



2026 ITE Western District Annual Meeting

Situational Awareness – New Strategies for Safer Intersections

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Core Technologies & Services

- › Econolite is committed to deploying advanced technologies that reduce travel time, ease congestion, enhance transit operations, provide safer mobility, and improve quality of life.

Cabinets



- › Smart traffic control cabinets in a variety of standard and custom configurations.

Controllers



- › Next generation traffic signal controllers for accurate and reliable traffic management.

Sensors



- › Intelligent traffic sensors for advanced vehicle, bike, and ped detection systems.

Software



- › Cutting-edge software solutions for advanced traffic management.

Modeling & Planning



PTV
Visum



PTV
Vissim



PTV
Viswalk



PTV
Vistro



PTV
Optima



Econolite
Centracs
ATMS



EOS Controller
Software

Software



PTV
Hub



PTV
Model2Go



PTV
Access



PTV
Lines



PTV
Flows



Econolite
Centracs
Mobility

SaaS

Econolite Hardware



Cobalt®
Controllers



2070
Controllers



Autoscope®
Vision



EVO RADAR™



ZincBlue2®



Safetran®
Cabinets

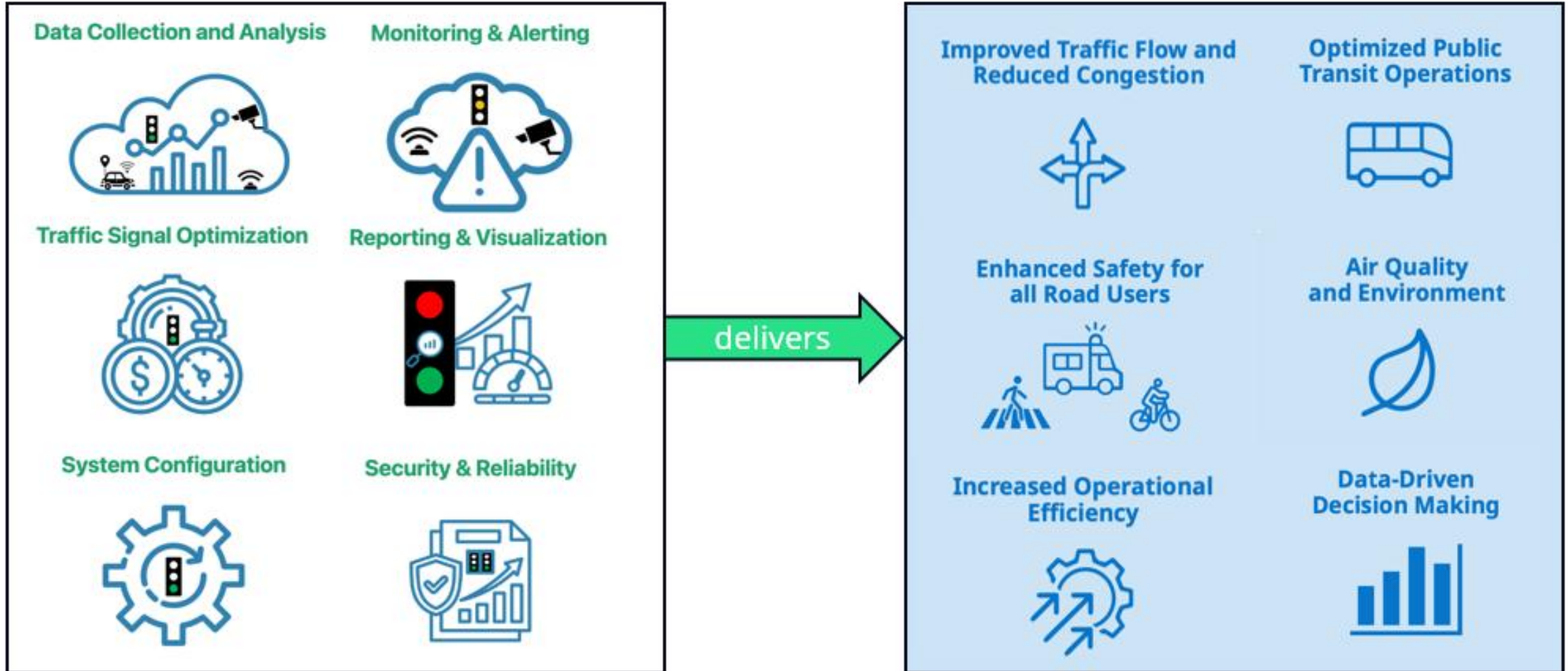


ATC Cabinets



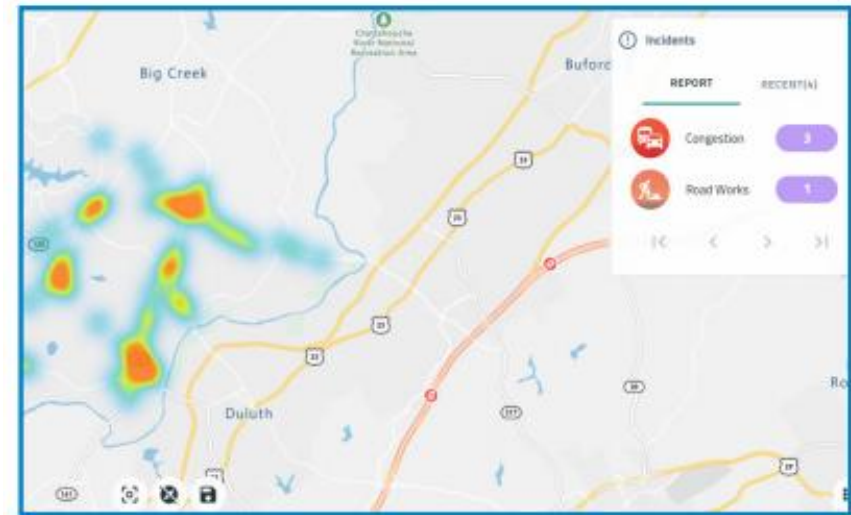
NEMA
Cabinets

Centracs Mobility – Cloud ATMS



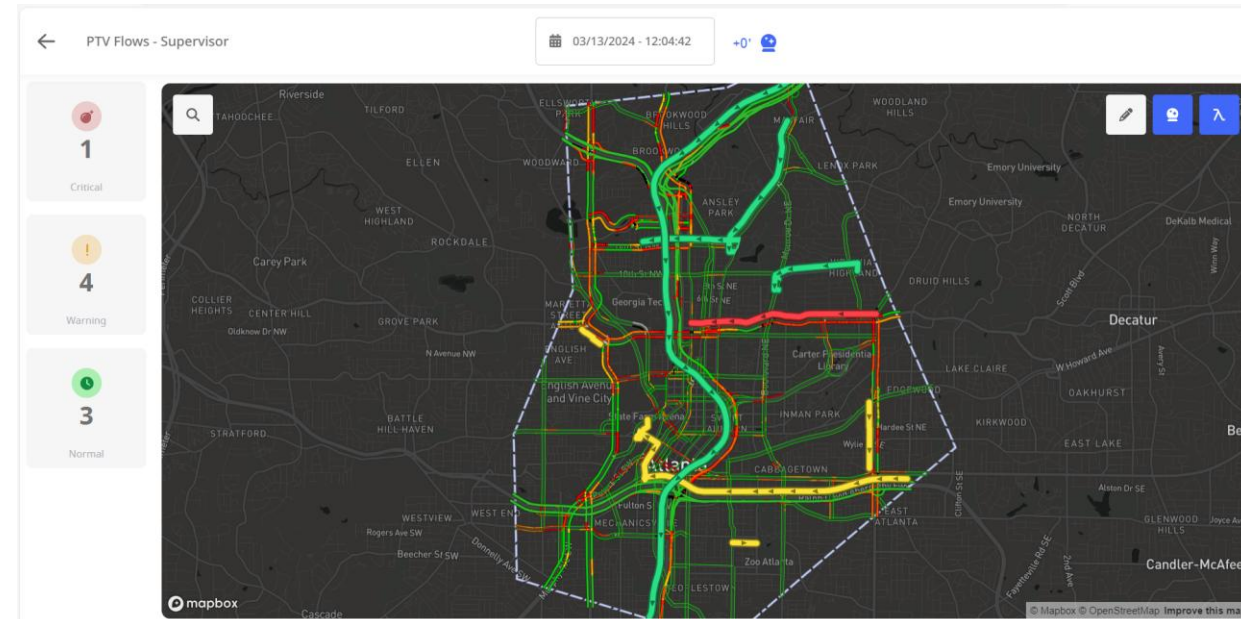
Situational Awareness

- › Knowing what is going on at your intersections and why it is happening...
- › Can be a combination of data sets:
 - › **Infrastructure data:**
 - › Traffic Signal Controller Data via ATMS
 - › CCTV
 - › Detector data
 - › Travel Time Bluetooth or Wifi
 - › **3RD Party Data / Apps**
 - › Probe Data from Cell Phones, Connected Devices, etc.
 - › Waze, Google, Twitter, etc.



3rd Party Data / Probe Data

- › Easy to deploy
- › No hardware or maintenance
- › Add new Origin-Destination routes on the fly
- › On local roads, County, and DOT
- › Predictive Capabilities up to 1hr
- › Can show where problem areas will start
- › Tie directly into ATMS and Adaptive
 - › Proactive and Automatic Timing Plans



ATMS and SPM Data Insights

SPM Reports

- › Vehicle delay, arrivals on green/red, split failures, Purdue Coordination Diagram, etc.

