

CONGESTION REPORT

3rd Quarter 2018

A quarterly update of the National Capital Region's traffic congestion, travel time reliability, top-10 bottlenecks and featured spotlight

December 17, 2019



National Capital Region
Transportation Planning Board

ABOUT TPB

Transportation planning at the regional level is coordinated in the Washington area by the National Capital Region Transportation Planning Board (TPB). Members of the TPB include representatives of the transportation agencies of the states of Maryland and Virginia, and the District of Columbia, local governments, the Washington Metropolitan Area Transit Authority, the Maryland and Virginia General Assemblies, and nonvoting members from the Metropolitan Washington Airports Authority and federal agencies. The TPB is staffed by the Department of Transportation Planning of the Metropolitan Washington Council of Governments.

CREDITS

Author: Jan-Mou Li, Daivamani Sivasailam

Project Management: Andrew J. Meese

Oversight: Kanti Srikanth

Data/Tools: I-95 Corridor Coalition Vehicle Probe Project; INRIX, Inc.;
CATT Lab of University of Maryland

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CONGESTION – TRAVEL TIME INDEX (TTI)

Interstate System

TTI 3rd Quarter 2018: **1.35** ↑0.7% or 0.009¹
 TTI Trailing 4 Quarters: **1.36** ↑0.6% or 0.008²

Non-Interstate NHS³

TTI 3rd Quarter 2018: **1.16** ↓1.4% or -0.017
 TTI Trailing 4 Quarters: **1.19** ↓1.2% or -0.014

Transit-Significant⁴

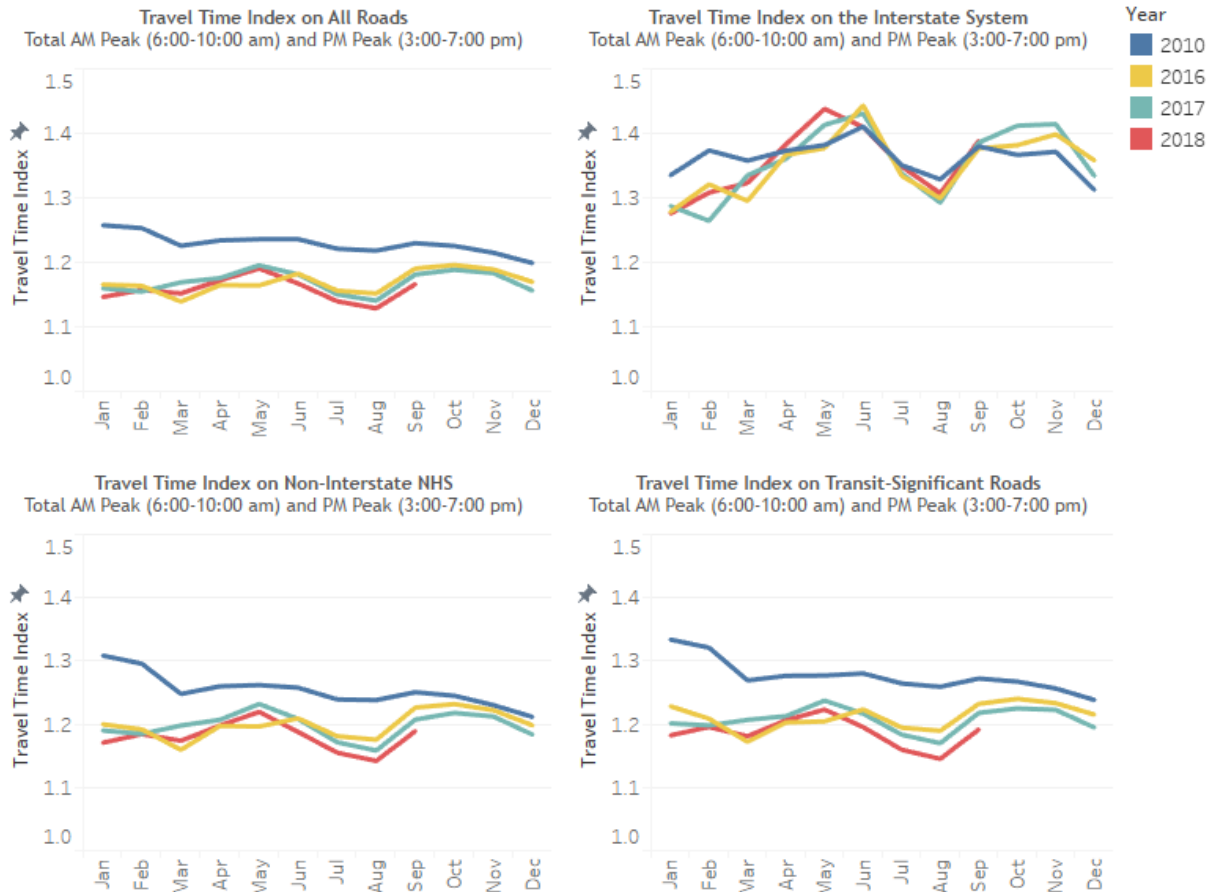
TTI 3rd Quarter 2018: **1.17** ↓2.1% or -0.025
 TTI Trailing 4 Quarters: **1.19** ↓1.4% or -0.02

All Roads

TTI 3rd Quarter 2018: **1.14** ↓1.1% or -0.012
 TTI Trailing 4 Quarters: **1.16** ↓0.8% or -0.7

¹ Compared to 3rd Quarter 2017; ² Compared to one year earlier; ³ NHS: National Highway System; ⁴ See “Background” section.

Figure 1 Monthly Travel Time Index for Total AM peak (6:00-10:00 am) and PM peak (3:00-7:00 pm)



Travel Time Index (TTI), defined as the ratio of actual travel time to free-flow travel time, measures the intensity of congestion. The higher the index, the more congested traffic conditions it represents, e.g., TTI = 1.00 means free flow conditions, while TTI = 1.30 indicates the actual travel time is 30% longer than the free-flow travel time.

