Quarterly Congestion Analysis Report For The Baltimore Region

Top 10 Bottleneck Locations

1st Quarter 2013

Baltimore Metropolitan Council

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The Vehicle Probe Project

Data and graphics in the following report were generated from the *Vehicle Probe Project* suite. *The Vehicle Probe Project* (VPP) is a groundbreaking initiative and collaborative effort among the I-95 Corridor Coalition, University of Maryland and INRIX and has been providing comprehensive and continuous real-time travel information for more than two 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 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 Data Validation, Stan Young at 301-403-4593 or *seyoung@umd.edu*
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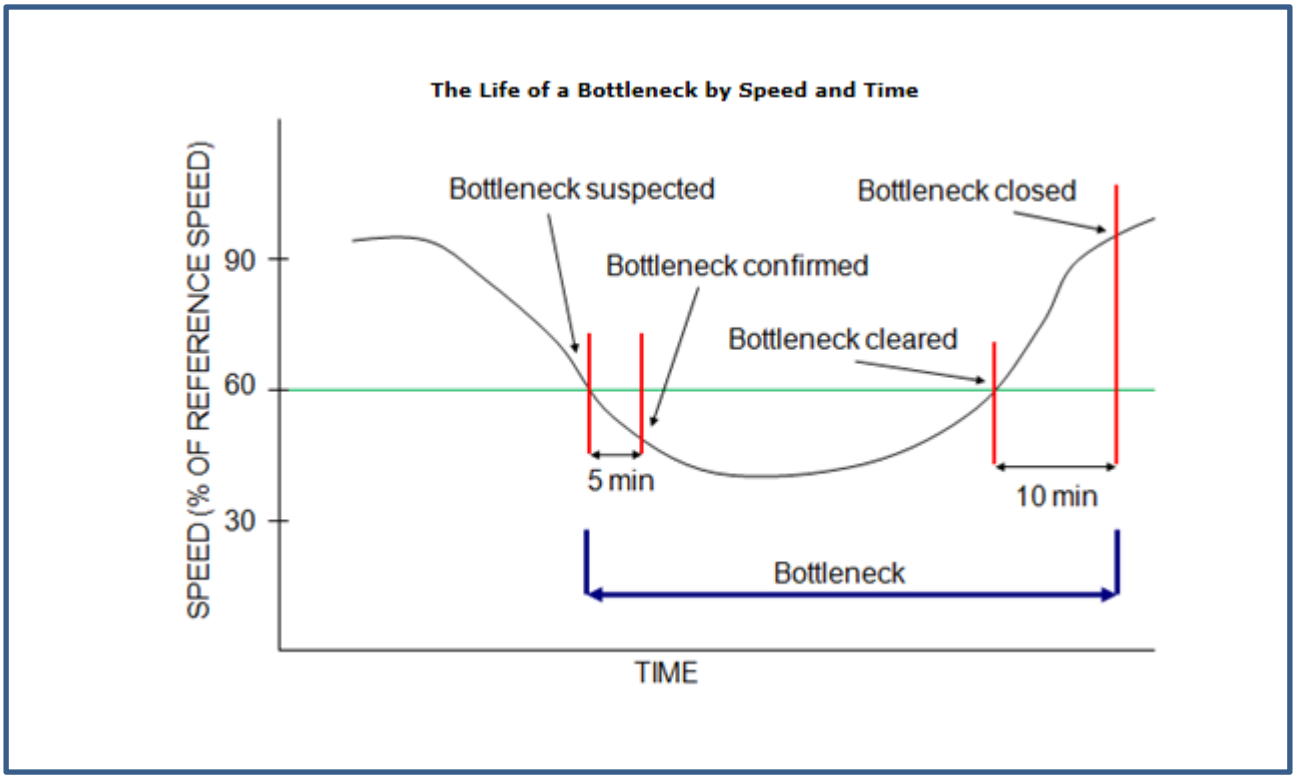
- For the Vehicle Probe Project Suite, Michael L. Pack at 301-405-0722 or *packml@umd.edu*

How are bottleneck conditions tracked?

If the reported speed falls below 60% of the reference, the road segment is flagged as a potential bottleneck

Bottleneck conditions are determined by comparing the current reported speed to the reference speed for each segment of road. Reference speed values are provided by INRIX for each segment, and represent the 85th percentile observed speed for all time periods, with a maximum value of 65 mph. If the reported speed falls below 60% of the reference, the road segment is flagged as a potential bottleneck. If the reported speed stays below 60% for five minutes, the segment is confirmed as a bottleneck location. Adjacent road segments meeting this condition are joined together to form the bottleneck queue. When reported speeds on every segment associated with a bottleneck queue have returned to values greater than 60% of their reference values and remained that way for 10 minutes, the bottleneck is considered cleared. Bottlenecks whose total queue length, determined by adding the length of each road segment associated with the bottleneck, is less than 0.3 miles are ignored.

