CATT LABORATORY

RITIS User Group

Web Meeting | May 20, 2021

In collaboration with THE EASTERN TRANSPORTATION COALITION

Welcome!

- We are using Zoom **Webinar**
- **AUDIO (Computer):** Use your computer speakers and microphone by clicking the “Join Audio” button at the bottom left of the screen. You will be muted.
- **Alternate Audio (Phone):** Call into the meeting by dialing the phone number based on your location (provided in the confirmation email) and enter the Meeting ID at the prompt. You will be muted.
- **This web meeting is being recorded.**
- **Questions** with the audio or web? Please contact Esther directly via the chat box or email (ekleit@kmjinc.com)

Using the Q&A box and Chatbox

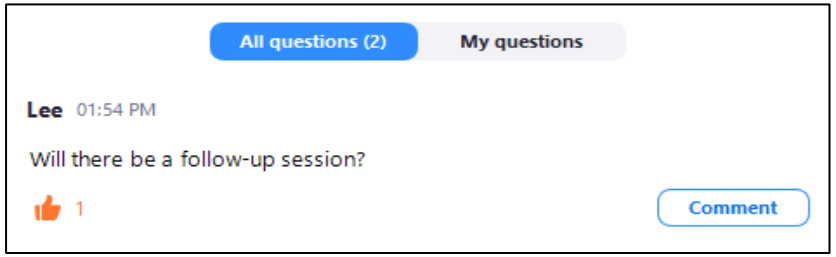
- Use the **Q&A box** to ask presenters questions
- Ex. “How accurate is the captured data?

- Use the **chatbox** for technical issues or to contact Coalition staff
- Ex. “I can’t hear the presenter”

Asking Questions in the Q&A Box

- Click on the Q&A icon at the bottom of your screen

- The questions in the Q&A box will be monitored and answered either between presentations or at the end of the meeting
- You can keep track of your questions in the “My Questions” tab in the Q&A box

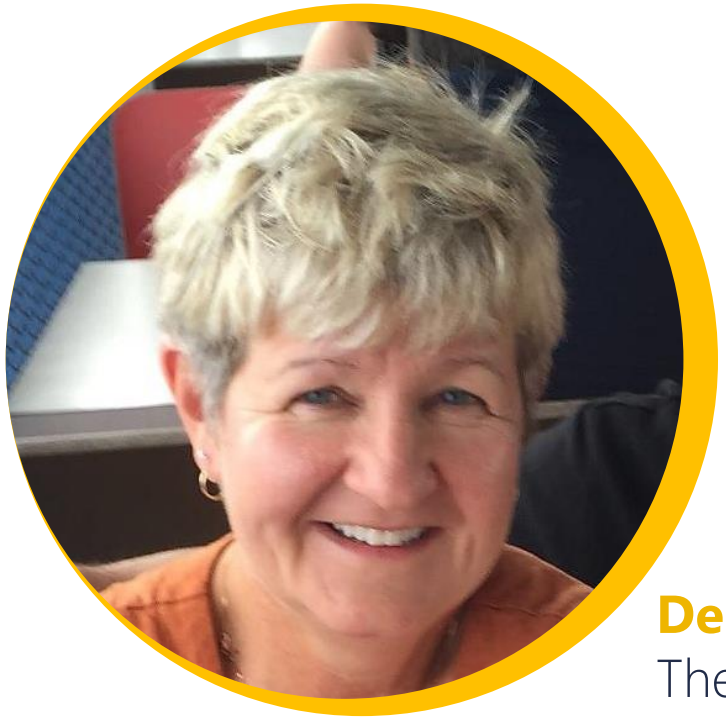


Asking Questions Verbally

- Please raise your hand *(click on the hand icon at the bottom of the screen)*, and a host will unmute you.

- Please give your name and agency before asking your question
- **Please mute yourself when you are finished asking a question**

Coalition Update



THE EASTERN TRANSPORTATION COALITION

CONNECTING FOR SOLUTIONS

Denise Markow
The Eastern Transportation Coalition
TSMO Director

Coalition Update

RECENT

- **Waze Workshops** - February 24 & March 3, 2021
- **PDA Suite PMs Summary Group Meeting** - March 5, 2021
- **TVER Mobile App Vendor Forum #1** - March 11, 2021
- **CAV Workshop including Freight** - March 23, 2021
- **Traveler Info Services Virtual Summit** - April 1, 2021
- **RITIS Product Enhancement Working Group Meetings** - April 8 & May 6, 2021

UPCOMING

- **Tolling Mobile App Vendor Forum #2** - June 3, 2021
- **Coalition Strategic Cross-cutting Session -** June 8, 2021
- **Waze Working Group Meeting** – June 15, 2021
- **VPP/TDM Bi-Annual State Meeting** – June 22, 2021
- **RITIS User Group Meeting** – July 2021
- **Traffic Data Marketplace (previously VPPIII) RFP Meetings** – July/August 2021

Welcome & Introductions

Jesse Buerk
Delaware Valley Regional Planning Commission
User Group Co-chair

Today's Meeting

Welcome and Introductions	Jesse Buerk, DVRPC & User Group Co-chair
Spotlight Presentation: Update on the Transportation Disruption and Disaster Statistics	Mark Franz, UMD CATT Lab
Spotlight Presentation: COVID-19 Impacts on Travel Trends Using the RITIS-PDA Suite	Tom Edinger, DVRPC
New RITIS Tools and Recent Enhancements	Michael Pack, UMD CATT Lab
RITIS Product Enhancement Working Group Update	Denise Markow, TETC for Matt Glasser, Georgia DOT
PDA Suite Performance Measures Working Group Update	John Allen, UMD CATT Lab
Agency Input Session	Michael Pack, UMD CATT Lab
Wrap Up and Remaining Questions	Jesse Buerk

Today's Speakers

Michael Pack
UMD CATT Lab
Director

Tom Edinger
DVRPC
Manager, Congestion Management Programs

Mark Franz
UMD CATT Lab
Lead Transportation Analyst

John Allen
UMD CATT Lab
Faculty Assistant, Outreach & Education

Meeting Participants

Agencies							
AEMCorp	DVRPC	Jacobs Engineering Group, Inc.	Massachusetts DOT	New Jersey DOT	Office of Intermodal Planning and Investment	SEMCOG	TRANSCOM
Atlanta Regional Commission	East-Westt Gateway Council of Governments	Kingsport MTPO	Metric Engineering, Inc	New Jersey Sports & Exposition Authority	Ohio DOT	Southwest Research Institute	University of Maryland CATT Lab
Baltimore Metropolitan Council	Federal Highway Administration	Kittelson & Associates	MetroPlan Orlando	New York City DOT	Oregon DOT	Southwestern Pennsylvania Commission	US DOT - Bureau of Transportation Statistics
CAMPO (Raleigh)	Florida DOT	Knoxville Regional TPO	Michigan DOT	New York State DOT	Paulding County DOT	St. Charles County Government	Vermont AOT
Central Texas Regional Mobility Authority	Florida's Turnpike Enterprise	Lumin8 Transportation	Minnesota DOT	New York State Thruway Authority	Pennsylvania DOT	State of Rhode Island	Virginia DOT
Charlotte DOT	Georgia DOT (CHA)	Madera County Transportation Commission	Montgomery County Planning Department	New Jersey DOT	Pioneer Valley Planning Commission	State of Rhode Island - Division of Statewide Planning	Washington County, Oregon
City of Alexandria, VA	Georgia Environmental Protection Division	Maricopa Association of Governments	MWCOG	NJTPA	Regional Transportation Commission of Southern Nevada	Tennessee DOT	
City of Franklin, TN	Gresham Smith	Maryland DOT-SHA	MWVCOG	North Carolina DOT	Rhode Island DOT	Texas AM Trans Inst.	
Connecticut DOT	Illinois DOT	Maryland State Highway	Nashua Regional Planning Commission	North Central PA Regional Planning & Development Commission	Rockingham Planning Commission/MPO	Texas DOT (SwRI)	
District DOT	INRIX	Maryland Transportation Authority	National Renewable Energy Laboratory	North Central Texas Council of Governments	San Diego Association of Governments (SANDAG)	The Springfield-Sangamon County	

Update on the Transportation Disruption and Disaster Statistics

Mark Franz
UMD CATT Lab
Lead Transportation Analyst

Transportation Disruption and Disaster Statistics (TDADS)

Identifying and Quantifying the Causes of Congestion

PHASE 2 UPDATE

MAY 20, 2021

Project Sponsor: Bureau of Transportation Statistics

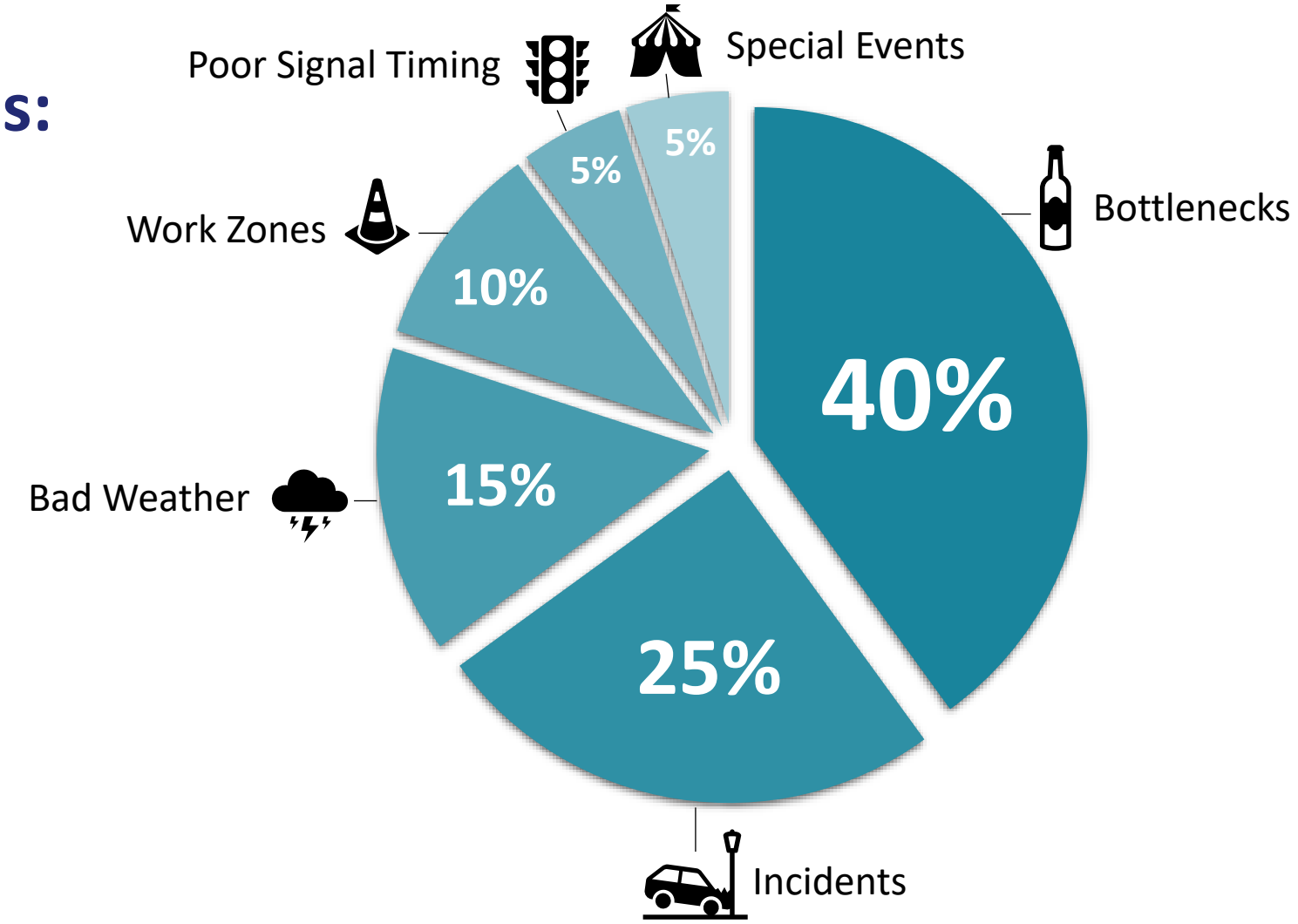
Today's topics

- TDADS Project Objectives
- TDADS Phase 1 Contributions
- Review of CO and PA studies
  - Similarities and differences
- Phase 2 TDADS Work
  - Updates on Task 1-4 & 7
  - Next Steps

Moving Past old assumptions

The congestion pie chart is:

- A national statistic
- 14+ years old
- Largely modeled
- In a nutshell… outdated



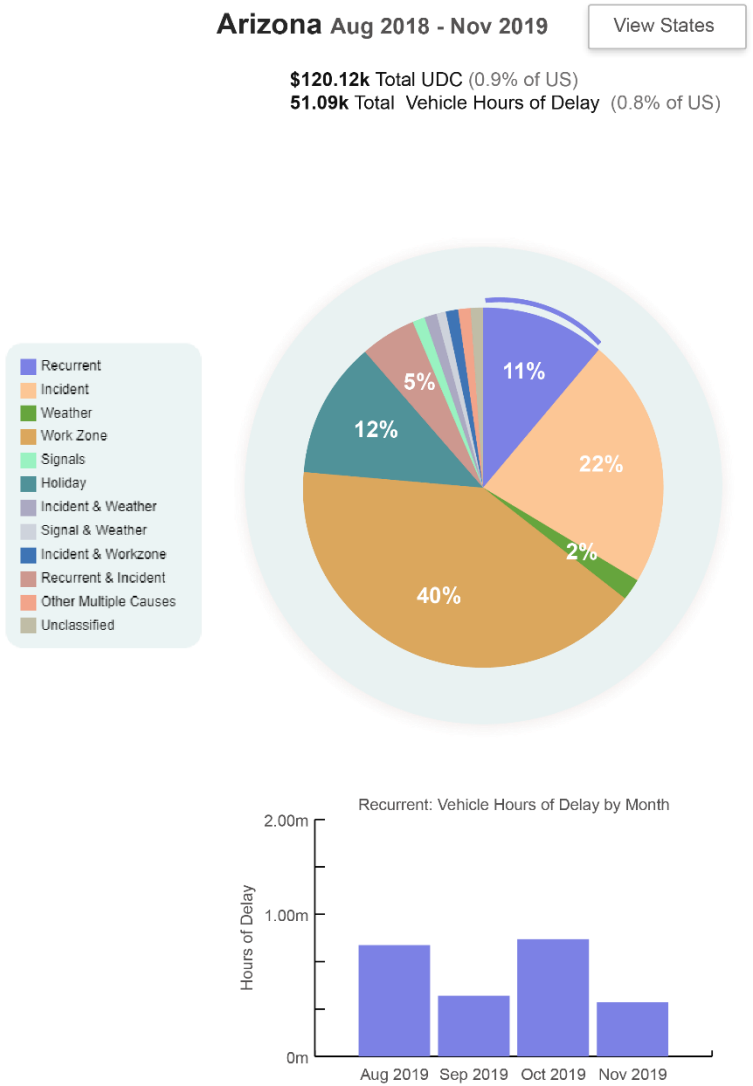
TDADS project goal/objectives

Goal

> “Create a method to compile and archive operational related information into a data system that can support the goal of standardization of transportation system disruption, resilience and disaster statistics nationally.”

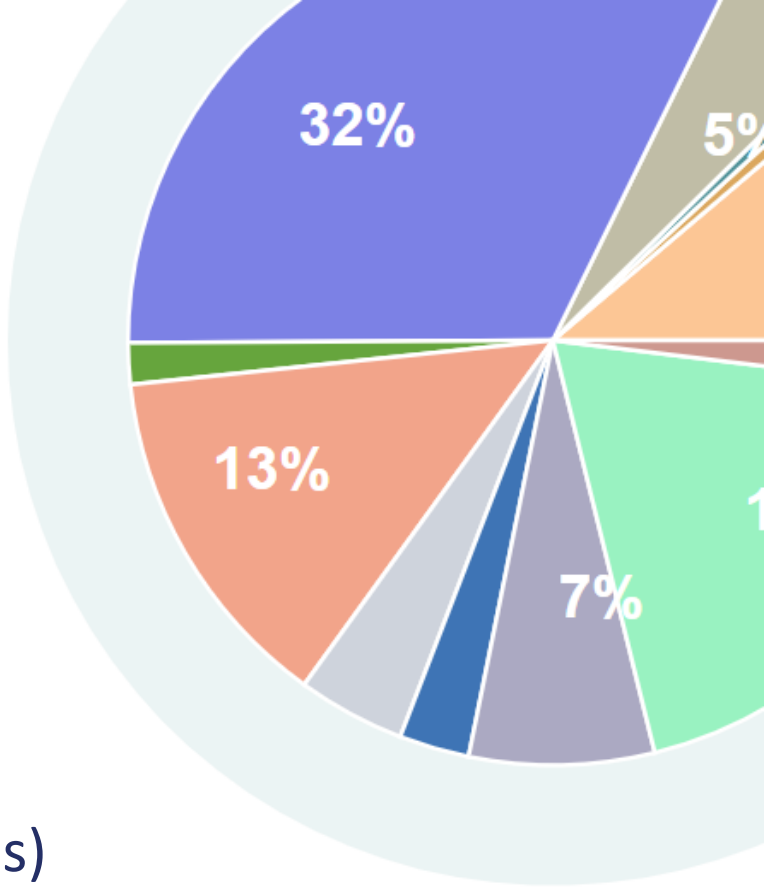
Objectives

- Upgrade the ancient “pie chart”
  - Across entire NHS
  - Provide consistent data sources across the country
  - One full year of data - 2019
- Create an interactive, easily-accessible tool and put it in the hands of decision-makers
- Practitioner Steering Committee guides ALL work



TDADS phase I contributions

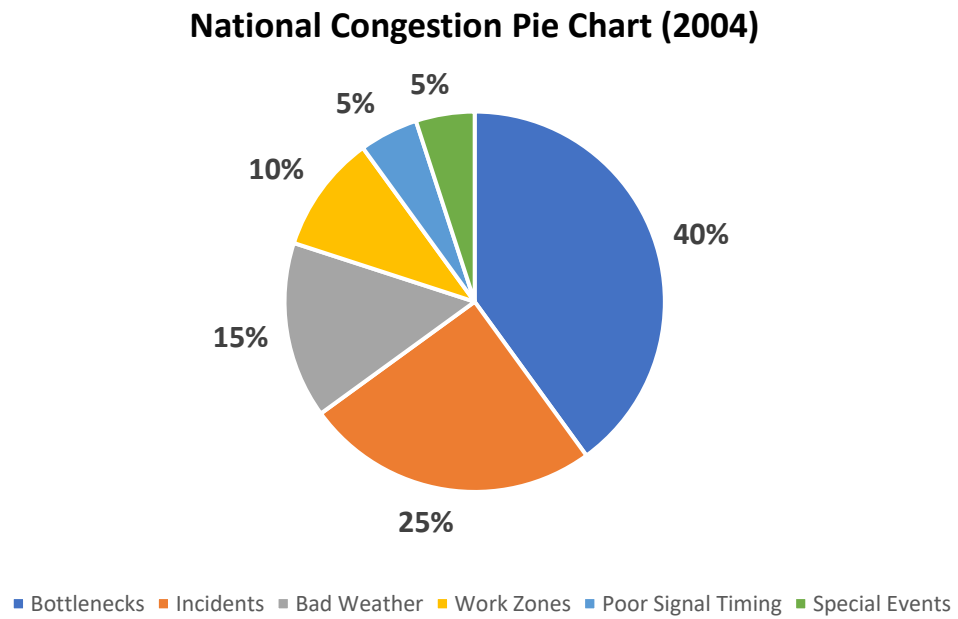
- **Identification** of where disruptions occur
- **Assessment** of multiple national-level data sources
- **Conflation** of NWS and Waze data to road network map
- **Linkage** of traffic signals to vehicle probe data
- **Separation** of multi-events into actionable information
- **Automated** method to determine disruption root cause(s)
- **Visualization** approach for national, state and by month



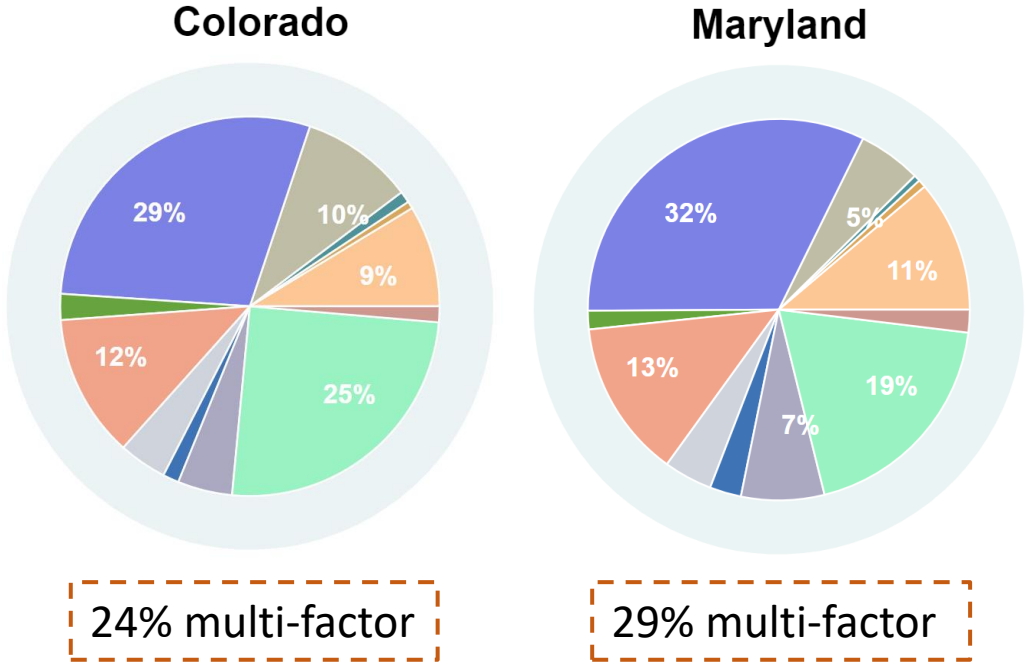
TDADS is an on-line tool that uses real-world data to understand causes of congestion

TDADS Phase I transitioning to better analytics

Then



Now



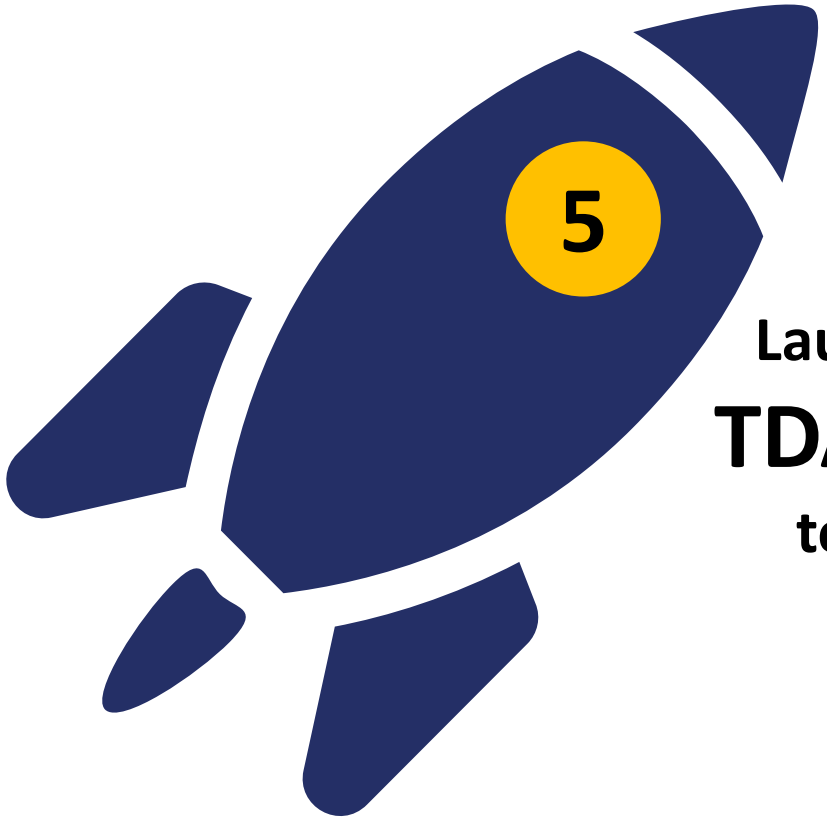
Note:

1. The 2004 categories in the chart above were renamed to match the TDADS charts for CO and MD
2. The MD and CO results include multiple causes and unclassified disruption, the 2004 study did not

TDADS Phase II process

Continue engagement of the Steering Committee for guidance throughout the Phase II process

1. **Procure 1-min probe data from INRIX**
   (Produce national & state charts)
2. **Implement Geographic & Temporal Improvements**
   (County & monthly level)
3. **Develop Requirements**
   (For deep-dive analytics)
4. **Conduct a National Webinar**
   (Showcase the TDADS tool)



Launch TDADS tool

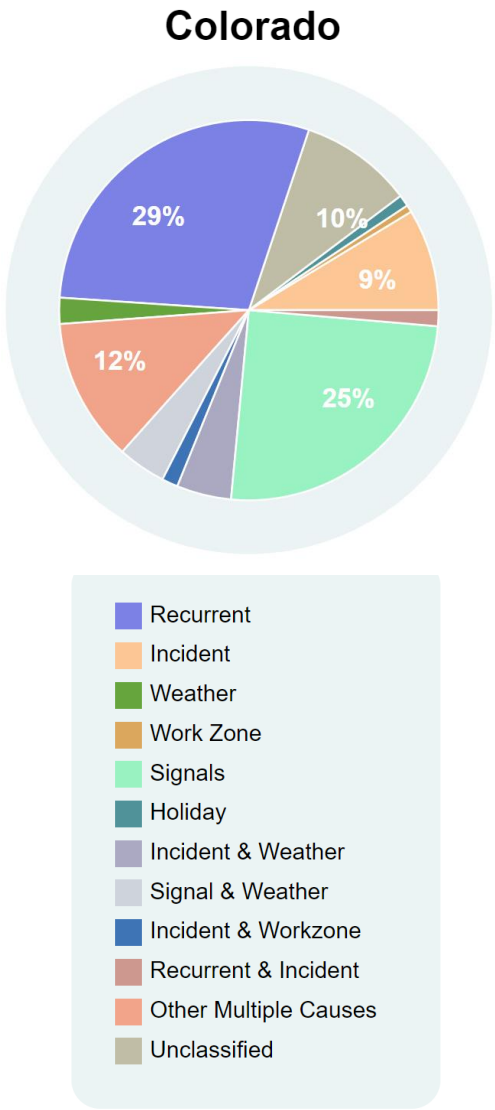
Comparing Congestion Methodologies

Activity	Colorado	Pennsylvania	TDADS
Scope / Purpose	Travel time reliability One state Hand selected study sites (Interstate and US Rts)	Travel time reliability One state Core network	Disruption analysis National NHS
Data Source(s)	State reliant	State reliant with some WAZE Weather nearest RWIS	National sources (WAZE, NOAA radar, OSM traffic signal database)
Identify Disruption	Similar approaches: identify incident based on speed drop for a certain duration		
Quantify Disruption	Planning time-index, buffer time index, and misery index	Based on surrogate for travel time (queue length X speed drop)	Includes volumes
Determine Cause of Disruption	ONE cause assigned 4 causes: incidents, work zones, weather, special events No recurrent, No signal	ONE cause assigned 8 causes: recurrent, incidents (minor, crash, other), work zones, weather, rubbernecking, unknown No signal, or holiday	**One cause OR Multi-factor** Recurrent, incident, weather, work zone, signals, holiday

Take-aways from the CO & PA studies

- There is a sense of urgency to set a methodology standard
- Agencies independently developing “pie charts” may lead to misleading & confusing results
- Having to develop disruption charts on their own is problematic and challenging

TDADS helps with all these things



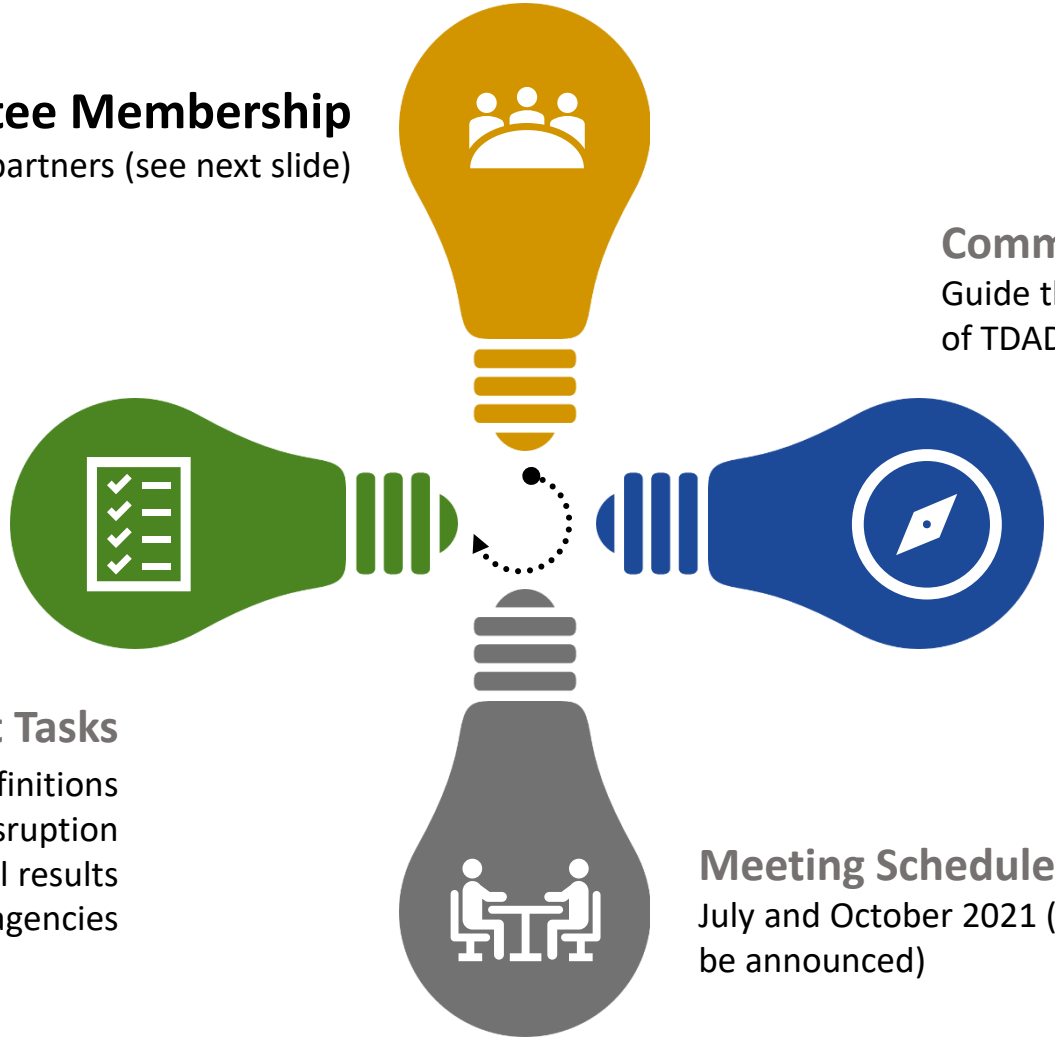
TDADS Phase II tasks

1. Project Management
2. **TDADS Steering Committee**
3. **Procure INRIX data**
4. **Process disruption statistics nationally**
5. Production deployment of the TDADS website
6. National Webinar: Showcase the TDADS tool & its functionality
7. **Implement geographic improvements to TDADS**
8. Scope Development & Requirements for Deep-dive Analytics
9. Signal Congestion Attribution
10. Special Event Impact Analysis Scoping

Task 2 The Steering Committee

Steering Committee Membership

State DOTs, MPOs and key federal partners (see next slide)



Committee Role

Guide the development, refinement, and next steps of TDADS to ensure the tool is useful to practitioners

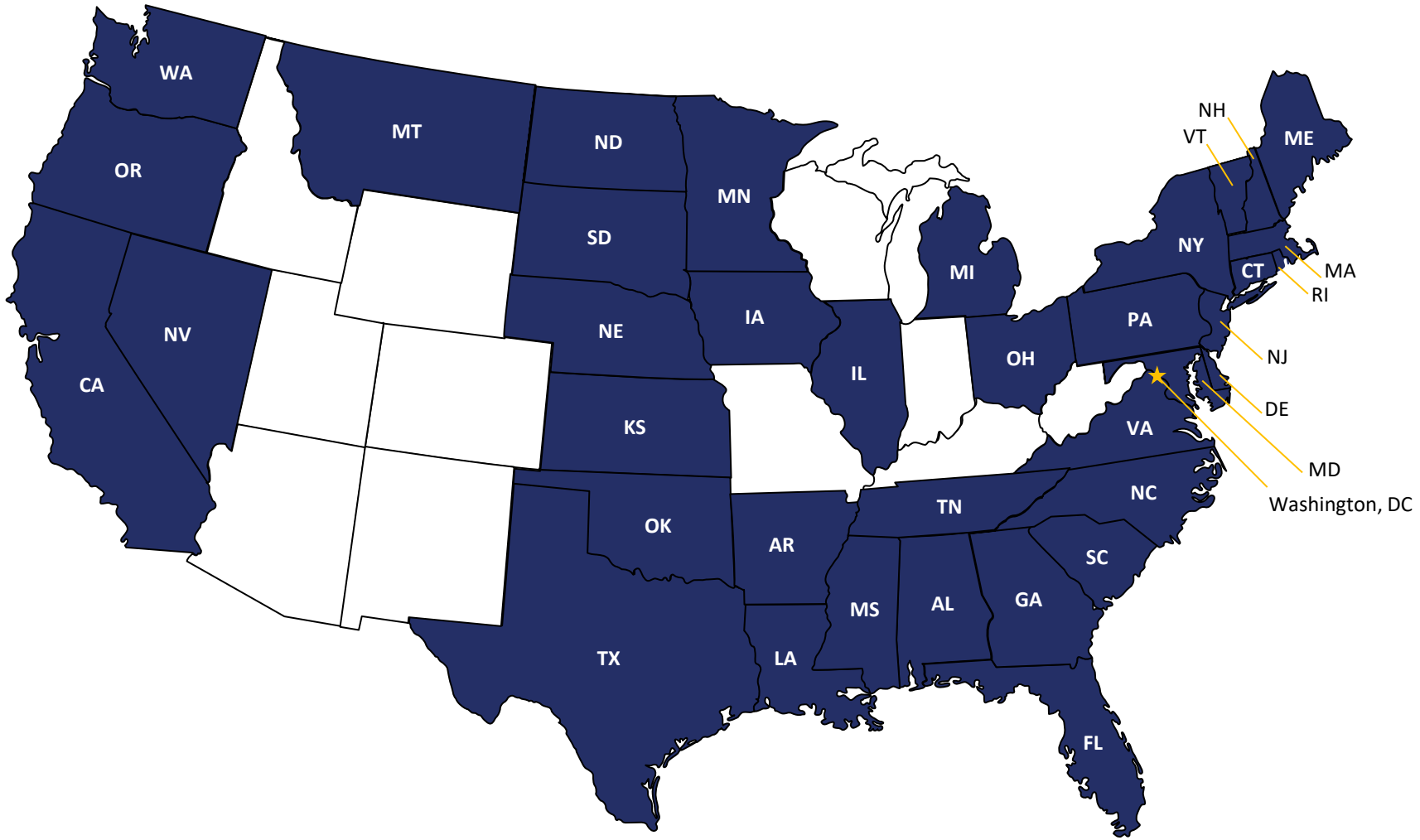
Project Tasks

✓Assessed TDADS terminology & definitions
✓ Provided feedback on causes of disruption
Providing feedback on national results
Will promote the use of TDADS for agencies

Meeting Schedule

July and October 2021 (specific dates and times to be announced)

Task 2 Steering Committee members



AASHTO	MWCOG
Alabama DOT	Nebraska DOT
Arkansas DOT	Nevada DOT
Baltimore Metropolitan Council	New Hampshire DOT
Birmingham MPO (AL)	New Jersey DOT
California DOT	New York State DOT
City of Charlotte, NC	North Carolina DOT
Connecticut DOT	North Dakota DOT
Connecticut Metropolitan COG	Ohio DOT
Delaware DOT	Oklahoma DOT
District DOT	Pennsylvania DOT
DVRPC	Rhode Island Statewide Planning
Florida DOT	South Alabama Regional Planning Commission
Georgia DOT	South Carolina DOT
Iowa DOT	South Dakota DOT
Kansas DOT	South Jersey Transportation Planning Organization
Louisiana DOT	Tennessee DOT
Maine DOT	Texas DOT
Maryland DOT - SHA	University of Alabama
Massachusetts DOT	University Of Maryland CATT Lab
Michigan DOT	Vermont AOT
Minnesota DOT	Virginia DOT
Mississippi DOT	Washington State DOT
Montana DOT	

47 Member Organizations | **35** State DOTs **9** MPOs **2** Universities **1** National Assoc.

Task 3 Procure INRIX data

Procured 1-minute data

CY 2019

Feb. 2021

Data integration began

A Lengthy Process

Completed

- Prep packaging of data (by INRIX)
- Transmission of data to CATT Lab
- Download
- Pre-processing

In Process

- QA/QC
- Loading into CATT Lab Hadoop infrastructure
- Bottleneck processing & congestion identification

NOTE: Data can only be used for TDADS pie chart reporting purposes

Task 4 Process disruption statistics nationally

Phase I (Completed)

MD & CO congestion was processed "manually"

Identify

Leveraged the Bottleneck Ranking Methodology

Quantify

Leveraged the User Delay Cost (UDC) Methodology

Categorize

Matched to congestion cause data (time and location)

(Developed annual state breakdowns)

Phase II (Current)

National Analysis w/Partial Automation

Automate the identification and quantification steps

National, State & County Breakdowns

with custom monthly time ranges

Data Item	Maryland Data	Colorado Data	Phase 1 Data (MD & CO)	Phase 2 Data (National)
NHS TMC segments	6,735	6,479	13,214	368,798
Waze Events	3.3 Million	1.3 Million	4.6 Million	101 Million

Task 7 Implement geographic improvements

Control Type	Current UI	Enhanced UI
Temporal	Temporal resolution is limited to “annual”	• Year • Month • Continuous range (multi-month)
Viz Style	There is a “sort-by” functionality	• Nation > State > County • Bar chart and pie chart
Geographic	National or Statewide geographic resolution only	• Nationwide • State • County
Sorting	Filtering by State	Filtering by geographies

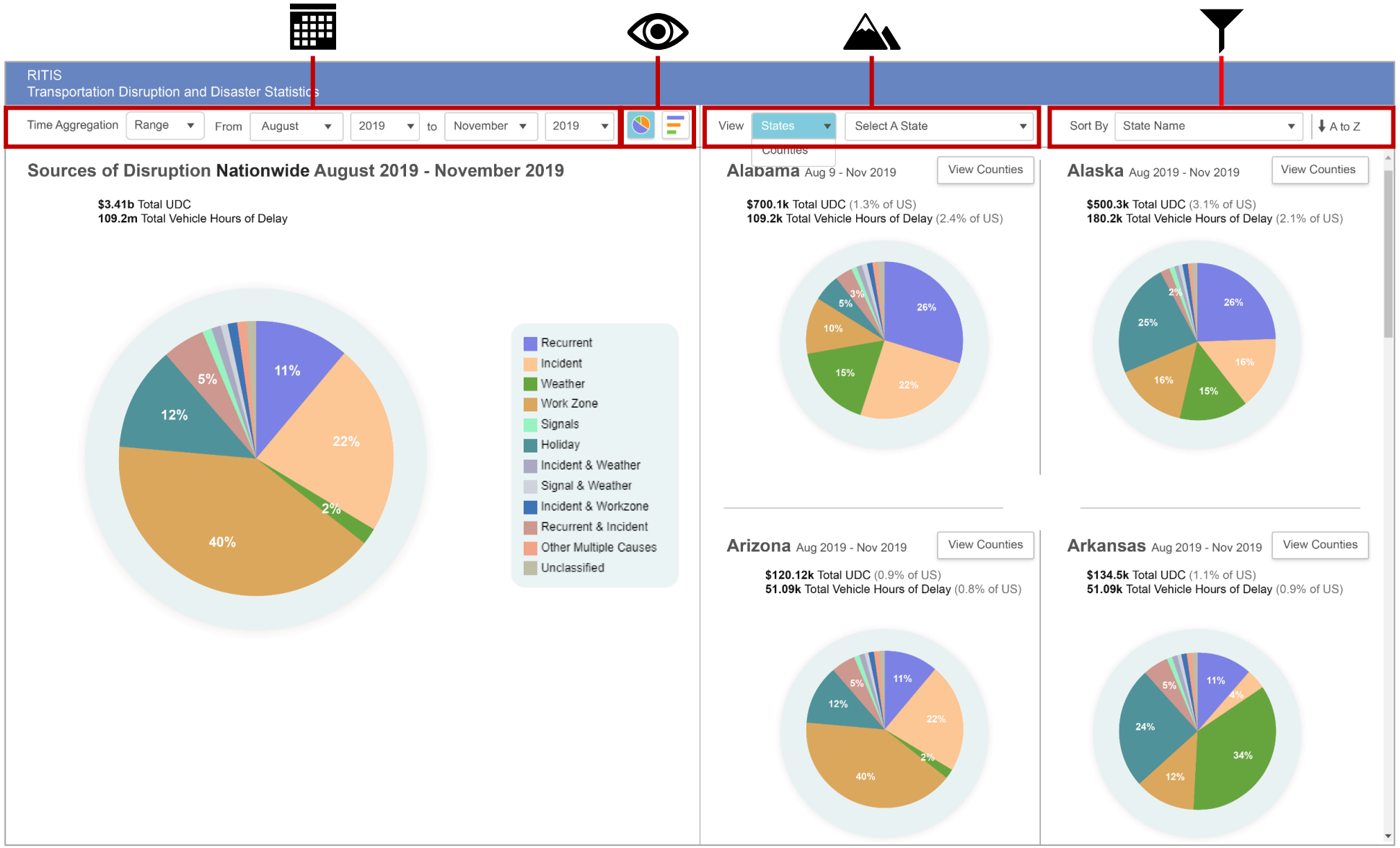
Enhanced UI layout & function

Temporal Controls

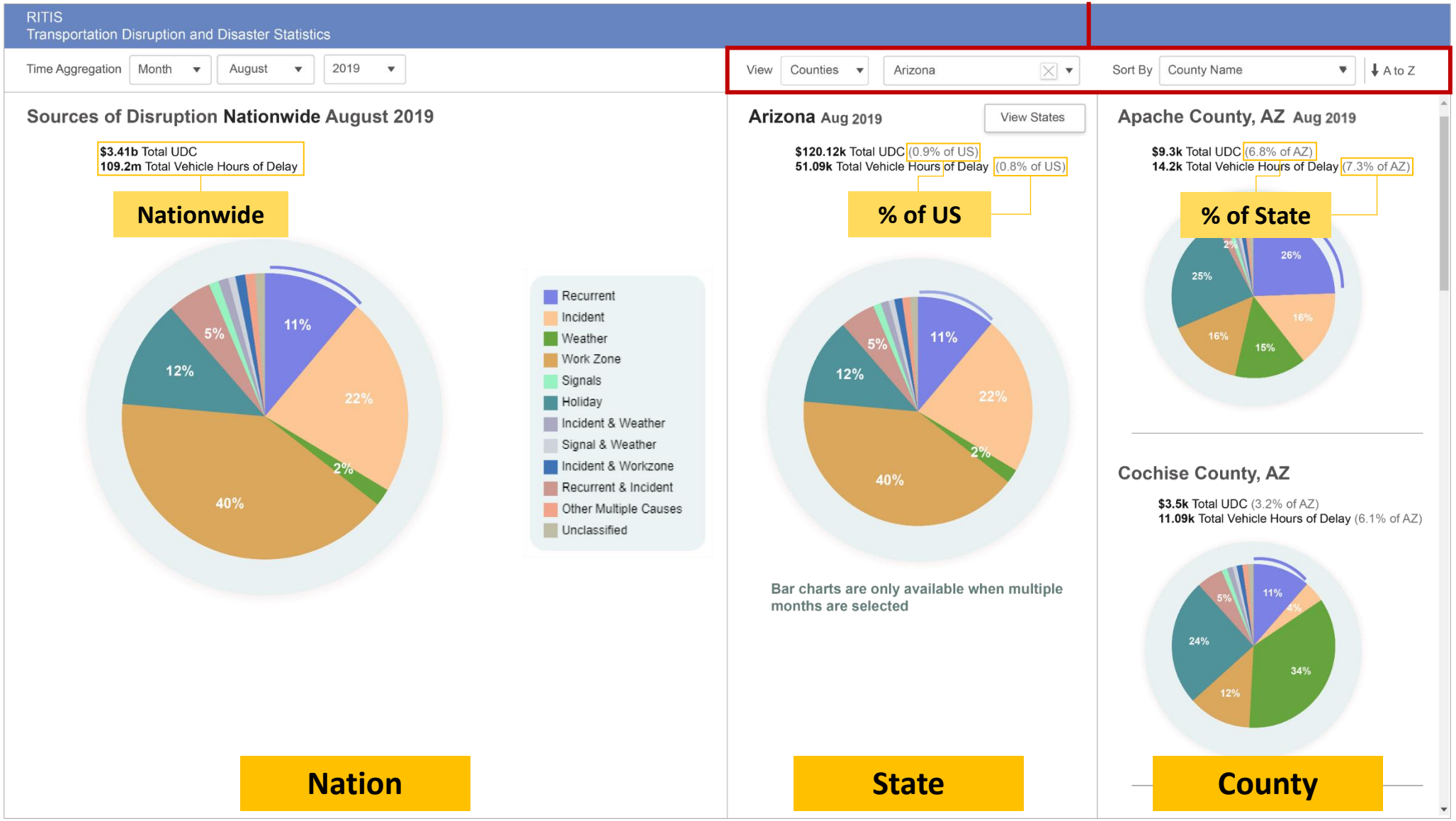
Viz Style Controls

Geographic Controls

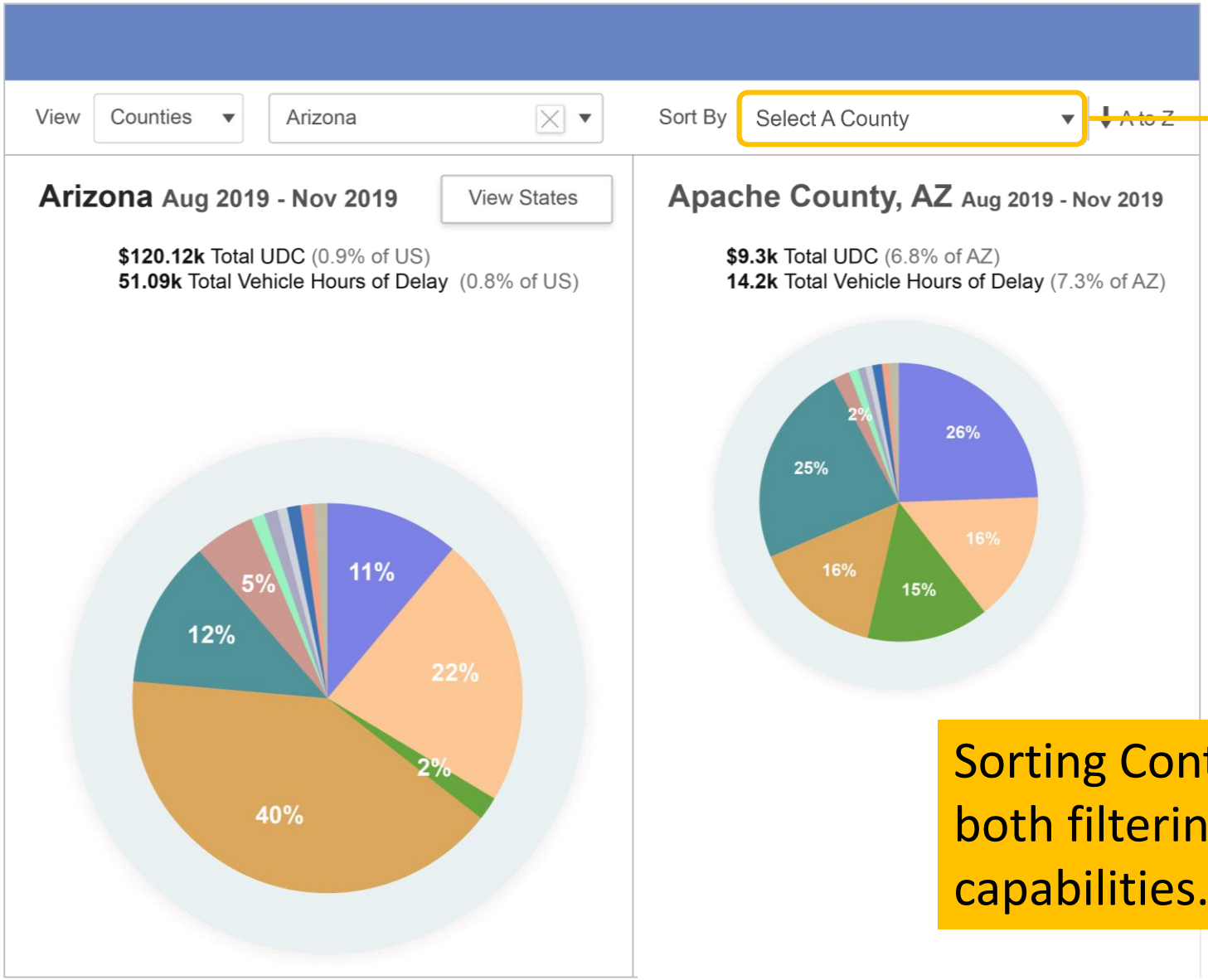
Sorting Controls

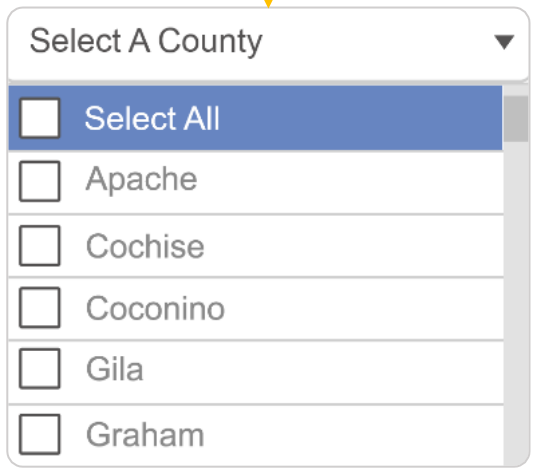


Geographic controls



State -> County ordering

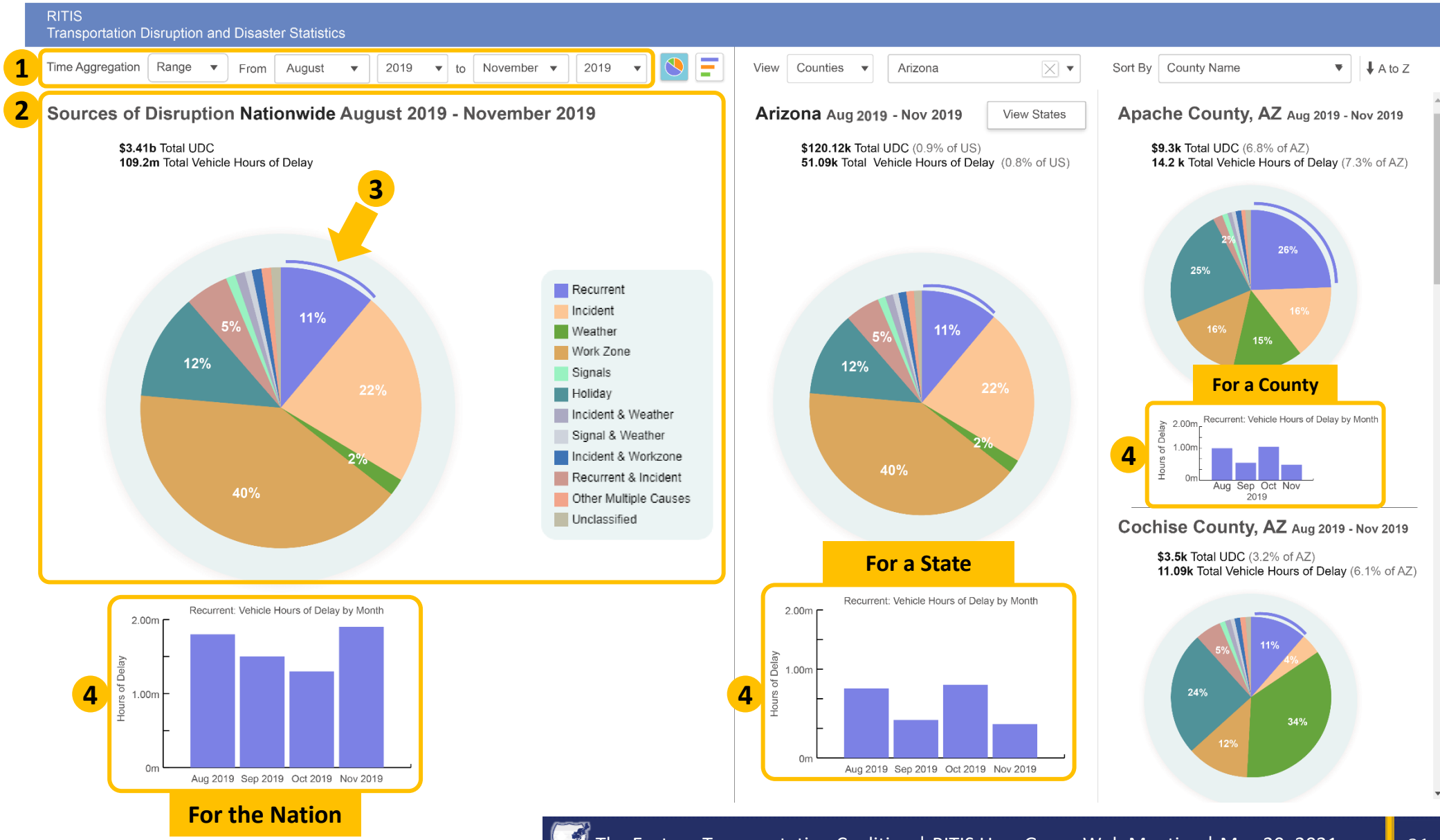




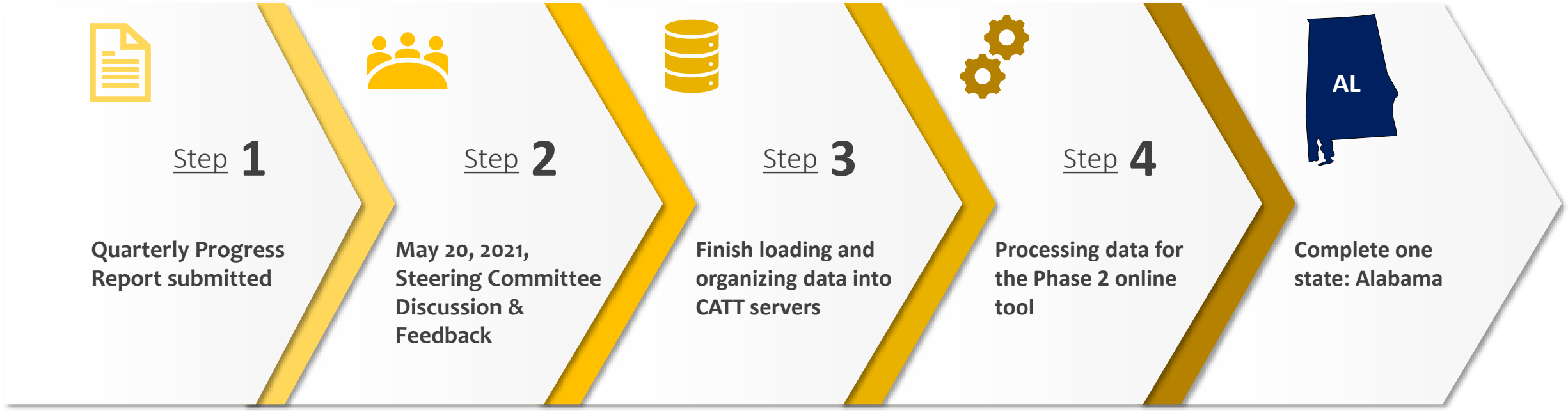
Sorting Controls provide both filtering & hierarchical capabilities.

Month-by-Month comparisons

1. Select a date range
2. Results show sources of disruption for that range
3. Select a disruption type
4. A bar chart auto-generates for that source of disruption's date range

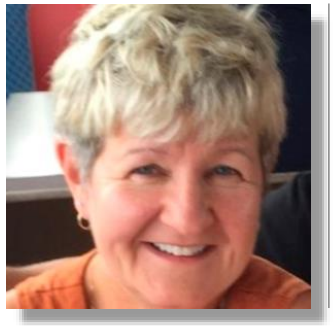


Next Steps through June 2021



Steps 3 & 4 are parallel tasks

Questions?



