# Traffic Signal System & Analytics

## Division of Traffic Engineering

*by Traffic Engineering Staff*
*September 2026*

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# Traffic Analytics

Collecting and synthesizing data related to traffic flow, volume, speed, occupancy, travel times, congestion levels, and crash experience along roadway corridors.

It is an important component in Transportation Systems Management, helping us understand traffic patterns, identify bottlenecks, and develop strategies to improve safety and efficiency.

# Source Data

- Roadway Sensors – loops, cameras, radar, pucks, thermal, and lidar
- Historical Data and project counts
- GPS data from vehicles, smartphones, and connected units
- Crowdsourced and social media data
- Collision Data

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# Traffic Analytics Platforms

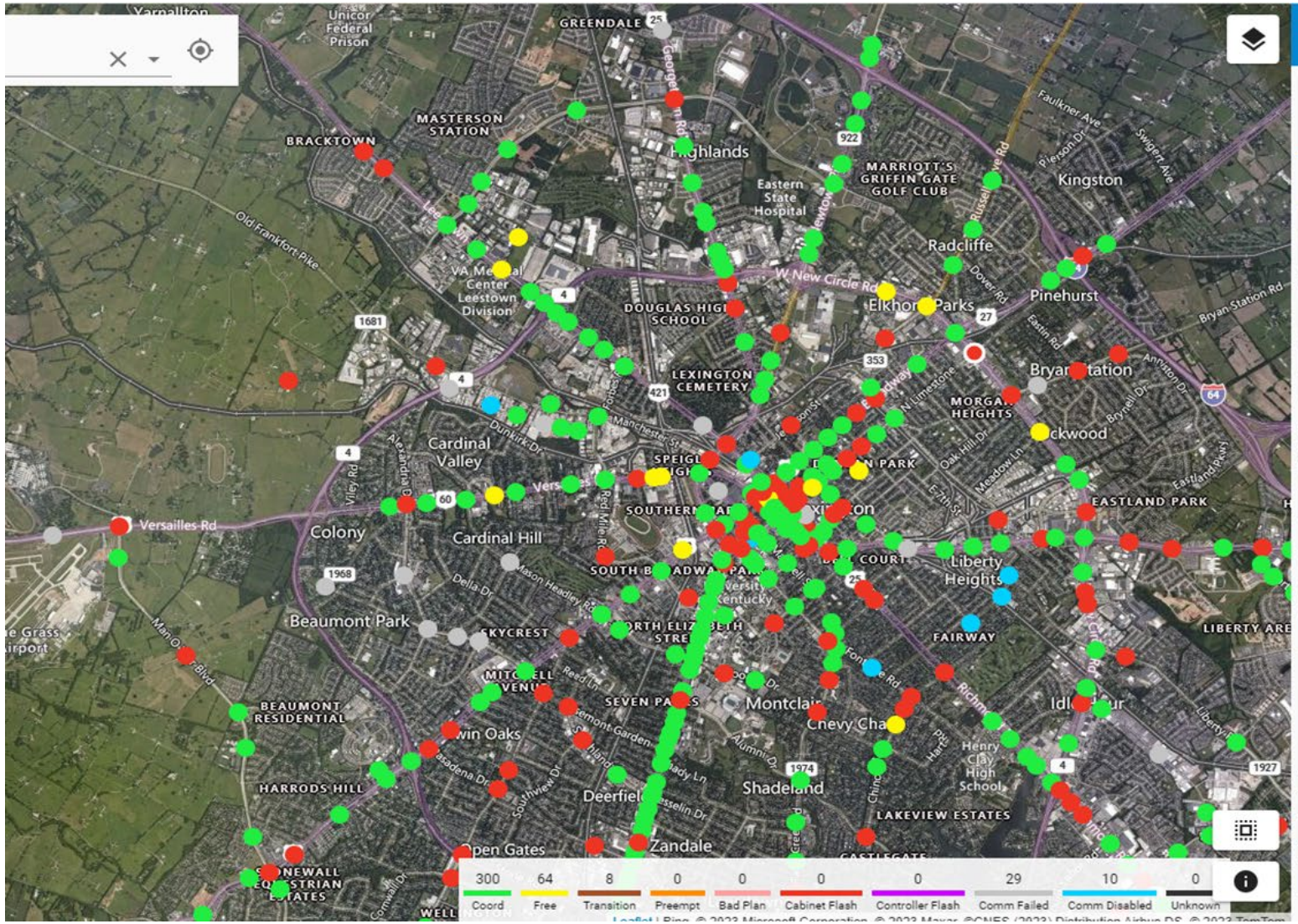
- Kinetic Mobility  Advanced Traffic Management System
- Traffic Camera System
- StreetlightData's Insight and Monitor Platform

