I - 95 CORRIDOR COALITION

POTOMAC HIGHWAY OPERATIONS GROUP EXCHANGE

MDOT Traffic Operations Center

October 3, 2018

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

VDOT Virginia Department of Transportation

Welcome

9:30 am to 10:00 am	Networking & Continental Breakfast	All
10:00 am to 10:15 am	Welcome / Introductions	Scott Yinger, MDOT-SHA
10:15 am to 10:30 am	TIME Task Force Summary Update	Joey Sagal, MDOT-SHA
10:30 am to 11:30 am	Jurisdictional Updates	Virginia Maryland Washington DC
11:30 am to 12:00 pm	New, Automated Incident Management Dashboards	Greg Jordan, UMD CATT Lab
12:00 pm to 12:30 pm	Working Lunch	All
12:30 pm to 1:15 pm	Woodrow Wilson Bridge AAR Review Meeting Briefing	Taran Hutchison, MATOC
1:15 pm to 1:45 pm	Interoperability in Radio Communications	Taran Hutchison / Mike Wood Scott Yinger
1:45 pm to 2:00 pm	Wrap Up	Denise Markow, PE, I-95 Corridor Coalition

Introductions

Time Task Force Summary Update

Joey Sagal

Maryland DOT State Highway Administration

Jurisdictional Updates

Virginia	Kamal Suliman
Maryland	Shelley Kellam
	Tim Peck
	Jason Dicembre
	1/Sgt. Colin Bristow
Washington DC	Soumya Dey

Congestion Mitigation & Planning for the Future of Mobility – Snapshot of Washington, DC's Approach

Soumya S. Dey, P.E., PMP
Associate Director
Transportation Operations & Safety

October 3, 2018

Image courtesy of Mr. T in DC

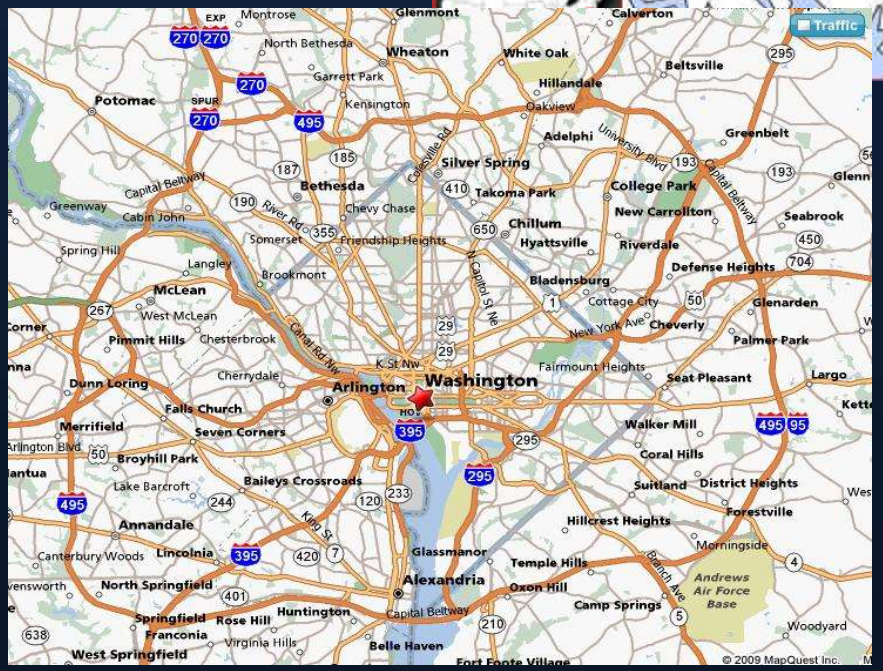
Presentation Outline

- Overview of Washington, DC. travel patterns
- Defining multimodal congestion
- System management strategies
- Progress on Move Over/Move It and Quick Clearance
- Recently Completed and Upcoming Projects
- Other Activity

OVERVIEW

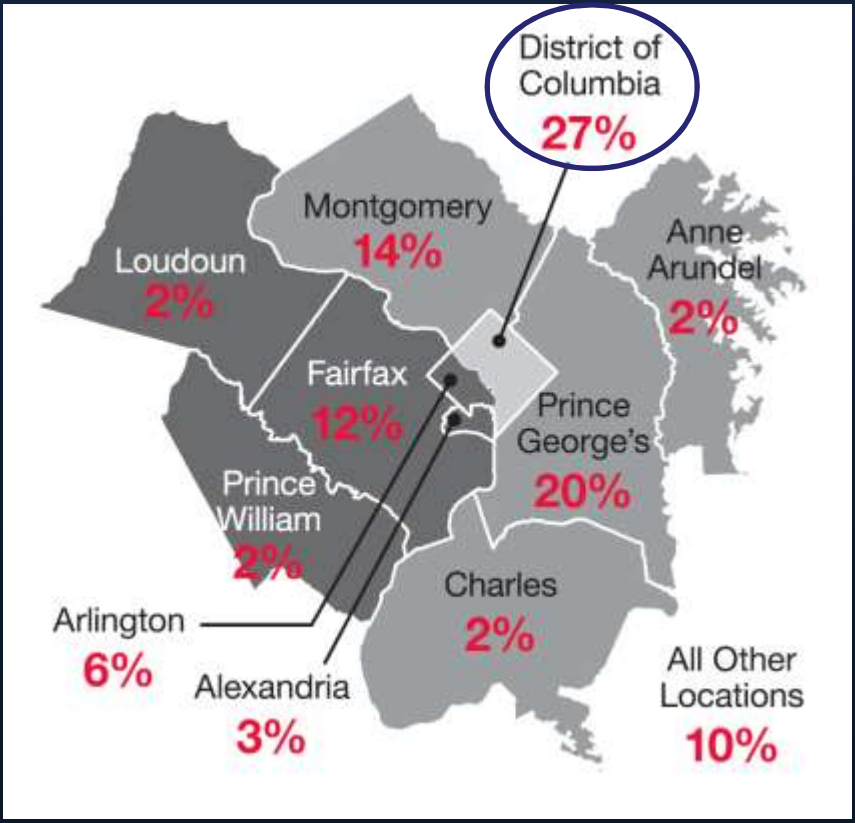
Washington, DC – Regional Setting

- 68.3 square miles
- DC metropolitan area
  - Population 5.6 million
  - 7th largest metro
- DC population 700,000
  - 500,000 daily commuters
  - 125,000+ daily visitors
  - 1000 new residents/month
  - Tech savvy population

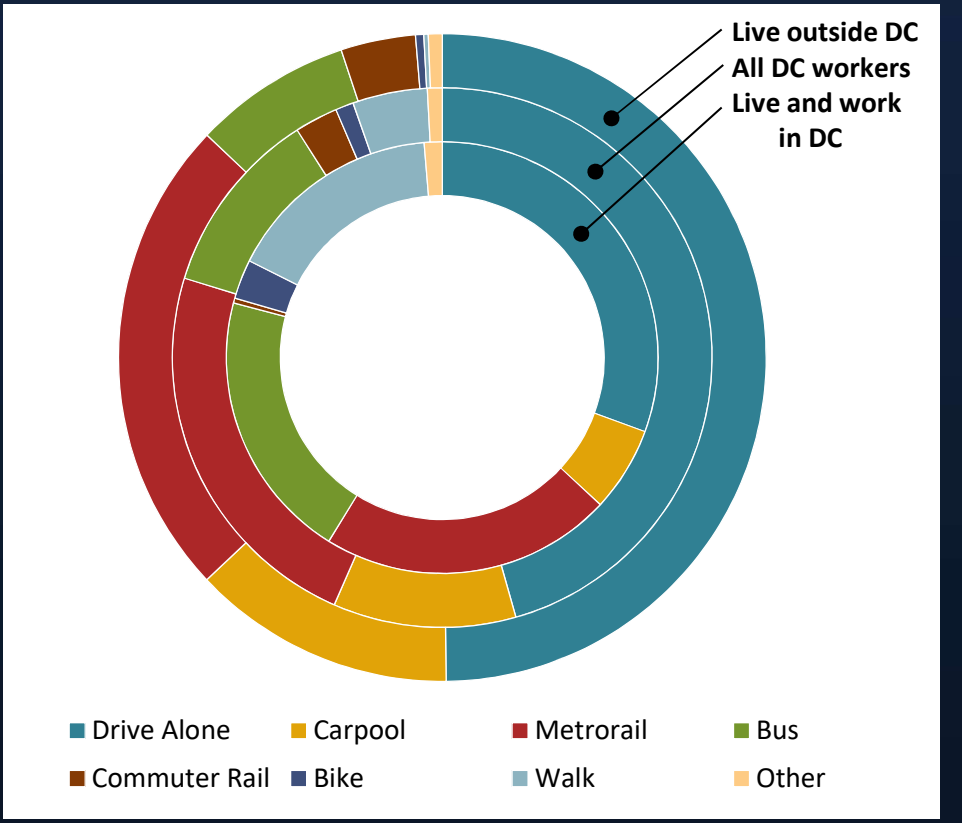


Regional Context

Where District Workers Live



How District Workers Commute



DC's Unique Travel Characteristics

Arterial System

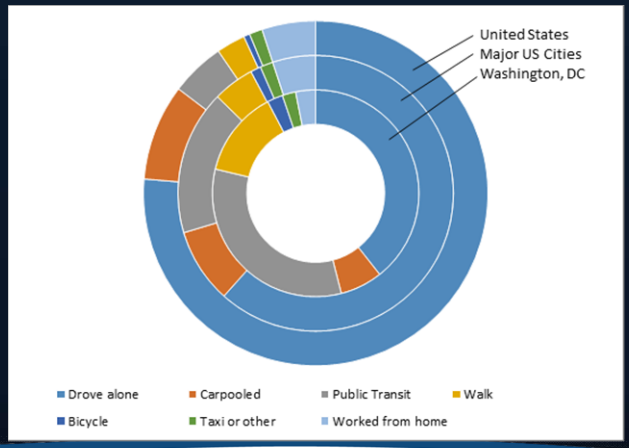
- < 15 miles of freeway
- One out of every four vehicle trip entering the District is "cut through"
- 2 out of 3 cars in the District during rush hours is from out of state

From		Freeway	Arterial	Total
VA	# of Routes	2	3	5
	Inbound VPD	190,000	120,000	310,000
MD	# of Routes	2	47	49
	Inbound VPD	112,000	488,000	660,000
VA+MD	Inbound VPD	302,000 (37%)	608,000 (63%)	970,000

Source: MWCOG Travel Demand Model 2010 Forecasts

Multi-modal nature of travel

- 2nd highest percentage of non-vehicle mode share
  - 38% Transit (2nd to NY)
  - 3.1% Bike (5th in country)
  - 12% Walk (2nd to Baltimore)
- 37% of DC residents do not own an automobile



DEFINING CONGESTION

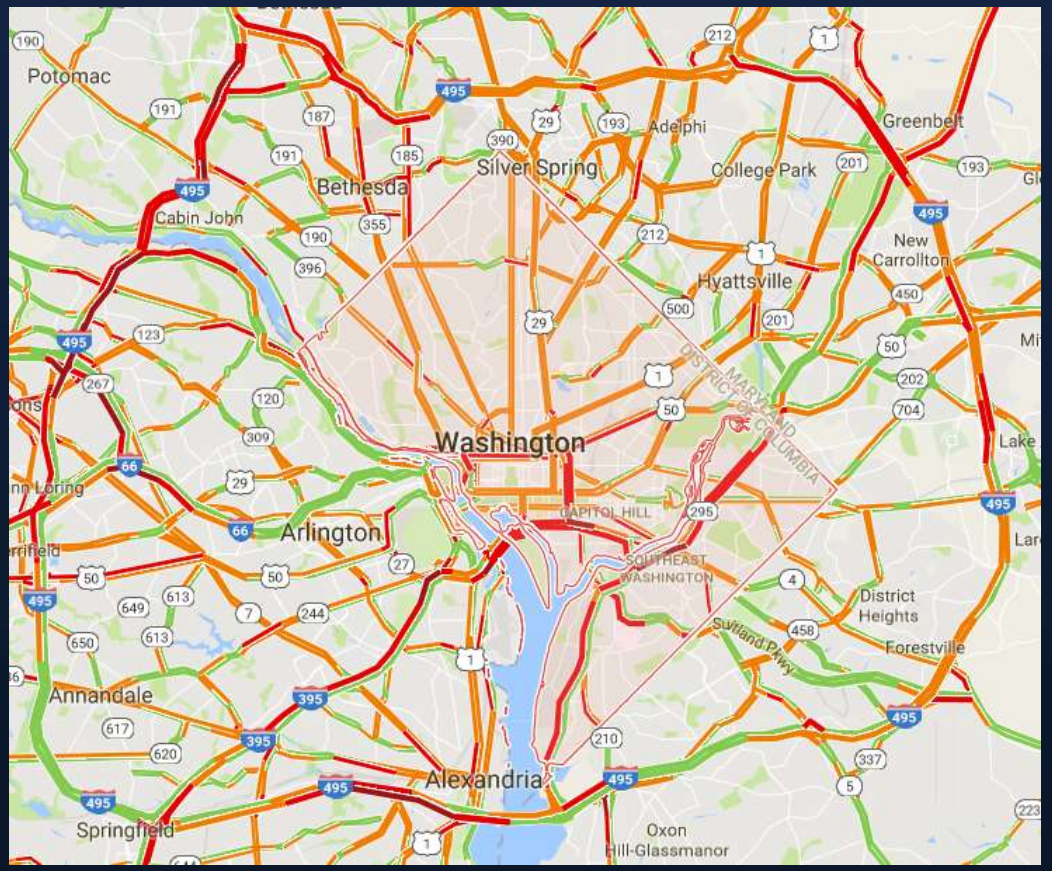
Deconstructing DC Congestion

D.C. tops list of nation's worst traffic gridlock

By Dick Uliano
August 26, 2015 2:17 am

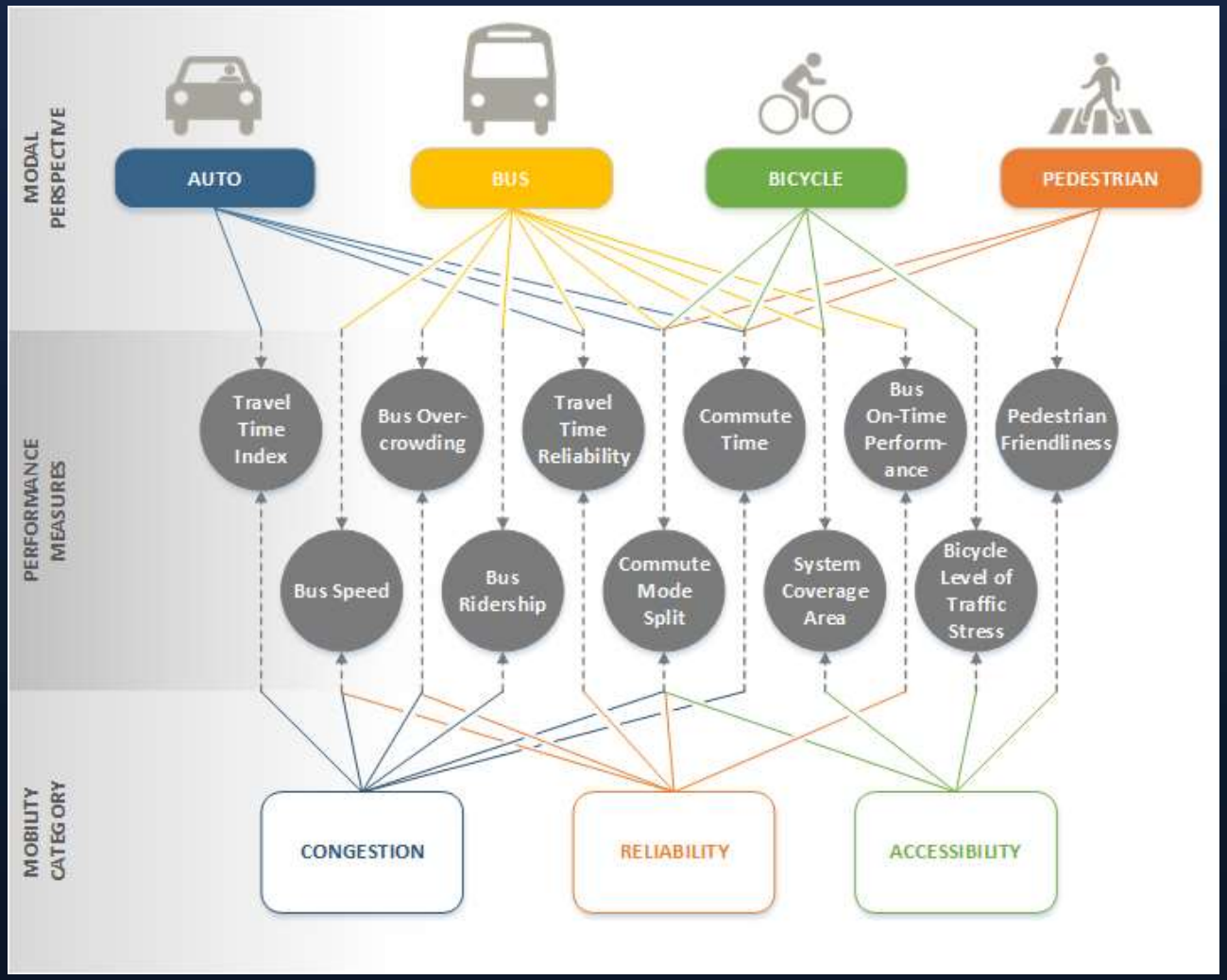
Traffic crawls along the Capital Beltway during rush hour, in Greenbelt, Md., Tuesday, Aug. 25, 2015. Traffic congestion nationally reached a new peak last year and is greater than ever before, according to a report by the Texas A&M Transportation Institute and INRIX Inc. (AP...

WASHINGTON — This may come as no surprise to anyone who has been stuck in traffic on Interstate 66, Interstate 95 or the Capital Beltway. The Washington, D.C. area has the worst traffic gridlock in the United States. Now, there's a report to prove it.



Not All Congestion is Created Equal

Multimodal Performance Measures



CONGESTION

- Travel Time Index
- Bus Stop Activity
- Bus Overcrowding
- Bus Speed

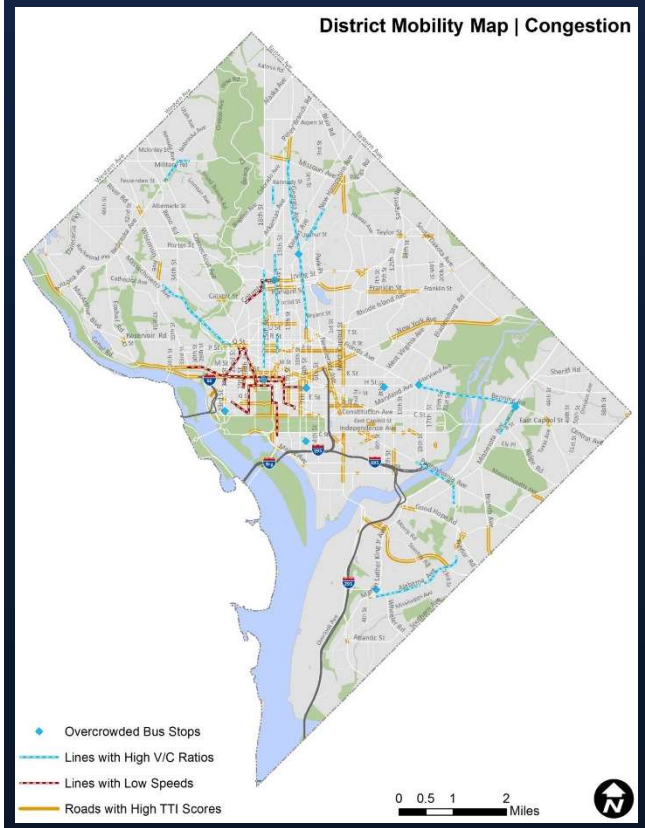
RELIABILITY

- Travel Time Reliability
- Bus On-time Performance

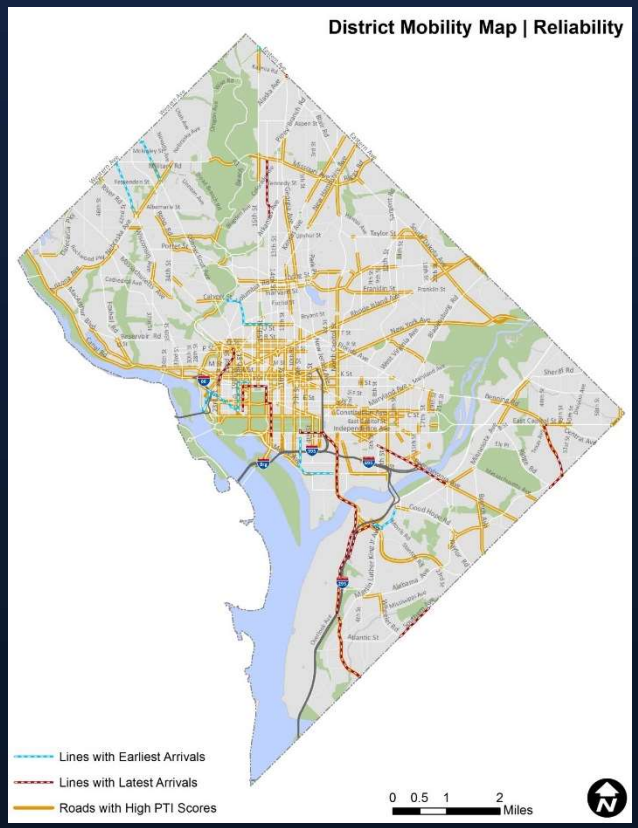
ACCESSIBILITY

- Transit Coverage (area and frequency)
- Job Accessibility
- Bicycle Comfort Network
- Pedestrian Friendliness

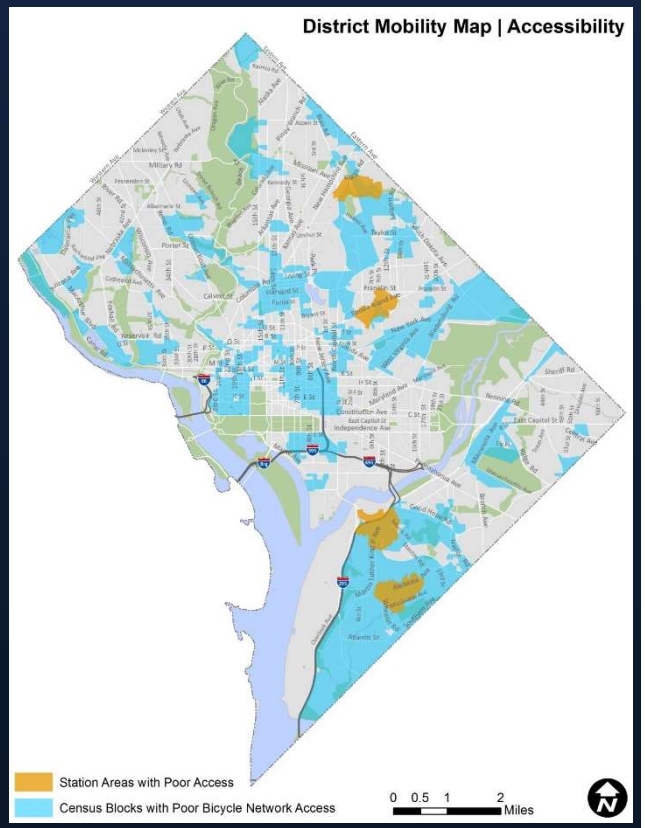
Identifying Multimodal Deficiencies



Congestion



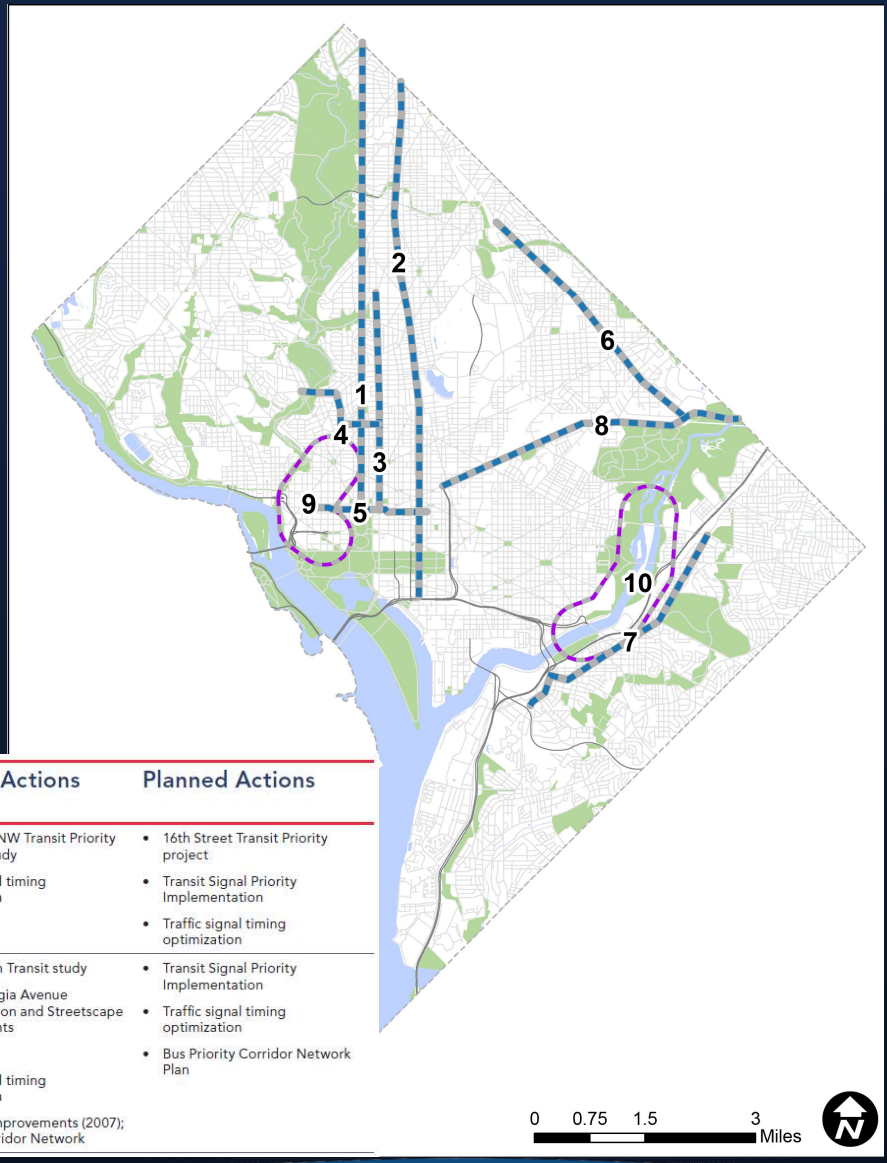
Reliability



Accessibility

Prioritizing Strategies to Advance District Mobility

- Areas with deficiencies across different mobility categories
- Existing challenges, previous actions and planned actions inform strategic system investments



