RITIS **User Group**
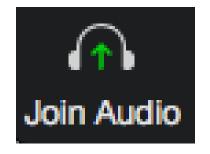
Web Meeting | September 30, 2021

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)

- The **Chatbox** is not available to participants. Please use the **Q&A box** for questions to the presenters

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
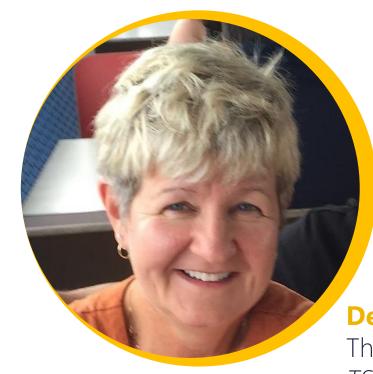
Asking Questions Verbally

- 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

Denise Markow
The Eastern Transportation Coalition
TSMO Director

Coalition Update

RECENT
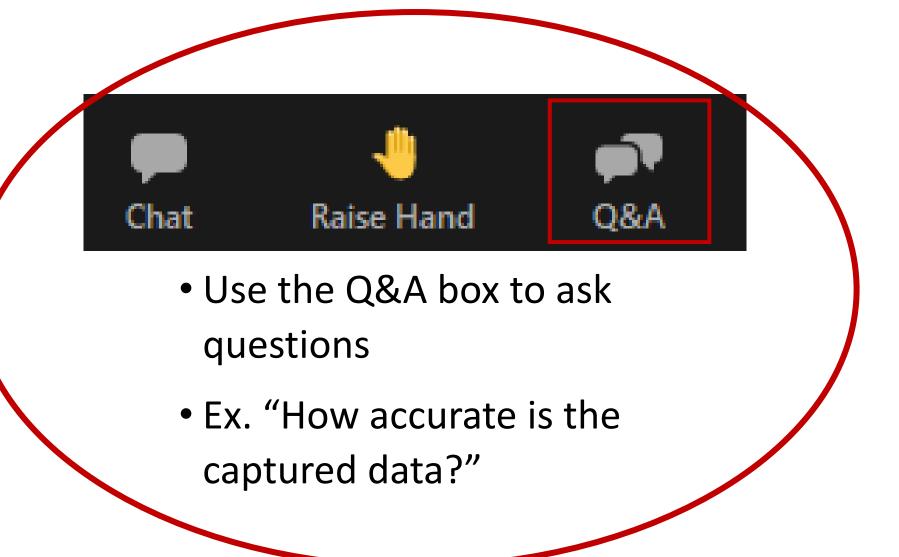
- ✓ **RITIS User Group Web Meeting** - July 15, 2021

- ✓ **The ABC's of Conflation: TMC, LRS, OSM - What Happens When You Muck It Up** - August 19, 2021

- ✓ **Traffic Data Marketplace - RFP Evaluation Meetings** - Aug, Sep 2021 *(member invite only)*

- ✓ **Meet the Work Zone Data Exchange (WZDx) Project - How to Get Better Work Zone Data Out to the Traveler** - September 9, 2021

UPCOMING

- ➤ **Traffic Data Marketplace - RFP Evaluation Meetings** - Oct 2021 *(member invite only)*

- ➤ **Coalition Mapping Workshop** - October 7, 2021 *(member invite only)*

- ➤ **New Signal Technology, New Maintenance Needs Webinar** - November 4, 2021

- ➤ **TDADS National Webinar** - November 10, 2021

- ➤ **WAZE Technical Bi-Annual Working Group** - November 18, 2021 *(member invite only)*

- ➤ **NE HOGS Exchange - A Fresh Start –** December 2, 2021

- ➤ **VPP-Traffic Data Marketplace State POC Meeting** - December 7, 2021 *(member invite only)*

Just a reminder: Use the Q&A box for question

- Use the Q&A box to ask questions

- Ex. "How accurate is the captured data?"

Welcome & Introductions

Jesse Buerk

Manager, Capital Project Development, DVRPC
RITIS User Group Co-chair

Today's Meeting

Welcome and Introductions	Denise Markow, TETC & Jesse Buerk, DVRPC
Spotlight Presentation: *Use of PDA Suite in Support of Transportation Planning for Maricopa Association of Governments*	Wang Zhang, Maricopa Association of Governments
Spotlight Presentation: *RITIS Signal Analytics Tools: Recent Updates and Use Cases*	Charles Lattimer, UMD CATT Lab
RITIS Product Enhancement Working Group Update	Matt Glasser, Georgia DOT
PDA Suite Performance Measures Working Group Update	John Allen, UMD CATT Lab
New RITIS Tools and Recent Enhancements	John Allen for Michael Pack
Agency Input Session	John Allen and Jesse Buerk
Wrap Up and Remaining Questions	Jesse Buerk

Today's Speakers

Wang Zhang
Maricopa Association of Governments
Transportation Data Program Manager

Matt Glasser
Georgia DOT
Assistant State Traffic Engineer

Charles Lattimer
UMD CATT Lab
Senior Faculty Specialist

John Allen
UMD CATT Lab
Faculty Assistant, Outreach & Education

Meeting Participants

Agencies						
Arapahoe County	City of Franklin, TN	Greater Hickory MPO	Lehigh Valley Planning Commission	MWCOG	Pennsylvania DOT	Tennessee DOT
Atlanta Regional Commission	City of Memphis, TN	Greater Nashville Regional Council	Louisiana DOTD	MWVCOG	Pioneer Valley Planning Commission	Texas A&M Transportation Institute
AutoReturn	City of Sandy Springs, GA	Gresham Smith	Maricopa Association of Governments	New Jersey DOT	PlanRVA	TRANSCOM
Baltimore Metropolitan Council	District DOT	HNTB	Maryland DOT-SHA	New Jersey Sports & Exposition Authority	Potomac and Rappahannock Transportation Commission	Tri-Cities Area MPO
Cabarrus-Rowan MPO	Durham-Chapel Hill-Carrboro MPO	IBTTA	Maryland Transportation Authority	New York State DOT	Regional Transportation Commission of Southern Nevada	University of Maryland CATT Lab
Capital Area MPO (CAMPO-Raleigh)	DVRPC	Illinois DOT	Massachusetts DOT	NJTPA	Rhode Island Division of Statewide Planning	Vermont AOT
Capital Region Planning Commission	East Central Intergovernmental Association	Imperial Calcasieu Regional Planning ad Development Commission	Mead & Hunt	North Carolina DOT	Rhode Island DOT	VHB
Charlotte Regional TPO	Federal Highway Administration	INRIX	Michigan DOT	North Central PA Regional Planning & Development Commission	Rockingham Planning Commission	Virginia DOT
Chattanooga-Hamilton County/North Georgia TPO	Florida DOT	Jacobs	Middlesex County	Northern Virginia Transportation Authority	Sonoma County Transportation Authority	
Chicago Metropolitan Agency for Planning	Gannett Fleming	KISNN Assoc	Minnesota DOT	Ohio DOT	South Jersey Transportation Planning Organization	
City of Alexandria, VA	Georgia DOT	Knoxville Regional TPO	Montgomery County Planning Commission	Oregon DOT	Southwestern Pennsylvania Commission	

Use of PDA Suite in Support of Transportation Planning for
Maricopa Association of Governments (MAG)
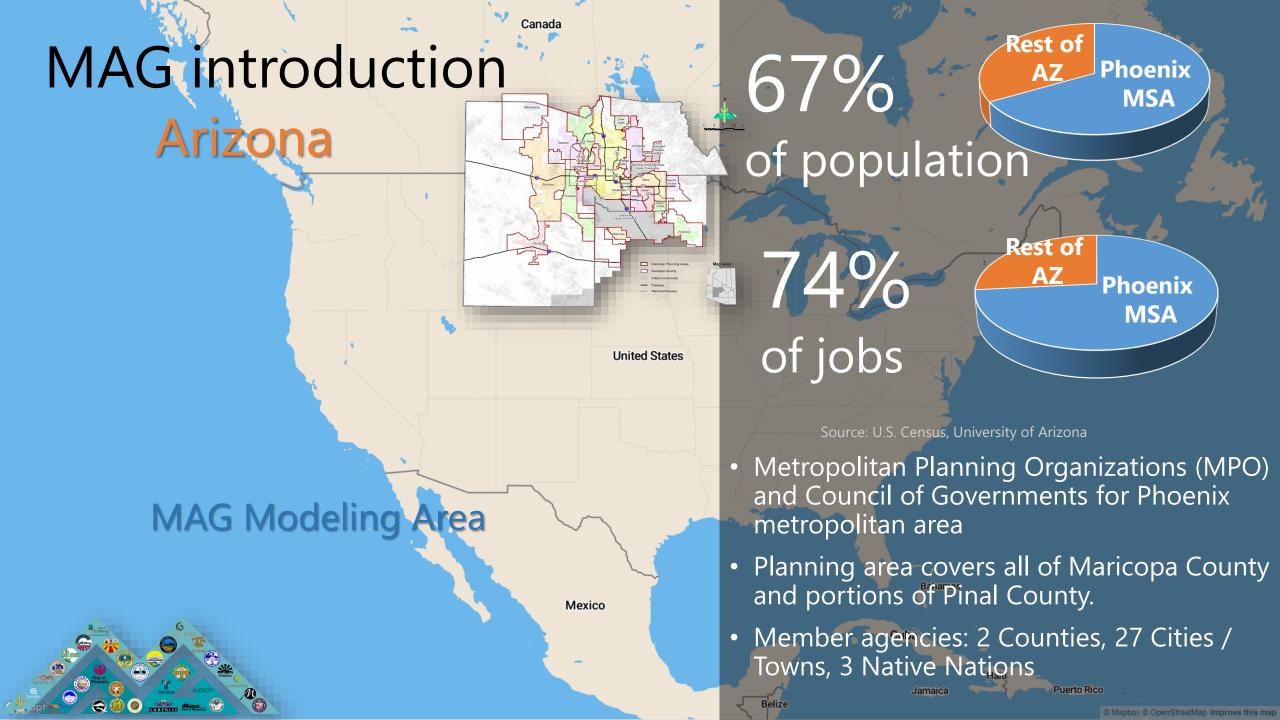
RITIS User Group Web Meeting
September, 2021
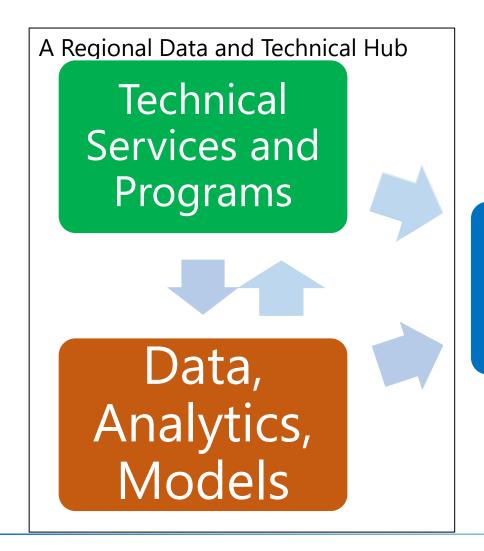
Outline

- Maricopa Association of Governments (MAG) introduction

- How MAG uses PDA Suite

- Two examples
  - Before and after study
  - Regional traffic trend

MAG introduction

Arizona

MAG Modeling Area

67% of population

74% of jobs

Source: U.S. Census, University of Arizona

- Metropolitan Planning Organizations (MPO) and Council of Governments for Phoenix metropolitan area

- Planning area covers all of Maricopa County and portions of Pinal County.

- Member agencies: 2 Counties, 27 Cities / Towns, 3 Native Nations

© Mapbox © OpenStreetMap Improve this map

Informed Transportation Planning and Investment Decisions: Where Policies Meet Data

A Regional Data and Technical Hub

Technical Services and Programs

Data, Analytics, Models

Programming of Funds, Planning and Investment Decisions

A Regional Policy Forum

Policies and Plans

Funding
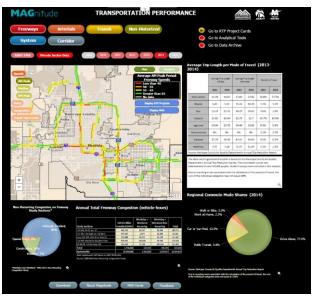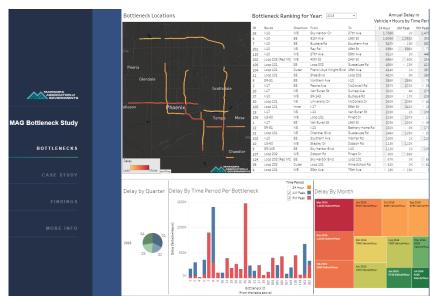
Transportation Data and Models: MAG Example

How MAG uses Speed data and PDA Suite

- System monitoring and quantitative analysis
  - System scanning, bottleneck identification…
- Project evaluation
  - Before and after study, cost/benefit evaluation…
- Model calibration and validation
- Performance measurement
- Trend analysis

Example #1:
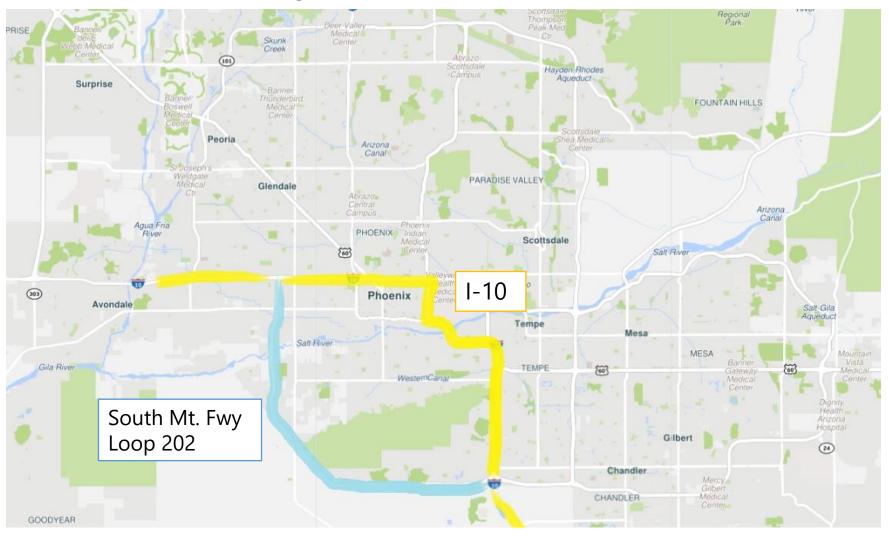
Monitoring Congestion on I-10
before and after
South Mountain Freeway Opening

March, 2020

Case study introduction
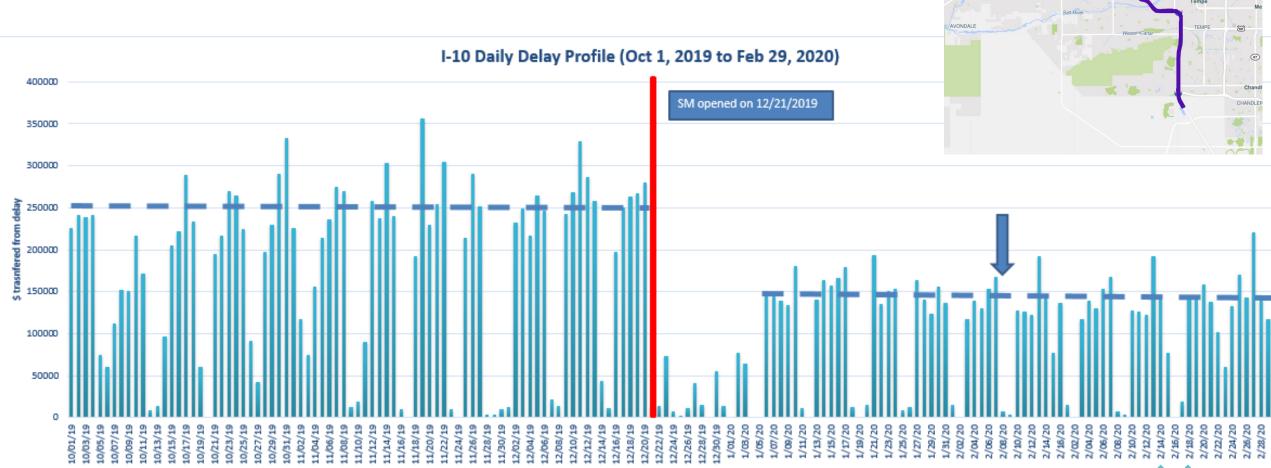
- I-10 trespasses Phoenix region serving as a main freeway corridor;
- A new freeway (South Mountain freeway, Loop 202) opened to traffic in December 2019 (relieve traffic congestion on I-10);
- Monitor and evaluate new freeway's impact to I-10 traffic (continuous monitoring and evaluation interrupted by COVID);

Congestion profile before and after:
I-10 both directions (35% delay reduction)

I-10 Daily Delay Profile (Oct 1, 2019 to Feb 29, 2020)

