WA RUC

Appendix A-4: Road Usage Charge Cost of Collection

December 2023

This page intentionally left blank.

TABLE OF CONTENTS

FIGURES

TABLES

This page intentionally left blank.

ACKNOWLEDGEMENT

PREFACE

Forward Drive was a research, development, demonstration, and public engagement effort of the Washington State Transportation Commission. The project sought to advance understanding of and implementation pathways for per-mile road usage charging (RUC) as an alternative to motor fuel taxes and alternative fuel vehicle registration surcharges. The project aimed to address several key issues for RUC including principally equity, user experience, and cost of collection. As reported in Volume 1, the project unfolded in several stages. A series of appendices contain more detailed results. These appendices are organized as explained and illustrated below.

Appendix A. Forward Drive began with research spanning several activities including financial analysis, equity outreach and analysis, user experience research, and cost of collection reduction workshops (Appendices A-1 through A-4, respectively). The purpose of the research was to explore the financial, equity, user experience, and cost impacts of RUC under a variety of deployment scenarios. This research informed the design of experience-based simulations and pilots of various elements of a RUC program.

Appendix B. The research stage led directly to the design and development of simulations and pilots of RUC program elements spanning several areas to reflect the multiple objectives and research findings. The centerpiece of the simulation and pilot testing stage was an interactive simulation of RUC enrollment, reporting, and payment. As described in Volume 1, the simulation offered over 1,100 Washingtonians an opportunity to experience RUC in as little as a few minutes, followed by a survey about their preferences and opinions. The detailed results of the simulation survey and the measurements of the simulation itself are presented as separate reports (B-1 and B-2, respectively).

Within the simulation, participants could opt into one of three follow-on experiences, each designed to further test a specific feature of RUC of interest to Washington stakeholders and policymakers:

- FlexPay tested installment payments, allowing participants to pay their RUC over four payments instead of all at once (B-3).

- AutoPilot tested using native automaker telematics to report road usage as an alternative to self-reporting or other technology-based approaches to reporting (B-4).

- MilesExempt tested a self-reporting approach for claiming miles exempt from charges, such as off-road and out-of-state driving (B-5).

The simulation and pilot testing stage also included a statewide survey of Washingtonians' vehicle transactions designed to understand existing transactions and preferences and possibilities for how RUC reporting and payment could potentially be bundled with such transactions (B-6).

Lastly, the simulation and pilot testing stage included a mock standards committee of RUC experts from jurisdictions and industry. The committee simulated the process of creating standards for RUC to support cost reduction, enhanced user experiences, and multi-jurisdictional interoperability (B-7).

Appendix C. Appendix C details a transition roadmap for RUC in Washington drawing on the results of the research and simulation and pilot testing, as well as the updated recommendations regarding RUC implementation from the Commission to the Washington Legislature in 2022.
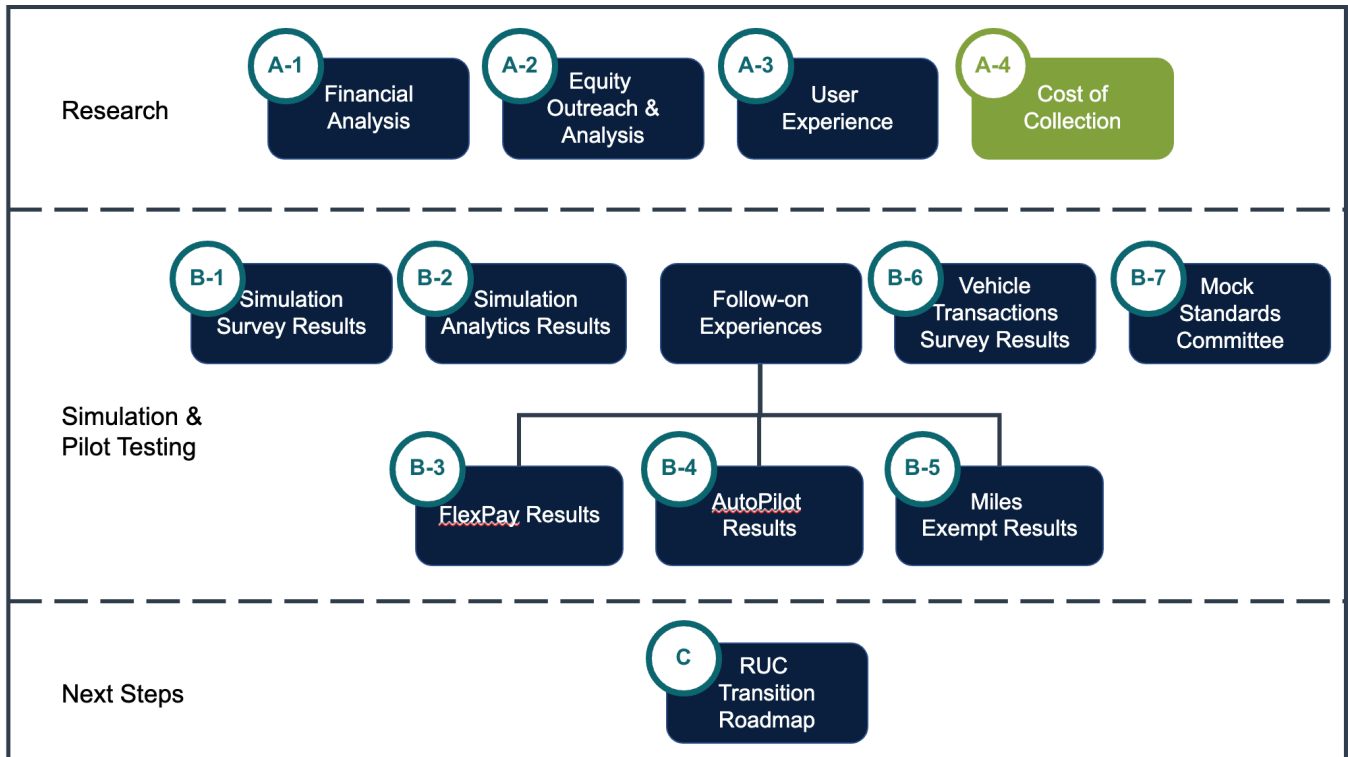
Appendix A-4 covers results from the cost of collection research and workshops.

