BALTIMORE METROPOLITAN COUNCIL

# Quarterly Congestion Analysis Report for the Baltimore Region

## Top 10 Bottleneck Locations

4th Quarter 2019

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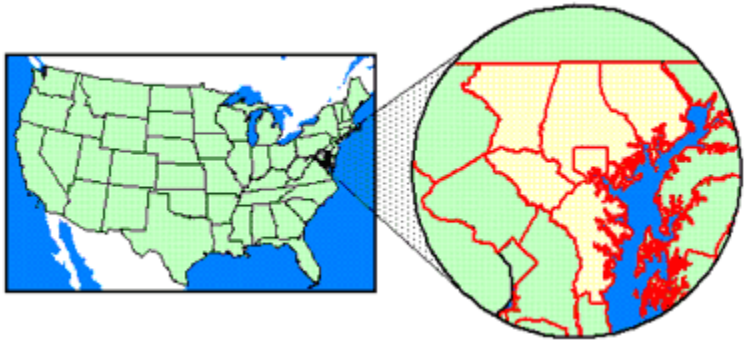
# About the Region

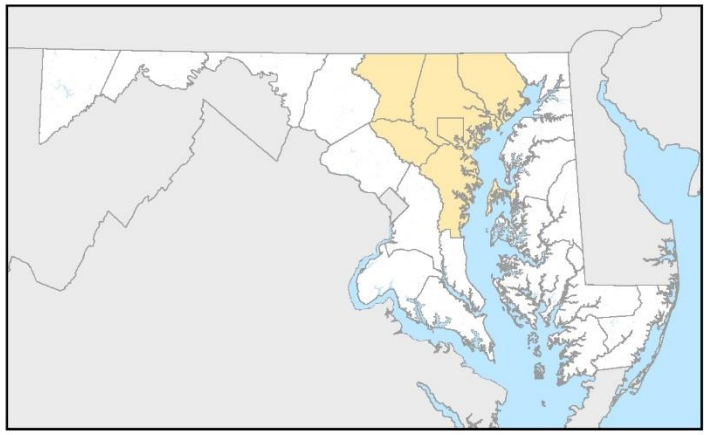
Located in the heart of the Mid-Atlantic on the east coast, the Baltimore region includes:




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

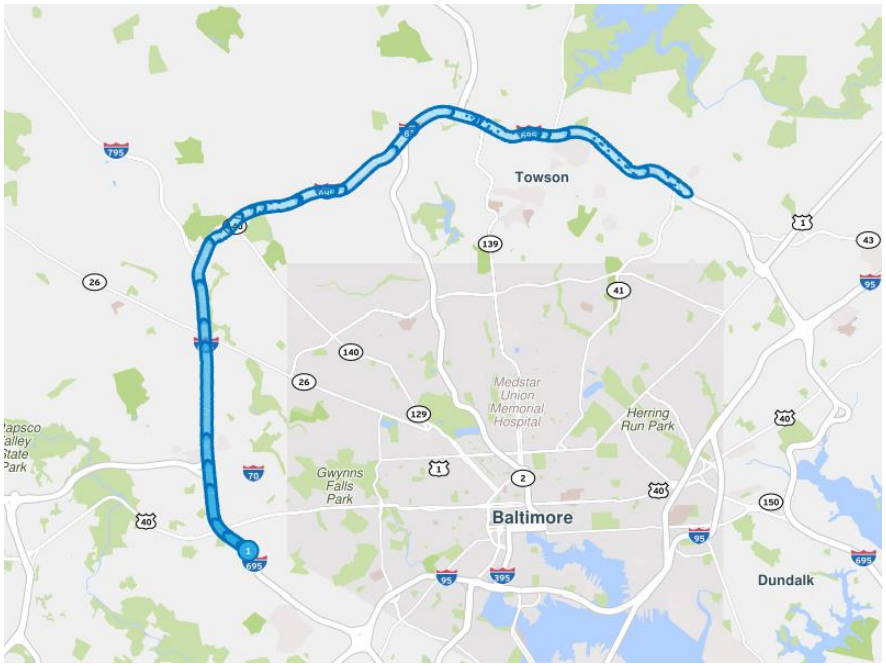
## How are bottleneck conditions tracked?

- **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

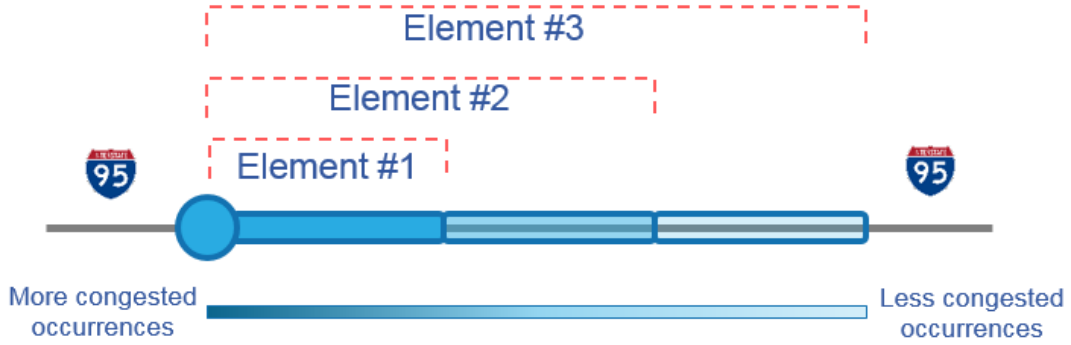
| Rank | Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|---|
| | | | | | |
| 1 | I-695 OL @ EDMONDSON AVE/EXIT 14 | 5.01 | 2 h 43 m | 834 | 88946 |
| 2 | I-695 IL @ I-83/MD-25/EXIT 23 | 3.53 | 2 h 56 m | 463 | 95048 |
| 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

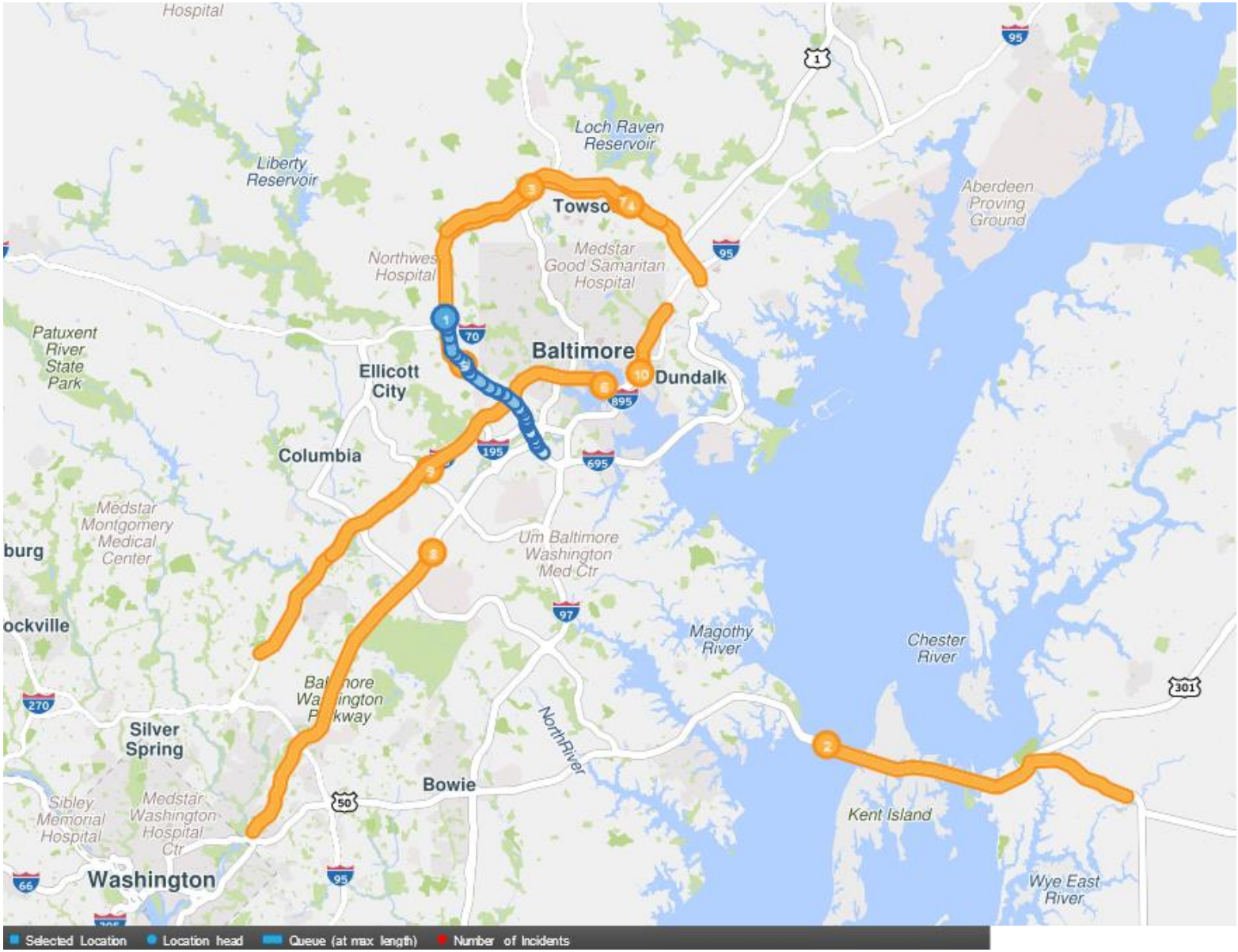



The Map view displays selected bottlenecks on a map. Each element occurring at the selected location is layered on the map, extending upstream from the head location to the maximum length of the specific *element*. As each element adds another layer on the map, road segments become more opaque. Segments 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
## 4th Quarter 2019

Overview Map



## Top 10 Bottlenecks in the Baltimore Region
## 4th Quarter 2019

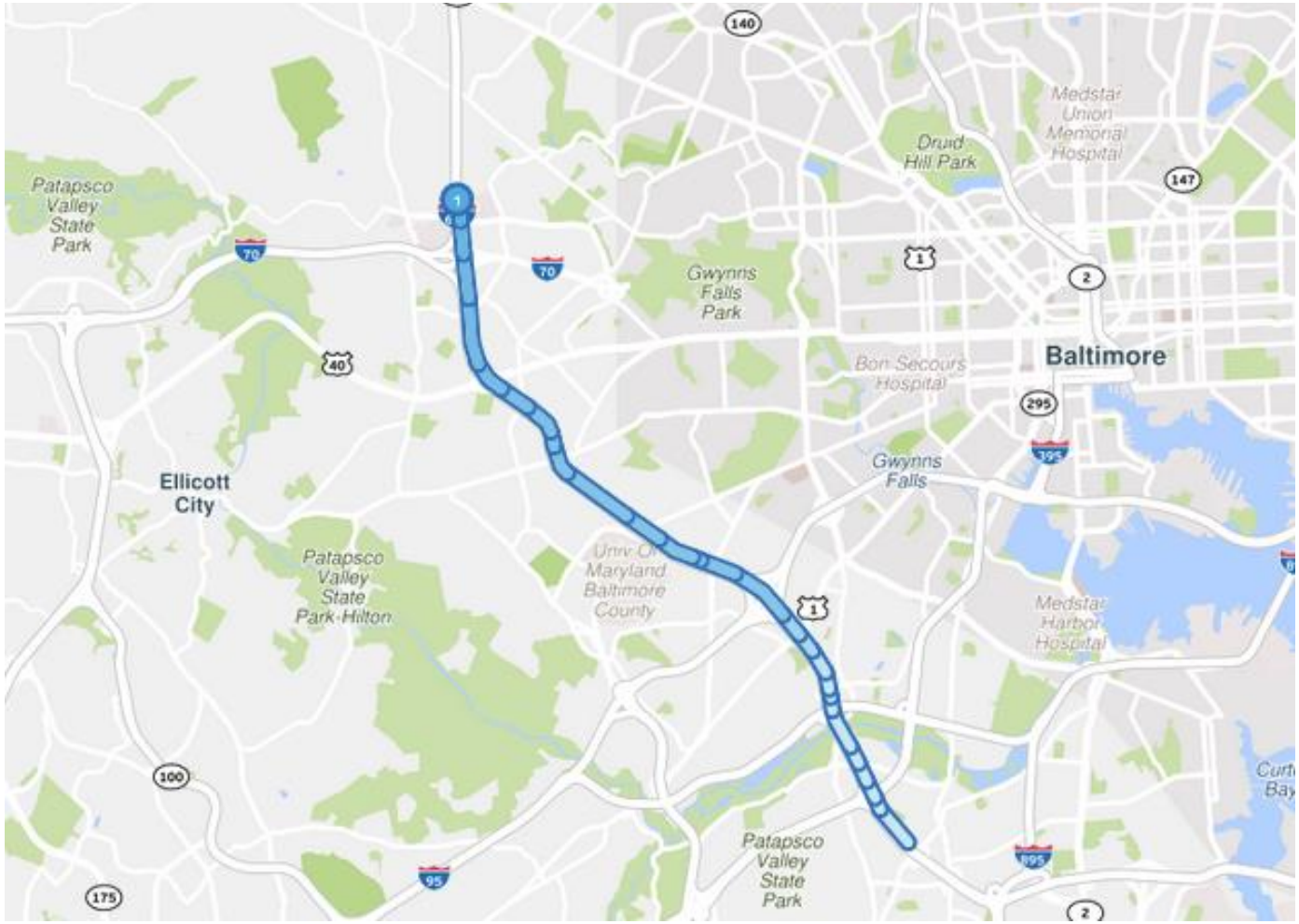
**Ranked by Base Impact** – the aggregation of queue length over time for congestion at each location in mile minutes. This table indicates the top 10 congested corridors in the region.

