National Capital Regional Congestion Report (DRAFT):
4th Quarter 2010

Travel Forecasting Subcommittee
July 22, 2011

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National Capital Regional Transportation Planning Board (TPB)
Metropolitan Washington Council of Governments (MWCOG)

Objectives

- **Timely** congestion and related information
  - Update quarterly
- **Simple** and easy-to-communicate performance measures
- **Dashboard** style
- Take advantage of available data

Data Sources

- Speed
  - I-95 Corridor Coalition/INRIX data
- Volume
  - FHWA Transportation Technology Innovation and Demonstration (TTID) Program
  - Maryland Traffic Monitoring System (TMS)
- Incidents
  - RITIS
  - MATOC

Timeline

- First draft completed in early June 2011
- Internal review
  - First run completed
  - More discussions ongoing
- Committee review
  - MOITS, June 14 & July 13, 2011
  - Travel Forecasting Subcommittee, July 22, 2011
  - Other committees, TBD
- Soft launch
  - 3rd quarter CY 2011 (for data 2nd quarter CY 2011 and earlier)
  - Expected time lag of reporting: 1 – 3 months
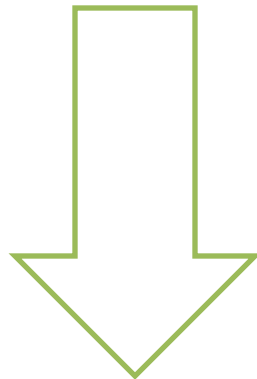 - Web link TBD

