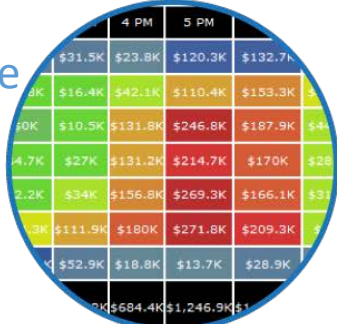


# Overview of New TIM Capabilities in RITIS

Empowering agencies with data, tools, and visualization capabilities



Performance Measures



Planning



Operations



Communications

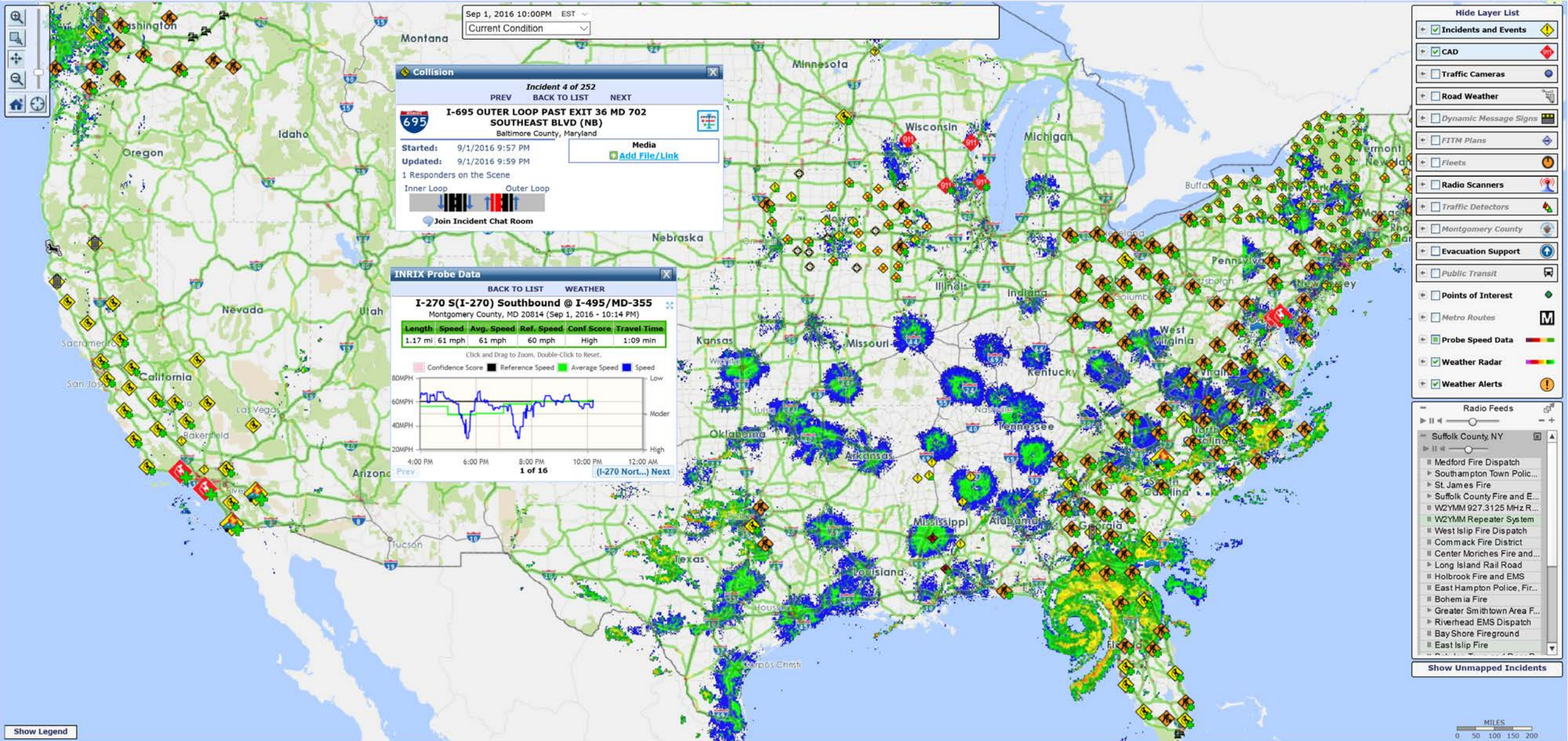


Enabling Decision Making & Effective Communication

# The CATT Lab

- › 75+ Professional Staff of
  - › Software Developers
  - › Data Scientists
  - › Artists (UI/UX Designers)
  - › Program Managers
  - › IT & Network Engineers
- › 30-60 Students
  - › Transportation
  - › Computer Science
  - › Human Computer Interaction
- › Nonprofit R&D for Transportation





Sep 1, 2016 10:00PM EST  
 Current Condition

**Collision**

Incident 4 of 252  
 PREV BACK TO LIST NEXT

**I-695 OUTER LOOP PAST EXIT 36 MD 702  
 SOUTHEAST BLVD (NB)**  
 Baltimore County, Maryland

Started: 9/1/2016 9:57 PM  
 Updated: 9/1/2016 9:59 PM

1 Responders on the Scene

Inner Loop Outer Loop

Join Incident Chat Room

Media  
 Add File/Link

**INRIX Probe Data**

BACK TO LIST WEATHER

**I-270 S(I-270) Southbound @ I-495/MD-355**  
 Montgomery County, MD 20814 (Sep 1, 2016 - 10:14 PM)

Length	Speed	Avg. Speed	Ref. Speed	Conf. Score	Travel Time
1.17 mi	61 mph	61 mph	60 mph	High	1:09 min

Click and Drag to Zoom, Double-Click to Reset.

Confidence Score Reference Speed Average Speed Speed

80MPH  
60MPH  
40MPH  
20MPH

4:00 PM 6:00 PM 8:00 PM 10:00 PM 12:00 AM

1 of 16 (I-270 Nort...) Next

**Hide Layer List**

- Incidents and Events
- CAD
- Traffic Cameras
- Road Weather
- Dynamic Message Signs
- FITM Plans
- Fleets
- Radio Scanners
- Traffic Detectors
- Montgomery County
- Evacuation Support
- Public Transit
- Points of Interest
- Metro Routes
- Probe Speed Data
- Weather Radar
- Weather Alerts

**Radio Feeds**

- Suffolk County, NY
  - Medford Fire Dispatch
  - Southampton Town Polic...
  - St James Fire
  - Suffolk County Fire and E...
  - W2YMM 927.3125 MHz R...
  - W2YMM Repeater System
  - West Islip Fire Dispatch
  - Commack Fire District
  - Center Moriches Fire and...
  - Long Island Rail Road
  - Holbrook Fire and EMS
  - East Hampton Police, Fir...
  - Bohemia Fire
  - Greater Smithtown Area F...
  - Riverhead EMS Dispatch
  - Bay Shore Fireground
  - East Islip Fire

Show Unmapped Incidents

# Communicating with colleagues, evaluating detours, and visualizing the location of responders and assets

The screenshot displays the RITIS (Regional Integrated Transportation Information System) interface. The main map shows the I-95/495 interchange in Prince Georges County, Maryland, with various roads like Annapolis Rd, Garden City Dr, and Whetfield Chapel Rd. A 'Fatalities Involved' popup window provides details for an incident at Exit 19 US 50, including the start time (8/1/2014 8:51 AM), description (I-95/495 S OF US 50 CAMERA B LOCKED), and nearby FITM plans. A 'Collision (Fatality) @ I-95 INNER LOOP/OUTER LOOP AT EXIT 19 US 50 - Event Timeline' window shows a timeline of events from 8:51:26 AM to 11:43:44 AM on August 1, 2014, with entries from TOC3 (bsharpless) and SOC (jdicembre1). A 'RITIS Chat' window shows a conversation between John Minisi and Taran Hutchinson regarding the incident. A CCTV view window shows a camera feed of the interchange with the text 'I-95/495 S OF US-50' overlaid.

**Taran Hutchinson - RITIS Chat**

US 29 NORTH AT TECH RD

(5:05:01 PM) John Minisi has entered the room  
 (4:52:49 PM) The topic is: Fatalities Involved at US 29 NORTH AT TECH RD  
 (4:54:37 PM) Taran Hutchinson: Look for associated media, Waze, Twitter, News Outlets, etc  
 (4:55:28 PM) Taran Hutchinson: If appropriate we can upload incidents to incident timeline  
 (4:55:32 PM) John Minisi: @ClohertyWTOP has posted a picture of the incident scene, I saved a copy for future reference

2 people in the room  
 John Minisi (RITIS - MAT...  
 Taran Hutchinson

Invite a User  
 Start Entering a Name Send

**Collision (Fatality) @ I-95 INNER LOOP/OUTER LOOP AT EXIT 19 US 50 - Event Timeline - Google Chrome**

[https://timeline.ritis.org/timeline/?incidentId=MDOT\\_CHART\\_e100fc4e638d04db0053fa2ec4235c0a](https://timeline.ritis.org/timeline/?incidentId=MDOT_CHART_e100fc4e638d04db0053fa2ec4235c0a)

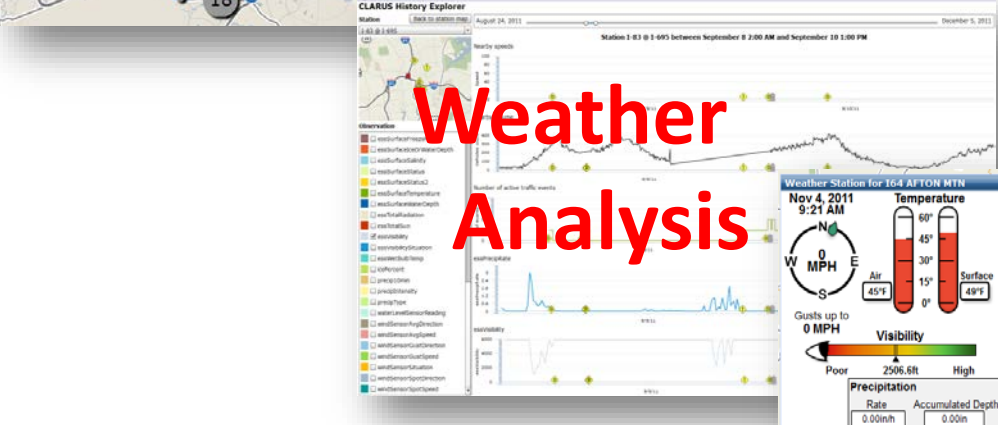
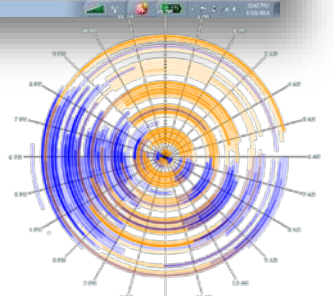
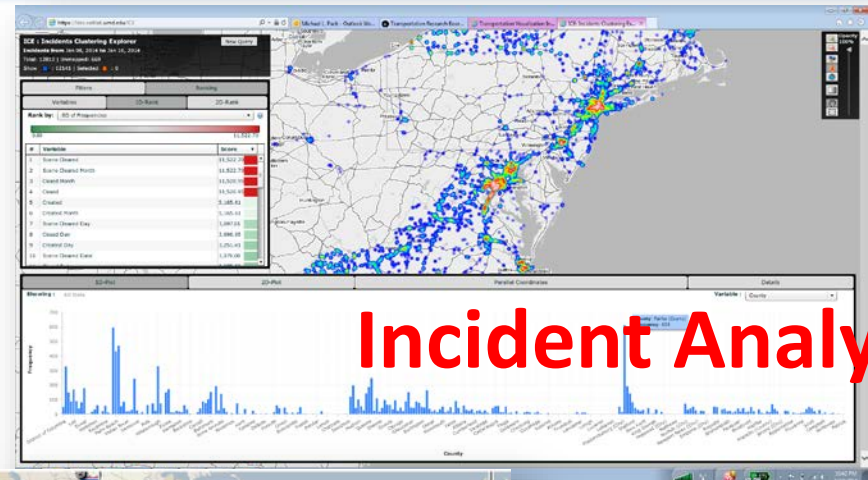
I-95 INNER LOOP/OUTER LOOP AT EXIT 19 US 50 Collision (Fatality) 2 2 3 Map Media

August 1, 2014 9:30 AM 10 AM 10:30 AM 11 AM August 1, 2014 11:43:44 AM

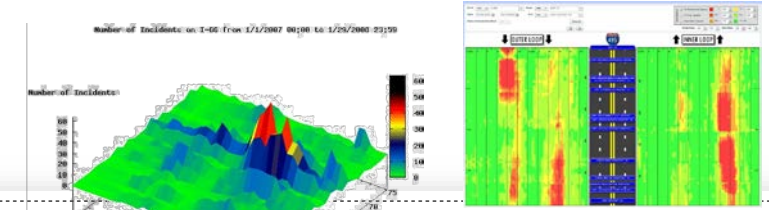
- TOC3 (bsharpless) (9:03:42 AM): PER 9301 1 PERSON TRANSPORTED
- TOC3 (bsharpless) (9:12:03 AM): PER 9301 BLACK FORD EXPEDITON CVD UNIT(MD-622M361)MSP DEPARTMENTAL
- TOC3 (bsharpless) (9:28:23 AM): PER 9301 RELOCATING GREEN LINCOLN (MD 6B/A4485)
- TOC3 (bsharpless) (9:31:26 AM): PER 9301 INCIDENT IS NOW BEING CLASSIFIED AS A SERIOUS PI AND RECONSTRUCTION IS WILL BE IN ROUTE. LANES 1 AND 2 WILL BE CLOSED WITH EXTENDED DURATATION. SGT WHITE STATED THAT LANES WOULD BE CLOSED FOR ABOUT 4HRS
- TOC3 (bsharpless) (9:35:47 AM): PER MSP, PERSON TRANSPORTED PASSED UPON ARRIVING AT HOSPITAL.
- SOC (jdicembre1) (10:06:54 AM): PER MSP CRASH TEAM: Three MSP Crash Team units are en-route with one 5 minutes away. MSP Media Communications also en-route as is States Attorney's Office.
- TOC3 (bsharpless) (10:35:30 AM): PER 9301 CRASH TEAM WANTS ALL LANES CLOSED AND A DETOUR FROM THE OUTER LOOP ON TO US50 WEST
- SOC (jdicembre1) (10:39:03 AM): MD 511 HAS BEEN ACTIVATED SINCE 0945 HRS
- SOC (jdicembre1) (10:56:09 AM): PER 9004: Evidence spans all NB lanes so they have closed all lanes and the on ramp to allow the Crash Team to photograph, mark and measure. This should be short term then all but the two left lanes should be reopened.
- SOC (jdicembre1) (10:56:26 AM): O/L (NB) delays begin past exit 11, near D'Arcy Rd. I/L (SB) delays begin on I-95 prior to the 495 Split, at the ICC. One factor adding to this delay is the fact that there is a Jehovah's Witness International Convention being held at FedEx Field today (and the rest of the weekend). There is also an Africa Leaders Summit that begins on the 3rd (some people may be arriving early).
- TOC3 (bsharpless) (10:58:53 AM): RAMP FROM US50 WEST TO THE OUTER LOOP A CLOSED AND TRAFFIC IS BEING DIVERTED TO THE RAMP TO THE NEW CARROLTON METRO STATION
- SOC (jdicembre1) (11:26:24 AM): I-95/495 S OF US 50 CAMERA BLOCKED
- SOC (jdicembre1) (11:40:35 AM): PER 9004

