BALTIMORE METROPOLITAN COUNCIL

Quarterly Congestion Analysis Report for the Baltimore Region

Top 10 Bottleneck Locations

2nd Quarter 2019

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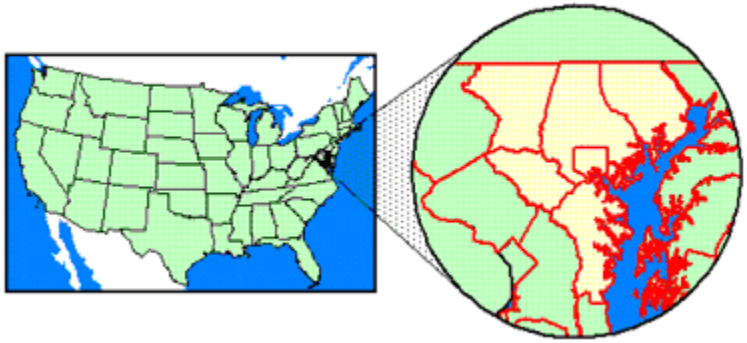
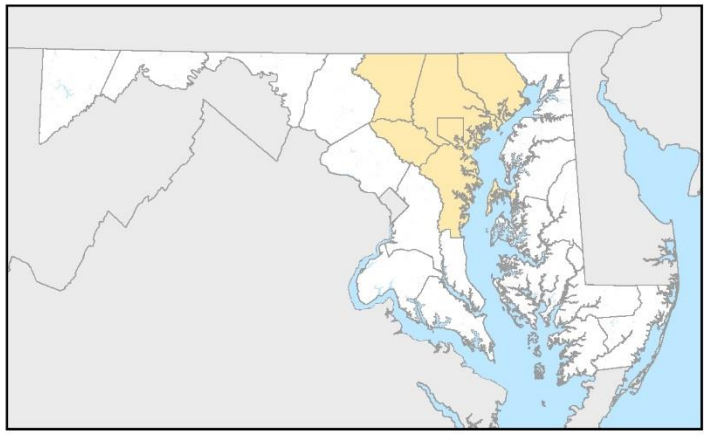
About the Region

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

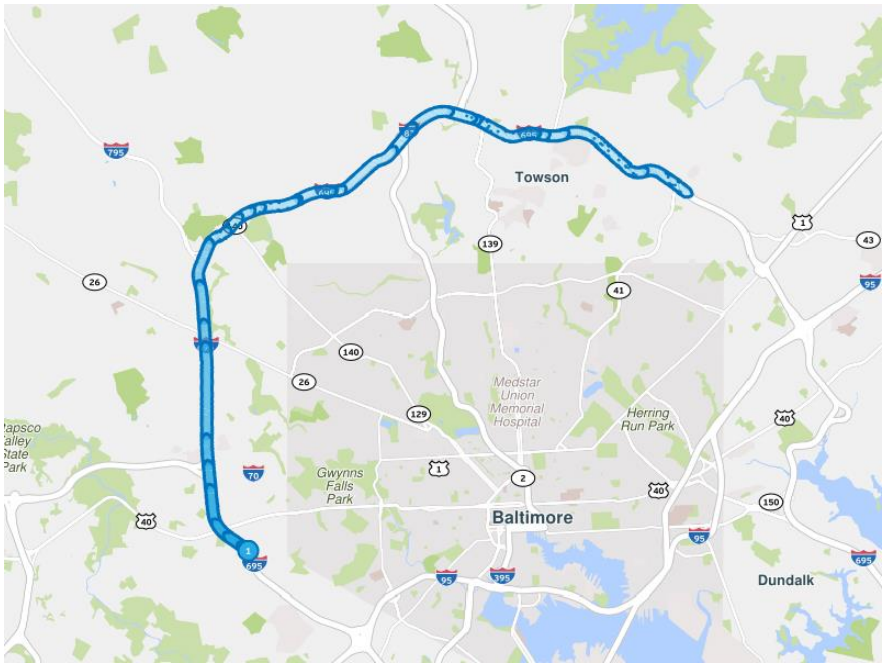
How are bottleneck conditions tracked?

- **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

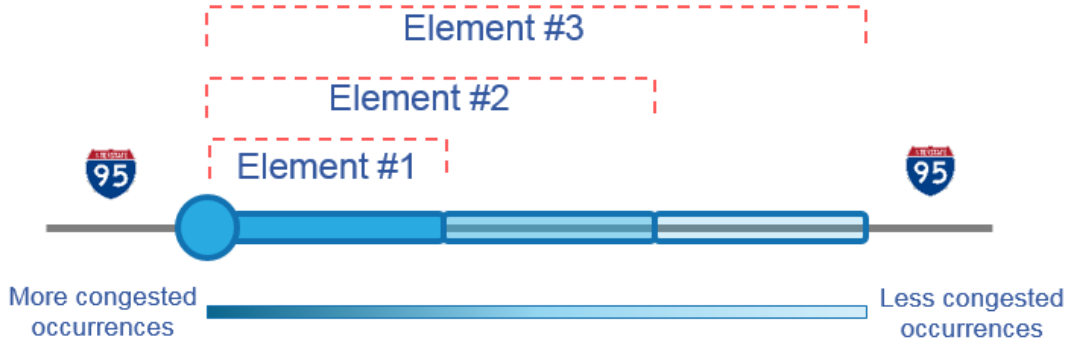
Rank	Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
1	I-695 OL @ EDMONDSON AVE/EXIT 14	5.01	2 h 43 m	834	88946
2	I-695 IL @ I-83/MD-25/EXIT 23	3.53	2 h 56 m	463	95048
3	I-695 IL @ I-70/EXIT 16	2.11	2 h 54 m	233	95068
4	I-695 OL @ US-40/EXIT 15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

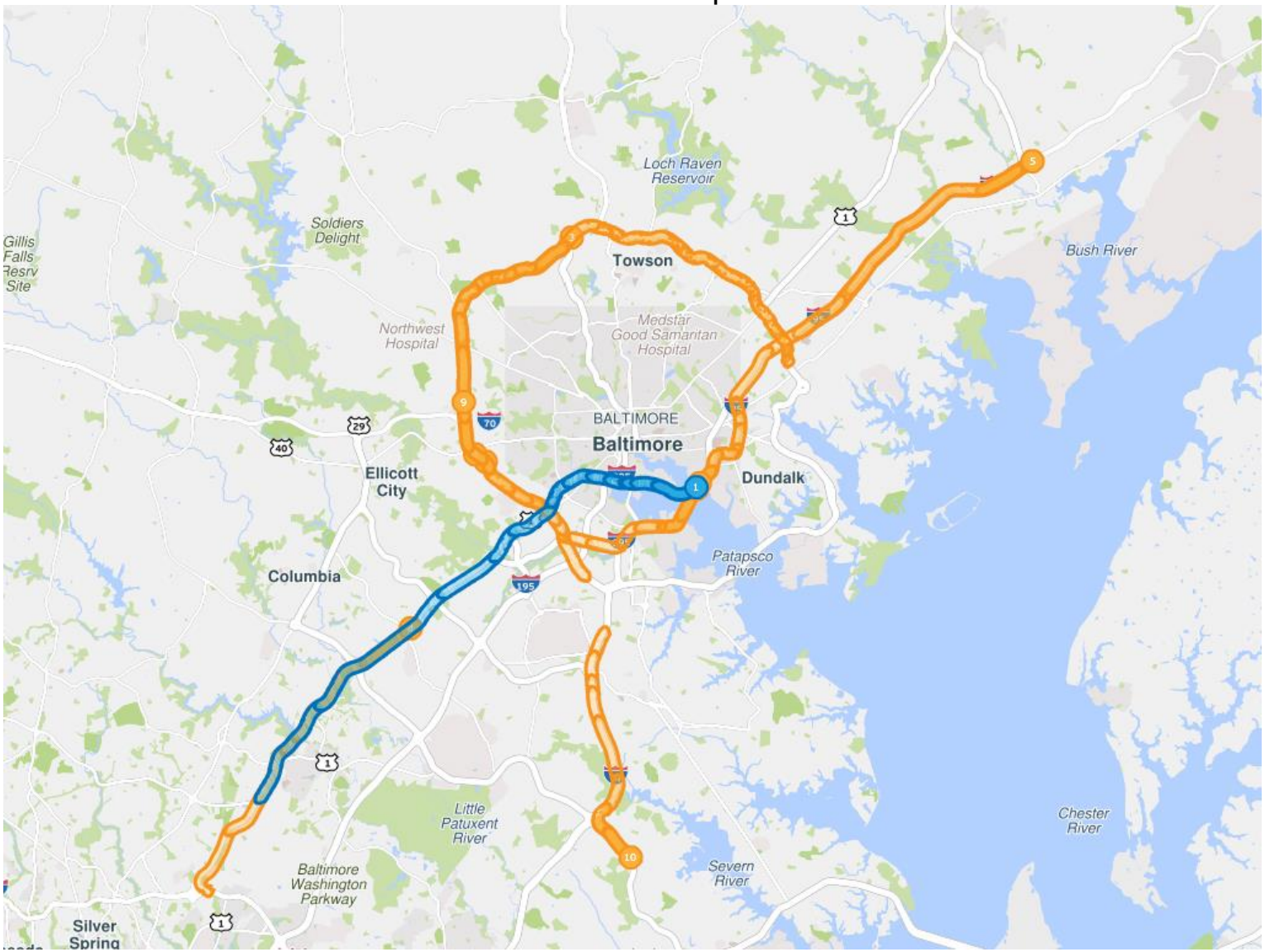


The Map view displays selected bottlenecks on a map. Each element occurring at the selected location is layered on the map, extending upstream from the head location to the maximum length of the specific *element*. As each element adds another layer on the map, road segments become more opaque. Segments 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
2nd Quarter 2019

Overview Map



Top 10 Bottlenecks in the Baltimore Region
2nd Quarter 2019

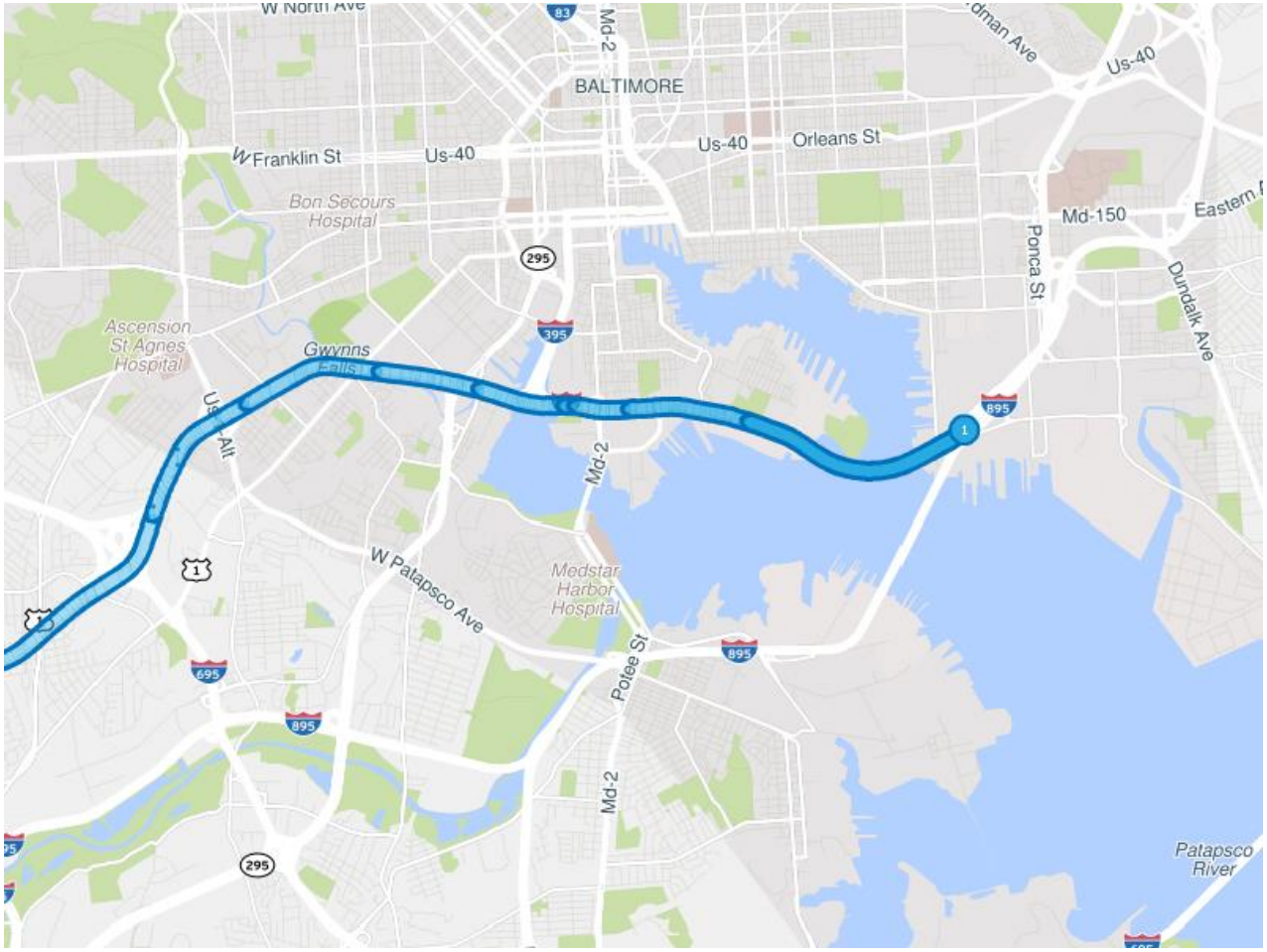
Ranked by Base Impact – the aggregation of queue length over time for congestion at each location in mile minutes. This table indicates the top 10 congested corridors in the region.

