BALTIMORE METROPOLITAN COUNCIL

Quarterly Congestion Analysis Report for the Baltimore Region

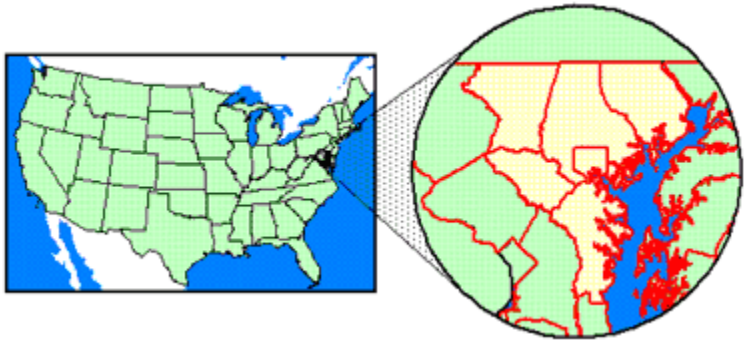
Top 10 Bottleneck Locations

1st Quarter 2019

Table of Contents

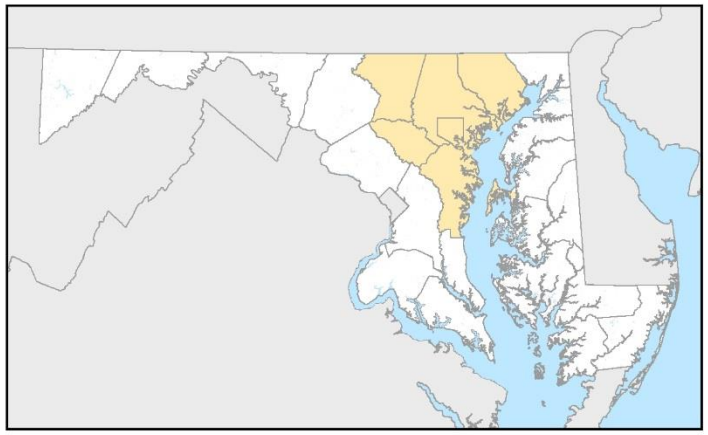
About the Region

Located in the heart of the Mid-Atlantic on the east coast, the Baltimore region includes:



The Baltimore region is the nation's 19th largest market, with over 2.5 million people. The market also ranks among the top 20 in the country in the number of households, total effective buying income and retail sales.

Baltimore Metropolitan 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

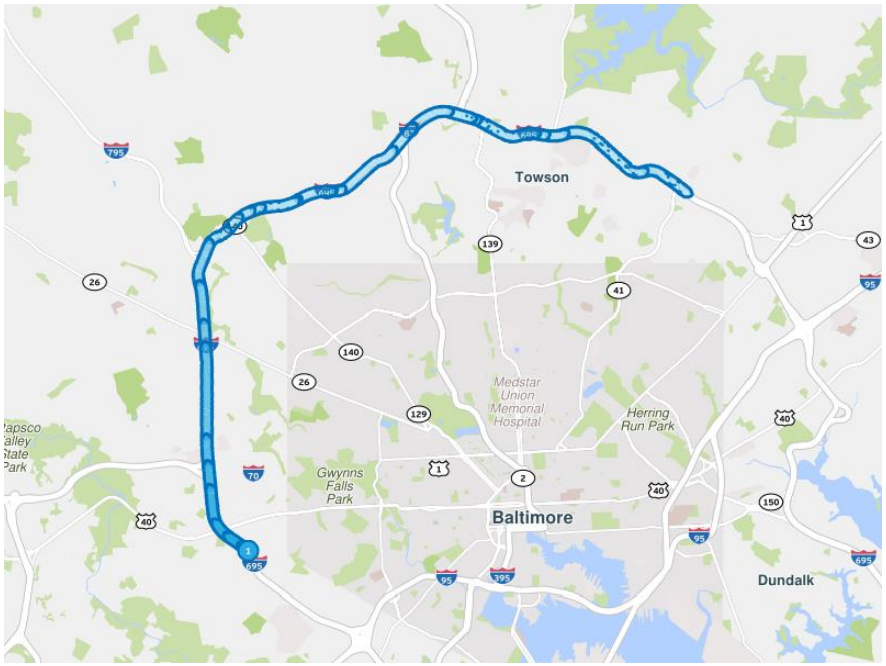
How are bottleneck conditions tracked?

- **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
- **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

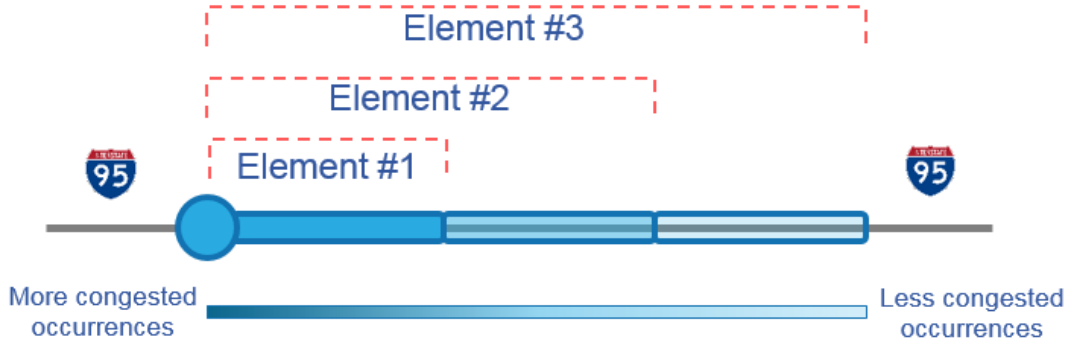
Rank	Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
1	I-695 OL @ EDMONDSON AVE/EXIT 14	5.01	2 h 43 m	834	88946
2	I-695 IL @ I-83/MD-25/EXIT 23	3.53	2 h 56 m	463	95048
3	I-695 IL @ I-70/EXIT 16	2.11	2 h 54 m	233	95068
4	I-695 OL @ US-40/EXIT 15	3.57	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

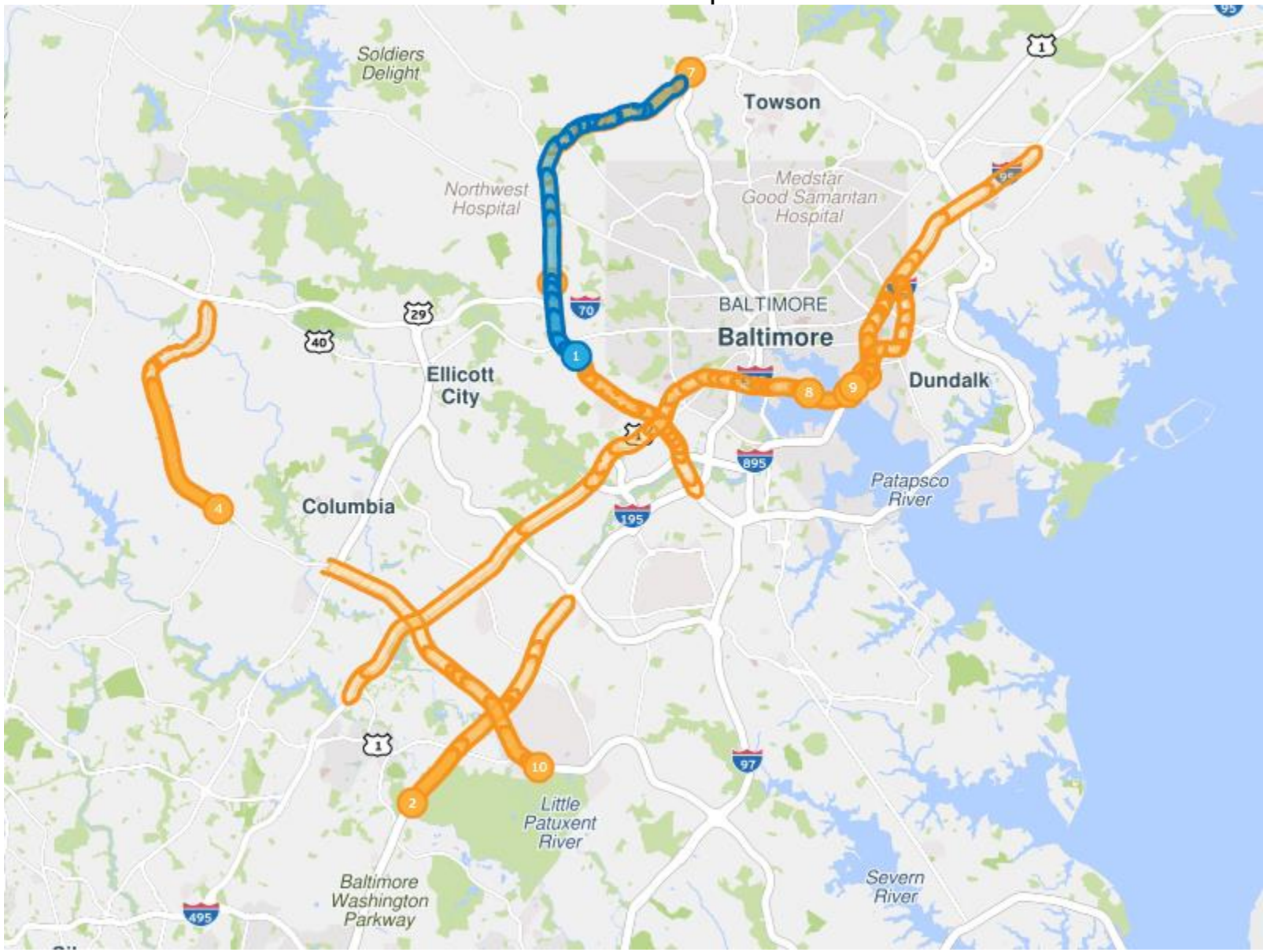


The Map view displays selected bottlenecks on a map. Each element occurring at the selected location is layered on the map, extending upstream from the head location to the maximum length of the specific *element*. As each element adds another layer on the map, road segments become more opaque. Segments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



Top 10 Bottlenecks in the Baltimore Region
1st Quarter 2019

Overview Map



Top 10 Bottlenecks in the Baltimore Region
1st Quarter 2019

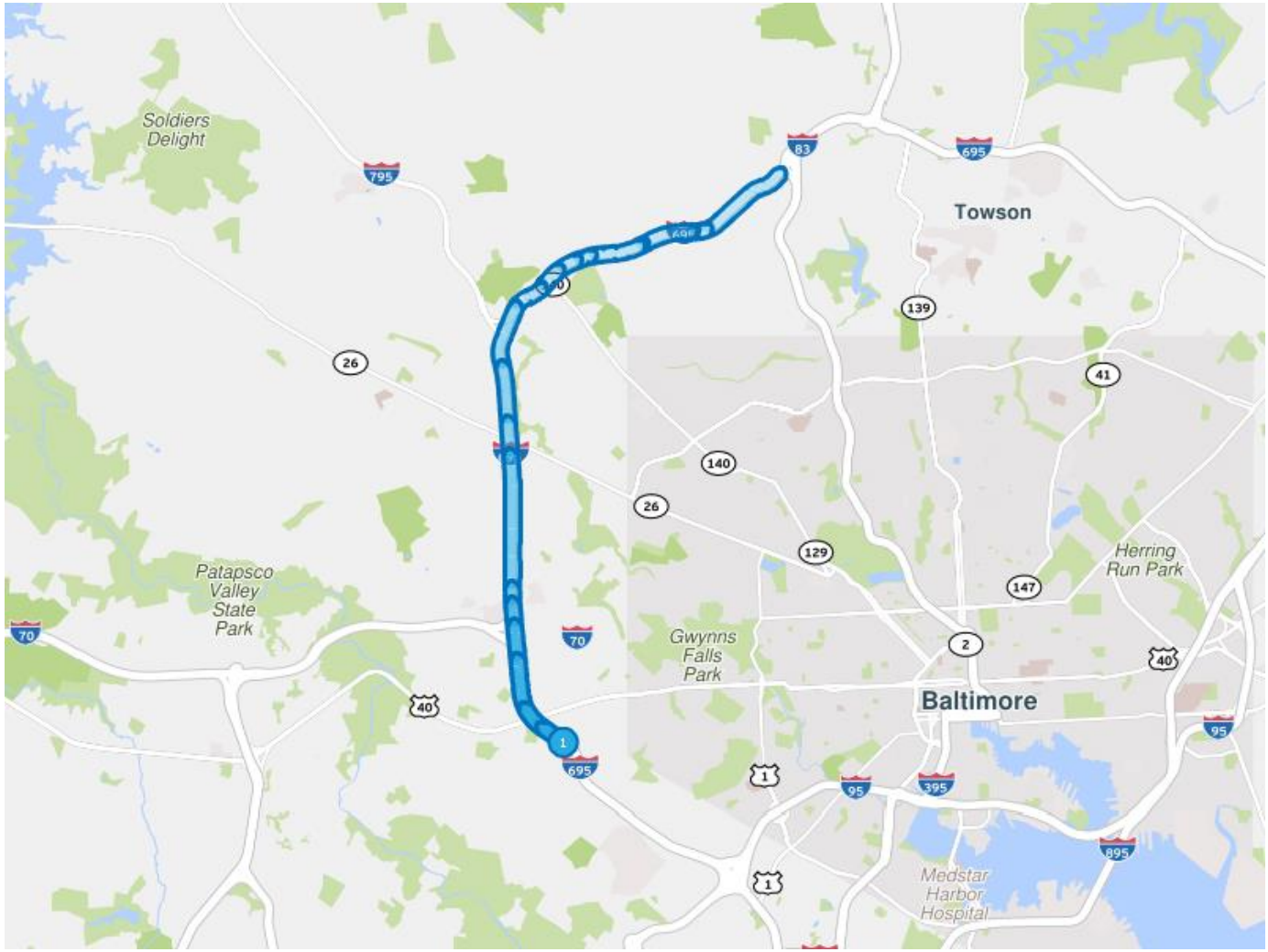
Ranked by Base Impact – the aggregation of queue length over time for congestion at each location in mile minutes. This table indicates the top 10 congested corridors in the region.