RELIABILITY – PLANNING TIME INDEX (PTI)

Interstate System

PTI 3rd Quarter 2018: **1.88** ↑2.3% or 0.042¹
 PTI Trailing 4 Quarters: **1.89** ↑1.3% or 0.024²

Non-Interstate NHS³

PTI 3rd Quarter 2018: **1.39** ↓1.9% or -0.027
 PTI Trailing 4 Quarters: **1.43** ↓1.8% or -0.026

Transit-Significant⁴

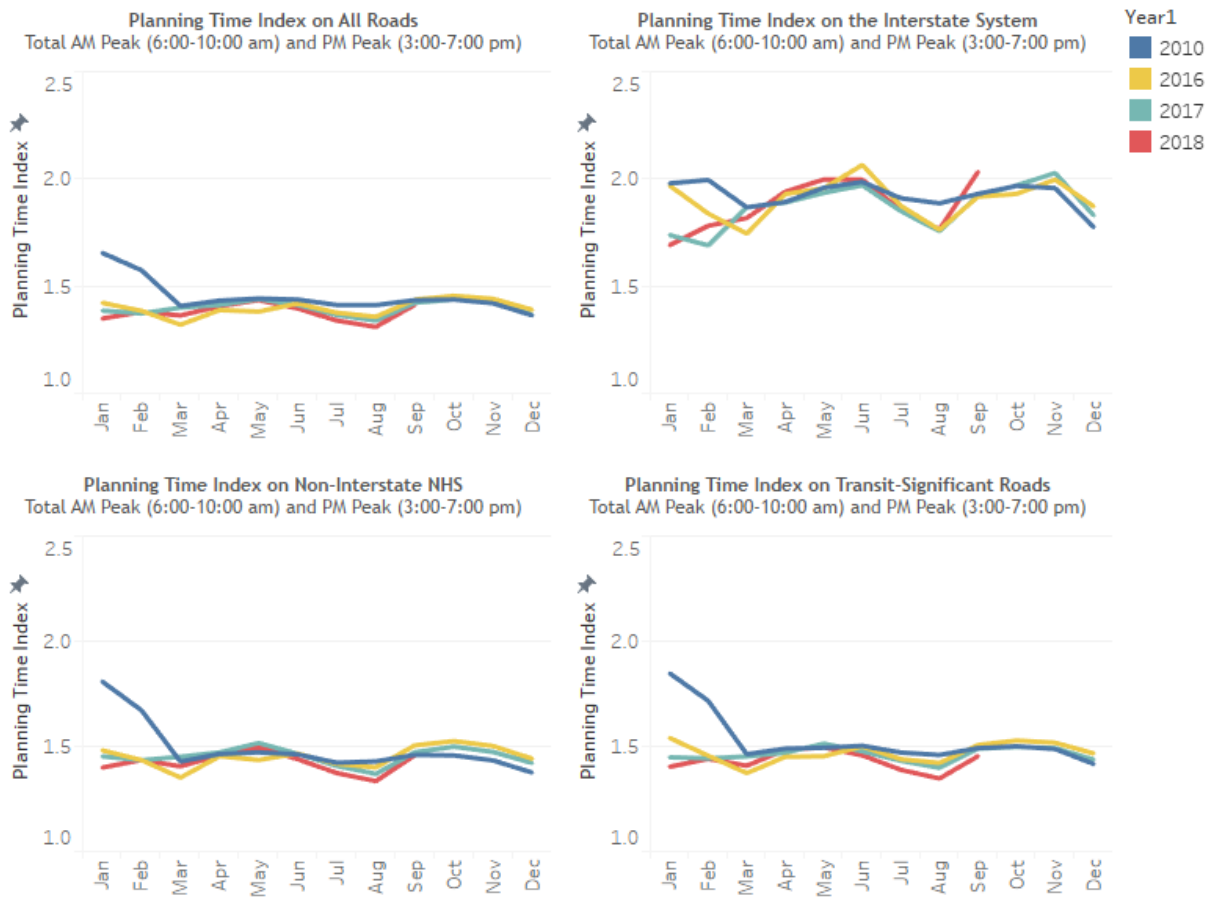
PTI 3rd Quarter 2018: **1.40** ↓3.0% or -0.043
 PTI Trailing 4 Quarters: **1.44** ↓1.9% or -0.03

All Roads

PTI 3rd Quarter 2018: **1.35** ↓1.6% or -0.021
 PTI Trailing 4 Quarters: **1.38** ↓1.3% or -0.02

¹ Compared to 3rd Quarter 2017; ² Compared to one year earlier; ³ NHS: National Highway System; ⁴ See “Background” section.

Figure 2 Monthly Planning Time Index for Total AM peak (6:00-10:00 am) and PM peak (3:00-7:00 pm)

