TRAFFIC ANALYSIS ON SAFETRACK & SUMMER-TO-FALL TRANSITION

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System Performance, Operations and Technology Subcommittee (SPOTS) &
Vehicle Probe Data Users Group (VPDUG) Joint Meeting

September 14, 2016

Overview

- WMATA SafeTrack Safety Surges 1-4
- Summer-to-Fall transition
  - “September Shock”
  - “Terrible Traffic Tuesday” (the day after Labor Day)

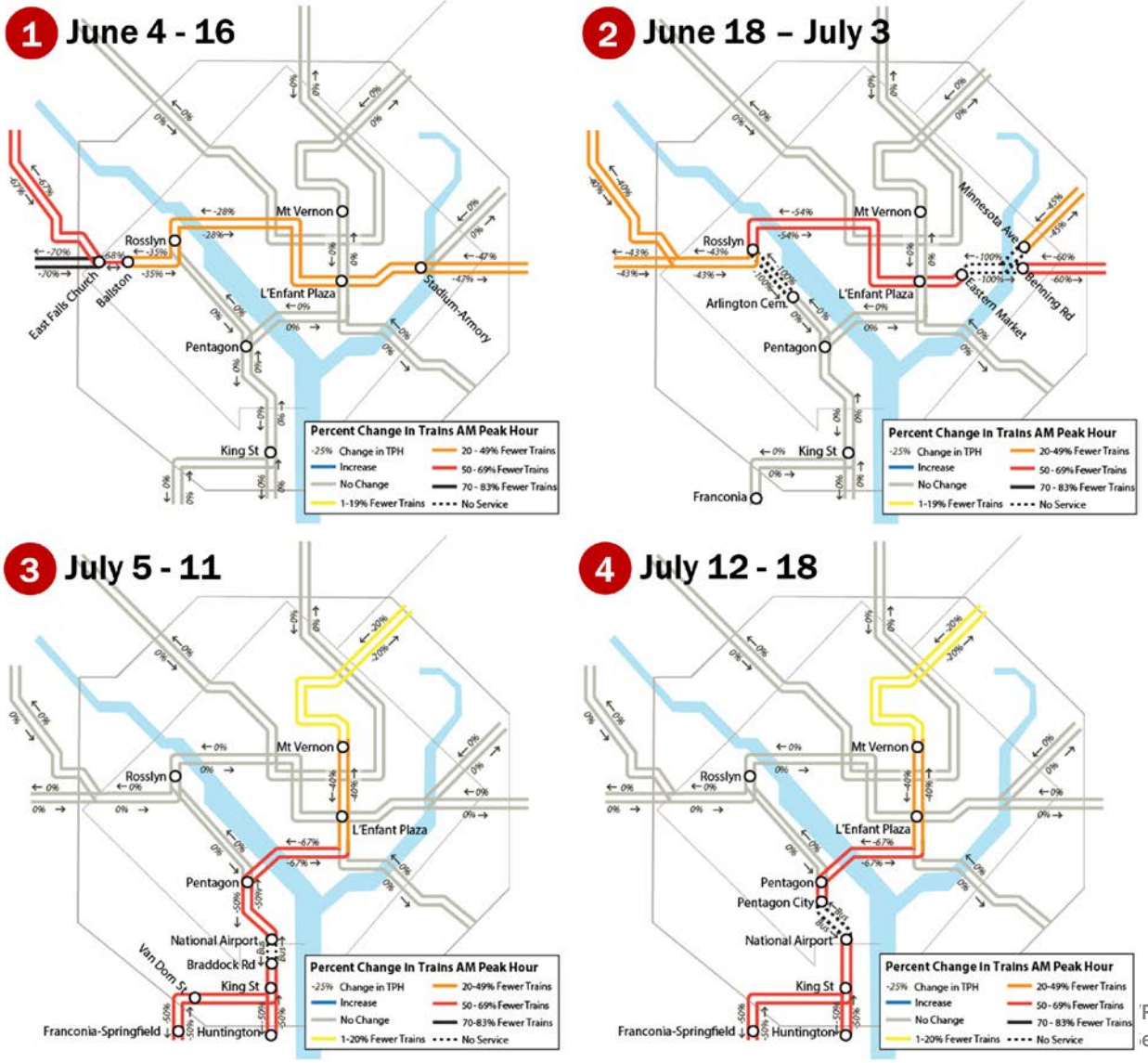
SafeTrack Safety Surges 1-4

SafeTrack

- Continues single tracking or line segment shutdown for multiple days or weeks http://www.wmata.com/rail/safetrack.cfm

Surge	Dates	Metro Lines	Work Zone	Number of Impacted Peak Trips per Day	Impacted Trips as a Percentage of Average Weekday Trips
1	6/4 – 6/16	Orange, Silver	Single tracking between East Falls Church and Ballston	255,000	36%
2	6/18 – 7/3	Orange, Silver, Blue	Shutdown between Eastern Market and Minnesota Ave. / Benning Road	293,000	41%
3	7/5 – 7/11	Yellow, Blue	Shutdown between DCA and Braddock Road	204,000	29%
4	7/12-7/18	Yellow, Blue	Shutdown between DCA and Pentagon City	204,000	29%

Safety Surges 1-4

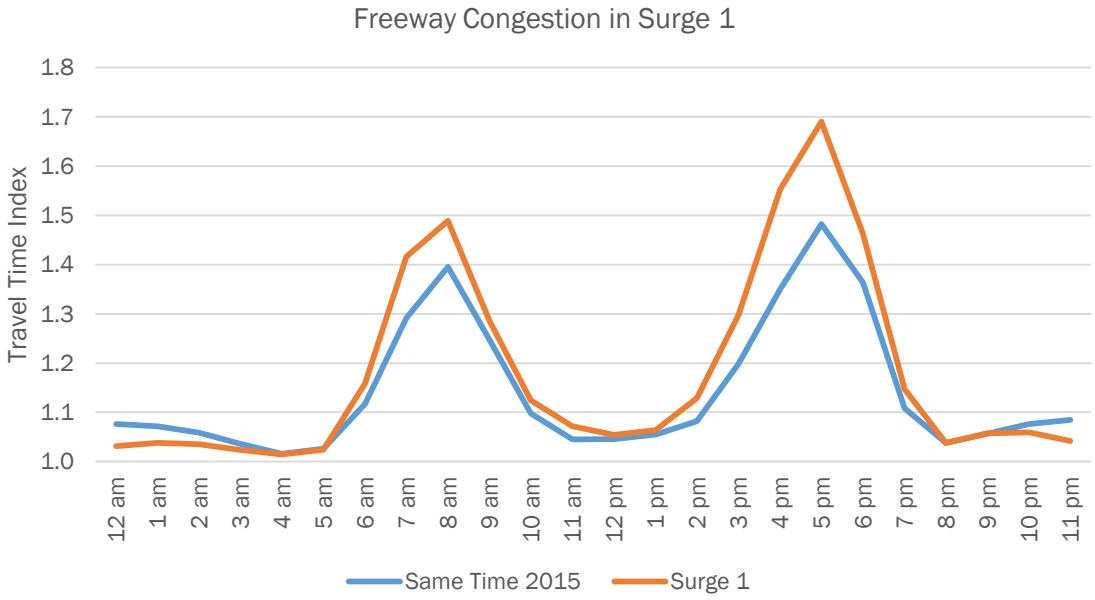


Methodology

- INRIX data downloaded from the VPP Suite
- TPB Planning Area
  - Total 5,500 directional miles of roads
  - 720 miles of freeways; 4,780 miles of arterials
- Comparison
  - The average traffic conditions during the weekdays of each safety surge to conditions observed during the same time period last year
  - Regional average
  - Road segment

