Quarterly Congestion Analysis Report

Top 10 Bottlenecks in the Baltimore Region

2nd Quarter 2023

BRTB Baltimore Regional Transportation Board

Report created October 2023

BALTIMORE METROPOLITAN COUNCIL

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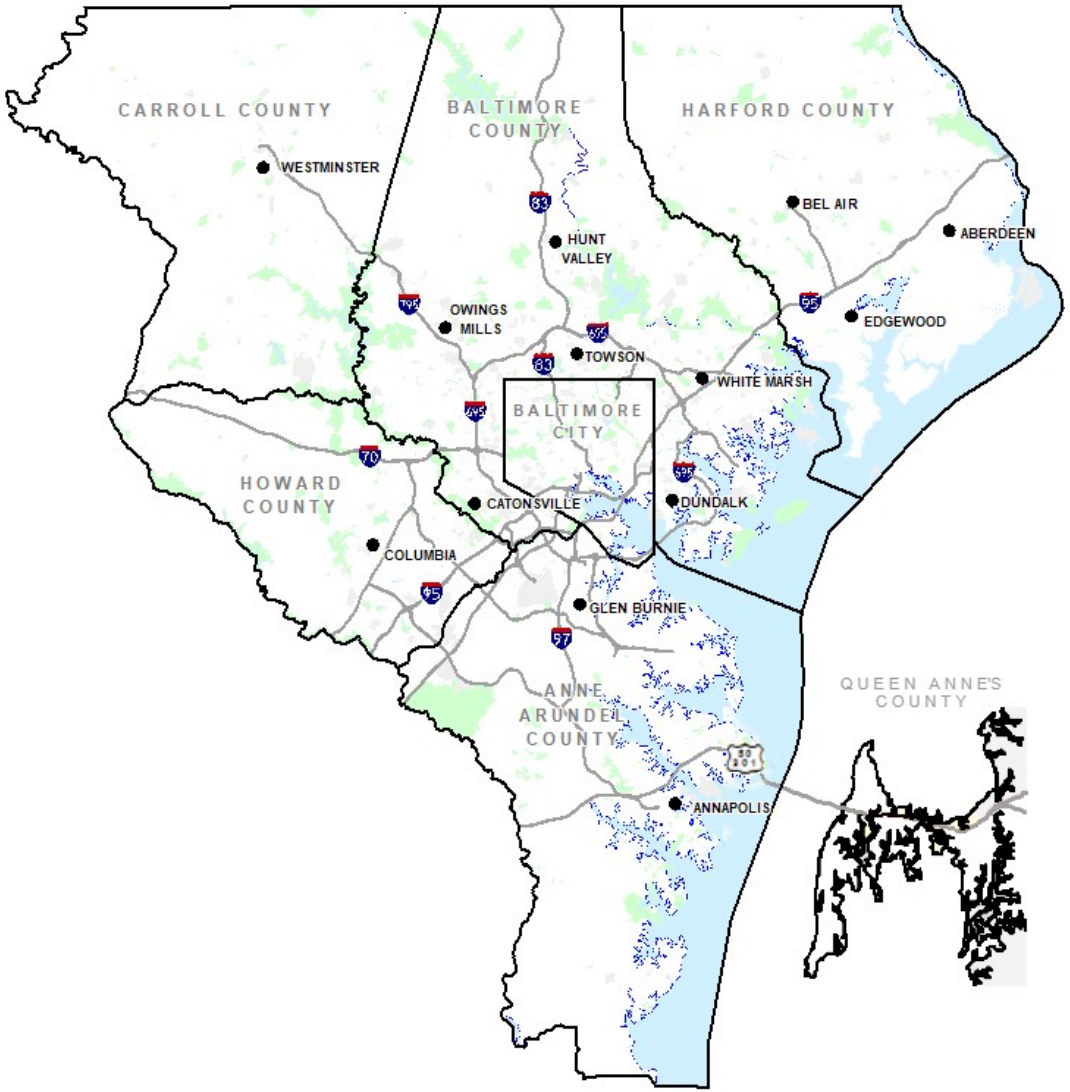
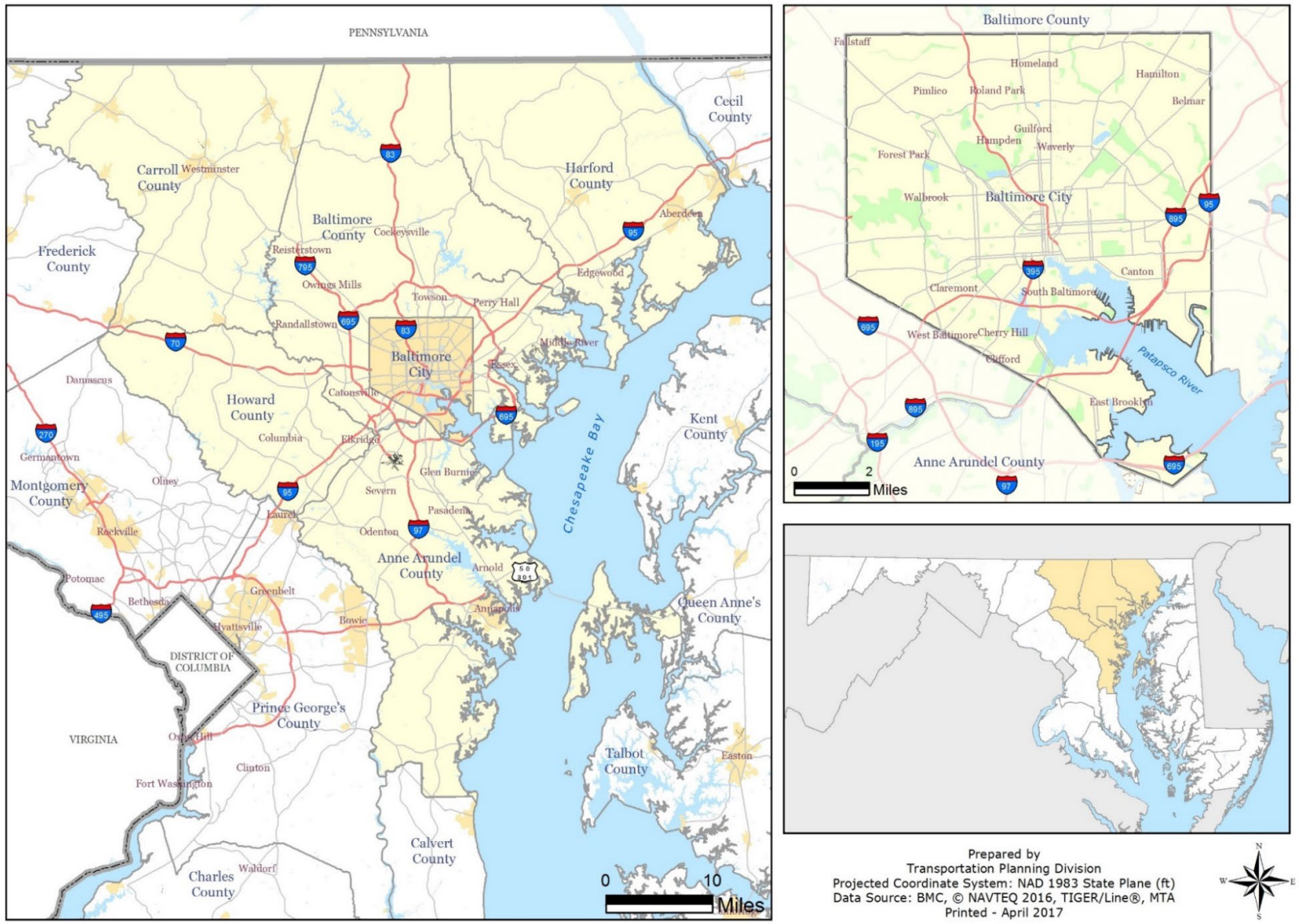
Baltimore Region



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



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

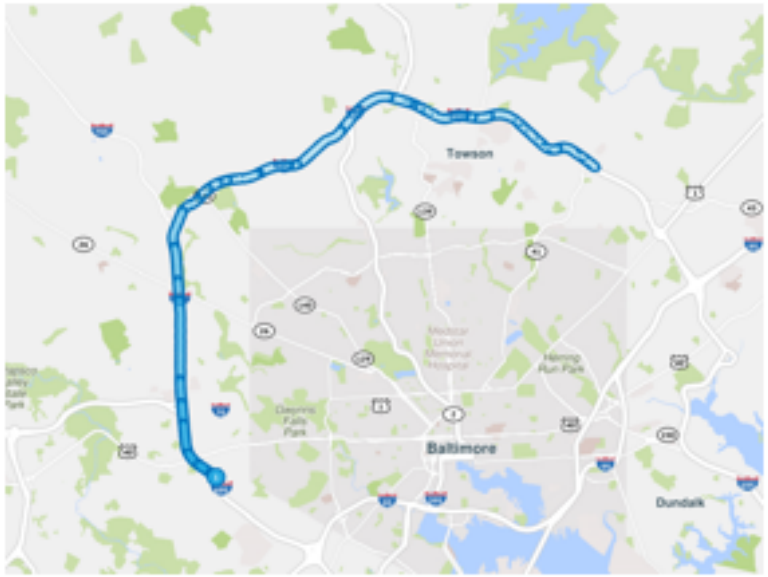
Bottleneck Analytics

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.
- **Previous Quarter Ranking** - Bottleneck ranking from the previous report if the bottleneck was in the Top 10.
- **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.
- **Volume Estimate** - AADT weighted by queue length.
- **Total Delay** - Raw Speed drop weighted by VMT Factor (in millions).

Rank	Location	Previous Quarter Ranking	Avg. Max. Length (mi)	Avg. Daily Duration	Volume Estimate (AADT)	Total Delay (Millions)
1	I-695 OL @MD-26/LIBERTY RD/EXIT 18	1	1.88	2 h 6 m	98,434	82.4
2	I-95 N @ MD-152/MOUNTAIN RD/EXIT 74	3	7.18	40 m	85,463	67.0
3	I-695 IL @ MD-372/WILKENS AVE/EXIT 12	5	2.00	1 h 45 m	98,964	63.7
4	I-95 N @ MD-100/EXIT 43	2	3.79	1 h 34 m	103,385	60.9
5	I-95 S @ MD-24/EXIT 77	2	4.78	1 h 10 m	58,863	43.9
6	I-695 OL @ PROVIDENCE RD/EXIT 28		3.72	38 m	78,288	37.1
7	I-97 S @ MD-178/EXIT 5		2.27	1 h 45 m	58,228	35.6
8	I-695 OL @ I-83/MD-25/EXIT 23		3.50	51 m	93,455	34.6
9	I-695 IL @ MD-22/SECURITY BLVD/EXIT 17		2.18	1 h 15 m	102,889	34.2
10	MD-295 N @ CANINE RD		2.48	1 h 18 m	49,927	31.4

Maps



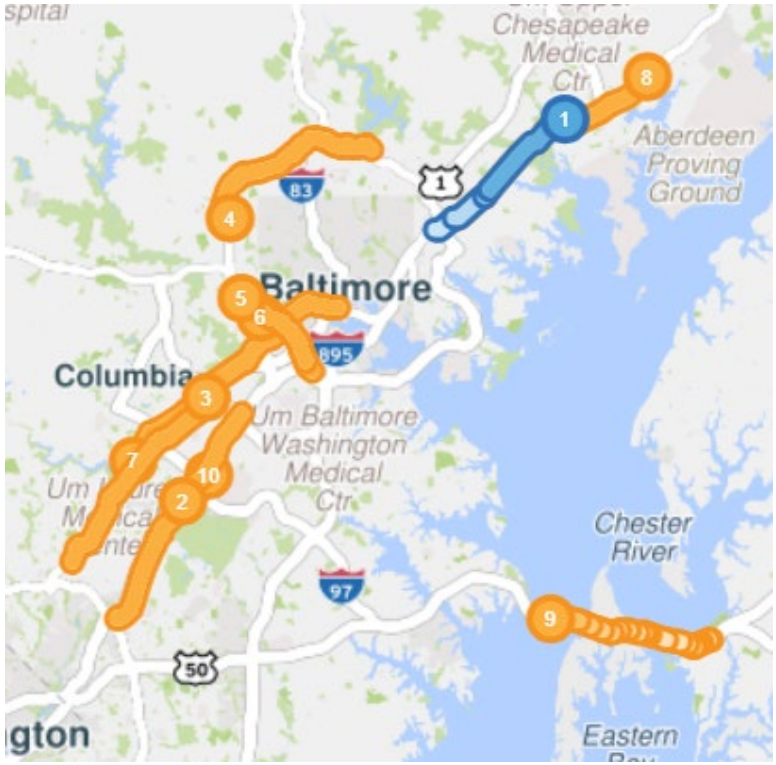
The Map view displays selected bottlenecks on a map. Each element occurring at the selected location is layered on the map, extending upstream from the head location to the maximum length of the specific *element*. As each element adds another layer on the map, road segments become more opaque. Segments 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 2023