| Rank | Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|---|
| 1 | I-695 IL @ SECURITY BLVD/EXIT 17 | 2.88 | 2 h 52 m | 336 | 101,421 |
| 2 | US-50 W @ BAY BRIDGE | 4.00 | 2 h 14 m | 319 | 30,773 |
| 3 | I-695 IL @ I-83/MD-25/EXIT 23 | 3.45 | 1 h 51 m | 211 | 98,092 |
| 4 | I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29 | 4.80 | 1 h 14 m | 451 | 86,029 |
| 5 | I-695 OL @ EDMONDSON AVE/EXIT 14 | 4.73 | 42 m | 677 | 101,818 |
| 6 | I-95 N @ FORT MCHENRY TUNNEL | 1.89 | 1 h 30 m | 475 | 80,751 |
| 7 | I-695 OL @ CROMWELL BRIDGE RD/EXIT 29 | 2.40 | 2 h 13 m | 204 | 79,055 |
| 8 | MD-295 N @ MD-175 | 3.86 | 1 h 13 m | 122 | 49,116 |
| 9 | I-95 N @ MD-100/EXIT 43 | 4.99 | 30 m | 198 | 102,940 |
| 10 | I-895 S @ HOLABIRD AVE/EXIT 10 | 1.10 | 3 h 04 m | 107 | 27,821 |

IL = Inner Loop  OL = Outer Loop

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

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-695 IL @ SECURITY BLVD/EXIT 17 | 2.88 | 2 h 52 m | 336 | 101,421 |




***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.*

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

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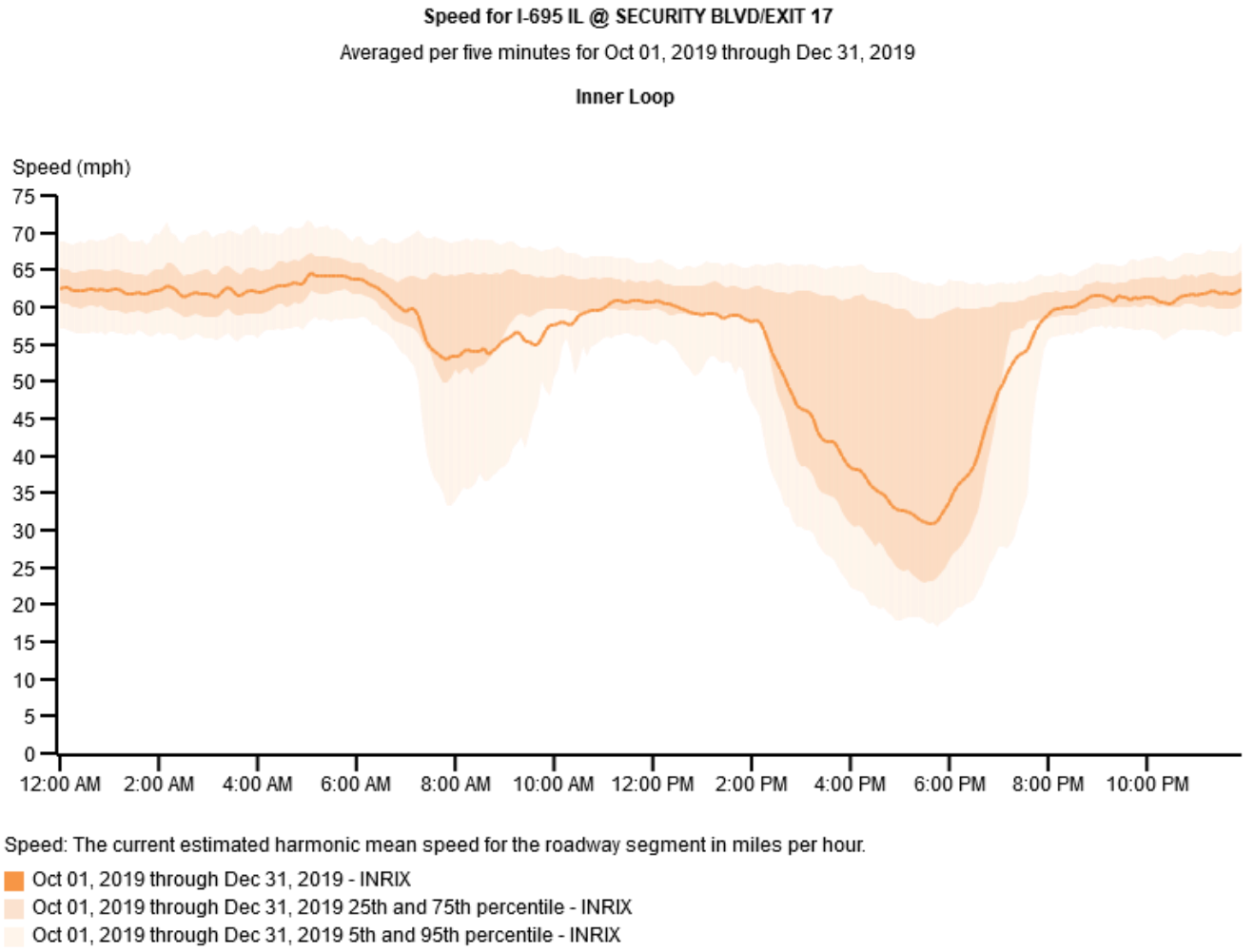
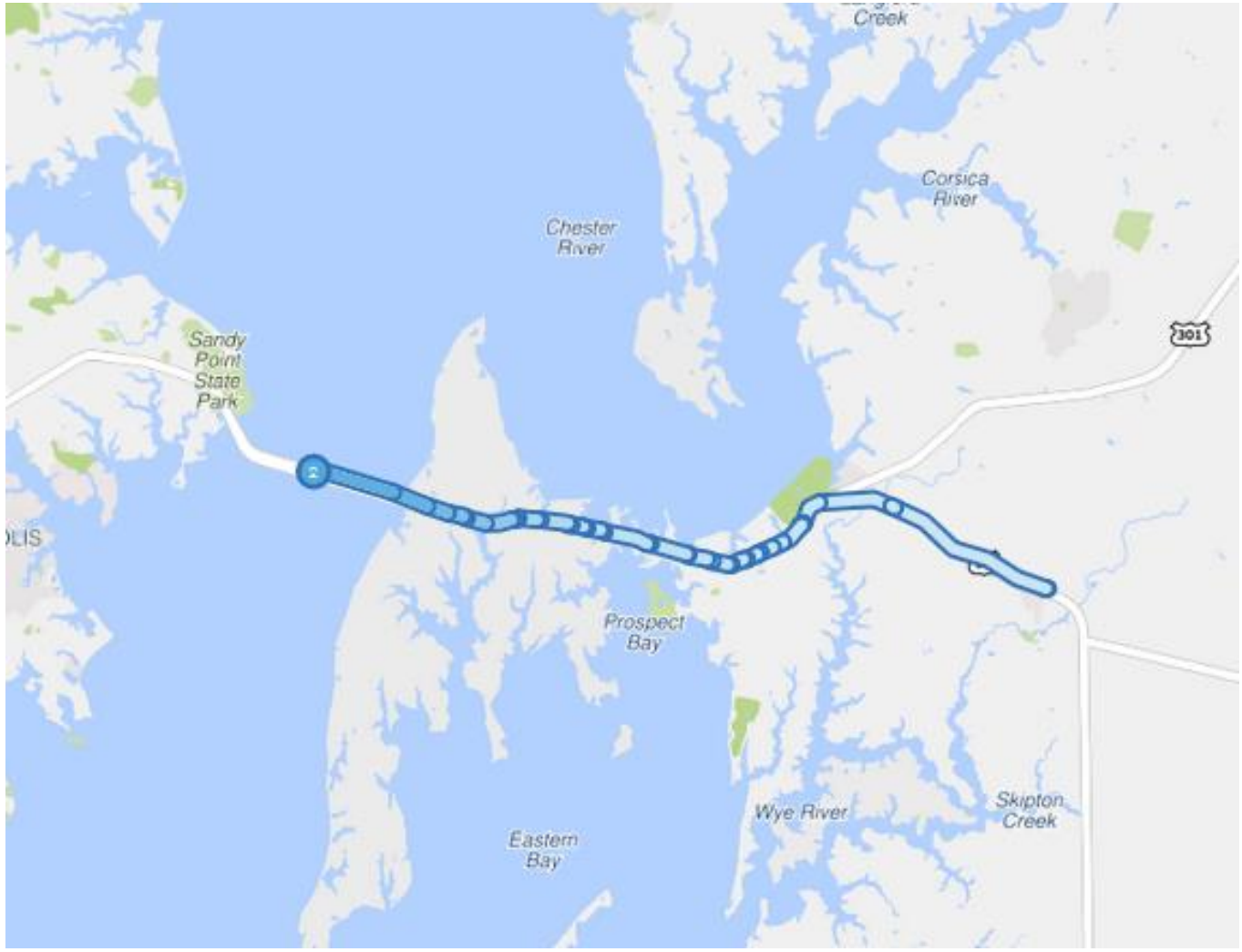


## #2 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| US-50 W @ BAY BRIDGE | 4.00 | 2 h 14 m | 319 | 30,773 |




***Notes**: Summer pattern showing return traffic from the Maryland and Delaware beaches. Weekend traffic readings show primary congestion between noon and 9pm. Westbound off peak should and lane closures due to deck rehabilitation on the Bay Bridge. Project expected end date September 7, 2023*

