Improved Fleet-Efficiency via Telematics

February 26, 2019, 1:30-2:30 pm
Hosted by Dallas-Fort Worth Clean Cities Coalition
For Audio Please Call into the Conference Line
1-888-909-7654  Pin: 504571#
Thank you to our DFWCC Sponsors!
Agenda

- Brief Introductions
- Telematics Overview
- Fleet Success Story: City of Arlington
- Fleet Success Story: Snohomish County Sheriff’s Office
- Q&A
Today’s Presenters

David Garcia
North Central Texas COG and
Dallas-Fort Worth Clean Cities
Topic: Telematics Overview

Ricky Williams
City of Arlington
Topic: Convenience of Telematics & Cost-Savings

Rob Beidler
Snohomish County Sheriff’s Office
Topic: Safety Benefits of Telematics
What is Vehicle Telematics?

Telematics is a technology that utilizes informatics and telecommunications for various applications.

Vehicle telematics relays vehicle data over long distances to central offices for access and analysis.
How Does it Work?

Technological advancements in telecommunications and informatics has enabled vehicles to “connect” and “communicate”

Connectivity + Intelligence = Connected Vehicles
Factors to Consider When Using Telematics

What are the top priorities for my fleet?

What data do I need to address those top priorities?

Choosing a telematics software based on data needs and other important needs
Why Consider Telematics?

- Can provide real-time alerts regarding vehicle operations, maintenance, and location.
- Enables evaluation of driver behavior and vehicle performance to improve fleet efficiency and safety.
- Can address inefficient practices that waste time and money.
Access to Telematics Data

Data is collected and transmitted to service provider

Software analyzes the data to reveal performance indicators based on identified fleet priorities

Customize your program to track vehicle data that suits your purposes
How Does it Work? Data Sources

Combines Two Data Sources:

- **GPS**
  - Spatial and temporal information of the vehicle
- **On-Board Diagnostics (OBD)**
  - A vehicle’s computer system that monitors performance of major engine components

Vehicle telematics tracks location, movement, and behavior of a vehicle
# OBD Systems by Vehicle Type

<table>
<thead>
<tr>
<th>OBD-II</th>
<th>J1939</th>
</tr>
</thead>
<tbody>
<tr>
<td>New standard for LD Vehicles (Classes 2-4)</td>
<td>For MD &amp; HD Vehicles (Classes 4-8)</td>
</tr>
<tr>
<td>Specific channels must be requested in back-and-forth communication</td>
<td>Live stream of data broadcasted in channels</td>
</tr>
<tr>
<td>Less efficient</td>
<td>More efficient as data can be accessed directly (live feed)</td>
</tr>
</tbody>
</table>
# Data Available with Telematics

<table>
<thead>
<tr>
<th>GPS and Route Data</th>
<th>Vehicle and Engine Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location coordinates</td>
<td>Engine and vehicle speeds</td>
</tr>
<tr>
<td>Time</td>
<td>Acceleration and braking</td>
</tr>
<tr>
<td>Speed</td>
<td>( \text{NO}_x ) sensor</td>
</tr>
<tr>
<td>Ambient conditions</td>
<td>Exhaust temperatures</td>
</tr>
<tr>
<td>Route profiles</td>
<td>Engine fluid temperatures</td>
</tr>
</tbody>
</table>
How Does it Work? Telematics Options

- **Embedded Devices**
  - Built-in *connectivity* and *intelligence*

- **Tethered Devices**
  - Built-in *intelligence* only, *connectivity* provided externally

- **Integrated Smartphones**
  - Leverages its *connectivity* and *intelligence*
OEM Telematics Availability

<table>
<thead>
<tr>
<th>The “connected vehicle” is a major trend in the industry—virtually all leading car manufacturers have telematics services in key geographic regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading adopters of embedded telematics include: GM, BMW, and PSA</td>
</tr>
<tr>
<td>Other major car brands include: Mercedes-Benz, Hyundai, Volvo, Toyota, and Tesla</td>
</tr>
</tbody>
</table>
# Benefits of Telematics: Cost Savings

<table>
<thead>
<tr>
<th>Cost Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better driving habits improve fuel economy</td>
</tr>
<tr>
<td>Maintenance reminders</td>
</tr>
<tr>
<td>Route optimization</td>
</tr>
<tr>
<td>Reduced insurance premiums</td>
</tr>
</tbody>
</table>
# Benefits of Telematics: Convenience

<table>
<thead>
<tr>
<th>Convenience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated record keeping</td>
</tr>
<tr>
<td>GPS monitoring</td>
</tr>
<tr>
<td>Asset management</td>
</tr>
<tr>
<td>Improved on-time performance</td>
</tr>
</tbody>
</table>
Benefits of Telematics: Safety

