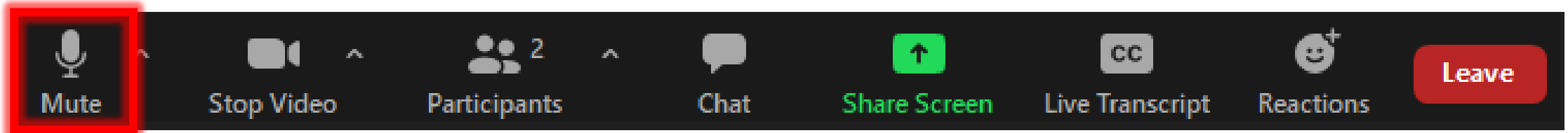# WEBINAR REMINDERS

- Please **Mute** your microphone unless speaking.

- You can place questions in the **Chat** which will be answered in the chat and during the Question/Answer Session at the end.

- You can use the **"Raise Your Hand"** feature to ask questions or make a comment during the Question/Answer portion of the webinar.

- This meeting will be **Recorded**.

Saving Money and Reducing Truck Emissions
Webinar Series

How Telematics Can Be Used to Reduce Costs

Date: Thursday, September 14, 2023

Time: 11 AM – 12 PM Central Time

Hosted by the North Central Texas Council of Governments (NCTCOG)

Register at https://nctcog.zoom.us/j/86888946765

Webinar will be presented through **ZOOM**

Contact: Jason Brown, jbrown@nctcog.org

Presenter:

Mary Till, Sawatch Labs

OVERVIEW

Image provided by Getty

Welcome, Introduction
Presenter: Trey Pope, Transportation Air Quality Planner, NCTCOG

Telemetry for Cost and Emissions Savings
Presenter: Mary Till, Director of Business Development, Sawatch Labs

Q&A Discussion

Local Updates and Close

Saving Money and Reducing Truck Emissions Program

GOALS
Promote emissions reduction and cost saving strategies within the trucking industry

INITIATIVES
Build relationships within the trucking industry
Share information about emission reduction strategies
Connect SmartWay verified technology to trucking owner/operators and fleet managers

SMARTE
Saving Money and Reducing Truck Emissions

Telemetry for Cost and Emissions Savings
NCTCOG 2023 - Mary Till, Sawatch Labs

September 2023

SAWATCH

About Sawatch Labs

- Founded in 2017

- Deep expertise in
  - Telematics
  - Energy modeling
  - Duty cycle characterization
  - Fleet electrification & sustainability

- Neutral advisor, trusted by 180+ fleets

SAWATCH

1 billion
Miles Analyzed

100 million
Trips Assessed

6 million tons
Annual GHG Reductions

$600 million
Savings Potential

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info@sawatchlabs.com

About Sawatch Labs

We've analyzed 71,000+ vehicles and 1,000,000,000 miles driven, identifying $600,000,000 in savings and 6,000,000 tons of GHG emissions reductions for our clients.

FREE ELECTRONS

The Global Energy Startup Program
2022 Top 15 Finalist

verizon✓

NREL
Transforming ENERGY

Xcel Energy®

GEOTAB®

Areas of Potential Savings

- Safety
- Proactive maintenance
- Right-sizing
- Energy/fuel consumption
- Alternative fuel adoption
- Equipment monitoring
- Reporting

Auxiliary monitoring

Driver ID

Camera

MILEAGE LOG

Base Hardware

Expansions

+

Software integrations / AI / reporting

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Telematics Options: OEM Feeds

OEM — API — Host

User Interface

ONE UNIFIED PLATFORM

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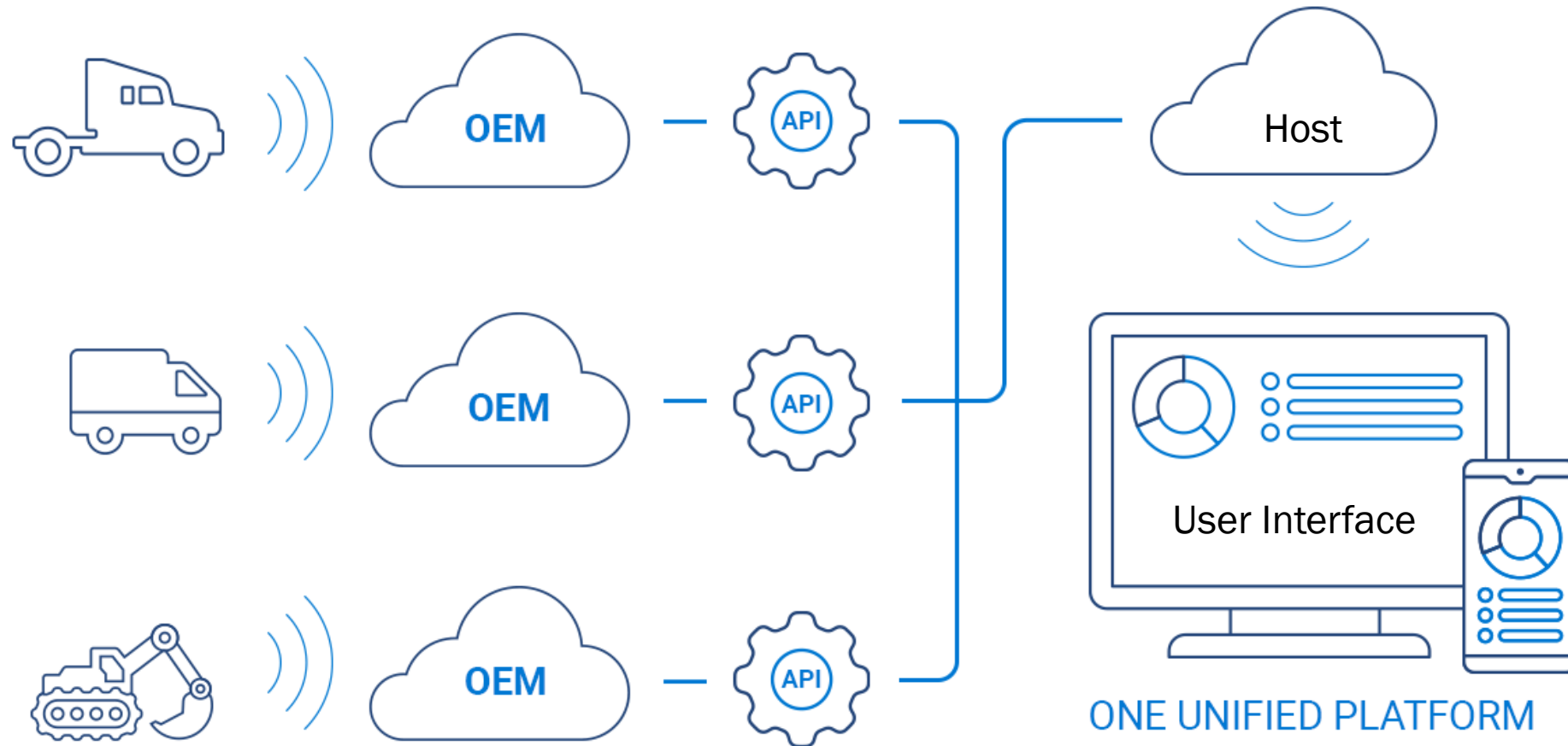
Telematics Options: Source Mix