1.0 INTRODUCTION

As states contemplate replacing their fuel tax with a road usage charge (RUC), the cost of RUC programs can inhibit advancement. The cost of collecting a fuel tax is low, less than even costs to collect typical vehicle licensing fees or other state taxes. Meanwhile, a RUC system will require handling many individual transactions which comes with relatively higher costs than states have experienced with fuel taxation. However, decades of international experience with RUC systems illustrate that costs can be reduced to more acceptable levels, improving net RUC revenues.

To identify ways in which RUC cost of collection can be reduced, part of the Washington State Transportation Commission's federally-funded Forward Drive research project created a forum for states with RUC programs to exchange information on their programs, experiences thus far, and ideas for cost reduction. This forum included a series of workshops, each aimed at designing a low-cost approach to delivering a RUC function, offering an opportunity for participating states to generate ideas and share knowledge. Although generating economies of scale may reduce unit costs, workshops focused on approaches that can reduce overall costs, irrespective of program scale. This exploration created new insights that inform policy and system design for existing and future RUC programs. Next steps from the workshops were directly applied to the design of the Forward Drive pilot.

The research approach, findings generated, and RUC scenarios selected for the ensuing pilot test are summarized in the remaining sections of this report.

Section 2 provides background on prior research on cost of collection and the work plan that was executed to further the research in Task 4 of Forward Drive.

Section 3 provides a summary of the research, discussions, and next steps from the first set of workshops on **customer service**.

Section 4 provides a summary of the research, discussions, and next steps from the second set of workshops on **enforcement**.

Section 5 provides a summary of the research, discussions, and next steps from the third set of workshops on **procurement**.

Section 6 describes how this research laid the foundation for the design of the Forward Drive pilot.

2.0 RESEARCH & WORK PLAN

Cost of collection is important to policy makers for several reasons.

- Efficient collection of revenue leaves more funding available for investment in transportation infrastructure;

- Small-scale RUC systems and pilots to date have seen high unit costs; and

- Policy and upfront design choices influence long-term costs for at-scale systems.

Benchmark costs of other types of transportation taxes and fees show that fuel taxes have the lowest cost of collection, as shown in Figure 1.Figure 1 Toll systems range from 10 to 20 percent with the most efficient being all-electronic tolling. Estimates for the cost of collection for RUC range from under 10 percent to over 20 percent. This task sought to better understand the drivers for this variation so that the *Forward Drive* pilot could test cost-efficient designs.

1 – 3%		9 – 12%	10 – 12%	15 – 20%	20%+	
Fuel taxes	RUC (low end)	Vehicle fees	Efficient all-electronic tolling (AET) at scale	Average AET system operating at scale	Manually operated tolling systems	RUC (high end)
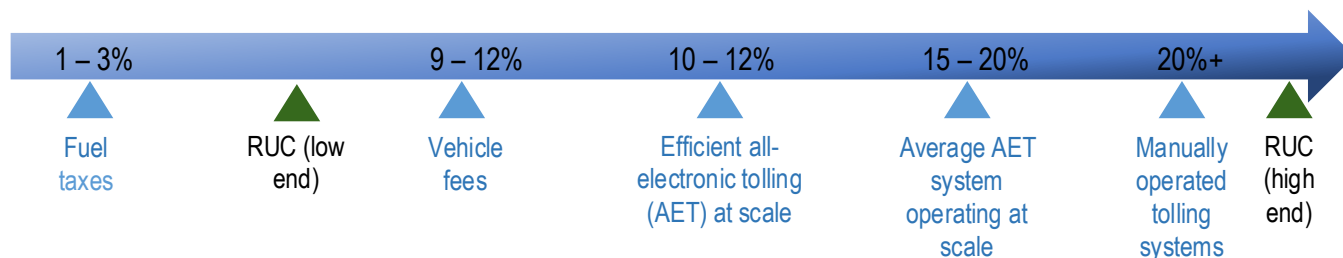
*As a percentage of revenue collected

Figure 1: Transportation Cost of Collection Benchmarks

RUC operating costs cover a range of critical functions. Some functions have relatively fixed costs, like overall management for the program. Other functions depend upon the number of users, user interactions, and the ways that users choose to interact with the system.

There are nine essential functions of a RUC system, illustrated in Figure 2. Operational costs can be categorized and analyzed by using these nine functions of RUC. This framework was used to analyze the areas where there is the greatest potential for cost of collection to be reduced. Descriptions of each function and the cost considerations for each function follow.

Identify subject vehicle & owner/lessee–connect with vehicle registry & set up account

Generate road usage data for subject vehicle over designated time–report data

Access road usage data–receive reporting of road usage data

Apply per-mile charging rates–process data to determine amount of charges

Provide invoice to owner/lessee–issue notice of the charge

Collect payment–provide one or more ways to pay

Issue acknowledgement of payment–create a receipt

Enforce payment–apply mechanisms for ensuring everyone pays

Remit revenue to appropriate fund–integrate revenue collection with financial systems

The key "new" feature of RUC is mileage reporting. All other aspects of the customer journey already exist in vehicle licensing and other types of vehicle transactions.