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

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
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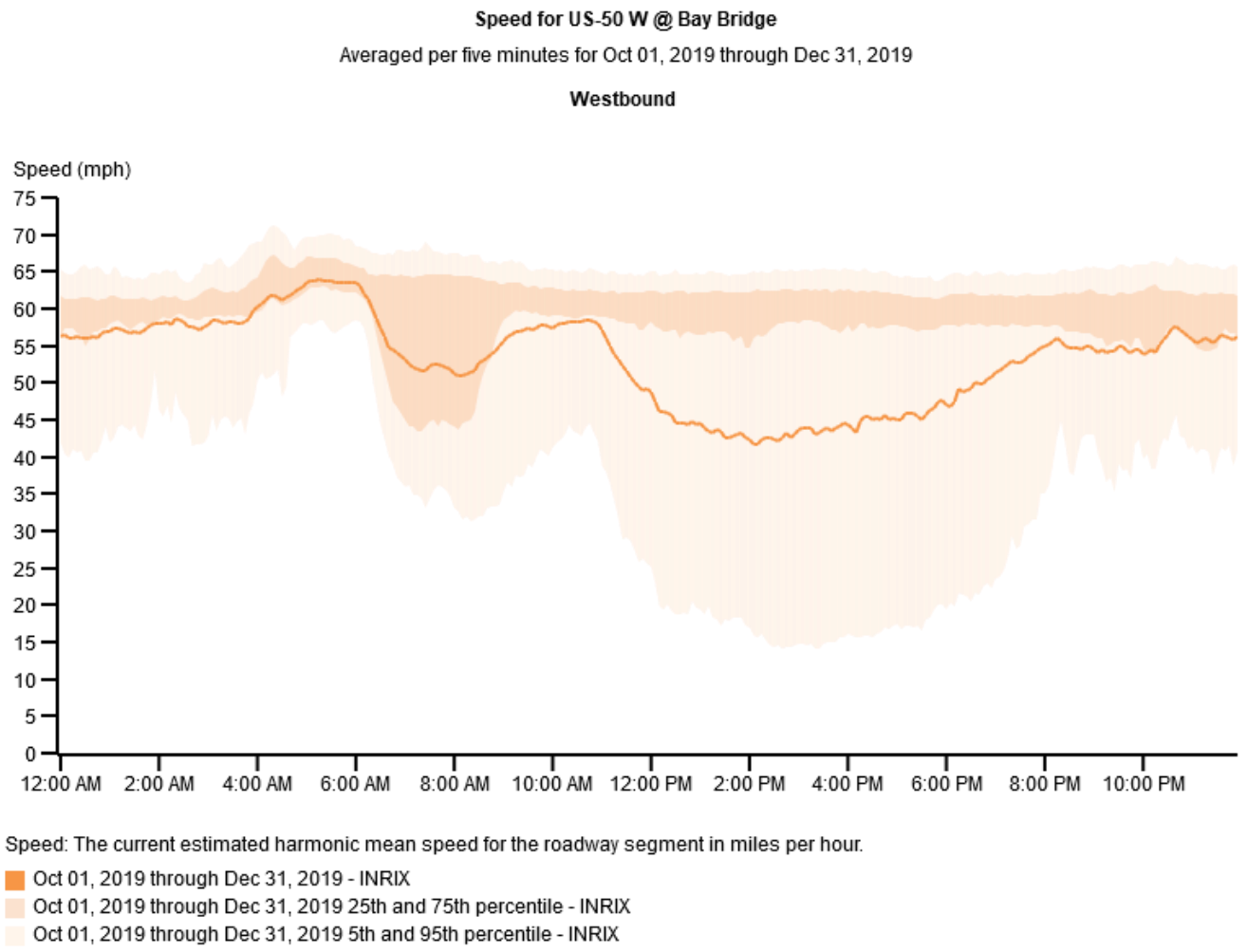
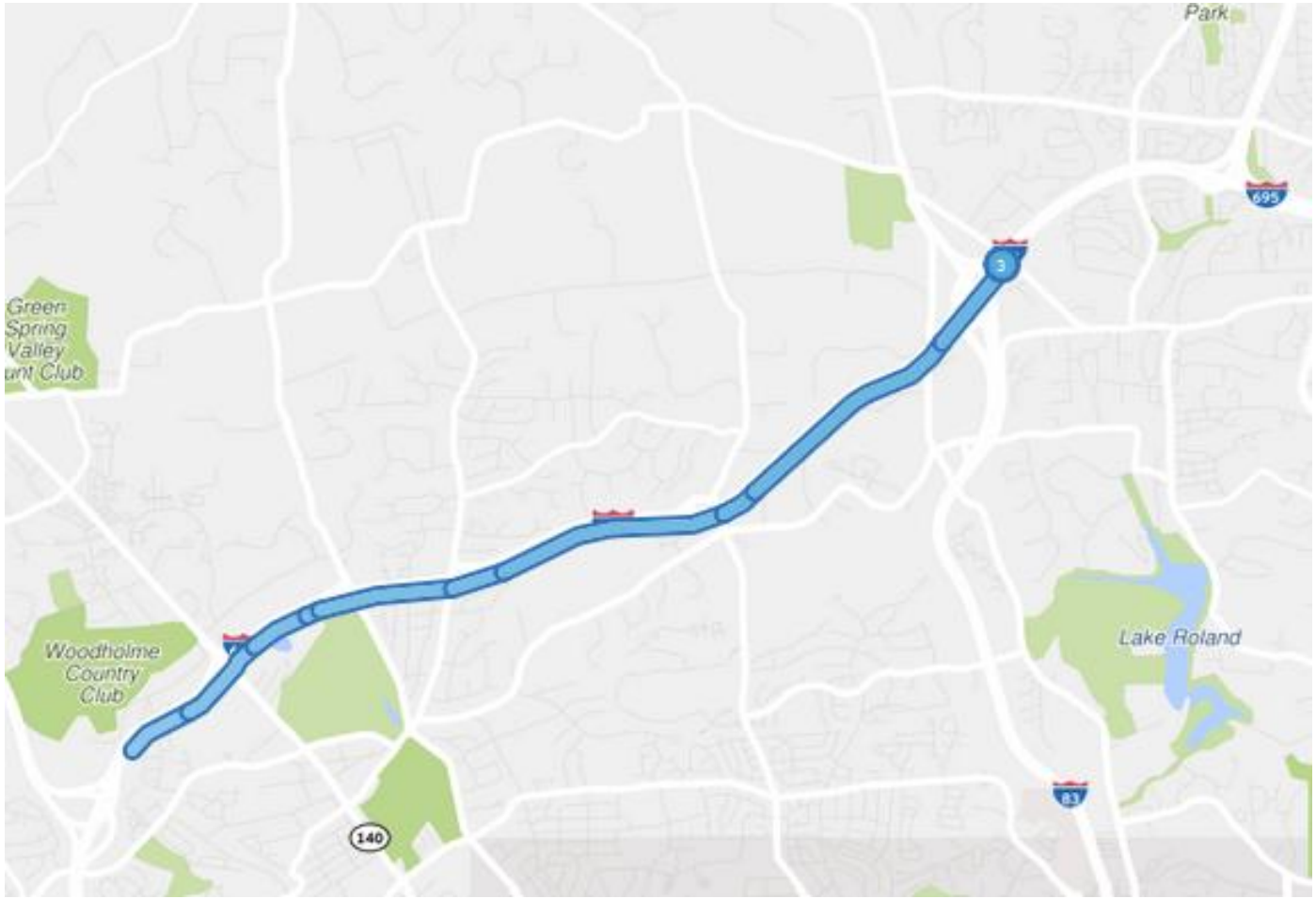
| US-50 W @ BAY BRIDGE | 4.00 | 2 h 14 m | 319 | 30,773 |



## #3 Ranked Bottleneck in the Baltimore Region – 4th 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 | 3.45 | 1 h 51 m | 211 | 98,092 |




***Notes:*** *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*

## #3 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

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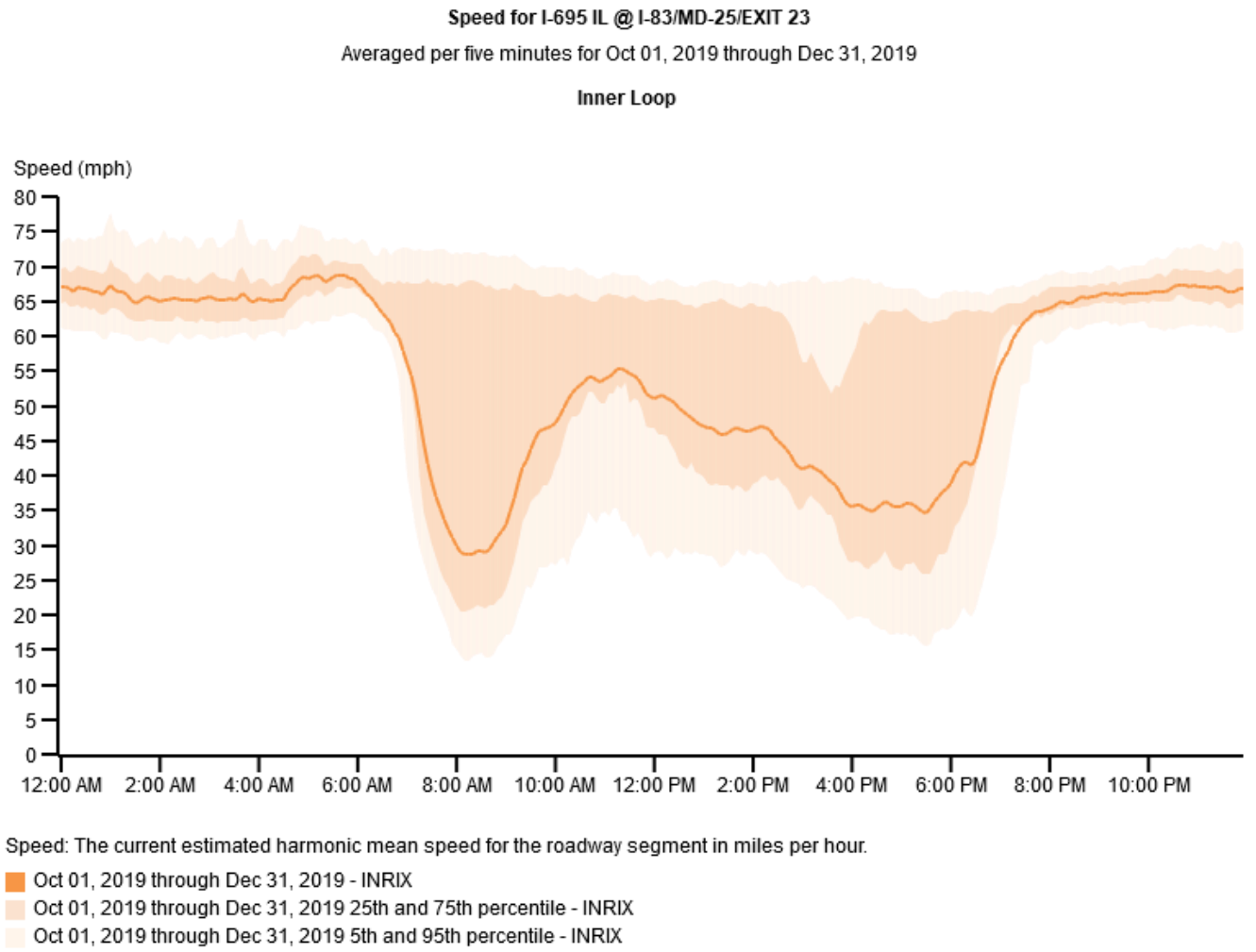
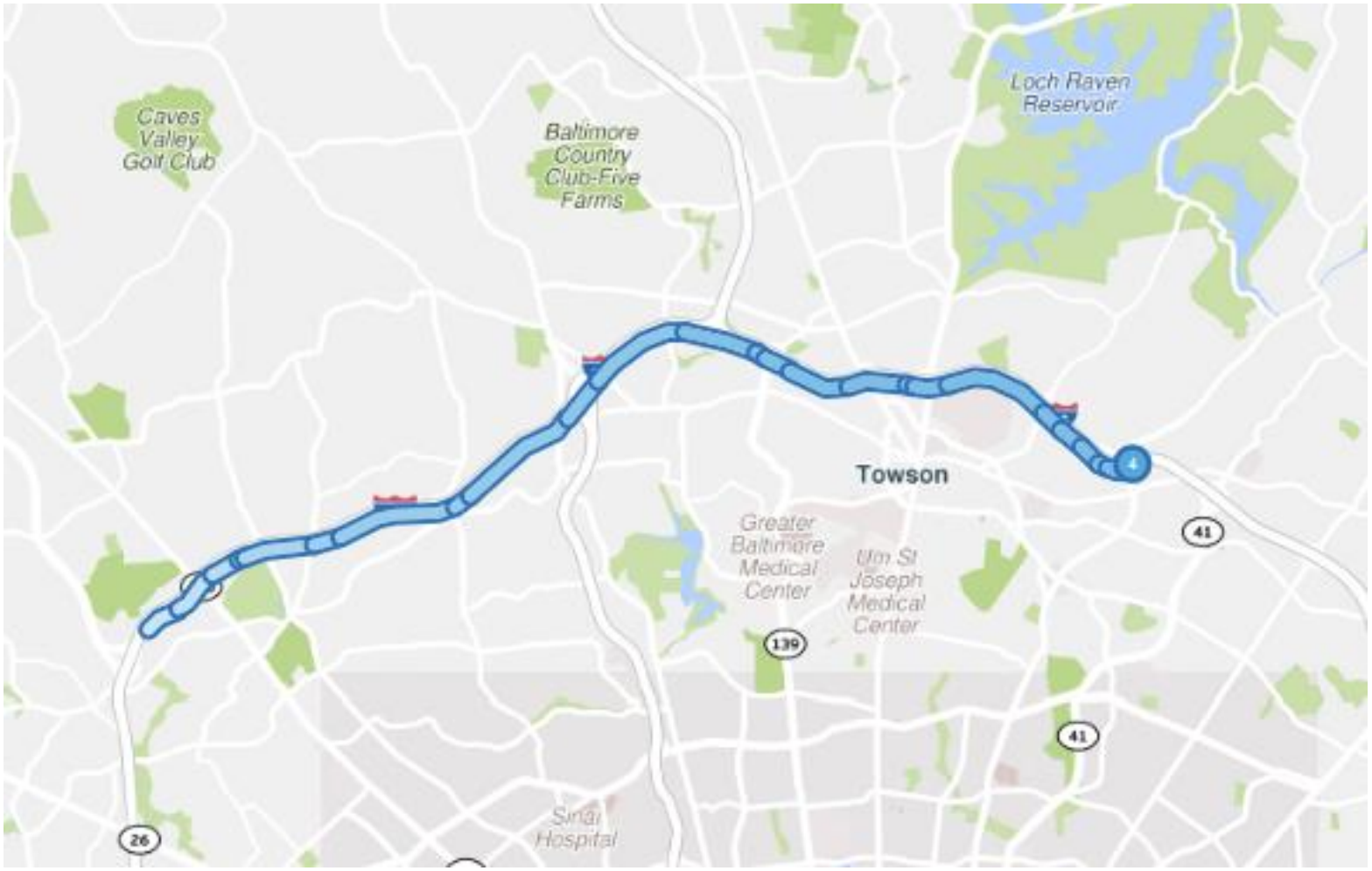
|---|---|---|---|---|
| I-695 IL @ I-83/MD-25/EXIT 23 | 3.45 | 1 h 51 m | 211 | 98,092 |



