

Using Data to Make Operational Decisions

MIOVISION TRAFFIC LINK



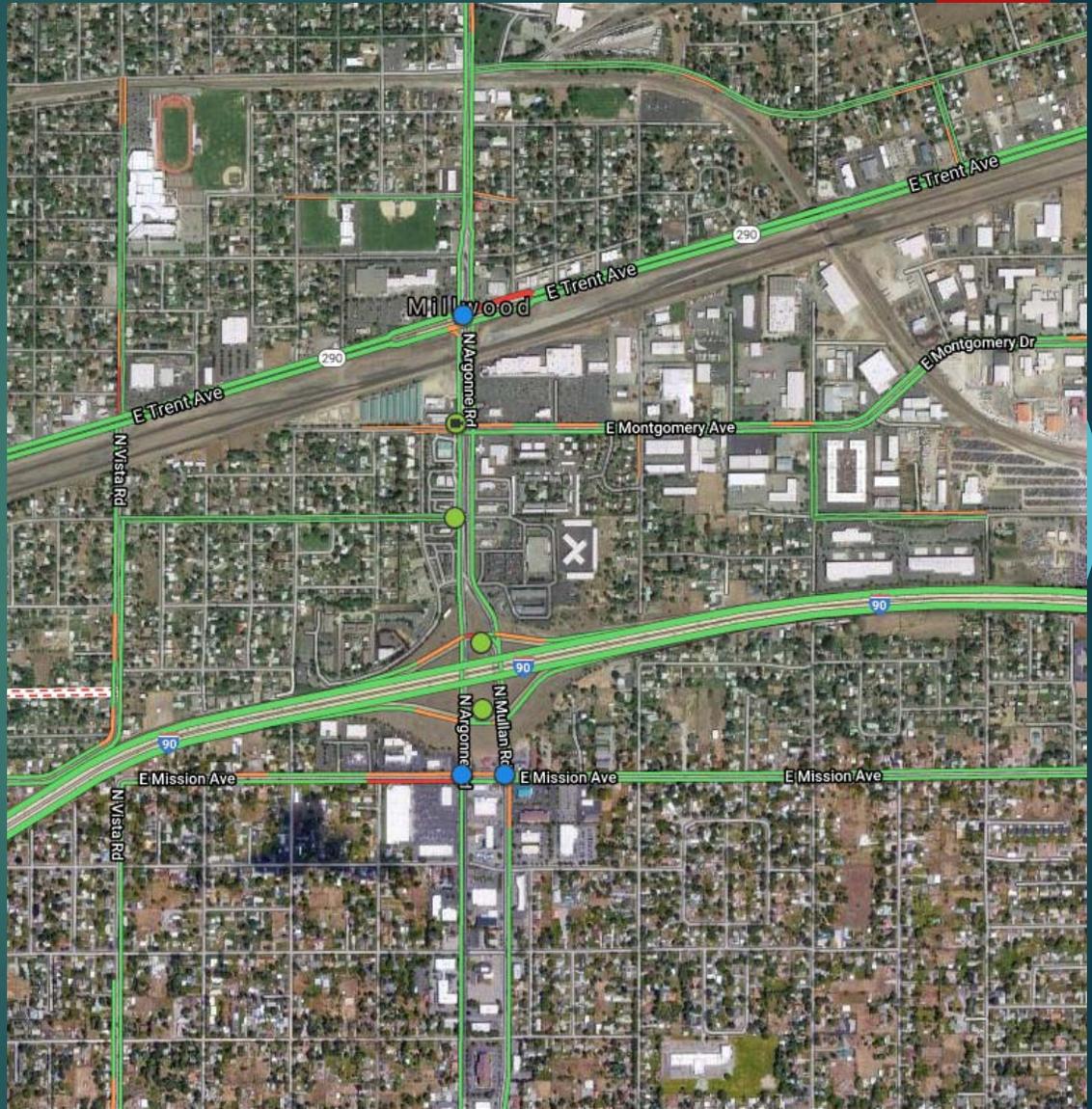
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**Washington State
Department of Transportation**

➤ Argonne Corridor Overview

Located in Spokane Valley, WA

- 7 intersections evaluated, included intersections of SR 290 and the I-90 interchange.
- Mixture of agencies that operate/own intersections, including WSDOT, City of Spokane Valley and Spokane County
- Surrounding area schools
- Active Railroad to the north in the town of Millwood
- Residential
- Businesses and industrial area to the east



Task Overview

▶ Objectives:

- ▶ North and South progression. Much of the traffic is commuting to I-90 in the AM peak and from I-90 in PM peak.

