ITEM 12- Information
March 20, 2013

Update on the Metropolitan Area Transportation Operations Coordination (MATOC) Program

Staff Recommendation:	Receive briefing on selected slides (22-30) from the attached PowerPoint presentation on the key role MATOC has in the region's transportation operations, including actions taken during the Presidential Inauguration and Super Storm Sandy, and its associated "data fusion engine", the Regional Integrated Transportation Information System (RITIS).
Issues:	None
Background:	MATOC is a joint program of the District of Columbia Department of Transportation (DDOT), the Maryland Department of Transportation and State Highway Administration (MDOT/SHA), the Virginia Department of Transportation (VDOT), and the Washington Metropolitan Area Transit Authority (WMATA) to promote real-time interagency information sharing and coordination.

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Update on the Metropolitan Area Transportation Operations Coordination (MATOC) Program

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Item #12

Transportation Planning Board

March 20, 2013

"Working together to reduce incident-related travel delays through improved coordination, cooperation, and information-sharing."

Background Slides

"Working together to reduce incident-related travel delays through improved coordination, cooperation, and information-sharing."

Overview of Slides

- Background Slides

    - Origins and history of MATOC, leading up to its current mission, structure, budget, and operations activities as specific in its annual work plan (Slides 4 – 6)

    - Details on MATOC's regular and special operations, focusing on MATOC's regional situational awareness mission and notifications (Slides 7 – 12)

    - Transit and other participating agencies (Slides 13 – 14)

    - RITIS – the Regional Integrated Transportation Information System – MATOC's data engine (Slides 15 – 16)

    - MATOC and the public (Slides 17 – 20)

    - The benefits of MATOC (Slide 21)

- Meeting Presentation Slides

    - MATOC status report/highlights (Slides 22 – 24)

    - MATOC operations during events (Slides 25 – 27)

    - Outlook (Slides 28 – 30)

"Working together to reduce incident-related travel delays through improved coordination, cooperation, and information-sharing."

Origins of MATOC

- Stakeholders reacted to the Washington area's challenges of transportation coordination in the aftermath of the 9/11 attacks, as well as other noted events
    - Woodrow Wilson Bridge Jumper (November 5, 1998)
    - "Tractor Man" (March 17-19, 2003)
    - Metro Bomb Threat near Stadium-Armory (December 12, 2003)

- Ad hoc committees studied the issue; tabletop exercises were conducted to probe potential solutions (2001-2005)
    - It was observed that if there were a dedicated staff to handle external ripple effects, it would relieve this burden from those responding to the primary incident

- Federal SAFETEA-LU earmark for MATOC start-up (approx. $1.7M including match) obtained for the region through efforts of Congressman Moran (2005)

- DDOT funded a study by the USDOT Volpe Center that documented needs, drafted an organizational structure, and developed a concept of operations (2005-2006)

- TPB followed up with facilitating the set up of institutional arrangements (2006-2009)

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MATOC Mission and Operations

- A joint program between DDOT, MDOT/SHA , VDOT, & WMATA to promote inter-agency information sharing and coordination
  - Modeled after New York's TRANSCOM (www.xcm.org)
  - Sustained operations began in 2009

- MATOC's mission is to provide **situational awareness** of transportation operations in the National Capital Region (NCR)

- This is achieved through the **development and communication of timely and reliable information** that enables operating agencies and the traveling public to make appropriate decisions

- MATOC develops and implements the **tools and processes** needed to facilitate coordinated operating agency responses during incidents

- MATOC is not set up to be command and control, it is **advisory in nature** and serves as a decision support function

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Budget and Activities

- **Annual Budget** of $1.2M now funded by DDOT, MDOT/SHA, and VDOT
  - Full funding received for FY12 & FY13
  - Supports 4 Core Program Elements – 1) Operations, 2) RITIS O&M, 3) RITIS Enhancements, 4) Special Studies
- **MATOC Steering Committee**
  - The governing body of MATOC comprising senior transportation operations officials from DDOT, MDOT/SHA, VDOT, and WMATA, with MWCOG TPB transportation director as an ex-officio member
- **Advisory Subcommittees**
  - Roadway Operations Subcommittee plus Transit Task Force
  - Information Systems Subcommittee
  - Severe Weather Working Group
- **MATOC Operations Center and Personnel**

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MATOC Operations
Greenbelt, MD

