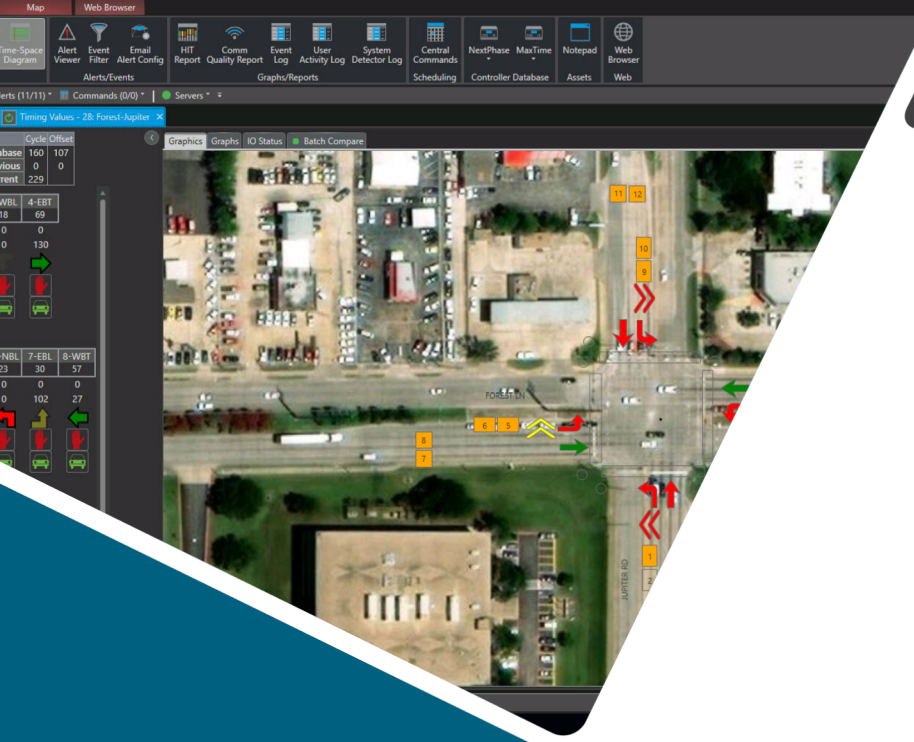
LEARN • COLLABORATE • SHARE • ENERGIZE



Kimley»Horn

SMART CITIES TECHNOLOGY FORUM

Traction Metrics

»KITS
A Kimley-Horn Software Solution

»Kadence
A Kimley-Horn Software Solution

»Traction
A Kimley-Horn Software Solution

TractionLive

View real-time system status from your web browser or mobile device.

TractionTravel

Collect, analyze, and automate travel time data and alerts.

TractionPriority

Provide centralized priority for all modes of transportation.