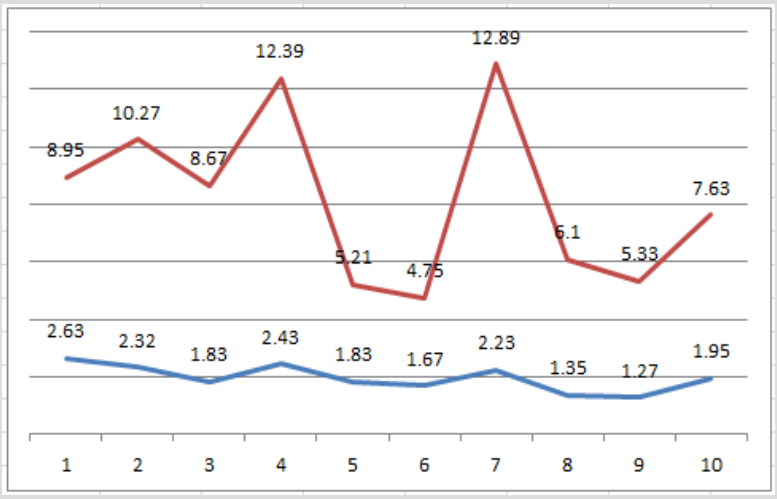


Top 10 Bottlenecks in the Baltimore Region
1st Quarter 2013

By Impact Factor

(Number of Occurrences x Average Duration in Minutes x Average Length)

	Location	Average Duration	Average max length (miles)	Occurrences	Impact Factor
1	MD-295 N @ MD-175	2h 38m	8.95	114	161,169
2	I-695 CW @ MD-147/Harford Ed/Exit 31	2h 19m	10.27	90	127,544
3	I-95 N @ MD-100/Exit 43	1h 50m	8.67	96	91,549
4	MD-295 S @ MD-193	2h 26m	12.39	43	77,802
5	I-95 N CW @ MD-140/Reisterstown Rd/Exit 20	1h 50m	5.21	130	74,465
6	I-695 CCW @ Edmondson Ave/Exit 14	1h 40m	4.75	152	72,139
7	I-695 CCW @ US-1/Southwestern Blvd/Exit 12	2h 14m	12.89	29	50,094
8	I-695 CW @ MD-41/Perring Pkwy/Exit 30	1h 21m	6.10	83	41,034
9	I-695 CW @ I-83/MD-25/Exit 23	1h 16m	5.33	98	39,730
10	I-95 N @ MD-43/White Marsh Blvd/Exit 67	1h 57m	7.63	44	39,254



Top 10 Bottlenecks in the Baltimore Region

By Impact Factor
(Number of Occurrences *x* Average Duration in Minutes *x* Average Length)

1st Quarter 2013

Average max length (miles)

Average duration (hours)

By Average Duration

	Location	Average Duration	Average max length (miles)	Occurrences	Impact Factor
1	I-95 N @ Tydings Memorial Bridge Toll Plaza	3h 35m	14.71	3	9,486
2	MD-295 S @ I-495/I-95	3h 30m	12.99	9	24,557
3	I-95 N @ MD-222/Exit 93	3h 23m	4.62	1	937
4	MD-295 S @ MD-450	3h 19m	21.90	6	26,143
5	MD-295 S @ Eastern Ave	3h 10m	16.50	3	9,407
6	MD-32 W @ Burntwoods Rd	3h 09m	17.56	1	3,319
7	MD-295 S @ Riverdale Rd	3h 07m	14.85	6	16,664
8	MD-295 N @ MD-175	2h 38m	8.95	114	161,169
9	MD-295 S @ MD-193	2h 26m	12.39	43	77,802
10	MD-100 E @ MD-10	2h 25m	16.63	4	9,645

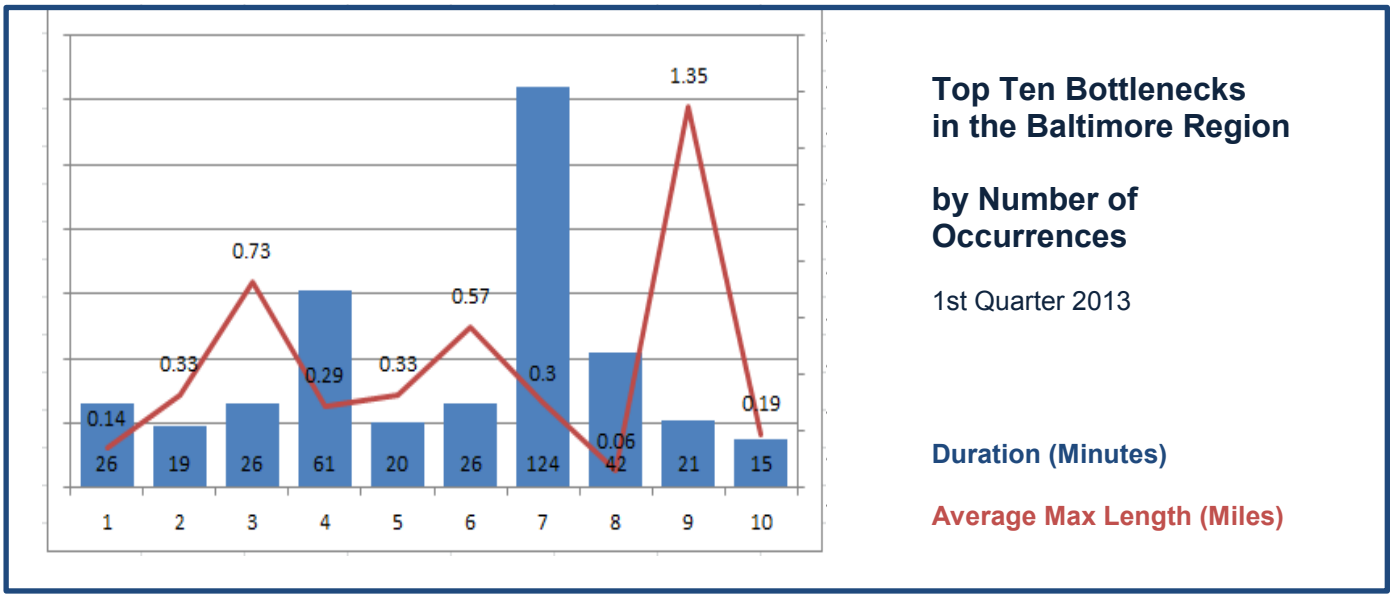
Top 10 Bottlenecks in the Baltimore Region
1st Quarter 2013