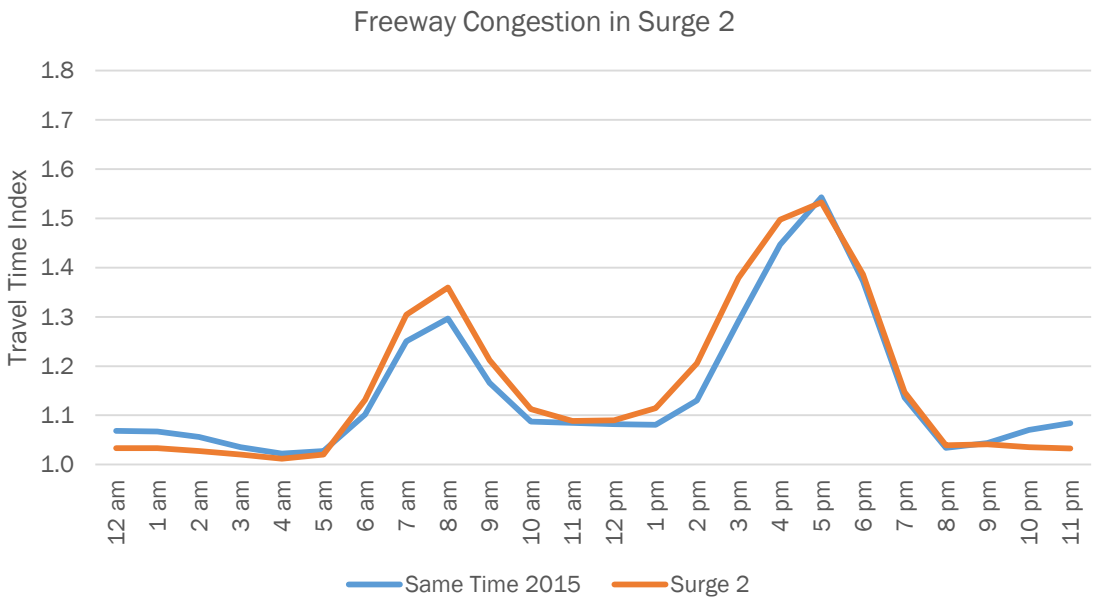
Freeway Congestion – Surge 1

- Safety Surge 1 had the most significant congestion increases among all four safety surges.
- Peak spreading and intensifying were observed in both AM and PM peaks.
- Average freeway congestion, indicated by the Travel Time Index (the ratio of actual travel time to free-flow travel time), was 10% and 15% higher in the 7:00-8:00 A.M. hour and the 4:00-5:00 P.M. hour than for the same period last year



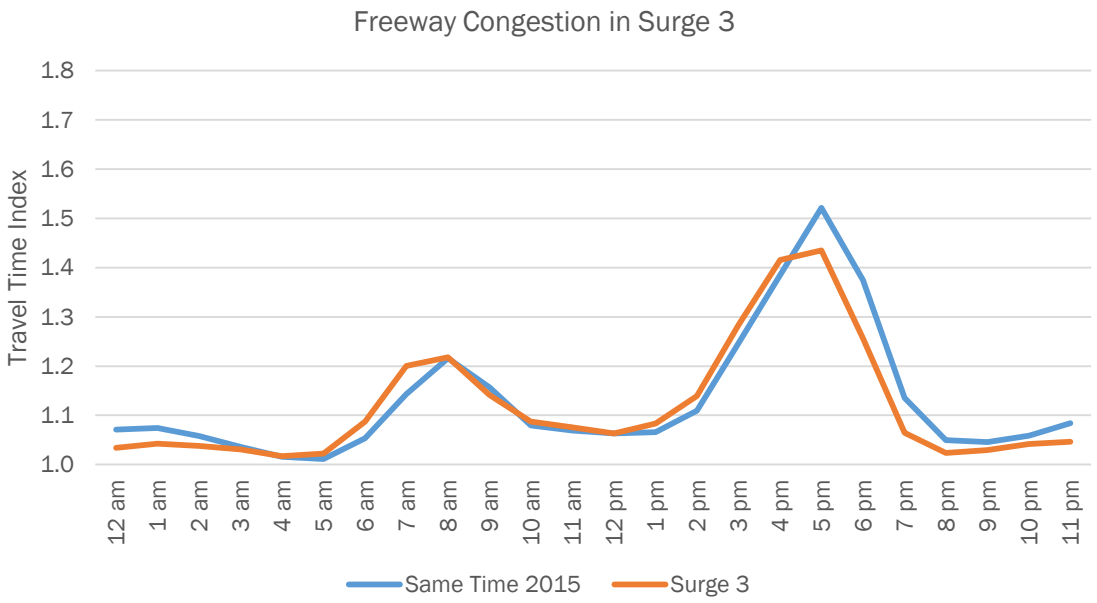
Freeway Congestion – Surge 2

- During Safety Surge 2, the AM peak period saw a 5% increase in congestion while no notable change was seen during the typical PM peak.
- There was, however, a 7% increase in congestion during the early afternoon hours between 2:00-4:00 P.M.



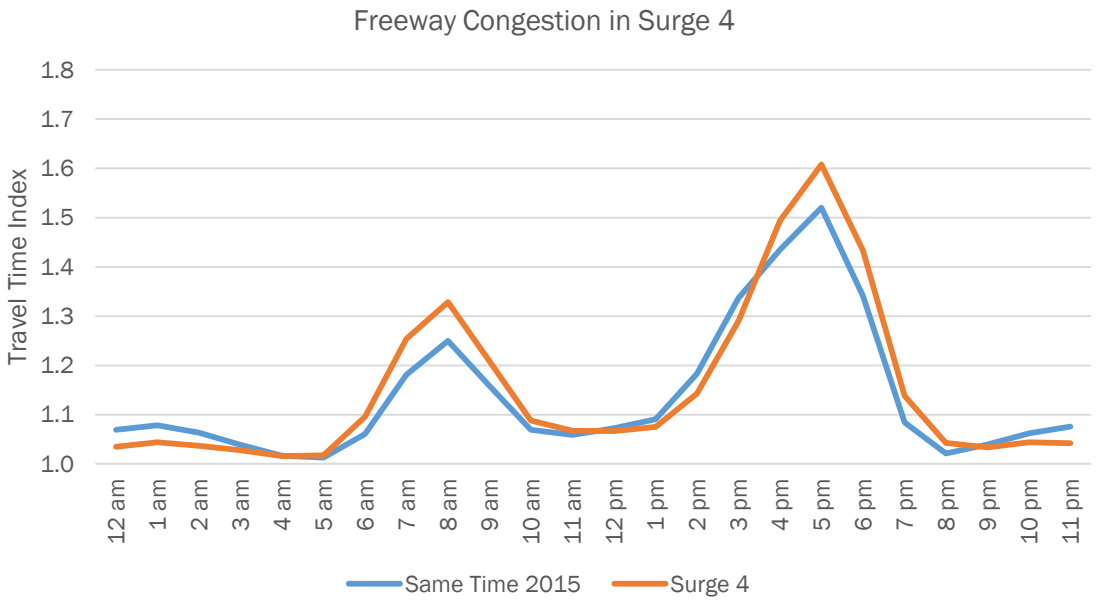
Freeway Congestion – Surge 3

- Safety Surge 3 had the least congestion increase of all four safety surges.
- There was only a 3-5% increase between 6:00-8:00 A.M.; for 5:00 P.M. and later, congestion was actually lower than for the same period last year



