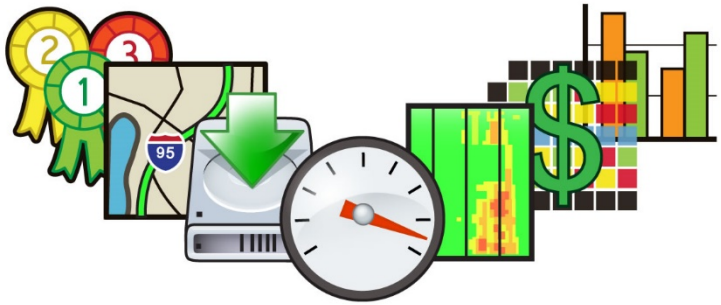
VPP Suite User Group



July 15, 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

Please confirm that your line is muted *6

Thank you!

Agenda

Time	Topic	Speaker
10:30am to 10:35am	**Introductions** **Welcome**	George Schoener, I-95 Corridor Coalition
10:35am to 10:45am	**Purpose of this Meeting**	Jesse Buerk (DVRPC) & Kelly Wells (NCDOT) VPP Suite User Group co-chairs
10:45am to 11:05am	**VPP Suite Features – New & Upcoming**	John Allen, UMD CATT Lab
11:05am to 11:25am	**Use of the VPP Suite by User Group members** • DVRPC – I-95 Reconstruction through Philadelphia • NCDOT - Using VPP Suite Massive Raw Data Downloader for Travel Times	Jesse Buerk (DVRPC) & Brad Robinson (NCDOT)
11:25am to 11:35am	**Other Items:** • User Group Forum on Coalition website • User Focus Group	John Allen, UMD CATT Lab
11:35am to 11:50am	**Agency Input Session** to learn about what is working & what needs some attention	All
11:50am to 11:55am	**VPP Suite Funding Status**	Michael Pack, UMD CATT Lab
11:55am to noon	**Next Steps and Meeting Wrap Up**	George Schoener, I-95 Corridor Coalition

Meeting Participants

#	Agency	Name(s)	#	Agency	Name(s)
1	Baltimore Metropolitan Council	Ed Stylc, Victor Henry	9	Rhode Island DOT	Dan Herstine, Bill Nordstrom (Jacobs), Deanna Peabody (TranInfo)
2	DVRPC	Jesse Buerk	10	South Carolina DOT	Dipak Patel
3	MWCOG/NCRTPB	Andrew Meese	11	South Jersey TPO	David Heller, William Schiavi, Andrew Tracy
4	New Jersey DOT	Gail Yazersky, Sudhir Joshi, Ira Levinton, Simon Nwachukwu, Kelly McVeigh, Jim Hadden	12	Virginia DOT	Sanhita Lahiri, Rose Lawhorne, Mena Lockwood, Paul Szatkowski, Ram Venkatanarayana
5	North Jersey TPA	Sutapa Bhattacharjee, Solomon Caviness, Keith Miller	13	I-95 Corridor Coalition	George Schoener, Marygrace Parker
6	North Carolina DOT	Kelly Wells, Brad Robinson, Eric Thomas, Mike Bruff	14	UMD CATT Lab & UMD CATT	Michael Pack, John Allen Masoud Hamedi
7	Pennsylvania DOT	Scott Benedict, Mark Kopko, Mike Crowley, Bob Davis (Pennoni)	15	KMJ Consulting (Coalition Support)	Karen Jehanian, Joanna Reagle
8	Richmond Regional MPO	Tiffany Dubinsky, Greta Ryan			

Welcome

George Schoener
I-95 Corridor Coalition

Purpose of this Meeting

Jesse Buerk (DVRPC) & Kelly Wells (NCDOT)

VPP Suite User Group co-chairs

Purpose of This Meeting

- Thoughts and vision for leading the User Group
- Key highlights/takeaways for today
- We need to hear from you!

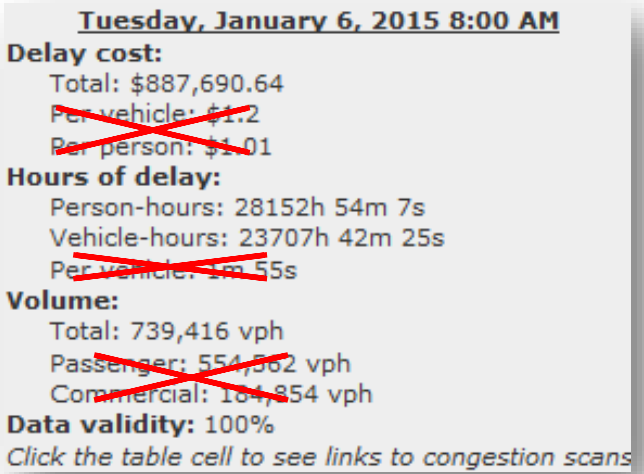
VPP Suite Features
New & Upcoming

John Allen
UMD CATT Laboratory

New Features

Vehicle Miles Traveled (VMT) Metrics and Volume-Based Per-User Metrics

- **Per-user delay and cost** cannot be correctly calculated for more than a few TMCs at a time when based solely on volumes and speeds (distance traveled per user must be taken into account)
- The prior methodology made the incorrect assumption that each vehicle traversed every TMC in the report area and became inaccurate as the target region grew
- After careful consultation with numerous leading transportation experts in academia, industry, and government, we have decided to remove the following metrics from the results table:
  - Cost per vehicle
  - Cost per person
  - Delay per vehicle
  - Volume (the underlying volume data is still present, but can't be calculated for the entire region. What was shown wasn't volume in the traditional traffic engineering sense of the word)
- We are now introducing a new set of VMT metrics: **Delay per VMT and Cost per VMT**
  - Can be used to calculate per-user delay and cost metrics
  - These values will better suit larger regions of interest than the volume-based per-user metrics



Note: if you have an average VMT rate for your target region, you can calculate your own per-user metrics (see "What's New" on the Suite home page)

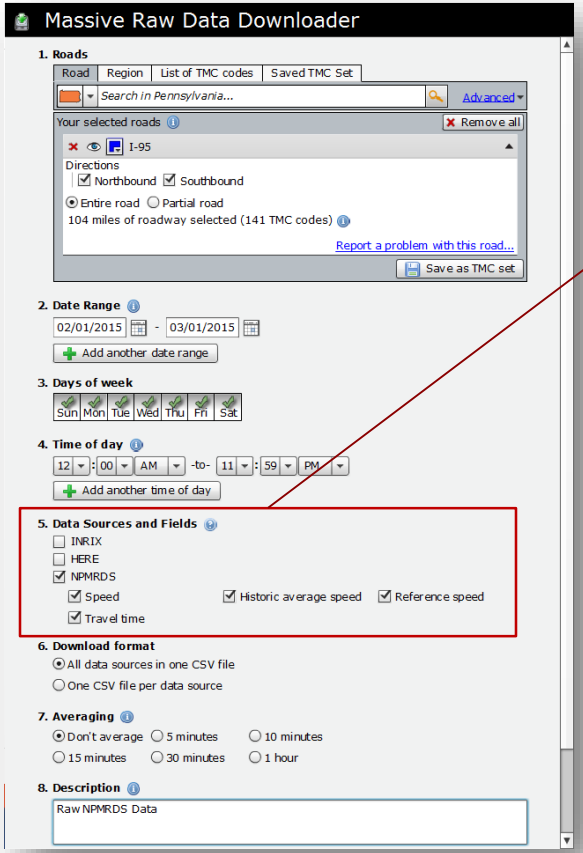
Sorted Trend Map Exports

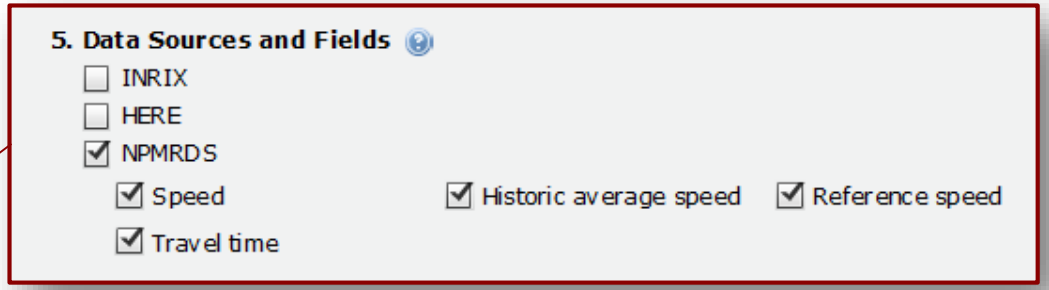
The rows in Excel exports from the Trend Map are now sorted such that TMCs are grouped together and placed in the their natural order on the roadway

Speed for I-95
July 08, 2015

TMC CODE	NAME	MILES	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM
103-04152	PA--NJ STATE BORDER	0.109957	57.91	58.97	57.64	54.37	59.05	59.03	61.02	61.75	58.99	47.11
103-04151	TAYLORSVILLE RD/EXIT 51	0.345057	56.14	60.73	59.94	59.28	59.59	60.31	61.98	63.4	59.27	53.97
103N04151	TAYLORSVILLE RD/EXIT 51	0.453088	58.99	61.13	61.35	59.81	63.97	60.51	60.63	62.2	60.16	62.65
103-04150	PA-332/EXIT 49	1.721825	60.42	60.41	63.7	61.31	61.97	62.78	62.92	63.25	64.16	64.49
103N04150	PA-332/EXIT 49	0.519198	62.76	63.94	65.77	62.76	64.63	63.16	65.41	66.67	69.06	66.31
103-04149	US-1/EXIT 46	2.35958	61.52	62.85	63.68	60.63	61.71	64.41	65.08	66.02	67.64	64.8
103N04149	US-1/EXIT 46	0.754976	58.19	60.48	59.18	56.67	58.87	63.33	60.97	64.98	62.55	63.52
103-04148	US-1 BUS/PA-413/EXIT 44	1.553208	62.34	63	64.49	59.74	64.1	66.35	68.19	68.96	67.77	67.33
103N04148	US-1 BUS/PA-413/EXIT 44	0.506143	63.82	63.11	66.62	60.9	65.84	67.7	70.64	70.14	68.67	68.82
103-04147	PA-413/EXIT 40	3.068542	62.7	63.22	63.95	59.37	65.42	65.7	68.44	70.19	65.81	65.88
103N04147	PA-413/EXIT 40	1.222039	62.92	62.16	65.37	60.48	65.67	64.63	67.3	67.63	67.48	64.31
103-04146	STREET RD/EXIT 37	2.170817	62.65	61.84	63.41	61.39	64.45	64.3	67.28	67.16	67.43	65.36
103N04146	STREET RD/EXIT 37	0.420955	65.52	64.78	64.18	60.57	65.65	65.71	67.64	68.72	69.6	67.6
103-04145	PA-63/WOODHAVEN RD/EXIT 35	0.652439	63.85	64.56	64.83	62.69	64.38	64.99	67.61	68.52	71.04	67.75
103N04145	PA-63/WOODHAVEN RD/EXIT 35	1.057971	63.97	63.85	64.26	63.56	64.41	66.75	67.62	69.67	70.9	67.88
103-04144	ACADEMY RD/EXIT 32	2.248132	63.4	62.75	62.34	61.37	63.99	65.84	65.4	66.18	67.41	65.48
103N04144	ACADEMY RD/EXIT 32	0.563231	63.04	60.17	62.16	62.33	63.95	66.35	58.26	66.83	66.65	65.61
103-04143	COTTMAN AVE/EXIT 30	1.519528	57.11	56.42	57.12	58.64	61.61	61.85	36.1	61.59	62.66	63.08
103N04143	COTTMAN AVE/EXIT 30	0.829544	53.47	52.25	53.62	54.76	59.87	57.81	42.66	56.39	58.42	58.37
103-04142	BRIDGE ST/EXIT 27	1.942341	27.8	54.72	56.56	56.01	60.87	60.77	49.06	56.57	58.07	59.22
103N04142	BRIDGE ST/EXIT 27	0.006257	59.76	59.24	60.59	60.02	63.12	65	56.75	53.05	56.12	61.71
103-04141	ARAMINGO AVE/EXIT 27	0.444171	60.79	61.05	60.84	60.66	63.79	65.92	54.38	42.38	47.73	62.14
103N04141	ARAMINGO AVE/EXIT 27	1.106061	63.55	62.22	62.61	62.2	62.35	66.94	28.27	11.61	13.04	54.86
103-04140	ARAMINGO AVE/RICHMOND ST	0.07747	62.34	63.65	61.78	62.05	61.29	65.82	21.29	11.11	11.21	40.62
103-04139	VENANGO ST/EXIT 26	0.341155	63.67	63.9	62.03	62.73	62.89	66.97	20.61	12.32	12.23	33.35
103-04138	ALLEGHENY AVE/EXIT 25	0.393408	63.53	62.27	61.09	62.16	63.45	63.1	20.17	12.75	12.76	29.11
103N04138	ALLEGHENY AVE/EXIT 25	0.448514	63.98	63.05	61.53	61.56	64.07	63.29	18.25	12.07	11.89	20.45

NPMRDS for the Massive Raw Data Downloader



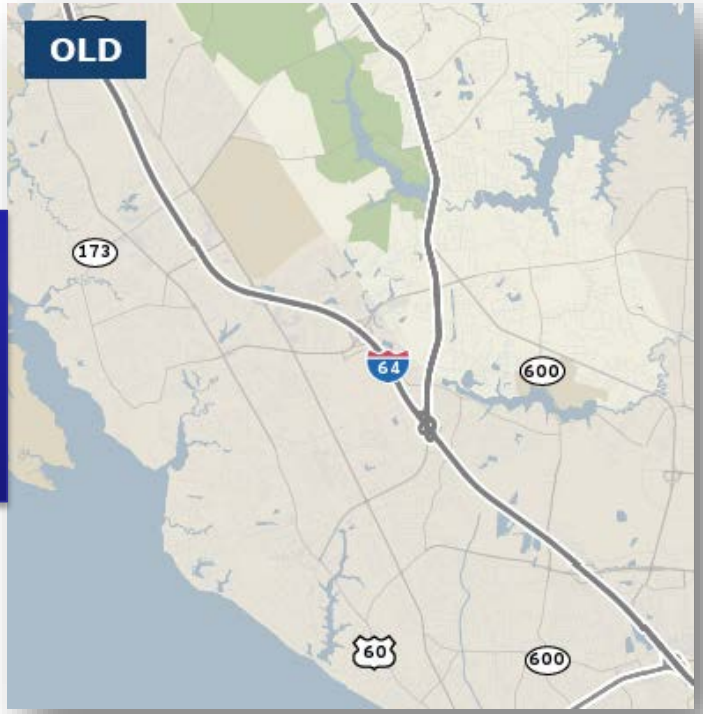


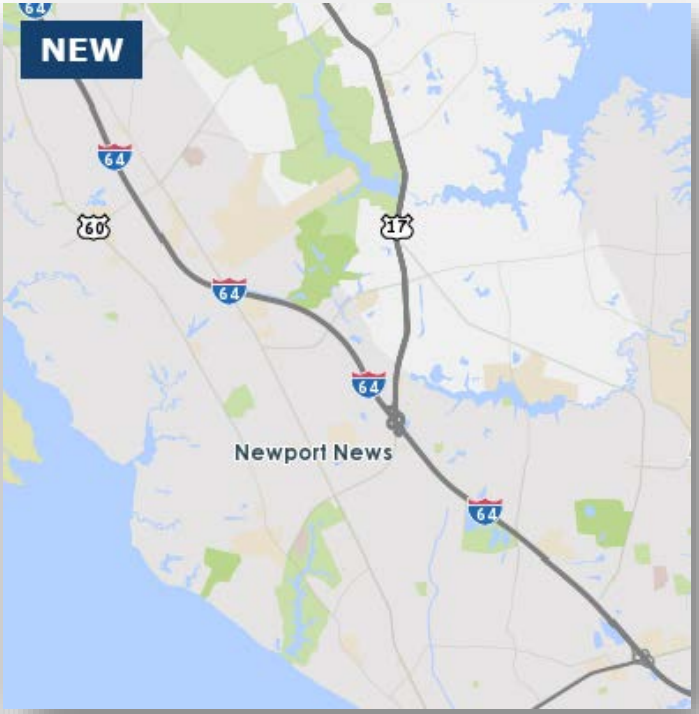
- The National Performance Management Research Data Set (NPMRDS) is now included in the Massive Raw Data Downloader
- NPMRDS data is updated on a monthly basis, usually around the 20th, so readings from the current month will not be available until after the 20th of the following month.
- Only authorized state DOTs and MPOs will have access to the NPMRDS

(For more info: http://www.ops.fhwa.dot.gov/perf_measurement/)

Updated Mapping

We've updated the look of our map to give it a more modern and clean appearance
(Affects colors, level of detail, road labels, etc.)

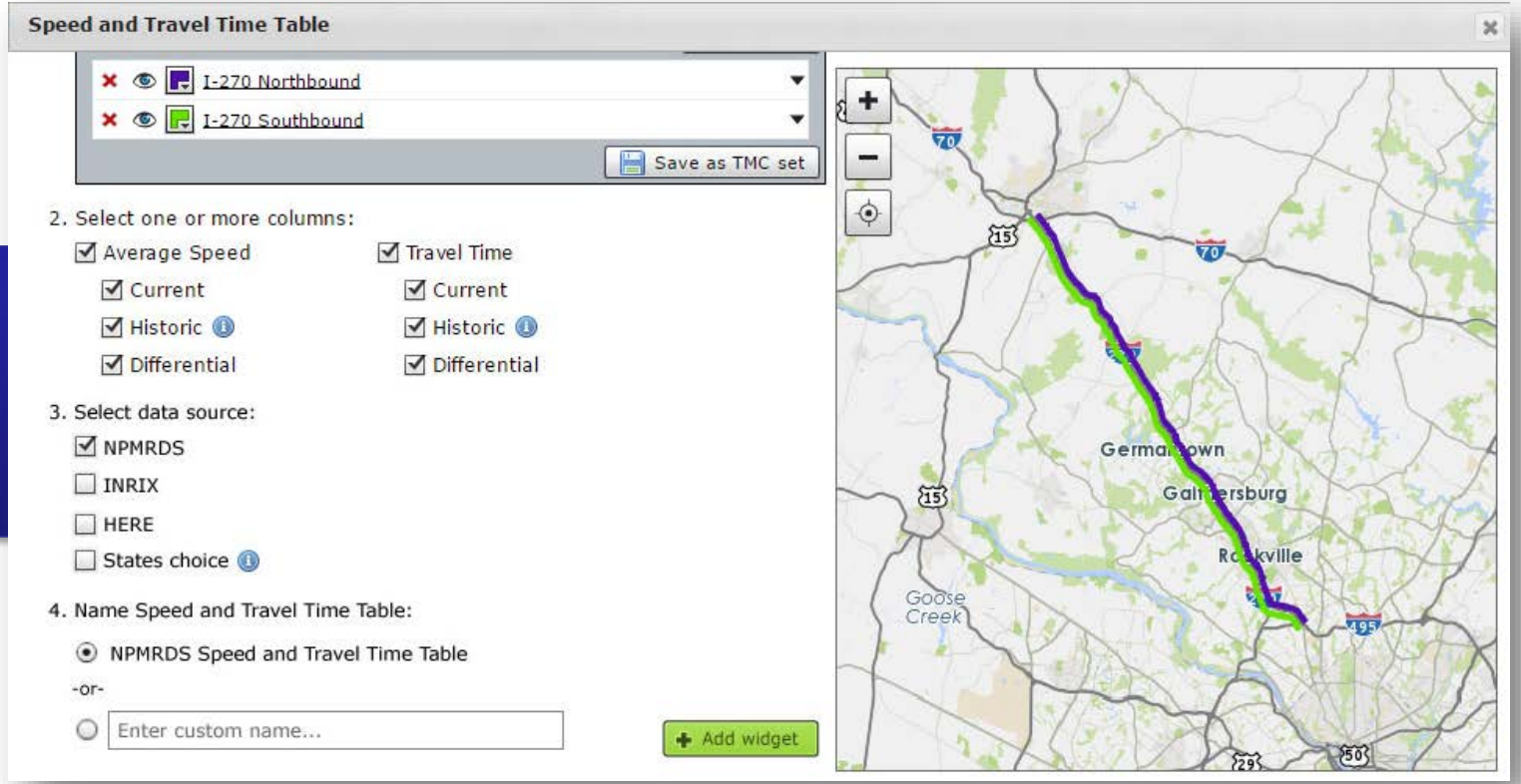




Upcoming Features

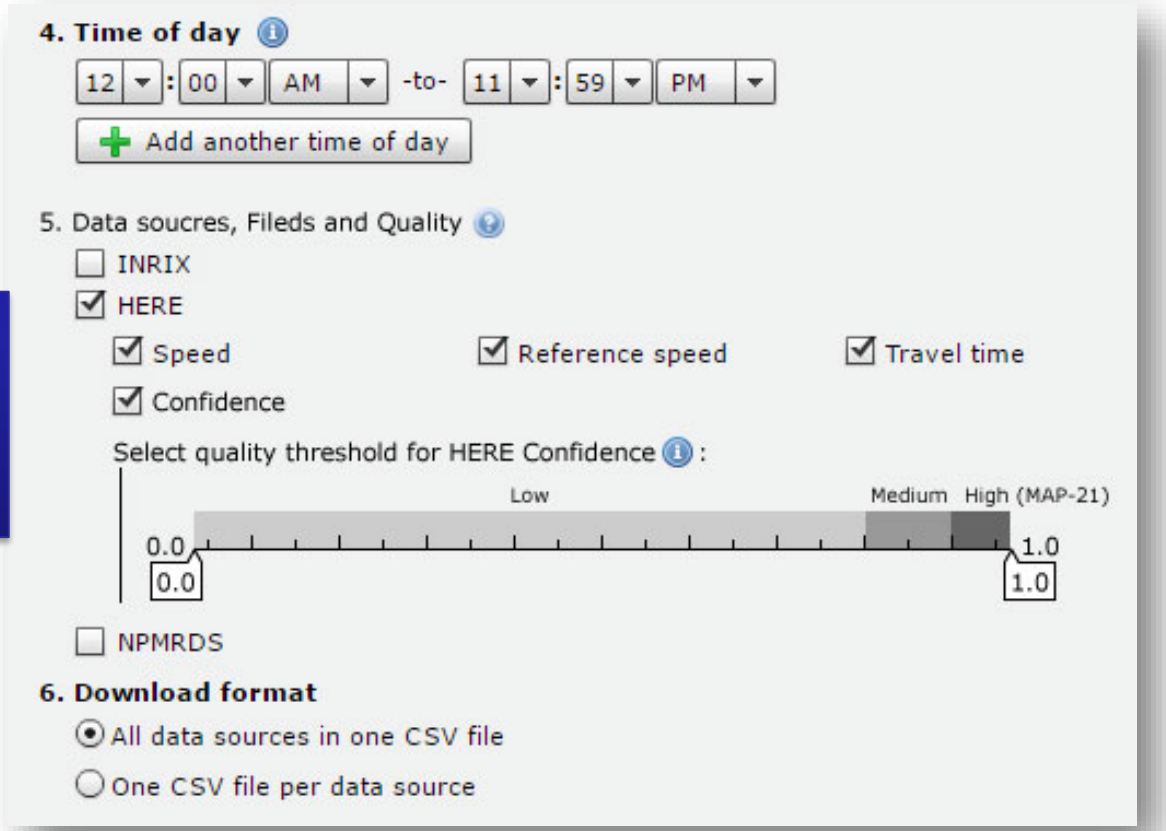
Multivendor Support in ALL Tools

You will soon be able to select one or more probe data sources in every VVPP Suite tool



