Briefing on Management, Operations, and ITS (MOITS) Planning Activities at COG/TPB

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MOITS

- MAP-21 definition of Regional Transportation Systems Management and Operations (RTSMO):
  - *Integrated strategies to optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, crossjurisdictional systems, services, and projects designed to preserve capacity and improve security, safety, and reliability of the transportation system*
- Consistent with the long-held core missions of the MOITS committees:
  - Advise the TPB on transportation management, operations, and technology
  - Serve as a forum for information exchange on these topics among members

History of MOITS

- Began in January 1997 as the ITS Task Force
- 1999: Expanded into Policy and Technical Task Forces
  - Because of budgetary discussions with policy implications (earmark funding)
- 2001 (pre-9/11): Added management and operations focus
- 2001-2006: Post-9/11 emergency planning focus
  - Met jointly with or in lieu of a separate emergency transportation committee (RESF-1)
- 2006: Separate RESF-1 committee was permanently established
- 2007: MOITS Technical Task Force became a standing subcommittee of the TPB
- 2008: Official formation of the "MATOC Program" independent of MOITS – real-time regional coordination
- 2009: Formation of MATOC Subcommittees to look at regional operations issues (separate from metropolitan planning issues)

MOITS-Related Committees

- TPB Committee Structure
  - Management Operations, and Intelligent Transportation Systems Planning (MOITS) Policy Task Force
  - MOITS Technical Subcommittee
    - Regional ITS Architecture Subcommittee
    - Traffic Signals Subcommittee
  - Transportation Safety Subcommittee

- COG Public Safety Committee Structure
  - Regional Emergency Support Function #1 (RESF-1) Emergency Transportation Committee

- Metropolitan Area Transportation Operations Coordination Program (MATOC) – External to COG/TPB
  - MATOC Steering Committee
  - MATOC Subcommittees
    - Roadway Operations Subcommittee
    - Transit Task Force
    - Severe Weather Work Group
    - Information Systems Subcommittee

Comparative Committee Activities

	MOITS	**MATOC**	**RESF-1** Emergency Transportation Committee
REPORTING	Advisory subcommittee to the **MPO** (TPB)	**Independent** organization with its own Steering Committee made up of state DOTs, WMATA (external to the MPO)	Advisory subcommittee to the **COG Board** / public safety committee structure (not MPO/TPB)
COMMITTEE STRUCTURE	Reports up to **TPB Technical Committee**; supported by Traffic Signals, ITS Architecture, and Traveler Information Subcommittees	**MATOC Steering Committee** (DDOT, MDOT, VDOT, WMATA); supported by Subcommittees on Operations, Transit, Severe Weather, & Information Systems	Reports to **COG Public Safety Policy Committee**; coordination as necessary with parallel RESF committees (RESF-2 through RESF-16)
TOPIC AREAS	MOITS considerations in regional **long-range transportation planning**; planning for non-emergency transportation operations	**Current interagency coordination** on transportation operations, incidents, & related information sharing/traveler information	Provide transportation sector input to the regional catastrophic **emergency planning process** and DHS-driven requirements

MOITS-Related Tasks in the TPB Unified Planning Work Program

2. COORDINATION AND PROGRAMS

A. Congestion Management Process

B. Management, Operations, and ITS Planning

C. Emergency Preparedness Planning

I. MATOC Program Planning Support

5. TRAVEL MONITORING

B. Congestion Monitoring and Analysis

2.A. Congestion Management Process (CMP)

- Summary:
  - Systematic management of traffic congestion and provision of information on system performance
  - Federally required component of metropolitan planning
- Highlight:
  - Compilation and analysis of INRIX speed data, with full regional availability
- New/changed:
  - Update of the CMP Technical Report for 2014 (2-year cycle)
  - Enhanced focus on supporting MAP-21 congestion-related performance measurement
- RBS tie-ins:
  - CMP compiles available transit congestion information
  - Trying to improve understanding of congestion on non-freeway arterial roadways (where most bus routes are located)
    - Provided information for Bus Hot Spots Study in 2012

CMP Highlight: Congestion Dashboard

- Effort to raise the frequency and visibility of reports on regional congestion

- www.mwcog.org/congestion

National Capital Region Congestion Report (Beta) 4th Quarter 2011 *Snapshot*

Congestion on Freeways
Delay in Q4/2011

All time in Q4/2011

12.3 Hours → $237* per traveler per month during Q4/2011

+9 % vs. Q4/2010

*Cost of time = $19.24/ hour (Derived from TPB model & Travel Survey)

(see p. 3)

Reliability on Freeways
Extra Time for On-Time Arrival** in Q4/2011

AM Peak (6 – 10 AM)

202% of free flow travel time

+6 pp* vs. Q4/2010

PM Peak (3 – 7 PM)

236% of free flow travel time

+11 pp* vs. Q4/2010

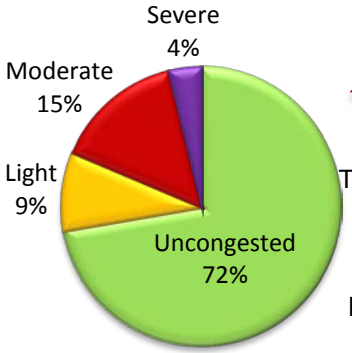
*pp: percentage points.

**This is compared to free flow travel time. For example, a 20-minute free flow travel with 200% extra time for on-time arrival indicates one has to budget a total of 20 * 200% = 40 minutes to arrive on time (this measure essentially is Planning Time Index).