Denise Markow
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COVID-19 Impacts on Travel Trends Using the RITIS-PDA Suite:

Using PM3 Travel Time Reliability and Congestion, and Other Performance Measures

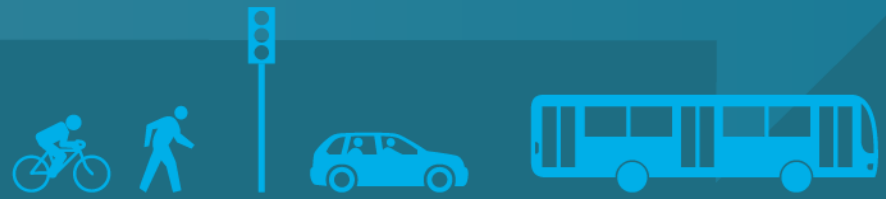
Tom Edinger

DVRPC

Manager, Congestion Management Programs

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

COVID-19 Impacts on Travel Trends using the RITIS-PDA Suite: Using PM3 Travel Time Reliability, Congestion and Other Performance Measures

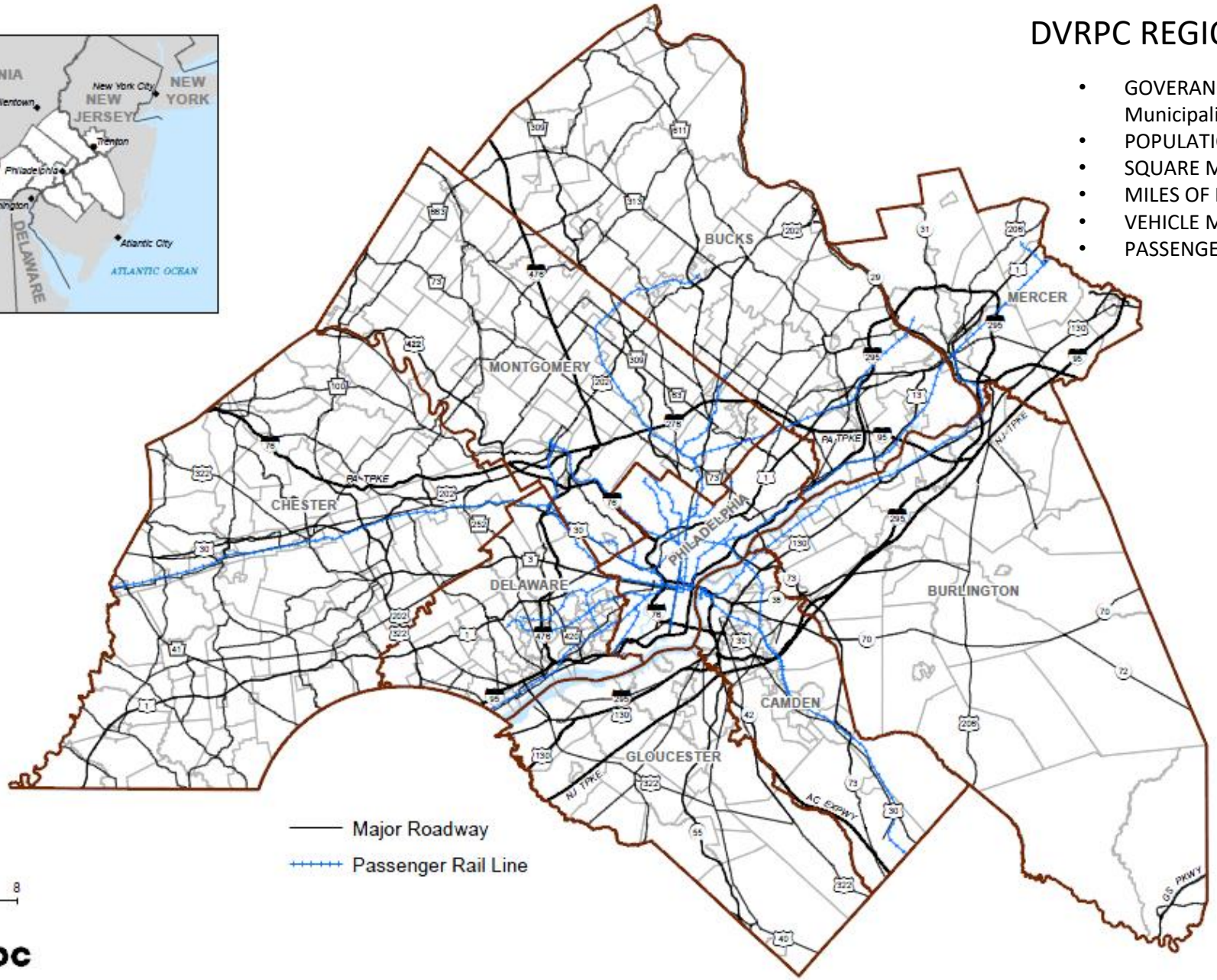


TETC - RITIS User Group Web Meeting| May 20, 2021

Thomas K. Edinger, AICP | tedinger@dvrpc.org | 215.238.2865

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Delaware Valley Regional Planning Commission (DVRPC) Region

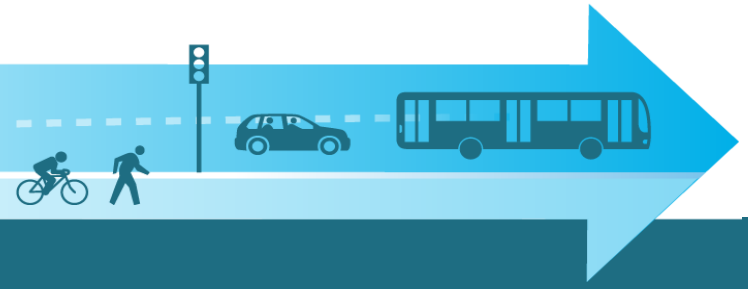


DVRPC REGION BY THE NUMBERS

- GOVERANCE: **2** STATES, **9** COUNTIES, and **351** Municipalities
- POPULATION ESTIMATE (2019): **5.75 million**
- SQUARE MILES: **3,833**
- MILES OF ROADWAY: **23,000**
- VEHICLE MILES TRAVELED EACH DAY: **110M**
- PASSENGER RAIL MILES: **356**

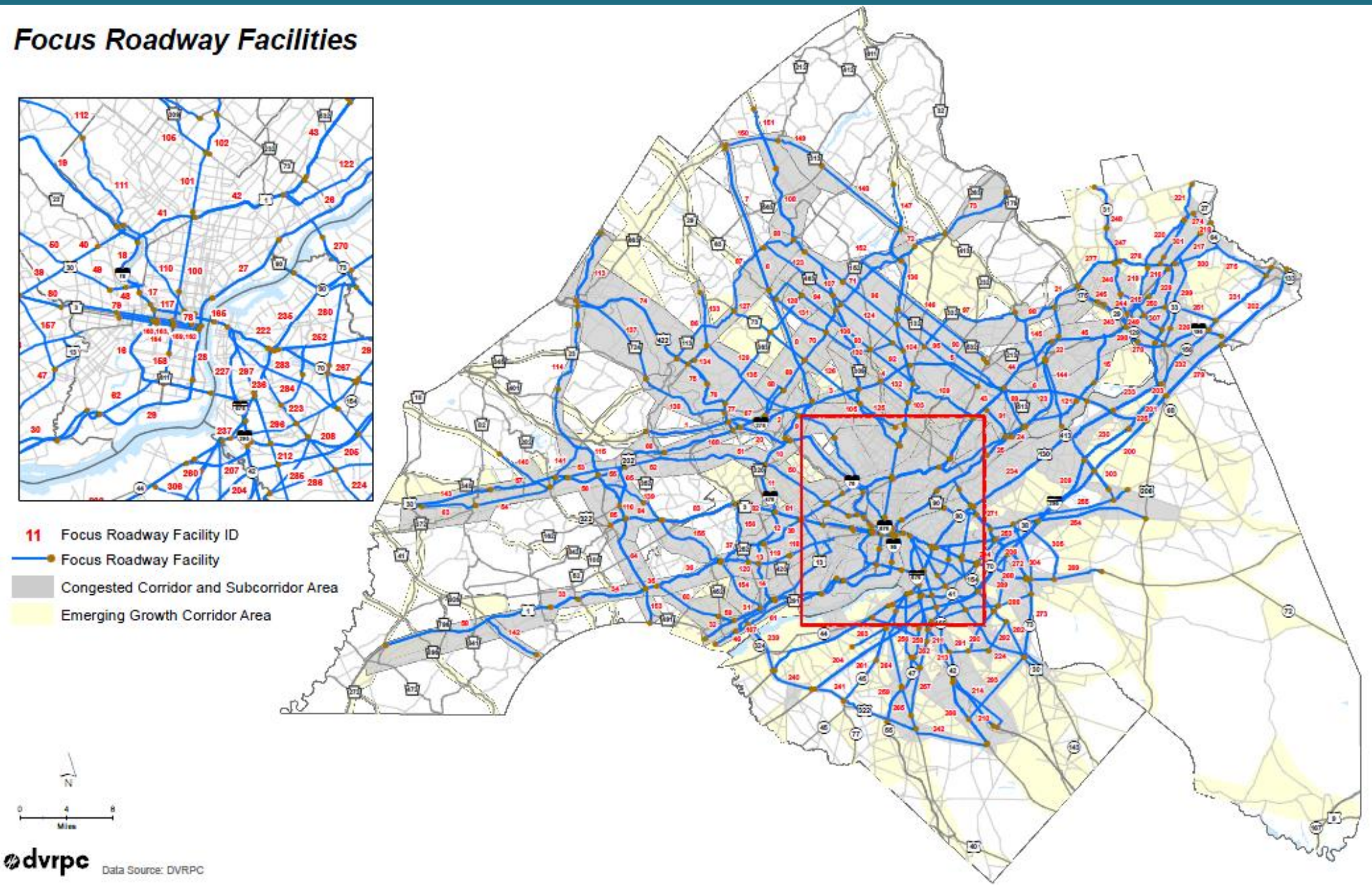
dvrpc

COVID-19 Impacts on Travel Trends



- **What do we mean by travel trends?**
- **Why evaluate COVID-19 impacts on travel trends?**
- **What are some considerations in evaluating trends?**
  - Evaluate corridor locations that are experiencing the most and the least changes in congestion and travel times
  - Evaluate other nearby multimodal transportation options that may be used or avoided in the future that may affect travel
  - Evaluate the time of day travel distributions
  - Evaluate which corridors are experiencing the most and least increases in speed

Congestion Management Process (CMP) Corridors



dvrpc

Overview of Steps in Analyze Travel Trends

Process Overview

1

Used the PDA Suite

to create 500 plus CMP corridors as saved TMC segment sets

2

Used the PDA Suite

to download travel time data for the saved TMC segment sets

3

Used RITIS API

to automatically download travel time data for the saved TMC segment sets

4

Ran scripts

to update worksheets that shows speeds, TTI and PTI PMs by:

- Corridor
- Time of day
- Averaged by week & month

5

Ran an analysis

To compare by month year-over-year trends in congestion and reliability throughout the region

6

Identified corridors

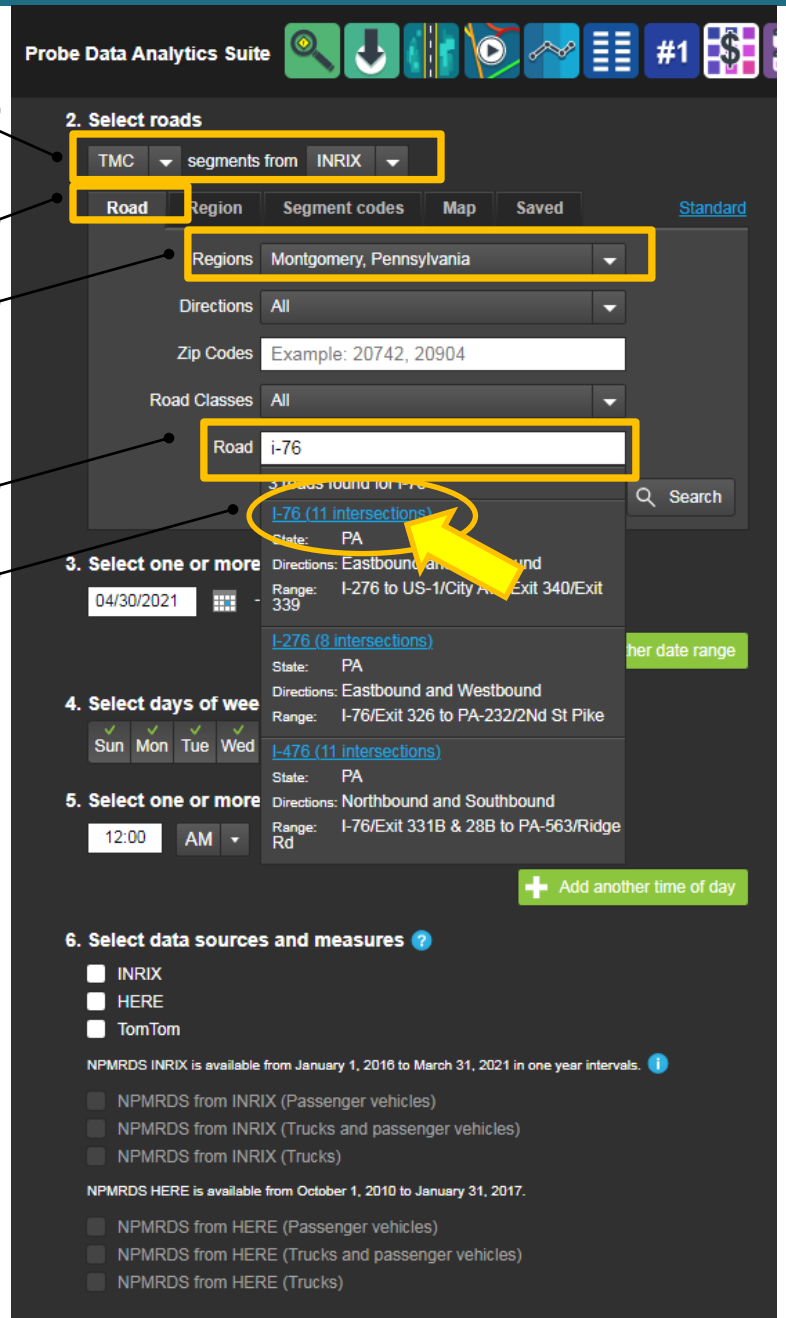
that experienced major changes in congestion due to COVID-19 to evaluate future improvement strategies

7

Create reports using RITIS performance reporting templates

dvrpc

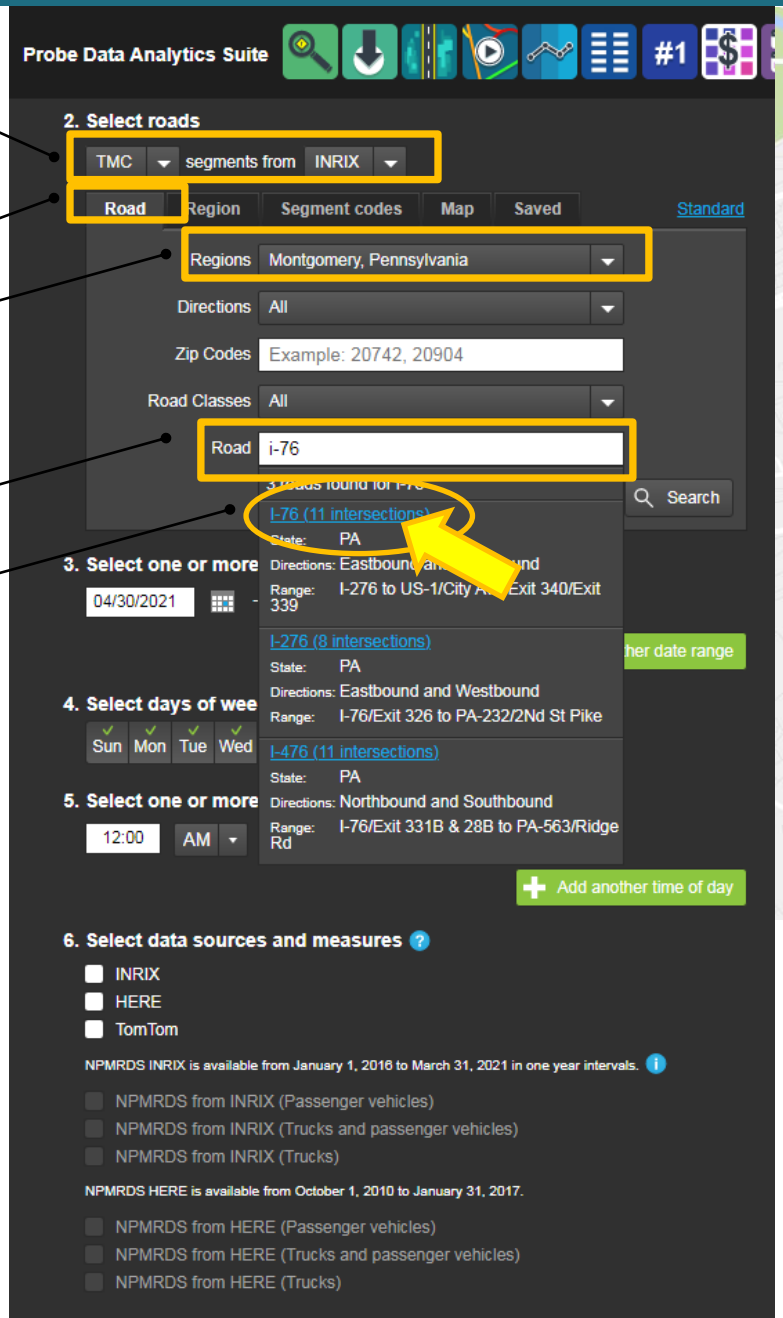
1 Used the RITIS-PDA Suite to Create a TMC Segment Set

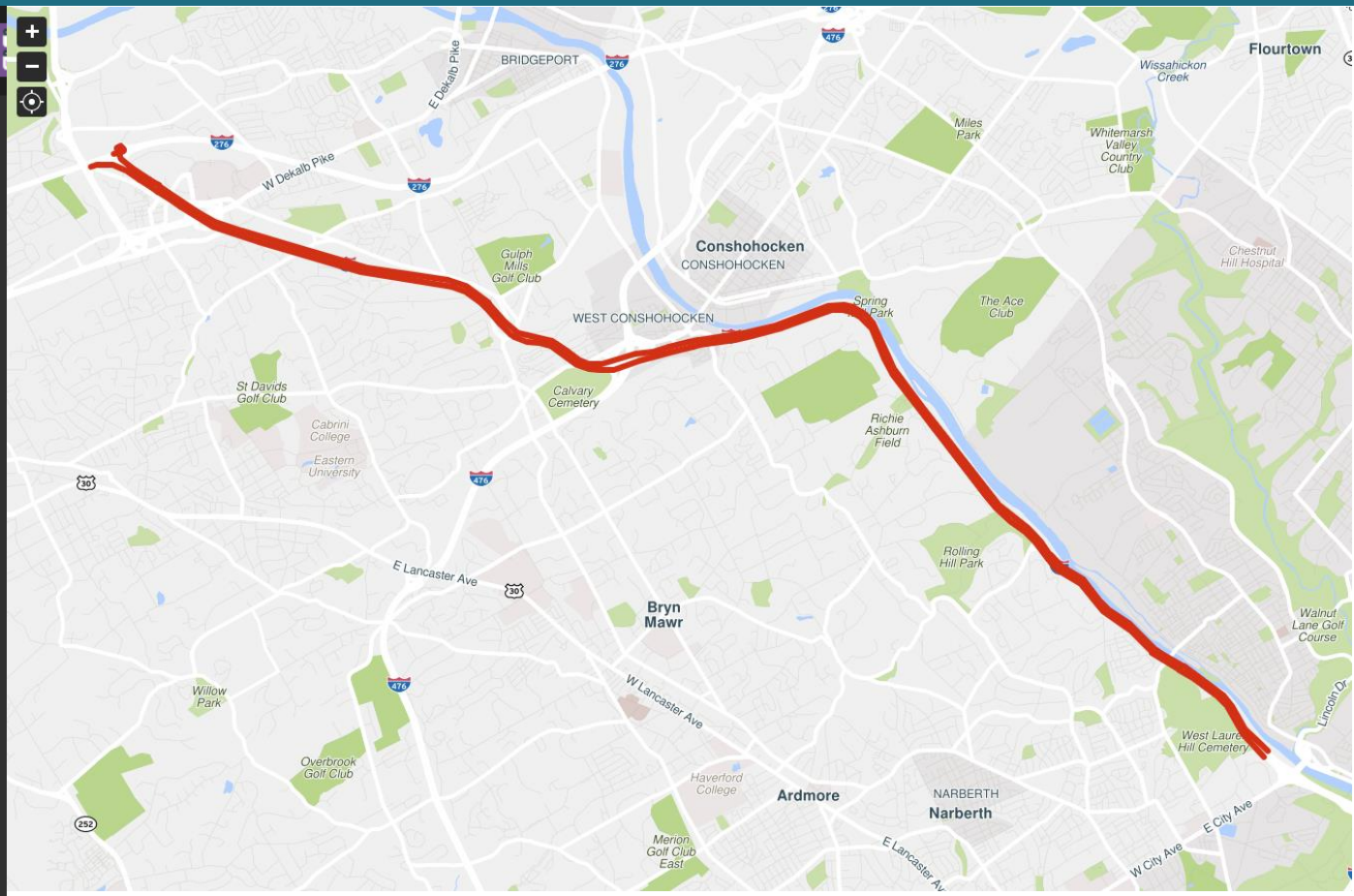


- **A** Select Data Source
- **B** Use the Road Tab to Select Roads by Name
- **C** Select a Region
- **D** Type in the Road Name
- **E** Select Appropriate From/To Range

dvrpc

1 Used the RITIS-PDA Suite to Create a TMC Segment Set





- **A** Select Data Source
- **B** Use the Road Tab to Select Roads by Name
- **C** Select a Region
- **D** Type in the Road Name
- **E** Select Appropriate From/To Range

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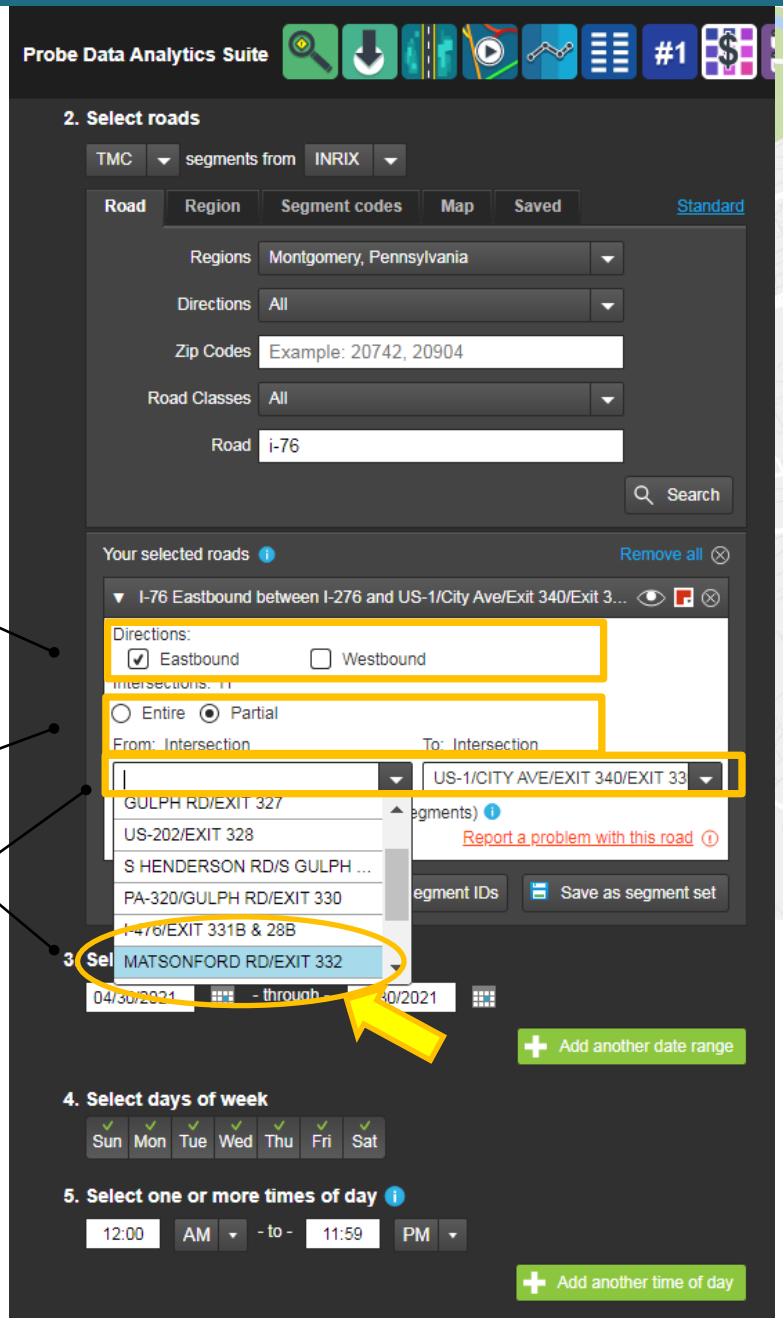
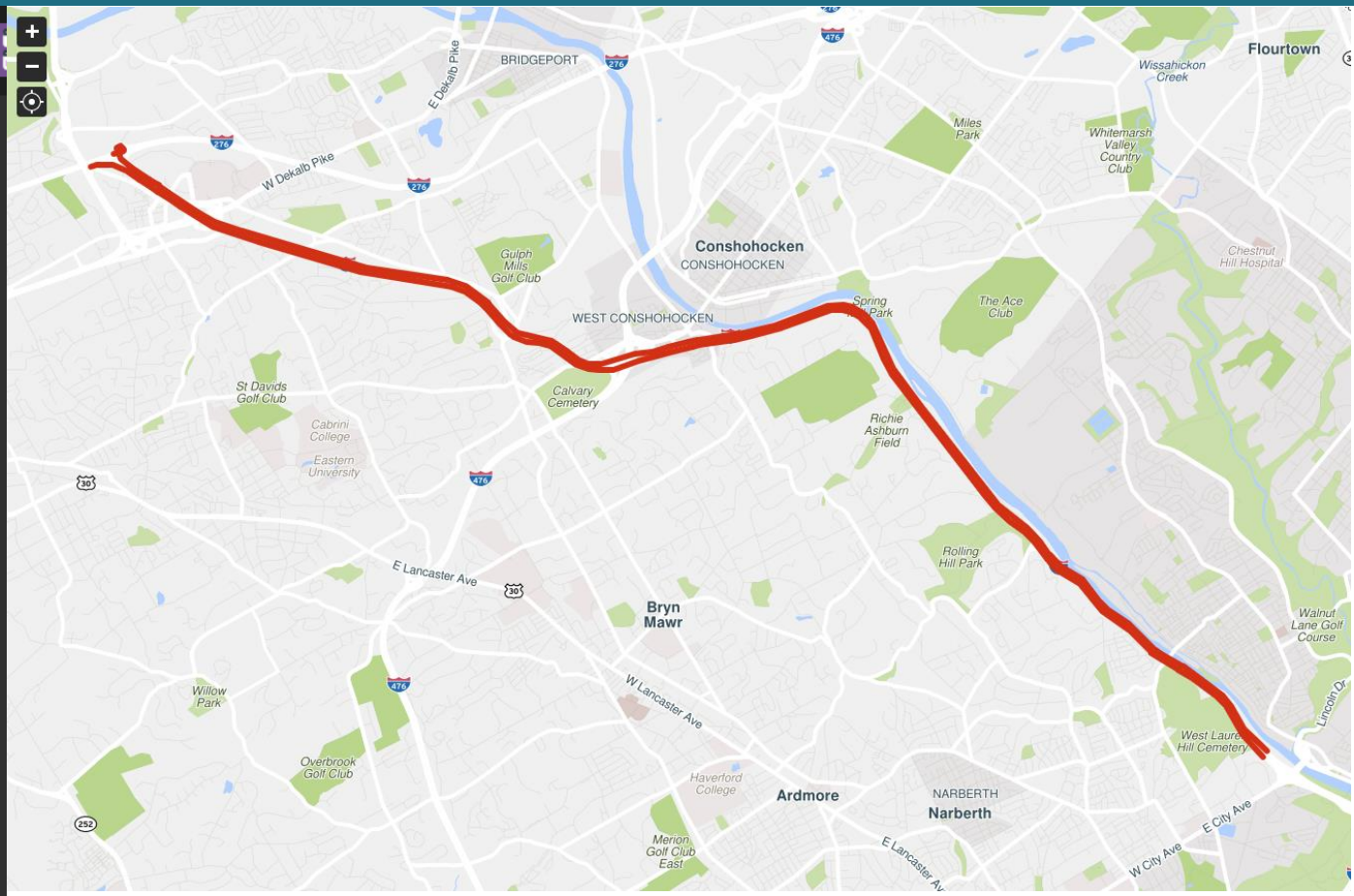
1 Used the RITIS-PDA Suite to Create a TMC Segment Set

- **A** Select Road Direction
- **B** Select Entire or Partial Segment
- **C** Select From Intersection Name

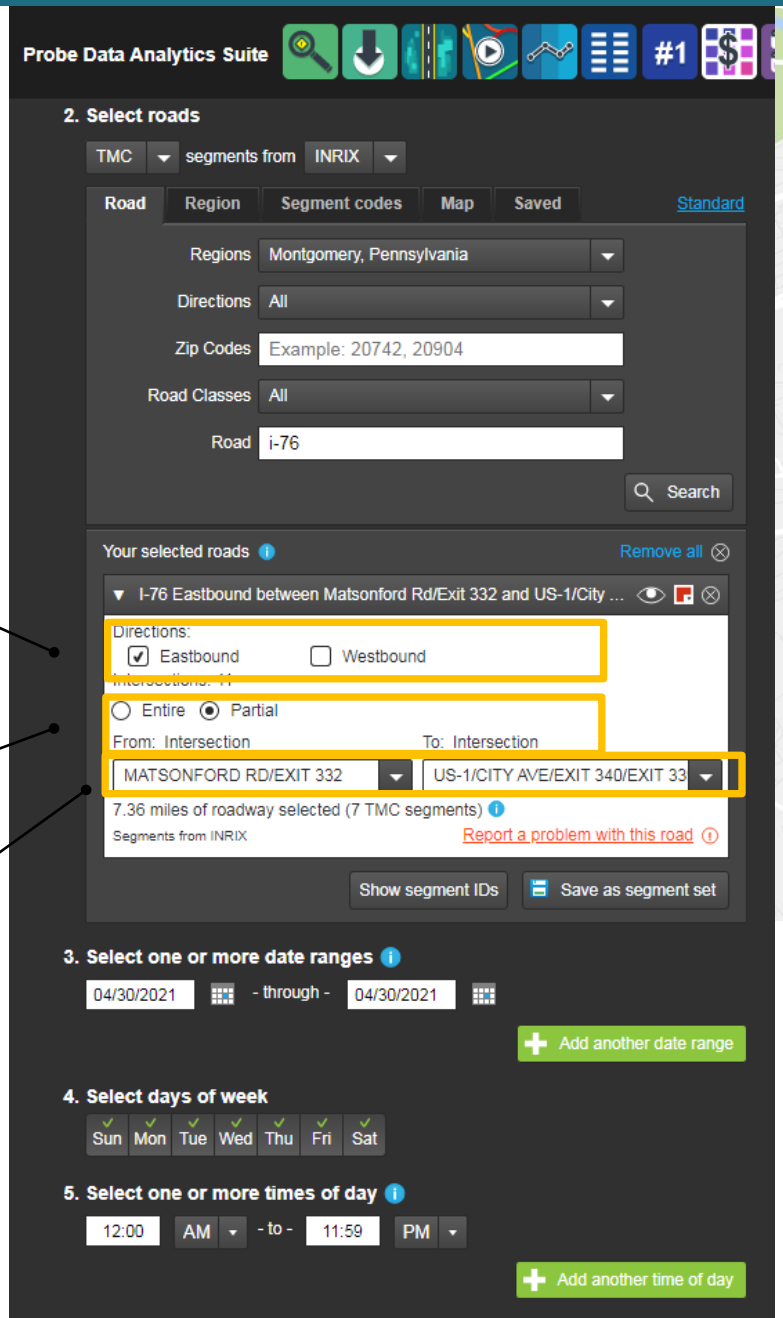


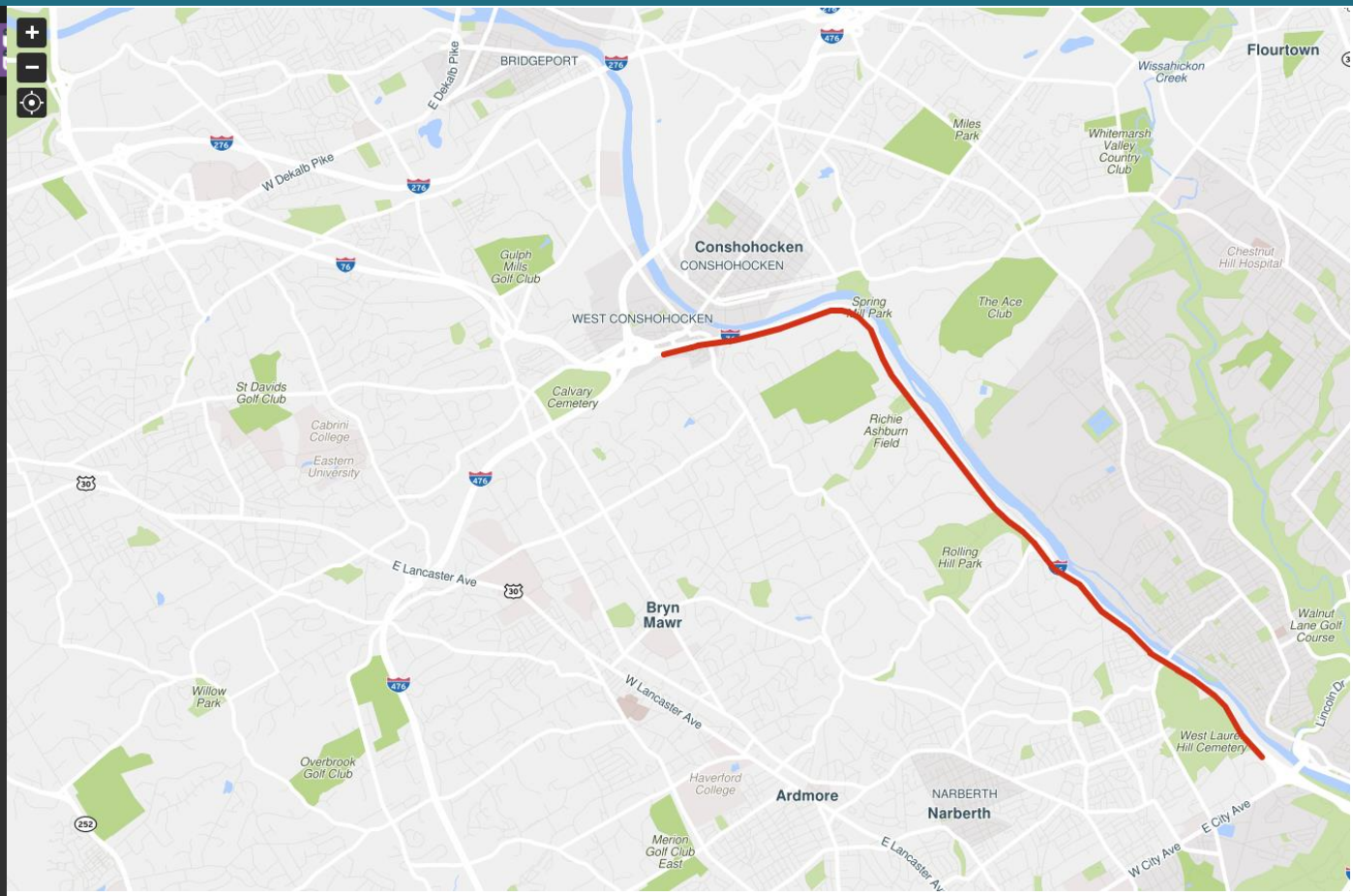


dvrpc

1 Used the RITIS-PDA Suite to Create a TMC Segment Set

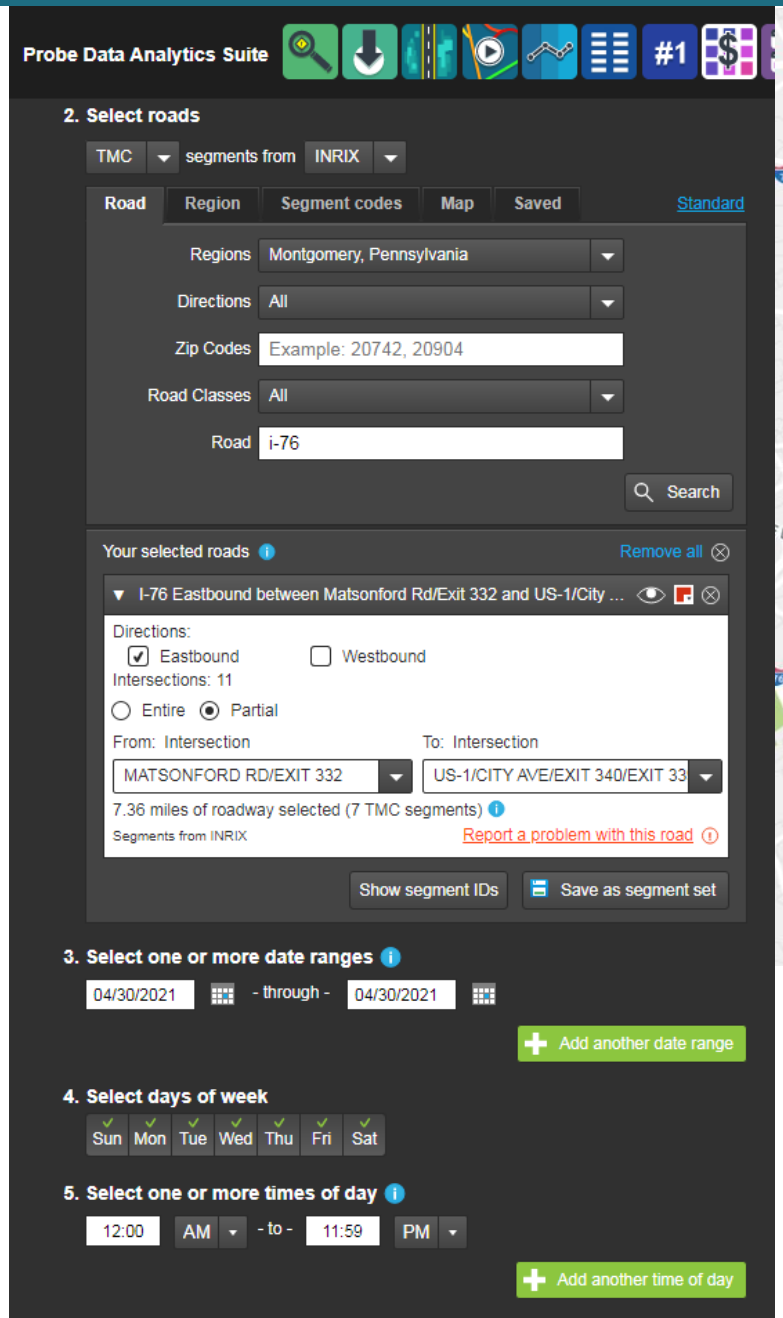
- **A** Select Road Direction
- **B** Select Entire or Partial Segment
- **C** Select From Intersection Name

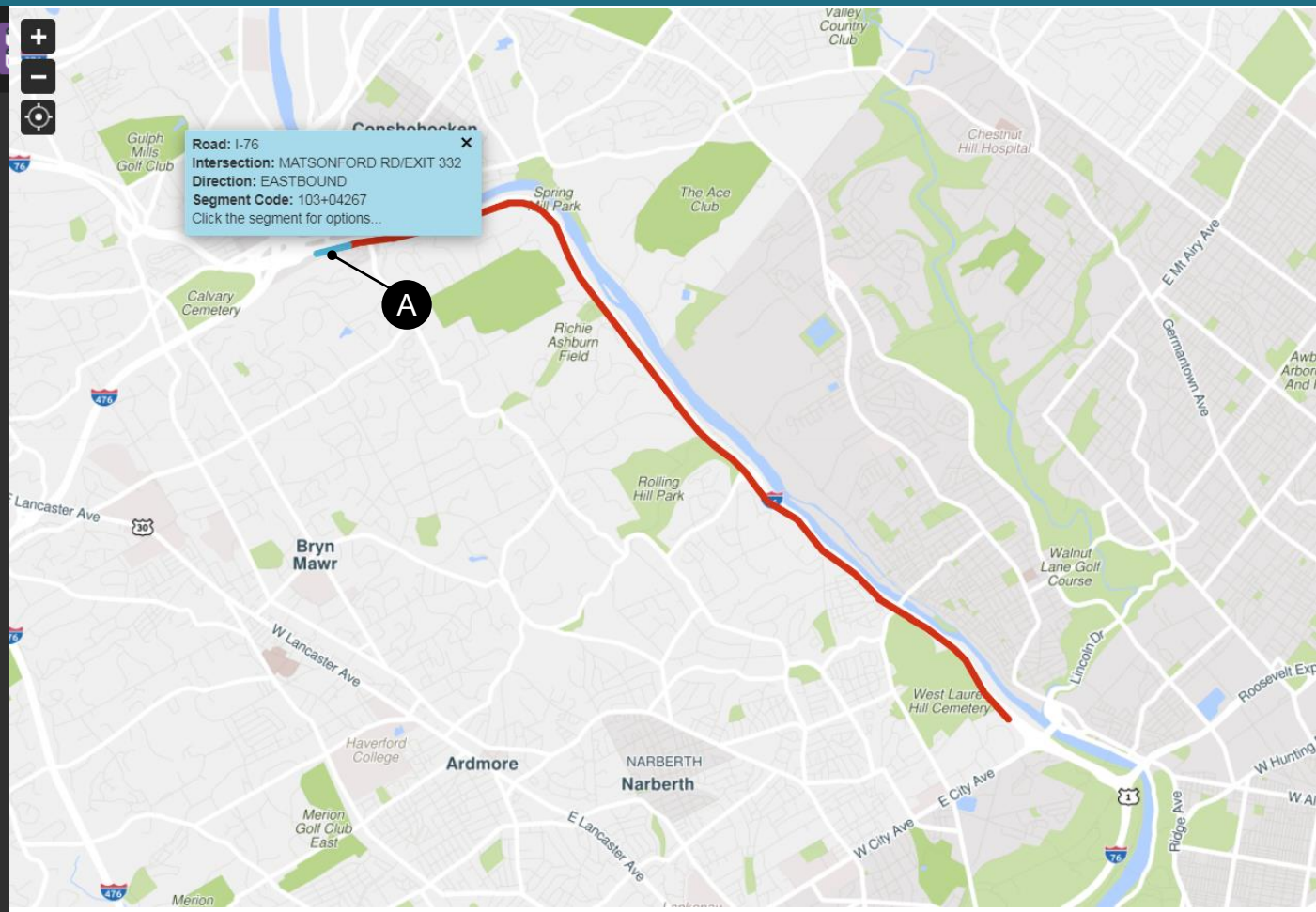




1 Used the RITIS-PDA Suite to Create a TMC Segment Set

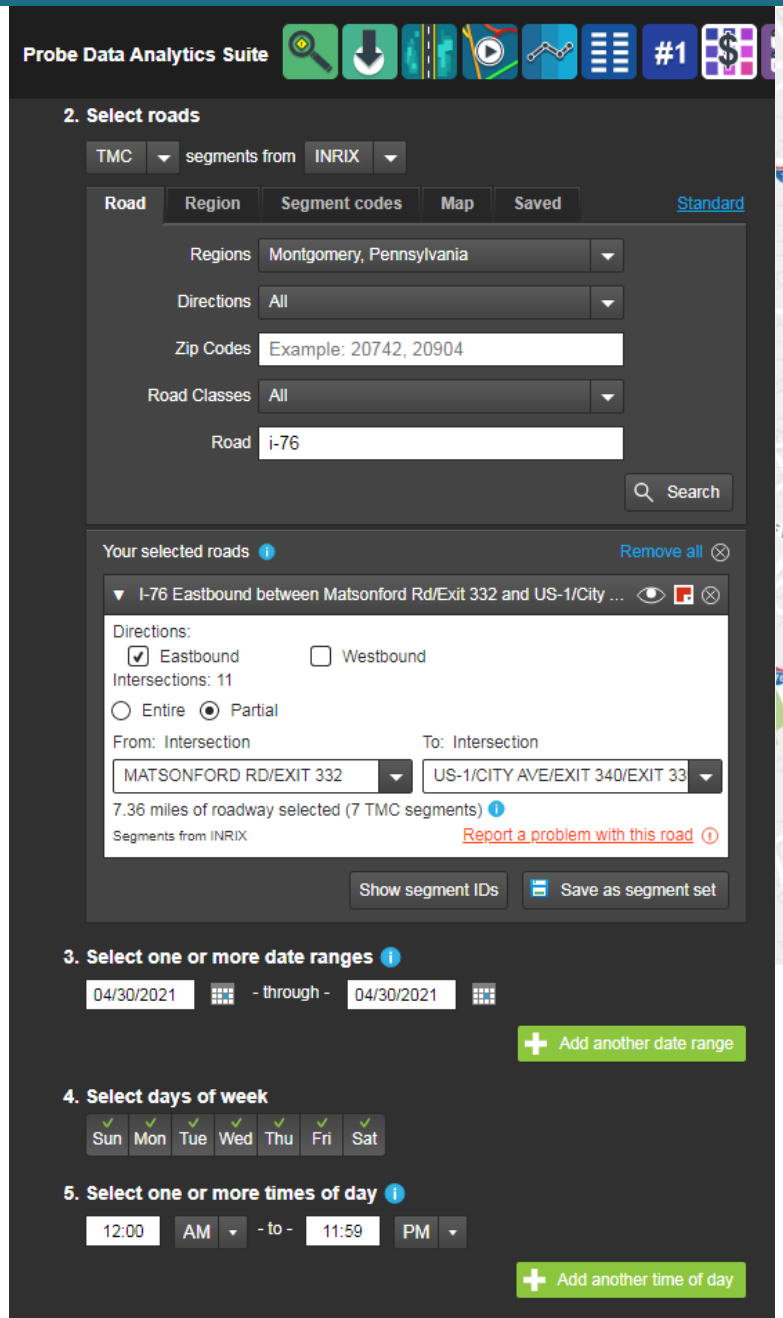
A Hover Cursor Over Road Segment to Get Additional Information or to Perform Further Actions

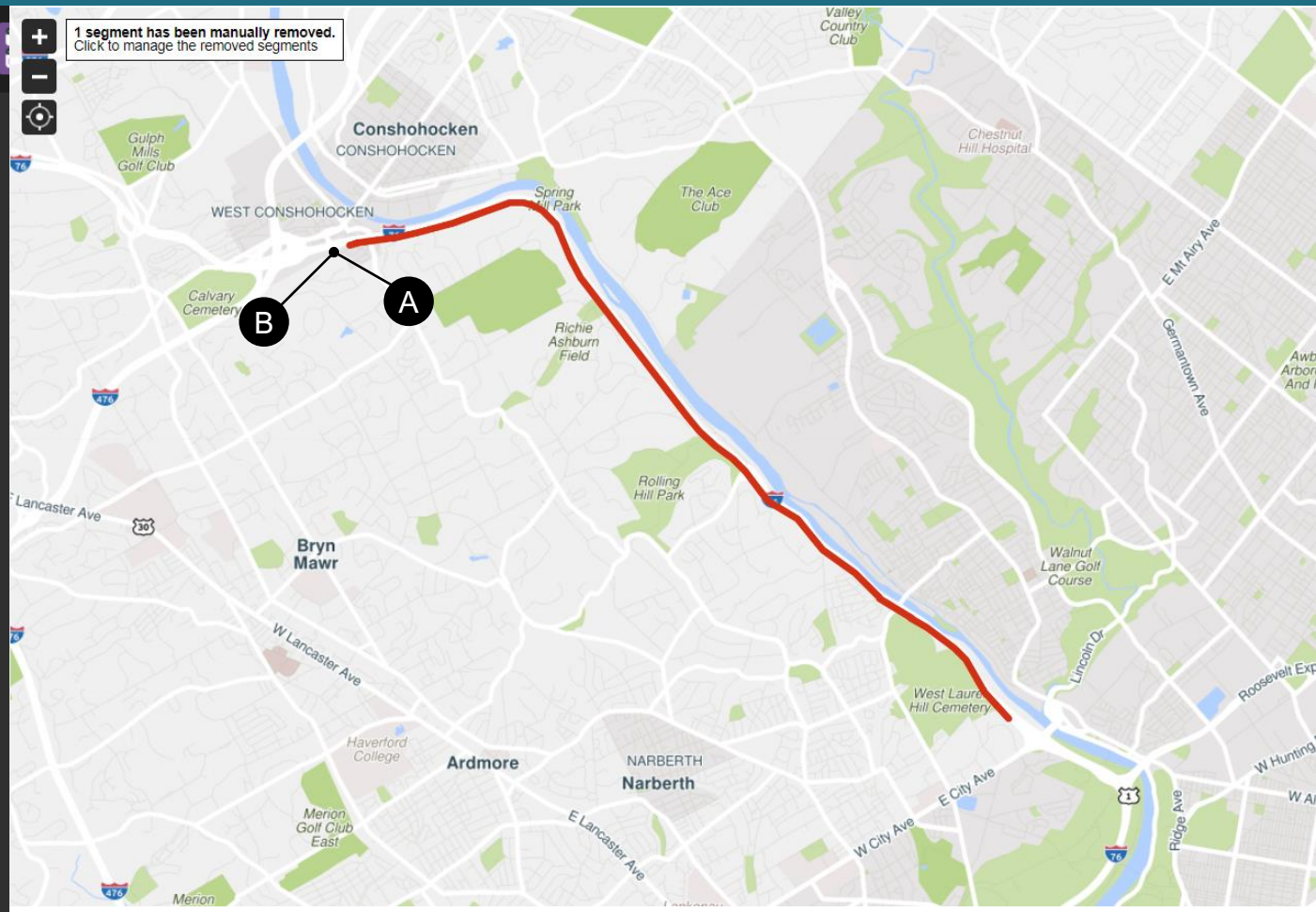




1 Used the RITIS-PDA Suite to Create a TMC Segment Set

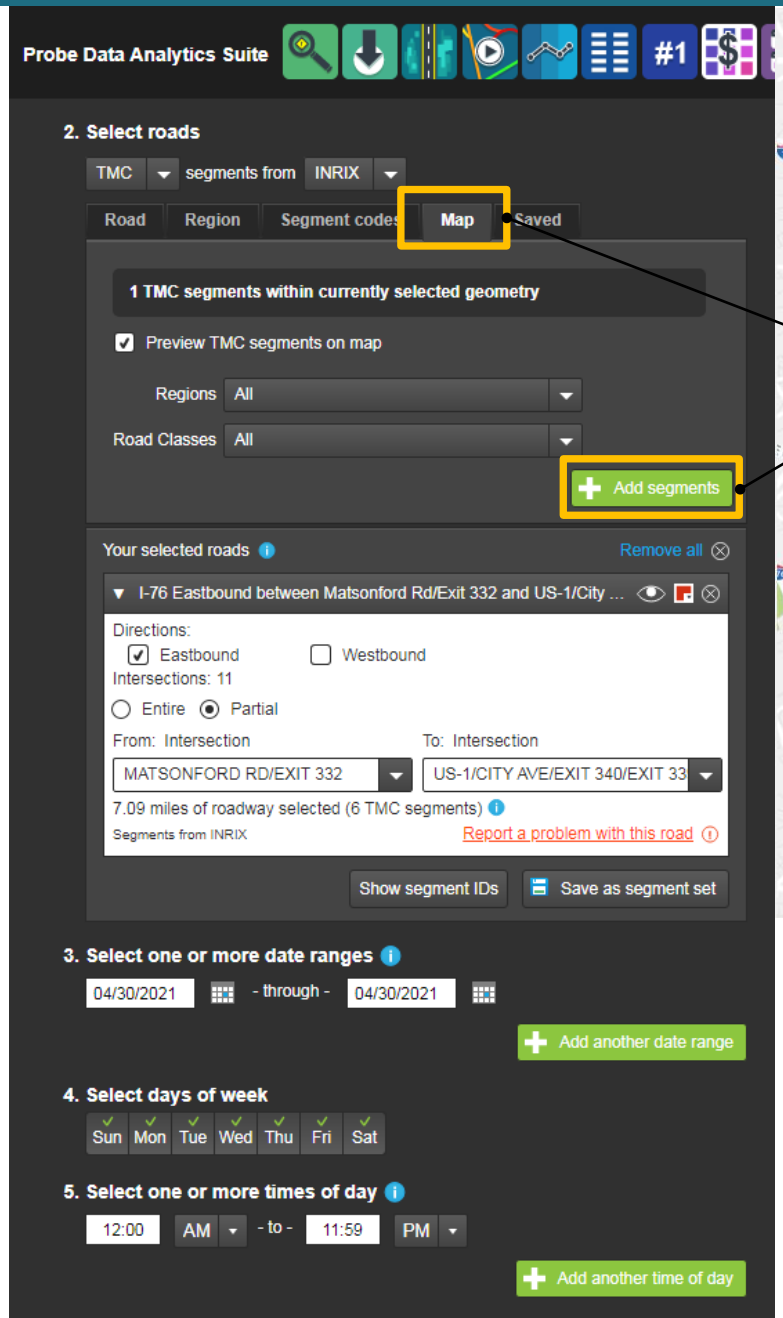
- **A** Hover Cursor Over Road Segment to Get Additional Information or to Perform Further Actions
- **B** Remove Segment from Corridor

