

Oakland County's Experience with V2X Deployments

ITSA V2X Webinar
Factors in Funding, Costing and Procuring
V2X Deployments
June 11, 2025



The RCOC Vision:

“Quality life through good roads – we care.”

About RCOC

- Safety is our top priority
- County is 900 square miles with 1.3 million people
- 63 cities/townships/villages
- 2,700 miles of county roads, 230 miles of state highways
- 750 miles of gravel roads
- Maintain over 1,800 electrical devices
- 1,500 county, city and state traffic signals
- Maintains 90,000 signs



The Road Commission's



**Faster And Safer Travel -
Through Routing & Advanced Controls**

ITS and FAST-TRAC

- Started in June 1992 with 28 intersections under SCATS and Autoscope (overhead cameras) control
- Today, 819 traffic signals operate SCATS with various detection types
- Adaptive traffic signal system expanding to include Centracs
- Adaptive traffic signal systems operates in over 40 communities across the county
- 200+ CCTV installations
- Wireless communications upgrade in 2017
- Event Manager

Map of
Oakland
County with
all devices
that RCOC
maintains

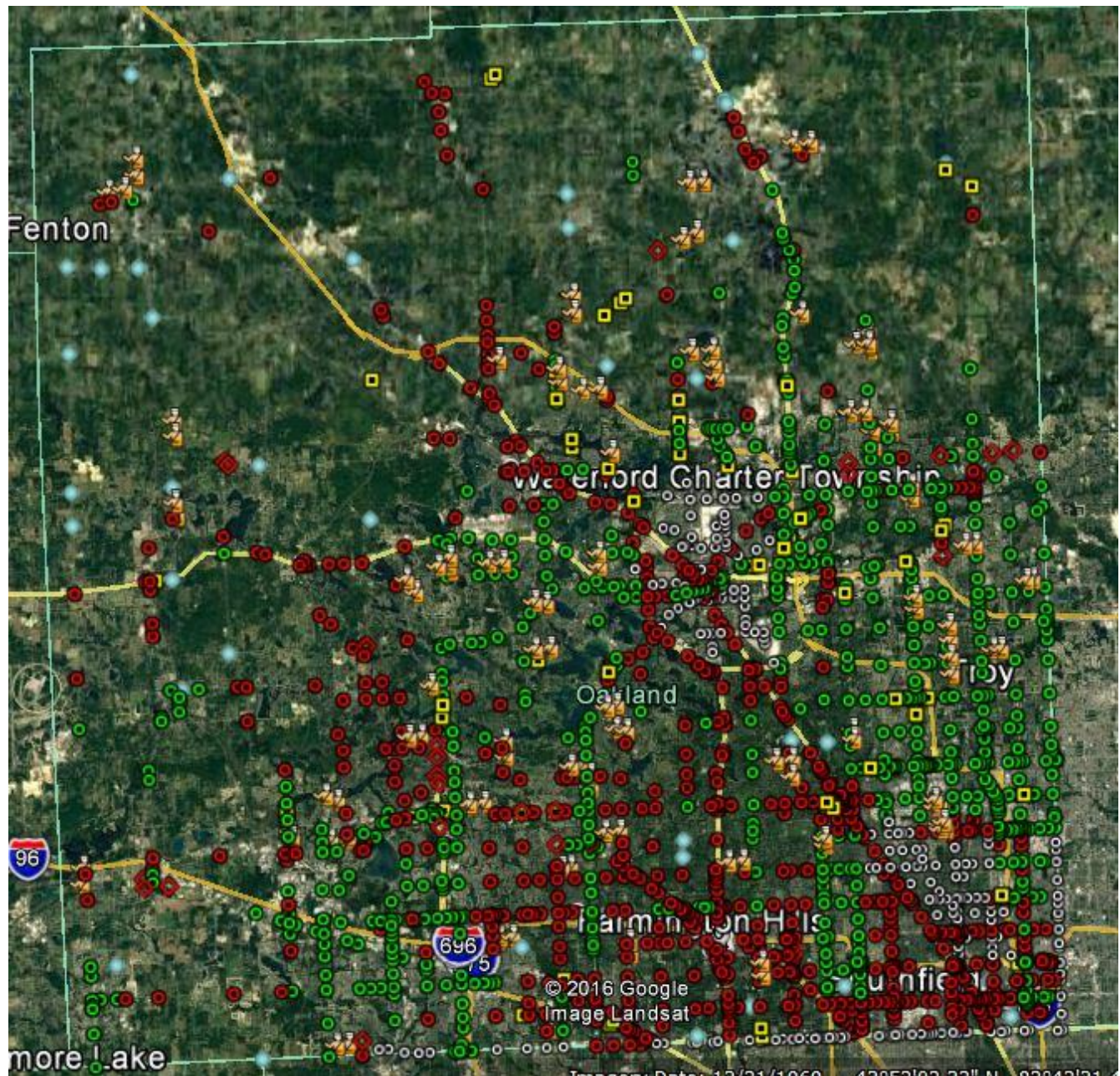


Photo credit:
@2016 Google
Image Landsat

Map of 200+ CCTV Cameras

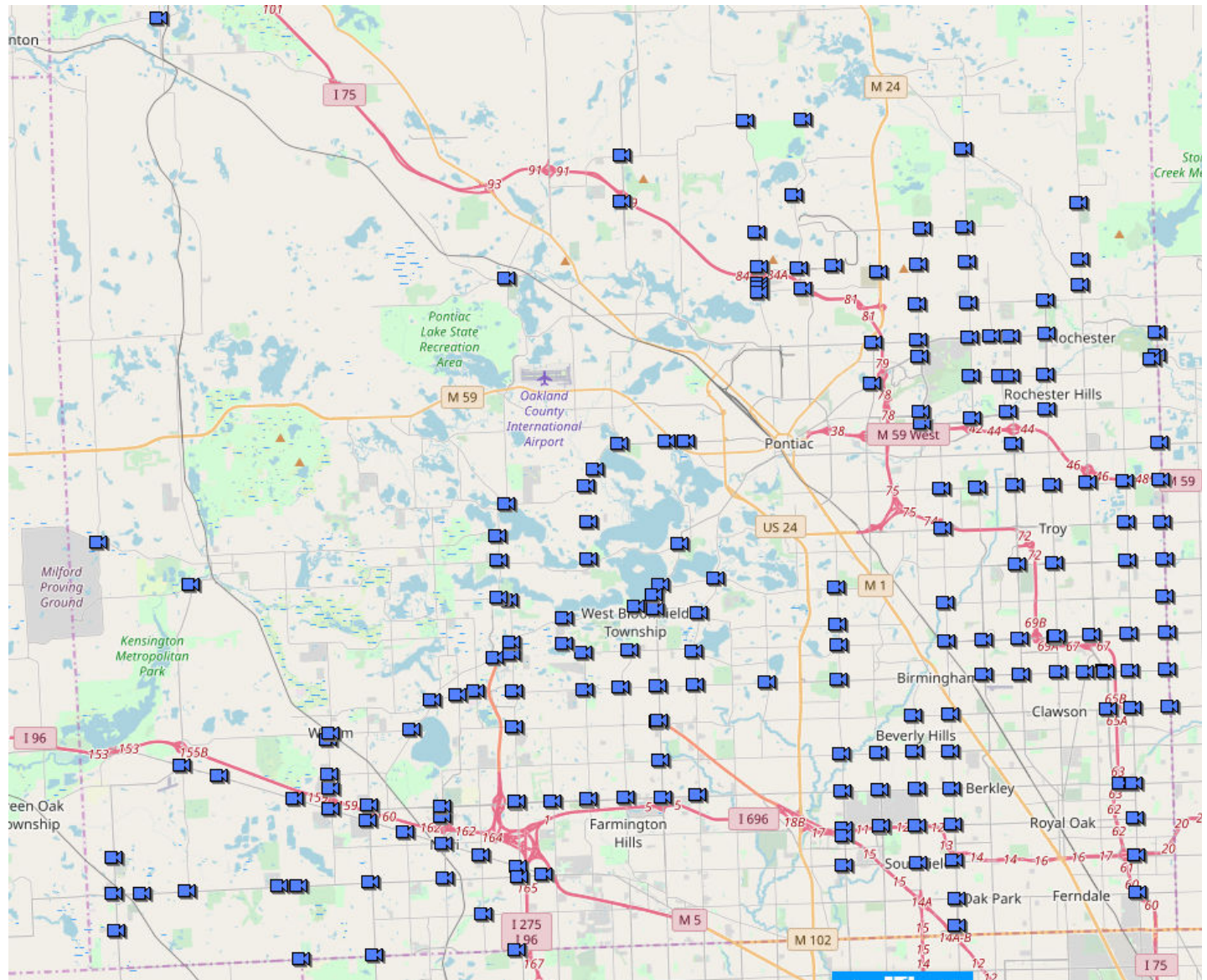


Photo credit:
RCOC GIS

RCOC's Connected-Vehicle Background

- Early adopter of Intelligent Transportation Systems (ITS) technologies with creation of FAST-TRAC program in 1992
- First adaptive traffic-signal system in nation