Rank	Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
1	I-695 OL @ EDMONDSON AVE/EXIT 14	3.35	4 h 07 m	562	95387
2	MD-295 S @ A.A.--P.G. CO. BORDER	3.43	3 h 08 m	139	44901
3	I-695 IL @ SECURITY BLVD/EXIT 17	2.48	2 h 55 m	610	83499
4	MD-32 E @ MD-108	4.86	1 h 39 m	43	12396
5	I-95 N @ FORT MCHENRY TUNNEL TOLL PLAZA	1.79	3 h 42 m	7	60940
6	I-895 S @ HOLABIRD AVE/EXIT 10	1.32	4 h 29 m	313	26460
7	I-695 IL @ I-83/MD-25/EXIT 23	3.34	1 h 30 m	857	95228
8	I-95 N @ FORT MCHENRY TUNNEL ENTRANCE	1.44	3 h 14 m	1226	83545
9	I-95 S @ FORT MCHENRY TUNNEL TOLL PLAZA	0.31	4 h 20 m	727	61826
10	MD-32 E @ MD-198/FORT MEADE RD	2.33	1 h 40 m	102	34524

IL = Inner Loop OL = Outer Loop

#1 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

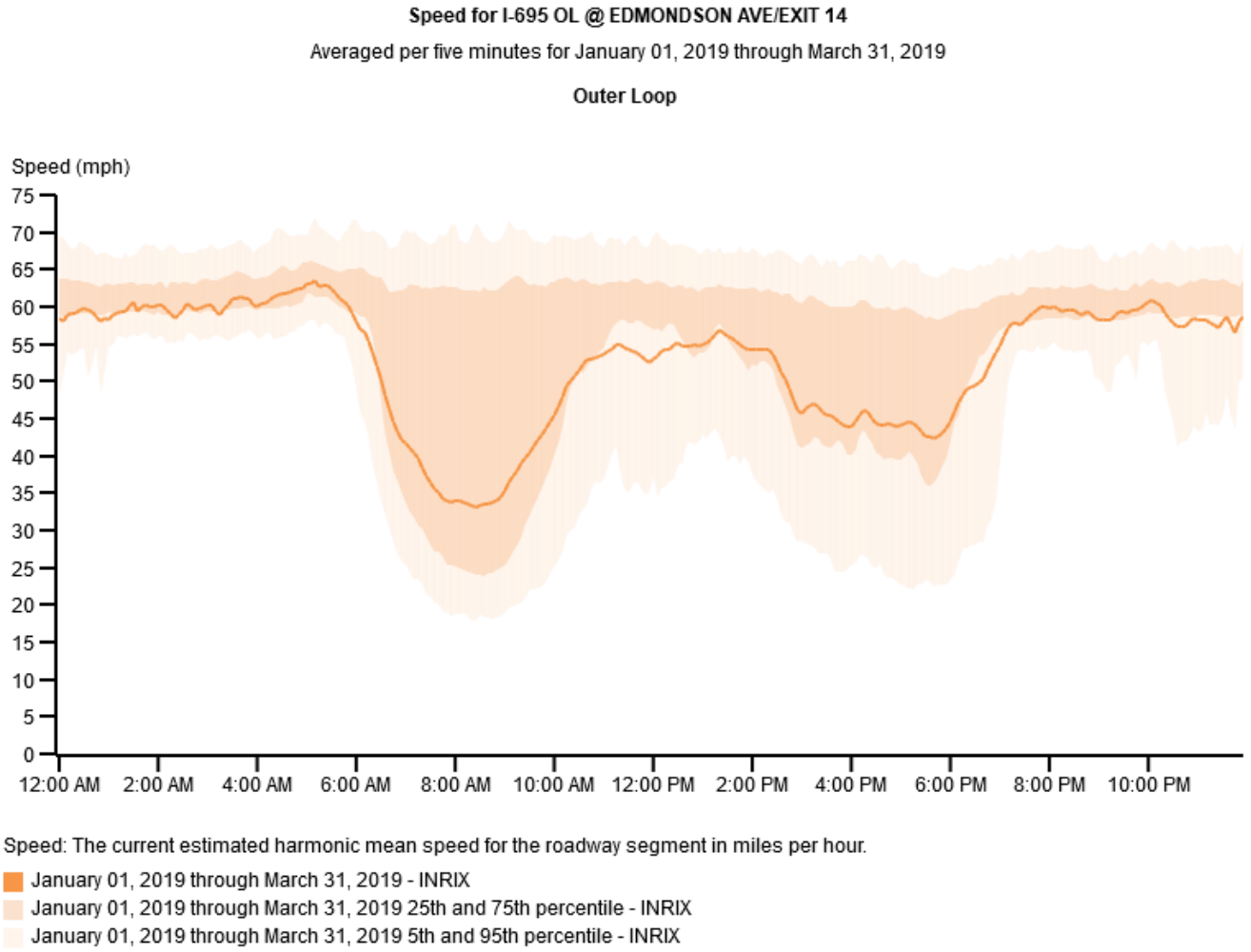
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 OL @ EDMONDSON AVE/EXIT 14	3.35	4 h 07 m	562	95387



***Notes**: The core congestion extends from just south of US-40/Baltimore National Pike to MD-140/Reisterstown Rd in both the morning and afternoon rush hour with the AM rush being more severe. A beltway widening project is underway in the area.*

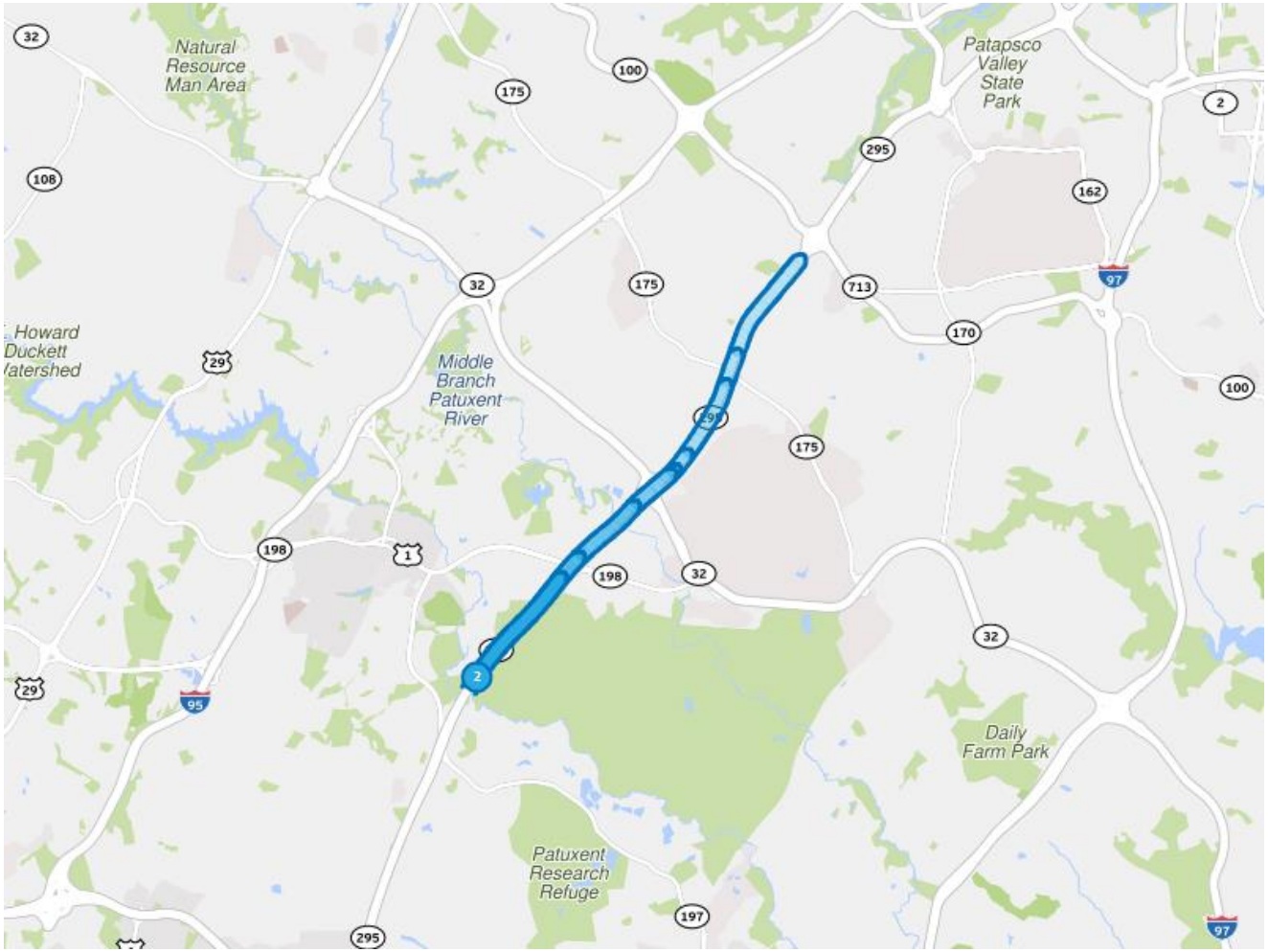
#1 Ranked Bottleneck in the Baltimore Region –1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 OL @ EDMONDSON AVE/EXIT 14	3.35	4 h 07 m	562	95387