Acknowledgements

Andrew Meese/Ronald Kirby

Huijing Qiang

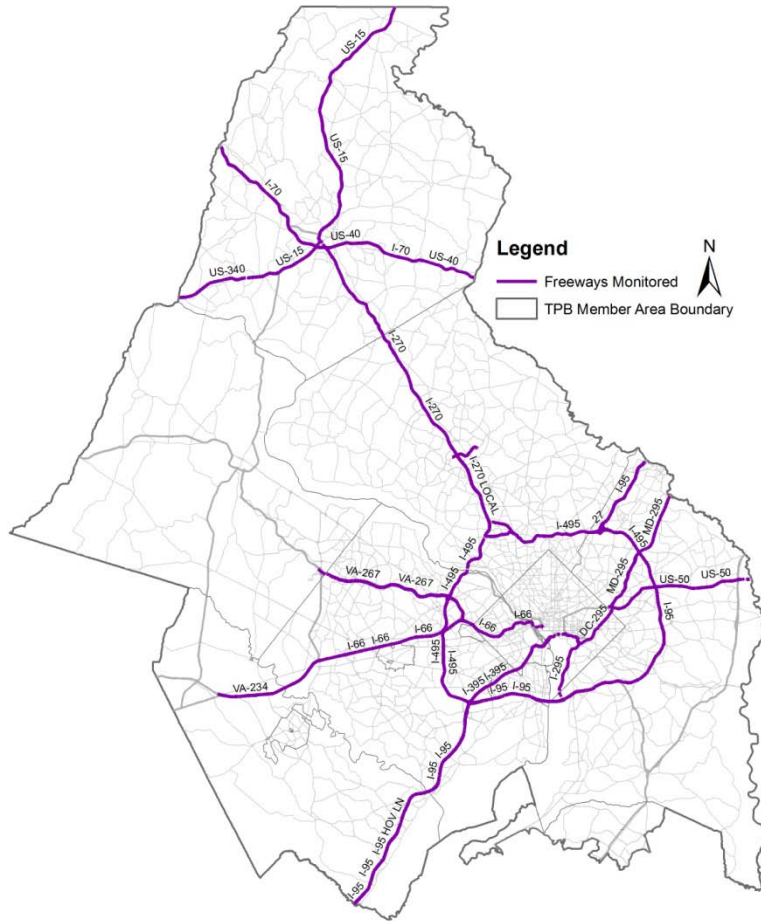MOITS participants

Review the report…