By Average Length

	Location	Average Duration	Average max length (miles)	Occurrences	Impact Factor
1	MD-295 N @ US-40/Mulberry St/Franklin St	3h 40m	32.69	2	14,382
2	MD-295 S @ MD-450	3h 19m	21.90	6	26,143
3	US-50 W @ I-495/I-95/Capital Beltway/Exit 7	1h 18m	19.86	4	6,195
4	MD-32 W @ Burntwoods Rd	3h 09m	17.56	1	3,319
5	MD-100 E @ MD-10	2h 25m	16.63	4	9,645
6	MD-295 S @ Eastern Ave	3h 10m	16.50	3	9,407
7	MD-295 S @ Riverdale Rd	3h 07m	14.85	6	16,664
8	I-95 N @ Tydings Memorial Bridge Toll Plaza	3h 35m	14.71	3	9,486
9	MD-295 S @ MD-202	2h 17m	13.42	1	1,839
10	MD-295 S @ I-495/I-95	3h 30m	12.99	9	24,557

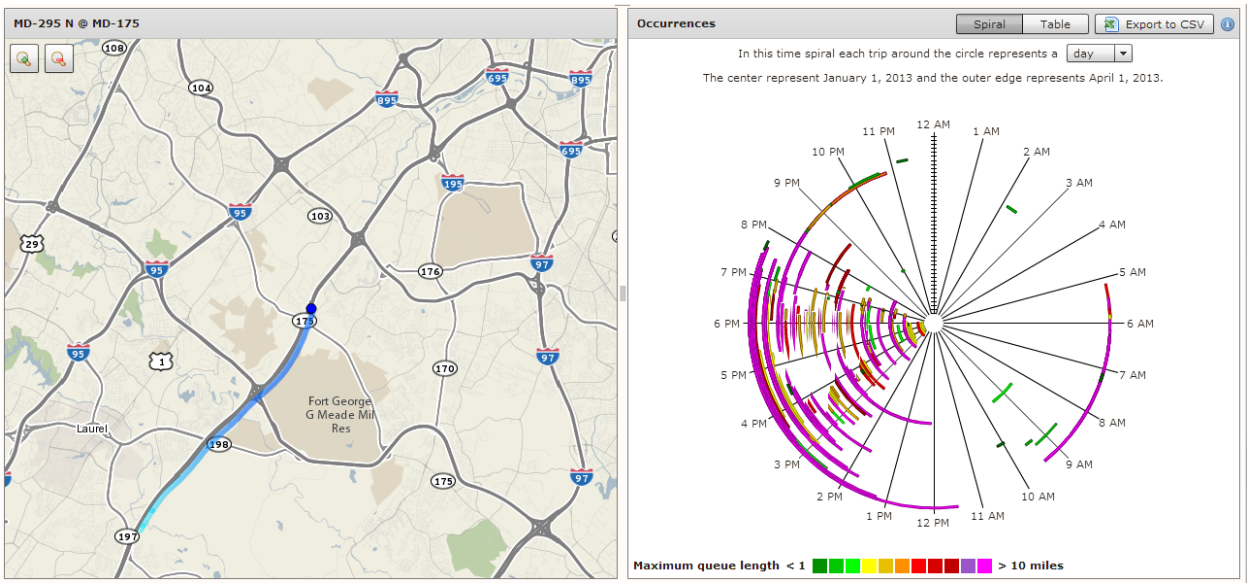
By Number of Occurrences

	Location	Average Duration	Average max length (miles)	Occurrences	Impact Factor
1	I-895 N @ Harbor Tunnel Toll Plaza	26m	0.14	1079	3,897
2	MD-10 S @ MD-100	19m	0.33	991	6,218
3	US-50 E @ Bay Bridge	26m	0.73	763	14,455
4	I-895 S @ Frankfurst Ave/Shell Rd/Exit 8	1h 01m	0.29	696	12,360
5	I-695 CCW @ Broening Hwy/Exit 44	20m	0.33	560	3,677
6	I-95 N @ Keith Ave/Exit 56	26m	0.57	558	8,257
7	I-695 CW @ Authority Dr	2h 04m	0.30	304	11,231
8	I-895 S @ Harbor Tunnel Toll Plaza	42m	0.06	297	721
9	I-895 Spur S @ I-97	21m	1.35	212	6,016
10	I-695 CCW @ Francis Scott Key Toll Plaza	15m	0.19	204	573