## #4 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

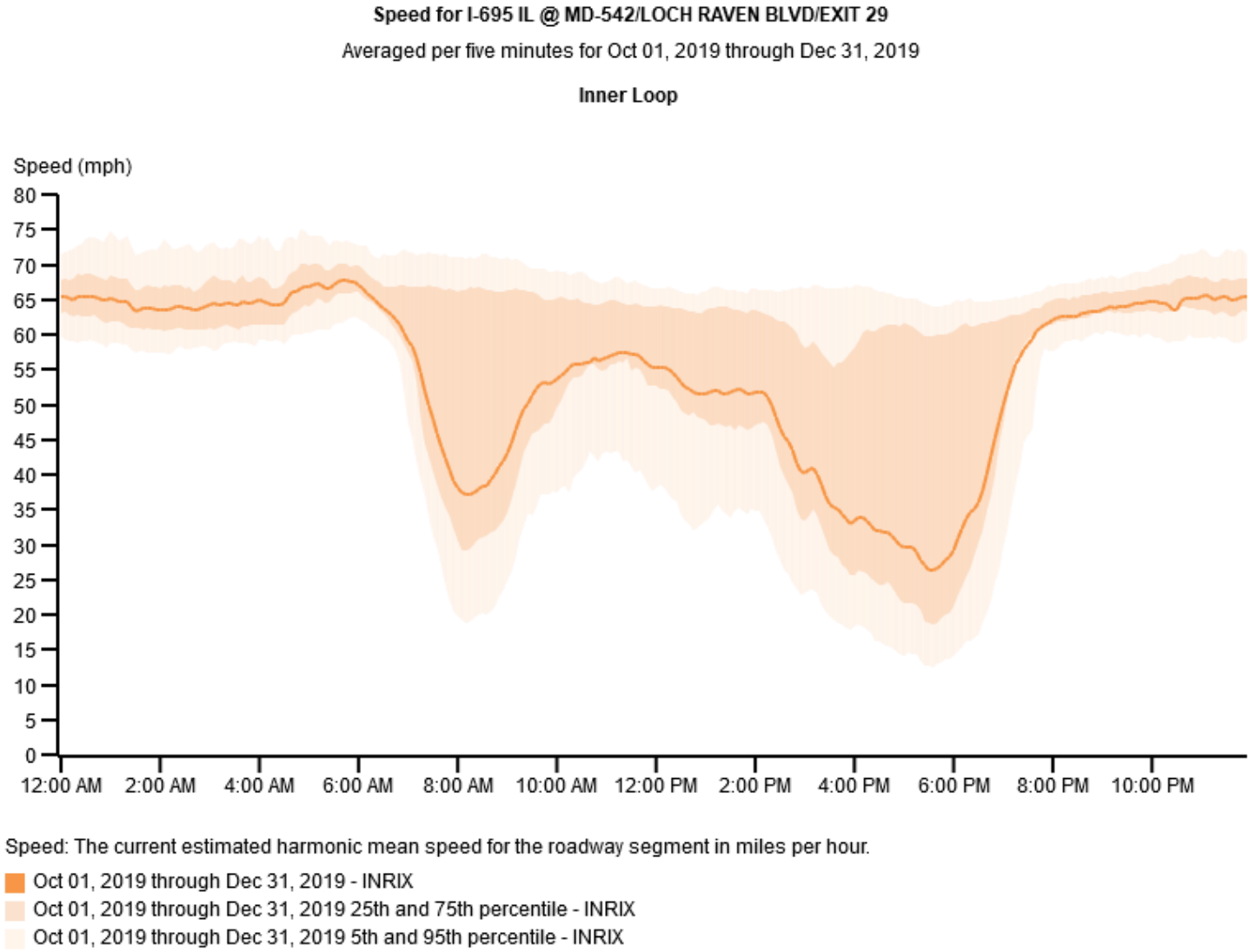
| | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29 | 4.80 | 1 h 14 m | 451 | 86,029 |




***Notes:*** *Congestion was most severe between I-83 and Providence Rd in the PM rush. Factors contributing to this long-standing and extended congested zone: merging and weaving associated with traffic at each interchange; and a lane drop (to three lanes) at MD 45 (York Rd).*

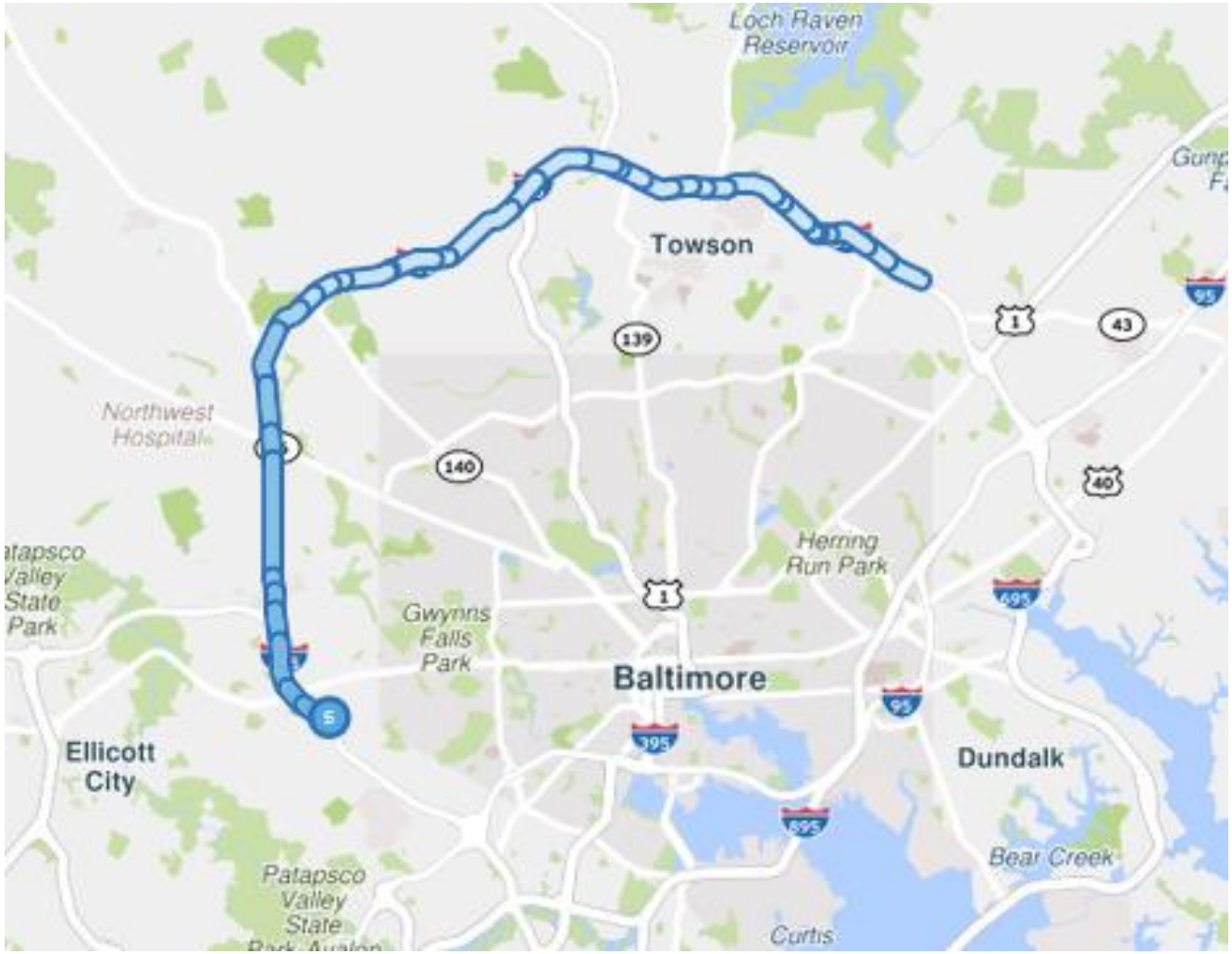
## #4 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29 | 4.80 | 1 h 14 m | 451 | 86,029 |



## #5 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

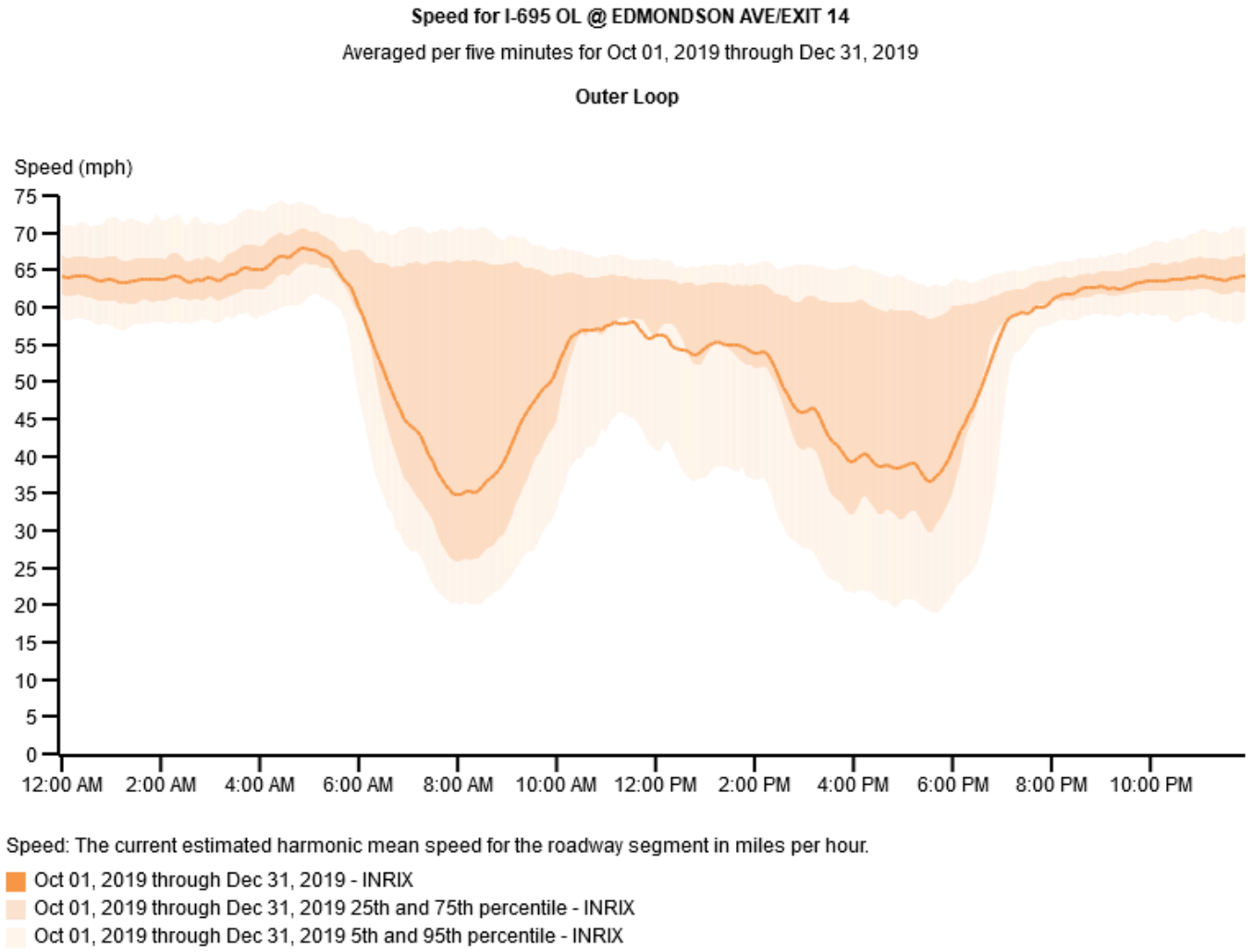
| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-695 OL @ EDMONDSON AVE/EXIT 14 | 4.73 | 42 m | 677 | 101,818 |




