UPDATE ON TPB CONGESTION MANAGEMENT PROCESS AND PERFORMANCE-BASED PLANNING ACTIVITIES

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TPB Systems Performance, Operations, And Technology Subcommittee (SPOTS) and Traffic Signals Subcommittee Joint Meeting
June 07, 2018

Agenda Item 3

National Capital Region
Transportation Planning Board

Presentation Items

- TPB Congestion Management Process (CMP) Activities
  - Update on National Capital Region Congestion Report
  - Update on Congestion Dashboard
  - Update on Development of 2018 CMP Technical Report
- TPB Performance-Based Planning (PBPP) Activities
  - Update on System Performance (NHS, Freight, CMAQ Program) Measures

TPB Congestion Management Process (CMP) Activities Update

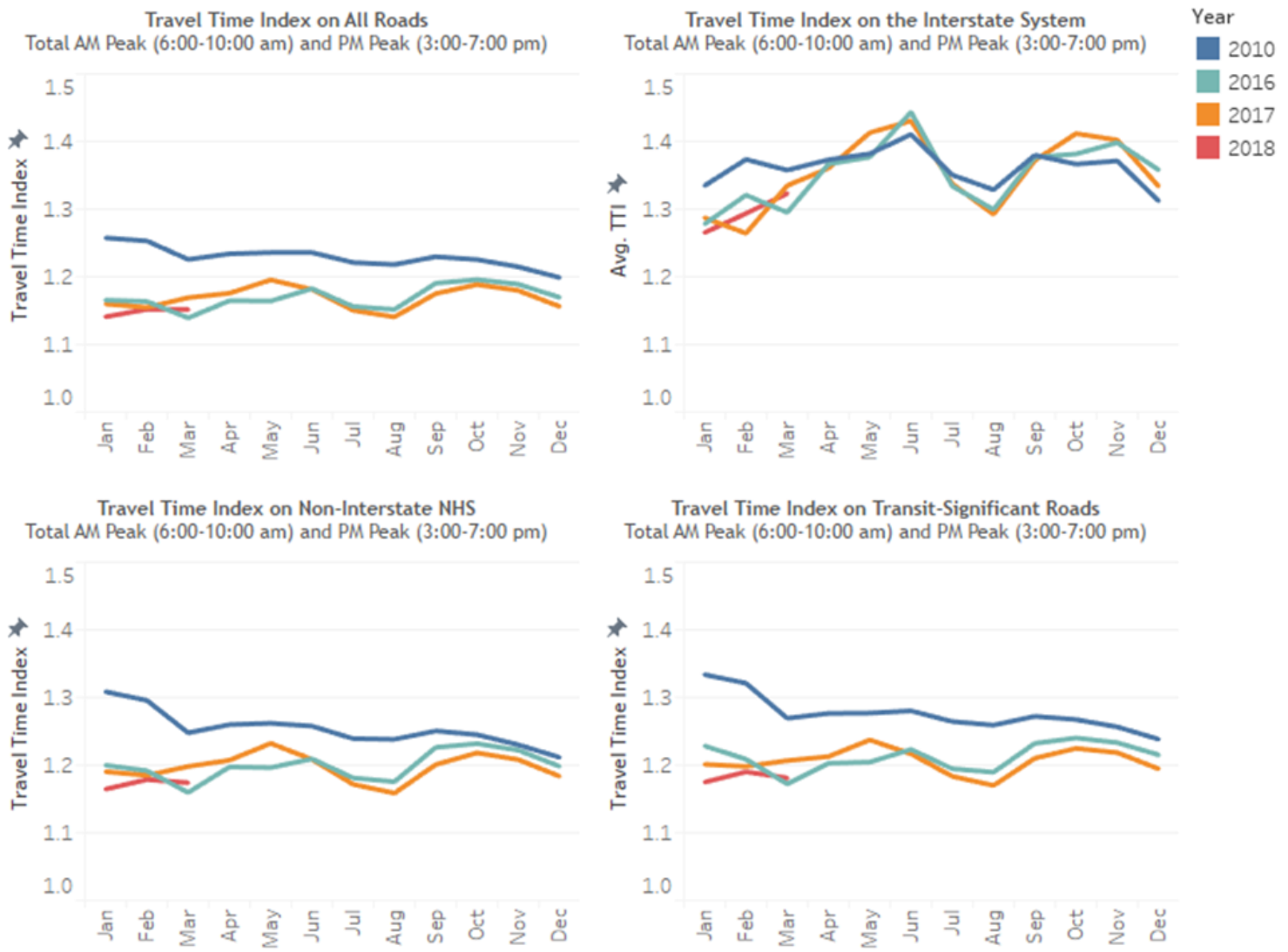
What is Congestion Management Process (CMP) ?

- The CMP is a requirement in metropolitan transportation planning
  - SAFETEA-LU and associated 2007 Federal regulations for metropolitan planning address CMP requirements
  - Retained in MAP-21 and FAST Act 2015
- Major Components of the CMP include:
  - Methods to monitor and evaluate system performance
  - Objectives and performance measures
  - Data collection and analysis
  - Identification and evaluation of anticipated performance of Congestion Management strategies
  - Assessment of the effectiveness of previously implemented strategies

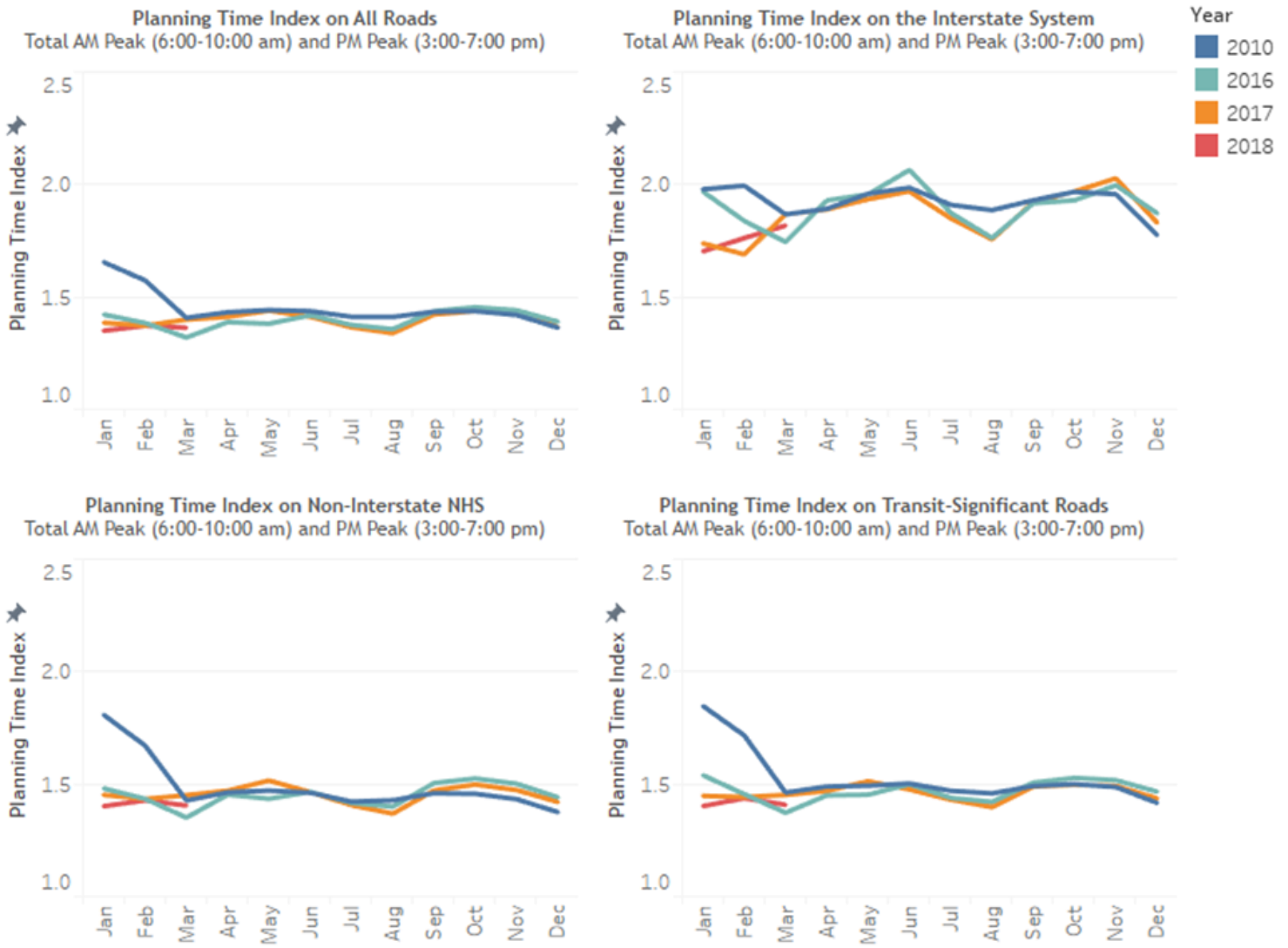
National Capital Region Congestion Report