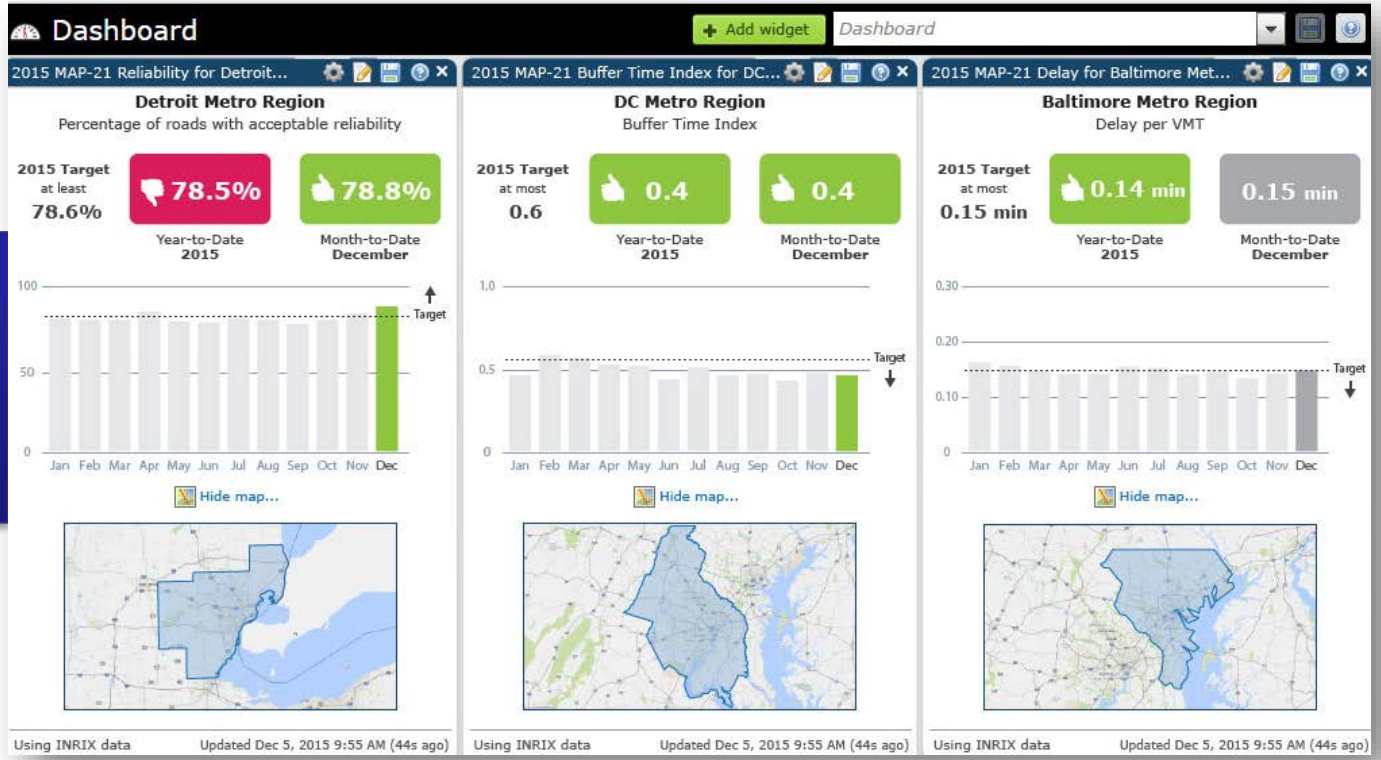
Download by Data Quality

You'll soon be able to choose the quality of the data from each vendor when you download



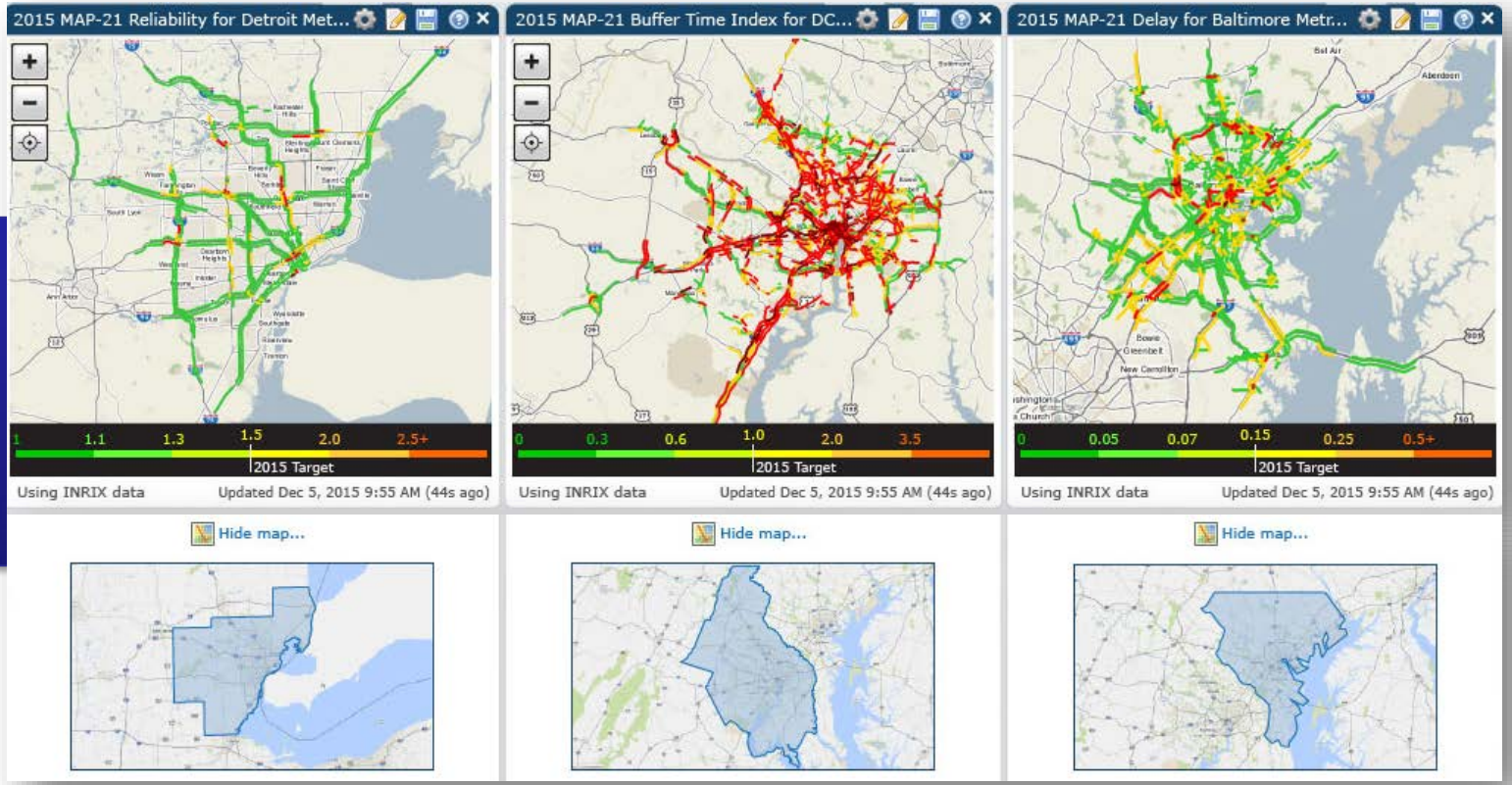
MAP-21 Widgets in Dashboard

We're making significant progress in conceptualizing MAP-21 widgets in anticipation of the MAP-21 requirements



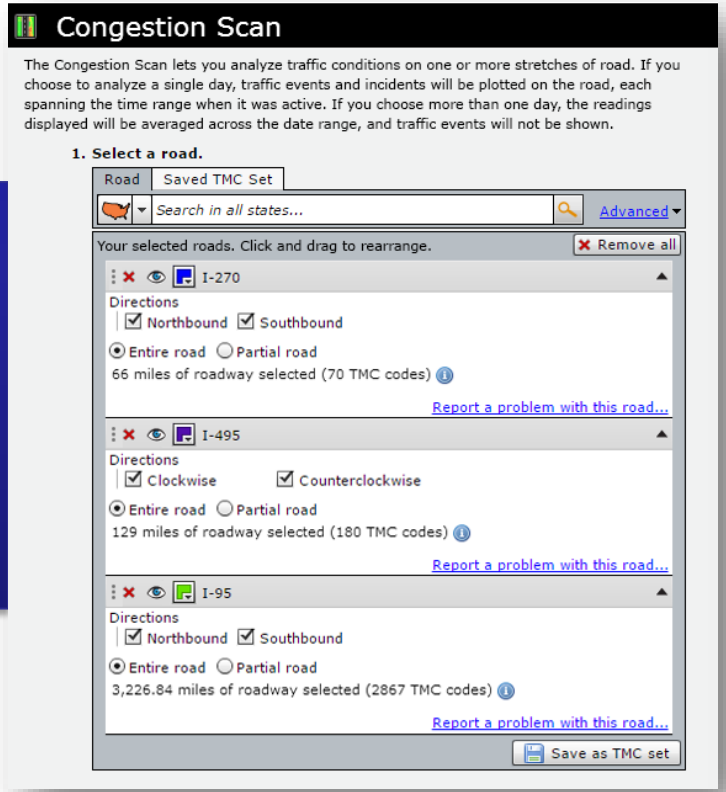
MAP-21 Widgets in Dashboard

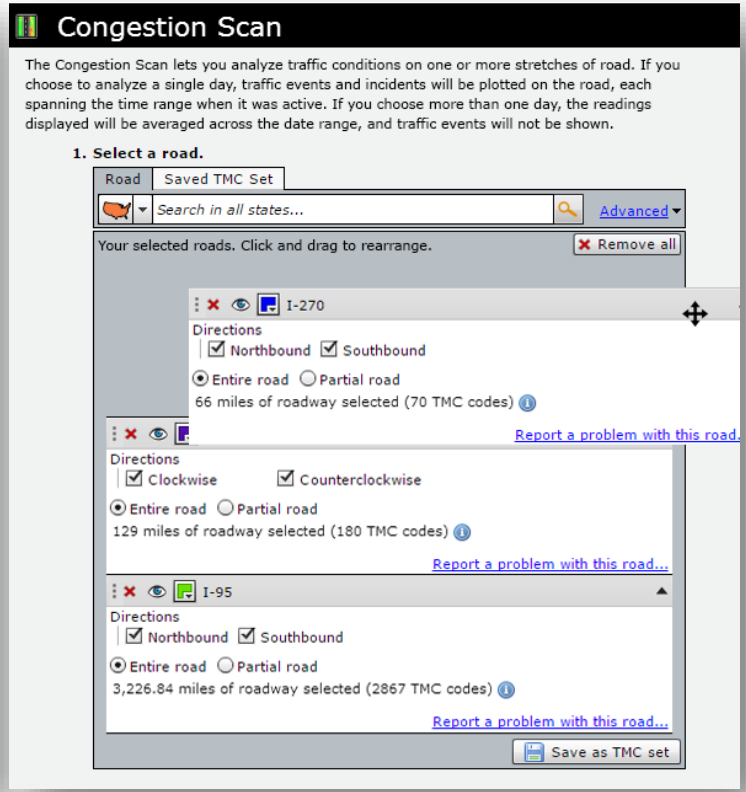
We're developing graphical as well as mapping presentations of the performance measures, for maximum reporting flexibility



Multi-road Congestion Scan

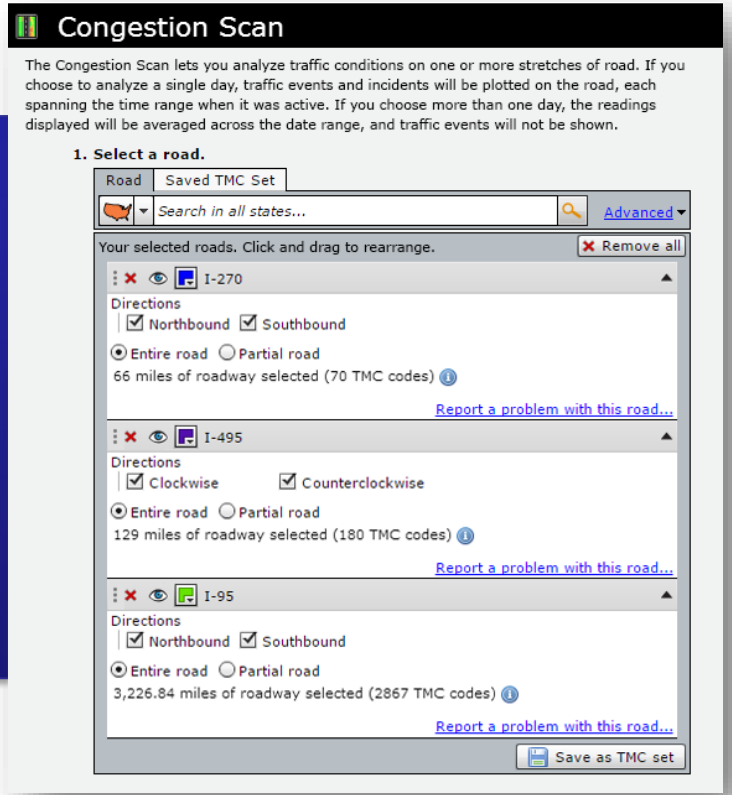
Multi-road Congestion Scan will allow you to choose a number of roadways, and see the results together in one scan – great for contiguous routes!

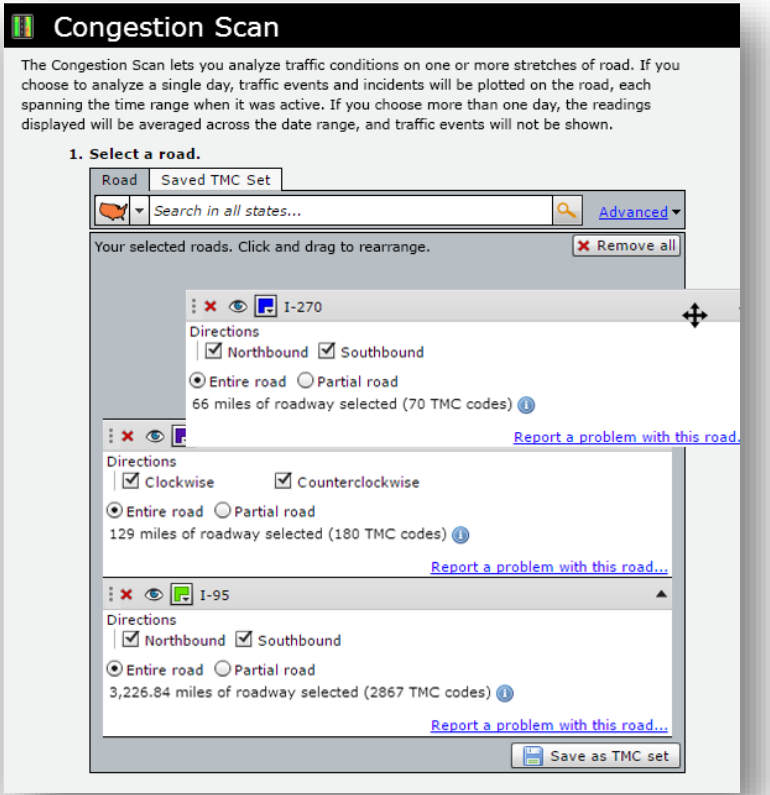




Multi-road Congestion Scan

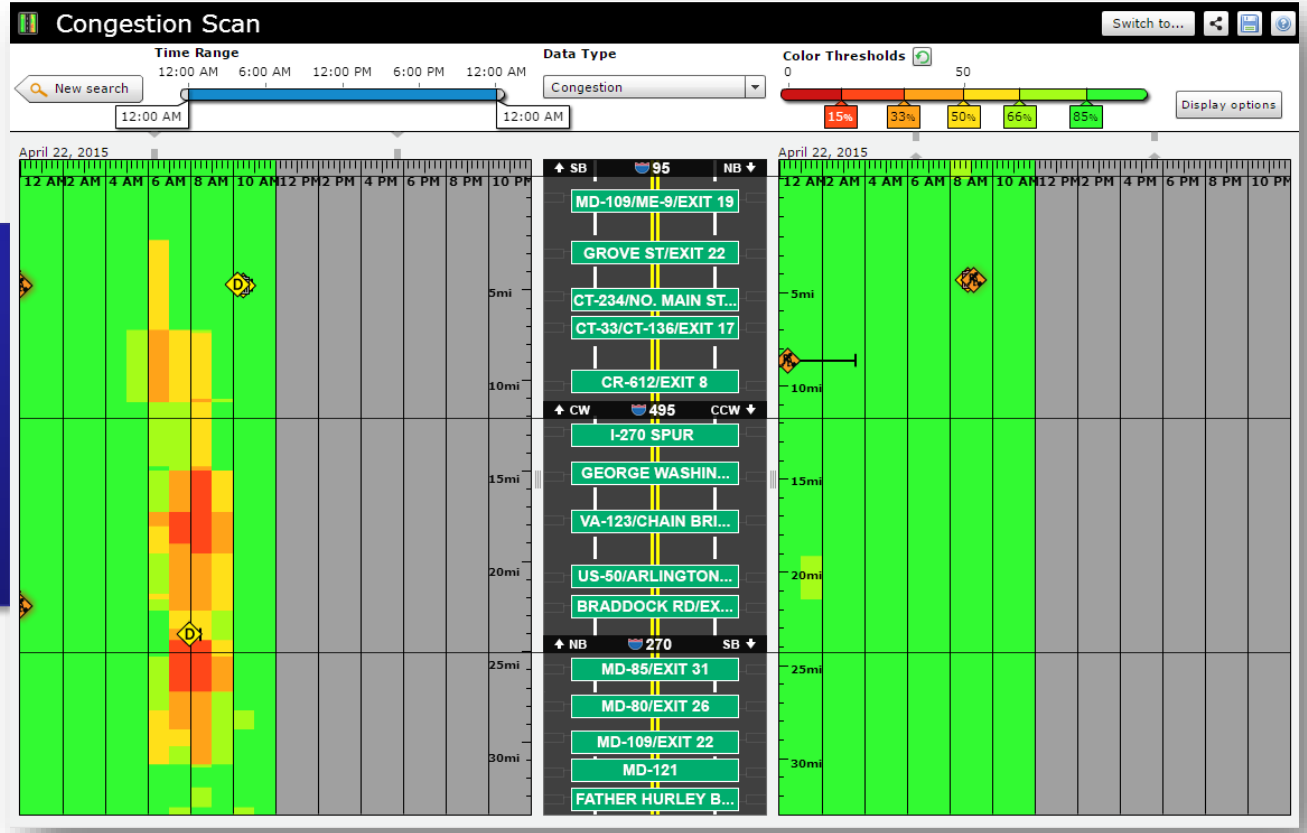
Multi-road Congestion Scan will allow you to choose a number of roadways, and see the results together in one scan – great for contiguous routes! Rearrange routes by simply clicking and dragging.





Multi-road Congestion Scan

The results of the Multi-road Congestion Scan will now indicate congested areas for a travel route and not just a roadway!

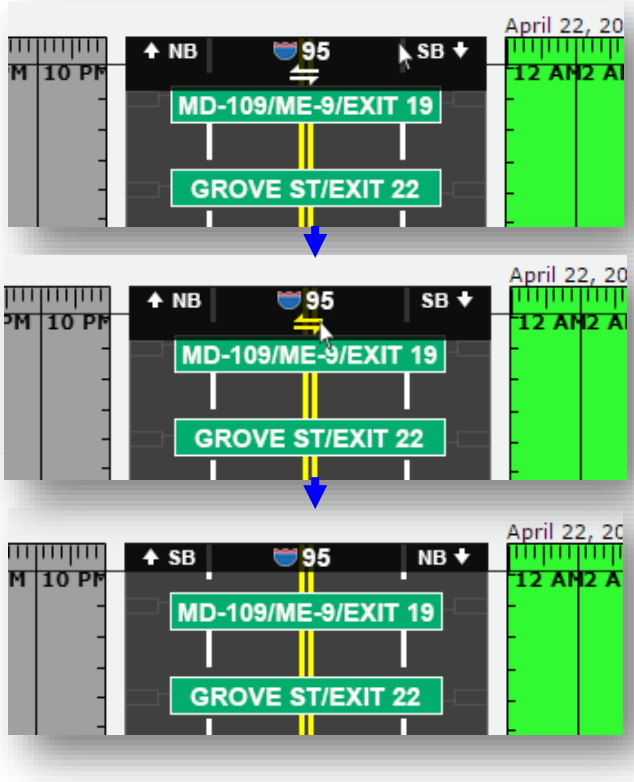


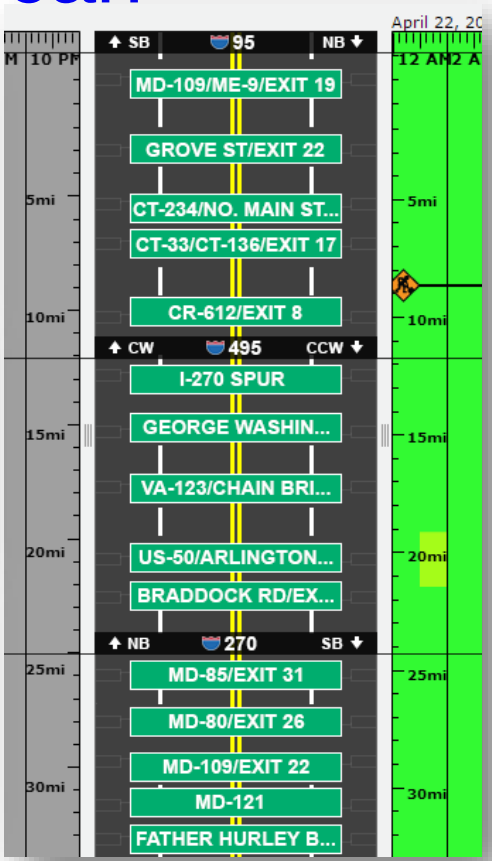
Multi-road Congestion Scan

The roads will be ordered how they were on query page. Each has a road label at the beginning of the segment.

When the user selects more than one road the road directions are moved from the top of the graph to either side of the road labels.

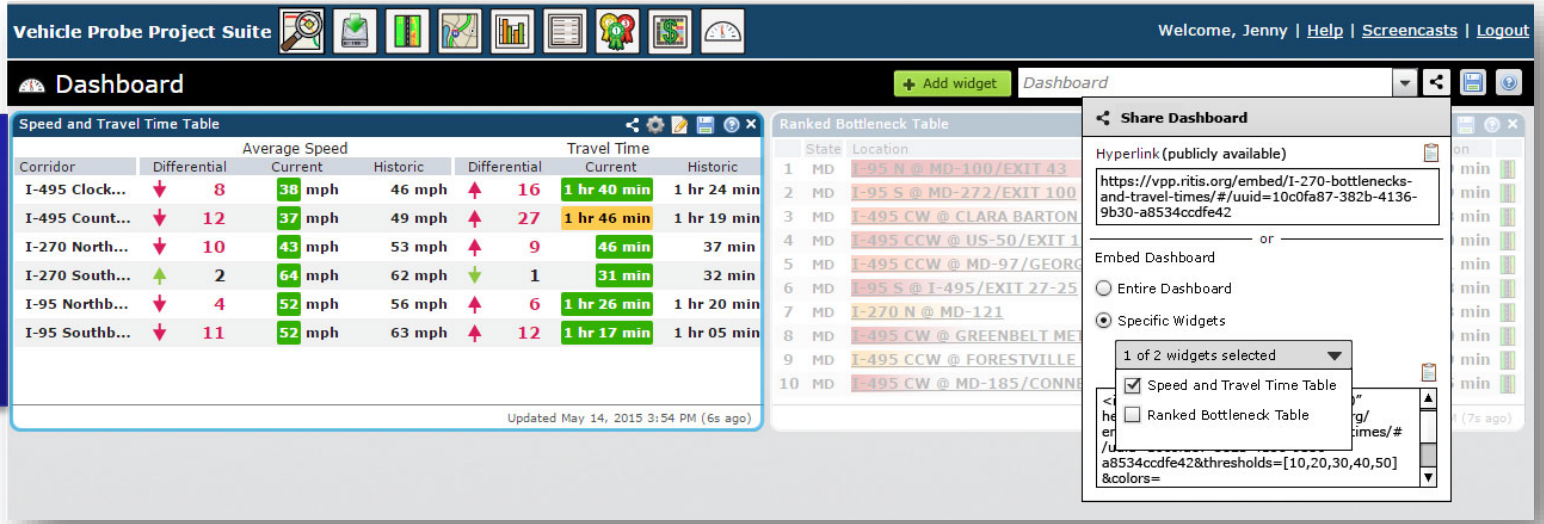
Users can hover over road labels and they will expand, allowing the user to switch the directions of the road.





