RITIS User Group

Web Meeting | October 19, 2023

In collaboration with The Eastern Transportation Coalition

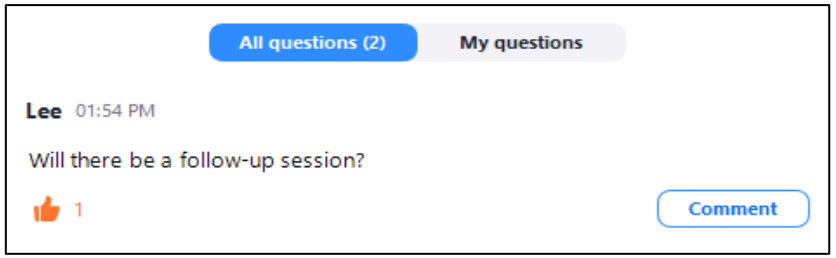
Welcome!

- 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 email (ekleit@kmjinc.com)
- Please use the **Q&A box** for questions to the presenters. The **Chatbox** is not available to participants.

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 speaking**

Coalition Update

THE EASTERN TRANSPORTATION COALITION

Marygrace Parker
The Eastern Transportation Coalition
Freight Program Director

The Coalition has a new TSMO Director!

Sheryl Bradley
The Eastern Transportation Coalition
TSMO Program Director

Coalition Update – Recent & Upcoming Events

RECENT

- ✓ RITIS User Group Meeting – July 27, 2023
- ✓ Freight Data and Planning Working Group Web Meeting – September 13, 2023
- ✓ TDM Technical Advisory Committee Meeting – October 10, 2023

UPCOMING

- Travel Information Summit, Raleigh, NC & via web *(invite only)* – October 24 & 25, 2023
- Virtual Info Exchange: Moving the Needle on CAV Research: Recent TETC Projects for Connected Vehicles *(agency only)* – November 9, 2023
- TDM State Point of Contact Meeting *(invite only)* – November 14, 2023
- Virtual Event: MBUF International Truck Pilot Report - A Scalable Approach that Links Road Use and Payment – November 21, 2023
- Regional HOGs In-person Exchanges with Virtual Reality TIM Training Sessions *(invite only)* – Nov 2, 2023 (Delaware Valley) & Dec 6, 2023 (Southern)
- RITIS Workshop – December 5, 2023

Welcome & Introductions

Jesse Buerk
Manager, Office of Capital Programs
DVRPC
RITIS User Group Co-chair

Today's Meeting

Welcome and Introductions	Marygrace Parker, TETC Jesse Buerk, DVRPC & RITIS User Group Co-chair
Status of Enhancements & Major Updates to Tools (with demos)	Michael Pack, UMD CATT Lab
Spotlight Presentation: Creating Custom Congestion Exhibits with Lane Diagrams and Aerials for Downtown San Antonio Freeway Feasibility Study	Jaimie Sloboden, Michael Baker International
RITIS Product Enhancement Working Group Update & Future Enhancements	Bob Frey, Massachusetts DOT RITIS Product Enhancement Working Group chair
User Feedback Session, Q/A & Wrap Up	Michael Pack & Jesse Buerk

Today's Speakers

Michael Pack
UMD CATT Lab
Director

Jaimie Sloboden
Michael Baker International
Technical Manager

Bob Frey
Massachusetts DOT
Director of Project-Oriented Planning

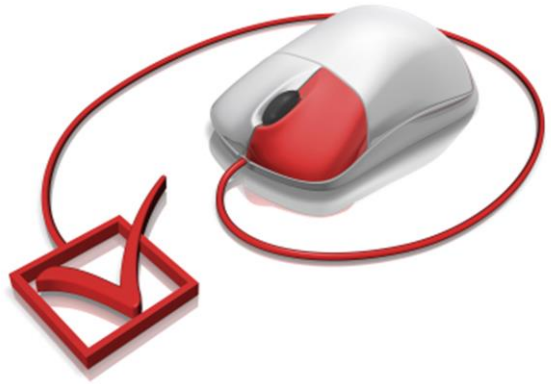
Meeting Participants

Agencies					
Arizona DOT	City of Springfield, OR	Georgia Environmental Protection Division	Maryland DOE	New York State DOT	Regional Transportation Commission of Southern Nevada
Atlanta Regional Commission	Connecticut DOT	Greater Nashville Regional Commission	Maryland DOT-SHA	NJTPA	Rhode Island Division of Statewide Planning
Baltimore Metropolitan Council	CORE MPO	Henry County	Maryland Transportation Authority	North Carolina DOT	Rhode Island DOT
Berks County Planning Commission / Reading MPO	Corpus Christi MPO	Howard County DPW	Massachusetts DOT	Northern Virginia Transportation Authority	SJTPO
CAMPO	CPCS	Illinois DOT	Miami Dade County MPO	Office of Intermodal Planning and Investment	Southern Pennsylvania Commission
Capital Region Planning Commission	District DOT	Kentucky Transportation Cabinet	Michigan DOT	Ohio DOT	Tennessee DOT
Charlotte DOT	Durham-Chapel Hill-Carrboro MPO	Kingsport MTPO	Montgomery County	Oregon DOT	Texas DOT
Chattanooga TPO	DVRPC	KIPDA	MWCOG	Ozarks Transportation Organization	Vermont AOT
City of College Station	Federal Highway Administration	Knoxville Regional TPO	MWVCOG	Pennsylvania DOT	Virginia DOT
City of Concord NC	Florida DOT	Louisiana DOTD	New Jersey DOT	Pennsylvania Turnpike Commission	Wisconsin DOT
City of Sandy Springs, GA	Forsyth Government	Maine DOT	New Orleans Regional Planning Commission	PVPC	WMATA

Poll 1: How often do you attend RITIS User Group Web Meetings?

Response Options:

a) 1-2 times per year
b) 3-4 times per year
c) This is my first meeting



Poll 2: How do you use the data and visualization results from RITIS tools (choose one)?

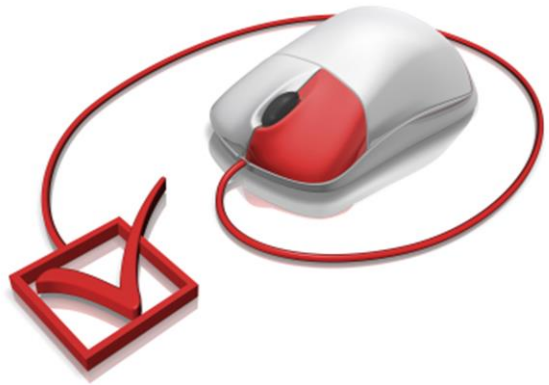
Response Options:

1. We use results directly from RITIS to develop products (reports, maps, etc.)
2. We download the data and use our own agency's in-house tools to create tables and visuals for product development
3. We do a little bit of both

Poll 3: Who is your primary audience for sharing information that was developed from RITIS and PDA Suite (choose one)?

Response Options:

1. Peers
2. Management
3. Executive Leadership
4. Elected Officials
5. General Public



RITIS | Probe Data Analytics suite

RITIS Enhancements (New Features Recently Deployed and In Development)

Michael Pack
UMD CATT Lab
Director

Standardize Color Schemes

(Congestion Scan, Speed Bins, & Trend Maps)

Trend Map - Using INRIX TMC data

Display Options | Open with...

Display

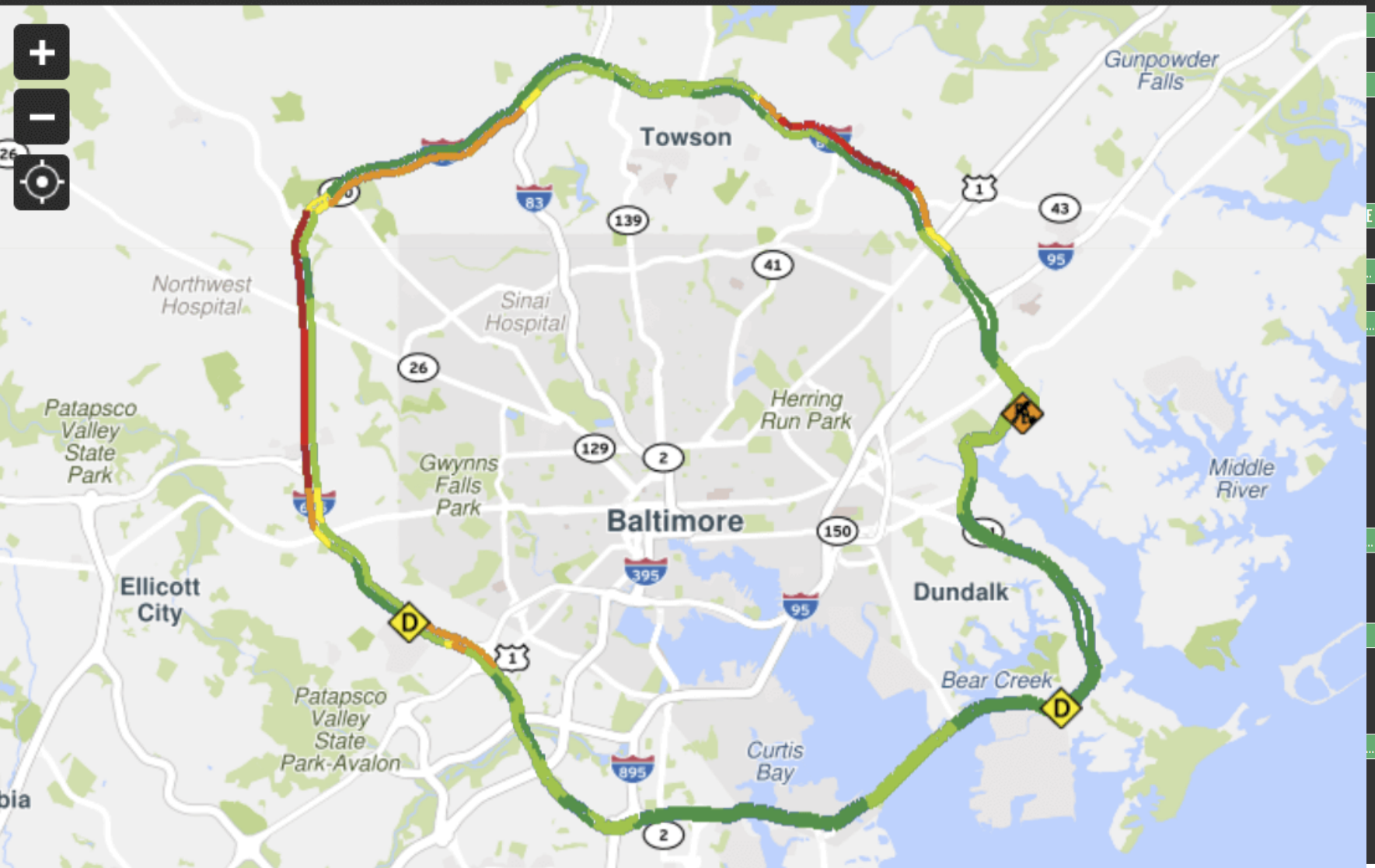
Speed (mph)

Color Thresholds

0 mph — 50 mph

10 | 20 | 30 | 40 | 50 | 60

08:00 AM - August 01, 2023 (Tuesday)



Display Options

50 mph

30 | 40 | 50 | 60

May 01, 2023 through May 06, 2023 12:00 AM - 12:00 AM - Time spent at diff...

20 hrs | 40 hrs | 60 hrs | 80 hrs | 100 hrs | 120 hrs | 140 hrs

EB

EXIT 6/CHESTNUT ST/E 12TH ST

May 01, 2023 through May 06, 2023 S M T W T F S

12:00 AM - 12:00 AM

Hours: 10 hrs 13 mins

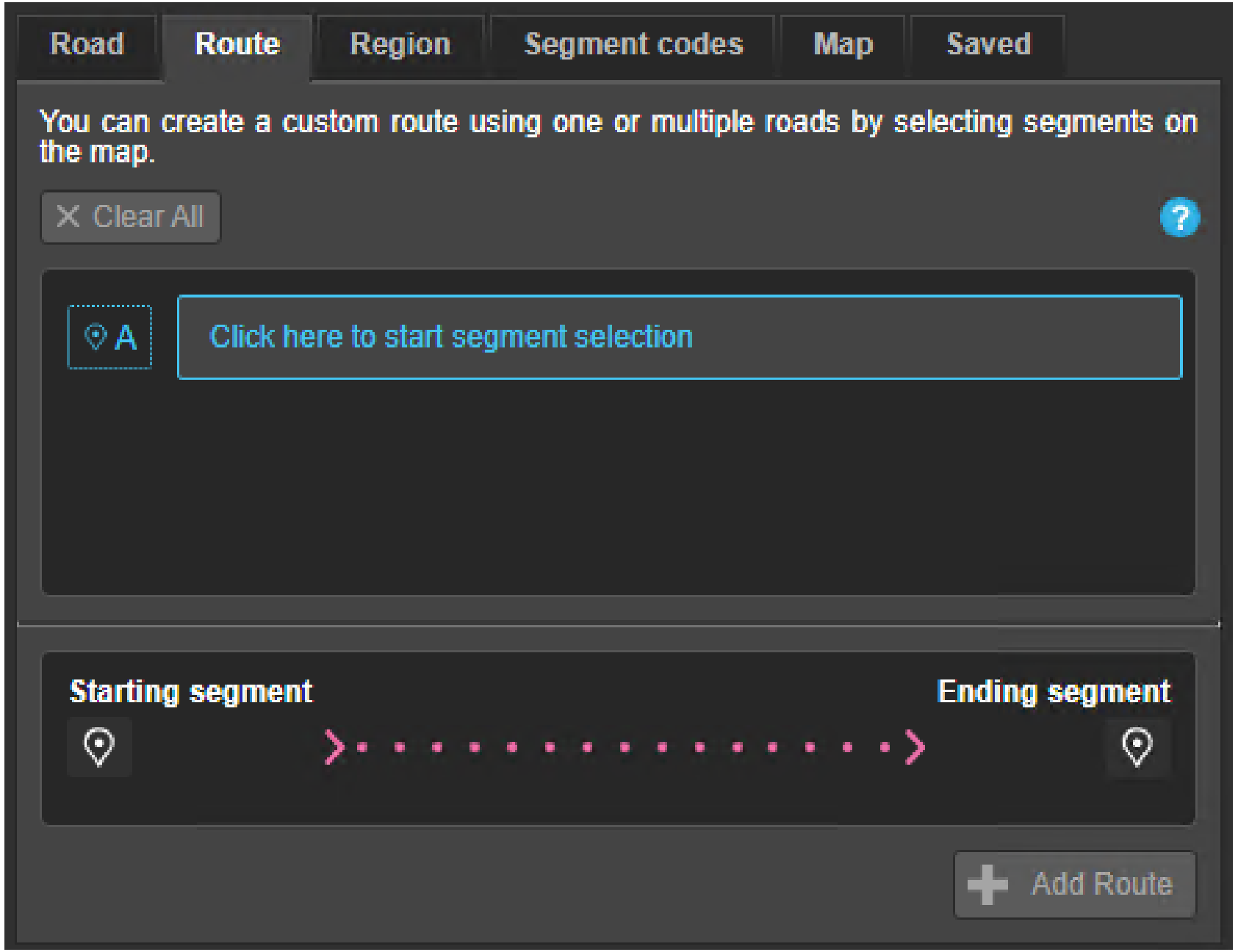
% of Hours: 7.09%

Speed: 10 - 19 mph

Code: 464523356

5mi | 10mi | 15mi | 20mi | 25mi | 30mi | 35mi | 40mi

Route Road Selection


Road
Route
Region
Segment codes
Map
Saved
You can create a custom route using one or multiple roads by selecting segments on the map.
Clear All
A
Click here to start segment selection
Starting segment
Ending segment
Add Route

2. Select roads

XD segments from INRIX

Road | **Route** | Region | Segment codes | Map | Saved

You can create a custom route using one or multiple roads by selecting segments on the map.

✕ Clear All

A ⁞⁞ I-95 N bearing east ✕

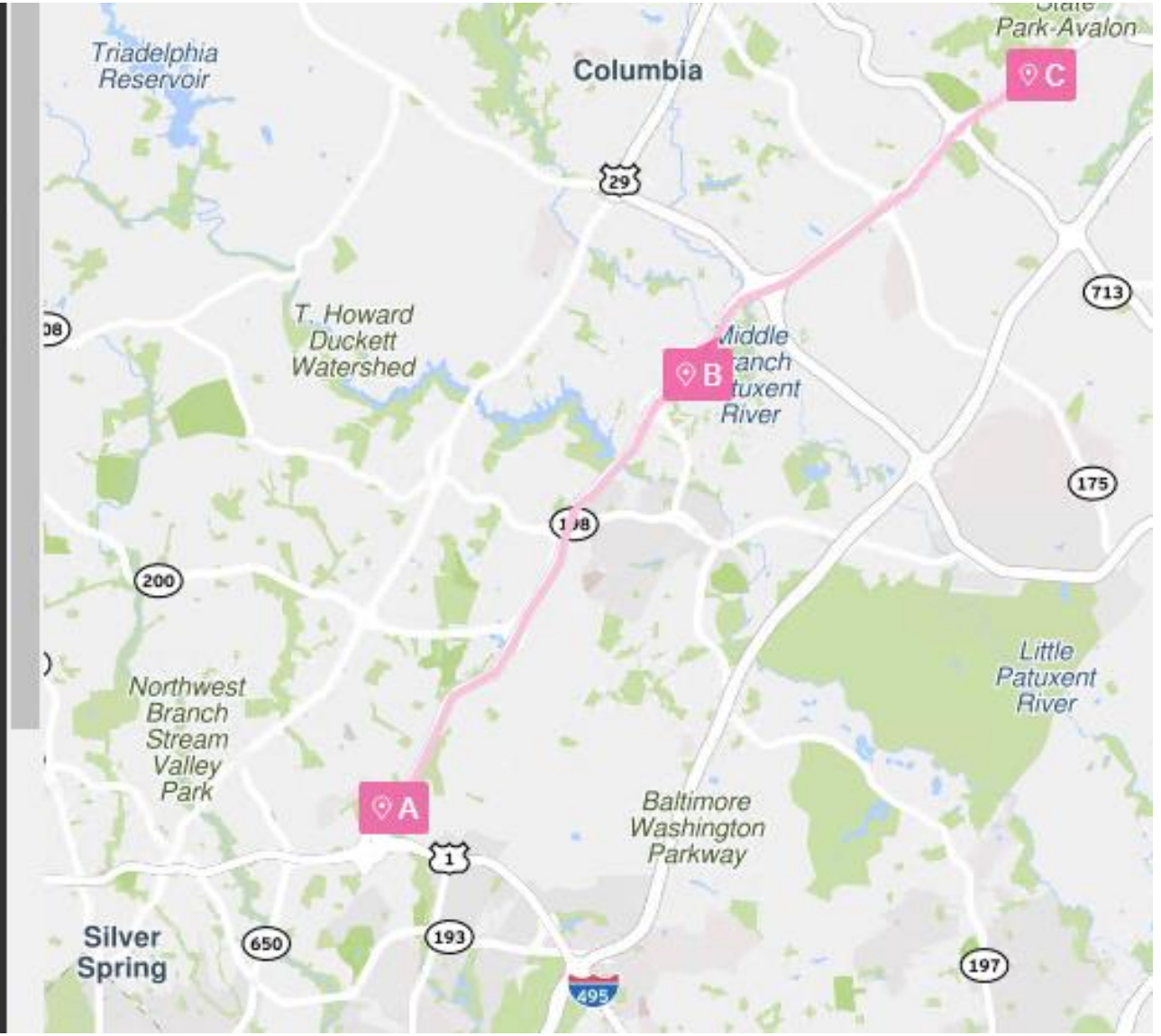
B ⁞⁞ I-95 N bearing east ✕

C ⁞⁞ I-95 N bearing east ✕

Starting segment — 17 miles — **Ending segment**

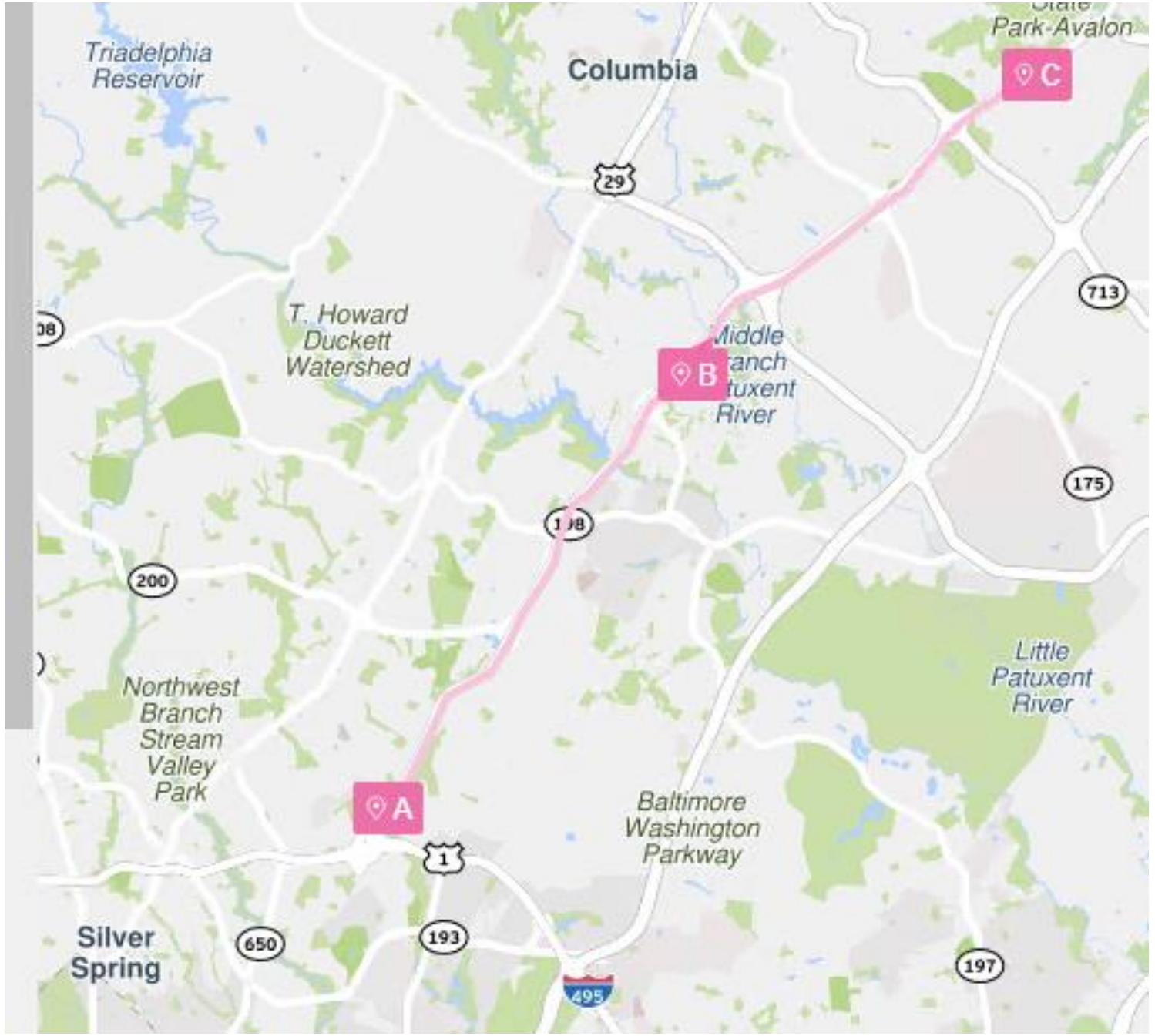
A I-95 N bearing east → C I-95 N bearing east

+ Add Route

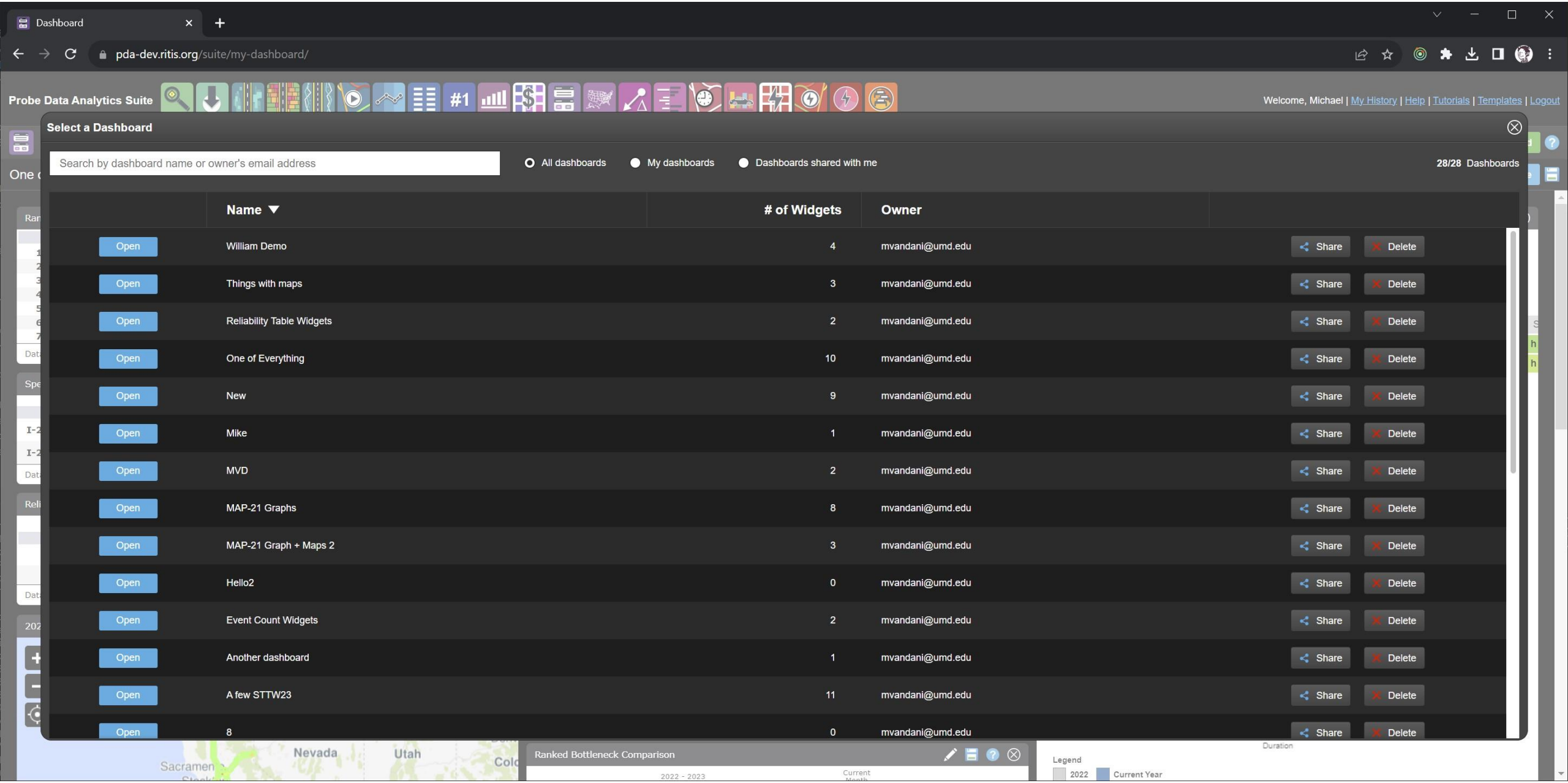


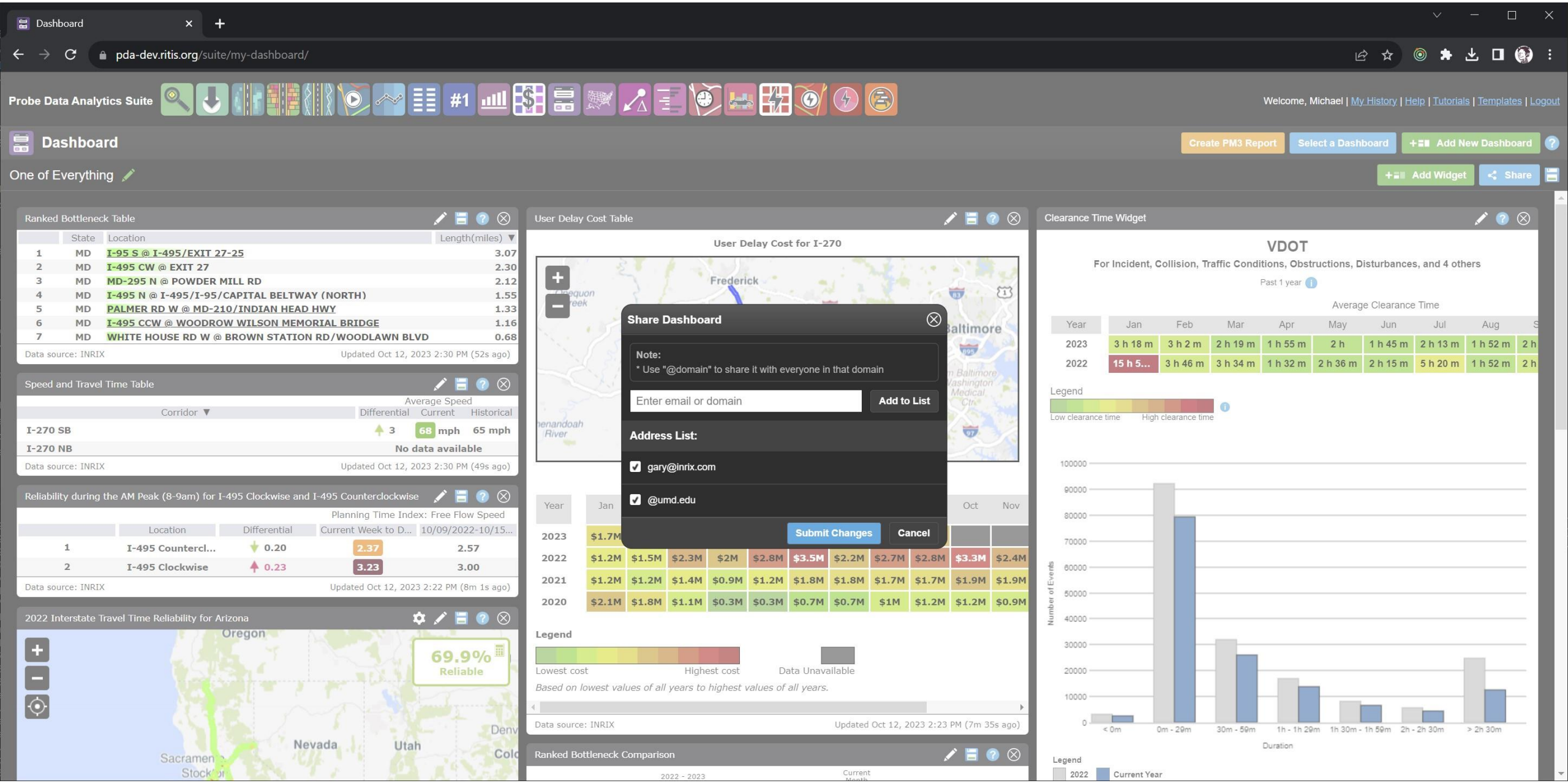
Tips for Success

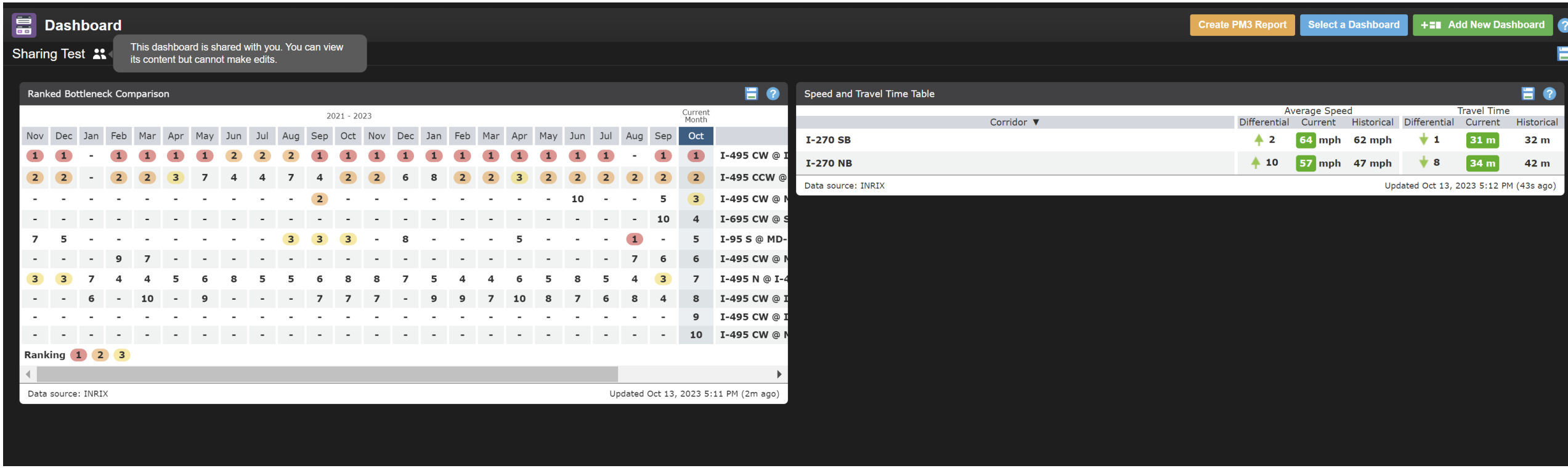
- Zoom in close!
- Check to see that you're on the correct side of the road
- Note that segment lengths don't always exactly match up at ramps



Dashboard Sharing
(Done & deploying this month)


Dashboard
pda-dev.ritis.org/suite/my-dashboard/
Probe Data Analytics Suite
Welcome, Michael | My History | Help | Tutorials | Templates | Logout
Select a Dashboard
Search by dashboard name or owner's email address
All dashboards
My dashboards
Dashboards shared with me
28/28 Dashboards
Name
# of Widgets
Owner
Open
William Demo 4 mvandani@umd.edu Share Delete
Things with maps 3 mvandani@umd.edu Share Delete
Reliability Table Widgets 2 mvandani@umd.edu Share Delete
One of Everything 10 mvandani@umd.edu Share Delete
New 9 mvandani@umd.edu Share Delete
Mike 1 mvandani@umd.edu Share Delete
MVD 2 mvandani@umd.edu Share Delete
MAP-21 Graphs 8 mvandani@umd.edu Share Delete
MAP-21 Graph + Maps 2 3 mvandani@umd.edu Share Delete
Hello2 0 mvandani@umd.edu Share Delete
Event Count Widgets 2 mvandani@umd.edu Share Delete
Another dashboard 1 mvandani@umd.edu Share Delete
A few STTW23 11 mvandani@umd.edu Share Delete
8 0 mvandani@umd.edu Share Delete
Nevada
Utah
Ranked Bottleneck Comparison
2022 - 2023
Current Month
Duration
Legend
2022
Current Year