Automated Alerts to maintain system

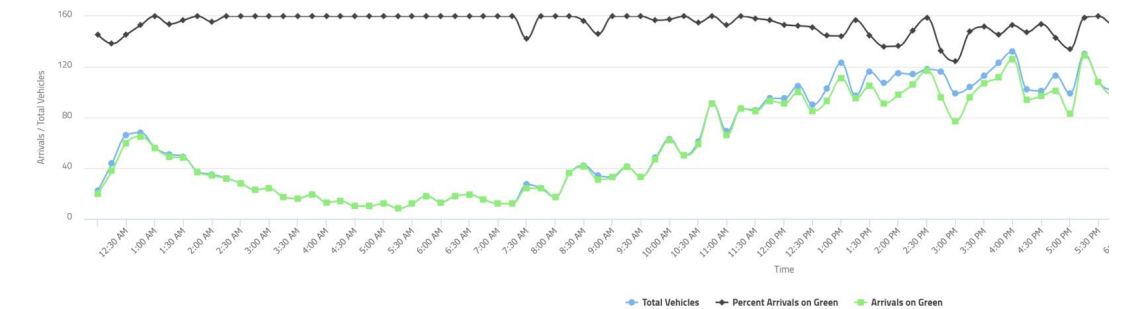
- › Alerts on trends using AI
- › Know when detection is going bad
- › Which metrics are trending down

5005 Powers Blvd, Phase: 2, Direction: E

WEDNESDAY, MAY 20, 2020

Total Detector Hits: 5775, Total AoG: 5526, AoG for the selected period: 96%

2(E)

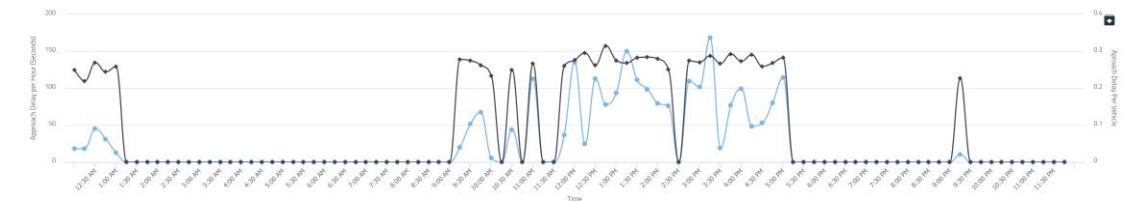


5005 Powers Blvd, Phase: 8, Direction: S

WEDNESDAY, MAY 20, 2020

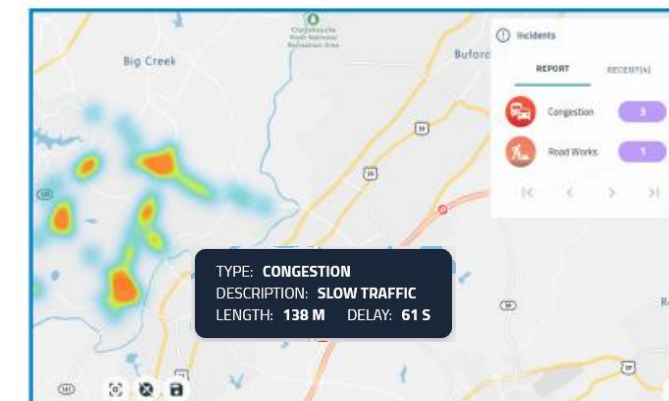
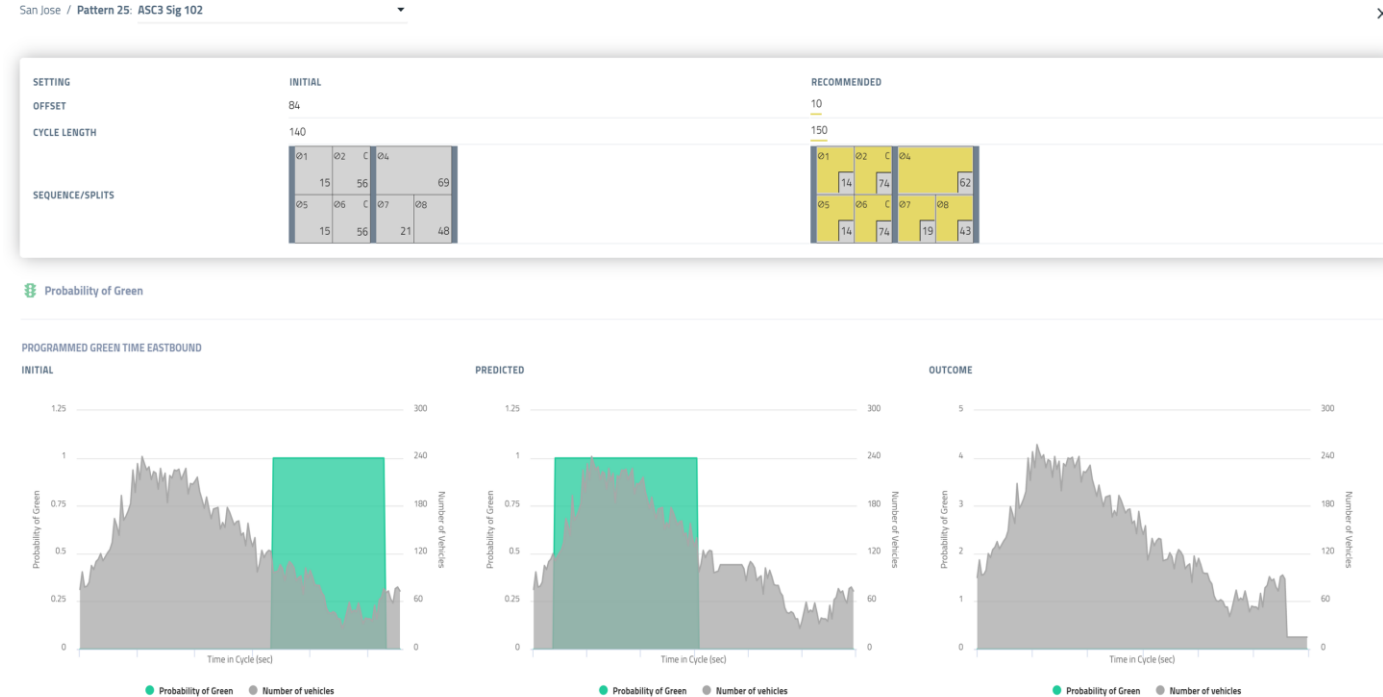
Average Delay Per Vehicle: 0:00:00.26

