Quarterly Congestion Analysis Report

Top 10 Bottlenecks in the Baltimore Region

3rd Quarter 2023

BRTB Baltimore Regional Transportation Board

Report created November 2023

BALTIMORE METROPOLITAN COUNCIL

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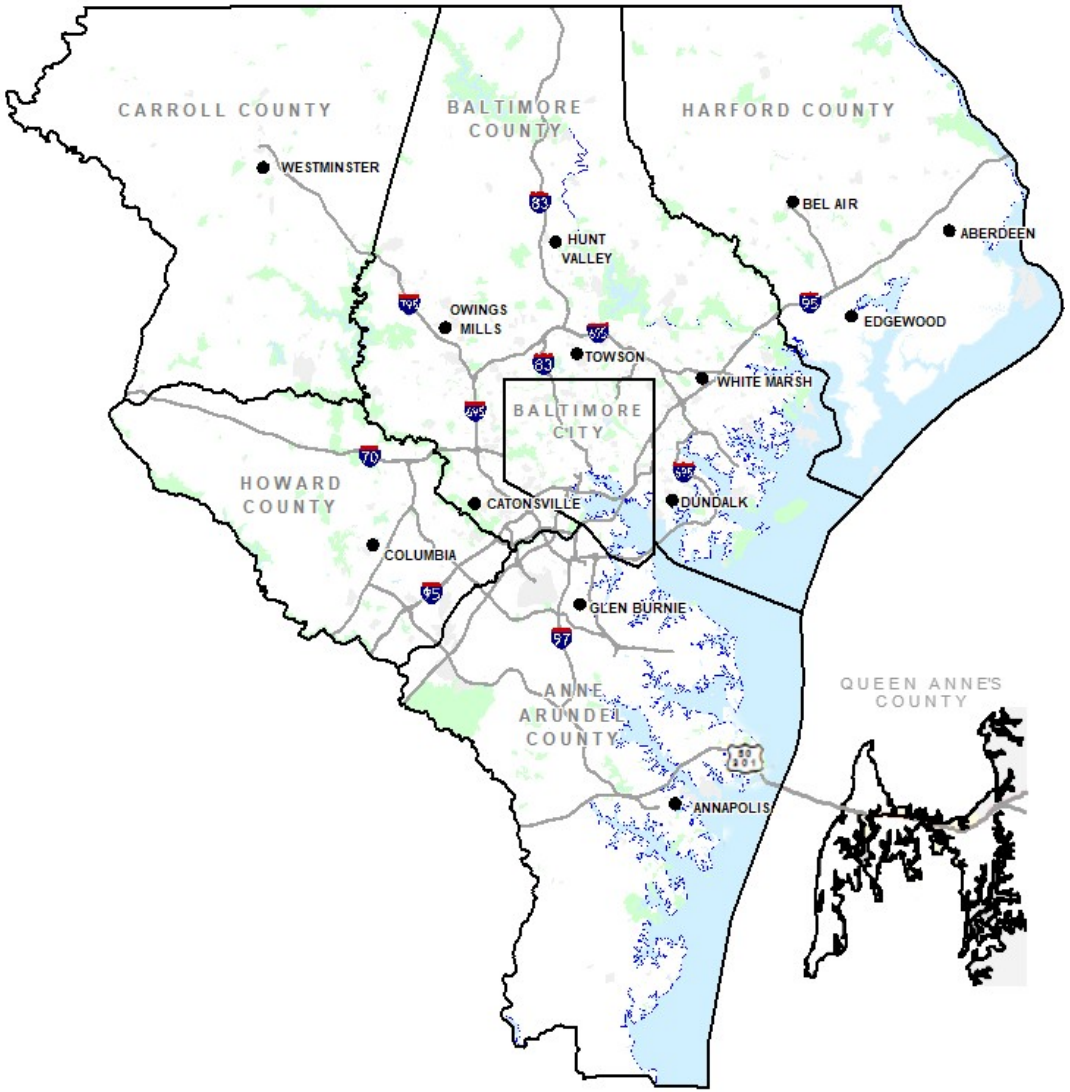
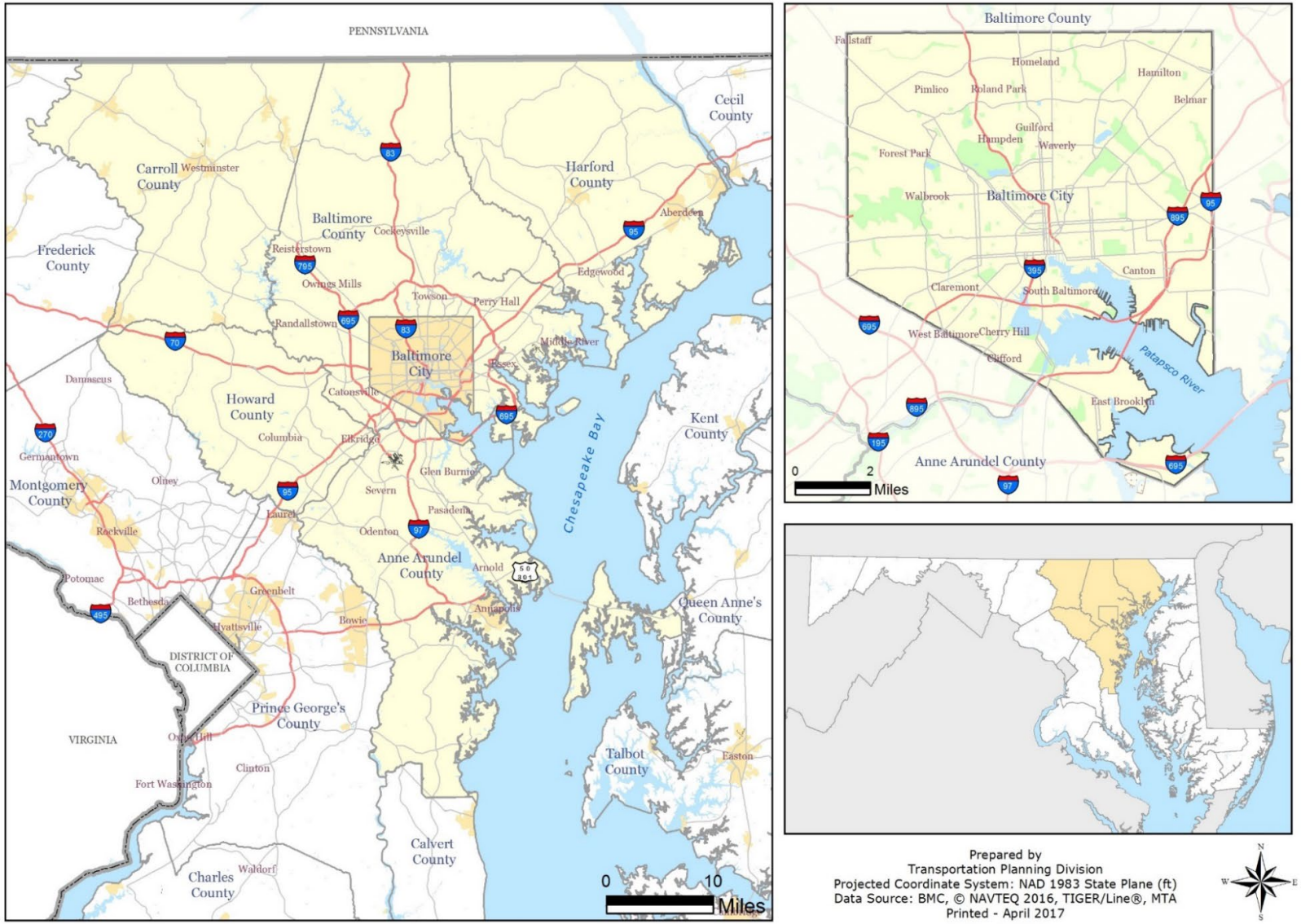
Baltimore Region



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

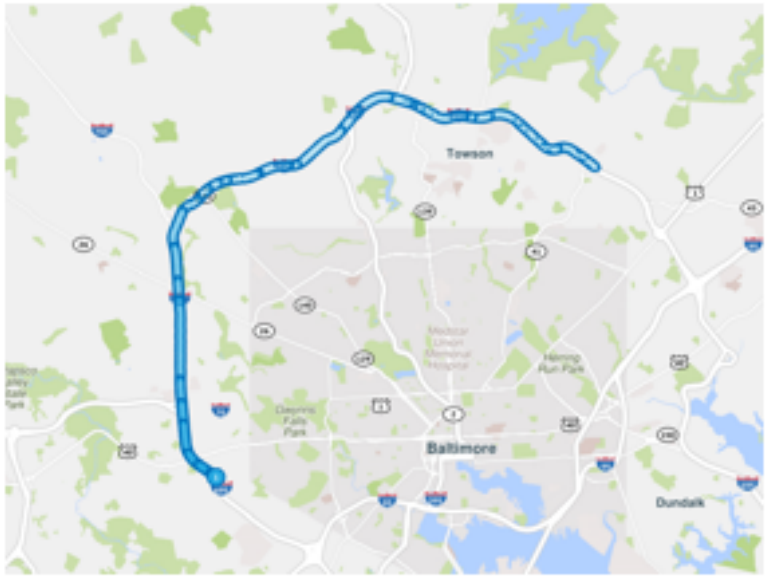
Bottleneck Analytics

How are bottleneck conditions tracked?

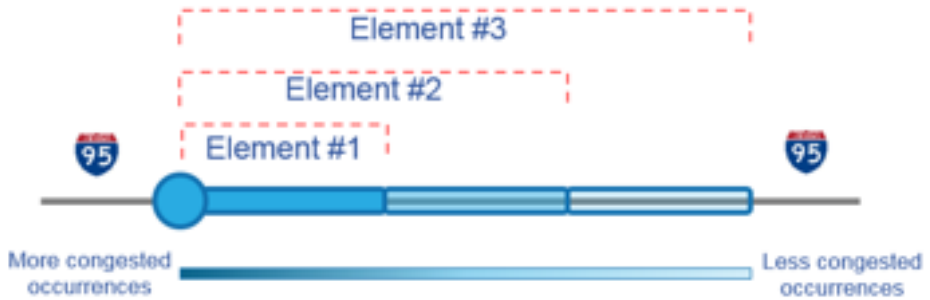
- **Rank** - The ranked position of the location according to the current table ordering by Base Impact – the aggregation of queue length over time for congestion at each location in mile minutes. It is then weighted by Total Delay – Raw speed drop weighted by VMT factor.
- **Previous Quarter Ranking** - 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	3	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.

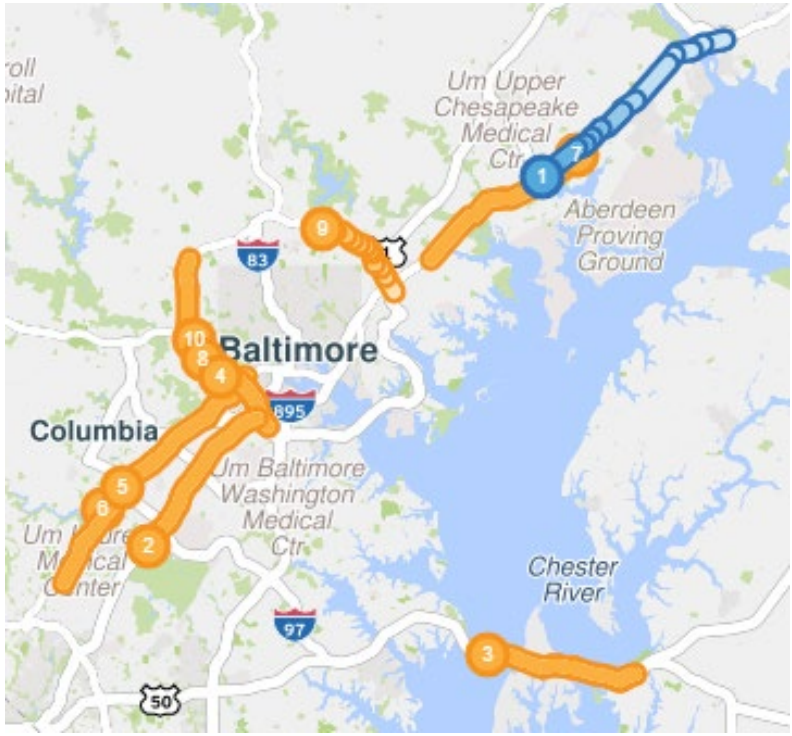


Top 10 Bottleneck Rankings in the Baltimore Region – 3rd Quarter 2023

Top 10 Bottlenecks in the Region

Q3 2023

Rank	Location	Previous Quarter Ranking	Avg. Max. Length (mi)	Avg. Daily Duration	Volume Estimate (AADT)	Total Delay (Millions)
1	I-95 S @ MD-24/EXIT 77		5.54	2 h 59 m	56,258	**142.8**
2	MD-295 S @ MD-198	2	3.14	**6 h 07 m**	47,378	129.2
3	US-50 W @ BAY BRIDGE	6	4.84	1 h 50 m	32,168	92.1
4	I-695 IL @ MD-372/WILKENS AVE/EXIT 12	7	2.01	1 h 50 m	98,319	71.1
5	I-95 N @ MD-32/EXIT 38		3.58	1 h 26 m	99,120	61.6
6	I-95 S @ MD-216/EXIT 35	8	4.51	1 h 19 m	98,665	56.5
7	I-95 N @ MD-543/EXIT 80	9	**6.24**	55 m	70,960	53.4
8	I-695 IL @ EDMONDSON AVE/EXIT 14	5	2.27	1 h 17 m	100,902	52.4
9	I-695 OL @ PROVIDENCE RD/EXIT 28		3.21	1 h 10 m	79,461	46.8
10	I-695 OL @ I-70/EXIT 16		2.59	1 h 48 m	**102,997**	44.3



