

Item #3
MOITS
May 13, 2014

National Capital Region
Congestion Report
4th Quarter 2013 (Draft)

MOITS Policy Task Force and Technical Subcommittee
May 13, 2014

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National Capital Region Transportation Planning Board (TPB)
Metropolitan Washington Council of Governments (COG)

Context

- Congestion monitoring activities
 - Aerial photography survey of freeways
 - Private sector probe-based traffic monitoring:
 - I-95 Vehicle Probe Project/INRIX data
 - HERE data (National Performance Management Research Data Set procured by FHWA)
 - Vehicle volumes in the Regional Transportation Data Clearinghouse (RTDC)
 - Others (e.g., HOV surveys, cordon counts)
- Congestion Management Process (CMP) products:
 - Biennial CMP Technical Report
 - **Proposed quarterly NCR Congestion Report ←**
 - Other studies (e.g., after-fact analysis, strategies reviews)

Motivation

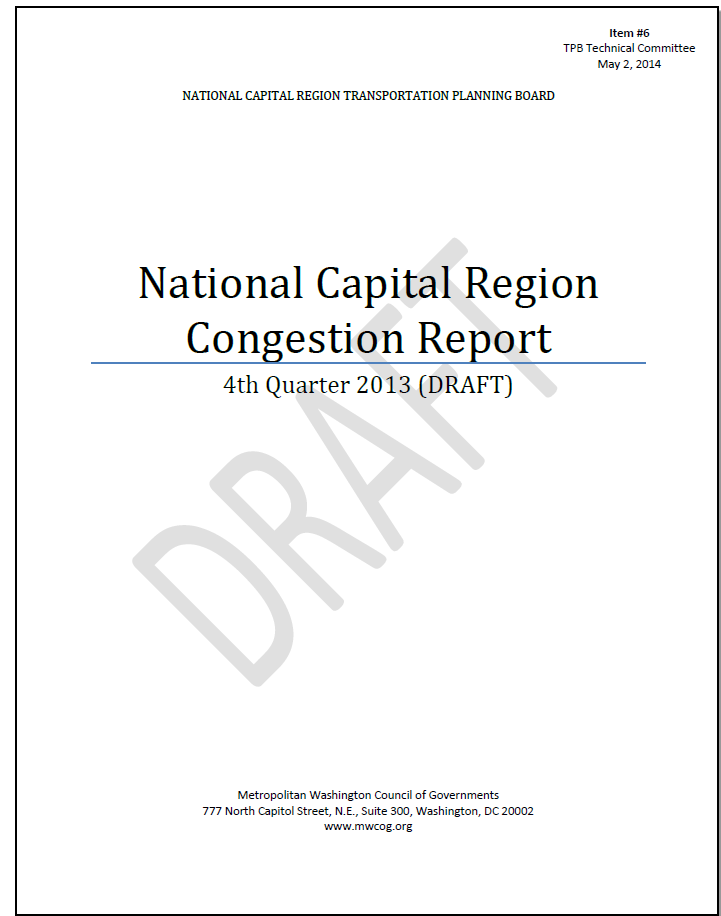
- Timely reporting of congestion and related information
 - A quarterly updated report focusing on the most recent quarter
 - To be posted on www.mwcog.org/congestion
 - Enabled by emerging data and analysis tools
- Examine reliability and non-recurring congestion for recent incidents/occurrences, in association with relevant congestion management strategies
- Preparations for MAP-21 performance reporting
 - Traffic congestion
 - Performance of the Interstate system
 - Performance of the non-Interstate NHS
 - Freight movement on the Interstate system

Keep in mind...