SM opened on 12/21/2019

I-10 WB average speed

I10 WB Travel Speed: by Time of the Day, Month and Day of the Week

SM opened

Time

Traffic direction

WB (after-before delta)

Trend Comparison (Average weekday, Oct 2019 to March 2020)

AM peak – I-10 WB at Warner (better)
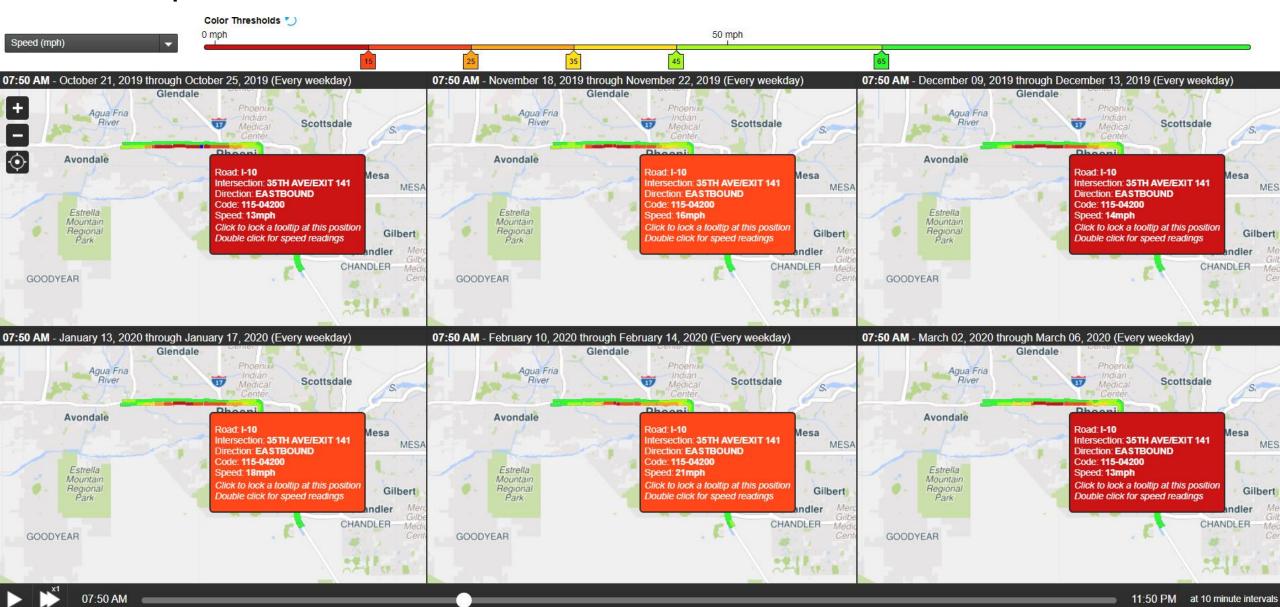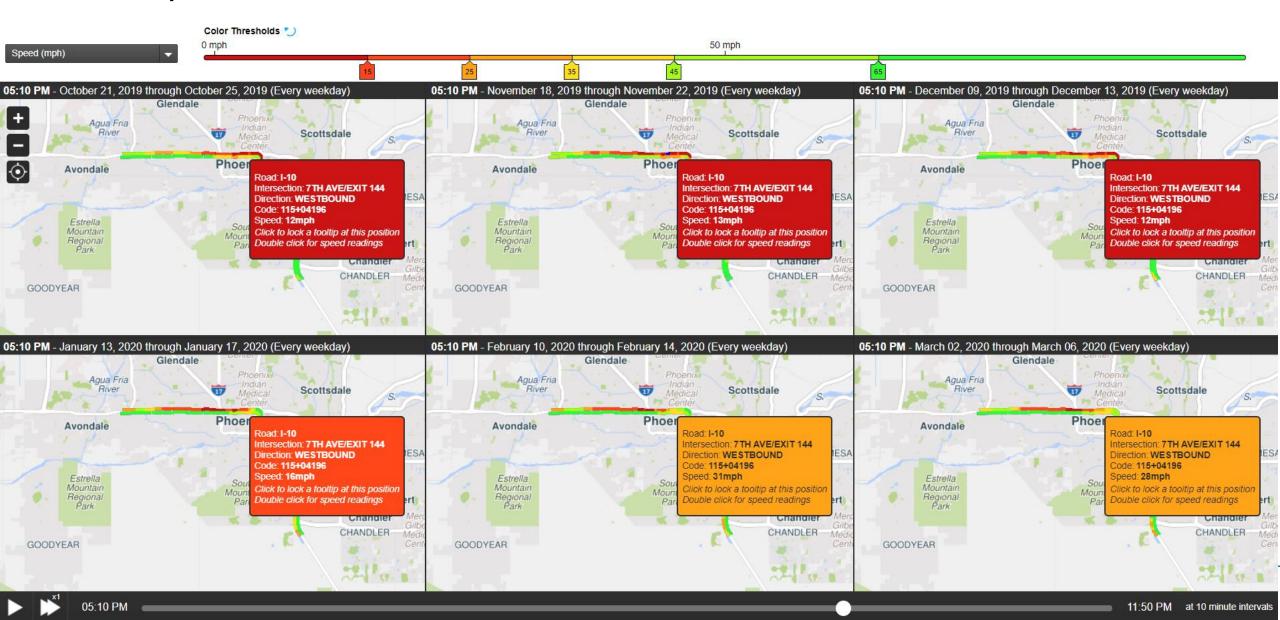
AM peak – I-10 EB at 35th Ave (same)
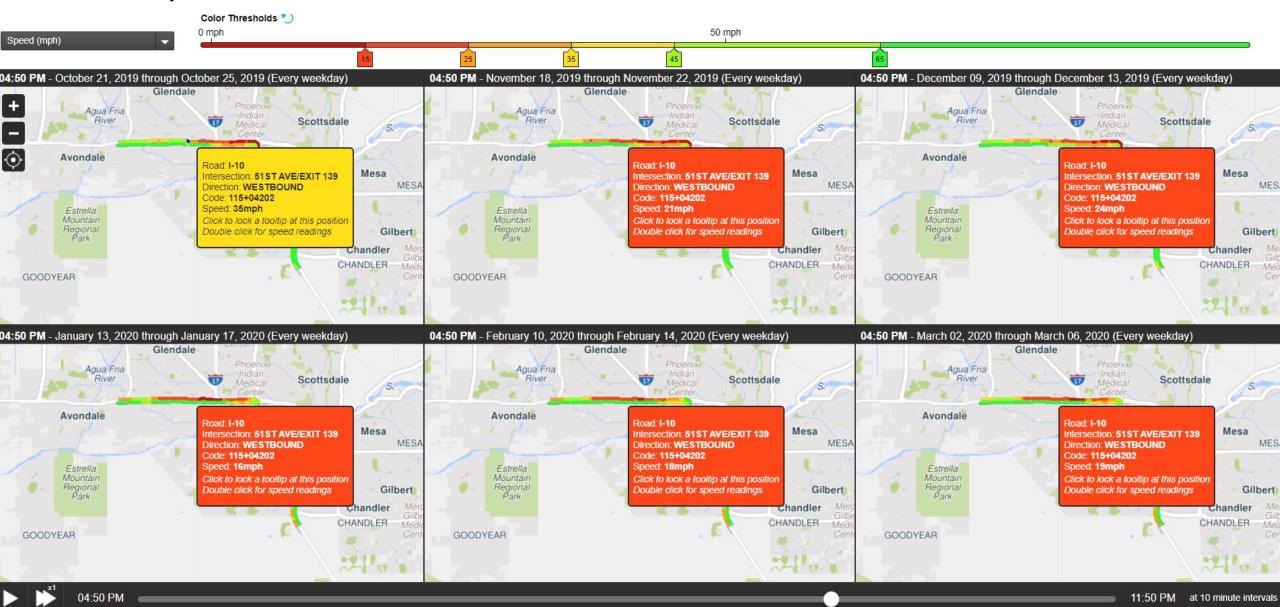
PM peak – I-10 WB at 7ᵗʰ Ave (better)

PM peak – I-10 WB at 51st Ave (worse)

Example #2:
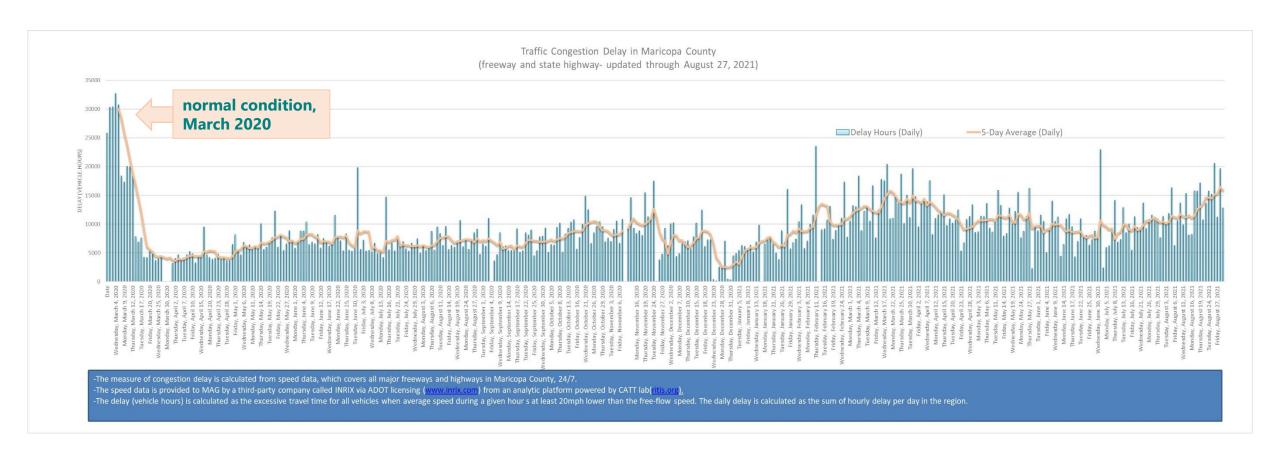
Using INRIX speed data and User Delay Cost Analysis to monitor congestion through COVID

Day-to-day congestion delay compared to normal (freeway only)

Traffic Congestion Delay in Maricopa County
(freeway and state highway- updated through August 27, 2021)

normal condition, March 2020

Delay Hours (Daily)   5-Day Average (Daily)

-The measure of congestion delay is calculated from speed data, which covers all major freeways and highways in Maricopa County, 24/7.
-The speed data is provided to MAG by a third-party company called INRIX via ADOT licensing (www.inrix.com) from an analytic platform powered by CATT lab(ritis.org).
-The delay (vehicle hours) is calculated as the excessive travel time for all vehicles when average speed during a given hour s at least 20mph lower than the free-flow speed. The daily delay is calculated as the sum of hourly delay per day in the region.

Freeway congestion trend AM vs. PM

Traffic Congestion Delay Compared to Normal during AM (6am-9am) and PM (2pm-6pm) in Maricopa County
(freeway and state highway- updated through August 27, 2021)

normal condition, March 2020

— 5-Day Average (PM)

— 5-Day Average (AM)

-The measure of congestion delay is calculated from speed data, which covers all major freeways and highways in Maricopa County, 24/7.
-The speed data is provided to MAG by a third-party company called INRIX via ADOT licensing (www.inrix.com) from an analytic platform powered by CATT lab(ritis.org).
-The delay (vehicle hours) is calculated as the excessive travel time for all vehicles when average speed during a given hour s at least 20mph lower than the free-flow speed. The daily delay is calculated as the sum of hourly delay per day in the region.

USER DELAY COST ANALYSIS
Put a dollar amount on how much a road's performance impacts its users.
Tutorial Help History
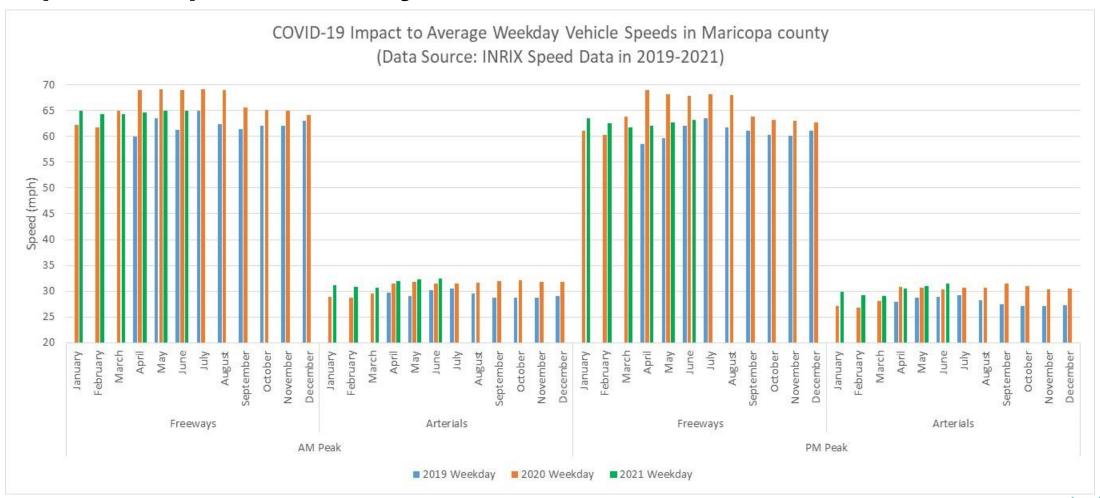
Speed profile by functional class

COVID-19 Impact to Average Weekday Vehicle Speeds in Maricopa county
(Data Source: INRIX Speed Data in 2019-2021)

Summary

- RITIS tools help MAG conduct mobility analysis efficiently
- Sustainable platform
  - easy to use even for beginners
  - quick data preparation
  - short latency in data availability
  - great customer service
- Serves as critical information/analytics/infographics to stakeholders in transportation planning and modeling process.

Thank you!

Wang Zhang, Ph.D.
Transportation Data Program Manager
Maricopa Association of Governments (www.azmag.gov)
Phoenix, AZ
wzhang@azmag.gov

RITIS Signal Analytics Tools: Recent Updates and Use Cases

Charles Lattimer

Senior Faculty Specialist

University of Maryland CATT Lab

RITIS Signal Analytics

Recent Updates and Use Cases

Charles R. Lattimer, CATT Lab

Today's Presentation

- A brief introduction to signal analytics

- Use cases: what can Signal Analytics do for you?

- Updates: what's new and coming soon

- Time for questions

Improving Operations with Traffic Signal Performance Measures

Benefits

- Issues can be identified quickly

- Proactive instead of reactive response

- More efficient traffic signal operations

- Data to communicate outcomes

Improving Operations with Traffic Signal Performance Measures

Barriers

- Roadside detection infrastructure

- Signal controller upgrades

- Data storage and servers

- Software expertise

Intersection Performance Metrics from 3rd Party Connected Vehicle Data

Based on high ping rate GPS probe vehicle data

- No roadside infrastructure required
- No server and IT resources required
- Scalable anywhere in the nation

Use Case 1: How are the signals in my county performing?

Washington County, OR

"Is there a way that I can rank the performance of my traffic signals across my entire county?"

"Can I see how much conditions change month by month?

Solution: Use the Signal Analytics Ranked Intersection Table

Consider ranking by weekday split failures

What is a split failure?

"The occurrence of one or more stopped vehicles that cannot proceed through a signalized intersection on a green indication."

