



Quarterly Congestion Analysis Report Top 10 Bottlenecks

1st Quarter 2021

July, 2021



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About the Region

About the Region

Located in the heart of the Mid-Atlantic on the east coast, the Baltimore region includes:



The Baltimore region is the nation's 19th largest market, with over 2.5 million people. The market also ranks among the top 20 in the country in the number of households, total effective buying income and retail sales.

Baltimore Metropolitan Region



Prepared by
 Transportation Planning Division
 Projected Coordinate System: NAD 1983 State Plane (ft)
 Data Source: BMC, © NAVTEQ 2016, TIGER/Line®, MTA
 Printed - April 2017



Bottleneck Analytics

How are bottleneck conditions tracked?

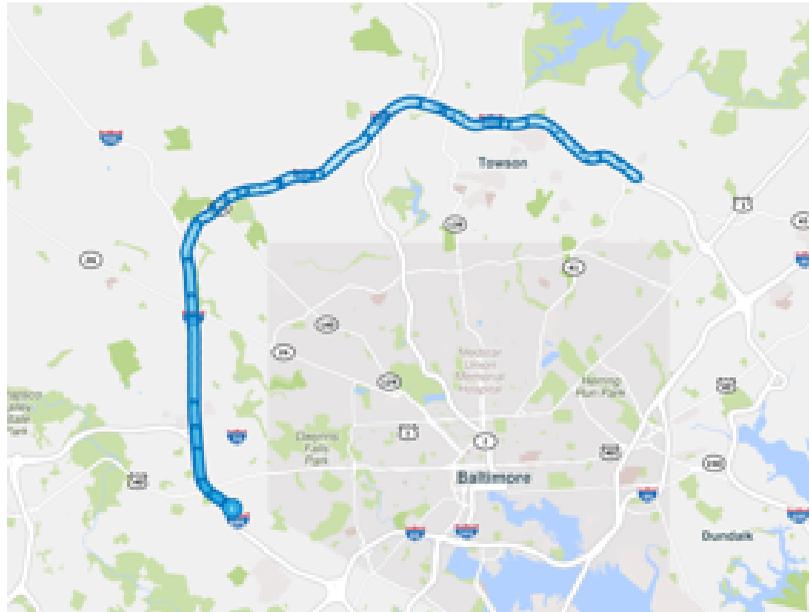
- **Rank** - The ranked position of the location according to the current table ordering by **Base Impact** – the aggregation of queue length over time for congestion at each location in mile minutes. It is then weighted by **Total Delay** – Raw speed drop weighted by VMT factor.
- **Average max length** - The average maximum length, in miles, of queues formed by congestion originating at the location.
- **Average daily duration** - The average amount of time per day that congestion is identified originating at the location.
- **All Events/Incidents** - The number of traffic events and incidents that occurred within the space of the bottleneck at any time during the time period being analyzed.
- **Volume Estimate** - AADT weighted by queue length.

Rank	Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
1	I-695 OL @ EDMONDSON AVE/EXIT 14	5.01	2 h 43 m	834	88946
2	I-695 IL @ I-83/MD-25/EXIT 23	3.53	2 h 56 m	463	95048
3	I-695 IL @ I-70/EXIT 16	2.11	2 h 54 m	233	95068
4	I-695 OL @ US-40/EXIT 15	3.57	1 h 48 m	766	89650
5	I-95 N @ MD-100/EXIT 43	4.23	1 h 22 m	310	95604
6	I-95 N @ MD-295/BALTIMORE WASHINGTON PKWY/EXIT 52	2.26	1 h 50 m	641	93260
7	MD-295 S @ POWDER MILL RD	5.26	1 h 24 m	318	45940
8	I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29	3.71	53 m	496	85789
9	I-95 N @ MD-175/EXIT 41	3.23	1 h 12 m	243	95344
10	I-695 OL @ I-83/MD-25/EXIT 23	3.48	1 h 06 m	484	79378

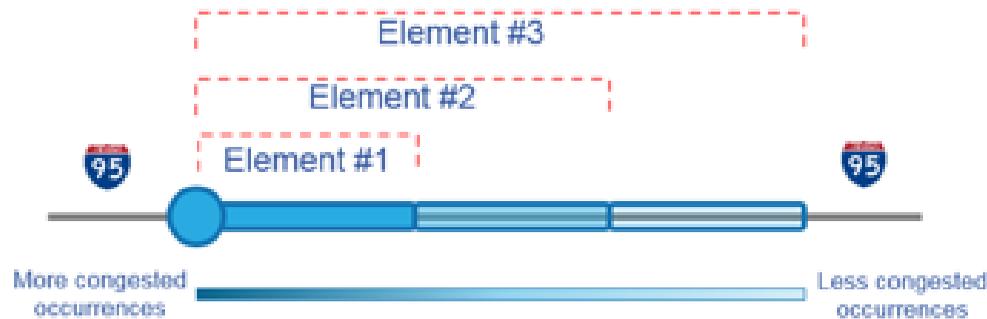
IL = Inner Loop

OL = Outer Loop

Maps



The Map view displays selected bottlenecks on a map. Each element occurring at the selected location is layered on the map, extending upstream from the head location to the maximum length of the specific element. As each element adds another layer on the map, road segments become more opaque. Segments closest to the head become the most opaque as they are more frequently affected by congestion at the selected location.



Top 10 Bottleneck Rankings in the Baltimore Region – 1st Quarter 2021

Top 10 Bottlenecks - 1st Quarter 2021

Ranked by Base Impact - the aggregation of queue length over time for congestion at each location in mile minutes. It is then weighted by **Total Delay** – Raw speed drop weighted by VMT factor.

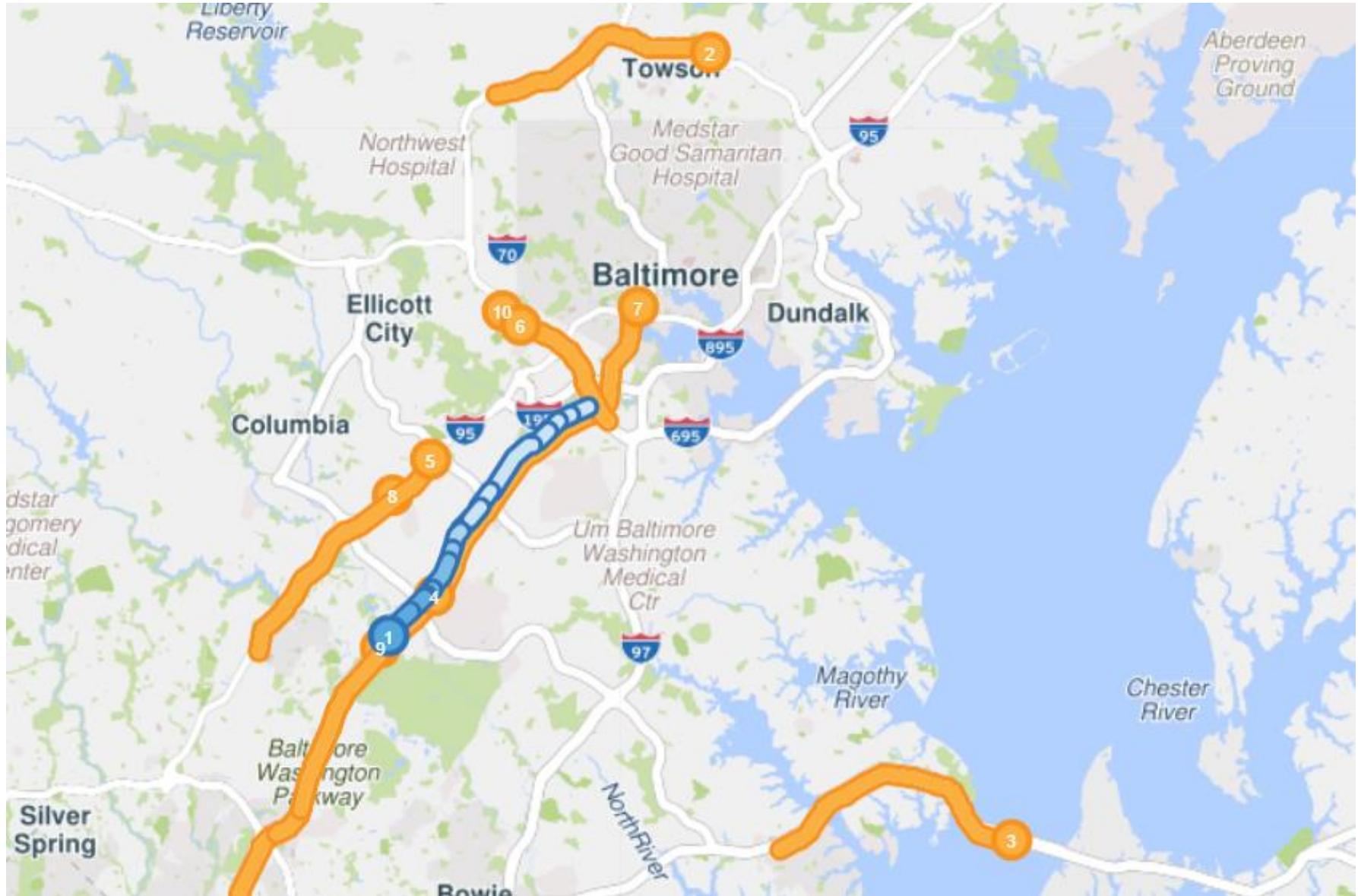
Rank	Location	Previous Quarter Ranking	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
1	MD-295 S @ MD-198	1	2.83	1 h 35 m	170	48,471
2	I-695 IL @ PROVIDENCE RD/EXIT 28	--	3.71	37 m	210	86,575
3	US-50 E @ BAY BRIDGE	2	4.10	28 m	516	41,033
4	MD-295 N @ CANINE RD	6	2.18	1 h 3 m	128	49,955
5	I-95 N @ MD-100/EXIT 43	10	3.35	35 m	127	103,615
6	I-695 IL @ MD-372/WILKENS AVE/EXIT 12	--	1.64	41 m	183	101,171
7	MD-295 N @ BAYARD ST	---	0.29	8 h 21 m	349	32,500
8	I-95 N @ MD-175/EXIT 41	--	3.66	4 m	95	105,001
9	MD-295 N @ MD-198	--	3.30	14 m	172	47,794
10	I-695 IL @ MD-144/FREDERICK RD/EXIT 13	--	2.52	14 m	155	101,579

IL = Inner Loop

OL = Outer Loop

Top 10 Bottlenecks - 1st Quarter 2021

Overview Map



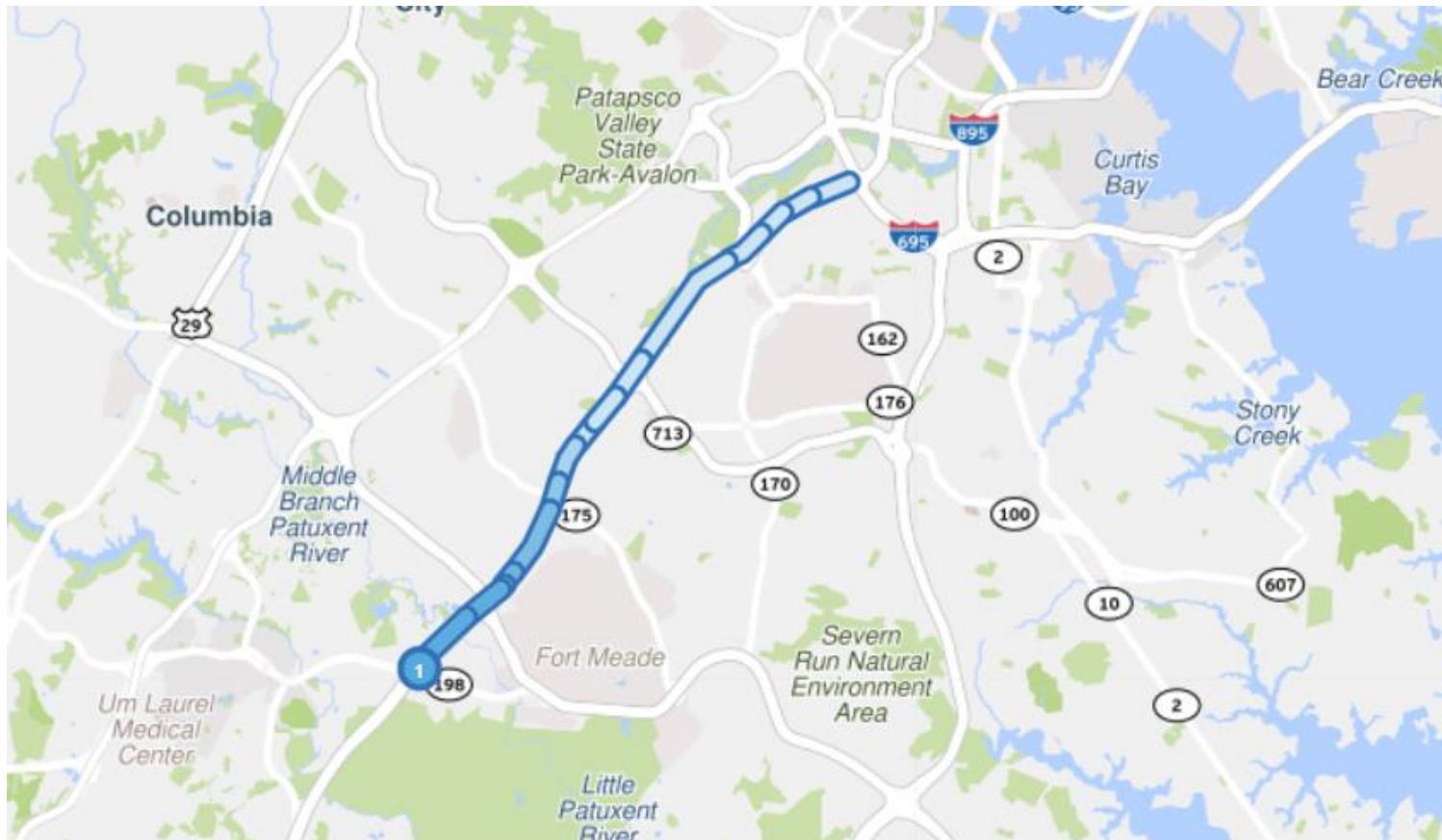
Top 10 Bottleneck Rankings in the Baltimore Region – 1st Quarter 2021 by Location

Includes:

- Location Maps with notes on each bottleneck condition
- Speed Graphs
- Travel Time Graphs
- Congestion Scan Heat Diagrams

#1 Ranked Bottleneck – 1st Quarter 2021 Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 S @ MD-198	2.83	1 h 35 m	170	48,471

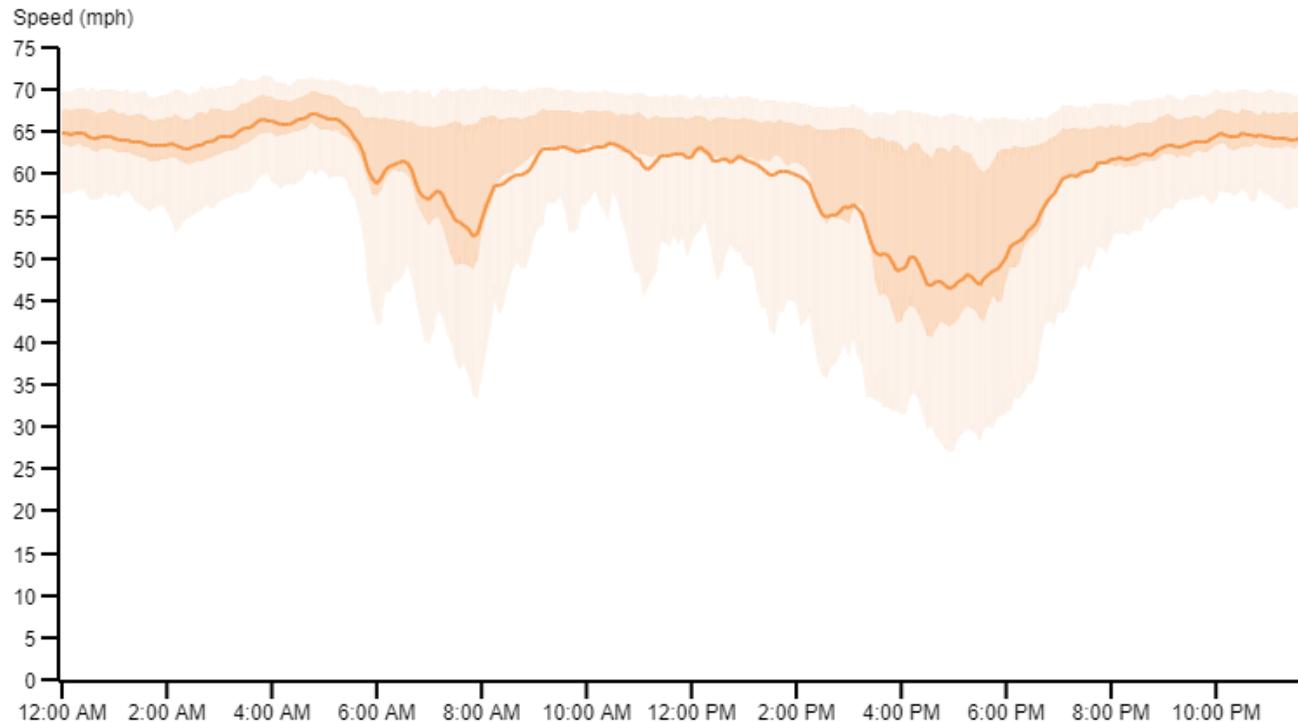


Notes: Southbound PM congestion from MD-198 extending into the southern portion of the Baltimore region near Fort Meade occurring during both the morning and afternoon peak periods. Volume related delays caused by factors such as Baltimore commuters to DC and Fort Meade and the MD-295 merge with the heavily congested Capital Beltway.

#1 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 S @ MD-198	2.83	1 h 35 m	170	48,471

Speed for MD-295 S @ MD-198
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021
 Southbound

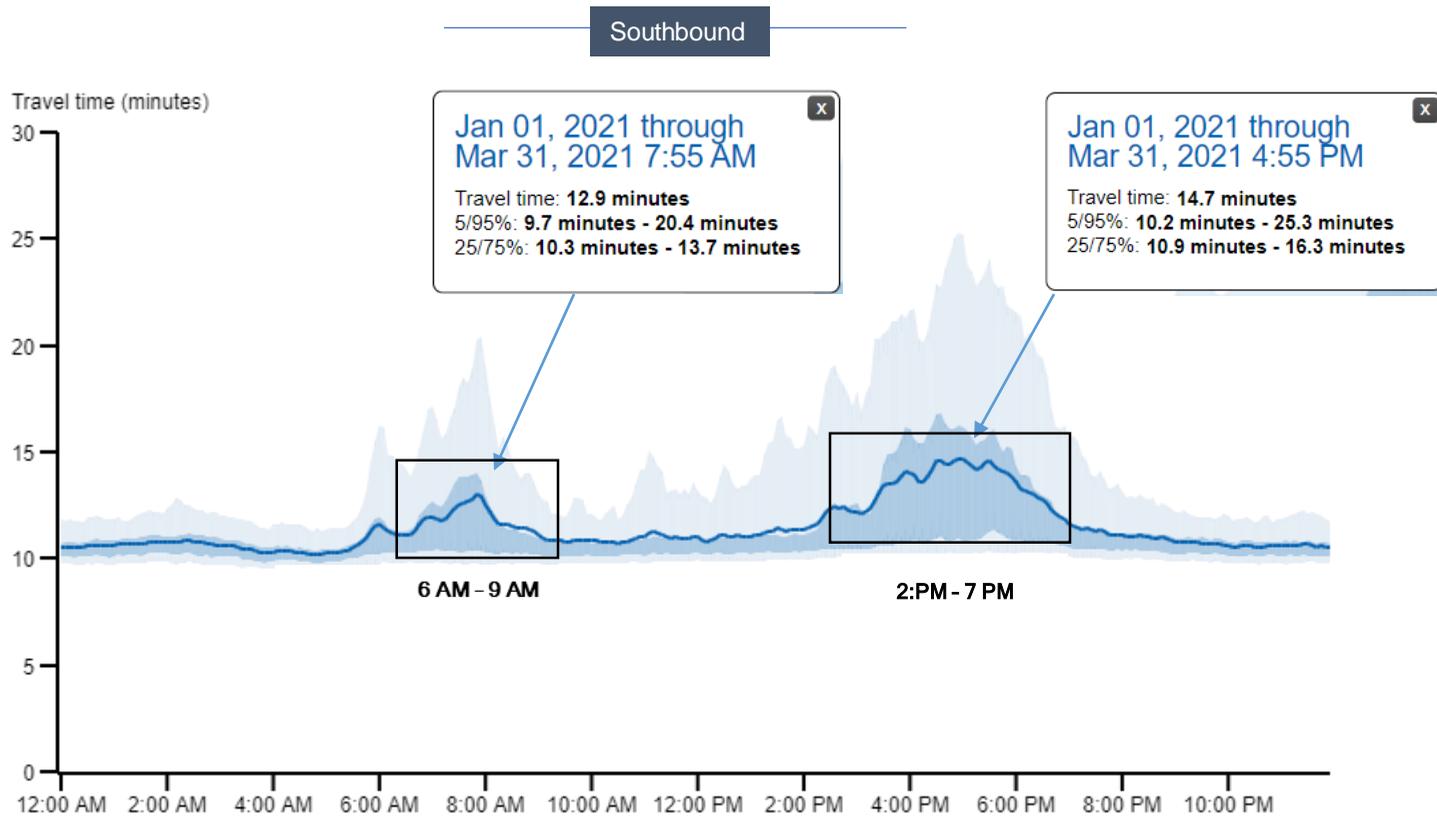


- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#1 Ranked Bottleneck –1st Quarter 2021 – Travel Times

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 S @ MD-198	2.83	1 h 35 m	170	48,471

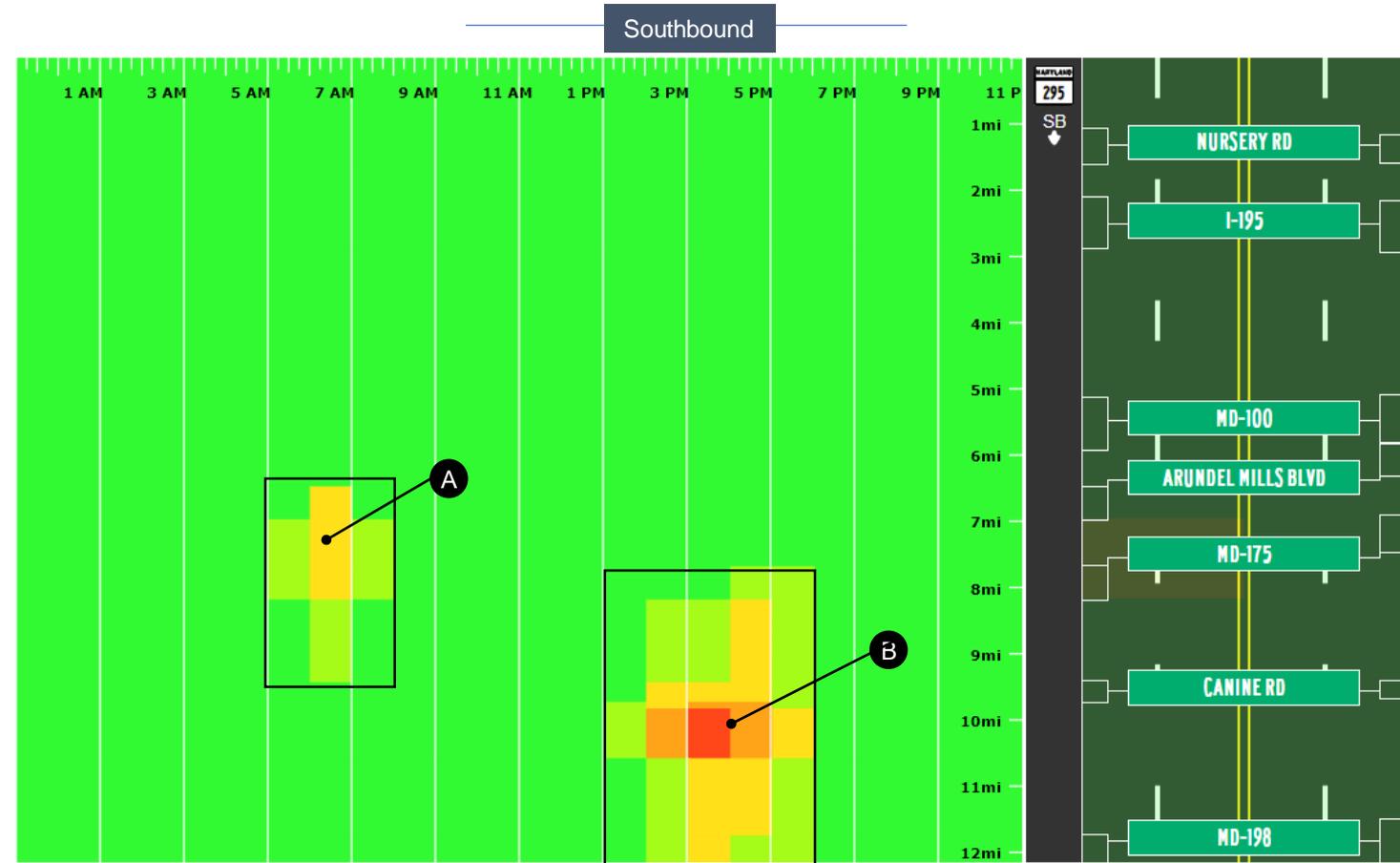
Travel time for MD-295 S @ MD-198
Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

