

Enhancements to the Congestion Analysis Report – VPP Suite

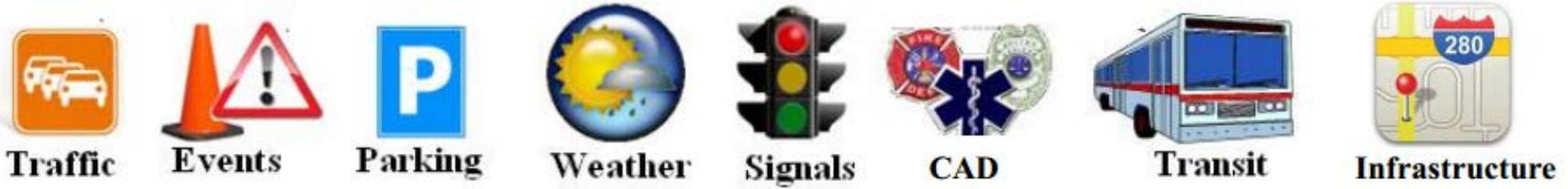
Presentation for Technical Committee

December 1st, 2015

Vehicle Probe Data

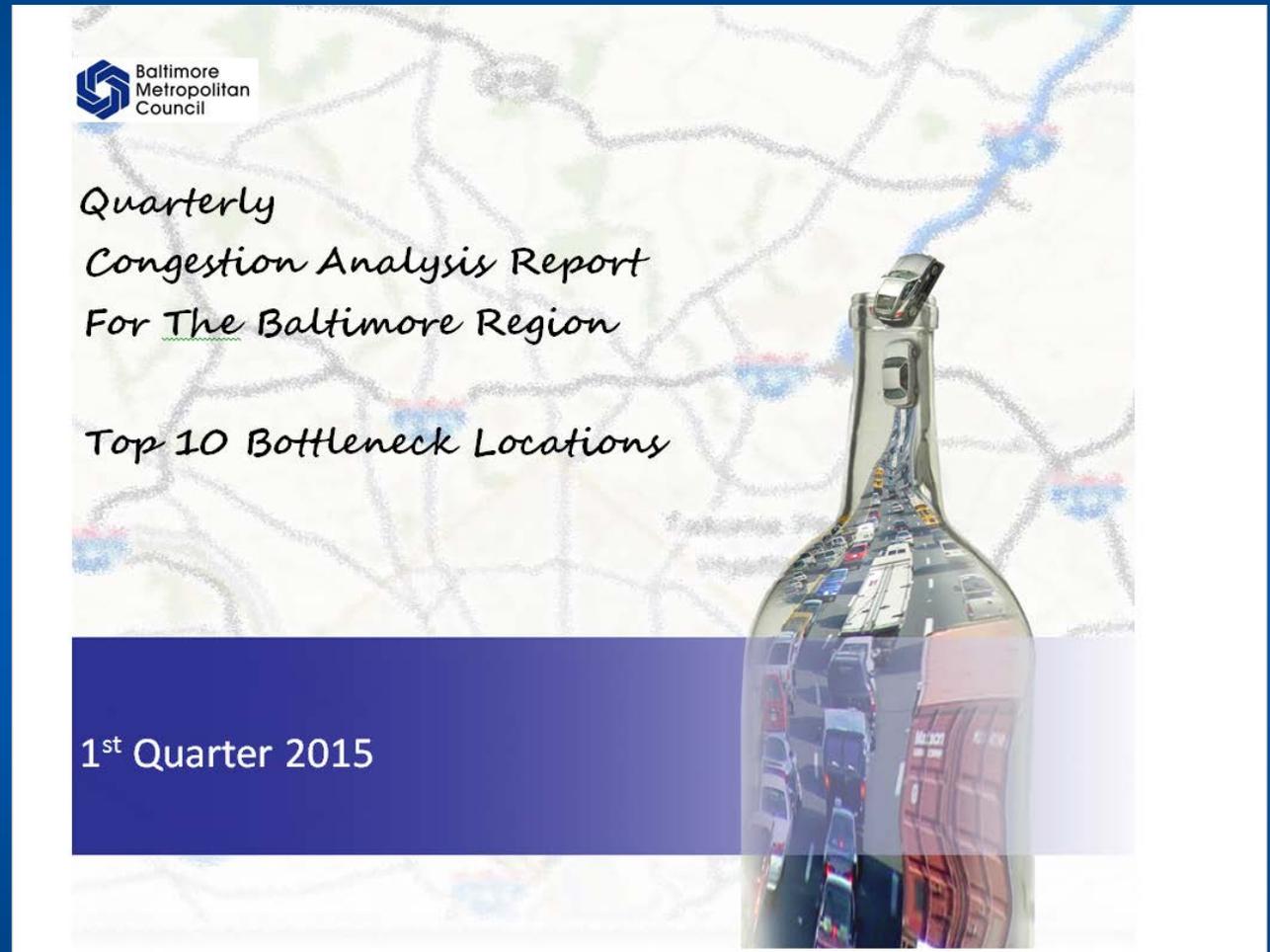
- Provided by INRIX, Tom Tom, & HERE
- 100 million anonymous mobile phones, trucks, delivery vans, fleet vehicles
- Continuous 24/7/365