Area	Name	Area Description	Challenges	Previous Actions	Planned Actions
1	16th Street, NW	Corridor: H Street NW to Eastern Avenue NW	• High bus ridership • Low bus speeds • Bus overcrowding	• 16th Street NW Transit Priority Planning Study • Traffic signal timing optimization	• 16th Street Transit Priority project • Transit Signal Priority Implementation • Traffic signal timing optimization
2	Georgia Avenue, NW and 7th Street	Corridor: U Street NW to Arkansas Avenue NW and L'Enfant Plaza to U Street NW	• High bus ridership • Low bus speeds • Bus overcrowding • Highly variable travel time	• North/South Transit study • Lower Georgia Avenue Transportation and Streetscape Improvements • Bus lane • Traffic signal timing optimization • Metrobus improvements (2007); Priority Corridor Network	• Transit Signal Priority Implementation • Traffic signal timing optimization • Bus Priority Corridor Network Plan

TRANSPORTATION SYSTEM MANAGEMENT & OPERATIONS (TSMO) PLAN

System Management Strategy

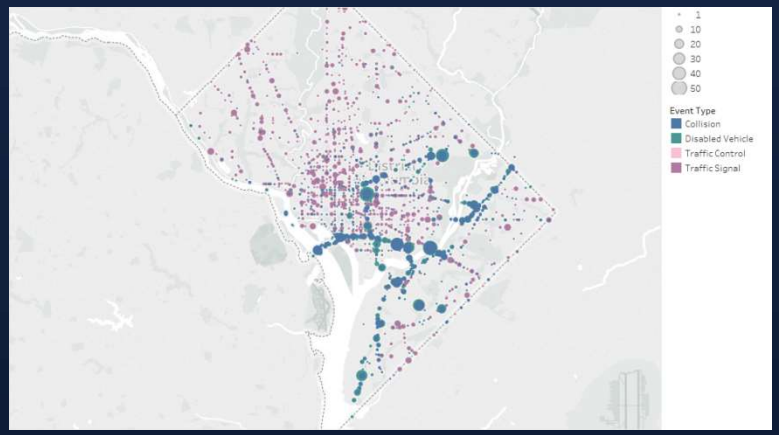
TSMO Philosophies

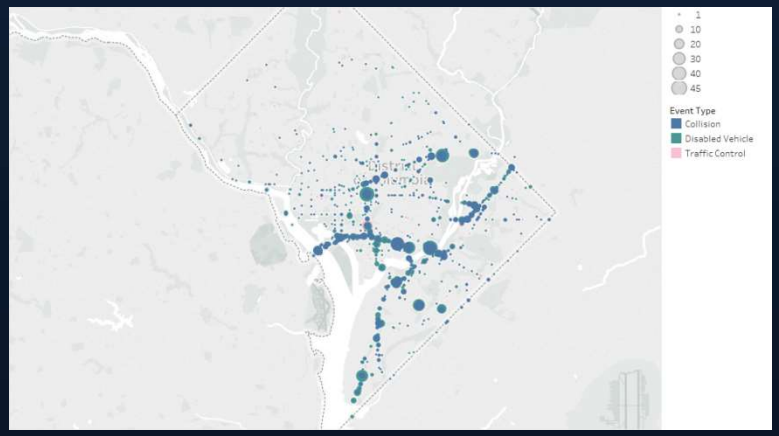
- "Asset Lite" solutions
  - Buy vs build decisions
  - DC owned devices vs third party data providers
- Data analytics for smarter tactical decisions
  - Combining data from disparate sources (weather, special events, etc.)
  - Proactive vs reactive
- Collaboration with private sector
  - Traveler information, route guidance
- Integrated platform for real-time travel choices

TMC – Input & Output

TMC/ROP Performance

- In 2017, TMC operators coordinated the response for **6,316** events, including:
  - 2,111 traffic signal requests
  - 1,821 disabled vehicles
  - 1,520 vehicle collisions
  - 193 traffic control requests
- ROP drivers responded to **3,760** of these events, including:
  - 1,697 disabled vehicles
  - 1,350 vehicle collisions
  - 170 traffic control requests
  - Average response time was 12 min
  - Average RCT was 51 min
  - Average ICT was 53 min





TSMO Plan

We already do *a lot* that falls under the TSMO umbrella …
… so why develop a plan?

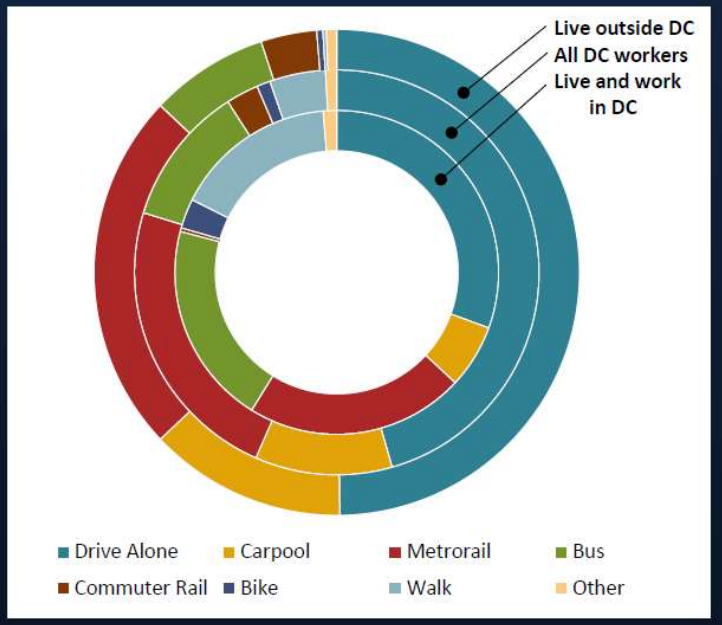
A plan gives a framework for future traffic operations activities:

- Project definition and prioritization
- Clearer organizational structure
- Means to better communicate operations perspective across agency
  - Collaboration
  - Funding
  - Long range planning

TSMO Plan

Need to incorporate several considerations unique to DC:

- Nation's Capitol
  - Serving both state and city functions
  - Frequent special events
  - Many stakeholders
- High proportion of out-of-state travelers
  - Population 700K+ with 500K+ daily commuters and 125K+ daily visitors
  - 1 out of 4 vehicle trips entering DC are "cut through"
  - 2 out of 3 vehicles during rush hour are from out of state
- Highly multimodal
  - 3rd highest percentage of non-vehicle mode share among US cities
- Arterial system
  - Less than 15 miles of freeway
  - Many primary commute routes along arterials
- Tech savvy population



TSMO Plan

Draft developed in-house

- Used FHWA resources and other state and MPO plans as template
- Interviewed primary stakeholders to understand current state of practice, needs, gaps
- Ensured alignment with existing planning and vision documents

TSMO Plan

3 Main Sections:

1. Strategic Foundation
   - Foundation for developing a TSMO program
   - Clearly defines the relationship of TSMO to the agency mission or regional vision
   - Addresses "*Why*" TSMO is important
   - High-level vision of "what" the agency seeks to achieve, along with strategic goals and objectives

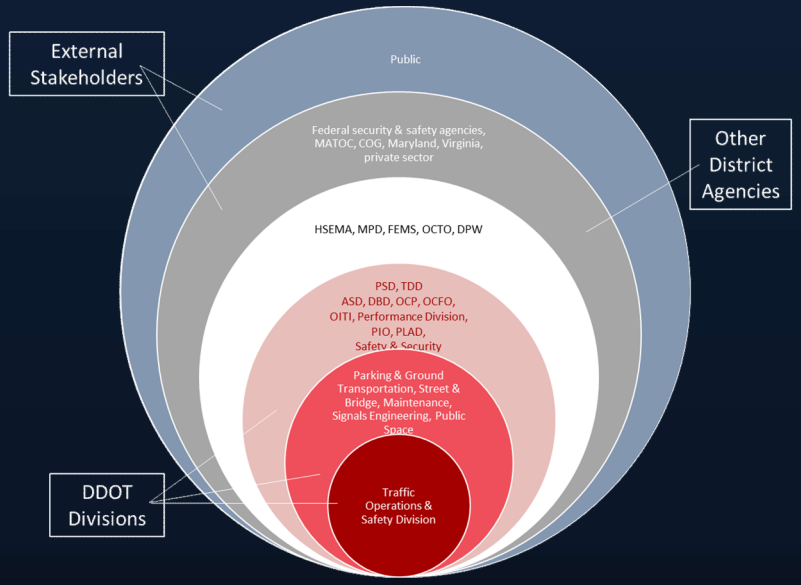
2. TSMO Program
   - Addresses organizational structure and business processes for implementing TSMO activities
   - Addresses "*How*" the TSMO program operates

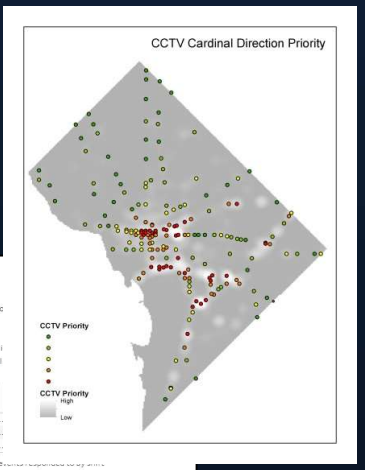
3. Implementation and Deployment
   - Addresses specific services, programs, and priorities
   - Includes approach for prioritization, annualized actions, and performance assessment

TSMO Plan

Goals:

- Enhance operational consistency, capacity, and safety through *smarter decision making*
- Proactively manage and operate the transportation system by *enhancing internal and external communication and collaboration*
- *Mainstream TSMO* by incorporating as an inherent part of DDOT business processes





TSMO Plan

VISION

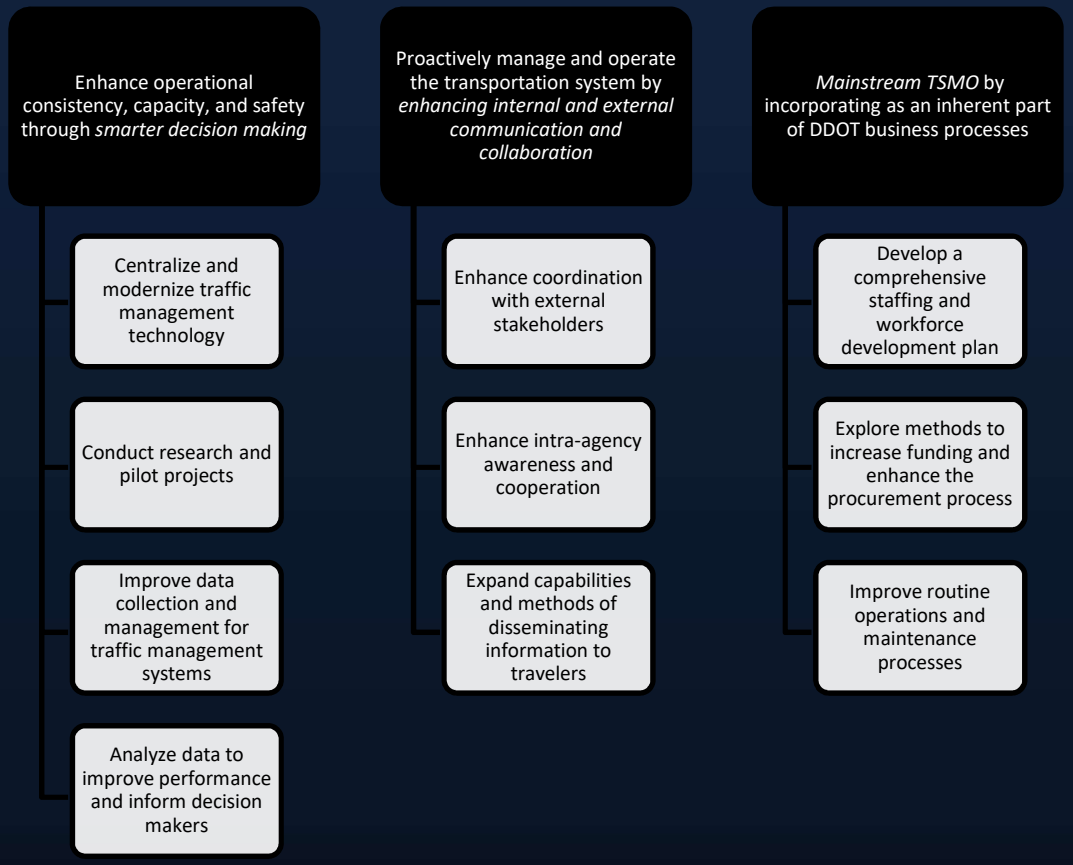
DDOT is committed to achieving an exceptional quality of life in the nation's capital by emphasizing safety, reliability and mobility in DDOT's transportation operations.

MISSION

Proactively operate a cohesive, sustainable transportation system that delivers safe and reliable movement of people.

GOALS

OBJECTIVES



TSMO Plan

Goals	Enhance operational consistency, capacity, and safety through *smarter decision making*				Proactively manage and operate the transportation system by *enhancing internal and external communication and collaboration*			*Mainstream TSMO* by incorporating as an inherent part of DDOT business processes		
Objectives	**Centralize and modernize traffic management technology**	**Conduct research and pilot projects**	**Improve data collection and management for traffic management systems**	**Analyze data to improve performance and inform decision makers**	**Enhance coordination with external stakeholders**	**Enhance intra-agency awareness and cooperation**	**Expand capabilities and methods of disseminating information to travelers**	**Develop a comprehensive staffing and workforce development plan**	**Explore methods to increase funding and enhance the procurement process**	**Improve routine operations and maintenance processes**
Strategies	Carry out upgrades to enable advanced signal system operations	Evaluate feasibility of adopting alternative strategies to improve reliability for multimodal operations	Improve accessibility and awareness of existing data across agency	Establish and track performance metrics to evaluate effectiveness of existing programs	Explore opportunities for enhanced resource sharing	Facilitate recurring interactions across agency divisions	Explore new means of communicating with the public	Enhance professional development opportunities for existing staff	Explore innovative contracting mechanisms	Create or revise standard operating procedures
	Improve CCTV system quality and accessibility	Investigate and conduct pilot projects for emerging technologies and strategies	Establish new sources of private and public sector data to improve situational awareness	Use data to optimize operations	Facilitate recurring opportunities for interagency communications	Integrate TSMO into planning documents	Install needed signage	Investigate need for additional staff resources	Explore new funding mechanisms	Improve resource management processes
	Acquire, replace, and repair supportive hardware	Evaluate utility of existing pilot technologies and strategies	Establish new sources of data to improve performance management	Use data to support investment decisions	Create and implement needed interagency agreements		Investigate opportunities to collaborate on TDM outreach initiatives	Collaborate with HR to identify opportunities to improve flexibility in hiring and staffing	Integrate TSMO into existing budget and allocation processes	
	Improve field-to-center communications reliability and bandwidth	Research best practices	Integrate and consolidate information systems		Explore new partnerships with the private sector					

Strategies	Establish new sources of data to improve situational awareness	Establish new sources of data to improve performance management	Integrate and consolidate information systems	Establish and track performance metrics to evaluate effectiveness of existing programs	Use data to optimize operations	Use data to support investment decisions	Explore opportunities for enhanced resource sharing	Facilitate recurring opportunities for interagency communications	Create and implement needed interagency agreements
Action Items	Integrate ATMS with Waze event information	Work with MPD and/or FEMS to access incident and roadway clearance data	Integrate ATMS with traffic signal work order system	Use ATMS to track TMC and ROP output and operator performance	Use AVL data to optimize ROP routes	Use ATMS and probe vehicle data to assess strategic locations for additional DMS installation	Investigate ways to mitigate delays in dispatch due to fleet share reservation software issues	Work with MPD to establish training for staff to explain roles of ROP, TCO, and Safety Technicians	Work with MPD and/or FEMS to enable ROP vehicles to use emergency lights, using DPW approach for towing equipment
	Integrate ATMS with TOPS road closure information	Use MPD CAD and crash report data to improve tracking of incident and roadway clearance metrics	Integrate ATMS with MPD CAD	Establish process to conduct audits for TMC operator management of events	Use probe vehicle data to inform road closure selection for special events	Use ATMS and probe vehicle data to assess strategic locations for additional CCTV installation	Work with OCTO to identify opportunities for sharing backbone communications infrastructure	Communicate to MPD leadership importance of MPD presence in the JAHOC	Advocate for enactment of Move Over/Move It laws via Vision Zero rulemaking
	Establish taskforce to discuss process for standardizing data content and formatting requirements across contracts and agreements	Use QuicNet and TIMMS to track signal outages	Consolidate requests for TCOs into one system	Develop dashboard for leadership with high-level metrics on TSMO-related outputs and outcomes based on ATMS and probe vehicle data	Use ATMS and probe vehicle data to update default CCTV displays for video walls			Work with HSEMA to ensure all necessary parties included in after-action exercises	Finalize Quick Clearance MOA
	Install AVL on all ROP vehicles	Use ATMS and vendor software to track ITS device outages			Develop process for identifying and coordinating conflicting road closures			Work with WMATA to identify opportunities to integrate operationally-significant transit data into RITIS	Begin discussions with MPD on WIM station enforcement in coordination with WIM repairs and upgrade
	Develop accessible dashboard of real-time TCO deployments								Work with MPD and/or FEMS to reestablish TIM training program

TSMO Plan

Next steps:

- Circulating to a wider group of stakeholders and finalizing draft based on feedback
- Developing plan for communicating across agency
- Incorporating into other planning documents and processes
- Developing clear method for continuous update
- Championing implementation of annualized actions via dedicated staff

OTHER ACTIVITIES

Move Over/Move It and Quick Clearance

- Background
  - DC currently has no Move Over/Move It law or Quick Clearance MOU on the books
  - Numerous efforts starting in 2009 to enact
  - Identified priority for agency
- Current status – Move Over/Move It
  - Incorporated into 2nd proposed Vision Zero rulemaking, February 2017
  - DDOT & DMV to introduce a resolution through the Mayor's office to make the 2nd Vision Zero rulemaking final, pending approval or abstention from DC Council
- Current status – Quick Clearance
  - Draft recently revised and reapproved by DDOT legal
  - Soon resharing with other agencies' leadership
  - Planned as future agenda item for citywide Vision Zero workgroup meeting

Projects

- Recently completed
  - Camera and microwave sensor installation on freeways (22 cameras, 56 sensors)
  - New Advanced Traffic Management System (ATMS)
- Under construction
  - Backbone fiber optic network on freeways to improve remote connection and redundancy for CCTV, DMS, roadway sensors, and traffic signals system wide
- Upcoming
  - Camera installation on emergency evacuation routes (36 cameras)
  - ATMS enhancements based on operator feedback and emerging data
  - Weigh-in-motion system upgrades

More information

Contact:

Soumya Dey, PE, PMP
Associate Director, Traffic Operations & Safety
soumya.dey@dc.gov

New, Automated Incident Management Dashboards

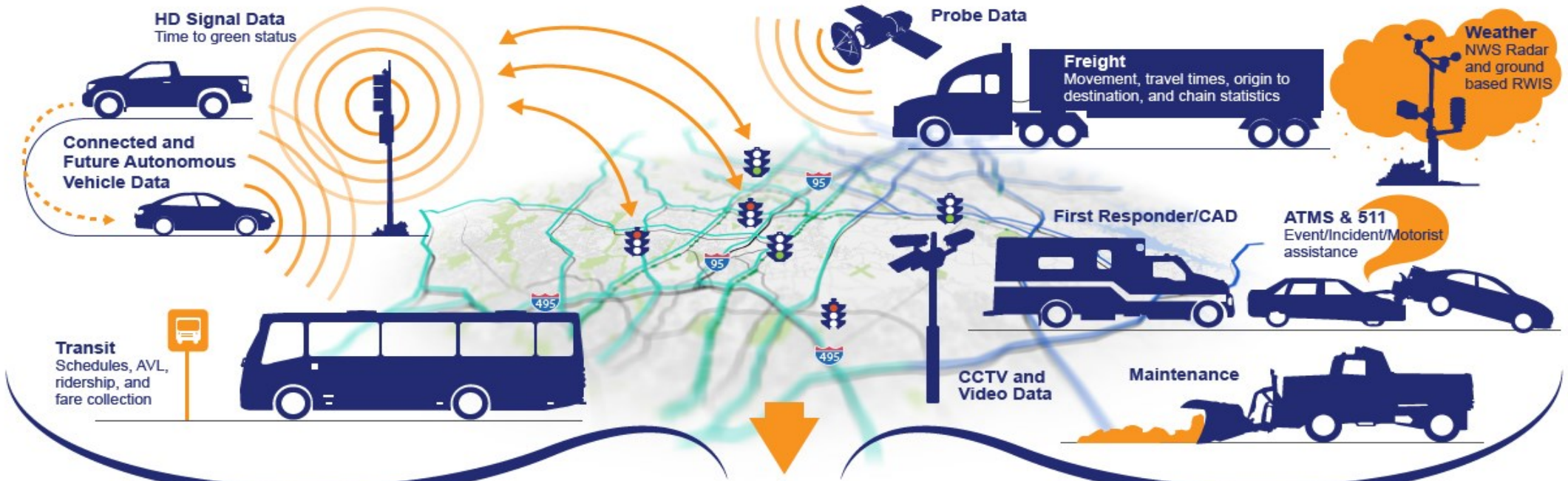
Greg Jordan

UMD CATT Laboratory



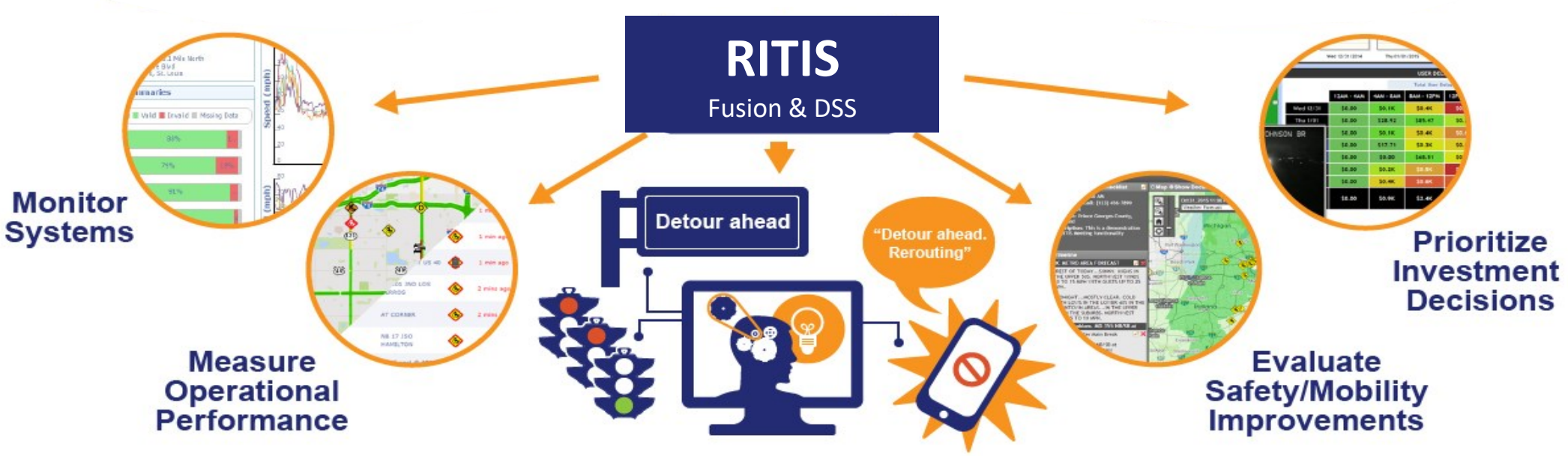

TSMO Advances in RITIS

Greg Jordan, CATT Laboratory Director of Outreach



RITIS

Fusion & DSS


RITIS
Fusion & DSS
Monitor Systems
Measure Operational Performance
Detour ahead
"Detour ahead. Rerouting"
Evaluate Safety/Mobility Improvements
Prioritize Investment Decisions

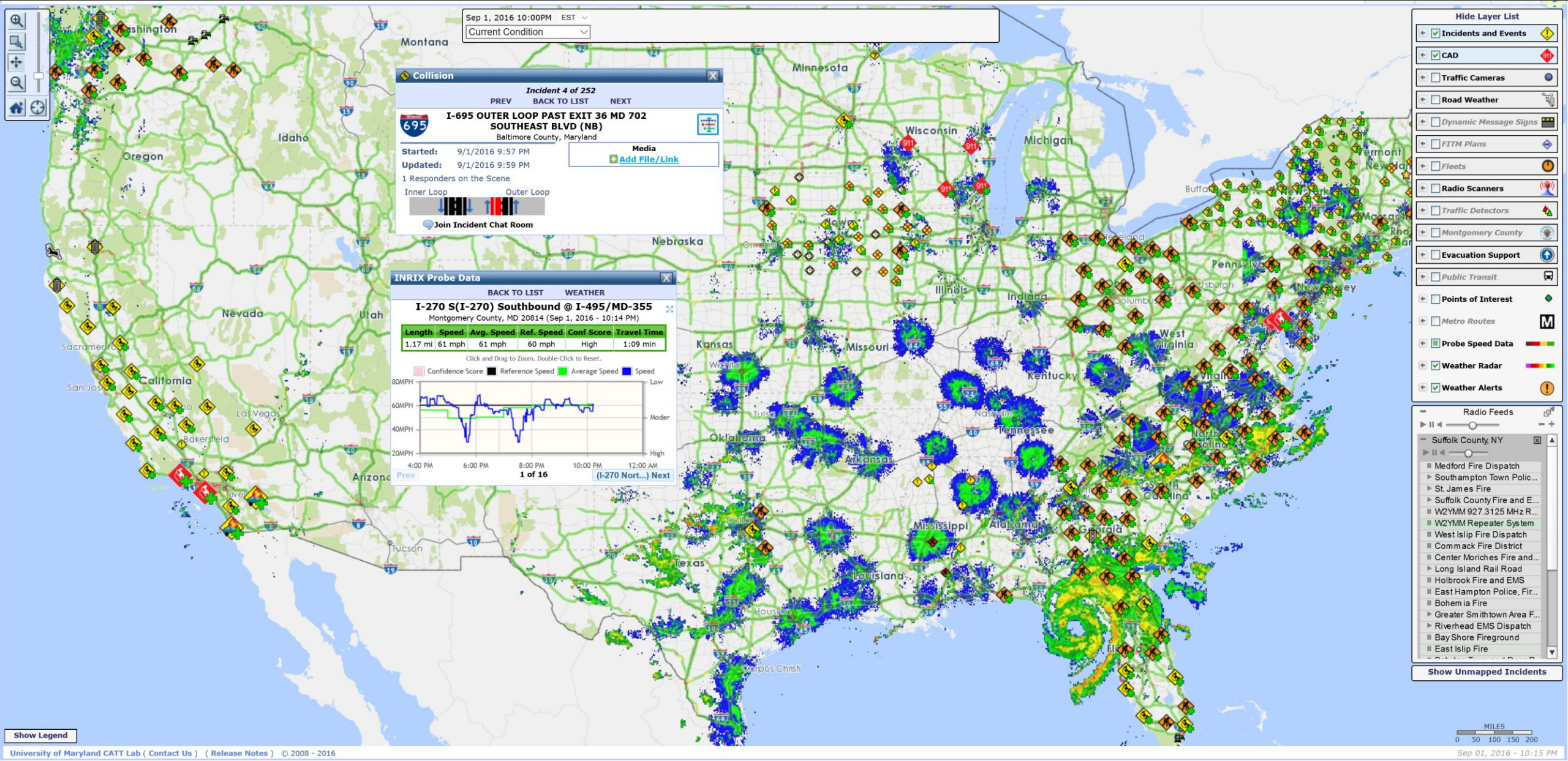
Why tools for TSMO?