Figure 2: Fundamental functions of RUC

2.1 Identify vehicle and set up account

Identifying subject vehicles includes:

- Which vehicles registering in the state are either eligible to or required to pay RUC, either new or transferred into the jurisdiction;

- Eligible vehicle owners who opt in to pay RUC instead of another tax; and

- Vehicles crossing the border into a jurisdiction which has a RUC and may be required to pay RUC.

In all cases, a process must identify the subject vehicle, match it to the relevant motor vehicle registry, and incorporate the vehicle's details into the RUC system. The system must also distinguish between vehicles that are required or are opting to pay RUC, and those that are not, for enforcement purposes and for any waiver or credit/refund of other taxes such as gas taxes or vehicle registration taxes.

The establishment and management of a customer account, with payment and contact details, links a vehicle to a user of the system, often generating significant cost. Traditionally labor intensive, the establishment and maintenance of accounts requires use of extensive call centers with backup retail outlets for direct human interaction. Technology enables set up of accounts and management fully online, with changes—payment type, address, vehicle registration—also undertaken online. Mobile applications may also facilitate account management, directing customers to self-serve options and those that require human interaction, for instance in the case of confusion, query, or complaint.

The RUC system must also support the segment of the population not using the internet or mobile phone applications. Furthermore, during the initial months of setting up the RUC system and any transitional period, inevitably users will make more telephone and face-to-face queries because of the lack of familiarity with the terms and elements of a RUC account.

Cost considerations: Promotion of the use of online options and enhancing the efficiency of call centers for account set up and management can reduce costs. In addition, leveraging existing processes like vehicle registration and registration renewal to identify RUC-subject vehicles offers an opportunity to reduce the costs associated with this function.

2.2 Generate road usage data

The options for measuring and reporting the distance travelled by a vehicle depend on the vehicle's age, the policy objectives of the system, and the vehicle type. Some are simple, like allowing owners to self-report odometer readings or recording odometer readings at a vehicle inspection. Others require installation of equipment either professionally or by the vehicle owner. Some may require software such as original equipment manufacturer (OEM) telematics or a mobile smartphone app. Associated costs include:
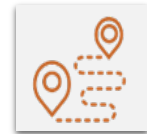
- Distribution and maintenance of an inventory of on-board equipment;

- Communication costs from on-board equipment, including OEM telematics;

- Costs for maintaining and updating software; and

- Costs for maintaining systems to receive and process reported data such as odometer readings and/or images.

Program objectives will determine the range cost reduction options for road usage measurement and reporting, specifically for vehicle location requirements. For example, a program that requires only annual reporting of total miles driven can function with periodic odometer readings, whether self-reported or verified by a third party. A policy that allows users to exempt miles driven out of state or off public roads requires at least some coordination with providers of location-based road usage measurement.

Cost considerations: Encouraging competition among suppliers of road usage measurement and reporting services, thus facilitating a range of options, may reduce costs. Ongoing evolution of technology may reduce costs further.

2.3 Access road usage data

Following generation and reporting, the RUC system must access road usage data for processing, if held by a third party or transmitted to one.

Cost Considerations: This function can be largely or fully automated with software. Setting up the program may involve high initial costs, but the ongoing costs should be limited.

2.4 Apply per-mile charging rates (data processing)

The RUC system must regularly process road usage data, consisting of vehicle identification information, user account holder information and data about distance travelled by vehicle (and any other variables) for generation of invoices or updating of accounts. Data processing helps to ensure the completion of all necessary information without meaningful errors. Fundamentally, this means applying the per-mile charge rate to the miles traveled by an

individual vehicle, including any exemptions, discounts or rate variations based on number of miles traveled, time (e.g., miles traveled before and after a legal change in the per-mile rate), and/or location (e.g., in-state vs. out-of-state).

Cost considerations: The cost saving potential in this category depends on policy and system requirements. For example, a system with periodic reporting of total miles driven requires only odometer data processing within a user account or associated with a vehicle record. More sophisticated charging based on location requires processing of more data elements within a user account tied to a vehicle.

2.5 Producing invoices

Once the RUC system collects and processes road usage data, the RUC system must issue invoices or notices of the need for payment. In prepaid systems, this notice may occur at account set up to credit an account or buy miles in advance. In most systems, a post-payment model requires issuance of invoices to account holders by mail, online/ via email, or through an app. The high costs of invoicing by mail motivate invoicing by email or online, so encouraging users to receive invoices electronically will reduce operating costs. For prepaid systems, an email receipt or other electronic receipt of payment may have lower costs than mailing or printing a paper receipt.

Cost considerations: A physical invoice or electronic invoice delivered to a user's account may not be necessary, so long as statements are available and can be produced on demand.

2.6 Collecting payments and issuing receipts

The function of collecting payment for RUC consists of two dimensions:

- **Payment channels**: A payer pays for an invoice through a payment channel. Payment channel options include retail outlets (the most expensive), mail, call center, direct online payment, and recurring direct debit.

- **Payment options**: A payer transfers value via a payment option, such as bank transfers, credit and debit cards, checks and cash, depending on what choices the system allows. Payment options range from the most expensive (checks, typically) to the cheapest (automatic bank transfers).
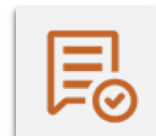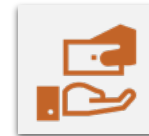
Design of payment systems must meet a diverse range of users, including the unbanked and those who prefer cash. Payment consists of not only taking payment but issuance of receipts or confirmation of payment. In prepaid systems with permits, this might involve issuance of a paper or virtual permit of pre-purchased miles.