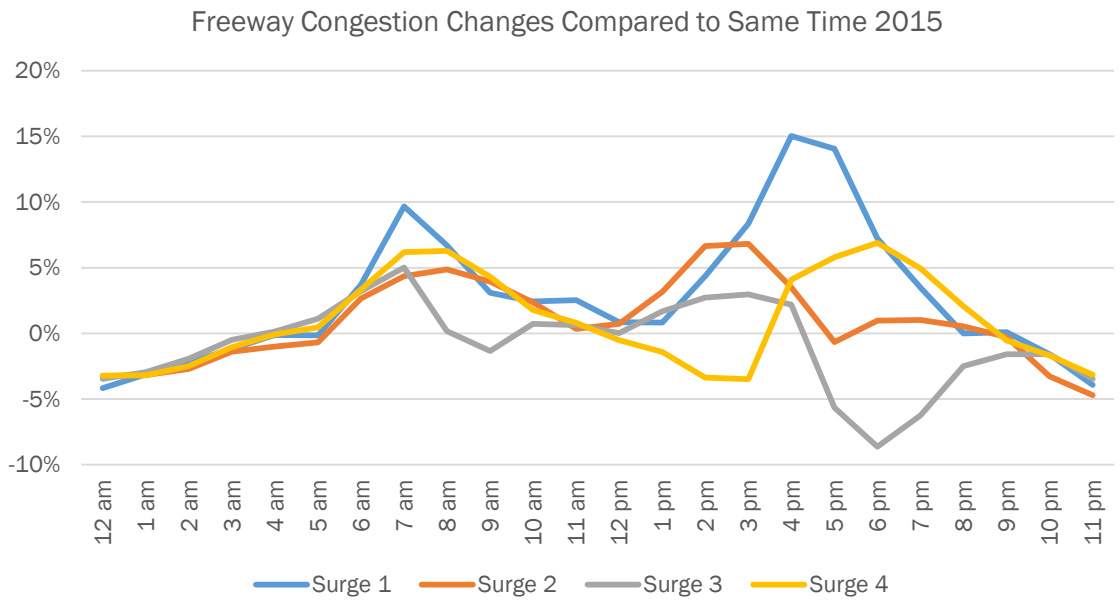
Freeway Congestion – Surge 4

- During Safety Surge 4, the AM peak saw a 6% increase in congestion between 7:00-9:00 A.M., and a 5-7% increase between 5:00-8:00 P.M.



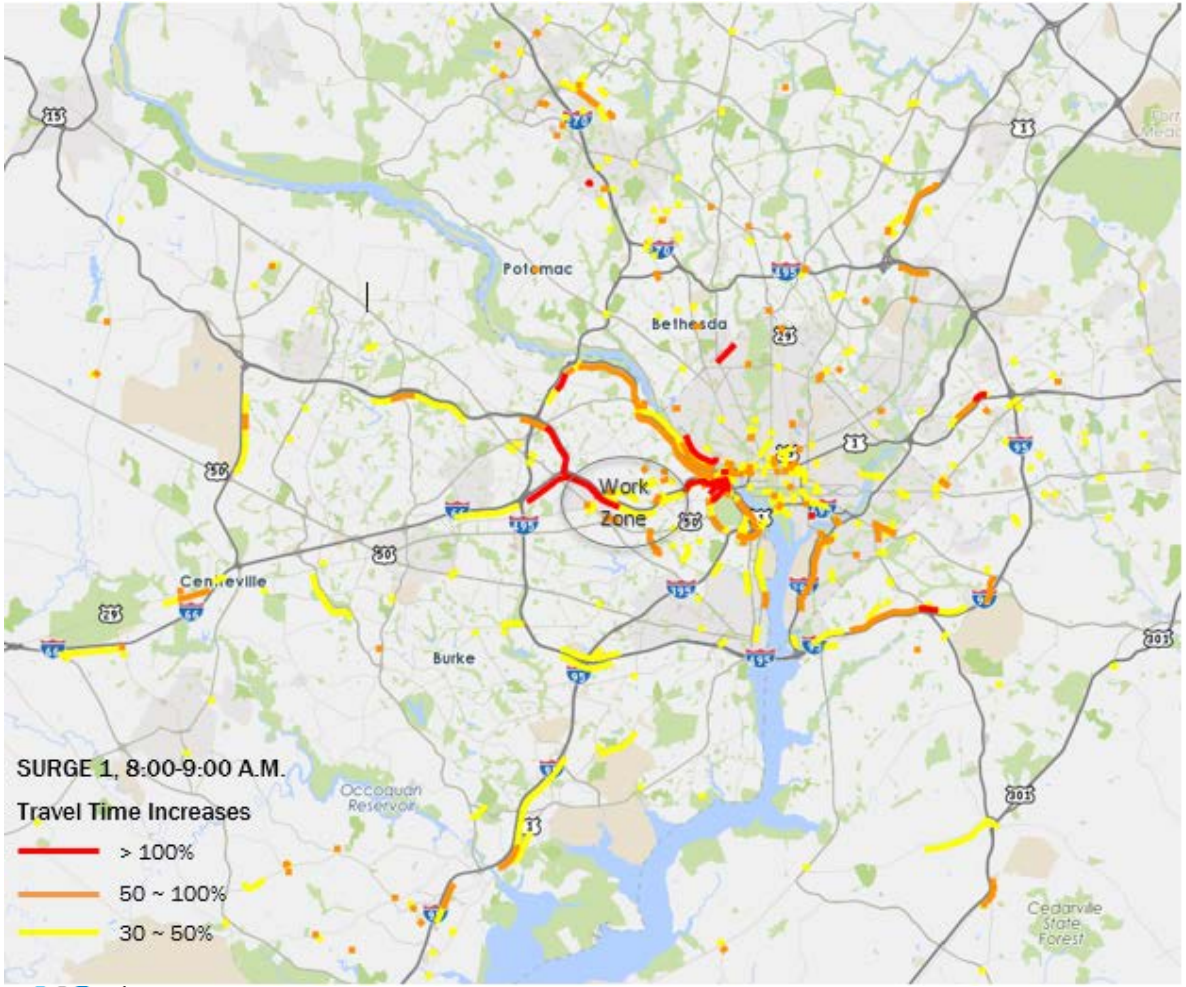
Freeway Congestion – Surges 1-4

- The magnitude of change of congestion on the region's non-freeway arterials (not shown in the figures) was significantly less than the magnitude of change experienced on freeways.
- A seasonal decrease of traffic congestion was observed from Safety Surge 1 through Safety Surge 4, as was observed during the same time period last year as summer began and schools closed for summer break. This may have helped to partially offset traffic increases that may have been introduced by Safety Surges 2 through 4.