1. A view of live operations
2. Document & report what happened
3. Plan for future operations
4. Make the case for funding
5. Post-mortem to improve operations

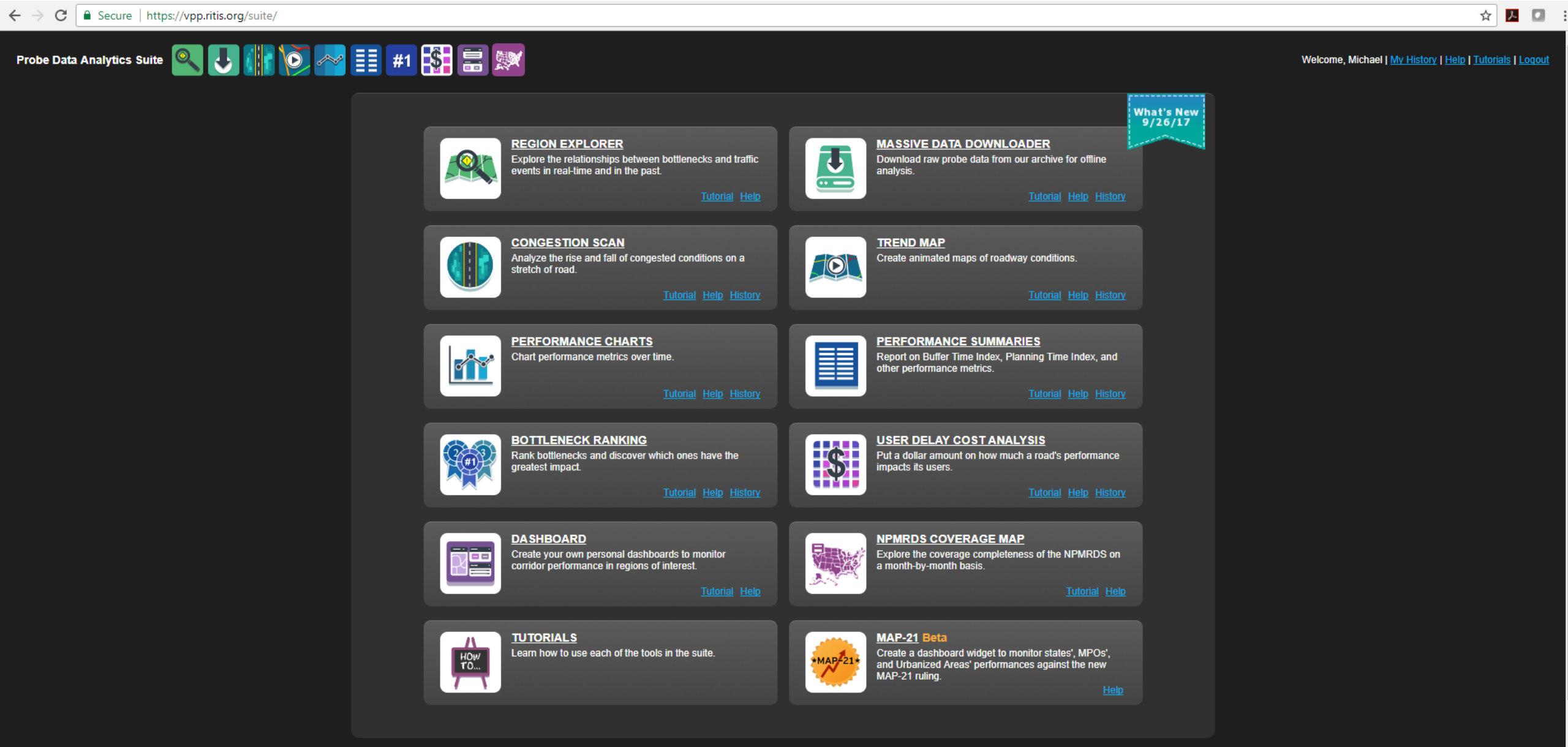
TSMO tools
for operators & responders

- **Situational Awareness map layers (SA)**
- **Incident Time Line (TIM)**
- **Work Zone Performance Monitoring (WZPM)**
- **RITIS Meeting for event collaboration (RM)**
- **Distribution channel for contingency plans**
- **Virtual Weigh Station remote monitoring (VWS)**

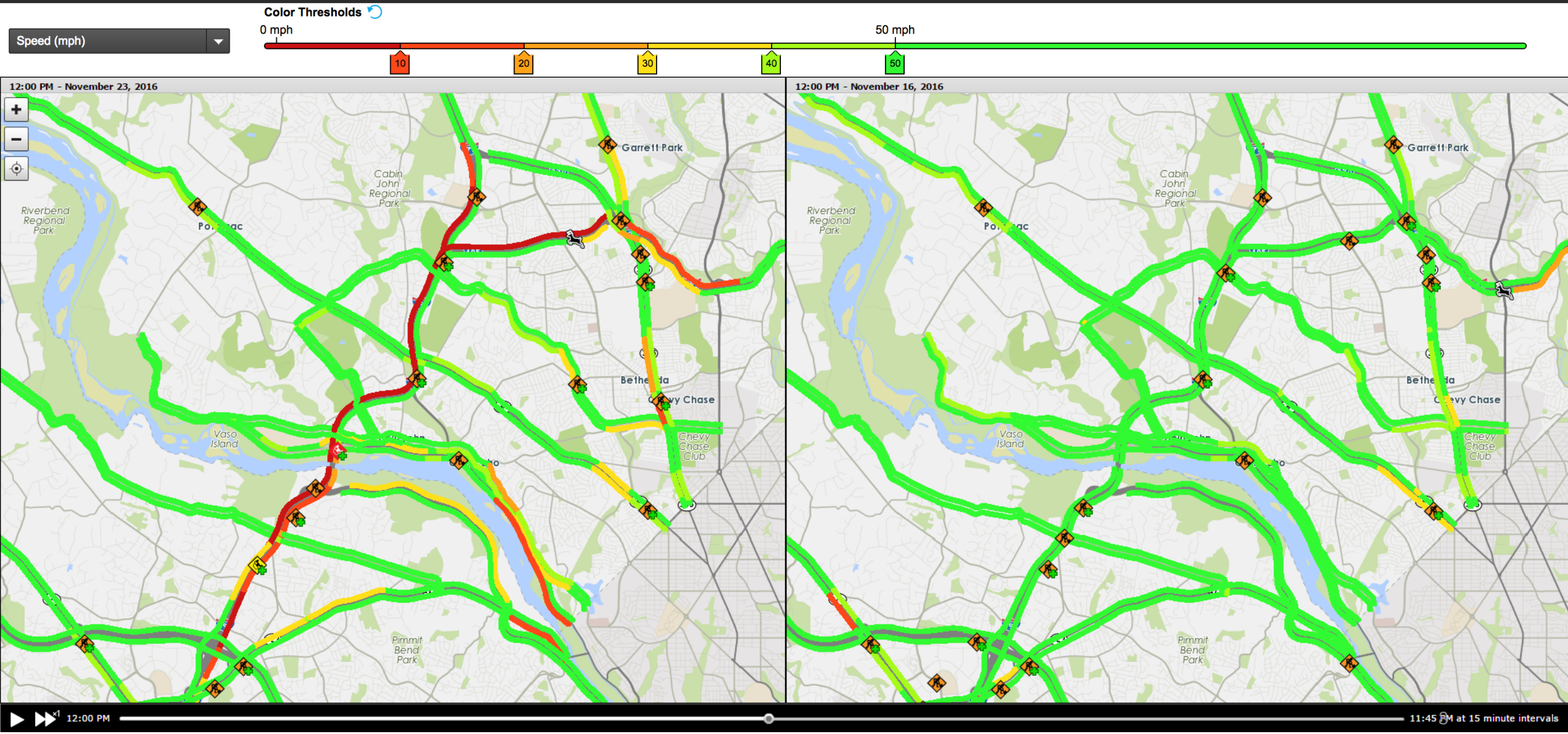
Documented Situational Awareness



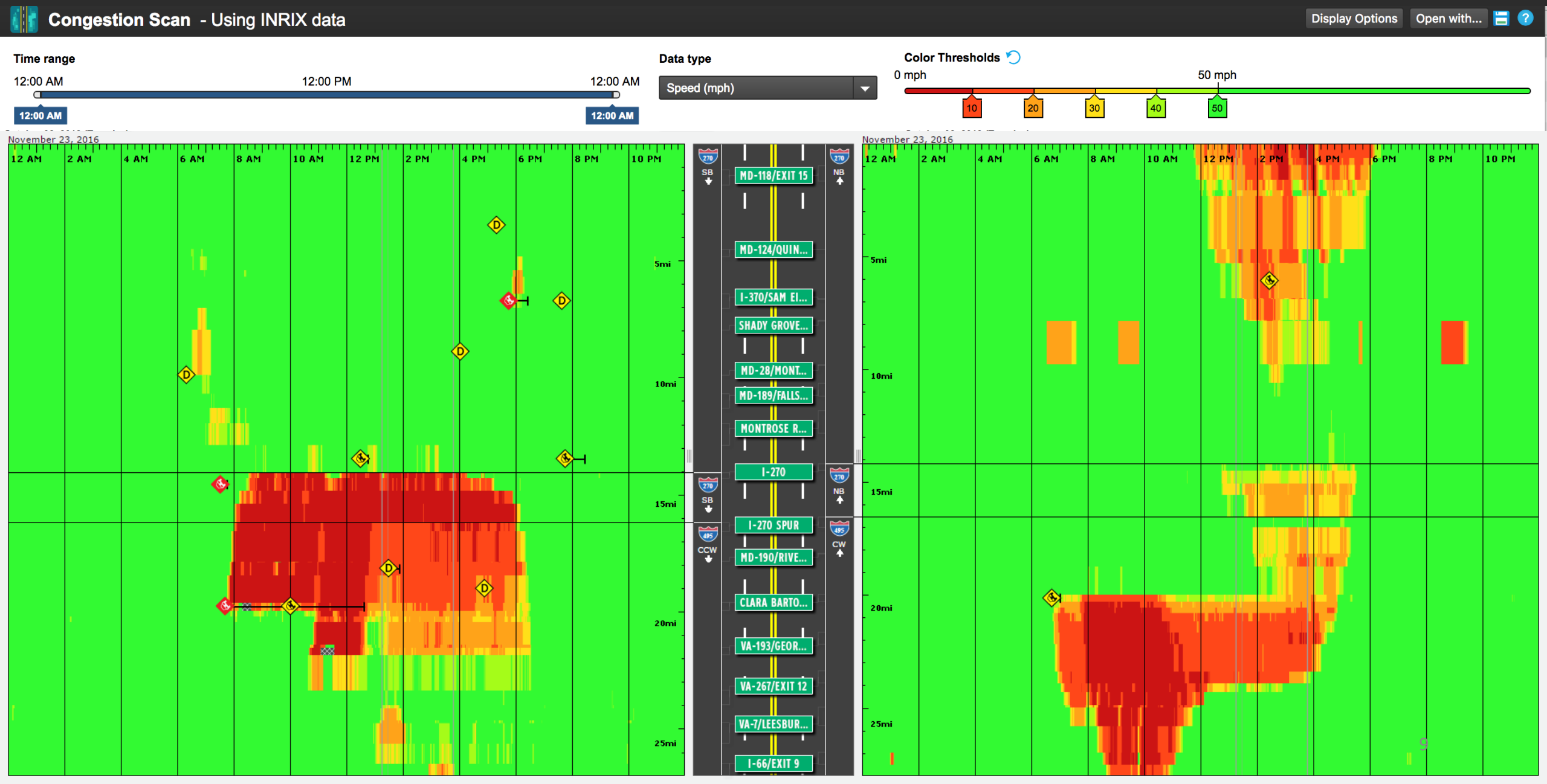
Probe Data Analytics (PDA)



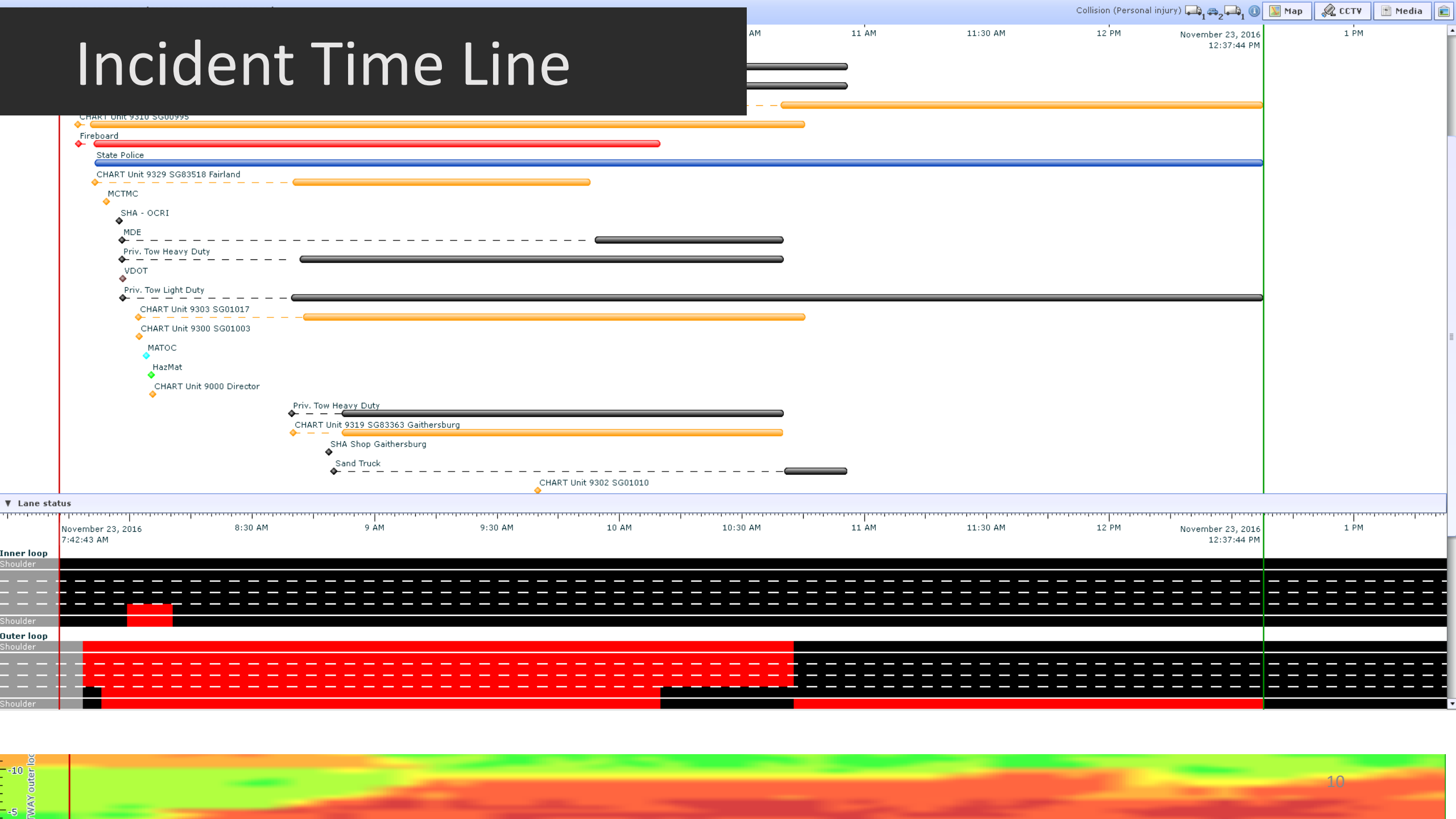
PDA Trend Map



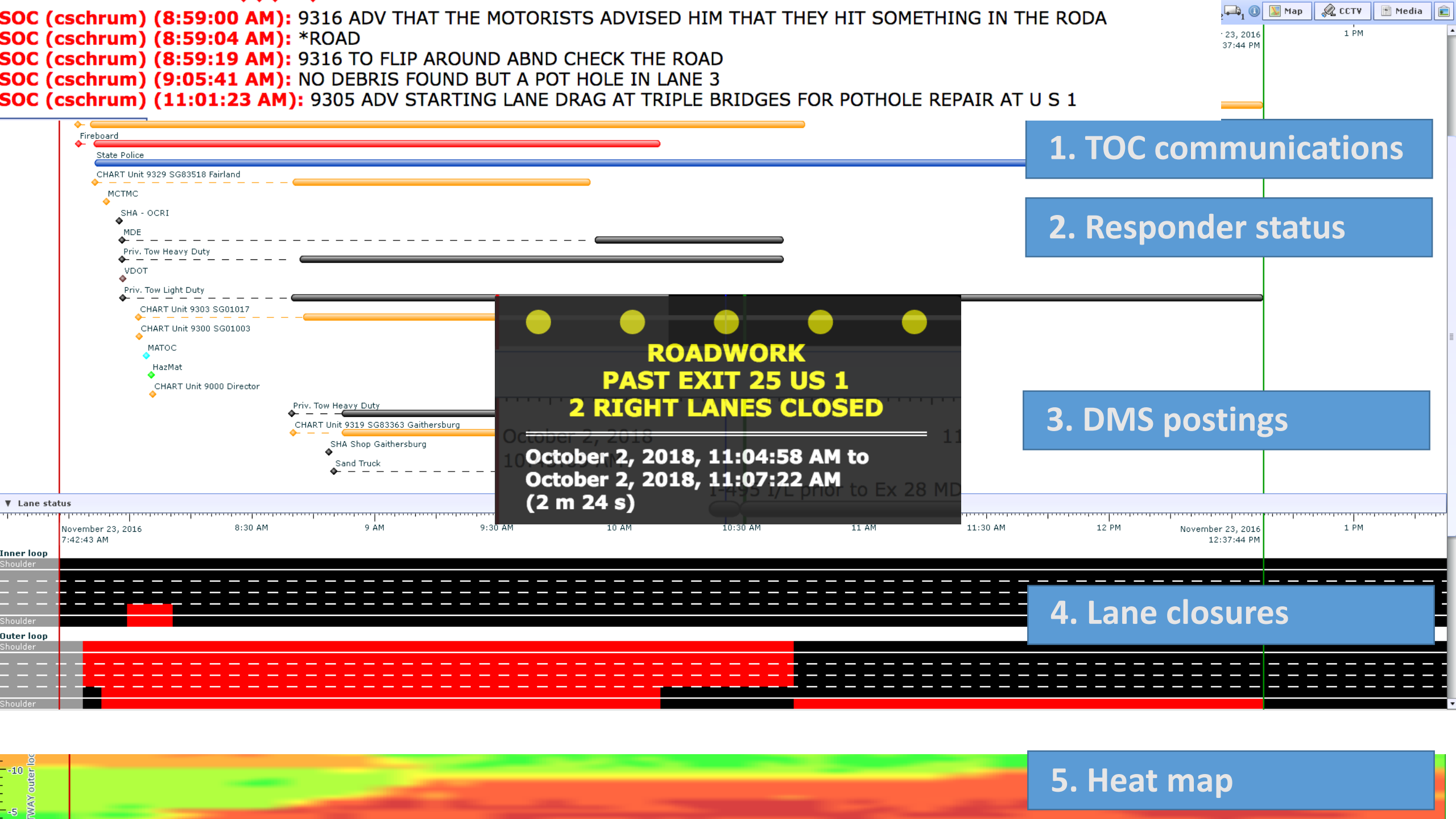
PDA Congestion Scan



Incident Time Line



SOC (cschrum) (8:59:00 AM): 9316 ADV THAT THE MOTORISTS ADVISED HIM THAT THEY HIT SOMETHING IN THE RODA
SOC (cschrum) (8:59:04 AM): *ROAD
SOC (cschrum) (8:59:19 AM): 9316 TO FLIP AROUND ABND CHECK THE ROAD
SOC (cschrum) (9:05:41 AM): NO DEBRIS FOUND BUT A POT HOLE IN LANE 3
SOC (cschrum) (11:01:23 AM): 9305 ADV STARTING LANE DRAG AT TRIPLE BRIDGES FOR POTHOLE REPAIR AT U S 1



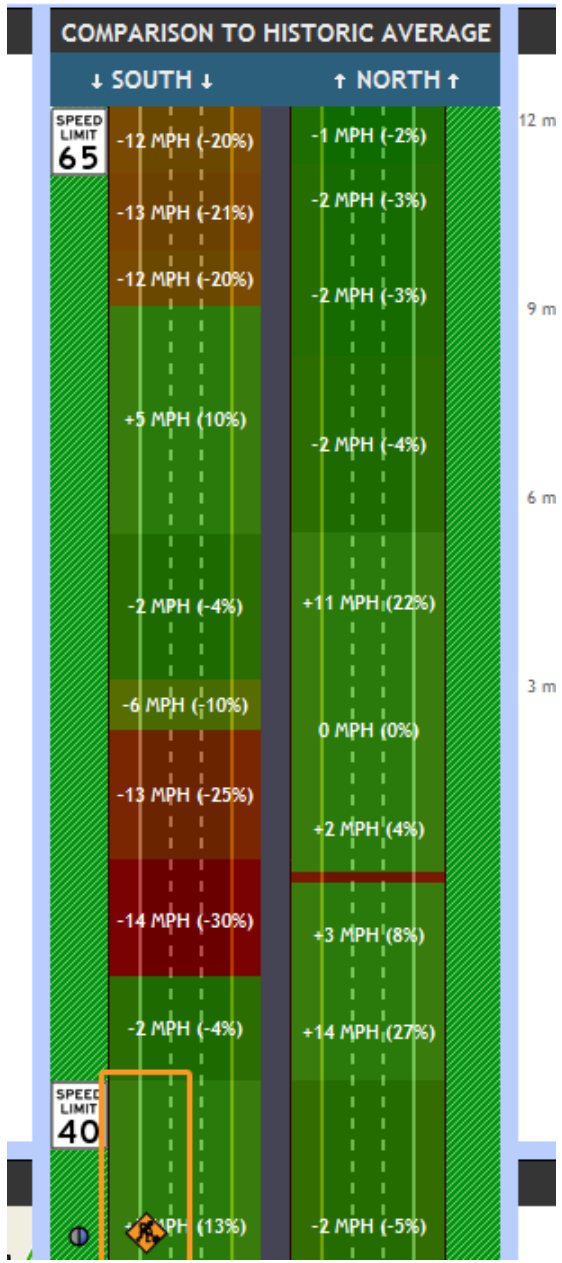
1. TOC communications
2. Responder status
3. DMS postings
4. Lane closures
5. Heat map

User Delay Cost in PDA

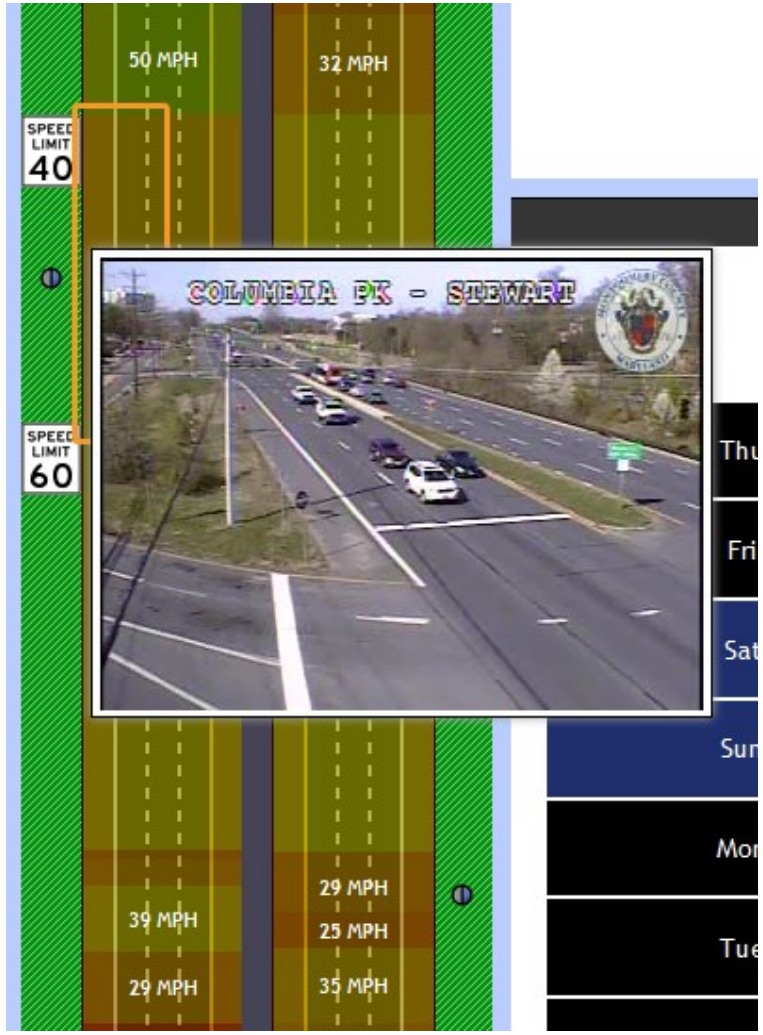
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	Daily Totals
11/23/16	$0.1K	$0.1K	$0K	$0K	$0.1K	$0K	$5.8K	$50.9K	$130.8K	$165.7K	$155.5K	$122.4K	$91K	$86.5K	$126.8K	$127.3K	$86.2K	$47K	$5.6K	$0.5K	$7.6K	$4.9K	$0.1K	$0K	$1,214.8K
Hourly Totals	$0.1K	$0.1K	$0K	$0K	$0.1K	$0K	$5.8K	$50.9K	$130.8K	$165.7K	$155.5K	$122.4K	$91K	$86.5K	$126.8K	$127.3K	$86.2K	$47K	$5.6K	$0.5K	$7.6K	$4.9K	$0.1K	$0K	Grand Total $1,214,838.32

- Normal Delay = $150k
- Total this day = $1.2M
- **Extra resulting from this event = $1.05M**
  - **This is conservative as it does not:**
    - **Include extra delay on 495 to the east**
    - **Delay on other arterials**
    - **Excess fuel consumption**
    - **Emissions**
    - **Secondary incidents**