Dashboard Embedding

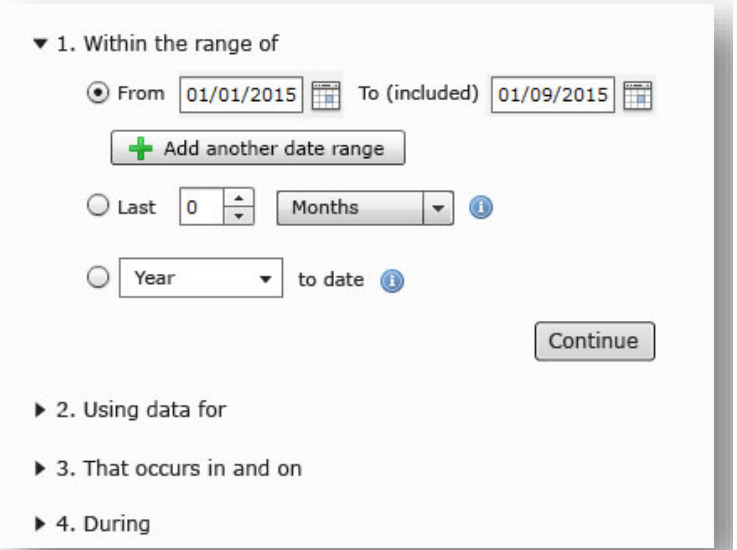
Get ready to share or embed your Dashboard (individual widgets or the entire Dashboard)



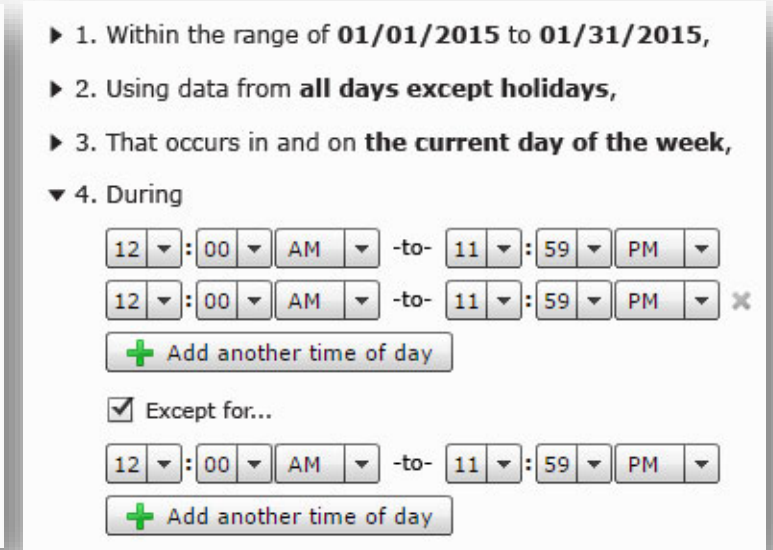
Advanced Time Selection

We're adding advanced time selection to all of the VPP Suite tools, so you can select:

- a number of date ranges
- a rolling time period of the last x number of days, weeks, months, years
- a rolling time period of year, month, static date to date

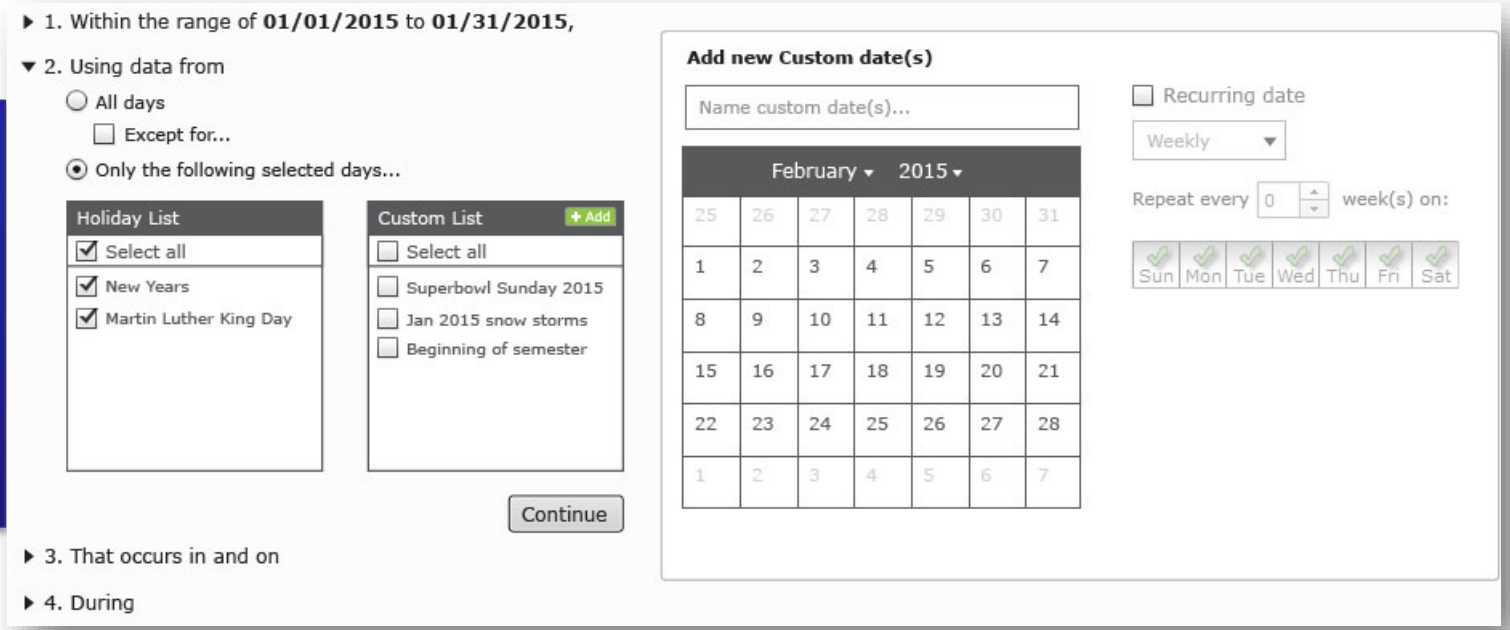


After your inputs, your query will read like a sentence for better understanding:



Advanced Time Selection

The time selection gives exceptional flexibility in choosing (or not choosing) certain days that may be key to your analyses…



Note: This functionality is dependent on Hadoop implementation

Back-end Architecture Enhancement

- Hadoop style
- Storage & Speed Improvements
- Examples using North Carolina:
  - 7-10hr UDC report now takes 2 minutes
  - 17hr Raw Export now takes 8 minutes
- Results will vary depending on the tool

Delay per UDC

- Similar to a Congestion Scan Excel Exports but for UDC
- TMCs lined up in order
- UDC time bins in separate columns
- Note: Partially dependent on Hadoop Implementation

Average Travel Cost for I-26
2012 Northbound

TMC CODE	NAME	MILES	00:00	01:00	02:00	03:00	04:00	05:00	06:00
125-05190	NC-SC State Border	4.028971	$66	$66	$66	$66	$66	$66	$66
125-05068	SC-14/Exit 1	0.709887	$65	$65	$65	$65	$65	$65	$66
125N05068	SC-14/Exit 1	0.425908	$66	$66	$66	$67	$66	$66	$67
125-05067	SC-11/Exit 5	4.004861	$66	$65	$66	$66	$65	$65	$66
125N05067	SC-11/Exit 5	0.400119	$66	$66	$67	$67	$66	$66	$67
125-05066	SC-292/Exit 10	4.234468	$66	$66	$67	$67	$66	$67	$68
125N05066	SC-292/Exit 10	0.340776	$68	$68	$68	$68	$67	$68	$69
125-05065	US-176/Exit 15	3.888845	$64	$64	$64	$65	$65	$66	$68
125N05065	US-176/Exit 15	0.20966	$65	$65	$65	$65	$65	$65	$67
125-05064	John Dodd Rd/Exit 16	0.883942	$64	$65	$64	$65	$65	$66	$67
125N05064	John Dodd Rd/Exit 16	0.469654	$64	$64	$64	$65	$65	$65	$66
125-04750	New Cut Rd/Exit 17	1.039478	$64	$63	$63	$64	$64	$65	$66

Use of the VPP Suite by User Group members

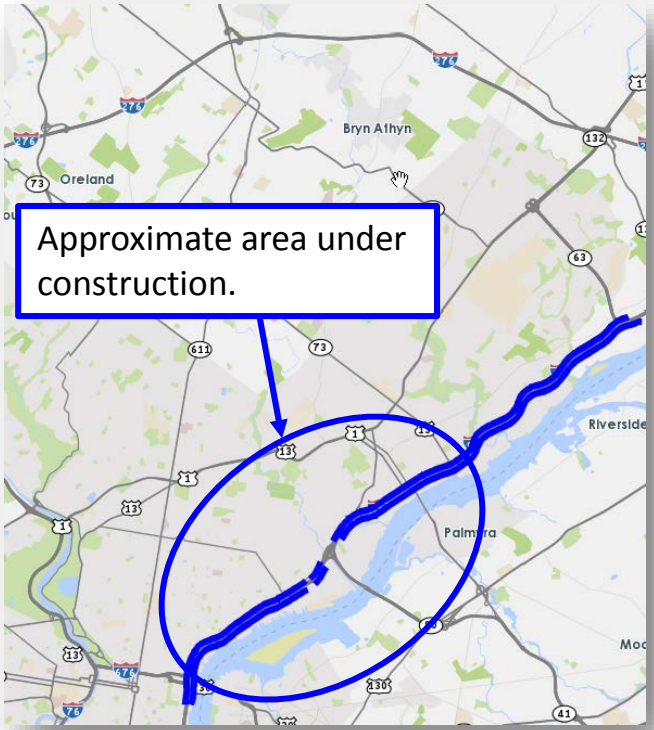
- ***I-95 Reconstruction through Philadelphia*** - *Jesse Buerk (DVRPC)*
- ***Example of Using Massive Raw Data Downloader for Travel Times*** - *Brad Robinson (NCDOT)*

I-95 Reconstruction through Philadelphia

Photos source: I-95 Revive.com

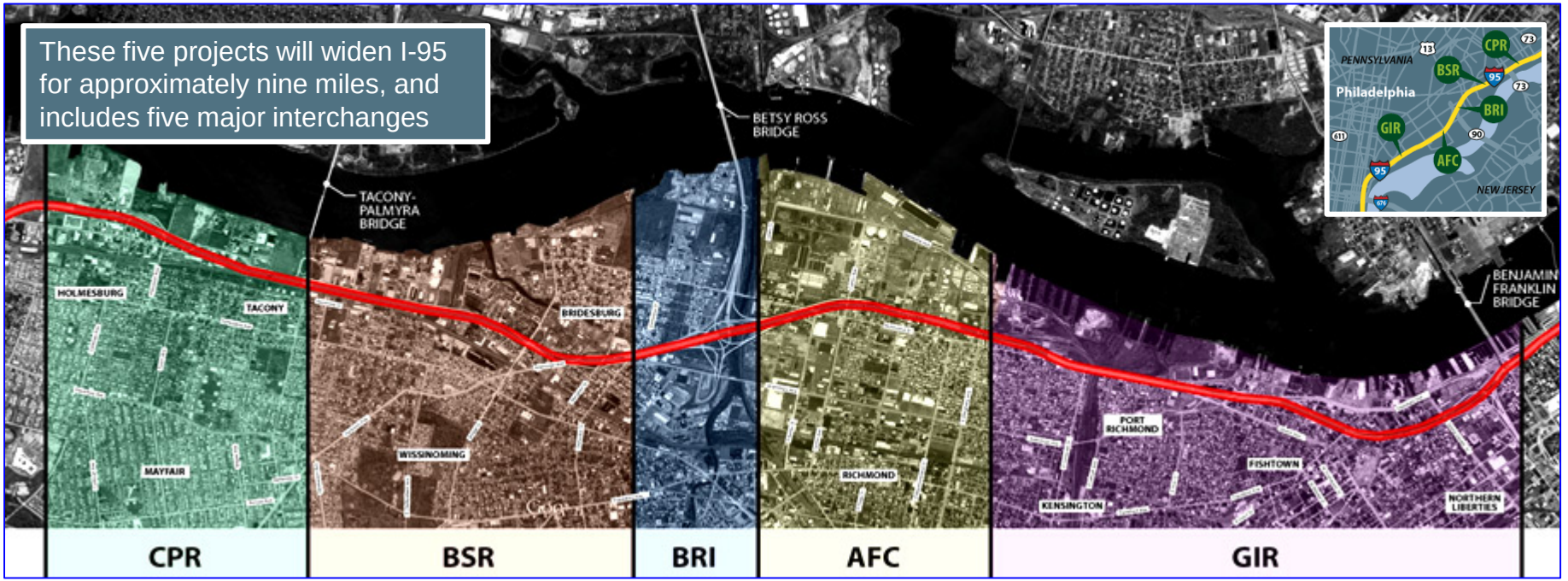
Jesse Buerk
Senior Transportation Planner, DVRPC
jbuerk@dvrpc.org

Background: I-95 Sector A Reconstruction/Widening Project



- Approximately 9 miles from I-676 to Cottman Ave. in Philadelphia
- Investment of over $2 billion in federal and state funds
- Multiple sections under construction now and for the next 10+ years
- Used heavily as both interstate and daily commuter route
- DVRPC providing planning assistance to PennDOT
- Using VPP to help understand conditions, plan, justify, and refine strategies to mitigate congestion

I-95 Project Areas



Cottman-Princeton Interchange
Reconstruct & widen 1.4 mi, including the Cottman Ave. interchange

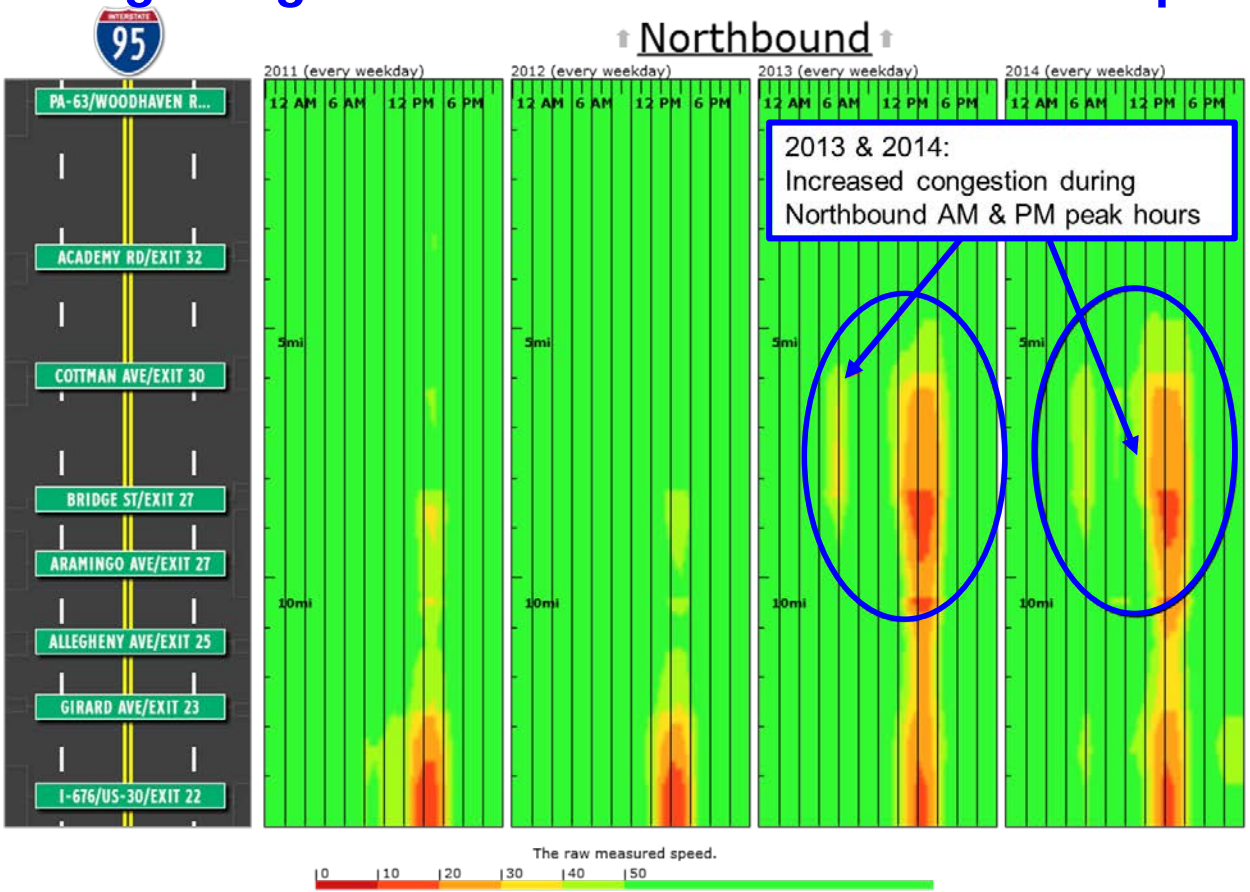
Levick St. to Bridge St.
Reconstruct & widen 2.1 mi, including the Bridge St. interchange

Bridge St. to Betsy Ross Bridge
Reconstruct & widen about 1 mi, including the Betsy Ross Bridge interchange

Betsy Ross Bridge to Girard Ave.
Reconstruct & widen 1.5 mi, including reconstruction and reconfiguration of the Allegheny/Castor Ave. interchange

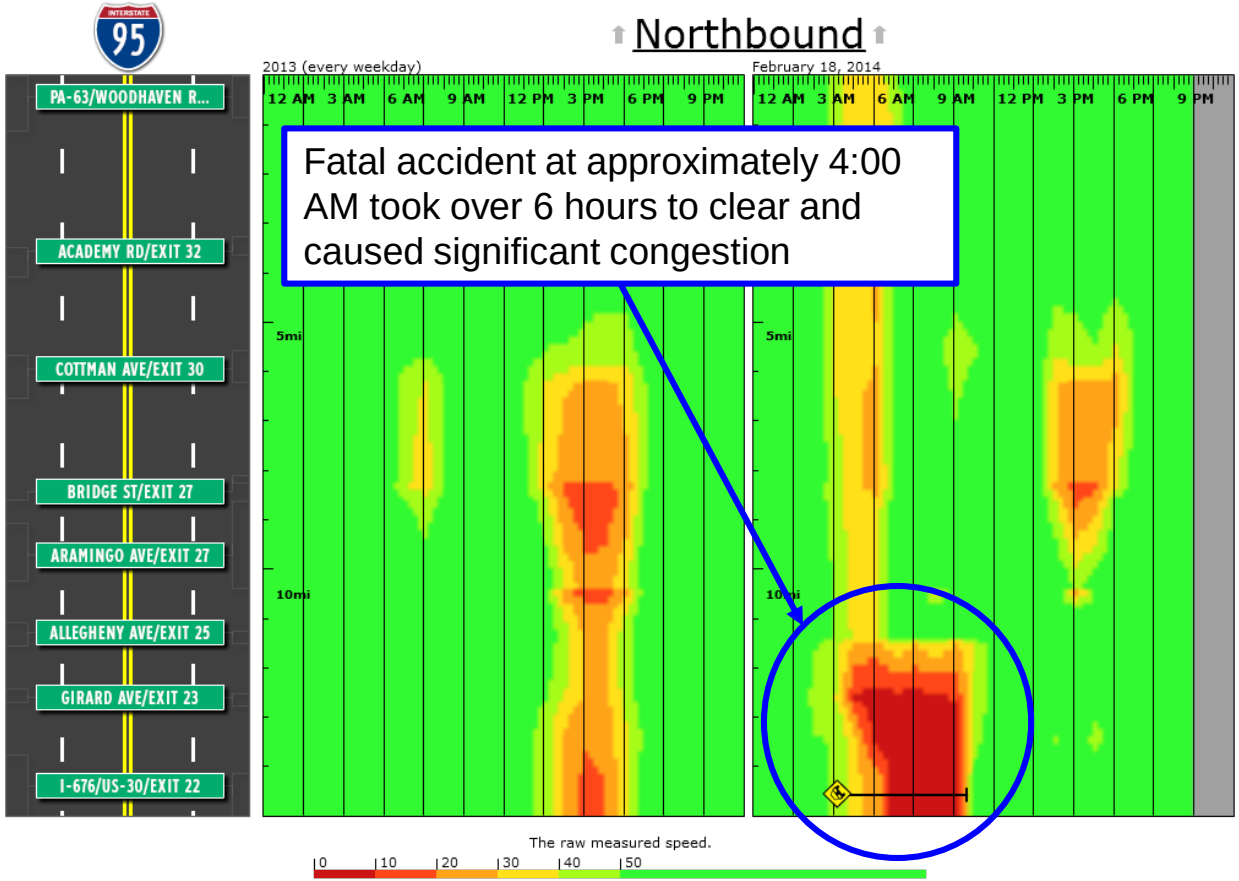
Girard Ave. Interchange
Reconstruct & widen 3 mi, including the Girard Ave. interchange

Using Congestion Scan to Understand the Impacts of Construction



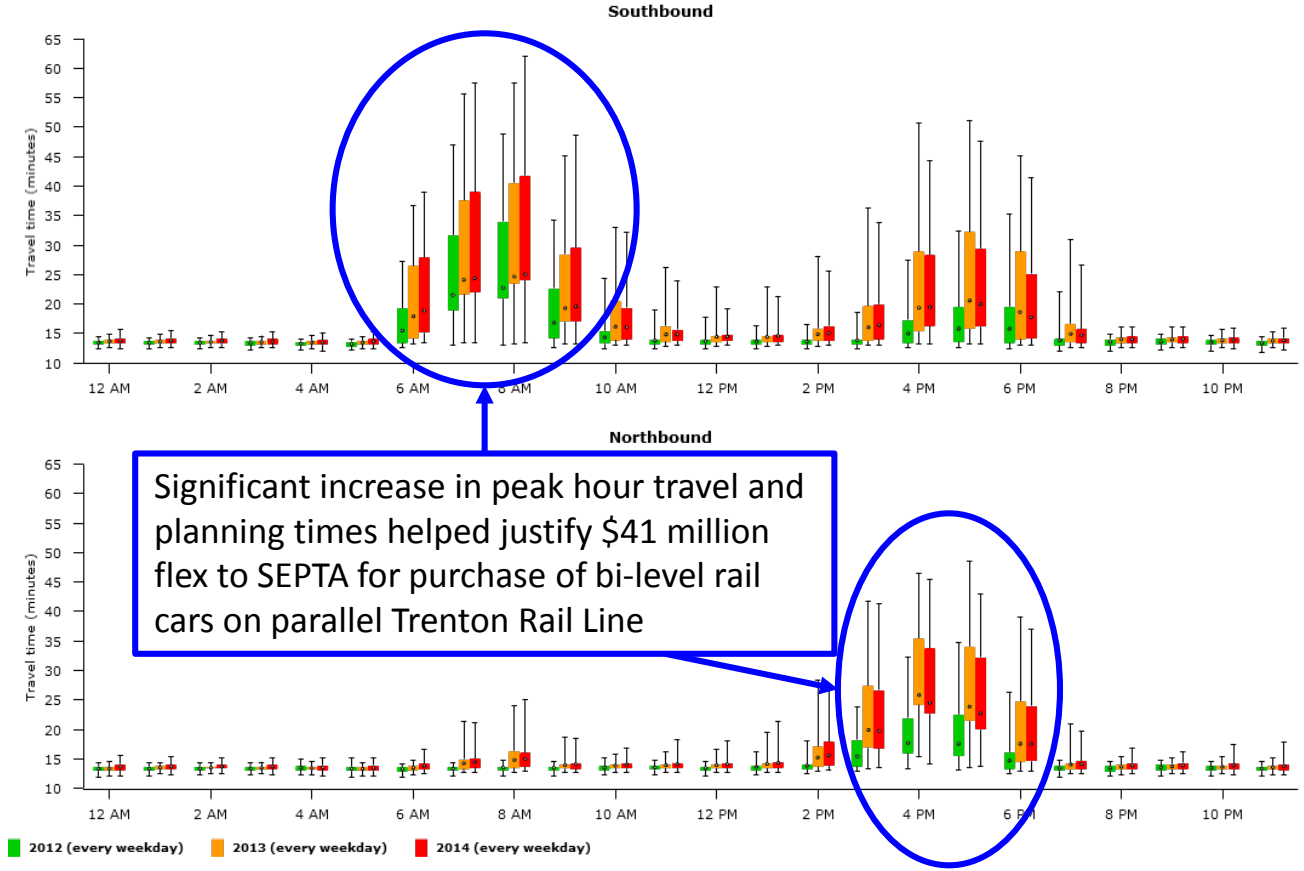
- Construction began late 2011; multiple sections underway starting late 2012
- Graphic instantly communicates impacts to wide variety of audiences
- Spatial and temporal
- Great starting point for analysis of changes/issues

Using Congestion Scan to Understand the Impacts of Incidents



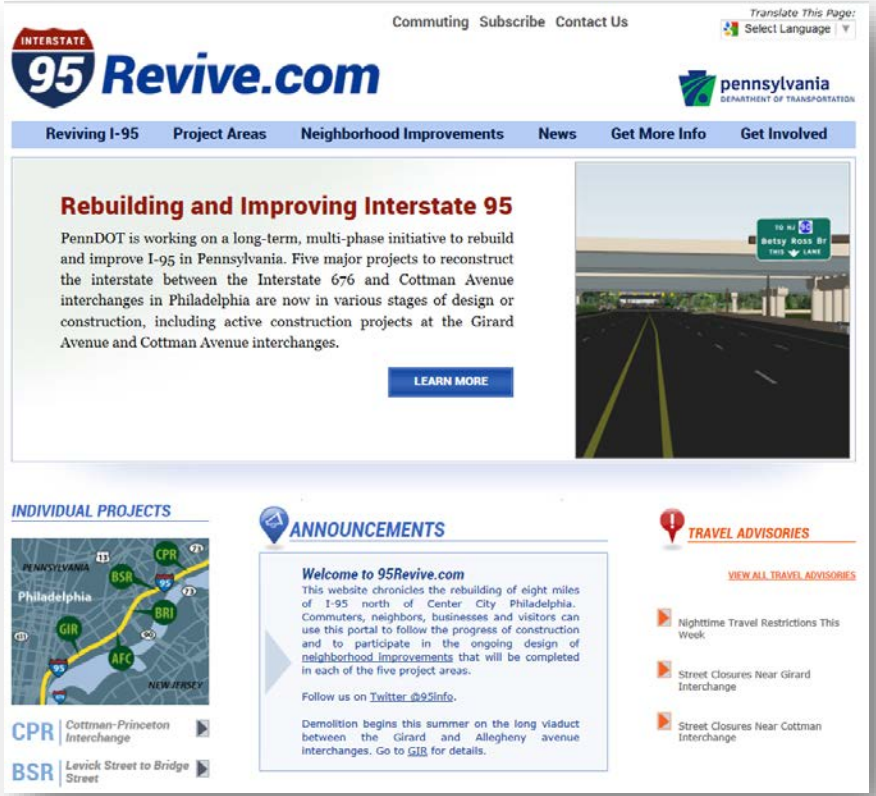
- DVRPC coordinates meetings of I-95 Incident Management Task Force
- Congestion scan communicates severe impact crashes have on congestion

