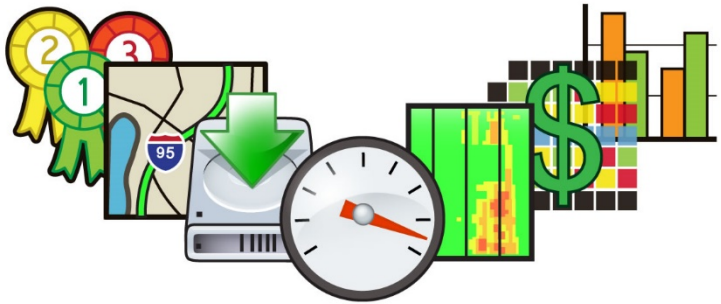
VPP Suite User Group



October 13, 2015

Dial 1-719-867-1571
& enter 725437# at the prompt

I-95 CORRIDOR COALITION

Housekeeping Items

- Please call Joanna at 610-662-5569 for difficulties with the web or audio application
- This is a **virtual meeting experience**
  - **Please keep your phone muted until asking a question or speaking (press *6 to mute/unmute individual phone lines)**
  - **Please do not place call “on hold” as your hold music will be heard by the group**
- All materials & contact information will be available to participants after the webcast

Meeting Participants

#	Agency	Name(s)	#	Agency	Name(s)
1	Baltimore Metropolitan Council	Ed Stylc	9	Pennsylvania DOT	Scott Benedict
2	DVRPC	Jesse Buerk, Zoe Neaderland	10	Richmond Regional MPO	Tiffany Dubinsky, Greta Ryan
3	Florida Turnpike	Kim Samson (AECOM), Ryan Brown (Jacobs)	11	Rhode Island DOT	Bill Nordstrom (Jacobs)
4	Maryland SHA	Subrat Mahapatra	12	South Jersey TPO	David Heller, Andrew Tracy
5	MWCOG/NCRTPB	Andrew Meese, Wenjing Pu	13	Virginia DOT	Sanhita Lahiri, Rose Lawhorne, Mena Lockwood, Paul Szatkowski, Ram Venkatanarayana
6	New Jersey DOT	Neha Galgali, Sudhir Joshi, Kelly McVeigh, Simon Nwachukwu	14	UMD CATT Lab & UMD CATT	Michael Pack, John Allen, Kaveh Farokhi Sadabadi, Karen Swick
7	North Jersey TPA	Solomon Caviness, Keith Miller	15	KMJ Consulting (Coalition Support)	Karen Jehanian, Joanna Reagle
8	North Carolina DOT	Kelly Wells, Thomas Chase (NC State)			

Please confirm that your line is muted *6

Thank you!

Welcome & Introductions

Karen Jehanian
For the I-95 Corridor Coalition

VPP Suite Co-chairs

Jesse Buerk
(DVRPC)

Kim Samson
(Consultant to FL TPK.)

Kelly Wells
(NCDOT)

The co-chair's vision, leadership and guidance will help provide for:

- A more comprehensive State & MPO perspective…
- that leads to better integration of Planning-Ops-Travel Info needs & considerations…
- for improved tools and products.

Agenda

Time	Topic	Speaker
10:30am to 10:35am	Welcome & Introductions	Karen Jehanian, KMJ Consulting, Inc. For the I-95 Corridor Coalition
10:35am to 10:45am	Purpose of this Meeting	Jesse Buerk (DVRPC), VPP Suite User Group co-chair
10:45am to 11:00am	VPP Suite Probe Data Analytics Forum	Michael Pack, UMD CATT Lab
11:00am to 11:15am	VPP Suite Features – New & Upcoming	Michael Pack, UMD CATT Lab
11:15am to 11:30am	Use of the VPP Suite by User Group members • MdSHA Annual Mobility Report	Kaveh Farokhi Sadabadi, UMD CATT
11:30am to 11:40am	User Focus Group effort to develop consistent & useful report formats for the Suite	Michael Pack, UMD CATT Lab
11:40am to 11:55am	Agency Input Session to learn about what is working & what needs some attention	All Discussion Facilitated by Michael Pack & Kelly Wells (NCDOT), VPP Suite User Group co-chair
11:50am to noon	Meeting Wrap Up	Karen Jehanian, KMJ Consulting, Inc. For the I-95 Corridor Coalition

Purpose of this Meeting

Jesse Buerk (DVRPC)

VPP Suite User Group co-chair

Purpose of This Meeting

- Thoughts and vision for leading the User Group
- Quarterly report-outs of tool enhancements
- Update on what others are doing with the tools
- We need to hear from you!

Requests/Issues/Follow-up

(Michael Pack)

From the July 15, 2015 meeting:

#	Action Item	Status
1	Ira Levinton (NJDOT) had questions regarding selecting by county/selecting by partial roadway.	Ira compiling a list of various items for discussion.
2	Ram Venkatanarayana (VCTIR/VOR) said time of Day is not clear on some Congestion Scans, and that input variables be included with output.	In Progress (see Advanced Time Selection – Date Range Summary slide)
3	Kelly Wells (NCDOT) requested having the choice of military time or regular time.	Submitted to the developers for inclusion in a future upgrade.
4	Zoe Neaderland (DVRPC) would like to coordinate on a response when the MAP-21 NPRM comes out.	The Coalition will work with agencies and the “Partners” on a coordinated response.

VPP Suite
Probe Data Analytics Forum

Michael Pack
UMD CATT Laboratory

Probe Data Analytics Forum

- An open forum to:
  - Share ideas and best practices
  - Answer questions
  - Discuss issues with a larger audience
  - Promote your work

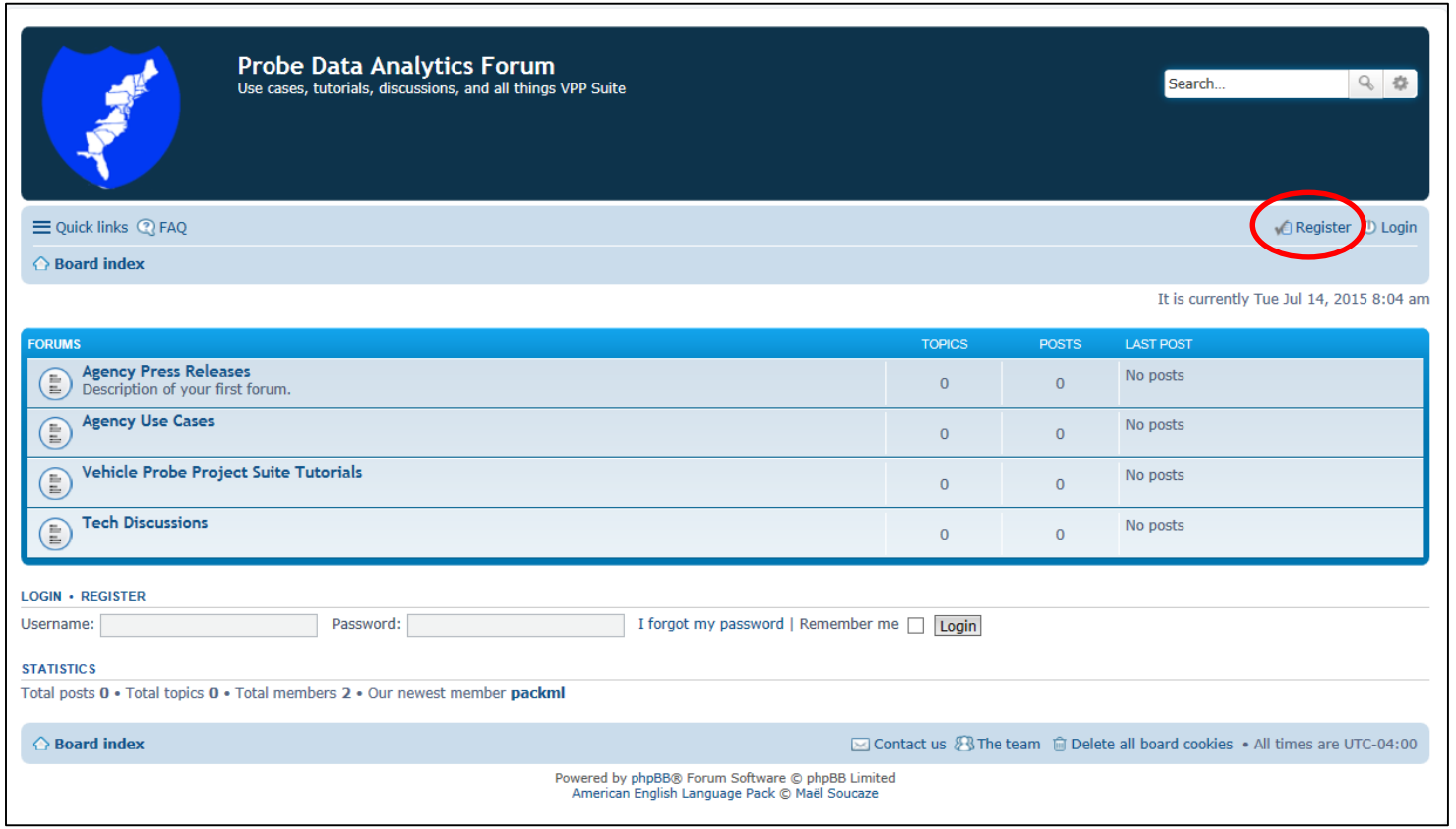
Probe Data Analytics Forum on the Coalition's Website

- Register

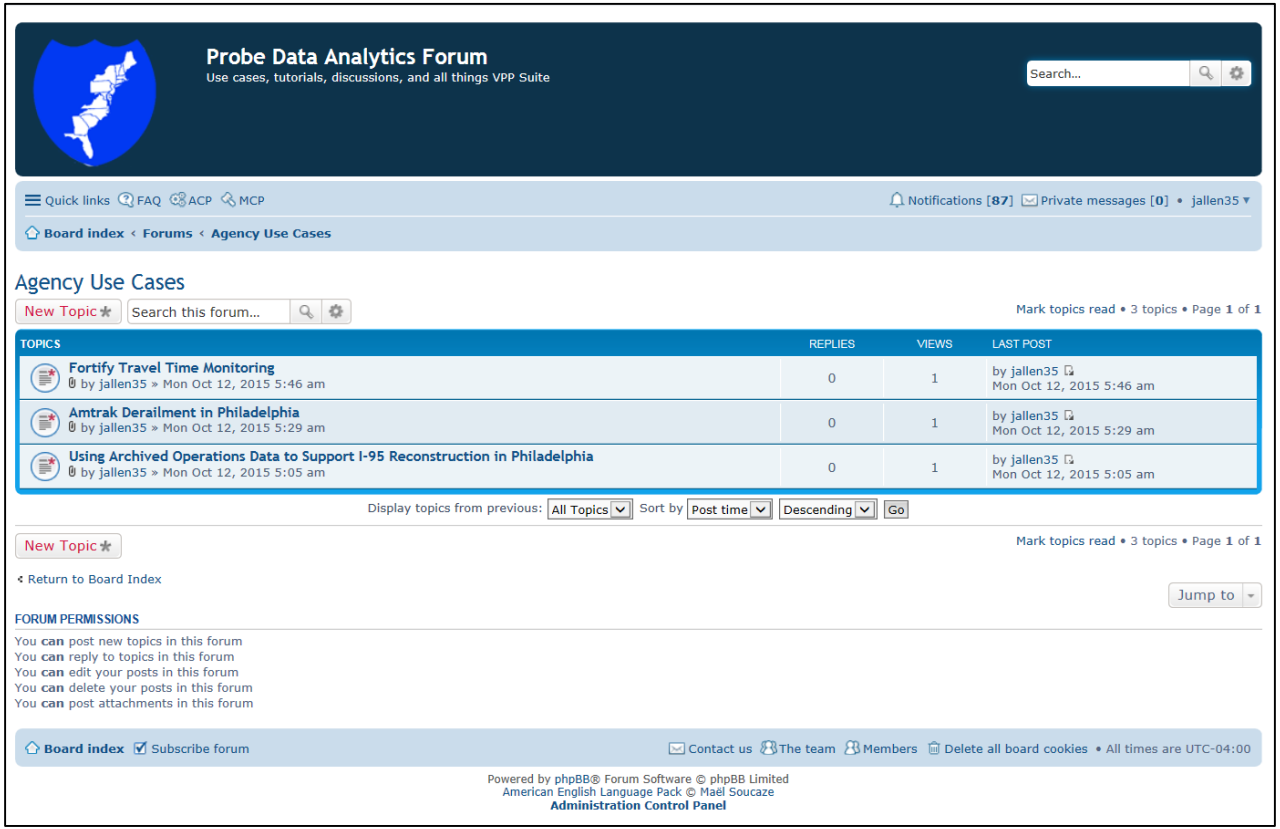
- Set your preferences

- Post stuff or reply to other people's posts

- Receive emails when people update the forum



Use Cases Posted…



“Fortify”

Probe Data Analytics Forum
Use cases, tutorials, discussions, and all things VPP Suite

Search...