Hours of Operation
 - Monday-Friday
     - 4:30am-8:00pm
 - 24/7 Operations on an on-call basis
 - RIC Program Coordination
     - Remote Reporting from DC HSEMA (weekly)

Staff
 - 2 Operators, 1 Analyst, 1 Facilitator

Monitor
 - RITIS, CapWIN, WebEOC, VJIC, Public Safety & Media Scanners, Regional/Statewide Alerts, Commuter Bus & Rail Operations, Weather, Social Media

Incident Criteria for MATOC Involvement
 - Interstates and major arterials within the NCR
 - 50% closure, >30 minutes, >4 mile queue

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Input

Traffic Cameras

Media Broadcasts

Scanners
(Public Safety / Media /
Agency/Traffic Spotters)

Incoming Messaging
Feeds
 (Agency / Media /
 Social Media)

Input → *Fusion*

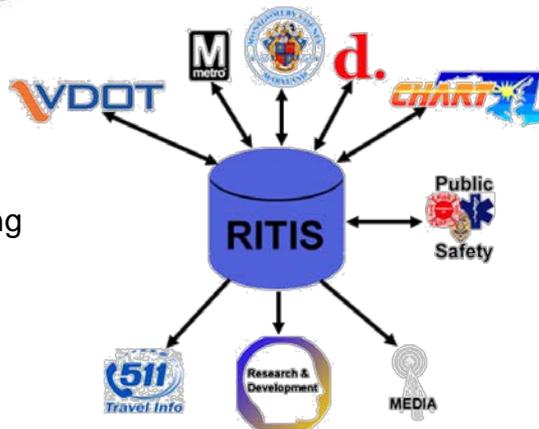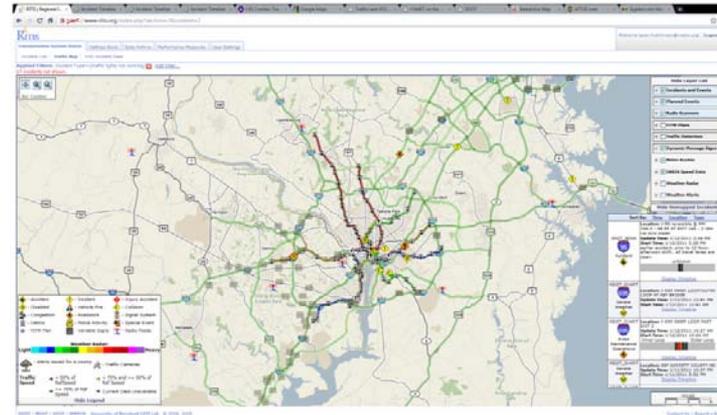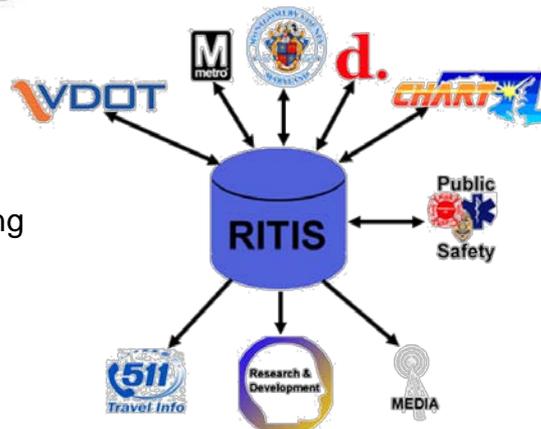Traffic Cameras

Media Broadcasts

RITIS - Regional Integrated Transportation Information System

Scanners
(Public Safety / Media /
Agency/Traffic Spotters)

Incoming Messaging
Feeds
(Agency / Media /
Social Media)

Input → Fusion

Traffic Cameras

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Scanners
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(Agency / Media /
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MATOC Staff Monitoring

Input → *Fusion* → *Notifications*

Traffic Cameras

Media Broadcasts

Scanners
(Public Safety / Media /
Agency/Traffic Spotters)

Incoming Messaging
Feeds
(Agency / Media /
Social Media)