Hide full text

# Archived Data Analytics



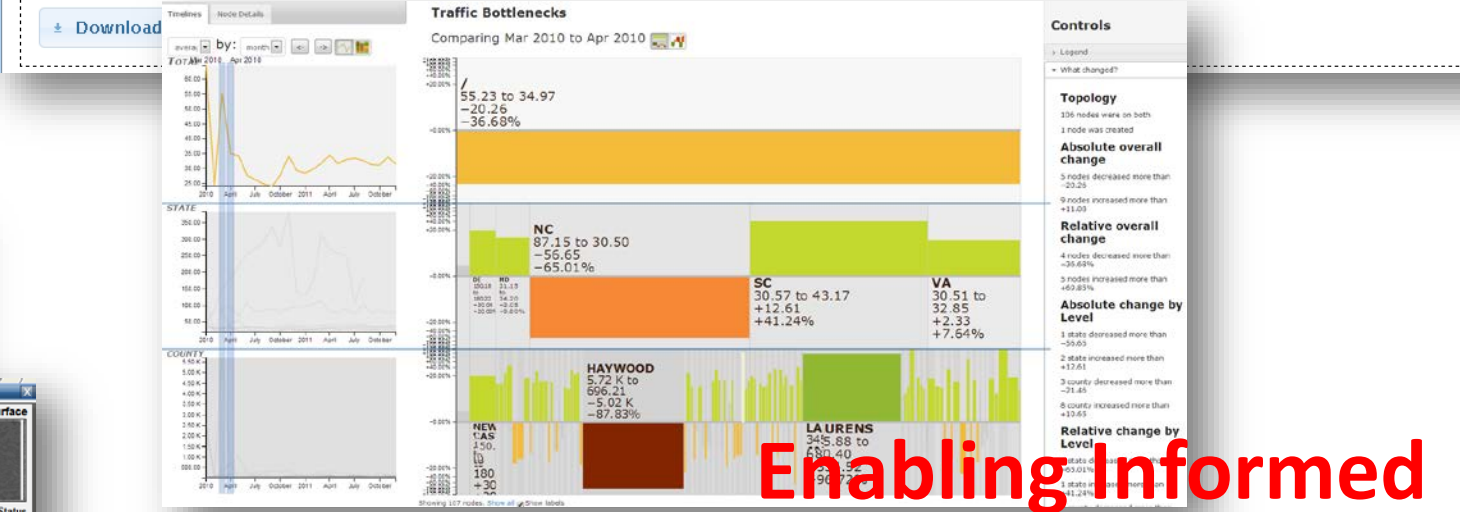
## Congestion Analysis



Combined passenger and commercial delay (Sands of dollars)

	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	D To	
1/14/13	\$0.2K	\$0.1K	\$0.1K	\$0.1K	\$0.2K	\$0.1K	\$0.2K	\$11.9K	\$16.2K	\$2.7K	\$0.5K	\$0.2K	\$0.1K	\$0.2K	\$0.1K	\$1.4K	\$7.7K	\$10K	\$1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.3K	\$0.1K	\$5
1/15/13	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0K	\$0.4K	\$12.9K	\$17.6K	\$2.7K	\$0.1K	\$0.2K	\$0.1K	\$0K	\$0.2K	\$5.8K	\$12.9K	\$21K	\$8.5K	\$3.1K	\$0K	\$0.1K	\$0.1K	\$0K	\$0K	\$8
1/16/13	\$0.1K	\$0.1K	\$0K	\$0K	\$0K	\$0K	\$0.1K	\$12.1K	\$14.4K	\$0.9K	\$0.1K	\$0.1K	\$0K	\$0K	\$0.6K	\$4.4K	\$14.9K	\$21.4K	\$6.5K	\$0.1K	\$0K	\$0.1K	\$0K	\$0K	\$0K	\$7
1/17/13	\$0K	\$0K	\$0K	\$0K	\$0K	\$0K	\$0.3K	\$12.2K	\$14.8K	\$2.1K	\$0K	\$0.4K	\$0.1K	\$0K	\$0.2K	\$4.3K	\$19.6K	\$25.8K	\$6.5K	\$0.1K	\$0.1K	\$0K	\$0K	\$0K	\$0K	\$8
1/18/13	\$0K	\$0.1K	\$0.1K	\$0K	\$0K	\$0K	\$0K	\$9K	\$7K	\$0.2K	\$0K	\$0.4K	\$0.1K	\$0K	\$0.2K	\$4.3K	\$19.6K	\$25.8K	\$6.5K	\$0.1K	\$0.1K	\$0K	\$0K	\$0K	\$0K	\$5
1/19/13	\$0.1K	\$0.1K	\$0.2K	\$0.1K	\$0K	\$0.1K	\$0K	\$0.1K	\$0.1K	\$0.2K	\$0K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0K	\$0K	\$0K	\$0K	\$0.1K	\$0.1K	\$0K	\$2
1/20/13	\$0K	\$0.1K	\$0.1K	\$0K	\$0K	\$0K	\$0K	\$0.1K	\$0K	\$0.1K	\$0K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$1
Hourly Totals	\$0.5K	\$0.5K	\$0.6K	\$0.3K	\$0.4K	\$0.2K	\$1.1K	\$8.4K	\$70.2K	\$8.8K	\$0.8K	\$0.4K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$0.1K	\$1

**Thu Jan 17 2013 17:00:00**  
 Delay cost: Total: \$25,751.51 Per user: \$9.22  
 Hours of delay: Total: 1,176.45 hours Per user: 0.35 hours  
 Data validity: 96.67%  
 Click the table cell to see links to congestion scans



## Enabling Informed Decision Making



- WisDOT CAD (Wisconsin DOT)
- WMATA (Washington Metropolitan Area Transit Authority)
- WSDOT (Washington State DOT)

## EVENT TYPES

Some available event types are based on the agencies you have selected

- Include all available event types

### ▶ Standardized Types

### ▼ Every Day Counts Types

- Include all types

- Crash

- Vehicle Fire

- Disabled Vehicle

- Out Of Fuel

- Debris

- Other

### ▼ WSDOT (Washington State DOT) Agency Types

- Include all types

- Maintenance

- Collision

- Pass Closure

- Rocks

- Construction

- Disabled Vehicle

- Flammable Restriction

### ▼ WisDOT CAD (Wisconsin DOT) Agency Types

- Include all types

- Disabled Vehicle

- Construction

- Maintenance

- Permit

- Winter Road Report

- Disabled Semi Trailer

- Accident Involving A Bus

- Abandoned Vehicle

- Disabled Bus

- Serious Accident

- Road Debris

- Medical Emergency

- Accident Investigation Work

- Vehicle Spun Out

- Secondary Accident

- Maintenance
- Permit
- Winter Road Report
- Special Event
- Accident Involving A Truck
- Accident
- Emergency
- Incident

- Abandoned Vehicle
- Disabled Bus
- Serious Accident
- Disabled Truck
- Incident
- Numerous Accidents
- Vehicle On Fire
- Injury Accident

- Accident Investigation Work
- Vehicle Spun Out
- Secondary Accident
- Accident Involving A Motorcycle
- Accident Involving Hazardous Materials
- Stalled Vehicle
- Accident Involving A Pedestrian
- Multi Vehicle Accident

### LOCATION

Road



Region

All

### TIME PER

From

03/18/2

To

03/18/2

- Select All
- Texas
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

- | <input type="checkbox"/> Select All |                                       |                                      | Washington |
|-------------------------------------|---------------------------------------|--------------------------------------|------------|
| <input type="checkbox"/> Adams      | <input type="checkbox"/> Asotin       | <input type="checkbox"/> Benton      |            |
| <input type="checkbox"/> Chelan     | <input type="checkbox"/> Clallam      | <input type="checkbox"/> Clark       |            |
| <input type="checkbox"/> Columbia   | <input type="checkbox"/> Cowlitz      | <input type="checkbox"/> Douglas     |            |
| <input type="checkbox"/> Ferry      | <input type="checkbox"/> Franklin     | <input type="checkbox"/> Garfield    |            |
| <input type="checkbox"/> Grant      | <input type="checkbox"/> Grays Harbor | <input type="checkbox"/> Island      |            |
| <input type="checkbox"/> Jefferson  | <input type="checkbox"/> King         | <input type="checkbox"/> Kitsap      |            |
| <input type="checkbox"/> Kittitas   | <input type="checkbox"/> Klickitat    | <input type="checkbox"/> Lewis       |            |
| <input type="checkbox"/> Lincoln    | <input type="checkbox"/> Mason        | <input type="checkbox"/> Okanogan    |            |
| <input type="checkbox"/> Pacific    | <input type="checkbox"/> Pend Oreille | <input type="checkbox"/> Pierce      |            |
| <input type="checkbox"/> San Juan   | <input type="checkbox"/> Skagit       | <input type="checkbox"/> Skamania    |            |
| <input type="checkbox"/> Snohomish  | <input type="checkbox"/> Spokane      | <input type="checkbox"/> Stevens     |            |
| <input type="checkbox"/> Thurston   | <input type="checkbox"/> Wahkiakum    | <input type="checkbox"/> Walla Walla |            |
| <input type="checkbox"/> Whatcom    | <input type="checkbox"/> Whitman      | <input type="checkbox"/> Yakima      |            |

- Special Event
- Accident Involving A Truck
- Accident
- Emergency
- Incident

- Disabled Truck
- Incident
- Numerous Accidents
- Vehicle On Fire
- Injury Accident

- Accident Involving A Motorcycle
- Accident Involving Hazardous Materials
- Stalled Vehicle
- Accident Involving A Pedestrian
- Multi Vehicle Accident

### LOCATION

Road Region 

### TIME PERIOD

From   To   

**February 2019**

February 2019

Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	<b>22</b>	23
24	25	26	27	28	1	2

SUBMIT QUERY



**NEW SEARCH**



**Events from MDOT CHART and VDOT that started between February 1, 2019 and February 7, 2019**

Showing 6,205 of 6,205 events

	AGENCY	STANDA...	AGENCY...	START T...	CLOSED...	LOCATION	OP GEN...	DURATION	OPERAT...	RESPO...	MAX LA...
	Type to filte	Type to filte	Type to filte	Type to filte	Type to filte	Type to filte	Type to filte	Type to filte	Type to filte	Type to filte	Type to filte
	MDDOT	Disabled Vehicle	Disabled vehicle	2/5/19 2:56 PM -0500	2/5/19 2:57 PM -0500	I-495 OUTER LOOP PRIOR TO EXIT 29 MD	SOC	1 minute		1	
	MDDOT	Road Maintenance Operations	Planned roadway closure	2/5/19 9:03 AM -0500	3/10/19 1:38 AM -0500	WORCESTER COUNTY: MD-528 SOUTH	SOC	32 days 16 hours 34 minutes			1
	MDDOT	Disabled Vehicle	Disabled vehicle	2/4/19 2:05 PM -0500	2/4/19 2:10 PM -0500	I-270 NORTH PAST EXIT 6, MD 28 W MONTGOME	SOC	4 minutes		1	
	MDDOT	Disabled Vehicle	Disabled vehicle	2/3/19 7:13 AM -0500	2/3/19 7:18 AM -0500	I-95 NORTH FRENCHTOWN RD (I-95 AT JOHN F.	AOC Central	4 minutes		1	
	MDDOT	Road Maintenance Operations	Planned roadway closure	2/5/19 9:41 AM -0500	2/5/19 2:50 PM -0500	WASHINGTON COUNTY: I-7 EAST PRIOR TO COUNTY	TOC7	5 hours 9 minutes			2
	MDDOT	Road Maintenance Operations	Planned roadway closure	2/7/19 10:54 AM -0500	3/10/19 1:43 AM -0500	US 50 WEST AT MP 34.3 (BAY BRIDGE)LAN	AOC South	30 days 14 hours 49 minutes			1
	MDDOT	Road Maintenance Operations	Planned roadway closure	2/5/19 8:49 AM -0500	2/5/19 2:50 PM -0500	MD 103 NORTH BETWEEN O MONTGOME RD AND	SOC	6 hours 1 minute			2
	MDDOT	Disabled Vehicle	Disabled vehicle	2/6/19 11:41 AM	2/6/19 11:41 AM	I-70 EAST AT MD 07	TOC7	14 seconds		1	

