Seattle Department of Transportation

Seattle AI Use Cases

SDOT Values and Goals

Equity

We believe transportation must meet the needs of communities of color and those of all incomes, abilities, and ages. Our goal is to partner with communities to build a racially equitable and socially just transportation system.

Safety

We believe everyone should be able to move safely throughout the City. Our goal is to create safe transportation environments and eliminate serious and fatal crashes in Seattle.

Mobility

We believe transportation choices are critical to accessing opportunities. Our goal is to build, operate, and maintain an accessible transportation system that reliably connects people, places, and goods.

Sustainability

We believe environmental health should be improved for future generations through sustainable transportation. Our goal is to address the climate crisis through a sustainable, resilient transportation system.

Livability

We believe transportation is essential to supporting daily life. Our goal is to manage our streets and sidewalks in a way that enriches public life and improves community health.

Maintenance and Modernization

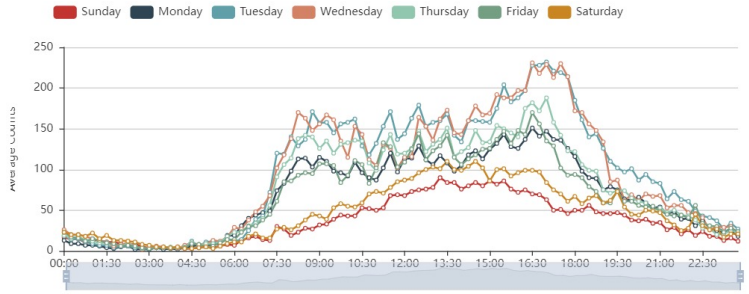
We're committed to transforming city streets and providing safe and sustainable travel choices through the optimal timing of asset maintenance and replacement.

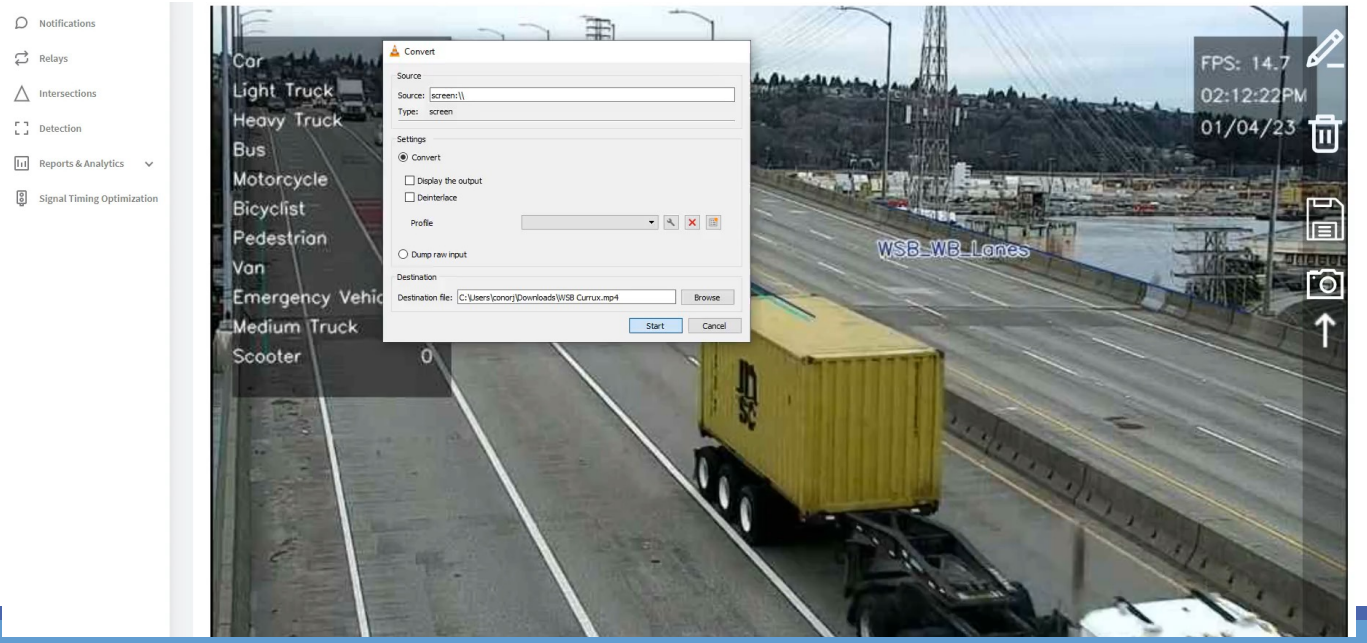
SDOT's Digital Infrastructure Vision

SDOT's **digital infrastructure**, including signals, cameras, and communication assets, is robust, **reliable**, and integrated to facilitate **safe**, **equitable**, and **affordable** travel for all users across Seattle's transportation system.