*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)

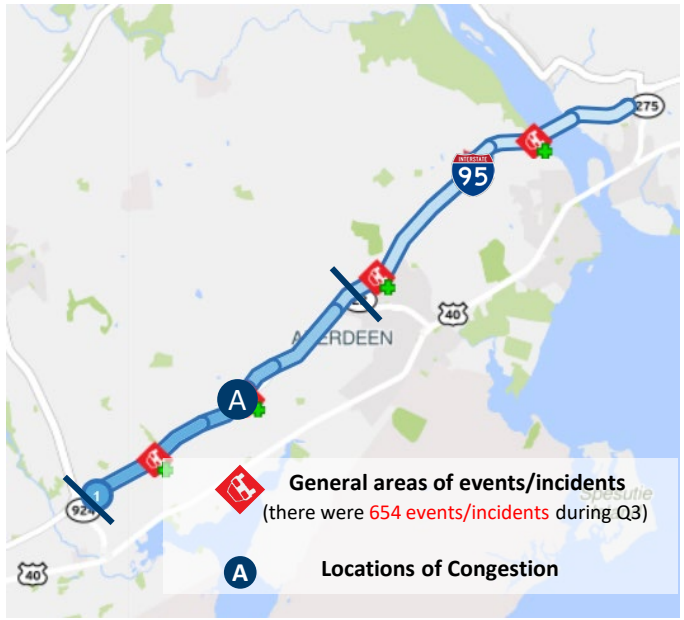
Top 10 Bottleneck Rankings in the Baltimore Region – 3rd Quarter 2023 by Location

Includes:

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

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

Quarterly Bottleneck Evaluation Summary Q3 2023



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.

PK. AVG. SPEED

AM Peak | 9:00 AM
69.2 mph
(10% slower than free flow)

PM Peak | 2:55 PM
44.7 mph
(40% slower than free flow)

PK. TRAVEL TIME

AM Peak | 9:00 AM
13.7 min

PM Peak |2:55 PM
21.0 min

Q3 DELAY COST

Delay Cost
$3.032 M

Veh-hrs. of Delay
100,396 h

Congested Locations

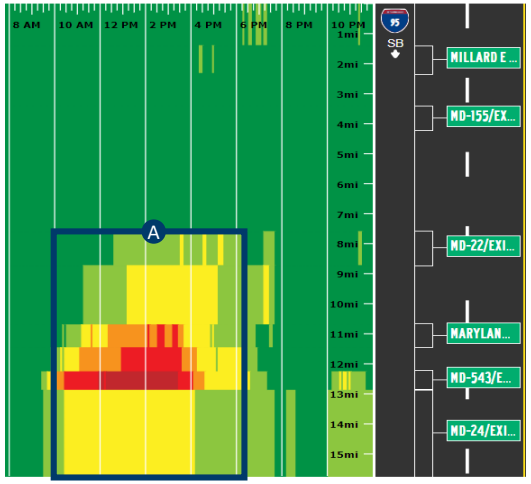
A **9:50AM – 6:30PM** MD-22/Exit 85 to MD-24/Exit 77

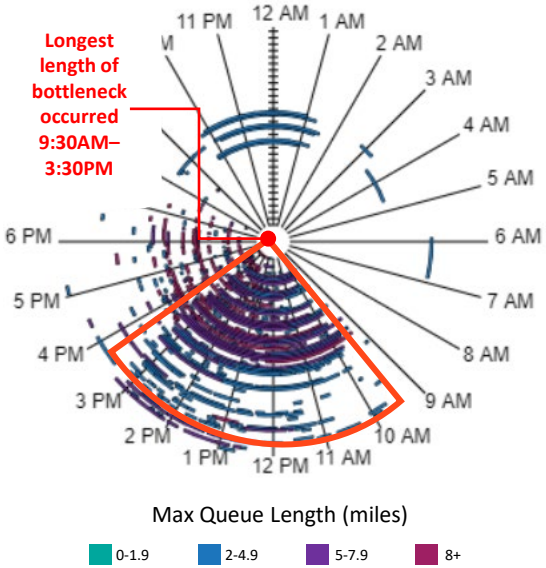
Bottleneck Occurrences

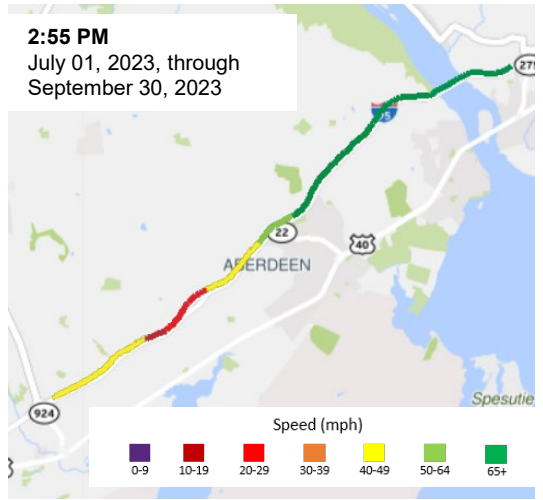
The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23**

Corridor Speeds Over Time

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







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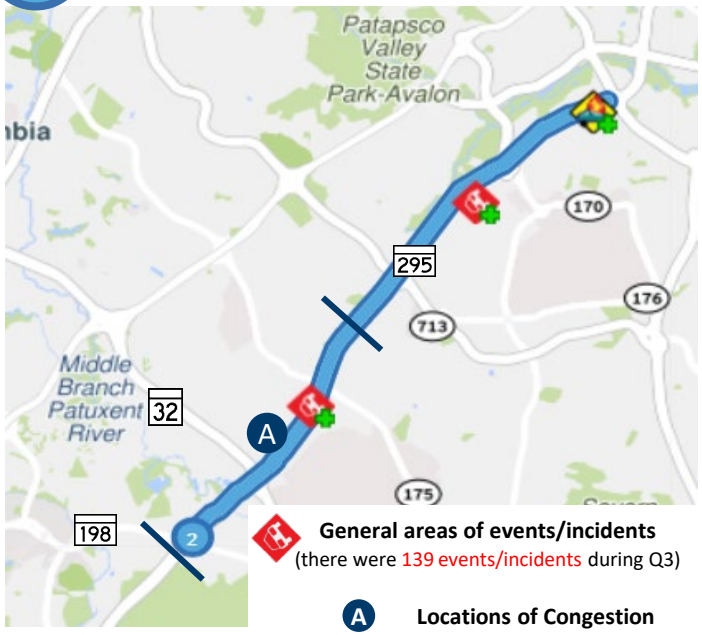
2 MD-295 S @ MD-198

Quarterly Bottleneck Evaluation Summary Q3 2023



General areas of events/incidents
(there were 139 events/incidents during Q3)

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 | 7:45 AM
44.5 mph
(35% slower than free flow)

PM Peak | 4:40 PM
32.4 mph
(49% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:45 AM
15.3 min

PM Peak |4:40 PM
21.1 min

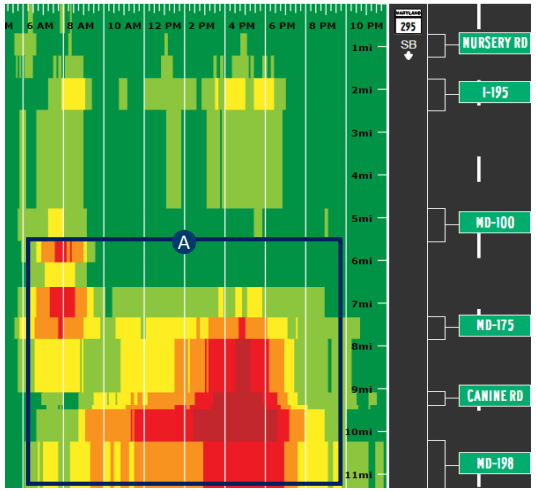
Q3 DELAY COST

Delay Cost
$4.179 M

Veh-hrs. of Delay
138,386 h

Congested Locations

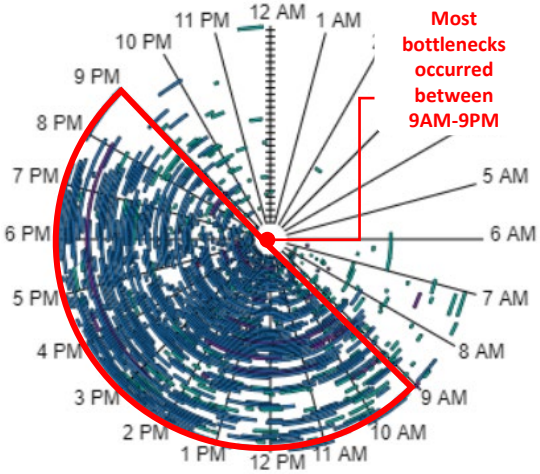
A **5:30AM – 10PM** Arundel Mills Blvd to MD-198



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

Bottleneck Occurrences

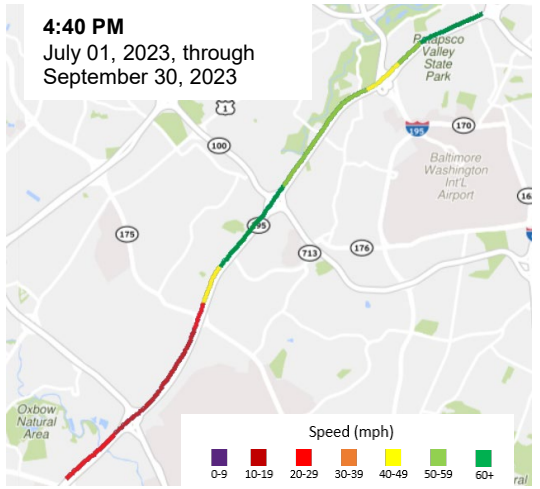
The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23**



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

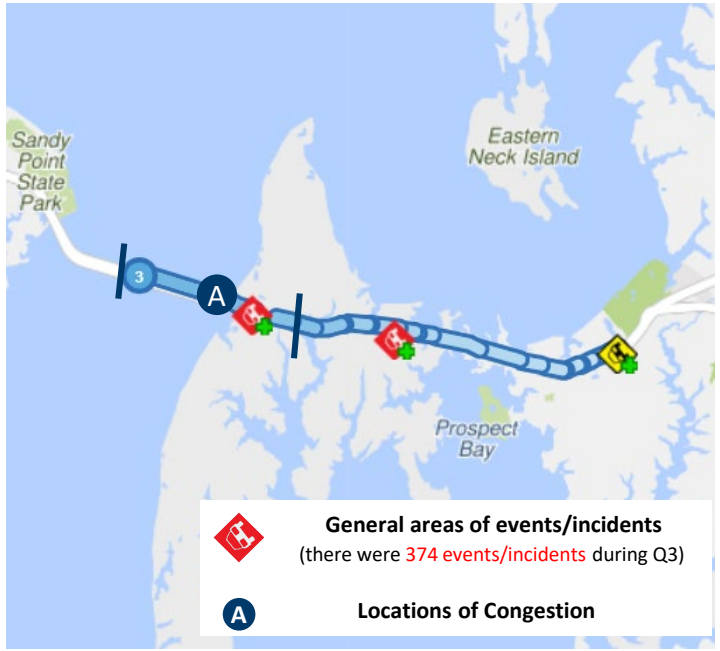
Corridor Speeds Over Time

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



3 US-50 W @ BAY BRIDGE

Quarterly Bottleneck Evaluation Summary Q3 2023



Preservation/maintenance work and deck rehabilitation on the westbound span. Two way traffic will operate on the eastbound span during the full westbound span closures. High traffic volumes from return trips from Maryland beach resorts.

