

FINAL

Colorado Road Usage Charge Pilot: Account Management Monthly Summary Report – January 2017

Prepared for



February 2017



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Acronyms and Abbreviations

CDOT	Colorado Department of Transportation
MPG	miles per gallon
MRD	mileage reporting device
OBD II	On-board Diagnostic
RUC	road usage charge
RUCPP	Road Usage Charge Pilot Program
VIN	vehicle identification number

SECTION 1

1 Introduction

The Colorado Road Usage Charge Pilot Program (RUCPP) began on December 5, 2016 and is scheduled to last four months ending in April 2017. The Colorado RUCPP Account Manager, Azuga, provides monthly reports including the raw data collected for each month of the operational pilot. This report provides a summary of the monthly raw data, which the project team aggregates and removes all personally identifiable information (PII) to prepare a summary report for the Colorado Department of Transportation (CDOT). This January monthly report summarizes the data from the second month of the operational pilot beginning January 1, 2017 through January 31, 2017.

This report is subdivided into four sections based on the raw data received from the Account Manager, Azuga, and the Colorado RUCPP Help Desk, CH2M. The individual reports containing the raw data are provided in the appendix.

- Vehicle Identification Number (VIN) Summary Report
- Mileage and Road Usage Charge Revenue Report
- Errors and Events Report
- Help Desk Report

Pilot activities in the month of January primarily consisted of final enrollment activities for some participants (i.e. installation of mileage reporting devices [MRDs]), the first round of invoices for December mileage, and ongoing account management and help desk activities. Since most participants enrolled and installed their devices in December, a fairly complete set of mileage data was reported to Azuga in January.

The following section provides a summary of the January data included in the four monthly reports.

2 Summary of Monthly Reports

2.1 VIN Summary Report

Table 1 summarizes the total enrollment statistics based on the Account and VIN Update Report. Since, this report contains PII, the raw data is not provided as an appendix to this report. In January there was 1 vehicle added, and 1 vehicle removed, resulting in 143 vehicles remaining in the study. It is important to note this includes total vehicles, not participants, as some participants have more than one vehicle enrolled in the pilot.

Table 1: Account and VIN Summary

Reporting Period	Added Vehicles	Dropped Vehicles	Change in total Enrolled Vehicles	Vehicles Reporting Mileage
November (Soft Launch)	41	--	+41	39
December 2016	105	3	+102	125
January 2017	1	1	0	136
February 2017	--	--	--	--
March 2017	--	--	--	--
April 2017	--	--	--	--
Cumulative Totals				
Pilot Total	147	4	143	

The single vehicle that dropped out of the program had a vehicle that was not compatible with the MRDs, and the participant was not interested in the odometer option.

Of the 143 vehicles enrolled in the pilot, 136 were reporting mileage in January:

- Two of the seven not reporting mileage haven't installed their MRD. The help desk has reached out to these participants to assist with installation;
- Five of the seven not reporting mileage are odometer reading option participants that did not provide their odometer reading in the month of January.

For the odometer reading option, Azuga's VIN Summary report also provides information on which participant accounts did not submit odometer readings. Table 2 provides a summary of the number of Odometer Reading Option accounts and the number of people who did not submit monthly odometer readings each month.

Table 2: Odometer Reading Option Summary

Month	Number of Accounts	DID NOT Submit monthly odometer reading	Submitted picture of initial odometer reading
December	22	4	8
January	22	5	*

* Picture verification is only required for the initial and final odometer readings during the Colorado RUCPP and can be submitted via the Azuga Insight Mobile App, the Colorado RUCPP Help Desk, or via mail to CDOT.

2.2 Mileage and Road Charge Revenue Report

Table 3 summarizes total vehicle miles traveled including both chargeable and non-chargeable miles, road usage charges, fuel tax credits, and net revenue for the month of January. For the Colorado RUCPP, all miles driven in the state of Colorado are assessed the road usage charge (RUC). For participants who selected the GPS-Enabled MRD option, the RUC is only based on miles driven in Colorado, any out-of-state miles are not included in the RUC.

