Quarterly Congestion Analysis Report

Top 10 Bottlenecks in the Baltimore Region

2nd Quarter 2022

BRTB Baltimore Regional Transportation Board

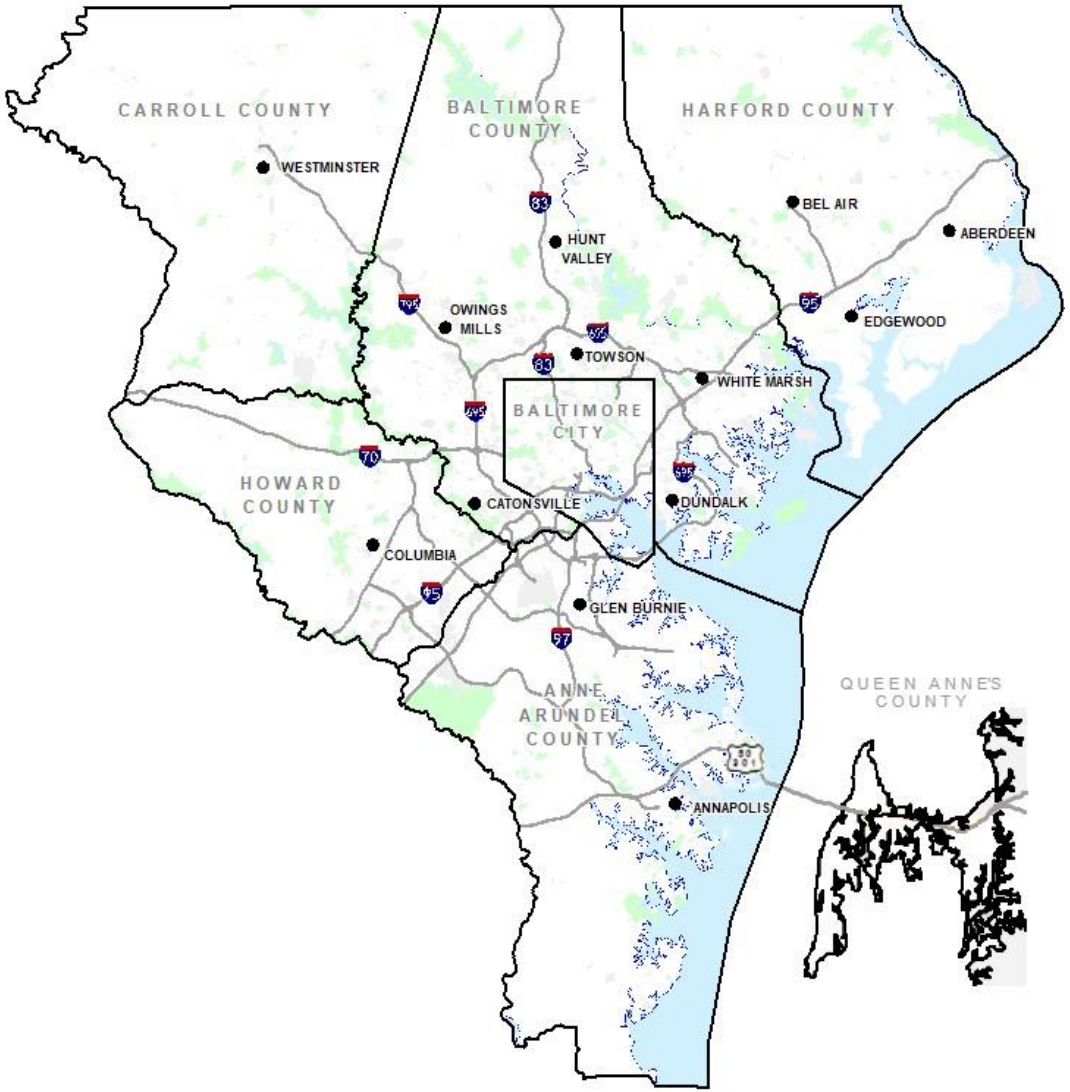
Report created August 2022

BALTIMORE METROPOLITAN COUNCIL

Table of Contents

About the Region

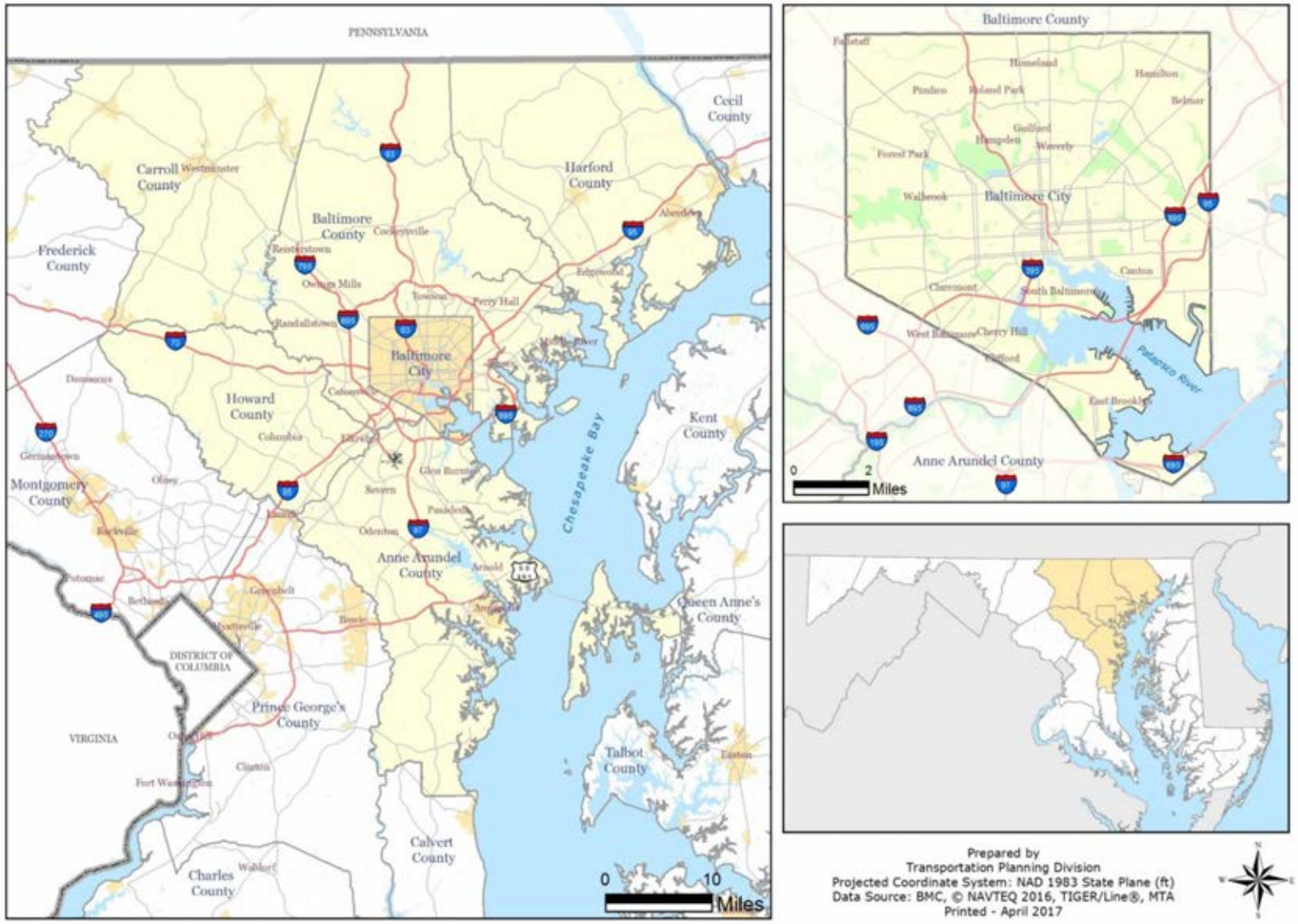
Baltimore Region



The Baltimore region is the nation's 19th largest market, with over 2.8 million people. The market also ranks among the top 20 in the number of households, total effective buying income and retail sales.

County	2020 Census	2010 Census	Change	Area
Anne Arundel	588,261	537,656	+9.41%	414.90 sq mi
Baltimore City	585,708	620,961	−5.68%	80.94 sq mi
Baltimore	854,535	805,029	+6.15%	598.30 sq mi
Carroll	172,891	167,134	+3.44%	447.59 sq mi
Harford	260,924	244,826	+6.58%	437.09 sq mi
Howard	332,317	287,085	+15.76%	250.74 sq mi
Queen Anne's	49,874	47,798	+4.34%	371.91 sq mi
Total	2,844,510	2,710,489	+4.94%	2,601.47 sq mi

Baltimore Region



Bottleneck Analytics

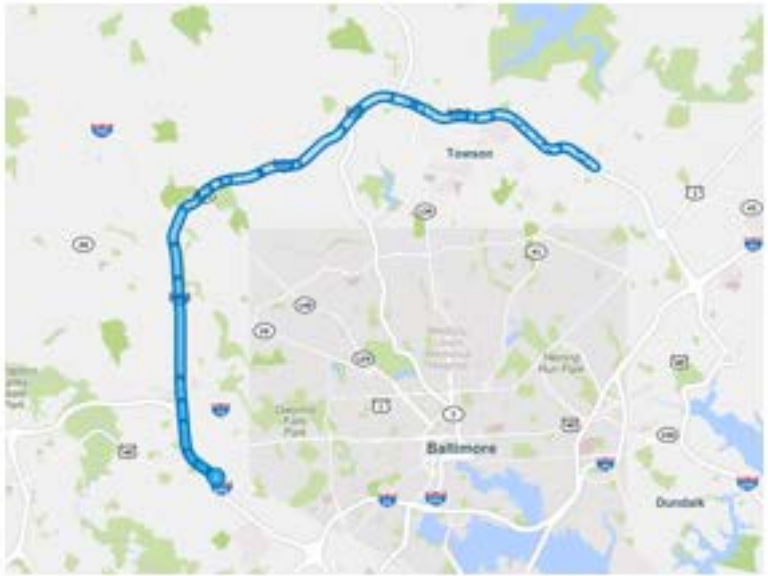
How are bottleneck conditions tracked?

- **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	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



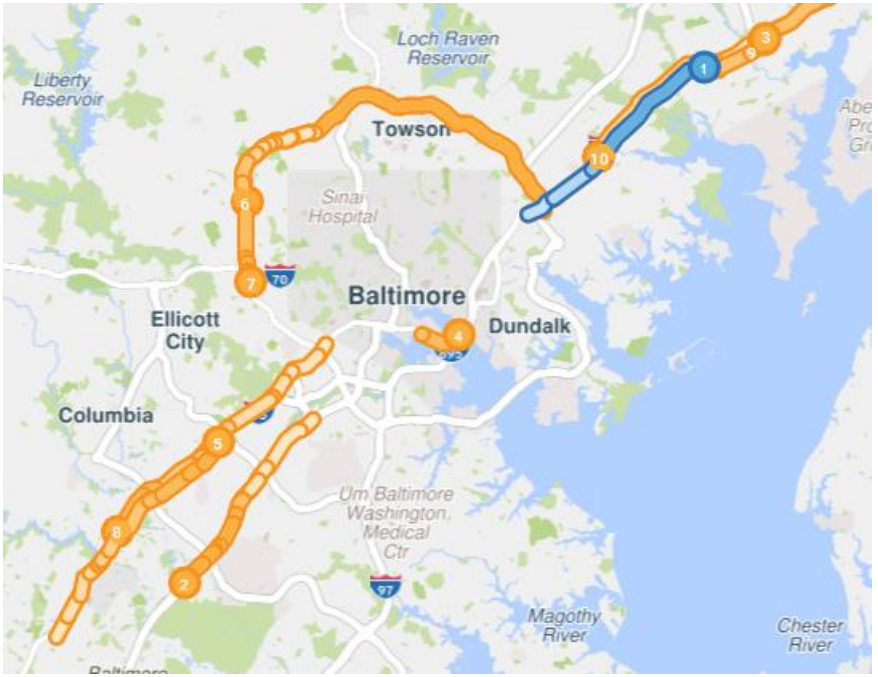
The Map view displays selected bottlenecks on a map. Each element occurring at the selected location is layered on the map, extending upstream from the head location to the maximum length of the specific *element*. As each element adds another layer on the map, road segments become more opaque. Segments 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 – 2nd Quarter 2022

Top 10 Bottlenecks in the Region

Q2 2022

Rank	Location	Previous Quarter Ranking	Avg. Max. Length (mi)	Avg. Daily Duration	Agency Reported Incidents	Volume Estimate (AADT)
1	I-95 N @ MD-152/EXIT 74	--	**7.03**	1h 42 m	424	82,647
2	MD-295 S @ MD-198	1	3.03	4 h 47 m	137	47,626
3	I-95 S @ MD-24/EXIT 77	--	6.16	1 h 54 m	192	54,486
4	I-95 N @ I-95 (EAST) FORT MCHENRY TUNNEL	--	0.88	**8 h 5 m**	N/A	62,585
5	I-95 N @ MD-100/EXIT43	--	3.89	2 h 18 m	256	55,401
6	I-695 OL @ MD-26/EXIT 18	7	2.27	1 h 53 m	**672**	98,342
7	I-695 OL @ I-70/EXIT 16	--	2.71	2 h 16 m	357	**103,656**
8	I-95 S @ MD-216/EXIT 35	--	4.52	1 h 2 m	373	100,157
9	I-95 N @ MD-24/EXIT 77	--	3.24	1 h 39 m	524	72,003
10	I-95 S @ MD-43/WHITE MARSH BLVD/EXIT 67	--	7.54	41 m	338	80,426