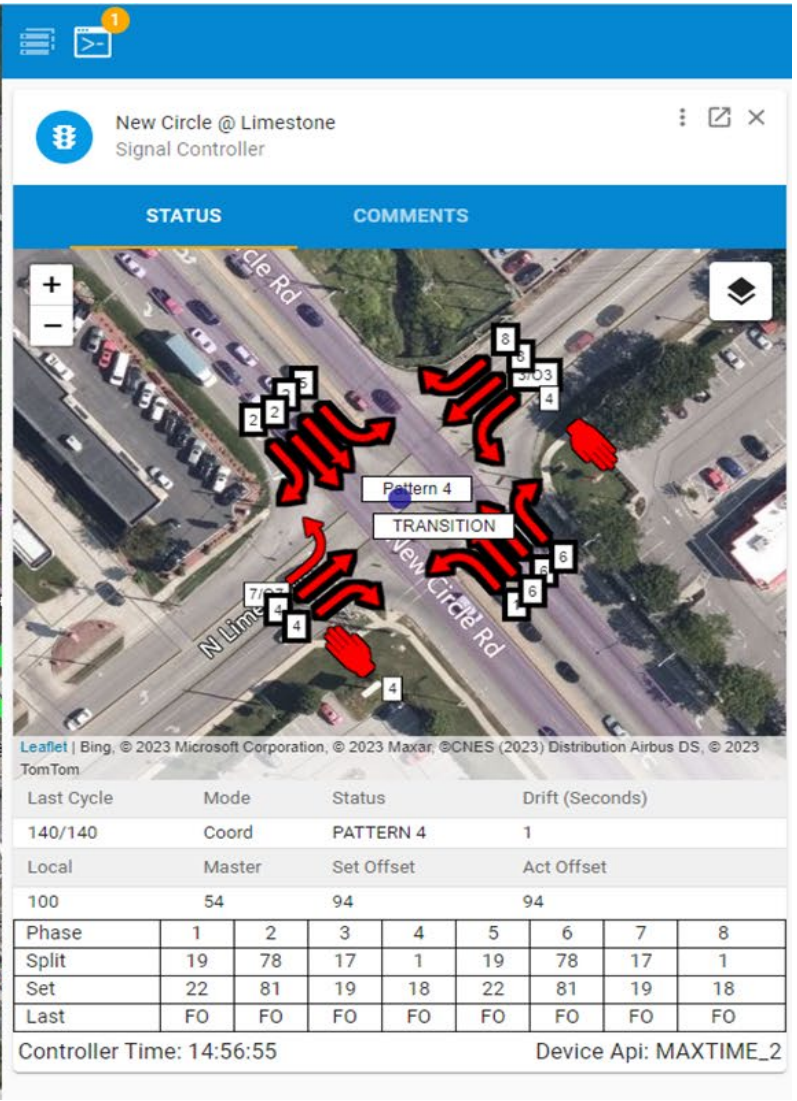
- MioVision's TraffOpp
- Flow Lab's Optimus
- NoTraffic's Mobility OS
- Waze For Cities
- Google Green Light

# Advanced Traffic Management System

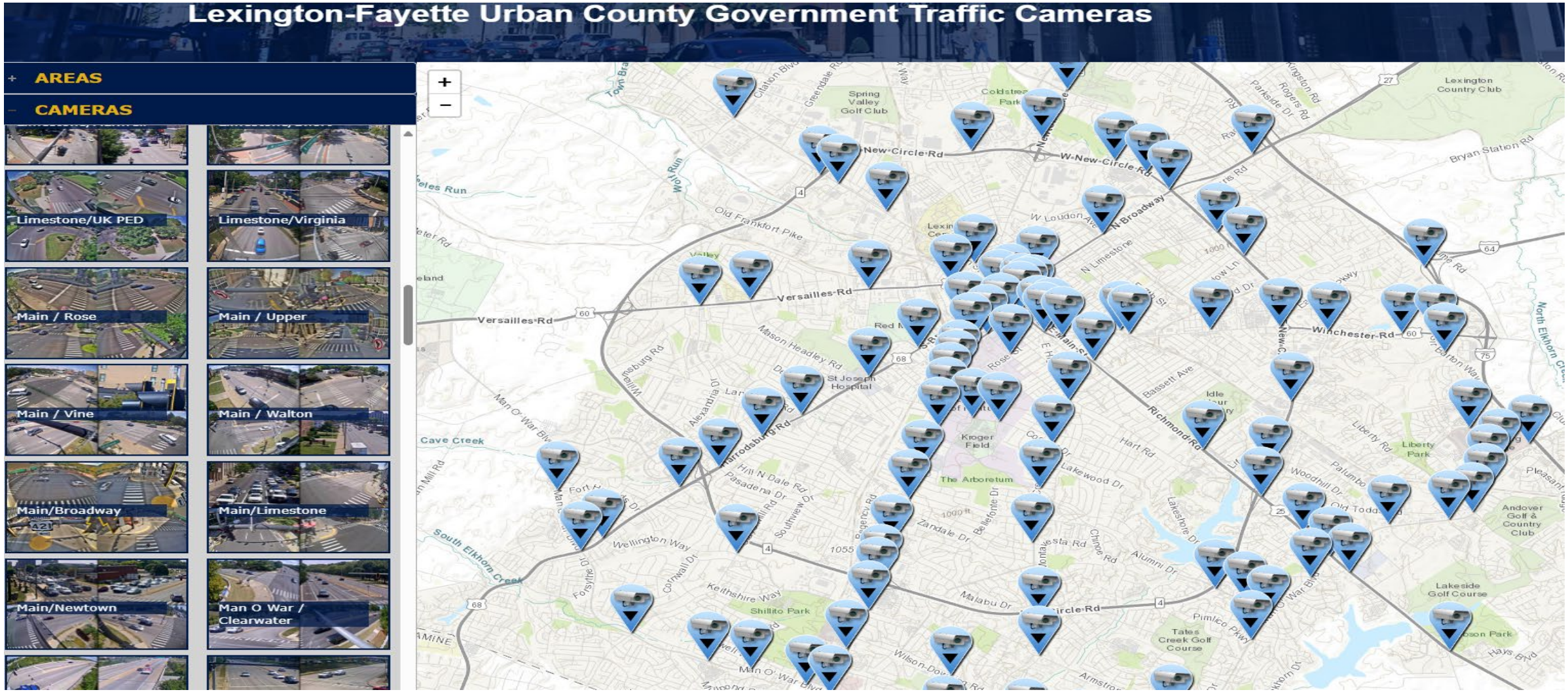
- Kinetic Mobility by Q-Free ATMS
- MaxTime local software
- 520 signals, lane use control, and beacons
- 700+ non-loop detector units
- Detection – A combination of inductive loops, video, radar, and thermal