Dashboard
pda-dev.ritis.org/suite/my-dashboard/
Probe Data Analytics Suite
Welcome, Michael | My History | Help | Tutorials | Templates | Logout
Dashboard
Create PM3 Report
Select a Dashboard
Add New Dashboard
One of Everything
Add Widget
Share
Ranked Bottleneck Table
State
Location
Length(miles)
1 MD I-95 S @ I-495/EXIT 27-25 3.07
2 MD I-495 CW @ EXIT 27 2.30
3 MD MD-295 N @ POWDER MILL RD 2.12
4 MD I-495 N @ I-495/I-95/CAPITAL BELTWAY (NORTH) 1.55
5 MD PALMER RD W @ MD-210/INDIAN HEAD HWY 1.33
6 MD I-495 CCW @ WOODROW WILSON MEMORIAL BRIDGE 1.16
7 MD WHITE HOUSE RD W @ BROWN STATION RD/WOODLAWN BLVD 0.68
Data source: INRIX
Updated Oct 12, 2023 2:30 PM (52s ago)
Speed and Travel Time Table
Average Speed
Corridor
Differential
Current
Historical
I-270 SB 3 68 mph 65 mph
I-270 NB No data available
Data source: INRIX
Updated Oct 12, 2023 2:30 PM (49s ago)
Reliability during the AM Peak (8-9am) for I-495 Clockwise and I-495 Counterclockwise
Planning Time Index: Free Flow Speed
Location
Differential
Current Week to D...
10/09/2022-10/15...
1 I-495 Countercl... 0.20 2.37 2.57
2 I-495 Clockwise 0.23 3.23 3.00
Data source: INRIX
Updated Oct 12, 2023 2:22 PM (8m 1s ago)
2022 Interstate Travel Time Reliability for Arizona
Oregon
69.9%
Reliable
Nevada
Utah
Sacramento
Stockton
User Delay Cost Table
User Delay Cost for I-270
Frederick
Baltimore
Share Dashboard
Note:
* Use "@domain" to share it with everyone in that domain
Enter email or domain
Add to List
Address List:
gary@inrix.com
@umd.edu
Submit Changes
Cancel
Year
Jan
Oct
Nov
2023 $1.7M
2022 $1.2M $1.5M $2.3M $2M $2.8M $3.5M $2.2M $2.7M $2.8M $3.3M $2.4M
2021 $1.2M $1.2M $1.4M $0.9M $1.2M $1.8M $1.8M $1.7M $1.7M $1.9M $1.9M
2020 $2.1M $1.8M $1.1M $0.3M $0.3M $0.7M $0.7M $1M $1.2M $1.2M $0.9M
Legend
Lowest cost
Highest cost
Data Unavailable
Based on lowest values of all years to highest values of all years.
Data source: INRIX
Updated Oct 12, 2023 2:23 PM (7m 35s ago)
Ranked Bottleneck Comparison
2022 - 2023
Current Month
Clearance Time Widget
VDOT
For Incident, Collision, Traffic Conditions, Obstructions, Disturbances, and 4 others
Past 1 year
Average Clearance Time
Year
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
2023 3 h 18 m 3 h 2 m 2 h 19 m 1 h 55 m 2 h 1 h 45 m 2 h 13 m 1 h 52 m
2022 15 h 5... 3 h 46 m 3 h 34 m 1 h 32 m 2 h 36 m 2 h 15 m 5 h 20 m 1 h 52 m
Legend
Low clearance time
High clearance time
Number of Events
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
< 0m
0m - 29m
30m - 59m
1h - 1h 29m
1h 30m - 1h 59m
2h - 2h 30m
> 2h 30m
Duration
Legend
2022
Current Year


Dashboard
Create PM3 Report
Select a Dashboard
Add New Dashboard
Sharing Test
This dashboard is shared with you. You can view its content but cannot make edits.
Ranked Bottleneck Comparison
2021 - 2023
Current Month
Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct
1 1 - 1 1 1 1 2 2 2 1 1 1 1 1 1 1 1 1 1 1 - 1 1 I-495 CW @ I
2 2 - 2 2 3 7 4 4 7 4 2 2 6 8 2 2 3 2 2 2 2 2 2 I-495 CCW @
- - - - - - - - - - 2 - - - - - - - - 10 - - 5 3 I-495 CW @ N
- 10 4 I-695 CW @ S
7 5 - - - - - - - 3 3 3 - 8 - - - 5 - - - 1 - 5 I-95 S @ MD-
- - - 9 7 - - - - - - - - - - - - - - - - 7 6 6 I-495 CW @ N
3 3 7 4 4 5 6 8 5 5 6 8 8 7 5 4 4 6 5 8 5 4 3 7 I-495 N @ I-4
- - 6 - 10 - 9 - - - 7 7 7 - 9 9 7 10 8 7 6 8 4 8 I-495 CW @ I
- 9 I-495 CW @ I
- 10 I-495 CW @ N
Ranking 1 2 3
Data source: INRIX
Updated Oct 13, 2023 5:11 PM (2m ago)
Speed and Travel Time Table
Corridor
Average Speed
Differential Current Historical
Travel Time
Differential Current Historical
I-270 SB 2 64 mph 62 mph 1 31 m 32 m
I-270 NB 10 57 mph 47 mph 8 34 m 42 m
Data source: INRIX
Updated Oct 13, 2023 5:12 PM (43s ago)

Work Zone Reporting Templates

FDOT DISTRICT 1

Construction PM
David Jones
(863) 519-2345

Communications
Brian Bollas
(813) 262-8549

Weekly Work Zone Performance Report

Week of April 9th to April 15th, 2023 • 8 AM to 5 PM

I-75/SR 93 & SR 884/Colonial Blvd. Interchange
Project No. 413065-1

Work Zone Details

Limits	Approx. 1.6 mi from just west of Colonial Gardens Cir to just east of Dynasty Dr I-75/SR 884 interchange.
Lane Status	No lane closures during daytime operations.
Counter Measures	Barrels, arrow boards.
Operation	All lanes are open, 3 thru lanes in each direction.
Hours of Operation	Typical are 8am to 5pm, night work between 9pm and 6am.
Police Enforcement	During lane closures - are present before lane is closed and shortly after it is open.
Posted Work Zone Speed	35mph

Work Zone Performance Metrics

Avg. Daily Vehicle Speed

EB 30.5mph
(6.89min Travel Time)

WB 27.3mph
(7.70min Travel Time)

Significant Queue

2hr 47min

CONGESTED LENGTH 5.33 mi

(occurred EB @ Ortiz Ave on Apr 11, 2023, from 3:22pm to 6:09pm)

Avg. Daily Veh.-hr. of Delay

445h

AVG. DAILY DELAY COST
$13,500

Day-by-Day Performance Metrics

METRIC	DIR	Sun (4/9)	Mon (4/10)	Tue (4/11)	Wed (4/12)	Thu (4/13)	Fri (4/14)	Sat (4/15)
Avg. Speed (mph)	EB	36.1	30.5	30.2	**26.9**	30.4	28.0	33.1
	WB	35.1	29.0	**23.5**	25.7	27.4	24.0	29.7
Avg. TT (min)	EB	5.79	6.89	6.97	**7.81**	6.93	7.5	6.36
	WB	5.99	7.25	**8.95**	8.17	7.68	8.75	8.16
Total Cost (dollars)	EB	$0	**$19.3K**	$5.9K	$11.6K	$6.1K	$12.5K	$0
	WB	$0	$0	**$16.1K**	$6.0K	$4.0K	$12.1K	$0
Veh.-hr. of Delay (hours)	EB	0	**637**	194	384	233	414	0
	WB	0	0	**534**	198	132	400	0

BOLD = WORST PERFORMANCE

For the Week - Total Cost | $93.6K • Total Veh.-hr. of Delay | 3,126h

Notable Events

Traffic Congestion

WEEKDAYS

EB 3:00pm to 5:00pm
WB 5:30am to 9:00am

(from I-75 to Winkler Ave.)

Traffic Incident

WED, April 12, 2023

EB 3:47pm to 4:45pm
Collision blocked 2 lanes

(just beyond I-75)

Weather

WED, April 12, 2023

Heavy rain and gusty winds caused hazardous driving conditions

(11:00am to1:00pm)

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Weekly Work Zone Performance Report

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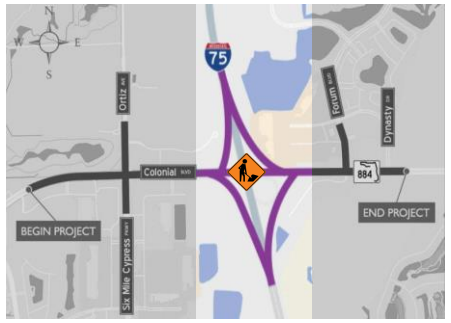
I-75/SR 93 & SR 884/Colonial Blvd. Interchange
Project No. 413065-1

Work Zone Details



Limits	Approx. 1.5 mi, from SR 884/ Colonial Blvd to SR 82/Dr. Martin Luther King Jr. Blvd.
Lane Status	Construction is not closing any lanes on I-75 except at nighttime.
Counter Measures	Barrels, arrow boards.
Operation	All lanes are open (3 thru lanes & 1 aux lane) in both directions.
Hours of Operation	Typical are 8am to 5pm, night work between 9pm and 6am.
Police Enforcement	During lane closures are present before lane is closed and shortly after it is open.
Posted Work Zone Speed	65mph during lane closure operations.

Day-by-Day Performance Metrics

BOLD = WORST PERFORMANCE

METRIC	DIR	Sun (4/9)	Mon (4/10)	Tue (4/11)	Wed (4/12)	Thu (4/13)	Fri (4/14)	Sat (4/15)
Avg. Speed (mph)	NB	76.7	72.5	71.6	**63.1**	74.0	72.0	77.3
	SB	76.7	73.3	72.0	**60.9**	72.0	71.8	75.7
Total Cost (dollars)	NB	$0	$0	$340	**$1.0K**	$0	$270	$0
	SB	$0	$0	$0	**$1.6K**	$0	$1.0K	$0
Veh.-hr. of Delay (hr. min)	NB	0	0	12hr	**35hr**	0	9hr	0
	SB	0	0	0	**55hr**	0	31hr	0

Worst Performance for the Week

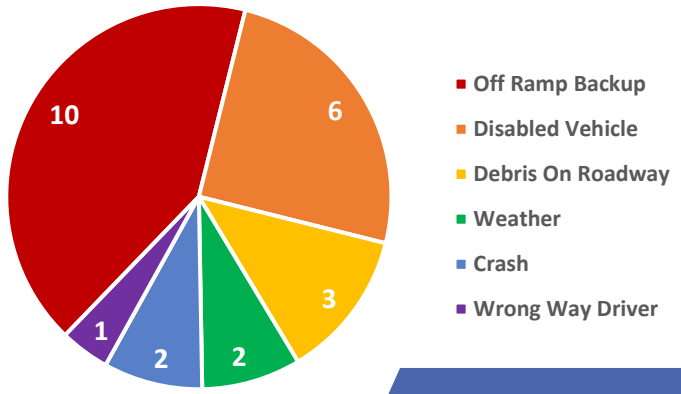
Slowest Speeds
(on 4/12)
SB | 31.8mph (11:30am)
NB | 40.1 mph (12:10pm)

Most Delay
(on 4/12)
90 min
(11am to 1:00pm)

Significant Queue
(NB at Exit 136, on 4/12)
1hr 19 min | 4.6 mi
(11:34 am to 12:53pm)

Greatest Delay Cost
(4/12)
$2.6k
(11am to 1:00pm)

Events for the Week (24 Total)



Notable Impacts for the Week

NB/SB off-ramp backups to Exit 136 - SR 884
(AM PK HRs, just prior to the start of the active WZ)

Heavy rain caused hazardous driving conditions on 4/12
(11:00am to1:00pm)

NB wrong way-facing vehicle on shoulder on 4/12
(12:37pm to 1:01pm)

FDOT DISTRICT 1

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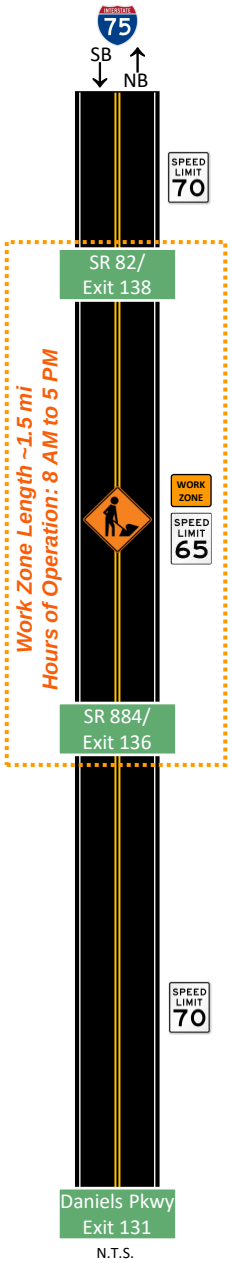
I-75/SR 93 & SR 884/Colonial Blvd. Interchange
Project No. 413065-1



Work Zone Performance Metrics

Avg. Daily Vehicle Speed

NB 72.2mph
(1.94min Travel Time)

SB 71.4mph
(1.85min Travel Time)

Significant Queue

1hr 19min
CONGESTED LENGTH 4.60mi
(occurred NB @ Exit 136 on Apr 12, 2023, from 11:34am to 12:53pm)

Avg. Daily Veh.-hr. of Delay

20min
AVG. DAILY DELAY COST
$600

Contributing Factors

Incidents & Events

29
22 WITH DURATIONS < 2hr
7 WITH DURATIONS > 2hr

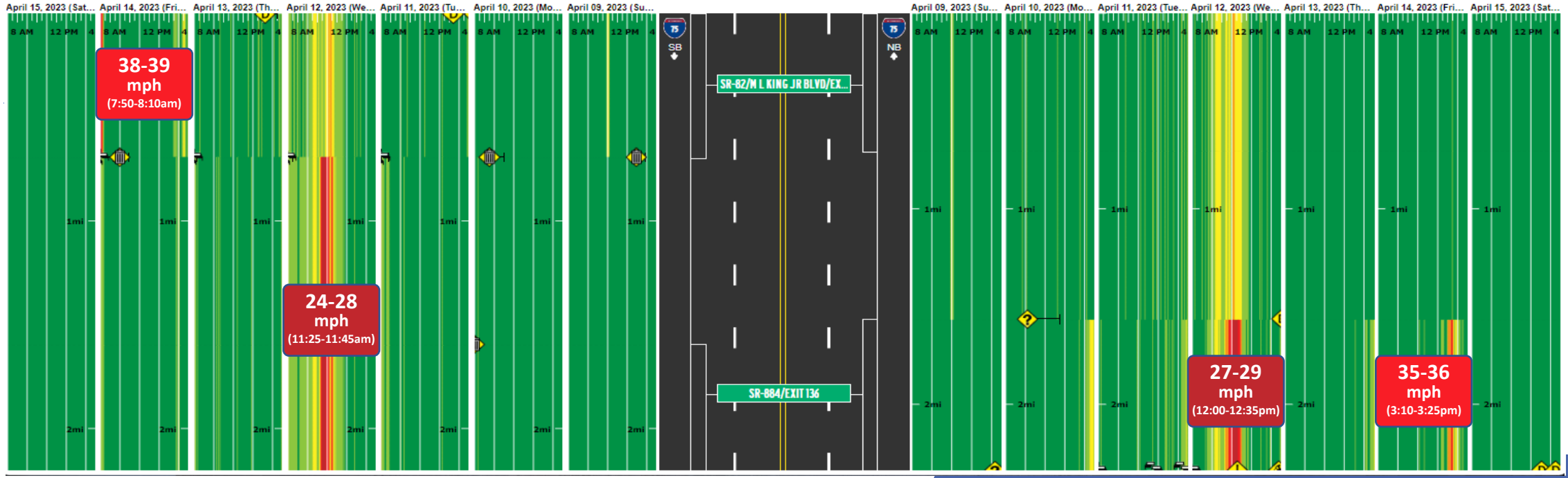
Notable Weather

Heavy rain caused hazardous driving conditions on 4/12
(11:00am to 1:00pm)

Day-to-Day Performance Metrics Summary

38-29 mph - Noteworthy speed reductions

Speed (mph)
0 20 30 40 50 60 70



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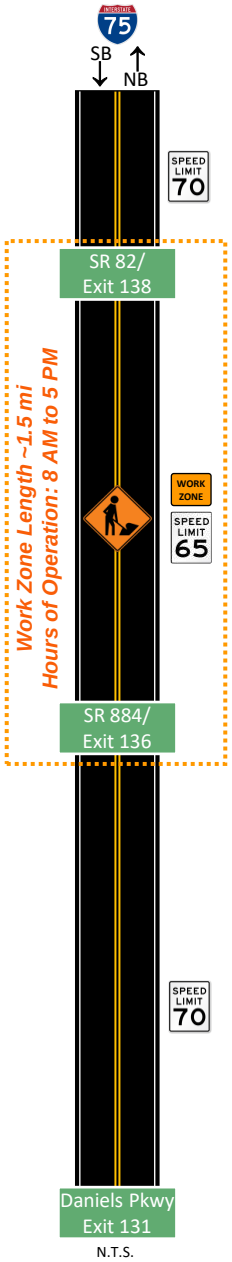


Work Zone Performance Metrics

Avg. Daily Vehicle Speed

NB 72.2mph
(1.94min Travel Time)

SB 71.4mph
(1.85min Travel Time)

Significant Queue

1hr 19min
CONGESTED LENGTH 4.60mi
(occurred NB @ Exit 136 on Apr 12, 2023, from 11:34am to 12:53pm)

Avg. Daily Veh.-hr. of Delay

20hr
AVG. DAILY DELAY COST
$600

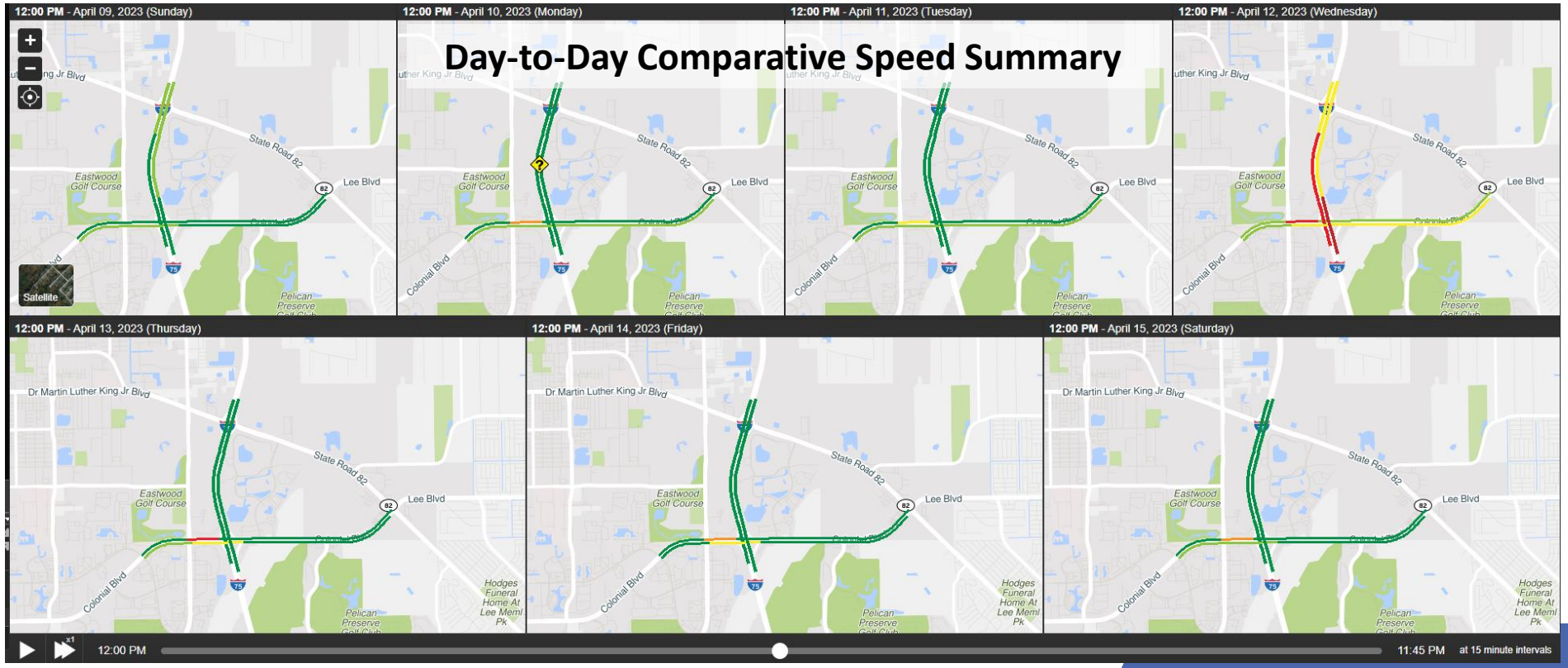
Contributing Factors

Incidents & Events

24
20 WITH DURATIONS < 2hr
4 WITH DURATIONS > 2hr

Notable Weather

Heavy rain caused hazardous driving conditions on 4/12
(11:00am to 1:00pm)



Comparative Speed — Measured speed as a percentage of the historical average speed for this time of day and day of week.

Click here to open Trend Map (Light) to explore results.

Comparative Speed (%)
0 40 50 60 70 80 95

FDOT DISTRICT 1

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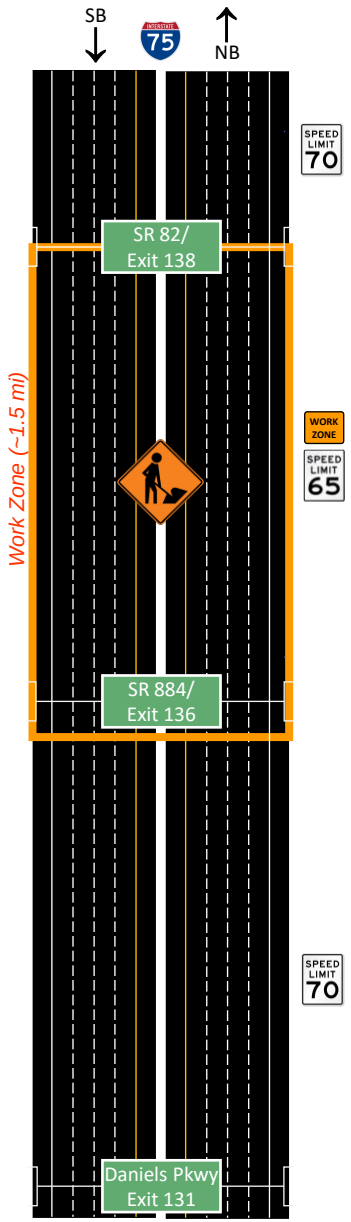
Daily Work Zone Performance Report

Wednesday, April 12, 2023 • 8 AM to 5 PM

I-75/SR 93 & SR 884/Colonial Blvd. Interchange
Project No. 413065-1



Speed / Travel Time / Queues / Delay (N/S)

	Speed: AVERAGE	Speed: SLOWEST	Travel Time: AVERAGE	Travel Time: LONGEST	Queues: MAX LENGTH	Queues: TOTAL DURATION	Delay (N/S): VEH-HR OF DELAY	Delay (N/S): USER DELAY COST
NB	**72.2**mph (8am to 5pm)	**40.1**mph (12:10pm)	**2.2**min (8am to 5pm)	**3.5**min (12:20pm)	**4.6**mi (11:24am to 12:53pm)	**1**h **19**m (11:24am to 12:53pm)	**56**hr (8am to 5pm)	**$1.6**K (8am to 5pm)
SB	**71.4**mph (8am to 5pm)	**31.8**mph (11:30am)	**2.1**min (8am to 5pm)	**4.2**min (11:30am)	**1.5**mi (7:31am to 7:55am)	**24**min (7:31am to 7:55am)	**86**hr (8am to 5pm)	**$2.6**K (8am to 5pm)

Events

TRAFFIC CONGESTION

SB off-ramp back-up to SR 884
(7:19am to 8:32am)

NB off-ramp back-up to SR 884
(7:52am to 8:10am)

TRAFFIC INCIDENTS

NB wrong way-facing vehicle on shoulder
(12:37pm to 1:01pm)

NB crash
(4:47pm to 7:02pm)

NB Disabled vehicle
(5:03pm to 5:06pm)

WEATHER

Heavy rain and gusty winds caused hazardous driving conditions
(11:00am to1:00pm)

NOTES: Analysis indicates that the mid-day NB queue was most likely a result of heavy rain coupled with the wrong way-facing driver on the shoulder, potentially causing additional slowdown. The morning SB queue was most likely due to the impact of SR-884 off-ramp traffic slowing down to exit I-75, and possibly backing down the ramp, impacting mainline flow. The rainy weather seemed to have some affect on traffic flow later in the day: speeds dropped to 31mph @ 11:30am.

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Daily Work Zone Performance Report

Wednesday, April 12, 2023 • 8 AM to 5 PM

I-75/SR 93 & SR 884/Colonial Blvd. Interchange
Project No. 413065-1

Work Zone Details

Limits: Approx. 1.6 mi from just west of Colonial Gardens Cir to just east of Dynasty Dr I-75/SR 884 interchange

Lane Status: No lane closures during daytime operations
Counter Measures: Barrels, arrow boards

Operation: All Lanes Open. 3 Thru lanes each direction

Hours of Operation: Typical are 8am to 5pm, night work between 9pm and 6am

Police Enforcement: During lane closures are present before lane is closed and shortly after it is open

Posted WZ speed: 35 mph

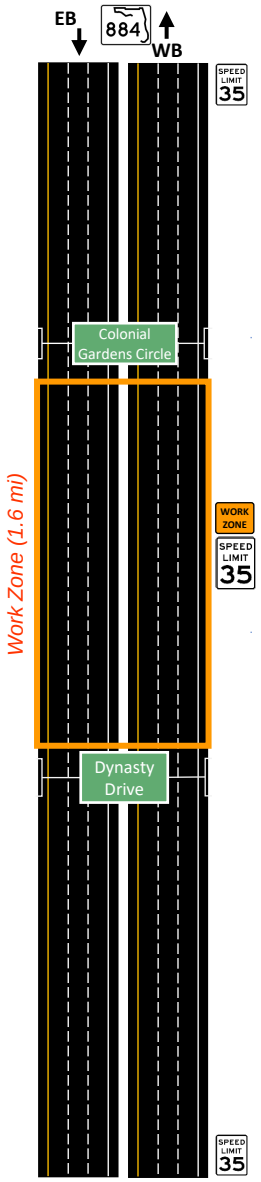
Possible Contributing Impacts

(for event detail, hover over icons shown below the speed drop chart)

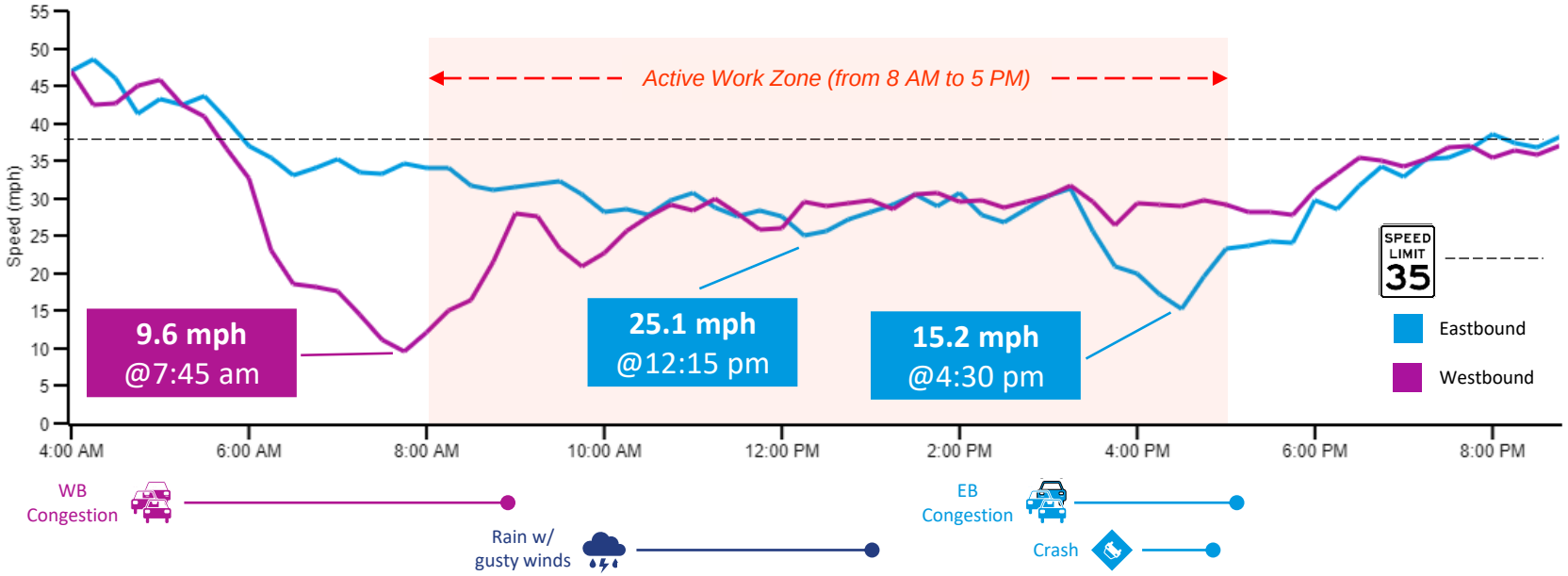
3 Events
2 congestion; 1 Incident

1 Weather Event
Rain, wind

Holiday/Special Event
None



Notable Speed Drops (6 AM to 6 PM)



WB Congestion

Rain w/ gusty winds

EB Congestion

Crash

Work Zone Key Metrics

Vehicle-hrs. of Delay

173 (4pm to 5pm)

$5.2K in Total Cost

Slowest Travel Time

Westbound	Eastbound
22.0 min	13.8min
@ 7:45 AM	@ 4:30 PM

Longest Queues

Assessment

EB

This **EB queue** was most likely a result of the traffic back ups due to the construction area, coupled with the tail end of back-ups from the crash and congestion from evening rush hour traffic.

WB

This **WB queue was** most likely due to the impact of the work zone area lane closure, coupled with the tail end of normal morning rush hour traffic.

3 How to make the WZ Performance Report page

a Open a Weekly WZ Performance Report page template

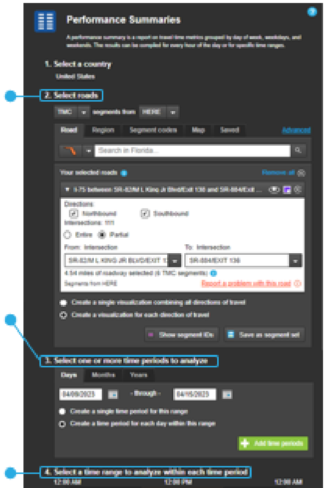
OR

b Run Performance Summaries

Select roads

Select time eriods

Select anges



1. In the downloaded templates package, select a

2. F

3. A

1. C

...for use in other tools – it's a great time-saver and ensures you use the exact same set of TMCs every time. Simply click on the **Save as segment set** button, enter a name for your segment set and then click Save.

Select a time period to analyze - choose the day(s), month(s) and year you wish to analyze. We chose a week in April, from 04/09/23 to 04/15/23.

Select time ranges – use the sliders to define your time

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884

Weekly Work Zone Performance Report

Week of April 9th to April 15th, 2023 • 8 AM to 5 PM

I-75/SR 93 & SR 884/Colonial Blvd. Interchange
Project No. 413065-1

Work Zone Details

Limits	Approx. 1.6 mi from just west of Colonial Gardens Cir to just east of Dynasty Dr I-75/SR 884 interchange.
Lane Status	No lane closures during daytime operations.
Counter Measures	Barrels, arrow boards.
Operation	All lanes are open, 3 thru lanes in each direction.
Hours of Operation	Typical are 8am to 5pm, night work between 9pm and 6am.
Police Enforcement	During lane closures - are present before lane is closed and shortly after it is open.
Posted Work Zone Speed	35mph

Work Zone Performance Metrics

Avg. Daily Vehicle Speed
EB **30.5**mph (6.89min Travel Time)
WB **27.3**mph (7.70min Travel Time)

Significant Queue
2hr **47**min
CONGESTED LENGTH 5.33 mi
(occurred EB @ Ortiz Ave on Apr 11, 2023, from 3:22pm to 6:09pm)

Avg. Daily Veh.-hr. of Delay
445h
AVG. DAILY DELAY COST
$13,500

Day-by-Day Performance Metrics

METRIC	DIR	Sun (4/9)	Mon (4/10)	Tue (4/11)	Wed (4/12)	Thu (4/13)	Fri (4/14)	Sat (4/15)
Avg. Speed (mph)	EB	36.1	30.5	30.2	**26.9**	30.4	28.0	33.1
	WB	35.1	29.0	**23.5**	25.7	27.4	24.0	29.7
Avg. TT (min)	EB	5.79	6.89	6.97	**7.81**	6.93	7.5	6.36
	WB	5.99	7.25	**8.95**	8.17	7.68	8.75	8.16
Total Cost (dollars)	EB	$0	**$19.3K**	$5.9K	$11.6K	$6.1K	$12.5K	$0
	WB	$0	$0	**$16.1K**	$6.0K	$4.0K	$12.1K	$0
Veh.-hr. of Delay (hours)	EB	0	**637**	194	384	233	414	0
	WB	0	0	**534**	198	132	400	0

BOLD = WORST PERFORMANCE

For the Week - Total Cost | $93.6K • Total Veh.-hr. of Delay | 3,126h

Notable Events

Traffic Congestion
WEEKDAYS
EB 3:00pm to 5:00pm
WB 5:30am to 9:00am
(from I-75 to Winkler Ave.)

Traffic Incident
WED, April 12, 2023
EB 3:47pm to 4:45pm
Collision blocked 2 lanes
(just beyond I-75)

Weather
WED, April 12, 2023
Heavy rain and gusty winds caused hazardous driving conditions
(11:00am to1:00pm)

Next Steps

- Deployed now: https://learn.ritis.org/reports/workzone
- Overview/training @ next meeting or on-demand
- Automated WZ design reviews on October 31, 2023

API Enhancements

API Enhancements

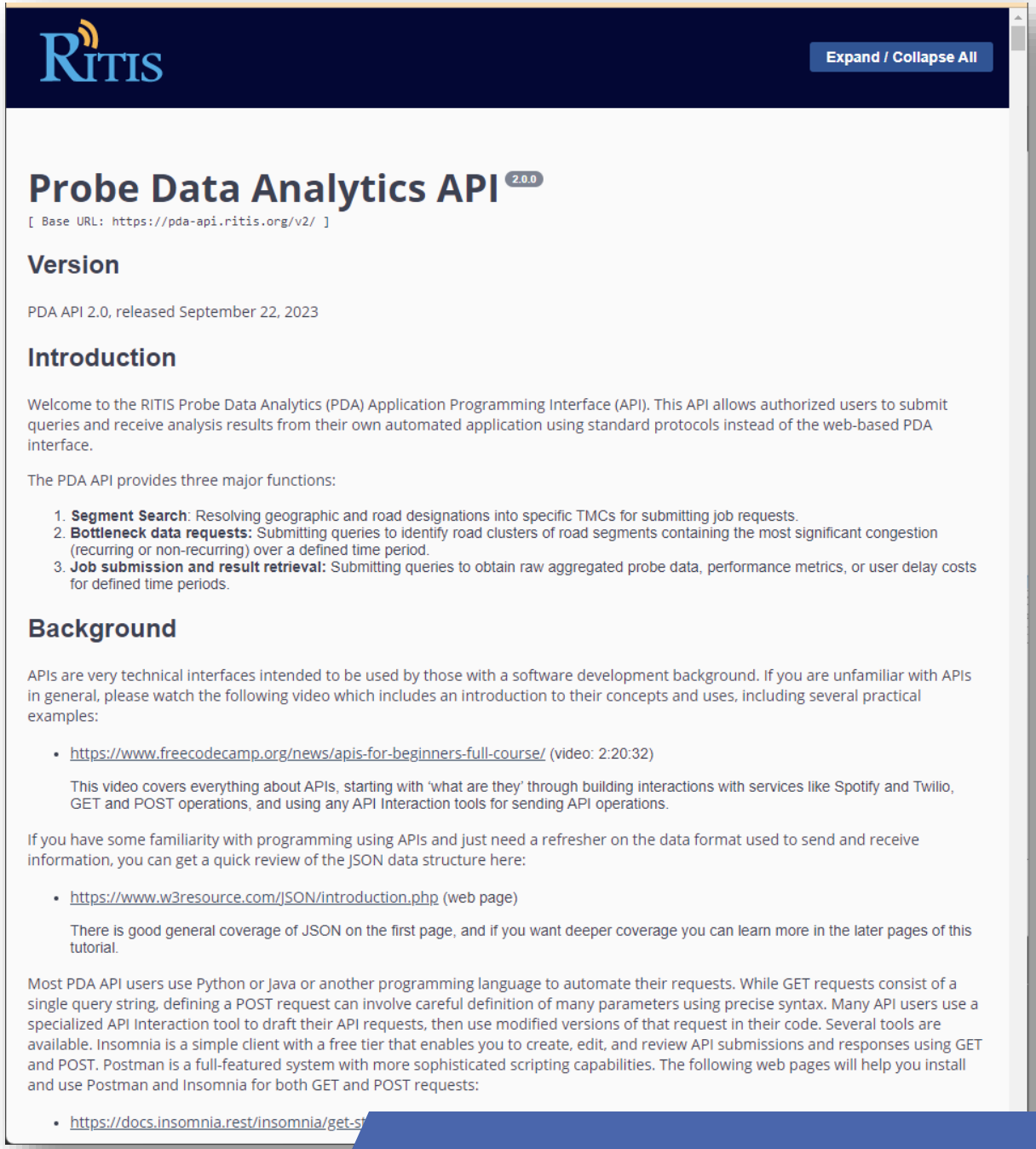
- New Features and Enhancements

1. **Preparation for Future New Segment Types**
   The PDA API currently supports analysis of TMC road segments. Many of the changes in this update will enable new features in the near future–including support for finer granularity segment types from multiple vendors.