*Bottlenecks are ranked by **Base Impact** – the sum of queue lengths over the duration of the bottleneck and weighted by speed differential, congestion and total delay.*

IL = Inner Loop OL = Outer Loop

Red #s = highest value for that metric

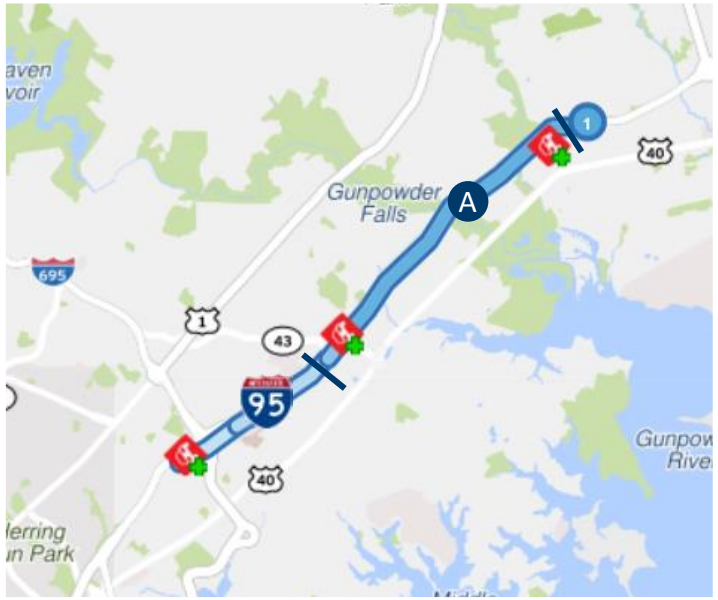
Top 10 Bottleneck Rankings in the Baltimore Region – 2nd Quarter 2022 by Location

Includes:

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

1 I-95 N @ MD-152/EXIT 74

Quarterly Bottleneck Evaluation Summary Q2 2022



General areas of events/incidents
(there were 424 events/incidents during Q2)

A Locations of Congestion

I-95 Express Toll Lanes Northbound Extension From MD-43 to MD-152 is responsible for off-peak shoulder and lane closures. The extension is expected to be open to traffic by the end of 2023 to MD-152, with the full extension to north of MD-24 open to traffic by the end of 2026. This includes the Old Joppa Road Overpass Replacement. Off-peak shoulder and lane closures.

PK. AVG. SPEED

AM Peak | 11:55 AM
51.4 mph
(26% slower than free flow)

PM Peak | 4:40 PM
43.2 mph
(33% slower than free flow)

PK. TRAVEL TIME

AM Peak | 11:55 AM
15.6 min

PM Peak | 4:40 PM
17.0 min

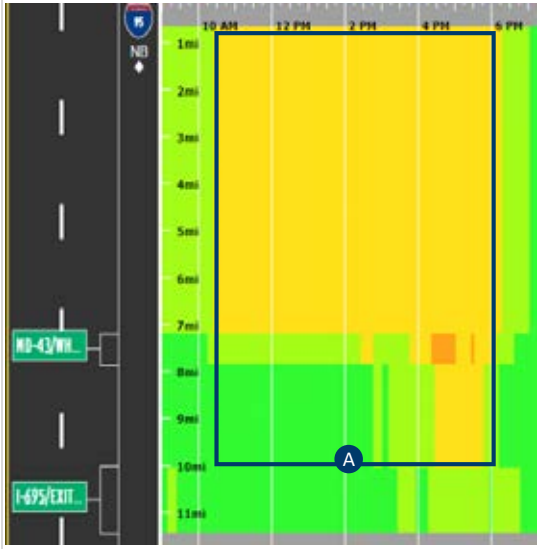
Q2 DELAY COST

Delay Cost
$2.367M

Veh-hrs. of Delay
78,370 h

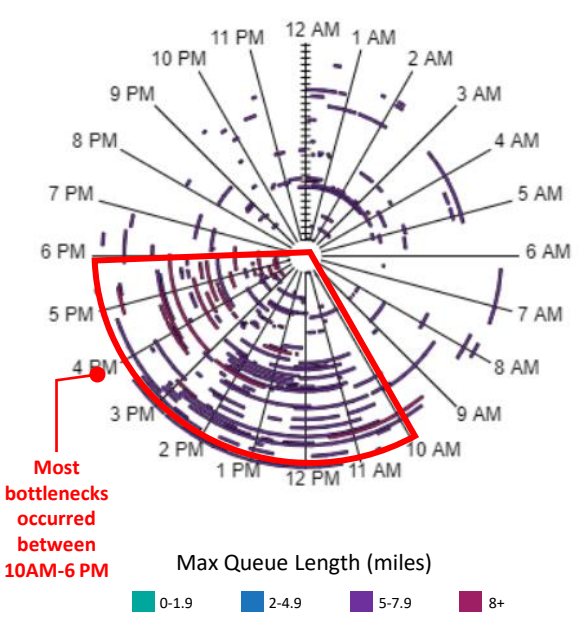
Congested Locations

A 10:25AM – 6PM MD-43. to MD-152



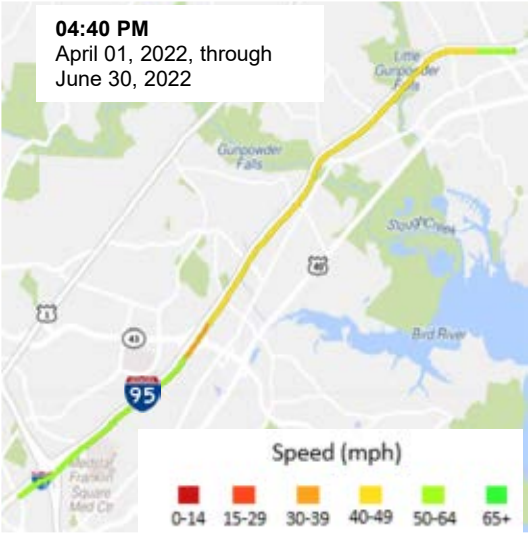
Bottleneck Occurrences

The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22**



Corridor Speeds Over Time

Peak period conditions.



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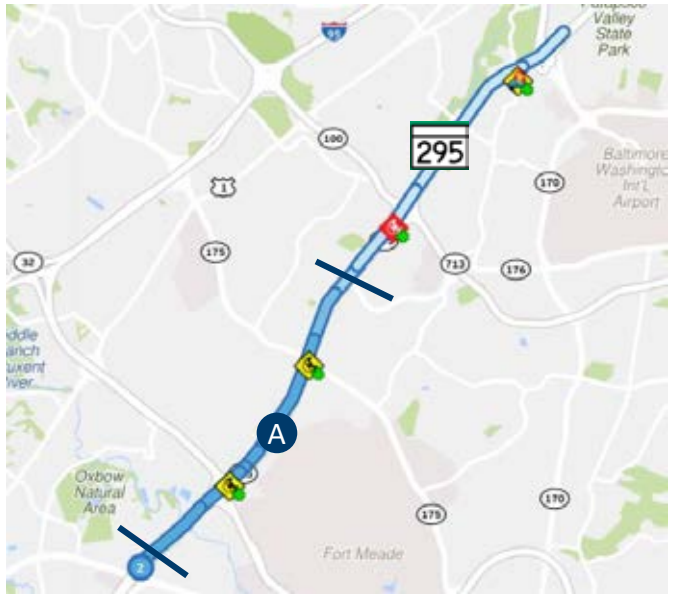
2 MD-295 S @ MD-198

Quarterly Bottleneck Evaluation Summary Q2 2022



General areas of events/incidents
(there were 137 events/incidents during Q2)

A **Locations of Congestion**

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 are most likely caused by factors such as Baltimore commuters to DC and Fort Meade and the MD-295 merge with the heavily congested Capital Beltway.

PK. AVG. SPEED

AM Peak | 7:50 AM
45.7 mph
(35% slower than free flow)

PM Peak | 5:25 PM
33.3 mph
(49% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:50 AM
13.9 min

PM Peak | 5:25PM
19.1 min

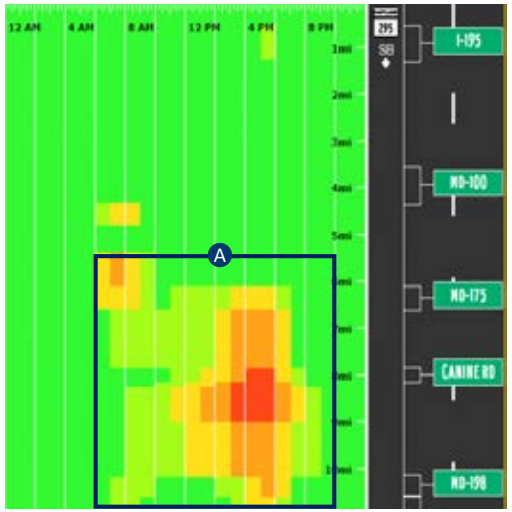
Q2 DELAY COST

Delay Cost
$3.665M

Veh-hrs. of Delay
121,373 h

Congested Locations

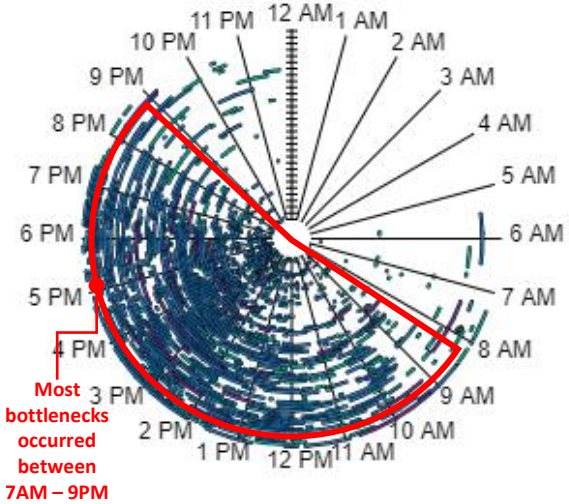
A **7AM – 9PM** Arundel Mills Blvd to MD-198



Speed (mph)
0-9 10-19 20-29 30-39 40-49 50+

Bottleneck Occurrences

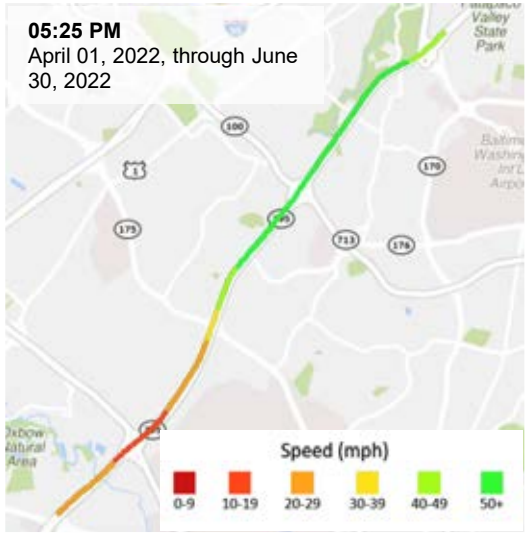
The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22**



Max Queue Length (miles)
0-1.9 2-4.9 5-7.9 8+

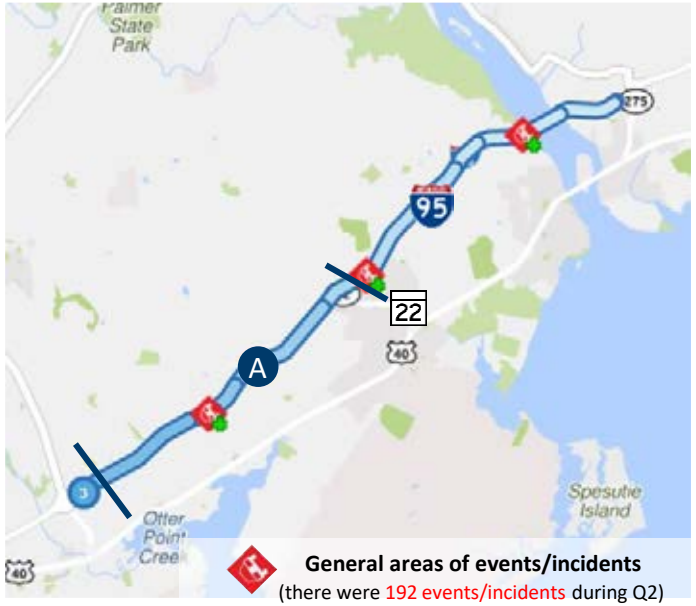
Corridor Speeds Over Time

Peak period conditions.



3 I-95 S @ MD-24/EXIT 77

Quarterly Bottleneck Evaluation Summary Q2 2022



General areas of events/incidents
(there were 192 events/incidents during Q2)

A **Locations of Congestion**

Construction of the Express Toll Lanes (ETL) in Harford County on I-95 along with high traffic volumes contribute to this delay.