# Central ATMS



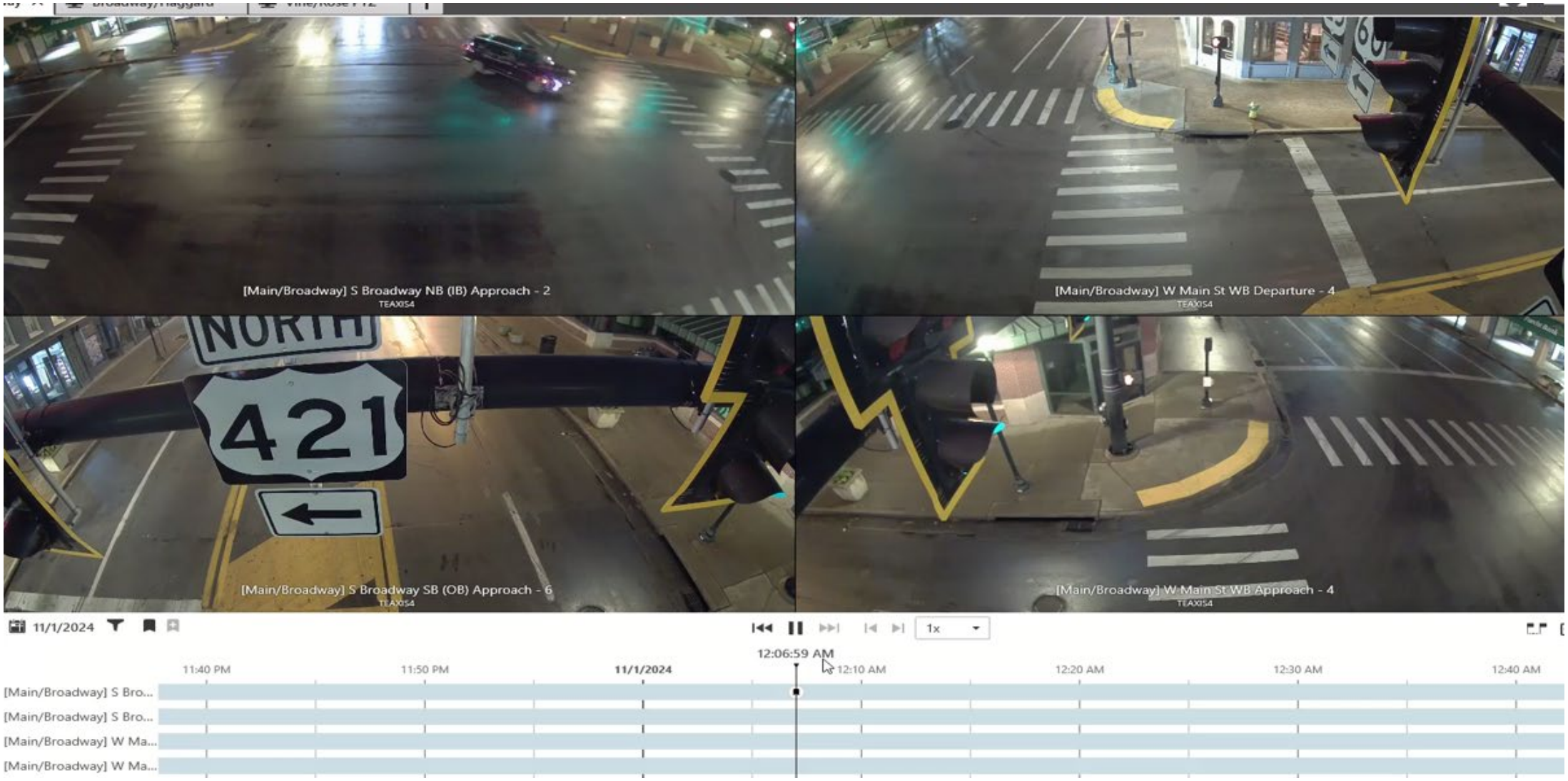
# Video Distribution Management System

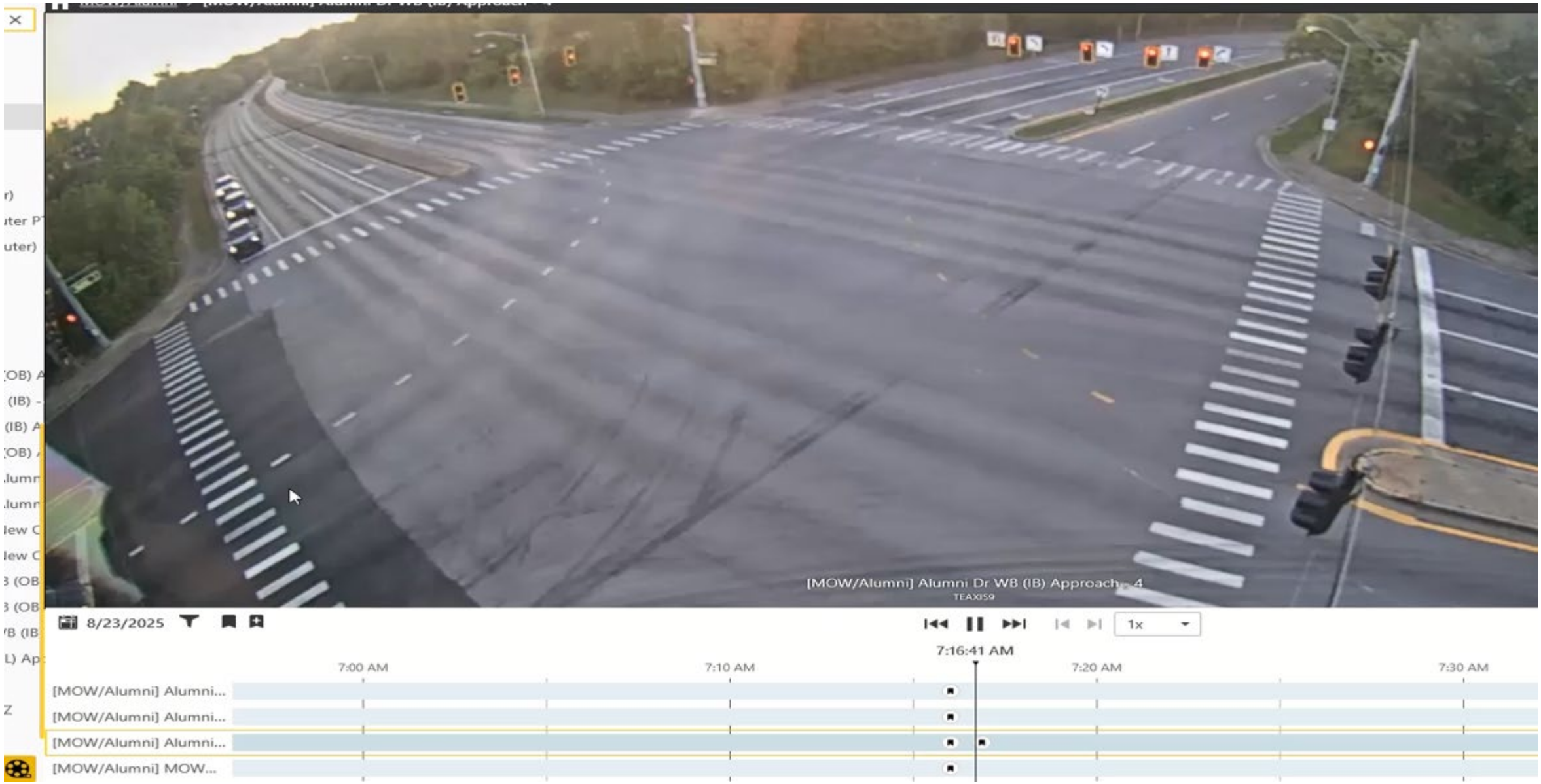


# Video Recordings

- Went Live in May 2023
- Up to 700+ streams are continuously recorded
- Footage is retained for *60* days, requiring approximately 466 TB of local storage
- Engineers & Technicians use recordings for signal timing and troubleshooting
- Recordings are available for review and Open Records Requests

# Video Recordings




[MOW/Alumni] Alumni Dr WB (IB) Approach - 4
TEAXIS9
8/23/2025
1x
7:16:41 AM
7:00 AM
7:10 AM
7:20 AM
7:30 AM
[MOW/Alumni] Alumni...
[MOW/Alumni] Alumni...
[MOW/Alumni] Alumni...
[MOW/Alumni] MOW...