#1 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

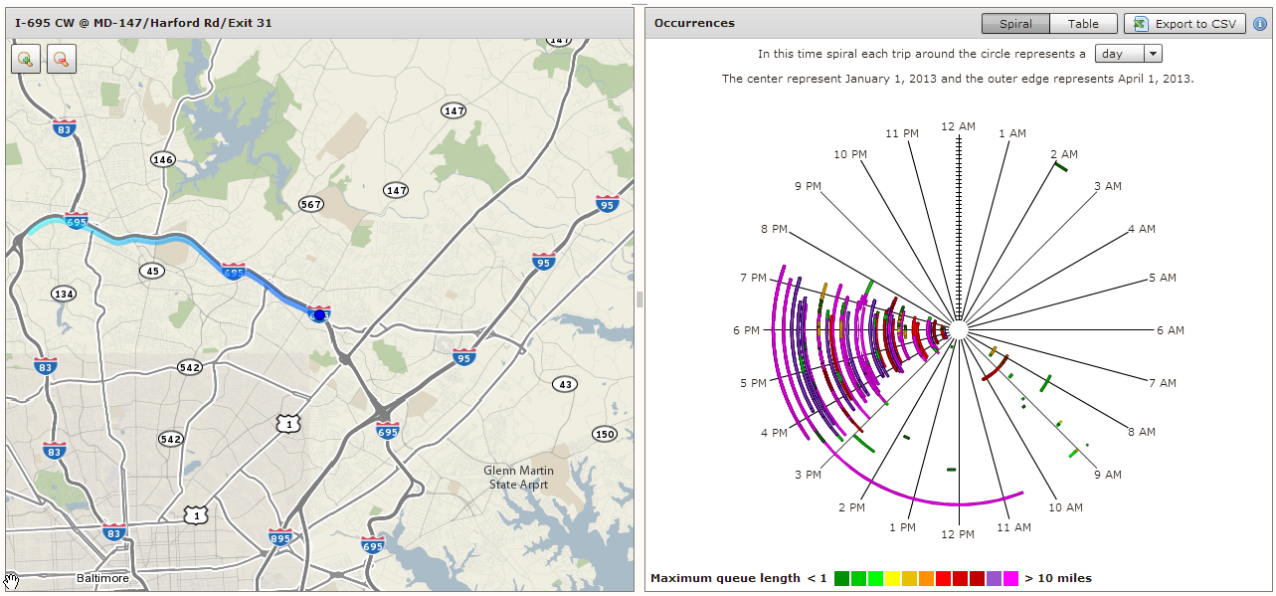
Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
MD-295 N @ MD-175	2h 38m	8.95	114	161,169



Notes: 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
Source: Skycomp Report

#2 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

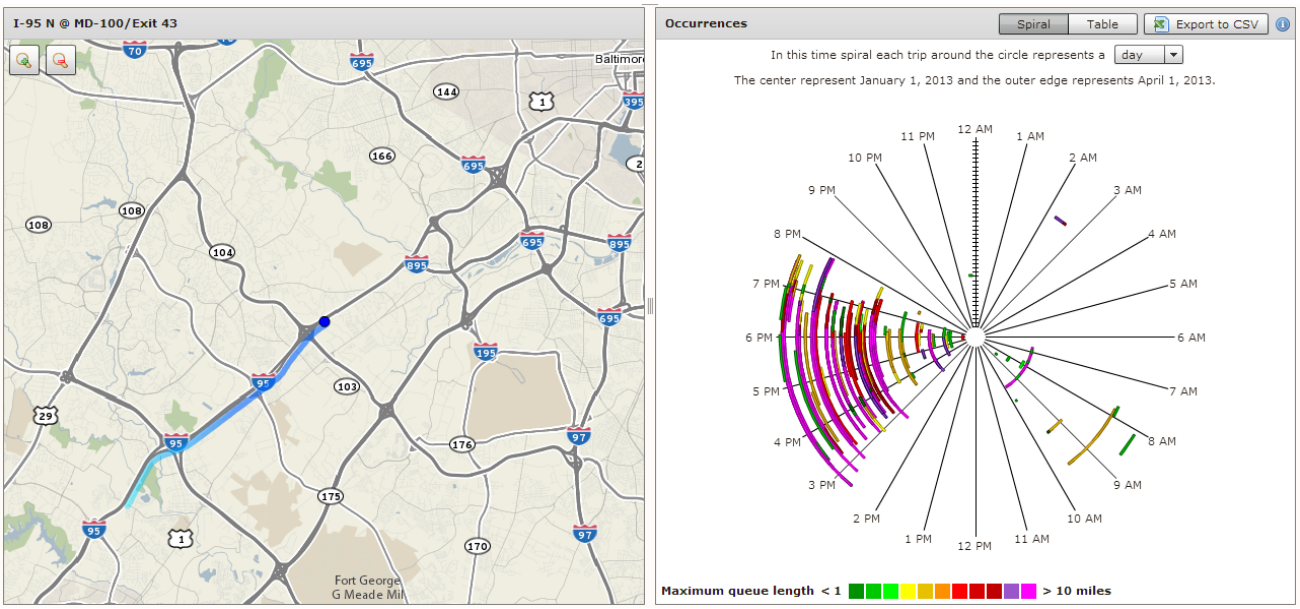
Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
I-695 CW @ MD-147/Harford Rd/Exit 31	2h 19m	10.27	90	127,544