OEM

OEM

OEM

API

API

API

API

Host

User Interface

ONE UNIFIED PLATFORM
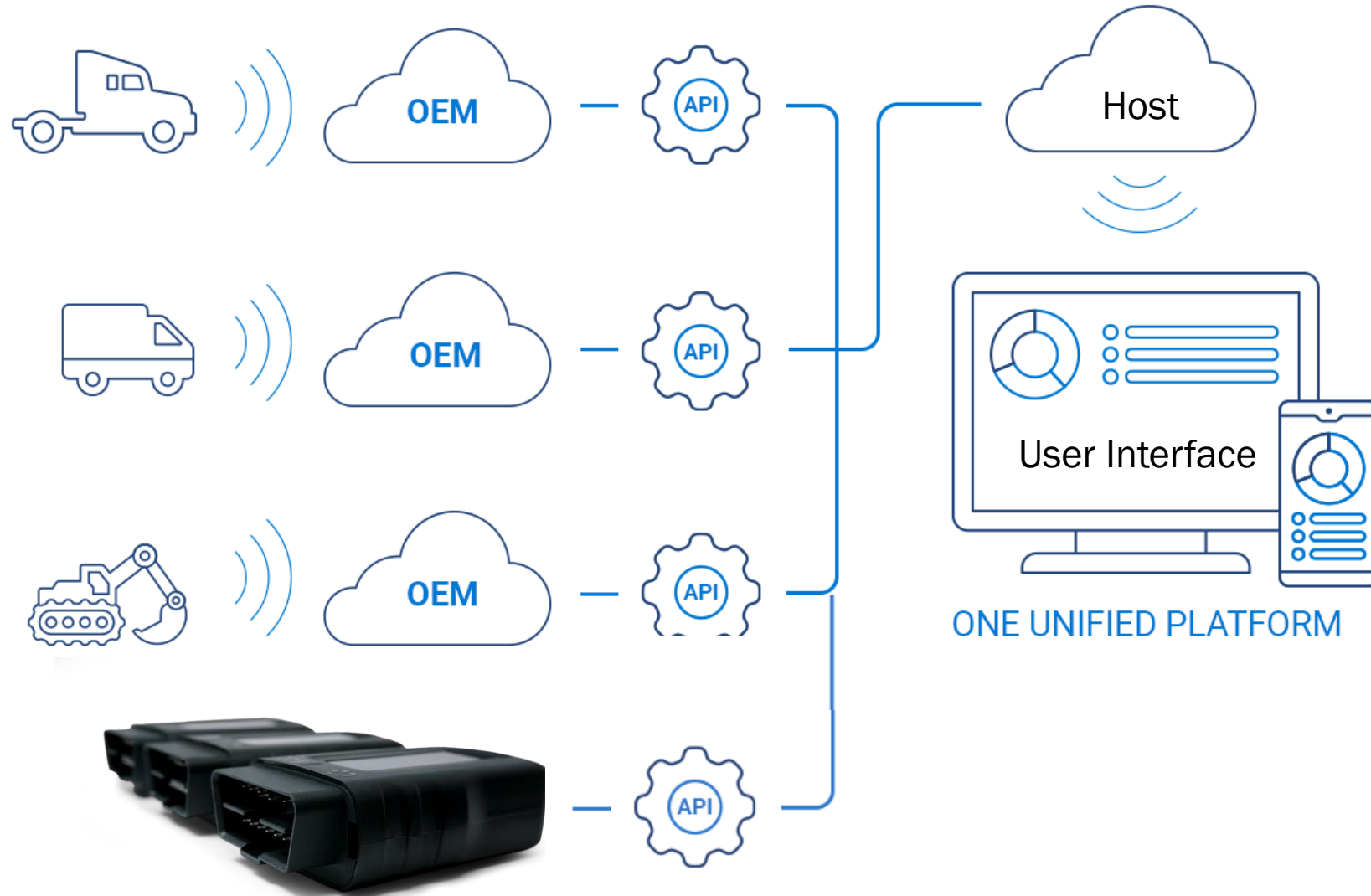
Accessing Your Telemetry

Summary reports from User Interface

Data Connectors

Application Programming Interface (API)

Case Study Highlight – State of Utah

Let's follow the State of Utah's telematics pilot throughout this presentation:

Pilot metrics:

- *'1,296 units installed during the first year of the pilot, which began in January 2017'*

- *'Represents 25% of the fleet managed by Fleet Operations and included a broad variety of use types across the state.'*

Reference: Geotab Case Study, State of Utah Division of Fleet Operations pilot results : https://www.geotab.com/CMS-GeneralFiles-production/NA/White_papers/geotab-state-of-utah-whitepaper(web).pdf%20[PUBLIC].pdf

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Safety

Accident reduction:

- Proactive identification of aggressive driving behaviors
  - Speeding, and harsh acceleration braking and cornering
- In-cab driver alerts
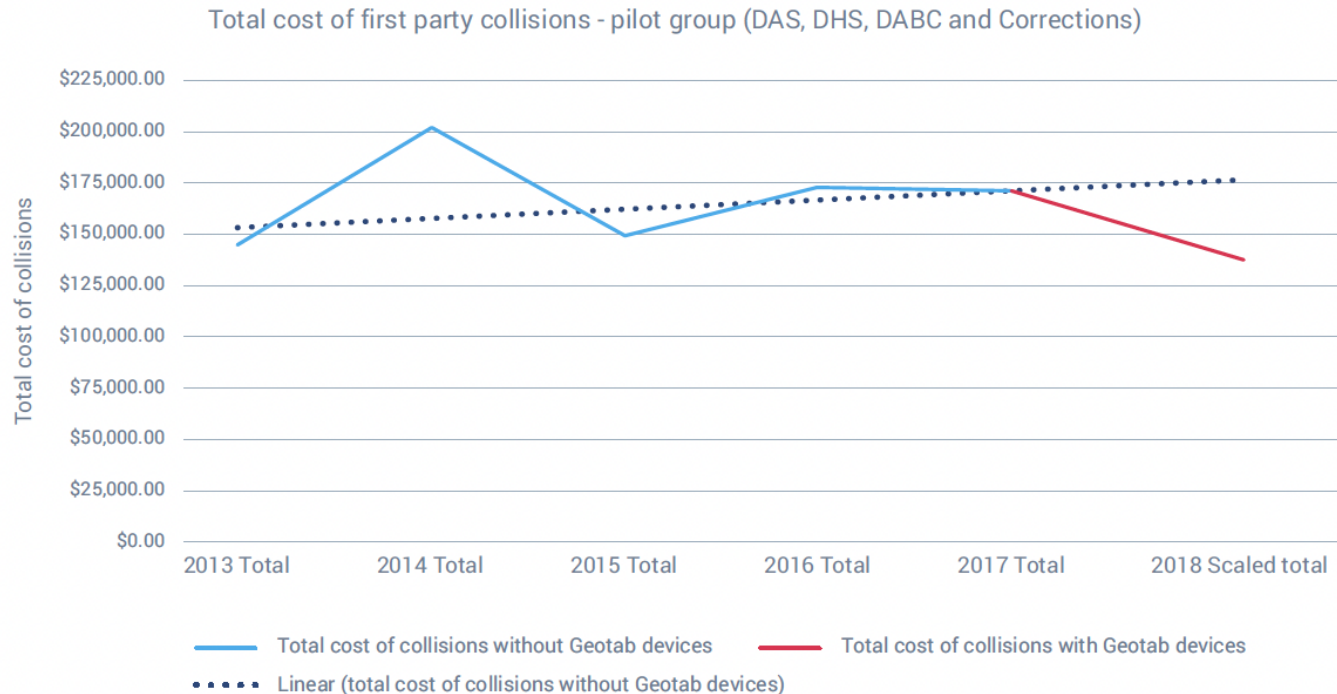- Cameras

Lone-worker:

- Known GPS coordinates
- Panic button
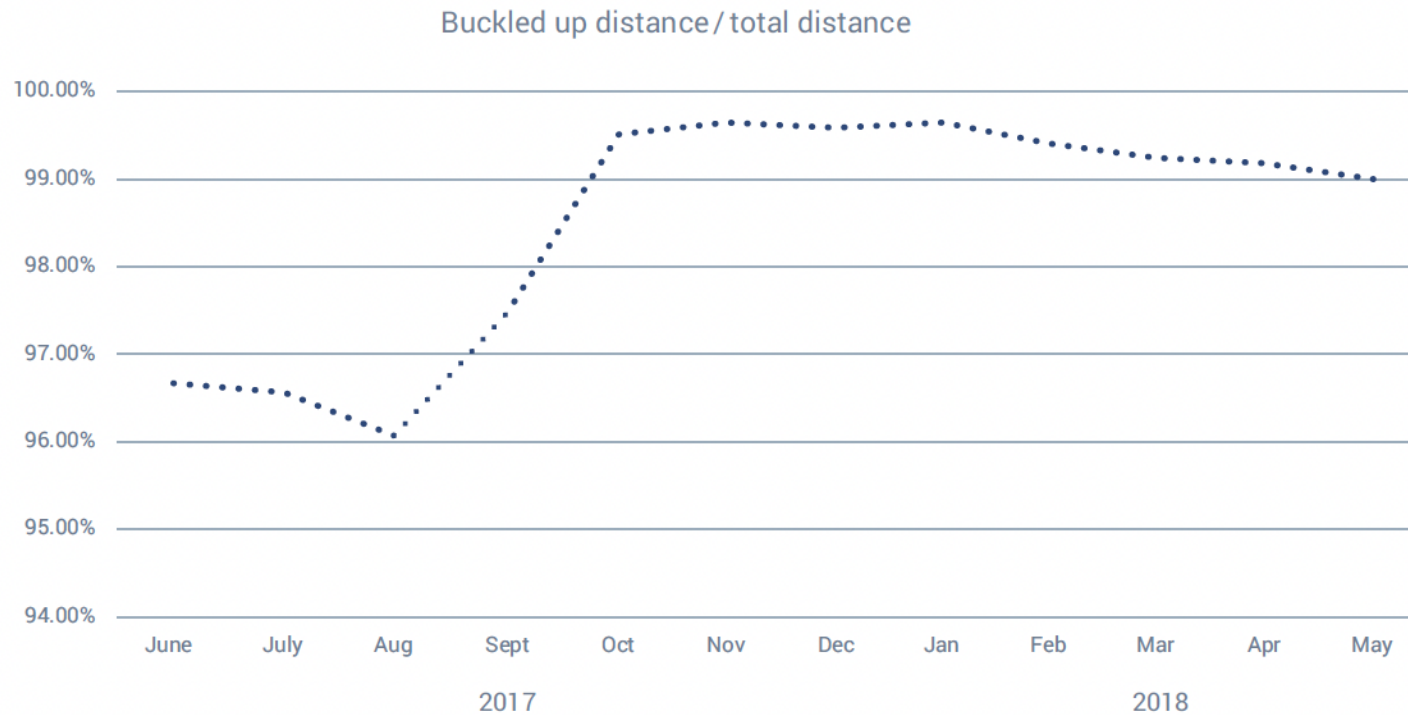
Safety - State of Utah: Accident Costs

Accident Savings
- 21% reduction
- -$36.7K
- $4,763 monthly savings ($4.30 per vehicle per month)
- $56,760 annual savings ($52 per vehicle per year)

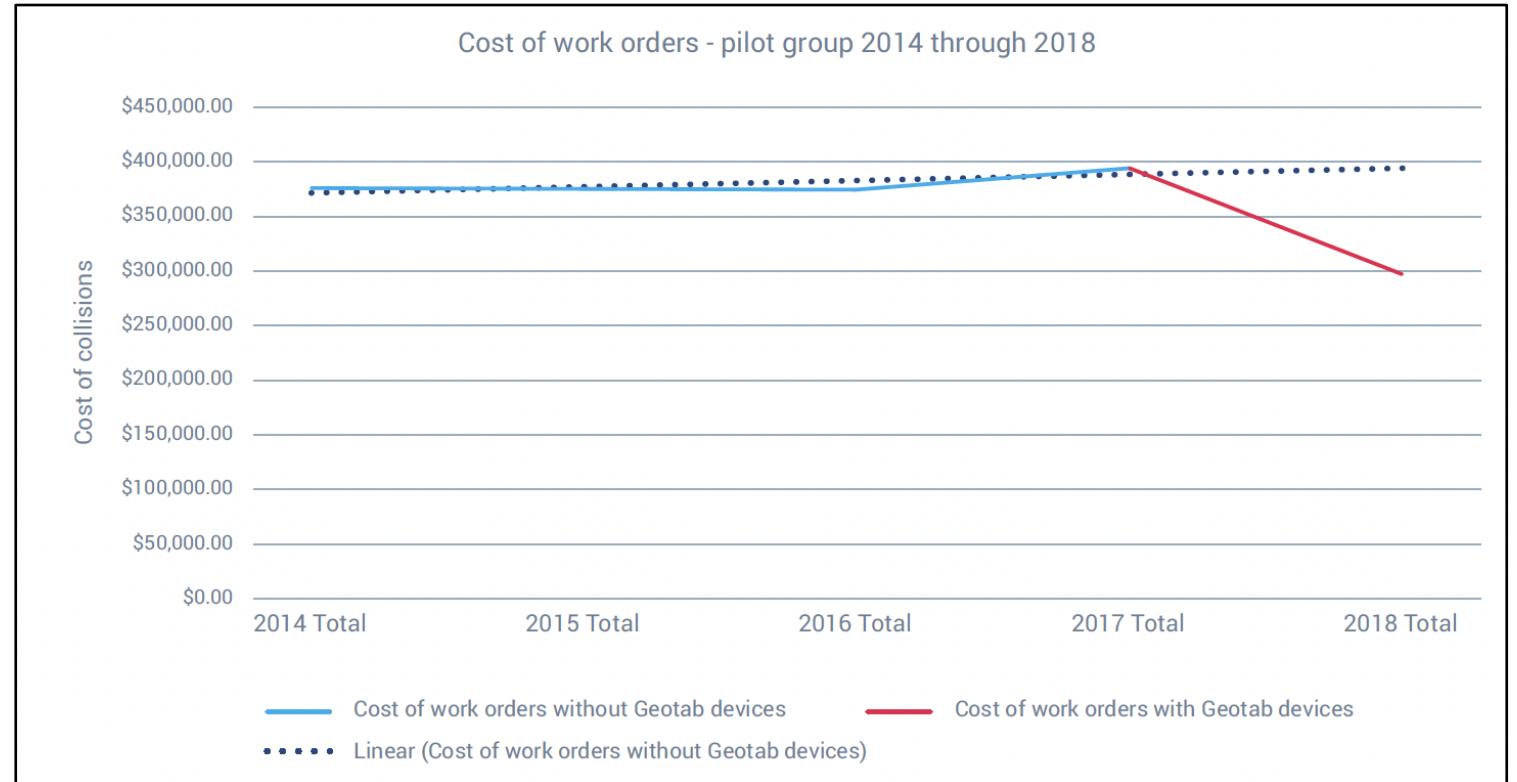Figure 6. Total cost of accidents for State of Utah's Fleet Operations vehicles (2013-2018)

Total cost of first party collisions - pilot group (DAS, DHS, DABC and Corrections)

Total cost of collisions without Geotab devices
Total cost of collisions with Geotab devices
Linear (total cost of collisions without Geotab devices)

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Safety - State of Utah: Seat Belt Usage

Figure 7. Seat belt usage trend (2017-2018)

Buckled up distance / total distance

Reference: Geotab Case Study, State of Utah Division of Fleet Operations pilot results : https://www.geotab.com/CMS-GeneralFiles-production/NA/White_papers/geotab-state-of-utah-whitepaper(web).pdf%20[PUBLIC].pdf