(see p. 4)

Percentages of Freeway Lane-Miles by Congestion Level in Q4/2011

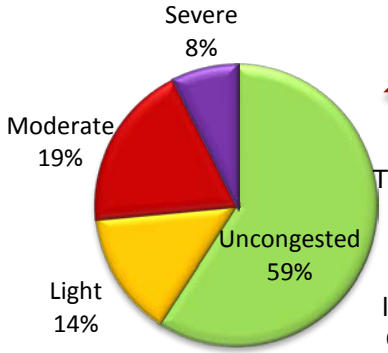
AM Peak (6 – 10 AM)



+1 %

The change of moderate & severe congested lane-miles in Q4/2011 vs. Q4/2010.

PM Peak (3 – 7 PM)



+3 %

The change of moderate & severe congested lane-miles in Q4/2011 vs. Q4/2010.

Congestion level	Ratio of experienced travel time to free flow travel time
Uncongested	< 1.15
Light	1.15 - 1.3
Moderate	1.3 - 2
Severe	> 2

(see p. 5, 6 & 7)

Spotlight

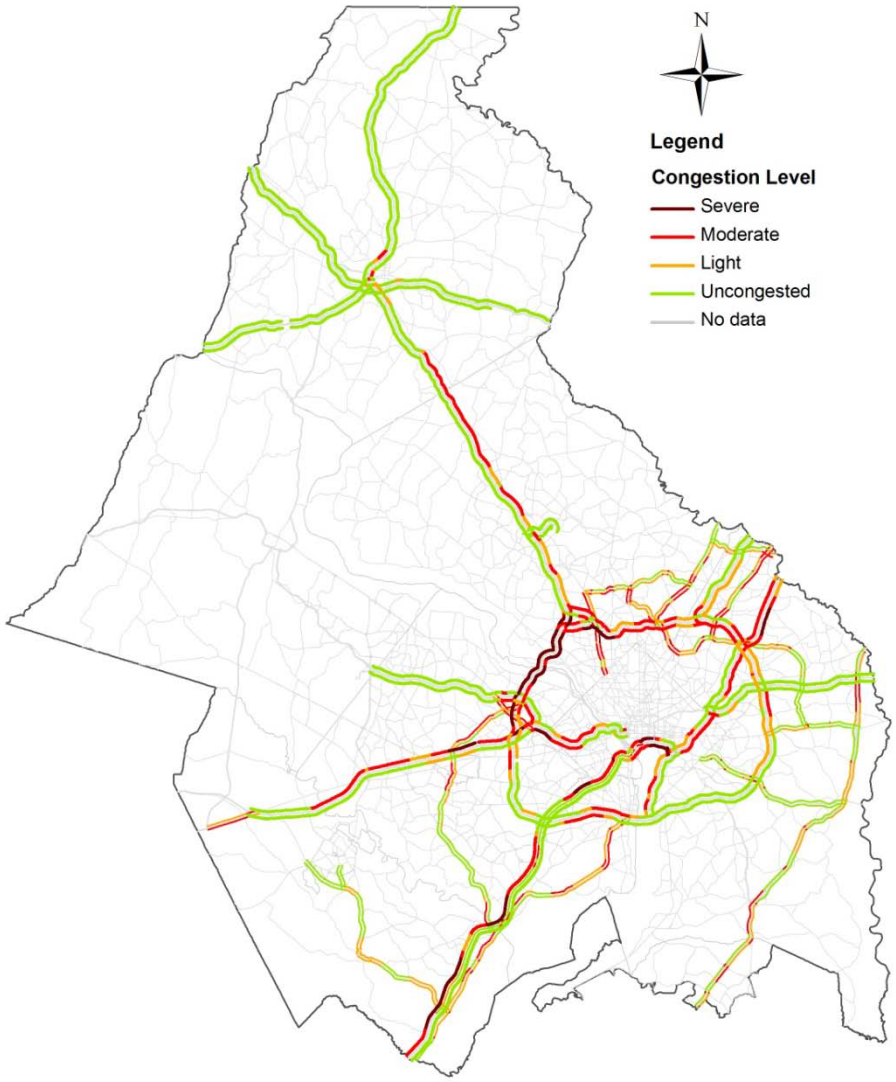
Traffic on "Black Friday"

The region's overall freeway traffic was examined for the day after Thanksgiving in the past 4 years and the results revealed significant changes in 2011.

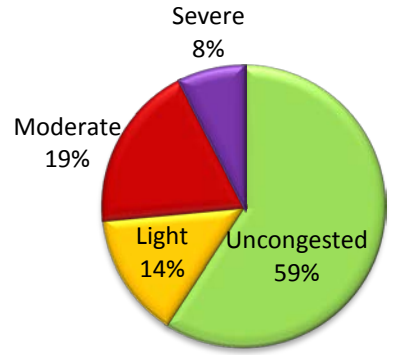
(see p.15)

Powered by the I-95 Corridor Coalition Vehicle Probe Project and expansions made available by MDOT and VDOT, and the Transportation Technology Innovation and Demonstration (TTID) Program of FHWA.