NEW SEARCH



### Events from MDOT CHART and VDOT that started between February 1, 2019 and February 7, 2019

Showing 6,205 of 6,205 events



Show number of events by

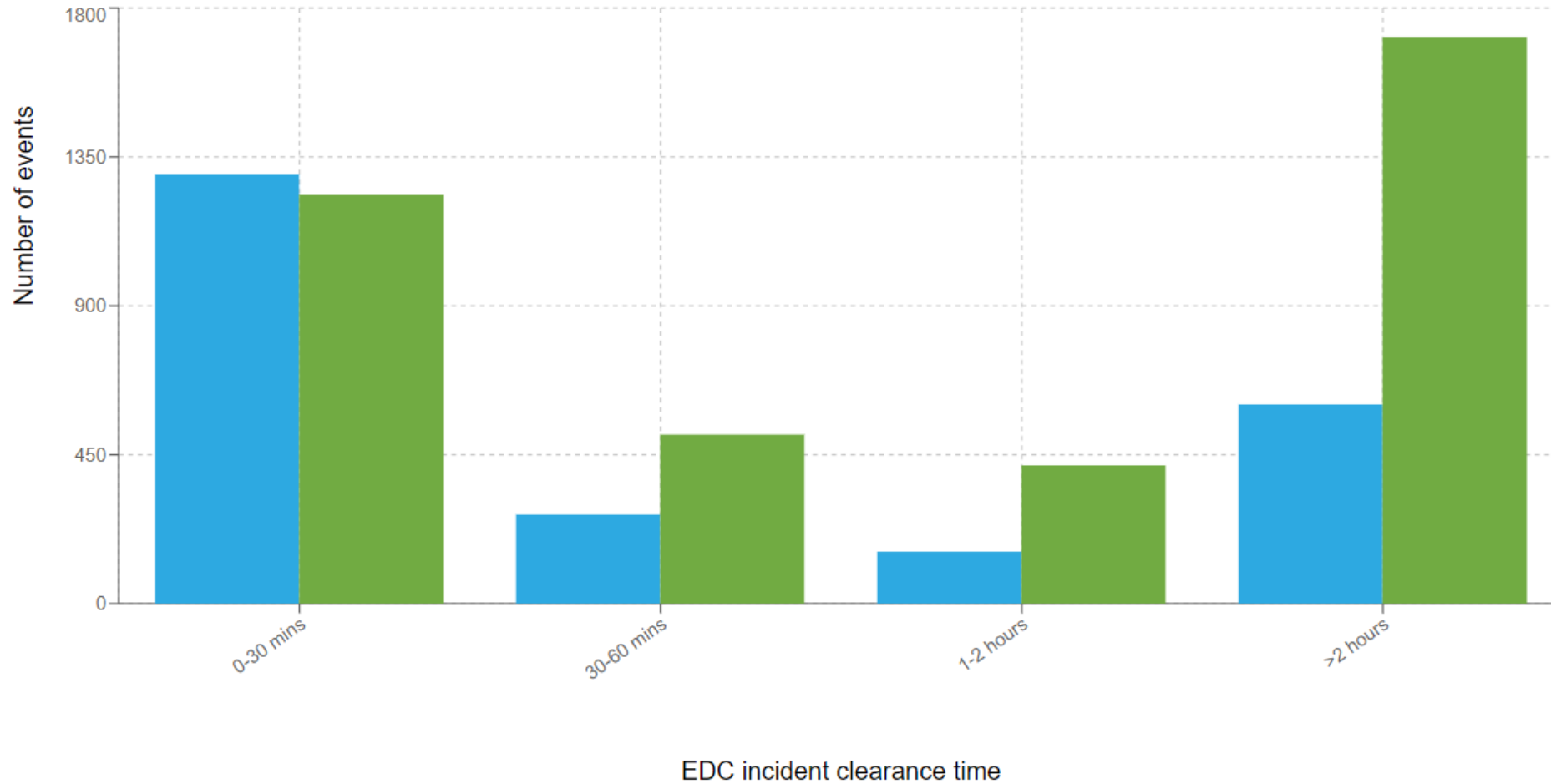
EDC incident clearance time



MDOT\_CHART



VDOT



NEW SEARCH



### Events from MDOT CHART and VDOT that started between February 1, 2019 and February 7, 2019

Showing 6,205 of 6,205 events

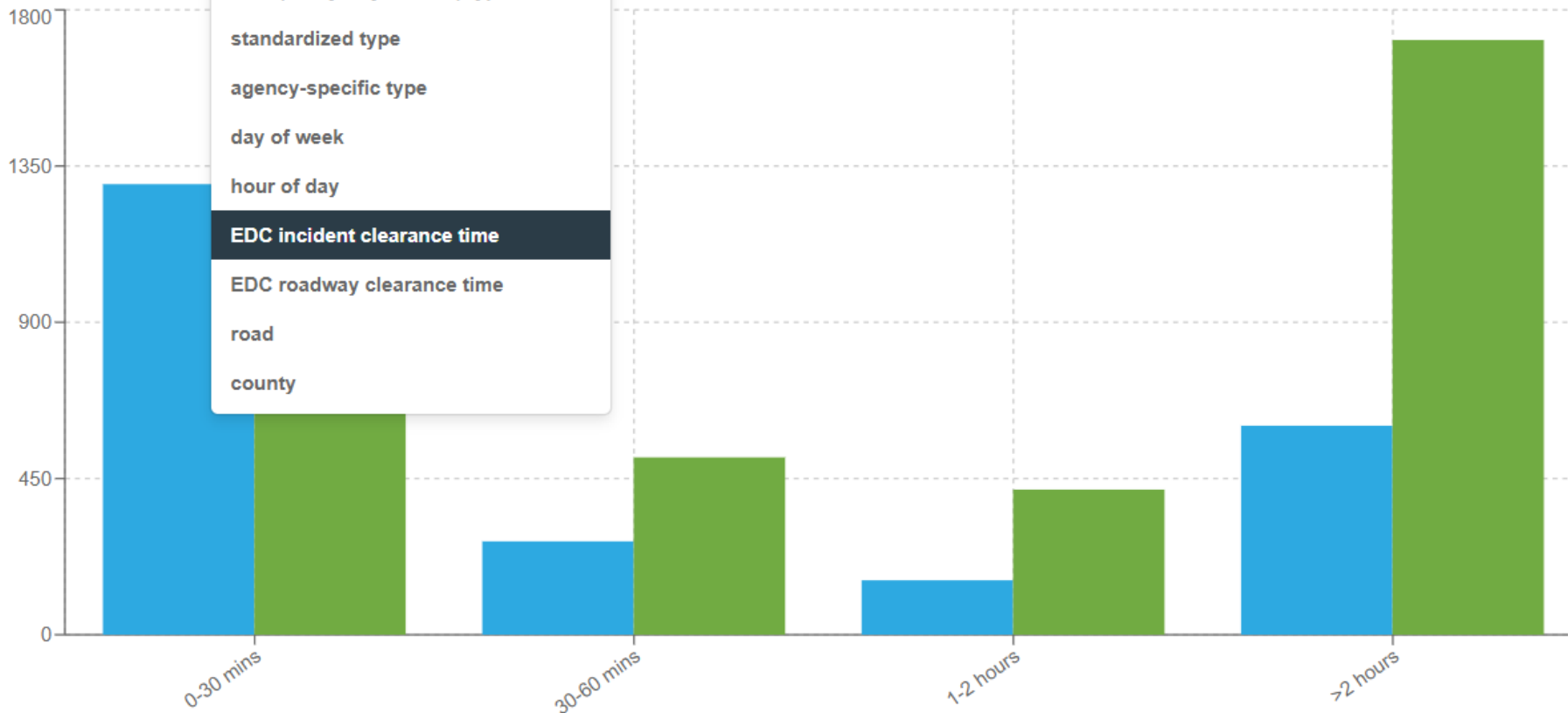


Show number of events by

EDC incident clearance time

MDOT\_CH

Number of events



EDC incident clearance time


NEW SEARCH



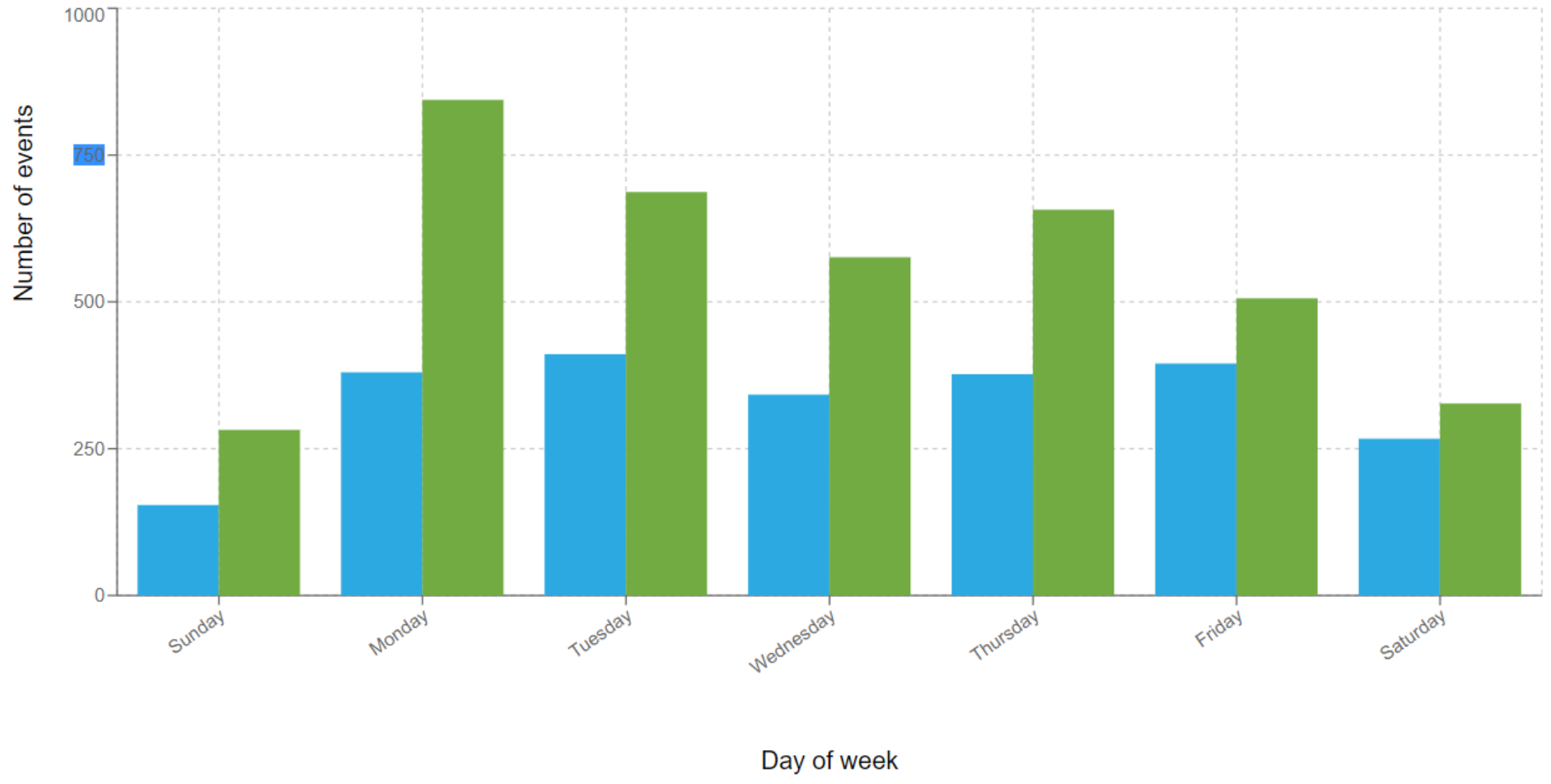
### Events from MDOT CHART and VDOT that started between February 1, 2019 and February 7, 2019

Showing 6,205 of 6,205 events



Show number of events by **day of week** 

MDOT\_CHART  VDOT



NEW SEARCH

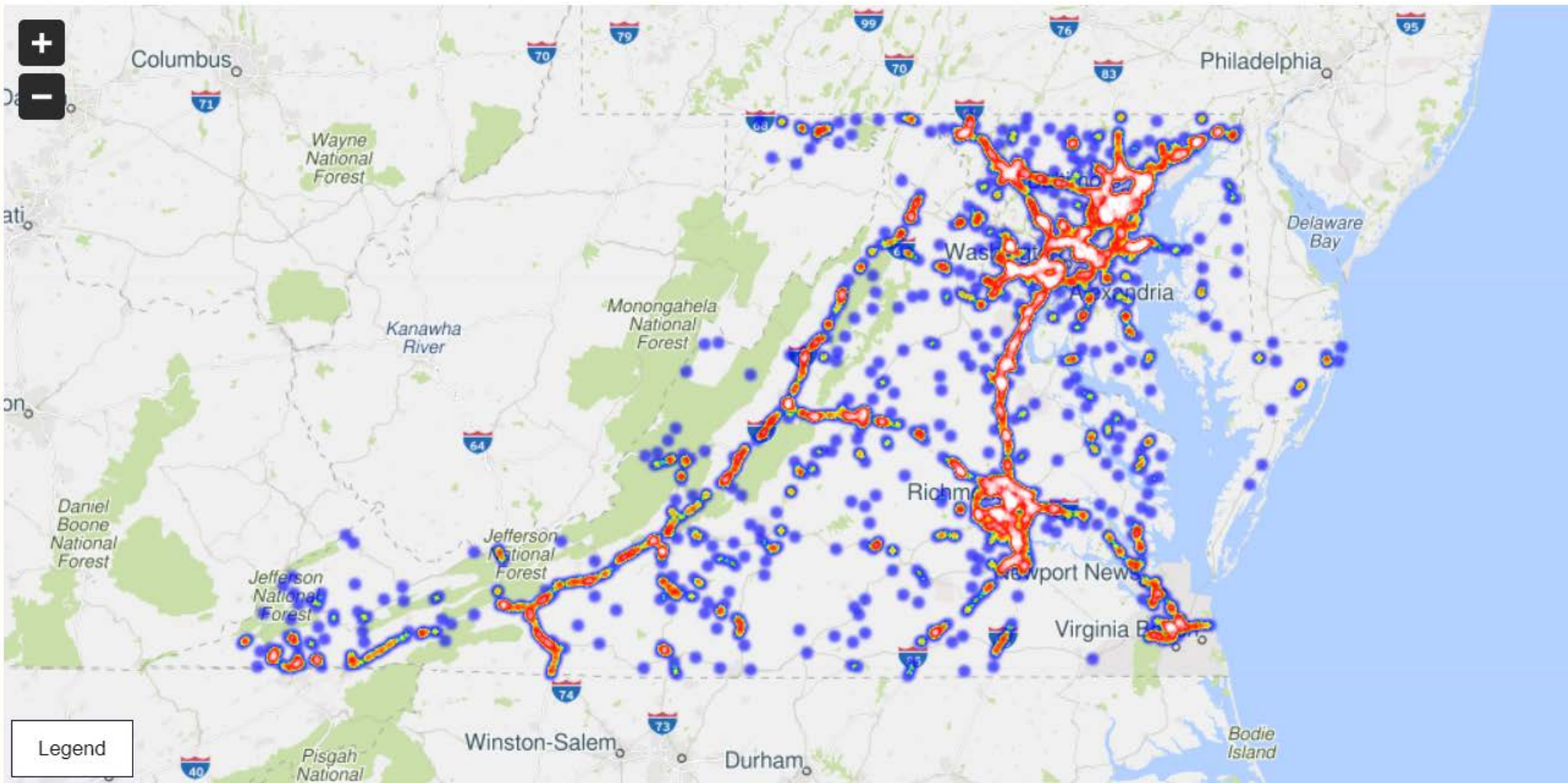


### Events from MDOT CHART and VDOT that started between February 1, 2019 and February 7, 2019

Showing 6,205 of 6,205 events



  Opacity   
0% 100%

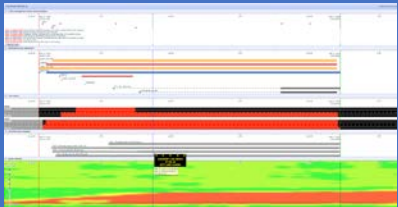


# After-action Review

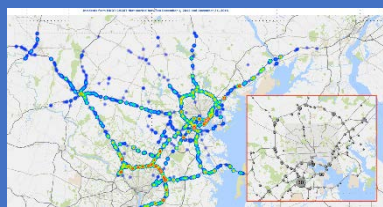
## Woodrow Wilson Bridge Collision • June 20, 2018



Incident Timeline



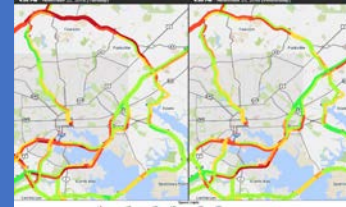
Event Query Tool



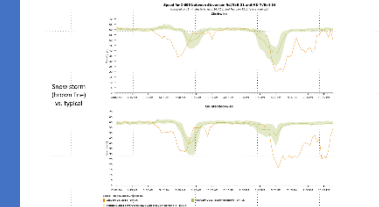
Region Explorer



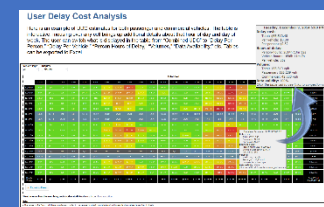
Trend Map



Performance Charts




User Delay Cost



# AAR Reporting (select pages)

## Event Summary



### After Action Review - Performance Summary Report

I-95/495 NB (Outer Loop) • Thru lanes on Woodrow Wilson Bridge  
Prince Georges County, MD

**Incident Date: Wednesday, June 20, 2018**

**Incident Summary**

A tractor trailer hit several construction vehicles on the Woodrow Wilson Bridge, leading to a closure of the Capital Beltway (primarily NB). The tractor-trailer and three other vehicles caught fire. There was 1 fatality, 7 treated & released, 1 hospitalized. A work crew trapped below the bridge had to be rescued.