Top 10 Bottlenecks in the Region

Q2 2023

Rank	Location	Previous Quarter Ranking	Avg. Max. Length (mi)	Avg. Daily Duration	Volume Estimate (AADT)	Total Delay (Millions)
1	I-95 N @ MD-152/MOUNTAIN RD/EXIT 74	2	**7.03**	1 h 56 m	84,328	**156.9**
2	MD-295 S @ MD-198		3.13	**5 h 40 m**	47,646	127.8
3	I-95 N @ MD-100/EXIT 43	4	4.22	2 h 43 m	**102,470**	120.1
4	I-695 OL @ MD-26/EXIT 18	**1**	2.32	2 h 37 m	97,468	101.1
5	I-695 IL @ EDMONDSON AVE/EXIT 14		2.49	2 h 14 m	101,145	99.6
6	US-50 E @ BAY BRIDGE		4.12	2 h 08 m	35,643	80.6
7	I-695 IL @ MD-372/WILKENS AVE/EXIT 12	3	2.06	1 h 52 m	98,044	75.4
8	I-95 S @ MD-216/EXIT 35		4.75	1 h 18 m	99,986	68.6
9	I-95 N @ MD-543/EXIT 80		6.14	1 h 12 m	67,333	56.3
10	MD-295 N @ CANINE RD	10	2.83	1 h 35 m	49,521	39.7



*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

Total Delay = Raw Speed drop weighted by VMT Factor (in millions)

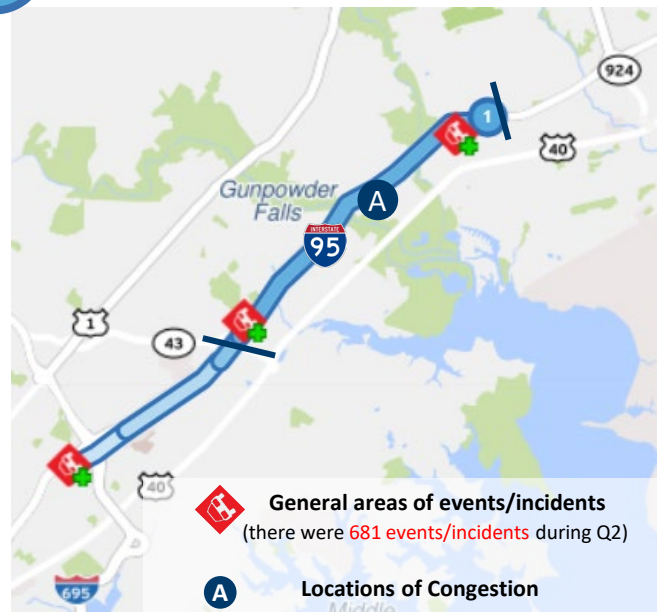
Top 10 Bottleneck Rankings in the Baltimore Region – 2nd Quarter 2023 by Location

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 2023



PK. AVG. SPEED

AM Peak | 6:55 AM
54.4 mph
(24% slower than free flow)

PM Peak | 4:00 PM
45.8 mph
(34% slower than free flow)

PK. TRAVEL TIME

AM Peak | 6:55 AM
11.8 min

PM Peak |4:00 PM
14.1 min

Q2 DELAY COST

Delay Cost
$2.601 M

Veh-hrs. of Delay
86,139 h

Congested Locations

A **6:50AM – 5:45PM** MD-43/White Marsh Blvd/Exit 67 to MD-152/Mountain Rd/Exit 74

Bottleneck Occurrences

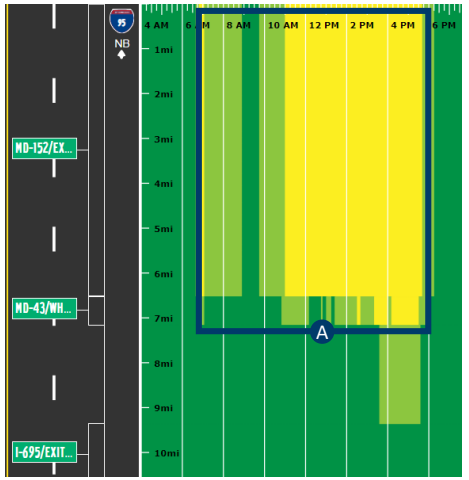
The center represents the beginning **of 04.01.23** and the outer edge the end of **06.30.23**

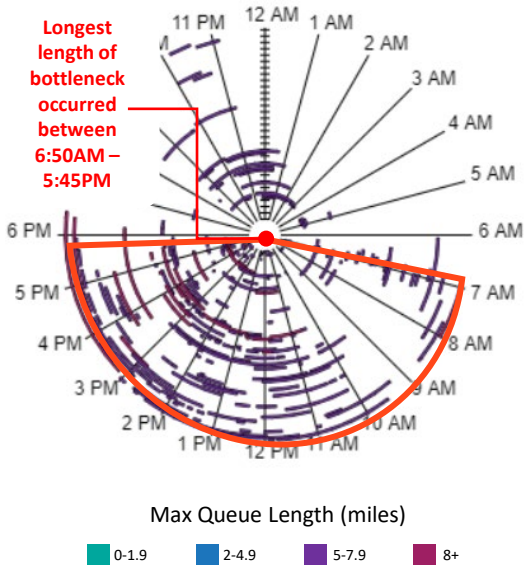
Corridor Speeds Over Time

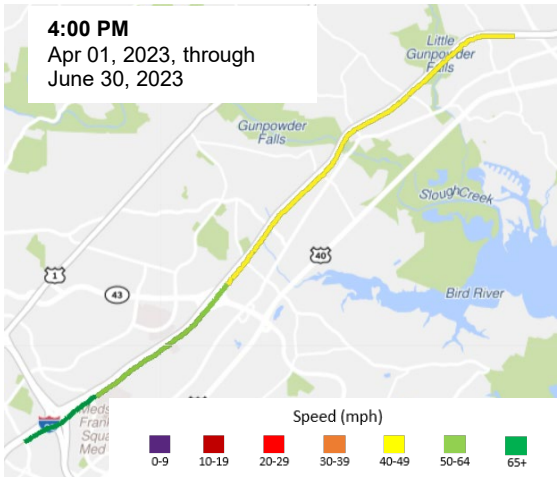
For animated playback of corridor speeds over time, click anywhere on the map below

I-95 Express Toll Lanes Northbound Extension From MD 43 to MD 152 is responsible for shoulder and lane closures primarily in the daylight hours.

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 and off peak shoulder and lane closures.

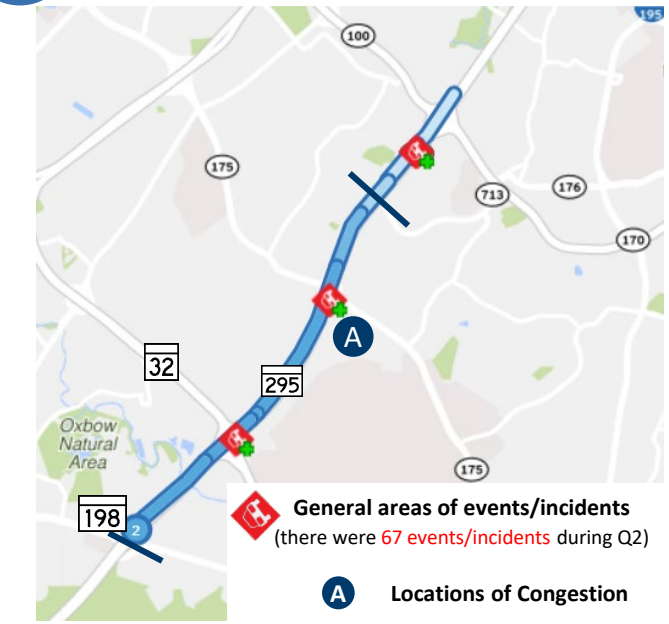






2 MD-295 S @ MD-198

Quarterly Bottleneck Evaluation Summary Q2 2023



General areas of events/incidents
(there were 67 events/incidents during Q2)

A **Locations of Congestion**

Southbound PM congestion starting at MD-198 extending into the southern portion of the Baltimore region near Fort Meade occurring primarily during the afternoon peak period.

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
35.9 mph
(48% slower than free flow)

PM Peak | 4:50 PM
25.1 mph
(61% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:50 AM
11 min

PM Peak |4:50 PM
15.8 min

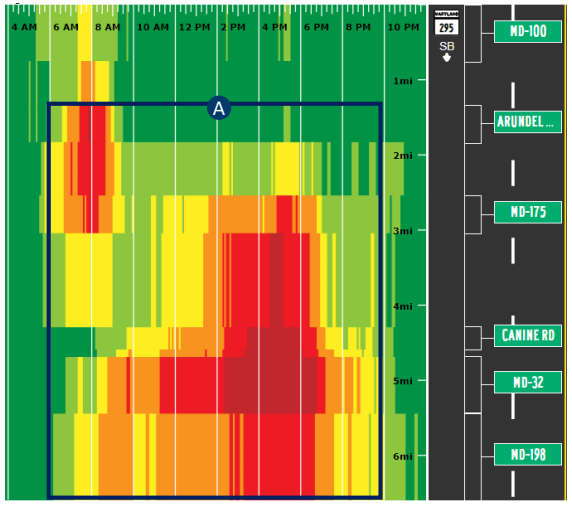
Q2 DELAY COST

Delay Cost
$4.396 M

Veh-hrs. of Delay
145,571 h

Congested Locations

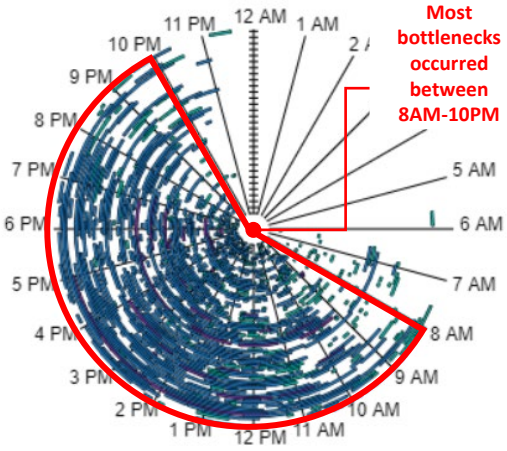
A **6AM – 10PM** Arundel Mills Blvd to MD-198



Speed (mph)
0-9 10-19 20-29 30-39 40-49 50-59 60+

Bottleneck Occurrences

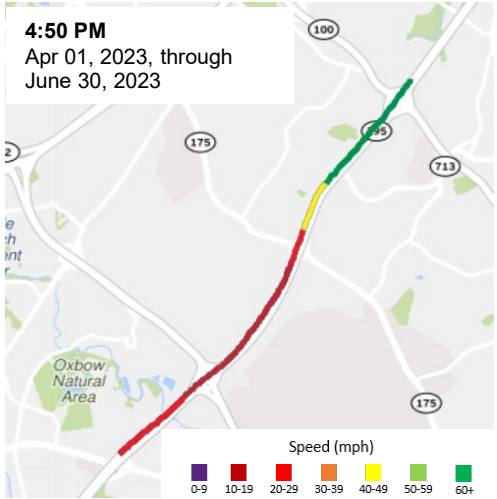
The center represents the beginning **of 04.01.23** and the outer edge the end of **06.30.23**



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

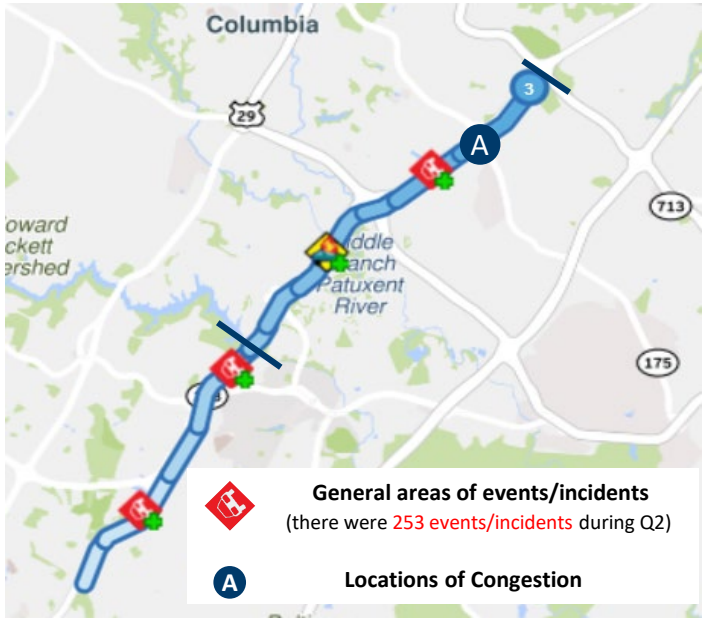
Corridor Speeds Over Time

For animated playback of corridor speeds over time, click anywhere on the map below



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

Quarterly Bottleneck Evaluation Summary Q2 2023



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
58.8 mph
(18% slower than free flow)

PM Peak |4:20 PM
39.5 mph
(43% slower than free flow)