Quick links FAQ ACP Notifications [85] Private messages [0] • jallen35 ▾

Board index ‹ Forums ‹ Agency Use Cases

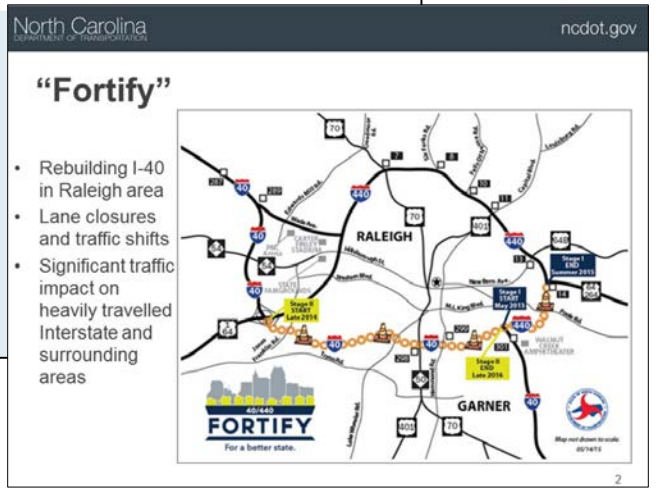
Fortify Travel Time Monitoring

Preview: Fortify Travel Time Monitoring

Project: "Fortify" travel time monitoring of the rebuilding of I-40 in the Raleigh area
Project Type: Work Zone/Traffic Management
Timeframe: Stage II start late 2014; Stage III end late 2016
Lead Agency: NCDOT
Supporting Agency: N/A
VPP Suite Tools Used: Massive Data Downloader

Description: There are significant traffic impact on heavily travelled Interstate and surrounding areas from the I-40 rebuild project. NCDOT generates daily reports from the previous day's peak period travel times of these impacted alternate routes, and provides them to the State Traffic Engineer, Work Zone Traffic Control, Communications Office, construction firms, news agencies, researchers, etc.

Highlights: First project with this type of reporting. Considering doing for all large construction projects in the future.



Amtrak Derailment…

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Use cases, tutorials, discussions, and all things VPP Suite

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Amtrak Derailment in Philadelphia

Post Reply | Search this topic... | 1 post • Page 1 of 1

Amtrak Derailment in Philadelphia

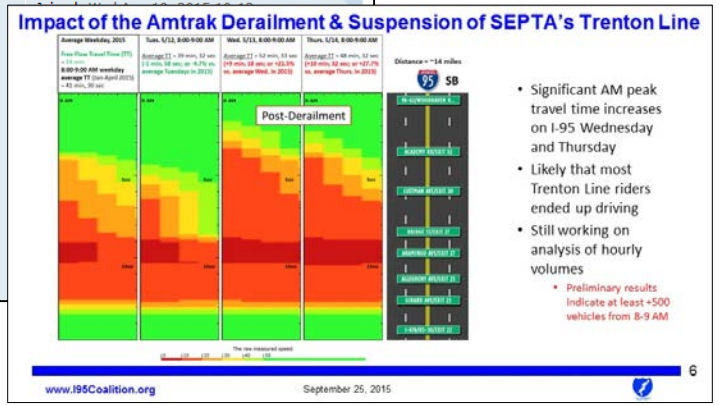
by jallen35 » Mon Oct 12, 2015 5:29 am

jallen35
Posts: 3

Project: Media-ready, quick turnaround visualizations of the impacts of the Amtrak derailment in Philadelphia
Timeframe: Accident occurred Tuesday, May 12, 2015
Lead Agency: DVPRC
Supporting Agency: Southeastern Pennsylvania Transportation Authority (SEPTA, Regional Transit Agency)
VPP Suite Tools Used: Congestion Scan

Description: At the request of news reporters, the Delaware Valley Regional Planning Commission (DVRPC) used Congestion Scan along with other graphics to show the impact of increased traffic on I-95 due to SEPTA's local rail service (Trenton Line) being shut down while the Amtrak accident was being investigated.

Highlights: Congestion Scan results clearly showed significant decreases in speeds (resulting in increased travel times) on I-95 SB for the two days after the derailment, likely due to the Trenton Line riders ending up driving.



I-95 Reconstruction

Probe Data Analytics Forum
Use cases, tutorials, discussions, and all things VPP Suite

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Board index ‹ Forums ‹ Agency Use Cases

Using Archived Operations Data to Support I-95 Reconstruction in Philadelphia

Preview: Using Archived Operations Data to Support I-95 Reconstruction in Philadelphia

Project: Major widening of I-95 with interchange reconstruction/reconfigurations
Project Type: Major Capacity Increase; Bottleneck Mitigation
Timeframe: Started in late 2011; 10 year project
Lead Agency: PennDOT
Supporting Agency: DVRPC
VPP Suite Tools Used: Congestion Scan, Performance Charts

Description: The Delaware Valley Regional Planning Commission (DVRPC) is providing planning assistance to PennDOT in the reconstruction and widening of I-95 for approximately 9 miles in Philadelphia. VPP Suite is being used during the project to help understand travel conditions and to plan, justify and refine strategies to mitigate congestion during the reconstruction.

Highlights: Using the tool visualizations to show significant increase in weekday peak hour travel and planning times helped justify $41 million flex to SEPTA for purchase of bi-level rail cars on parallel Trenton Rail Line.

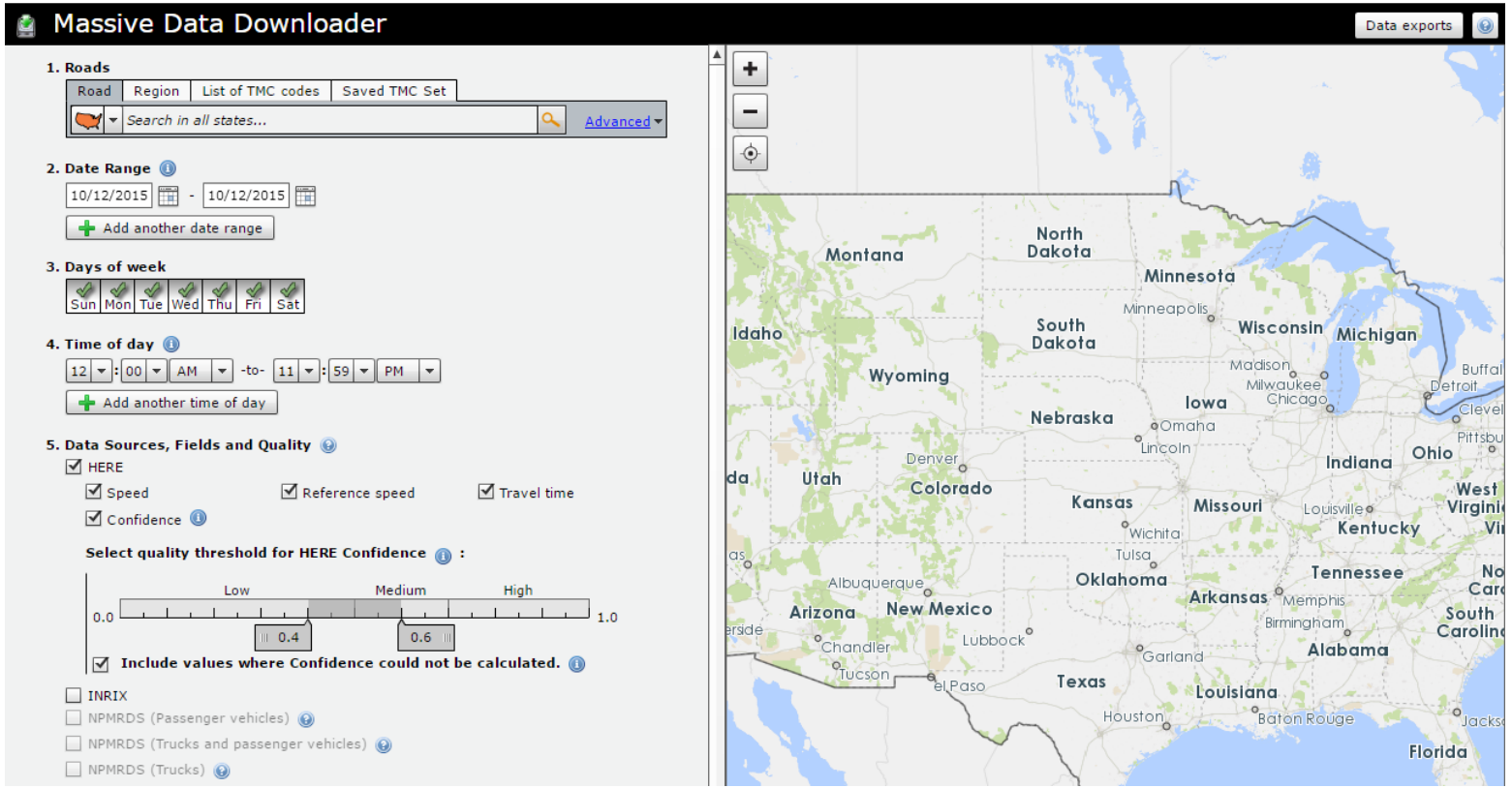
VPP Suite Features
New & Upcoming

Michael Pack
UMD CATT Laboratory

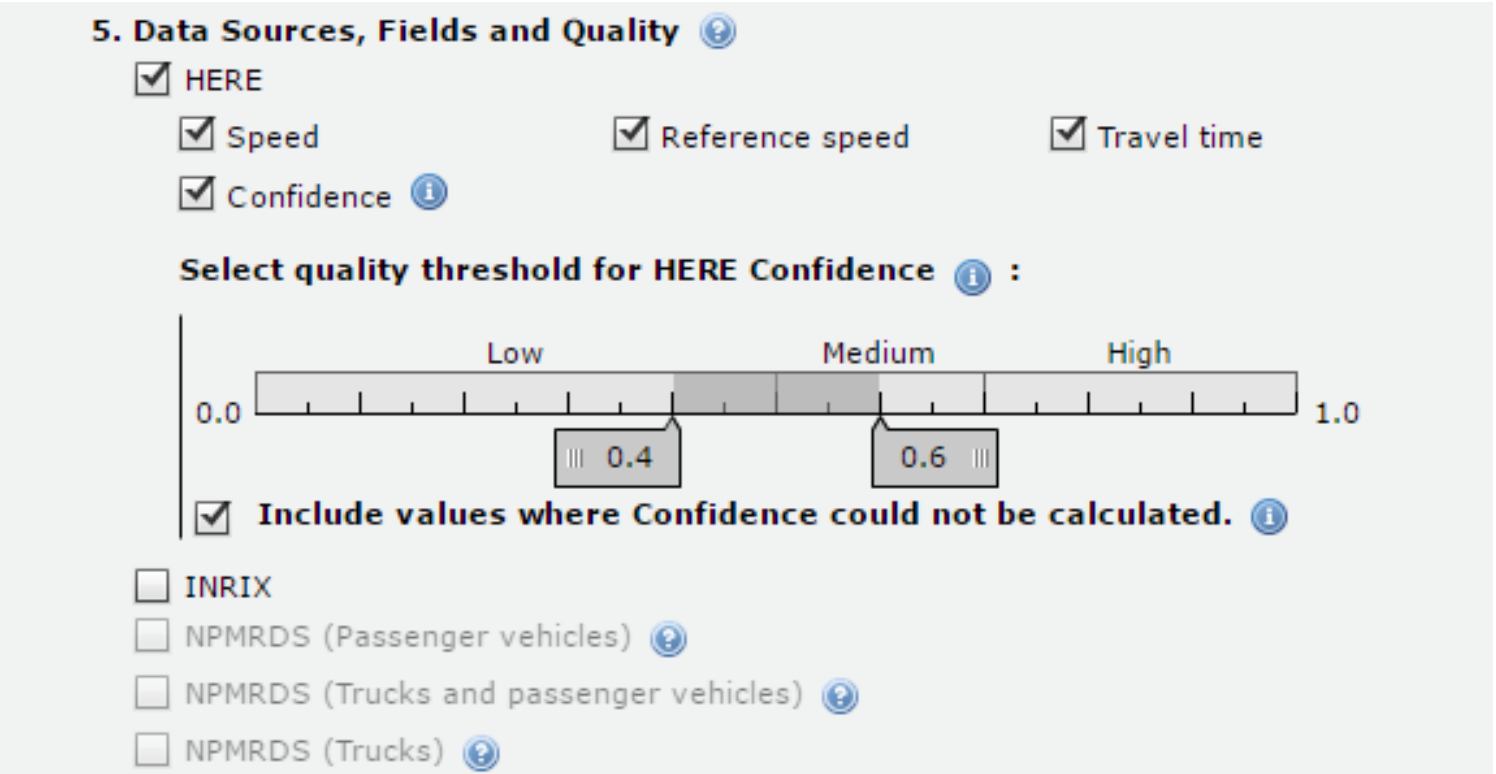
New Features

Deploying Later this Week

Download By Quality



Download by Quality (continued)



