UPDATE ON THE METROPOLITAN AREA TRANSPORTATION OPERATIONS COORDINATION (MATOC) PROGRAM

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TPB Technical Committee December 1, 2017





MATOC Mission and Operations

- A joint operations program between DDOT, MDOT, VDOT, & WMATA to improve inter-agency information sharing and coordination
 - Focuses on DOT Operations and Traffic Incident Management
- MATOC's mission is to provide situational awareness of transportation operations in and around the National Capital Region (NCR)
- Develop tools and processes that enables operating agencies and the traveling public to make better decisions
 - The Regional Integrated Transportation Information System (RITIS) is a key tool
- MATOC is not command and control, it is advisory in nature and serves as a decision support function











History of MATOC: Background

- 1998 "Woodrow Wilson Bridge Jumper" incident calls attention to regional emergency transportation coordination issues
- 2000 State DOT discussions culminate in development of the CapWIN program (focusing on communications technology); federal earmarks for CapWIN development (USDOT 2000 & 2001; USDOJ 2002)
- 2001 9/11 attacks focus attention on regional coordination issues beyond those addressed by CapWIN; December 2001 fact-finding visit to metropolitan New York's TRANSCOM by delegation of officials from TPB and state DOTs
- 2003 "Tractor Man" incident on the National Mall (standoff causing multi-day traffic disruptions) renews calls for action on regional coordination











History of MATOC: Conceptualization

- 2001 2005 Ongoing discussions among TPB and DOTs, in conjunction with public safety committees, on how to improve regional emergency coordination; tabletop exercises to probe potential solutions; TPB staff director Ron Kirby in particular calls for establishing an NCR equivalent of TRANSCOM
- 2002 USDOT earmark supports establishment of Regional Integrated Transportation Information System (RITIS), the region's "data fusion engine" technology, developed and operated by UMD, and critical to the success of MATOC
- 2005 SAFETEA-LU funding (\$1.7 million) through Virginia Congressman Moran to establish a "Regional Transportation Coordination Program" (RTCP – later renamed MATOC)
- 2006 Concept of Operations developed with assistance from the USDOT Volpe Center through DDOT
- 2006 2009 TPB facilitates formation of MATOC











History of MATOC: Formation

- 2007 RTCP renamed "MATOC", formed as an independent entity of its "owners:" DDOT, MDOT, VDOT, WMATA; governing documents developed and signed: MOU, bylaws, funding agreement
- 2008 Funding and committee appointment logistics finalized; initial consultant support contract; election of officers; initial subcommittees formed; operations trial phase initiated
- 2009 Formal launch of start-up operations via consultant support
- 2011 End of original MATOC earmark funds; commitment by 3 state DOTs to provide funding for MATOC to continue; transfer of operational responsibilities from consultant to UMD Center for Advanced Transportation Technology (CATT)
- 2011 2018 Annual commitments by state DOTs supporting MATOC's \$1.2 million annual budget











History of MATOC: Activities

- 2008 MATOC Operations Subcommittee and Information Systems Subcommittee begin
- 2009 MATOC notification system (pages, emails) begins; outreach beyond original partners including National Park Service, local jurisdictions
- 2010 2012 MATOC duty desk operators and analyst positions created and filling, bringing MATOC to a staff of 4 (now 5)
- 2011 MATOC begins hosting formerly ad hoc Transit Task Force
- 2011 2012 Disruptive January 26, 2011 snow event inspires formation of MATOC Severe Weather Working Group, protocols
- 2015 First-ever MATOC Annual Regional Construction Zone Scheduling Coordination Workshop
- 2016 First-ever MATOC Regional Traffic Incident Management (TIM)
 Conference











MATOC Organization & Structure

- Funded by DDOT, MDOT/SHA, and VDOT
 - The MATOC Program is administered through the University of Maryland Center for Advanced Transportation Technology
- MATOC Steering Committee
 - The governing body of MATOC comprises senior transportation operations officials from DDOT, MDOT/SHA, VDOT, and WMATA, with MWCOG TPB transportation director as an ex-officio member
 - MATOC Information Systems Subcommittee
 - MATOC Operations Subcommittee
 - MATOC Transit Task Force
 - MATOC Severe Weather Coordination Working Group
 - MATOC Regional Construction Coordination Working Group
- MATOC Operations Center
- Website: <u>www.matoc.org</u>











MATOC Information Systems Subcommittee

The MATOC Information Systems Subcommittee:

- Develops regional information sharing tools to enable the timely and reliable sharing of information among agency transportation management systems
- Develops and establish automated communications links that will enable the public to receive timely and accurate information on the current condition of the transportation system in the region. These may include public websites and 511 telephone call-in systems, radio and TV media, various third party information providers, distant public agency systems and others
- Explores, prepares recommendations and implements solutions to technical issues associated with information gathering, sharing, and disseminating











MATOC Operations Subcommittee

MATOC Operations Subcommittee works to:

- Develop standard operating procedures that define agency and MATOC responsibilities for sharing information with each other and the public and coordinating response actions in the aftermath of events, incidents, and emergencies that affect the performance of the transportation system in the NCR
- Help define the functionality of regional information systems to meet the information sharing and response coordination needs of MATOC and agency operations staffs
- Identify staffing requirements and needs, including training needs; conduct training and operator exchange visits
- Building on existing plans, develop regionally coordinated transportation management plans that can be quickly implemented when an incident or emergency occurs on a critical transportation link in the region
- Conduct post-incident reviews aimed at identifying ways of improving information sharing tools, standard operating procedures, and operations staff performance











MATOC 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
- Advises the MATOC Steering Committee on transit operations topic areas and needed/desired improvements, plus inputs on enhancements to RITIS to serve transit provider needs
- Includes a wide range of the region's transit agencies
- Joined the MATOC family in 2011 after previously being an ad hoc independent group
- MATOC Operations includes a focus on how roadway conditions may impact transit operations











MATOC Operations College Park, MD



- Hours of Operation
 - Monday-Friday: 4:30am-8:00pm
 - After Hours & Weekends: On-Call
 - Able to ramp up to 24/7 operations
 - Staff: 5
- MATOC Staff monitor Regional Integrated Transportation Information System (RITIS), Public Safety & Media Scanners & Systems, Local-Regional-Statewide Alerts, Commuter Bus & Rail Operations, Weather, DOT mobilization plans, Social Media
- Serves as a transportation watch desk / information clearinghouse / resource desk for its stakeholders











MATOC MATOC's Situational Awareness Mission

<u>Input</u>

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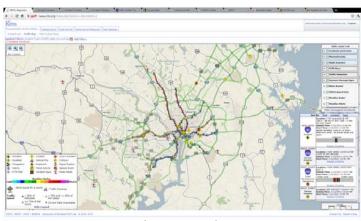
Media Broadcasts

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

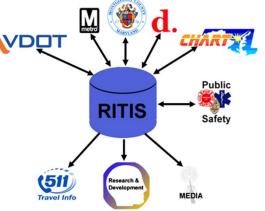


Incoming Messaging Feeds (Agency / Media / Social Media)

Fusion



RITIS - Regional Integrated Transportation Information System



MARYLAND DEPARTMENT

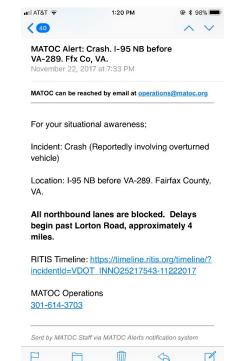
MATOC Staff Monitoring







Notifications





MATOC's Area of Interest



Routes monitored by MATOC

National Capital Region "+1"

- Coverage expands/contracts depending on several factors;
 - Time of Day / Season
 - Weather
 - Planned Events

Focus Areas

- Interstates and major arterials
 - Closure >50% lanes blocked
 - Incident Duration >30 minutes
 - Delay >4 miles
- Jurisdictional borders and river crossings
- Incidents or events that may impact multiple jurisdictions or transportation modes
- RITIS allows MATOC Staff to monitor the majority of this network











Operational Focus Areas

Day-To-Day Operations

- DDOT TMC, MDSHA (TOC-3, TOC-7), VDOT NoVA TOC, WMATA
- Weekday AM & PM Rush Hour
- "Reactive" in nature

Severe Weather Coordination

- Maintenance driven effort
- Relies on weather forecasts & DOT mobilization plans
- DC DPW/DDOT, MDSHA, VDOT, WMATA, NPS, MCDOT, PG DPW&T, OPM, NWS
- "Reactive & Leaning Forward" in nature

Planned Event Coordination

- Special Events and DOT Maintenance & Construction activities
- Identify conflicting concurrent events
- "Leaning Forward" in nature
- A work in progress