Justifying Transit Investments to Relieve Congestion



- 2013 & 2014:
  - SB AM Peak TT increased 20%; PT almost 30%
  - NB PM Peak TT increased 45%; PT over 40%
- Helped local PennDOT District 6 convince PennDOT Central Office and FHWA of need for major transit investments

For More Information…



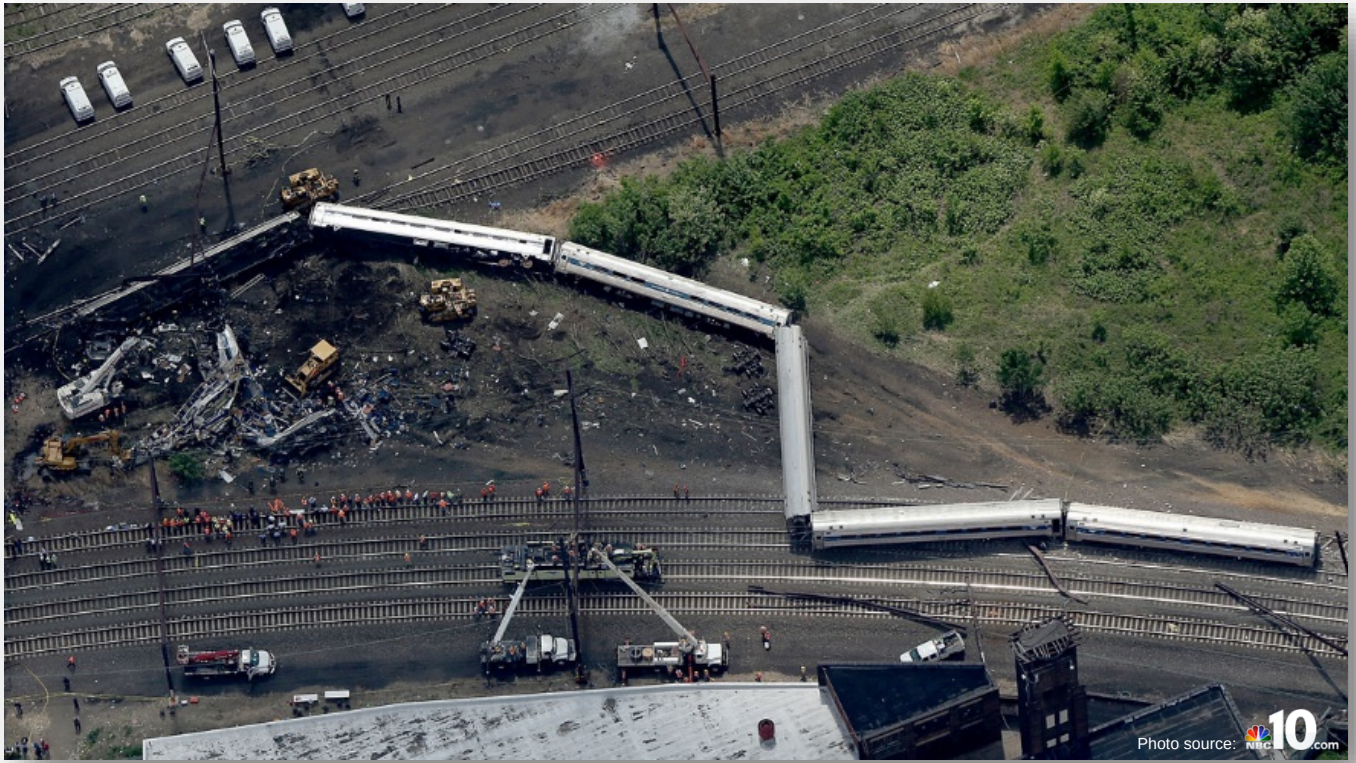
Go to…

www.95revive.com

Jesse Buerk
Senior Transportation Planner
Delaware Valley Regional Planning Commission

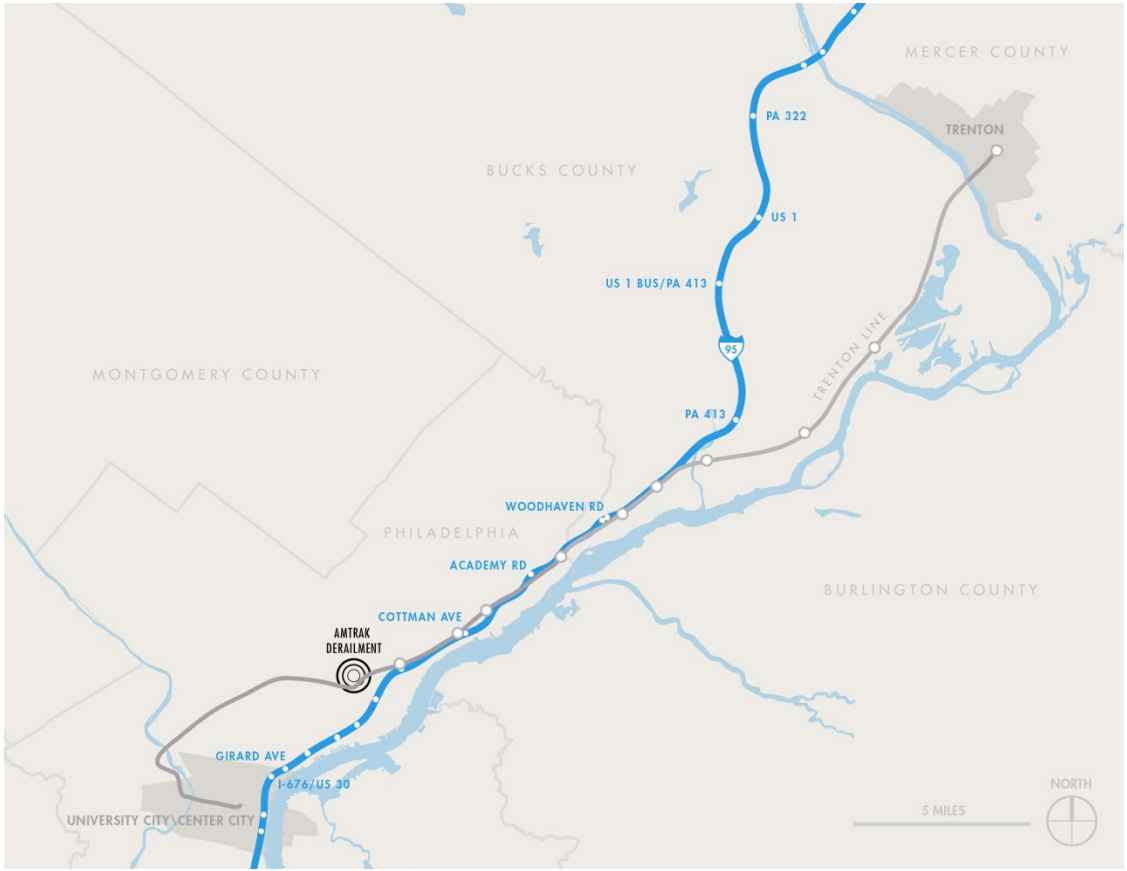
VPP Suite User Group Co-Chair

Amtrak Derailment in Philadelphia



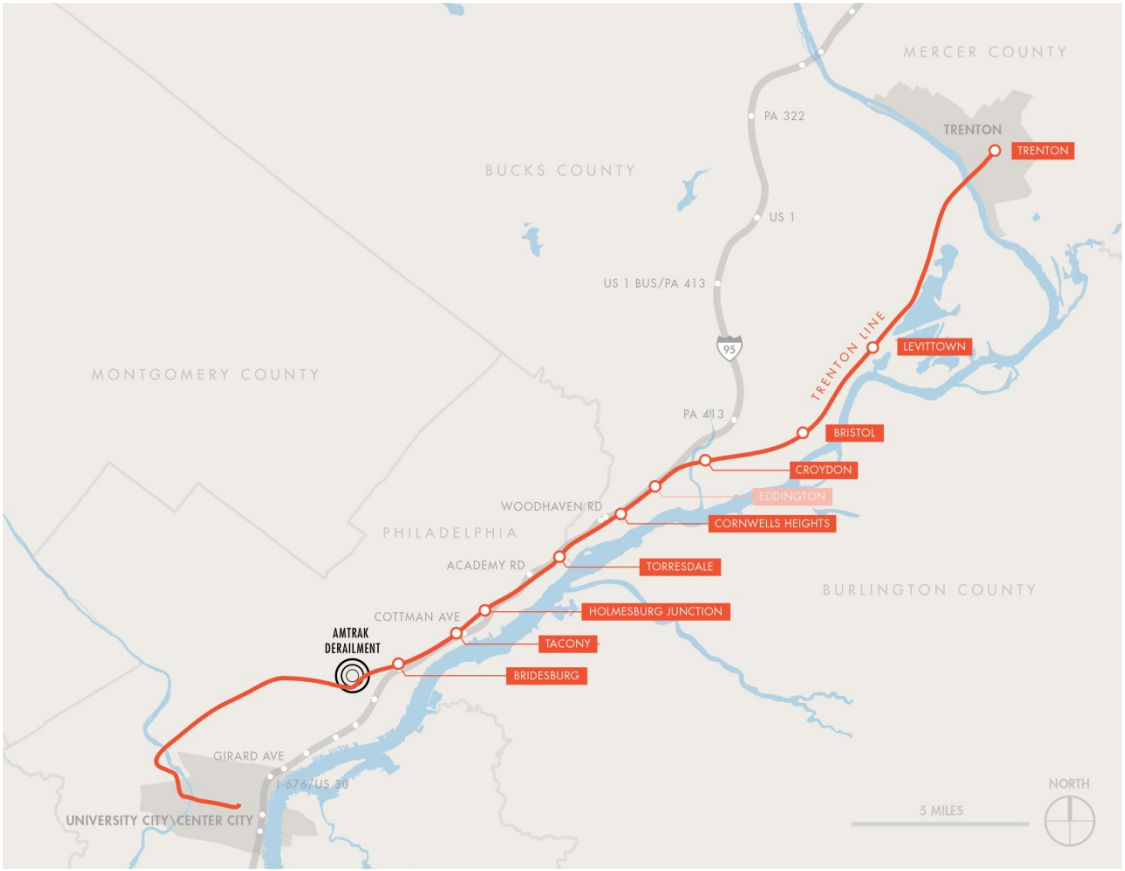
Jesse Buerk, DVRPC

Impact of the Amtrak Derailment & Suspension of SEPTA's Trenton Line



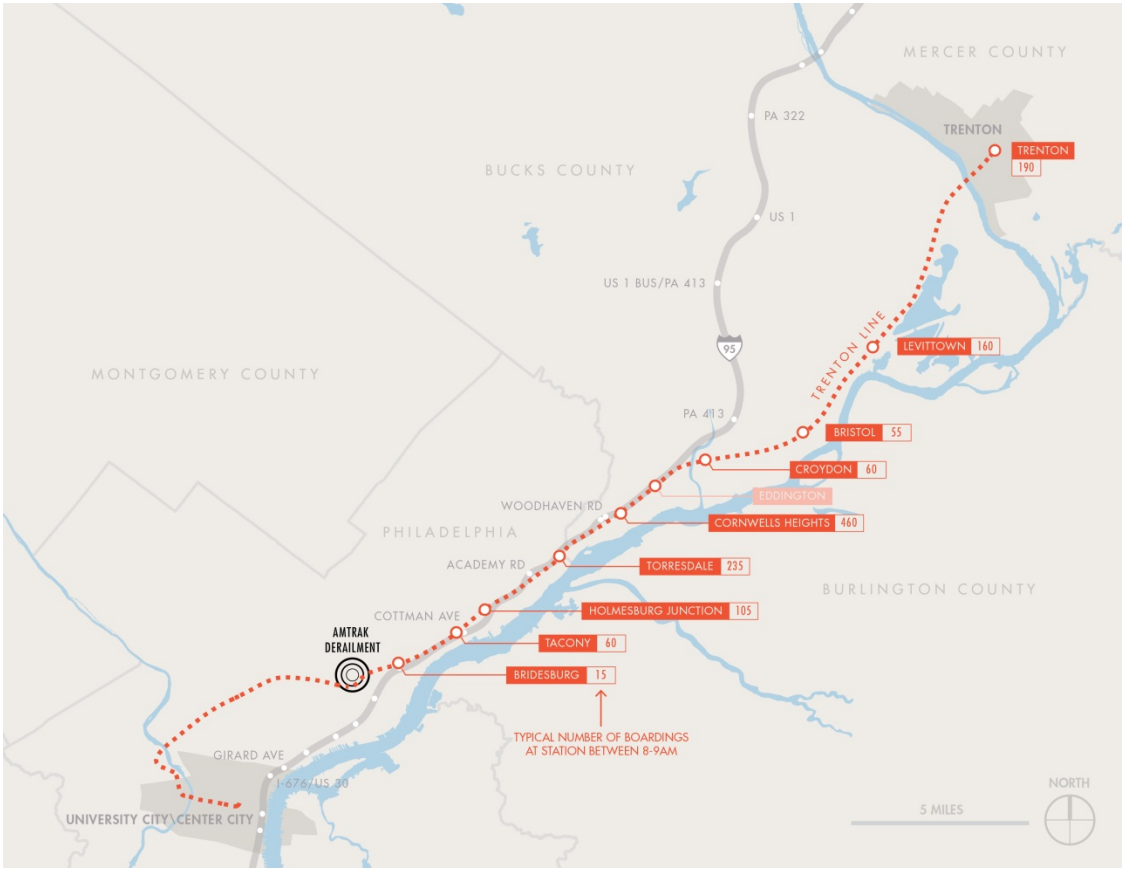
- Amtrak NE Regional Train #188 derailed shortly after 9:00 PM, Tuesday, May 12th, 2015

Impact of the Amtrak Derailment & Suspension of SEPTA's Trenton Line



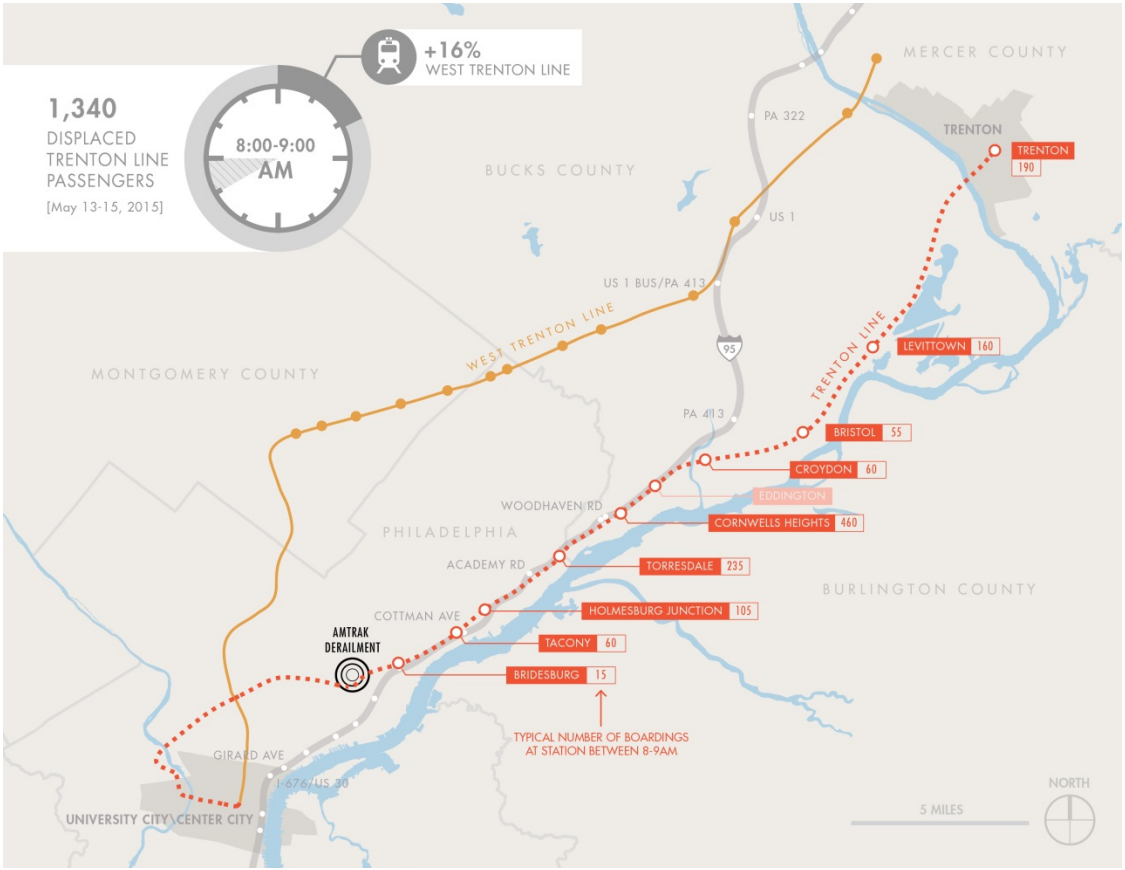
- Amtrak NE Regional Train #188 derailed shortly after 9:00 PM, Tuesday, May 12th, 2015
- SEPTA's Trenton Line shut down
  - Wednesday, May 15th
  - Thursday, May 16th
  - Friday, May 17th

Impact of the Amtrak Derailment & Suspension of SEPTA's Trenton Line



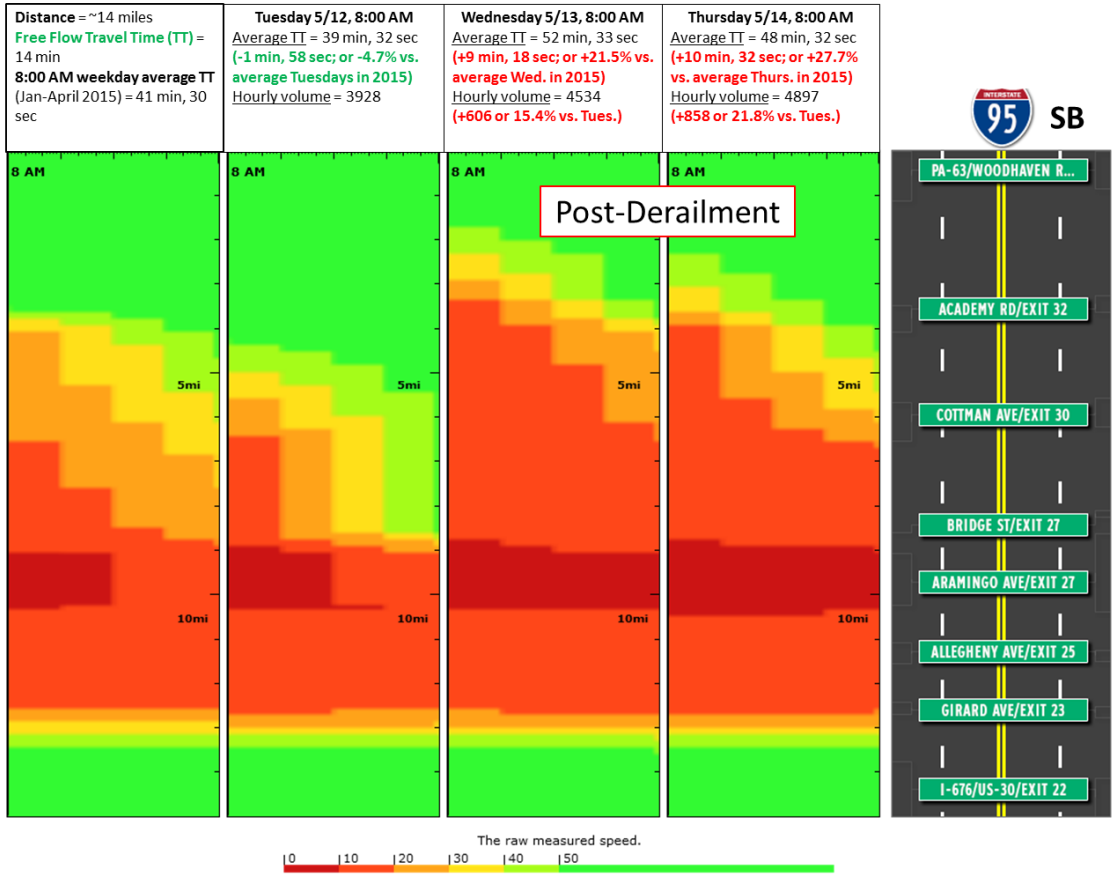
- SEPTA's Trenton Line shut down
  - Wednesday, May 15th
  - Thursday, May 16th
  - Friday, May 17th
- **Many peak transit trips had to be shifted**

Impact of the Amtrak Derailment & Suspension of SEPTA's Trenton Line



- Over 1,300 displaced Trenton Line passengers (8-9 AM)
- West Trenton Line saw +16% ridership (about 280 extra passengers)
- **Over 1,000 commuters had to find another way**

Impact of the Amtrak Derailment & Suspension of SEPTA's Trenton Line



- Significant travel time increases on I-95 Wednesday and Thursday
- Likely that most Trenton Line riders ended up driving
- Still working on analysis of hourly volumes

North Carolina
DEPARTMENT OF TRANSPORTATION

Example of Using VPP - Massive Raw Data Downloader for Travel Times

Fortify Construction Project On I-40 in Wake County, NC

Brad Robinson, PE
Traffic Safety Project Engineer, NCDOT
bdrobinson@ncdot.gov

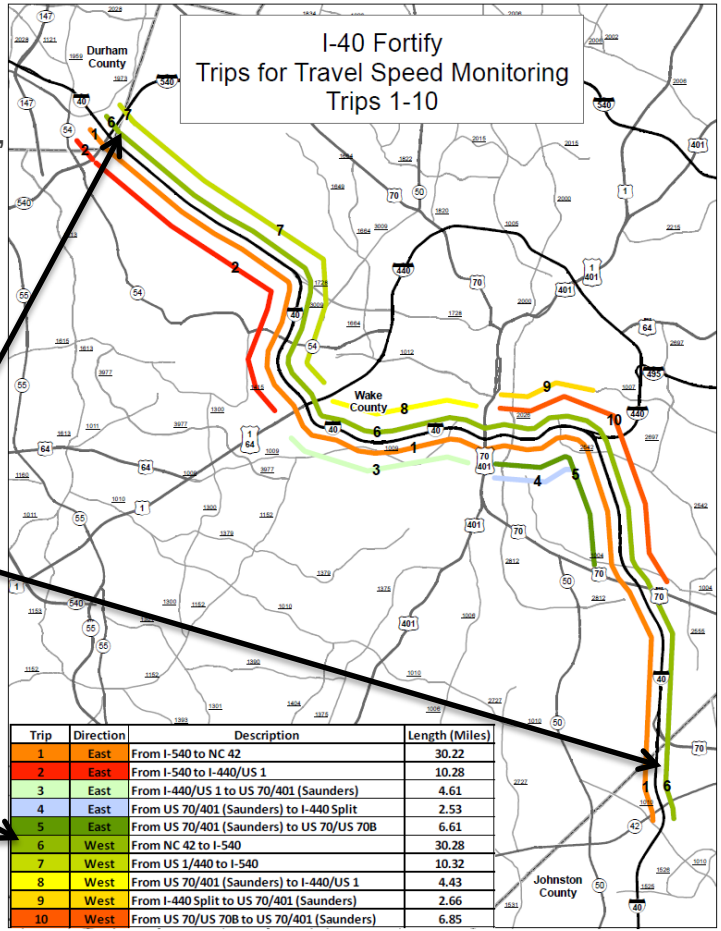
Fortify Traffic Time Monitoring

- Daily report showing previous day's peak period travel times. Consists of 4 pages of data and a 3 page appendix
- Sent to variety of people – State Traffic Engineer, Work Zone Traffic Control group, Communications Office, construction firms, news agencies, researchers, etc.
- First location where we have done this type of monitoring
- State Traffic Engineer envisions doing this for all large construction projects in future