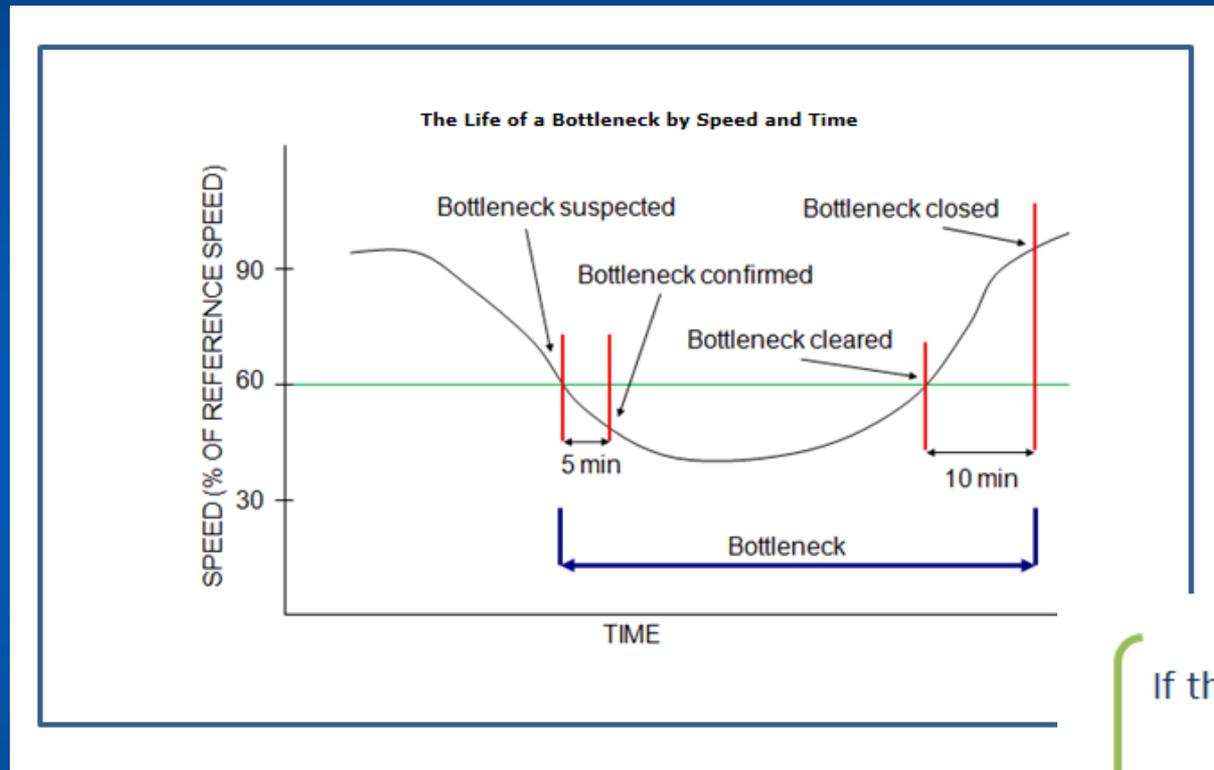


Quarterly Congestion Analysis Report

BMC has produced these reports since 2013 with archived data back to 2011



How are bottleneck conditions tracked?



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



Top 10 Bottlenecks – Q2 2015

Top 10 Bottlenecks in the Baltimore Region 2nd Quarter 2015

By Impact Factor

Number of Occurrences x Average Duration in Minutes x Average Length This table indicates the top 10 congested corridors in the region.