***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.*

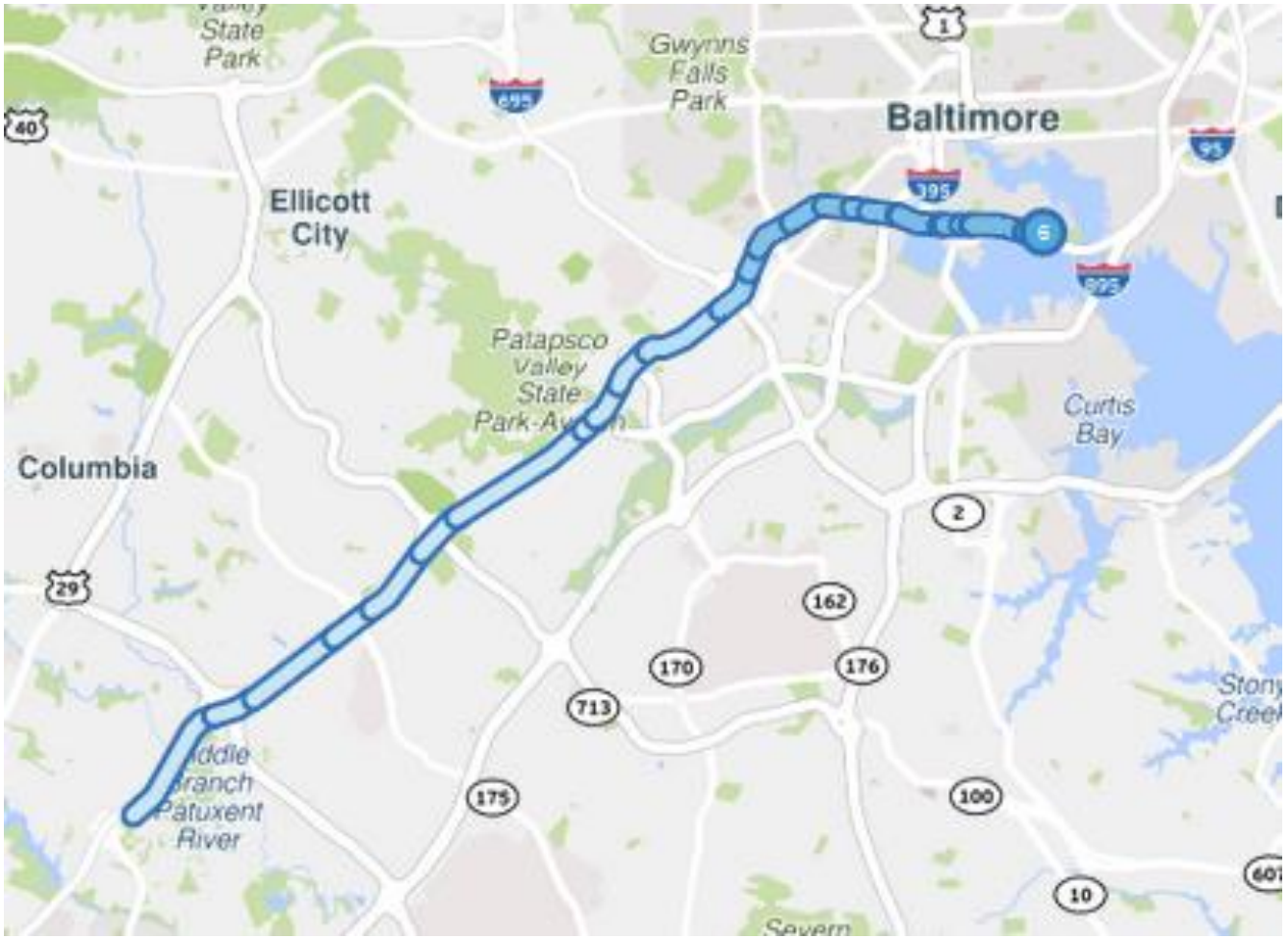
## #5 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-695 OL @ EDMONDSON AVE/EXIT 14 | 4.73 | 42 m | 677 | 101,818 |



## #6 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-95 N @ FORT MCHENRY TUNNEL | 1.89 | 1 h 30 m | 475 | 80,751 |




***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.*

## #6 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
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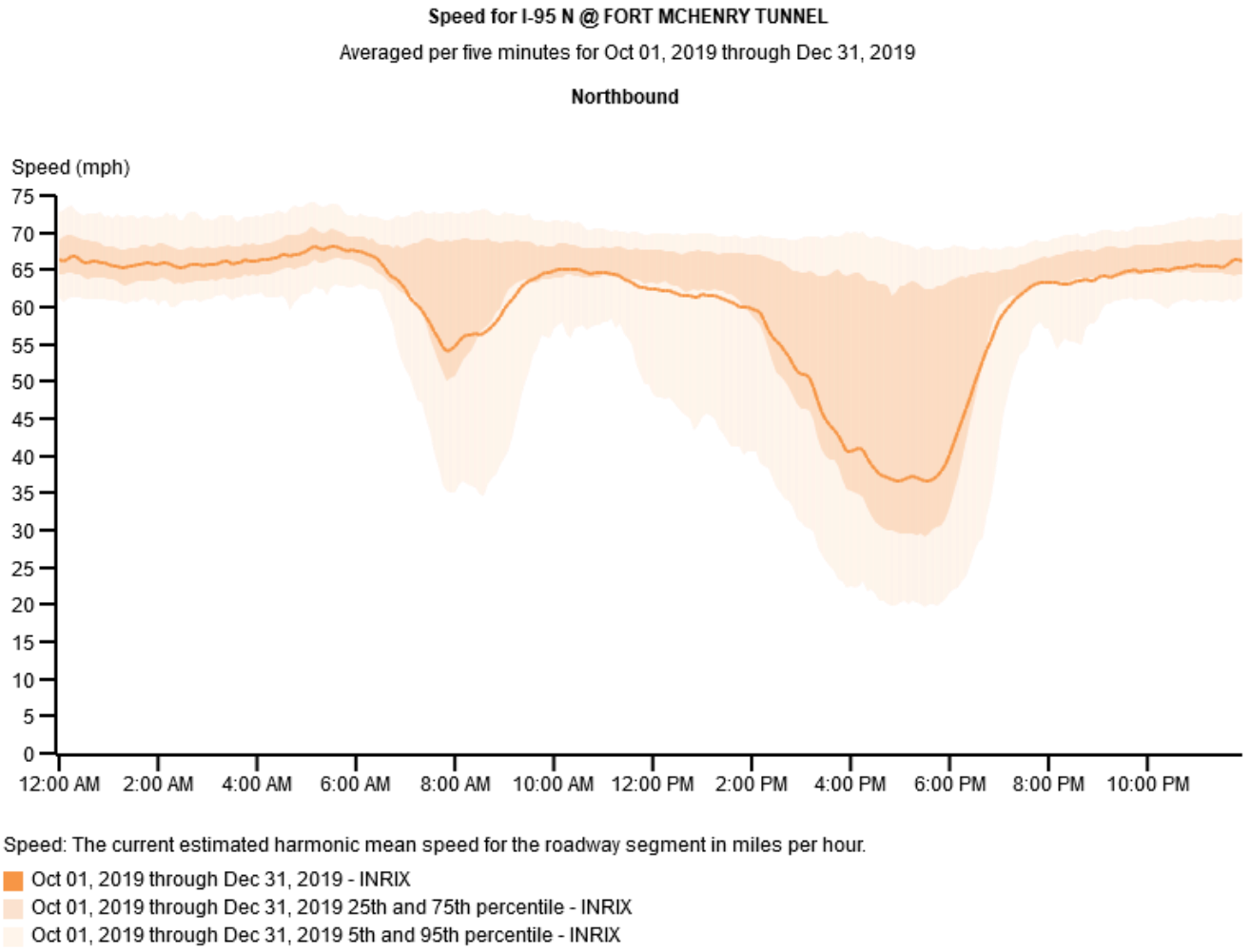
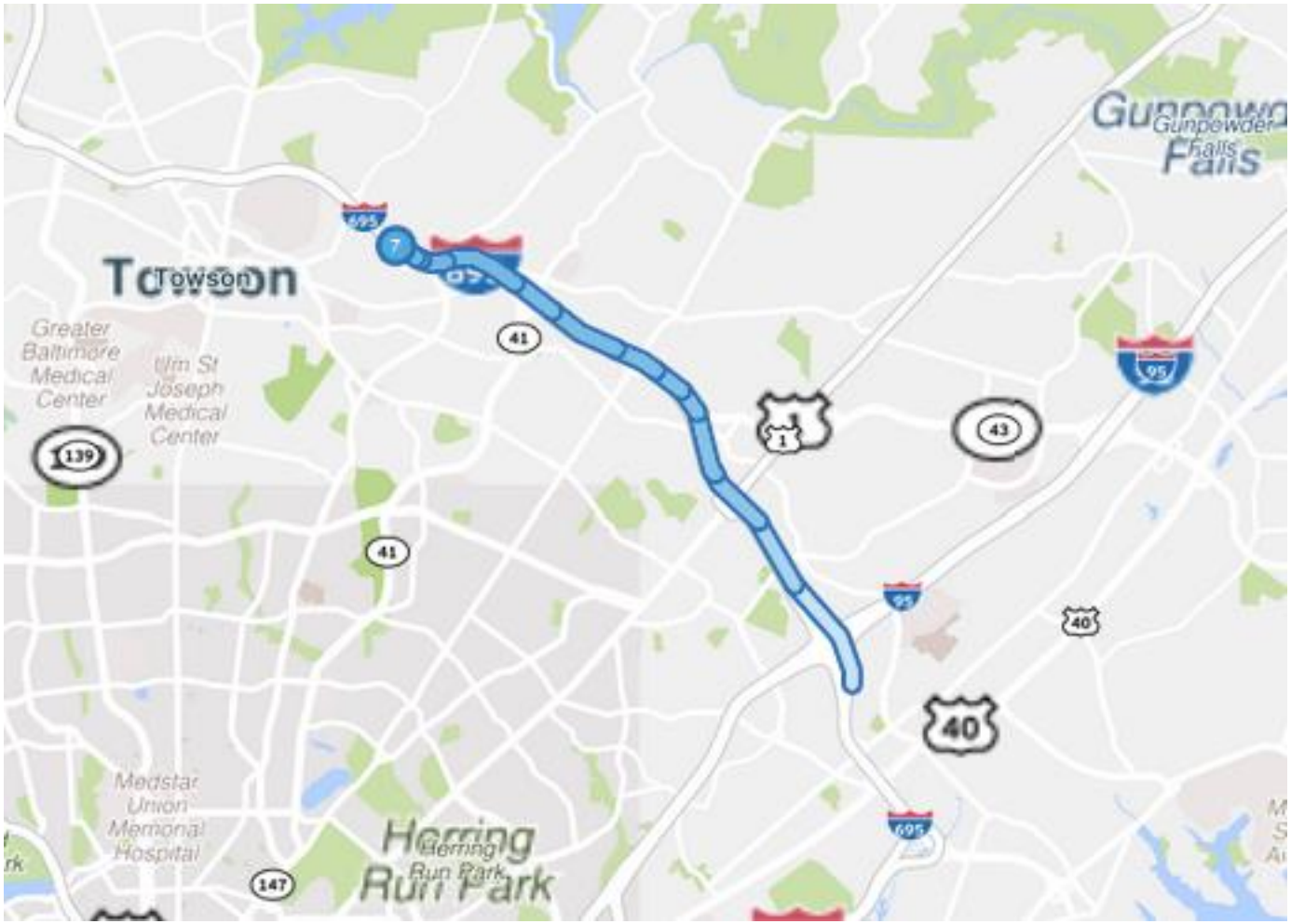
| I-95 N @ FORT MCHENRY TUNNEL | 1.89 | 1 h 30 m | 475 | 80,751 |