2. **Speed-Limit Based Performance Metrics**
   Some of our customers requested the ability to compute performance metrics using posted speed limits (PSLs) to define congestion rather than free-flow reference speeds. The new API adds the option to use this approach for agencies who have provided speed limit data to us.

3. **More Detailed, Standardized Error Reporting**
   The new API provides more detailed error messages with standardized error codes when a particular query can't be executed. We don't expect this will require any code changes, but should enable you to more quickly identify the specific cause of many errors.

4. **Documentation Improvements**
   1. We have significantly enhanced our documentation. As before, each API endpoint provides a detailed data model and example for requests and responses.
   2. The documentation now s



Trip Analytics

Drawing of study areas in-app

Custom shapes for study areas and spatial filters can now be drawn directly on the map. Use the “draw area” option next to “upload GeoJSON” and “select predefined areas.” Once selected, click the *polygon tool* button on the map to begin drawing.

Signal Analytics

Intersection Analysis

Movement | Approach | Intersection

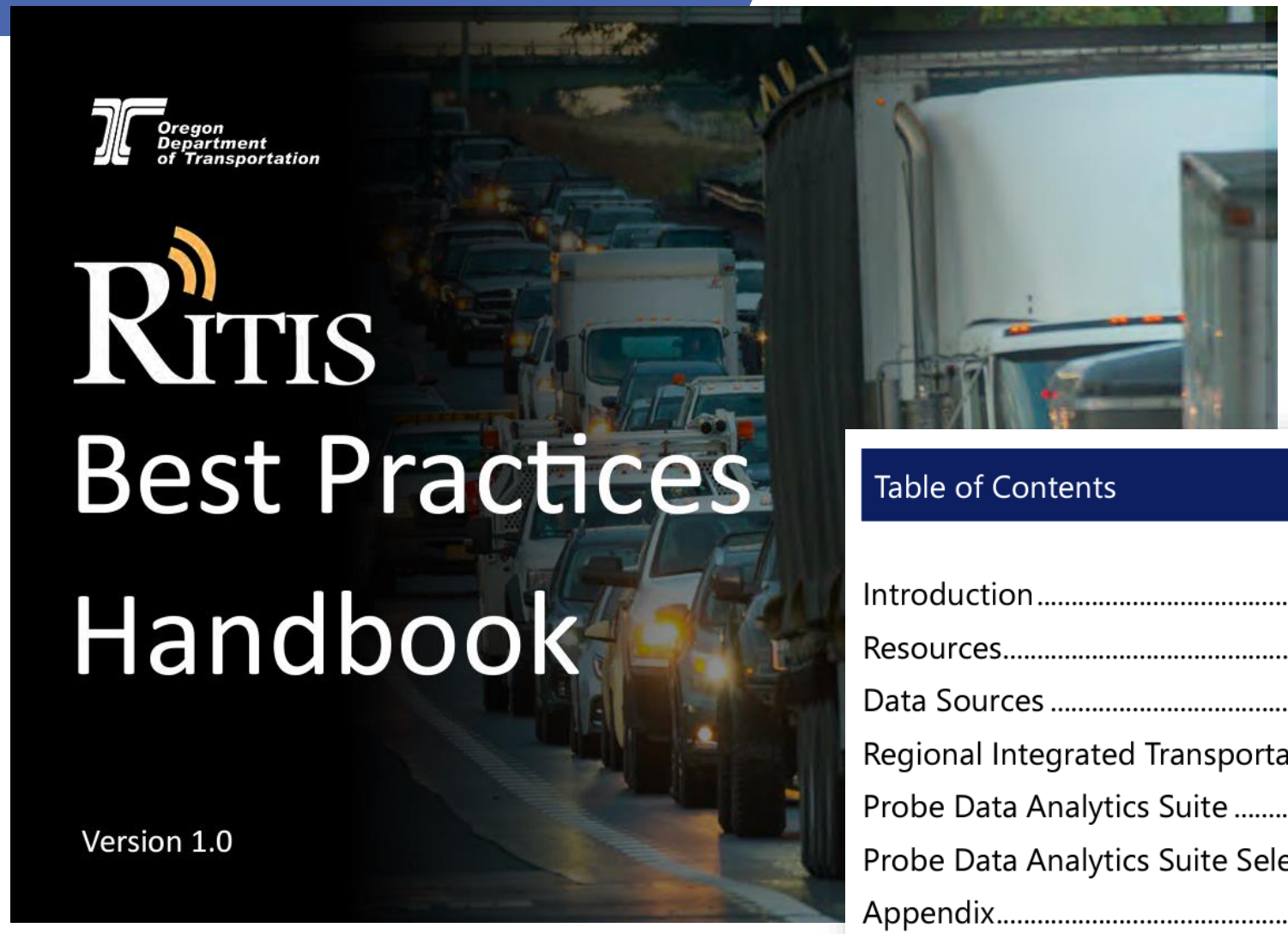
Filters (0) | Columns (7/62)

Ranked movements for 1 intersection on June 01, 2023

Rank	Intersection	Approach	Movement	Vehicle Cou…	Vehicle Cou…	LOS
1	US 287 Main Street & 3rd Avenue	Southbound	Through	248	84	B
2	US 287 Main Street & 3rd Avenue	Southbound	Right	22	8	C
3	US 287 Main Street & 3rd Avenue	Northbound	Through	212	104	C
4	US 287 Main Street & 3rd Avenue	Westbound	Right	34	17	B
5	US 287 Main Street & 3rd Avenue	Northbound	Right	24	13	C
6	US 287 Main Street & 3rd Avenue	Eastbound	Left	12	7	C
7	US 287 Main Street & 3rd Avenue	Eastbound	Through	61	42	C
8	US 287 Main Street & 3rd Avenue	Eastbound	Right	18	13	C

In Development

RITIS Best Practices Workbook



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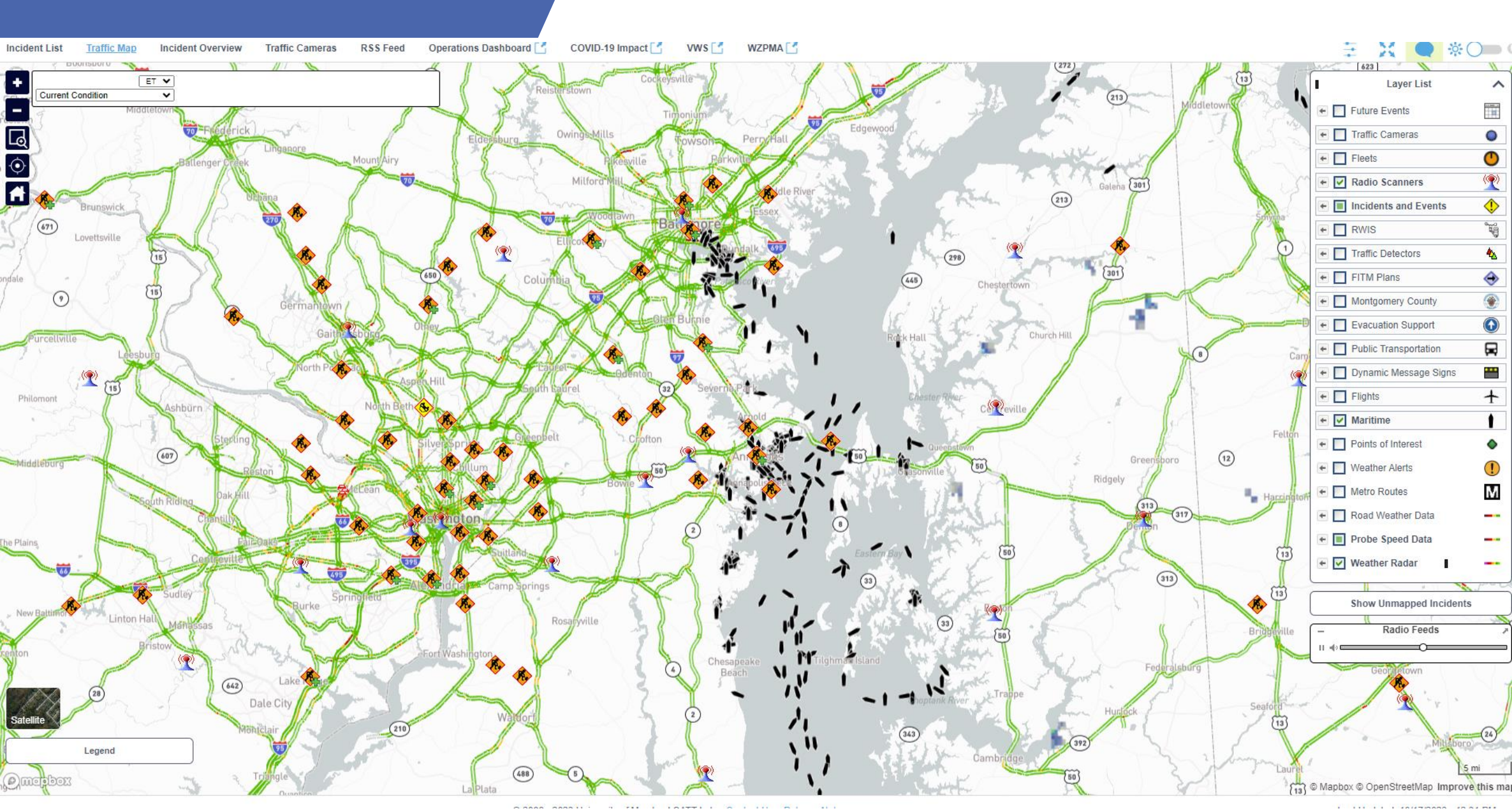
Maritime Data


Incident List
Traffic Map
Incident Overview
Traffic Cameras
RSS Feed
Operations Dashboard
COVID-19 Impact
VWS
WZPMA
ET
Current Condition
Layer List
Future Events
Traffic Cameras
Fleets
Radio Scanners
Incidents and Events
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FITM Plans
Montgomery County
Evacuation Support
Public Transportation
Dynamic Message Signs
Flights
Maritime
Points of Interest
Weather Alerts
Metro Routes
Road Weather Data
Probe Speed Data
Weather Radar
Show Unmapped Incidents
Radio Feeds
Satellite
Legend
5 mi
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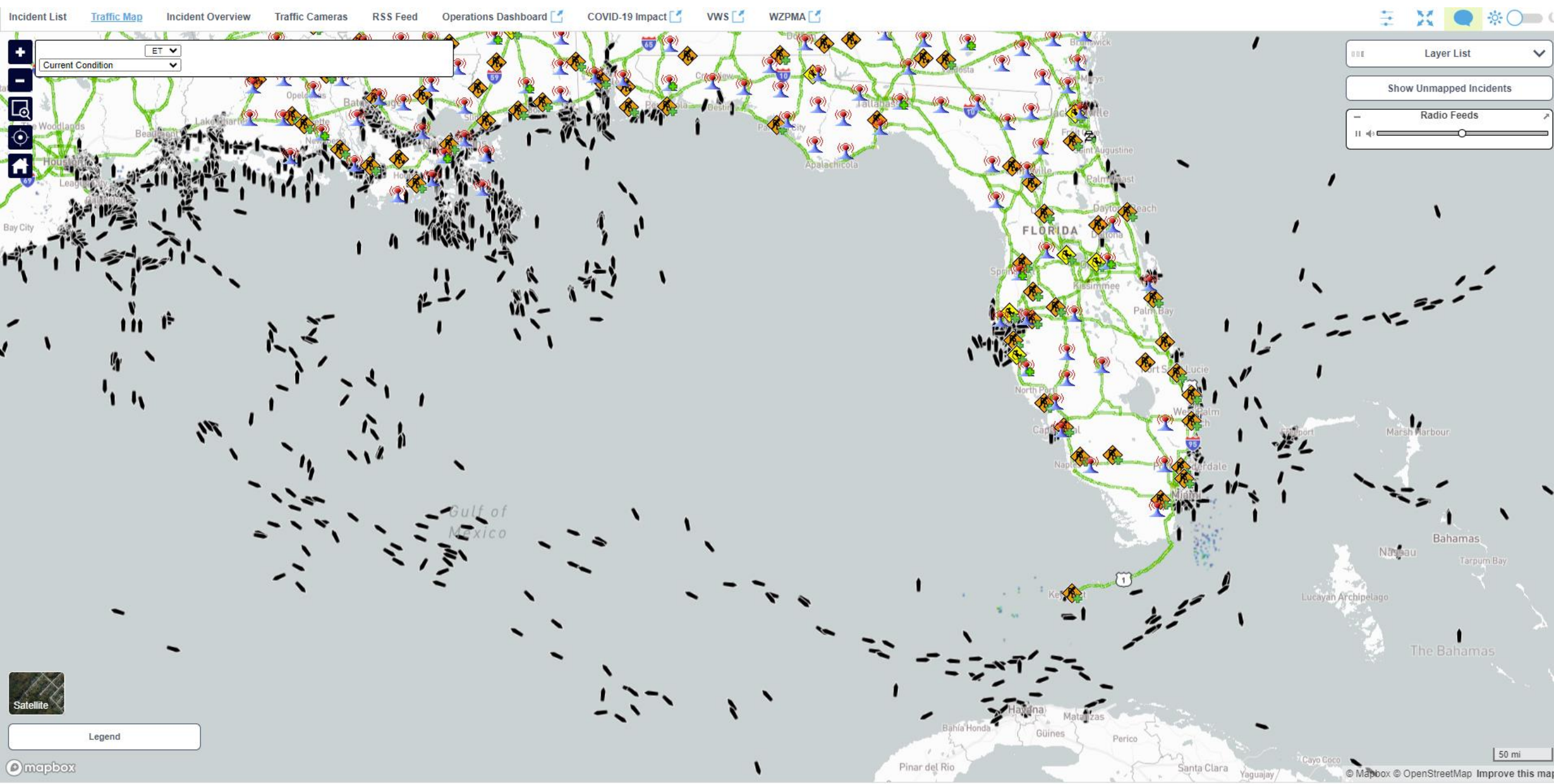
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Current Condition
Layer List
Show Unmapped Incidents
Radio Feeds
FLORIDA
Gulf of Mexico
Satellite
Legend
50 mi
mapbox
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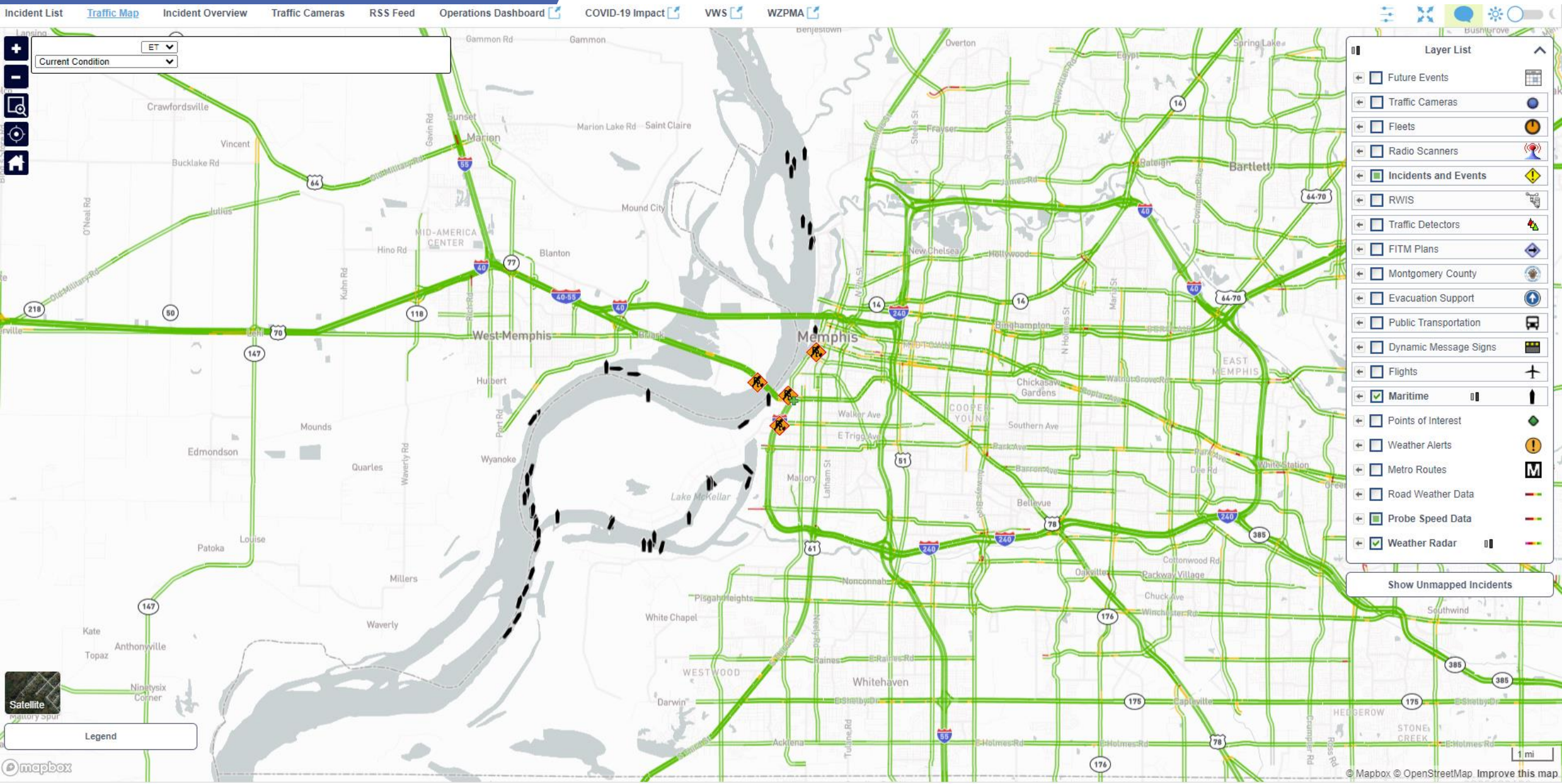
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Vincent
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Sunset
Marion Lake Rd
Saint Claire
Mound City
Blanton
Hino Rd
MID-AMERICA CENTER
Julius
Hulbert
Mounds
Edmondson
Quarles
Wyanoke
Lake McKellar
Patoka
Louise
Millers
Waverly
Kate
Anthonyville
Topaz
Ninetysix Corner
Gammon Rd
Gammon
Overton
Egypt
Spring Lake
Frayser
Raleigh
Bartlett
New Chelsea
Hollywood
Binghampton
Chickasaw Gardens
EAST MEMPHIS
COOPER-YOUNG
Walker Ave
E Trigg Ave
Southern Ave
Mallory
Bellevue
Nonconnah
Pisgah Heights
White Chapel
WESTWOOD
Whitehaven
Darwin
Raines
Acklena
Oakville
Rackway Village
Cottonwood Rd
Chuck Ave
Winchester Rd
Southwind
Capleville
HEDGEROW
STONE CREEK
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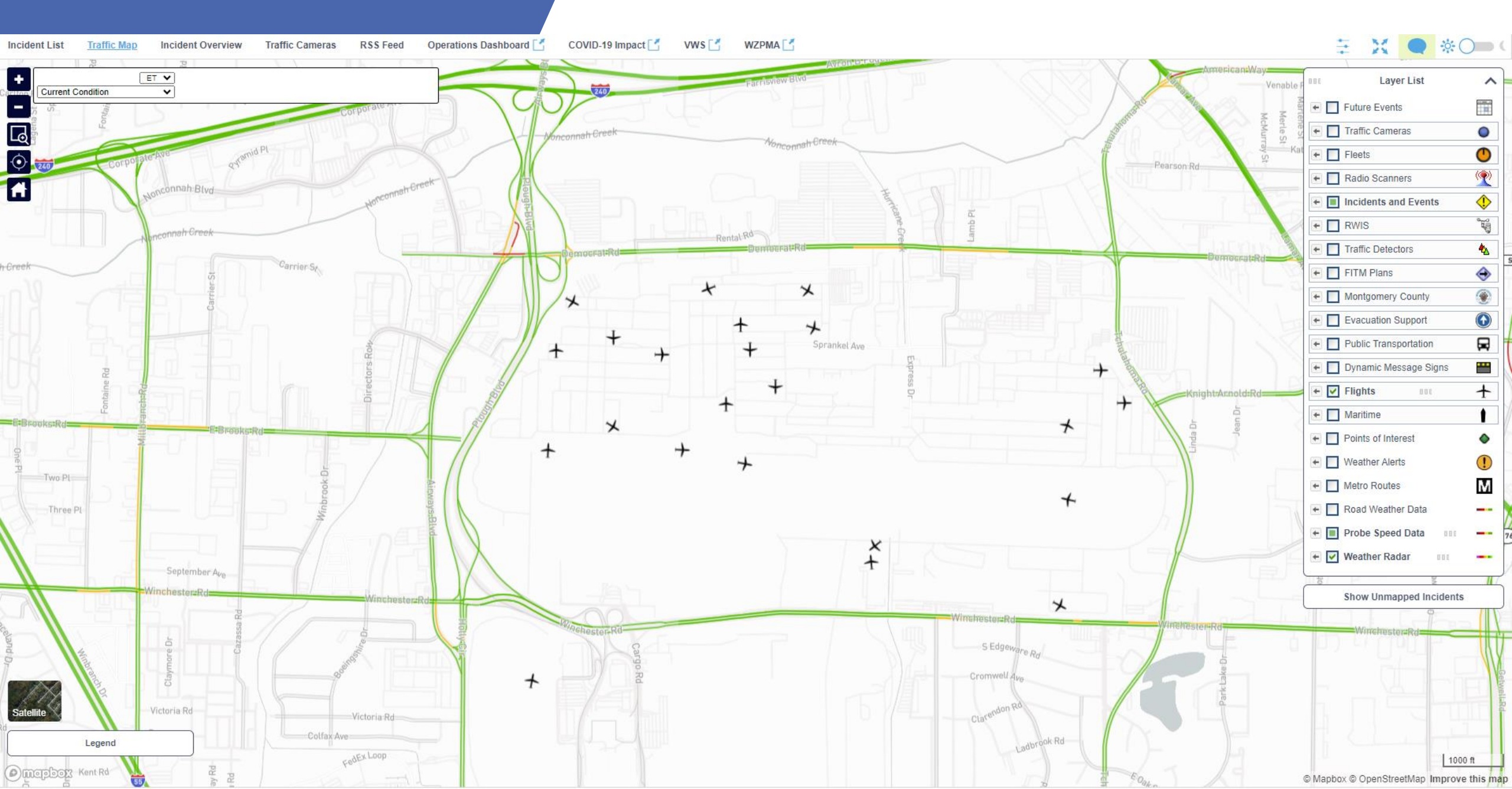
Flight Data



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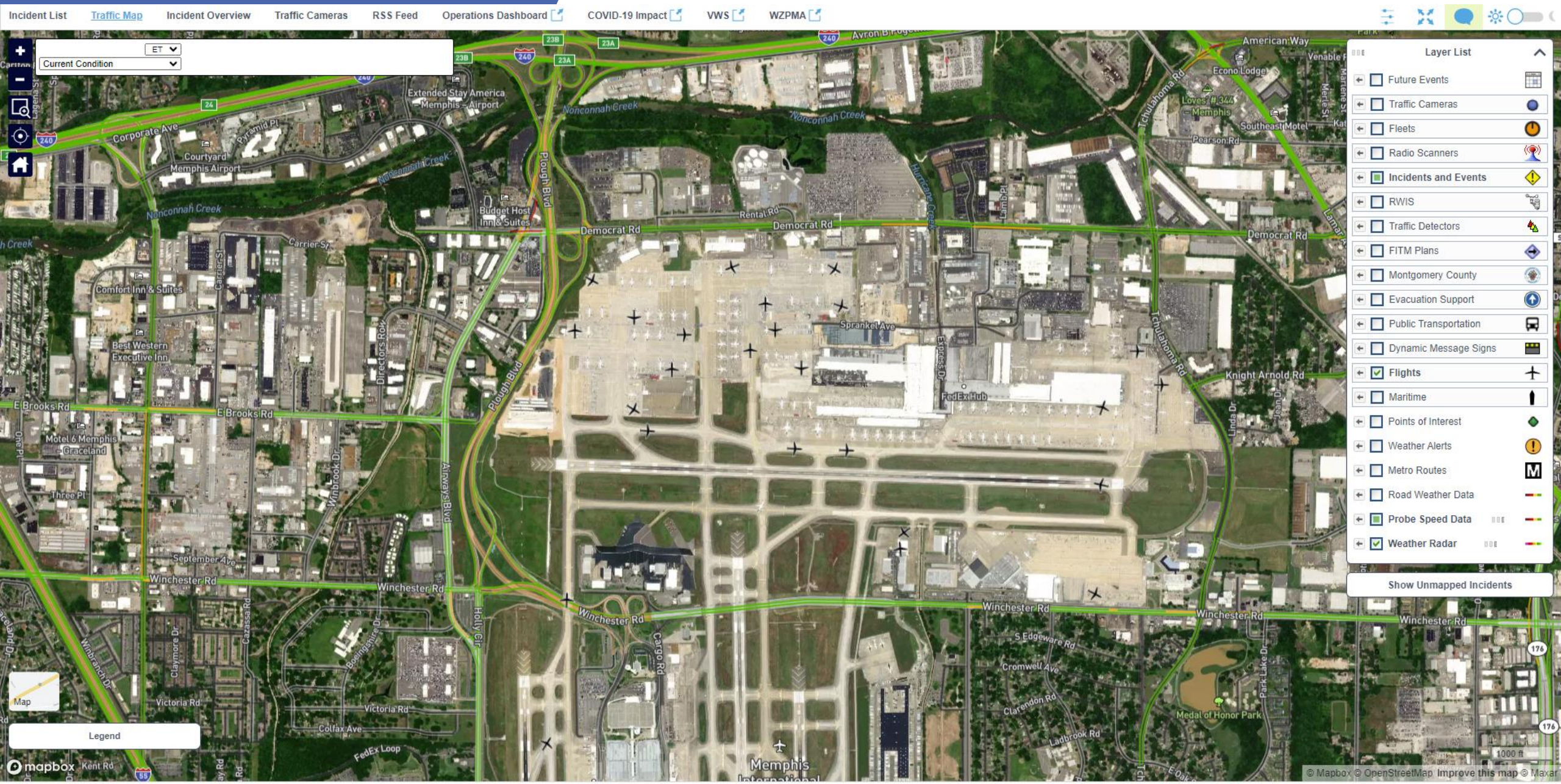

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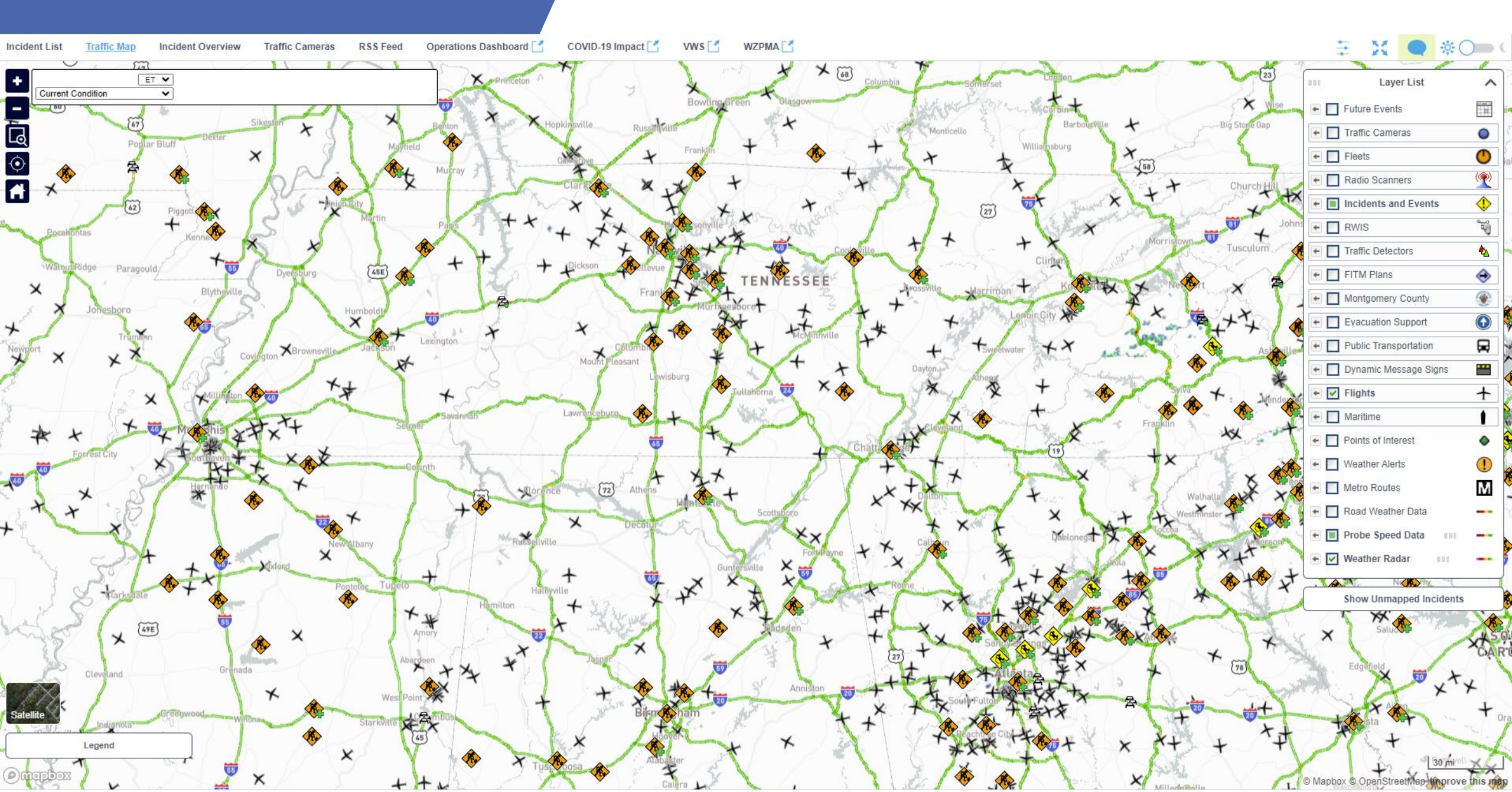

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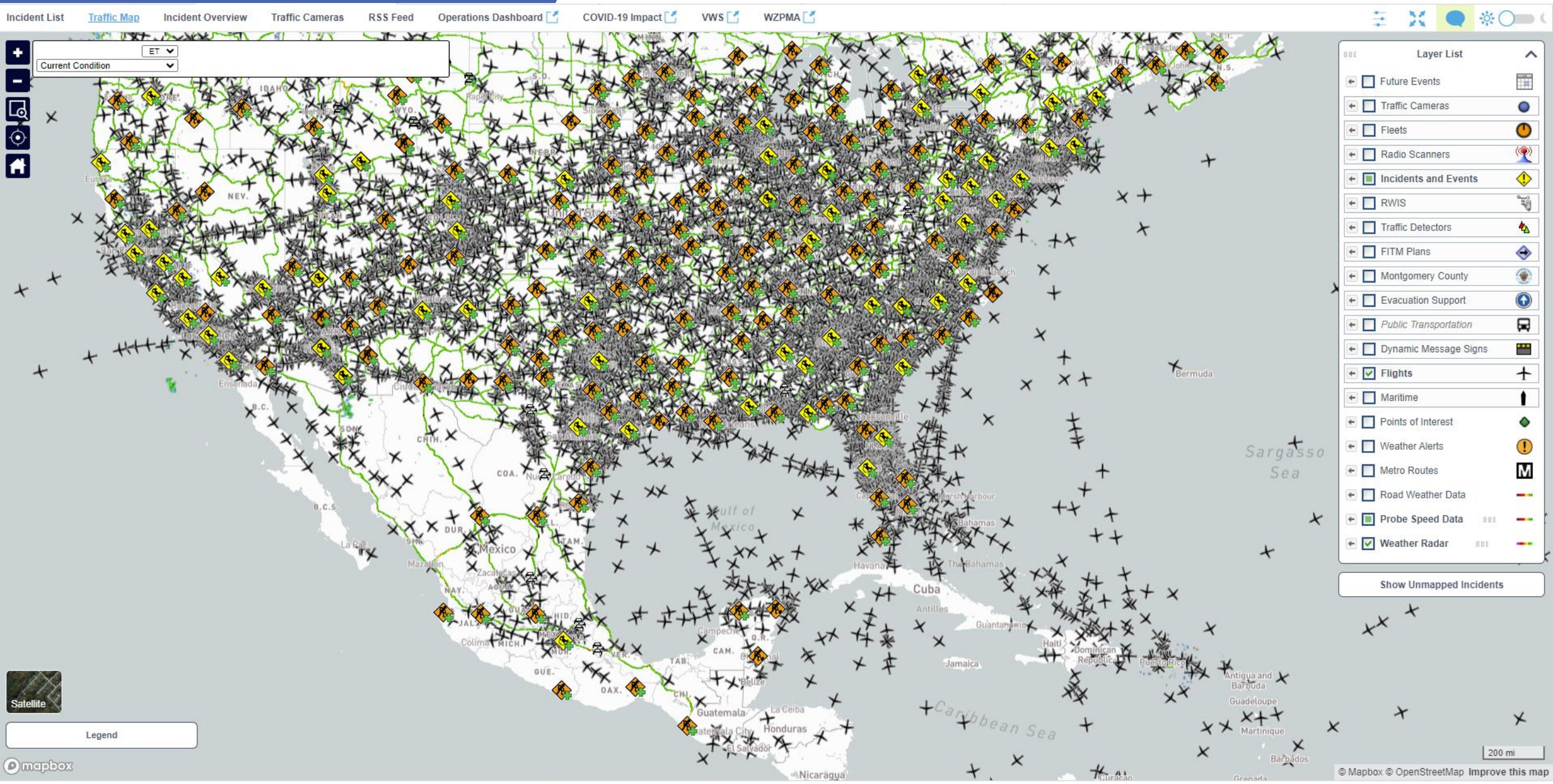

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UDC Volume-Related Improvements

Where is UDC in the PDA Suite?