▶ Challenges:

- ▶ Railroad located to the north of these intersections preempts anywhere from 1-6 times per day. This can throw this corridor into transition and can take upwards 30 to 40 minutes to recover, depending on the time of day.
- ▶ Pedestrian violations at Trent and Montgomery placing corridor into transition often.
 - ▶ Increasing cycle length is not something COSV wanted.
 - ▶ There is only so much capacity between intersections and increasing cycle length could cause intersection to spill back in some instances.

➤ Traffic Volumes Before and During COVID-19 pandemic

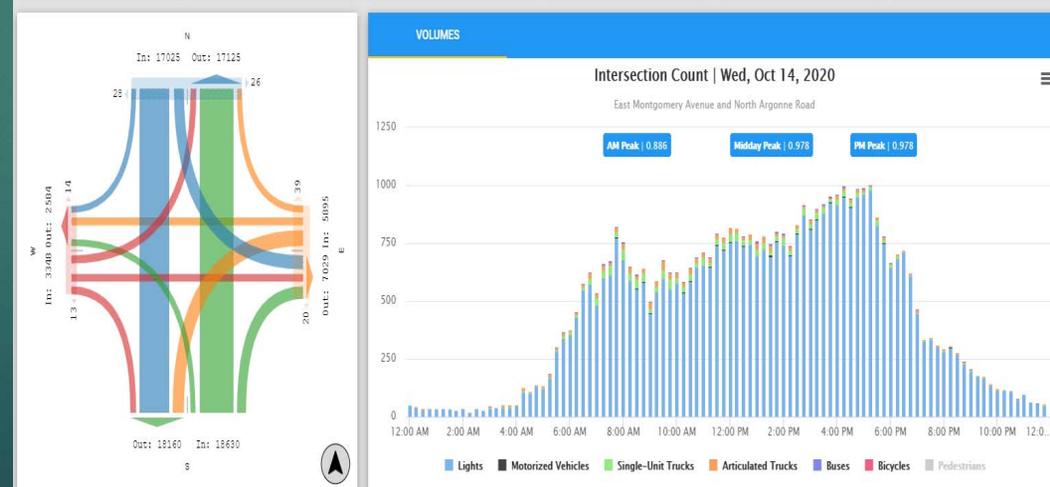
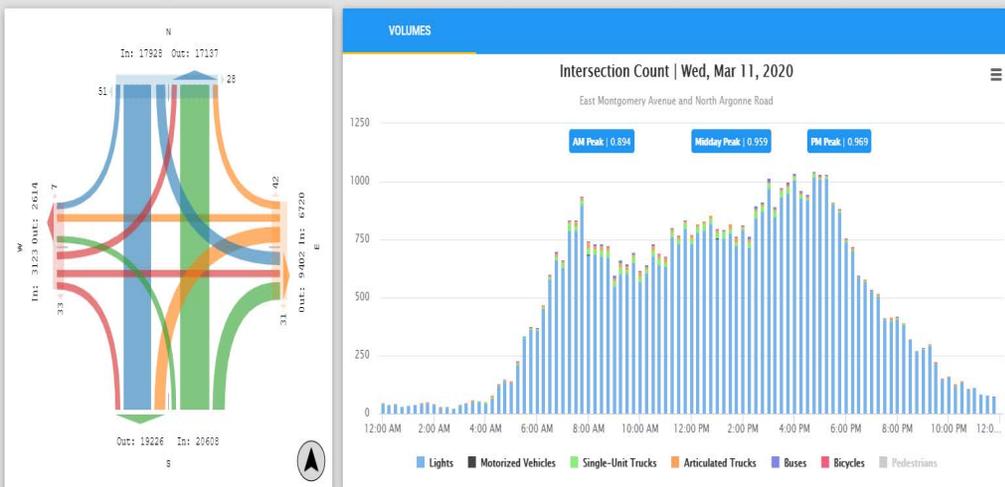
24 hour volume 7% lower, AM peak 13% less, PM peak 3% less. This fluctuates depending on the week.

