Quarterly Congestion Analysis Report

Top 10 Bottlenecks in the Baltimore Region

3rd Quarter 2022

BRTB Baltimore Regional Transportation Board

Report created October 2022

BALTIMORE METROPOLITAN COUNCIL

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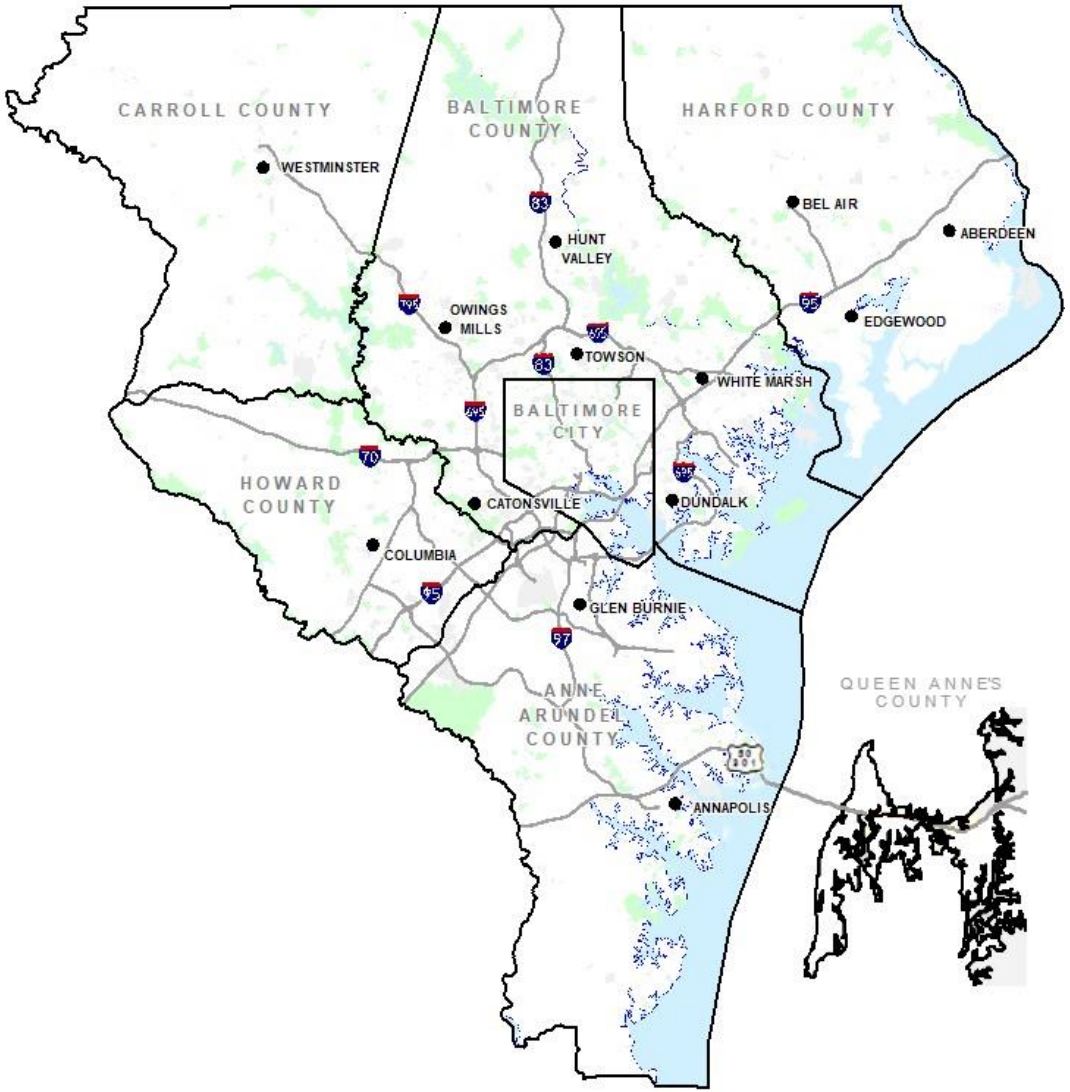
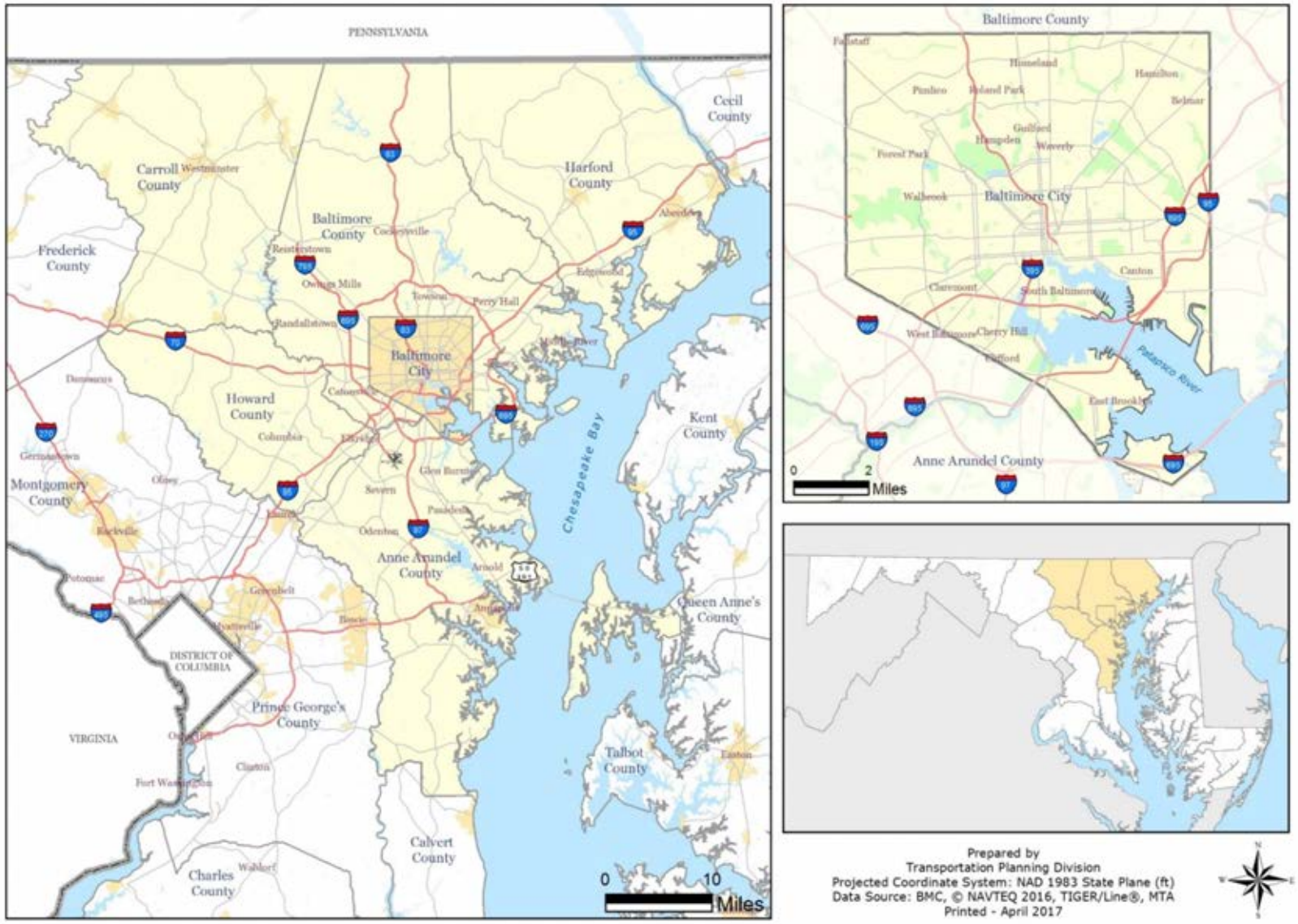
Baltimore Region



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

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

Baltimore Region



Bottleneck Analytics

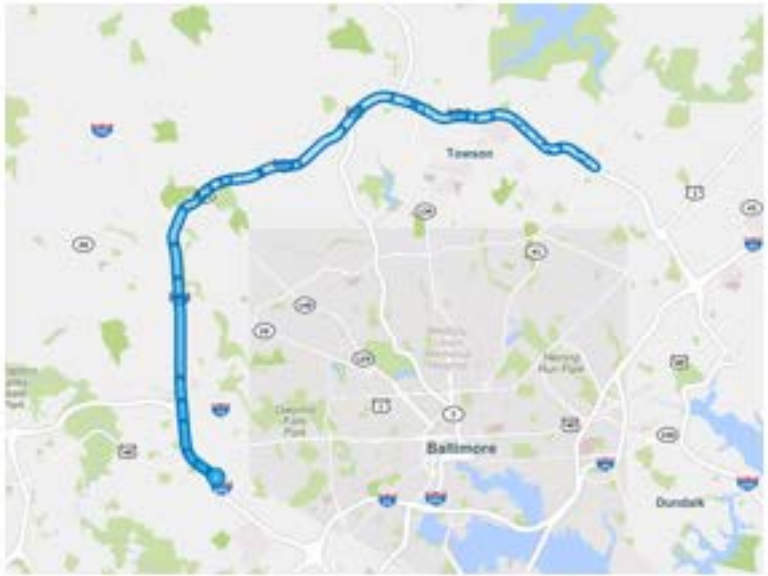
How are bottleneck conditions tracked?

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

Rank	Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
1	I-695 OL @ EDMONDSON AVE/EXIT 14	5.01	2 h 43 m	834	88946
2	I-695 IL @ I-83/MD-25/EXIT 23	3.53	2 h 56 m	463	95048
3	I-695 IL @ I-70/EXIT 16	2.11	2 h 54 m	233	95068
4	I-695 OL @ US-40/EXIT 15	57	1 h 48 m	766	89650
5	I-95 N @ MD-100/EXIT 43	4.23	1 h 22 m	310	95604
6	I-95 N @ MD-295/BALTIMORE WASHINGTON PKWY/EXIT 52	2.26	1 h 50 m	641	93260
7	MD-295 S @ POWDER MILL RD	5.26	1 h 24 m	318	45940
8	I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29	3.71	53 m	496	85789
9	I-95 N @ MD-175/EXIT 41	3.23	1 h 12 m	243	95344
10	I-695 OL @ I-83/MD-25/EXIT 23	3.48	1 h 06 m	484	79378

IL = Inner Loop OL = Outer Loop

Maps



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

Top 10 Bottleneck Rankings in the Baltimore Region – 3rd Quarter 2022

Top 10 Bottlenecks in the Region

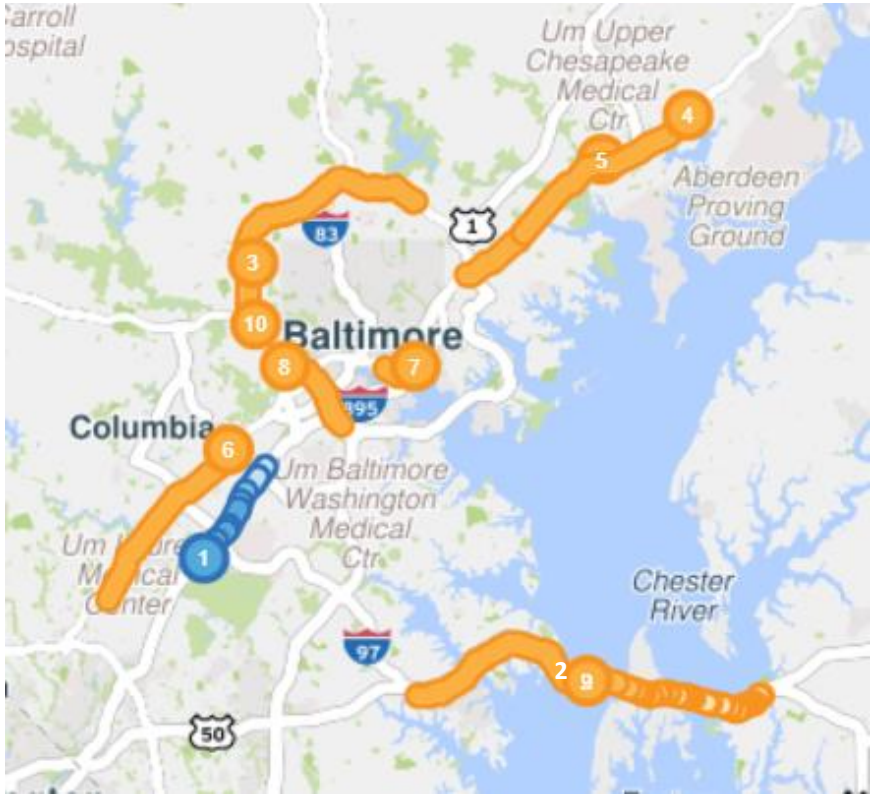
Q3 2022

Rank	Location	Previous Quarter Ranking	Avg. Max. Length (mi)	Avg. Daily Duration	Agency Reported Incidents	Volume Estimate (AADT)
1	MD-295 S @ MD-198	2	3.01	5 h 42 m	80	47,644
2	US-50 E @ BAY BRIDGE	--	4.80	2 h 5 m	**730**	35,724
3	I-695 OL @ MD-26/EXIT 18	6	2.12	2 h 25 m	473	97,428
4	I-95 N @ MD-543/EXIT 80	10	5.06	1 h 28 m	372	72,873
5	I-95 N @ MD-152/EXIT 74	1	**7.00**	1 h	419	84,588
6	I-95 N @ MD-100/EXIT 43	5	3.88	2 h 6 m	176	103,004
7	I-95 N @ I-95 (EAST) FORT MCHENRY TUNNEL	4	0.81	**7 h 1 m**	N/A	62,988
8	I-695 IL @ MD-372/WILKENS AVE/EXIT 12	--	1.87	2 h 4 m	214	99,290
9	US-50 W @ BAY BRIDGE	--	4.20	1 h 34 m	490	34,258
10	I-695 OL @ I-70/EXIT 16	7	2.40	2 h 35 m	246	**104,706**