Cost considerations: Providing incentives for users to choose lower cost payment channels and payment options can reduce costs. However, such incentives can reinforce inequities stemming from access (or lack thereof) to low-cost payment channels and options.

2.7 Enforce payment

Enforcement has five key elements:

- **Education:** encouraging user compliance, through information about how to comply and about the risks of non-compliance
- **Detection of non-compliance:** identifying non-compliant users, either through negligence (not knowing how to or forgetting to comply) or fraud (users deliberating avoiding payment)
- **Collection of debt from non-compliance**
- **Enforcement of non-compliance:** through processes to penalize non-compliance
- **Revision of operating rules and procedures:** responding to patterns of non-compliance

Enforcement comprises the following functions:

- Identification and pursuit of detected incidents of non-compliance
- Investigation, data analysis, intelligence-gathering
- On-road enforcement activities
- Direct interaction with users suspected or found non-compliant, either through appeals processes or in pursuit of fines/non-payment

Practices that encourage or result in non-compliance

Cost considerations: Enforcement activities must carefully target enforceable actions to ensure cost effectiveness. Well-designed enforcement activities often collect more revenue in debt collection and penalties than costs to operate, and indirectly ensure collection of obligated revenue. If an enforcement activity does not meet this threshold, the enforcement agency should consider revisiting its enforcement approach. For systems using private account managers, debt collection can primarily focus on vendors with a contractual relationship with users.

Enforcement cannot ensure 100 percent compliance, but should be targeted towards:

- Assisting users who would like to be compliant
- Addressing users who are repeatedly non-compliant
- Avoiding practices that result in or encourage repeated non-compliance

2.8 Remit revenue to appropriate fund

Once revenue has been collected from individual accounts or account managers, the agency must manage funds in accounts, ultimately directing funds to the correct accounts, such as a state highway fund, county highway funds, and a RUC operations fund. This represents a treasury function, and it includes audit to ensure that payments received match returns, and correct management of revenue collected.
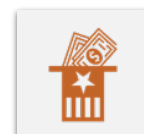
Cost Considerations: The cost saving potential in this category is limited.

2.9 Cross-functional topics

Across these categories, agencies conduct cross-functional activities to manage the customers and the system. These include provision of customer service, contract management (of system suppliers), asset management, legal support, operations administration, and data analysis. Of these, it was found that customer service and managing contracts touch the most RUC functions including those unique to RUC and could have the biggest impact on how cost effectively RUC is delivered.

2.9.1 Provide customer service

Providing customer service includes all aspects of how users interact with a RUC system through contact channels to manage accounts, make queries, and raise issues can affect costs. Such contact may occur through a range of possible channels including email, web-based forms, telephone, mail, retail outlets, web-based chat.

Users should receive customer service of a high standard, albeit one delivered through cost-effective channels.

Cost considerations: Providing incentives for users to choose lower cost contact channels (such as email over retail) can reduce costs.

Customer Service

Identify subject vehicle & owner/lessee–connect with vehicle registry & set up account

Generate road usage data for subject vehicle over designated time–report data

Access road usage data–receive reporting of road usage data

Apply per-mile charging rates–process data to determine amount of charges

Provide invoice to owner/lessee–issue notice of the charge

Collect payment–provide one or more ways to pay

Issue acknowledgement of payment–create a receipt

Enforce payment–apply mechanisms for ensuring everyone pays

Remit revenue to appropriate fund–integrate revenue collection with financial systems

Figure 3: RUC functions involving customer service

2.9.2 Manage contracts

Regardless of the delivery model adopted, RUC systems will have contractors supplying some services. Costs include management of those contracts and relationships, management for other contracted services such as retail outlets, and, in a competitive delivery model, certification of vendors for account management services. Containment of some of these costs

may occur by bundling services during procurement, or by sharing services with other jurisdictions, allowing account managers to provide services across multiple jurisdictions even when some policy or operational details vary between jurisdictions.

Cost considerations: Delivery models may enable reduction of some of these costs, either by bundling contracts for services together into a package of such services, or by encouraging competition in some services.
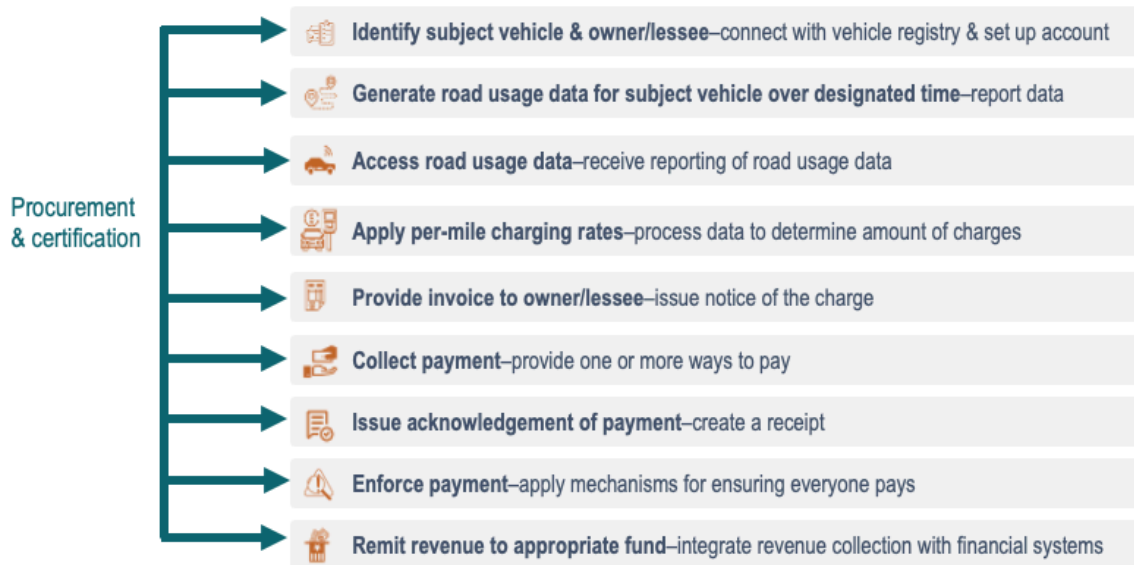