- A quarterly update of the National Capital Region's
  - Traffic congestion, in terms of Travel Time Index (TTI)
  - Travel time reliability, in terms of Planning Time Index (PTI)
  - Top-10 bottlenecks, and
  - Featured spotlight
- Travel Time Index (TTI):
  - The ratio of actual travel time to free-flow travel time
  - TTI = 1.00 means free flow conditions
- Planning Time Index (PTI):
  - The ratio of 95th percentile travel time to free flow travel time
  - The higher the index, the less reliable traffic conditions it represents

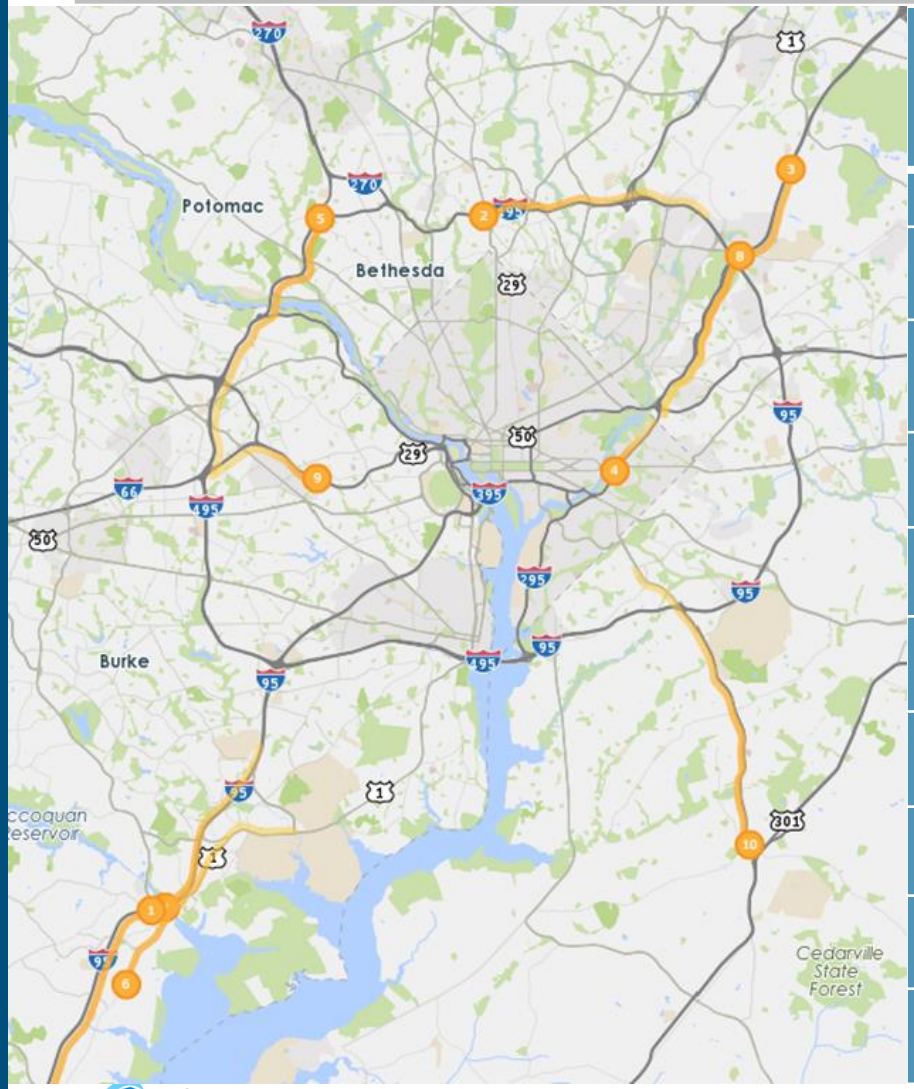
Example of Monthly Travel Time Index



Example of Monthly Planning Time

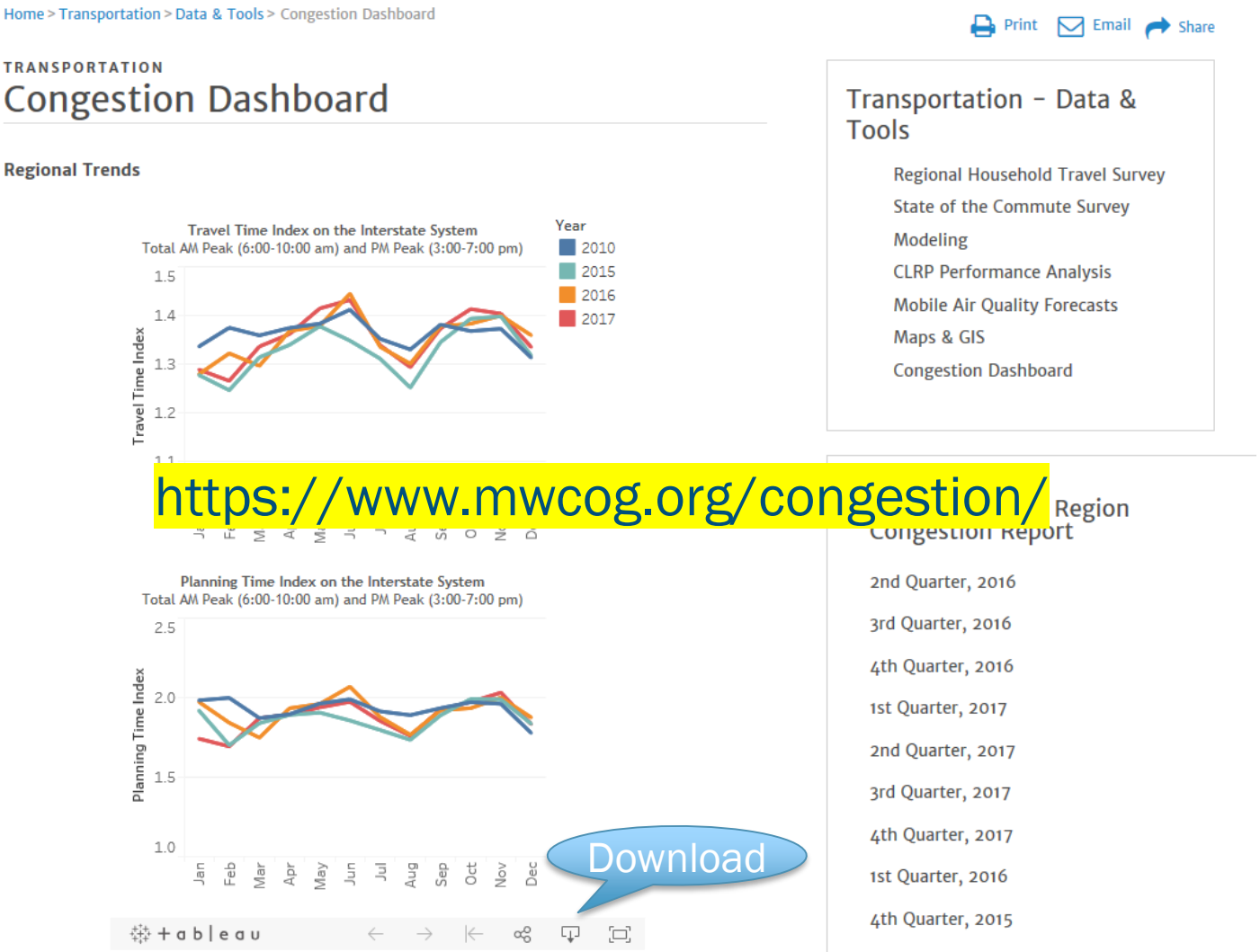


Example of TOP 10 BOTTLENECKS



Rank (Last Quarter Rank)	Location	Impact factor
1 (1)*	I-95 S @ VA-123/EXIT 160	269,199
2 (3)	I-495 CCW @ MD-97/GEORGIA AVE/EXIT 31	150,339
3 (4)	MD-295 N @ POWDER MILL RD	106,612
4 (5)	DC-295 S @ CAPITOL ST	126,771
5 (2)	I-495 CW @ I-270 SPUR	170,437
6 (9)	US-1 S @ OPITZ BLVD	92,117
7 (7)	I-95 N @ VA-123/EXIT 160	93,598
8 (8)	MD-295 N @ I-495/I-95	77,415
9 (6)	I-66 E @ SYCAMORE ST/EXIT 69	89,997
10 (18)	MD-5 S @ MD-381/BRANDYWINE RD	84,319

Example of Congestion Dashboard



Development of 2018 CMP Technical Report

- Biennial CMP Technical Reports since 2008, an ongoing activity.
- Outline of the report covers
  - Executive summary
  - Chapter 1. Introduction
  - Chapter 2. State of Congestion
  - Chapter 3. Consideration and Implementation of Congestion Management Strategies
  - Chapter 4. Studies of Congestion Management Strategies
  - Chapter 5. How Results of The CMP Are Integrated Into The CLRP
  - Chapter 6. Conclusions
  - Appendices