#2 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

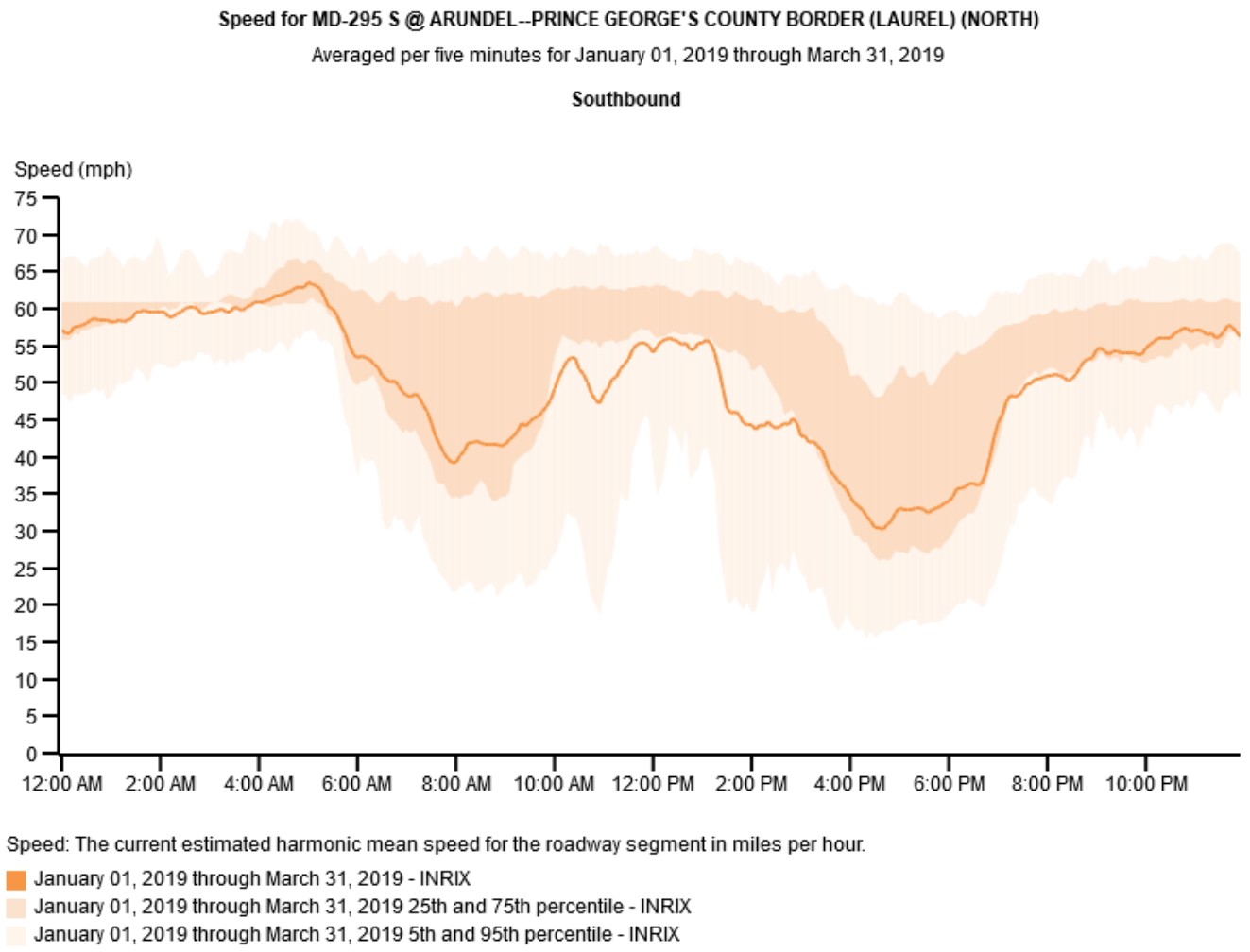
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 S @ A.A./P.G. CO LINE	3.43	3 h 08 m	139	44901



Notes: *Southbound congestion begins from before MD-198 and extends into the southern portion of the Baltimore region near Fort Meade occurring during both the AM and PM peak periods. Volume related delays are exacerbated by poor road conditions including pot holes and congestion related crashes. The speed limit between MD-197 and MD-32 was recently lowered to 40 mph by the National Park Service which maintains that area of the facility.*

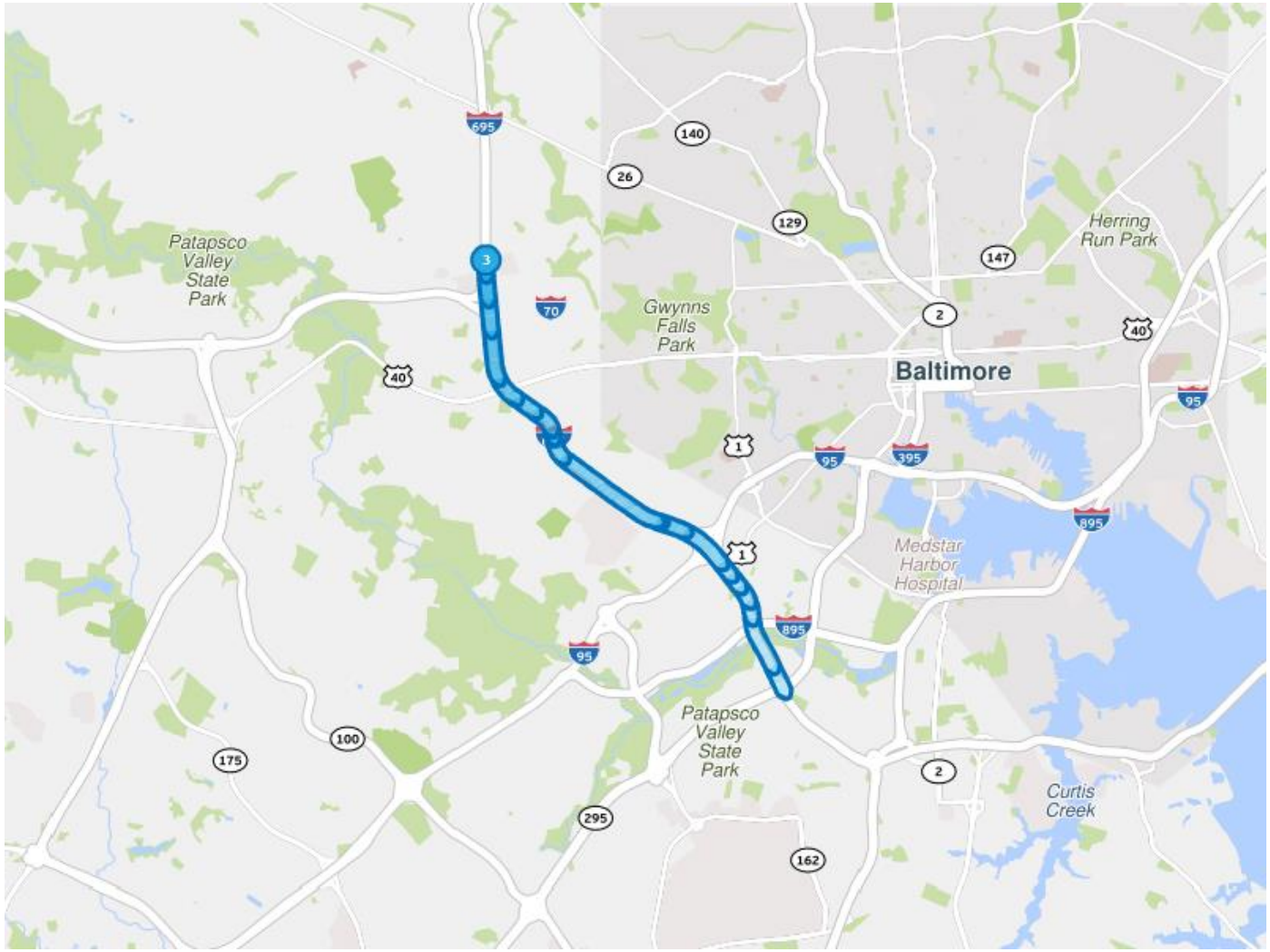
#2 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-295 S @ A.A./P.G. CO LINE	3.43	3 h 08 m	139	44901



#3 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

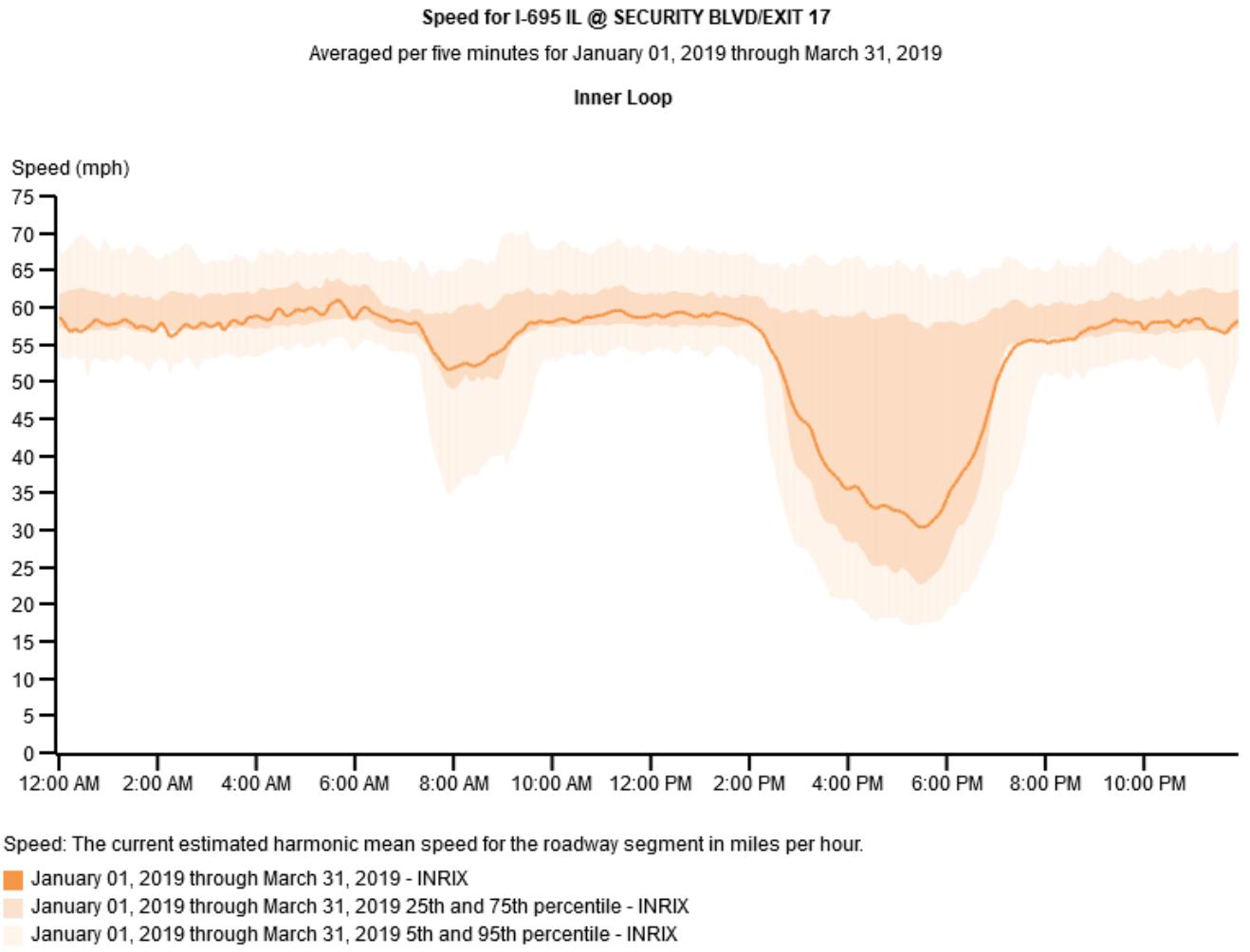
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ SECURITY BLVD/EXIT 17	2.48	2 h 55 m	610	83499



Notes: *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*

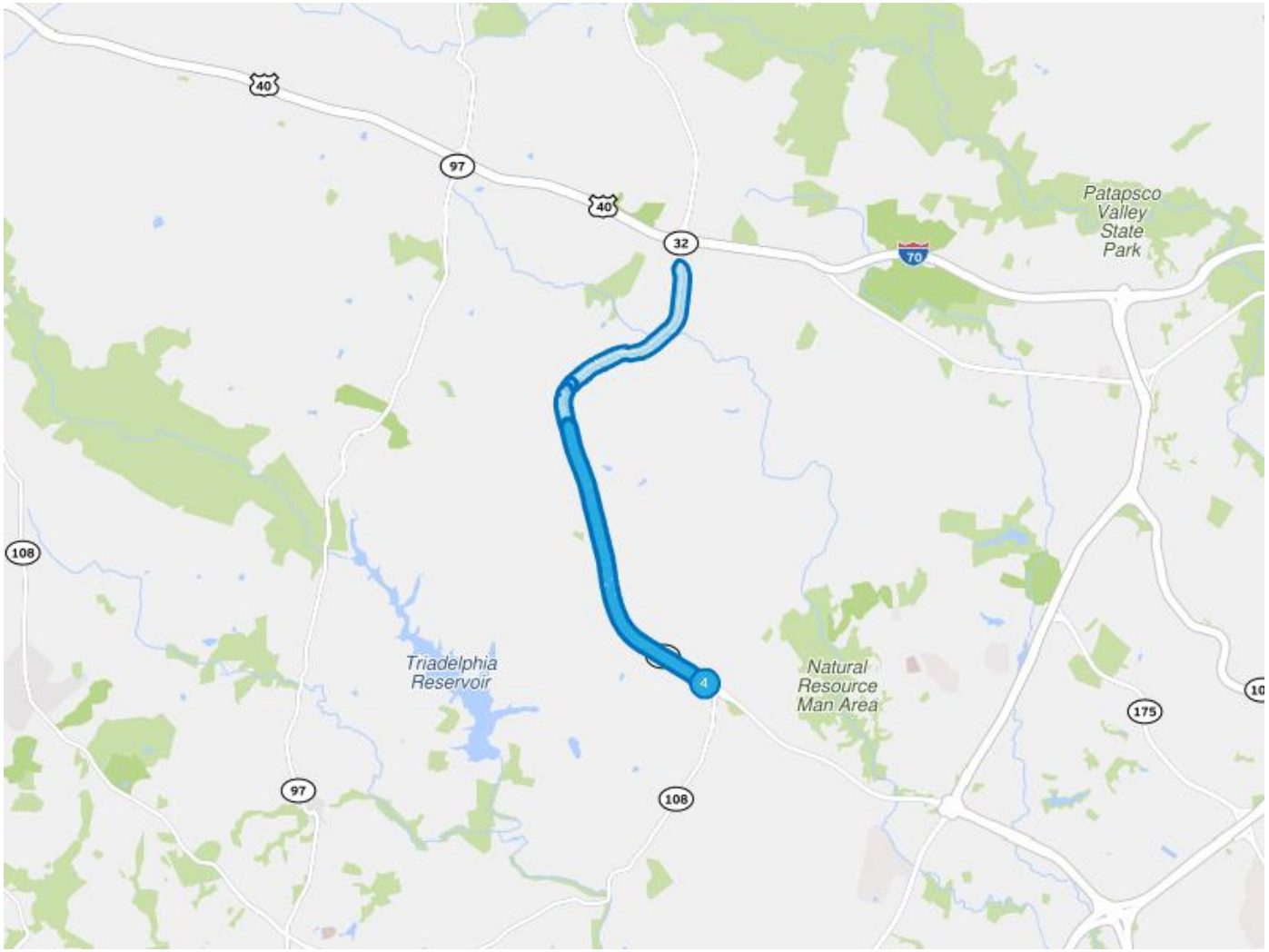
#3 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ SECURITY BLVD/EXIT 17	2.48	2 h 55 m	610	83499