PK. TRAVEL TIME

AM Peak |7:55 AM
14.1 min

PM Peak |4:20 PM
20 min

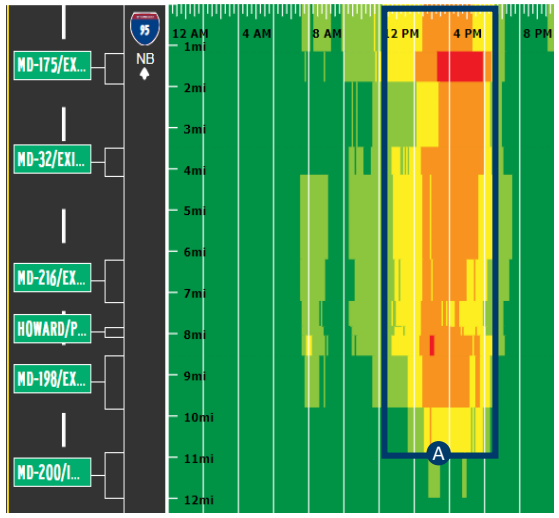
Q2 DELAY COST

Delay Cost
$3.440 M

Veh-hrs. of Delay
113,928 h

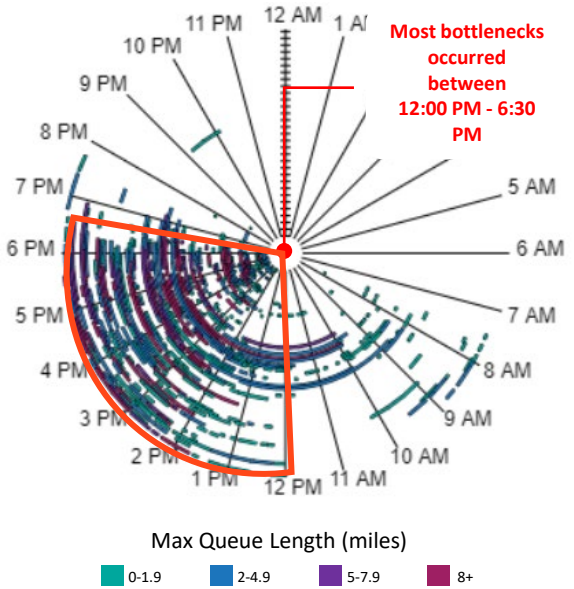
Congested Locations

A **12:00PM – 6:30PM** Prince George's/Anne Arundel Line to MD-100/Exit 43



Bottleneck Occurrences

The center represents the beginning **of 04.01.23** and the outer edge the end of **06.30.23**



Corridor Speeds Over Time

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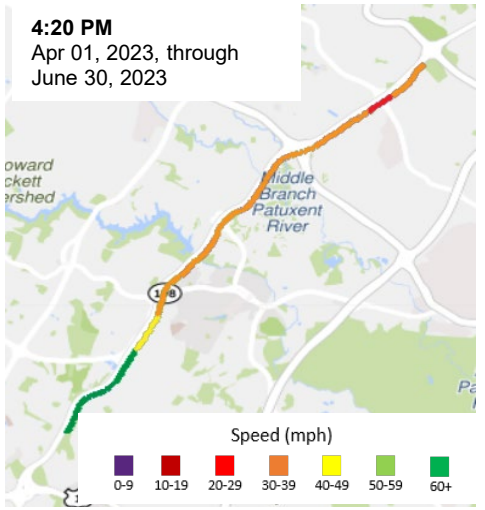
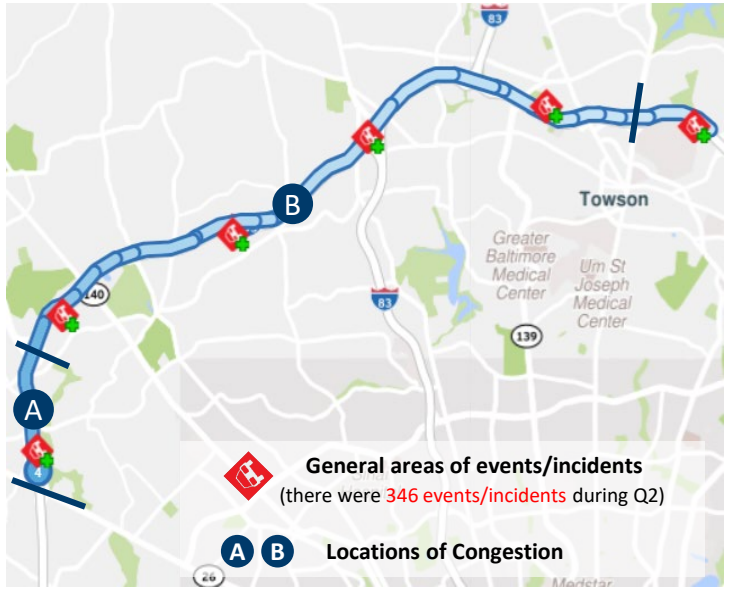


4 I-695 OL @ MD-26/EXIT 18

Quarterly Bottleneck Evaluation Summary Q2 2023



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. As seen in the location map it sometimes can extend back across the top side of the beltway.

A Transportation Systems Management and Operations (TSMO) project is being developed to reduce congestion and delay and increase reliability of travel within the project area from I-70 to MD 43.

PK. AVG. SPEED

AM Peak | 8:35 AM
50.8 mph
(28% slower than free flow)

PM Peak | 5:20 PM
36.7 mph
(46% slower than free flow)

PK. TRAVEL TIME

AM Peak |8:35 AM
13.8 min

PM Peak |5:20 PM
19.1 min

Q2 DELAY COST

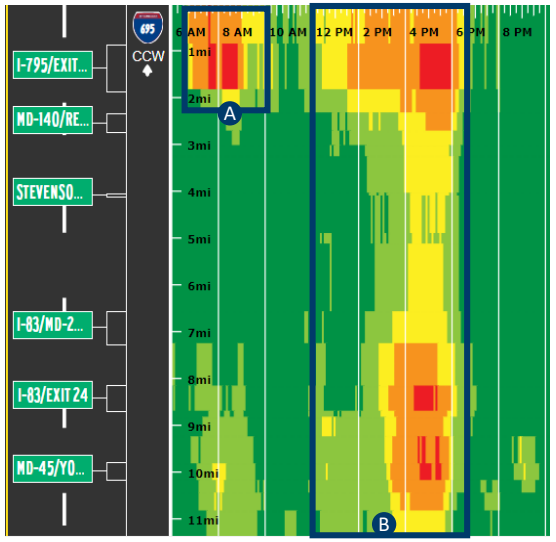
Delay Cost
$2.567 M

Veh-hrs. of Delay
85,011 h

Congested Locations

A **6:45AM – 10AM** I-795/Exit 19 to MD-26/Exit 18

B **12PM – 6:30PM** MD-146/Exit 2 to MD-26/Exit 18



Bottleneck Occurrences

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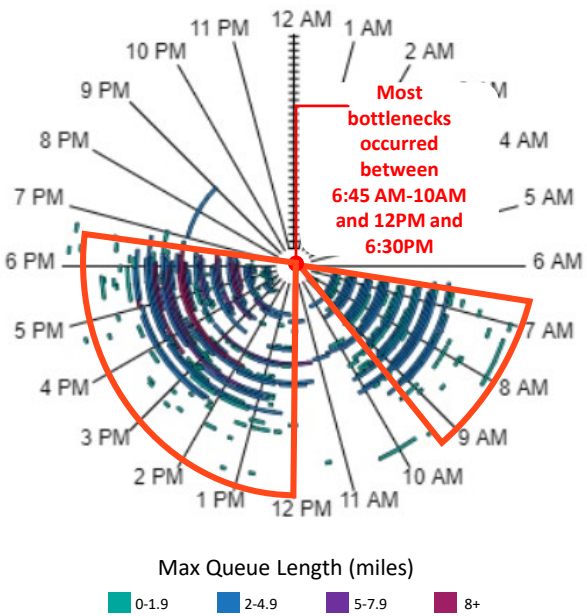

Corridor Speeds Over Time

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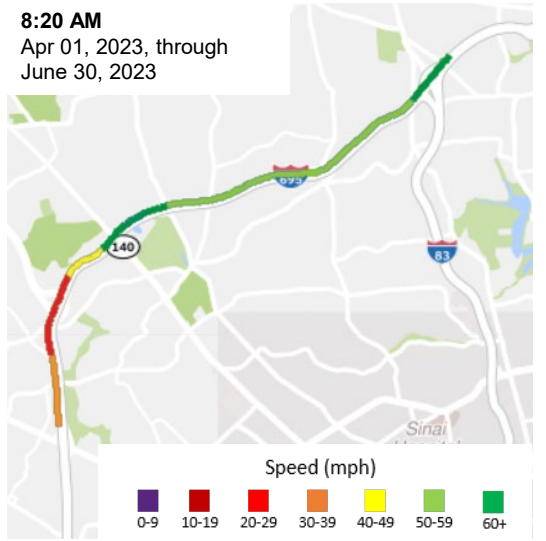
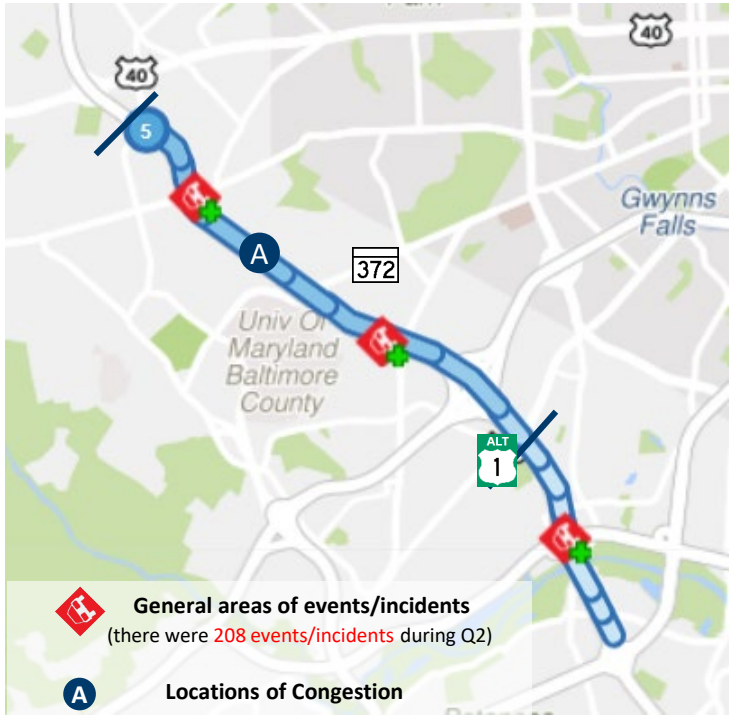


5 I-695 IL @ EDMONDSON AVE/EXIT 14

Quarterly Bottleneck Evaluation Summary Q2 2023



The Maryland Department of Transportation State Highway Administration (MDOT SHA) is constructing new noise barriers along northbound I-695 (Baltimore Beltway Inner Loop) from MD 144 (Frederick Road) to south of US 40 (Baltimore National Pike). Section "A" of the bottleneck also sometimes overlaps with the 6th ranked bottleneck that begins at MD-372/Wilkens Ave/Exit 12

The bottleneck head at Exit 14 occurs predominately from 9am to 3pm.

PK. AVG. SPEED

AM Peak | 9:45 AM
42.4 mph
(38% slower than free flow)

PM Peak | 4:20 PM
30.3 mph
(53% slower than free flow)

PK. TRAVEL TIME

AM Peak | 9:45 AM
8.3 min

PM Peak |4:20 PM
11.6 min

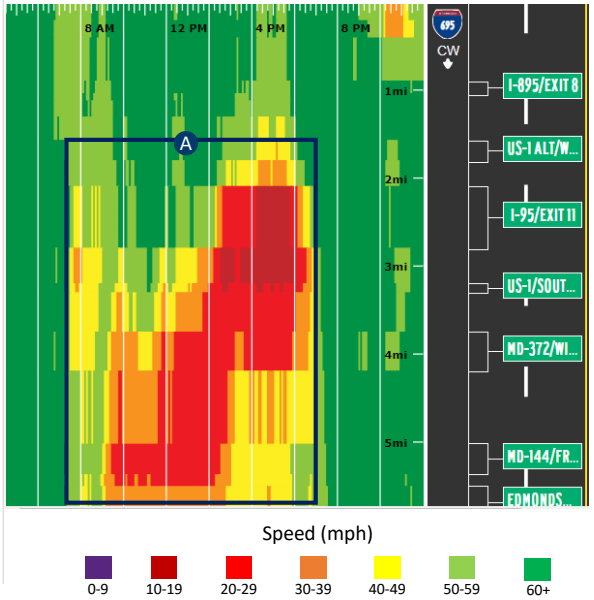
Q2 DELAY COST

Delay Cost
$2.255 M

Veh-hrs. of Delay
74,687 h

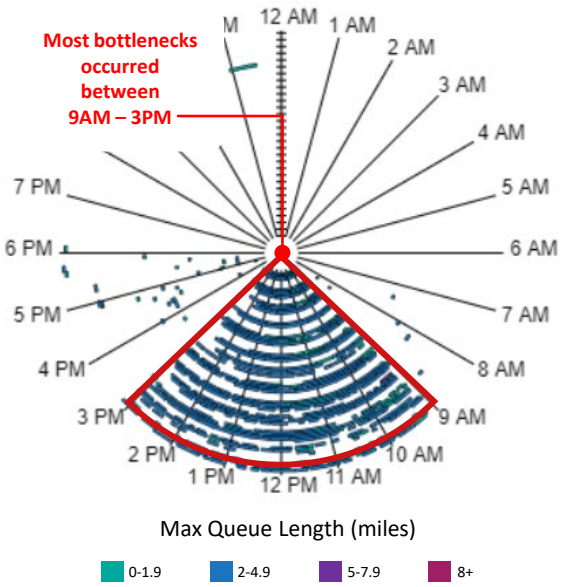
Congested Locations

A **7:00AM – 7:00PM** US-1 ALT/Washington Blvd/Exit 10 to I-695 IL @ Edmondson Ave/Exit 14