Draft of the Chapter 2. STATE OF CONGESTION

2.1 Regional Travel Trends

2.2 Congestion on Highways

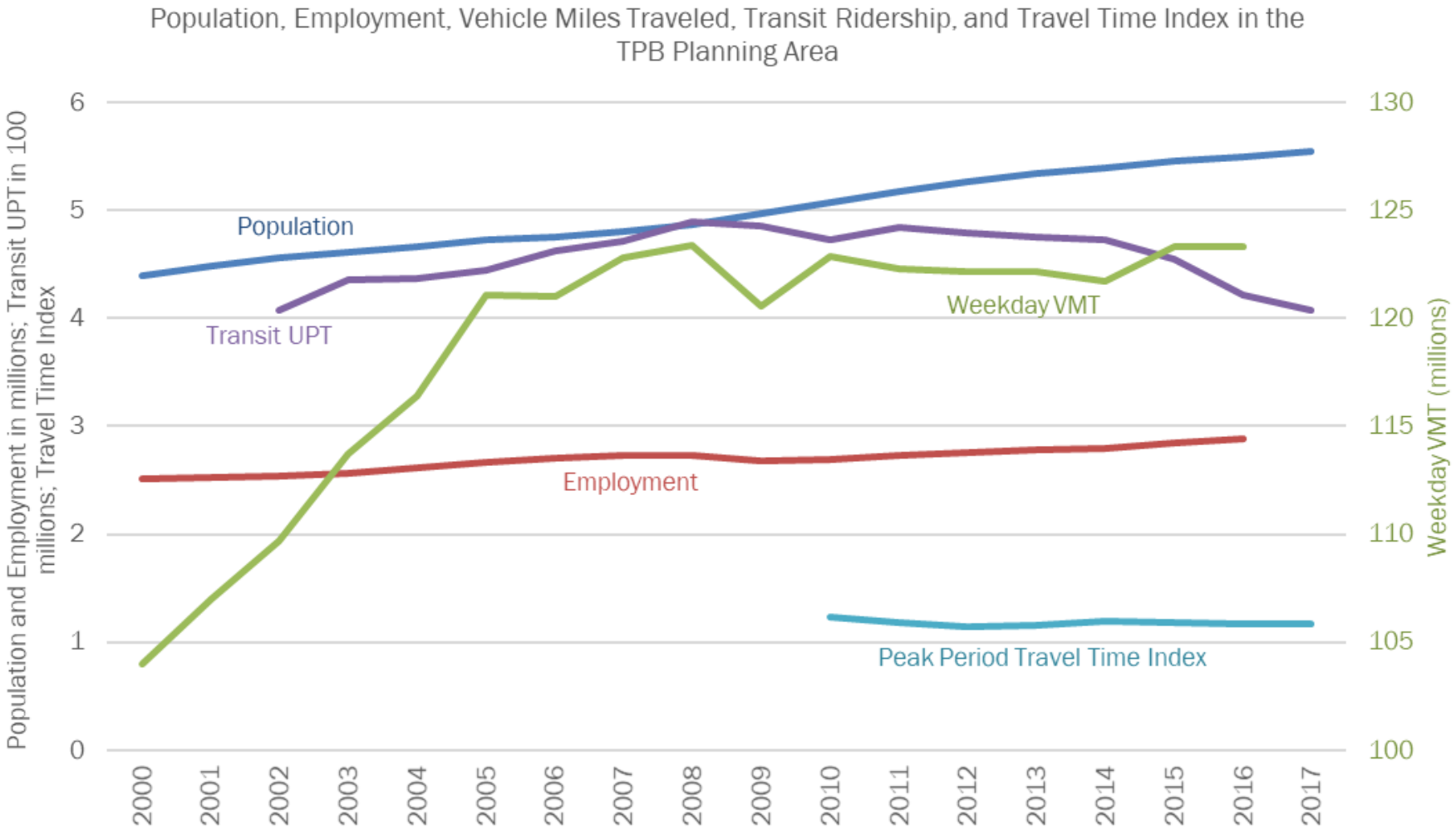
2.3 Congestion on Transit Systems

2.4 Other Congestion Monitoring and Data Consolidation Activities

2.5 National Comparison of the Washington Region's Congestion

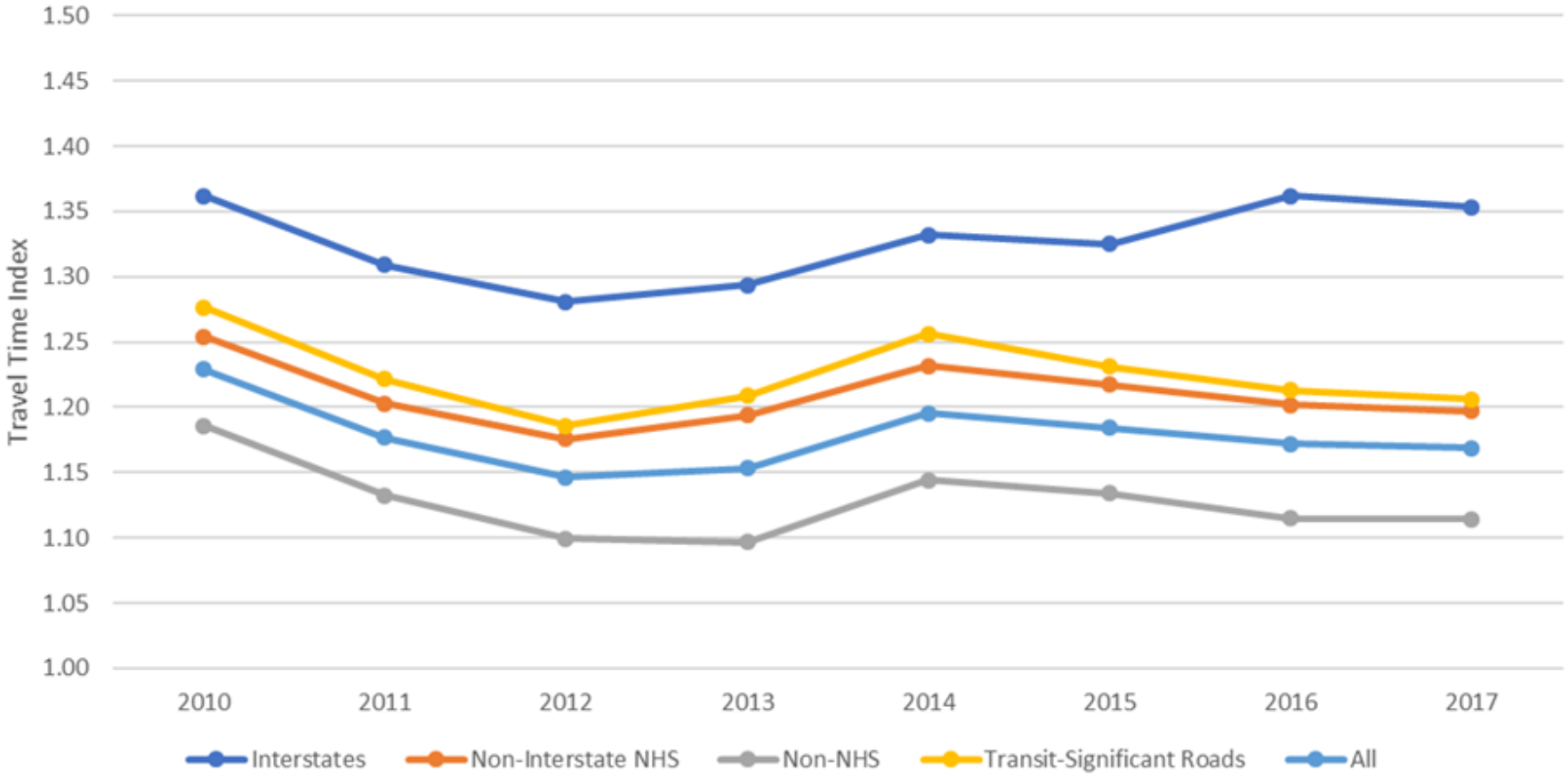
2.6 Performance and Forecasting Analysis of the 2016 Financially Constrained Long-Range Transportation Plan (CLRP)

Regional Travel Trends (Draft)