Traction Smart Cities Ecosystem

TractionMetrics

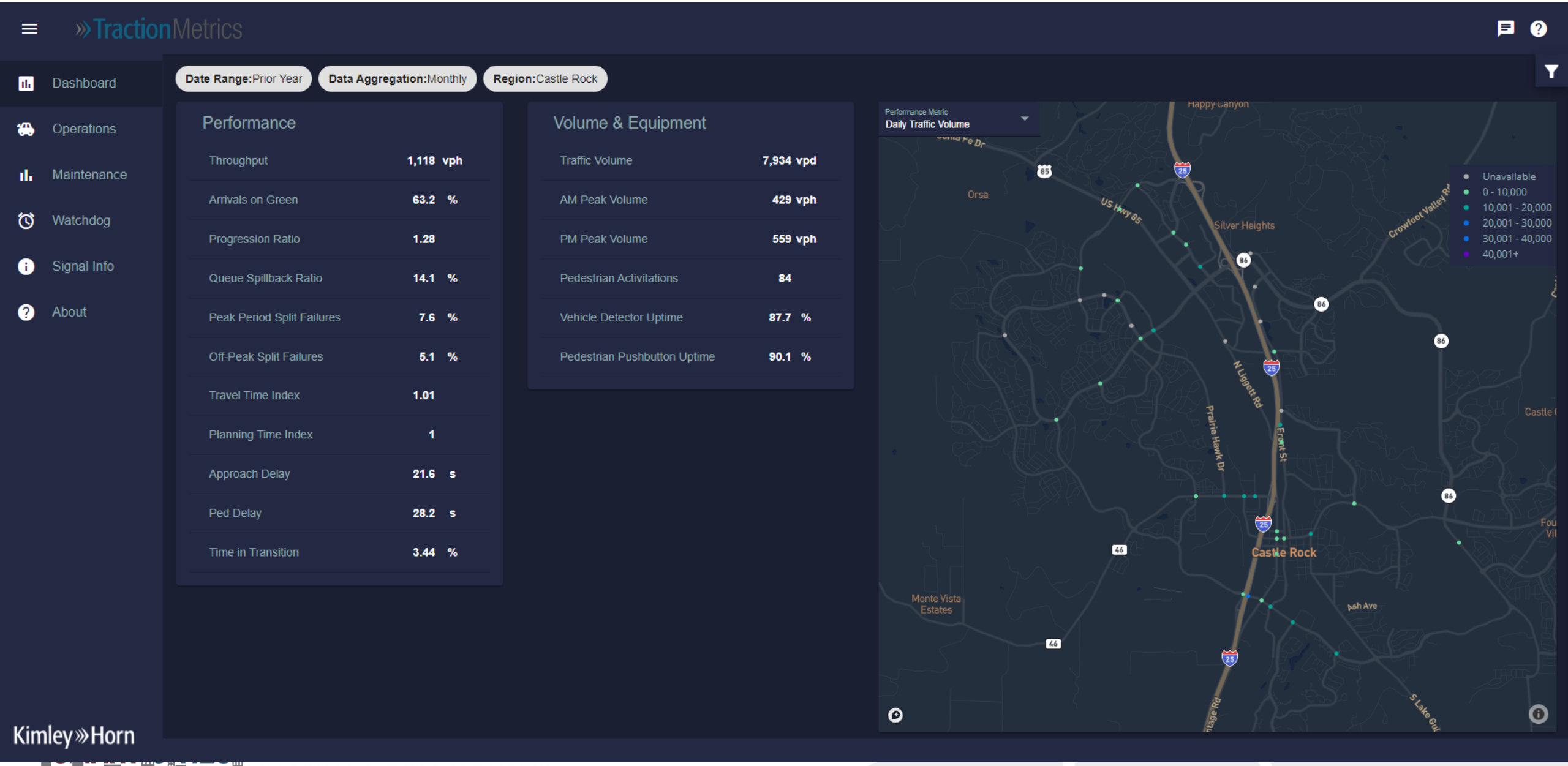
Visualize performance data with streamlined dashboards and reports.