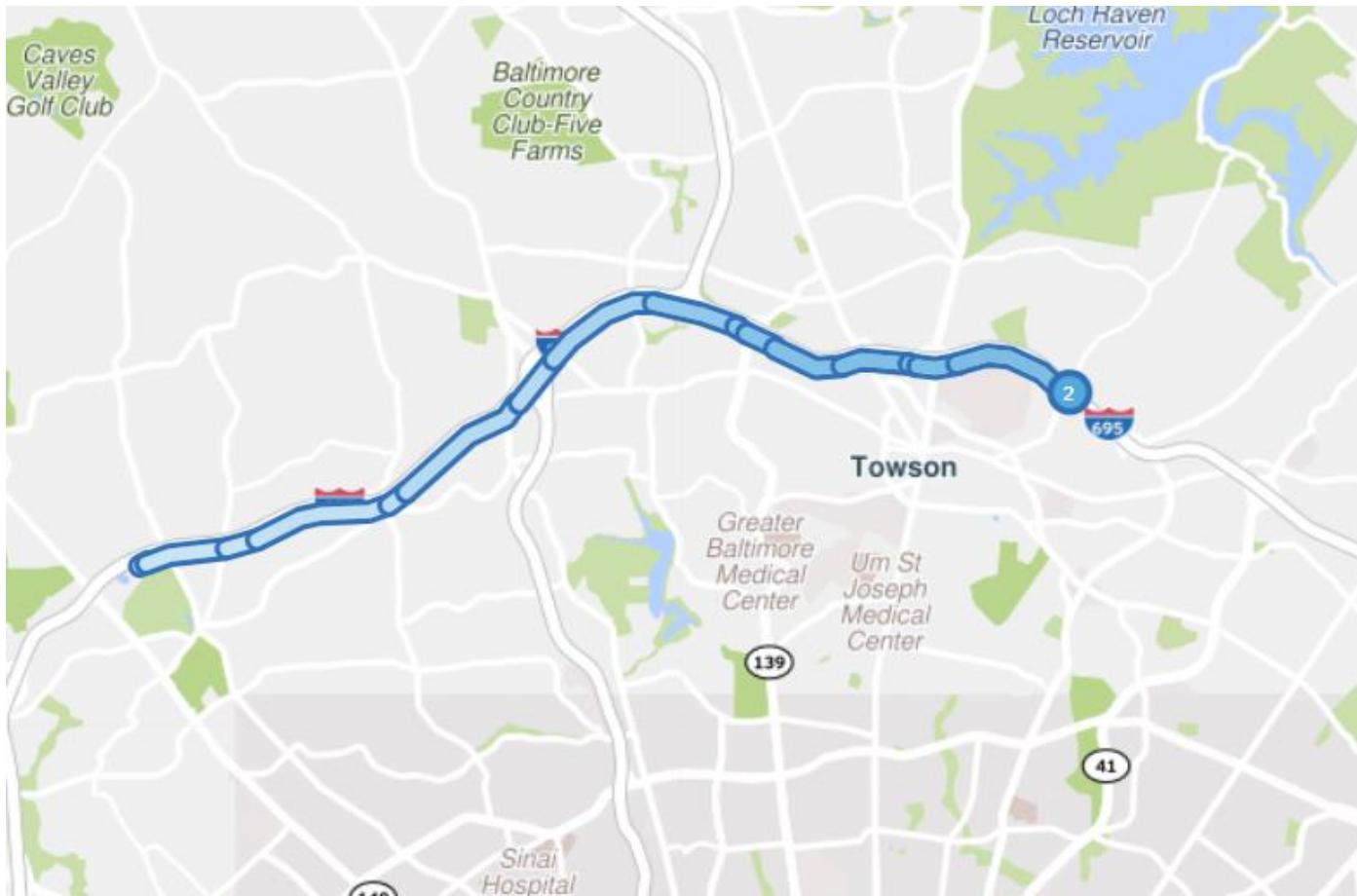
#1 Ranked Bottleneck – 1st Quarter 2021 – Congestion Scan

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 S @ MD-198	2.83	1 h 35 m	170	48,471



#2 Ranked Bottleneck – 1st Quarter 2021 – Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ PROVIDENCE RD/EXIT 28	3.71	37 m	210	86,575



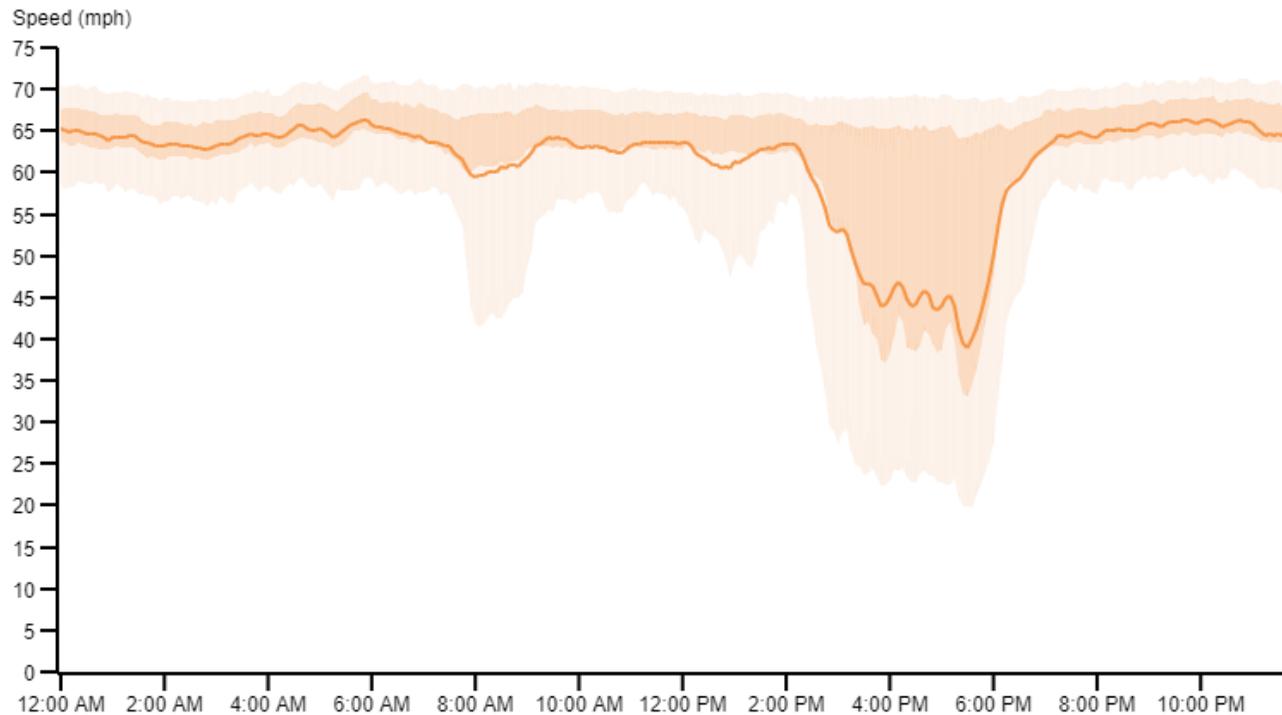
Notes: Congestion was most severe between I-83 and Providence Rd in the PM rush. Factors contributing to this long-standing and extended congested zone: merging and weaving associated with traffic at each interchange; and a lane drop (to three lanes) at MD 45 (York Rd).

#2 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ PROVIDENCE RD/EXIT 28	3.71	37 m	210	86,575

Speed for I-695 IL @ PROVIDENCE RD/EXIT 28
Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021

Inner Loop



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
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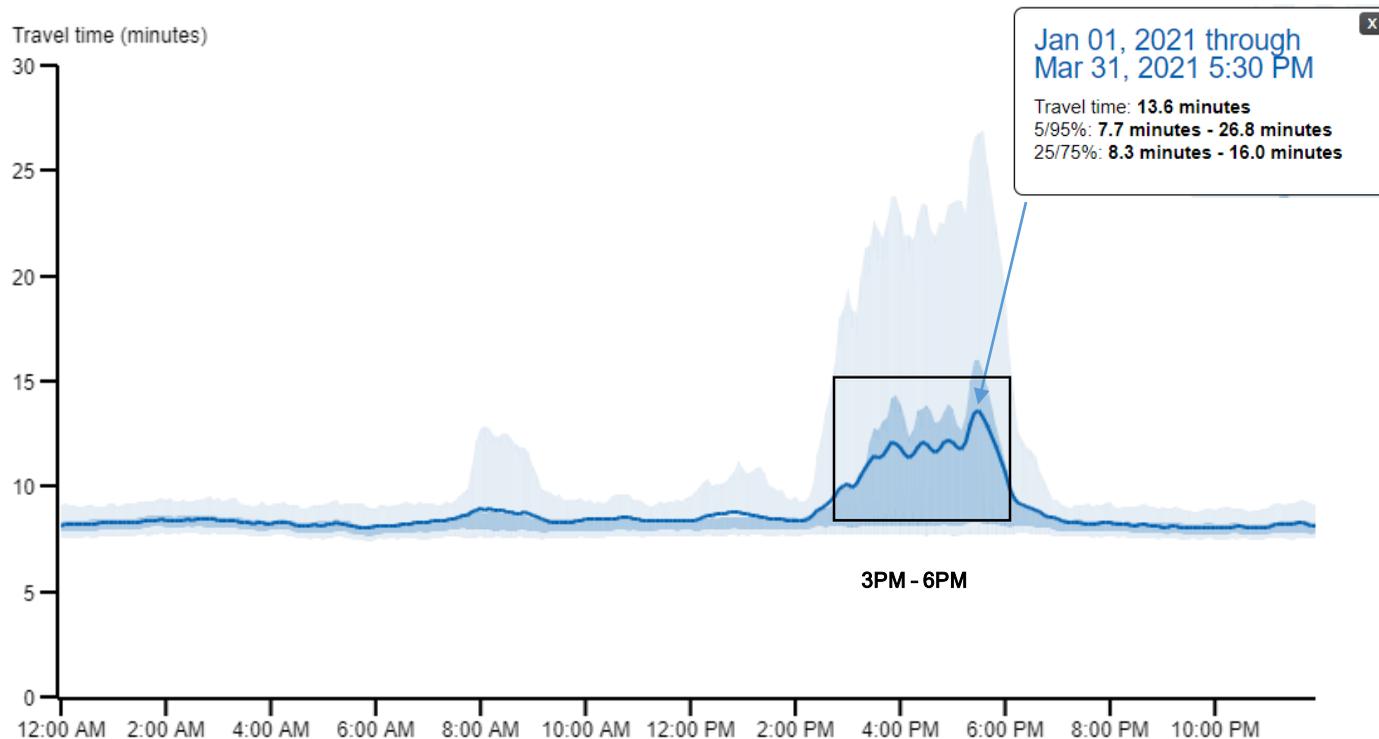
#2 Ranked Bottleneck – 1st Quarter 2021 – Travel Times

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ PROVIDENCE RD/EXIT 28	3.71	37 m	210	86,575

Inner Loop

Travel time for I-695 IL @ PROVIDENCE RD/EXIT 28
Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021

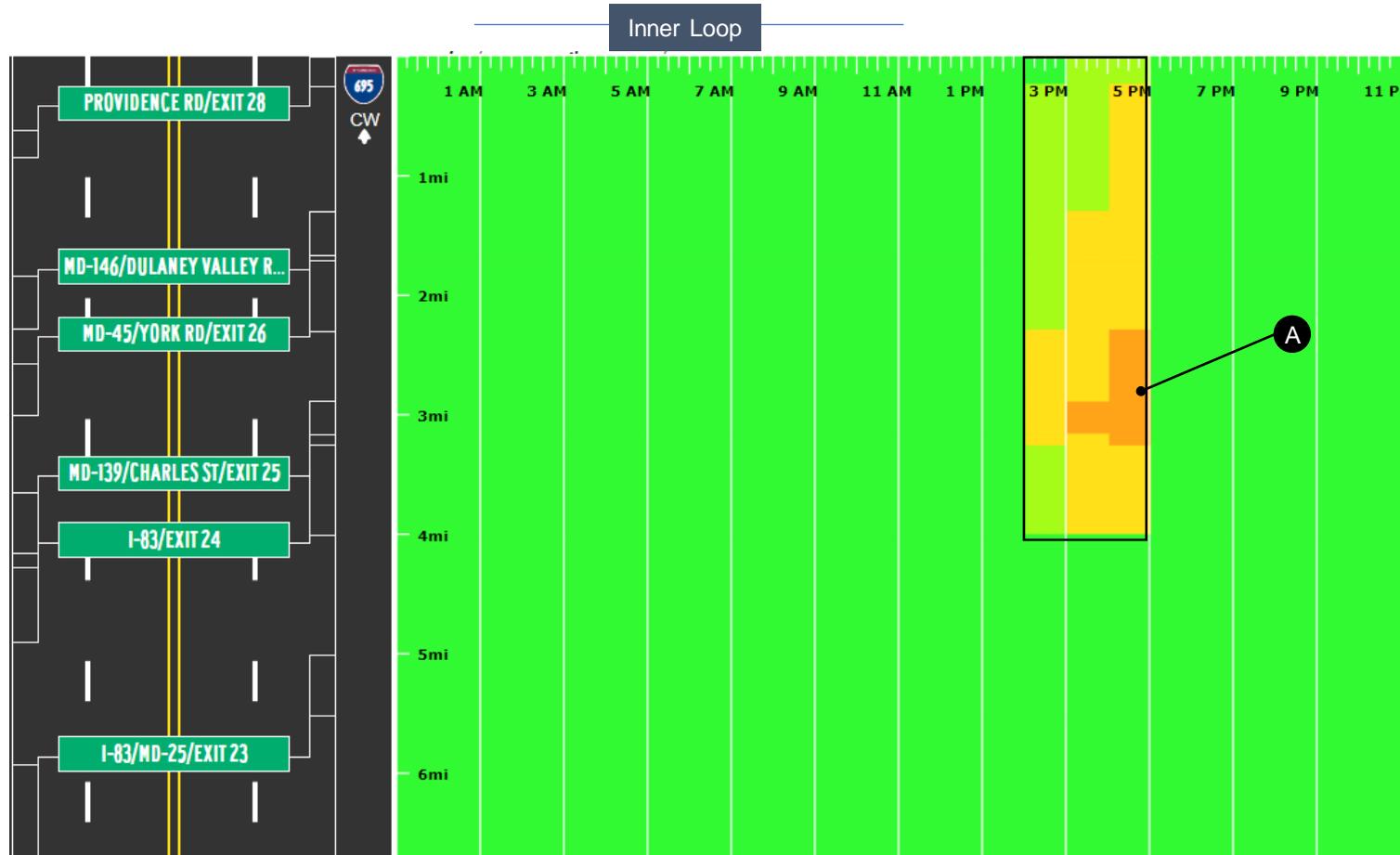
Inner Loop



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#2 Ranked Bottleneck –1st Quarter 2021 – Congestion Scan

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ PROVIDENCE RD/EXIT 28	3.71	37 m	210	86,575

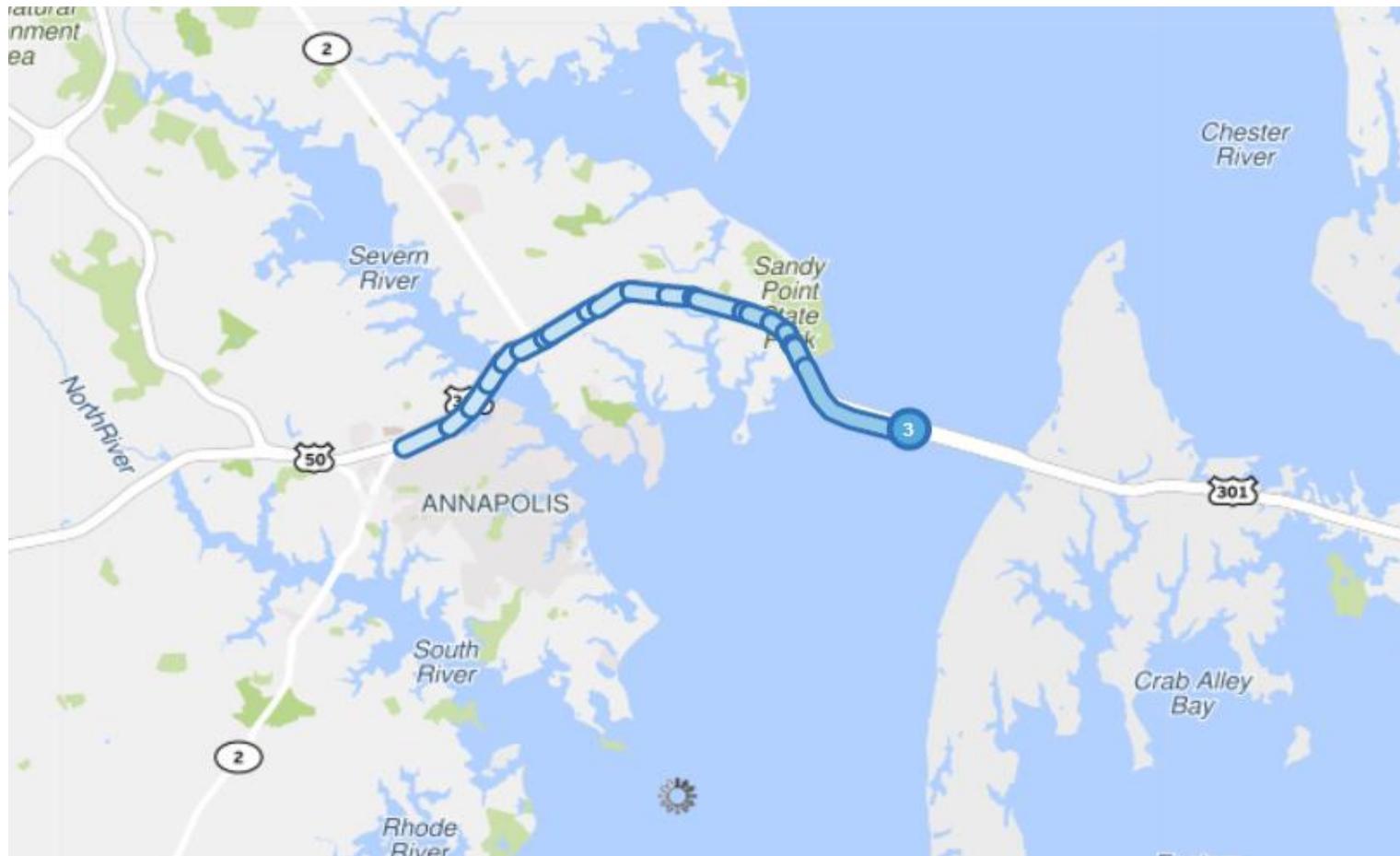


Locations of Congestion (IL)

A: 3PM - 6PM : I-83/Exit 24 to Providence Rd/Exit 28

#3 Ranked Bottleneck – 1st Quarter 2021 – Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
US-50 E @ BAY BRIDGE	4.1	28 m	516	41,033

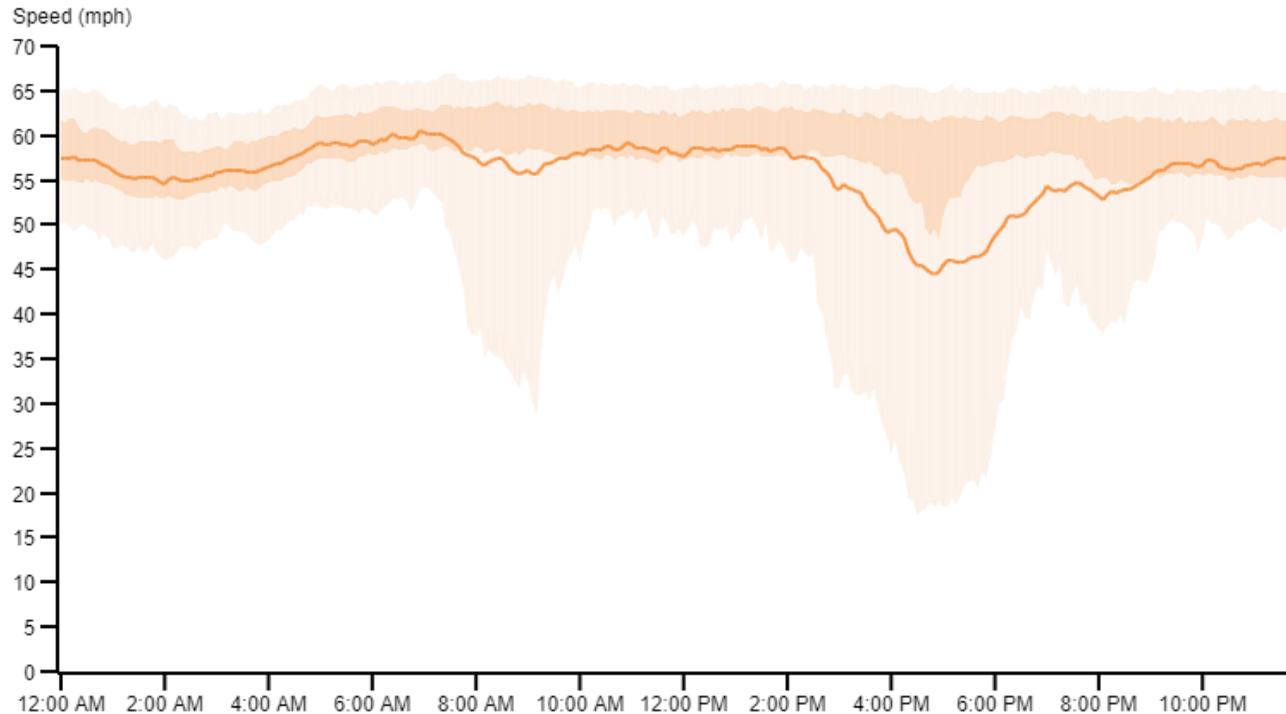


Notes: Miscellaneous Rehabilitation of the Bay Bridge Suspension Spans and Bay Bridge automated lane closure system in operation.

#3 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
US-50 E @ BAY BRIDGE	4.1	28 m	516	41,033

Speed for US-50 E @ BAY BRIDGE
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021
 Eastbound



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#3 Ranked Bottleneck – 1st Quarter 2021 – Travel Times

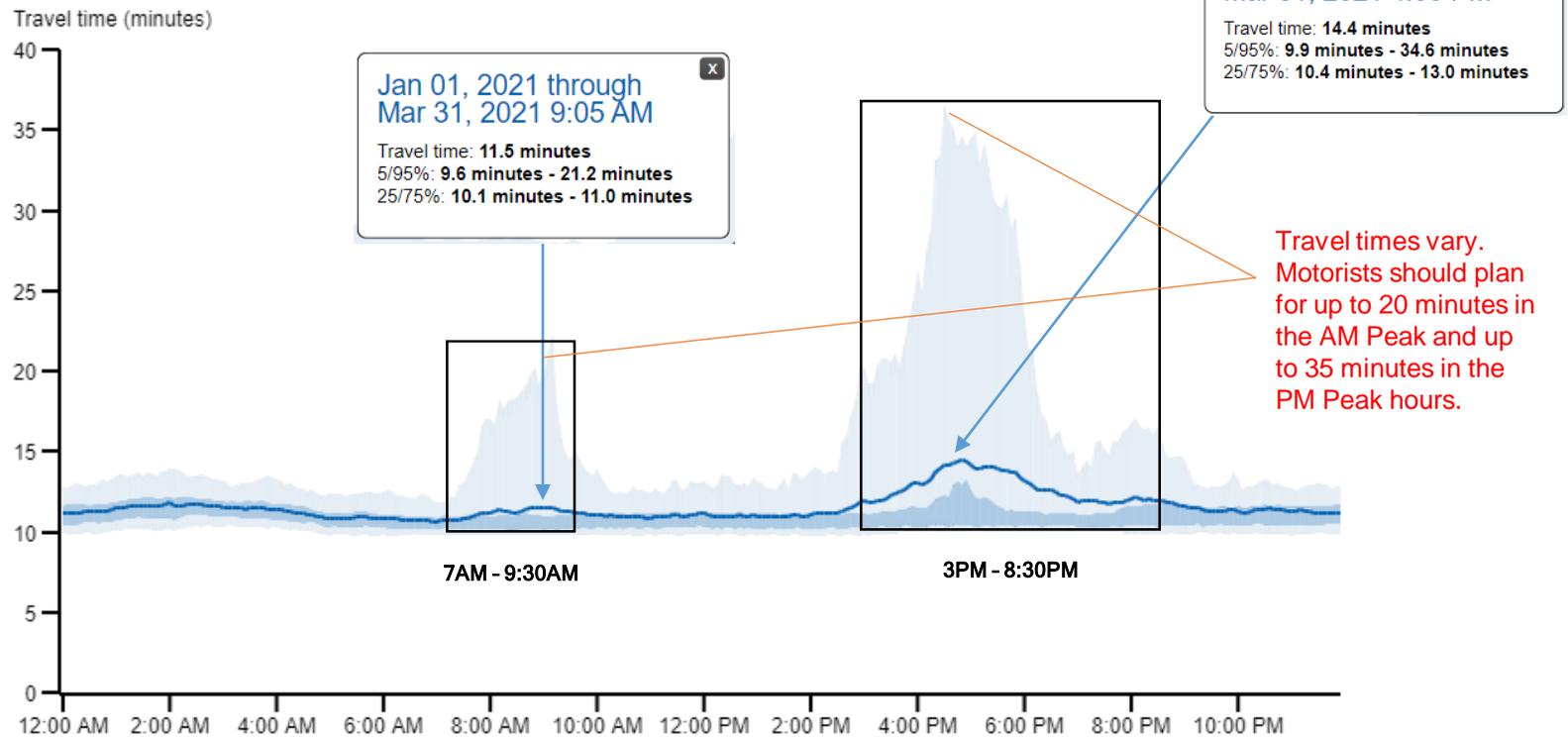
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
US-50 E @ BAY BRIDGE	4.1	28 m	516	41,033