Segments w/ Most-Significant Changes: Surge 1, AM

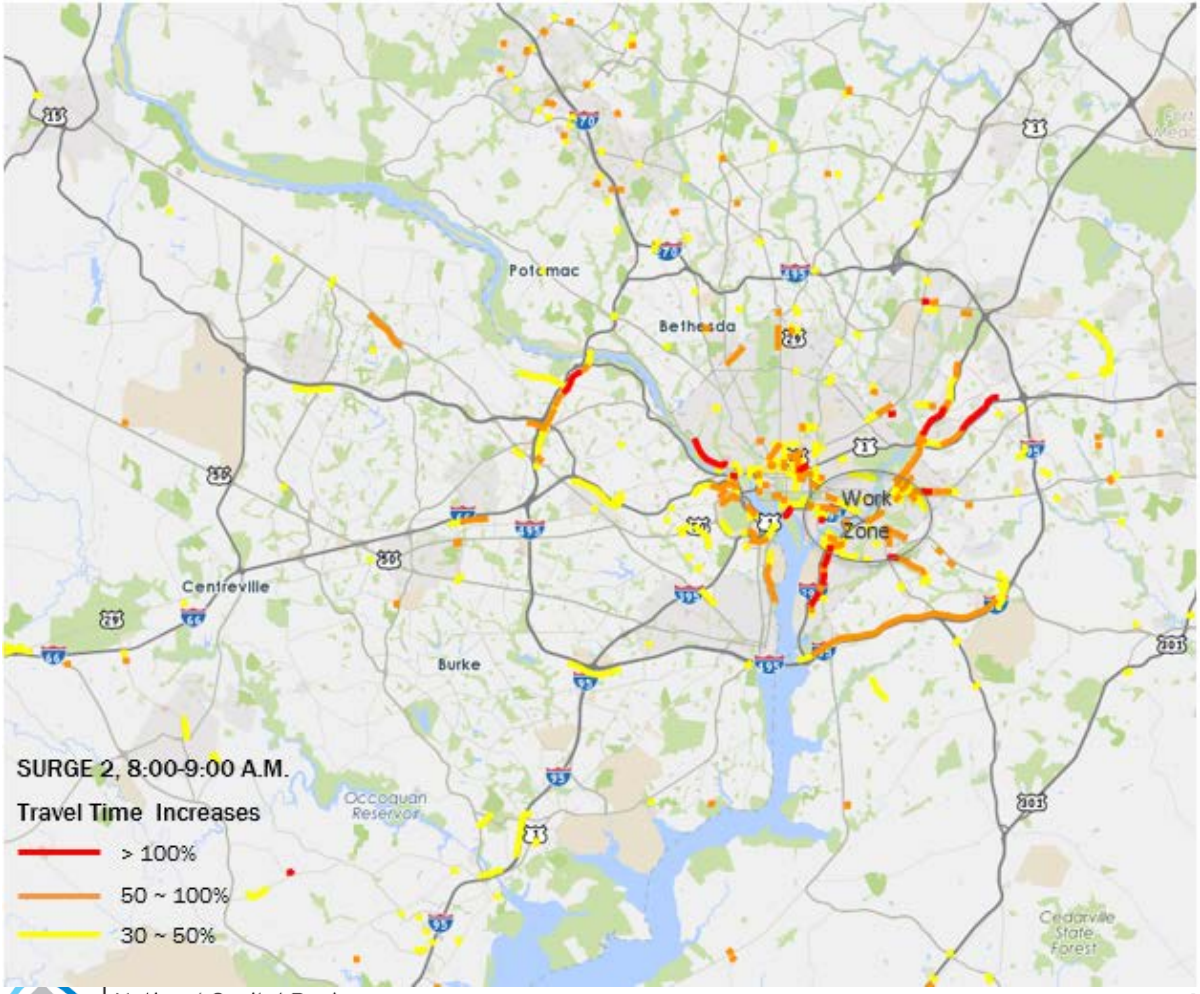
Travel Time Increases in AM Peak Hour (8:00-9:00 A.M.) in Surge 1
Compared to the Same Time in 2015



The greatest increases in congestion occurred in the triangle formed by I-66 EB inside the Beltway, the George Washington Memorial Parkway, I-495 and VA-267

Segments w/ Most-Significant Changes: Surge 2, AM

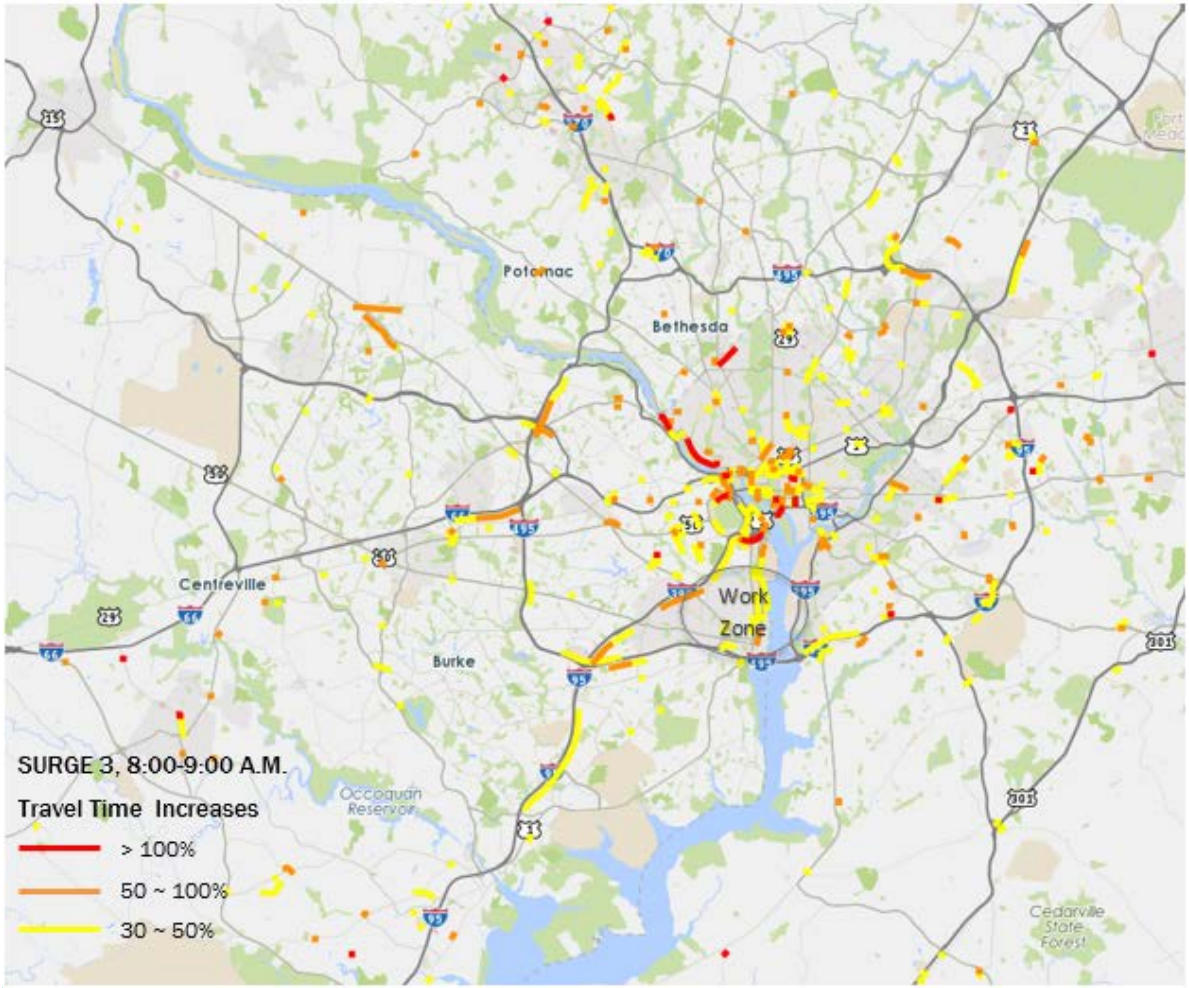
Travel Time Increases in AM Peak Hour (8:00-9:00 A.M.) in Surge 2
Compared to the Same Time in 2015



During Safety Surge 2, the largest congestion increases were observed along inbound routes towards DC along I-295 NB, the Baltimore-Washington Parkway and DC-295 SB, US-50 WB, and East Capitol St. N.E. WB