PK. AVG. SPEED

AM Peak |11:45 AM
59.7 mph
(17% slower than free flow)

PM Peak | 2:45PM PM
51.4 mph
(28% slower than free flow)

PK. TRAVEL TIME

AM Peak | 11:45 AM
14.4 min

PM Peak | 2:45 PM
16.7 min

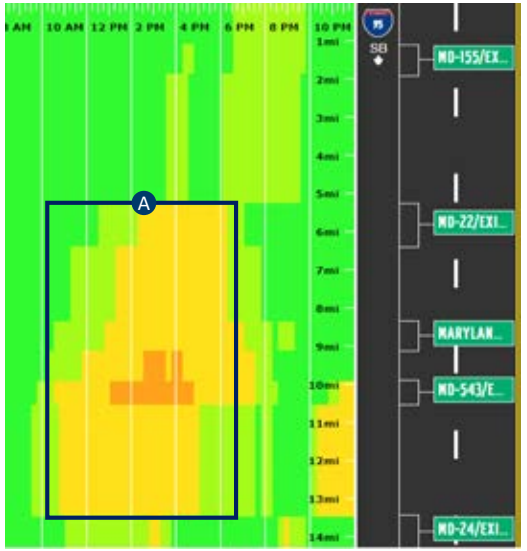
Q2 DELAY COST

Delay Cost
$2.290M

Veh-hrs. of Delay
47,494 h

Congested Locations

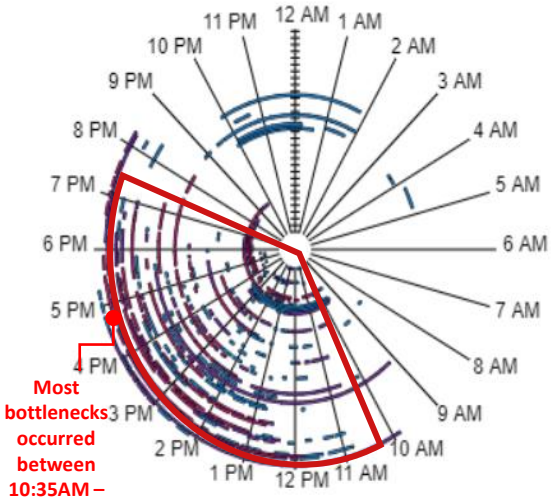
A **10:35AM – 7:25PM** MD-155 to MD-24



Speed (mph)
0-14 15-29 30-39 40-49 50-64 65+

Bottleneck Occurrences

The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22.**

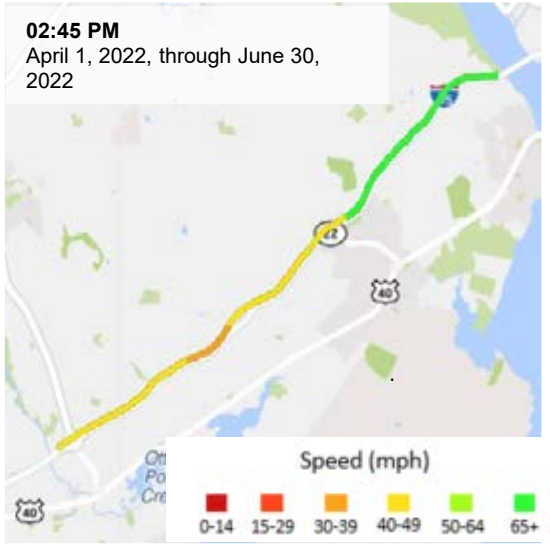


Most bottlenecks occurred between 10:35AM – 7:25PM

Max Queue Length (miles)
0-1.9 2-4.9 5-7.9 8+

Corridor Speeds Over Time

Peak period conditions.



4 I-95 N @ I-95 (EAST) TOLL

Quarterly Bottleneck Evaluation Summary Q2 2022

General areas of events/incidents
(there were N/A events/incidents during Q2)

A **Locations of Congestion**

Toll booth delays persistent at all times and an EZ Pass lane closure northbound contribute to this delay. During the PM rush hour the bottleneck extends the furthest back to Exit 55 McComas St.

PK. AVG. SPEED

AM Peak | 11:30 AM
51.1 mph
(13% slower than free flow)

PM Peak | 4:45 PM
31.1 mph
(45% slower than free flow)

PK. TRAVEL TIME

AM Peak | 11:30 AM
2.2 min

PM Peak |4:45 PM
3.7 min

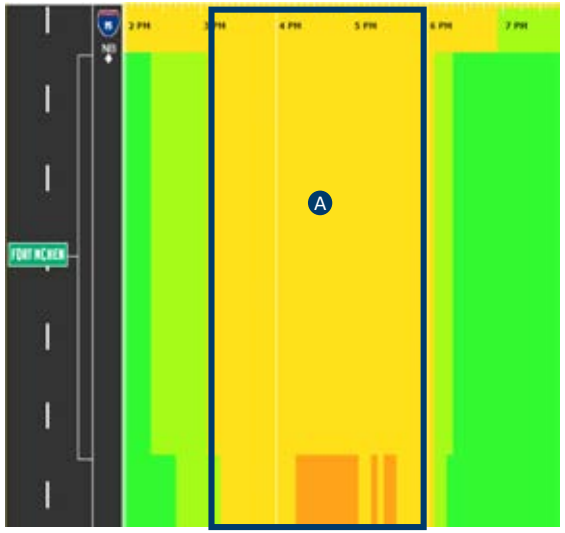
Q2 DELAY COST

Delay Cost
$0.062M

Veh-hrs. of Delay
2,607 h

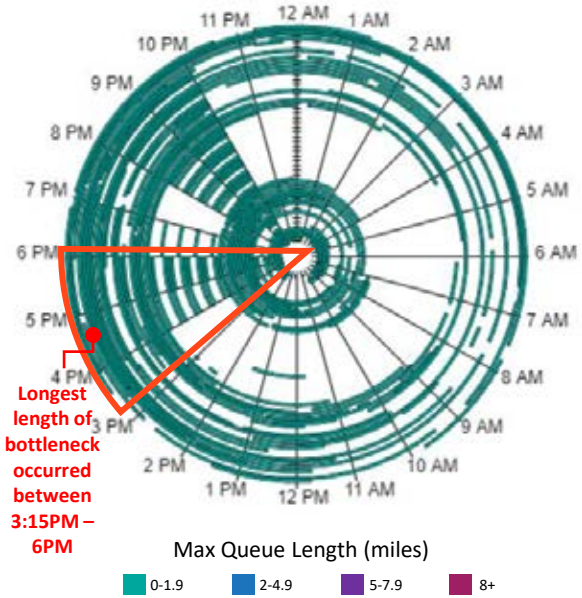
Congested Locations

A **3:00PM – 6:00PM** McComas St/Exit 55 to Fort McHenry Tunnel Toll Plaza



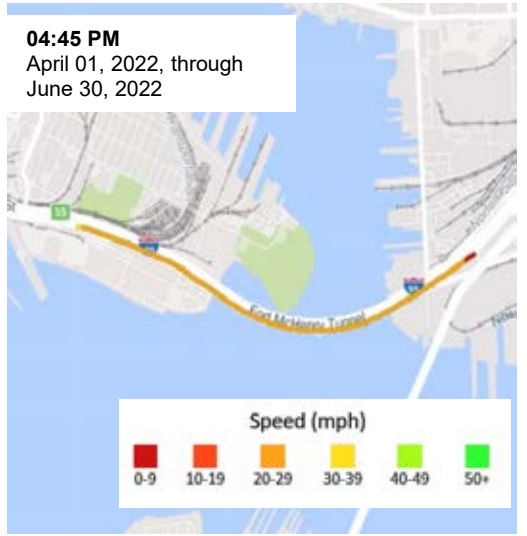
Bottleneck Occurrences

The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22**



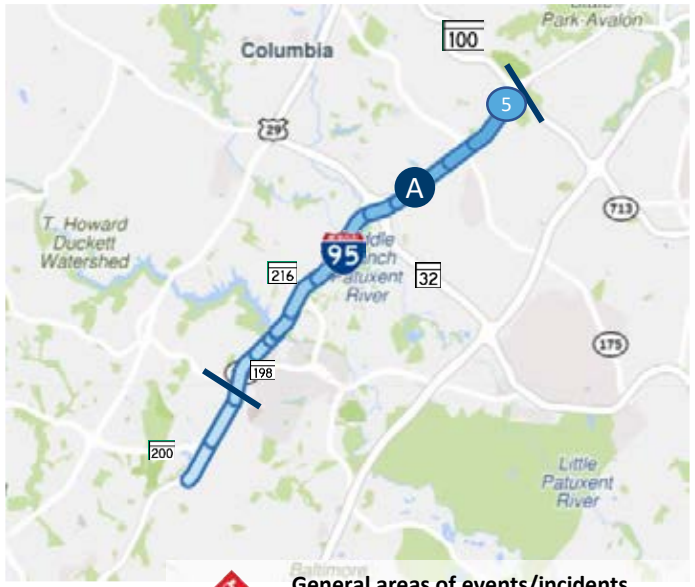
Corridor Speeds Over Time

Peak period conditions.



5 I-95 N @ MD-100/EXIT 43

Quarterly Bottleneck Evaluation Summary Q2 2022



General areas of events/incidents
(there were 256 events/incidents during Q2)

A **Locations of Congestion**

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.

PK. AVG. SPEED

AM Peak | 7:55 AM
59.4 mph
(17% slower than free flow)

PM Peak | 4:30 PM
44.3 mph
(36% slower than free flow)

PK. TRAVEL TIME

AM Peak |7:55 AM
13.7 min

PM Peak |4:30 PM
18.4 min

Q2 DELAY COST

Delay Cost
$2,256M

Veh-hrs. of Delay
74,696 h

Congested Locations

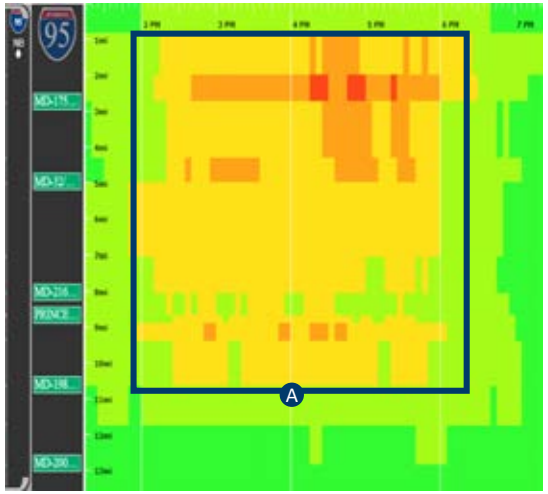
A **2:00PMPM – 6:30PM** MD-198/Exit 33 to MD-100/Exit 43

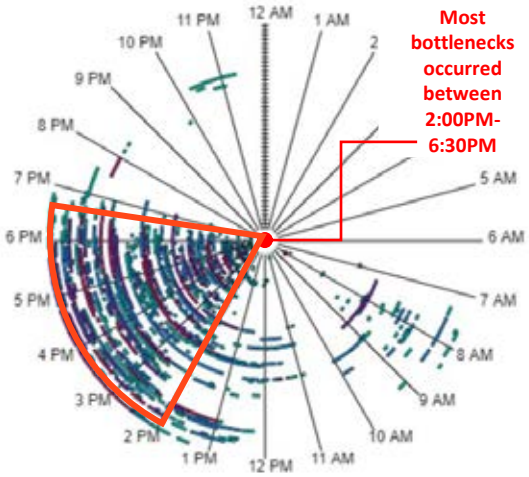
Bottleneck Occurrences

The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22**

Corridor Speeds Over Time

Peak period conditions





6 I-695 OL @ MD-26/EXIT 18

Quarterly Bottleneck Evaluation Summary Q2 2022

One of the heaviest traveled high volume corridors in the area. The bottlenecks originate at varying exit locations both in the AM and PM peak periods, In this case the core of the bottleneck extends back to MD-140/Reisterstown Rd /Exit 20. A few non recurring instances show congestion as far back as US-1/Belair Rd

A TSMO construction project is underway in this area from I-70 to MD-43/White Marsh Blvd.

PK. AVG. SPEED

AM Peak | 7:45 AM
47.9 mph
(32% slower than free flow)

PM Peak | 5:30 PM
40.0 mph
(42% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:45 AM
11.7 min

PM Peak |5:15 PM
14.0 min

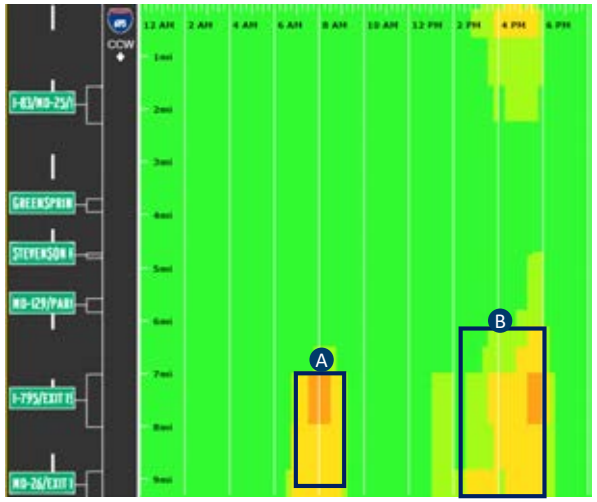
Q2 DELAY COST

Delay Cost
$1.589M

Veh-hrs. of Delay
52,631 h

Congested Locations

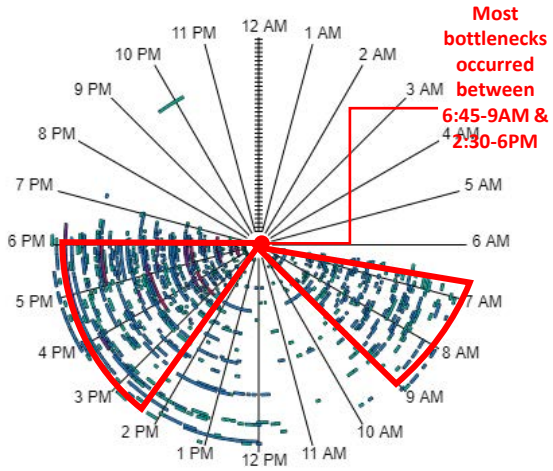
- A **6:45AM – 9AM** I-795/Exit 19 to MD-26/Exit 18
- B **2:30PM – 6PM** MD-140/Reisterstown Rd/Exit 20 to MD-26/Exit 18