Proactive Maintenance

- Check engine lights
- Low battery alerts
- Aggressive driving
- Tire pressure
- Track Miles and Runtimes
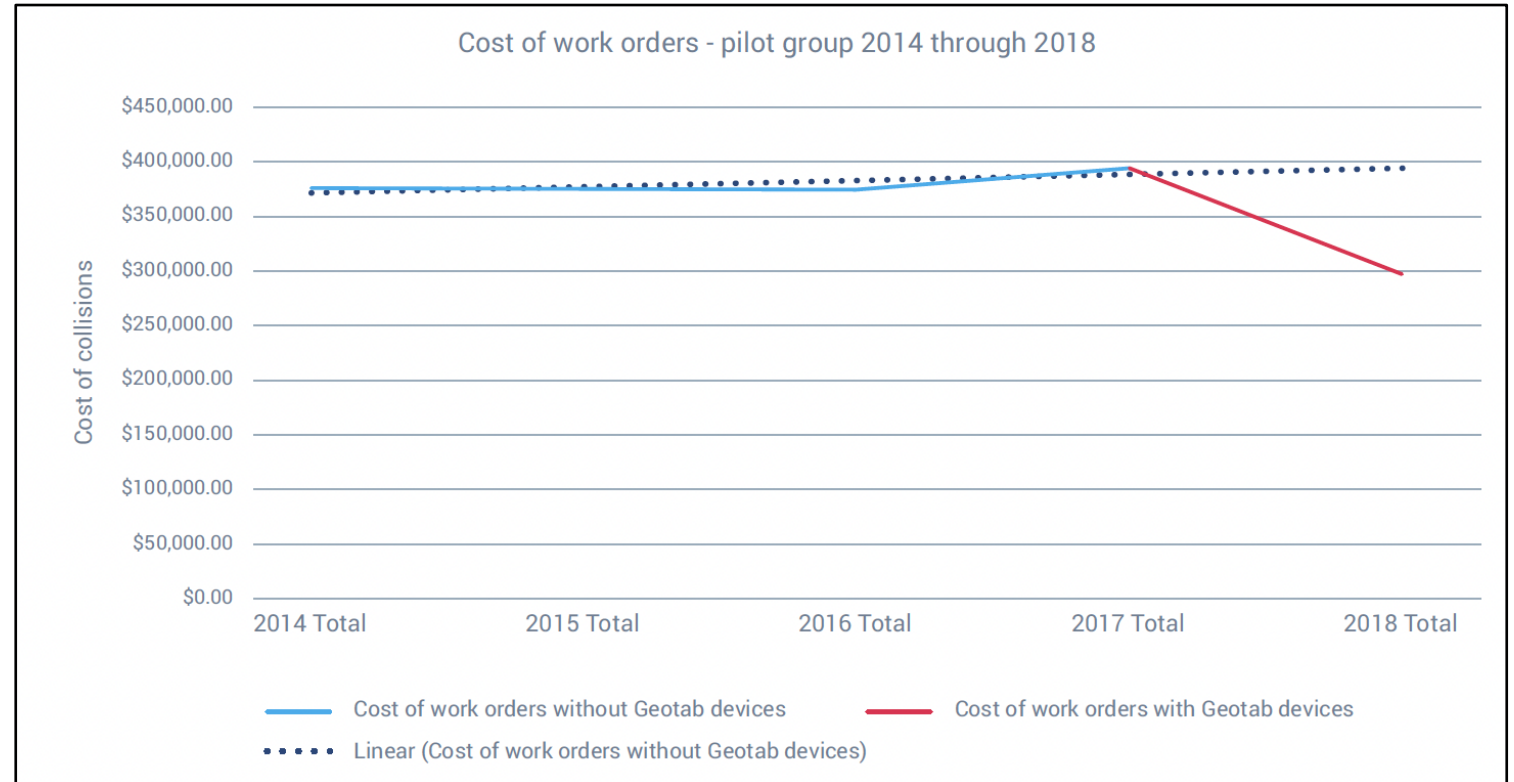- Reduce vehicle and driver downtime

Cost of work orders - pilot group 2014 through 2018

Cost of collisions

| | 2014 Total | 2015 Total | 2016 Total | 2017 Total | 2018 Total |

Y-axis: $0.00, $50,000.00, $100,000.00, $150,000.00, $200,000.00, $250,000.00, $300,000.00, $350,000.00, $400,000.00, $450,000.00

Cost of work orders without Geotab devices
Cost of work orders with Geotab devices
Linear (Cost of work orders without Geotab devices)

Maintenance - State of Utah: Utilization

Right-sizing:
- $7,500 monthly savings ($6.90 per vehicle per month)
- $90,000 annual savings ($82 per vehicle per year)

Cost of work orders - pilot group 2014 through 2018

Cost of collisions

$450,000.00
$400,000.00
$350,000.00
$300,000.00
$250,000.00
$200,000.00
$150,000.00
$100,000.00
$50,000.00
$0.00

2014 Total   2015 Total   2016 Total   2017 Total   2018 Total

— Cost of work orders without Geotab devices   — Cost of work orders with Geotab devices

····· Linear (Cost of work orders without Geotab devices)

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Right-sizing - State of Utah: Utilization

Right-sizing:

- $89,500 monthly savings resulting from eliminated depreciation expenses ($82 per vehicle per month)

- $1,074,400 annual savings resulting from less collisions ($985 per vehicle per year)

Count of vehicles driven < 600 miles in a month by company group

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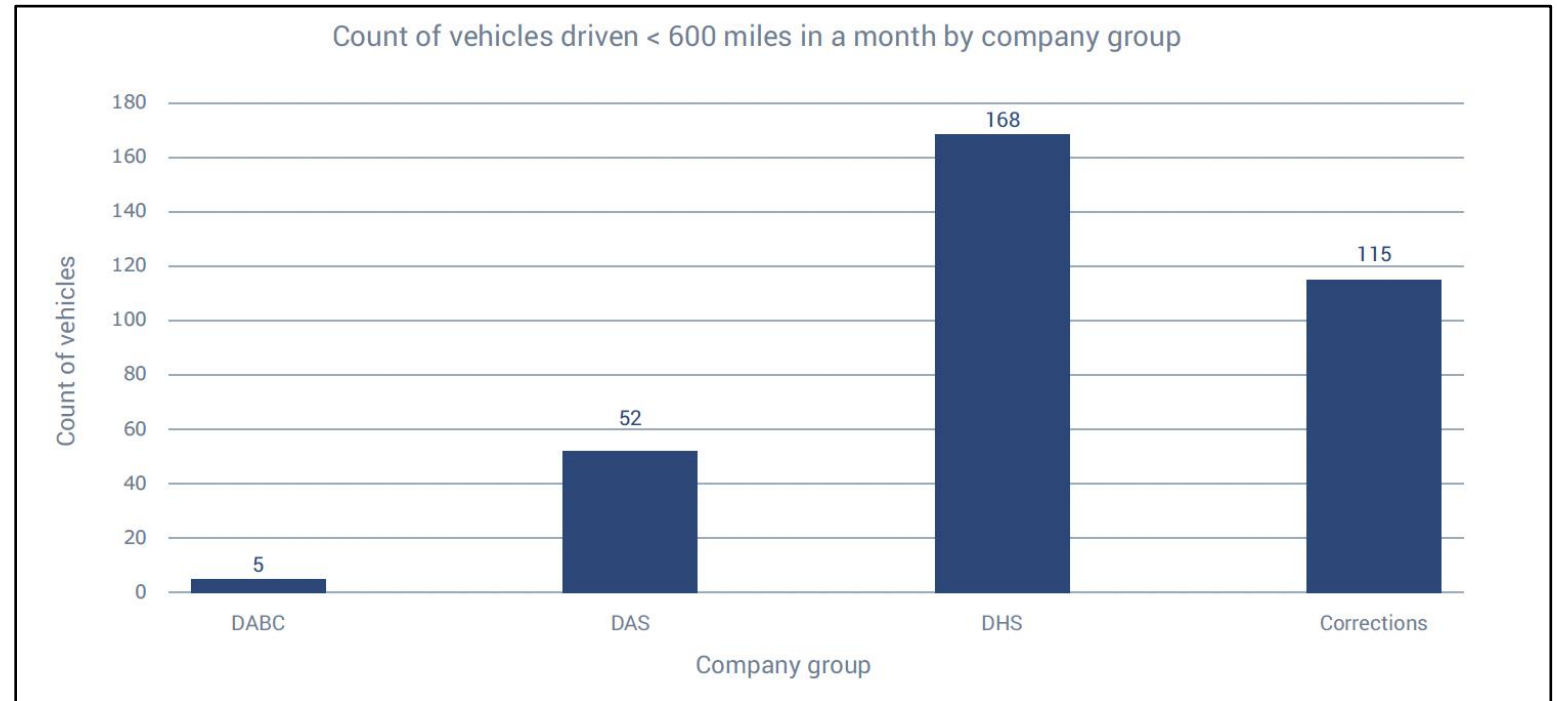
Energy Consumption

- Fuel card auditing

- Charging optimization

- Idle mitigation
  - Necessary v unnecessary idling w/ PTO monitoring

- Speed limiting

- Route optimization / route completion

- Material management

Alternative Fuel Adoption

Use granular telemetry data to better understand energy consumption:

- Speed
- Altitude
- Auxiliary energy demands
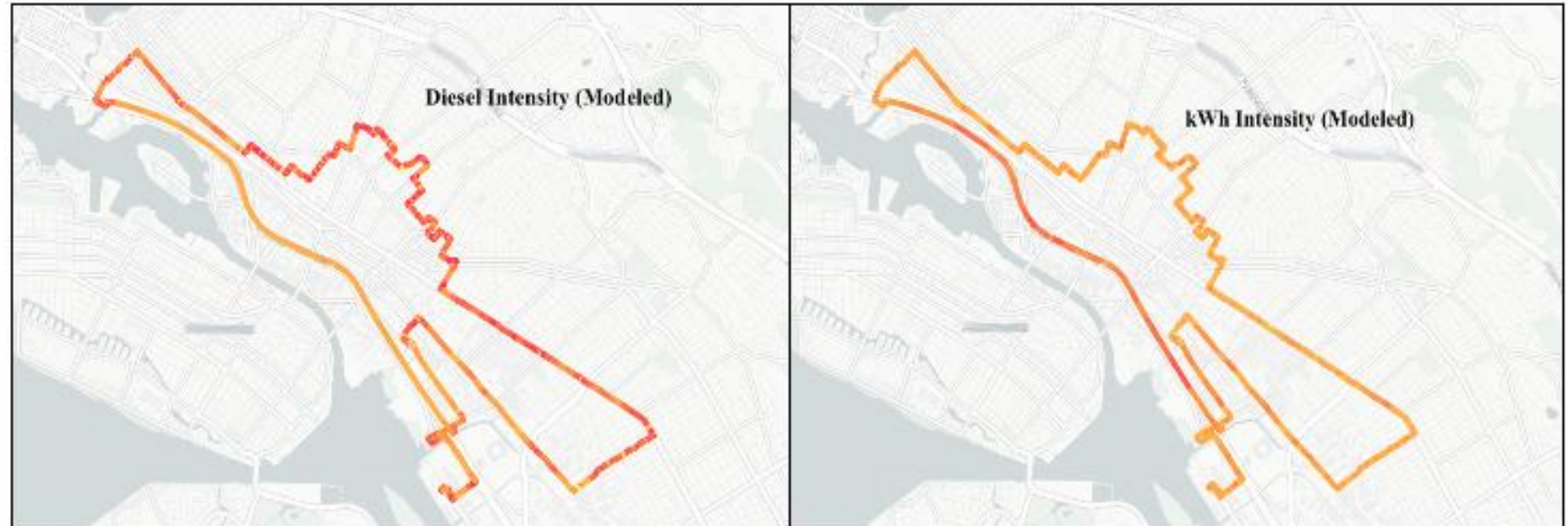
Alternative Fuel Adoption: Telemetry-based EV Suitability

- Total cost of ownership comparison
- **Operational** impact analysis
- Local temperature impacts
- Dynamic dashboard
- Analyze each vehicle
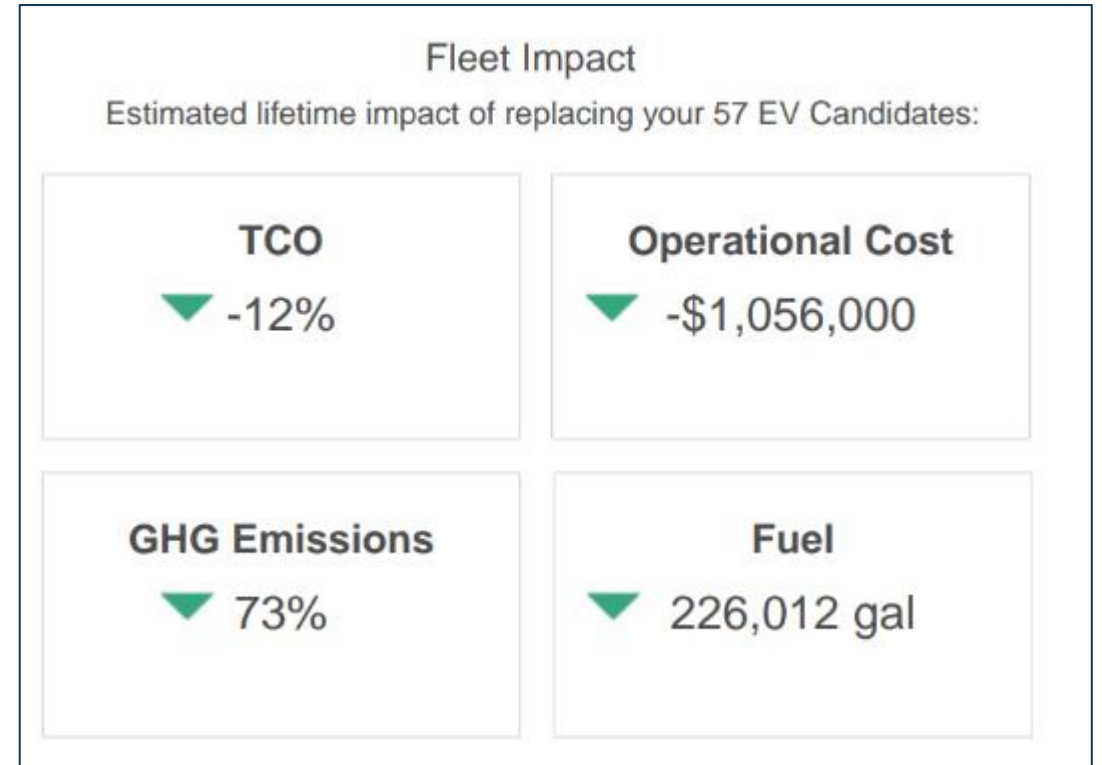- Customizable
- Class 1-8

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Alternative Fuel Adoption:
Telemetry based EVSE Optimization

- Where, when and how much charging
- Right-size infrastructure to save $$$
- Project charging costs
- Predict charge management scenarios