Bottleneck Occurrences

The center represents the beginning **of 04.01.23** and the outer edge the end of **06.30.23**



Corridor Speeds Over Time

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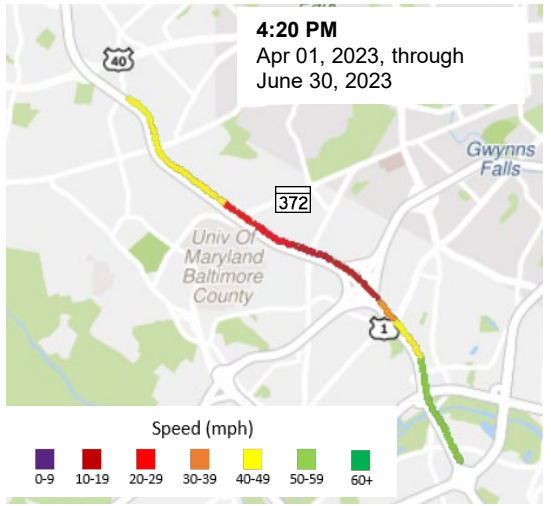
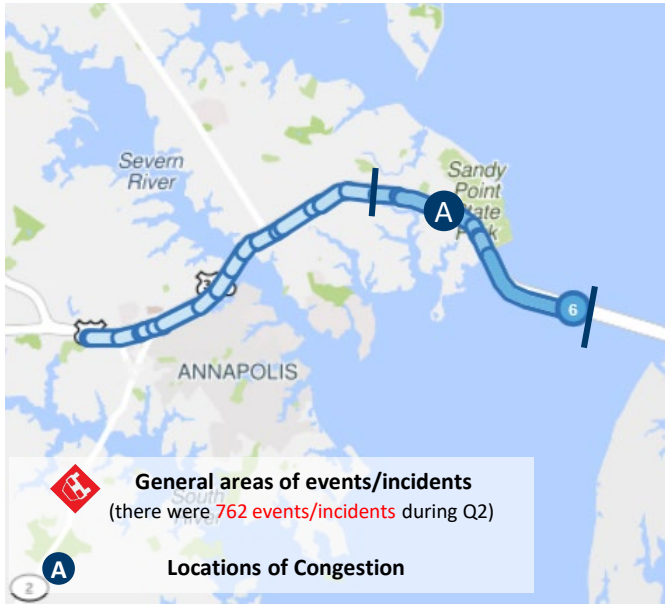


6 US-50 E @ BAY BRIDGE

Quarterly Bottleneck Evaluation Summary Q2 2023



PK. AVG. SPEED

AM Peak | 7:50 AM
59.4 mph
(11% slower than free flow)

PM Peak | 4:40 PM
34.4 mph
(47% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:50 AM
12.4 min

PM Peak |4:40 PM
21.4 min

Q2 DELAY COST

Delay Cost
$3.367 M

Veh-hrs. of Delay
111,506 h

Congested Locations

A **10:30AM – 7:15PM** Cape St Clair rd/Exit 29 to Bay Bridge

Bottleneck Occurrences

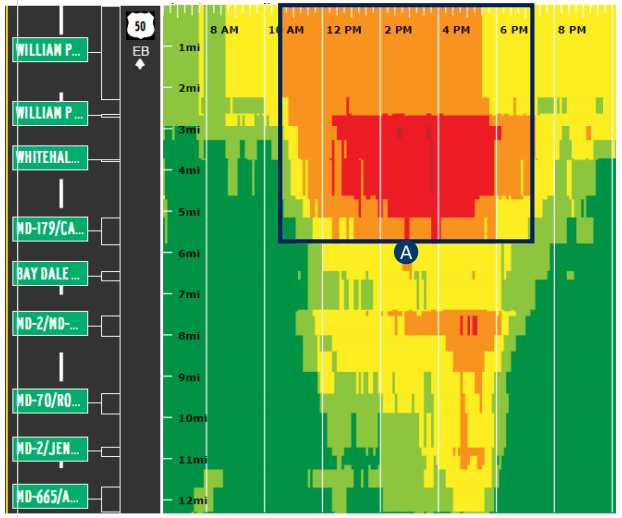
The center represents the beginning **of 04.01.23** and the outer edge the end of **06.30.23**

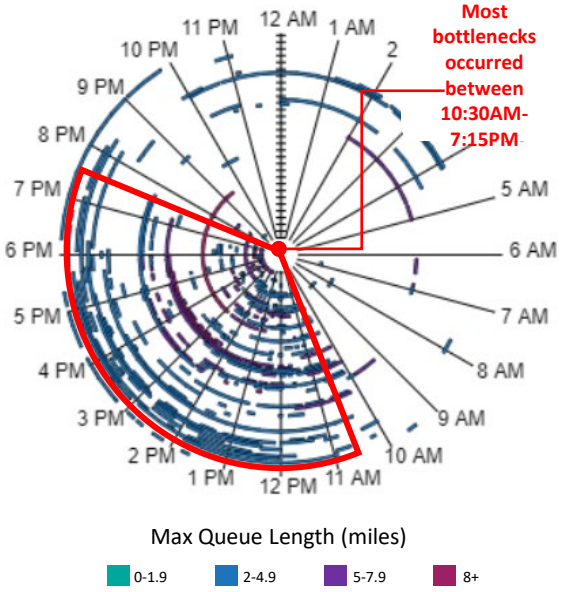
Corridor Speeds Over Time

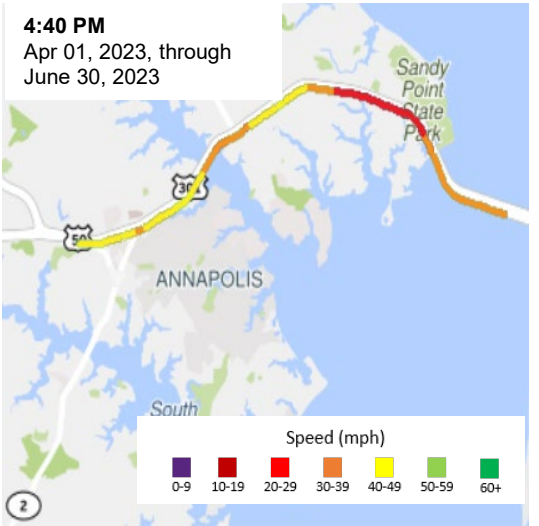
For animated playback of corridor speeds over time, click anywhere on the map below

Eastbound William Preston Lane, Jr. Memorial (Bay) Bridge Rehabilitation, redecking. Offpeak, lane, shoulder and bridge closures.

High traffic volumes from trips to Maryland beach resorts.

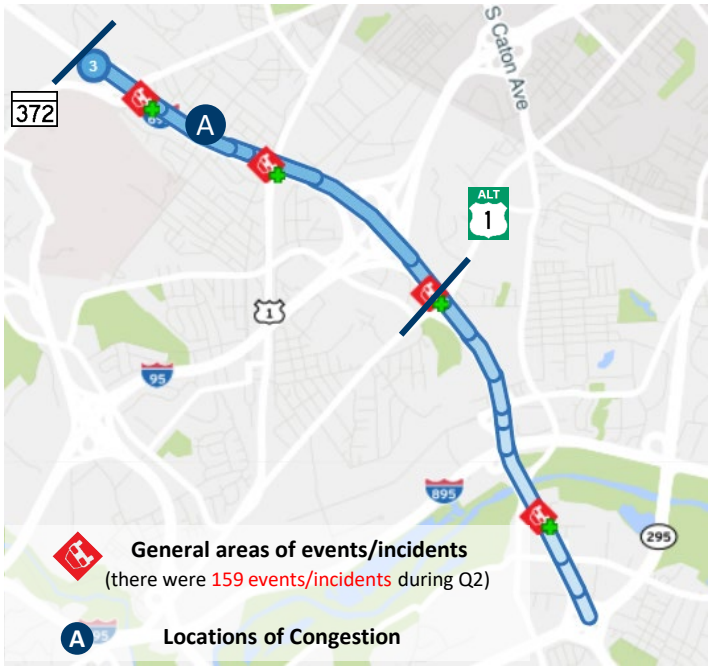






7 I-695 IL @ MD-372/WILKENS AVE/EXIT 12

Quarterly Bottleneck Evaluation Summary Q2 2023



The Maryland Department of Transportation State Highway Administration (MDOT SHA) is constructing new noise barriers along northbound I-695 (Baltimore Beltway Inner Loop) from MD 144 (Frederick Road) to south of US 40 (Baltimore National Pike). Section "A" of the bottleneck also sometimes overlaps into the 5th ranked bottleneck that begins at Edmondson Ave/Exit 14.

There is also a new noise barrier construction project along northbound I-695 (Baltimore Beltway Inner Loop) from MD 144 (Frederick Road) to south of US 40.

PK. AVG. SPEED

AM Peak | 7:45 AM
47.3 mph
(31% slower than free flow)

PM Peak | 4:25 PM
30 mph
(55% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:45 AM
6.3 min

PM Peak |4:25 PM
9.9 min

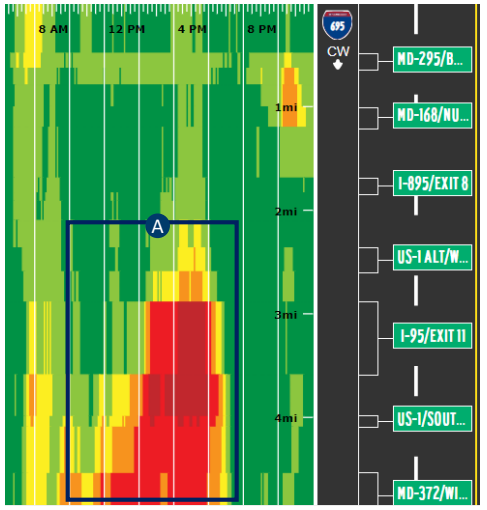
Q2 DELAY COST

Delay Cost
$1.438 M

Veh-hrs. of Delay
47,630 h

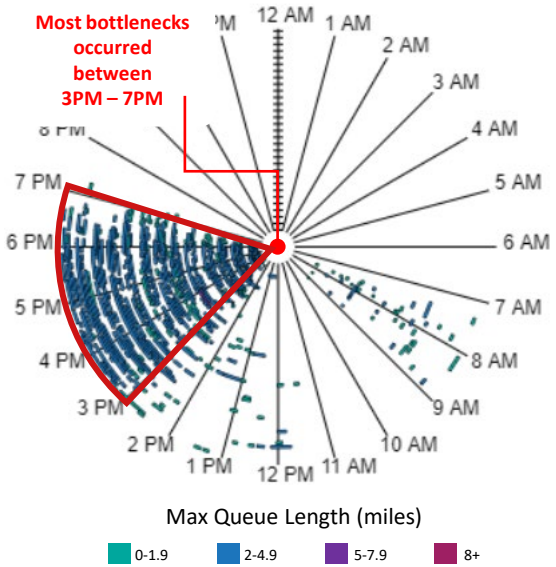
Congested Locations

A **7:30AM – 7:00PM** US-1 ALT/Washington Blvd/Exit 10 to MD-372/Wilkens Ave/Exit 12



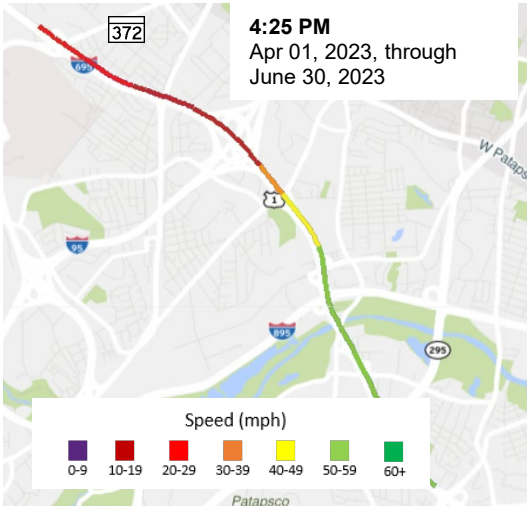
Bottleneck Occurrences

The center represents the beginning **of 04.01.23** and the outer edge the end of **06.30.23**



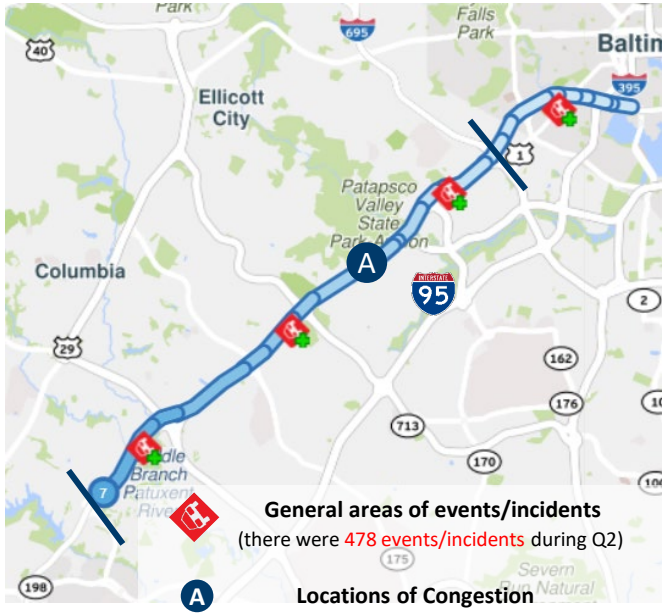
Corridor Speeds Over Time

For animated playback of corridor speeds over time, click anywhere on the map below



