



Pedestrian Safety: Bridging the Vision-Zero Gap

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Key Ideas

- Video sensing has come a long way in a short time!
- Advanced video analytics are showing the potential to improve intersection safety
- The ATC is a key element of a safer intersection
- Include CV component to your safety projects!



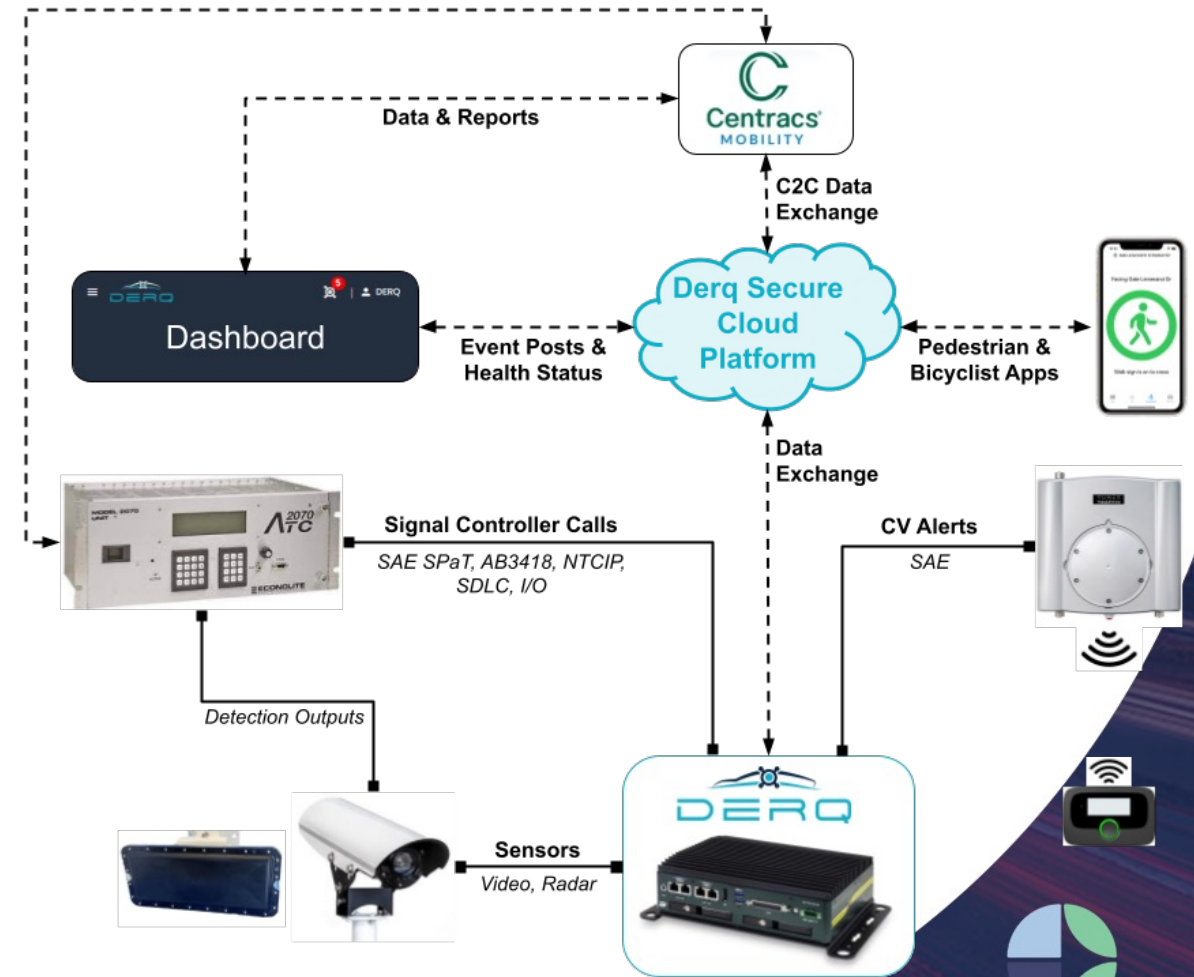
Industry Partnership

Econolite and Derq have partnered to bring industry-leading solutions for road safety and mobility