Procurement & certification

- **Identify subject vehicle & owner/lessee**–connect with vehicle registry & set up account
- **Generate road usage data for subject vehicle over designated time**–report data
- **Access road usage data**–receive reporting of road usage data
- **Apply per-mile charging rates**–process data to determine amount of charges
- **Provide invoice to owner/lessee**–issue notice of the charge
- **Collect payment**–provide one or more ways to pay
- **Issue acknowledgement of payment**–create a receipt
- **Enforce payment**–apply mechanisms for ensuring everyone pays
- **Remit revenue to appropriate fund**–integrate revenue collection with financial systems

Figure 4: RUC functions involving procurement

2.10 Preliminary Discussion Questions

The following discussion questions were drafted for five functions and cross-cutting topics: enforcement, customer service, enrollment, account management, and procurement and certification. These discussion questions were developed to stimulate discussion and ideas about reduction of costs through either system design, business rule design, technology, or operational practices.

1. Enforcement: Design a low-cost enforcement approach that captures a relatively high percentage of violation events.

- What is the effectiveness of your design at capturing every dollar?

- Are there functions of your design that can be improved for greater effectiveness without a prohibitive cost increase? In other words, are there functions in your design that could generate more value at reasonable cost if not low cost?

- How could multi-state enforcement systems make enforcement more efficient and effective?

- What elements of your system require enabling law, and how likely is their enactment?

2. Customer Service: Design a customer service center at low cost of operations.

- What is the effectiveness of your design at maintaining high levels of customer satisfaction (and compliance)?

- Are there functions of your design that can be improved for greater effectiveness without a prohibitive cost increase? In other words, are there functions in your design that could generate more value at reasonable cost if not low cost?

- How can multi-state cooperation facilitate equivalent or better functionality while lowering costs?

3. Enrollment: Design a cost-effective RUC enrollment system that relies primarily upon private sector administration.

- What is the cost of your design compared to government enrollment?

- Does your design use private sector account managers to administer enrollment? If so, what is the cost of government oversight?

- Does your design use automobile dealerships for first-time enrollees? If so, what is the cost of government oversight?

4. Account management: Design the required elements for a cost-effective RUC system that builds upon an already-existing product or products in the marketplace, such as auto insurance or mobile phone service.

- What is the product or products you are building on? Be as specific as possible.

- What is the marginal cost of your design compared to building a RUC system from scratch.

- What agreements are necessary with the existing product supplier to make your design work, and how attainable are these agreements?

5. Procurement. Design a regional procurement and certification process for RUC vendors with a market contract accessible by multiple states through service level agreements.

- Should RUC vendors agree to a presented market contract developed by participating states, or should a board representing all participating states negotiate individual purchase contracts with vendors?

- Should the region only certify vendors, leaving procurement and contracting matters to individual states?

- Should the region only certify account managers (end-to-end solutions), elements of the system (e.g., mileage reporting technologies, transaction processors), or both?

- How could an open market improve competition among vendors

These questions were used to down-select the five topics into three workshop topics that could benefit most from multi-state workshops and partnerships. The remaining topics and discussion questions could be used later in time and explored through other formats such as interviews.