#4 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

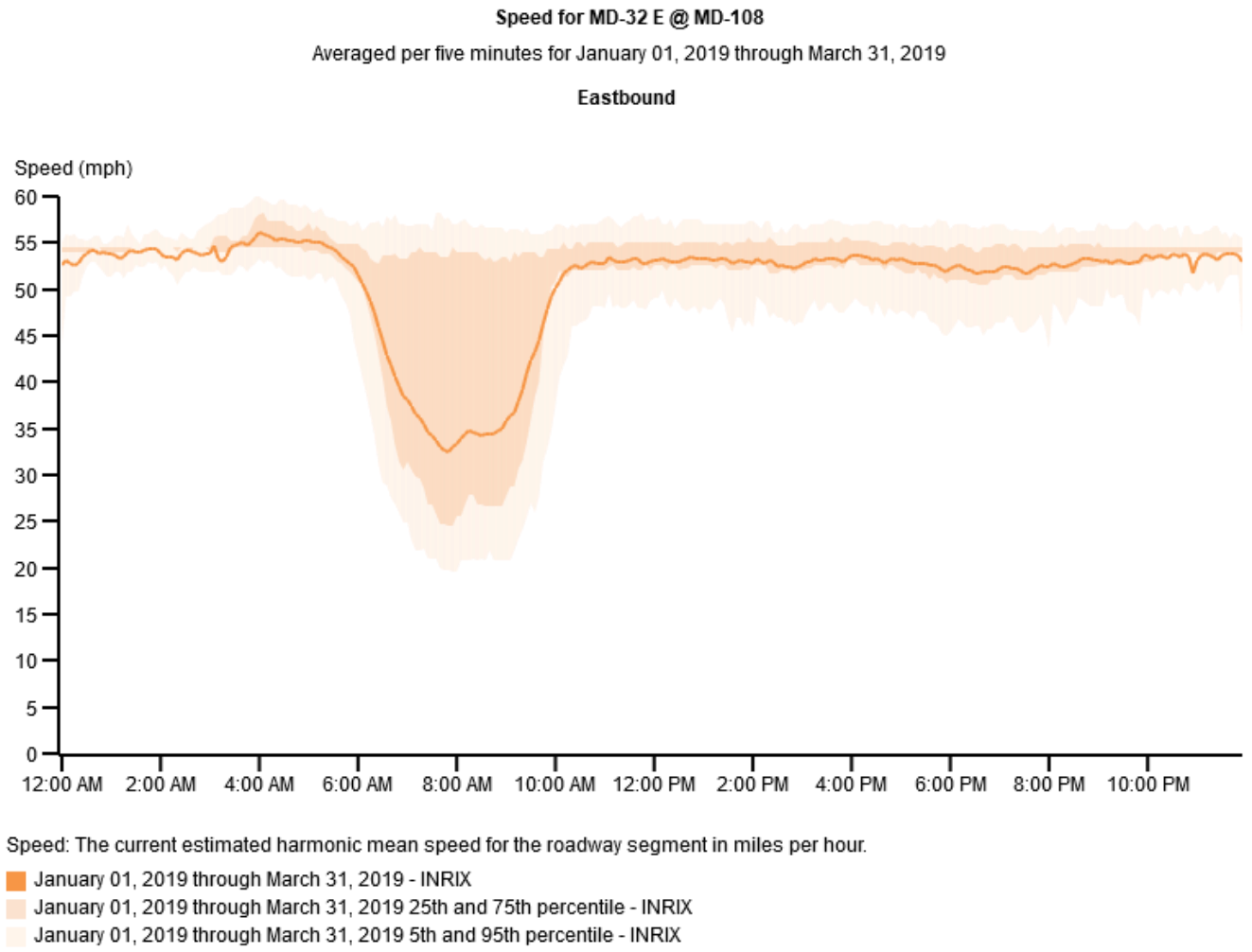
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-32 E @ MD-108	4.86	1 h 39 m	43	12396



Notes: *Widening project in progress with the eastbound lane shifting geometrically to the right causing slowing as MD-32 goes from 2 lanes to a 4 lane limited access highway. Congestion seen primarily in the AM Peak Period.*

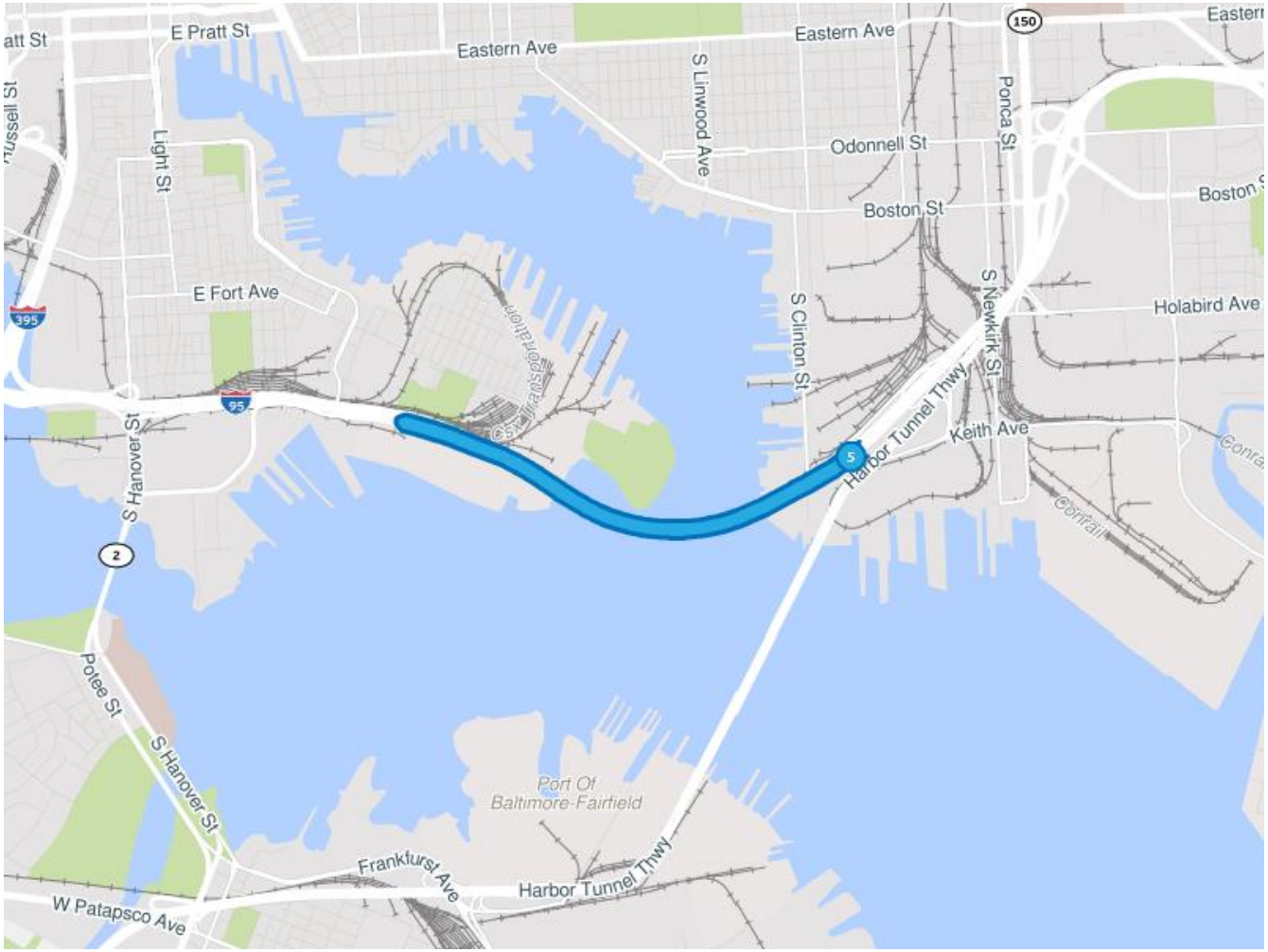
#4 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-32 E @ MD-108	4.86	1 h 39 m	43	12396



#5 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

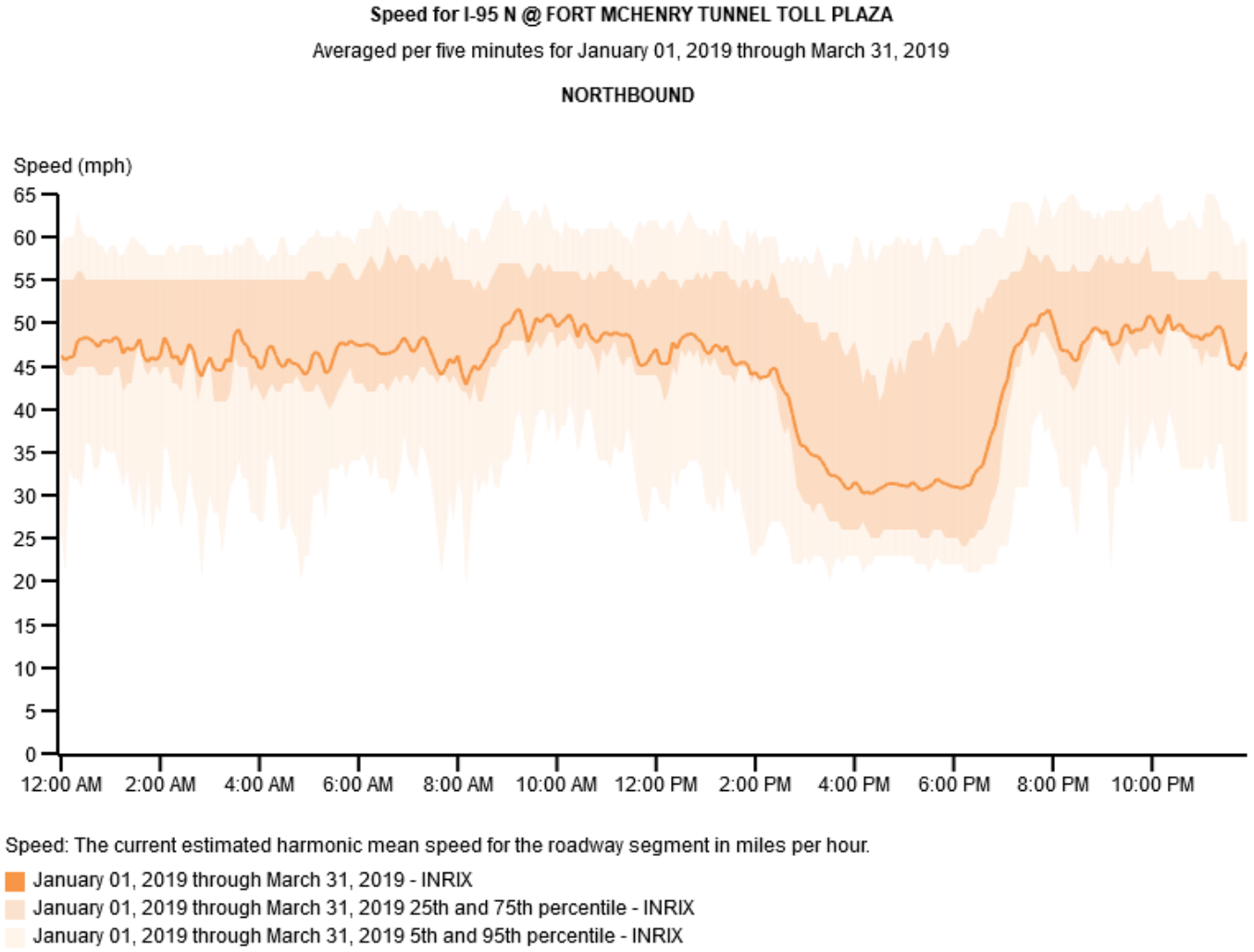
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ FORT MCHENRY TUNNEL TOLL PLAZA	1.79	3 h 42 m	7	60940