SDOT AI Use Case – Traffic Data Collection

- Use SDOT cameras
- Layer AI computer vision
- Gather traffic volume, classification, and speed data
- Improves safety for staff

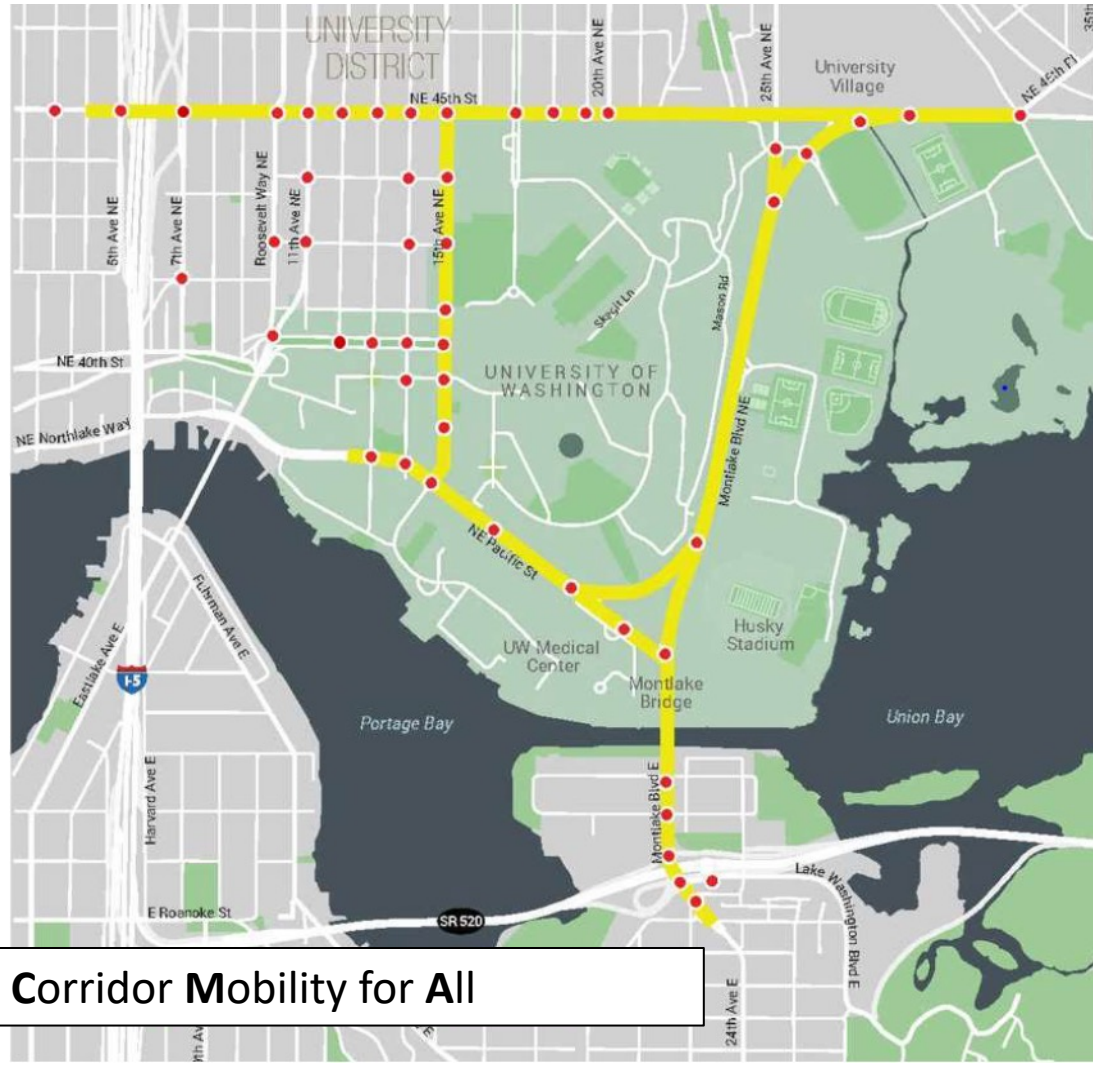




MICMA Grant Project Example

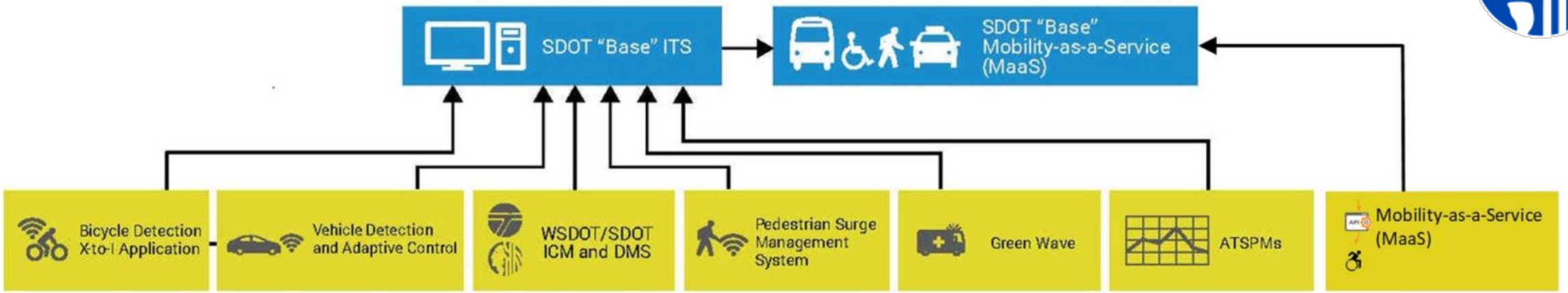
Focused on multimodal mobility, the project addresses a core need to upgrade aging outdated traffic operations/ITS infrastructure

- Pedestrians
- Cyclists
- Emergency Vehicles
- Disabled Access
- Coordinating freeway and arterial operations



Mulitmodal **I**ntegrated **C**orridor **M**obility for **A**ll

MICMA Technology Components