RITIS - Regional Integrated Transportation
Information System

MATOC Staff
Monitoring
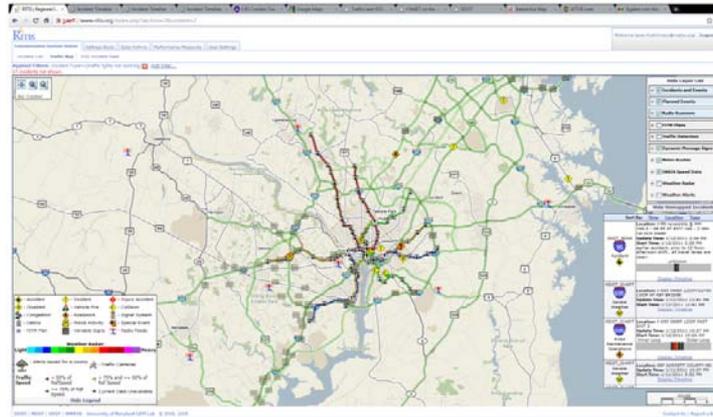
MATOC SITUATIONAL
AWARENESS ALERT:
I-95 Northbound, North
of Exit 158, Prince
William County, VA
Multi-Vehicle Accident
blocks all travel
lanes, traffic is
getting by on the left
shoulder. Emergency
crews are on scene.
Delays are
approximately 1 mile
and growing.
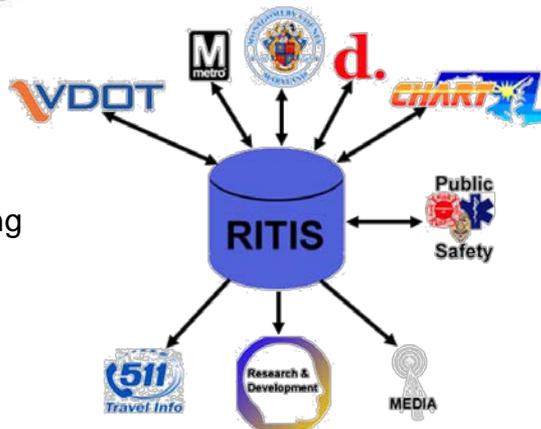
MATOC Interagency Notifications

MATOC Alert   MATOC Travel Advisory   MATOC Situation Report   MATOC Severe Weather Notice

MATOC Alerts: Day-to-day incidents, "pay attention", includes RITIS incident timeline when available. *@MATOC*

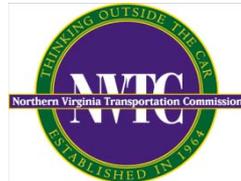**MATOC Travel Advisory:** Upcoming special events, scheduled roadwork, press releases, etc.

MATOC Situation Report: Multiple incidents, region wide weather events, special/planned/unplanned events, etc.

MATOC Severe Weather Notice: Coordination of mobilization plans, convene MATOC Weather Call

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Many Participating Agencies

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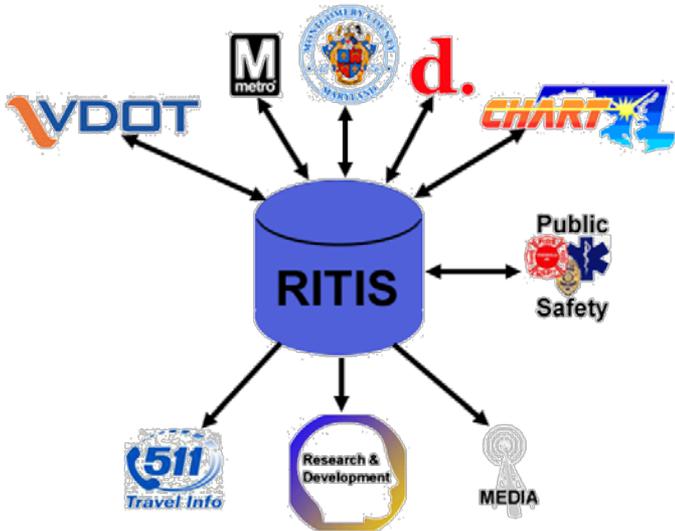
Spotlight: MATOC and Transit

- MATOC has enhanced its interactions with transit agencies
  - Now advised by the MATOC Operations Subcommittee Transit Task Force
    - Serves as a forum for discussing service coordination issues and improving communication – both real-time and in advance of known specific events and advises the MATOC Steering Committee on transit operations topic areas and needed/desired improvements
  - MATOC staff are proactive on notifying transit agencies about traffic incidents that may affect their bus operations
  - Extensive outreach and RITIS training