- Focus on a quarter, not annual average
- For quick turnaround, third-party data and analysis tools are employed
 - Data: I-95 Vehicle Probe Project (VPP)/INRIX data
 - Tools: VPP Suite, developed by CATT Lab of UMD
- Performance measures to be updated with forthcoming MAP-21 rulemakings

The Report

- Congestion – Travel Time Index
- Reliability – Planning Time Index
- Top 10 Bottlenecks
- Congestion Maps
- Quarterly Spotlight
- Background



Congestion

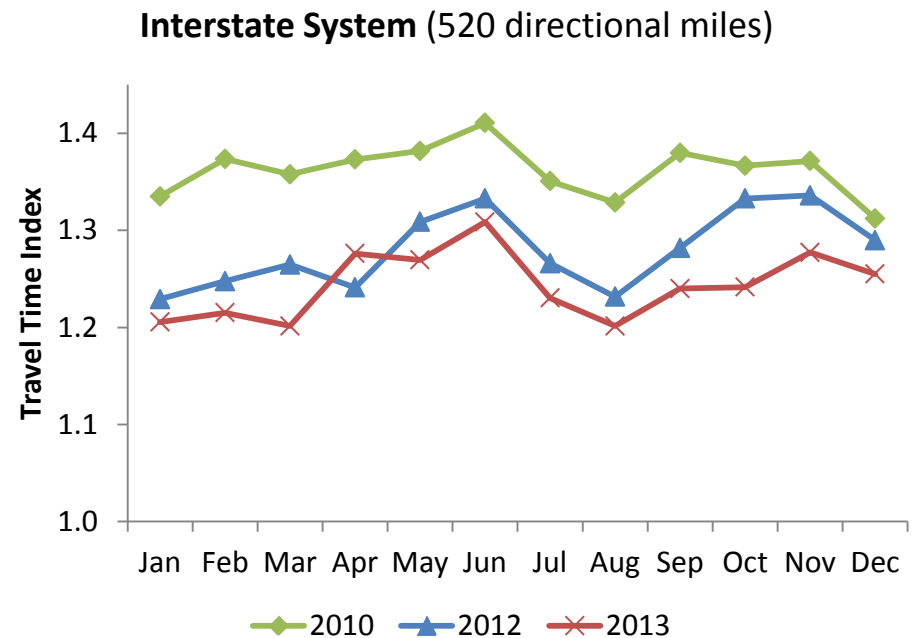
– Travel Time Index (TTI)

- Regional average TTI
 - for two time periods:
 - Current quarter
 - Trailing 4 quarters
 - by four highway categories:
 - Interstate system (shown)
 - Non-Interstate NHS
 - Non-NHS
 - All roads
- Charts of monthly TTI
- Definition of TTI

Interstate System

TTI 4th Quarter 2013: 1.26 ↓4.7% or 0.06¹

TTI 2013: 1.24 ↓2.9% or 0.04²



¹ Compared to 4th quarter 2012; ² Compared to 2012.

Reliability

– Planning Time Index (PTI)

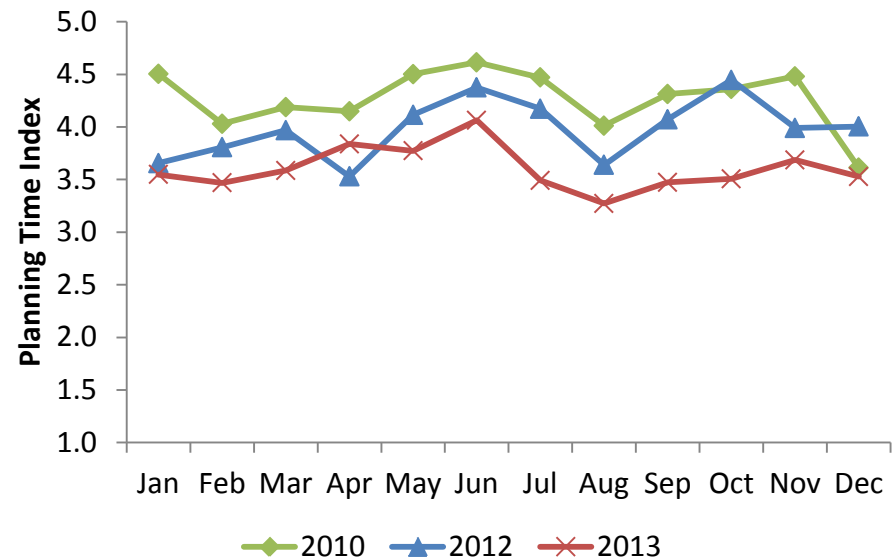
- Regional average PTI
 - for two time periods:
 - Current quarter
 - Trailing 4 quarters
 - by four highway categories:
 - Interstate system (shown)
 - Non-Interstate NHS
 - Non-NHS
 - All roads
- Charts of monthly PTI
- Definition of PTI

Interstate System

PTI 4th Quarter 2013: 3.57 ↓13.8% or 0.57¹

PTI 2013: 3.60 ↓9.5% or 0.38²

Interstate System (520 directional miles)



¹ Compared to 4th quarter 2012; ² Compared to 2012.

