Bureau of Vehicle Management

Telematics
Future Vehicles
11/20/2017
Telematics

Installation will begin in a few weeks. All Pass vehicles that report mileage will receive the Telematics unit along with select LE-Pass. We recommend that Telematics be installed in select non-pass vehicles. We will provide you a list of the vehicles we recommend along with an analysis of your projected benefits.
Telematics Instillation

• The original group of vehicles will be installed at various Penn Dot locations across the State.
• We will install as many as possible here in Harrisburg.
• After the initial roll-out, all new vehicles will have telematics installed and ready by the time you pick them up.
Vehicle Exchanges

- **168** vehicle exchanges were just sent out. These vehicles had over 76K miles.
- The paper work is in process and please make every attempt to execute the changes ASAP.
- There will be another group of **165** vehicles with over 70K miles over the next 90 days.
Vehicle Assignments

We are now looking at your Mileage Reimbursement and your monthly Enterprise Rentals by Employee.

1. If we see that either of these numbers justify a permanent assignment we will notify you.

2. If we see a temporary need or Seasonal need we will use our short term Lease program.
Model Changeover

- We will be replacing all 2012 models with over 48K by this summer.
- We will continue to replace vehicles that approach 75-80K miles.
- Preowned we purchase will be in service for at least 30 months.
- We are introducing more EV models and Import Brands into the fleet
Bureau of Vehicle Management

Telematics

11/20/2017
• **Telematics** is a general term that refers to any device which merges telecommunications and informatics.

• Telematics includes anything from GPS systems to navigation systems.

• It is responsible for many features in vehicles from OnStar to hands free mobile calling.
The Commonwealth of PA would benefit from telematics use in its vehicles to:

- Protect operators
- Protect investment of new vehicles
- Protect visibility of Commonwealth employees
- Increase transparency of vehicle fleet
• Operator Safety

- Road-Side Assistance
  - Provides location of vehicle to offer the best option for sending help
- Protects operator against false accusations
- Non-Accident physical damage reduced due to behavior changes
• Fuel Reduction
  - Reduced speed = increased fuel efficiency
    - 1 mile/hour reduction in speed saves 1% on fuel consumption
  - Utilization
    - After hours use
    - Not using the most direct route

Reduces Carbon Footprint
Telematics and the PA Fleet

• Improved Maintenance
  - ODB-II Diagnostic Codes
    - ‘Engine Light’ error codes transmitted to BVM
      - Battery Low Voltage, Engine Misfire Information, Engine Oil Pressure and Temperature, Emission Status
    - BVM can initiate PM services with agency and operator to correct issue
Telematics and the PA Fleet

• Efficiencies
  - Accurate vehicle information reduces human error
  - Reduces time required to input Monthly Commute Usage Entries into M5
  - Recovery of lost or stolen vehicles
  - Accurate vehicle data and historical performance provides information used to determine replacement
Agency Cost Analysis

Monthly Charge

- **Owned Vehicles**
  - Monthly: $15.50

- **Leased Vehicles**
  - Monthly: $9.00

Monthly Savings Analysis

- **Maintenance:** $2.41   **Maintenance:** $1.73
- **Collision:** $5.12    **Fuel:** $10.85
- **Fuel:** $10.85       **Total:** $12.58
- **Total:** $18.38      **Savings:** $3.58
- **Savings:** $2.88
TELEMATICS

AUTOMOTIVE LIAISONS MEETING

November 20, 2017
How Telematics Works

- GPS SATELLITE
- GPS Unit
- VEHICLE UNIT
- GELL TOWER
- SERVER
- USER
- USER

pennsylvania
DEPARTMENT OF GENERAL SERVICES
• Device Installation
• A total of 60 devices have been installed.

• Traveled 379,428 total miles.