- Currently incorporating available feeds of transit disruption information/emergency alerts into RITIS
  - Dependent upon this information being available from the source transit agencies

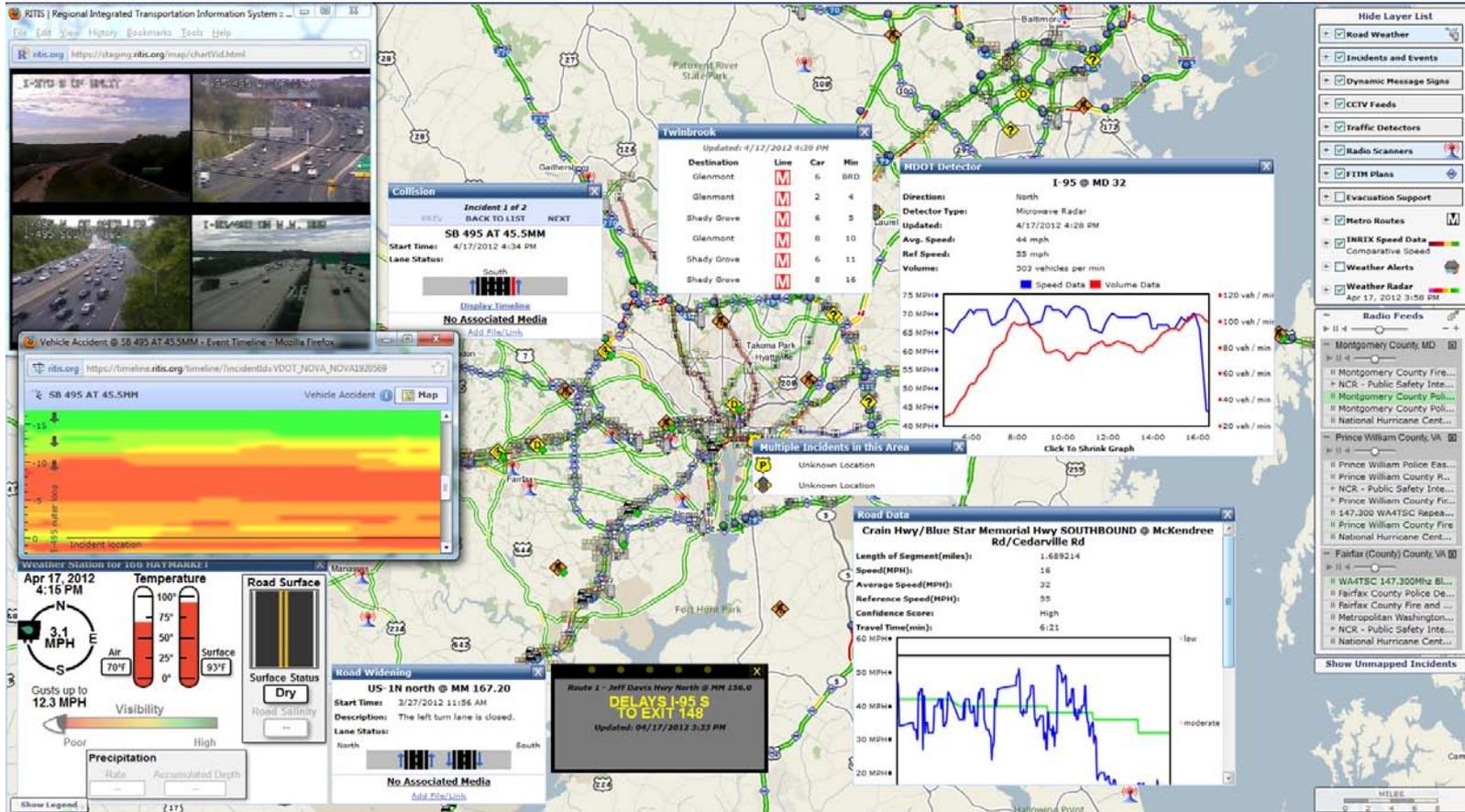- Actively working to incorporate other transit information/ feeds (still in prototype stage)

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RITIS – Data Fusion Engine for MATOC

RITIS = Regional Integrated Transportation Information System

- Amalgamated automated data from many sources
- Fuse together into share-able formats
- Share with agencies, media, and the public

Major Uses of RITIS

- The major information source for MATOC staff as they undertake their regional coordination role
- Data shared back and integrated into agency systems
- Used by non-transportation partners in public safety, emergency management, military
- Data archives for analysis
- Publicly available information provided on www.MATOC.org

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RITIS Website
(with additional layers)

"Working together to reduce incident-related travel delays through improved coordination, cooperation, and information-sharing."