8(S)

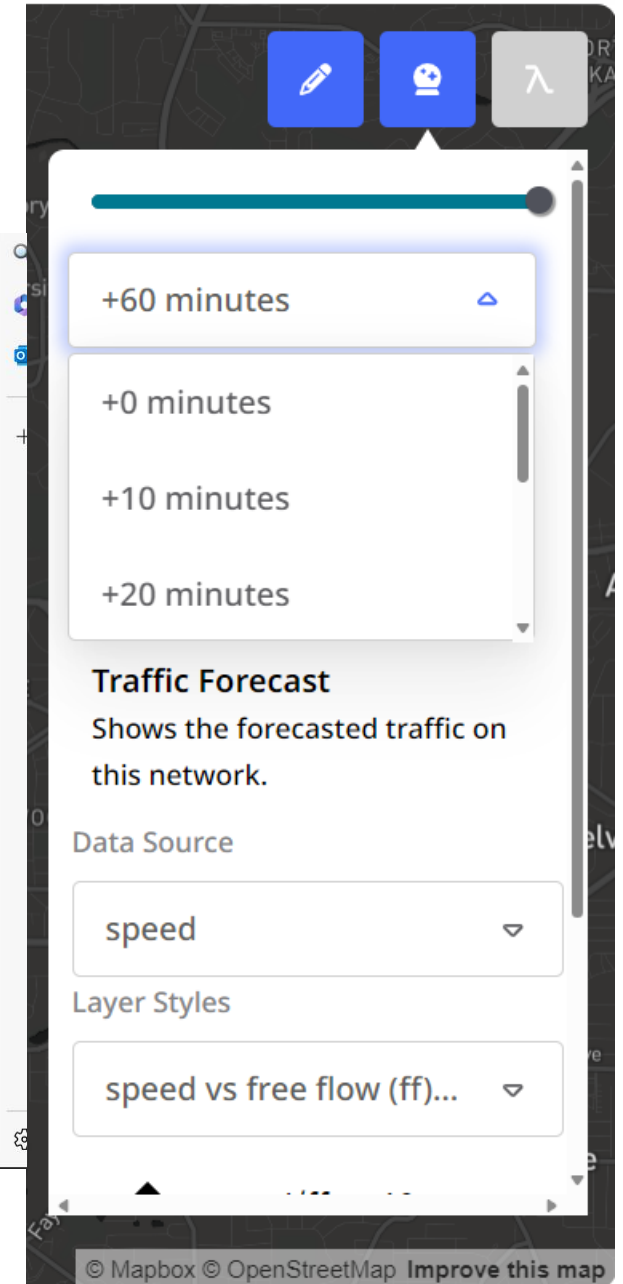
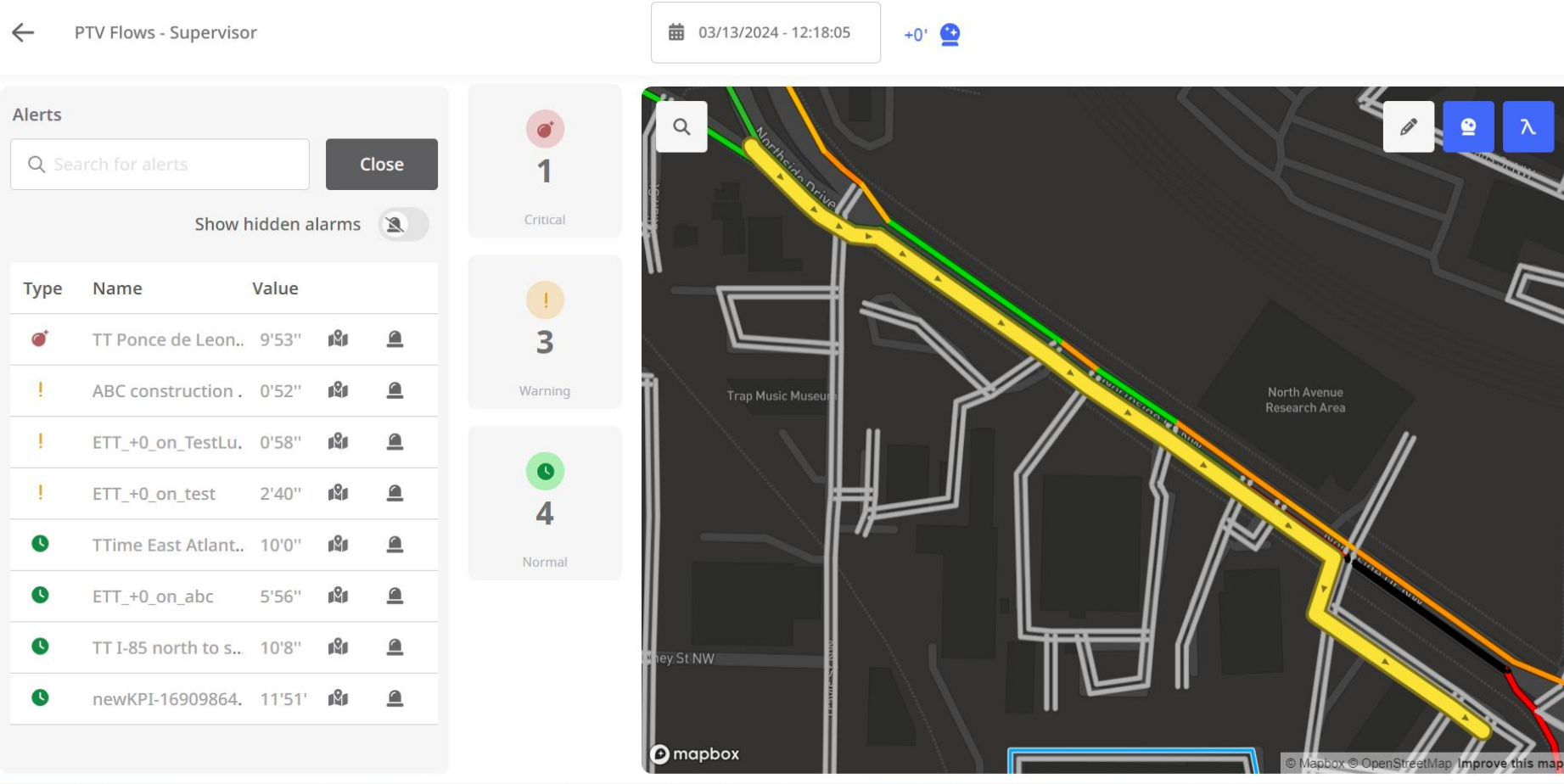