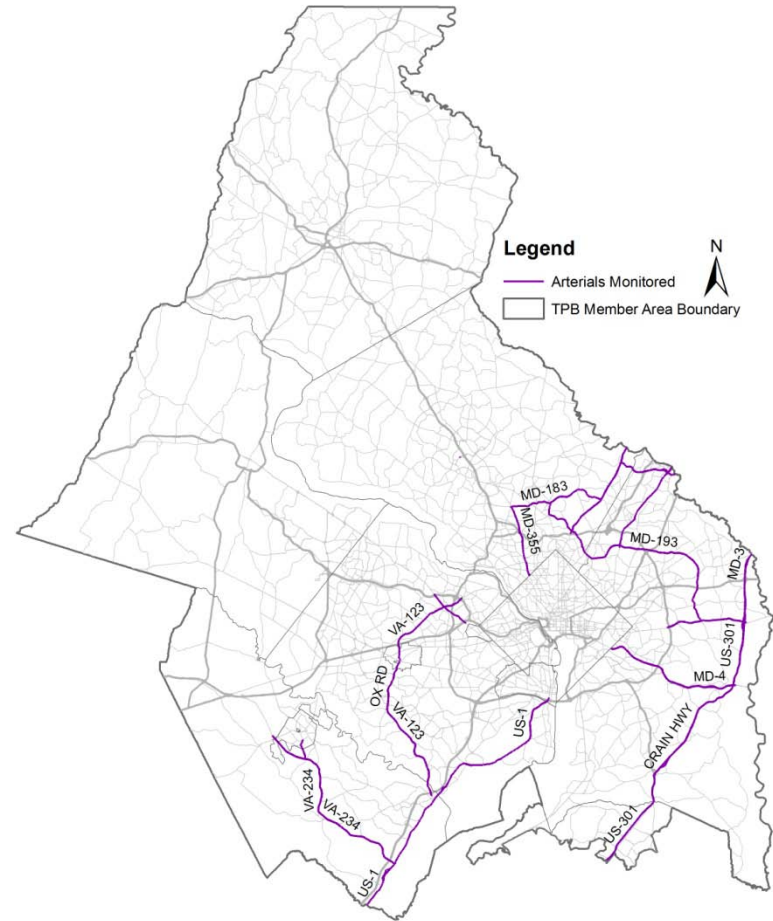# Some background information & methodology about this report
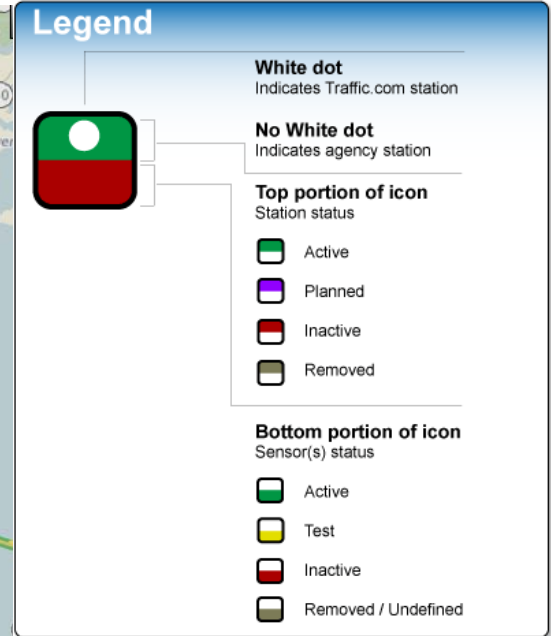