- The UDC Tool
- Dashboards
- Causes of Congestion Graphs
- Bottleneck Ranking

Limits of the UDC Algorithm Today

- Volumes aren't updated by agencies frequently (at least, not in the format we can use)
- Volume profiles are used (because that's all that is available)
- With volume profiles, we must "limit" volumes during certain congested conditions.
- We need to have an understanding of the number of lanes on the road to understand impacts of congestion. This is not readily available today.
- Passenger vehicle occupancy is unchangeable.

UDC Upgrades in Process

- Significant improvement to volume-limiting equations
- Updated # of lanes from OSM conflation
- Added ability for users to change passenger vehicle occupancy (default = 1.7)

New Volume Limiting Explanation

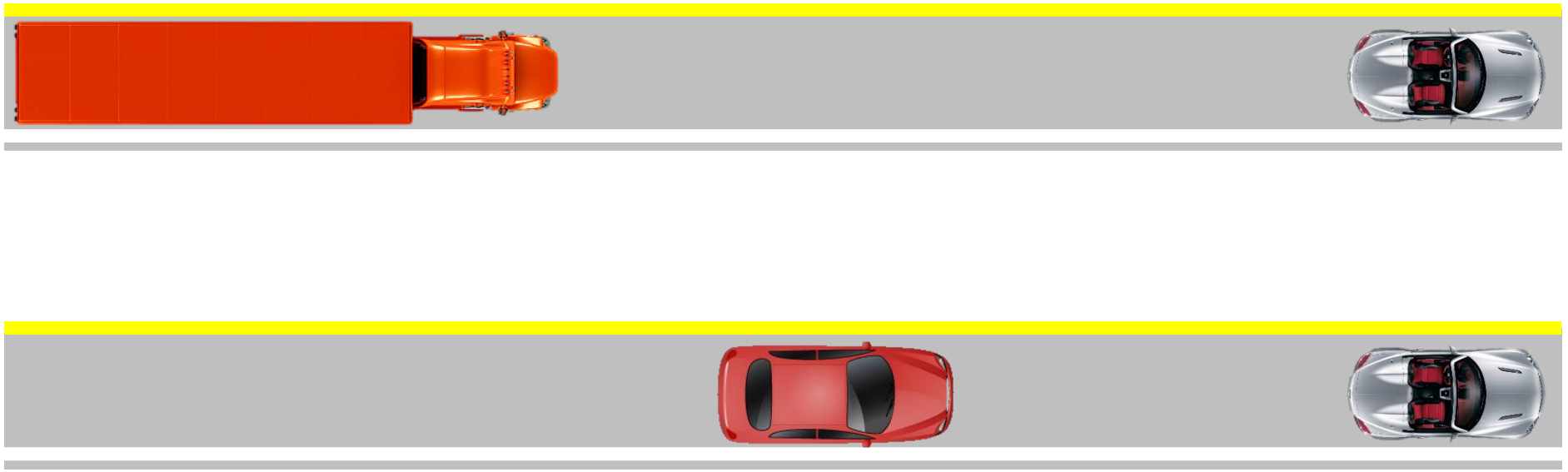
Assumption: As congestion increases, speeds drop, and vehicles follow closer

High Speed

Moderate Speed

Low Speed

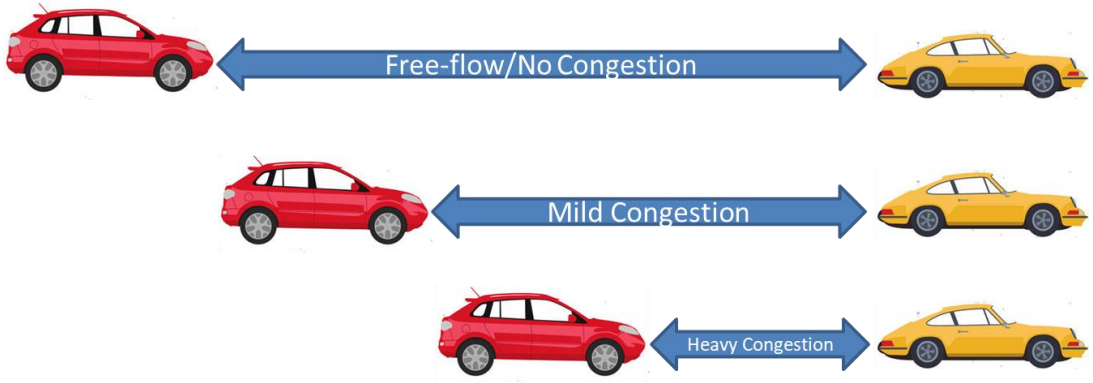
Assumption: For a given speed, cars can follow closer than trucks



Procedure

Step 1: Estimate spacing of passenger and commercial vehicles

Step 2: Calculate total lane length consumed by each vehicle (vehicle length and spacing)



Step 3: Compute # of passenger and commercial vehicles on each segment

Step 4: Compute # of passenger and commercial vehicles traversing the segment

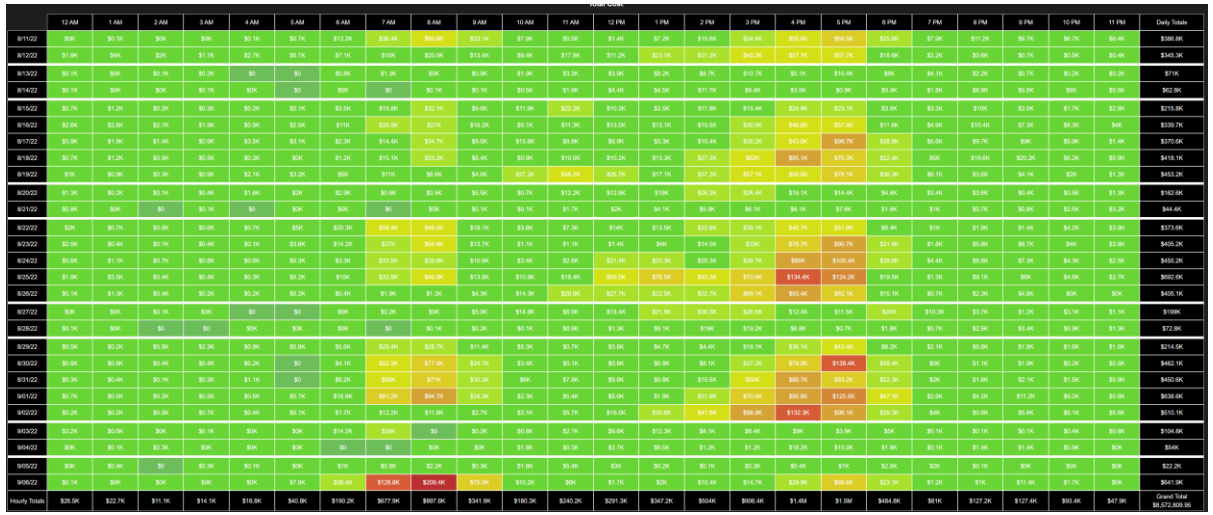
Step 5: Compare the car-following model with the historical profiling volume to pick the minimum

CFM is used in the Causes of Congestion Graphs (CCG)

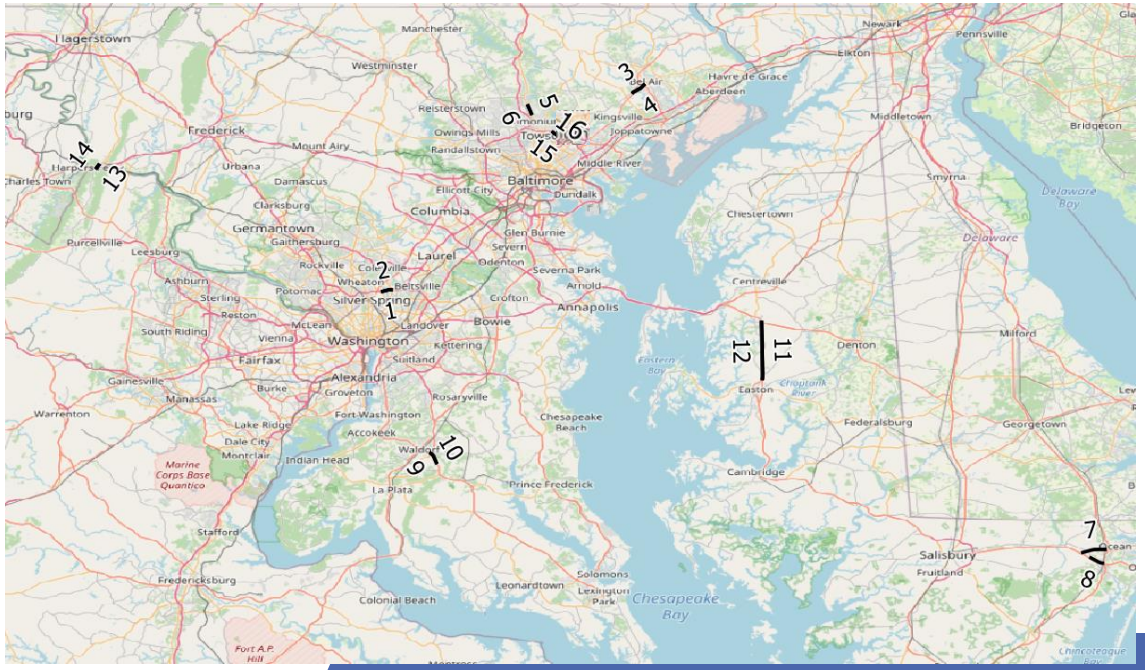
Validation of CFM Volume Limiting Algorithm

Example Validation

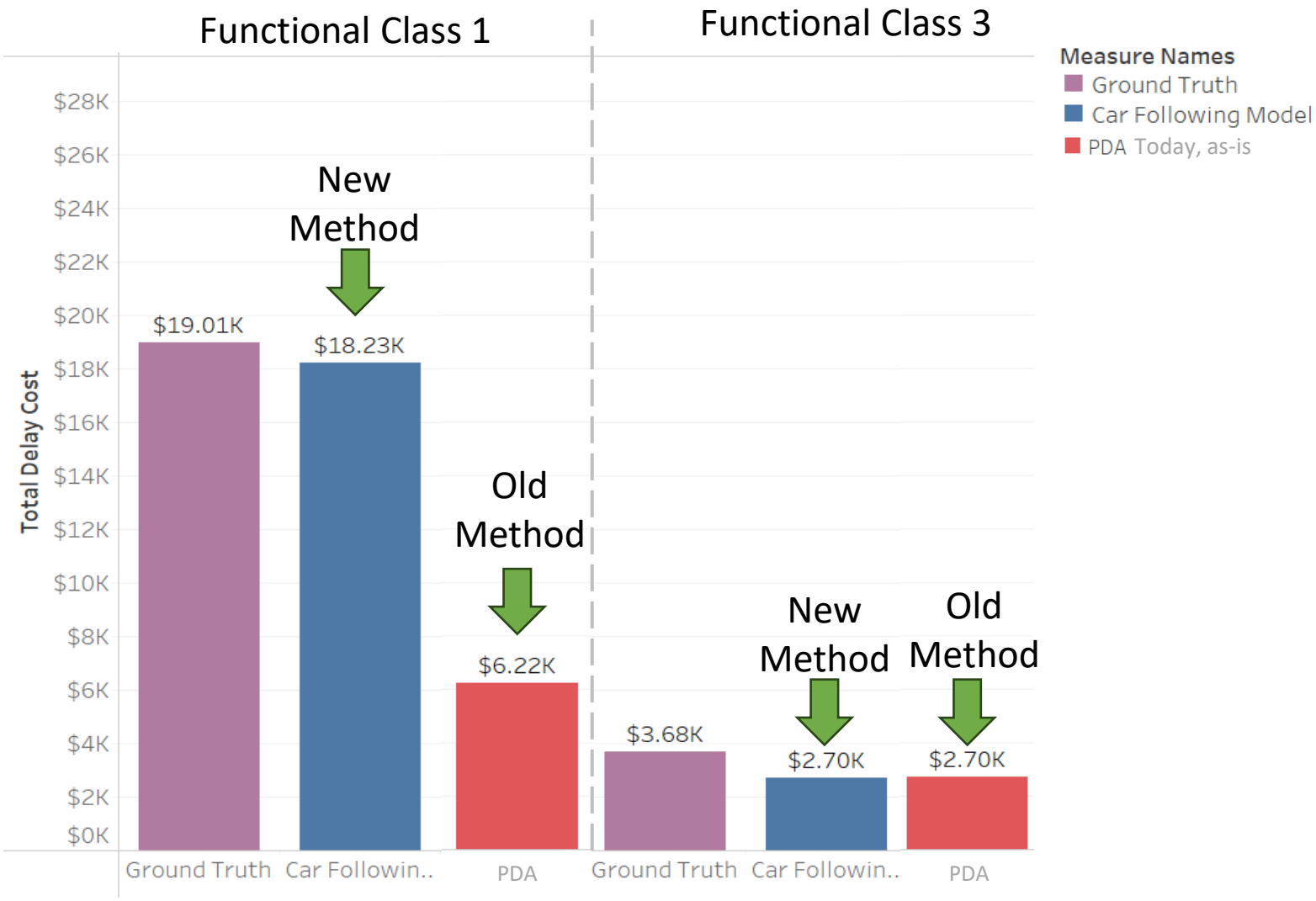
- Ground Truth: 16 ATR stations in MD
- Analysis Period: Wed May 22, 2019
- Compare:
  1. UDC using ATR volumes
  2. UDC using PDA volume limiting equations
  3. UDC using CFM volume limiting equations



Number	Tmc	FirstName	Miles	FRC	AADT
1	110-04625	MD-193/University Blvd/Exit 29	1.19	1	107518
2	110+04626	MD-650/New Hampshire Ave/Exit 28	1.14	1	107518
3	110-12783	US-1/Belair Rd/Belair Byp	1.92	4	10509
4	110+12784	MD-24/Vietnam Vets Memorial Hwy	1.92	4	10509
5	110+05213	Warren Rd	1.36	4	13347
6	110-05212	Padonia Rd	1.36	4	13347
7	110-07392	US-50/Ocean Gtwy	3.06	3	4700
8	110-06335	US-113/Berlin Dover Rd	1.80	3	7403
9	110-09618	Renner Rd	1.73	3	15662
10	110+09619	MD-5-BR/St Charles Pky	1.74	3	15662
11	110+06360	MD-404/Queen Anne Hwy	9.55	2	16935
12	110-06359	MD-322/Easton Byp/Easton Pky	9.63	2	16944
13	110+06958	Keep Tryst Rd/Valley Rd	0.52	2	12267
14	110-10632	Maryland/Virginia State Line	0.52	2	12267
15	110+04534	MD-567/Cromwell BR Rd/Exit 29	0.25	1	78180
16	110-04533	Providence Rd/Exit 28	0.54	1	78136



Results of UDC Validation



Data from Wed May 22, 2019

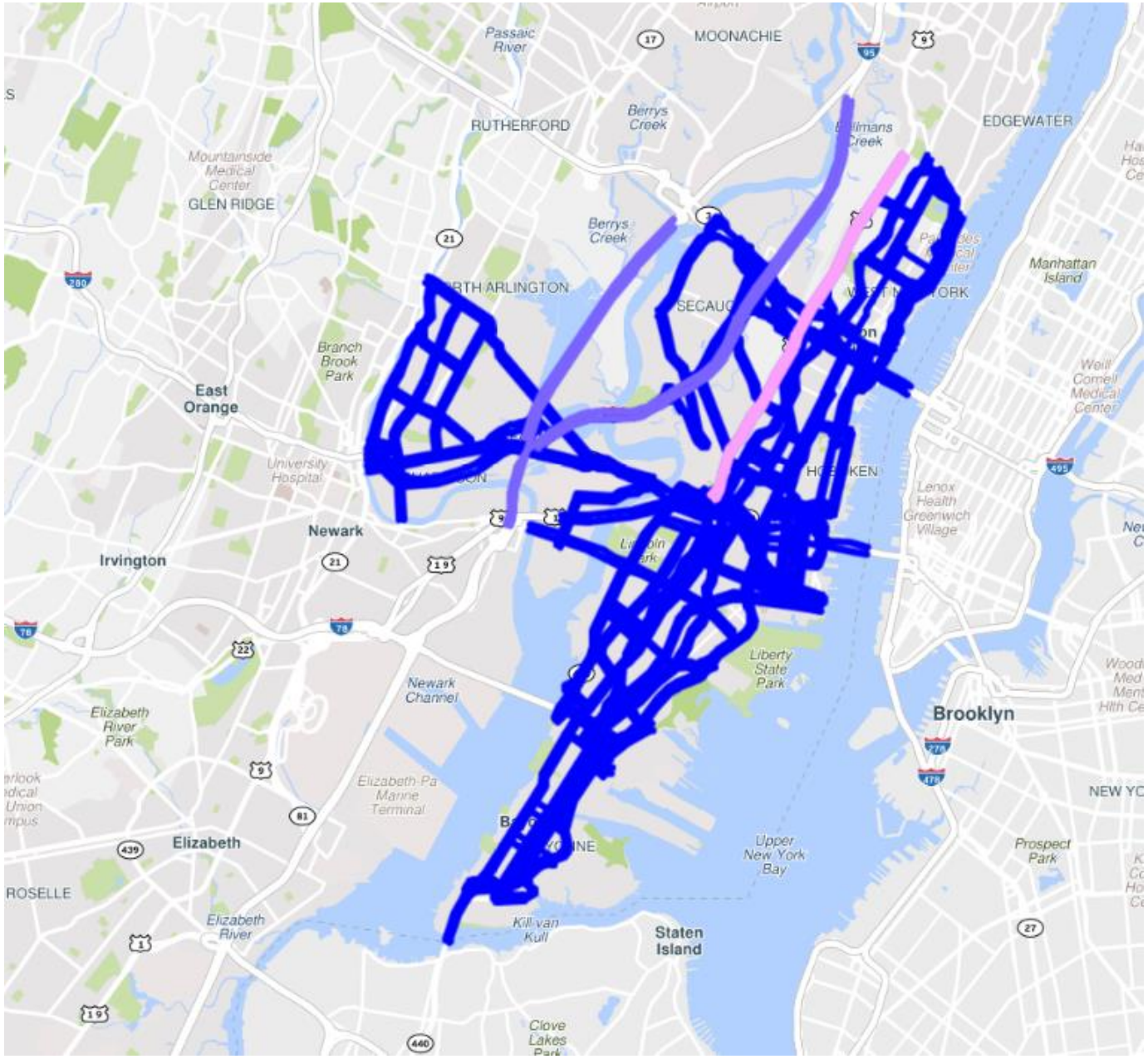
What to expect from new UDC algorithm

Sample analysis in Hudson County, NJ

User Delay Cost

Study Area

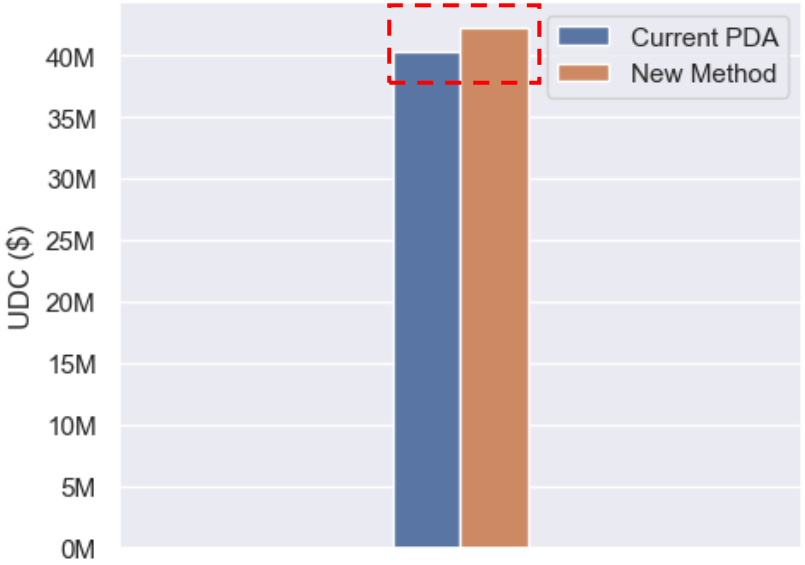
- Hudson County, NJ
  - I-95 Corridor (FRC = 1)
  - Tonnelle Ave (FRC = 3)



User Delay Cost

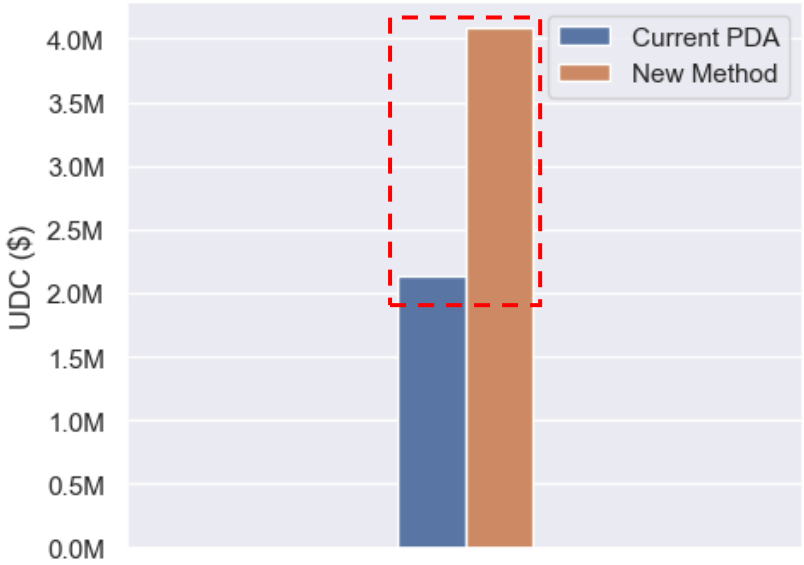
Monthly Pattern (May 2022)

Hudson County



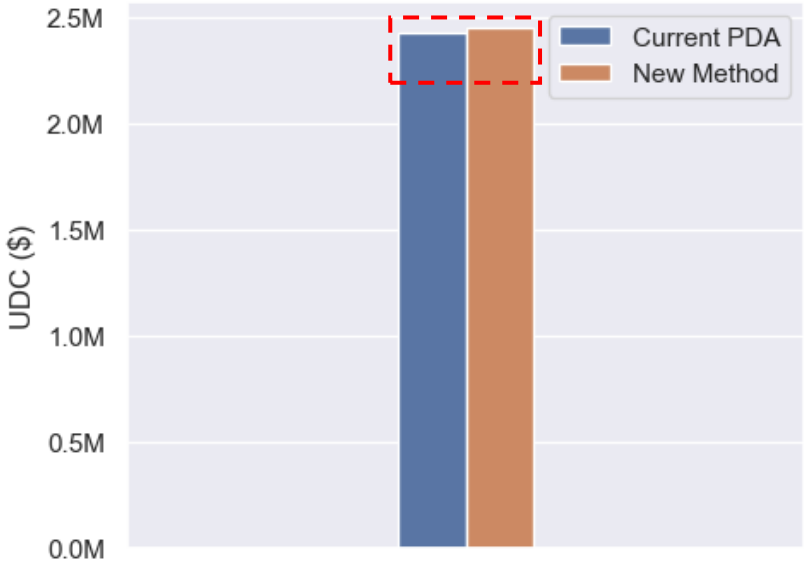
Slight increase from FRC=1 segments in Hudson County

I-95 (FRC=1)



~2X increase on I-95

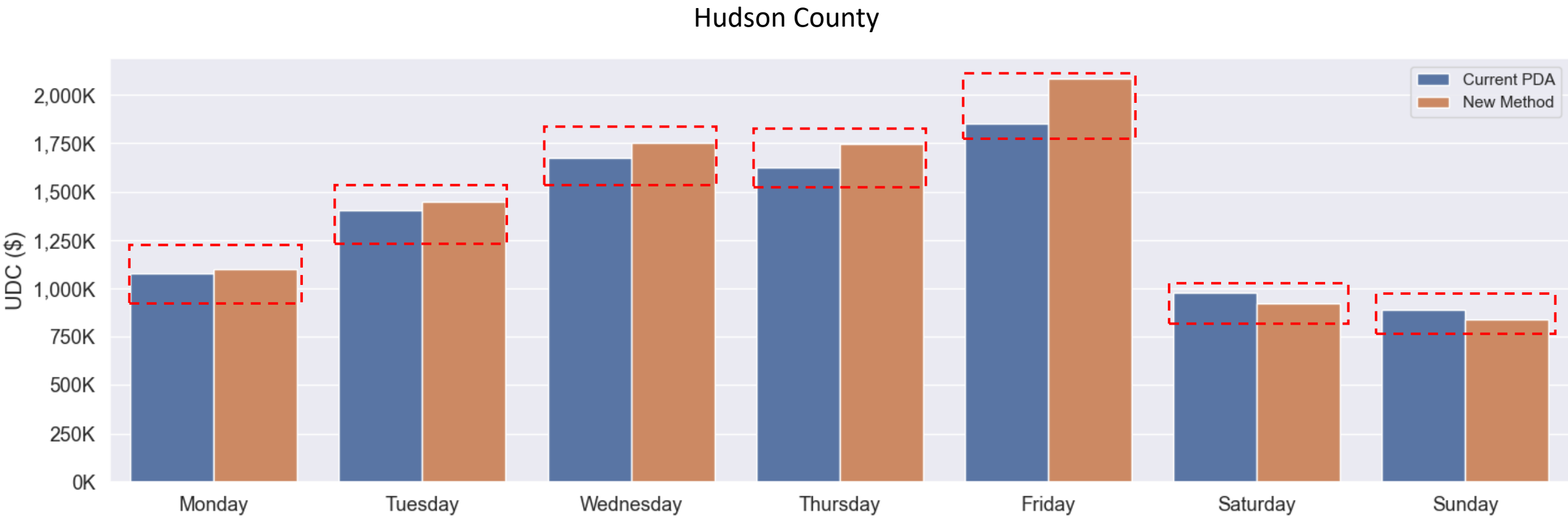
Tonnelle Ave (FRC=3)



Slight increase on Tonnelle Ave

User Delay Cost

Day of week Pattern (May 2nd to May 8th, 2022)

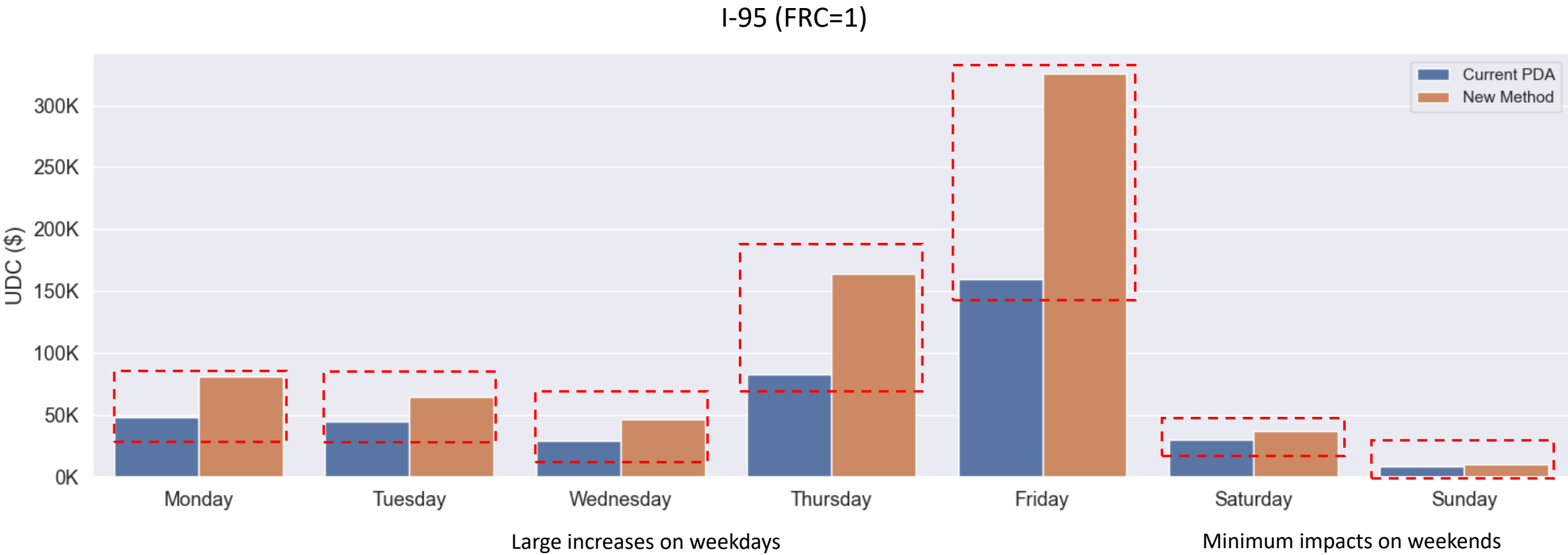


Slight increase from FRC=1 segments in Hudson County on weekdays

Minimum change on weekends

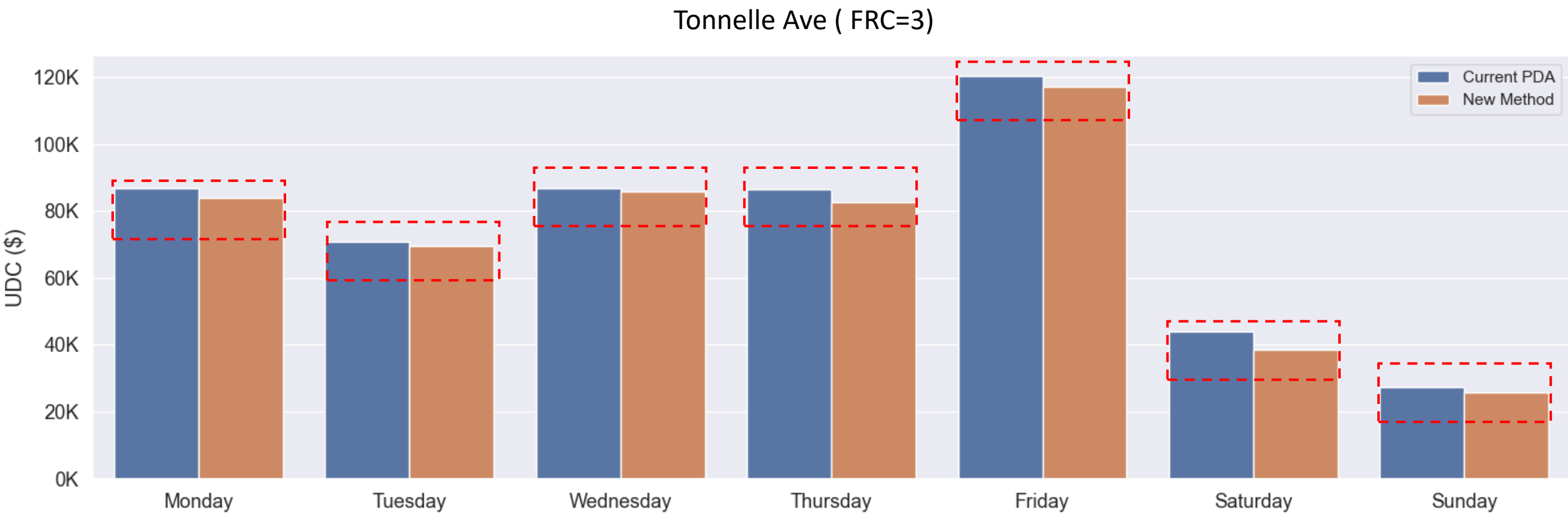
User Delay Cost

Day of week Pattern (May 2nd to May 8th, 2022)



User Delay Cost

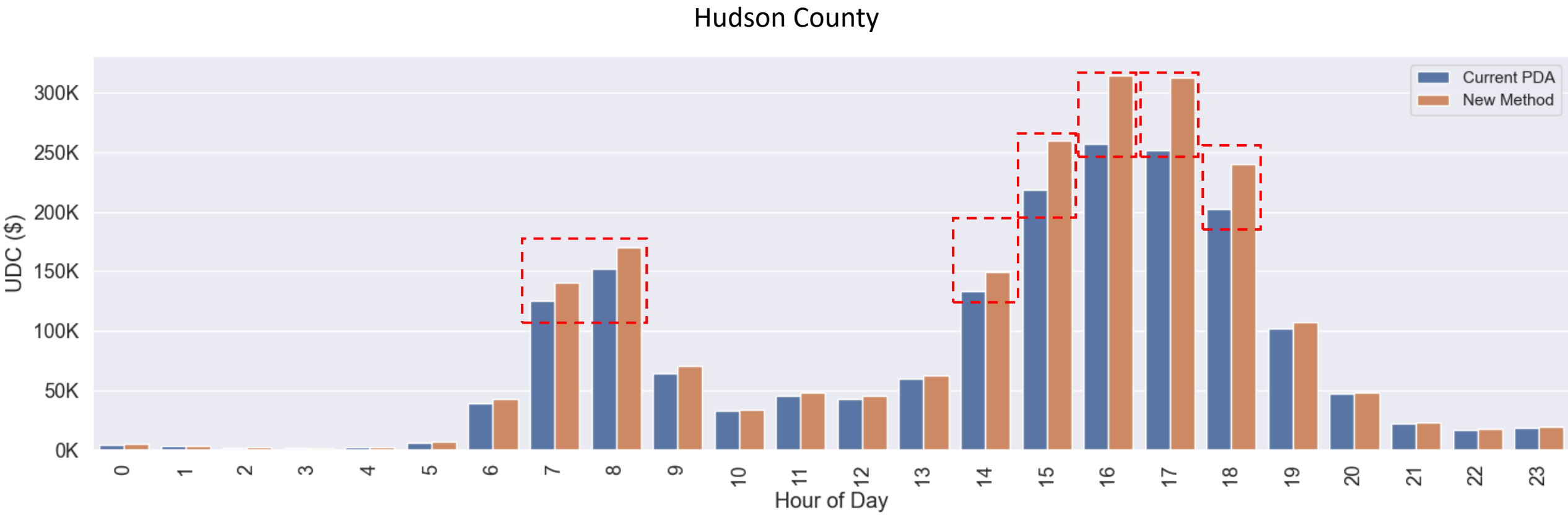
Day of week Pattern (May 2nd to May 8th, 2022)



Minimum impacts all days

User Delay Cost

Hourly Pattern (May 6th ,2022)