--Signal Timing Manual, Second Edition (NCHRP Report 812)
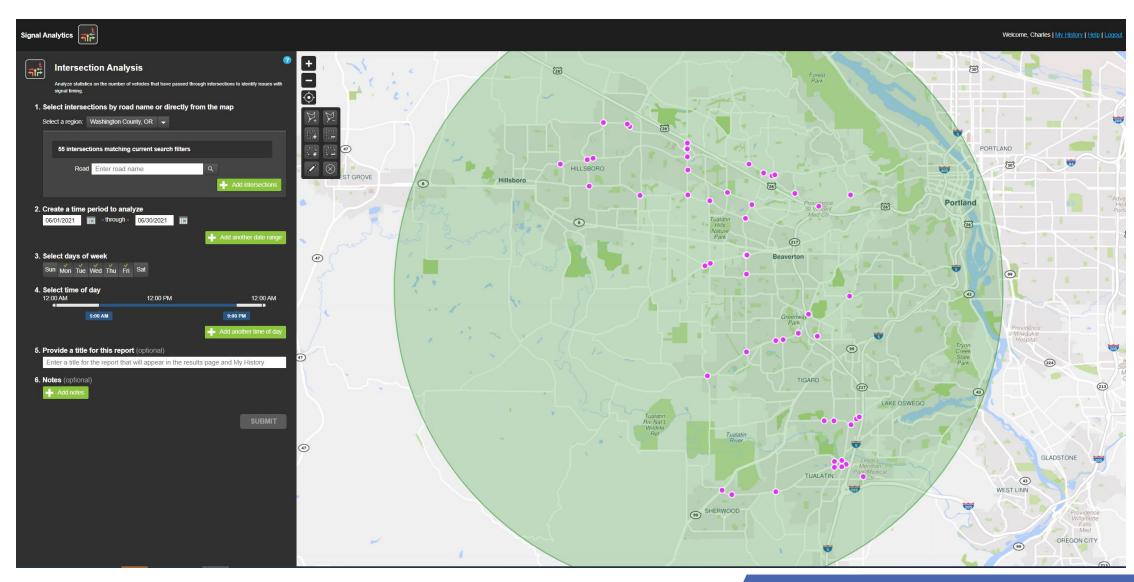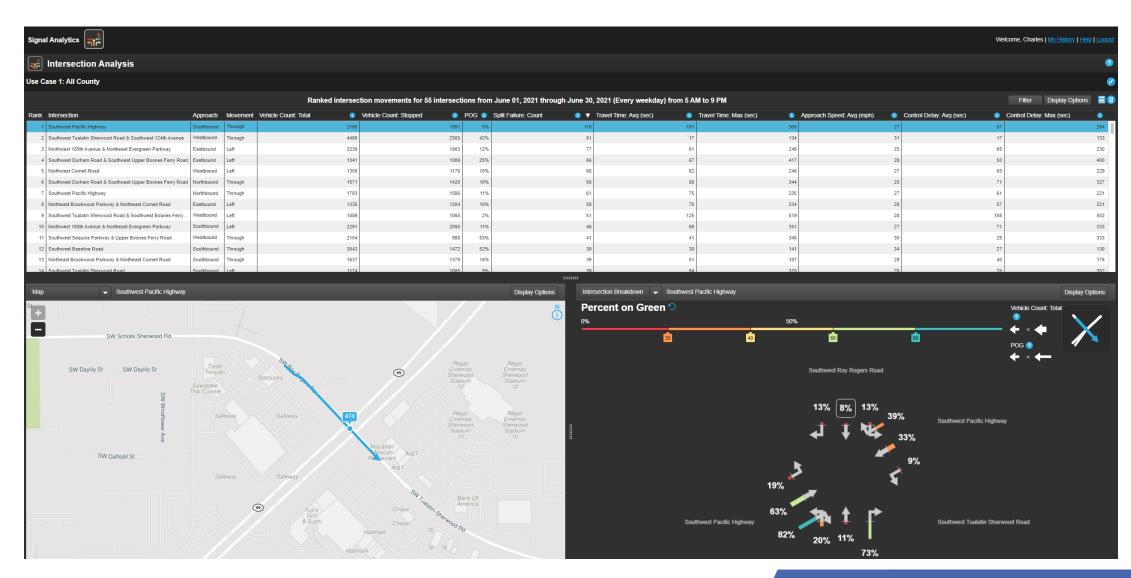
Selecting the intersections in my county…
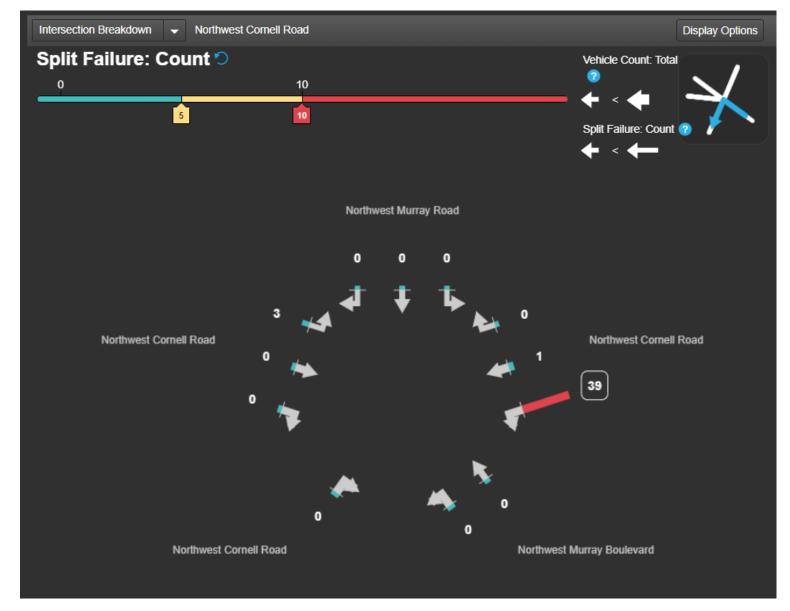
Sort the ranked intersection movement table by split failures

Countywide Analysis
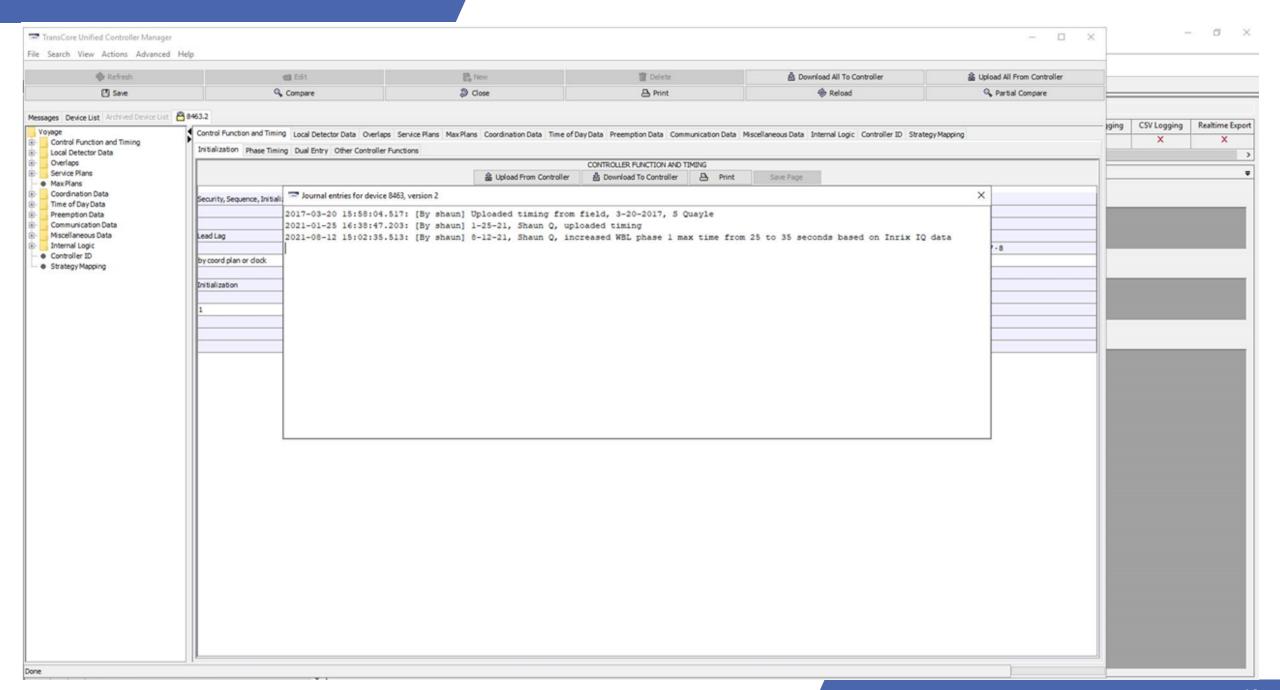
Frequency in Top 10 for Total # of Weekday Split Failures, 5am-9pm								
Intersection	Approach	Maneuver	June	May	April	March	February	% in Top 10
Southwest Pacific Highway & TSR	Southbound	Through	1	2	5	3	6	100%
Southwest 124th Avenue & Southwest Tualatin Sherwood Road	Westbound	Through	2					20%
Northwest 185th Avenue & Northeast Evergreen Parkway	Eastbound	Left	3	3				40%
Southwest Durham Road & Southwest Upper Boones Ferry Road	Eastbound	Left	4	7	3, 7		9	60%
Northwest Cornell Road & Murray Road	Westbound	Left	5	4	1	4	10	100%
Southwest Durham Road & Southwest Upper Boones Ferry Road	Northbound	Through	6	10	4	9		80%
Southwest Pacific Highway & TSR	Northbound	Through	7	6	2	2	1	100%
Northeast Brookwood Parkway & Northeast Cornell Road	Eastbound	Left	8		10			40%
Southwest Tualatin Sherwood Road & Southwest Boones Ferry Road	Westbound	Left	9		8	5	8	80%
Northwest 185th Avenue & Northeast Evergreen Parkway	Southbound	Left	10					20%
Southwest Baseline Road & 185th Avenue	Northbound	Through				7	2	40%
Southwest Martinazzi Avenue & Southwest Tualatin Sherwood Road	Eastbound	Through		1			3	40%
Southwest Baseline Road & 185th Avenue	Northbound	Left					4	20%
Southwest 92nd Avenue & Southwest Durham Road	Northbound	Left				1	5	40%
Southwest Baseline Road & 185th Avenue	Southbound	Through		9	6	6	7	80%
Southwest Tualatin Sherwood Road & Southwest Boones Ferry Road	Eastbound	Through		5				20%
Northwest Cornell Road & 48th Avenue	Eastbound	Left		8				20%
Southwest Nyberg Street & Fred Meyer Entrance	Southbound	Left				8		20%
Southwest Tualatin Sherwood Road & Southwest Boones Ferry Road	Southbound	Through				10		20%
Southwest Pacific Highway & TSR	Southbound	Right			9			20%

Let's take a look at the intersection diagram…
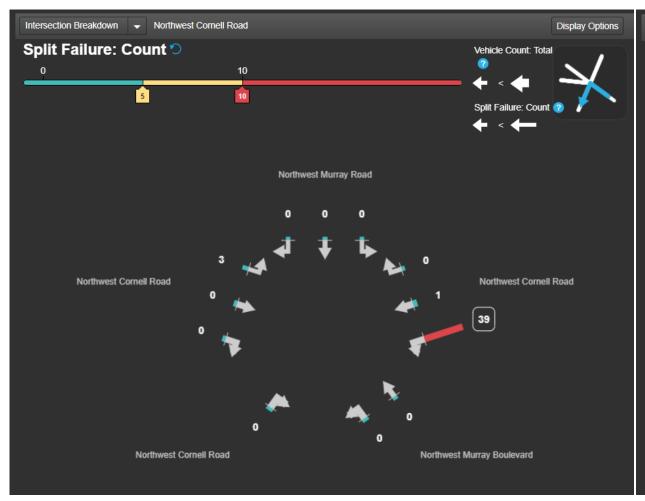
There are a lot more split failures on that left turn movement. **What would happen if I extended the max time for that movement?**
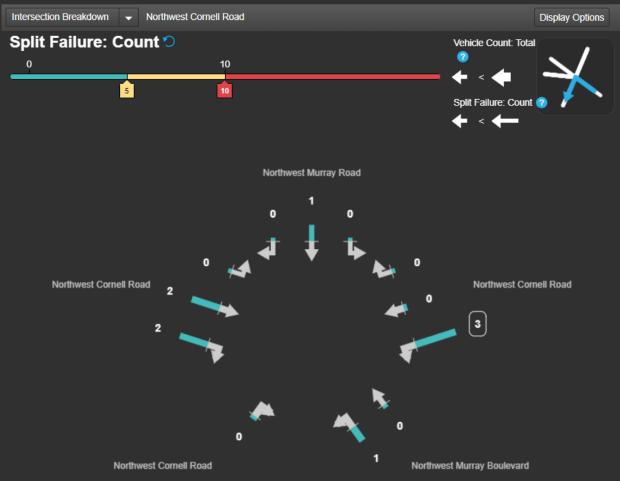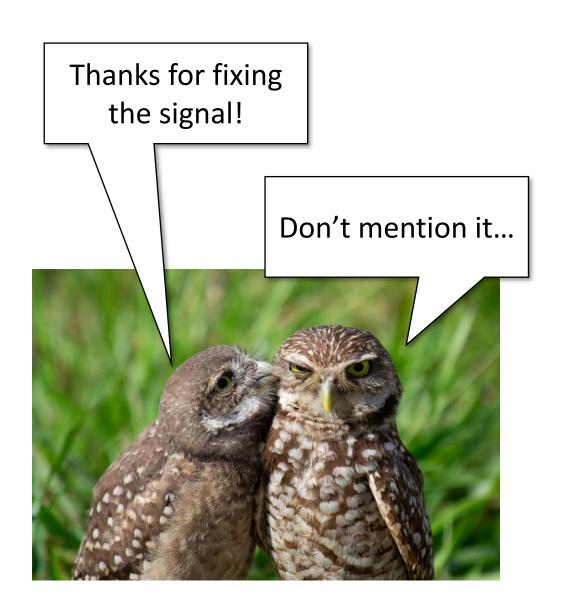
Before
(Jul. 22 – Aug. 11)
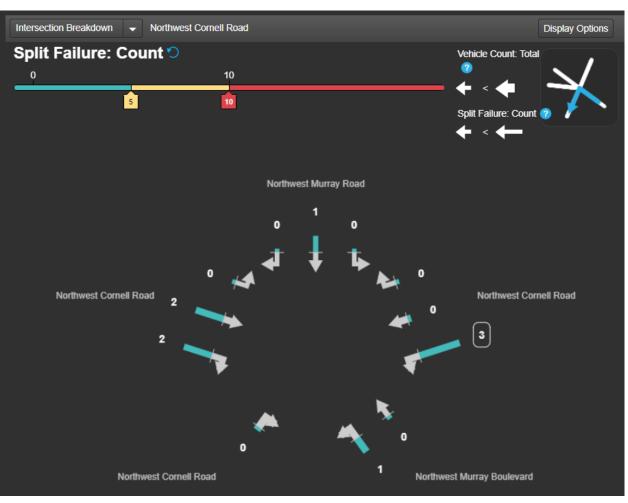
After
(Aug. 13 – Sep. 2)

**After
(Aug. 13 – Sep. 2)**

Use Case 2: How do I compare conditions before and after a signal timing change?

City of Austin, TX

"How can I measure changes to intersection performance if I don't have detection on all my approaches?"

"Using corridor travel times to measure signal timing improvement can be good, but sometimes it seems they don't tell the whole story. Are there additional measures I can use?"

Solution: Use the Signal Analytics to compare split failures, control delay, and percent on green over time

What is control delay?

"The amount of additional travel time experienced by a user attributable to a control device."

- Traffic Signal Timing Manual (FHWA-HOP-08-024)

What is percent on green (POG)?
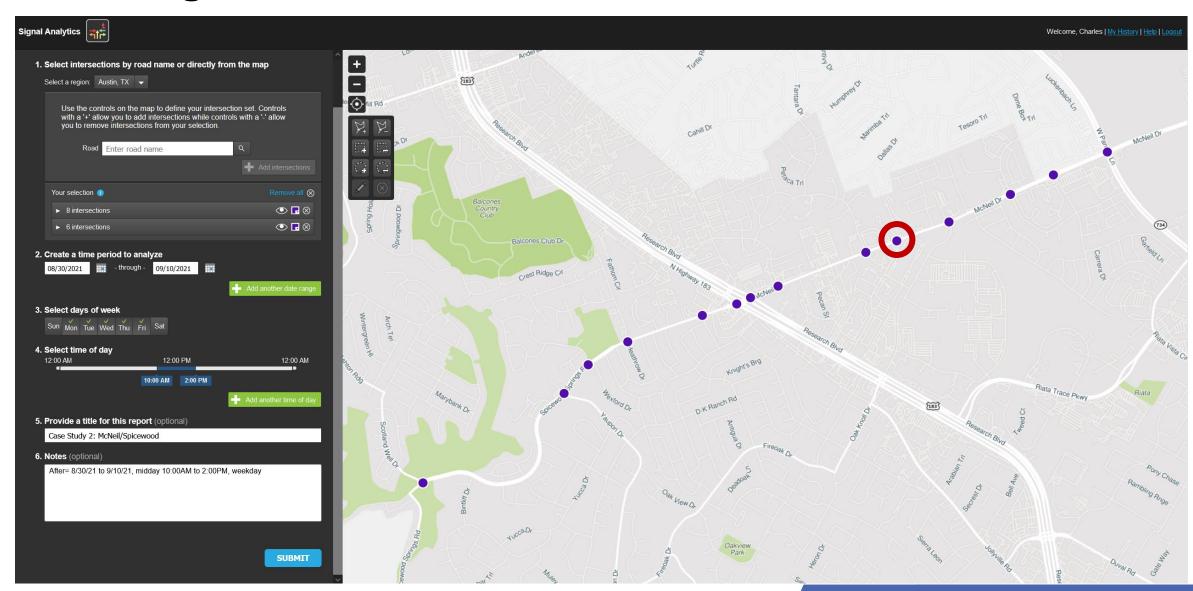
"Proportion of vehicles arriving on green."