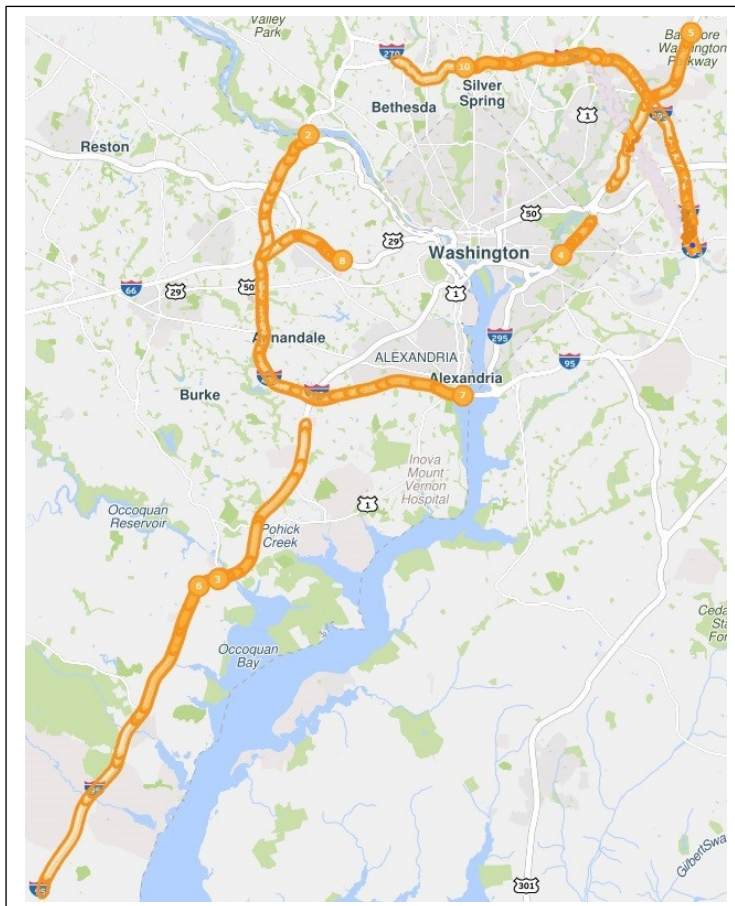


Planning Time Index (PTI), defined as the ratio of 95th percentile travel time to free flow travel time, measures travel time reliability. The higher the index, the less reliable traffic conditions it represents, e.g., PTI = 1.30 means a traveler must budget 30% longer than the uncongested travel time to arrive on time 95% of the instances (i.e., 19 out of 20 trips).

TOP 10 BOTTLENECKS

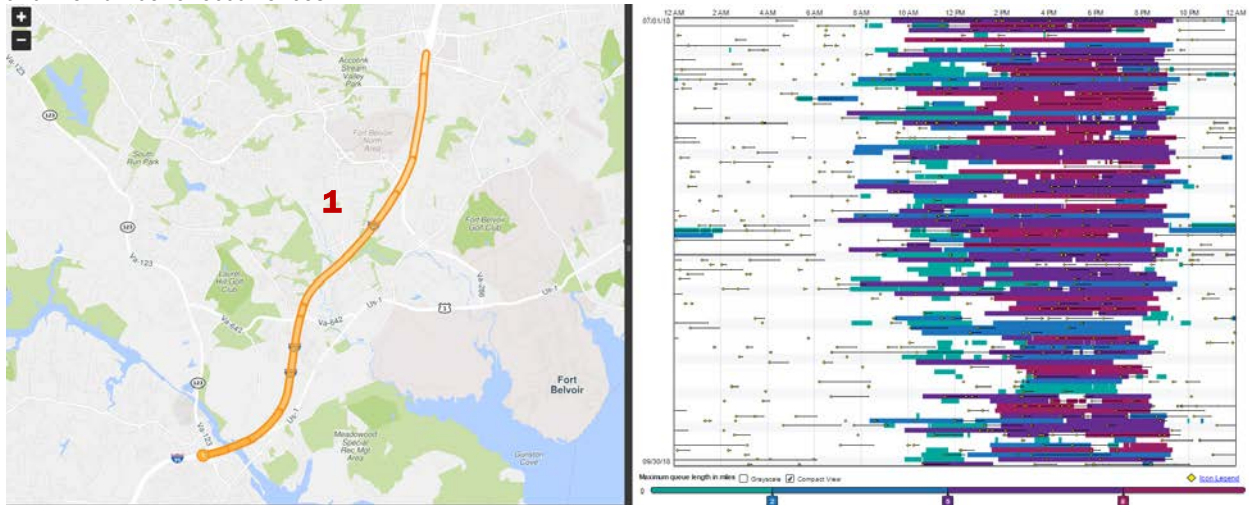
Rank (Last Quarter Rank)	Location	Average duration	Average max length (miles)	Total duration	Impact factor
1 (1) *	I-95 S @ VA-123/EXIT 160	9 h 07 m	3.73	34 d 23 h 25 m	153,947.00
2 (48)	I-495 CW @ AMERICAN LEGION BRIDGE	6 h 33 m	2.33	25 d 02 h 57 m	95,948.00
3 (2)	I-95 N @ VA-123/EXIT 160	5 h 20 m	3.24	20 d 11 h 33 m	93,962.00
4 (6)	DC-295 S @ CAPITOL ST	11 h 15 m	1.39	43 d 03 h 24 m	86,786.00
5 (5)	MD-295 N @ POWDER MILL RD	6 h 23 m	2.47	24 d 11 h 25 m	76,141.00
6 (15)	I-95 N @ VA-294/PRINCE WILLIAM PKWY/EXIT 158	4 h 24 m	2.85	16 d 21 h 42 m	73,454.00
7 (7)	I-495 CCW @ WOODROW WILSON MEMORIAL BRIDGE	2 h 46 m	3.87	10 d 14 h 45 m	69,163.00
8 (8)	I-66 E @ SYCAMORE ST/EXIT 69	6 h 34 m	1.81	25 d 04 h 23 m	65,619.00
9 (11)	I-495 CW @ MD-214/CENTRAL AVE/EXIT 15	3 h 43 m	2.54	14 d 07 h 22 m	63,054.00
10 (3)	I-495 CCW @ MD-97/GEORGIA AVE/EXIT 31	3 h 05 m	2.87	11 d 19 h 52 m	62,841.00

* See "Bottlenecks" section in the "Background" chapter for ranking variability from quarter to quarter.