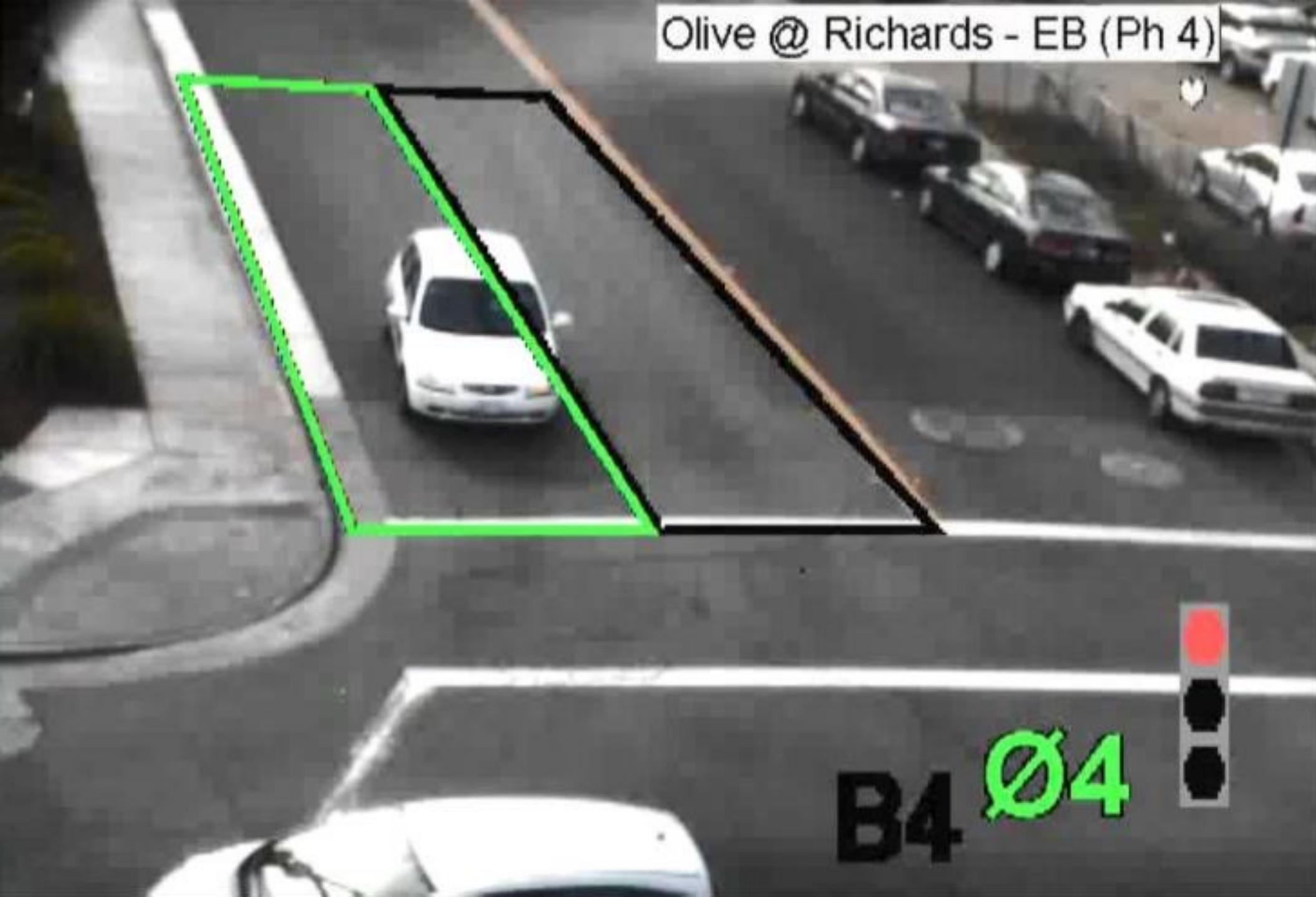


Real-Time Safety Responsive Operation:

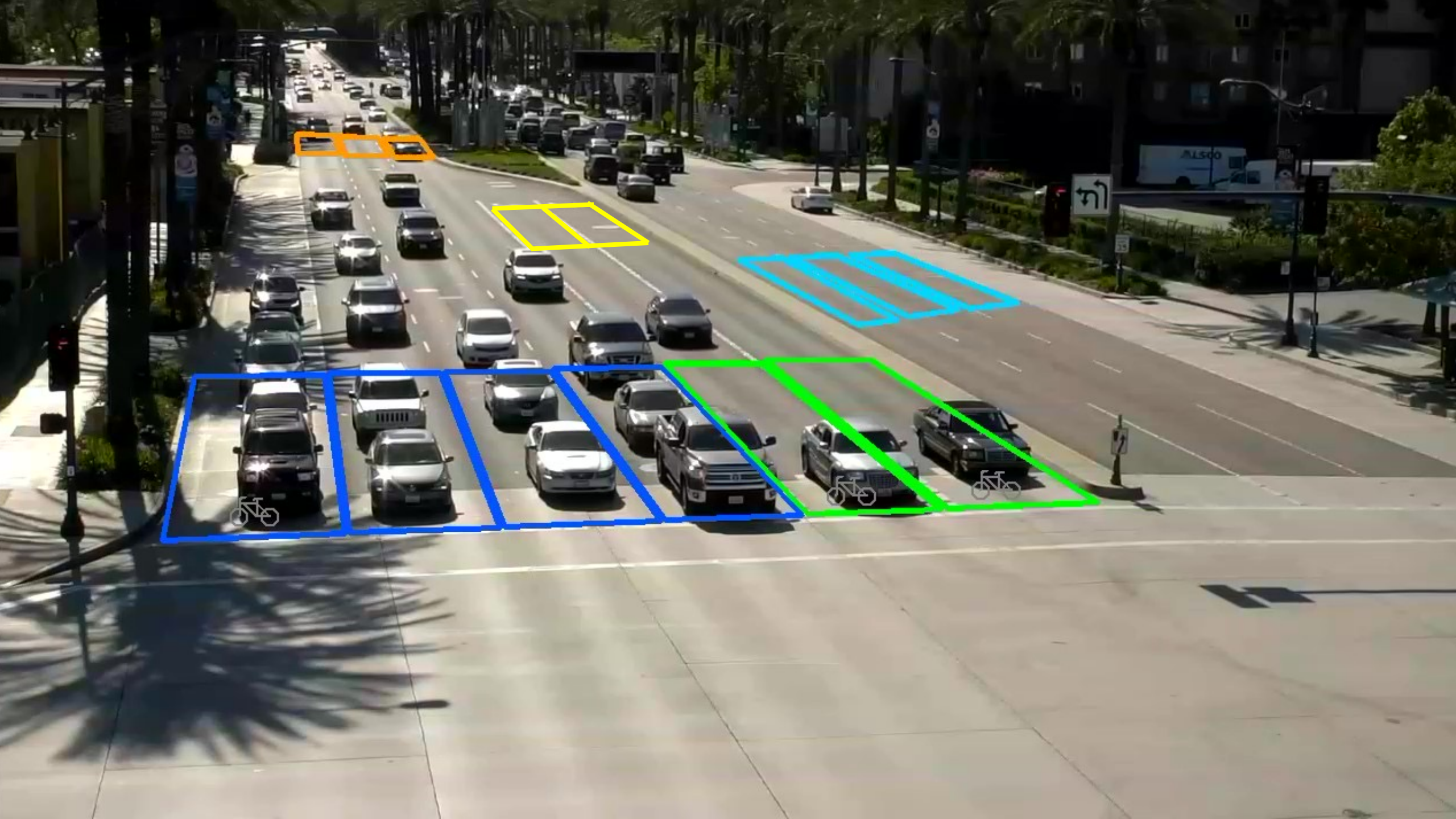
1. **Identify and report safety events and trends**
(Ped Surge, LT Conflicts, RL Running, etc.)
2. **Modify signal timing parameters** in direct response to safety events and trends
3. **Notify system operators** of and **log** safety events and trends in ATMS
4. **Alert road users in real-time** with connected devices and infrastructure technologies