Notes: *EZ Pass lanes placed among those with cash options cause late driver lane changes. The curvature inside the tunnel provides limited visibility at times. An estimated 45 million vehicles pass (both directions) pass through the Fort McHenry Tunnel annually.*

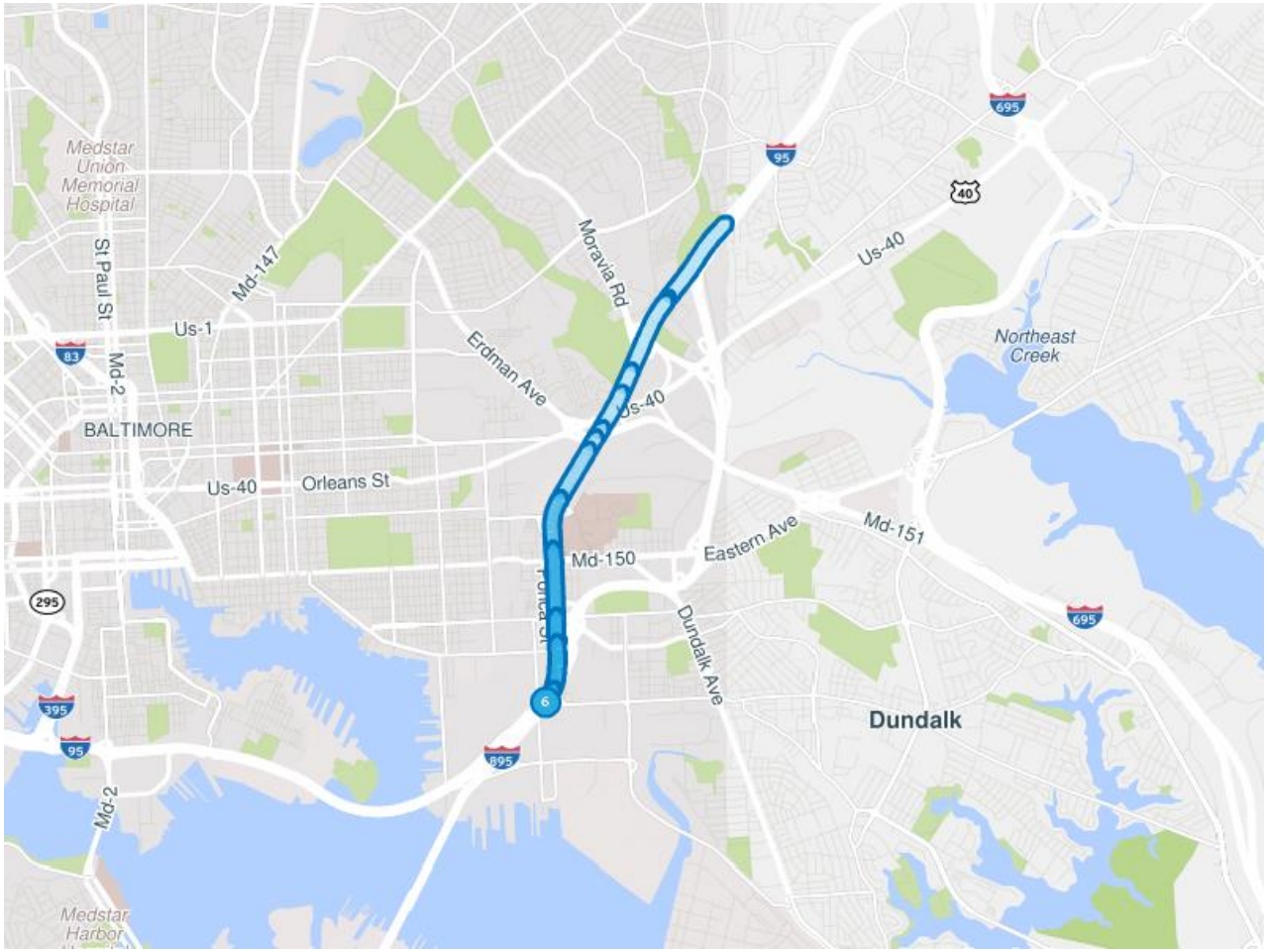
#5 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ FORT MCHENRY TUNNEL TOLL PLAZA	1.79	3 h 42 m	7	60940



#6 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

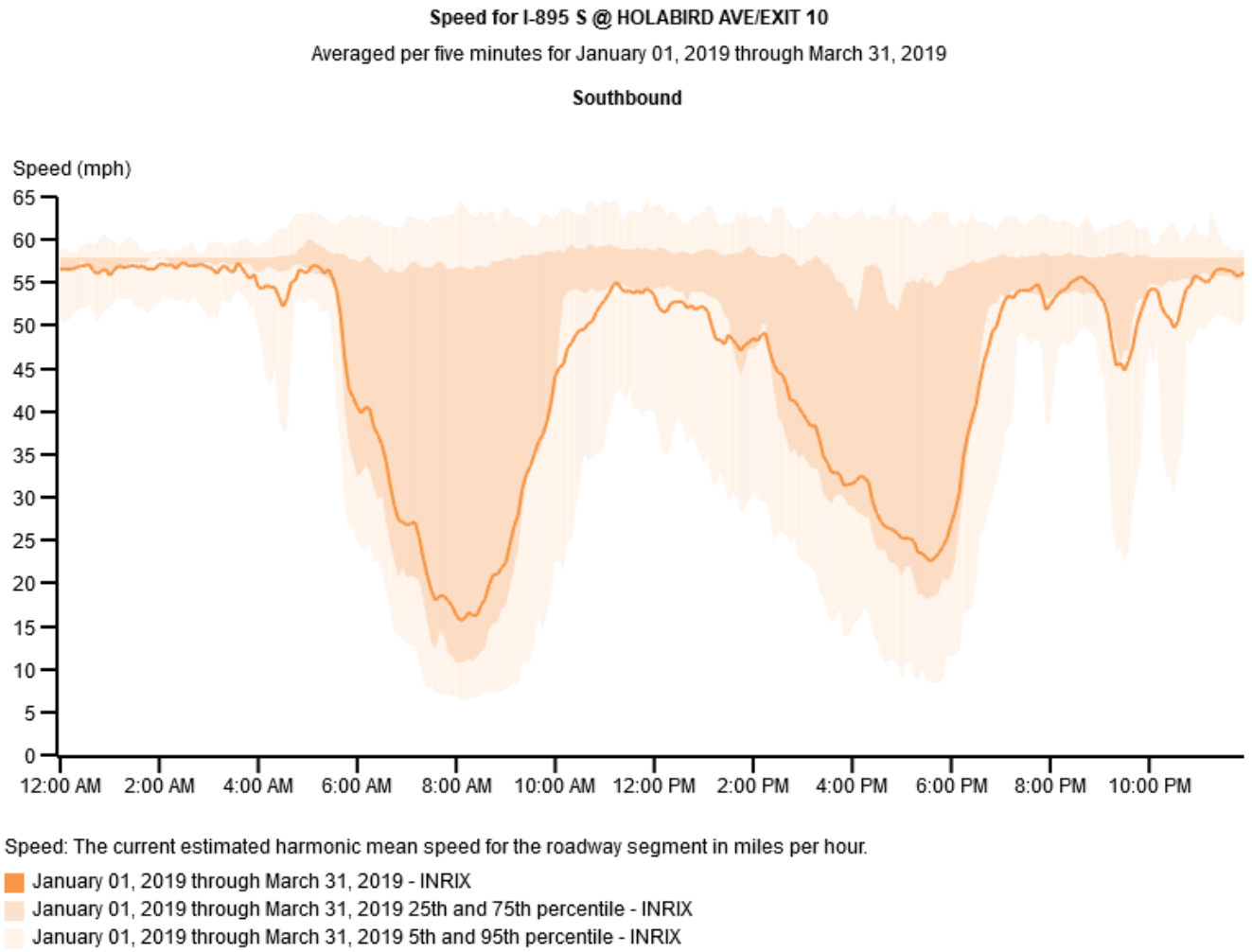
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-895 S @ HOLABIRD AVE/EXIT 10	1.32	4 h 29 m	313	26460



Notes: *Major construction project impacting I-895 from November 2018 until summer 2021. The Northbound bore of the Harbor Tunnel is closed to traffic and the Southbound bore is currently 2 way traffic. For more information visit the MdTA at* https://mdta.maryland.gov/blog-category/mdta-traffic-advisories/avoid-i-895-major-roadwork-coming-i-895-baltimore

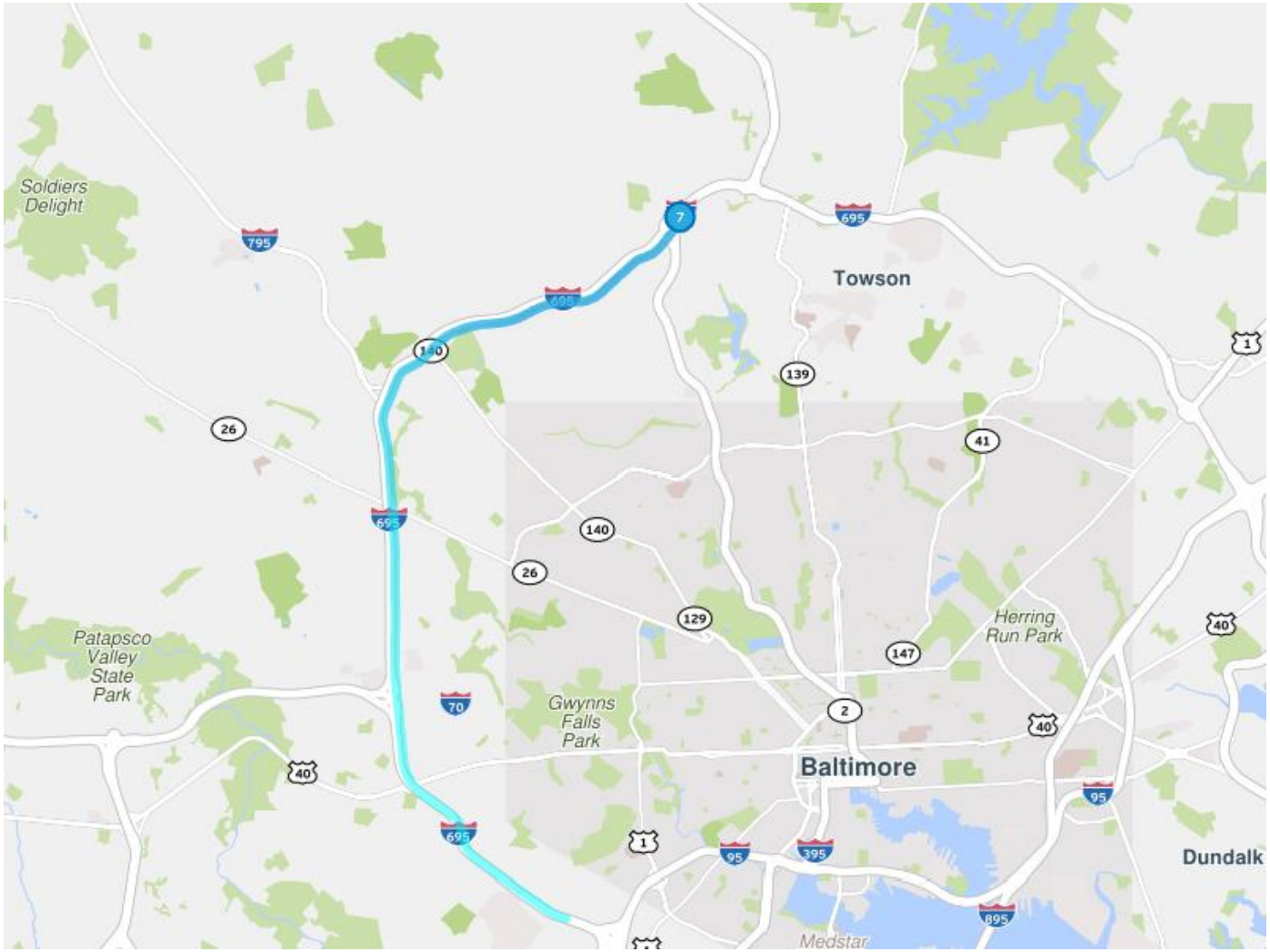
#6 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-895 S @ HOLABIRD AVE/EXIT 10	1.32	4 h 29 m	313	26460