- Performance Measures for Traffic Signal Systems
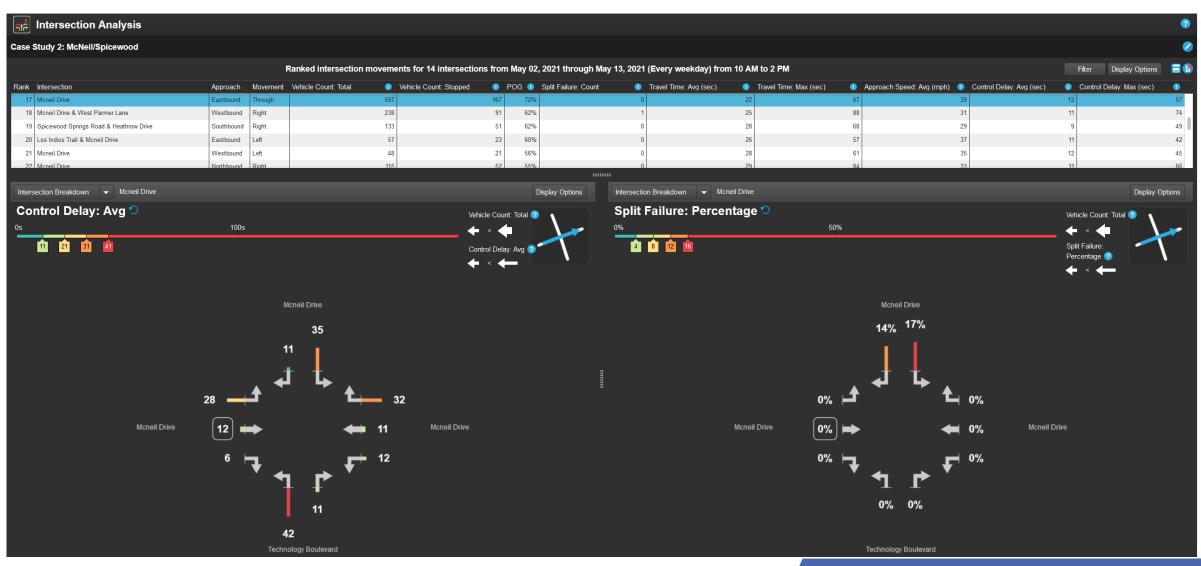
$$\frac{\text{(6 green cars)}}{\text{(4 red cars)} + \text{(6 green cars)}} = \frac{60}{40 + 60} = \frac{60}{100} = \textbf{60\%}$$
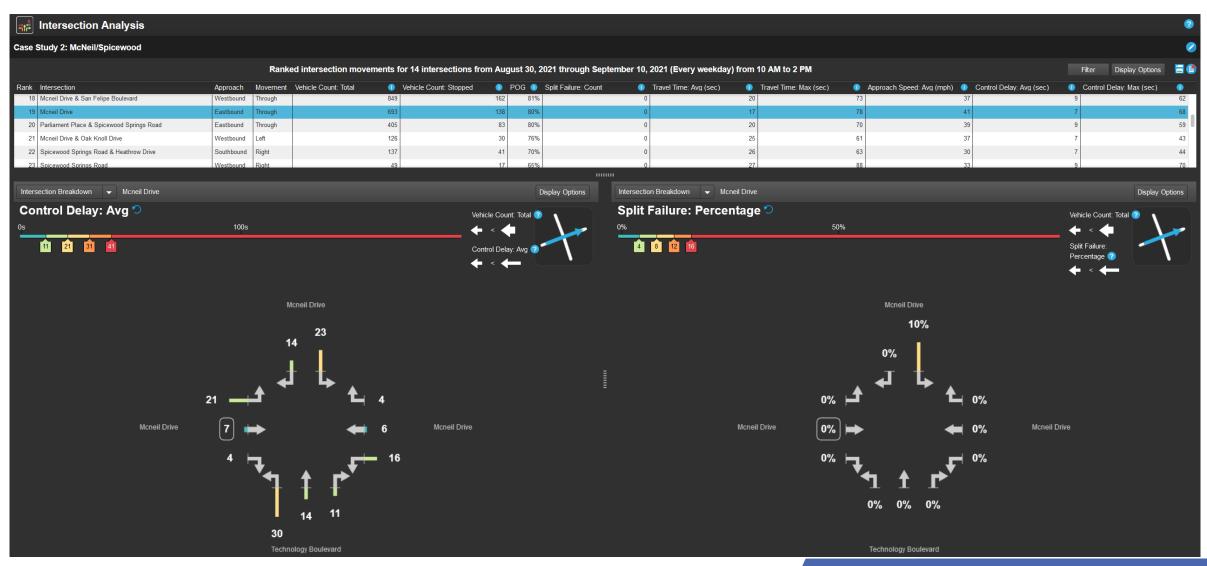
Selecting intersections on McNeil Dr....
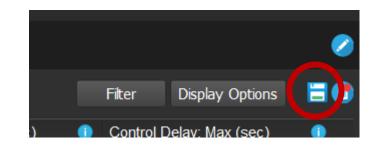
Before retiming

After retiming
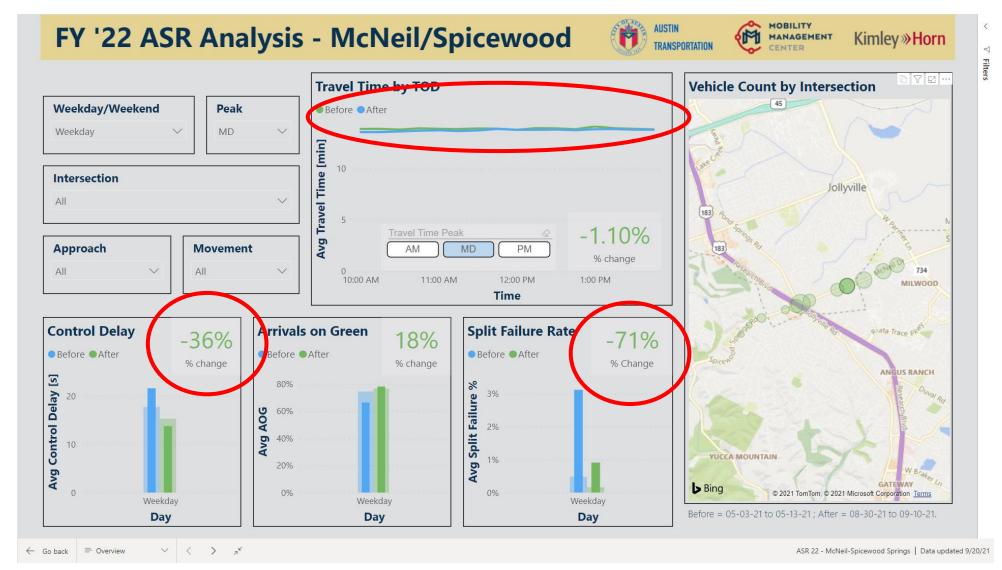
Downloading Data

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	C
1	Rank	Intersection	Intersection ID	Latitude	Longitude	Approach	Approach ID	Movement	Movement ID	Vehicle Count: Total	Vehicle Count: Stopped	Vehicle Count: Through	Estimated Volume: Total	Estimated Volume: Stopped	Estimated Volu
2	1	Mcneil Drive & Oak Knoll Drive	30.4394_-97.7542	30.4393591	-97.7542284	Westbound	30.4394_-97.7542-30.4394_-97.7542_3	Through	30.4394_-97.7542_X3Y2Z	852	15	837	25403	447	
3	2	Rustic Rock Drive & Spicewood Springs Road	30.4301_-97.7812	30.43014345	-97.78122745	Eastbound	30.4301_-97.7812-30.4301_-97.7812_1	Through	30.4301_-97.7812_DE3F	342	10	332	12838	375	
4	3	Rustic Rock Drive & Spicewood Springs Road	30.4301_-97.7812	30.43014345	-97.78122745	Westbound	30.4301_-97.7812-30.4301_-97.7812_3	Through	30.4302_-97.7813_2XW	317	10	307	11899	375	
5	4	Mcneil Drive & Oak Knoll Drive	30.4394_-97.7542	30.4393591	-97.7542284	Eastbound	30.4394_-97.7542-30.4394_-97.7542_2	Through	30.4394_-97.7542_3H3G	808	42	766	24091	1252	
6	5	Los Indios Trail & Mcneil Drive	30.4374_-97.7605	30.4373716	-97.7604817	Westbound	30.4374_-97.7605-30.4374_-97.7605_3	Through	30.4374_-97.7605_3Y	845	74	771	28414	2488	
7	6	Mcneil Drive & Heinemann Drive	30.4424_-97.7464	30.4423753	-97.7464263	Westbound	30.4424_-97.7464-30.4424_-97.7464_2	Through	30.4424_-97.7465_3Y	787	72	715	25773	2358	
8	7	Corpus Christi Drive & Mcneil Drive	30.4411_-97.7496	30.4411412	-97.74964205	Eastbound	30.4411_-97.7496-30.4411_-97.7496_1	Through	30.4411_-97.7496_4G	828	77	751	26539	2468	
9	8	Mcneil Drive & West Parmer Lane	30.4438_-97.7424	30.44384835	-97.74239143	Southbound	30.4438_-97.7424-30.4438_-97.7424_2	Right	30.4439_-97.7425_4P2Y	185	19	166	6449	662	
10	9	Corpus Christi Drive & Mcneil Drive	30.4411_-97.7496	30.4411412	-97.74964205	Westbound	30.4411_-97.7496-30.4411_-97.7496_3	Through	30.4412_-97.7497_5Y	853	89	764	27340	2853	
11	10	Spicewood Springs Road & Heathrow Drive	30.4316_-97.7783	30.43162835	-97.77829435	Westbound	30.4316_-97.7783-30.4316_-97.7783_3	Through	30.4317_-97.7783_3Z	262	33	229	8993	1133	
12	11	Mcneil Drive	30.4381_-97.7582	30.4381404	-97.7581562	Westbound	30.4381_-97.7582-30.4381_-97.7582_3	Through	30.4381_-97.7582_3Z3Y	824	109	715	23762	3143	
13	12	Mcneil Drive & Heinemann Drive	30.4424_-97.7464	30.4423753	-97.7464263	Eastbound	30.4424_-97.7464-30.4424_-97.7464_1	Through	30.4423_-97.7464_4G	739	101	638	24201	3308	
14	13	Spicewood Springs Road & Scotland Well Drive	30.4225_-97.7936	30.422528	-97.793613	Eastbound	30.4225_-97.7936-30.4225_-97.7936_1	Through	30.4225_-97.7936_2FEI	96	14	82	3797	554	
15	14	Spicewood Springs Road & Scotland Well Drive	30.4225_-97.7936	30.422528	-97.793613	Westbound	30.4225_-97.7936-30.4225_-97.7936_3	Through	30.4225_-97.7936_aYWX	132	22	110	5220	870	
16	15	Los Indios Trail & Mcneil Drive	30.4374_-97.7605	30.4373716	-97.7604817	Eastbound	30.4374_-97.7605-30.4374_-97.7605_1	Through	30.4374_-97.7605_5G	497	83	414	16712	2791	
17	16	Spicewood Springs Road & Heathrow Drive	30.4316_-97.7783	30.43162835	-97.77829435	Eastbound	30.4316_-97.7783-30.4316_-97.7783_1	Through	30.4316_-97.7783_F2H	361	65	296	12391	2231	
18	17	Mcneil Drive & West Parmer Lane	30.4438_-97.7424	30.44384835	-97.74239143	Southbound	30.4438_-97.7424-30.4438_-97.7424_2	Through	30.4439_-97.7425_6P	1167	219	948	40683	7635	
19	18	Mcneil Drive & San Felipe Boulevard	30.4352_-97.7670	30.4352045	-97.7670345	Westbound	30.4352_-97.7670-30.4352_-97.7670_3	Through	30.4352_-97.7670_6Y	849	162	687	29480	5625	
20	19	Mcneil Drive	30.4381_-97.7582	30.4381404	-97.7581562	Eastbound	30.4381_-97.7582-30.4381_-97.7582_1	Through	30.4381_-97.7582_4G2H	693	138	555	19984	3979	
21	20	Parliament Place & Spicewood Springs Road	30.4333_-97.7727	30.4333065	-97.77269095	Eastbound	30.4333_-97.7727-30.4333_-97.7727_1	Through	30.4333_-97.7727_5H	405	83	322	15521	3181	
22	21	Mcneil Drive & Oak Knoll Drive	30.4394_-97.7542	30.4393591	-97.7542284	Westbound	30.4394_-97.7542-30.4394_-97.7542_3	Left	30.4394_-97.7542_X3YV	126	30	96	3757	894	
23	22	Spicewood Springs Road & Heathrow Drive	30.4316_-97.7783	30.43162835	-97.77829435	Southbound	30.4316_-97.7783-30.4316_-97.7783_2	Right	30.4317_-97.7783_2QRZ	137	41	96	4703	1407	
24	23	Spicewood Springs Road	30.4283_-97.7831	30.4283	-97.78306185	Westbound	30.4283_-97.7831-30.4283_-97.7831_4	Right	30.4283_-97.7830_eD	49	17	32	1806	626	
25	24	Mcneil Drive & West Parmer Lane	30.4438_-97.7424	30.44384835	-97.74239143	Northbound	30.4438_-97.7424-30.4438_-97.7424_4	Right	30.4438_-97.7422_4hG	89	32	57	3103	1116	
26	25	Mcneil Drive & West Parmer Lane	30.4438_-97.7424	30.44384835	-97.74239143	Northbound	30.4438_-97.7424-30.4438_-97.7424_4	Through	30.4438_-97.7422_6h	792	329	463	27610	11469	
27	26	Mcneil Drive	30.4381_-97.7582	30.4381404	-97.7581562	Northbound	30.4381_-97.7582-30.4381_-97.7582_4	Right	30.4381_-97.7582_2Cj2H	139	58	81	4008	1673	
28	27	Mcneil Drive & West Parmer Lane	30.4438_-97.7424	30.44384835	-97.74239143	Westbound	30.4438_-97.7424-30.4438_-97.7424_3	Right	30.4440_-97.7423_ZYh	300	128	172	10458	4462	
29	28	Los Indios Trail & Mcneil Drive	30.4374_-97.7605	30.4373716	-97.7604817	Eastbound	30.4374_-97.7605-30.4374_-97.7605_1	Left	30.4374_-97.7605_4G2i	51	23	28	1715	773	
30	29	Mcneil Drive	30.4381_-97.7582	30.4381404	-97.7581562	Westbound	30.4381_-97.7582-30.4381_-97.7582_3	Left	30.4381_-97.7582_3ZRU	52	24	28	1500	692	

No improvement in travel time

Significant improvement in control delay and split failure rate

Source: Kimley–Horn

Use Case 3: How do I spot problem intersections on a corridor without leaving the office?

Rhode Island
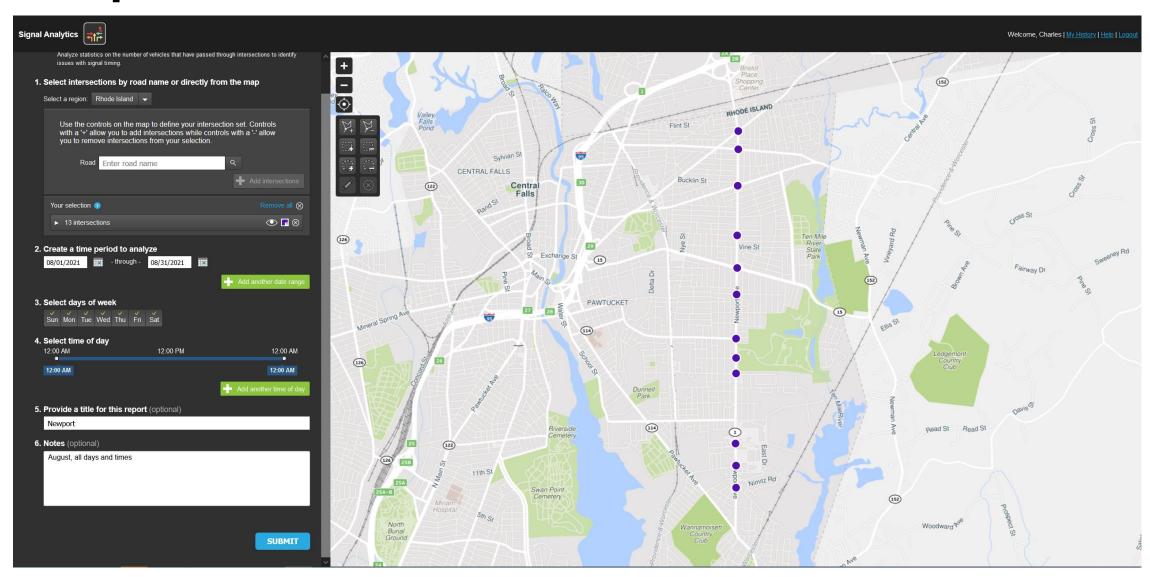
"How can find which intersections on my corridor need some extra TLC?"