Rank	Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
1	I-95 N @ FORT MCHENRY TUNNEL	3.58	3 h 30 m	843	84823
2	I-695 OL @ EDMONDSON AVE/EXIT 14	4.11	3 h 18 m	893	85684
3	I-695 IL @ I-83/MD-25/EXIT 23	3.00	3 h 11 m	685	95235
4	I-95 N @ MD-175/EXIT 41	5.16	2 h 23 m	246	95299
5	I-95 N @ MD-24/EXIT 77	4.00	1 h 49 m	261	76606
6	I-895 N @ HARBOR THUNNEL THWY	2.49	4 h 02 m	165	28370
7	I-95 S @ KEITH AVE/EXIT 56	1.42	3 h 14 m	505	64999
8	I-695 OL @ US-40/EXIT 15	3.64	2 h 45 m	880	85475
9	I-695 IL @ MD-122/SECURITY BLVD/EXIT 17	3.54	2 h 22 m	425	82190
10	I-97 S @ MD-178/EXIT 5	2.83	2 h 55 m	313	61571

IL = Inner Loop OL = Outer Loop

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

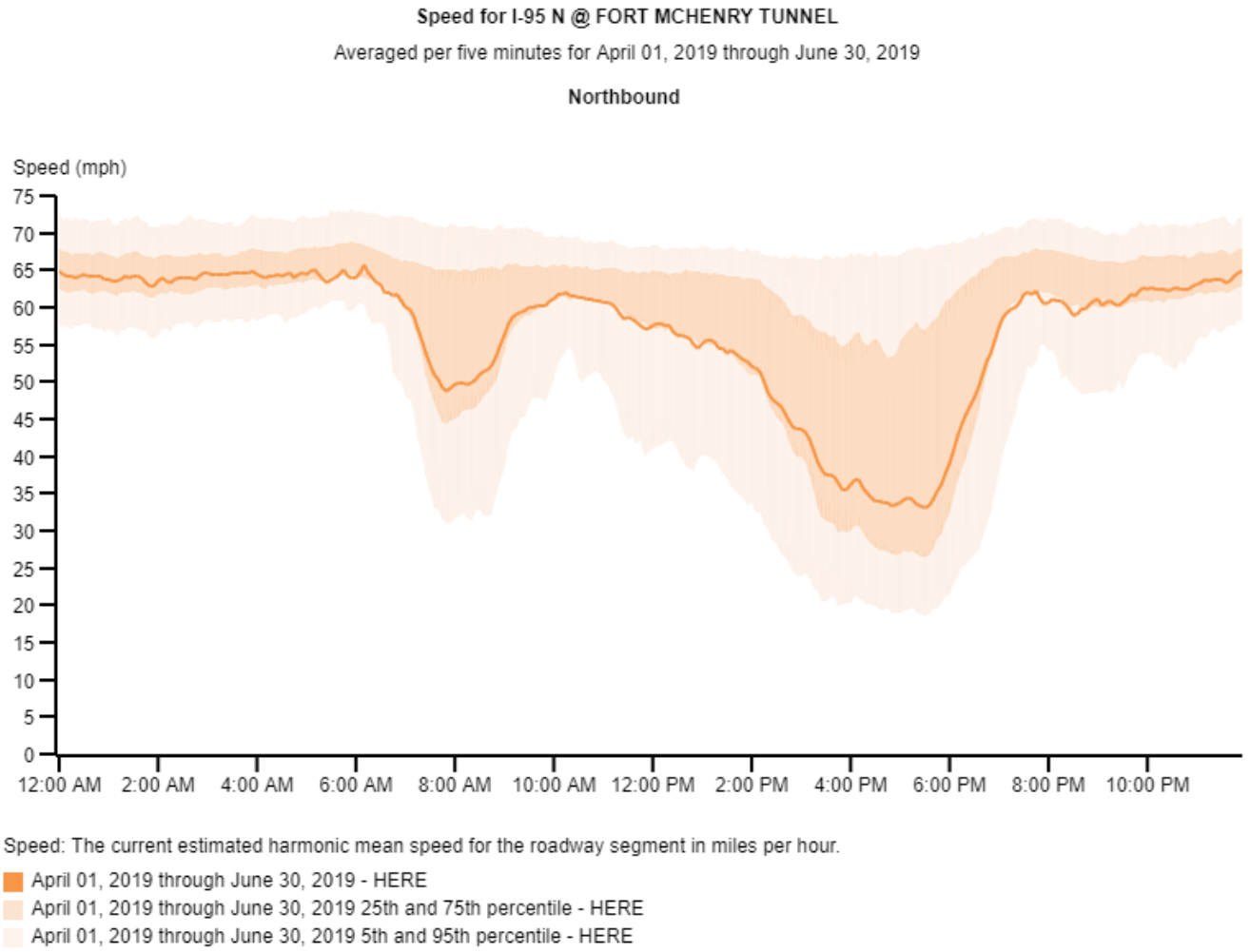
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 @ FORT MCHENRY TUNNEL	3.58	3 h 30 m	843	84823



***Notes**: One of the most heavily traveled corridors in the region 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.*

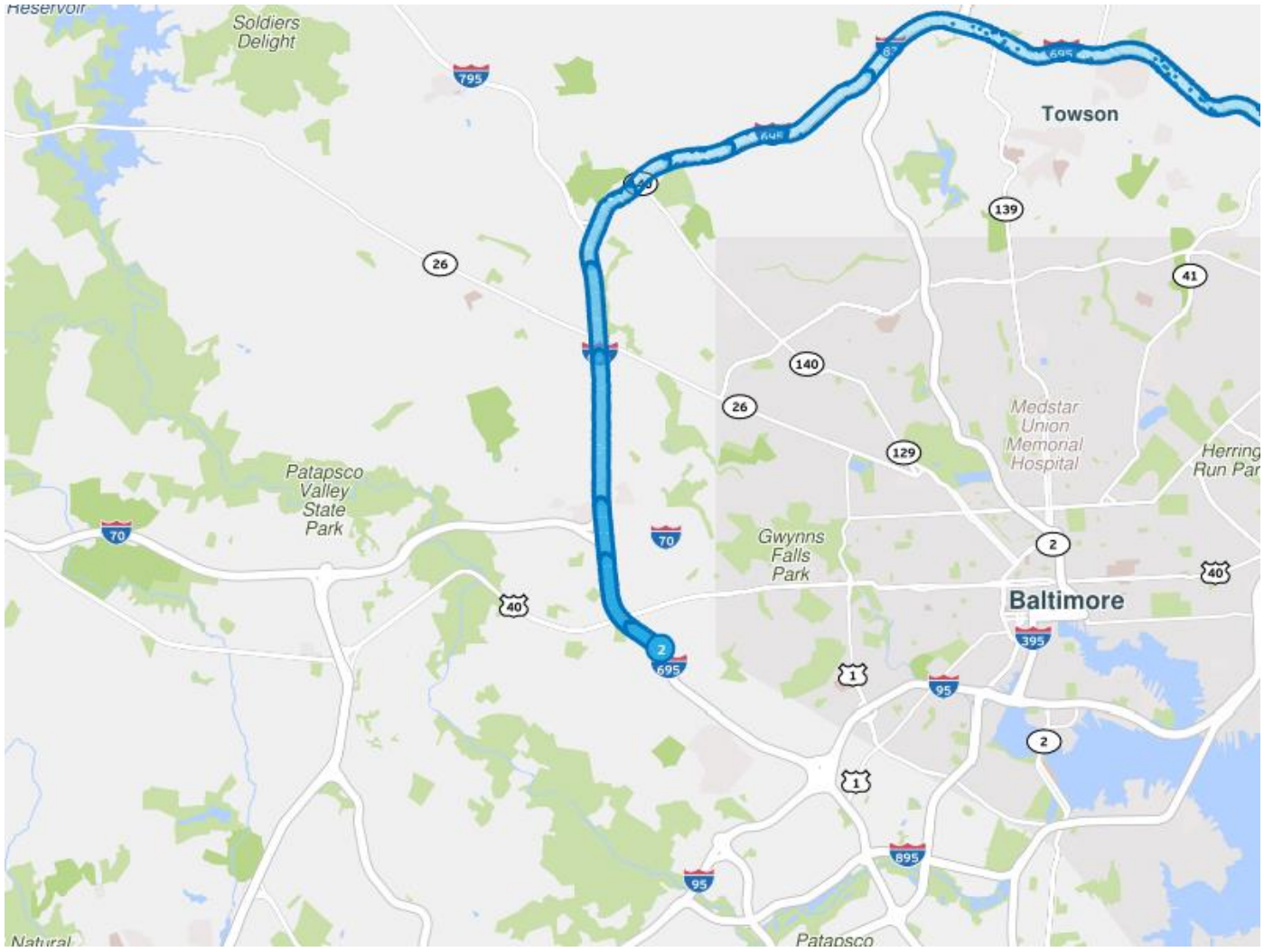
#1 Ranked Bottleneck in the Baltimore Region –2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 @ FORT MCHENRY TUNNEL	3.58	3 h 30 m	843	84823