**Occurrence/Notification**

10:45 am/10:52 am

Incident Duration  
**11 h 39 m**

Outer Loop Closed (NB)  
**10 h 20 m**

**Participating agencies/personnel**


17/ 100+

Worst backups from incident

**NB - 12 miles (into VA)**

**SB - 4 miles**

**Incident Location**



Event record begins: 10:51:59 AM | Event closed at: 10:31:00 PM

Agency	10A	11A	12P	1P	2P	3P	4P	5P	6P	7P	8P	9P	10P
WOOT		A - 12:25 PM											D - 9:30 PM
CHART		A - 11:00 AM											D - 9:24 PM
Fireboard		A - 10:56 AM											D - 9:25 PM
State Police		A - 10:56 AM											D - 9:25 PM
DBI		A - 11:29 AM											D - 10:30 PM
Investigation			A - 1:01 PM										D - 9:24 PM
US Park Police			A - 12:25 PM										D - 9:30 PM
MDE			A - 12:25 PM										D - 9:30 PM
Local Police		A - 11:29 AM											D - 10:30 PM
Med. Examiner			A - 2:00 PM										D - 9:24 PM
Private Tow Trucks			A - 2:00 PM										D - 9:24 PM
Sand Truck			A - 6:16 PM										D - 9:16 PM
State Police - CVED			A - 3:43 PM										D - 9:24 PM
VA State Police			A - 3:43 PM										D - 10:30 PM

Agency notified


**Lane Status**

All lanes closed from 11:03 AM to 9:23 PM (10h 20m)

**Notes:** Due to the extensive recovery & cleanup operations required (hindered by late afternoon/early evening rain), the NB Outer Loop thru lanes were closed for most of the day.

## Alternate Route Impacts

### Alternate Route Secondary Incidents



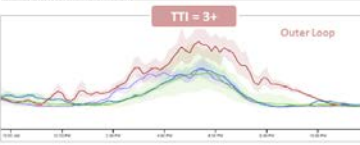
(Left) A significant number of secondary incidents occurred in the area, primarily due to the stop-and-go nature of the queued traffic at the incident site and heavy congestion on alternate routes used to bypass the WWB closure.

(Below) Several alternate routes were evaluated for Travel Time Index comparisons between June 20, 2018, two previous Wednesdays and an average Wednesday for 2017. Results show high to extremely high TTI indices, with maximum values mostly occurring between 4 pm and 6 pm. Impacts were also felt around Ronald Reagan Washington National Airport, Alexandria, the District of Columbia, major transit corridors and two planned events in the area:

- **Midday Rally/March** – near the National Mall & Pennsylvania Ave (5,000+ attendees)
- **Evening MLB Event** – Baltimore Orioles at Washington Nationals in Nationals Park (41,000+ expected attendees)

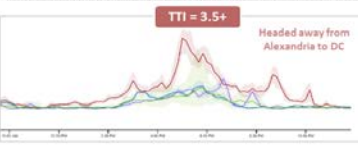
### Alternate Route Travel Time Index Comparisons

I-495 (Capital Beltway)



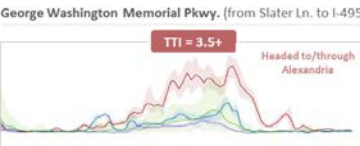
TTI = 3+ Outer Loop

George Washington Memorial Pkwy. (from Slater Ln. to I-495)



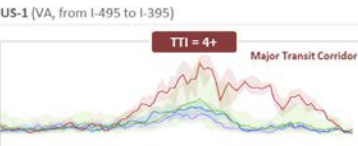
TTI = 3.5+ Headed away from Alexandria to DC

George Washington Memorial Pkwy. (from Slater Ln. to I-495)



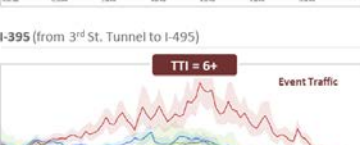
TTI = 3.5+ Headed to/through Alexandria

US-1 (VA, from I-495 to I-395)




TTI = 4+ Major Transit Corridor

I-395 (from 3rd St. Tunnel to I-495)



TTI = 6+ Event Traffic

George Washington Memorial Pkwy. (from Slater Ln. to I-395)



TTI = 8+ Event Traffic / Reagan Airport impacted



Travel Time Index (TTI) = travel time represented as a percentage of ideal travel time (Travel Time / Free-flow Travel Time)

NOTE: Light colored bands = 5<sup>th</sup> / 95<sup>th</sup> Percentile

## Other Impacts

### Event Regional Impacts

Closure of the Outer Loop on the Woodrow Wilson bridge severely impacted area Interstates within this triangle, an example of which can be seen by this aerial photo of I-495 approaching the bridge. Understanding the various costs to travelers (time, money) provides the necessary technical evaluation critical to informing decision-makers and better addressing similar events in the future.

### User Delay Cost Comparisons

Wed., June 13 <sup>th</sup> 2018	Wed., June 20 <sup>th</sup> 2018	Wed., June 27 <sup>th</sup> 2018
Delay Cost \$1,359,734	Delay Cost <b>\$3,153,861</b>	Delay Cost \$933,589
Hours of Delay 55,159 person-hrs. 45,028 vehicle-hrs.	Hours of Delay <b>127,939 person-hrs.</b> <b>104,440 vehicle-hrs.</b>	Hours of Delay 37,872 person-hrs. 30,916 vehicle-hrs.
Delay per VMT 0.73 min/mi	Delay per VMT <b>1.75 min/mi</b>	Delay per VMT 0.50 min/mi

A User Delay Cost analysis was conducted to ascertain the monetary, and other effects the closure had on these roadways, compared a Wednesday in June before and after the event.

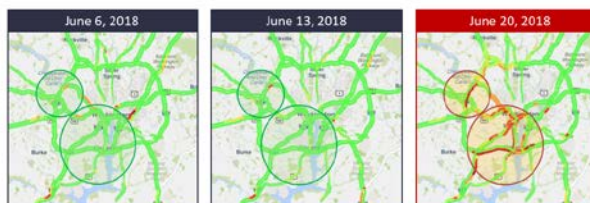
Results show **substantial increases** in delay cost, hours of delay and delay per Vehicle Miles Traveled during the event compared to other normal days.

Delay cost increased between \$1.79M and \$2.2M (23.2% - 338%), hours of delay between 82,914 and 90,067 h (23.2% - 338%) and delay per VMT between 1.02 and 1.25 mi (240% - 350%) due to the severity and lengthy clearance time of the event.

### National Capital Region | WWB Event Extended Impacts (8:00 PM EST)

Two previous Wednesdays show minimal traffic in the NCR region at 8:00 PM, but on 6/20, traffic backups remained substantial, even after almost 10h after the accident.

The most congested corridors were I-95 NB to the WWB, I-495 and I-395 in the Washington, DC area.



# After-Action Reviews (one-pager)

## Event Summary

A tractor trailer hit several construction vehicles on the Woodrow Wilson Bridge, leading to a closure of the Capital Beltway (primarily NB). The tractor-trailer and three other vehicles caught fire. There was 1 fatality, 7 treated & released, 1 hospitalized. A work crew trapped below the bridge had to be rescued.

## Some Key Aspects



Participating agencies/personnel

**17/ 100+**

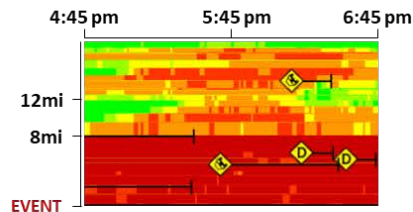


Worst backups from incident



**NB 12 miles (into VA)**  
**SB 4 miles (into MD)**

Backups of 8 miles were common, increasing at times to 12 miles. There were numerous minor secondary incidents in the queued traffic (worst hours shown below).



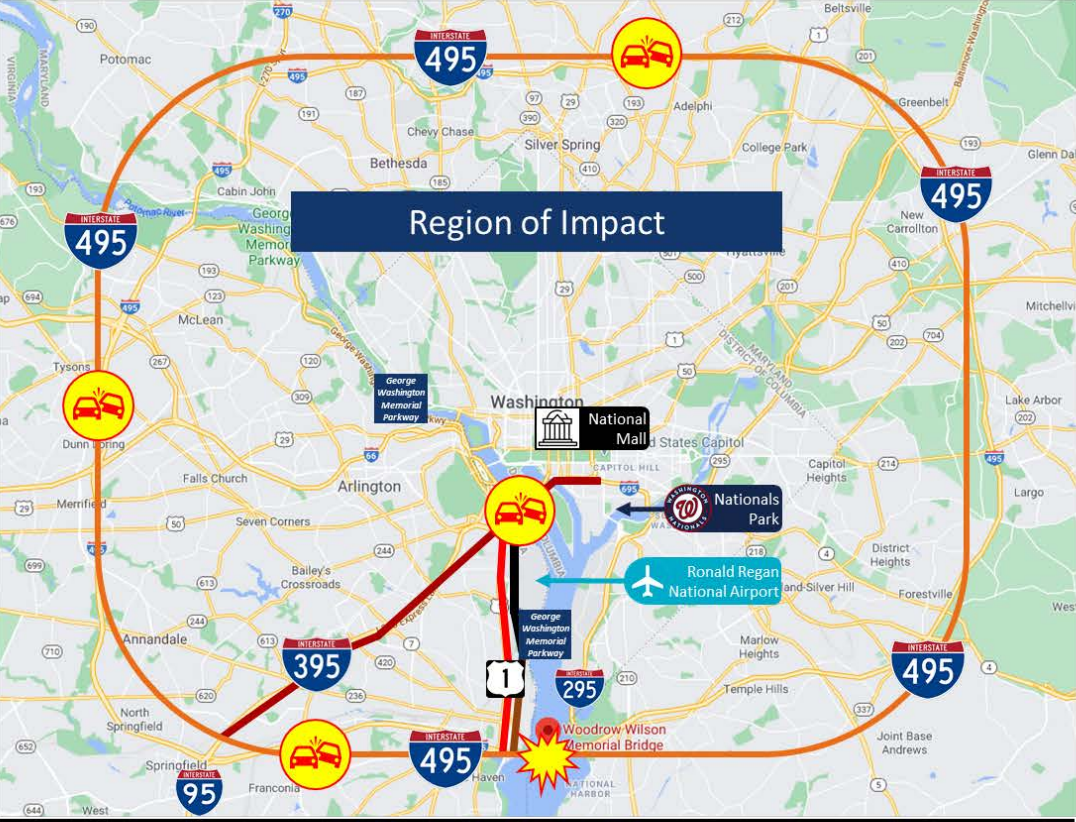
■ < 10 mph  
 ■ 10-20 mph  
 ■ 20-30 mph  
 ■ 30-40 mph  
■ 40-50 mph  
 ■ > 50 mph

## MATOC After Action Review - Performance Summary Report

Metropolitan Area Transportation Operations Coordination | I-95/495 NB (Outer Loop) • Thru lanes on Woodrow Wilson Bridge Prince Georges County, MD



Incident Date: Wednesday, June 20, 2018 | Occurrence/Notification: 10:45 am/10:52 am | Duration: 11h 39m



## Lane Status

Due to the extensive recovery & cleanup operations required (hampered by late afternoon/ early evening rain), the NB Outer Loop thru lanes were closed for most of the day - from 11:03 AM to 9:23 PM (10h 20m).



## User Delay Cost Comparisons

**Delay Cost**  
For the region on this day  
**\$3,153,861**

**% Increase**  
compared to typical Wednesdays  
**285% ▲**

**Hours of Delay**  
For the region on this day  
**127,939 per.-hrs.**

**% Increase**  
compared to typical Wednesdays  
**285% ▲**

**104,440 veh.-hrs.**      **295% ▲**

## Other Regional Impacts

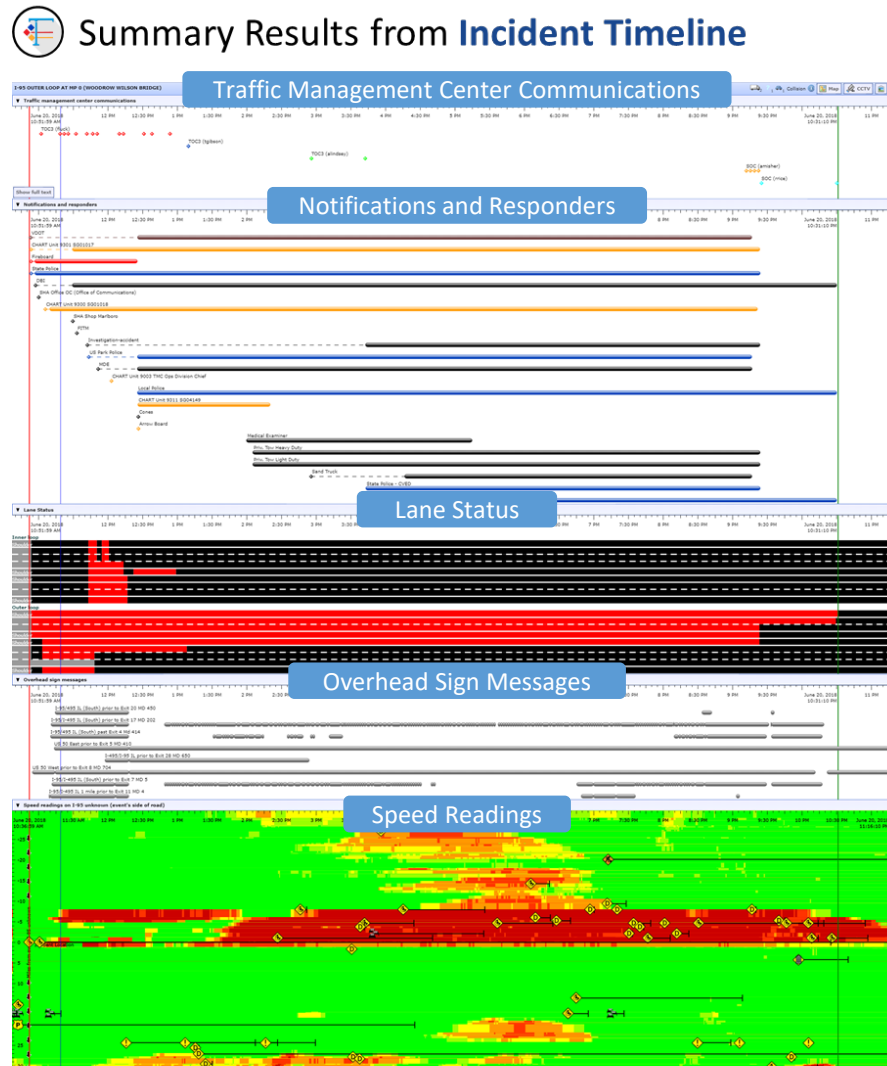
Significant Impacts were also felt around **Ronald Reagan Washington National Airport**, Alexandria, the District of Columbia, major transit corridors (particularly along Route 1) and two planned events in the area:

**National Mall** Midday Rally/March near the National Mall & Pennsylvania Ave (**5,000+ attendees**)

**Nationals Park** The Baltimore Orioles at Washington Nationals in Nationals Park (**41,000+ attendees**, late afternoon / early evening)



# After-Action Reviews (one-pager – possible flip side)



## After Action Review Takeaways



### What worked well?

Overall the response was a success given the complicated nature of the incident; there were no single points of failure.



### What needs improvement?

Some DOT response trucks could have been delayed in responding to the incident given they are not classified as emergency response vehicles.

Delays in opening retractable barriers to bleed off queued traffic lead to additional delays in opening lanes.