MATOC and the Public

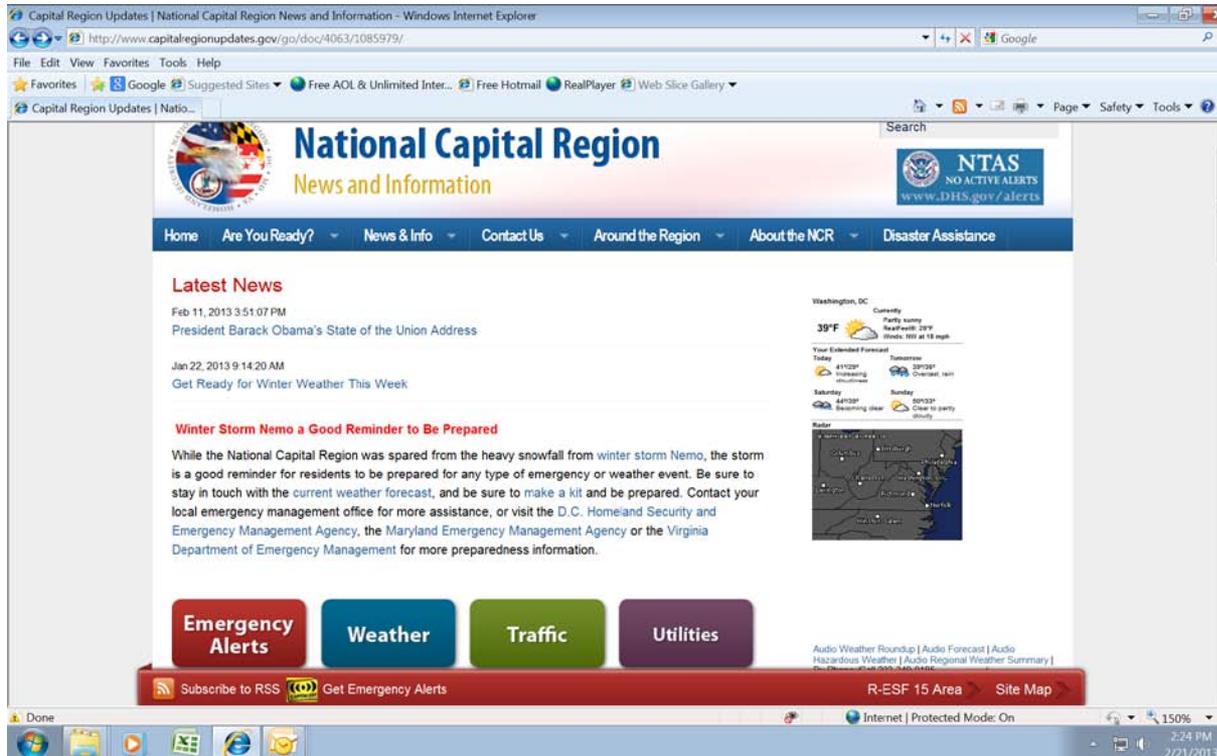- Post-9/11 question: how to inform the public ahead of time about major situations that will affect their travel (e.g., avoid traffic jams around a public safety incident)

- Today: MATOC pursues a "wholesaler" role for information sharing:
  - Developing and sharing correct, timely information among agencies, utilizing traffic information from private companies (e.g. INRIX) and other public and private sources

- Earlier envisioned "retail" role has evolved over the years in light of the many ways the public now gets information:
  - Rise of private sector systems: in-vehicle navigation devices (nationwide systems)
  - Rise of social media: Twitter (@MATOC); Waze (private sector crowdsourcing traffic app)
  - MATOC, agency/jurisdictional, and other public agency systems:
    - MD 511 – www.md511.org   – VA 511 – www.511virginia.org
    - WMATA (includes regional transit trip planner) – www.wmata.com
    - MATOC – www.matoc.org (Traveler Info Tab)
    - Transportation included in regional security website www.capitalregionupdates.gov