• Total Travel Time = 9,799 hours
• Idle Time – To Date
  • By Vehicle Type – over 10 minutes
    • Sedans – 457 Idles, 112h:10m
      • $157.33
    • SUV/Truck/Van – 658 Idles, 183h:23m
      • $257.22

• Hard Brake/Acceleration/Turning
  • Currently .3g
  • Hard Braking – 1,512
  • Hard Acceleration/Turning – 8,858
### Fuel Savings (WEX Data)

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>AVG MPG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan – May 2017</td>
<td>23.07*</td>
</tr>
<tr>
<td>July 2017</td>
<td>24.01*</td>
</tr>
</tbody>
</table>

**Savings:** 4%

47.7 Gallons of fuel = $122.14

Across Fleet: 4373.4 Gallons = $11,196.00 for the month of July

* Same inefficiencies and data challenges with manually entering meter readings
**Fuel Savings (Telematic Data)**

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>AVG MPG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan – May 2017</td>
<td>23.07*</td>
</tr>
<tr>
<td>July 2017</td>
<td>24.9</td>
</tr>
<tr>
<td><strong>Savings:</strong></td>
<td><strong>7%</strong></td>
</tr>
</tbody>
</table>

83.46 Gallons of fuel = $213.70  
Across Fleet: 7651.9 Gallons = $19,589.00 for the month of July

* Same inefficiencies and data challenges with manually entering meter readings
• DTC – Diagnostic Trouble Code
  - Evaporative Emission System Leak Detected
  - Sensor Circuit High Voltage
  - Sensor Signal Biased/Stuck
DTC Code: P00B7
DTC Code Description: Engine Coolant Flow Low/Performance
DTC Code Status: Active
Vehicle ID: 004-01-3915
Vehicle Name: 004-01-3915 - Diane Dombach
Vehicle Category: Chevy Compact
Group: CWOPA Enterprise Group
Time: 02-Aug-2017 09:58:16 AM EDT
EnterpriseCode: CWOPA
Transaction ID: 3b4174b3903d428187b26e632bc1bb11

From: Tomlinson, Randall
Sent: Thursday, August 10, 2017 7:14:31 AM
To: Fiore, James; Ward, William (DGS); no-reply@sharepointonline.com; Confair, Bill; Howard, Randall E
Subject: Fwd: Re: DTC Code Alert

I received a warning code for a PBPP vehicle for "low coolant flow/poor temp performance". Driver said she is unaware of any issues. She agreed to take the car into a vendor and found car was overheating without her knowledge, cooling fan was not operating properly and overheating in stop and go driving. If this issue was not discovered by the Telematics device we'd eventually be on the hook for another engine or at least head replacements.
<table>
<thead>
<tr>
<th>Alerts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceleration</td>
<td>Long Idle</td>
</tr>
<tr>
<td>Arrive/Depart Landmark</td>
<td>Long Stop</td>
</tr>
<tr>
<td>Asset Motion</td>
<td>Max. Drive W/O Break</td>
</tr>
<tr>
<td>Possible Collision</td>
<td>Moving with Switched Input</td>
</tr>
<tr>
<td>DTC Code</td>
<td>Panic Notification</td>
</tr>
<tr>
<td>Deceleration</td>
<td>Service Reminder</td>
</tr>
<tr>
<td>Device Condition Change</td>
<td>Speeding</td>
</tr>
<tr>
<td>Device Power Source Change</td>
<td>Stopped at Landmark</td>
</tr>
<tr>
<td>Excessive Distance</td>
<td>Towing</td>
</tr>
<tr>
<td>Excessive Engine Hours</td>
<td>Unassigned Vehicle</td>
</tr>
<tr>
<td>Late Arrival</td>
<td>Unauthorized Use</td>
</tr>
<tr>
<td>Late Departure</td>
<td>Vehicle Status</td>
</tr>
<tr>
<td>Late Departure-Driver Schedule</td>
<td></td>
</tr>
</tbody>
</table>
Enter Landmark:

Name: 006-05-5920 - Kelly Boylan-Luchau
Group: CWOPA Enterprise Group
Time: 08-Aug-2017 02:40:38 PM EDT
Landmark Name: DGS Garage
Landmark Category: Garage
Address: 2112 Walnut St, Harrisburg, Pennsylvania 17103
EnterpriseCode: CWOPA.
Transaction ID: 52b40d4c141a4982af7f507ad935b481.