	Location	Average Duration	Average max length (miles)	Occurrences	Number of Incidents/ Events	Impact Factor
1	I-95 N @ MD-100/EXIT 43	2 h	6.98	234	117	196,087
2	MD-295 N @ I-195	2 h 48 m	10.96	89	169	163,871
3	MD-295 S @ MD-193	3 h 21 m	12.07	66	115	160,058
4	I-695 CCW @ US-40/EXIT 15	1 h 40 m	8.31	184	227	152,837
5	I-695 CCW @ EDMONDSON AVE/EXIT 14	2 h 36 m	9.4	103	269	151,099
6	I-695 CW @ MD-41/PERRING PKWY/EXIT 30	2 h 5 m	6.26	174	209	136,097
7	I-695 CW @ I-795/EXIT 19	2 h 35 m	9.05	86	358	120,622
8	I-695 CW @ I-83/MD-25/EXIT 23	1 h 39 m	6.95	154	231	105,980
9	MD-295 S @ POWDER MILL RD	2 h 41 m	6.4	102	82	105,134
10	MD-295 S @ GODDARD RD	2 h 35 m	9.14	59	112	83,585

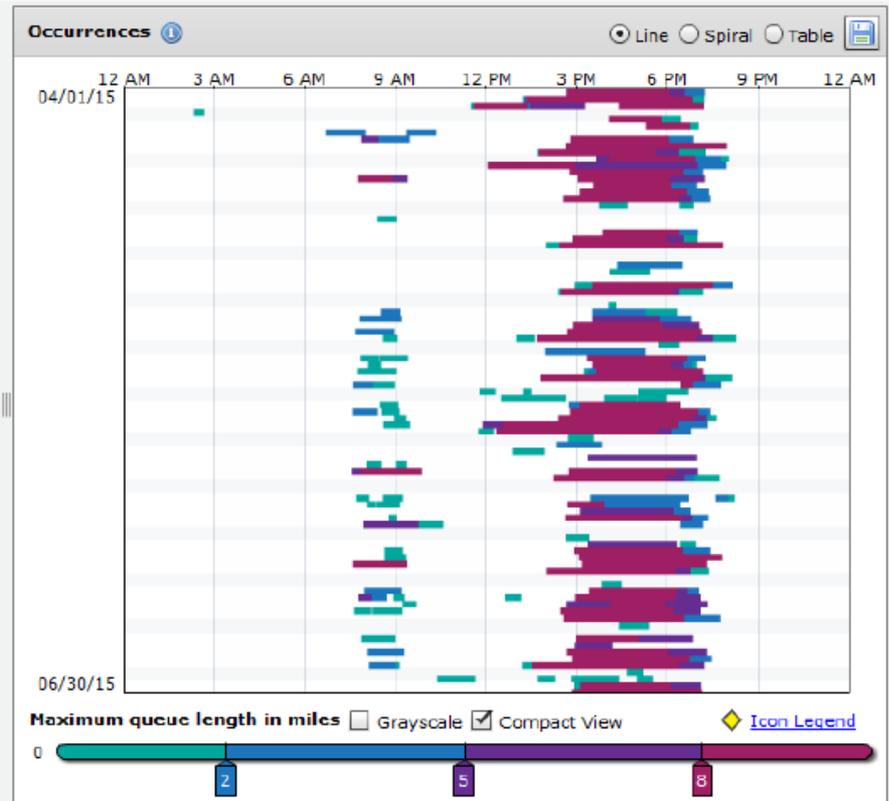
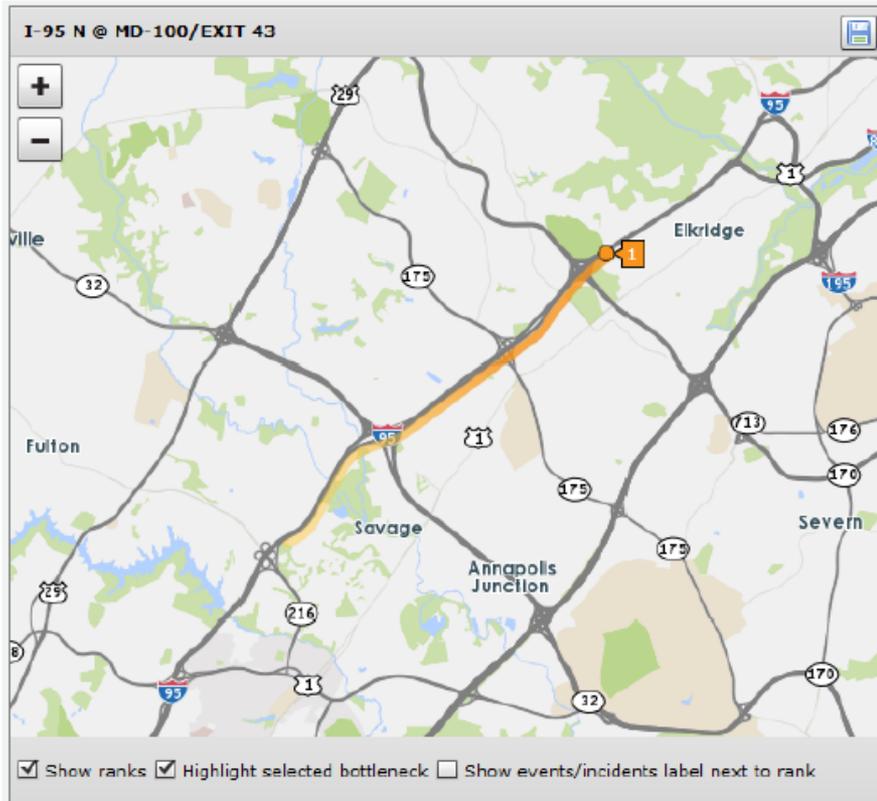
CW = Clockwise