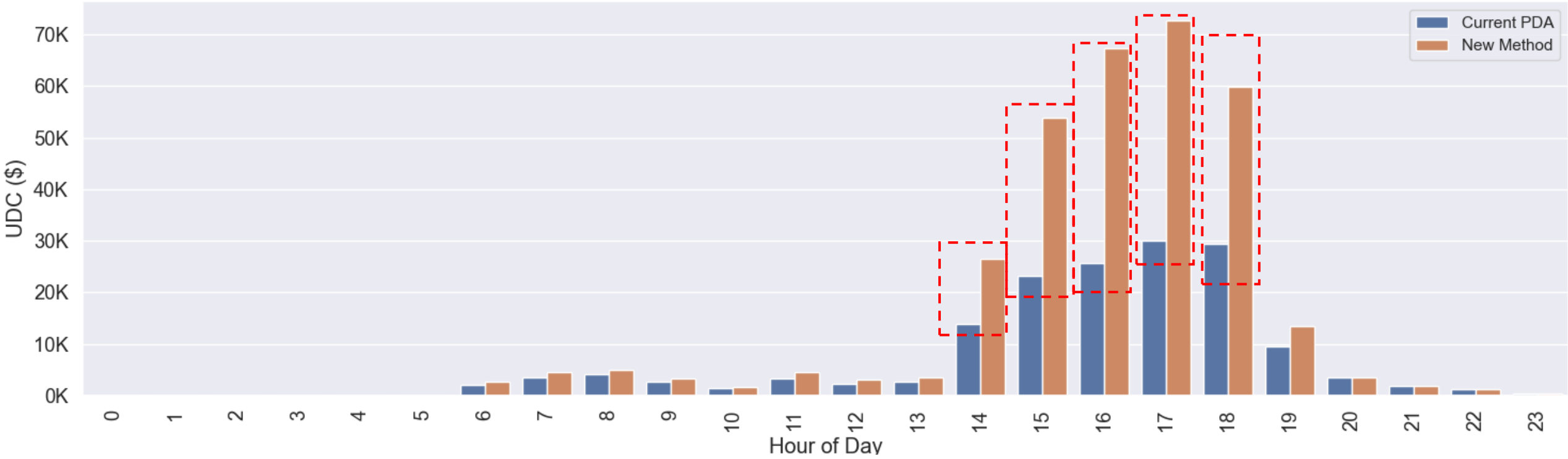


Large increases during peak periods, minimal impact during off-peak hours

User Delay Cost

Hourly Pattern (May 6th ,2022)

I-95 (FRC=1)

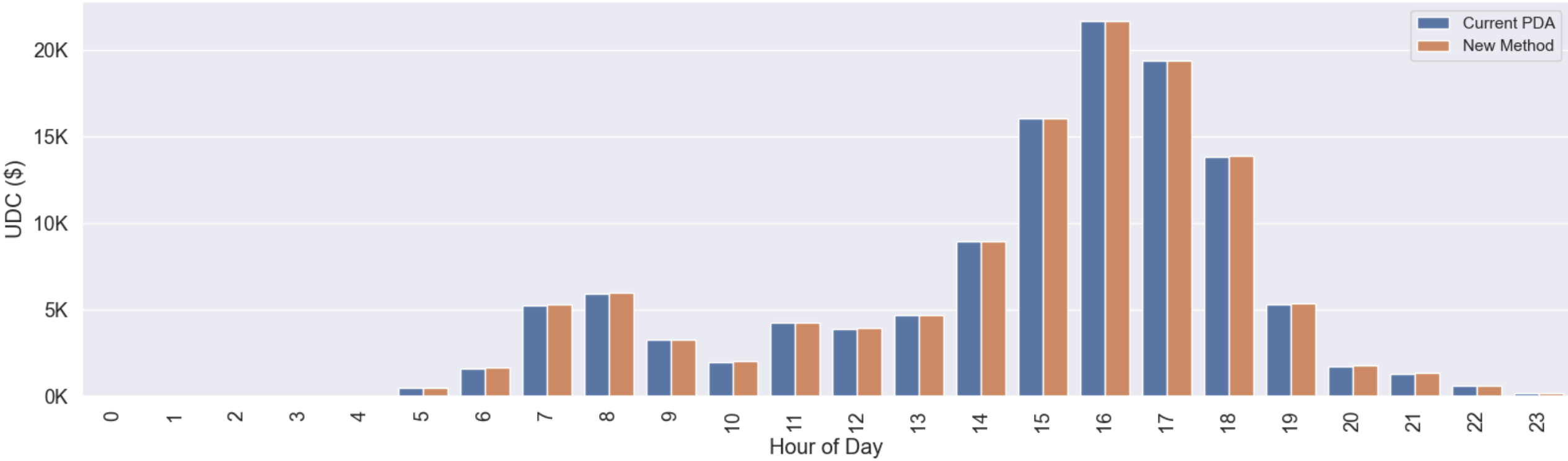


Large increases during peak periods, minimal impact during off-peak hours

User Delay Cost

Hourly Pattern (May 6th ,2022)

Tonnelle Ave (FRC=3)



Minimal impact all hours

Summary of expected changes in UDC

- In general, the new UDC algorithm will ***increase*** UDC values
  - Larger increases expected on FRC=1 segments, especially during peak periods and weekdays
  - Little or no increases on lower FRC
- Magnitude of change depends on:
  - Mix of FRC's in query
    - More FRC=1 segments will generally make increase the magnitude of the increase in UDC
    - More lower FRC segments will minimize the change in UDC
- Day of week and hours of day
  - AM and PM weekday peak periods show the largest increase in UDC
  - Severity of congestion
    - More severe congestion tends to increase the magnitude of the UDC increase

Critical Reminders

- API Changes: sunsetting old API early next year.
- Volumes Needed
  - Causes of Congestion
  - User Delay
  - Energy Analytics
- UDC Changes Coming Soon
- Enhancement Working Group will meet soon

Creating Custom Congestion Exhibits with Lane Diagrams and Aerials for Downtown San Antonio Freeway Feasibility Study

Jaimie Sloboden

Technical Manager

Michael Baker International

Michael Baker
INTERNATIONAL

Congestion Heat Map Exhibits using RITIS Data

The Eastern Transportation Coalition

RITIS User Group Web Meeting

October 19, 2023

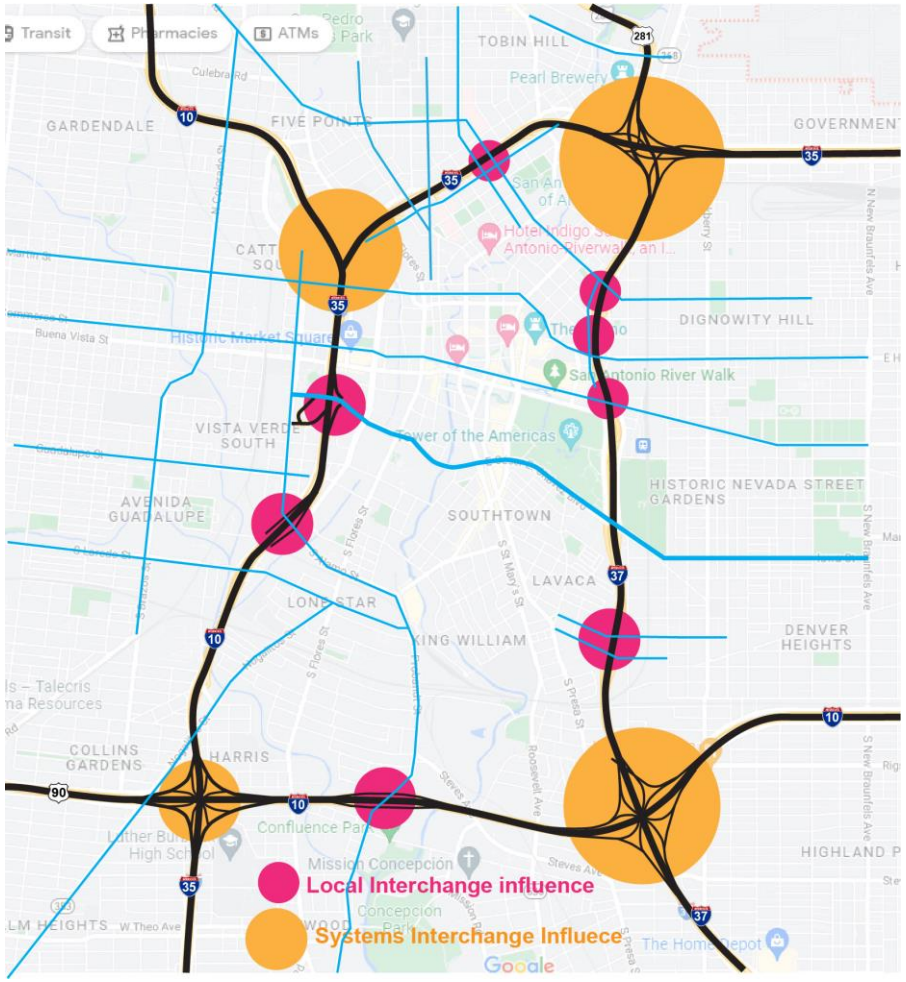
Michael Baker INTERNATIONAL | *We Make a Difference*

Agenda

- Project Overview
- Data Sources
- Congestion Exhibit Demonstration
- Duration of Congestion Exhibit
- Other Application

Downtown San Antonio Freeway Study

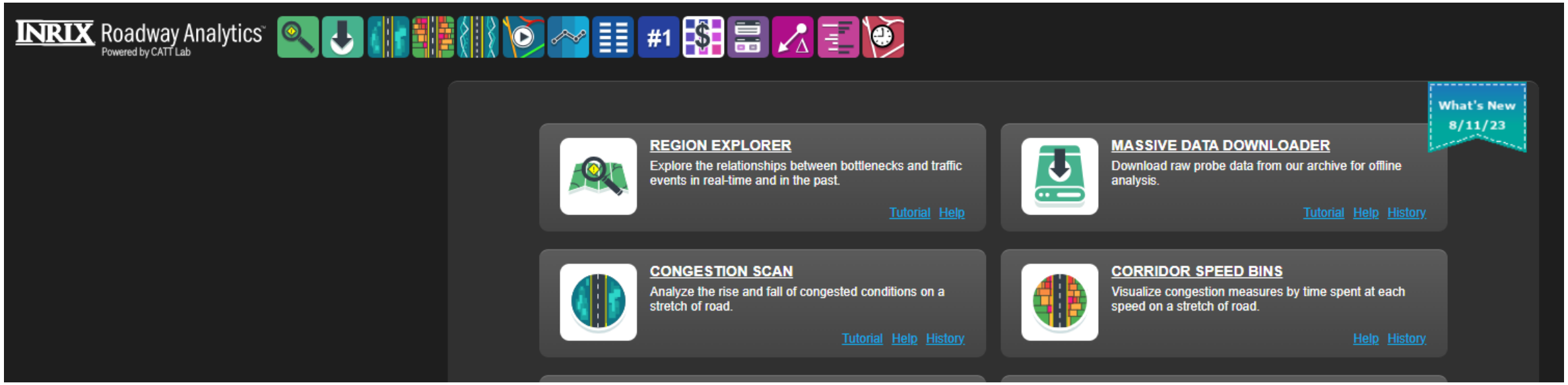
- Feasibility, Schematic, PS&E
- Includes:
  - I-10
  - I-35
  - I-37
  - US 281
  - US 90
- Short Term Improvements
- Long Term Visioning

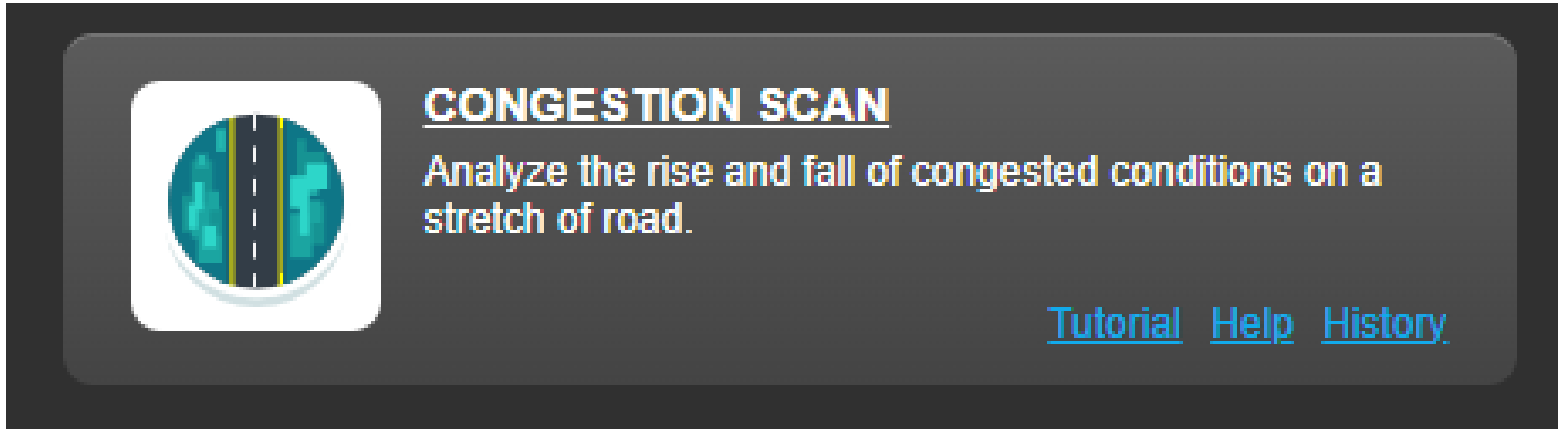


RITIS Data Source

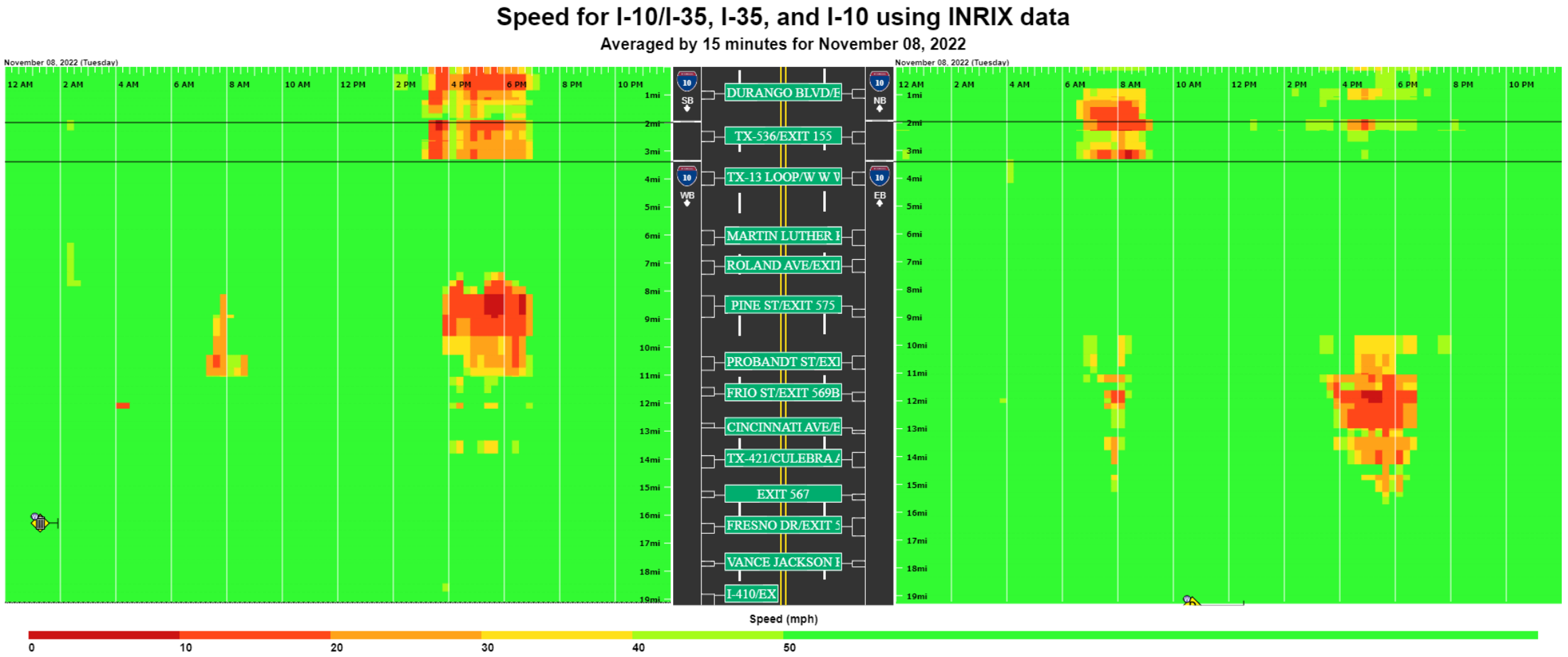
Roadway Analytics Congestion Scan

Roadway Analytics – Congestion Scan





Congestion Scan Image



Raw Congestion Scan Data

15-min time increments

	SEGMENT ID	NAME	MILES	3:00 PM	3:15 PM	3:30 PM	3:45 PM	4:00 PM	4:15 PM	4:30 PM	4:45 PM	5:00 PM	5:15 PM	5:30 PM	5:45 PM	6:00 PM	6:15 PM	6:30 PM	6:45 PM	7:00 PM
I-37 (SOUT	112-04630	HOUSTON ST/EXIT 141	0.352905	63	63	62	61	60	55	52	52	53	41	37	44	54	60	61	63	64
	112N04631	I-35 ACCESS RD/EXIT 142	0.417677	56	56	55	54	53	49	45	44	46	37	29	37	46	52	54	55	57
	112N04630	HOUSTON ST/EXIT 141	0.289635	65	65	64	64	63	59	56	55	56	38	36	44	55	62	63	64	65
	112-04629	COMMERCE ST/EXIT 141	0.0159	65	65	65	65	64	59	56	56	56	38	36	43	56	63	64	65	66
	112N04629	COMMERCE ST/EXIT 141	0.52902	67	67	67	67	66	58	54	54	50	32	33	40	54	65	67	67	68
	112-04628	DURANGO BLVD	0.181682	69	68	68	67	66	56	51	49	44	29	30	36	49	64	68	68	69
	112N04628	DURANGO BLVD	0.275936	67	67	66	65	63	54	51	49	43	33	33	37	50	62	66	67	68
	112-04627	FLORIDA ST/CAROLINA ST	0.103371	66	65	65	64	60	53	51	47	41	35	34	37	48	60	64	65	67
	112N04627	FLORIDA ST/CAROLINA ST	0.438286	66	64	63	62	60	54	52	49	46	40	39	41	49	60	63	60	66
	112-04626	I-10/US-90/US-87	0.246131	66	66	65	64	63	60	59	57	55	51	49	46	51	62	63	59	62
	112N04626	I-10/US-90/US-87	0.667771	69	69	69	69	68	68	67	67	67	66	61	51	56	68	68	67	68
	112-04625	FAIR AVE	0.343496	67	67	67	66	66	67	66	66	67	66	56	49	56	66	67	67	67
	112N04625	FAIR AVE	0.510079	69	68	68	68	68	68	68	68	68	65	50	43	46	57	63	68	69
	112-04624	NEW BRAUNFELS AVE	0.252874	69	68	68	68	68	68	68	67	68	58	50	37	41	48	50	63	68
	112N04624	NEW BRAUNFELS AVE	0.203333	69	68	68	68	68	68	68	67	67	53	44	31	45	48	48	57	68
	112-04623	SOUTHCROSS BLVD	0.13924	69	68	68	68	68	68	68	67	66	53	45	36	49	51	52	53	65
	112N04623	SOUTHCROSS BLVD	0.277508	69	68	68	68	68	68	67	67	65	63	61	59	62	64	64	65	67
	112-04622	HOT WELLS BLVD	0.170574	68	67	67	67	67	66	67	66	65	65	65	65	64	66	67	67	67
	112N04622	HOT WELLS BLVD	0.451258	67	67	66	66	66	66	66	65	65	64	64	65	65	66	67	67	67
	112-04621	PECAN VALLEY DR	0.278477	67	67	67	67	67	66	66	65	66	62	62	63	65	66	67	67	67
	112N04621	PECAN VALLEY DR	0.419578	69	68	68	68	68	68	67	65	65	56	56	56	62	67	68	69	68
	112-04620	TX-13 LOOP/MILITARY DR	0.471932	68	68	68	67	67	67	64	61	56	49	48	48	52	59	66	68	67
	112N04620	TX-13 LOOP/MILITARY DR	0.850806	69	69	69	68	68	63	53	50	44	37	35	38	43	54	63	69	69
	112-04619	I-410	1.04901	68	68	68	67	67	64	62	60	58	53	51	54	57	61	66	68	68
	112N04619	I-410	0.577176	70	70	70	70	70	69	69	69	69	69	68	68	68	69	70	70	70
US-281 (SC	112-04566	SUNSET RD	0.293994	66	66	67	66	65	66	66	66	65	59	65	66	67	67	67	68	68
	112N04566	SUNSET RD	0.693154	66	66	66	66	66	66	65	59	57	34	42	60	65	66	66	67	68
	112-04565	JONES MALTSBERGER RD (SAN ANTONIO) (SOUTH)	0.241705	65	64	64	64	64	64	60	48	41	23	26	39	54	61	64	65	66
	112N04565	JONES MALTSBERGER RD (SAN ANTONIO) (SOUTH)	0.631052	65	65	66	66	65	61	45	30	25	16	15	18	31	41	56	65	67
	112-04564	BASSE RD	0.480217	65	65	65	64	63	38	22	18	16	13	12	13	17	23	33	56	66
	112N04564	BASSE RD	0.397147	66	65	65	62	57	30	23	20	18	16	14	15	17	23	26	50	66
	112-04563	HILDEBRAND AVE	1.211104	64	63	61	51	44	30	28	26	24	20	19	21	24	26	31	45	62
	112N04563	HILDEBRAND AVE	0.447519	59	55	54	40	34	27	26	25	23	22	21	22	24	24	29	36	53
	112-04562	MULBERRY AVE	0.430181	57	54	54	49	47	44	43	42	41	40	38	39	41	41	45	50	57
	112N04562	MULBERRY AVE	0.198377	62	61	61	59	58	58	58	57	57	53	47	50	53	55	57	60	63
	112-04561	ST MARYS ST	0.136655	63	63	62	61	60	60	60	59	59	53	46	51	54	57	60	61	64
	112N04561	ST MARYS ST	0.258433	62	62	62	61	59	59	59	58	59	51	44	50	54	57	60	61	63
	112-04560	JOSEPHINE ST/GRAYSON ST	0.470327	59	59	59	58	56	55	56	53	56	44	41	45	50	55	57	58	60
	112N04560	JOSEPHINE ST/GRAYSON ST	0.182733	56	55	55	54	52	51	52	49	51	44	39	41	45	49	48	51	57
	112-04559	I-35	0.195097	54	54	54	53	51	51	52	50	51	46	39	43	46	48	48	50	56
	112N04559	I-35	0.189889	56	56	55	54	53	52	52	51	52	46	37	45	50	52	53	54	57
I-10/I-35 (	112-04668	DURANGO BLVD/EXIT 155	0.268984	52	49	46	36	32	28	28	23	19	16	19	23	28	32	40	50	57
	112N04669	I-10 LOWER LEVEL/US-87/EXIT 156	0.577857	42	36	31	26	24	20	21	18	15	12	12	13	18	22	28	40	50
	112N04668	DURANGO BLVD/EXIT 155	0.248622	54	52	47	38	36	30	30	24	20	17	21	27	30	35	42	51	60
	112N04667	EL PASO ST	0.013249	53	52	48	39	38	32	32	24	21	17	22	28	32	38	45	53	60
	112-04667	EL PASO ST	0.084826	54	52	47	39	38	32	32	24	21	17	22	28	32	38	44	52	60
	112-04598	SAN MARCOS ST/EXIT 154	0.158818	49	49	44	38	40	36	38	32	30	32	34	39	40	44	47	53	58
	112N04599	CEVALLOS ST/LAREDO ST/EXIT 154	0.016346	48	48	41	35	36	32	34	29	27	27	29	36	37	40	44	51	57
	112N04598	SAN MARCOS ST/EXIT 154	0.296458	50	49	47	44	44	42	44	38	35	38	41	44	46	50	53	57	59
	112-04597	I-10/US-90	0.169181	50	47	47	44	44	45	45	39	38	42	45	46	48	49	53	56	57
	112N04597	I-10/US-90	0.071973	55	52	53	51	50	51	51	45	44	50	51	52	53	53	57	58	60
I-35 (SOUT	112N04605	I-35 LOWER/UPPER LEVEL SPLIT	0.112978	49	47	47	40	36	30	25	26	23	19	16	15	19	24	28	38	48
	112N15803	I-35 LOWER/UPPER LEVEL SPLIT	0.13836	49	47	46	32	27	21	19	19	19	16	15	14	18	21	27	38	44
	112N04613	GEORGE C BEACH RD/PETROLEUM DR/EXIT 162-163	0.826089	68	68	69	67	68	67	67	52	40	34	37	54	68	68	67	68	69
	112-04612	I-410 (SOUTH)/EXIT 162	0.409108	66	66	66	63	64	62	51	32	31	26	29	39	60	63	65	67	67
	112-04611	BINZ ENGLEMAN RD/EXIT 161	0.026715	63	63	63	56	58	49	39	31	29	24	29	36	51	54	59	63	64
	112N04612	I-410 (SOUTH)/EXIT 162	0.086277	64	64	64	58	58	52	41	31	29	23	28	36	52	56	61	64	66
	112N04611	BINZ ENGLEMAN RD/EXIT 161	0.171884	63	63	63	54	55	44	37	29	27	22	27	33	48	52	57	63	64
	112-04610	COLISEUM RD/EXIT 160	0.293829	65	63	63	52	50	37	32	24	23	20	22	27	41	46	51	62	66
	112N04610	COLISEUM RD/EXIT 160	0.680883	63	60	58	44	41	31	28	22	20	17	19	22	31	37	41	53	65
	112-04609	WALTERS ST/EXIT 159	0.644986	60	56	51	40	40	31	30	27	26	23	26	29	34	39	41	48	62
	112N04609	WALTERS ST/EXIT 159	0.62069	56	40	36	28	27	22	22	20	20	18	18	22	28	33	40	52	63
	112-04608	NEW BRAUNFELS AVE/EXIT 159	0.151191	42	26	26	20	19	16	18	17	17	16	15	18	20	27	32	44	59
	112N04608	NEW BRAUNFELS AVE/EXIT 159	0.488917	43	34	34	30	28	25	26	26	25	22	21	24	28	32	37	45	56
	112-04607	AUSTIN ST/EXIT 158	0.203947	56	52	51	48	47	41	41	40	36	31	26	31	37	42	47	55	60
	112N04607	AUSTIN ST/EXIT 158	0.189527	61	58	57	55	53	47	46	44	39	33	28	30	37	42	49	58	63
	112-04606	I-37/US-281/EXIT 158	0.216689	62	60	59	58	55	50	48	42	38	30	25	25	31	36	44	55	63
	112N04606	I-37/US-281/EXIT 158	0.426954	56	56	55	49	43	37	31	29	24	17	16	16	19	25	33	44	59
	112-04605	I-35 SPLIT	0.0676	46	44	43	36	33	26	22	22	19	15	14	13	16	20	25	36	47
	112-04639	BROOKLYN AVE/EXIT 157	0.21126	52	49	44	26	21	17	15	16	16	13	13	12	16	17	24	37	44
	112-04638	MAIN AVE/EXIT 157	0.264362	46	42	35	22	18	16	15	14	15	13	13	12	16	17	21	33	46
	112N04638	MAIN AVE/EXIT 157	0.056264	41	36	32	22	21	19	19	18	18	16	16	15	21	22	26	36	46
	112-04637	SAN PEDRO AVE/EXIT 157	0.100352	41	37	33	26	24	21	22	21	20	18	18	18	23	25	29	39	46
	112N04637	SAN PEDRO AVE/EXIT 157	0.091314	41	38	35	30	29	25	26	24	22	21	21	21	27	30	34	42	48
	112-04636	I-10/US-87/EXIT 156	0.033648	43	40	37	32	32	27	28	26	25	22	21	21	27	31	36	44	49
	112N04636	I-10/US-87/EXIT 156	0.011459	44	40	38	33	32	28	29	27	25	22	20	20	27	31	36	45	50
	112N04544	I-10/US-90/US-87/EXIT 153	0.476695	62	59	59	58	58	59	56	45	46	56	57	57	59	58	60	61	63
	112-04543	THEO AVE/EXIT 152	0.159038	59	56	56	55	55	55	50	44	47	54	53	54	54	54	55	56	58
	112N04543	THEO AVE/EXIT 152	0.164123	60	57	58	58	57	57	51	45	48	56	57	56	57	57	58	59	60
	112-04542	MALONE AVE/EXIT 152	0.038165	60	57	60	59	58	59	51	45	49	58	59	58	59	59	59	60	61
	112N04542	MALONE AVE/EXIT 152	0.140587	60	59	61	61	60	60	50	44	48	60	60	59	60	60	61	62	62
	112-04541	DIVISION AVE/EXIT 152	0.239434	61	60	61	61	60	59	49	46	48	59	60	59	60	60	60	61	61

Segment IDs and Names

Congestion Scan Excel

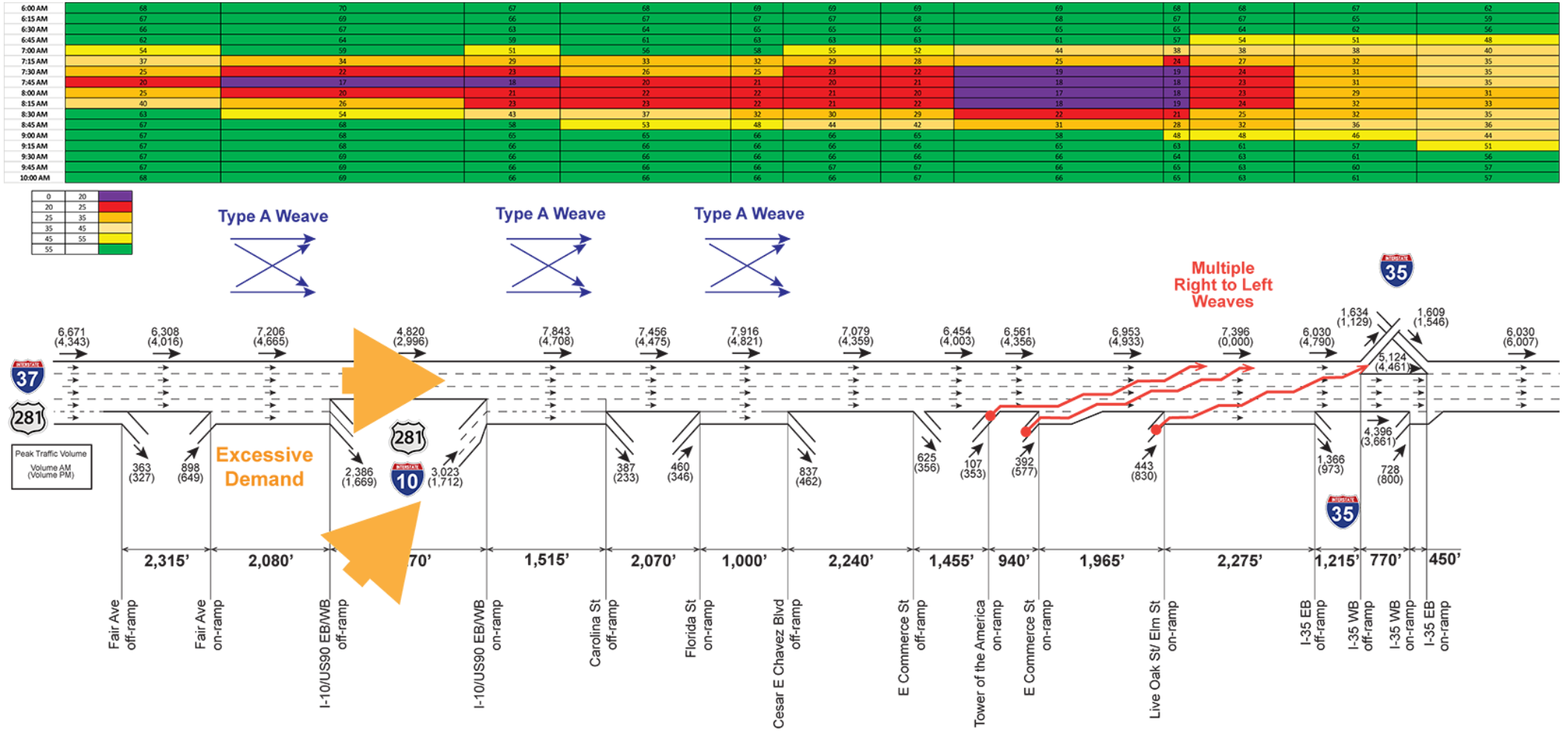
Michael Baker INTERNATIONAL

Speed for I-35 between Southcross Blvd/Exit 151 and Binz Engleman Rd/Exit 161, I-35, I-35 Northbound, and I-10/I-35 using INRIX data
Right graph February 2022 (Every Tuesday, Wednesday, and Thursday)

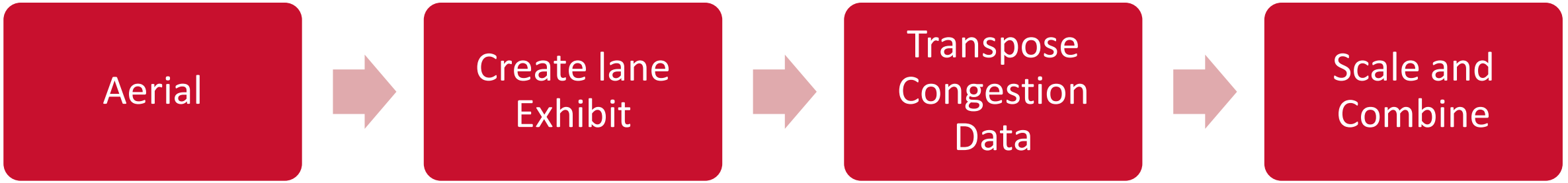
	TMC CODE	NAME	MILES	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
	AT GRADE																									
I-35 Northboun	112P18837	I-37/US-28	0.04	47	43	44	45	49	47	43	38	35	40	43	42	42	43	42	39	34	28	37	42	44	45	46	47
	112+18837	I-37/US-28	0.26	52	48	48	51	55	54	49	39	36	45	48	47	47	47	46	39	30	24	35	47	50	51	52	53
	112P18836	I-35 (UPPE	0.21	53	51	51	55	55	56	51	41	38	49	51	51	51	50	49	40	23	18	33	50	52	53	54	55
	112P15803	I-35 LOWE	0.298519	55	55	56	54	57	56	48	42	44	52	54	54	53	53	52	48	40	38	40	50	53	53	51	55
	112+15803	I-35	0.04	56	56	57	57	58	58	46	37	41	51	54	55	53	53	52	47	31	28	33	51	54	54	54	56
	112+04639	BROOKLYN	0.25	56	56	57	57	58	56	44	34	37	48	52	52	52	51	50	46	26	21	30	50	54	53	54	55
	112P04638	MAIN AVE	0.09	56	56	57	57	57	57	43	35	39	49	53	52	52	52	52	48	28	21	30	51	54	54	54	56
	112+04638	MAIN AVE	0.09	56	56	57	57	58	58	44	36	41	50	53	53	53	53	52	48	29	22	31	51	55	54	55	56
	112P04637	SAN PEDR	0.04	56	56	57	56	58	58	44	37	40	50	53	52	52	52	51	48	31	23	32	50	54	54	55	56
	112+04637	SAN PEDR	0.08	56	55	56	56	57	57	46	38	40	50	53	52	51	52	51	48	34	26	35	49	54	54	54	56
	112P04636	I-10/US-87	0.03	56	55	56	56	58	57	47	40	41	50	53	53	52	53	52	50	38	30	38	49	54	54	54	56
	112P04669	I-10 LOWE	0.64	58	58	59	60	62	61	57	52	50	54	58	58	57	58	57	56	52	47	53	57	59	58	58	60
	AT GRADE																									
I-10/I-35 (NORT	112+04669	I-10/US-87	0.15	59	59	61	60	63	63	58	48	46	51	55	55	54	54	53	50	42	37	50	56	56	58	59	60
	112P04668	DURANGO	0.28	59	59	61	61	63	63	56	40	36	46	55	54	53	54	53	47	36	31	48	56	57	58	60	60
	112+04668	DURANGO	0.11	58	58	60	60	63	63	54	35	31	43	54	53	52	54	53	46	34	28	49	56	57	58	60	59
	112P04667	EL PASO S	0.02	57	57	60	60	63	63	54	35	31	44	55	54	53	55	54	48	36	29	50	56	58	58	59	59
	LOWER LEVEL																									
	112P04666	TX-536/EX	0.40	58	57	60	60	63	64	57	39	36	51	59	58	58	58	58	55	45	37	55	58	60	59	60	60
	112+04666	TX-536/EX	0.01	59	58	60	61	64	65	59	42	38	54	61	60	59	59	60	58	51	43	58	60	61	60	60	60
	112P04665	CEVALLOS	0.28	59	58	60	61	65	65	59	40	35	53	60	60	59	59	60	58	51	45	58	60	61	60	60	60
	UPPER LEVEL																									
I-35 (NORTHBO	112P04664	TX-536/EX	0.39	56	55	56	56	60	60	48	22	17	31	52	51	49	52	50	40	20	13	42	53	54	52	56	57
	112+04664	TX-536/EX	0.03	56	53	54	57	60	60	49	18	13	31	53	53	51	52	51	42	18	13	44	53	54	50	53	55
	112P04663	CEVALLOS	0.34	57	56	57	59	62	62	53	22	16	36	57	57	56	57	56	51	27	19	51	56	57	54	57	58
	AT GRADE																									
	112P04599	CEVALLOS	0.03	59	59	60	61	64	64	56	33	27	50	59	60	59	58	59	58	48	45	58	58	60	59	60	60
	112+04599	CEVALLOS	0.22	60	60	60	62	63	64	54	26	21	49	59	60	58	59	59	58	46	49	58	58	59	59	60	60
	112P04598	SAN MAR	0.23	60	60	61	61	64	64	54	22	17	51	61	61	60	60	60	60	48	57	59	60	61	60	61	62
	112+04598	SAN MAR	0.12	60	60	61	61	64	64	53	22	17	52	60	60	60	59	59	59	51	58	59	59	61	60	61	61
	112P04597	I-10/US-90	0.09	60	60	61	61	64	64	54	20	15	54	60	60	60	60	59	59	54	59	59	60	61	61	61	61
	112P04544	I-10/US-90	0.43	62	62	63	63	66	66	61	18	15	59	63	64	64	63	63	63	59	60	61	63	64	62	63	63
	112+04544	I-10/US-90	0.19	61	60	60	62	64	64	60	24	20	59	61	60	60	59	58	57	51	50	54	57	59	59	60	60
	112P04543	THEO AVE	0.17	61	60	60	62	65	65	58	22	19	58	60	59	60	57	57	54	45	43	49	56	59	59	60	60
	112+04543	THEO AVE	0.04	61	60	60	62	65	65	57	21	19	58	61	60	60	57	57	53	44	41	47	56	59	60	61	61