Leaving Landmark:

Name: 004-22-0107 - Mollie Noble-1
Group: CWOPA Enterprise Group
Time: 15-Aug-2017 08:21:24 AM EDT
Landmark: LOTTERY/REVENUE HQ
Category: PARKING LOT
Address: Unnamed Street, Middletown, Pennsylvania 17057
EnterpriseCode: CWOPA.
Transaction ID: fb6583273a7e499a8da2b87584672022.

Someone Arrived at the Garage
<table>
<thead>
<tr>
<th>Group</th>
<th>Miles Driven</th>
<th>Max Speed</th>
<th>Rapid Acceleration Events</th>
<th>Hard Braking Events</th>
<th>Hard Cornering Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>4767.4</td>
<td>86</td>
<td>24</td>
<td>36</td>
<td>165</td>
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<tr>
<td>Group 2</td>
<td>555.6</td>
<td>76</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Group 3</td>
<td>1211.4</td>
<td>85</td>
<td>4</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>Group 4</td>
<td>4609.4</td>
<td>90</td>
<td>15</td>
<td>23</td>
<td>88</td>
</tr>
<tr>
<td>Group 5</td>
<td>1631.6</td>
<td>87</td>
<td>4</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Group 6</td>
<td>2587.0</td>
<td>85</td>
<td>10</td>
<td>14</td>
<td>43</td>
</tr>
<tr>
<td>Group 7</td>
<td>3299.6</td>
<td>86</td>
<td>34</td>
<td>36</td>
<td>101</td>
</tr>
</tbody>
</table>
## Driver Scorecard Report

**November 5-11, 2017**

<table>
<thead>
<tr>
<th>Group</th>
<th>Work Stop</th>
<th>Engine Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>141</td>
<td>117h:07m</td>
</tr>
<tr>
<td>Group 2</td>
<td>22</td>
<td>13h:05m</td>
</tr>
<tr>
<td>Group 3</td>
<td>34</td>
<td>27h:26m</td>
</tr>
<tr>
<td>Group 4</td>
<td>98</td>
<td>105h:38m</td>
</tr>
<tr>
<td>Group 5</td>
<td>50</td>
<td>40h:23m</td>
</tr>
<tr>
<td>Group 6</td>
<td>53</td>
<td>56h:57m</td>
</tr>
<tr>
<td>Group 7</td>
<td>101</td>
<td>72h:00m</td>
</tr>
</tbody>
</table>
# Fuel Efficiency Report

**November 5-11, 2017**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>4943.3</td>
<td>292.6</td>
<td>10.1</td>
<td>282.5</td>
<td>16.9</td>
<td>2.633</td>
</tr>
<tr>
<td>Group 2</td>
<td>555.6</td>
<td>31.1</td>
<td>1.3</td>
<td>29.8</td>
<td>18.7</td>
<td>0.280</td>
</tr>
<tr>
<td>Group 3</td>
<td>1224.2</td>
<td>74.2</td>
<td>1.1</td>
<td>73.1</td>
<td>16.7</td>
<td>0.668</td>
</tr>
<tr>
<td>Group 4</td>
<td>4614.9</td>
<td>195.4</td>
<td>4.6</td>
<td>190.8</td>
<td>24.3</td>
<td>1.759</td>
</tr>
<tr>
<td>Group 5</td>
<td>1634.8</td>
<td>60.2</td>
<td>2.2</td>
<td>58.0</td>
<td>28.3</td>
<td>0.542</td>
</tr>
<tr>
<td>Group 6</td>
<td>2587.9</td>
<td>79.4</td>
<td>2.0</td>
<td>77.4</td>
<td>33.6</td>
<td>0.714</td>
</tr>
<tr>
<td>Group 7</td>
<td>3300.4</td>
<td>126.2</td>
<td>3.7</td>
<td>122.5</td>
<td>27.1</td>
<td>1.136</td>
</tr>
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</table>
# Driver Utilization Report