"How can I tell which times of the day to work on first?"
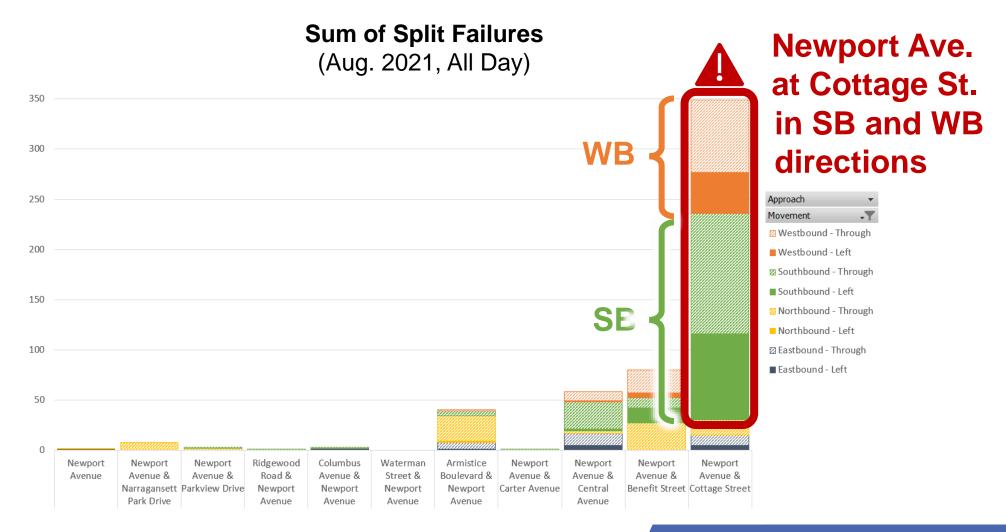
Solution: Use the Signal Analytics to compare split failures by location and time
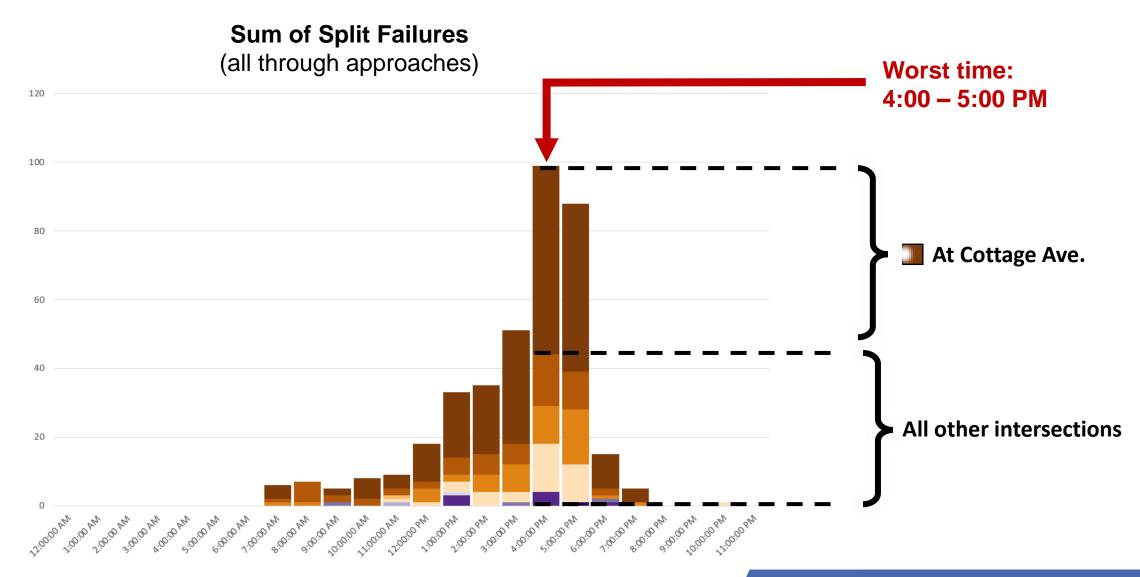
Newport Ave. between Pawtucket Ave. and I-95
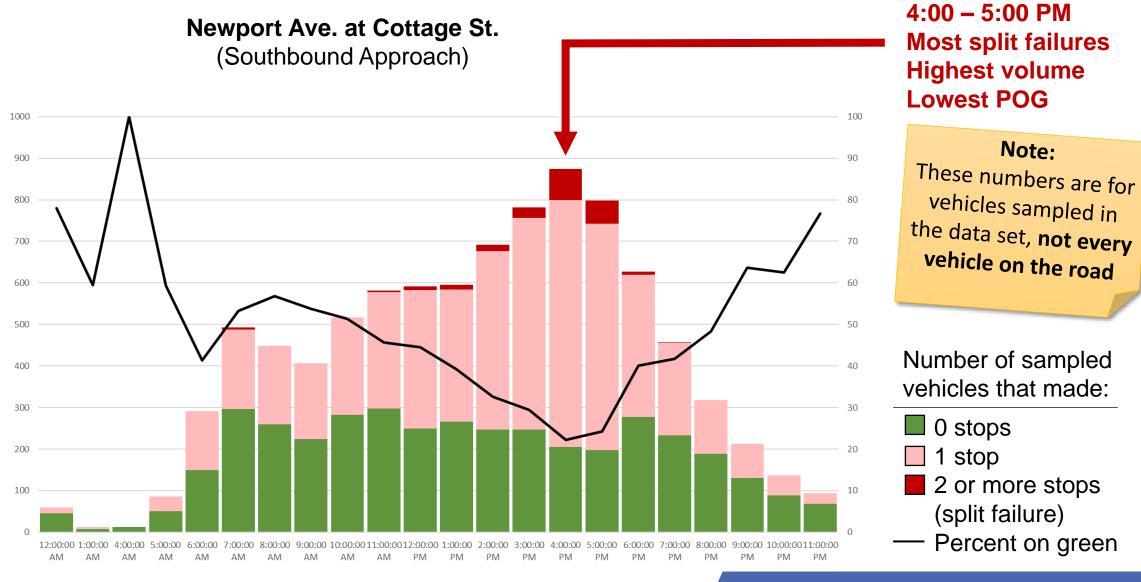
Stacking the sum of split failures by intersection

Sum of Split Failures
(Aug. 2021, All Day)

Newport Ave. at Cottage St. in SB and WB directions
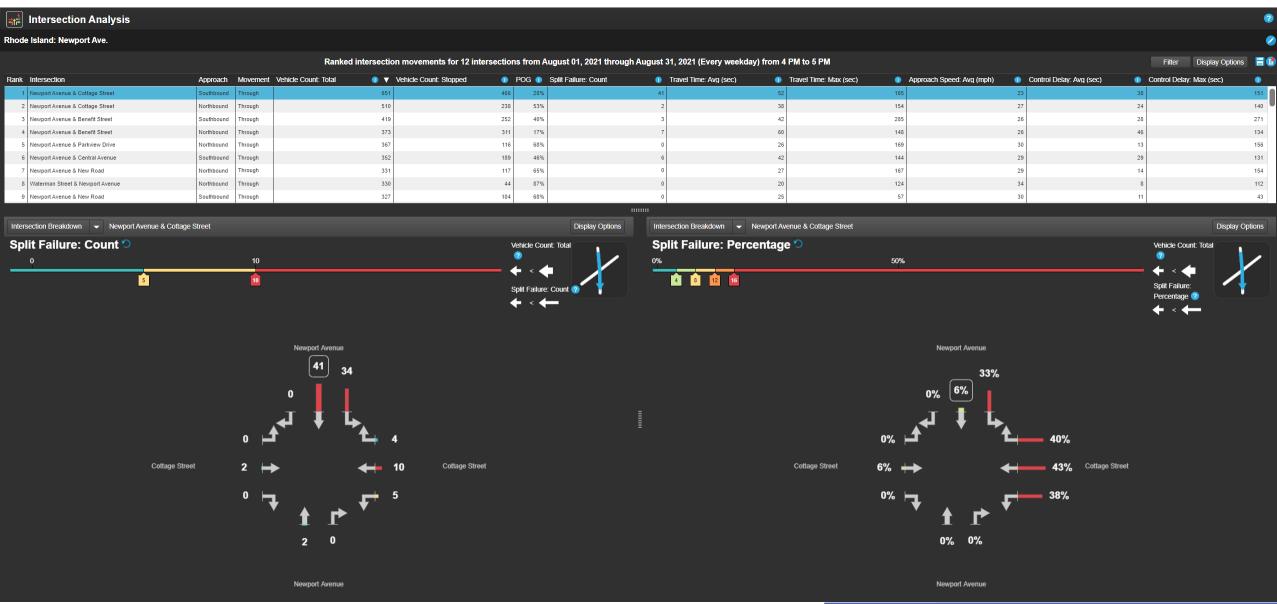
Stacking the sum of split failures by time of day

Sum of Split Failures
(all through approaches)

Worst time:
4:00 – 5:00 PM

At Cottage Ave.

All other intersections
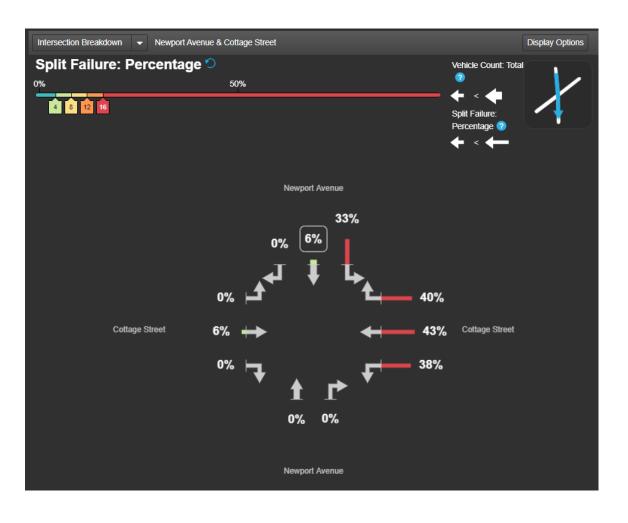
Sampled vehicles by time of day

Newport Ave. at Cottage St.
(Southbound Approach)

4:00 – 5:00 PM
Most split failures
Highest volume
Lowest POG

Note:
These numbers are for vehicles sampled in the data set, **not every vehicle on the road**

Number of sampled vehicles that made:

- ■ 0 stops
- ■ 1 stop
- ■ 2 or more stops (split failure)
- — Percent on green
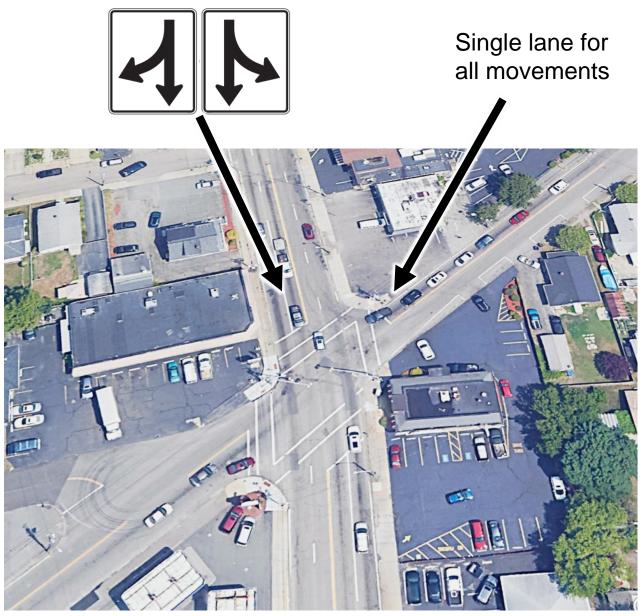
Split failure count vs. split failure percentage

This intersection could use some TLC

Single lane for all movements
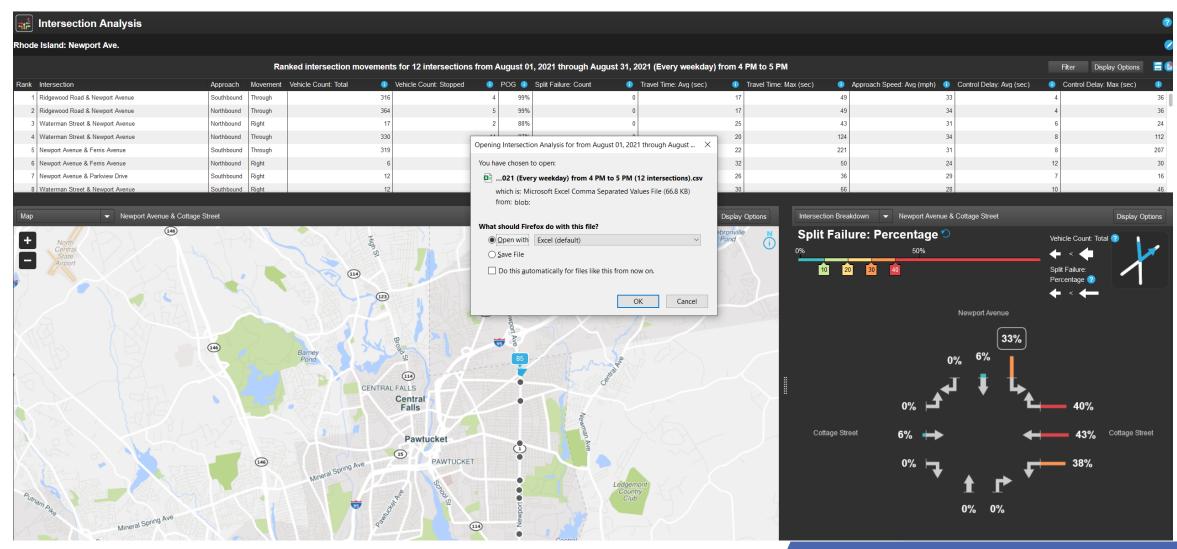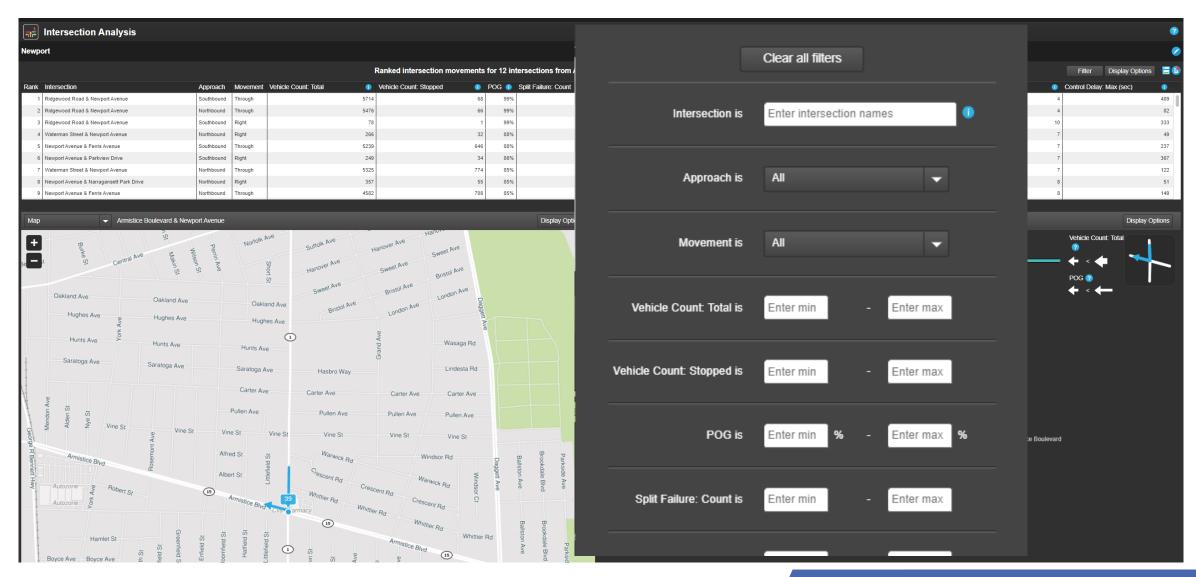
What's New with Signal Analytics
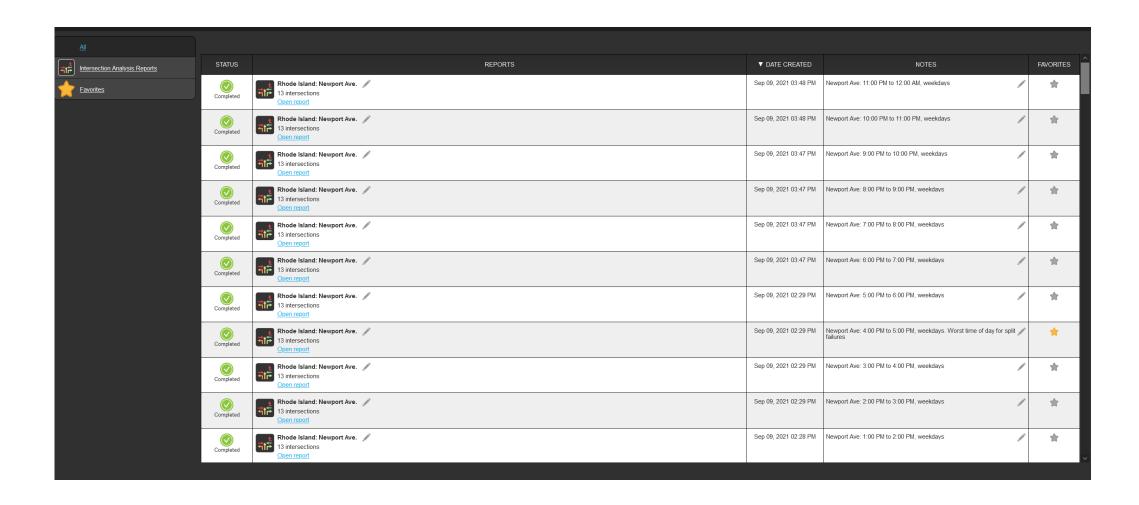
Users Can Download Data as a CSV File