## #7 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

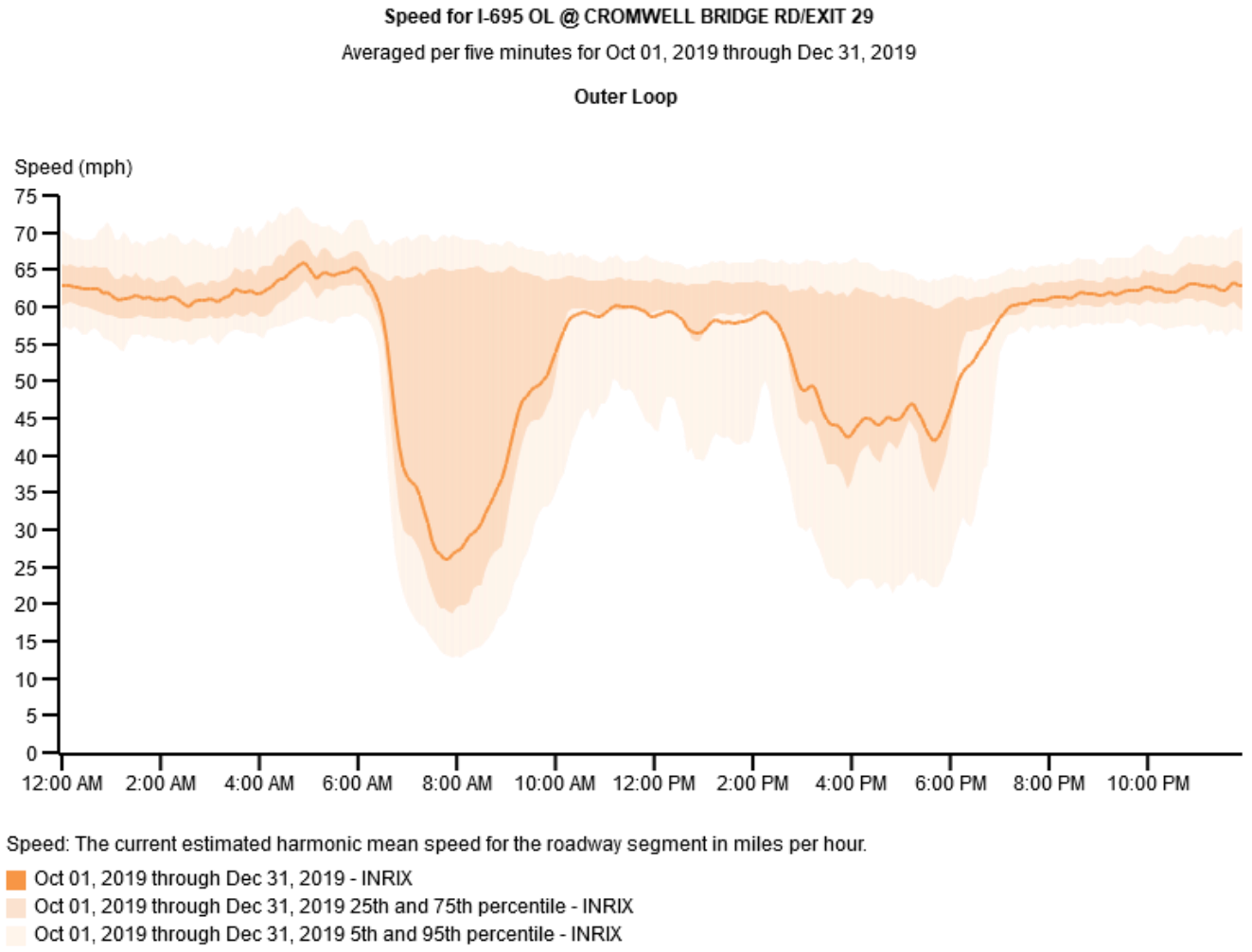
| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-695 OL @ CROMWELL BRIDGE RD/EXIT 29 | 2.40 | 2 h 13 m | 204 | 79,055 |




***Note:*** *Historically long term rush hour delays more severe in the AM peak period. Road geometry, traffic volume and the amount of exits and merges close together contribute to delays.*

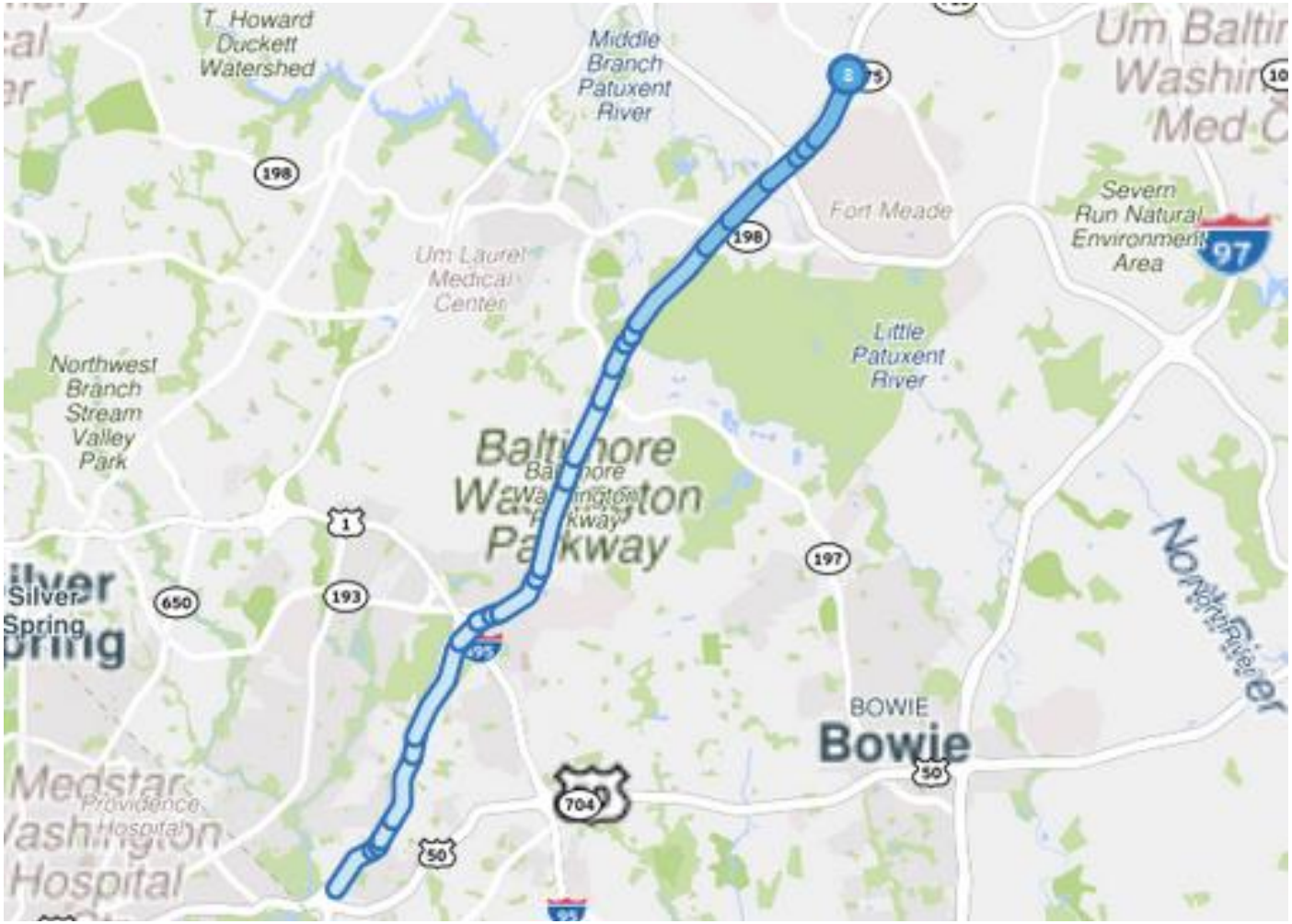
## #7 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-695 OL @ CROMWELL BRIDGE RD/EXIT 29 | 2.40 | 2 h 13 m | 204 | 79,055 |



## #8 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| MD-295 N @ MD-175 | 3.86 | 1 h 13 m | 122 | 49,116 |




***Notes**: Recurring afternoon congestion. Level of Service "F" from 4:00 to 5:00pm. A primary cause appeared to be the discharge of traffic from NSA / Ft. Meade onto northbound MD 295 via the Connector Rd. Weaving and merging at the MD 32 interchange also contributed to the congestion. Delays primarily in the afternoon rush.*