IL = Inner Loop OL = Outer Loop

Red #s = highest value for that metric

N/A = Not Applicable/No agency report



*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.*

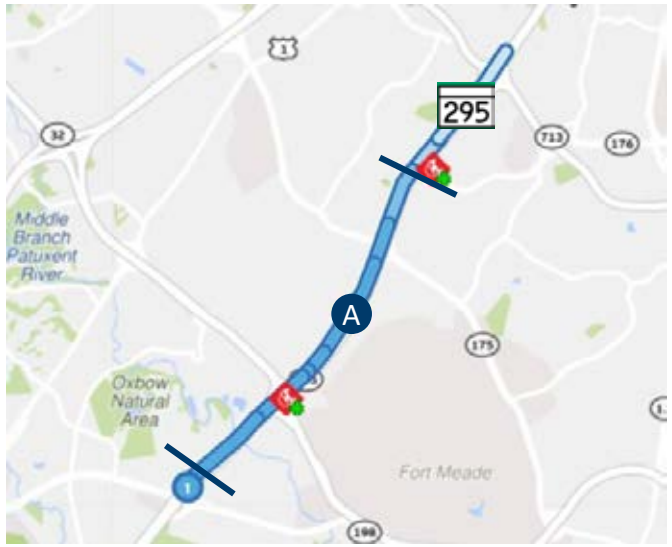
Top 10 Bottleneck Rankings in the Baltimore Region – 3rd Quarter 2022 by Location

Includes:

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

1 MD-295 S @ MD-198

Quarterly Bottleneck Evaluation Summary Q3 2022



General areas of events/incidents
(there were 80 events/incidents during Q3)

A **Locations of Congestion**

Southbound PM congestion from MD-198 extending into the southern portion of the Baltimore region near Fort Meade occurring during both the morning and afternoon peak periods.

PK. AVG. SPEED

AM Peak | 7:50 AM
45.3 mph
(34% slower than free flow)

PM Peak | 5:30 PM
31.4 mph
(52% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:50 AM
12.3 min

PM Peak | 5:30 PM
17.8 min

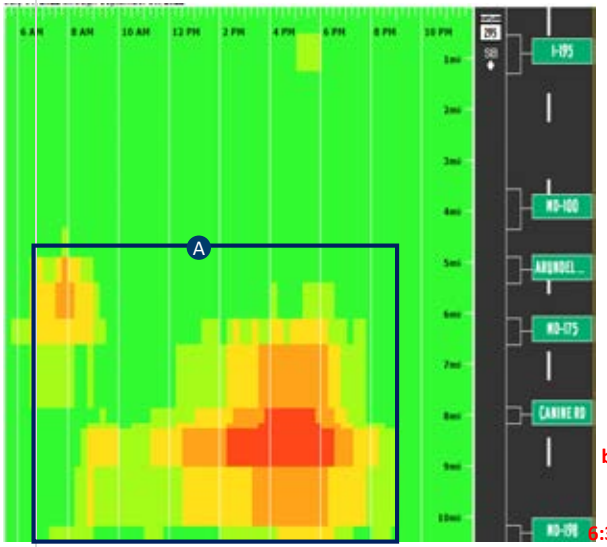
Q3 DELAY COST

Delay Cost
$3.614M

Veh-hrs. of Delay
119,669 h

Congested Locations

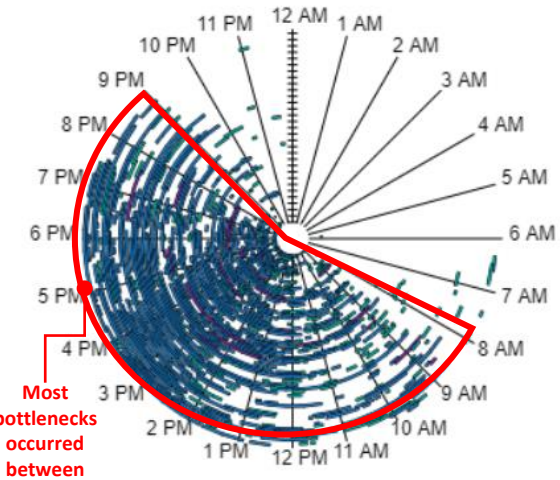
A **6:30AM – 9PM** Arundel Mills Blvd to MD-198



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

Bottleneck Occurrences

The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22**

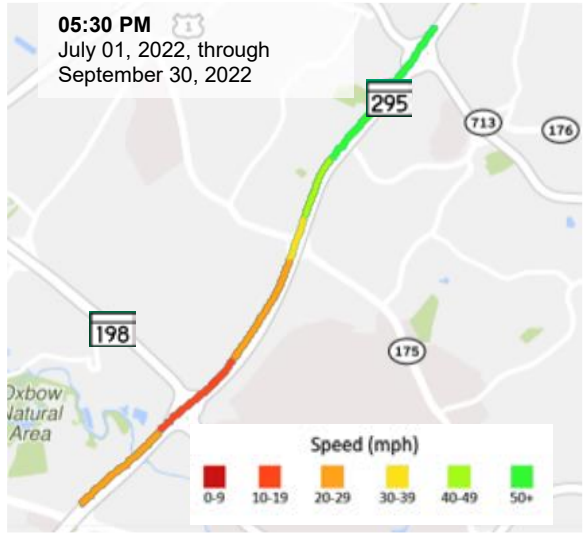


Most bottlenecks occurred between 6:30AM – 9PM

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

Corridor Speeds Over Time

Peak period conditions.



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2 US-50 E @ BAY BRIDGE

Quarterly Bottleneck Evaluation Summary Q3 2022

Preservation/maintenance work and deck rehabilitation work. Automatic Lane Closure System project in process until fall of 2022. High traffic volumes from trips to Maryland beach resorts.

PK. AVG. SPEED

AM Peak |11:55 AM
39.9 mph
(35% slower than free flow)

PM Peak | 3:10 PM PM
33.7 mph
(47% slower than free flow)

PK. TRAVEL TIME

AM Peak | 11:55 AM
21.2 min

PM Peak | 3:10 PM
25.1 min

Q3 DELAY COST

Delay Cost
$3.279M

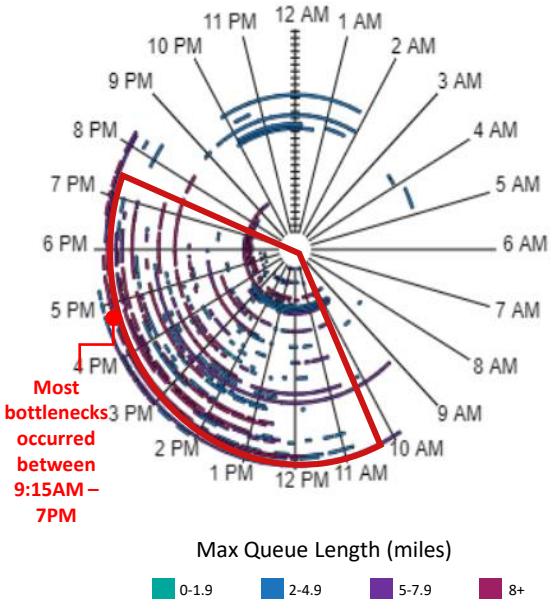
Veh-hrs. of Delay
108,571 h

Congested Locations

A **9:15AM – 7PM** MD-2/Ritchie Hwy to Bay Bridge

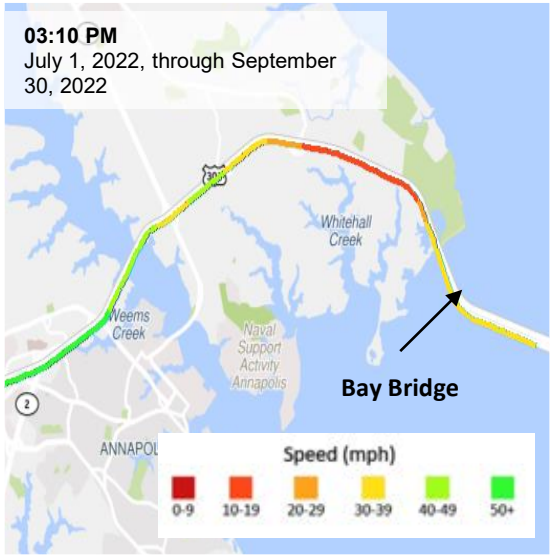
Bottleneck Occurrences

The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22.**



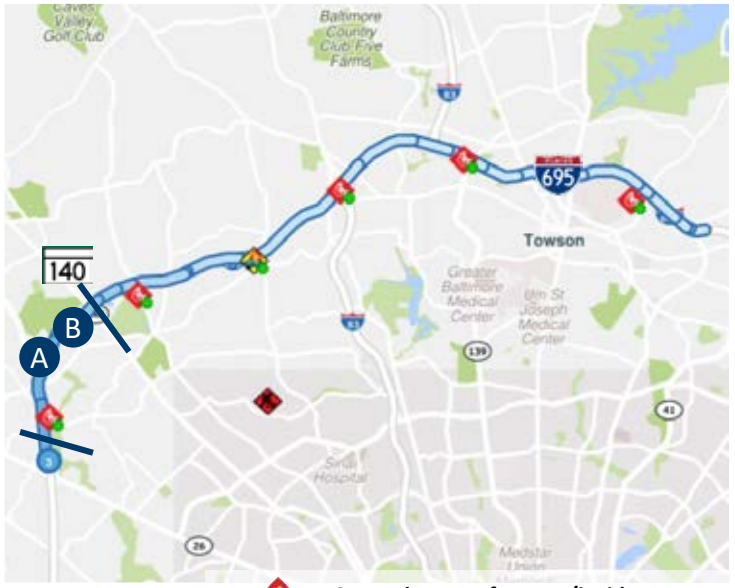
Corridor Speeds Over Time

Peak period conditions.



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

Quarterly Bottleneck Evaluation Summary Q3 2022



General areas of events/incidents
(there were 473 events/incidents during Q3)

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

One of the heaviest traveled high volume corridors in the area. In this case the core of the bottleneck extends from MD-26 back to MD-140/Reisterstown Rd /Exit 20. The bottleneck extended all the way back to Cromwell Bridge Rd/Exit 29 but that only happened once during the.