#2 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

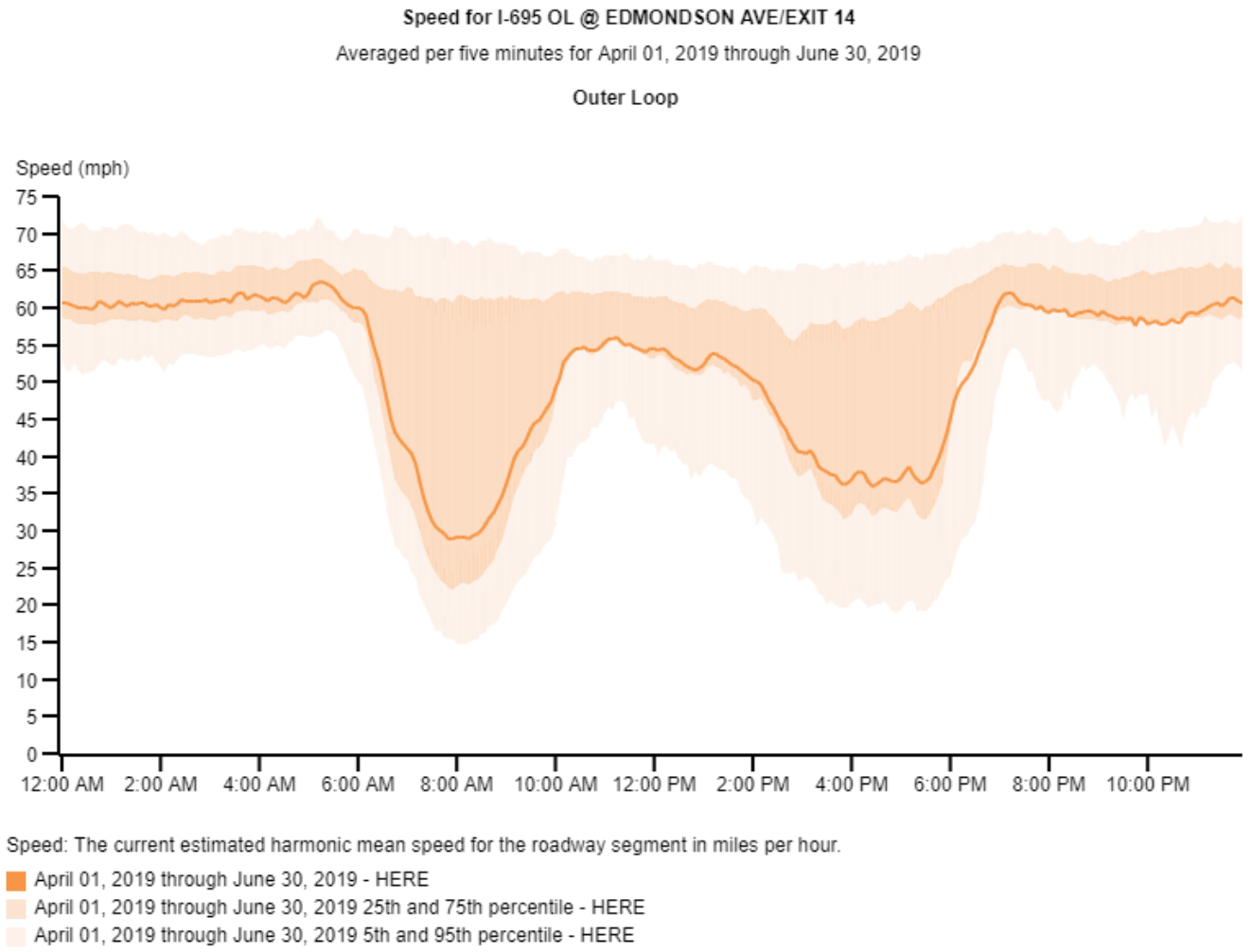
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 OL @ EDMONDSON AVE/EXIT 14	4.11	3 h 18 m	893	85684



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.*

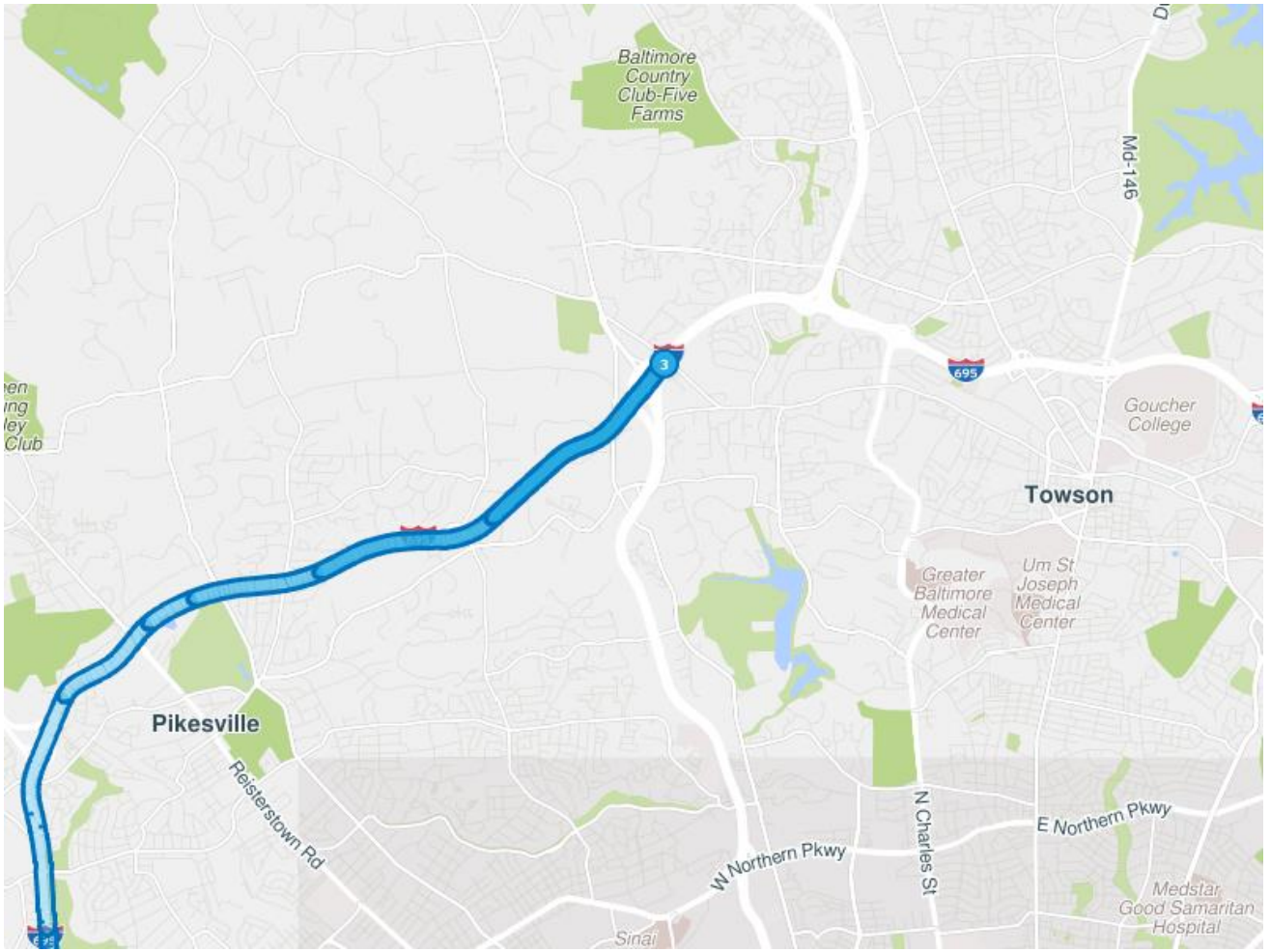
#2 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 OL @ EDMONDSON AVE/EXIT 14	4.11	3 h 18 m	893	85684



#3 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

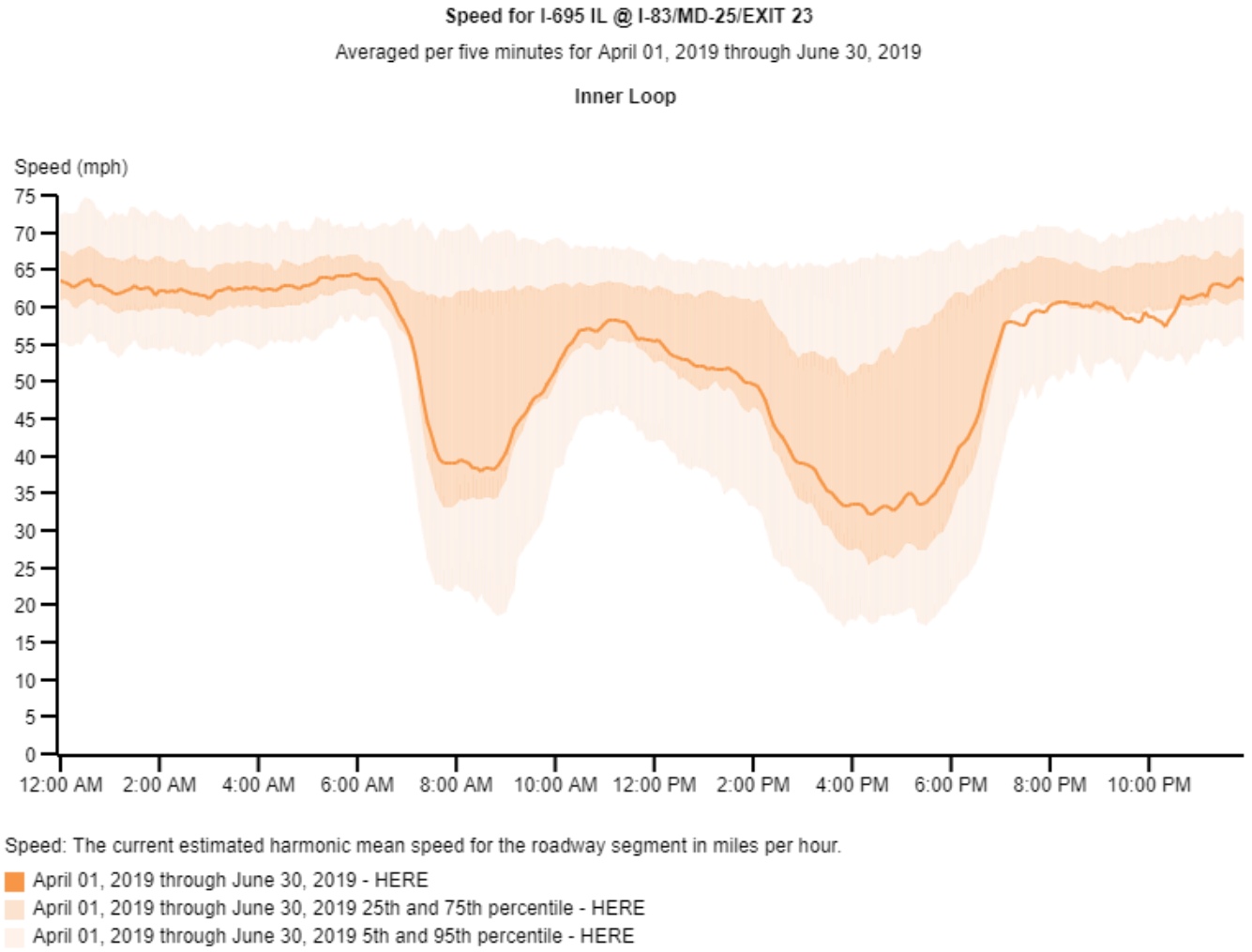
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ I-83/MD-25/EXIT 23	3.00	3 h 11 m	685	95235