Queued motorists upstream from the incident sometimes self-diverted, often reversing down on-ramps which created additional hazards; other factors to consider are knowledge of alternate routes and the influence of personal navigation devices.

There were numerous minor secondary incidents in queued traffic, including an increase in incidents on roadways that served as alternate routes.

Local transit bus operations in the area were severely impacted (but rail services served as a good alternate).



### Recommendations

- Examine Unified Command & Command Post locations as they related to the WWB
- Regularly train responders on how to operate and open the retractable barriers to address staff turnover (and 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 incidents
- Update and share Maryland and Virginia FITM plans; including updates in RITIS
- Explore conducting a broader multi-jurisdiction/multi-discipline AAR for this incident



### Next Steps

Develop an on-going and comprehensive training program for transportation agencies – DOTs, transit, etc. – law enforcement, fire, safety, contractors and others that focuses on high-profile facilities and catastrophic events. Investigate **Virtual Incident Management Training** to supplement and enhance traditional training methods.

# After-Action Reviews (one-pager – alternate flip side)

## Event Photos



Add Photo captions or descriptions here

## After Action Review Takeaways



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# Corridor Performance Report (one-pager)



## Corridor Performance Report I-495 to Fort Meade Rd.

Year  
2019

### Region of Study: US-1 between I-495 and Fort Meade Rd.

U.S. Highway 1 is the primary north-south corridor connecting Beltsville and Laurel, Maryland. This portion of US-1 is paralleled by Interstate 95 to the west and the Baltimore Washington Parkway to the east. All three of the routes connect Washington, DC and Baltimore, MD.

This seven-mile section of US-1 between I-495 and Fort Meade Rd. is mostly a four-lane undivided highway. Some sections are four-lane divided, four-lane with bi-directional median turns, and six-lane divided.

Average bidirectional weekday daily traffic for this section of highway in 2018 ranged from 41,000 near I-495 to 35,500 in Laurel to 31,500 between MD-200 and MD-212.

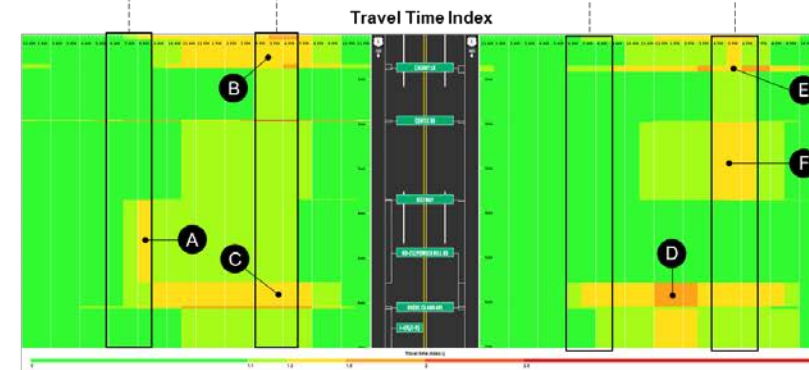
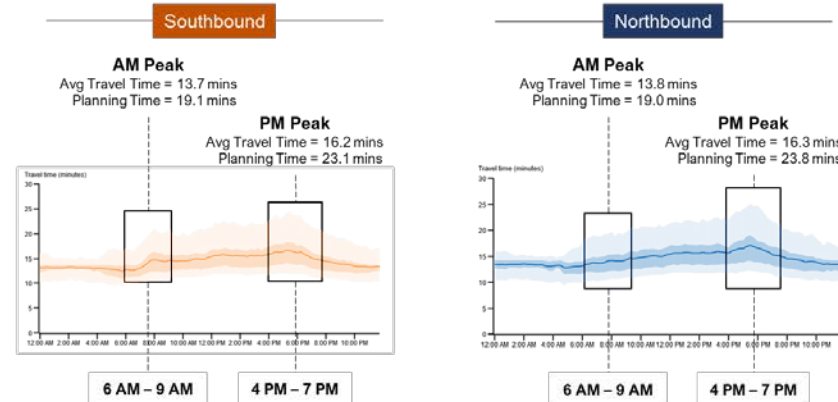
### Purpose of Study:

This annual study examines the yearly performance of this critical business corridor and compares it to performance in previous years.



### 2019 Corridor Travel Times

Weekday travel times for the US-1 corridor were aggregated over the entire year and are presented below. This corridor does not exhibit a clear peak travel direction in either the AM or PM peak periods. Instead, the PM peak travel times are consistently higher than the AM peak travel times. In each direction, the average PM peak travel time is approximately 3 minutes longer than the AM peak period travel time, with the planning time being approximately 4 minutes longer. The heat map at the bottom of the page shows the geographic location of typical congestion through the day.



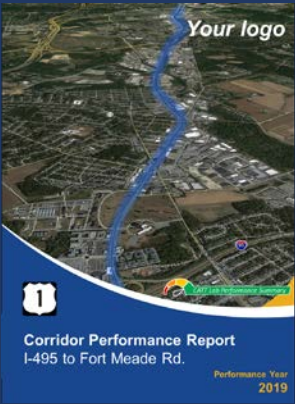
Locations of Typical Slow Downs (SB)

Locations of Typical Slow Downs (NB)

- A: 8AM – 9AM : Ritz Way to Powder Mill Rd.
- B: 11AM – 8PM : Ft. Meade Rd. to Cherry Ln.
- C: 9AM – 8PM : Powder Mill Rd. to Rhode Island Ave.

- D: 7AM – 9PM : Rhode Island Ave. to Powder Mill Rd.
- E: 8AM – 10PM : at Cherry Ln.
- F: 4PM – 7PM : Ritz Way to Contee Rd.

# How-to Guide example (new format & layout)



## How to make the cover page

### 1 Create a background map image (from Google Earth Pro)

- Click Save Image
- Click Map Options and select options.
- Click Resolution and select Maximum.
- Save image as a JPEG, then import into PowerPoint.

(A desaturated color base map was used for this example.)

### 2 Overlay a road highlight

- Select "Curved Line" from the shape menu.
- Left-click along the path of the roadway to draw the line. Double-click to end the curve. Right-click the finished line to bring up an edit menu to add or move curve point.
- Under Shape Effects, apply **Glow**. Using the Format Shape dialog, change the color to the same color as the line. Adjust the size and transparency bars to produce the effect based on your personal preferences.

### 3 Add some finishing touches

- Insert your logo at the top of the cover.
- Add a bottom graphic for text, matching your color palette.
- Include things like report title, Route, location, analysis timeframe, etc.

## How to make the hourly travel time graph

### 1 Use PDA Performance Charts tool with the following query parameters

Data Source: INRIX  
Granularity: 15 minutes

### 2 Tailor chart using the settings below

### 3 Save chart using the "customize image export" tool

### 4 Change the image size to improve legibility at the scale you will be utilizing

Change image size to a width of 750 and a height of 500.

You can turn off the legend display here.

### 5 In PowerPoint, into document "Picture" but "Images" tool

## How to make the travel time column charts (part 2)

### 4 Create a combo chart with free flow travel time shown as a line. Show planning time and travel time as clustered columns.

### 5 The resulting chart looks like this. We need to do some work to clean up the visualization.



### 6 Label the horizontal axis by month

- Right click on a column and pick "Select Data..."
- Edit the horizontal axis labels
- Highlight the month range in your Excel workbook, press enter, and then OK.

### 7 Name each data series

- Right click on a column and pick "Select Data..."
- Edit the Legend Entries (Series)
- Under Edit Series, click the cell in the Excel worksheet that contains the corresponding category. Repeat for all three series.

### 8 Under Format Data Series, use Series Options to overlap the data columns.

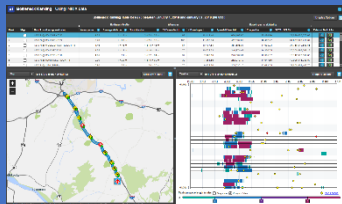
Change the series order if the planning time column obscures the travel time column.

# Holiday Travel Guide (Forecast Infographic)

## Interstate Travel Forecast for the Baltimore, MD region



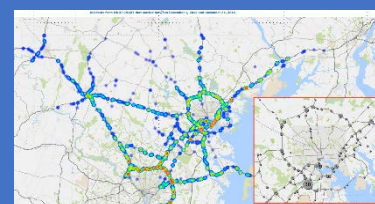
Bottleneck Ranking



Congestion Scan



Event Query Tool



Trend Map



# Predicting holiday travel

Using the VPP Suite and RITIS apps, you can create graphics like this:



## Thanksgiving Week 2016

Interstate Travel Forecast for the Baltimore, MD region  
(Based upon an evaluation of Thanksgiving week in 2015)

“Thanksgiving holiday travel is expected to increase from 2015 by 3 percent in Maryland, according to AAA Mid-Atlantic. That’s 31,000 more Marylanders on the road from Wednesday, November 23, through Sunday, November 27.”

*As quoted in BMC’s “Cog Quarterly” (Fall / 2016)*

### TUESDAY

11.22.16

⚠️ Avoid 3PM – 7PM

#### INSIGHT

Worst time between  
4pm – 6pm  
Heaviest congestion  
**on I-695**  
(between I-95 & I-70)

### WEDNESDAY

11.23.16

⚠️ Avoid 2PM – 5PM

#### INSIGHT


Collisions are  
**47% higher**  
than normal,  
statewide.  
**Drive carefully!**

### THURSDAY

11.24.16

👍 Great day to drive!

#### INSIGHT

Low usage all day.  
  
**Happy Thanksgiving**

### FRIDAY

11.25.16

👍 Great day to drive!

#### INSIGHT

Low usage all day.  
Black Friday shows a  
lower usage than an  
average Friday.  
**Expect Mall  
congestion!!**

### SATURDAY

11.26.16

👍 Great day to drive!

#### INSIGHT

Low usage all day;  
only minor  
congestion on I-95.

### SUNDAY

11.27.16

⚠️ Drive Carefully!

#### INSIGHT

Moderate usage all  
day, I-95 SB north of  
the city congested  
12PM to 7PM.  
Collisions are  
12% higher than  
normal, statewide.

### MONDAY

11.28.16

⚠️ Avoid 3PM – 6PM

#### INSIGHT

Worst time between  
4pm – 5pm  
Heaviest congestion  
**on I-695**



# Holiday Travel Guide (forecast infographic)



## Thanksgiving Week 2016

Interstate Travel Forecast for the Baltimore Region, MD  
(Based upon an evaluation of Thanksgiving week in 2015)

Driving Forecast Insight Graphic

### FORECAST

The Maryland Transportation Authority (MDTA) anticipates a 1.5% increase in traffic volumes compared to last year's Thanksgiving holiday period. Between Tuesday, Nov. 21, and Sunday, Nov. 26, the MDTA expects more than 2.2 million travelers on its highways, bridges and tunnels. The Wednesday before Thanksgiving is typically considered the busiest travel day of the year. Based on traffic counts from previous years, Wednesday, Nov. 22, is expected to be the heaviest travel day. However, in recent years the Tuesday before Thanksgiving has become very busy as well with families trying to beat the rush. **Using crowdsourced vehicle probe data, we have determined that peak travel occurs in the 4 o'clock hour on both the Tuesday and Wednesday of Thanksgiving week, making this one of the worst times to travel.**

### REGION AFFECTED

- Anne Arundel Co.
- Baltimore City
- Baltimore Co.
- Carroll Co.
- Harford Co.
- Howard Co.

### LOCATION MAP



TUESDAY 11.22.16	WEDNESDAY 11.23.16	THURSDAY 11.24.16	FRIDAY 11.25.16	SATURDAY 11.26.16	SUNDAY 11.27.16	MONDAY 11.28.16
⚠ Avoid 3 PM – 7 PM	⚠ Avoid 2 PM – 5 PM	👍 Great day to drive!	👍 Great day to drive!	👍 Great day to drive!	⚠ Drive Carefully!	⚠ Avoid 3 PM – 6 PM
<b>INSIGHT</b> Worst time between 4pm – 6pm Heaviest congestion <b>on I-695</b> (between I-95 & I-70)	<b>INSIGHT</b> Collisions are <b>47% higher</b> than normal, statewide. <b>Drive carefully!</b>	<b>INSIGHT</b> Low usage all day. 	<b>INSIGHT</b> Low usage all day. Black Friday shows low use than an average Friday.	<b>INSIGHT</b> Low usage all day; only minor congestion on I-95.	<b>INSIGHT</b> Moderate usage all day, I-95 SB north of the city congested 12PM to 7PM. Collisions are 12% higher than normal, statewide.	<b>INSIGHT</b> Worst time between 4pm – 5pm Heaviest congestion <b>on I-695</b>



# Work Zone Impact (Weekly Performance Summary Report)

## I-895 (at the Baltimore Harbor Tunnel)



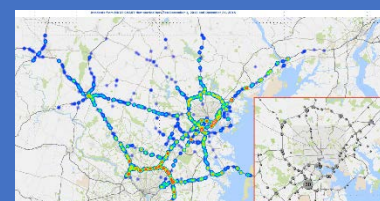
Work Zone Dashboard



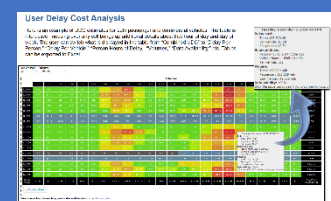
Congestion Scan



Event Query Tool



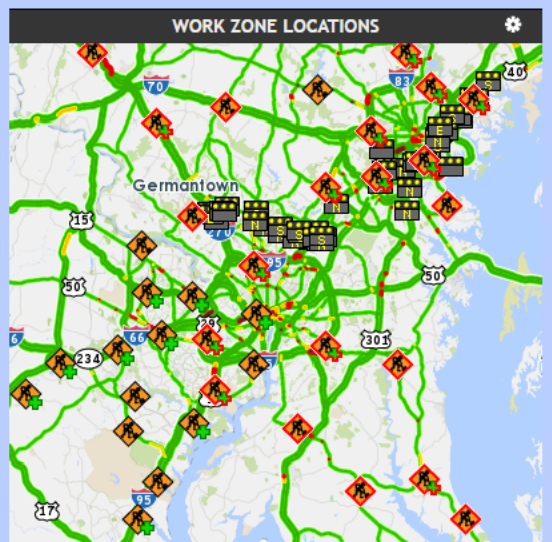
User Delay Cost





CURRENT WORK ZONES			
REGION/EVENT	# OF NEARBY INCIDENTS	QUEUE LENGTH (MI)	USER DELAY COST (\$)
▶ District of Columbia (3)	39	0	\$0.5M
▶ Florida (404)	9725	0	\$0.3M
▶ Georgia (57)	444	0.1	\$2.2M
▼ Maryland (66)	211	4.3	\$0.3M
▼ Anne Arundel (4)	67	1.2	\$23.5K
MD 173 NORTH/SOUTH BET...	-	0 → 1.2	\$497
MD 258 WEST AT SOUTHERN...	5	0	\$1.9K
MD 174 EAST BETWEEN OLD...	-	0	\$41
I-895 SOUTH - SOUTH OF EX...	62	0 → 6	\$21.1K
▼ Baltimore (16)	43	0	\$25.4K
I-695 INNER LOOP AT EXIT 1...	-	0	-
I-95 NORTH PAST EXIT 67A ...	-	0 → 1	\$44
MD 45 SOUTH BETWEEN HIL...	-	-	\$374
BALTIMORE COUNTY: I-95 S...	11	0	-
I-695 INNER LOOP AT EXIT 1...	-	0 → 3	\$27
MD 140 NORTH BETWEEN C...	-	0 → 1	\$285
I-695 INNER LOOP FROM EXL...	-	0 → 2	\$2.4K
I-95 SOUTH FROM SOUTHW...	7	0	\$2
I-95 SOUTH FROM EXIT 47A...	2	0 → 3	\$3.8K
I-695 EAST BETWEEN YORK ...	1	0 → 2	\$55
MD 700 EAST/WEST BETWE...	-	0 → 1	\$55
I-695 INNER LOOP BETWEEN...	5	-	\$19
BALTIMORE COUNTY: I-695 I...	7	0 → 1	\$4
BALTIMORE COUNTY: MD-45...	1	0 → 1	\$364
BALTIMORE COUNTY: MD-54...	-	0 → 1	\$131
I-895 NORTH-NORTH OF I-6...	9	0 → 1	\$17.9K
▼ Baltimore City (5)	8	0.8	\$2.6K
BALTIMORE CITY: I-895 NOR...	-	0 → 0.5	\$891