Download by Quality

5. Data Sources, Fields and Quality

- ☐ HERE
- ☑ INRIX
  - ☑ Speed
  - ☑ Historic average speed
  - ☑ Reference speed
  - ☑ Travel time
  - ☑ Confidence score
  - ☑ C-Value

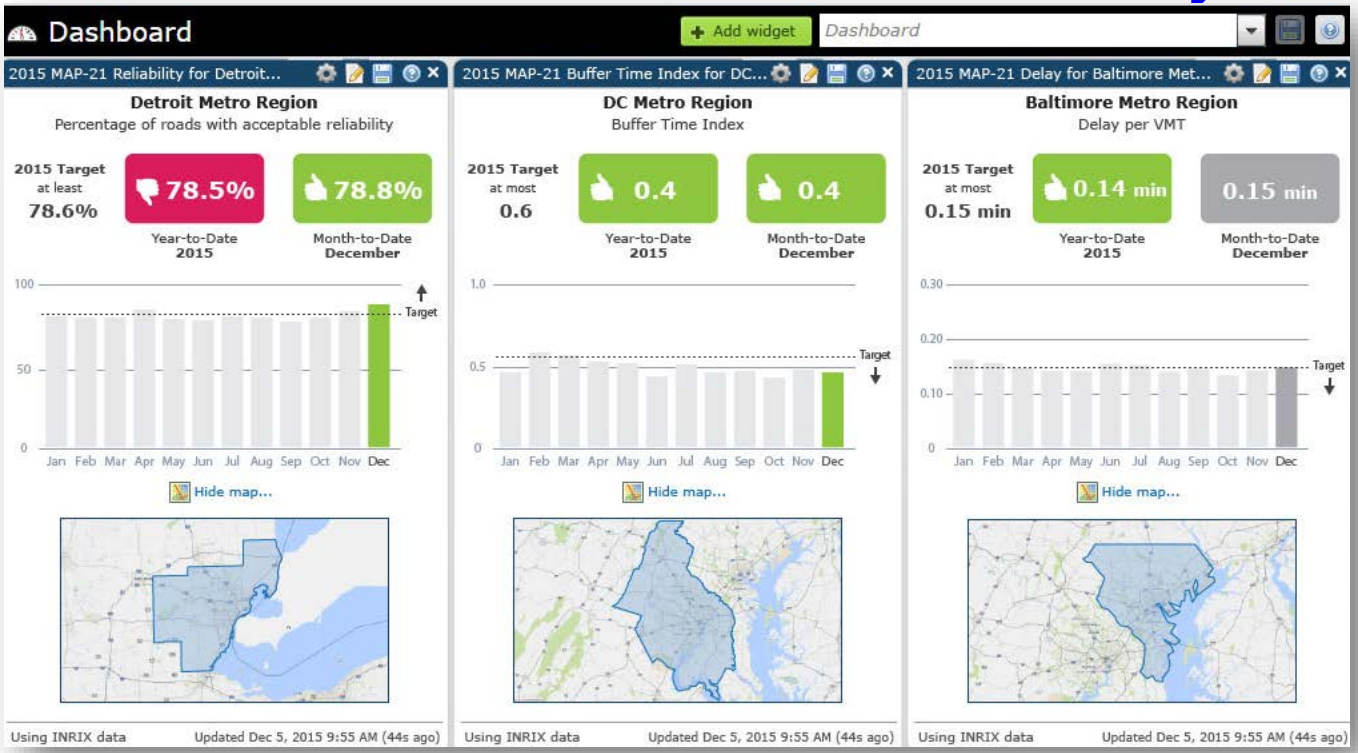
Select quality threshold for INRIX Confidence score:

☑ 30
Real Time Data: Any segment that has adequate data, at any time of day, will report real time data.

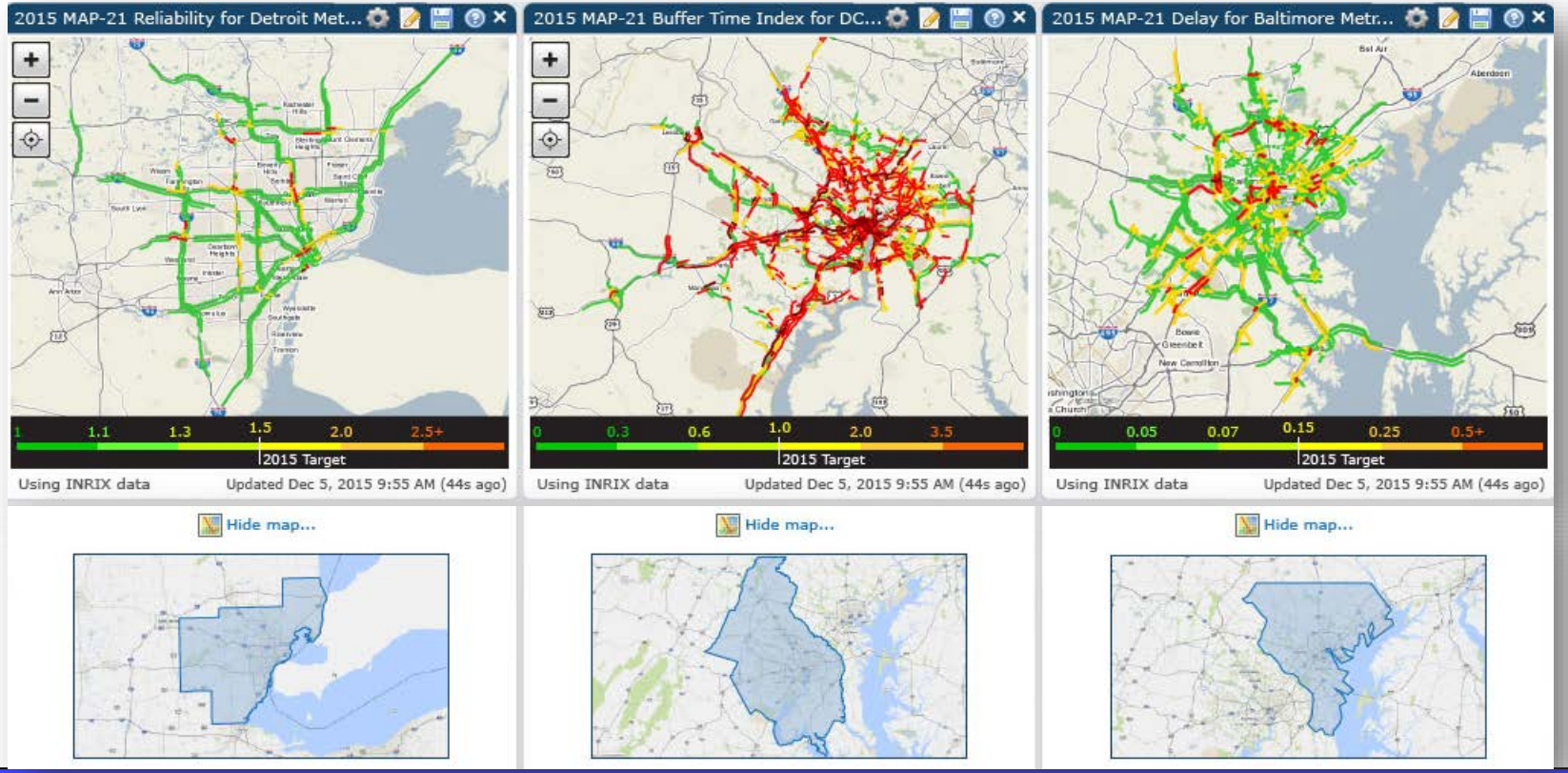
☑ 20
Historic Average: Between 4 am and 10 pm, any segment without sufficient real time data will show the historical average for that segment during that day/time period (15 minute granularity).

☑ 10
Reference Speed: From 10 pm to 4 am, any segment without sufficient real time data will show the reference speed for that segment. Any segment that does not have calculated historical averages will show the reference speed 24 hours a day if there is not sufficient real time data.

MAP-21 Widgets
(Multi-state, State, Urban Area, County, etc.)

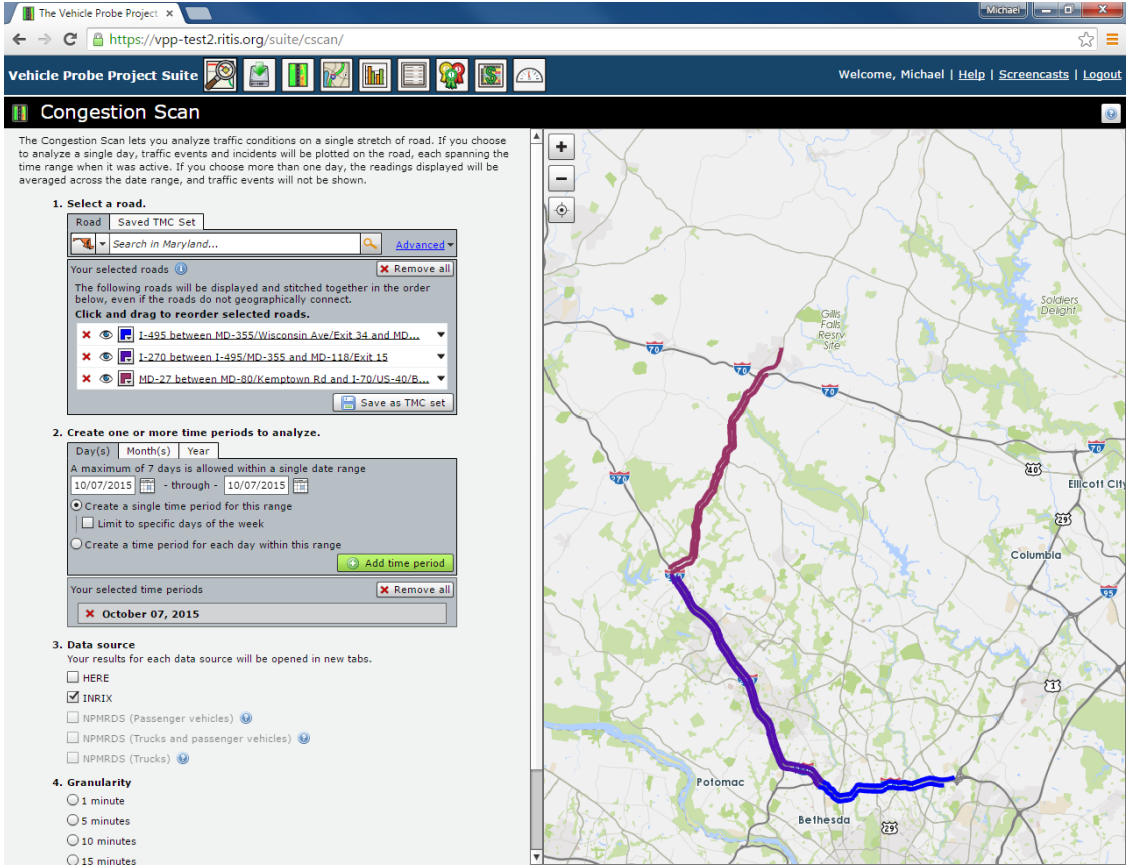


MAP-21 Widgets (continued)