- One of first local agencies involved in connected mobility in early 2000s
- Extensive experience in ITS field installations
- We have been a partner in more than 20 Connected-Vehicle projects



Connected-Vehicle Installations

- Chrysler HQ campus
- National Proof of Concept in Novi/Farmington Hills (2007)
- Ford
- Motorola
- CICAS
- Taiwan SPaT Demo
- UMTRI
- CAMP
- Partner with MDOT
- Local and national committees

RCOCs Safety Story (our why)

Oakland County Crash Statistics

	<u>1967</u>	<u>2023</u>
Population	600,000	1.2+ Million
Vehicle Miles Traveled	3 Billion	13.1 Billion
Traffic Fatalities	206	54

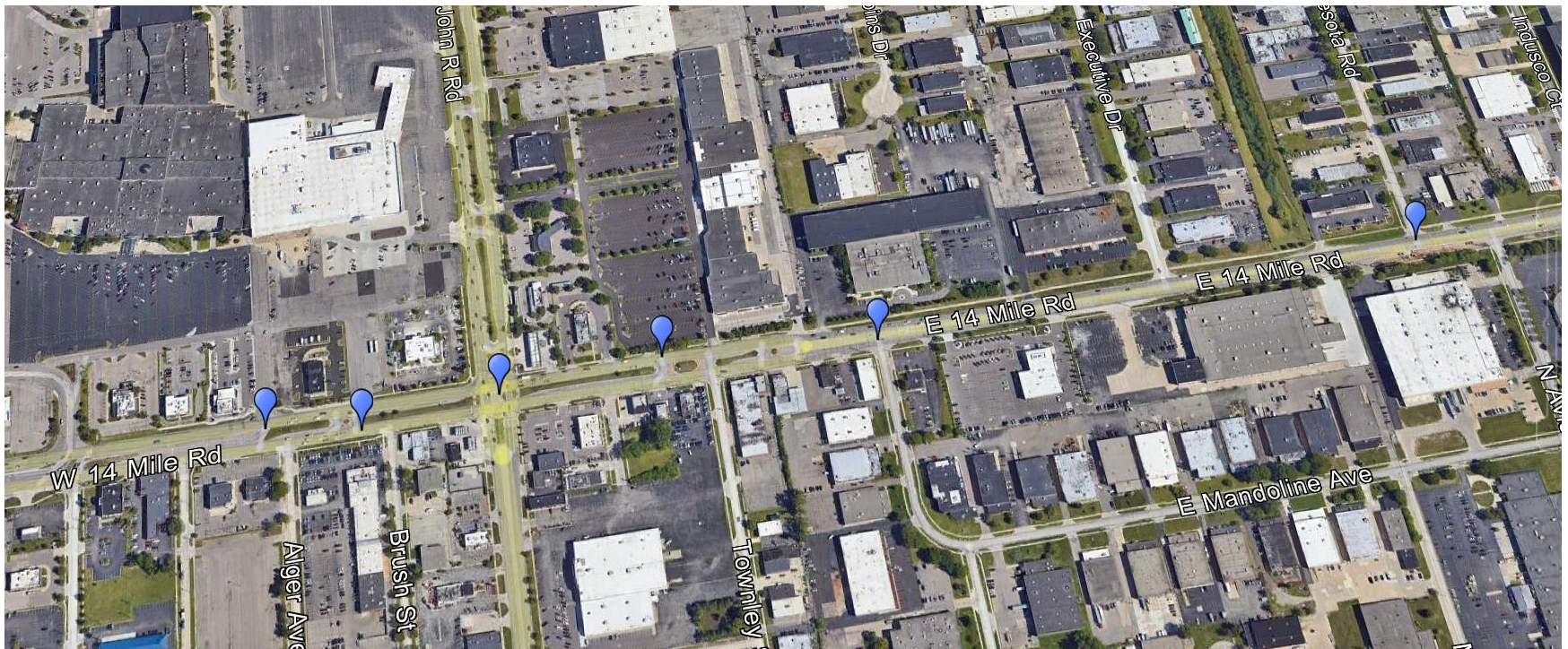
Fatality Rates (per 100 million vehicle miles of travel)