Top 10 Bottlenecks (1/2)

(in current quarter)

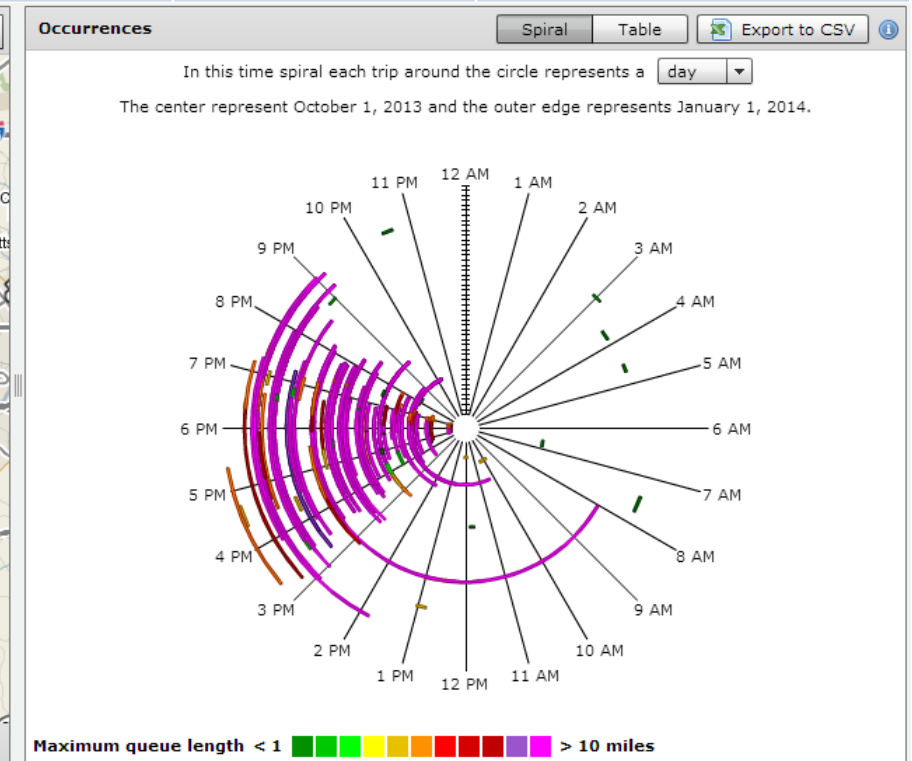
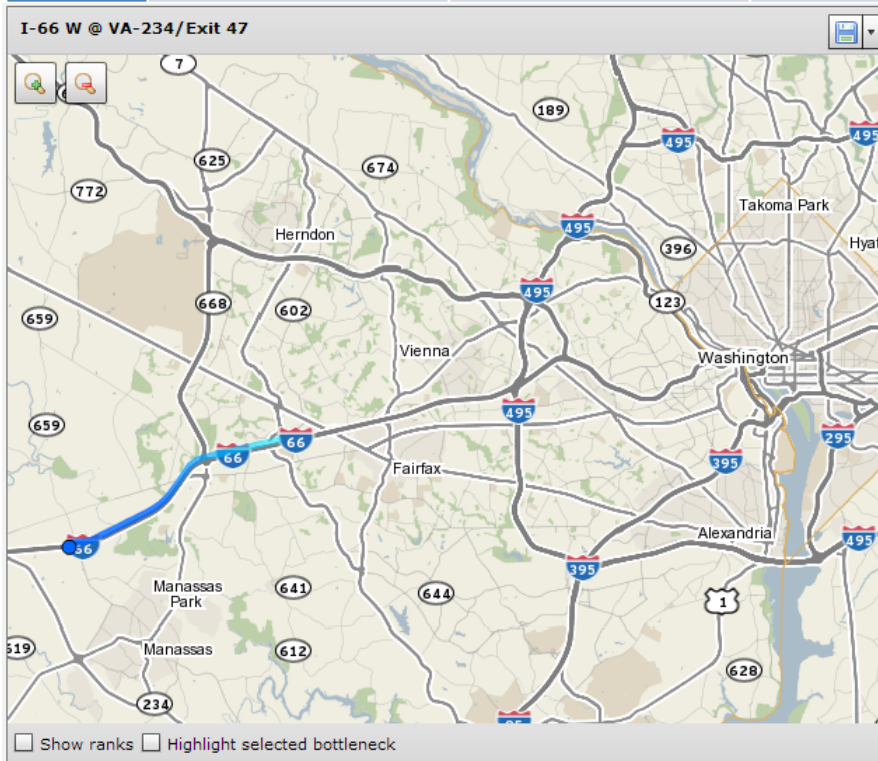
Rank	Location	Average duration	Average max length (miles)	Occurrences	Impact factor*
1	I-66 W @ VA-234/Exit 47	2 h 40 m	11.33	122	221,249
2	I-270 Spur S @ I-270	1 h 49 m	7.35	241	192,962
3	I-66 E @ I-495/Exit 64	2 h 5 m	5.18	249	161,128
4	I-495 CW @ American Legion Bridge	2 h 47 m	4.63	190	146,875
5	I-395 N @ 2nd St	2 h 34 m	6.88	129	136,752
6	I-495 CCW @ I-66/Exit 9	2 h 59 m	8.39	90	135,236
7	I-495 CW @ MD-214/Central Ave/Exit 15	2 h 3 m	8.52	129	135,225
8	I-66 E @ Vaden Dr/Exit 62	1 h 48 m	5.21	156	87,859
9	I-270 Local N @ I-270/Washington National Pike	2 h 6 m	4.28	159	85,730
10	I-95 N @ I-395	1 h 38 m	7.94	109	84,822