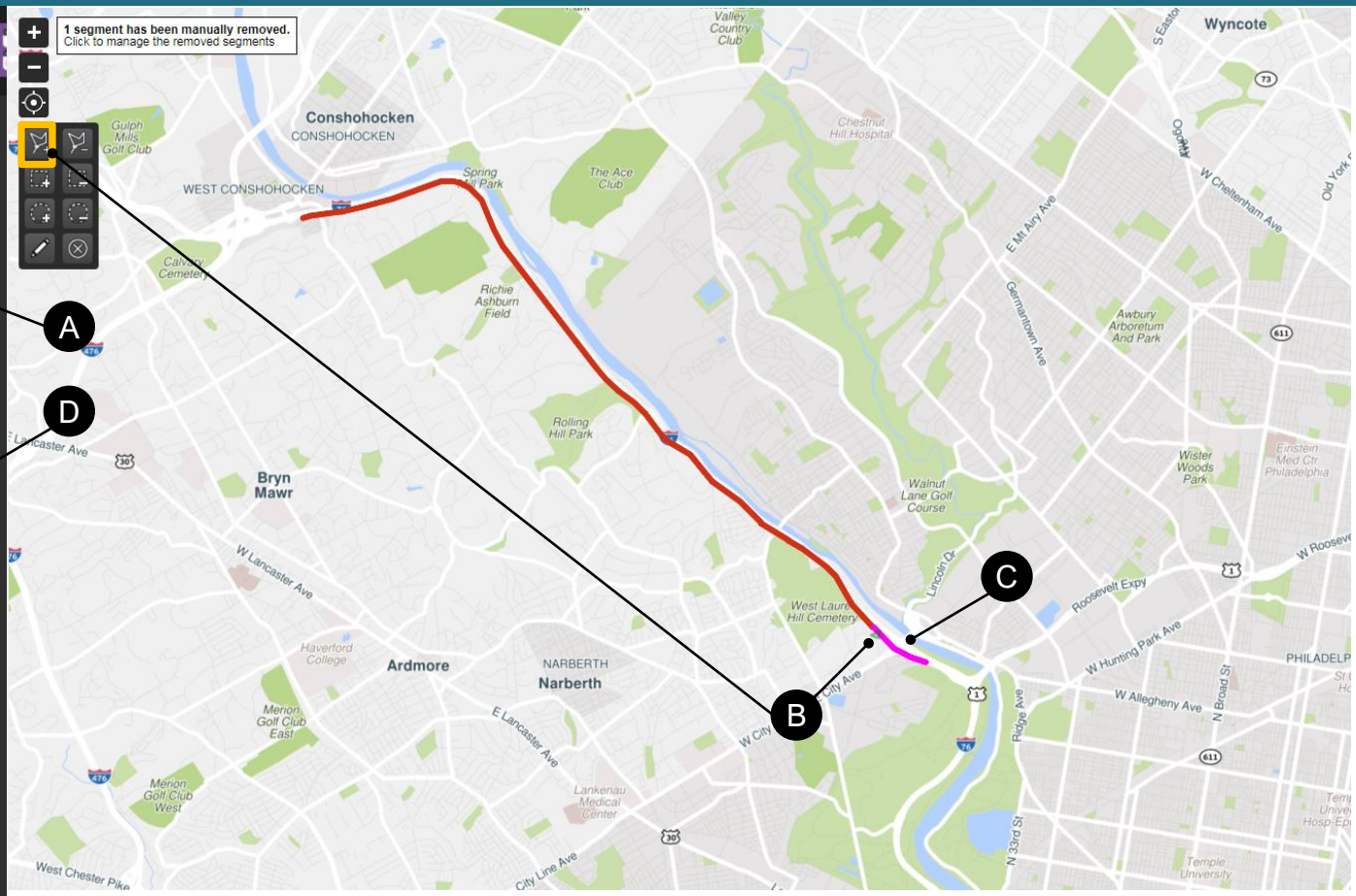




1 Used the RITIS-PDA Suite to Create a TMC Segment Set

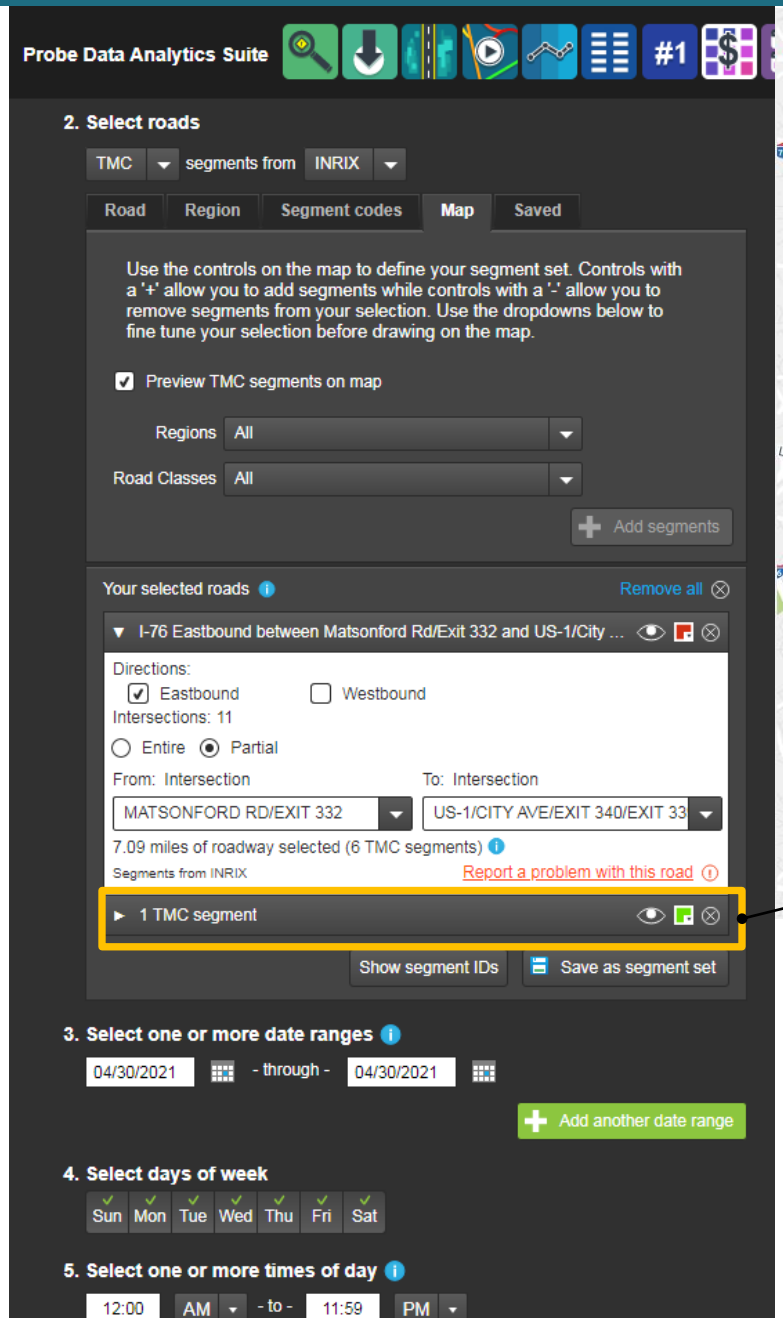
- **A** Use Map Tab to Add Road Segment(s) to TMC Segment Set
- **B** Draw a Polygon Around Desired Road Segment(s)
- **C** Segment(s) Displayed
- **D** Add Segment(s)

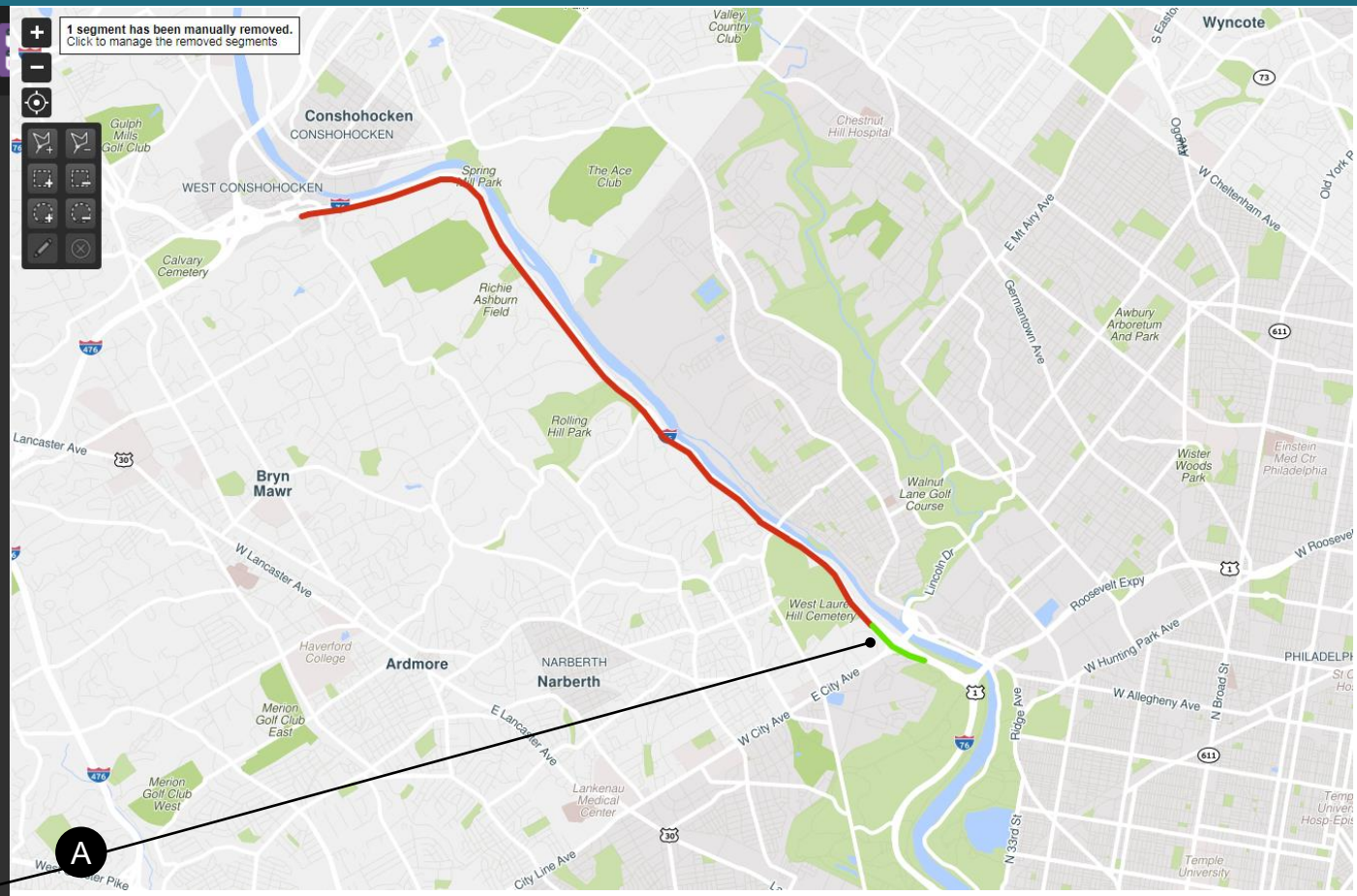




1 Used the RITIS-PDA Suite to Create a TMC Segment Set

A Added TMC Segment

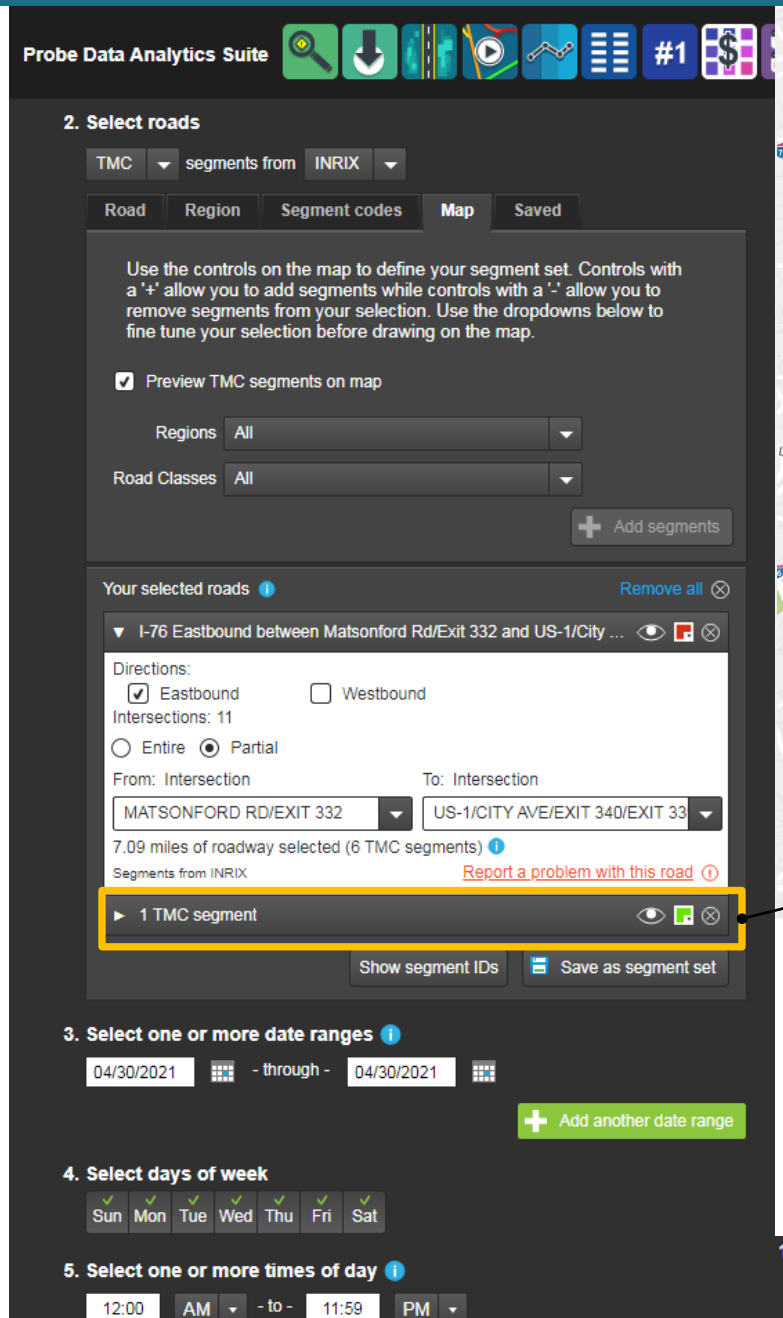


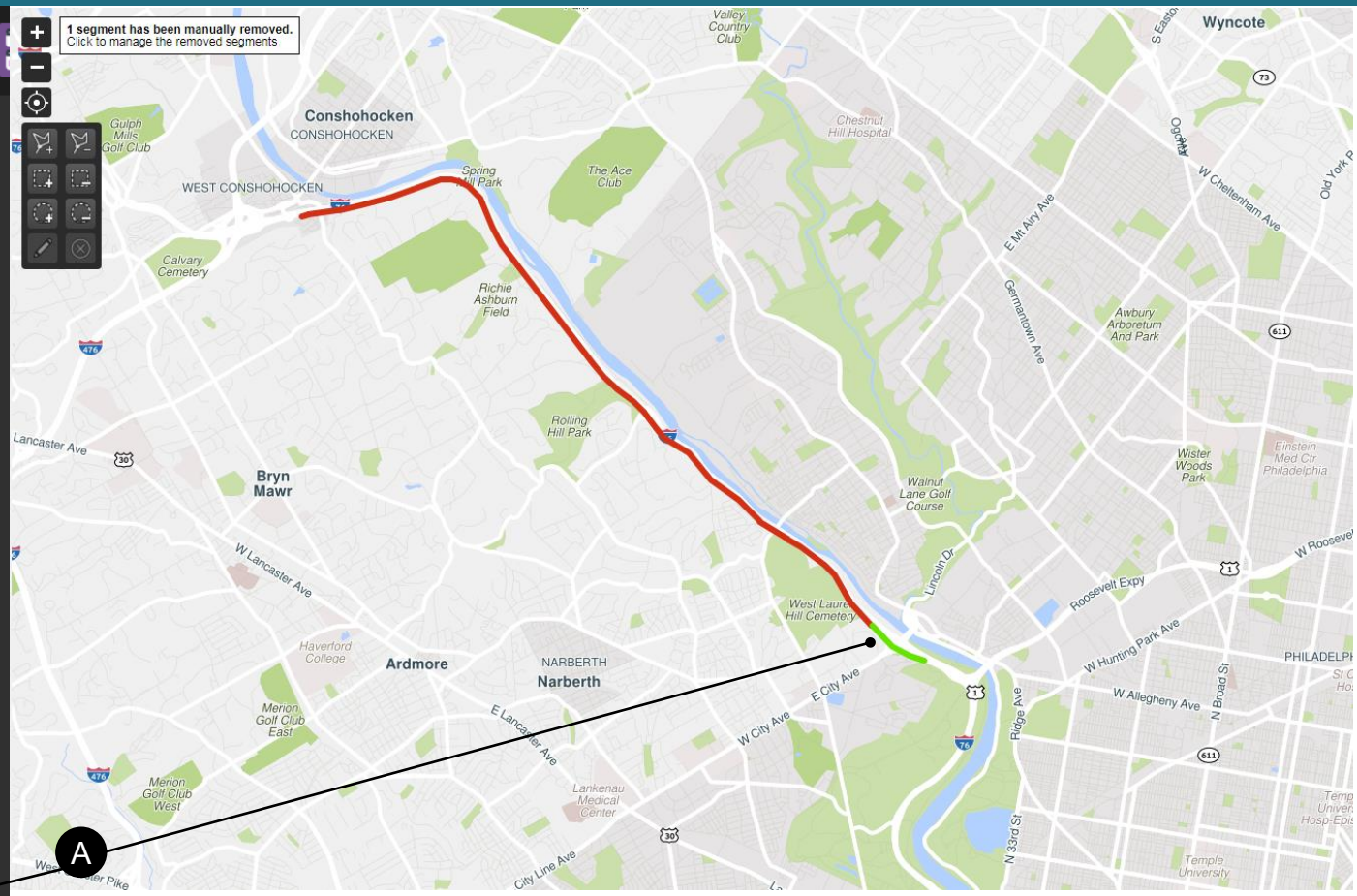


1 Used the RITIS-PDA Suite to Create a TMC Segment Set

A Added TMC Segment to Segment Set

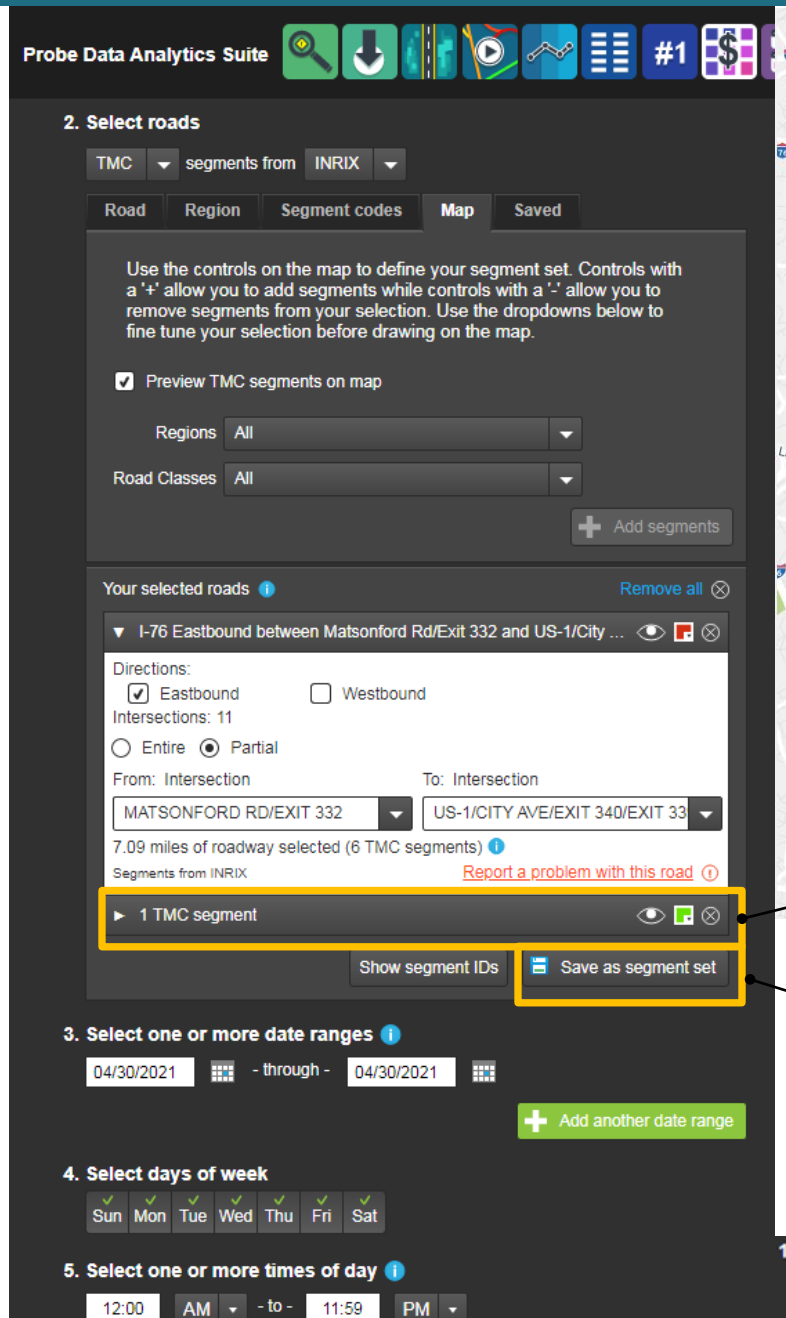
B Enter TMC Segment Set Name

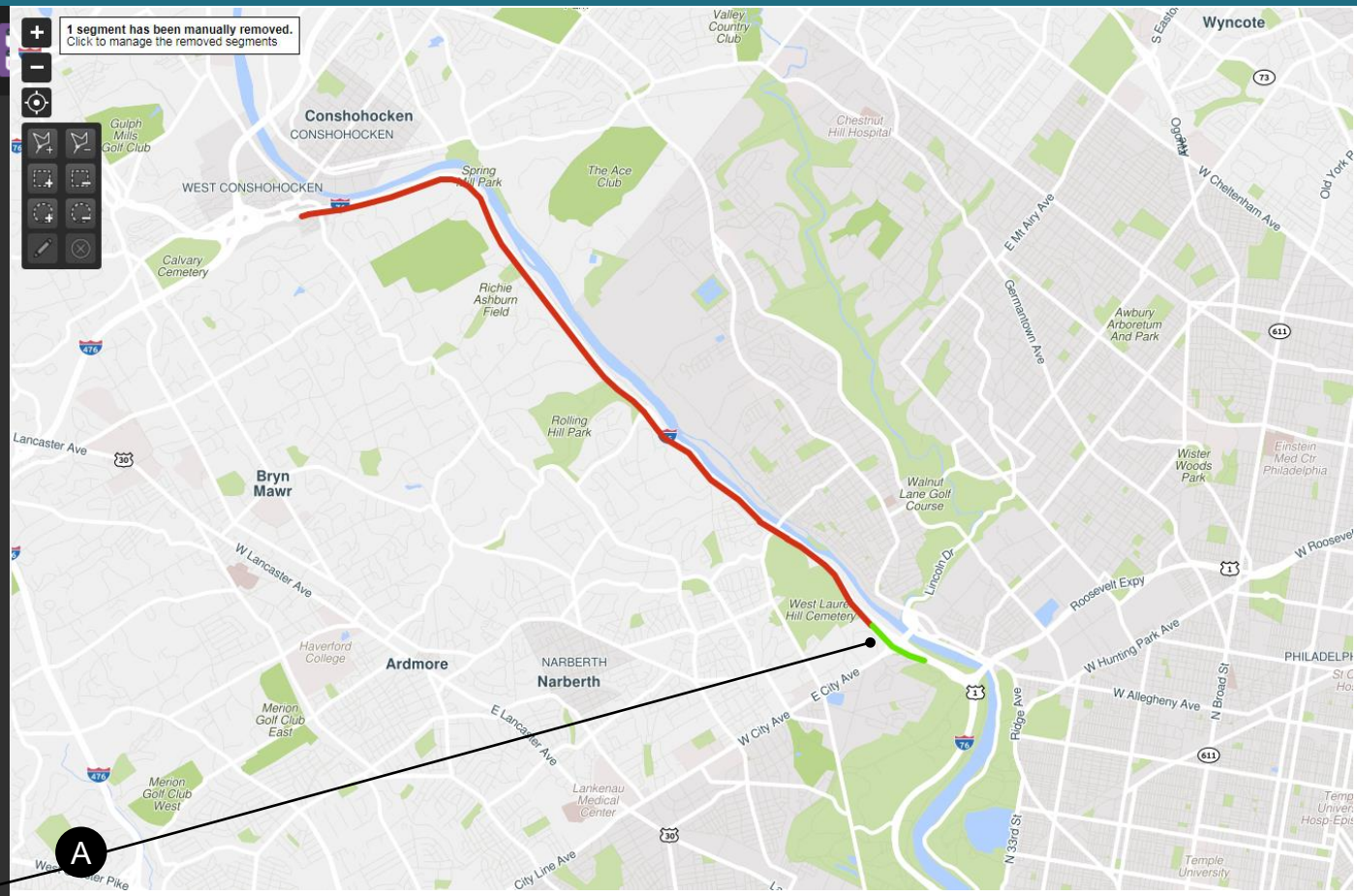




1 Used the RITIS-PDA Suite to Create a TMC Segment Set

- **A** Added TMC Segment
- **B** Enter TMC Segment Name
- **C** Save as TMC Segment Set

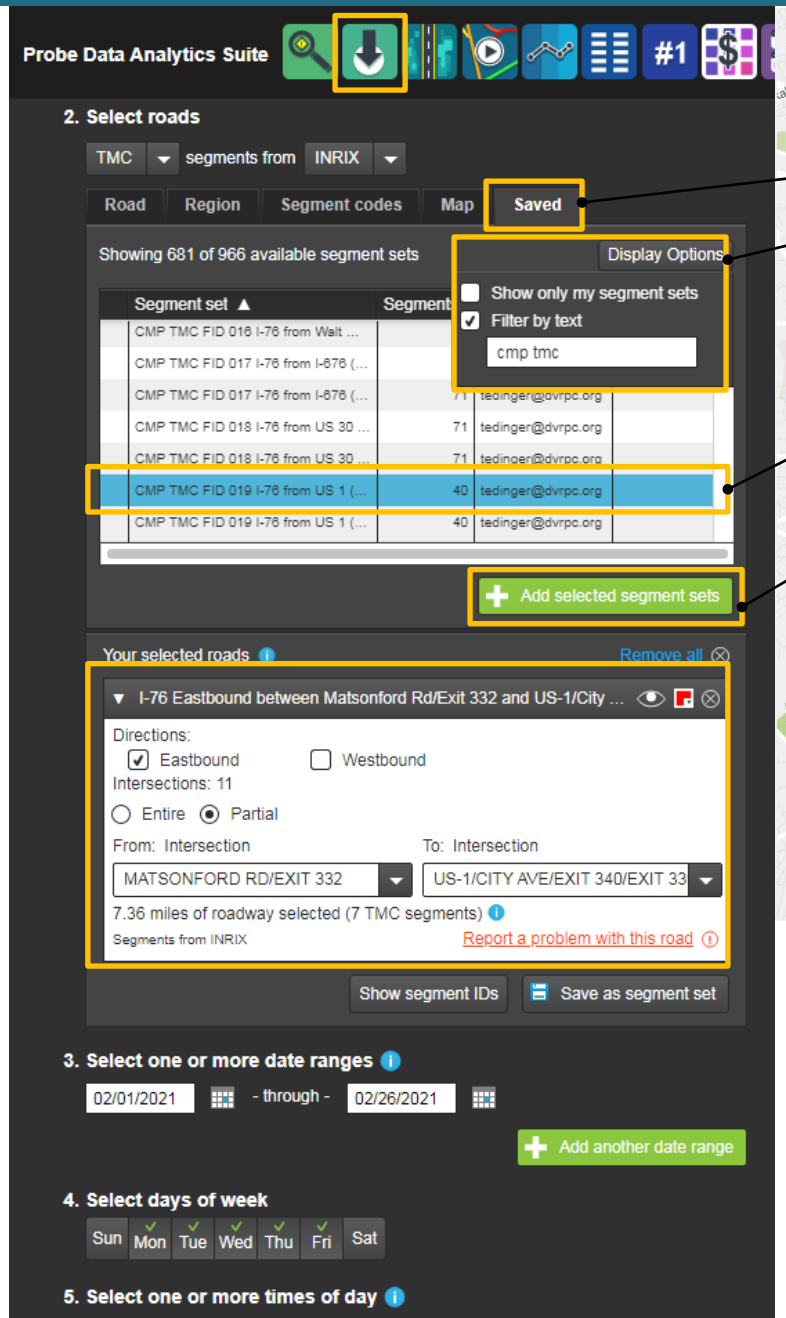


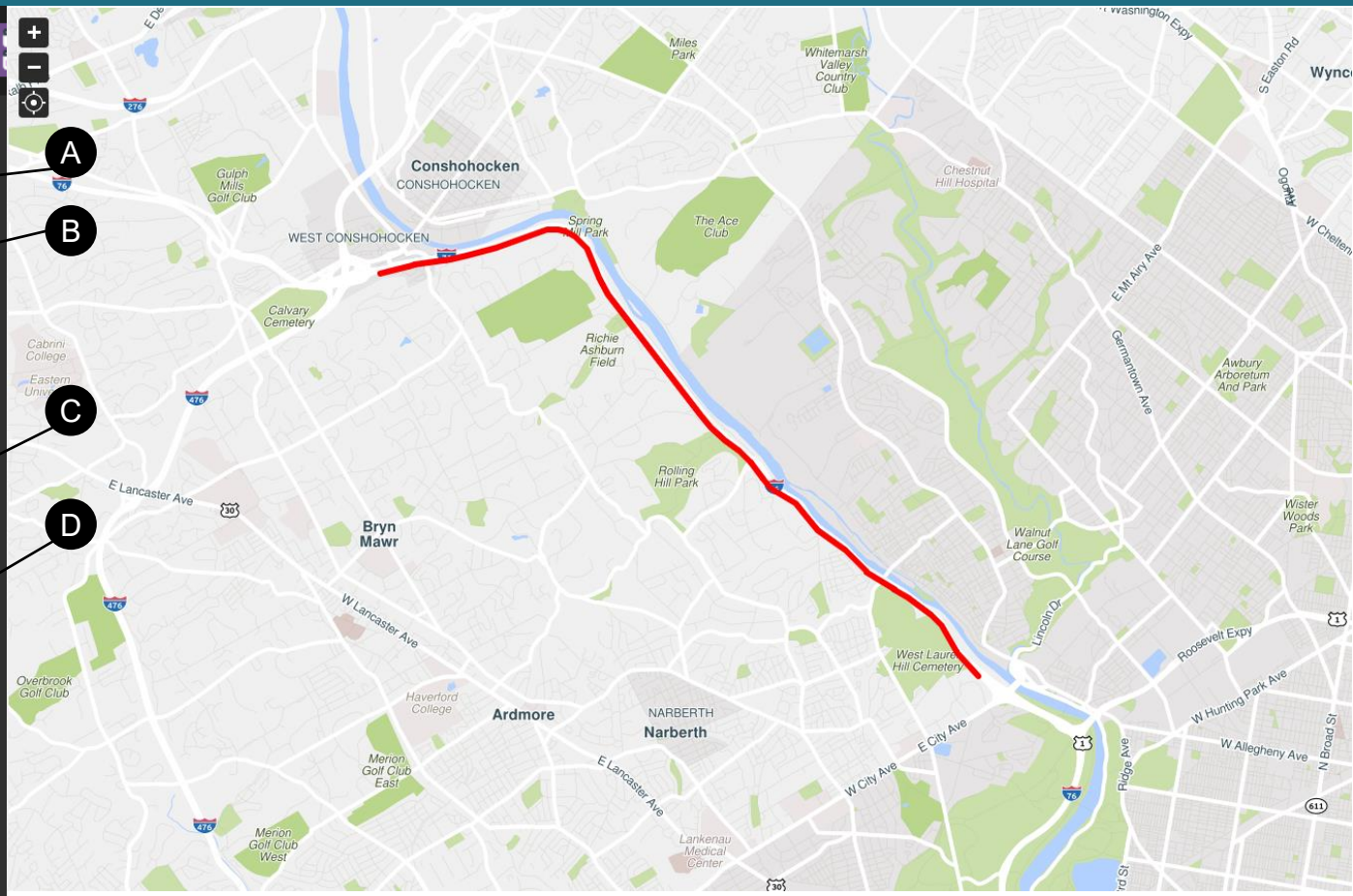


C

2 Used the PDA Suite to Retrieve the TMC Segment Set

- **A** Select the Saved Tab Option
- **B** Select Display Options and Filter by Text
- **C** Select the TMC Set
- **D** Add Selected Set to the Map Display

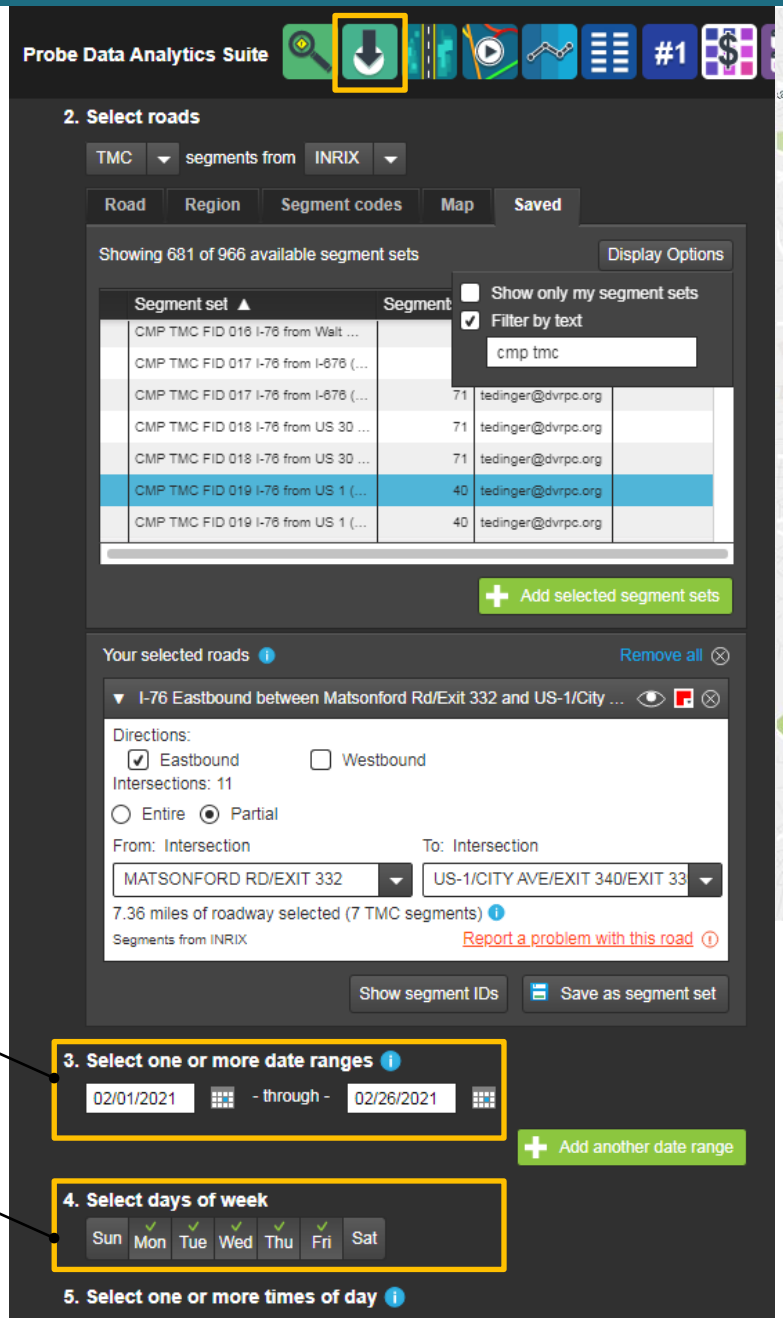


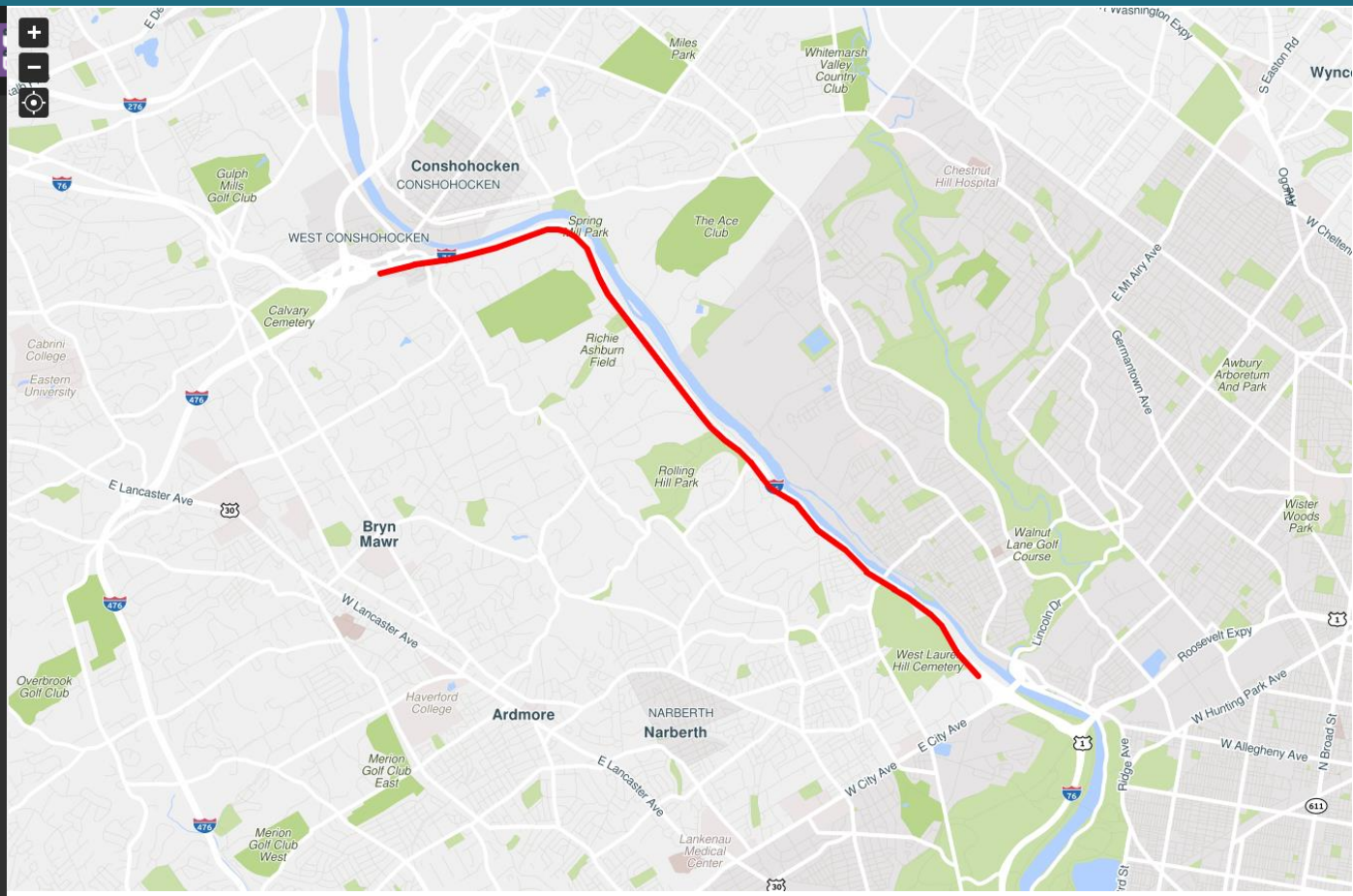


2 Used the PDA Suite to Create a Travel Time Query and Download a Segment Set

A Select Date Ranges

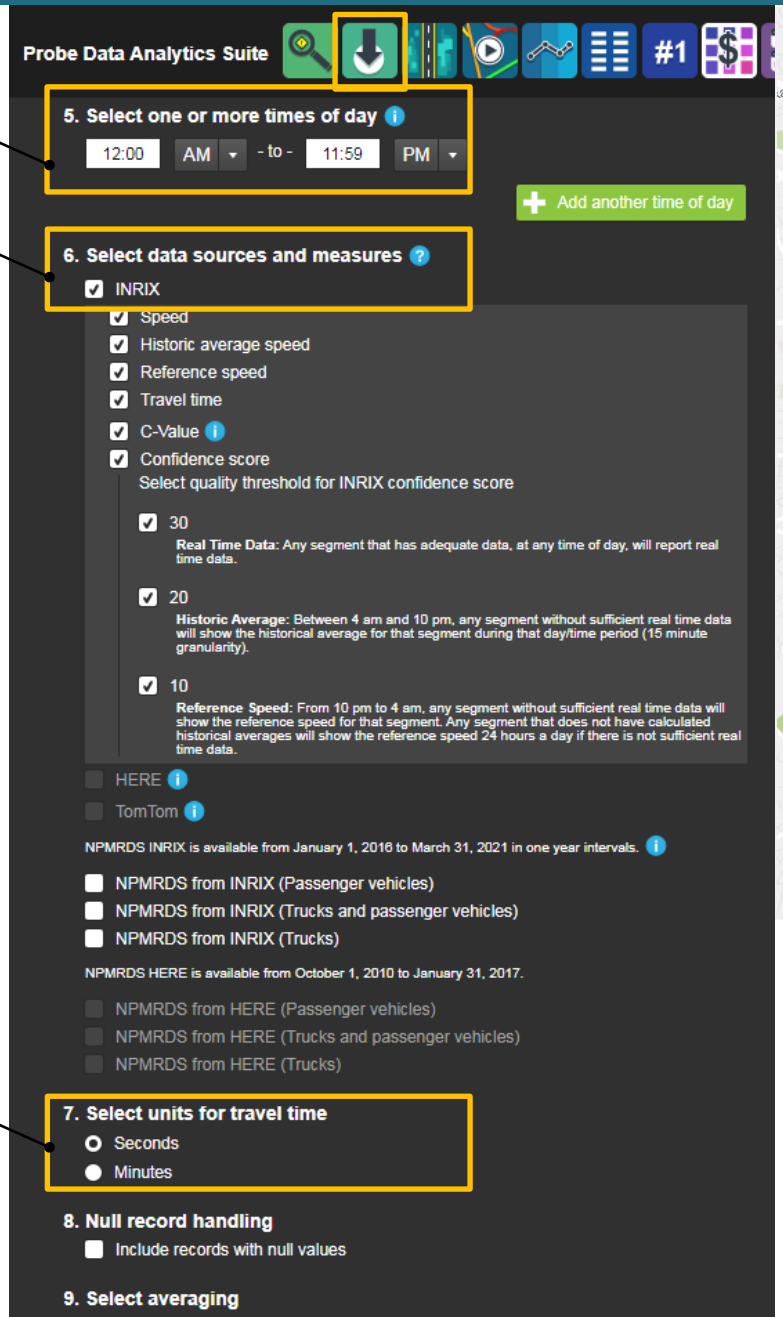
B Select Days of Week

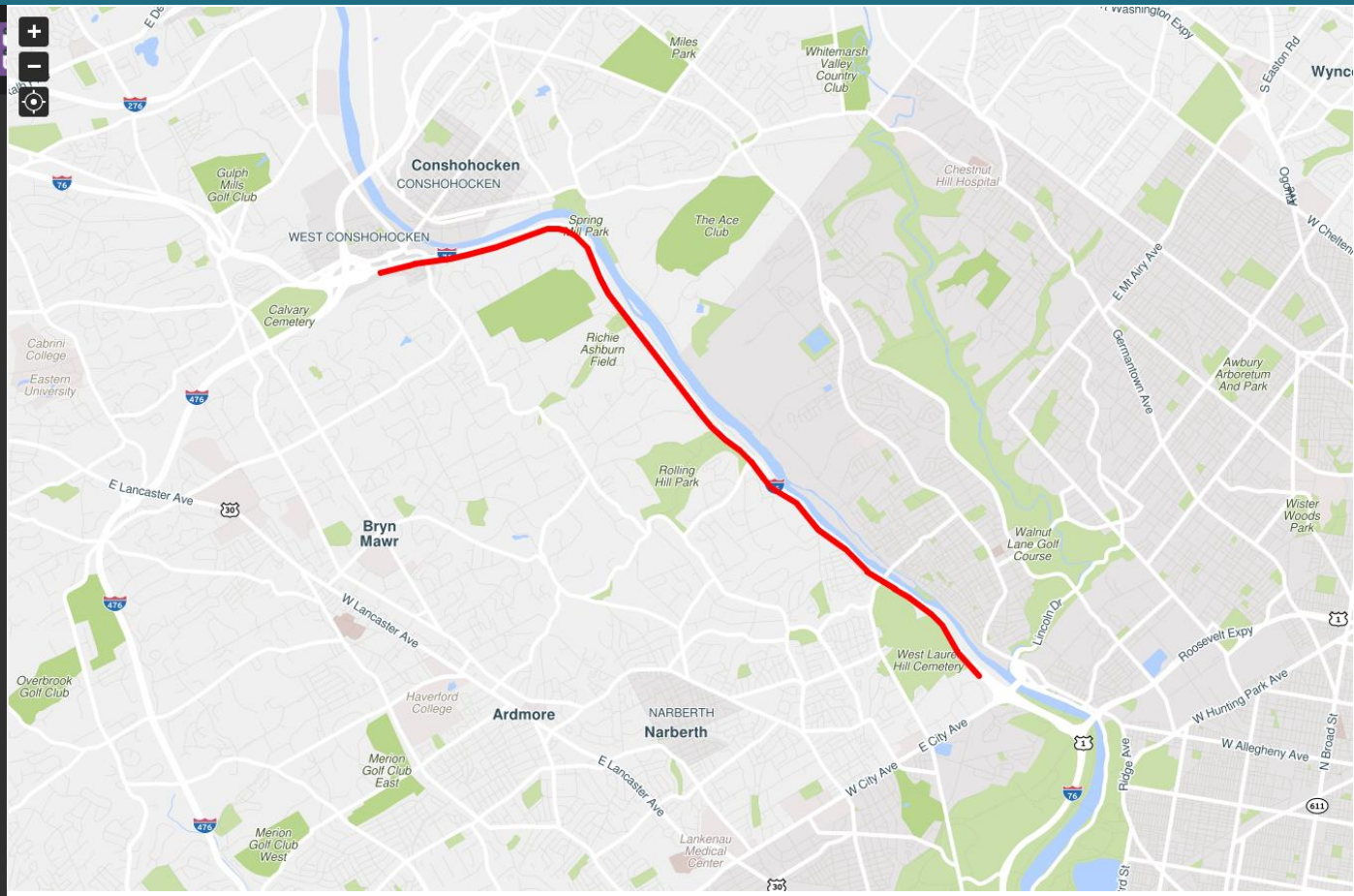




2 Used the PDA Suite to Create a Travel Time Query and Download a Segment Set

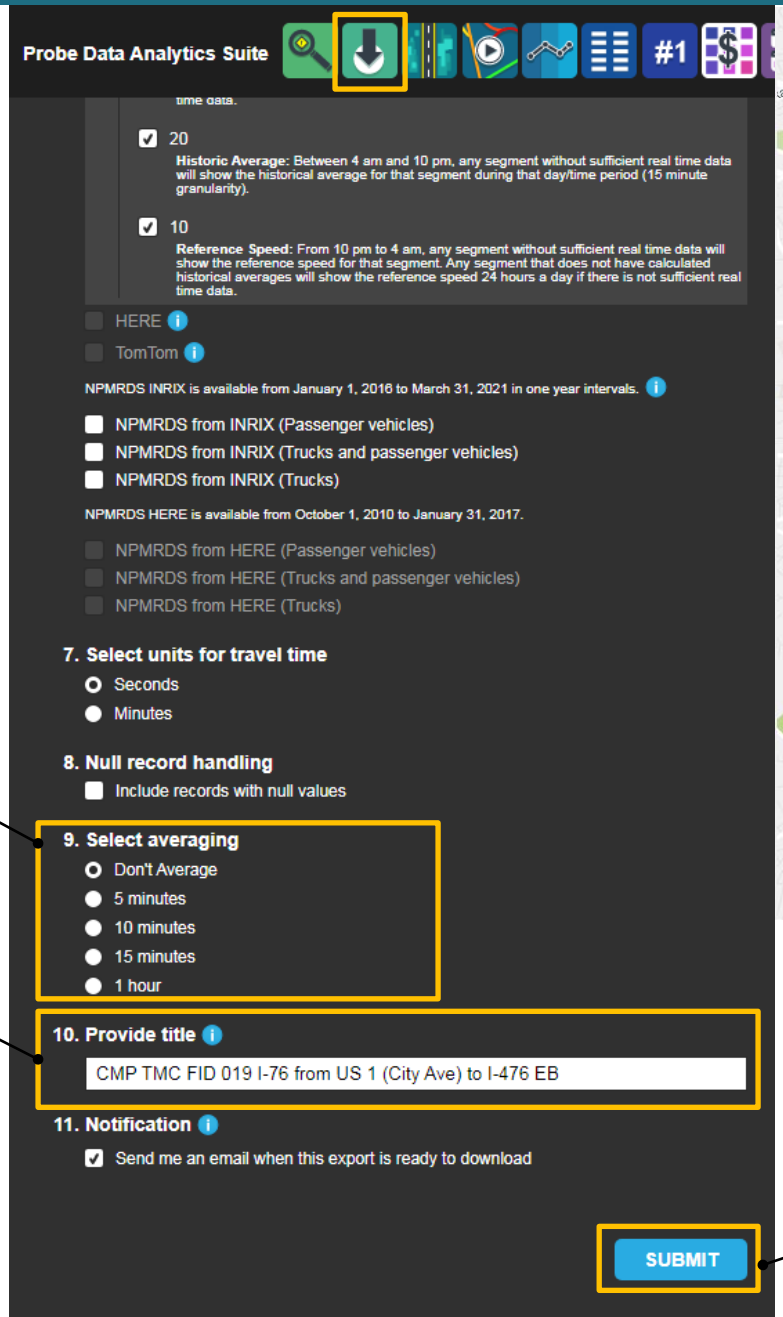
- C Select Time of Day
- D Select Data Measures
- E Select Travel Time Units

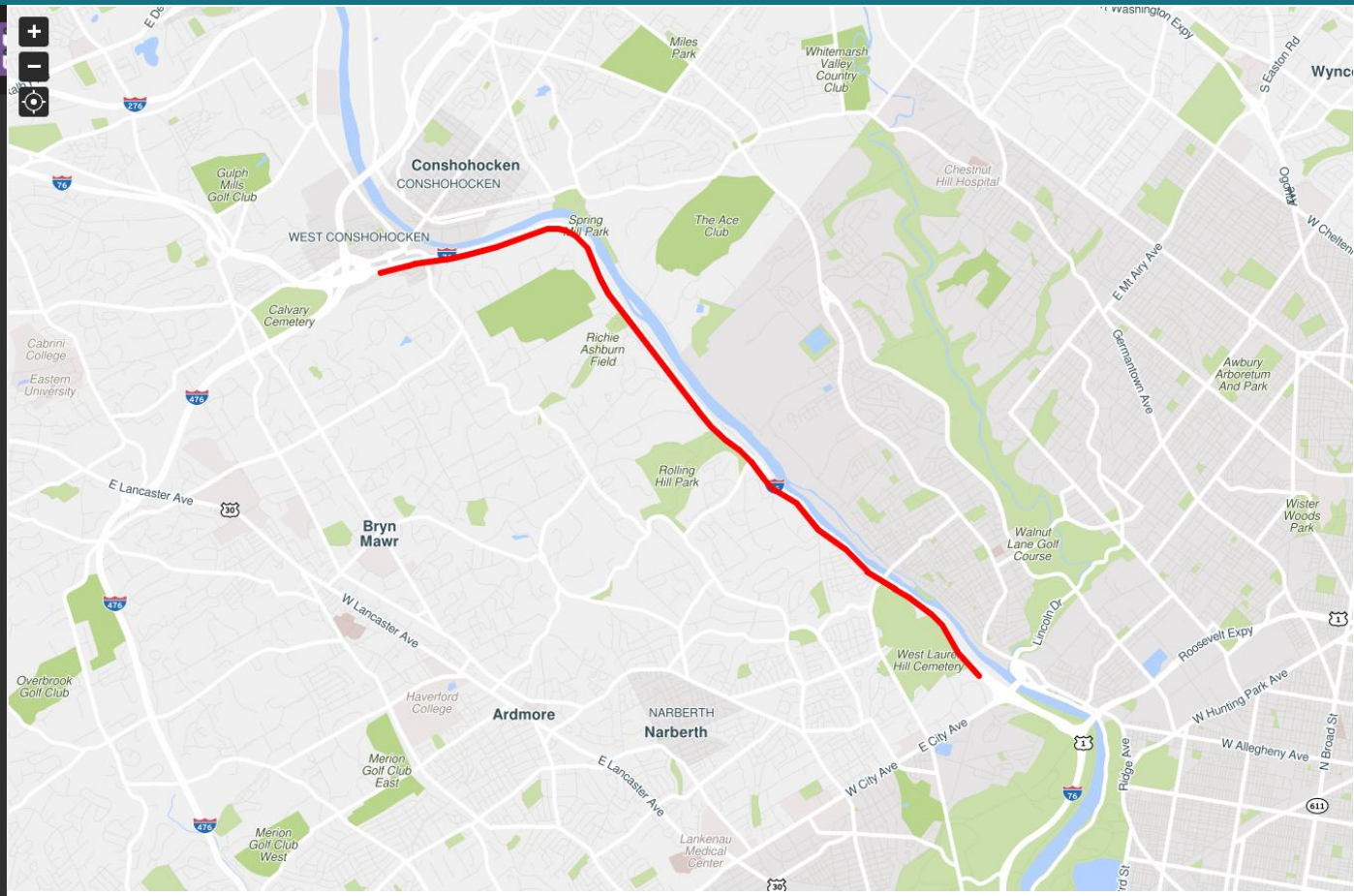




2 Used the PDA Suite to Create a Travel Time Query and Download a Segment Set

- **F** Select Averaging Option
- **G** Enter Output Dataset Name
- **H** Submit Query
- **I** Receive Email that Travel Time Data is Ready for Download





I

Your data request, "CMP-TMC-FID-019-I-76-from-US-1-City-Ave-to-I-476-EB", is now available for download.

You can access it here: http://pda.ritis.org/export/download/be779972-8491-4b32-a347-c5034dff3041

3 Used the RITIS API to Automatically Download Travel Time Segment Sets

Submit Request

Job Submission Submitting an export, performance metrics, or user delay cost job.

POST `/submit/export` Export Job Submission

```
# Send the POST request
ritis_response = requests.post(submit_export_url, json = submit_export_json, verify = False)
print('Data payload was ', submit_export_json, '\n\n')
```

Get Job Status

Job Status Polling for the status of any job.

GET `/jobs/status` Job Status

```
# Generate RITIS URL for the jobs status GET request
job_status_url = "http://pda-api.ritis.org:8080/jobs/status?key=" + RITIS_API_KEY + "&jobId=" + ritis_response_jobID
# Send the GET request
job_status = requests.get(job_status_url)
```

Get Results

Job Result Retrieving the results of any job.