	<u>1967</u>	<u>2023</u>
Oakland County	6.8	0.44
Michigan	6.5	1.15
USA	5.7	1.35

14 Mile RSU Deployment

Seven intersections on 14 Mile Road, west of John R Road to Industrial Road in the city of Troy (installed Summer 2023)

Photo credit:
Google Earth



14 Mile RSU Deployment

- First RCOC deployment of RSUs
- SPaT and Map messages
- Yunex C-V2X RSUs
- All traffic signals in the project were modernized
- Installation of RSUs was part of an RCOC road improvement project
- Electrical contractor installed RSUs and associated equipment with consultant support (WSP)
- Funding Source: Federal Aid Road Project with RCOC match
- Cost: RSU \$6,425 installed
- Procurement: Design, Bid, Build

2022 SMART Grant

2022 Federal **Strengthening Mobility and Revolutionizing Transportation** (SMART) Grant -- \$2 million



Overall goal is to build an economically sustainable safety model and prototype deployment of C-V2X technology.

- How can the private sector monetize this technology?
- Create an incentive to deploy technology

2022 SMART Grant

Equipped 5 intersections in Southfield, Oak Park and Royal Oak.
Installed OBUs in 10 RCOC vehicles. (installed in spring 2024)

Prototype Use Cases

- Vulnerable Road User (VRU) Alerts
- Signal Priority
- V2X Fleet Intelligence
- Extended Transportation Spectrum
- Finalizing project report

2022 SMART Grant

- Cohda C-V2X RSUs
- RCOC staff installed RSUs and cameras with support from Integral Blue
 - Total of one day to install per intersection
- Funding Source: USDOT SMART Grant
- Cost:
 - RSUs \$5,000 per intersection
 - Edge Devices \$1,000 per intersection
 - OBUs \$4,000 per vehicle, plus \$1,000 per vehicle for installation
 - Software (including VRU and SCMS) \$190,000
 - GridSmart Camera (for VRU) \$22,000
- Procurement:
 - Project consultant provided RSUs, OBUs and Edge Devices (P3M)
 - RCOC provided the GridSmart cameras and controllers (annual bid)

Next Steps



- Communications to intersections
- How to monitor devices
- Corridors to look at next
- Funding sources
 - Federal Aid
 - SMART Grant Stage 2

Thank you!

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Follos us on social media