- **Goal: One Message, Many Voices**

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MATOC Traffic View
(Public Version of RITIS)
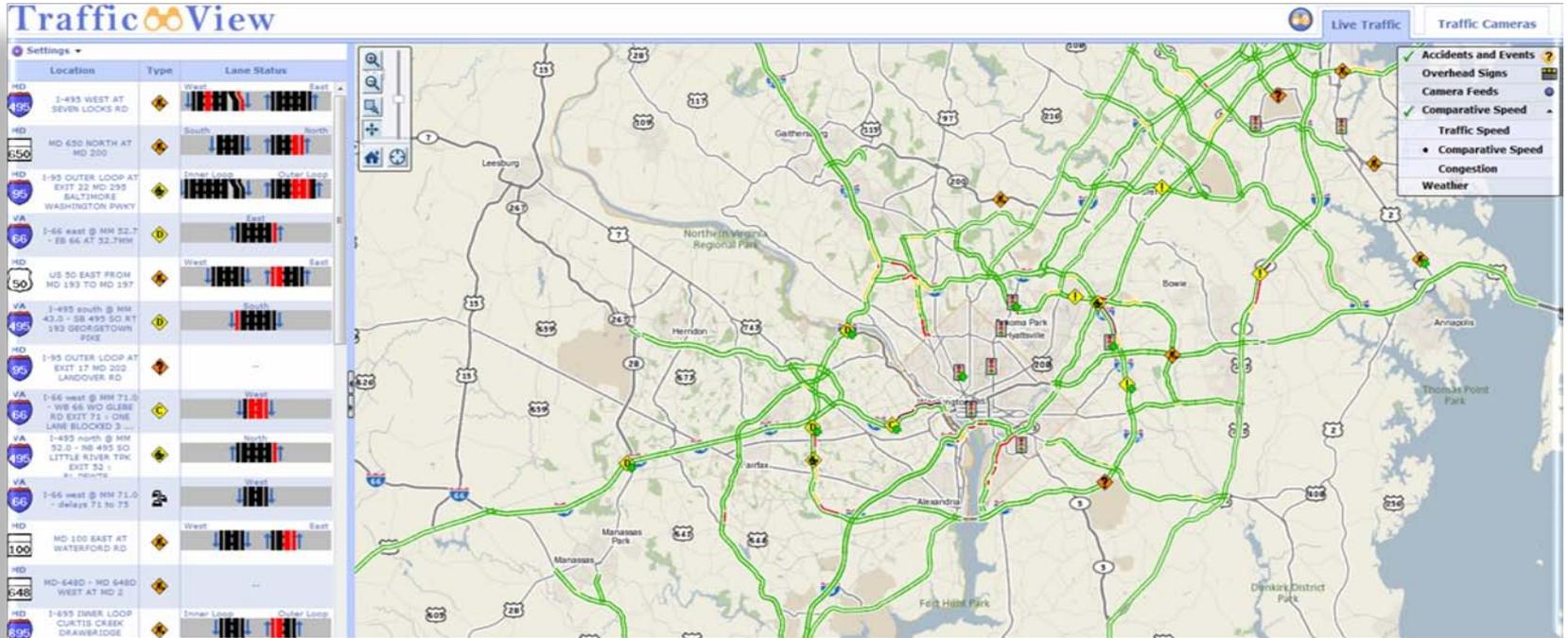
Go to **www.matoc.org** and click on the **"Traveler Info"** tab

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MATOC and RITIS Supply Information to
www.CapitalRegionUpdates.gov

- Emergency information website established under regional Homeland Security programs

- Envisioned as a one-stop source for multi-agency emergency information

- Automated data feeds taken both from transportation agency websites and from RITIS

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MATOC and Twitter

- Twitter is a social media service that enables its users to send and read text-based messages of up to 140 characters, known as "tweets".