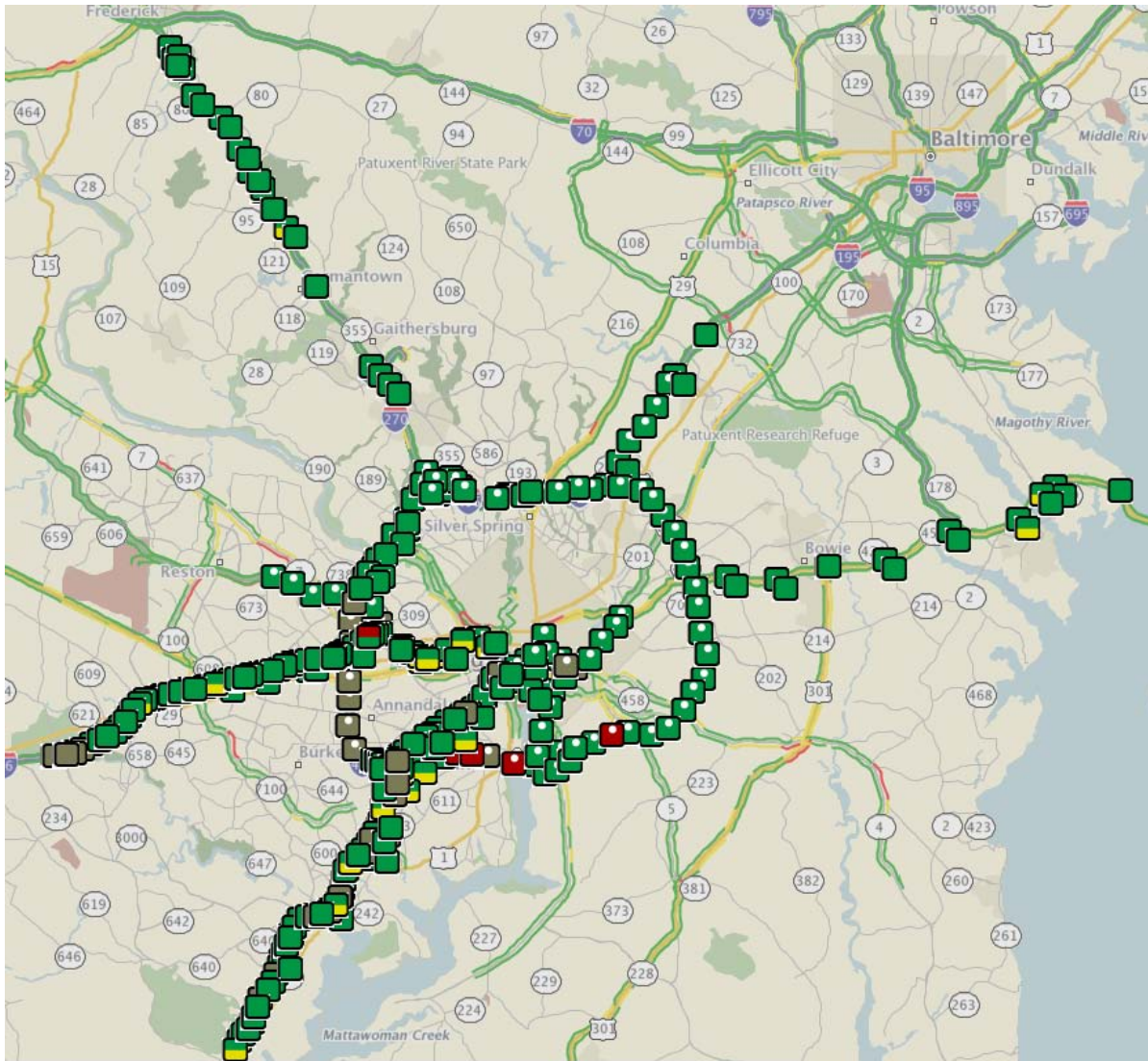
INRIX Speed Data Coverage in TPB
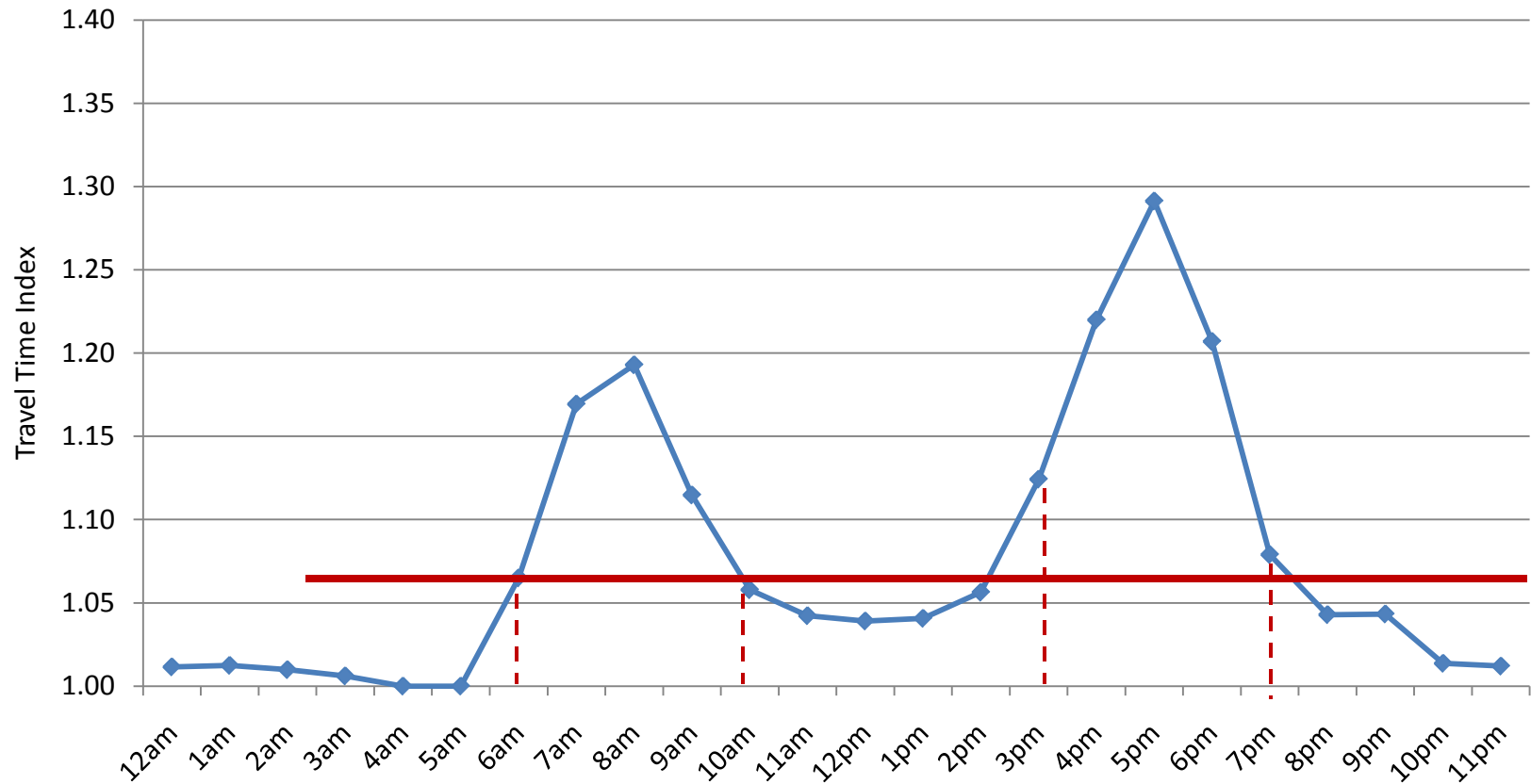
Freeways