PK. AVG. SPEED

AM Peak | 8:55 AM
64.5 mph
(9% slower than free flow)

PM Peak |3:05 PM
32.8 mph
(52% slower than free flow)

PK. TRAVEL TIME

AM Peak |8:55 AM
8.8 min

PM Peak |3:05 PM
17.4 min

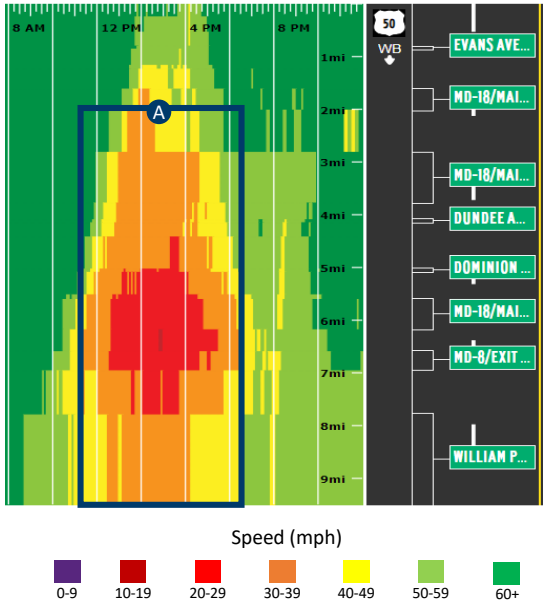
Q3 DELAY COST

Delay Cost
$2.234 M

Veh-hrs. of Delay
73,999 h

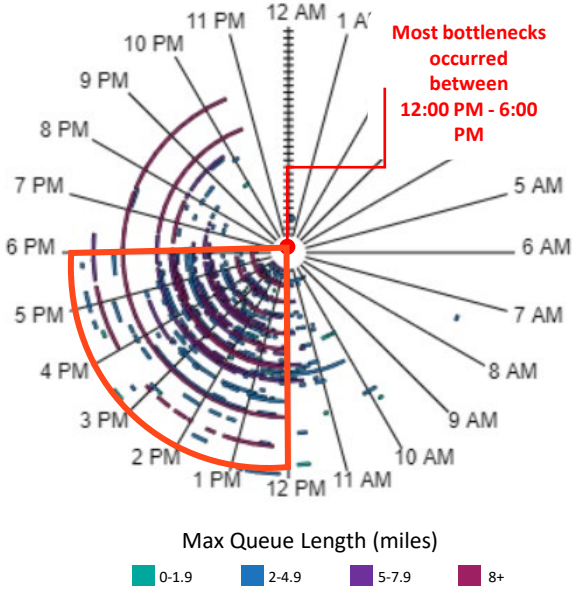
Congested Locations

A **11:00AM – 6:30PM** MD-18/Main St/Exit 43A to Bay Bridge



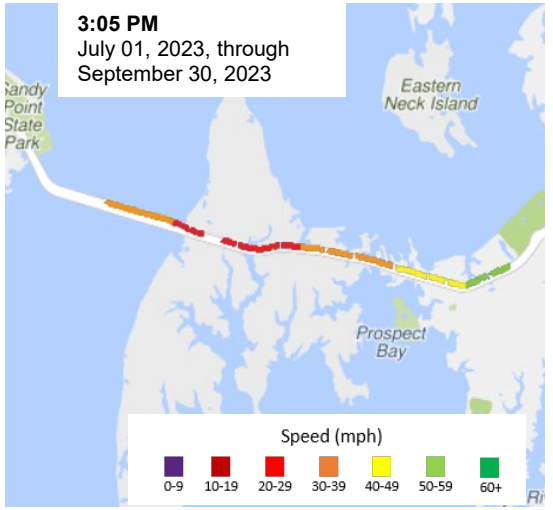
Bottleneck Occurrences

The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23**



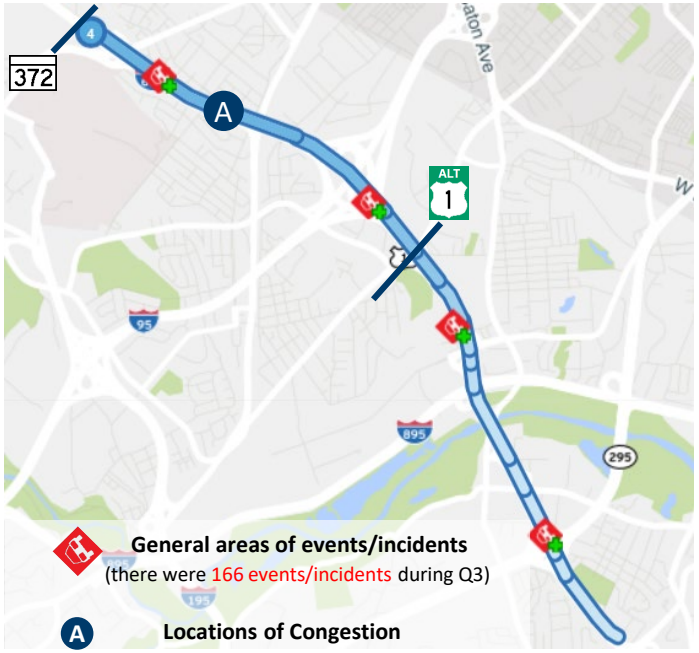
Corridor Speeds Over Time

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



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

Quarterly Bottleneck Evaluation Summary Q3 2023



PK. AVG. SPEED

AM Peak | 7:55 AM
51.3 mph
(26% slower than free flow)

PM Peak | 5:25 PM
31.8 mph
(53% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:55 AM
5.9 min

PM Peak |5:25 PM
9.5 min

Q3 DELAY COST

Delay Cost
$1.136 M

Veh-hrs. of Delay
37,931 h

Congested Locations

A **11:45AM – 6:45PM** US-1 ALT/Washington Blvd/Exit 10 to MD-372/Wilkens Ave/Exit 12

Bottleneck Occurrences

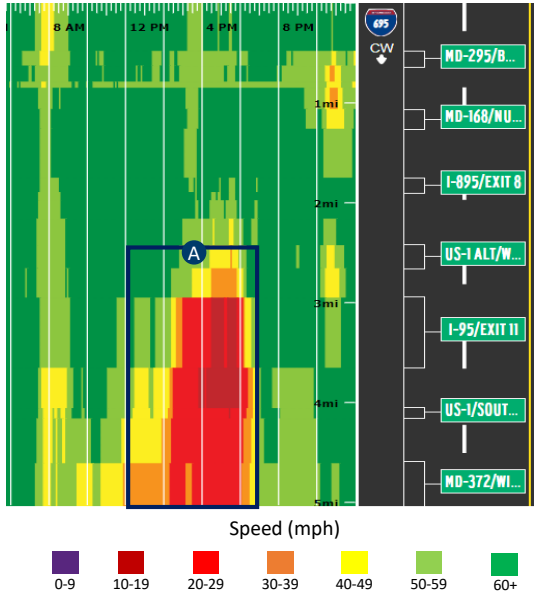
The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23**

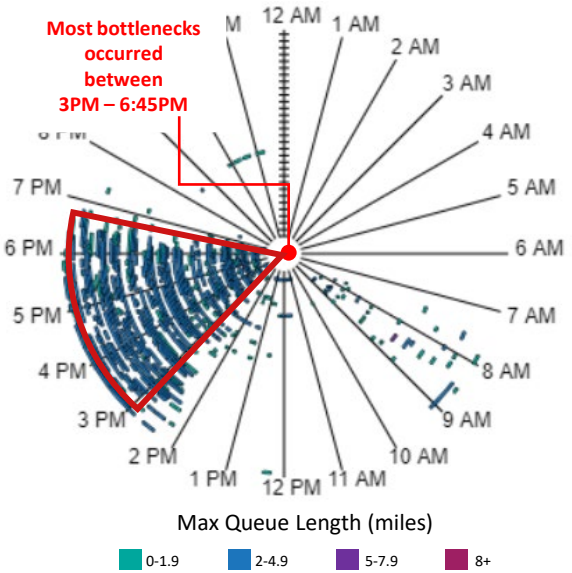
Corridor Speeds Over Time

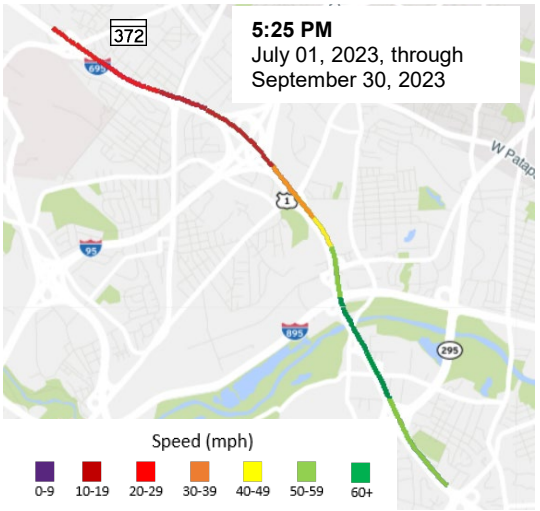
For animated playback of corridor speeds over time, click anywhere on the map below

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 8th 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.







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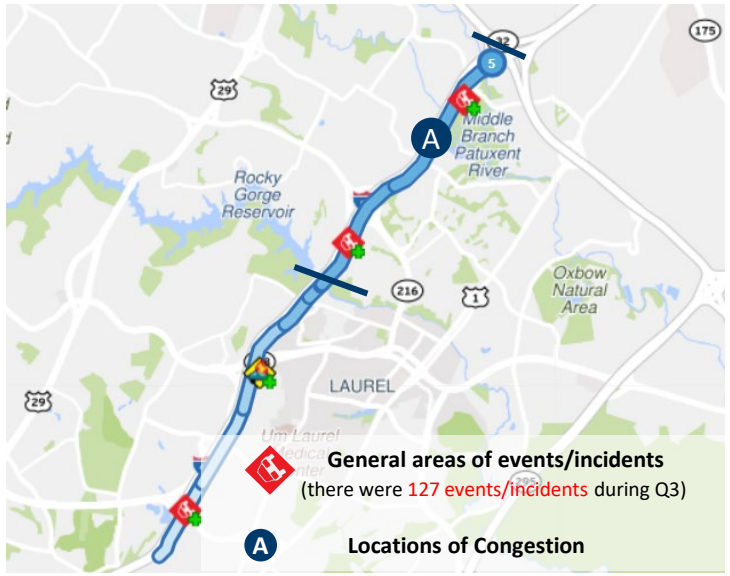
5 I-95 N @ MD-32/EXIT 38

Quarterly Bottleneck Evaluation Summary Q3 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.

I-95 bridge over MD 32-Bridge Deck Surface Repair project was recently completed.

PK. AVG. SPEED

AM Peak | 8:00 AM
54.1 mph
(27% slower than free flow)

PM Peak | 3:25 PM
45.7 mph
(37% slower than free flow)

PK. TRAVEL TIME

AM Peak |8:00 AM
8.7 min

PM Peak |3:25 PM
10.3 min

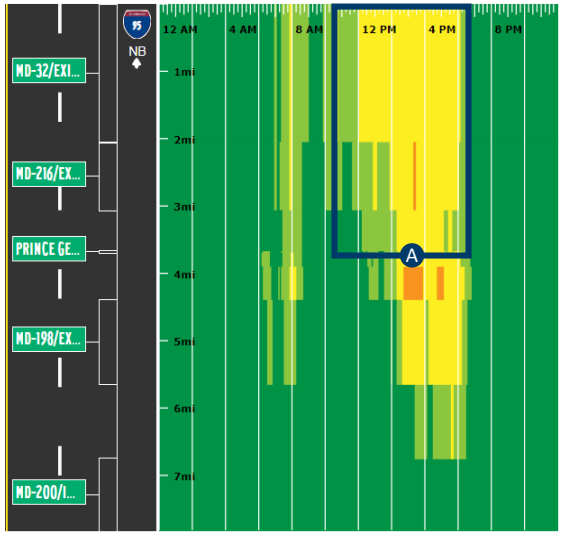
Q3 DELAY COST

Delay Cost
$1.520 M

Veh-hrs. of Delay
50,333 h

Congested Locations

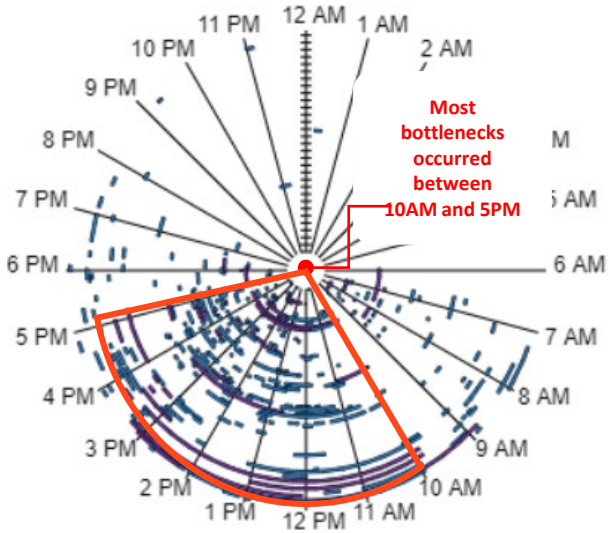
A **10:00AM – 6PM** Howard/P.G. County line to MD-32/Exit 38