March 11th 24 hour Volumes

October 14th 24 hour volumes

Total Vehicles	Total Pedestrians	Total Bicycles <small>BETA</small>	Truck Pct(%)	AM Peak	PM Peak
48,366	192	13	4%	3,359	4,053
<small>24 Hour Total</small>	<small>24 Hour Total</small>	<small>24 Hour Total</small>	<small>% of Vehicle Traffic</small>	<small>from 7:15AM to 8:15AM</small>	<small>from 4:30PM to 5:30PM</small>

Total Vehicles	Total Pedestrians	Total Bicycles <small>BETA</small>	Truck Pct(%)	AM Peak	PM Peak
44,881	140	17	6%	2,917	3,925
<small>24 Hour Total</small>	<small>24 Hour Total</small>	<small>24 Hour Total</small>	<small>% of Vehicle Traffic</small>	<small>from 7:15AM to 8:15AM</small>	<small>from 4:30PM to 5:30PM</small>



➤ Argonne & Montgomery

▶ Operational Issue:

- ▶ Montgomery SBLT lagging only in PM Peak. This is a heavy movement but does not have chance to gap out, hangs on unnecessarily at times and keeps NB PM commuting traffic from using valuable green time.
- ▶ Data shows movement not using cycle time effectively

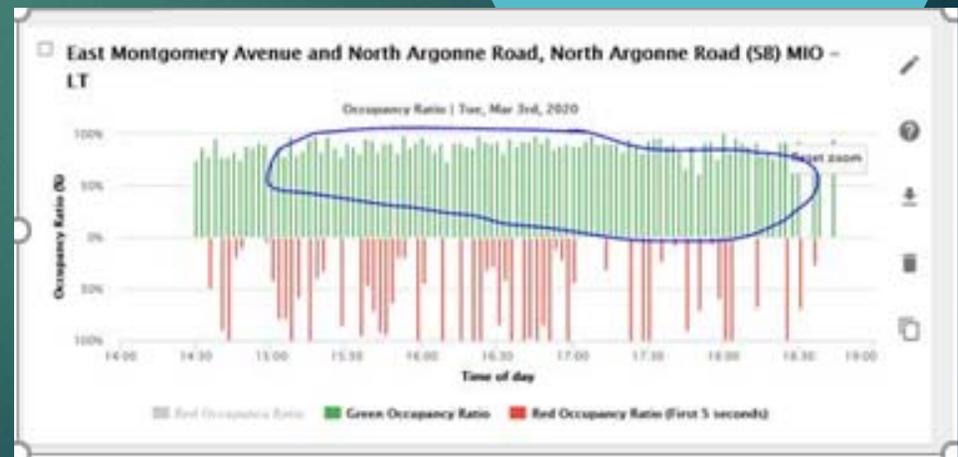
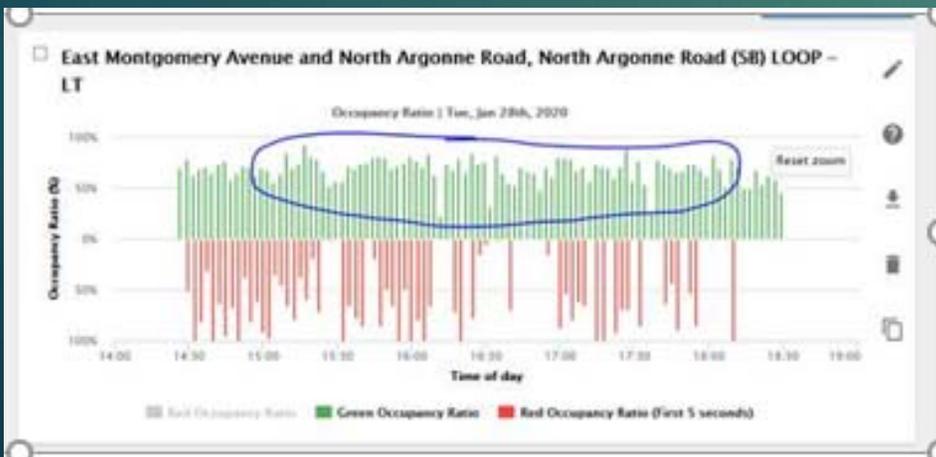
▶ Operational Solution:

- ▶ Modify Montgomery SBLT to leading only, therefore allowing this heavy movement to serve the same amount of green time at the beginning instead of the end allowing it to gap out if needed.

