Quarterly Congestion Analysis Report

Top 10 Bottlenecks in the Baltimore Region

1st Quarter 2024

BRTB Baltimore Regional Transportation Board

Report created October 2024

BALTIMORE METROPOLITAN COUNCIL

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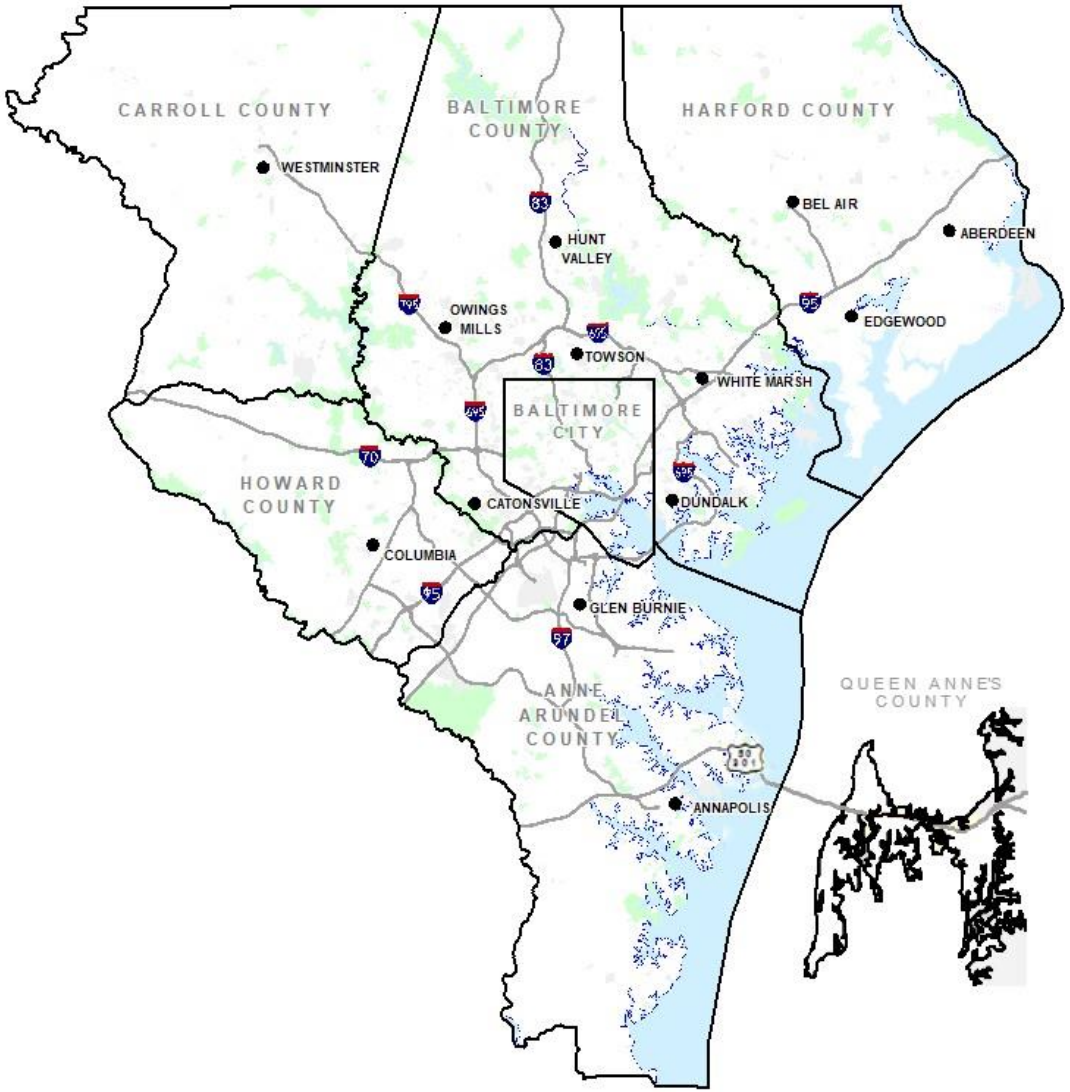
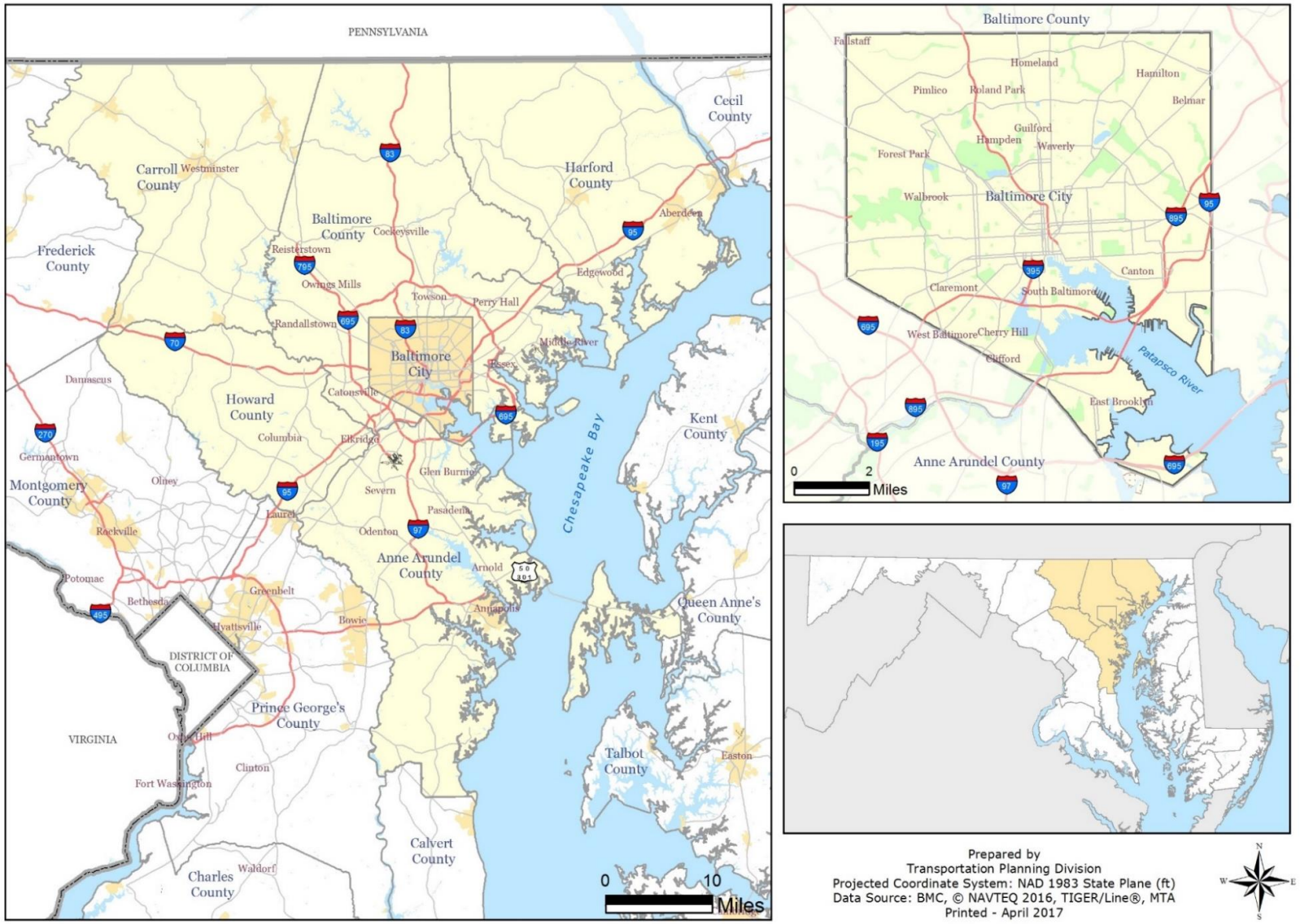
Baltimore Region



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

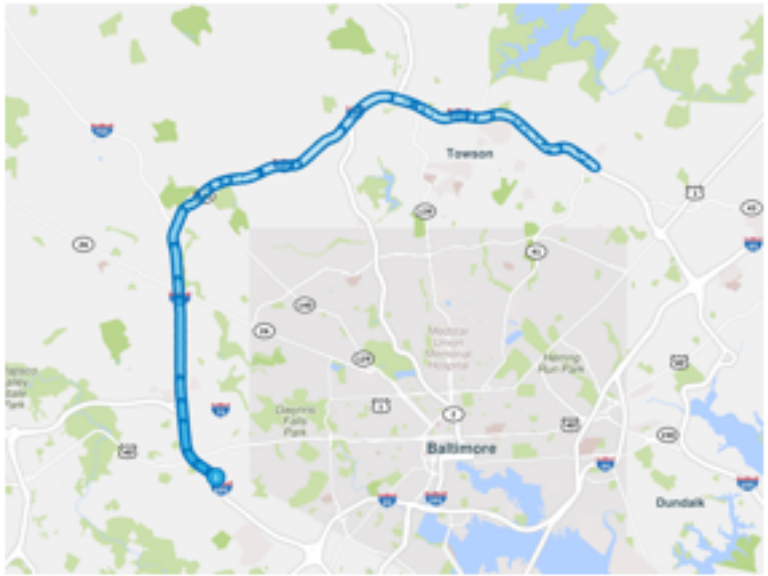
Bottleneck Analytics

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				103,385	60.9
5	I-95 S @ MD-24/EXIT 77				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



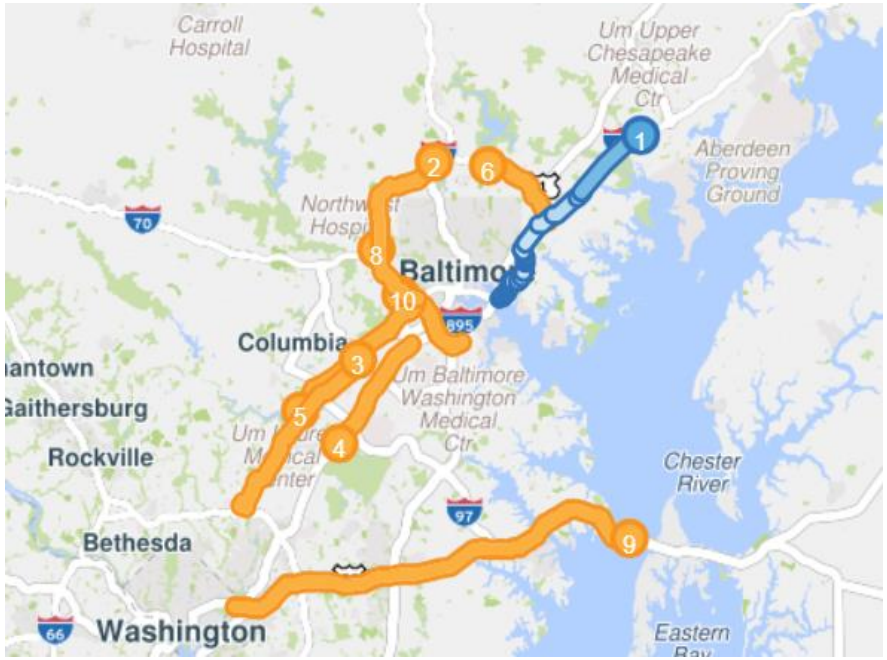
The Map view displays selected bottlenecks on a map. Each element occurring at the selected location is layered on the map, extending upstream from the head location to the maximum length of the specific *element*. As each element adds another layer on the map, road segments become more opaque. Segments 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 – 1st Quarter 2024

Top 10 Bottlenecks in the Region

Q1 2024

Rank	Location	Previous Quarter Ranking	Avg. Max. Length (miles)	Avg. Daily Duration	Volume Estimate (AADT)	Total Delay (Millions)
1	I-95 N @ MD-152/EXIT 74	2	7.18	1 h 18 m	83,551	133.9
2	I-695 IL @ I-83/MD-25/EXIT 23		2.59	3 h 22 m	96,751	121.6
3	I-95 N @ MD-100/EXIT 43	3	3.67	2 h 05 m	102,778	85.0
4	MD-295 S @ MD-198	1	2.99	3 h 27 m	48,321	75.0
5	I-95 S @ MD-216/EXIT 35	4	4.71	1 h 10 m	100,735	63.8
6	I-695 OL @ PROVIDENCE RD/EXIT 28		3.27	1 h 18 m	79,668	55.9
7	I-95 N @ MD-32/EXIT 38		3.81	1 h 17 m	98,763	53.9
8	I-695 IL @ SECURITY BLVD/EXIT 17		2.98	1 h 36 m	101,010	48.3
9	US-50 E @ BAY BRIDGE	10	4.18	1 h 22 m	37,847	41.2
10	I-695 IL @ MD-372/WILKENS AVE/EXIT 12	8	1.94	1 h 10 m	99,798	40.0



*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 – 1st Quarter 2024 by Location

