Quarterly Congestion Analysis Reports

• Have been reporting on the Top Ten Congested Corridors in the Region Since 2011
• Vehicle Probe Data provided by University of MD CATT Lab
  – Top 10 Bottlenecks in the Baltimore region:
    o Report with maps and graphics
    o Explanations of what is occurring at each location
  – Part of the Congestion Management Process
Quarterly Report Examples

- Location Map
- Limited access highways and major arterials only currently
# Quarterly Report Examples

- **Top 10 List**

<table>
<thead>
<tr>
<th>Location</th>
<th>Impact</th>
<th>Average max length (miles)</th>
<th>Average Daily Duration</th>
<th>Total Duration</th>
<th>All Events Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-695 IL @ I-83/M-D-25/EXIT 23</td>
<td>69,102</td>
<td>3.52</td>
<td>3 h 54 m</td>
<td>15 d 00 h 07 m</td>
<td>452</td>
</tr>
<tr>
<td>I-695 OL @ EDMONDSON AVE/EXIT 14</td>
<td>58,243</td>
<td>4.86</td>
<td>2 h 04 m</td>
<td>7 d 22 h 38 m</td>
<td>1,039</td>
</tr>
<tr>
<td>I-95 N @ M-D-100/EXIT 43</td>
<td>53,148</td>
<td>4.23</td>
<td>2 h 15 m</td>
<td>8 d 16 h 30 m</td>
<td>361</td>
</tr>
<tr>
<td>I-695 OL @ US-40/EXIT 15</td>
<td>51,977</td>
<td>3.82</td>
<td>2 h 29 m</td>
<td>9 d 12 h 43 m</td>
<td>935</td>
</tr>
<tr>
<td>MD-295 S @ MD-198</td>
<td>49,167</td>
<td>2.58</td>
<td>3 h 21 m</td>
<td>12 d 21 h 51 m</td>
<td>365</td>
</tr>
<tr>
<td>I-95 S @ I-495/EXIT 27-25</td>
<td>47,942</td>
<td>2.28</td>
<td>3 h 37 m</td>
<td>13 d 21 h 06 m</td>
<td>258</td>
</tr>
<tr>
<td>I-695 IL @ I-70/EXIT 16</td>
<td>42,926</td>
<td>2.00</td>
<td>3 h 18 m</td>
<td>12 d 15 h 51 m</td>
<td>265</td>
</tr>
<tr>
<td>I-895 N @ HARBOR TUNNEL THWY (NORTH)</td>
<td>40,739</td>
<td>0.70</td>
<td>4 h 12 m</td>
<td>16 d 03 h 23 m</td>
<td>270</td>
</tr>
<tr>
<td>MD-295 S @ POWDER MILL RD</td>
<td>39,505</td>
<td>4.96</td>
<td>1 h 35 m</td>
<td>6 d 01 h 57 m</td>
<td>271</td>
</tr>
<tr>
<td>I-695 OL @ I-83/M-D-25/EXIT 23</td>
<td>34,816</td>
<td>4.59</td>
<td>1 h 23 m</td>
<td>5 d 08 h 17 m</td>
<td>540</td>
</tr>
</tbody>
</table>

**By Impact Factor**

(Number of Occurrences x Average Duration in Minutes x Average Length)
Quarterly Report Examples

Listing

#1 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2017

<table>
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<th>Location</th>
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<td>3.52</td>
<td>3 h 54 m</td>
<td>15 d 00 h 07 m</td>
<td>452</td>
</tr>
</tbody>
</table>

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.
Quarterly Report Examples

• Listing

#1 Ranked Bottleneck in the Baltimore Region – 4th Quarter 2017

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<td>15 d 00 h 07 m</td>
<td>452</td>
</tr>
</tbody>
</table>

Traffic Volumes – Average Annual Daily Traffic (AADT)

Station_Description: I-695–0.5 M I N of Greenspring Ave

<table>
<thead>
<tr>
<th>Year</th>
<th>AADT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>183702</td>
</tr>
<tr>
<td>2015</td>
<td>182510</td>
</tr>
<tr>
<td>2016</td>
<td>185541</td>
</tr>
</tbody>
</table>
Quarterly Report 2018

• New Analytics

How are bottleneck conditions tracked?