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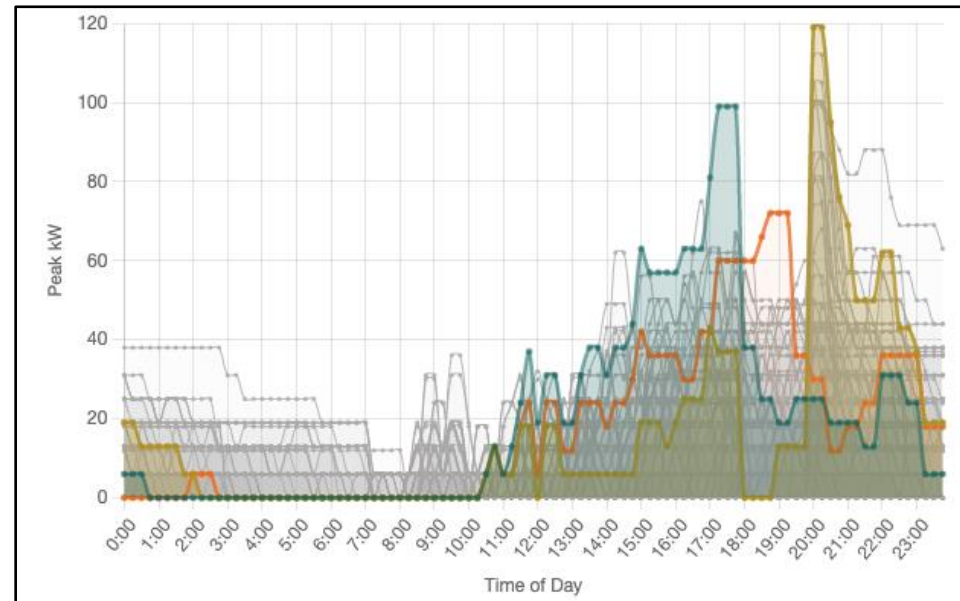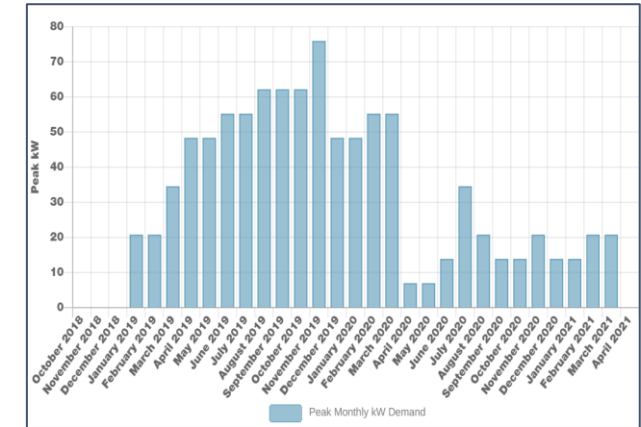
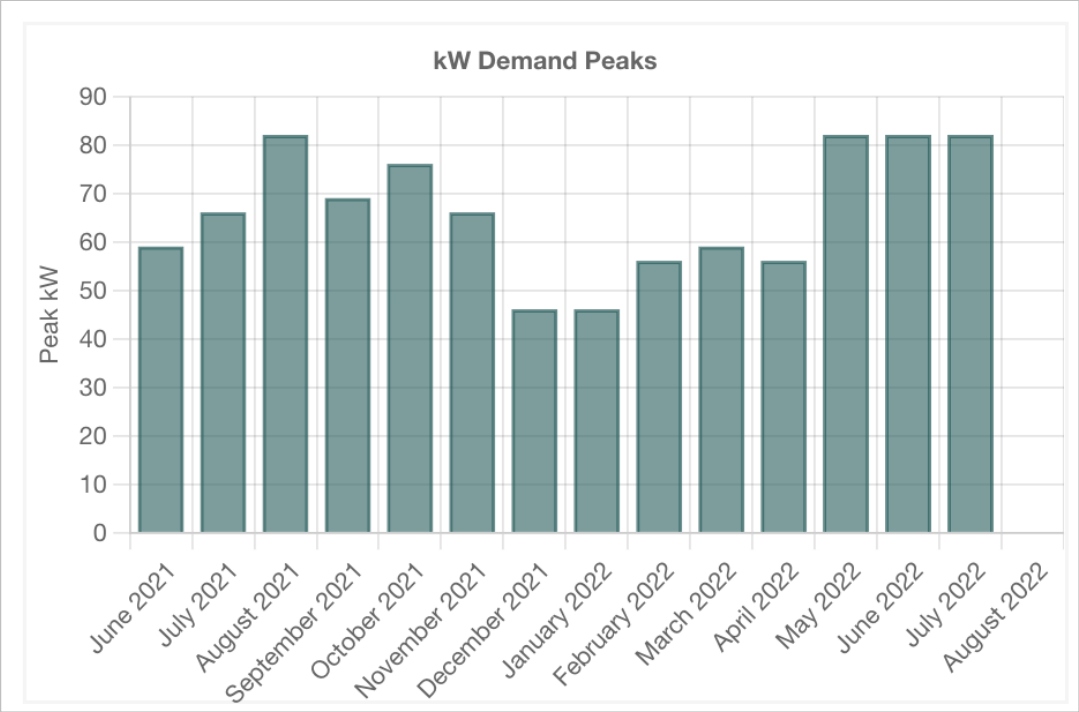# EV Case Study: City of Mankato – EV Projections

- June 2012-August 2022 : Analysis period
  - **77 Light Duty Vehicles Studied**
    - Sedans, minivans, SUVs and pickup trucks
  - **53 recommended** for EV conversion
    - Ford Mustang Mach-E, F150 Lightning Pro, Chevy Bolt, Mitsubishi Outlander, Nissan Leaf, Toyota Prius, Kia Niro

- May 2023 – Beginning Fleet Conversion
  - Leveraging the Fleet Service Pilot, the City is will be constructing the charging infrastructure needed to support the electrification of their fleet

Fleet Impact
Estimated lifetime impact of replacing your 57 EV Candidates:

TCO	Operational Cost
▼ -12%	▼ -$1,056,000

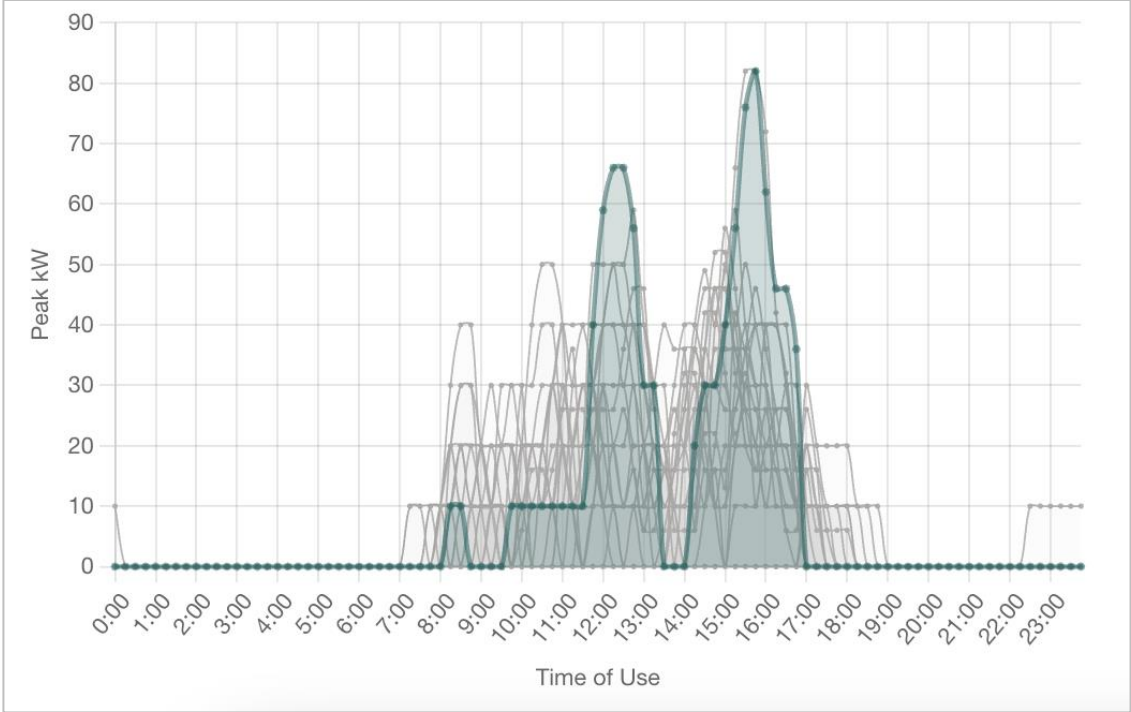| GHG Emissions	Fuel
▼ 73%	▼ 226,012 gal

EV Case Study: Municipal Fleet (Minnesota) – Projected Charging

Peak Demand, by Month

Charging Demand, May 2020

EV Case Study: Delivery Fleet (Colorado) – EV Actuals

- 31 LD vehicles (mostly Leafs)
- 2+ years of analysis
- Averaging ~20,000 miles/EV/year
- $270k operational savings to date
- 27 vehicles projected to break even in fewer than 3 years

| Delivery Fleet Stats |
| --- |
| **31**
Vehicles |
| **1 million+**
VMT |
| **6,200+**
Hours of Operation |
| **$270,000**
Projected Operational Savings |

Equipment Monitoring

- Real-time location of expensive assets

- Theft alerts for asset recovery

- Track run-time

- Powered and non-powered assets

Reporting

Lower administrative costs:

- Shorten incident investigations
  - Reduce need for interviews
  - Quick, easy-to-file reports