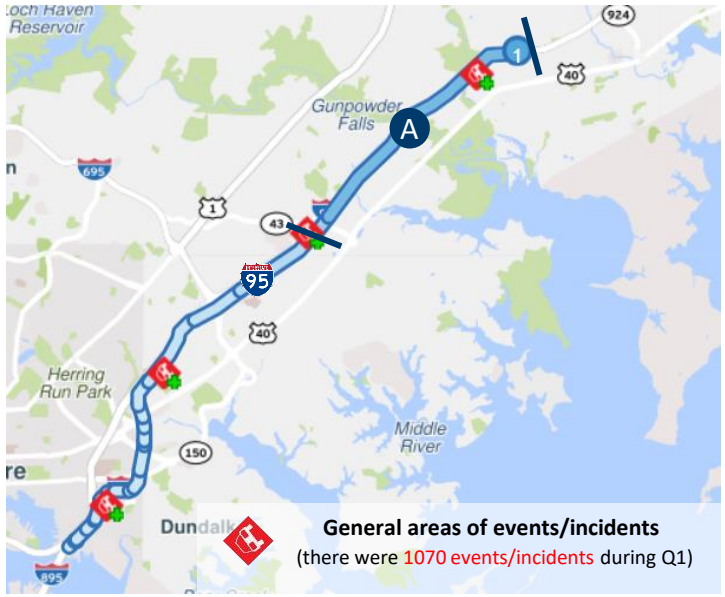
Includes:

- -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

Q1 2024



General areas of events/incidents
(there were 1070 events/incidents during Q1)

A **Locations of Congestion**

PK. AVG. SPEED

AM Peak | 7:35 AM
55.7 mph
(19% slower than free flow)

PM Peak | 4:40 PM
50.2 mph
(27% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:35 AM
19.3 min

PM Peak |4:40 PM
21.4 min

Q1 DELAY COST

Delay Cost
$7.029 M

Veh-hrs. of Delay
168,007 h

Congested Locations

A **1:00PM – 5:45PM** MD-43/White Marsh Blvd/Exit 67 to MD-152/Mountain Rd/Exit 74

Bottleneck Occurrences

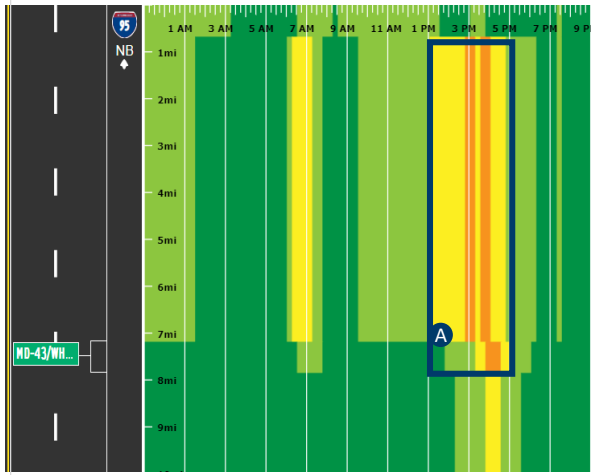
The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31.24**

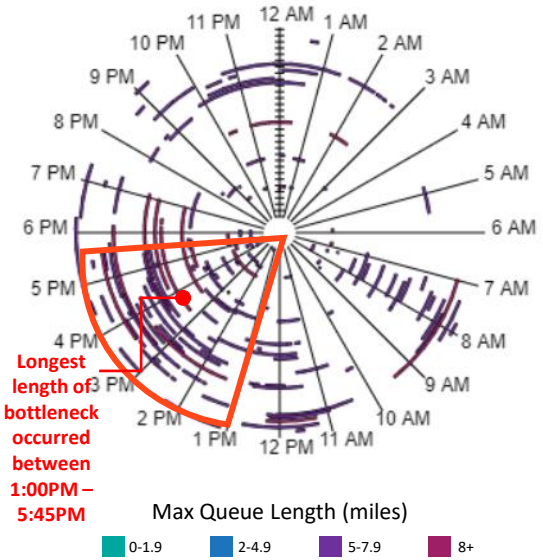
Corridor Speeds Over Time

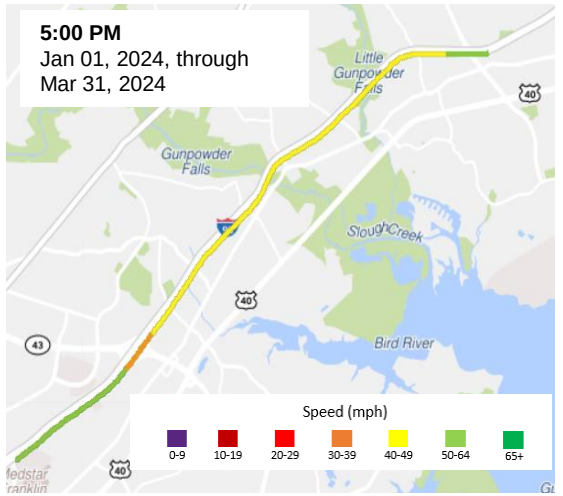
For animated playback of corridor speeds over time, click anywhere on the map below

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

The extension is expected to be open to traffic by the end of 2024 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.



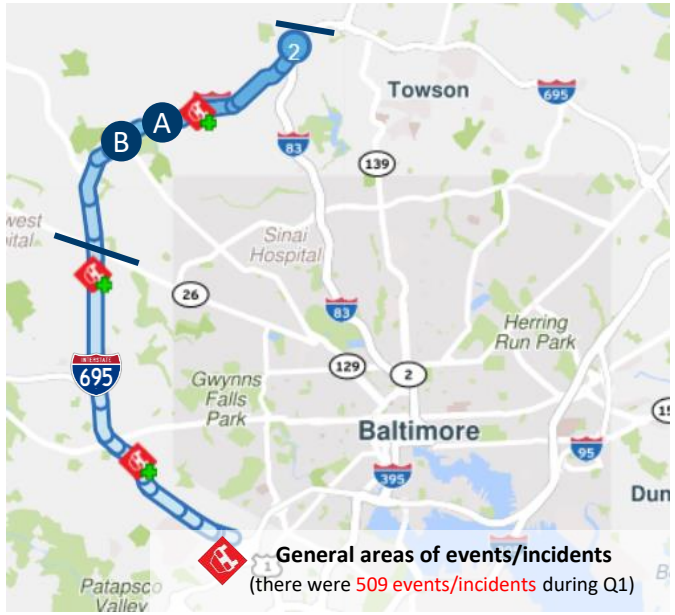




2 I-695 IL OL @ I-83/MD-25/EXIT 23

Quarterly Bottleneck Evaluation Summary

Q1 2024



General areas of events/incidents
(there were 509 events/incidents during Q1)

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

Rush hour congestion more severe during the AM peak period. The lane drop approaching the ramp to southbound I-83 is a contributing factor, as are merging and weaving at the interchanges in this segment.

TSMO Construction project is underway in this stretch of I-695 from I-70 to MD-43.

PK. AVG. SPEED

AM Peak | 7:50AM
42.9 mph
(37% slower than free flow)

PM Peak | 5:30 PM
39.2 mph
(40% slower than free flow)

PK. TRAVEL TIME

AM Peak |8:20AM
20.5 min

PM Peak |5:30 PM
22.5 min

Q1 DELAY COST

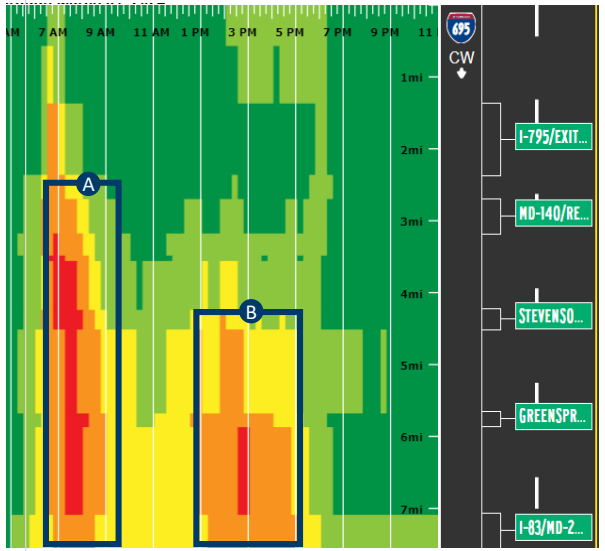
Delay Cost
$8.810 M

Veh-hrs. of Delay
210,580 h

Congested Locations

A **7:00AM – 10AM** MD-140/Exit 20 to I-83/MD-25/Exit 23

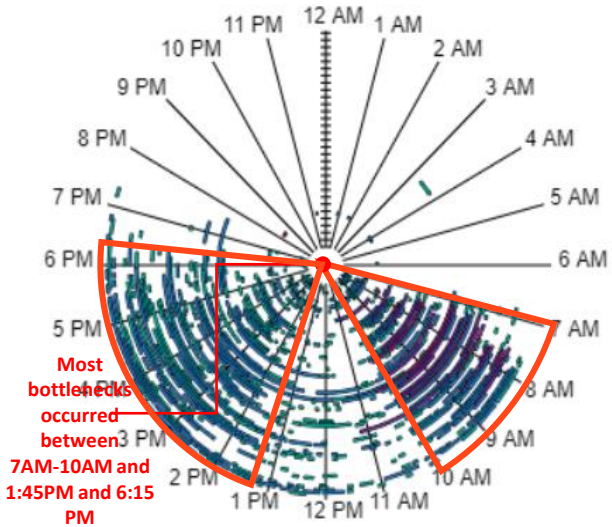
B **1:45PM – 6:15PM** I-795/Exit 19 to Stevenson Rd/Exit 21



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

Bottleneck Occurrences

The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31.24**



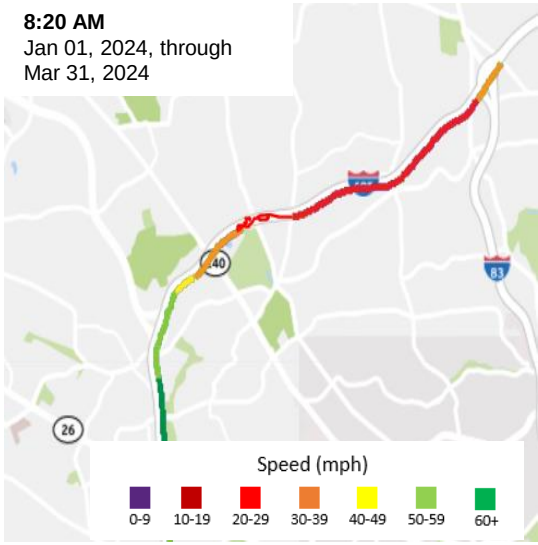
Most bottlenecks occurred between 7AM-10AM and 1:45PM and 6:15 PM

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

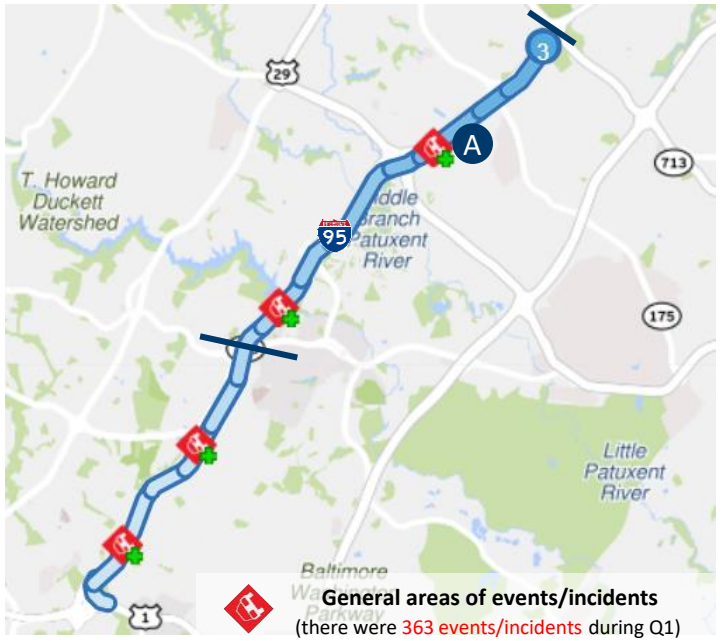
8:20 AM
Jan 01, 2024, through
Mar 31, 2024



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

Quarterly Bottleneck Evaluation Summary

Q1 2024



General areas of events/incidents
(there were 363 events/incidents during Q1)

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
58.1 mph
(18% slower than free flow)

PM Peak |4:45 PM
45.6 mph
(34% slower than free flow)