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

Quarterly Bottleneck Evaluation Summary Q2 2023



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 |7:50 AM
54.4 mph
(23% slower than free flow)

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

PK. TRAVEL TIME

AM Peak | 7:50 AM
18.4 min

PM Peak | 5:30 PM
23.3 min

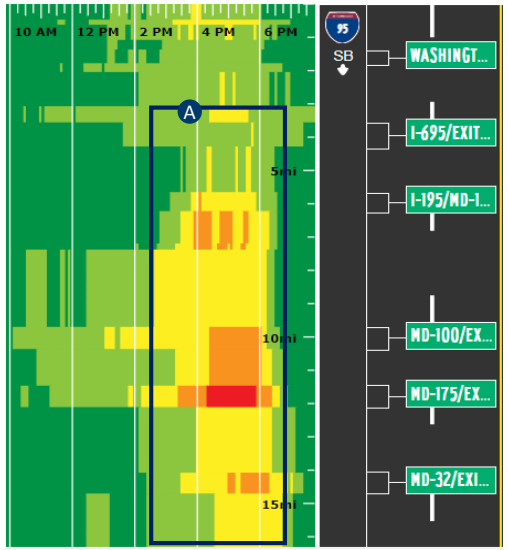
Q2 DELAY COST

Delay Cost
$2.345 M

Veh-hrs. of Delay
77,658 h

Congested Locations

A **2:30PM – 7PM** I-695/Exit 49 to MD-216/Exit 35

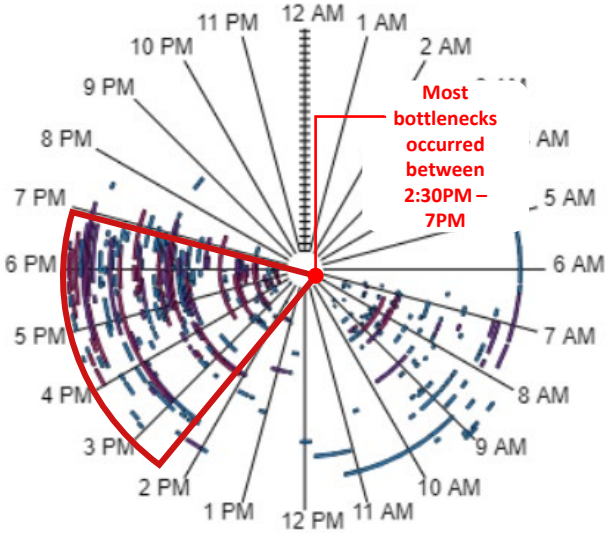


Speed (mph)

0-9 | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+

Bottleneck Occurrences

The center represents the beginning **of 04.01.23** and the outer edge the end of **06.30.23.**

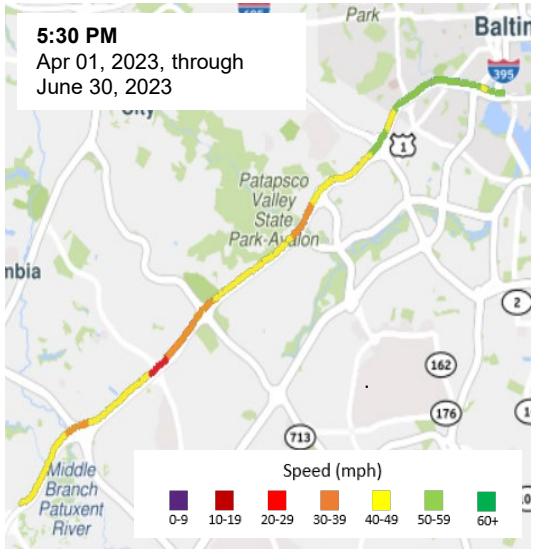


Max Queue Length (miles)

0-1.9 | 2-4.9 | 5-7.9 | 8+

Corridor Speeds Over Time

For animated playback of corridor speeds over time, click anywhere on the map below



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9 I-95 N @ MD-543/EXIT 80

Quarterly Bottleneck Evaluation Summary Q2 2023

The head of the bottleneck lies in between MD-543 and MD 24. This is another section of I 95 affected by the Express Toll Lane construction.

PK. AVG. SPEED

AM Peak | 6:55 AM
58 mph
(19% slower than free flow)

PM Peak | 3:50 PM
47.2 mph
(32% slower than free flow)

PK. TRAVEL TIME

AM Peak | 6:55 AM
15.8 min

PM Peak |3:50 PM
19.4 min

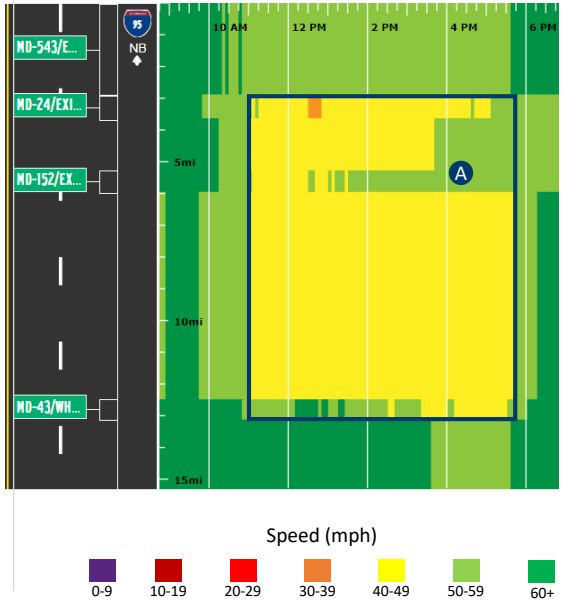
Q2 DELAY COST

Delay Cost
$4.091 M

Veh-hrs. of Delay
125,953 h

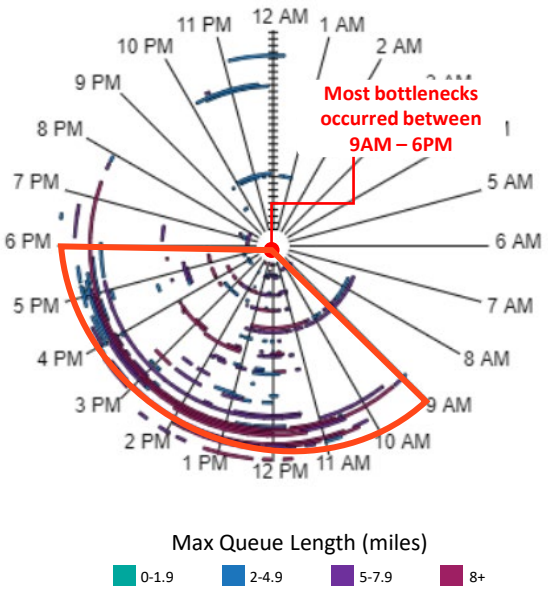
Congested Locations

A **11AM – 5:30PM** MD-43/White Marsh Blvd/Exit 67 to MD-543/Exit 80



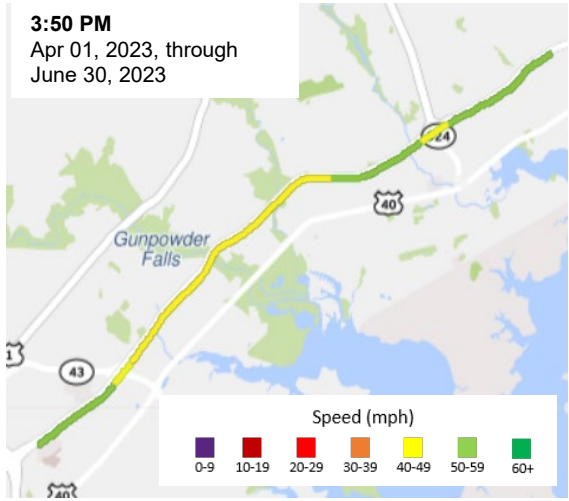
Bottleneck Occurrences

The center represents the beginning **of 04.01.23** and the outer edge the end of **06.30.23**



Corridor Speeds Over Time

For animated playback of corridor speeds over time, click anywhere on the map below



10 MD-295 N @ CANINE RD

Quarterly Bottleneck Evaluation Summary Q2 2023

General areas of events/incidents
(there were 135 events/incidents during Q2)
A Locations of Congestion

Northbound PM congestion from Canine Rd near Fort Meade extending into the DC region occurring primarily during the afternoon peak period.

Volume related delays are most likely caused by factors such as commuters to and from Fort Meade.

**Speed, travel time and delay costs calculated only for the portion of the Bottleneck within the Baltimore region.*

PK. AVG. SPEED

AM Peak | 8:55 AM
54.3 mph
(19% slower than free flow)

PM Peak | 3:50 PM
24.4 mph
(61% slower than free flow)

PK. TRAVEL TIME

AM Peak | 8:55 AM
5.6 min

PM Peak |3:50 PM
12.5 min

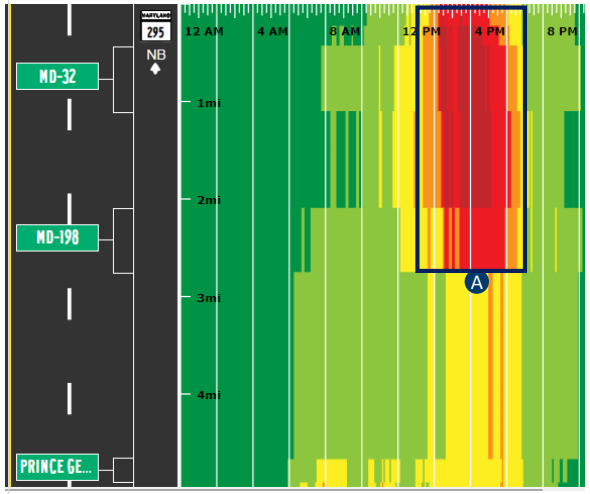
Q2 DELAY COST

Delay Cost
$2.269 M

Veh-hrs. of Delay
69,874 h

Congested Locations

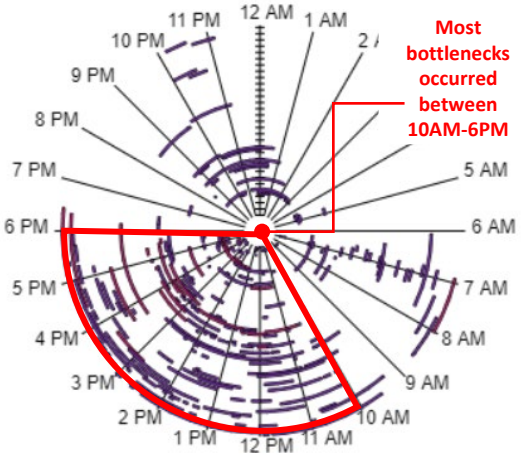
A 1PM – 7PM MD-198 to Canine Rd



Speed (mph)
0-9 10-19 20-29 30-39 40-49 50-59 60+

Bottleneck Occurrences

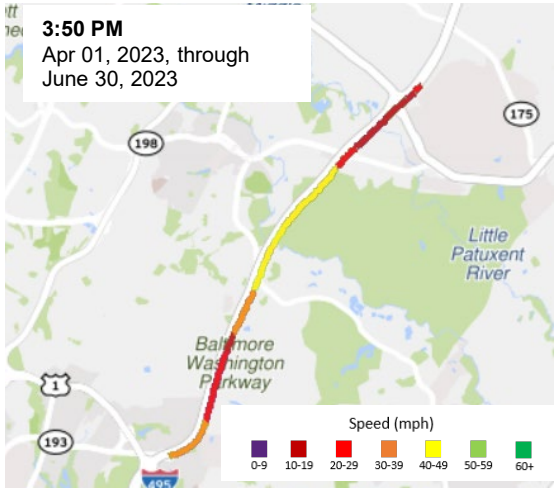
The center represents the beginning **of 01.01.23** and the outer edge the end of **03.31.23**



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

Corridor Speeds Over Time

For animated playback of corridor speeds over time, click anywhere on the map below