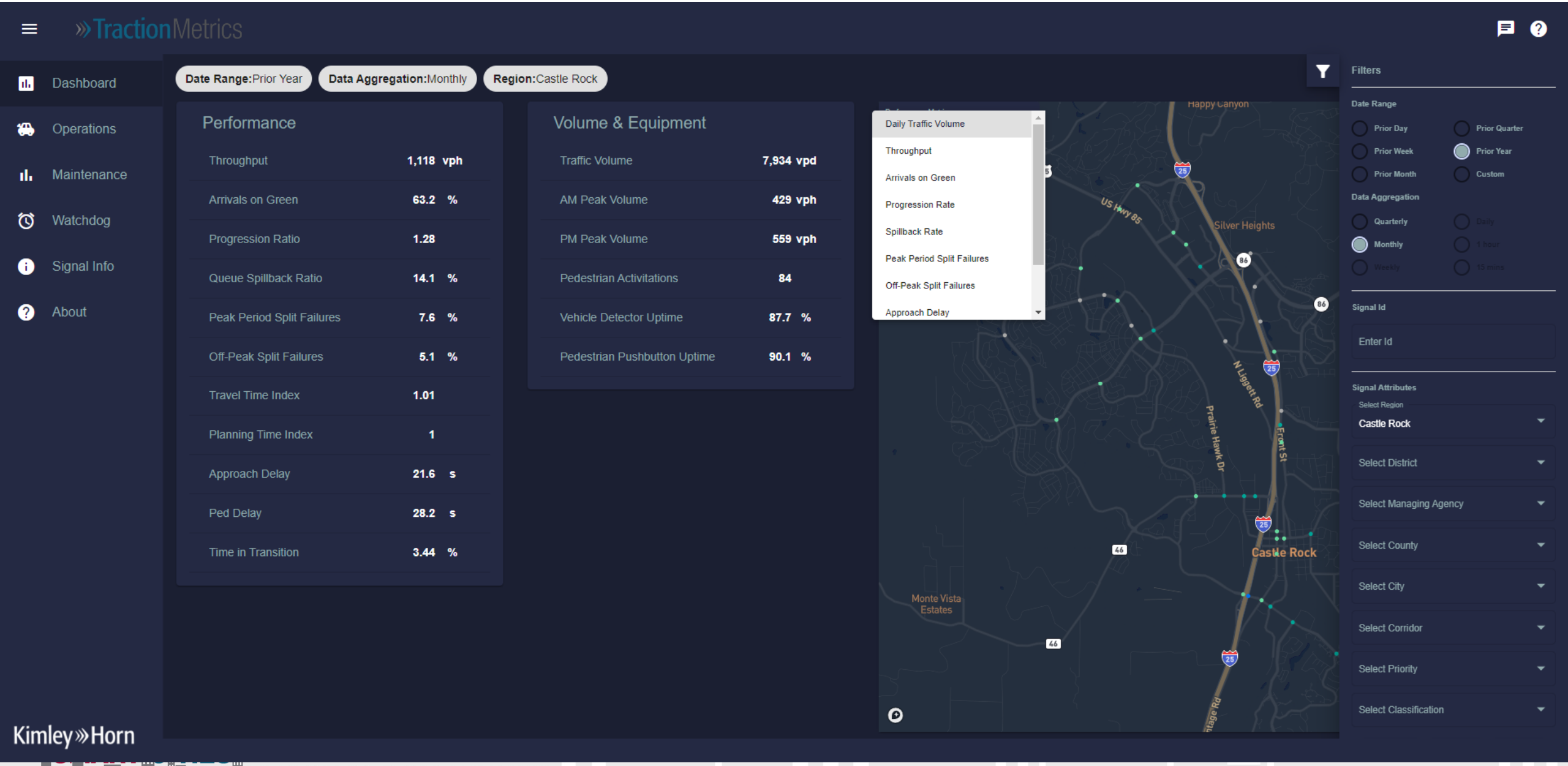
TractionConnect

Share and receive connected vehicle data and traveler information messages.

TractionWorkflow

Manage assets, inventory, and work order tasks.