PK. TRAVEL TIME

AM Peak |7:55 AM
16.4 min

PM Peak |4:45 PM
20.7 min

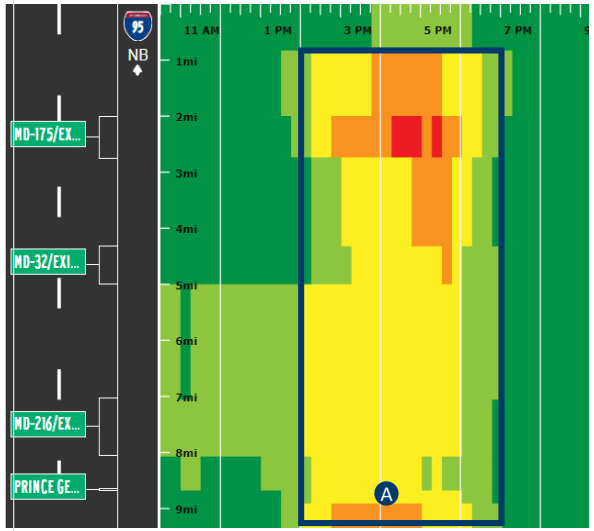
Q1 DELAY COST

Delay Cost
$10.902 M

Veh-hrs. of Delay
260,568 h

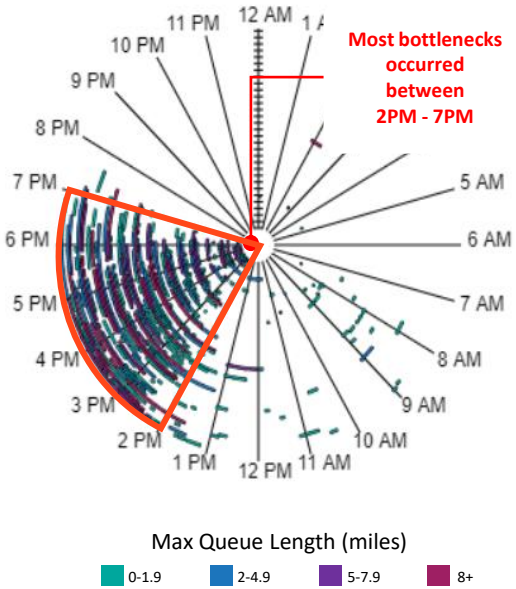
Congested Locations

A **2:00PM – 7:00PM** Prince George's/Anne Arundel Line to MD-100/Exit 43



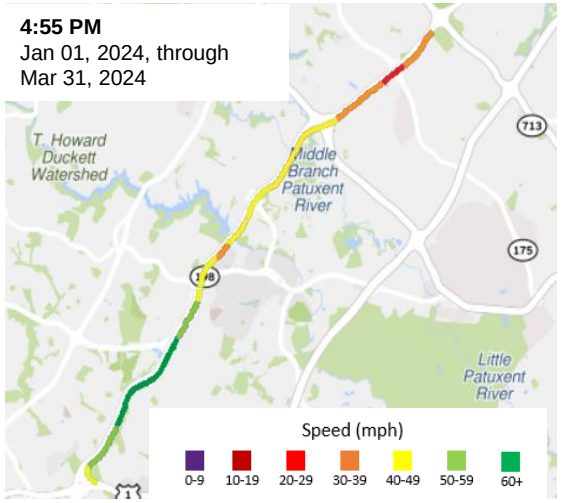
Bottleneck Occurrences

The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31,24**



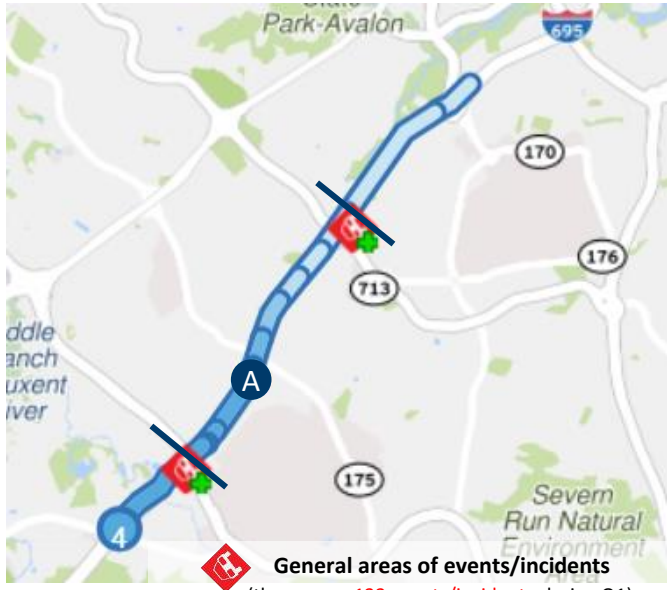
Corridor Speeds Over Time

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



4 MD-295 S @ MD-198

Quarterly Bottleneck Evaluation Summary Q1 2024



General areas of events/incidents
(there were 132 events/incidents during Q1)

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 traveling to DC and Fort Meade and the MD-295 merge with the heavily congested Capital Beltway.

PK. AVG. SPEED

AM Peak |7:50 AM
39.7 mph
(42% slower than free flow)

PM Peak |4:45 PM
34.7 mph
(46% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:50 AM
14.5 min

PM Peak | 4:45 PM
16.6 min

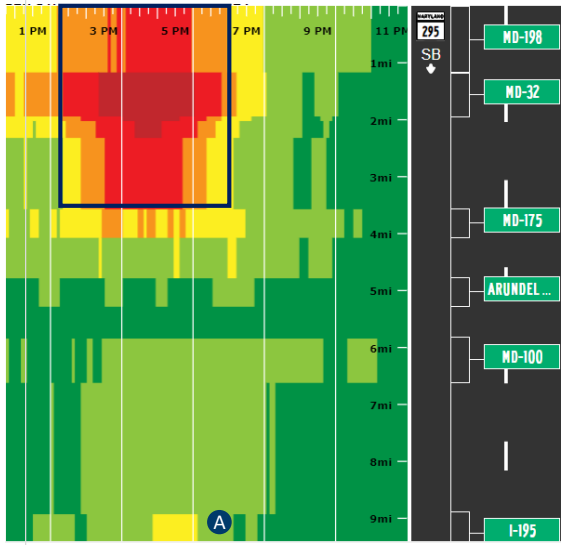
Q1 DELAY COST

Delay Cost
$7.911 M

Veh-hrs. of Delay
189,096 h

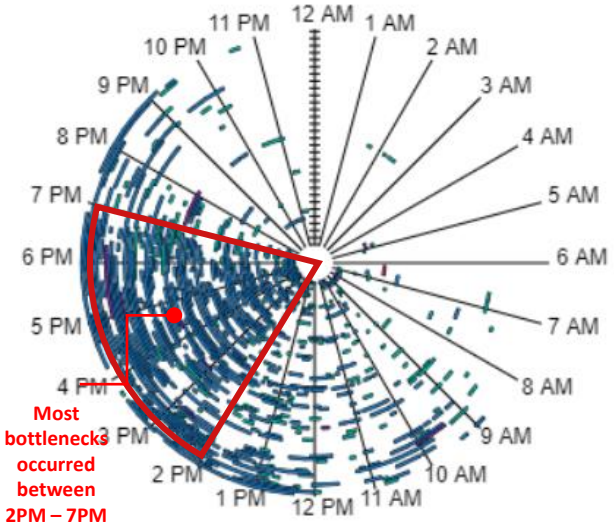
Congested Locations

A **2PM –7PM** MD-175 to MD-198



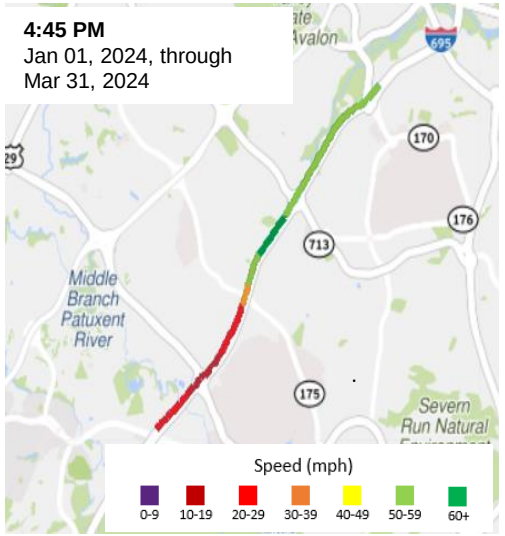
Bottleneck Occurrences

The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31.24.**



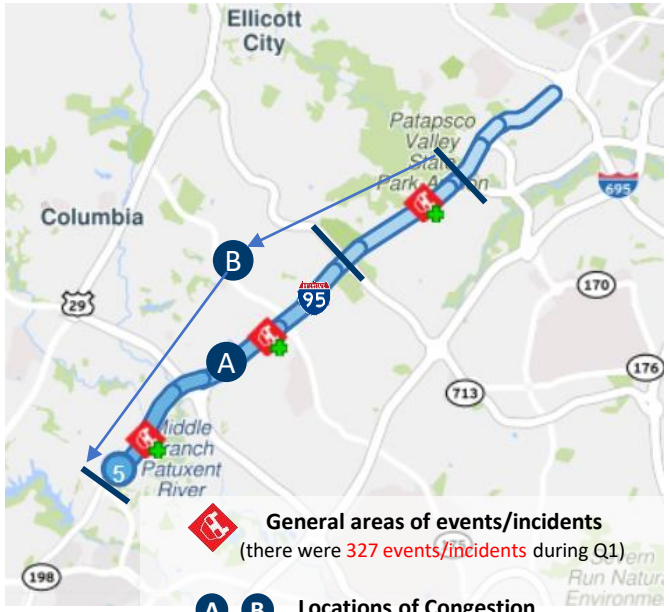
Corridor Speeds Over Time

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



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

Quarterly Bottleneck Evaluation Summary Q1 2024



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
50.4 mph
(29% slower than free flow)

PM Peak | 5:35 PM
43.7 mph
(37% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:55 AM
14.8 min

PM Peak |5:35 PM
17.1 min

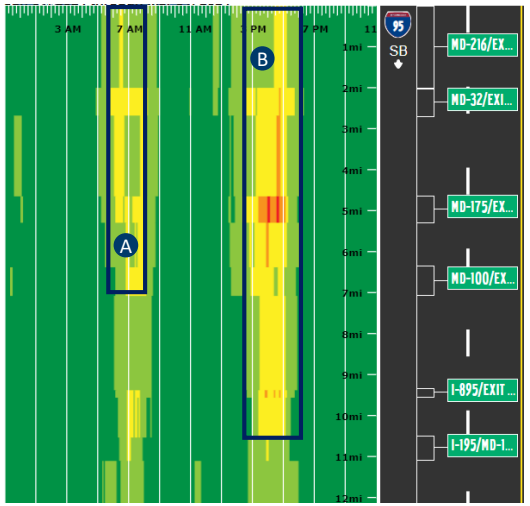
Q1 DELAY COST

Delay Cost
$7.987 M

Veh-hrs. of Delay
190,903 h

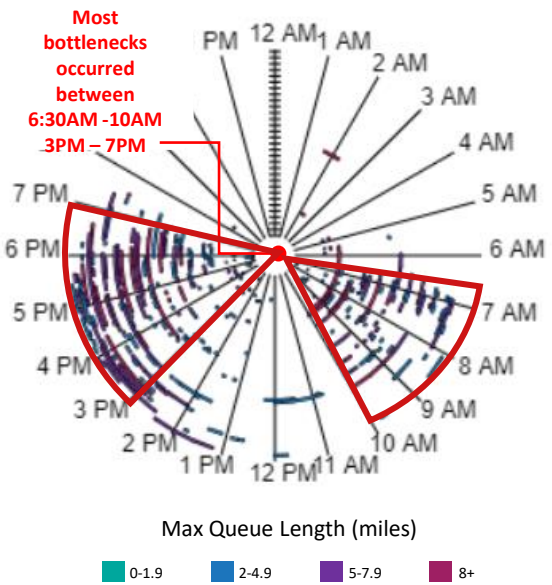
Congested Locations

A **6:30AM – 10AM** MD-100/Exit 43 to MD-216/Exit 35
B **3PM – 7PM** MD-100/Exit 46 to MD-216/Exit 35



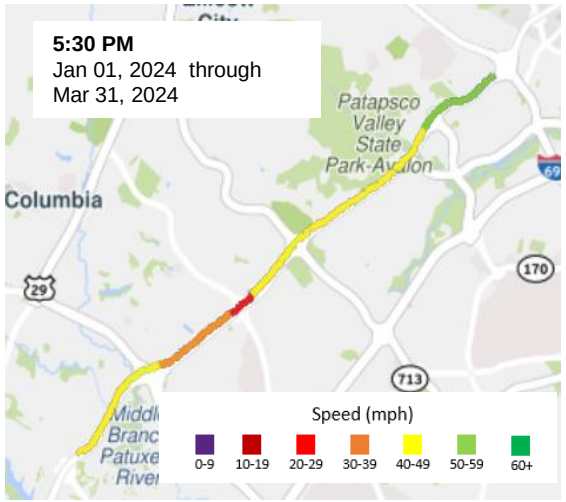
Bottleneck Occurrences

The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31.24**



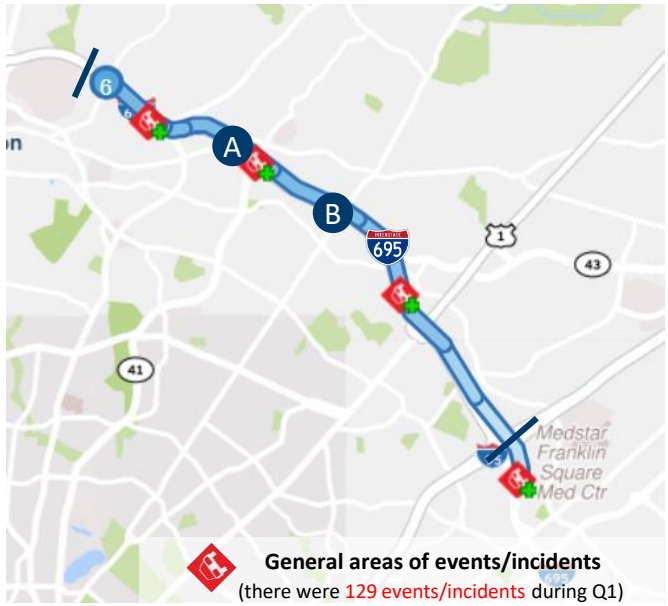
Corridor Speeds Over Time

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



6 I-695 OL @ PROVIDENCE RD

Quarterly Bottleneck Evaluation Summary Q1 2024



General areas of events/incidents
(there were 129 events/incidents during Q1)