GET `/results/export` Export Job Results

```
# Generate RITIS URL for the export results GET request
results_export_url = "http://pda-api.ritis.org:8080/results/export?key=" + RITIS_API_KEY + "&uuid=" + curr_uuid
# Send the GET request
results_export = requests.get(results_export_url)
```

Data is downloaded in zip file format

dvrpc

3 RITIS API Script Snippet Showing Some Travel Time Criteria Needed to Download

```
submit_export_json = {
    "addNullRecords": addNullRecords,
    "averagingWindow": averagingWindow,
    "dataSourceFields": [{
            "columns": columns,
             "dataSource": dataSource,
             "qualityFilter": {
                    "includeIncalculable": includeIncalculable,
                     "max": maxQualityFilter,
                     "min": minQualityFilter,
                     "thresholds":thresholds
                     }
                     }
                    ],
    "dates": [{
            "end": endDate,
            "start": startDate
              }
             ],
    "dow": dows,
    "dsFields": [{
            "columns": columns,
            "dataSource": dataSource,
            "qualityFilter": {
                    "includeIncalculable": includeIncalculable,
                    "max": maxQualityFilter,
                    "min": minQualityFilter,
                    "thresholds": thresholds
                    }
                }
               ],
    "granularity": {
            "type": granularityType,
            "value": granularityValue
            },
    "mergeFiles": mergeFiles,
    "times":[{
            "end": endTimes,
            "start": startTimes
             }
            ],
    "tmcs": mytmcslist,
    "travelTimeUnits": travelTimeUnits,
    "uuid": curr_uuid
}
```

Fields to Download

example: List ["SPEED", "AVERAGE_SPEED", "REFERENCE_SPEED", "TRAVEL_TIME_MINUTES", "CVALUE", "CONFIDENCE_SCORE"]

Date Range

Days of Week

Start and End Times

TMC Segment Set List

example: List ["110-04603", "110-04604", "110-04605"]

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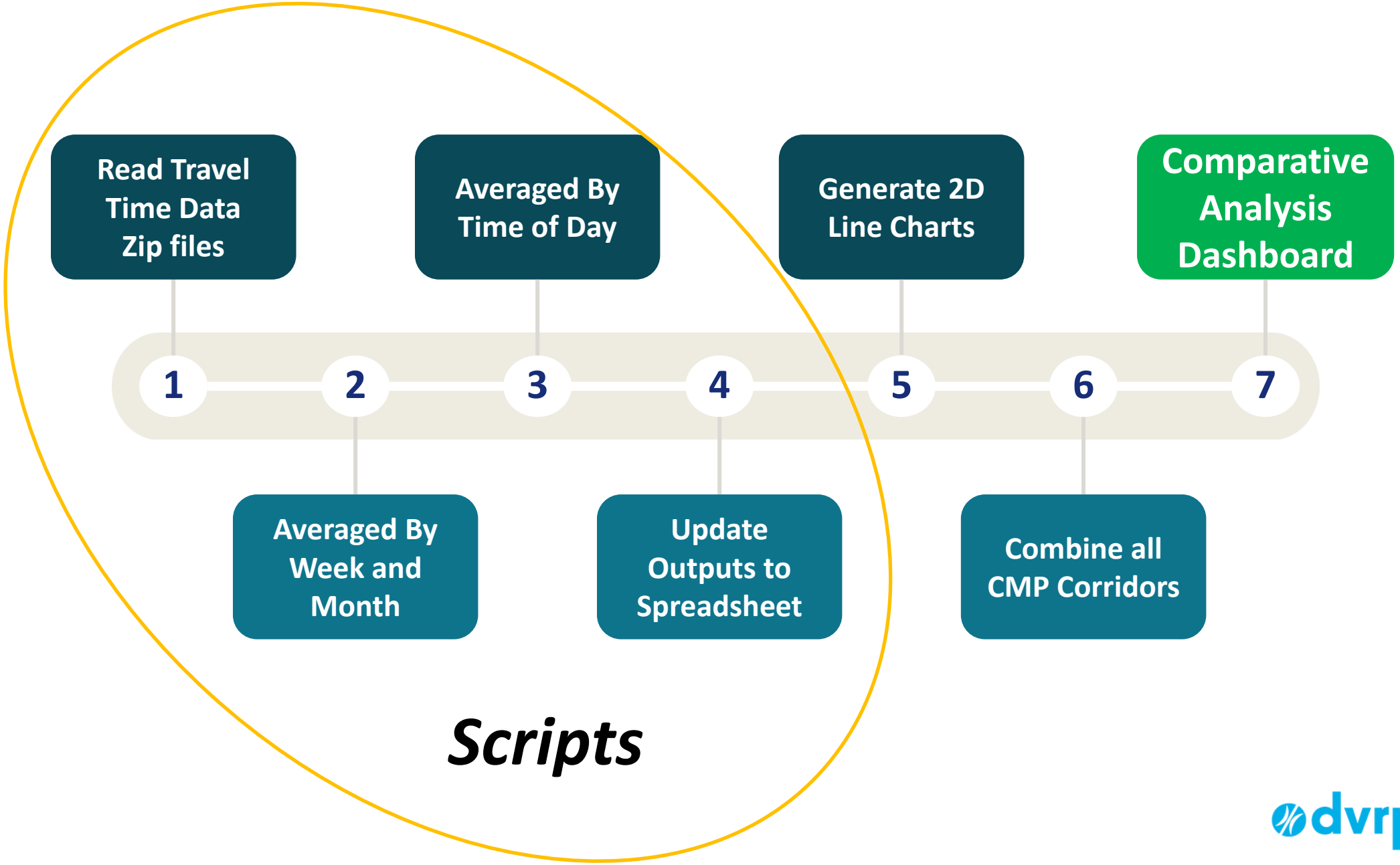
4 Used Python Scripts to Update Spreadsheets and Summarize Travel Time Data



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4 Travel Time Index (TTI) Performance Measure Output to Spreadsheet

- **A** Highest AM Peak Hour TTI 1.64
- **B** Highest PM Peak Hour TTI 2.63
- **C** Each Corridor is in a separate MS Excel Tab

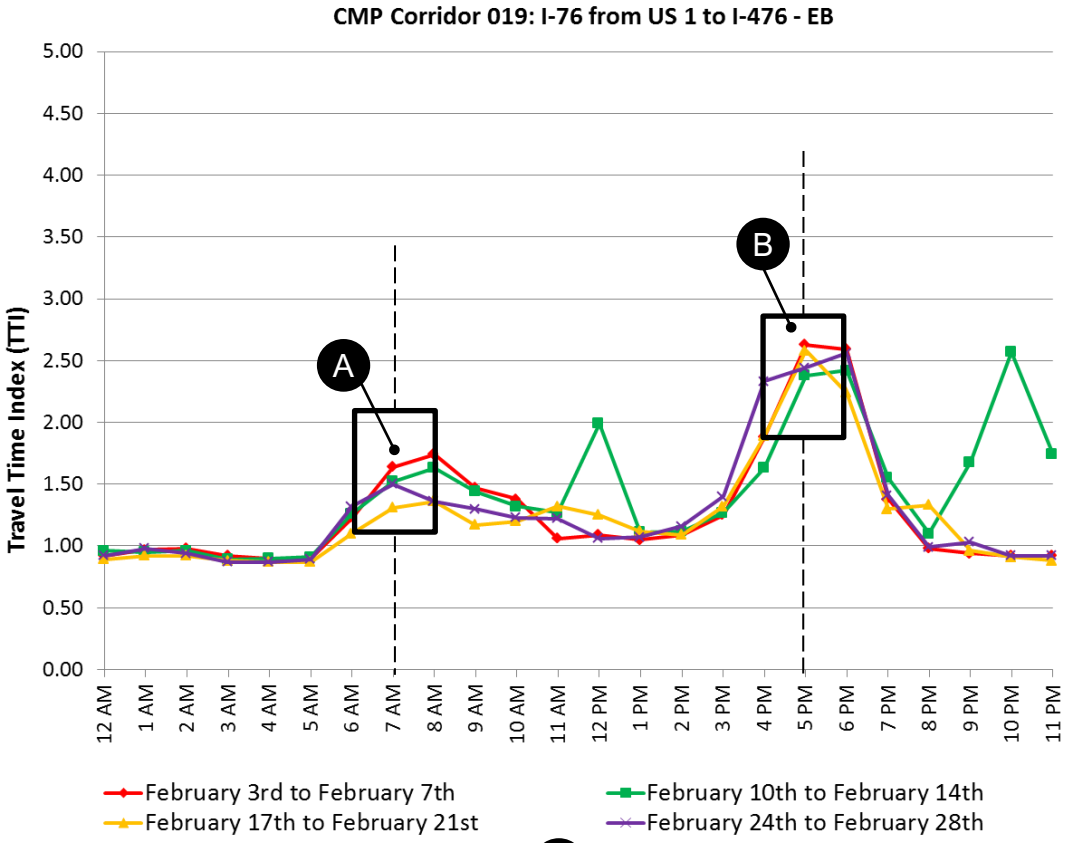
Excel Tab Output File

	February 3rd to February 7th	February 10th to February 14th	February 17th to February 21st	February 24th to February 28th
12 AM	0.92	0.96	0.89	0.92
1 AM	0.97	0.95	0.92	0.98
2 AM	0.98	0.96	0.92	0.94
3 AM	0.92	0.89	0.88	0.87
4 AM	0.9	0.9	0.87	0.87
5 AM	0.9	0.91	0.87	0.89
6 AM	1.23	1.26	1.1	1.32
7 AM	1.64	1.52	1.31	1.5
8 AM	1.74	1.63	1.36	1.36
9 AM	1.47	1.44	1.17	1.3
10 AM	1.38	1.32	1.2	1.23
11 AM	1.06	1.27	1.32	1.22
12 PM	1.09	1.99	1.25	1.06
1 PM	1.05	1.11	1.12	1.07
2 PM	1.09	1.12	1.09	1.16
3 PM	1.25	1.27	1.32	1.4
4 PM	1.88	1.63	1.89	2.33
5 PM	2.63	2.38	2.58	2.44
6 PM	2.59	2.42	2.24	2.56
7 PM	1.38	1.55	1.3	1.41
8 PM	0.98	1.1	1.33	0.99
9 PM	0.94	1.68	0.96	1.03
10 PM	0.92	2.57	0.91	0.92
11 PM	0.92	1.74	0.88	0.92

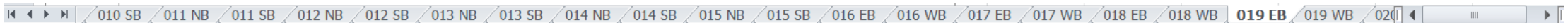
A

B

February 2020



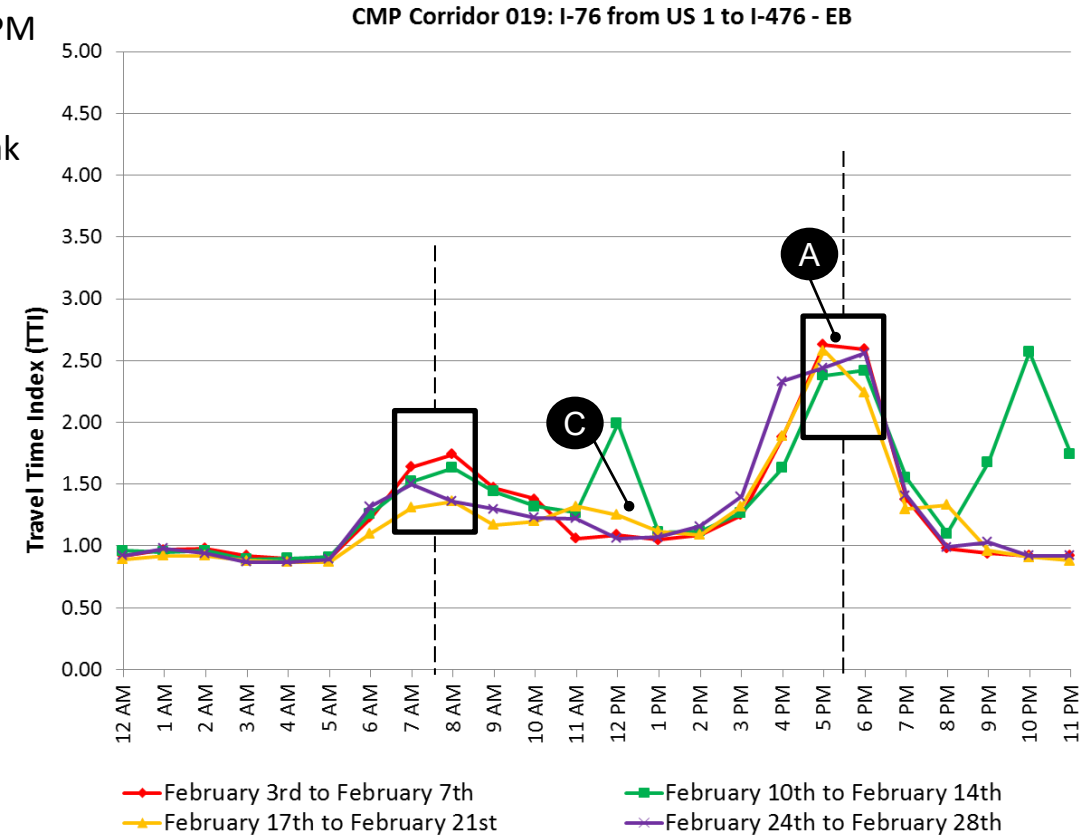
C



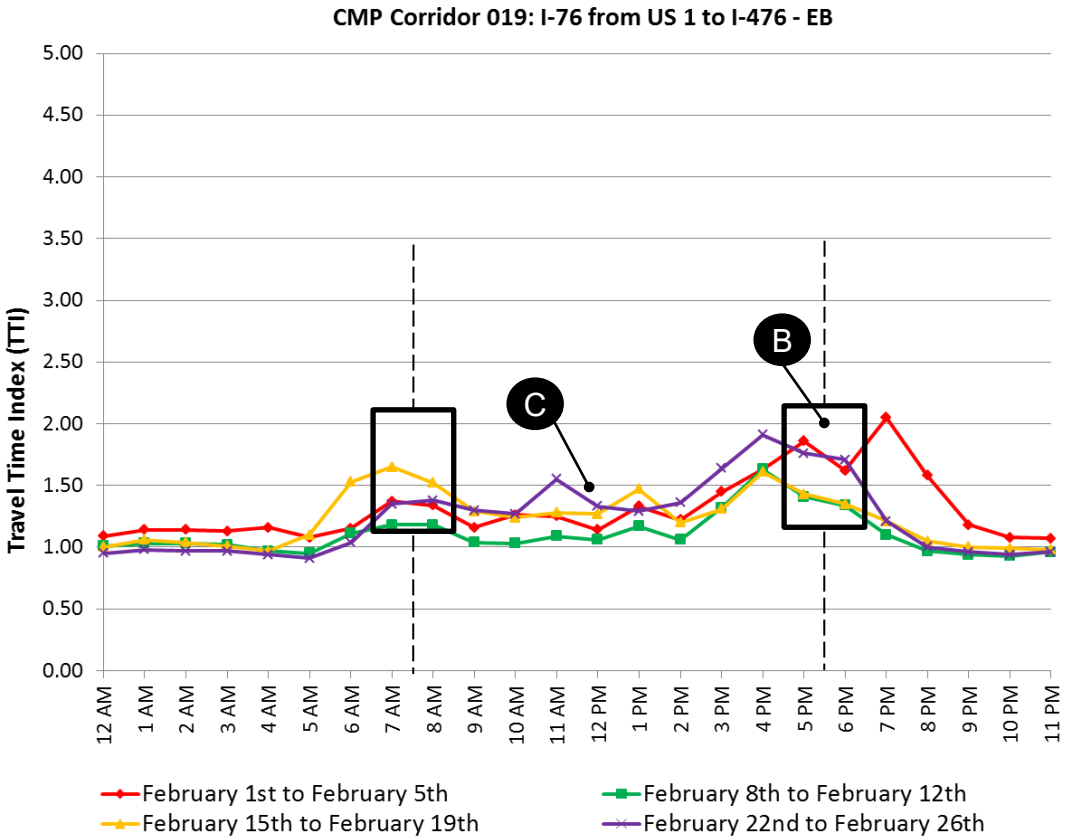
4 Travel Time Index (TTI) Performance Measure Comparing Feb 2020 and 2021

- A Average 2020 PM Peak TTI 2.50
- B Average 2021 PM Peak TTI 1.62
- C Higher non-peak TTI in 2021 compared to 2020

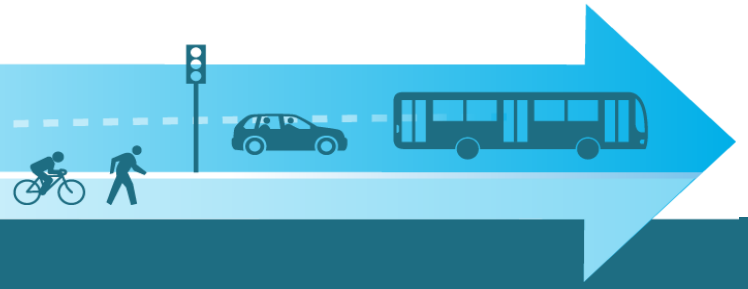
February 2020



February 2021



CMP Corridor Comparative Analysis Dashboard by Month Year-Over-Year



- **CMP Corridor Name, County and Limited Access**
- **TTI, PTI and Speed Performance Measures**
  - Averaged for each week of the month
  - Averaged by month
  - Analyze peak periods
- **Change (or delta) Year-Over-Year**
- **Percent Change**
- **Ranking**
  - Delta
  - Percent Change
  - Highest February 2020 and 2021 performance measures

dvrpc

5 Dashboard - PM Peak Hour Travel Time Index (TTI) February YOY Comparison

Worst Performing Corridors

CMP Focus Roadway Corridors	County	Limited Access	2020 TTI 5:00-6:00 PM				2021 TTI 5:00-6:00 PM				Summary							
			Feb 03rd to Feb 07th	Feb 10th to Dec 14th	Feb 17th to Feb 21st	Feb 24th to Feb 28th	Feb 01st to Feb 05th	Feb 08th to Feb 12th	Feb 15th to Dec 19th	Feb 22nd to Feb 26th	2020 Feb Peak Hr Mean	2021 Feb Peak Hr Mean	Delta	Percent Change	Rank Delta	Rank Percent Change	Rank Highest 2020 Feb TTI	Rank Highest 2021 Feb TTI
Pennsylvania P… Corridor Name …on		***County***	***2020 Peak Hour TTI***				***2021 Peak Hour TTI***							***Summary and Rankings***				
001: I-76 Turnpike from PA 29 to I-76 (Valley … - EB	Chester	Yes									0.91							277
001: I-76 Turnpike from PA 29 to I-76 (Valley F… - WB	Chester	Yes									0.95							306
002: I-276 Turnpike from I-76 (Valley Forge) to …76 NE Ext (Plymouth Meeting) - EB	Montgome…	Yes									1.59							277
002: I-276 Turnpike from I-76 (Valley Forge) to …76 NE Ext (Plymouth Meeting) - WB	Montgome…	Yes	0.93	0.9…	0.92	0.93	1.19	0.9…	1.00	0.97	0.93	1.03	0.10	10	308	318	326	270
003: I-276 Turnpike from I-476 NE Ext (Plymou… Meeting) to PA 309 (Fort Washington) - EB	Montgome…	Yes	1.17	1.3…	1.26	1.12	1.17	0.9…	0.98	0.97	1.23	1.02	-0.21	-17	63	52	170	277
003: I-276 Turnpike from I-476 NE Ext (Plymouth Meeting) to PA 309 (Fort Washington) - WB	Montgomery	Yes	1.03	1.1…	1.05	1.09	1.17	0.9…	0.98	0.98	1.07	1.02	-0.05	-4	143	139	259	277
004: I-276 Turnpike from PA 309 (Fort Washington) to PA 611 (Hatboro) - EB	Montgomery	Yes	1.01	1.…	0.98	0.98	1.27	0.…	0.99	0.97	1.02	1.05	0.03	…	233	240	282	254
004: I-276 Turnpike from PA 309 (Fort Washington) to PA 611 (Hatboro) - WB	Montgomery	Yes	1.06	1.25	1.25	1.34	1.13	0.96	0.98	0.96	1.23	1.01	-0.22	-17.9	60	48	170	290
005: I-276 Turnpike from PA 611 (Hatboro) to US 1 - EB	Bucks, Montgomery	Yes	1.03	1.06	1.03	0.99	1.19	0.96	0.97	0.97	1.03	1.02	-0.01	-1.0	189	189	276	277
005: I-276 Turnpike from PA 611 (Hatboro) to US 1 - WB	Bucks, Montgomery	Yes	0.97	0.97	0.94	0.95	1.11	0.95	0.98	0.96	0.96	1.00	0.04	4.2	244	254	312	306
006: I-276 Turnpike from US 1 to New Jersey Line - EB	Bucks	Yes	0.96	0.98	0.94	0.94	1.18	0.96	0.98	0.97	0.96	1.02	0.06	6.3	269	279	312	277
006: I-276 Turnpike from US 1 to New Jersey Line - WB	Bucks	Yes	0.95	0.95	0.92	0.93	1.14	0.94	0.97	0.95	0.94	1.00	0.06	6.4	269	281	319	306
007: I-476 (Turnpike NE Ext) from Quakertown to Lansdale - NB	Bucks, Montgomery	Yes	1.00	1.12	1.03	1.71	1.06	0.89	0.91	0.89	1.22	0.94	-0.28	-23.0	44	33	178	335
007: I-476 (Turnpike NE Ext) from Quakertown to Lansdale - SB	Bucks, Montgomery	Yes	0.96	0.97	0.96	0.96	1.03	0.89	0.91	0.89	0.96	0.93	-0.03	-3.1	174	160	312	336
008: I-476 (Turnpike NE Ext) from Lansdale to Plymouth Meeting - NB	Montgomery	Yes	0.93	0.98	0.93	0.98	1.13	0.94	0.98	1.01	0.96	1.02	0.06	6.3	269	279	312	277
008: I-476 (Turnpike NE Ext) from Lansdale to Plymouth Meeting - SB	Montgomery	Yes	0.91	0.…	0.90	0.…	1.19	0.95	0.99	0.95	0.91	1.02	0.11	12.1	316	321	333	277
009: I-476 from I-276 Turnpike (Plymouth Meeting) to I-76 (Conshohocken) - NB	Montgomery	Yes	1.…	1.54	1.42	1.27	1.18	0.99	1.04	0.98	1.40	1.05	-0.35	-25.0	33	29	90	254
009: I-476 from I-276 Turnpike (Plymouth Meeting) to I-76 (Conshohocken) - SB	Montgomery	Yes	1.02	2.63	0.97	1.02	1.1…	0.95	1.02	0.99	1.41	1.04	-0.37	-26.2	32	26	81	261
010: I-476 from I-76 (Conshohocken) to US 30 (Villanova) - NB	Delaware, Montgomery	Yes	1.01	1.90	1.10	1.29	1.25	0.99	0.99	1.01	1.33	1.06	-0.27	-20.3	46	37	123	248
010: I-476 from I-76 (Conshohocken) to US 30 (Villanova) - SB	Delaware, Montgomery	Yes	1.04	1.00	0.97	1.16	1.15	0.95	0.98	0.97	1.04	1.01	-0.03	-2.9	162	163	272	290
011: I-476 from US 30 (Villanova) to US 3 (Broomall) - NB	Delaware	Yes	0.97	1.09	0.94	0.95	1.17	0.95	0.96	0.96	0.99	1.01	0.02	2.0	223	228	301	290
011: I-476 from US 30 (Villanova) to US 3 (Broomall) - SB	Delaware	Yes	1.86	1.82	2.08	2.52	1.16	1.00	1.00	1.05	2.07	1.05	-1.02	-49.3	5	3	10	254
012: I-476 from US 3 (Broomall) to US 1 - NB	Delaware	Yes	1.11	1.06	1.01	1.02	1.10	0.97	0.98	0.99	1.05	1.01	-0.04	-3.8	153	151	268	290
012: I-476 from US 3 (Broomall) to US 1 - SB	Delaware	Yes	1.64	1.74	1.66	1.82	1.36	1.13	1.11	1.37	1.72	1.24	-0.48	-27.9	22	22	26	102
013: I-476 from US 1 to Baltimore Pk (Swarthmore) - NB	Delaware	Yes	1.04	1.12	1.04	1.13	1.0…	0.98	0.98	1.00	1.08	1.01	-0.07	-6.5	126	119	256	290
013: I-476 from US 1 to Baltimore Pk (Swarthmore) - SB	Delaware	Yes	1.72	2.09	1.90	2.06	1.12	1.22	1.06	1.44	1.94	1.21	-0.73	-37.6	12	10	12	132
014: I-476 from Baltimore Pk (Swarthmore) to I-95 - NB	Delaware	Yes	1.59	1.61	1.56	1.68	1.13	1.05	1.05	1.19	1.61	1.11	-0.50	-31.1	20	20	31	225
014: I-476 from Baltimore Pk (Swarthmore) to I-95 - SB	Delaware	Yes	1.07	1.17	1.05	1.…	1.10	1.01	1.00	1.09	1.11	1.05	-0.06	-5.4	133	133	246	254
015: US 13 from US 1 to I-95 - NB	Bucks	No	0.…	0.99	0.9…	0.95	1.03	0.92	1.02	0.92	0.97	0.97	0.00	0.0	200	200	310	325
015: US 13 from US 1 to I-95 - SB	Bucks	No	1.27	1.26	1.2…	1.2…	1.08	0.95	1.08	0.93	1.26	1.01	-0.25	-19.8	48	43	153	290
016: I-76 from Walt Whitman Bridge to I-676 (Vine Street Expy) - EB	Philadelphia	Yes	1.4…	1.72	1.41	1.68	1.37	1.61	1.13	1.33	1.57	1.36	-0.21	-13.4	63	75	38	47
016: I-76 from Walt Whitman Bridge to I-676 (Vine Street Expy) - WB	Philadelphia	Yes	1.45	1.32	1.30	1.35	1.3…	1.63	1.02	1.01	1.36	1.32	-0.0…	-2.9	153	163	110	57
017: I-76 from I-676 (Vine Street Expy) to US 30 (Girard Ave) - EB	Philadelphia	Yes	3.03	3.39	3.04	3.…	1.58	2.98	2.09	2.21	3.23	2.22	-1.01	-31.3	7	18	2	2
017: I-76 from I-676 (Vine Street Expy) to US 30 (Girard Ave) - WB	Philadelphia	Yes	2.15	1.36	1.33	1.3…	1.20	1.07	1.14	1.23	1.55	1.16	-0.39	-25.2	29	28	40	186
018: I-76 from US 30 (Girard Ave) to US 1 (City Ave) - EB	Philadelphia	Yes	1.70	2.23	1.76	2.07	1.4…	1.8…	1.8…	1.9…	1.94	1.75	-0.19	-9.8	74	89	12	9
018: I-76 from US 30 (Girard Ave) to US 1 (City Ave) - WB	Philadelphia	Yes	2.34	2.03	1.83	2.01	1.46	1.13	1.30	2.22	2.05	1.53	-0.52	-25.4	18	27	11	19
019: I-76 from US 1 (City Ave) to I-476 - EB	Montgomery	Yes	2.63	2.38	2.58	2.44	1.86	1.41	1.43	1.76	2.51	1.62	-0.89	-35.5	8	14	4	14
019: I-76 from US 1 (City Ave) to I-476 - WB	Montgomery	Yes	2.04	2.14	2.07	2.19	1.54	1.50	1.57	1.98	2.11	1.65	-0.46	-21.8	24	34	9	13
020: I-76 from I-476 to I-76 Turnpike - EB	Montgomery	Yes	1.63	1.95	1.81	1.89	1.4…	1.38	1.50	1.46	1.82	1.45	-0.37	-20.3	30	37	17	34
020: I-76 from I-476 to I-76 Turnpike - WB	Montgomery	Yes	1.13	1.34	1.62	1.25	1.30	1.12	1.09	1.12	1.34	1.16	-0.18	-13.4	77	75	121	186
…(Delaware River) to US 1 - NB	Bucks	Yes	1.00	0.99	0.96	0.97	1.10	0.94	1.02	0.94	0.9…							
…(Delaware River) to US 1 - SB	Bucks	Yes	1.01	1.01	0.96	1.0…	1.07	0.96	1.01	0.96	1.0…							
…o BUS 1 (Lincoln Hwy) - NB	Bucks	Yes	0.…	0.95	0.…	0.94	1.12	0.96	1.01	0.96	0.9…							
…o BUS 1 (Lincoln Hwy) - SB	Bucks	Yes	1.01	0.…	0.96	0.99	1.11	0.98	1.05	0.97	0.9…							
…US 1 (Lincoln Hwy) to PA 132/Street Rd - NB	Bucks	Yes	0.97	1.41	0.95	0.96	1.13	0.97	0.99	0.96	1.0…							

TTI Legend

> 2.50	1.20 to 1.49
2.00 to 2.50	1.00 to 1.19
1.70 to 1.99	0.01 to 0.99
1.50 to 1.69	No Data

Percent Change Legend

> 30.0	-0.1 to -9.9
20.0 to 30.0	-10.0 to -19.9
10.0 to 19.9	-20.0 to -30.0
0.0 to 9.9	< -30.0

5 PM Peak Hour Travel Time Index (TTI) February YOY Comparison

Worst Performing Corridors

TTI Decreases

A High to Low (2.07 to 1.05), 49% ↓
Ranked 10th Highest in 2020 and 254th in 2021

B Very High to High (3.23 to 2.22), 31% ↓
Ranked 2nd Highest in both 2020 and 2021

C High to High (1.94 to 1.75), 10% ↓
Ranked 12th Highest in 2020 and 9th in 2021

CMP Focus Roadway Corridors	County	Limited Access	2020 TTI 5:00-6:00 PM				2021 TTI 5:00-6:00 PM				Summary							
			Feb 03rd to Feb 07th	Feb 10th to Dec 14th	Feb 17th to Feb 21st	Feb 24th to Feb 28th	Feb 01st to Feb 05th	Feb 08th to Feb 12th	Feb 15th to Dec 19th	Feb 22nd to Feb 26th	2020 Feb Peak Hr Mean	2021 Feb Peak Hr Mean	Delta	Percent Change	Rank Delta	Rank Percent Change	Rank Highest 2020 Feb TTI	Rank Highest 2021 Feb TTI
Pennsylvania P… Corridor Name …on	*County*		*2020 Peak Hour TTI*				*2021 Peak Hour TTI*				*Summary and Rankings*							
001: I-76 Turnpike from PA 29 to I-76 (Valley … - EB	Chester	Yes									0.91							277
001: I-76 Turnpike from PA 29 to I-76 (Valley F…) - WB	Chester	Yes									0.95							306
002: I-276 Turnpike from I-76 (Valley Forge) to …76 NE Ext (Plymouth Meeting) - EB	Montgome…	Yes									1.59							277
002: I-276 Turnpike from I-76 (Valley Forge) to …76 NE Ext (Plymouth Meeting) - WB	Montgome…	Yes	0.93	0.9…	0.92	0.93	1.19	0.9…	1.00	0.97	0.93	1.03	0.10	10	308	318	326	270
003: I-276 Turnpike from I-476 NE Ext (Plymou… Meeting) to PA 309 (Fort Washington) - EB	Montgome…	Yes	1.17	1.3…	1.26	1.12	1.17	0.9…	0.98	0.97	1.23	1.02	-0.21	-17	63	52	170	277
003: I-276 Turnpike from I-476 NE Ext (Plymouth Meeting) to PA 309 (Fort Washington) - WB	Montgomery	Yes	1.03	1.1…	1.05	1.09	1.17	0.9…	0.98	0.98	1.07	1.02	-0.05	-4	143	139	259	277
004: I-276 Turnpike from PA 309 (Fort Washington) to PA 611 (Hatboro) - EB	Montgomery	Yes	1.01	1.…	0.98	0.98	1.27	0.…	0.99	0.97	1.02	1.05	0.03	…	…33	240	282	254
004: I-276 Turnpike from PA 309 (Fort Washington) to PA 611 (Hatboro) - WB	Montgomery	Yes	1.06	1.25	1.25	1.34	1.13	0.96	0.98	0.96	1.23	1.01	-0.22	-17.9	60	48	170	290
005: I-276 Turnpike from PA 611 (Hatboro) to US 1 - EB	Bucks, Montgomery	Yes	1.03	1.06	1.03	0.99	1.19	0.96	0.97	0.97	1.03	1.02	-0.01	-1.0	189	189	276	277
005: I-276 Turnpike from PA 611 (Hatboro) to US 1 - WB	Bucks, Montgomery	Yes	0.97	0.97	0.94	0.95	1.11	0.95	0.98	0.96	0.96	1.00	0.04	4.2	244	254	312	306
006: I-276 Turnpike from US 1 to New Jersey Line - EB	Bucks	Yes	0.96	0.98	0.94	0.94	1.18	0.96	0.98	0.97	0.96	1.02	0.06	6.3	269	279	312	277
006: I-276 Turnpike from US 1 to New Jersey Line - WB	Bucks	Yes	0.95	0.95	0.92	0.93	1.14	0.94	0.97	0.95	0.94	1.00	0.06	6.4	269	281	319	306
007: I-476 (Turnpike NE Ext) from Quakertown to Lansdale - NB	Bucks, Montgomery	Yes	1.00	1.12	1.03	1.71	1.06	0.89	0.91	0.89	1.22	0.94	-0.28	-23.0	44	33	178	335
007: I-476 (Turnpike NE Ext) from Quakertown to Lansdale - SB	Bucks, Montgomery	Yes	0.96	0.97	0.96	0.96	1.03	0.89	0.91	0.89	0.96	0.93	-0.03	-3.1	174	160	312	336
008: I-476 (Turnpike NE Ext) from Lansdale to Plymouth Meeting - NB	Montgomery	Yes	0.93	0.98	0.93	0.98	1.13	0.94	0.98	1.01	0.96	1.02	0.06	6.3	269	279	312	277
008: I-476 (Turnpike NE Ext) from Lansdale to Plymouth Meeting - SB	Montgomery	Yes	0.91	0.91	0.90	0.91	1.19	0.95	0.99	0.95	0.91	1.02	0.11	12.1	316	321	333	277
009: I-476 from I-276 Turnpike (Plymouth Meeting) to I-76 (Conshohocken) - NB	Montgomery	Yes	1.38	1.54	1.42	1.27	1.18	0.99	1.04	0.98	1.40	1.05	-0.35	-25.0	33	29	90	254
009: I-476 from I-276 Turnpike (Plymouth Meeting) to I-76 (Conshohocken) - SB	Montgomery	Yes	1.02	2.63	0.97	1.02	1.19	0.95	1.02	0.99	1.41	1.04	-0.37	-26.2	32	26	81	261
010: I-476 from I-76 (Conshohocken) to US 30 (Villanova) - NB	Delaware, Montgomery	Yes	1.01	1.90	1.10	1.29	1.25	0.99	0.99	1.01	1.33	1.06	-0.27	-20.3	46	37	123	248
010: I-476 from I-76 (Conshohocken) to US 30 (Villanova) - SB	Delaware, Montgomery	Yes	1.04	1.00	0.97	1.16	1.15	0.95	0.98	0.97	1.04	1.01	-0.03	-2.9	162	163	272	290
011: I-476 from US 30 (Villanova) to US 3 (Broomall) - NB	Delaware	Yes	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
011: I-476 from US 30 (Villanova) to US 3 (Broomall) - SB	Delaware	Yes	1.86	1.82	2.08	2.52	1.16	1.00	1.00	1.05	2.07	1.05	-1.02	-49.3	5	3	10	254
012: I-476 from US 3 (Broomall) to US 1 - NB	Delaware	Yes	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
012: I-476 from US 3 (Broomall) to US 1 - SB	Delaware	Yes	1.64	1.74	1.66	1.82	1.36	1.13	1.11	1.37	1.72	1.24	-0.48	-27.9	22	22	26	102
013: I-476 from US 1 to Baltimore Pk (Swarthmore) - NB	Delaware	Yes	1.04	1.12	1.04	1.13	1.07	0.98	0.98	1.00	1.08	1.01	-0.07	-6.5	126	119	256	290
013: I-476 from US 1 to Baltimore Pk (Swarthmore) - SB	Delaware	Yes	1.72	2.09	1.90	2.06	1.12	1.22	1.06	1.44	1.94	1.21	-0.73	-37.6	12	10	12	132
014: I-476 from Baltimore Pk (Swarthmore) to I-95 - NB	Delaware	Yes	1.59	1.61	1.56	1.68	1.13	1.05	1.05	1.19	1.61	1.11	-0.50	-31.1	20	20	31	225
014: I-476 from Baltimore Pk (Swarthmore) to I-95 - SB	Delaware	Yes	1.07	1.17	1.05	1.15	1.10	1.01	1.00	1.09	1.11	1.05	-0.06	-5.4	133	133	246	254
015: US 13 from US 1 to I-95 - NB	Bucks	No	0.98	0.99	0.95	0.95	1.03	0.92	1.02	0.92	0.97	0.97	0.00	0.0	200	200	310	325
015: US 13 from US 1 to I-95 - SB	Bucks	No	1.27	1.26	1.25	1.25	1.08	0.95	1.08	0.93	1.26	1.01	-0.25	-19.8	48	43	153	290
016: I-76 from Walt Whitman Bridge to I-676 (Vine Street Expy) - EB	Philadelphia	Yes	1.48	1.72	1.41	1.68	1.37	1.61	1.13	1.33	1.57	1.36	-0.21	-13.4	63	75	38	47
016: I-76 from Walt Whitman Bridge to I-676 (Vine Street Expy) - WB	Philadelphia	Yes	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
017: I-76 from I-676 (Vine Street Expy) to US 30 (Girard Ave) - EB	Philadelphia	Yes	3.03	3.39	3.04	3.46	1.58	2.98	2.09	2.21	3.23	2.22	-1.01	-31.3	7	18	2	2
017: I-76 from I-676 (Vine Street Expy) to US 30 (Girard Ave) - WB	Philadelphia	Yes	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
018: I-76 from US 30 (Girard Ave) to US 1 (City Ave) - EB	Philadelphia	Yes	1.70	2.23	1.76	2.07	1.46	1.86	1.86	1.80	1.94	1.75	-0.19	-9.8	74	89	12	9
018: I-76 from US 30 (Girard Ave) to US 1 (City Ave) - WB	Philadelphia	Yes	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
019: I-76 from US 1 (City Ave) to I-476 - EB	Montgomery	Yes	2.63	2.38	2.58	2.44	1.86	1.41	1.43	1.76	2.51	1.62	-0.89	-35.5	8	14	4	14
019: I-76 from US 1 (City Ave) to I-476 - WB	Montgomery	Yes	2.04	2.14	2.07	2.19	1.54	1.50	1.57	1.98	2.11	1.65	-0.46	-21.8	24	34	9	13
020: I-76 from I-476 to I-76 Turnpike - EB	Montgomery	Yes	1.63	1.95	1.81	1.89	1.45	1.38	1.50	1.46	1.82	1.45	-0.37	-20.3	30	37	17	34
020: I-76 from I-476 to I-76 Turnpike - WB	Montgomery	Yes	1.13	1.34	1.62	1.25	1.30	1.12	1.09	1.12	1.34	1.16	-0.18	-13.4	77	75	121	186
…(Delaware River) to US 1 - NB	Bucks	Yes	1.00	0.99	0.96	0.97	1.10	0.94	1.02	0.94	0.9…							
…(Delaware River) to US 1 - SB	Bucks	Yes	1.01	1.01	0.96	1.01	1.07	0.96	1.01	0.96	1.0…							
…o BUS 1 (Lincoln Hwy) - NB	Bucks	Yes	0.95	0.95	0.93	0.94	1.12	0.96	1.01	0.96	0.9…							
…o BUS 1 (Lincoln Hwy) - SB	Bucks	Yes	1.01	0.99	0.96	0.99	1.11	0.98	1.05	0.97	0.9…							
…US 1 (Lincoln Hwy) to PA 132/Street Rd - NB	Bucks	Yes	0.97	1.41	0.95	0.96	1.13	0.97	0.99	0.96	1.0…							

TTI Legend

> 2.50	1.20 to 1.49
2.00 to 2.50	1.00 to 1.19
1.70 to 1.99	0.01 to 0.99
1.50 to 1.69	No Data

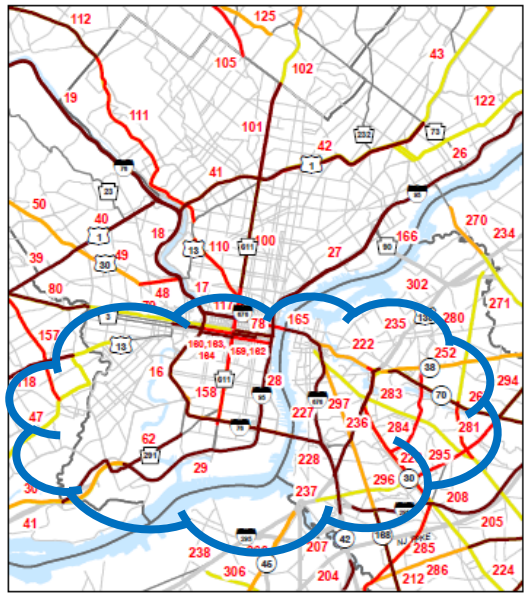
Percent Change Legend

> 30.0	-0.1 to -9.9
20.0 to 30.0	-10.0 to -19.9
10.0 to 19.9	-20.0 to -30.0
0.0 to 9.9	< -30.0

5 PM Peak Hour Travel Time Index February 2020

Some Congested Corridor Locations

Figure 1 - Travel Time Index (TTI) February 2020 PM Peak
DVRPC CMP Focus Roadway Corridors



11 CMP Focus Roadway Corridor ID

Travel Time Index (TTI) Feb 2020

- Greater Than 1.50 (72)
- 1.41 - 1.50 (47)
- 1.31 - 1.40 (62)
- 1.20 - 1.30 (108)
- Less Than 1.20 (264)

N

0 4 8 Miles

dvrpc

Note 1: Road segments in brown experience the most congestion and ones in grey the least.
Note 2: For bi-directional road segments, the segment with the most congestion is overlaid on top of the other direction segment.
Note 3: Travel Time Index (TTI) is analyzed for weekdays during the PM Peak (5:00 to 6:00 PM).
Note 4: Please reference the summary information tables using the map CMP Focus roadway corridor ID to identify directional segment values.

Data Source: CATT Lab and DVRPC

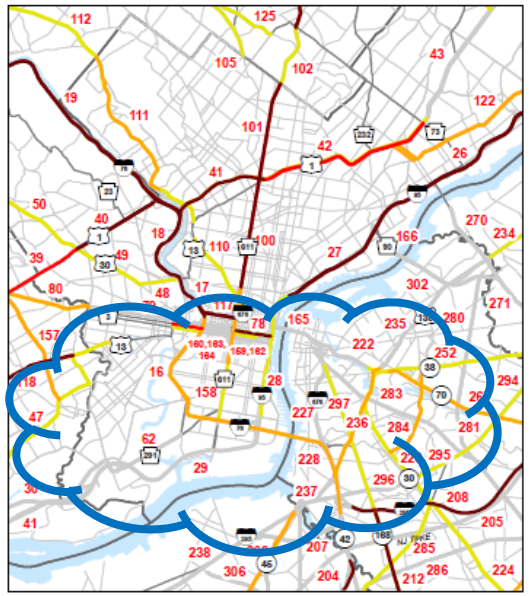
5 PM Peak Hour Travel Time Index February 2021

Locations where corridors became less congested

A Number of corridors in highest class break decreased from 72 to 25

B Number of corridors in 2nd highest class break decreased from 47 to 19

Figure 2 - Travel Time Index (TTI) February 2021 PM Peak DVRPC CMP Focus Roadway Corridors



11 CMP Focus Roadway Corridor ID

Travel Time Index (TTI) Feb 2021

- Greater Than 1.50 (25)
- 1.41 - 1.50 (19)
- 1.31 - 1.40 (40)
- 1.20 - 1.30 (127)
- Less Than 1.20 (342)

N

0 4 8 Miles

dvrpc

Note 1: Road segments in brown experience the most congestion and ones in grey the least.
Note 2: For bi-directional road segments, the segment with the most congestion is overlaid on top of the other direction segment.
Note 3: Travel Time Index (TTI) is analyzed for weekdays during the PM Peak (5:00 to 6:00 PM).
Note 4: Please reference the summary information tables using the map CMP Focus roadway corridor ID to identify directional segment values.

Data Source: CATT Lab and DVRPC

5 PM Peak Hour Travel Time Index February 2021

Corridors that Remained Congested

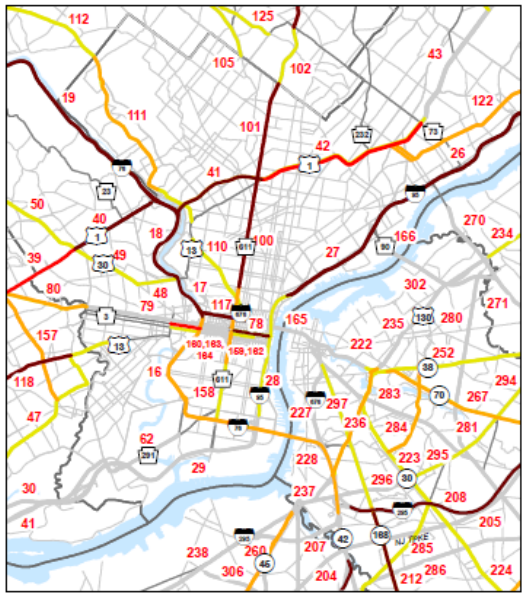
New Jersey

- A — I-295 from NJ 70 to NJ 42
- B — NJ 168 from NJ 42 to I-295
- C — NJ 55 from NJ 42 to NJ 47

Pennsylvania

- D — I-95 from Frankford Ave to PA 90
- E — PA 611 from Girard Ave to I-276
- F — I-76 from I-676 to I-476
- G — Baltimore Pk from US 13 to I-476

Figure 2 - Travel Time Index (TTI) February 2021 PM Peak
DVRPC CMP Focus Roadway Corridors



11 CMP Focus Roadway Corridor ID

Travel Time Index (TTI) Feb 2021

- Greater Than 1.50 (25)
- 1.41 - 1.50 (19)
- 1.31 - 1.40 (40)
- 1.20 - 1.30 (127)
- Less Than 1.20 (342)

N

0 4 8 Miles

dvrpc

Note 1: Road segments in brown experience the most congestion and ones in grey the least.
Note 2: For bi-directional road segments, the segment with the most congestion is overlaid on top of the other direction segment.
Note 3: Travel Time Index (TTI) is analyzed for weekdays during the PM Peak (5:00 to 6:00 PM).
Note 4: Please reference the summary information tables using the map CMP Focus roadway corridor ID to identify directional segment values.

Data Source: CATT Lab and DVRPC

6 Identify Top Corridors that Experience Major Changes in Performance

Top 10 Corridors By State Within the DVRPC Region in the AM and PM Peak Periods with:

- Highest TTI in Feb 2021
- Greatest Change Decrease in TTI YOY
- Greatest Percent Change Decrease in TTI YOY

DVRPC CMP F

Travel Time Index S

The COVID-19 pandemic has altered
congestion on many roadways due to
congestion leads to reductions in c
environment and commuters. The pu
most congested, and which ones are
helpful in scheduling and prioritizing p
the region.

Archived GPS vehicle probe data from
hour congestion using the Travel Time
measure is defined as the ratio of th
travel time). The higher the TTI is, th
2021 to 2020 as a result of the pande
experience high congestion in Februar

The top ten CMP corridors that experi
the greatest decrease in congestion c
and 5:00-6:00 PM peak hours. Tables
TTI by state; Tables 5 through 8 show
congestion comparing February YOY
show the same for the New Jersey p
congested locations using the TTI mea
comparing February year-over-year. A
TTI including the absolute change and
congested corridors and most absolu
absolute or percent change.

CMP corridors in the Pennsylvania po
2021 during the peak hours include p
Expressway) from I-95 to I-76, I-76 fr
and US 1 from US 30 (Girard Ave) to F
New Jersey portion of the DVRPC regi
129 from NJ 29 to US 1 and CR 583 (P
Rd) from CR 561 to CR 534 and NJ 168

CMP corridors that experienced the m
the Pennsylvania portion of the DVRI
County; I-476 from US 30 to I-95 and I
(Betsy Ross Bridge) to Frankford Aven
Road in Chester County (See Tables 5 t

CMP corridors that experienced the g
DVRPC region include I-676 from I-76
and CR 686 (W Clementon) from CR 5
County Line, CR 571 (Washington Rd)
the NJ Turnpike from Exit 5 (Burling
through 12).

CMP Corridors with the Hig Pennsylvania Portion o

Table 1: Top Ten CMP Corridors during the 7:00-8:00 A

CMP ID	Corridor	Dire
027	I-95 from PA 90 to Frankford Ave	SB
117	I-676 (Vine Street Expy) from I-76 to I-95	WB
078	Market St from I-95 (Penn's Landing) to PA 611	EB
018	I-76 from US 30 (Girard Ave) to US 1 (City Ave)	EB
026	I-95 from Academy Rd to PA 90 (Betsy Ross Br)	SB
101	PA 611 (Broad St) from US 1 to PA 309	NB
041	US 1 from I-76 to PA 611	SB
040	US 1 (City Ave) from US 30 (Girard Ave) to I-76	EB
040	US 1 (City Ave) from US 30 (Girard Ave) to I-76	WB
100	PA 611 (Broad St) from Girard Ave to US 1	NB

Table 2: Top Ten CMP Corridors during the 5:00-6:00 P

CMP ID	Corridor	Dire
117	I-676 (Vine Street Expy) from I-76 to I-95	WB
017	I-76 from I-676 (Vine Street Expy) to US 30	EB
078	Market St from I-95 (Penn's Landing) to PA 611	EB
117	I-676 (Vine Street Expy) from I-76 to I-95	EB
027	I-95 from PA 90 (Betsy Ross Br) to Frankford Av	NB
040	US 1 (City Ave) from US 30 (Girard Ave) to I-76	EB
041	US 1 from I-76 to PA 611	NB
040	US 1 (City Ave) from US 30 (Girard Ave) to I-76	WB
018	I-76 from US 30 (Girard Ave) to US 1 (City Ave)	EB
100	PA 611 (Broad St) from Girard Ave to US 1	SB

New Jersey Portion of

Table 3: Top Ten CMP Corridors during the 7:00-8:00 A

CMP ID	Corridor	Dire
258	NJ 55 from NJ 42 to NJ 47	NB
298	NJ 129 from NJ 29 to US 1	SB
290	CR 673 from CR 561 to CR 534	NB
212	NJ 168 (Black Horse Pk) from I-295 to NJ 27	NB
301	CR 583 (Princeton Pk) from I-295 to NJ 27	NB
268	NJ 70 from I-295 to NJ 73	EB
269	NJ 70 from NJ 73 to Eayrestown Rd	EB
236	US 130 from US 30 to I-76	NB
269	NJ 70 from NJ 73 to Eayrestown Rd	SB
285	NJ 41 from NJ 42 to US 30	NB

Table 4: Top Ten CMP Corridors during the 5:00-6:00 P

CMP ID	Corridor	Dire
208	I-295 from NJ 42 (Exit 26) to NJ 70 (Exit 34)	SB
258	NJ 55 from NJ 42 to NJ 47	NB
212	NJ 168 (Black Horse Pk) from I-295 to NJ 27	SB
290	CR 673 from CR 561 to CR 534	SB
273	NJ 73 from NJ 70 to US 30	SB
262	NJ 41 from NJ 42 to NJ 47	SB
266	NJ 42 from AC Expressway to US 322	SB
212	NJ 168 (Black Horse Pk) from I-295 to NJ 27	NB
228	I-76 from Walt Whitman Bridge to I-295	EB
251*	NJ 33 from I-295 to US 130	EB

CMP ID highlighted in blue indicates a corridor that is in both the 7:00-8:00 AM an

** Top tenth CMP corridor tied with (CMP 284 SB), so please set Table 14 for the re*

[1] *Sorted from high to low by 2021 TTI where a higher TTI indicates greater congestion*

CMP Corridors February YOY TT

Table 5: Top Ten CMP Corridors with

CMP ID	Corridor
076	US 422 from Egypt Rd to Trooper Rd
014	I-476 from Baltimore Pk to I-95
013	I-476 from US 1 to Baltimore Pk
075	US 422 from PA 29 to Egypt Rd
013	I-476 from US 1 to Baltimore Pk
027	I-95 from PA 90 to Frankford Ave
057	US 30 Bypass from US 30 Bus to Ree
026	I-95 from Academy Rd to PA 90
004	I-276 Turnpike from PA 209 to PA 6
018	I-76 form US 30 (Girard Av) to US 1

Table 6: Top Ten CMP Corridors with

CMP ID	Corridor
076	US 422 from Egypt Rd to Trooper Rd
014	I-476 from Baltimore Pk to I-95
013	I-476 from US 1 to Baltimore Pk
075	US 422 from PA 29 to Egypt Rd
013	I-476 from US 1 to Baltimore Pk
057	US 30 Bypass from US 30 Bus to Ree
004	I-276 Turnpike from PA 209 to PA 6
018	I-76 from US 30 (Girard Av) to US 1
012	I-476 from US 3 (Broomall) to US 1
026	I-95 from Academy Rd to PA 90

CMP ID highlighted in blue indicates a corridor that is in

Table 7: Top Ten CMP Corridors with

CMP ID	Corridor
027	I-95 from PA 90 to Frankford Ave
117	I-676 (Vine Street Expy) from I-76 to
032	I-95 from US 322 to PA-DE State Lin
076	US 422 from Egypt Rd to Trooper Rd
011	I-476 from US 30 to US 3
028	I-95 from Frankford Ave to I-76
017	I-76 from I-676 (Vine Street Expy) to
019	I-76 from US 1 (City Ave) to I-476
077	US 422 from Trooper Rd to US 202
075	US 422 from PA 29 to Egypt Rd

Table 8: Top Ten CMP Corridors with

CMP ID	Corridor
032	I-95 from US 322 to PA-DE State Lin
076	US 422 from Egypt Rd to Trooper Rd
011	I-476 from US 30 to US 3
027	I-95 from PA 90 to Frankford Ave
077	US 422 from Trooper Rd to US 202
028	I-95 from Frankford Ave to I-76
075	US 422 from PA 29 to Egypt Rd
056	US 30 Bypass from PA 100 to US 30
029	I-95 from I-76 to PA 291 (Philadelph
013	I-476 from US 1 to Baltimore Pk (Sw

CMP ID highlighted in blue indicates a corridor that is in

[2] *Sorted from high to low by TTI change (or delta), where delta is*

[3] *Sorted from high to low by TTI percent change, where change is*

CMP Corridors February TTI YOY Comparison: New Jersey Portion of the DVRPC Region

7:00-8:00 AM Peak Hour

Table 9: Top Ten CMP Corridors with the Greatest Change Decrease in TTI

CMP ID	Corridor	Direction	County	Delta[2]	% Change
200	NJ Turnpike from Exit 5 to Exit 6	SB	Burlington	-1.17	-42.9
284	CR 636 from US 30 to NJ 38	NB	Camden	-1.13	-50.7
248	NJ 31 from CR 623 to CR 518	NB	Mercer	-.0.48	-28.2
274	CR 571 (Washington Rd) from NJ 27 to US 1	SB	Mercer	-0.40	-26.8
203	I-295 from CR 656 to I-195	SB	Burlington	-0.40	-24.5
254	NJ 38 from I-295 to US 206	EB	Burlington	-0.30	-21.4
241	US 322 from NJ Turnpike (Exit 2) to NJ 55	EB	Gloucester	-0.29	-21.8
200	NJ Turnpike from Exit 5 to Exit 6	NB	Burlington	-0.28	-20.4
224	US 30 from I-295 to NJ 73	EB	Camden	-0.24	-17.5
218	US 1 from Alexander Rd to County Line	SB	Mercer	-0.22	-15.5

Table 10: Top Ten CMP Corridors with the Greatest Percent Change Decrease in TTI

CMP ID	Corridor	Direction	County	Delta	% Change[3]
284	CR 636 from US 30 to NJ 38	NB	Camden	-1.13	-50.7
200	NJ Turnpike from Exit 5 to Exit 6	SB	Burlington	-1.17	-42.9
248	NJ 31 from CR 623 to CR 518	NB	Mercer	-.0.48	-28.2
274	CR 571 (Washington Rd) from NJ 27 to US 1	SB	Mercer	-0.40	-26.8
203	I-295 from CR 656 to I-195	SB	Burlington	-0.40	-24.5
241	US 322 from NJ Turnpike (Exit 2) to NJ 55	EB	Gloucester	-0.29	-21.8
254	NJ 38 from I-295 to US 206	EB	Burlington	-0.30	-21.4
200	NJ Turnpike from Exit 5 to Exit 6	NB	Burlington	-0.28	-20.4
224	US 30 from I-295 to NJ 73	EB	Camden	-0.24	-17.5
221	US 206 from CR 604 to County Line	SB	Mercer	-0.22	-16.9

CMP ID highlighted in blue indicates a corridor that is in both top ten lists for absolute and percent change in TTI for the 7:00-8:00 AM peak hour

5:00-6:00 PM Peak Hour

Table 11: Top Ten CMP Corridors with the Greatest Change Decrease in TTI

CMP ID	Corridor	Direction	County	Delta[2]	% Change
217	US 1 from I-295 to Alexander Rd	NB	Mercer	-0.96	-47.3
227	I-676 from I-76 to Benjamin Franklin Bridge	SB	Camden	-0.96	-46.8
274	CR 571 (Washington Rd) from NJ 27 to US 1	SB	Mercer	-0.80	-42.6
292	CR 686 from CR 534 to CR 561	SB	Camden	-0.68	-36.8
228	I-76 from Walt Whitman Bridge to I-295	EB	Camden	-0.62	-31.3
218	US 1 from Alexander Rd to County Line	EB	Mercer	-0.56	-34.1
209	I-295 from NJ 70 (Exit 34) to CR 541 (Exit 47)	SB	Camden, Burlington	-0.49	-32.5
287	CR 544 (Evesham Rd) from US 30 to CR 673	WB	Camden	-0.49	-30.4
298	NJ 129 from NJ 29 to US 1	SB	Mercer	-0.48	-28.4
272	NJ 73 from NJ Turnpike (Exit 4) to NJ 70	SB	Burlington	-0.47	-27.0

Table 12: Top Ten CMP Corridors with the Greatest Percent Change Decrease in TTI

CMP ID	Corridor	Direction	County	Delta	% Change[3]
217	US 1 from I-295 to Alexander Rd	NB	Mercer	-0.96	-47.3
227	I-676 from I-76 to Benjamin Franklin Bridge	SB	Camden	-0.96	-46.8
274	CR 571 (Washington Rd) from NJ 27 to US 1	SB	Mercer	-0.80	-42.6
292	CR 686 from CR 534 to CR 561	SB	Camden	-0.68	-36.8
218	US 1 from Alexander Rd to County Line	EB	Mercer	-0.56	-34.1
209	I-295 from NJ 70 (Exit 34) to CR 541 (Exit 47)	SB	Camden, Burlington	-0.49	-32.5
228	I-76 from Walt Whitman Bridge to I-295	EB	Camden	-0.62	-31.3
215	US 1 from PA-NJ State Border to CR 616	SB	Mercer	-0.45	-30.6
287	CR 544 (Evesham Rd) from US 30 to CR 673	WB	Camden	-0.49	-30.4
301	CR 583 (Princeton Pk) from I-295 to NJ 27	SB	Mercer	-0.45	-29.0

CMP ID highlighted in blue indicates a corridor that is in both top ten lists for absolute and percent change in TTI for the 5:00-6:00 PM peak hour

Data Source: University of Maryland CATT Lab RITIS-PDA Suite. DVRPC GIS web mapping is available here to identify the location of the CMP corridors. Select the CMP Focus Roadway Facilities tab to access the CMP corridors. If you have a RITIS-PDA Suite login, the CMP corridors can be accessed using the PDA analysis tools that provide access to the segment sets. In the Display Options button, type "CMP TMC" to get a list of the CMP corridor segment sets.