Segments w/ Most-Significant Changes: Surge 3, AM

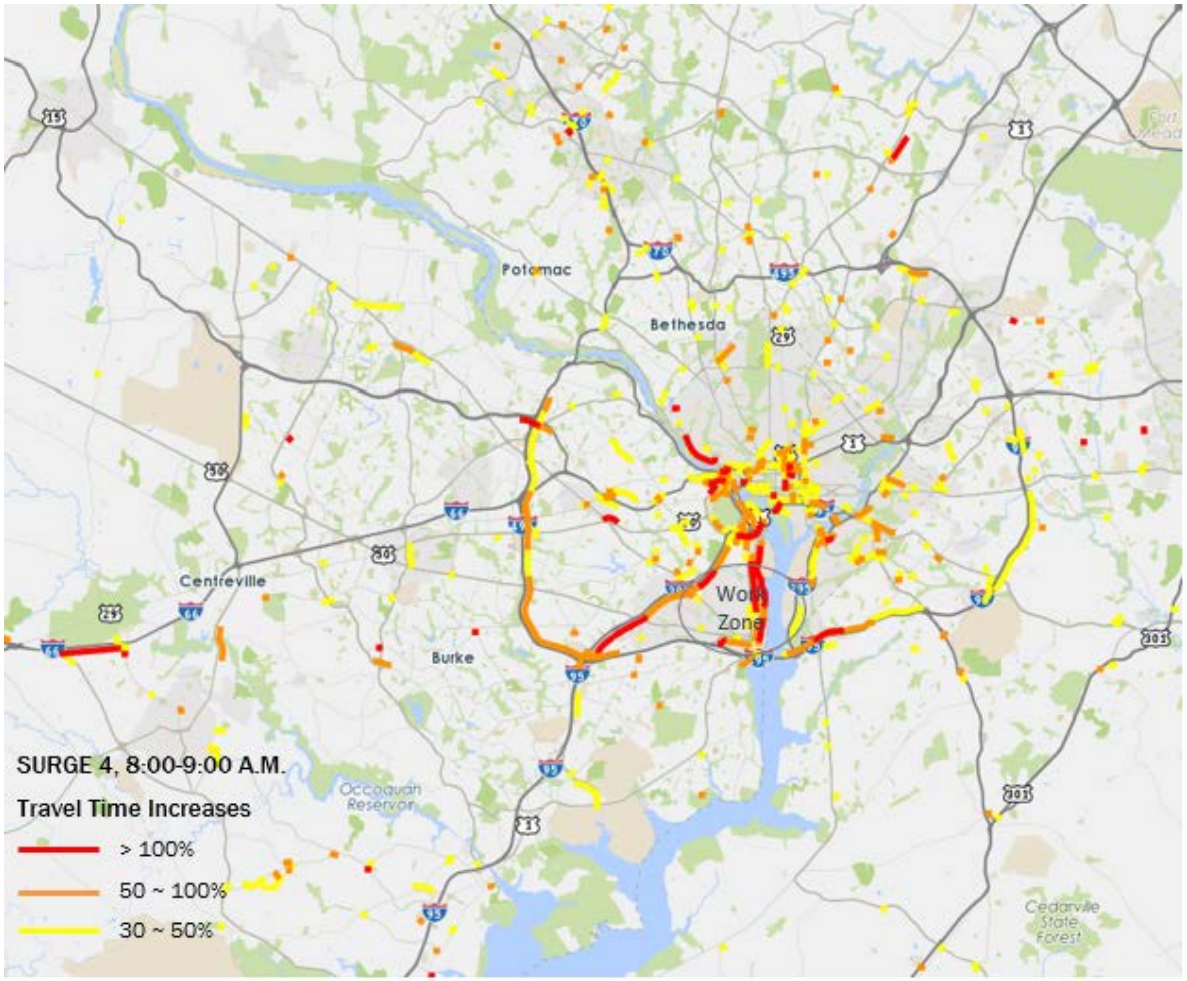
Travel Time Increases in AM Peak Hour (8:00-9:00 A.M.) in Surge 3
Compared to the Same Time in 2015



During Safety Surge 3, congestion increase along I395 NB and US-1 NB in northern Virginia were also noticeable

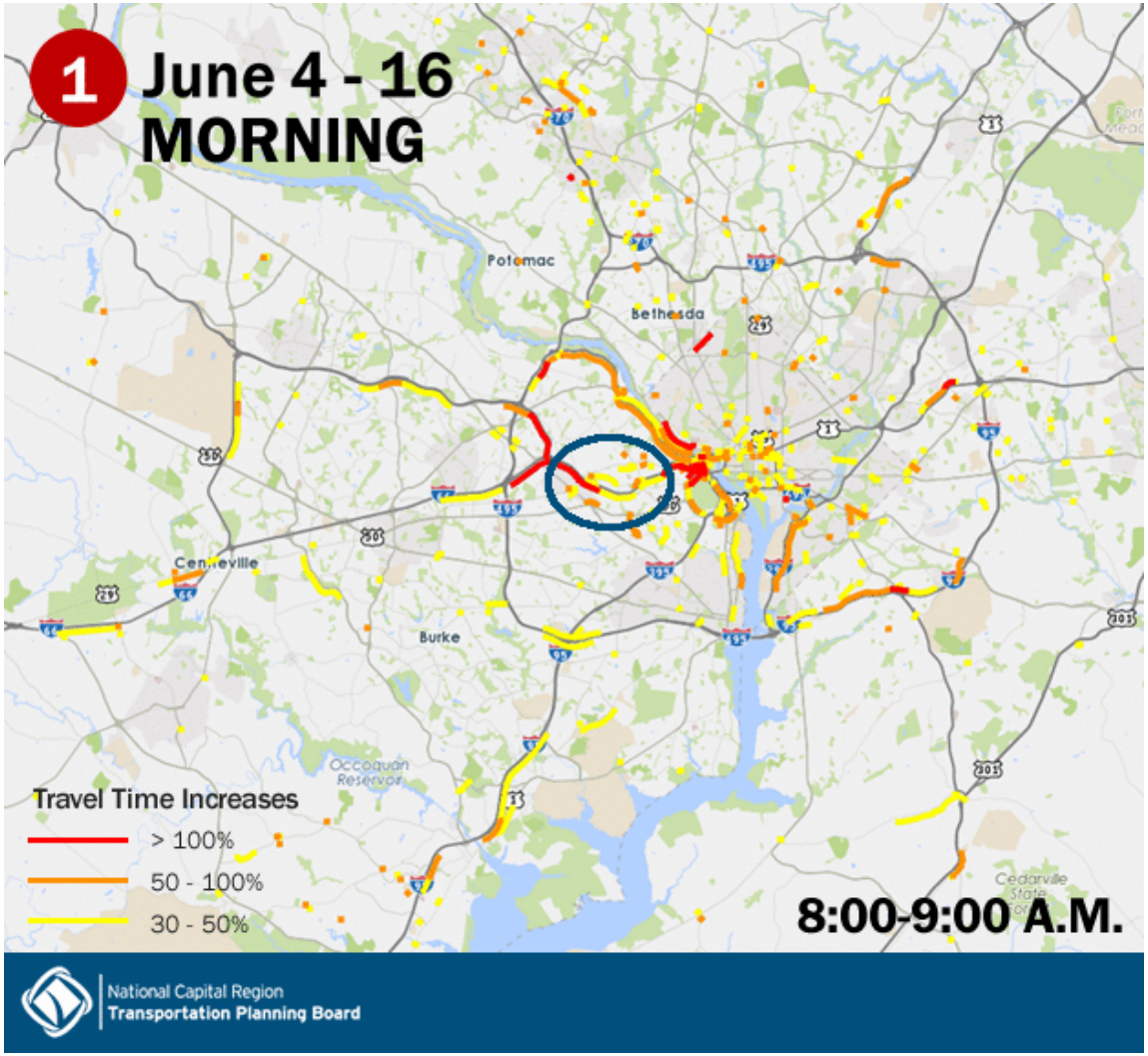
Segments w/ Most-Significant Changes: Surge 4, AM

Travel Time Increases in AM Peak Hour (8:00-9:00 A.M.) in Surge 4
Compared to the Same Time in 2015



During Safety Surge 4, I-395 NB, US-1 NB, and George Washington Memorial Parkway NB saw over 100% increases in travel times