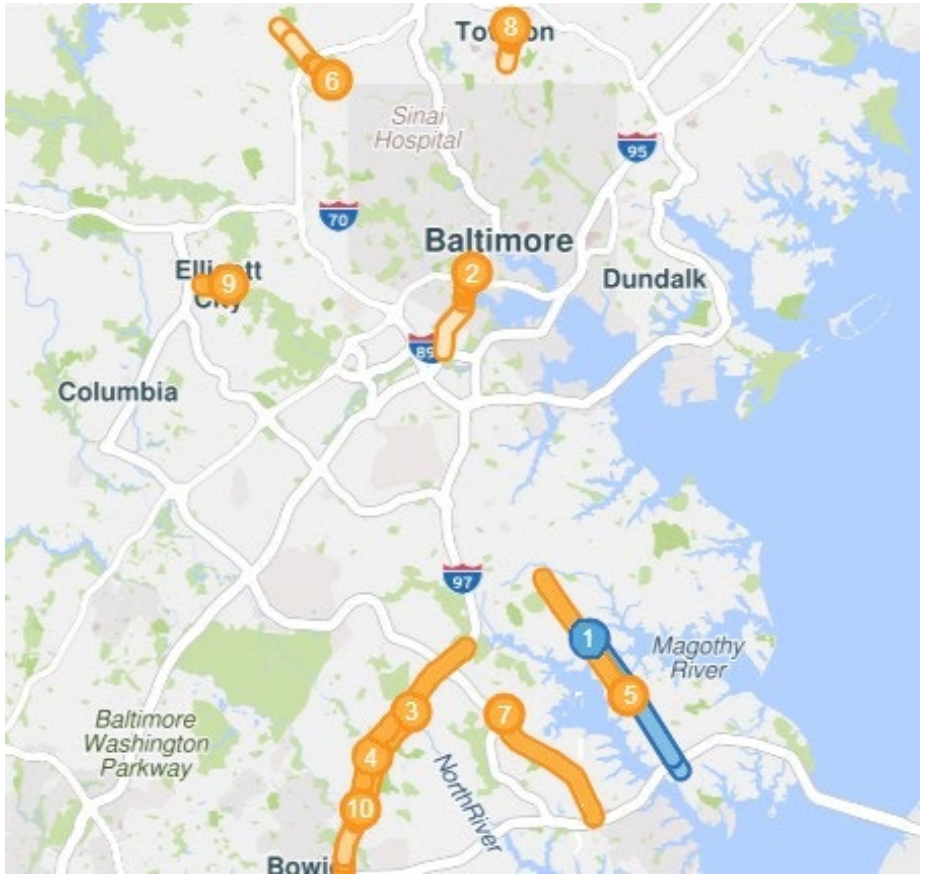


Top 10 Bottlenecks on Non-Limited Access Roads

Top 10 Bottlenecks in the Region – Non Limited Access Roads

Q2 2023

Rank	Location	Avg. Max. Length (mi)	Avg. Daily Duration	Volume Estimate (AADT)	Total Delay (Millions)
1	MD-2 N @ ROBINSON RD	3.59	2 h 12 m	28,269	29.8
2	MD-295 N @ BAYARD RD	0.21	10 h 15 m	32,771	20.6
3	MD-3 N @ ST STEPHENS CHURCH RD	1.09	2 h 47 m	33,271	19.3
4	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD	2.26	2 h	33,899	18.5
5	MD-2 S @ COLLEGE PKWY	3.01	1 h 6 m	29,914	11.5
6	MD-140 E @ SUDBROOK LA	0.57	7 h 20 m	15,168	9.3
7	MD-178 N @ I-97	2.93	1 h 33 m	8,963	9.1
8	MD-45 N @ MD-146/DULANEY VALLEY RD/ALLEGHENY AVE	0.37	9 h 58 m	10,663	9.0
9	MD-144 E @ WESTCHESTER AVE	0.52	9 h 32 m	6,670	7.7
10	MD-3 S @ MD-450/DEFENSE HWY	3.02	39 m	33,006	7.5



*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**.*

Red #s = highest value for that metric

Total Delay = Raw Speed drop weighted by VMT Factor (in millions)

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Ranked Bottleneck Lists by Jurisdiction

Top 20 Bottlenecks in Local Jurisdictions - 2nd Quarter 2023

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	MD-295 N @ CANINE RD
3	I-695 CCW @ MD-170/CAMP MEADE RD/EXIT 6
4	MD-2 N @ ROBINSON RD
5	US-50 E @ MD-665/ARIS ALLEN BLVD/EXIT 21-22
6	MD-295 S @ ANNE ARUNDEL/P.G. COUNTY LINE
7	I-97 S @ US-301/US-50
8	MD-295 N @ MD-100
9	MD-295 N @ P.G./ANNE ARUNDEL COUNTY LINE
10	US-50 E @ I-97/EXIT 21
11	MD-3 N @ SAINT STEPHENS CHURCH RD
12	MD-295 S @ CANINE RD
13	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD
14	MD-295 S @ MD-175
15	US-50 E @ BAY BRIDGE
16	MD-32 E @ I-97
17	MD-295 N @ I-195
18	MD-295 N @ MD-175
19	MD-2 S @ COLLEGE PKWY
20	I-97 S @ MD-178/EXIT 5

Baltimore City

Rank	Location
1	I-95 N @ FORT MCHENRY TUNNEL
2	MD-295 N @ BAYARD ST
3	I-95 N @ I-95 (BALTIMORE)/FORT MCHENRY TUNNEL(EAST)
4	I-95 S @ FORT MCHENRY TUNNEL
5	I-95 N @ I-95 (EAST)
6	I-895 S @ HARBOR TUNNEL THWY (SOUTH)
7	I-95 N @ MD-295/BALTIMORE WASHINGTON PKWY/EXIT 52
8	I-95 S @ KEITH AVE/EXIT 56
9	I-895 S @ HARBOR TUNNEL THWY (NORTH)
10	US-40 W @ COOKS LN
11	I-895 N @ HARBOR TUNNEL THWY (SOUTH)
12	US-40 W @ MD-295/PACA ST
13	US-40 W @ CENTRAL AVE
14	I-95 N @ BOSTON ST/EXIT 57
15	I-895 N @ HARBOR TUNNEL THWY (NORTH)
16	I-895 S @ HOLABIRD AVE/EXIT 10
17	MARTIN L KING JR BLVD N @ MULBERRY ST
18	MT ROYAL AVE W @ US-1/W NORTH AVE
19	FOREST PARK AVE N @ WINDSOR MILL RD
20	I-895 N @ CHILDS ST/EXIT 9

Top 20 Bottlenecks in Local Jurisdictions - 2nd Quarter 2023

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 IL @ EDMONDSON AVE/EXIT 14
4	I-695 IL @ MD-372/WILKENS AVE/EXIT 12
5	I-695 OL @ PROVIDENCE RD/EXIT 28
6	I-695 IL @ I-83/MD-25/EXIT 23
7	I-695 IL @ MD-147/HARFORD RD/EXIT 31
8	I-83 S @ I-695
9	I-695 OL @ I-70/EXIT 16
10	I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29
11	I-695 IL @ PROVIDENCE RD/EXIT 28
12	I-95 S @ MD-43/WHITEMARSH BLVD/EXIT 67
13	I-695 IL @ SECURITY BLVD/EXIT 17
14	I-695 IL @ I-70/EXIT 16
15	I-695 OL @ MD-41/PERRING PKWY/EXIT 30
16	I-695 OL @ CROMWELL BRIDGE RD/EXIT 29
17	I-695 IL @ MD-144/FREDERICK RD/EXIT 13
18	I-695 IL @ MD-41/PERRING PKWY/EXIT 30
19	I-695 OL @ I-795/EXIT 19
20	I-695 OL @ GREENSPRING AVE/EXIT 22

Carroll County

Rank	Location
1	MD-30 N @ MD-27/MANCHESTER RD
2	MD-30 S @ MD-27/MANCHESTER RD
3	MD-27 N @ MD-30/MAIN ST
4	MD-32 W @ MD-26/LIBERTY RD
5	MD-97 N @ MD-496/BACHMANS VALLEY RD
6	MD-140 W @ MD-194/YORK ST/FREDERICK ST
7	MD-97 S @ MD-496/BACHMANS VALLEY RD
8	MD-27 N @ MD-26/LIBERTY RD
9	MD-97 N @ MAGNA WAY/AIRPORT DR
10	MD-482 W @ MD-27/MANCHESTER RD
11	MD-27 S @ GILLIS RD
12	MD-27 S @ GILLIS FALLS RD
13	MD-32 W @ RAINCLIFFE RD/SANDOSKY RD
14	MD-27 N @ GILLIS RD
15	MD-140 E @ MD-91/EMORY RD/GAMBER RD
16	MD-91 N @ MD-140/BALTIMORE BLVD
17	MD-140 W @ MD-91/EMORY RD/GAMBER RD
18	MD-27 S @ BOND ST
19	MD-26 W @ MD-32/SYKESVILLE RD
20	MD-27 N @ MD-482/HAMPSTEAD MEXICO RD

IL = Inner Loop

OL = Outer Loop

Top 20 Bottlenecks in Local Jurisdictions – 2nd Quarter 2023

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 N @ MD-543/EXIT 80
2	I-95 N @ MD-24/EXIT 77
3	I-95 S @ MD-152/EXIT 74
4	I-95 S @ MD-543/EXIT 80
5	I-95 S @ MARYLAND HOUSE
6	I-95 N @ MD-22/EXIT 85
7	I-95 N @ MILLARD E TYDINGS MEMORIAL BRIDGE
8	MD-152 N @ OLD JOPPA RD
9	MD-543 S @ US-1/HICKORY BYP
10	MD-22 E @ MD-136/PRIESTFORD RD/CALVARY RD
11	I-95 S @ MD-24/EXIT 77
12	I-95 N @ MD-152/EXIT 74
13	I-95 N @ MD-155/EXIT 89
14	MD-152 N @ I-95
15	US-1-BR S @ MD-24
16	I-95 S @ MD-22/EXIT 85
17	MD-543 N @ MD-22/E CHURCHVILLE RD
18	US-1-BR N @ MD-24
19	MD-24 N @ US-1-BR/BALTIMORE PIKE/BEL AIR RD
20	MD-155 E @ MD-22/CHURCHVILLE RD

Howard County

Rank	Location
1	I-95 N @ MD-100/EXIT 43
2	I-95 S @ MD-216/EXIT 35
3	I-95 S @ MD-100/EXIT 43
4	MD-32 W @ I-95
5	I-95 N @ MD-175/EXIT 41
6	MD-100 W @ MARC DORSEY STATION ACCESS RD/EXIT 7
7	I-95 S @ MD-175/EXIT 41
8	I-95 N @ MD-32/EXIT 38
9	US-29 N @ MD-32/EXIT 16
10	I-95 N @ PRINCE GEORGE'S/HOWARD CO LINE
11	I-95 N @ MD-216/EXIT 35
12	I-95 N @ I-895/EXIT 46
13	I-70 W @ US-29/EXIT 87
14	I-95 S @ MD-32/EXIT 38
15	MD-144 E @ WESTCHESTER AVE
16	MD-100 E @ MARC DORSEY STATION ACCESS RD/EXIT 7
17	US-40 W @ ST JOHNS LN
18	I-95 S @ I-895/EXIT 46
19	I-70 E @ US-29/EXIT 87
20	US-29 N @ US-40

Top 20 Bottlenecks in Local Jurisdictions - 2nd Quarter 2023

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	Head Location
1	US-50 W @ BAY BRIDGE
2	US-50 W @ US-301/BLUE STAR MEMORIAL HWY
3	US-50 W @ MD-213/CENTREVILLE RD
4	US-50 W @ MD-8/EXIT 37
5	US-50 E @ MD-213/CENTREVILLE RD
6	MD-300 W @ MD-213/CHURCH HILL RD
7	US-50 W @ MD-404/QUEEN ANNE HWY
8	US-301 S @ US-50
9	US-50 E @ MD-404/QUEEN ANNE HWY
10	US-50 W @ MD-456/DEL RHODES AVE
11	US-50 E @ MD-456/DEL RHODES AVE
12	US-50 W @ THOMPSON CREEK RD/DUKE ST
13	US-50 E @ MD-8/EXIT 37
14	US-50 W @ NESBIT RD/EXIT 45B
15	US-50 W @ MD-18/MAIN ST/EXIT 41
16	US-50 E @ HESS RD/HISSEY RD/EXIT 45A
17	US-50 E @ BEGIN FREEWAY
18	MD-300 E @ MD-213/CHURCH HILL RD
19	MD-213 N @ MD-289/N CROSS ST/PHILOSOPHERS TER
20	MD-313 S @ MD-544/MCGINNIS RD