Speed (mph)
0-9 10-19 20-29 30-39 40-49 50+

Bottleneck Occurrences

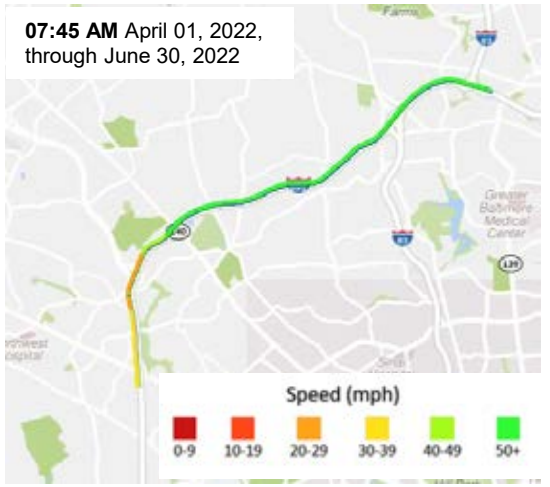
The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22**



Max Queue Length (miles)
0-1.9 2-4.9 5-7.9 8+

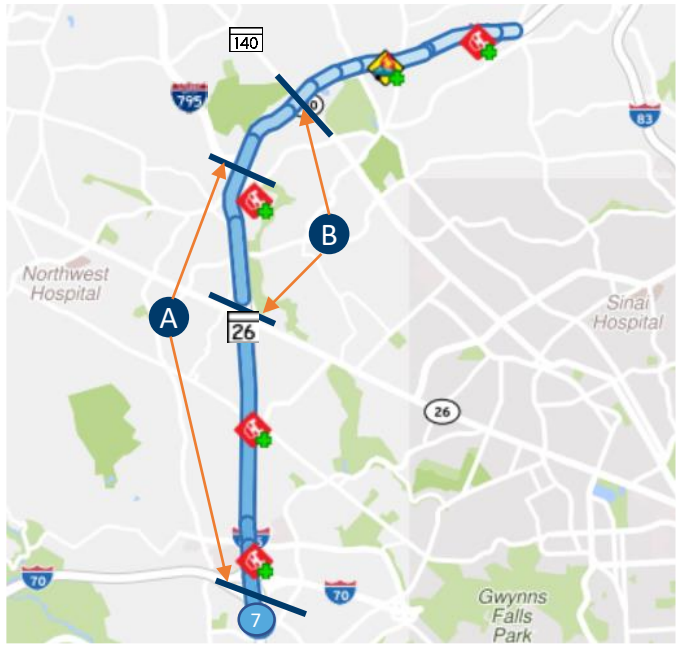
Corridor Speeds Over Time

Peak Conditions



7 I-695 OL @ I-70/EXIT 16

Quarterly Bottleneck Evaluation Summary Q2 2022



General areas of events/incidents
(there were 357 events/incidents during Q2)

A **B** **Locations of Congestion**

Overlapping bottleneck with #5 starting at I-70 instead of MD-26. Combined this makes the west side Outer Loop of the beltway the most congested corridor in the region. The core congestion extends from I-795 to the head of the bottleneck.

A TSMO construction project is underway in this area from I-70 to MD-43/White Marsh Blvd.

PK. AVG. SPEED

AM Peak | 7:45 AM
36.5 mph
(49% slower than free flow)

PM Peak | 5:30 PM
38.1 mph
(44% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:45 AM
11.0 min

PM Peak |5:30 PM
10.5 min

Q2 DELAY COST

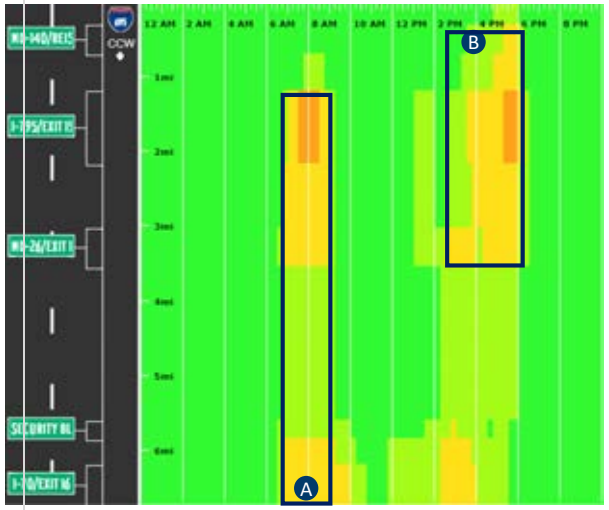
Delay Cost
$2.135 M

Veh-hrs. of Delay
70,688 h

Congested Locations

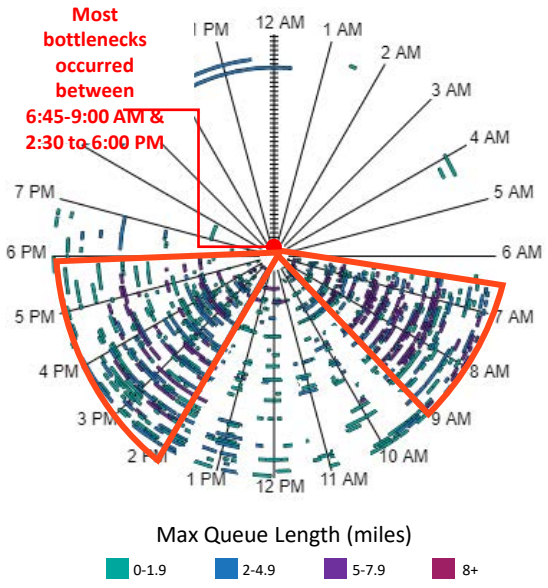
A **6:45AM – 9AM** I-795/Exit 18 to I-70/Exit 16

B **2:30PM – 6PM** MD-140/Reisterstown Rd to MD-26/Liberty Rd



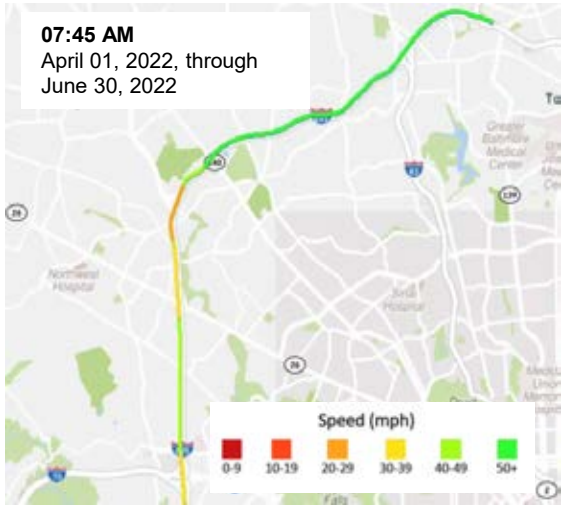
Bottleneck Occurrences

The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22**



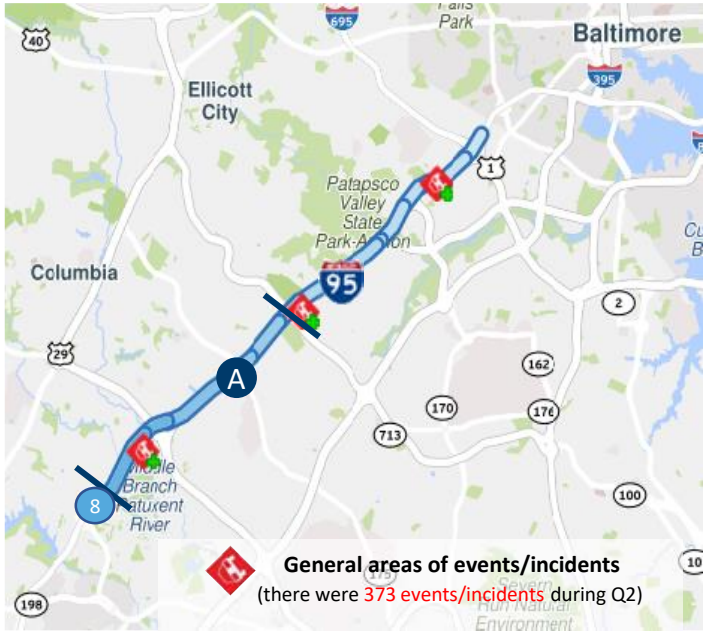
Corridor Speeds Over Time

Peak period conditions



8 I-95 S @ MD-216/EXIT 35

Quarterly Bottleneck Evaluation Summary Q2 2022



High traffic volume corridor primarily in the afternoon. Traffic in this corridor has 3 major merge areas at MD-216, MD-32 and MD-175 near Columbia, MD.

PK. AVG. SPEED

AM Peak | 7:55 AM
57.7 mph
(20% slower than free flow)

PM Peak | 5:30 PM
44.1 mph
(37% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:55 AM
15.1 min

PM Peak |5:30 PM
19.8 min

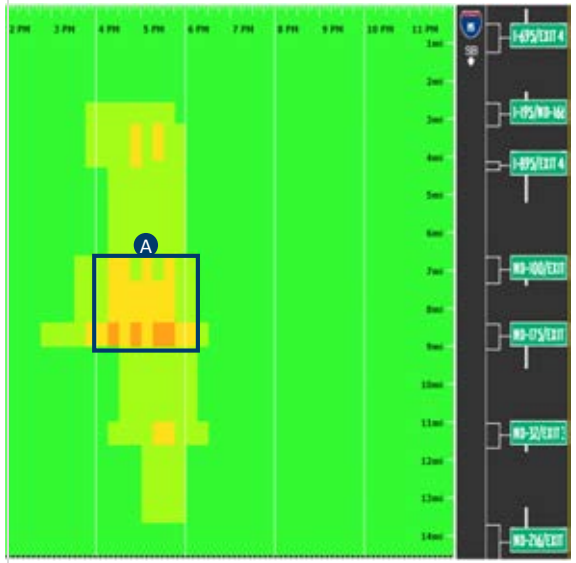
Q2 DELAY COST

Delay Cost
$0.153M

Veh-hrs. of Delay
5,083 h

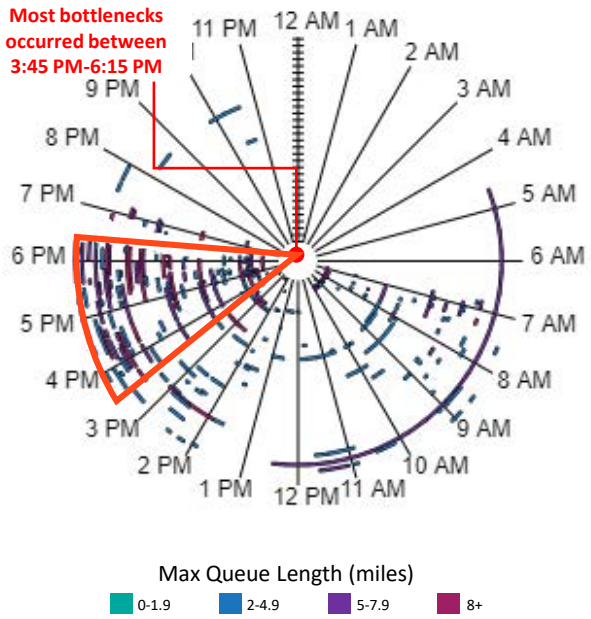
Congested Locations

A **3:45PM – 6:15PM** MD-100/Exit 43 to MD-175/Exit 41



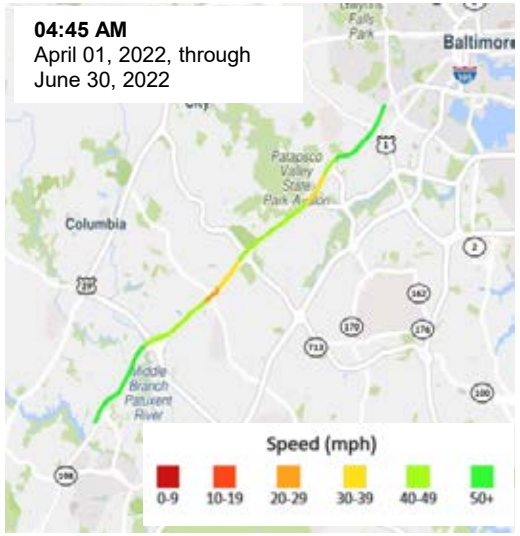
Bottleneck Occurrences

The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22**



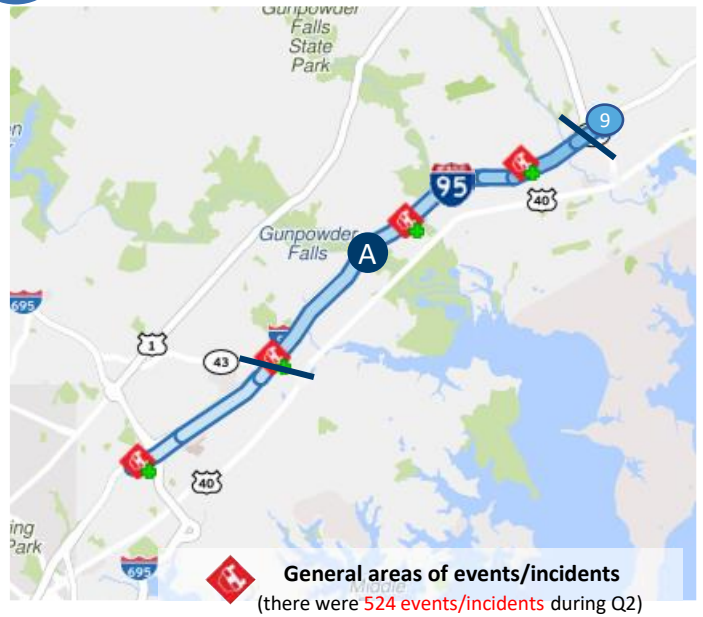
Corridor Speeds Over Time

Peak period conditions



9 I-95 N @ MD-24/EXIT 77

Quarterly Bottleneck Evaluation Summary Q2 2022



General areas of events/incidents
(there were 524 events/incidents during Q2)

A **Locations of Congestion**

Note: The most congested traffic is during the afternoon rush. Speeds start their decline around 10:30 AM reaching the first peak slow down at noon.

