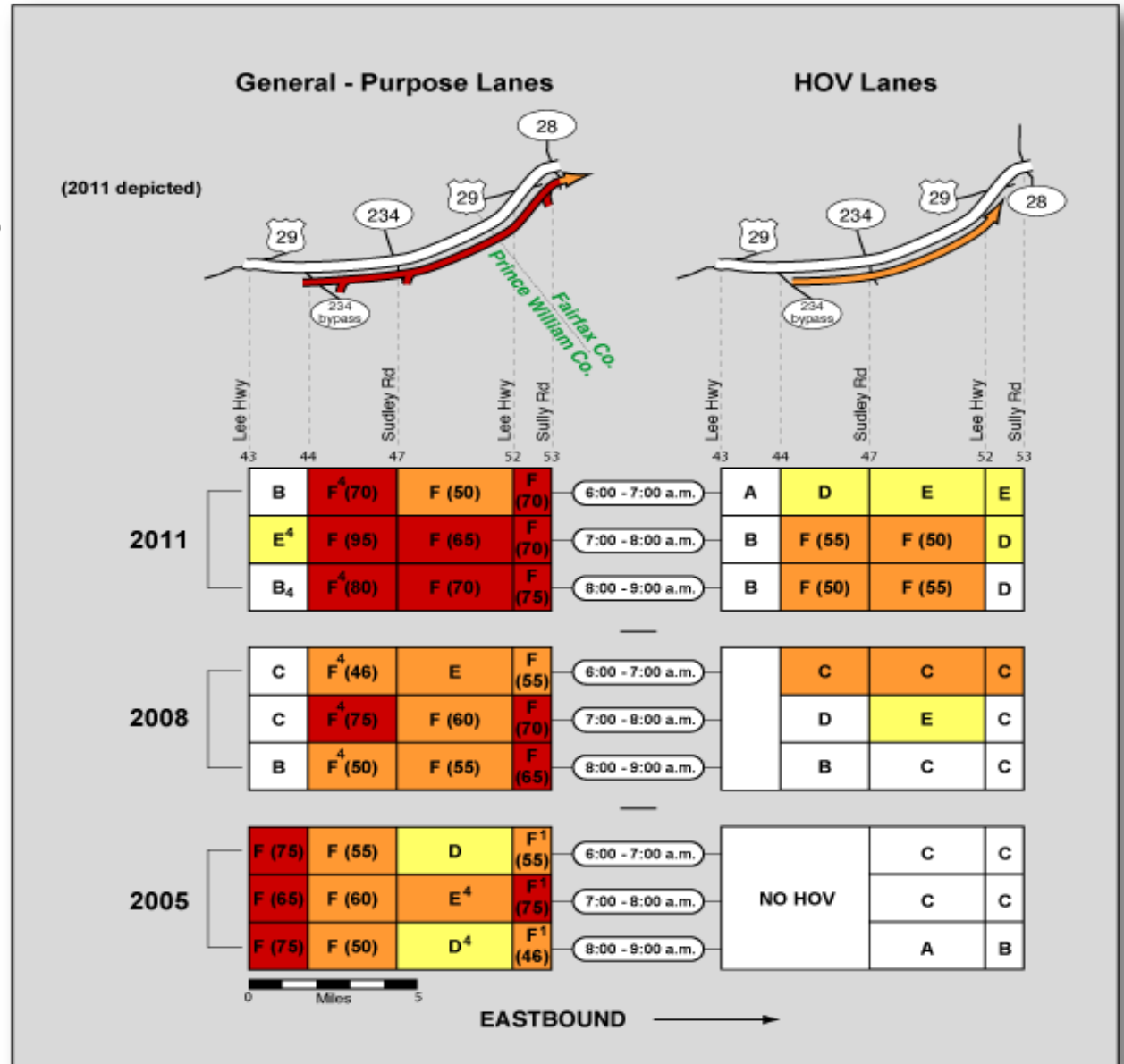
2011 Significant Changes PM Peak Period



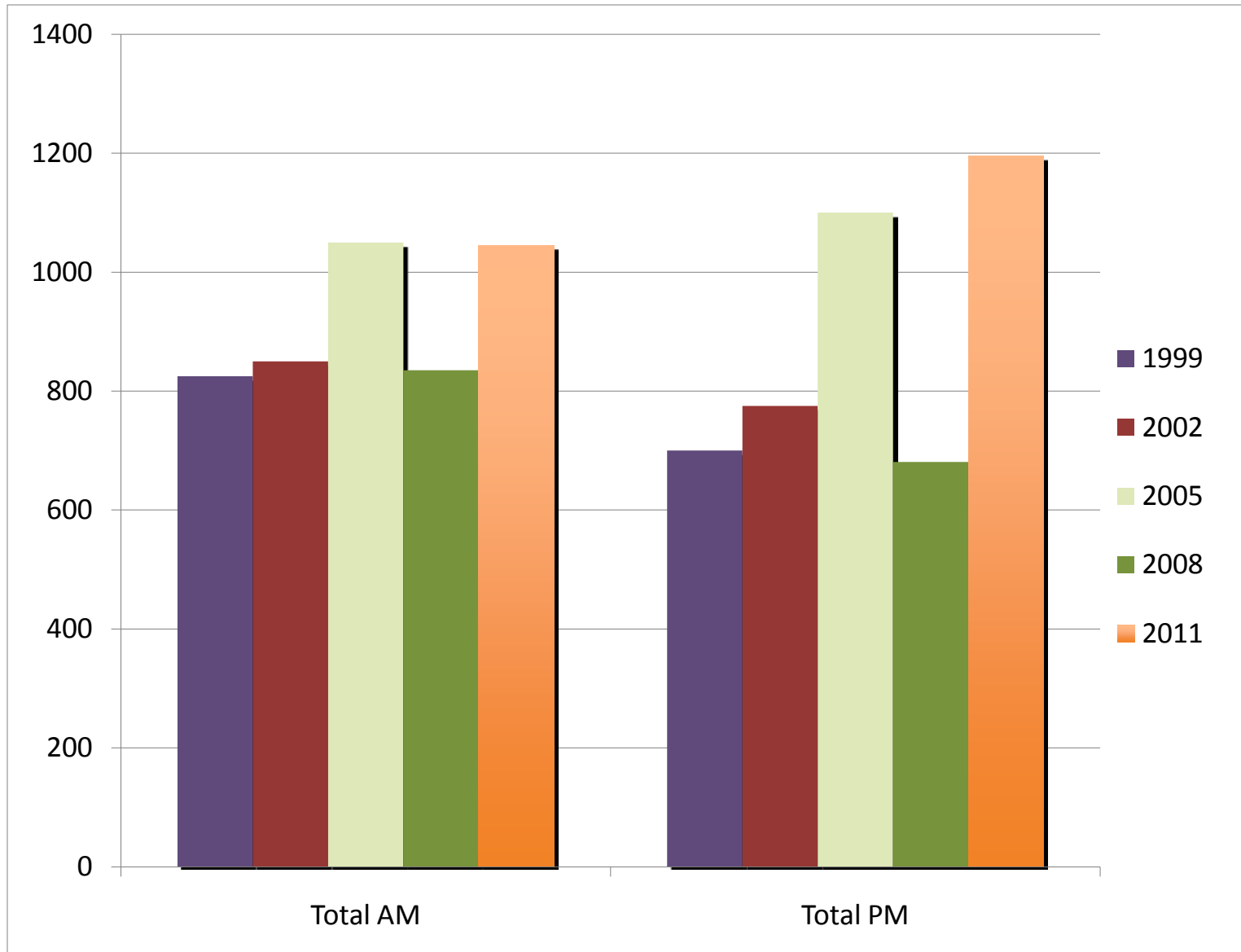
Changes to I-95 as a result of Wilson Bridge Improvements



Changes to I-66



General Purpose Lane Miles Under LOS F



Lane Miles Under LOS F on Selected Facilities

Facility	AM		PM		Difference 2011-2008
	2008	2011	2008	2011	
I-270	130	127	75	88	11
I-295(Inside Beltway)	35	4	42	79	6
I-66 (Outside Beltway)	126	147	79	77	18
I-66 (Inside Beltway)	14	30	23	20	14
I-395	72	105	121	108	20
I-95 VA	67	120	64	62	50
I-95 MD	33	43	0	27	38
I-495 (Capital Beltway)	180	218	337	558	259
G/W Parkway	21	30	1	14	21
Total	677	824	744	1034	437

Summary of Findings

- Lane miles of congestion have increased in 2011 compared to 2008
- Peak spreading is occurring
- Construction activity results in higher densities and lower speeds
- Projects recently completed (11th Street Bridges and the ICC) or under construction (I-95 and I-495 HOT Lanes, spot improvements on I-66) should reduce delay and congestion