Creating the Exhibit

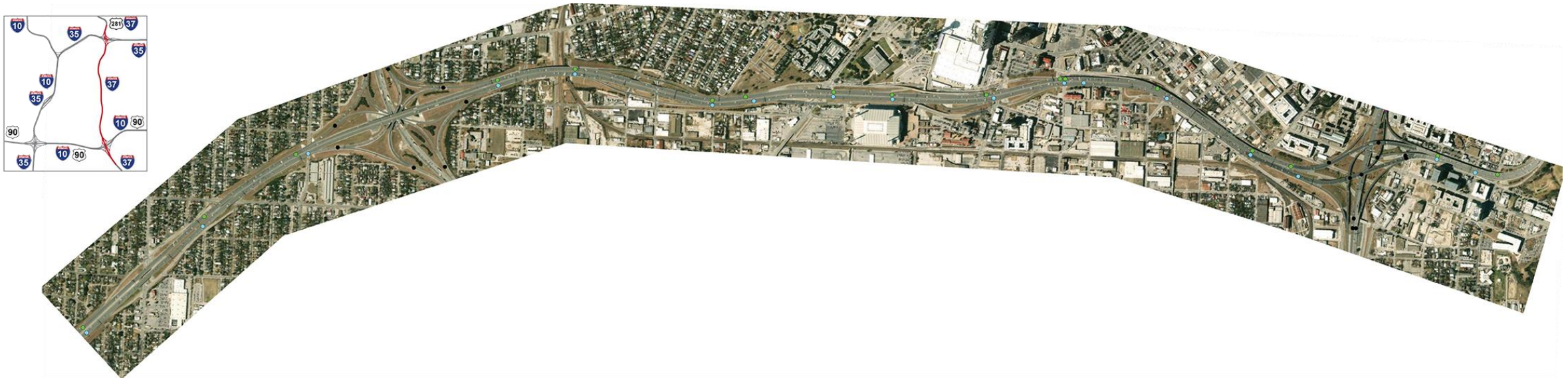
End Product


Type A Weave
Type A Weave
Type A Weave
Multiple Right to Left Weaves
Excessive Demand
Peak Traffic Volume
Volume AM
(Volume PM)
6,671 (4,343)
6,308 (4,016)
7,206 (4,665)
4,820 (2,996)
7,843 (4,708)
7,456 (4,475)
7,916 (4,821)
7,079 (4,359)
6,454 (4,003)
6,561 (4,356)
6,953 (4,933)
7,396 (0,000)
6,030 (4,790)
1,634 (1,129)
1,609 (1,546)
6,030 (6,007)
5,124 (4,461)
4,396 (3,661)
363 (327)
898 (649)
2,386 (1,669)
3,023 (1,712)
387 (233)
460 (346)
837 (462)
625 (356)
107 (353)
392 (577)
443 (830)
1,366 (973)
728 (800)
2,315'
2,080'
70'
1,515'
2,070'
1,000'
2,240'
1,455'
940'
1,965'
2,275'
1,215'
770'
450'
Fair Ave off-ramp
Fair Ave on-ramp
I-10/US90 EB/WB off-ramp
I-10/US90 EB/WB on-ramp
Carolina St off-ramp
Florida St on-ramp
Cesar E Chavez Blvd off-ramp
E Commerce St off-ramp
Tower of the America on-ramp
E Commerce St on-ramp
Live Oak St/ Elm St on-ramp
I-35 EB off-ramp
I-35 WB off-ramp
I-35 WB on-ramp
I-35 EB on-ramp

Process for Creating the Exhibit

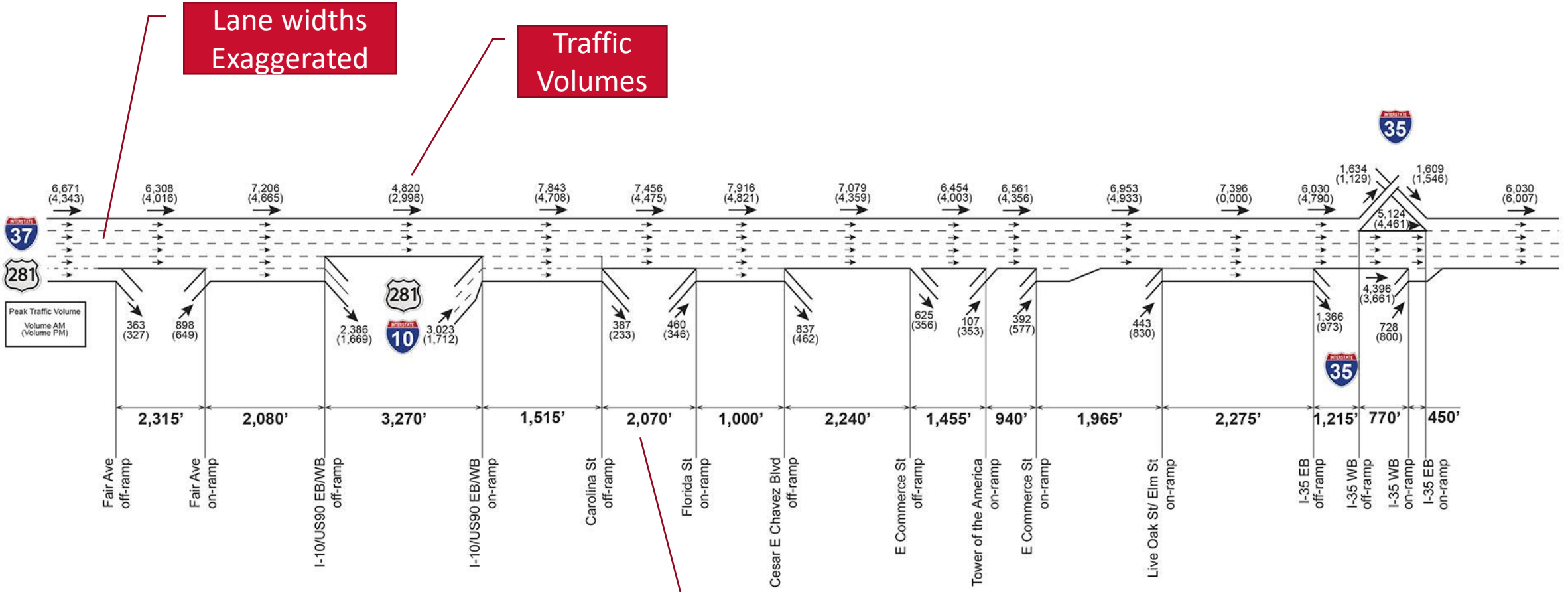


Obtain Aerial



Lane Diagram Exhibit

Michael Baker INTERNATIONAL



Transpose Congestion Map

Speed for I-35 between Southcross Blvd/Exit 151 and Binz Engleman Rd/Exit 161, I-35, I-35, I-35 Northbound, and I-10/I-35 using INRIX data
Right graph February 2022 (Every Tuesday, Wednesday, and Thursday)

	TMC CODE	NAME	MILES	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00
	AT GRADE													
I-35 Northboun	112P18837	I-37/US-28	0.04	47	43	44	45	49	47	43	38	35	40	
	112+18837	I-37/US-28	0.26	52	48	48	51	55	54	49	39	36	45	
	112P18836	I-35 (UPPE	0.21	53	51	51	55	55	56	51	41	38	49	
	112P15803	I-35 LOWE	0.298519	55	55	56	54	57	56	48	42	44	52	
	112+15803	I-35	0.04	56	56	57	57	58	58	46	37	41	51	
	112+04639	BROOKLYN	0.25	56	56	57	57	58	56	44	34	37	48	
	112P04638	MAIN AVE	0.09	56	56	57	57	57	57	43	35	39	49	
	112+04638	MAIN AVE	0.09	56	56	57	57	58	58	44	36	41	50	
	112P04637	SAN PEDR	0.04	56	56	57	56	58	58	44	37	40	50	
	112+04637	SAN PEDR	0.08	56	55	56	56	57	57	46	38	40	50	
	112P04636	I-10/US-87	0.03	56	55	56	56	58	57	47	40	41	50	
	112P04669	I-10 LOWE	0.64	58	58	59	60	62	61	57	52	50	54	
	AT GRADE													
I-10/I-35 (NORT	112+04669	I-10/US-87	0.15	59	59	61	60	63	63	58	48	46	51	
	112P04668	DURANGC	0.28	59	59	61	61	63	63	56	40	36	46	
	112+04668	DURANGC	0.11	58	58	60	60	63	63	54	35	31	43	
	112P04667	EL PASO S	0.02	57	57	60	60	63	63	54	35	31	44	
	LOWER LEVEL													
	112P04666	TX-536/EX	0.40	58	57	60	60	63	64	57	39	36	51	
	112+04666	TX-536/EX	0.01	59	58	60	61	64	65	59	42	38	54	
	112P04665	CEVALLOS	0.28	59	58	60	61	65	65	59	40	35	53	
	UPPER LEVEL													
I-35 (NORTHBO	112P04664	TX-536/EX	0.39	56	55	56	56	60	60	48	22	17	31	
	112+04664	TX-536/EX	0.03	56	53	54	57	60	60	49	18	13	31	
	112P04663	CEVALLOS	0.34	57	56	57	59	62	62	53	22	16	36	
	AT GRADE													
	112P04599	CEVALLOS	0.03	59	59	60	61	64	64	56	33	27	50	
	112+04599	CEVALLOS	0.22	60	60	60	62	63	64	54	26	21	49	
	112P04598	SAN MARC	0.23	60	60	61	61	64	64	54	22	17	51	
	112+04598	SAN MARC	0.12	60	60	61	61	64	64	53	22	17	52	
	112P04597	I-10/US-90	0.09	60	60	61	61	64	64	54	20	15	54	
	112P04544	I-10/US-90	0.43	62	62	63	63	66	66	61	18	15	59	
	112+04544	I-10/US-90	0.19	61	60	60	62	64	64	60	24	20	59	
	112P04543	THEO AVE	0.17	61	60	60	62	65	65	58	22	19	58	
	112+04543	THEO AVE	0.04	61	60	60	62	65	65	57	21	19	58	

Speed for I-35 between Southcross Blvd/Exit 151 and Binz Engleman Rd/Exit 161, I-35, I-35, I-35 Northbound, and I-10/I-35 using INRIX data
Right graph February 2022 (Every Tuesday, Wednesday, and Thursday)

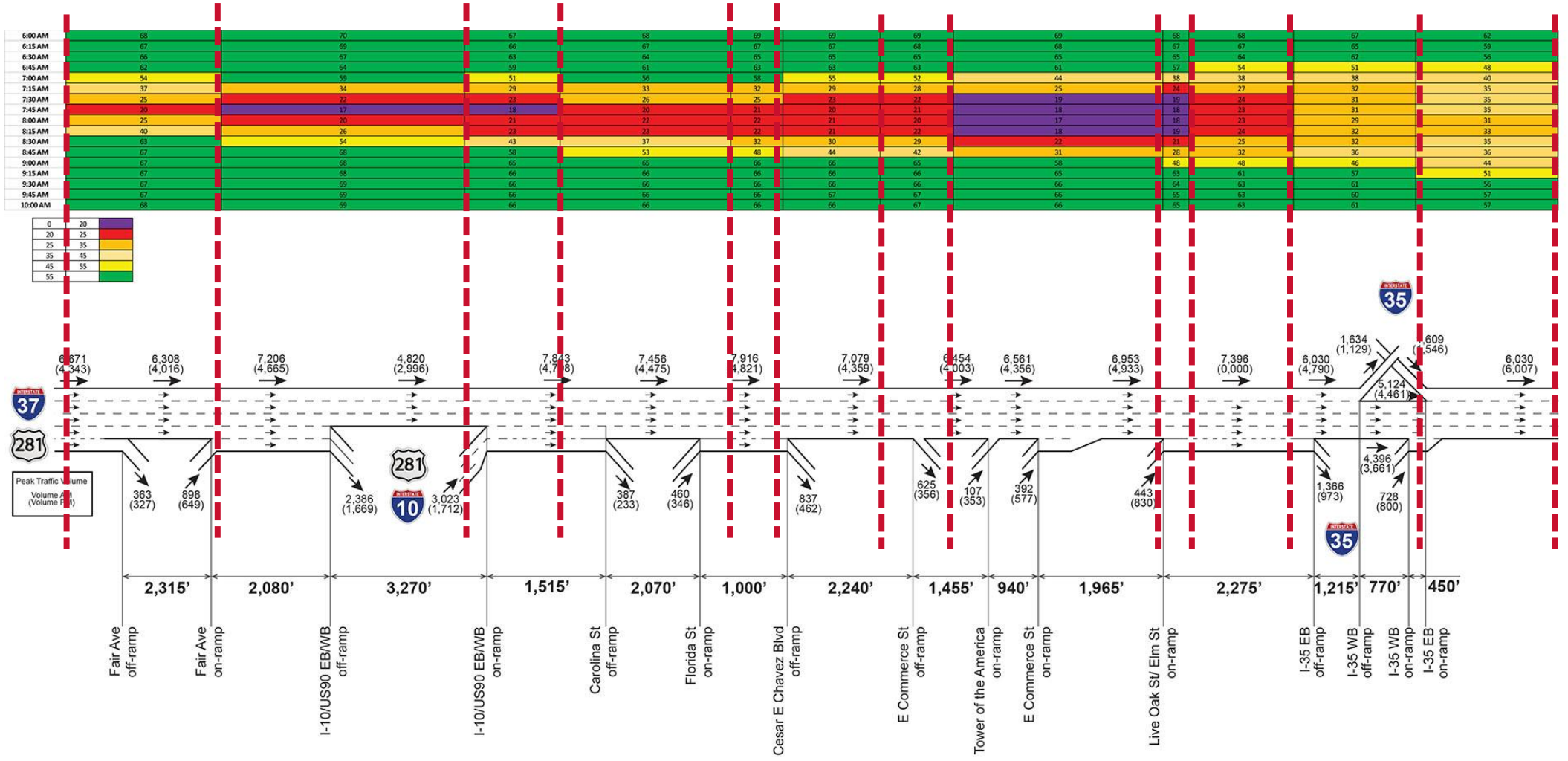
	TMC CODE	NAME	MILES	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00
	AT GRADE													
I-35 Northboun	112P18837	I-37/US-28	0.04	47	43	44	45	49	47	43	38	35	40	
	112+18837	I-37/US-28	0.26	52	48	48	51	55	54	49	39	36	45	
	112P18836	I-35 (UPPE	0.21	53	51	51	55	55	56	51	41	38	49	
	112P15803	I-35 LOWE	0.298519	55	55	56	54	57	56	48	42	44	52	
	112+15803	I-35	0.04	56	56	57	57	58	58	46	37	41	51	
	112+04639	BROOKLYN	0.25	56	56	57	57	58	56	44	34	37	48	
	112P04638	MAIN AVE	0.09	56	56	57	57	57	57	43	35	39	49	
	112+04638	MAIN AVE	0.09	56	56	57	57	58	58	44	36	41	50	
	112P04637	SAN PEDR	0.04	56	56	57	56	58	58	44	37	40	50	
	112+04637	SAN PEDR	0.08	56	55	56	56	57	57	46	38	40	50	
	112P04636	I-10/US-87	0.03	56	55	56	56	58	57	47	40	41	50	
	112P04669	I-10 LOWE	0.64	58	58	59	60	62	61	57	52	50	54	
	AT GRADE													
I-10/I-35 (NORT	112+04669	I-10/US-87	0.15	59	59	61	60	63	63	58	48	46	51	
	112P04668	DURANGC	0.28	59	59	61	61	63	63	56	40	36	46	
	112+04668	DURANGC	0.11	58	58	60	60	63	63	54	35	31	43	
	112P04667	EL PASO S	0.02	57	57	60	60	63	63	54	35	31	44	
	LOWER LEVEL													
	112P04666	TX-536/EX	0.40	58	57	60	60	63	64	57	39	36	51	
	112+04666	TX-536/EX	0.01	59	58	60	61	64	65	59	42	38	54	
	112P04665	CEVALLOS	0.28	59	58	60	61	65	65	59	40	35	53	
	UPPER LEVEL													
I-35 (NORTHBO	112P04664	TX-536/EX	0.39	56	55	56	56	60	60	48	22	17	31	
	112+04664	TX-536/EX	0.03	56	53	54	57	60	60	49	18	13	31	
	112P04663	CEVALLOS	0.34	57	56	57	59	62	62	53	22	16	36	
	AT GRADE													
	112P04599	CEVALLOS	0.03	59	59	60	61	64	64	56	33	27	50	
	112+04599	CEVALLOS	0.22	60	60	60	62	63	64	54	26	21	49	
	112P04598	SAN MARC	0.23	60	60	61	61	64	64	54	22	17	51	
	112+04598	SAN MARC	0.12	60	60	61	61	64	64	53	22	17	52	
	112P04597	I-10/US-90	0.09	60	60	61	61	64	64	54	20	15	54	
	112P04544	I-10/US-90	0.43	62	62	63	63	66	66	61	18	15	59	
	112+04544	I-10/US-90	0.19	61	60	60	62	64	64	60	24	20	59	
	112P04543	THEO AVE	0.17	61	60	60	62	65	65	58	22	19	58	
	112+04543	THEO AVE	0.04	61	60	60	62	65	65	57	21	19	58	

Use Segment length data to change width of cell to scale

	I-37 (NOR			
SEGMENT ID	112P04631	112+04631	112P04630	112+04630
NAME	I-35 ACCESS RD/EXIT 142	I-35 ACCESS RD/EXIT 142	HOUSTON ST/EXIT 141	HOUSTON ST/EXIT 141
MILES	0.36	0.31	0.27	0.06
12:00 AM	60	64	64	63
12:15 AM	59	63	65	63
12:30 AM	59	64	64	65
12:45 AM	60	65	64	65
1:00 AM	60	64	63	63
1:15 AM	56	60	59	59
1:30 AM	57	61	60	60
1:45 AM	57	60	62	61
2:00 AM	56	60	61	60
2:15 AM	57	61	62	62
2:30 AM	57	61	62	63

Width Multiplier	20	Column Width					
SEGMENT ID	112-04630	112N04631	112N04630	112N04629	112-04628	112N04628	112-04627	112N04627
NAME	HOUSTON ST/EXIT 141	I-35 ACCESS RD/EXIT 142	HOUSTON ST/EXIT 141	COMMERCE ST/EXIT 141	DURANGO BLVD	DURANGO BLVD	FLORIDA ST/CAROLINA ST	FLORIDA ST/CAROLINA ST
MILES	0.35291	0.417677	0.2896	0.52902	0.18	0.2759	0	0.438286
Width	7	8	6	11	4	6	2	9
3:00 PM	63	56	65	67	69	67	66	66
3:15 PM	63	56	65	67	68	67	65	64
3:30 PM	62	55	64	67	68	66	65	63
3:45 PM	61	54	64	67	67	65	64	62
4:00 PM	60	53	63	66	66	63	60	60
4:15 PM	55	49	59	58	56	54	53	54
4:30 PM	52	45	56	54	51	51	51	52
4:45 PM	52	44	55	54	49	49	47	49
5:00 PM	53	46	56	50	44	43	41	46
5:15 PM	41	37	38	32	29	33	35	40

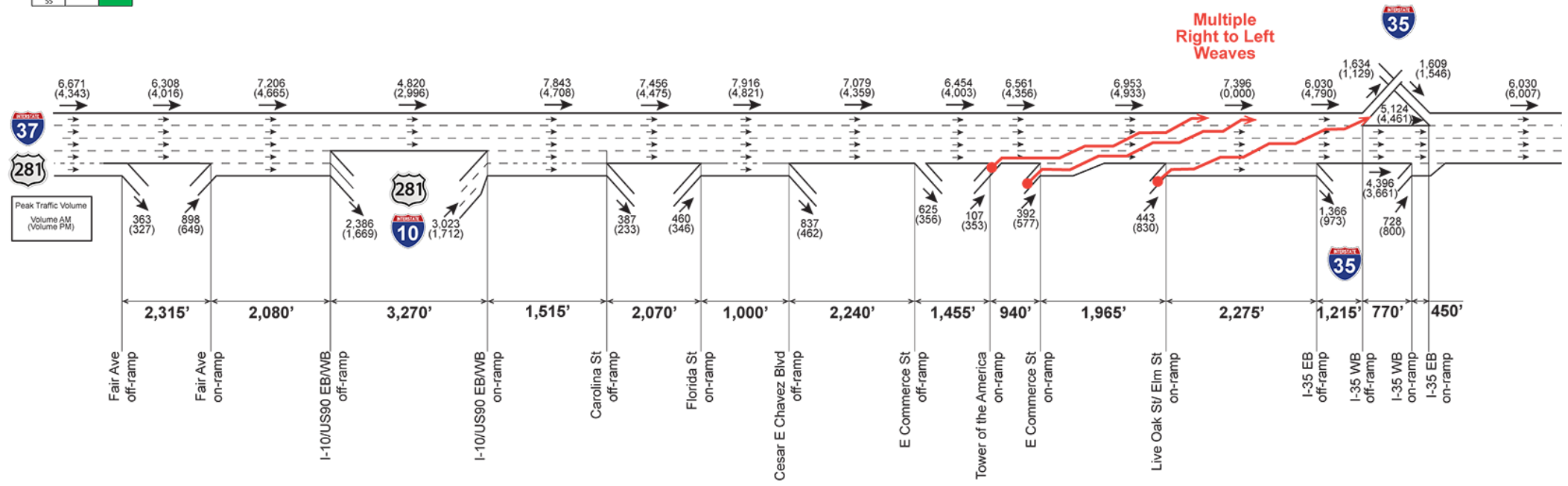
Heat Map Columns Scaled to Match Exhibit



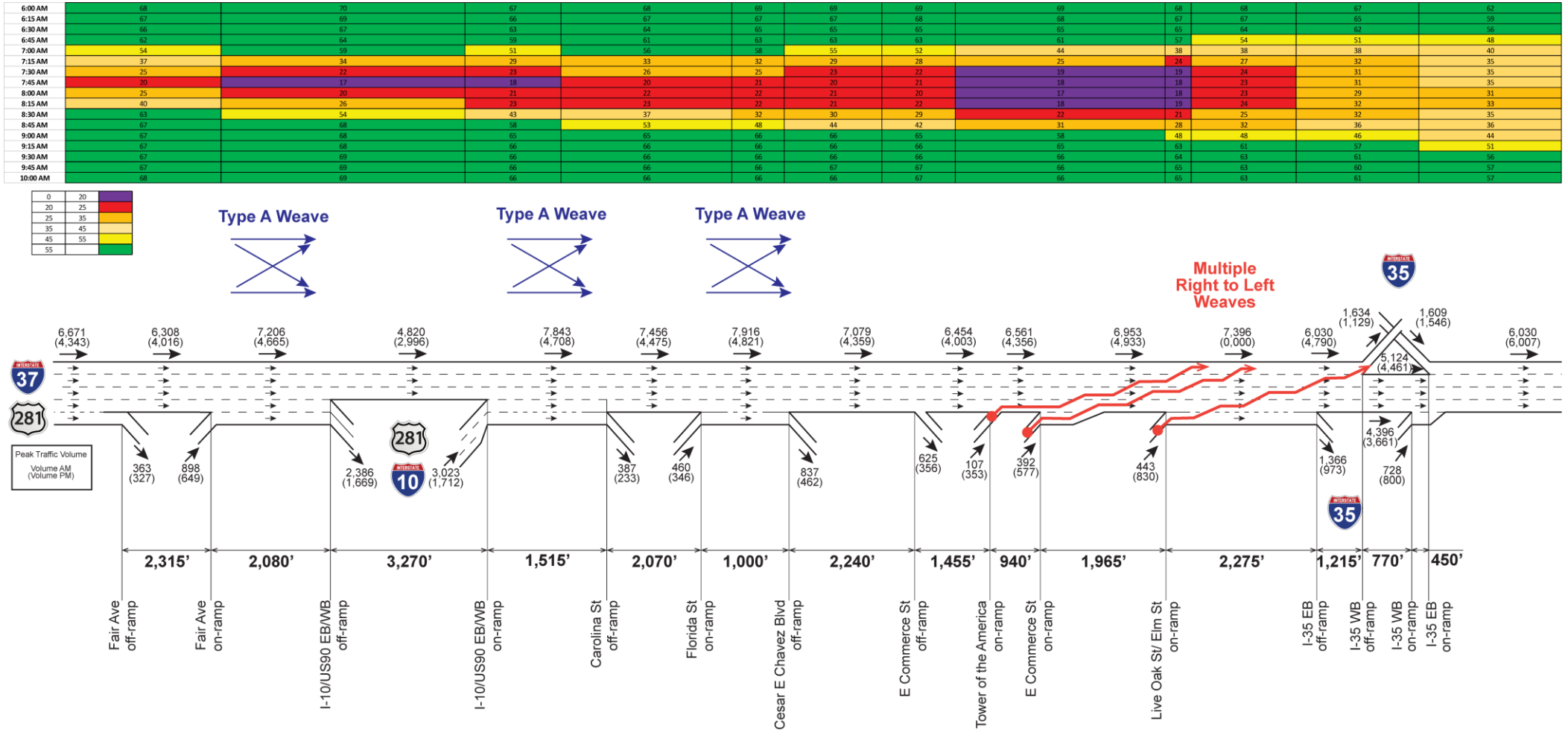
Causes of Congestion Right to left Weaves

6:00 AM	68	70	67	68	69	69	69	69	68	68	67	62
6:15 AM	67	69	66	67	67	67	68	68	67	67	65	59
6:30 AM	66	67	63	64	65	65	65	65	65	64	62	56
6:45 AM	62	64	59	61	63	63	63	61	57	54	51	48
7:00 AM	54	59	51	56	58	55	52	44	38	38	38	40
7:15 AM	37	34	29	33	32	29	28	25	24	27	32	35
7:30 AM	25	22	23	26	25	23	22	19	19	24	31	35
7:45 AM	20	17	18	20	21	20	21	18	18	23	31	35
8:00 AM	25	20	21	22	22	21	20	17	18	23	29	31
8:15 AM	40	26	23	23	22	21	22	18	19	24	32	33
8:30 AM	63	54	43	37	32	30	29	22	21	25	32	35
8:45 AM	67	68	58	53	48	44	42	31	28	32	36	36
9:00 AM	67	68	65	65	66	66	65	58	48	48	46	44
9:15 AM	67	68	66	66	66	66	66	65	63	61	57	51
9:30 AM	67	69	66	66	66	66	66	66	64	63	61	56
9:45 AM	67	69	66	66	66	67	67	66	65	63	60	57
10:00 AM	68	69	66	66	66	66	67	66	65	63	61	57