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

Bottleneck Occurrences

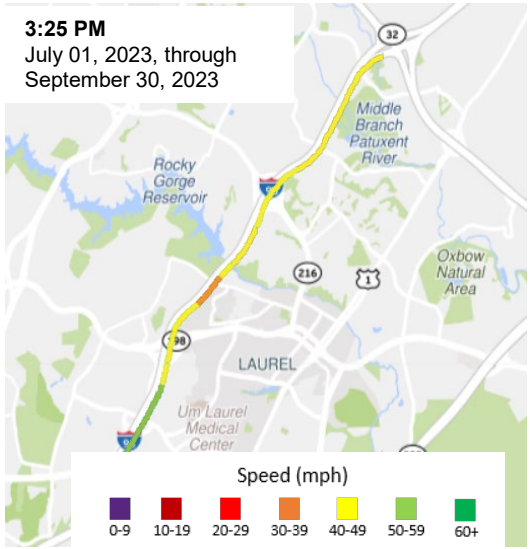
The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23**



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

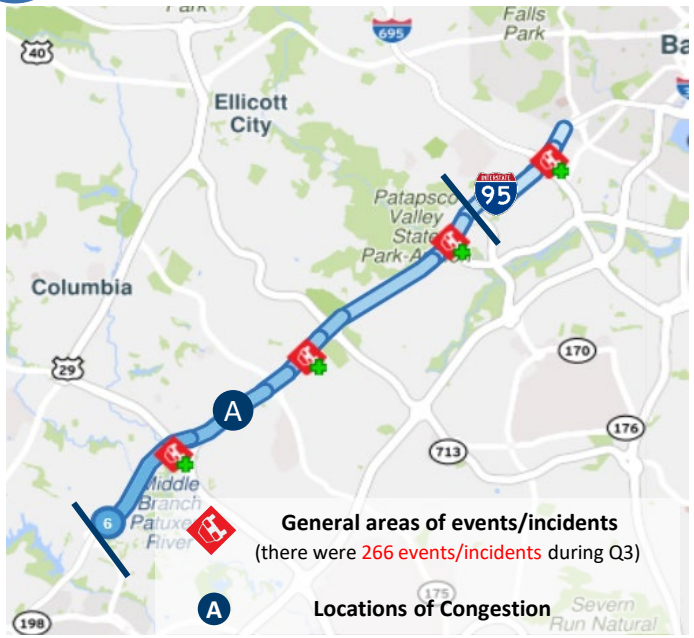
Corridor Speeds Over Time

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



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

Quarterly Bottleneck Evaluation Summary Q3 2023



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

PK. AVG. SPEED

AM Peak |7:55 AM
54.3 mph
(26% slower than free flow)

PM Peak | 5:25 PM
42.5 mph
(39% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:55 AM
15.1 min

PM Peak | 5:25 PM
19.2 min

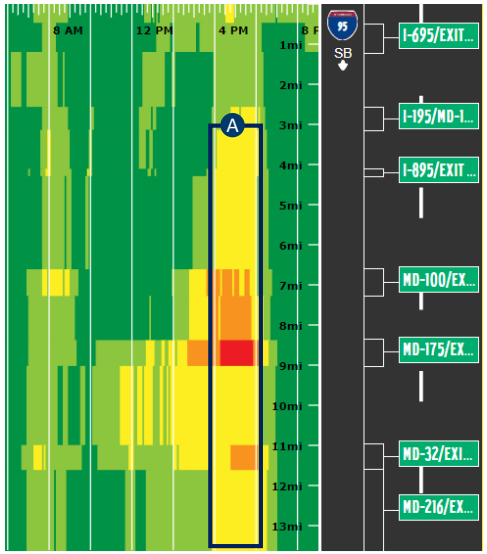
Q3 DELAY COST

Delay Cost
$3.335 M

Veh-hrs. of Delay
110,452 h

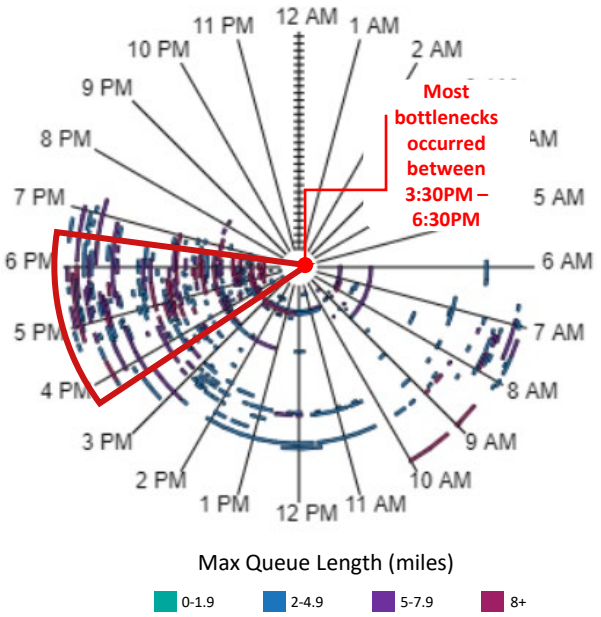
Congested Locations

A **3:30PM – 6:30PM** I-195/Exit 47 to MD-216/Exit 35



Bottleneck Occurrences

The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23.**



Corridor Speeds Over Time

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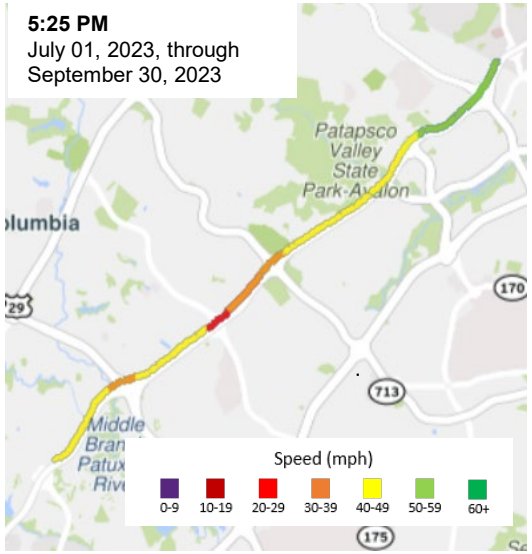


7 I-95 N @ MD-543/EXIT 80

Quarterly Bottleneck Evaluation Summary Q3 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.

Non-recurring bottlenecks appeared overnight in late August and early September during construction between 10pm and midnight.

PK. AVG. SPEED

AM Peak | 7:50 AM
58.6 mph
(19% slower than free flow)

PM Peak | 2:00 PM
47.4 mph
(35% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:50 AM
12.7 min

PM Peak |2:00 PM
15.8 min

Q3 DELAY COST

Delay Cost
$2.847 M

Veh-hrs. of Delay
94,275 h

Congested Locations

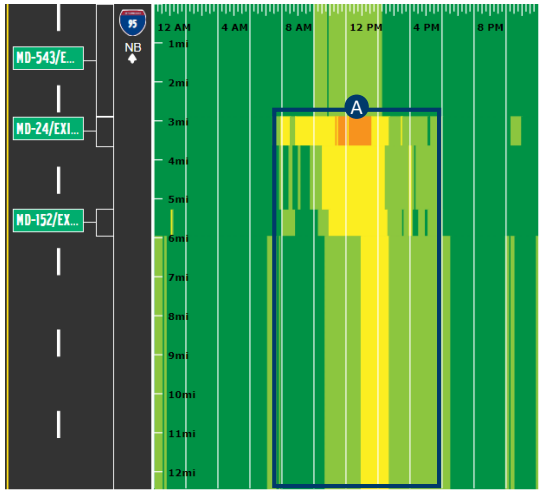
A **10:30AM – 6:00PM** MD-43/White Marsh Blvd/Exit 67 to MD-543/Exit 80

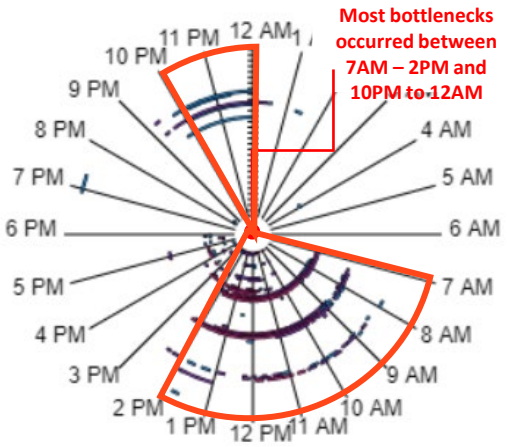
Bottleneck Occurrences

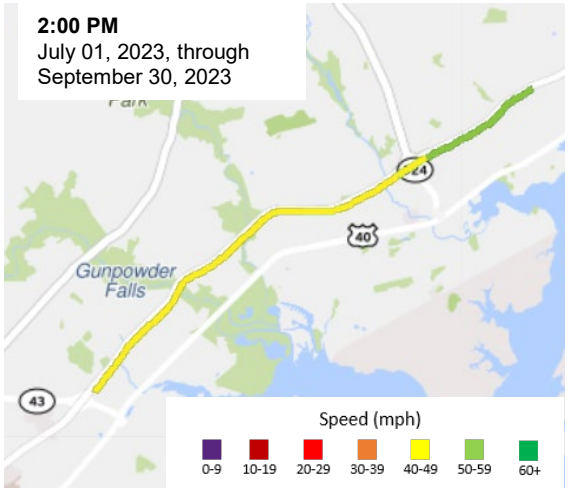
The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23**

Corridor Speeds Over Time

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







8 I-695 IL @ EDMONDSON AVE/EXIT 14

Quarterly Bottleneck Evaluation Summary Q3 2023

PK. AVG. SPEED

AM Peak | 7:50 AM
51.3 mph
(25% slower than free flow)

PM Peak | 5:30 PM
30.9 mph
(534% slower than free flow)

PK. TRAVEL TIME

AM Peak | 9:45 AM
6.6 min

PM Peak |4:20 PM
11.0 min

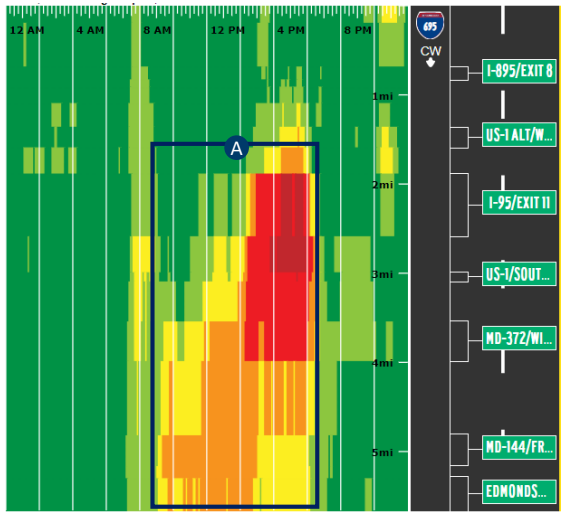
Q3 DELAY COST

Delay Cost
$1.703 M

Veh-hrs. of Delay
56,397 h

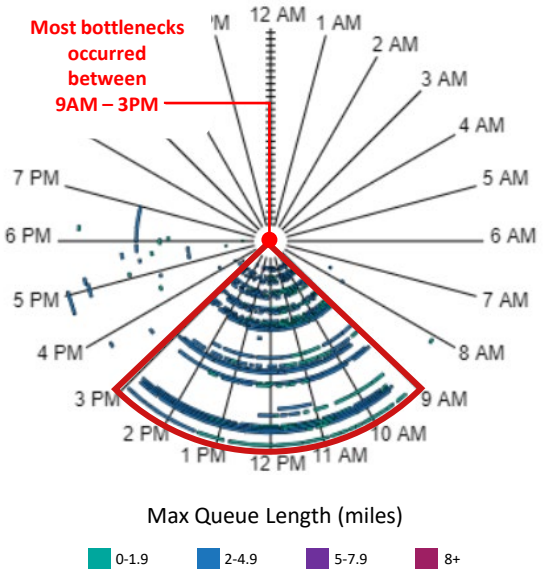
Congested Locations

A **9:15AM – 6:30PM** US-1 ALT/Washington Blvd/Exit 10 to I-695 IL @ Edmondson Ave/Exit 14



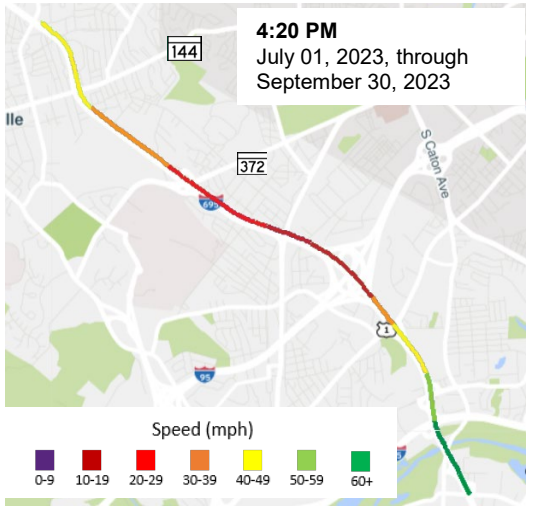
Bottleneck Occurrences

The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23**



Corridor Speeds Over Time

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



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 4th ranked bottleneck that begins at MD-372/Wilkens Ave/Exit 12.