6 Identify Top Corridors that Experience Major Changes in Performance

CMP Corridors February YOY TTI Comparison: Pennsylvania Portion of the DVRPC Region
5:00-6:00 PM Peak Hour

Table 7: Top Ten CMP Corridors with the Greatest Change Decrease in TTI

CMP ID	Corridor	Direction	County	Delta[2]	% Change
027	I-95 from PA 90 to Frankford Ave	SB	Philadelphia	-1.38	-46.9
117	I-676 (Vine Street Expy) from I-76 to I-95	EB	Philadelphia	-1.27	-36.8
032	I-95 from US 322 to PA-DE State Line	NB	Delaware	-1.18	-53.2
076	US 422 from Egypt Rd to Trooper Rd	WB	Montgomery	-1.12	-52.3
011	I-476 from US 30 to US 3	SB	Philadelphia	-1.02	-49.3
028	I-95 from Frankford Ave to I-76	NB	Philadelphia	-1.01	-45.5
017	I-76 from I-676 (Vine Street Expy) to US 30	EB	Philadelphia	-1.01	-31.3
019	I-76 from US 1 (City Ave) to I-476	EB	Montgomery	-0.89	-35.5
077	US 422 from Trooper Rd to US 202	WB	Montgomery	-0.84	-46.4
075	US 422 from PA 29 to Egypt Rd	WB	Montgomery	-0.79	-42.0

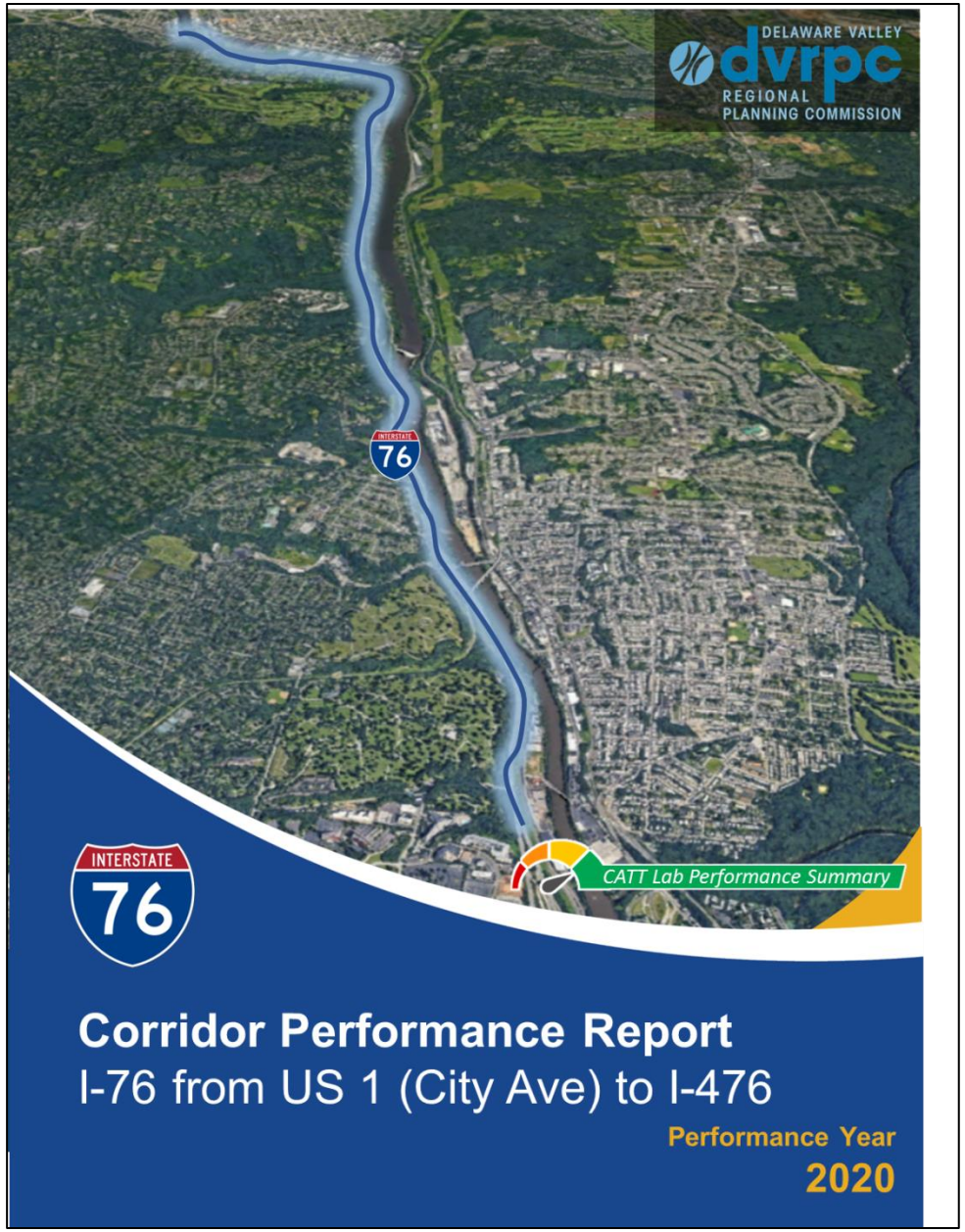
Table 8: Top Ten CMP Corridors with the Greatest Percent Change Decrease in TTI

CMP ID	Corridor	Direction	County	Delta	% Change[3]
032	I-95 from US 322 to PA-DE State Line	NB	Delaware	-1.18	-53.2
076	US 422 from Egypt Rd to Trooper Rd	WB	Montgomery	-1.12	-52.3
011	I-476 from US 30 to US 3	SB	Philadelphia	-1.02	-49.3
027	I-95 from PA 90 to Frankford Ave	SB	Philadelphia	-1.38	-46.9
077	US 422 from Trooper Rd to US 202	WB	Montgomery	-0.84	-46.4
028	I-95 from Frankford Ave to I-76	NB	Philadelphia	-1.01	-45.5
075	US 422 from PA 29 to Egypt Rd	WB	Montgomery	-0.79	-42.0
056	US 30 Bypass from PA 100 to US 30 Business	WB	Chester	-0.76	-39.4
029	I-95 from I-76 to PA 291 (Philadelphia Airport)	NB	Philadelphia	-0.65	-37.8
013	I-476 from US 1 to Baltimore Pk (Swarthmore)	SB	Delaware	-0.73	-37.6

CMP ID highlighted in blue indicates a corridor that is in both top ten lists for absolute and percent change in TTI for the 5:00-6:00 PM peak hour

7 Corridor Yearly Performance Report

This portion of I-76 between US 1 (City Ave and I-46), also known as the "Schuylkill Expressway, is one of Philadelphia's major northwest-southeast corridors connecting commuters from the northwestern Philadelphia suburbs to Center City.



Region of Study:
I-76 between US 1 (City Ave) and I-476

This portion of I-76, also known as the "Schuylkill Expressway", is one of Philadelphia's major northwest-southeast corridors connecting commuters from the northwestern Philadelphia suburbs to Center City. It is paralleled by PA Route 23 to the south and Ridge Pike and Ridge Avenue to the north.

This seven-mile section of the Schuylkill Expressway extends from US 1 to I-476 and is a limited access four-lane divided highway that contains a northbound off-ramp at Hollow Road (Exit 337) half-way between and a southbound and northbound on- and off-ramp, respectively, at Matsonford Road on the northwestern end.

The roadway carries about 130,000 vehicles a day, four times more than what it is built to handle. As a result the roadway has become known for frustrating delays.

Purpose of Study:
This annual study examines the yearly performance of this critical corridor in terms of travel time and congestion variations and compares it to prior years back to 2017.

7 Corridor Yearly Performance Report

A **PDA Suite Performance Chart Tool**

- **Westbound AM Peak average travel times are greater than eastbound at 9.09 and 8.92, respectively**

B **PDA Suite Congestion Scan Tool**

- **Most congestion is during the eastbound PM Peak between Mastsonford Road and Hollow Road**

C **PDA Suite Performance Summaries Tool**

- **Steep declines in travel times eastbound PM Peak**

D **PDA Suite Performance Summaries Tool**

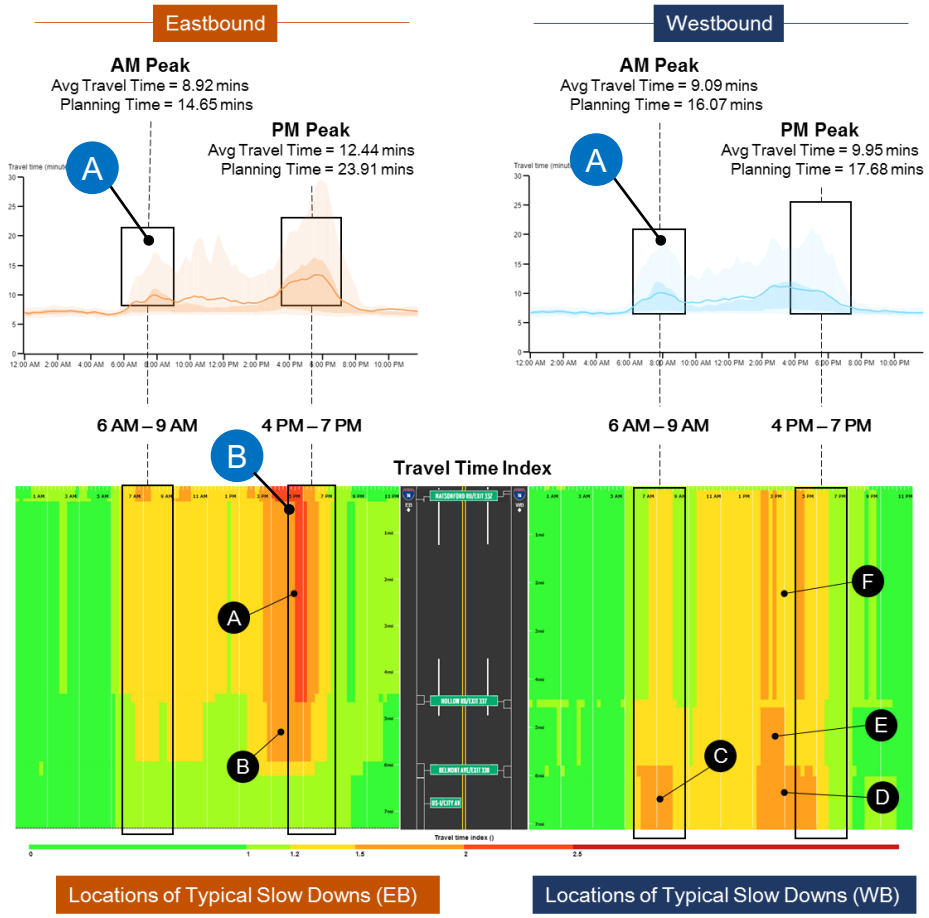
- **80% decrease in travel times compared to Jan baseline; only 40% of baseline at year end**

E **PDA Suite Performance Summaries Tool**

- **40% decrease in travel times; back to baseline at year end**

2020 Corridor Travel Times and Congestion

Weekday travel times for this portion of the I-76 corridor were aggregated over the entire year. During the PM peak period, the eastbound direction indicates a higher peak average travel time compared to the westbound direction, or about 2.5 minutes longer. In the eastbound direction, the PM peak travel times and planning times are consistently higher than the AM times. The average PM peak travel time is about 3.5 minutes longer than the AM period travel time, and the planning time is approximately 9 minutes longer. This is due in part to expanded job opportunities in the King of Prussia and Conshohocken areas farther west and City residents commuting back home from work. The heat map at the bottom of the page shows the geographic location of typical congestion through the day.

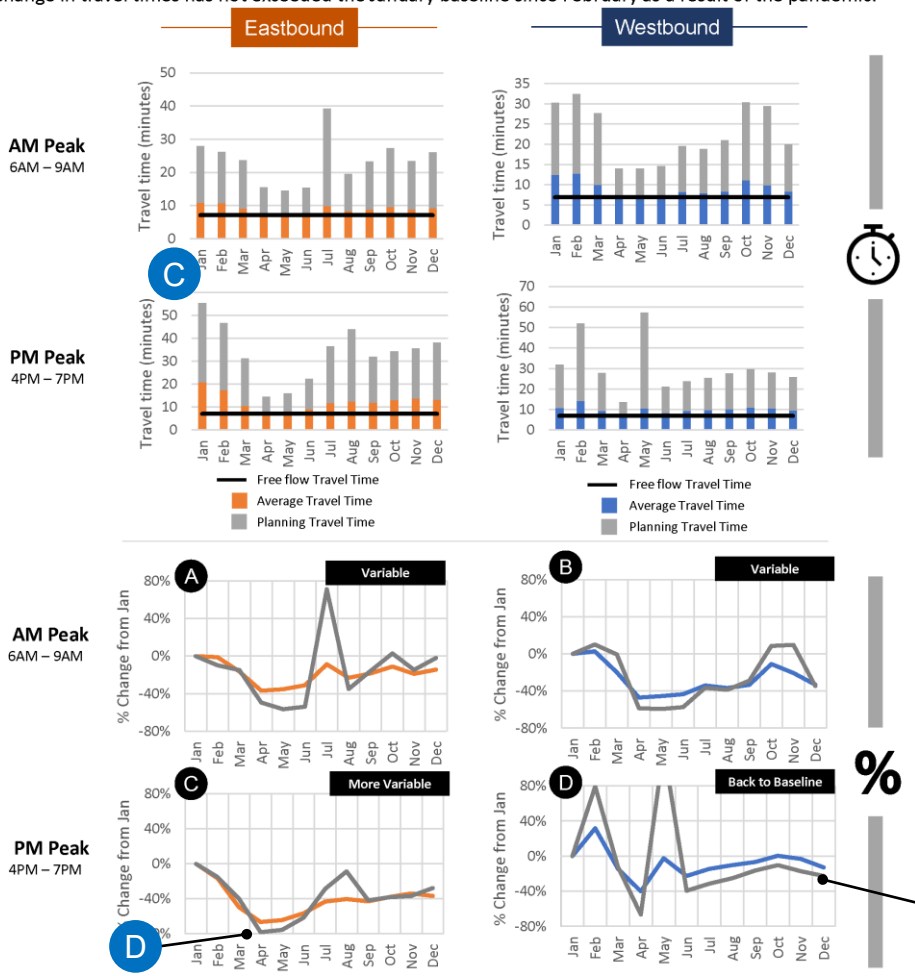


A: 3PM – 6PM : Matsonford Rd to Hollow Rd
B: 4PM – 5PM : Hollow Rd to Belmont Ave

C: 6AM – 8AM : US 1 to Belmont Ave
D: 1PM – 5PM : US 1 to Belmont Ave
E: 1PM – 3PM : Belmont Ave to Hollow Rd
F: 2PM – 5PM : Hollow Rd to Matsonford Rd

2020 Changes in Travel Times

How did travel times change over the course of 2020? This depends on time of day and direction of travel. The bar charts show monthly travel times by peak period and direction. The line charts show the percentage change in travel times and planning times as compared to a January 2020 baseline. The percent change in travel times has not exceeded the January baseline since February as a result of the pandemic.



Observations

A In the eastbound AM peak period, travel times decreased from Feb to Apr and then gradually increased through the analysis period. **B** In the westbound AM peak, there was a sharp decline in travel time from Feb to Apr and then gradually increased through Oct, but then declined through Dec. **C** Travel times in the eastbound direction during the PM peak declined sharply from Jan to Apr (60%), and then gradually increased through Dec. **D** Travel times in the westbound direction during the PM peak declined from Feb to Apr, and then remained relatively flat through the end of the year, while approaching baseline conditions.

7 Corridor Yearly Performance Report

A PDA Suite Performance Summary Tool

- **Eastbound AM peak consistent travel times (2017-2019), but declined in 2020**

B PDA Suite Performance Summary Tool

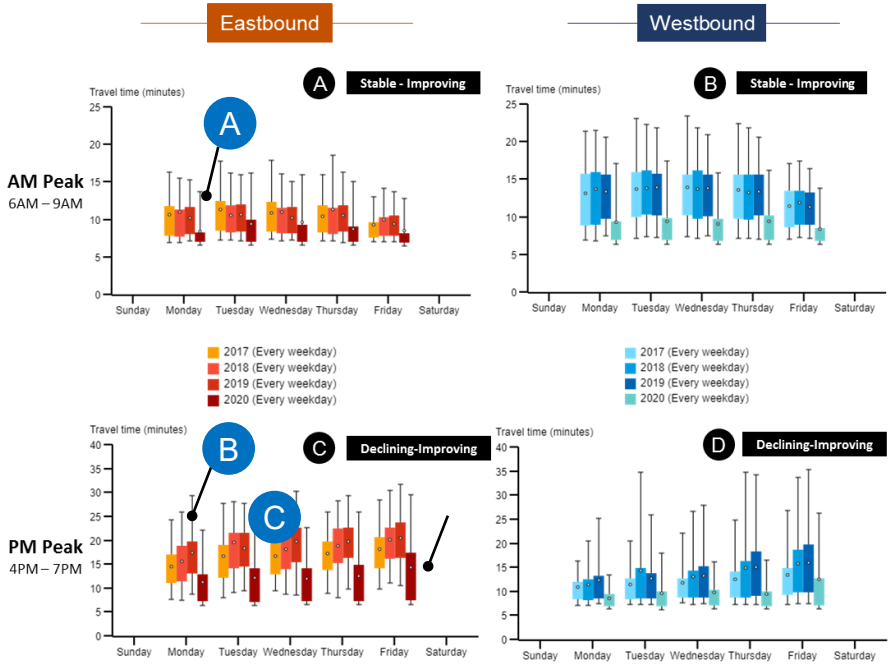
- **Eastbound PM peak Increasing travel times (2017-2019), but declined in 2020**

C PDA Suite Performance Summary Tool

- **Eastbound PM Peak Friday travel most congested**

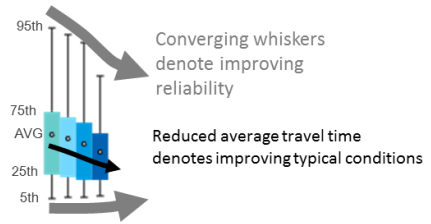
Comparison with previous years

How much did travel times change compared to previous years? In the AM and PM peak periods, average travel times and travel time reliability were fairly constant from 2017 to 2019. However, there were significant improvements in travel times and reliability in 2020 as a result of the pandemic.



A During the AM peak period in the eastbound direction, travel times and reliability remained relatively constant from 2017 to 2019 but improved significantly in 2020. B The same is true for the westbound direction, but the travel times were higher and less reliable. C During the PM peak period in the eastbound direction travel times progressively increased and reliability decreased from 2017 to 2019, but improved significantly in 2020. D The same holds true for the westbound direction with the exception of lower travel times and in some instances more variability in travel.

The box plot presents a simplified distribution of the range of travel times throughout the period of interest, based on percentiles.



For more information, contact:

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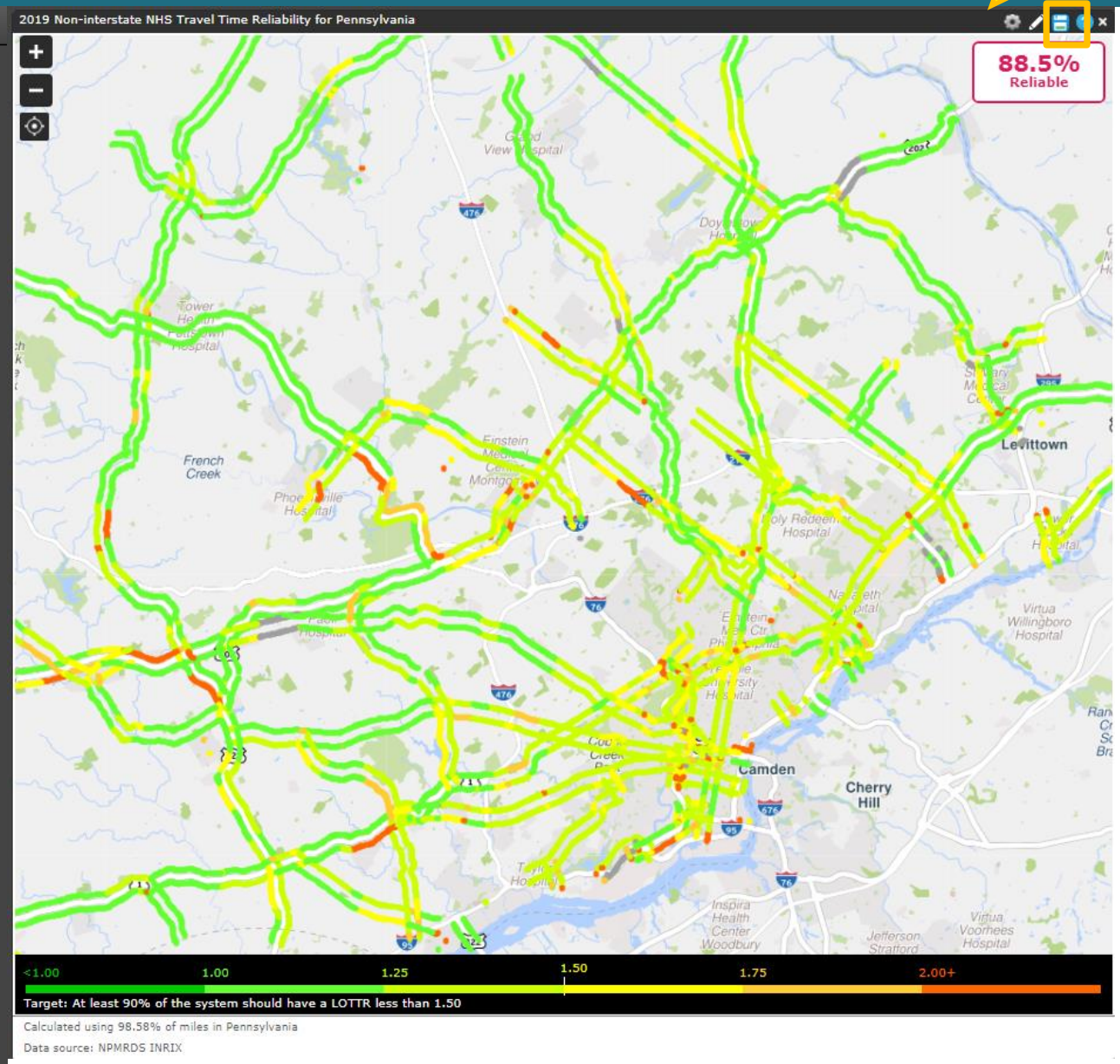
Philadelphia, PA 19106

215.238.2865 office | tedinger@dvrpc.org email

PDA Suite Map-21 Widget and Analyzing PM3 Measures

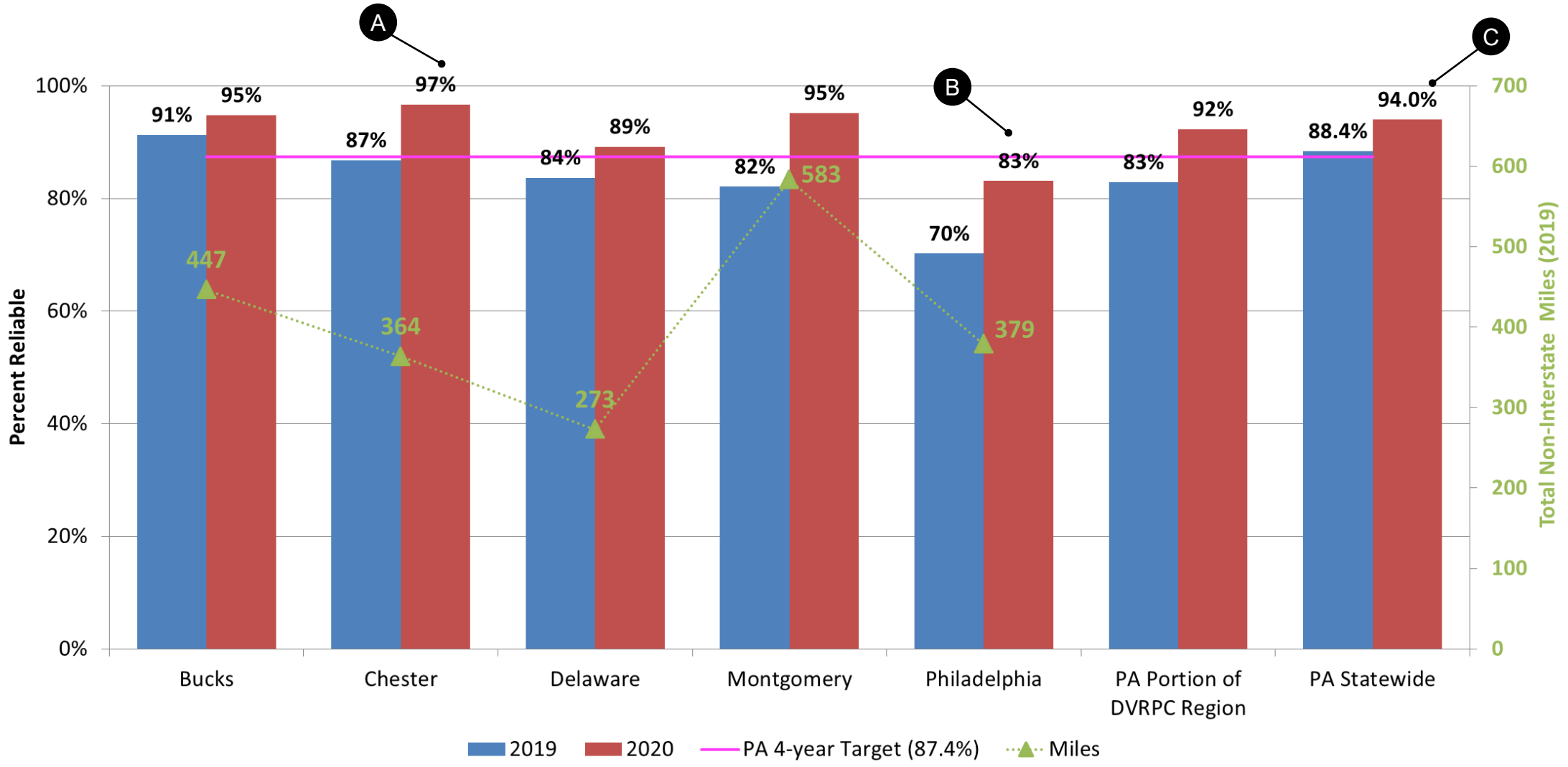
PM3 Measures:

- **Travel Time Reliability**
  - **Interstate**
  - **Non-interstate**
- **Truck Travel Time Reliability**
- **Peak Hour Excessive Delay**



Pennsylvania — Percent Travel Time Reliability for Non-Interstates

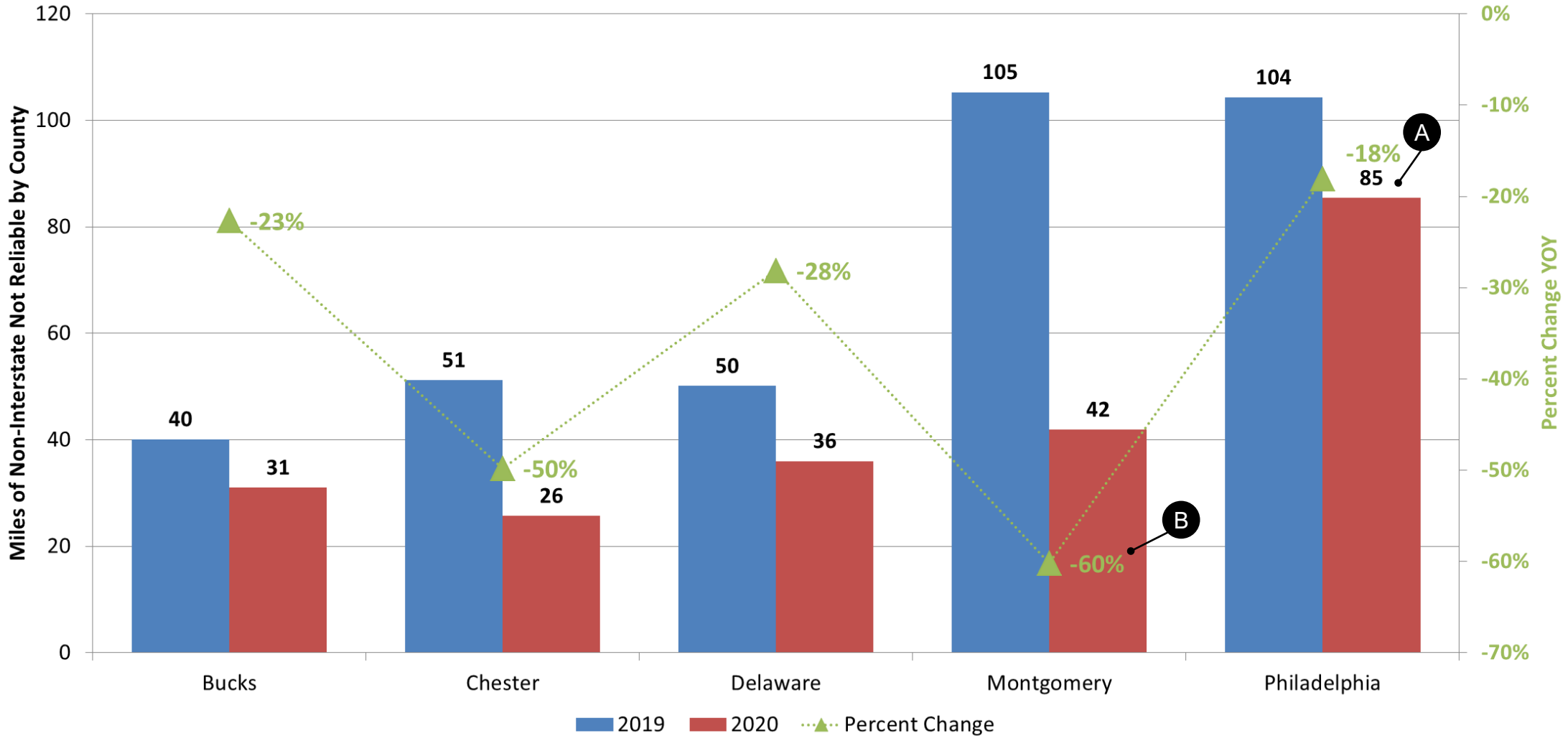
- **A** Chester County had the highest reliability in 2020 at 97%
- **B** Philadelphia had the lowest reliability in 2020 at 83%
- **C** 2020 Statewide reliability of 94% well above 4-year target of 87.4%



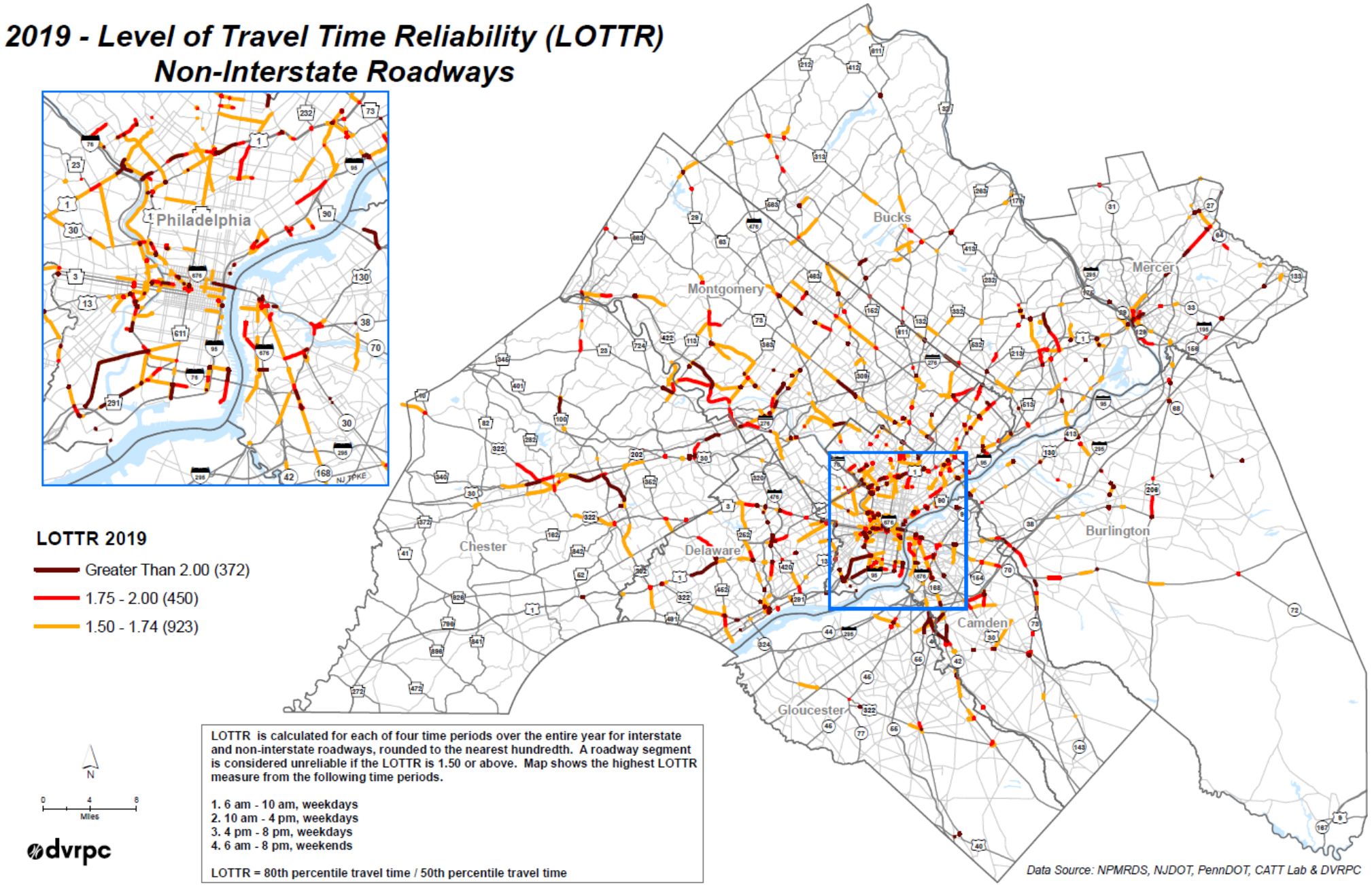
Pennsylvania — Miles of Non-Interstate Not Reliable by County

A **Philadelphia had the most miles (85) of unreliable non-interstate roads in 2020**

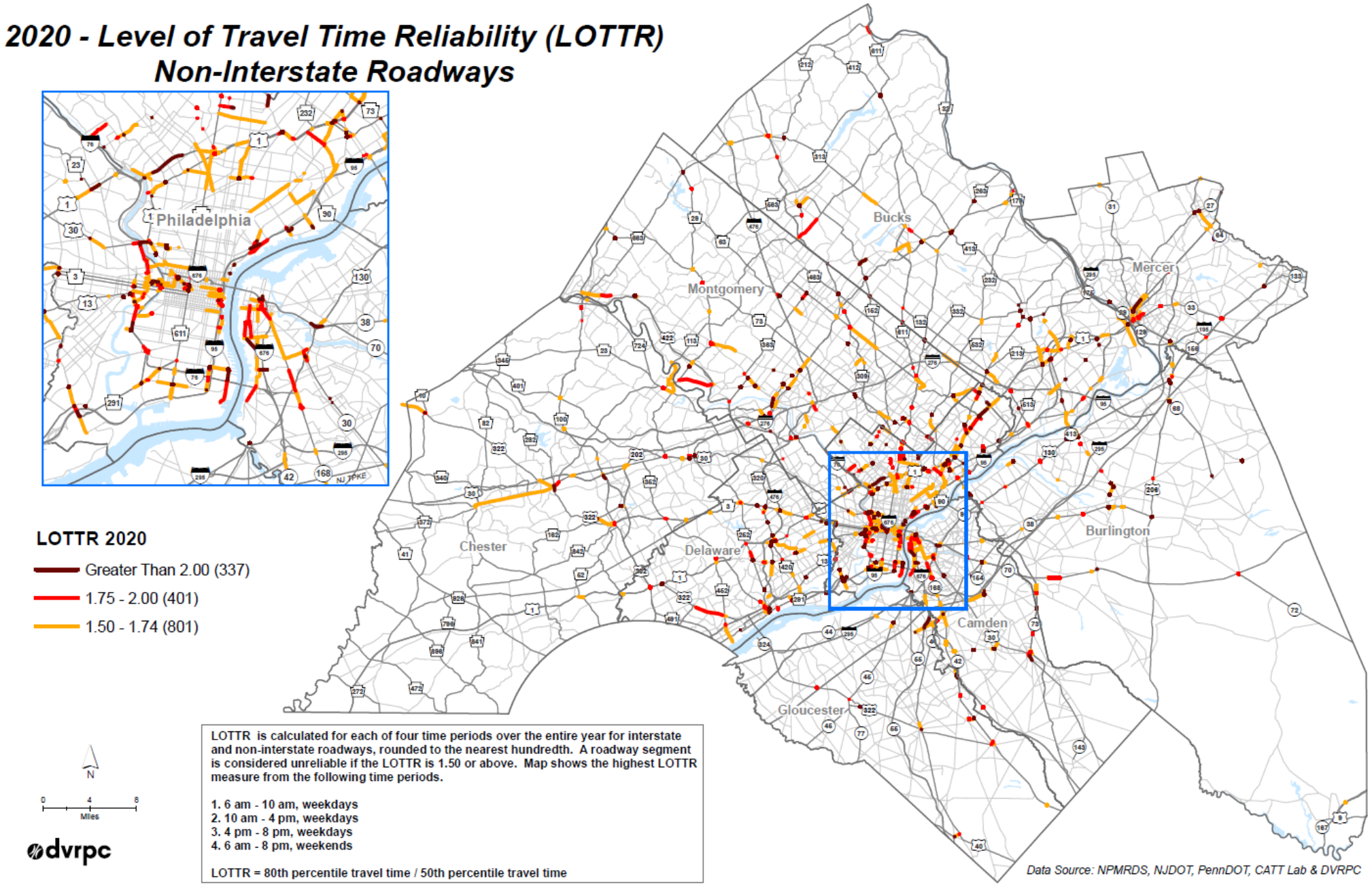
B **Montgomery County experienced the most improvement in reliability with a 60% change decrease YOY**



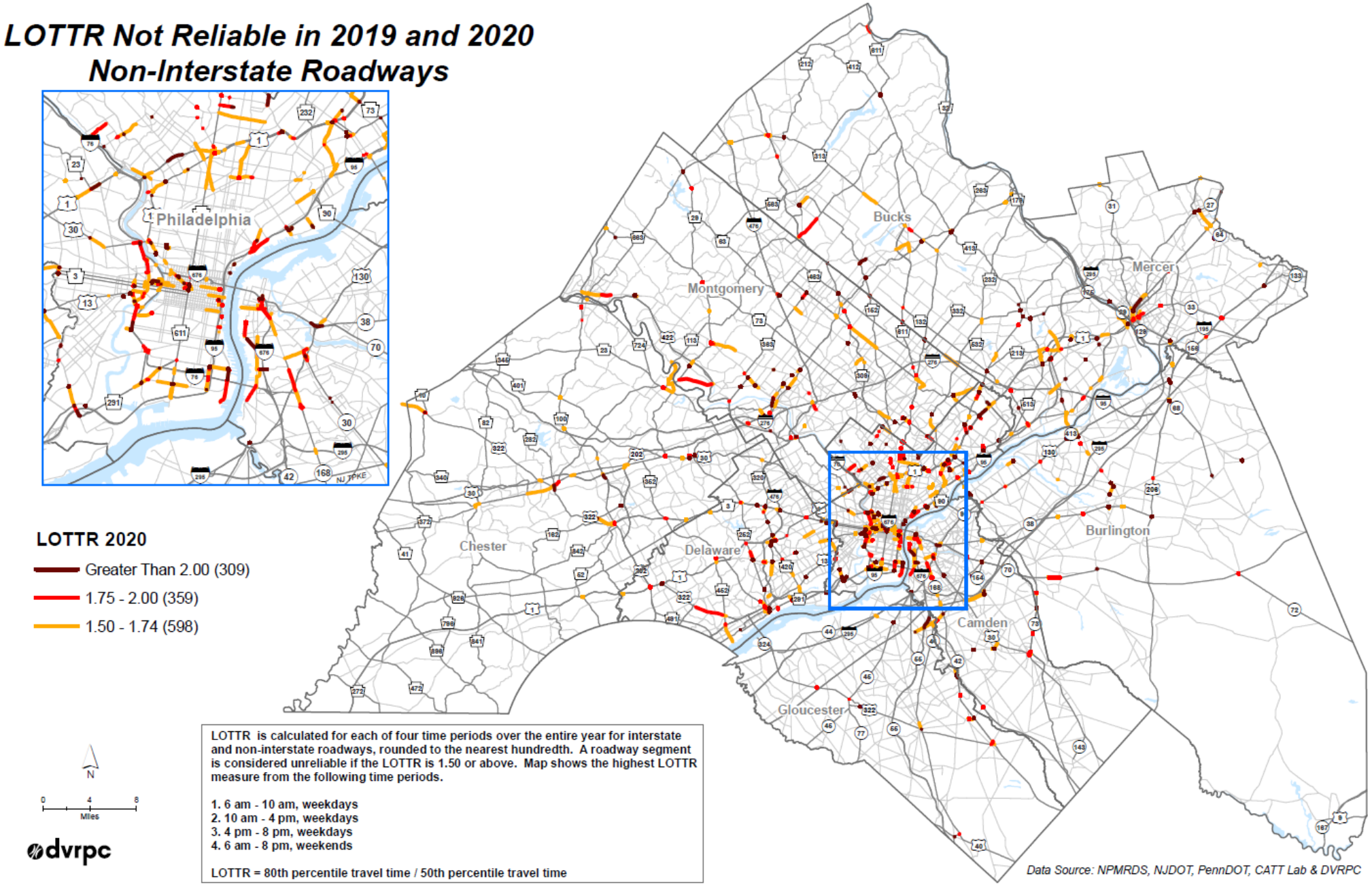
2019 Travel Time Reliability for Non-Interstates by Road Segment



2020 Travel Time Reliability for Non-Interstates by Road Segment



Not Reliable in 2019 and 2020 on Non-Interstates by Road Segment



Change in Reliability YOY on Non-Interstates by Road Segment

LOTTR Delta 2020 minus 2019
Non-Interstate Roadways

In 2020, 69% of the roadway miles were equally or more reliable compared to 2019

LOTTR 2020 minus 2019

- <= 0.00 (3,443)
- 0.01 - 0.50 (1,946)
- 0.51 - 2.00 (248)
- > 2.00 (24)

Bucks
Montgomery
Mercer
Chester
Delaware
Burlington
Camden
Gloucester

N

0 4 8
Miles

dvrpc

LOTTR is calculated for each of four time periods over the entire year for interstate and non-interstate roadways, rounded to the nearest hundredth. A roadway segment is considered unreliable if the LOTTR is 1.50 or above. Map shows the highest LOTTR measure from the following time periods.

1. 6 am - 10 am, weekdays
2. 10 am - 4 pm, weekdays
3. 4 pm - 8 pm, weekdays
4. 6 am - 8 pm, weekends

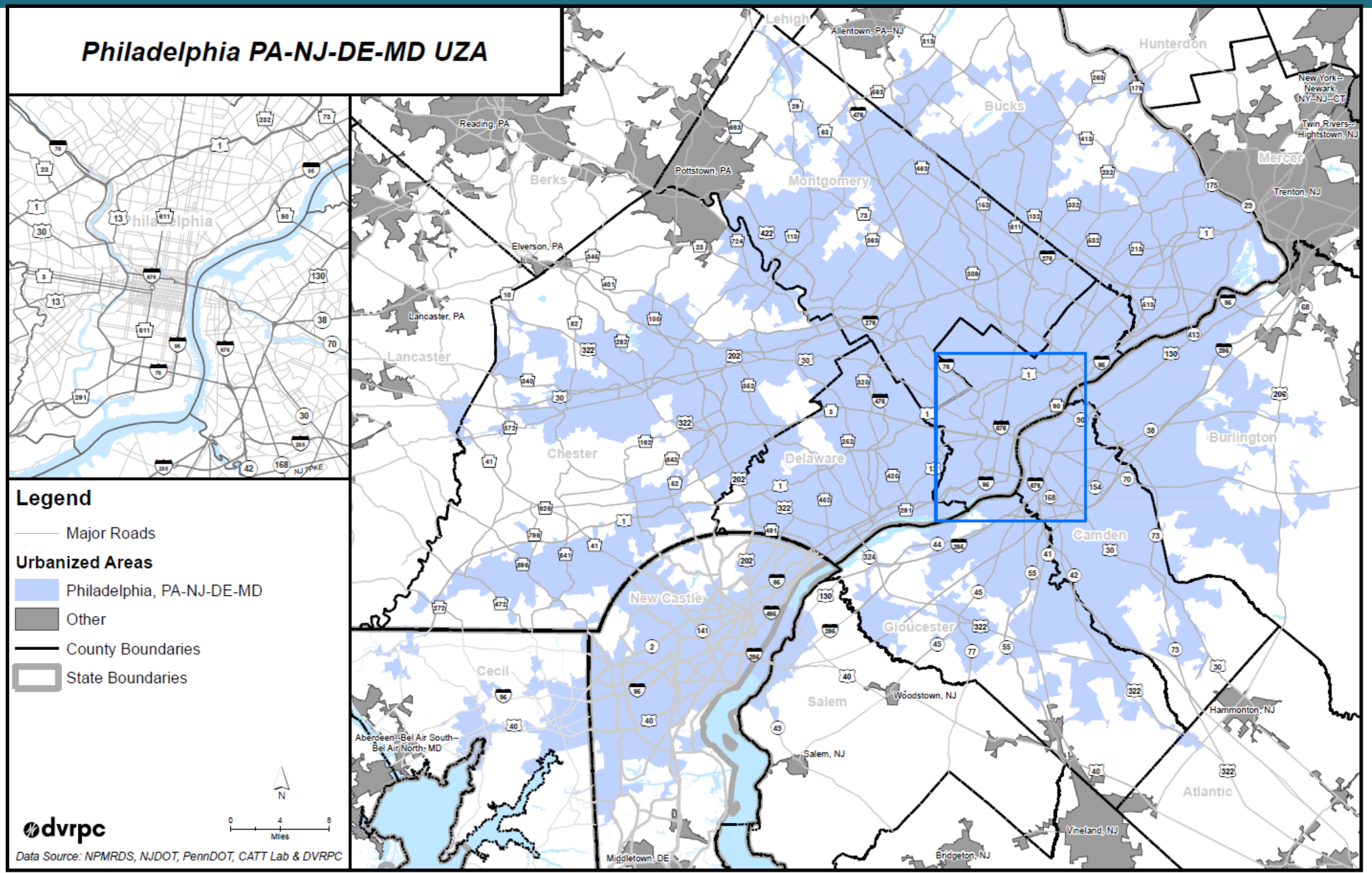
LOTTR = 80th percentile travel time / 50th percentile travel time

Data Source: NPMRDS, NJDOT, PennDOT, CATT Lab & DVRPC

Philadelphia PA-NJ-DE-MD Urbanized Area and Peak Hour Excessive Delay

Urbanized Area

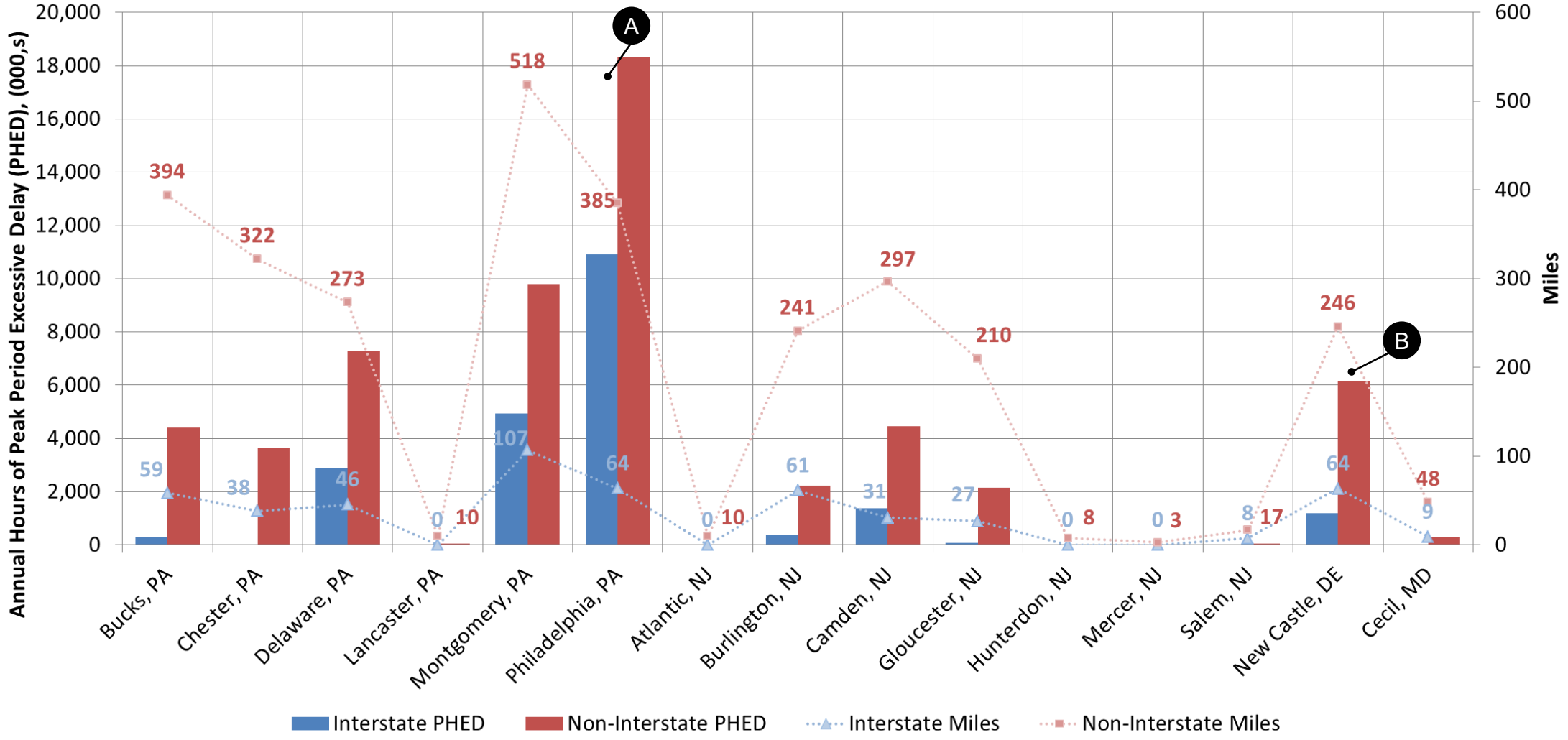
- **4 States**
- **Parts of 15 Counties**
- **4,024 Miles of Roadway**



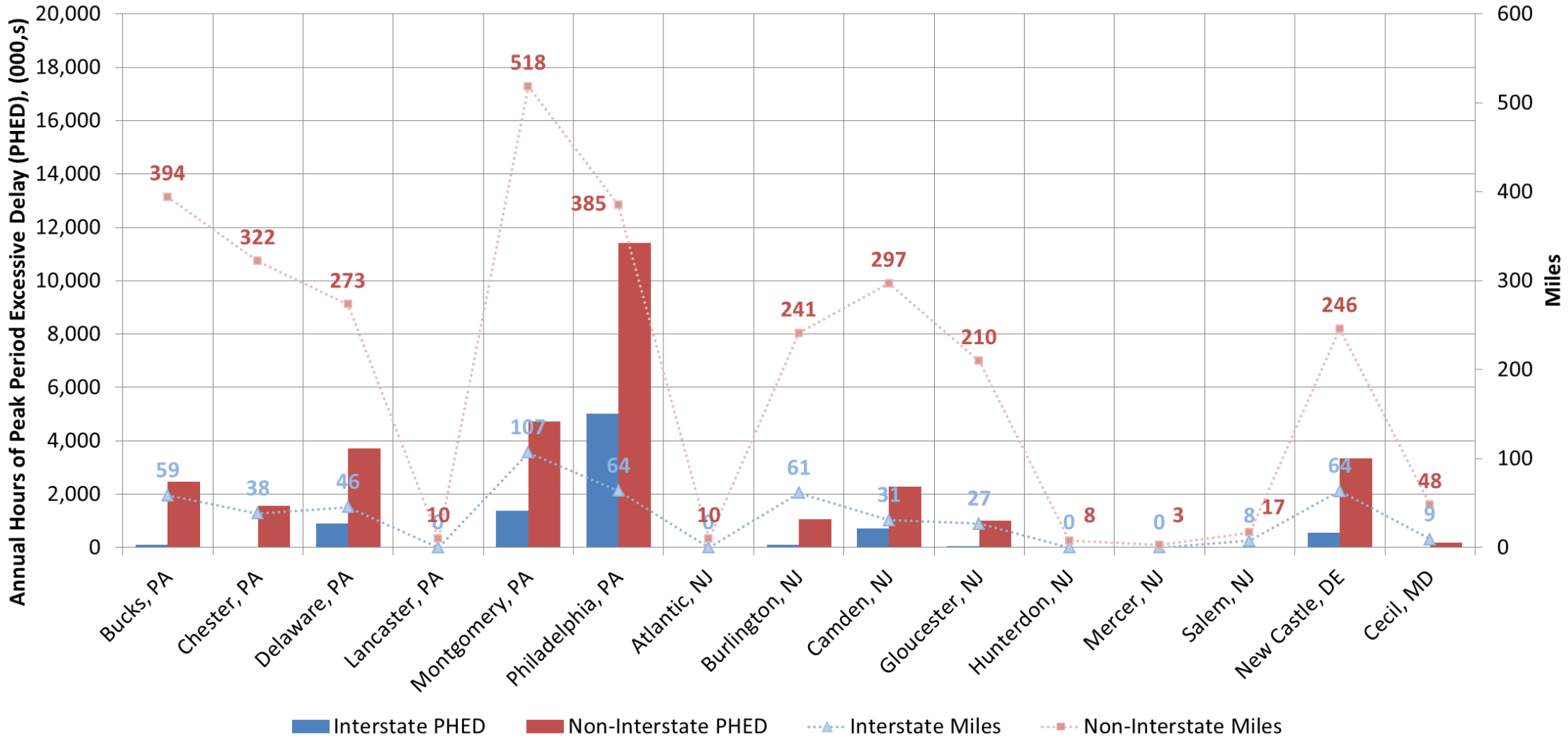
2019 Annual Hours of Peak Hour Excessive Delay (PHED) by County

A **Philadelphia has the highest PHED for both interstate and non-interstate**

B **New Castle County, DE has the 4th highest PHED for non-interstate**



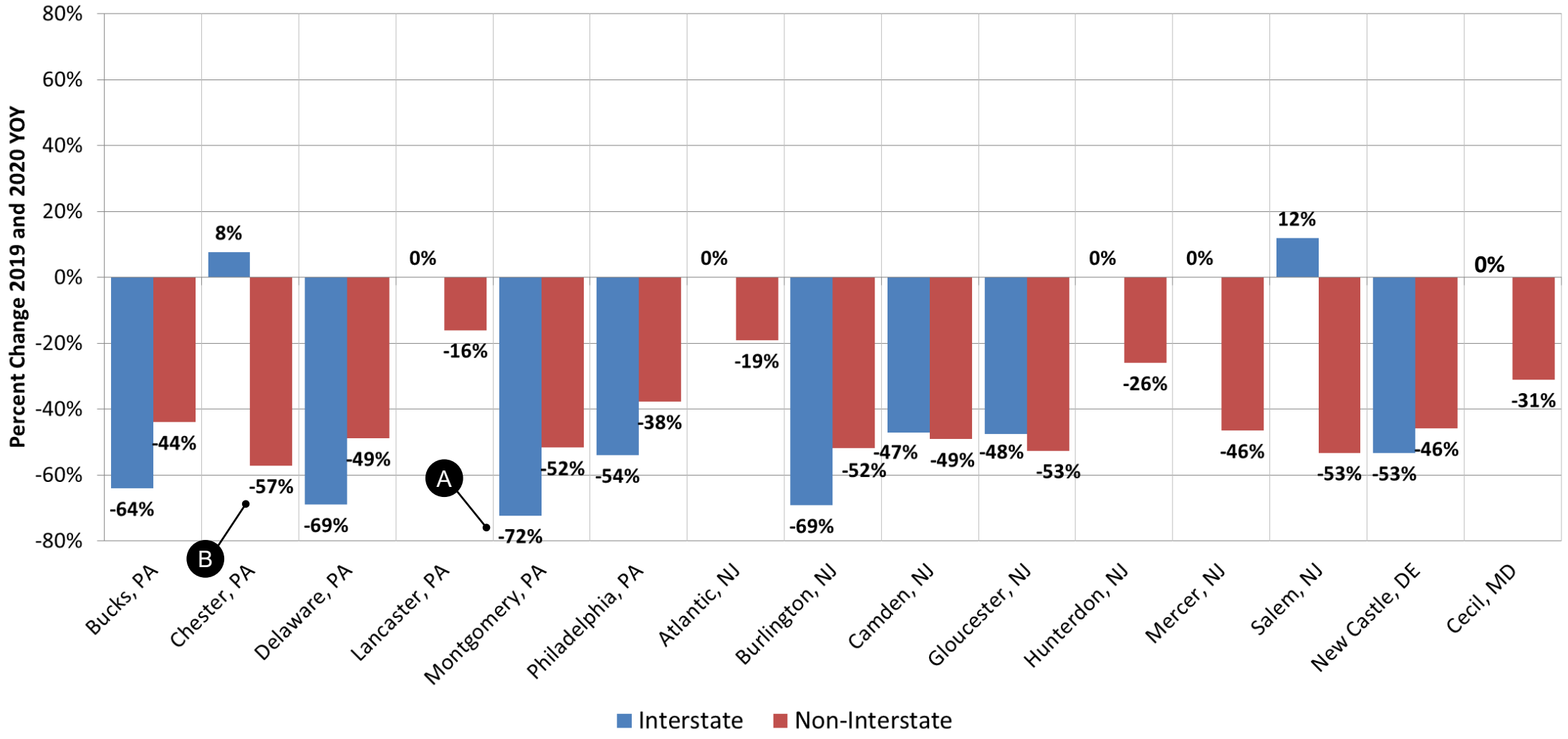
2020 Annual Hours of Peak Hour Excessive Delay (PHED) by County



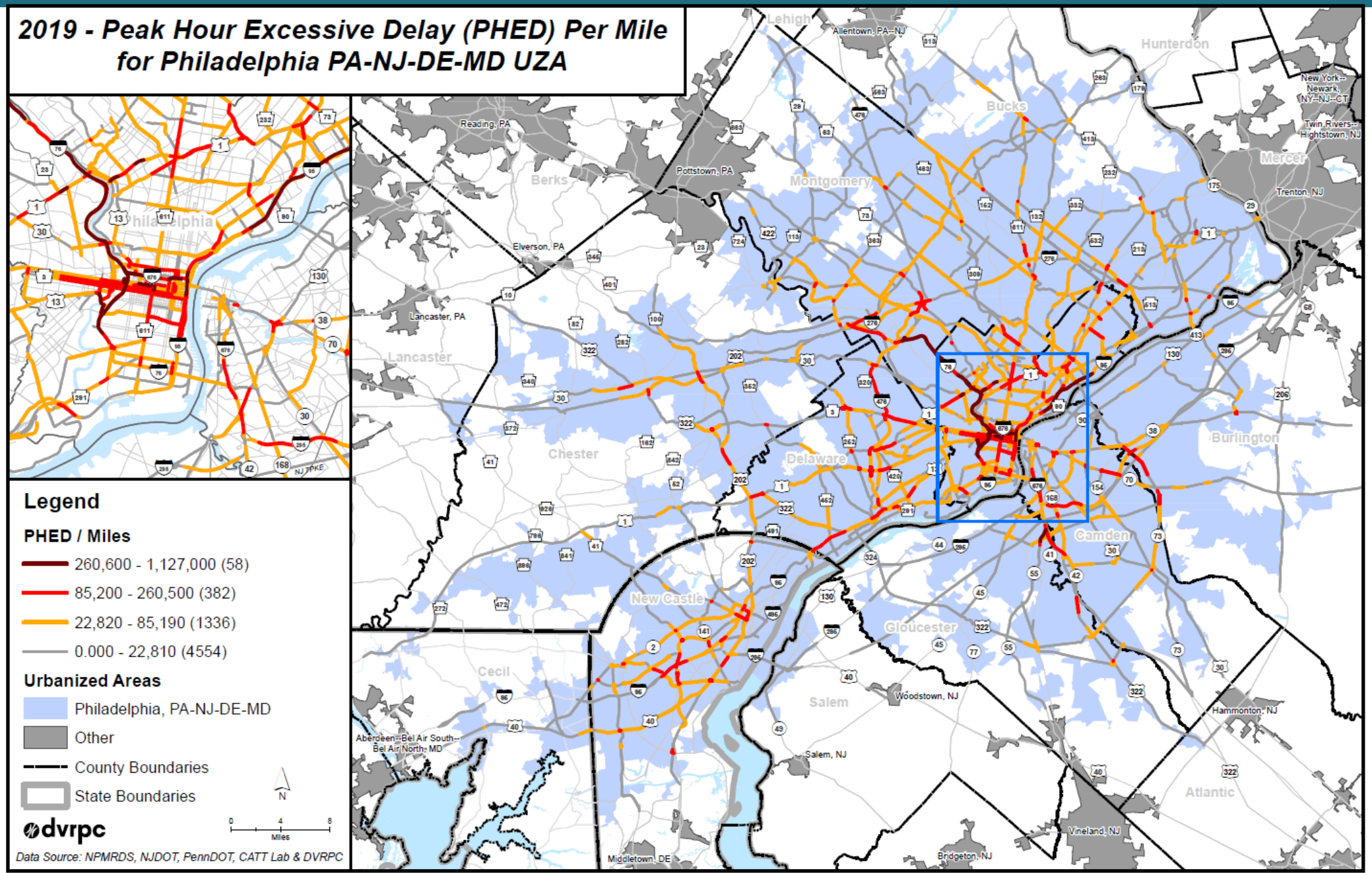
Percent Change Year-Over-Year in Annual Hours of PHED by County

A **Montgomery County has the most percent decrease for interstates at 72%**

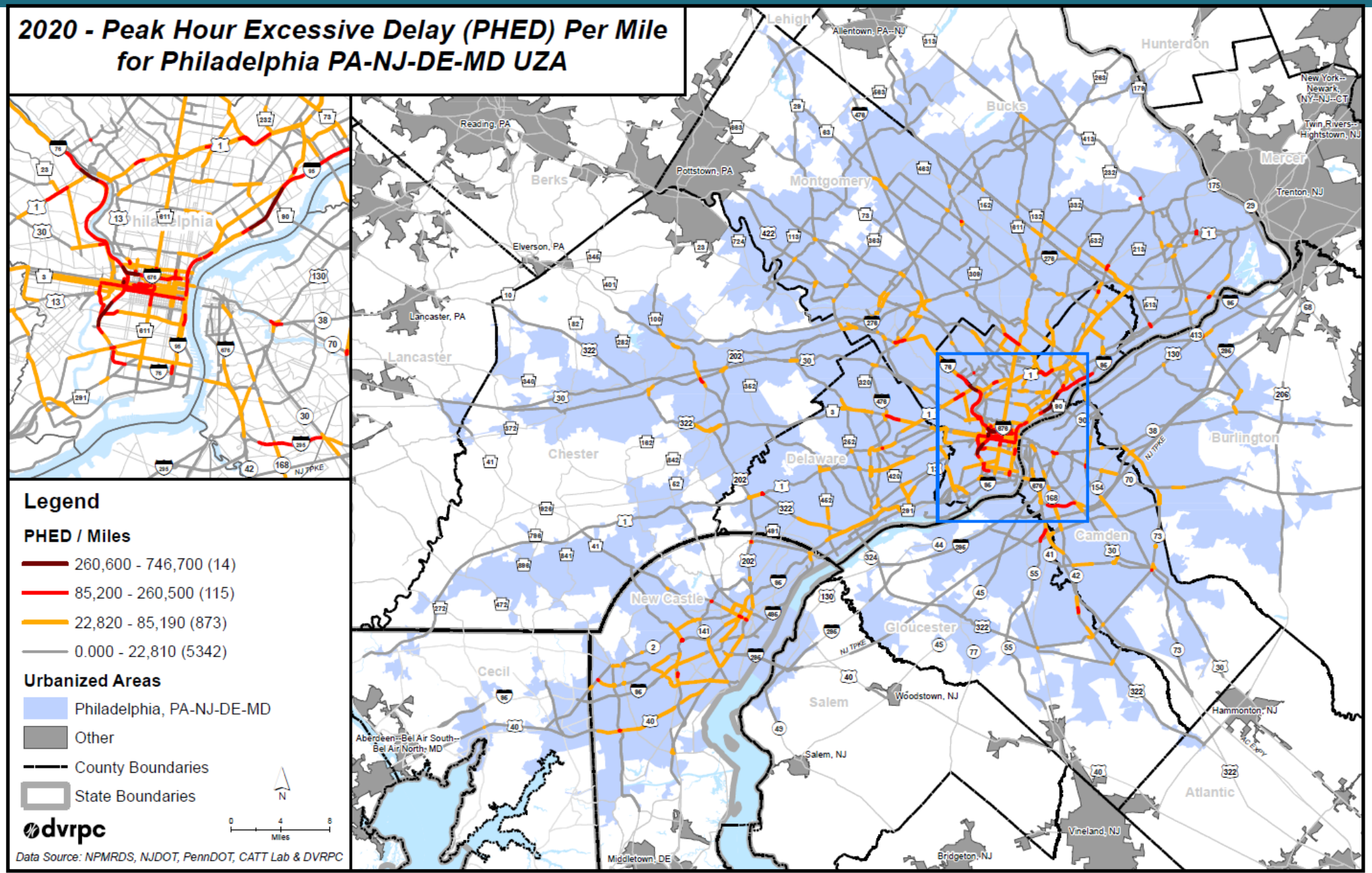
B **Chester County has the most percent decrease for non-interstates at 57%**



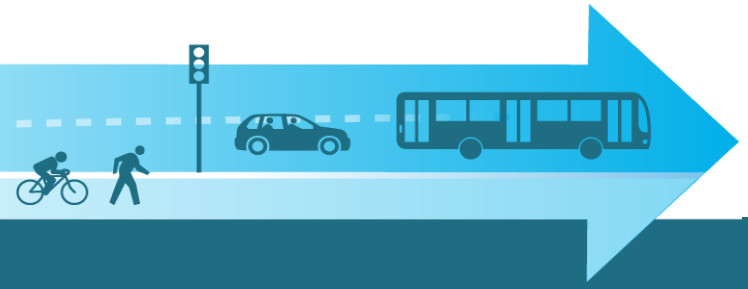
2019 Peak Hour Excessive Delay Per Mile – Philadelphia PA-NJ-DE-MD UZA



2020 Peak Hour Excessive Delay Per Mile – Philadelphia PA-NJ-DE-MD UZA

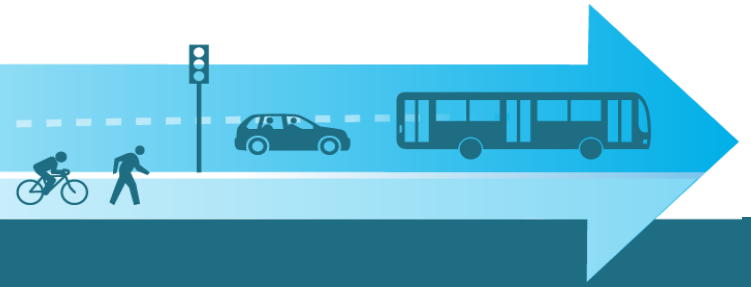


Takeaways



- Access to the RITIS-PDA Suite vehicle probe data and tools provides great capabilities to better understand travel trends
- Automating processes using the RITIS API and scripting to collect, manipulate and summarize the results for 500 plus corridors provides efficiencies to analyze the data that would otherwise be much more time consuming
- Performance reports provide a quick means of telling a story about travel trends by corridor that serve as a reference for further detailed studies.