Olive @ Richards - EB (Ph 4)

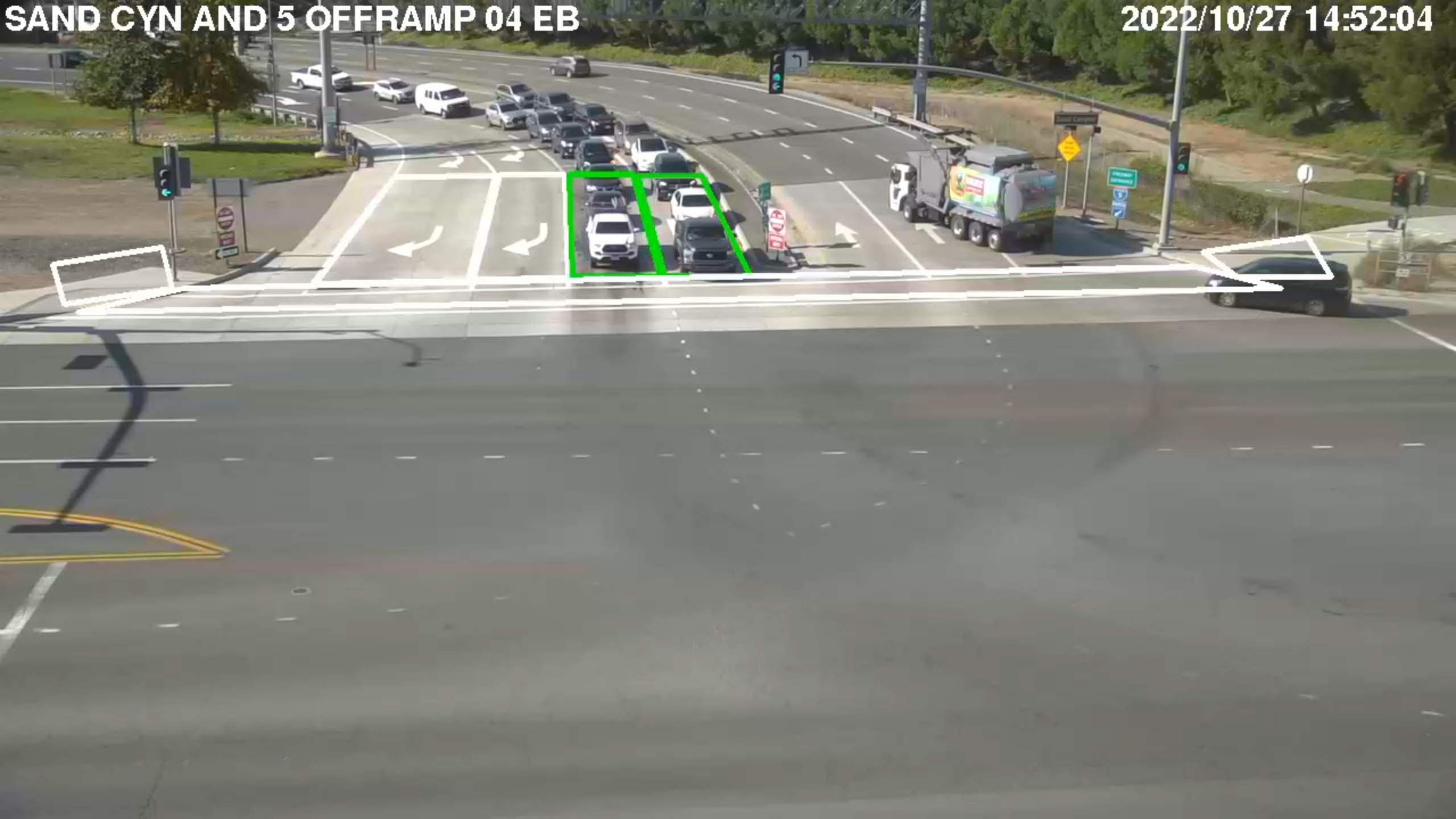


B4 Ø4

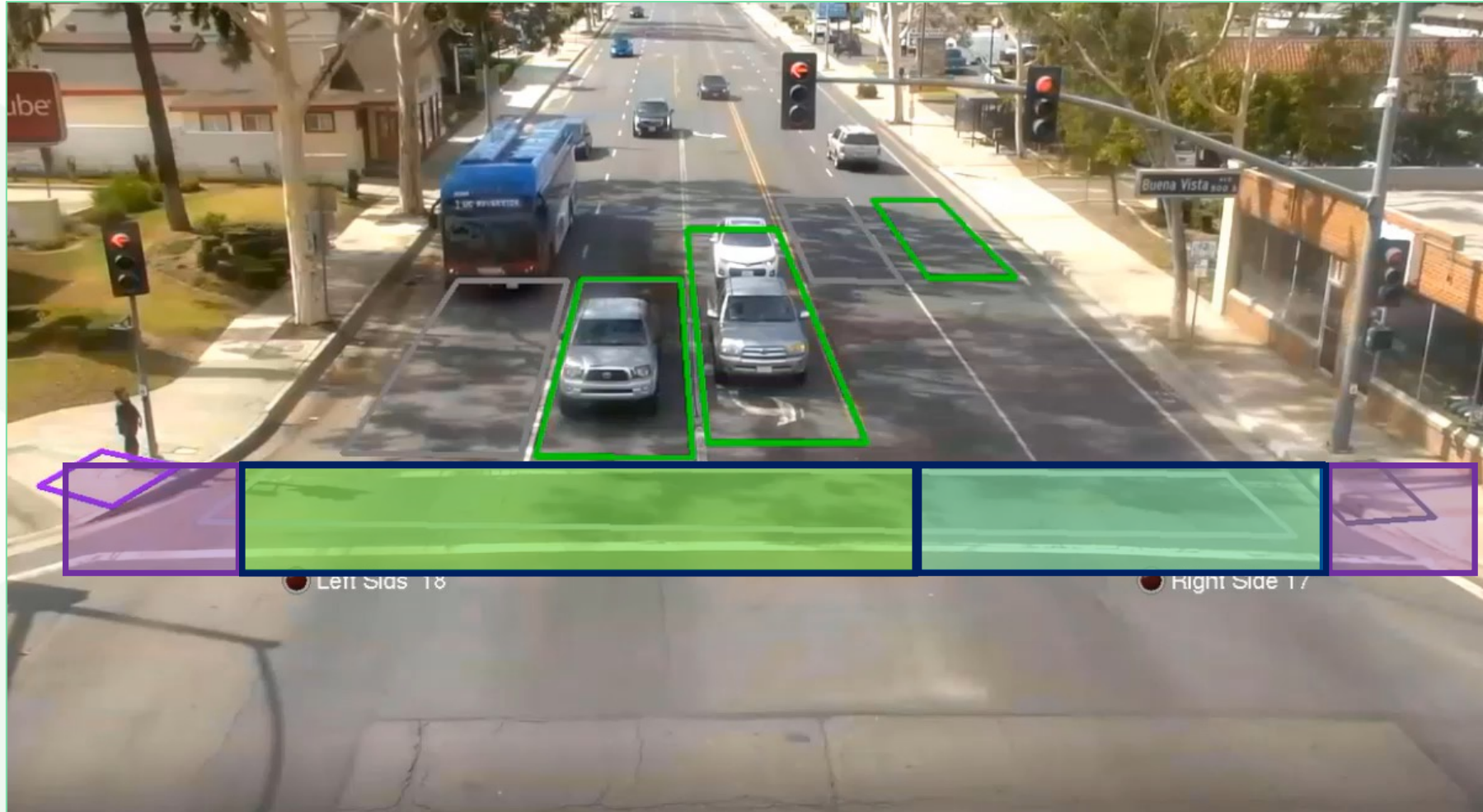


Ped Detection: AI & Deep Learning





Full Feature Pedestrian Detection



Crossing



The Importance of the Controller

- Enables countermeasures to bring the intersection into a safer state
- Leading ped intervals (LPI) by TOD
- Pedestrian interval extension
- Red Extension
- No-lock ped detectors