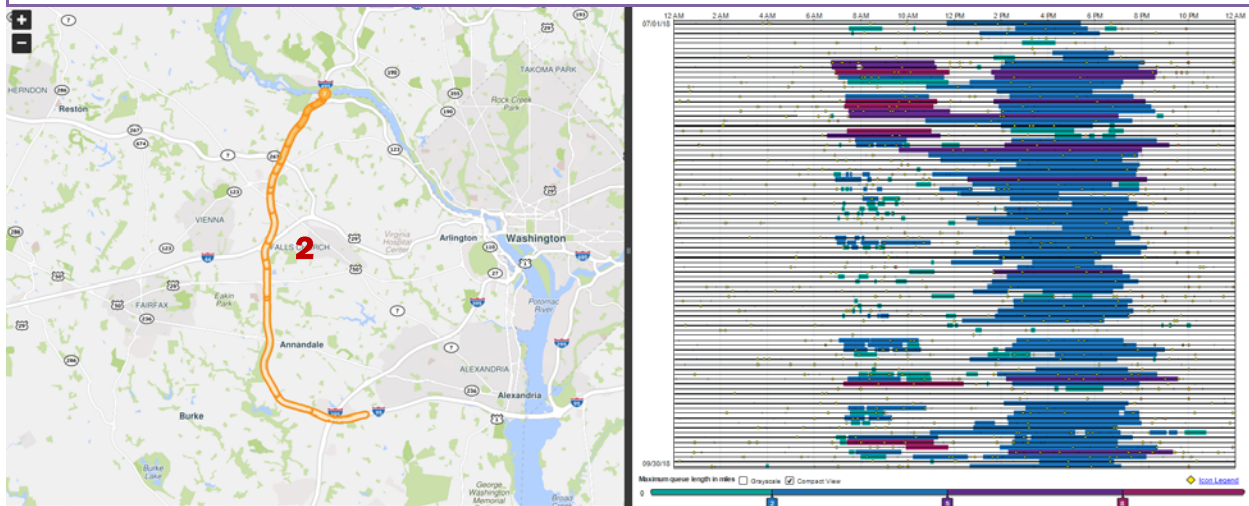


Rank	Location	Average duration	Average max length (miles)	Total duration	Impact factor*
1	I-95 S @ VA-123/EXIT 160	9 h 07 m	3.73	34 d 23 h 25 m	153,947.00

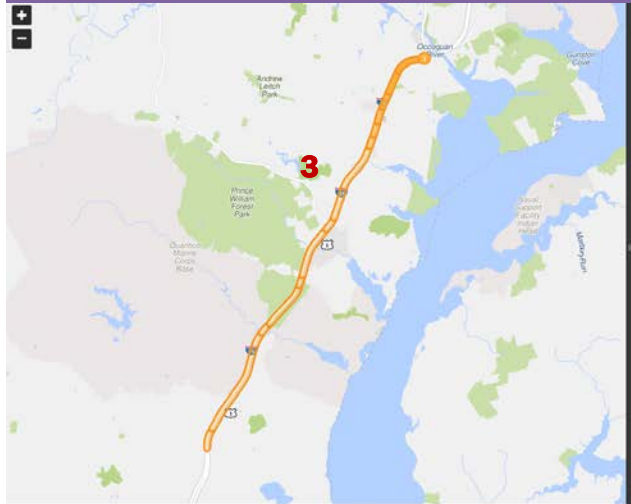
* The Impact Factor of a bottleneck is simply the product of the Average Duration (minutes), Average Max Length (miles) and the number of occurrences.