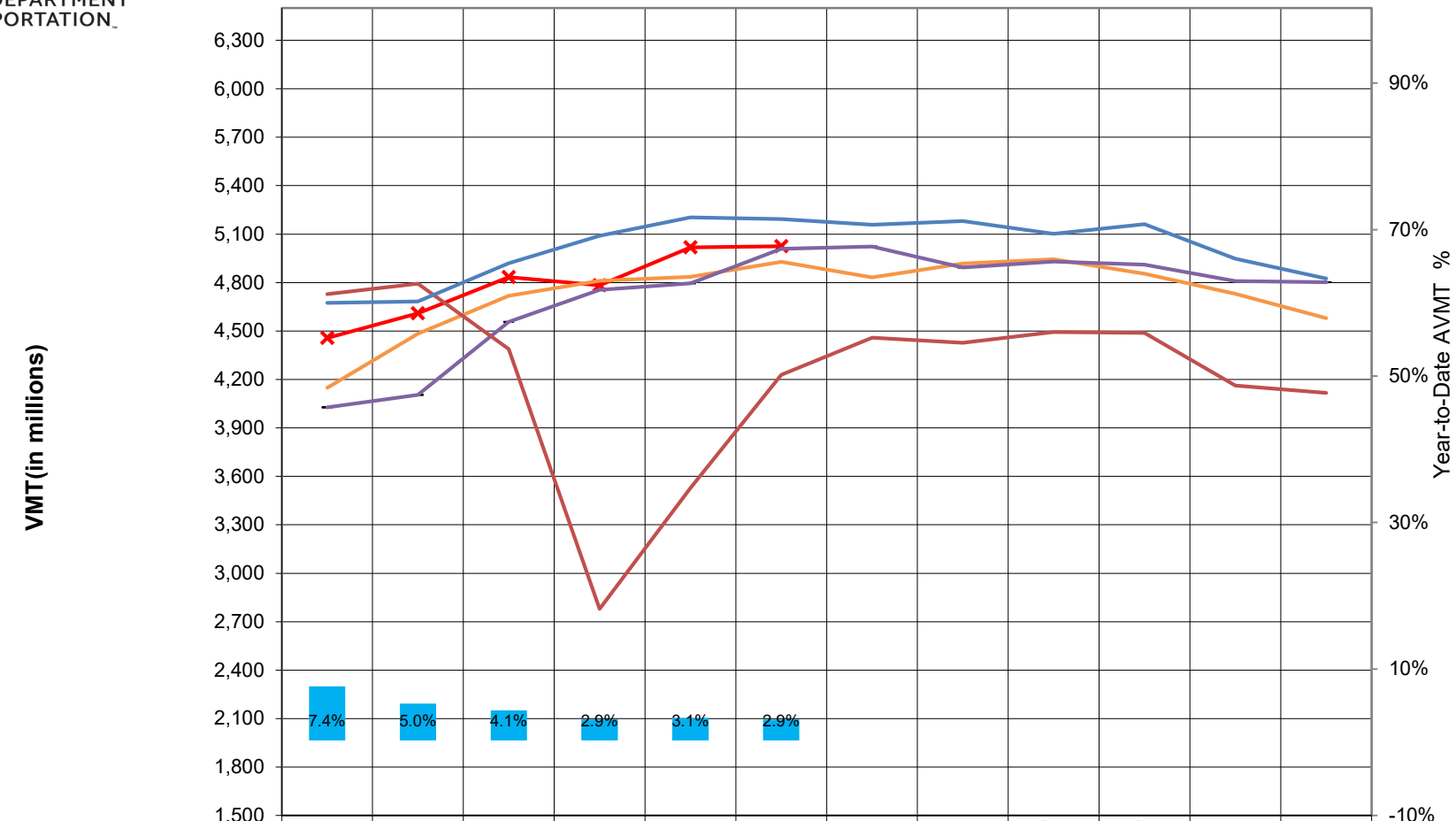
Vehicle Miles Traveled (VMT) Trend Graphs

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

Estimated Monthly Distribution of Annual (VMT) Vehicle Miles of Travel for : Jun-2023										
Jun	2019 VMT (Millions)	2020 VMT (Millions)	2021 VMT (Millions)	2022 VMT (Millions)	**2023 VMT* (Millions)-Estimated**	Percent Change 2019-2020	Percent Change 2020-2021	Percent Change 2021-2022	Percent Change 2022-2023	Cumulative Year-to-Date Change 2022-2023
Jan	4674	4728	4028	4149	4456	1.2%	-14.8%	3.0%	7.4%	7.4%
Feb	4683	4794	4104	4483	4610	2.4%	-14.4%	9.2%	2.8%	5.0%
Mar	4919	4389	4556	4718	4834	-10.8%	3.8%	3.6%	2.5%	4.1%
Apr	5089	2779	4755	4811	4783	-45.4%	71.1%	1.2%	-0.6%	2.9%
May	5204	3527	4795	4835	5017	-32.2%	36.0%	0.8%	3.8%	3.1%
Jun	5193	4229	5009	4929	5025	-18.6%	18.4%	-1.6%	1.9%	2.9%
Jul	5158	4458	5023	4832		-13.6%	12.7%	-3.8%		
Aug	5180	4427	4894	4918		-14.5%	10.5%	0.5%		
Sep	5102	4494	4930	4945		-11.9%	9.7%	0.3%		
Oct	5162	4488	4910	4854		-13.1%	9.4%	-1.1%		
Nov	4947	4163	4810	4730		-15.8%	15.5%	-1.7%		
Dec	4825	4116	4802	4580		-14.7%	16.7%	-4.6%		
TOTAL	**60,136**	**50,592**	**56,616**	**56,784**		**-15.9%**	**11.9%**	**0.3%**		
Note										
1	The Jun-2023 Monthly AVMT is up compared to Jun-2022 by 1.9%									
2	The Cumulative Year-to-Date Change till Jun-2023 AVMT is up compared to same time last year 2022 by 2.9%									
3	* Preliminary 2023 VMT Estimates based on 2022 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 :10/17/2023									

MARYLAND DEPARTMENT OF TRANSPORTATION

Estimated Monthly Distribution of Annual (VMT) Vehicle Miles of Travel for : Jun-2023



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative Year-to-Date Change 2022-2023	7.4%	5.0%	4.1%	2.9%	3.1%	2.9%						
2023 VMT* (Millions)-Estimated	4456	4610	4834	4783	5017	5025						
2022 VMT (Millions)	4149	4483	4718	4811	4835	4929	4832	4918	4945	4854	4730	4580
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

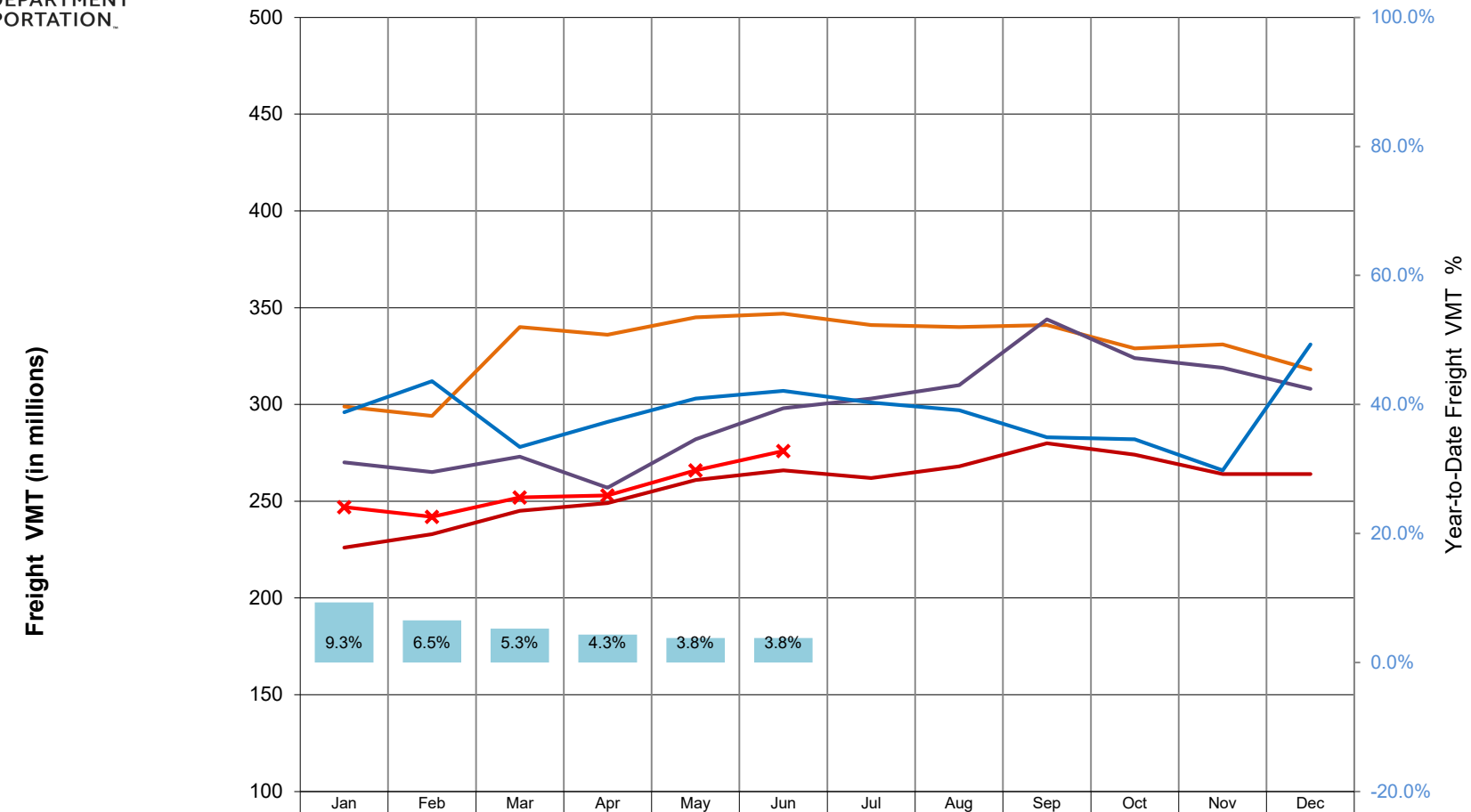
NOTE: This chart displays estimated monthly Vehicle Miles of Travel compared with the previous year based on data collected at approximately 50+ continuous count stations throughout the State.

Report Updated on :10/17/2023

Estimated Monthly Distribution of Freight Vehicle Miles of Travel for : Jun-2023										
Jun	2019 Freight VMT (Millions)	2020 Freight VMT (Millions)	2021 Freight VMT (Millions)	2022 Freight VMT (Millions)	2023 Freight VMT (Millions)* Estimated	Percent Change 2019-2020 Freight VMT	Percent Change 2020-2021 Freight VMT	Percent Change 2021-2022 Freight VMT	Percent Change 2022-2023 Freight VMT	Cumulative Year-to-Date Freight VMT 2022-2023
Jan	296	270	299	226	247	-8.8%	10.7%	-24.4%	9.3%	9.3%
Feb	312	265	294	233	242	-15.1%	10.9%	-20.7%	3.9%	6.5%
Mar	278	273	340	245	252	-1.8%	24.5%	-27.9%	2.9%	5.3%
Apr	291	257	336	249	253	-11.7%	30.7%	-25.9%	1.6%	4.3%
May	303	282	345	261	266	-6.9%	22.3%	-24.3%	1.9%	3.8%
Jun	307	298	347	266	276	-2.9%	16.4%	-23.3%	3.8%	3.8%
Jul	301	303	341	262		0.7%	12.5%	-23.2%		
Aug	297	310	340	268		4.4%	9.7%	-21.2%		
Sep	283	344	341	280		21.6%	-0.9%	-17.9%		
Oct	282	324	329	274		14.9%	1.5%	-16.7%		
Nov	266	319	331	264		19.9%	3.8%	-20.2%		
Dec	331	308	318	264		-6.9%	3.2%	-17.0%		
TOTAL	**3547**	**3553**	**3961**	**3092**		**0.17%**	**11.48%**	**-21.94%**		
Note										
1	The Jun-2023 Monthly Freight VMT is up compared to Jun-2022 by 3.8%									
2	The Cumulative Year-to-Date Change till Jun-2023 Freight VMT is up compared to same time last year 2022 by 3.8%									
3	* Preliminary 2023 Freight VMT Estimates based on 2022 Freight Final VMT and 2022 HPMS Vehicle Class Summary .									
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 :10/17/2023										

MARYLAND DEPARTMENT OF TRANSPORTATION

Estimated Monthly Distribution of Freight Vehicle Miles of Travel for : Jun-2023



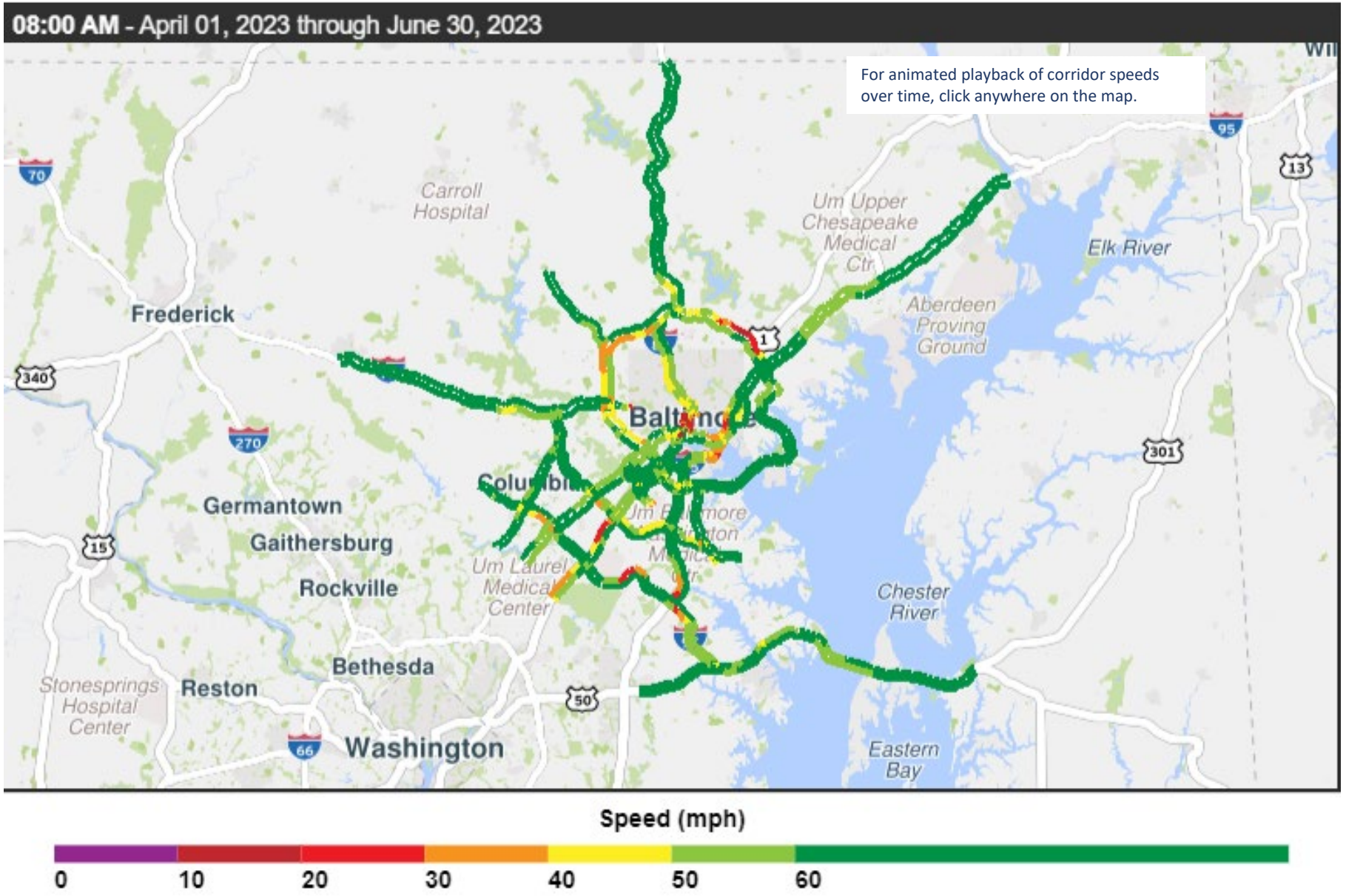
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative Year-to-Date Freight VMT 2022-2023	9.3%	6.5%	5.3%	4.3%	3.8%	3.8%						
2023 Freight VMT (Millions)* Estimated	247	242	252	253	266	276						
2022 Freight VMT (Millions)	226	233	245	249	261	266	262	268	280	274	264	264
2021 Freight VMT (Millions)	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

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.