Connected Vehicle









Pedestrian Safety Analytics

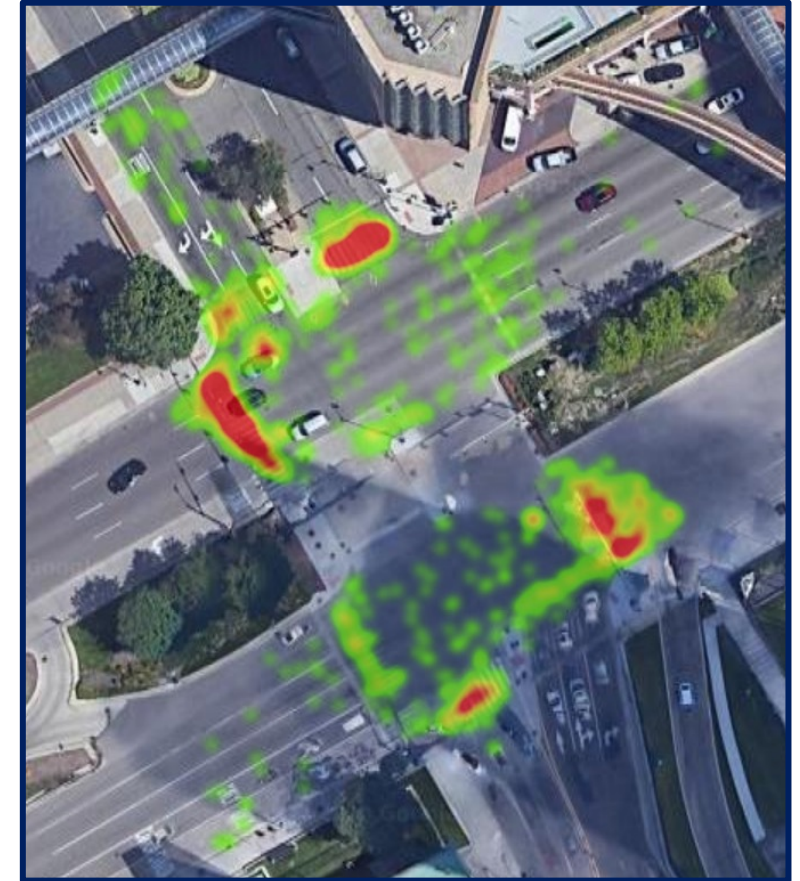


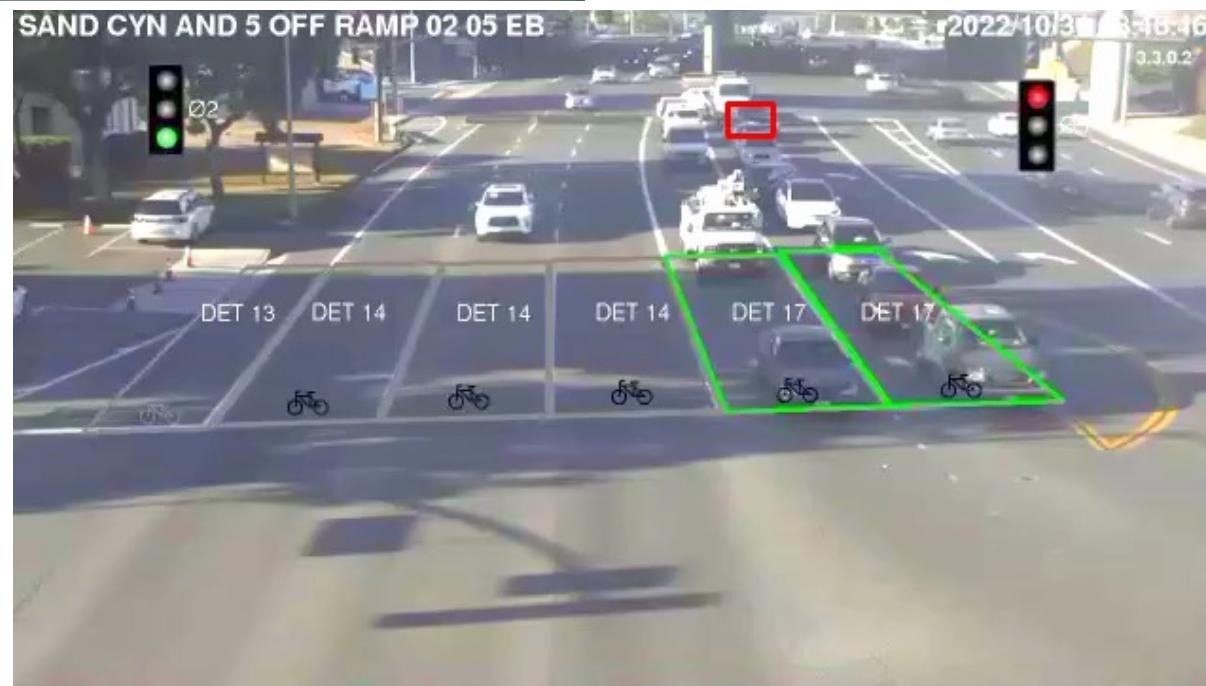
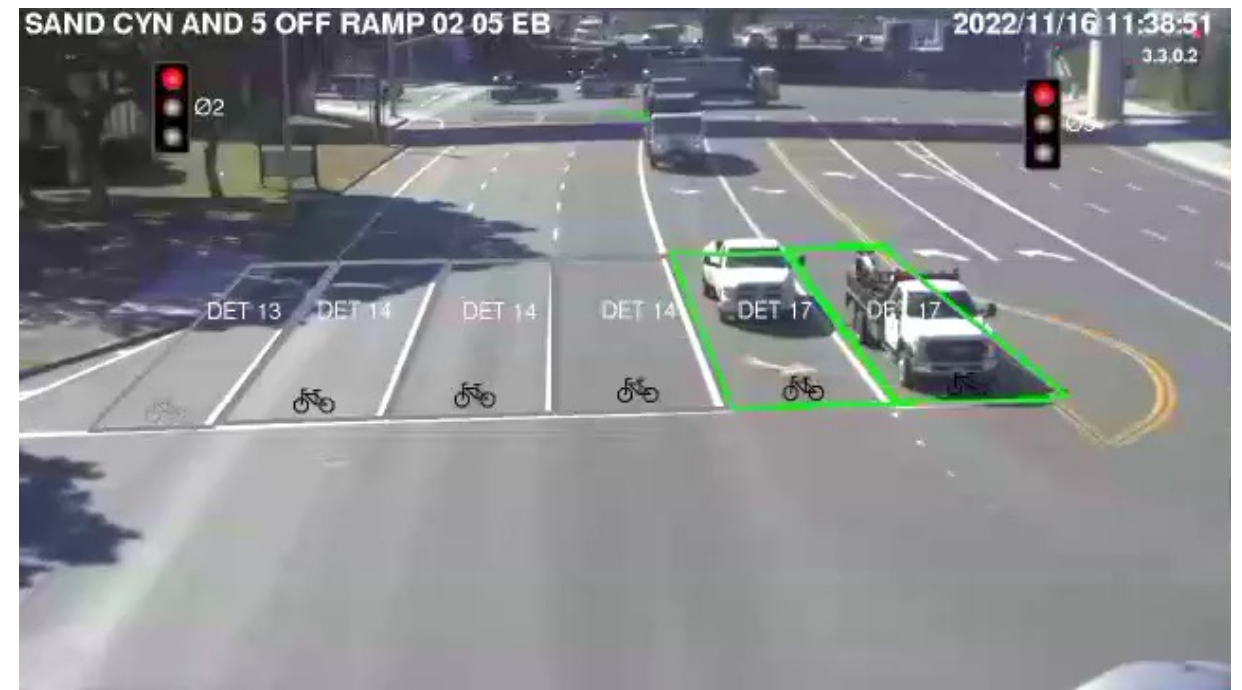
Individual Near-Miss Incident Report