**November 5-11, 2017**

<table>
<thead>
<tr>
<th>Group</th>
<th>Active Driver Count</th>
<th>Active Driver Days</th>
<th>Total Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>15</td>
<td>47</td>
<td>295</td>
</tr>
<tr>
<td>Group 2</td>
<td>2</td>
<td>7</td>
<td>42</td>
</tr>
<tr>
<td>Group 3</td>
<td>5</td>
<td>12</td>
<td>67</td>
</tr>
<tr>
<td>Group 4</td>
<td>10</td>
<td>33</td>
<td>238</td>
</tr>
<tr>
<td>Group 5</td>
<td>5</td>
<td>16</td>
<td>115</td>
</tr>
<tr>
<td>Group 6</td>
<td>11</td>
<td>24</td>
<td>143</td>
</tr>
<tr>
<td>Group 7</td>
<td>11</td>
<td>33</td>
<td>203</td>
</tr>
</tbody>
</table>
## Vehicle Metrics Report

**November 5-11, 2017**

<table>
<thead>
<tr>
<th>Group</th>
<th>Active Vehicle Count</th>
<th>Moving Time per Day</th>
<th>Dist. (mi)</th>
<th>Avg Dist mi/day</th>
<th>% Utiliz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>13</td>
<td>2h:19m</td>
<td>4767.4</td>
<td>108.3</td>
<td>48.4%</td>
</tr>
<tr>
<td>Group 2</td>
<td>2</td>
<td>1h:40m</td>
<td>555.6</td>
<td>79.3</td>
<td>50.0%</td>
</tr>
<tr>
<td>Group 3</td>
<td>4</td>
<td>2h:03m</td>
<td>1211.4</td>
<td>110.1</td>
<td>39.3%</td>
</tr>
<tr>
<td>Group 4</td>
<td>9</td>
<td>3h:03m</td>
<td>4609.4</td>
<td>144.0</td>
<td>50.8%</td>
</tr>
<tr>
<td>Group 5</td>
<td>5</td>
<td>2h:17m</td>
<td>1631.6</td>
<td>101.9</td>
<td>45.7%</td>
</tr>
<tr>
<td>Group 6</td>
<td>10</td>
<td>2h:14m</td>
<td>2587.0</td>
<td>112.4</td>
<td>32.9%</td>
</tr>
<tr>
<td>Group 7</td>
<td>10</td>
<td>2h:08m</td>
<td>3299.6</td>
<td>109.9</td>
<td>42.9%</td>
</tr>
</tbody>
</table>
• CalAmp will host basic FleetOutlook trainings in December
  🟠There are multiple dates/times available and BVM will contact agencies to start scheduling them
  🟠More intermediate training will follow
Questions?

• Jim Fiore
• Randy Tomlinson
• Bill Ward
• Christine Eby
Randy Tomlinson
Chief of Operations/Admin/Maint
DGS/BVM

rtomlinson@pa.gov
717-787-6282
Installation Locations

- We are currently partnering with PennDOT for all the install locations outside of the Harrisburg area.

- All vehicles in the Harrisburg area will be scheduled and installed at the BVM Garage.
- We will be sending you available times and dates for each location that we will ask you to fill in and submit back to us.

- It will be critical to hold to their scheduled install times and dates once confirmed.
Installation Locations Cont.

- We will have approximately 16 installation sites. Each site will serve multiple surrounding counties as shown in the following map.

- We plan on starting installations at our Harrisburg location.
Operations, Maintenance, Admin
Installation Locations Cont.

- If you have anyone planning to be in Harrisburg during the December/January time frame let us know – the more we can perform in Harrisburg the better.

- Each install should take no longer than 30 minutes.
What the driver will see...