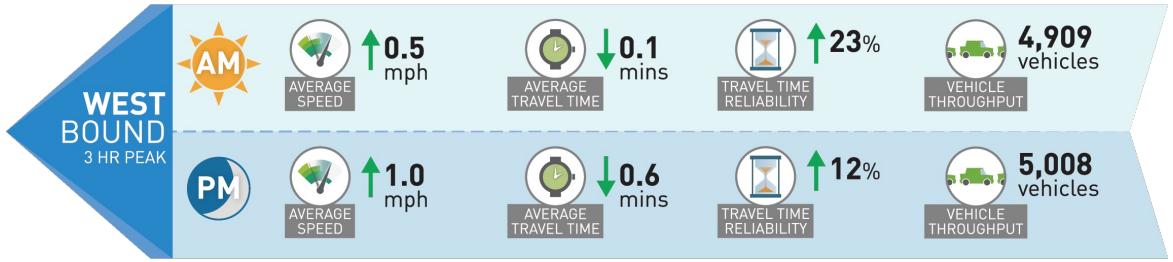
- Base ITS Enhancements/Adaptive Signal Control
- ATSPMs (Advance Traffic Signal Performance Measures)
- Pedestrian Detection
- Cyclist Detection
- Cloud-based Emergency Vehicle Priority
- WSDOT-SDOT Incident Corridor Management (ICM)
- Mobility-as-a-Service (Maas) – Including Incident Management Software

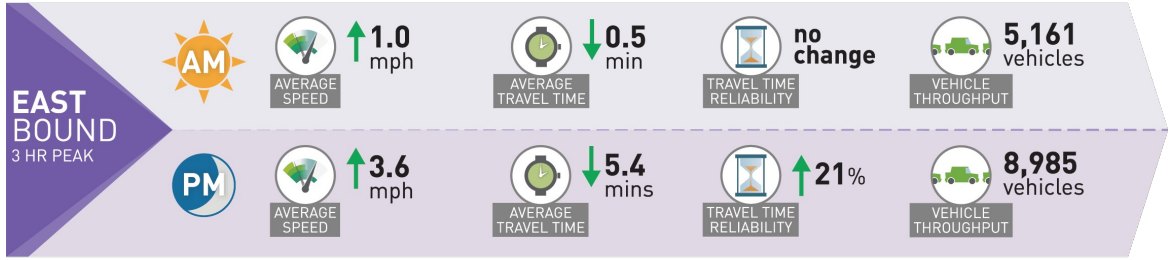
Goal: Implement Adaptive Signal Operations

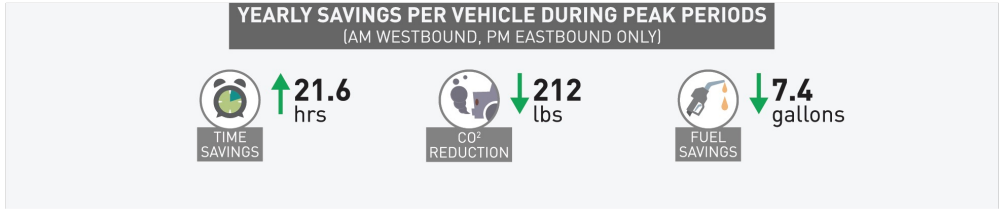
SCOOT: Split Cycle & Offset Optimization Technique Implemented along Mercer in 2017

Moves traffic through a **congested corridor**, especially during the shoulders of peak periods