Eastbound

Travel time for US-50 E @ BAY BRIDGE

Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021

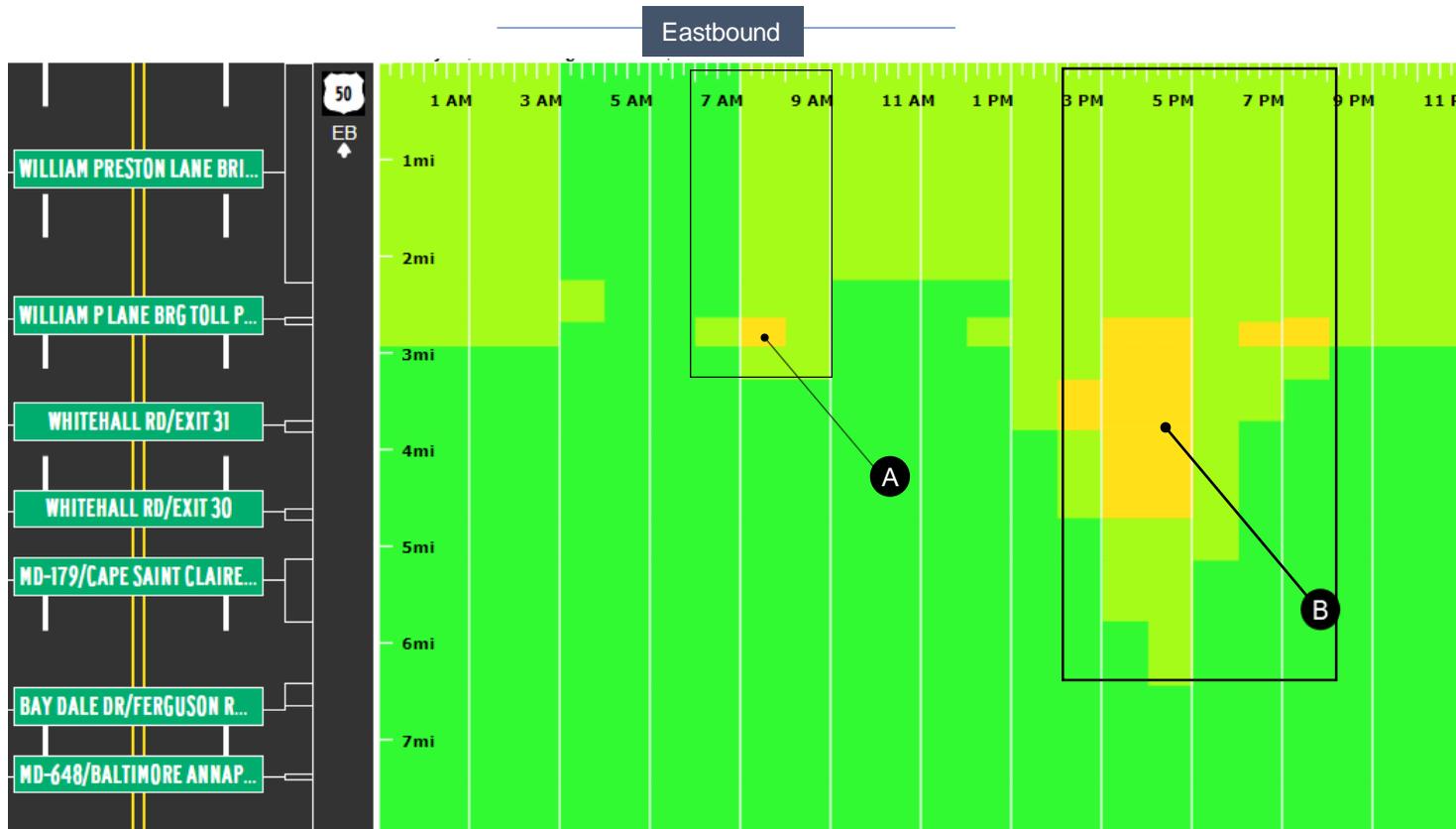
Eastbound



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#3 Ranked Bottleneck –1st Quarter 2021 – Congestion Scan

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
US-50 E @ BAY BRIDGE	4.1	28 m	516	41,033

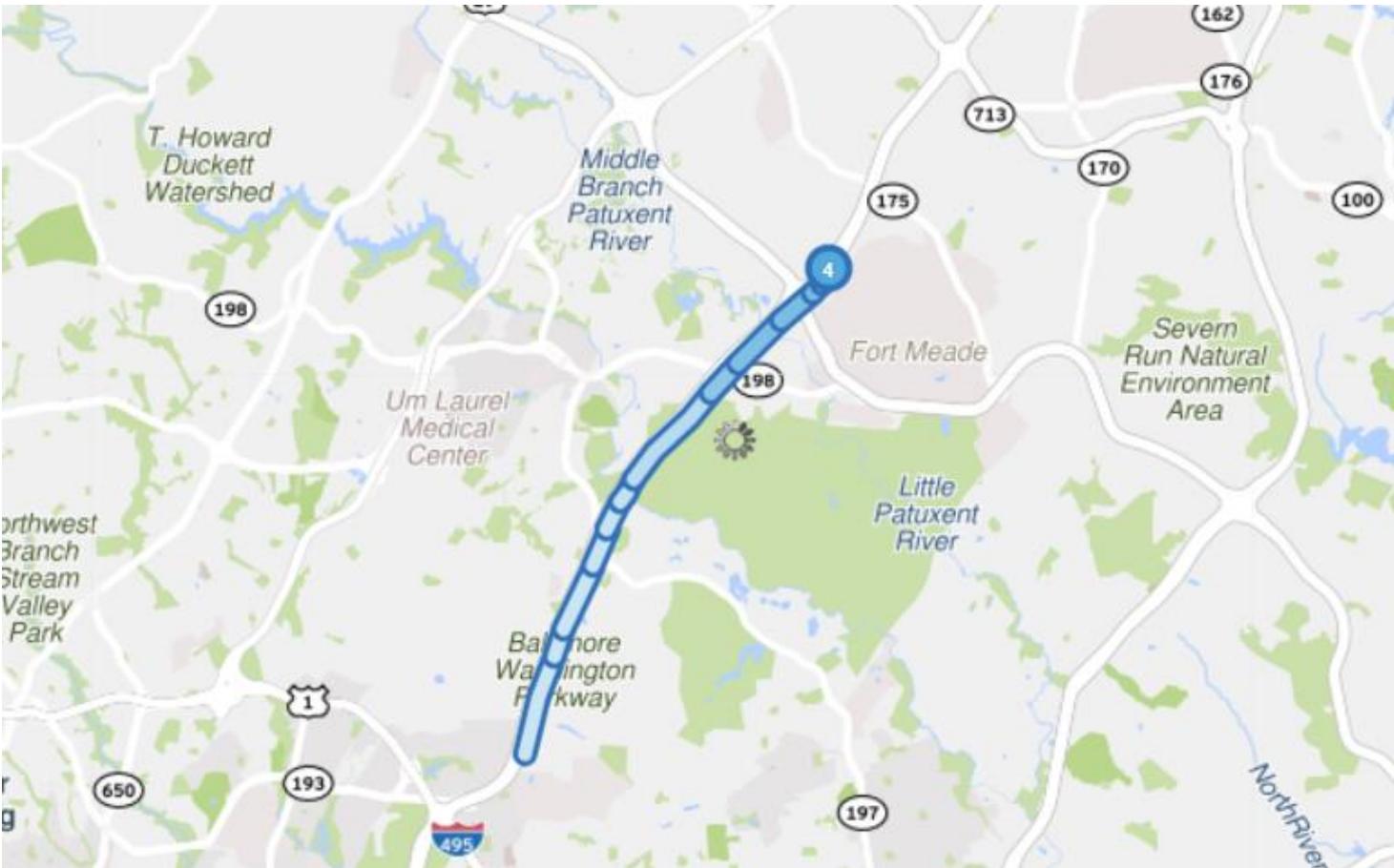


Locations of Congestion (EB)

- A: 7AM - 9:30AM : Whitehall Rd/Exit 31 to Bay Bridge Toll Plaza
- B: 3PM - 8:30PM : Whitehall Rd/Exit 30 to Bay Bridge Toll Plaza

#4 Ranked Bottleneck – 1st Quarter 2021 – Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ CANINE RD	2.18	1 h 3 m	128	49,955

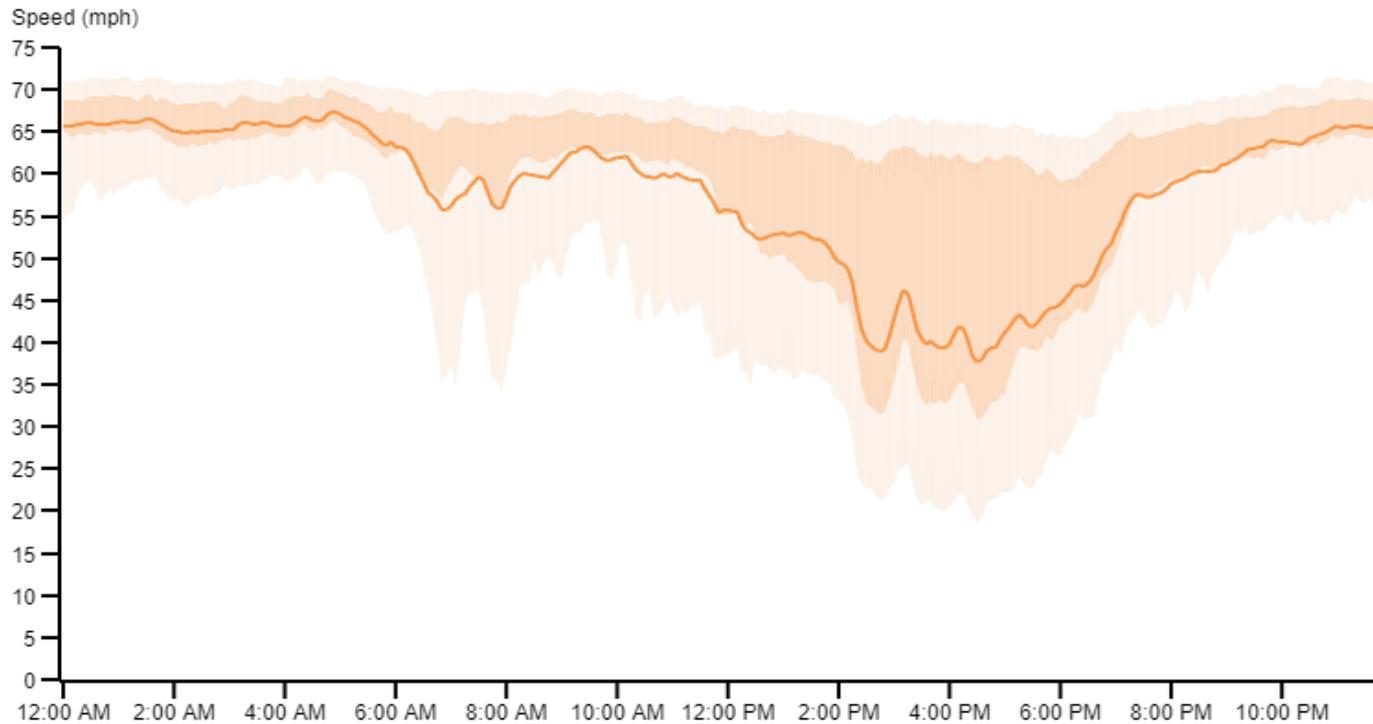


Notes: Afternoon congestion. Level of Service "F" from 3 to 6 pm. A primary cause appeared to be the discharge of traffic from NSA / Ft. Meade onto northbound MD 295 via the Connector Rd. Weaving and merging at the MD 32 interchange also contributed to the congestion.

#4 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ CANINE RD	2.18	1 h 3 m	128	49,955

Speed for MD-295 N @ CANINE RD
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021
 Northbound



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

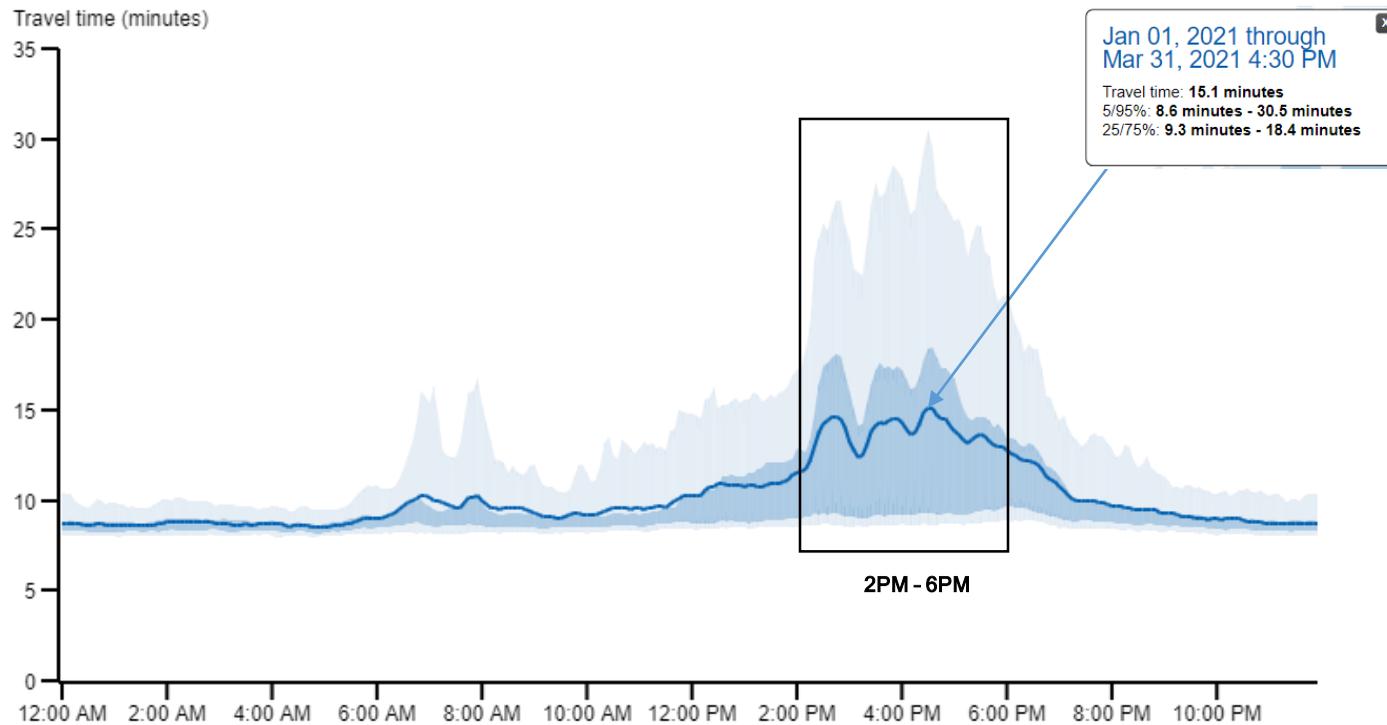
#4 Ranked Bottleneck –1st Quarter 2021 – Travel Times

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ CANINE RD	2.18	1 h 3 m	128	49,955

Northbound

Travel time for MD-295 N @ CANINE RD
Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021

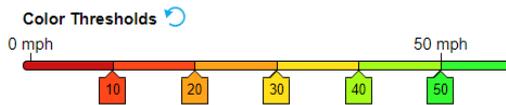
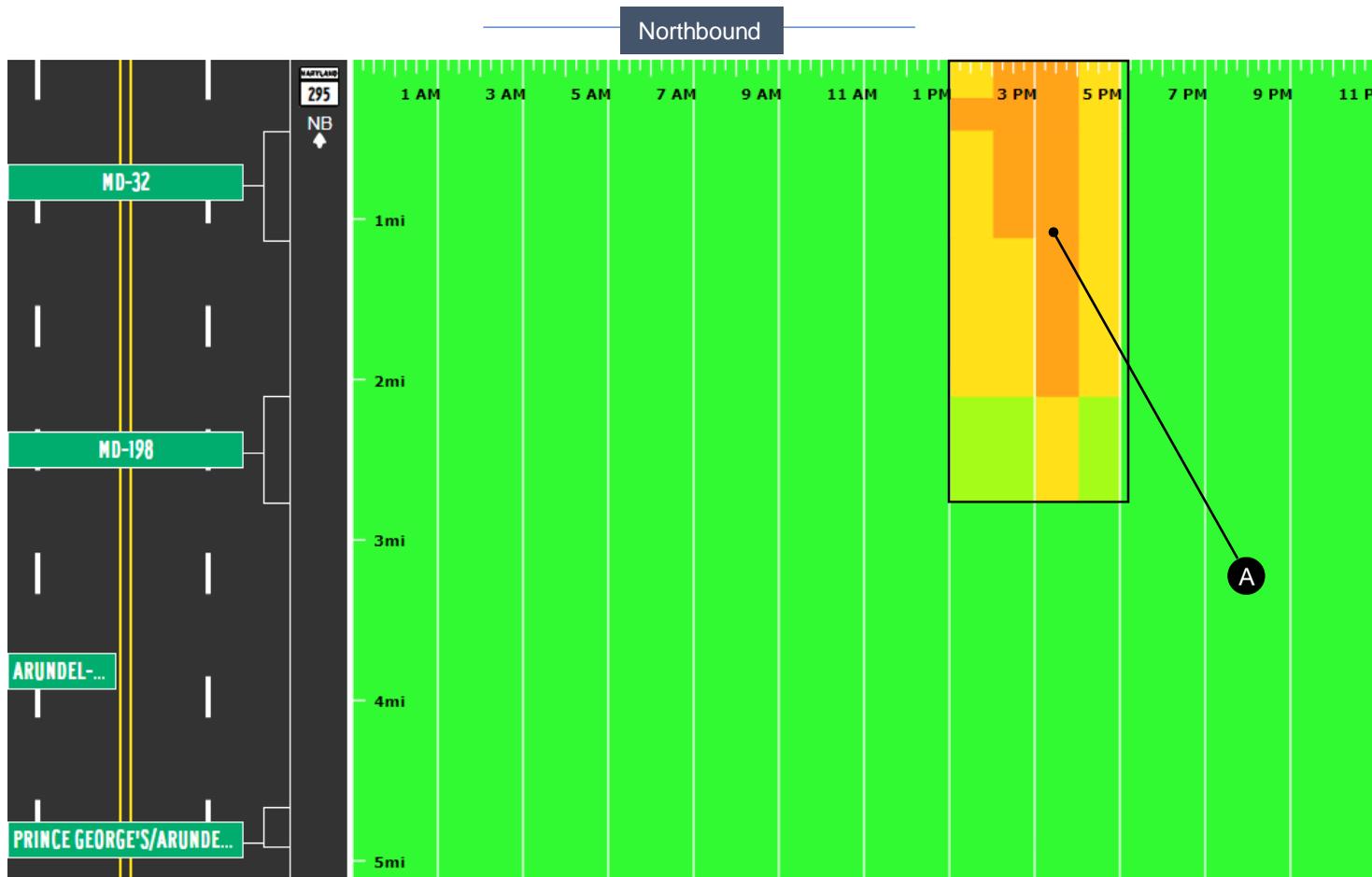
Northbound



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#4 Ranked Bottleneck – 1st Quarter 2021 – Congestion Scan

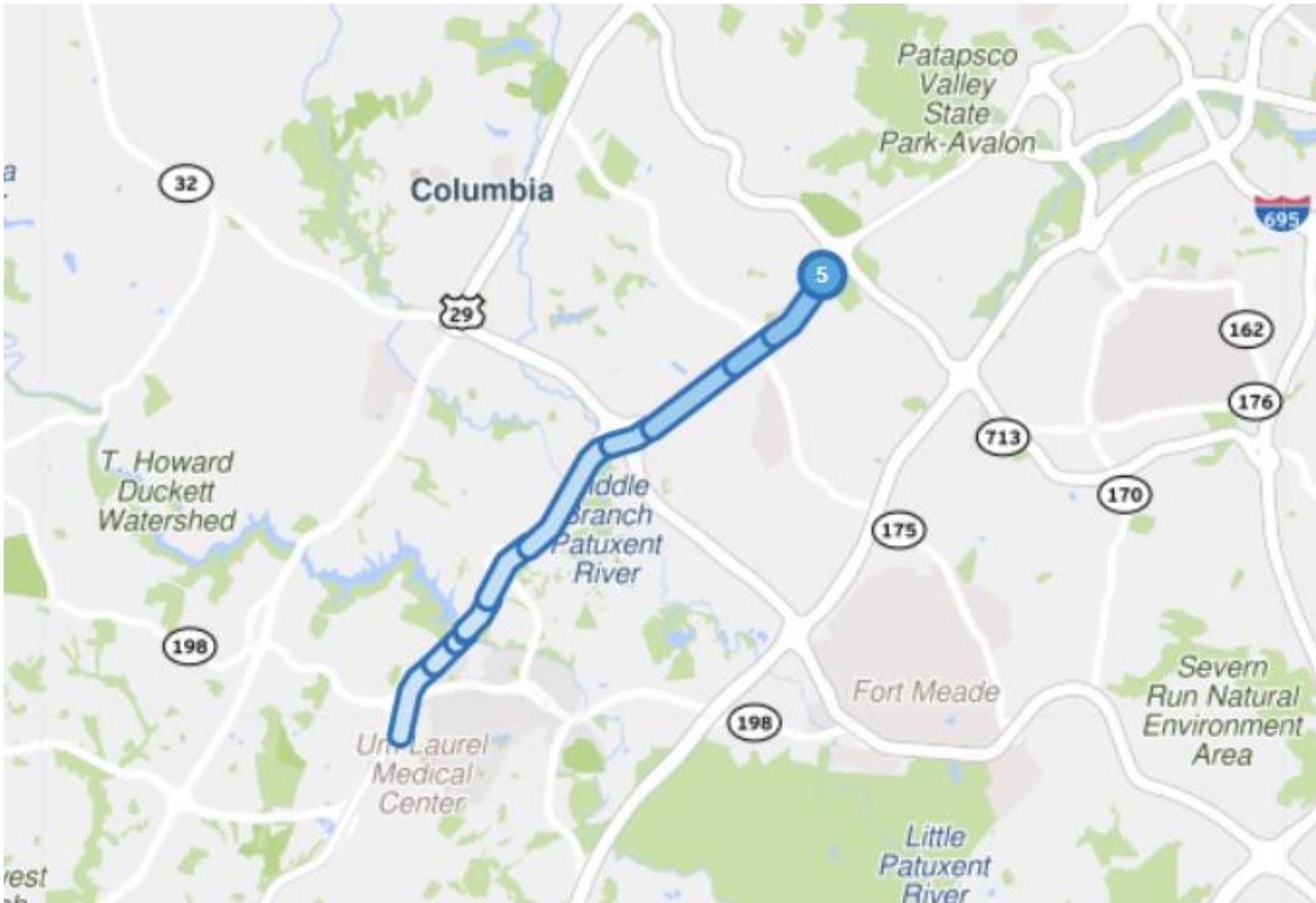
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ CANINE RD	2.18	1 h 3 m	128	49,955



Locations of Congestion (NB)
 A: 2PM - 6PM : MD-198 to Canine Rd

#5 Ranked Bottleneck – 1st Quarter 2021 – Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-100/EXIT 43	3.35	35 m	127	103,615

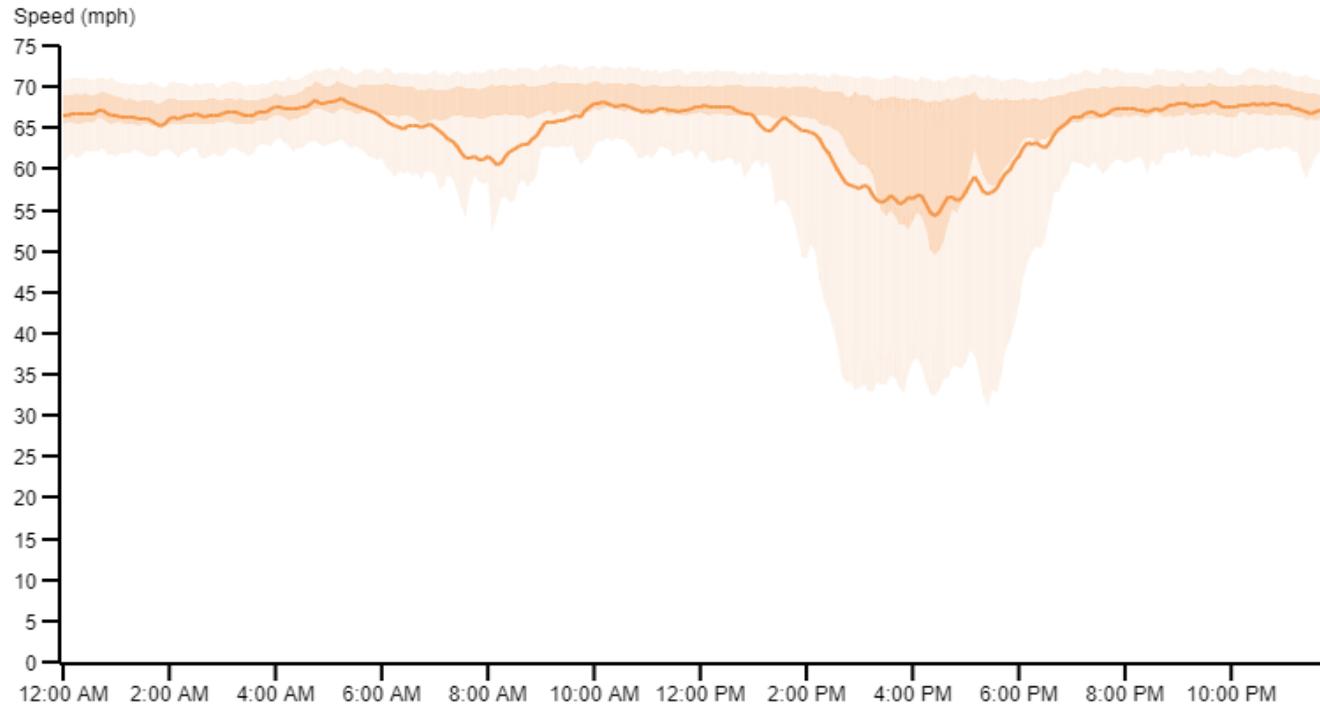


Notes: Congestion in the afternoon rush hour. Contributing factors include traffic entering at MD-175, weaving to exit at MD-100, and the half-mile uphill grade midway between MD-175 and MD-100.