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*

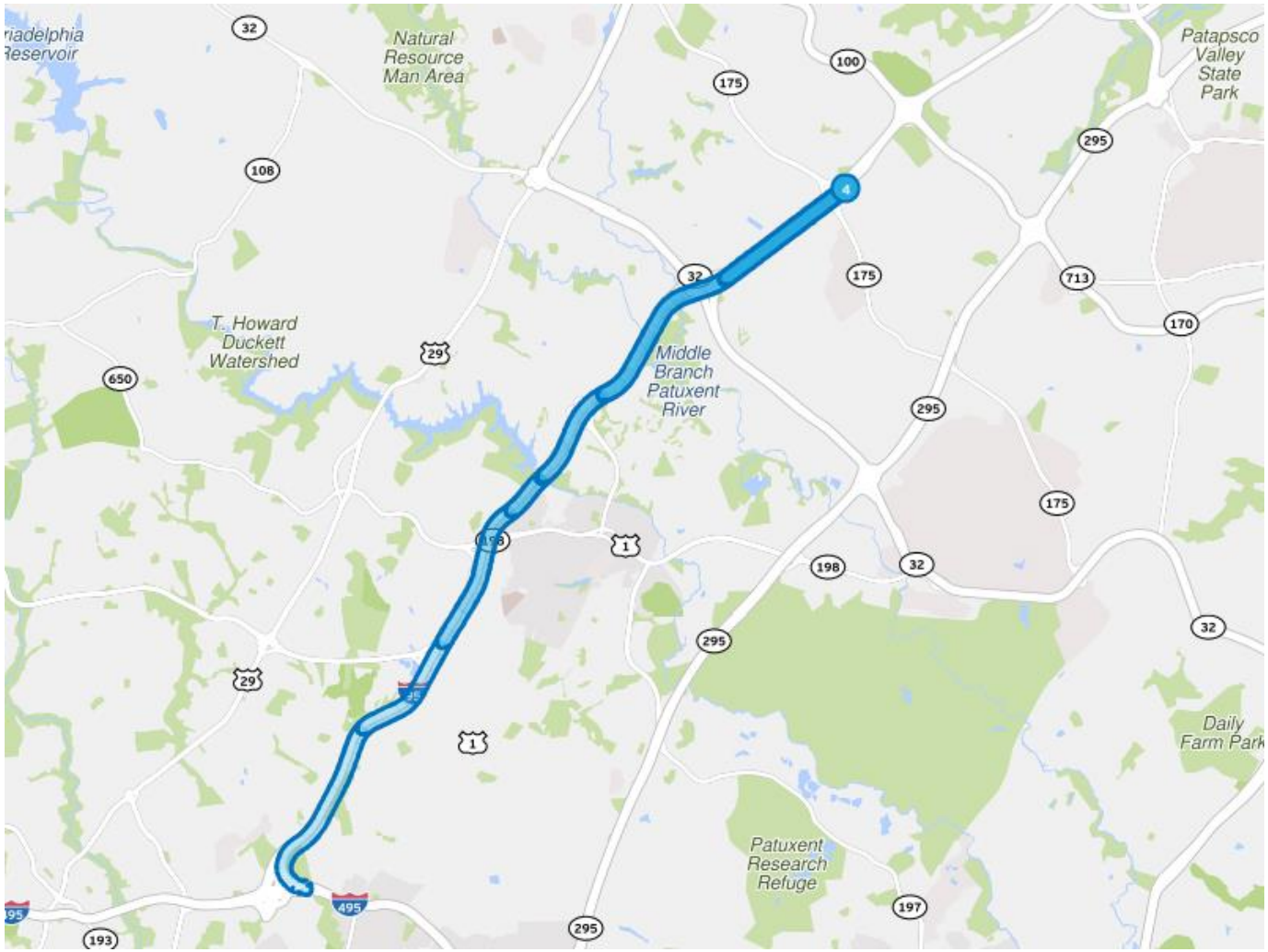
#3 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ I-83/MD-25/EXIT 23	3.00	3 h 11 m	685	95235



#4 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

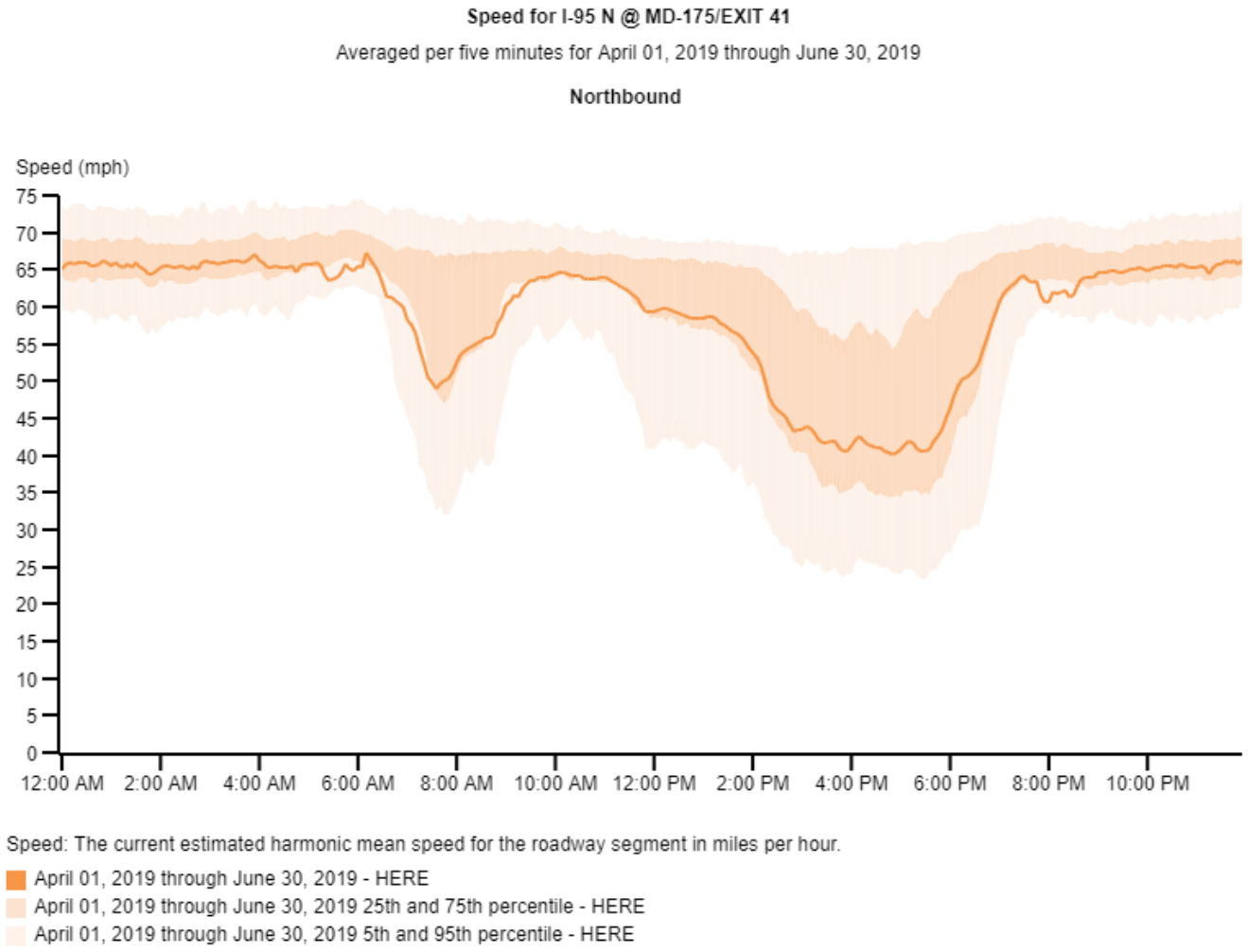
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-175/EXIT 41	5.16	2 h 23 m	246	95299



Notes: *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.*

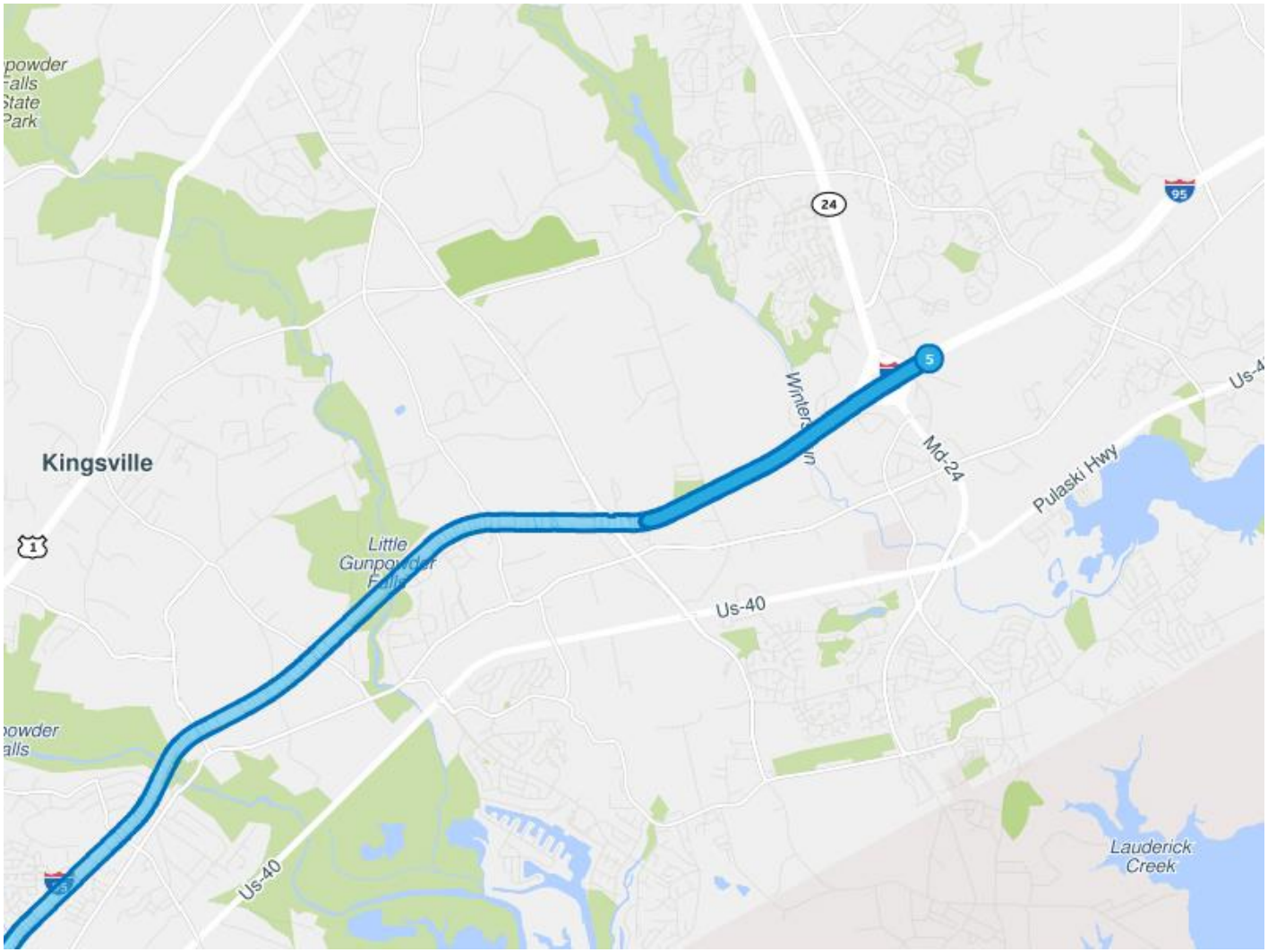
#4 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-175/EXIT 41	5.16	2 h 23 m	246	95299