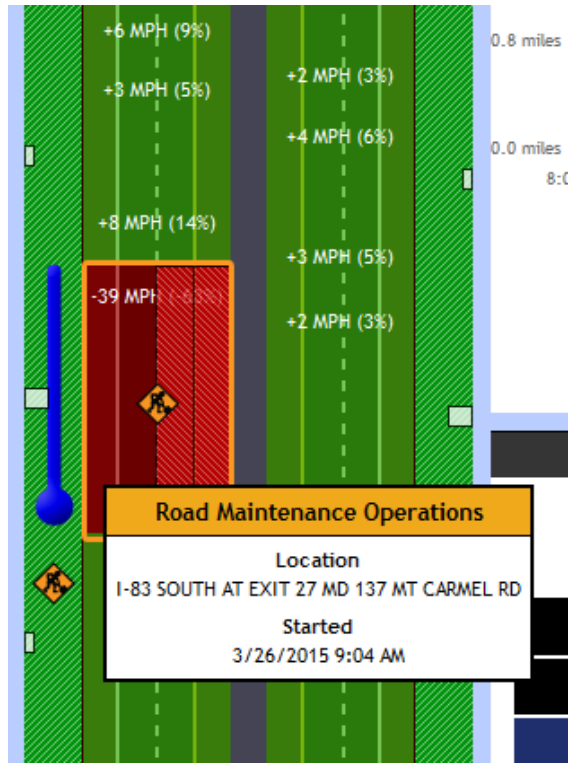
Remote Oversight & Documentation of Work Zones



Segment Speeds



Live CCTV & DMS

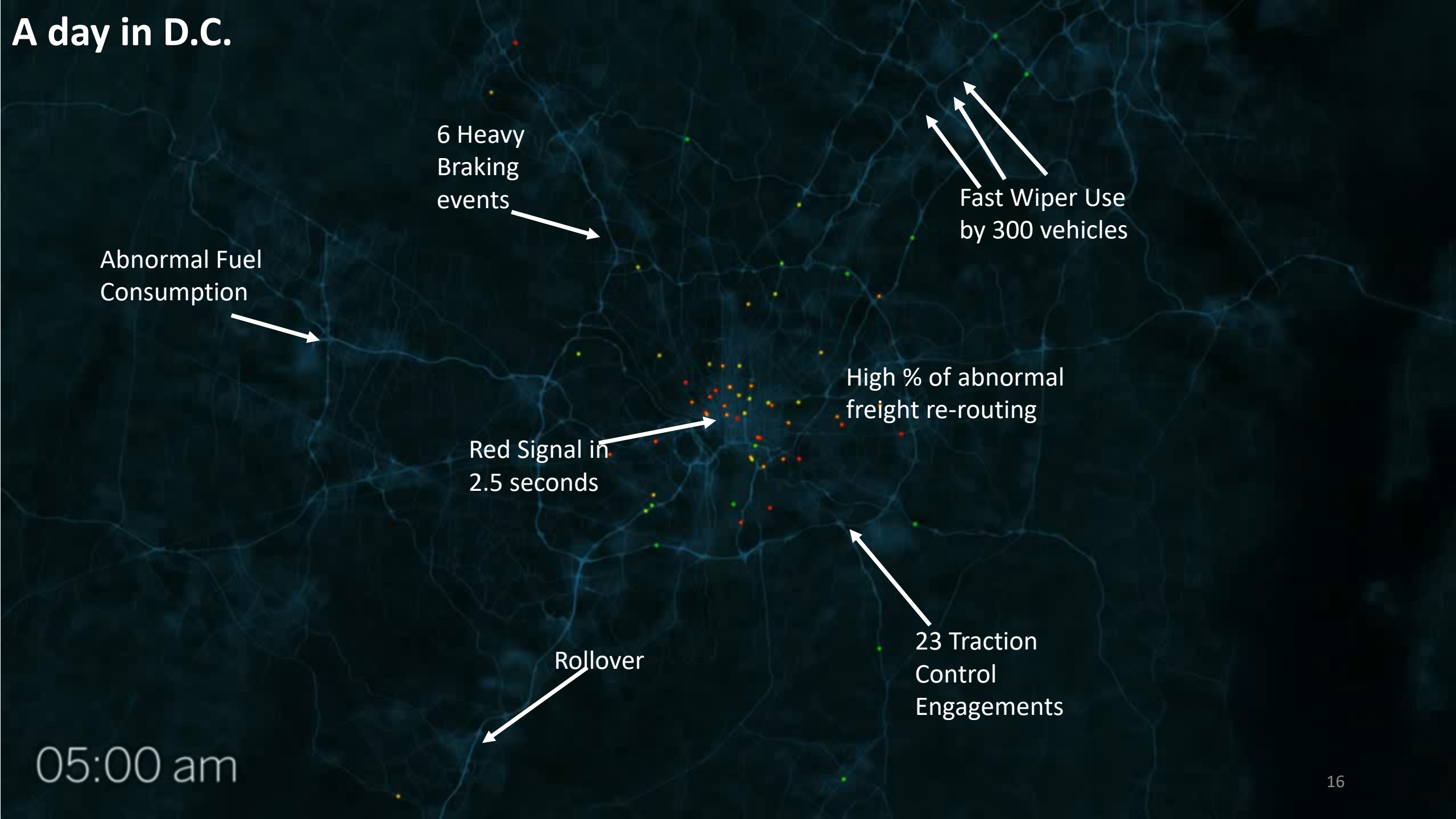


Bottlenecks & Nearby Events

14

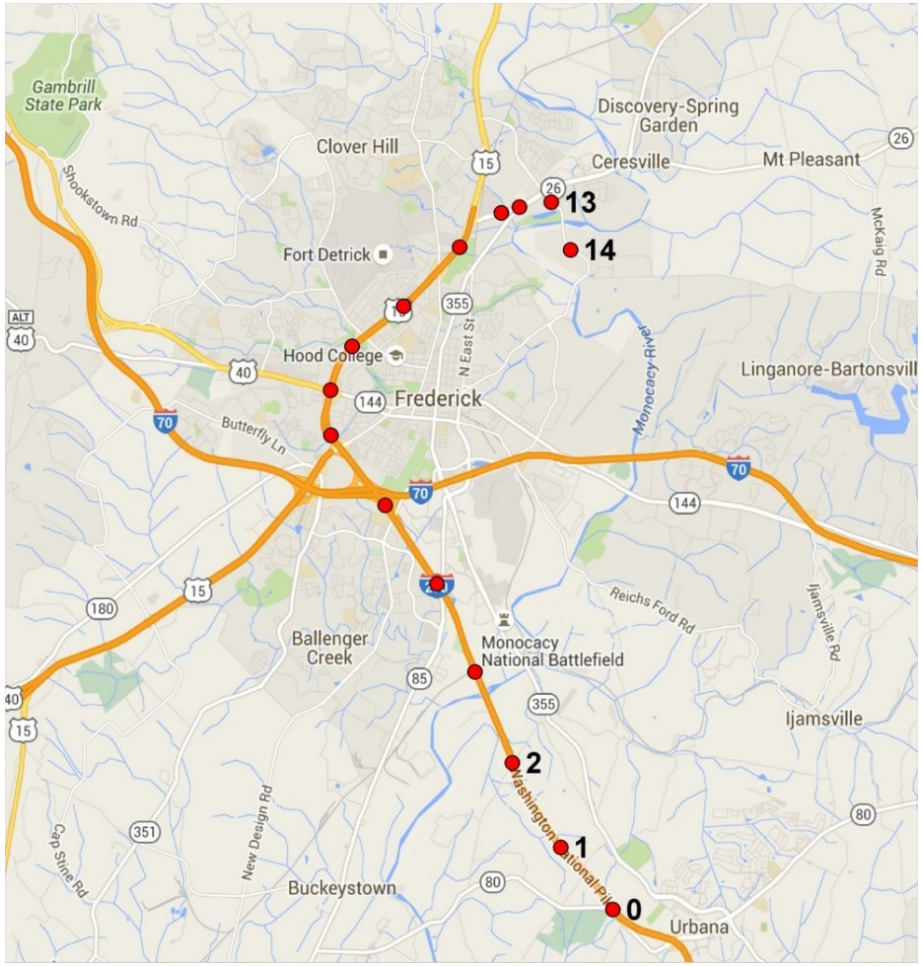

Fuel used
ABS
Traction
Stability
Odometer
Fault status reports
Road network feedback
Automated hours of service
Vehicle inspection reports
Truck-specific commercial navigation
IFTA state miles reporting
Automated driver assignment
Data streams from Connected Vehicles are here TODAY!
4 million+ vehicles are already on the road that can provide this type of data
Powerful automated reports
Bring your own device
Last mile routing
Driver behavior scorecards
Real-time alerts & automated reports
Fleet Intelligence Dashboard
Mobile view for supervisors on the move
Weather
Traffic
Animated vehicle history
DOT compliance
Speeding against posted speed limit

A day in D.C.


6 Heavy Braking events
Fast Wiper Use by 300 vehicles
Abnormal Fuel Consumption
High % of abnormal freight re-routing
Red Signal in 2.5 seconds
23 Traction Control Engagements
Rollover
05:00 am

Trajectory Data

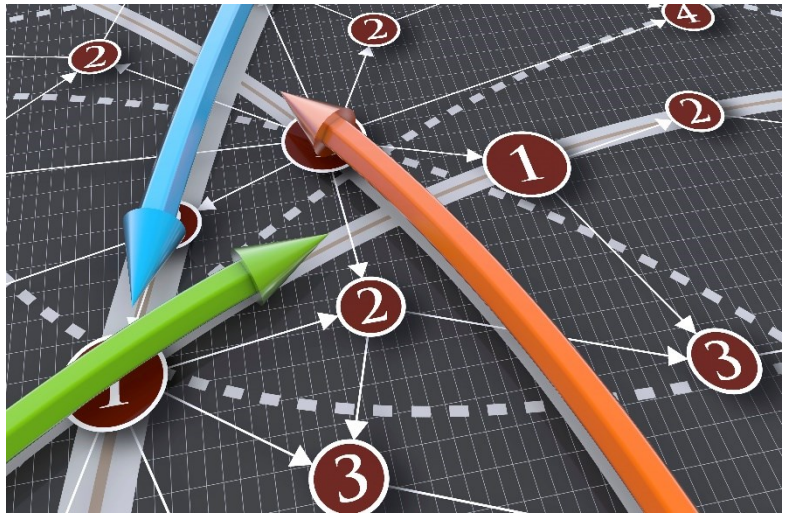
- Passively collected time stamped location data based on individual trips
  - Departure time and location (trip origin)
  - Route selection and travel time
  - Arrival time and location (trip destination)
  - All personally identifiable info is removed



Applications

Understand...

- Origin-Destination Patterns
- Mode and Route Selection
- Trip Travel Time



So you can...

- Asses network performance
- Drive policy changes
- Inform decisions on transportation system investment

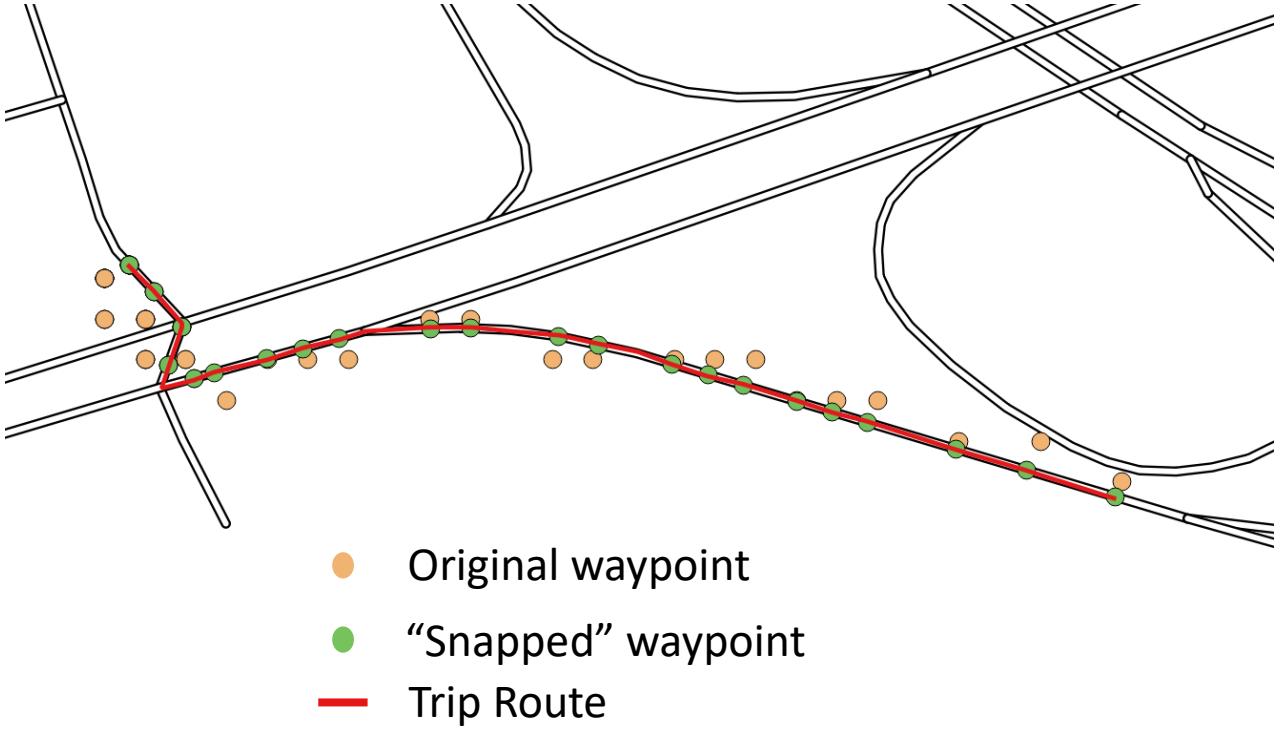
Before analysis begins:

Ingest *Very Big* data

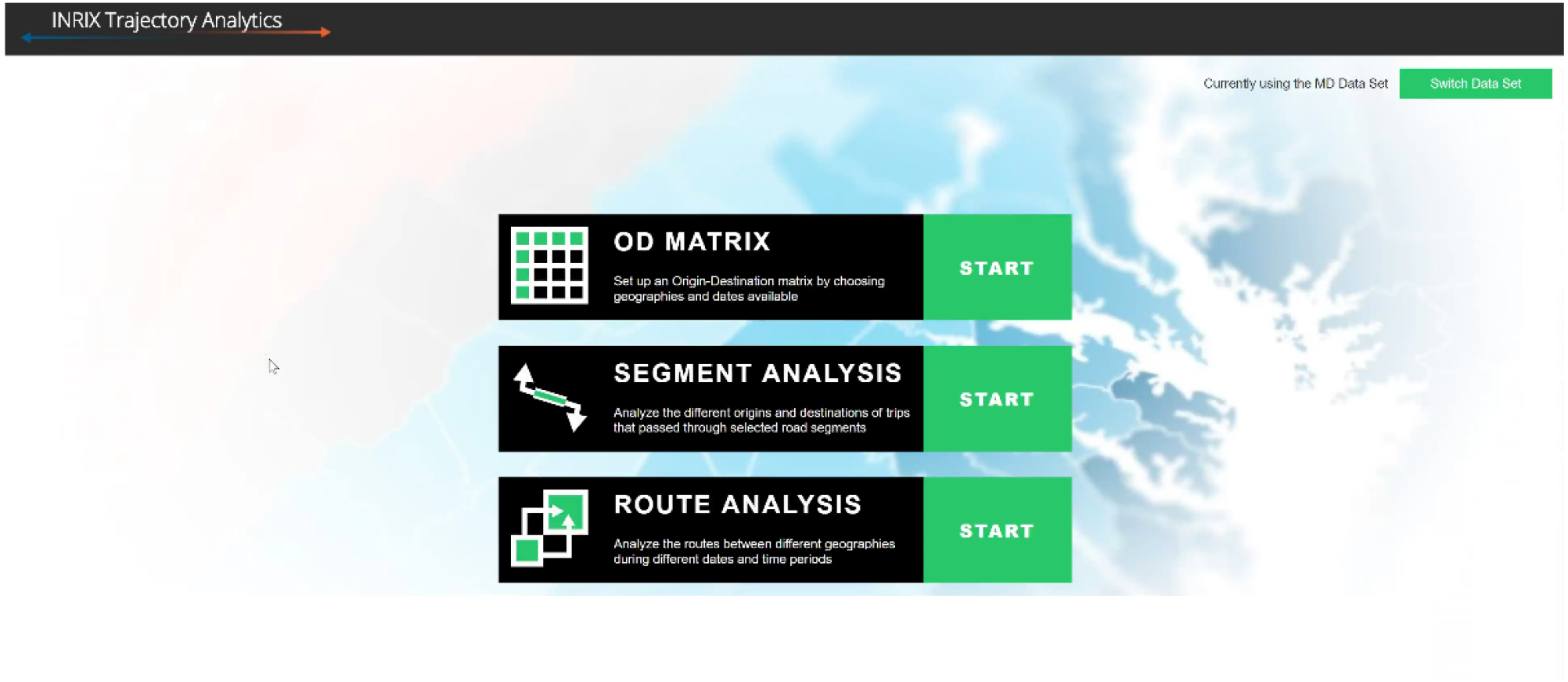
- 4 Months for MD
  - 20 Million trips
  - 1.4 Billion waypoints
  - 112 GB of data

Clean it

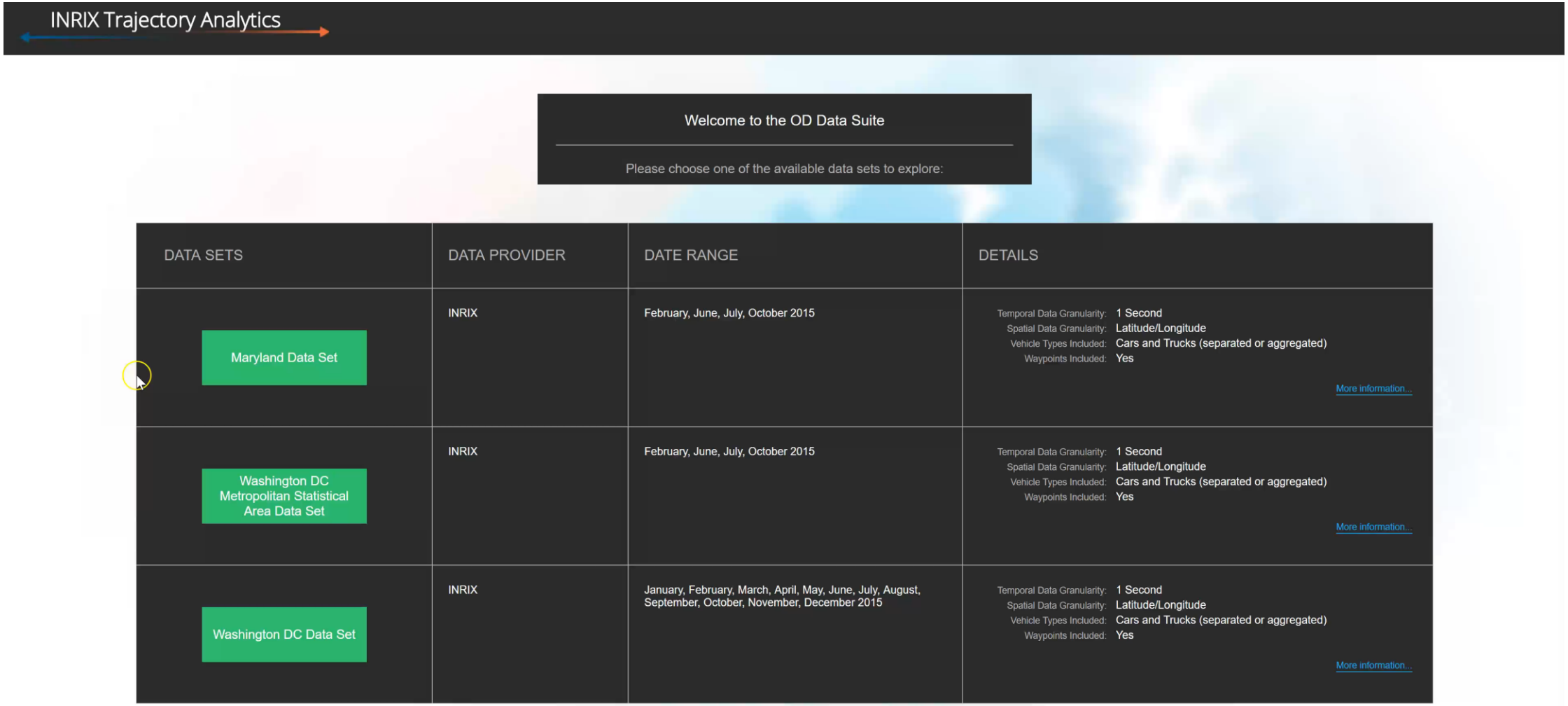
- Snap waypoints to roads
- Determine route(s)



New Suite of Tools: **Trajectory Analytics**



Developing a “pass through” trip map visualization



Another new suite of tools: (name TBD)

Signalized Grid Performance Monitoring

Using New Data Sources

(the **SGPMUNDS Suite**?)

INTERSECTION ANALYSIS TOOL

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer ultrices nibh lacus, eget blandit sapien sagittis sed.

1. Select a region or intersection

- (•) Region
  - Select a state: New York
  - Select a county: New York
  - Select a zip code: Enter zipe code...
- ( ) Intersection

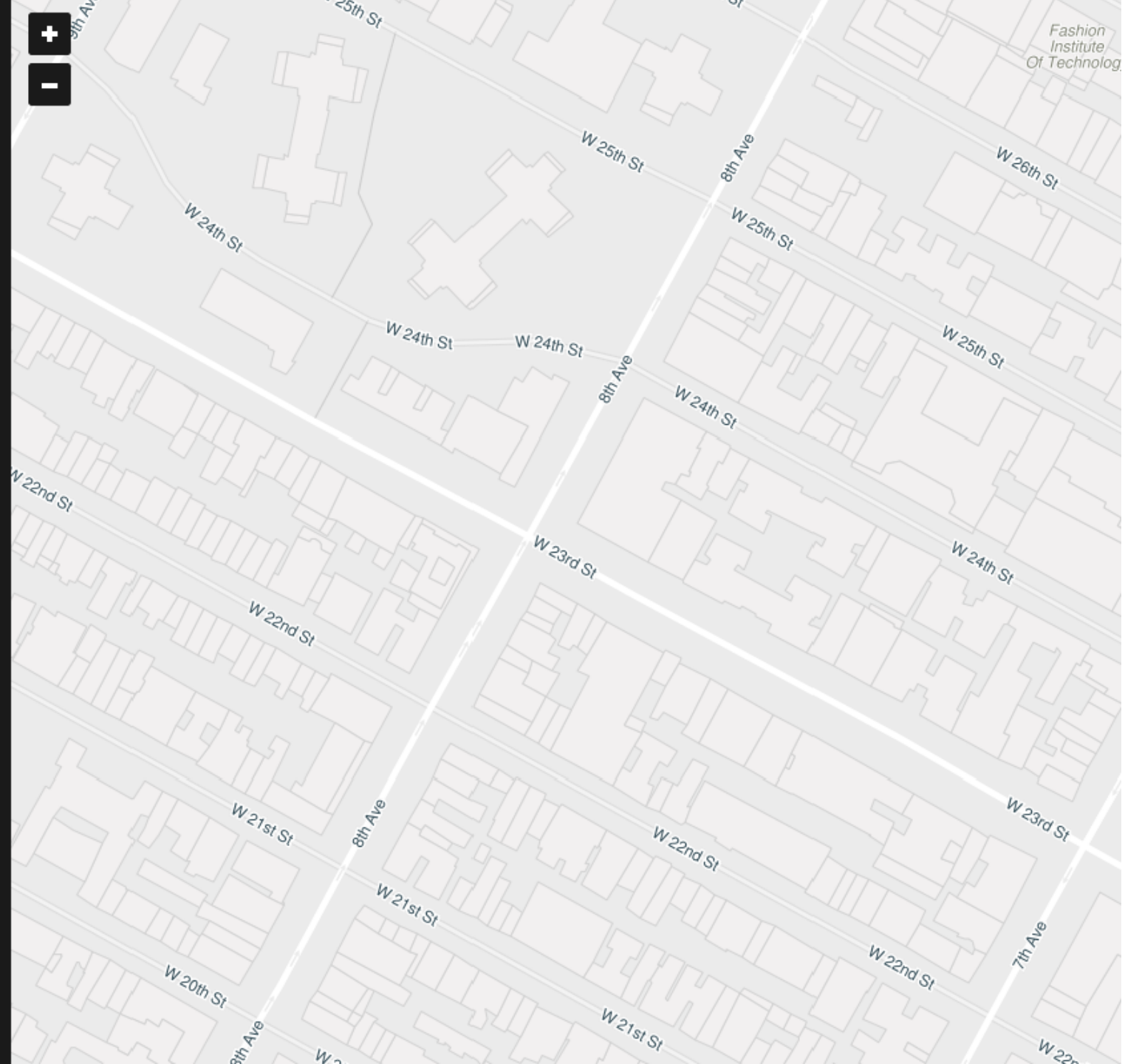
2. Select a date range

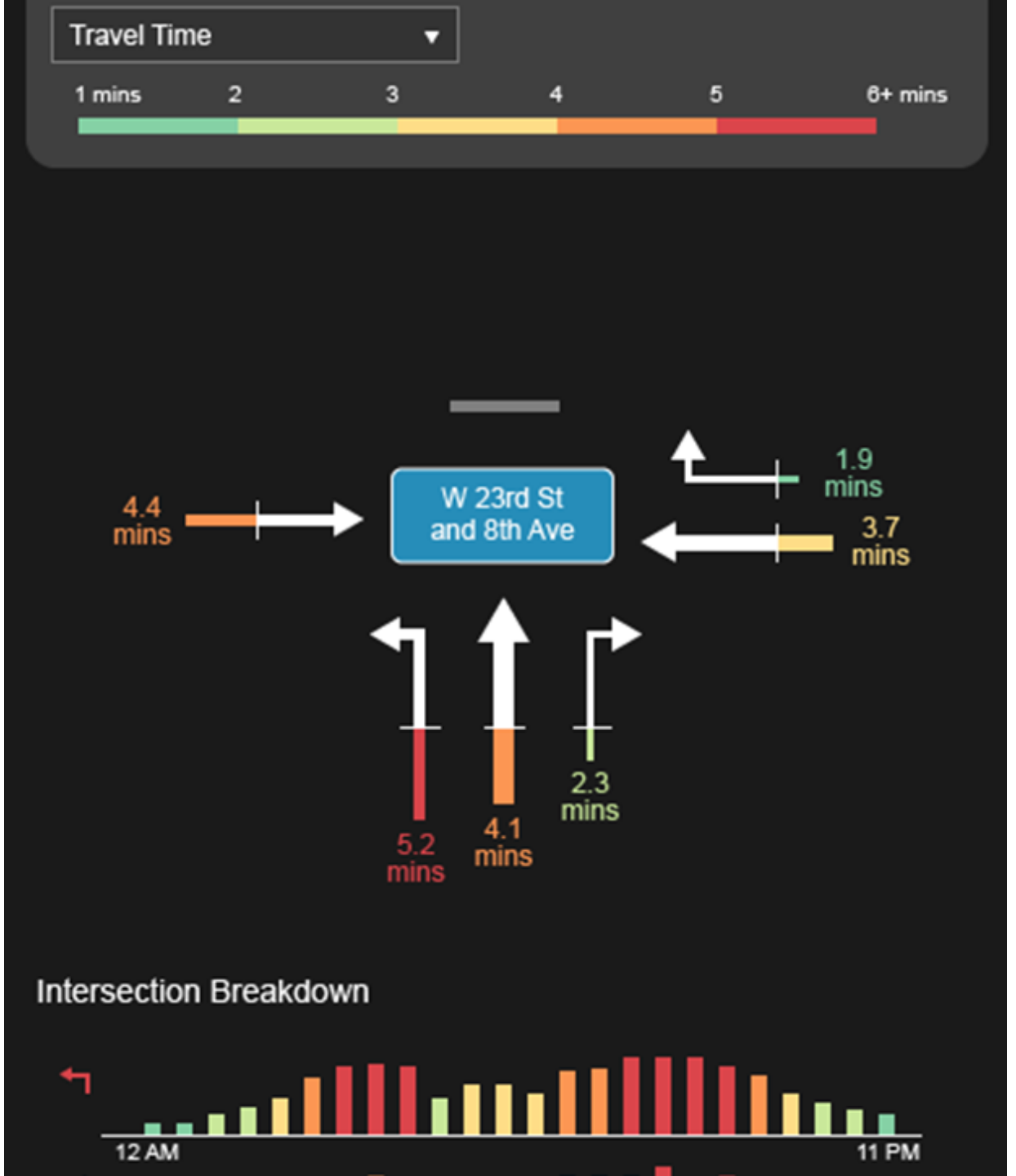
05/10/2018 -through- 05/10/2018

Select days of week

☑ Sun ☑ Mon ☑ Tue ☑ Wed ☑ Thu ☑ Fri ☑ Sat

Find Intersection




Travel Time
1 mins
2
3
4
5
6+ mins
W 23rd St
and 8th Ave
4.4
mins
1.9
mins
3.7
mins
5.2
mins
4.1
mins
2.3
mins
Intersection Breakdown
12 AM
11 PM