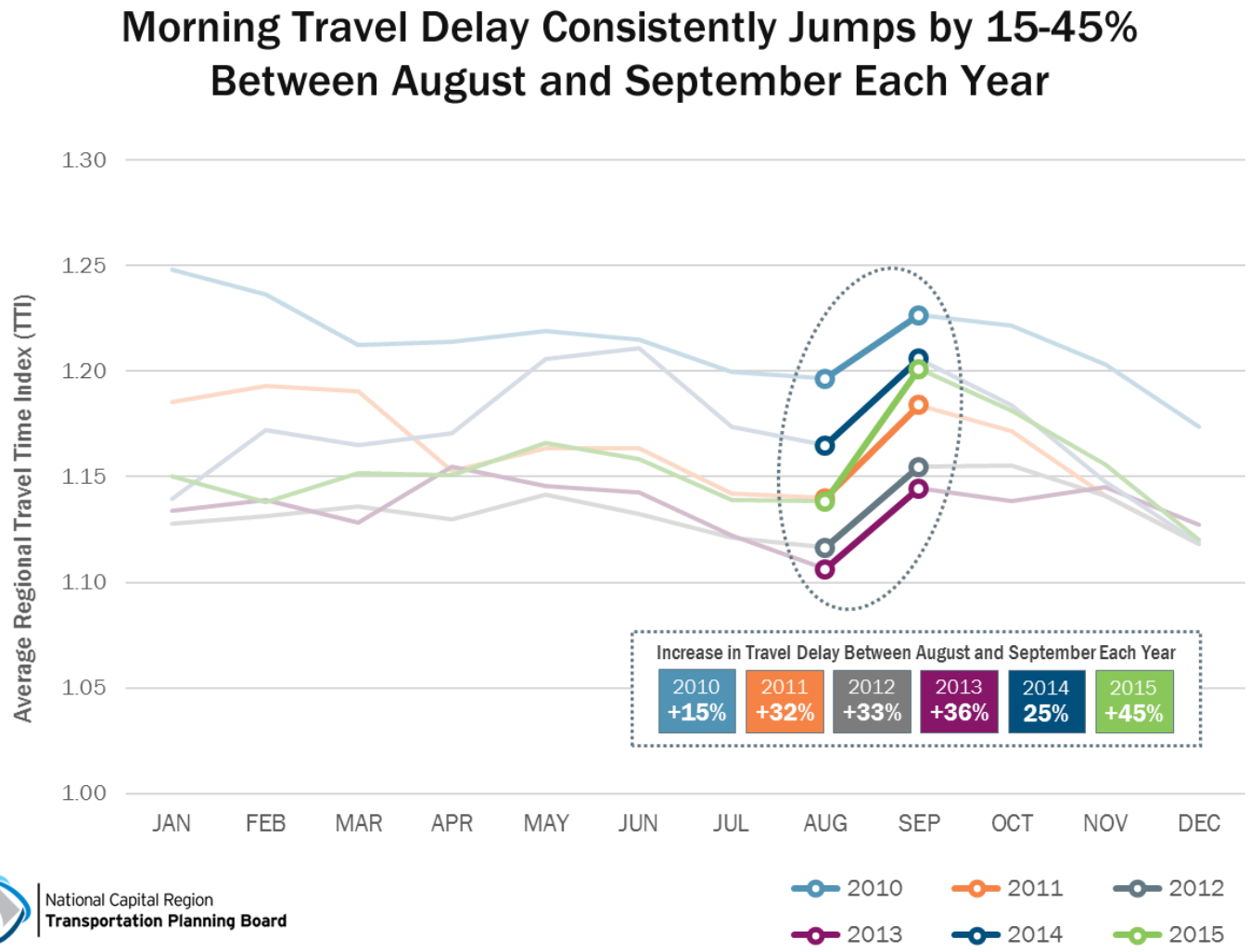
GIF Animation



Courtesy of Benjamin Hampton, http://www.tpbne.ws/featured/how-safetrack-has-impacted-traffic-on-area-roadways-so-far/

September Shock & Terrible Traffic Tuesday

Monthly Travel Time Index, AM Peak



Graph courtesy: Benjamin Hampton

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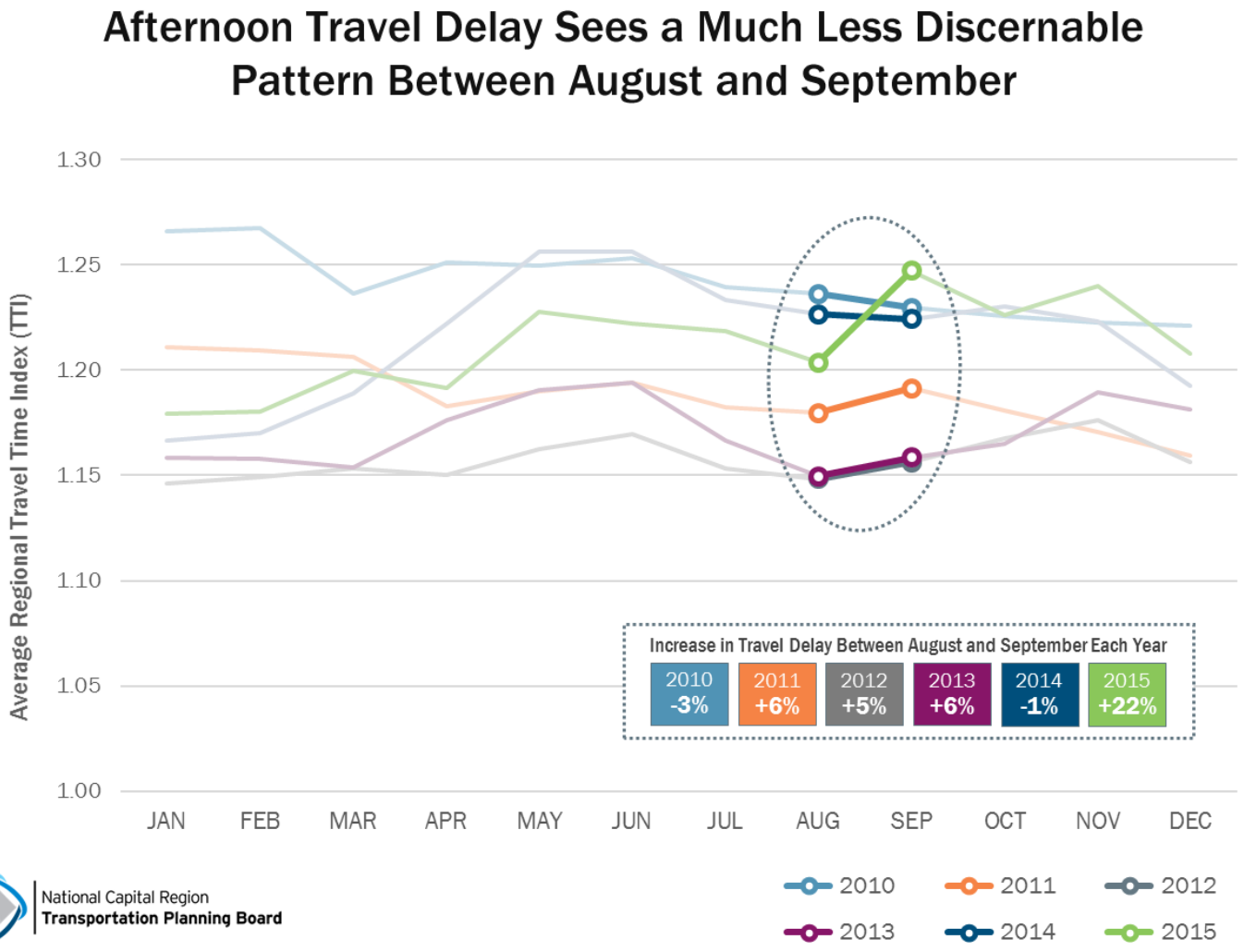
Monthly Travel Time Index, PM Peak