Notes: Congestion was most severe between I-83 and Providence Rd. Factors contributing to this long standing and extended congested zone: merging and weaving associated with traffic at each interchange and a lane drop (to 3 lanes) at MD-45/York Rd.
Source: Skycomp Report

#3 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

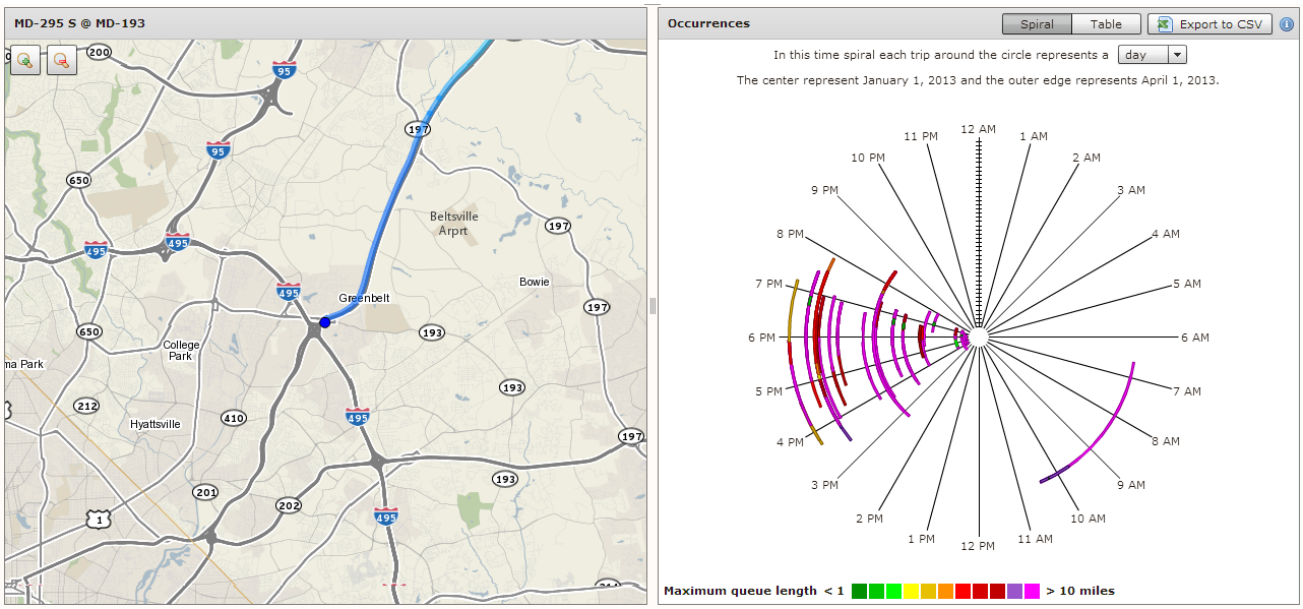
Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
I-95 N @ MD-100/Exit 43	1h 50m	8.67	96	91,549



Notes: 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
Source: Skycomp Report

#4 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

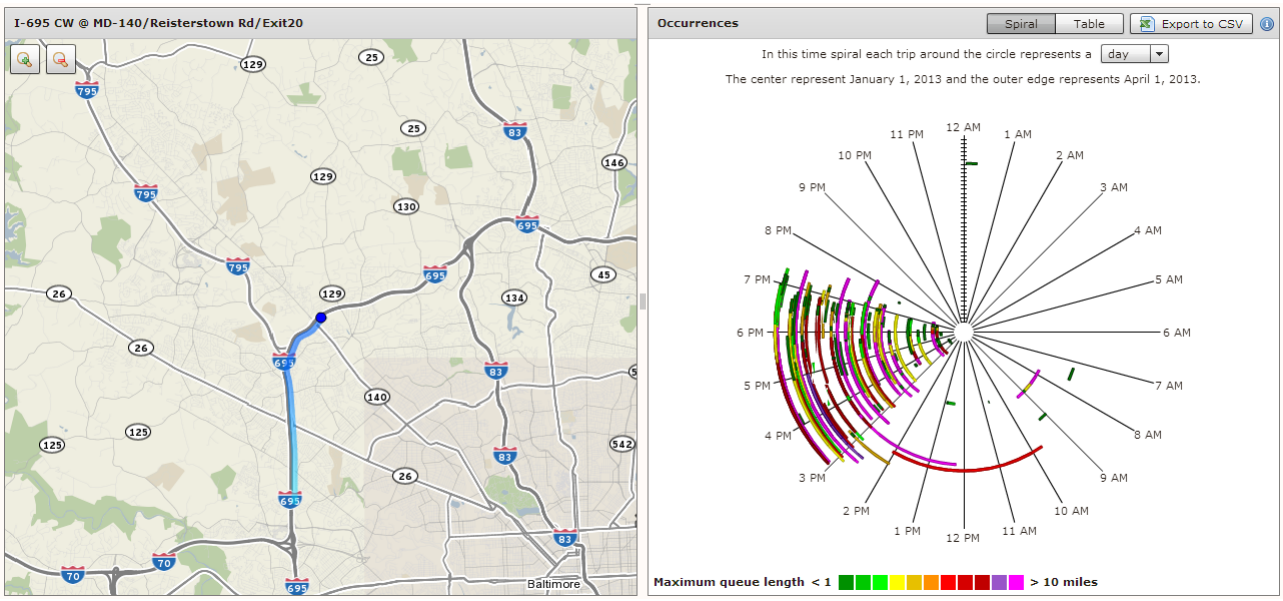
Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
MD-295 S @ MD-193	2h 26m	12.39	43	77,802