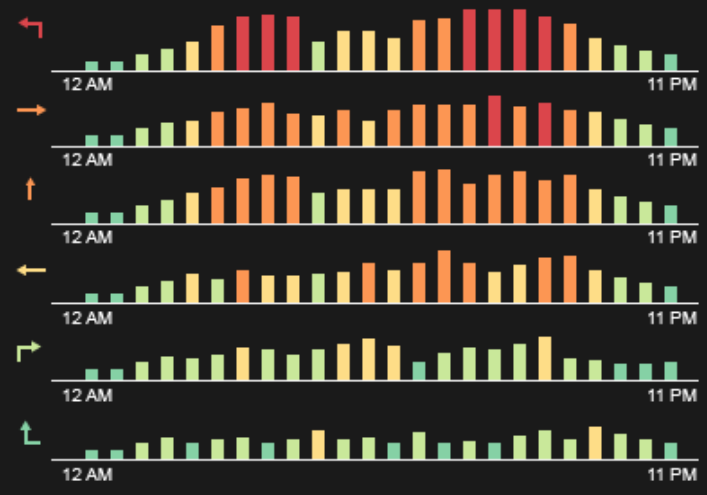
Region
Zip code: 10011

Date range
05/10/2018 SMTWTFS

Travel Time

1 mins 2 3 4 5 6+ mins

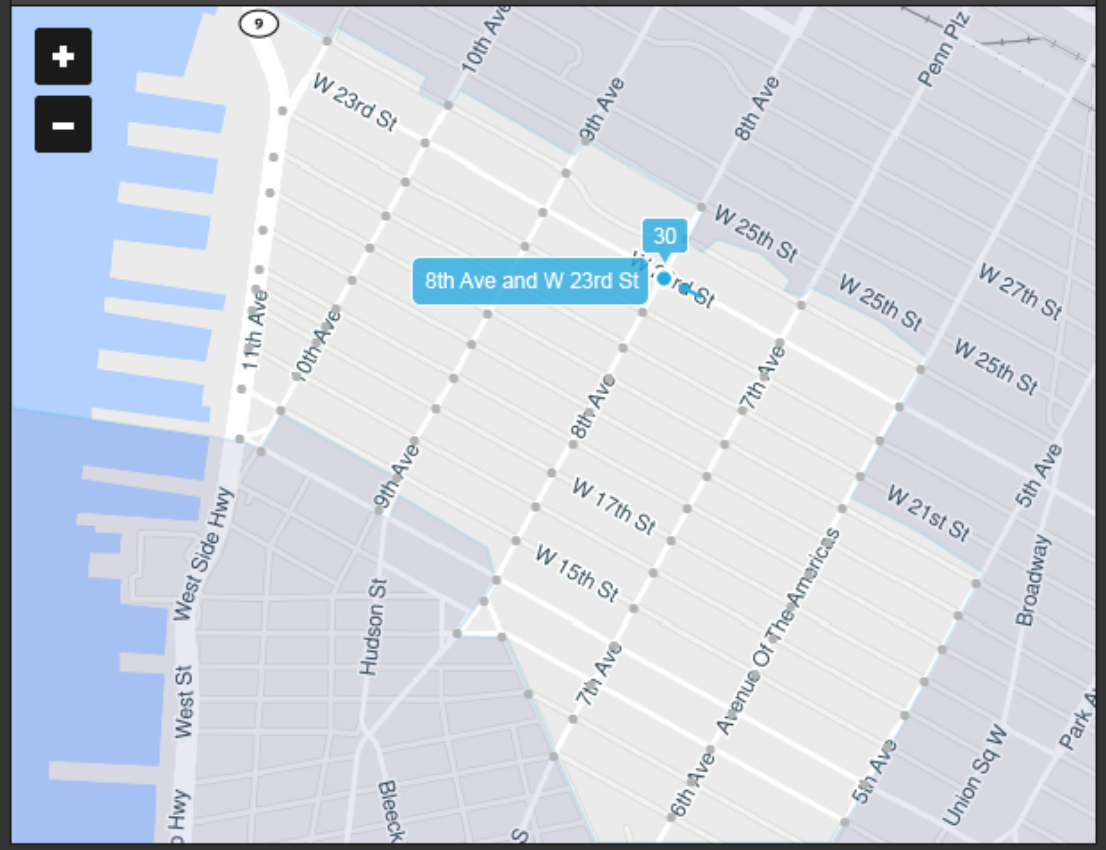
Intersection Breakdown



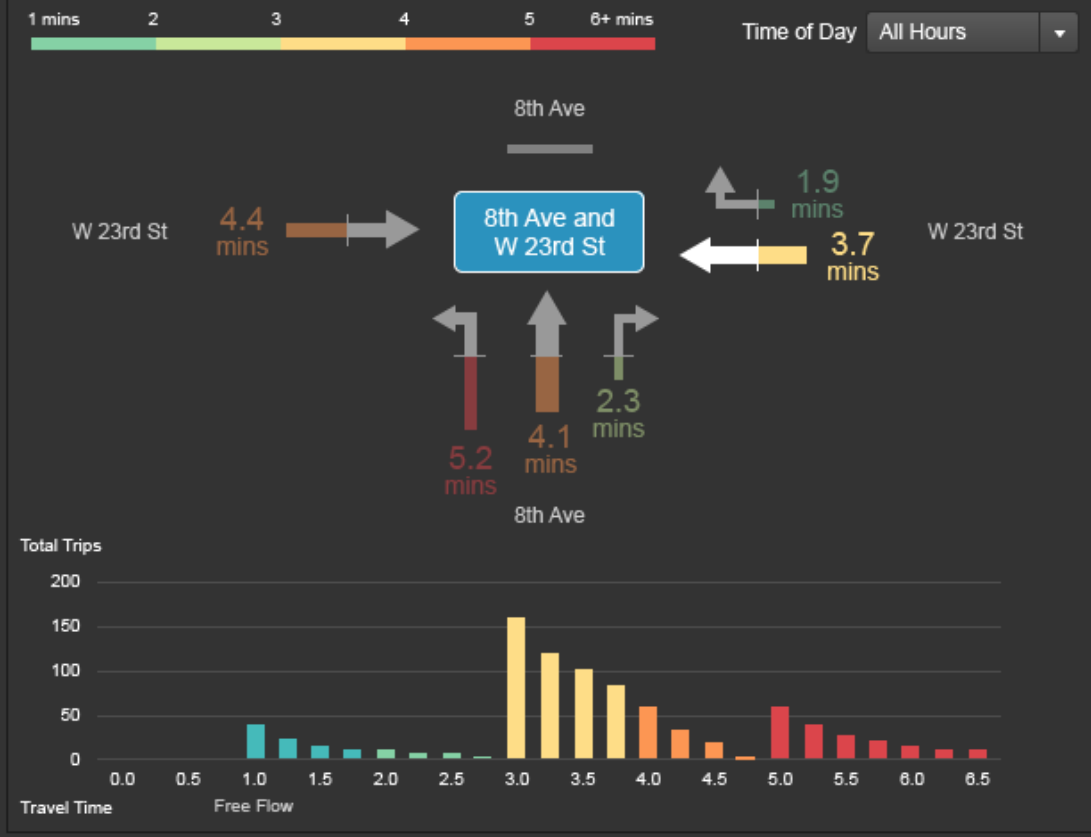
Ranked intersection movements in the 10011 zip code for the date range of 05/06/18 through 05/12/18

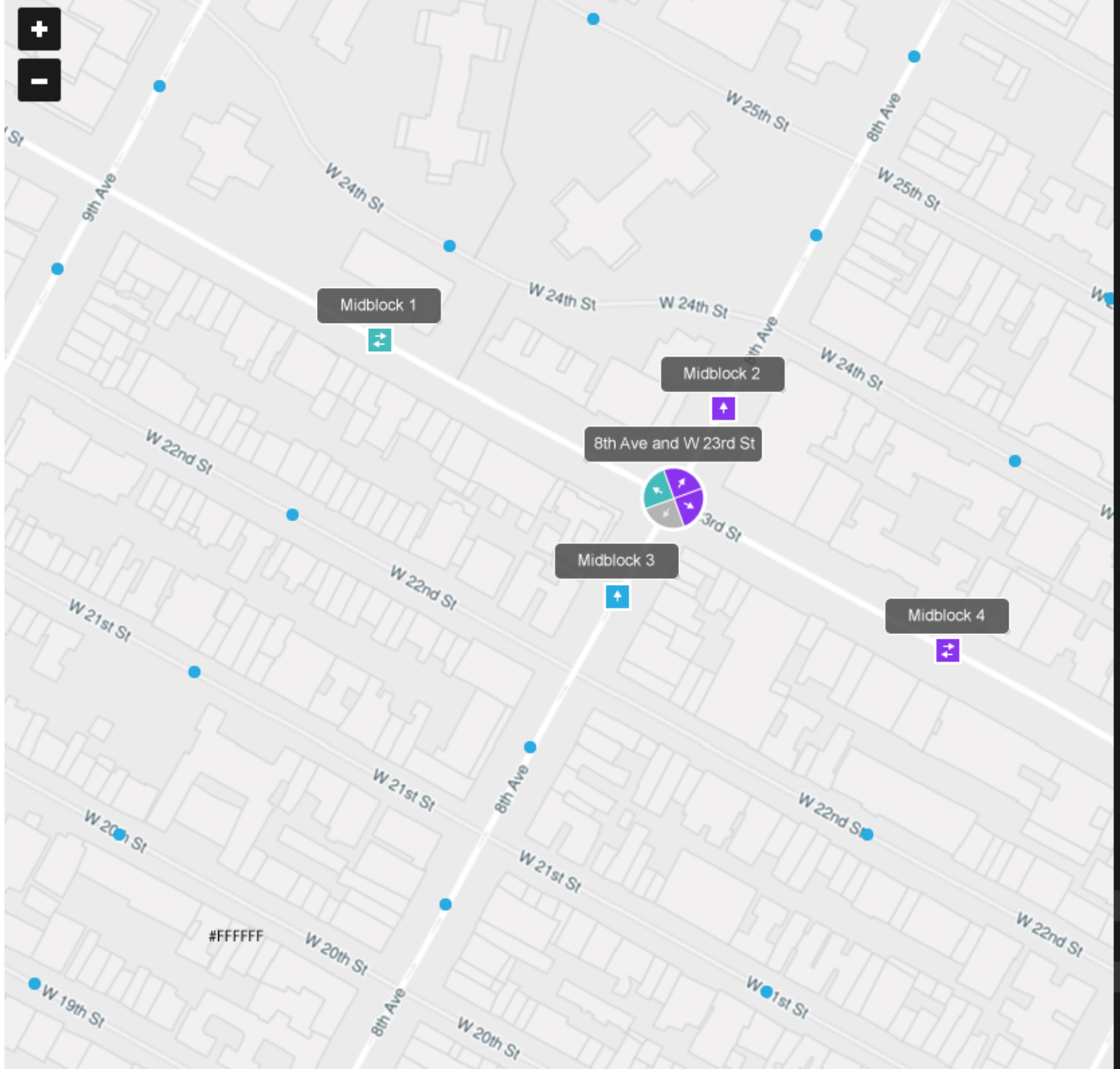
Rank	Map	Intersection	Approach	Movement	Volume	User Delay Cost	▲ Average Travel Time	25th Precentile	75th Precentile	5th Precentile	95th Precentile
1	☑	8th Ave at W 23rd St	Northbound	Left	489	$4,235.00	5.5 mins	2.5 mins	7.2 mins	1.5 mins	7.5 mins
2	☐	W 20th St at 8th Ave	Eastbound	Through	761	$4,194.00	5.2 mins	2.1 mins	6.9 mins	1.4 mins	7.1 mins
3	☐	W 19th St at 9th Ave	Westbound	Left	504	$4,895.00	5.0 mins	2.1 mins	6.8 mins	1.4 mins	6.9 mins
4	☐	W 23rd St at 8th Ave	Eastbound	Through	210	$2,305.00	4.9 mins	1.7 mins	7.1 mins	1.2 mins	7.2 mins
5	☐	W 20th St at 8th Ave	Westbound	Left	354	$3,204.00	4.7 mins	1.8 mins	6.6 mins	1.3 mins	6.8 mins
6	☐	7th Ave at W 17th St	Southbound	Through	159	$2,987.00	4.7 mins	1.5 mins	6.3 mins	1.2 mins	6.6 mins
7	☐	W 15th St at 11th Ave	Westbound	Left	263	$2,516.00	4.5 mins	1.4 mins	6.0 mins	1.1 mins	6.5 mins
8	☐	W 19th St at 6th Ave	Westbound	Right	186	$1,425.00	4.4 mins	0.8 mins	5.8 mins	0.6 mins	6.2 mins
9	☐	W 14th St at 7th Ave	Eastbound	Through	218	$1,546.00	4.3 mins	1.5 mins	5.6 mins	1.0 mins	6.0 mins
10	☐	W 21st St at 10th Ave	Eastbound	Left	135	$1,204.00	4.0 mins	0.7 mins	5.5 mins	0.5 mins	6.0 mins

Map | Display Options



Intersection Breakdown | 8th Ave at W 23rd St | Travel Time | Display Options





Intersection

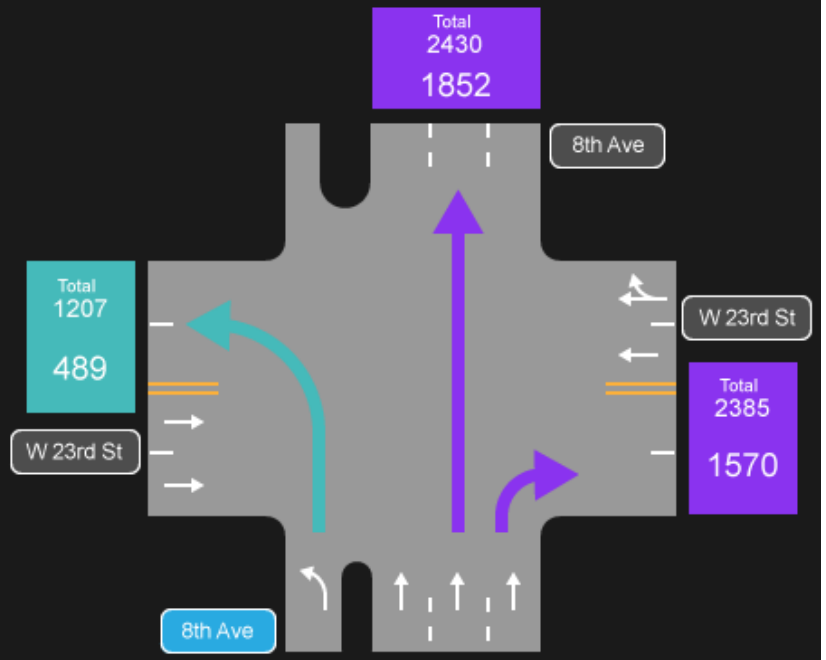
8th Ave and W 23rd St

Date range

05/10/2018 SMTWTFS

Metric

Number of vehicles passed through

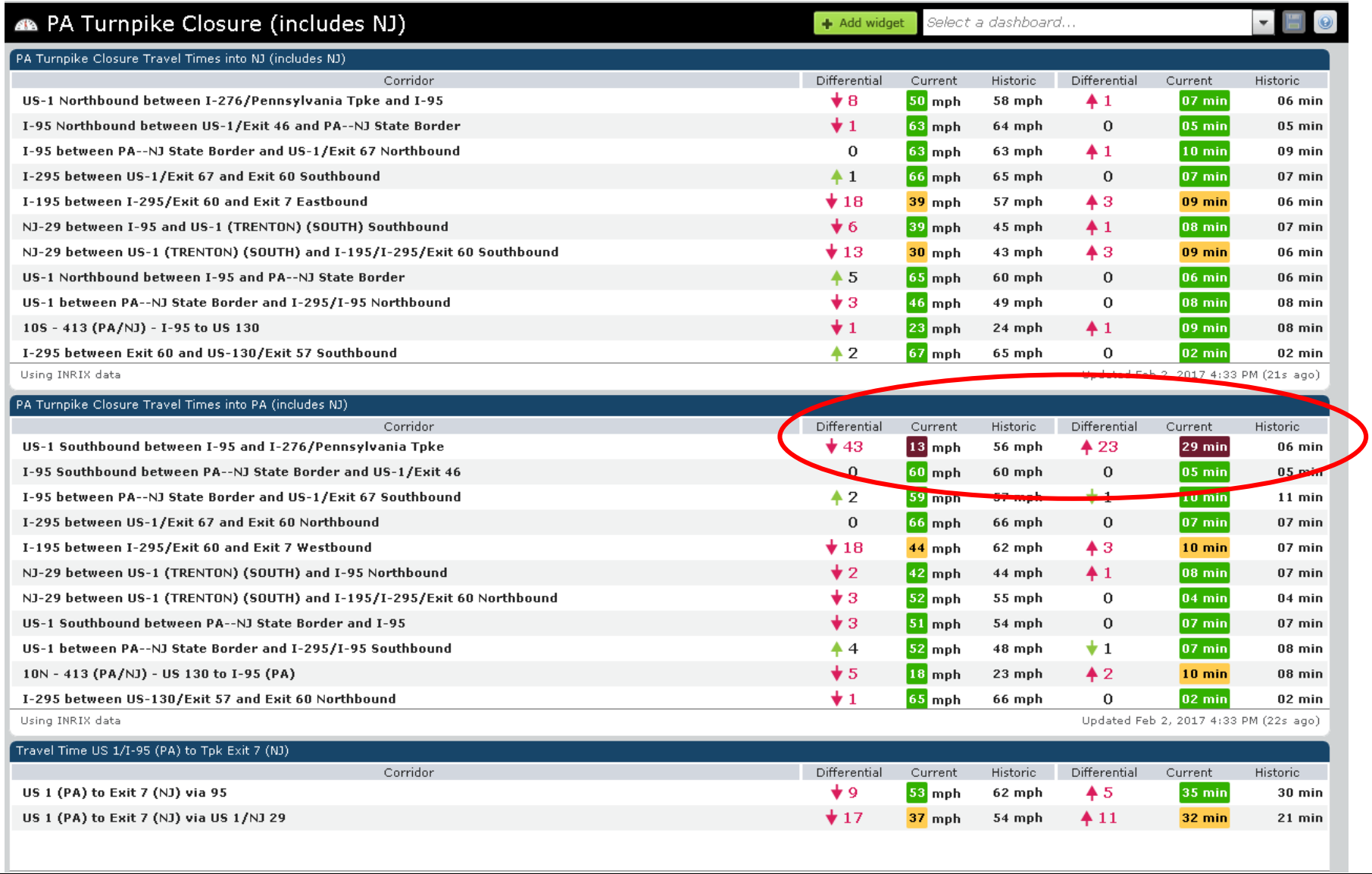


Midblock	Trips from intersection to midblock	6AM - 9AM	12PM - 3PM	6PM - 9PM
Midblock 1	1207	415	248	544
Midblock 2	2430	830	529	1071
Midblock 3	0	0	0	0
Midblock 4	2385	802	787	796

0 - 500 500 - 1000 1000 - 1500 1500 - 2000 2000 - 2500

Self-creating, dynamic dashboards

PDA Dashboard for real time traffic monitoring



PA Turnpike Closure (includes NJ)

Add widget | Select a dashboard...

PA Turnpike Closure Travel Times into NJ (includes NJ)

Corridor	Differential	Current	Historic	Differential	Current	Historic
US-1 Northbound between I-276/Pennsylvania Tpke and I-95	↓ 8	50 mph	58 mph	↑ 1	07 min	06 min
I-95 Northbound between US-1/Exit 46 and PA--NJ State Border	↓ 1	63 mph	64 mph	0	05 min	05 min
I-95 between PA--NJ State Border and US-1/Exit 67 Northbound	0	63 mph	63 mph	↑ 1	10 min	09 min
I-295 between US-1/Exit 67 and Exit 60 Southbound	↑ 1	66 mph	65 mph	0	07 min	07 min
I-195 between I-295/Exit 60 and Exit 7 Eastbound	↓ 18	39 mph	57 mph	↑ 3	09 min	06 min
NJ-29 between I-95 and US-1 (TRENTON) (SOUTH) Southbound	↓ 6	39 mph	45 mph	↑ 1	08 min	07 min
NJ-29 between US-1 (TRENTON) (SOUTH) and I-195/I-295/Exit 60 Southbound	↓ 13	30 mph	43 mph	↑ 3	09 min	06 min
US-1 Northbound between I-95 and PA--NJ State Border	↑ 5	65 mph	60 mph	0	06 min	06 min
US-1 between PA--NJ State Border and I-295/I-95 Northbound	↓ 3	46 mph	49 mph	0	08 min	08 min
10S - 413 (PA/NJ) - I-95 to US 130	↓ 1	23 mph	24 mph	↑ 1	09 min	08 min
I-295 between Exit 60 and US-130/Exit 57 Southbound	↑ 2	67 mph	65 mph	0	02 min	02 min

Using INRIX data — Updated Feb 2, 2017 4:33 PM (21s ago)

PA Turnpike Closure Travel Times into PA (includes NJ)

Corridor	Differential	Current	Historic	Differential	Current	Historic
US-1 Southbound between I-95 and I-276/Pennsylvania Tpke	↓ 43	13 mph	56 mph	↑ 23	29 min	06 min
I-95 Southbound between PA--NJ State Border and US-1/Exit 46	0	60 mph	60 mph	0	05 min	05 min
I-95 between PA--NJ State Border and US-1/Exit 67 Southbound	↑ 2	59 mph	57 mph	↓ 1	10 min	11 min
I-295 between US-1/Exit 67 and Exit 60 Northbound	0	66 mph	66 mph	0	07 min	07 min
I-195 between I-295/Exit 60 and Exit 7 Westbound	↓ 18	44 mph	62 mph	↑ 3	10 min	07 min
NJ-29 between US-1 (TRENTON) (SOUTH) and I-95 Northbound	↓ 2	42 mph	44 mph	↑ 1	08 min	07 min
NJ-29 between US-1 (TRENTON) (SOUTH) and I-195/I-295/Exit 60 Northbound	↓ 3	52 mph	55 mph	0	04 min	04 min
US-1 Southbound between PA--NJ State Border and I-95	↓ 3	51 mph	54 mph	0	07 min	07 min
US-1 between PA--NJ State Border and I-295/I-95 Southbound	↑ 4	52 mph	48 mph	↓ 1	07 min	08 min
10N - 413 (PA/NJ) - US 130 to I-95 (PA)	↓ 5	18 mph	23 mph	↑ 2	10 min	08 min
I-295 between US-130/Exit 57 and Exit 60 Northbound	↓ 1	65 mph	66 mph	0	02 min	02 min

Using INRIX data — Updated Feb 2, 2017 4:33 PM (22s ago)

Travel Time US 1/I-95 (PA) to Tpk Exit 7 (NJ)

Corridor	Differential	Current	Historic	Differential	Current	Historic
US 1 (PA) to Exit 7 (NJ) via 95	↓ 9	53 mph	62 mph	↑ 5	35 min	30 min
US 1 (PA) to Exit 7 (NJ) via US 1/NJ 29	↓ 17	37 mph	54 mph	↑ 11	32 min	21 min

Build and save Dashboards for single event or on-going traffic monitoring, impact mitigation assessment or after action reviews.

User Delay Cost Table

Maryland Statewide User Delay Cost

Hide Map

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual Total
2018	$90.9M	$101.2M	$129.5M	$120.9M	$159.1M								——
2017	$81.2M	$75.4M	$114.5M	$120.3M	$142.4M	$136.1M	$113.8M	$113.6M*	$116.7M	$133.5M	$134.6M	$123.7M	$1.4T
2016	$105.8M	$89.7M*	$92.5M	$104.9M	$119.2M	$132.7M	$104.2M	$116.9M	$118.8M*	$120.4M	$124.7M	$105.7M	$1.3T

Legend

Lowest — Highest

Data Unavailable

Based on lowest value of all years to highest value of all years

**Missing data; below 60% of data available*

Using INRIX data

Updated June 6, 2018

User Delay Cost Table

Maryland Statewide User Delay Cost

Month	2018	Differential	2017
Jan	$90.9M	↑ $9.7M	$81.2M
Feb	$101.2M	↑ $25.8M	$75.4M
Mar	$129.5M	↑ $15.0M	$114.5M
Apr	$120.9M	↑ $0.6M	$120.3M
May	$159.1M	↑ $16.7M	$142.4M

Show Map

Using INRIX data

Updated June 6, 2018

Reliability Ranking Table

AM Peak

May 2018

Least Reliable Locations

	Location	Reliability ▲	Differential	April's Reliability
1	I-95	20%	↑ 8%	12%
2	I-295	29%	↑ 2%	27%
3	I-270 SPUR	30%	↑ 4%	26%
4	I-495	35%	↓ - 2%	37%
5	Greenspring AVE	37%	↑ 3%	34%
6	Huntington PWKY	47%	↑ 7%	40%
7	Edmondson AVE	49%	↑ 4%	45%
8	Frederick RD	53%	↓ - 4%	57%
9	Baltimore AVE	56%	↓ - 5%	61%
10	Guilford RD	64%	↓ - 2%	66%

Event Count Table

Maryland

Event Types

April 1, 2018 to May 31, 2018

April to May **2018**

2234

total

Action Events

10.26%

of all events that occured

April to May **2017**

1721

total

Action Events

9.67%

of all events that occured

Updated Jun 5, 2018 12:54 PM (9m ago)

Transportation Analytics: Self-creating, ever-changing Dashboards

Each widget can be laid out in a single page view that can be recalled by the user quickly and easily.