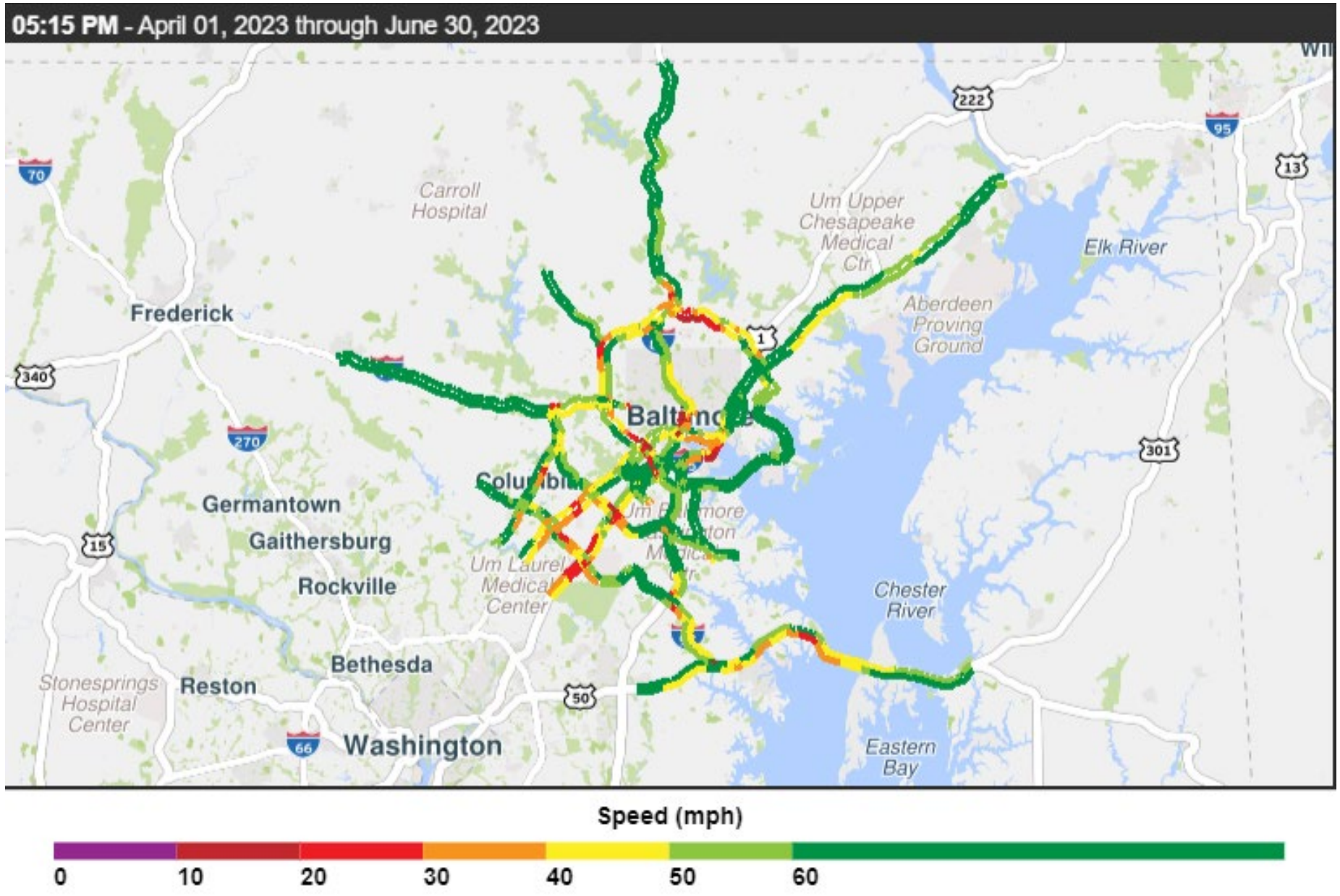
Report Updated on :10/17/2023

Regional Speed Maps

AM Peak Period Rush Hour: 2nd Quarter 2023



PM Peak Period Rush Hour: 2nd Quarter 2023



System Reliability Performance Measures

Percent of reliable person-miles traveled on the Interstate

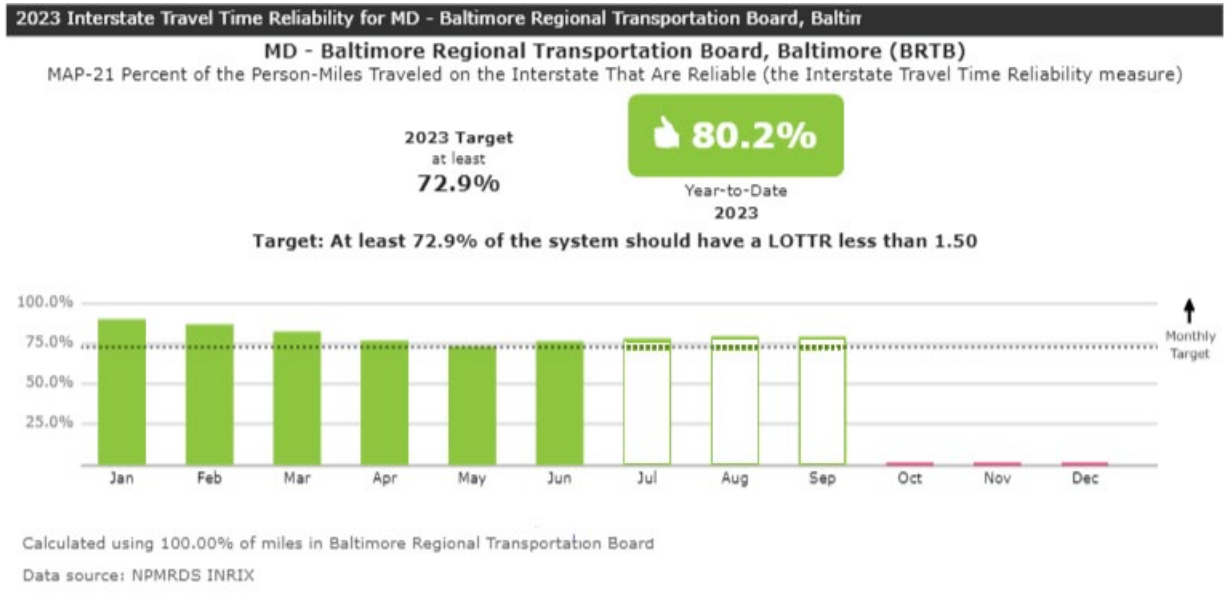
Percent of reliable person-miles traveled on the Non-Interstate NHS

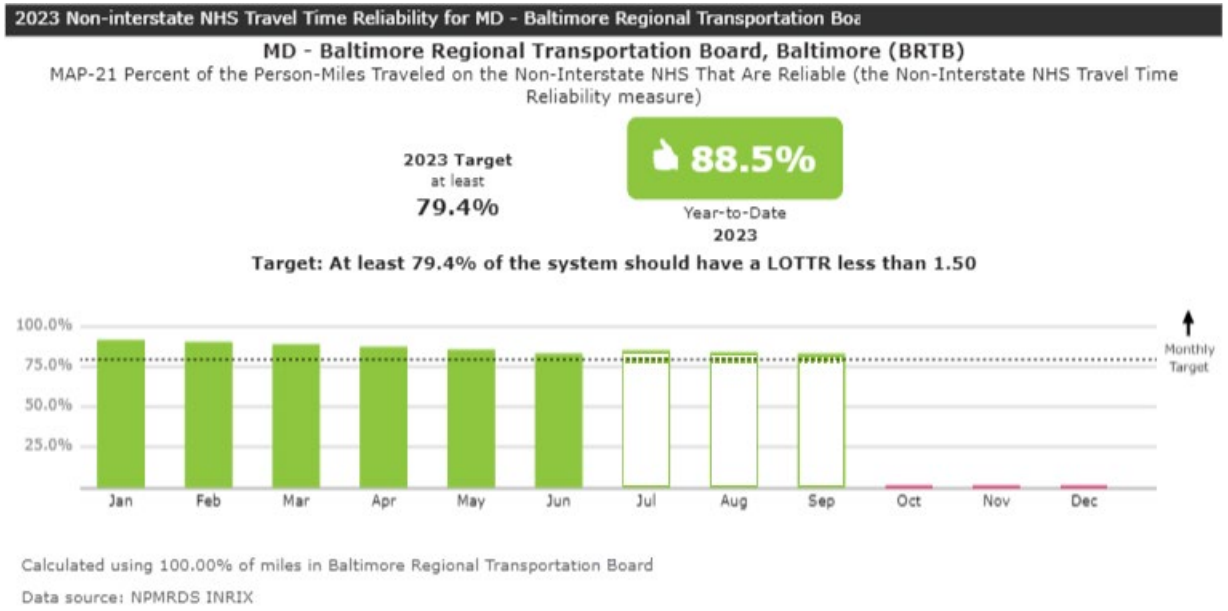
Percentage of Interstate system mileage providing for reliable truck travel time (Truck Travel Time Reliability Index)

* 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

			2022-2023											
Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Q2 Rank	Q2 Locations
3	5	10	5	2	3	1	4	4	1	4	2	1	I-95 N @ MD-152/EXIT 74
1	3	3	3	4	5	2	2		4	3	1	2	MD-295 S @ MD-198
6			7		4	10	14	2	11	1		3	I-95 N @ MD-100/EXIT 43
	8	2	2	1	1	4	1	1	3	2	11	4	I-695 OL @ MD-26/EXIT 18
									6	6	4	5	I-695 IL @ EDMONDSON AVE/EXIT 14
	2	13	19	5	15		16	8	5	8	7	6	US-50 E @ BAY BRIDGE
9	9	5	6		7	3	3	5	8	7	8	7	I-695 IL @ MD-372/WILKENS AVE/EXIT 12
10			10	7	9		11	13	9	10	6	8	I-95 S @ MD-216/EXIT 35
8	6	4		12						20	3	9	I-95 N @ MD-543/EXIT 80
	15	12			20	9	17	14	17	11		10	MD-295 N @ CANINE RD
	16				19	6	13	10	15	18	19	11	I-695 OL @ PROVIDENCE RD/EXIT 28
									20	14	18	12	I-95 N @ FORT MCHENRY TUNNEL
	12	9	12	6	10	7		6	12	16	15	13	I-695 IL @ I-83/MD-25/EXIT 23
		20	18	9	11	18	19				13	14	I-83 S @ I-695
4	14	8	11		12		20	18		17	20	15	I-695 OL @ I-70/EXIT 16
											16	16	I-695 OL @ MD-170/CAMP MEADE RD/EXIT 6
					18				10			17	I-95 S @ MD-100/EXIT 43
										19		18	MD-2 N @ ROBINSON RD
		15		18								19	I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29
				13	17					13		20	I-95 N @ MD-24/EXIT 77

Conclusions/Observations: The June-2023 Monthly Average Vehicle Miles Traveled AVMT is up compared to June-2022 by 1.9%. The cumulative Year to Date change through June 2023 AMVT is up compared to last year 2022 by 2.9%. The new number #1 bottleneck in the Baltimore region was I-95 N at Exit 74/MD 152/Mountain Rd. This is primarily due to ongoing construction of the I-95 Express Toll Lanes (ETL) in Harford County.

Inner Loop (IL)
Outer Loop (OL)

Credits


THE EASTERN
TRANSPORTATION
COALITION


CATT
LABORATORY


MDOT
MARYLAND DEPARTMENT
OF TRANSPORTATION
STATE HIGHWAY
ADMINISTRATION


INRIX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