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

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

PK. TRAVEL TIME

AM Peak | 7:45 AM
8.2 min

PM Peak |5:30 PM
10.3 min

Q3 DELAY COST

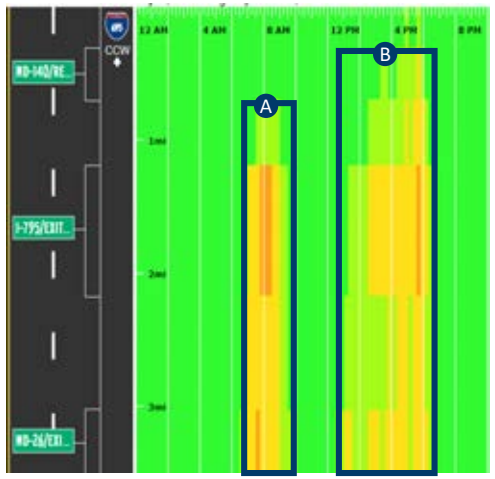
Delay Cost
$1.361M

Veh-hrs. of Delay
45,084 h

Congested Locations

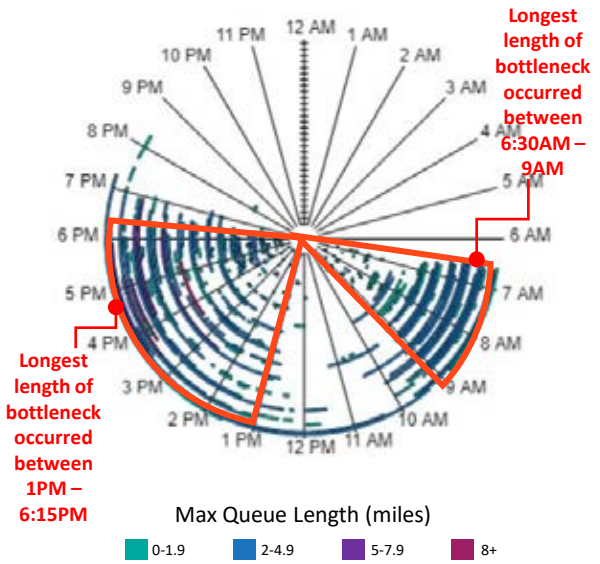
A **6:30AM – 9:00AM** MD-140/Reisterstown Rd/Exit 20 to MD-26/Exit 18

B **1:00PM – 6:15PM** MD-140/Reisterstown Rd/Exit 20 to MD-26/Exit 18



Bottleneck Occurrences

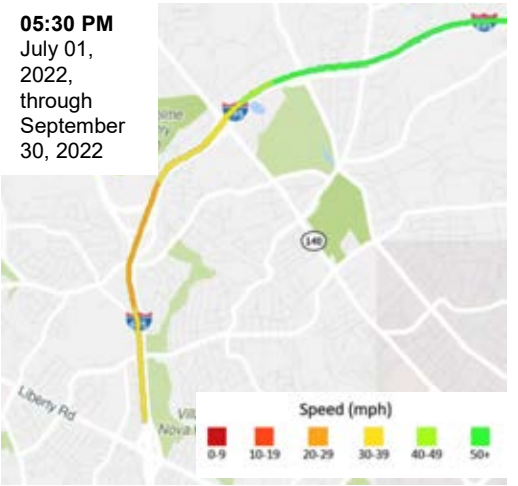
The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22**



Corridor Speeds Over Time

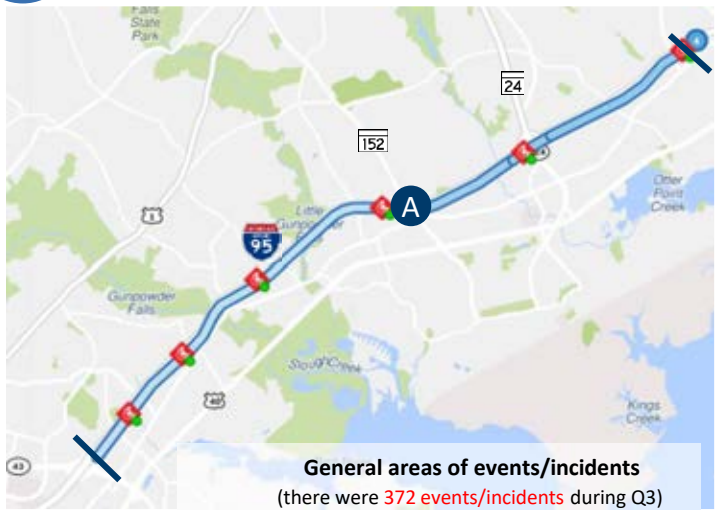
Peak period conditions.

05:30 PM July 01, 2022, through September 30, 2022



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

Quarterly Bottleneck Evaluation Summary Q3 2022



A **Locations of Congestion**

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.

**Note: Speed bins altered to better show speed drops and delay in a very high speed area during free flow conditions.*

PK. AVG. SPEED

AM Peak | 11:55 AM
47.4 mph
(33% slower than free flow)

PM Peak | 1:05 PM
46.3 mph
(34% slower than free flow)

PK. TRAVEL TIME

AM Peak | 11:55 AM
16.8 min

PM Peak |1:05 PM
17.1 min

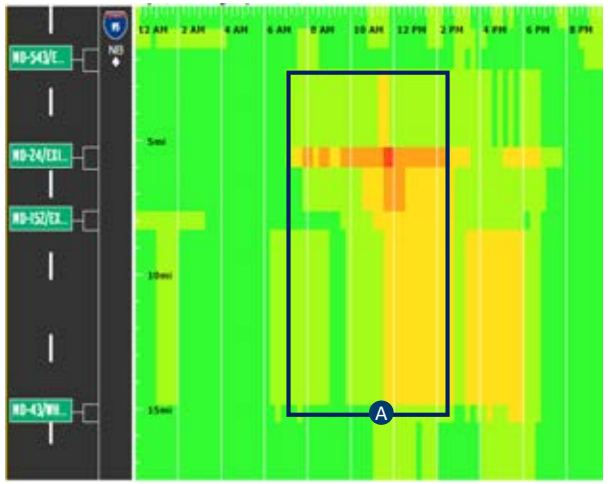
Q3 DELAY COST

Delay Cost
$2.970M

Veh-hrs. of Delay
98,342 h

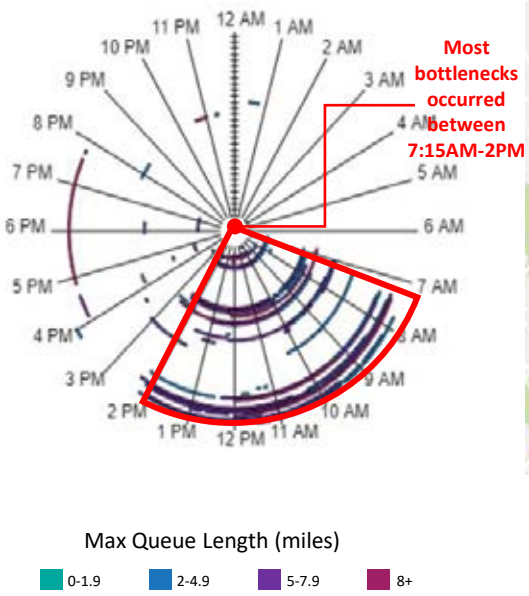
Congested Locations

A **7:15AM – 2PM** MD-43/Exit 67 to MD-543/Exit 80



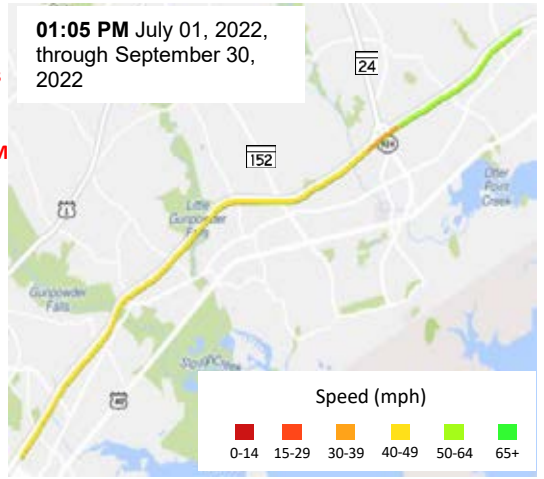
Bottleneck Occurrences

The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22**



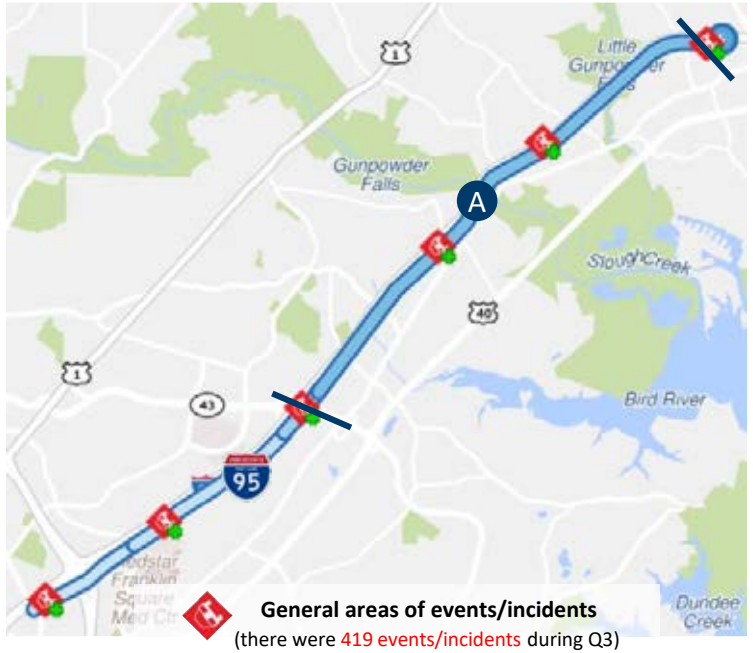
Corridor Speeds Over Time

Peak period conditions



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

Quarterly Bottleneck Evaluation Summary Q3 2022



General areas of events/incidents
(there were 419 events/incidents during Q3)

A **Locations of Congestion**

I-95 Express Toll Lanes Northbound Extension From MD-43 to MD-152 is responsible for off-peak shoulder and lane closures.

The extension is expected to be open to traffic by the end of 2023 to MD-152, with the full extension to north of MD-24 open to traffic by the end of 2026. This includes the Old Joppa Road Overpass Replacement and off peak shoulder and lane closures.

**Note: The speed bins altered to better show speed drops and delay in a very high speed area during free flow conditions.*

PK. AVG. SPEED

AM Peak | 11:55 AM
54.9 mph
(22% slower than free flow)

PM Peak | 4:00 PM
52.6 mph
(25% slower than free flow)

PK. TRAVEL TIME

AM Peak | 11:55 AM
14.6 min

PM Peak |4:00 PM
15.2 min

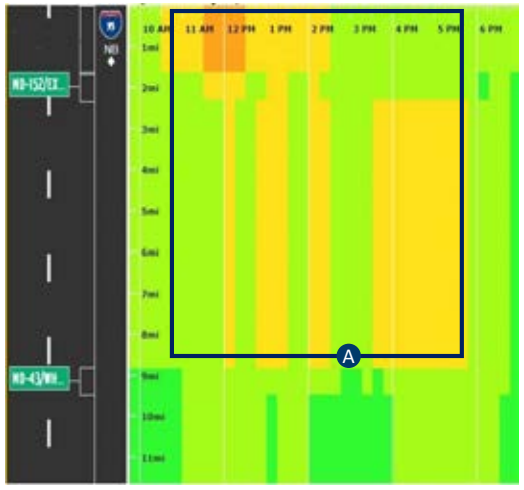
Q3 DELAY COST

Delay Cost
$1.539 M

Veh-hrs. of Delay
50,980 h

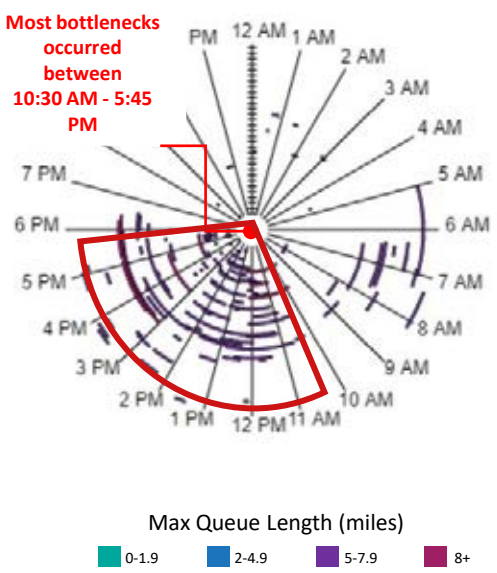
Congested Locations

A **10:30AM – 5:45PM** MD-43/Exit 67 to MD-152/Exit 74



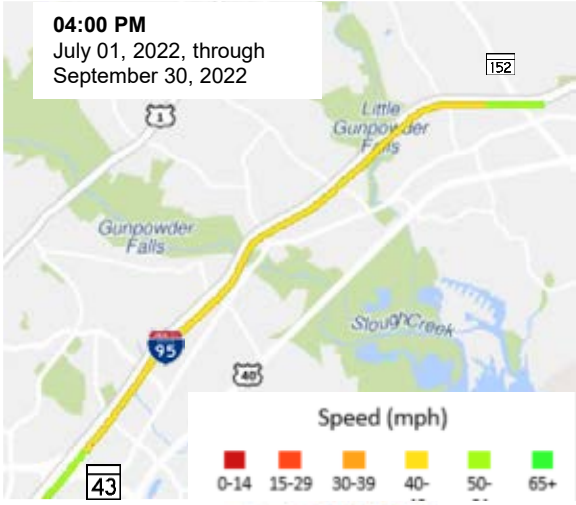
Bottleneck Occurrences

The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22**



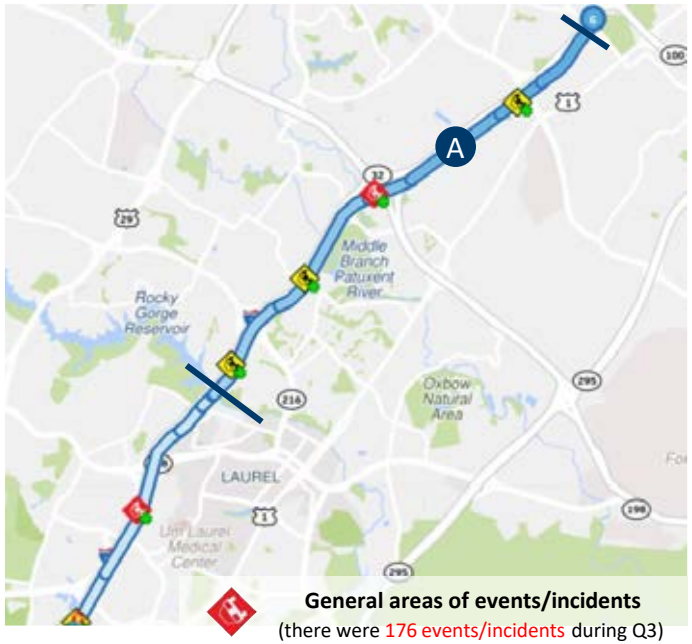
Corridor Speeds Over Time

Peak period conditions



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

Quarterly Bottleneck Evaluation Summary Q3 2022



General areas of events/incidents
(there were 176 events/incidents during Q3)