Table 3: Mileage and Road Charge Revenue Summary

Location (State)	Miles	Road Usage Charges	Fuel Tax Credits	Net Revenue
January Chargeable Miles				
Colorado	122,116	\$ 1,465.39	\$ -1,207.74	\$ 257.65
<i>Odometer</i>	9,637	\$ 115.64	\$ -105.24	\$ 10.40
<i>Non-GPS</i>	23,664	\$ 283.98	\$ -229.24	\$ 54.74
<i>GPS</i>	88,815	\$ 1,065.77	\$ -873.26	\$ 192.51
January Non-Chargeable (Out-of-State)				
Arizona	518	\$ -	\$ -	\$ -
New Mexico	52	\$ -	\$ -	\$ -
Utah	228	\$ -	\$ -	\$ -
Wyoming	368	\$ -	\$ -	\$ -
Totals				
December	60,387	\$ 699.86	\$ -606.40	\$ 93.46
January	123,282	\$ 1,465.39	\$ -1,207.74	\$ 257.65
Cumulative Total	183,669	\$ 2,135.25	\$ -1,814.14	\$ 351.11

2.3 Errors and Events Report

Table 4 summarizes aggregate errors and events for Azuga. The data in this table reflect errors and events related to the two mileage reporting options requiring MRDs, the GPS Enabled and Non-GPS Enabled MRD options. During the month of January, the only type of error/event reported by pilot participants was the number of disconnects/reconnects. This error occurs when there is a lapse in the connection of the OBD-II device, however all miles driven the date of the error event were still collected, no mileage was lost. This particular error type is anticipated in pairs (once for disconnect and once for reconnect), however the arbitrary break in monthly reporting may result in an odd number of events reported in the monthly summary.

Table 4: Errors and Events Summary

Error Event Date	Number of Disconnects/Reconnects*
Previous Months	
December Total	17
Current Month (January)	
1/3/2017	2

Error Event Date	Number of Disconnects/Reconnects*
1/4/2017	1
1/5/2017	2
1/6/2017	3
1/11/2017	2
1/12/2017	2
1/23/2017	2
1/24/2017	1
1/25/2017	2
1/28/2017	2
1/30/2017	3
1/31/2017	9
January Total	31
Cumulative Totals	
Cumulative Total	48

*This error occurs when there is a lapse in the connection of the OBD-II device, however all miles driven the date of the error event were still collected, no mileage was lost.

Between Friday January 20 and Sunday, January 23, servers receiving Mileage Data were down due to maintenance. MRDs were not able to report data to the server and participants' accounts during that time. However, the mileage driven on those three days were captured by the MRD and reported in the participants' accounts as miles driven all on Monday January 24.

2.4 Help Desk Report

As part of the operational support effort, the CH2M Help Desk staff maintains a log of all support requests received including the date, time, issue, actions taken, and resolution. Help Desk Log entries also include information about the participant such as their selected mileage reporting option, how they contacted the help desk, and their contact information. CDOT is handling all calls and emails that come through the general CDOT help line regarding the RUC program.

In January there were a total of six support requests to the help desk, two via email and four via phone. Of the six support requests 3 required Tier 2 escalation to Azuga to resolve the issue:

- One required a manual password reset
- Two were related to the MRD not reporting mileage. One required a remote patch and one was in regards to the server down time described above in Section 2.3.

Table 5 summarizes the types of issues that were logged by the help desk either by phone (**67%**) or by email (**33%**) in the month of January.

Table 5: Help Desk Summary

Week	Enrollment Issues	MRD Issues	Account Issues	Recruitment Screener Issues	Mobile App Issues	Other Issues	Total Emails	Total Calls
Previous Months								
December Total	17	7	7	0	0	6	19	18
Current Month								
01/2/2017	0	2	1	0	0	0	1	2
01/9/2017	0	0	0	0	0	0	0	0
01/16/2017	0	0	0	0	0	0	0	0
01/23/2017	0	1	1	0	0	0	1	1
01/30/2017	0	0	1	0	0	0	0	1
January Total	0	3	3	0	0	0	2	4
Cumulative Totals								
Cumulative Total	17	10	10	0	0	6	21	22

Appendix A

January Raw Data Reports

VIN Summary Report

Colorado RUCPP
VIN Summary Report

(A) An integer value indicating the reason for the status of a given VIN at the period end date of the report

1 = Pending – If the VIN has been submitted for approval and is not yet approved by the agency

2 = Started - If the VIN is first appearing on the report

3 = Active - if the VIN has previously appeared

4 = Discontinued – has exited the program

(B) Certification ID number

4 = Non-GPS Mileage Reporting Option

5 = GPS Mileage Reporting Option

9 = Odometer Reading Option

(C) An identifier associated with a geographic area, or zone. Colorado is RuleID 8 or 0. See attached table for all other RuleIDs.