CCW = Counterclockwise



#1 Ranked Bottleneck in the Baltimore Region - 2nd Quarter 2015

Location	Average Duration	Average max length (miles)	Occurrences	All Events/ Incidents	*Impact Factor
I-95 N @ MD-100/Exit 43	2 h	6.98	234	117	196,087



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.

Enhancements to the Congestion Analysis Report and VPP Suite



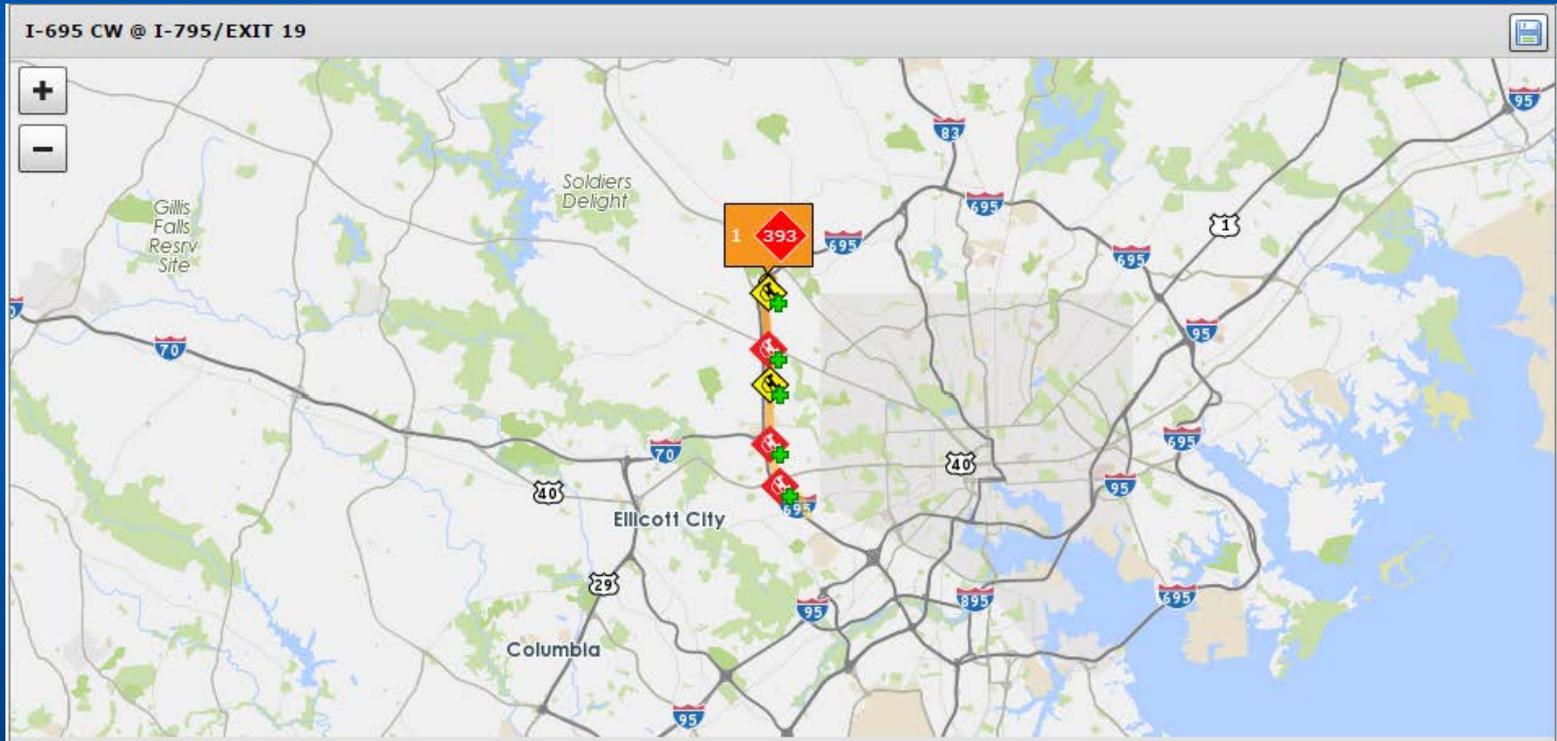
Incidents/ Events

Top Bottleneck in the Baltimore Region 1st Quarter 2015

By Impact Factor

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

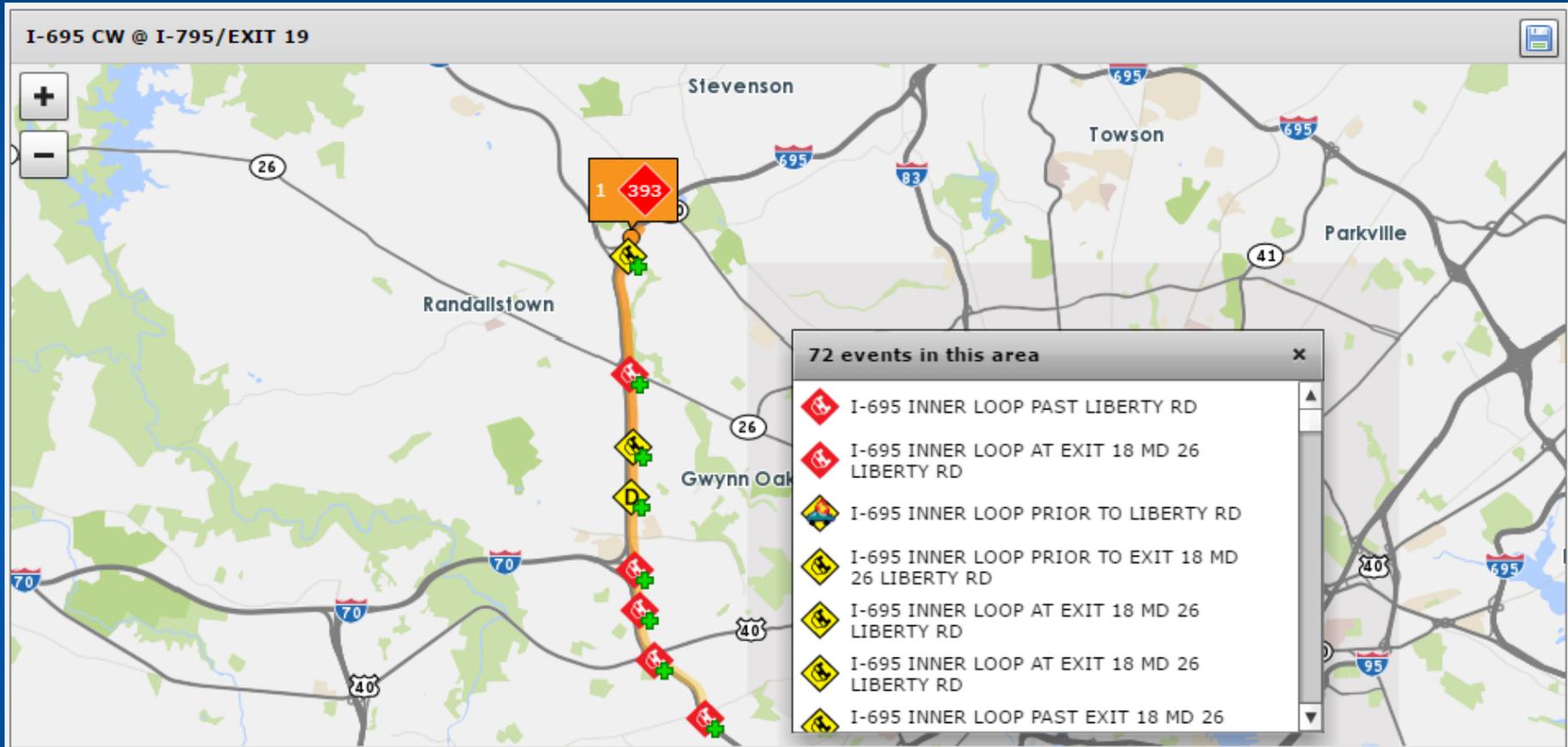
	Location	Average Duration	Average max length (miles)	Occurrences	Number of Incidents/Events	Impact Factor
1	I-695 CW @ I-795/Exit 19	2 h 16 m	8.68	153	393	180,532