Highway Congestion in Q4/2011: PM Peak (3 – 7 PM)



% of Freeway Lane-Miles by Congestion Level in PM Peak

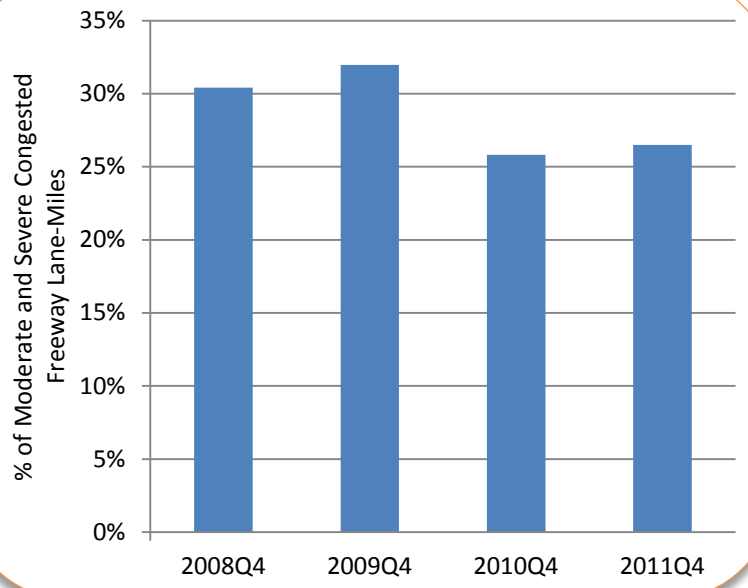


+3 %

The change (in %) of moderate and severe congested freeway lane-miles in Q4/2011 compared to Q4/2010. (see p. 7)

Total monitored freeway lane-miles: 2,000.

Congestion Variation in PM Peak & Historical Comparison



Congestion level is determined by Travel Time Index (TTI): severe: TTI >= 2.00, moderate: 1.30 <= TTI < 2.00, light: 1.15 <= TTI < 1.30, and uncongested: TTI < 1.15. *Travel time burden* is the percentage of additional travel time over and above free flow travel time, i.e., travel time burden = (actual travel time – free flow travel time)/free flow travel time * 100%.

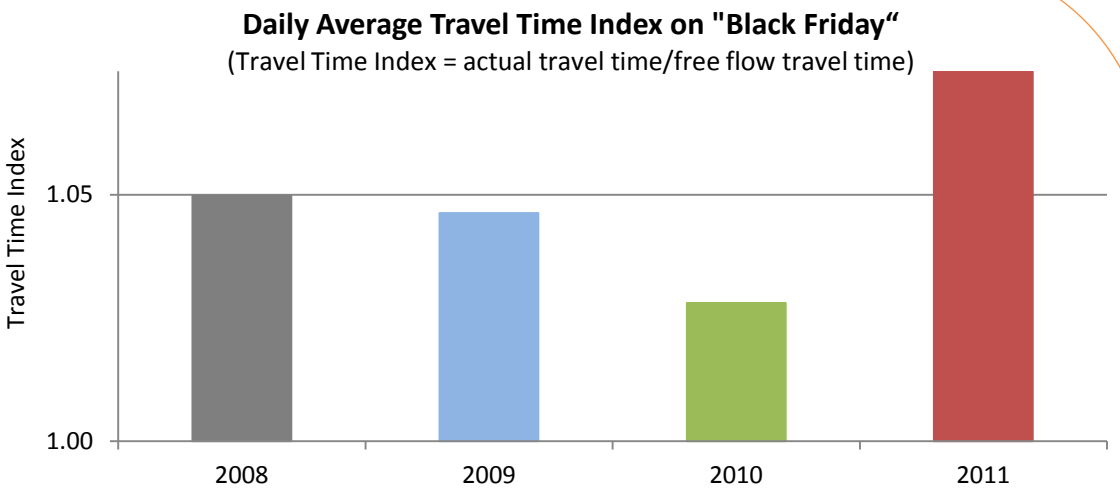
Quarterly Spotlight: Traffic on "Black Friday"

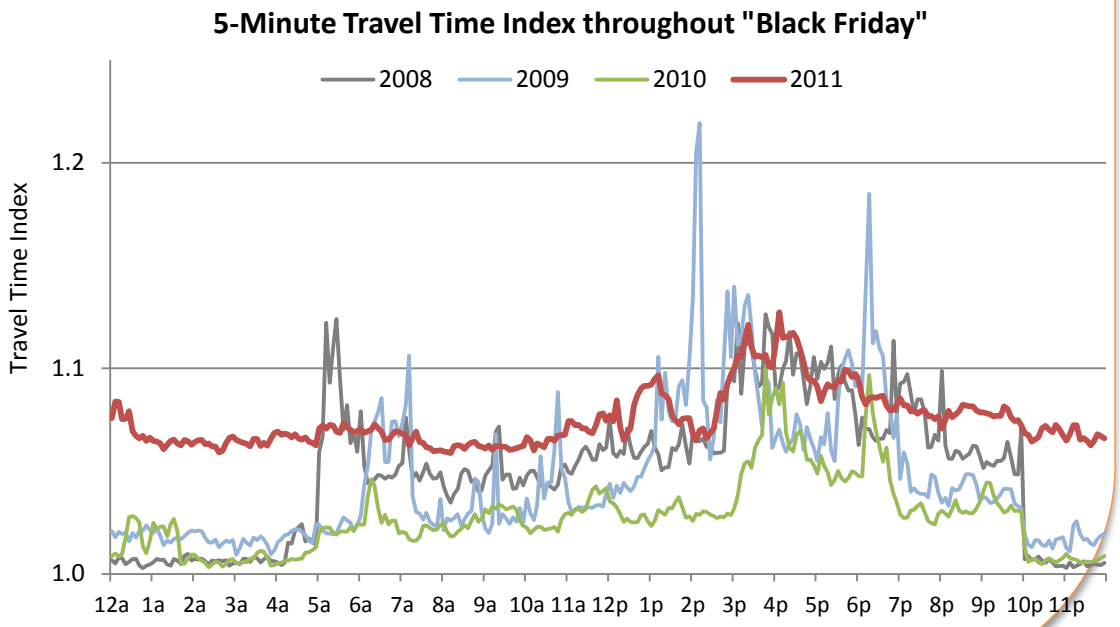
November 25, 2011, the past Black Friday, showed continued evidence of being one of the biggest shopping days of the year, although it remained a work day for many.