-One of three things located on the dash:
  * A Commute Button w/ instructions
  * A Key Fob Reader w/ instructions
  * Just a sticker stating telematics are installed
Key Fob

- The actual device

- The sticker
Commute Button

- The actual device

- The sticker
Sticker only

VEHICLE EQUIPPED WITH TELEMATICS
Questions?
Thank you!
AUTOMOTIVE LIAISONS MEETING

M5 Administration
November 20, 2017
M5 Telematics Monthly Billing

• Appear on the M5 Monthly Treasury Billing
  ▶ SAP Agencies – Will be Totaled together for each Agency
  ▶ Non-SAP Agencies – Will be listed separately

• BVM Monthly Billing Spreadsheets
  ▶ Will show as a Fixed Charge
  ▶ Will Appear under the same section as Lease Rates and other Fixed Charges
  ▶ Monthly Charges will have a Description of “Monthly Telematic Charge”
  ▶ Monthly charges will be Pro-Rated

• Special Fund Units = $15.50
• Purchasing Fund Units = $9.00
<table>
<thead>
<tr>
<th>Job</th>
<th>BA</th>
<th>FUND</th>
<th>EQUIP#</th>
<th>BILLED</th>
<th>EXPENSE ACCOUNT#</th>
<th>DEPT#</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>035</td>
<td>XX</td>
<td>XXXX</td>
<td>004013879</td>
<td>9.00</td>
<td>XXXXXXX</td>
<td>XXXXX</td>
<td>MONTHLY TELEMATIC CHARGE</td>
</tr>
<tr>
<td>035</td>
<td>XX</td>
<td>XXXX</td>
<td>004013881</td>
<td>9.00</td>
<td>XXXXXXX</td>
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</tr>
<tr>
<td>035</td>
<td>XX</td>
<td>XXXX</td>
<td>004013882</td>
<td>9.00</td>
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<td>9.00</td>
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<td>XXXX</td>
<td>004013885</td>
<td>9.00</td>
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<td>9.00</td>
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<td>MONTHLY TELEMATIC CHARGE</td>
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<td>XX</td>
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<td>9.00</td>
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<td>004013892</td>
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<td>XX</td>
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<td>004013893</td>
<td>9.00</td>
<td>XXXXXXX</td>
<td>XXXXX</td>
<td>MONTHLY TELEMATIC CHARGE</td>
</tr>
</tbody>
</table>
Feedback & Suggestions

Contact:
Nyla Collins
717-705-8583
ncollins@pa.gov
Benefits of Telematics in CSD

• Benefits of Telematics
  - Time Savings - Quickly locate the closest vendor for their tow or specific repair.
  - Cost Savings – Time = Money.
  - Diagnostic Trouble Codes – Diagnose mechanical issues before they become a costly repair. We will contact Automotive Liaisons/Drivers to set up repairs.
Closest Vendor Example
Currently – A cell phone is carried by me or Randy Howard. We try to assist the driver but we are not sitting at a computer.

Future – The Capitol Police will receive the call. They will have access to Telematics, our towing vendors and local police in case of an emergency.
Ford Roadside Assistance

1-800-367-3221 - Option #1.

- 5 years / 60,000 miles.
- Free Towing
- Jump Start
- Spare Tire installation.
- Fuel Delivery / 2 gallons of Gasoline.
- Pop lock if keys locked in vehicle.
- 100 feet winch out / Mud or Snow.
Chevy/GM Roadside Assistance

1-800-243-8872 - Option #1.
- 5 years / 100,000 miles.
- Free Towing to nearest GM dealership.
- Jump Start.
- Spare Tire installation.
- Fuel Delivery / 2 gallons of Gasoline.
- Pop lock if keys locked in vehicle.
- 15 feet winch out / Mud or Snow.
Chrysler / Dodge Roadside Assistance

1-800-864-3983 - Option #1.

- 5 years / 100,000 miles.
- Free Towing to Chrysler dealership.
- Jump Start.
- Spare Tire installation.
- Fuel Delivery / 2 gallons of Gasoline.
- Pop lock if keys locked in vehicle.
- 10 feet winch out / Mud or Snow.
• Emergency Plan
  🟢 If your driver breaks down out of town, how will they get back home?
  🟢 Have you discussed this with your drivers?
  🟢 What is your emergency plan to get your driver home in the event of a break down?
Any Questions?