Fortify Traffic Time Monitoring

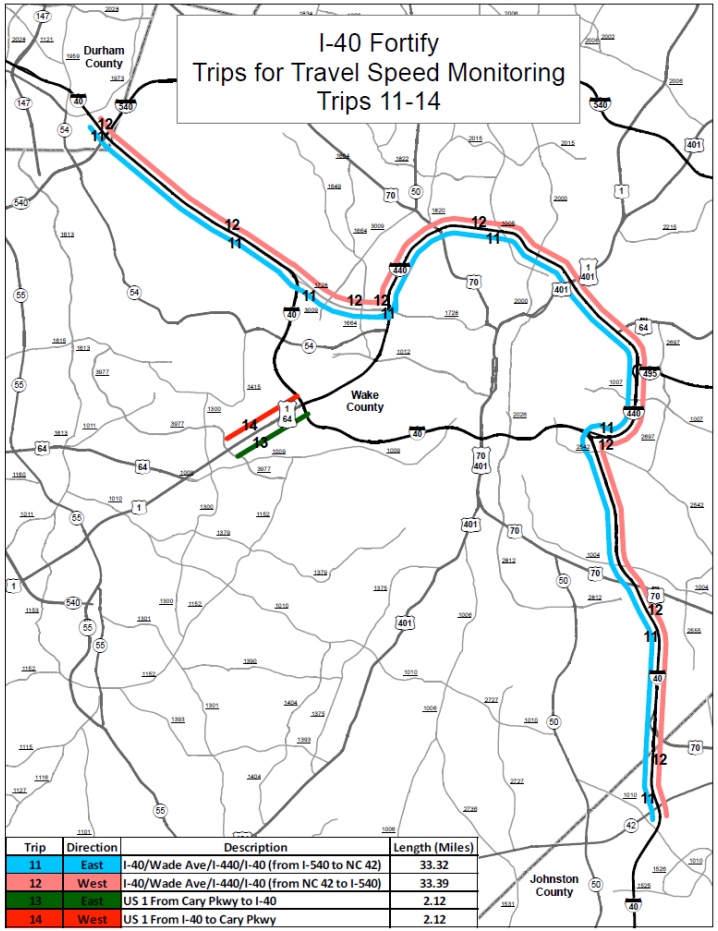
- **Fortify** is a construction project on I-40 in Wake County, NC involving a rebuilding of the roadway in the Raleigh area
- **Fortify** will involve lane closures and traffic shifts and is expected to have a large traffic impact on this heavily travelled interstate and the surrounding areas

- Travel times monitored on 14 “Trips”
- Trips 1 and 6 are I-40 through the entirety of Wake County
- Other trips are smaller sections of Trips 1 and 6



Trip	Direction	Description	Length (Miles)
1	East	From I-540 to NC 42	30.22
2	East	From I-540 to I-440/US 1	10.28
3	East	From I-440/US 1 to US 70/401 (Saunders)	4.61
4	East	From US 70/401 (Saunders) to I-440 Split	2.53
5	East	From US 70/401 (Saunders) to US 70/US 70B	6.61
6	West	From NC 42 to I-540	30.28
7	West	From US 1/440 to I-540	10.32
8	West	From US 70/401 (Saunders) to I-440/US 1	4.43
9	West	From I-440 Split to US 70/401 (Saunders)	2.66
10	West	From US 70/US 70B to US 70/401 (Saunders)	6.85

- Trips 11 and 12 start and end at same points as 1 and 6, but use the alternate route of I-440
- Trips 13 and 14 are a small section of US 1 that were added by request



Trip	Direction	Description	Length (Miles)
11	East	I-40/Wade Ave/I-440/I-40 (from I-540 to NC 42)	33.32
12	West	I-40/Wade Ave/I-440/I-40 (from NC 42 to I-540)	33.39
13	East	US 1 From Cary Pkwy to I-40	2.12
14	West	US 1 From I-40 to Cary Pkwy	2.12

Daily Travel Times

Delay compared to baseline average

Fortify Travel Times for Morning Peak Periods
6/26/2015
Trips 1 through 10

Travel Time (In Minutes)

Trip Number	Eastbound I-40 Trips					Westbound I-40 Trips				
	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6	Trip 7	Trip 8	Trip 9	Trip 10
Length (In Miles)	30.22	10.28	4.61	2.53	6.61	30.28	10.32	4.43	2.66	6.85
6:00	26.75	9.11	4.13	2.34	6.04	26.56	8.75	4.16	2.48	6.20
6:05	26.58	9.11	4.21	2.32	5.99	26.11	8.87	4.03	2.40	6.05
6:10	26.77	9.08	4.25	2.17	5.87	26.20	8.85	4.00	2.37	5.92
6:15	26.64	8.91	4.04	2.14	5.81	26.43	8.96	3.99	2.34	5.94
6:20	26.21	8.56	4.18	2.22	5.94	26.05	9.00	3.99	2.35	5.95
6:25	26.69	8.88	4.14	2.34	5.97	26.09	8.80	4.10	2.41	6.02
6:30	26.58	8.90	4.19	2.29	5.96	26.15	8.86	3.99	2.38	6.04
6:35	26.32	8.77	4.20	2.30	5.94	26.36	8.67	4.00	2.34	6.03
6:40	26.31	8.73	4.10	2.32	5.98	26.43	8.62	4.00	2.30	5.97
6:45	26.29	8.70	4.05	2.31	6.00	26.73	8.61	4.07	2.29	5.92
6:50	26.42	8.81	4.10	2.32	6.01	27.77	8.61	4.10	2.29	5.98
6:55	26.37	8.63	4.16	2.31	5.96	28.07	8.79	4.12	2.39	6.11
7:00	26.73	8.85	4.13	2.32	5.99	28.19	8.81	4.06	2.36	6.10
7:05	26.34	8.86	4.07	2.35	6.06	28.69	9.01	4.03	2.37	6.08
7:10	25.71	8.58	4.14	2.35	6.17	29.13	8.93	4.13	2.33	5.92
7:15	25.88	8.59	4.12	2.38	6.16	29.68	8.74	4.08	2.23	5.89
7:20	26.21	8.57	4.07	2.25	5.87	29.24	8.86	4.04	2.27	6.06
7:25	26.43	8.72	4.16	2.28	5.80	29.07	8.97	4.00	2.36	6.13
7:30	26.72	9.03	4.23	2.29	5.85	28.95	8.90	4.21	2.37	6.09
7:35	26.71	9.11	4.27	2.30	5.86	28.76	8.88	4.23	2.42	6.21
7:40	26.65	9.03	4.23	2.25	5.91	27.78	9.10	4.67	2.44	6.21
7:45	26.39	8.77	4.16	2.25	5.90	27.02	9.25	4.92	2.44	6.19
7:50	26.28	8.68	4.15	2.23	5.88	27.43	9.28	4.64	2.47	6.12
7:55	26.41	8.78	4.14	2.28	5.93	27.12	9.26	4.68	2.34	6.00
8:00	26.36	8.77	4.10	2.24	5.84	26.69	9.04	5.18	2.33	6.05
8:05	26.31	8.68	4.13	2.21	5.82	26.49	8.92	4.99	2.43	6.08
8:10	26.31	8.83	4.21	2.22	5.91	26.62	8.86	4.44	2.46	6.07
8:15	26.92	9.28	4.23	2.19	5.86	26.68	8.80	4.27	2.41	6.04
8:20	27.33	9.47	4.24	2.27	5.93	26.68	8.77	4.25	2.42	6.10
8:25	26.99	9.26	4.25	2.28	5.88	26.96	8.65	4.20	2.37	6.04
8:30	26.70	9.18	4.30	2.26	5.91	26.69	8.81	4.20	2.38	6.09
8:35	26.11	8.89	4.28	2.35	6.00	26.57	8.83	4.21	2.32	5.91
8:40	26.11	8.89	4.23	2.41	6.02	26.69	9.05	4.24	2.33	5.92
8:45	26.60	9.02	4.07	2.35	6.00	26.57	9.22	4.35	2.35	6.05
8:50	26.85	9.10	4.06	2.26	5.83	26.08	8.99	4.27	2.34	5.99
8:55	26.69	8.91	4.14	2.21	5.85	26.10	8.96	4.15	2.24	5.73
9:00	26.58	8.98	4.13	2.32	5.97	26.71	9.02	4.23	2.21	5.83
9:05	26.35	8.97	4.25	2.35	6.00	27.03	8.92	4.26	2.38	6.18
9:10	26.49	8.92	4.21	2.37	5.99	26.90	8.75	4.10	2.45	6.15
9:15	26.58	8.91	4.09	2.28	5.85	26.57	9.00	4.17	2.46	6.11
9:20	26.45	8.76	4.14	2.28	5.82	27.08	8.89	4.17	2.40	5.93
9:25	26.19	8.61	4.21	2.35	5.90	26.40	8.96	4.12	2.43	6.18
9:30	26.28	8.69	4.17	2.31	5.90	25.78	9.03	4.17	2.40	5.98

Additional Delay (In Minutes) from Before Period
(Average of 9/16/13-11/08/13 Mon-Fri Only)

Trip Number	Eastbound I-40 Trips					Westbound I-40 Trips				
	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6	Trip 7	Trip 8	Trip 9	Trip 10
Length (In Miles)	30.22	10.28	4.61	2.53	6.61	30.28	10.32	4.43	2.66	6.85
6:00	0.40	0.15	0.18	0.13	0.21	0.46	-0.17	0.29	0.18	0.31
6:05	0.31	0.15	0.25	0.15	0.17	-0.13	-0.03	0.18	0.10	0.13
6:10	0.50	0.10	0.28	0.07	0.01	-0.04	-0.01	0.13	0.03	-0.06
6:15	0.29	-0.10	0.09	-0.09	-0.03	0.25	0.11	0.12	-0.01	-0.04
6:20	-0.23	-0.46	0.26	-0.02	0.13	-0.11	0.17	0.08	0.02	0.01
6:25	0.29	-0.11	0.21	0.11	0.14	-0.13	-0.04	0.20	0.11	0.11
6:30	0.23	-0.05	0.22	0.05	0.11	-0.35	0.02	0.10	0.09	0.14
6:35	0.13	-0.09	0.20	0.05	0.07	-0.76	-0.18	0.10	0.06	0.08
6:40	0.30	-0.07	0.09	0.07	0.13	-1.79	-0.25	0.08	0.02	-0.09
6:45	0.37	-0.08	0.06	0.07	0.15	-2.31	-0.29	0.13	0.02	-0.26
6:50	0.42	0.02	0.14	0.09	0.19	-1.84	-0.23	0.11	-0.01	-0.27
6:55	0.25	-0.19	0.20	0.10	0.19	-1.78	-0.04	0.08	0.08	-0.16
7:00	0.57	0.01	0.16	0.11	0.23	-2.02	-0.04	0.01	0.03	-0.18
7:05	0.16	0.03	0.07	0.13	0.28	-2.07	0.15	-0.05	0.02	-0.21
7:10	-0.48	-0.28	0.13	0.12	0.37	-2.55	0.06	0.02	-0.03	-0.43
7:15	-0.34	-0.27	0.12	0.14	0.36	-3.23	-0.18	-0.08	-0.16	-0.60
7:20	-0.08	-0.31	0.06	0.02	0.06	-5.16	-0.15	-0.32	-0.13	-0.66
7:25	0.11	-0.20	0.13	0.04	-0.01	-7.10	-0.14	-0.77	-0.04	-0.89
7:30	0.42	0.09	0.18	0.03	0.01	-8.28	-0.27	-1.13	-0.07	-1.23
7:35	0.37	0.14	0.21	0.06	0.02	-8.95	-0.41	-1.87	-0.07	-1.34
7:40	0.29	0.05	0.17	0.03	0.10	-9.86	-0.32	-2.04	-0.09	-1.37
7:45	0.02	-0.23	0.11	0.04	0.13	-10.28	-0.41	-2.26	-0.13	-1.23
7:50	-0.18	-0.40	0.10	0.01	0.10	-8.75	-0.64	-3.02	-0.14	-1.17
7:55	-0.09	-0.34	0.08	0.06	0.12	-7.77	-0.89	-2.91	-0.29	-1.19
8:00	-0.13	-0.35	0.03	0.01	0.04	-6.93	-1.27	-2.07	-0.32	-0.96
8:05	-0.10	-0.39	0.09	-0.01	0.02	-6.13	-1.51	-1.88	-0.20	-0.76
8:10	-0.11	-0.25	0.18	-0.01	0.10	-5.11	-1.64	-1.82	-0.16	-0.63
8:15	0.46	0.17	0.21	-0.02	0.06	-4.29	-1.80	-1.55	-0.19	-0.52
8:20	0.74	0.26	0.22	0.05	0.12	-3.87	-1.94	-1.35	-0.13	-0.39
8:25	0.36	-0.01	0.23	0.05	0.06	-3.36	-2.05	-1.21	-0.15	-0.41
8:30	0.03	-0.13	0.26	0.03	0.10	-3.19	-1.83	-1.05	-0.13	-0.28
8:35	-0.54	-0.38	0.25	0.12	0.18	-2.91	-1.72	-0.87	-0.18	-0.38
8:40	-0.45	-0.35	0.19	0.19	0.21	-2.47	-1.44	-0.65	-0.14	-0.31
8:45	0.09	-0.22	0.05	0.12	0.20	-2.16	-1.36	-0.42	-0.11	-0.17
8:50	0.41	-0.12	0.05	0.03	0.02	-2.16	-1.55	-0.46	-0.11	-0.20
8:55	0.30	-0.25	0.13	-0.01	0.05	-1.75	-1.41	-0.48	-0.18	-0.39
9:00	0.15	-0.15	0.15	0.10	0.20	-0.83	-1.14	-0.30	-0.19	-0.25
9:05	-0.09	-0.16	0.27	0.14	0.24	-0.33	-1.04	-0.13	0.00	0.15
9:10	0.07	-0.19	0.20	0.15	0.20	-0.32	-0.98	-0.14	0.09	0.14
9:15	0.19	-0.18	0.08	0.06	0.04	-0.49	-0.60	0.00	0.09	0.09
9:20	0.08	-0.29	0.13	0.06	0.02	0.18	-0.65	0.05	0.04	-0.06
9:25	-0.12	-0.40	0.21	0.13	0.10	-0.36	-0.44	0.01	0.08	0.20
9:30	-0.02	-0.29	0.19	0.09	0.10	-0.83	-0.29	0.11	0.06	0.00

Fortify Travel Times for Afternoon Peak Periods
6/26/2015
Trips 1 through 10

Travel Time (In Minutes)

Trip Number	Eastbound I-40 Trips					Westbound I-40 Trips				
	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6	Trip 7	Trip 8	Trip 9	Trip 10
Length (In Miles)	30.22	10.28	4.61	2.53	6.61	30.28	10.32	4.43	2.66	6.85
16:00	42.57	9.23	4.38	3.01	14.97	27.13	9.12	4.17	2.32	6.01
16:05	42.07	9.04	4.43	3.86	17.66	26.90	9.07	4.15	2.27	5.96
16:10	42.68	9.00	4.36	4.13	17.69	27.19	9.07	4.19	2.40	5.94
16:15	42.95	9.18	4.45	4.47	17.85	27.57	8.98	4.18	2.49	6.22
16:20	42.50	9.17	4.70	4.23	18.08	28.97	8.99	4.16	2.52	6.33
16:25	43.04	9.56	5.55	4.93	18.83	29.82	9.03	4.38	2.49	6.21
16:30	45.13	11.45	5.56	4.61	18.24	29.33	8.88	4.75	2.47	6.15
16:35	46.00	12.72	5.80	4.96	18.64	29.08	9.05	5.07	2.41	6.15
16:40	45.00	15.64	6.08	4.63	18.25	29.23	9.79	4.79	2.38	6.17
16:45	45.04	17.33	6.11	4.50	17.56	29.51	10.74	5.02	2.43	6.22
16:50	44.89	22.00	5.99	5.03	18.34	30.43	10.56	4.99	2.49	6.26
16:55	45.52	24.12	5.38	4.88	18.42	30.49	10.06	5.15	2.45	6.19
17:00	46.20	26.74	4.95	4.40	17.17	32.76	9.71	5.46	2.39	6.01
17:05	61.02	33.00	4.73	2.34	13.66	34.69	9.31	7.30	2.36	5.91
17:10	66.07	41.89	[illegible]							
17:15	59.89	35.22	4.61	2.32	9.54	35.33	9.07	12.09	2.43	6.07
17:20	[illegible]	36.70	4.68	2.29	7.85	35.72	9.22	12.28	2.42	6.16
17:25	62.92	[illegible]								
17:30	[illegible]	35.13	5.04	2.32	6.01	35.72	8.98	12.55	2.45	6.18
17:35	59.67	32.53	7.77	2.28	5.77	36.04	9.01	13.27	2.40	6.17

Additional Delay (In Minutes) from Before Period
(Average of 9/16/13-11/08/13 Mon-Fri Only)

Trip Number	Eastbound I-40 Trips					Westbound I-40 Trips				
	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6	Trip 7	Trip 8	Trip 9	Trip 10
Length (In Miles)	30.22	10.28	4.61	2.53	6.61	30.28	10.32	4.43	2.66	6.85
16:00	15.42	0.27	0.35	0.75	8.73	0.87	0.21	0.26	0.00	0.09
16:05	14.68	0.13	0.46	1.57	11.36	0.64	0.16	0.22	-0.05	0.02
16:10	14.92	0.09	0.39	1.83	11.40	0.95	0.17	0.25	0.09	0.02
16:15	14.83	0.22	0.46	2.10	11.47	1.29	0.07	0.22	0.19	0.32
16:20	14.10	0.14	0.66	1.80	11.53	2.59	0.03	0.20	0.21	0.40
16:25	14.54	0.48	1.44	2.45	12.13	3.39	0.09	0.39	0.18	0.27
16:30	16.54	2.44	1.44	2.08	11.41	2.94	-0.06	0.73	0.15	0.21
16:35	17.24	3.73	1.65	2.41	11.77	2.66	0.09	1.02	0.10	0.25
16:40	15.89	6.61	1.95	2.06	11.35	2.74	0.82	0.76	0.08	0.25
16:45	15.74	8.20	1.97	1.92	10.54	2.90	1.77	0.97	0.11	0.30
16:50	15.45	12.70	1.82	2.38	11.14	3.72	1.60	0.87	0.17	0.32
16:55	15.90	14.69	1.20	2.18	11.04	3.72	1.08	0.94	0.14	0.27
17:00	16.21	17.25	0.81	1.70	9.74	5.94	0.75	1.18	0.07	0.05
17:05	30.55	23.44	0.65	-0.35	6.21	7.70	0.33	3.00	0.04	-0.05
17:10	[illegible]	32.17	0.68	-0.36	6.03	7.27	0.02	4.93	0.01	-0.03
17:15	28.13	25.18	0.53	-0.48	1.83	7.68	0.00	7.75	0.12	0.15
17:20	[illegible]	26.20	0.55	-0.64	-0.14	7.67	0.11	7.70	0.10	0.23
17:25	30.56	25.68	0.54	-0.65	-2.09	7.93	-0.09	6.98	0.11	0.16
17:30	30.20	24.05	0.85	-0.60	-2.28	7.75	-0.20	7.36	0.11	0.22
17:35	27.72	21.42	3.59	-0.57	-2.46	8.26	-0.18	7.89	0.08	0.25

- Trip 2, if began at 5:10 PM, took approximately 42 minutes to complete, which was 32 minutes longer than the baseline
- Trip 1, if began at 5:25 PM, took approximately 63 minutes to complete, which was 31 minutes longer than the baseline
- Baseline calculated based on 8 weeks of weekday, non-holiday data

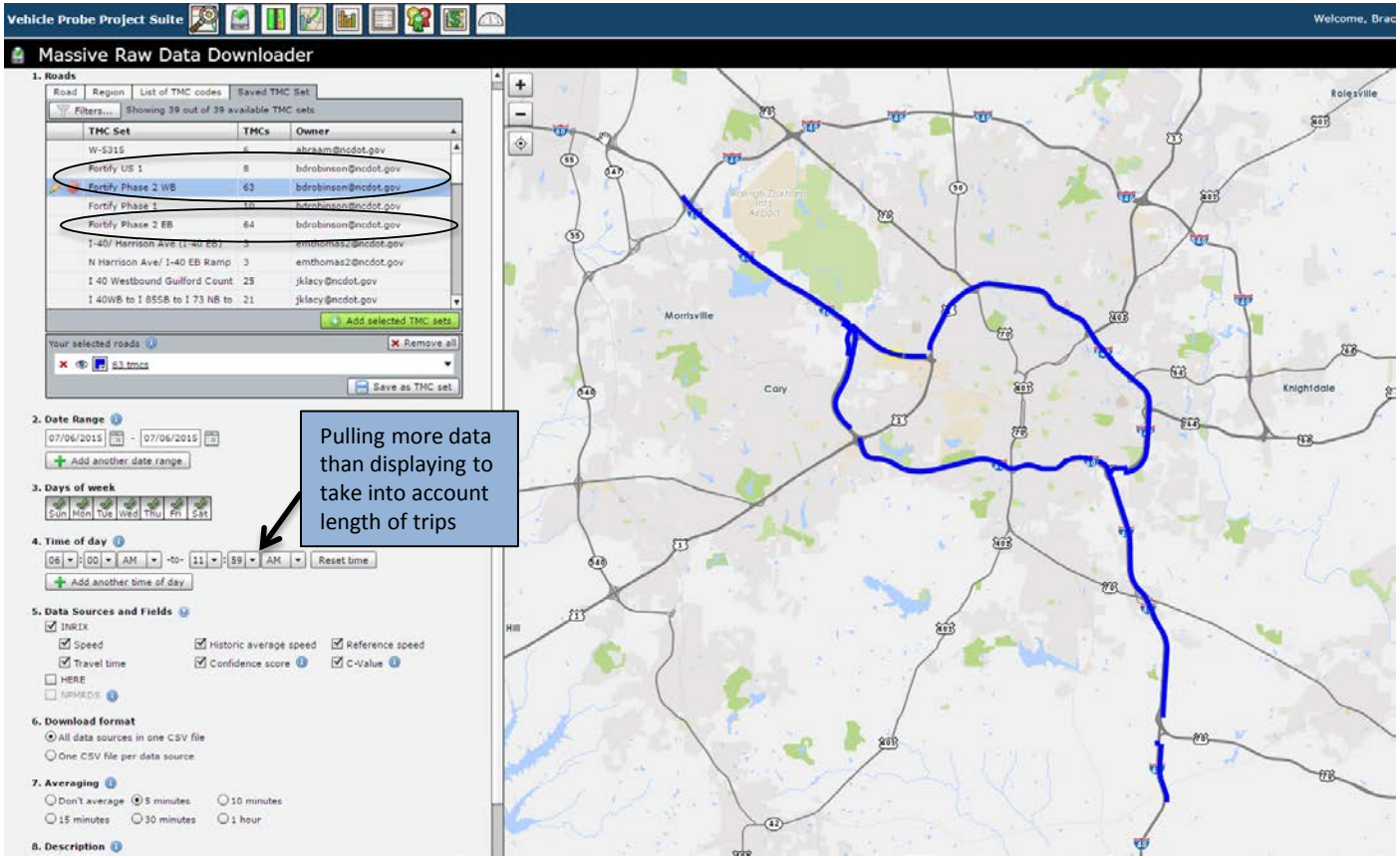
Fortify Travel Times for Afternoon Peak Periods
6/26/2015
Trips 11 through 14

Travel Time (In Minutes)