# StreetlightData Platform

- Provides count, volume, speed, congestion, primary routes, etc. for all of Fayette County
- Three Offerings:
  - Insight for deep dives and transportation planning
  - Traffic Monitor for recent data on busier corridors
  - Speed Dashboard for overall speed comparisons
- Out for proposals after 4 years of use

Traffic Engineering
Analytics

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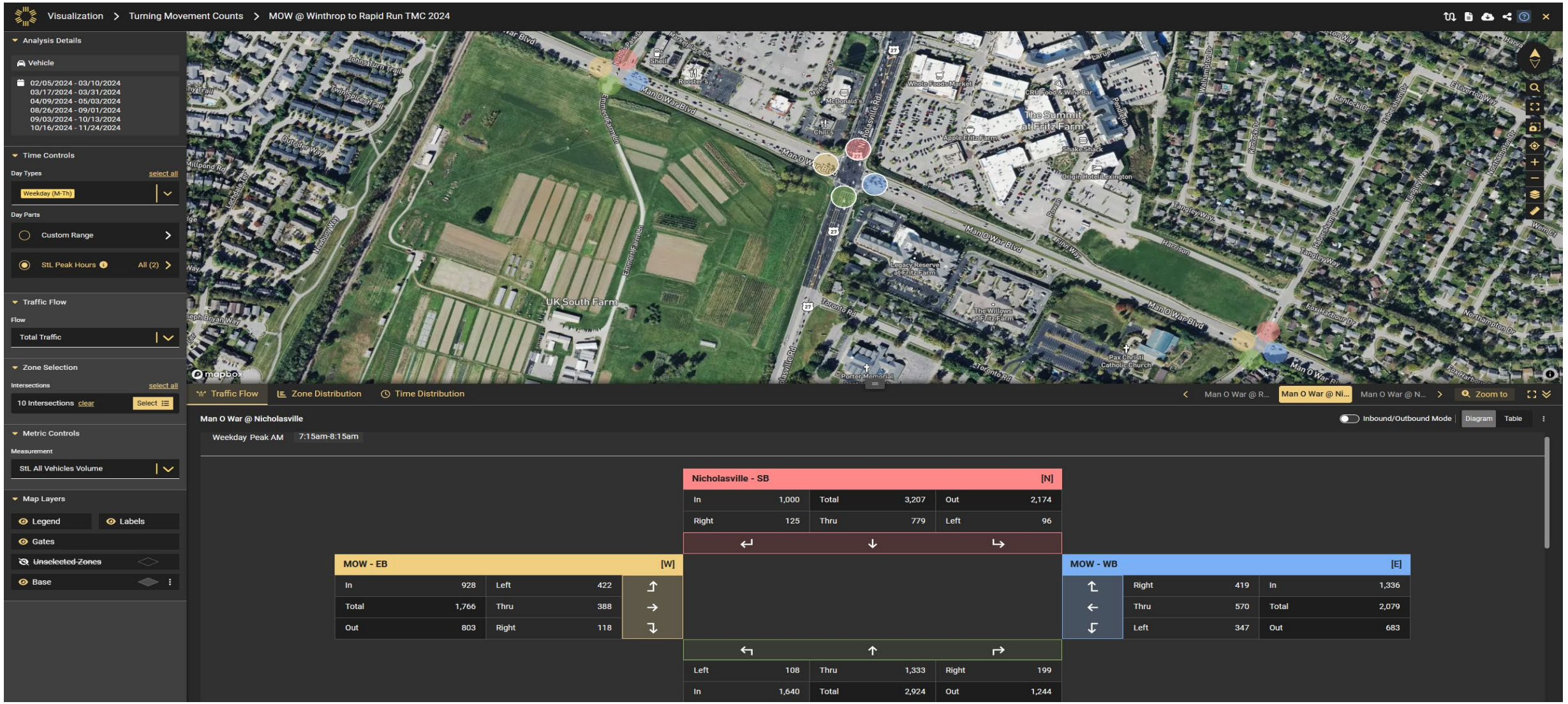
# Streetlight Insight



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# Streetlight Traffic Monitor

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# Streetlight Speed Dashboard

# Challenges

- Data Quality:  Ensuring data is accurate and reliable is crucial for effective analysis and decision-making.

- Data Coverage:  Data collection is often limited to certain intersections along certain routes where quality can be assured.

- Data Integration:  Synthesizing data from different sources is challenging, often requiring significant processing efforts.