Looking at performance of this movement using Occupancy Ratio

Lagging Left- BEFORE ADJUSTMENT
Mid GOR 68%

Leading Left- AFTER ADJUSTMENT
High GOR 88%



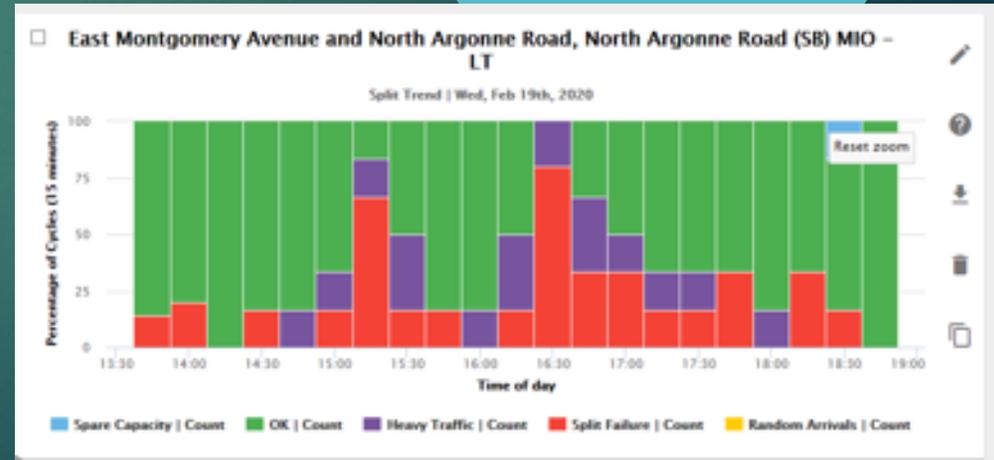
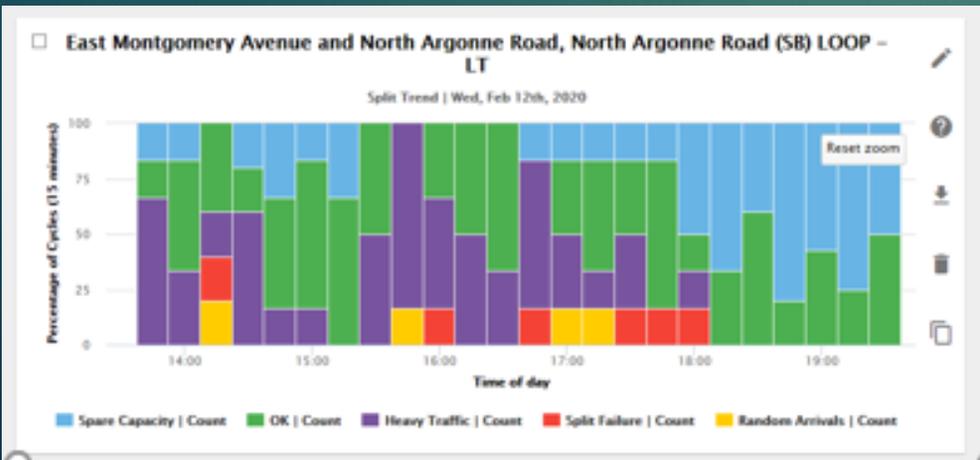
Movement Insight using Split Trends

Lagging Left BEFORE ADJUSTMENT

Seeing spare capacity, heavy traffic and some sparse split failures

Leading Left- AFTER ADJUSTMENT

Using green time effectively, having some split failures with heavy traffic due to high volumes



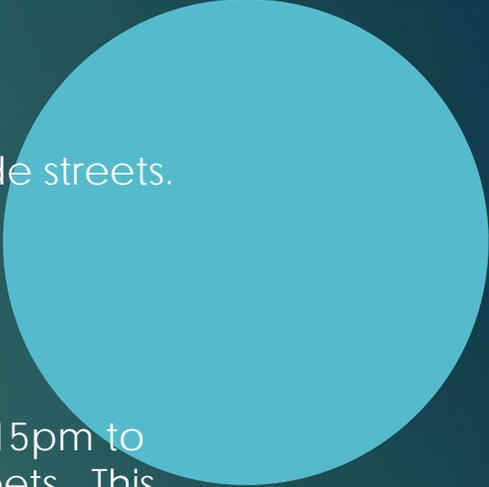


➤ Argonne & Knox Ave. Argonne & Montgomery

▶ Operational Issue:

- ▶ High Split failures mid-day on mainline, spare capacity on side streets. Additional timing plan for lunch rush favors side streets.