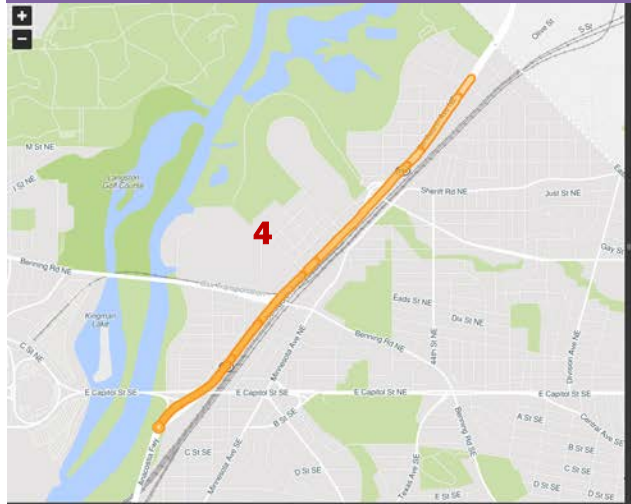
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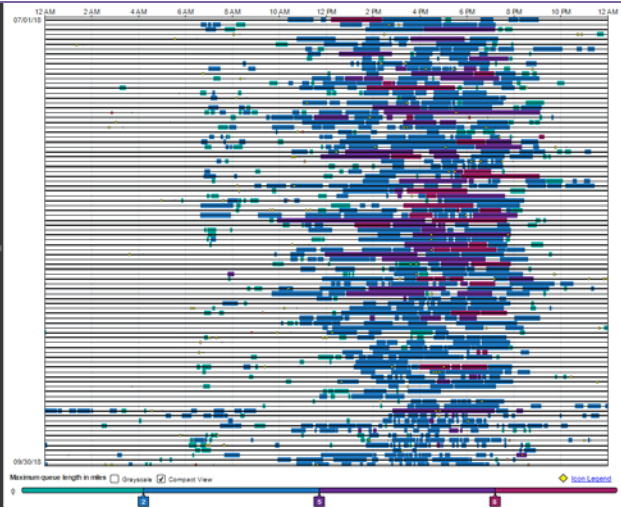
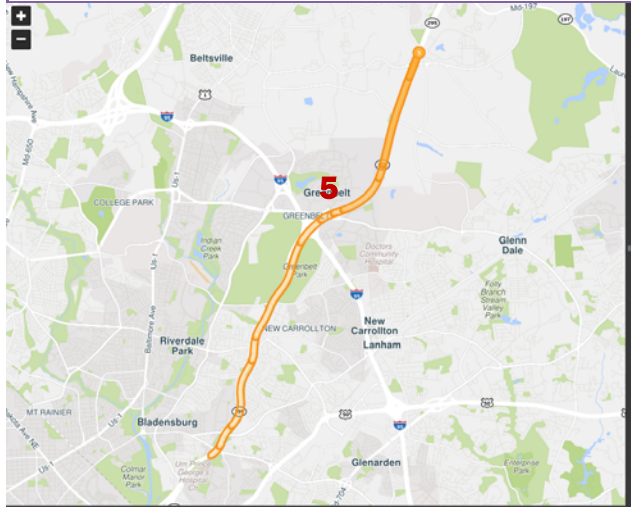
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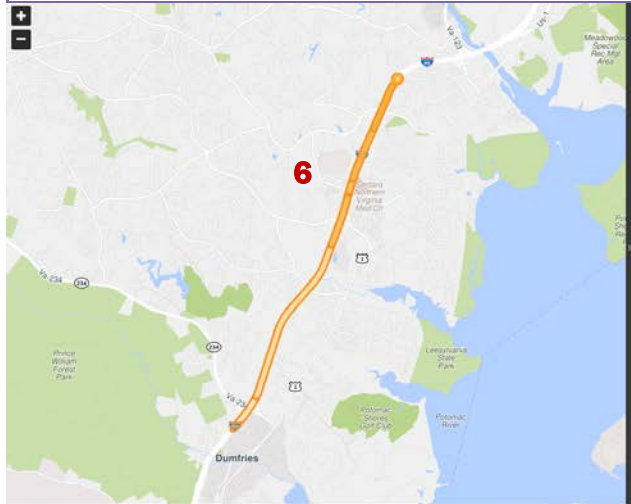
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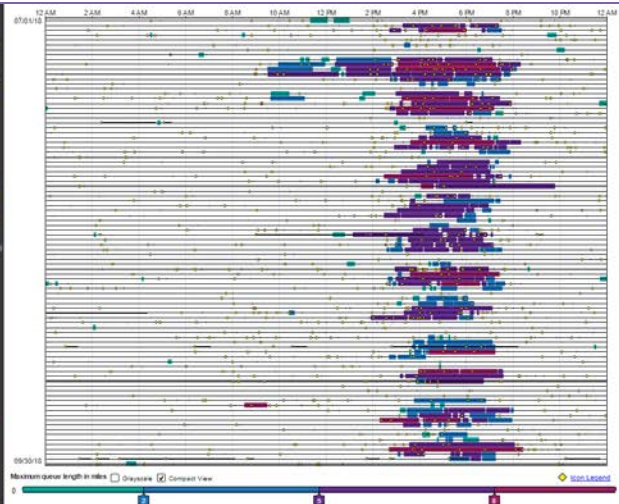
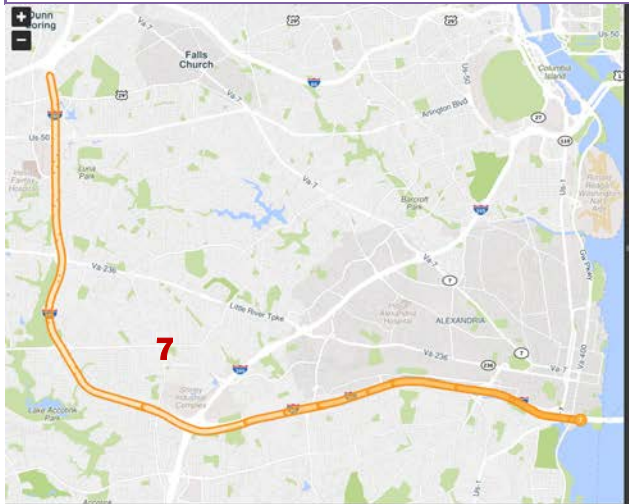
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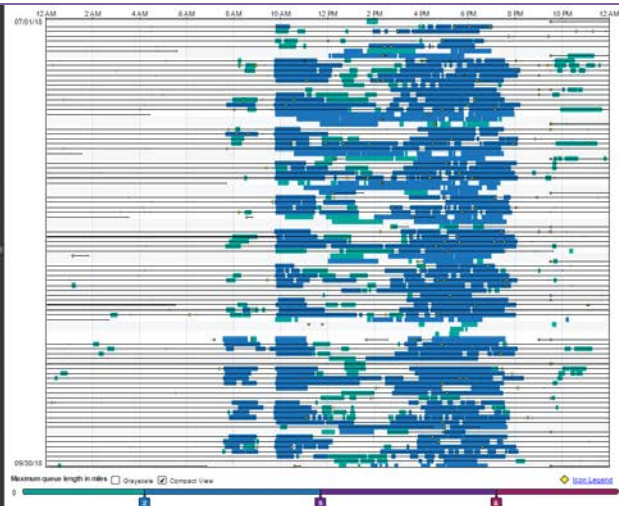
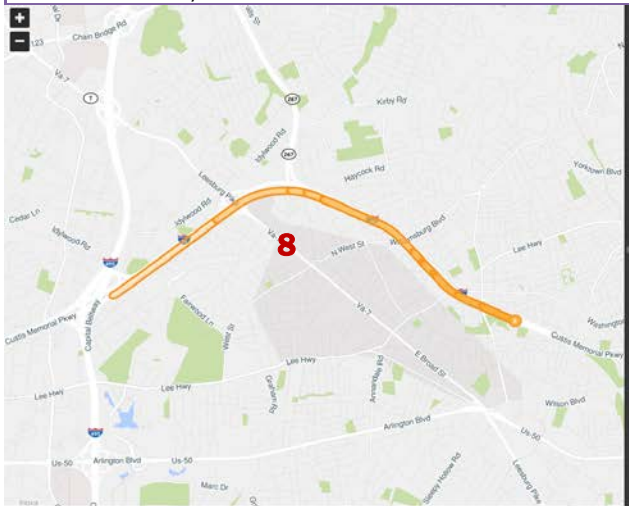
Rank	Location	Average duration	Average max length (miles)	Total duration	Impact factor
6	I-95 N @ VA-294/PRINCE WILLIAM PKWY/EXIT 158	4 h 24 m	2.85	16 d 21 h 42 m	73,454.00