Map-21 Widgets
(caveats and restrictions)

Deploying in the next 3-weeks


The Vehicle Probe Project
https://vpp-test2.ritis.org/suite/cscan/
Vehicle Probe Project Suite
Welcome, Michael | Help | Screencasts | Logout
Congestion Scan
The Congestion Scan lets you analyze traffic conditions on a single stretch of road. If you choose to analyze a single day, traffic events and incidents will be plotted on the road, each spanning the time range when it was active. If you choose more than one day, the readings displayed will be averaged across the date range, and traffic events will not be shown.
1. Select a road.
Road
Saved TMC Set
Search in Maryland...
Advanced
Your selected roads
Remove all
The following roads will be displayed and stitched together in the order below, even if the roads do not geographically connect.
Click and drag to reorder selected roads.
I-495 between MD-355/Wisconsin Ave/Exit 34 and MD...
I-270 between I-495/MD-355 and MD-118/Exit 15
MD-27 between MD-80/Kemptown Rd and I-70/US-40/B...
Save as TMC set
2. Create one or more time periods to analyze.
Day(s)
Month(s)
Year
A maximum of 7 days is allowed within a single date range
10/07/2015
- through -
10/07/2015
Create a single time period for this range
Limit to specific days of the week
Create a time period for each day within this range
Add time period
Your selected time periods
Remove all
October 07, 2015
3. Data source
Your results for each data source will be opened in new tabs.
HERE
INRIX
NPMRDS (Passenger vehicles)
NPMRDS (Trucks and passenger vehicles)
NPMRDS (Trucks)
4. Granularity
1 minute
5 minutes
10 minutes
15 minutes
Gills Falls Resrv Site
Soldiers Delight
Ellicott City
Columbia
Potomac
Bethesda

1. Select a road.

Road | Saved TMC Set

Search in Maryland... Advanced

Your selected roads Remove all

The following roads will be displayed and stitched together in the order below, even if the roads do not geographically connect.

Click and drag to reorder selected roads.

- I-495 between MD-355/Wisconsin Ave/Exit 34 and MD...
- I-270 between I-495/MD-355 and MD-118/Exit 15
- MD-27 between MD-80/Kemptown Rd and I-70/US-40/B...

Save as TMC set

2. Create one or more time periods to analyze.

Day(s) | Month(s) | Year

A maximum of 7 days is allowed within a single date range

10/07/2015 - through - 10/07/2015

Create a single time period for this range

Limit to specific days of the week

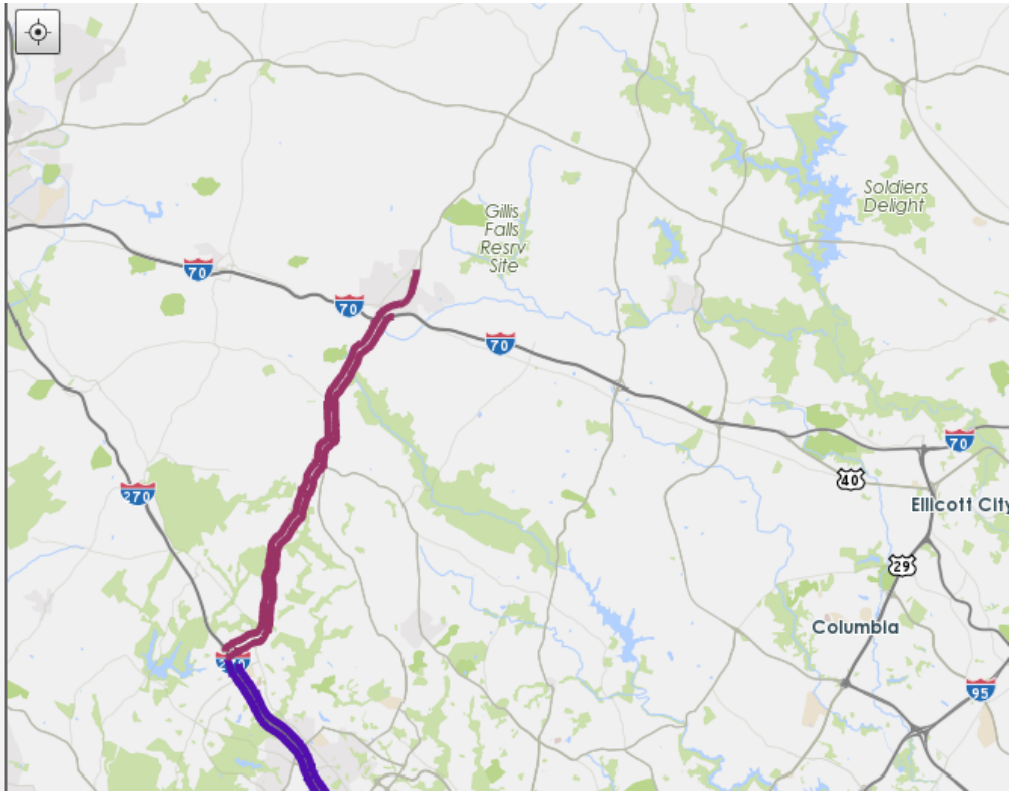
Create a time period for each day within this range

