

TECHNOLOGY TEST DRIVE FLEET DEMONSTRATION LESSONS LEARNED

June 2022

Hawaii Road Usage Charge Demonstration

with



Fleet Demonstration Lessons Learned

- **Context**
- Approach to fleet mini-pilot demonstration
- Pilot platform set-up
- Pilot operations and research
- Synthesis

Situation with Fleets in Hawaii

Context that motivated the research

- An estimated 300,000+ (20%) vehicles are associated with a fleet.
- The majority of out-of-state visitors drive in rental cars.
- Many vehicles in a given fleet could be the same make & model.
- If RUC is owed by all vehicle “owners,” fleet operators including rental car companies would be liable for paying for the miles driven by their employees and customers.
- RUC pilots to date have not involved light vehicle fleets. Little is known of fleet operator constraints, abilities, or preferences.

Research questions that emerged

- What challenges for RUC do fleet vehicles have as compared to other vehicles?
- Can current account-based RUC platforms be used for collecting a surcharge tax or fee from fleet operators?
- How can RUC be collected in a user-friendly way to avoid imposing undue burdens on businesses operating fleets?
- What simplifications or value-added features could RUC offer to fleet operators?
- What lessons can apply to a national RUC pilot?

Fleet Demonstration Lessons Learned

- Context
- **Approach to fleet mini-pilot demonstration**
- Pilot platform set-up
- Synthesis

Approach to mini-pilot fleet demonstration

Five steps to set up the mini-pilot environment

- 1 Design a customized mini-pilot **fleet experience** based existing account-based RUC platforms.
 - Select a vendor to create a realistic RUC experience for fleet operators.
 - Recruit fleet participants.
 - Operate the pilot for 6 weeks and collect data from fleet participants.
 - Collect input from fleet participants on their pilot experience, pain points, and areas for improvement.



Fleet experience

- Create an online account with a RUC service provider
- Enroll up to 100 fleet vehicles
- Provide mileage data per vehicle (start and end odometer readings over a reporting period)
- Manage exceptions/daily operations
 - Add and remove vehicles
 - Update odometer readings
- Receive a mock RUC statement at the end of the reporting period

Approach to mini-pilot fleet demonstration

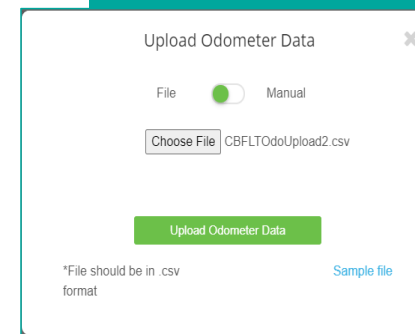
Five steps to set up the mini-pilot environment

- Design a customized mini-pilot fleet experience based existing account-based RUC platforms
- 2 Select a **vendor** to create a realistic RUC experience for fleet operators
- Recruit fleet participants
- Operate the pilot for 6 weeks and collect data from fleet participants
- Collect input from fleet participants on their pilot experience, pain points, and areas for improvement.



RUC Vendor

- Azuga selected to set-up and operate RUC platform
- Existing Azuga RUC platform modified to include specific features for fleets (e.g., bulk upload of data to increase convenience)



Approach to mini-pilot fleet demonstration

Five steps to set up the mini-pilot environment

- Design a customized mini-pilot fleet experience based existing account-based RUC platforms
- Select a vendor to create a realistic RUC experience for fleet operators
- 3 Recruit fleet participants**
 - Operate the pilot for 6 weeks and collect data from fleet participants
 - Collect input from fleet participants on their pilot experience, pain points, and areas for improvement.



Fleet participant recruitment

- Four fleet operators of varying sizes



43 vehicles, 50% Priuses (effort to purchase same vehicle types for easier maintenance)



75 vehicles, mostly pickups for construction work



180 vehicles, variety from F-350 to dump trucks



1,300 vehicles, large variety from sedan to heavy trucks, mid-lane equipment (forklifts and trailers), currently working on fleet electrification

Approach to mini-pilot fleet demonstration

Five steps to set up the mini-pilot environment

- Design a customized mini-pilot fleet experience based existing account-based RUC platforms
- Select a vendor to create a realistic RUC experience for fleet operators
- Recruit fleet participants
- 4 **Operate the pilot for 6 weeks** and collect data from fleet participants
- Collect input from fleet participants on their pilot experience, pain points, and areas for improvement.



