

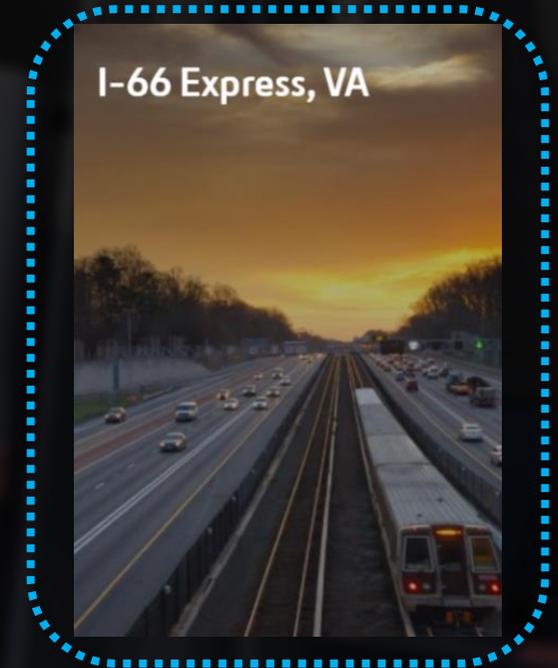
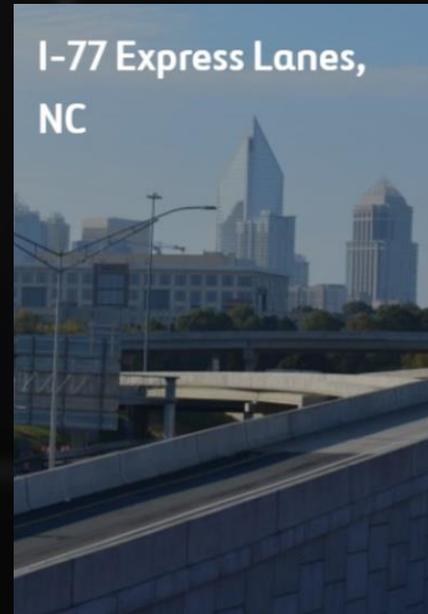


**AVIA**  
SMART ROADS by **cintra**

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## Who is Cintra?

- Global Leader in P3 Transportation Infrastructure
- DBFOM & Vertically Integrated with Ferrovial
- Operate 22 Toll Roads on Four Continents
- Long History of Innovation
  - 1997 - First to Test and Operate an Automated Open Tollway System (407 in Toronto)
  - Pioneers in Dynamic Toll Pricing



## What is AIVIA Smart Roads?

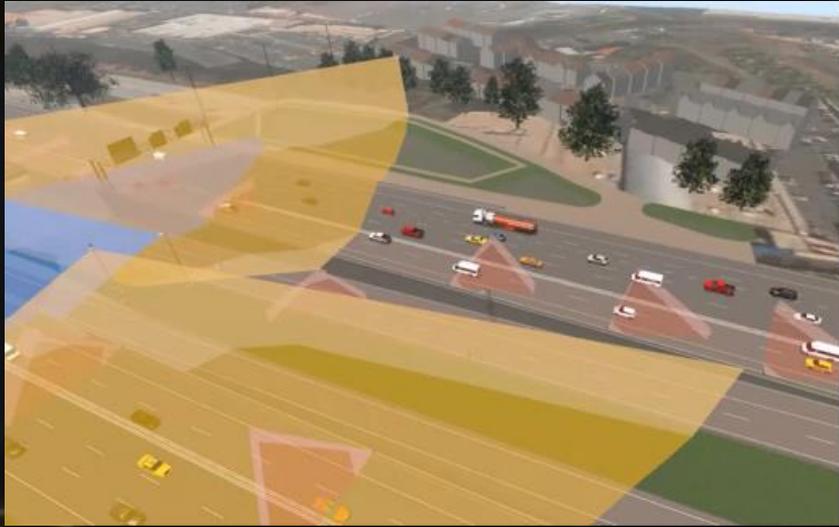
- Cintra's Long-term Vision for Digital Infrastructure
  - Increase Safety
  - Enhance Mobility
  - Advance Sustainability
  - Enable a Future of CAVs