Figure 5: Final three down-selected workshop topics

2.11 Work Plan

The objective for the workshops would be to identify public policy elements that could be included in legislation, system design concepts, and concepts for testing future pilots. The workshops were conducted in rapid succession in September and October 2021. The first workshop for each topic included an introduction to the subject matter (e.g., customer service), a review of work done to date and existing processes in the various states participating in the workshops, presentation of a framework for exploring the topic (e.g., the customer journey), and discussion of a framing question to guide the remaining workshops. In the three to four following workshops, breakout groups of 3-5 participants discussed sub-areas within each topic, designed to fully explore the original framing question. In the final workshop, breakout groups presented their answers to the framing question.
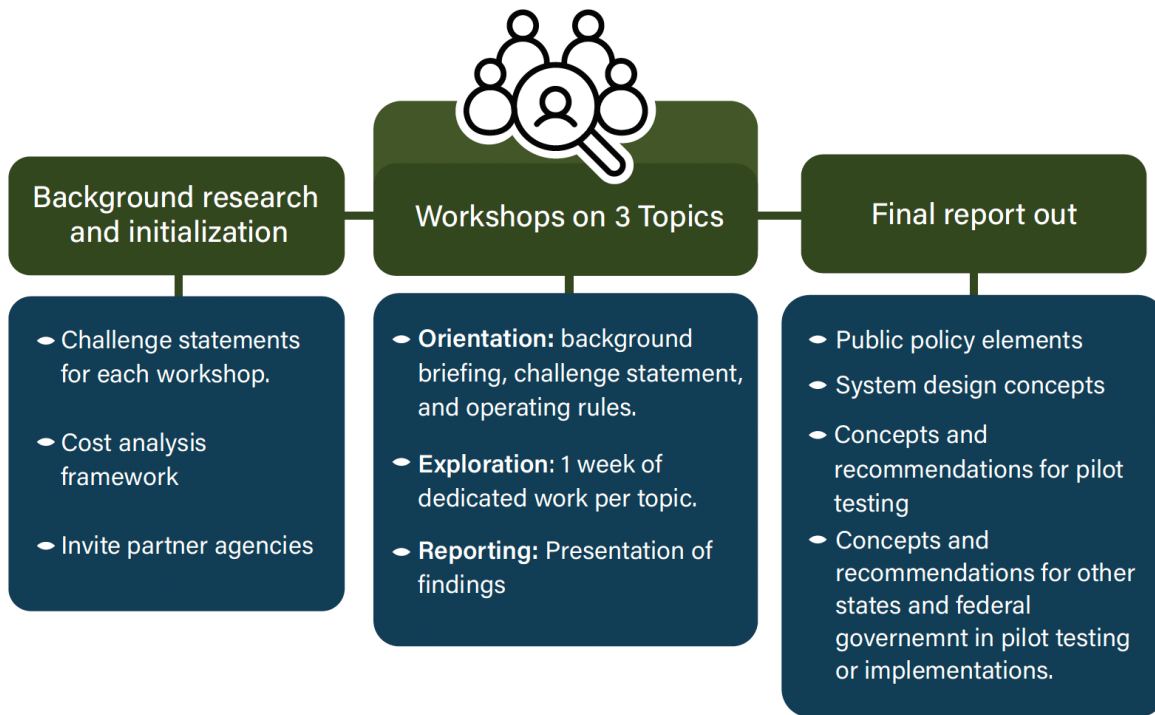
Background research and initialization
- Challenge statements for each workshop.
- Cost analysis framework
- Invite partner agencies

Workshops on 3 Topics
- **Orientation:** background briefing, challenge statement, and operating rules.
- **Exploration:** 1 week of dedicated work per topic.
- **Reporting:** Presentation of findings

Final report out
- Public policy elements
- System design concepts
- Concepts and recommendations for pilot testing
- Concepts and recommendations for other states and federal governemnt in pilot testing or implementations.

Figure 6: Cost of collection reduction workshop approach

Partner agencies in these workshops included the Department of Licensing (DOL), the presumptive administrator of a RUC program in Washington, and two agencies that administer operational RUC programs in their respective states: the Oregon Department of Transportation (ODOT) and the Utah Department of Transportation (UDOT). The workshops were designed to encourage open discussion, brainstorming, creativity, and solution formulation in response to prompts or problem statements. Breakout sessions provided a forum for participants to exchange ideas and perspectives and ask questions about each other's operations. This increased mutual understanding and laid a foundation for further collaboration and partnership.

Figure 7: Workshop partner agencies

Participants in the workshop were encouraged to brainstorm freely. Based on the direction set in the RUC Innovation Research (see Appendix A-3), the only assumptions participants were provided as boundaries are illustrated in Figure 8.

A manual mileage reporting method based on self reporting would be offered by DOL

Automated mileage reporting options would be offered by or with support from private vendors

Responsibility for revenue collection, customer service, and vendor participation would ultimately rest with DOL

Figure 8: Assumptions for workshop brainstorming

3.0 CUSTOMER SERVICE

3.1 Background Research

The customer journey was provided as a framework for exploring customer service in a RUC system. The framework breaks down the customer journey into three periods: pre-service, during service, and post-service. Across these three periods are five activities that require customer interactions: public education, enrollment, mileage reporting, invoicing and payment, and follow-up/surveys. For the "during service" period, a series of activities occur "frontstage" (i.e., visible to the customer) and other activities occur "backstage." (not visible to the customer). All of this must work harmoniously to deliver a coherent, positive customer experience.
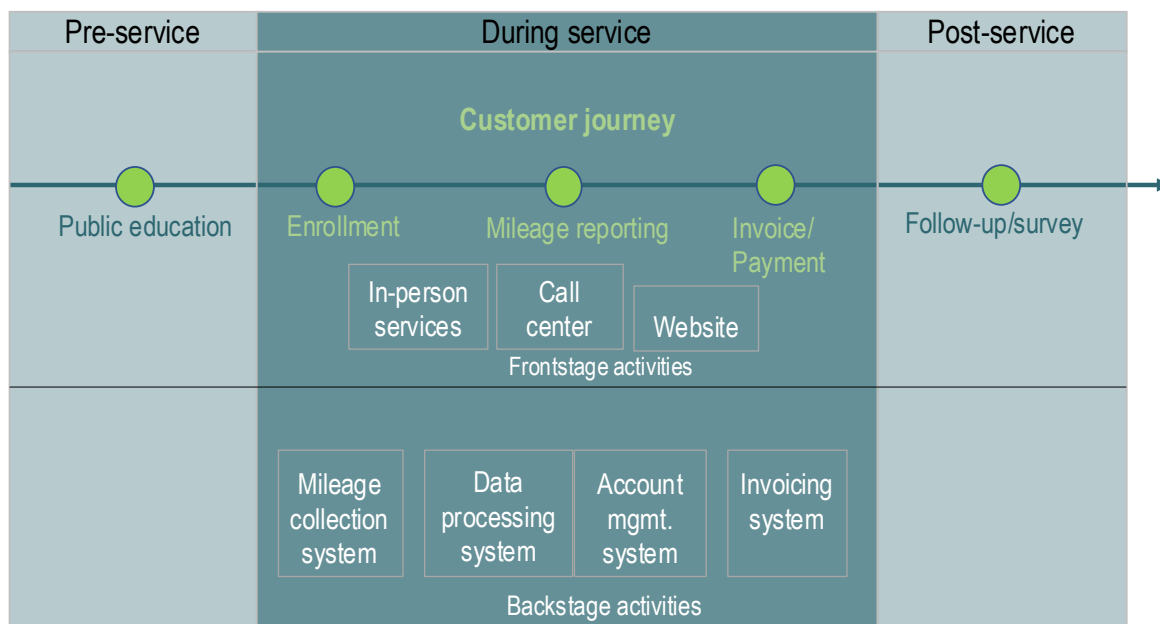
Figure 9: The RUC customer journey