## #8 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
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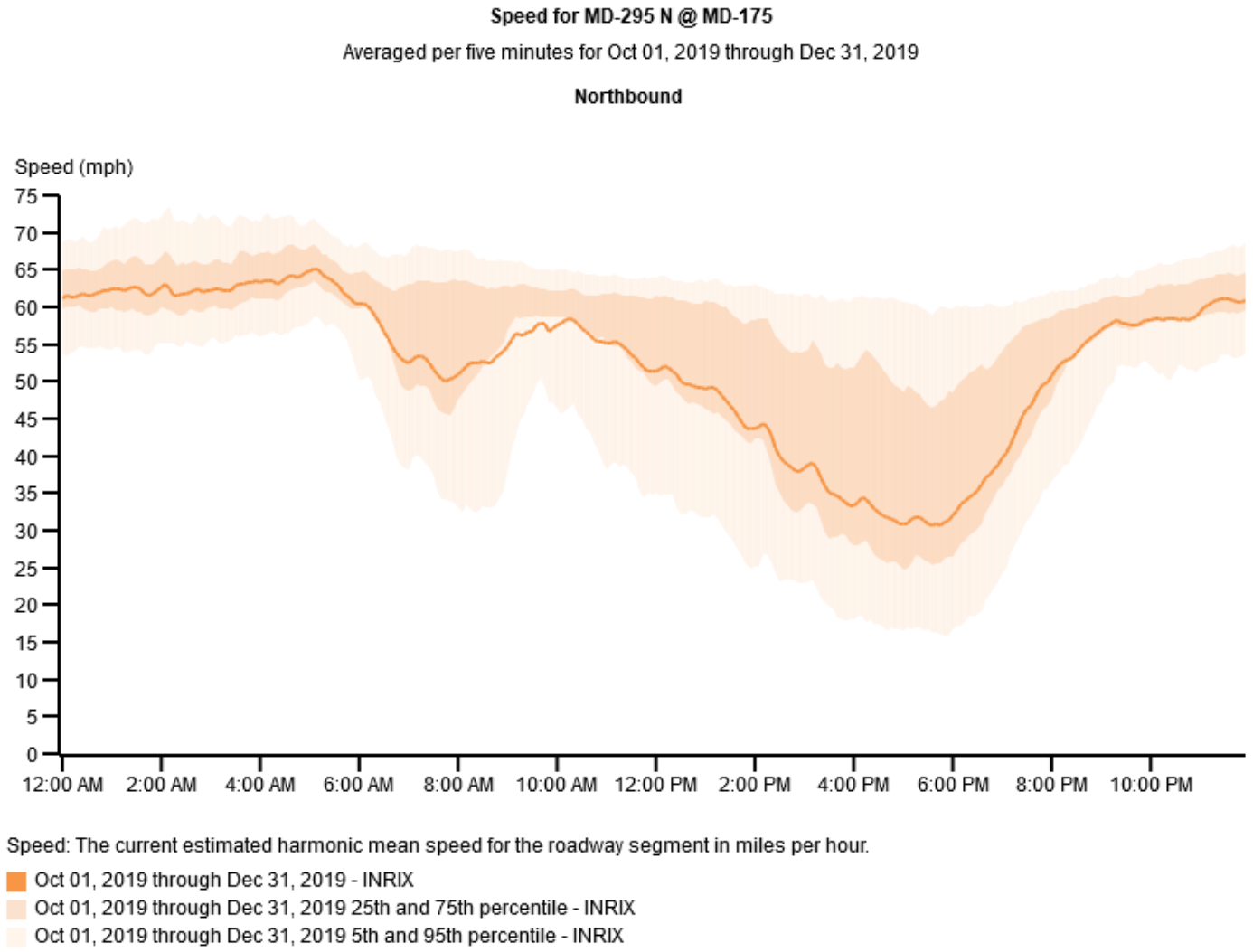
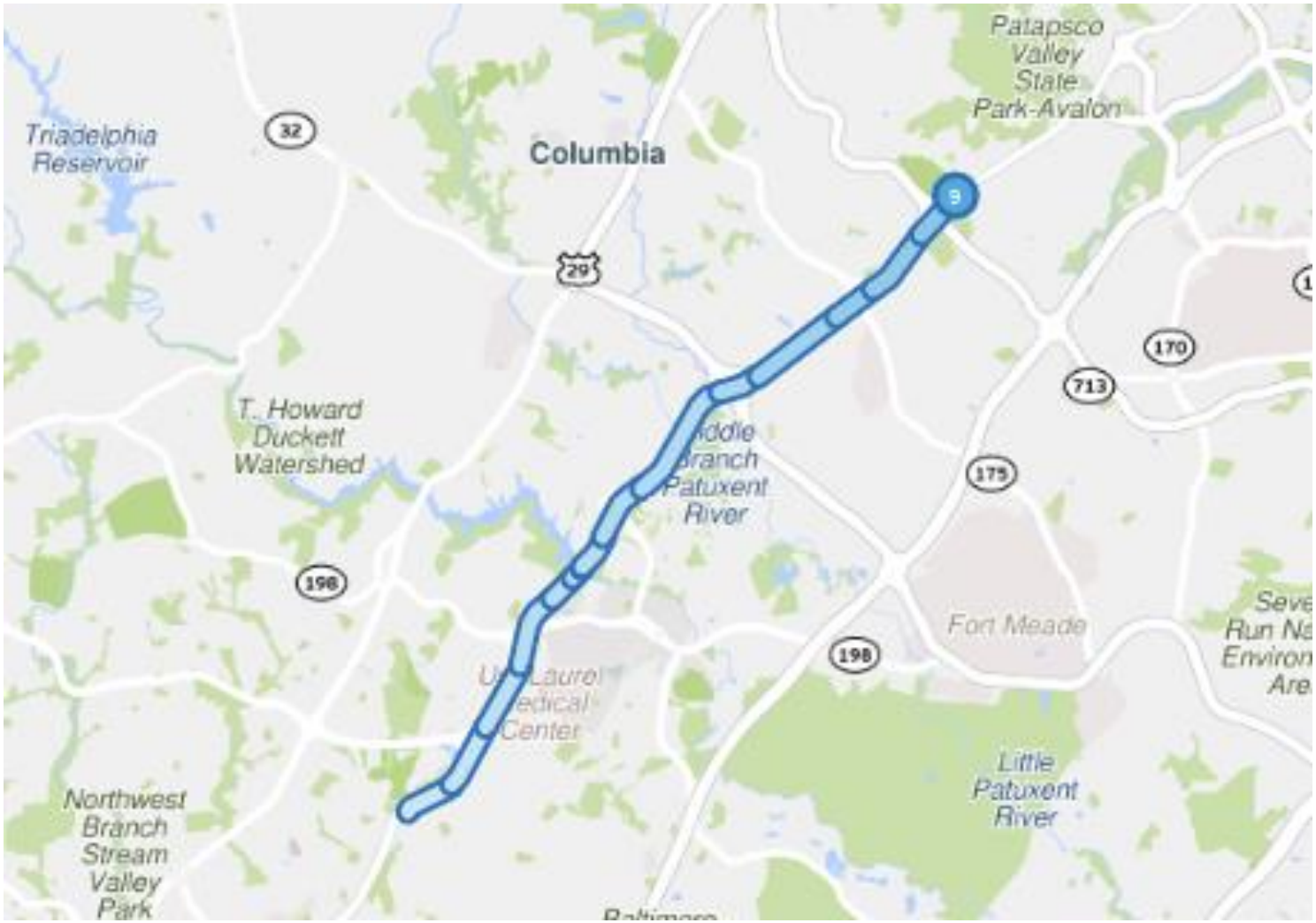
| MD-295 N @ MD-175 | 3.86 | 1 h 13 m | 122 | 49,116 |



## #9 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-95 N @ MD-100/EXIT 43 | 4.99 | 30 m | 198 | 102,940 |




***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.*

## #9 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
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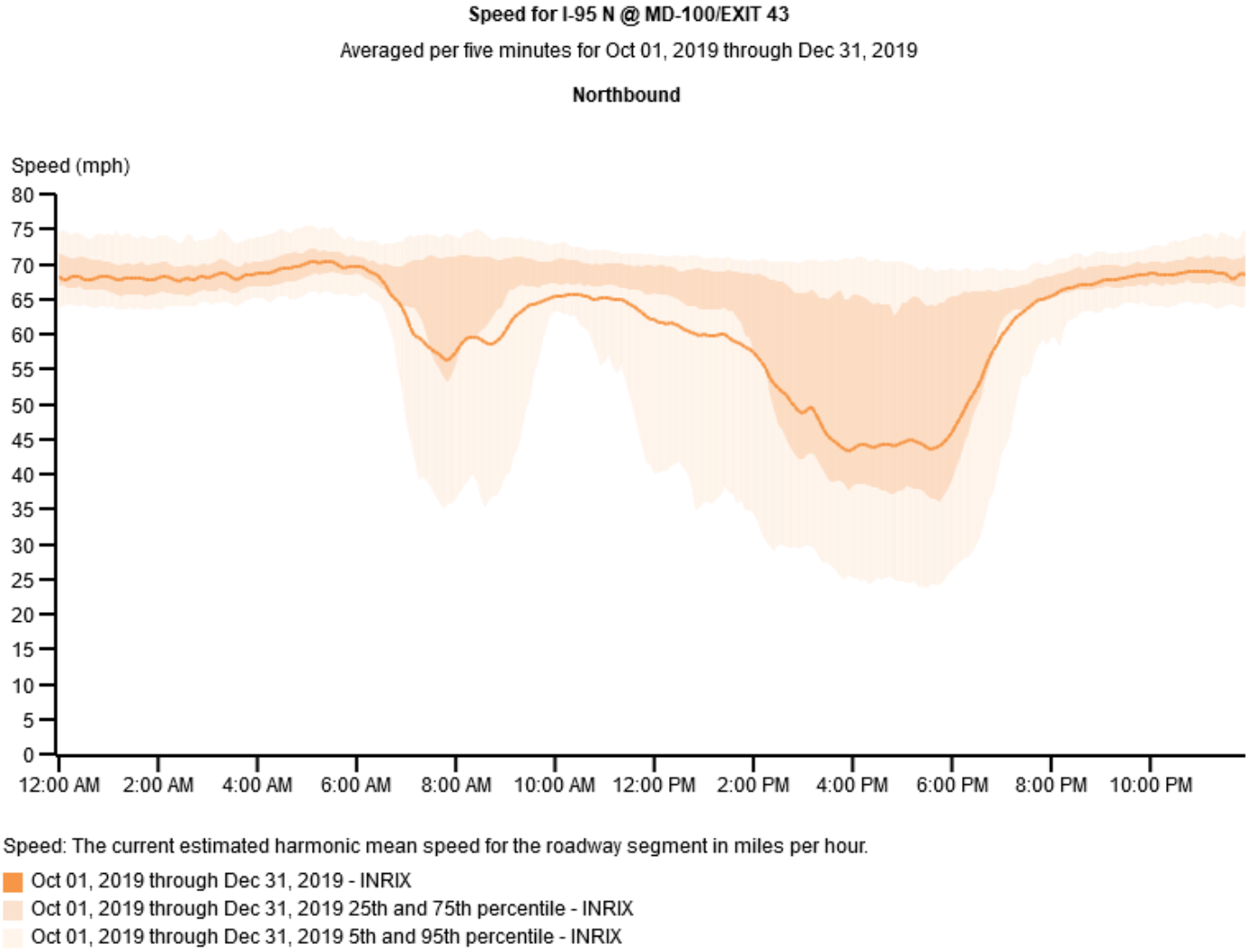
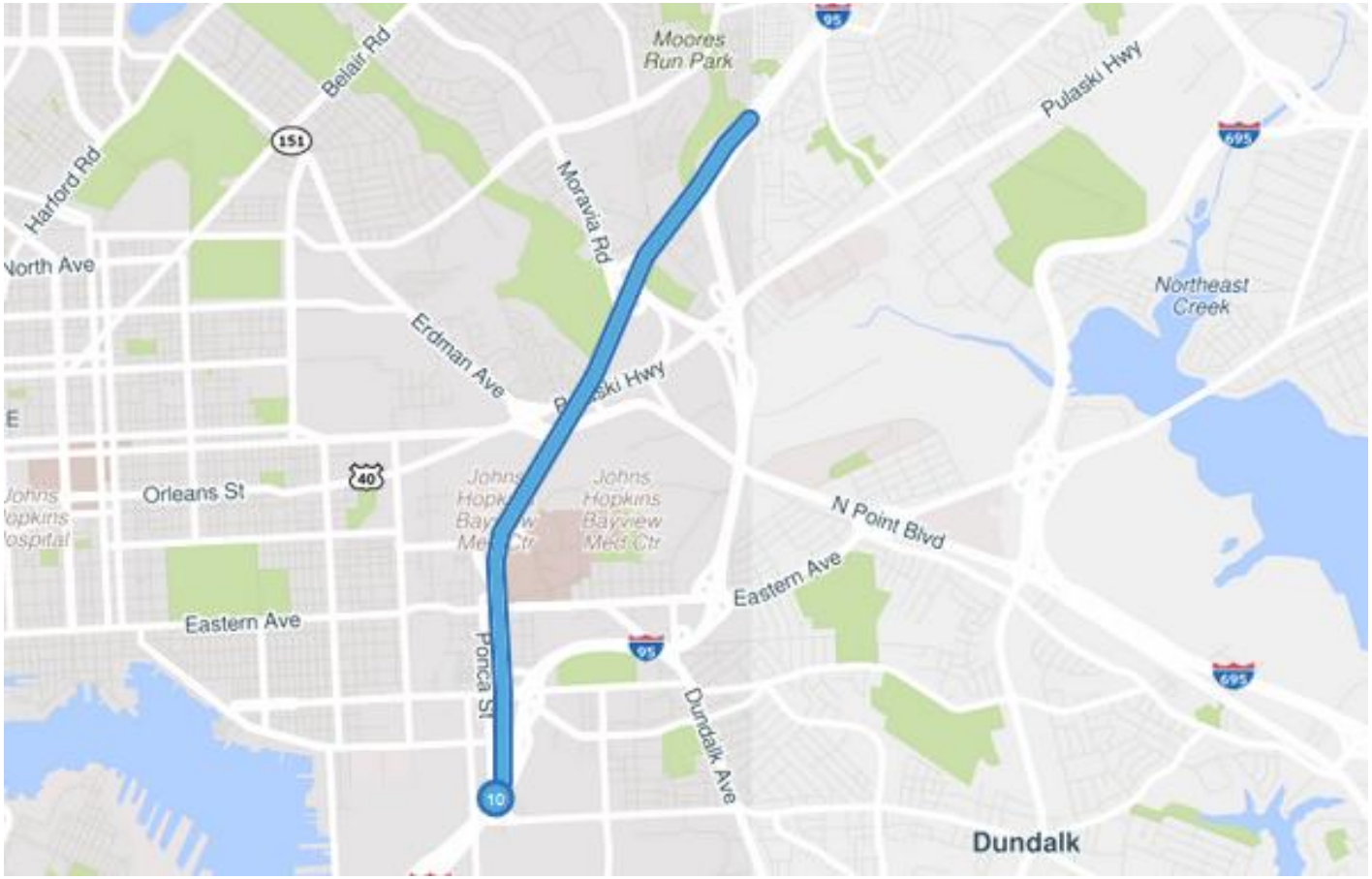
| I-95 N @ MD-100/EXIT 43 | 4.99 | 30 m | 198 | 102,940 |