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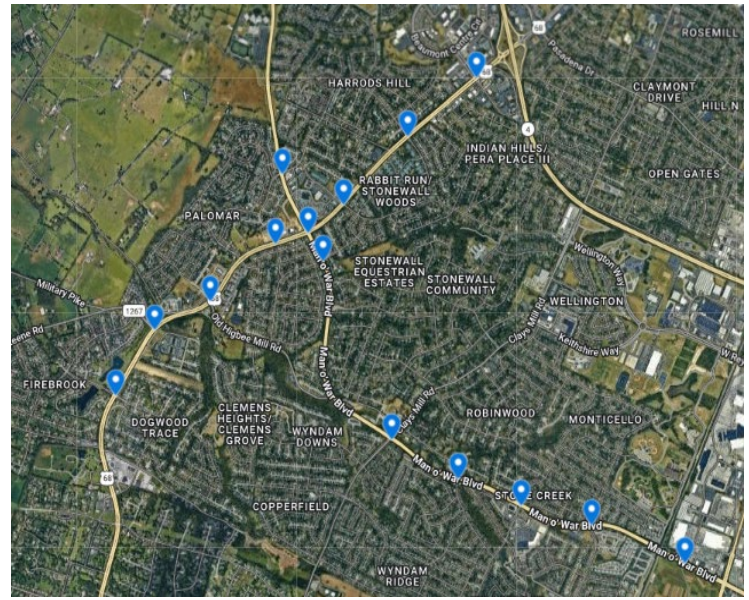
# MioVision / TraffOpp

- 15 signalized intersections along Harrodsburg Rd. and Man o’ War Blvd.
- The intent is to standardize on a detection scheme and allow TraffOpp to analyze signal data and alert engineers of issues and solutions.



# Flow Labs

- 28 signalized intersections in the Tates Creek, Armstrong Mill, Man o' War area
- Consulting & performance contract with Pathmaster Inc., WSP Consultants, and Flow Labs
- The intent is to standardize on a detection scheme and allow Flow Labs to mesh probe data with intersection data to provide engineers with timing recommendations.

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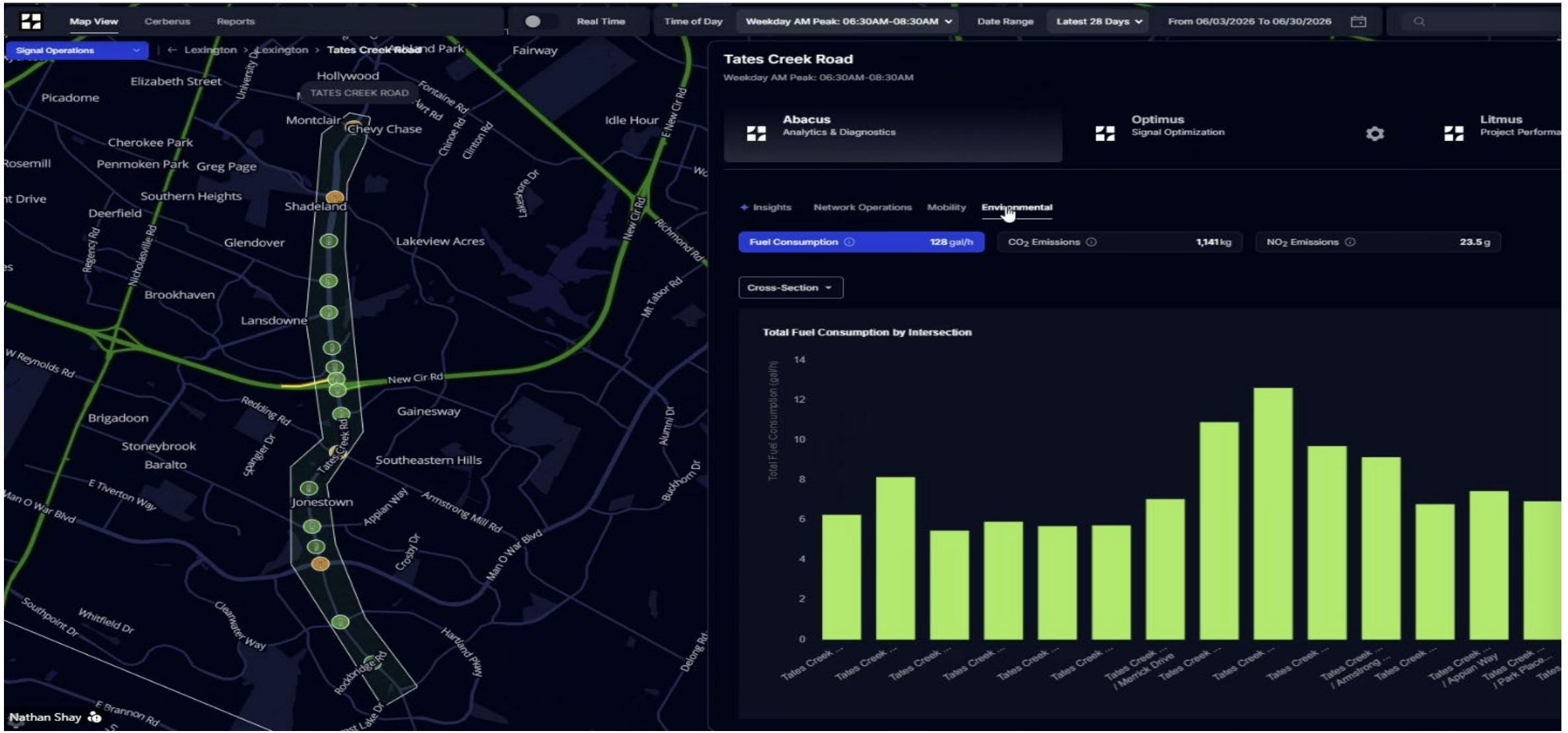
# Flow Labs