Pilot operations

- **Azuga** collected driving data from fleet participants for the reporting period:
 - Bulk uploads of fleet vehicle and odometer data (Vehicle Identification Number, Make, Model, Year, start odometer, end odometer)
- **Participant support**
 - **Azuga** provided technical assistance to fleet administrators during enrollment and mileage reporting
 - **HiRUC Helpdesk** provided ongoing assistance and responded to questions on RUC policy

Approach to mini-pilot fleet demonstration

Five steps to set up the mini-pilot environment

- Design a customized mini-pilot fleet experience based existing account-based RUC platforms
- Select a vendor to create a realistic RUC experience for fleet operators
- Recruit fleet participants
- Operate the pilot for three months and collect data from fleet participants

5 Collect input from fleet participants on their pilot experience, pain points, and areas for improvement.



Participant interviews

Interviews conducted focused on:

1. Understanding Fleet operations

- General vehicle lifecycle
- Vehicle registration and renewals
- Inspection management
- Insurance and fleet management system
- Regulations and reporting requirements
- Mileage/fuel cost tracking

2. Evaluating pilot experience

- Azuga system experience
- Overall pilot perception
- Opportunities for improvement
- RUC reporting preferences
- Level of understanding and interest in RUC before and after pilot experience

Fleet Demonstration Lessons Learned

- Context
- Approach to fleet mini-pilot demonstration
- **Pilot platform set-up**
- Synthesis

Adjusting Azuga RUC Existing Solution for Fleets








The HiRUC Fleet Mini-Pilot was a specialized component of the HiRUC Technology Test Drive that involved 2,000 vehicles.

A separate fleet mini-pilot platform had to be designed to address unique needs and challenges of fleet organizations compared to individual vehicles.

Key Design Assumptions

1. Fleet needs are very different from individual/household driver needs
2. Fleet businesses often have dedicated fleet management services (FMS) to address operational and cost tracking needs. These systems are not necessarily suitable for reporting mileage for RUC purposes efficiently
3. Fleet operators generally have dedicated fleet administrators, but they have limited time for RUC reporting
4. Bulk uploads of vehicle data is a desirable feature for fleets

Key Differences Between Consumer and Commercial Accounts

	Question	Consumer (individual/household) account	Commercial (fleet) account
	How many vehicles per account?	95% only 1 or 2 vehicles	100% more than one vehicle
	Who Drives the vehicle?	Vehicle owner	Paid employee or customer
	Who pays for the RUC?	Vehicle owner	Vehicle owner OR passenger OR customer (renter)
	Who manages the vehicles?	Vehicle owner	Fleet manager
	How are the vehicles displayed in the user interface?	1 vehicle at a time	List of vehicles
	How does the data get to the account manager?	Vehicle to account manager	Vehicle to fleet back office data platform to account manager
	How is the data processed?	1 vehicle at a time	All vehicles in fleet

Implications for RUC Platform Design for Fleets

Even though back-end RUC processing for fleet operators can be similar for individual vehicle owners, the touchpoints for fleet organizations to provide vehicle and mileage data should be designed differently to minimize their time spent reporting mileage for RUC purposes and tracking costs.

Process that require optimizations

1. **Enrollment.** Prioritize bulk uploads
2. **Mileage reporting.** Prioritize bulk reporting
3. **Account and vehicle management.** System should allow easy updates to factor vehicle fleet turnover
4. **Invoice layout.** Invoices should provide overview of fleet vehicles and break down costs to allow fleet organizations to track costs.

Enrollment & Mileage Reporting– Prioritize bulk uploads

Add Vehicles ✕

Bulk Individual

No file chosen

*File should be in .csv format [Download example file](#)

Upload Odometer Data ✕

File Manual

CBFLT0doUpload2.csv

*File should be in .csv format [Sample file](#)

Allowing uploads of spreadsheets with vehicle data can be a simple way for fleets to upload their data to RUC systems. Most fleets can download this data from their existing Fleet Management Systems.

	A	B	C	D	E	F
1	VIN	Nickname	LicensePl	Odometer	CountyOfRegistration	
2	JH4KA455	TRK-ABC	HC	27333	Maui	
3	KMHDU4A	TRK-XYZ	CA	36244	Honolulu	
4	JHMSZ542	TRK12	HI	18567	Kauai	
5	WP0AA09	TUNDRAE	52	40212	Hawaii	
6	JH4KA755	FIELDTRK	98	65876	Hawaii	
7	jh4Ka4670	Sales1	FL	59266	Honolulu	
8						
9						

Account & Vehicle Management – Allow individual updates to manage exceptions

Add Vehicles ✕

Bulk Individual

Nickname:

License Plate:

Initial Odometer:

County of Registration:

VIN:

Decode VIN to Vehicle Specs

▼

Year:

Make:

Model:

EPA Combined MPG:

Add Vehicle

Upload Odometer Data ✕

File Manual

Nickname	VIN	Last Odometer	Date Odometer uploaded	Current Odometer to upload
97FORD1	2FTDF18W5VCA88039	98754	05-06-2021	9967

Upload Odometer Data

Given the need to update fleet of vehicles frequently (fleets buy and sell vehicles frequently), large fleet operators will still appreciate the flexibility of adding vehicles individually or uploading odometer data for individual vehicles into the RUC system through a user interface.