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

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 | 7:55 AM
27.7 mph
(58% slower than free flow)

PM Peak | 3:50 PM
41.9 mph
(37% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:55 AM
14.8 min

PM Peak |3:50 PM
9.8 min

Q1 DELAY COST

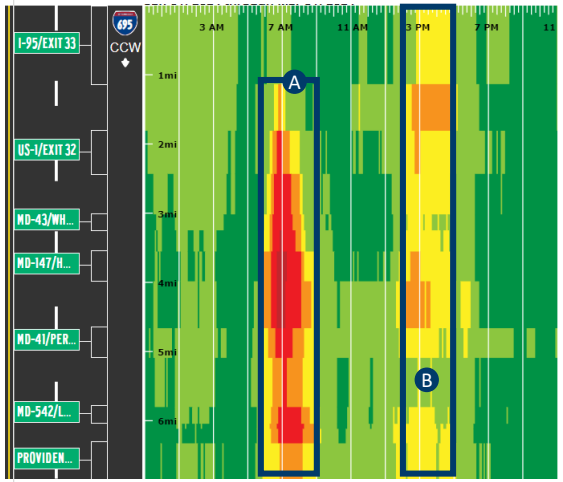
Delay Cost
$6.155 M

Veh-hrs. of Delay
147,127 h

Congested Locations

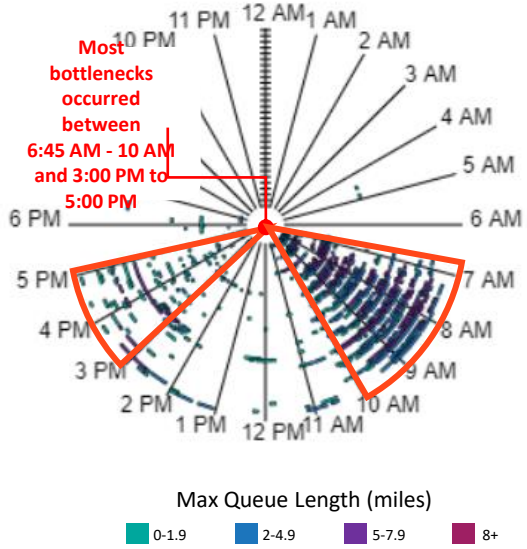
A **6:45AM – 10AM** I-95/Exit 33 to Providence Rd/Exit 28

B **3:00PM – 6:00PM** I-95/Exit 33 to Providence Rd/Exit 28



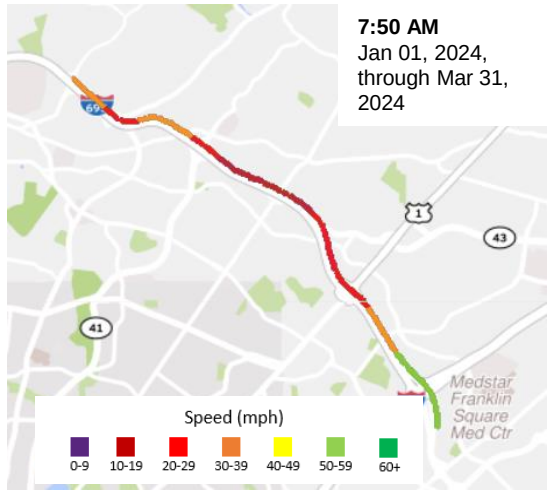
Bottleneck Occurrences

The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31.24**



Corridor Speeds Over Time

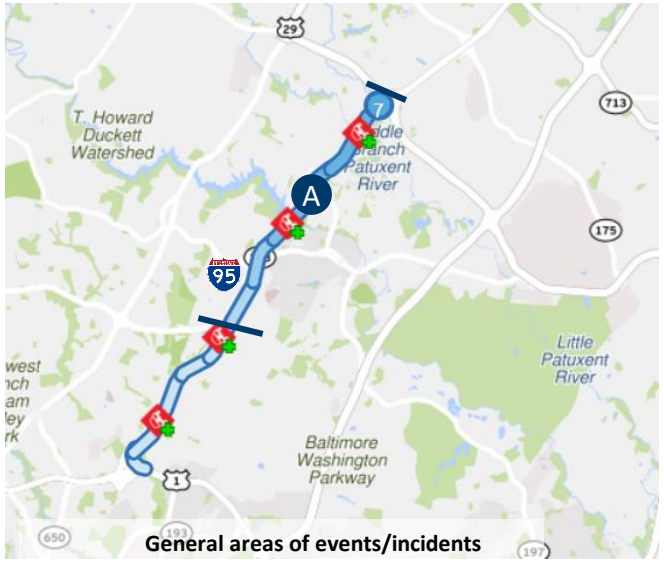
For animated playback of corridor speeds over time, click anywhere on the map below



7 I-95 N @ MD-32/EXIT 28

Quarterly Bottleneck Evaluation Summary

Q1 2024



General areas of events/incidents
(there were 265 events/incidents during Q1)

A **Locations of Congestion**

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.

PK. AVG. SPEED

AM Peak | 7:55 AM
57.5 mph
(18% slower than free flow)

PM Peak | 3:45 PM
49.2 mph
(29% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:55 AM
12.2 min

PM Peak |3:45 PM
14.3 min

Q1 DELAY COST

Delay Cost
$6.662 M

Veh-hrs. of Delay
159,234 h

Congested Locations

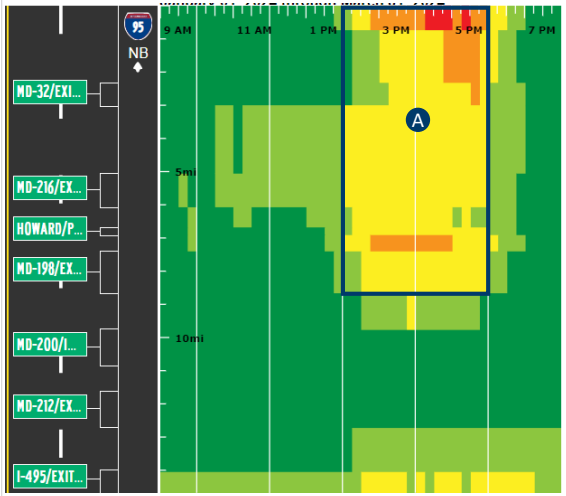
A **2PM – 6PM** MD-198/Exit 33 to MD-32/Exit 38

Bottleneck Occurrences

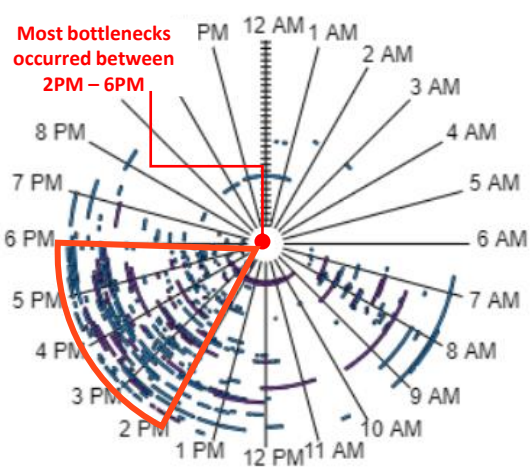
The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31.24**

Corridor Speeds Over Time

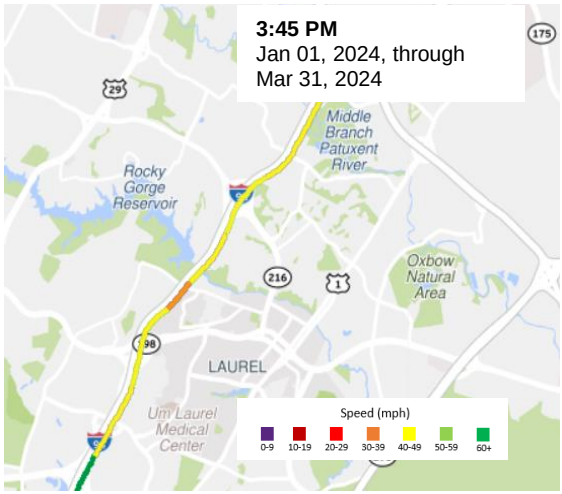
For animated playback of corridor speeds over time, click anywhere on the map below



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

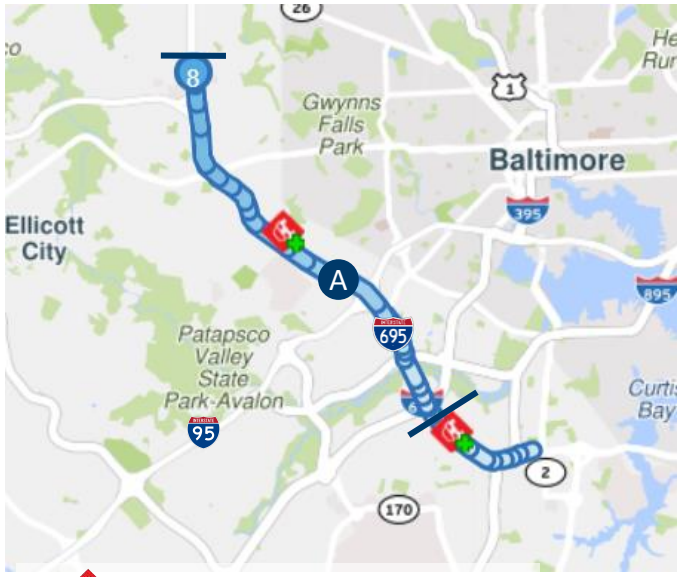


Max Queue Length (miles)
0-1.9 | 2-4.9 | 5-7.9 | 8+



8 I-695 IL @ MD-122/SECURITY BLVD /EXIT 17

Quarterly Bottleneck Evaluation Summary Q1 2024



General areas of events/incidents
(there were 335 events/incidents during Q1)

A **Locations of Congestion**

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

PK. AVG. SPEED

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

PM Peak | 5:25 PM
35.7 mph
(45% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:55 AM
13.7 min

PM Peak | 5:25PM
19.0 min

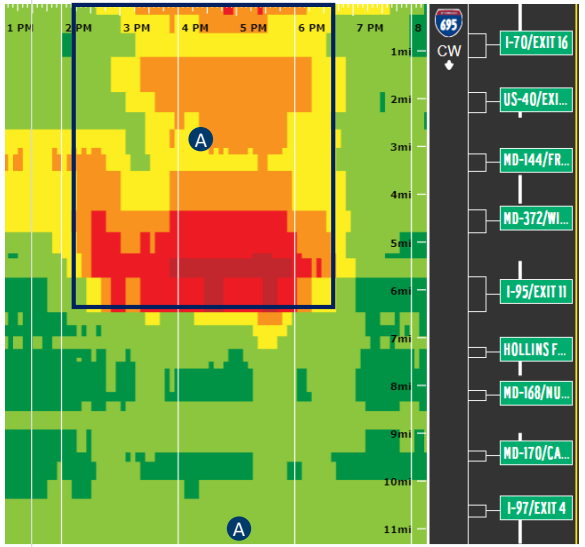
Q1 DELAY COST

Delay Cost
$9.388 M

Veh-hrs. of Delay
224,384 h

Congested Locations

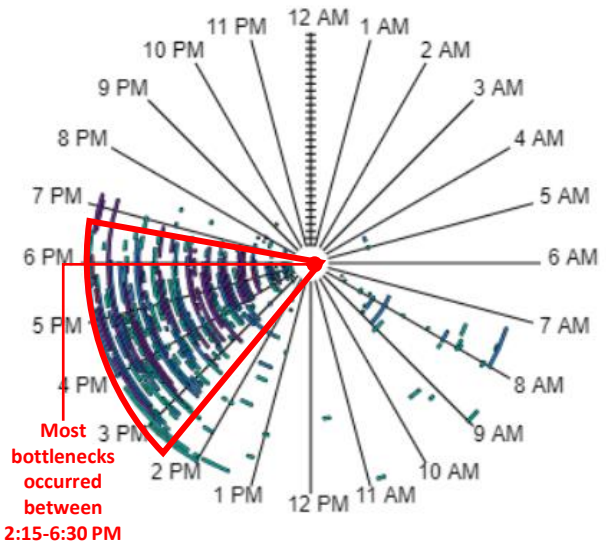
A **2:15PM – 6:30PM** I-95/Exit 11 to Security Blvd/Exit 17