Notes: Southbound evening congestion extending from the Capital Beltway extending into the southern portion of the Baltimore region near MD-32
Source: VPP Suite

#5 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

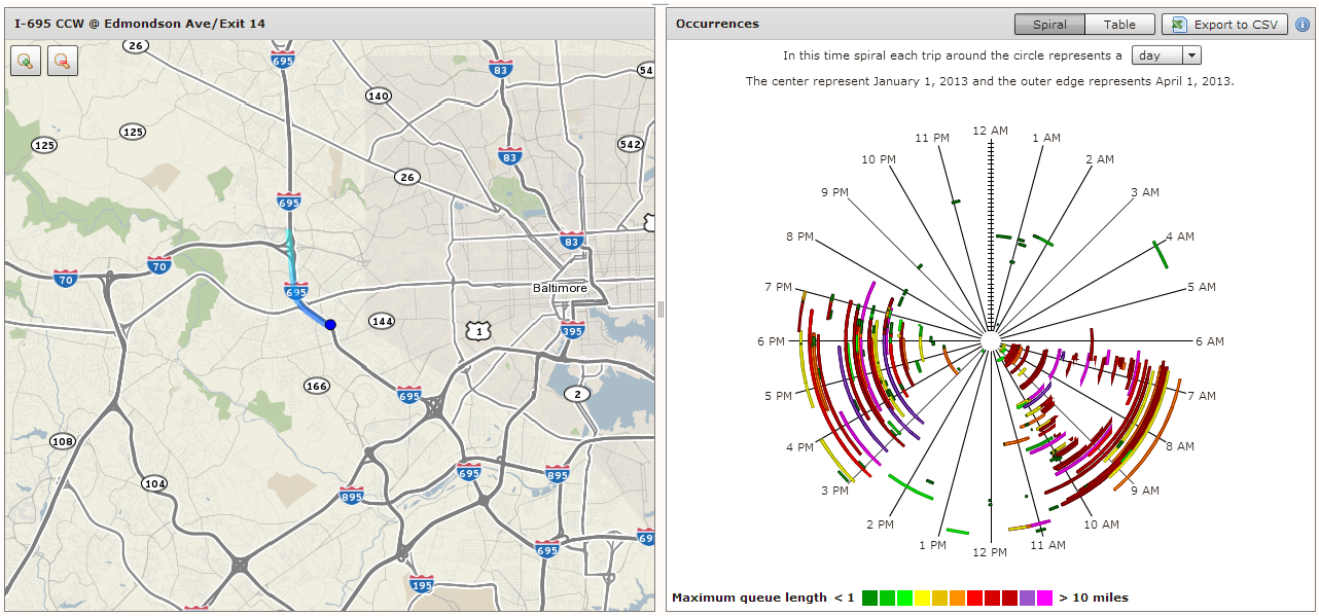
Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
I-95 N CW @ MD-140/Reisterstown Rd/Exit 20	1h 50m	5.21	130	74,465



Notes: Longstanding westside beltway inner loop congestion in the afternoon.
Source: Skycomp Report

#6 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

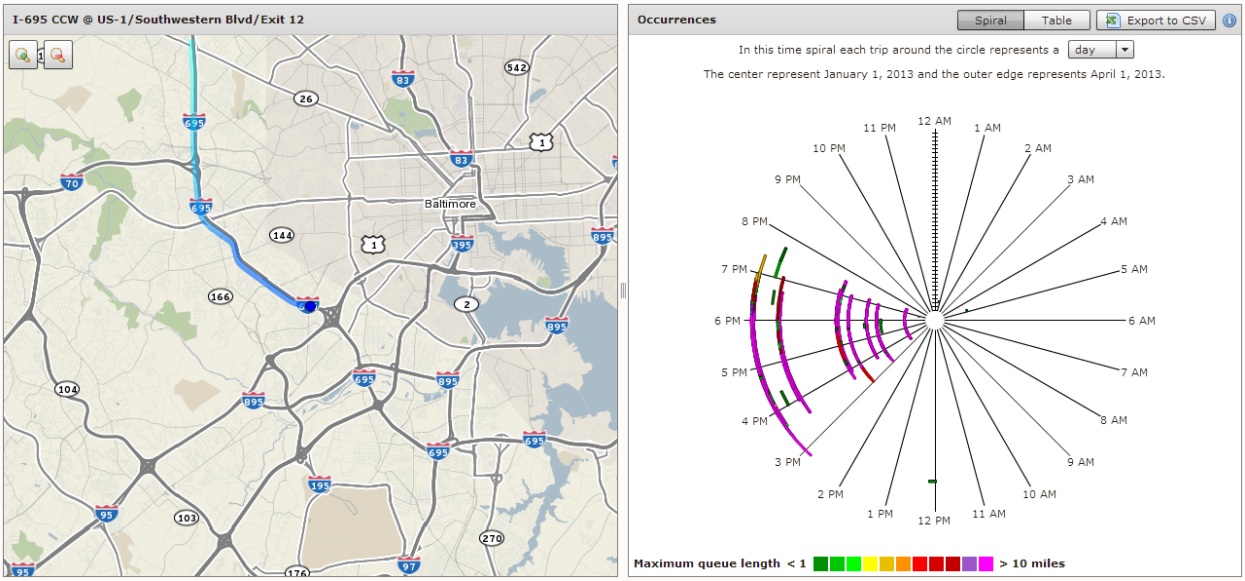
Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
I-695 CCW @ Edmondson Ave/Exit 14	1h 40m	4.75	152	72,139