Signal Timing Optimization

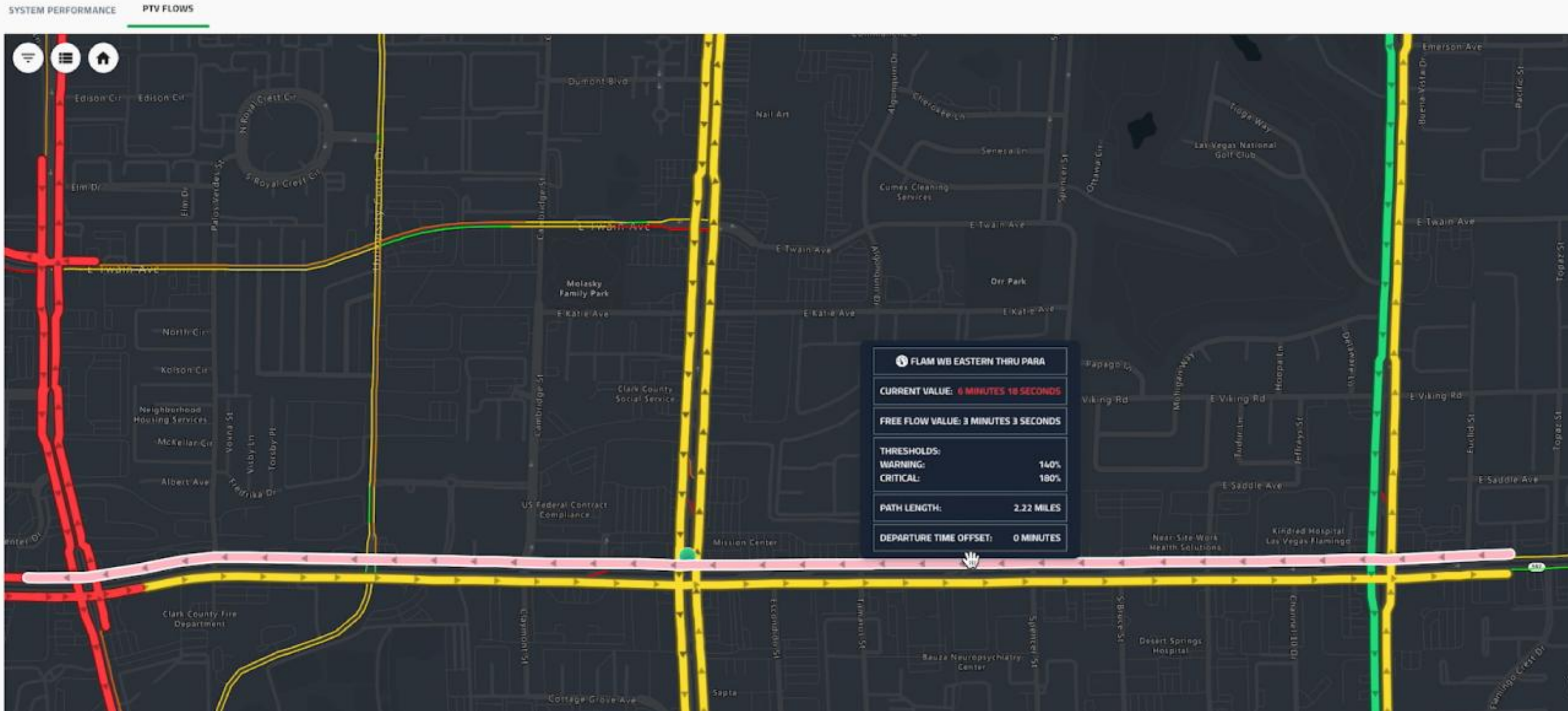
- › SPM Reports
 - › Split Failures, Red/Yellow actuations, Arrivals on Red
 - › Dilemma Zone, Red Light Runners
 - › Travel Time and Incident Reports
 - › Optimized Signal Timing