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

Bottleneck Occurrences

The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31.24**

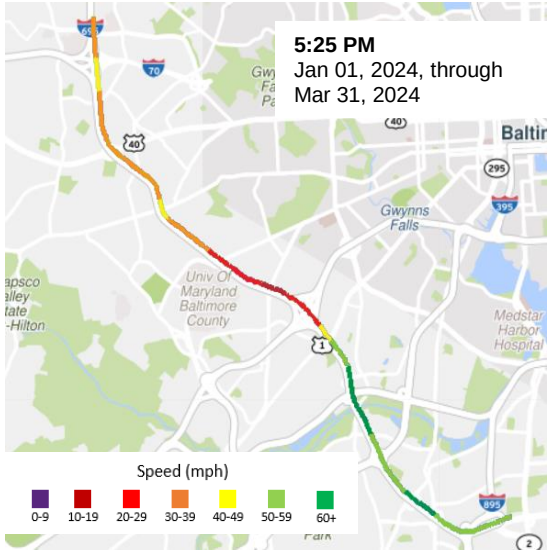


Most bottlenecks occurred between 2:15-6:30 PM

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

Corridor Speeds Over Time

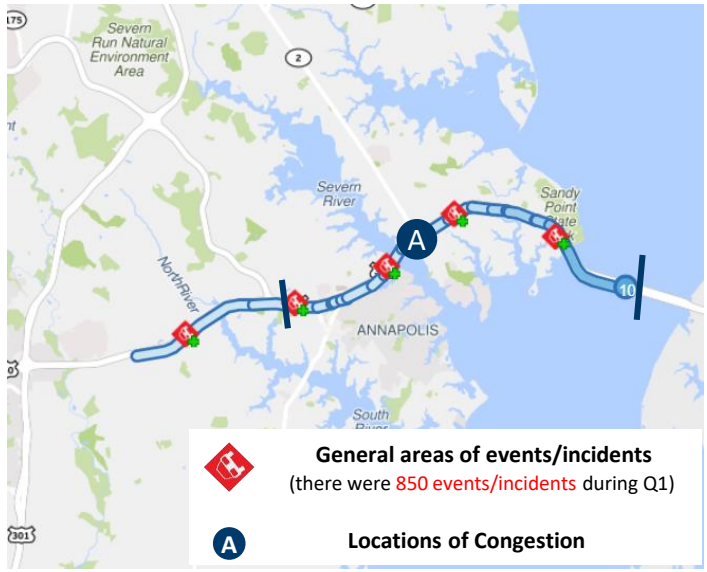
For animated playback of corridor speeds over time, click anywhere on the map below



9 US-50 E @ BAY BRIDGE

Quarterly Bottleneck Evaluation Summary

Q1 2024



Eastbound William Preston Lane, Jr. Memorial (Bay) Bridge. Ongoing system preservation and maintenance on both spans on select dates. Off peak, lane, shoulder and bridge closures.

PK. AVG. SPEED

AM Peak | 2:30 AM
54.9 mph
(15% slower than free flow)

PM Peak |5:30 PM
49.1 mph
(26% slower than free flow)

PK. TRAVEL TIME

AM Peak |2:30 AM
21.3 min

PM Peak |5:30 PM
23.8 min

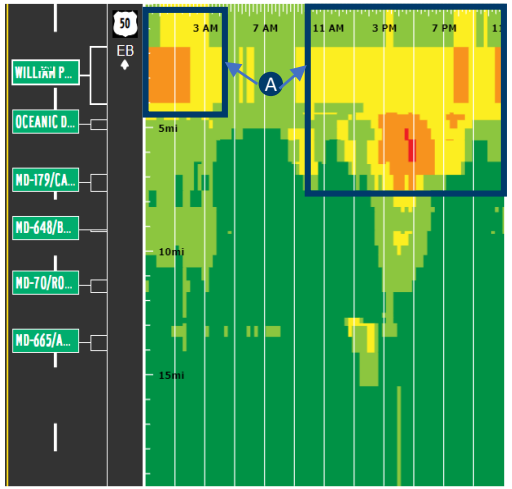
Q1 DELAY COST

Delay Cost
$5.4306 M

Veh-hrs. of Delay
126,829 h

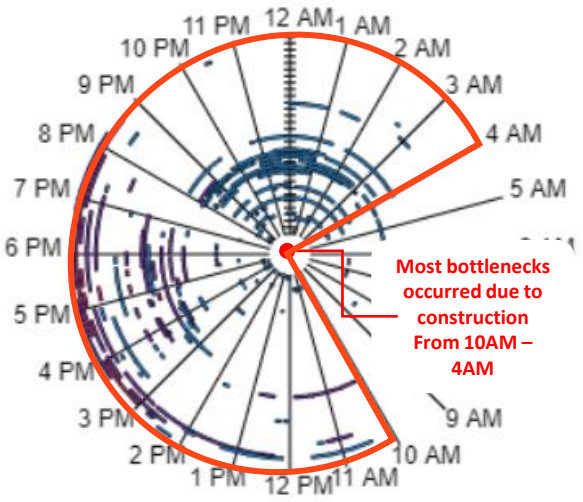
Congested Locations

A **10AM – 4AM** I-97/Exit 21 to Bay Bridge



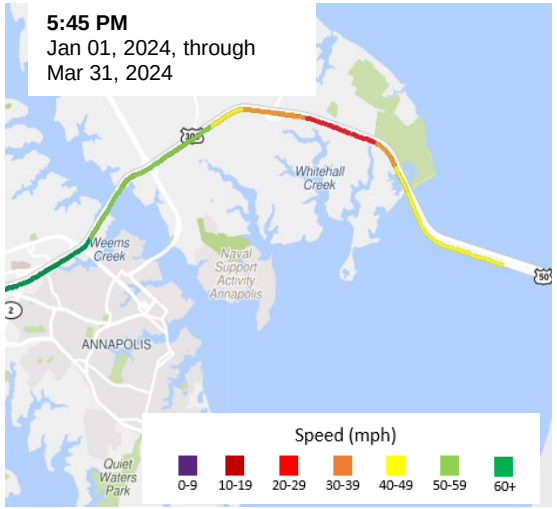
Bottleneck Occurrences

The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31.24**



Corridor Speeds Over Time

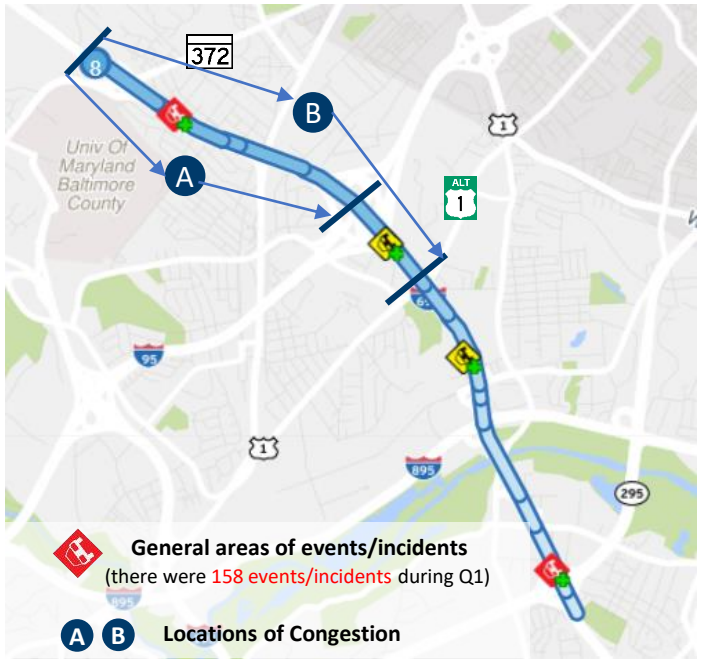
For animated playback of corridor speeds over time, click anywhere on the map below



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

Quarterly Bottleneck Evaluation Summary

Q1 2024



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).

PK. AVG. SPEED

AM Peak | 7:50 AM

48.9 mph

(27% slower than free flow)

PM Peak | 5:30 PM

31.4 mph

(52% slower than free flow)

PK. TRAVEL TIME

AM Peak |7:50AM

6.2 min

PM Peak |5:30 PM

9.6 min

Q4 DELAY COST

Delay Cost

$4,590 M

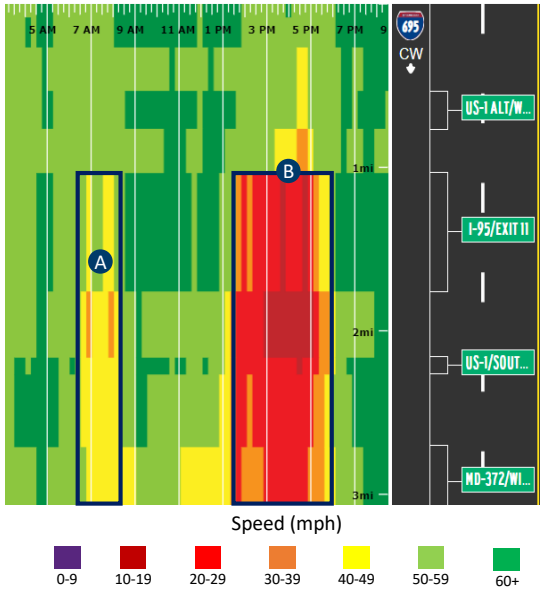
Veh-hrs. of Delay

109,702 h

Congested Locations

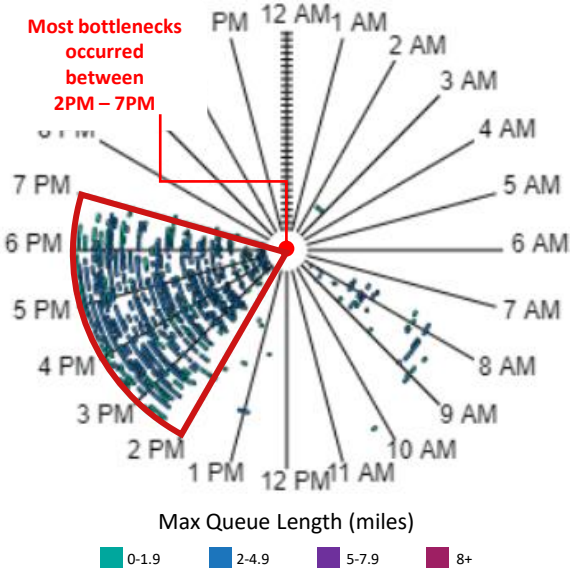
A **7:30AM – 9AM** I-95/Exit 11 to MD-372/Wilkens Ave/Exit 12

B **2PM – 7PM** I-95/Exit 11 to MD-372/Wilkens Ave/Exit 12



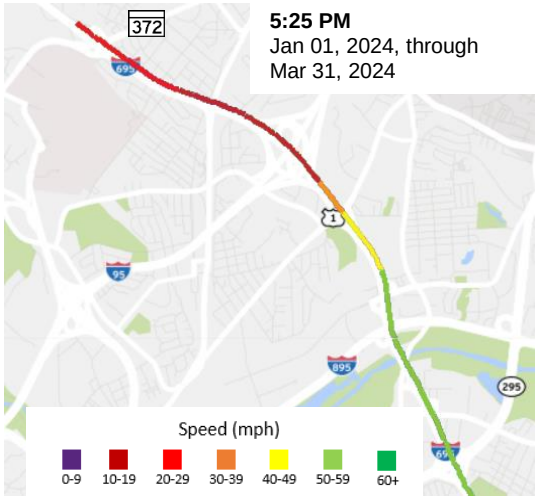
Bottleneck Occurrences

The center represents the beginning **of 01.01.24** and the outer edge the end of **03.31.24**



Corridor Speeds Over Time

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



BRTB Baltimore Regional Transportation Board

BALTIMORE METROPOLITAN COUNCIL

Top 10 Bottlenecks on Non-Limited Access Roads

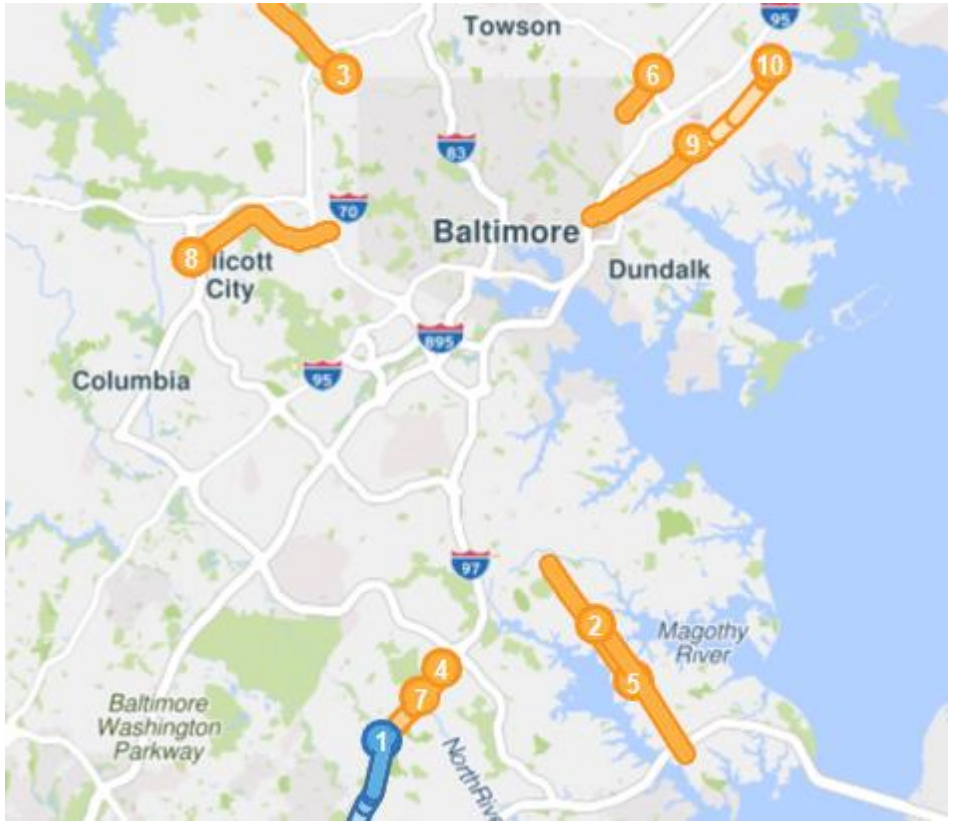
Top 10 Bottlenecks in the Region – Non Limited Access Roads