When evaluating costs of customer service, an agency must keep an eye on the balance of efficiency and quality in operations. Too much of a focus on efficiency and the customer experience may suffer, resulting in customer dissatisfaction. When looking at costs of providing customer service, consideration should be given for the totality of customer service as a RUC function and the importance of good service for building trust and overall system integrity.

3.2 Workshop Insights

A single challenge statement was developed from the discussion questions to provide focus and guide the customer service workshops. Insights and policy recommendations from the workshops are discussed in the order of their customer journey in this section.

> **Customer Service Workshops Challenge Statement**
>
> **Design a RUC customer service center at low cost of operations.**
> - Broaden perspectives by eliciting input from experienced agencies
> - Assess effectiveness of service design at maintaining customer satisfaction and compliance
> - Improve design functions at reasonable cost
> - Assess functionality of multi-state cooperation

3.2.1 Public Education

The first stage of the customer journey, public education, begins before someone is technically a customer. This is where it is vital for potential customers to have easy access to clear communication and information about the RUC program. The insights and policy recommendations from the workshops for public education are:

- **Trust in government is at an all-time low**. Agencies often struggle with communicating policy issues. Establishing trust requires understanding customers and their circumstances

- **Balance the need for transparency with the "need to know"** by providing the right information at the right time

- **Policy recommendations**
    - Allow sufficient start-up time to conduct customer outreach and education
    - Planning and executing public communication is worth the investment

3.2.2 Enrollment

The enrollment stage for customers with subject vehicles is one of the most challenging aspects of a RUC program for both the customer and for the customer service center. It requires the most interactions with the customer and generates the most customer inquiries, complaints, and confusion. The insights and policy recommendations from the workshops for this second stage of the customer journey, enrollment, are:

- **Optimize the channels.** The channels that can be offered in Washington include subagents, DOL, License Xpress (DOL online), and third party vendors (commercial account managers, or CAMs)

- **Streamline data flow.** To ensure the customer has easy access to their information:

- ◦ Reduce number of times the customer must enter data
- ◦ Leverage existing login to DRIVES (DOL system) as the hub for RUC and making essential data available to other channels via API
- **Offer multiple channels for distributing information.**
  - ◦ Webpage
  - ◦ Social media
  - ◦ Direct mail: tab renewal and/or information kit directly targeted at vehicles subject to RUC
  - ◦ Literature at subagent locations
  - ◦ Use videos and QR codes

3.2.3 Mileage Reporting

Selecting mileage reporting methods stage was researched and piloted extensively in prior pilots. Insights and policy recommendations from the workshops for the third stage of the customer journey, mileage data collection, are:

- **Mileage data collection methods are not one-size-fits-all.** Be sure to offer choices to the customer including self-reporting options and automated options
- **Concepts not previously piloted to optimize data collection** include:
  - ◦ Go where the customers go
  - ◦ Use third-party verification for self-reporting
  - ◦ Use incentives to encourage compliance

3.2.4 Invoice/Payment

Customers are paying the closest attention at this point when payment is due and made. Insights and policy recommendations from the workshops for the fourth stage of the customer journey, invoicing and payments, are:

- **Transparency is critical.** It is important to offer various levels of detail on the invoice
  - ◦ Balance the amount of detail presented on an invoice with simplicity and accessibility
  - ◦ Provide different invoice types for different customer types (like fleets)
- **Most household customers tend to renew one vehicle at a time.** DOL has the ability for a single vehicle to be listed on multiple accounts for payment.
- **Bundling RUC with other payments (commercial and/or government) has the potential for significant cost savings**
- **Make RUC and registration payment channels consistent** that way customers have a consistent experience across both.

There were several common threads throughout workshops on customer service:

- Get to know your customer and meet them where they are, sometimes literally. Find ways the RUC program can be designed to make it easy for customers to provide the required information and make payments through familiar methods.

- Deploy targeted/customized support especially in early years of a new program. Start small and focus on building trust.

- Offer alternatives in all that we do including mileage reporting, payment methods, payment locations.

- Customize how issues are addressed. Ensure customer issues can be solved quickly.

3.2.5   Common Threads

In addition to the common threads, one gap was identified. Given that all RUC programs are relatively small, many issues and items have been handled manually and new processes have been put in place only as necessary, as they are encountered. As programs grow, it will be important to make sure processes are in place for customers to make changes easily. DOL has processes in place for managing vehicle registry changes; however, introducing RUC adds many more rules that need to be handled. Further research is needed on the types of customer changes and how to manage them efficiently. Otherwise, changes can become a major pain point for customers.

3.2.6   Provisioning and configuration of customer service

There are up to three new decisions a customer needs to make as part of RUC and those decisions drive what type of support the customer will need. This should be made as natural and seamless for the customer. A cleanly designed system can significantly reduce frustration and the number of customer contacts required for the customer to make these decisions.

The customer begins by making the choice between an annual flat fee and RUC. As shown in Figure 10, if a customer chooses RUC, a second decision is needed on how they would like to report their mileage. This is followed by additional decisions such as the frequency of payment. Customers that choose technology methods will likely need to be handed off to commercial account managers for next steps such as enrollment and regular "tier 2" customer support.

