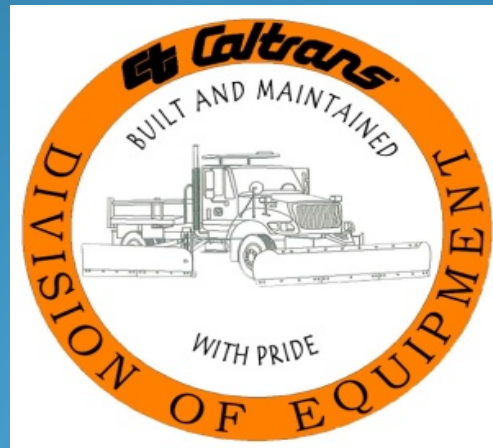


California Department of Transportation Division of Equipment

The Use of GPS to Optimize the Mobile Fleet



We provide the right equipment at the right place and the right time.

Overview

- Background/Need
- Implementation/Projected Savings
- FOBs
- Using the Data
- Expansion to Division of Maintenance
- Ongoing Processes

Background/Need

- Current fleet size \approx 12,000 pieces of equipment (after fleet reduction)
- Distributed Budgeted Program- no revolving fund
- Fleet reduction of 1,324 vehicles due to low usage reporting
- Zero-Base Budget Review resulted in a reduction of 41 positions and \$12.8 million based on the fleet reduction
- Caltrans Light Duty Usage Reports* show that more than 1,850 units have either low, below standard, or unreported usage
- Eliminate manual entry of usage reporting for light duty vehicles
- Avoid future reduction of equipment and the consequential reduction of resources

* The Cartag system has been used to report daily usage but will soon be replaced with GPS data

Background/Need- Continued

Caltrans Light Duty Utilization Report

12-Month Average Reporting between January and December 2014

	Vehicles	Low Usage <69%	Below Std. Usage 70% - 94%	Good Usage >95%	Missing Data
Administration	431	77	61	237	56
Capital Outlay Support					
Construction	2,169	271	267	1,447	184
Engineering Management	140	34	16	67	17
Engineering Services	401	63	57	221	60
Environmental Planning	13	3	2	6	2
Project Development	17	3	2	5	6
Right of Way	16	2	1	11	1
COS Totals	2,756	376	345	1,757	270
Equipment	94	17	15	52	10
Legal	6	0	1	2	3
Local Assistance	3	1	1	1	1
Maintenance	2,134	70	110	1,909	46
Maintenance	28	4	4	17	2
Mass Transportation	1	0	0	0	1
Rail	1	0	0	0	0
Research and Innovation	2	0	1	1	0
Planning	1	0	0	1	0
Traffic Operations	274	45	33	143	53
Totals	5,731	590	571	4,120	442

Usage Reporting for January 2015

Vehicles	Low Usage <69%	Below Std. Usage 70% - 94%	Good Usage >95%	Missing Data
426	65	69	210	82
2,127	347	327	1,224	229
133	25	17	81	10
407	61	59	185	102
13	1	4	7	1
17	1	2	5	9
17	3	4	9	1
2,714	438	413	1,511	352
90	16	12	47	15
6	0	0	3	3
3	1	0	1	1
2,153	53	137	1,936	27
28	3	6	17	2
1	0	1	0	0
1	0	0	1	0
1	0	1	0	0
1	0	0	1	0
274	58	34	120	62
5,698	634	673	3,847	544

Standard is 80 percent of the total available workdays or 1000 miles driven in a one month period.

Comparison to 12-Month Averages

DOWN 33	UP 44	UP 102	DOWN 273	UP 102
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Implementation- Leadership

- Division of Equipment (DOE) proposes to fund implementation for light duty fleet
- In May 2014 Caltrans and the California State Transportation Agency Secretary approved the use of GPS in the entire light duty fleet
- In October 2014, the DOE completed installation of about 7,700 GPS devices

Implementation- Pilot

- DOE conducted a GPS pilot project between July 2012 and April 2014 with 200 vehicles
- The pilot project showed that
 - GPS devices could effectively track vehicle travel and storage locations, speeds and idling, and fuel economy
 - Manual usage reporting could be eliminated but needed to tie trips to operators for reporting
 - GPS devices could be used to dispatch vehicles and to generate detailed reports about all aspects of their usage
 - GPS would improve fleet asset management
 - Biennial Smog testing could be eliminated