#5 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-100/EXIT 43	3.35	35 m	127	103,615

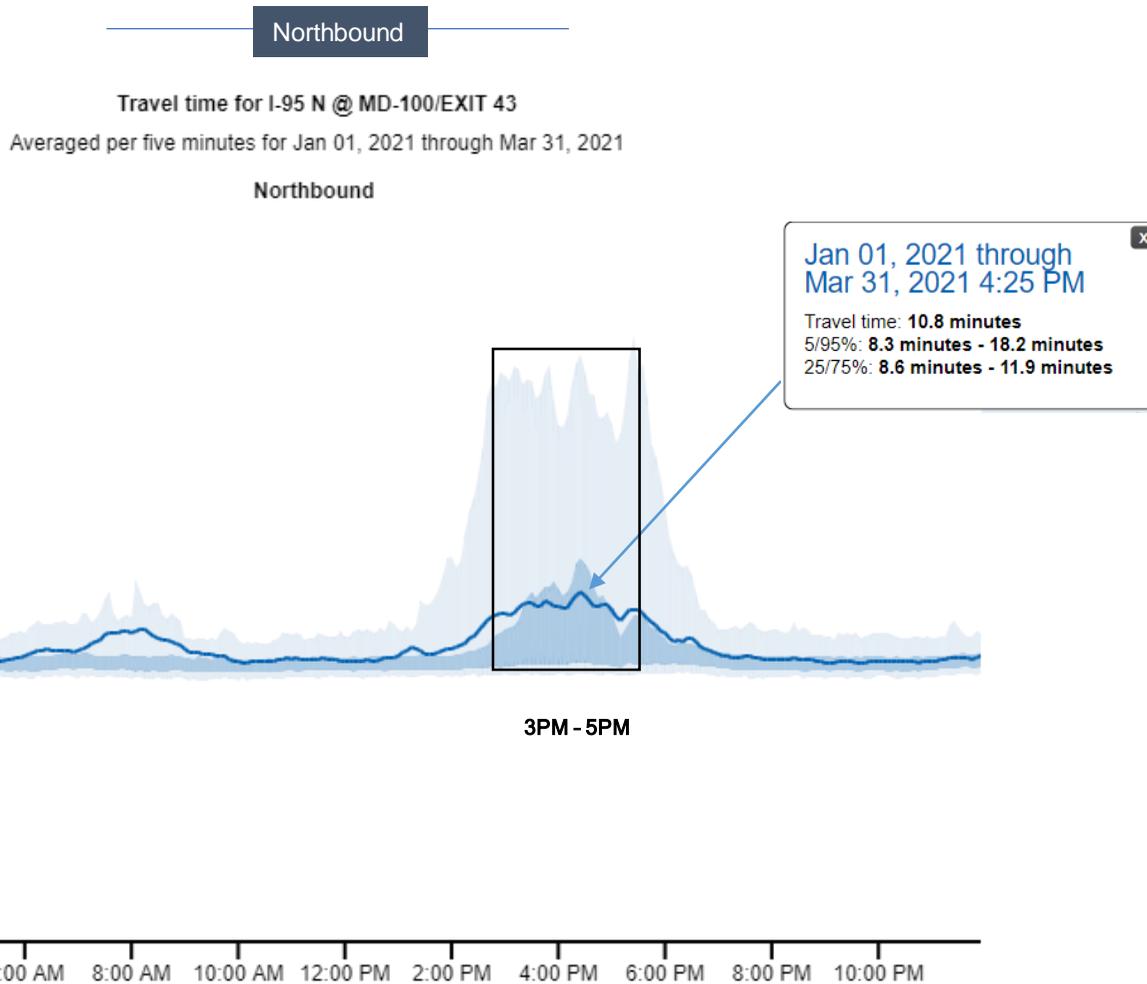
Speed for I-95 N @ MD-100/EXIT 43
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021
 Northbound



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#5 Ranked Bottleneck – 1st Quarter 2021 – Travel Times

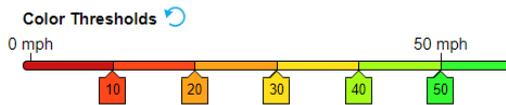
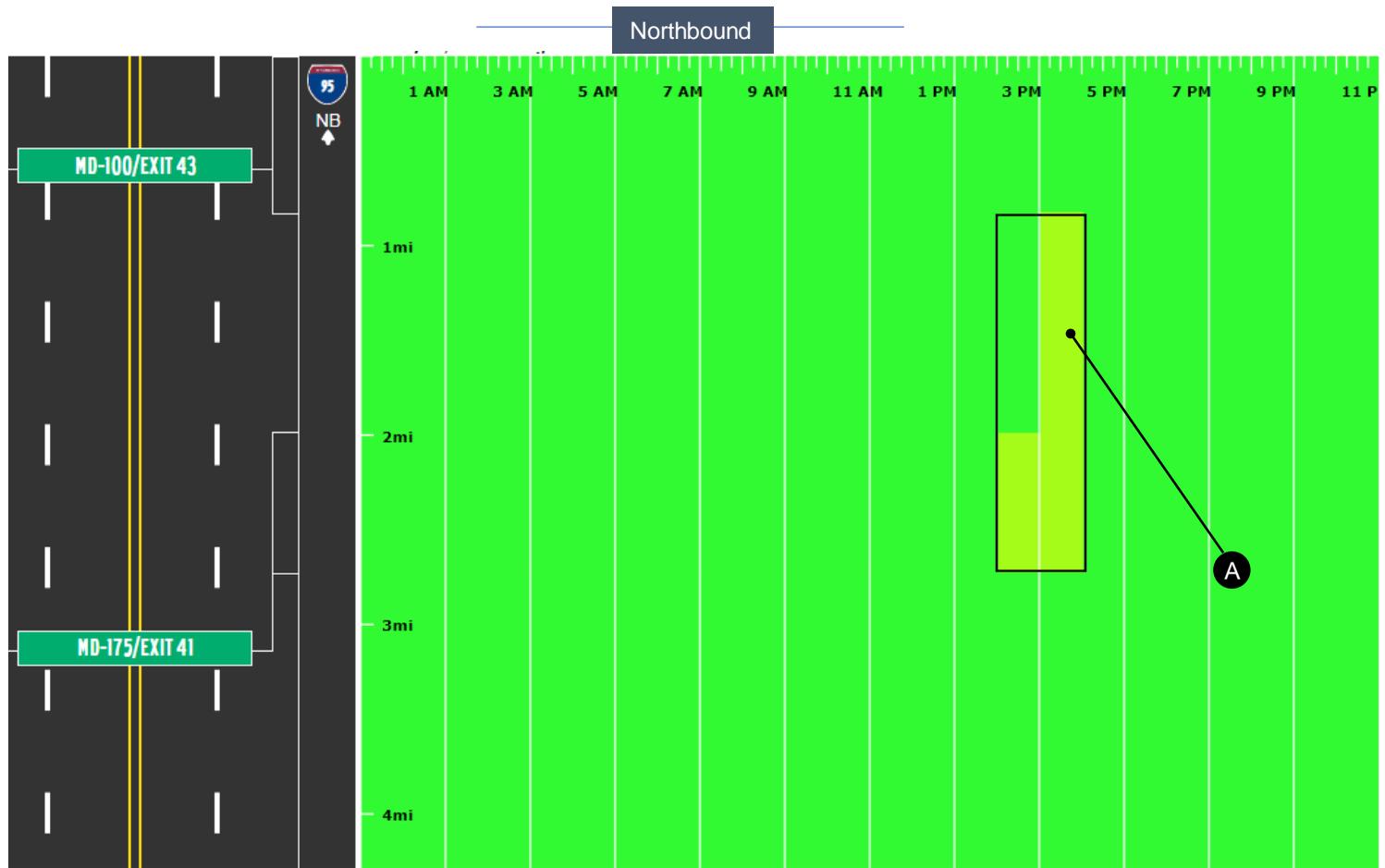
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I-95 N @ MD-100/EXIT 43	3.35	35 m	127	49,955



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- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
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#5 Ranked Bottleneck – 1st Quarter 2021 – Congestion Scan

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-100/EXIT 43	3.35	35 m	127	49,955

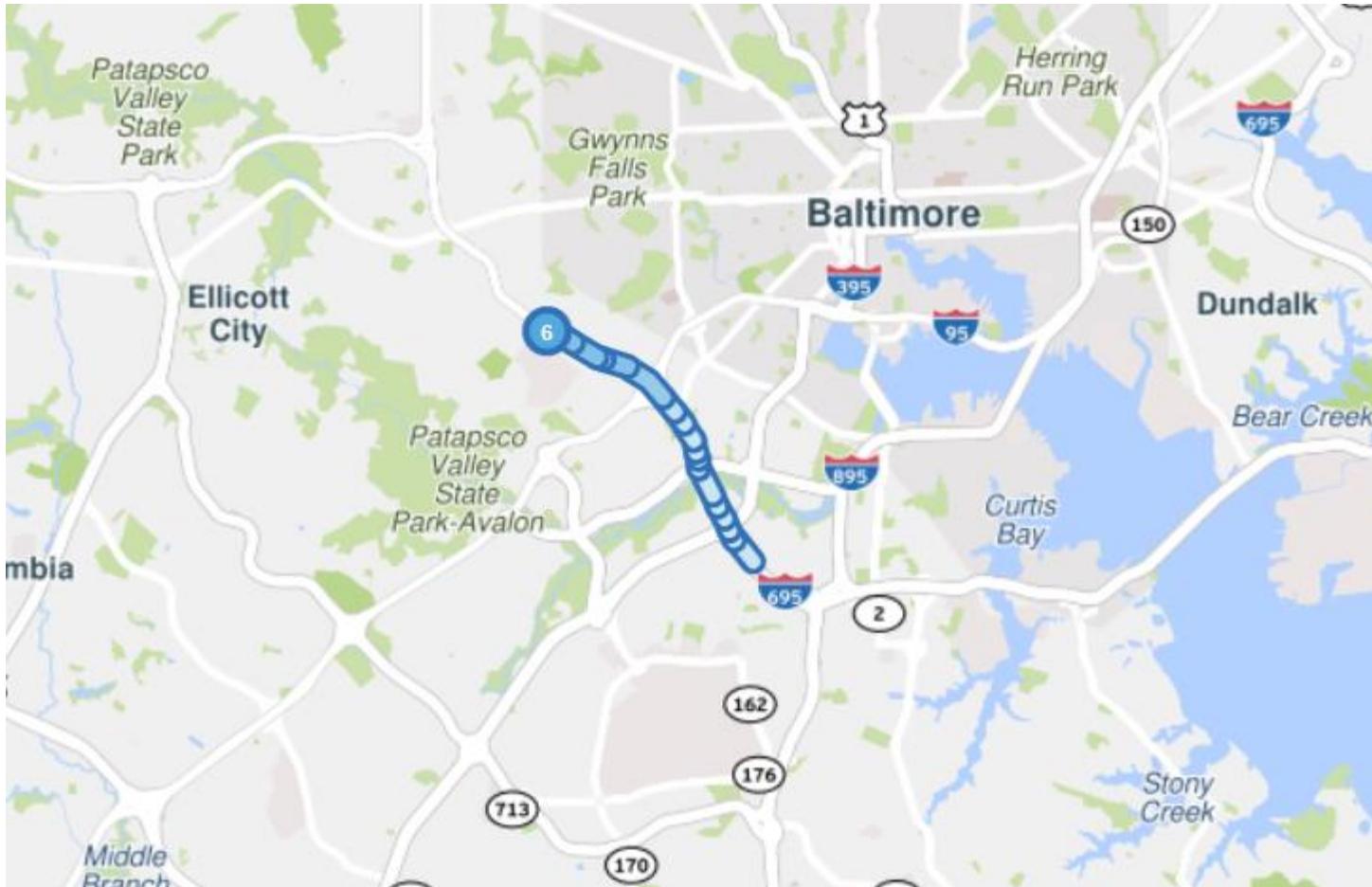


Locations of Congestion (NB)

A: 3PM - 5PM: MD-175 to MD-100

#6 Ranked Bottleneck – 1st Quarter 2021 – Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ MD-372/WILKENS AVE/EXIT 12	1.64	41 m	183	101,171



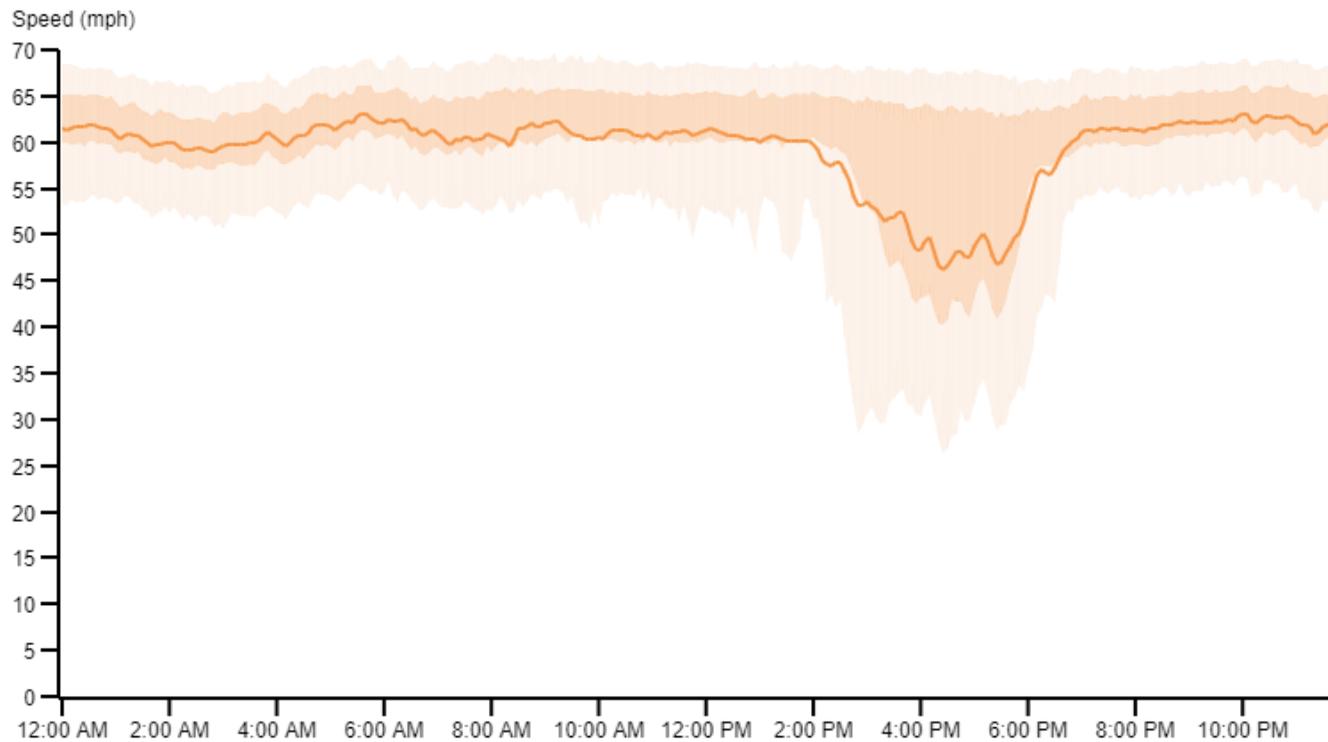
Notes: Afternoon congestion on the inner loop of the beltway with the greatest delays between MD 144 and the lane drop at I-70. High-volume ramps from Security Blvd, I-70 and US 40 contributed to the congestion.

#6 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ MD-372/WILKENS AVE/EXIT 12	1.64	41 m	183	101,171

Speed for I-695 IL @ MD-372/WILKENS AVE/EXIT 12
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021

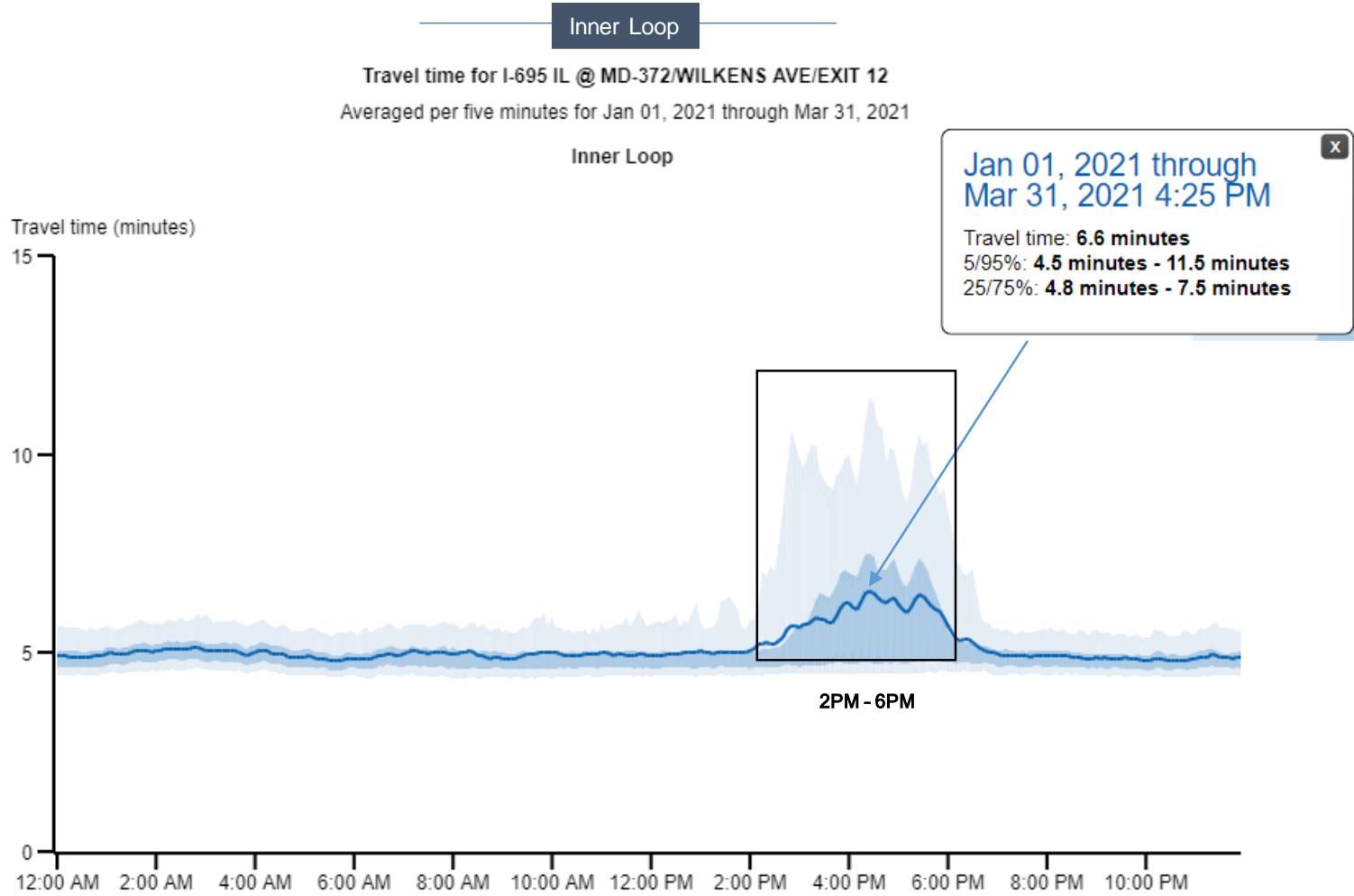
Inner Loop



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#6 Ranked Bottleneck –1st Quarter 2021 – Travel Times

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ MD-372/WILKENS AVE/EXIT 12	1.64	41 m	183	101,171

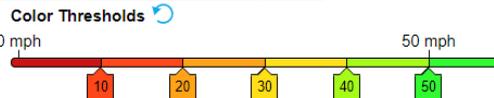
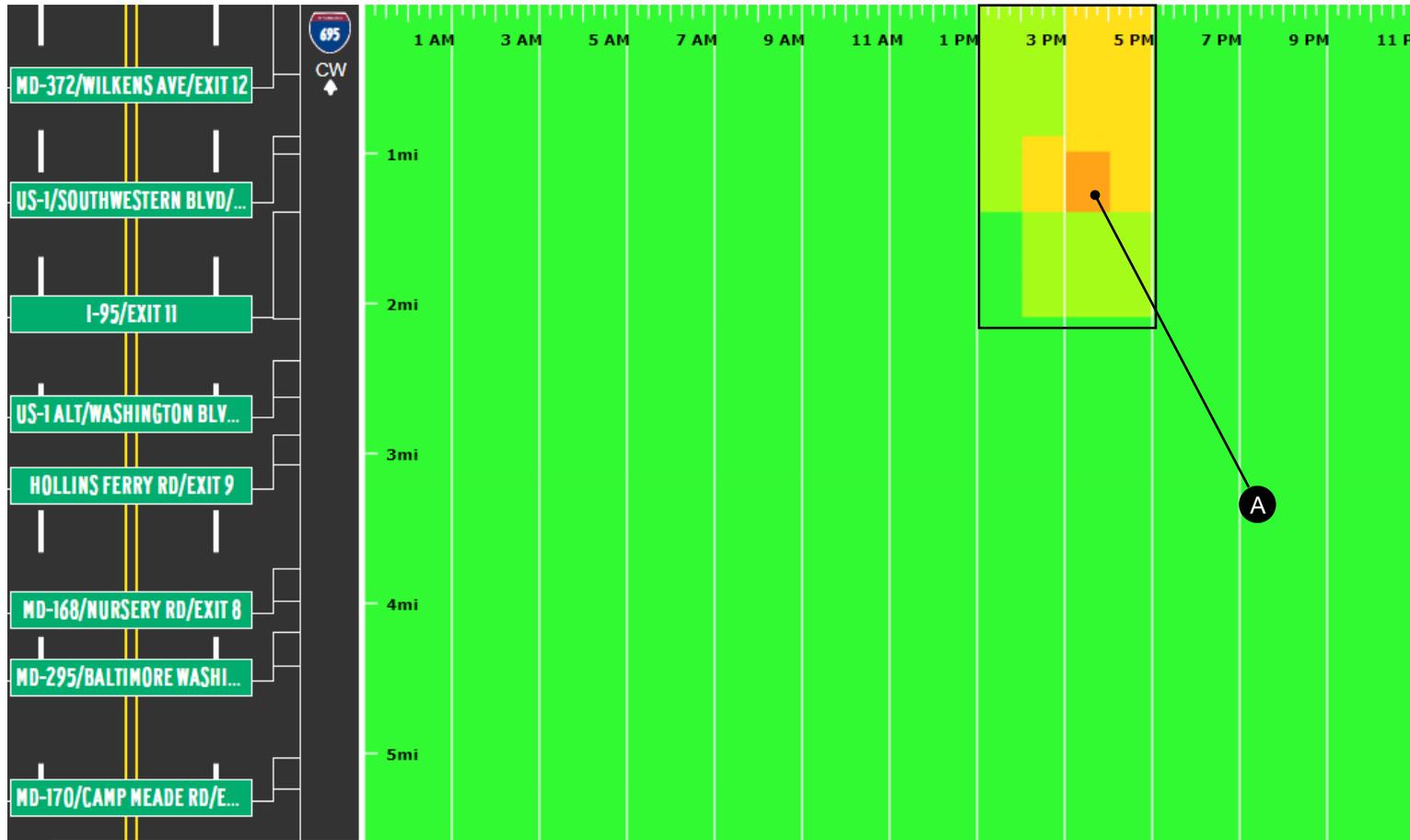


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#6 Ranked Bottleneck – 1st Quarter 2021 – Congestion Scan

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ MD-372/WILKENS AVE/EXIT 12	1.64	41 m	183	101,171

Inner Loop

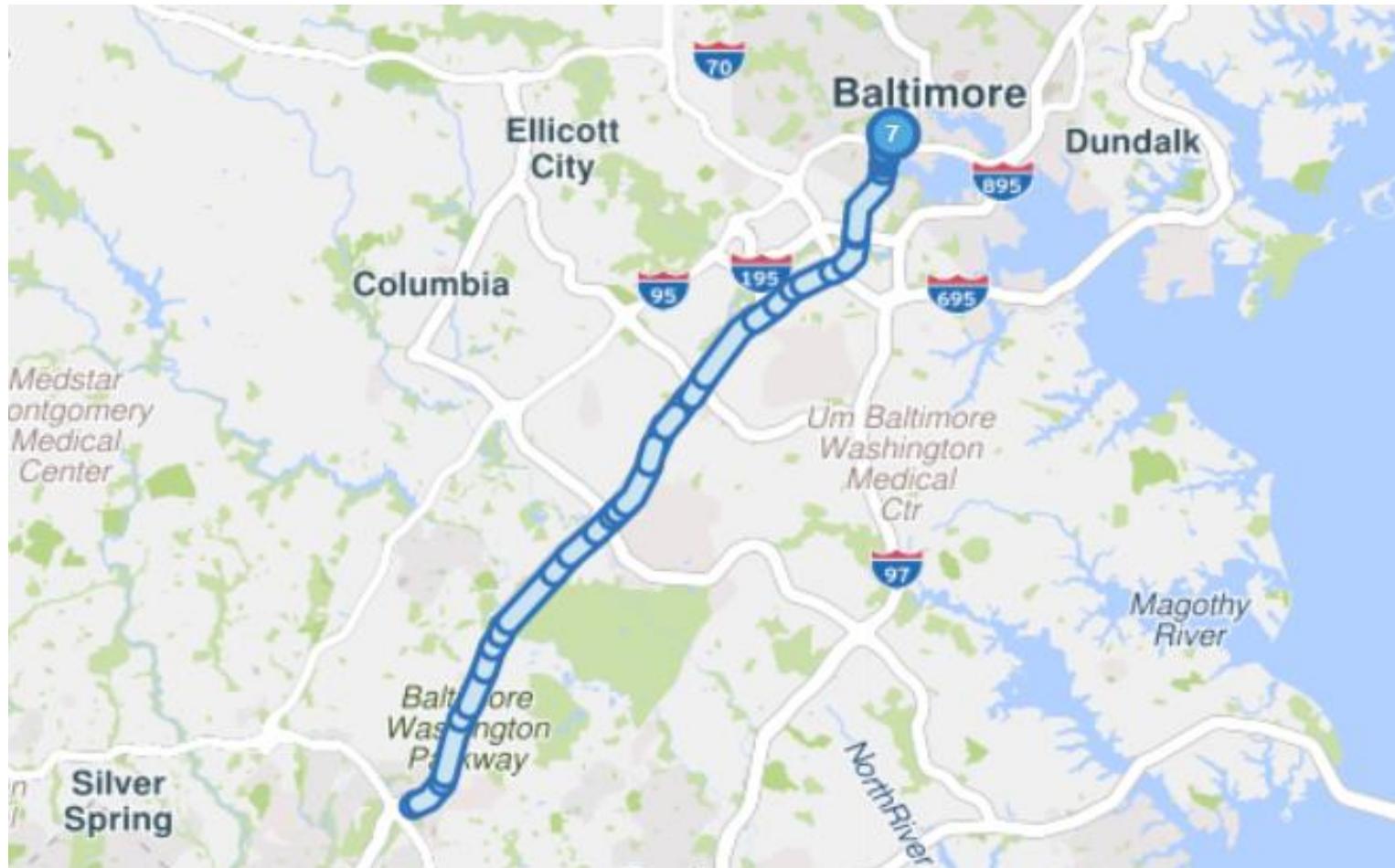


Locations of Congestion (IL)

A: 2PM - 6PM : US-1/Southwestern Blvd to MD-372/Wilkens Ave

#7 Ranked Bottleneck – 1st Quarter 2021 – Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ BAYARD ST	0.29	8 h 21 m	349	32,500



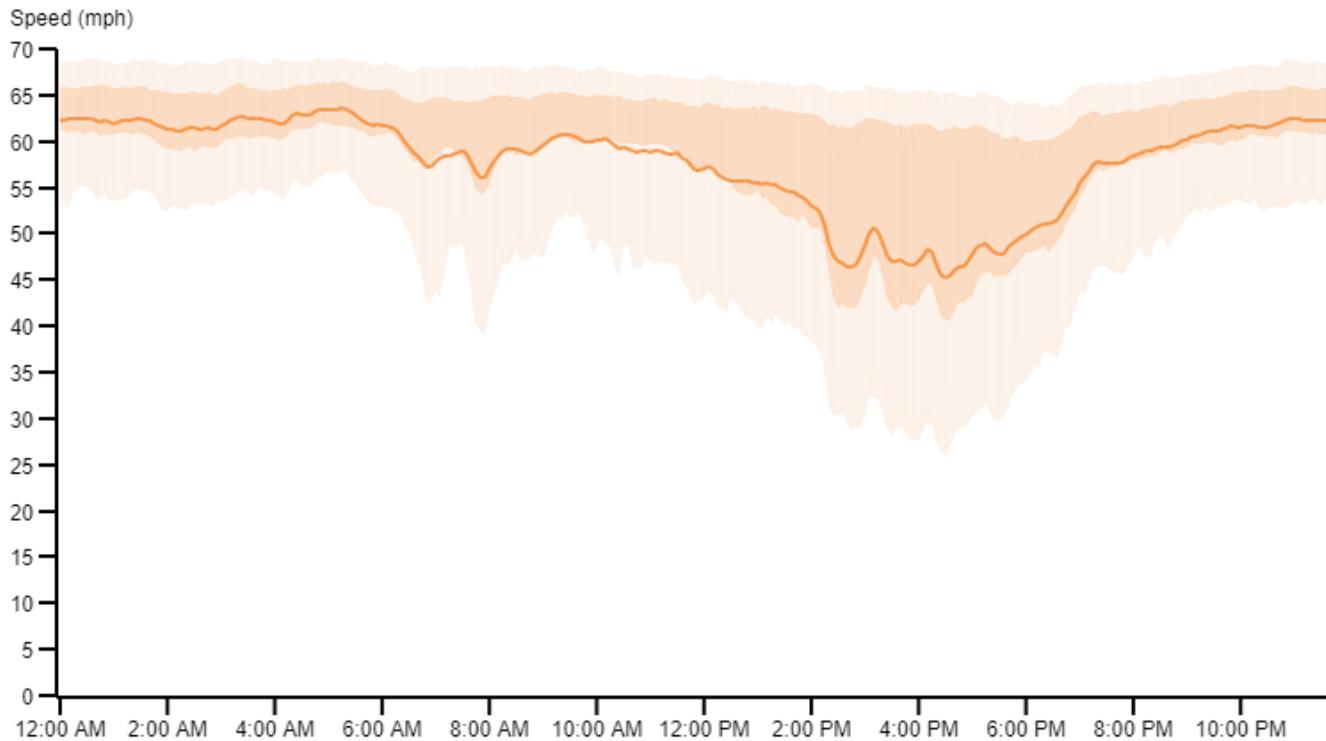
Notes: Bottleneck starts where MD-295 ends as a limited access highway at Bayard St and becomes Russell St with signalized intersections causing a short backup that occasionally blends into heavily traveled MD-295. Congestion is more prevalent during the PM rush.