Q1 2024

Rank	Location	Avg. Max. Length (miles)	Avg. Daily Duration	Volume Estimate (AADT)	Total Delay (Millions)
1	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD	2.17	1h 53m	**35,131**	**16.1**
2	MD-2 N @ ROBINSON RD	**3.47**	1h 32m	28,750	16.0
3	MD-140 E @ SUDBROOK LN	0.57	6h 00m	15,586	7.1
4	MD-3 N @ MD-175/MILLERSVILLE RD/ANNAPOLIS RD	2.14	0h 45m	33,853	6.5
5	MD-2 @ COLLEGE PKWY	3.05	0h 39m	29,954	6.3
6	US-1 N @ ROSSVILLE BLVD	0.25	7h 03m	22,237	6.0
7	MD-3 N @ SAINT STEPHENS CHURCH RD	0.79	1h 22m	33,335	5.6
8	US-40 W @ ST JOHNS LN	0.19	**9h 14m**	25,359	5.5
9	US-40 E @ ROSSVILLE BLVD	0.45	2h 57m	26,160	5.3
10	US-40 E @ EBENEZER RD	0.69	1h 40m	18,239	5.0

Red #s = highest value for that metric

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



*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- 1st Quarter 2024

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

Anne Arundel County

Rank	Location
1	MD-295 S @ MD-198
2	US-50 E @ BAY BRIDGE
3	MD-295 N @ MD-175
4	MD-295 N @ CANINE RD
5	MD-295 S @ CANINE RD
6	I-695 CCW @ MD-170/CAMP MEADE RD/EXIT 6
7	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD
8	MD-2 N @ ROBINSON RD
9	I-97 S @ MD-178/EXIT 5
10	MD-295 S @ ARUNDEL--PRINCE GEORGE'S COUNTY BORDER
11	MD-295 N @ MD-100
12	I-695 CCW @ MD-295/BALTIMORE WASHINGTON PKWY/EXIT 7
13	MD-295 N @ PRINCE GEORGE'S/ARUNDEL CO LINE
14	MD-32 E @ I-97
15	MD-32 E @ MD-198/FORT MEADE RD
16	I-97 S @ US-301/US-50
17	MD-295 N @ MD-32
18	MD-3 N @ MD-175/MILLERSVILLE RD/ANNAPOLIS RD
19	MD-2 S @ COLLEGE PKWY
20	MD-3 N @ SAINT STEPHENS CHURCH RD

Baltimore City

Rank	Location
1	I-895 N @ HARBOR TUNNEL THWY (NORTH)
2	I-95 N @ FORT MCHENRY TUNNEL
3	I-95 S @ FORT MCHENRY TUNNEL
4	I-895 S @ HARBOR TUNNEL THWY (SOUTH)
5	I-95 N @ I-95 (EAST)
6	I-95 N @ I-95 (BALTIMORE)/FORT MCHENRY TUNNEL(EAST)
7	I-95 N @ MD-295/BALTIMORE WASHINGTON PKWY/EXIT 52
8	MD-295 N @ I-95/MONROE ST
9	I-83 S @ MD-25/FALLS RD/EXIT 8
10	I-95 N @ MCCOMAS ST/EXIT 55 SOUTH
11	I-83 S @ COLD SPRING LN/EXIT 9
12	I-95 S @ I-95 (BALTIMORE)/FORT MCHENRY TUNNEL(WEST)
13	US-40 W @ COOKS LN
14	I-895 N @ HARBOR TUNNEL THWY (SOUTH)
15	S MARTIN L KING JR BLVD S @ WASHINGTON BLVD
16	I-95 S @ DUNDALK AVE/EXIT 58
17	I-895 S @ HARBOR TUNNEL THWY (NORTH)
18	CONWAY ST E @ MD-2/LIGHT ST
19	HOWARD ST N @ W LOMBARD ST
20	I-95 S @ I-395/EXIT 53

IL = Inner Loop

OL = Outer Loop

Top 20 Bottlenecks in Local Jurisdictions- 1st Quarter 2024

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 @ I-83/MD-25/EXIT 23
3	I-695 OL @ PROVIDENCE RD/EXIT 28
4	I-695 IL @ SECURITY BLVD/EXIT 17
5	I-695 IL @ MD-372/WILKENS AVE/EXIT 12
6	I-695 IL @ EDMONDSON AVE/EXIT 14
7	I-95 S @ MD-43/WHITEMARSH BLVD/EXIT 67
8	I-695 OL @ US-40/EXIT 15
9	I-695 IL @ MD-144/FREDERICK RD/EXIT 13
10	I-695 IL @ PROVIDENCE RD/EXIT 28
11	I-695 OL @ I-70/EXIT 16
12	I-83 S @ I-695
13	I-695 OL @ I-83/MD-25/EXIT 23
14	I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29
15	I-70 E @ I-695/EXIT 91
16	I-695 OL @ I-795/EXIT 19
17	I-695 IL @ MD-26/EXIT 18
18	I-695 OL @ GREENSPRING AVE/EXIT 22
19	I-695 IL @ I-70/EXIT 16
20	I-695 IL @ MD-147/HARFORD RD/EXIT 31

Carroll County

Rank	Location
1	MD-30 N @ MD-27/MANCHESTER RD
2	MD-32 W @ MD-26/LIBERTY RD
3	MD-30 S @ MD-27/MANCHESTER RD
4	MD-32 W @ UNIONTOWN RD
5	MD-97 N @ MD-496/BACHMANS VALLEY RD
6	MD-97 S @ MD-496/BACHMANS VALLEY RD
7	MD-97 N @ MAGNA WAY/AIRPORT DR
8	MD-32 E @ E MAIN ST
9	MD-27 N @ MD-30/MAIN ST
10	I-70 W @ MD-27/EXIT 68
11	MD-140 W @ MD-91/EMORY RD/GAMBER RD
12	MD-32 W @ RAINCLIFFE RD/SANDOSKY RD
13	MD-144 W @ MD-27/RIDGE RD
14	MD-482 W @ MD-27/MANCHESTER RD
15	MD-140 E @ MD-91/EMORY RD/GAMBER RD
16	MD-26 W @ MD-32/SYKESVILLE RD
17	MD-32 E @ MD-26/LIBERTY RD
18	MD-26 E @ MD-32/SYKESVILLE RD
19	MD-140 W @ MD-27/MANCHESTER RD
20	MD-26 W @ MD-97/NEW WASHINGTON RD

IL = Inner Loop

OL = Outer Loop

Top 20 Bottlenecks in Local Jurisdictions- 1st Quarter 2024

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-152/EXIT 74
2	I-95 N @ MD-152/EXIT 74
3	I-95 N @ MD-543/EXIT 80
4	I-95 N @ MD-24/EXIT 77
5	MD-924 N @ MD-24/VIETNAM VETERANS MEMORIAL HWY
6	I-95 S @ MD-24/EXIT 77
7	MD-152 N @ OLD JOPPA RD
8	I-95 S @ MARYLAND HOUSE
9	US-40 E @ MD-152
10	MD-543 S @ US-1/HICKORY BYP
11	MD-24 N @ I-95/JOHN F KENNEDY MEMORIAL HWY
12	US-40 E @ JOPPA RD
13	US-1-BR N @ US-1/HICKORY BYP
14	MD-24 N @ PLUMTREE RD
15	MD-155 E @ MD-22/CHURCHVILLE RD
16	I-95 S @ MD-22/EXIT 85
17	US-1-BR S @ MD-24/VIETNAM VETERANS MEMORIAL HWY
18	MD-24 N @ SINGER RD
19	MD-24 S @ I-95/JOHN F KENNEDY MEMORIAL HWY
20	MD-152 N @ US-40/PULASKI HWY

Howard County

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

Top 20 Bottlenecks in Local Jurisdictions- 1st Quarter 2024

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 @ MD-8/EXIT 37
3	US-50 E @ BEGIN FREEWAY
4	US-50 W @ BAY BRIDGE
5	US-50 E @ MD-8/EXIT 37
6	US-50 W @ MD-213/CENTREVILLE RD
7	US-50 E @ MD-456/DEL RHODES AVE
8	US-50 W @ MD-404/QUEEN ANNE HWY
9	US-50 W @ THOMPSON CREEK RD/DUKE ST
10	US-50 E @ MD-18/MAIN ST/EXIT 38
11	US-50 E @ MD-213/CENTREVILLE RD
12	MD-404 W @ MD-309/STARR RD/MAIN ST
13	US-301 S @ US-50
14	US-50 W @ US-301/BLUE STAR MEMORIAL HWY
15	US-50 E @ MD-404/QUEEN ANNE HWY
16	US-50 W @ MD-18/MAIN ST/EXIT 38
17	MD-313 S @ MD-544/MCGINNIS RD
18	US-50 E @ MD-18/MAIN ST/EXIT 42
19	US-50 W @ MD-18/MAIN ST/EXIT 43A
20	US-50 W @ MD-18/MAIN ST/EXIT 41

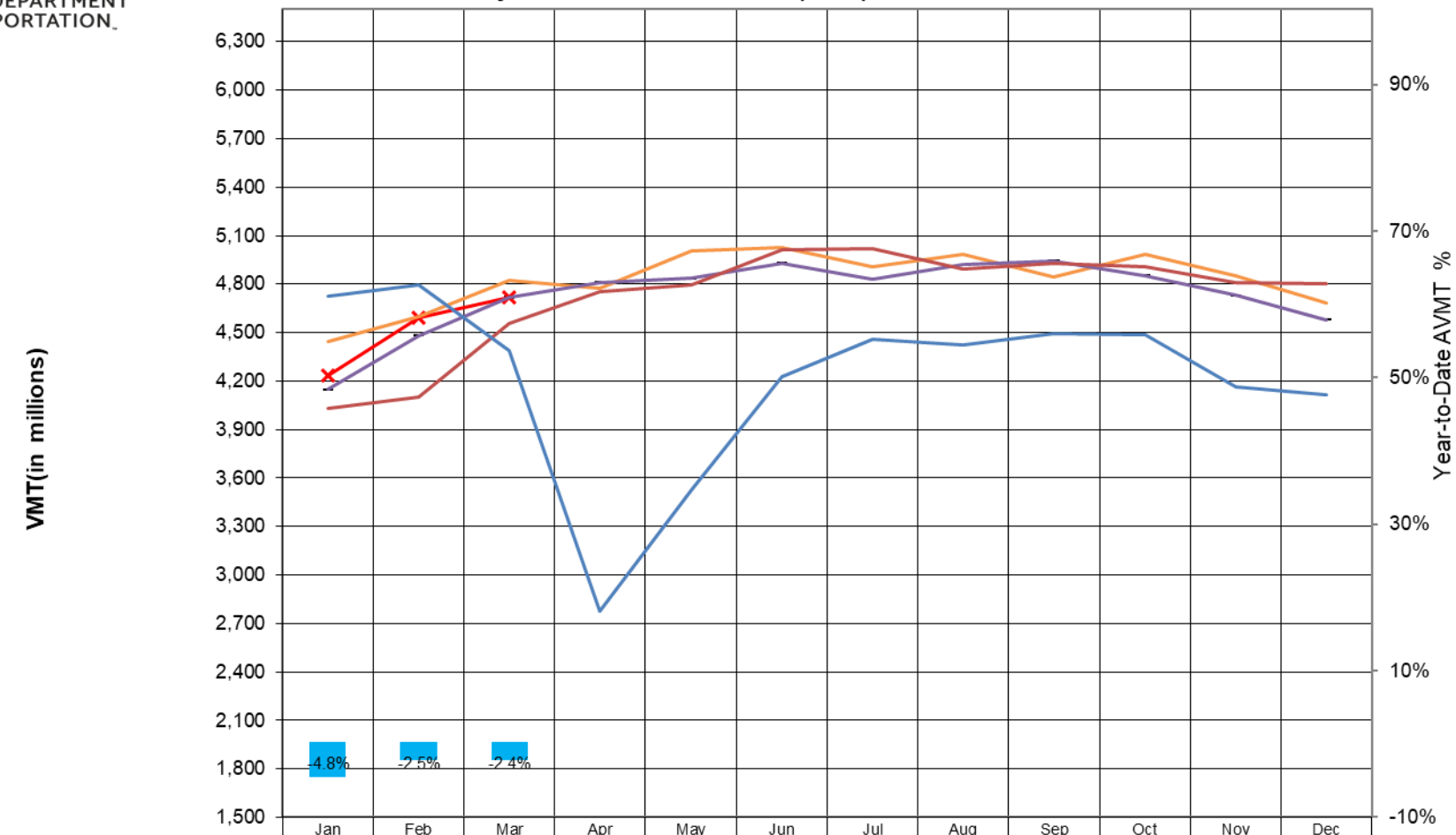
Vehicle Miles Traveled (VMT) Trend Graphs