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 | 7:50 AM
59.4 mph
(18% slower than free flow)

PM Peak | 4:45 PM
44.9 mph
(36% slower than free flow)

PK. TRAVEL TIME

AM Peak |7:50 AM
13.7 min

PM Peak |4:45 PM
18.2 min

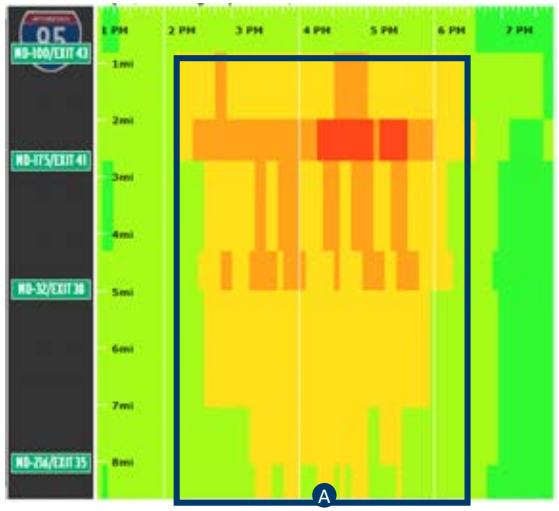
Q3 DELAY COST

Delay Cost
$1.696M

Veh-hrs. of Delay
56,169 h

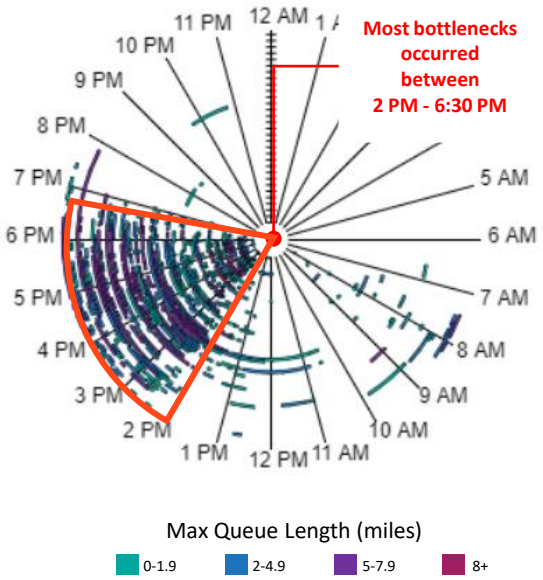
Congested Locations

A **2:00PM – 6:30PM** Prince George's/Anne Arundel Line to MD-100



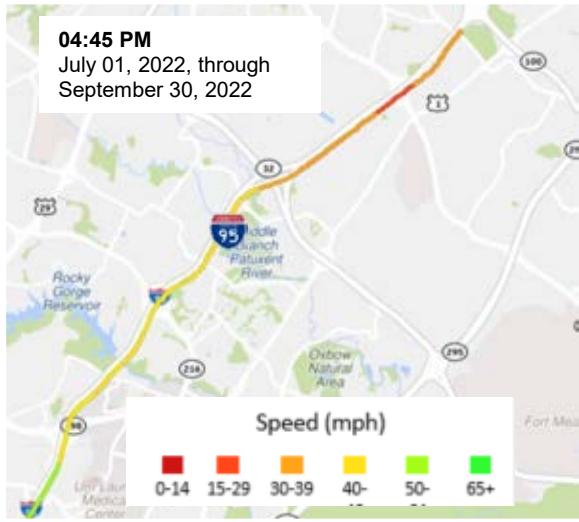
Bottleneck Occurrences

The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22**



Corridor Speeds Over Time

Peak period speed conditions



7 I-95 N @ I-95 (EAST) FORT MCHENRY TUNNEL

Quarterly Bottleneck Evaluation Summary Q3 2022

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

A **Locations of Congestion**

PK. AVG. SPEED

AM Peak | 11:30 AM
45.1 mph
(28% slower than free flow)

PM Peak | 5:15 PM
26.0 mph
(58% slower than free flow)

PK. TRAVEL TIME

AM Peak | 11:30 AM
2.5 min

PM Peak |5:15 PM
4.3 min

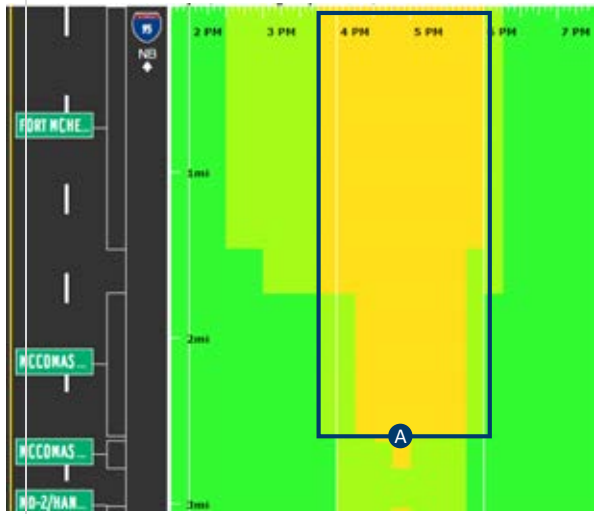
Q3 DELAY COST

Delay Cost
$0.460M

Veh-hrs. of Delay
15,246 h

Congested Locations

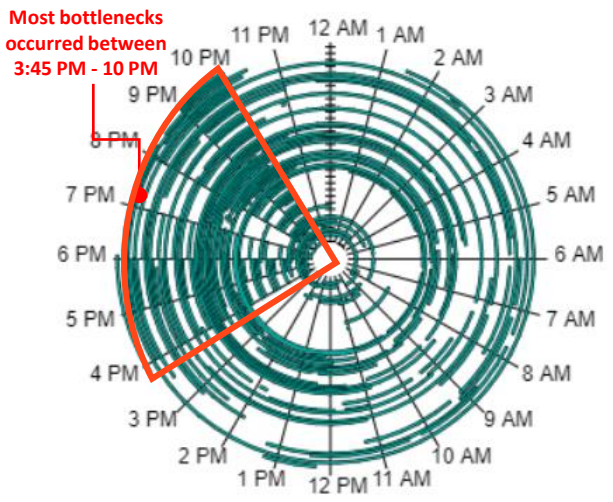
A **3:45PM – 6:00PM** McComas St/Exit 55 to Toll Plaza



Speed (mph)
0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50+

Bottleneck Occurrences

The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22**



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

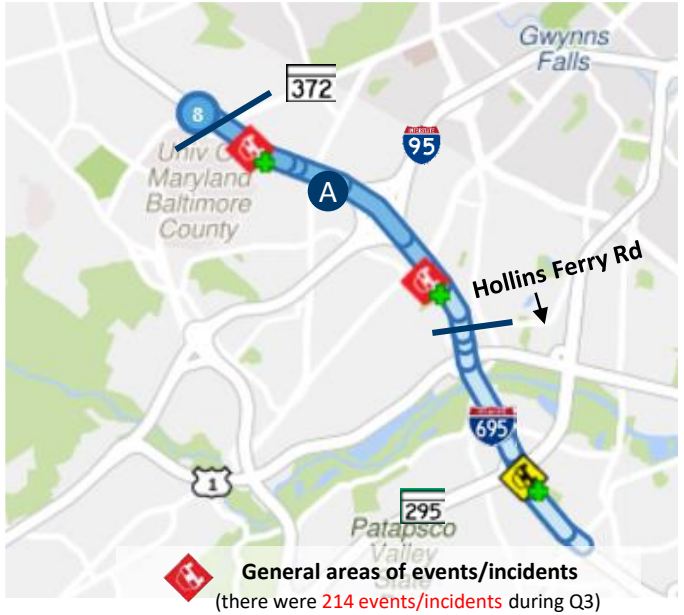
Corridor Speeds Over Time

Peak period speed conditions

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

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

Quarterly Bottleneck Evaluation Summary Q3 2022



General areas of events/incidents
(there were 214 events/incidents during Q3)

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.

Section "A" of the bottleneck also sometimes overlaps into the 2nd ranked bottleneck that begins at MD-122/Security Blvd.

PK. AVG. SPEED

AM Peak | 7:45 AM
45.7 mph
(34% slower than free flow)

PM Peak | 5:15 PM
26.8 mph
(60% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:45 AM
4.0 min

PM Peak |5:15 PM
7.0 min

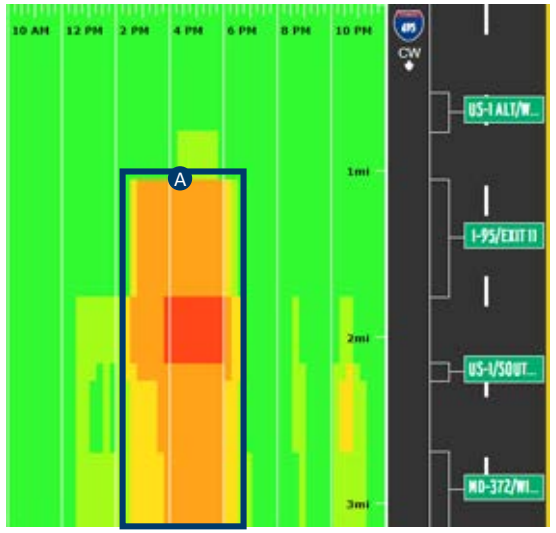
Q3 DELAY COST

Delay Cost
$1.029M

Veh-hrs. of Delay
34,070 h

Congested Locations

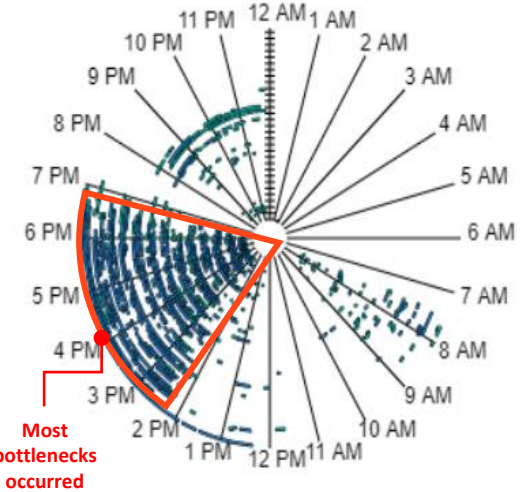
A 2:15PM – 6:45PM Hollins FerryRd/Exit 9 to MD-372/Wilkens Ave/Exit 12



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

Bottleneck Occurrences

The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22**



Most bottlenecks occurred between 2:15 PM PM-6:45 PM

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

Corridor Speeds Over Time

Peak period speed conditions

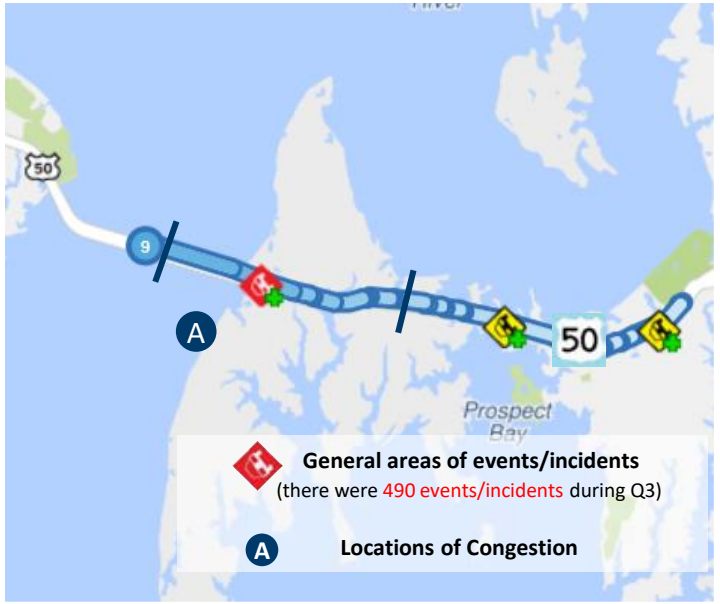
05:15 PM
July 01, 2022, through September 30, 2022

BRTB Baltimore Regional Transportation Board

BALTIMORE METROPOLITAN COUNCIL

9 US-50 W @ BAY BRIDGE

Quarterly Bottleneck Evaluation Summary Q3 2022



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

PM Peak | 1:00 PM
38.2 mph
(42% slower than free flow)