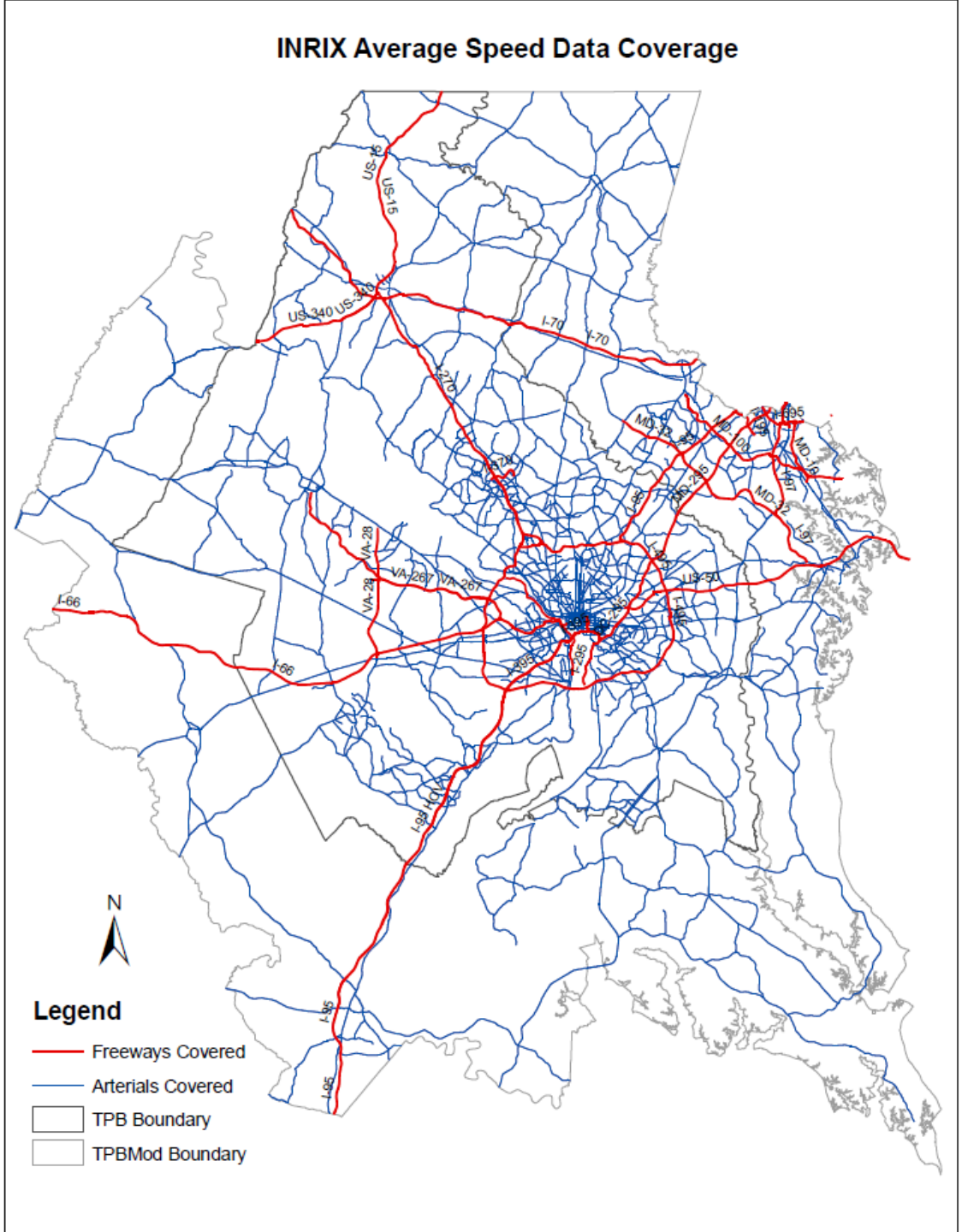
As the National Retail Federation recorded the highest Thanksgiving weekend sales since 2008, this region also experienced the heaviest daily average traffic (upper right chart).

Looked closely, the traffic pattern throughout the past Black Friday also changed significantly from previous years (lower right chart):

- Overnight traffic was much higher than previous years, perhaps because many retailers kicked off the Black Friday sales before or at midnight.
- Traffic levels were generally higher throughout the day.
- Traffic was more evenly spread throughout the day, in comparison to pronounced peaks and valleys observed in years past.






INRIX Average Speed Data Coverage
US-15
US-340
I-70
I-270
MD-355
MD-97
MD-28
MD-586
MD-355
MD-97
VA-28
VA-267
I-66
I-495
I-95
I-395
US-50
I-95 HOV
N
Legend
Freeways Covered
Arterials Covered
TPB Boundary
TPBMod Boundary