#7 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

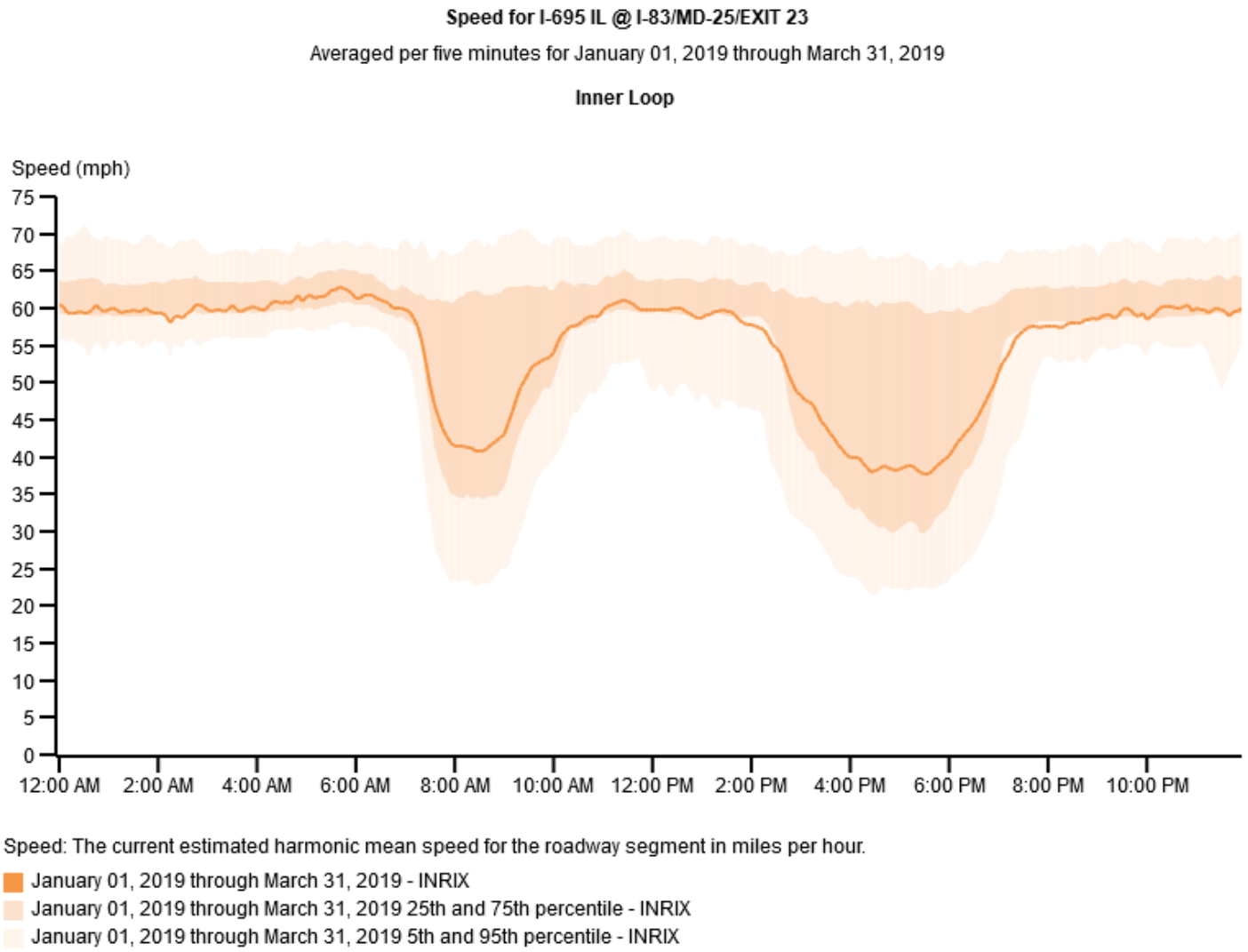
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ I-83/MD-25/EXIT 23	3.34	1 h 30 m	857	95228



Notes: *Rush hour congestion during the morning and afternoon rush hours with a longer duration in the PM 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*

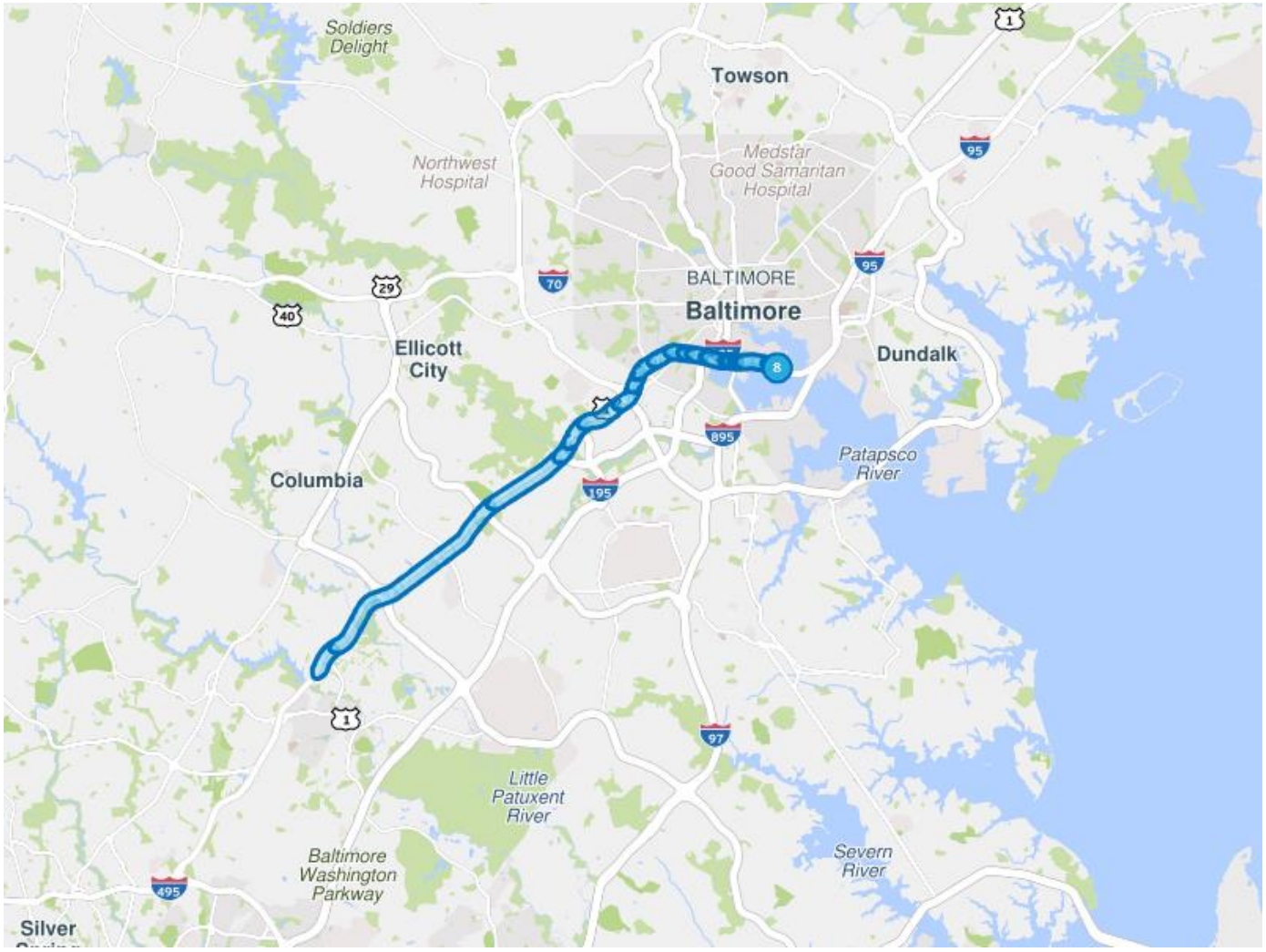
#7 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ I-83/MD-25/EXIT 23	3.34	1 h 30 m	857	95228



#8 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

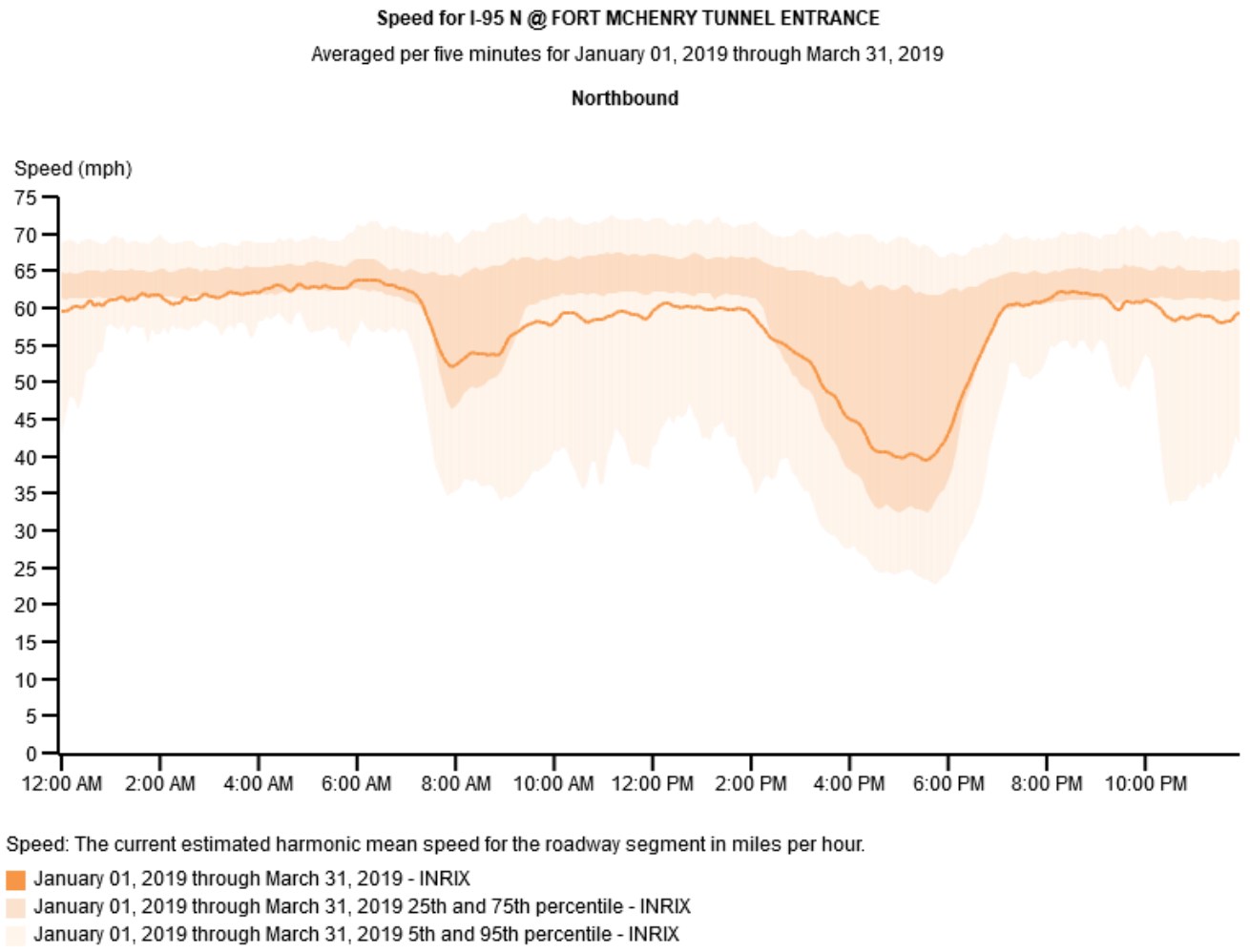
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ FORT MCHENRY TUNNEL ENTRANCE	1.44	3 h 14 m	1226	83545