Video URL: <https://youtu.be/2KTKFbWHWnY>

Near-Miss Heatmap





DASHBOARD – SAFETY INSIGHTS

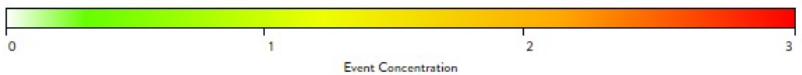
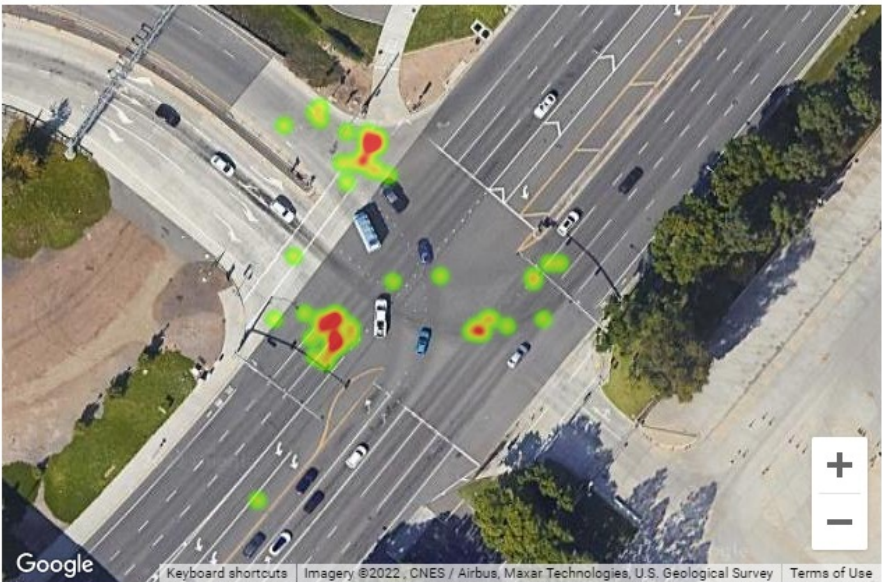