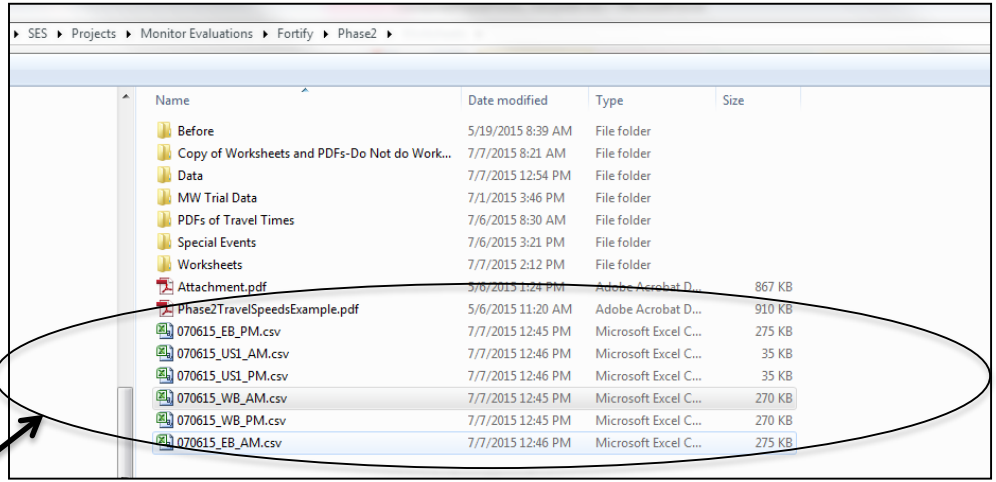
	EB I-440	WB I-440	EB US 1	WB US 1
Trip Number	Trip 11	Trip 12	Trip 13	Trip 14
Length (In Miles)	33.32	33.39	2.12	2.12
16:00	43.66	30.82	1.90	1.87
16:05	43.06	30.10	2.03	1.83
16:10	44.04	30.25	2.00	1.86
16:15	43.53	31.91	1.90	1.96
16:20	42.54	33.72	2.08	2.02
16:25	42.69	37.19	2.04	2.13
16:30	42.06	39.37	2.01	2.13
16:35	45.79	40.82	1.99	2.14
16:40	51.22	40.24	1.99	2.14
16:45	49.98	38.98	2.06	2.15
16:50	49.23	40.05	2.08	2.07
16:55	49.98	39.04	2.23	1.98
17:00	49.40	38.71	2.78	1.95
17:05	49.26	37.26	3.13	1.97
17:10	49.65	36.82	3.53	1.95
17:15	47.74	36.57	4.56	1.93
17:20	47.99	35.63	5.35	1.87
17:25	48.35	33.26	6.89	1.93
17:30	46.14	33.97	9.61	2.02
17:35	45.48	32.96	9.57	1.95
17:40	44.74	32.55	8.42	1.92
17:45	41.69	32.71	8.46	1.95
17:50	39.24	32.42	7.35	1.93
17:55	38.48	31.27	5.26	1.89
18:00	36.80	30.51	4.13	1.83
18:05	36.26	30.22	5.05	1.85
18:10	38.01	30.22	3.67	1.92
18:15	36.41	30.31	2.17	1.95
18:20	34.89	30.63	2.09	1.92
18:25	34.23	31.46	2.01	1.94
18:30	33.72	30.97	2.02	1.91
18:35	33.88	31.15	2.09	1.90
18:40	34.24	30.71	2.08	1.94
18:45	32.44	30.93	2.11	1.96
18:50	31.84	30.70	2.17	1.91
18:55	31.30	30.07	2.14	1.93
19:00	30.63	29.69	2.14	1.94
19:05	30.29	29.76	2.08	1.87
19:10	29.79	29.54	2.03	1.89
19:15	29.81	29.58	1.99	1.95
19:20	29.89	30.04	1.77	1.97
19:25	29.86	29.51	1.84	1.88
19:30	29.50	29.77	1.95	1.87

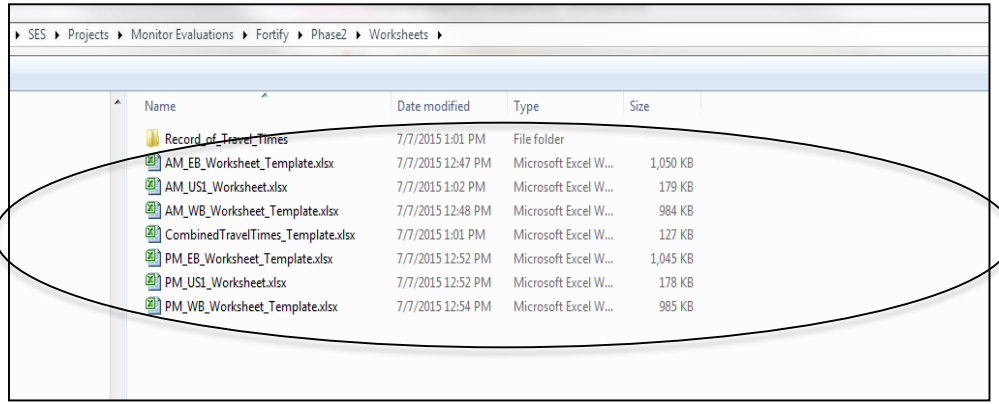
Additional Delay (In Minutes) from Before Period
(Average of 9/16/13-11/08/13 Mon-Fri Only)

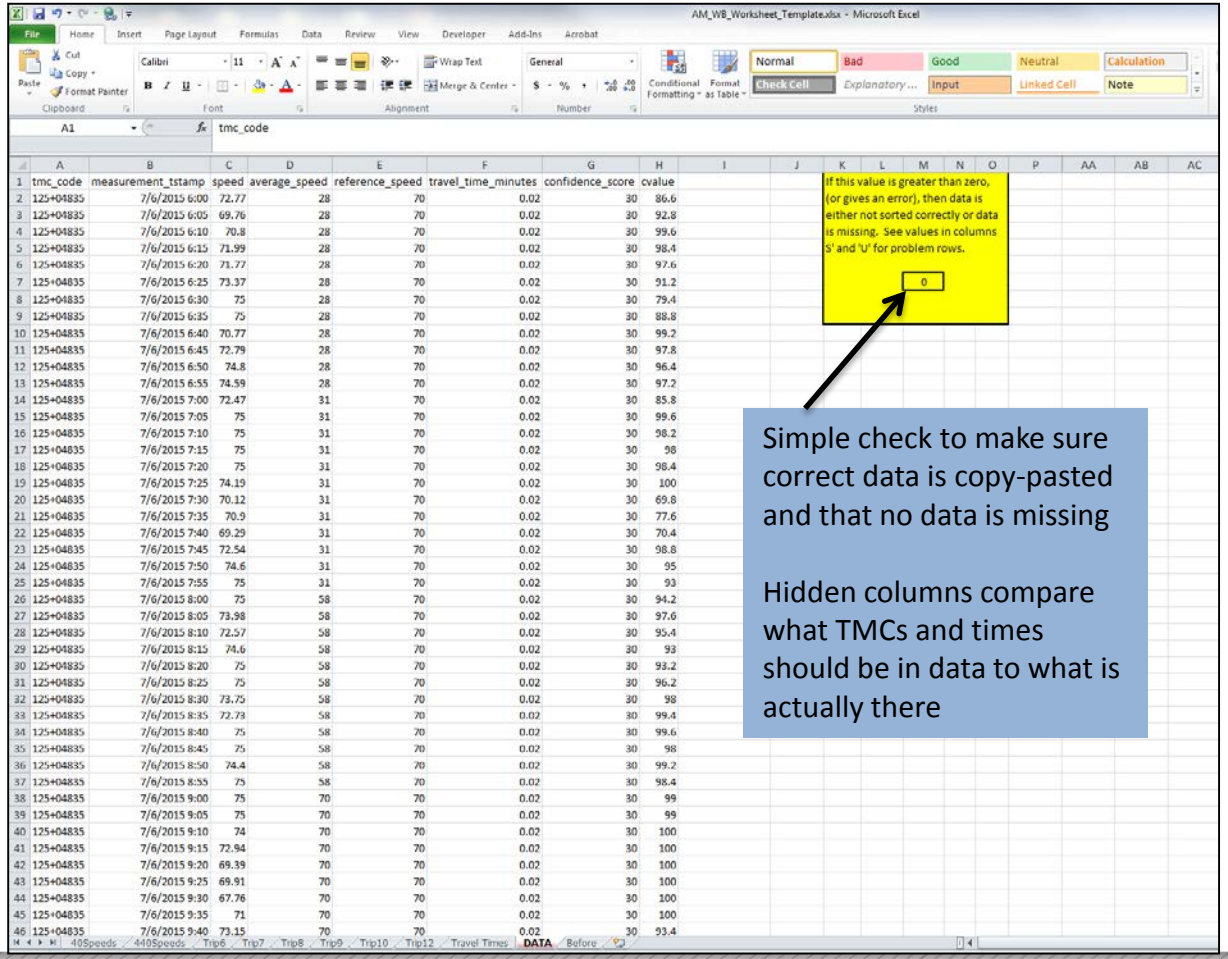
	EB I-440	WB I-440	EB US 1	WB US 1
Trip Number	Trip 11	Trip 12	Trip 13	Trip 14
Length (In Miles)	33.32	33.39	2.12	2.12
16:00	12.65	0.98	-0.06	-0.03
16:05	11.85	0.19	0.06	-0.07
16:10	12.56	0.31	0.05	-0.04
16:15	11.83	1.93	-0.05	0.05
16:20	10.60	3.66	0.10	0.11
16:25	10.58	7.06	0.07	0.22
16:30	9.89	9.17	0.05	0.20
16:35	13.37	10.42	0.04	0.21
16:40	18.59	9.59	0.01	0.22
16:45	17.11	8.01	0.05	0.23
16:50	15.76	8.89	0.05	0.15
16:55	15.89	7.61	0.19	0.06
17:00	14.75	6.76	0.74	0.03
17:05	13.82	4.38	1.10	0.04
17:10	13.16	3.01	1.47	0.01
17:15	10.70	1.86	2.49	0.00
17:20	10.66	0.90	3.27	-0.07
17:25	11.26	-1.26	4.75	-0.03
17:30	9.35	-0.22	7.47	0.06
17:35	8.95	-0.91	7.45	-0.01
17:40	8.56	-0.87	6.32	-0.04
17:45	5.85	-0.33	6.37	-0.01
17:50	3.95	0.15	5.25	-0.04
17:55	3.97	-0.35	3.18	-0.08
18:00	3.06	-0.75	2.10	-0.15
18:05	3.26	-0.83	3.03	-0.14
18:10	5.35	-0.65	1.67	-0.06
18:15	4.11	-0.42	0.15	-0.02
18:20	2.90	0.03	0.07	-0.02
18:25	2.52	0.96	-0.03	0.00
18:30	2.14	0.52	-0.02	-0.05
18:35	2.46	0.75	0.05	-0.06
18:40	3.04	0.31	0.04	0.01
18:45	1.32	0.58	0.09	0.04
18:50	0.87	0.39	0.15	-0.02
18:55	0.48	-0.15	0.12	-0.02
19:00	-0.01	-0.45	0.13	-0.02
19:05	-0.33	-0.39	0.08	-0.09
19:10	-0.82	-0.60	0.04	-0.06
19:15	-0.75	-0.66	0.01	0.00
19:20	-0.71	-0.22	-0.21	0.02
19:25	-0.83	-0.78	-0.15	-0.09
19:30	-1.15	-0.47	-0.05	-0.09


Vehicle Probe Project Suite
Welcome, Brad
Massive Raw Data Downloader
1. Roads
Road
Region
List of TMC codes
Saved TMC Set
Filters...
Showing 39 out of 39 available TMC sets
TMC Set
TMCs
Owner
W-5315 6 abraam@ncdot.gov
Fortify US 1 8 bdrobinson@ncdot.gov
Fortify Phase 2 WB 63 bdrobinson@ncdot.gov
Fortify Phase 1 10 bdrobinson@ncdot.gov
Fortify Phase 2 EB 64 bdrobinson@ncdot.gov
I-40/ Harrison Ave (I-40 EB) 3 emthomas2@ncdot.gov
N Harrison Ave/ I-40 EB Ramp 3 emthomas2@ncdot.gov
I 40 Westbound Guilford Count 25 jklacy@ncdot.gov
I 40WB to I 85SB to I 73 NB to 21 jklacy@ncdot.gov
Add selected TMC sets
Your selected roads
Remove all
63 tmcs
Save as TMC set
2. Date Range
07/06/2015
07/06/2015
Add another date range
3. Days of week
Sun Mon Tue Wed Thu Fri Sat
4. Time of day
06 00 AM -to- 11 59 AM
Reset time
Add another time of day
5. Data Sources and Fields
INRIX
Speed
Travel time
Historic average speed
Confidence score
Reference speed
C-Value
HERE
NPMRDS
6. Download format
All data sources in one CSV file
One CSV file per data source
7. Averaging
Don't average
5 minutes
10 minutes
15 minutes
30 minutes
1 hour
8. Description
Pulling more data than displaying to take into account length of trips
Morrisville
Cary
Knightdale
Raleigh-Durham Int'l Airport

Copy the data from MRDD into corresponding worksheets







tmc_code	measurement_tstamp	speed	average_speed	reference_speed	travel_time_minutes	confidence_score	cvalue
125+04835	7/6/2015 6:00	72.77	28	70	0.02	30	86.6
125+04835	7/6/2015 6:05	69.76	28	70	0.02	30	92.8
125+04835	7/6/2015 6:10	70.8	28	70	0.02	30	99.6
125+04835	7/6/2015 6:15	71.99	28	70	0.02	30	98.4
125+04835	7/6/2015 6:20	71.77	28	70	0.02	30	97.6
125+04835	7/6/2015 6:25	73.37	28	70	0.02	30	91.2
125+04835	7/6/2015 6:30	75	28	70	0.02	30	79.4
125+04835	7/6/2015 6:35	75	28	70	0.02	30	88.8
125+04835	7/6/2015 6:40	70.77	28	70	0.02	30	99.2
125+04835	7/6/2015 6:45	72.79	28	70	0.02	30	97.8
125+04835	7/6/2015 6:50	74.8	28	70	0.02	30	96.4
125+04835	7/6/2015 6:55	74.59	28	70	0.02	30	97.2
125+04835	7/6/2015 7:00	72.47	31	70	0.02	30	85.8
125+04835	7/6/2015 7:05	75	31	70	0.02	30	99.6
125+04835	7/6/2015 7:10	75	31	70	0.02	30	98.2
125+04835	7/6/2015 7:15	75	31	70	0.02	30	98
125+04835	7/6/2015 7:20	75	31	70	0.02	30	98.4
125+04835	7/6/2015 7:25	74.19	31	70	0.02	30	100
125+04835	7/6/2015 7:30	70.12	31	70	0.02	30	69.8
125+04835	7/6/2015 7:35	70.9	31	70	0.02	30	77.6
125+04835	7/6/2015 7:40	69.29	31	70	0.02	30	70.4
125+04835	7/6/2015 7:45	72.54	31	70	0.02	30	98.8
125+04835	7/6/2015 7:50	74.6	31	70	0.02	30	95
125+04835	7/6/2015 7:55	75	31	70	0.02	30	93
125+04835	7/6/2015 8:00	75	58	70	0.02	30	94.2
125+04835	7/6/2015 8:05	73.98	58	70	0.02	30	97.6
125+04835	7/6/2015 8:10	72.57	58	70	0.02	30	95.4
125+04835	7/6/2015 8:15	74.6	58	70	0.02	30	93
125+04835	7/6/2015 8:20	75	58	70	0.02	30	93.2
125+04835	7/6/2015 8:25	75	58	70	0.02	30	96.2
125+04835	7/6/2015 8:30	73.75	58	70	0.02	30	98
125+04835	7/6/2015 8:35	72.73	58	70	0.02	30	99.4
125+04835	7/6/2015 8:40	75	58	70	0.02	30	99.6
125+04835	7/6/2015 8:45	75	58	70	0.02	30	98
125+04835	7/6/2015 8:50	74.4	58	70	0.02	30	99.2
125+04835	7/6/2015 8:55	75	58	70	0.02	30	98.4
125+04835	7/6/2015 9:00	75	70	70	0.02	30	99
125+04835	7/6/2015 9:05	75	70	70	0.02	30	99
125+04835	7/6/2015 9:10	74	70	70	0.02	30	100
125+04835	7/6/2015 9:15	72.94	70	70	0.02	30	100
125+04835	7/6/2015 9:20	69.39	70	70	0.02	30	100
125+04835	7/6/2015 9:25	69.91	70	70	0.02	30	100
125+04835	7/6/2015 9:30	67.76	70	70	0.02	30	100
125+04835	7/6/2015 9:35	71	70	70	0.02	30	100
125+04835	7/6/2015 9:40	73.15	70	70	0.02	30	93.4

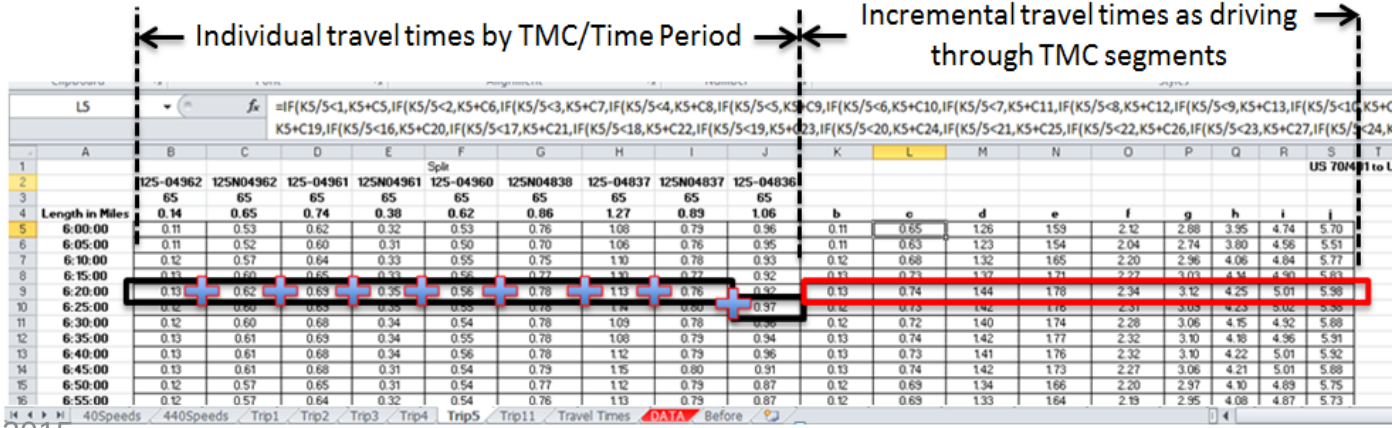
TMCs in order from west to east for entire eastbound I-40 (Trip 1)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1										Wade Ave						US 1 Ramp	
2	Row Labels	125N04863	125-04862	125N04862	125-04861	125N04861	125-04860	125N04860	125-04859	125N04859	125-04858	125N04858	125-04857	125N04857	125-04856	125N04856	125-04
3	Speed Limit	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
4	Length in Miles	0.73	0.59	0.71	0.53	0.70	1.69	0.62	0.90	1.19	0.74	0.56	0.30	0.68	0.36	1.11	1.45
5	16:00:00	67	68	68	66	66	65	67	68	67	49	30	26	24	16	21	27
6	16:05:00	63	70	70	67	64	65	67	68	66	49	29	25	22	19	32	46
7	16:10:00	65	68	68	66	65	65	67	68	62	30	26	25	23	18	38	57
8	16:15:00	65	69	70	66	64	65	66	66	61	25	19	17	17	17	38	58
9	16:20:00	64	69	68	66	64	65	67	66	38	21	19	19	20	22	39	57
10	16:25:00	64	66	67	65	63	58	64	66	26	19	19	19	20	17	38	59
11	16:30:00	65	64	65	64	45	44	63	65	25	17	20	23	29	31	46	60
12	16:35:00	64	65	66	62	37	43	62	62	29	18	20	23	28	33	47	62
13	16:40:00	67	66	65	46	36	48	61	61	26	18	19	21	23	28	44	59
14	16:45:00	64	66	52	38	36	56	64	59	24	18	19	22	24	31	44	58
15	16:50:00	62	62	40	36	35	50	63	57	25	27	34	42	41	42	47	51
16	16:55:00	61	59	38	33	33	43	62	62	26	36	44	56	56	52	50	48
17	17:00:00	62	57	33	28	29	43	63	65	43	47	50	56	57	53	51	49
18	17:05:00	62	48	27	26	35	57	64	66	68	67	65	63	61	57	53	49
19	17:10:00	54	34	26	30	40	58	65	66	68	67	65	63	63	58	51	45
20	17:15:00	43	26	25	31	49	60	64	67	66	64	63	62	65	64	53	43
21	17:20:00	45	34	26	33	49	61	65	70	68	65	63	61	63	61	51	42
22	17:25:00	46	28	26	35	52	59	64	68	71	71	67	63	62	58	52	45
23	17:30:00	49	26	26	34	45	52	62	66	70	71	67	66	66	62	54	45
24	17:35:00	55	29	22	25	36	50	63	66	68	68	67	68	70	68	58	47
25	17:40:00	60	28	17	22	32	52	64	66	68	70	70	69	72	72	57	42
26	17:45:00	61	28	12	20	39	60	67	70	69	70	70	69	71	71	57	43
27	17:50:00	46	16	16	30	54	61	66	69	70	67	68	67	69	71	57	42
28	17:55:00	48	28	24	34	47	61	65	67	69	67	68	69	71	71	57	44
29	18:00:00	64	47	25	34	48	62	66	68	68	67	66	66	67	65	60	55
30	18:05:00	66	53	30	39	61	64	67	70	69	69	68	68	68	65	61	57
31	18:10:00	70	73	72	72	69	64	66	70	70	71	67	66	66	64	61	59
32	18:15:00	72	72	72	74	71	70	72	74	72	72	71	70	71	71	60	50

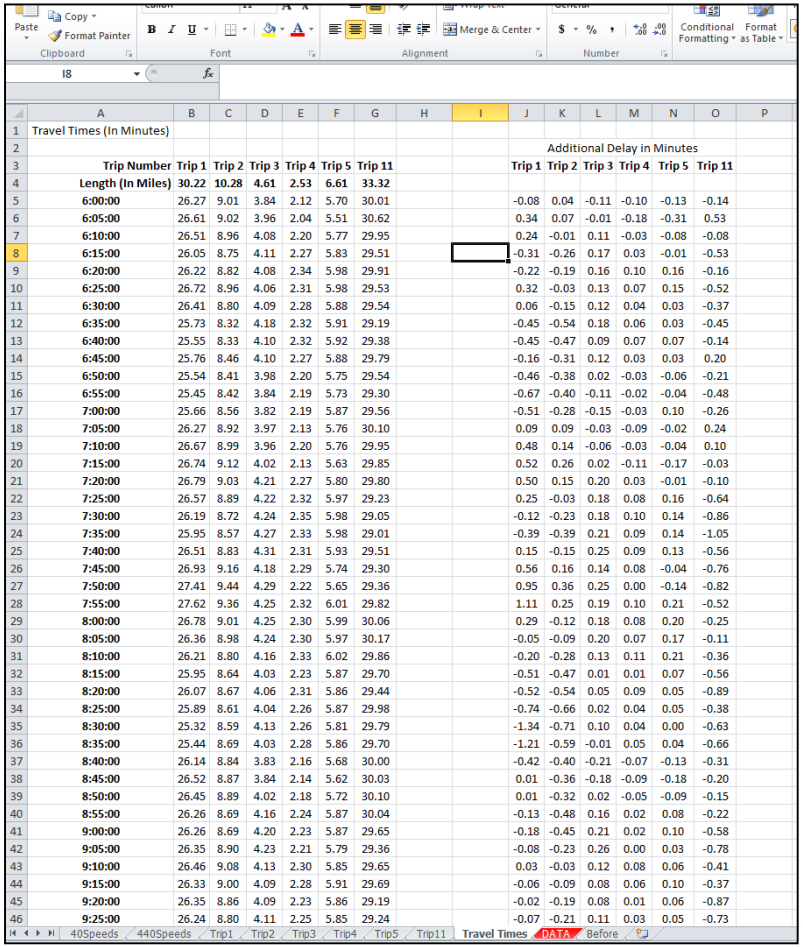
40Speeds | 440Speeds | Trip1 | Trip2 | Trip3 | Trip4 | Trip5 | Trip11 | Travel Times | DATA | Before

- Speed data is displayed in a table that is easier to read and is automatically color-coded to see problem areas/times
- Average speeds are pulled from data tab by indexing and matching TMCs and time period.