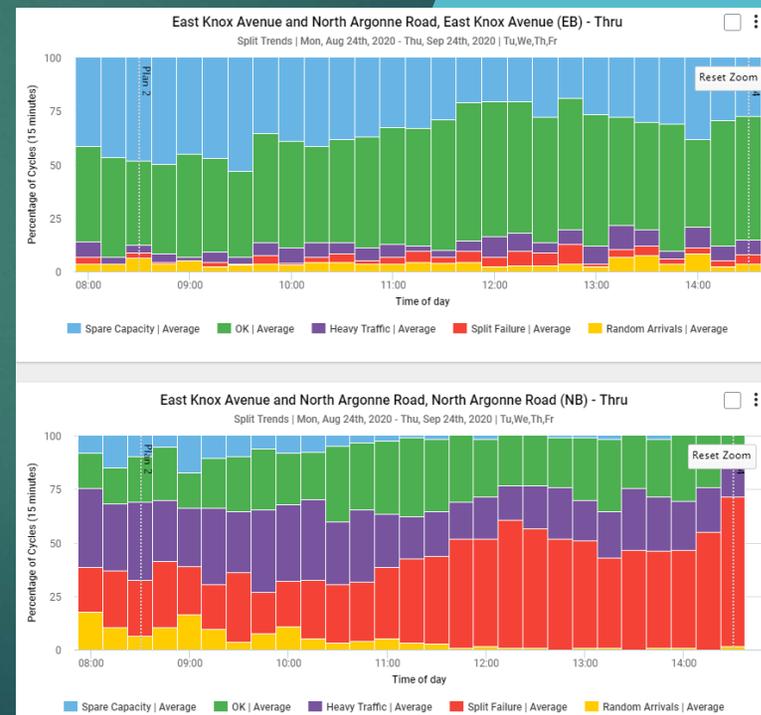
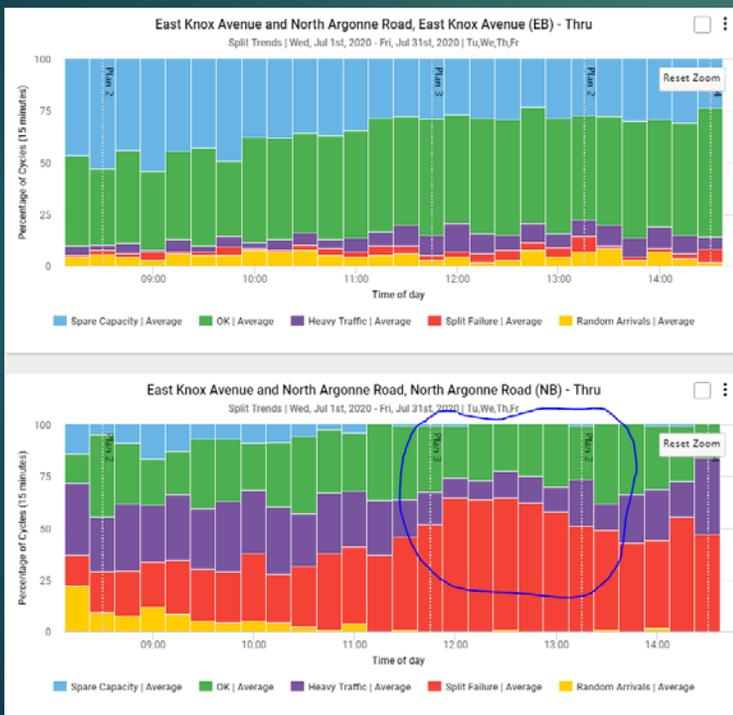
▶ Operational Solution:

- ▶ Remove midday timing plan that previously ran from 1145-115pm to accommodate lunch time rush, giving more time to side streets. This plan does not yield much benefit, penalizes mainline, and is overall more maintenance.
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Split Trend Performance Measure