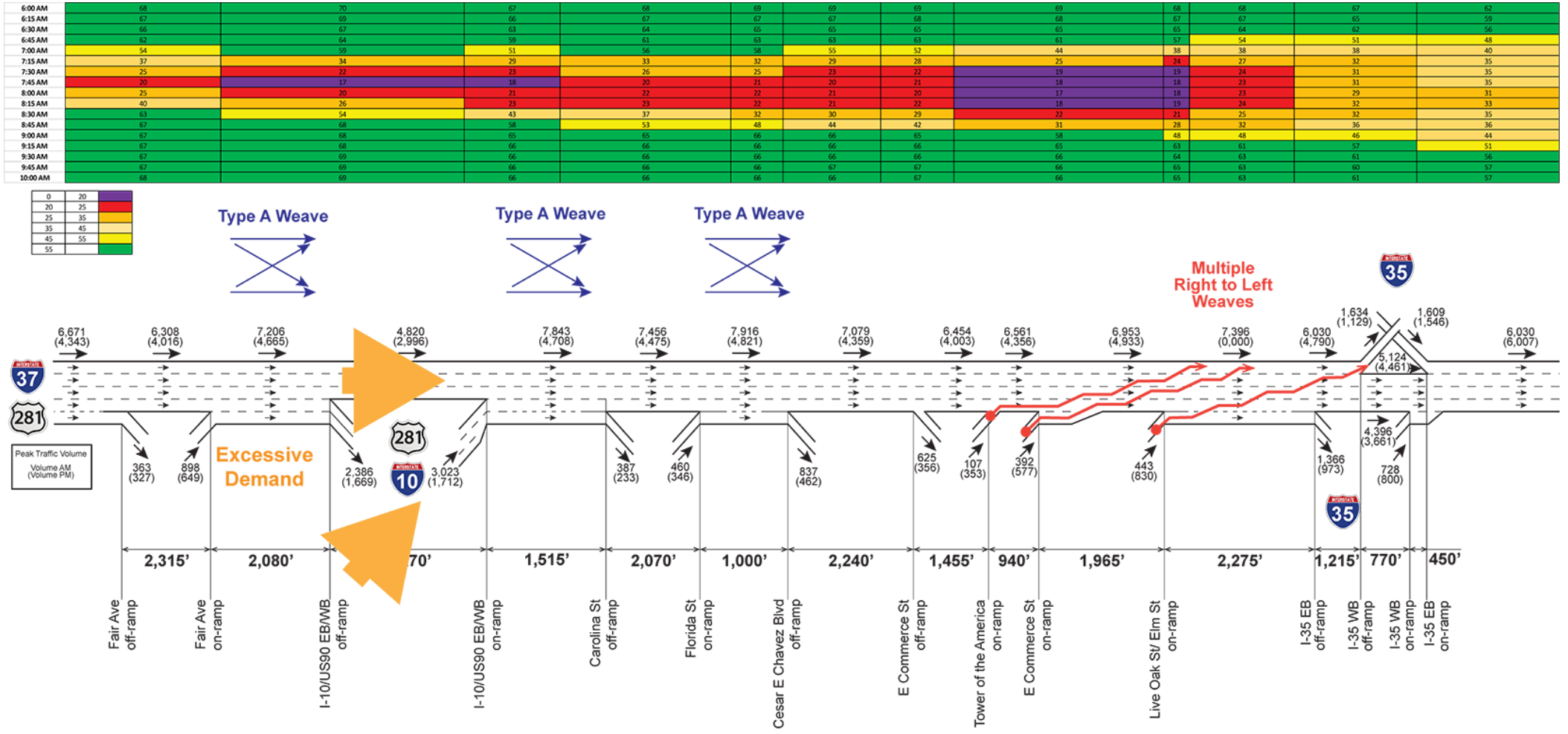
0	20	
20	25	
25	35	
35	45	
45	55	
55		



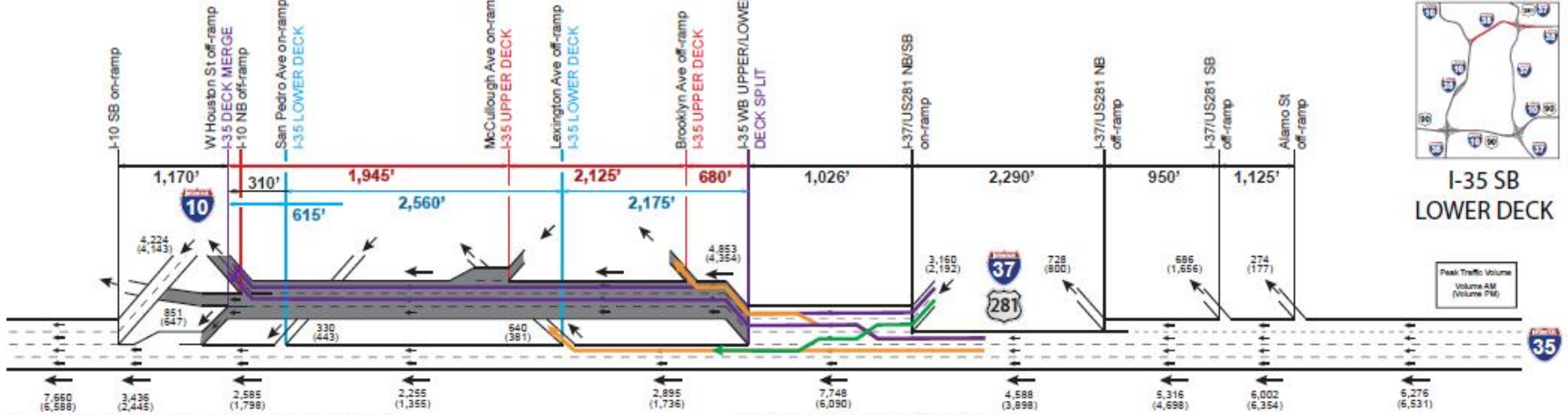
Causes of Congestion Type A Weaves

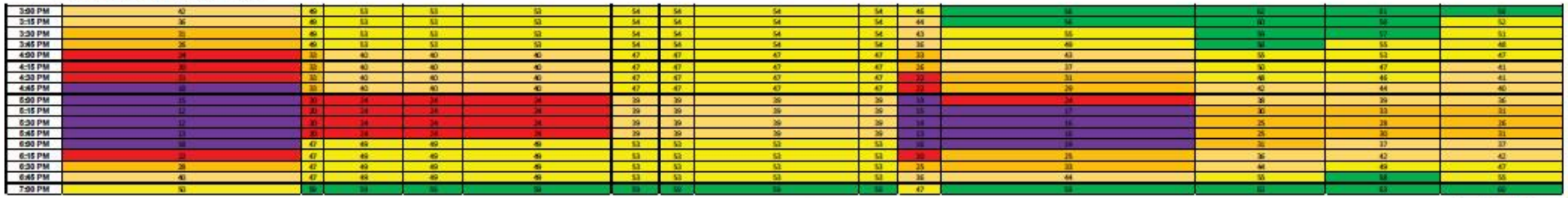


Causes of Congestion Excessive Demand

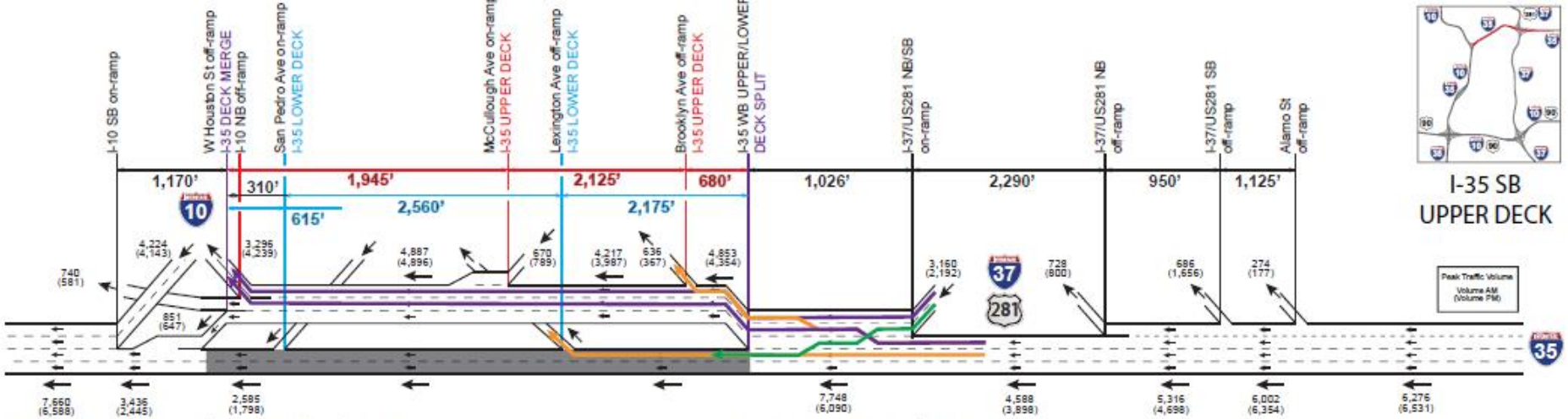


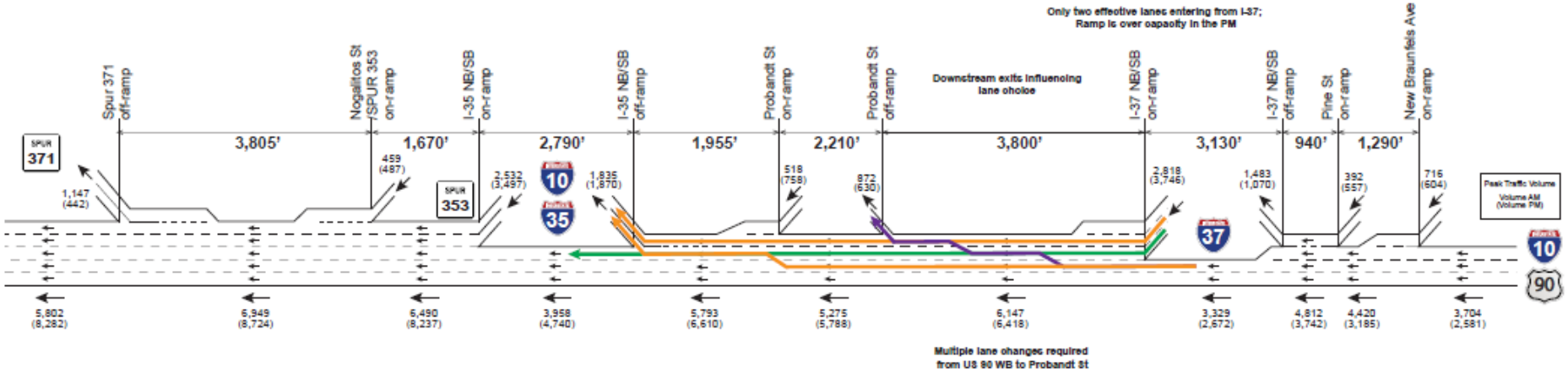
More Examples

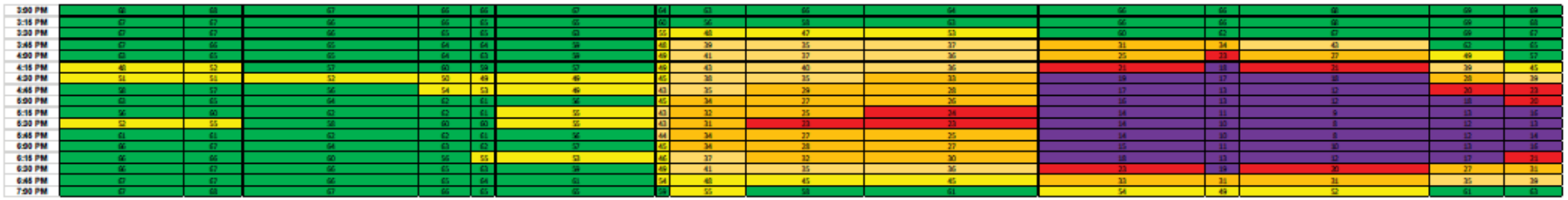


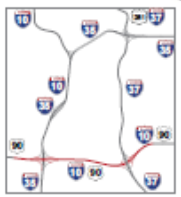


I-35 SB
LOWER DECK


I-10 SB on-ramp
W Houston St off-ramp
I-35 DECK MERGE
I-10 NB off-ramp
San Pedro Ave on-ramp
I-35 LOWER DECK
McCullough Ave on-ramp
I-35 UPPER DECK
Lexington Ave off-ramp
I-35 LOWER DECK
Brooklyn Ave off-ramp
I-35 UPPER DECK
I-35 WB UPPER/LOWER DECK SPLIT
I-37/US281 NB/SB on-ramp
I-37/US281 NB off-ramp
I-37/US281 SB off-ramp
Alamo St off-ramp
1,170'
310'
1,945'
2,125'
680'
1,026'
2,290'
950'
1,125'
615'
2,560'
2,175'
I-35 SB
UPPER DECK
Peak Traffic Volume
Volume AM
(Volume PM)
Three lanes added from I-10, forces multiple lane changes to downstream off
Downstream signage directs drivers to choose lanes earlier than needed
CONGESTION SPILLS BACK UPSTREAM
Closely spaced weave requiring multiple lane changes
Downstream off-ramps influencing driver positioning

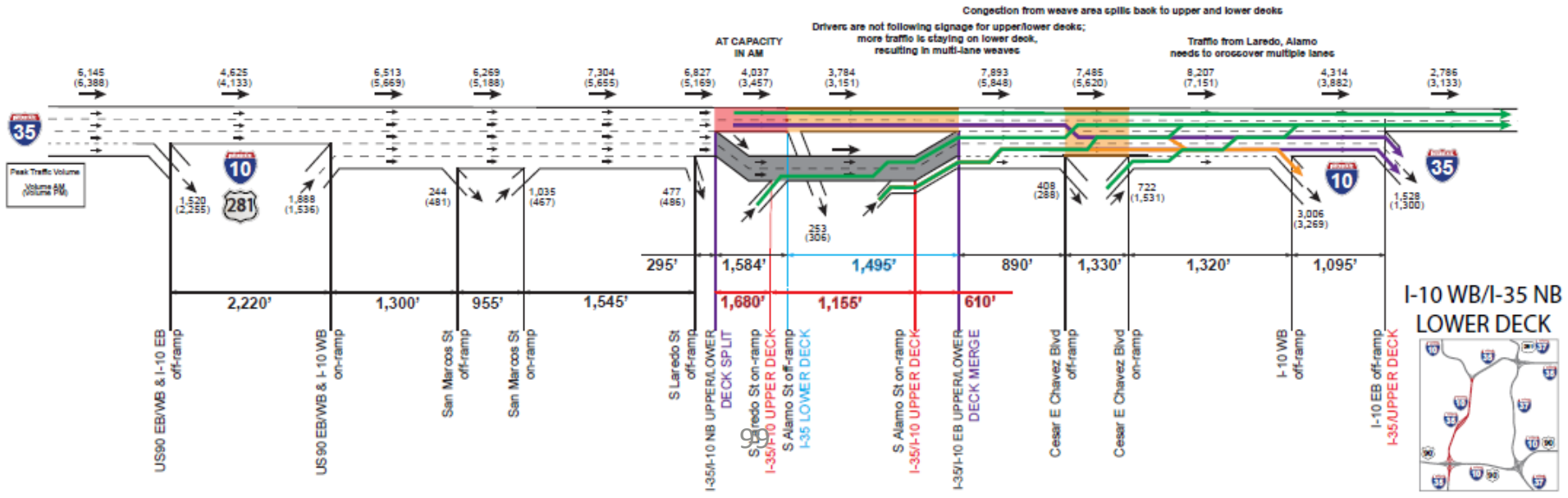

Only two effective lanes entering from I-37;
Ramp is over capacity in the PM
Spur 371 off-ramp
Nogalitos St /SPUR 353 on-ramp
I-35 NB/SB on-ramp
I-35 NB/SB off-ramp
Probandt St on-ramp
Probandt St off-ramp
Downstream exits influencing lane choice
I-37 NB/SB on-ramp
I-37 NB/SB off-ramp
Pine St on-ramp
New Braunfels Ave on-ramp
SPUR 371
SPUR 353
3,805'
1,670'
2,790'
1,955'
2,210'
3,800'
3,130'
940'
1,290'
1,147 (442)
459 (487)
2,532 (3,497)
1,836 (1,870)
518 (758)
872 (630)
2,818 (3,746)
1,483 (1,070)
392 (557)
716 (604)
Peak Traffic Volume
Volume AM (Volume PM)
5,802 (8,282)
6,949 (8,724)
6,490 (8,237)
3,958 (4,740)
5,793 (6,610)
5,275 (5,788)
6,147 (6,418)
3,329 (2,672)
4,812 (3,742)
4,420 (3,185)
3,704 (2,581)
Multiple lane changes required from US 90 WB to Probandt St





I-10/US90 WB

6:00 AM	66	65	67	64	64	64	63	61	56	58	62	63	64
6:15 AM	63	63	65	62	61	60	58	54	46	48	56	58	61
6:30 AM	56	57	57	49	47	44	44	43	40	39	44	46	53
6:45 AM	38	45	39	35	30	29	33	35	33	29	41	44	49
7:00 AM	33	37	25	20	21	22	28	24	21	23	39	41	46
7:15 AM	19	20	14	14	16	16	21	18	13	17	33	36	42
7:30 AM	11	12	9	11	13	13	17	15	11	14	30	34	43
7:45 AM	8	10	8	11	12	13	17	14	11	15	31	35	45
8:00 AM	9	12	9	11	13	13	17	15	11	14	31	36	45
8:15 AM	11	14	11	13	14	14	18	14	12	14	30	34	44
8:30 AM	16	16	12	14	16	16	21	15	12	15	31	36	44
8:45 AM	28	27	17	18	19	21	23	18	15	17	32	36	43
9:00 AM	59	55	37	30	31	32	34	26	22	25	41	43	49
9:15 AM	63	62	60	53	52	50	48	44	40	40	50	51	54
9:30 AM	63	62	64	60	60	59	57	55	51	51	53	53	54
9:45 AM	62	62	64	61	60	60	60	57	52	52	57	57	57
10:00 AM	64	63	64	61	60	61	60	58	53	53	56	56	56



6:00 AM	66	65	67	64	64	64	63	61	56	58	62	63	64
6:15 AM	63	63	65	62	61	60	58	54	46	48	56	58	61
6:30 AM	56	57	57	49	47	44	44	43	40	39	44	46	53
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8:00 AM	9	12	9	11	13	13	17	15	11	14	31	36	45
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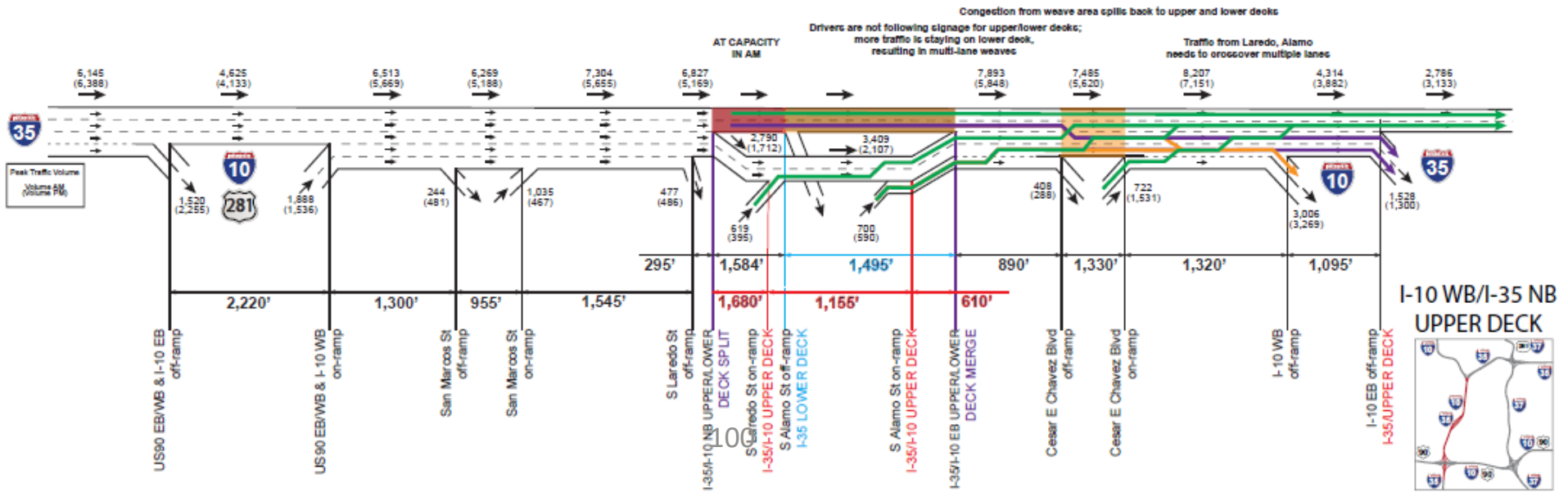
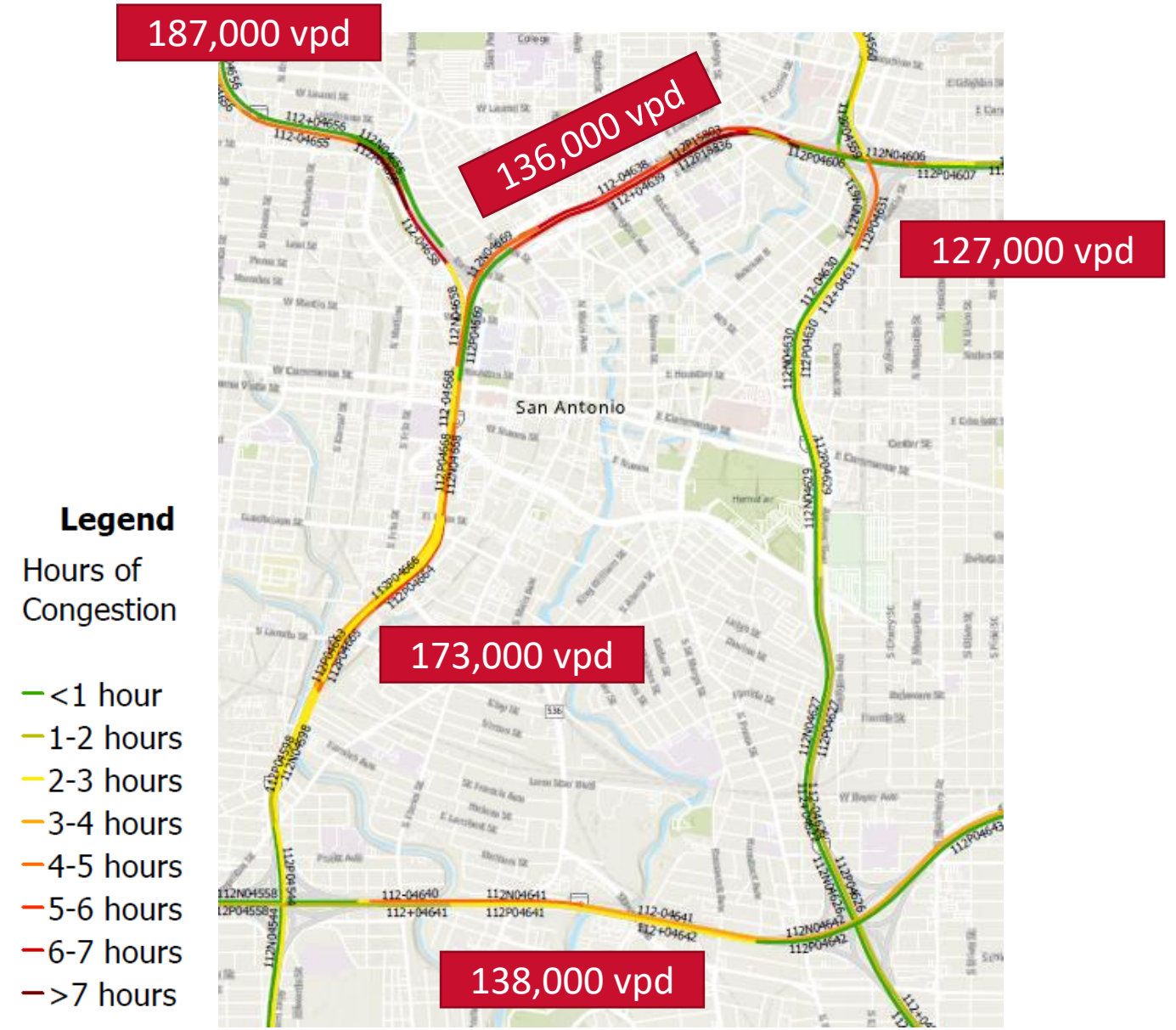
9:45 AM	62	62	64	61	60	60	60	57	52	52	57	57	57
10:00 AM	64	63	64	62	60	61	60	58	53	53	56	56	58



Hours of Congestion

- Number of Hours a day when speeds drop below 45 mph
- Michael Baker developed a shape file to create the exhibit



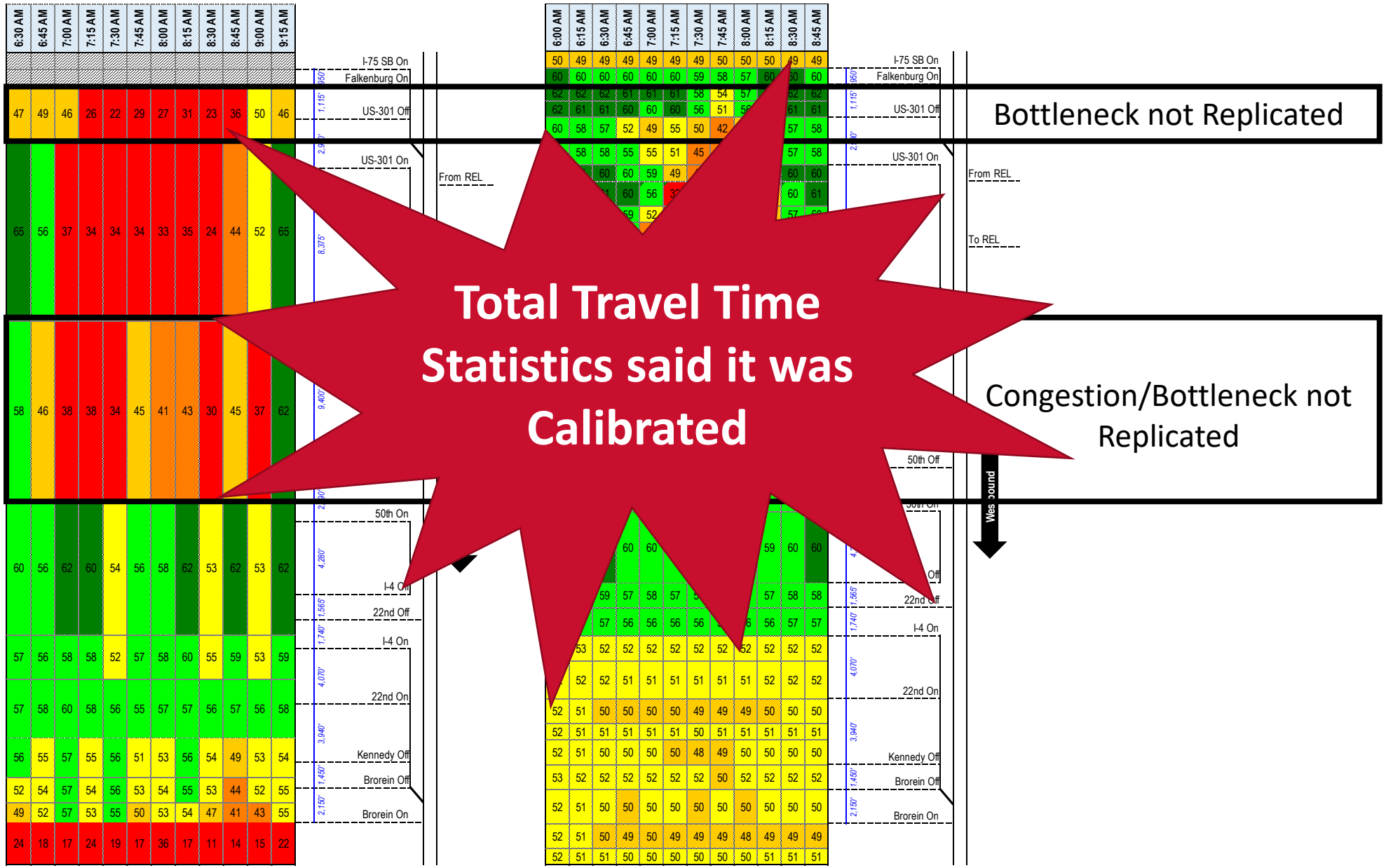
Other Applications

Traffic Simulation Calibration

VISSIM Calibration: Initial Model (SELMON Expressway)

Field Speeds

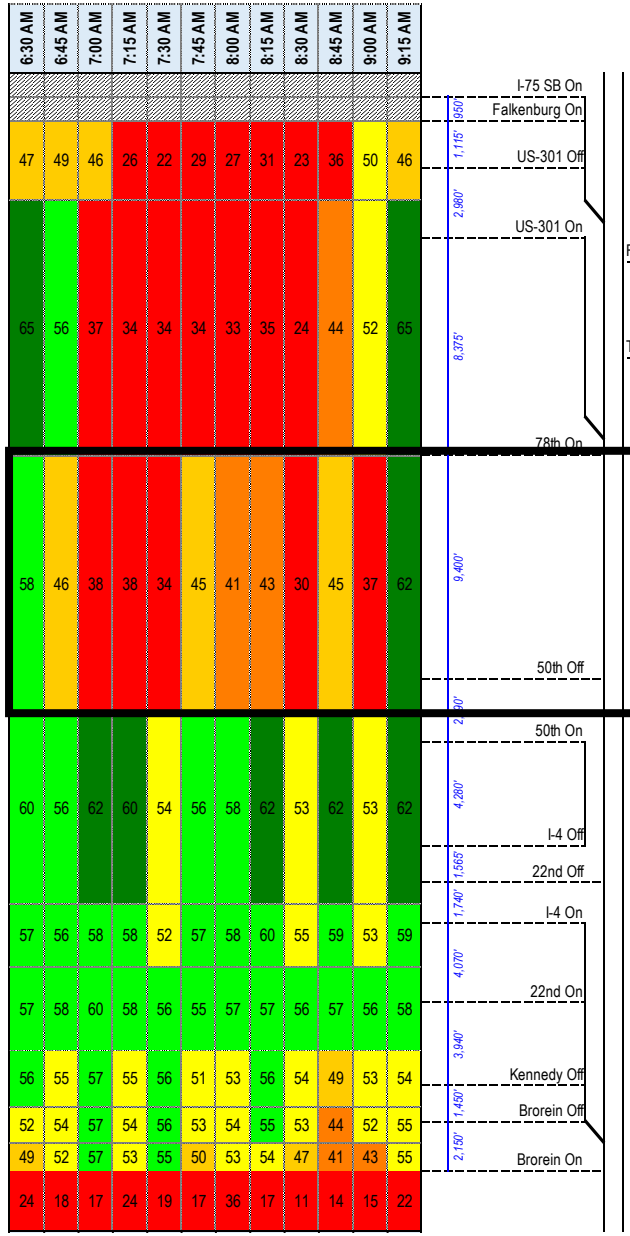
Modeled Speeds



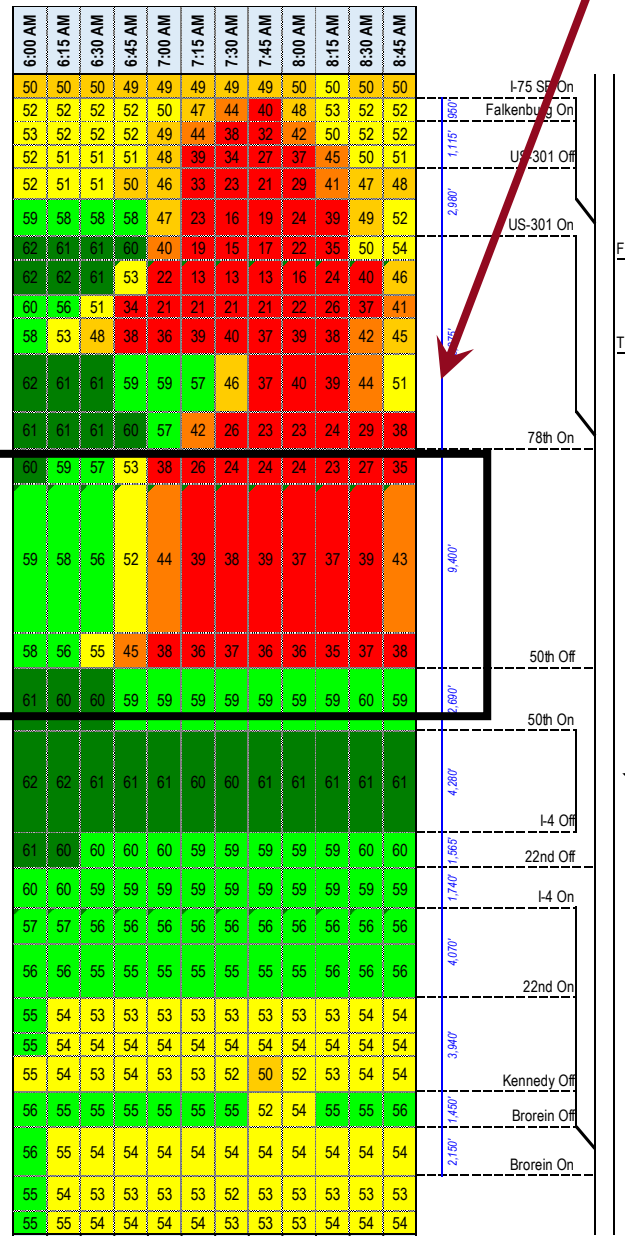
Experience Rating	Speed (mph)
A	> 60
B	60
C	55
D	50
E	45
F	40

VISSIM Calibrated Model

Field-Measured Speeds (2017)

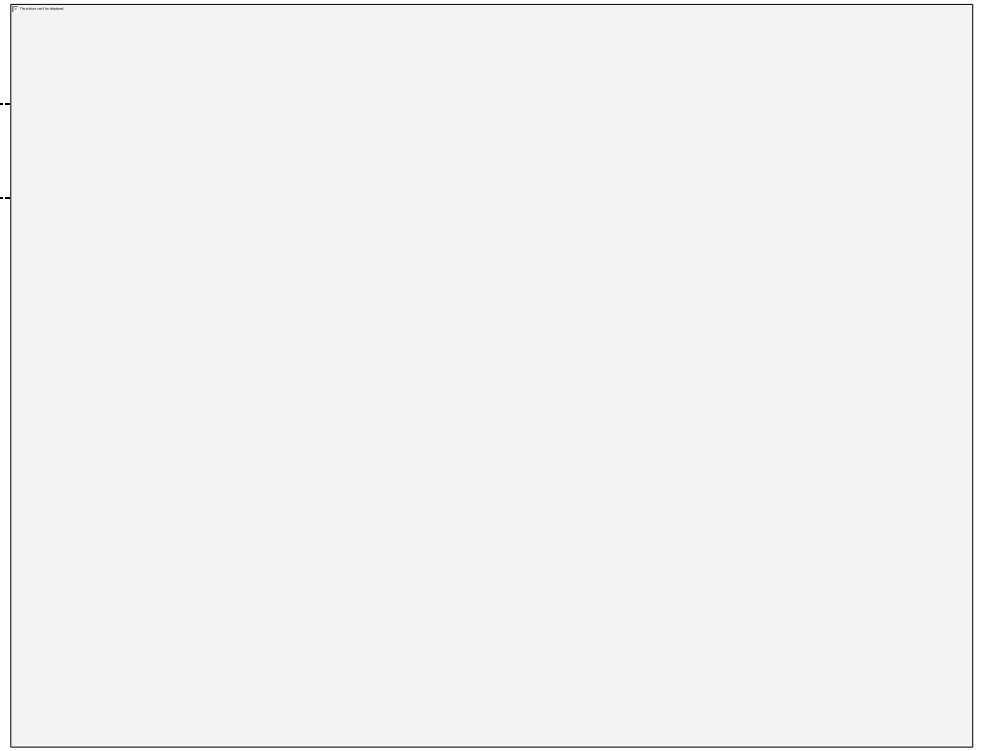


Modeled Speeds



Travel Time OK!
Calibrated for the Right Reason

Congestion/Bottleneck



Experience Rating	Speed (mph)
A	> 60
B	60
C	55
D	50
E	45
F	40

Michael Baker INTERNATIONAL

We Make a Difference

For more information, please contact:

Jaimison (Jaimie) Sloboden, PE
904.315.7923
jaimison.sloboden@mbakerintl.com

RITIS | Probe Data Analytics suite

RITIS Product Enhancement Working Group Update & Future Enhancements

Bob Frey
Director of Project-Oriented Planning
Massachusetts DOT
RITIS Product Enhancement Working Group Chair

Enhancements Working Group Purpose and Goal

- Form and maintain 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

Reminder of what we accomplished last year.