5.B. Congestion Monitoring and Analysis

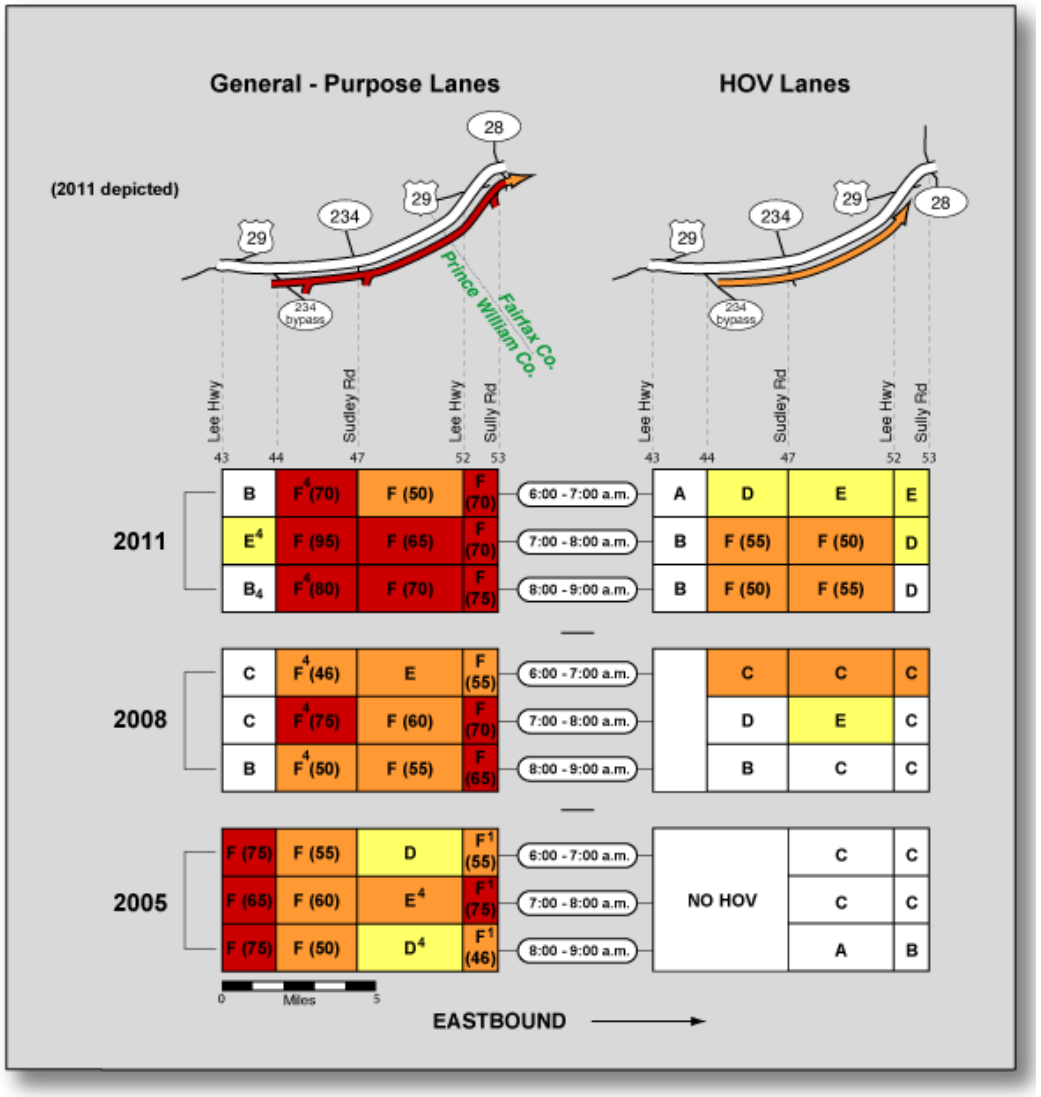
- Summary:
  - Supply data for the Congestion Management Process (CMP) and Models Development

- Highlights:
  - Analyze and support new performance measurement requirements of MAP-21
  - Triennial aerial survey of the region's freeways complements other data sources and provides a valuable photographic record
  - Detailed data analysis in support of CMP on freeways and arterials