Users Can Filter Data in Table to Rank Signals on a Corridor
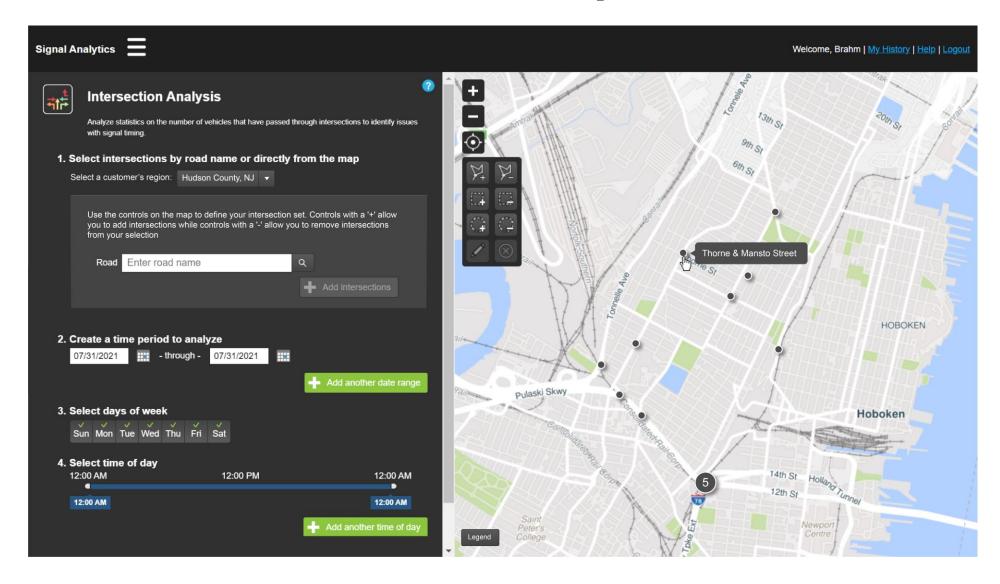
Users Can Create Titles and Notes for Reports

Coming Soon!
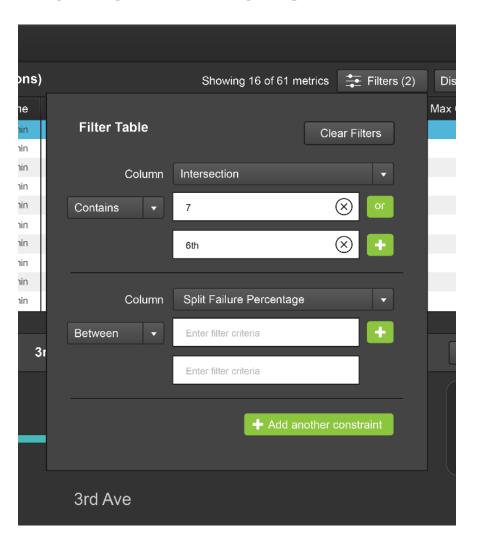
Intersection Selection Improvements
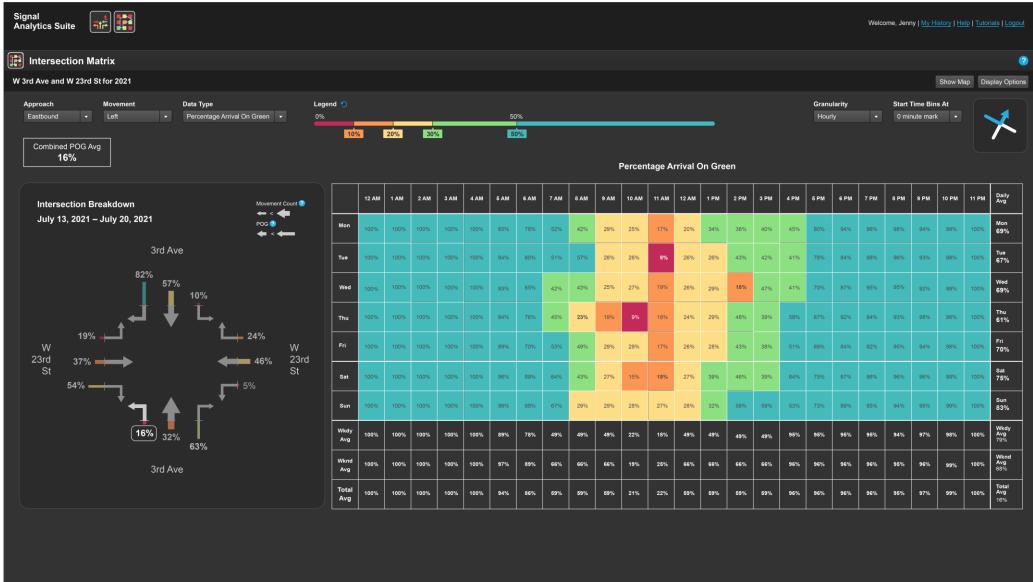
Click on intersections to add them to your selection set.

More Data Fields and Even Better Filters

Intersection Matrix Tool

Thank you!

Charles R. Lattimer, CATT Lab

lattimer@umd.edu

RITIS Enhancement Working Group

Matt Glasser
Assistant State Traffic Engineer
Georgia DOT

RITIS Enhancements Working Group

- 2021 Funding Commitments Came from:
  - Georgia
  - Massachusetts
  - Oregon
  - Virginia
  - Michigan

- Three Major Projects Funded:
  - Causes of Congestion Pie Chart Deep-Dive Analytics
  - Waze Enhancements
  - Corridor Speed Graphs
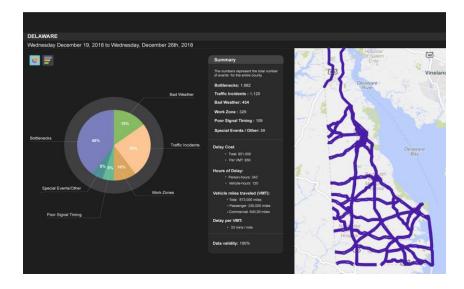
PDA-Style Congestion Pie Charts
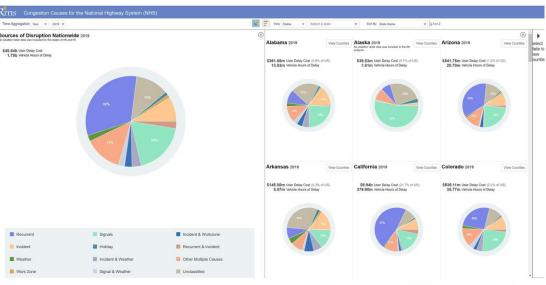
- ## What it is:
  - Ability to develop 'causes of congestion' pie charts and UDC bar graphs for any geography and data range using agency owned data fused with other data sources

- ## Status of the work:
  - Software and design work well underway
  - Finalizing User Interface Designs, Features, and Workflow
  - Automating various scripts / processes
  - Designing non-NHS analytical techniques
  - Developing algorithms for Waze + Agency event data integration and conflict resolution
  - Will be discussing several temporal and spatial resolution selection concepts with the working group in the coming month
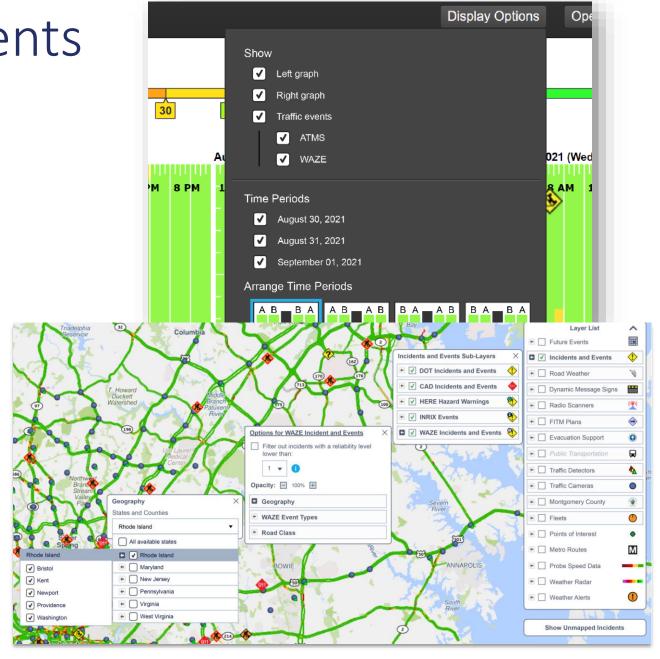
Waze Data Enhancements

- **What it is:**
  - Filtering in real-time RITIS
  - Integration into PDA Suite
    - Region Explorer
    - Congestion Scans
    - Trend Maps
    - Bottleneck Ranking
  - Integration into Event Timelines
- **Status of the work:**
  - Software and design work well underway (many tools involved)
  - Interviewed multiple agencies/users
  - Finalizing designs
  - Scaling backend query capacity for large Waze data sets in EQT
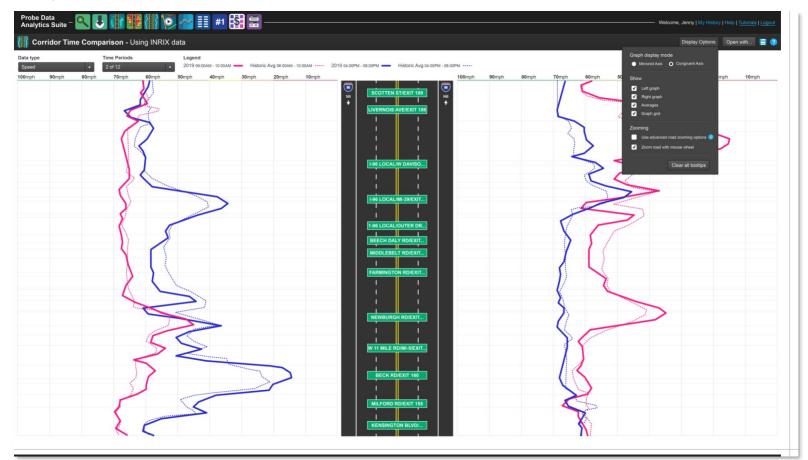
Corridor Speed Graphs

- **What it is:**
  - New PDA tool for comparing how speeds change during different time periods along a given corridor.
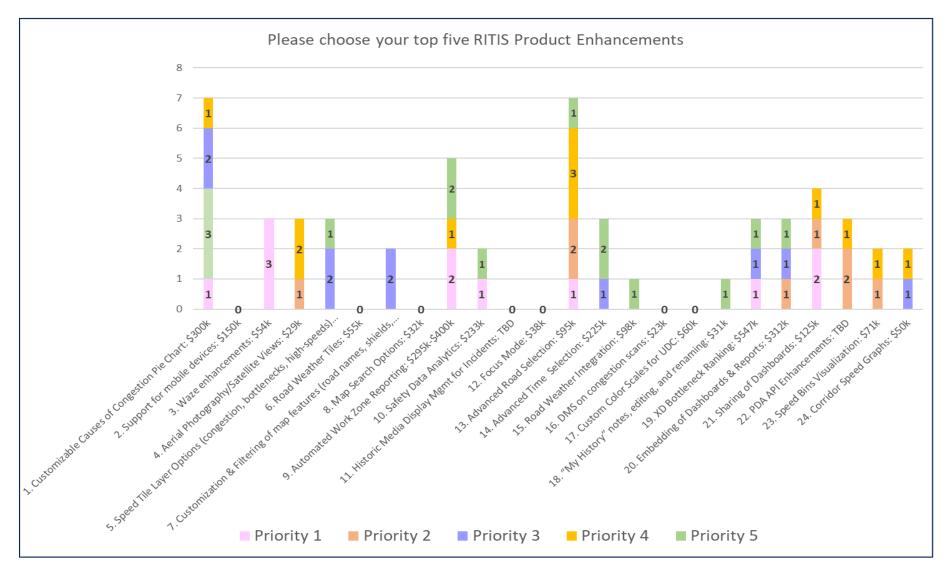
- **Status of the work:**
  - Finalizing front-end designs for the query interface and the results page.
  - Scheduling design-review meetings with GDOT and additional enhancement group users
  - Development expected to begin in 1-month

Plenty of Enhancements Left to Fund

- Need to be planning now for the next round of enhancements and funding.

- The more agencies participating and the more funds available, the more we can accomplish.

Please choose your top five RITIS Product Enhancements

Next Steps

- Interested in joining the group, please reach out to
  - Michael Pack - PackML@umd.edu
  - Denise Markow - dmarkow@tetcoalition.org

- Next meeting is scheduled for

    December 1, 2021, 2:00pm-3:00pm, ET

Meeting Highlights
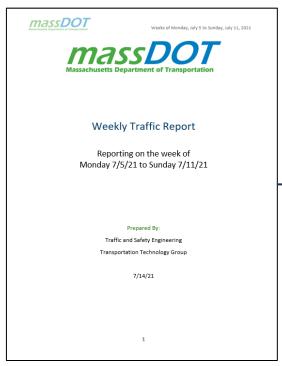
- MassDOT Corridor Performance Reporting Template

- GDOT Reporting Examples

- Ongoing RITIS Training Sessions for Agencies

- Update on the Templates Page on RITIS

- RITIS Virtual Training Workshops

massDOT
Massachusetts Department of Transportation
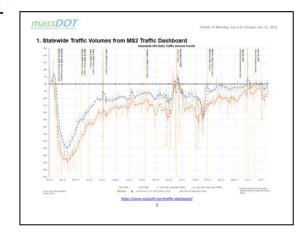
Corridor
Performance Report
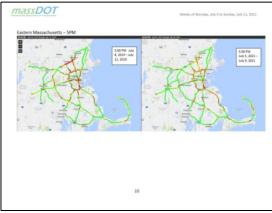
MassDOT Traffic Reporting Objectives
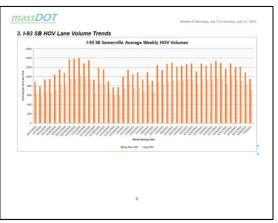
- **Update and streamline** their Regional Performance Reporting process, including better ways to communicate findings to executives, stakeholders, elected officials and the public

- **Develop a monthly traffic report** using PDA and performance reporting templates

- **Create a public-facing dashboard** using RITIS tools/results, to be deployed soon

A lot of time and effort to assemble this technical, 28-page report on a weekly basis.
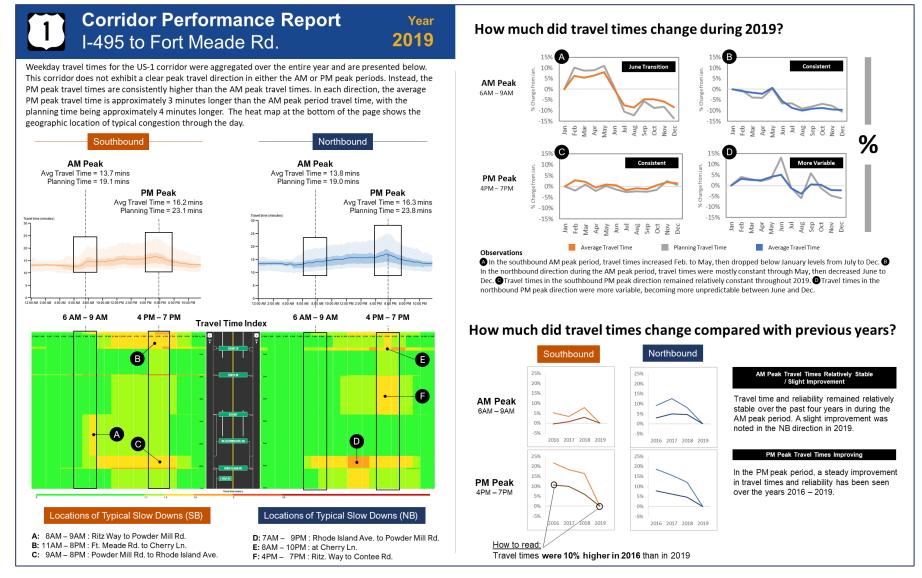
MassDOT Corridor Reporting Template chosen from the RITIS catalog
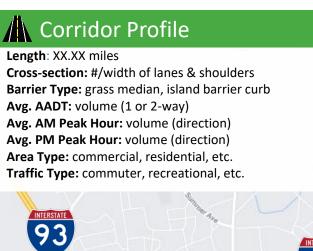
July 2021 Monthly Traffic Report
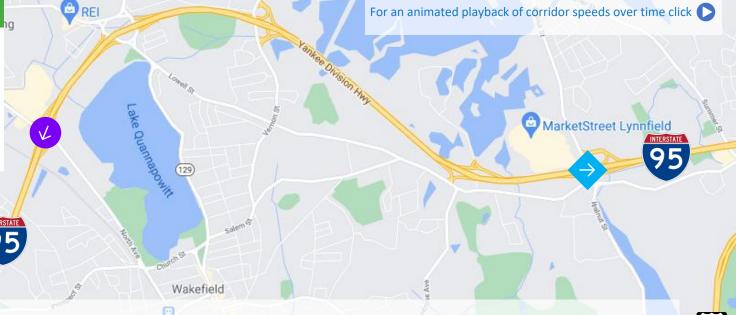
Corridor Performance Detail

To access detailed results for each measure, log into your PDA account, then Ctrl+Click each Date below to open

Corridor Profile

Length: XX.XX miles
Cross-section: #/width of lanes & shoulders
Barrier Type: grass median, island barrier curb
Avg. AADT: volume (1 or 2-way)
Avg. AM Peak Hour: volume (direction)
Avg. PM Peak Hour: volume (direction)
Area Type: commercial, residential, etc.
Traffic Type: commuter, recreational, etc.