Predict and Deploy



Travel Time Forecasting



A Safe Intersection is Efficient

- › New AI insights can help us understand when signal timing is deteriorating
- › And understand when hardware is starting to fail or needs to be re-configured
 - › For example, volume data trends change because camera is angled incorrectly
- › Can plug in SPM data to AI models to help understand
 - › Chat GPT look at my Data over the last month
 - › Show me which intersections are trending in higher Red Light Runners? And when is it happening?
- › Implement longer All Reds by TOD



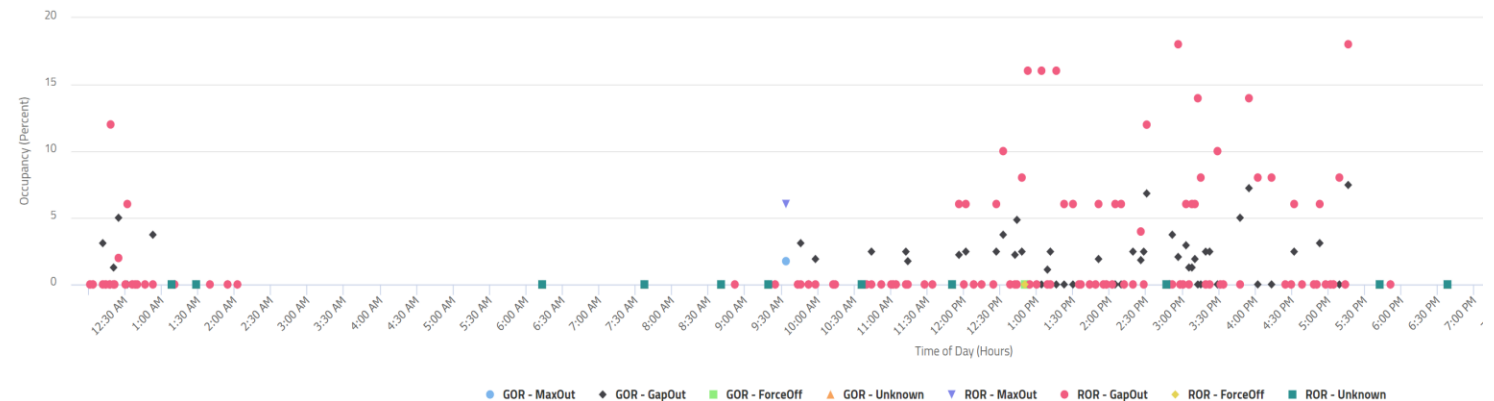
Examples – Short Greens

- › Split Failures and Occupancy Data:
 - › Queues are consistently not cleared
- › What can happen?
 - › Crossing into the intersection during Yellow or beginning of Red
 - › Potential Vehicle or Ped Incidents
- › What do you need to capture data:
 - › Stop Bar Detection
 - › Loops, Video, Radar, Lidar
 - › Probe Data
- › What can fix it?
 - › Split Time Optimization