## #10 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2019

| Location | Average max length (miles) | Average Daily Duration | All Events/ Incidents | Volume Estimate (AADT) |
|---|---|---|---|---|
| I-895 S @ HOLABIRD AVE/EXIT 10 | 1.10 | 3 h 04 m | 107 | 27,821 |




***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. The I-895/Holabird Avenue exit ramp (Exit 10) will close completely during this time. For more information visit the MdTA at [https://mdta.maryland.gov/I-895BridgeProject/Home.html](https://mdta.maryland.gov/I-895BridgeProject/Home.html)*

## #10 Ranked Bottleneck in the Baltimore Region –4th Quarter 2019

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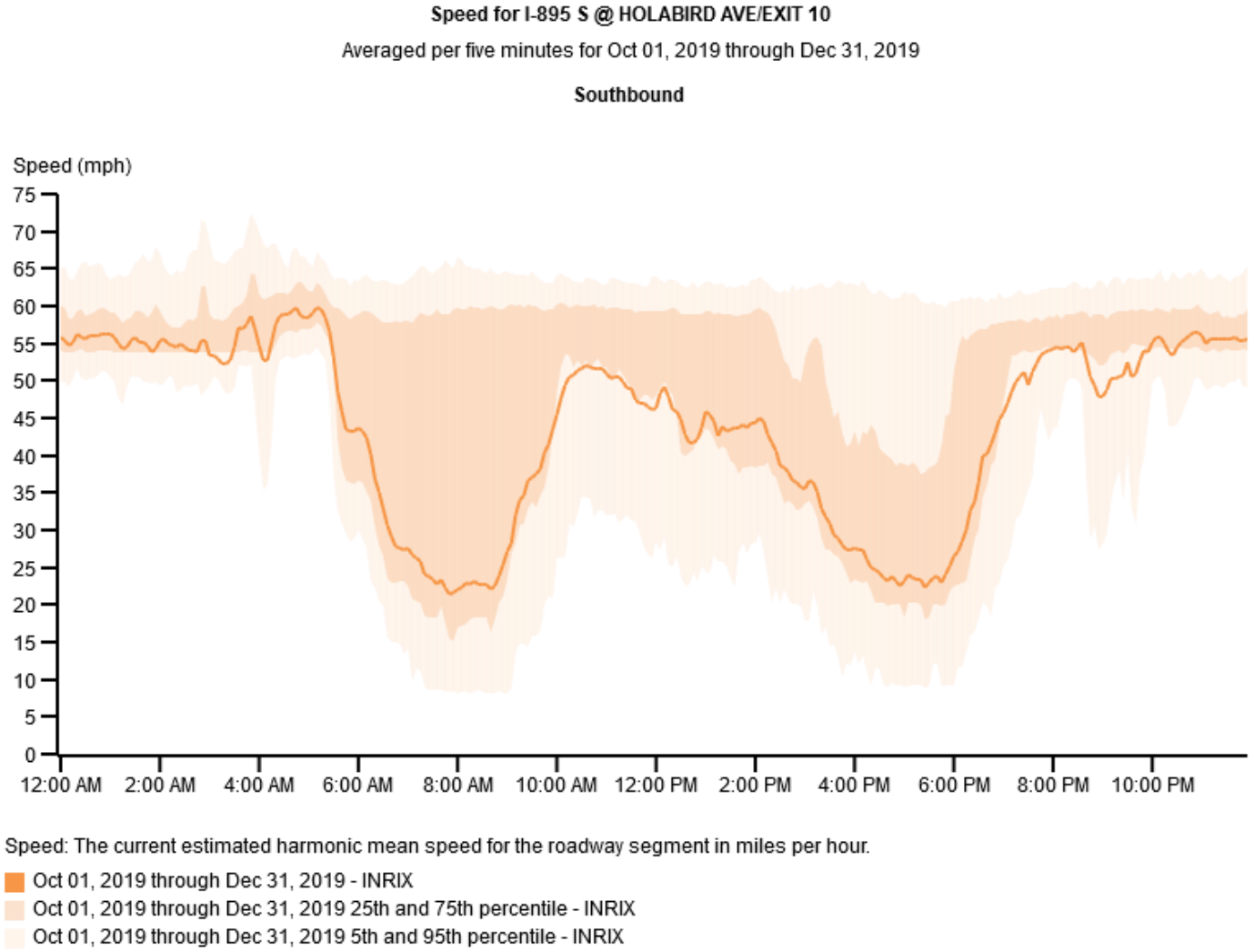
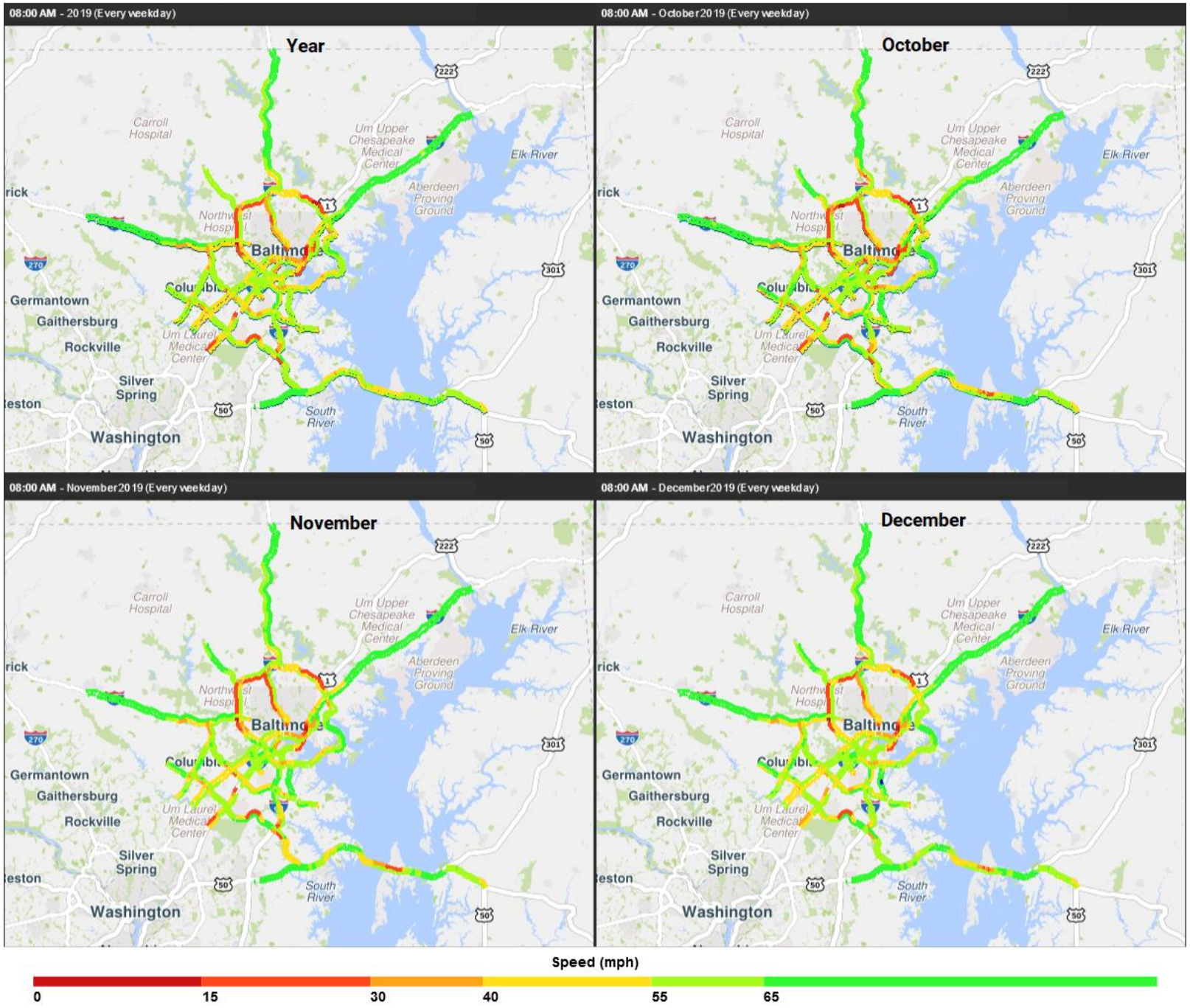
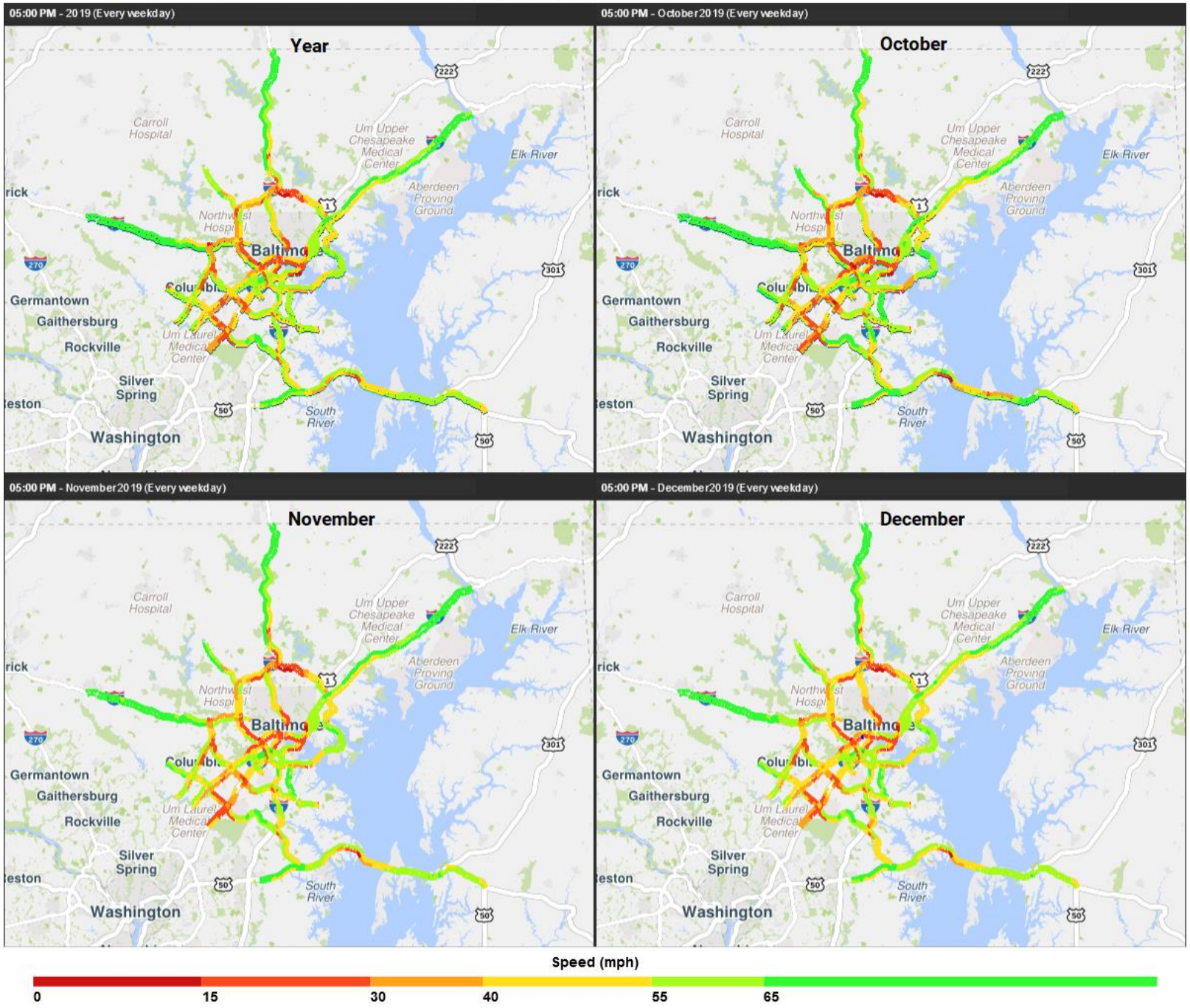


## Average Speed Maps – AM Peak Period 8:00-9:00 Weekdays: 4th Quarter 2019



## Average Speed Maps – PM Peak Period 5:00-6:00 Weekdays: 4th 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*

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