Graph courtesy: Benjamin Hampton

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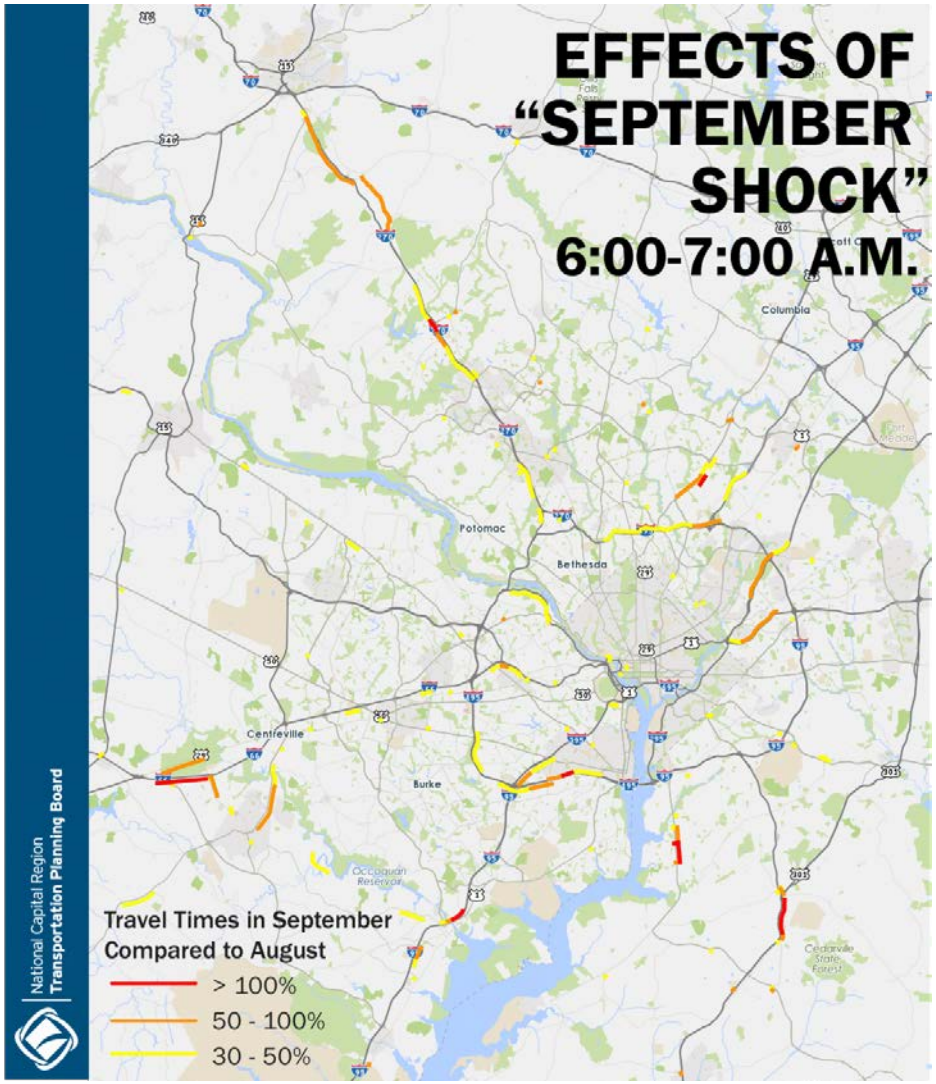
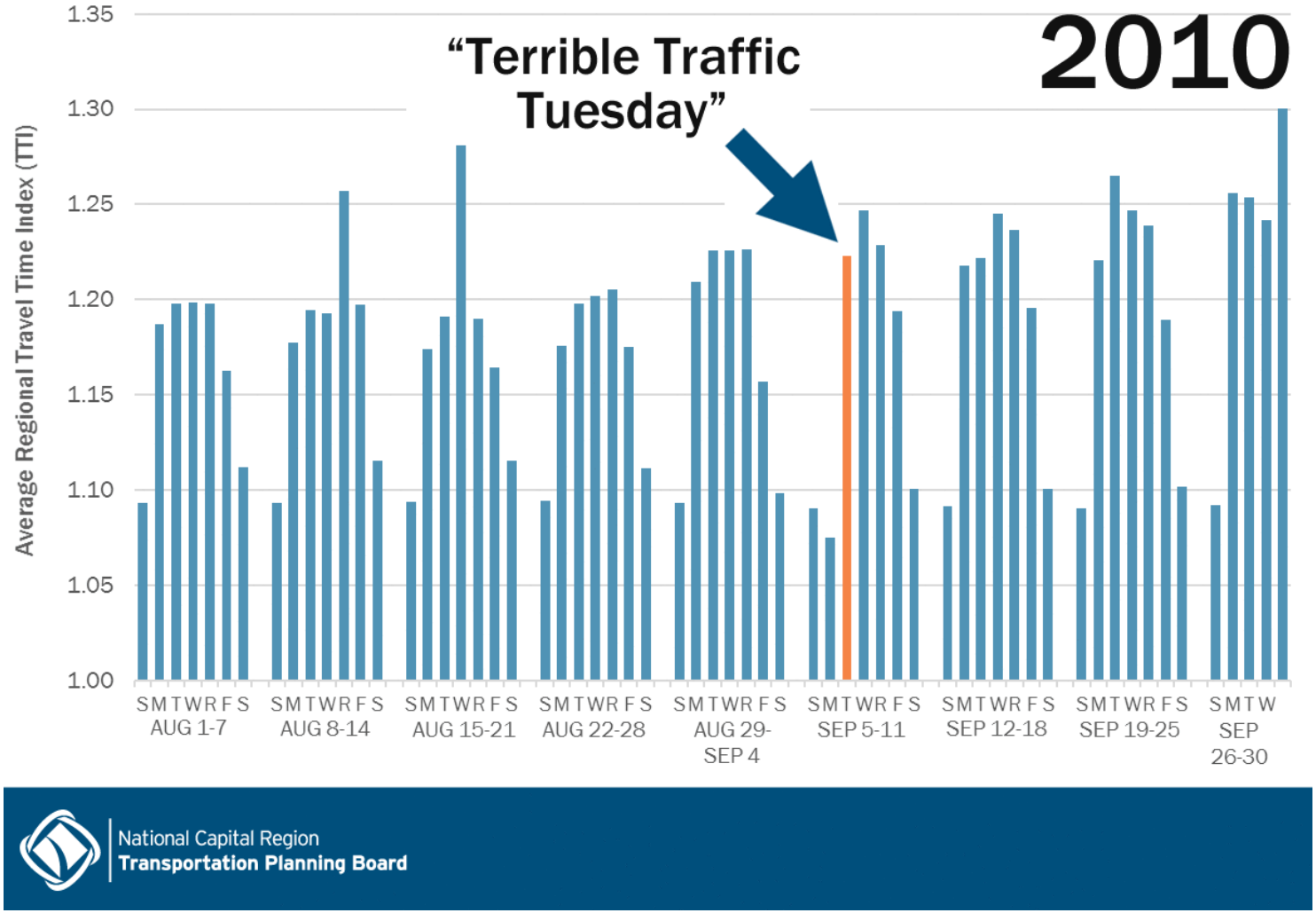
September Shock: Segment by Segment