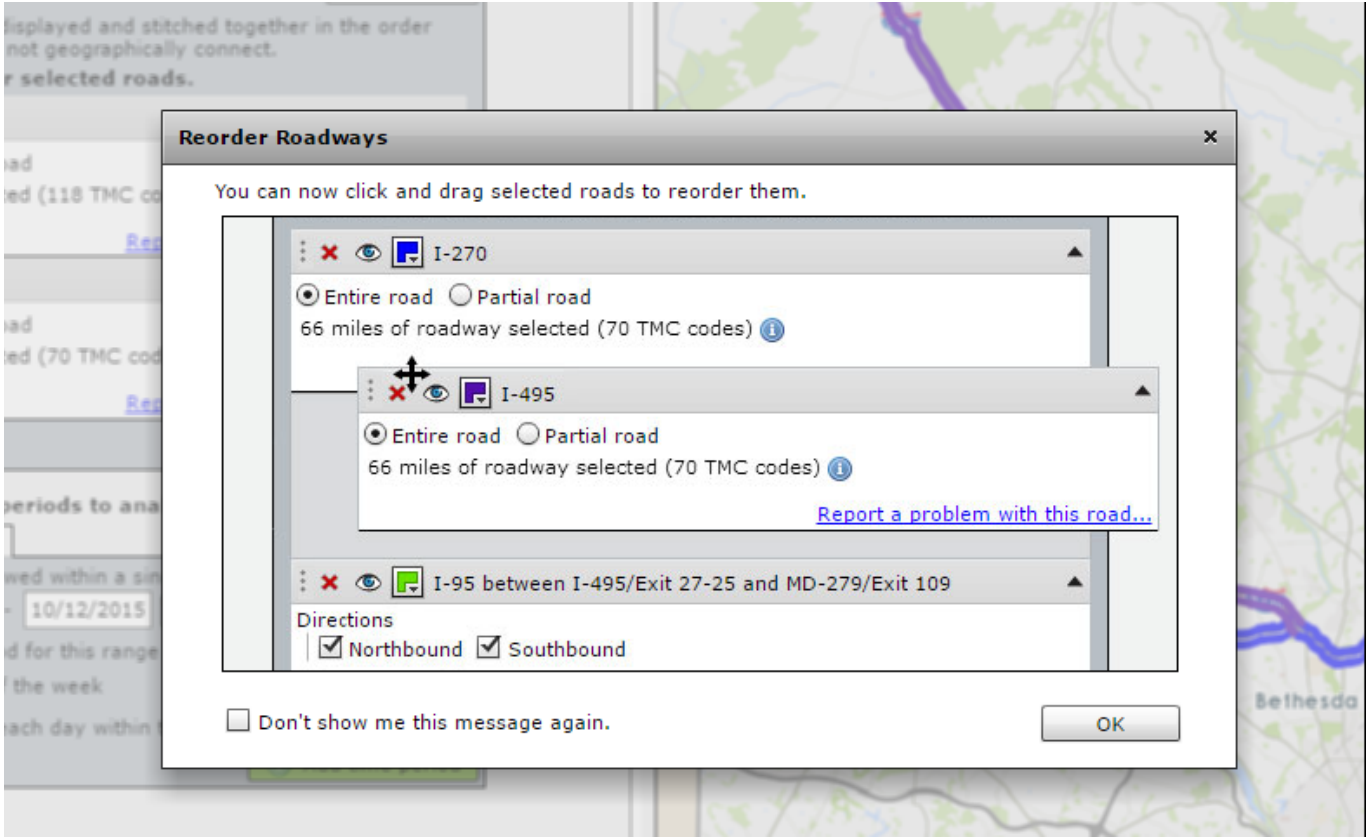
Add time period

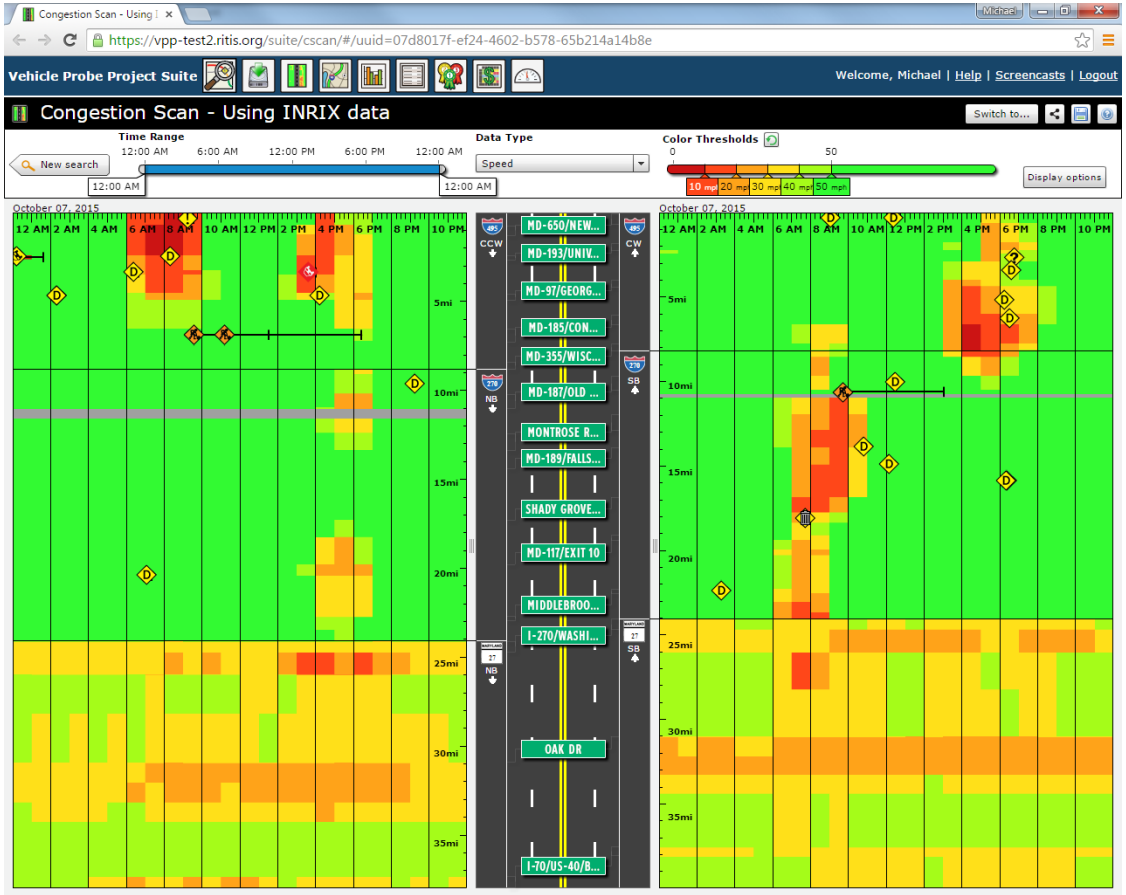
Your selected time periods Remove all

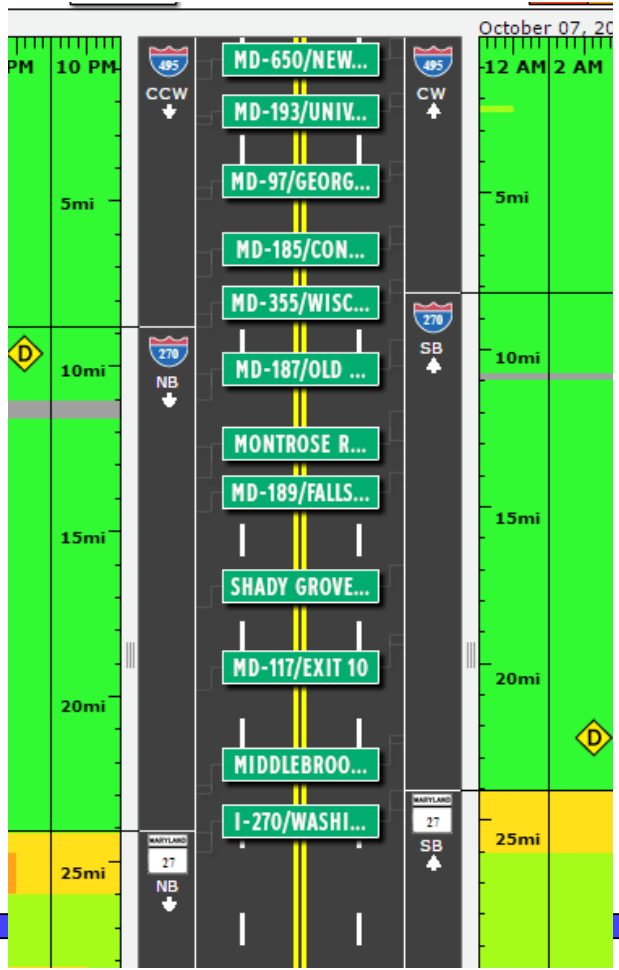
October 07, 2015

3. Data source




Reorder Roadways
You can now click and drag selected roads to reorder them.
I-270
Entire road
Partial road
66 miles of roadway selected (70 TMC codes)
I-495
Entire road
Partial road
66 miles of roadway selected (70 TMC codes)
Report a problem with this road...
I-95 between I-495/Exit 27-25 and MD-279/Exit 109
Directions
Northbound
Southbound
Don't show me this message again.
OK


Congestion Scan - Using
https://vpp-test2.ritis.org/suite/cscan/#/uuid=07d8017f-ef24-4602-b578-65b214a14b8e
Vehicle Probe Project Suite
Welcome, Michael | Help | Screencasts | Logout
Congestion Scan - Using INRIX data
Switch to...
Time Range
12:00 AM
6:00 AM
12:00 PM
6:00 PM
12:00 AM
New search
Data Type
Speed
Color Thresholds
0
50
10 mph
20 mph
30 mph
40 mph
50 mph
Display options
October 07, 2015
12 AM 2 AM 4 AM 6 AM 8 AM 10 AM 12 PM 2 PM 4 PM 6 PM 8 PM 10 PM
5mi
10mi
15mi
20mi
25mi
30mi
35mi
CCW
CW
NB
SB
MD-650/NEW...
MD-193/UNIV...
MD-97/GEORG...
MD-185/CON...
MD-355/WISC...
MD-187/OLD ...
MONTROSE R...
MD-189/FALLS...
SHADY GROVE...
MD-117/EXIT 10
MIDDLEBROO...
I-270/WASHI...
OAK DR
I-70/US-40/B...

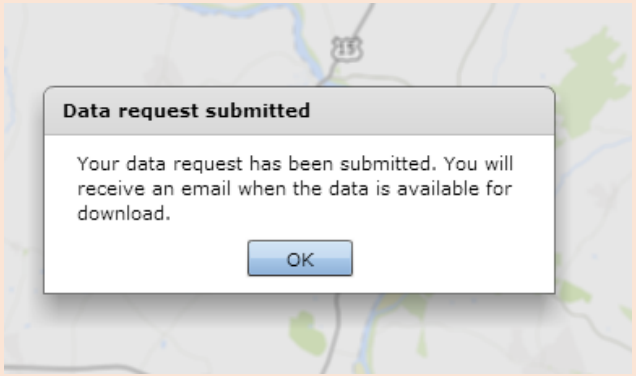

October 07, 20
PM
10 PM
12 AM
2 AM
CCW
CW
MD-650/NEW...
MD-193/UNIV...
MD-97/GEORG...
MD-185/CON...
MD-355/WISC...
MD-187/OLD ...
MONTROSE R...
MD-189/FALLS...
SHADY GROVE...
MD-117/EXIT 10
MIDDLEBROO...
I-270/WASHI...
5mi
10mi
15mi
20mi
25mi
NB
SB
D

A little further away

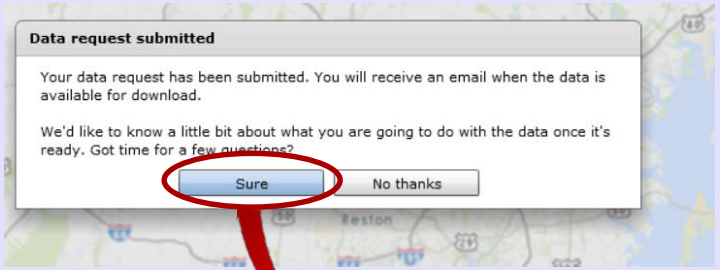
The Lab Wants to Make Your Feedback Easy!

We're considering building a survey feature into the tools so you can quickly and easily give us your feedback:

So instead of this:



You'll get this:

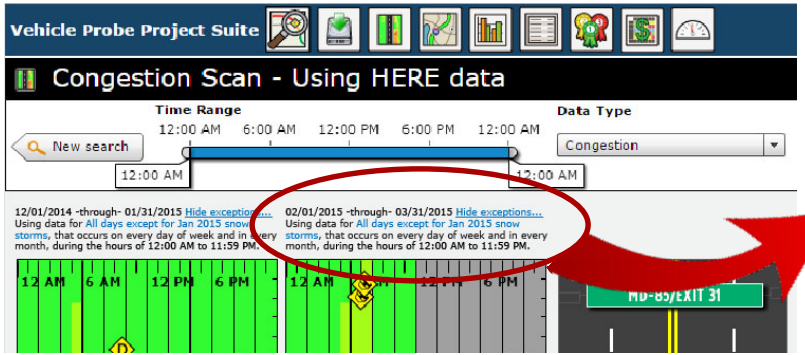


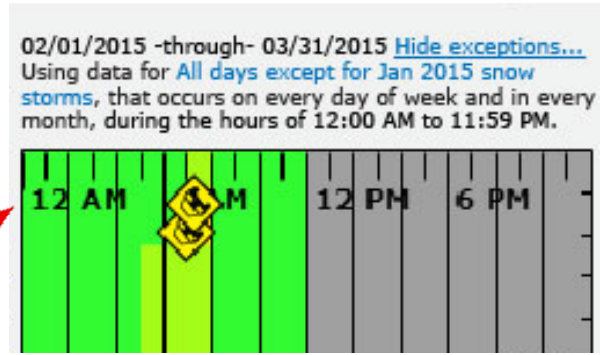
Clicking on "Sure" will open a tab to a short survey.

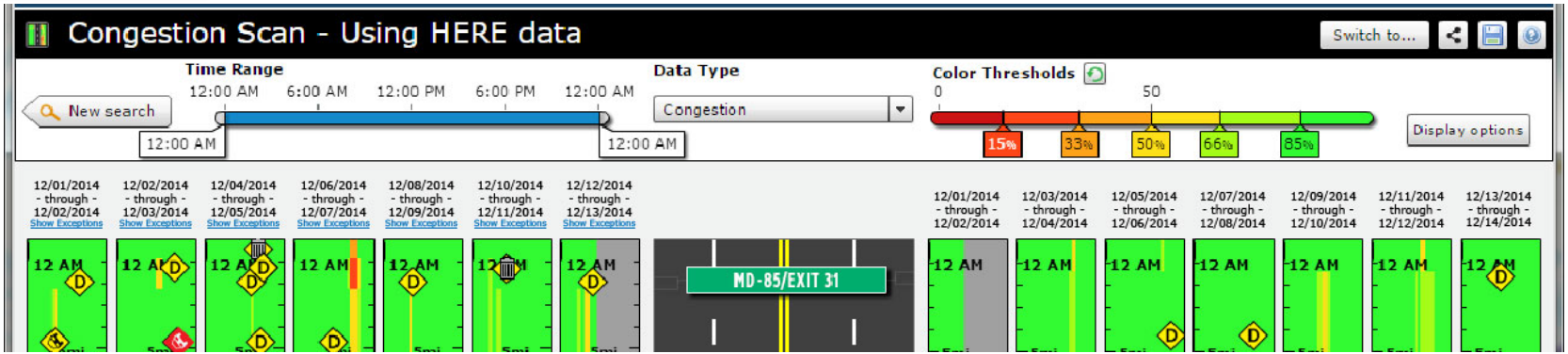
Upcoming Features

Advanced Time Selection - Date Range Summary

A detail of your date range selection criteria will be provided in the summary output (an example for Congestion Scan; will be similar in other tools-see next)





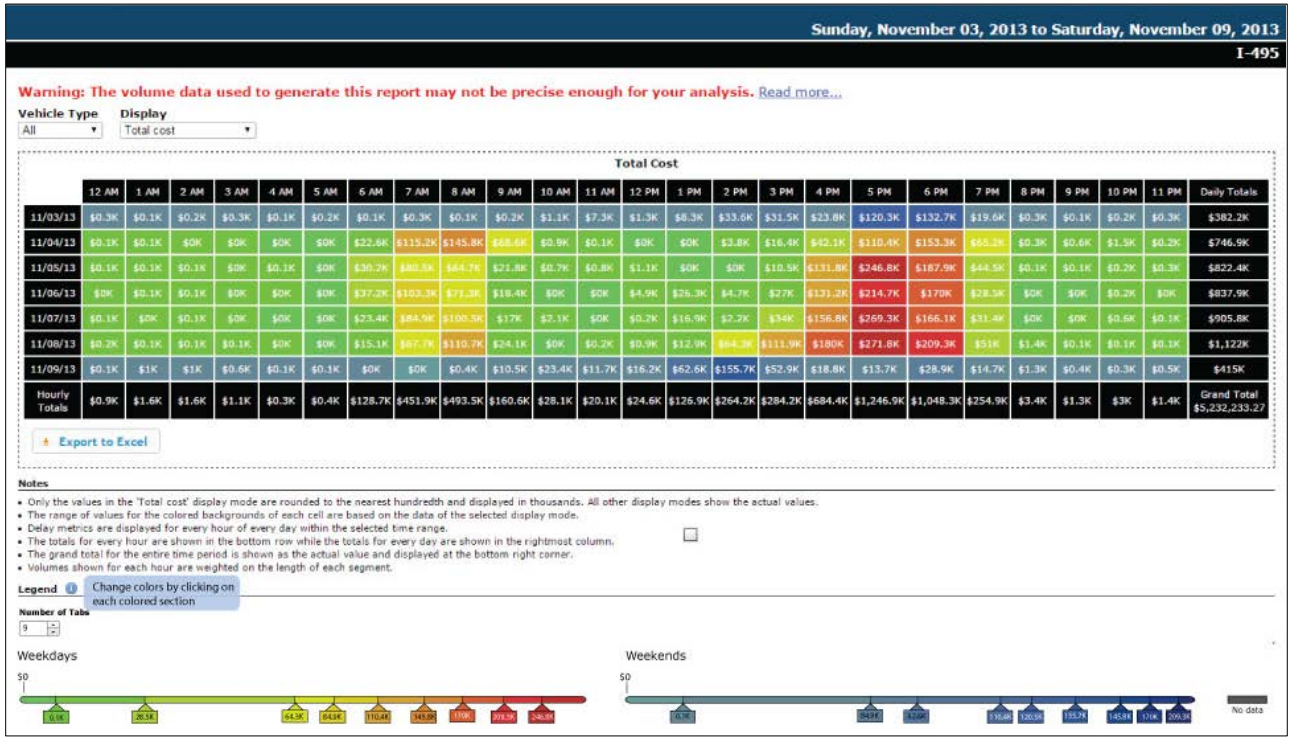


Advanced Time Selection - Date Range Summary

Delay by TMC - Slider

Change the color coding of each cost by using the slider bars (both weekday and weekend)

You can also choose your own color palate.