• **Rank** - The ranked position of the location according to the current table ordering by **Total Delay** - Raw speed drop weighted by vehicle miles traveled (VMT) factor

• **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

<table>
<thead>
<tr>
<th>Rank</th>
<th>Location</th>
<th>Average max length (miles)</th>
<th>Average Daily Duration</th>
<th>All Events/Incidents</th>
<th>Volume Estimate (AADT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I-695 OL @ EDMONDSON AVE/EXIT 14</td>
<td>5.01</td>
<td>2 h 43 m</td>
<td>834</td>
<td>88946</td>
</tr>
<tr>
<td>2</td>
<td>I-695 IL @ I-83/MD-25/EXIT 23</td>
<td>3.53</td>
<td>2 h 56 m</td>
<td>463</td>
<td>95048</td>
</tr>
<tr>
<td>3</td>
<td>I-695 IL @ I-70/EXIT 16</td>
<td>2.11</td>
<td>2 h 54 m</td>
<td>233</td>
<td>95068</td>
</tr>
<tr>
<td>4</td>
<td>I-695 OL @ US-40/EXIT 15</td>
<td>3.57</td>
<td>1 h 48 m</td>
<td>766</td>
<td>89850</td>
</tr>
<tr>
<td>5</td>
<td>I-95 N @ MD-100/EXIT 43</td>
<td>4.23</td>
<td>1 h 22 m</td>
<td>310</td>
<td>95604</td>
</tr>
<tr>
<td>6</td>
<td>I-95 N @ MD-295/BALTIMORE WASHINGTON PKWY/EXIT 52</td>
<td>2.26</td>
<td>1 h 50 m</td>
<td>641</td>
<td>93260</td>
</tr>
<tr>
<td>7</td>
<td>MD-295 S @ POWDER MILL RD</td>
<td>5.26</td>
<td>1 h 24 m</td>
<td>318</td>
<td>45940</td>
</tr>
<tr>
<td>8</td>
<td>I-695 IL @ MD-542/LOCH RAVEN BLVD/EXIT 29</td>
<td>3.71</td>
<td>53 m</td>
<td>496</td>
<td>85789</td>
</tr>
<tr>
<td>9</td>
<td>I-95 N @ MD-175/EXIT 41</td>
<td>3.23</td>
<td>1 h 12 m</td>
<td>243</td>
<td>95344</td>
</tr>
<tr>
<td>10</td>
<td>I-695 OL @ I-83/MD-25/EXIT 23</td>
<td>3.48</td>
<td>1 h 06 m</td>
<td>484</td>
<td>79378</td>
</tr>
</tbody>
</table>

IL = Inner Loop  OL = Outer Loop
Quarterly Report 2018

- Simplified Graphics

#1 Ranked Bottleneck in the Baltimore Region – 1st Quarter 2018

<table>
<thead>
<tr>
<th>Location</th>
<th>Average max length (miles)</th>
<th>Average Daily Duration</th>
<th>All Events/Incidents</th>
<th>Volume Estimate (AADT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-695 OL @ EDMONDS AVE/EXIT 14</td>
<td>5.01</td>
<td>2 h 45 m</td>
<td>834</td>
<td>889,460</td>
</tr>
</tbody>
</table>

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 few times during the 1st quarter of 2018 it extended as far as Towson. A beltway widening project is underway in the area.
Quarterly Report 2018

- Simplified Graphics

Speed for I-695 OL @ EDMONDSON AVE/EXIT 14
Averaged per five minutes for January 01, 2018 through March 31, 2018
Outer Loop