#5 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

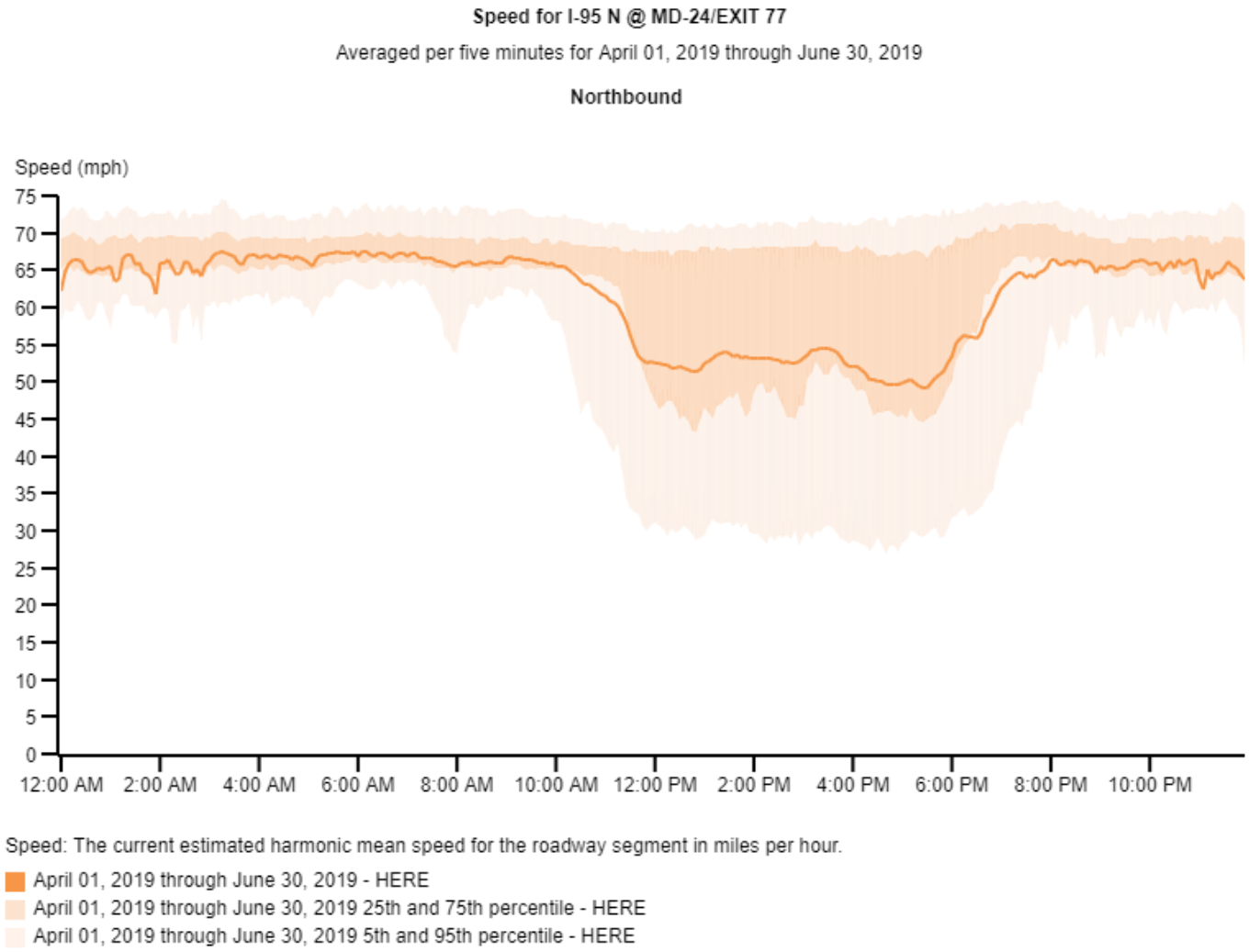
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-24/EXIT 77	4.00	1 h 49 m	261	76606



Notes: *MD 152 to MD 24 Auxiliary Lane & MD 24 Ramp Improvements. Off peak shoulder and lane closures.*

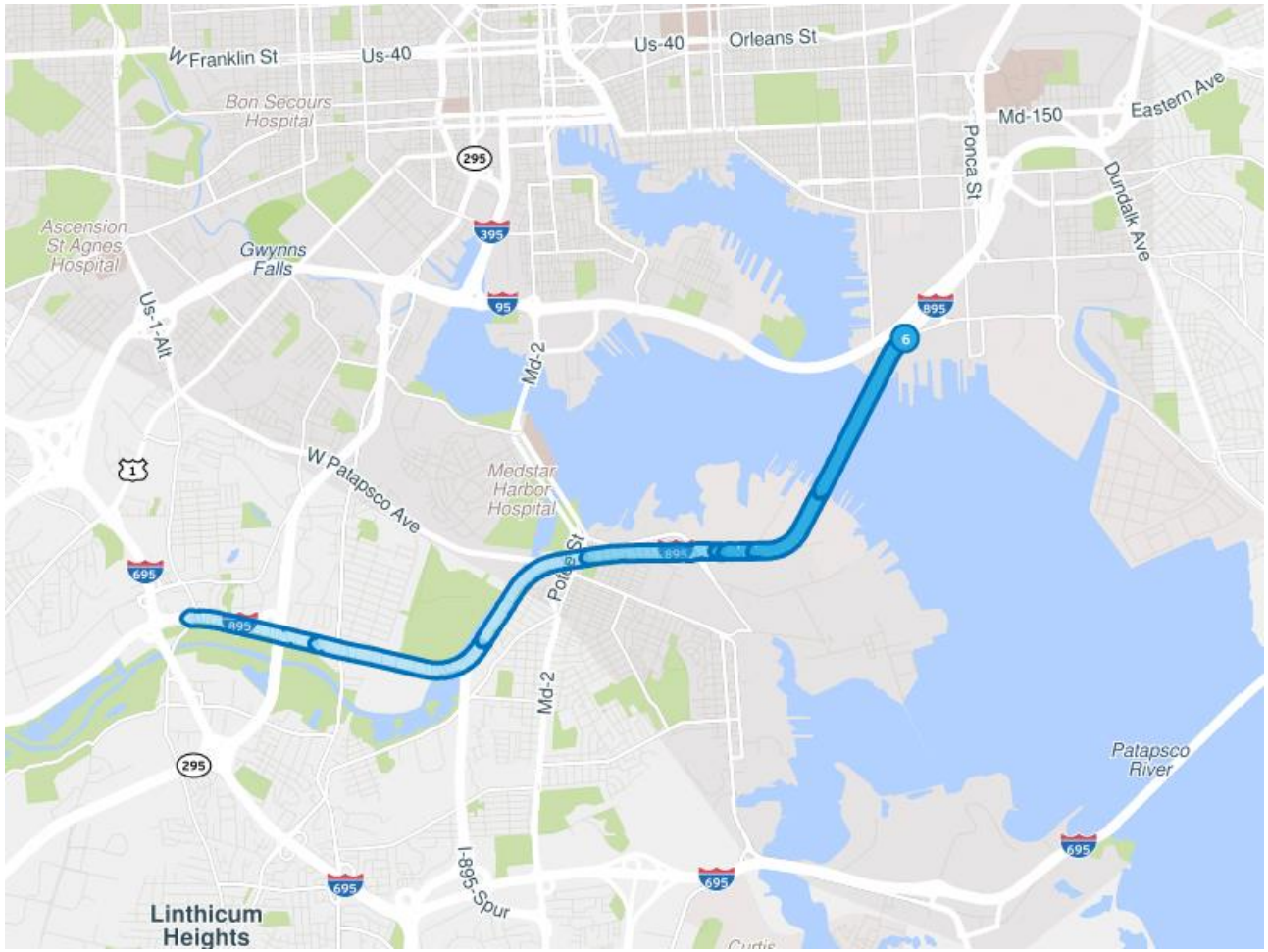
#5 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 N @ MD-24/EXIT 77	4.00	1 h 49 m	261	76606



#6 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

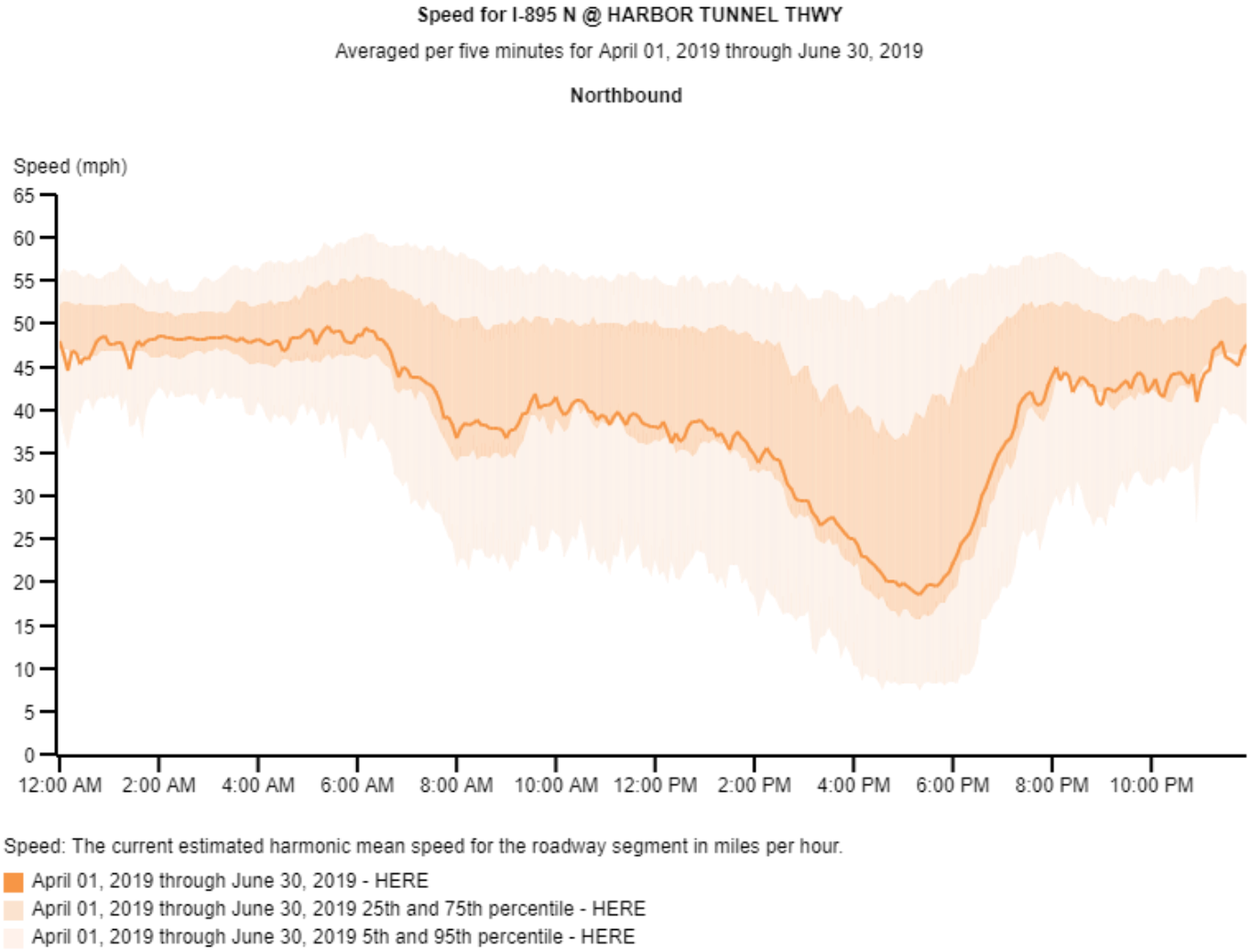
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-895 N @ HARBOR THUNNEL THWY	2.49	4 h 02 m	165	28370



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-895major-roadwork-coming-i-895-baltimore*