TractionMetrics
Dashboard
Operations
Maintenance
Watchdog
Signal Info
About
Date Range:Prior Year
Data Aggregation:Monthly
Region:Castle Rock
Performance
Throughput 1,118 vph
Arrivals on Green 63.2 %
Progression Ratio 1.28
Queue Spillback Ratio 14.1 %
Peak Period Split Failures 7.6 %
Off-Peak Split Failures 5.1 %
Travel Time Index 1.01
Planning Time Index 1
Approach Delay 21.6 s
Ped Delay 28.2 s
Time in Transition 3.44 %
Volume & Equipment
Traffic Volume 7,934 vpd
AM Peak Volume 429 vph
PM Peak Volume 559 vph
Pedestrian Activitations 84
Vehicle Detector Uptime 87.7 %
Pedestrian Pushbutton Uptime 90.1 %
Performance Metric
Daily Traffic Volume
Unavailable
0 - 10,000
10,001 - 20,000
20,001 - 30,000
30,001 - 40,000
40,001+
Happy Canyon
Orsa
US Hwy 85
Silver Heights
Crowfoot Valley Rd
N Liggett Rd
Prairie Hawk Dr
Front St
Castle Rock
Monte Vista Estates
Ash Ave
Kimley»Horn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Spillback Rate
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Off-Peak Split Failures
Approach Delay
Happy Canyon
US Hwy 85
Silver Heights
N Liggett Rd
Prairie Hawk Dr
Front St
Castle Rock
Monte Vista Estates
Filters
Date Range
Prior Day
Prior Week
Prior Month
Prior Quarter
Prior Year
Custom
Data Aggregation
Quarterly
Monthly
Weekly
Daily
1 hour
15 mins
Signal Id
Enter Id
Signal Attributes
Select Region
Castle Rock
Select District
Select Managing Agency
Select County
Select City
Select Corridor
Select Priority
Select Classification
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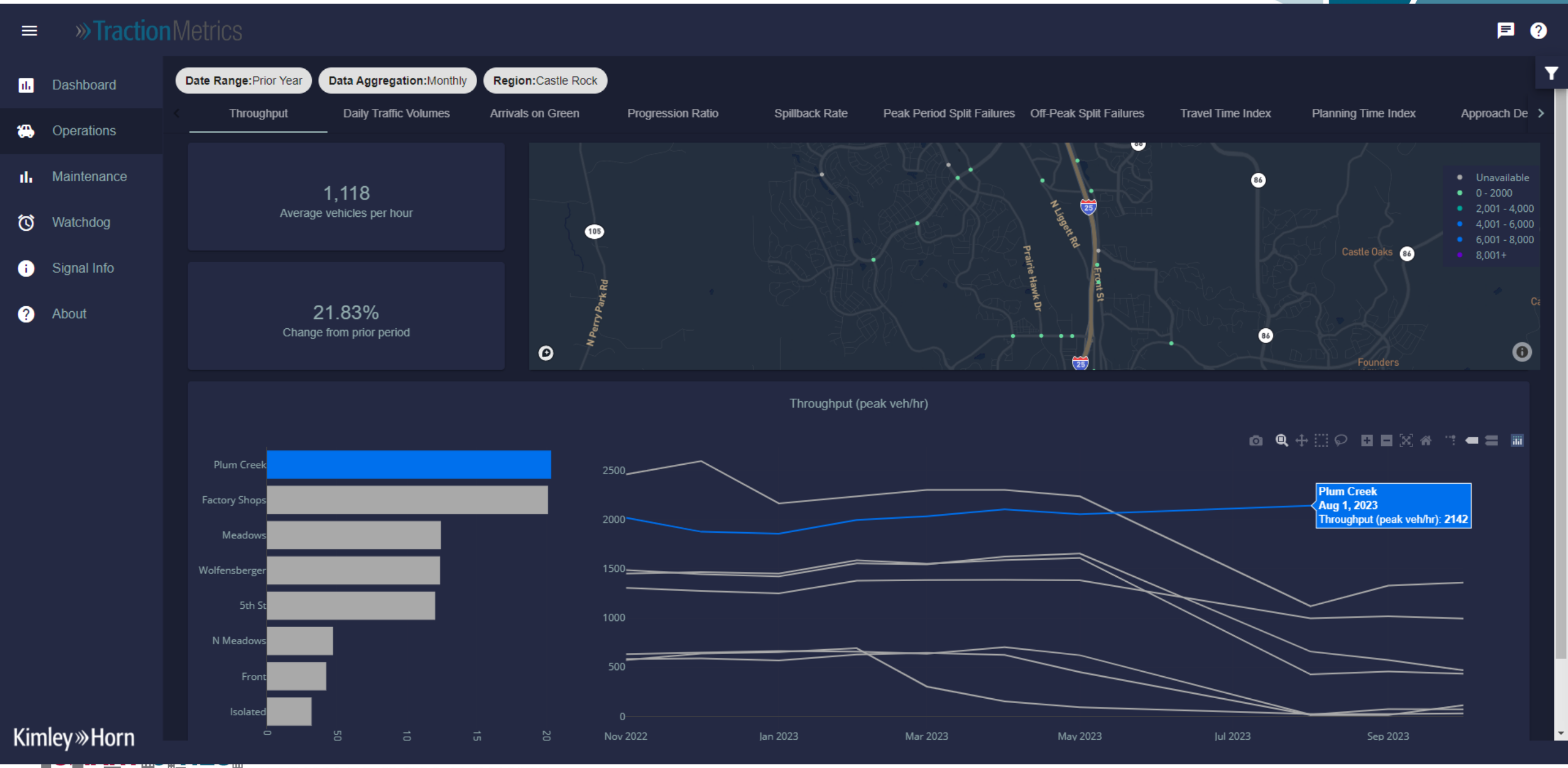
TractionMetrics
Dashboard
Operations
Maintenance
Watchdog
Signal Info
About