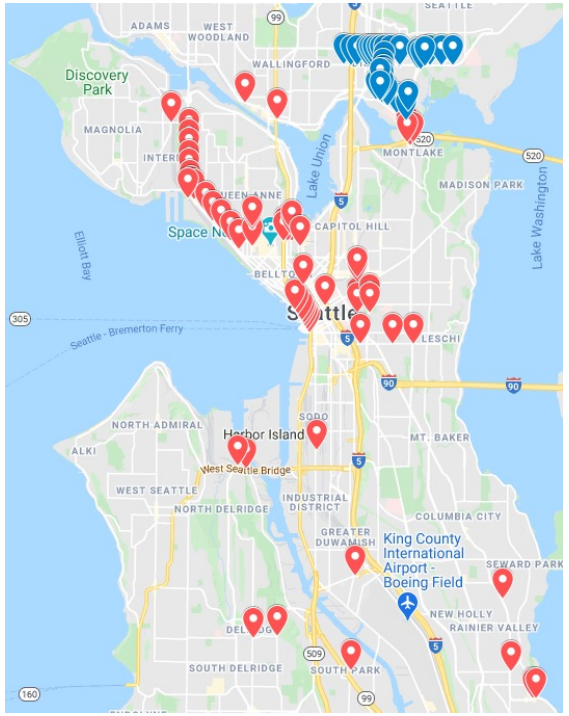
Downside: Pedestrians must use push-buttons to notify SCOOT they want to cross