Arterials

TTID Volume Data Coverage in TPB
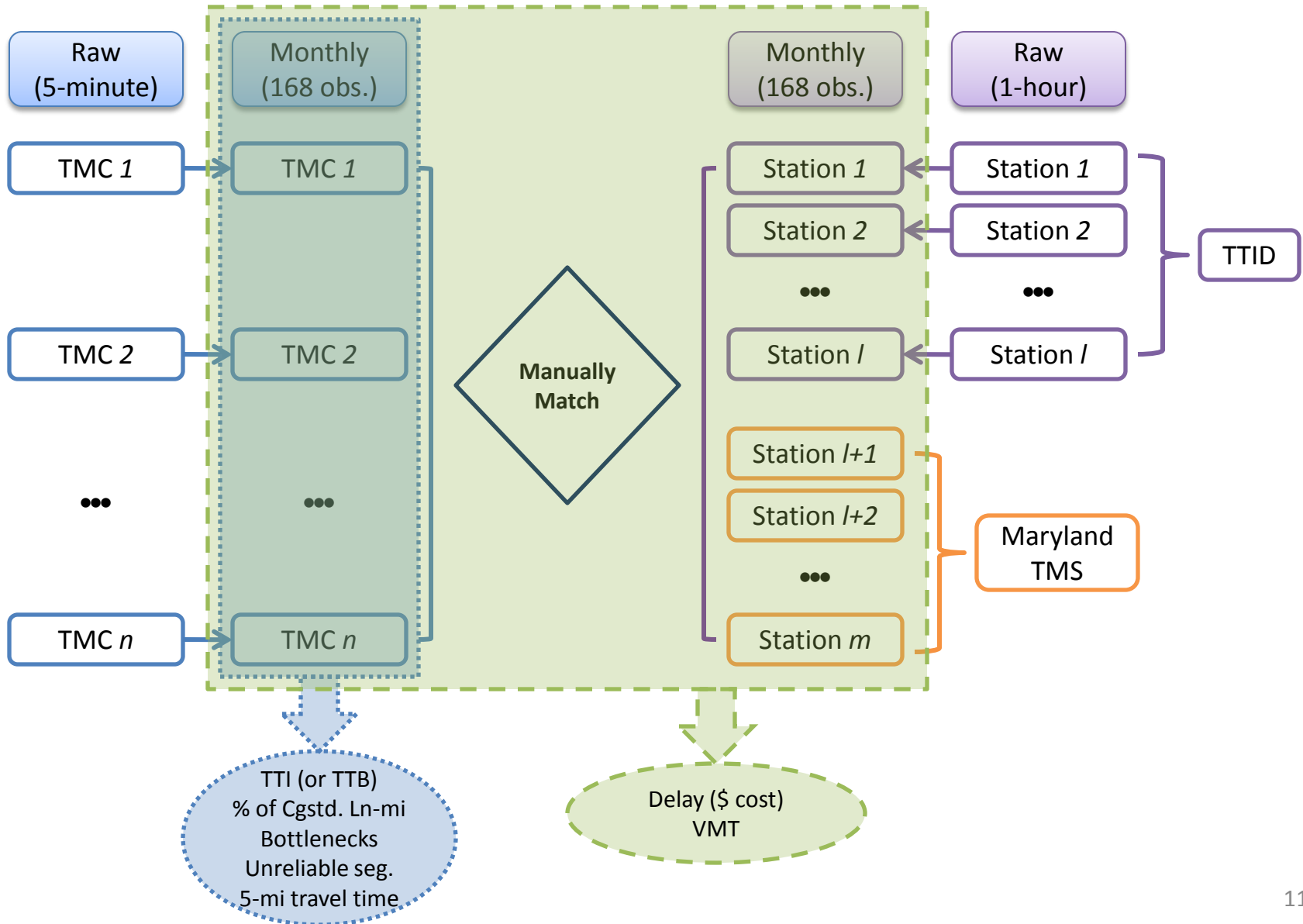

Source: Traffic.com, Inc.

Workday TTI by Time of Day (2010)

Travel time index (TTI) = experienced travel time / free flow travel time

# Data Flow

TMC and Station Match

Rules of thumb:

- Combine several TMCs (Traffic Message Channels – spatial unit of INRIX data) to form a "segment" that includes at least one station
- Segment should at least 1-mile long
- Segment ends/begins if
  - Number of lanes changes
  - At a major interchange or a point of interest
- If a segment has multiple stations, use average volume

Distribution of TMC length
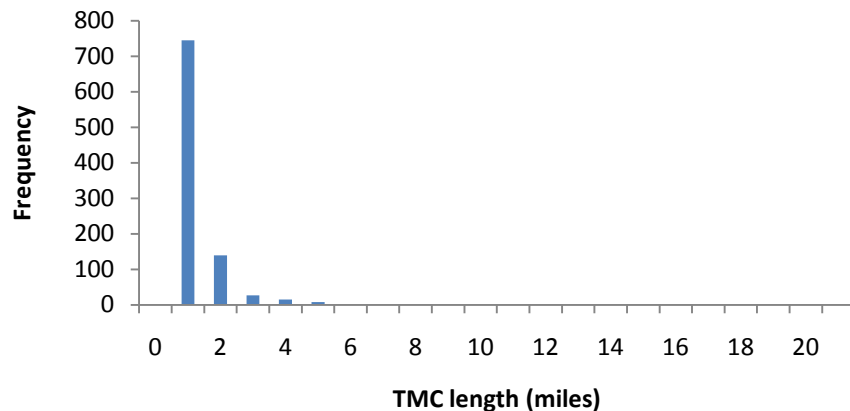
Distribution of Segment length
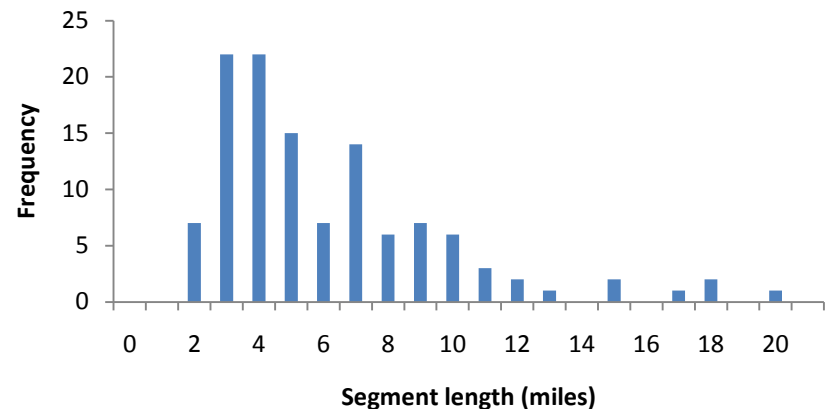
Freeway Delay per Freeway Traveler