TOP CRITICAL WORK ZONES			
SEVERITY/EVENT	LANE STATUS	QUEUE LENGTH (MI)	USER DELAY COST (\$)
▼ Critical (6)		19.6	\$0.4M
Roadwork on I-78 eastbound between Exit 49A: PA 100 SOUTH - TREXLERTOWN and Exit 51: US 22 EAST / TO I-476 / TO PA-309 NORTH / PA TURNPIKE / L...		3.6	\$6.8K
I-64W west @ MM 294.500		3.2	\$78.9K
I-64W west @ MM 294.500		3.2	\$78.9K
I-64W west @ MM 294.500		3.2	\$78.9K
I-81N north @ MM 164.000		3.2	\$67.8K
I-81N north @ MM 164.000		3.2	\$67.8K
▼ Major (3)		6.1	\$23.0K
I-95		2.2	\$301
Roadwork on I-81 northbound between .4 miles south of Exit 168: HIGHLAND PARK BLVD/WILKES-BARRE and .6 miles north of Exit 168: HIGHLAND PARK ...		2	\$12.1K
Roadwork on I-81 southbound between .6 miles north of Exit 175B: PA 315 NORTH - DUPONT and .2 miles north of Exit 175B: PA 315 NORTH - DUPONT. T...		1.9	\$10.6K



USER DELAY COST BY CORRIDOR AND DAY OF WEEK					
	Total User Delay Cost				Daily Totals
	I-270 (MD)	I-95 (MD)	I-495 (MD)	MD-32 (MD)	
Wed 7/19	\$147.1K	\$320.7K	\$787.2K	\$43.2K	\$1.3M
Thu 7/20	\$145.6K	\$898.1K	\$940.2K	\$45.4K	\$2.0M
Fri 7/21	\$62.9K	\$198.6K	\$791.3K	\$26.2K	\$1.1M
Sat 7/22	\$51.9K	\$86.4K	\$486.8K	\$10.7K	\$635.8K
Sun 7/23	\$67.3K	\$262.4K	\$235.3K	\$9.7K	\$574.8K
Mon 7/24	\$90.8K	\$128.0K	\$593.7K	\$31.0K	\$843.5K
Tue 7/25	\$171.4K	\$80.8K	\$580.3K	\$38.4K	\$870.9K
Wed 7/26	\$152.2K	\$152.0K	\$990.3K	\$34.2K	\$1.3M
Corridor Totals	\$889.3K	\$2.1M	\$5.4M	\$238.8K	Grand Total: \$8.7M

# RITIS: Work zone delay monitoring

Planned Closure @ I-895 SOUTH - SOUTH OF EXIT 6 POTEE ST FROM MP 6.4 TO 5.0 [LONG TERM\_CONTINUOUS]  
 Started: Wed, May 24, 2017 at 12:41:57 AM Beta

logged in as John Allen | [Logout](#)  
 Using INRIX data

### SETTINGS

**Data Type...**

Measured Speed  
 Comparison to

**Show...**

- Work Zone Boundaries
- Posted Speeds (none)
- Associated DMS
- Nearby Cameras
- Nearby Incidents
- Closed Lanes
- Bottlenecks

**Current Conditions Bounds...**

5 miles upstream  
 5 miles downstream

[Configure Alerts](#)

### CURRENT CONDITIONS

↓ SOUTH ↓    ↑ NORTH ↑

5.5 mi upstream    5.4 mi downstream

+3 MPH (5%)	No Road Information
+4 MPH (9%)	-1 MPH (-2%)
+3 MPH (6%)	+4 MPH (9%)
+5 MPH (9%)	+9 MPH (18%)
+2 MPH (4%)	-6 MPH (-12%)
+1 MPH (2%)	+11 MPH (23%)
+1 MPH (2%)	+11 MPH (17%)
0 MPH (0%)	+8 MPH (14%)

### SPEED SOUTH THROUGH WORK ZONE

Speed    South Through the Work Zone

### Work Zone Delay/Cost/VMT

Total User Delay Cost

	4AM - 8AM	8AM - 12PM	12PM - 4PM	4PM - 8PM	8PM - 12AM	Daily Totals
Mon 7/17/2017	\$0.2K	\$1.4K	\$0.00	\$1.5K	\$6.65	\$3.1K
Tue 7/18/2017	\$0.4K	\$0.3K	\$1.48	\$35.86	\$12.81	\$0.8K
Wed 7/19/2017	\$0.5K	\$0.9K	\$0.00	\$2.73	\$11.76	\$1.3K
Thu 7/20/2017	\$0.5K	\$0.6K	\$2.54	\$6.26	\$0.28	\$1.1K
Fri 7/21/2017	\$0.00	\$0.1K	\$1.0K	\$0.3K	\$28.44	\$1.5K
Sat 7/22/2017	\$0.53	\$1.32	\$0.61	\$11.43	\$32.56	\$48.81
Sun 7/23/2017	\$82.82	\$0.04	\$0.00	\$6.09	\$47.48	\$0.2K
<b>Hourly Totals</b>	<b>\$93.22</b>	<b>\$1.7K</b>	<b>\$4.2K</b>	<b>\$21.54</b>	<b>\$1.9K</b>	<b>Grand Total: \$8.0K</b>

**Started: 22 minutes ago**  
**Length: 0.01 miles**  
**Travel Time: 0.035 minutes**

**Settings/  
Alerts**

**WORK ZONE LOCATION**

**I-95 S 7 MILES 8 MINUTES**

**Location Map**

**Alert**

Location  
 I-895 SOUTH BETWEEN RITCHIE SPUR AND MD 295

Started  
 7/25/2017 6:03 AM

**Roadway**

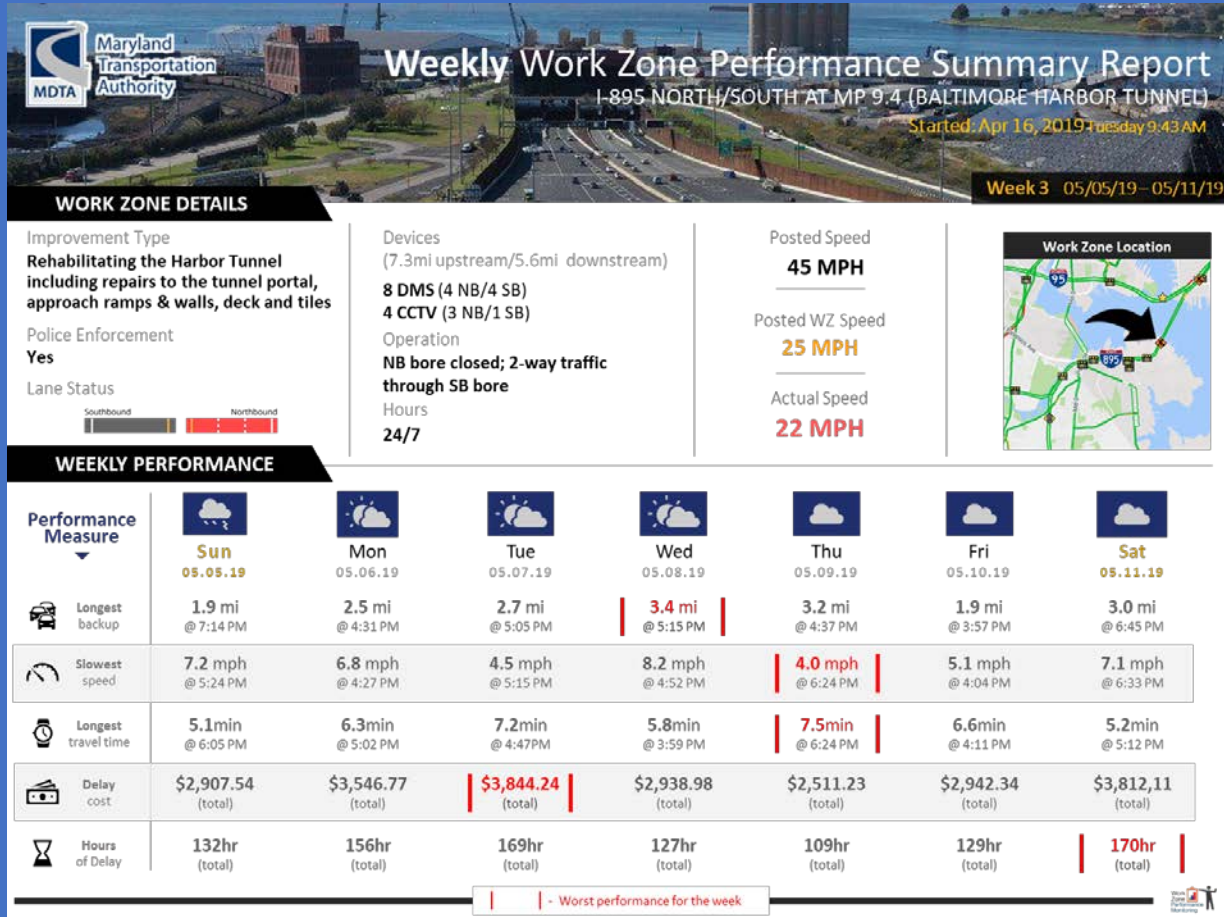


**Work Zone Delay/Cost/VMT**

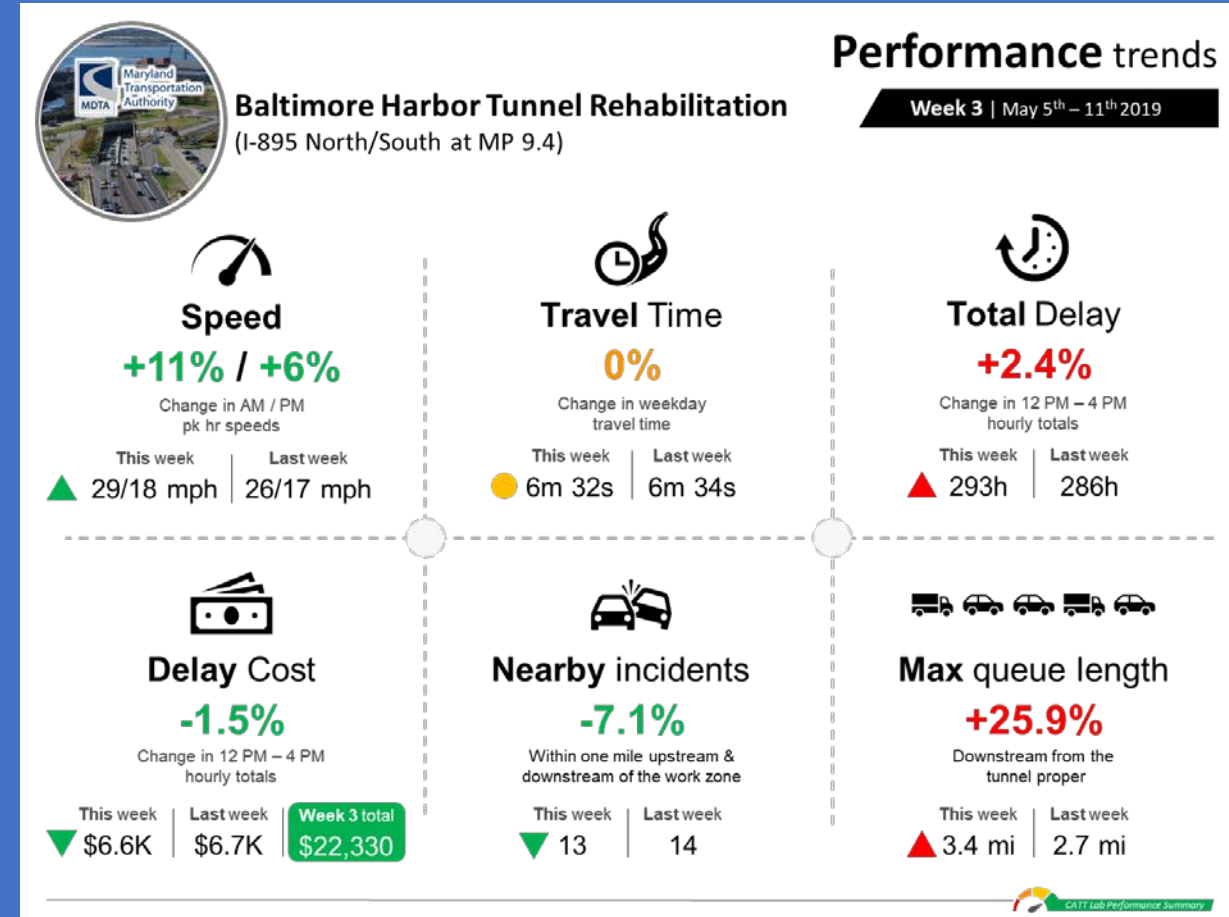
Weekend    Lowest    Highest    No Data

# Work Zone Impact (weather infographic style)

## Weekly Performance (front)



## Performance Trends (back)



# Analyzing People Movement for Operations

### Segment Analysis

Using the RI data set  
I-95 Northbound between Woodville Alton Rd/Exit 2 and Woodville Alton Rd/Exit 2; Sub-county to Sub-county; Heavy vehicles; Started and ended: July and August 2018, All days of week, 12 AM - 12 AM

Map Controls | Trip Filters | Time Range

Road Selection

Search for road...

Your selected roads 1 Remove all

I-95 Northbound between Woodville Alton R...

Directions:  
 Eastbound  Northbound  
 Southbound  Westbound

Entire (572 interchanges)  Partial

From: Intersection  
WOODVILLE ALTON RD/EXIT 2

To: Intersection  
WOODVILLE ALTON RD/EXIT 2

3.71 miles of roadway selected (2 TMC codes)

Data is returned only for trips that travelled all selected road segments.

Geographic resolution

Sub-county

For trips through selected road segment, show the...