PK. TRAVEL TIME

AM Peak | 11:55 AM
14.4 min

PM Peak | 2:20 PM
17.4 min

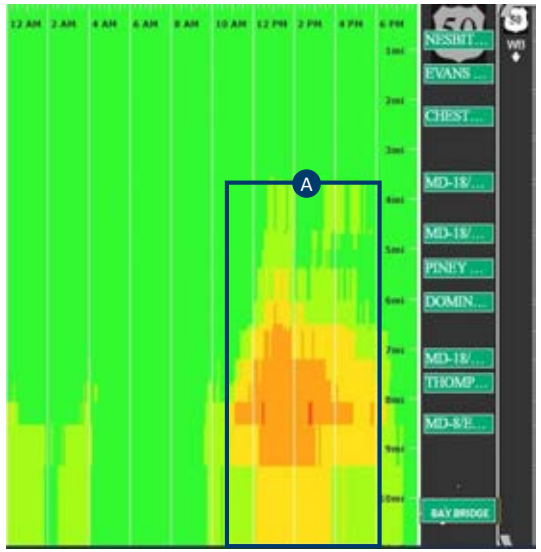
Q3 DELAY COST

Delay Cost
$2.273M

Veh-hrs. of Delay
75,255 h

Congested Locations

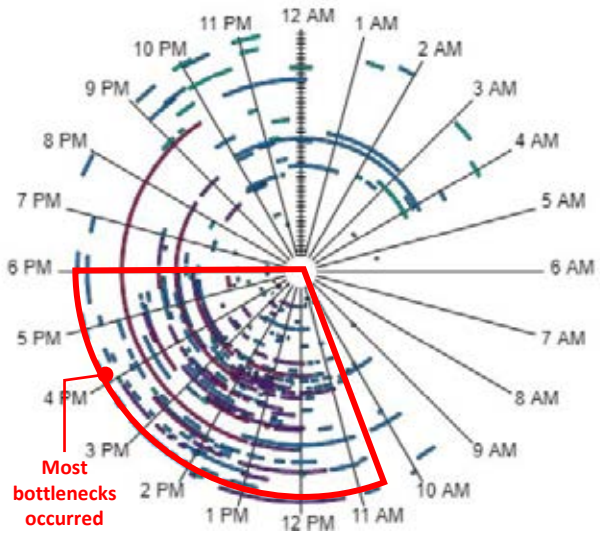
A **10:30AM – 6PM** MD-18/Main St/Exit 41 to Bay Bridge



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

Bottleneck Occurrences

The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22**



Most bottlenecks occurred between 10:30AM-6PM

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

Corridor Speeds Over Time

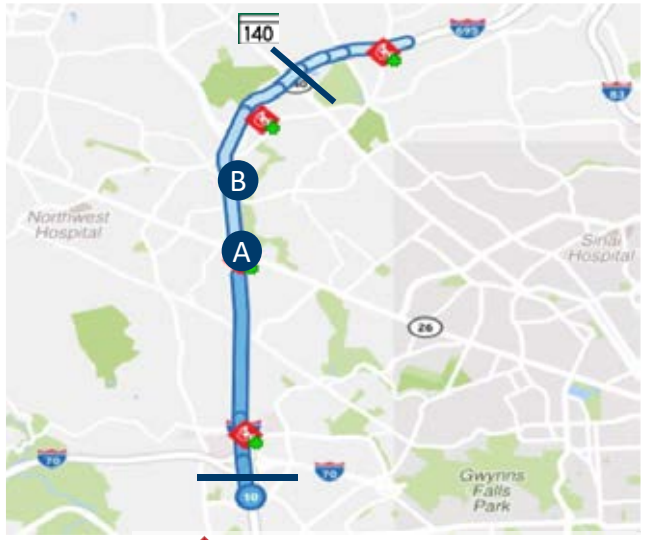
Peak period conditions.

BRTB Baltimore Regional Transportation Board

BALTIMORE METROPOLITAN COUNCIL

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

Quarterly Bottleneck Evaluation Summary Q3 2022



General areas of events/incidents
(there were 246 events/incidents during Q3)

A B Locations of Congestion

Overlapping bottleneck with #4 starting at I-70 instead of MD-26. Combined this makes the west side Outer Loop of the beltway the most congested corridor in the region. The core congestion extends from I-795 to the head of the bottleneck.

A 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
37.5 mph
(47% slower than free flow)

PM Peak | 5:35 PM
39.9 mph
(42% slower than free flow)

PK. TRAVEL TIME

AM Peak | 7:50 AM
12.3 min

PM Peak |5:35 PM
11.6 min

Q3 DELAY COST

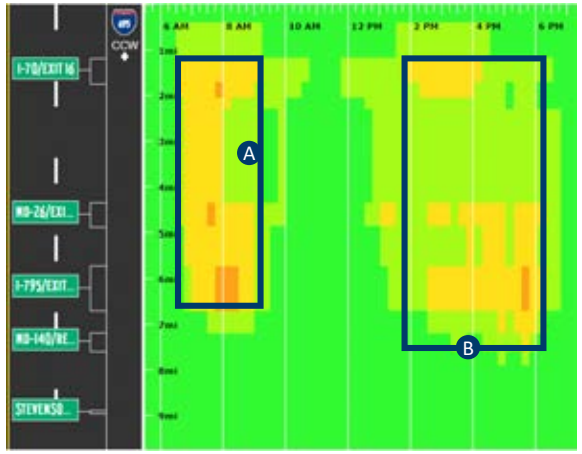
Delay Cost
$1.265M

Veh-hrs. of Delay
41,881 h

Congested Locations

A 6:30AM – 9:00AM MD-140/Reisterstown Rd/Exit 20 to I-70/Exit 16

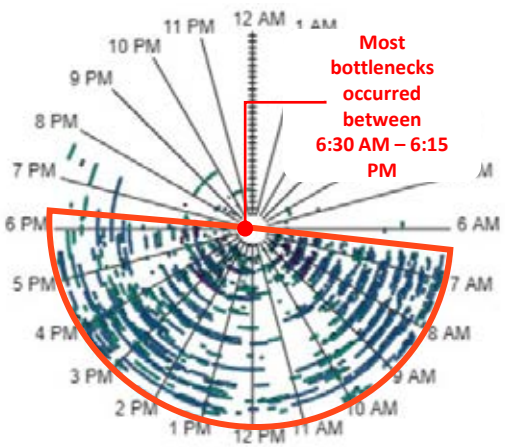
B 1:45PM – 6:15PM MD-140/Reisterstown Rd/Exit 20 to I-70/Exit 16



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

Bottleneck Occurrences

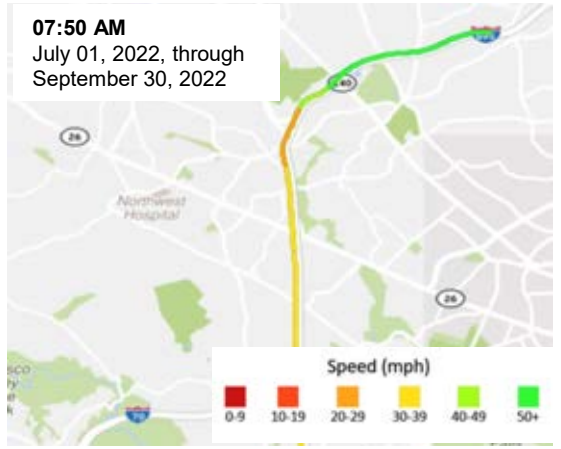
The center represents the beginning **of 07.01.22** and the outer edge the end of **09.30.22**



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

Corridor Speeds Over Time

Peak period speed conditions



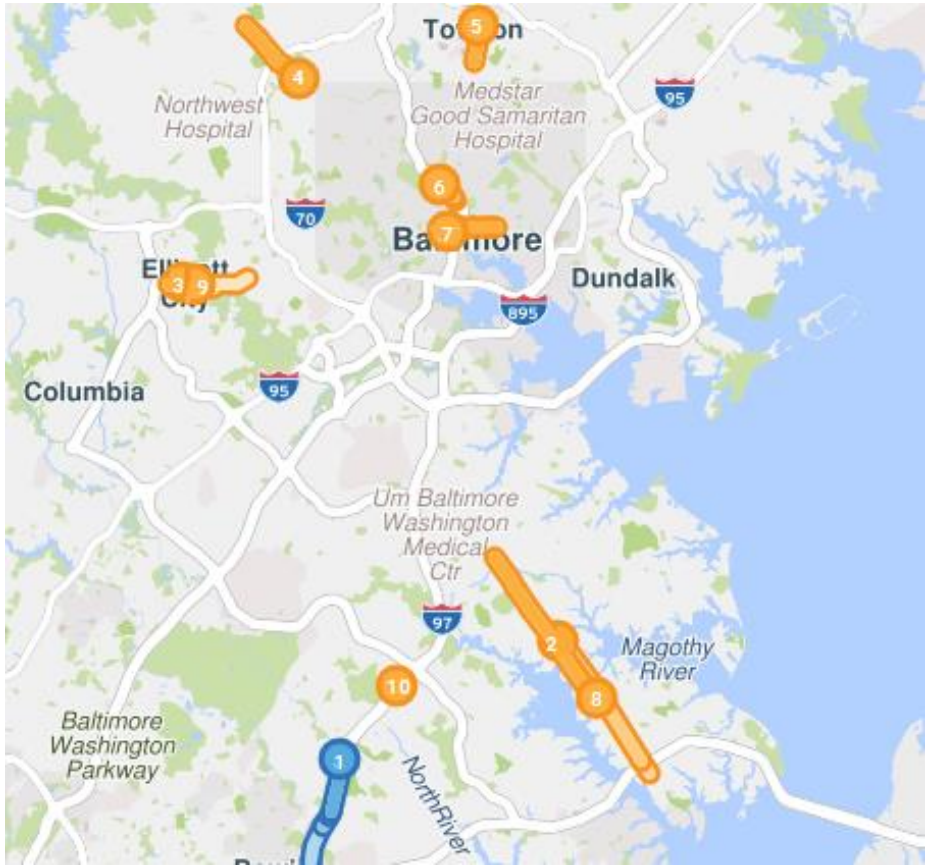
Top 10 Bottlenecks on Non-Limited Access Roads

Top 10 Bottlenecks in the Region – Non Limited Access Roads – 3rd Quarter 2022 Q3 2022

Rank	Location	Avg. Max. Length (mi)	Avg. Daily Duration	Agency Reported Incidents	Volume Estimate (AADT)
1	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD	2.16	1h 46m	20	**35,214**
2	MD-2 N @ ROBINSON RD	**3.72**	1h 15m	12	28,617
3	MD-144 W @ ELLICOTT MILLS DR	0.49	9h 27m	1	9,717
4	MD-140 E @ SUDBROOK LN	0.55	6h 31m	**22**	15,371
5	MD-45 N @ MD-146/DULANEY VALLEY RD	0.35	9h 28m	3	10,690
6	MD-25 N @ W 29TH ST	0.88	2h 15m	0	8,970
7	US-40 W @ MD-295/PACA ST	0.46	4h 22m	0	10,575
8	MD-2 S @ COLLEGE PKWY	3.00	34m	4	29,723
9	MD-144 E @ WESTCHESTER AVE	0.51	7h 52m	0	6,662
10	MD-175 N @ MD-3/CRAIN HWY	0.19	**17h 22m**	0	8,752

IL = Inner Loop OL = Outer Loop

Red #s = highest value for that metric



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

Ranked Bottleneck Lists by Jurisdiction

Top 20 Bottlenecks in Local Jurisdictions- 3rd Quarter 2022

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

Anne Arundel County

Rank	Location
1	MD-295 S @ MD-198
2	US-50 E @ BAY BRIDGE
3	MD-295 S @ PRINCE GEORGE'S/ARUNDEL CO LINE
4	US-50 W @ US-301/BLUE STAR MEML HWY
5	MD-295 N @ CANINE RD
6	MD-295 N @ MD-175
7	MD-3 N @ MD-424/CONWAY RD/DAVIDSONVILLE RD
8	I-695 OL @ MD-295/BALTIMORE WASHINGTON PKWY/EXIT 7
9	MD-295 S @ CANINE RD
10	MD-2 N @ ROBINSON RD
11	MD-295 N @ MD-100
12	US-50 W @ BAY DALE DR/FERGUSON RD/EXIT 28
13	MD-295 S @ ANNE ARUNDEL/P.G. COUNTY BORDER
14	I-97 N @ I-695/EXIT 17
15	MD-295 S @ MD-175
16	MD-32 E @ HENKELS LN/DORSEY RUN RD
17	US-50 E @ MD-648/BALTIMORE ANNAPOLIS BLVD
18	US-50 E @ BAY BRIDGE TOLL PLAZA
19	I-97 S @ MD-178/EXIT 5
20	MD-295 N @ MD-32