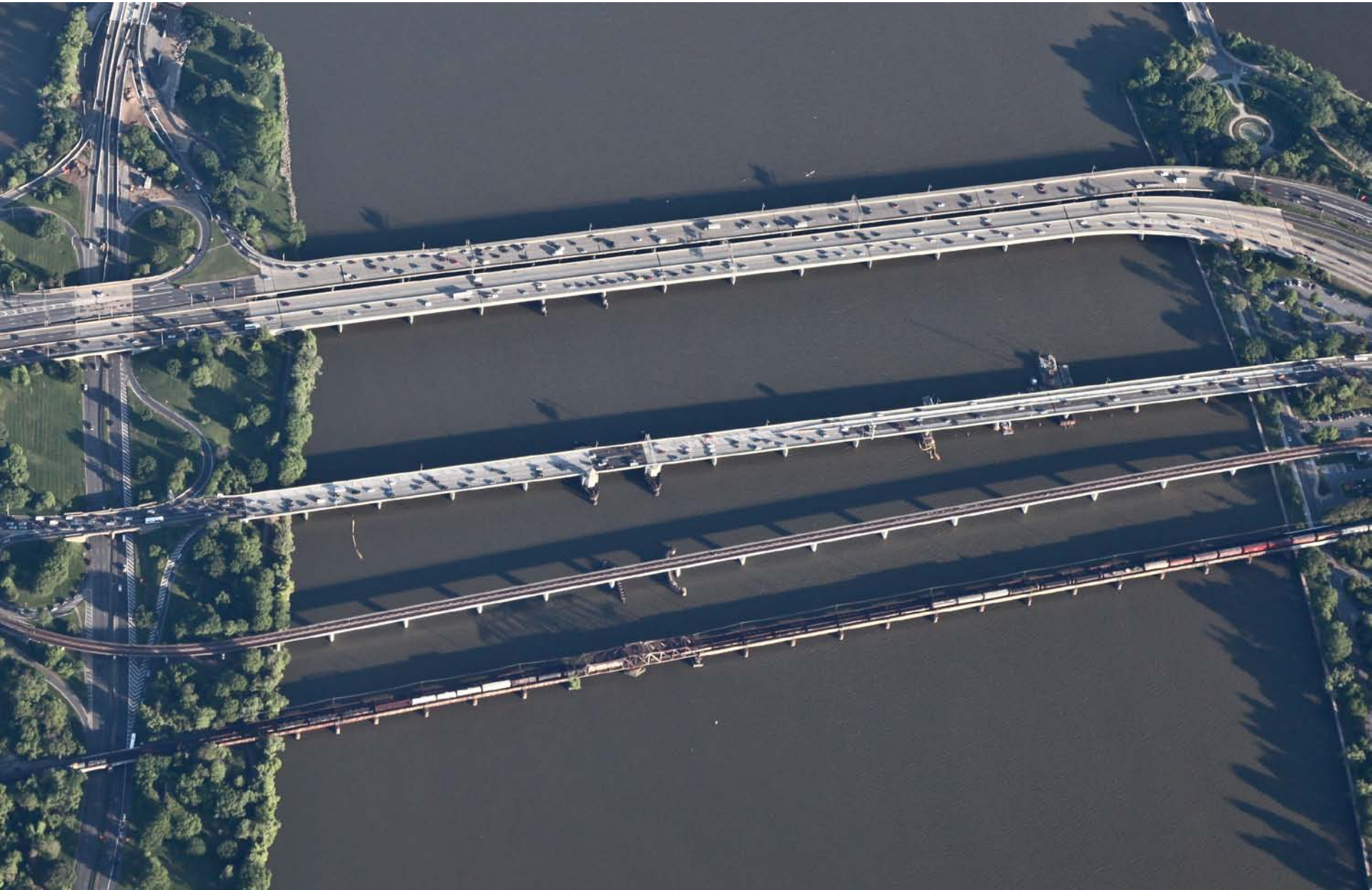
- New/changed:
  - Aerial survey in 2014, last undertaken in FY2011

- RBS Tie-In:
  - MAP-21 performance measurement considerations

Congestion Monitoring and Analysis Highlight: Aerial Photography-Based Analysis (I-66 Example)



Aerial Photography of Freeways

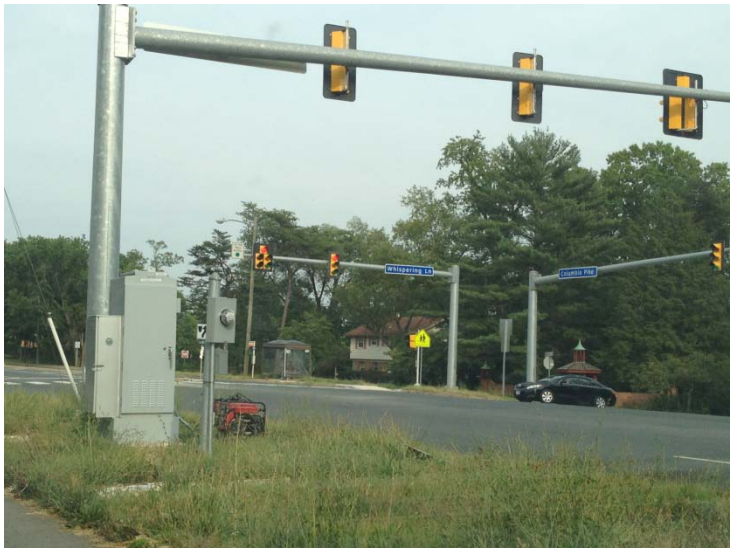


2.B. Management, Operations and ITS (MOITS) Planning

- Summary:
  - Integrated strategies to optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, crossjurisdictional systems, services, and projects designed to preserve capacity and improve security, safety, and reliability of the transportation system (MAP-21 definition)
- Highlights:
  - Regional ITS Architecture – www.mwcog.org/itsarch
  - Traffic signals
  - Long-range planning advice to MATOC Program
- New/changed:
  - Enhanced focus on supporting MAP-21 systems reliability performance measurement
- RBS Tie-ins:
  - Multi-modal transportation operations
  - Transit in Regional ITS Architecture: operations information sharing