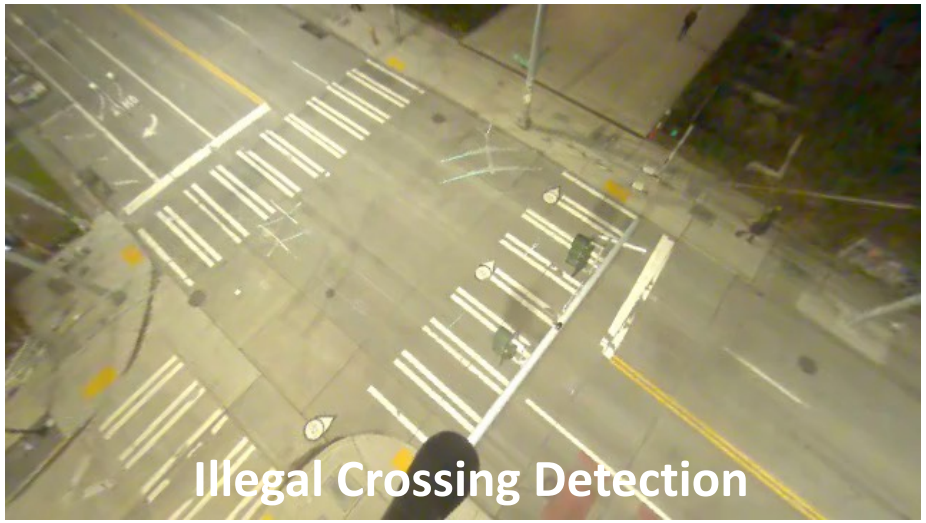


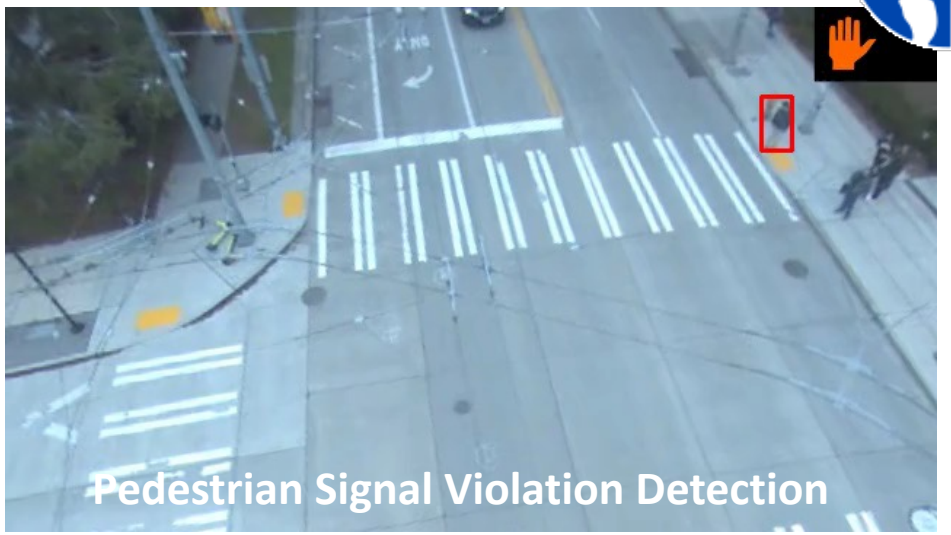


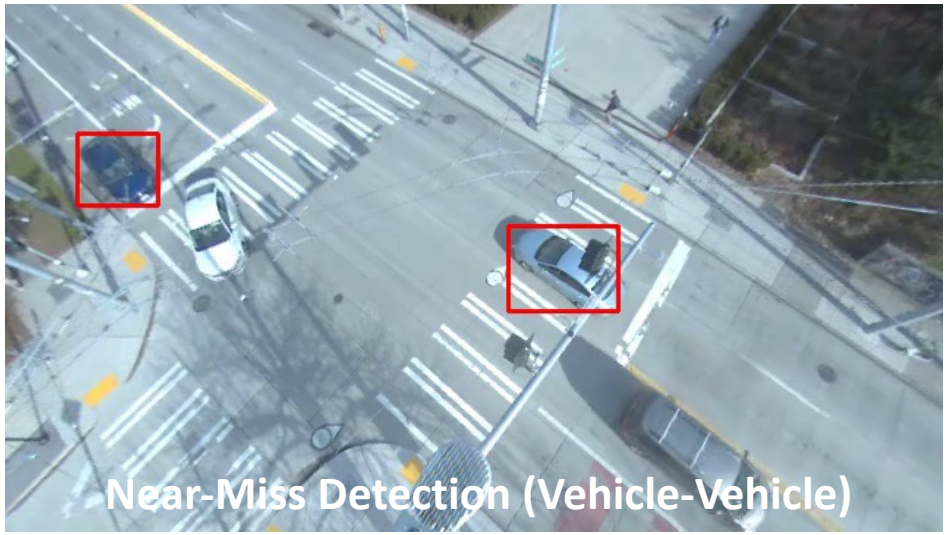
Deployed Gridsmart Detection Cameras



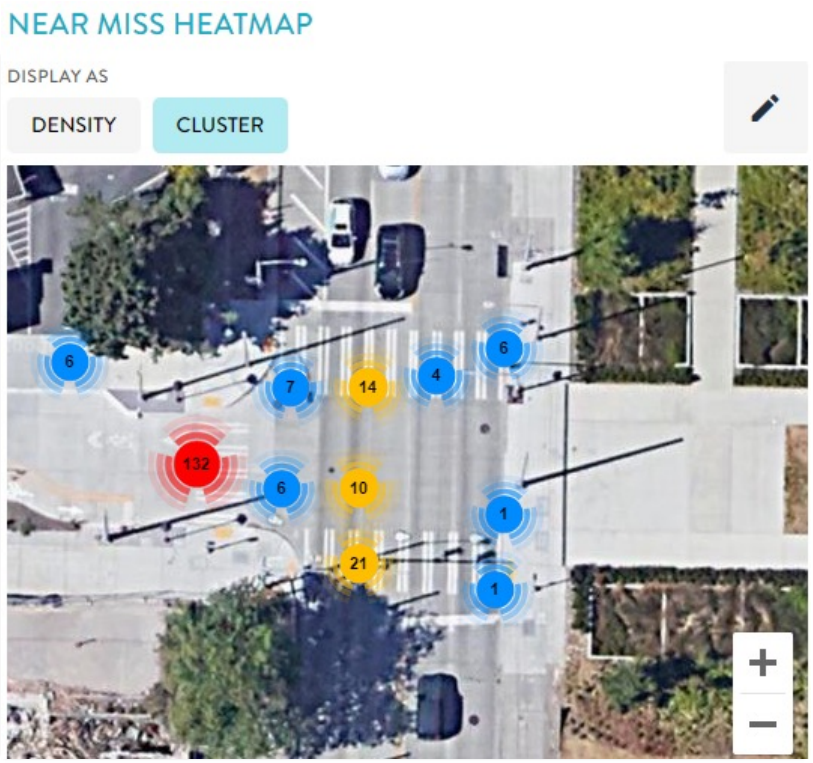
Layered AI to Gather Safety Insights