***Notes**: Heavy volume with major entrances to I-95 in short proximity from each other near downtown Baltimore and merging to enter the 2 tunnel portals. Traffic flow tends to improve once inside the tunnel only to begin again when exiting and drivers go through the toll facility. These conditions are more prominent in the PM peak.*

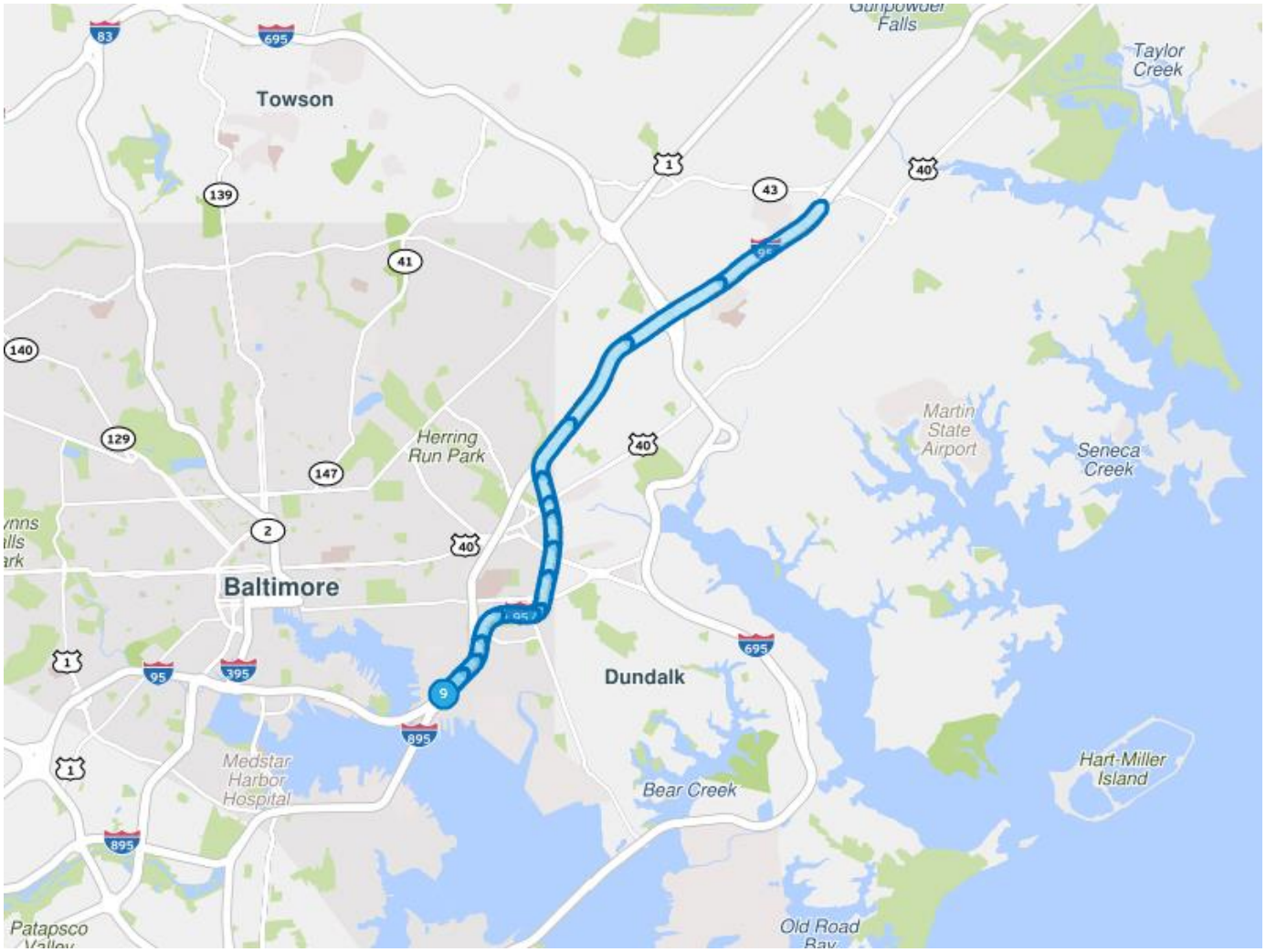
#8 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ FORT MCHENRY TUNNEL ENTRANCE	1.44	3 h 14 m	1226	83545



#9 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

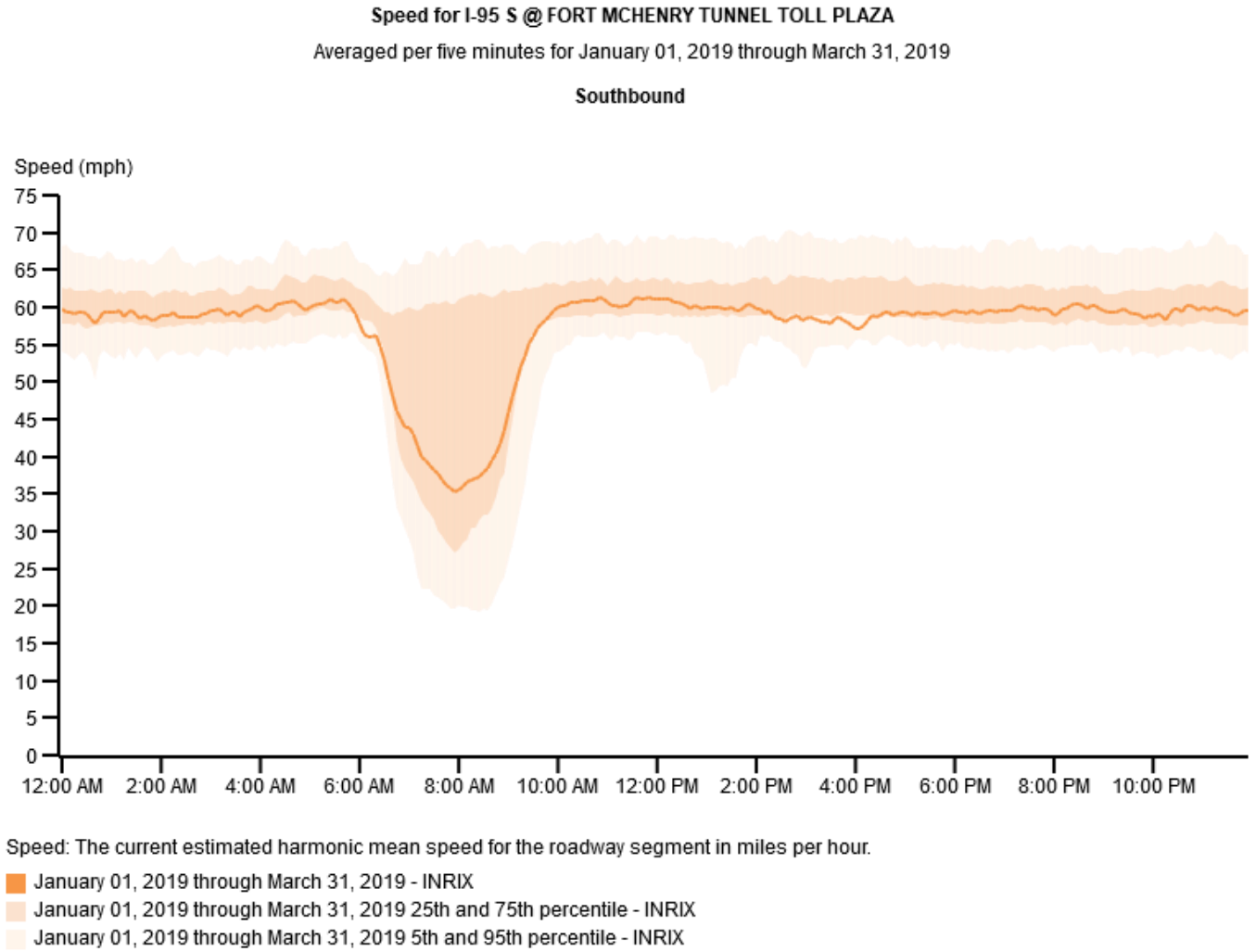
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 S @ FORT MCHENRY TUNNEL TOLL PLAZA	0.31	4 h 20 m	727	61826



Notes: *Major construction project impacting I-895 from November 2018 until summer 2021 which is impacting I-95 south causing morning delays as far north as MD-43. The Northbound bore of the Harbor Tunnel is closed to traffic and the Southbound bore is currently 2 way traffic. For more information visit the MdTA at* https://mdta.maryland.gov/blog-category/mdta-traffic-advisories/avoid-i-895-major-roadwork-coming-i-895-baltimore

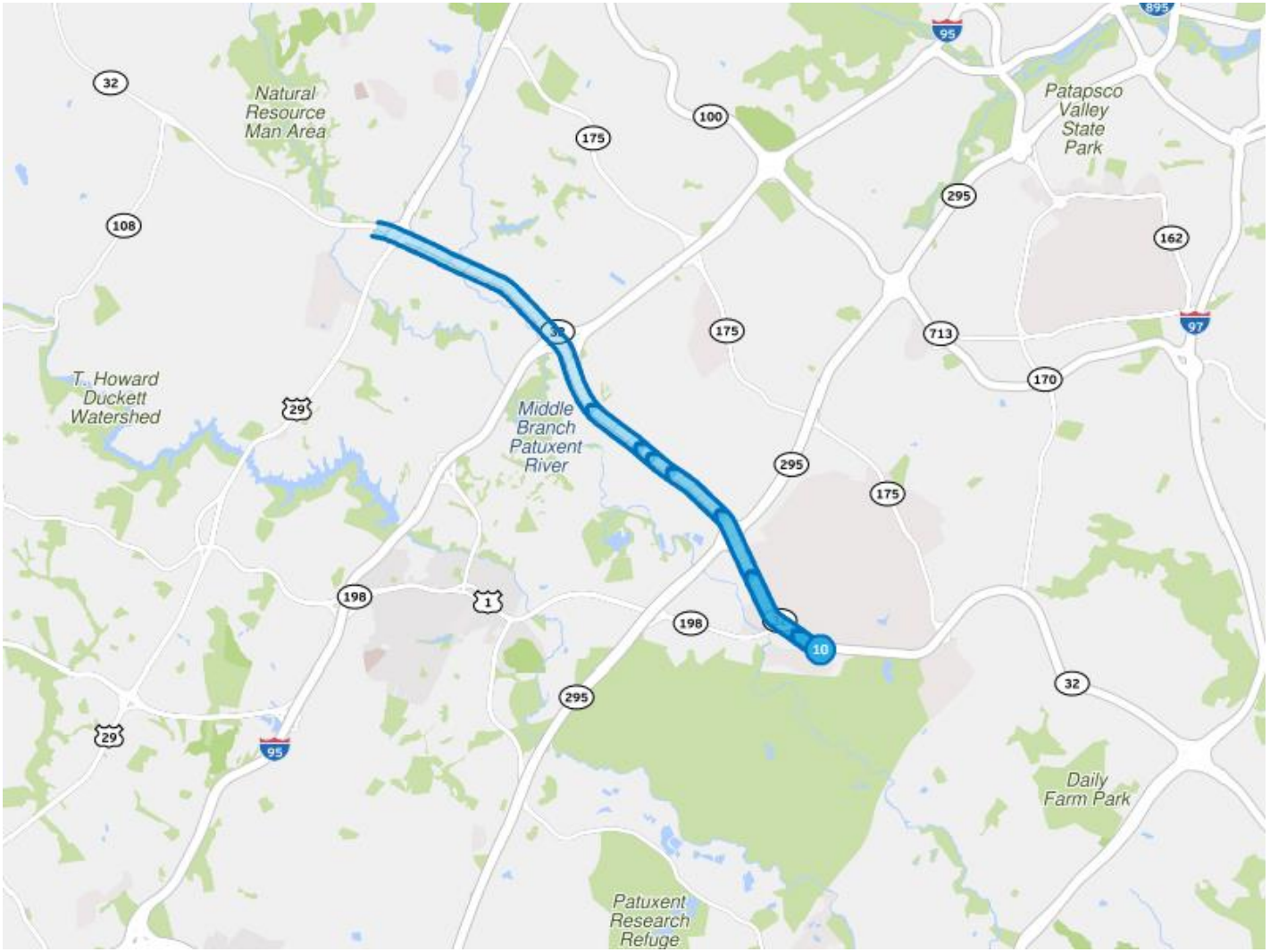
#9 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 S @ FORT MCHENRY TUNNEL TOLL PLAZA	0.31	4 h 20 m	727	61826