I-95 Express Toll Lanes Northbound Extension From MD-43 to MD-152 is responsible for off-peak shoulder and lane closures. The extension is expected to be open to traffic by the end of 2023 to MD-152, with the full extension to north of MD-24 open to traffic by the end of 2026. This includes the Old Joppa Road Overpass Replacement. Off-peak shoulder and lane closures.

PK. AVG. SPEED

AM Peak | 11:55 AM
48.8 mph
(30% slower than free flow)

PM Peak | 4:35 PM
47.5 mph
(33% slower than free flow)

PK. TRAVEL TIME

PM Peak | 12:00 PM
19.4 min

PM Peak |4:35 PM
19.9 min

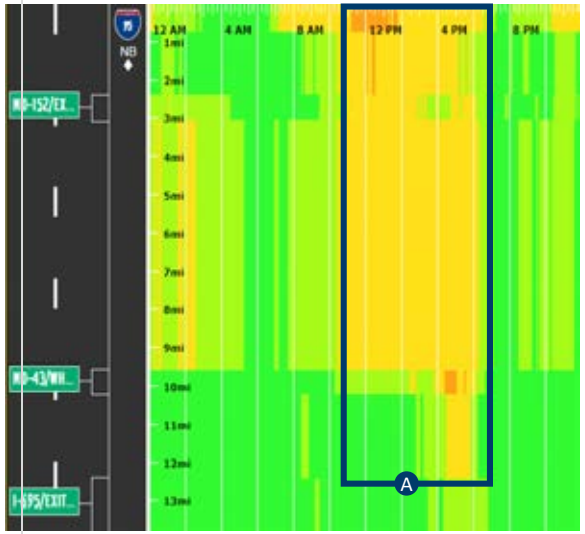
Q2 DELAY COST

Delay Cost
$3.244M

Veh-hrs. of Delay
107,435 h

Congested Locations

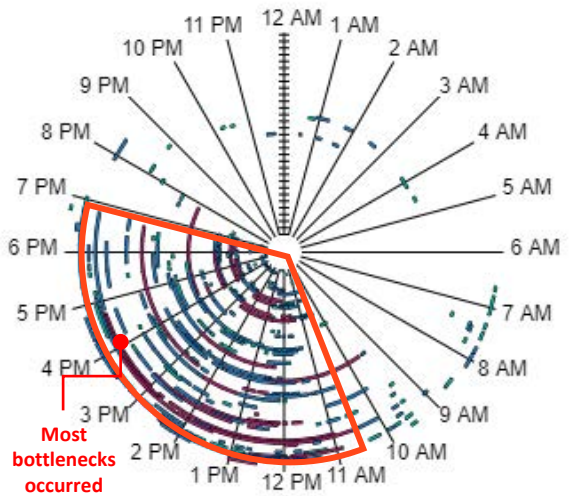
A **10:30AM – 7:00PM** MD-43/White Marsh Blvd/Exit 67 to MD/24/Exit 77



Speed (mph)
0-14 15-29 30-39 40-49 50-64 65+

Bottleneck Occurrences

The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22**

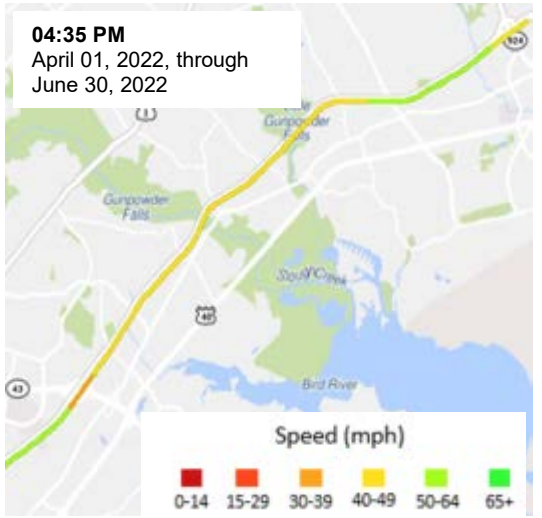


Most bottlenecks occurred between 10:30 AM PM-6:00 PM

Max Queue Length (miles)
0-1.9 2-4.9 5-7.9 8+

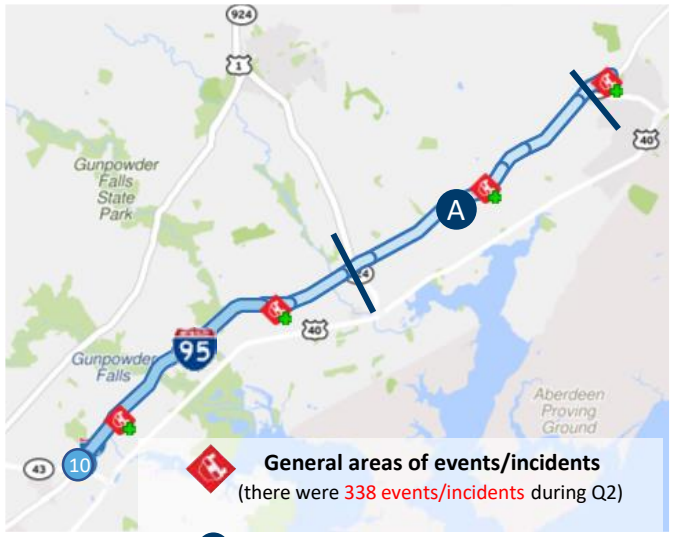
Corridor Speeds Over Time

Peak period conditions



10 I-95 S @ MD-43/WHITEMARSH BLVD/EXIT 67

Quarterly Bottleneck Evaluation Summary Q2 2022



A Locations of Congestion

PK. AVG. SPEED

AM Peak | 8:35 AM
64.3 mph
(11% slower than free flow)

PM Peak | 2:40 PM
52.1 mph
(27% slower than free flow)

PK. TRAVEL TIME

AM Peak | 8:35 AM
20.4 min

PM Peak |2:40 PM
25.2 min

Q2 DELAY COST

Delay Cost
$0.346M

Veh-hrs. of Delay
11,473 h

Congested Locations

A **10:30AM – 7:00PM** MD-22/Exit 85 to MD-24/Exit 77

Bottleneck Occurrences

The center represents the beginning **of 04.01.22** and the outer edge the end of **06.30.22**

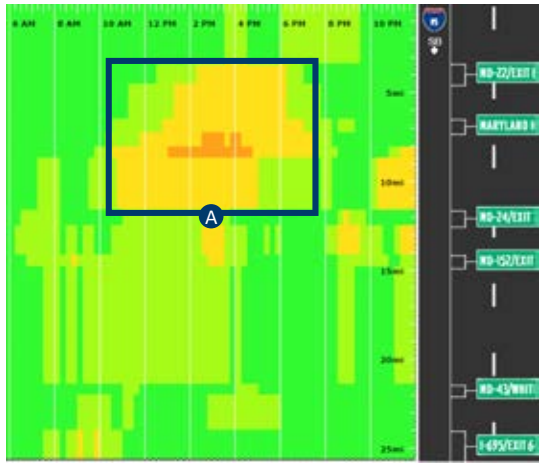
Corridor Speeds Over Time

Peak period conditions

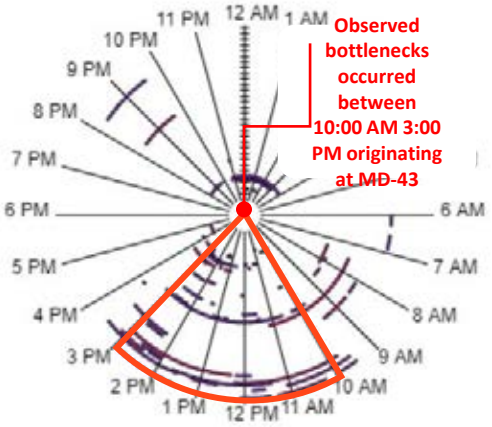
Large number of reported incidents along this corridor along with the construction of new electronic toll lanes from MD-43/White Marsh Blvd to MD-152/Mountain Rd are causing slowdowns in this area.

The Raphel Rd Bridge over I-95 is being replaced causing intermittent should and lane closures.

Overlaps with ranked bottleneck #3. Non recurring congestion originating at MD-43 instead of MD-24 primarily in the month of June.



Speed (mph)
0-14 15-29 30-39 40-49 50-64 65+



Max Queue Length (miles)
0-1.9 2-4.9 5-7.9 8+

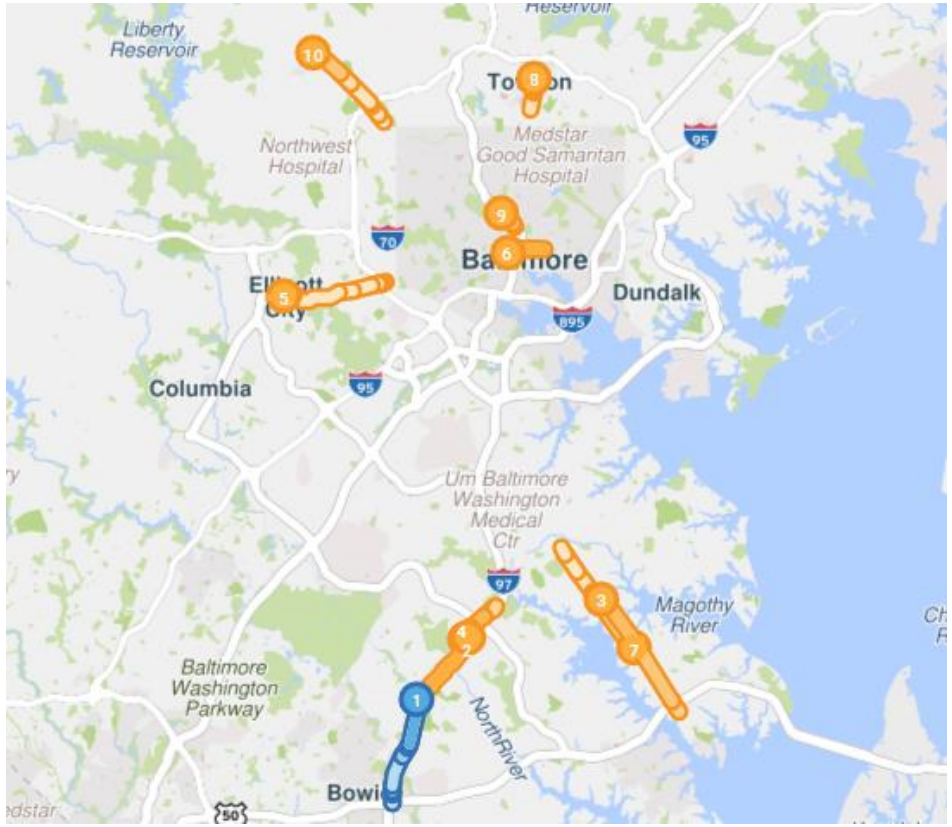
Top 10 Bottlenecks on Non-Limited Access Roads

Top 10 Bottlenecks in the Region – Non Limited Access Roads – 2nd Quarter 2022 Q2 2022

Rank	Location	Avg. Max. Length (mi)	Avg. Daily Duration	Agency Reported Incidents	Volume Estimate (AADT)
1	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD	2.16	1h 41m	15	35,073
2	MD-3 N@MD-175/MILLERSVILLE RD/ANNAPOLIS RD	1.77	1h 46m	24	33,928
3	MD-2 N @ ROBINSON RD	4.25	1h 3m	11	28,119
4	MD-3 N @ MD-175/MILLERSVILLE RD/ANNAPOLIS RD	0.65	2h 47m	3	29,153
5	MD-144 W @ ELLICOTT MILLS DR	0.50	9h 7m	18	9,709
6	US-40 W @ MD-295/PACA ST	0.48	4h 38m	0	10,758
7	MD-2 S @ COLLEGE PKWY	2.85	36m	6	29,867
8	MD-45 N @ MD-146/DULANEY VALLEY RD	0.33	10h 9m	2	10,419
9	MD-25 N @ W 29TH ST	0.88	2h 29m	0	8,982
10	MD-140 W @ OWINGS MILLS BLVD	0.45	7h 28m	1	16,875

IL = Inner Loop OL = Outer Loop

Red #s = highest value for that metric



*Bottlenecks are ranked by **Base Impact** – the sum of queue lengths over the duration of the bottleneck and weighted by speed differential, congestion and total delay.*