Baltimore City

Rank	Location
1	I-95 N @ I-95 (EAST)
2	I-95 N @ I-95 (NORTH)
3	I-895 N @ HARBOR TUNNEL THWY (NORTH)
4	MD-295 N @ BAYARD ST
5	MD-295 S @ BUSH ST
6	MD-295 N @ I-95/MONROE ST
7	I-95 S @ FORT MCHENRY TUNNEL
8	I-95 N @ FORT MCHENRY TUNNEL
9	I-95 N @ I-95 (BALTIMORE)/FORT MCHENRY TUNNEL(EAST)
10	MD-25 N @ W 29TH ST
11	US-40 W @ MD-295/PACA ST
12	I-95 N @ MD-295/BALTIMORE WASHINGTON PKWY/EXIT 52
13	I-83 S @ MD-25/FALLS RD/EXIT 8
14	I-895 N @ HARBOR TUNNEL THWY (SOUTH)
15	PATAPSCO AVE E @ WASHINGTON BLVD
16	MD-2 N @ E PRATT ST
17	US-40 W @ COOKS LN
18	FOREST PARK AVE N @ WINDSOR MILL RD
19	I-895 N @ CHILDS ST/EXIT 9
20	US-1-ALT N @ US-1/WILKENS AVE

IL = Inner Loop

OL = Outer Loop

Top 20 Bottlenecks in Local Jurisdictions- 3rd Quarter 2022

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

Baltimore County

Rank	Location
1	I-695 OL @ MD-26/EXIT 18
2	I-95 N @ MD-152/EXIT 74
3	I-695 IL @ MD-372/WILKENS AVE/EXIT 12
4	I-695 OL @ I-70/EXIT 16
5	I-695 IL @ I-83/MD-25/EXIT 23
6	I-695 OL @ US-40/EXIT 15
7	I-695 IL @ SECURITY BLVD/EXIT 17
8	I-695 OL @ I-83/MD-25/EXIT 23
9	I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29
10	I-83 S @ I-695
11	I-695 OL @ MD-41/PERRING PKWY/EXIT 30
12	I-695 IL @ PROVIDENCE RD/EXIT 28
13	I-695 OL @ SECURITY BLVD/EXIT 17
14	I-695 IL @ MD-41/PERRING PKWY/EXIT 30
15	I-695 OL @ CROMWELL BRIDGE RD/EXIT 29
16	I-695 IL @ I-70/EXIT 16
17	I-695 IL @ MD-144/FREDERICK RD/EXIT 13
18	I-695 OL @ GREENSPRING AVE/EXIT 22
19	I-695 IL @ MD-147/HARFORD RD/EXIT 31
20	I-83 N @ MD-137/MOUNT CARMEL RD/EXIT 27

Carroll County

Rank	Location
1	MD-30 N @ MD-27/MANCHESTER RD
2	MD-32 W @ MD-26/LIBERTY RD
3	MD-140 W @ GORES MILL RD
4	MD-140 E @ MD-91/EMORY RD/GAMBER RD
5	MD-30 S @ MD-27/MANCHESTER RD
6	MD-27 N @ MD-30/MAIN ST
7	MD-144 E @ MD-27/RIDGE RD
8	MD-97 N @ MD-496/BACHMANS VALLEY RD
9	MD-482 W @ MD-27/MANCHESTER RD
10	MD-27 N @ MD-482/HAMPSTEAD MEXICO RD
11	MD-140 W @ MD-194/YORK ST/FREDERICK ST
12	MD-91 N @ MD-140/BALTIMORE BLVD
13	MD-140 W @ MD-97/MALCOLM DR
14	MD-144 E @ I-70/US-40/BALTIMORE NATIONAL PIKE (MOUNT AIRY)
15	MD-27 N @ MD-26/LIBERTY RD
16	MD-97 N @ MAGNA WAY/AIRPORT DR
17	MD-27 S @ MD-30/MAIN ST
18	MD-97 N @ OLD HANOVER RD
19	MD-97 S @ STREAKER RD
20	MD-97 S @ MD-496/BACHMANS VALLEY RD

IL = Inner Loop

OL = Outer Loop

Top 20 Bottlenecks in Local Jurisdictions- 3rd Quarter 2022

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

Harford County

Rank	Location
1	I-95 N @ MD-543/EXIT 80
2	I-95 S @ MD-152/EXIT 74
3	I-95 N @ MD-24/EXIT 77
4	I-95 N @ MD-155/EXIT 89
5	I-95 S @ MARYLAND HOUSE
6	I-95 N @ MD-152/EXIT 74
7	I-95 S @ MD-543/EXIT 80
8	I-95 N @ MD-22/EXIT 85
9	I-95 S @ MD-22/EXIT 85
10	I-95 N @ TYDINGS MEMORIAL BRIDGE
11	I-95 S @ MD-24/EXIT 77
12	I-95 N @ MARYLAND HOUSE
13	US-40 W @ MD-22/ABERDEEN TRWY
14	MD-24 N @ I-95/JOHN F KENNEDY MEMORIAL HWY
15	MD-22 E @ MD-136/PRIESTFORD RD/CALVARY RD
16	MD-152 N @ OLD FALLSTON RD
17	US-1-BR S @ MD-24
18	MD-152 N @ OLD JOPPA RD
19	US-1 N @ MD-222/SUSQUEHANNA RIVER RD
20	MD-22 W @ MD-136/PRIESTFORD RD/CALVARY RD

Howard County

Rank	Location
1	I-95 N @ MD-100/EXIT 43
2	I-95 S @ MD-175/EXIT 41
3	I-95 S @ MD-216/EXIT 35
4	I-95 S @ MD-100/EXIT 43
5	I-95 N @ MD-175/EXIT 41
6	MD-32 W @ MD-295/BALTIMORE WASHINGTON PKWY
7	MD-144 W @ ELLICOTT MILLS DR
8	I-95 N @ I-895/EXIT 46
9	I-95 S @ MD-32/EXIT 38
10	I-70 W @ US-29/EXIT 87
11	US-29 N @ MD-32/EXIT 16
12	I-95 S @ I-895/EXIT 46
13	I-70 E @ US-29/EXIT 87
14	MD-144 E @ WESTCHESTER AVE
15	I-95 S @ PRINCE GEORGE'S/HOWARD CO LINE
16	US-40 W @ ST JOHNS LN
17	US-29 N @ MD-175
18	MD-144 W @ MD-97/ROXBURY MILL RD
19	I-95 N @ MD-32/EXIT 38
20	I-95 N @ MD-216/EXIT 35

Top 20 Bottlenecks in Local Jurisdictions- 3rd Quarter 2022

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

Queen Anne's County

Rank	Location
1	US-50 W @ BAY BRIDGE
3	US-50 W @ MD-213/CENTREVILLE RD
4	US-50 E @ BAY BRIDGE
5	US-50 W @ US-301/BLUE STAR MEMORIAL HWY
6	US-50 E @ MD-8/EXIT 37
7	US-50 W @ US-301/BLUE STAR MEML HWY
8	US-301 S @ US-50
9	US-50 W @ MD-456/DEL RHODES AVE
10	US-50 E @ MD-18/MAIN ST/EXIT 41
11	US-50 W @ MD-404/QUEEN ANNE HWY
12	MD-313 S @ MD-544/MCGINNIS RD
13	US-50 W @ MD-8/EXIT 37
14	US-50 W @ MD-18/MAIN ST/EXIT 41
15	MD-213 N @ MD-289/N CROSS ST/PHILOSOPHERS TER
16	US-50 E @ NESBIT RD/EXIT 45B
17	MD-300 E @ MD-213/CHURCH HILL RD
18	US-50 W @ MD-18/MAIN ST/EXIT 42
19	US-50 E @ MD-18/MAIN ST/EXIT 42
20	US-50 W @ PINEY RD/S PINEY RD/EXIT 40A

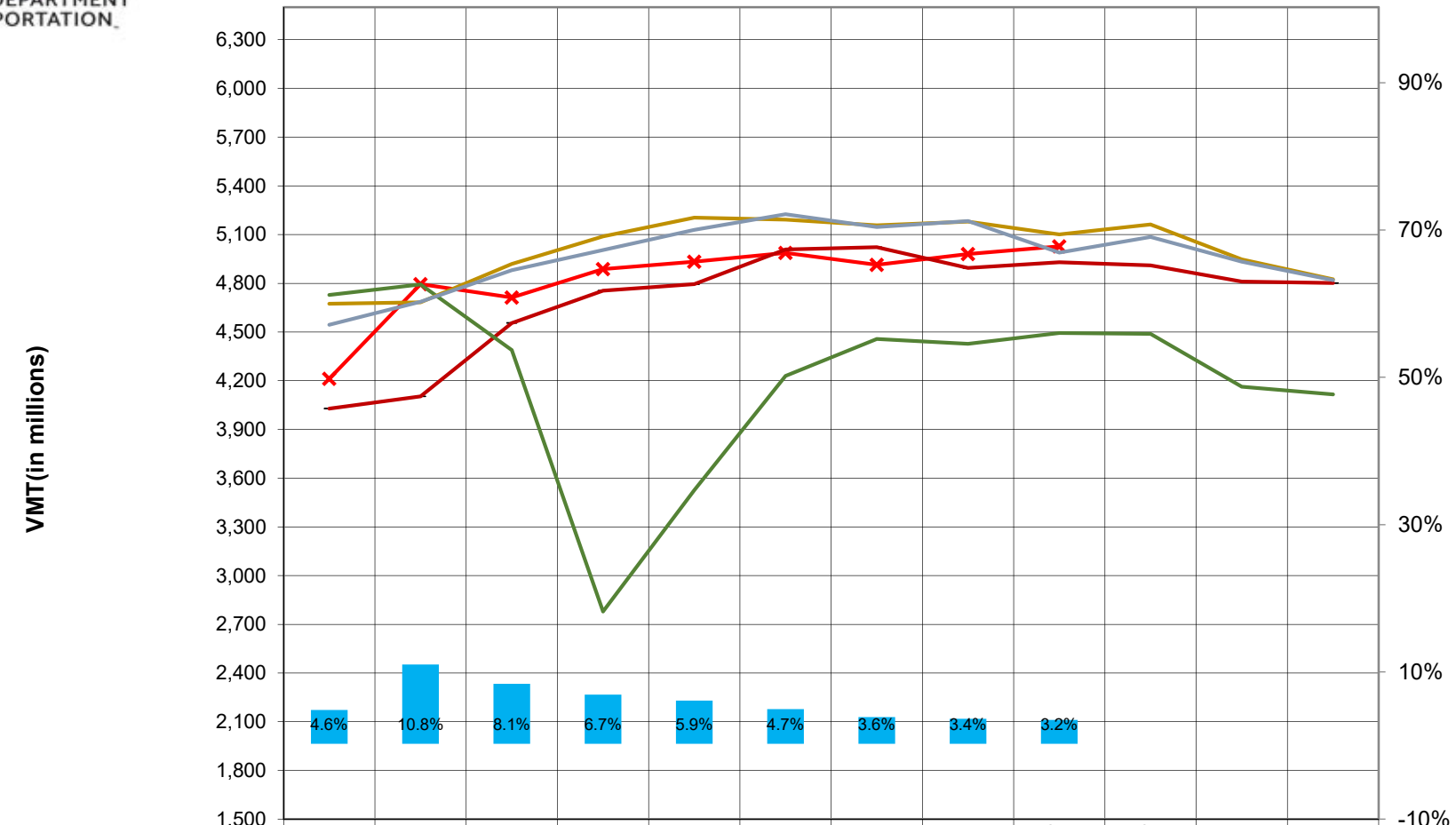
Vehicle Miles Traveled (VMT) Trend Graphs

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

Estimated Monthly Distribution of Annual (VMT) Vehicle Miles of Travel for : Sept-2022										
Sept	2018 VMT (Millions)	2019 VMT (Millions)	2020 VMT (Millions)	2021 VMT (Millions)	2022 VMT* (Millions)- Estimated	Percent Change 2018-2019	Percent Change 2019-2020	Percent Change 2020-2021	Percent Change 2021-2022	Cumulative Year-to-Date Change 2021-2022
Jan	4544	4674	4728	4028	4212	2.9%	1.2%	-14.8%	4.6%	4.6%
Feb	4686	4683	4794	4104	4795	-0.1%	2.4%	-14.4%	16.8%	10.8%
Mar	4881	4919	4389	4556	4712	0.8%	-10.8%	3.8%	3.4%	8.1%
Apr	5005	5089	2779	4755	4888	1.7%	-45.4%	71.1%	2.8%	6.7%
May	5130	5204	3527	4795	4933	1.4%	-32.2%	36.0%	2.9%	5.9%
Jun	5226	5193	4229	5009	4988	-0.6%	-18.6%	18.4%	-0.4%	4.7%
Jul	5147	5158	4458	5023	4914	0.2%	-13.6%	12.7%	-2.2%	3.6%
Aug	5183	5180	4427	4894	4981	-0.1%	-14.5%	10.5%	1.8%	3.4%
Sep	4989	5102	4494	4930	5028	2.3%	-11.9%	9.7%	2.0%	3.2%
Oct	5086	5162	4488	4910		1.5%	-13.1%	9.4%		
Nov	4933	4947	4163	4810		0.3%	-15.8%	15.5%		
Dec	4819	4825	4116	4802		0.1%	-14.7%	16.7%		
TOTAL	59,629	60,136	50,592	56,616		0.9%	-15.9%	11.9%		
Note										
1	The Sept-2022 Monthly AVMT is down compared to Sept-2021 by 2%									
2	The Cumulative Year-to-Date Change till Sept-2022 AVMT is up compared to same time last year 2021 by 3.2%									
3	* Preliminary 2022 VMT Estimates based on 2021 Final VMT.									
Data Source:Based on data collected at 50+ continuous count stations by SHA's Data Services Division in Office Of Planning & Preliminary Engineering										
	Report Updated on :10/19/2022									