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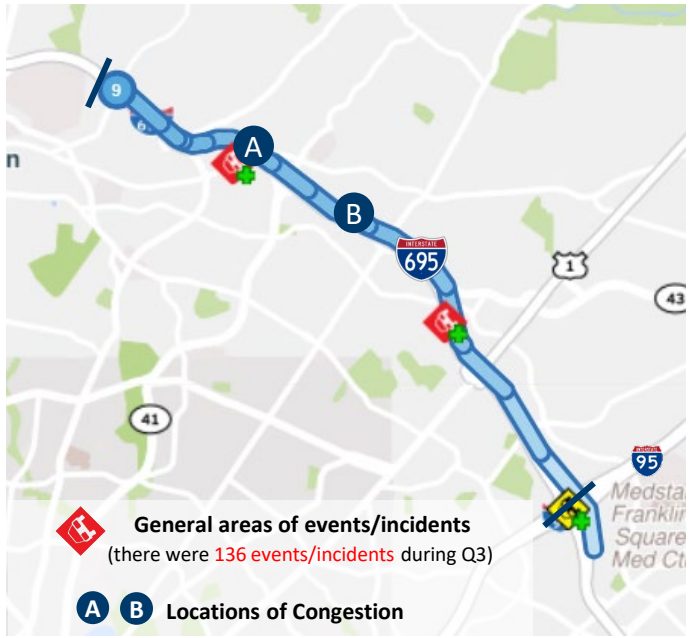
BALTIMORE METROPOLITAN COUNCIL

9 I-695 OL @ PROVIDENCE RD

Quarterly Bottleneck Evaluation Summary Q3 2023



Factors contributing to this long standing and extended congested zone are merging and weaving associated with traffic at each close interchange.

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 | 7:50 AM
29.3 mph
(58% slower than free flow)

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

PK. TRAVEL TIME

AM Peak | 7:50 AM
14 min

PM Peak |4:30 PM
9.6 min

Q3 DELAY COST

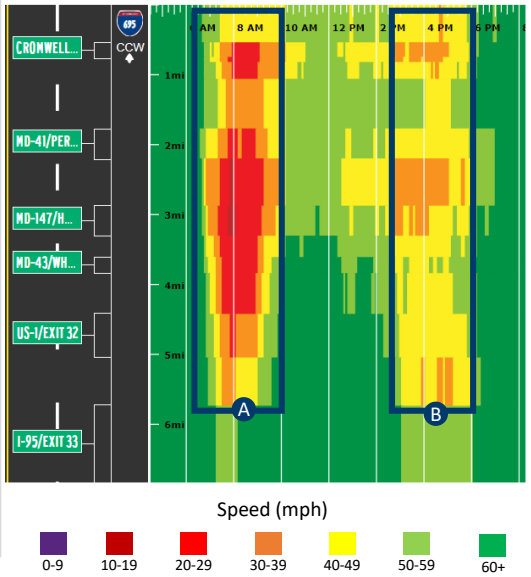
Delay Cost
$1.829 M

Veh-hrs. of Delay
74,180 h

Congested Locations

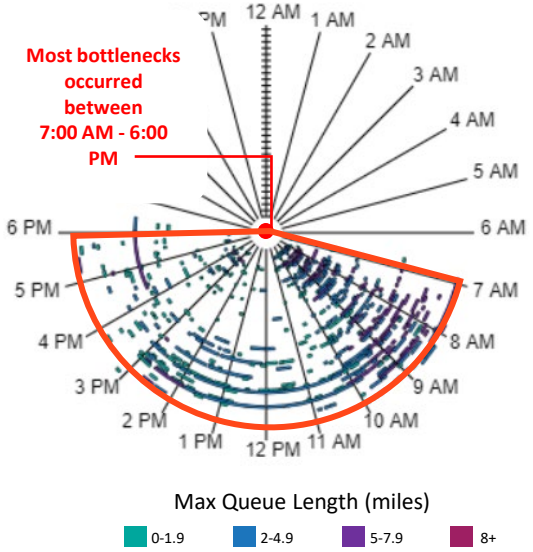
A **6:40AM –10:10AM** I-95/Exit 33 to Providence Rd/Exit 28

B **2:30PM – 6:00PM** I-95/Exit 33 to Providence Rd/Exit 28



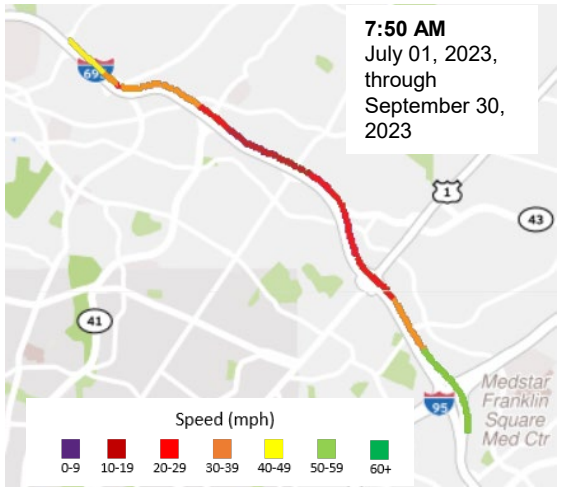
Bottleneck Occurrences

The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23**



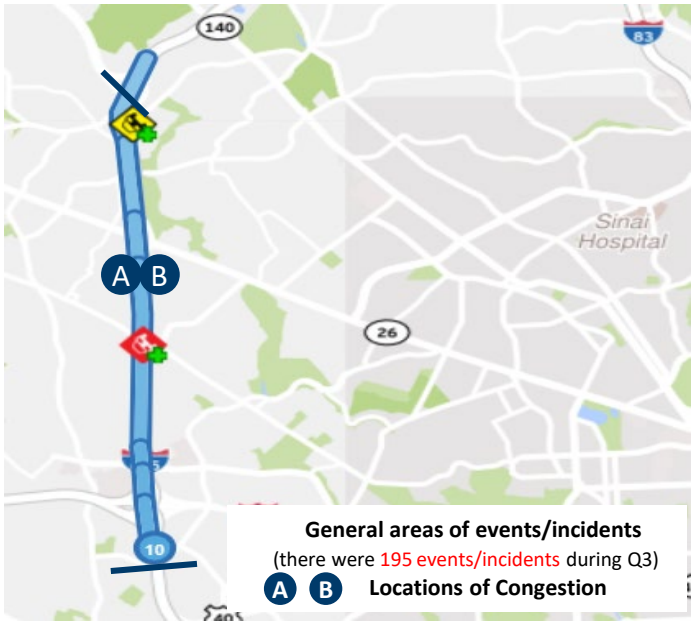
Corridor Speeds Over Time

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



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

Quarterly Bottleneck Evaluation Summary Q3 2023



One of the heaviest traveled high volume corridors in the area.

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 | 7:55 AM
34.6 mph
(52% slower than free flow)

PM Peak | 5:30 PM
34.5 mph
(50% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:55 AM
9.5 min

PM Peak |5:30 PM
9.6 min

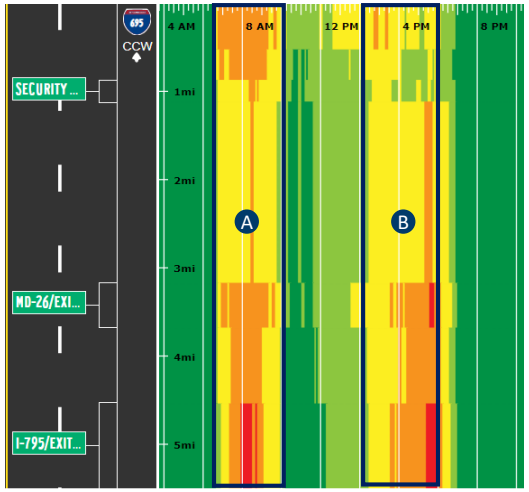
Q3 DELAY COST

Delay Cost
$1.981 M

Veh-hrs. of Delay
65,590 h

Congested Locations

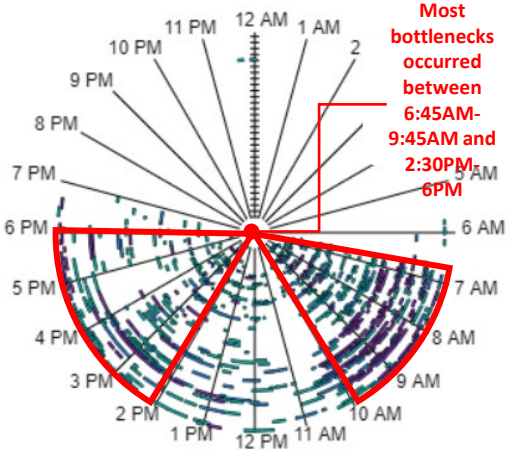
A **6:45AM – 9:45AM** I-795/Exit 19 to I-70/Exit 16
B **2:30PM – 6:00PM** I-795/Exit 19 to I-70/Exit 16



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

Bottleneck Occurrences

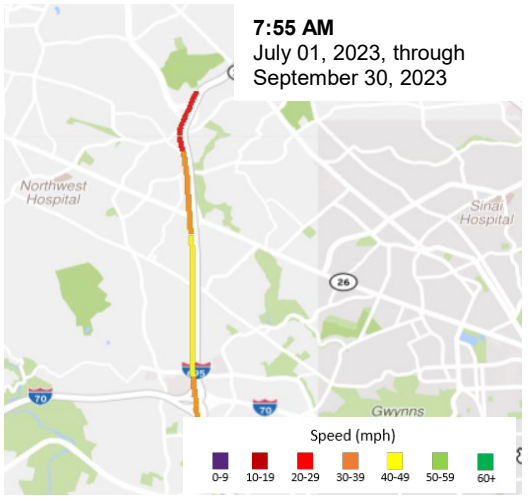
The center represents the beginning **of 07.01.23** and the outer edge the end of **09.30.23**



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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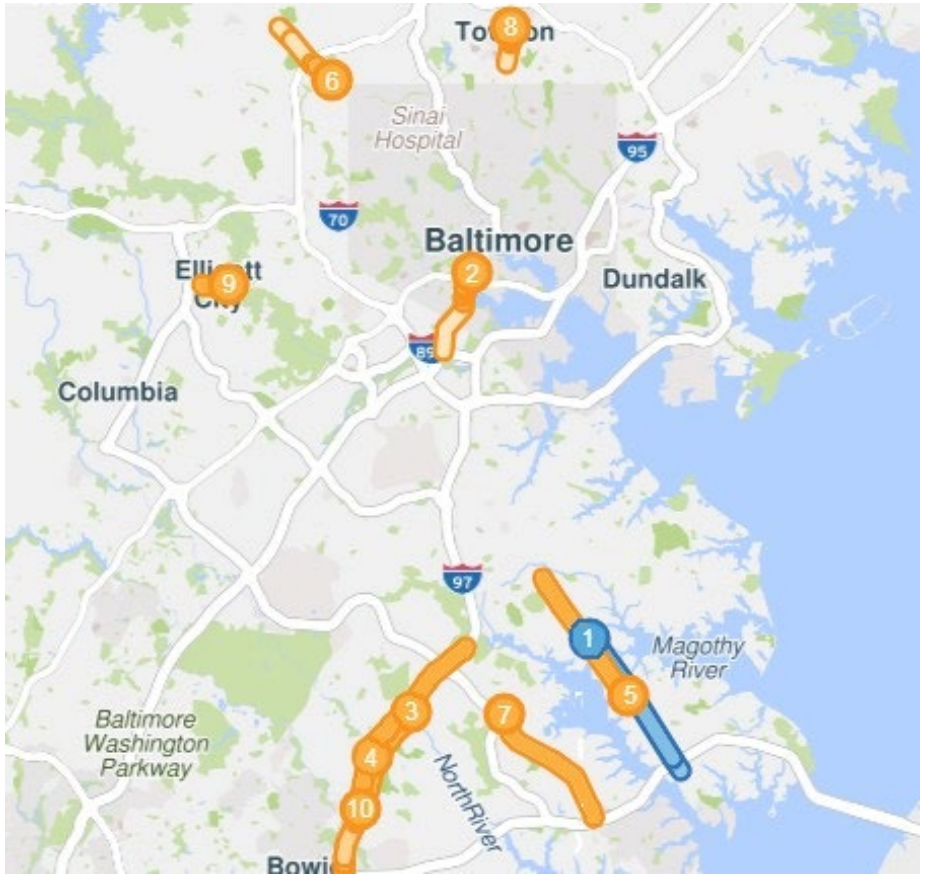
BALTIMORE METROPOLITAN COUNCIL