- On the “Trip” worksheets, travel times are calculated for each starting time period by adding up the individual TMC segment travel times in order
- A formula is used to take into account the fact that many of the trips take well over 5 minutes.
- For example, once the trip that began at 6:20 reaches over 5 minutes, the 6:25 travel time as added for the next TMC



- All total trip travel times on worksheet are pulled into “Travel Times” tab
- Compared to previously calculated baseline travel time to get delay



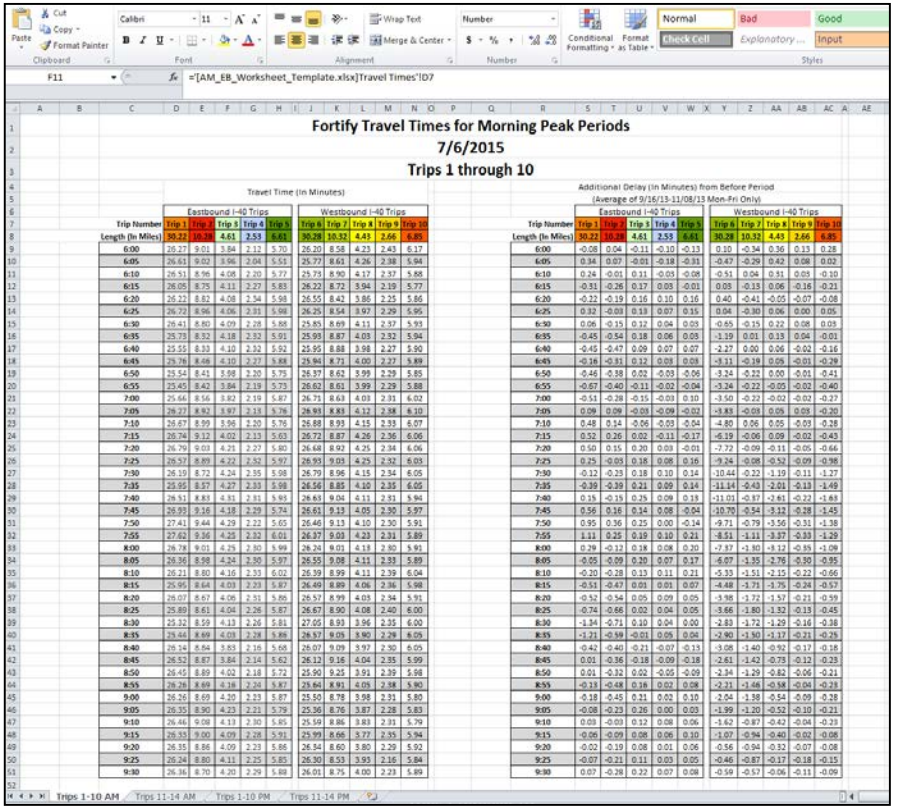
Travel Times (In Minutes)

Trip Number	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 11
Length (In Miles)	30.22	10.28	4.61	2.53	6.61	33.32
6:00:00	26.27	9.01	3.84	2.12	5.70	30.01
6:05:00	26.61	9.02	3.96	2.04	5.51	30.62
6:10:00	26.51	8.96	4.08	2.20	5.77	29.95
6:15:00	26.05	8.75	4.11	2.27	5.83	29.51
6:20:00	26.22	8.82	4.08	2.34	5.98	29.91
6:25:00	26.72	8.96	4.06	2.31	5.98	29.53
6:30:00	26.41	8.80	4.09	2.28	5.88	29.54
6:35:00	25.73	8.32	4.18	2.32	5.91	29.19
6:40:00	25.55	8.33	4.10	2.32	5.92	29.38
6:45:00	25.76	8.46	4.10	2.27	5.88	29.79
6:50:00	25.54	8.41	3.98	2.20	5.75	29.54
6:55:00	25.45	8.42	3.84	2.19	5.73	29.30
7:00:00	25.66	8.56	3.82	2.19	5.87	29.56
7:05:00	26.27	8.92	3.97	2.13	5.76	30.10
7:10:00	26.67	8.99	3.96	2.20	5.76	29.95
7:15:00	26.74	9.12	4.02	2.13	5.63	29.85
7:20:00	26.79	9.03	4.21	2.27	5.80	29.80
7:25:00	26.57	8.89	4.22	2.32	5.97	29.23
7:30:00	26.19	8.72	4.24	2.35	5.98	29.05
7:35:00	25.95	8.57	4.27	2.33	5.98	29.01
7:40:00	26.51	8.83	4.31	2.31	5.93	29.51
7:45:00	26.93	9.16	4.18	2.29	5.74	29.30
7:50:00	27.41	9.44	4.29	2.22	5.65	29.36
7:55:00	27.62	9.36	4.25	2.32	6.01	29.82
8:00:00	26.78	9.01	4.25	2.30	5.99	30.06
8:05:00	26.36	8.98	4.24	2.30	5.97	30.17
8:10:00	26.21	8.80	4.16	2.33	6.02	29.86
8:15:00	25.95	8.64	4.03	2.23	5.87	29.70
8:20:00	26.07	8.67	4.06	2.31	5.86	29.44
8:25:00	25.89	8.61	4.04	2.26	5.87	29.98
8:30:00	25.32	8.59	4.13	2.26	5.81	29.79
8:35:00	25.44	8.69	4.03	2.28	5.86	29.70
8:40:00	26.14	8.84	3.83	2.16	5.68	30.00
8:45:00	26.52	8.87	3.84	2.14	5.62	30.03
8:50:00	26.45	8.89	4.02	2.18	5.72	30.10
8:55:00	26.26	8.69	4.16	2.24	5.87	30.04
9:00:00	26.26	8.69	4.20	2.23	5.87	29.65
9:05:00	26.35	8.90	4.23	2.21	5.79	29.36
9:10:00	26.46	9.08	4.13	2.30	5.85	29.65
9:15:00	26.33	9.00	4.09	2.28	5.91	29.69
9:20:00	26.35	8.86	4.09	2.23	5.86	29.19
9:25:00	26.24	8.80	4.11	2.25	5.85	29.24

Additional Delay in Minutes

Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 11
-0.08	0.04	-0.11	-0.10	-0.13	-0.14
0.34	0.07	-0.01	-0.18	-0.31	0.53
0.24	-0.01	0.11	-0.03	-0.08	-0.08
-0.31	-0.26	0.17	0.03	-0.01	-0.53
-0.22	-0.19	0.16	0.10	0.16	-0.16
0.32	-0.03	0.13	0.07	0.15	-0.52
0.06	-0.15	0.12	0.04	0.03	-0.37
-0.45	-0.54	0.18	0.06	0.03	-0.45
-0.45	-0.47	0.09	0.07	0.07	-0.14
-0.16	-0.31	0.12	0.03	0.03	0.20
-0.46	-0.38	0.02	-0.03	-0.06	-0.21
-0.67	-0.40	-0.11	-0.02	-0.04	-0.48
-0.51	-0.28	-0.15	-0.03	0.10	-0.26
0.09	0.09	-0.03	-0.09	-0.02	0.24
0.48	0.14	-0.06	-0.03	-0.04	0.10
0.52	0.26	0.02	-0.11	-0.17	-0.03
0.50	0.15	0.20	0.03	-0.01	-0.10
0.25	-0.03	0.18	0.08	0.16	-0.64
-0.12	-0.23	0.18	0.10	0.14	-0.86
-0.39	-0.39	0.21	0.09	0.14	-1.05
0.15	-0.15	0.25	0.09	0.13	-0.56
0.56	0.16	0.14	0.08	-0.04	-0.76
0.95	0.36	0.25	0.00	-0.14	-0.82
1.11	0.25	0.19	0.10	0.21	-0.52
0.29	-0.12	0.18	0.08	0.20	-0.25
-0.05	-0.09	0.20	0.07	0.17	-0.11
-0.20	-0.28	0.13	0.11	0.21	-0.36
-0.51	-0.47	0.01	0.01	0.07	-0.56
-0.52	-0.54	0.05	0.09	0.05	-0.89
-0.74	-0.66	0.02	0.04	0.05	-0.38
-1.34	-0.71	0.10	0.04	0.00	-0.63
-1.21	-0.59	-0.01	0.05	0.04	-0.66
-0.42	-0.40	-0.21	-0.07	-0.13	-0.31
0.01	-0.36	-0.18	-0.09	-0.18	-0.20
0.01	-0.32	0.02	-0.05	-0.09	-0.15
-0.13	-0.48	0.16	0.02	0.08	-0.22
-0.18	-0.45	0.21	0.02	0.10	-0.58
-0.08	-0.23	0.26	0.00	0.03	-0.78
0.03	-0.03	0.12	0.08	0.06	-0.41
-0.06	-0.09	0.08	0.06	0.10	-0.37
-0.02	-0.19	0.08	0.01	0.06	-0.87
-0.07	-0.21	0.11	0.03	0.05	-0.73

- Travel times and delays from all six worksheets are pulled into final worksheet
- Tabs are converted to pdfs, combined, and then sent out



Fortify Travel Times for Morning Peak Periods
7/6/2015
Trips 1 through 10

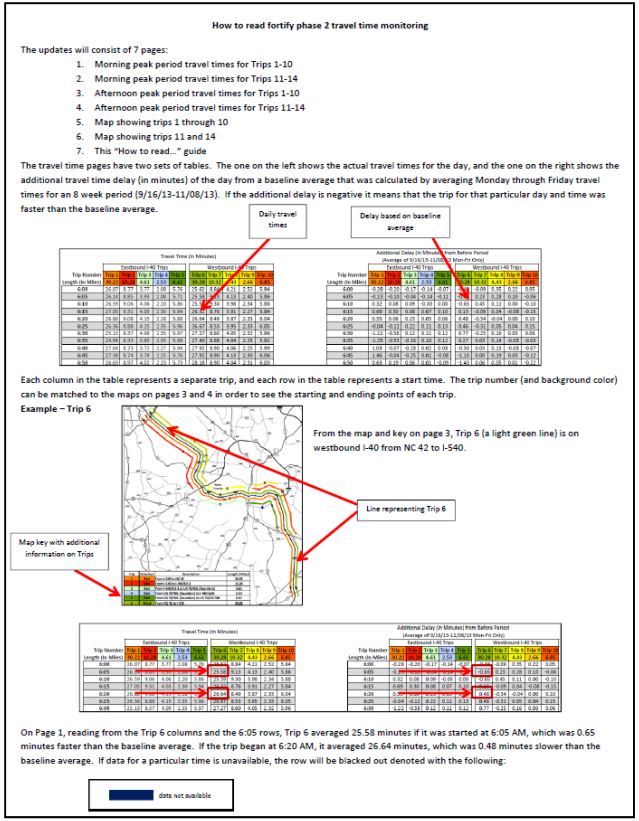
Travel Time (In Minutes)

Trip Number	Eastbound I-40 Trips					Westbound I-40 Trips				
Length (In Miles)	Trip 1 30.22	Trip 2 30.28	Trip 3 4.61	Trip 4 2.53	Trip 5 6.81	Trip 6 30.28	Trip 7 10.92	Trip 8 4.41	Trip 9 2.66	Trip 10 6.85
6:00	26.27	9.01	3.84	2.12	5.70	26.20	8.58	4.23	2.43	6.17
6:05	26.61	9.02	3.96	2.04	5.53	25.77	8.61	4.26	2.38	5.94
6:10	26.51	8.96	4.06	2.20	5.77	25.75	8.90	4.17	2.37	5.88
6:15	26.05	8.75	4.11	2.27	5.83	26.22	8.72	3.94	2.19	5.77
6:20	26.22	8.82	4.08	2.34	5.98	26.55	8.42	3.86	2.25	5.86
6:25	26.72	8.96	4.06	2.31	5.98	26.25	8.54	3.97	2.29	5.95
6:30	26.41	8.80	4.09	2.28	5.88	25.85	8.69	4.11	2.37	5.93
6:35	25.75	8.52	4.18	2.32	5.91	25.95	8.87	4.03	2.32	5.94
6:40	25.55	8.33	4.10	2.32	5.92	25.95	8.88	3.98	2.27	5.90
6:45	25.76	8.68	4.10	2.27	5.88	25.96	8.73	4.00	2.27	5.89
6:50	25.54	8.41	3.98	2.20	5.75	26.37	8.62	3.99	2.29	5.85
6:55	25.45	8.42	3.84	2.19	5.73	26.62	8.61	3.99	2.29	5.88
7:00	25.66	8.56	3.82	2.19	5.87	26.71	8.63	4.03	2.31	6.02
7:05	26.27	8.92	3.97	2.13	5.76	26.93	8.83	4.12	2.38	6.10
7:10	26.67	8.99	3.96	2.20	5.76	26.88	8.93	4.15	2.33	6.07
7:15	26.74	9.12	4.02	2.13	5.63	26.72	8.87	4.26	2.36	6.06
7:20	26.79	9.03	4.21	2.27	5.80	26.68	8.92	4.25	2.34	6.06
7:25	26.57	8.89	4.22	2.32	5.92	26.93	9.03	4.25	2.32	6.03
7:30	26.19	8.72	4.24	2.35	5.98	26.79	8.96	4.15	2.34	6.05
7:35	25.95	8.57	4.27	2.33	5.98	26.56	8.85	4.10	2.35	6.05
7:40	26.51	8.83	4.31	2.31	5.95	26.63	9.04	4.11	2.31	5.94
7:45	26.93	9.16	4.18	2.29	5.74	26.61	9.13	4.05	2.30	5.97
7:50	27.41	9.44	4.29	2.22	5.65	26.46	9.13	4.10	2.30	5.91
7:55	27.62	9.36	4.25	2.32	6.01	26.37	9.03	4.23	2.31	5.89
8:00	26.78	9.01	4.25	2.30	5.99	26.24	9.01	4.18	2.30	5.91
8:05	26.36	8.98	4.24	2.30	5.97	26.55	9.08	4.11	2.33	5.89
8:10	26.21	8.80	4.16	2.33	6.02	26.39	8.99	4.11	2.39	6.04
8:15	25.96	8.64	4.03	2.33	5.87	26.49	8.89	4.06	2.36	5.98
8:20	26.07	8.67	4.06	2.31	5.86	26.57	8.99	4.05	2.34	5.91
8:25	25.89	8.61	4.04	2.26	5.87	26.67	8.90	4.08	2.40	6.00
8:30	25.32	8.59	4.13	2.26	5.81	27.05	8.93	3.96	2.35	6.00
8:35	25.44	8.69	4.03	2.28	5.86	26.57	9.05	3.90	2.29	6.05
8:40	25.14	8.64	3.83	2.16	5.68	26.07	9.09	3.97	2.30	6.05
8:45	26.52	8.87	3.84	2.14	5.62	26.12	9.16	4.04	2.35	5.99
8:50	26.45	8.89	4.02	2.18	5.72	25.90	9.25	3.91	2.39	5.98
8:55	26.26	8.69	4.16	2.26	5.87	25.86	8.91	4.05	2.38	5.90
9:00	26.26	8.69	4.20	2.23	5.87	25.50	8.78	3.98	2.31	5.80
9:05	26.35	8.90	4.23	2.21	5.79	25.36	8.76	3.87	2.28	5.83
9:10	26.46	9.08	4.13	2.30	5.85	25.59	8.86	3.83	2.31	5.79
9:15	26.33	9.00	4.09	2.28	5.91	25.99	8.66	3.77	2.35	5.94
9:20	26.35	8.86	4.09	2.23	5.86	26.34	8.60	3.80	2.29	5.92
9:25	26.24	8.80	4.11	2.25	5.85	26.30	8.53	3.93	2.16	5.84
9:30	26.36	8.70	4.20	2.29	5.88	26.01	8.75	4.00	2.23	5.89

Additional Delay (In Minutes) from Before Period
(Average of 9/16/13-11/08/13 Mon-Fri Only)

Trip Number	Eastbound I-40 Trips					Westbound I-40 Trips				
Length (In Miles)	Trip 1 30.22	Trip 2 30.28	Trip 3 4.61	Trip 4 2.53	Trip 5 6.81	Trip 6 30.28	Trip 7 10.92	Trip 8 4.41	Trip 9 2.66	Trip 10 6.85
6:00	-0.08	0.04	-0.11	-0.10	-0.13	0.10	-0.34	0.36	0.15	0.28
6:05	0.34	0.07	-0.01	-0.18	-0.31	-0.47	-0.29	0.42	0.08	0.02
6:10	0.24	-0.01	0.11	-0.05	-0.08	-0.51	0.04	0.31	0.03	-0.10
6:15	-0.31	-0.26	0.17	0.03	-0.01	0.03	-0.13	0.06	-0.16	-0.21
6:20	-0.22	-0.19	0.16	0.10	0.16	0.40	-0.41	-0.05	-0.07	-0.08
6:25	0.32	-0.03	0.13	0.07	0.15	0.04	-0.30	0.06	0.00	0.05
6:30	0.06	-0.15	0.12	0.04	0.03	-0.65	-0.15	0.22	0.08	0.03
6:35	-0.45	-0.54	0.18	0.06	0.05	-1.19	0.01	0.13	0.04	-0.01
6:40	-0.45	-0.47	0.09	0.07	0.07	-2.27	0.00	0.06	-0.02	-0.16
6:45	-0.18	-0.31	0.12	0.03	0.03	-3.11	-0.19	0.05	-0.01	-0.29
6:50	-0.46	-0.38	0.02	-0.03	-0.06	-3.24	-0.22	0.00	-0.01	-0.41
6:55	-0.67	-0.40	-0.11	-0.02	-0.04	-3.24	-0.22	-0.05	-0.02	-0.40
7:00	-0.53	-0.28	-0.15	-0.03	0.10	-3.50	-0.22	-0.02	-0.02	-0.27
7:05	0.09	0.09	-0.03	-0.09	-0.02	-3.83	-0.03	0.05	0.03	-0.20
7:10	0.48	0.14	-0.06	-0.03	-0.04	-4.80	0.06	0.05	-0.03	-0.28
7:15	0.52	0.26	0.02	-0.11	-0.17	-5.19	-0.06	0.09	-0.02	-0.43
7:20	0.50	0.15	0.20	0.03	-0.01	-7.72	-0.09	-0.11	-0.05	-0.66
7:25	0.25	-0.03	0.16	0.08	0.16	-9.24	-0.08	-0.52	-0.09	-0.98
7:30	-0.12	-0.25	0.18	0.10	0.14	-10.44	-0.22	-1.19	-0.11	-1.27
7:35	-0.39	-0.39	0.21	0.09	0.14	-11.14	-0.43	-2.01	-0.13	-1.49
7:40	0.15	-0.15	0.25	0.09	0.13	-11.01	-0.37	-2.61	-0.22	-1.68
7:45	0.56	0.16	0.14	0.08	-0.04	-10.70	-0.54	-3.12	-0.28	-1.45
7:50	0.95	0.36	0.25	0.00	-0.14	-9.71	-0.79	-3.56	-0.31	-1.38
7:55	1.11	0.25	0.19	0.10	0.21	-8.51	-1.11	-3.37	-0.33	-1.29
8:00	0.29	-0.12	0.18	0.08	0.20	-7.37	-1.10	-3.12	-0.35	-1.09
8:05	-0.05	-0.09	0.20	0.07	0.17	-6.07	-1.35	-2.76	-0.30	-0.95
8:10	-0.20	-0.28	0.13	0.11	0.21	-5.33	-1.51	-2.15	-0.22	-0.66
8:15	-0.51	-0.47	0.01	0.01	0.07	-4.48	-1.71	-1.75	-0.24	-0.57
8:20	-0.52	-0.54	0.05	0.09	0.05	-3.98	-1.72	-1.57	-0.21	-0.59
8:25	-0.74	-0.66	0.02	0.04	0.05	-3.66	-1.80	-1.32	-0.13	-0.45
8:30	-1.34	-0.71	0.10	0.04	0.00	-2.83	-1.72	-1.29	-0.16	-0.38
8:35	-1.21	-0.59	-0.01	0.05	0.04	-2.90	-1.50	-1.17	-0.21	-0.25
8:40	-0.42	-0.40	-0.21	-0.07	-0.13	-3.08	-1.40	-0.92	-0.17	-0.18
8:45	0.01	-0.36	-0.18	-0.09	-0.18	-2.61	-1.42	-0.73	-0.12	-0.23
8:50	0.01	-0.32	0.02	-0.05	-0.09	-2.34	-1.29	-0.82	-0.06	-0.21
8:55	-0.13	-0.48	0.16	0.02	0.08	-2.21	-1.46	-0.58	-0.04	-0.23
9:00	-0.18	-0.45	0.21	0.02	0.10	-2.04	-1.38	-0.54	-0.09	-0.28
9:05	-0.08	-0.23	0.26	0.00	0.03	-1.99	-1.20	-0.52	-0.10	-0.21
9:10	0.03	-0.03	0.12	0.08	0.06	-1.62	-0.87	-0.42	-0.04	-0.23
9:15	-0.06	-0.09	0.08	0.06	0.10	-1.07	-0.94	-0.40	-0.02	-0.08
9:20	-0.02	-0.19	0.08	0.01	0.06	-0.56	-0.94	-0.32	-0.07	-0.08
9:25	-0.07	-0.21	0.11	0.03	0.05	-0.46	-0.87	-0.17	-0.18	-0.15
9:30	0.07	-0.28	0.22	0.07	0.08	-0.59	-0.57	-0.06	-0.11	-0.09

Questions?



How to read fortify phase 2 travel time monitoring

The updates will consist of 7 pages:

1. Morning peak period travel times for Trips 1-10
2. Morning peak period travel times for Trips 11-14
3. Afternoon peak period travel times for Trips 1-10
4. Afternoon peak period travel times for Trips 11-14
5. Map showing trips 1 through 10
6. Map showing trips 11 and 14
7. This "How to read…" guide

The travel time pages have two sets of tables. The one on the left shows the actual travel times for the day, and the one on the right shows the additional travel time delay (in minutes) of the day from a baseline average that was calculated by averaging Monday through Friday travel times for an 8 week period (9/16/13-11/08/13). If the additional delay is negative it means that the trip for that particular day and time was faster than the baseline average.

Daily travel times

Delay based on baseline average

Each column in the table represents a separate trip, and each row in the table represents a start time. The trip number (and background color) can be matched to the maps on pages 3 and 4 in order to see the starting and ending points of each trip.

Example – Trip 6

From the map and key on page 3, Trip 6 (a light green line) is on westbound I-40 from NC 42 to I-540.

Line representing Trip 6

Map key with additional information on Trips

On Page 1, reading from the Trip 6 columns and the 6:05 rows, Trip 6 averaged 25.58 minutes if it was started at 6:05 AM, which was 0.65 minutes faster than the baseline average. If the trip began at 6:20 AM, it averaged 26.64 minutes, which was 0.48 minutes slower than the baseline average. If data for a particular time is unavailable, the row will be blacked out denoted with the following:

data not available

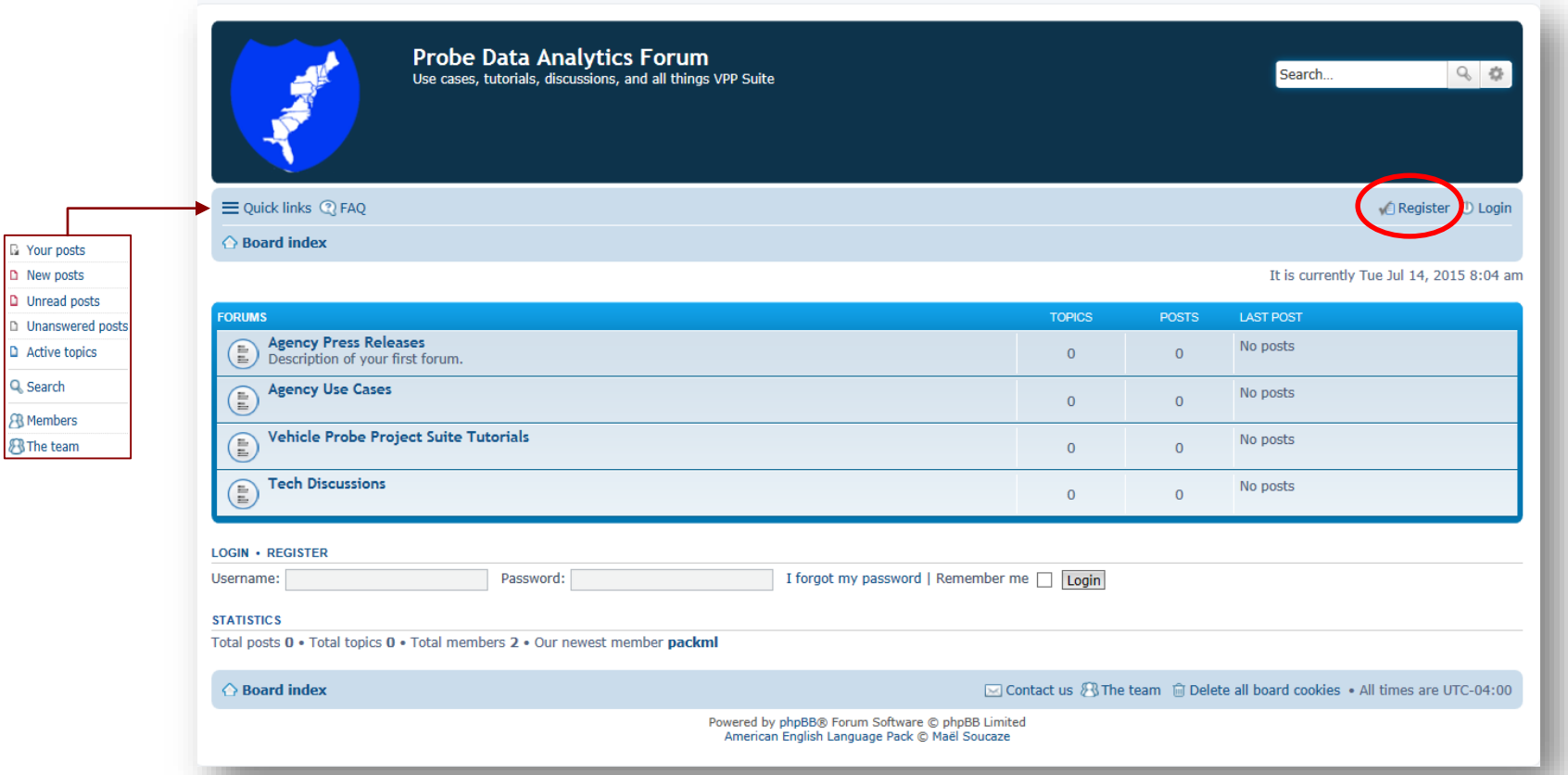
User Group Forum
On Coalition website

John Allen
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

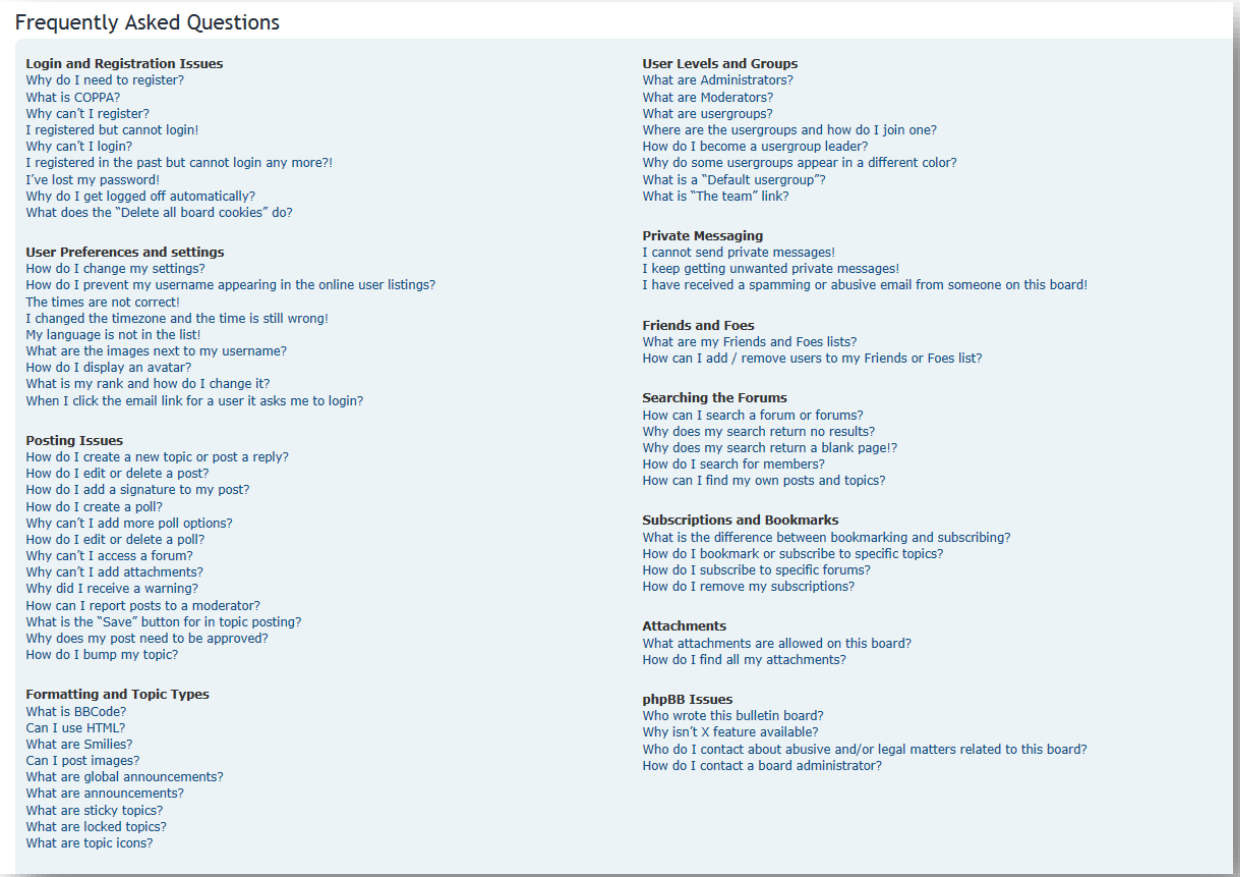
Probe Data Analytics Forum on the Coalition's Website