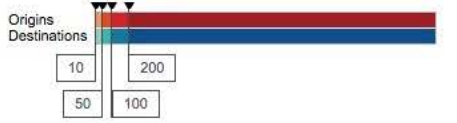
Origins and destinations  
 Origins  
 Destinations

Data appearance

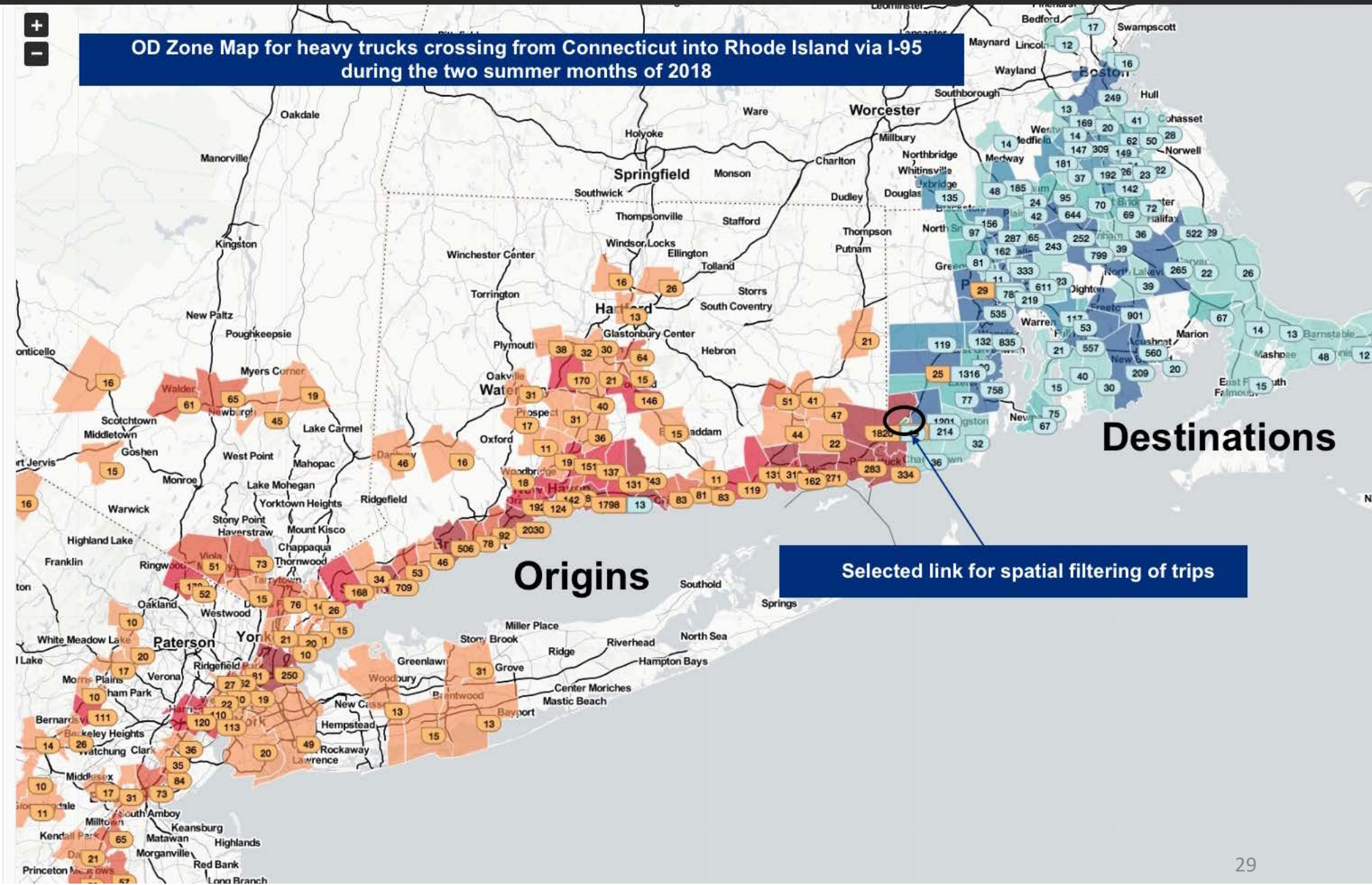
Show values on map  
 Sample counts  
 Percentages

Color legend...

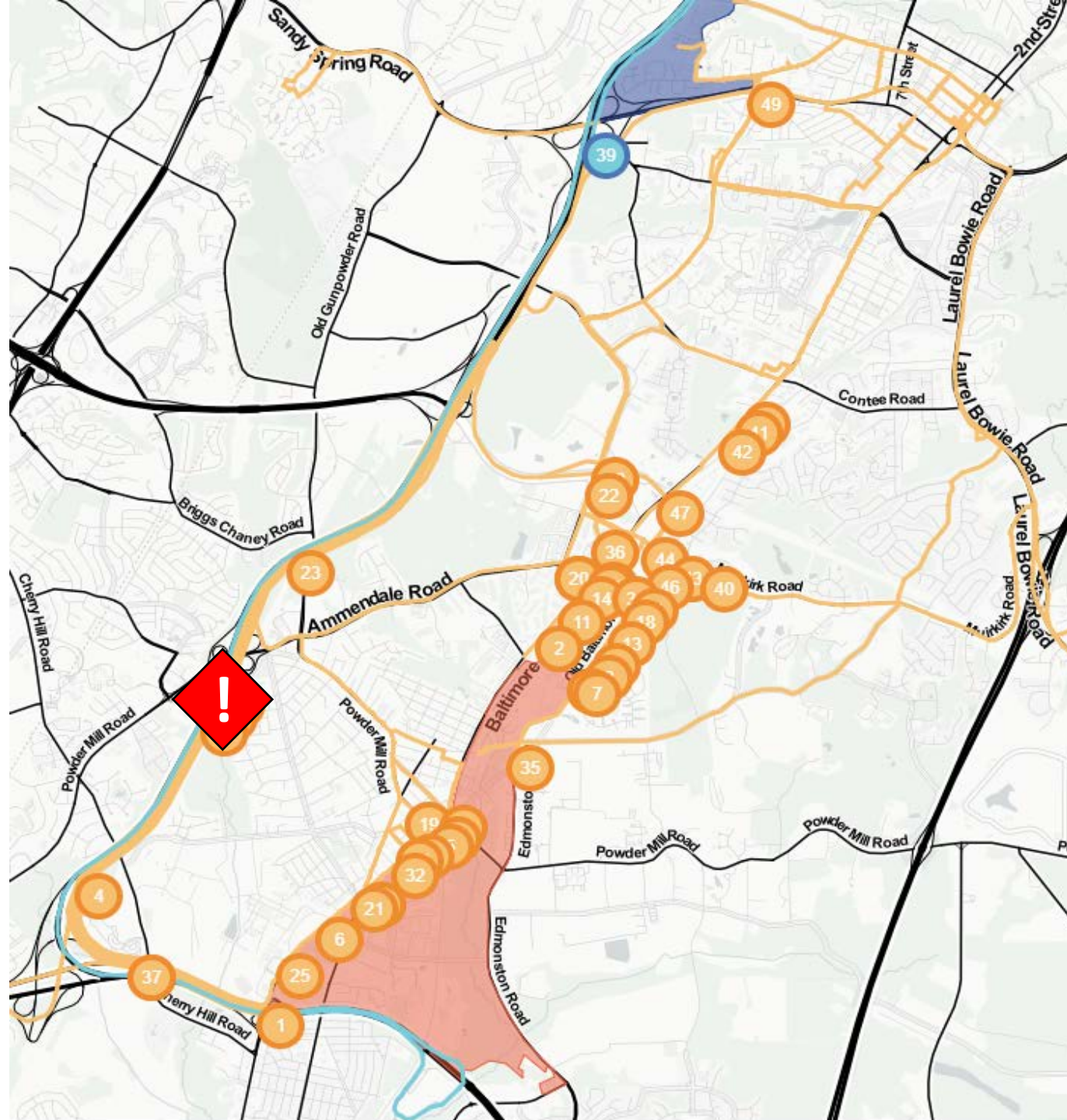
Enter exact values  
 Hide lowest color range



View Matrix | Submit

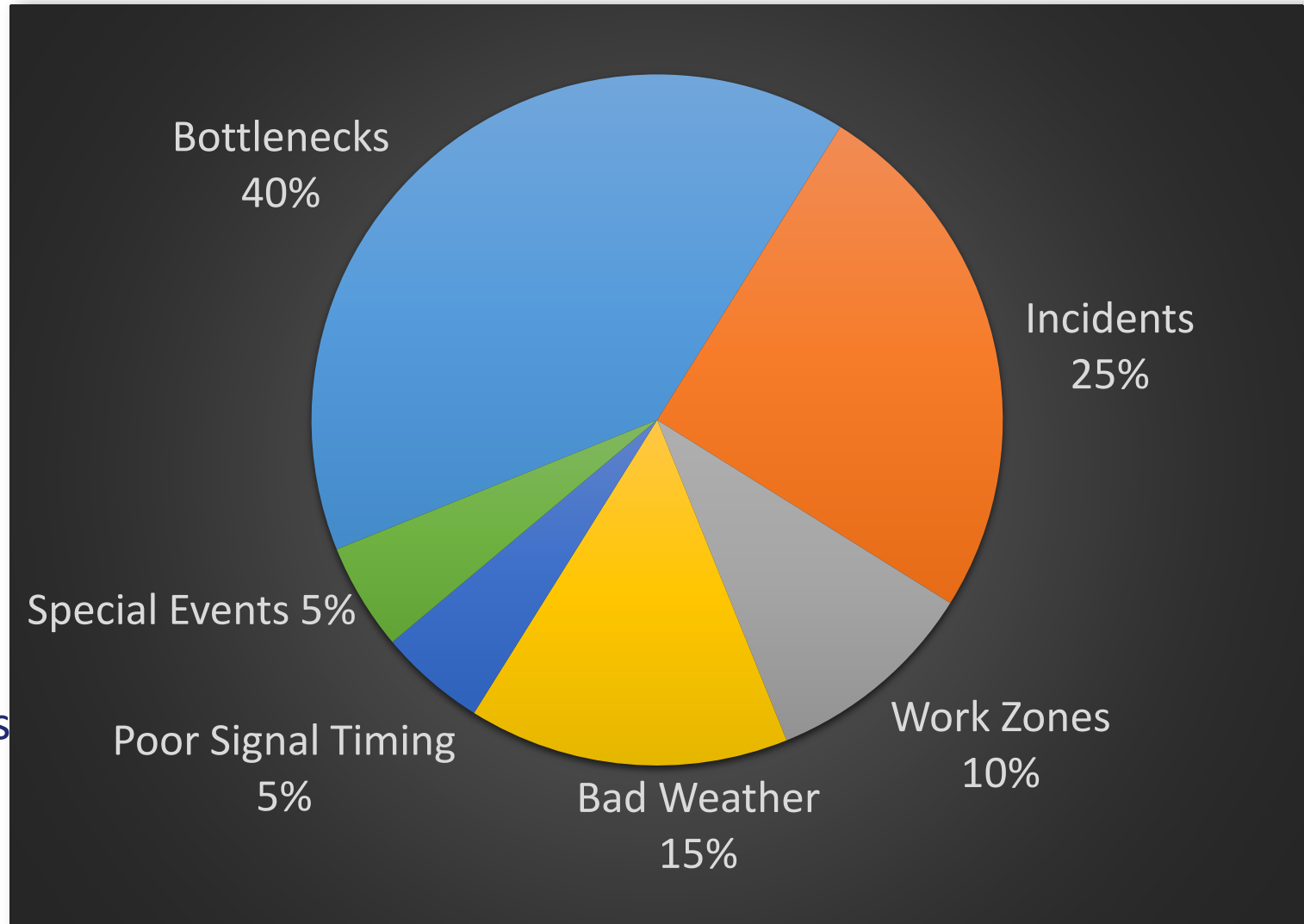


# Ops Detour Analysis & Planning



# The *Causes of Highway Congestion* pie chart...

- National statistic
- 14+ years old
- Largely modeled
- Still used extensively for BIG investment and spending decisions