## How?

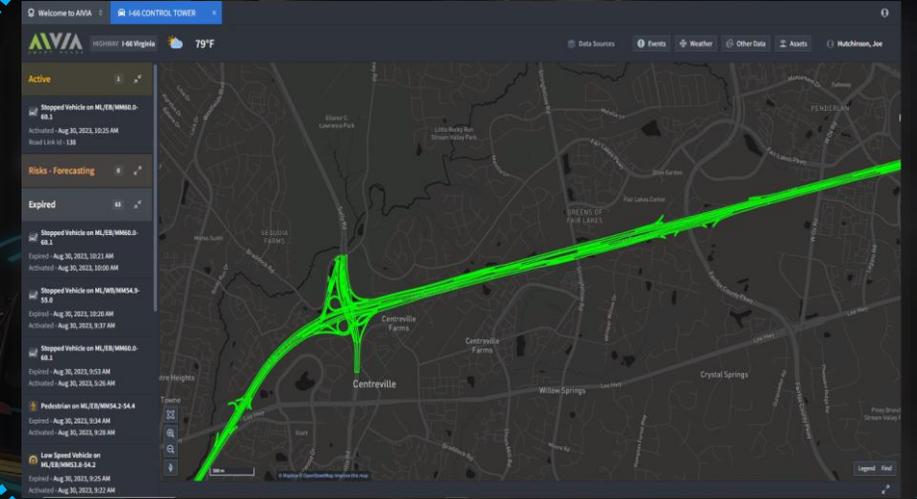
- Highly Accurate Incident Detection
- Predictive Risks & Insights
- Real-time Alerts & Communications



# Data Model (DT)



# Control Tower



Intelligence & Insights



Simulate & Inform

Use Case Development

Virtual Sensor Testing

Traffic and Events Simulation

Data & Communications

Sensors



Vehicles



DMS



Apps



### Roadside Deployments

IOT Radar (Medium Latency)



LiDAR (Low Latency)



Vision (Low Latency)



Wired Connection to Edge

### External

Higher Latency, Accuracy & Availability Issues

V2X



wejo

### Roadside Edge Compute



AI Perception Inference System



### Data Fusion



Supported by Proprietary Logic to remove false positives, organize events and with the goal to allow for "safe automation."