* The Impact Factor of a bottleneck is simply the product of the Average Duration (minutes), Average Max Length (miles) and the number of occurrences.

Top 10 Bottlenecks (2/2)

(in current quarter)

Rank	Location	Average duration	Average max length (miles)	Occurrences	Impact factor*
1	I-66 W @ VA-234/Exit 47	2 h 40 m	11.33	122	221,249



* The Impact Factor of a bottleneck is simply the product of the Average Duration (minutes), Average Max Length (miles) and the number of occurrences.

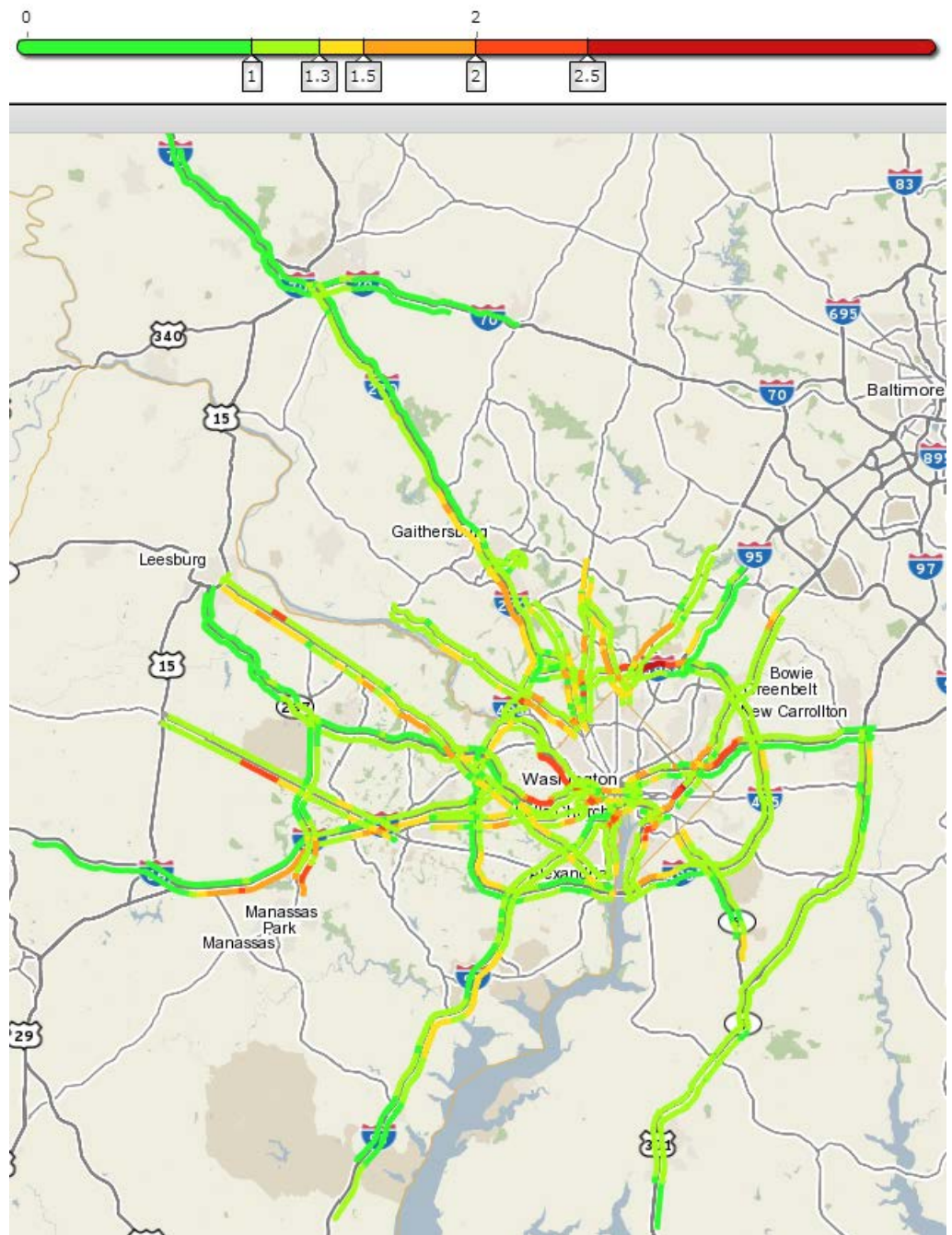
Congestion Maps

- AM Peak Hour

Travel Time Index (TTI) during weekday 8:00-9:00 am in current quarter:

- TTI = 1.0: Free flow
- $1.0 < \text{TTI} \leq 1.3$: Minimal
- $1.3 < \text{TTI} \leq 1.5$: Minor
- $1.5 < \text{TTI} \leq 2.0$: Moderate
- $2.0 < \text{TTI} \leq 2.5$: Heavy
- $2.5 < \text{TTI}$: Severe

TTI was chosen over Speed in visualization since the latter cannot reflect the differences in speed limits on different roads.



Quarterly Spotlight

(Transportation Impacts of the 2013 Federal Government Shutdown)

Travel Time Index in “Before”, “Shutdown” and “After”



	Changes in Travel Time Index from “Before” Weekdays to “Shutdown” Weekdays	
	2013	2012
Interstate System	-3.3%	-1.5%
Non-Interstate NHS	-1.7%	-0.10%
Overall (NHS)	-2.0%	-0.4%

More details in the report

- Definitions and Methodologies
 - Travel Time Index
 - Planning Time Index
 - National Highway System (NHS), All Roads
 - Bottleneck tracking
 - Congestion maps

Next Steps

- Reviewed at the TPB Tech May 2 meeting
 - Comments by Friday, 5/16/2014
- Comments are always welcomed
 - Comments to be addressed to Wenjing Pu (wpu@mwcog.org)
- Post the 4th Quarter 2013 Report online at www.mwcog.org/congestion
- With finalized format and process, will produce the next report (1st Quarter 2014) and post online soon