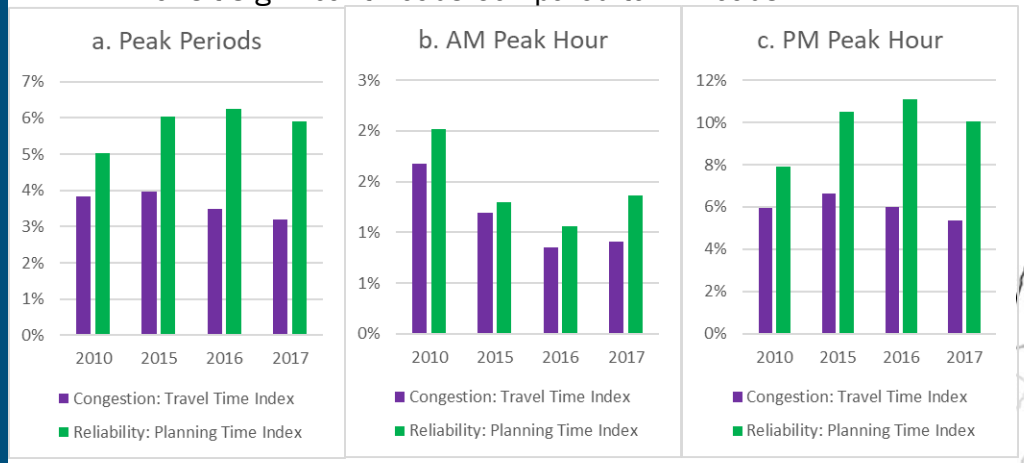
Example of Congestion on Highways

Annual Average Travel Time Index by Highway Category: Total AM and PM Peaks

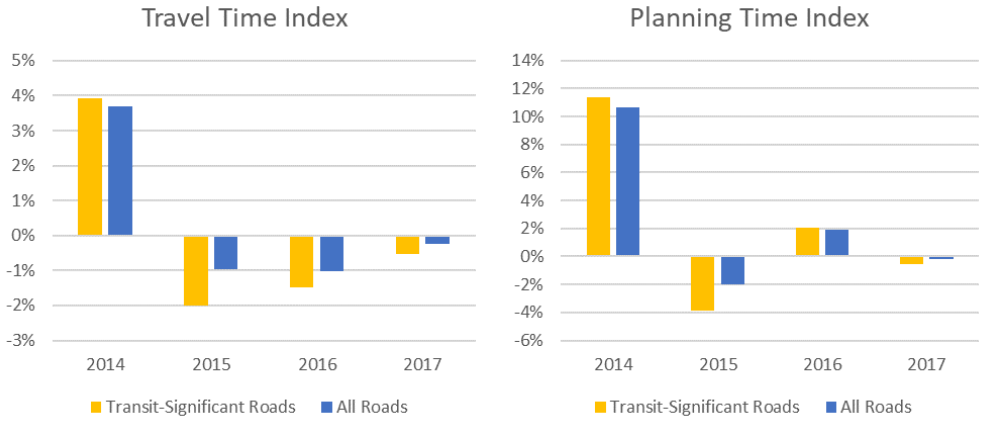


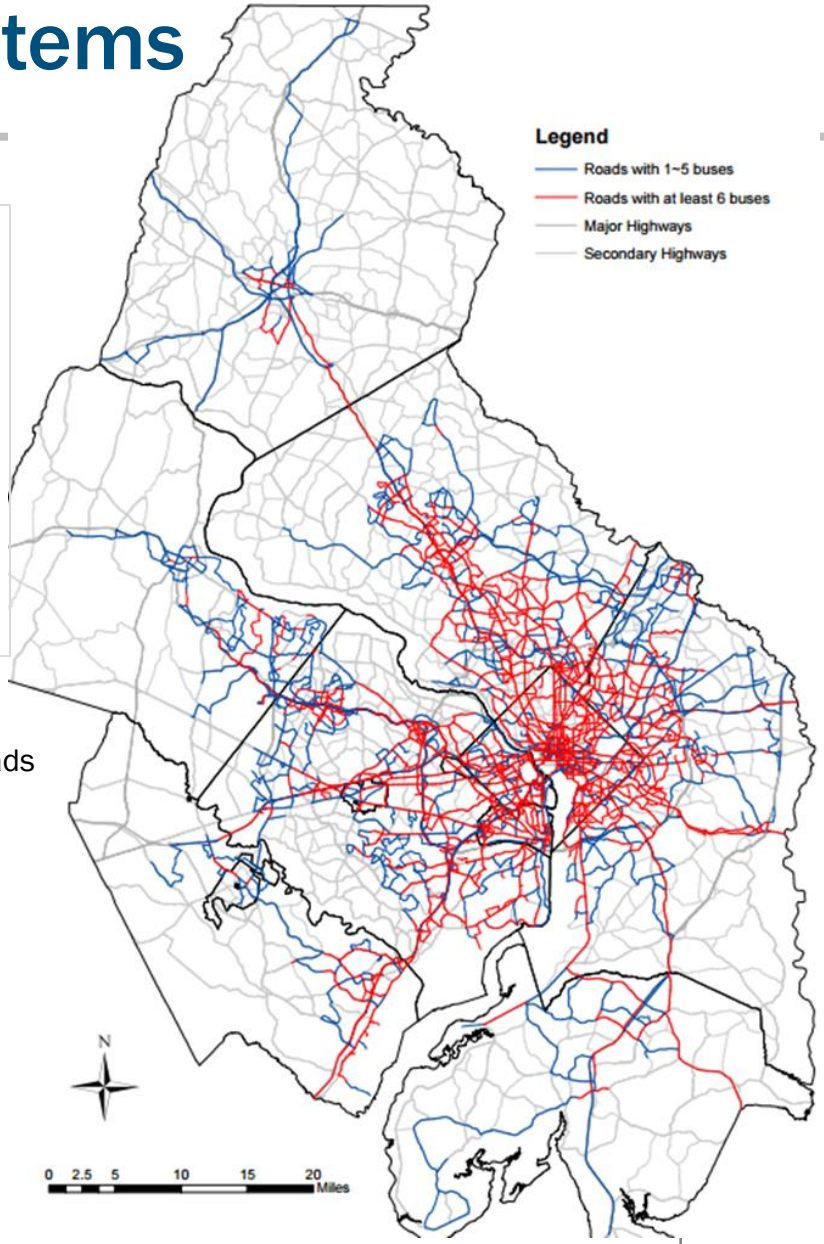
Congestion on Transit Systems

Transit-Significant Roads Compared to All Roads



Congestion and Reliability Year-to-Year Changes of Transit-Significant Roads





National Comparison of the Washington Region's Congestion

Texas A&M Transportation Institute (2014 data)			INRIX Traffic Scorecard (2016 data)			TomTom Traffic Index (2016 data)		
Annual Hours of Delay per Auto Commuter			Average Hours Wasted in Traffic			Extra Travel Time compared to Free Flow Conditions		
Metro Area	Value	Rank	Metro Area	Value	Rank	Metro Area	Value	Rank
Washington	82	1	Los Angeles	102	1	Los Angeles	45%	1
Los Angeles	80	2	New York	91	2	San Francisco	39%	2
San Francisco	78	3	San Francisco	79	3	New York	35%	3
New York	74	4	Atlanta	70	4	Seattle	34%	4
San Jose	67	5	Miami	64	5	San Jose	32%	5
Boston	64	6	Washington	63	6	Miami	30%	6
Seattle	63	7	Boston	60	7	Portland	29%	7
Chicago	61	8	Chicago	57	8	Honolulu	29%	8
Houston	61	8	Seattle	55	9	Washington	29%	9
Riverside	59	10	Dallas	54	10	Boston	28%	10