To Cloud

### Event Probability



# A real-world deployment: I-66 Outside the Beltway

Active 0

Risks - Forecasting 0

Expired 152

Stopped Vehicle on ML/EB/MM54.5-55.1

Expired - Aug 31, 2023, 11:43 AM  
Activated - Aug 31, 2023, 11:50 AM

Stopped Vehicle on ML/EB/MM55.1-55.4

Expired - Aug 31, 2023, 11:39 AM  
Activated - Aug 31, 2023, 10:57 AM

Low Speed Vehicle on ML/EB/MM54.5-55.1

Expired - Aug 31, 2023, 11:36 AM  
Activated - Aug 31, 2023, 11:10 AM

Low Speed Vehicle on ML/EB/MM55.1-55.4

Expired - Aug 31, 2023, 11:33 AM  
Activated - Aug 31, 2023, 10:00 AM

Slow Traffic on ML/EB/MM55.1-55.4

Expired - Aug 31, 2023, 11:33 AM  
Activated - Aug 31, 2023, 11:23 AM

Pedestrian on ML/EB/MM54.5-55.1

Expired - Aug 31, 2023, 11:33 AM  
Activated - Aug 31, 2023, 11:05 AM

Pedestrian on ML/EB/MM55.1-55.4

Expired - Aug 31, 2023, 11:30 AM  
Activated - Aug 31, 2023, 10:31 AM

Low Speed Vehicle on ML/EB/MM54.5-55.1

Expired - Aug 31, 2023, 11:29 AM  
Activated - Aug 31, 2023, 10:19 AM

Low Speed Vehicle on ML/EB/MM55.4-55.8

Expired - Aug 31, 2023, 11:28 AM  
Activated - Aug 31, 2023, 11:05 AM

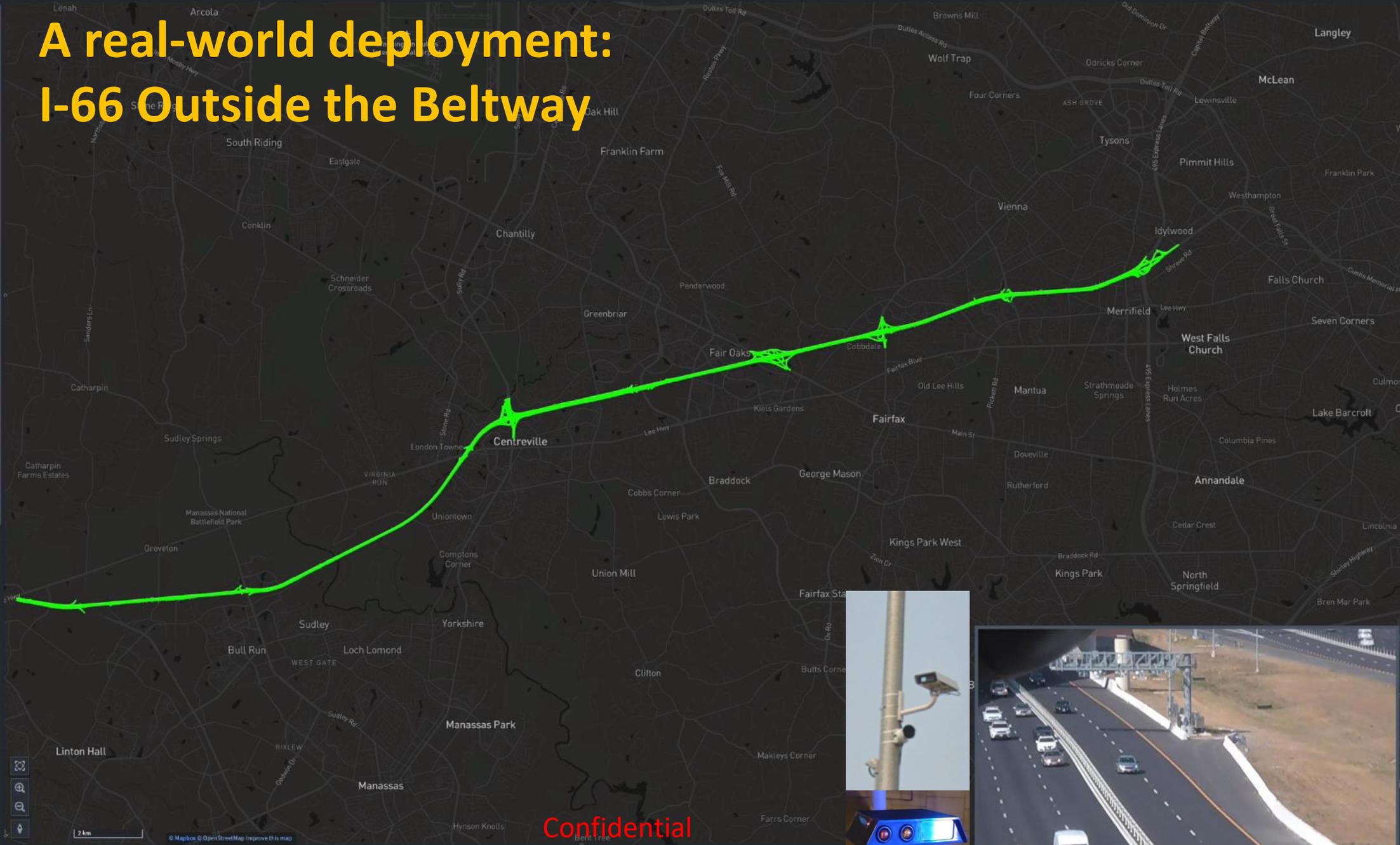
Stopped Vehicle on GP/EB/MM54.9-55.2

Expired - Aug 31, 2023, 11:25 AM  
Activated - Aug 31, 2023, 11:13 AM

Slow Traffic on ML/EB/MM55.1-55.4

Expired - Aug 31, 2023, 11:25 AM  
Activated - Aug 31, 2023, 11:13 AM

Slow Traffic on ML/EB/MM54.5-55.1

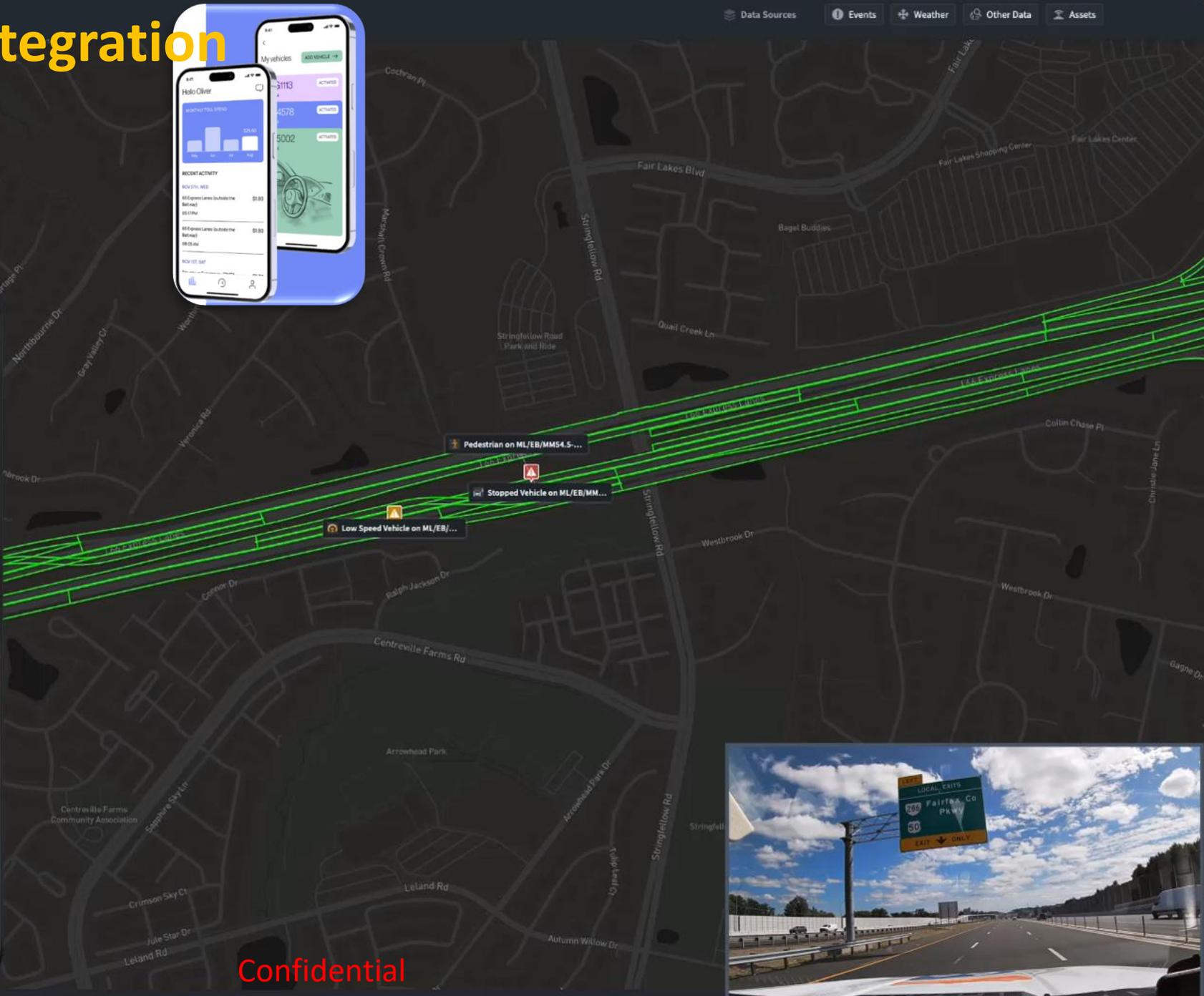


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# Cellular Integration

- Active** 3
  - Pedestrian on ML/EB/MM54.5-55.1**  
Activated - Aug 31, 2023, 12:30 PM  