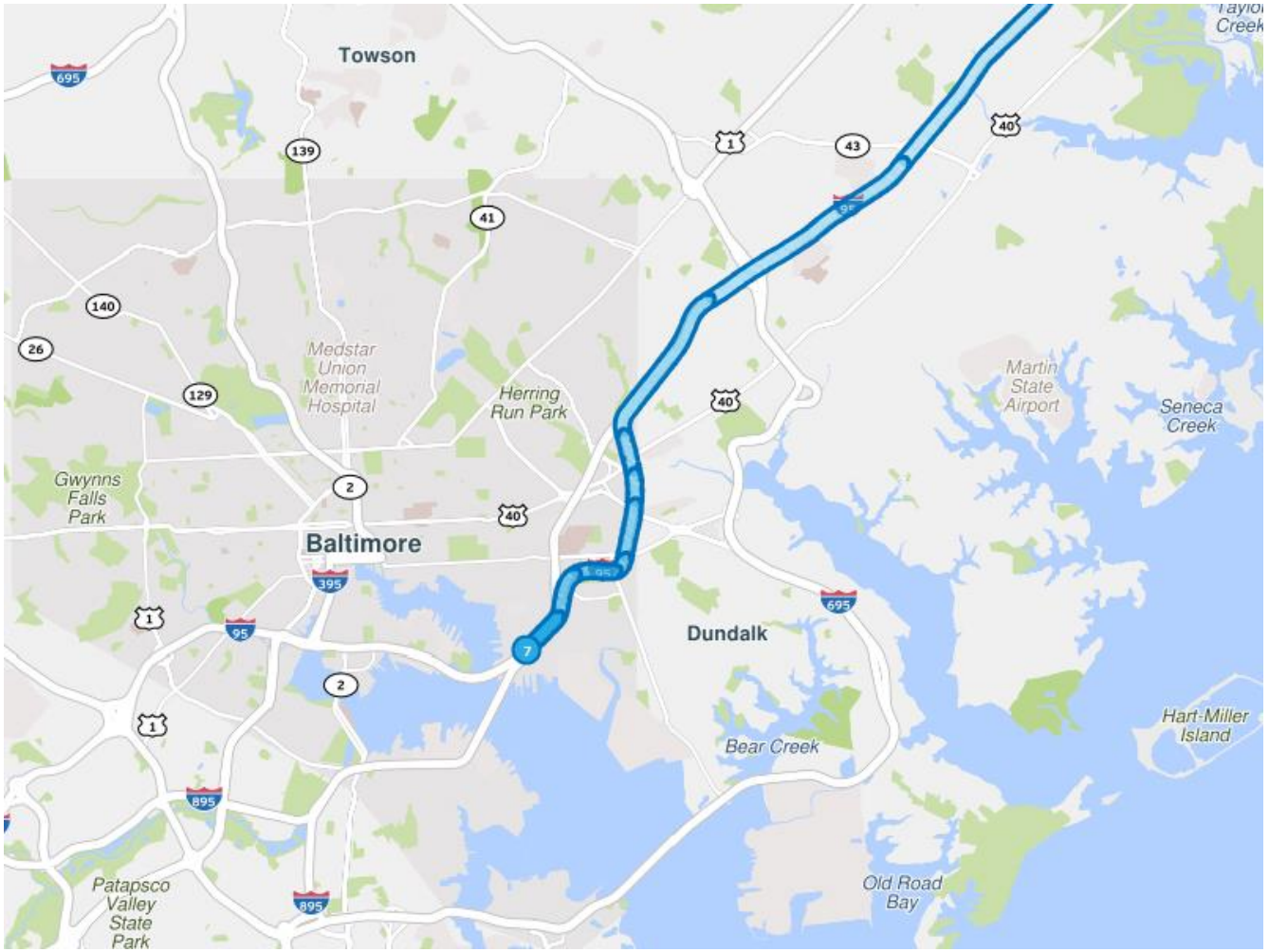
#6 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-895 N @ HARBOR THUNNEL THWY	2.49	4 h 02 m	165	28370



#7 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

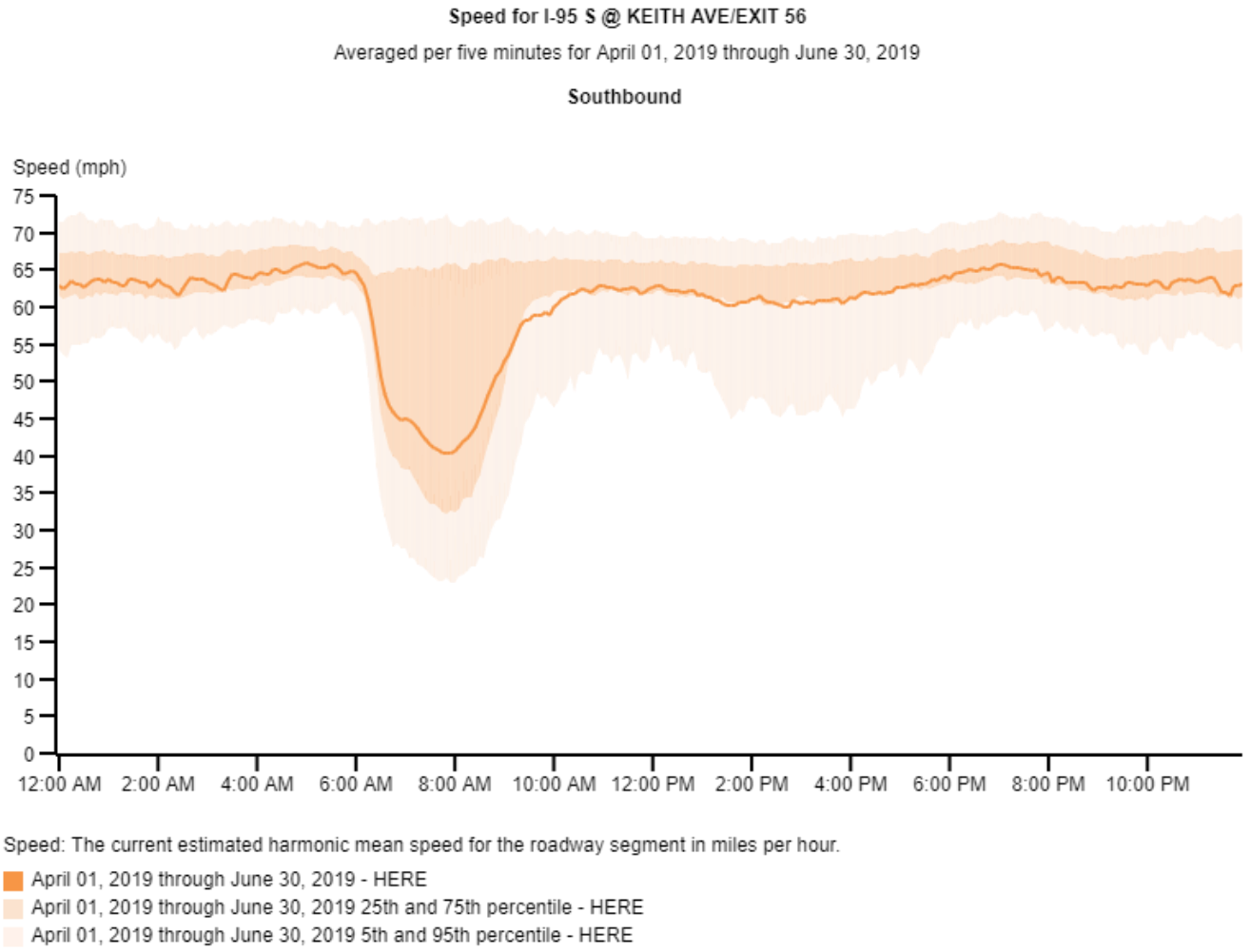
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 S @ KEITH AVE/EXIT 56	1.42	3 h 14 m	505	64999



Note: *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 MD43. 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*

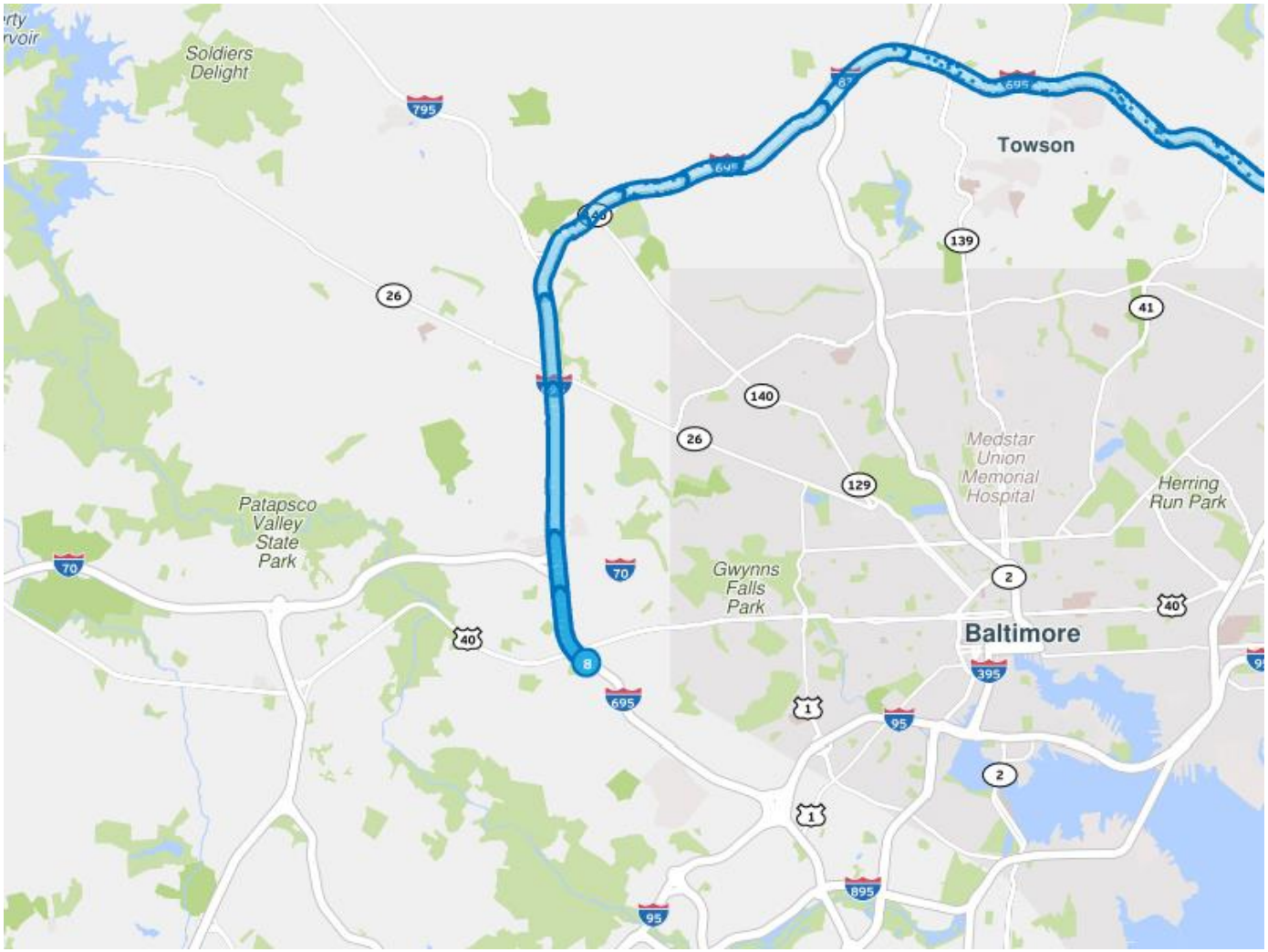
#7 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-95 S @ KEITH AVE/EXIT 56	1.42	3 h 14 m	505	64999



#8 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 OL @ US-40/EXIT 15	3.64	2 h 45 m	880	85475



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. Delays are generally volume related.. A beltway widening project is underway in the area.*