Speed (mph)

12:00 AM 2:00 AM 4:00 AM 6:00 AM 8:00 AM 10:00 AM 12:00 PM 2:00 PM 4:00 PM 6:00 PM 8:00 PM 10:00 PM

- January 01, 2018 through March 31, 2018 - INRIX
- January 01, 2018 through March 31, 2018 25th and 75th percentile - INRIX
- January 01, 2018 through March 31, 2018 5th and 95th percentile - INRIX
Annual Congestion Analysis Report

- Future – 2018
- Expanded version of Quarterly reports
- Probe Data Analytics Suite no longer limited to 3 month queries
- Top 25 Regional Bottlenecks
- Top 10 (or more) for each regional jurisdiction
- Not limited to limited access highways or arterials
- Includes all roads in the available probe data coverage
Annual Report – New Features

• Status of congestion regionally and by jurisdiction
• New Map 21 Performance Measures – Travel Time Reliability Measures (MPA & UZA), Peak Hour Excessive Delay (UZA only)
Map 21 Truck Time Reliability - MPA

MD - Baltimore Regional Transportation Board, Baltimore (BRTB)
MAP-21 Truck Travel Time Reliability Index

2017 Target
less than
1.87

Year-to-Date
2017

Target: The system should have a TTTR less than 1.87

Calculated using 100.00% of miles in Baltimore Regional Transportation Board
Data source: NPMRDS INRIX
Map 21 Truck Time Reliability - MPA

Target: The system should have a TTTR less than 1.87

Calculated using 100.00% of miles in Baltimore Regional Transportation Board

Data source: NMMOS INRIX
Map 21 Peak Hour Excessive Delay- UZA

2017 Annual Hours of Peak Hour Excessive Delay Per Capita for Baltimore (MD)

Baltimore, MD
MAP-21 Annual Hours of Peak Hour Excessive Delay Per Capita

2017 Target
less than
20.2h

Year-to-Date
2017

Target: The system should have a PHED per capita less than 20.2h annually (1.683h for each month)

Calculated using 100.00% of miles in Baltimore
Data source: NPMRDS INRIX
Most Unreliable Segments - MPA
Long Range Plan and T.I.P. Projects overlayed with speed data (AM Peak)
Passerelle Replacement at Rogers Avenue Metro Station

- Replace existing passerelle (elevated pedestrian walkway) due to deterioration
- Federal request: $800,000 for final design & construction
South Shore Trail Phase II

- Construction of a 10’ wide shared use-path extending from Annapolis Road to Bonheur Drive
- Federal request: $4,188,800 for construction
Bicycle Initiatives in Anne Arundel Co

- Complete an access study to all elementary and middle schools as well as introduce bicycle safety training at 20 schools for grades 3-5.

- Federal request: $145,120 for non-infrastructure
Reisterstown Plaza Metro Station

- Stormwater management pond repair and retrofit
- Federal request: $1,320,000 for design and construction
Warren Road Light Rail Station

- Stormwater management pond repair and retrofit
- Federal request: $700,000 for design and construction
Torrey C Brown Trail

- Develop a toolbox of solutions in 6 categories that will cover 37 bridges over 19.7 miles
- Federal request: $305,000 for design
Willow Pond SWM in Carroll County

- Deepen the pond to decrease thermal impacts and reconnect 1700 linear feet of stream channel
- Federal request: $2,796,000 for construction
Ma & Pa Connector Trail

- Connect two existing sections of the Ma & Pa Trail, providing access to three communities and four County park systems

- Federal request: $3,999,159 for construction
Next Steps for TA Applications

• Applications not recommended for funding are eligible in the statewide competition: $10 million available in FY 2019

• Provide continued support for developing TA applications through BPAG:
  – Share webinar on developing BUILD applications for trail projects
  – Share May 2018 list of US DOT fund sources available to fund bicycle and pedestrian projects
For more information

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