#7 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ BAYARD ST	0.29	8 h 21 m	349	32,500

Speed for MD-295 N @ BAYARD ST
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021

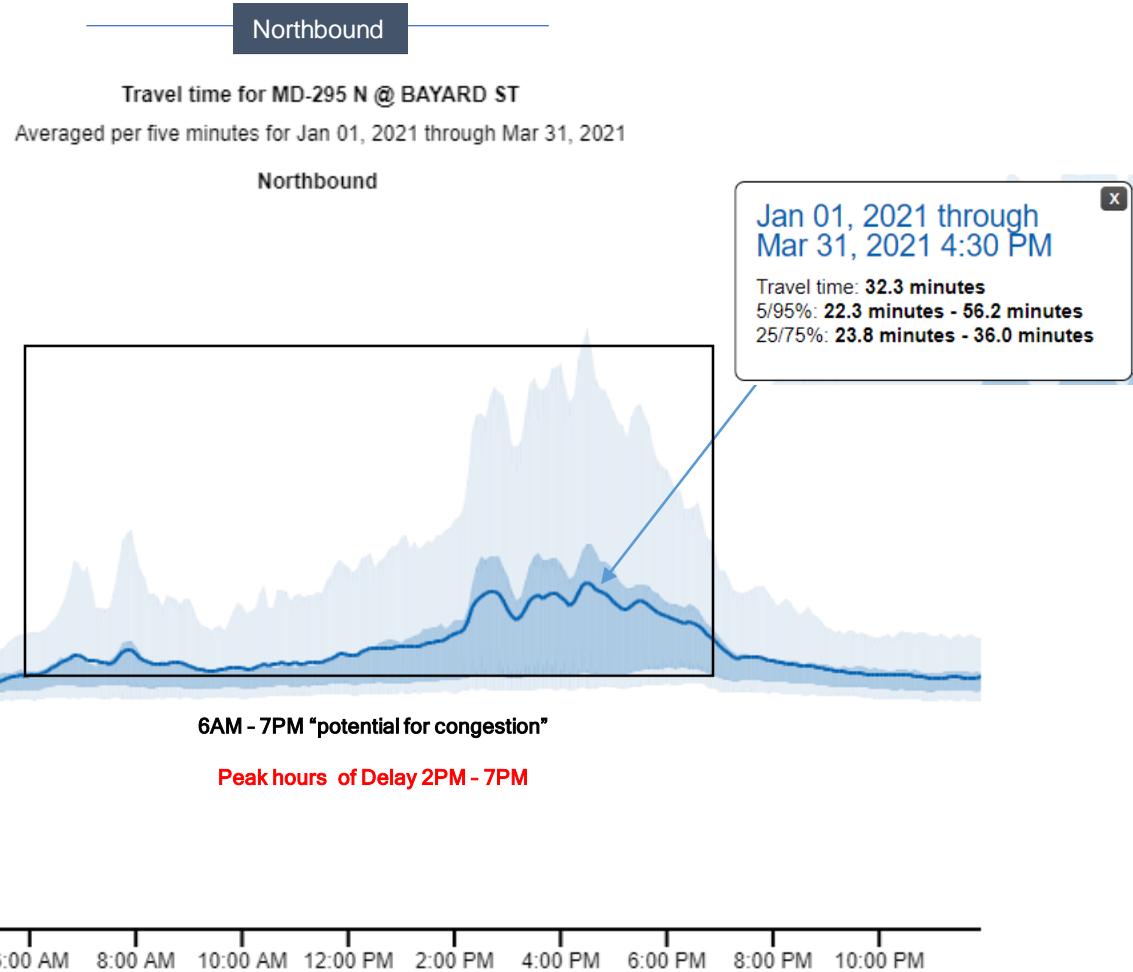
Northbound



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#7 Ranked Bottleneck – 1st Quarter 2021 – Travel Times

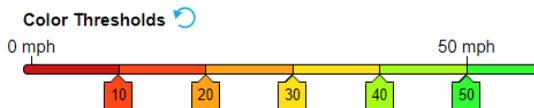
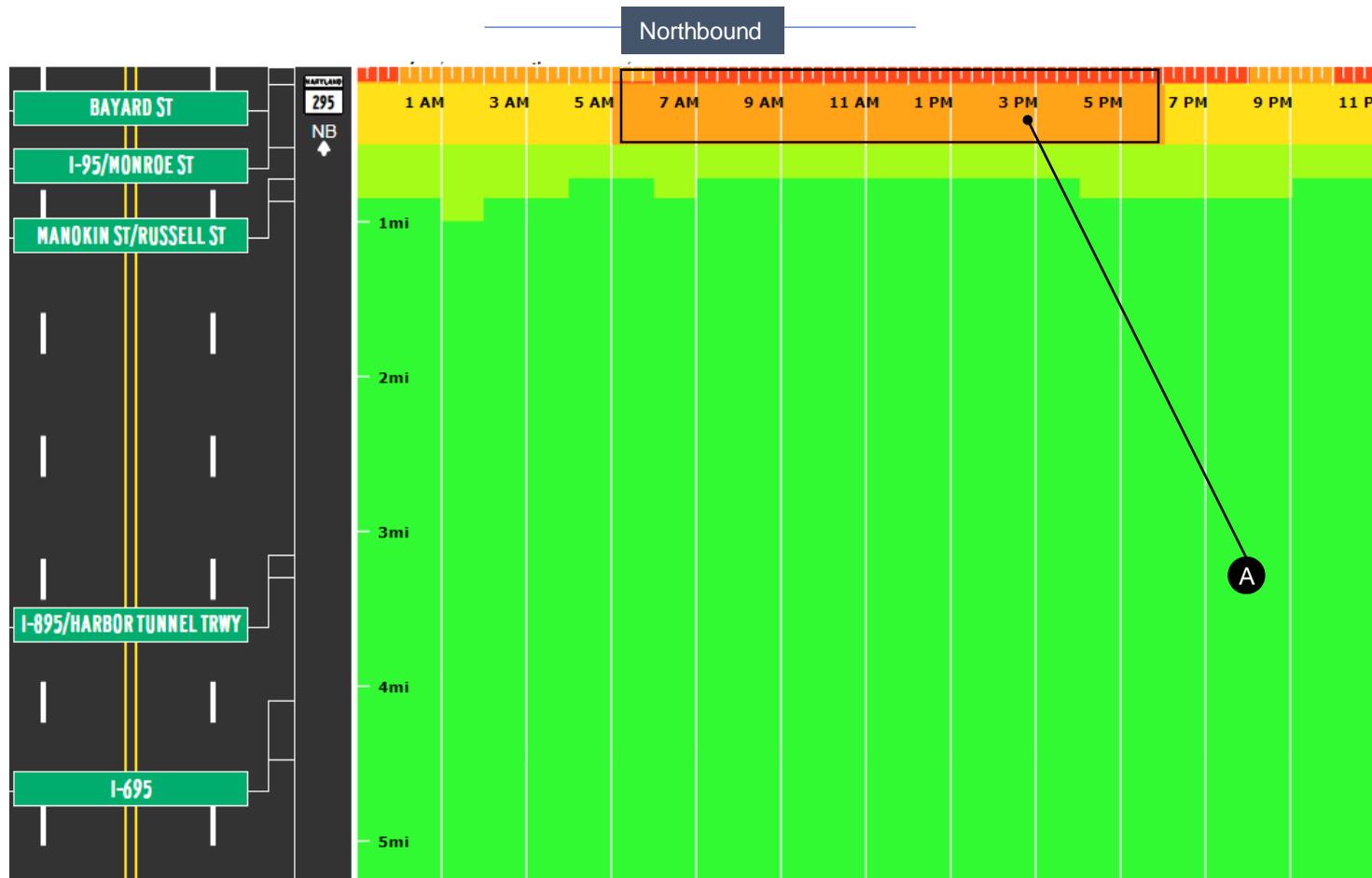
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ BAYARD ST	0.29	8 h 21 m	349	32,500



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#7 Ranked Bottleneck –1st Quarter 2021 – Congestion Scan

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ BAYARD ST	0.29	8 h 21 m	349	32,500



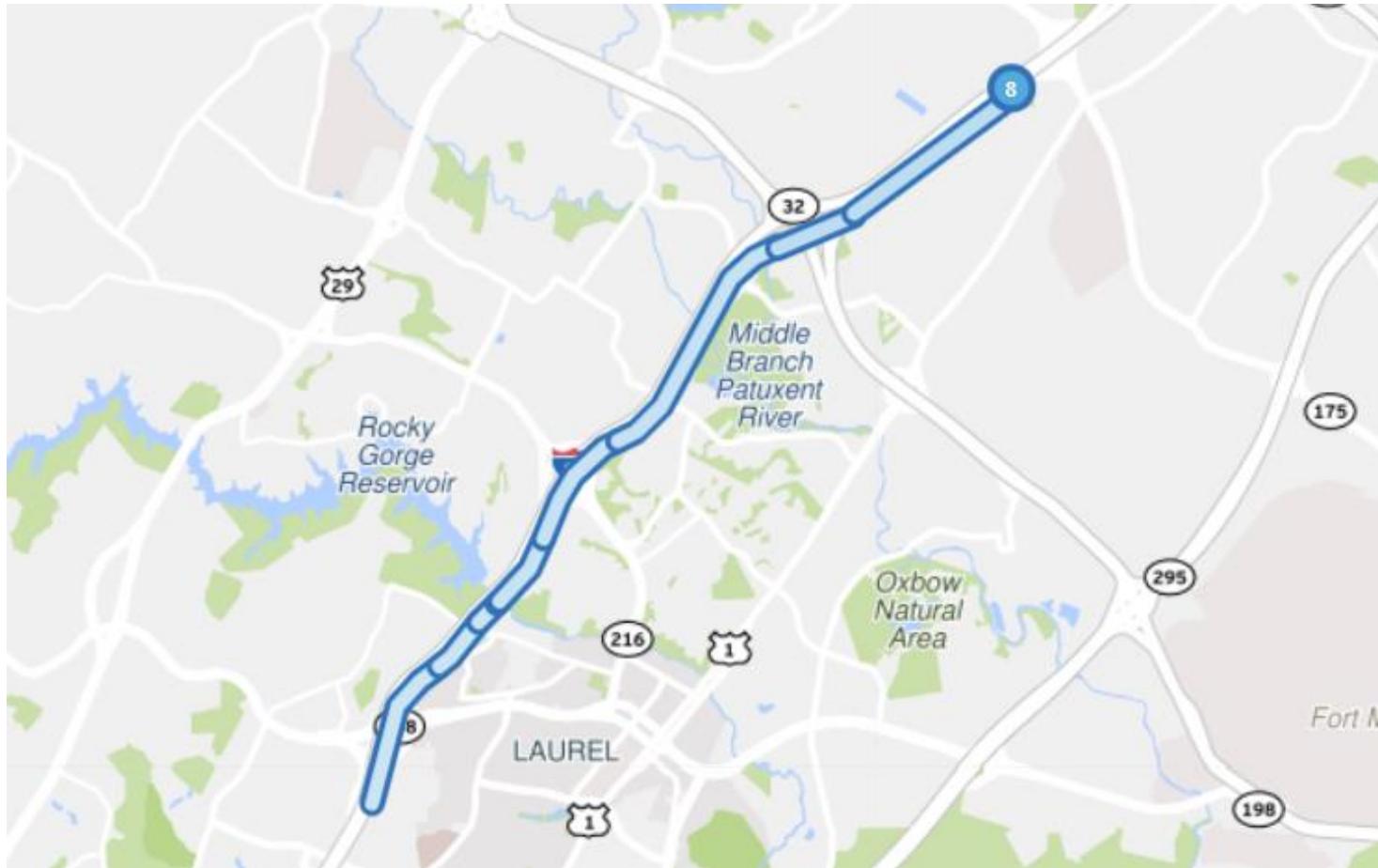
Locations of Congestion (NB)

A: 6AM -7PM: I-95/Monroe St to Bayard St

*2PM to 7PM - Peak hours of delay

#8 Ranked Bottleneck – 1st Quarter 2021 – Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-175/EXIT 41	3.66	4 m	95	105,001

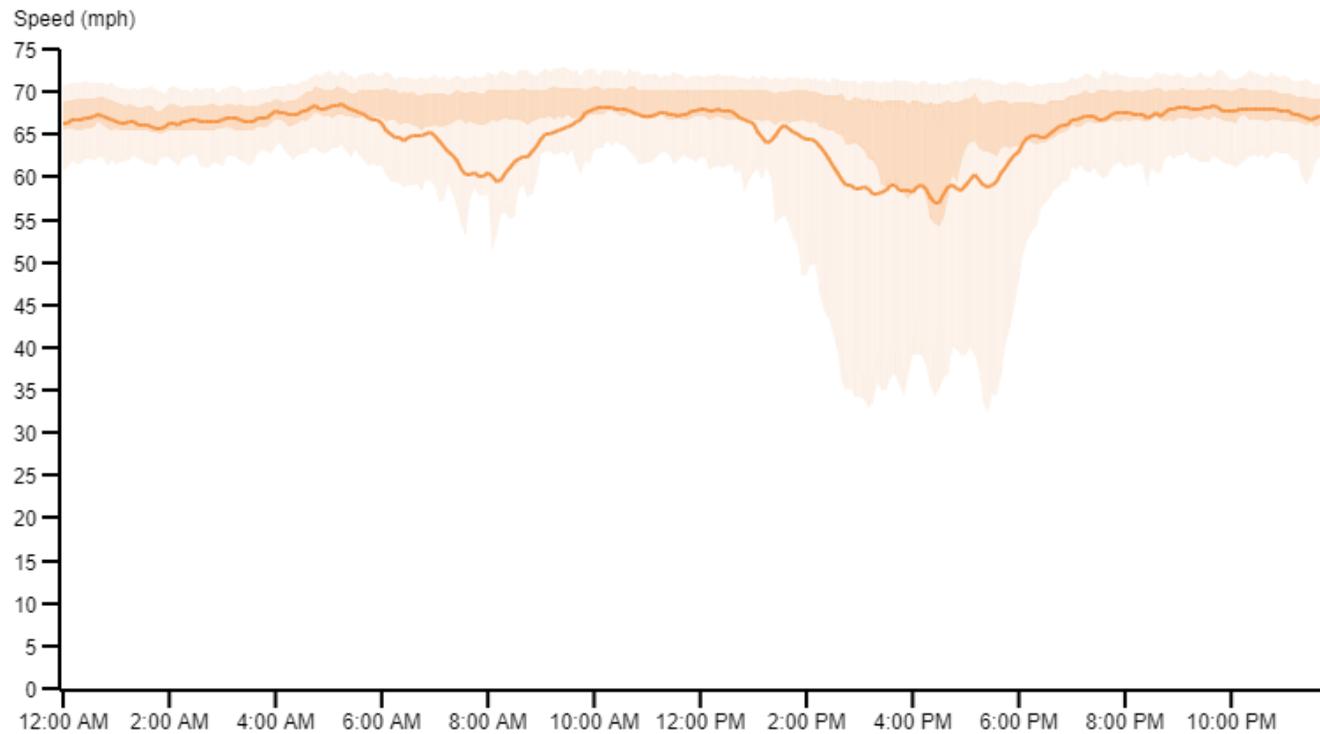


Notes: Congestion in the afternoon rush hour. Contributing factors include traffic entering at MD-175, weaving to exit at MD-100, and the half mile uphill grade midway between MD-175 and MD-100.

#8 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-175/EXIT 41	3.66	4 m	95	105,001

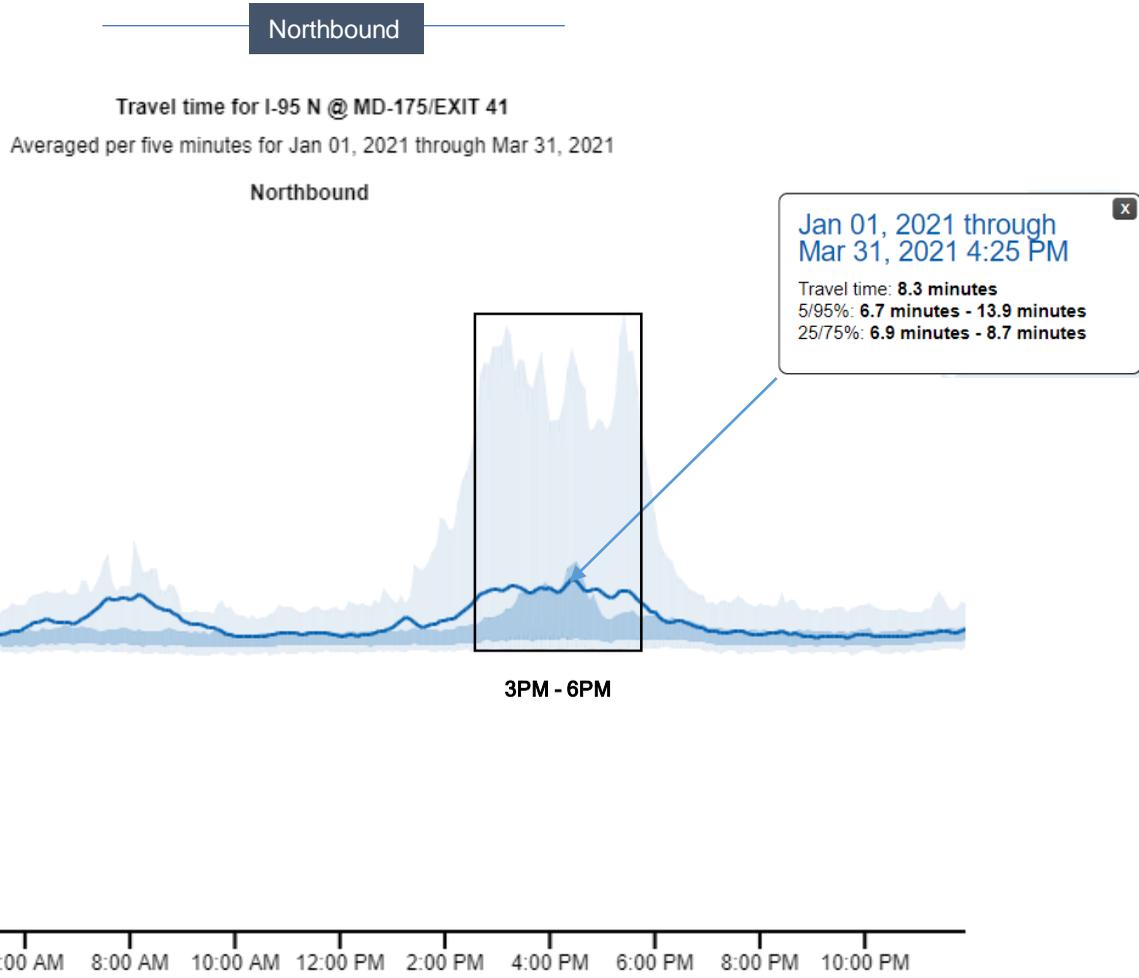
Speed for I-95 N @ MD-175/EXIT 41
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021
 Northbound



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#8 Ranked Bottleneck – 1st Quarter 2021 – Travel Times

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-175/EXIT 41	3.66	4 m	95	105,001

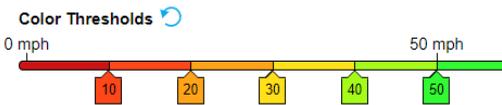
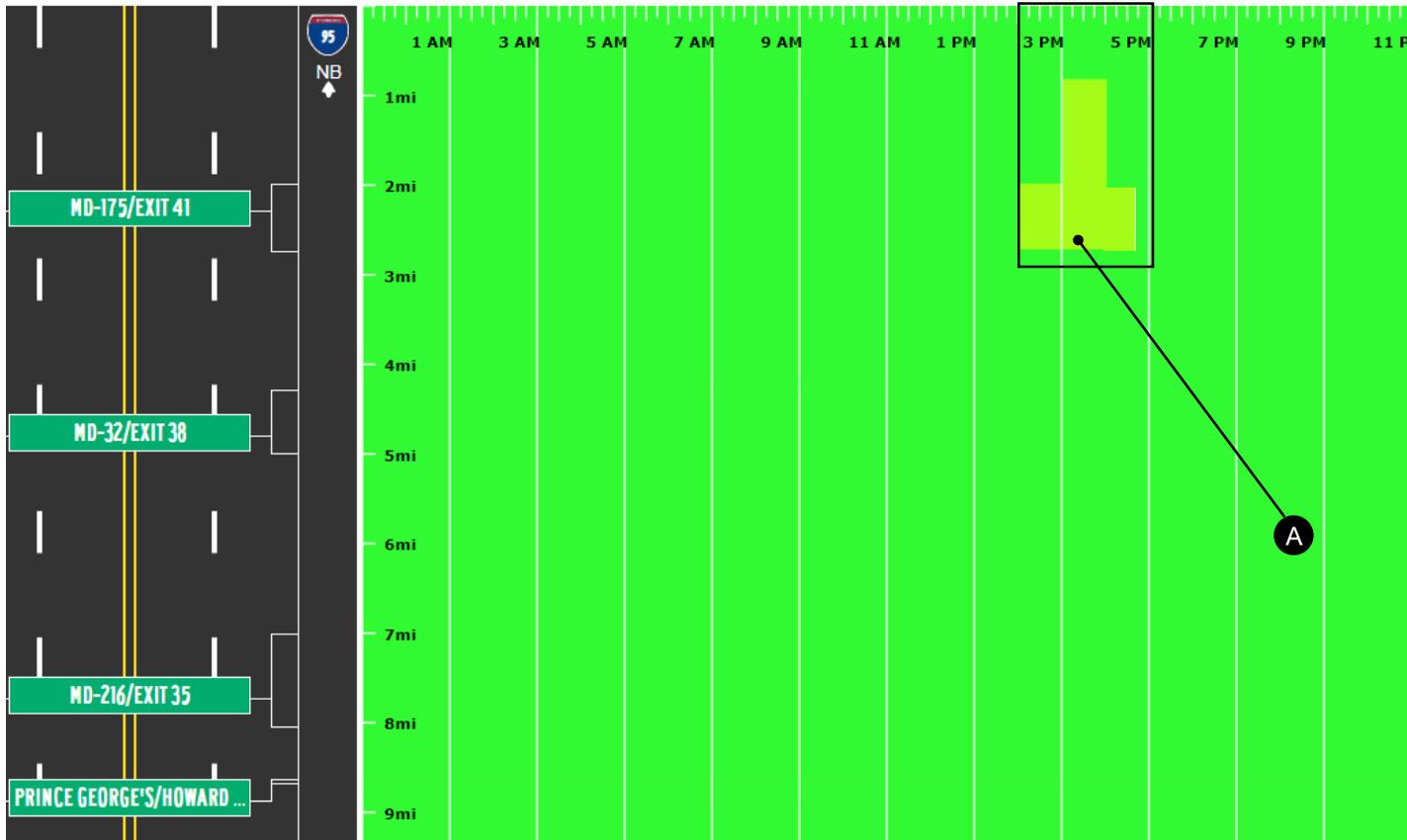


- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#8 Ranked Bottleneck –1st Quarter 2021 – Congestion Scan

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-175/EXIT 41	3.66	4 m	95	105,001

Northbound

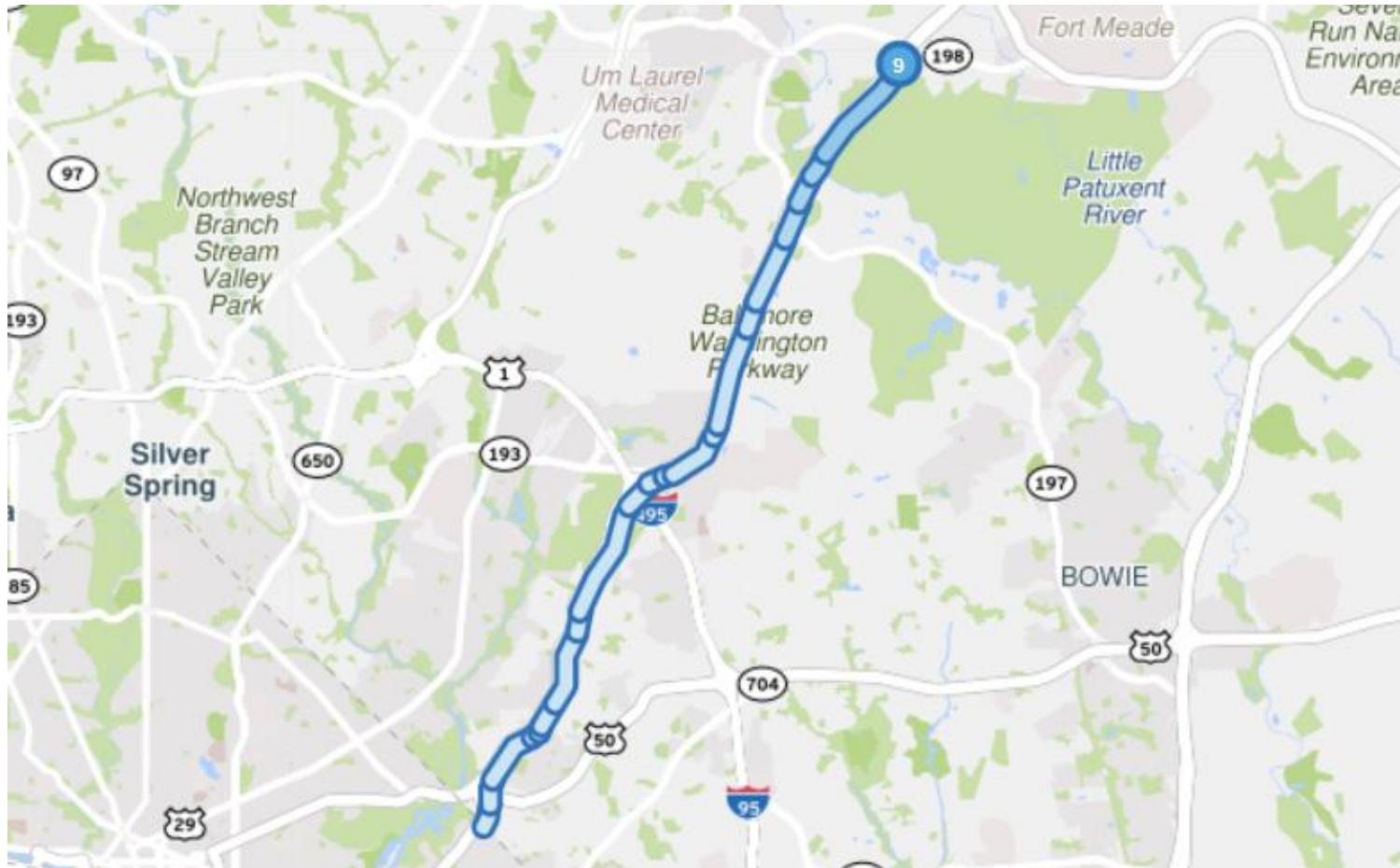


Locations of Congestion (NB)

A: 3PM - 6PM : MD-32 to MD-175

#9 Ranked Bottleneck – 1st Quarter 2021 – Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ MD-198	3.3	14 m	172	47,794

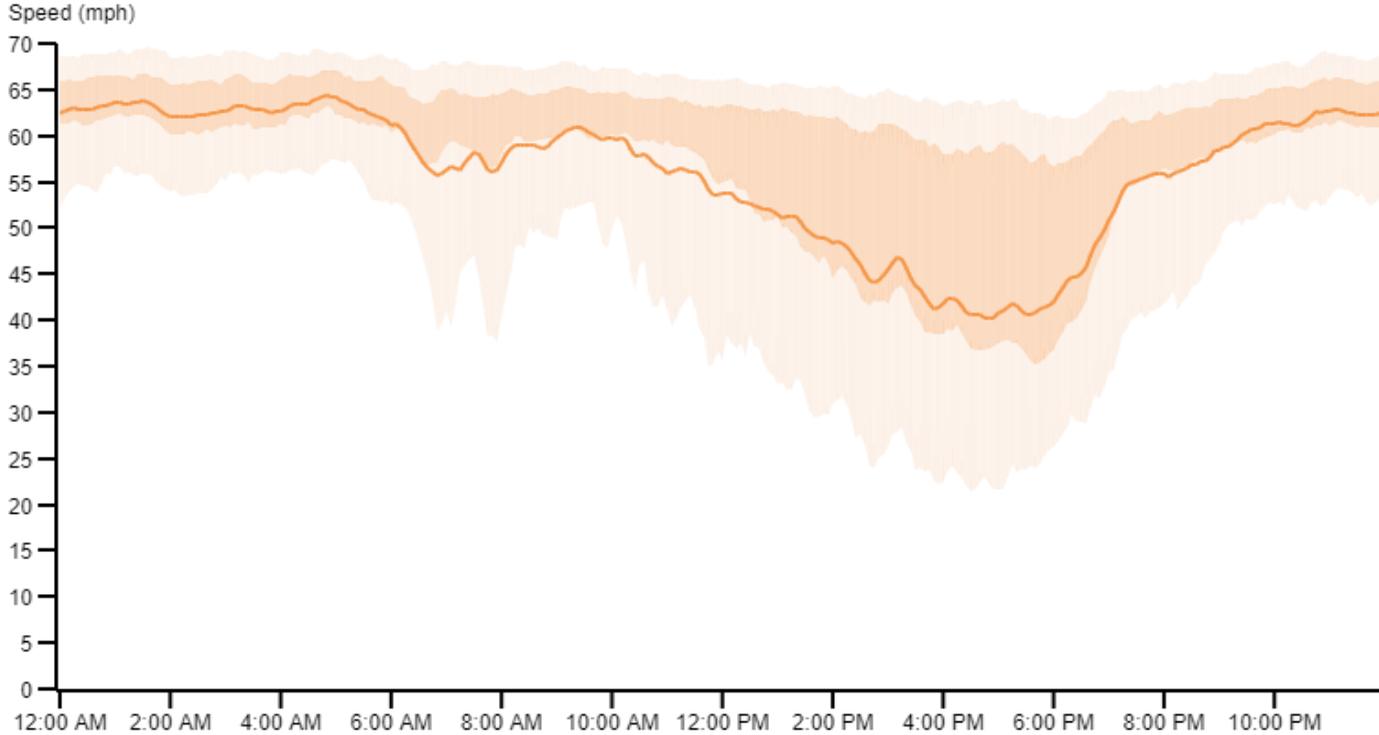


Notes: Recurring afternoon congestion. Level of Service "F" from 4 to 5 pm. A primary cause appeared to be the discharge of traffic from NSA / Ft. Meade onto northbound MD 295 via the Connector Rd. Weaving and merging at the MD 32 interchange also contributed to the congestion. Delays are primarily in the afternoon rush.

#9 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ MD-198	3.3	14 m	172	47,794

Speed for MD-295 N @ MD-198
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021
 Northbound

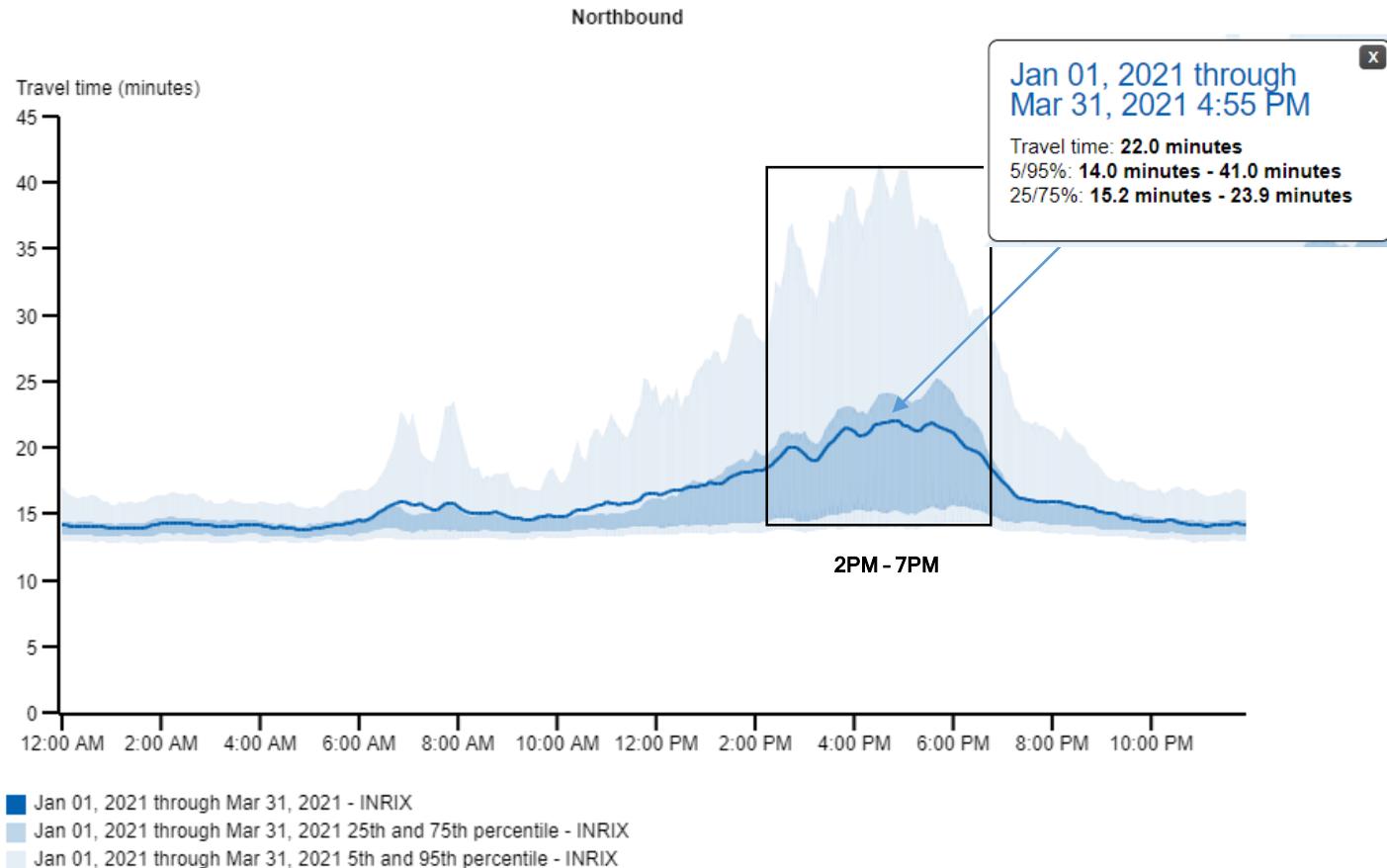


- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#9 Ranked Bottleneck –1st Quarter 2021 – Travel Times

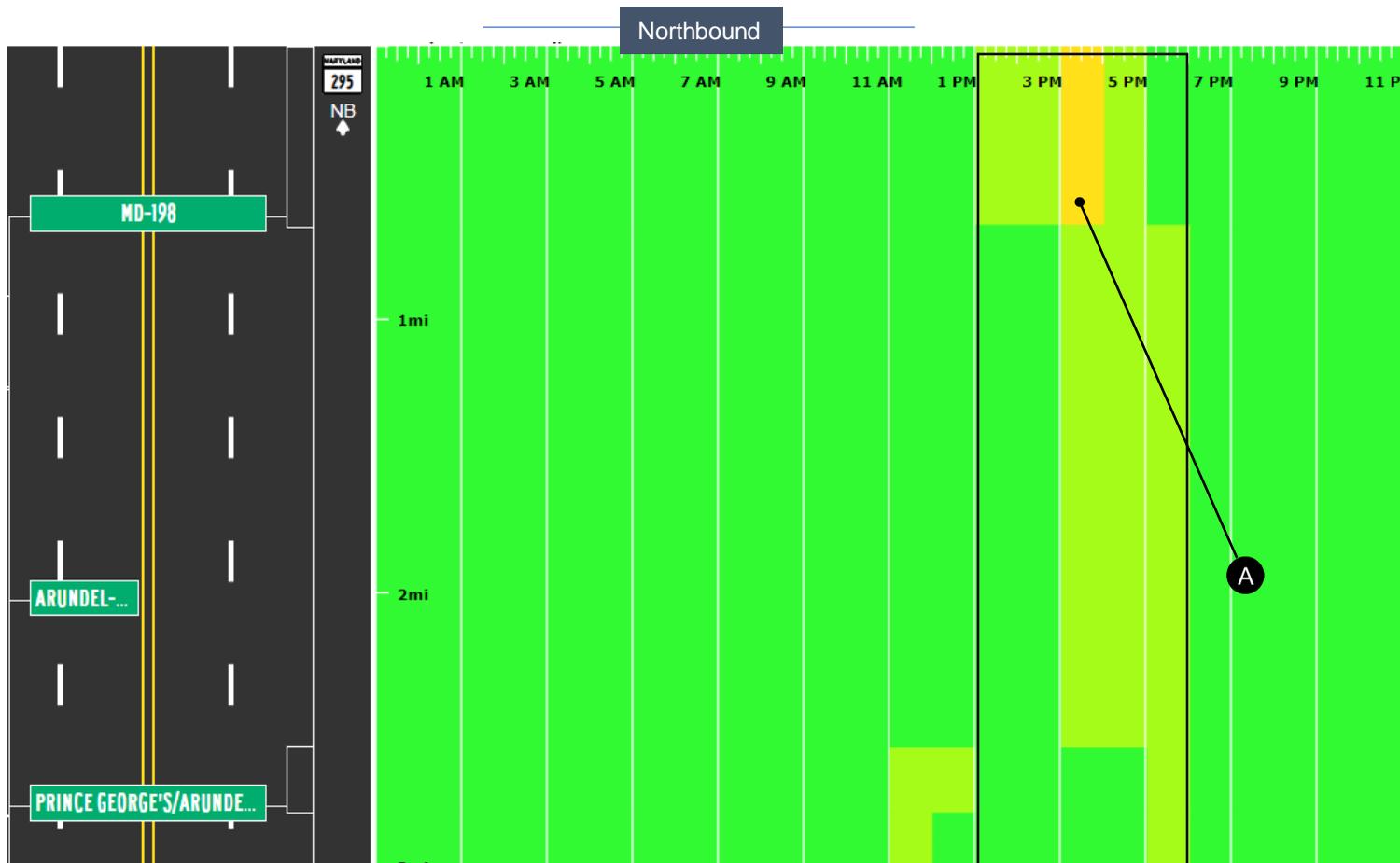
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ MD-198	3.3	14 m	172	47,794

Northbound
 Travel time for MD-295 N @ MD-198
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021



#9 Ranked Bottleneck – 1st Quarter 2021 – Congestion Scan

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 N @ MD-198	3.3	14 m	172	47,794

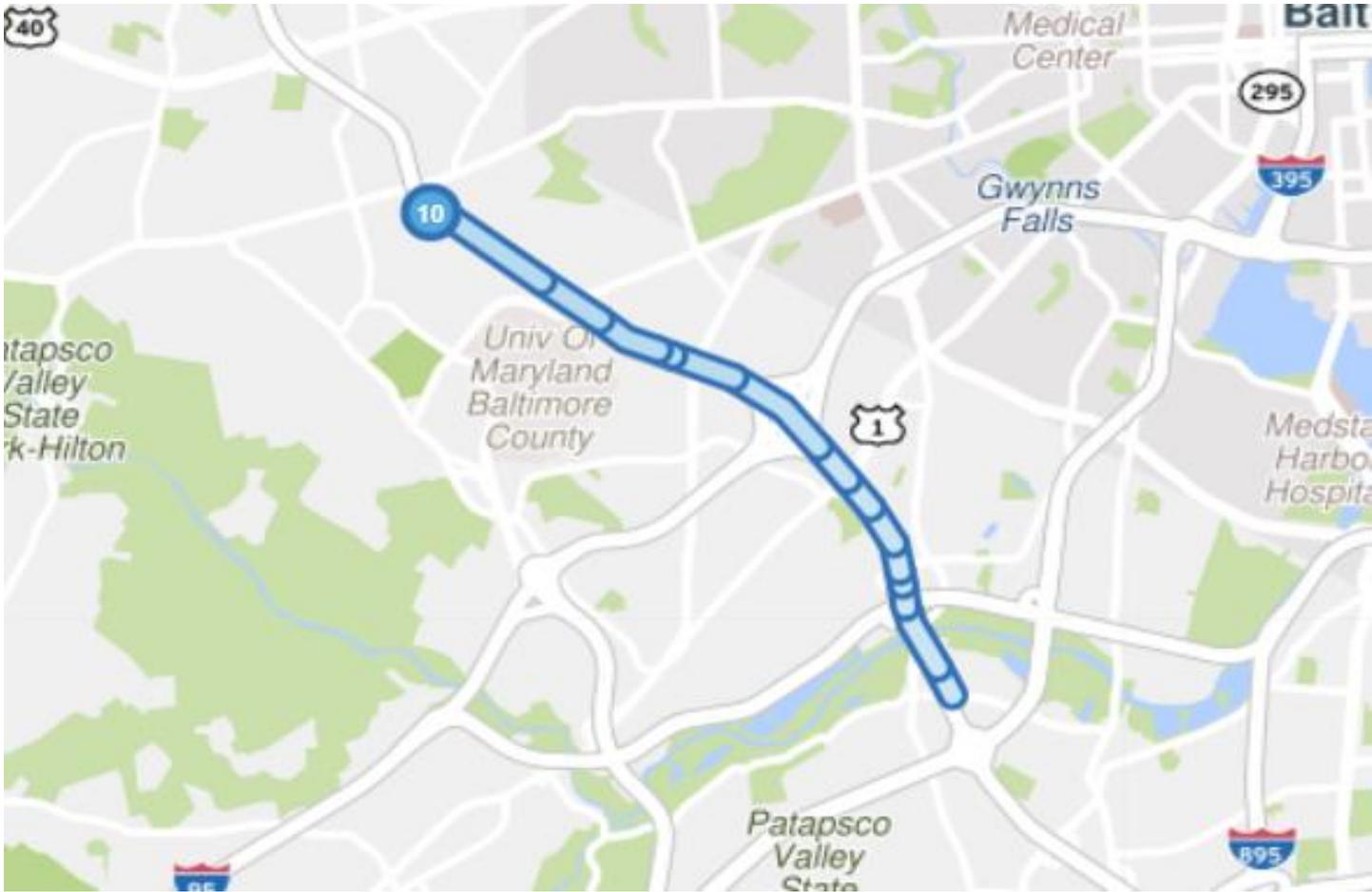


Locations of Congestion (NB)

A: 2PM - 7PM: Anne Arundel/P.G. County Line to N of MD-198

#10 Ranked Bottleneck – 1st Quarter 2021 – Location Map

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ MD-144/FREDERICK RD/EXIT 13	2.52	14 m	155	101,579



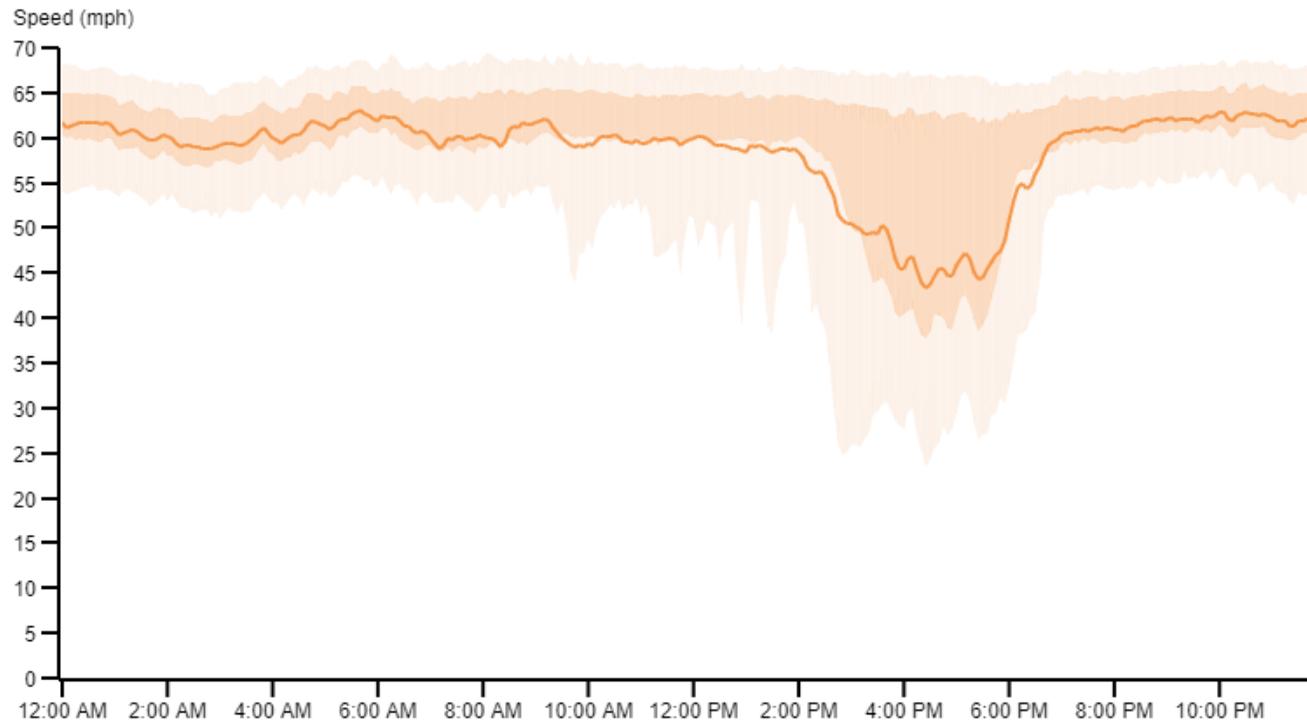
Notes: Afternoon congestion on the inner loop of the beltway with the greatest delays between MD 144 and the lane drop at I-70. High-volume ramps from Security Blvd, I-70 and US 40 contributed to the congestion.