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

Estimated Monthly Distribution of Annual (VMT) Vehicle Miles of Travel for : Mar-2024										
Mar	2020 VMT (Millions)	2021 VMT (Millions)	2022 VMT (Millions)	**2023 VMT* (Millions)- Estimated**	**2024 VMT* (Millions)- Estimated**	Percent Change 2020-2021	Percent Change 2021-2022	Percent Change 2022-2023	Percent Change 2023-2024	Cumulative Year-to-Date Change 2023-2024
Jan	4728	4028	4149	4446	4232	-14.8%	3.0%	7.2%	-4.8%	-4.8%
Feb	4794	4104	4483	4601	4591	-14.4%	9.2%	2.6%	-0.2%	-2.5%
Mar	4389	4556	4718	4825	4719	3.8%	3.6%	2.3%	-2.2%	-2.4%
Apr	2779	4755	4811	4774		71.1%	1.2%	-0.8%		
May	3527	4795	4835	5007		36.0%	0.8%	3.6%		
Jun	4229	5009	4929	5025		18.4%	-1.6%	1.9%		
Jul	4458	5023	4832	4907		12.7%	-3.8%	1.6%		
Aug	4427	4894	4918	4986		10.5%	0.5%	1.4%		
Sep	4494	4930	4945	4843		9.7%	0.3%	-2.1%		
Oct	4488	4910	4854	4982		9.4%	-1.1%	2.6%		
Nov	4163	4810	4730	4850		15.5%	-1.7%	2.5%		
Dec	4116	4802	4580	4681		16.7%	-4.6%	2.2%		
TOTAL	**50,592**	**56,616**	**56,784**	**57,927**		**11.9%**	**0.3%**	**2.0%**		
Note										
1	The Mar-2024 Monthly AVMT is down compared to Mar-2023 by -2.2%									
2	The Cumulative Year-to-Date AVMT till Mar 2024 is down compared to same time last year 2023 by -2.4%									
3	* Preliminary 2024 VMT Estimates based on 2023 Estimated 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 :10/30/2024									

MARYLAND DEPARTMENT OF TRANSPORTATION

Estimated Monthly Distribution of Annual (VMT) Vehicle Miles of Travel for : Mar-2024



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative Year-to-Date Change 2023-2024	-4.8%	-2.5%	-2.4%									
2024 VMT* (Millions)-Estimated	4232	4591	4719									
2023 VMT* (Millions)-Estimated	4446	4601	4825	4774	5007	5025	4907	4986	4843	4982	4850	4681
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

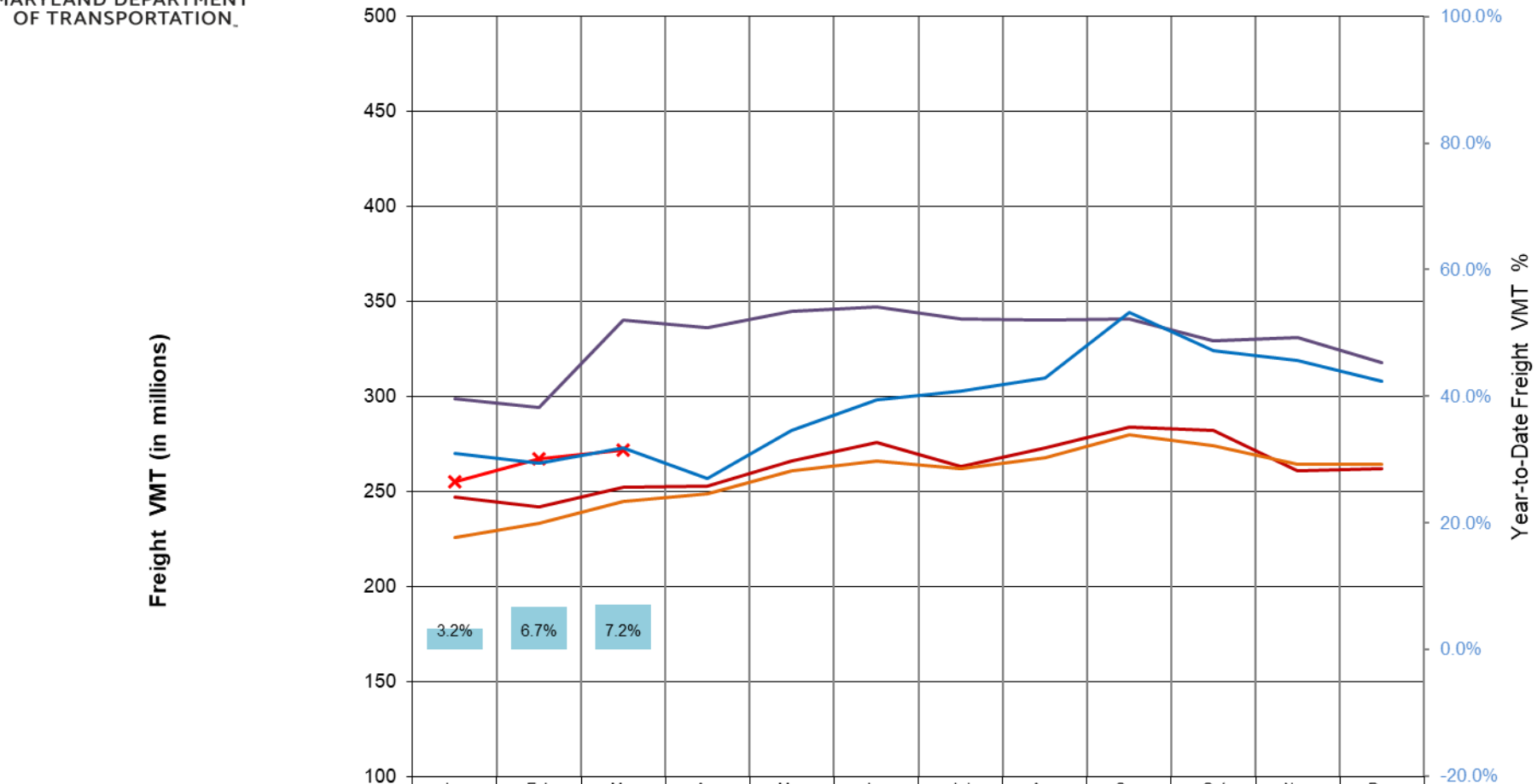
NOTE: This chart displays estimated monthly Vehicle Miles of Travel compared with the previous year based on data collected at approximately 50+ continuous count stations throughout the State.

Report Updated on :10/30/2024

Estimated Monthly Distribution of Freight Vehicle Miles of Travel for : Mar-2024										
Mar	2020 Freight VMT (Millions)	2021 Freight VMT (Millions)	2022 Freight VMT (Millions)	2023 Freight VMT (Millions)* Estimated	2024 Freight VMT (Millions)* Estimated	Percent Change 2020-2021 Freight VMT	Percent Change 2021-2022 Freight VMT	Percent Change 2022-2023 Freight VMT	Percent Change 2023-2024 Freight VMT	Cumulative Year-to-Date Freight VMT 2023-2024
Jan	270	299	226	247	255	10.7%	-24.4%	9.3%	3.2%	3.2%
Feb	265	294	233	242	267	10.9%	-20.7%	3.9%	10.3%	6.7%
Mar	273	340	245	252	272	24.5%	-27.9%	2.9%	7.9%	7.2%
Apr	257	336	249	253		30.7%	-25.9%	1.6%		
May	282	345	261	266		22.3%	-24.3%	1.9%		
Jun	298	347	266	276		16.4%	-23.3%	3.8%		
Jul	303	341	262	263		12.5%	-23.2%	0.4%		
Aug	310	340	268	273		9.7%	-21.2%	1.9%		
Sep	344	341	280	284		-0.9%	-17.9%	1.4%		
Oct	324	329	274	282		1.5%	-16.7%	2.9%		
Nov	319	331	264	261		3.8%	-20.2%	-1.1%		
Dec	308	318	264	262		3.2%	-17.0%	-0.8%		
TOTAL	**3553**	**3961**	**3092**	**3161**		**11.48%**	**-21.94%**	**2.23%**		
Note										
1	The Mar-2024 Monthly Freight VMT is up compared to Mar-2023 by 7.9%									
2	The Cumulative Year-to-Date Freight VMT till Mar 2024 is up compared to same time last year 2023 by 7.2%									
3	* Preliminary 2023 Freight VMT Estimates based on 2023 Freight Estimated 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 :10/30/2024										

MARYLAND DEPARTMENT OF TRANSPORTATION

Estimated Monthly Distribution of Freight Vehicle Miles of Travel for : Mar-2024



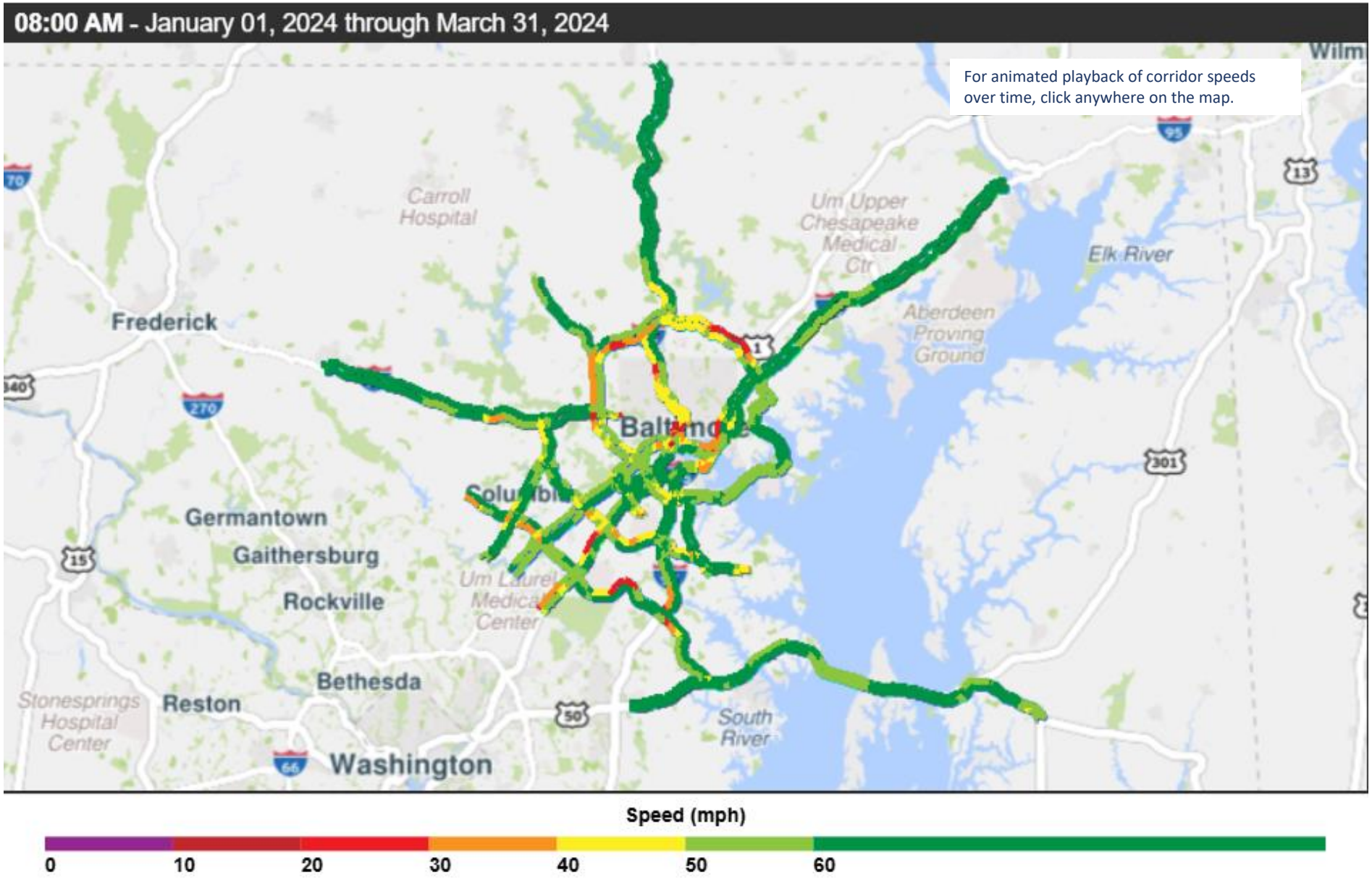
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative Year-to-Date Freight VMT 2023-2024	3.2%	6.7%	7.2%									
2024 Freight VMT (Millions)* Estimated	255	267	272									
2023 Freight VMT (Millions)* Estimated	247	242	252	253	266	276	263	273	284	282	261	262
2022 Freight VMT (Millions)	226	233	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

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.