(D) A value indicating which fuel consumption method is used to calculate fuel usage

1 = Fuel use not calculated due to unavailability of data

2 = Fuel calculated from actual fuel use on the device

3 = Fuel Use calculated using approved EPA methods

4 = Vehicle does not use taxable fuel

5 = Fuel use not calculated due to unreliability of data

(E) All miles driven by vehicle

(F) Miles driven on public roads in the state of Colorado

(G) All the miles that are traveled outside the state of Colorado

(H) RUC revenue for the month using the pilot road usage charge rate of 1.2 cents per mile (Taxable Mileage X 1.2 cents per mile)

(I) Fuel tax credits based on Colorado's gas tax rate of 22 cents per gallon (Taxable Fuel Usage X 22 cents per gallon)

(J) Net revenue for the month minus any fuel tax credits for the gas tax rate of 22 cents per gallon (RUC Revenue - Fuel Tax Credit)

Colorado RUCPP
Rule IDs by State

STATE / LOCATION	Rule ID	Description
No State / Undifferentiated	00	To be used when the vehicle location cannot be determined
No State / Undifferentiated	00	Out of State Miles - For miles identified as out of the vehicle's home state, but unable to discern a specific other Mileage Rule ID location
Alabama	01	This is for general miles within this state
Alaska	02	This is for general miles within this state
Arizona	04	This is for general miles within this state
Arkansas	05	This is for general miles within this state
California	06	This is for general miles within this state
Colorado	08	This is for general miles within this state
Connecticut	09	This is for general miles within this state
Delaware	10	This is for general miles within this state
District of Columbia	11	This is for general miles within this state
Florida	12	This is for general miles within this state
Georgia	13	This is for general miles within this state
Hawaii	15	This is for general miles within this state
Idaho	16	This is for general miles within this state
Illinois	17	This is for general miles within this state
Indiana	18	This is for general miles within this state
Iowa	19	This is for general miles within this state
Kansas	20	This is for general miles within this state
Kentucky	21	This is for general miles within this state
Louisiana	22	This is for general miles within this state
Maine	23	This is for general miles within this state
Maryland	24	This is for general miles within this state
Massachusetts	25	This is for general miles within this state
Michigan	26	This is for general miles within this state
Minnesota	27	This is for general miles within this state
Mississippi	28	This is for general miles within this state
Missouri	29	This is for general miles within this state
Montana	30	This is for general miles within this state
Nebraska	31	This is for general miles within this state
Nevada	32	This is for general miles within this state
New Hampshire	33	This is for general miles within this state
New Jersey	34	This is for general miles within this state
New Mexico	35	This is for general miles within this state
New York	36	This is for general miles within this state
North Carolina	37	This is for general miles within this state
North Dakota	38	This is for general miles within this state
Ohio	39	This is for general miles within this state
Oklahoma	40	This is for general miles within this state
Oregon	41	This is for general miles within this state
Pennsylvania	42	This is for general miles within this state
Rhode Island	44	This is for general miles within this state
South Carolina	45	This is for general miles within this state
South Dakota	46	This is for general miles within this state
Tennessee	47	This is for general miles within this state
Texas	48	This is for general miles within this state
Utah	49	This is for general miles within this state
Vermont	50	This is for general miles within this state
Virginia	51	This is for general miles within this state
Washington	53	This is for general miles within this state
West Virginia	54	This is for general miles within this state
Wisconsin	55	This is for general miles within this state
Wyoming	56	This is for general miles within this state
Canada	300	This is for general miles within Canada
Mexico	301	This is for general miles within Mexico
International Miles	302	This is for international miles (not including Canada or Mexico)

RUC Revenue Report

Colorado RUCPP
January RUC Revenue Report

ruleId	roadUsage	fuel Tax	total Mileage	total Taxable Mileage	total nonTaxable Mileage	total Fuel Usage	total Taxable Fuel Usage	total NonTaxable Fuel Usage	total RoadUsage Charge	total TaxCredit (G)	totalFuel Balance (H)
	ChargeRate (A)	Rate (B)	(C)	(D)	(E)	Usage	Usage	Fuel Usage	Charge (F)	(G)	(H)
0	0.012	0.22	28575.24	28575.2427	0	1270.4122	1270.4122	0	342.9006	-279.49	63.4123
4	0	0	517.5828	0	517.5828	30.4461	0	30.4461	0	0	0
8	0.012	0.22	93540.68	93540.6801	0	4219.3083	4219.3083	0	1122.4882	-928.246	194.2405
35	0	0	51.6427	0	51.6427	3.0378	0	3.0378	0	0	0
49	0	0	228.3335	0	228.3335	11.7405	0	11.7405	0	0	0
56	0	0	368.5149	0	368.5149	19.9293	0	19.9293	0	0	0

(A) An identifier associated with a geographic area, or zone. Colorado is RuleID 8 or 0. See attached table for all other RuleIDs.