RITIS Enhancement Working Group Funds supporting:

Enhancement	Estimated Cost	
Aerial Photography in RITIS Maps	$10k	✓
Additional Reporting Templates	$35k	✓
Speed Tile Layers	$30k	✓
Sharing of Dashboards and Reports	$125k	✓
Automated Work Zone Reports Scoping	$25k	Drafts ready for review
Causes of Congestion Enhancements	$50k	✓
Total =	$275k	

Other funds (grants) are supporting:

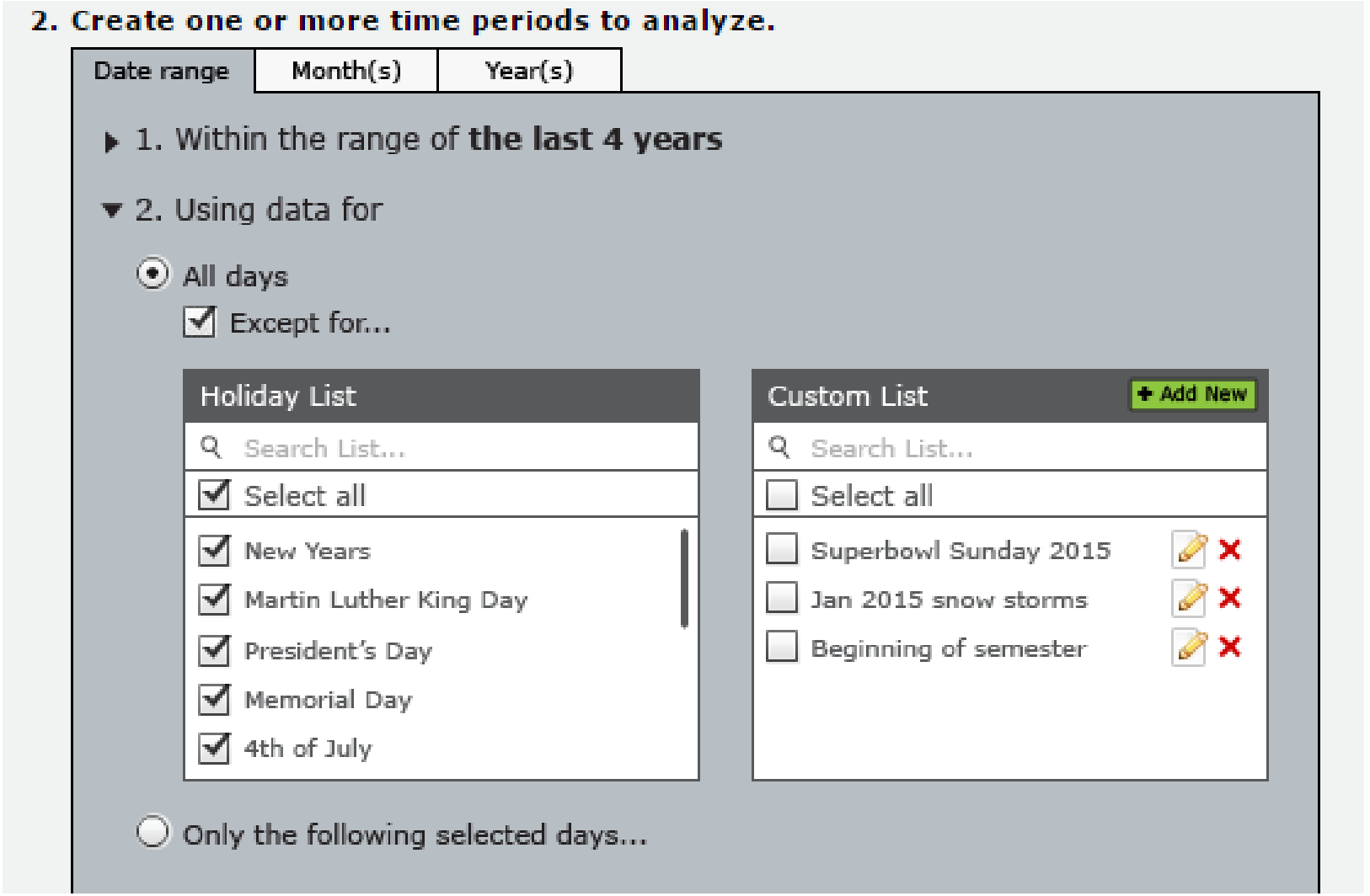
Enhancement	Estimated Cost	
Freight Movement & Safety Avoidance Analytics	$1M+	In-development
Safety Analytics (police crash reports) Partially funded	~$250k	In-development
Signal Analytics Enhancements	TBD	✓
Trips Analytics Enhancements	TBD	✓
Energy Analytics Geographic Expansion	TBD	In-development
Speed Bins Visualization (time permitting)	$75k	✓
Map Click Corridor Selection	TBD	✓
Total =	$$$	

It’s time to re-prioritize enhancements

- Submit your requests via Chat & Polling today
- We’ll summarize these requests and present them at the next Enhancement Working Group Meeting
- The Working Group will then vote and prioritize for this year’s work
- Examples of potential priorities on the next slides

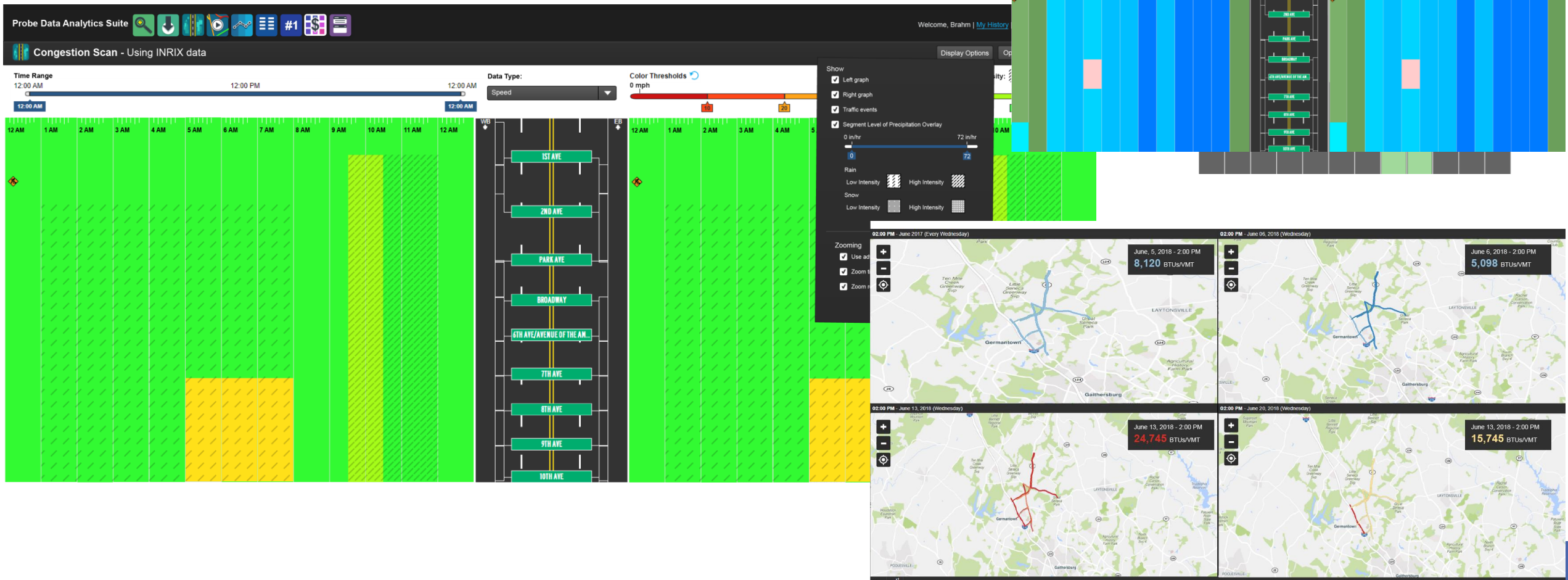
Advanced **Time** Selection in PDA

- Exclude dates (holidays, football games, anomalous events, etc.) from a date range.
- Add these functions to APIs



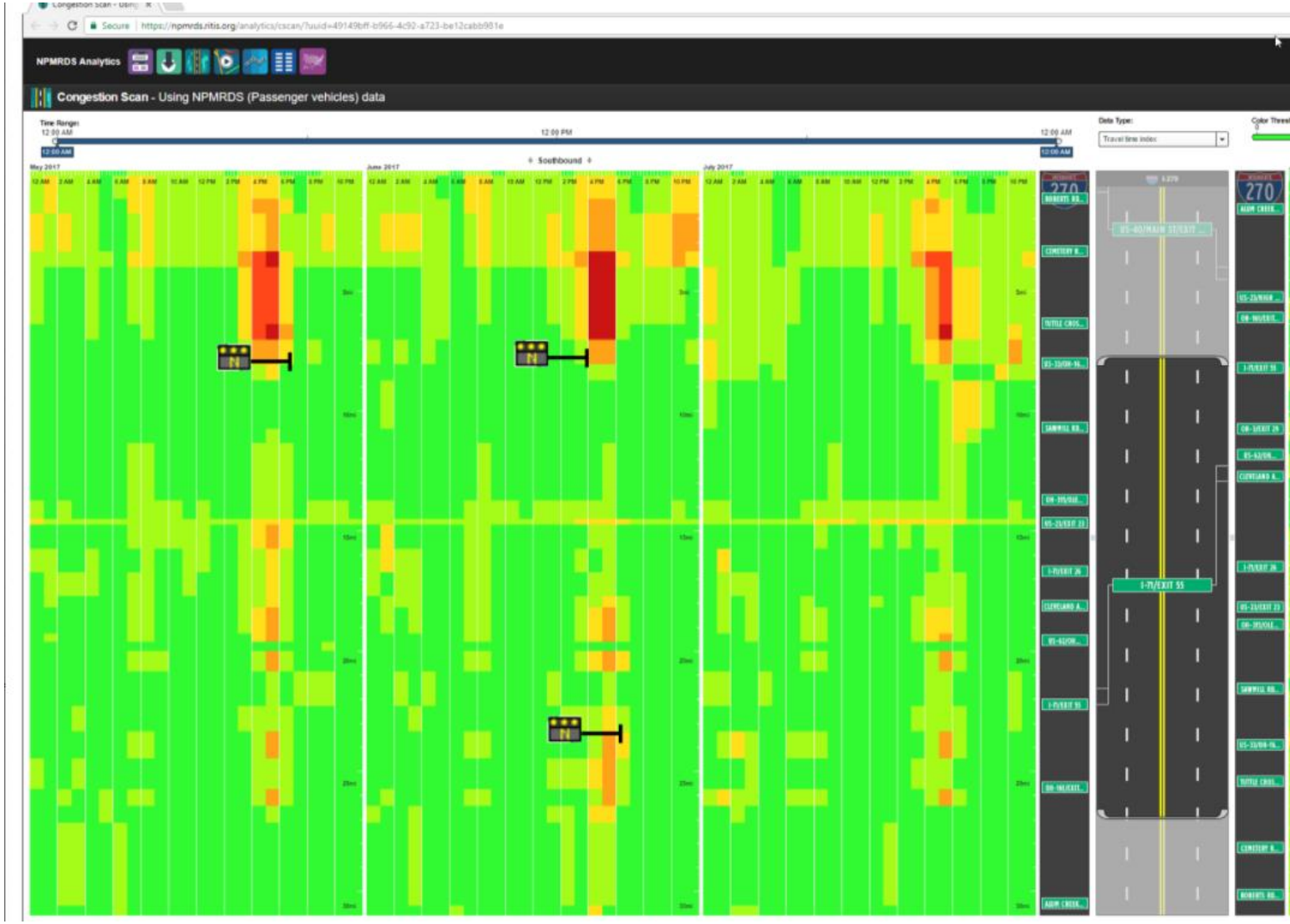
Road Weather Integration

Congestion Scans, Trend Maps, and maybe Bottleneck Ranking

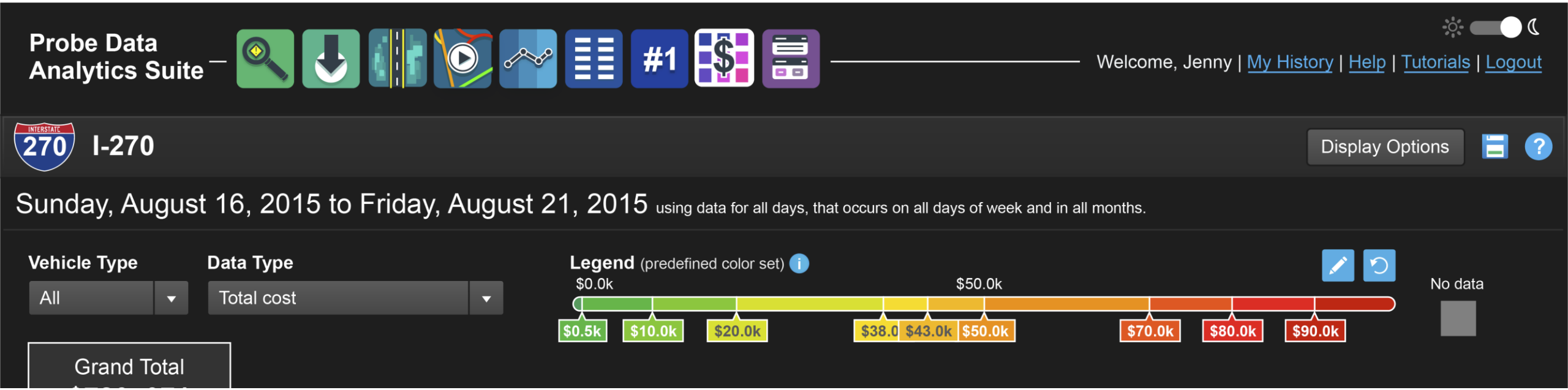


DMS Integration

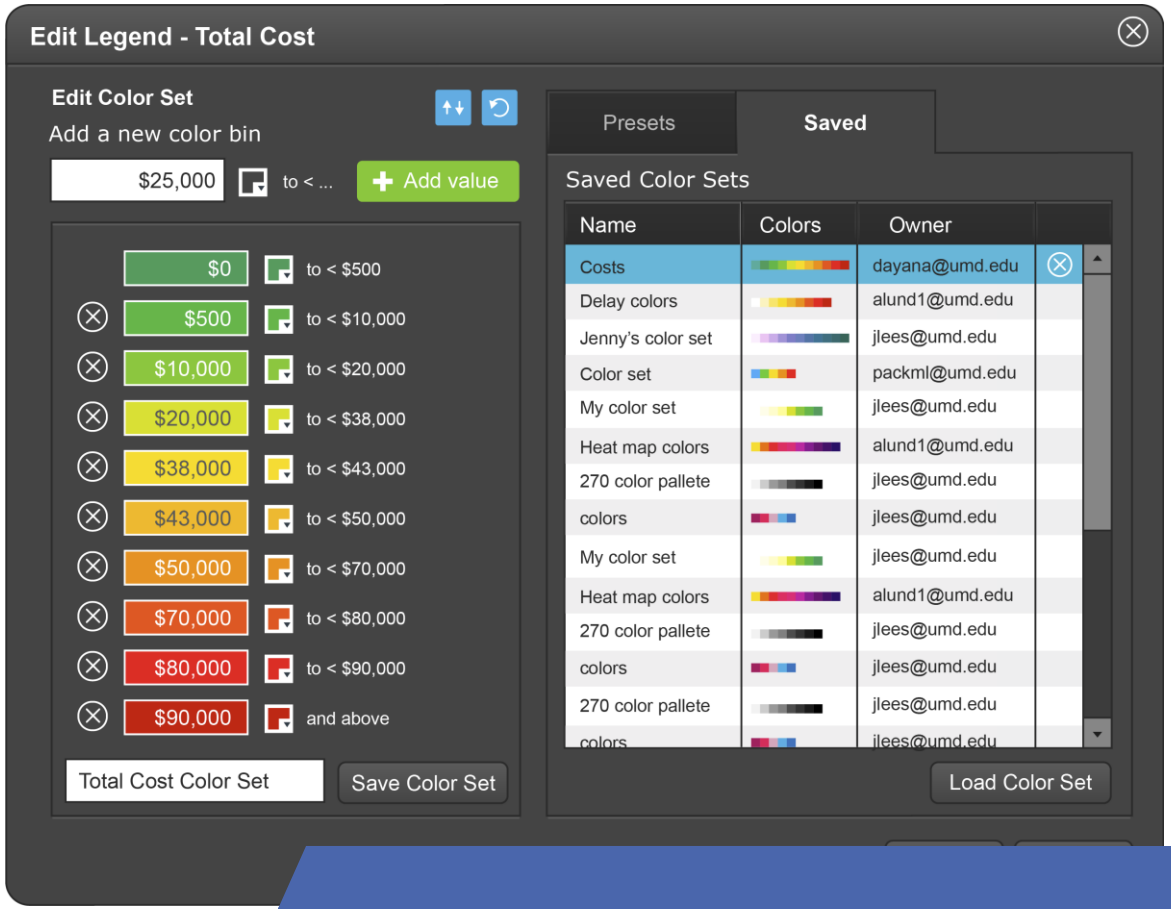
- DMS on congestion Scans



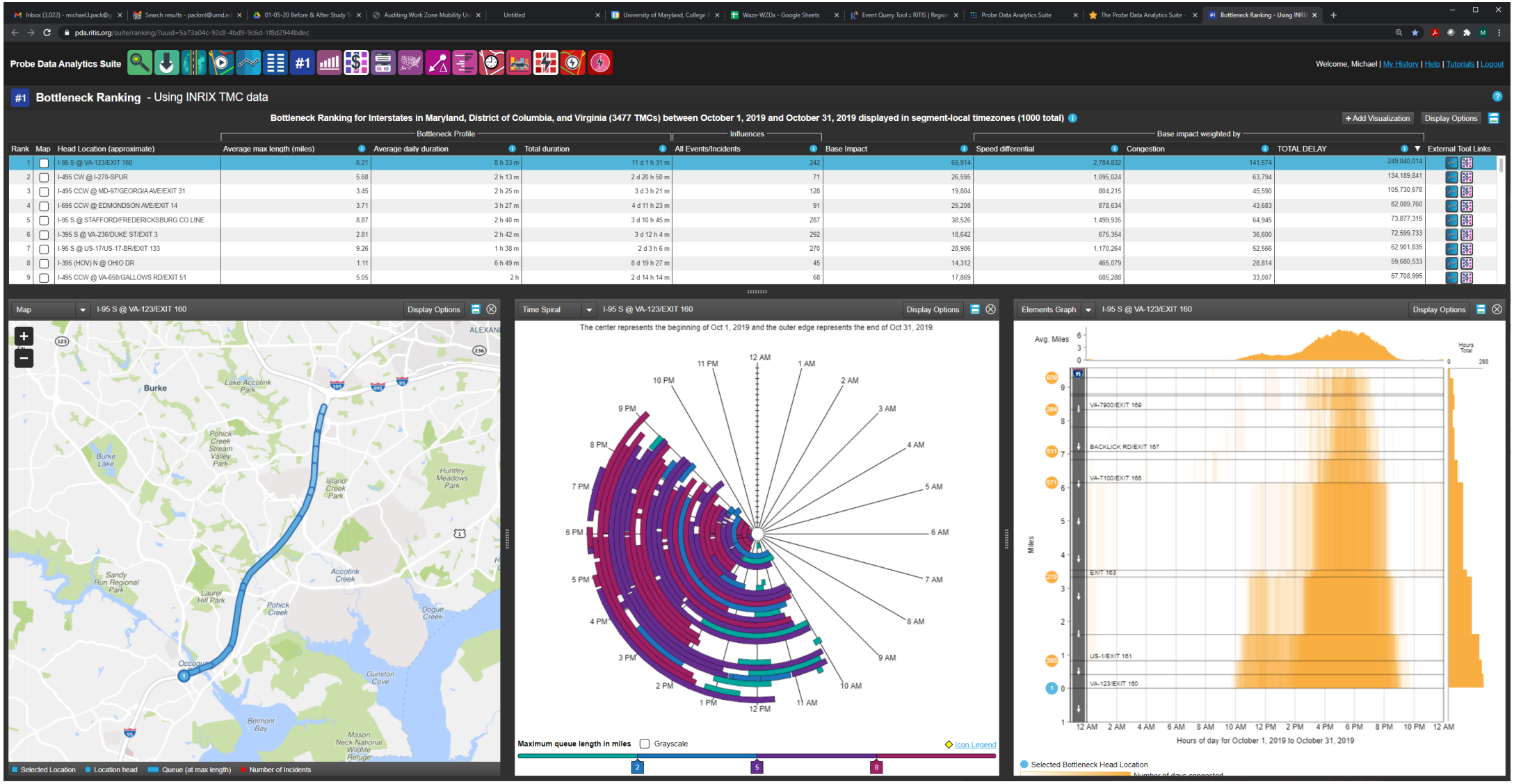
Custom & shareable Color Schemes & Scales for UDC & other Tools



Custom (and shareable) Colors Schemes & Scales for UDC & other tools

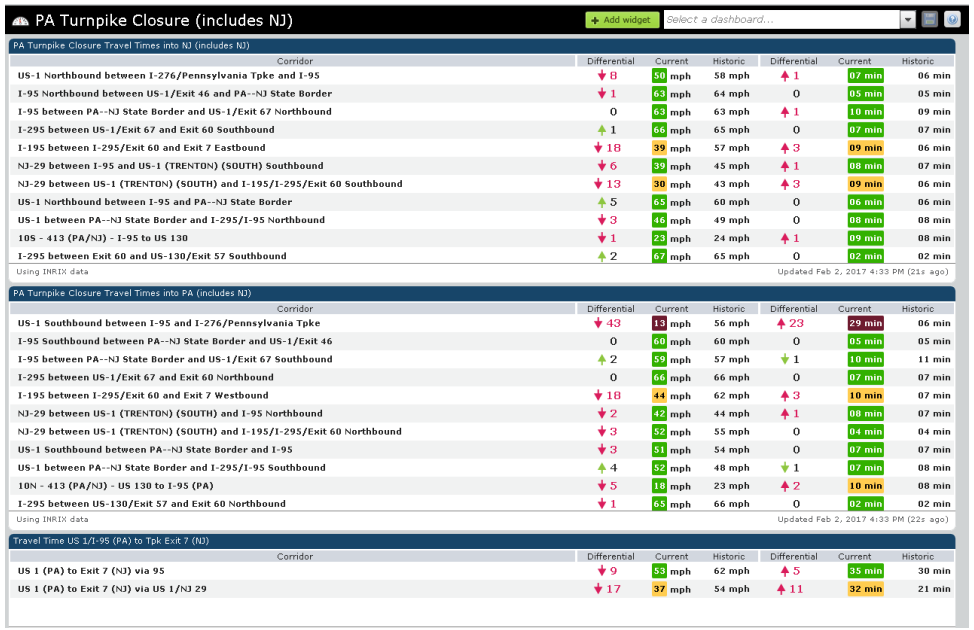


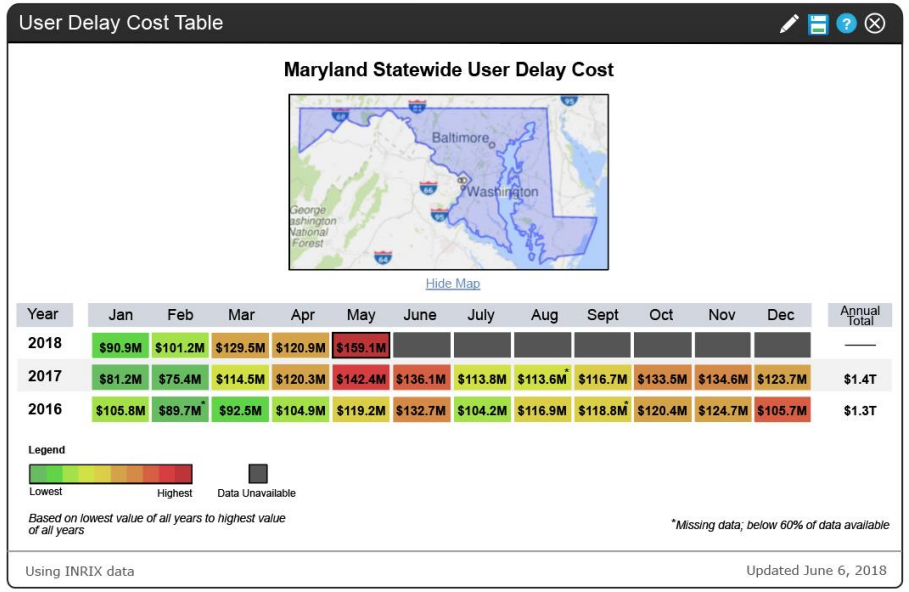
XD (or similar sub-TMC segment) Bottleneck Ranking

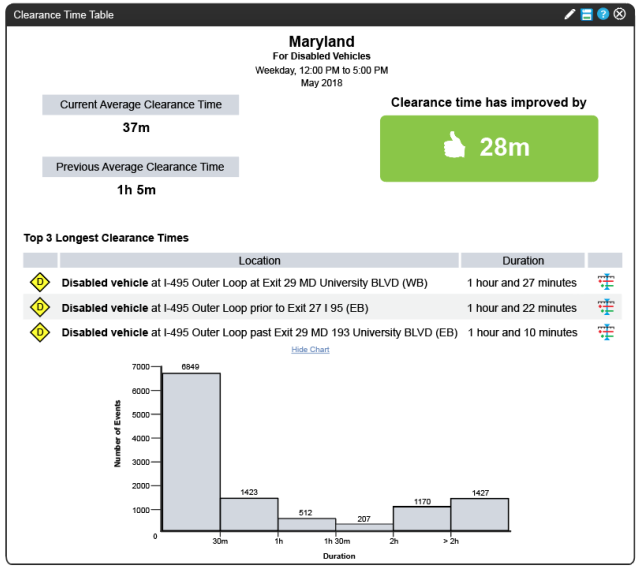


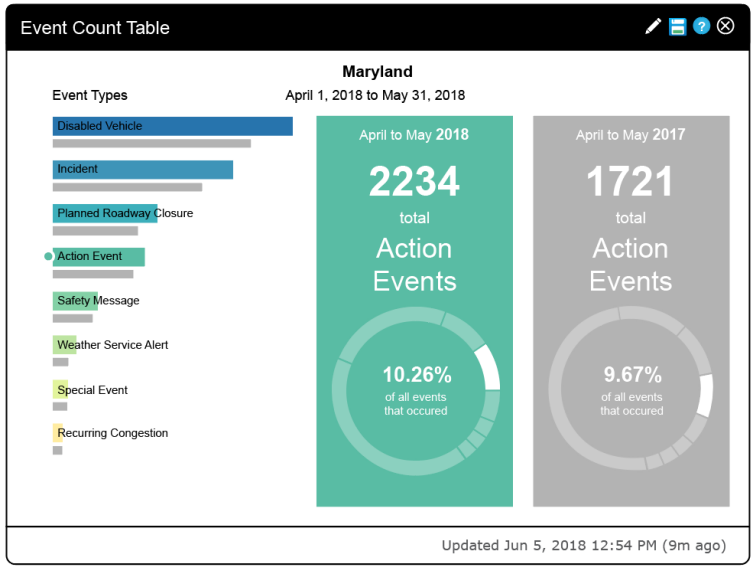
Embedding/Publishing of Dashboards and Reports

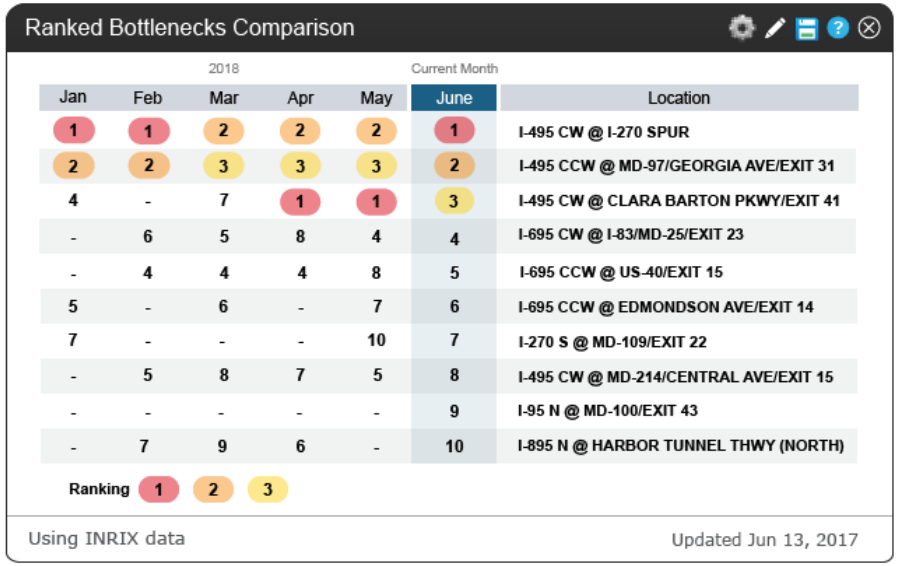
- Publishing tools
- Embedding tools









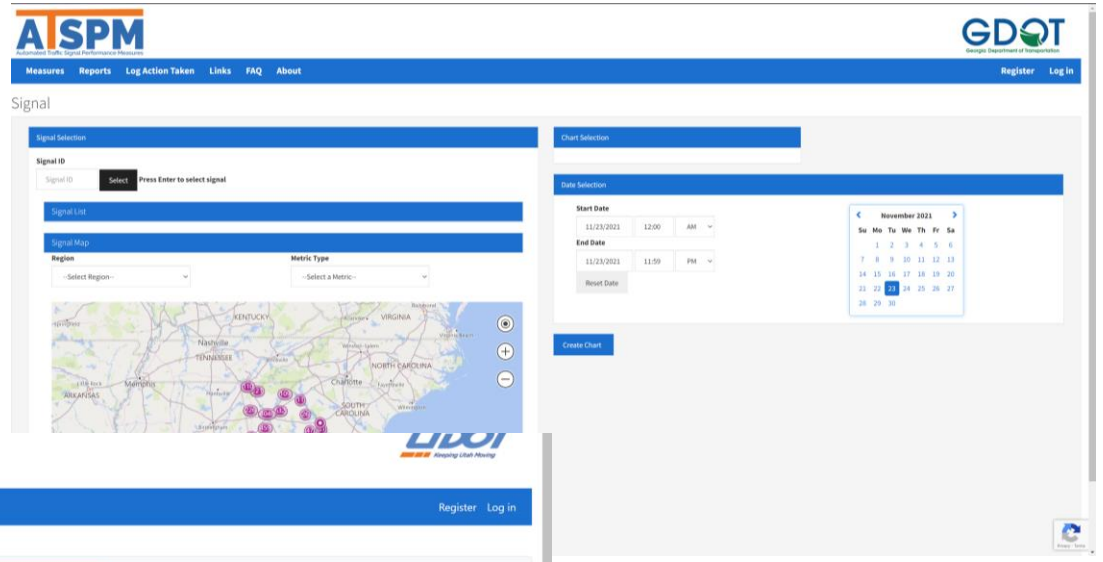


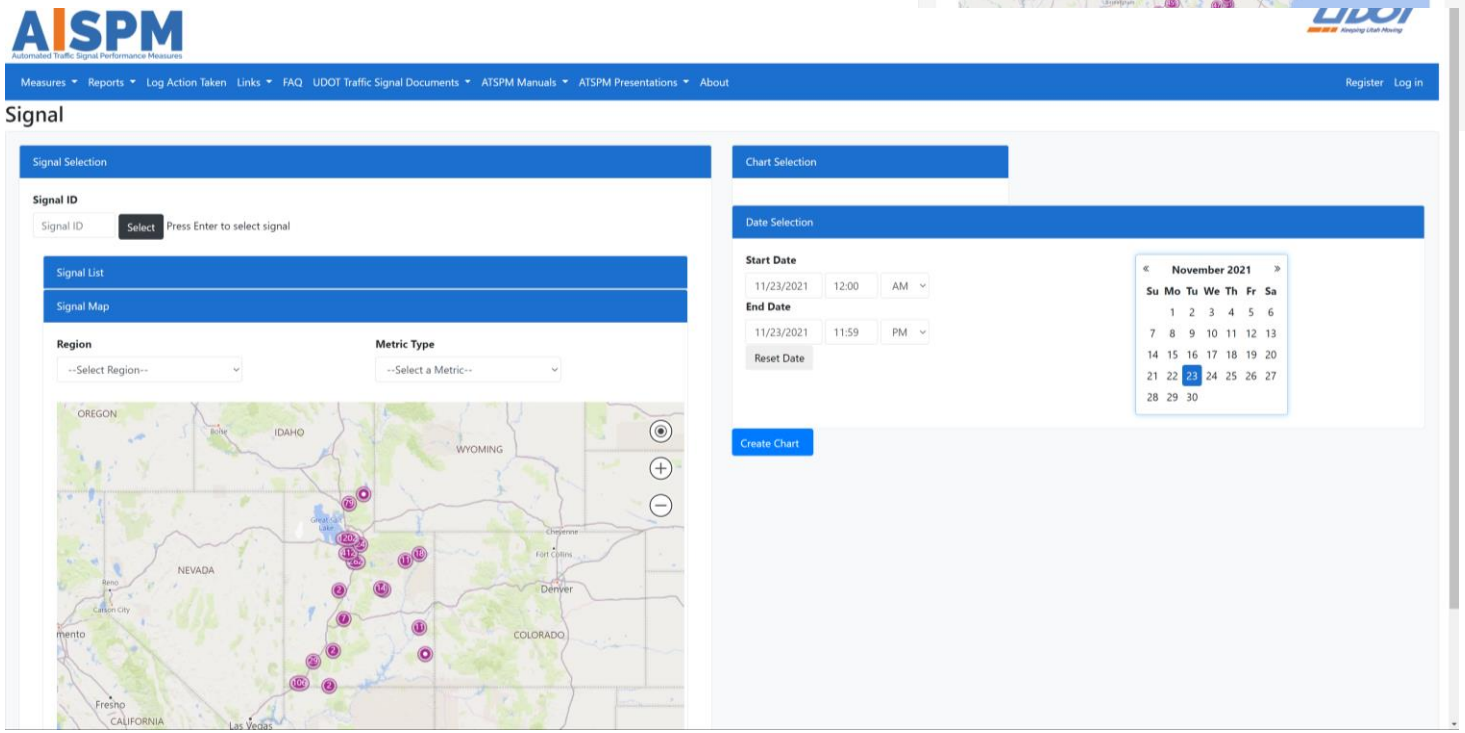
API Enhancements

- Adding XD support to road search and analysis endpoints
- Adding Merge-Time PM job (used for Travel Time tools)
- Adding MAP-21 support
- Adding support for dashboard tools
- Cost = TBD

ATSPM integration and enhancements in RITIS

- Data storage
- Corridor-level analytics
- Other enhancements





Many Others

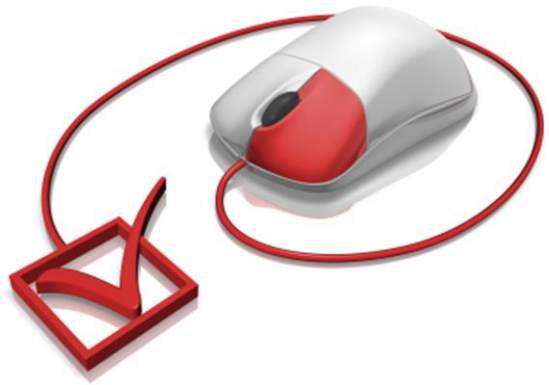
- MAP-21 Project Prioritization / Target Setting Support Tool
- Energy Analytics Dashboard & Vehicle Registration Expansion
- Signalized intersection energy analytics
- Emissions and Environmental Justice Tools
- Transportation Equity Explorer
- Multi-modal situational Analysis (airport/seaport/impacts)
- Weigh-in-Motion / Weigh Station Analytics
- Freight Movement and Safety Avoidance Analytics
- Pandemic and People Movement Impact Analytics
- Operations Impact Analytics (ROI tools)
- Real-time trajectory data (OEM) visualizations
- Transit Analytics

Next Meeting

- Thursday, November 30, 2023, from 2:00pm-3:30pm, ET

Poll 5: Please type your answer under the question in the pop-up box

Tell us what features you'd like to see built into RITIS (and any of its add-ons, including PDA, Trip Analytics, Signal Analytics, etc.)



RITIS | PROBE DATA ANALYTICS SUITE

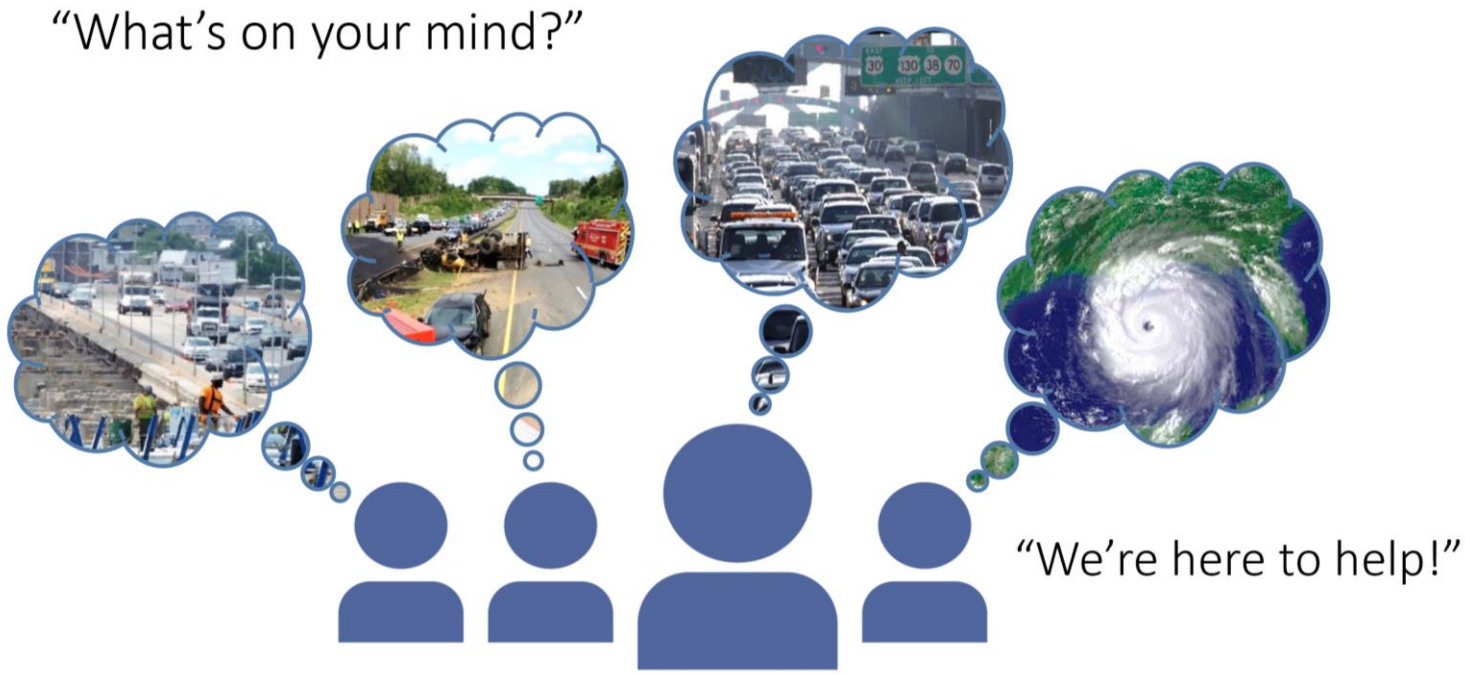
User Feedback Session, Q/A & Wrap Up

Michael Pack
Director
UMD CATT Lab

Jesse Buerk
Manager, Office of Capital Programs
DVRPC
RITIS User Group Co-chair

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 Q&A box or with an email to support@ritis.org



Agency Input – Polling and Open Discussion

Please type your answer under the question in the pop-up box.

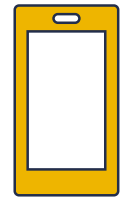
Poll 6 - What kinds of things are you currently doing with RITIS - Planning/Ops, presentations, project/funding justification, etc.- that you'd be willing to share at a future meeting?

Wrap Up

Jesse Buerk
Manager, Office of Capital Programs
DVRPC
RITIS User Group Co-chair

Questions?





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