Ranked Bottleneck Lists by Jurisdiction

Top 20 Bottlenecks in Local Jurisdictions- 2nd Quarter 2022

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 N @ ARUNDEL/PRINCE GEORGE'S CO LINE
2	MD-295 S @ MD-198
3	US-50 E @ BAY BRIDGE BRIDGE
4	US-50 W @ BAY BRIDGE
5	I-97 S @ MD-178/EXIT 5
6	MD-295 S @ ANNE ARUNDEL/P.G. COUNTY BORDER
7	I-695 CCW @ MD-295/EXIT 7
8	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD
9	MD-295 N @ MD-100
10	MD-3 N @ MD-175/MILLERSVILLE RD/ANNAPOLIS RD
11	MD-2 N @ ROBINSON RD
12	MD-295 S @ CANINE RD
13	MD-295 S @ MD-175
14	US-50 E @ BAY BRIDGE TOLL PLAZA
15	MD-3 S @ MD-175/MILLERSVILLE RD/ANNAPOLIS RD
16	MD-32 E @ HENKELS LN/DORSEY RUN RD
17	MD-295 N @ I-195
18	MD-2 S @ COLLEGE PKWY
19	MD-100 E @ MD-170/TELEGRAPH RD/EXIT 11
20	US-50 E @ SEVERN RIVER BRIDGE

Baltimore City

Rank	Location
1	I-95 N @ I-95 E INSIDE FORT MCHENRY TUNNEL
2	I-95 N @ I-95 (NORTH) TOLL PLAZA
3	MD-295 N @ I-95/MONROE ST
4	I-95 S @ FORT MCHENRY TUNNEL
5	I-95 N @ FORT MCHENRY TUNNEL
6	I-895 S @ HARBOR TUNNEL THWY (SOUTH)
8	US-40 W @ MD-295/PACA ST
9	MD-25 N @ W 29TH ST
10	MD-295 S @ BUSH ST
11	I-895 N @ CHILDS ST/EXIT 9
12	I-95 N @ MD-295/BW PKWY/EXIT 52
13	I-95 S @ WASHINGTON BLVD/EXIT 51
14	HOWARD ST S @ W PRATT ST
15	PATAPSCO AVE E @ WASHINGTON BLVD
16	FOREST PARK AVE N @ WINDSOR MILL RD
17	I-895 N @ HARBOR TUNNEL THWY (NORTH)
18	I-95 S @ KEITH AVE/EXIT 56
19	MT ROYAL AVE W @ US-1/W NORTH AVE
20	E LOMBARD ST W @ MD-2/LIGHT ST

IL = Inner Loop

OL = Outer Loop

Top 20 Bottlenecks in Local Jurisdictions- 2nd Quarter 2022

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-95 N @ MD-152/EXIT 74
2	I-695 OL @ MD-26/EXIT 18
3	I-695 OL @ I-70/EXIT 16
4	I-95 S @ MD-43/WHITEMARSH BLVD/EXIT 67
5	I-695 IL @ SECURITY BLVD/EXIT 17
6	I-695 OL @ US-40/EXIT 15
7	I-695 IL @ MD-372/WILKENS AVE/EXIT 12
8	I-695 OL @ PROVIDENCE RD/EXIT 28
9	I-70 E @ I-695/EXIT 91
10	I-695 IL @ PROVIDENCE RD/EXIT 28
11	I-695 IL @ I-83/MD-25/EXIT 23
12	I-695 OL @ I-83/MD-25/EXIT 23
13	I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29
14	I-695 OL @ CROMWELL BRIDGE RD/EXIT 29
15	I-695 IL @ MD-144/FREDERICK RD/EXIT 13
16	I-695 OL @ MD-139/CHARLES ST/EXIT 25
17	I-695 IL @ I-795/EXIT 19
18	I-83 S @ I-695
19	I-695 OL @ MD-41/PERRING PKWY/EXIT 30
20	I-695 IL @ MD-147/HARFORD RD/EXIT 31

Carroll County

Rank	Location
1	MD-30 N @ MD-27/MANCHESTER RD
2	MD-30 S @ MD-27/MANCHESTER RD
3	MD-32 W @ MD-26/LIBERTY RD
4	MD-97 N @ MD-496/BACHMANS VALLEY RD
5	MD-97 N @ MD-140/MD-97/BALTIMORE BLVD
6	MD-140 W @ MD-91/EMORY RD/GAMBER RD
7	MD-482 W @ MD-27/MANCHESTER RD
8	MD-140 W @ MD-194/YORK ST/FREDERICK ST
9	MD-140 E @ ROYER RD/MEADOW BRANCH RD
10	MD-97 S @ NICODEMUS RD
11	MD-97 N @ HOOK RD
12	MD-97 N @ MAGNA WAY/AIRPORT DR
13	MD-91 N @ MD-140/BALTIMORE BLVD
14	MD-97 S @ MD-496/BACHMANS VALLEY RD
15	MD-97 S @ MD-32/SYKESVILLE RD
16	MD-144 E @ I-70/US-40
17	MD-27 S @ MD-30/MAIN ST
18	MD-27 N @ MD-26/LIBERTY RD
19	MD-27 N @ MD-482/HAMPSTEAD MEXICO RD
20	MD-144 E @ MD-27/RIDGE RD

IL = Inner Loop

OL = Outer Loop

Top 20 Bottlenecks in Local Jurisdictions- 2nd Quarter 2022

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	I-95 S @ MD-24/EXIT 77
2	I-95 N @ MD-24/EXIT 77
3	I-95 N @ MD-543/EXIT 80
4	I-95 S @ MD-152/EXIT 74
5	I-95 N @ MD-152/EXIT 74
6	I-95 S @ MD-22/EXIT 85
7	I-95 S @ MARYLAND HOUSE
8	I-95 N @ TYDINGS BRIDGE
9	US-40 W @ MD-22/ABERDEEN TRWY
10	MD-152 N @ OLD JOPPA RD
11	I-95 N @ MD-155/EXIT 89
12	I-95 N @ MD-22/EXIT 85
13	MD-22 E @ MD-136/PRIESTFORD RD/CALVARY RD
14	I-95 N @ MARYLAND HOUSE
15	US-1-BR S @ MD-24/VIETNAM VETERANS MEMORIAL HWY
16	MD-24 N @ PLUMTREE RD
17	MD-543 N @ US-1/HICKORY BYP
18	MD-152 N @ SINGER RD
19	MD-22 W @ MD-136/PRIESTFORD RD/CALVARY RD
20	MD-755 N @ MD-24/EMMORTON RD (NORTH)

Howard County

Rank	Head Location
1	I-95 N @ HOWARD/P.G. CO LINE
2	I-95 S @ MD-216/EXIT 35
3	I-95 S @ MD-175/EXIT 41
4	I-70 W @ US-29/EXIT 87
5	MD-32 W @ MD-295
6	MD-100 W @ MARC DORSEY STATION ACCESS RD/EXIT 7
7	MD-144 W @ ELLICOTT MILLS DR
8	I-95 S @ MD-100/EXIT 43
9	I-70 E @ US-29/EXIT 87
10	I-95 S @ I-895/EXIT 46
11	US-29 N @ MD-175
12	I-95 S @ MD-32/EXIT 38
13	MD-144 E @ WESTCHESTER AVE
14	US-40 W @ ST JOHNS LN
15	MD-32 E @ TEN OAKS RD
16	I-70 W @ MD-32/EXIT 80
17	I-70 W @ MARRIOTTSVILLE RD/EXIT 83
18	US-29 N @ MD-99/OLD FREDERICK RD/ROGERS AVE
19	MD-32 W @ I-70/US-40
20	MD-32 E @ I-95

Top 20 Bottlenecks in Local Jurisdictions- 2nd Quarter 2022

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	US-50 W @ BAY BRIDGE
3	US-50 W @ US-301/BLUE STAR MEML HWY
4	US-50 E @ BEGIN FREEWAY
5	US-50 W @ MD-213/CENTREVILLE RD
6	US-50 W @ US-301/BLUE STAR MEMORIAL HWY
7	US-50 E @ MD-8/EXIT 37
8	US-50 W @ MD-18/MAIN ST/EXIT 38
9	US-301 S @ US-50
10	US-50 E @ MD-404/QUEEN ANNE HWY
11	US-50 W @ MD-8/EXIT 37
12	US-50 E @ MD-213/CENTREVILLE RD
13	MD-313 S @ MD-544/MCGINNIS RD
14	US-50 W @ MD-404/QUEEN ANNE HWY
15	US-301 S @ BLOOMINGDALE RD
16	US-50 E @ MD-18/MAIN ST/EXIT 43A
17	US-50 W @ MD-456/DEL RHODES AVE
18	US-50 W @ MD-18/MAIN ST/EXIT 41
19	MD-300 E @ MD-213/CHURCH HILL RD
20	US-301 N @ MD-19/ROBERTS STATION RD

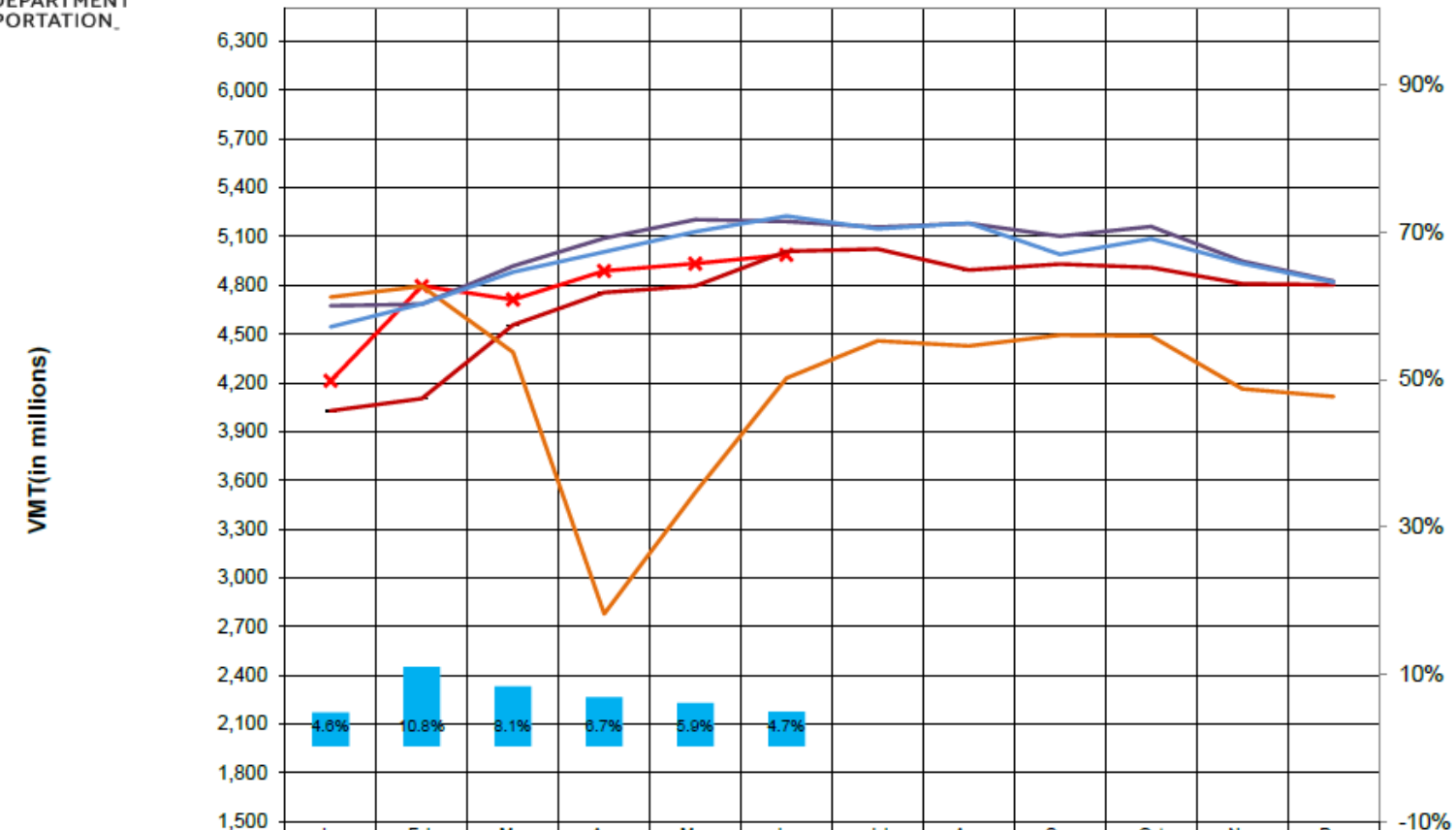
Vehicle Miles Traveled (VMT) Trend Graphs

From MDOT/SHA Automated Traffic Recorders (ATR's)

Estimated Monthly Distribution of Annual (VMT) Vehicle Miles of Travel for : Jun-2022										
Jun	2018 VMT (Millions)	2019 VMT (Millions)	2020 VMT (Millions)	2021 VMT (Millions)	2022 VMT* (Millions)-Estimated	Percent Change 2018-2019	Percent Change 2019-2020	Percent Change 2020-2021	Percent Change 2021-2022	Cumulative Year-to-Date Change 2021-2022
Jan	4544	4674	4728	4028	4212	2.9%	1.2%	-14.8%	4.6%	4.6%
Feb	4686	4683	4794	4104	4795	-0.1%	2.4%	-14.4%	16.8%	10.8%
Mar	4881	4919	4389	4556	4712	0.8%	-10.8%	3.8%	3.4%	8.1%
Apr	5005	5089	2779	4755	4888	1.7%	-45.4%	71.1%	2.8%	6.7%
May	5130	5204	3527	4795	4933	1.4%	-32.2%	36.0%	2.9%	5.9%
Jun	5226	5193	4229	5009	4988	-0.6%	-18.6%	18.4%	-0.4%	4.7%
Jul	5147	5158	4458	5023		0.2%	-13.6%	12.7%		
Aug	5183	5180	4427	4894		-0.1%	-14.5%	10.5%		
Sep	4989	5102	4494	4930		2.3%	-11.9%	9.7%		
Oct	5086	5162	4488	4910		1.5%	-13.1%	9.4%		
Nov	4933	4947	4163	4810		0.3%	-15.8%	15.5%		
Dec	4819	4825	4116	4802		0.1%	-14.7%	16.7%		
TOTAL	59,629	60,136	50,592	56,616		0.9%	-15.9%	11.9%		
Note										
1	The Jun-2022 Monthly AVMT is down compared to Jun-2021 by -0.4%									
2	The Cumulative Year-to-Date Change till Jun-2022 AVMT is up compared to same time last year 2021 by 4.7%									
3	* Preliminary 2022 VMT Estimates based on 2021 Final VMT.									
Data Source:Based on data collected at 50+ continuous count stations by SHA's Data Services Division in Office Of Planning & Preliminary Engineering										
	Report Updated on :10/19/2022									