Draft of the Chapter 4. STUDIES OF CONGESTION MANAGEMENT STRATEGIES

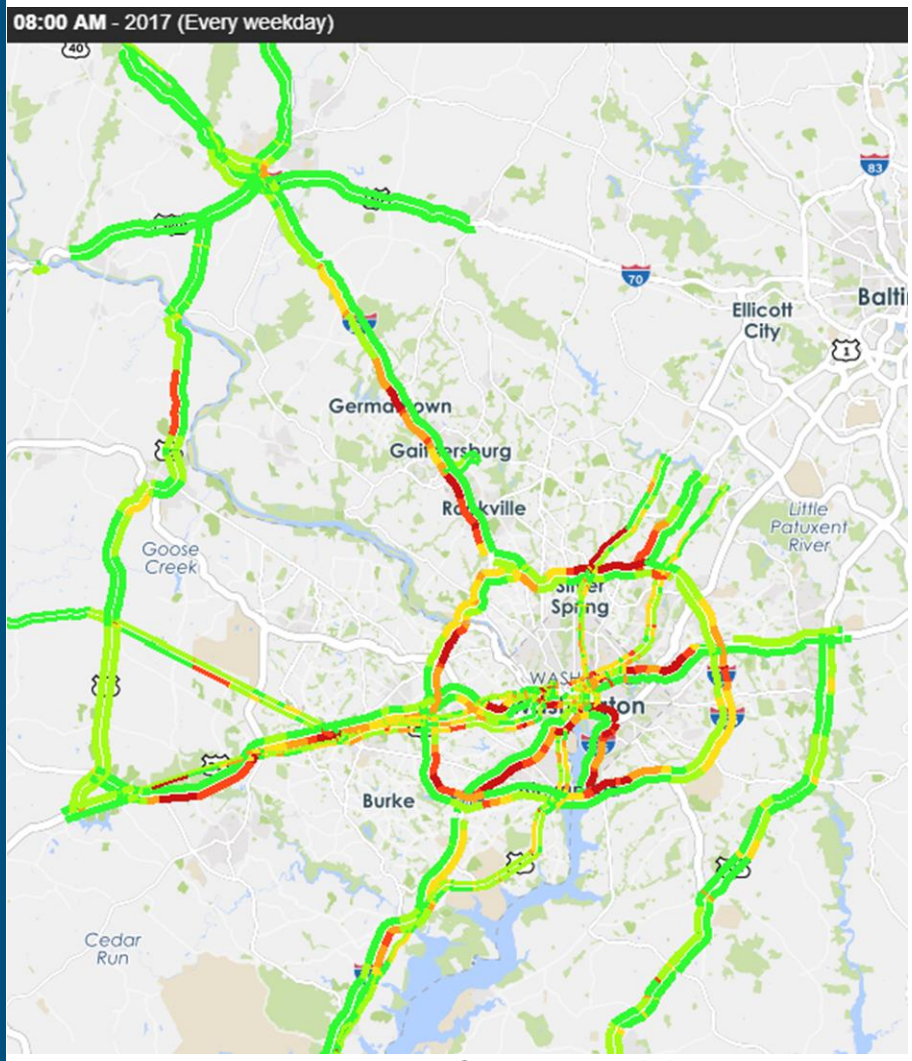
4.1 Review of Performance Measures

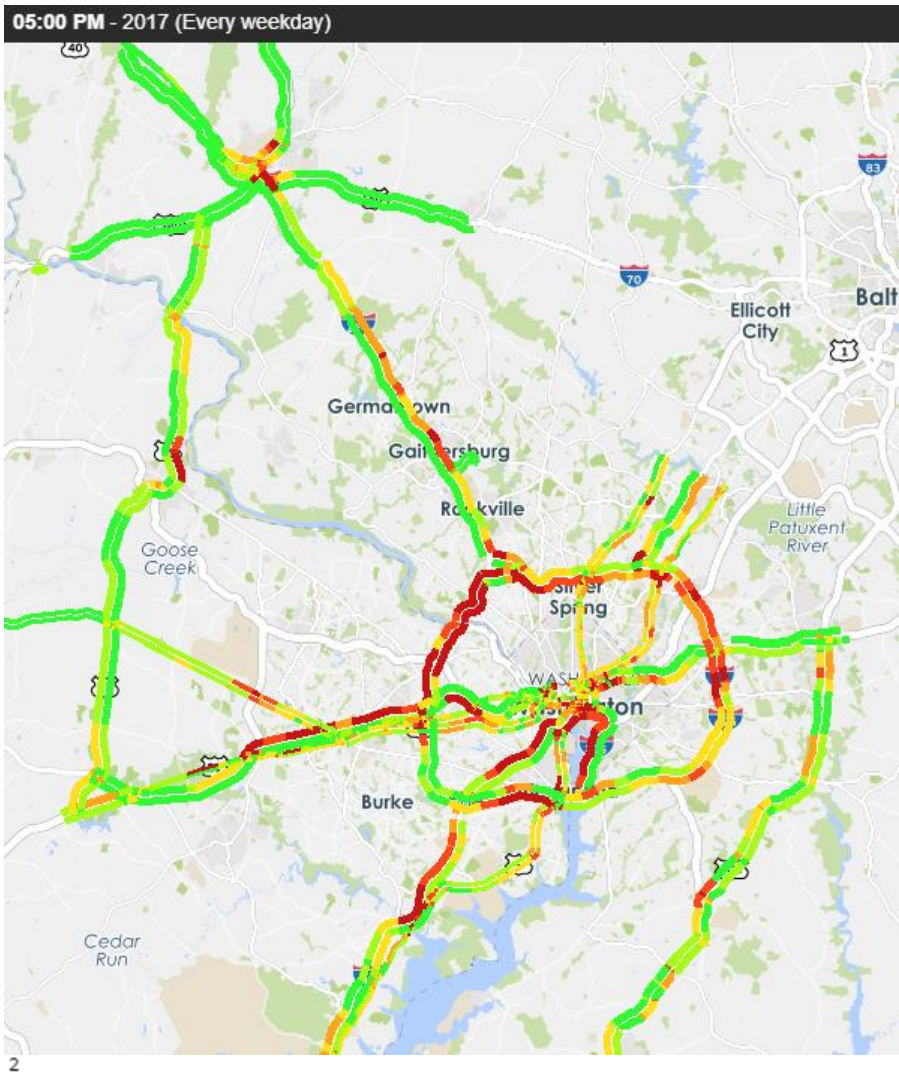
4.2 Review of Congestion Management Strategies

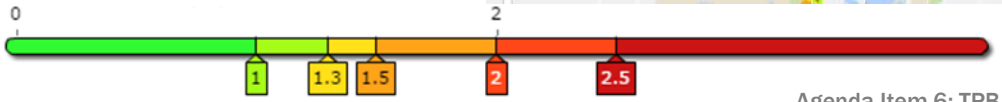
4.3 Examples of Strategies Studies

- 4.3.1 Analysis Of Transportation Emissions Reduction Measures (Terms)
- 4.3.2 Scenario Planning