- Many public agencies, including public safety and transportation agencies, now use Twitter to issue short but immediate messages, often public notifications about an incident or service disruption

- MATOC benefits greatly from receiving information via Twitter from a number of agencies, e.g., finding out that a fire department has closed a street for a building fire

- MATOC also issues information via Twitter to subscribers (@MATOC); many of these tweets end up being re-tweeted by other agencies or media outlets

- A great benefit is that so many members of the public are already on Twitter for other reasons – no need to get them to tune in to another site or device

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The Benefits of MATOC

- MATOC **monitors** vehicle crashes, major construction activities on major highways or arterials, major disruptions to transit service, severe weather events, and major planned special events

- The estimated annual benefits of direct MATOC action are **$12.9 million in travel time savings**, not including the savings from secondary incident reduction

- With an annual operating cost of $1.2 million, including support for RITIS operations and enhancements, **MATOC has a benefit-to-cost ratio of 10:1**
  - Results of a benefit-cost study commissioned by the MATOC Steering Committee

Meeting Presentation Slides

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MATOC Program Status Report Highlights

- Annual Budget of $1.2M now funded by DDOT, MDOT/SHA, and VDOT
  - Full funding received for FY12 & FY13; preliminary indications same for FY14
  - Supports 4 Core Program Elements – 1) Operations, 2) RITIS O&M, 3) RITIS Enhancements, 4) Special Studies

- MATOC staff successfully coordinating transportation operations with a wide variety of agencies and staffs around the region
  - The RITIS data engine of MATOC is the region's main automated transportation information exchange – over 2,000 registered official users

- MATOC has seamlessly transitioned to 24/7 operations during events (e.g. Super Storm Sandy, Presidential Inauguration) on a number of occasions when this has become necessary
  - MATOC's snow/severe weather operating procedures and conference calls have been particularly successful

MATOC & RITIS Accomplishment Highlights Since Jan. 26, 2011 Snow Event

- MATOC
    - MATOC Alerts Twitter Feed
    - Roam Secure Network (RSAN)
    - RICCS Paging Capability
    - Strengthened Relationships
        - E.g., EM, NPS, USPP, Transit, RICP
    - Severe Weather Coord. Group
    - MATOC Website with Traveler Information
    - Expanded RITIS Training

- RITIS (described on Slide 15)
    - Significant Increase in Usage
        - 2,000+ Users
    - Addition of CCTV Capabilities
    - Expansion of Probe Data Coverage
    - Addition of Evacuation Layers
    - Addition of Transit System Data
    - Expanded Weather Data
    - Personalized Alerts
    - Points of Interest Function

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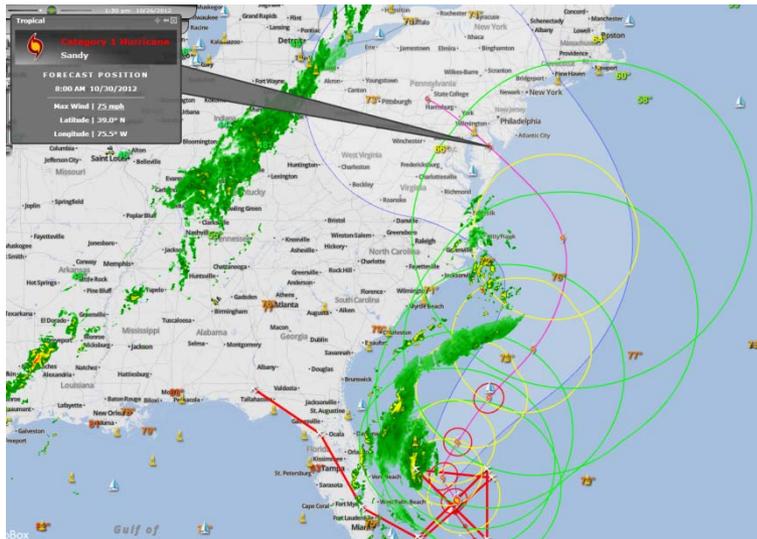# Special MATOC Operations During Severe Weather Events

Pre-event

- Monitor weather forecasts and DOT mobilization plans
- Consult with MATOC Severe Weather Coordination Work Group
- Participate in and monitor regional conference calls (MWCOG, DOTs, Transit, etc.)
- Ramp up to 24/7 Operations 3-4 hours prior to the event entering NCR. Two 2-person teams filling Operations & Support roles.