Top 10 Bottlenecks on Non-Limited Access Roads

Top 10 Bottlenecks in the Region – Non Limited Access Roads

Q3 2023

Rank	Location	Avg. Max. Length (mi)	Avg. Daily Duration	Volume Estimate (AADT)	Total Delay (Millions)
1	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD	2.16	1 h 56 m	**34,437**	**15.9**
2	MD-295 N @ BAYARD RD	0.22	6 h 59 m	32,626	15.6
3	MD-3 N @ MD-175/MILLERSVILLE RD/ANNAPOLIS RD	2.13	1 h 24 m	33,772	15.2
4	MD-2 S @ MD-253/MAYO RD	2.64	1 h 05 m	26,529	11.0
5	MD-3 N @ SAINT STEPHENS CHURCH RD	0.76	1 h 41 m	33,871	8.9
6	MD-2 S @ COLLEGE PKWY	3.04	46 m	29,626	7.9
7	MD-3 S @ MD-450/DEFENSE HWY	2.71	35 m	34,359	6.9
8	MD-140 E @ SUDBROOK LN	0.52	6 h 00 m	15,053	6.7
9	MD-2 S @ US-301/US-50	**5.90**	12 m	26,778	6.2
10	US-1 N @ ROSSVILLE BLVD	0.25	**7 h 01 m**	22,016	6.1



*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)

BRTB Baltimore Regional Transportation Board

BALTIMORE METROPOLITAN COUNCIL

Ranked Bottleneck Lists by Jurisdiction

Top 20 Bottlenecks in Local Jurisdictions -3rd 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	MD-295 N @ MD-175
4	US-50 E @ BAY BRIDGE
5	MD-295 N @ MD-100
6	I-695 OL @ MD-170/CAMP MEADE RD/EXIT 6
7	MD-2 N @ ROBINSON RD
8	MD-295 S @ A.A.-P.G. COUNTY BORDER
9	MD-295 S @ CANINE RD
10	I-97 S @ MD-178/EXIT 5
11	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD
12	MD-3 N @ MD-175/MILLERSVILLE RD/ANNAPOLIS RD
13	I-97 S @ US-301/US-50
14	MD-295 N @ PRINCE GEORGE'S/ARUNDEL CO LINE
15	US-50 E @ MD-648/BALTIMORE ANNAPOLIS BLVD
16	US-50 E @ WILLIAM P LANE BRIDGE TOLL PLAZA
17	US-50 E @ MD-70/ROWE BLVD/EXIT 24
18	MD-295 S @ MD-175
19	MD-2 S @ MD-253/MAYO RD
20	US-50 W @ BAY BRIDGE

Baltimore City

Rank	Location
1	I-895 N @ HARBOR TUNNEL THWY (NORTH)
2	I-895 S @ HARBOR TUNNEL THWY (SOUTH)
3	I-95 S @ FORT MCHENRY TUNNEL
4	I-95 N @ FORT MCHENRY TUNNEL
5	MD-295 N @ BAYARD ST
6	I-95 N @ I-95 (EAST)
7	I-95 N @ I-95 (BALTIMORE)/FORT MCHENRY TUNNEL(EAST)
8	I-95 S @ I-95 (BALTIMORE)/FORT MCHENRY TUNNEL(WEST)
9	I-395 N @ W CONWAY ST
10	I-95 N @ MD-295/BALTIMORE WASHINGTON PKWY/EXIT 52
11	US-40 W @ COOKS LN
12	I-895 N @ HARBOR TUNNEL THWY (SOUTH)
13	I-895 S @ HARBOR TUNNEL THWY (NORTH)
14	I-895 N @ O'DONNELL ST/EXIT 11
15	MARTIN L KING JR BLVD N @ MULBERRY ST
16	W LOMBARD ST E @ S MARTIN LUTHER KING BLVD
17	I-83 S @ COLD SPRING LN/EXIT 9
18	I-95 S @ DUNDALK AVE/EXIT 58
19	FOREST PARK AVE N @ WINDSOR MILL RD
20	I-95 S @ WASHINGTON BLVD/EXIT 51

Top 20 Bottlenecks in Local Jurisdictions – 3rd 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 IL @ MD-372/WILKENS AVE/EXIT 12
3	I-695 IL @ EDMONDSON AVE/EXIT 14
4	I-695 OL @ PROVIDENCE RD/EXIT 28
5	I-695 OL @ I-70/EXIT 16
6	I-695 OL @ I-83/MD-25/EXIT 23
7	I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29
8	I-695 IL @ STEVENSON RD/EXIT 21
9	I-695 OL @ MD-26/EXIT 18
10	I-83 S @ I-695
11	I-95 N @ I-695/EXIT 49
12	I-695 IL @ I-83/MD-25/EXIT 23
13	I-695 OL @ I-795/EXIT 19
14	I-695 IL @ PROVIDENCE RD/EXIT 28
15	I-695 OL @ CROMWELL BRIDGE RD/EXIT 29
16	I-695 IL @ SECURITY BLVD/EXIT 17
17	I-695 IL @ I-70/EXIT 16
18	I-95 S @ MD-43/WHITEMARSH BLVD/EXIT 67
19	I-70 E @ I-695/EXIT 91
20	I-695 OL @ MD-41/PERRING PKWY/EXIT 30

Carroll County

Rank	Location
1	MD-30 N @ MD-27/MANCHESTER RD
2	MD-32 W @ MD-26/LIBERTY RD
3	MD-140 W @ MD-27/MANCHESTER RD
4	MD-27 N @ MD-30/MAIN ST
5	MD-30 S @ MD-27/MANCHESTER RD
6	MD-140 E @ MD-97/MALCOLM DR
7	MD-97 N @ MD-496/BACHMANS VALLEY RD
8	MD-97 N @ MAGNA WAY/AIRPORT DR
9	MD-482 W @ MD-27/MANCHESTER RD
10	MD-32 W @ RAINCLIFFE RD/SANDOSKY RD
11	MD-97 S @ MD-496/BACHMANS VALLEY RD
12	MD-140 W @ MD-97/MALCOLM DR
13	MD-140 W @ MD-91/EMORY RD/GAMBER RD
14	MD-26 W @ MD-32/SYKESVILLE RD
15	MD-27 S @ MD-30/MAIN ST
16	MD-144 W @ MD-27/RIDGE RD
17	MD-140 E @ GORES MILL RD
18	MD-91 S @ MD-140/BALTIMORE BLVD
19	MD-27 N @ MD-26/LIBERTY RD
20	MD-32 E @ MD-26/LIBERTY RD

IL = Inner Loop

OL = Outer Loop

Top 20 Bottlenecks in Local Jurisdictions – 3rd 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 S @ MD-24/EXIT 77
2	I-95 N @ MD-543/EXIT 80
3	I-95 N @ MD-24/EXIT 77
4	I-95 S @ MD-543/EXIT 80
5	I-95 S @ MD-152/EXIT 74
6	I-95 S @ MARYLAND HOUSE
7	I-95 N @ MD-152/EXIT 74
8	I-95 N @ MD-22/EXIT 85
9	US-40 W @ JOPPA FARM RD
10	MD-24 N @ EDGEWOOD RD
11	MD-24 N @ PLUMTREE RD
12	I-95 N @ MILLARD E TYDINGS MEMORIAL BRIDGE
13	US-1-BR S @ MD-24/VIETNAM VETERANS MEMORIAL HWY
14	MD-924 N @ MD-24/VIETNAM VETERANS MEMORIAL HWY
15	MD-543 S @ US-1/HICKORY BYP
16	I-95 N @ MD-155/EXIT 89
17	US-1-BR N @ US-1/HICKORY BYP
18	MD-155 E @ MD-22/CHURCHVILLE RD
19	MD-24 S @ WHEEL RD
20	MD-152 N @ SINGER RD

Howard County

Rank	Location
1	I-95 N @ MD-32/EXIT 38
2	I-95 S @ MD-216/EXIT 35
3	I-95 S @ MD-175/EXIT 41
4	I-95 S @ MD-32/EXIT 38
5	MD-32 W @ I-95
6	I-95 N @ MD-100/EXIT 43
7	I-95 N @ MD-175/EXIT 41
8	I-95 S @ MD-100/EXIT 43
9	MD-100 W @ MARC DORSEY STATION ACCESS RD/EXIT 7
10	US-29 N @ MD-32/EXIT 16
11	I-95 S @ PRINCE GEORGE'S/HOWARD CO LINE
12	I-95 S @ I-895/EXIT 46
13	US-29 N @ MD-103
14	I-70 W @ US-29/EXIT 87
15	I-95 N @ MD-216/EXIT 35
16	MD-100 E @ MARC DORSEY STATION ACCESS RD/EXIT 7
17	MD-144 W @ ELLICOTT MILLS DR
18	US-40 W @ ST JOHNS LN
19	I-70 E @ US-40/EXIT 82
20	I-95 N @ PRINCE GEORGE'S/HOWARD CO LINE

Top 20 Bottlenecks in Local Jurisdictions – 3rd 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	Location
1	US-50 W @ BAY BRIDGE
2	US-50 W @ US-301/BLUE STAR MEMORIAL HWY
3	US-50 W @ NESBIT RD/EXIT 45B
4	US-50 W @ MD-213/CENTREVILLE RD
5	US-50 E @ BAY BRIDGE
6	US-50 E @ MD-8/EXIT 37
7	US-50 W @ MD-8/EXIT 37
8	US-301 S @ US-50
9	US-50 E @ MD-404/QUEEN ANNE HWY
10	US-50 E @ MD-662/WYE MILLS RD
11	US-50 W @ MD-404/QUEEN ANNE HWY
12	US-50 E @ BEGIN FREEWAY
13	US-50 W @ THOMPSON CREEK RD/DUKE ST
14	US-50 W @ MD-456/DEL RHODES AVE
15	US-50 W @ MD-18/MAIN ST/EXIT 42
16	US-50 E @ US-301/BLUE STAR MEML HWY
17	US-50 E @ MD-456/DEL RHODES AVE
18	US-50 E @ MD-213/CENTREVILLE RD
19	US-50 E @ NESBIT RD/EXIT 45B
20	US-50 E @ MD-18/MAIN ST/EXIT 42