MARYLAND DEPARTMENT OF TRANSPORTATION

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



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative Year-to-Date Change 2021-2022	4.6%	10.8%	8.1%	6.7%	5.9%	4.7%	3.6%	3.4%	3.2%			
2022 VMT* (Millions)-Estimated	4212	4795	4712	4888	4933	4988	4914	4981	5028			
2021 VMT (Millions)	4028	4104	4556	4755	4795	5009	5023	4894	4930	4910	4810	4802
2020 VMT (Millions)	4728	4794	4389	2779	3527	4229	4458	4427	4494	4488	4163	4116
2019 VMT (Millions)	4674	4683	4919	5089	5204	5193	5158	5180	5102	5162	4947	4825
2018 VMT (Millions)	4544	4686	4881	5005	5130	5226	5147	5183	4989	5086	4933	4819

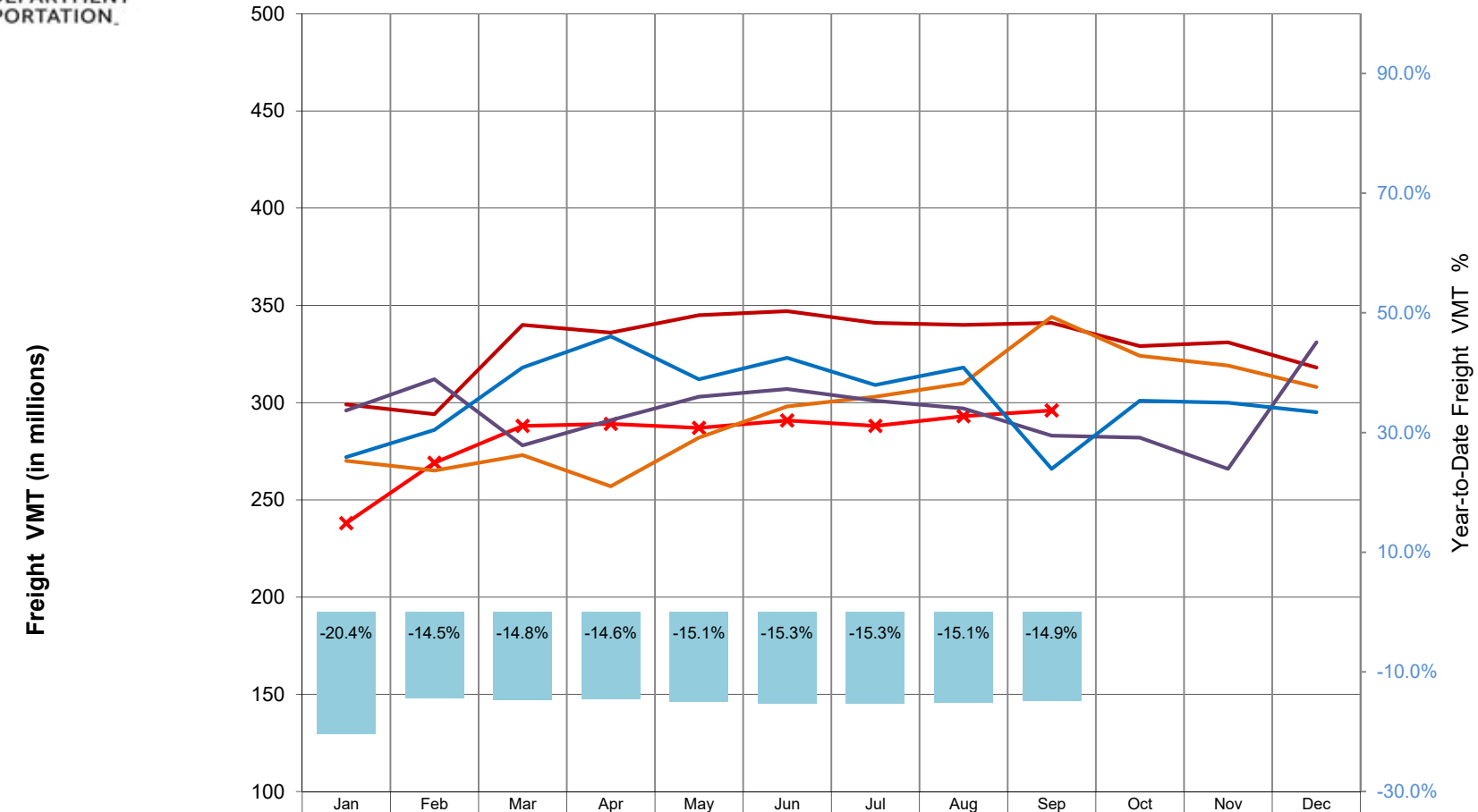
NOTE: This chart displays estimated monthly Vehicle Miles of Travel compared with the previous year based on data collected at approximately 50+ continuous count stations throughout the State.

Report Updated on :10/19/2022

Estimated Monthly Distribution of Freight Vehicle Miles of Travel for : Sept-2022										
Sept	2018 Freight VMT (Millions)	2019 Freight VMT (Millions)	2020 Freight VMT (Millions)	2021 Freight VMT (Millions)	2022 Freight VMT (Millions)* Estimated	Percent Change 2018-2019 Freight VMT	Percent Change 2019-2020 Freight VMT	Percent Change 2020-2021 Freight VMT	Percent Change 2021-2022 Freight VMT	Cumulative Year-to-Date Freight VMT 2021-2022
Jan	272	296	270	299	238	8.8%	-8.8%	10.7%	-20.4%	-20.4%
Feb	286	312	265	294	269	9.1%	-15.1%	10.9%	-8.5%	-14.5%
Mar	318	278	273	340	288	-12.6%	-1.8%	24.5%	-15.3%	-14.8%
Apr	334	291	257	336	289	-12.9%	-11.7%	30.7%	-14.0%	-14.6%
May	312	303	282	345	287	-2.9%	-6.9%	22.3%	-16.8%	-15.1%
Jun	323	307	298	347	291	-5.0%	-2.9%	16.4%	-16.2%	-15.3%
Jul	309	301	303	341	288	-2.6%	0.7%	12.5%	-15.5%	-15.3%
Aug	318	297	310	340	293	-6.6%	4.4%	9.7%	-13.8%	-15.1%
Sep	266	283	344	341	296	6.4%	21.6%	-0.9%	-13.2%	-14.9%
Oct	301	282	324	329		-6.3%	14.9%	1.5%		
Nov	300	266	319	331		-11.3%	19.9%	3.8%		
Dec	295	331	308	318		12.2%	-6.9%	3.2%		
TOTAL	3634	3547	3553	3961		-2.39%	0.17%	11.48%		
Note										
1	The Sept-2022 Monthly Freight VMT is down compared to Sept-2021 by -13.2%									
2	The Cumulative Year-to-Date Change till Sept-2022 Freight VMT is down compared to same time last year 2021 by -14.9%									
3	* Preliminary 2022 Freight VMT Estimates based on 2021 Freight Final VMT.									
4	** VEHICLE CLASS software updated in 2022									
5	Freight VMT = Vehicle Class 5-13									
	Data Source:Based on data collected at approximately 20+ class continuous count stations maintained by SHA's Data Services Division in OPPE									
Report Updated on :10/19/2022										

MARYLAND DEPARTMENT OF TRANSPORTATION

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



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cumulative Year-to-Date Freight VMT 2021-2022	-20.4%	-14.5%	-14.8%	-14.6%	-15.1%	-15.3%	-15.3%	-15.1%	-14.9%			
2022 Freight VMT (Millions)* Estimated	238	269	288	289	287	291	288	293	296			
2021 Freight VMT (Millions)	299	294	340	336	345	347	341	340	341	329	331	318
2020 Freight VMT (Millions)	270	265	273	257	282	298	303	310	344	324	319	308
2019 Freight VMT (Millions)	296	312	278	291	303	307	301	297	283	282	266	331
2018 Freight VMT (Millions)	272	286	318	334	312	323	309	318	266	301	300	295

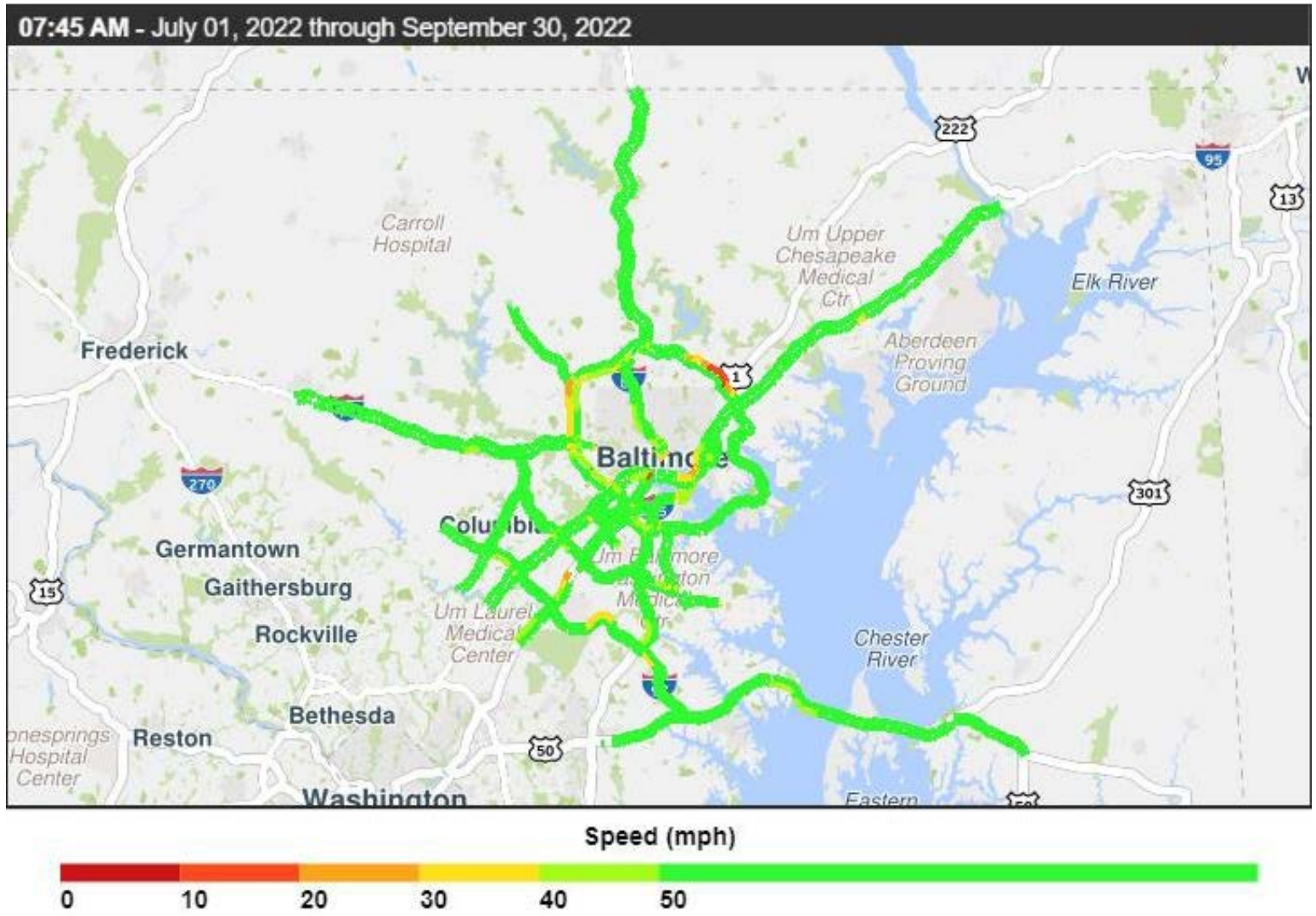
NOTE: This chart displays estimated monthly Freight Vehicle Miles of Travel compared with the previous year based on data collected at approximately 20+ continuous count stations throughout the State.