NEAR MISS HEATMAP

DISPLAY AS

Density

Cluster



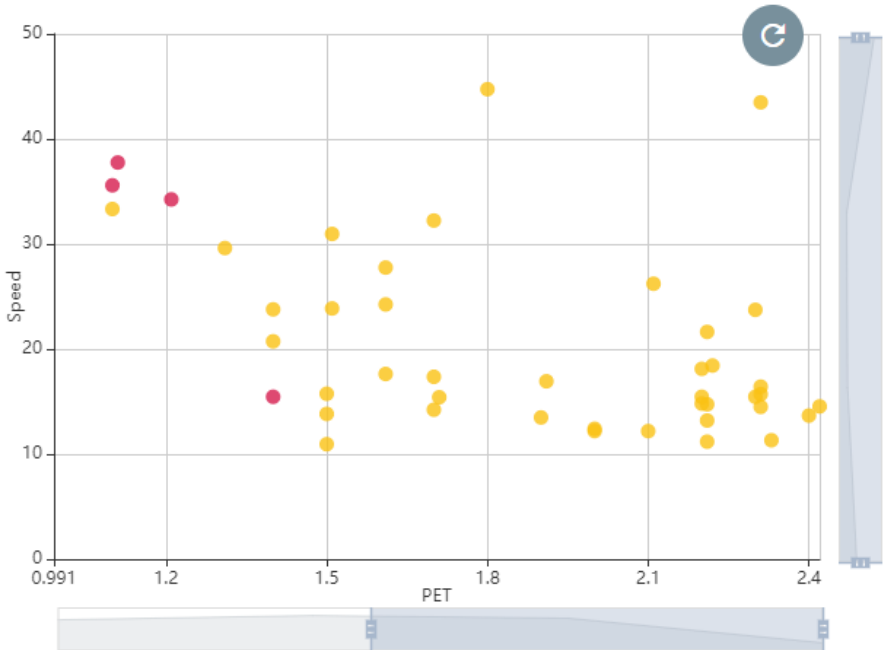
SEVERITY ANALYSIS PLOT

SELECT MEASURES FOR Y-AXIS

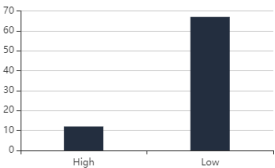
Speed

SELECT MEASURES FOR X-AXIS

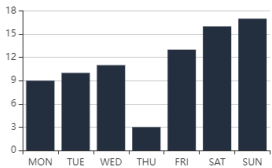
PET



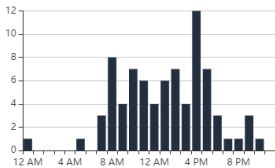
NEAR-MISSES BY SEVERITY



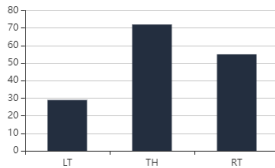
NEAR-MISSES BY DAYS OF THE WEEK