MARYLAND DEPARTMENT OF TRANSPORTATION

Estimated Monthly Distribution of Annual (VMT) Vehicle Miles of Travel for : Jun-2022



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative Year-to-Date Change 2021-2022	4.6%	10.8%	8.1%	6.7%	5.9%	4.7%						
2022 VMT* (Millions)-Estimated	4212	4795	4712	4888	4933	4988						
2021 VMT (Millions)	4028	4104	4556	4755	4795	5009	5023	4894	4930	4910	4810	4802
2020 VMT (Millions)	4728	4794	4389	2779	3527	4229	4458	4427	4494	4488	4163	4116
2019 VMT (Millions)	4674	4683	4919	5089	5204	5193	5158	5180	5102	5162	4947	4825
2018 VMT (Millions)	4544	4686	4881	5005	5130	5226	5147	5183	4989	5086	4933	4819

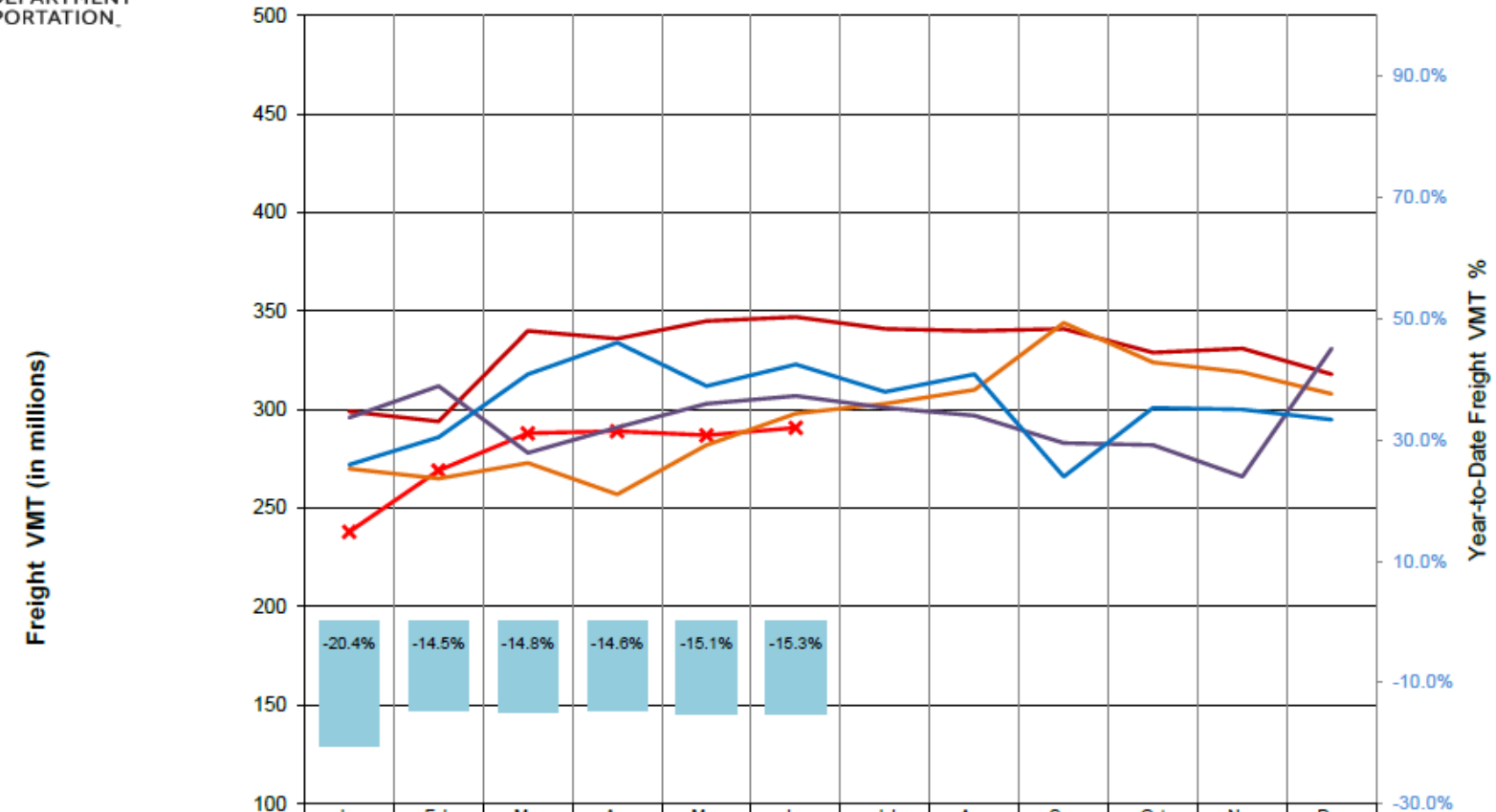
NOTE: This chart displays estimated monthly Vehicle Miles of Travel compared with the previous year based on data collected at approximately 50+ continuous count stations throughout the State.

Report Updated on :07/22/2022

Estimated Monthly Distribution of Freight Vehicle Miles of Travel for : Jun-2022										
Jun	2018 Freight VMT (Millions)	2019 Freight VMT (Millions)	2020 Freight VMT (Millions)	2021 Freight VMT (Millions)	2022 Freight VMT (Millions)* Estimated	Percent Change 2018-2019 Freight VMT	Percent Change 2019-2020 Freight VMT	Percent Change 2020-2021 Freight VMT	Percent Change 2021-2022 Freight VMT	Cumulative Year-to-Date Freight VMT 2021-2022
Jan	272	296	270	299	238	8.8%	-8.8%	10.7%	-20.4%	-20.4%
Feb	286	312	265	294	269	9.1%	-15.1%	10.9%	-8.5%	-14.5%
Mar	318	278	273	340	288	-12.6%	-1.8%	24.5%	-15.3%	-14.8%
Apr	334	291	257	336	289	-12.9%	-11.7%	30.7%	-14.0%	-14.6%
May	312	303	282	345	287	-2.9%	-6.9%	22.3%	-16.8%	-15.1%
Jun	323	307	298	347	291	-5.0%	-2.9%	16.4%	-16.2%	-15.3%
Jul	309	301	303	341		-2.6%	0.7%	12.5%		
Aug	318	297	310	340		-6.6%	4.4%	9.7%		
Sep	266	283	344	341		6.4%	21.6%	-0.9%		
Oct	301	282	324	329		-6.3%	14.9%	1.5%		
Nov	300	266	319	331		-11.3%	19.9%	3.8%		
Dec	295	331	308	318		12.2%	-6.9%	3.2%		
TOTAL	3634	3547	3553	3961		-2.39%	0.17%	11.48%		
Note										
1	The Jun-2022 Monthly Freight VMT is down compared to Jun-2021 by -16.2%									
2	The Cumulative Year-to-Date Change till Jun-2022 Freight VMT is up compared to same time last year 2021 by -15.3%									
3	* Preliminary 2022 Freight VMT Estimates based on 2021 Freight Final VMT.									
4	** VEHICLE CLASS software updated in 2022									
5	Freight VMT = Vehicle Class 5-13									
	Data Source:Based on data collected at approximately 20+ class continuous count stations maintained by SHA's Data Services Division in OPPE									
Report Updated on :10/19/2022										

MARYLAND DEPARTMENT OF TRANSPORTATION

Estimated Monthly Distribution of Freight Vehicle Miles of Travel for : Jun-2022



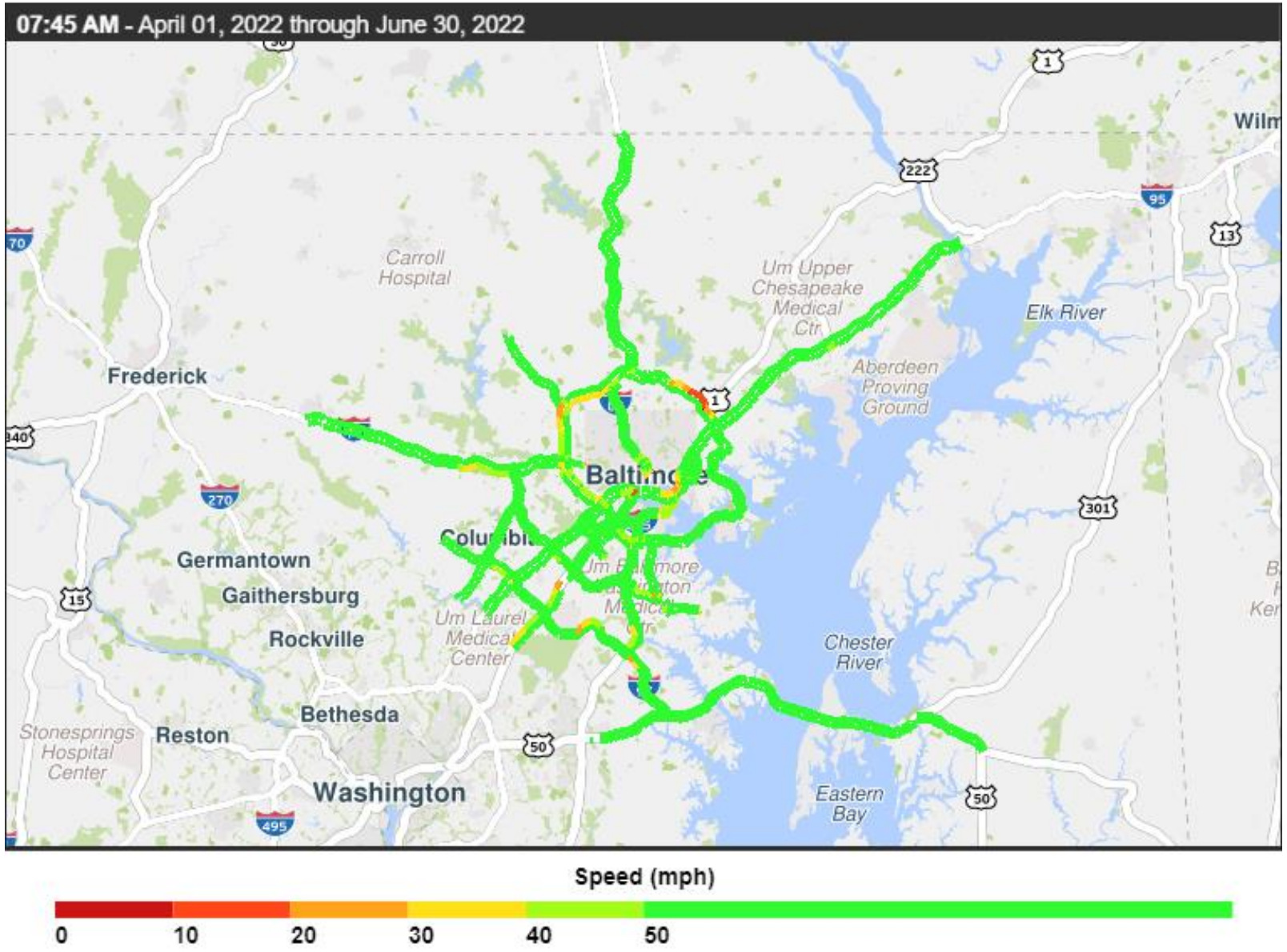
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative Year-to-Date Freight VMT 2021-2022	-20.4%	-14.5%	-14.8%	-14.6%	-15.1%	-15.3%						
2022 Freight VMT (Millions)* Estimated	238	269	288	289	287	291						
2021 Freight VMT (Millions)	299	294	340	336	345	347	341	340	341	329	331	318
2020 Freight VMT (Millions)	270	265	273	257	282	298	303	310	344	324	319	308
2019 Freight VMT (Millions)	296	312	278	291	303	307	301	297	283	282	266	331
2018 Freight VMT (Millions)	272	286	318	334	312	323	309	318	266	301	300	295

NOTE: This chart displays estimated monthly Freight Vehicle Miles of Travel compared with the previous year based on data collected at approximately 20+ continuous count stations throughout the State.