# NoTraffic

- 3 signalized intersections on Oliver Lewis Way from W. Main to W. High
- Difficult corridor to synchronize and demand fluctuates considerably due to events
- Traffic Adaptive System designed to adjust to changing traffic demands using specialized detection devices
- Safety analytics are included at the boundary intersections

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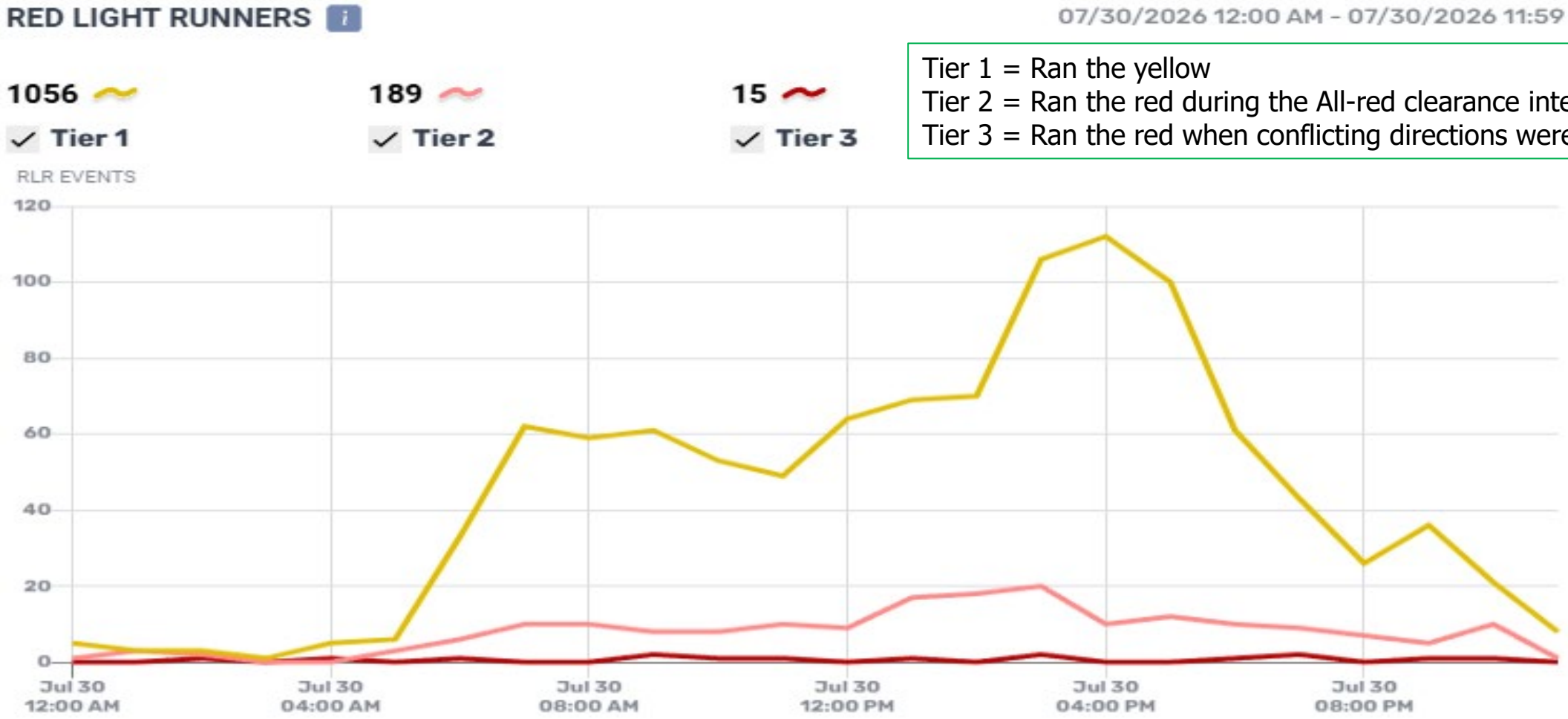
# NoTraffic

## High St. @ Oliver Lewis Way

07/30/2026 12:00 AM - 07/30/2026 11:59 PM

Tier 1 = Ran the yellow
Tier 2 = Ran the red during the All-red clearance interval
Tier 3 = Ran the red when conflicting directions were green



# Waze for Cities

- Free-to-use tool from Google providing crowdsourced information about road conditions
- Current view of traffic conditions
- Ability to schedule road closures and event information
- Ability to request map changes
- Unusual traffic conditions notifications
- No need for physical equipment or detection devices at street level