#10 Ranked Bottleneck – 1st Quarter 2021 – Average Speeds Graph

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ MD-144/FREDERICK RD/EXIT 13	2.52	14 m	155	101,579

Speed for I-695 IL @ MD-144/FREDERICK RD/EXIT 13
 Averaged per five minutes for Jan 01, 2021 through Mar 31, 2021

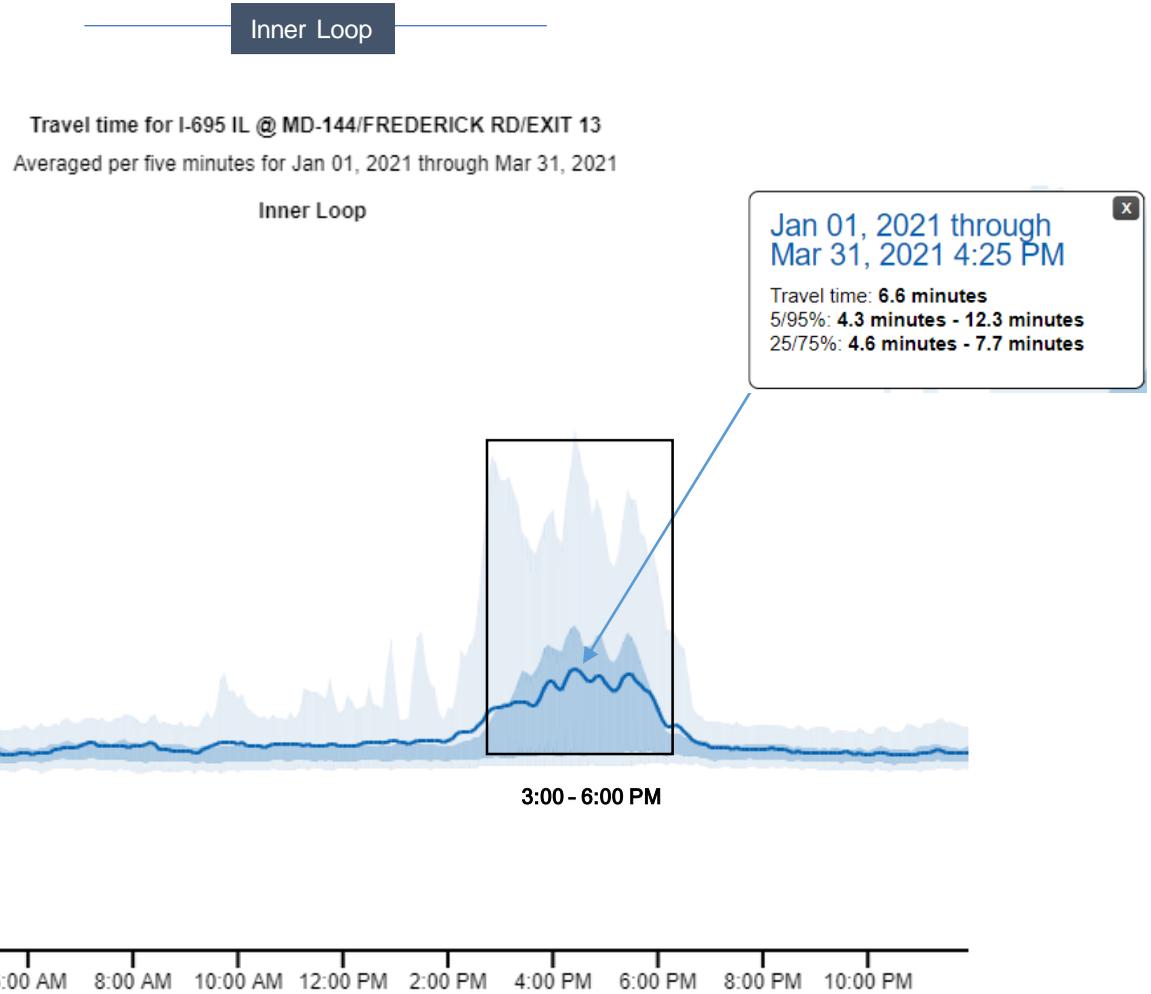
Inner Loop



- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#10 Ranked Bottleneck –1st Quarter 2021 – Travel Times

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ MD-144/FREDERICK RD/EXIT 13	2.52	14 m	155	101,579

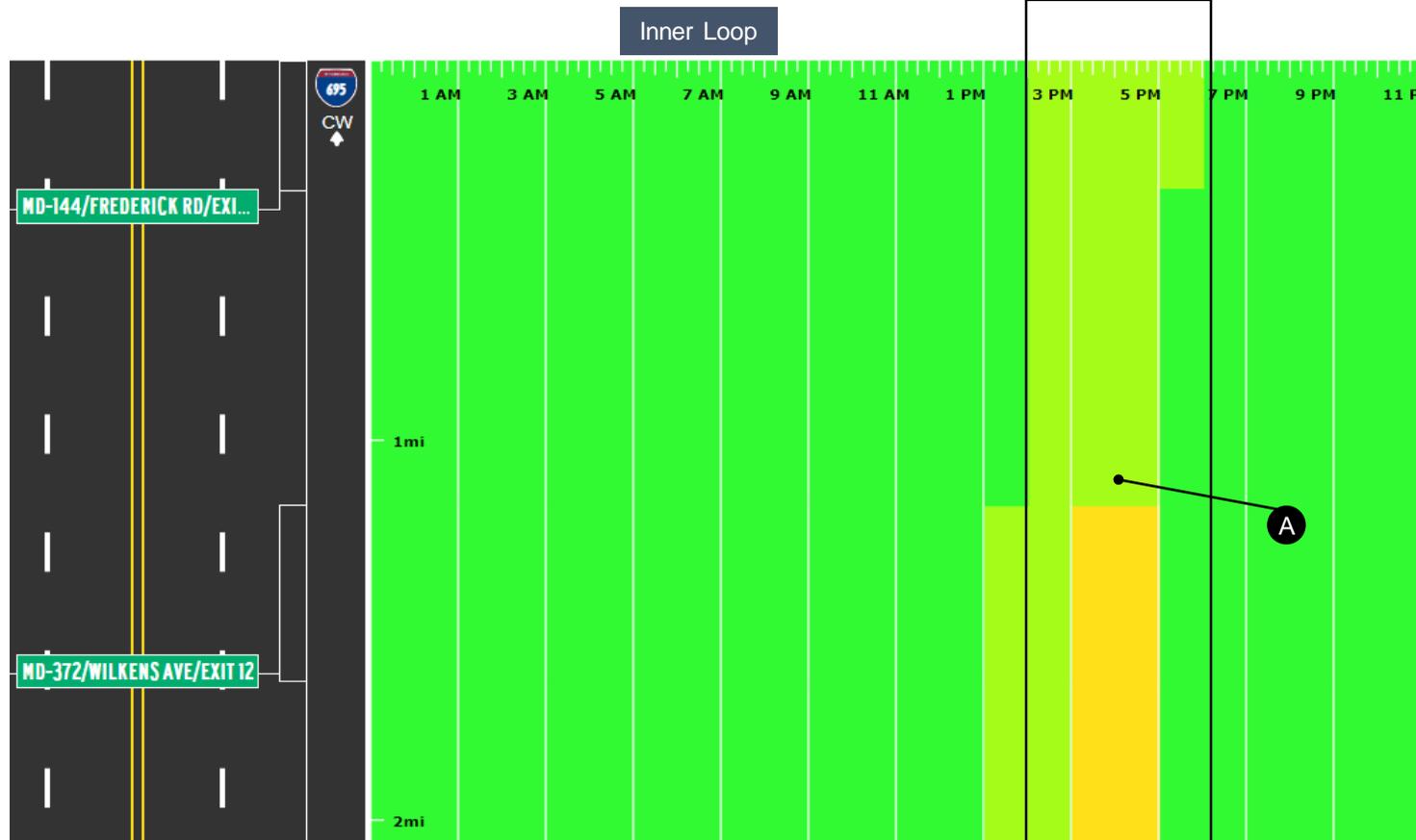


- Jan 01, 2021 through Mar 31, 2021 - INRIX
- Jan 01, 2021 through Mar 31, 2021 25th and 75th percentile - INRIX
- Jan 01, 2021 through Mar 31, 2021 5th and 95th percentile - INRIX

#10 Ranked Bottleneck –1st Quarter 2021 – Congestion Scan

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
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I-695 IL @ MD-144/FREDERICK RD/EXIT 13	2.52	14 m	155	101,579
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Locations of Congestion (IL)

A: 3:00 - 6:00PM: MD-372/Wilkens Ave to MD-144/Frederick Rd
 Overlapping bottleneck which sometimes originates at Wilkens Ave (See Bottleneck #6).

Top 10 Bottlenecks on Non-Limited Access Roads

Top 10 Bottlenecks in the Baltimore Region – Non Limited Access Roads - 1st Quarter 2021

Ranked by Base Impact - the aggregation of queue length over time for congestion at each location in mile minutes. It is then weighted by **Total Delay** – Raw speed drop weighted by VMT factor.

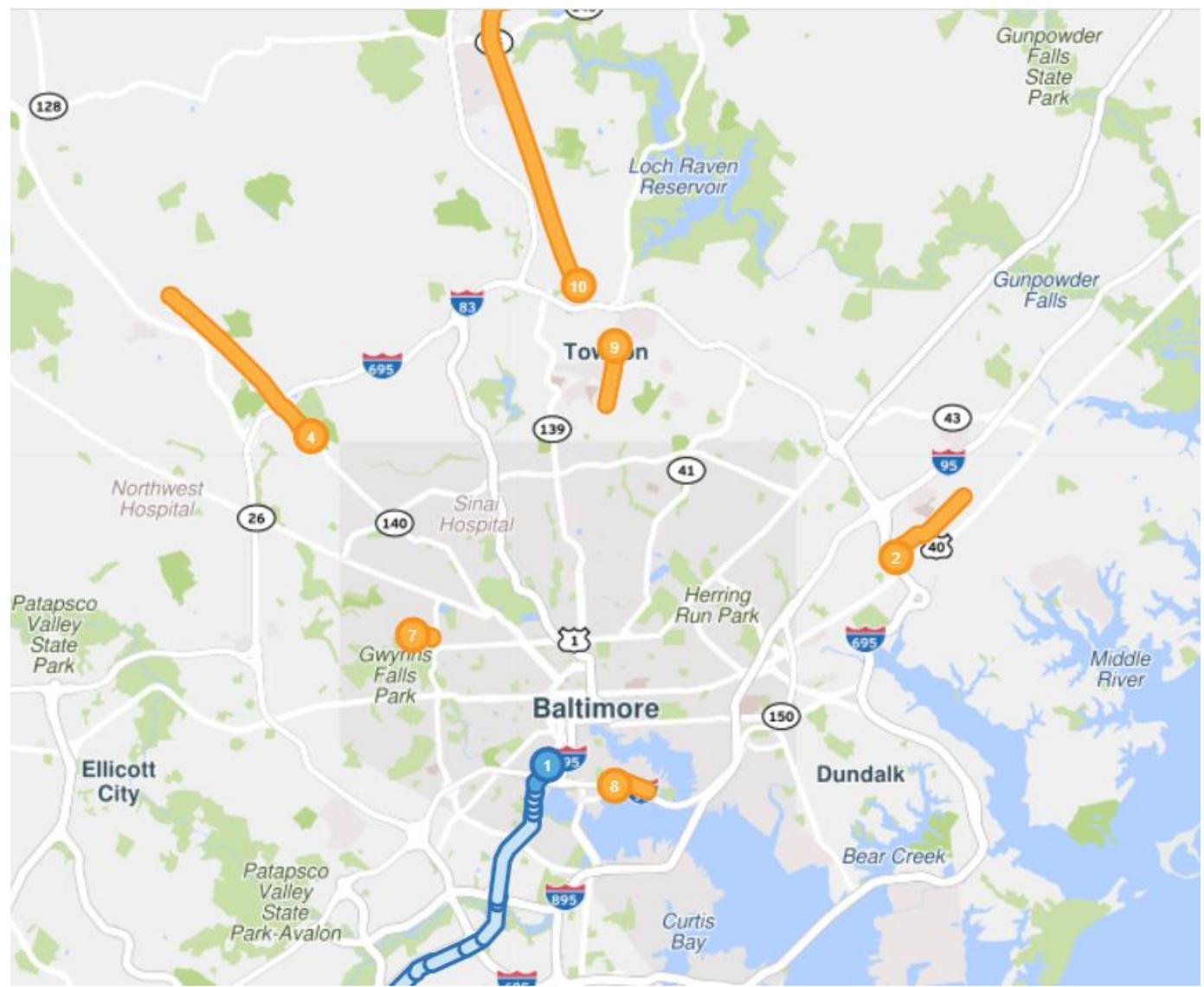
Rank	Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
1	MD-295 N @ BAYARD ST	0.29	8 h 21 m	349	32,500
2	MD-7 S @ I-695/BALTIMORE BELTWAY LOOP	0.31	6 h 31 m	No Data	25,905
3	US-1-BR S @ MD-24	0.38	11 h 31 m	No Data	15,331
4	MD-140 E @ SADBROOK LN	0.64	5 h 42 m	58	15,643
5	MD-450 E @ MD-2/SOLOMONS ISLAND RD	0.42	4 h 52 m	7	18,366
6	MD-24 N @ PLUMTREE RD	0.68	4 h 7 m	14	19,261
7	WINDSOR MILL RD W @ GWYNNS FALLS PKWY	0.38	9 h 52 m	No Data	9,703
8	MCCOMAS ST W @ I-95/E CROMWELL ST	0.23	2 h 42 m	No Data	63,182
9	MD-45 N @ MD-146/DULANEY VALLEY RD/TRAFFIC CIRCLE	0.36	5 h 32 m	No Data	10,485
10	MD-45 S @ MD-131/SEMINARY AVE	0.78	3 h 31 m	37	18,003

IL = Inner Loop

OL = Outer Loop

Top 10 Bottlenecks – Non Limited Access Roads - 1st Quarter 2021

Overview Map



Ranked Bottleneck Lists by Jurisdiction

Top 25 Bottlenecks in Local Jurisdictions- 1st Quarter 2021

Ranked by Base Impact - the aggregation of queue length over time for congestion at each location in mile minutes. It is then weighted by **Total Delay** – Raw speed drop weighted by VMT factor.

Anne Arundel County

Rank	Location
1	MD-295 S @ MD-198
2	US-50 E @ BAY BRIDGE
3	MD-295 N @ CANINE RD
4	MD-295 N @ MD-198
5	MD-295 N @ MD-175
6	MD-450 E @ MD-2/SOLOMONS ISLAND RD
7	MD-295 S @ CANINE RD
8	MD-2 S @ MD-710/ORDNANCE RD
9	SOUTHERN MARYLAND BLVD N @ MD-408/MARLBORO RD
10	MD-175 N @ MD-3/ROBERT CRAIN HWY
11	MD-295 S @ MD-32
12	RIVA RD N @ US-301/US-50/MD-450/WEST ST
13	MD-175 S @ MD-3/ROBERT CRAIN HWY
14	MD-2 S @ FOREST DR
15	MD-2 S @ ROBINSON RD
16	MD-3 N @ MD-424/DAVIDSONVILLE RD/CONWAY RD
17	MD-710 S @ MD-2/RITCHIE HWY
18	MD-295 N @ I-195
19	MD-2 N @ US-301/US-50/JOHN HANSON HWY
20	MD-648 S @ MD-2/RITCHIE HWY (NORTH)
21	US-50 E @ WILLIAM P LANE BRG TOLL PLAZA
22	MD-2 N @ ROBINSON RD
23	MD-2 S @ MD-665/ARIS T ALLEN BLVD
24	MD-2 N @ MD-171/CHURCH ST
25	SOUTHERN MARYLAND BLVD S @ MD-4/MD-259

Baltimore City

Rank	Location
1	MD-295 N @ BAYARD ST
2	I-395 S @ W CONWAY ST
3	WINDSOR MILL RD W @ GWYNNNS FALLS PKWY
4	I-83 S @ MD-25/FALLS RD/EXIT 8
5	MCCOMAS ST W @ I-95/E CROMWELL ST
6	US-40 E @ WOLFE ST
7	MARTIN L KING JR BLVD N @ FRANKLIN ST
8	MD-140 E @ PATTERSON AVE/BANCROFT RD
9	MARTIN L KING JR BLVD S @ BALTIMORE ST
10	I-895 N @ CHILDS ST/EXIT 9
11	US-40 E @ MD-2/ST PAUL PL
12	I-95 N @ I-95 (EAST)
13	BOSTON ST W @ S CHESTER ST/FLEET ST
14	HOWARD ST S @ W PRATT ST
15	FOREST PARK AVE N @ WINDSOR MILL RD
16	W NORTHERN PKY E @ MD-140/REISTERSTOWN RD
17	US-40 W @ BROADWAY
18	W NORTHERN PKY W @ I-83
19	US-40 W @ MD-295/PACA ST
20	MD-45 S @ E 39TH ST
21	I-895 N @ HARBOR TUNNEL THWY (NORTH)
22	I-895 N @ HARBOR TUNNEL THWY (SOUTH)
23	US-1-ALT N @ GEORGETOWN RD/JOH AVE
24	US-1-ALT S @ W PATAPSCO AVE
25	HOWARD ST N @ W LOMBARD ST

Top 25 Bottlenecks in Local Jurisdictions- 1st Quarter 2021

Ranked by Base Impact - the aggregation of queue length over time for congestion at each location in mile minutes. It is then weighted by **Total Delay** – Raw speed drop weighted by VMT factor.

Baltimore County

Rank	Location
1	I-695 IL @ PROVIDENCE RD/EXIT 28
2	I-695 IL @ MD-372/WILKENS AVE/EXIT 12
3	I-695 IL @ MD-144/FREDERICK RD/EXIT 13
4	I-695 OL @ MD-122/SECURITY BLVD/EXIT 17
5	I-695 IL @ MD-122/SECURITY BLVD/EXIT 17
6	MD-7 S @ I-695/BALTIMORE BELTWAY LOOP
7	I-695 OL @ US-40/EXIT 15
8	I-695 IL @ MD-41/PERRING PKY/EXIT 30
9	MD-140 E @ SUDBROOK LN
10	I-695 OL @ MD-41/PERRING PKY/EXIT 30
11	I-695 OL @ I-83/MD-25/EXIT 23
12	I-695 OL @ EDMONDSON AVE/EXIT 14
13	I-95 N @ MD-152/EXIT 74
14	I-95 S @ MD-43/WHITE MARSH BLVD/EXIT 67
15	I-695 IL @ I-70/EXIT 16
16	I-695 OL @ GREENSPRING AVE/EXIT 22
17	I-695 IL @ MD-26/EXIT 18
18	MD-45 N @ MD-146/DULANEY VALLEY RD/TRAFFIC CIRCLE
19	MD-45 S @ MD-131/SEMINARY AVE
20	MD-140 W @ OWINGS MILLS BLVD
21	I-695 OL @ MD-567/CROMWELL BR RD/EXIT 29
22	I-695 IL @ I-83/MD-25/EXIT 23
23	I-95 N @ I-695/EXIT 49
24	I-70 W @ US-29/EXIT 87
25	I-695 IL @ I-795/NORTHWEST EXPY/EXIT 19

Carroll County

Rank	Location
1	MD-30 N @ MD-27/MANCHESTER RD
2	MD-140 W @ MD-27/MANCHESTER RD
3	MD-144 E @ I-70/US-40/BALTIMORE NATIONAL PIKE
4	MD-144 E @ MD-27/RIDGE RD
5	MD-32 W @ MD-26/LIBERTY RD
6	I-70 W @ MD-27/EXIT 68
7	MD-32 E @ MD-26/LIBERTY RD
8	MD-144 W @ MD-27/RIDGE RD/MILL BOTTOM RD
9	MD-27 N @ MD-30/MAIN ST
10	MD-30 S @ MD-27/MANCHESTER RD
11	MD-140 W @ MD-194/YORK ST/FREDERICK ST
12	MD-97 N @ MAGNA WAY/AIRPORT DR
13	MD-144 W @ MD-27/RIDGE RD
14	MD-140 E @ MD-97/MALCOLM DR
15	MD-97 N @ MARYLAND/PENNSYLVANIA STATE LINE
16	MD-140 E @ MD-91/GAMBER RD/EMORY RD
17	MD-31 W @ MD-32/W MAIN ST
18	MD-26 E @ GEORGETOWN BLVD
19	MD-140 W @ MD-91/GAMBER RD/EMORY RD
20	MD-140 E @ GORES MILL RD
21	MD-27 N @ LUCABAUGH MILL RD
22	MD-26 W @ MD-32/SYKESVILLE RD
23	MD-26 E @ MD-32/SYKESVILLE RD
24	MD-140 W @ GREEN MILL RD/SUFFOLK RD
25	MD-140 E @ GREEN MILL RD/SUFFOLK RD

Top 25 Bottlenecks in Local Jurisdictions- 1st Quarter 2021

Ranked by Base Impact - the aggregation of queue length over time for congestion at each location in mile minutes. It is then weighted by **Total Delay** – Raw speed drop weighted by VMT factor.

Harford County

Rank	Location
1	US-1-BR S @ MD-24/VIETNAM VETS MEMORIAL HWY
2	MD-24 N @ PLUMTREE RD
3	I-95 S @ MD-24/EXIT 77
4	MD-543 S @ US-1/HICKORY BYP
5	MD-24 S @ WHEEL RD
6	I-95 N @ MD-152/EXIT 74
7	US-1-BR N @ MD-23/EAST WEST HWY
8	I-95 N @ MD-543/EXIT 80
9	I-95 S @ MD-152/EXIT 74
10	MD-152 N @ OLD JOPPA RD
11	MD-543 N @ US-1-BR/CONOWINGO RD
12	MD-24 S @ US-1-BR/BALTIMORE PIKE/BEL AIR RD
13	MD-924 N @ MD-24/TOLLGATE RD
14	MD-24 N @ I-95/JOHN F KENNEDY MEMORIAL HWY
15	I-95 N @ MD-24/EXIT 77
16	US-1-BR N @ US-1/HICKORY BYP
17	US-1-BR S @ US-1/HICKORY BYP
18	MD-924 S @ HEIGHE ST/EASTERN AVE/KENMORE AVE
19	US-1-BR N @ MD-24/VIETNAM VETS MEMORIAL HWY
20	MD-152 N @ SINGER RD
21	MD-543 N @ US-1/HICKORY BYP
22	I-95 N @ MILLARD E TYDINGS MEMORIAL BRG
23	US-1 S @ MD-147/US-1-BR/BELAIR RD
24	I-95 N @ MD-22/MD-132/EXIT 85
25	I-95 N @ MD-155/EXIT 89

Howard County

Rank	Location
1	I-95 N @ MD-100/EXIT 43
2	I-95 N @ MD-175/EXIT 41
3	I-95 S @ MD-216/EXIT 35
4	MD-144 E @ WESTCHESTER AVE
5	MD-144 W @ ELLICOTT MILLS DR
6	I-95 N @ MD-32/EXIT 38
7	I-95 N @ MD-216/EXIT 35
8	US-40 W @ ST JOHNS LN
9	US-40 E @ CENTENNIAL LN/BETHANY LN
10	I-70 W @ MARRIOTTSVILLE RD/EXIT 83
11	I-70 E @ US-29/EXIT 87
12	FREDERICK RD W @ US-40/BALTIMORE NATIONAL PIKE
13	I-70 E @ MD-94/EXIT 73
14	I-95 S @ MD-32/EXIT 38
15	I-70 W @ CARROLL/HOWARD COUNTY LINE
16	I-95 S @ MD-175/EXIT 41
17	US-40 E @ ROGERS AVE
18	MONTGOMERY RD W @ US-1/WASHINGTON BLVD
19	US-1 S @ WHISKEY BOTTOM RD
20	US-1 S @ MD-103/MEADOW RIDGE RD/DORSEY RD
21	MD-144 E @ MD-32
22	I-95 N @ I-895/EXIT 46
23	MD-108 W @ MD-32
24	I-70 W @ MD-94/EXIT 73
25	I-95 S @ PRINCE GEORGE'S/HOWARD CO LINE

Top 25 Bottlenecks in Local Jurisdictions- 1st Quarter 2021

Ranked by Base Impact - the aggregation of queue length over time for congestion at each location in mile minutes. It is then weighted by **Total Delay** – Raw speed drop weighted by VMT factor.

Queen Anne's County

Rank	Location
1	US-50 E @ BAY BRIDGE
2	MD-313 S @ MD-544/MCGINNES RD
3	US-50 E @ MD-8/EXIT 37
4	US-50 W @ BAY BRIDGE
5	US-50 W @ MD-213/CENTREVILLE RD
6	US-50 W @ MD-404/QUEEN ANNE HWY
7	US-50 E @ MD-456/DEL RHODES AVE
8	US-50 E @ MD-213/CENTREVILLE RD
9	MD-313 S @ MD-312/OAKLAND RD
10	MD-404 W @ US-50/OCEAN GTWY
11	US-50 W @ MD-456/DEL RHODES AVE
12	MD-404 W @ MD-309/STARR RD/MAIN ST
13	US-50 W @ MD-18/MAIN ST/EXIT 43A
14	MD-300 E @ US-301/BLUE STAR MEMORIAL HWY
15	MD-300 E @ MD-213/CHURCH HILL RD
16	US-50 W @ MD-8/EXIT 37
17	US-301 N @ MD-291/RIVER RD
18	MD-313 S @ MD-19/ROBERTS STATION RD
19	US-50 W @ US-301/BLUE STAR MEML HWY
20	MD-313 N @ MD-300/W MAIN ST
21	US-50 W @ NESBIT RD/EXIT 45B
22	MD-313 N @ MD-544/MCGINNES RD
23	MD-213 N @ MD-289/N CROSS ST/PHILOSOPHERS TER
24	US-50 E @ MD-18/MAIN ST/EXIT 43A
25	US-50 E @ MD-404/QUEEN ANNE HWY

IL = Inner Loop

OL = Outer Loop

Traffic Volume Trends

Traffic Volumes

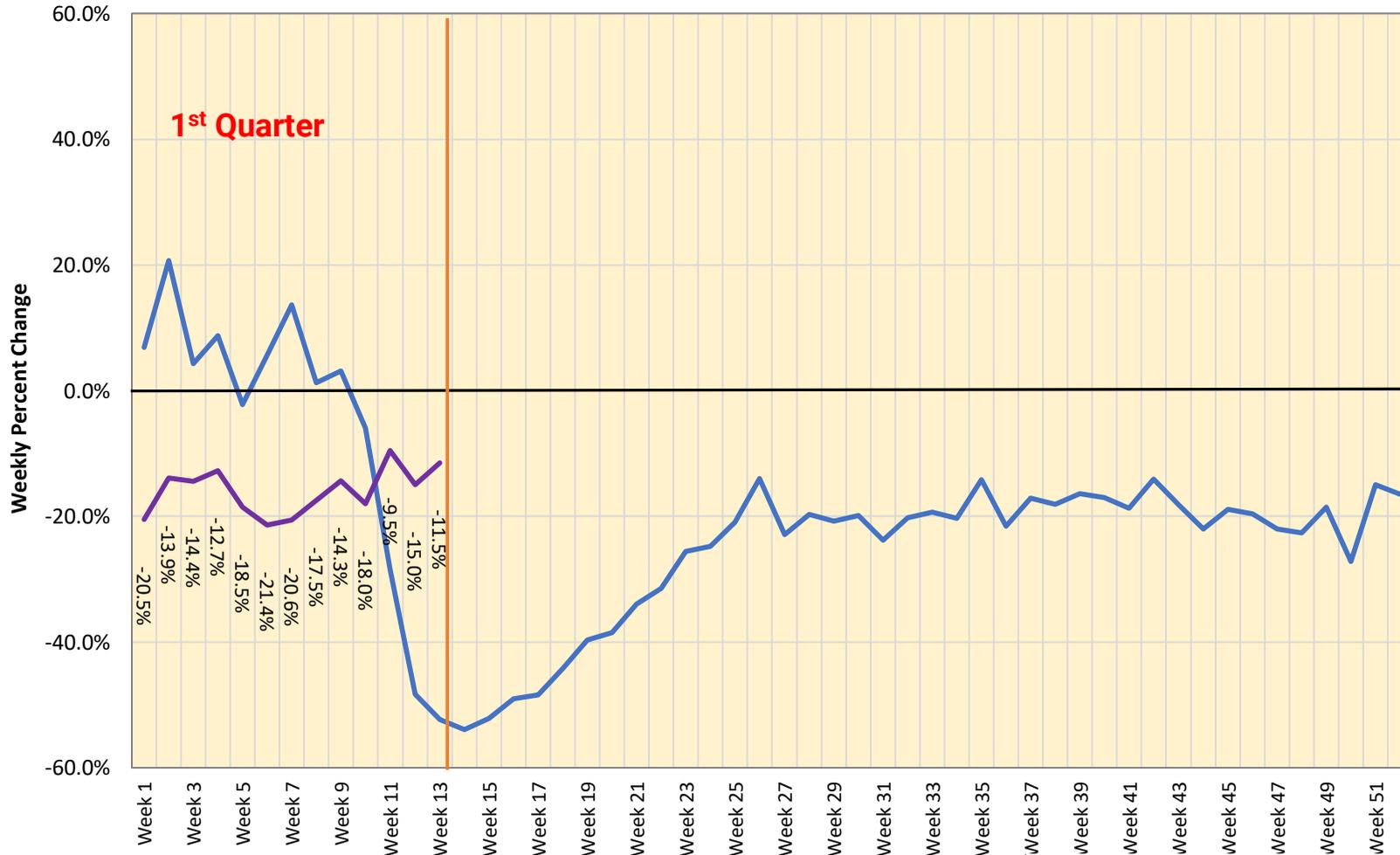
Traffic Volumes – Weekly Changes at Permanent Counters 2019 vs. 2021