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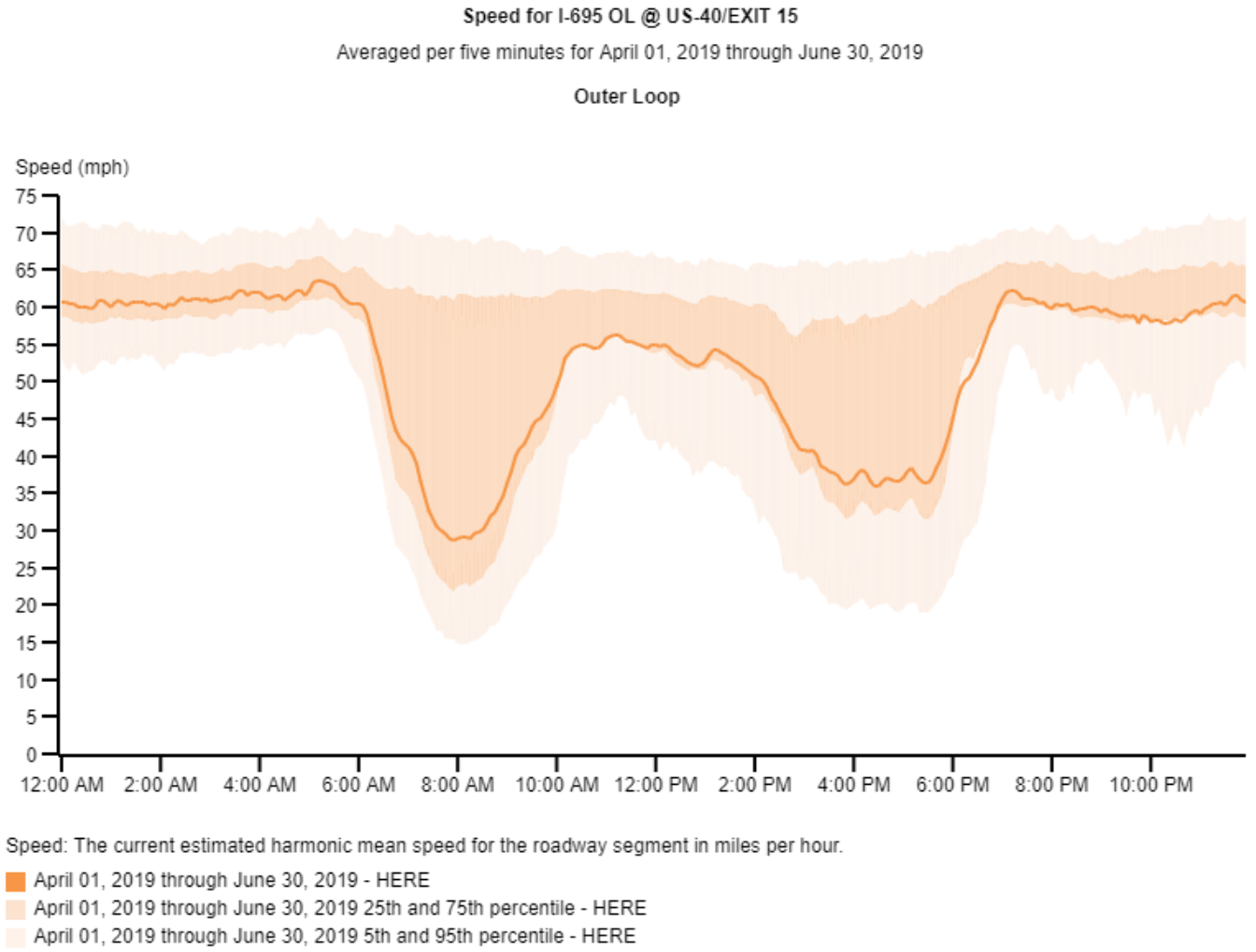
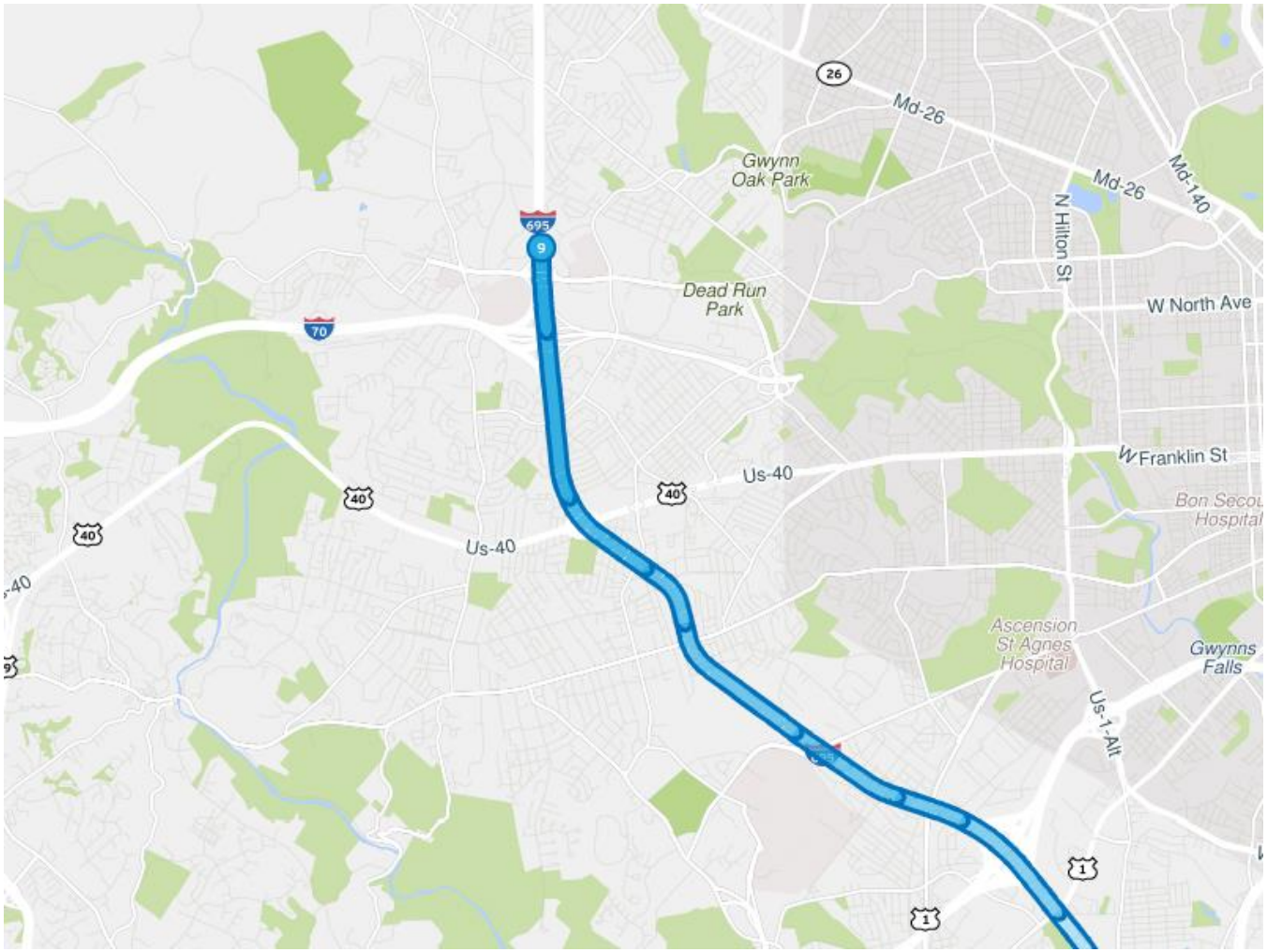
I-695 OL @ US-40/EXIT 15	3.64	2 h 45 m	880	85475



#9 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

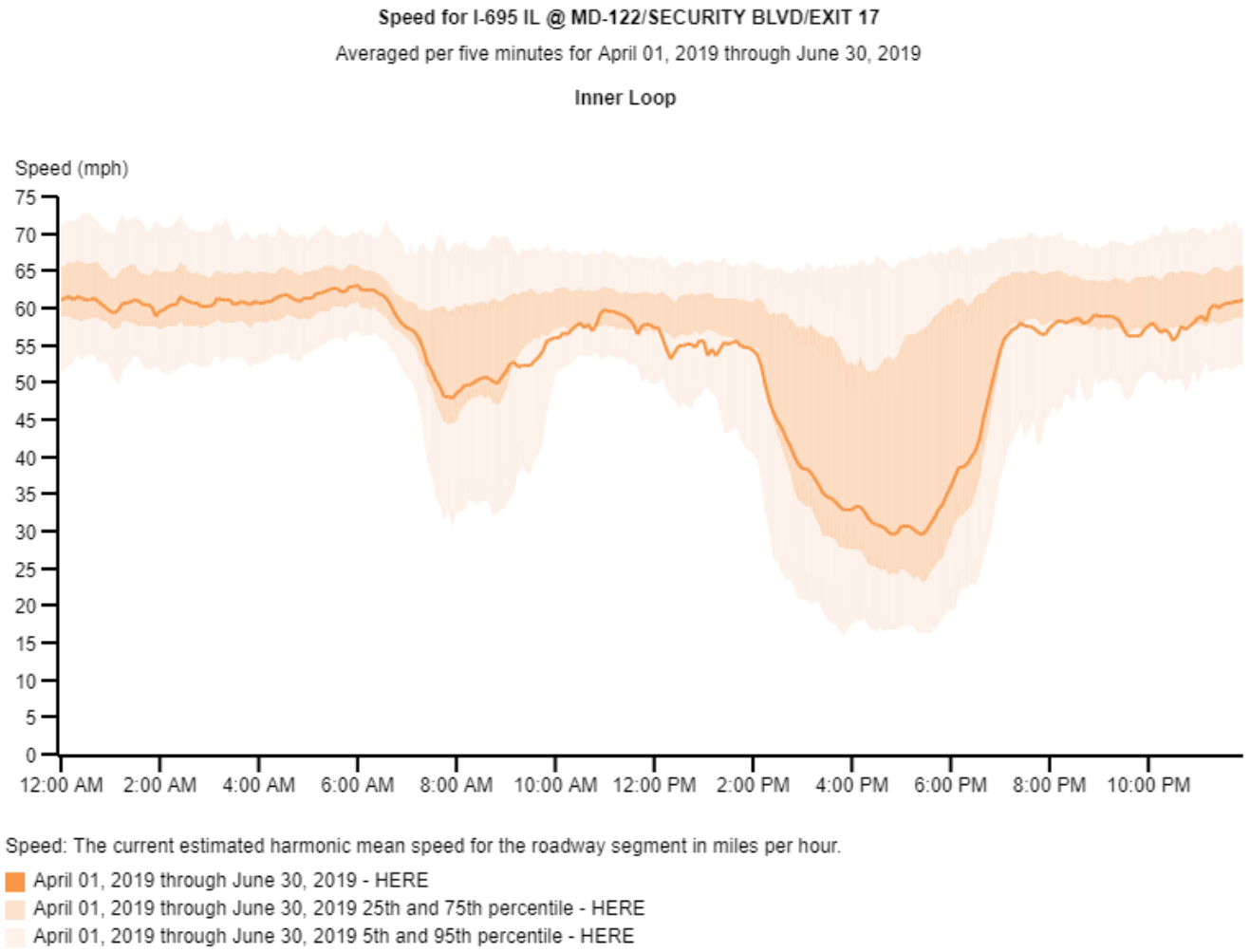
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ MD-122/SECURITY BLVD/EXIT 17	3.54	2 h 22 m	425	82190



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*

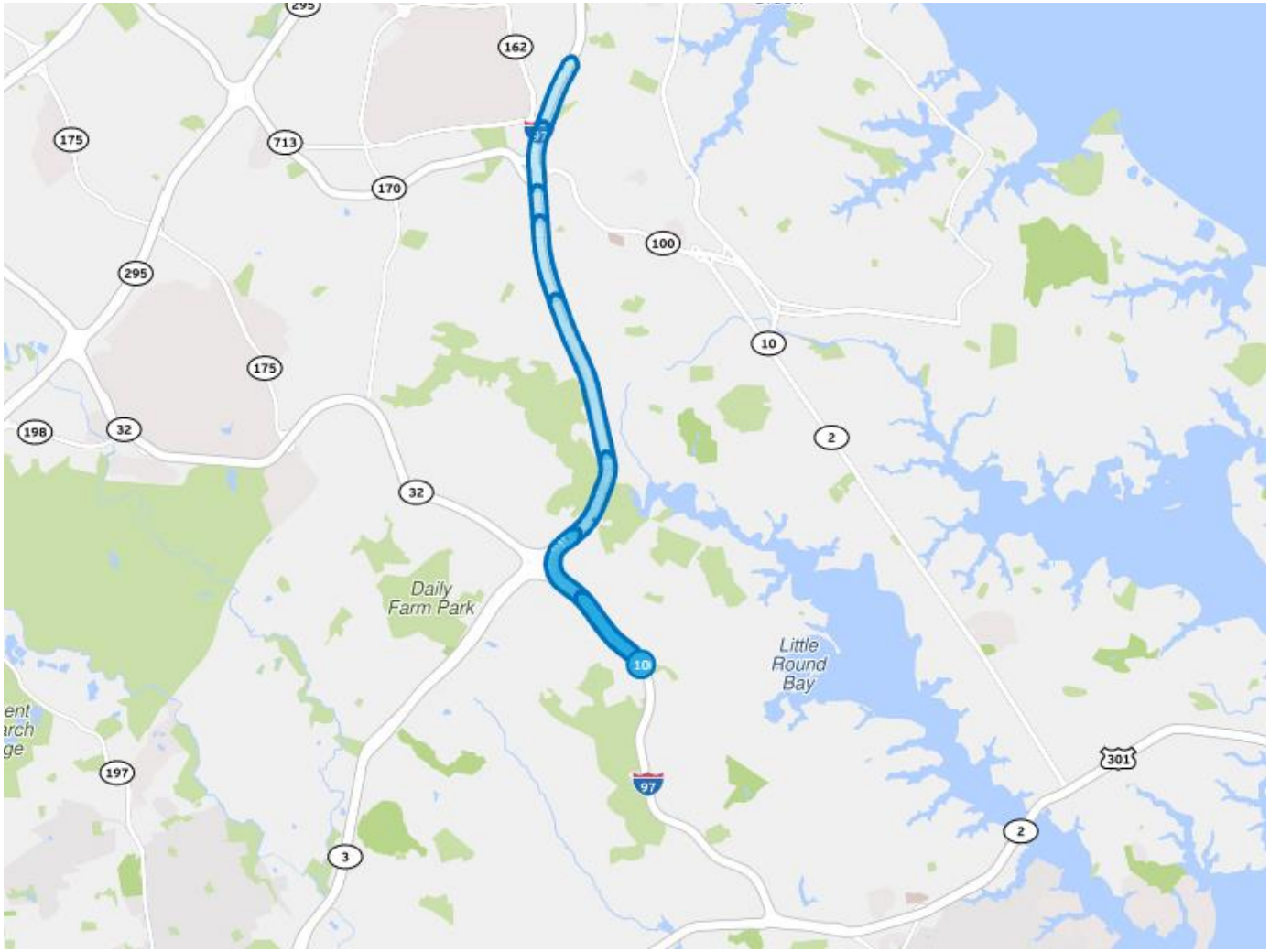
#9 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-695 IL @ MD-122/SECURITY BLVD/EXIT 17	3.54	2 h 22 m	425	82190