Draft of Appendix A 2017 Peak Hour TTI







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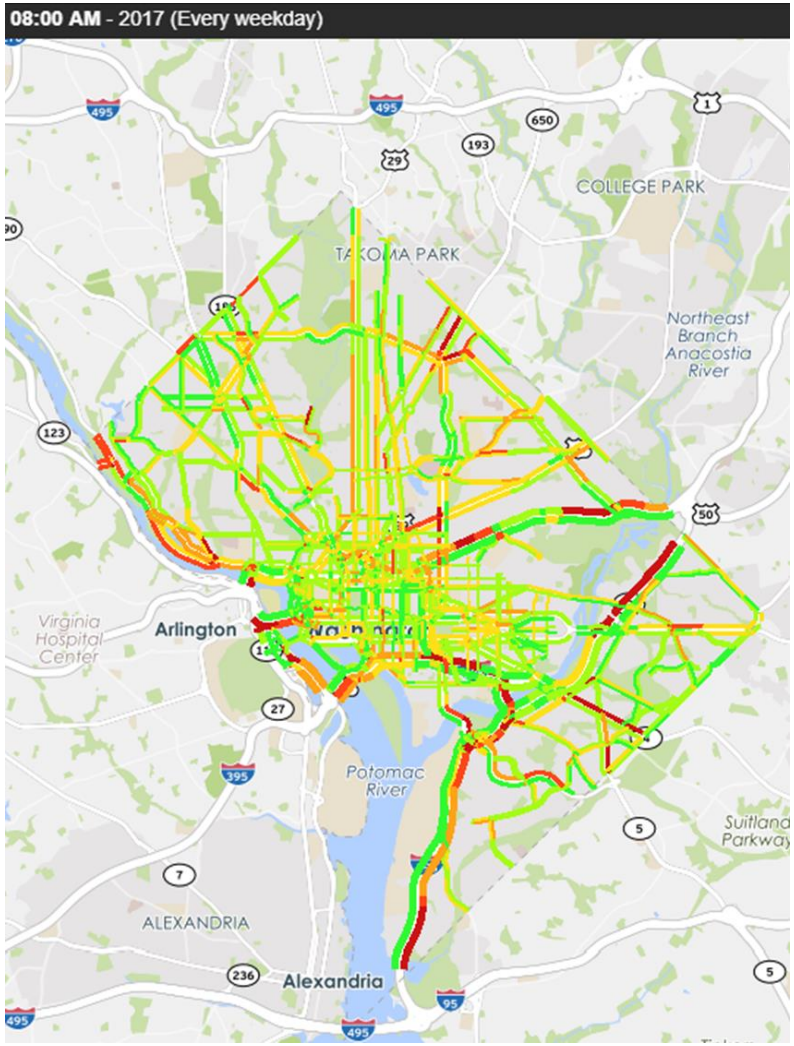
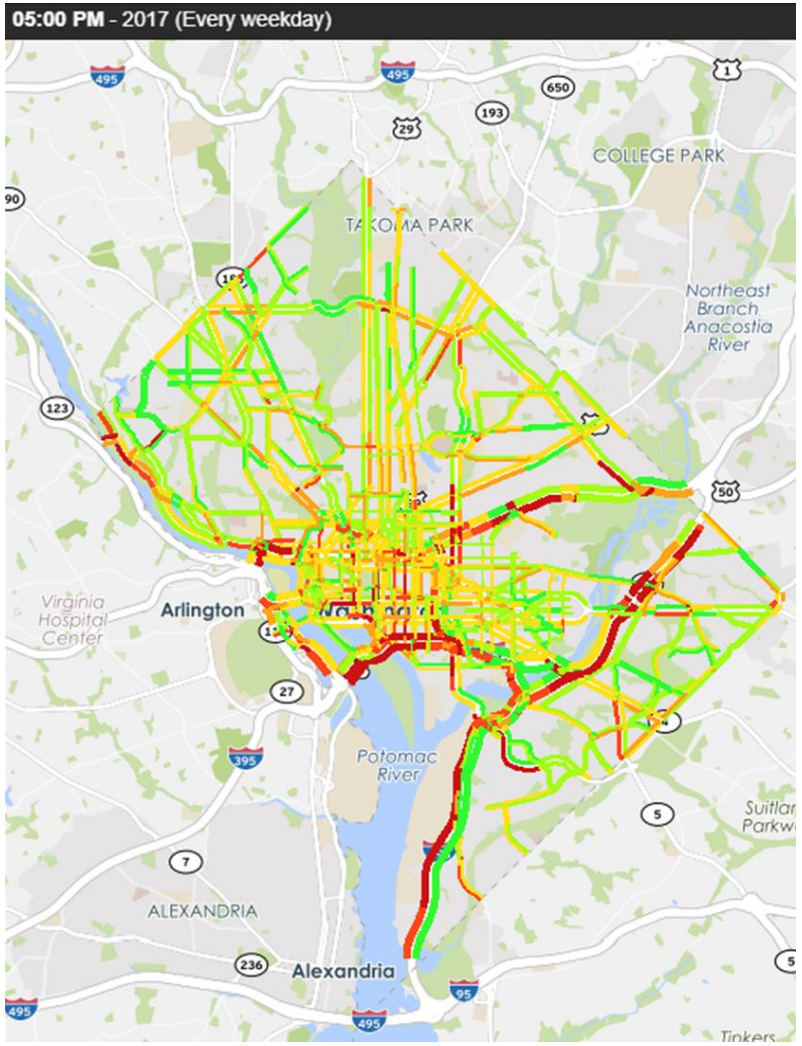
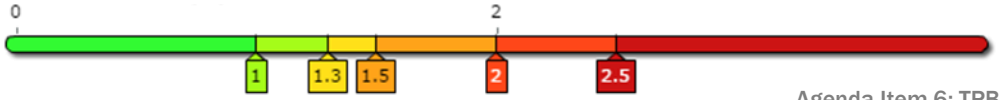
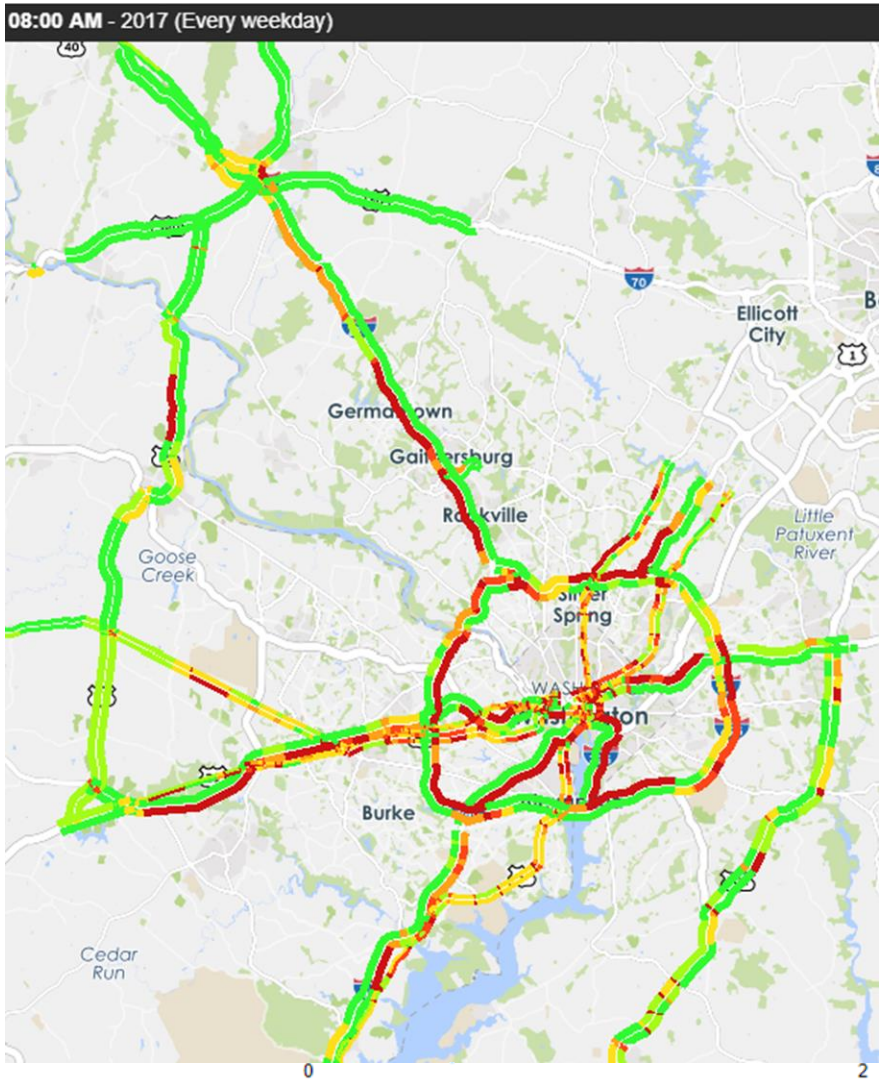
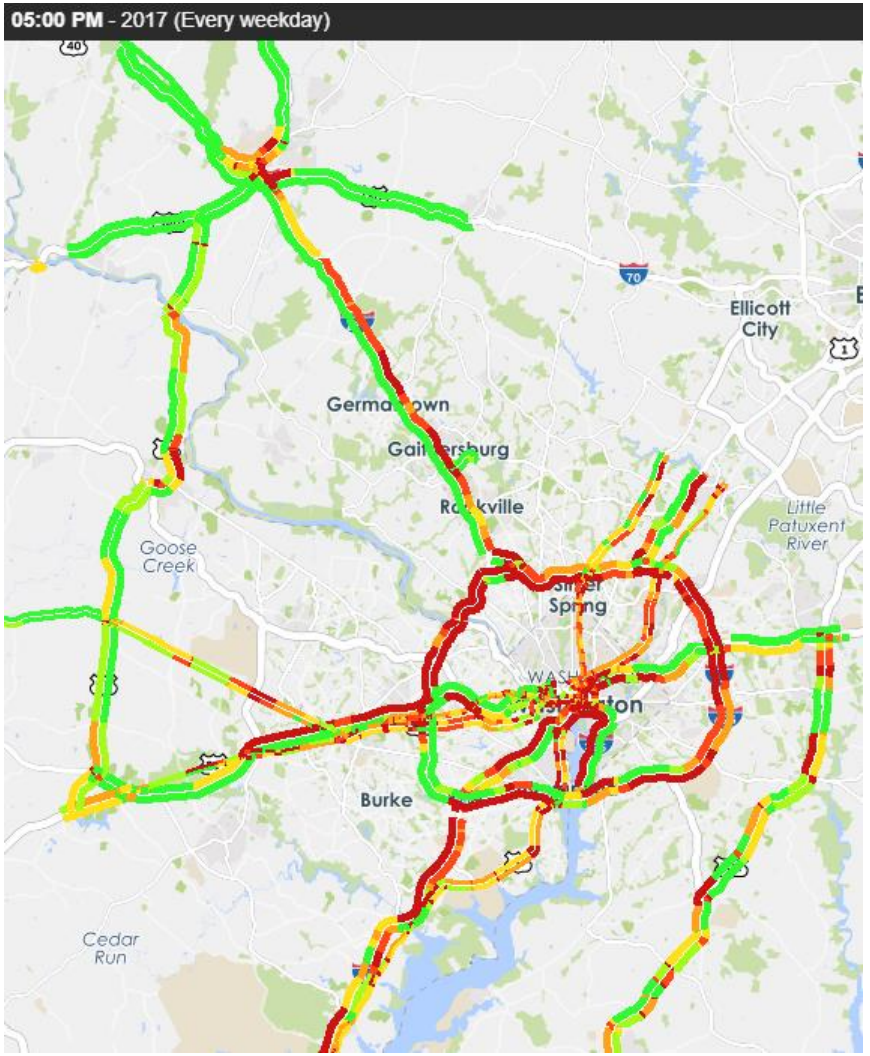