Select Year 2018



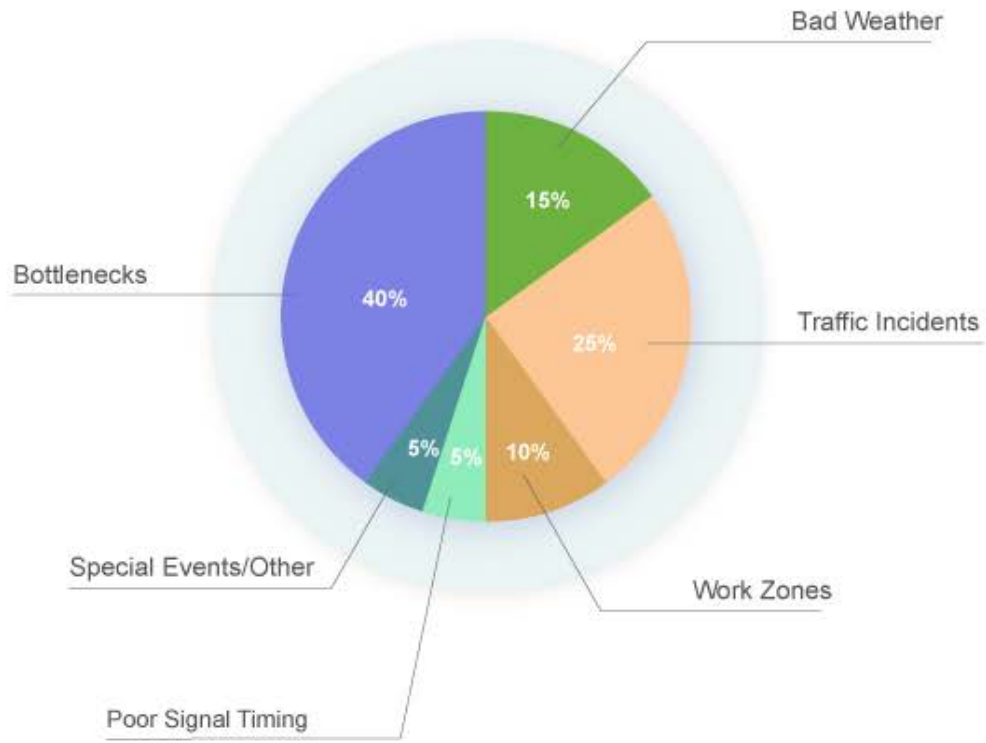
Select a state

Sort By State Name

A to Z

# Sources of Congestion Nation Wide in 2018

Rated by Vehicle Miles Traveled



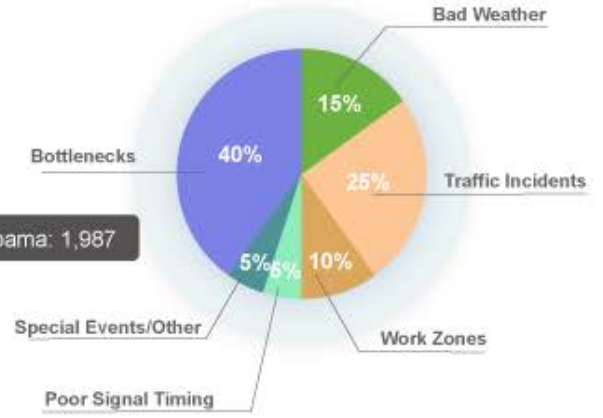
## Alabama

Rated by Vehicle Miles Traveled



## Alaska

Rated by Vehicle Miles Traveled



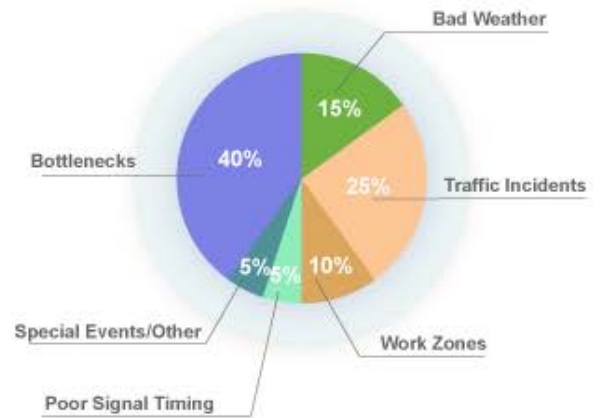
## Arizona

Rated by Vehicle Miles Traveled



## Arkansas

Rated by Vehicle Miles Traveled





Select Year 2018



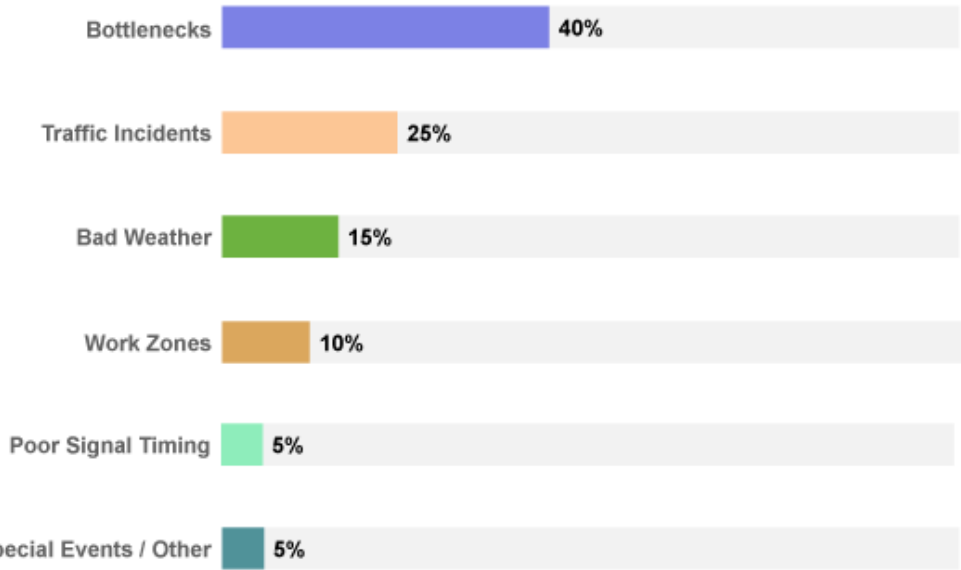
Select a state

Sort By State Name

↓ A to Z

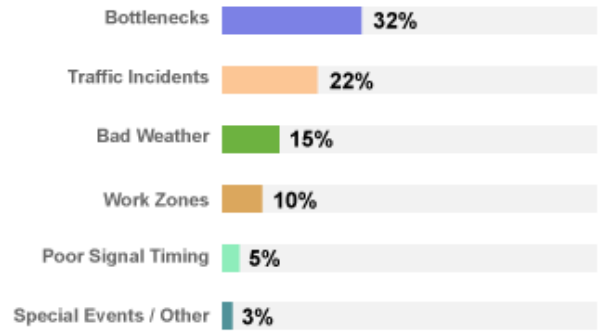
## Sources of Congestion Nation Wide in 2018

Rated by Vehicle Miles Traveled



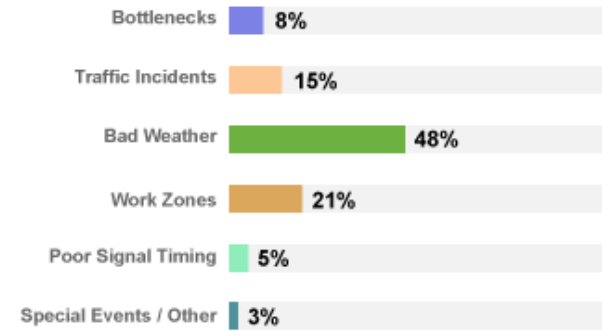
### Alabama

Rated by Vehicle Miles Traveled



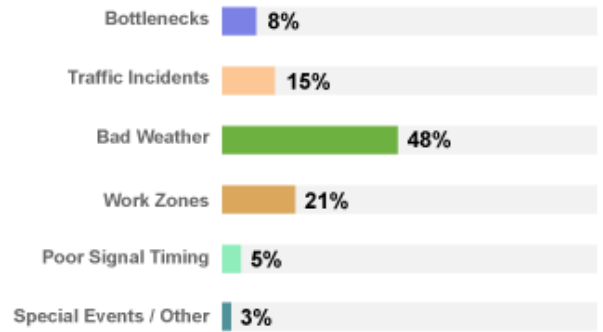
### Alaska

Rated by Vehicle Miles Traveled



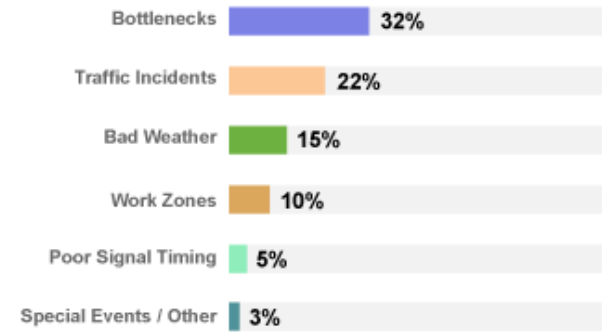
### Arizona

Rated by Vehicle Miles Traveled



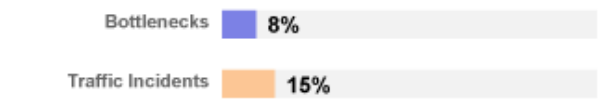
### Arkansas

Rated by Vehicle Miles Traveled



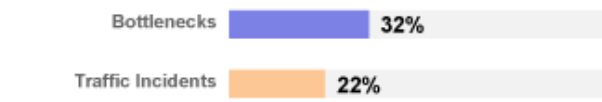
### California

Rated by Vehicle Miles Traveled



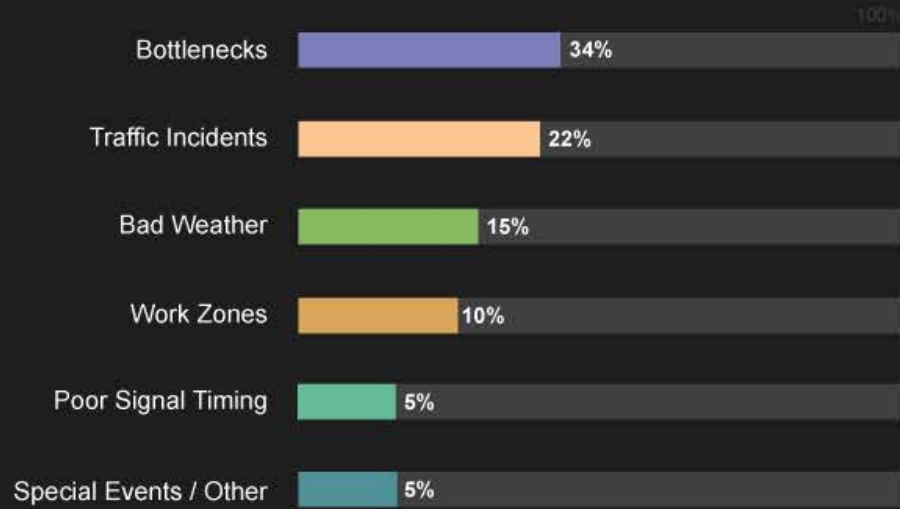
### Colorado

Rated by Vehicle Miles Traveled



# DELAWARE

Wednesday December 19, 2018 to Wednesday, December 26th, 2018



## Summary

The numbers represent the total number of events for the entire county.

**Bottlenecks:** 1,982

**Traffic Incidents :** 1,120

**Bad Weather:** 434

**Work Zone :** 329

**Poor Signal Timing :** 109

**Special Events / Other:** 59

## Delay Cost

- Total: \$51,000
- Per VMT: \$50

## Hours of Delay:

- Person-hours: 343
- Vehicle-hours: 120

## Vehicle miles traveled (VMT):

- Total: 873,000 miles
- Passenger: 230,000 miles
- Commercial: 643,00 miles

## Delay per VMT:

- 33 mins / mile

**Data validity:** 100%



States

Counties

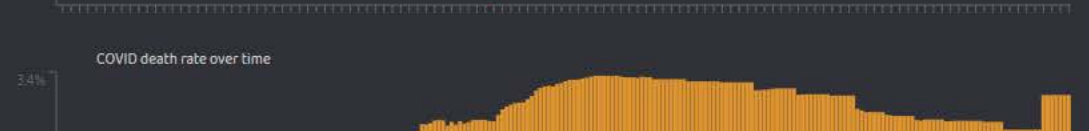
From August 27, 2020 to August 27, 2020

Select metrics:

- Mobility and Social Distancing
- COVID and Health
- Economic Impact
- Vulnerable Population

Search for a county

County ▲	Social distancing index	% staying home	Imported COVID cases	% change in consumption	COVID death rate	
Abbeville County, South Carolina	15	18%	173	13.7%	1.68%	SERA
Acadia Parish, Louisiana	44	32%	401	-20.7%	2.49%	SERA



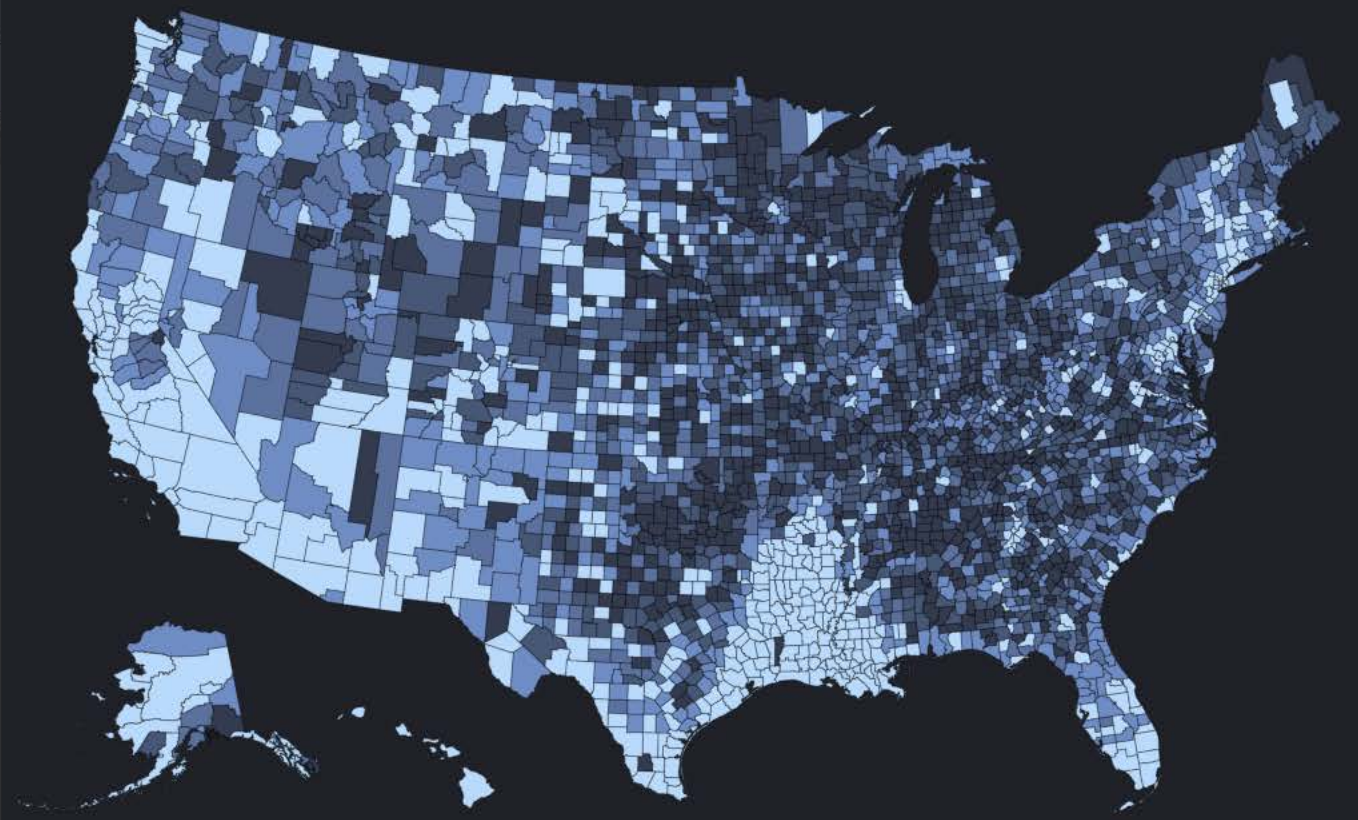
Accomack County, Virginia 10 10% 75 0.7% 1.65% SERA  
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Zoom to All states

Show Social distancing index

Show National Statistics

Showing data for August 27, 2020



Social distancing index





UNIVERSITY OF MARYLAND  
**COVID-19 Impact Analysis Platform**

**CONTROLS**  
States | Counties  
From August 1, 2020 to August 1, 2020  
Select metrics: Mobility and Social Distancing | COVID and Health | Economic Impact | Vulnerable Population

**STATE METRICS**  
State: Maryland  
Social distancing index: 35 | % staying home: 28% | Imported COVID cases: 4,119 | % change in consumption: 9% | COVID death rate: 1.73% | SERA

**TREND CHARTS**  
Social distancing index over time  
% staying home over time  
Imported COVID cases over time  
% change in consumption over time  
COVID death rate over time

**MORE INFO**  
About | Tutorial | Methods | Findings | Press | Contact

MARYLAND TRANSPORTATION INSTITUTE | **QATT** LABORATORY

Zoom to: Maryland | Show: # hot spots/1000 people  
Showing data for August 1, 2020

**SOCIETY AND ECONOMY REOPENING ASSESSMENT**  
August 1, 2020  
Learn more about SERA results  
■ Passing ■ Narrowly Passing ■ Failing

**COVID and Health**

# days: decreasing COVID cases	0	THRESHOLD 14	PERCENTILE 79th
# days: decreasing ILI cases	91	THRESHOLD 14	PERCENTILE 67th
Testing capacity gap	9.6%	THRESHOLD 12%	PERCENTILE 80th
# contact tracing workers/1000 people	0.041	THRESHOLD 0.15	PERCENTILE 27th
% hospital bed utilization	68.62%	THRESHOLD 90%	PERCENTILE 100th
% ICU utilization	10.07%	THRESHOLD 90%	PERCENTILE 73rd
New cases/1000 people	0.17		PERCENTILE 65th
Imported COVID cases	4,119		PERCENTILE 73rd
Ventilator needs	54		PERCENTILE 61st

**LOCATION / METRICS MAP**  
# hot spots/1000 people  
110 | 124 | 129 | 136 | 149+

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<https://data.covid.umd.edu/>

# Resources (how to learn more)

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- [www.ritis.org](http://www.ritis.org) (basic info and account requests)
- [www.ritis.org/tutorials/](http://www.ritis.org/tutorials/) (tutorial videos)
- <https://matoc.org/training/> (training webinar schedules)

Or send me an email @ [PackML@umd.edu](mailto:PackML@umd.edu)

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