#10 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

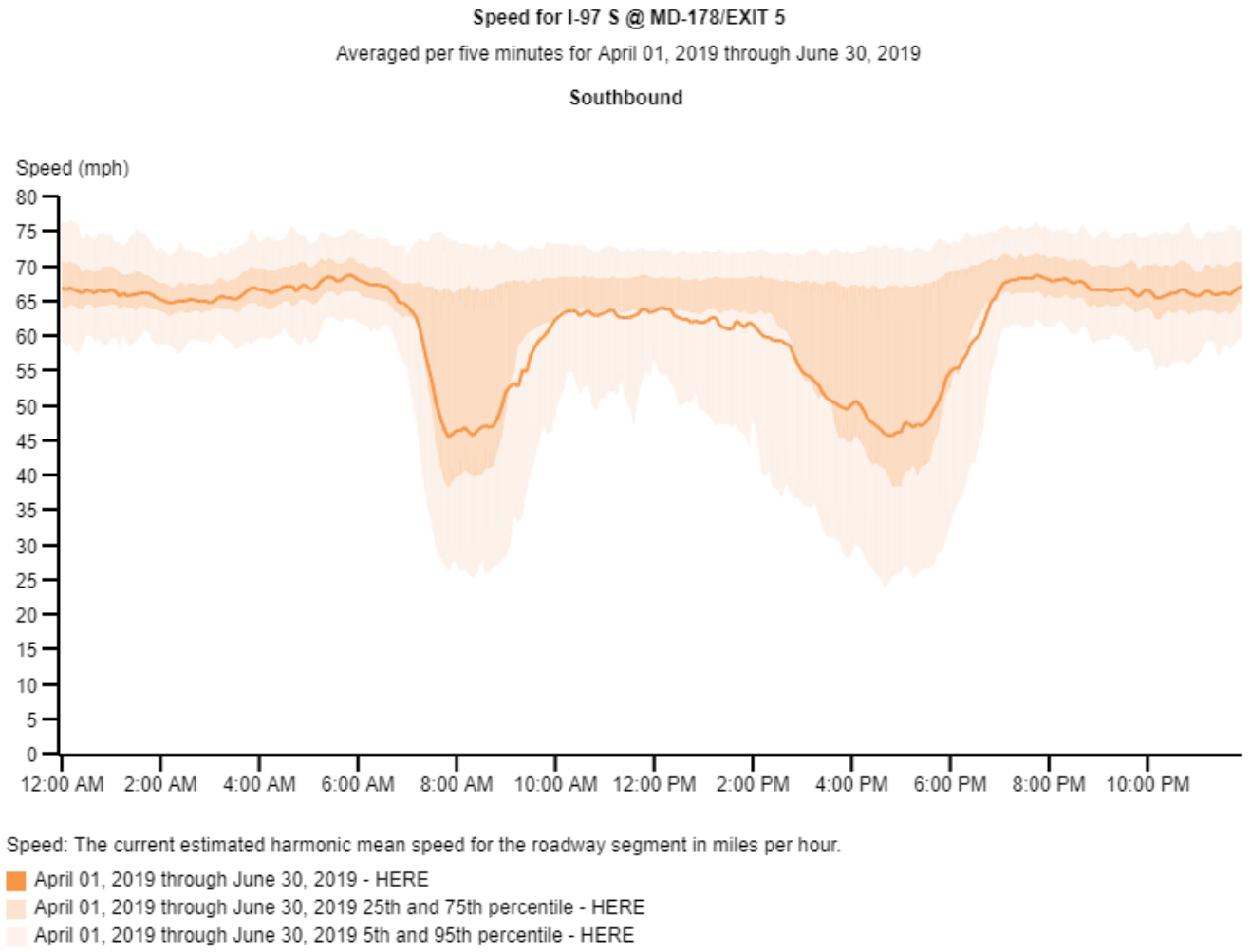
Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-97 S @ MD-178/EXIT 5	2.83	2 h 55 m	313	61571



Notes: *Major curve and merge at MD-32 causes slowdowns in both the AM and PM rush hours.*

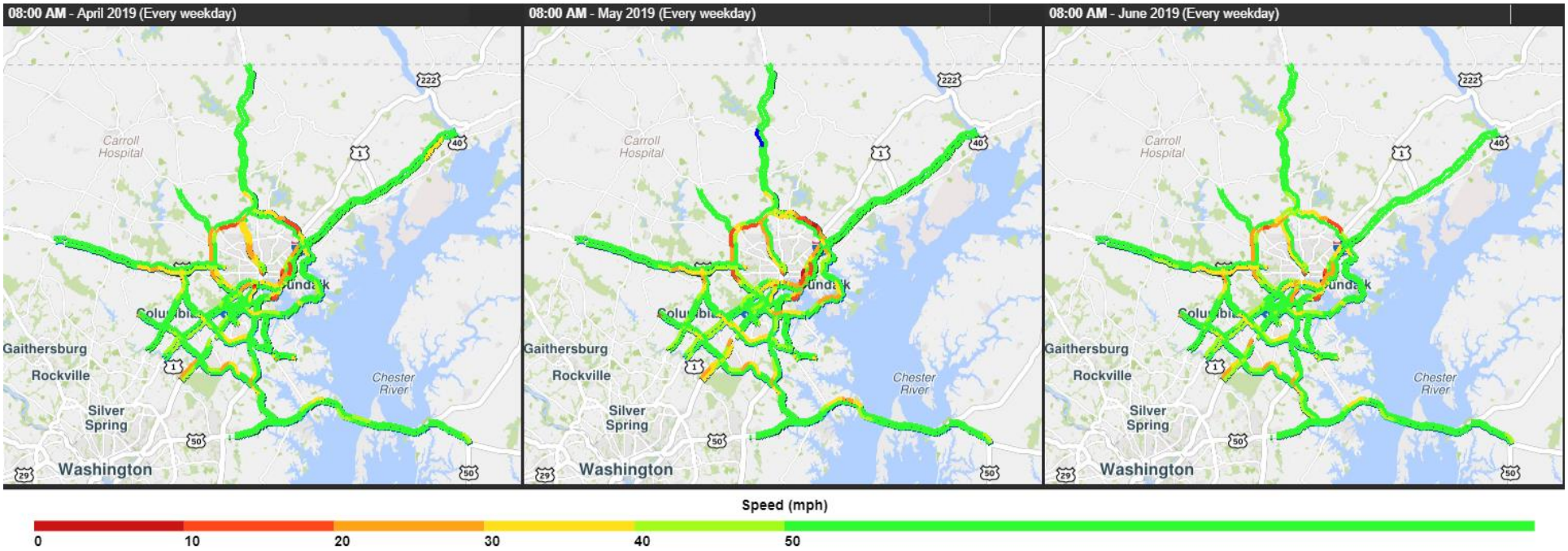
#10 Ranked Bottleneck in the Baltimore Region – 2nd Quarter 2019

Location	Average max length (miles)	Average Daily Duration	All Events/ Incidents	Volume Estimate (AADT)
I-97 S @ MD-178/EXIT 5	2.83	2 h 55 m	313	61571



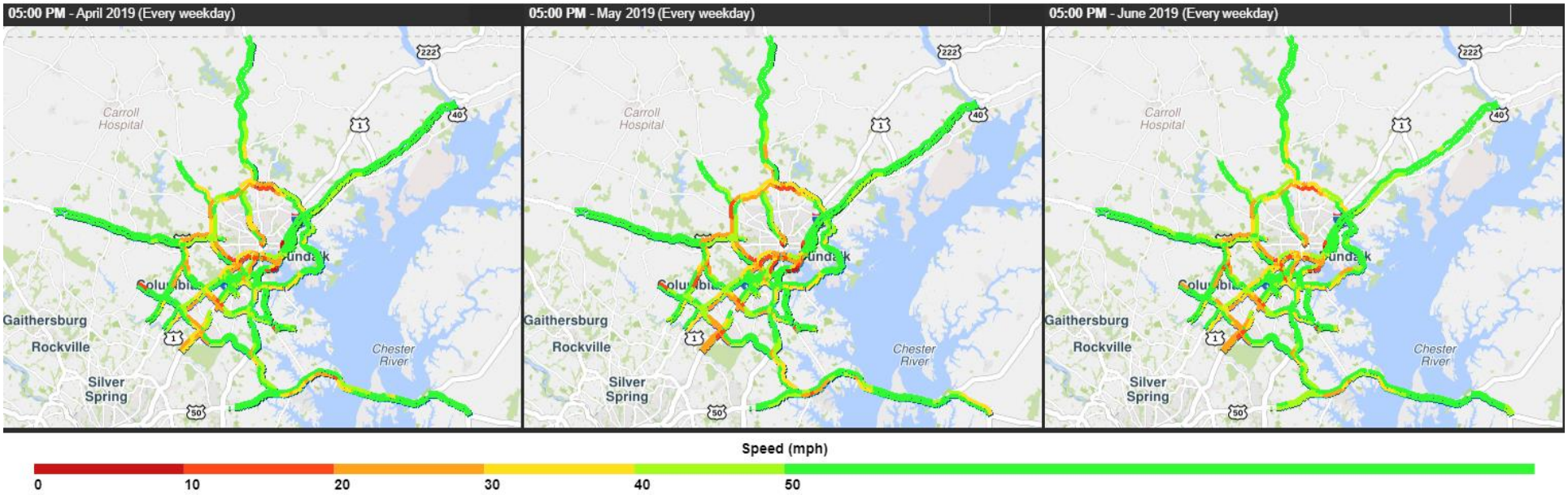
Average Speed Maps – AM Peak Period 8:00-9:00 Weekdays: 2nd Quarter 2019

BMC Region Limited Access Speed Trend Map for April 2019 (Every weekday) and May 2019 (Every weekday) and June 2019 (Every weekday)



Average Speed Maps – PM Peak Period 5:00-6:00 Weekdays: 2nd Quarter 2019

BMC Region Limited Access Speed Trend Map for April 2019 (Every weekday) and May 2019 (Every weekday) and June 2019 (Every weekday)



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*

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