(B) Colorado RUCPP road usage charge rate of 1.2 cents per mile

(C) Colorado's gas tax rate of 22 cents per gallon

(D) All miles driven by vehicle

(E) All the miles that are traveled outside the state of Colorado

(F) RUC revenue for the month using the pilot road usage charge rate of 1.2 cents per mile (total Taxable Mileage X Road Usage Charge Rate of 1.2 cents

(G) Fuel tax credits based on Colorado's gas tax rate of 22 cents per gallon (total Taxable Fuel Usage X fuel Tax Rate of 22 cents per gallon

(H) Net revenue for the month minus any fuel tax credits for the gas tax rate of 22 cents per gallon (total Road Usage Charge - Fuel Tax Credit)

Colorado RUCPP
Rule IDs by State

STATE / LOCATION	Rule ID	Description
No State / Undifferentiated	00	To be used when the vehicle location cannot be determined
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Delaware	10	This is for general miles within this state
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Florida	12	This is for general miles within this state
Georgia	13	This is for general miles within this state
Hawaii	15	This is for general miles within this state
Idaho	16	This is for general miles within this state
Illinois	17	This is for general miles within this state
Indiana	18	This is for general miles within this state
Iowa	19	This is for general miles within this state
Kansas	20	This is for general miles within this state
Kentucky	21	This is for general miles within this state
Louisiana	22	This is for general miles within this state
Maine	23	This is for general miles within this state
Maryland	24	This is for general miles within this state
Massachusetts	25	This is for general miles within this state
Michigan	26	This is for general miles within this state
Minnesota	27	This is for general miles within this state
Mississippi	28	This is for general miles within this state
Missouri	29	This is for general miles within this state
Montana	30	This is for general miles within this state
Nebraska	31	This is for general miles within this state
Nevada	32	This is for general miles within this state
New Hampshire	33	This is for general miles within this state
New Jersey	34	This is for general miles within this state
New Mexico	35	This is for general miles within this state
New York	36	This is for general miles within this state
North Carolina	37	This is for general miles within this state
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Pennsylvania	42	This is for general miles within this state
Rhode Island	44	This is for general miles within this state
South Carolina	45	This is for general miles within this state
South Dakota	46	This is for general miles within this state
Tennessee	47	This is for general miles within this state
Texas	48	This is for general miles within this state
Utah	49	This is for general miles within this state
Vermont	50	This is for general miles within this state
Virginia	51	This is for general miles within this state
Washington	53	This is for general miles within this state
West Virginia	54	This is for general miles within this state
Wisconsin	55	This is for general miles within this state
Wyoming	56	This is for general miles within this state
Canada	300	This is for general miles within Canada
Mexico	301	This is for general miles within Mexico
International Miles	302	This is for international miles (not including Canada or Mexico)

Errors and Events Report

Colorado RUCPP
January Errors and Events Report

vin	mrdId	error (A)	EventCode	error EventDate	totalMiles OnDate (B)	certId (C)
JHMZF1D48BSO13142	6090862114	4		1/3/2017	21.4373	5
JHMZF1D48BSO13142	6090862114	4		1/3/2017	21.4373	5
1J4FY29P7VP447061	6042162401	4		1/4/2017	15.4721	4
KNMAT2MV6GP696233	6090862041	4		1/5/2017	0	5
KNMAT2MV6GP696233	6090862041	4		1/5/2017	0	5
JHMZF1D48BSO13142	6090862114	4		1/6/2017	0	5
JHMZF1D48BSO13142	6090862114	4		1/6/2017	0	5
1J4FY29P7VP447061	6042162401	4		1/6/2017	15.4721	4
JHMZF1D48BSO13142	6090862114	4		1/11/2017	10.81	5
JHMZF1D48BSO13142	6090862114	4		1/11/2017	10.81	5
JHMZF1D48BSO13142	6090862114	4		1/12/2017	0	5
JHMZF1D48BSO13142	6090862114	4		1/12/2017	0	5
WBAEU33482PF65018	6081663329	4		1/23/2017	0	5
WBAEU33482PF65018	6081663329	4		1/24/2017	54.74	5
WVWTK73C78E233264	6090862212	4		1/25/2017	0.31	5
WVWTK73C78E233264	6090862212	4		1/25/2017	0.31	5
2HJYK16507H534459	6082463369	4		1/28/2017	137.01	5
2HJYK16507H534459	6082463369	4		1/28/2017	137.01	5
5UXKT0C5XG0S77545	6090862014	4		1/23/2017	0	5
5UXKT0C5XG0S77545	6090862014	4		1/30/2017	61.95	5
WVWTK73C78E233264	6090862212	4		1/30/2017	16.77	5
WVWTK73C78E233264	6090862212	4		1/30/2017	16.77	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	34.61	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	34.61	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	34.61	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	34.61	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	34.61	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	34.61	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	34.61	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	34.61	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	34.61	5
5NMSGDAB3AH366354	6090862031	4		1/31/2017	0	5