Moving Forward

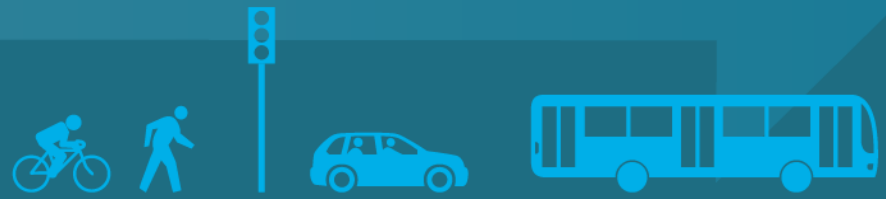


- Analyze truck travel time reliability and congestion by CMP corridor using the NPMRDS
- Analyze PM3 measures by CMP Corridor:
  - Level of Travel Time Reliability (LOTTR)
  - Truck Travel Time Reliability Index (TTTR); [Interstates Only]
  - Peak Hour Excessive Delay (PHED); [Urbanized Areas Only]
- Better incorporate analyzing traffic events by CMP corridor, including traffic incidents, work zones, adverse weather and special events
- Continually develop and refine performance reports by including traffic events, multimodal performance measures, and mitigation strategies.

dvrpc

Questions/Comments?

Tom Edinger | tedinger@dvrpc.org | 215.238.2865



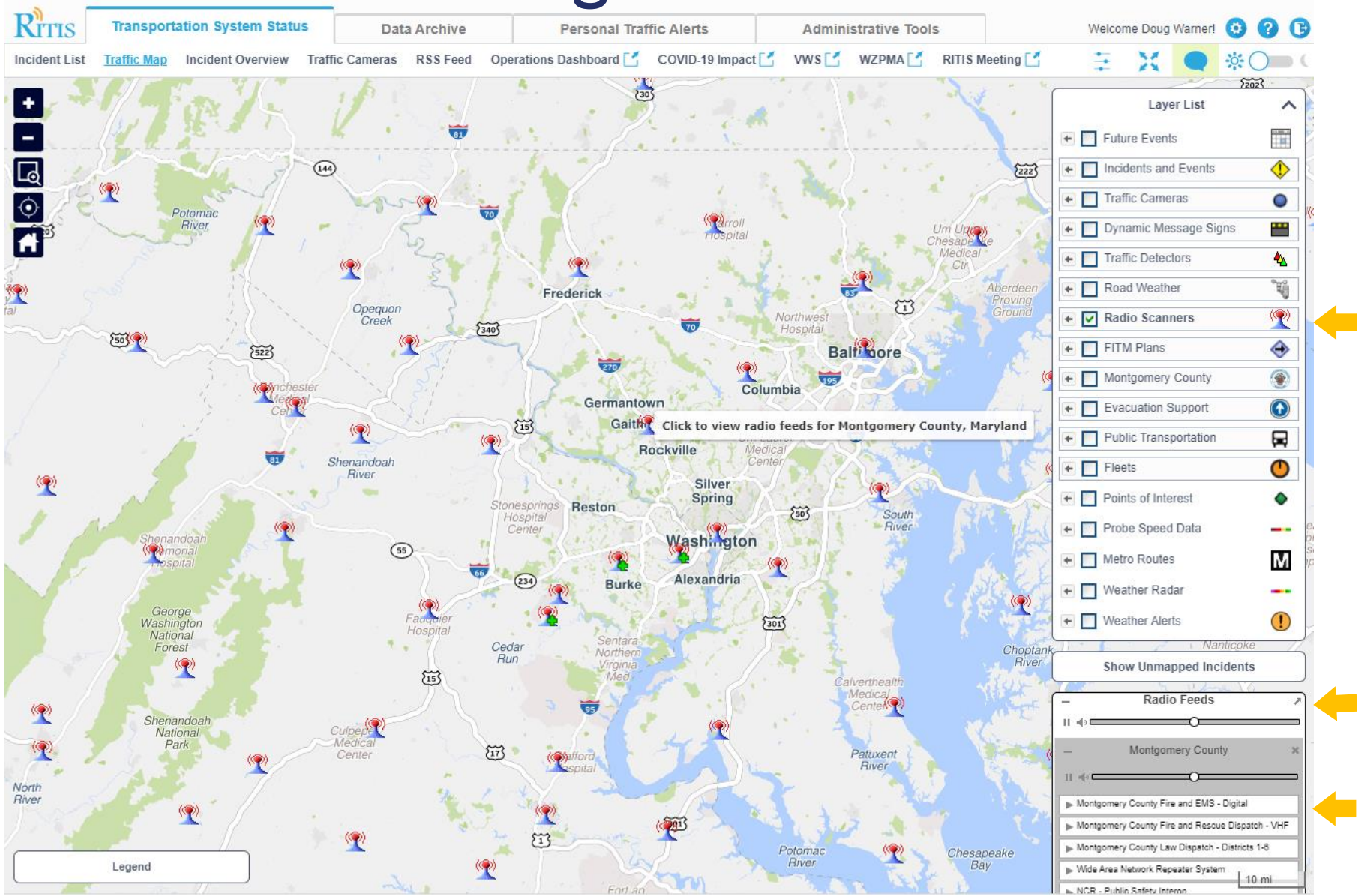
DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

RITIS | PROBE DATA ANALYTICS SUITE

New RITIS Tools and Recent Enhancements

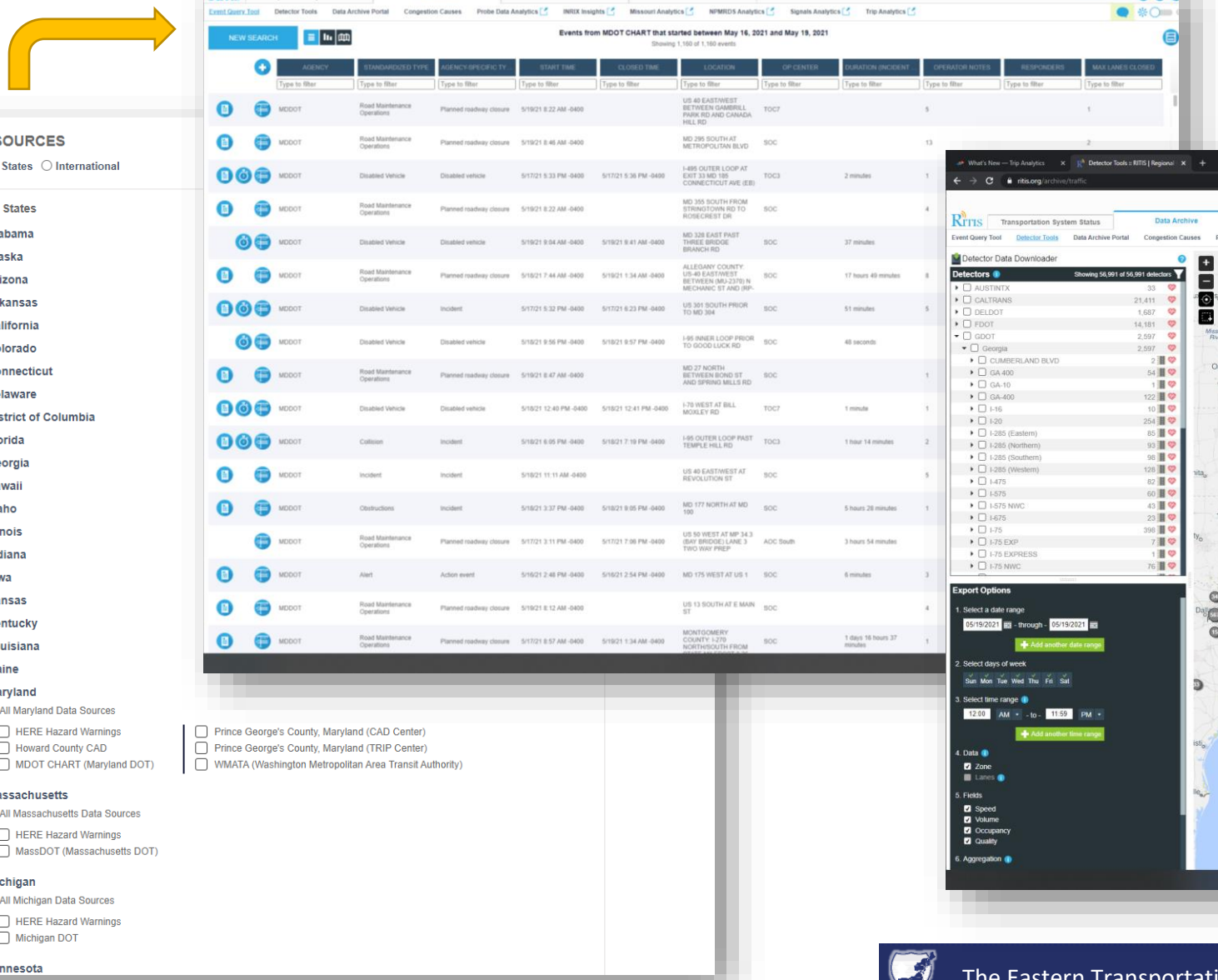
Michael Pack
UMD CATT Lab
Director

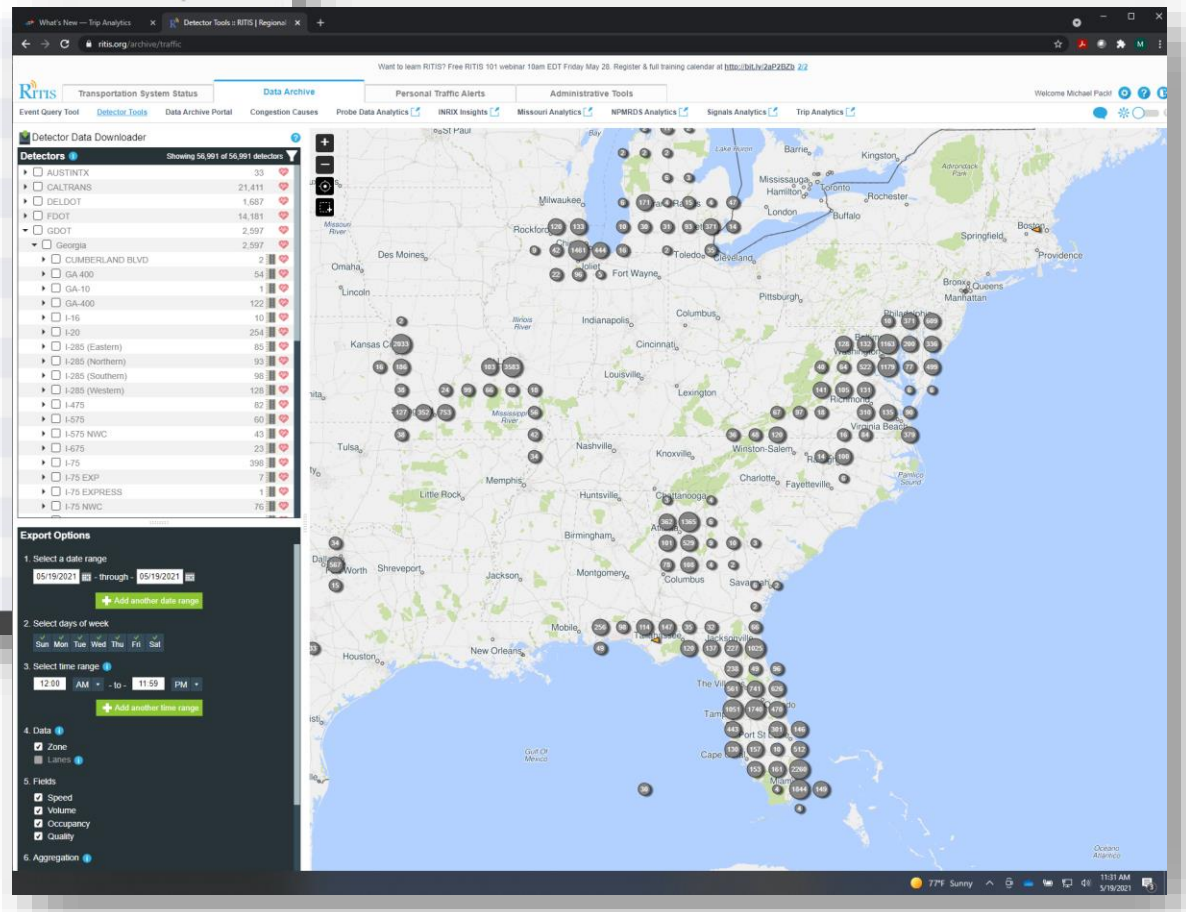
Radio Scanners Alive Again!



https://www.ritis.org/release_notes

Exports in Detector Tools and Event Query Tool: ISO 8601 format



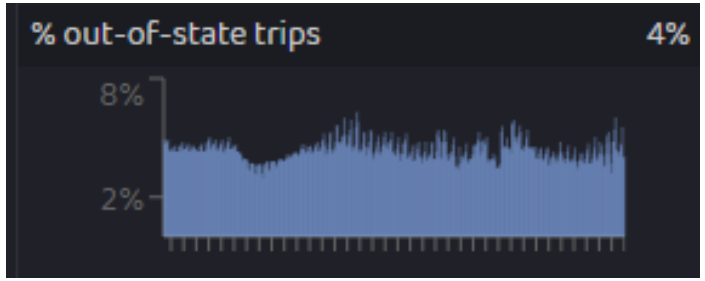


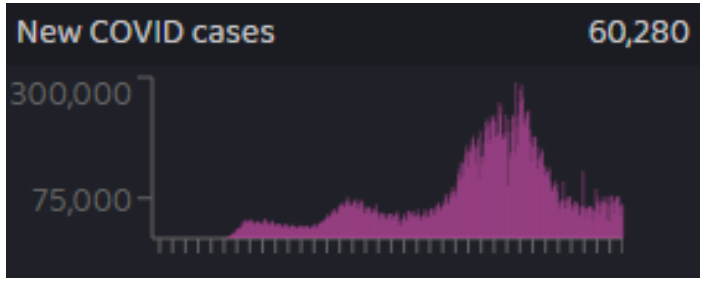
COVID-19 Impact Analysis Platform

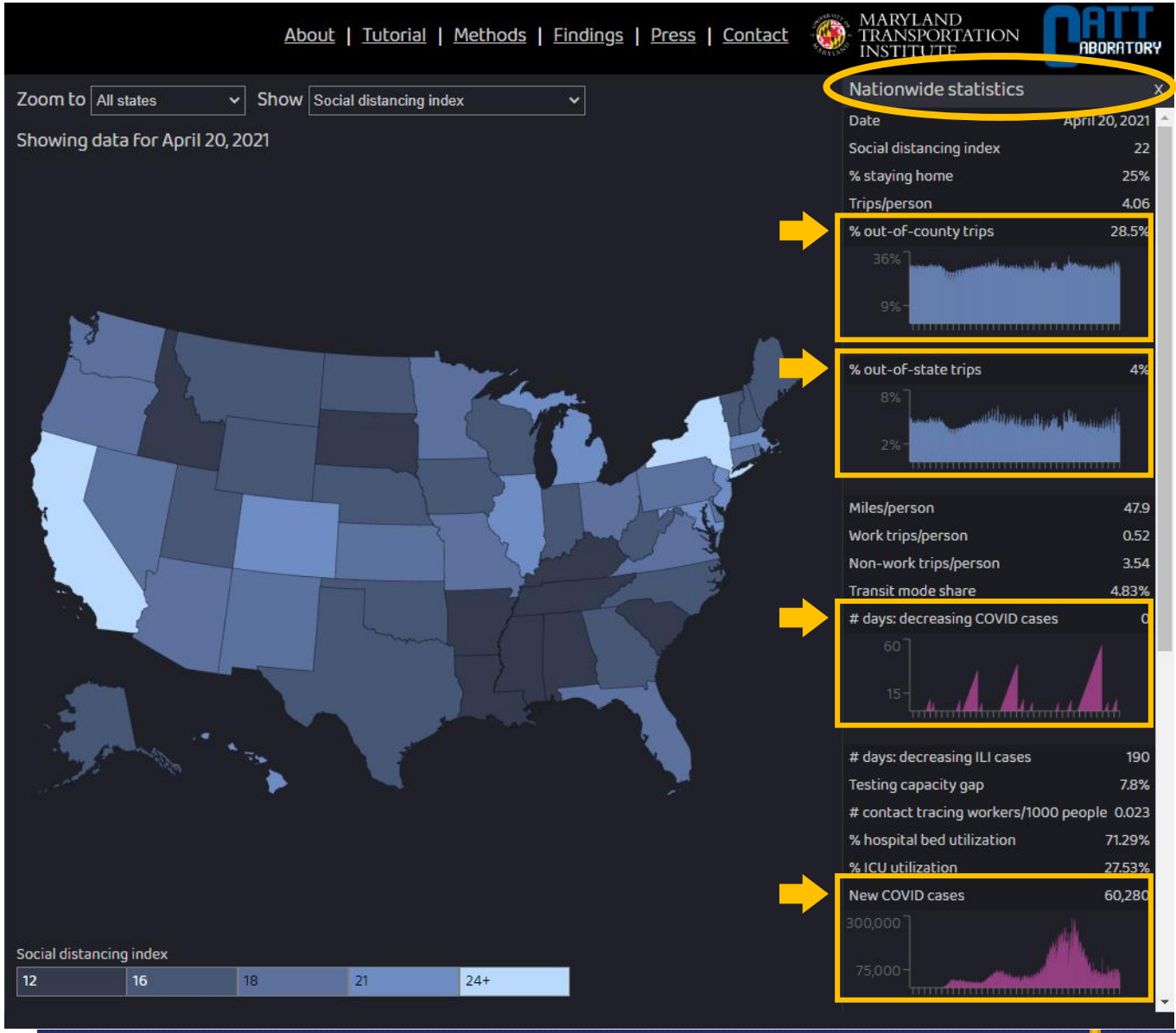
COVID-19 Impact Analysis Platform latest updates

National-level trend charts have been added:

- Click any metric in the **National Statistics** table (top right corner) to see the trend chart





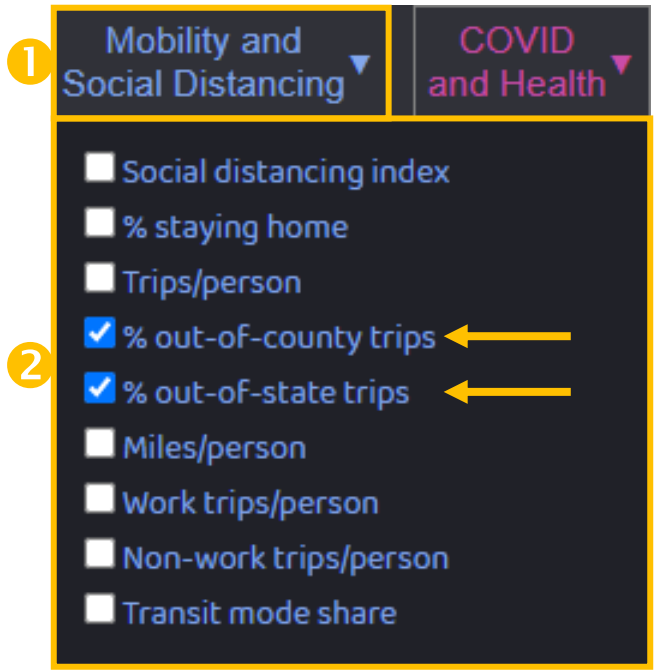


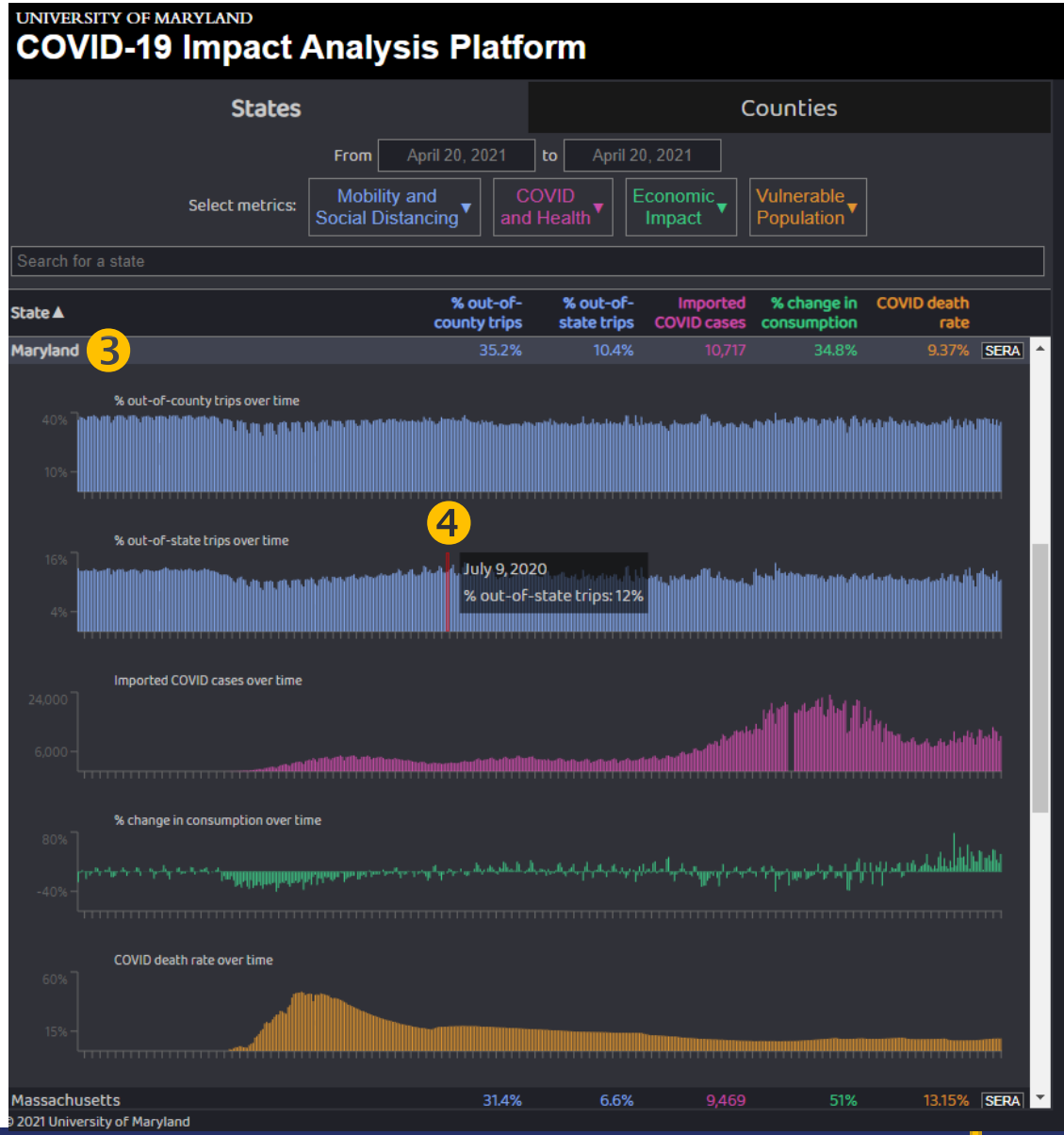
https://www.ritis.org/release_notes

COVID-19 Impact Analysis Platform latest updates

The platform now provides **% out-of-county trips** and **% out-of-state trips** metrics:

1. Click on the **Mobility and Social Distancing** metrics drop-down
2. Check the appropriate boxes
3. Click on a state to visualize the data in a trend chart
4. Hover over a column to see the value for a particular date





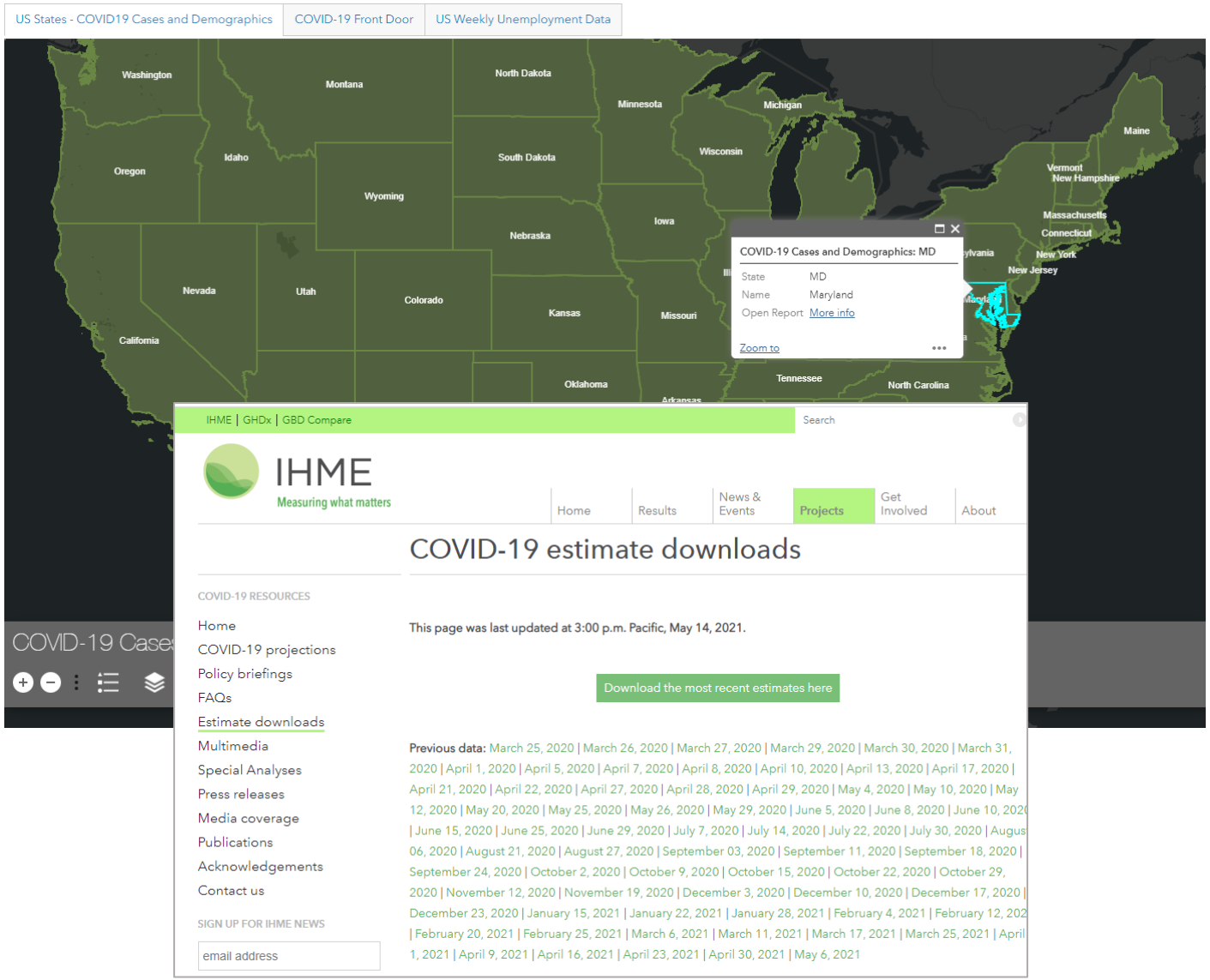
https://www.ritis.org/release_notes

COVID-19 Impact Analysis Platform latest updates

Certain public health metrics are now updated more frequently based on additional sources.

% hospital beds utilization, calculated by the Maryland Transportation Institute using:

- ESRI: US Hospital Beds Dashboard, and;
- Institute for Health Metrics Evaluation COVID-19 projections



https://www.ritis.org/release_notes

Society and Economic Reopening Assessment (SERA)

The **SERA tool** provides data, insight, and decision support on both reopening readiness assessment and post-reopening situational awareness.

More than 20 experts in epidemiology, public health, economics, transportation & mobility, and social sciences at the University of Maryland selected 16 metrics for inclusion in the SERA tool.

COVID and Health

	Value	Threshold	Percentile
# of days: decreasing COVID cases	0	14	79th
# of days: decreasing ILI cases	91	14%	67th
Testing capacity gap	9.6%	12%	80th
# contact tracing workers/1,000 people	0.041	0.15	27th
% hospital bed utilization	68.62%	90%	100th
% ICU utilization	10.07%	90%	73rd
New cases/1,000 people	0.17		65th
Imported COVID cases	4,119		73rd
Ventilator needs	54		61st

Economic Impact

	Value	Percentile
Unemployment Rate	13.1%	30th
% working from home	43.7%	2nd
% change in consumption	9%	79th

Mobility and Social Distancing

	Value	Percentile
Social Distancing Index	35	8th
% out-of-state trips	12.6%	86th

Vulnerable Population

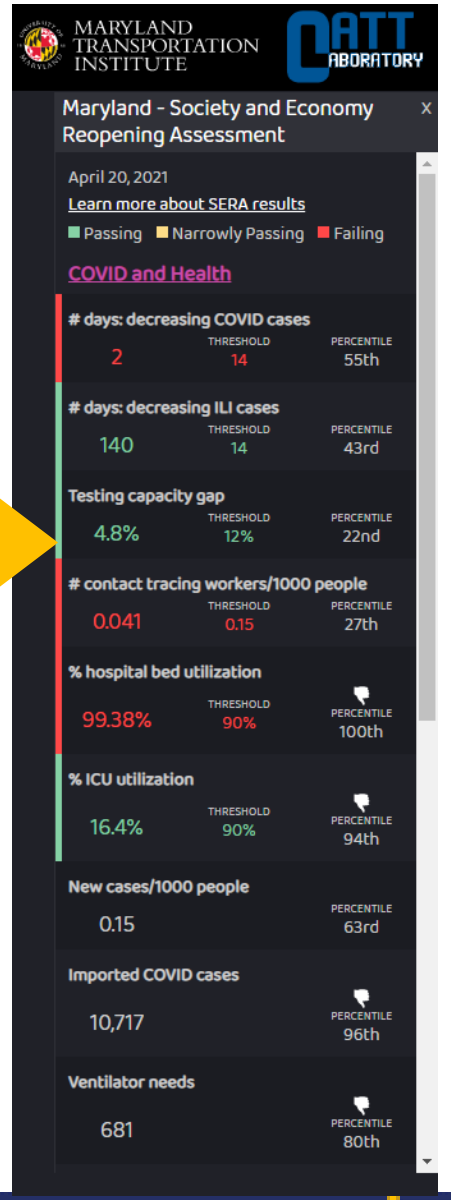
	Value	Percentile
% people older than 60	21%	28th

COVID death rate

	Value	Percentile
COVID death rate	1.73%	76th

Source: RITIS / COVID-19 Impact

Passing | Narrowly Passing | Failing



https://www.ritis.org/release_notes

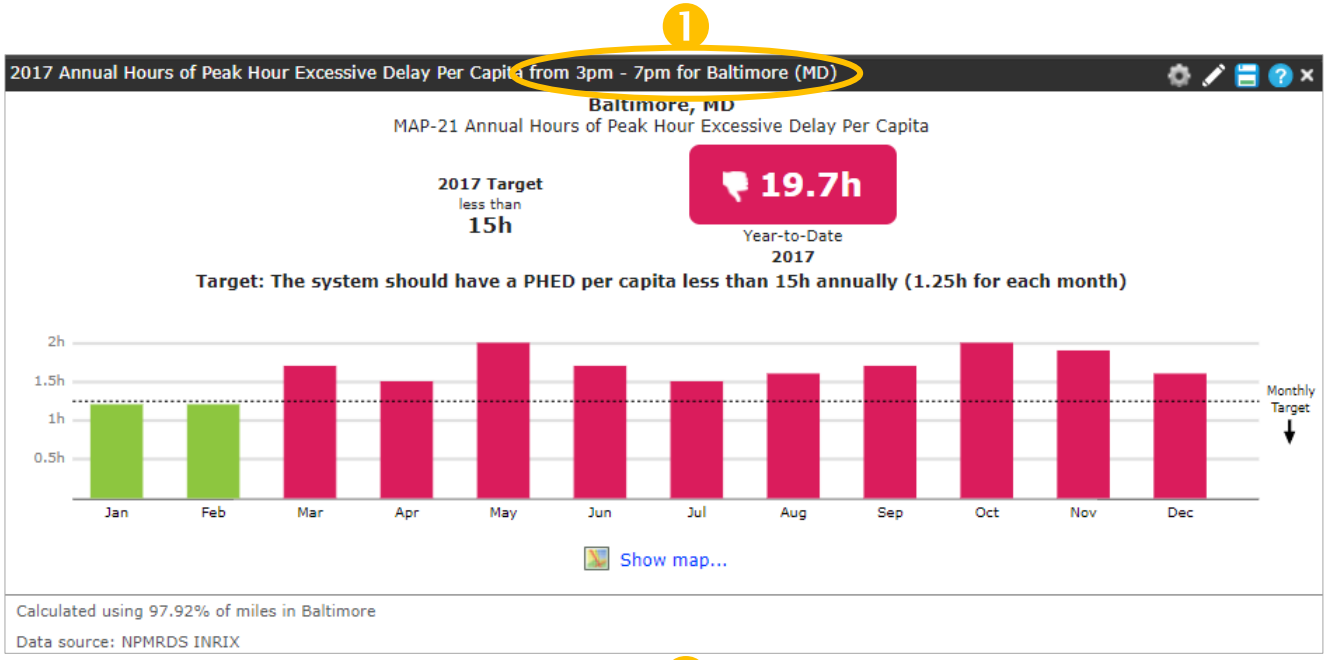
Probe Data Analytics Suite

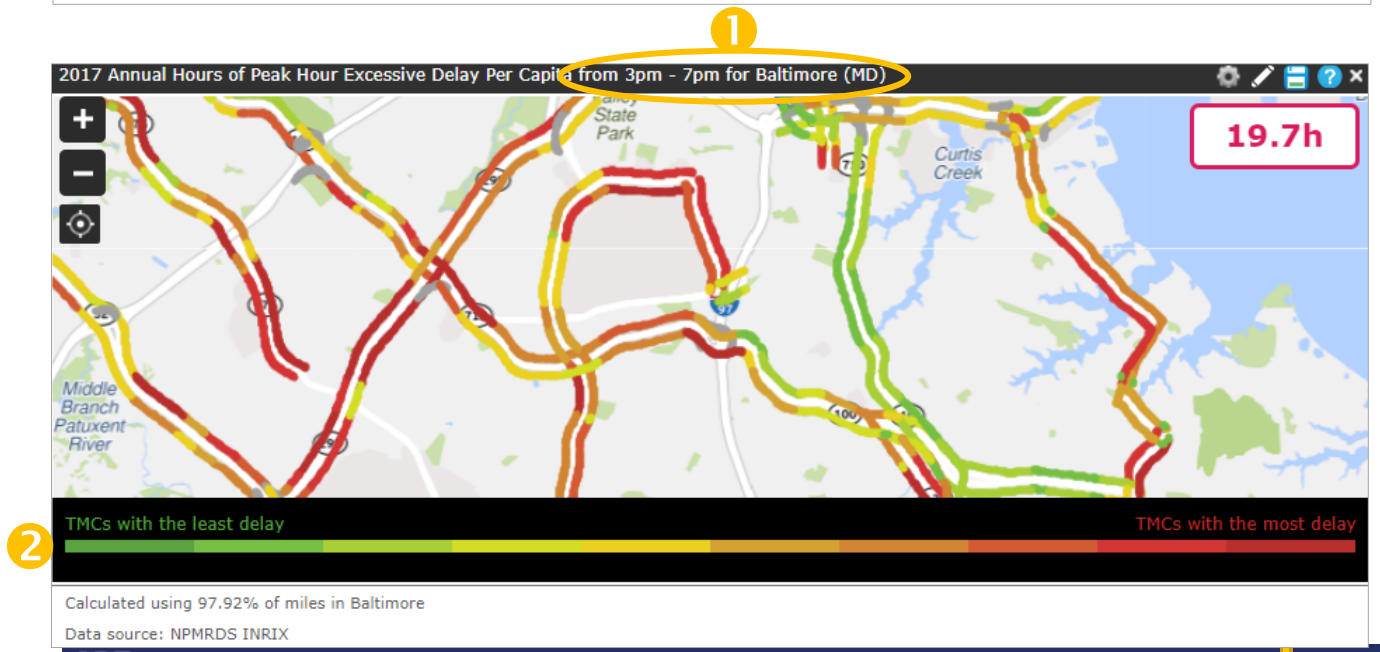
PDA Suite latest updates

❶ The default name for **Peak Hour Excessive Delay MAP-21 widgets** now includes the selected time of day information, appearing in the header of the widget once the widget is added to the dashboard.

❷ The road segments in **Temporal Comparison Maps** (PHED) now use a new default color scheme for better visual contrast.

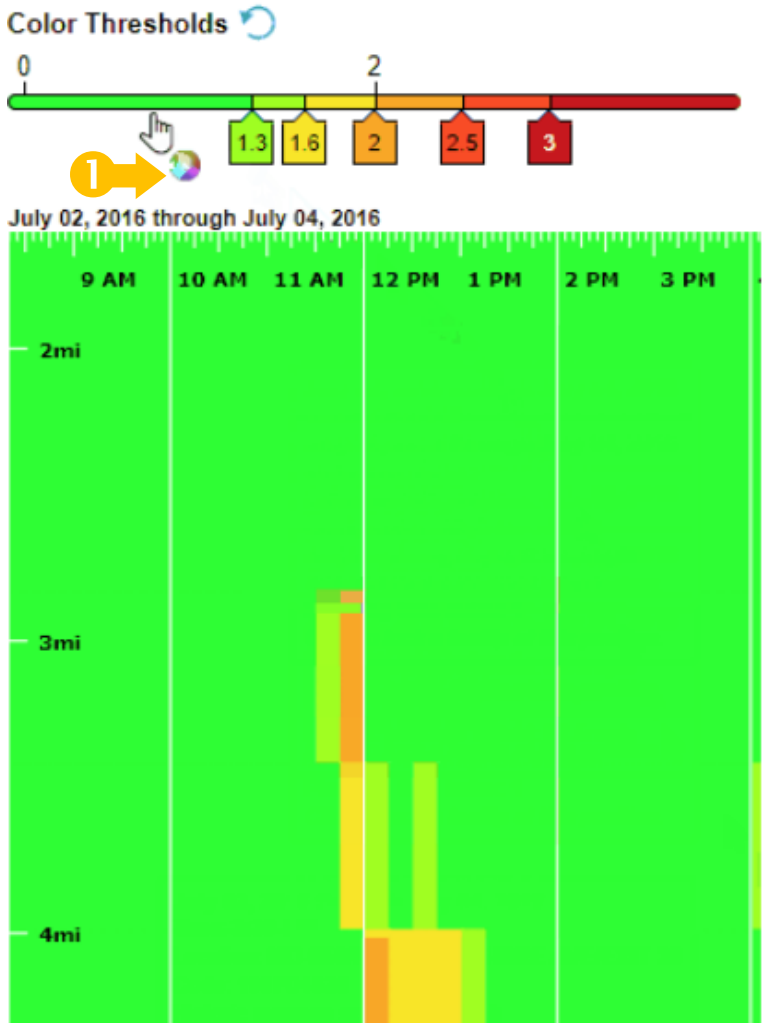
https://pda.ritis.org/suite/updates/

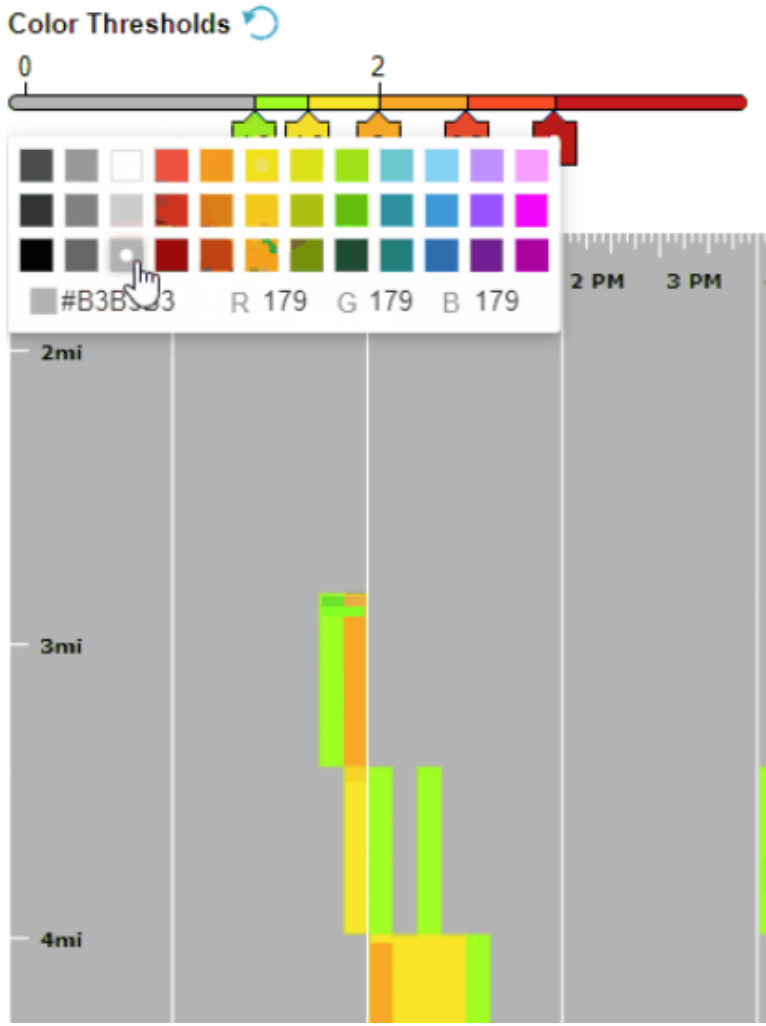




PDA Suite latest updates

❶ A **custom mouse cursor** now appears when hovering over the color threshold slider in several tools, making it clearer that the color bands can be clicked to allow you to customize the colors used in the visualizations.

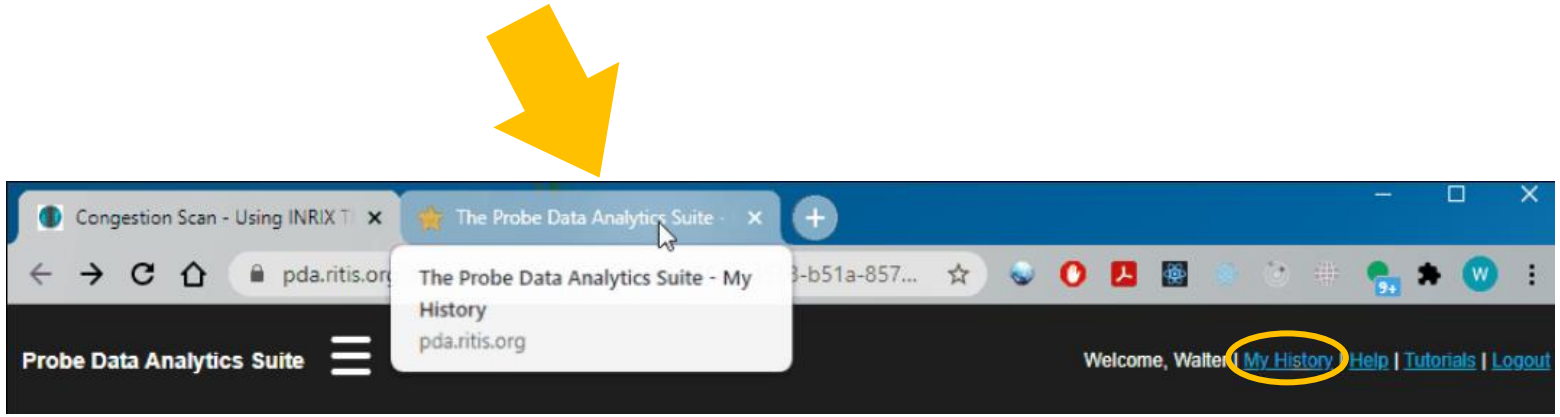




https://pda.ritis.org/suite/updates/

PDA Suite latest updates

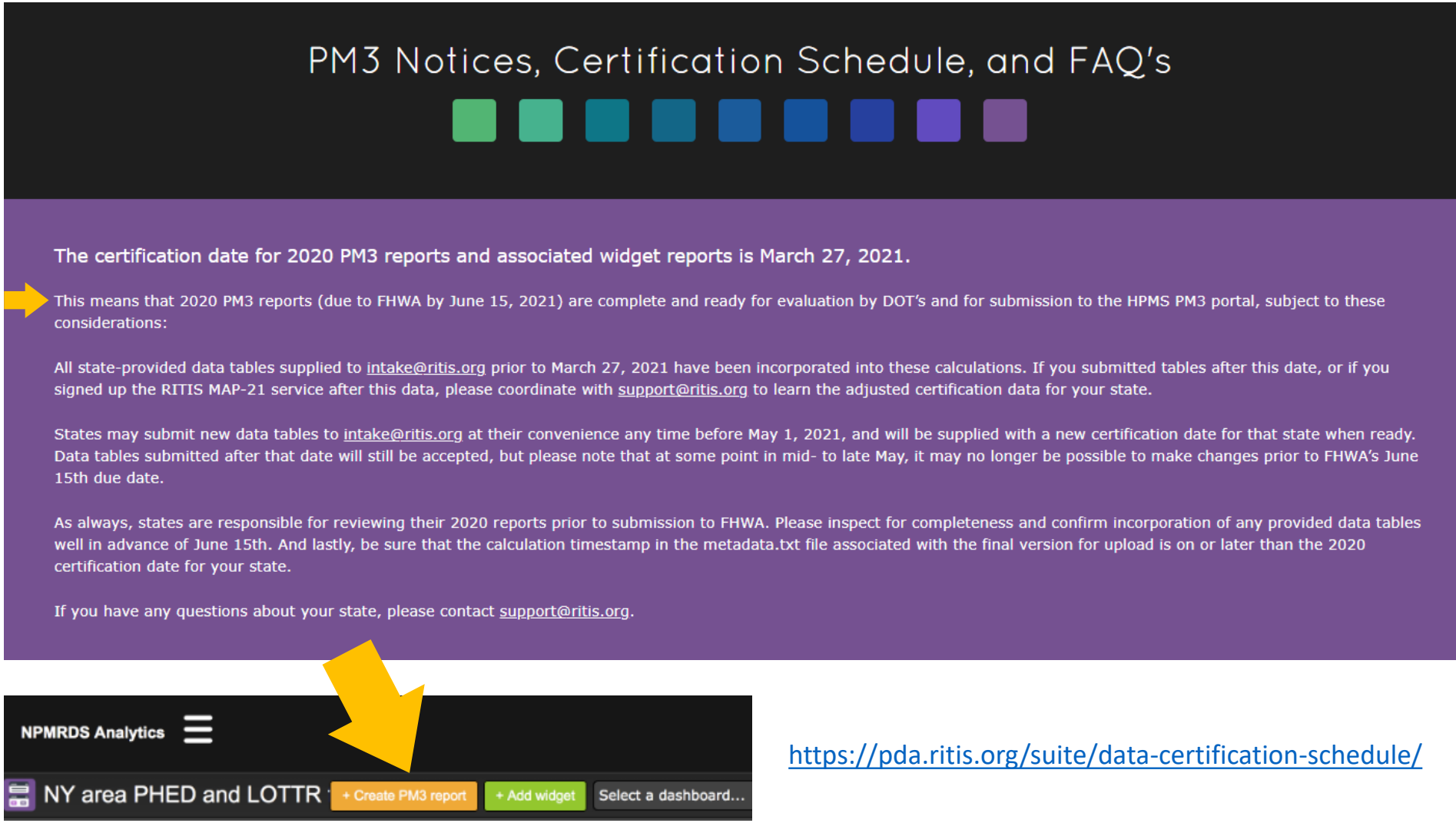
The **My History** link in the top-right corner of each page will now open in a new browser tab by default, keeping your work tab safe.



https://pda.ritis.org/suite/updates/

PDA Suite latest updates

2020 PM3 Reports (due to FHWA June 15, 2021) are complete and ready for evaluation by DOTs and submission to the HPMS PM3 portal.