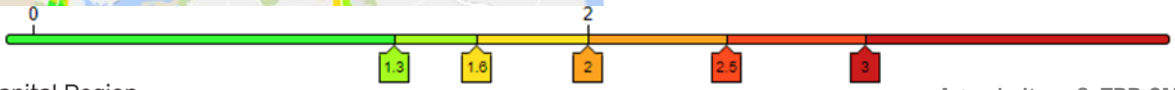




Draft of Appendix B 2017 Peak Hour PTI







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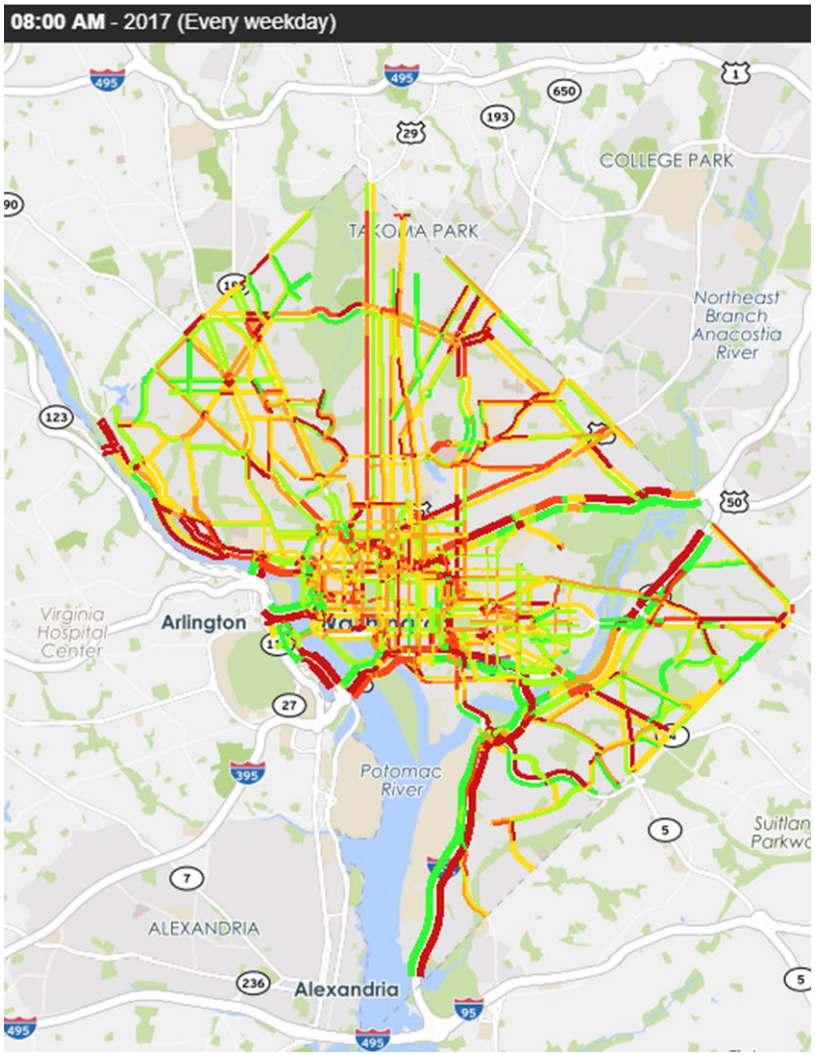
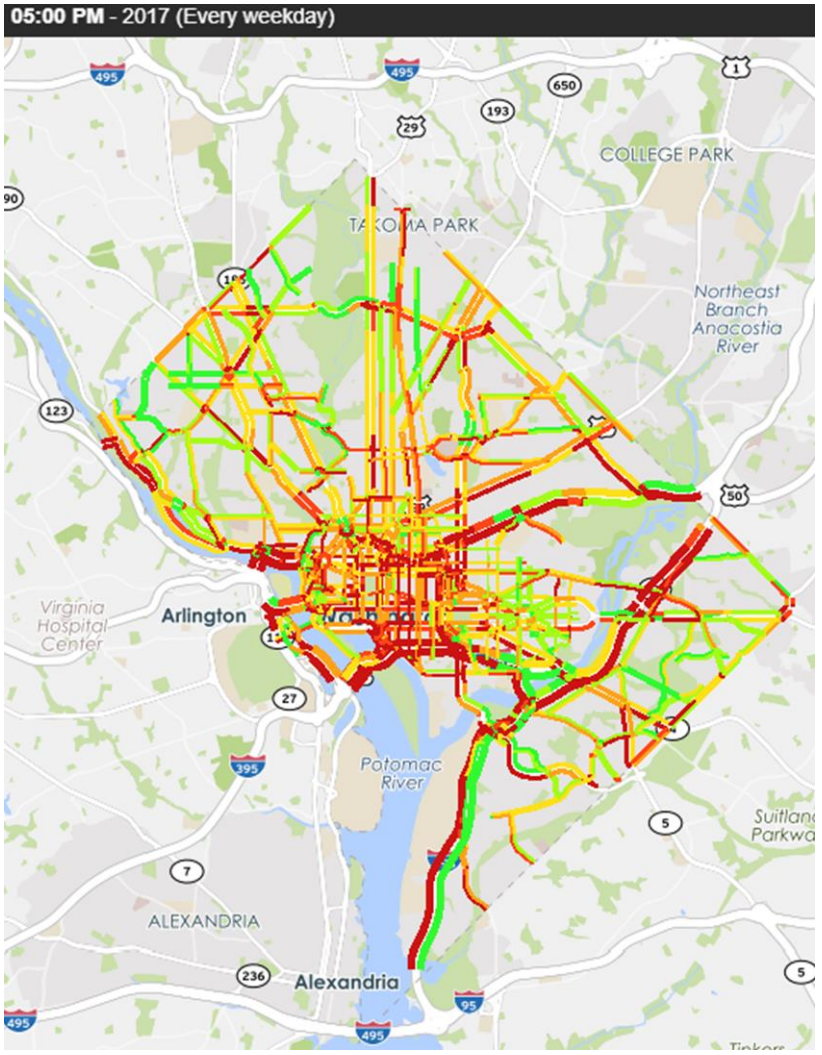
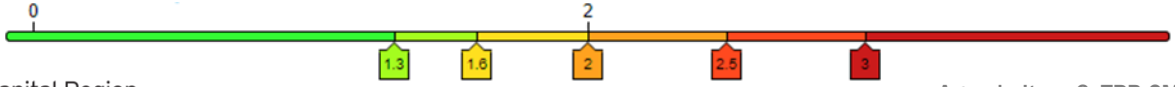
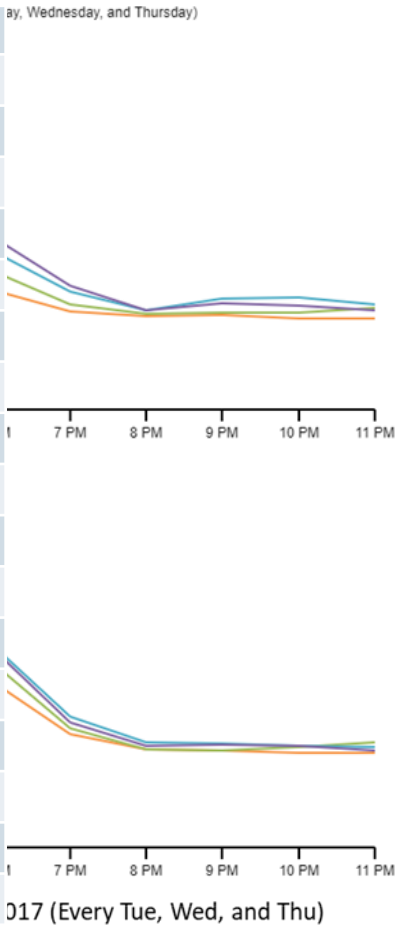






Draft of Appendix C 2010 and 2015-2017 Travel Times Along Major Freeway Commute Corridors

	Definition
C1	I-270 between I-370/Sam Eig Hwy/Exit 9 and I-70/US-40
C2	I-270 between I-370/Sam Eig Hwy/Exit 9 and I-495/MD-355
C3	VA-267 between VA-28/Exit 9a and VA-123/Exit 19
C4	I-66 between VA-28/Exit 53 and I-495/Exit 64
C5	I-66 between I-495/Exit 64 and Theodore Roosevelt Memorial Bridge
C6	I-95 between VA-234/Exit 152 and Franconia Rd/Exit 169
C7	I-95 HOV between VA-234/Exit 152 and Franconia Rd/Exit 169
C8	I-395 between I-95 and H St
C9	I-395 HOV between I-95 and US-1
C10	US-50 between MD-295/Kenilworth Ave and US-301/Exit 13
C11	MD-295 between US-50/MD-201/Kenilworth Ave and MD-198
C12	I-95 between I-495/Exit 27-25 and MD-198/Exit 33
C13	I-495 between I-270/Exit 35 and I-95/Exit 27
C14	I-495 between I-95/Exit 27 and US-50/Exit 19
C15	I-495 between US-50/Exit 19 and I-95/I-395/Exit 57
C16	I-495 between I-95/I-395/Exit 57 and I-66/Exit 9
C17	I-495 between I-66/Exit 9 and I-270/Exit 35
C18	I-295 between I-495 and 11th St. Bridge



TPB Performance-Based Planning (PBPP) Activities Update

What is Performance-Based Planning and Programming (PBPP) ?

- The PBPP process is a requirement for MPOs, States, and providers of public transportation originating in the federal surface transportation MAP-21 and FAST Acts.
- PBPP is the **application of performance management** within the planning and programming process **to achieve desired performance outcomes** for the multimodal transportation system. PBPP includes a range of activities and products:
  - Development of **long range transportation plans**
  - Federally-required plans and processes -- such as Strategic Highway Safety Plans (SHSPs), Asset Management Plans, the Congestion Management Process (CMP), and Transit Agency Asset Management and Safety Plans
  - Programming documents, including State and metropolitan Transportation Improvement Programs (STIPs and **TIPs**)

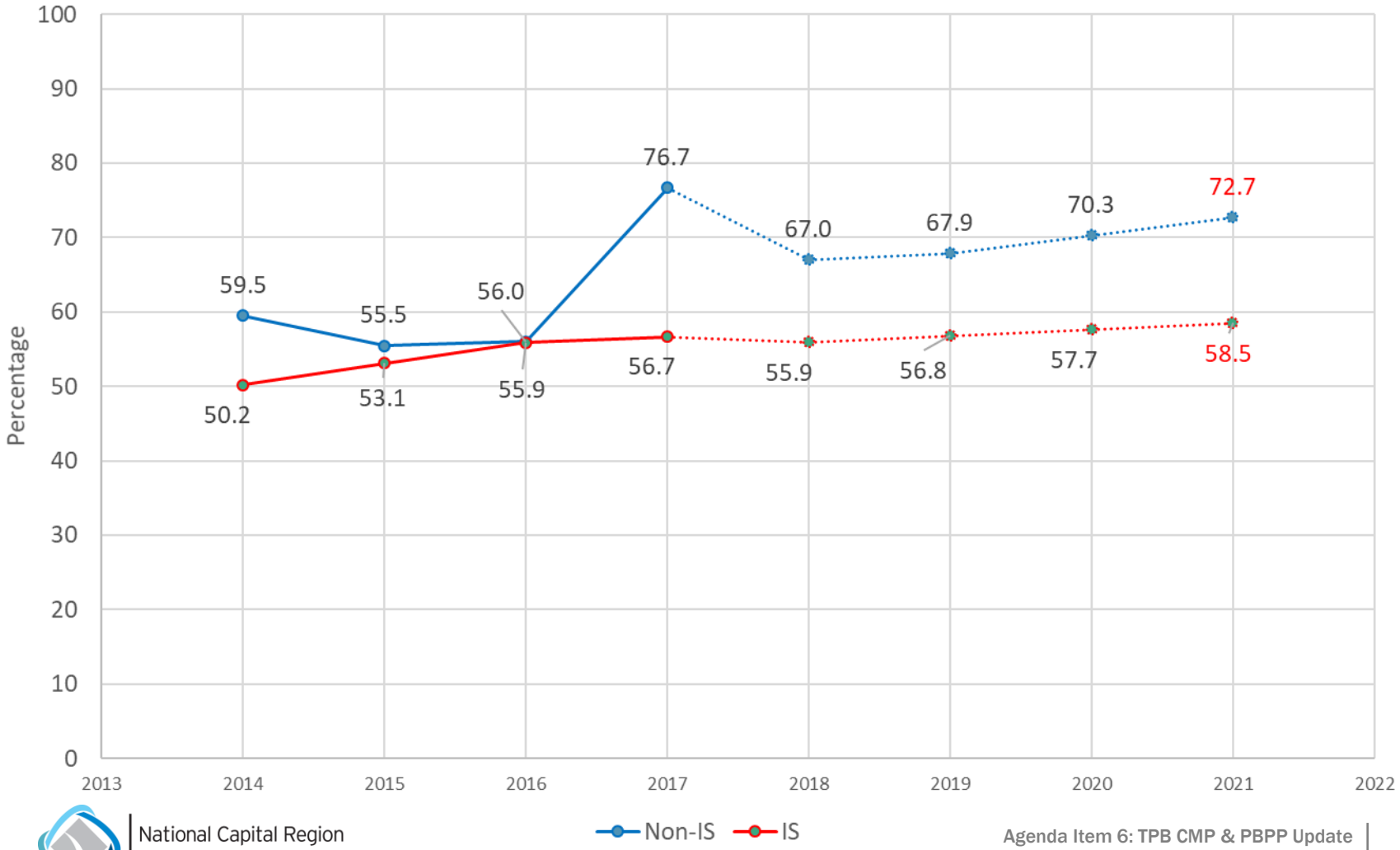
Federally Prescribed Performance Measures