- Call reductions
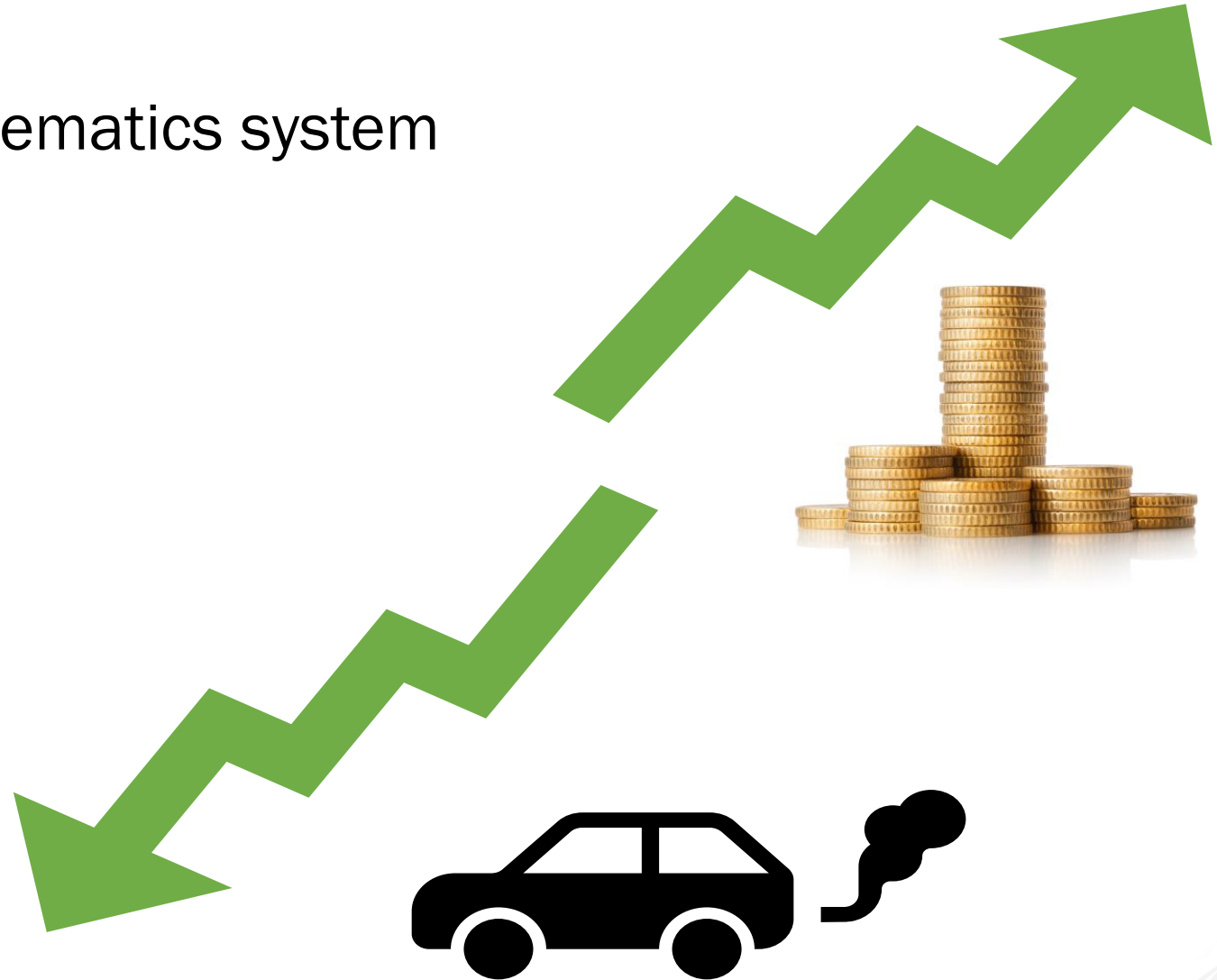 - Citizen/Client-facing dashboards and notifications
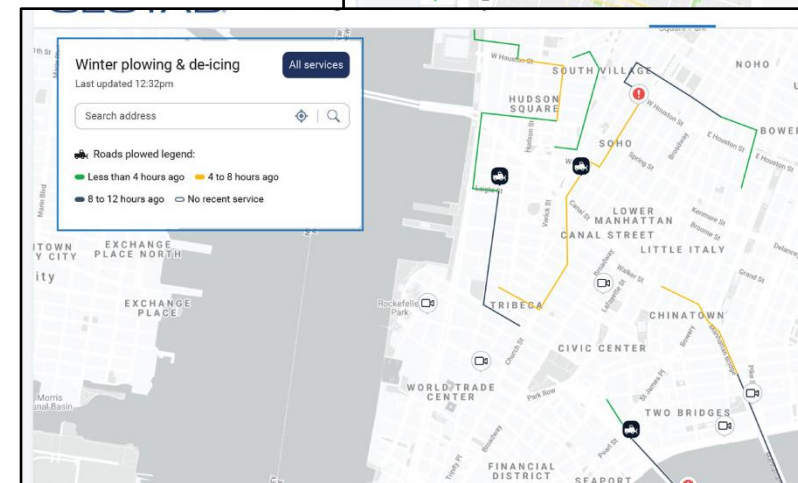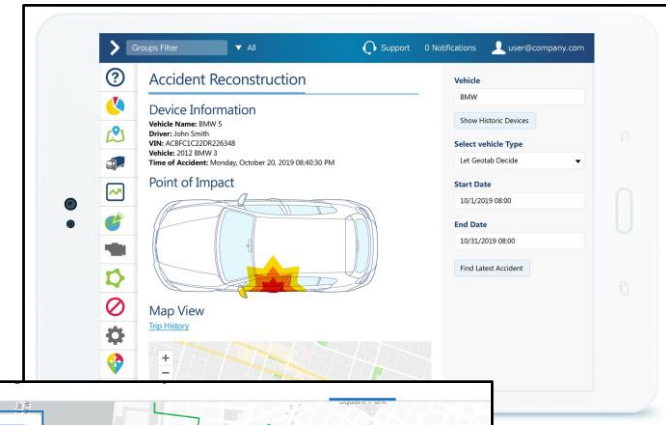
Make the most of your telematics system
- Training
- Notifications
- Reports
- Hardware add-ons
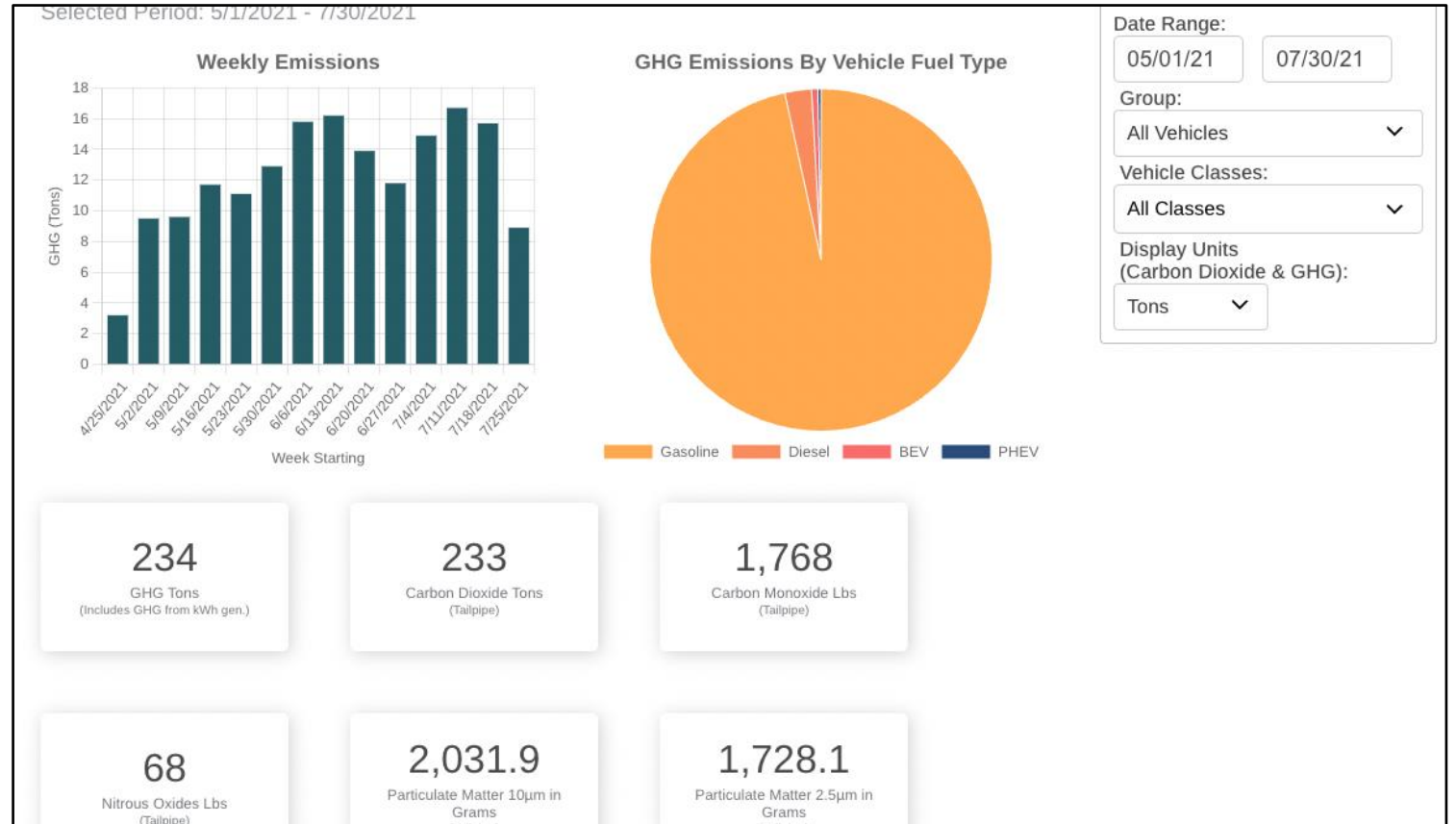- Software integrations
- Benchmark