#10 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

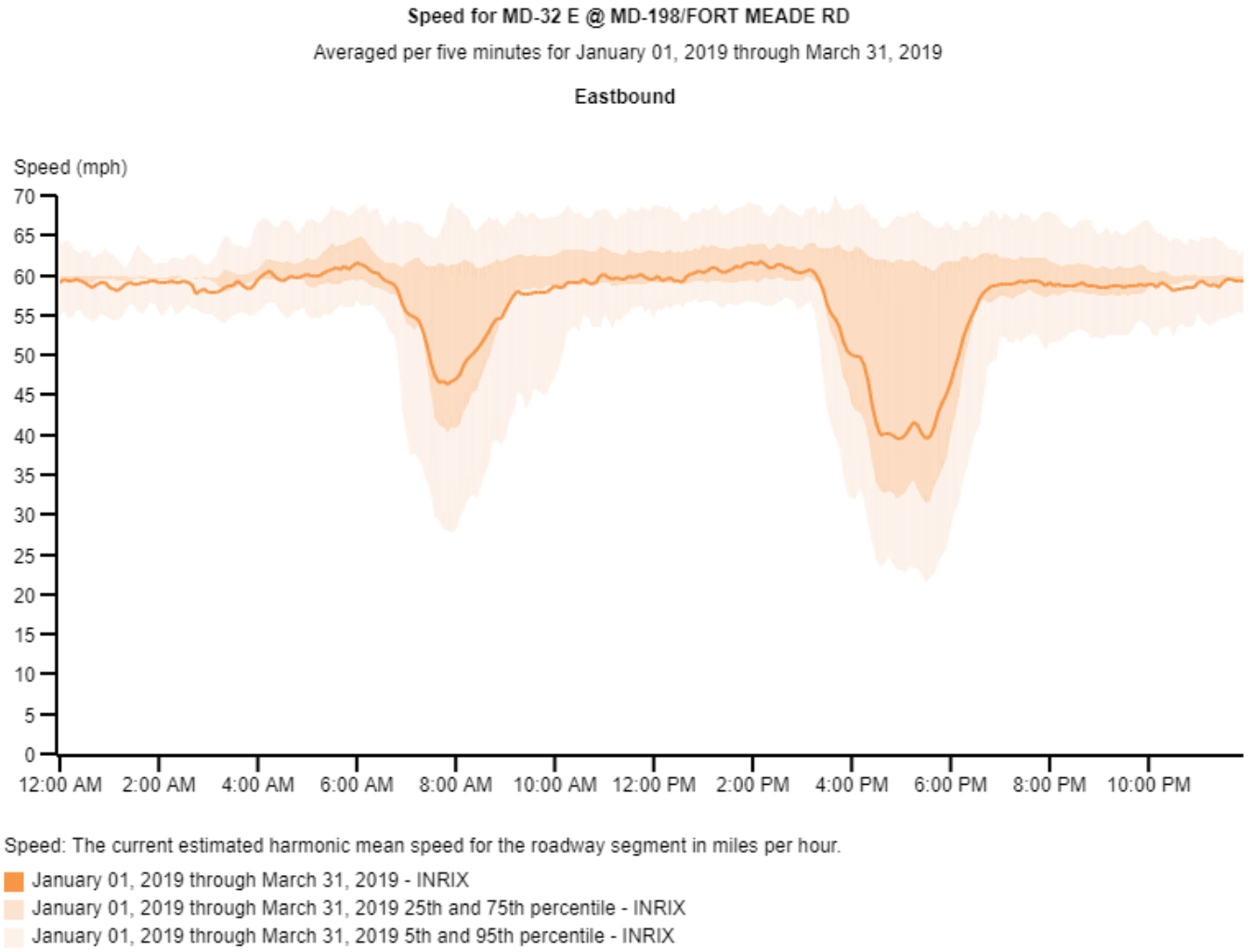
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-32 E @ MD-198/FORT MEADE RD	2.33	1 h 40 m	102	34524



Notes: *Heavy traffic with intermittent minor delays was apparently caused merging traffic and weaving associated with the I-95 and MD-295 interchanges.*

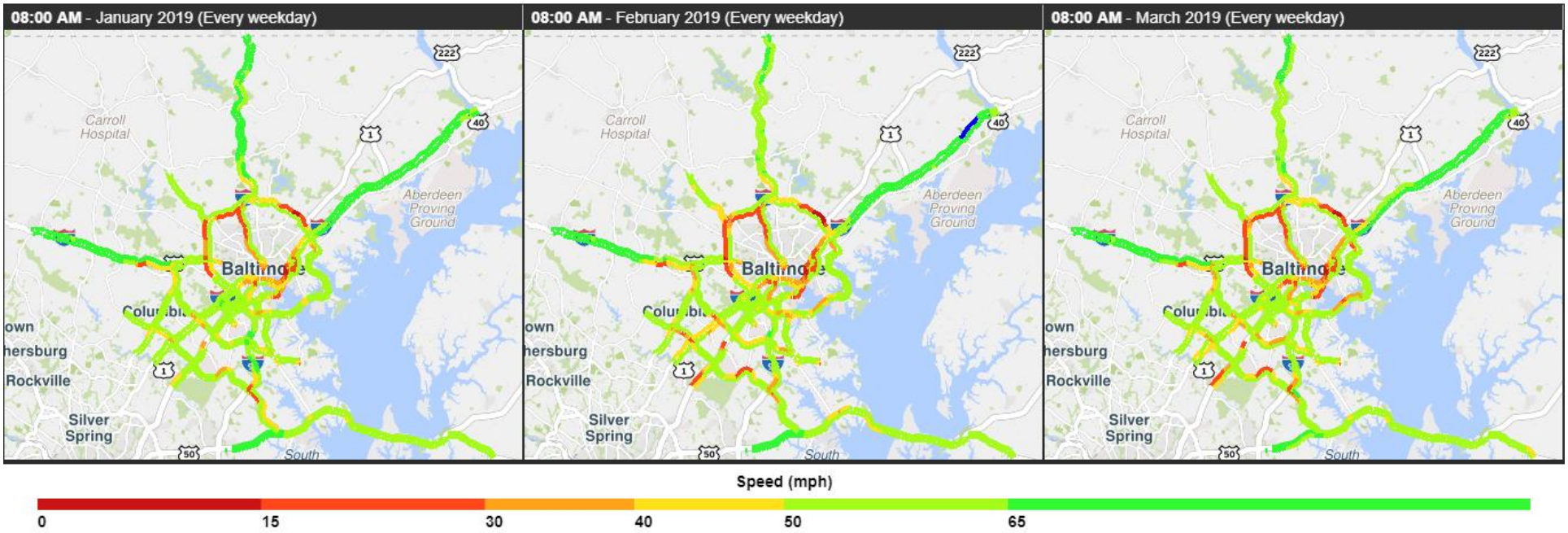
#10 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
MD-32 E @ MD-198/FORT MEADE RD	2.33	1 h 40 m	102	34524

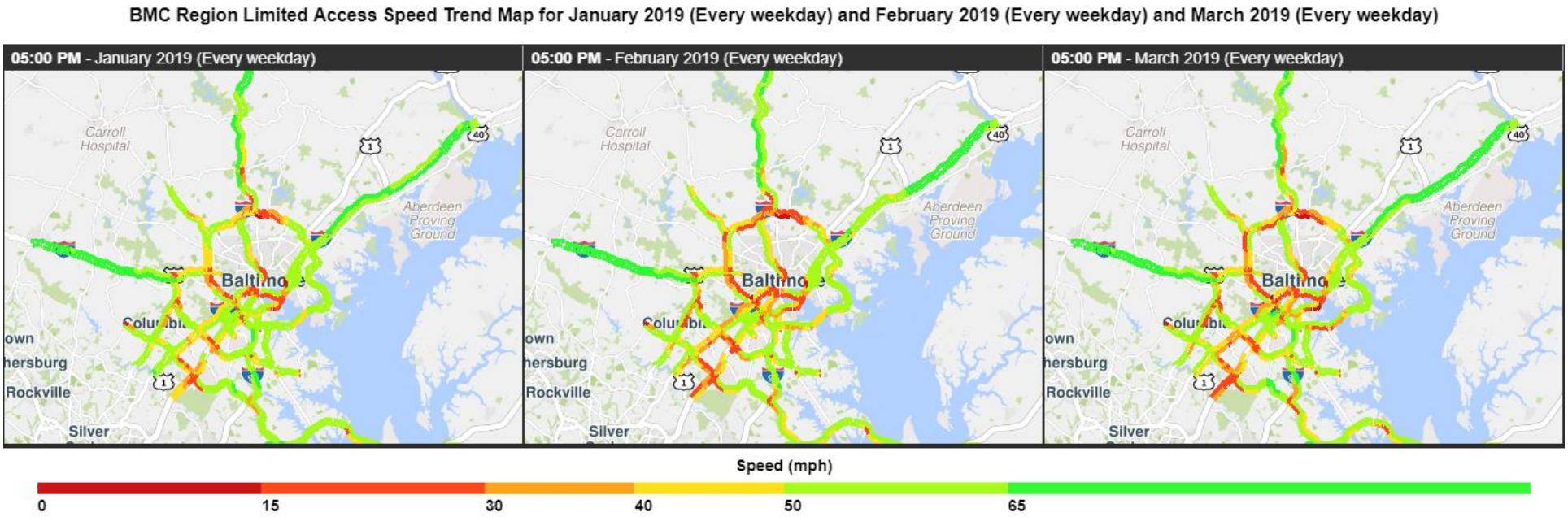


Average Speed Maps – AM Peak Period 8:00-9:00 Weekdays: 1st Quarter 2019

BMC Region Limited Access Speed Trend Map for January 2019 (Every weekday) and February 2019 (Every weekday) and March 2019 (Every weekday)



Average Speed Maps – PM Peak Period 5:00-6:00 Weekdays: 1st Quarter 2019



Probe Data Analytics

Data and graphics in this report were generated from the *Probe Data Analytics* suite. *The Probe Data Analytics Suite (PDA) formerly known as the Vehicle Probe Project* (VPP) is a groundbreaking initiative and collaborative effort among the I-95 Corridor Coalition, University of Maryland, INRIX, HERE and Tom Tom and has been providing comprehensive and continuous real-time travel information for more than seven years. Member agencies like the Baltimore Metropolitan Council have found numerous uses for the data beyond simply travel information.

There are **now** **7,000 centerline freeway miles**, more than **20,000 freeway and arterial miles** in all, including continuous coverage of the I-95 corridor from New Jersey through Florida. Coverage also exists in Rhode Island. The network includes full coverage of freeways and major arterials in North Carolina and the Tidewater area of Virginia, full or nearly full coverage of limited access roads in New Jersey, Maryland and South Carolina and the northern and eastern portions of Florida. In addition, coverage now includes ramps at 160 major highway-to- highway interchanges, with all states having interchanges included except Georgia.

Agency Participation
As the value of the data from the Vehicle Probe Project is realized through the various applications and the continued quality via the validation efforts, the member states have increased their commitment to this project. In fact, all of the participating states have committed their own funds to continue this project and many have increased their coverage far beyond the initial core area.

Numerous Uses for the Data
I-95 Corridor Coalition member agencies have found many uses for the vehicle probe data, including:

- Travel Information for 511 (web and phone) Systems, Dynamic Message Signs, and Kiosks
- Travel Time Calculations for Message Boards
- Performance Measures and Travel Time Reliability Support
- Traffic Pattern Observations (in-state and multi-state)
- Trip Planning (www.i95travelinfo.net)
- Performance Measures Tool – Continuing the momentum in performance analysis, the newest initiative from the Coalition is the Vehicle Probe Project Suite. The basic tools include:

Bottleneck and Incident dashboard
Massive Raw Data Downloader
Historical Data Visualizations and Performance Measures (Congestion Scan)
UMD CATT Lab made the VPP suite available to participating agencies. For the training video, please visit http://vpp.ritis.org/suite/screencast/

Should you have any questions, please contact:

- For general project questions, Marygrace Parker at 518-852-4083 or *i95mgp@ttlc.net*
  For the Vehicle Probe Project Suite, Michael L. Pack at 301-405-0722 or *packml@umd.edu*

Project Manager · Victor Henry

Author · Edward Stylc

Data Collection Contributors
I-95 Corridor Coalition · University of Maryland CATT Lab · INRIX
Skycomp

Mike Kelly, Executive Director
Todd Lang, Director of Transportation Planning
Regina Aris, Assistant Director of Transportation Planning

1500 Whetstone Way, Suite 300 | Baltimore, Maryland 21230
www.baltometro.org