Graph courtesy: Benjamin Hampton

Terrible Traffic Tuesday: AM Peak

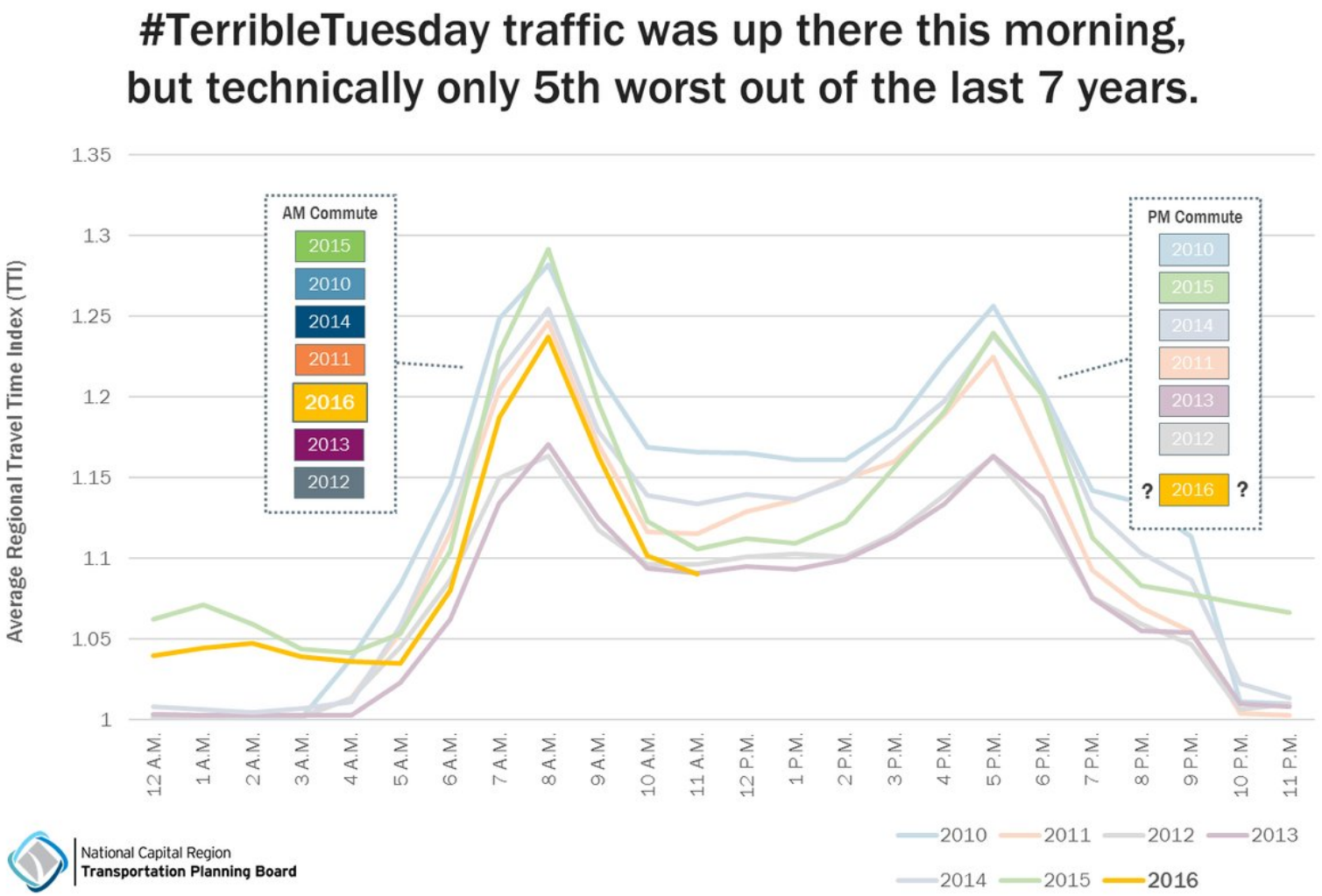


Graph courtesy: Benjamin Hampton

Telling the Story

- TPB News article: http://www.tpbne.ws/featured/get-ready-for-traffic-to-pick-back-up-as-part-of-september-shock/
- Press release (thanks to COG Office of Communications)
- Six interviews in two days including the Washington Post, ABC7, FOX5, WTOP, etc.
- “Real-time” tweets on 9/6 (terrible traffic Tuesday)

AM Commute: 12:40 PM, 9/6/16



Graph courtesy: Benjamin Hampton

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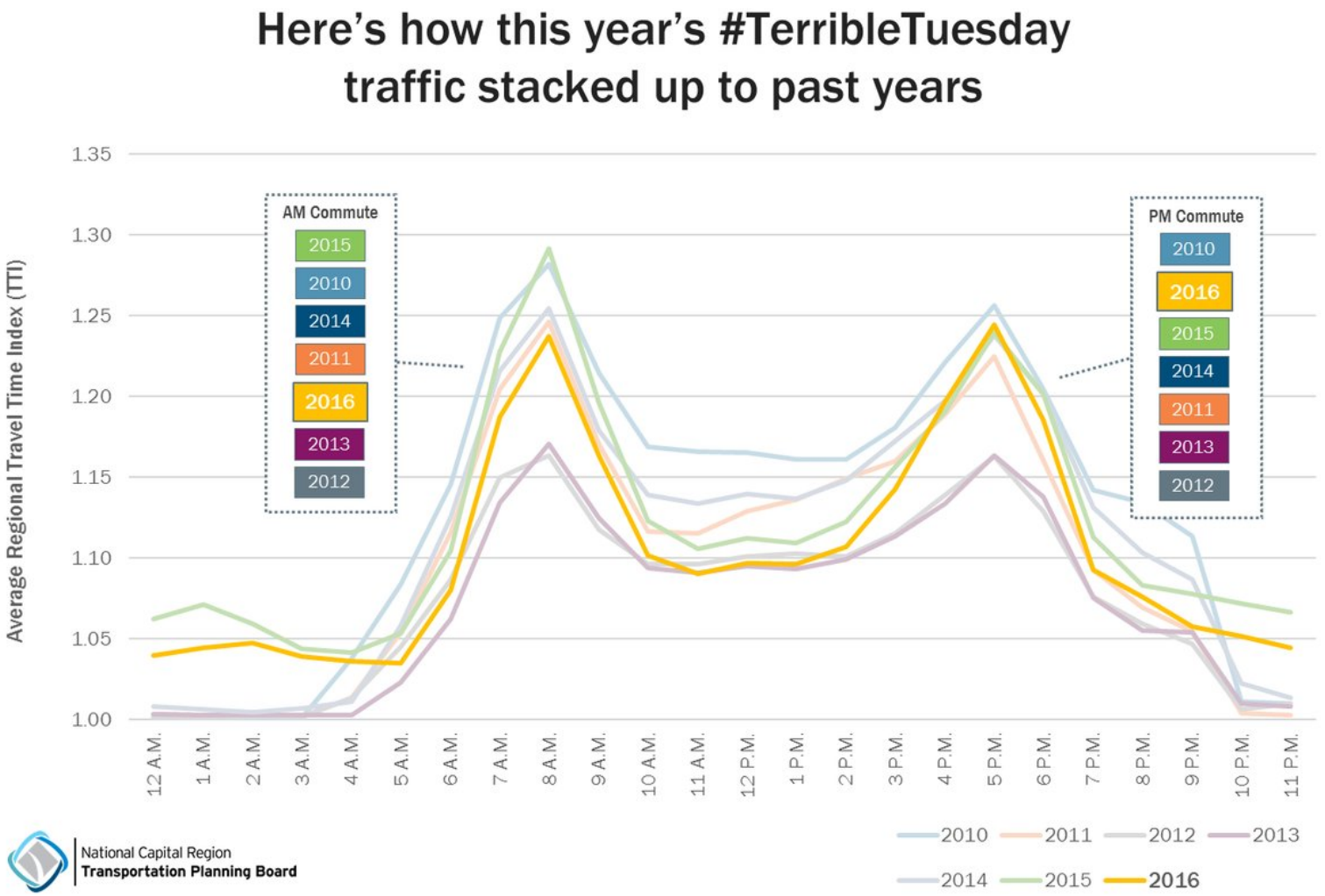
AM and PM Commutes: 9:59 AM, 9/7/16



Graph courtesy: Benjamin Hampton

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Summary

- The public is interested; some future stories could be:
  - Monthly variations, day of week variations, holidays, popular ODs or routes, major events, etc.
  - Travel time reliability
- VPP data is a gold mine, more powerful when combining the VPP Suite with customized analysis and visualization
- Working together: data crunching – story telling – press interacting
- May have impacts on travelers' decision makings

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