Report Updated on :10/19/2022

Regional Speed Maps

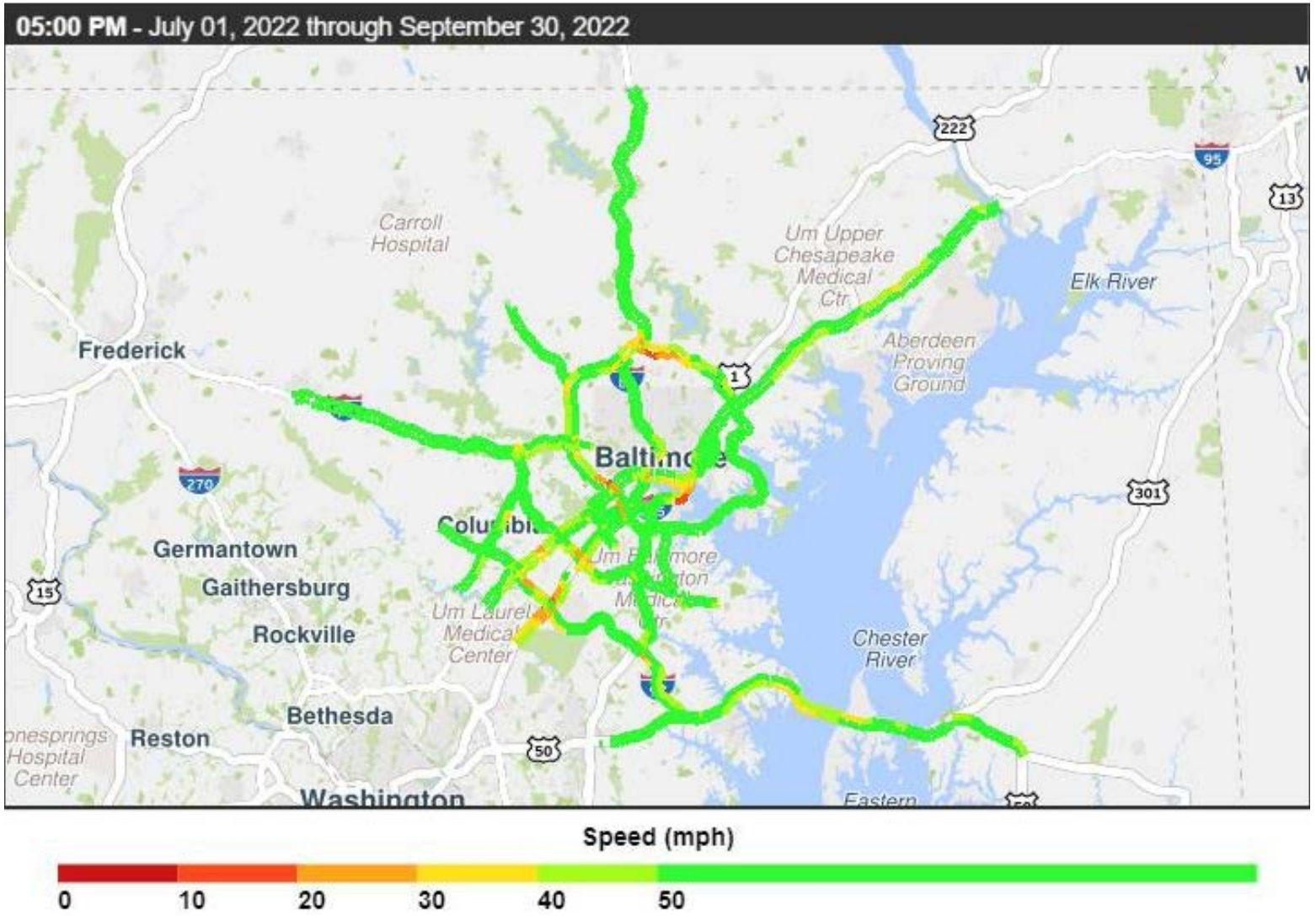
AM Peak Period Rush Hour: 3rd Quarter 2022

BMC Region Limited Access Speed Trend Map for July 01, 2022 through September 30, 2022



PM Peak Period Rush Hour: 3rd Quarter 2022

BMC Region Limited Access Speed Trend Map for July 01, 2022 through September 30, 2022



System Reliability Performance Measures

Percent of reliable person-miles traveled on the Interstate

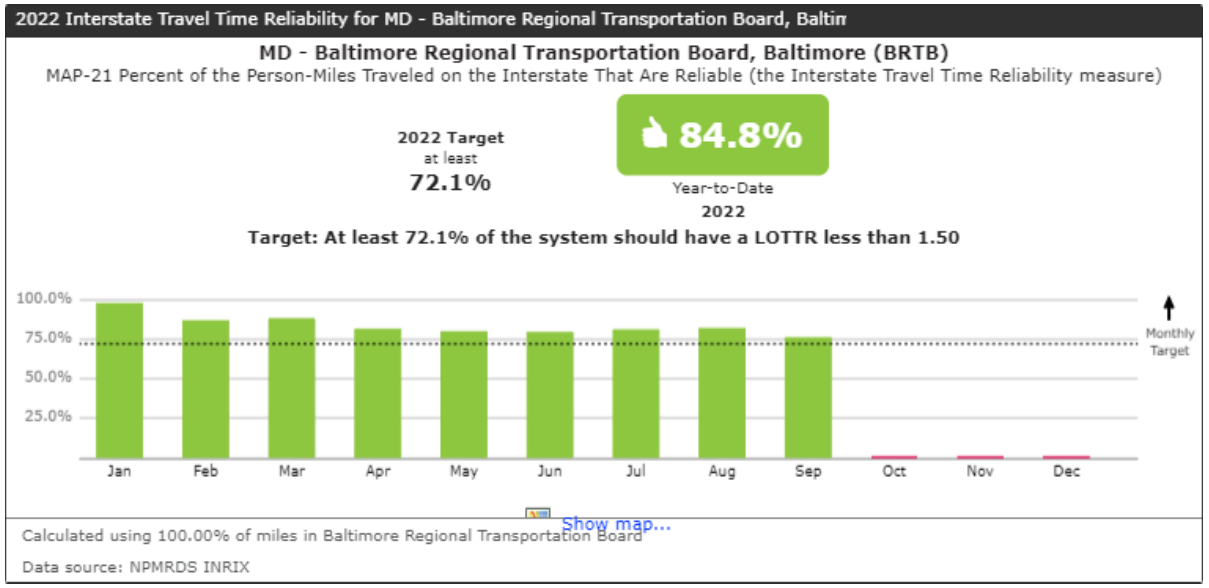
Percent of reliable person-miles traveled on the Non-Interstate NHS

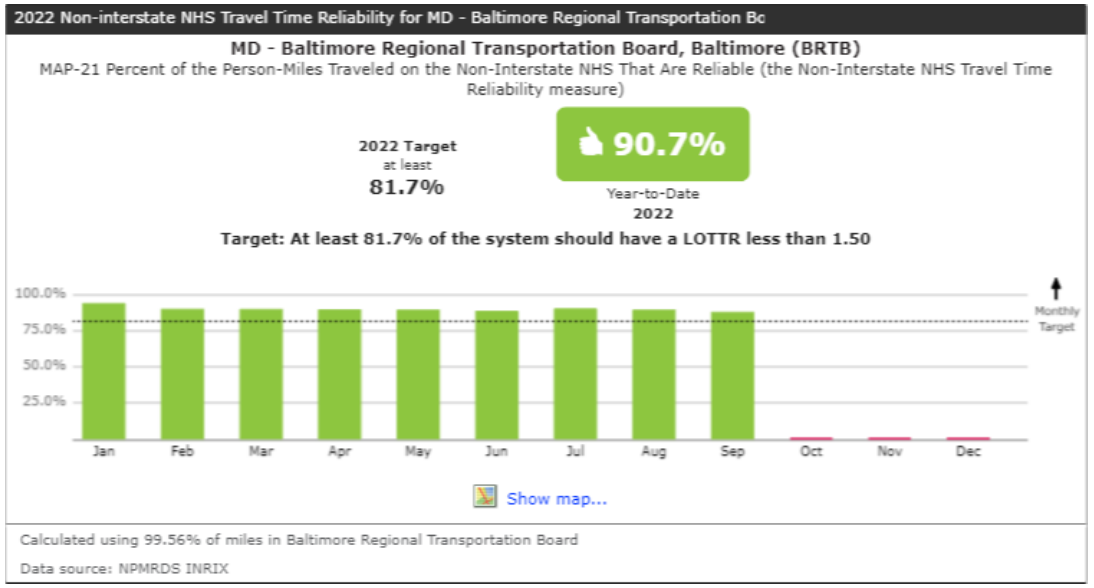
Percentage of Interstate system mileage providing for reliable truck travel time (Truck Travel Time Reliability Index)

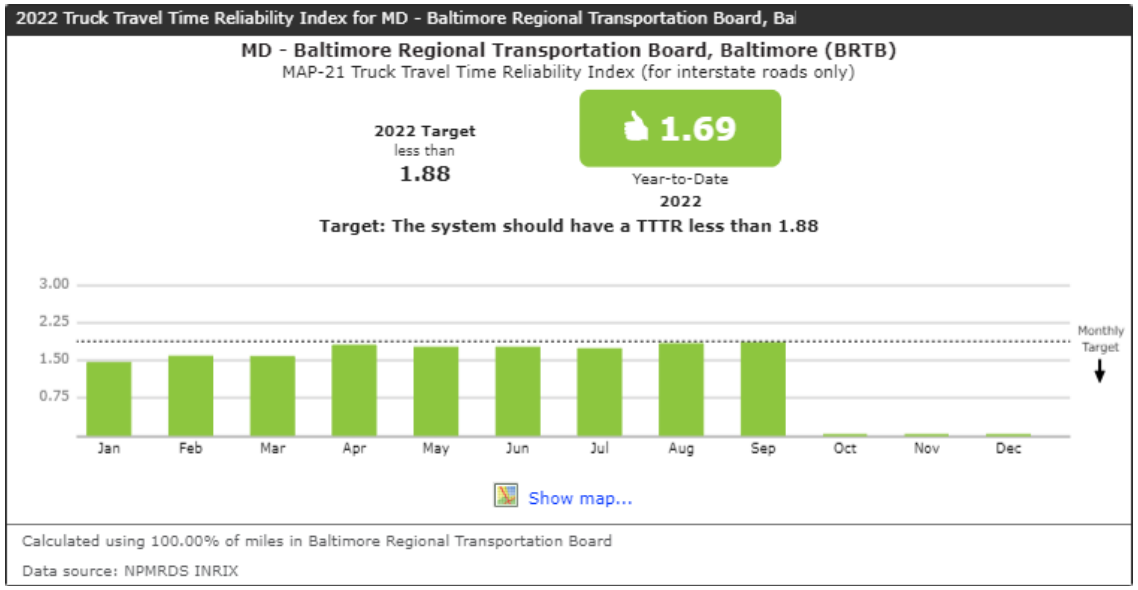
* Each state must establish statewide targets and report findings to the Federal Highway Administration. Metropolitan Planning Organizations must either support the established state targets or develop regional targets of their own.

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

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







Ranked Bottleneck Monthly Comparison

2021 - 2022													
Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Q3 Rank	Q3 Locations
2	6	3	3	2	2	6	3	4	1	3	3	1	MD-295 S @ MD-198
16	7		4	3		8	5	16		2	13	2	US-50 E @ BAY BRIDGE
3	4	8		5	6	3	7	11		8	2	3	I-695 OL @ MD-26/EXIT 18
5		19		17				3	8	6	4	4	I-95 N @ MD-543/EXIT 80
20	14	2	10	12	8	1	1	2	3	5	10	5	I-95 N @ MD-152/EXIT 74
10	3	4		4	3	7	4	7	6			6	I-95 N @ MD-100/EXIT 43
						2		5	11	4	11	7	I-95 N @ I-95 (EAST) FORT MCHENRY TUNNEL
8	12	5	11		4	16		19	9	9	5	8	I-695 IL @ MD-372/WILKENS AVE/EXIT 12
							11			7	7	9	US-50 W @ BAY BRIDGE
4	9	16		7	9	9	9	9	4	14	9	10	I-695 OL @ I-70/EXIT 16
15	10	20								11	8	11	I-695 IL @ I-83/MD-25/EXIT 23
										10	6	12	MD-295 S @ PRINCE GEORGE'S/ARUNDEL CO LINE
								1	2			13	US-50 W @ US-301/BLUE STAR MEML HWY
14		13		9		18	19	15		15	12	14	MD-295 N @ CANINE RD
12	5	12	19		7		8	14	5		19	15	I-695 OL @ US-40/EXIT 15
					11	11		18		13	16	16	I-895 N @ HARBOR TUNNEL THWY (NORTH)
18	19	9		15			12	12	16	17		17	I-95 S @ MD-175/EXIT 41
6	15	10				19	20	6	10			18	I-95 S @ MD-216/EXIT 35
13	13	15		1	5	5	10		17	18	18	19	I-695 IL @ SECURITY BLVD/EXIT 17
	2	6		6		17					15	20	I-695 OL @ I-83/MD-25/EXIT 23

Conclusions/Observations: The September-2022 Monthly Average Vehicle Miles Traveled AVMT is down compared to September-2021 by 2%. The cumulative Year to Date change through September 2022 AMVT is up compared to last year 2021 by 3.2%. MD-295 at MD-198 southbound remained the top bottleneck spot in the region and was in the top 10 every month in the time period.

Construction on the Express Toll Lanes (ETL) on I-95 in Harford County has caused this corridor to be a hotspot northbound between MD-152 and MD-543.

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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BRTB
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