Before: EB Knox spare capacity; NB High Split Failure/Heavy Traffic

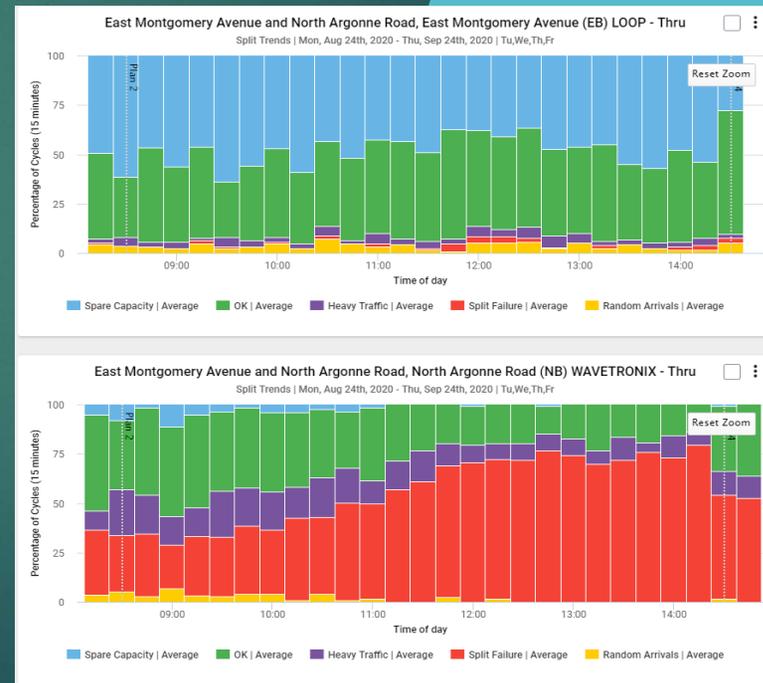
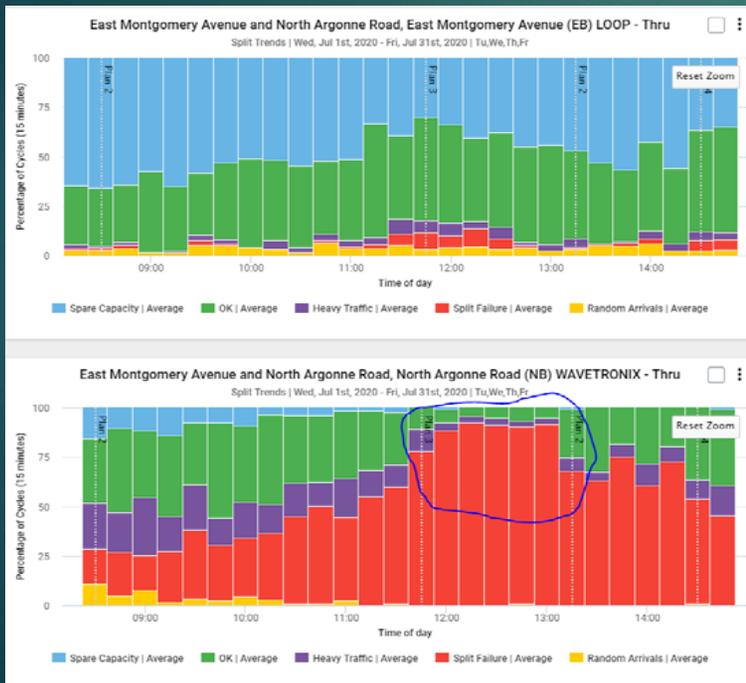
After: EB Knox still acceptable; NB less split failure