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Data Aggregation:Monthly
Region:Castle Rock
Throughput
Daily Traffic Volumes
Arrivals on Green
Progression Ratio
Spillback Rate
Peak Period Split Failures
Off-Peak Split Failures
Travel Time Index
Planning Time Index
Approach De
1,118
Average vehicles per hour
21.83%
Change from prior period
Unavailable
0 - 2000
2,001 - 4,000
4,001 - 6,000
6,001 - 8,000
8,001+
N Perry Park Rd
Prairie Hawk Dr
N Liggett Rd
Front St
Castle Oaks
Founders
Throughput (peak veh/hr)
Plum Creek
Factory Shops
Meadows
Wolfensberger
5th St
N Meadows
Front
Isolated
Plum Creek
Aug 1, 2023
Throughput (peak veh/hr): 2142
Nov 2022
Jan 2023
Mar 2023
May 2023
Jul 2023
Sep 2023
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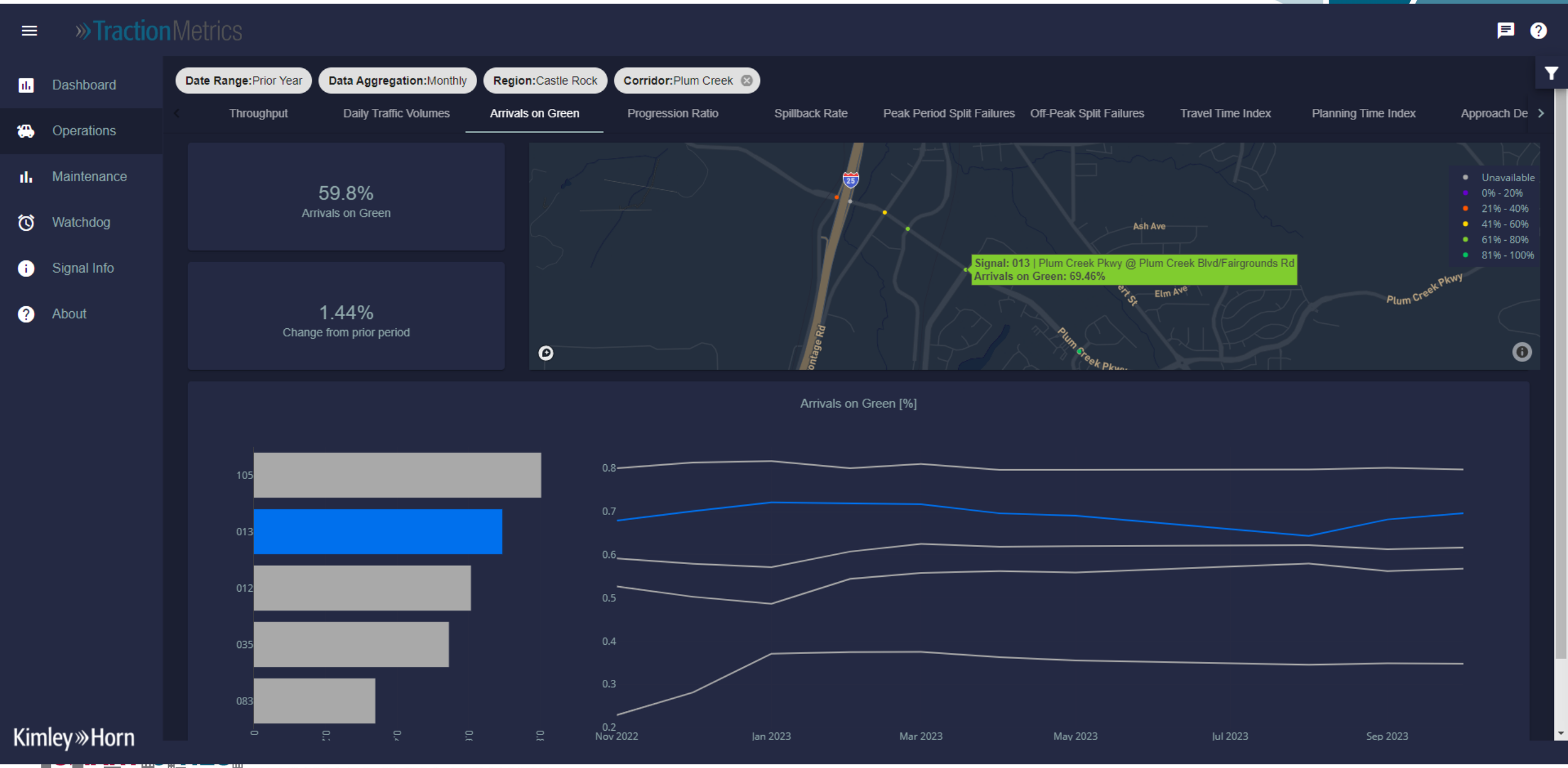
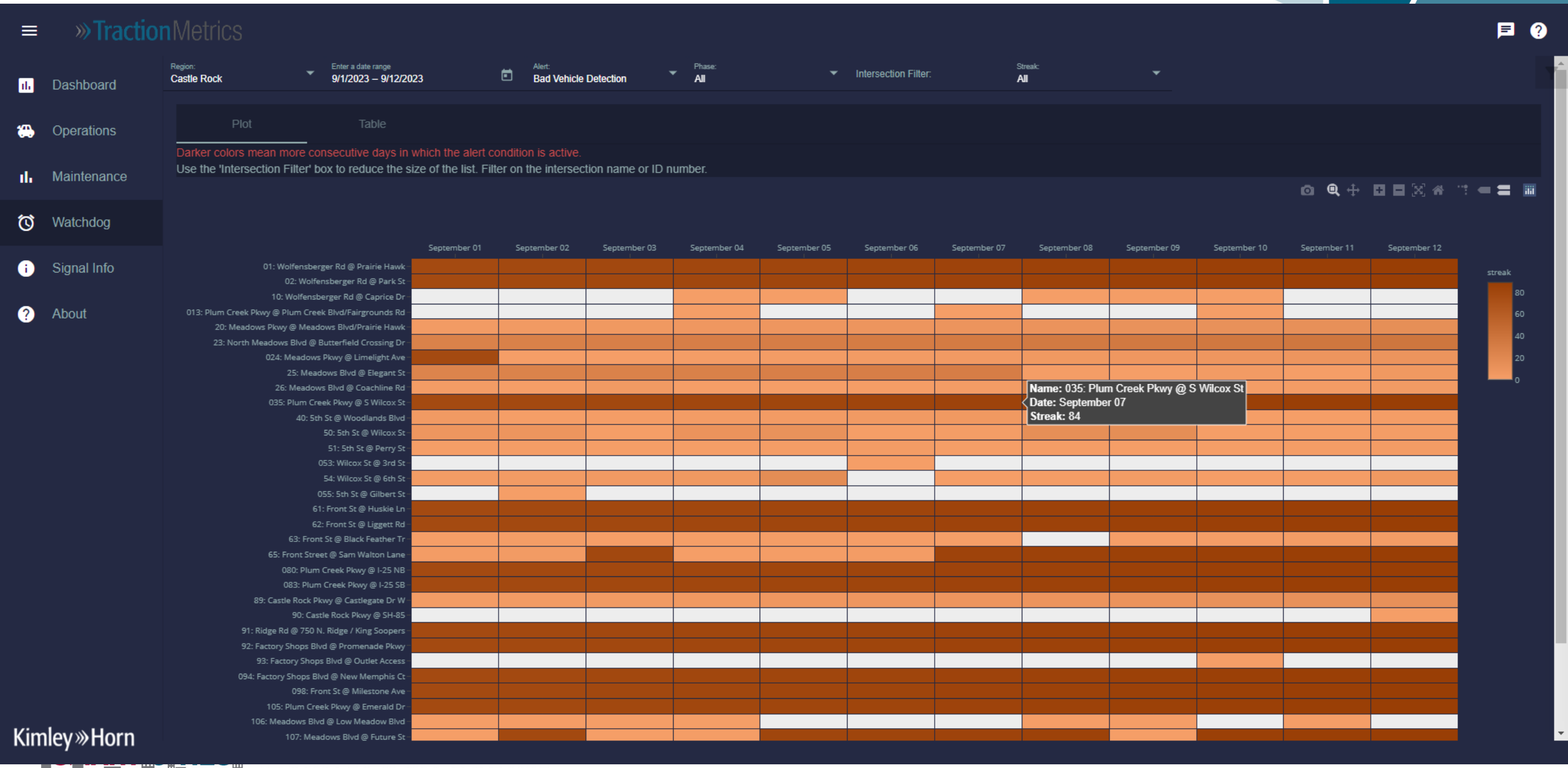