Regional Integrated Transportation Information System



- Developed at the University of Maryland's Center for Advanced Transportation Technology Laboratory (2006)
 - Compiles real-time (near real-time) traffic and transit data from agencies around the nation
 - Consolidates the data into a common format
 - Archives the data for performance measures and visual analytics
 - Enables the data to be shared with agencies, researchers, the media, and the public
 - Additional data sets welcomed
- Gives users a **common operating picture** of a region's transportation network
 - Puts MATOC staff in a position of identifying actions/responses that would be helpful when transportation incidents occur in the NCR
- MATOC Staff provide RITIS Training on behalf of the University of Maryland Center for Advanced Transportation Technology Lab (UMD CATT Lab)
 - Training focuses on the operational application of RITIS











Regional Integrated Transportation Information System









- MATOC's core system to monitor roadway conditions in and around the National Capital Region
- Limited to public sector agencies
- Approximately 8,000 RITIS users from around the nation representing various disciplines
- Gives users a common operating picture of a region's transportation network
- New for 2017: 911 CAD and Waze integration, more CCTV coverage, improved data visualizations
- RITIS Training Available
 - Monthly Webinars offered my MATOC Staff
 - www.matoc.org/training





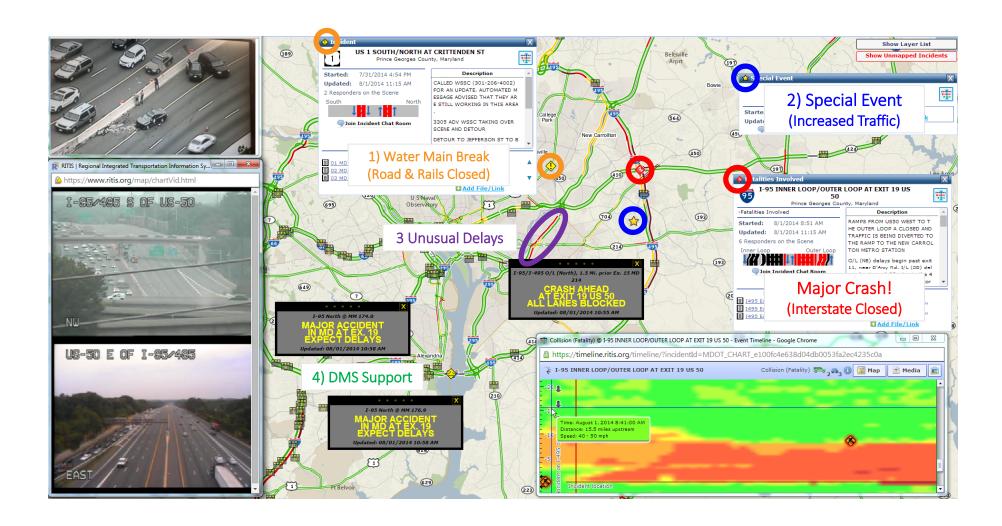






Connecting the DOTs









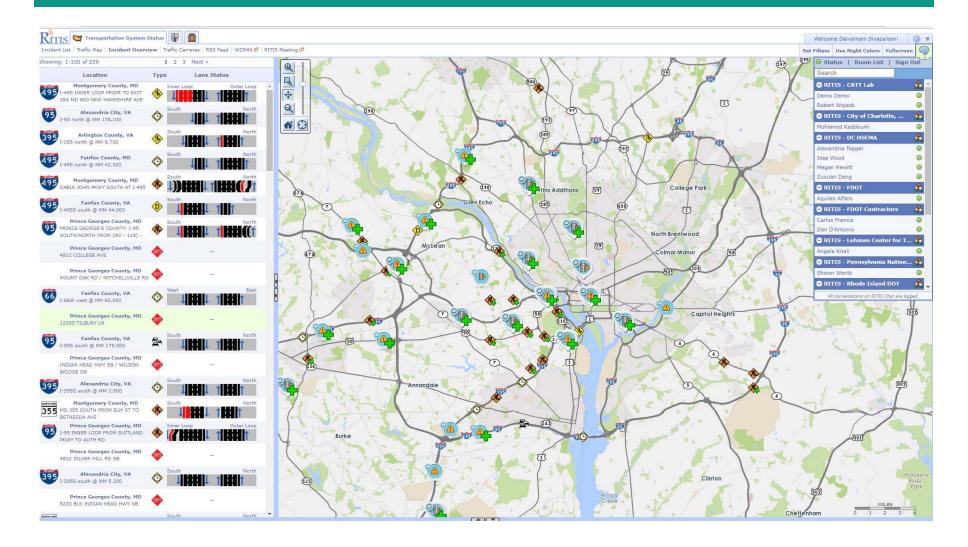






RITIS Real-Time Map and List









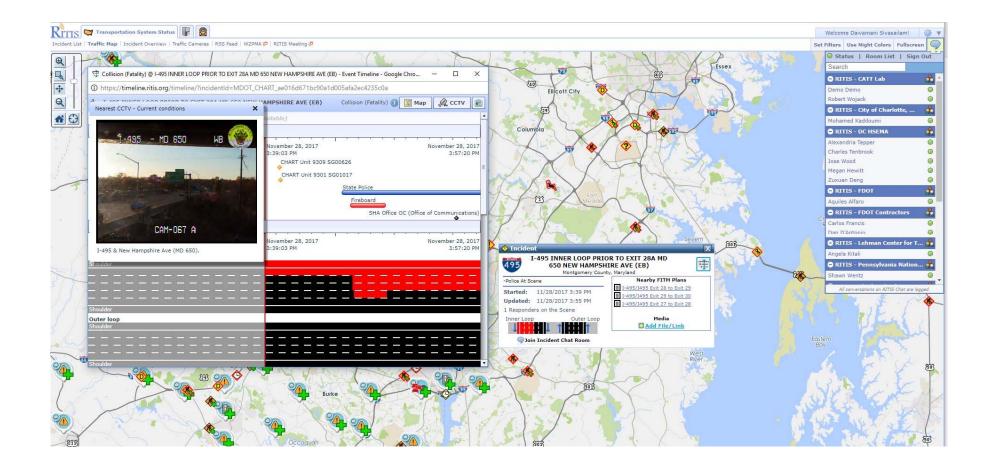






RITIS Event Timelines









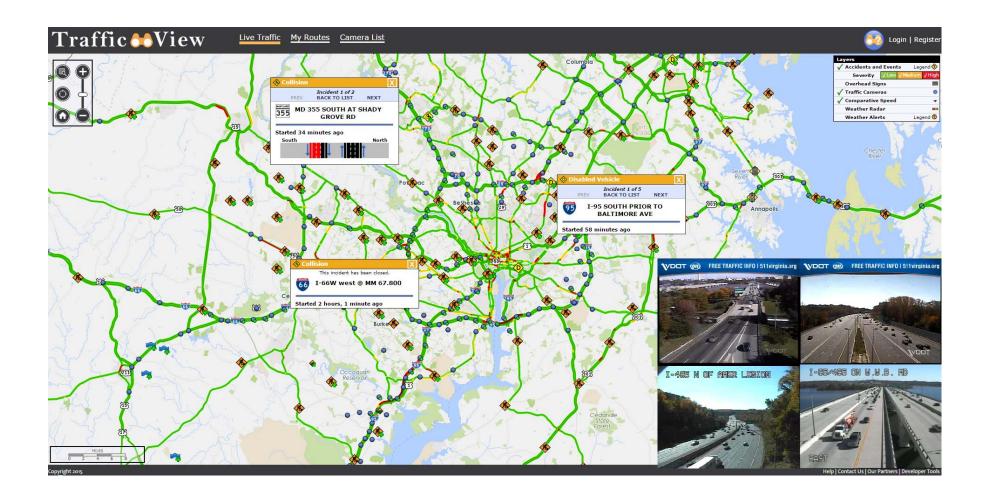






www.trafficview.org (Public Version of RITIS)









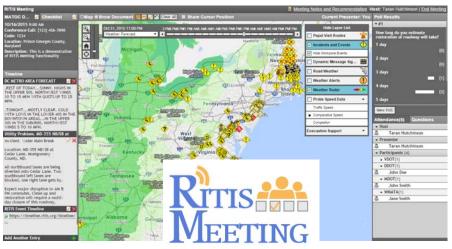






RITIS Meeting "Collaborative Decision Tool"









- Available to RITIS users
- **Simple** web meeting function that allows for:
 - Faster call/meeting management
 - Multiple-presenter functionality
 - Interactive mapping, share documents and images, drawing functions
 - Shared view of an event or incident
 - Document meeting minutes
 - Open and transparent decision-making (e.g., real-time polling)
 - Participants receive a PDF meeting summary at the end of the session
- Works on all internet browsers
 - No plugins required
 - Supports up to 300 participants per session











Update: New and Recent Activities

- Severe Weather Coordination Working Group
- Construction Zone Coordination Working Group
- Planned Event Coordination and Weekly MATOC Events Listings Calendar
- Coordination and Partnership with DC/FEMA "IC3"
- Traffic Incident Management (TIM) Coordination