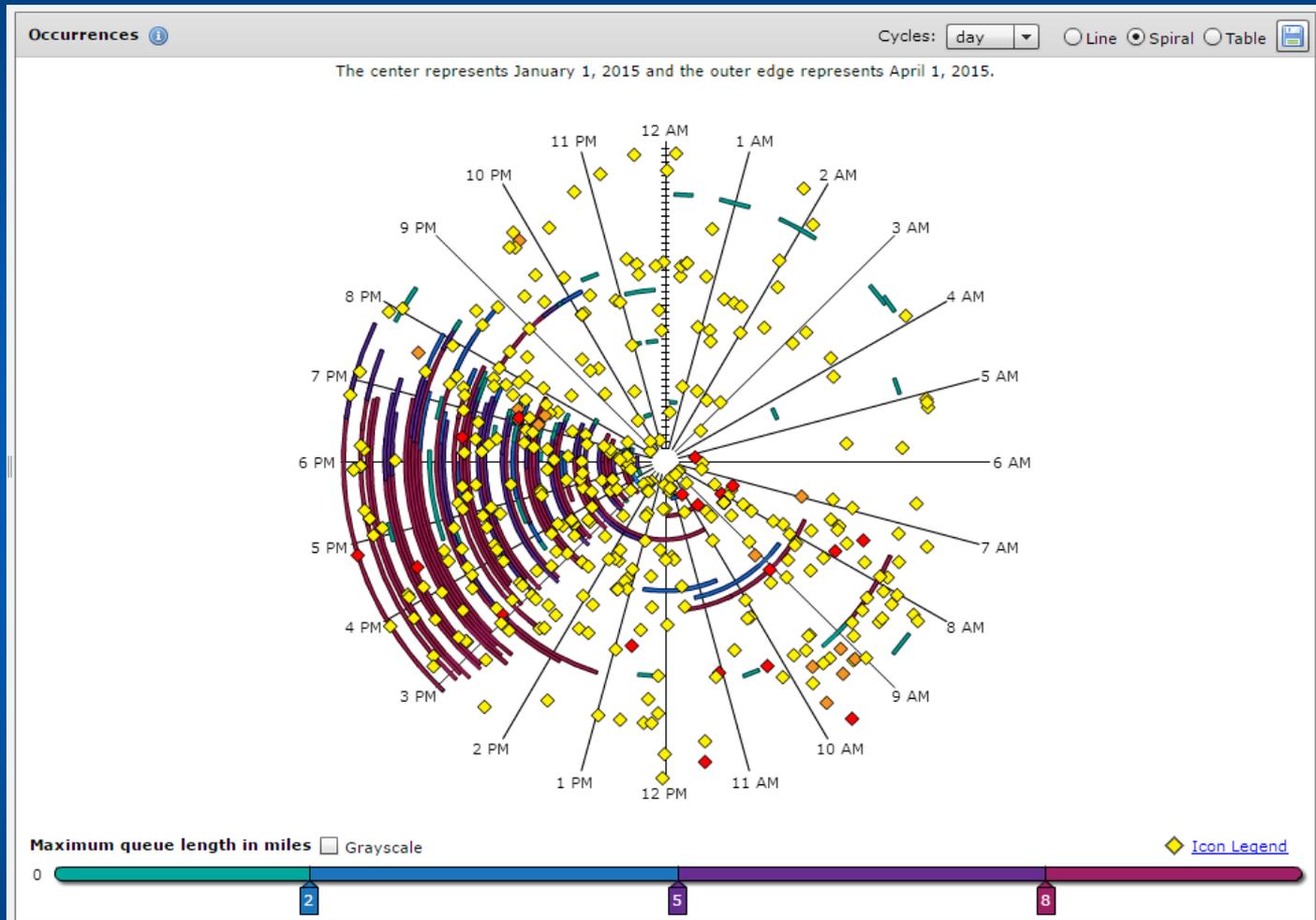
Incident/Event Icons

- | | | |
|---|---|---|
|  - Injury |  - Hazmat |  - Vehicle Fire |
|  - Police Activity |  - Debris |  - Collision |
|  - Fire |  - Flood |  - Disabled Vehicle |
|  - Closure |  - Animal Struck |  - Roadwork |
|  - Sports Event |  - Special Event |  - Emergency Roadwork |
|  - Delays |  - Congestion |  - Draw Bridge Opening |
|  - Signal System |  - Incident |  - Water Main Work |
|  - Tornado |  - Fog |  - Medical Emergency |
|  - Wind |  - Fallen Rocks |  - Overgrown Foliage |
|  - Fallen Tree |  - Other | |