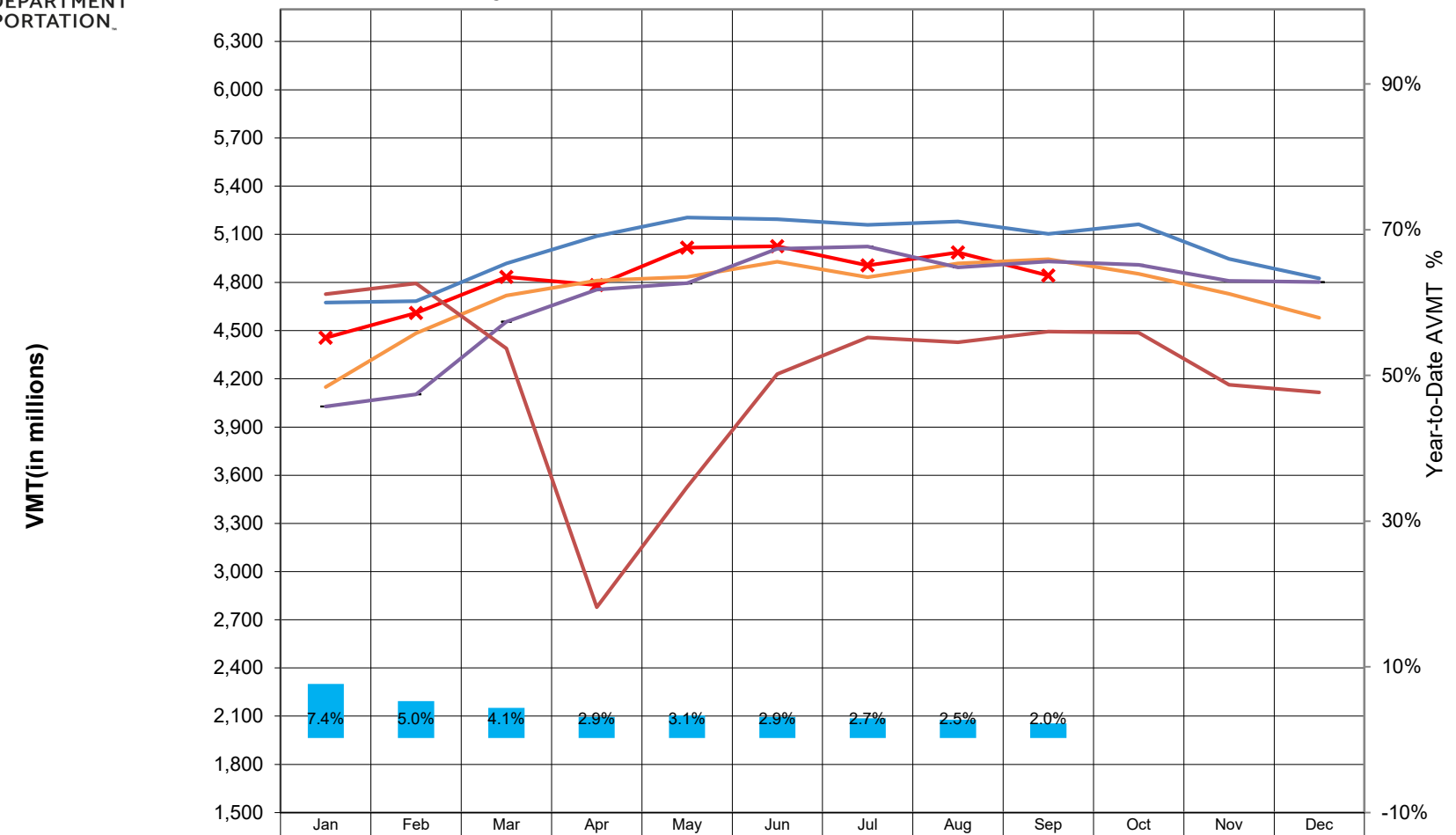
Vehicle Miles Traveled (VMT) Trend Graphs

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

Estimated Monthly Distribution of Annual (VMT) Vehicle Miles of Travel for : Sep-2023										
Sep	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	4907	-13.6%	12.7%	-3.8%	1.6%	2.7%
Aug	5180	4427	4894	4918	4986	-14.5%	10.5%	0.5%	1.4%	2.5%
Sep	5102	4494	4930	4945	4843	-11.9%	9.7%	0.3%	-2.1%	2.0%
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 Sep-2023 Monthly AVMT is down compared to Sep-2022 by -2.1%									
2	The Cumulative Year-to-Date Change till Sep-2023 AVMT is up compared to same time last year 2022 by 2%									
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 :12/04/2023									

MARYLAND DEPARTMENT OF TRANSPORTATION

Estimated Monthly Distribution of Annual (VMT) Vehicle Miles of Travel for : Sep-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%	2.7%	2.5%	2.0%			
2023 VMT* (Millions)-Estimated	4456	4610	4834	4783	5017	5025	4907	4986	4843			
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

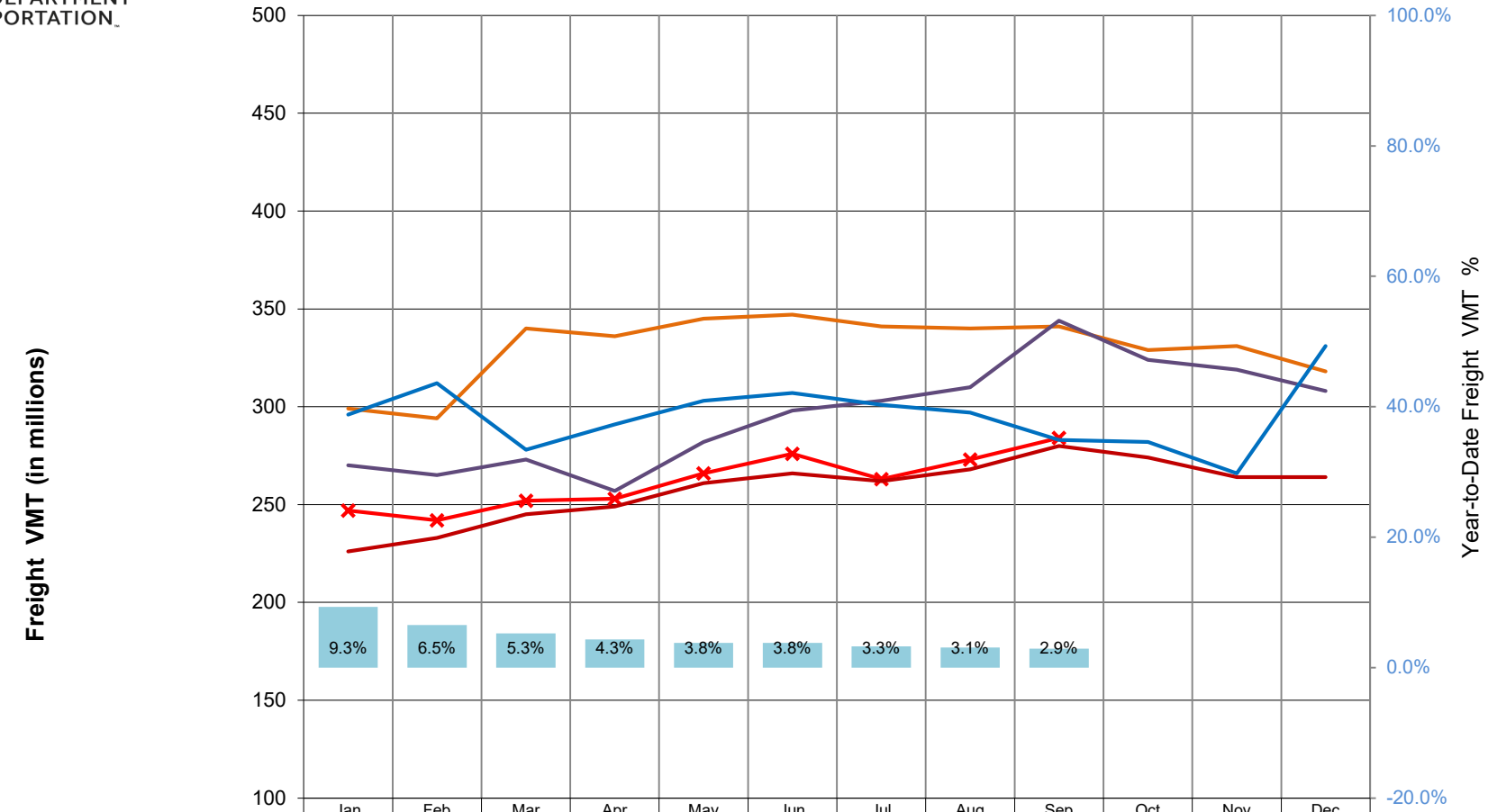
NOTE: This chart displays estimated monthly Vehicle Miles of Travel compared with the previous year based on data collected at approximately 50+ continuous count stations throughout the State.

Report Updated on :12/04/2023

Estimated Monthly Distribution of Freight Vehicle Miles of Travel for : Sep-2023										
Sep	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	263	0.7%	12.5%	-23.2%	0.4%	3.3%
Aug	297	310	340	268	273	4.4%	9.7%	-21.2%	1.9%	3.1%
Sep	283	344	341	280	284	21.6%	-0.9%	-17.9%	1.4%	2.9%
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 Sep-2023 Monthly Freight VMT is up compared to Sep-2022 by 1.4%									
2	The Cumulative Year-to-Date Change till Sep-2023 Freight VMT is up compared to same time last year 2022 by 2.9%									
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 :12/04/2023										

MARYLAND DEPARTMENT OF TRANSPORTATION

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



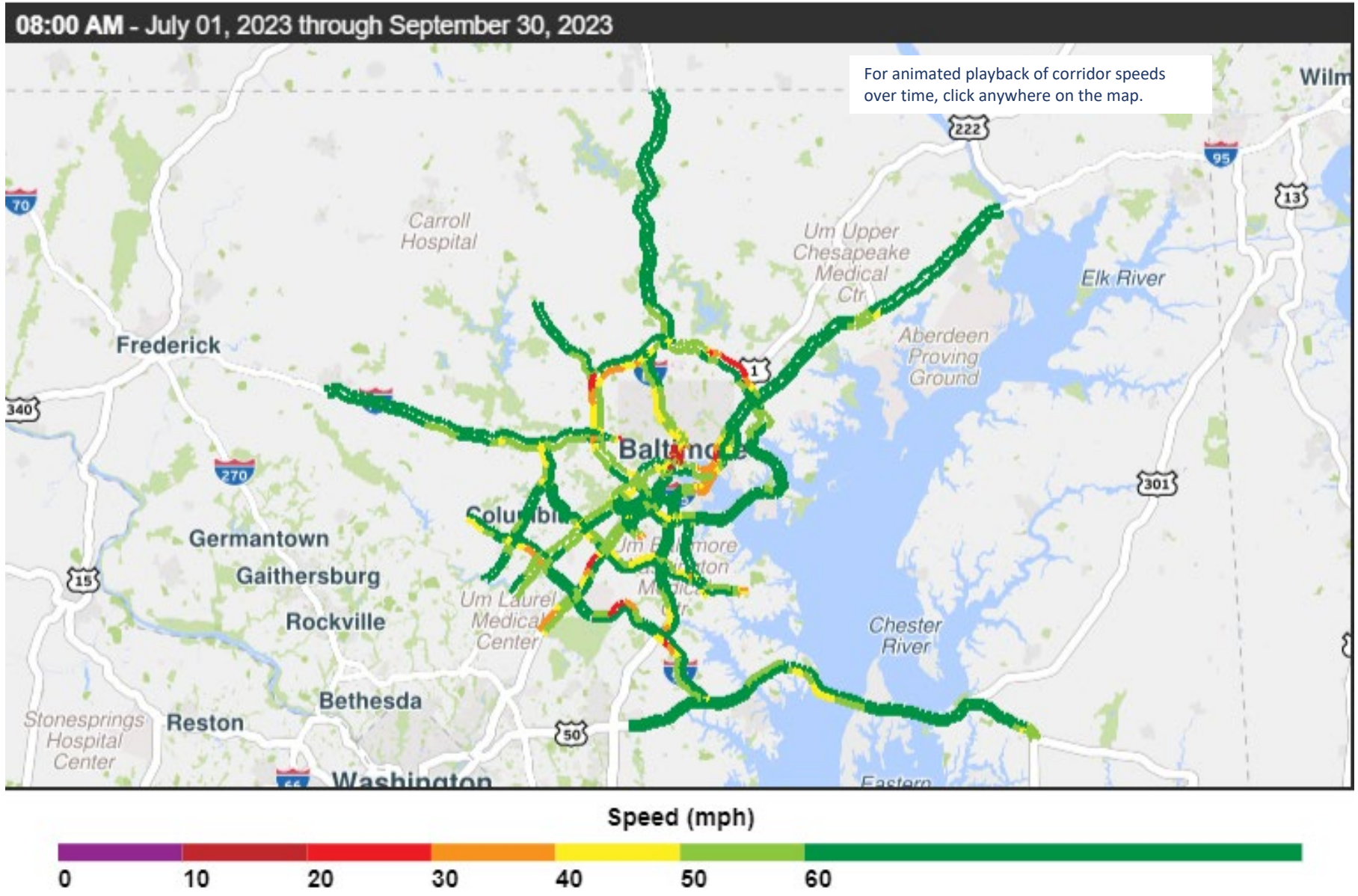
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative Year-to-Date Freight VMT 2022-2023	9.3%	6.5%	5.3%	4.3%	3.8%	3.8%	3.3%	3.1%	2.9%			
2023 Freight VMT (Millions)* Estimated	247	242	252	253	266	276	263	273	284			
2022 Freight VMT (Millions)	226	233	245	249	261	266	262	268	280	274	264	264
2021 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.