<table>
<thead>
<tr>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alerts when vehicle operates outside designated area and time slots</td>
</tr>
<tr>
<td>Encourages lawful driving (e.g. Speed alerts)</td>
</tr>
<tr>
<td>Promotes safer roadway networks</td>
</tr>
</tbody>
</table>
Success Stories: California

Eastern Municipal Water District of Riverside County, California

350-vehicle fleet

**Objectives:** Initially focused on driver's habits, improving mpg while reducing accident risk. System allowed supervisors to more efficiently dispatch vehicles.

**Solution:** Install telematics OBD-II systems on all 1996 or newer vehicles, allowing them to remotely monitor engine diagnostics, fault codes, and emissions control system status.

**Results:** Employees drove ~165,000 fewer miles and fuel costs declined ~$79,000 compared to the previous year. Productivity savings valued at nearly $354,000 in first six months alone.
# Success Stories: New Mexico

<table>
<thead>
<tr>
<th>Location: Public Service Company of New Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fleet Size: 700-vehicle fleet</td>
</tr>
</tbody>
</table>

**Objectives:** Transition a portion of fleet to PHEVs and EVs with included EVSE infrastructure, while monitoring fleet performance, and driver behavior through telematics.

**Telematics Results:** Improved the fleet's average fuel economy by 15%.

**Combined Results:** 606 tons of GHGs reduced annually, and a cost savings of around $166,000 per year.
Cities that Use Telematics in the DFW Area based on 2017 Annual Report
GPS and Telematics
CITY OF ARLINGTON CURRENTLY HAS 305 GPS’S INSTALLED ON EQUIPMENT.

PUBLIC WORKS HAS 115
WATER DEPARTMENT HAS 69
CODE/ANIMAL CODE HAS 56
INSPECTIONS HAS 29
FIRE DEPARTMENT HAS 36
What Are We Doing?

**Partnerships**

- Below 100 Organization
- NHTSA
- Risk Management
- Fleet
- Labor Groups/Leadership
- LEO Near Miss
- Municipal/State LE agencies
- Telogis
- WSTSC
- Behind the Badge Foundation
Integration to Training

- FTO Program
- EVOC Program
- Essential Skills Training
- Supervisor Training
- Below 100 Roll Call Training
- Near Miss Roll Call Training
- Below 100 Spouses Training
- Dispatch Center Supervisors
Changing Agency Culture

• **Pursuit Policy**
  - Decrease pursuits through training and education
  - Increase direct supervision
  - Better define need for a pursuit

• **Driving Review Board**
  - Consistency in findings
  - Identify training needs
  - Identify trends
  - Education and support opportunity
Changing Agency Culture

Telematics – A Powerful Tool

- Speed and seatbelt
- Overall vehicle operation
- Airbag deployment
- Emergency locate
- Vehicle malfunction
- Drivers scoring
- Operational advantages
- Significant fleet savings
CHANGING AGENCY CULTURE

- Promotional Testing
- Expenditures
- Mission and Goals
- Upgraded Armor
- Upgrade Lighting Systems
- Visual
  - Posters
  - Stickers
  - Computer screen
  - Data updates
Overview

- We drive over 350,000 miles per month
- Fully Commissioned Deputies = 300
- Personnel = 800

Since 2015:

- Average speed of accidents down 50%-70%
- The number of pursuits went down ~30%
- One significant injury. (Eleven in 2015)

Are we saving lives?
Collision Trend

Collision Totals - Four Year Comparison

- 2015: 83
- 2016: 74
- 2017: 65
- 2018: 60

Collision Totals - Four Year Comparison
Does Backing Training Work?

Backing Collisions - Three Year Comparison

- 2015
- 2016
- 2017
Pursuit Trend

Pursuit Totals - Four Year Comparison

- 2015: 46
- 2016: 35
- 2017: 29
- 2018: 34
Saving Money??

2015 – 2017 Auto Damage and Liability

- $2,026,562.02 in 2015
- $23,182.78 in 2016
- $5,969.52 in 2017

SNOHOMISH COUNTY SHERIFF
What’s your role?
“I Lost the Love of My Life. My Children Lost Their Dad. Don't Let This Happen to Your Family.”

Susan Moody
Wife of Officer Bradley A. Moody
ECW 10-07-2008

Wear Your Seatbelt. Watch Your Speed.

This is no way to visit friends.

Remember: Complacency Kills!

Below 100 Messaging - Ongoing
Questions?