For an animated playback of corridor speeds over time click ▶

Congestion in this corridor significantly improved from June to July 2021, due to X, Y and Z.

User Delay Cost for the Corridor

| US-1 Peabody to I-93 Woburn |

	June 2021	July 2021	Change
Delay Cost	$2.05M	$989K	↓ 51%
Hours of Delay	83,337h	40,137h	↓ 52%

Congestion Hot-Spot

↓ I-95 SB @ North Ave./Exit 42

	June 2021	July 2021	Change
Average Speed	22 mph	30mph	↑ 39%
Travel Time Index*	2.7	2.0	↓ 21%

* TTI = (Travel Time / Free-flow Travel Time)
A 2.0 TTI means travel time on this date is twice as long than free-flow travel time

Worst Bottleneck Condition
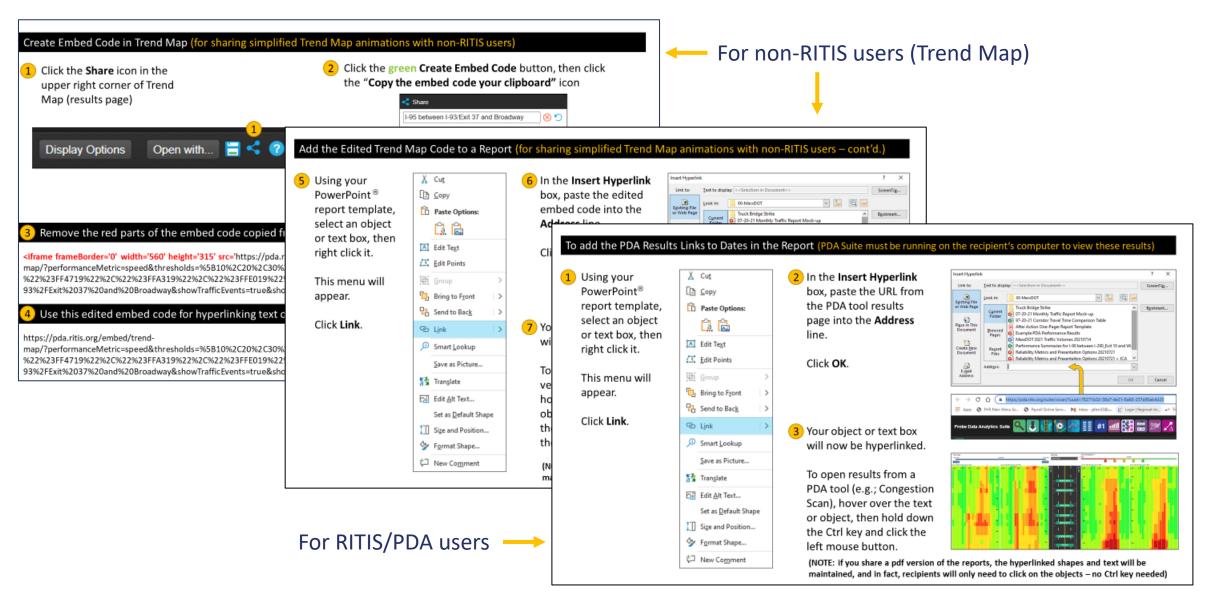
→ I-95 NB @ Walnut St./Exit 43

	June 2021	July 2021	Change
Avg. Max Length	4.49 mi	4.24 mi	↓ 5.5%
Avg. Duration	2h 13m	1h 25m	↓ 36%

Easy to use "how to" sheets for adding PDA hyperlinks

For non-RITIS users (Trend Map)

For RITIS/PDA users

Performance Reporting Examples

GDOT Travel Advisory graphic for Labor Day weekend 2021

1 Clean & simple presentation of travel data

2 Colors, size of columns and graphics reinforce level of impact

3 Clear, concise travel plan suggestions

4 Media-friendly format (see below)

GDOT 511 GA
Georgia Department of Transportation

5-Day Forecast
Labor Day Weekend

Friday 9/3/21
Limit Metro Atlanta interstate travel from noon - 8 pm

Add 30-45 mins to travel time

Saturday 9/4/21
Moderate congestion from noon - 6 pm

Expect typical Saturday travel times

Sunday 9/5/21
Expect typical Sunday travel times

Monday 9/6/21
Expect light traffic on Monday

Tuesday 9/7/21
Moderate congestion from 3 pm - 7 pm

Expect weekday commute travel times

FOX 54 NEWS NOW
https://www.wfxg.com/story/44664002/gdot-expect-prepandemic-traffic-flow-this-labor-day-weekend

GC GRICE CONNECT
https://griceconnect.com/2021/09/georgia-dot-forecasts-best-worst-travel-times-for-labor-day-weekend/

GDOT Gradient color scheme for speed differential tables

1 Easy to build color-coding for agencies

2 Easy to understand color-coding for audiences

3 Allows the reader to quickly focus in on areas of improvement (or impact)

North Avenue Study — Difference of average **EB** speeds per TMC per hour (mph)

START	END	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM
NORTHSIDE DR	NORTHSIDE DR SPUR	-1.33	0.90	-0.18	3.43	6.23	-1.39	3.51	2.68	-0.42	-0.24	-0.17	0.54	1.01	2.48	-0.06	0.14
NORTHSIDE DR SPUR	TECH PKY/LUCKIE ST	1.67	1.82	0.96	-0.22	4.19	-1.47	0.16	-0.17	-0.33	-1.04	-0.02	2.45	1.27	1.50	3.10	0.89
TECH PKY/LUCKIE ST	I-75/I-85 EXIT RAMP	-0.64	1.09	0.07	0.16	2.32	2.53	0.03	-1.77	-3.04	-2.99	0.05	0.24	0.23	1.43	0.43	-1.30
I-75/I-85 EXIT RAMP	I-75/I-85	-0.64	1.09	0.07	0.16	2.32	2.53	0.03	-1.77	-3.04	-2.99	0.05	0.24	0.23	1.43	0.43	-1.30
I-75/I-85	SPRING ST	-3.19	0.98	1.43	-0.50	1.42	1.35	1.35	-0.04	-0.76	0.25	0.36	0.28	-0.12	1.60	1.68	-0.91
SPRING ST	W PEACHTREE ST	-0.85	3.47	1.08	2.78	3.26	3.55	1.81	2.35	0.62	0.04	0.27	1.64	0.92	-0.28	1.76	-2.53
W PEACHTREE ST	PEACHTREE ST	1.62	2.88	4.54	2.25	1.73	2.92	0.65	3.26	-1.35	1.97	0.83	2.29	-0.06	2.86	3.45	-2.40
PEACHTREE ST	JUNIPER ST	4.47	5.71	4.43	5.49	3.45	3.38	2.39	5.35	-0.23	2.77	1.99	2.20	0.92	1.68	2.62	-1.48
JUNIPER ST	PIEDMONT AVE	1.39	5.88	6.26	6.15	3.58	2.99	2.65	5.28	1.14	5.95	5.72	1.32	1.39	2.97	-1.26	-2.70
PIEDMONT AVE	MYRTLE ST	1.39	5.88	6.26	6.15	3.58	2.99	2.65	5.28	1.14	5.95	5.72	1.32	1.39	2.97	-1.26	-2.70
MYRTLE ST	BOULEVARD	0.53	2.03	0.17	0.78	2.14	1.96	1.23	2.57	3.63	3.25	3.43	3.48	4.75	6.64	-1.17	-1.32
BOULEVARD	FREEDOM PKWY	-1.26	0.39	-1.67	0.25	-1.31	0.65	-1.20	-2.05	-0.36	-0.49	-0.94	-0.18	-0.57	3.07	-1.69	-0.32
AVERAGE		0.26	2.68	1.95	2.24	2.74	1.83	1.27	1.75	-0.25	1.03	1.44	1.32	0.94	2.36	0.67	-1.33

North Avenue Study — Difference of average **WB** speeds per TMC per hour (mph)

START	END	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM
FREEDOM PKWY	BOULEVARD	-0.17	-1.27	0.80	0.57	0.31	-0.20	-0.37	2.06	0.33	-0.02	-0.30	-0.26	-1.40	0.83	0.97	0.73
BOULEVARD	MYRTLE ST	1.04	1.98	2.34	3.08	0.36	1.56	0.55	3.11	0.15	0.31	-0.62	0.42	1.19	2.57	2.76	3.06
MYRTLE ST	PIEDMONT AVE	1.04	1.98	2.34	3.08	0.36	1.56	0.55	3.11	0.15	0.31	-0.62	0.42	1.19	2.57	2.76	3.06
PIEDMONT AVE	JUNIPER ST	1.84	5.48	2.40	4.24	0.72	-0.37	-1.71	-1.18	0.04	1.95	0.05	2.61	1.47	0.66	2.29	3.05
JUNIPER ST	PEACHTREE ST	1.84	5.48	2.40	4.24	0.72	-0.37	-1.71	-1.18	0.04	1.95	0.05	2.61	1.47	0.66	2.29	3.05
PEACHTREE ST	W PEACHTREE ST	1.94	4.54	1.92	3.66	-0.65	1.05	1.59	0.91	-0.06	1.63	0.55	3.15	2.52	2.08	-0.24	2.41
W PEACHTREE ST	SPRING ST	-3.53	1.53	3.21	4.26	1.10	0.18	2.94	0.64	0.61	0.31	0.08	1.65	0.71	1.02	0.40	2.20
SPRING ST	I-75/I-85	0.70	3.26	1.50	4.41	4.08	0.65	2.03	1.54	1.24	1.05	2.32	1.35	2.07	0.14	-0.74	-0.54
I-75/I-85	I-75/I-85 EXIT RAMP	0.70	3.26	1.50	4.41	4.08	0.65	2.03	1.54	1.24	1.05	2.32	1.35	2.07	0.14	-0.74	-0.54
I-75/I-85 EXIT RAMP	TECH PKY/LUCKIE ST	1.68	-0.09	-0.85	0.90	-0.57	0.03	-0.01	-0.48	-0.70	-1.66	-0.08	-1.75	-1.24	-0.20	-1.79	0.77
TECH PKY/LUCKIE ST	NORTHSIDE DR SPUR	1.38	2.15	1.27	0.26	-1.51	1.77	-0.09	0.68	-1.56	-2.19	-0.48	1.14	0.56	0.82	-3.24	0.04
NORTHSIDE DR SPUR	NORTHSIDE DR	1.38	2.15	1.27	0.26	-1.51	1.77	-0.09	0.68	-1.56	-2.19	-0.48	1.14	0.56	0.82	-3.24	0.04
AVERAGE		0.82	2.54	1.67	2.78	0.62	0.69	0.48	0.95	-0.01	0.21	0.23	1.15	0.93	1.01	0.12	1.44

RITIS Ongoing Training for Agencies

RITIS on-going training for agencies

- Rick Ayers (CATT Lab) has been training agency staff on RITIS, PDA and the use of performance reporting templates

- Template focus has been on:
  - Before & After (incident/accident evaluation)
  - Monthly/Quarterly Summary Reports
  - Corridor Performance

- Agencies taking advantage of the training include:
  - LDOTD
  - ODOT
  - NJDOT

RITIS on-going training for agencies

RITIS **Templates** page

RITIS templates page "How to create a Report" section layout finalized

3 How to make the hourly travel time graph

a Start by opening PDA Performance Charts

1. Under **Select roads**, enter your state and a road name, select a listed road. A list will appear. Click on the appropriate choice, then to query a smaller segment, click on **Partial**, then use the **From:** and **To:** intersection dropdowns to focus on your analysis segment. ☼

2. Next, **use Select one or more time periods** to choose specific days, months or year to analyze. Choose the specific days of the week by checking or unchecking the days, then add the time period by clicking on the **Add time periods** button. ☼

3. **Select a time range to analyze within each time period**. Here you can specify peak hours or periods of interest. ☼

Next, select a **data source (INRIX, HERE or TomTom or various NPMRDS datasets)**

Finally click the **Submit** button.

b Tailor the chart results

1. Tailor the **chart results** by selecting, deselecting or editing:
   - **Mode** (chart by direction or time period)
   - **Type** (column, line, plot, candlestick)
   - **Layout** (vertical, tile)
   - **X/Y access** (full range customization)
   - **Metric** (11 choices)
   - **Chart data** (line width, data line color options and % ranges appearance)
   - **Charts** (view one or both roadway directions)
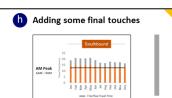
Tool Tips / Image Max
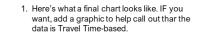
TIP
Use **the Save as segment set** button to save your selected road(s) for later analysis with any PDA tools. Then, just click on the **Saved** tab at the top instead of searching for a road, find your road and click it.
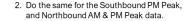
Clicking on the magnifying glass icon maximizes the size of the image to full screen.

Clicking anywhere in that expanded image takes you back to this page.

h Adding some final touches

1. Here's what a final chart looks like. IF you want, add a graphic to help call out thar the data is Travel Time-based.

2. Do the same for the Southbound PM Peak, and Northbound AM & PM Peak data.

3. Add a sidebar graphic to denote that this is a travel time performance result.

6 How to make the travel time % difference charts

a Use MS Excel to create a new % difference spreadsheet from your original

1. Using the original spreadsheet with travel time and planning time data, create a new spreadsheet for the change in % of TT and PT, using these formulas:

$$\frac{TT_{Aug} - TT_{Jan}}{TT_{Jan}} \times 100\% = \Delta\% \ TT$$

$$\frac{PT_{Aug} - PT_{Jan}}{PT_{Jan}} \times 100\% = \Delta\% \ PT$$
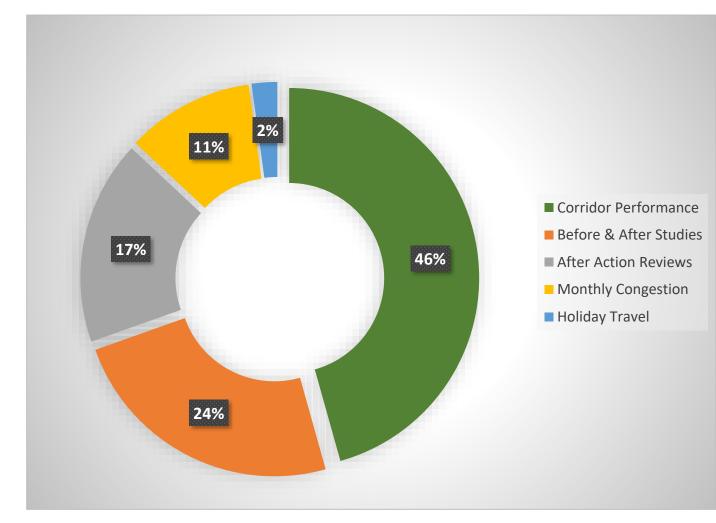
RITIS Virtual Training Workshop

Poll Results (from 07/15/21 RITIS User Group meeting)

71%

said they're
definitely interested
in a workshop

Corridor Performance also came out on top in a poll conducted 05/07/2020

Training Program Outline (1ˢᵗ cut)

- Focus on Corridor Performance

- Finalize a use case

- Finalize agenda topics

  - RITIS overview, template overview, tool selection, etc. (VERY brief)

  - Step by step process to build the template

  - Show how to use each tool – query to results

  - Taking results and building a report

- Overall program length (per session) approximately 1 ½ to 2 hr.