TECHNOLOGY FORUM


TractionMetrics
Dashboard
Operations
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Signal Info
About
Region: Castle Rock
Enter a date range 9/1/2023 – 9/12/2023
Alert: Bad Vehicle Detection
Phase: All
Intersection Filter:
Streak: All
Plot
Table
Darker colors mean more consecutive days in which the alert condition is active.
Use the 'Intersection Filter' box to reduce the size of the list. Filter on the intersection name or ID number.
September 01
September 02
September 03
September 04
September 05
September 06
September 07
September 08
September 09
September 10
September 11
September 12
01: Wolfensberger Rd @ Prairie Hawk
02: Wolfensberger Rd @ Park St
10: Wolfensberger Rd @ Caprice Dr
013: Plum Creek Pkwy @ Plum Creek Blvd/Fairgrounds Rd
20: Meadows Pkwy @ Meadows Blvd/Prairie Hawk
23: North Meadows Blvd @ Butterfield Crossing Dr
024: Meadows Pkwy @ Limelight Ave
25: Meadows Blvd @ Elegant St
26: Meadows Blvd @ Coachline Rd
035: Plum Creek Pkwy @ S Wilcox St
40: 5th St @ Woodlands Blvd
50: 5th St @ Wilcox St
51: 5th St @ Perry St
053: Wilcox St @ 3rd St
54: Wilcox St @ 6th St
055: 5th St @ Gilbert St
61: Front St @ Huskie Ln
62: Front St @ Liggett Rd
63: Front St @ Black Feather Tr
65: Front Street @ Sam Walton Lane
080: Plum Creek Pkwy @ I-25 NB
083: Plum Creek Pkwy @ I-25 SB
89: Castle Rock Pkwy @ Castlegate Dr W
90: Castle Rock Pkwy @ SH-85
91: Ridge Rd @ 750 N. Ridge / King Soopers
92: Factory Shops Blvd @ Promenade Pkwy
93: Factory Shops Blvd @ Outlet Access
094: Factory Shops Blvd @ New Memphis Ct
098: Front St @ Milestone Ave
105: Plum Creek Pkwy @ Emerald Dr
106: Meadows Blvd @ Low Meadow Blvd
107: Meadows Blvd @ Future St
Name: 035: Plum Creek Pkwy @ S Wilcox St
Date: September 07
Streak: 84
streak
80
60
40
20
0
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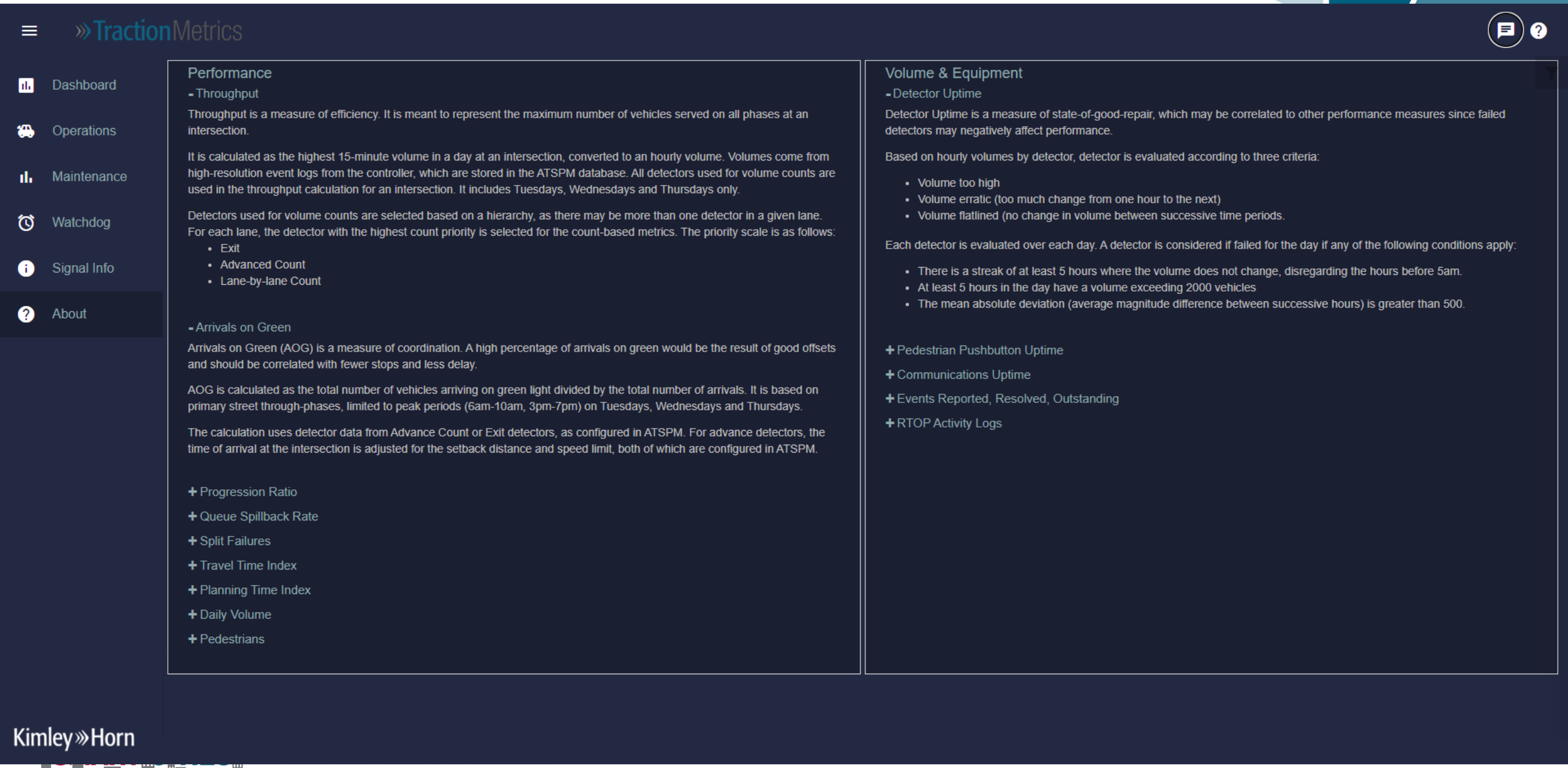
TractionMetrics
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About
Performance
- Throughput
Throughput is a measure of efficiency. It is meant to represent the maximum number of vehicles served on all phases at an intersection.
It is calculated as the highest 15-minute volume in a day at an intersection, converted to an hourly volume. Volumes come from high-resolution event logs from the controller, which are stored in the ATSPM database. All detectors used for volume counts are used in the throughput calculation for an intersection. It includes Tuesdays, Wednesdays and Thursdays only.