Notes: Longstanding bottlenecks in both the morning and afternoon..
Source: VPP observations

#7 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

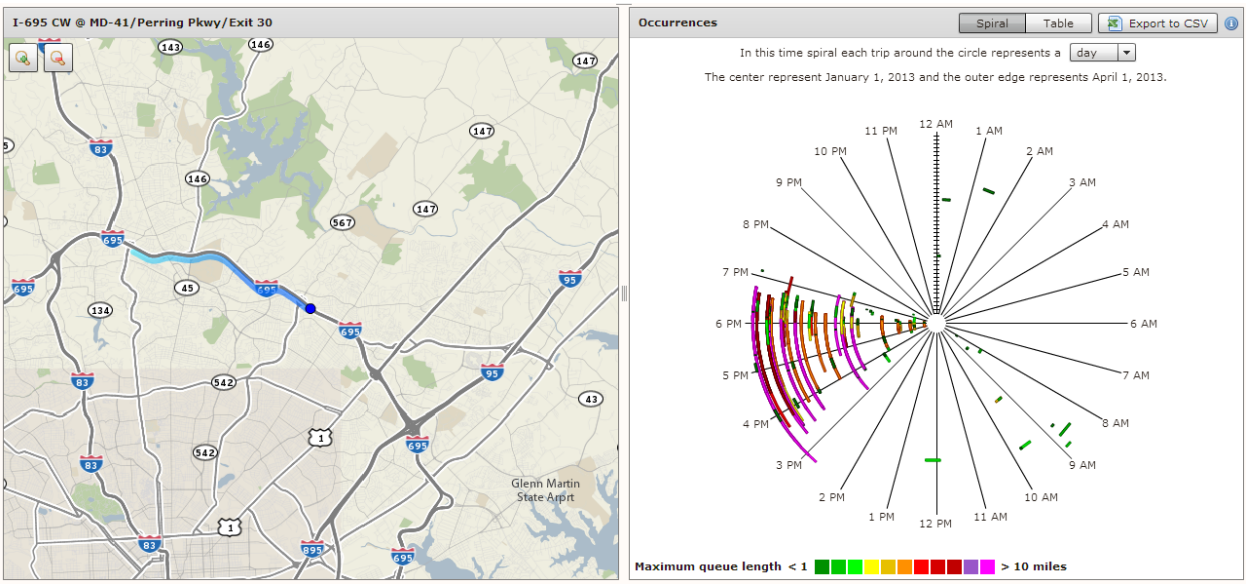
Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
I-695 CCW @ US-1/Southwestern Blvd/Exit 12	2h 14m	12.89	29	50,094



Notes: Incident related delay due to an overturned vehicle on the afternoon of March 28th contributed to additional congestion. Accident on March 14th closed 1 lane and the shoulder.
Source: VPP Suite