5005 Powers Blvd, Phase: 8, Direction: S

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Examples – Poor Progression

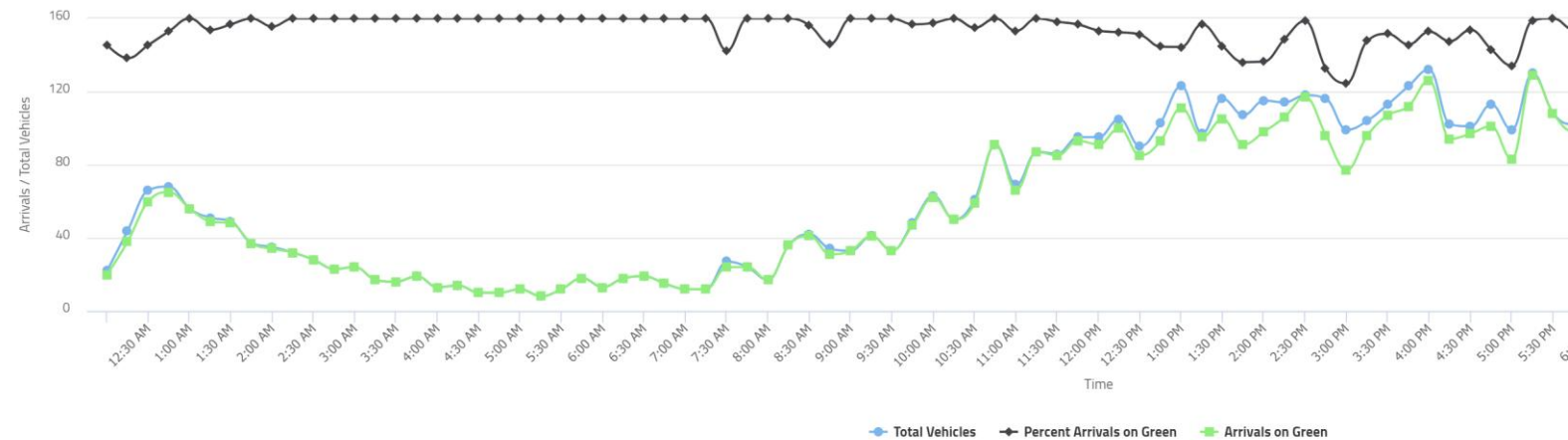
- › Arrivals on Green/Yellow/Red:
 - › Do you have good progression? # of stops on the corridor
- › What can happen?
 - › Speeding through to catch greens
 - › Potential Dilemma Zone
 - › Red Light Running
- › What do you need to capture data?
 - › Advanced Detection
 - › Loops, Video, Radar, Lidar
 - › Probe data
- › What can fix it?
 - › Offset optimization
 - › Time Space Diagram to fine tune

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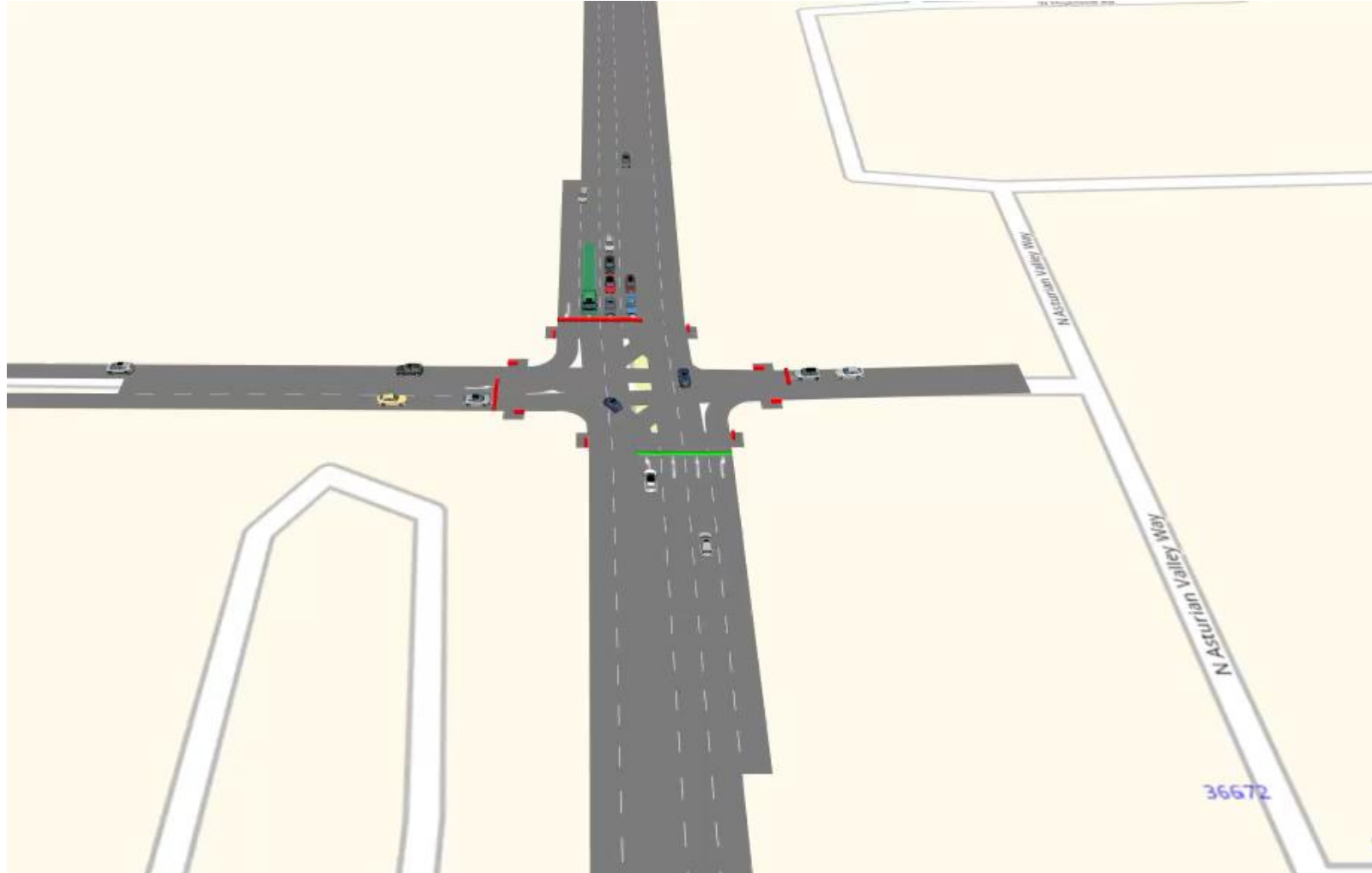