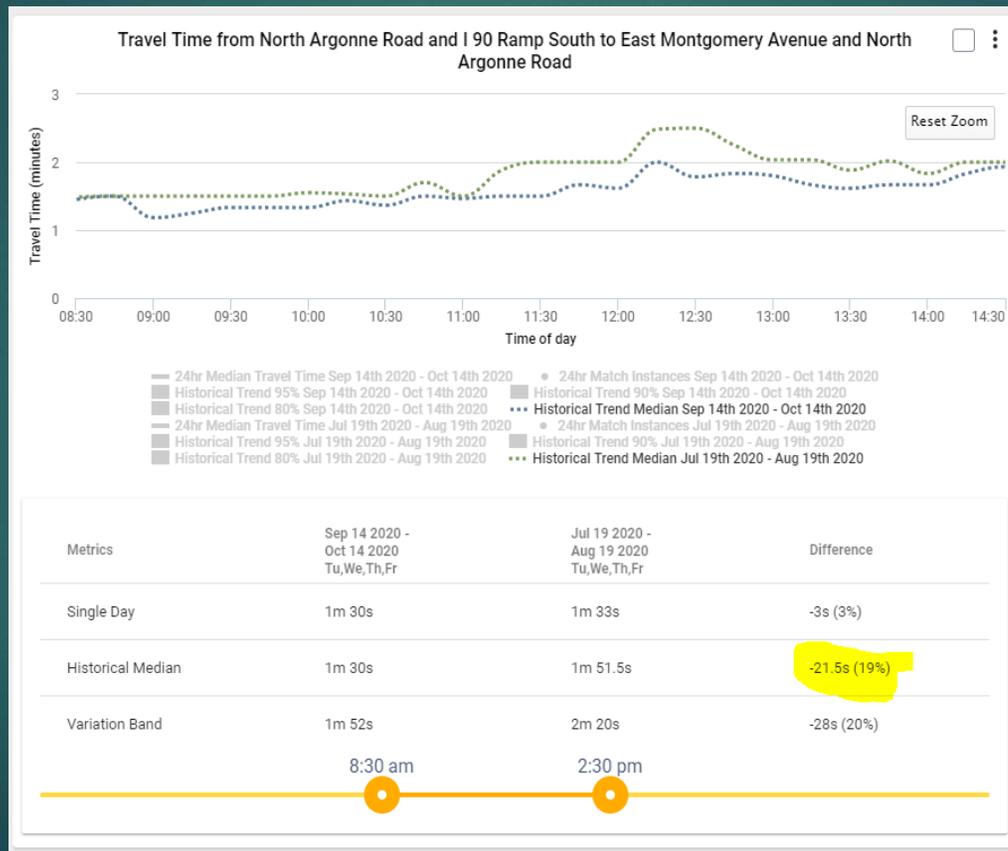
Split Trend Performance Measure

Before: EB Montgomery shows spare capacity; NB High Split Failure

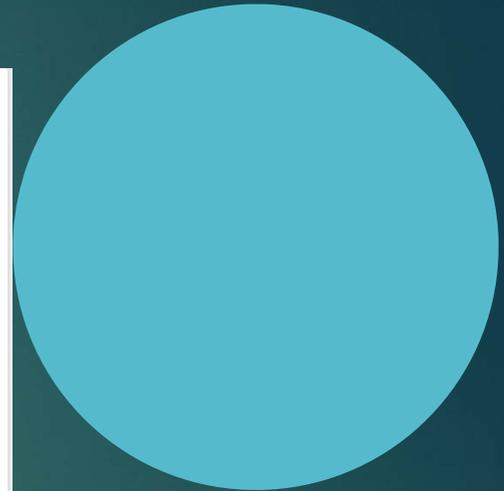
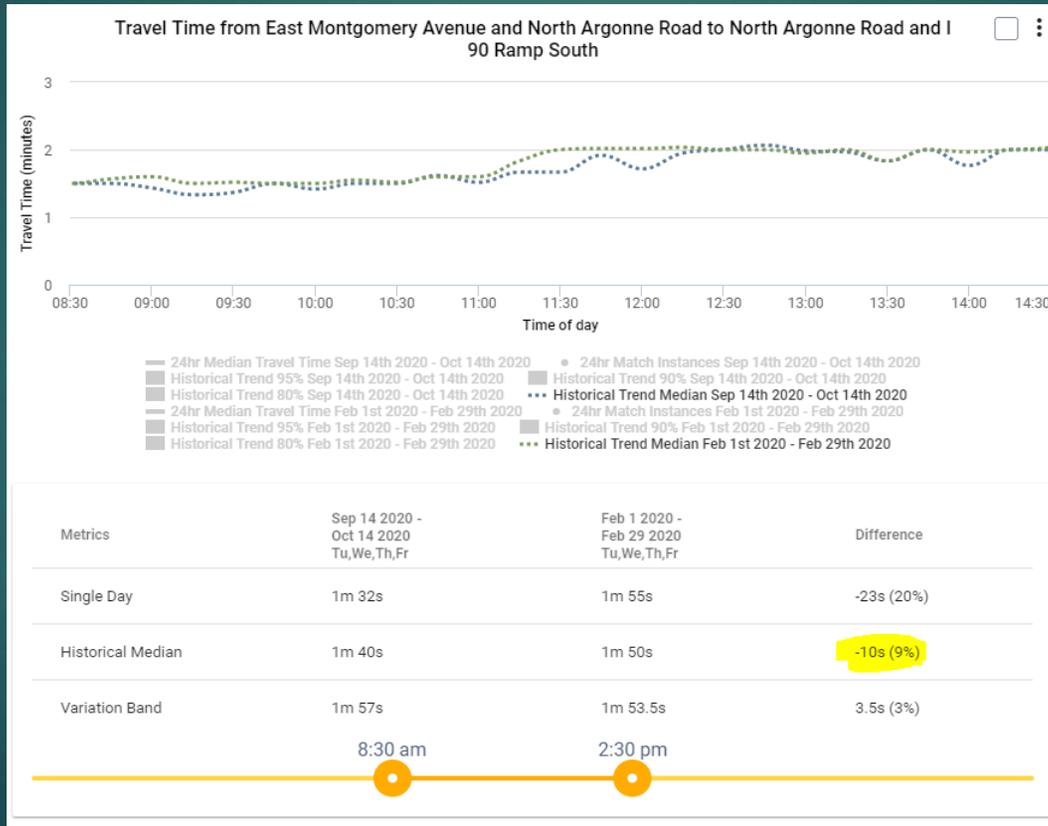
After: EB Montgomery still acceptable; NB less split failure