Delay by TMC – Display Options

70 Eastbound

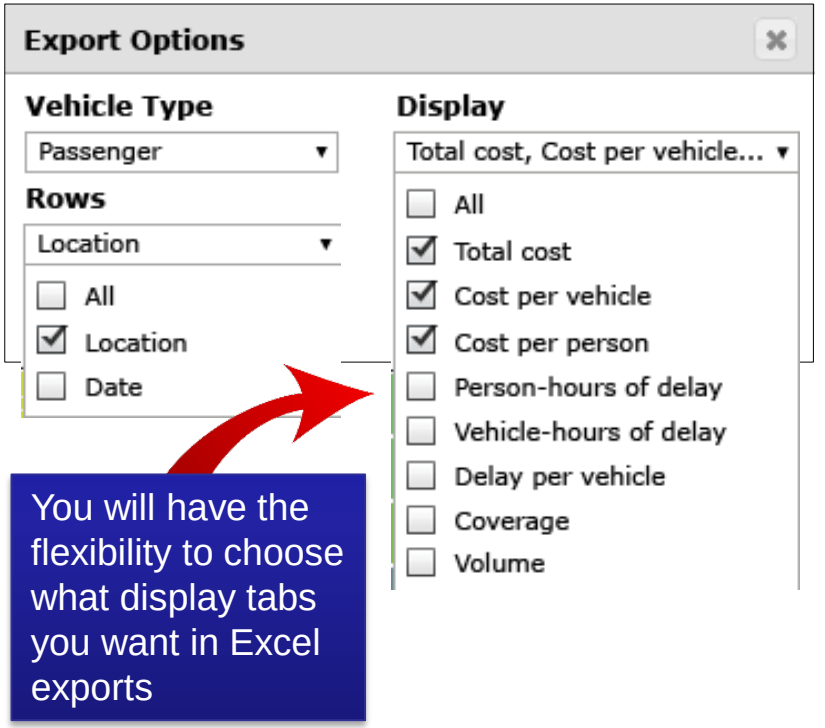
	12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM
MD-94...	$0.1K	$0.1K	$0.1K	$0.1K	$0.1K	$0.1K	$0.1K	$0.1K
MD-97...	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K
MD-97...	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K
Hourly Totals	$0.5K	$0.5K	$0.5K	$0.5K	$0.5K	$0.5K	$0.5K	$0.5K

70 Westbound

	12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM
MD-94...	$0.1K	$0.1K	$0.1K	$0.1K	$0.1K	$0.1K	$0.1K	$0.1K
MD-97...	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K
MD-97...	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K	$0.2K
Hourly Totals	$0.5K	$0.5K	$0.5K	$0.5K	$0.5K	$0.5K	$0.5K	$0.5K
All Roads Hourly Totals	$2K	$2K	$2K	$2K	$2K	$2K	$2K	$2K

Export to Excel

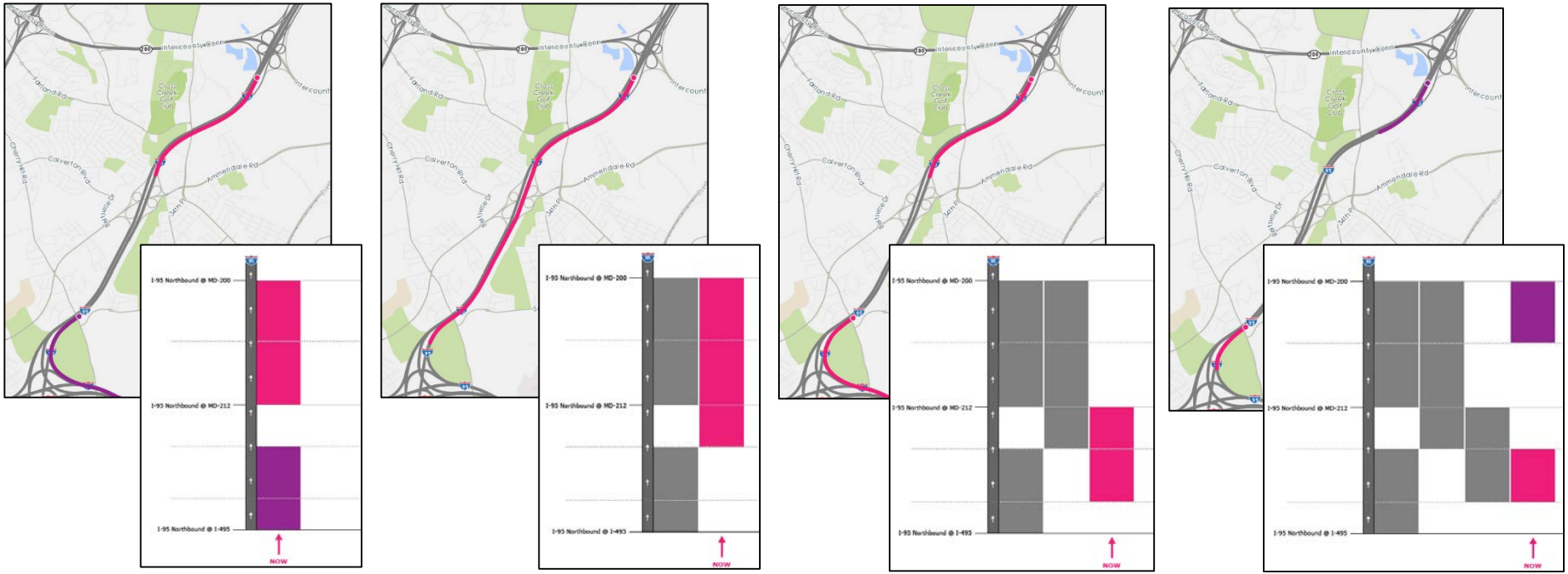
You will be able to display multiple roads, by direction.



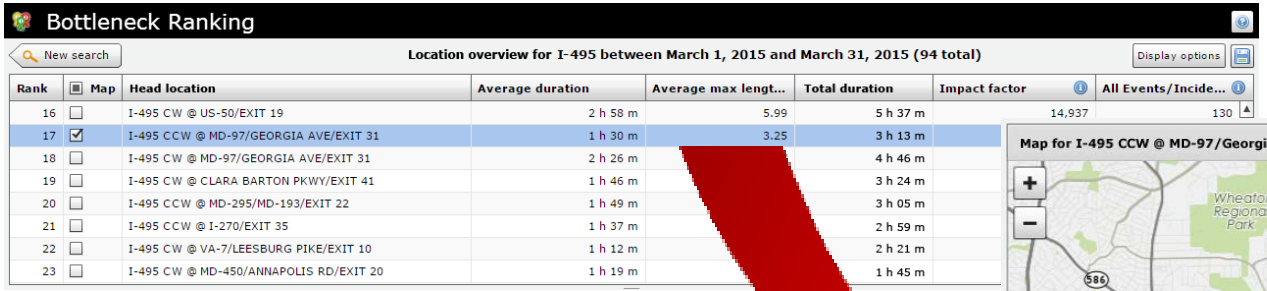
You will have the flexibility to choose what display tabs you want in Excel exports

New Bottleneck Algorithm

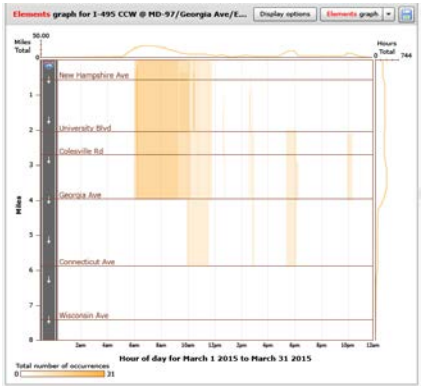
We're continuing to work on the bottleneck algorithm. Here's a "story board" for the dynamics over time of two separate bottlenecks, and their various elements:

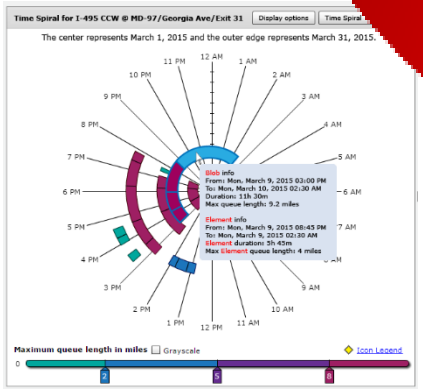


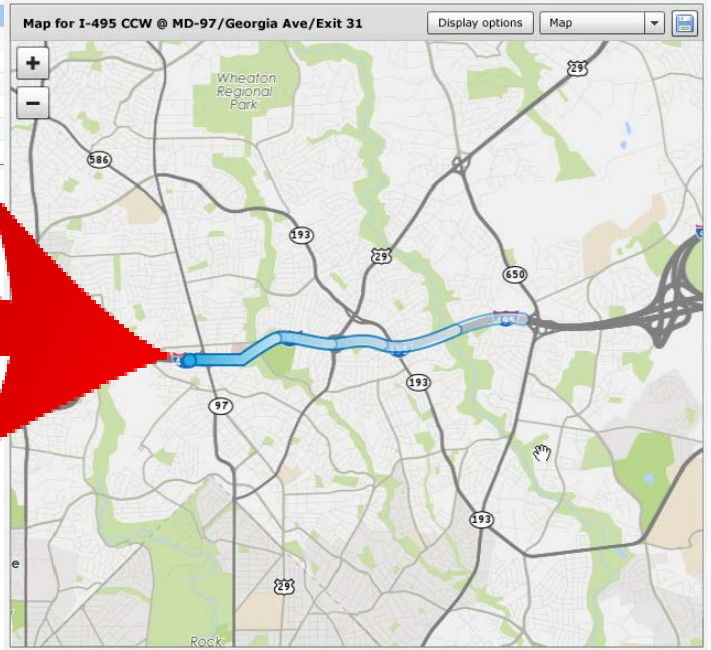
New Bottleneck Algorithm



Rank	Map	Head location	Average duration	Average max lengt...	Total duration	Impact factor	All Events/Incide...
16	☐	I-495 CW @ US-50/EXIT 19	2 h 58 m	5.99	5 h 37 m	14,937	130
17	☑	I-495 CCW @ MD-97/GEORGIA AVE/EXIT 31	1 h 30 m	3.25	3 h 13 m		
18	☐	I-495 CW @ MD-97/GEORGIA AVE/EXIT 31	2 h 26 m		4 h 46 m		
19	☐	I-495 CW @ CLARA BARTON PKWY/EXIT 41	1 h 46 m		3 h 24 m		
20	☐	I-495 CCW @ MD-295/MD-193/EXIT 22	1 h 49 m		3 h 05 m		
21	☐	I-495 CCW @ I-270/EXIT 35	1 h 37 m		2 h 59 m		
22	☐	I-495 CW @ VA-7/LEESBURG PIKE/EXIT 10	1 h 12 m		2 h 21 m		
23	☐	I-495 CW @ MD-450/ANNAPOLIS RD/EXIT 20	1 h 19 m		1 h 45 m		







Also working on various graphic and mapping display options…

Use of the VPP Suite by User Group members

Maryland Mobility Report

Kaveh Farokhi Sadabadi
University of Maryland CATT

Maryland Mobility Report

Kaveh Farokhi, Ph.D.
Post-Doctoral Associate
Center for Advanced Transportation Technology (CATT)
University of Maryland, College Park

VPP Suite User Group Webcast
October 13, 2015

Outline

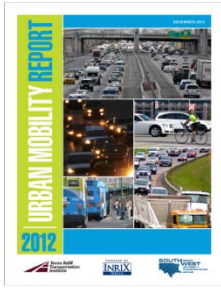
- Strategic Focus on Performance Measurement
- Data Needs (Volume/Speed)
- Network Conflation
- Bottleneck Identification
- Performance Measurement (Mobility/Reliability)
  - Segment level
  - Corridor level
- Takeaways

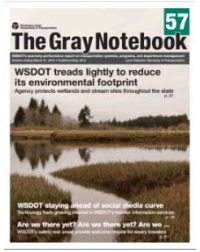
Strategic Focus

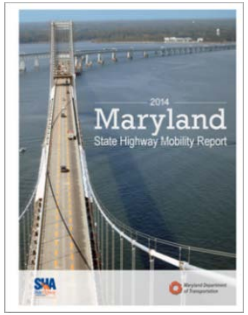
- Moving Ahead for Progress in the 21st Century (MAP-21) Legislation
- MD-SHA Business Plan (FY 2012-2015)
  - Goal:
    - Support Maryland's Economy and Communities through enabling reliable movement of people and goods
  - Strategic focus areas:
    - **Mobility and reliability**
    - Incident management and traveler information systems
    - Multi-modalism and smart growth
    - Freight
  - **Mobility** is a Key Performance Area (KPA) at MD-SHA
  - Mobility Report assists in MD-SHA's
    - Performance-based mobility efforts
    - Driving investment related decisions