During Event

- Monitor core systems as well as other storm related resources; VDOT Snow Map, Fairfax County Road Closure Map, Montgomery County Storm Map, etc.
- Hourly reporting of major transportation incidents, road closures, and changes in transit (bus & rail) service levels
- Consult with RITIS Support team as needed
- Return to Normal Operations & Reporting as recovery operations begin to wind down

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Hurricane Sandy
## October 29-31, 2012

MATOC Operations

- Began monitoring & tracking October 22
- Tested draft Severe Weather Coordination SOP
- Participated in and monitored regional conference calls
- Ramped up to 24/7 Operations on October 29
    - Two 2-person teams (Operations & Support)
    - Elevated reporting of major incidents, road closures, and transit service levels
- Enhanced Coverage: Mon(12am) to Wed(12am)

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- Began pre-event planning last summer
- Participated in and monitored pre-event meetings & exercises throughout event planning period
- Assembled a web page for transportation partners with Inaug. info/plans from agencies
- Ramped up to 24/7 Operations on Jan. 20 & 21
  - Two 2-person teams (Operations & Support)
  - Coverage at both MATOC offices and DC Homeland Security/Emergency Mgt. Agency
- Similar MATOC involvement in preparation and activities for Fourth of July events annually

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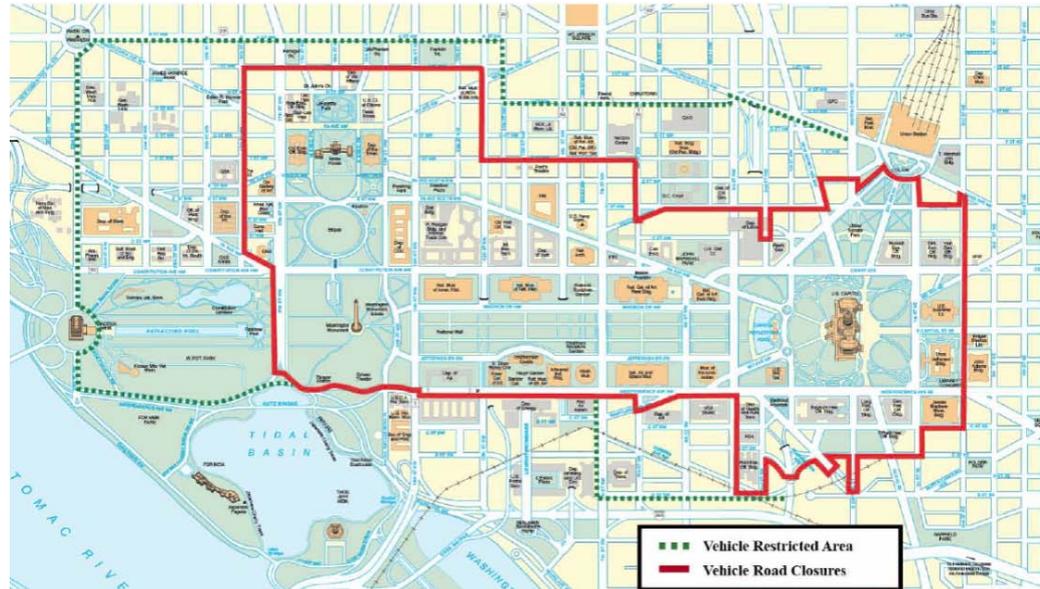
Current and Upcoming MATOC Activities and Initiatives

- Continued outreach/site visits to agencies by MATOC staff to meet with transportation and public safety agency operations personnel

    - Networking with stakeholders bolsters regional information sharing

    - Focus both on MATOC staff interactions and RITIS use

- New monthly web-based training seminars on use of RITIS

    - Sessions vary between introduction sessions for new users, and update sessions on new RITIS features for established users

- Regional construction coordination/scheduling study now beginning

    - Will study how the region's transportation agencies, in conjunction with MATOC, can better coordinate, schedule, and communicate lanes closures and service disruptions associated with planned construction activities and special events

- Continuous improvements/enhancements to MATOC operating procedures and to RITIS features

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Outlook

- MATOC operations staff benefits from observing the entire regional situational awareness picture, and "connecting the dots"

- Puts MATOC in a position of identifying actions/responses that would be helpful when incidents occur

- MATOC staff contacts and recommends actions to DOTs, transit agencies
  - Regarding ripple effects
  - Not involved in on-scene issues

- MATOC committees continue to be a successful forum for information exchange among the region's operations personnel, including on roadway operations, transit, snow/severe weather, and special events

- MATOC staff has successfully used the power of information to enhance regional transportation coordination and decision making

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Questions and Discussion