Severe Weather Coordination Working Group

- Began 2012, after-action of January 2011 snow event
- Includes snow chiefs of state DOTs, with US Office of Personnel Management (OPM), National Weather Service, WMATA, National Park Service, some local DOTs
 - OPM and NWS have developed new tools and processes that enhance coordination
- Focuses on condition and readiness of transportation infrastructure before, during, after big weather events
- Provides opportunities to coordinate and formulate advice to OPM and "COG Snow Calls" regarding government personnel/closure decisions
- MATOC also conducts separate transit-specialized severe weather calls with the wider membership of the MATOC Transit Task Force
- "RITIS Meeting" software system provides quick documentation



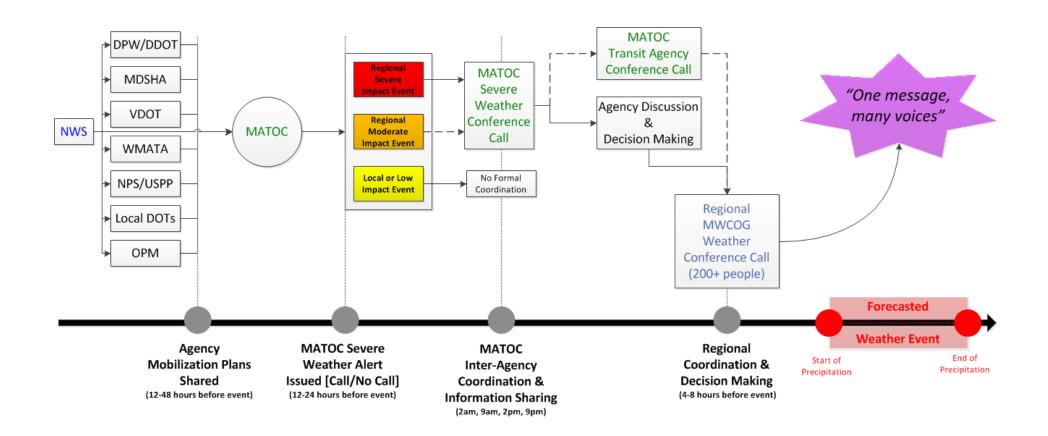








Severe Weather Coordination Process





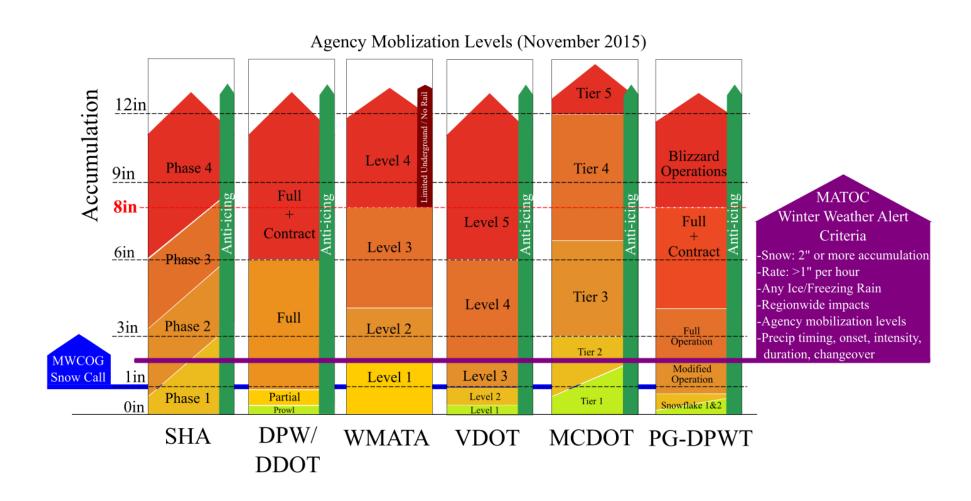








Severe Weather Coordination Agency Mobilizations Levels













Regional Construction Coordination Working Group

- Began 2015
- The MATOC Regional Construction Coordination Working Group works to:
 - Reduce potential for conflicting lane/road closures and special events
 - Schedule regular meetings for key personnel to discuss construction related lane closures and special events
 - Enhance public information resources
 - Share agency best practices (e.g. WZ lane closure permitting systems)