- Use the recordings to build a library of template training to be posted on the RITIS Templates page

New RITIS Tools and Recent Enhancements

John Allen
UMD CATT Lab
Faculty Assistant, Outreach & Education

Improvements to Work Zone Dashboard
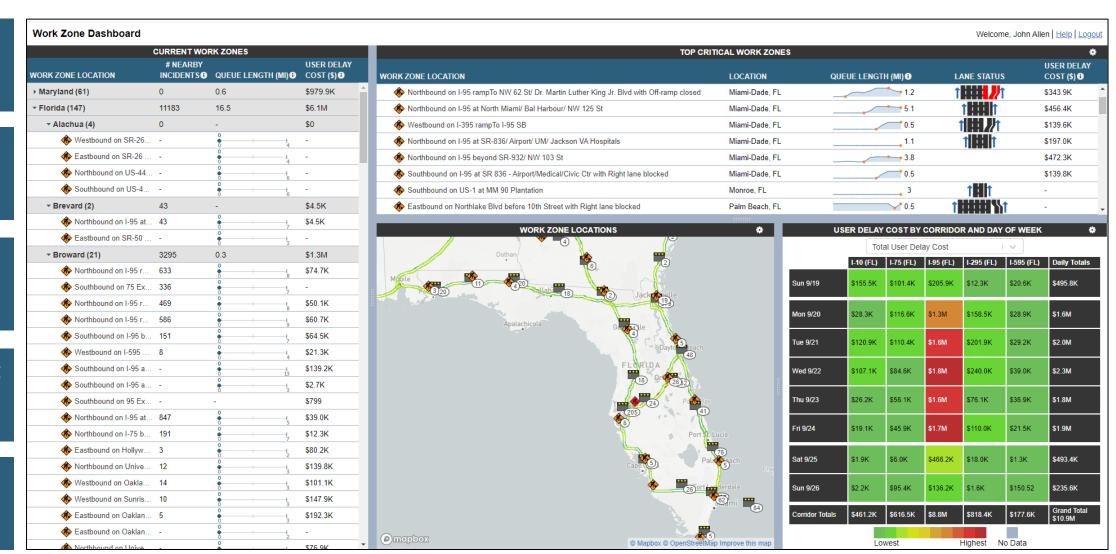
1 Overall cleaner look

2 More stable with bug fixes

3 Saves your State's info

4 Vector mapping for easier updating

5 No need to separately select HERE/INRIX

The Individual WZ Profiles Dashboard received some bug fixes but will be significantly revamped in future work, as well as overall WZ data reliability.

Top Critical Work Zones
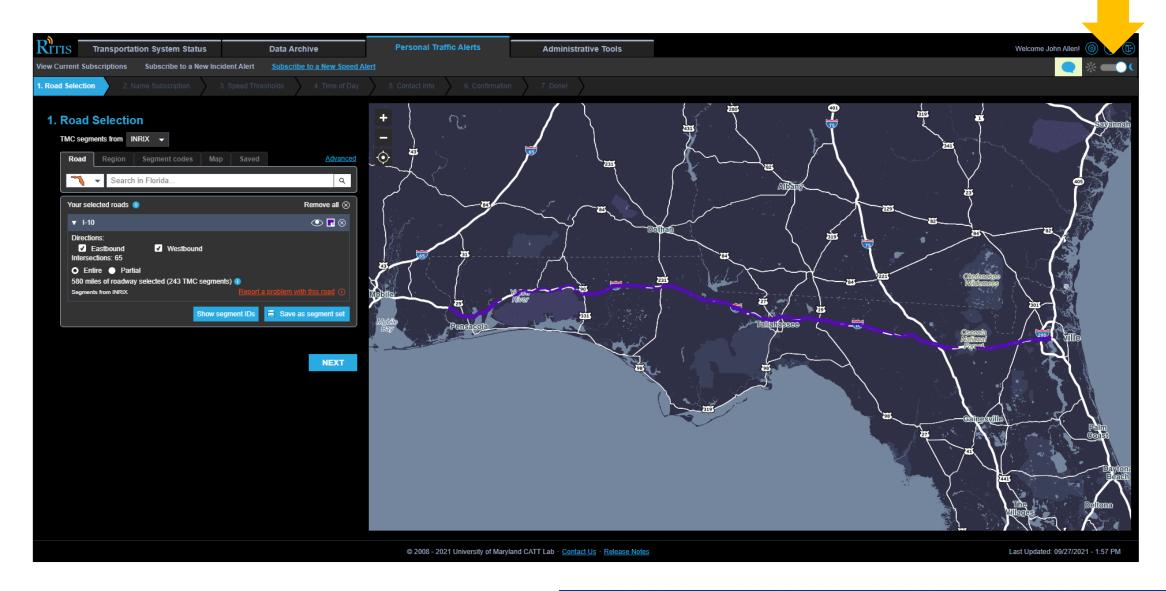
TOP CRITICAL WORK ZONES

WORK ZONE LOCATION	LOCATION	QUEUE LENGTH (MI) ⓘ	LANE STATUS	USER DELAY COST ($) ⓘ
Northbound on I-95 rampTo NW 62 St/ Dr. Martin Luther King Jr. Blvd with Off-ramp closed	Miami-Dade, FL	1.1		$105.9K
Northbound on I-95 at North Miami/ Bal Harbour/ NW 125 St	Miami-Dade, FL	Today at 3:00 PM: 5 MI 5		$94.3K
Westbound on I-395 rampTo I-95 SB	Miami-Dade, FL	0.5		$127.0K
Northbound on I-95 at SR-836/ Airport/ UM/ Jackson VA Hospitals	Miami-Dade, FL	1.1		$79.7K
Northbound on I-95 beyond SR-932/ NW 103 St	Miami-Dade, FL	3.6		$86.8K
Southbound on I-95 at SR 836 - Airport/Medical/Civic Ctr with Right lane blocked	Miami-Dade, FL	0.5		$127.0K
Southbound on US-1 at MM 90 Plantation	Monroe, FL	3		-
Eastbound on Northlake Blvd before 10th Street with Right lane blocked	Palm Beach	0.5		-

Hover over the orange dots for queue length shows a **time stamped** queue length

Day/Night mode added to Personal Traffic Alerts
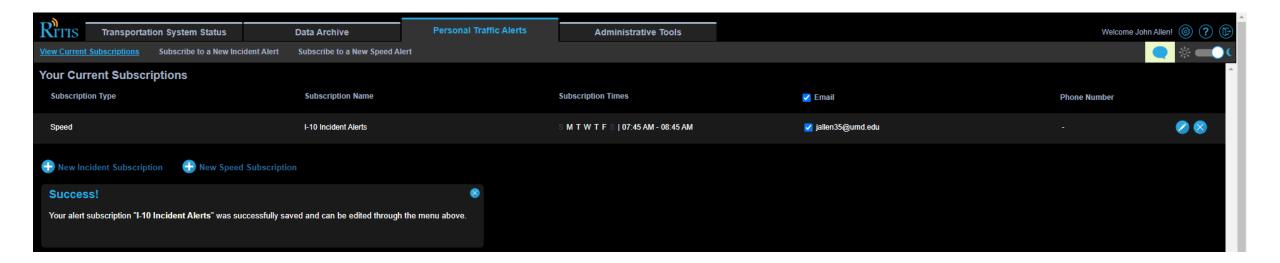
Subscribing to Personal Traffic Alerts is easy!

Simple step-by-step process for incidents or speed changes

Build a list of notifications by email or phone. Add to, edit or delete is simple.

Data Source Updates
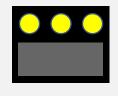
OR — Added display of Oregon DOT traffic detectors on the RITIS Map.

OR — Added display of Oregon DOT dynamic message signs on RITIS Map, RITIS Meeting, and Traffic View

FL — Updated Florida DOT district naming to use common names provided by Florida DOT.

District 5 (Central Florida)
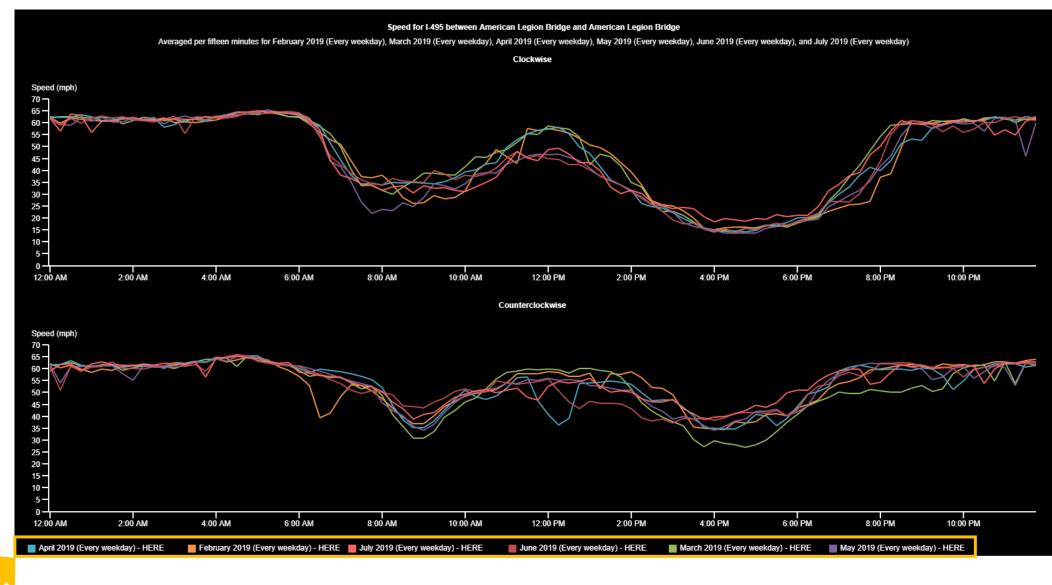
Updated CCTV URLs for higher performance and more secure access directly from ritis.org rather than the originating DOT.

Probe Data Analytics Suite

PDA Suite latest updates
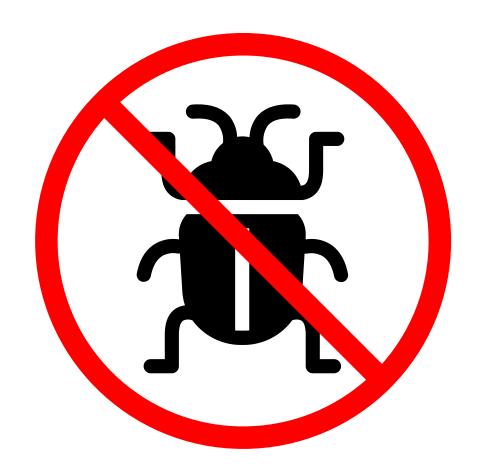
In Performance Charts, chart legends are now shown in uncustomized image exports

PDA Suite latest updates

Some important bug fixes/updates

- **Bottleneck Ranking** (time zone crash)

- **Temporal Comparison Maps** (pan/zoom)

- **MAP-21** (updated data certification schedule)

- **Trend Map** (occasional incorrect time in header)

- **User Delay Cost** (AADT data check)
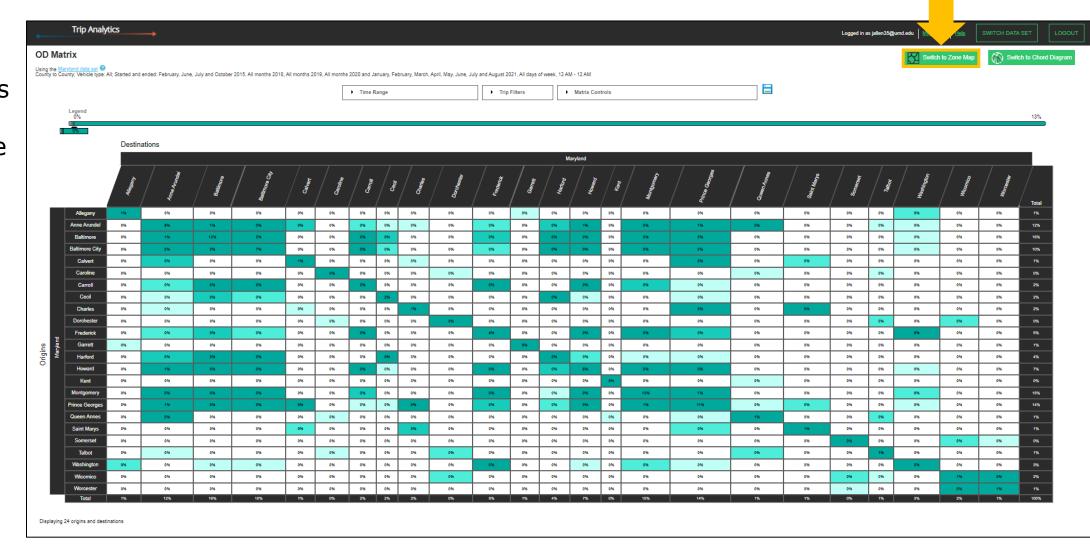
https://pda.ritis.org/suite/updates/

Trip Analytics
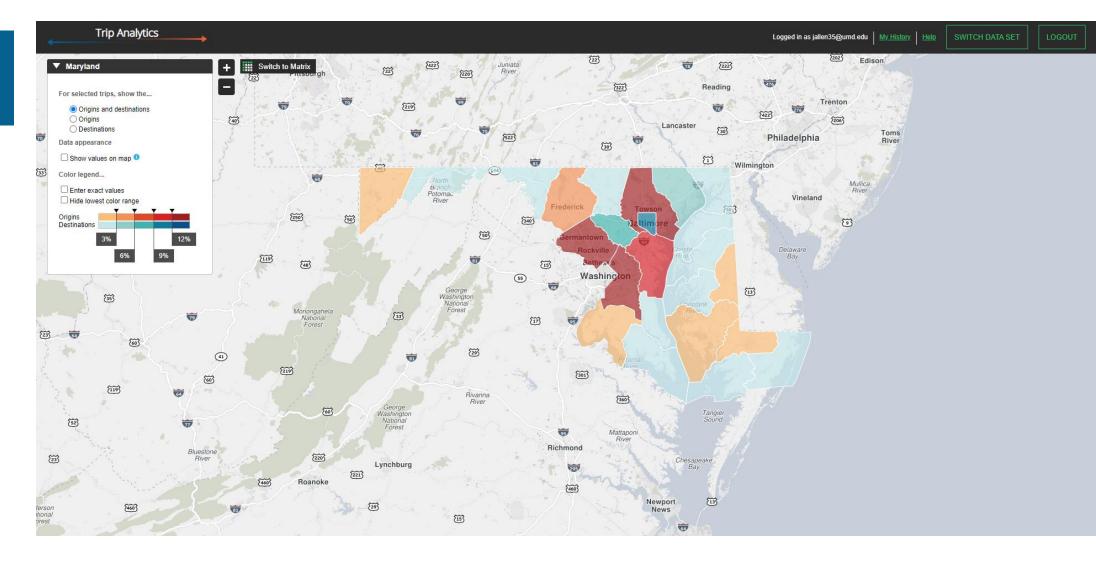
Trip Analytics latest updates

You can now view the OD matrix results on a zone map with one click.

Trip Analytics latest updates

1 Basic OD Map
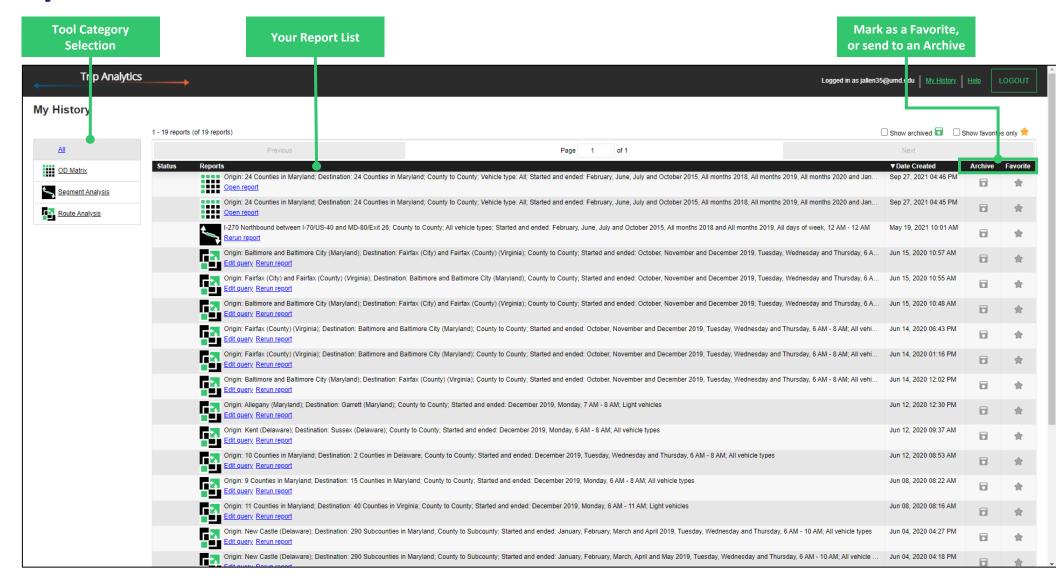
Trip Analytics My History

Like PDA Suite, Trip Analytics has a **My History** feature that gives users the ability to:

- Edit queries

- Open or rerun reports

- Mark as Favorites or send to an Archive

Tool Category Selection

Your Report List

Mark as a Favorite, or send to an Archive

Agency Input Session

John Allen
UMD CATT Lab
Faculty Assistant, Outreach & Education

Jesse Buerk
DVRPC
Manager, Capital Project Development

We want to hear from you!

- All features and functionality are driven by state/mpo users.

- You are welcome to join any of our User Groups / Working Groups / Listening Sessions to brainstorm/define these new features and functionality.

- You can also type your comments to us today either in the chat box below, or with an email to support@ritis.org
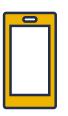
"What's on your mind?"

"We're here to help!"

Wrap Up

Jesse Buerk
Manager, Capital Project Development, DVRPC
RITIS User Group Co-chair

Questions?

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PDA Suite Tech Support	pda-support@ritis.org	

Thank you!