$$\sum_t \frac{\sum_i V_{it} \left(\dfrac{L_i}{S_{it}} - \dfrac{L_i}{FFS_i} \right)}{\sum_i V_{it}}$$

where,

L_i – Length of segment i,

S_{it} – Speed of segment i during hour t,

FFS_i – Free flow speed of segment i,

V_{it} – Volume of segment i during hour t,

Vehicle-Miles Traveled

- Workday 24-hour freeway VMT of TPB member jurisdictions
  - TPB Model v2.3 output: 44 million vehicle-miles (2007)
  - NCR Congestion Report (draft): 35 million vehicle-miles (2008)
  - The report has 20% less VMT than model output
- Possible cause
  - The report does not cover
    - GW Parkway
    - Dulles Access Road (not tolled)
    - Dulles Greenway
    - Harry Byrd Highway
    - Clara Barton Parkway
    - Portions of I-66 and I-395

Freeway data coverage
of the NCR Congestion Report

Value of Time

V2.3 Calibration Report, 4/29/2011, Page 61

Table 39 Time Valuation (Minutes/2007$) by Purpose and Income Level

HH Income Quartile Range (1)	Mid-Point of HH Income Range	Hourly Rate per Worker (2)	2007 Time Valuation (Minutes per Dollar)	
			Work Trips (75% V.O.T.)	Non-work (50% V.O.T.)
$ 0 - $ 50,000	$25,000	$9.23	8.7	13.0
$ 50,000 - $ 100,000	$75,000	$27.70	2.9	4.3
$100,000 - $150,000	$125,000	$46.17	1.7	2.6
$150,000 +	$175,000	$64.64	1.2	1.9

Notes:
(1) Income groups based on 2007 ACS-based quartiles
(2) Hourly rate based on 1,920 annual hours/worker * 1.41 workers/HH = 2,707 hrs/HH
(3) Median 2007 Annual Income for modeled area is $84,280

V2.3 Calibration Report, 4/29/2011, Page 121

Table 74 Comparison of 2007 Estimated and Observed Trips by Purpose and Mode

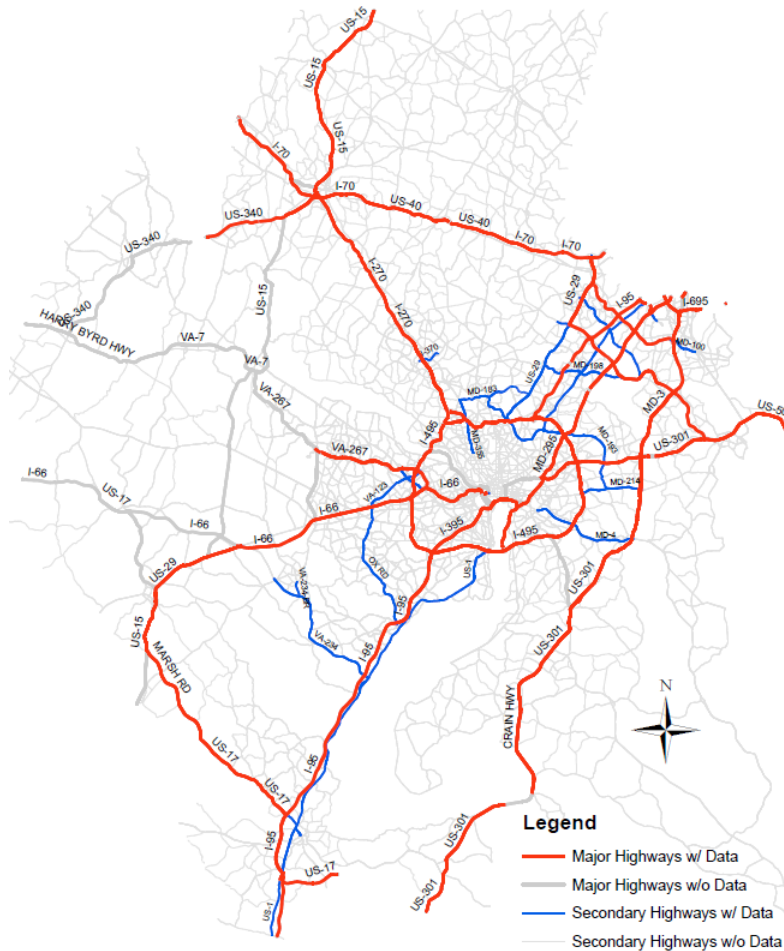**% of non-transit, motorized trips by purpose**
Work trips: 30%
Non-work trips: 70%