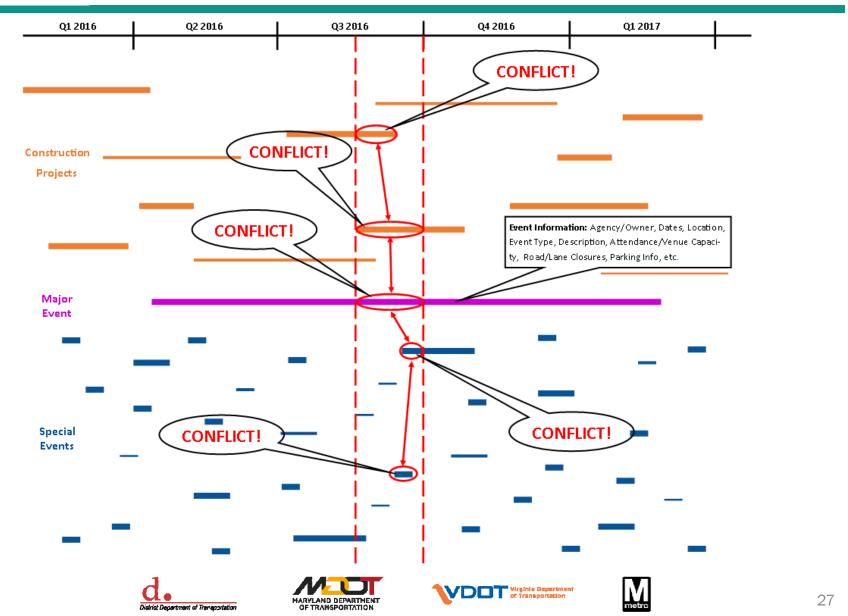






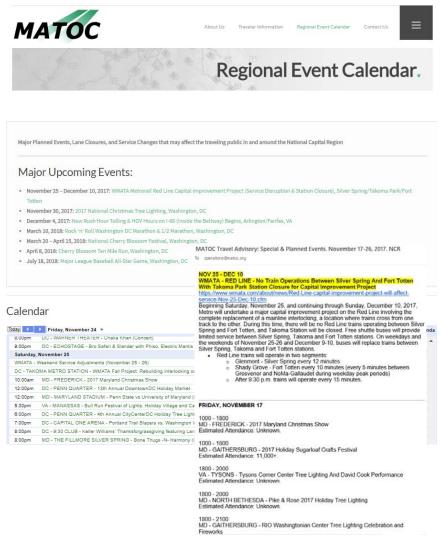


Planned Event Coordination Identifying Conflicting Future Planned Events





Planned Event Coordination



- MATOC tracks planned events in and around the National Capital Region to better inform its stakeholders of potential issues that may arise from an increase in demand on the regions transportation network
- MATOC issues a 10-day Travel
 Advisory at the end of each work
 week to advise its stakeholders of
 upcoming special, planned, and
 construction events that may impact
 the transportation network in the
 week ahead
- The MATOC Regional Event Calendar is updated continuously and is publically available











Regional Information Collection & Coordination Center (IC3)

- Began 2016
- IC3 is a regional "watch desk" partnership (separate from MATOC)
 managed by DCHSEMA and the FEMA Office of National Capital Region
 Coordination
- Monitors and provides regional agencies notifications/situational awareness on a variety of events, hazards, and other public safety issues (not just transportation)
- Actively coordinates with MATOC staff; synergies
- Both IC3 and MATOC can generate COG "RICCS" messages (Regional Incident Communication and Coordination System)
- IC3 operates 24/7, and provides coverage of transportation issues outside MATOC's operating hours (18/5)
 - But MATOC staff always has staff on call, and can stand up quickly 24/7 in emergencies, or with advance notice for special events











Traffic Incident Management (TIM) Coordination

- Traffic Incident Management (TIM) focuses on multi-disciplinary coordination at roadway incident scenes
 - Not originally in MATOC's regional scope of work, but opportunities arose for MATOC to assist member agencies in their TIM efforts
- Addressed by MATOC Operations Subcommittee
- April 2016 special event at UMD and the Maryland Fire and Rescue Institute focused on regional interagency awareness
 - Complemented TPB's November 2016 event
- Next planned MATOC TIM event in the April/May 2018 time frame, perhaps with an exercise focus
- TIM also is anticipated as a COG Board special focus area for 2018, in coordination with the MATOC Steering Committee











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
- RITIS is a key tool
- Long-term training and coordination activities are just as vital as the real-time notifications
- MATOC continues to evolve in an evolving world, now with IC3,
 Waze, other social media, big data, and enhanced member agency programs









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