Detectors used for volume counts are selected based on a hierarchy, as there may be more than one detector in a given lane. For each lane, the detector with the highest count priority is selected for the count-based metrics. The priority scale is as follows:
Exit
Advanced Count
Lane-by-lane Count
- Arrivals on Green
Arrivals on Green (AOG) is a measure of coordination. A high percentage of arrivals on green would be the result of good offsets and should be correlated with fewer stops and less delay.
AOG is calculated as the total number of vehicles arriving on green light divided by the total number of arrivals. It is based on primary street through-phases, limited to peak periods (6am-10am, 3pm-7pm) on Tuesdays, Wednesdays and Thursdays.
The calculation uses detector data from Advance Count or Exit detectors, as configured in ATSPM. For advance detectors, the time of arrival at the intersection is adjusted for the setback distance and speed limit, both of which are configured in ATSPM.
+ Progression Ratio
+ Queue Spillback Rate
+ Split Failures
+ Travel Time Index
+ Planning Time Index
+ Daily Volume
+ Pedestrians
Volume & Equipment
- Detector Uptime
Detector Uptime is a measure of state-of-good-repair, which may be correlated to other performance measures since failed detectors may negatively affect performance.
Based on hourly volumes by detector, detector is evaluated according to three criteria:
Volume too high
Volume erratic (too much change from one hour to the next)
Volume flatlined (no change in volume between successive time periods.
Each detector is evaluated over each day. A detector is considered if failed for the day if any of the following conditions apply:
There is a streak of at least 5 hours where the volume does not change, disregarding the hours before 5am.
At least 5 hours in the day have a volume exceeding 2000 vehicles
The mean absolute deviation (average magnitude difference between successive hours) is greater than 500.
+ Pedestrian Pushbutton Uptime
+ Communications Uptime
+ Events Reported, Resolved, Outstanding
+ RTOP Activity Logs
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What's Next?

- Calculation optimization
- Measure documentation
- Microsoft SQL support
- Full SaaS capabilities
- Deployment in Miami-Dade County