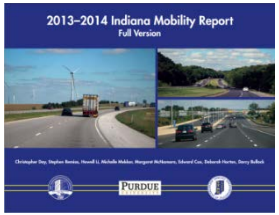
National and State Level

- National
  - Urban Mobility Report (TTI)
  - Since 2010 based on probe speed data
- States
  - Washington (WSDOT)
    - The Gray Notebook
  - **Maryland (SHA)**
    - Mobility Report (Since 2012)
  - Indiana (IDOT)
  - …







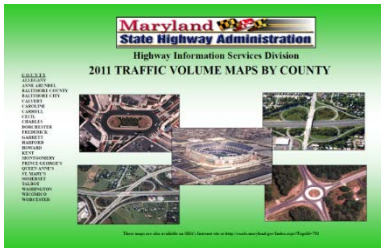


Data Needs – Speed

- Probe-based speed data
  - Provided by INRIX™ through the VPP
  - Data archived and accessed in the VPP Suite
- Spatial coverage
  - 1,998 TMC Segments
  - 1,698 directional freeway/expressway miles
- Temporal coverage
  - 1 minute granularity
  - 365/24/7
- More than 5.7 billion data points
- Big data challenges in archiving, retrieving, and querying

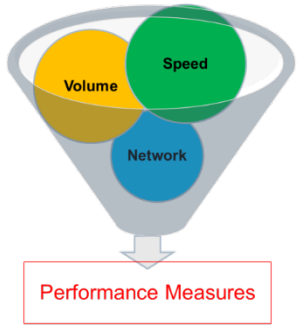
Data Needs – Volume/Count

- AADT and hourly profiles
  - Provided by MD-SHA Highway Information Services Division (HISD)
- Spatial coverage
  - 79 permanent continuous Automatic Traffic Recorders (ATRs), and
  - Over 3,800 short term (48 hour) Program Count locations throughout the state
  - Of the 79 ATRs, 18 are presently equipped to perform vehicle classification counts based on the 13 FHWA vehicle classifications
- Temporal resolution
  - AADT and hourly percentages in days/hours



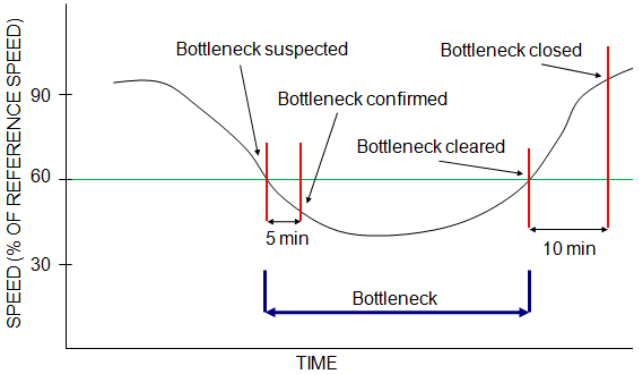
Data Conflation

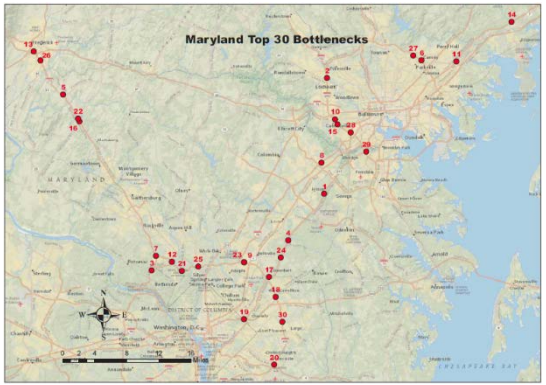
- Volume data is given at point counters
- Speed data is given on road segments
- Mismatch b/w two segmentation standards
  - MD-SHA highway linear referencing system
  - Industry adopted TMC segments
- Data conflation performed manually to ensure maximum accuracy
- ESRI® ArcMap™ 10.0



Bottleneck Identification

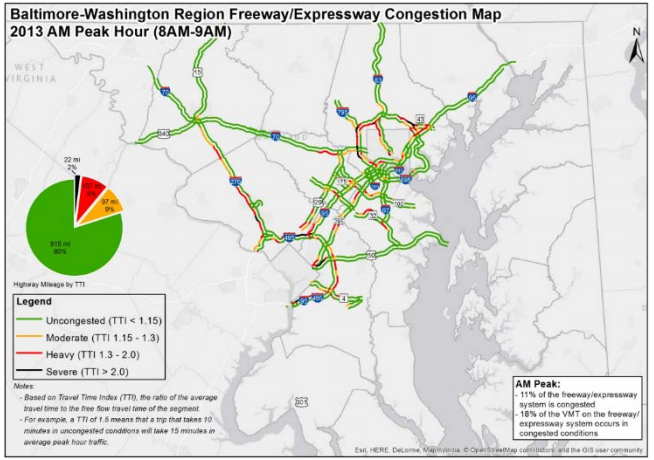
- Speed-based method
- Impact factor
  - Number of occurrences
  - Average maximum queue length
  - Average duration





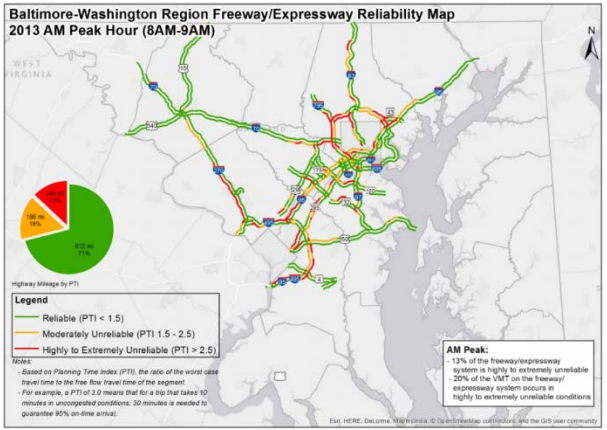
Performance Measurement

- Congestion: Travel Time Index (TTI)
  - Refers to the ratio of expected (average) travel time to the (minimum) free flow travel time of the segment
- Uncongested (TTI<1.15)
- Light (1.15<TTI<1.3)
- Moderate (1.3<TTI<2.0)
- Severe (TTI>2.0)

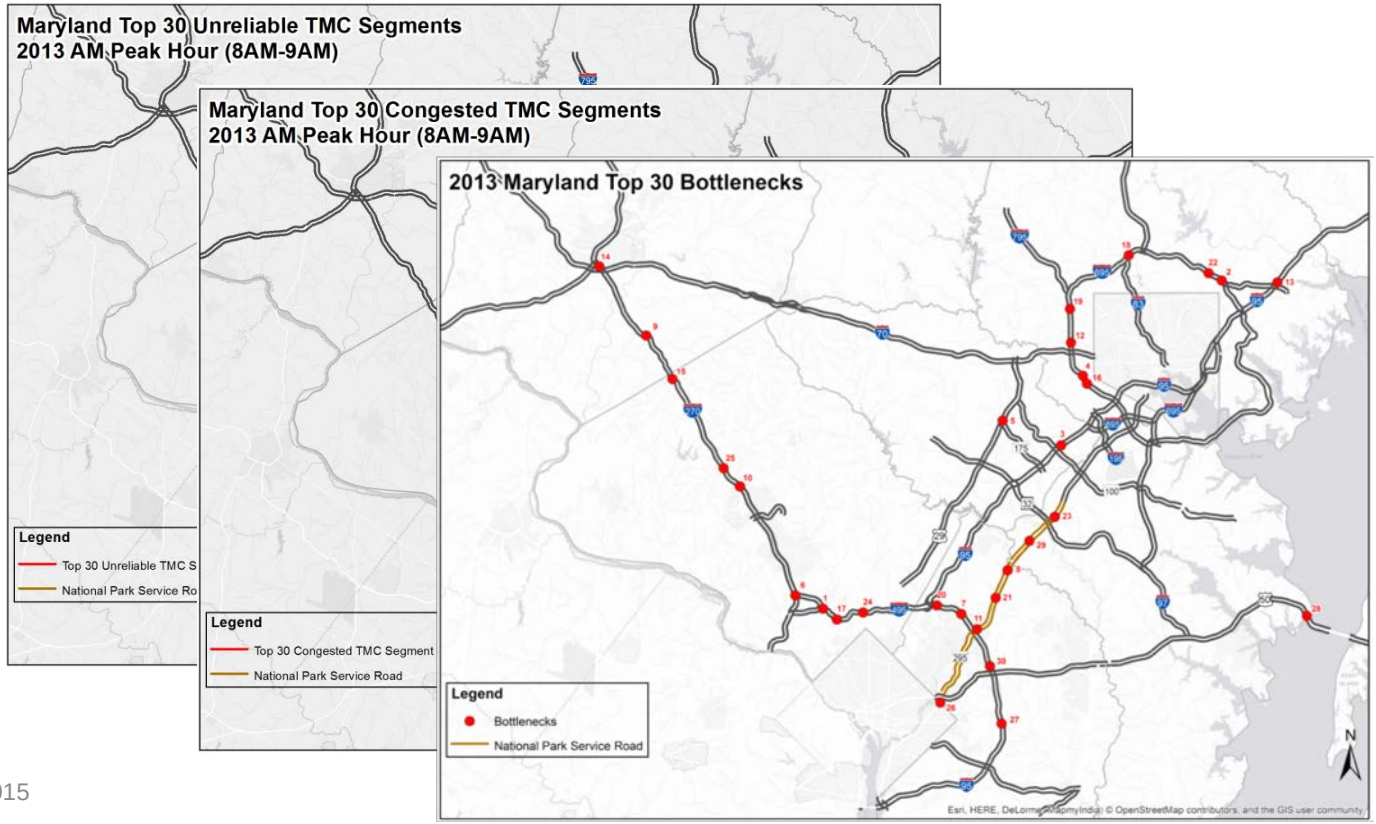


Performance Measurement

- Reliability: Planning Time Index (PTI)
  - Refers to the ratio of extreme (95th percentile) travel time to the (minimum) free flow travel time
- Reliable (PTI<1.5)
- Moderately Reliable (1.5<TTI<2.5)
- Unreliable (PTI>2.5)



Segment Level

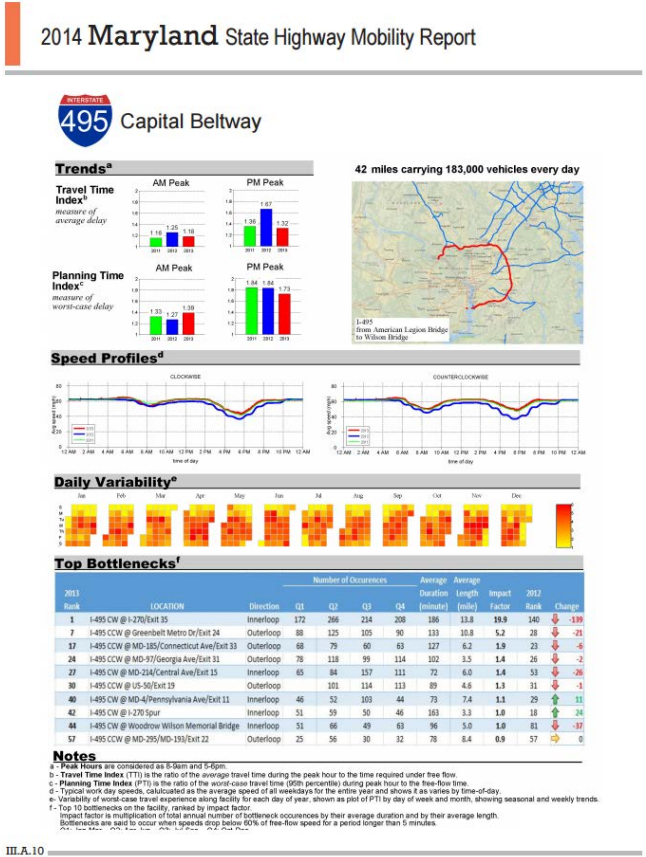


Corridor Level

- Regionally significant corridors (15)
  - Travel Time Index
  - Planning Time Index
  - Daily Variability
  - Speed profile
  - Location of top bottlenecks