Comparing Travel Time for Mainline-Northbound

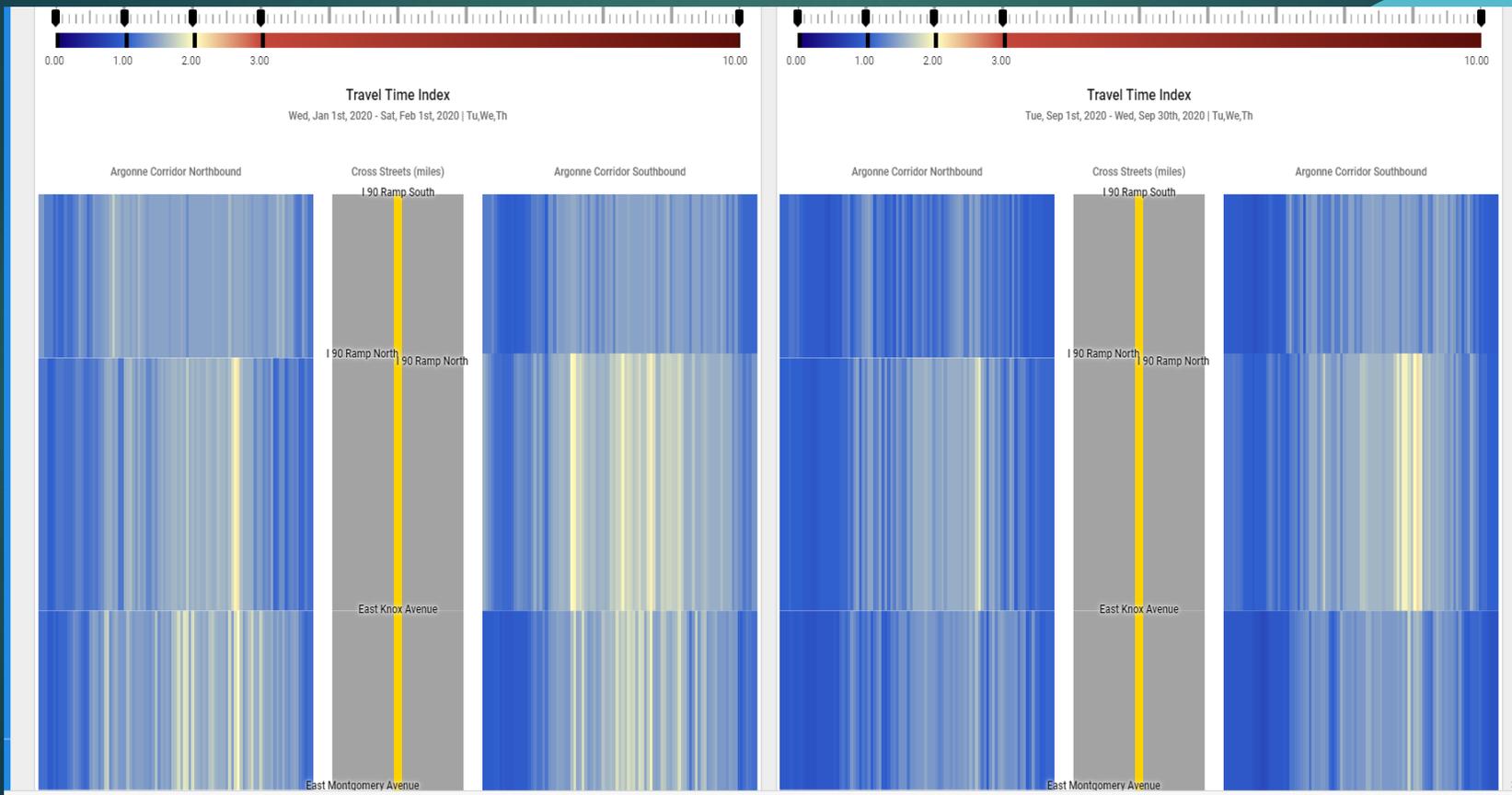


Comparing Travel Time for mainline-Southbound



Travel Time Index: January vs. September

Dark blue indicates normal TT; Yellow indicates 2X "normal" TT; orange indicates upwards of 3X "normal" TT.



➤ Conclusion

- ▶ Small inefficiencies and adjustments can make a difference
 - ▶ Checking passage/extension times
 - ▶ Checking detection
 - ▶ Revisiting all red/yellow times
 - ▶ Adjusting time of the day operation, i.e. coordinated vs. free operation, to not using advanced detectors. Creating more efficient phase termination.
- ▶ Importance of field visits for observation and verification
 - ▶ Data is a great tool but it cannot replace being out in the field and actually observing and driving these intersections.
 - ▶ We made numerous offset adjustments in the field observing.

Thank You!

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