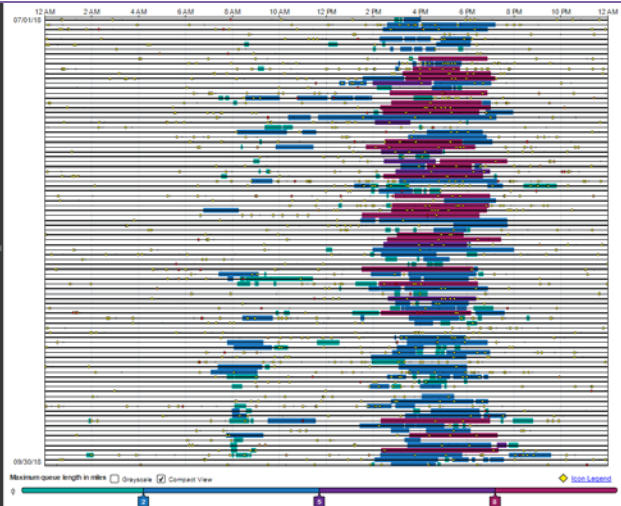
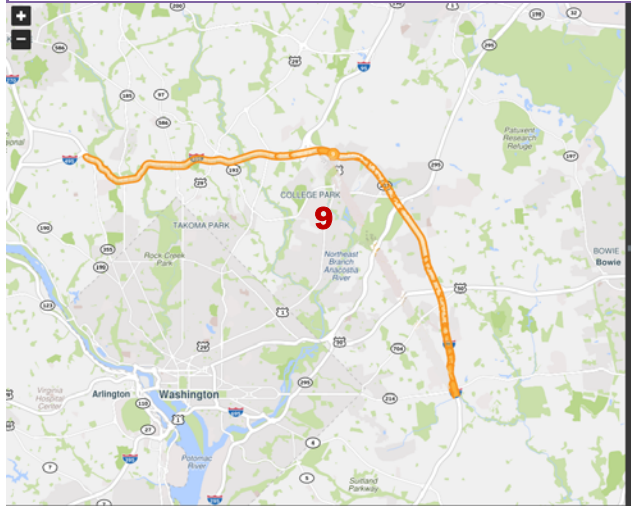
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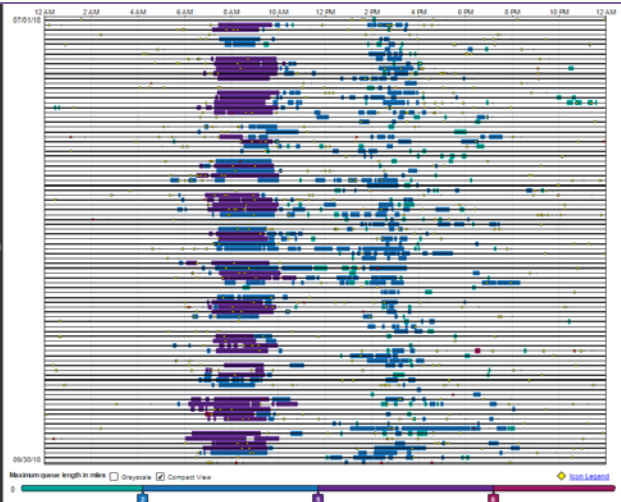
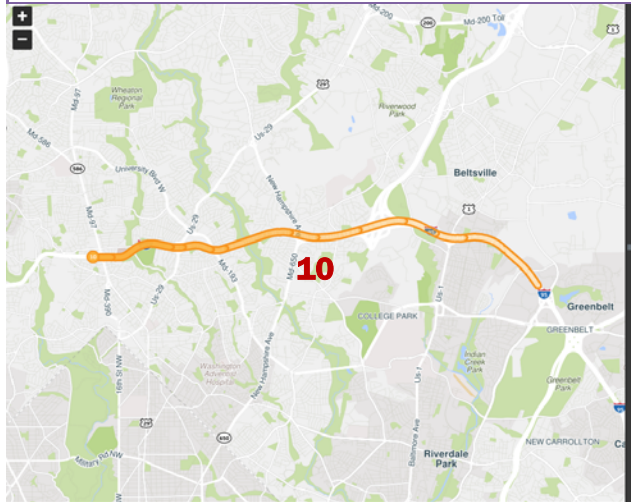
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Rank	Location	Average duration	Average max length (miles)	Total duration	Impact factor
10	I-495 CCW @ MD-97/GEORGIA AVE/EXIT 31	3 h 05 m	2.87	11 d 19 h 52 m	62,841.00



CONGESTION MAPS

Figure 3. Travel Time Index during weekday 8: 00-9:00 A.M. in 3rd Quarter of 2018