How to use it…

- Register
- Set your preferences
- Post stuff or reply to other people’s posts
- Receive emails when people update the forum

User Group Forum - *FAQs*



Frequently Asked Questions

Login and Registration Issues
Why do I need to register?
What is COPPA?
Why can't I register?
I registered but cannot login!
Why can't I login?
I registered in the past but cannot login any more?!
I've lost my password!
Why do I get logged off automatically?
What does the "Delete all board cookies" do?

User Preferences and settings
How do I change my settings?
How do I prevent my username appearing in the online user listings?
The times are not correct!
I changed the timezone and the time is still wrong!
My language is not in the list!
What are the images next to my username?
How do I display an avatar?
What is my rank and how do I change it?
When I click the email link for a user it asks me to login?

Posting Issues
How do I create a new topic or post a reply?
How do I edit or delete a post?
How do I add a signature to my post?
How do I create a poll?
Why can't I add more poll options?
How do I edit or delete a poll?
Why can't I access a forum?
Why can't I add attachments?
Why did I receive a warning?
How can I report posts to a moderator?
What is the "Save" button for in topic posting?
Why does my post need to be approved?
How do I bump my topic?

Formatting and Topic Types
What is BBCode?
Can I use HTML?
What are Smilies?
Can I post images?
What are global announcements?
What are announcements?
What are sticky topics?
What are locked topics?
What are topic icons?

User Levels and Groups
What are Administrators?
What are Moderators?
What are usergroups?
Where are the usergroups and how do I join one?
How do I become a usergroup leader?
Why do some usergroups appear in a different color?
What is a "Default usergroup"?
What is "The team" link?

Private Messaging
I cannot send private messages!
I keep getting unwanted private messages!
I have received a spamming or abusive email from someone on this board!

Friends and Foes
What are my Friends and Foes lists?
How can I add / remove users to my Friends or Foes list?

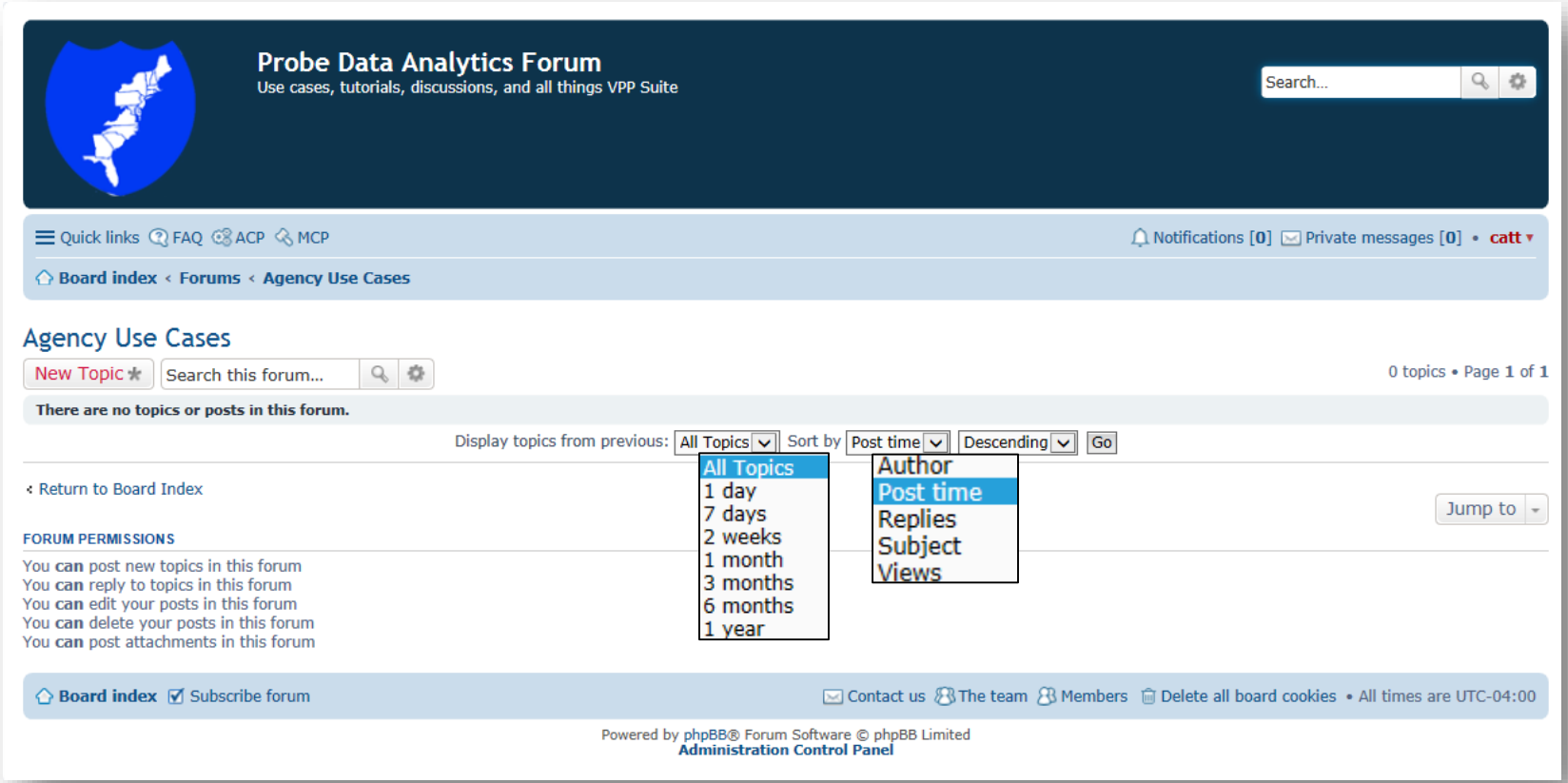
Searching the Forums
How can I search a forum or forums?
Why does my search return no results?
Why does my search return a blank page!?
How do I search for members?
How can I find my own posts and topics?

Subscriptions and Bookmarks
What is the difference between bookmarking and subscribing?
How do I bookmark or subscribe to specific topics?
How do I subscribe to specific forums?
How do I remove my subscriptions?

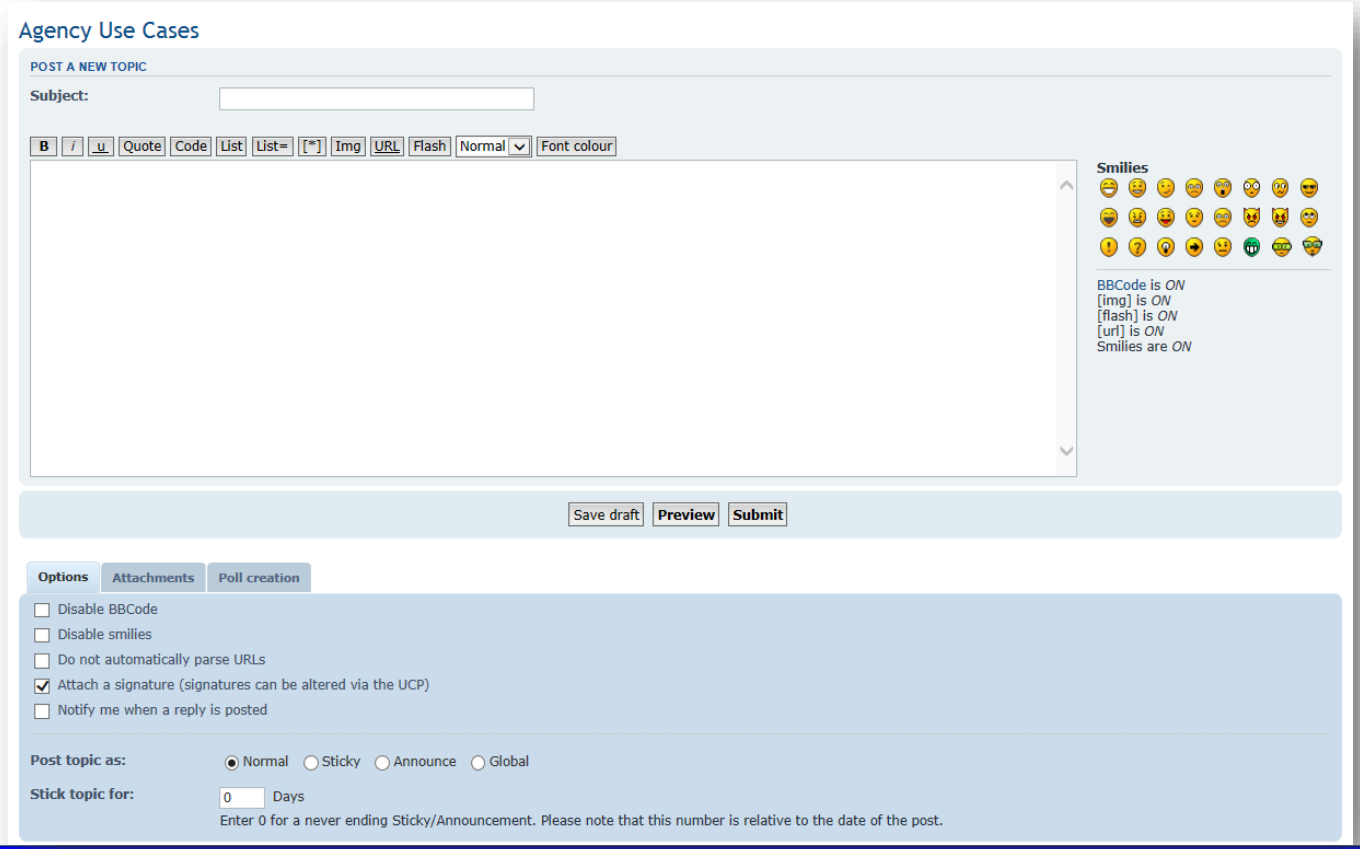
Attachments
What attachments are allowed on this board?
How do I find all my attachments?

phpBB Issues
Who wrote this bulletin board?
Why isn't X feature available?
Who do I contact about abusive and/or legal matters related to this board?
How do I contact a board administrator?

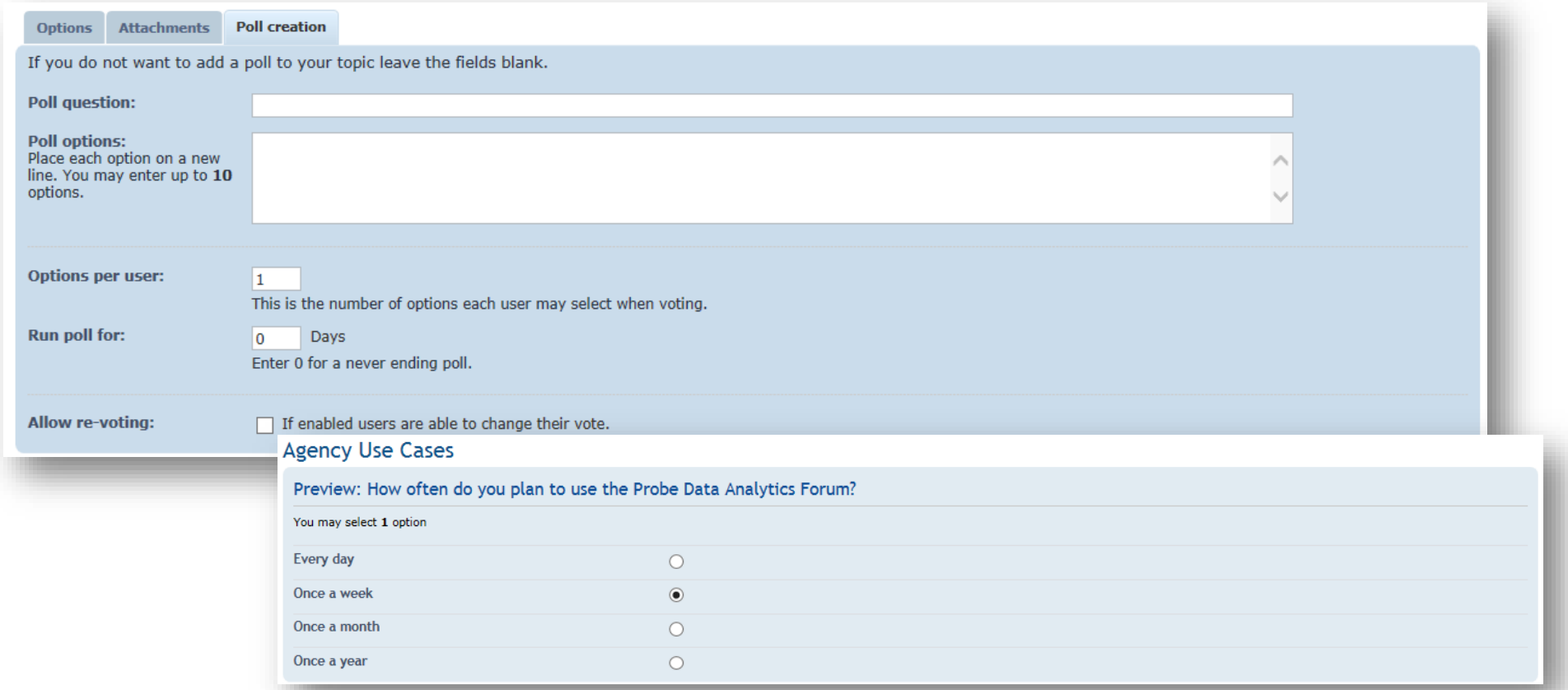
User Group Forum - *Permissions*



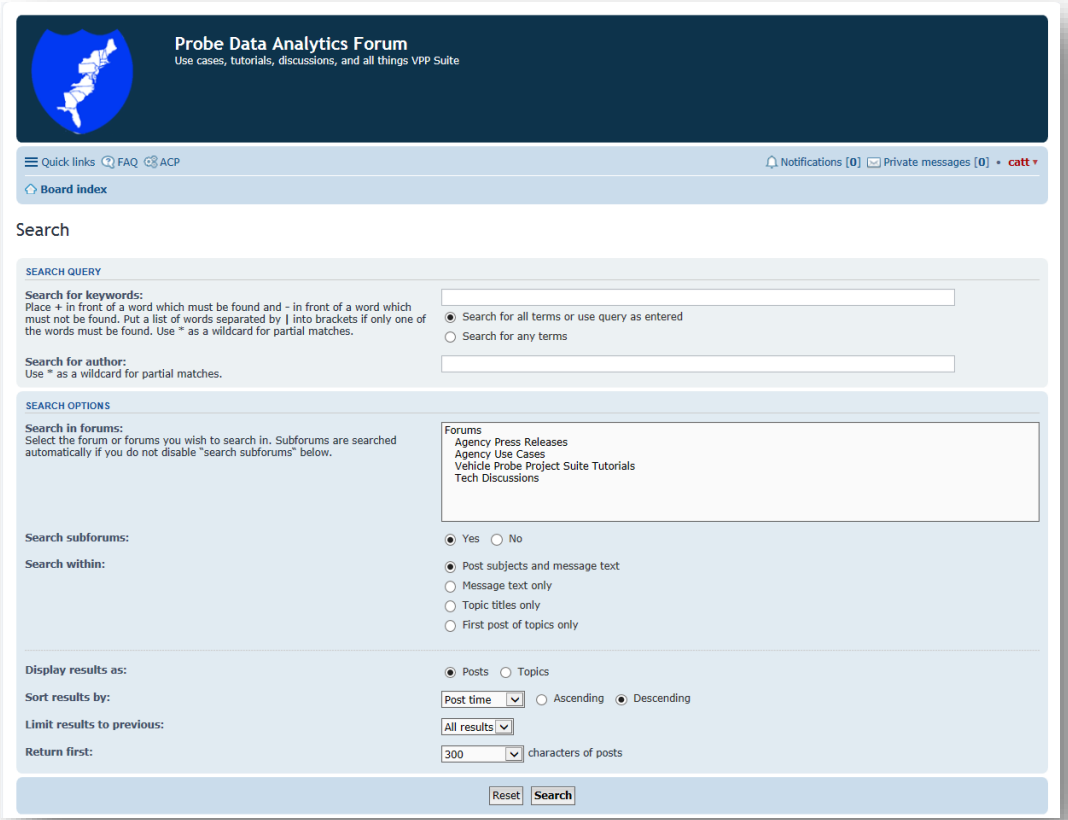
User Group Forum – *Post a Topic*



User Group Forum – *Create a Poll*



User Group Forum – *Advanced Search*



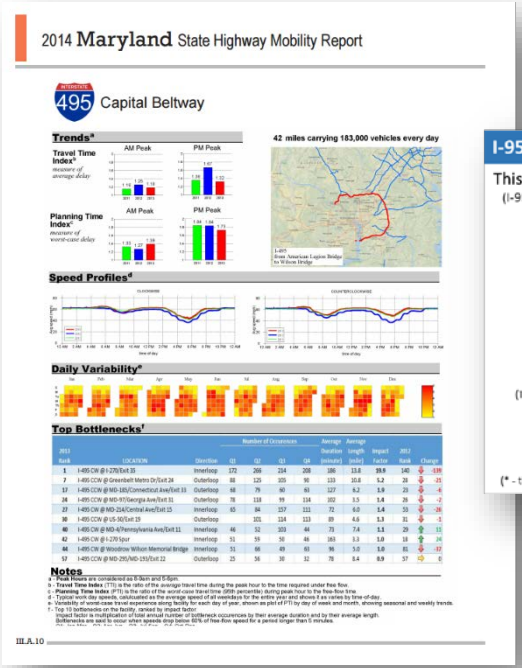
User Focus Group

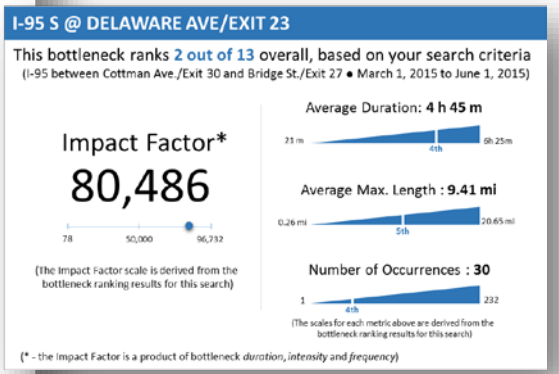
John Allen
UMD CATT Laboratory

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

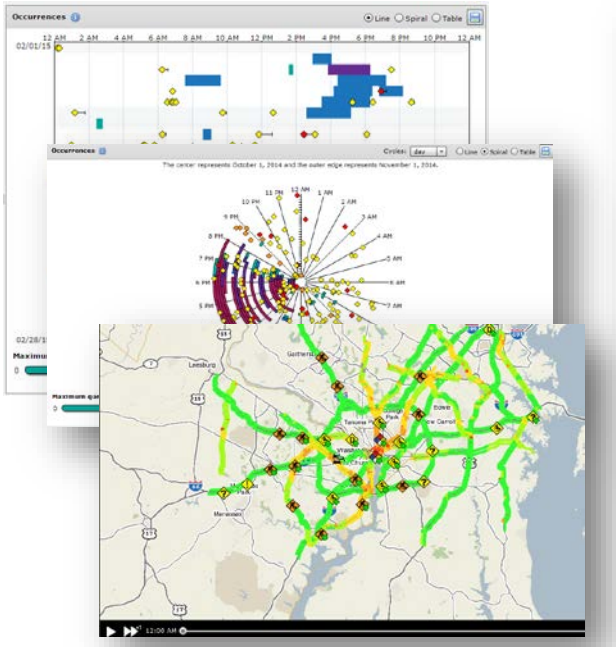




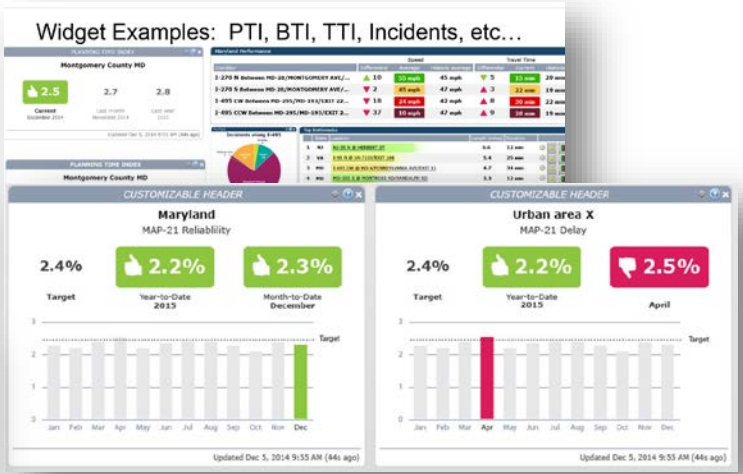
Agency Input Session

Focus on New Features

Event Data Integration



Dashboard Functionality



MAP-21 Working Group

Committed to ★MAP-21★ Coming Soon

Any Other Topics of Interest?

VPP Suite Funding Status

Michael L. Pack
UMD CATT Laboratory

Funding Status and Cutoff Dates

Reminder: Federal funding expired in Jan. 2015.

On July 1, 2015, the suite was disabled for agencies that have not worked out a funding plan with the CATT Lab for their 2015 contributions.

States, MPOs, etc. who have already contributed (or worked out a plan) will continue to have unrestricted access.

Next Steps & Meeting Wrap Up

George Schoener
I-95 Corridor Coalition

Next User Group Meeting:
Wednesday, October 14, 2015

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Thank You

I-95 CORRIDOR COALITION