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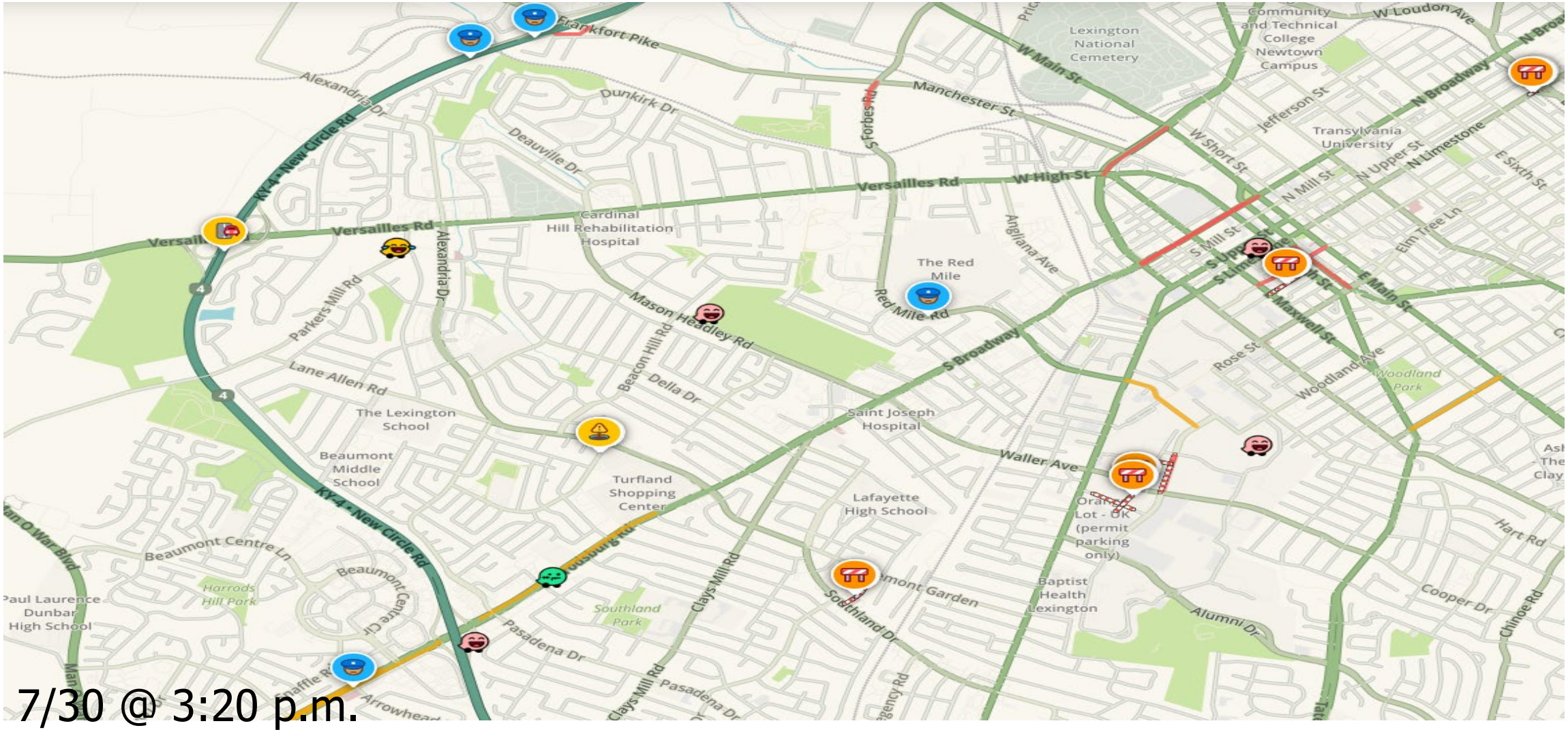
# Waze for Cities




7/30 @ 3:20 p.m.

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# Google Green Light

- Lexington was recently selected to be added to the worldwide Google Green Light (GGL) program.
- GGL will use anonymized location data to develop insights to improve traffic flow at signalized intersections where a positive difference can be made.
- GGL will provide timing recommendations to Traffic Engineering and, if implemented, show before-and-after congestion information.
- Kick-off meeting was held 7/30/2026

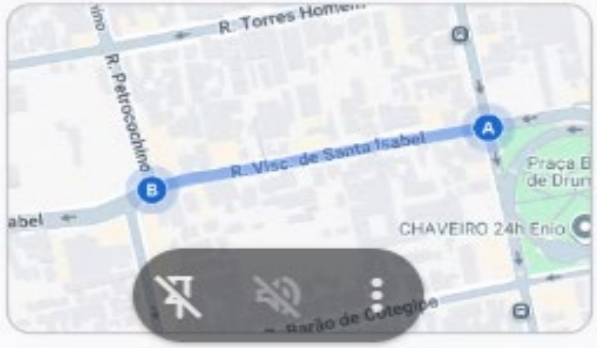
# Google Green Light

## Green Light provides recommendations for three signal types

### Green time shift

**For a single intersection**

suggests shifting a few seconds of green time from an underutilized movement to a congested movement.




### Coordination

**For two intersections with different cycle times**

suggests setting the same cycle time for two intersections and setting a specific offset between them.

### Offset optimization

**For two or more intersections with the same cycle time**

suggests adjusting the current offset for a specific intersection

Google

# Questions

Jeff Neal, PE, Director jneal@lexingtonky.gov