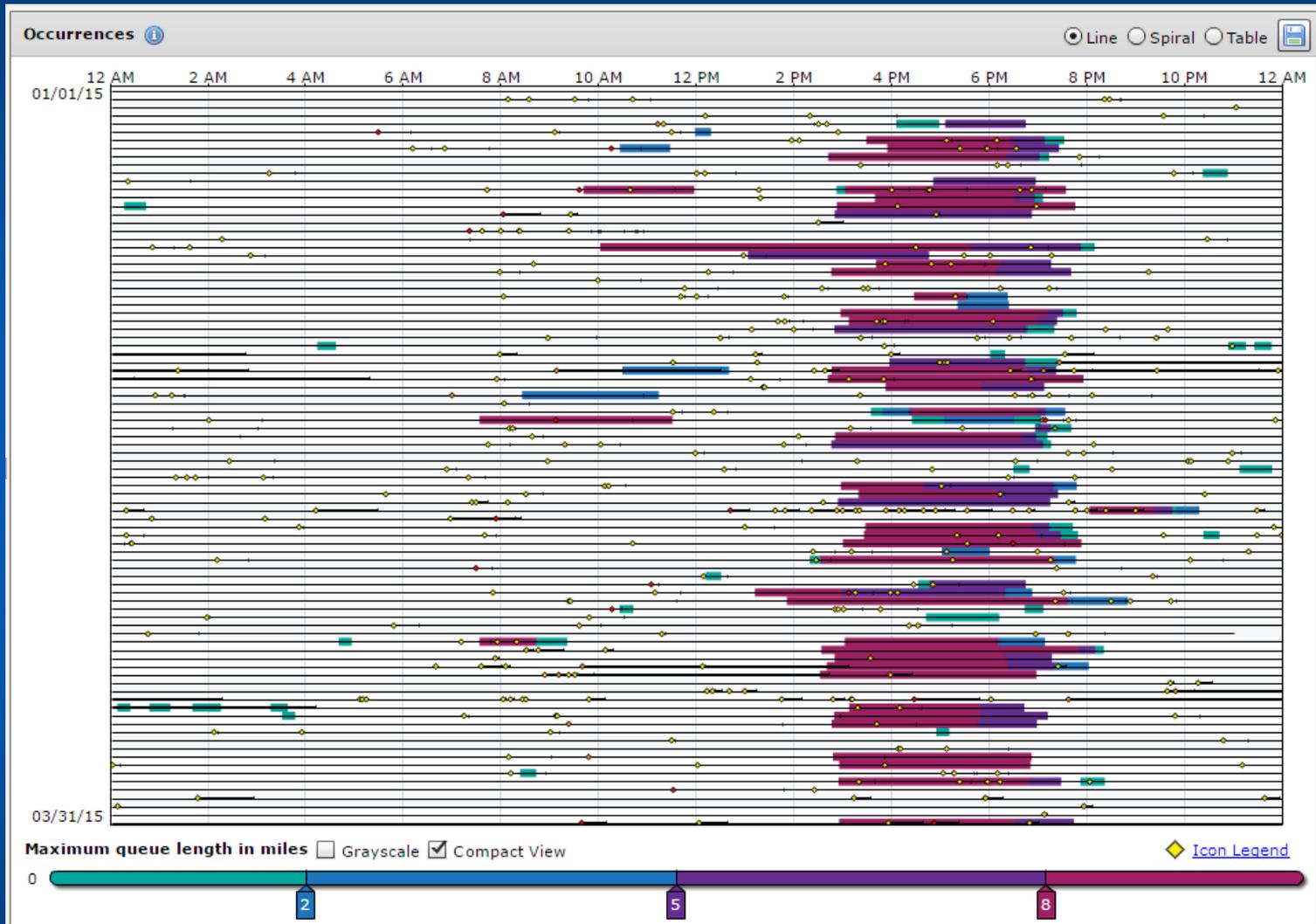
Select Incidents/Events



Occurrences



Linear Graph

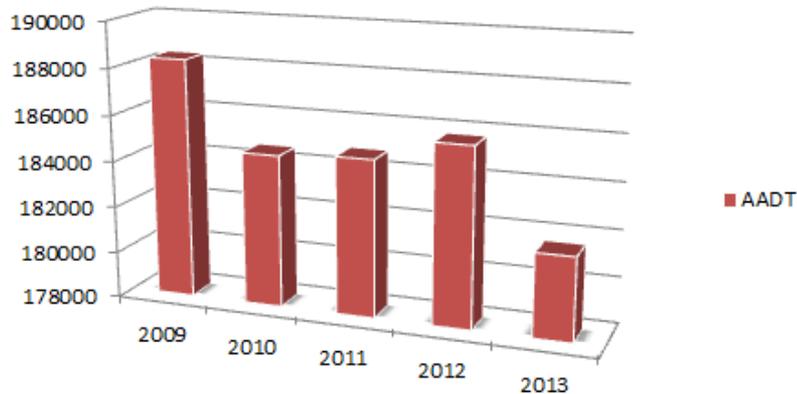


New & Future Content in the Congestion Analysis Report



Traffic Volumes

Average Annual Daily Traffic



Traffic Volumes – Average Annual Daily Traffic (AADT)
STATION_DESCRIPTION IS695-.30 MI N OF IS795

Year	AADT
2009	188,352
2010	184,580
2011	184,771
2012	185,702
2013	181,590

Notes: Longstanding west side beltway inner loop traffic in the afternoon generally between 3 and 6pm from Exit 19/I-795 often extending back to Exit 13/MD-44/Frederick Rd.



New Performance Measures – MAP21

- Travel Time (minutes)
- Travel Time Index
- Planning Time (minutes)
- Planning Time Index
- Buffer Time (minutes)
- Buffer Time Index
- Speed
- User Cost Delay



Future Enhancements from the VPP Suite



Bottleneck History

Highlight Top X bottlenecks and see how their rank changes over time.

Bottleneck ranking		2014											
State	Location	Current	Nov	Oct	Sep	Aug	Jul	Jun	May	Apr	Mar	Feb	Jan
MD	MD-4 N @ LYONS CREEK RD	9	3	5	7	3	5	8	5	7	3	5	5
MD	MD-198 E @ MD-32/PATUXENT FWY	5	6	8	9	7	8	5	8	9	7	8	8
MD	MD-355 S @ MONTROSE RD/RANDOLPH RD	1	4	2	3	4	3	4	2	3	4	3	3
MD	MD-32 E @ MD-108	3	10	9	10	8	10	10	9	10	8	10	10
MD	US-40 W @ RODGERS AVE	8	7	4	8	9	6	3	4	8	9	6	6
VA	VA-7 E @ TOWLSTON RD	7	5	3	4	5	4	6	3	4	5	4	4