	GOAL AREAS	NATIONAL GOALS
1	SAFETY	• Highway - Traffic Fatalities and Serious Injuries • Transit – Fatalities and Injuries; Derailments; Collisions; Fires; Evacuations for life safety
2	INFRASTRUCTURE (ASSET) CONDITION	• Roadway – Pavements and Bridges • Transit – Revenue vehicles, Non revenue equipment, Track infrastructure, and Facilities/Stations
3	CONGESTION REDUCTION	Delay per capita
4	SYSTEM RELIABILITY	• Highway - Reliable Travel Times • Highway - Peak Hour Travel Times Meets Expectations • Transit – Major / Other Mechanical System Failures
5	FREIGHT MOVEMENT AND ECONOMIC VITALIT	• Reliable Truck Travel Times • Interstate System Mileage Uncongested
6	ENVIRONMENTAL SUSTAINABILIT	Criteria Pollutants Emissions Reduced

Travel Time Reliability (TTR) Measures

- Measurement of travel time reliability on the Interstate and non-Interstate National Highway System (NHS)
  - State DOTs must establish 2- and 4-year targets (2019 and 2021 respectively) for the Interstate, but only a 4-year target for the non-Interstate NHS, by May 20, 2018.
- All TTR targets will be reported in the State's baseline performance period report due by October 1, 2018.
- MPOs must either support the State targets or establish their own quantifiable 4-year targets within 180 days of the State target establishment.

Targets developed using Method 3: Averaging Extrapolated Trends and TDM Indicator



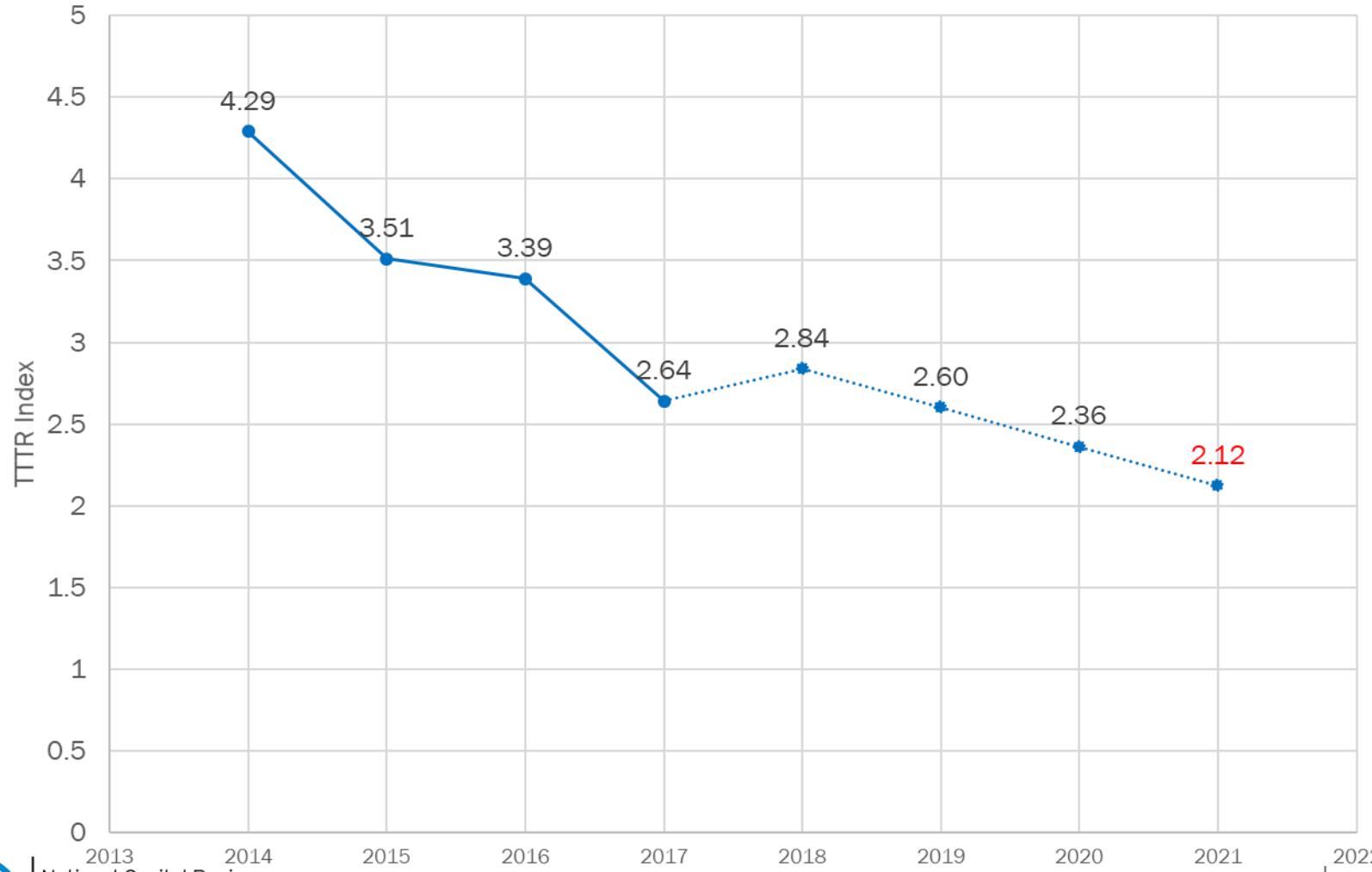
TPB Target Setting: TTR - DRAFT

DRAFT	CY 2018 – 2021 Four Year Target
TTR – Interstate Percent of person-miles traveled on the Interstate System that are reliable	58.5%
TTR - Non-Interstate NHS Percent of person-miles traveled on the non-Interstate NHS that are reliable	72.7%

Freight Movement: Truck Travel Time Reliability Index Measure

- Measurement to assess freight movement on the Interstate System: Truck Travel Time Reliability (TTTR) Index.
  - State DOTs must establish two and four-year targets by May 20, 2018
- All TTTR targets will be reported in the State's baseline performance period report due by October 1, 2018.
- MPOs must either support the State targets or establish their own quantifiable 4-year targets within 180 days of the State target establishment.

Target developed using Method 3: Averaging Extrapolated Trends and TDM Indicator



TPB Target Setting: TTR - DRAFT

DRAFT	CY 2018 – 2021 Four Year Target
TTTR Index (Interstate) Ratio of the Interstate System Mileage providing for Reliable Truck Travel Times	2.12

Updated as of May 21, 2018

Traffic Congestion Measures & Draft Targets

- System Performance: Congestion Mitigation and Air Quality (CMAQ) Program

Measures: *

- Peak Hour Excessive Delay (PHED):
  Annual hours of peak hour excessive delay per capita
- Mode Share (Non-SOV):
  Percent of Non-SOV Travel on the NHS

Targets:

Performance Measure for the Washington DC-MD-VA Urbanized Area	CY 2018-2019 Two-Year Target	CY 2018-2019 Four-Year Target
Peak Hour Excessive Delay (PHED)	~~Not Required~~	26.7 Hours**
Mode Share (Non-SOV)	36.9 %	37.2%

**Prescribed by FHWA rulemaking on System Performance: Highway and Freight, CMAQ published on January 18, 2018, with an effective date of May 20, 2017*

***Updated as of May 21, 2018*

Next Steps

- Brief Tech and TPB on draft targets in June
- TPB adopts targets at July meeting
  - Include in Visualize 2045 and System Performance Report
- States submit System/Freight Performance targets to FHWA in Baseline Performance Period Report by October 1, 2018

Acknowledgement

Andrew Meese and Eric Randall for review of presentation

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