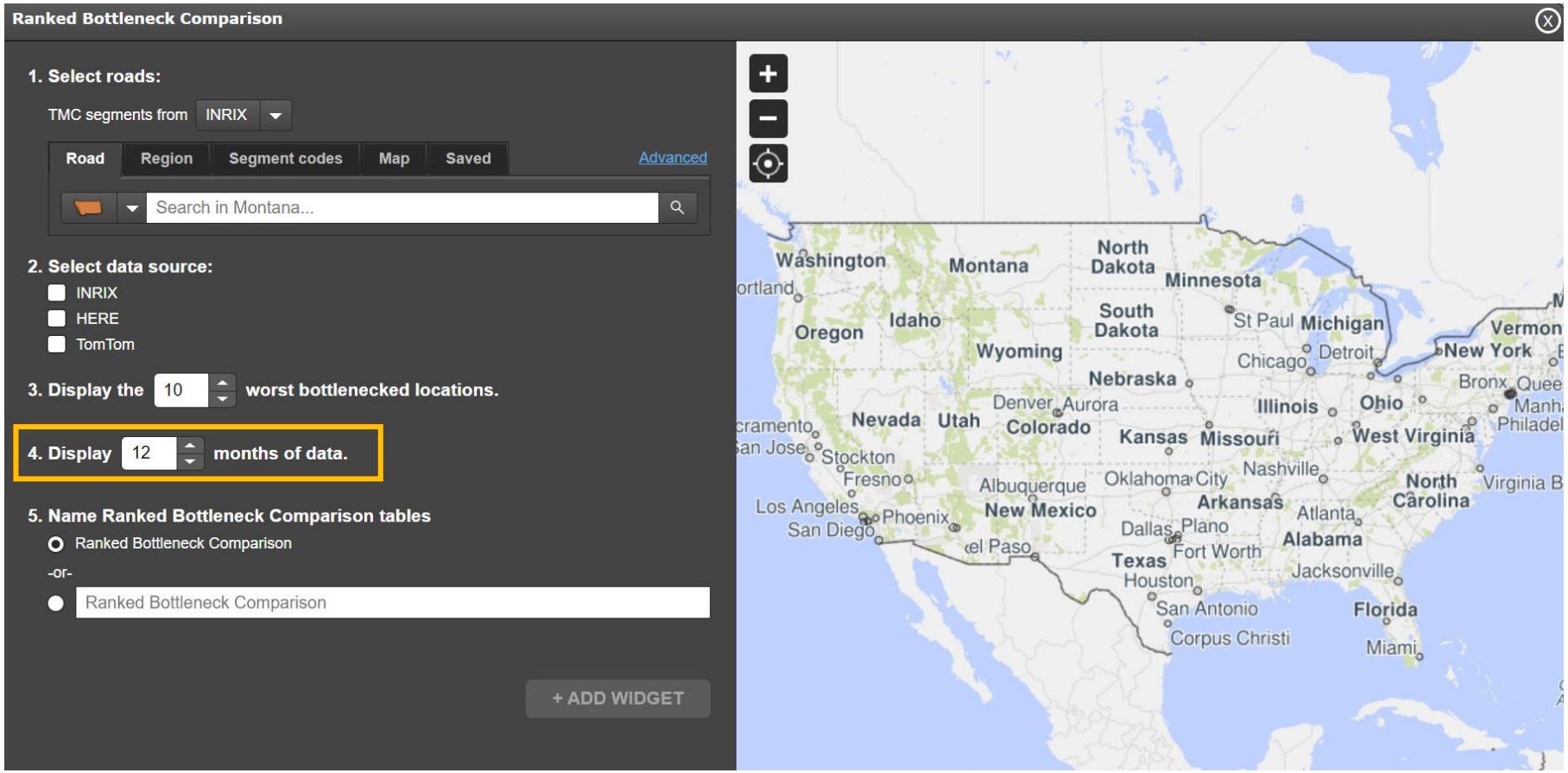


https://pda.ritis.org/suite/data-certification-schedule/

https://pda.ritis.org/suite/updates/

PDA Suite latest updates

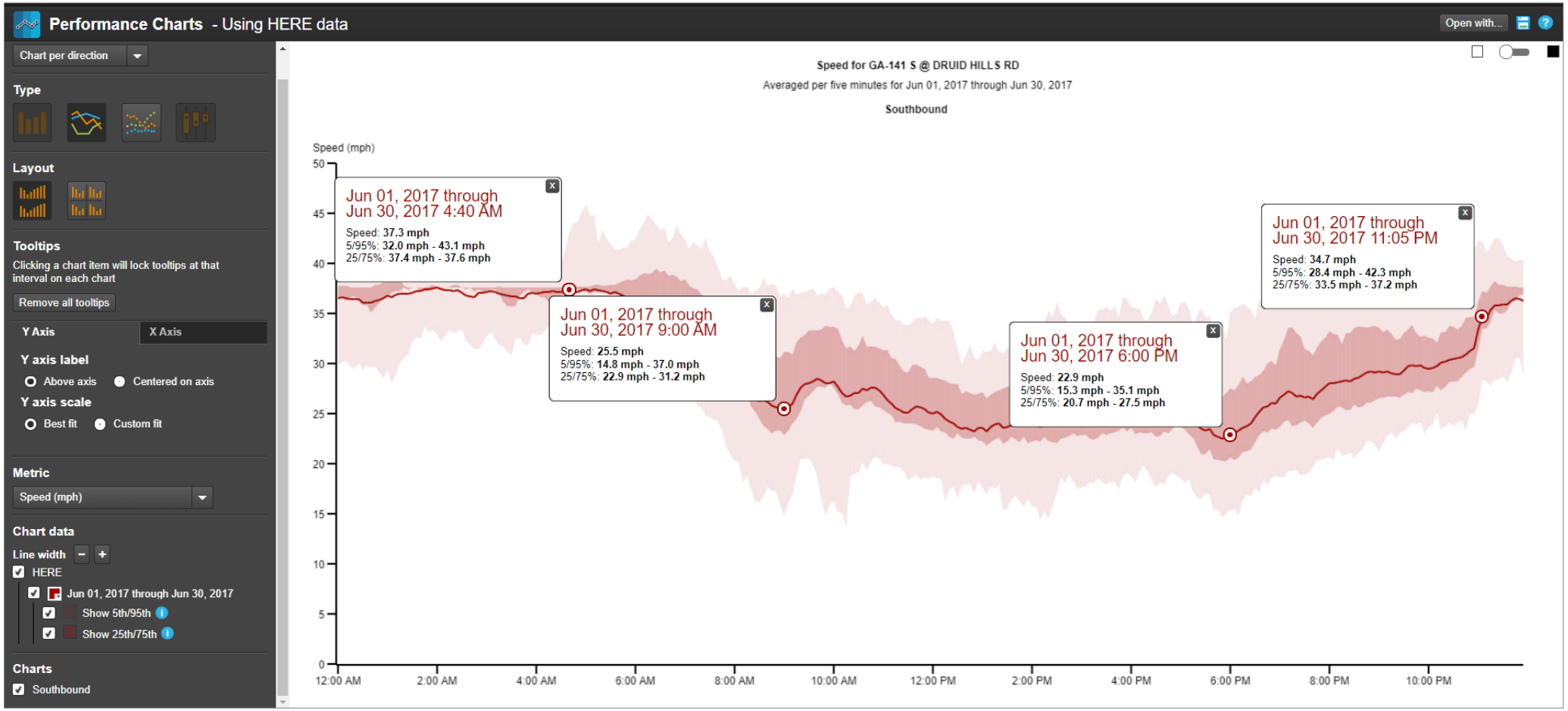
The **Dashboard's Ranked Bottleneck Comparison widget** allows you to choose how many months the widget should look back (with a maximum of 12) and the widget will roll over to previous years as needed to honor that setting.



https://pda.ritis.org/suite/updates/

PDA Suite latest updates

In Performance Charts, multiple tool tips can now be locked on the chart, allowing for better measure comparison throughout the day.



https://pda.ritis.org/suite/updates/

PDA Suite latest updates

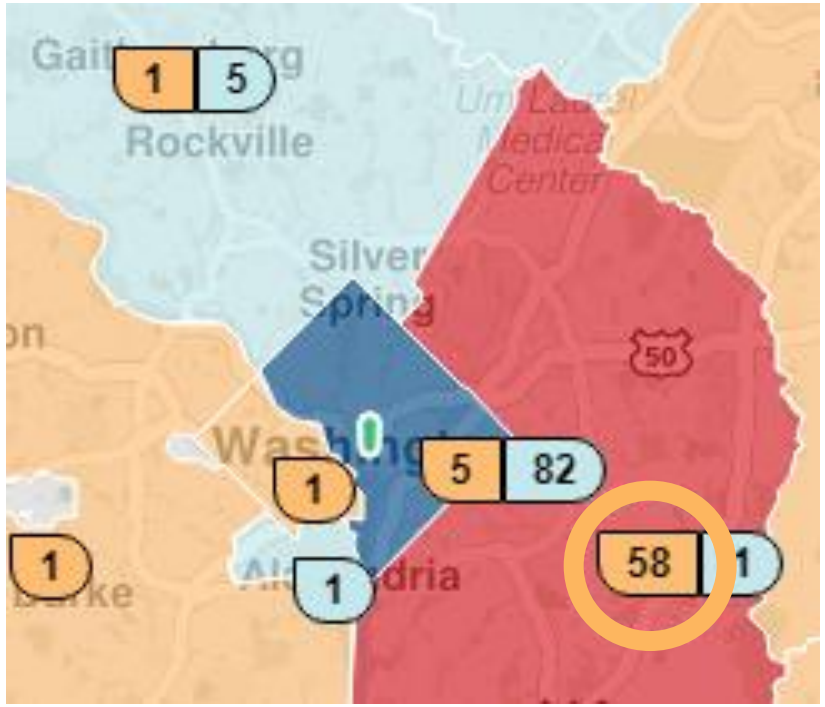
Numerous bug fixes

https://pda.ritis.org/suite/updates/

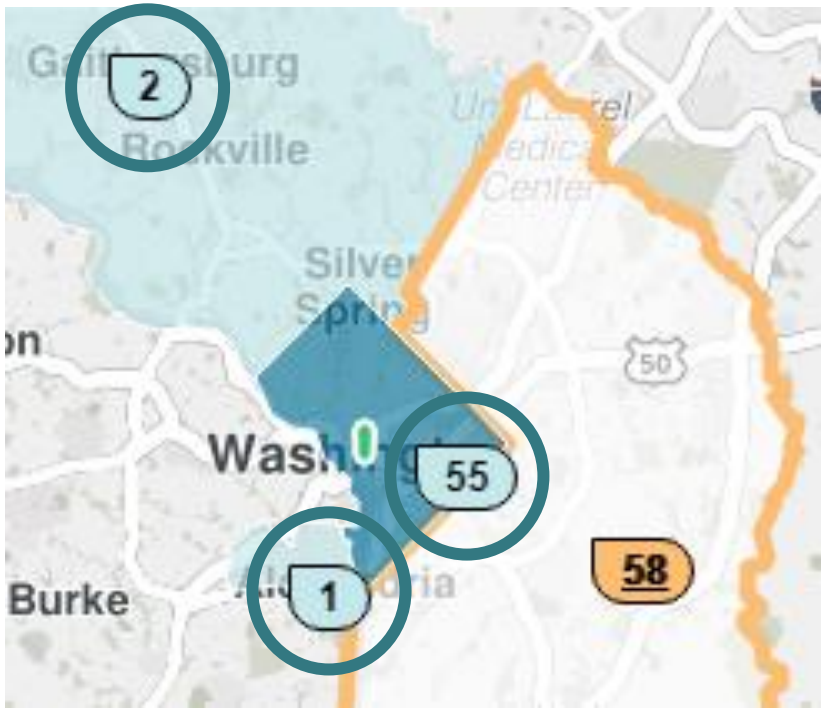
Trip Analytics

Trip Analytics latest updates

A **new feature** lets you see a breakdown of origins and destinations for a selected area.



In this example, clicking on origin marker "58"…



…generates destination markers of those "58" origins

https://trips.ritis.org/new

Trip Analytics latest updates

We've re-designed our maps. The new maps de-emphasize roads, making it easier to recognize the displayed routes and query results.

Old Map

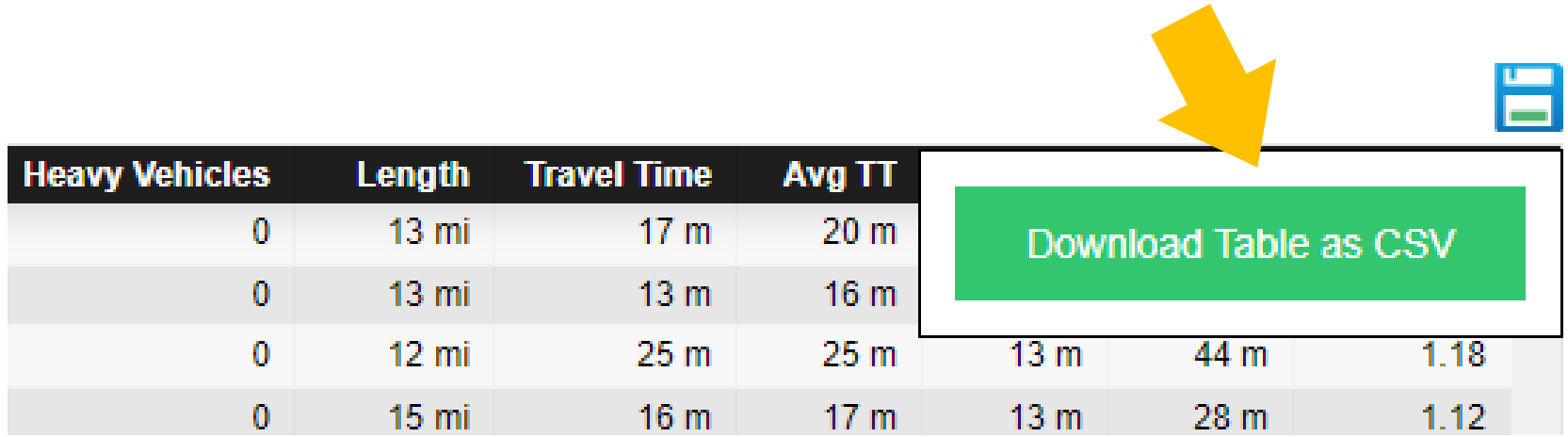
New Map

We've also introduced faint shades of blue and green for water and parks.

https://trips.ritis.org/new

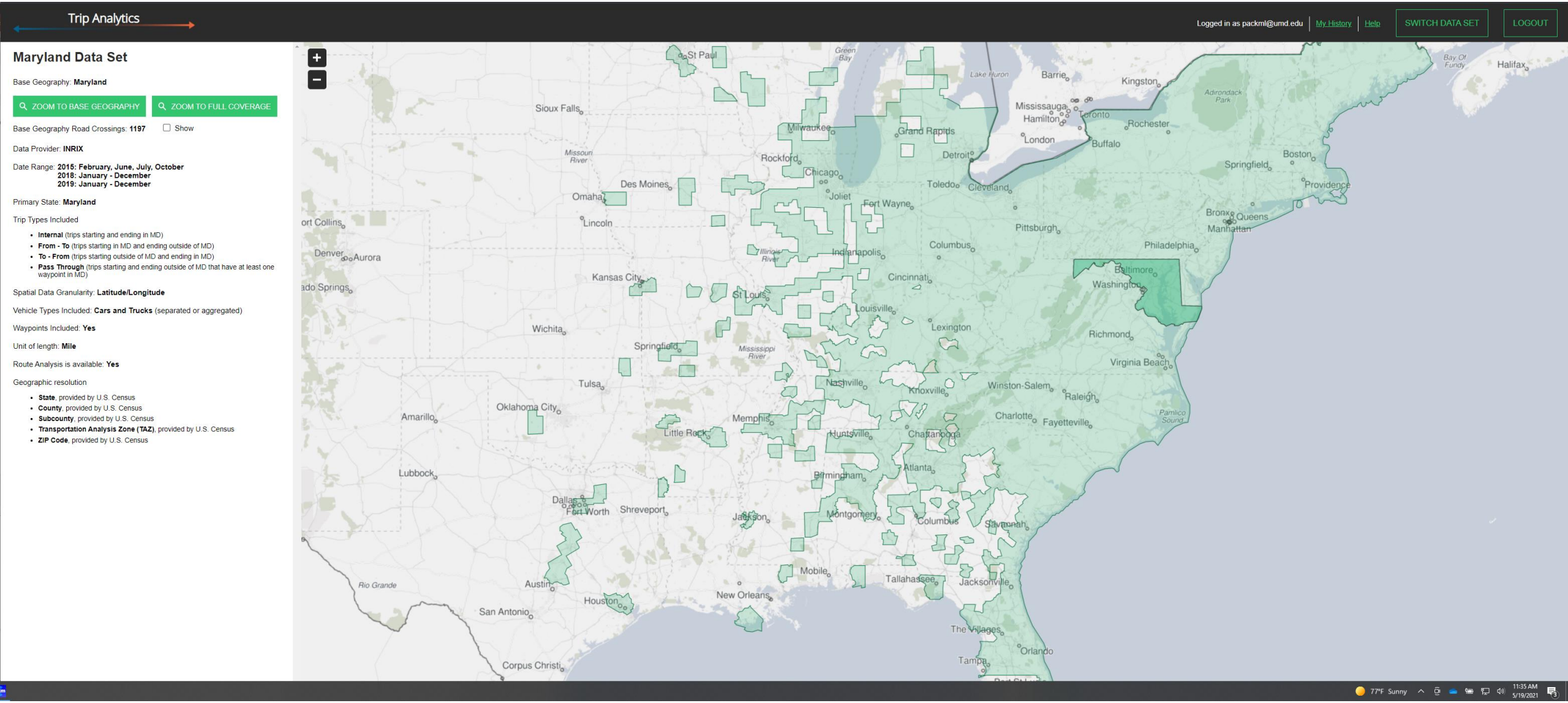
Trip Analytics latest updates

In **Route Analysis**, a new button lets you "Download Table as CSV." This file will contain all values in the route summary table.



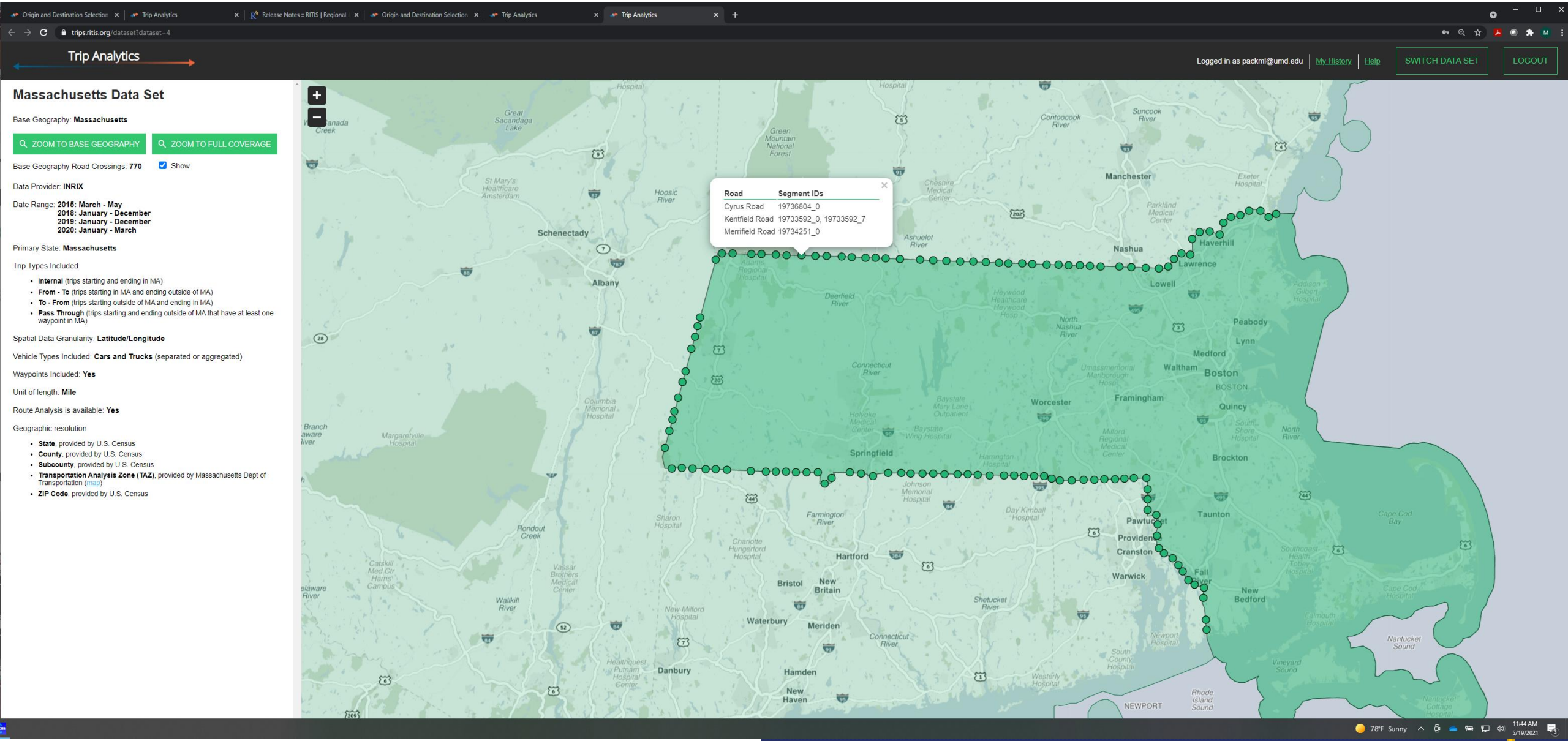
https://trips.ritis.org/new

Trip Analytics latest updates



https://trips.ritis.org/new

Trip Analytics latest updates

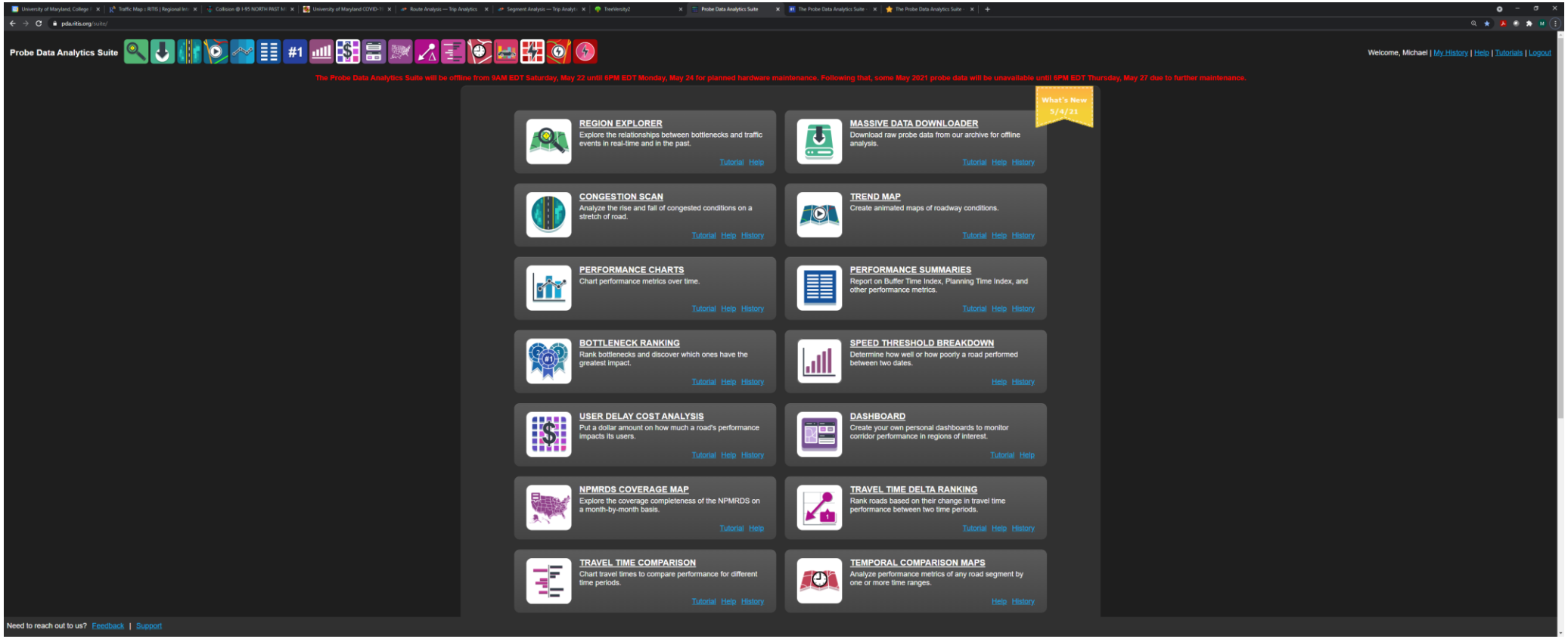


https://trips.ritis.org/new

Maintenance Window

The Probe Data Analytics Suite will be offline from 9AM EDT Saturday, May 22 until 6PM EDT Monday, May 24 for planned hardware maintenance.

Following that, some May 2021 probe data will be unavailable until 6PM EDT Thursday, May 27 due to further maintenance.



RITIS | PROBE DATA ANALYTICS SUITE

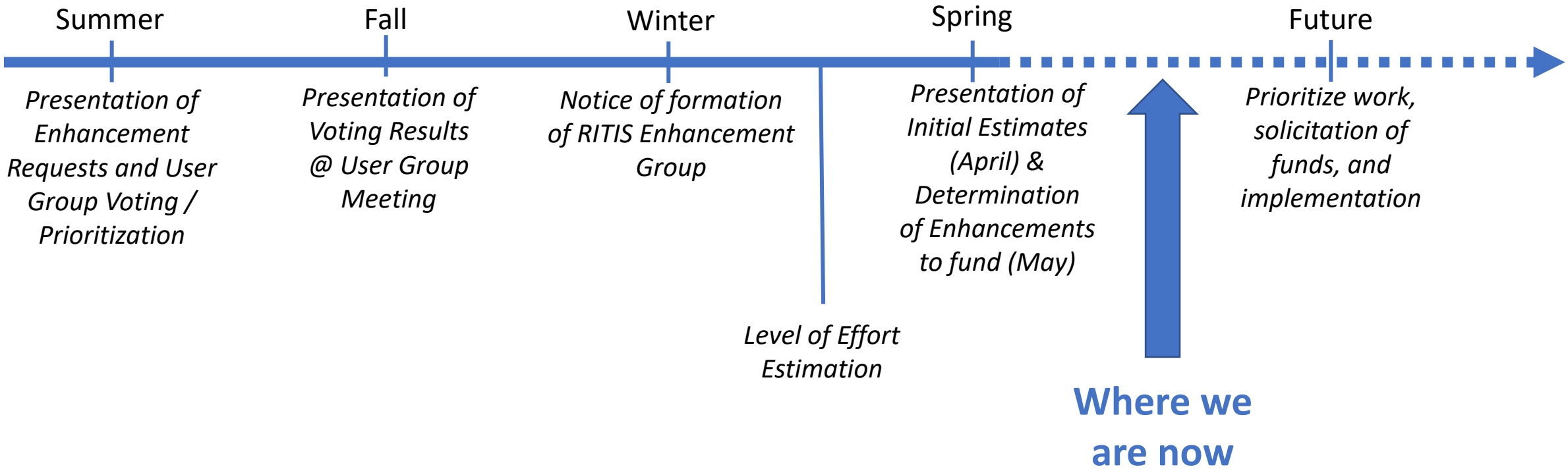
RITIS Product Enhancement Working Group Update

Denise Markow
The Eastern Transportation Coalition
TSMO Director

Purpose & Goals

- Form a nimble “pooled fund” like group to
  - Fund RITIS enhancements
  - Assist with prioritization efforts for the CATT Lab
- Provide stable, annualized funding
- Connect agencies with similar needs

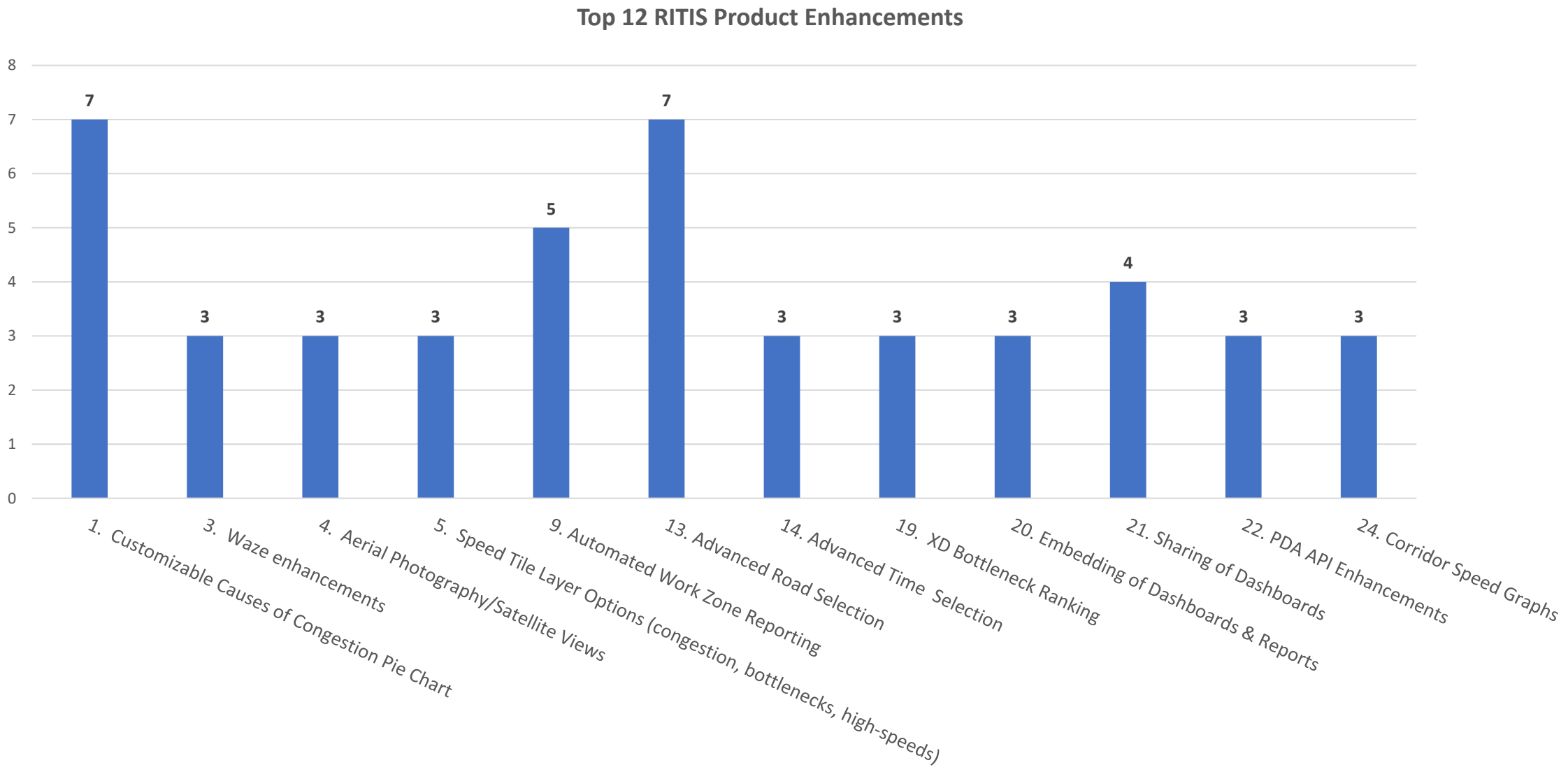
Timeline of Progress



Summary of Highly Requested Enhancements

#	Enhancement	#	Enhancement
1	Customizable Causes of Congestion Pie Chart	13	Advanced Road Selection
2	Support for mobile devices	14	Advanced Time Selection
3	Waze enhancements	15	Road Weather Integration
4	Aerial Photography/Satellite Views	16	DMS on congestion scans
5	Speed Tile Layer Options (congestion, bottlenecks, high-speeds)	17	Custom Color Scales for UDC
6	Road Weather Tiles	18	“My History” notes, editing, and renaming
7	Customization & Filtering of map features (road names, shields, etc.)	19	XD Bottleneck Ranking
8	Map Search Options	20	Embedding of Dashboards & Reports
9	Automated Work Zone Reporting	21	Sharing of Dashboards
10	Safety Data Analytics	22	PDA API Enhancements
11	Historic Media Display Management for Incidents	23	Speed Bins Visualization
12	Focus Mode	24	Corridor Speed Graphs

Top 12 Ranked Enhancements by Group (May 2021)



Next Steps…

- Poll results were shared with all Working Group members
- Agencies that have funds available for FY2021 discussed enhancements and placed their votes by May 14th
- An update will be provided at the upcoming RITIS User Group meeting in July 2021
- Next Meeting of this Working Group: October 2021 for FY2022

RITIS | PROBE DATA ANALYTICS SUITE

PDA Suite Performance Measures Working Group

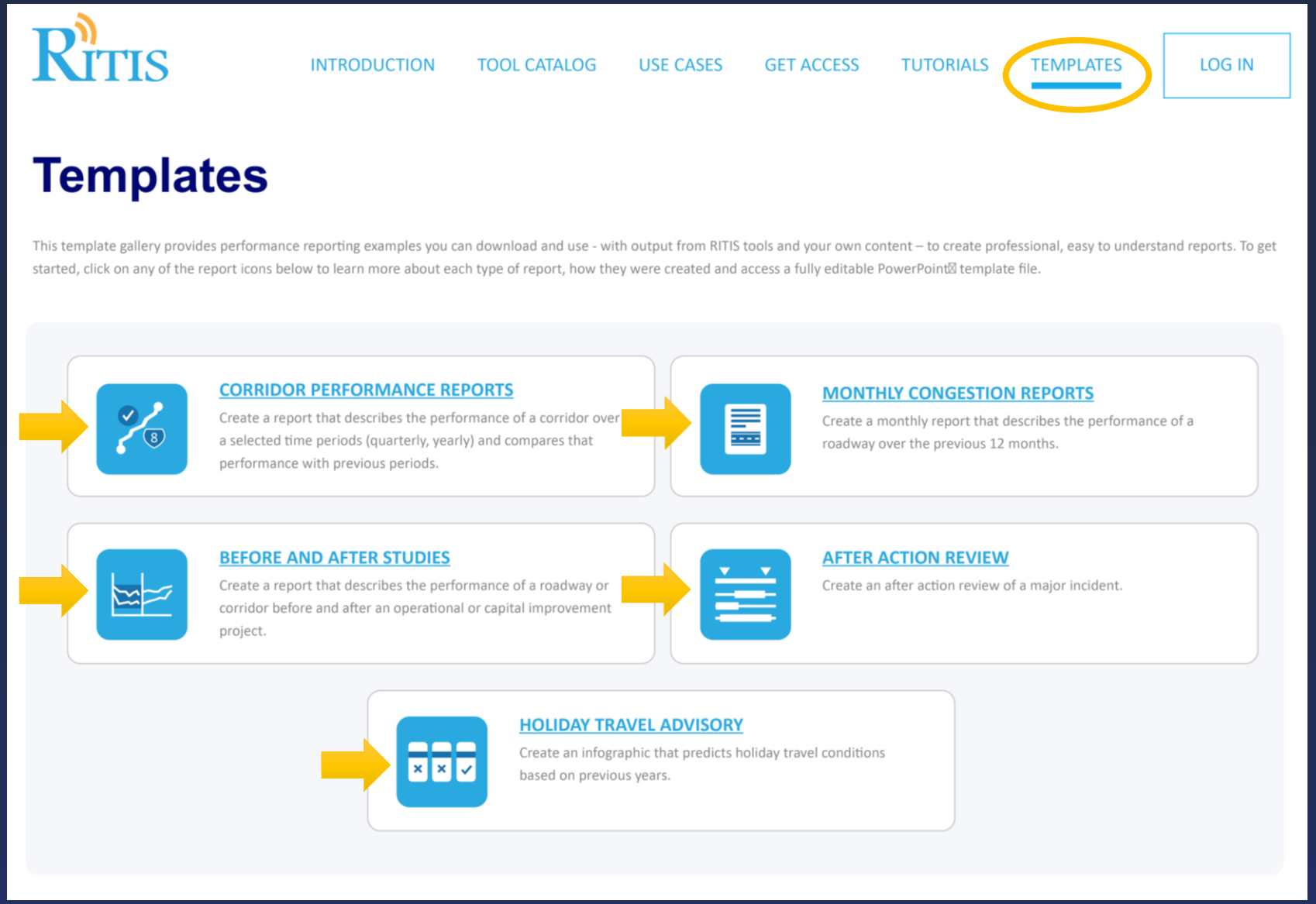
John Allen
UMD CATT Lab
Faculty Assistant, Outreach & Education

Today's topics

1. RITIS templates page update
2. Template one-pager options for:
   - Before & After Studies (Project Assessments)
   - After-Action Reviews
3. Template Test Drives
4. TSMO Quarterly Tracking template

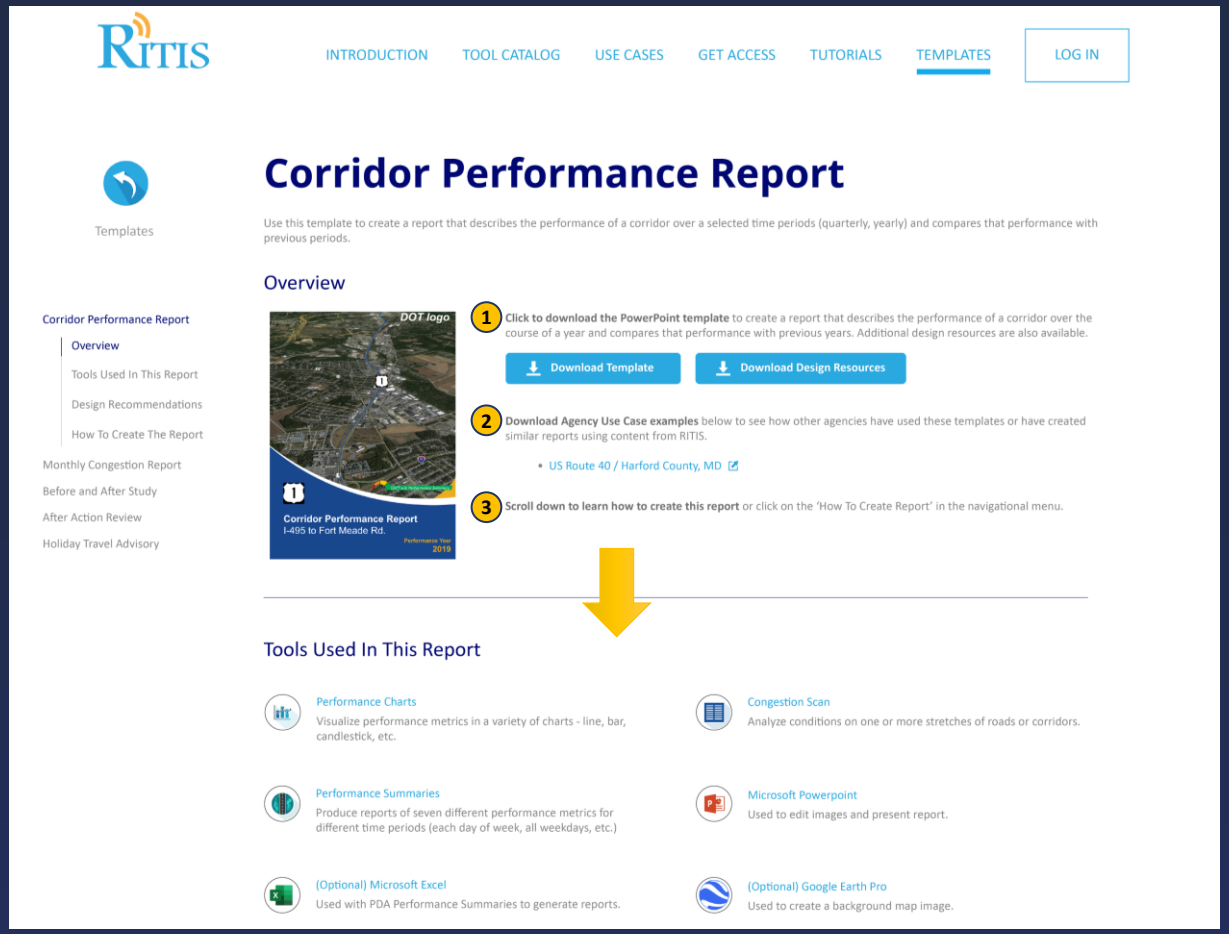
RITIS Templates Page

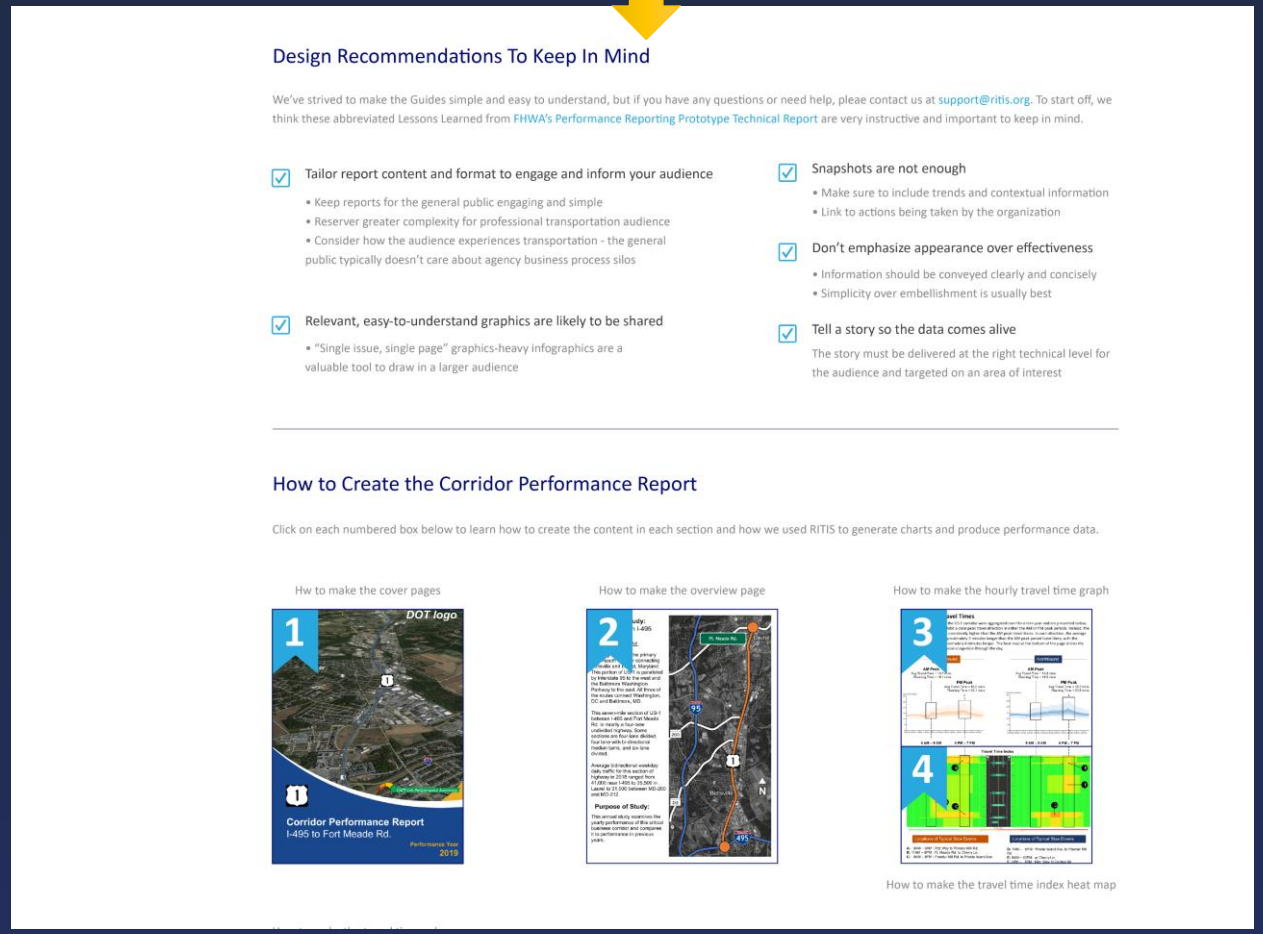
1 RITIS Templates page (latest version)



1 RITIS Templates page (cont'd.)

NOTE: You must log into RITIS to download templates and any design resources.





1 Click the access buttons to d/l a template or design sheets

2 Click links to d/l use case examples from agencies for reference

3 Scroll down to access the "How-to Guide" for creating the report

Template one-pagers

2 After-Action Review (Original one-pager option)

Event Summary

A tractor trailer hit several construction vehicles on the Woodrow Wilson Bridge, leading to a closure of the Capital Beltway (primarily NB). The tractor-trailer and three other vehicles caught fire. There was 1 fatality, 7 treated & released, 1 hospitalized. A work crew trapped below the bridge had to be rescued.

Some Key Aspects

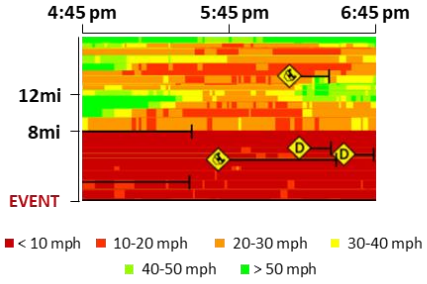
Participating agencies/personnel

17/ 100+

Worst backups from incident

NB 12 miles (into VA)
SB 4 miles (into MD)

Backups of 8 miles were common, increasing at times to 12 miles. There were numerous minor secondary incidents in the queued traffic (worst hours shown below).

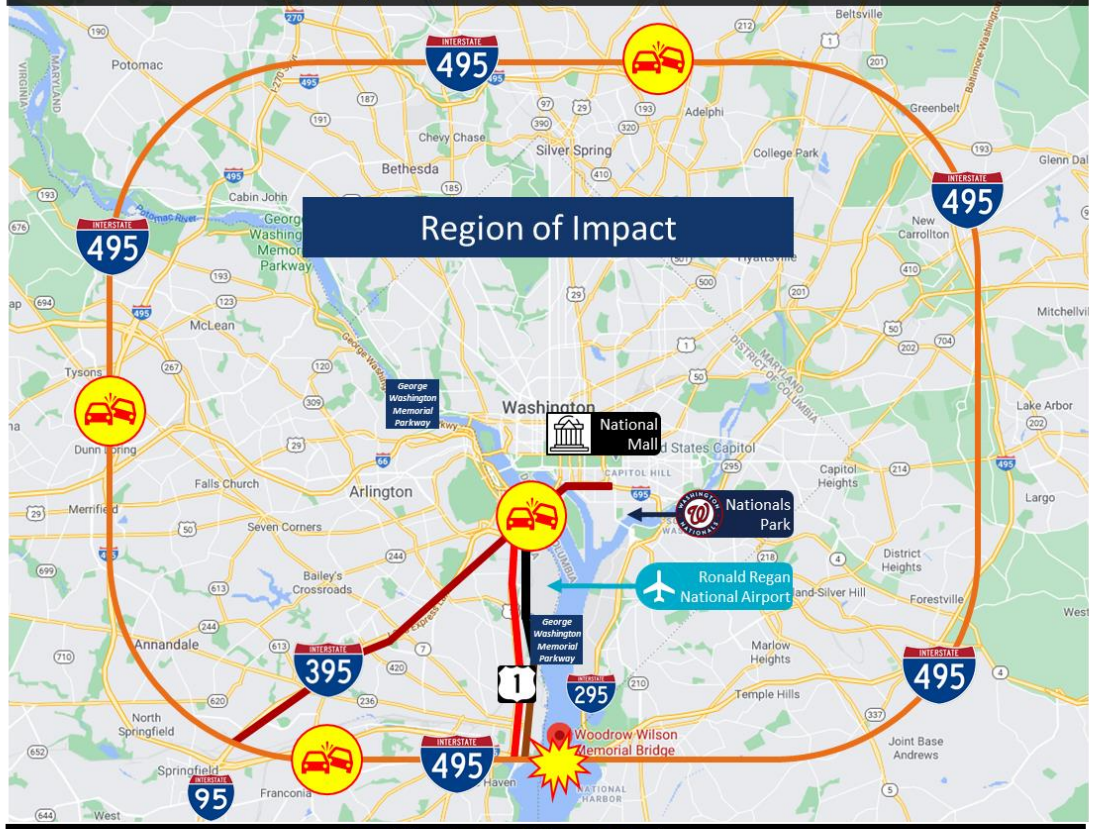


MATOC
Metropolitan Area Transportation Operations Coordination

After Action Review - Performance Summary Report

I-95/495 NB (Outer Loop) • Thru lanes on Woodrow Wilson Bridge
Prince Georges County, MD

Incident Date: Wednesday, June 20, 2018 | Occurrence/Notification: 10:45 am/10:52 am | Duration: 11h 39m



Lane Status

Due to the extensive recovery & cleanup operations required (hampered by late afternoon/ early evening rain), the NB Outer Loop thru lanes were closed for most of the day - from 11:03 AM to 9:23 PM (10h 20m).

User Delay Cost Comparisons

Delay Cost	% Increase
For the region on this day	compared to typical Wednesdays
$3,153,861	285% ▲

Hours of Delay	% Increase
For the region on this day	compared to typical Wednesdays
127,939 per.-hrs.	285% ▲
104,440 veh.-hrs.	295% ▲

Other Regional Impacts

Significant Impacts were also felt around Ronald Reagan Washington National Airport, Alexandria, the District of Columbia, major transit corridors (particularly along Route 1) and two planned events in the area:

National Mall Midday Rally/March near the National Mall & Pennsylvania Ave (**5,000+ attendees**)

Nationals Park The Baltimore Orioles at Washington Nationals in Nationals Park (**41,000+ attendees**, late afternoon / early evening)

2 One-pager options After-Action Review (minimalist)

Best for non-tech types:

1. Cleaner look; Not as busy
2. Simpler groupings
3. "Sound-bite" kind of summary text

MATOC
Metropolitan Area Transportation Operations Coordination

Event Summary Vehicle Collision & Fire on the Woodrow Wilson Bridge

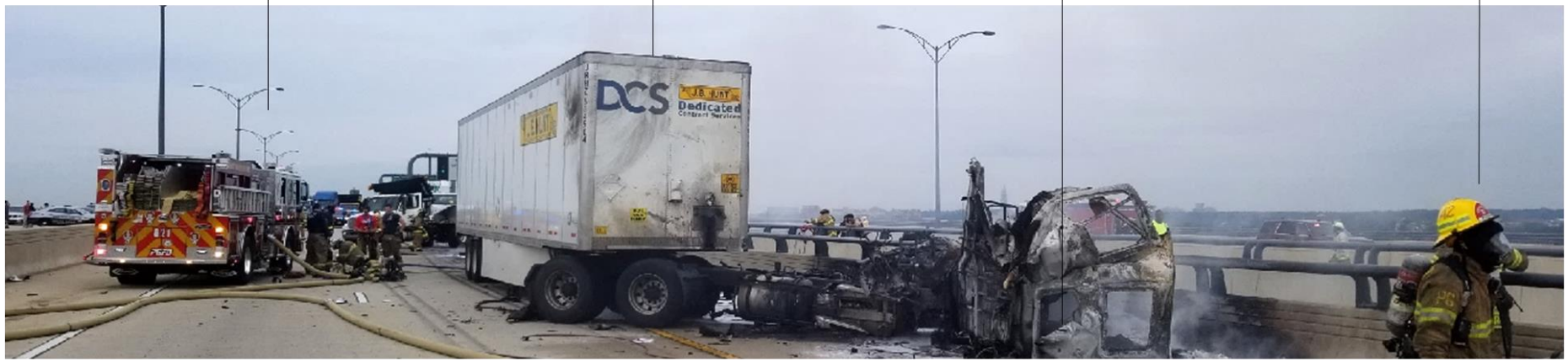
Occurred on the I-95/495 NB Outer Loop in Prince Georges County, MD • Wednesday, June 20, 2018

The incident occurred at about 10:45 AM, with traffic back to normal about 10:31 PM.

A tractor trailer hit two utility vehicles on the Woodrow Wilson Bridge.

The I-95/I-495 NB Outer Loop on the bridge was closed for 10 hr. 20 min.

17 agencies and over 100 responders actively participated in this operation.



One of the utility vehicles caught fire from a fuel leak.

A work crew trapped below the bridge had to be rescued.

There were 12mi backups NB into VA, and 4mi backups SB into MD.

Injuries included:
- 1 fatality
- 1 hospitalized
- 7 treated & released

3x to 8x

Increase in **travel time** on alternate routes for the day of the accident vs typical free-flow conditions.

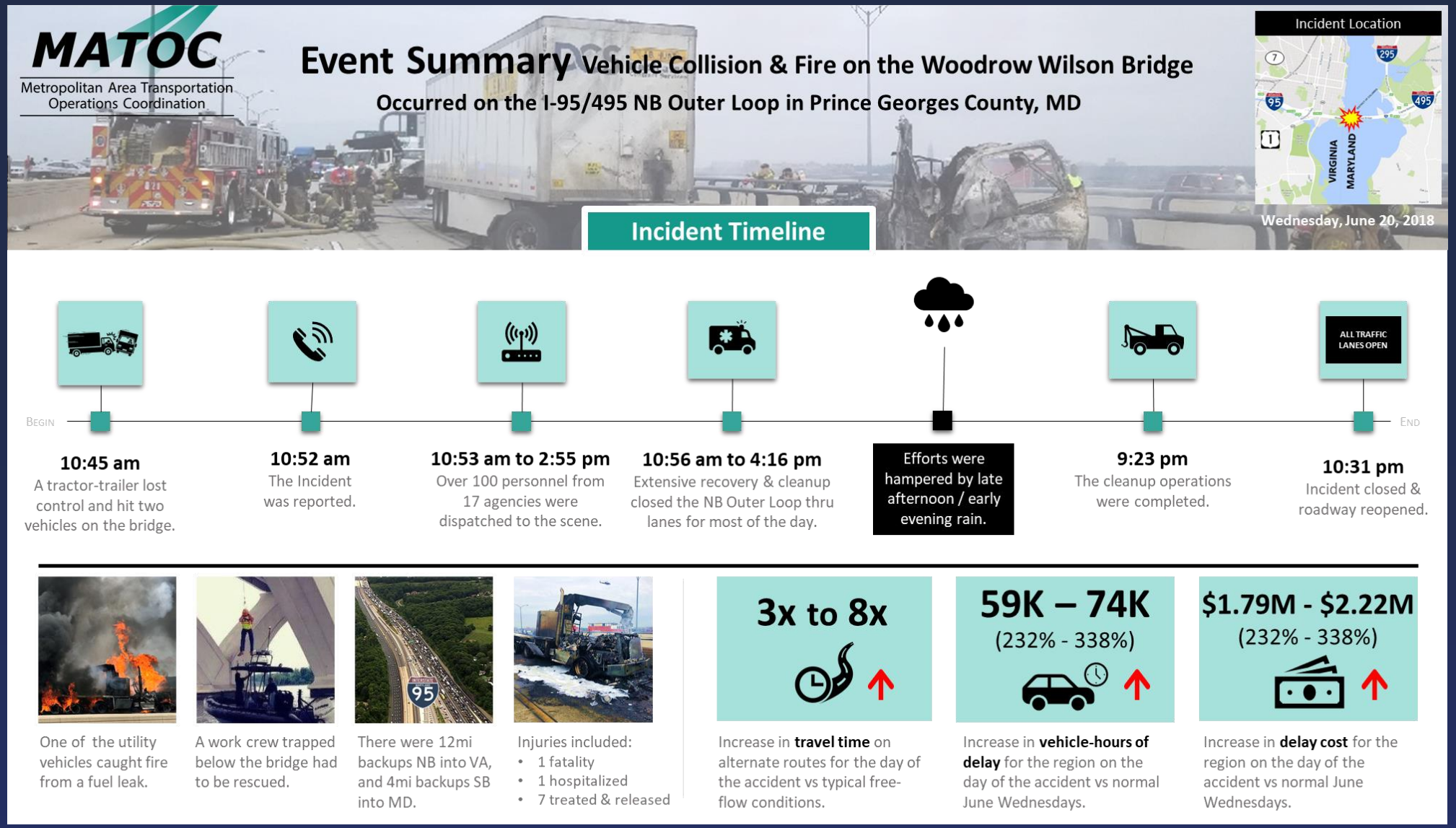
59K – 74K
(232% - 338%)

Increase in **vehicle-hours of delay** for the region on the day of the accident vs normal June Wednesdays.

$1.79M - $2.22M
(232% - 338%)

Increase in **delay cost** for the region on the day of the accident vs normal June Wednesdays.

2 One-pager options After-Action Review (basic timeline)



2 One-pager options After-Action Review (Infographic style)

MATOC
Metropolitan Area Transportation Operations Coordination

Event Summary

Vehicle Collision & Fire on the Woodrow Wilson Bridge

I-95/495 NB Outer Loop in Prince Georges County, MD • Wednesday, June 20, 2018

What Happened

A tractor trailer hit two construction vehicles on the Woodrow Wilson Bridge, leading to a closure of the Capital Beltway (primarily NB) for an extended period. A late afternoon / early evening rainfall hindered cleanup efforts. There were numerous secondary incidents in the queued traffic and on alternate routes.

Event Timeline

Occurrence/Notification
10:45 am/10:52 am

Incident Duration
11 h 39 m

NB Outer Loop Closed
10 h 20 m

Area of Impact

Secondary incidents

Response / Regional Impacts

Participating agencies/personnel
17/ 100+

Major regional impacts from diverted traffic

Ronald Reagan Washington National Airport, Alexandria, the District of Columbia, transit corridors and two planned events in the area:

Midday Rally/March – near the National Mall & Pennsylvania Ave (5,000+ attendees)

Evening MLB Event –Orioles at Nationals in Nationals Park (41,000+ expected attendees)

Alternate Route / Regional Roadway Network Performance Impacts

3x to 8x
(greater Travel Time Index)

Increase in **travel time** on alternate routes for the day of the accident vs typical free-flow conditions.

59K – 74K
(232% - 338%)

Increase in **vehicle-hours of delay** for the region on the day of the accident vs normal June Wednesdays.