PLANNING TIME INDEX

Montgomery County MD

Current	Last month	Last year
2.5	2.7	2.8
December 2014	November 2014	2013

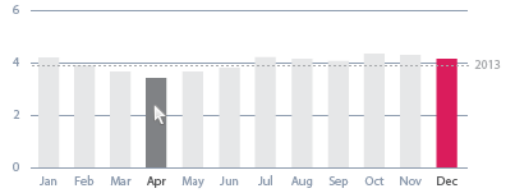
Updated Dec 5, 2014 9:55 AM (44s ago)

PLANNING TIME INDEX

3 Maryland Counties

Carroll, Calvert and Montgomery

Current	Past month	Last year
4.2	3.9	4.0
December 2014	April 2014	2013



Updated Dec 5, 2014 9:55 AM (44s ago)

Top Bottlenecks

	State	Location	Length (miles)	Duration
1	NJ	NJ-35 N @ HERBERT ST	6.6	12 min
2	VA	I-95 N @ VA-7100/EXIT 166	5.4	25 min
3	MD	I-495 CW @ MD-4/PENNSYLVANIA AVE/EXIT 11	4.7	34 min
4	MD	MD-355 S @ MONTROSE RD/RANDALPH RD	3.3	12 min
5	VA	I-66 E @ VA-7/LEESBURG PIKE/EXIT 66	3.1	5 h 35 min
6	MD	MD-295 S @ I-195	2.9	38 min
7	NJ	RTE-581 S @ NJ-49/QUINTON RD	2.9	14 min
8	DC	CLARA BARTON PKWY E @ MARYLAND AVE	2.6	2 h 36 min
9	NJ	NJ-72 E @ W BAY AVE	2.4	12 min
10	VA	FURNACE RD S @ US-1/RICHMOND HWY (LORTON) (WEST)	2.3	1 h 02 min

Updated Dec 5, 2014 9:55 AM (44s ago)

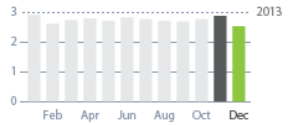
Maryland Performance

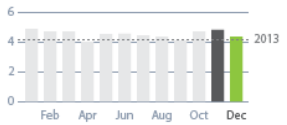
	Average Speed			Travel Time		
Corridor	Differential	Current	Historic	Differential	Current	Historic
I-270 Northbound Between MD-28/MONTG...	↑ 10	55 mph	45 mph	↓ 5	15 min	20 min
I-270 Southbound Between MD-28/MONTG...	↓ -2	45 mph	47 mph	↑ 3	22 min	19 min
I-495 Clockwise Between MD-295/MD-193...	↓ -18	24 mph	42 mph	↑ 8	30 min	22 min
I-495 Counter Clockwise Between MD-295...	↓ -37	10 mph	47 mph	↑ 9	28 min	19 min
Route 29 Northbound	-	45 mph	45 mph	-	22 min	22 min

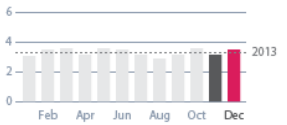
Updated Dec 5, 2014 9:55 AM (44s ago)

Regional performance table

	PLANNING TIME INDEX			BUFFER TIME INDEX			TRAVEL TIME INDEX		
Region	Current	Last month	Last year	Current	Last month	Last year	Current	Last month	Last year
MD Montgomery County	2.5	2.8	3.0	4.3	4.6	4.1	3.6	3.2	3.4
MD Calvert County	2.5	2.8	3.0	4.3	4.6	4.1	3.6	3.2	3.4
MD Carroll County	3.8	3.6	3.9	3.8	3.6	3.9	3.8	3.6	3.9
DC	2.2	2.2	2.5	2.2	2.2	2.5	2.2	2.2	2.5



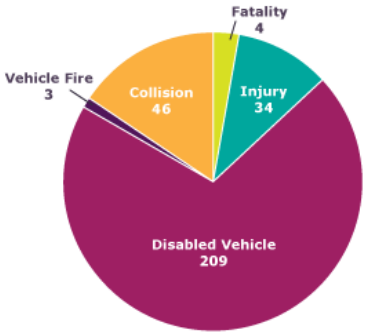




Updated Dec 5, 2014 9:55 AM (44s ago)

Pie Chart

Incidents along I-495



12/01/13 to 12/31/13

For additional information:

Greg Jordan

UMD CATT Lab

gjordan1@umd.edu

Working Lunch

Woodrow Wilson Bridge
AAR Review Meeting Briefing

Taran Hutchinson

Metropolitan Area Transportation Operations Coordination (MATOC)

MATOC

Metropolitan Area Transportation Operations Coordination

Tractor Trailer Crash & Fire

Woodrow Wilson Bridge

(June 20, 2018)

Taran Hutchinson
MATOC Facilitator

District Department of Transportation

MARYLAND DEPARTMENT OF TRANSPORTATION

VDOT Virginia Department of Transportation

metro

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

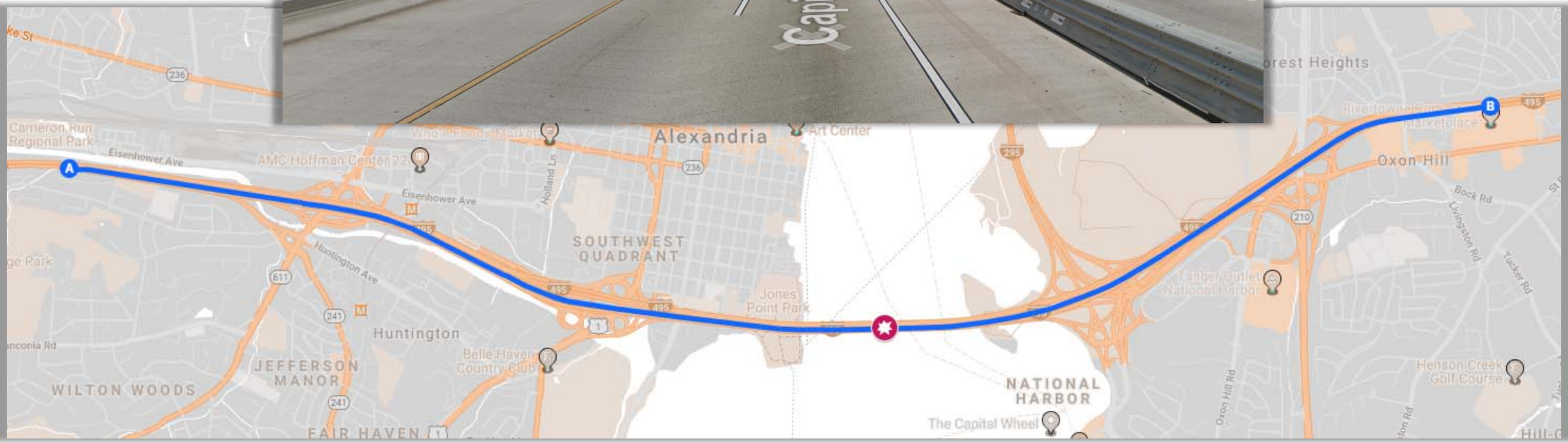
MATOC
Metropolitan Area Transportation Operations Coordination

Wednesday, June 20, 2018 (late morning)

d. District Department of Transportation
MDOT Maryland Department of Transportation
VDOT Virginia Department of Transportation
M metro

MATOC
Metropolitan Area Transportation Operations Coordination

Incident Location:
I-95/495 NB Outer Loop Thru Lanes



District Department of Transportation
MARYLAND DEPARTMENT OF TRANSPORTATION
VDOT Virginia Department of Transportation
metro

October 3, 2018
I-95 Corridor Coalition's Potomac HOG Peer Exchange

MATOC
Metropolitan Area Transportation Operations Coordination

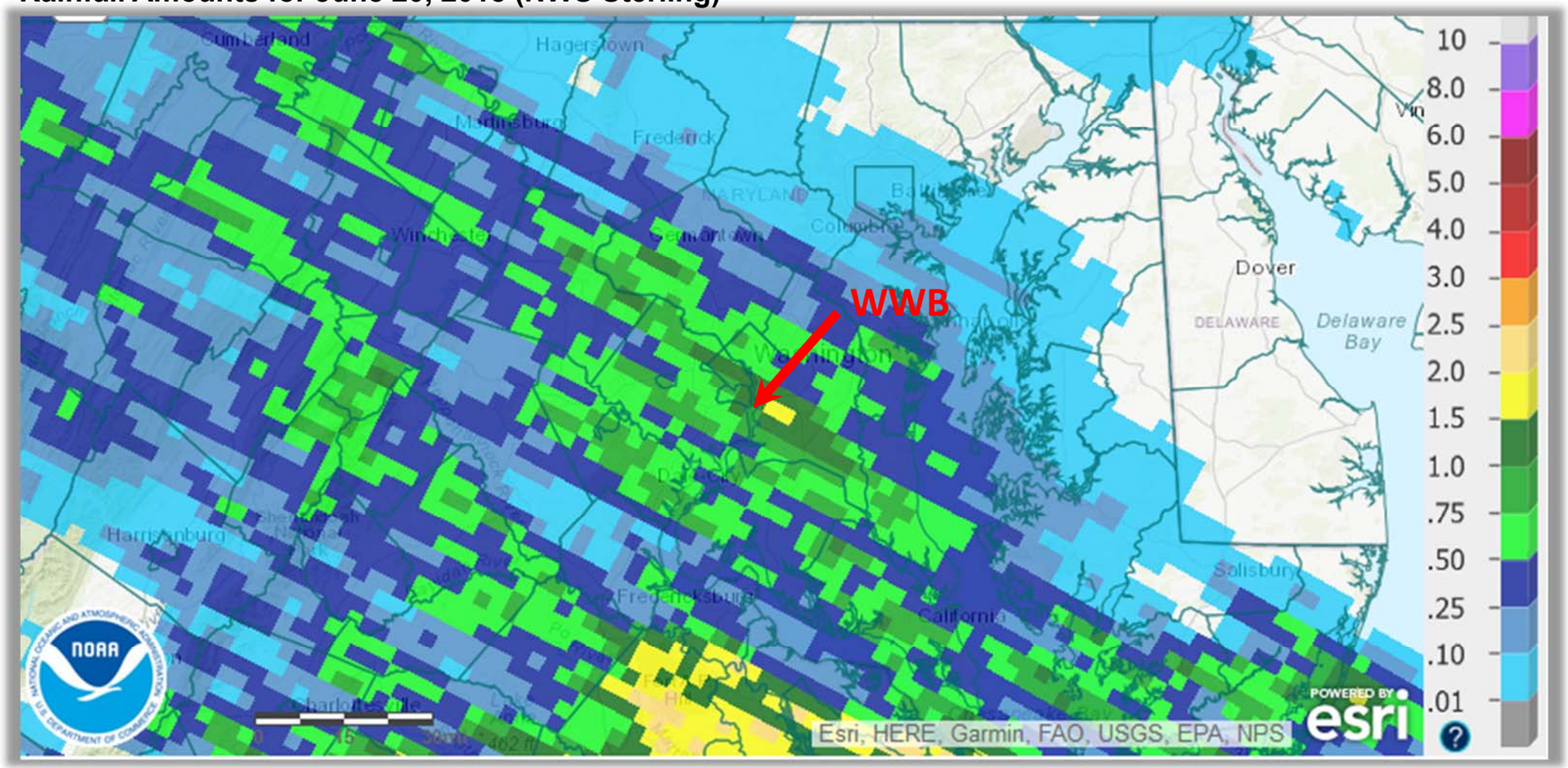
Incident Summary

- Wednesday, June 20, 2018 (~10:45am)
- Tractor Trailer Crash & Fire. I-95/495 NB (Outer Loop) Thru Lanes on Woodrow Wilson Bridge, Prince George's County, MD
  - Bridge inspection attenuator truck, snooper truck, and pickup struck
  - Involves a fatality (tractor trailer driver)
  - Rescue of trapped work crew below the bridge
  - Temporary closure of the bridge (all lanes)
  - Extensive recovery and cleanup operations required
  - Northbound Outer Loop Thru Lanes closed for most of the day
  - Late afternoon/early evening precipitation
- Planned Events
  - Midday Rally/March near the National Mall and Pennsylvania Ave (5,000+)
  - Evening MLB Event: Baltimore Orioles at Washington Nationals (41,000+)

MATOC
Metropolitan Area Transportation Operations Coordination

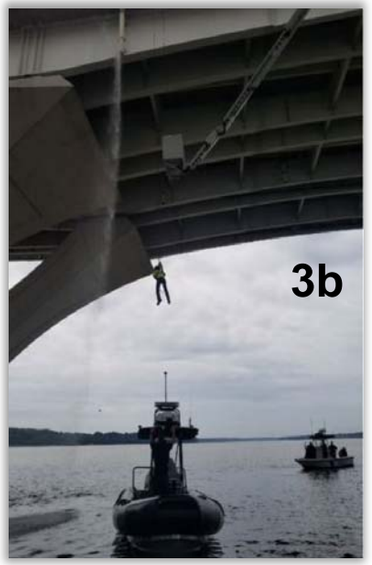
Incident Scene: Weather

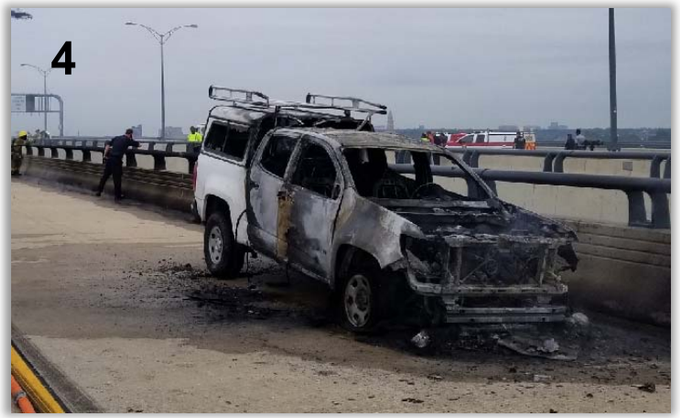
Rainfall Amounts for June 20, 2018 (NWS Sterling)



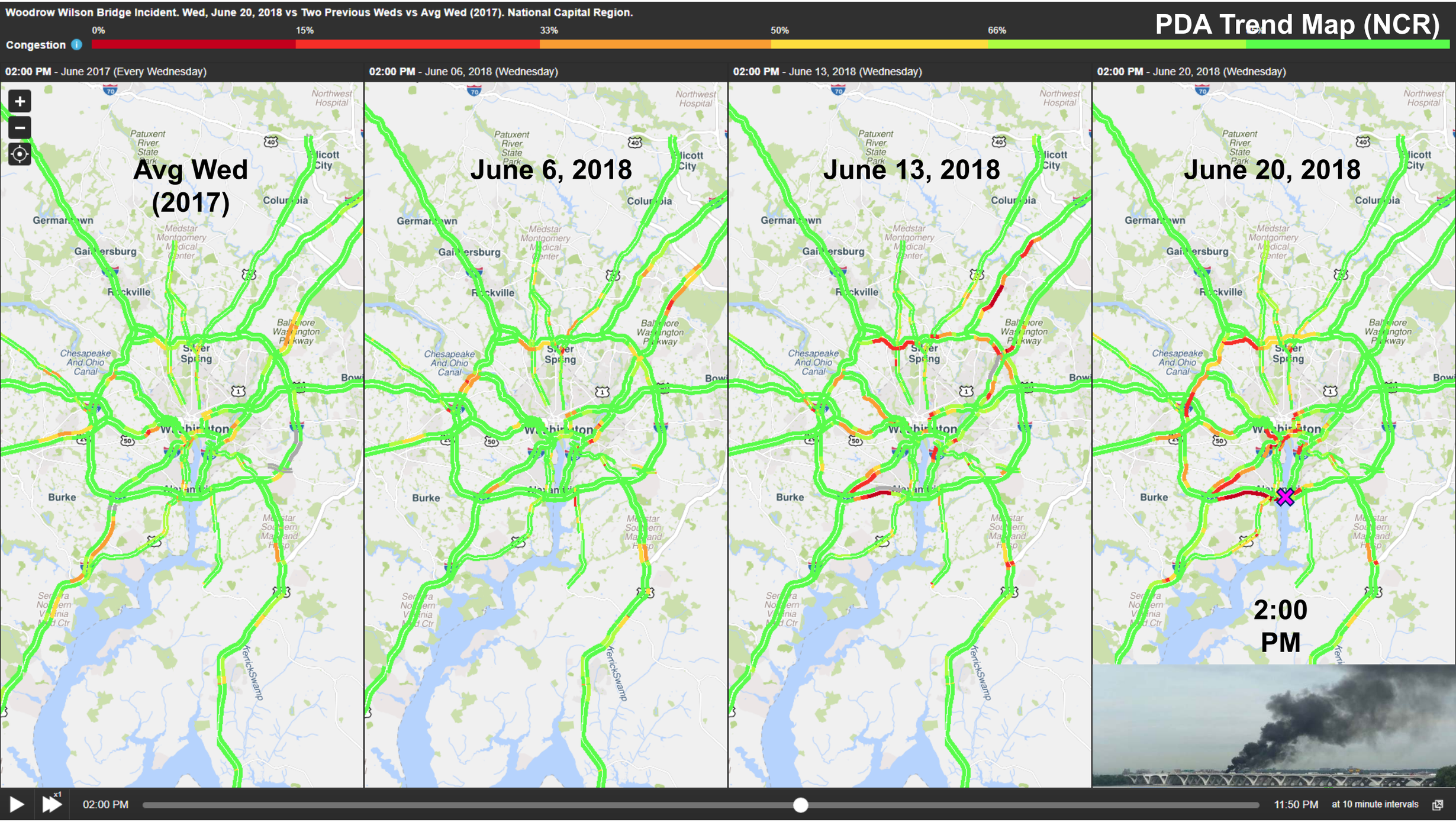
MATOC
Metropolitan Area Transportation Operations Coordination

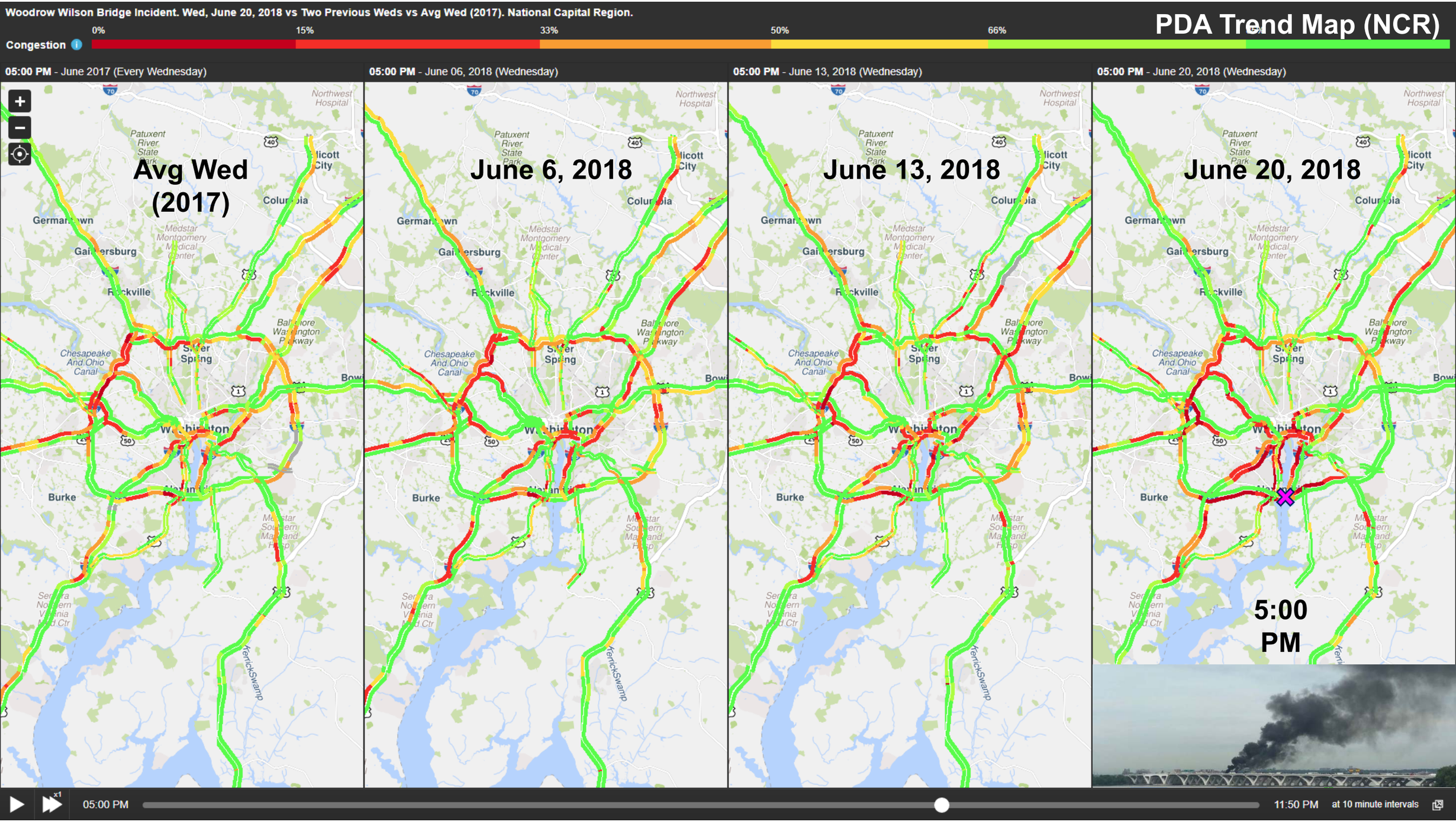
Incident Scene: WWB NB Thru Lanes

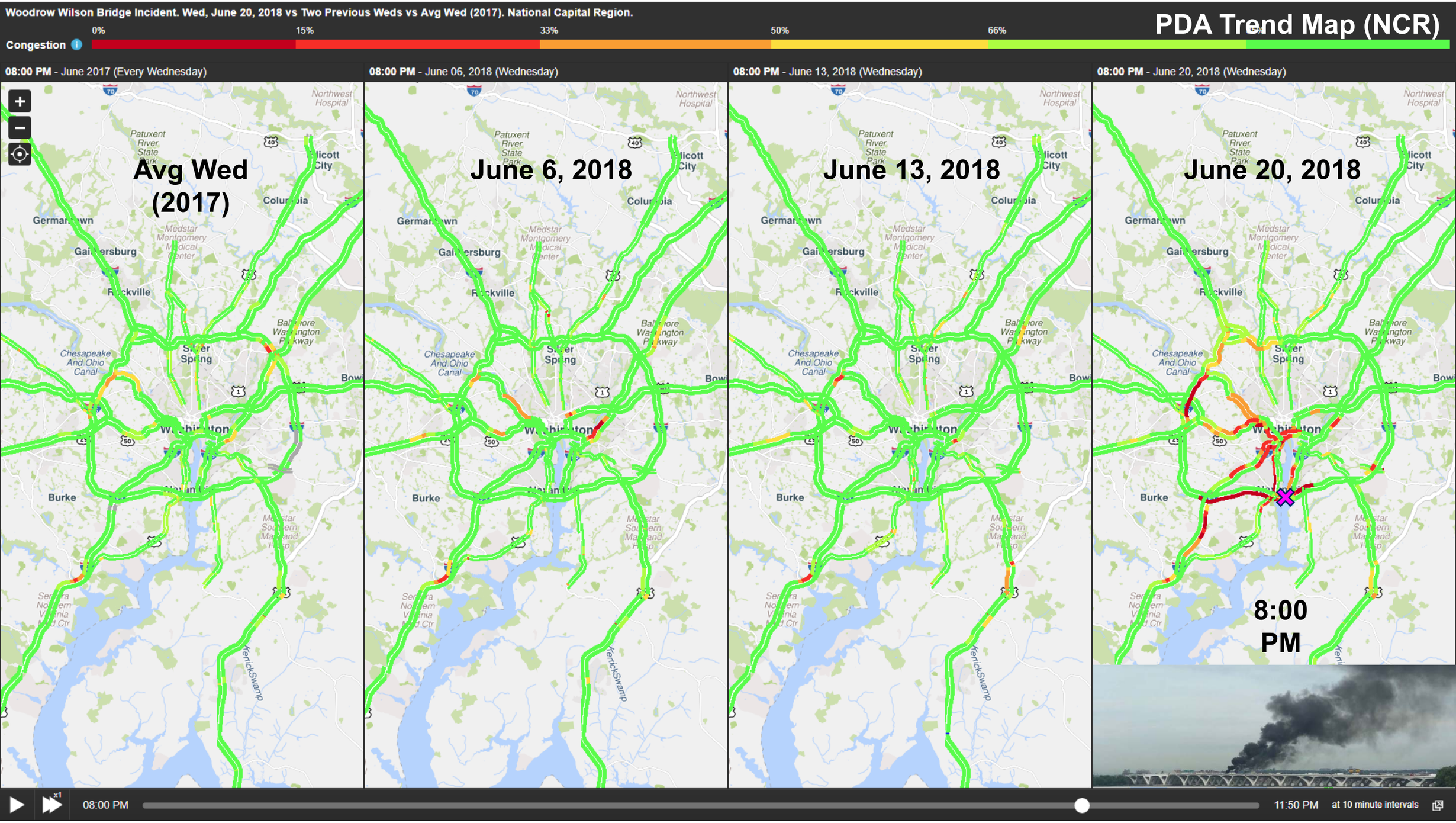




District Department of Transportation
MARYLAND DEPARTMENT OF TRANSPORTATION
VDOT Virginia Department of Transportation
metro


Woodrow Wilson Bridge Incident. Wed, June 20, 2018 vs Two Previous Weds vs Avg Wed (2017). National Capital Region.
PDA Trend Map (NCR)
Congestion
0%
15%
33%
50%
66%
02:00 PM - June 2017 (Every Wednesday)
02:00 PM - June 06, 2018 (Wednesday)
02:00 PM - June 13, 2018 (Wednesday)
02:00 PM - June 20, 2018 (Wednesday)
Avg Wed (2017)
June 6, 2018
June 13, 2018
June 20, 2018
2:00 PM
02:00 PM
11:50 PM
at 10 minute intervals