- I-70 (Pennsylvania Border to US 40 (Frederick))
- I-70 (US 40 (Frederick) to I-695)
- I-81
- I-83
- I-95 (Capital Beltway to I-695 North)
- I-95 (I-695 North to Delaware State Line)
- I-97
- I-495 Capital Beltway
- I-695 Baltimore Beltway
- I-795
- I-895
- US-50 (D.C Line to William Preston Lane Bridge (Bay Bridge))
- MD 32
- MD 100
- MD 295

Corridor Level



2014 **Maryland** State Highway Mobility Report

495 Capital Beltway

Trends[a]

Travel Time Index[b]
measure of average delay

Planning Time Index[c]
measure of worst-case delay

42 miles carrying 183,000 vehicles every day

Speed Profiles[d]

Daily Variability[e]

Top Bottlenecks[f]

2013 Rank	LOCATION	Direction	Number of Occurences Q1	Q2	Q3	Q4	Average Duration (minute)	Average Length (mile)	Impact Factor	2012 Rank	Change
1	I-495 CW @ I-270/Exit 35	Innerloop	172	266	214	208	186	13.8	**19.9**	140	-139
7	I-495 CCW @ Greenbelt Metro Dr/Exit 24	Outerloop	88	125	105	90	133	10.8	**5.2**	28	-21
17	I-495 CCW @ MD-185/Connecticut Ave/Exit 33	Outerloop	68	79	60	63	127	6.2	**1.9**	23	-6
24	I-495 CCW @ MD-97/Georgia Ave/Exit 31	Outerloop	78	118	99	114	102	3.5	**1.4**	26	-2
27	I-495 CW @ MD-214/Central Ave/Exit 15	Innerloop	65	84	157	111	72	6.0	**1.4**	53	-26
30	I-495 CCW @ US-50/Exit 19	Outerloop		101	114	113	89	4.6	**1.3**	31	-1
40	I-495 CW @ MD-4/Pennsylvania Ave/Exit 11	Innerloop	46	52	103	44	73	7.4	**1.1**	29	11
42	I-495 CW @ I-270 Spur	Innerloop	51	59	50	46	163	3.3	**1.0**	18	24
44	I-495 CW @ Woodrow Wilson Memorial Bridge	Innerloop	51	66	49	63	96	5.0	**1.0**	81	-37
57	I-495 CCW @ MD-295/MD-193/Exit 22	Outerloop	25	56	30	32	78	8.4	**0.9**	57	0

Notes

a - **Peak Hours** are considered as 6-9am and 5-6pm.
b - **Travel Time Index** (TTI) is the ratio of the *average* travel time during the peak hour to the time required under free flow.
c - **Planning Time Index** (PTI) is the ratio of the *worst-case* travel time (95th percentile) during peak hour to the free-flow time.
d - Typical work day speeds, calculated as the average speed of all weekdays for the entire year and shows it as varies by time-of-day.
e- Variability of worst-case travel experience along facility for each day of year, shown as plot of PTI by day of week and month, showing seasonal and weekly trends.
f - Top 10 bottlenecks on the facility, ranked by impact factor.
Impact factor is multiplication of total annual number of bottleneck occurences by their average duration and by their average length.
Bottlenecks are said to occur when speeds drop below 60% of free-flow speed for a period longer than 5 minutes.

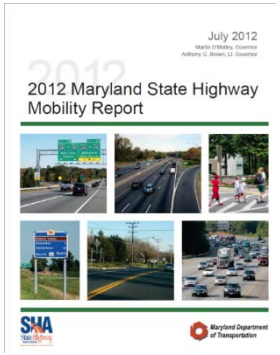
III.A.10

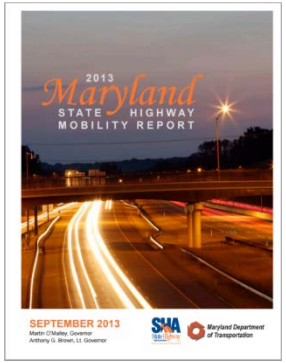
Main Takeaways

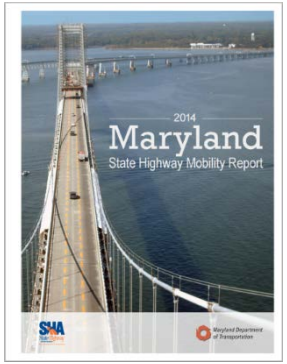
- Performance measurement and monitoring is playing a central role in decision making at both federal and state levels
- Probe speed data adequately support public sector needs for highway performance measurement
- Currently, at MD-SHA mobility performance measures inform the project development and selection process

Main Takeaways

- Since 2012 the MD-SHA has published annual Mobility Reports which summarize the state's performance measurement efforts
- The practice is becoming more common place as other states acquire and develop necessary resources







Thank you!

For more information…

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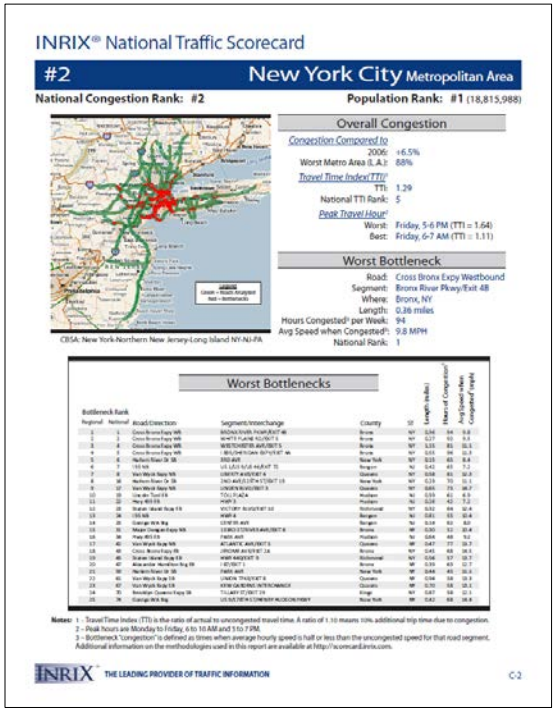
User Focus Group

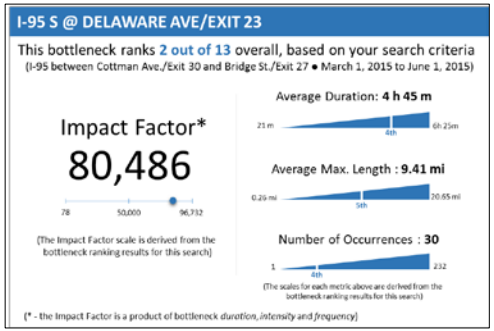
Michael Pack
UMD CATT Laboratory

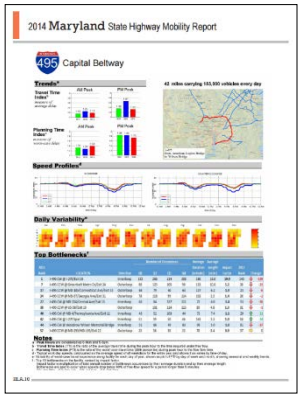
The 1st Focus Group Effort
Developing Performance Summary Report Templates

- Need: To create reports & summary documents quickly and easily in the Suite
- How: Performance summary report template feature
- Who: **User Focus Group**
- First Step: **Looking for volunteers!**

Contact John: jallen35@umd.edu







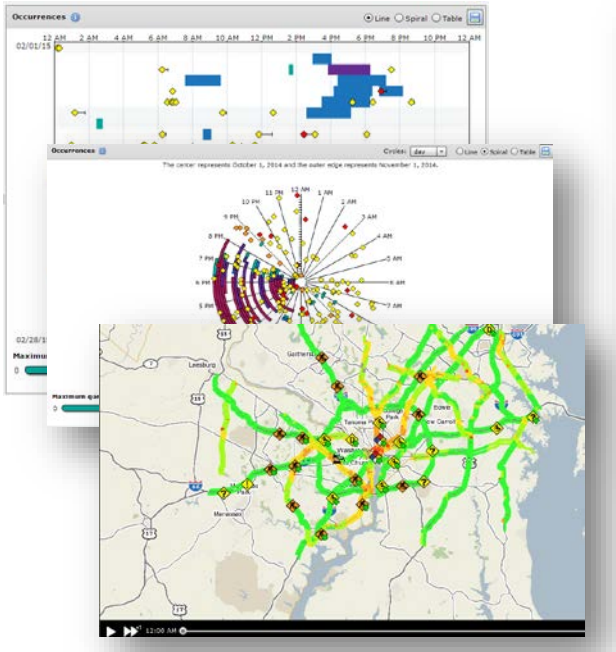
Agency Input Session

Facilitated by
Michael Pack, UMD CATT Laboratory
Kelly Wells (NCDOT), VPP Suite User Group co-chair

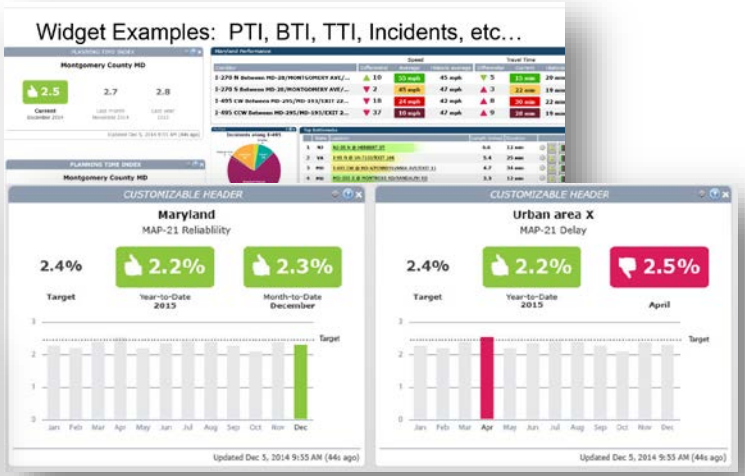
Agency Input Session

Focus on New Features

Event Data Integration



Dashboard Functionality



MAP-21 Working Group

Committed to ★MAP-21★ Coming Soon

Any Other Topics of Interest?

NCDOT: Overlapping Bottlenecks

VPP Suite Raw Output

Rank	Location
1	I-77 S @ I-485, MM 19
2	I-77 S @ GILEAD RD/EXIT 23
3	I-85 S @ NC-73/EXIT 55
4	I-77 N @ I-277/US-74/EXIT 9
5	I-85 N @ LANE ST/EXIT 63
7	I-85 N @ US-29/EXIT 68
6	I-77 S @ WESTINGHOUSE BLVD/EXIT 1
9	I-77 S @ REMOUNT RD/EXIT 8
8	I-77 N @ MM 30
10	I-77 N @ GRIFFITH ST/EXIT 30
13	I-77 N @ LANGTREE RD / MM 31
11	I-485 CCW @ NC-16/PROVIDENCE RD/EXIT 57
12	I-440 W @ WADE AVE/EXIT 4
14	I-540 W @ LEESVILLE RD/EXIT 7
15	I-40 W @ NEW HOPE CHURCH RD/EXIT 263
16	I-77 S @ NATIONS FORD RD/EXIT 4
18	I-77 N @ I-85/STATESVILLE AVE/EXIT 13
21	I-77 N @ WOODLAWN RD/EXIT 6
23	I-77 N @ CLANTON RD/EXIT 7
24	I-77 N @ US-21/EXIT 28
29	I-85 N @ NC-152/EXIT 68

NCDOT Final Report

	Bottleneck Report September 2015
Rank	Location
1	I-77 SB @ I-485 MM 19-32
2	I-85 SB @ NC-73 MM 55-66
3	I-77 NB @ I-277 MM 13-1
4	I-85 NB @US-29 MM 68-53
5	I-77 SB @ WESTINGHOUSE MM 1-13
6	I-77 NB @ LANGTREE MM 31-19
7	I-485 OUT @PROVIDENCE MM 57-63
8	I-440 WB @ WADE MM 4-11
9	I-540 WB @ LEESVILLE MM 7-17
10	I-40 WB @ N H CHURCH MM 263-274

NOTE: 11 of the 30 bottlenecks are “repeat” bottlenecks

Next Steps & Meeting Wrap Up

Karen Jehanian
For the I-95 Corridor Coalition

Next User Group Meeting:

Wednesday, January 20, 2016

10:30am to noon

Contact Information

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Thank You

I-95 CORRIDOR COALITION