Digital Twin – Simulation Models

- › Virtual environment to replicate intersections in the field
- › Try things out without consequence
 - › Uses field data as inputs
- › Try out safety strategies
 - › Uses virtual traffic controllers to simulate real timing plans
- › See issues that can occur and fix before it hits the street

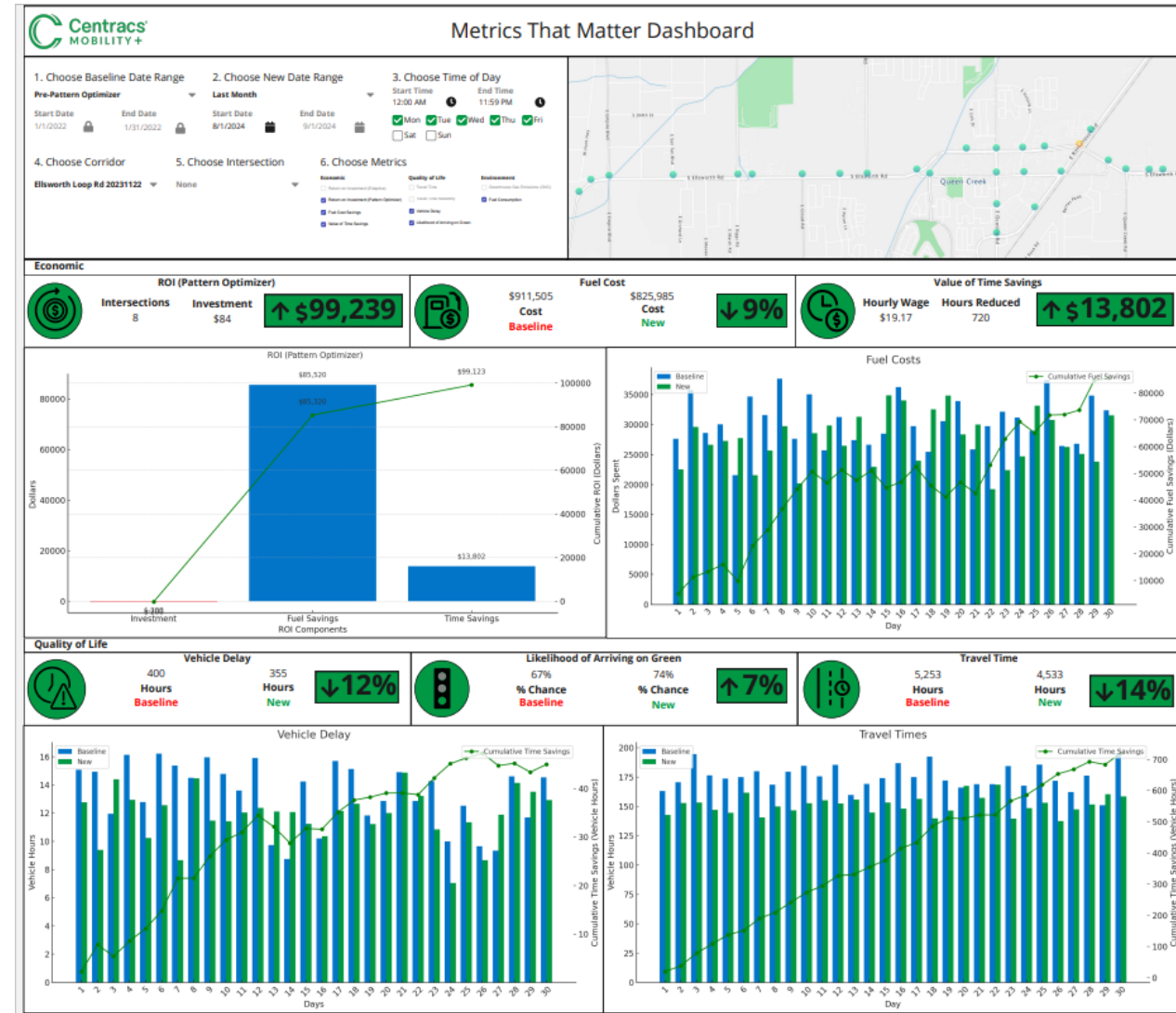


Digital Twin – Connect ATMS to Vissim



Summary

- › A lot of tools at our disposal now
 - › Infrastructure data
 - › Probe Data
 - › AI Insights
 - › Digital Twins
 - › Prediction Models
- › Need to understand when Signal Timing is deteriorating
 - › Efficient Signal Timing is KEY!
- › Systems now provide regular recommendations
 - › Insights
 - › Signal Timing Recommendations
 - › Report Cards
 - › Return on Investment





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