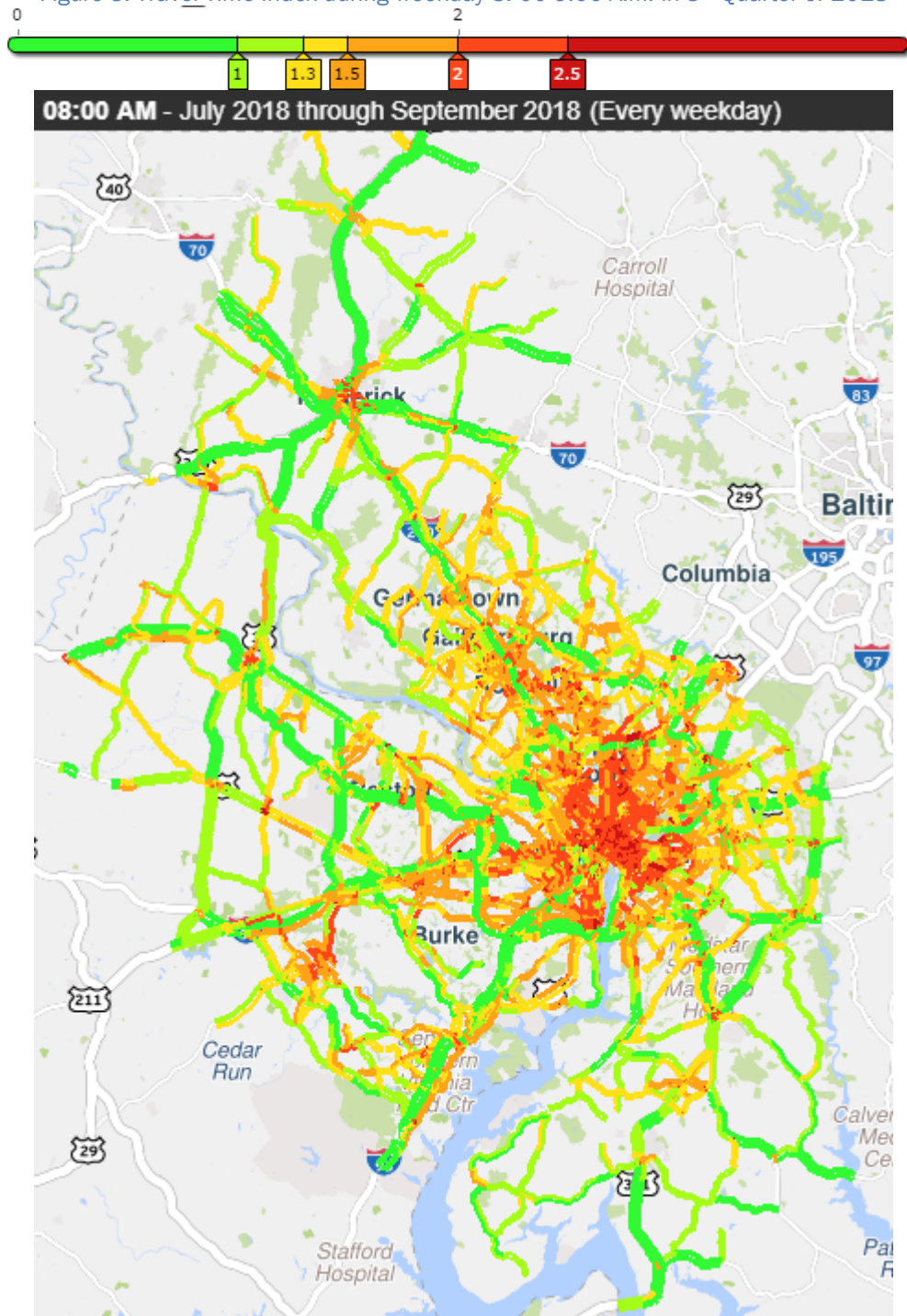
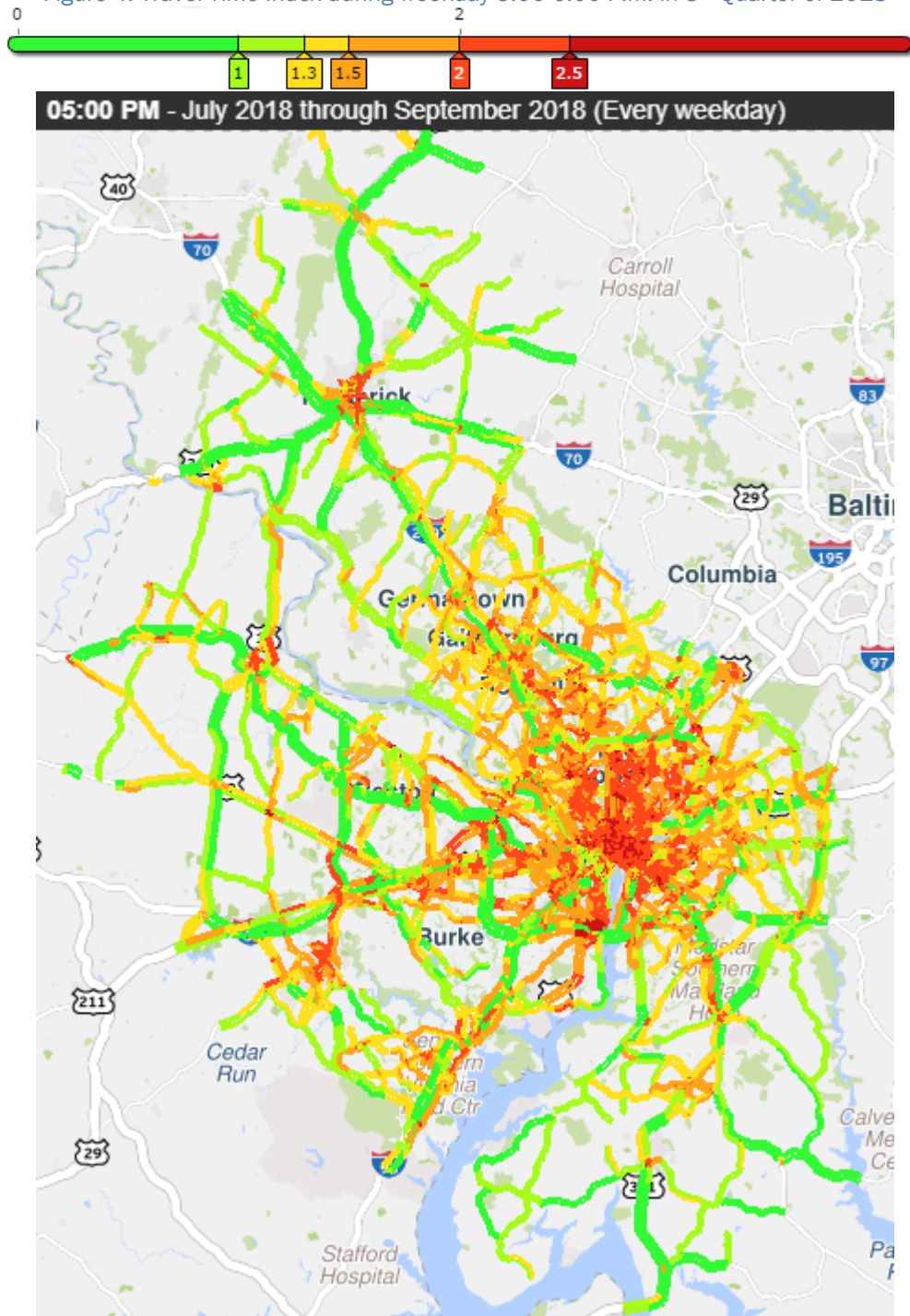