Value of time by trip purpose
(for median 2007 annual income $84,280)
•Work trips: $23.40/hr
•Non-work trips: $15.65/hr

Value of time
$17.97 (2007 $)

Value of time
$18.49 (2010 $)

15

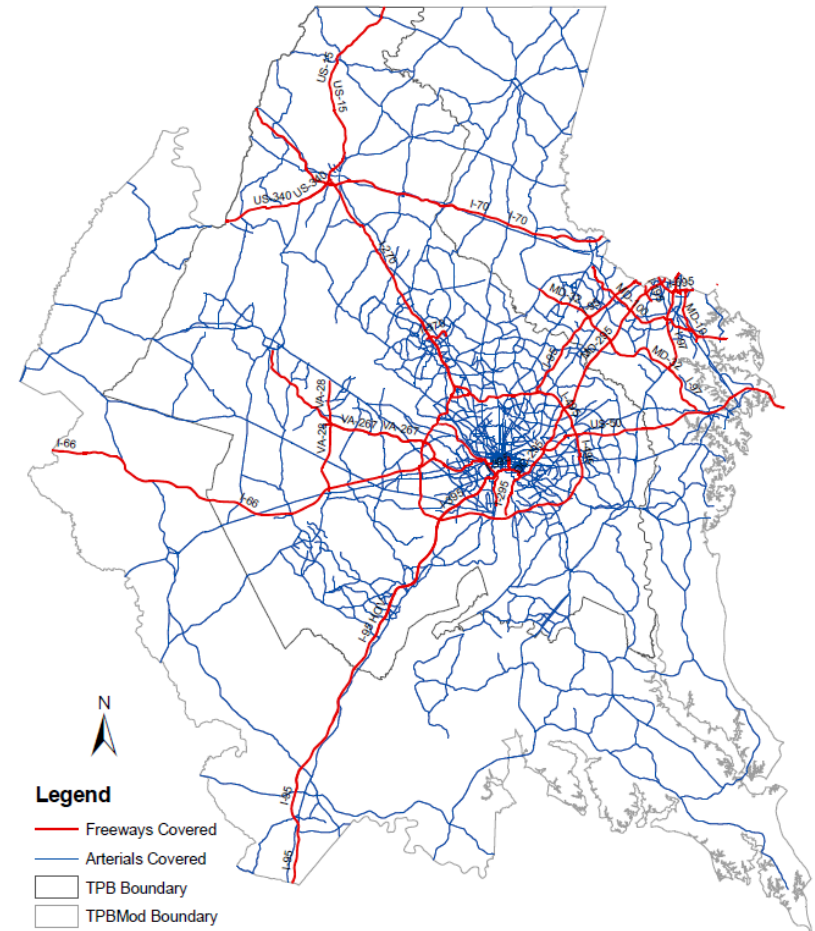# FYI: INRIX Data – What We Have Now

- I-95 Corridor Coalition Vehicle Probe Project (VPP) and its expansions
  - 5-minute archived data (since July 1, 2008)
    - Access via I-95 Traffic Monitoring website (INRIX): one snapshot every 5 minutes
    - Access via VPP suite of RITIS (UMD): one snapshot every 1 minute → can request aggregated data (5-, 10-, 15-, 30-, or 60-minutes intervals)
- FY 2011 Procurement (for 2010 plus Jan. 2011 data)
  - Average speed data
  - 5-minute archived data (one snapshot every 5 minutes)
  - TMC Shape File

Data Coverage: VPP vs. FY11 Procurement

I-95 VPP

FY 2011 Procurement

Source: INRIX, Inc.

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