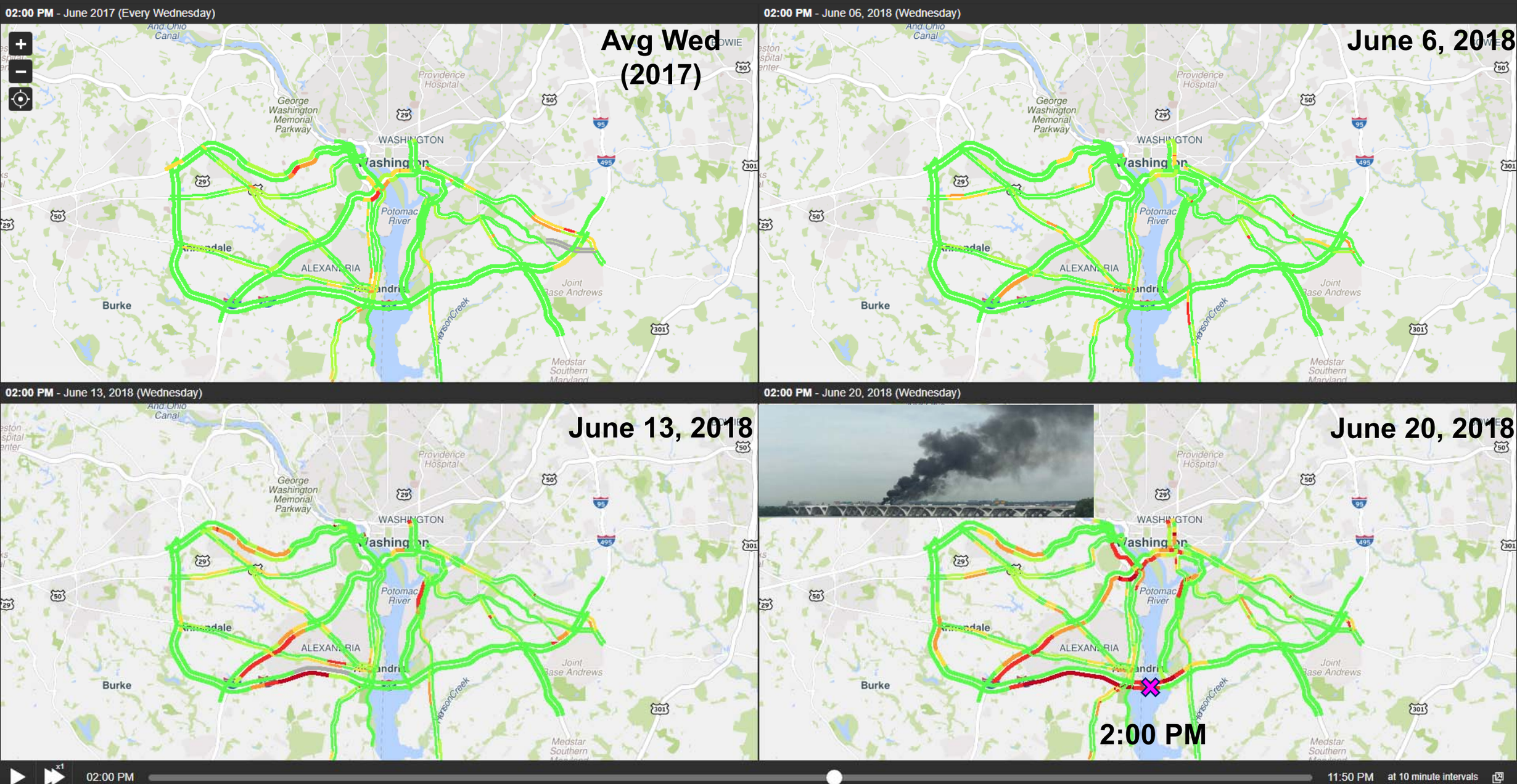

Woodrow Wilson Bridge Incident. Wed, June 20, 2018 vs Two Previous Weds vs Avg Wed (2017). National Capital Region.
PDA Trend Map (NCR)
Congestion
0%
15%
33%
50%
66%
05:00 PM - June 2017 (Every Wednesday)
05:00 PM - June 06, 2018 (Wednesday)
05:00 PM - June 13, 2018 (Wednesday)
05:00 PM - June 20, 2018 (Wednesday)
Avg Wed (2017)
June 6, 2018
June 13, 2018
June 20, 2018
5:00 PM
05:00 PM
11:50 PM
at 10 minute intervals


Woodrow Wilson Bridge Incident. Wed, June 20, 2018 vs Two Previous Weds vs Avg Wed (2017). National Capital Region.
PDA Trend Map (NCR)
Congestion
0%
15%
33%
50%
66%
08:00 PM - June 2017 (Every Wednesday)
08:00 PM - June 06, 2018 (Wednesday)
08:00 PM - June 13, 2018 (Wednesday)
08:00 PM - June 20, 2018 (Wednesday)
Avg Wed (2017)
June 6, 2018
June 13, 2018
June 20, 2018
8:00 PM
08:00 PM
11:50 PM
at 10 minute intervals

Woodrow Wilson Bridge Incident. Wed. June 20, 2018 vs Two Previous Weds vs Avg Wed (2017). Lower Capital Beltway.

Congestion 0% 15% 33% 50% 66%

PDA Trend Map (Local)

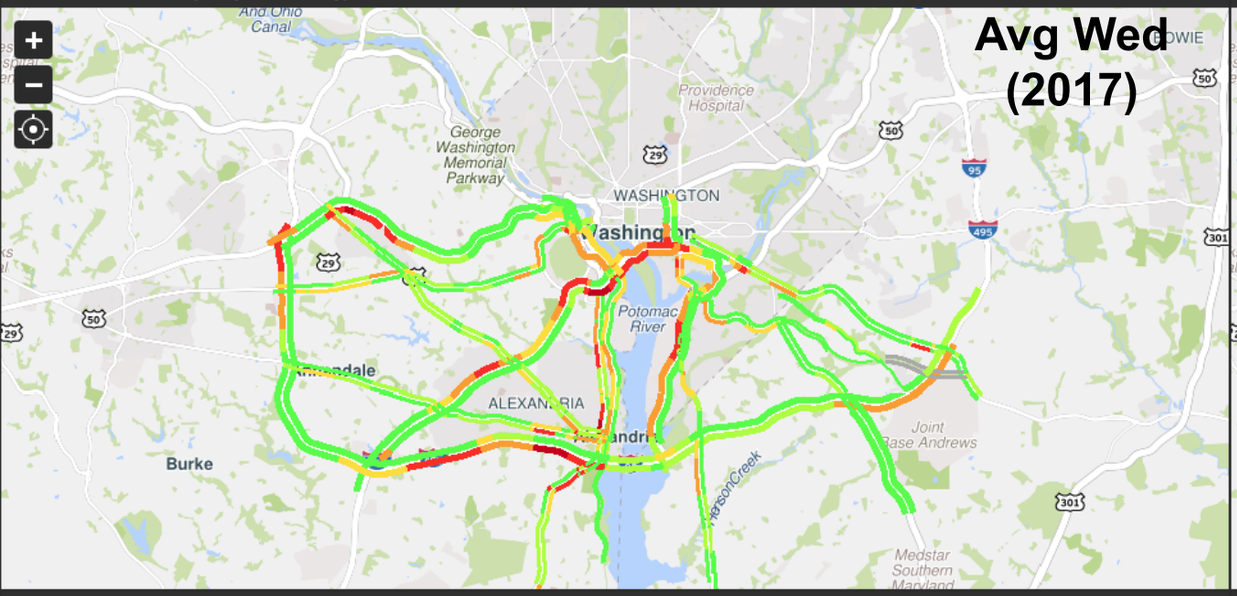


Woodrow Wilson Bridge Incident. Wed. June 20, 2018 vs Two Previous Weds vs Avg Wed (2017). Lower Capital Beltway.

Congestion 0% 15% 33% 50% 66%

PDA Trend Map (Local)

05:00 PM - June 2017 (Every Wednesday)



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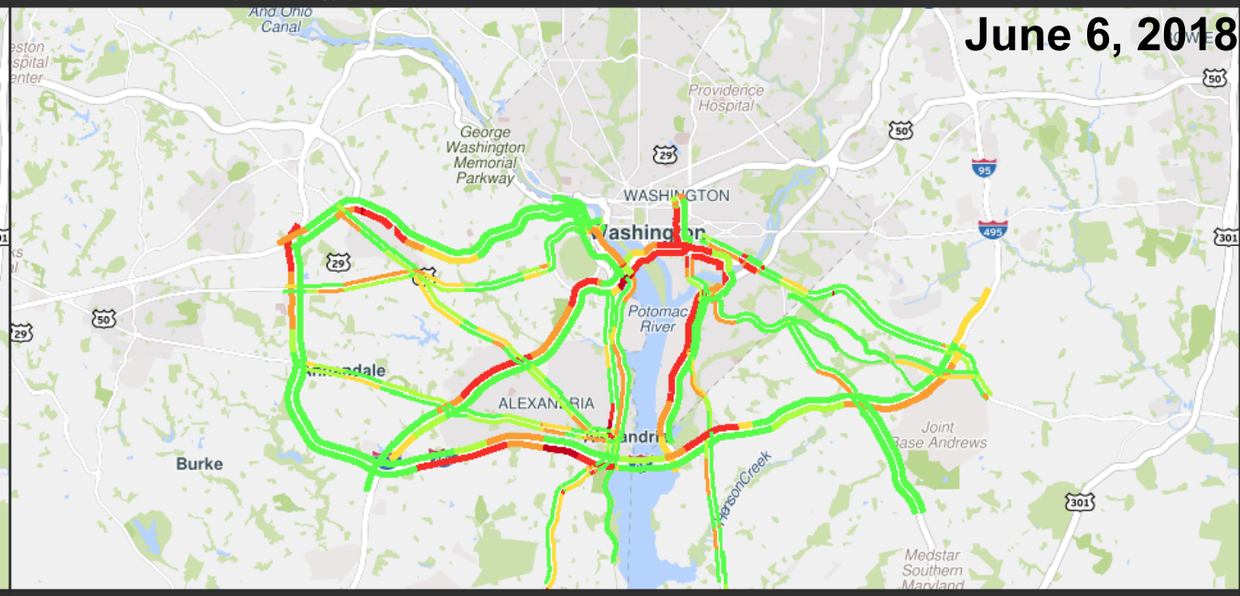

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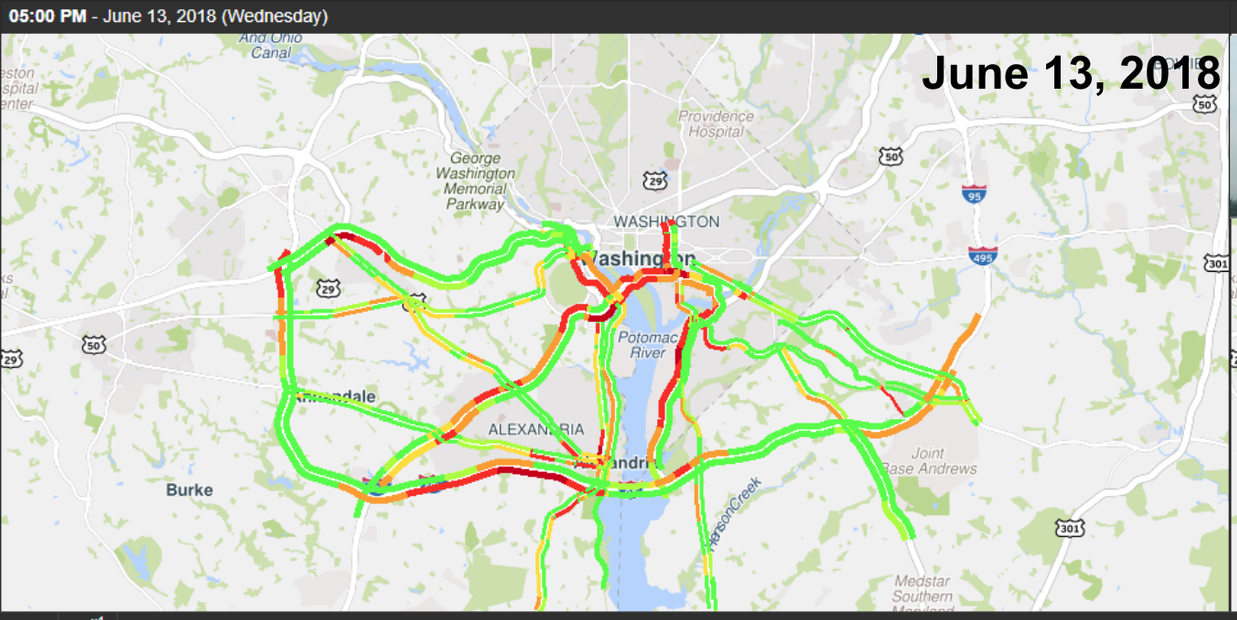

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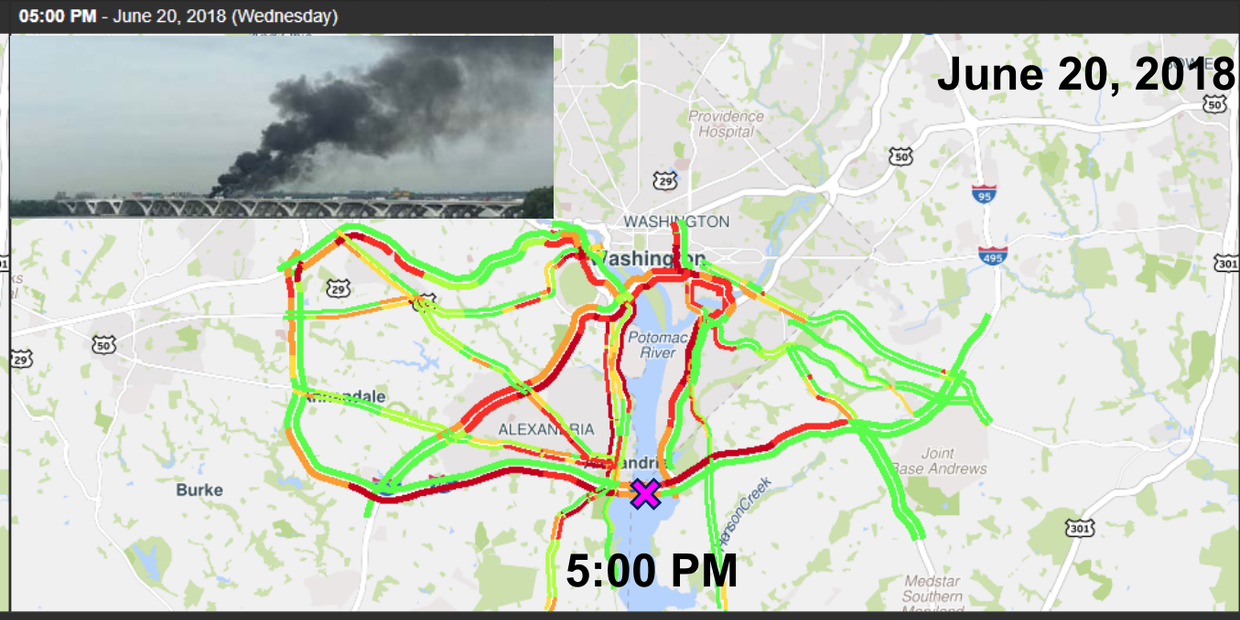


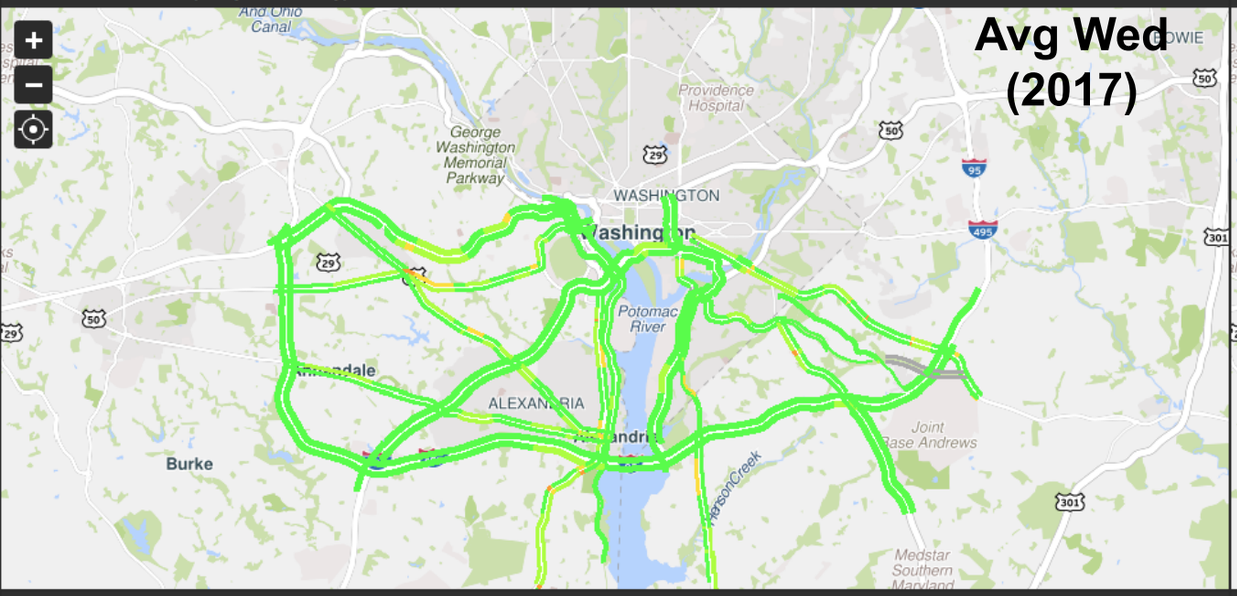
05:00 PM 11:50 PM at 10 minute intervals

Woodrow Wilson Bridge Incident. Wed. June 20, 2018 vs Two Previous Weds vs Avg Wed (2017). Lower Capital Beltway.

PDA Trend Map (Local)

Congestion 0% 15% 33% 50% 66%

08:00 PM - June 2017 (Every Wednesday)



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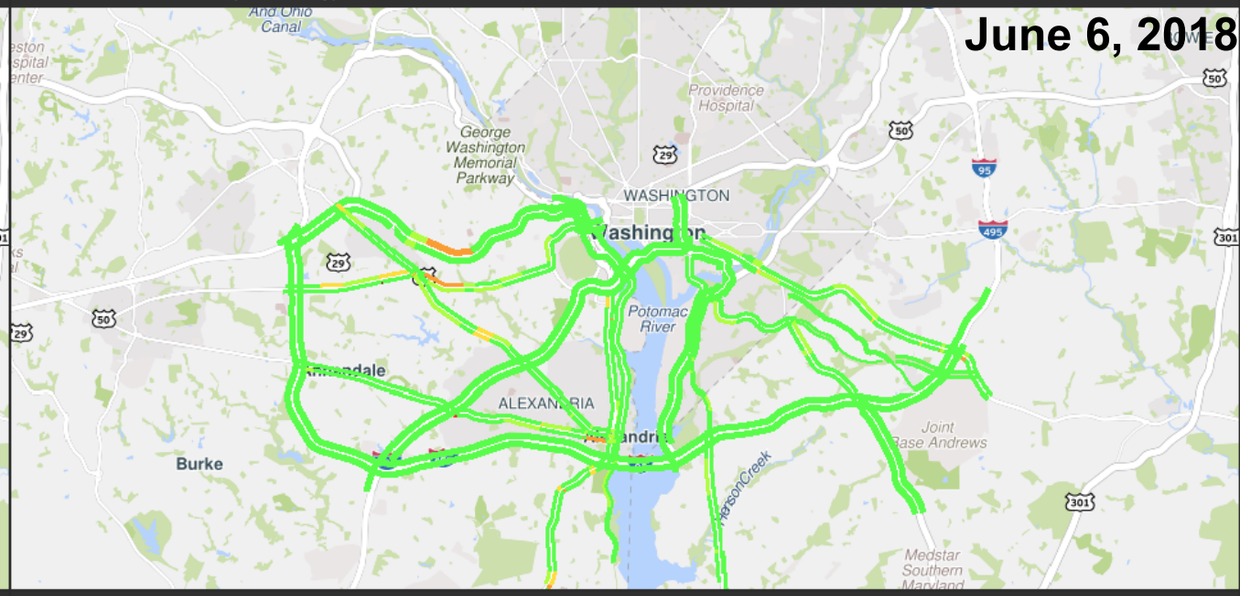

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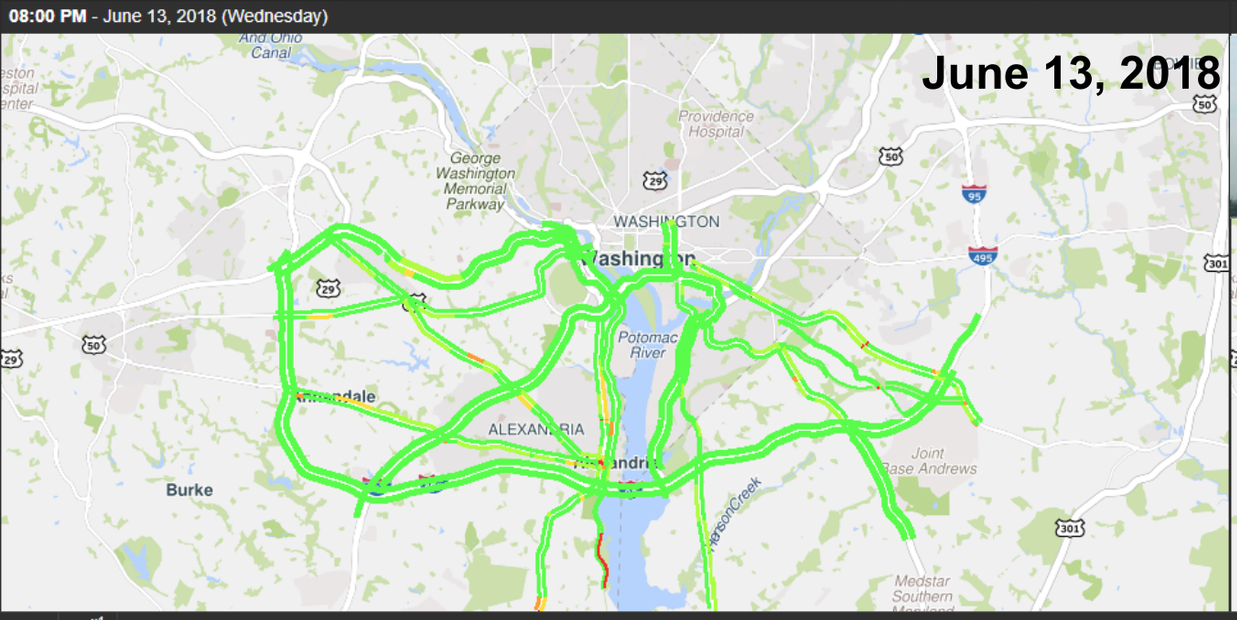

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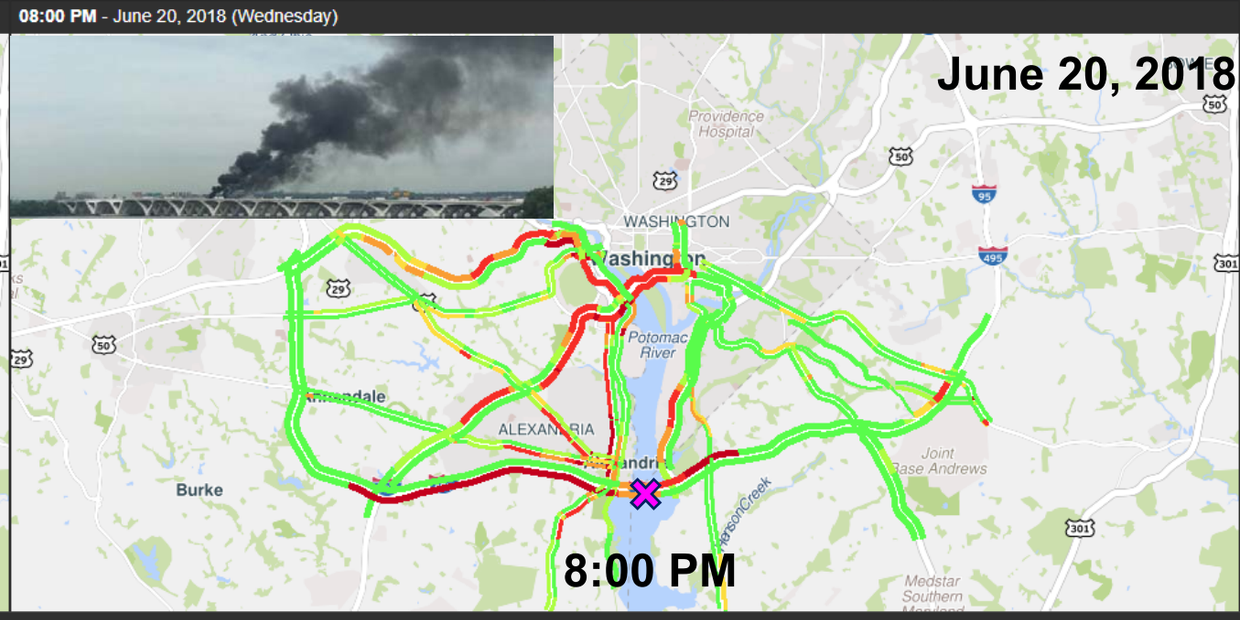
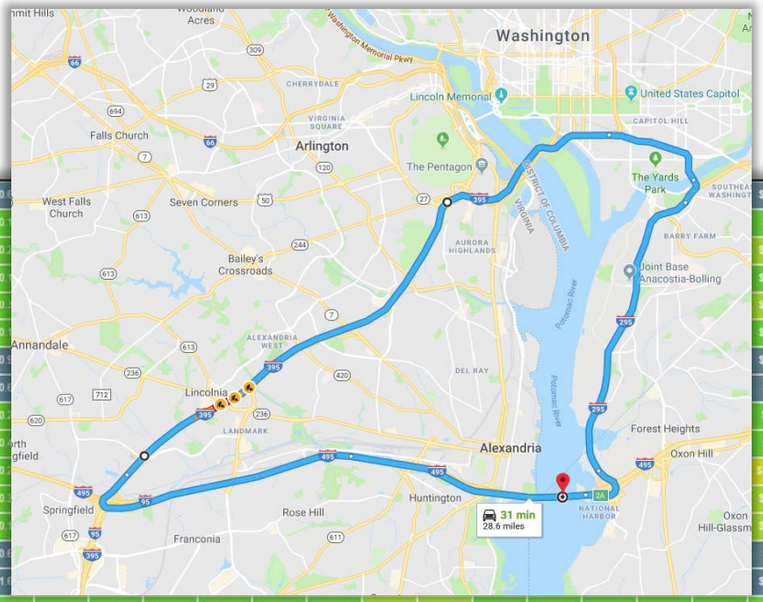