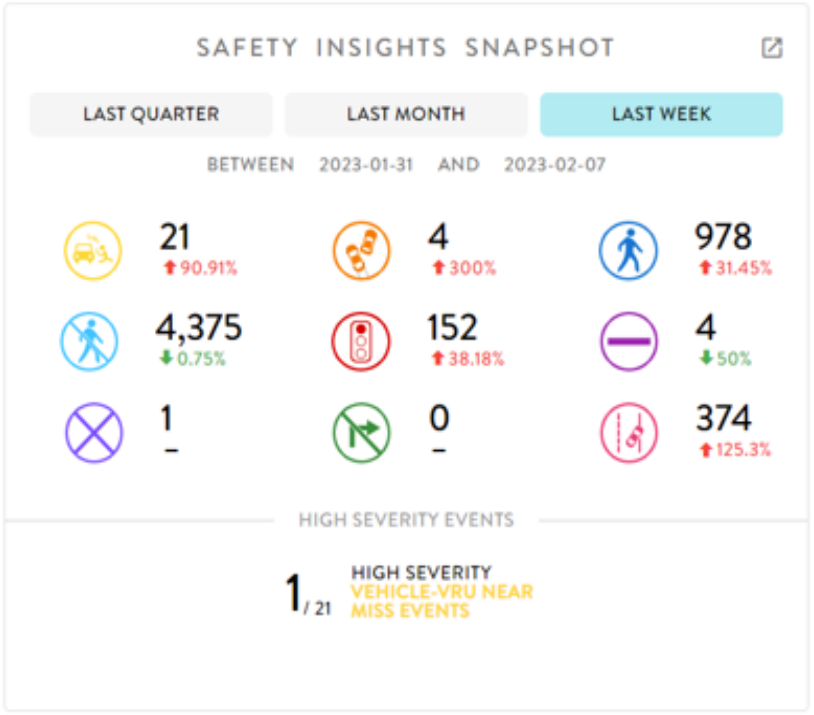


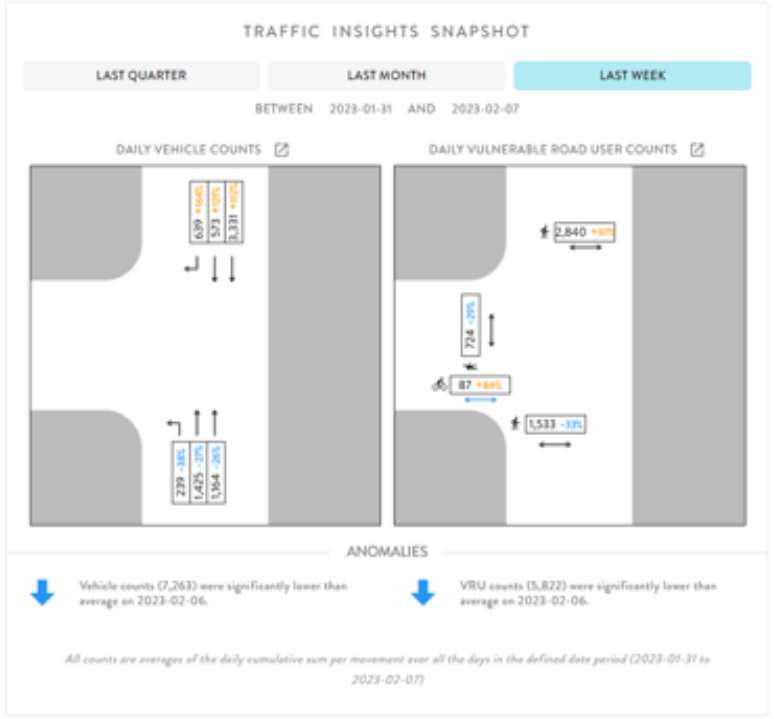




Comprehensive Intersection Data



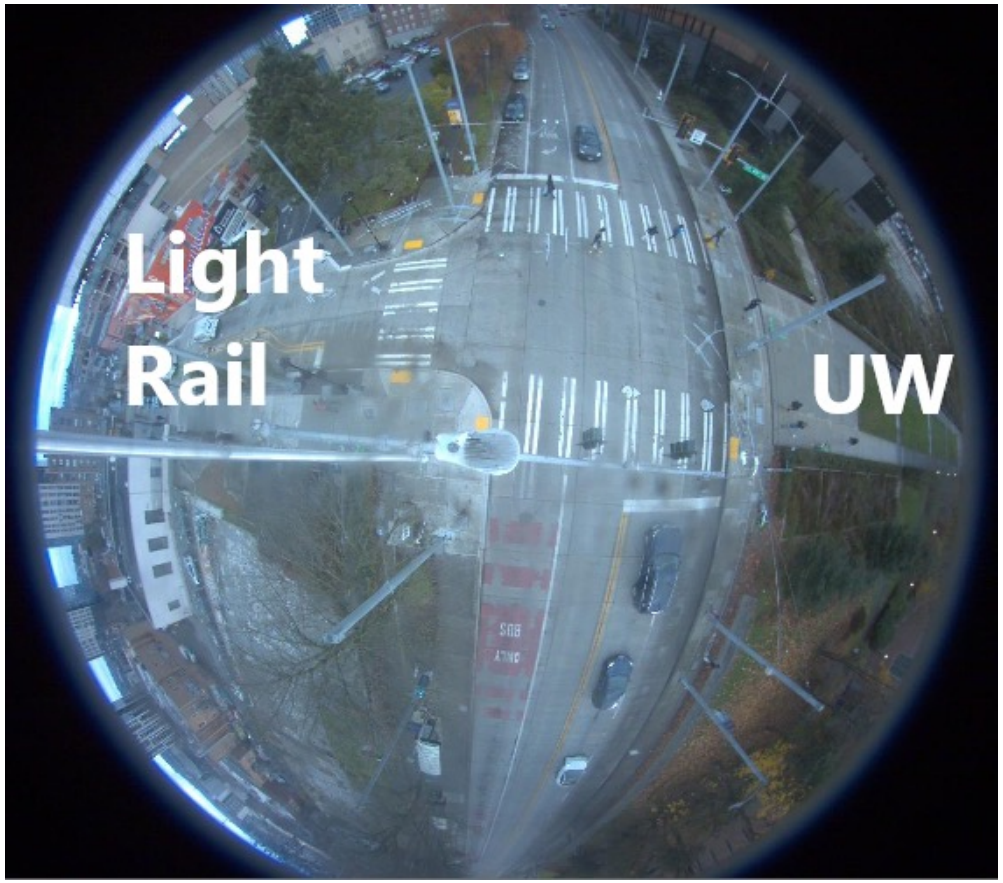


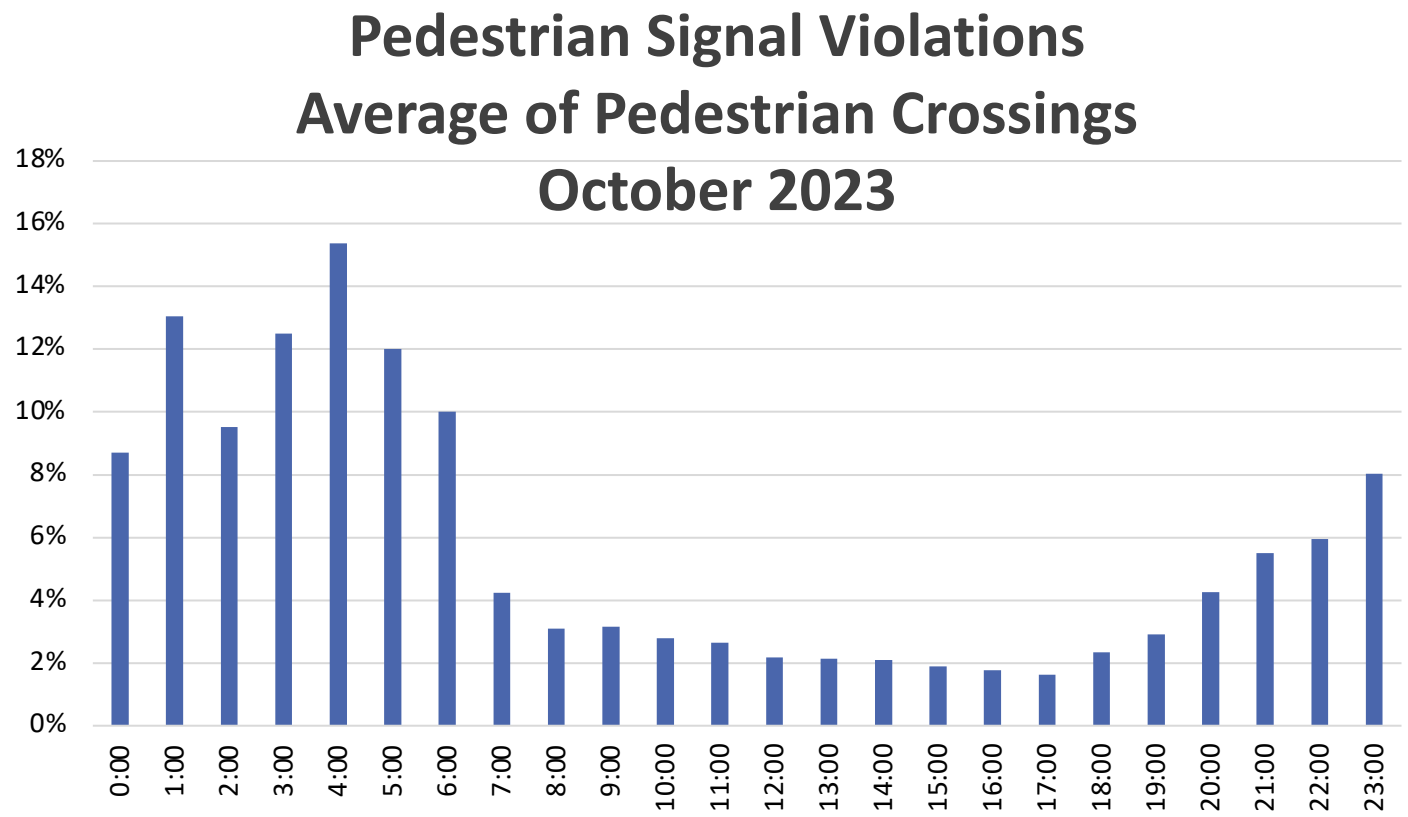


Available snapshots to quickly review quarterly, monthly and weekly trends:

- Safety performance scores for vehicles, VRUs and the overall intersection
- Changes (increases or decreases) in the various safety event types
- Fluctuations in vehicular and vulnerable road user counts

What if the signal was responsive to pedestrians?