Colorado RUCPP
January Errors and Events Report

(A) Description: Coding of each error or event that occurred for the given Mileage Reporting Device or VIN on the given date when the error was detected by the Mileage Reporting Device or the Account Manager:

1. Low Voltage
2. Anomalies in monitored vehicle functions and parameters which could compromise the collection and reporting of Road Usage Charge data
3. Storage full
4. Disconnects / reconnects
5. Connected to new vehicle
6. Vehicle interface communications failure
7. Location data degraded [mileage meter with general location only]
8. Incorrect date/time (conflict between date/time from vehicle interface and from wireless communications)
9. Software resets
10. Software updates
11. Degraded mileage data
12. Missed mileage
13. Vendor-specific

(B) Total Miles Reported for the VIN/Mileage Reporting Device for a given day

(C) Certification ID number

4 = Non-GPS Mileage Reporting Option

5 = GPS Mileage Reporting Option

9 = Odometer Reading Option

Help Desk Log

ID	Customer	VIP	Request Date	Reported Via	Customer Contact	Mileage Reporting Option	Issue Type	Issue Description	Actions Taken	Current Status	Closure Date	Closure Reason
62	Della Sullivan	FALSE	1/3/2017 16:10	E-mail	deltomsul@gmail.com	Non-GPS MRD	MRD issue	The participant informed us that she will be taking her vehicle in for service and that she will be removing the device.	We informed her that it would be okay to remove the device. She has since connected the device again.	Closed	1/13/2017 10:00	Device was re-connected
61	Nicholas Colglazier	TRUE	1/4/2017 10:00	Phone	nicholas.colglazier@coloradocompetes.org	GPS MRD	Account issue	The participant forgot his password.	We instructed the participant to follow the 'forgot password' link at the azuga login page. This was unsuccessful because of his email account provider's security settings emails from azuga goes to an unretrievable spam account. The azuga team manually changed the participant's password.	Closed	1/6/2017 14:10	Participant Password Changed
63	Kelly Brough	TRUE	1/4/2017 10:00	Phone	KELLY.BROUGH@denverchamber.org	GPS MRD	MRD issue	The participant stated when she installed the device it did not light up and she believed that it may not be operating.	We informed her the Mileage Reporting Device will light up when plugging the device in. The device will not light after. To ensure the device has properly been installed we ask that she drive the associated vehicle to confirm that the device is reporting mileage.	Closed	1/4/2017 8:00	MRD is operational
64	Steven Martifano	FALSE	1/21/2017 10:25	E-mail	s.martifano@gmail.com	GPS MRD	MRD issue	He had car maintenance on Friday 1/20/17, and since then the app has not been updating. No trips have been registered.		Closed	1/24/2017 0:00	Vehicle is now reporting mileage.
65	Hanna Parsons	FALSE	1/23/2017 9:00	Phone	HParsons@cscedc.com	GPS MRD	Account issue	The participant's trips from Friday 1/20/17 were not visible in the account. "We had provided a TAT of 24-48 hours to the participant. Due to some glitch from our end, this issue persisted."	This was escalated to a tier 2 support. "We had provided a TAT of 24-48 hours to the participant. Due to some glitch from our end, this issue persisted."	Closed	1/24/2017 12:00	The trips from the missing day are now visible in the participant's account.
66	Marshall Zellinger	TRUE	1/31/2017 16:55	Phone	Marshall.zelinger@kmgh.com	Non-GPS MRD	Account issue	Participant called requesting a password reset.		Open		