08:00 PM 11:50 PM at 10 minute intervals

MATOC
Metropolitan Area Transportation Operations Coordination

Probe Data Analytics Suite: User Delay Cost



6/03/18	$0.-													$17.5K	$12.2K	$20.5K	$19.3K	$9.4K	$6.5K	$2.4K	$2.1K	$1.1K	$0.7K	$142.2K
6/04/18	$0.-													$21K	$43K	$101.5K	$128.5K	$90.2K	$13K	$0.7K	$3.6K	$1.7K	$1K	$713.2K
6/05/18	$0.-													$42.5K	$92.7K	$161.7K	$190.5K	$127.5K	$36.2K	$0.4K	$0.8K	$2.8K	$0.8K	$1,197.4K
6/06/18	$0.-													$23.9K	$78.9K	$153K	$194K	$104.6K	$21.2K	$0.8K	$4.4K	$2.5K	$0.6K	$1,011K
6/07/18	$0.-													$45.4K	$106.6K	$176.5K	$163.9K	$97.9K	$18.4K	$1.7K	$1.3K	$0.7K	$0.3K	$932.8K
6/08/18	$0.-													$30.9K	$86.4K	$124.8K	$131.9K	$87.4K	$28.1K	$0.8K	$6.9K	$17.2K	$6.5K	$670.7K
6/09/18	$0.-													$21.1K	$29.8K	$48.4K	$16.1K	$8.4K	$2.6K	$1.1K	$3.4K	$4K	$1.5K	$180.4K
6/10/18	$0.-													$14K	$26K	$9.7K	$6.2K	$2.2K	$2.2K	$0.7K	$0.9K	$0.4K	$0.5K	$82.9K
6/11/18	$0.-													$4.2K	$32.4K	$71.5K	$76.4K	$22.5K	$0.7K	$0.4K	$1K	$1K	$0.2K	$474.3K
6/12/18	$0.-													$19K	$53.4K	$87.2K	$98.7K	$33K	$3.2K	$0.5K	$0.8K	$2.1K	$0.6K	$756.3K
6/13/18	$0.-													$117.7K	$170.5K	$205.9K	$212.9K	$125.8K	$31.2K	$0.4K	$0.8K	$0.9K	$2.6K	$1,359.7K
6/14/18	$0.-													$59.1K	$120.6K	$170.7K	$185.5K	$115.6K	$43.9K	$9.5K	$5.6K	$5.5K	$1.3K	$1,153.4K
6/15/18	$0.-													$64.1K	$127.5K	$173.7K	$143.1K	$71.2K	$13.6K	$4.9K	$2.2K	$5.6K	$1.2K	$754K
6/16/18	$0.-													$25K	$31.8K	$36.3K	$23K	$27.1K	$29.2K	$3.7K	$2.4K	$1.4K	$1.4K	$271.5K
6/17/18	$1.-													$12.8K	$11.4K	$12.3K	$9.2K	$6.5K	$1.6K	$0.5K	$0.8K	$0.4K	$2.8K	$97.3K
6/18/18	$1.1K	$0.7K	$0.1K	$0.1K	$0.2K	$0.7K	$25K	$56.7K	$62.8K	$18K	$2.8K	$10.1K	$27.3K	$24.9K	$49.9K	$75.9K	$150.9K	$192.1K	$111K	$17.9K	$0.9K	$1.1K	$2.9K	$1.7K	$826.1K
6/19/18	$0.1K	$0.1K	$0.1K	$0.1K	$0.1K	$4.2K	$19.5K	$46.7K	$108.4K	$69.9K	$38.3K	$49.8K	$32.1K	$25.2K	$91.3K	$213.5K	$265.6K	$241.7K	$149K	$38.2K	$0.3K	$2.1K	$2.7K	$1.1K	$1,400.1K
6/20/18	$0.2K	$0.1K	$0.2K	$0.1K	$0K	$0.3K	$17.9K	$62.4K	$74K	$42.2K	$21.8K	$112.6K	$158.2K	$171.1K	$264.3K	$335.7K	$380.6K	$423.8K	$365.4K	$282.4K	$215.8K	$134.7K	$76.5K	$13.7K	$3,153.9K
6/21/18	$0.3K	$0.2K	$0.1K	$0.1K	$3.1K	$0.7K	$18.7K	$52.3K	$112.6K	$46.6K	$33.3K	$44.7K	$31.5K	$43K	$82.8K	$134.2K	$171.5K	$174.8K	$122.8K	$43.8K	$1.3K	$4K	$1.8K	$0.6K	$1,124.7K
6/22/18	$0.3K	$0.2K	$0K	$0.1K	$0K	$0.3K	$10.7K	$50.4K	$66K	$21.6K	$17.2K	$11.6K	$20.8K	$46.4K	$86.1K	$155.7K	$158.9K	$139K	$71.3K	$16K	$1.3K	$1.7K	$3.2K	$1.5K	$880.2K
6/23/18	$0.7K	$0.3K	$0.2K	$0.1K	$0.1K	$2K	$0.2K	$0.2K	$0.4K	$3.7K	$6.3K	$10.7K	$14.6K	$26.9K	$29.4K	$53.4K	$44.3K	$24.8K	$18.2K	$14.7K	$9.9K	$5.6K	$1.8K	$1.9K	$270.4K
6/24/18	$5.7K	$1.3K	$0.2K	$0.3K	$0.2K	$0.3K	$0.1K	$0.1K	$0.6K	$3.3K	$7.2K	$11.2K	$14.3K	$17.9K	$16.2K	$15.9K	$13.3K	$10.9K	$7K	$0.8K	$3.6K	$2.5K	$0.7K	$133.7K	
6/25/18	$0.5K	$0.1K	$0.1K	$0.1K	$0K	$0.8K	$27.8K	$64.4K	$68.2K	$19.6K	$17.8K	$35.1K	$26.2K	$34.3K	$29.8K	$56.1K	$92.8K	$137.3K	$52.3K	$2.9K	$0.3K	$1.7K	$2.5K	$1K	$671.6K
6/26/18	$0.4K	$0.3K	$0.2K	$0.1K	$0.1K	$0.3K	$30.1K	$123K	$135.6K	$67.4K	$36.5K	$36.9K	$21K	$32.3K	$35.7K	$62.2K	$122.7K	$138.1K	$76.9K	$13.9K	$7.7K	$2.5K	$0.9K	$0.5K	$945.2K
6/27/18	$0.3K	$0.1K	$0.1K	$0.1K	$0.1K	$0.2K	$7.5K	$38.4K	$73K	$48.1K	$22.6K	$42.5K	$46.4K	$45.2K	$53.1K	$120.3K	$183.8K	$162.3K	$72.3K	$10.8K	$3.4K	$0.8K	$2K	$0.3K	$933.6K
6/28/18	$0.1K	$0.2K	$0.1K	$0.1K	$0K	$0.2K	$27K	$70.6K	$79.5K	$41.9K	$27.9K	$45.2K	$38.8K	$38.2K	$72.4K	$116.5K	$147.8K	$162.4K	$102.8K	$28.6K	$2.2K	$1.1K	$3K	$0.7K	$1,007.2K
6/29/18	$0.3K	$0.1K	$0K	$0.1K	$0K	$0.1K	$14.8K	$54.8K	$61.9K	$18.4K	$4.8K	$3.2K	$16K	$16.7K	$51.4K	$140.7K	$155.3K	$146.6K	$64.1K	$10.6K	$2.1K	$2.9K	$2K	$1.8K	$769K
6/30/18	$0.6K	$0.5K	$0.3K	$0.1K	$0.1K	$0K	$0.2K	$0.4K	$0.4K	$3K	$10.7K	$11.8K	$17.5K	$22K	$29.4K	$32.2K	$18.9K	$14.6K	$31.9K	$9.1K	$1.7K	$2K	$3.1K	$1.1K	$211.8K

User Delay Cost: WWB "Triangle" (I-495, I-395, I-695, I-295)

Generated via Probe Data Analytics Suite Using INRIX speed data

	Daily Totals	
2018	**Vehicle Hours of Delay**	**Total Cost ($)**
Wed, May 9	31,809	$960,564
Wed, May 16	45,140	$1,363,134
Wed, May 23	39,511	$1,193,130
Wed, May 30	20,922	$631,794
Wed, June 6	33,479	$1,010,999
Wed, June 13	45,028	$1,359,735
Wed, June 20	**104,440**	**$3,153,861**
Wed, June 27	30,916	$933,589

District Department of Transportation
MARYLAND DEPARTMENT OF TRANSPORTATION
VDOT Virginia Department of Transportation
metro

MATOC Regional Tabletop Exercise (TTX)
Wednesday, June 20, 2018

- Alexandria, Virginia (2.5 miles from the incident scene)
- Evaluate how MATOC member agencies and area first responders communicate and coordinate in response to several traffic incidents in and around DC leading up to and including a day long closure of Potomac River crossing
  - Scenario involved a stolen vehicle, multiple incident scenes, major crashes and fire on the Woodrow Wilson Bridge
  - Seasonal and planned events were considered in this plausible scenario
- Participating Agencies
  - DDOT, MDOT/SHA, VDOT, WMATA, MWCOG, I-95 Corridor Coalition, MATOC
  - Alexandria DASH, Arlington Transit, Fairfax County Connector, Prince George's County DPW&T, PRTC/OmniRide, Transurban, DBI (TAMS Contactor)
  - National Park Service/US Park Police, DC Metropolitan Police Department, Maryland State Police, Virginia State Police and other local first responders
  - *MATOC Operations were offline for the day to support the exercise*

MATOC Regional Tabletop Exercise (TTX)

- Focused on Center-to-Center, Field-to-Field, and Regional communication and coordination
  - Evaluate current capabilities
  - Identify information gaps and best practices
- Takeaways
  - Agencies is the region have well developed incident response plans and know who to call
  - Not all agencies have access to or monitor the Washington Area Warning and Alert System (WAWAS). MATOC's Transportation Mutual Aid Radio System (TMARS) may be useful for transportation agencies but is relatively new and limited in coverage
  - Freeway Incident Traffic Management (FITM) Plans can be a challenge to set up given that by the time resources are mobilized, the incident is clearing up
  - Official agency emails/alerts, phone calls, CAD information are preferred over media reporting
  - Transit agencies are not as integrated with public safety agencies like traditional DOTs
  - MATOC should host similar training events at least once a year, semi-annual events preferred
  - Attending training is a challenge given most participants are considered essential personnel

MATOC WWB After Action Review (AAR)

- Transportation focused AAR
- Evaluate how state and local departments of transportation and public transportation agencies were impacted by the June 20,2018 Woodrow Wilson Bridge incident
- Identify what worked well during the response and recovery from this incident as well as identify areas of improvement
- Agencies Invited
  - DDOT, MDOT/SHA, VDOT, WMATA, MWCOG
  - Alexandria DASH, Arlington Transit, Fairfax County Connector, Prince George's County DPW&T, PRTC/OmniRide, Transurban, DBI (TAMS Contactor)
  - DC Metropolitan Police Department, Maryland State Police, Virginia State Police and other local first responders
  - *Not all agencies were able to attend*

MATOC WWB AAR: Takeaways

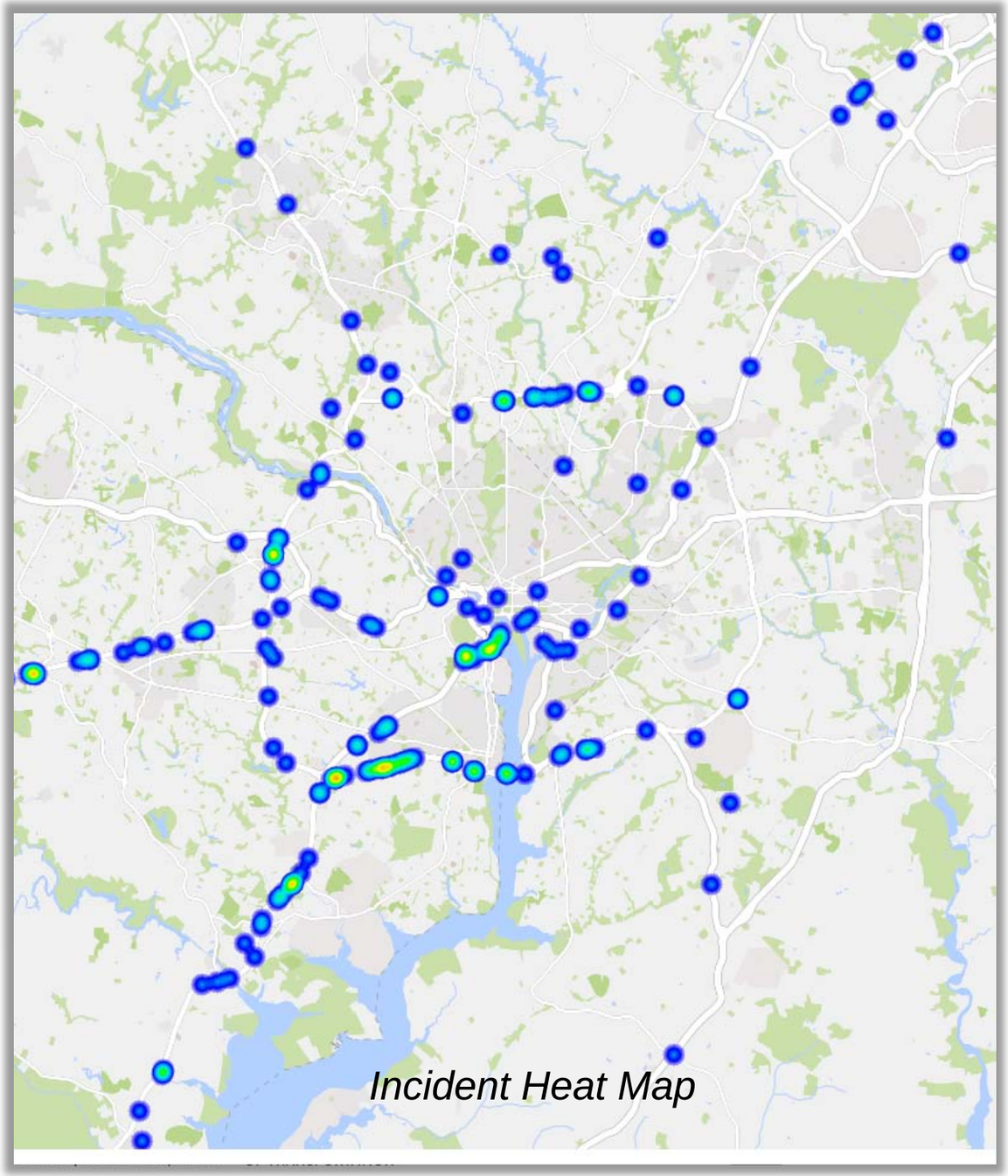
- Overall the response to this major traffic incident was a success, there were no failure points
- The coordination and collaboration between agencies was great given the complexity of the incident; incident type, location, facility involved, large response
- There were some communication challenges as there was not a designated Command Post or Unified Command established
- VDOT response vehicles are not classified as emergency vehicles and would have been delayed in getting to the scene (MDOT SHA assisted VDOT IMCs in getting to the scene quickly)
- TMARS was not used for this incident as most of the participating agencies were onsite
- Having the right towing and recovery units respond was critical for this incident
  - There are only a couple of companies in the area that could have successfully recovered the damaged boom

MATOC WWB AAR: Takeaways

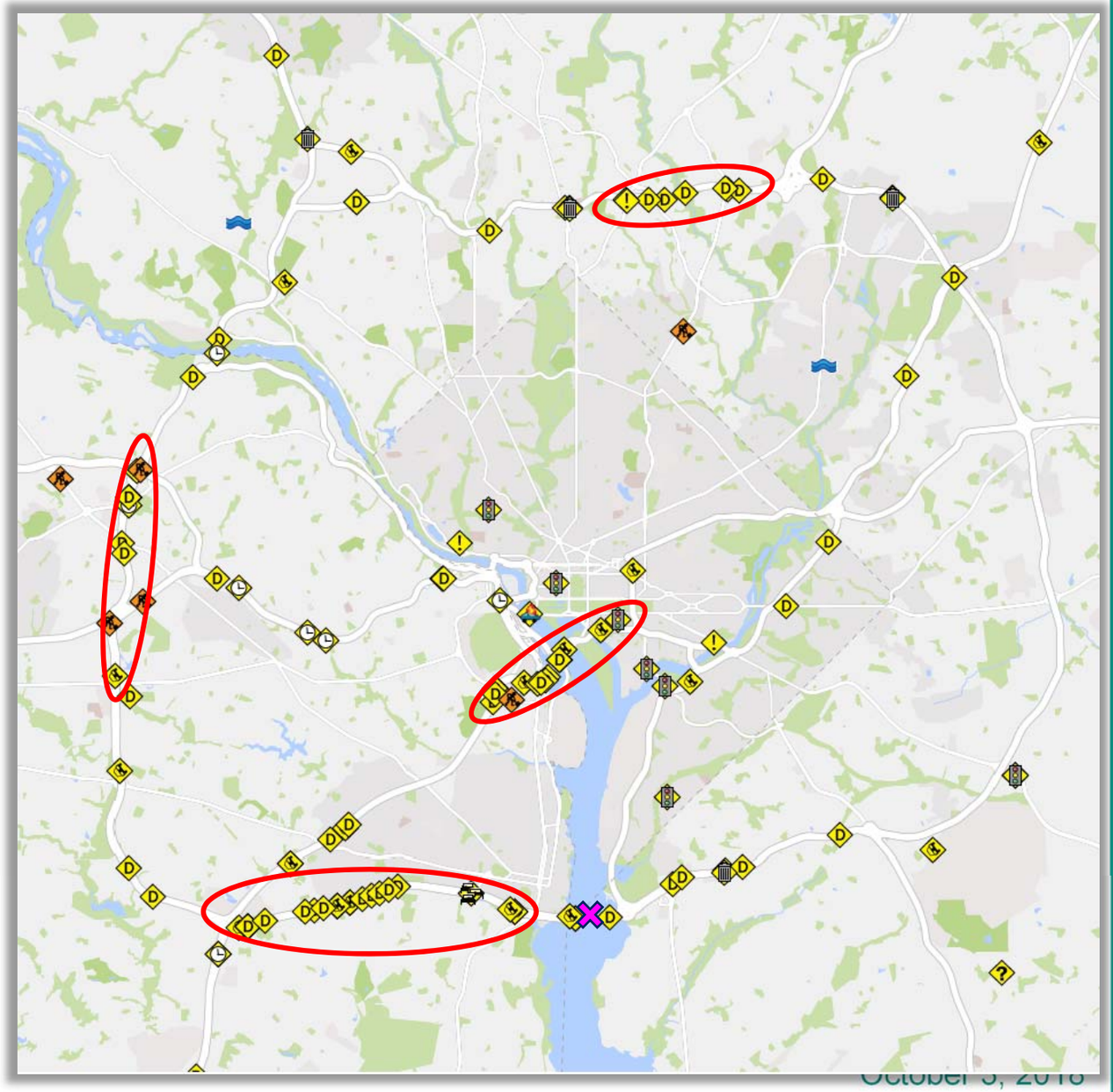
- There was a delay in opening the retractable barrier closest to the scene that would have provided quickest way relieve queued Thru Lane traffic
  - This had cascading effects and lead to a delay in releasing northbound Local Lane traffic
- Fire departments found challenges in getting water onto the bridge as standpipes were not working as expected
- Delays were noted in clearing Fire and EMS crews once lanes we ready to be opened; however it was recognized that maintaining scene safety is a priority for fire departments
- Area public transportation systems were adversely impacted as bridge related delays extended onto local arterials
  - Alexandria DASH bus service was severely impacted as local streets were gridlocked
  - WMATA Metrobus service across the bridge as well as downtown was severely impacted
    - Metrorail was a preferred mode of travel to avoid surface roadway delays
  - PRTC Omniride Commuter Bus service was impacted due to events in the District as well as the increased congestion caused by the bridge incident

MATOC WWB AAR: Takeaways

- Agency PIOs worked with media to get information out to the public to manage expectations
- Queued motorists sometimes self diverted, often reversing down onramps which created additional hazards
  - Stresses the importance of knowing alternate routes
  - Highlights the challenges of vehicle/smartphone navigation systems
- To reduce the impacts of rubbernecking, personnel were positioned near the incident to wave motorists through in an effort to keep traffic moving; proved to be effective
- There were numerous minor secondary incidents in queued traffic, including an increase in incidents on roadways that served as alternate routes



RITIS Incident Archive - June 20, 2018 (10:30am-10:30pm)



MATOC WWB AAR: Recommendations

- Examine Unified Command and Command Post locations as they related to the Woodrow Wilson Bridge
- Regularly train responders on how to operate and open the retractable barriers to address staff turnover
  - Get the barrier(s) back into a state of good repair
- Explore opportunities to conduct bridge related training for DOTs and responders
- Expand TMARS access to select field users like Incident Management Coordinators
- Consider periodic reporting via conference calls for major incident; similar to MATOC's current practice with its severe weather and transit groups
- Update and share Maryland and Virginia FITM plans; including updates in RITIS
- Explore conducting a broader multi-jurisdiction/multi-discipline after action review for this incident

Transportation Mutual Aid Radio System (TMARS)

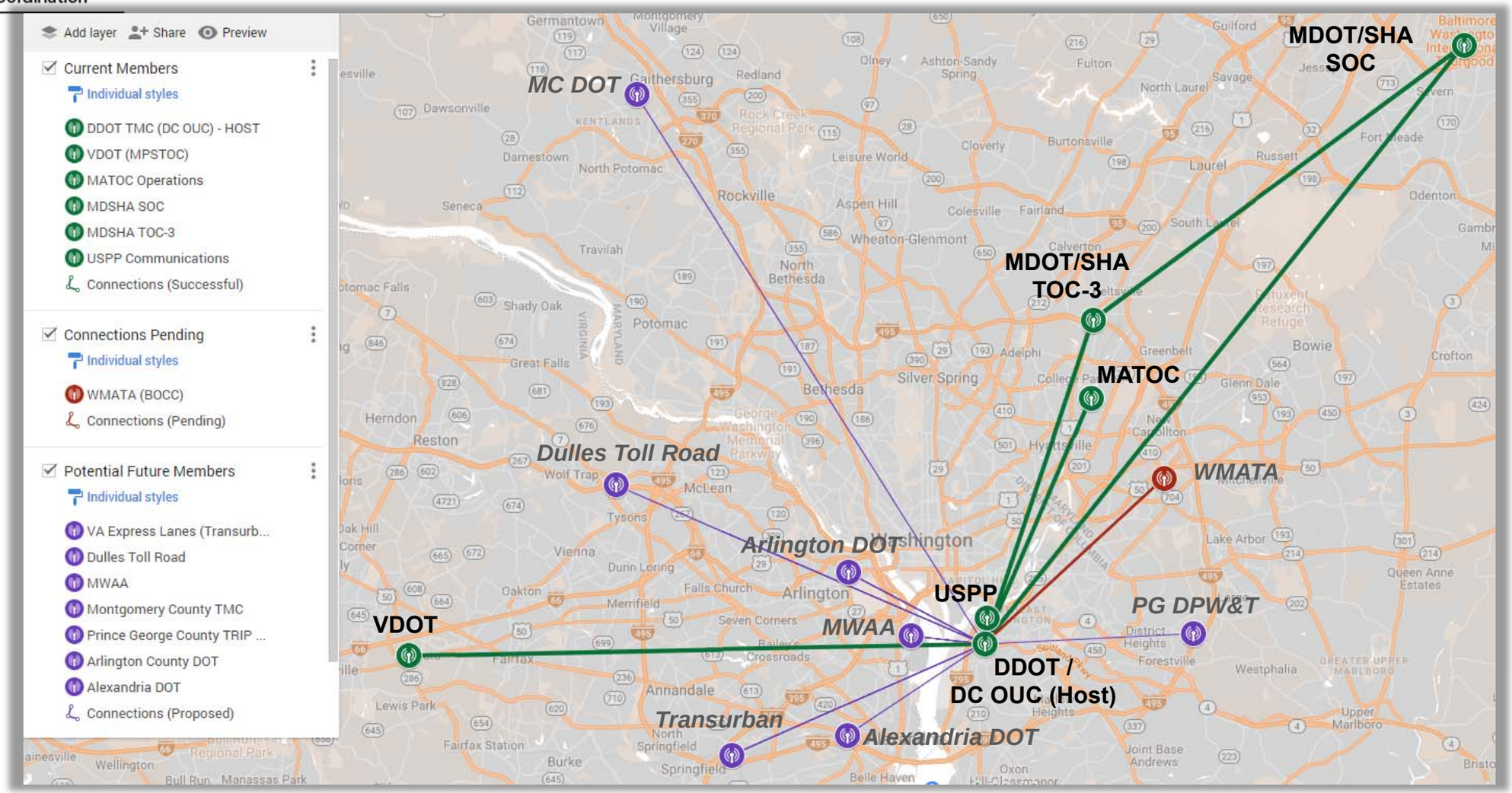
- Originally proposed in 2016 to provide an additional communication channel to support MATOC member agencies
- Serves as 1) a backup radio communication channel for center-to-center communications and 2) provides a dedicated transportation channel for DOTs to make quick notifications and to support coordination efforts
- VDOT summited an application for UASI funding to support the project; application was tabled
- MATOC member agencies decide to move forward on their own utilizing existing infrastructure
  - DC Office of Unified Communications assisted DDOT in identifying an available talk group on DC's 800Mhz radio system
  - Participating agencies agreed to procure, program, and maintain their own radio equipment
- Testing was conducted in the Spring of 2017 and the system was deployed on July 1, 2017

Transportation Mutual Aid Radio System (TMARS)

- MATOC Operations Subcommittee serves as TMARS governing body
  - Access is limited to the transportation sector; specially those agencies who have resources to deploy when major events occur
  - Participating agencies include DDOT TMC, MDOT SHA TOC-2 &SOC, VDOT NoVA TOC, US Park Police, MATOC Operations
  - The subcommittee agreed to extend invitations to area transportation agencies including local departments of transportation, MWAA, Dulles Toll Toad, Transurban
- MATOC Operations serves as the host for testing TMARS; Wednesdays at 12pm
- TMARS is currently limited by DC's radio coverage
- There is an ongoing effort to increase coverage; currently awaiting licensing
  - When it complete any transportation agency in the National Capital Region should be able to connect and participate on TMARS

MATOC
Metropolitan Area Transportation Operations Coordination

Current TMARS Map



District Department of Transportation
MARYLAND DEPARTMENT OF TRANSPORTATION
VDOT Virginia Department of Transportation
metro

MATOC
Metropolitan Area Transportation Operations Coordination

Questions?

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Phone: 301-405-7841
taran.hutchinson@matoc.org

Interoperability in Radio Communications:

1. **TMARS** Taran Hutchinson / Mike Wood
2. **Motorola WAVE** Scott Yinger
3. **Maryland Talk Groups and VDOT integration**

Wrap Up

Meeting information and presentations will be posted to the I-95 Corridor Coalition website. Participants will receive a link to the presentations after they are posted.

Contact Information

I-95 Corridor Coalition

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Co-Chairs

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- Soumya Dey, District DOT – soumya.dey@dc.gov
- Kamal Sulliman, VDOT – kamal.suliman@vdot.virginia.gov

I-95 Corridor Coalition Support

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Thank You!