Week Ending	Comparing weekly average ATR Volume 2019 to 2021 *
26-Dec	-20.5%
9-Jan	-13.9%
16-Jan	-14.4%
23-Jan	-12.7%
30-Jan	-18.5%
6-Feb	-21.4%
13-Feb	-20.6%
20-Feb	-17.5%
27-Feb	-14.3%
6-Mar	-18.0%
13-Mar	-9.5%
20-Mar	-15.0%
27-Mar	-11.5%
27-Mar	-20.5%

Traffic Volumes



**Weekly Changes at Permanent Counters (ATR)
from 2021 to 2019 and 2020 to 2019**



Data prepared by
Data Services Division

Truck Volumes

Truck Volumes – Weekly Changes at Permanent Counters 2019 vs. 2021

Weekly Changes in Truck Volumes at Permanent Counters (ATR) from 2019 to 2021

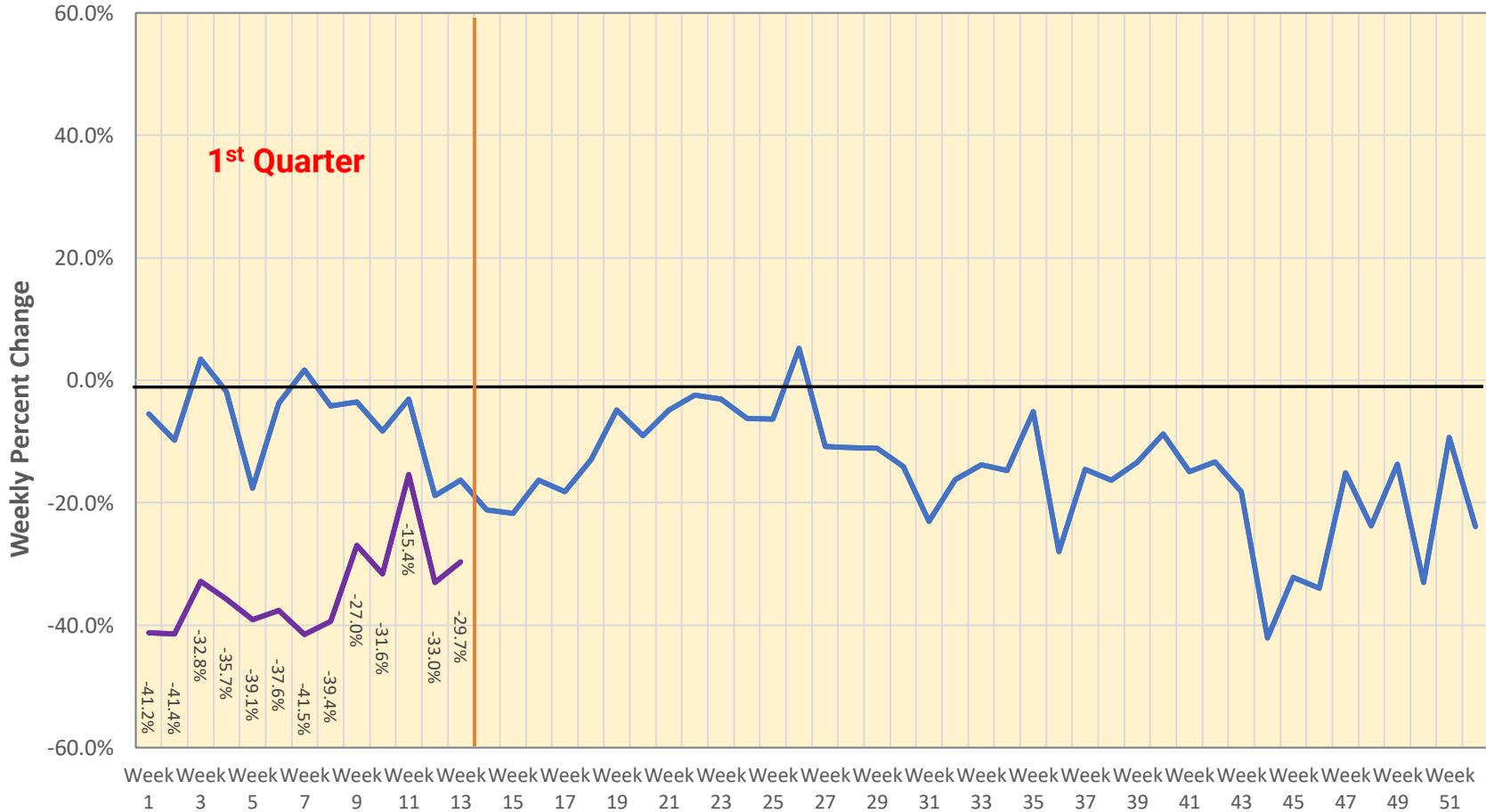
(FHWA Class 5- 13)

Week Ending	Comparing weekly average Truck Volumes/ATR Volume 2019 to 2021 *
26-Dec	-41.2%
9-Jan	-41.4%
16-Jan	-32.8%
23-Jan	-35.7%
30-Jan	-39.1%
6-Feb	-37.6%
13-Feb	-41.5%
20-Feb	-39.4%
27-Feb	-27.0%
6-Mar	-31.6%
13-Mar	-15.4%
20-Mar	-33.0%
27-Mar	-29.7%
27-Mar	-41.2%

Truck Volumes



Weekly Changes in Truck Volumes at Permanent Counters (ATR)
from 2021 to 2019 and 2020 to 2019



— Comparing weekly average Truck ATR Volume 2020 to 2019**

— Comparing weekly average Truck ATR Volume 2021 to 2019*

Week Ending

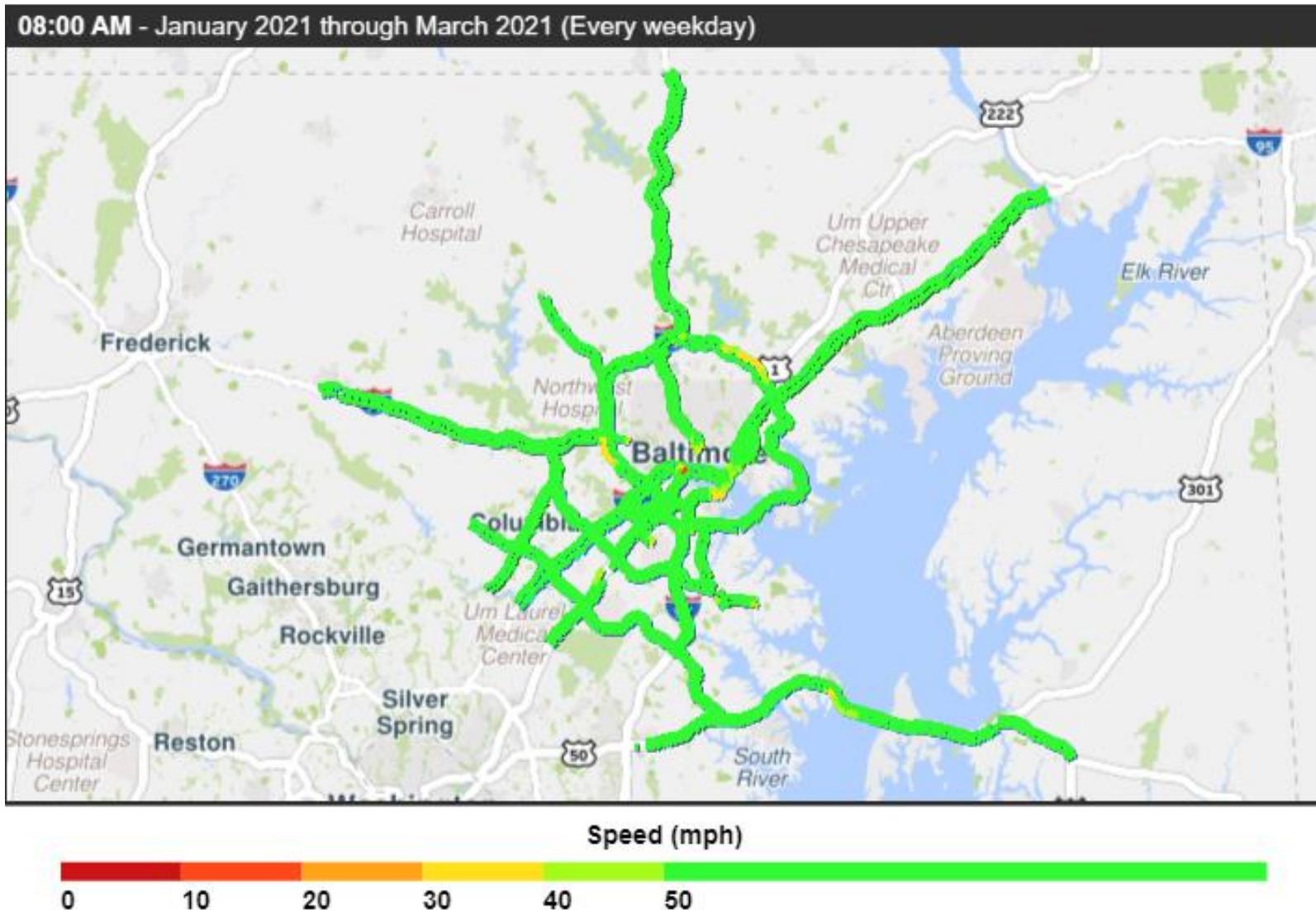
Trucks are FHWA Class 5-13

Data prepared by
Data Services Division

Regional Speed Maps

AM Peak Period Rush Hour: January 1 – March 31st

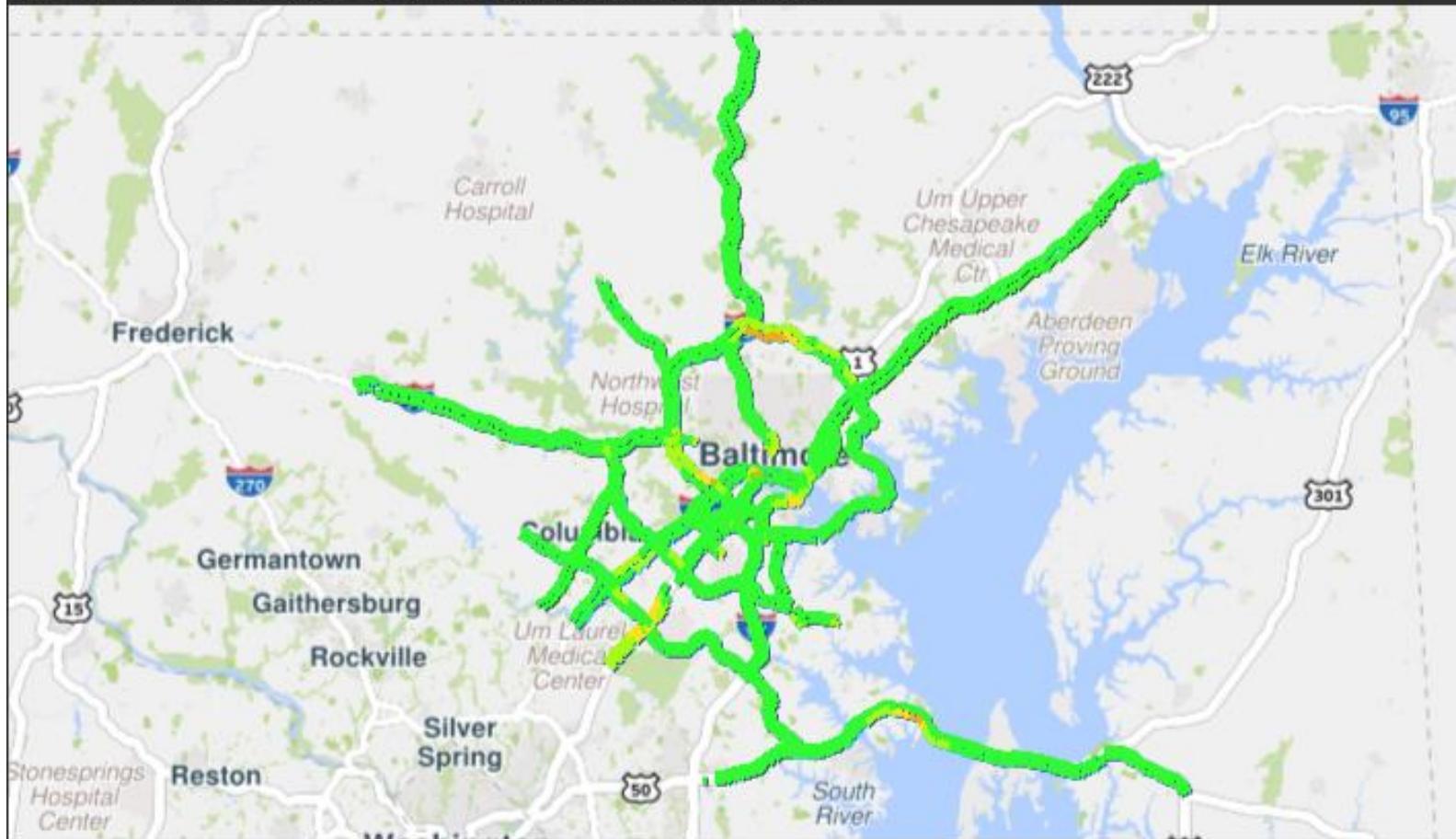
BMC Region - AVG Speeds on Limited Access Roads - AM Peak Period - 1st Quarter



PM Peak Period Rush Hour: January 1 – March 31st

BMC Region - AVG Speeds on Limited Access Roads - PM Peak Period - 1st Quarter

05:00 PM - January 2021 through March 2021 (Every weekday)



Speed (mph)



System Reliability Performance Measures

Percent of reliable person-miles traveled on the Interstate

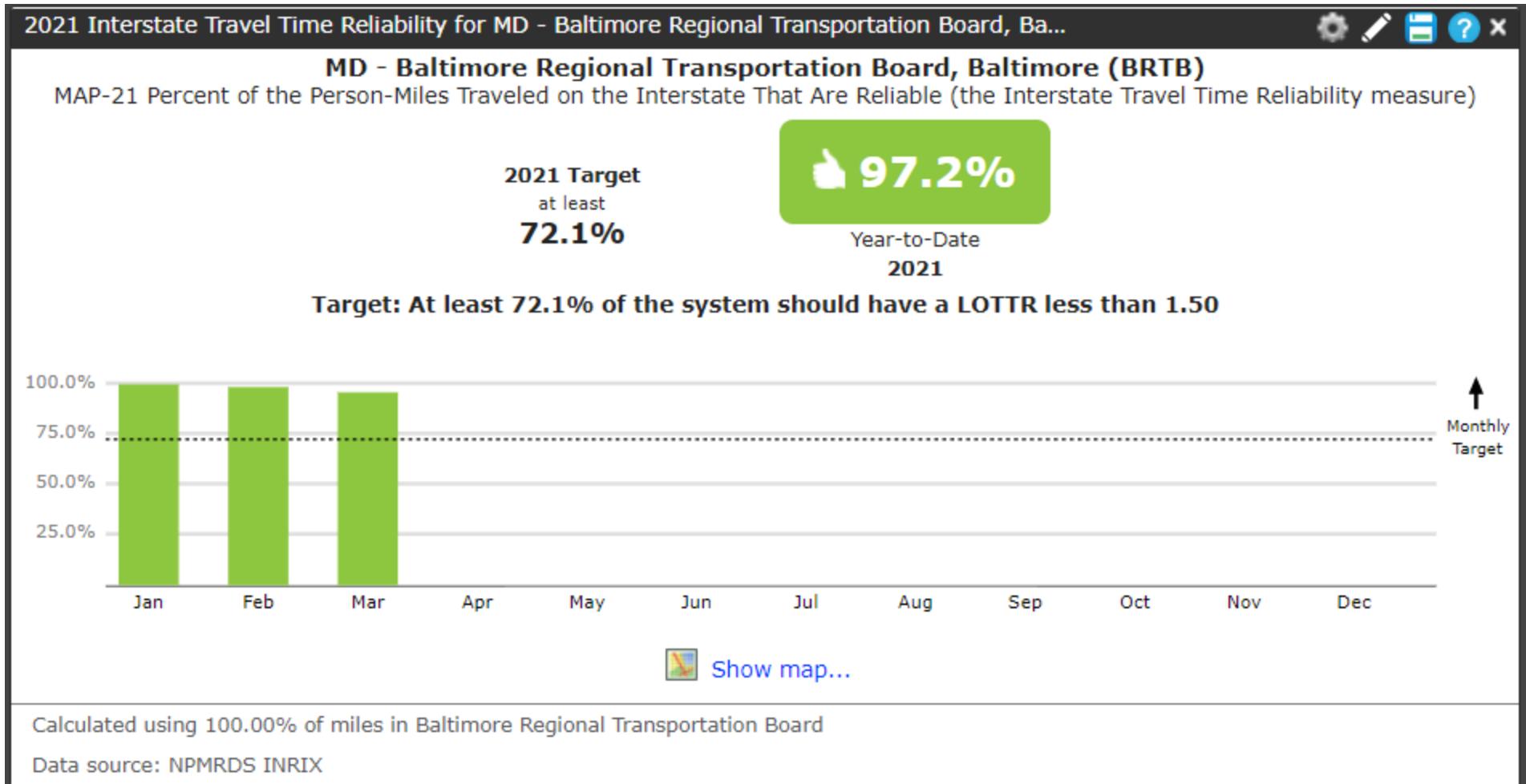
Percent of reliable person-miles traveled on the Non-Interstate NHS

Percentage of Interstate system mileage providing for reliable truck travel time (Truck Travel Time Reliability Index)

* Each state must establish statewide targets and report finding to the Federal Highway Administration. Metropolitan Planning Organizations (MPOs) must either support the established state targets or develop regional targets of their own.

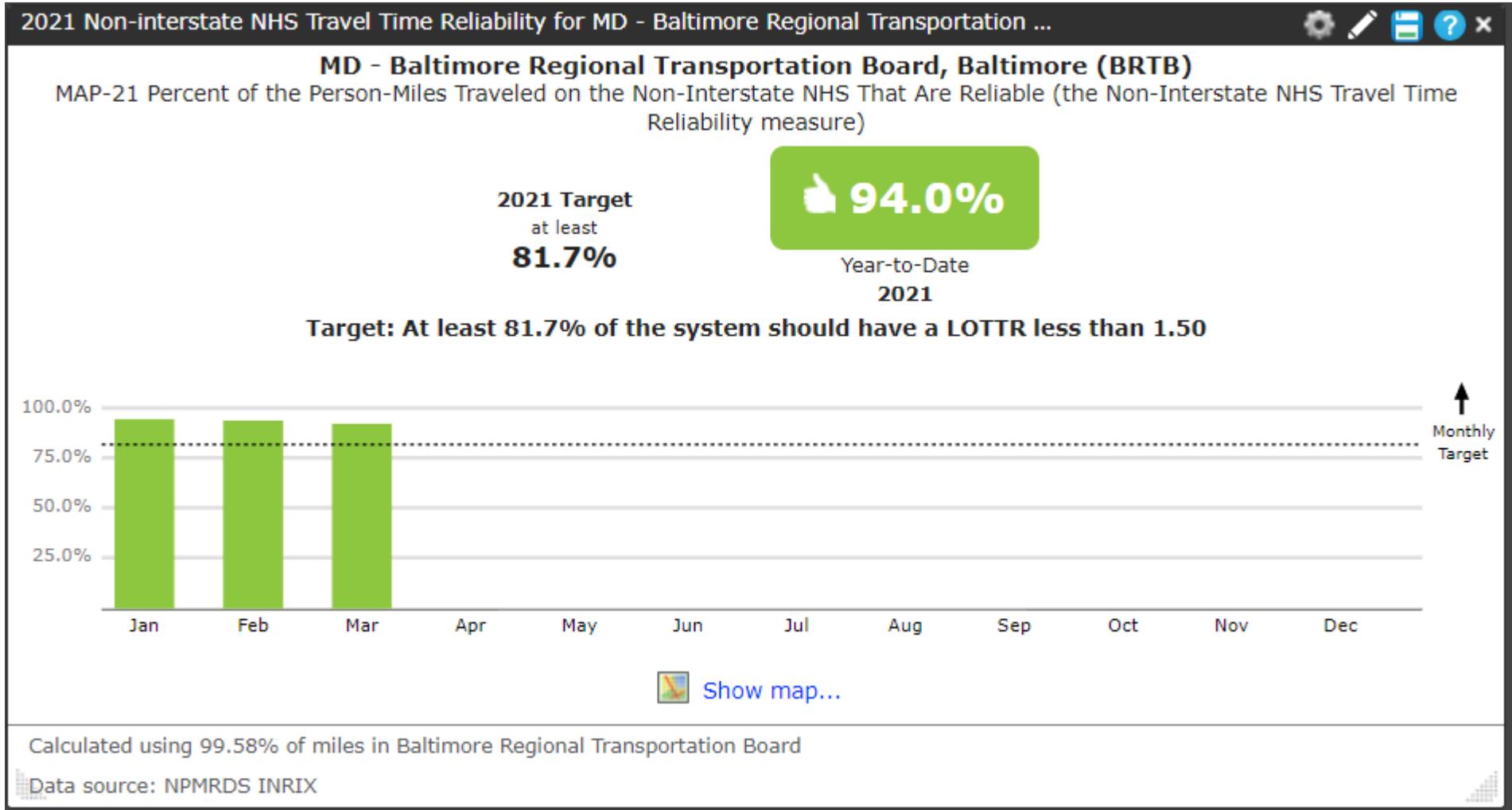
Level of Travel Time Reliability: Interstates

Travel time reliability is the consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day.



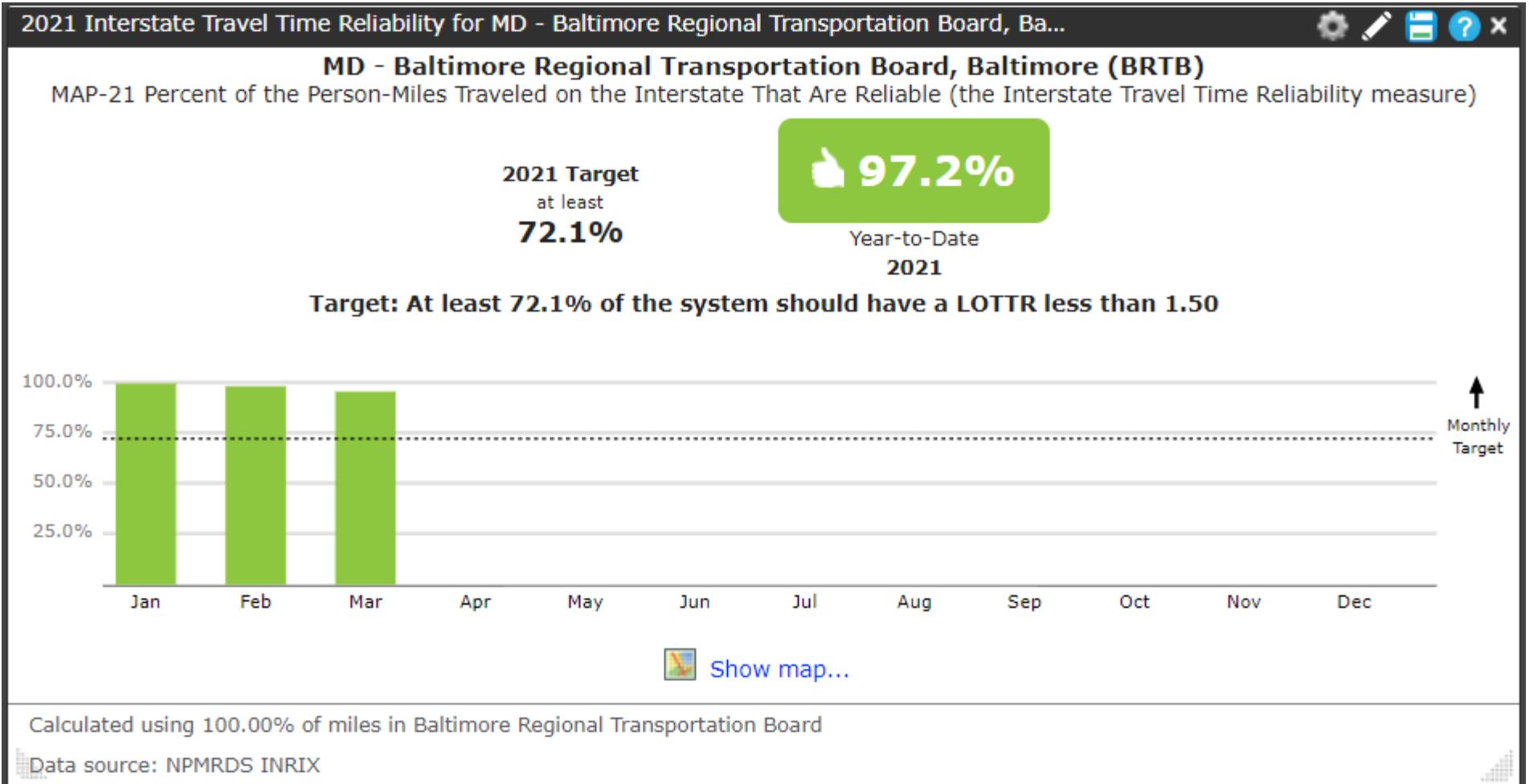
Level of Travel Time Reliability: non-Interstates

Travel time reliability is the consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day.



Level of Truck Travel Time Reliability

Travel time reliability is the consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day.



Conclusions

At the region's automated traffic recorders (ATR) volumes in Quarter 1 increased 40.8% over the same time period in 2020, during the beginning of the pandemic closures. While conditions have greatly improved, that was still down 11.5% from the end of the 1st Quarter 2019.

Credits



For More Information



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