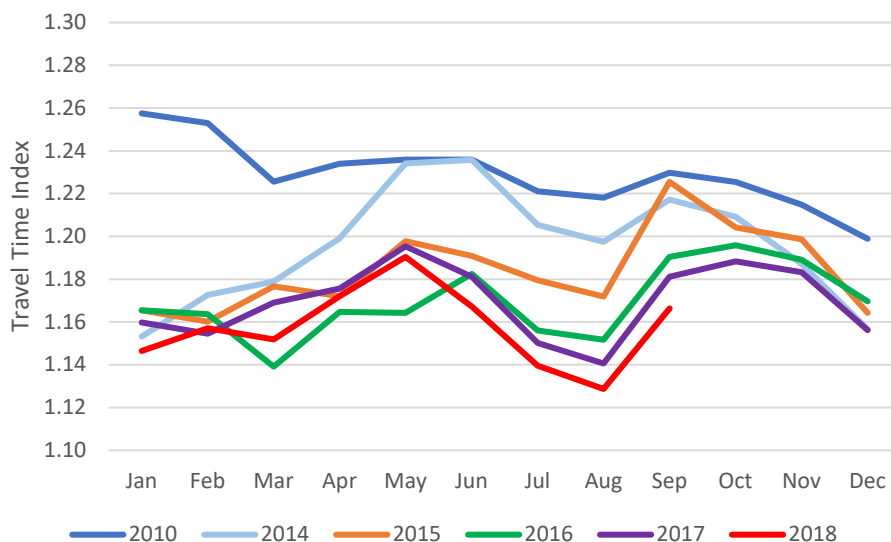
Figure 4. Travel Time Index during weekday 5:00-6:00 P.M. in 3rd Quarter of 2018



2018Q3 SPOTLIGHT – ANOTHER “SEPTEMBER SHOCK”

“September Shock” is the traffic phenomenon experienced by the region’s drivers when they return from their summer vacation and everyone returns to work; schools and colleges reopen and vehicle delays are high until the traffic finds an equilibrium within the congested conditions. It has been identified as a predictable and pronounced yearly traffic event, according to our analysis. In 2018, this phenomenon has been observed again, as shown by the increased Travel Time Index (TTI) shown in Figure 5. The September 2018 TTI was the lowest when compared to the September TTI for years 2010 through 2017. September 2015 TTI was the highest in 2015 which is not the case in 2018.

Figure 5. Monthly Travel Time Index on ALL Roads for Total AM peak (6:00-10:00 am) and PM Peak (3:00-7:00 pm)

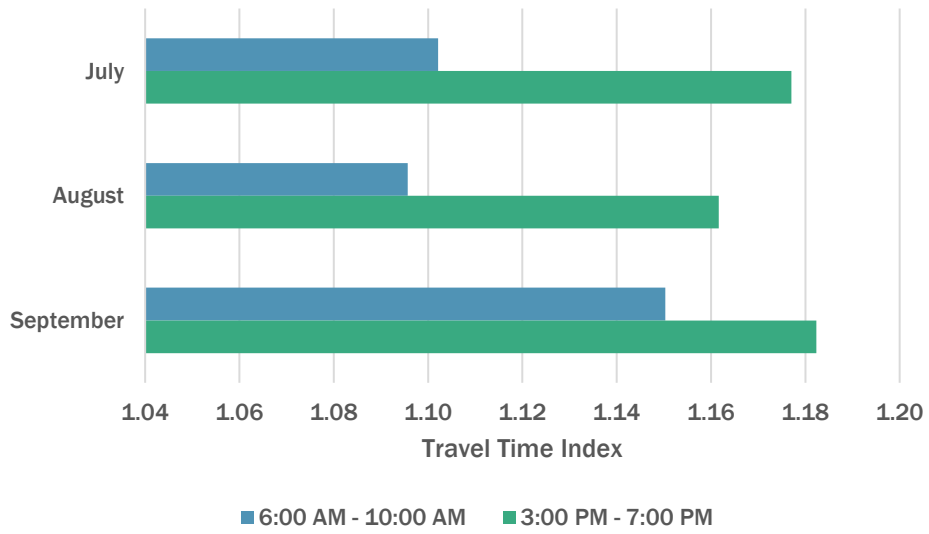


The value of TTI (which is over a 24 hour period) alone could not explain the cause of “September Shock” phenomenon; one could argue that **rate of change over TTIs may describe the phenomenon more appropriately.**

The change rate of TTI from August to September in 2018 was 3.3%, the highest of the year, clearly noticeable for commuters. Such a “Shock” can be observed from for the previous four years’ data, and has been as high as 4.6% (2015). And September Shock is a phenomenon even though September’s TTI values are not the highest of the year.

“September Shock” was more pronounced during morning peaks than afternoon peak in 2018. Morning peaks are especially low in July and August, whereas July-August-September differences are less. As shown in Figure 6, the morning-peak TTI of September increased about 4.4% from August, while afternoon peak TTI increased only about 1.8% from August to September. This again reinforces that September Shock is a morning peak phenomenon.

Figure 6. 2018 monthly Travel Time Index on ALL Roads for AM peak (6:00-10:00 am) and PM Peak (3:00-7:00 pm)





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777 North Capitol Street NE, Suite 300
Washington, DC 20002

www.mwcog.org