Ask the experts
- Advanced analysis

Share results!

Emissions Calculations

- Establish business-as-usual emissions

- Track progress overtime

- Report Progress

- GHG, CO, CO_2, NOX, PM 2.5, PM 10

THANK YOU.

Mary Till
Director of Business Development
Sawatch Labs
till@sawatchlabs.com

SAWATCH

Local Updates

SMARTE Vendor Directory

Local Vendors of SmartWay Verified Technology

Promoted through the SMARTE Program

Free to join and free to use

Image Provided By Getty

Become a SMARTE Vendor

SELL

Sell SmartWay
Verified Technology

LIST

Provide a list of
SmartWay Verified
Technology offered
that can be made
available

SIGN UP

Complete Vendor
Directory Sign-Up
Form

https://forms.office.com/r/dfd0zsnS8v

Dallas-Fort Worth Clean Cities (DFWCC)

DFWCC - Advance Economic, Environmental, and Energy Security
- Increase Efficiency and Reduce Emissions from Transportation
- Partner with Public and Private Fleets
- Structure
    - Fleet & Commercial Strategies
    - Consumer Initiatives
    - Local Government Policies / Community Readiness

Fleet Support - Enable More Efficient, Greener Fleets
- Match Vehicles & Equipment to Funding
- Train on Tools and Resources
- Plan for Fleet Transition – Detailed Recommendations

SMARTE Webinar Series: How Telematics Can Be Used to Reduce Costs

What We Do

Funding Support

Assist with Navigating Programs and Developing Grant Applications

Administer Funding

Technical Assistance

Maintain and Analyze Data

Hold Webinars, Workshops, Peer Exchange
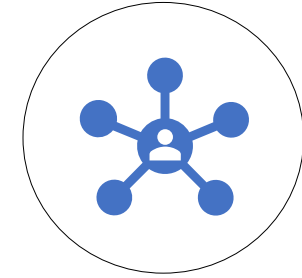
Develop Best Practices and Template Resources

Planning the Future

Alternative Fuel Corridors

Texas EV Charging Plan

ZEV Infrastructure

Organic Waste to RNG Feasibility Study

Raising Awareness

Facilitating Relationships

National Drive Electric Week

Fleet Recognition

Success Stories and Community Events

National Network of Clean Cities Coalitions

More than 75 Clean Cities coalitions with thousands of stakeholders, representing ~80% of U.S. population

Designated by the Department of Energy

Working locally to advance affordable, domestic transportation fuels, energy efficient mobility systems, and other fuel-saving technologies and practices

Clean Cities Coalitions

Map Date: 1/12/23
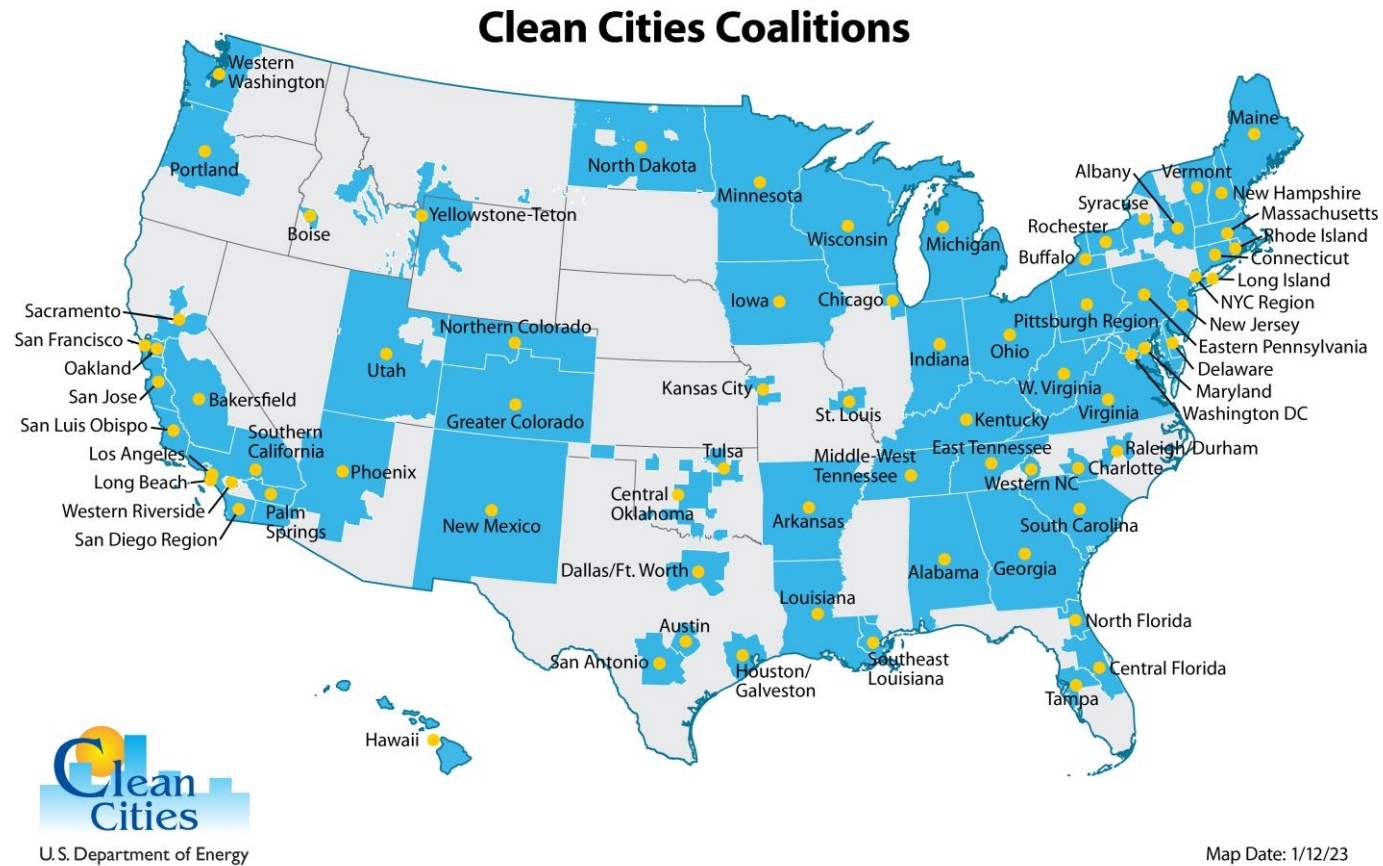
Get Involved

Website - www.dfwcleancities.org

Upcoming Events - www.dfwcleancities.org/events

Weekly Email Blast - https://www.nctcog.org/stay-informed

Sponsor DFWCC - https://www.dfwcleancities.org/sponsorships

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