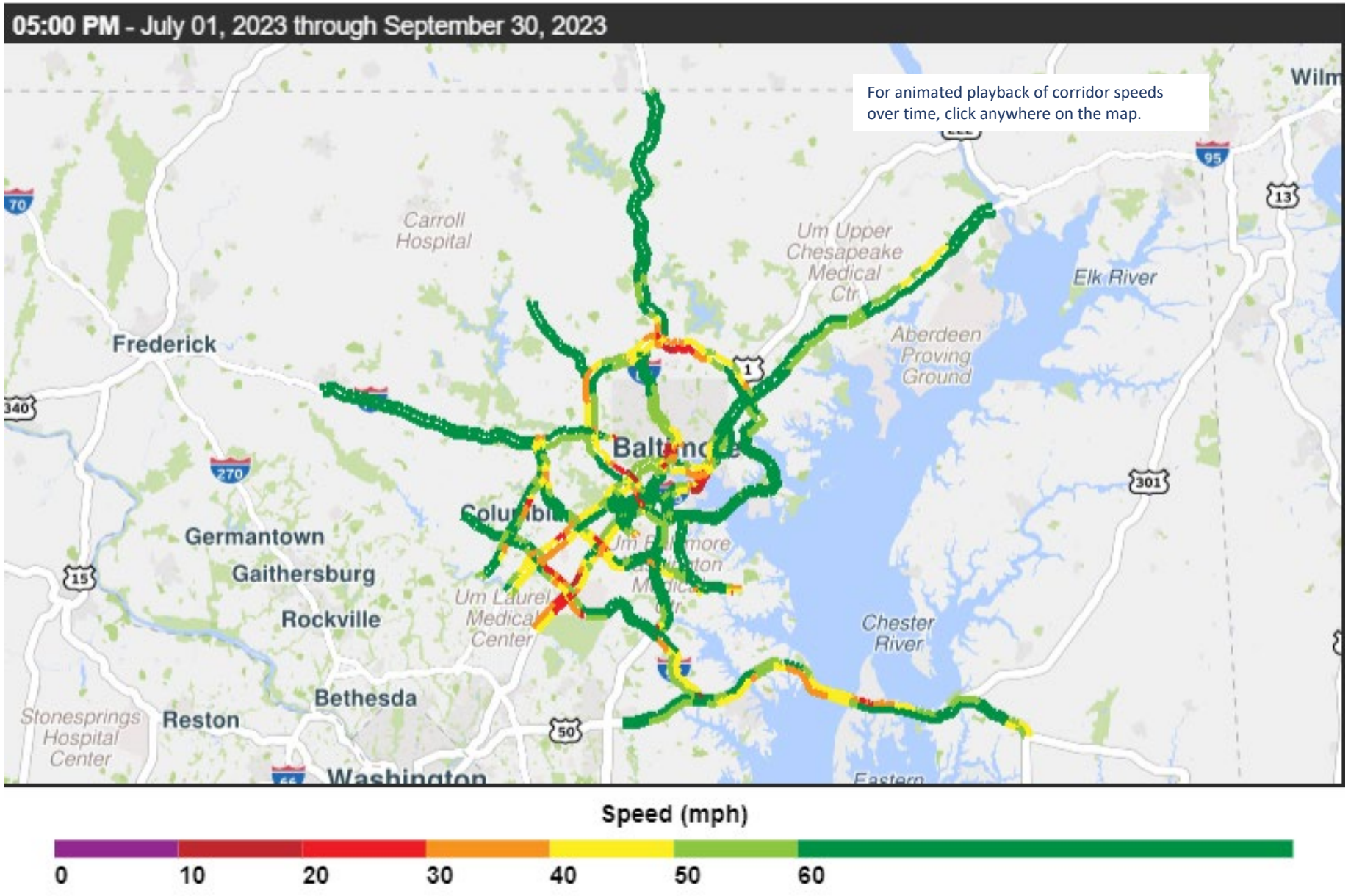
Report Updated on :12/04/2023

Regional Speed Maps

AM Peak Period Rush Hour: 3rd Quarter 2023



PM Peak Period Rush Hour: 3rd Quarter 2023



System Reliability Performance Measures

Percent of reliable person-miles traveled on the Interstate

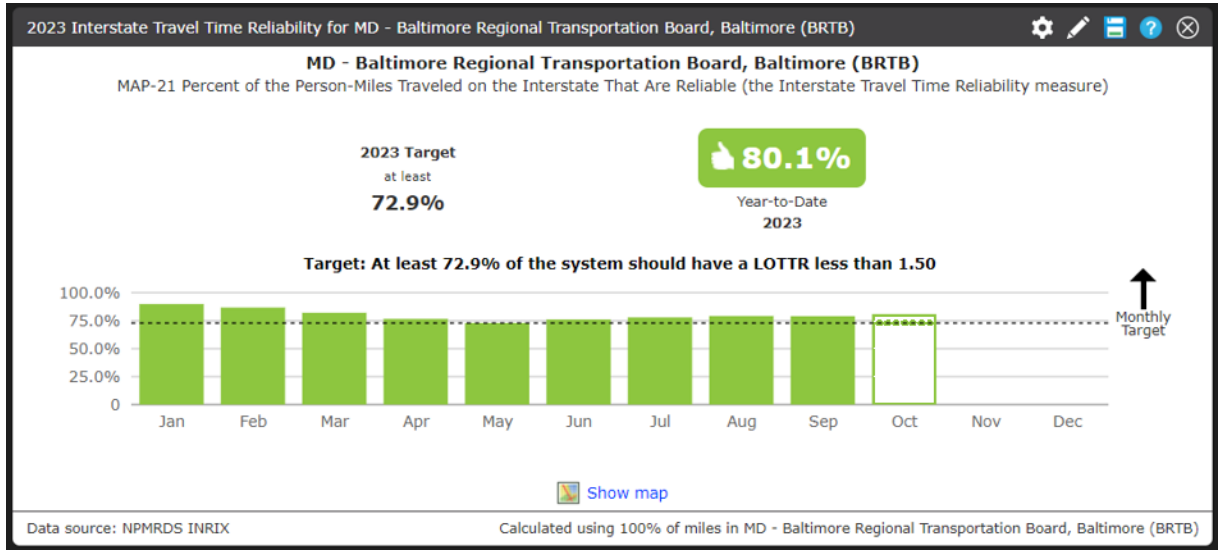
Percent of reliable person-miles traveled on the Non-Interstate NHS

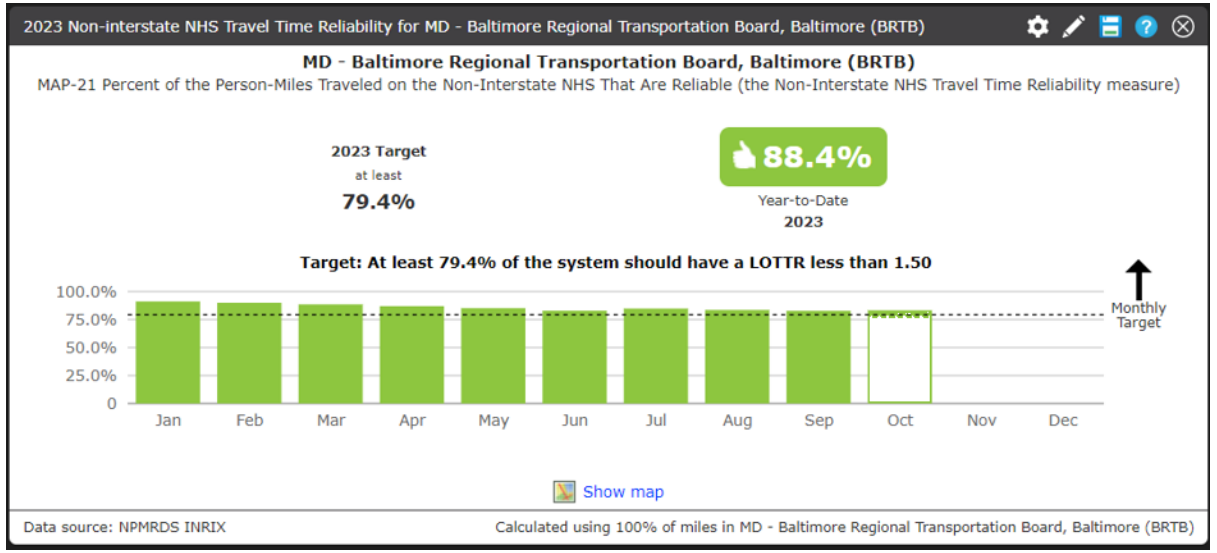
Percentage of Interstate system mileage providing for reliable truck travel time (Truck Travel Time Reliability Index)

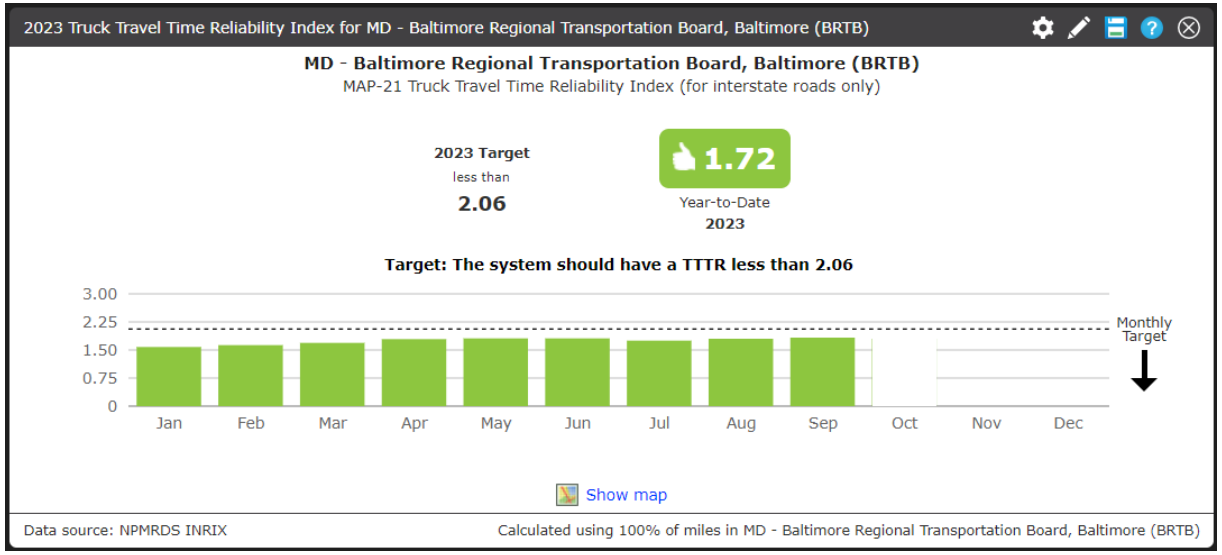
* Each state must establish statewide targets and report findings to the Federal Highway Administration. Metropolitan Planning Organizations must either support the established state targets or develop regional targets of their own.

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											
Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Q3 Rank	Q3 Locations
1		2		5	3	2	5			1		1	I-95 S @ MD-24/EXIT 77
3	4	5	2	2		4	3	1	1		1	2	MD-295 S @ MD-198
	20		12					5	2	2	11	3	US-50 W @ BAY BRIDGE
6		7	3	3	5	8	7	8		4	4	4	I-695 IL @ MD-372/WILKENS AVE/EXIT 12
	16			8	11	14			4	18	5	5	I-95 N @ MD-32/EXIT 38
10	7	9		11	13	9	10	6	6	12	13	6	I-95 S @ MD-216/EXIT 35
	12						20	3	5	6		7	I-95 N @ MD-543/EXIT 80
						6	6	4	7	7		8	I-695 IL @ EDMONDSON AVE/EXIT 14
		19	6	13	10	15	18	19	10	15	6	9	I-695 OL @ PROVIDENCE RD/EXIT 28
11		12		20	18		17				2	10	I-695 OL @ I-70/EXIT 16
	15	13	15	12			9		9	10	19	11	I-895 N @ HARBOR TUNNEL THWY (NORTH)
17	14	14	17	10		19	12	14	8	17	20	12	I-95 S @ MD-175/EXIT 41
15				7	12	18		17	20	14		13	I-695 OL @ I-83/MD-25/EXIT 23
	18								19	20	8	14	I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29
											3	15	I-695 IL @ STEVENSON RD/EXIT 21
2	1	1	4	1	1	3	2	11		16	12	16	I-695 OL @ MD-26/EXIT 18
		20	9	17	14	17	11		17	19	17	17	MD-295 N @ CANINE RD
		16	20		16	13	15		14			18	MD-295 N @ MD-175
18	9	11	18	19				13	18			19	I-83 S @ I-695
										8	14	20	I-95 S @ MD-32/EXIT 38

Conclusions/Observations: The September-2023 Monthly Average Vehicle Miles Traveled AVMT is down compared to September 2022 by -2.1%. The cumulative Year to Date change through September 2023 AMVT is up compared to last year 2022 by 2%. The number #1 bottleneck in the Baltimore region was I-95 S at Exit 77/MD-24 although it missed the Top 20 in July and September, its severity in August based on Total Delay values secured the top spot. This is primarily due to ongoing construction of the I-95 Express Toll Lanes (ETL) extension in Harford County in Bel Air.

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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