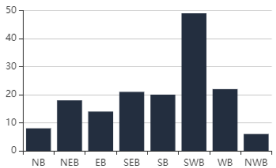
NEAR-MISSES BY HOURS OF THE DAY



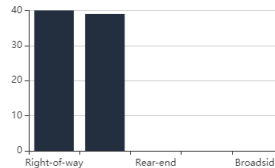
NEAR-MISSES BY MOVEMENTS



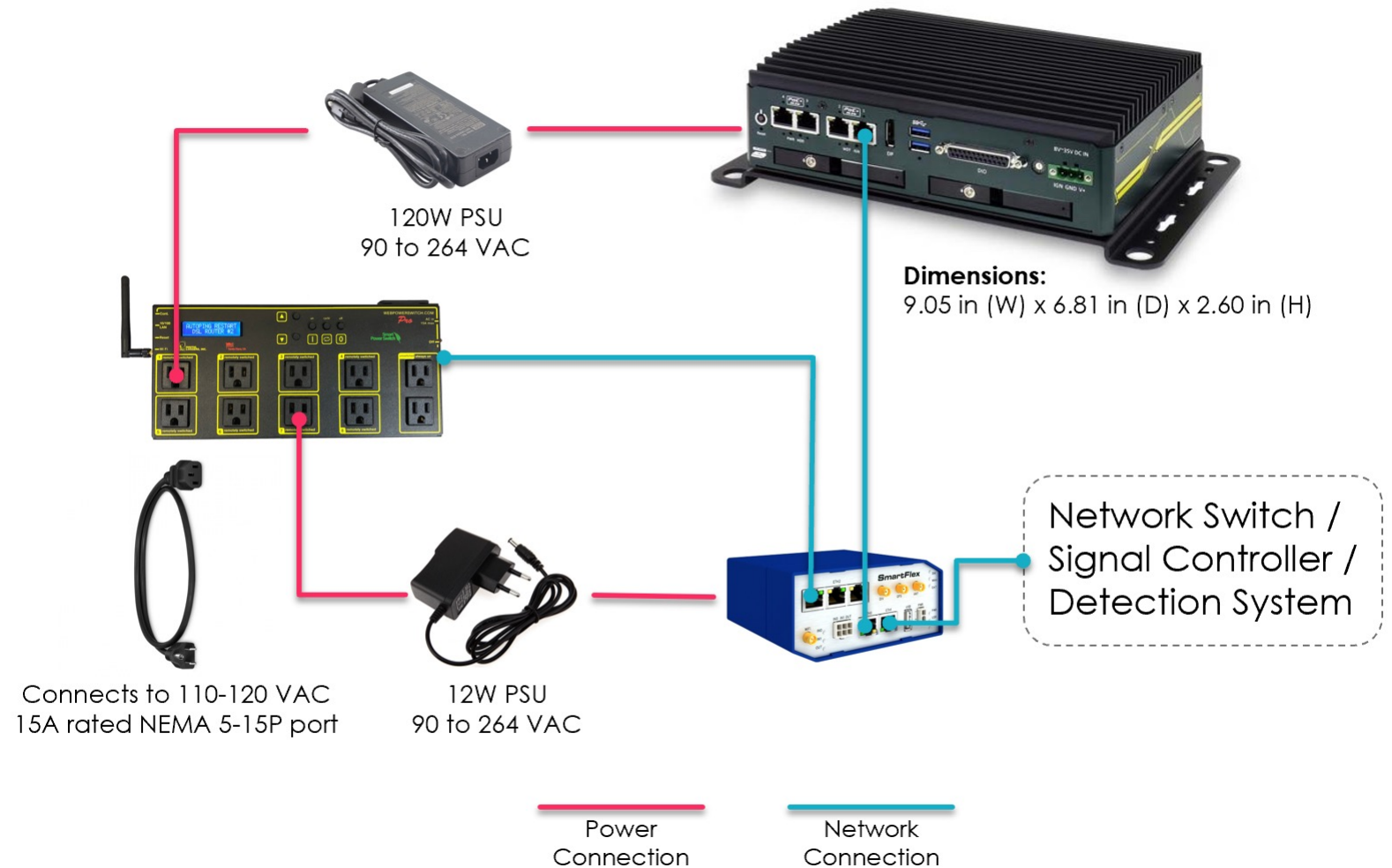
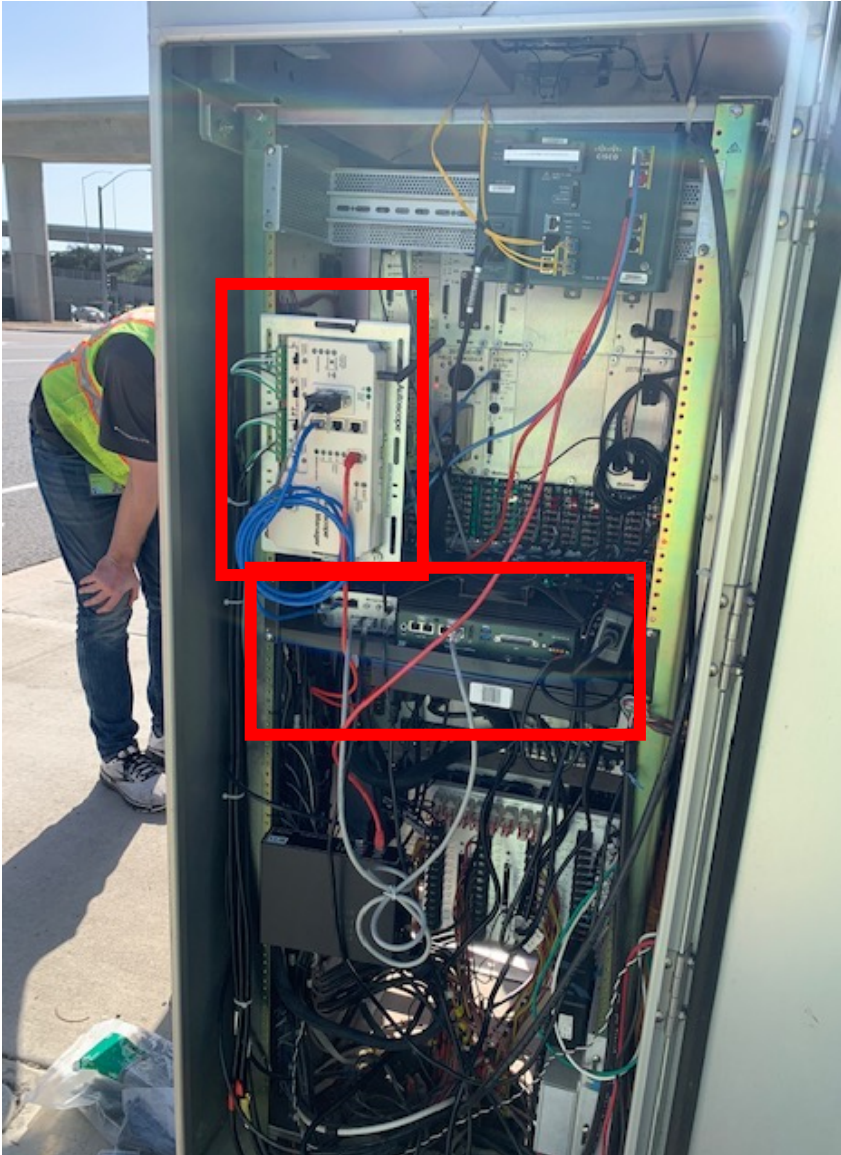
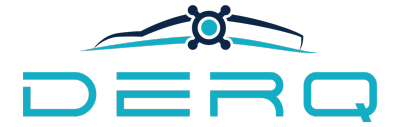
NEAR-MISSES BY DIRECTION



NEAR-MISSES BY TYPE



Physical Deployment



Also: Vision Sensors, Vision Comm Manager, Red Monitor



PEDESTRAIN Safety