Implementation- Continued

- Substantial start-up and annual costs
 - Hardware: \$1.83 million
 - Installation: \$0.65 million
 - Annual Services: \$1.55 million
- Additional workload associated with administering, managing, and monitoring GPS information
- Although not the original intent of implementation, GPS could be used for employee disciplinary actions
- Enhanced reports needed

Savings- Projected

Category of Projected Savings	Annual Savings (millions)
Reduced Fuel Consumption	\$2.6 million
Elimination of Manual Usage Reporting	\$0.5 million
Elimination of Biennial Smog Inspections	\$0.2 million
Accident Prevention	\$0.2 million
Total Estimated Savings	\$ 3.5 million

Savings- Retail Fuel

Month-Year	Gallons	Month-Year	Gallons	Difference
Jul-13	321,739	Jul-14	334,647	↑12,908
Aug-13	381,566	Aug-14	370,266	↓11,300
Sep-13	358,124	Sep-14	339,005	↓19,119
Oct-13	375,203	Oct-14	342,425	↓32,778
Nov-13	349,005	Nov-14	302,289	↓46,716
Dec-13	298,863	Dec-14	274,044	↓24,819
Jan-14	268,880	Jan-15	250,054	↓18,826
Totals	2,353,380		2,212,730	↓140,650

Contributing factors include:

- Reduced unauthorized commuting
- Reduced speeding
- Reduction in unnecessary idling

FOB On...



FOB
(finger operated button)



FOB Reader



**FOB and FOB
Reader**

FOBs- Continued

- FOBs were not available when GPS devices were installed – a missed opportunity
- FOB distribution logistics and responsibility
 - 12-15,000 regular vehicle operators
- FOB compliance
- Cartag system will be turned off when a district reaches 90 percent FOB compliance
- FOB compliance report needed

Using the Data- Low/High Usage

2014 Chevrolet Tahoe SUVs (181 total)

- Highest use has 42,781 average annual miles (in service 1.3 yrs)

The following SUVs have been in service from 1.1 to 1.5 years

- 106 (58%) less than 12,000 average annual miles
- 71 (39%) more than 18,000 average annual miles
- 50 (28%) more than 20,000 average annual miles

120 of 181 are on pace to “mileage out” of basic warranty prior to 3 years in service

Using the Data- High to Low Use Reassignment

- Ideal candidate for reassignment within District
 - High Use: ID 7009970 – 2014 Chevy Tahoe
 - Assigned to: **Bishop Area Maintenance**
 - In service: December 27, 2013
 - Mileage (Spring 2015): **46,787** (Spring 2015)
 - Low Use: ID 7009825 – 2014 Chevy Tahoe
 - Assigned to: **Bishop Area Construction**
 - In service: January 14, 2014
 - Mileage (Spring 2015): **9,034**
 - This example underscores the importance of standardizing the fleet as well as coordinating well between programs

Maintenance Division – GPS Project

- GPS will improve usage reporting and improve the ability to manage Maintenance fleet equipment
- Currently, reassigning some equipment to improve usage as per their 30-60-90 policy
 - 30-day low use reporting – warning given to improve use and/or reporting
 - 60-day – if use hasn't improved, vehicle is moved to another Maintenance unit
 - 90-day – if use still hasn't improved, vehicle is moved elsewhere within the state
- Approximately 4,300 additional GPS units for the medium/heavy duty and off-road fleet
- Audible alert systems for FOBs
- Special reports specifically for monitoring snow/winter operations

Ongoing Processes- Authorization for Fleet Optimization

In April 2015, the Caltrans Executive Board of Directors approved a key decision document

- Assertive, proactive measures are required in order to optimize its usage
- The Chief of the DOE is given authority to reassign equipment for the purposes of optimizing the fleet usage including:
 - Exchanging high for low usage equipment
 - Determining which equipment should be rented versus owned
Ensuring that only equipment that is needed and used is to be replaced
 - Development of Fleet Optimization Guidelines

Parting thoughts...

- Begin with the end in mind
- Positive ROI
- Be prepared for “detours”
- Technology is the easy the part
- Policies and procedures needed



FOB on!

Questions?

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