Report Updated on :07/22/2022

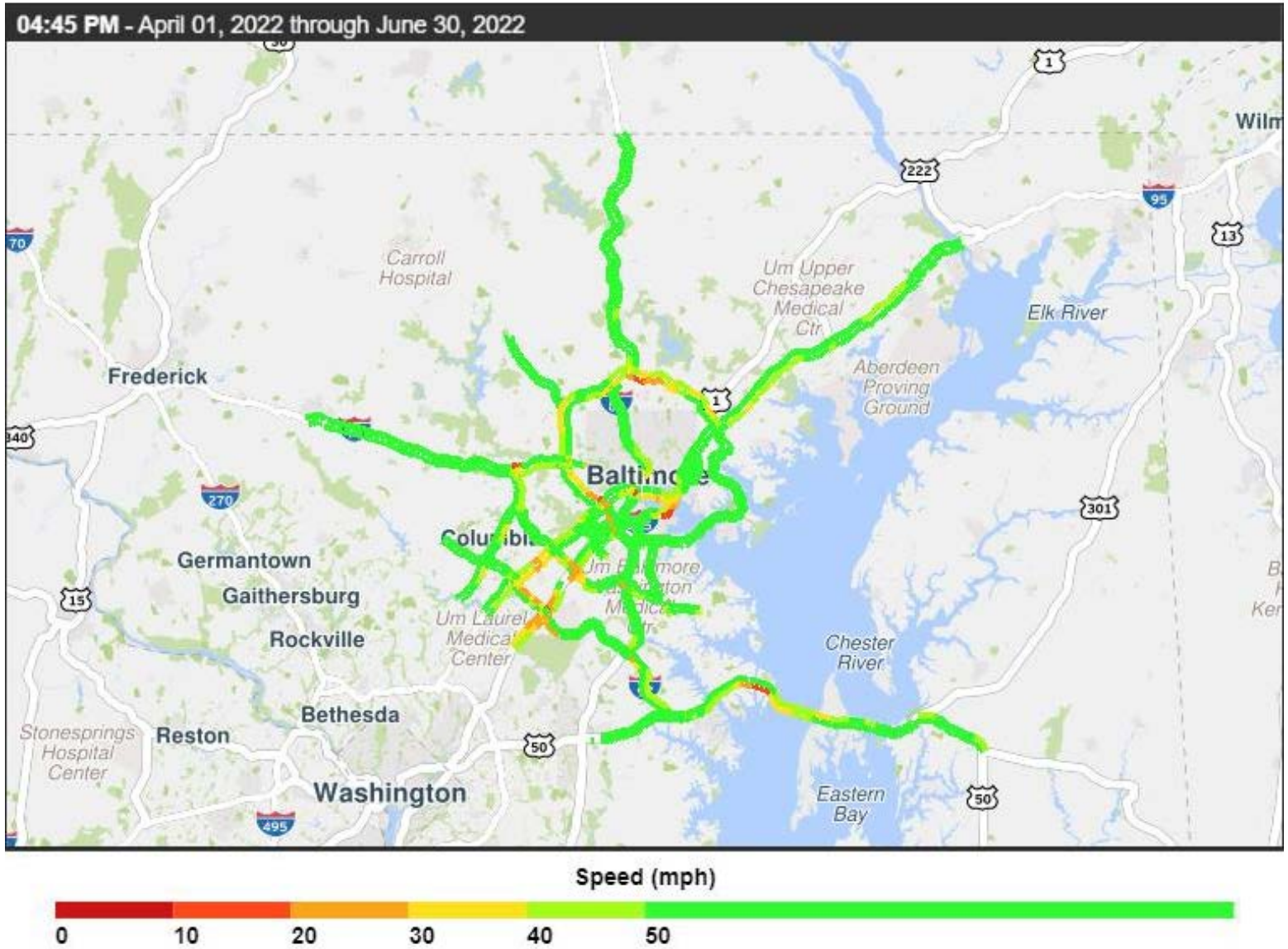
Regional Speed Maps

AM Peak Period Rush Hour: 2nd Quarter 2022



PM Peak Period Rush Hour: 2nd Quarter 2022

BMC Region Limited Access Speed Trend Map for April 01, 2022 through June 30, 2022



System Reliability Performance Measures

Percent of reliable person-miles traveled on the Interstate

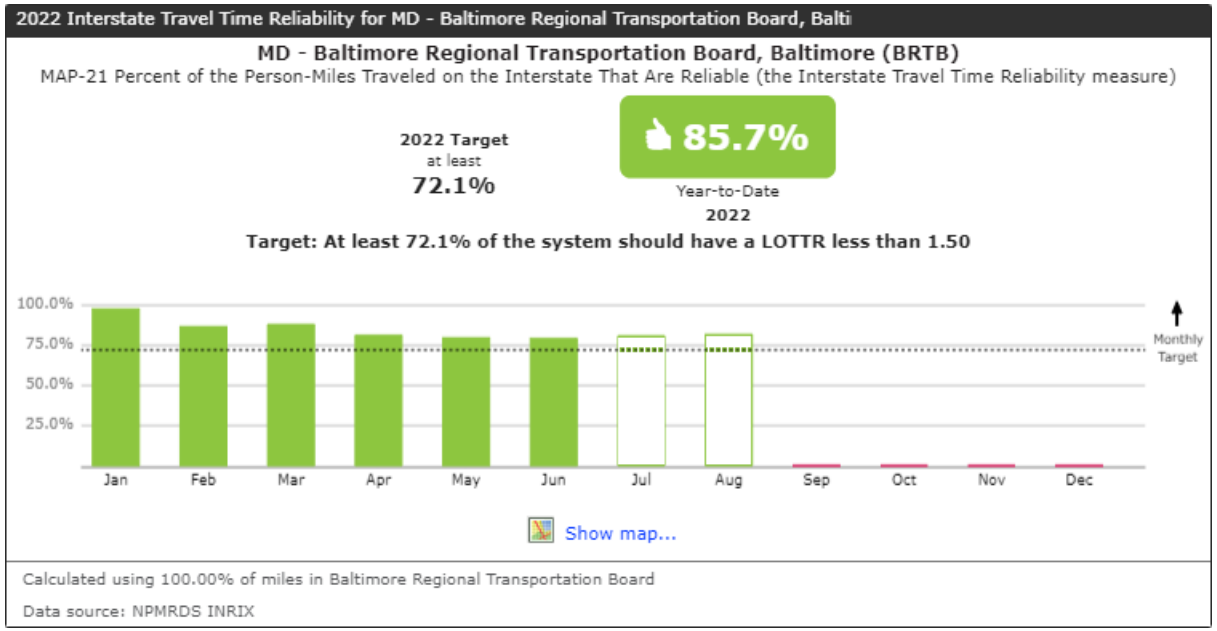
Percent of reliable person-miles traveled on the Non-Interstate NHS

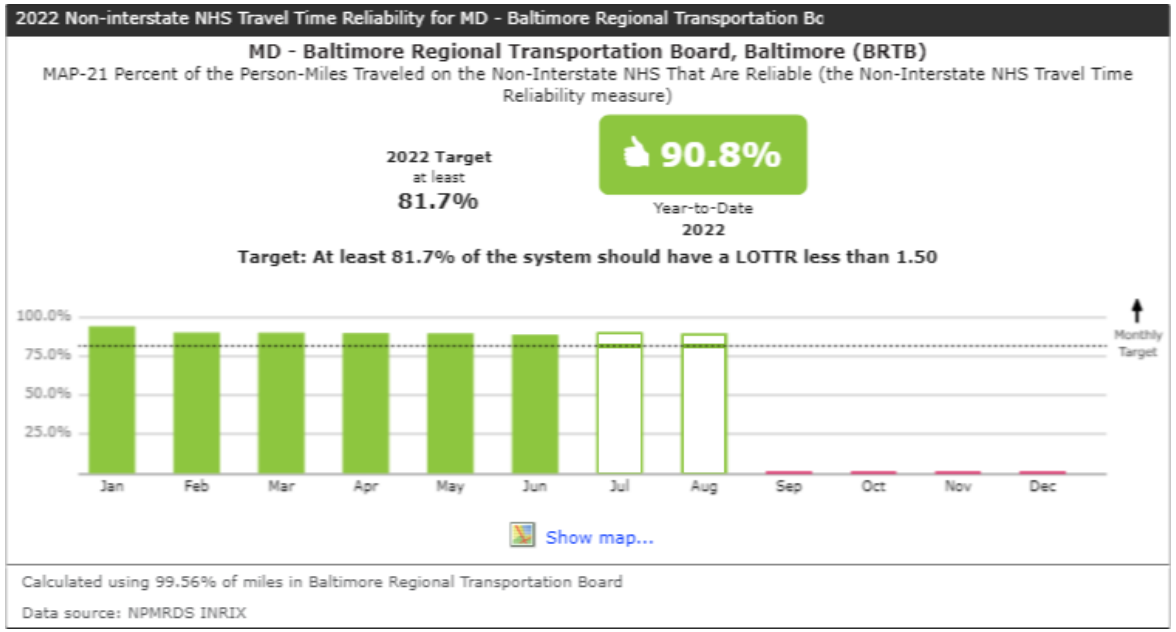
Percentage of Interstate system mileage providing for reliable truck travel time (Truck Travel Time Reliability Index)

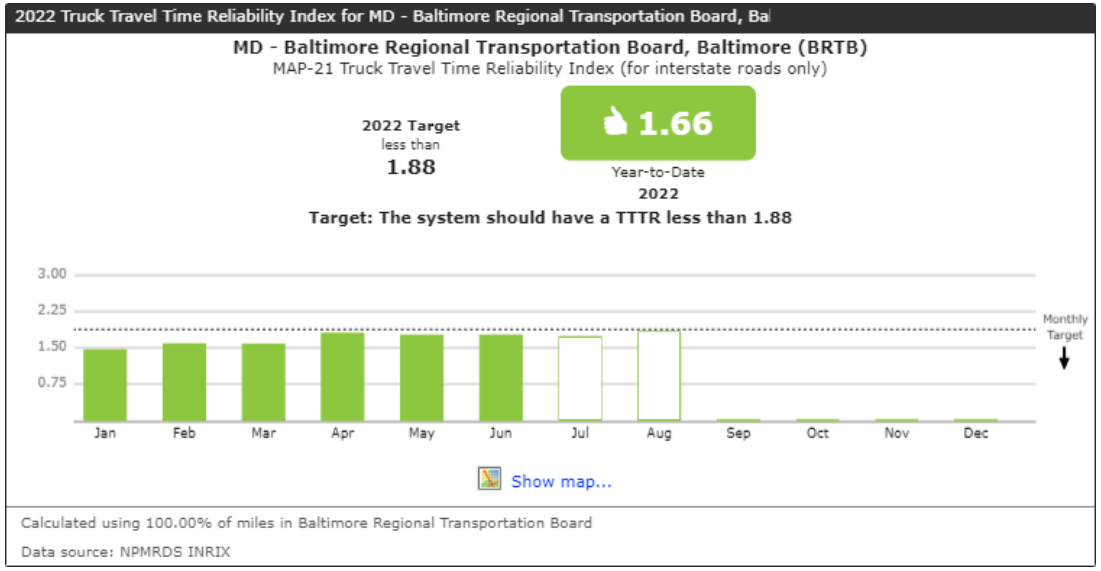
* Each state must establish statewide targets and report findings to the Federal Highway Administration. Metropolitan Planning Organizations must either support the established state targets or develop regional targets of their own.

Level of Travel Time Reliability: Interstates, Non-Interstates and Trucks

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.







Ranked Bottleneck Monthly Comparison

			2021 - 2022										
Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Q2 Rank	Q2 Locations
8	9	10	20	15	4	12		9	1	2	3	1	I-95 N @ MD-152/EXIT 74
5	8		4	7	5	5	4	4	8	4	5	2	MD-295 S @ MD-198
6	7	7	2	3	3	18	19			7		3	I-95 S @ MD-24/EXIT 77
									4		6	4	I-95 N @ I-95 (EAST)
11	16	4	5	5	9		6	7	5	9	12	5	I-695 CCW @ MD-26/EXIT 18
14		6	6	10	16		9	10	10	11	10	6	I-695 CCW @ I-70/EXIT 16
12	12	11	8	16	11				20	20	8	7	I-95 S @ MD-216/EXIT 35
4	1	17		19					11	14	9	8	I-95 N @ MD-24/EXIT 77
9	14	18		20				2	6	17		9	I-95 S @ MD-43/WHITEMARSH BLVD/EXIT 67
	3	3	7		18		16				4	10	I-95 N @ MD-543/EXIT 80
	20	12	14	14	15		2	6	7	12		11	I-695 CW @ SECURITY BLVD/EXIT 17
			9	12				13	13	18	11	12	I-97 S @ MD-178/EXIT 5
13	19		18	18	10		15			13	13	13	I-95 S @ MD-175/EXIT 41
7		13	13	6	13			8		10	15	14	I-695 CCW @ US-40/EXIT 15
10	13		10	13	6	14		5	17		19	15	I-695 CW @ MD-372/WILKENS AVE/EXIT 12
				17				12	15		20	15	I-695 CCW @ PROVIDENCE RD/EXIT 28
							14		14	15		17	I-70 E @ I-695/EXIT 91
18	15	19	19			15	11				14	18	I-695 CW @ PROVIDENCE RD/EXIT 28
16					17	20	10		16			19	MD-295 S @ ARUNDEL--PRINCE GEORGE'S COUNTY BORDER (LAUREL) (NORTH)
										16		20	I-95 S @ MD-152/EXIT 74

Conclusions/Observations: The June-2022 Monthly Average Vehicle Miles Traveled AVMT is down compared to June-2021 by -0.4%. The cumulative Year to Date change through June 2022 AMVT is up compared to last year 2021 by 4.7%. MD-295 at MD-198 southbound reclaimed the top bottleneck spot after falling in the final quarter of 2021 to #2 .

Construction on the Express Toll Lanes (ETL) on I-95 in Harford County has caused this corridor to be a hotspot with 5 of the top 20 bottlenecks in the 2nd Quarter at least partially affected by the ongoing project.

Inner Loop (IL)
Outer Loop (OL)

Credits


THE EASTERN
TRANSPORTATION
COALITION


CATT
LABORATORY


MDOT
MARYLAND DEPARTMENT
OF TRANSPORTATION
STATE HIGHWAY
ADMINISTRATION


INRIX


BALTIMORE
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BRTB
Baltimore Regional Transportation Board

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