#8 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

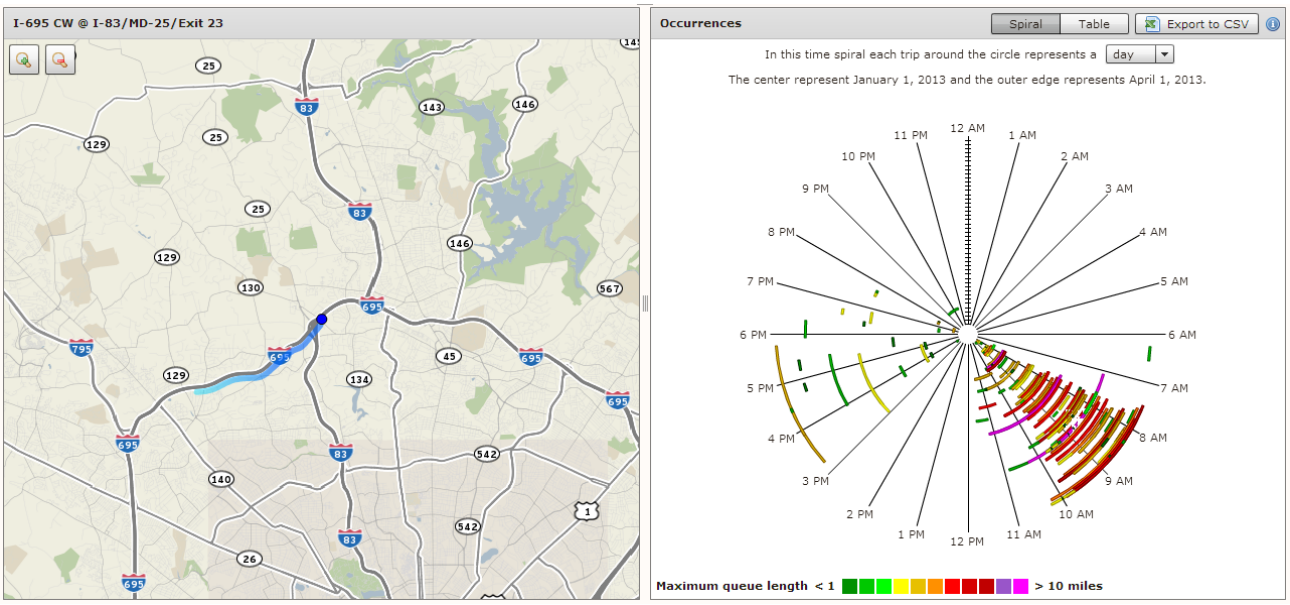
Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
I-695 CW @ MD-41/Perring Pkwy/Exit 30	1h 21m	6.10	83	41,034



Notes: Congestion was most severe between I-83 and Providence Rd. Factors contributing to this long standing and extended congested zone: merging and weaving associated with traffic at each interchange and a lane drop (to 3 lanes) at MD-45/York Rd
Source: Skycomp Report

#9 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

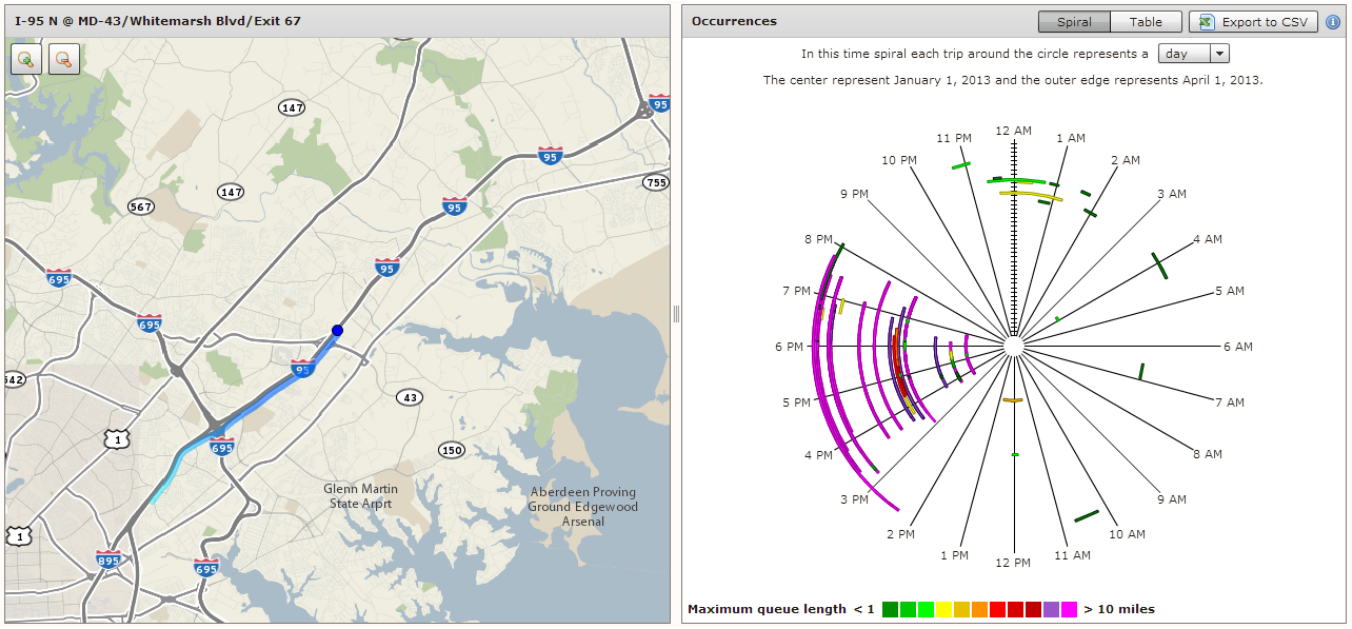
Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
I-695 CW @ I-83/MD-25/Exit 23	1h 16m	5.33	98	39,730



Notes: 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.
Source: Skycomp Report

#10 Ranked Bottlenecks in the Baltimore Region – 1st Quarter 2013

Location	Average Duration	Average max length (miles)	Occurrences	*Impact Factor
I-95 N @ MD-43/White Marsh Blvd/Exit 67	1H 57M	7.63	44	39,254



Notes: Express toll lane construction ongoing from merge with I-895 to ramsp at MD-43
Source: http://www.i-95expresstolllanes.com

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