Road Link Id - 123
  - Stopped Vehicle on ML/EB/MM54.5-55.1**  
Activated - Aug 31, 2023, 12:29 PM  
Road Link Id - 123
  - Low Speed Vehicle on ML/EB/MM54.5-55.1**  
Activated - Aug 31, 2023, 12:28 PM  
Road Link Id - 123
- Risks - Forecasting** 0
- Expired** 151
  - Stopped Vehicle on ML/EB/MM54.5-55.1**  
Expired - Aug 31, 2023, 11:36 AM  
Activated - Aug 31, 2023, 11:10 AM
  - Stopped Vehicle on ML/EB/MM55.1-55.4**  
Expired - Aug 31, 2023, 11:33 AM  
Activated - Aug 31, 2023, 10:00 AM
  - Low Speed Vehicle on ML/EB/MM54.5-55.1**  
Expired - Aug 31, 2023, 11:33 AM  
Activated - Aug 31, 2023, 11:23 AM
  - Low Speed Vehicle on ML/EB/MM55.1-55.4**  
Expired - Aug 31, 2023, 11:33 AM  
Activated - Aug 31, 2023, 11:05 AM
  - Slow Traffic on ML/EB/MM55.1-55.4**  
Expired - Aug 31, 2023, 11:30 AM  
Activated - Aug 31, 2023, 10:31 AM
  - Pedestrian on ML/EB/MM54.5-55.1**  
Expired - Aug 31, 2023, 11:29 AM  
Activated - Aug 31, 2023, 10:19 AM
  - Pedestrian on ML/EB/MM55.1-55.4**  
Expired - Aug 31, 2023, 11:28 AM  
Activated - Aug 31, 2023, 11:05 AM
  - Low Speed Vehicle on ML/EB/MM54.5-55.1**  
Expired - Aug 31, 2023, 11:25 AM  
Activated - Aug 31, 2023, 11:13 AM
  - Low Speed Vehicle on ML/EB/MM55.4-55.8**



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# Wrong-way in the Managed Lanes

PTZ-2GLW-0019 53.4



2023/06/13 01:34:05

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Reverse driving vehicle	01:34	23 mph
Reverse driving vehicle	01:33	23 mph
Reverse driving vehicle	01:33	29 mph



THANK YOU.

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