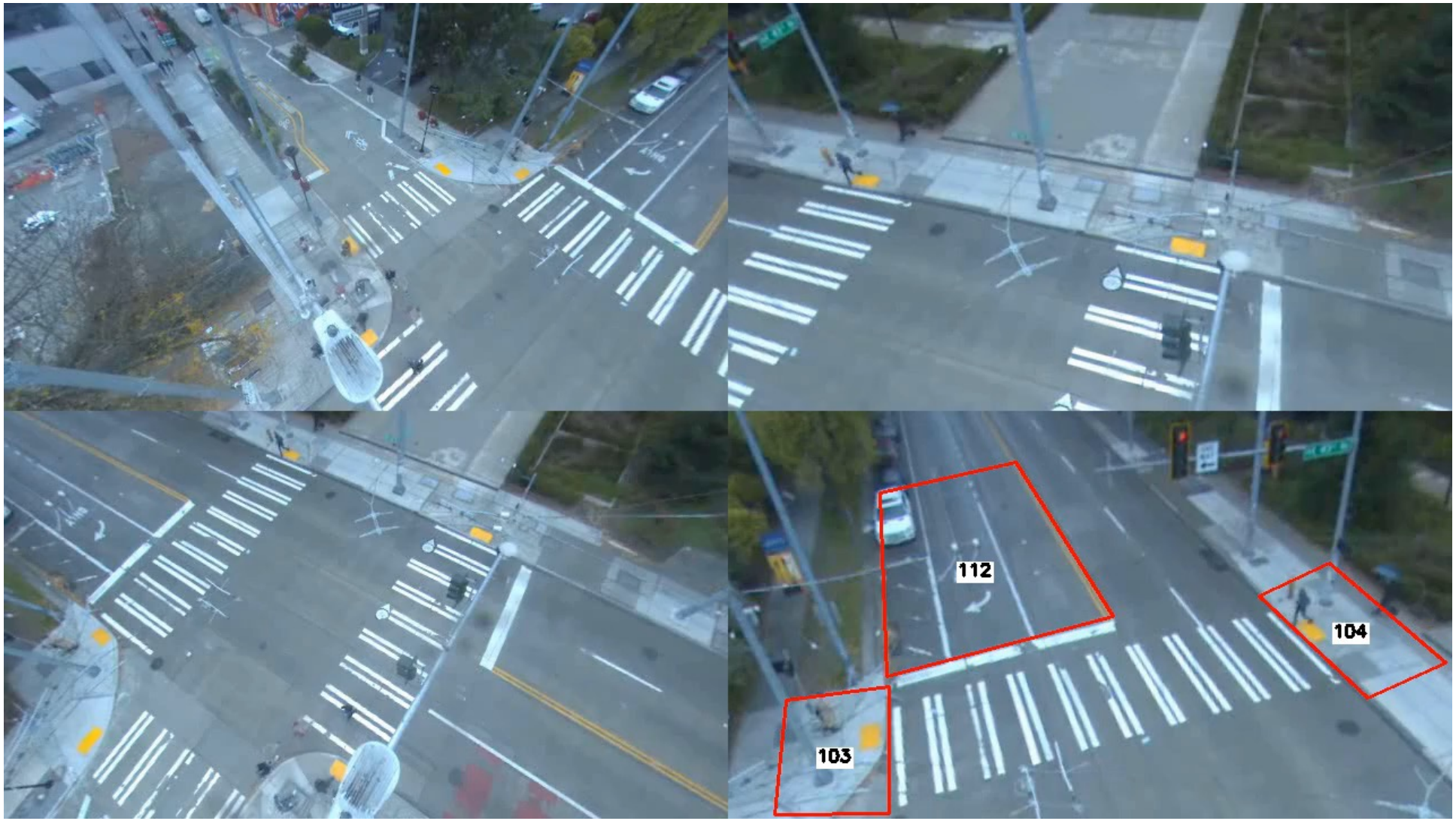




SDOT AI Use Case: Evaluate Multi-Modal Adaptive Capabilities

Zone Id	BIU	Channel	Comment
103	4	1	ADA curbside ramp
104	4	2	ADA curbside ramp
112			advanced detection call on southbound approach

SDOT AI Use Case : Evaluate Multi-Modal Adaptive Capabilities



Goal: To Deliver an Equitable Travel Experience

Derq will feed multiple advanced pedestrian detection zones into SCOOT as typical vehicular pulses to trigger the all-walk.

Next up, evaluate an AI enabled mid-block crossing…

Questions/Comments?