MOITS Highlight: Traffic Signals

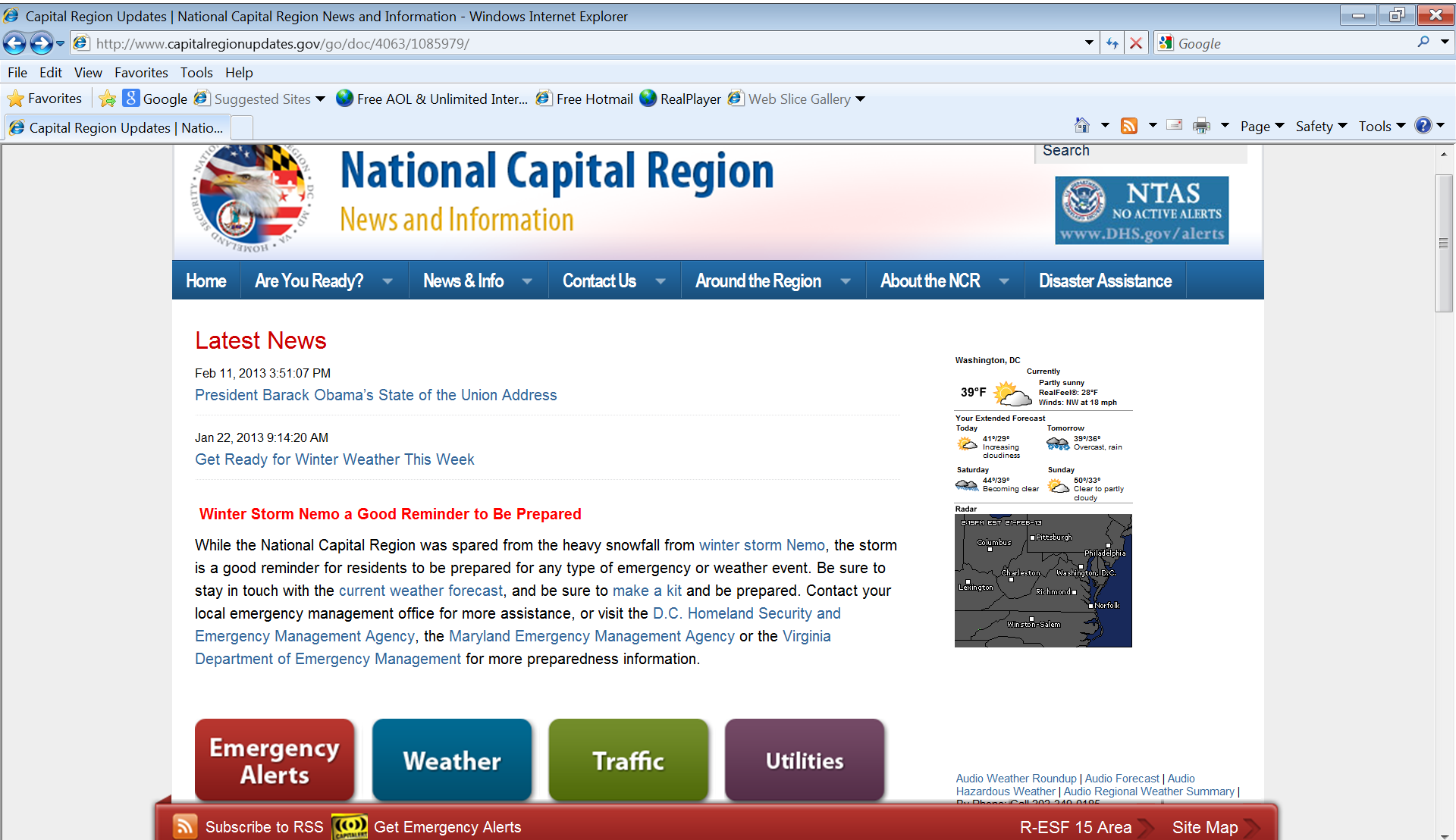
- Surveys on power back-up systems for signals
  - Interest from COG Incident Management and Response (IMR) Steering Committee after January 26, 2011 snow/ice storm, as well as the June 29, 2012 Derecho storm
  - Battery-based (instant-on, but limited duration), or generator-ready (must be deployed, but can be refueled indefinitely)
  - TPB staff surveys as of 12/31/11, 6/30/12, and (upcoming) 12/31/12
- Surveys on traffic signal timing/optimization
  - Stemming from 2003 Transportation Emissions Reduction Measure (TERM)
  - January 2013 request by TPB for an update, now underway
- Transit signal prioritization
  - Recent discussions within the TIGER-funded Integrated Regional Bus Priority Project meetings



2.C. Transportation Emergency Preparedness Planning

- Summary:
  - UPWP contribution toward transportation sector's role in overall regional emergency preparedness planning
- Highlights:
  - Transportation Regional Emergency Support Function (RESF), one of 16 such functions
  - Transportation participation in the Urban Area Security Initiative (UASI) and other U.S. Department of Homeland Security-driven activities
- New/changed:
  - Benefiting from strengthened MATOC Program and RITIS
  - Emergency Management Agency-related Regional Incident Coordination (RIC) Program
- RBS Tie-In:
  - WMATA, MTA, and other transit agency participation on the RESF-1 Committee
    - Current Chair: Earl Lewis, Maryland MTA

Transportation Emergency Preparedness Highlight: Virtual Joint Information Center (VJIC)