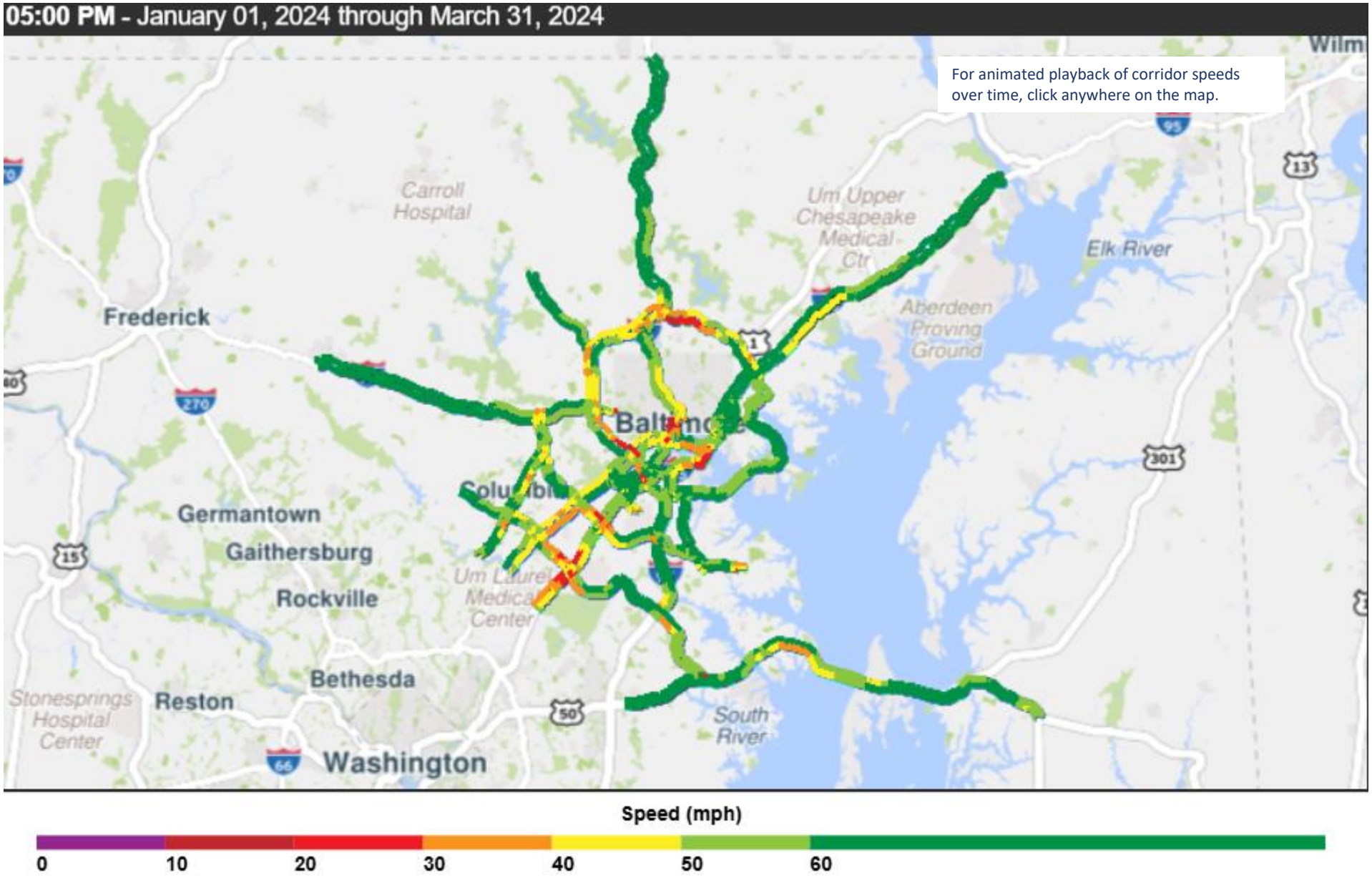
Report Updated on :10/30/2024

Regional Speed Maps

AM Peak Period Rush Hour: 1st Quarter 2024



PM Peak Period Rush Hour: 1st Quarter 2024



System Reliability Performance Measures

Percent of reliable person-miles traveled on the Interstate

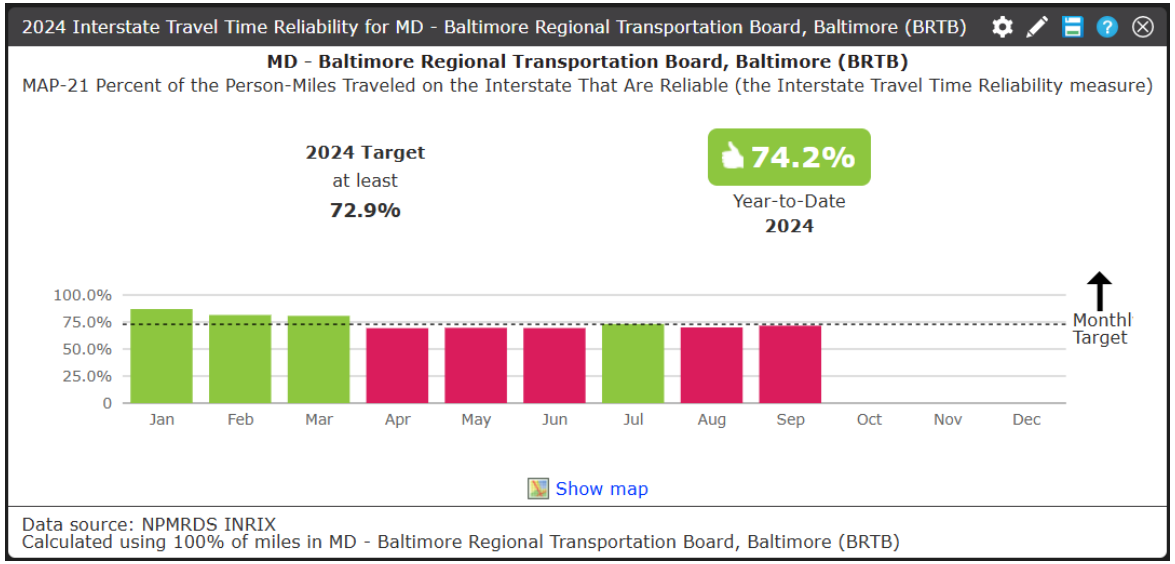
Percent of reliable person-miles traveled on the Non-Interstate NHS

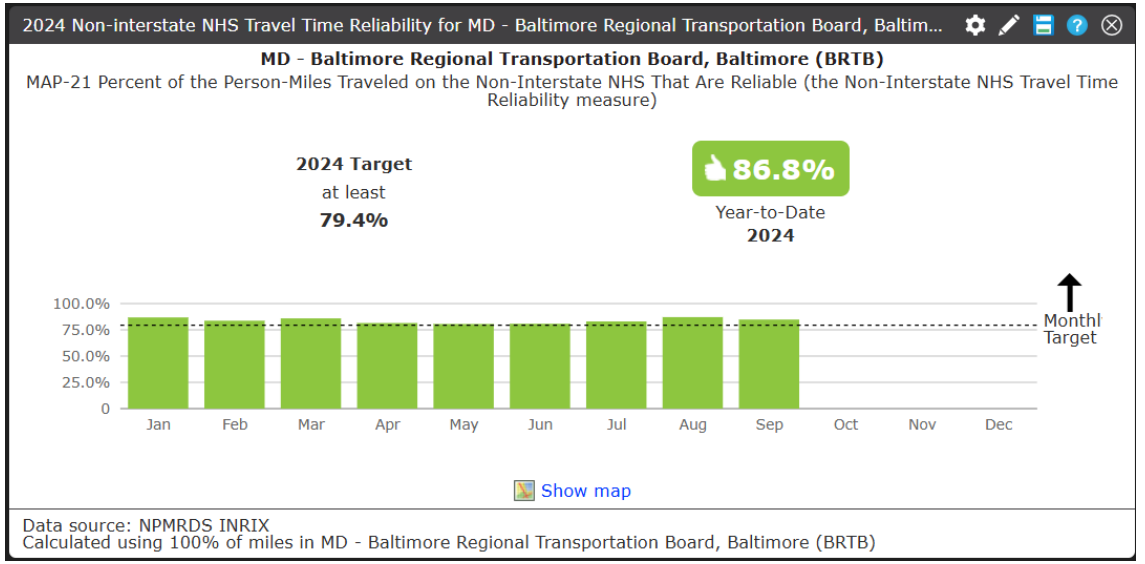
Percentage of Interstate system mileage providing for reliable truck travel time (Truck Travel Time Reliability Index)

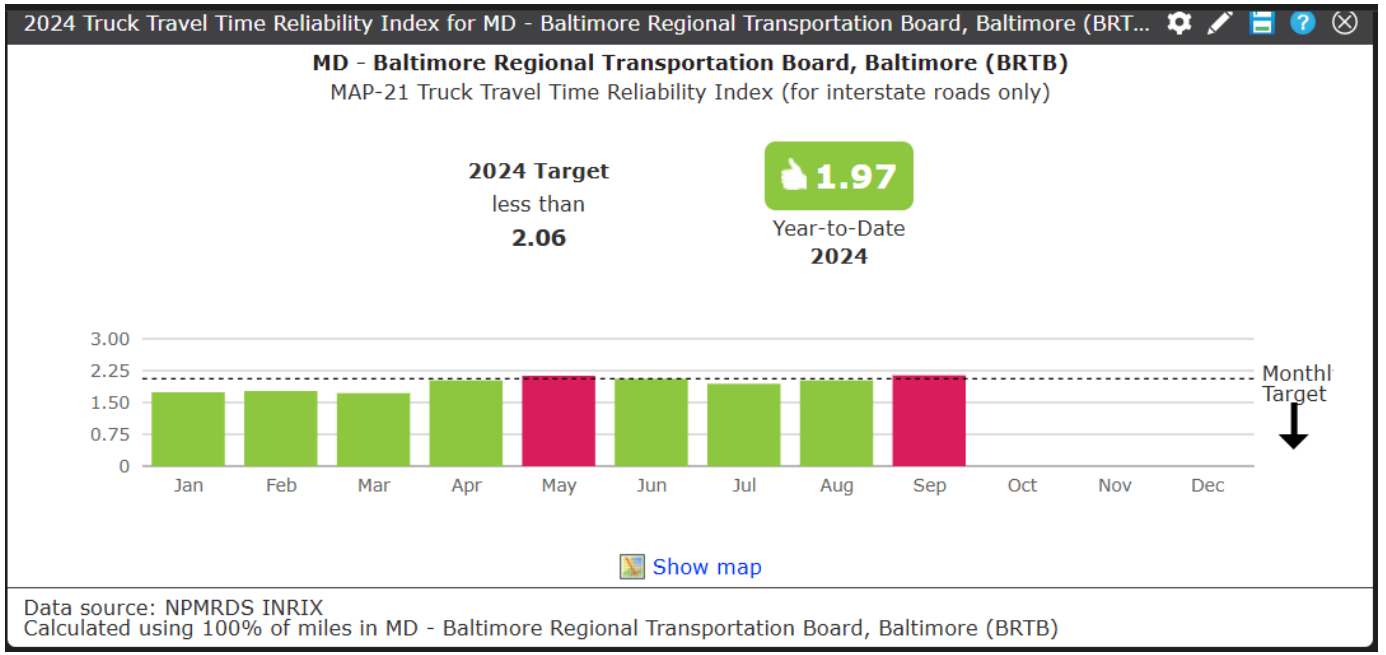
* Each state must establish statewide targets and report findings to the Federal Highway Administration. Metropolitan Planning Organizations must either support the established state targets or develop regional targets of their own.

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

			2023-2024										
Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Q1 Rank**	**Q1 Locations**
1	1	2		3	7		1	1	9	1	1	1	I-95 N @ MD-152/EXIT 74
12	18	15			18	6	20	2	2	2	2	2	I-695 IL @ I-83/MD-25/EXIT 23
11	4		3	5		3	2	4	5	3	3	3	I-95 N @ MD-100/EXIT 43
4	5	1	1		1		4	5	3	7		4	MD-295 S @ MD-198
9	9	6	6	12	13	15	3	3	4	6	5	5	I-95 S @ MD-216/EXIT 35
15	14	19	10	15	6	16	12	14	6	9	6	6	I-695 OL @ PROVIDENCE RD/EXIT 28
14			4	18	5			9	1		9	7	I-95 N @ MD-32/EXIT 38
						18	16	10	8	8	8	8	I-695 IL @ SECURITY BLVD/EXIT 17
5	7	7	11	13			5	8	13	10		9	US-50 E @ BAY BRIDGE
8	8	8		4	4	7	9	15	10	12	11	10	I-695 IL @ MD-372/WILKENS AVE/EXIT 12
			9	10	19	10		17		18	4	11	I-895 N @ HARBOR TUNNEL THWY (NORTH)
13	10		14			17	19	11	12		13	12	MD-295 N @ MD-175
6	6	4	7	7		13				5	17	13	I-695 IL @ EDMONDSON AVE/EXIT 14
16	16		12					18			12	14	I-95 S @ MD-43/WHITEMARSH BLVD/EXIT 67
20	15	18									10	15	I-95 N @ FORT MCHENRY TUNNEL
									7			16	I-695 OL @ US-40/EXIT 15
								19	11	16		17	I-695 IL @ MD-144/FREDERICK RD/EXIT 13
						14		12	18			18	I-695 IL @ PROVIDENCE RD/EXIT 28
	19	20			2	4	17			14		19	I-695 OL @ I-70/EXIT 16
10	13									15		20	I-95 S @ MD-100/EXIT 43

Conclusions/Observations: The March-2024 Monthly Average Vehicle Miles Traveled AVMT is down compared to March-2023 by -2.2%. The cumulative Year to Date change through March 2024 AMVT is down compared to last year 2023 by -2.4%. I-95 N @ MD-152/Mountain Rd was the region's top bottleneck - up one spot from the final quarter of 2023.

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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