VA	BRADDOCK RD @ BURKE STATION RD	6	8	10	6	10	7	7	10	6	10	7	7
VA	I-66 E @ SYCAMORE ST/EXIT 69	10	9	6	5	6	9	9	6	5	6	9	9
VA	I-95 N @ VA-7900/EXIT 169	2	1	1	2	1	1	1	1	2	1	1	1
VA	I-95 S @ VA-234/EXIT 152	4	2	7	1	2	2	2	7	1	2	2	2



System Performance Over Time

Single County



System Performance Over Time

Multiple County



Reports on the Web

<http://baltometro.org/our-work/multi-modal-planning/congestion-management>

Recent Reports

- Congestion Brochure: The Story of MD 295 in the Vicinity of MD 175, March 2014
 - CMP State of the Practice - What other regions are doing (pdf), November 2011
 - Quarterly Congestion Analysis Report For The Baltimore Region - Top 10 Bottleneck Locations:
 - 4th Quarter 2014 (pdf)
 - 3rd Quarter 2014 (pdf)
 - 2nd Quarter 2014 (pdf)
 - 1st Quarter 2014 (pdf)
 - 4th Quarter 2013 (pdf)
 - 3rd Quarter 2013 (pdf)
 - 2nd Quarter 2013 (pdf)
 - 1st Quarter 2013 (pdf)
- >> View older Congestion Analysis Reports



What can we learn from the numbers?

- Identify congested locations and corridors
- Understand recurring and non-recurring congestion patterns
- Evaluate and rank projects in the long-range plan
- Calibrate the travel demand model
- Develop operational improvements/strategies



Questions / Comments / Suggestions

- Ed Stylc
- 410-732-0500 x1031
- estylc@baltometro.org