Account and Vehicle Management – Prioritize user interfaces that give visibility over fleet

azUga INSIGHT Dashboard Statements Vehicles Account

Add Vehicle | Upload Odometer Data

Nickname	VIN	Year	Make	Model	EPA Combined MPG	License Plate	Initial Odometer	Date Added	Latest Odometer	Date Latest Odometer uploaded	Current Mileage	Status		
CBVEH2	4S3BK4252X7305536	1999	Legacy	Subaru	22	99SUB1	123456	05-07-2021	123999	05-07-2021	543	ACTIVE	Edit	Delete
CBVEH5	1FMZU72X6YZC22785	2000	Explorer	Ford	16	00FORDX	199999	05-07-2021	200004	05-07-2021	5	ACTIVE	Edit	Delete
CBVEH3	JN8AZ2NE5C9016953	2012	QX56	INFINITI	16	12INF1	67898	05-07-2021	68898	05-07-2021	1000	ACTIVE	Edit	Delete
CBVEH4	WDDHF8JB4DA682581	2013	E-Class	Mercedes-Benz	22	13MERC1	76543	05-07-2021	79521	05-07-2021	2978	ACTIVE	Edit	Delete
97FORD1	2FTDF18W5VCA88039	1997	F-150	Ford	15	97FORD1	98754	05-06-2021	99678	05-06-2021	924	ACTIVE	Edit	Delete

Design user interface that allows fleet customers to see all their vehicles and associated data.

Fleet Demonstration Lessons Learned

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- **Synthesis**

Lessons Learned from Pilot Operations

Six categories of insights

- 1 Fleet operations
 - RUC reporting preferences
 - Fleet operator concerns
 - Reactions to RUC statement
 - Understanding and perception
 - Take-aways for a national RUC pilot



Fleet diversity

Fleets have different operational needs, vehicle lifecycle management processes, exemptions, and vehicle cost tracking needs.

Systems used vary from spreadsheets, fleet management programs required for public utilities, to specialized high-tech telematics Fleet Management Systems. They have varying capabilities and resources to accommodate RUC reporting.

This means there is **no one-size-fits-all RUC process**. It is important to provide different reporting options for convenience (bulk upload with flexible file formats, direct updates through user interface).

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Reporting preferences

Varied responses on preferred reporting method, reporting and payment frequency

- Convenience main factor for payment frequency
 - For manual data reporting, annual frequency perceived to be less burdensome
 - Fleet operator that outsources vehicle inspection to car mechanic indicated vehicle inspection process as preferred RUC option over using a commercial account manager (CAM)
 - Fleet operator that can automatically export data prefers reporting monthly to a CAM
- Financial impact not determining factor for reporting/payment frequency. It's more a matter of accounting and budgeting, and being able to track expenses easily (e.g., monthly)

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Fleet operator concerns

Concerns are related to increase of administrative burden rather than the financial impact

- Concern about having to repeat manual reporting process several times a year for their whole fleet (e.g., “Fine for 20 vehicles, but cannot imagine doing this for 180 vehicles”)
- RUC reporting was duplicative work. Fleet administrators already need to enter information in their own fleet management systems. They would have preferred an option to automate reporting by integrating the RUC platform with their fleet management systems

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RUC statement

Fleet operators stated they have a much better understanding of how RUC could affect their business after seeing an invoice

- Learned that RUC is *“not in addition, but more of a swap. Looking at the invoice, it came down as almost the same. The number is still digestible”*
- All prefer having a single periodic invoice for the fleet
- Negative balance on invoice for fleets with low fuel efficiency raised questions on *“why there was a negative balance due for miles driven by fleet vehicles if the state is looking to raise money”?*
- Level of detail needed on invoice depends on operational need. Invoice is too detailed for some fleets while other fleets want more granular breakdown to track costs.

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Before and After Pilot Participation

Familiarity with RUC increased across the board after 6 weeks of pilot participation

- Understanding that RUC would not be in addition to the gas tax, and amount would be “digestible”
- General agreement that states need to be proactive before there is a revenue crisis
- Found the bulk reporting system to be “relatively simple”
- Better understanding of business impact of RUC after seeing an invoice

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Scaling considerations

- Develop system to handle the four cases that are in operation today across the fleets studied (home grown systems, off-the-shelf but on-premise systems, software-as-a-service, no system)
- Identify known gaps, make sure system can handle gaps gracefully (e.g., odometer readings are not always available)



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Recruitment considerations

- Partner with fleet management providers to ensure participation from a diverse range of fleet organizations to ensure a full spectrum of testing and research (consider company size, fleet size, type of systems, vehicle use, type of drivers).
- Set expectations – be clear on what type of participation is expected of the fleet manager. Gauge level of commitment, availability and technical abilities for meaningful pilot participation.
- Budget for incentives, to compensate companies for their time and involvement.
- Most importantly, give fleet businesses a seat at the table. Other than collecting technical driving data, prioritize collecting insights, perceptions, and concerns.