2.I. MATOC Program Planning

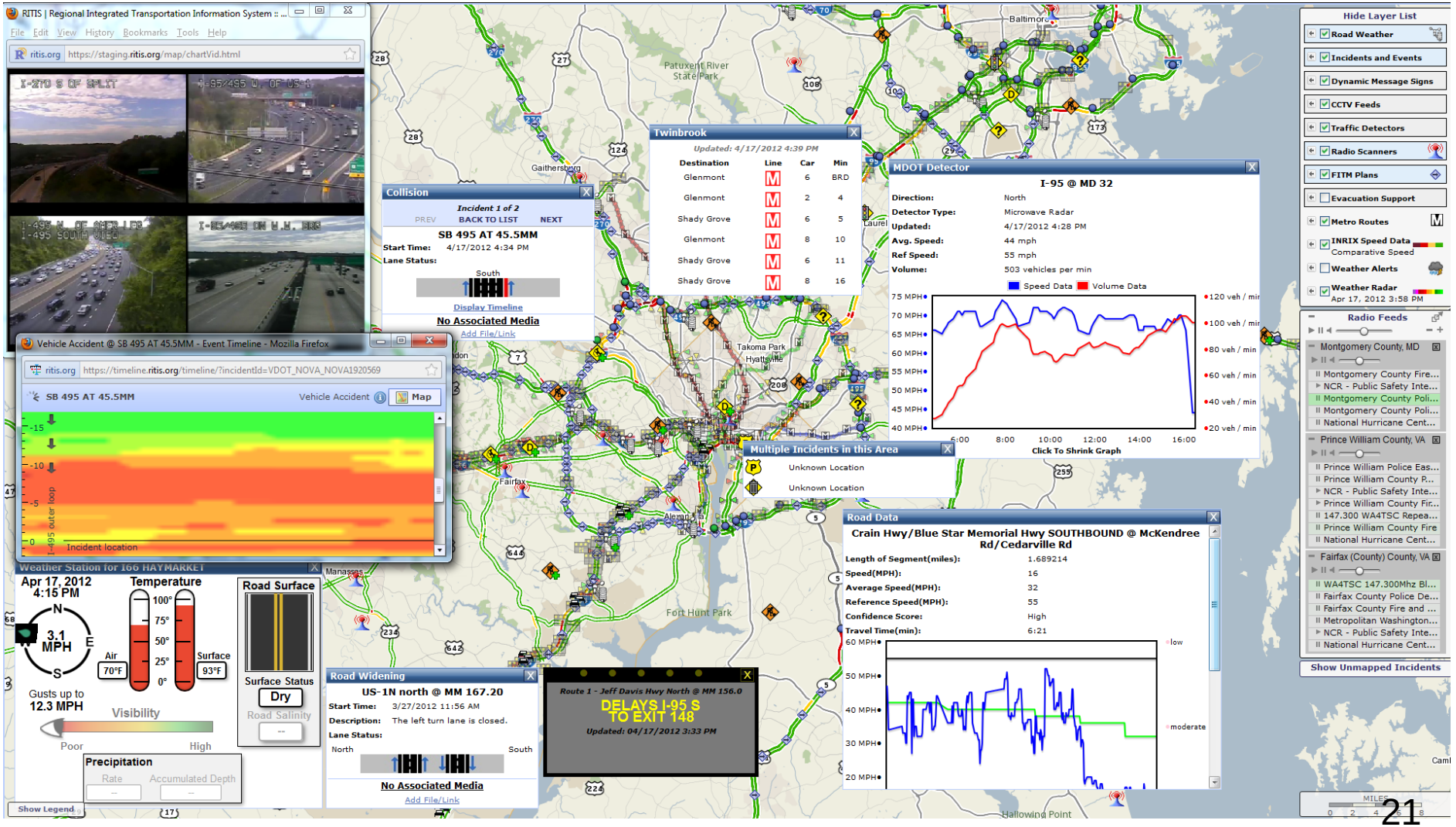
- Summary:
  - TPB planning support for the MATOC Program (separate from state DOT MATOC operational support), for MATOC role in regional operations coordination and information sharing

- Highlights:
  - Coordination with Regional Integrated Transportation Information System (RITIS)
  - Coordination with MATOC operations staff, and MATOC committees on roadways, transit, severe weather, and information systems
  - TPB participation on MATOC Steering Committee

- New/changed:
  - Advising continuous improvement to systems and processes

- RBS Tie-In:
  - WMATA membership on MATOC Steering Committee
  - Formerly ad hoc emergency Transit Task Force now under the MATOC umbrella (since 2011); Chair Eric Marx of PRTC; participation by WMATA and local bus agencies

MATOC Highlight: RITIS

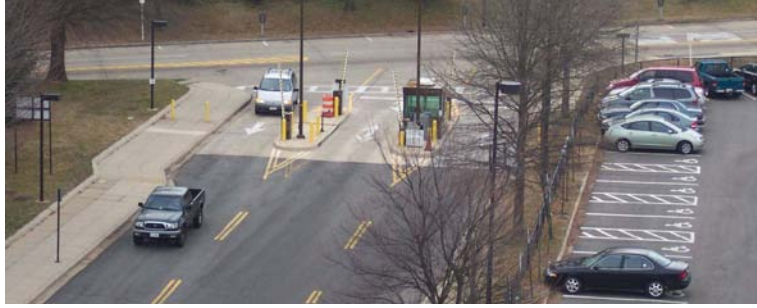


Emphasis Areas Identified in the MOITS Strategic Plan (2010)

- Systems engineering-based topics in the MOITS purview
  - ITS Data Warehouse
  - Multi-modal Coordination
  - Transit Signal Priority
  - Interactive Traveler Information
  - Transportation Operations Data Sharing
  - HOV Lane Management
  - Regional Traffic Management
  - Regional Parking Management
  - Maintenance and Construction Activity Coordination

- Other topics addressed in venues/committees that convene the necessary stakeholders, in coordination with MOITS

Strategic Plan
Proposed Projects/Efforts



1. Sustain MATOC/RITIS
2. Upgrade RITIS regional ITS data warehouse capabilities
3. Enhance RITIS data sharing capabilities
4. Support 3rd party development of trip planning “apps”
5. Deploy integrated corridor management technologies (pilot)
6. Deploy park-and-ride parking availability information (pilot)
7. Develop special event traffic management plans
8. Develop a regional managed lane facilities (HOV, HOT, ETL) coordination process (e.g. annual summit meetings)
9. Develop a venue and process for coordinating maintenance and construction schedules (e.g., semi-annual meetings)
10. Develop a venue and process for interjurisdictional signal timing coordination

Outlook

- We are fortunate to have transportation agencies in our region that are supportive of operations coordination efforts
- Progress with coordination with agencies outside transportation (e.g. public safety, emergency management)
- Challenge of funding sources/ongoing funding for regional multi-agency operations projects
- MAP-21 emphasis on “Regional Transportation Systems Management and Operations (RTSMO)”

Questions/Discussion