$1.79M - $2.22M
(232% - 338%)

Increase in **delay cost** for the region on the day of the accident vs normal June Wednesdays.

A Sequence of Events Pictorial

One of the utility vehicles caught fire from a fuel leak.

A work crew trapped below the bridge had to be rescued.

There were 12mi backups NB into VA, and 4mi backups SB into MD.

Injuries included:
- 1 fatality
- 1 hospitalized
- 7 treated & released

② One-pager options After-Action Review (possible flip side)

MATOC
Metropolitan Area Transportation Operations Coordination

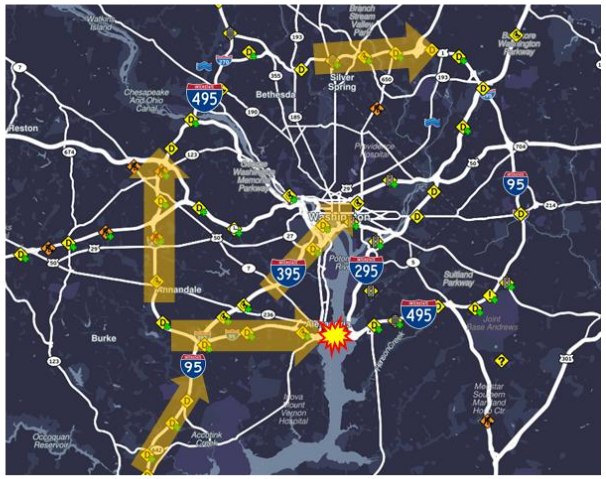
RITIS Reporting

Vehicle Collision & Fire on the Woodrow Wilson Bridge

I-95/495 NB Outer Loop in Prince Georges County, MD • Wednesday, June 20, 2018

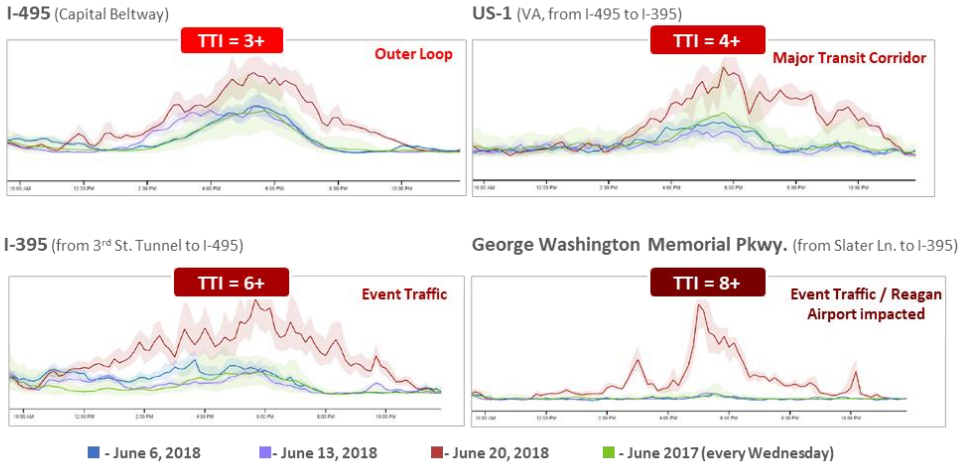
Secondary Incidents

A **significant number of secondary incidents** occurred in the area, primarily due the stop-and-go nature of the queued traffic at the incident site and heavy congestion on alternate routes used to bypass the WWB closure.



Travel Time Index (TTI) Comparisons

Select example **increases in travel time** on alternate routes for the day of the accident compared to typical free-flow conditions.



NOTE: Light colored bands - 5th / 95th Percentile

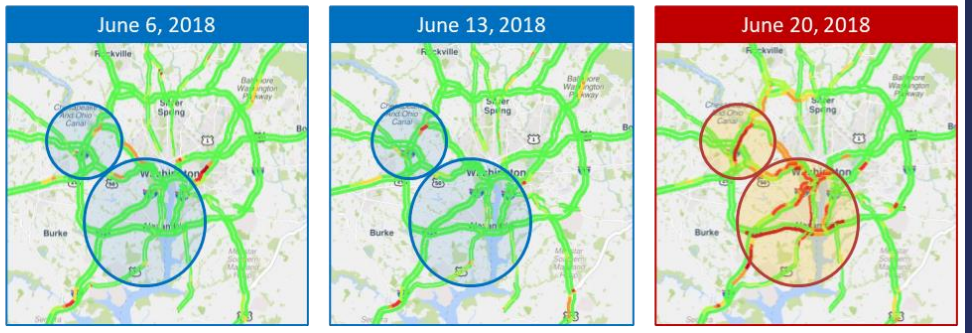
User Delay Cost Comparisons

Substantial **increases in delay cost and hours of delay** for the region on the day of the accident versus normal June Wednesdays.

Wed., June 13th	Wed., June 20th 2018	Wed., June 27th
Delay Cost	Delay Cost	Delay Cost
$1,359,734	$3,153,861	$933,589
Hours of Delay	Hours of Delay	Hours of Delay
55,159 person-hrs.	127,939 person-hrs.	37,872 person-hrs.
45,028 vehicle-hrs.	104,440 vehicle-hrs.	30,916 vehicle-hrs.
Delay per VMT	Delay per VMT	Delay per VMT
0.73 min/mi	1.75 min/mi	0.50 min/mi

National Capital Region | WWB Event Extended Impacts (8:00 PM EST)

Two previous Wednesdays show minimal traffic in the NCR at 8:00 PM, but on 6/20, **traffic backups remained substantial**, even almost 10h after the accident.



2 One-pager options for Before & After Studies (Project Assessments)

GDOT Georgia Department of Transportation

Project Assessment Report

RTOP SR 141 / Peachtree Road • Dekalb County
Traffic Signal Timing Operational Improvement

Key Project Route Aspects

23 Intersections	**60,000** veh./day
5 miles long	**Commuter** Route

In May of 2017, the Regional Traffic Operations Program, or RTOP, implemented the Traffic Responsive System along SR-141/Peachtree Road (from I-285 to Colonial Dr.) to improve traffic flow. **Comparing June 2017 to June 2018 operations, we found these performance changes:**

Vehicle Speeds

Average speeds increased
2-5 mph ↑
or 11-15% during the AM and PM peak hours

Key Bottleneck
(SR 141 @ N Druid Hills Rd)

Total congested time decreased almost
3 hr ↓
Or about 43% for an average day

Reliability

Weekday travel time decreased
5% ↓
for the length of the project

Delay Costs

Delay costs decreased about
$141,000 ↓
for the analysis months of June

http://www.dot.ga.gov/DS/SafetyOperation/TrafficSignals

2 One-pager options for Before & After Studies (Project Assessments)

GDOT Georgia Department of Transportation

Project Assessment Report

SR 141 / Peachtree Road • Dekalb County • Traffic Signal Timing Operational Improvement

RTOP

In May of 2017, the Regional Traffic Operations Program, or RTOP, implemented the Traffic Responsive System along SR-141/Peachtree Road (from I-285 to Colonial Dr.) to improve traffic flow. **Comparing June 2017 to June 2018 operations, we found these performance changes:**

Key Project Route Aspects		
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Vehicle Speeds

Average speeds increased

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Reliability

Weekday travel time decreased

5% ↓

for the length of the project

Delay Costs

Delay costs decreased about

$141,000 ↓

for the analysis months of June

Key Bottleneck (SR 141 @ N Druid Hills Rd)

Total congested time decreased almost

3 hr ↓

Or about 43% for an average day

http://www.dot.ga.gov/DS/SafetyOperation/TrafficSignals

2 One-pager options for Before & After Studies (Project Assessments)

Two Layout Options

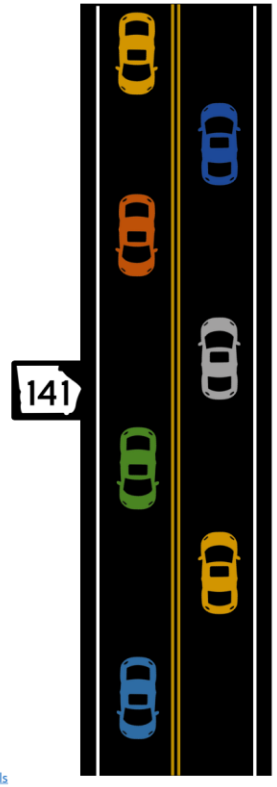
GDOT | RTOP

Project Assessment Report
SR 141 / Peachtree Road • Dekalb County
Traffic Signal Timing Operational Improvement

In May of 2017, the Regional Traffic Operations Program, or RTOP, implemented the Traffic Responsive System along SR-141/Peachtree Road (from I-285 to Colonial Dr.) to improve traffic flow. **Comparing June 2017 to June 2018 operations, we found these performance changes:**

SR-141 Project Area Key Aspects

23 Intersections	60,000 veh./day
5 miles long	Commuter Route



More Reliable Travel
5% ↓
decrease in weekday travel time to drive the project length

Lower Delay Costs
$141,000 ↓
decrease in monthly delay cost, based on average operating costs of passenger cars and trucks

Less Congested Bottlenecks
(at SR 141 @ N Druid Hills Rd)
3 hr ↓
decrease in total congested time resulting from signal timing adjustments along the corridor

Higher Vehicle Speeds
2-5 mph ↑
Average daily speed increases during the southbound AM & northbound PM peak hours

http://www.dot.ga.gov/DS/SafetyOperation/TrafficSignals

GDOT | RTOP

Project Assessment Report
SR 141 / Peachtree Road • Dekalb County
Traffic Signal Timing Operational Improvement

In May of 2017, the Regional Traffic Operations Program, or RTOP, implemented the Traffic Responsive System along SR-141/Peachtree Road (from I-285 to Colonial Dr.) to improve traffic flow. **Comparing June 2017 to June 2018 operations, we found these performance changes:**

141 Project Area Key Aspects

23 Intersections	60,000 veh./day
5 miles long	Commuter Route

More Reliable Travel
5% ↓
decrease in weekday travel time to drive the project length

Lower Delay Costs
$141,000 ↓
decrease in monthly delay cost, based on average operating costs of passenger cars and trucks

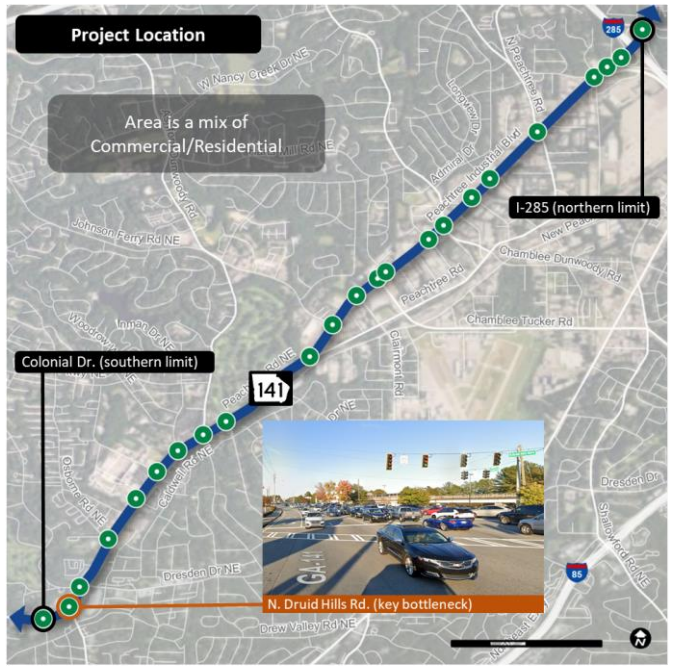
Less Congested Bottlenecks
(at SR 141 @ N Druid Hills Rd)
3 hr ↓
decrease in total congested time resulting from signal timing adjustments along the corridor

Higher Vehicle Speeds
2-5 mph ↑
Average daily speed increases during the southbound AM & northbound PM peak hours

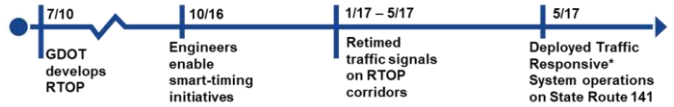
http://www.dot.ga.gov/DS/SafetyOperation/TrafficSignals

Possible Flip Side

FYI Peachtree Industrial Blvd. is a vital, north-south, 4-lane highway in DeKalb County that provides a continuous route between Gwinnett County through Chamblee and Brookhaven southward to Buckhead. This urban arterial interchanges with I-285 to the north and several cross-county arterial routes. It encompasses a 5-mile, 23-intersection stretch of SR 141.

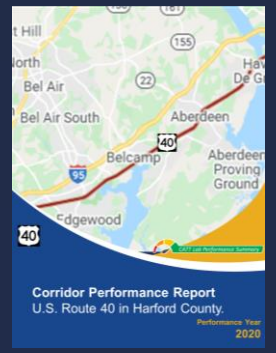


Project Timeline



Template test drives

3 Test Drive US Route 40 Corridor Performance (MWCOG)



Performance Measures for US-40

West segments from US-40 bearing east and US-40 bearing west using INRIX data

June 2020

	Speed (mph)	Buffer time (minutes)	Buffer index	Planning time (minutes)	Planning time index	Travel time (minutes)	Travel time index	
	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	
Mon	43.07	5.44	0.19	33.62	1.30	25.81	1.00	Mon
Tue	43.39	4.84	0.17	32.94	1.28	25.62	0.99	Tue
Wed	42.55	7.06	0.25	35.26	1.37	26.13	1.01	Wed
Thu	42.78	5.70	0.20	33.91	1.31	25.99	1.01	Thu
Fri	42.78	5.31	0.19	33.85	1.31	25.99	1.01	Fri
Weekdays	42.94	5.44	0.19	33.69	1.30	25.89	1.00	Weekdays
Sat	42.48	7.28	0.27	34.41	1.33	26.17	1.01	Sat
Sun	43.46	8.12	0.31	34.12	1.32	25.58	0.99	Sun
Weekends	42.96	7.68	0.29	34.17	1.32	25.88	1.00	Weekends
All Days	42.95	6.02	0.22	33.82	1.31	25.89	1.00	All Days

East segments from US-40 bearing east and US-40 bearing west using INRIX data

June 2020

	Speed (mph)	Buffer time (minutes)	Buffer index	Planning time (minutes)	Planning time index	Travel time (minutes)	Travel time index	
	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	8:00 AM - to - 5:00 PM	
Mon	42.51	7.19	0.26	34.52	1.36	25.54	1.01	Mon
Tue	42.55	7.07	0.26	34.43	1.36	25.52	1.01	Tue
Wed	42.41	7.20	0.26	34.60	1.37	25.60	1.01	Wed
Thu	42.00	7.94	0.29	35.50	1.40	25.85	1.02	Thu
Fri	42.44	5.90	0.21	33.92	1.34	25.58	1.01	Fri
Weekdays	42.39	7.40	0.27	34.91	1.38	25.61	1.01	Weekdays
Sat	42.87	7.68	0.29	33.93	1.34	25.33	1.00	Sat
Sun	43.52	8.64	0.34	34.09	1.34	24.94	0.98	Sun
Weekends	43.19	8.10	0.31	33.95	1.34	25.14	0.99	Weekends
All Days	42.61	7.60	0.28	34.67	1.37	25.48	1.01	All Days

Speed: The current estimated harmonic mean speed for the roadway segment in miles per hour.

Buffer Time: The extra time (or time cushion) that travelers must add to their average travel time when planning trips to ensure on-time arrival (95% Travel Time - Average Travel Time).

Buffer Index: The buffer index is expressed as a percentage and its value increases as reliability gets worse (95% Travel Time - Average Travel Time) / Average Travel Time). For example, a buffer index of 4 (40 percent) means that for a 20-minute average travel time, a traveler should budget an additional 8 minutes (20 minutes x 40 percent = 8 minutes) to ensure on-time arrival most of the time.

Planning Time: How much total time a traveler should allow to ensure on-time arrival (Average Travel Time + Buffer Time).

Planning Time Index: The total travel time that should be planned when an adequate buffer time is included (95% Travel Time / Free-flow Travel Time). The planning time index differs from the buffer index in that it includes typical delay as well as unexpected delay. Thus, the planning time index compares near-worst case travel time to a travel time in light or free-flow traffic. For example, a planning time index of 1.60 means that for a 15-minute trip in light traffic, the total time that should be planned is 24 minutes (15 minutes x 1.60 = 24 minutes).

Travel Time: Time it will take to drive along the roadway segment (Distance Traveled / Speed).

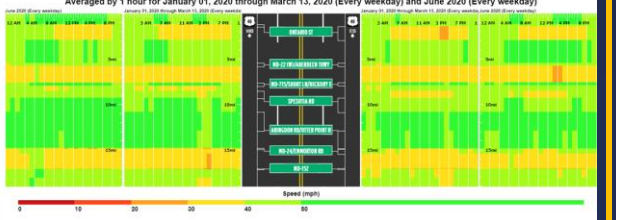
Travel Time Index: Travel time represented as a percentage of the ideal travel time (Travel Time / Free-flow Travel Time).

Data Sources

TMC data is used here to show that there wasn't much change in conditions on the corridor pre and post Covid-19 shutdowns. The date used for before after data was March 16th when the bulk of the closures occurred. The following congestions scans show data before and after the shutdowns. It's use here is beneficial to see before/after Covid-19 shutdowns. For the rest of this document **INRIX XD** will be utilized.

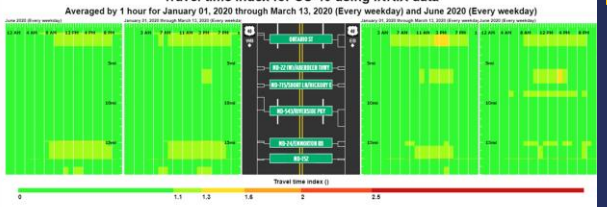
Speed for US-40 using INRIX data

Averaged by 1 hour for January 01, 2020 through March 13, 2020 (Every weekday) and June 2020 (Every weekday)



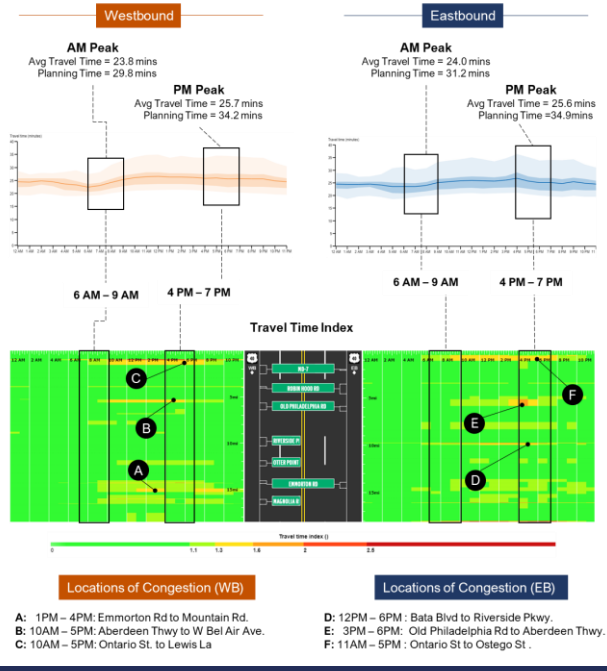
Travel time index for US-40 using INRIX data

Averaged by 1 hour for January 01, 2020 through March 13, 2020 (Every weekday) and June 2020 (Every weekday)



June 2020 Corridor Travel Times

Weekday travel times for the US-40 corridor were aggregated over the entire month of June (weekdays) and are presented below. This corridor exhibits a fairly flat travel time regardless of time of day. AM peak travel times are slightly lower than mid day or PM peak. In each direction, travel times are virtually the same. The PM peak travel times are generally around 2 minutes longer than the AM peak. The heat map at the bottom of the page shows the geographic location of typical congestion through the day.



Locations of Congestion (WB)

A: 1PM – 4PM: Emmorton Rd to Mountain Rd.
B: 10AM – 5PM: Aberdeen Thwy to W Bel Air Ave.
C: 10AM – 5PM: Ontario St. to Lewis La

Locations of Congestion (EB)

D: 12PM – 6PM : Bata Blvd to Riverside Pkwy.
E: 3PM – 6PM: Old Philadelphia Rd to Aberdeen Thwy.
F: 11AM – 5PM : Ontario St to Ostego St .

Location A

US-40 WB Emmorton Rd to Mountain Rd

Location A: US-40 WB Emmorton Rd to Mountain Rd

Speed Limit: 45 mph

Lanes: 2 WB. Becomes 3 lanes at the Extra Space Storage driveway on the approach to MD-152

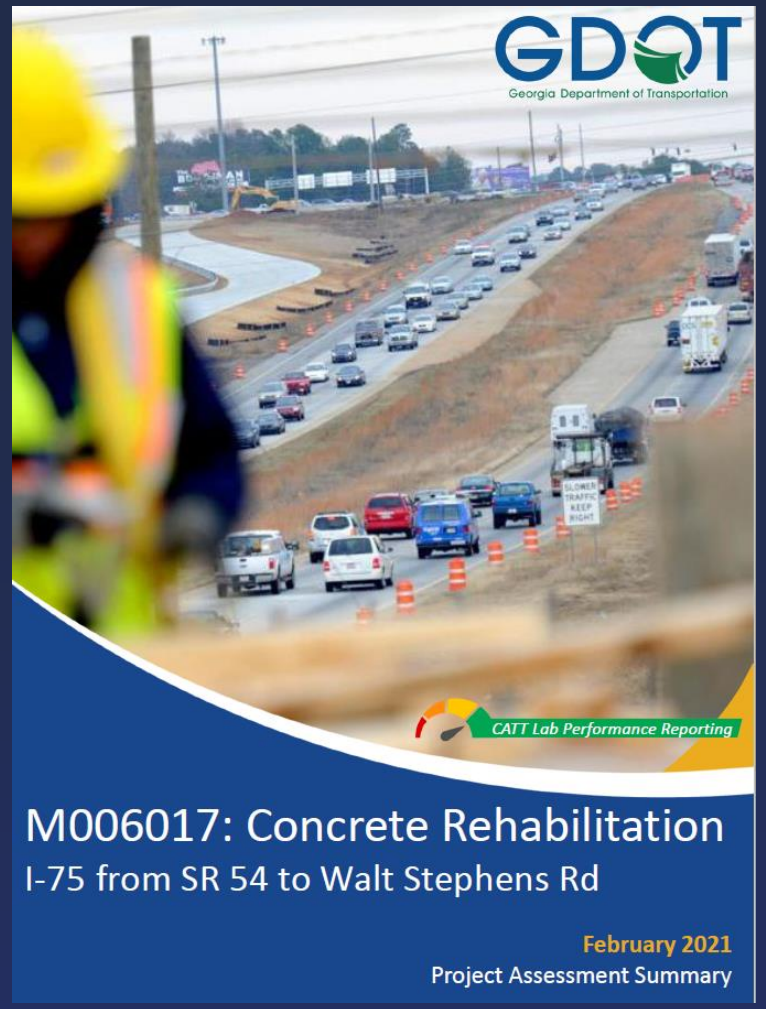
Signalized intersections:

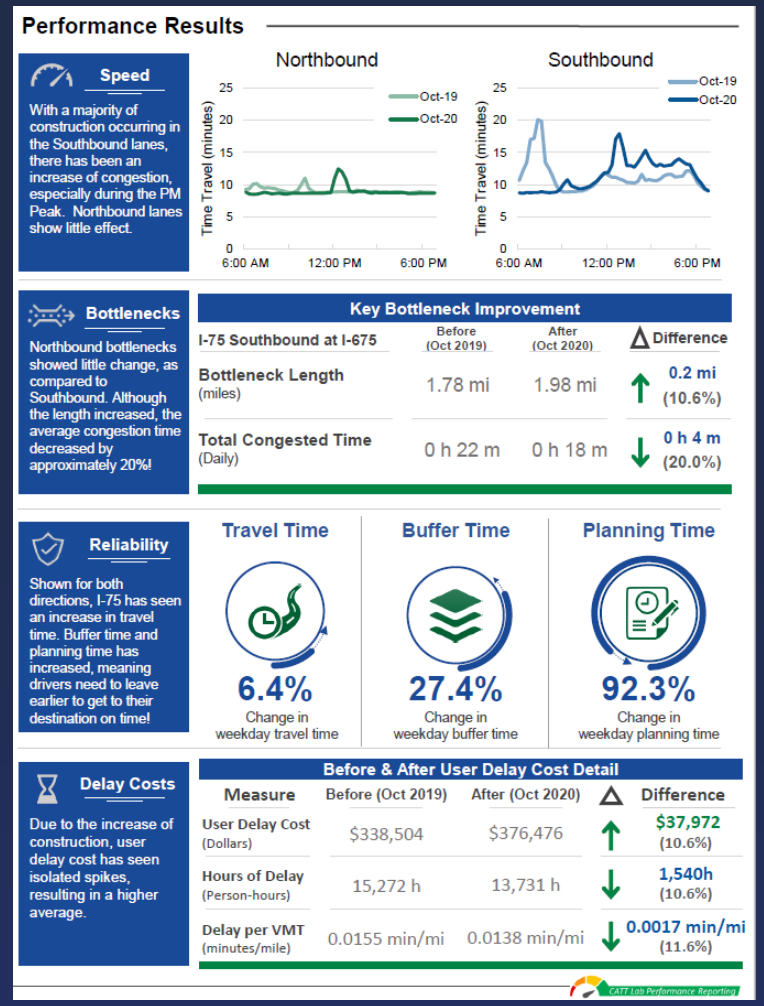
1 Paul Martin Dr
2 Gateway Dr
3 Mountain Rd

Time of Day with most Congestion
1 – 4pm

Notes: Edgewood Business District. Mostly commercial

3 Test Drive I-75 Concrete Rehab (GDOT)





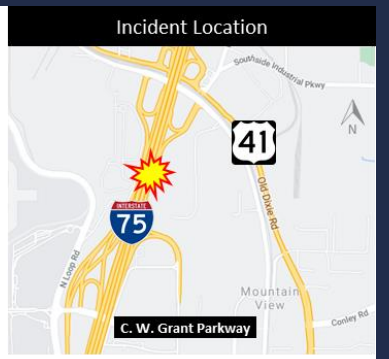
3 Test Drive Pedestrian Hit & Run (GDOT)

Event Summary

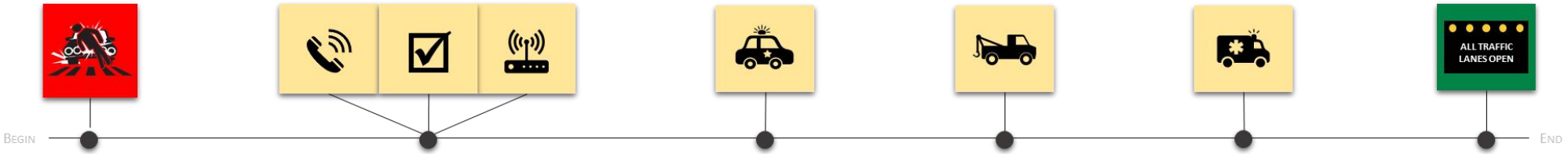
Pedestrian Hit & Run

I-75 NB near Exit 239 (CW Grant Pkwy.) | December 9, 2019

On Monday morning, December 9, 2019, a pedestrian was hit and killed on I-75, resulting in four hours of road closures and gridlock through the Southside. The northbound lanes were shut down at C.W. Grant Parkway about 7:30 AM for authorities to conduct an investigation. Traffic began flowing again about 11:30 AM. Tough delays remained out of Morrow through the lunch hour.



Incident Timeline | Total Elapsed Time: 6 hours



6:45 AM A pedestrian was struck by a vehicle, which then fled

7:05 AM The Incident was reported, verified and response dispatched

7:19 AM Response teams arrive at the scene

11:27 AM The roadway was cleared

11:32 AM The incident was cleared

12:45 PM The road returns to normal traffic flow

Timeline Detail

7:05 AM Clayton Police first received a report of a pedestrian struck by a motor vehicle

7:19 AM Clayton PD arrived on scene

7:26 AM TMC was advised of incident from Clayton PD and found a camera visual

7:30 AM All lanes were blocked; confirmed fatality

7:36 AM Traffic was diverted to I-285, messages posted

7:41 AM Georgia State Patrol (GSP) on scene and assisting with traffic control

8:06 AM Incident confirmed as a hit & run; GSP, Clayton PD, the Fire Department, GBI, HERO, and the Coroner are all on scene

10:26 AM Coroner removed the deceased from the scene

11:06 AM GBI is clear

11:20 AM Fire clears scene

11:25 AM HERO opens lanes to traffic

12:12 PM Traffic returned to normal flow

Traffic Impact

During the investigation, major delays stretched back more than six miles. At their worst, the trip from Mt. Zion Boulevard to I-285 clocked in at nearly four hours.

3 Test Drive Pedestrian Hit & Run (GDOT)

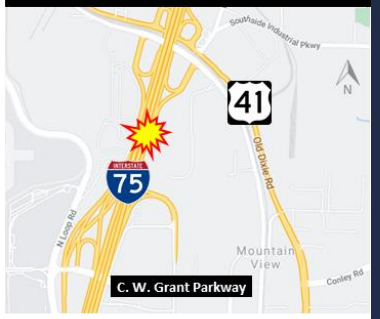
Event Summary

Pedestrian Hit & Run

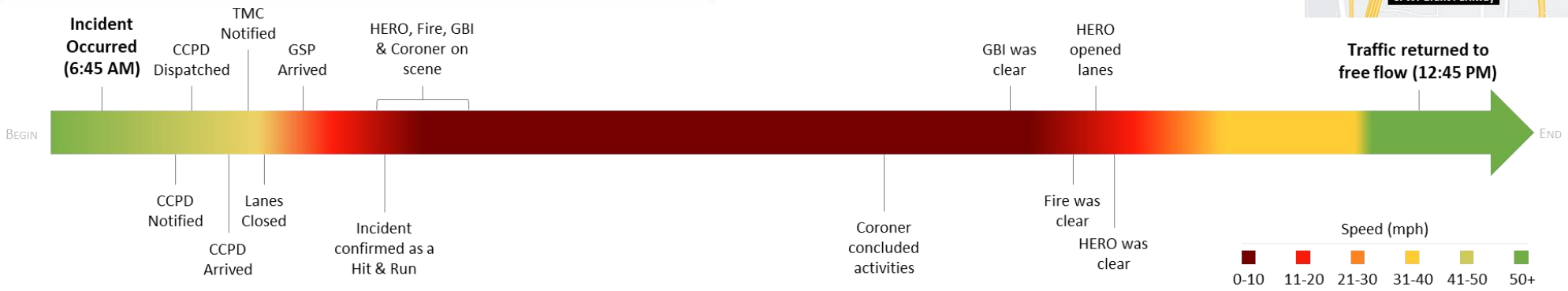
I-75 NB near Exit 239 (CW Grant Pkwy.) | December 9, 2019

On Monday morning, December 9, 2019, a pedestrian was struck and killed on I-75, resulting in four hours of road closures and gridlock through the Southside. The northbound lanes were shut down at C.W. Grant Parkway about 7:30 AM for authorities to conduct an investigation. Traffic began flowing again about 11:30 AM. Tough delays remained out of Morrow through the lunch hour.

Incident Location



Incident Timeline | Total Elapsed Time: 6 hours



Timeline Detail

7:05 AM Clayton Police first received a report of a pedestrian struck by a motor vehicle

7:19 AM Clayton PD arrived on scene

7:26 AM TMC was advised of incident from Clayton PD and found a camera visual

7:30 AM All lanes were blocked; confirmed fatality

7:36 AM Traffic was diverted to I-285, messages posted

7:41 AM Georgia State Patrol (GSP) on scene and assisting with traffic control

8:06 AM Incident confirmed as a hit & run; GSP, Clayton PD, the Fire Department, GBI, HERO, and the Coroner are all on scene

10:26 AM Coroner removed the deceased from the scene

11:06 AM GBI is clear

11:20 AM Fire clears scene

11:25 AM HERO opens lanes to traffic

12:45 PM Traffic returned to normal flow

Traffic Impact

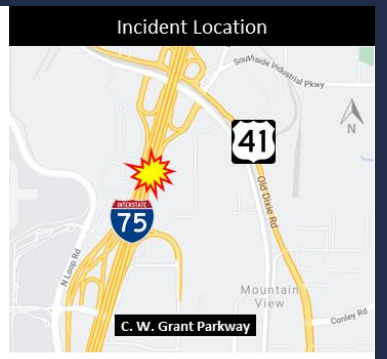
During the investigation, major delays stretched back more than six miles. At their worst, the trip from Mt. Zion Boulevard to I-285 clocked in at nearly four hours.

3 Test Drive Pedestrian Hit & Run (GDOT)

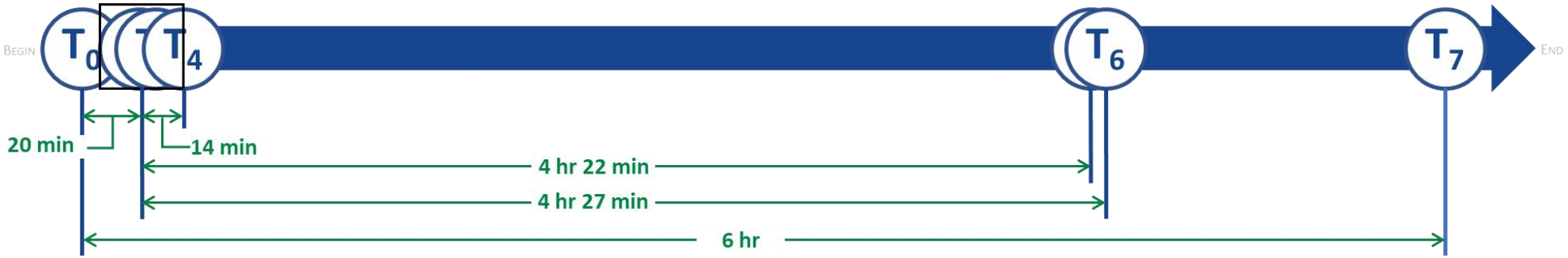
Event Summary

Pedestrian Hit & Run
I-75 NB near Exit 239 (CW Grant Pkwy.) | December 9, 2019

On Monday morning, December 9, 2019, a pedestrian was struck and killed on I-75, resulting in four hours of road closures and gridlock through the Southside. The northbound lanes were shut down at C.W. Grant Parkway about 7:30 AM for authorities to conduct an investigation. Traffic began flowing again about 11:30 AM. Tough delays remained out of Morrow through the lunch hour.



TIM Timeline | Total Elapsed Time: 5h 07m



Timeline Detail

- T_0 Clayton Police estimated that the incident took place around **6:45 AM**
- T_1 They were the first agency notified at approximately **7:05 AM**
- T_2 (Skipped)
- T_3 Officer dispatched at **7:10 AM**
- T_4 PD arrived on scene at **7:19 AM**
  - The NB lanes were closed at **7:30 AM**
- T_5 The roadway was cleared at **11:27 AM**
- T_6 The incident was officially closed at **11:32 AM**
- T_7 Traffic returns to free flow conditions at **12:45 PM**

Traffic Impact

During the investigation, major delays stretched back more than six miles. At their worst, the trip from Mt. Zion Boulevard to I-285 clocked in at nearly four hours.

③ Test Drive Pedestrian Hit & Run (GDOT – flip side)

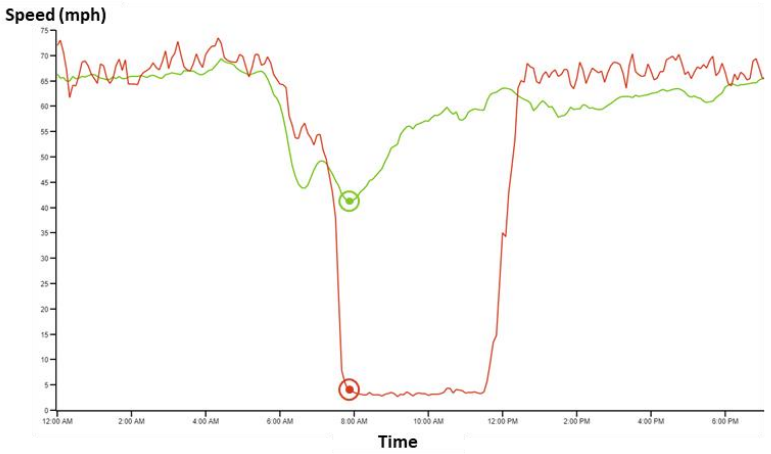
GDOT Georgia Department of Transportation

Performance Impacts

Pedestrian Hit & Run

I-75 NB near Exit 239 (CW Grant Pkwy.) | December 9, 2019

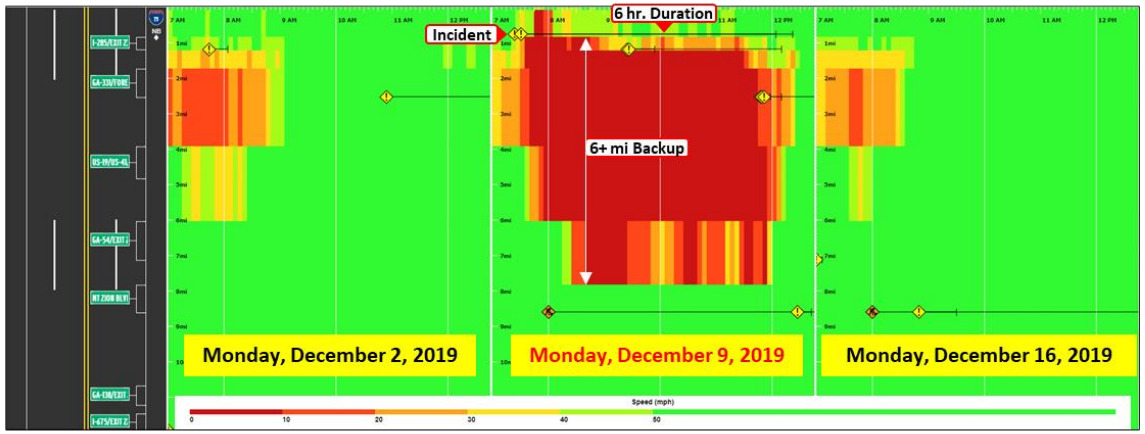
Performance Chart for I-75 NB
between Cleveland Ave/Exit 241 and I-675/Exit 227



(Above) At 7:55 AM, weekday speeds for the year averaged **41.2 mph**, while during the course of the investigation, speeds dropped to **3.9 mph**.

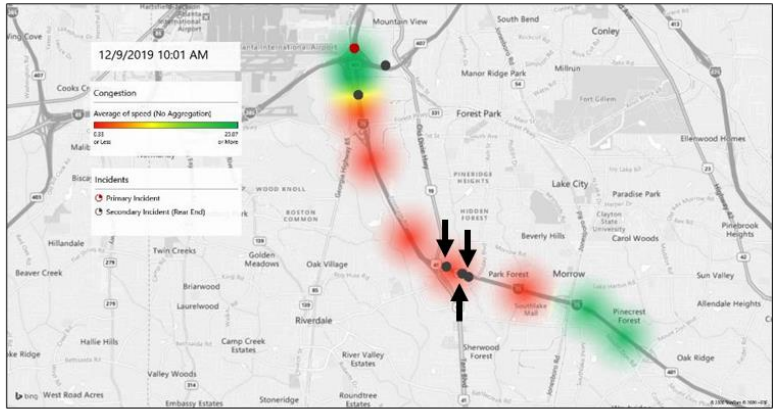
Those stuck in the backups were eventually turned around and diverted off the interstate onto I-285 East. Commuters were crowding onto I-675, Old Dixie Highway and Jonesboro Road throughout the morning drive.

Congestion Scan for I-75 NB
between I-285/Exit 238 and I-675/Exit 227

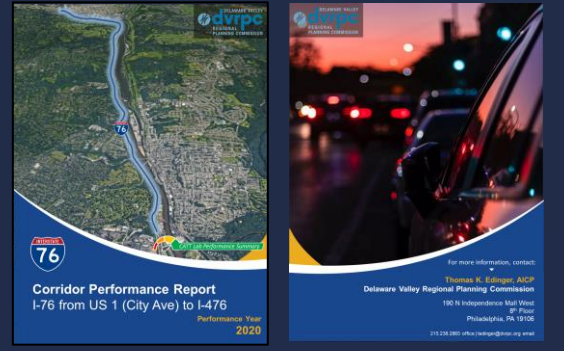


(Above) Comparisons between the incident date and the Monday before and Monday after show dramatic speed reductions and traffic queuing differentials due to the investigation.

(Right) Data from GEARS and NaviGAtor show the primary (red dot) and secondary (black dots) incidents that occurred. Note the three secondary incidents that occurred between 9 a.m. and 10:00 a.m. at the back of the queue (black arrows).

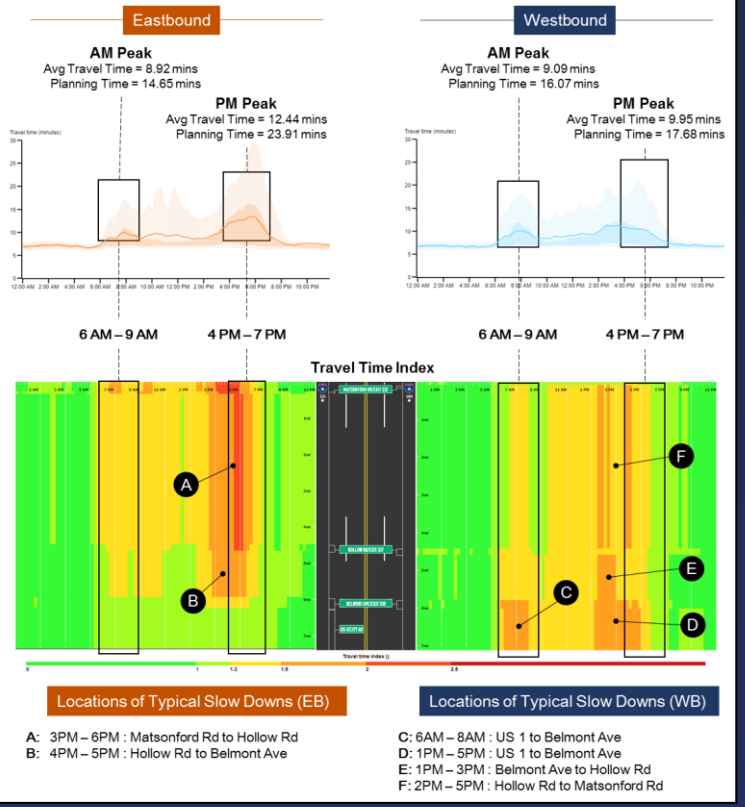


3 Test Drive I-76 Corridor Performance Report (DVRPC)



2020 Corridor Travel Times and Congestion

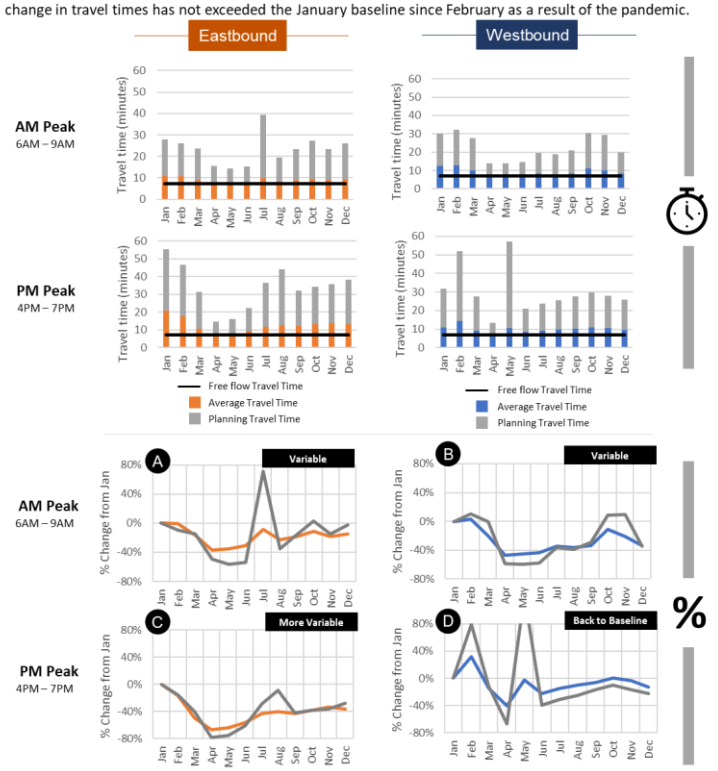
Weekday travel times for this portion of the I-76 corridor were aggregated over the entire year. During the PM peak period, the eastbound direction indicates a higher peak average travel time compared to the westbound direction, or about 2.5 minutes longer. In the eastbound direction, the PM peak travel times and planning times are consistently higher than the AM times. The average PM peak travel time is about 3.5 minutes longer than the AM period travel time, and the planning time is approximately 9 minutes longer. This is due in part to expanded job opportunities in the King of Prussia and Conshohocken areas farther west and City residents commuting back home from work. The heat map at the bottom of the page shows the geographic location of typical congestion through the day.



A: 3PM – 6PM : Matsonford Rd to Hollow Rd
B: 4PM – 5PM : Hollow Rd to Belmont Ave
C: 6AM – 8AM : US 1 to Belmont Ave
D: 1PM – 5PM : US 1 to Belmont Ave
E: 1PM – 3PM : Belmont Ave to Hollow Rd
F: 2PM – 5PM : Hollow Rd to Matsonford Rd

2020 Changes in Travel Times

How did travel times change over the course of 2020? This depends on time of day and direction of travel. The bar charts show monthly travel times by peak period and direction. The line charts show the percentage change in travel times and planning times as compared to a January 2020 baseline. The percent change in travel times has not exceeded the January baseline since February as a result of the pandemic.

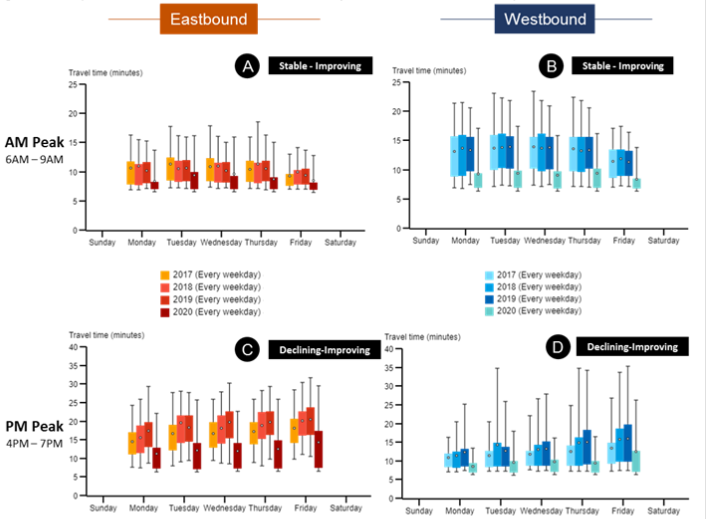


Observations

A In the eastbound AM peak period, travel times decreased from Feb to Apr and then gradually increased through the analysis period. **B** In the westbound AM peak, there was a sharp decline in travel time from Feb to Apr and then gradually increased through Oct, but then declined through Dec. **C** Travel times in the eastbound direction during the PM peak declined sharply from Jan to Apr (60%), and then gradually increased through Dec. **D** Travel times in the westbound direction during the PM peak declined from Feb to Apr, and then remained relatively flat through the end of the year, while approaching baseline conditions.

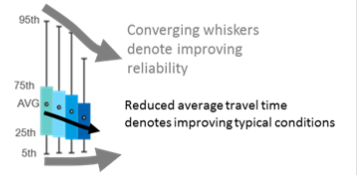
Comparison with previous years

How much did travel times change compared to previous years? In the AM and PM peak periods, average travel times and travel time reliability were fairly constant from 2017 to 2019. However, there were significant improvements in travel times and reliability in 2020 as a result of the pandemic.



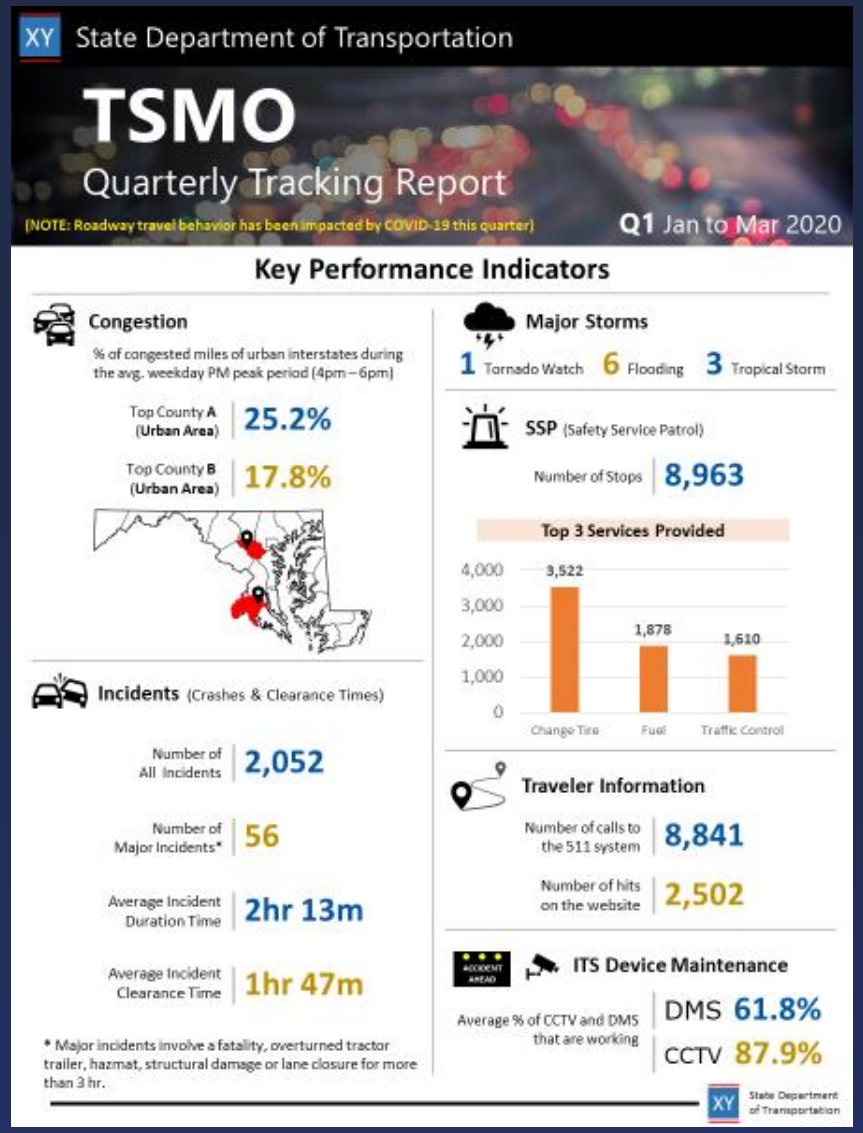
A During the AM peak period in the eastbound direction, travel times and reliability remained relatively constant from 2017 to 2019 but improved significantly in 2020. **B** The same is true for the westbound direction, but the travel times were higher and less reliable. **C** During the PM peak period in the eastbound direction travel times progressively increased and reliability decreased from 2017 to 2019, but improved significantly in 2020. **D** The same holds true for the westbound direction with the exception of lower travel times and in some instances more variability in travel.

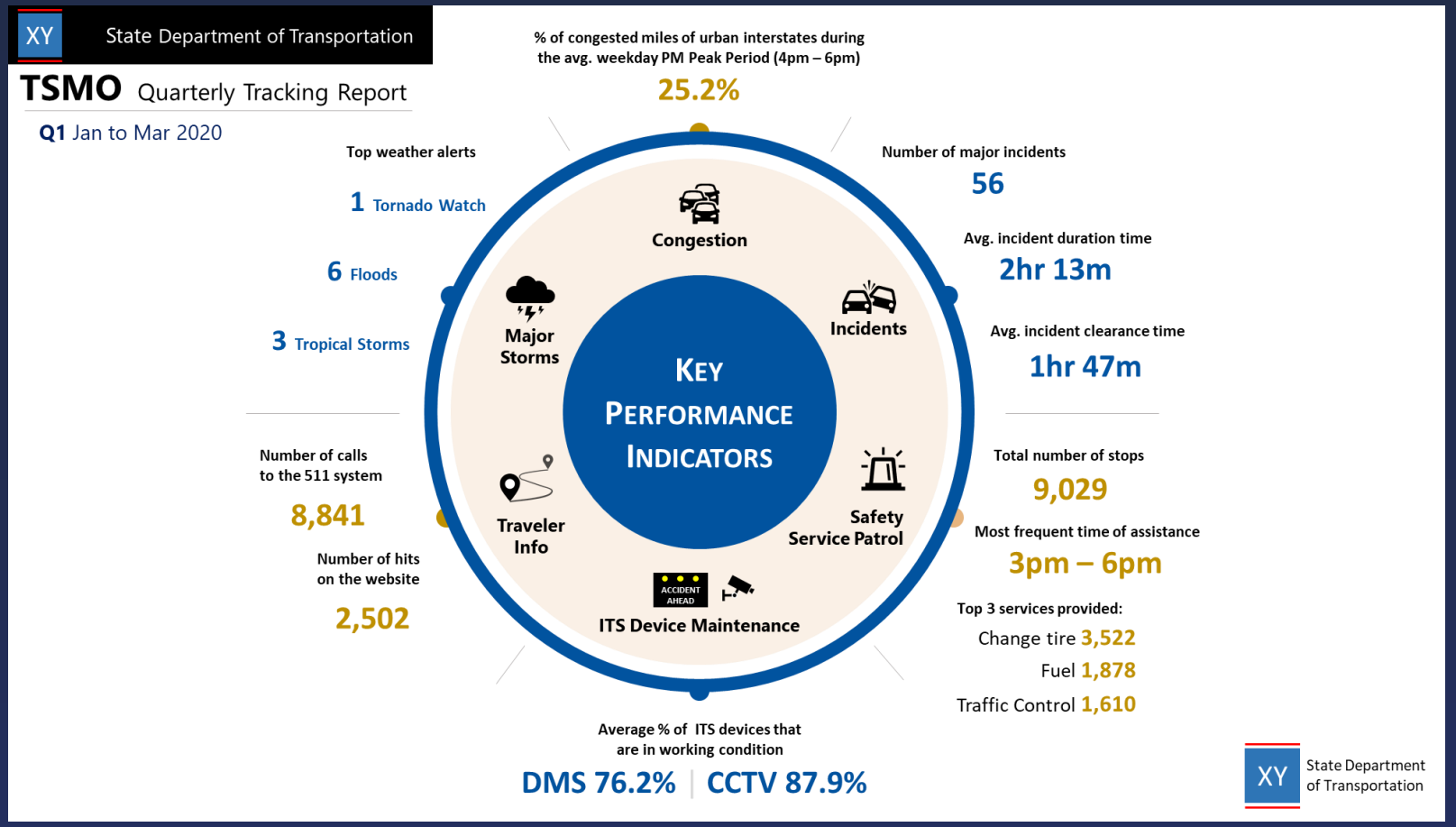
The box plot presents a simplified distribution of the range of travel times throughout the period of interest, based on percentiles.



TSMO Quarterly Reporting

4 One-pagers TSMO Quarterly Reporting Options

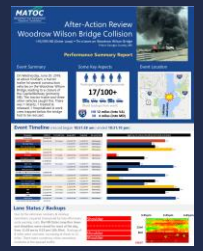




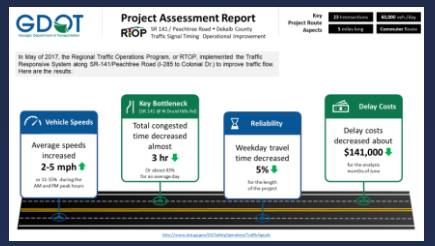
Current Template Catalog

Full Technical Reports One-pagers

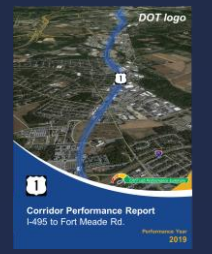
After Action Reviews

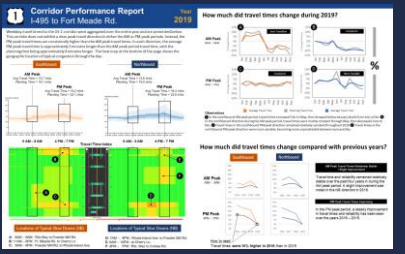


Before & After Studies



Corridor Performance

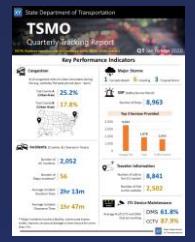


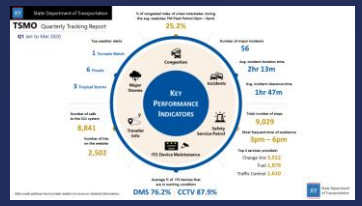


Holiday Travel

Monthly Congestion

TSMO Tracking





Work Zones

Thanks!

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RITIS | PROBE DATA ANALYTICS SUITE

Agency Input Session

Michael Pack
UMD CATT Lab
Director

We want to hear from you!

Wrap Up

Jesse Buerk
Delaware Valley Regional Planning Commission
User Group Co-chair

Questions?

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Thank you!

CATT LABORATORY

THE EASTERN TRANSPORTATION COALITION

CONNECTING FOR SOLUTIONS