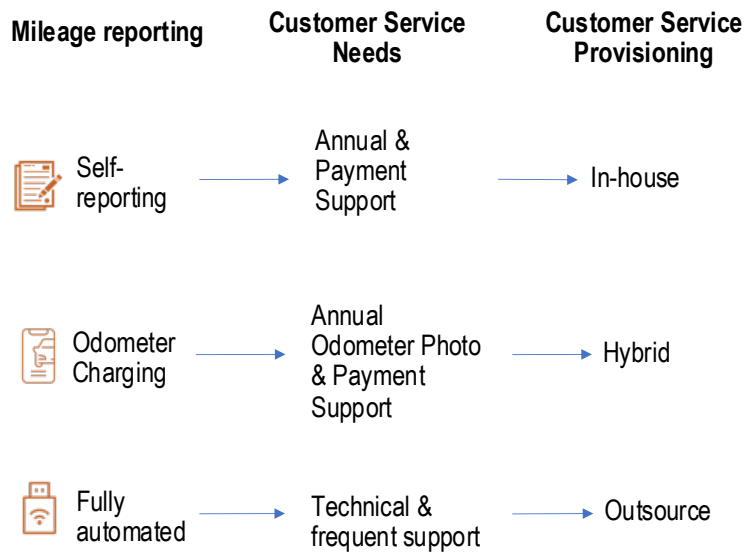| Mileage reporting	Customer Service Needs	Customer Service Provisioning
Self-reporting	Annual & Payment Support	In-house
Odometer Charging	Annual Odometer Photo & Payment Support	Hybrid
Fully automated	Technical & frequent support	Outsource

Figure 10: Provisioning customer service to match customer decisions

Insights and policy recommendations from the workshop on configurations DOL might need to support RUC customer service include:

- Create a new team dedicated to RUC in the customer service system
- Include RUC in subagent training
- Start small and gradually scale up, with RUC knowledge and skills disseminating over time
- Early days require "VIP" treatment for all customers to build understanding and trust
- Start with an issue triage methodology based on lessons learned, and adjust over time

4.0 ENFORCEMENT

4.1 Background Research

The research identified six main types of evasion shown in Table 1.

Table 1: Six Main Types of RUC Evasion

Evasion Method	Primary Prevention
Failure to register vehicle with motor vehicle agency	• Registration enforcement, including for out of state vehicles domiciled in state
Failure to enroll vehicle in the RUC	• Motor vehicle agency checks that required vehicles are enrolled
Failure to make payments	• Account manager sends late notices, penalties
Moving out-of-state without making a final report and payment	• Require prepayment/require deposit for post-payment • Don't issue registration refunds until final payment made
Vehicle scrapped/abandoned without making final report and payment	• Require prepayment/require deposit for post-payment • Require scrapyards to check RUC status • Add RUC owed to vehicle abandonment fines
Failure to report odometer reading	• Reminders and penalties
Submitting fraudulent odometer readings	• Image manipulation detection • Random audits and penalties

The figure below shows a notional frequency of compliance among vehicle owners for an established RUC program. A simple, cost-effective, and customer-friendly measure to take, especially for a new RUC program, is to make compliance as easy to achieve as possible. By understanding the volume and reasons for non-compliance using this typology, enforcement can focus on encouraging customers into voluntarily comply through lower-cost, positive-framed approaches wherever possible.

- Voluntarily compliant
- Short-term unintentionally non-compliant
- Long-term unintentionally non-compliant
- Long-term intentionally non-compliant (for "good" reason)
- Long-term intentionally non-compliant (for no "good" reason)
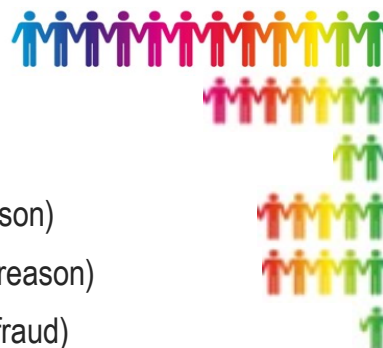- Intentionally non-compliant (active evasion/cheating/fraud)

Figure 11: Types and notional levels of compliance in a tax program

4.2 Workshop Insights

A single challenge statement was developed from the discussion questions to provide focus and guide the enforcement workshops.

Enforcement Workshops Challenge Statement

Design a low-cost enforcement approach that captures a relatively high percentage of violation events.
- Assess effectiveness of your design at capturing every dollar
- Improve design functions at reasonable cost
- Assess efficiency and effectiveness of multi-state enforcement systems
- Identify the changes required in enabling law

Workshop participants confirmed that maximization of voluntary compliance is the most important approach to controlling enforcement costs in a RUC Program. It is best aligned with people's innate desire to be voluntarily compliant, is the best fit for increasing public acceptance of a new program, and is the best approach that allows accommodation of equity considerations as it is not overly punitive. Participants in the workshop, created six strategies for maximizing voluntary compliance as illustrated in Figure 12 and tenets to facilitate voluntary compliance as summarized in

Table 2.

Design	Language	Coaxing
Design for compliance with simplicity, centralized information, ease of payment	Minimize unintentional non-compliance through clear, simple language and eye-catching reminders	Work constructively with the unintentionally non-compliant via direct letters, kind language, avoiding punishment or shaming

Payment plans	Grace periods	Incentives
Possibly based on eligibility criteria and not necessarily advertised	Builds empathy with the unintentionally noncompliant	Without undermining revenue, reward good behavior

Figure 12: Strategies for maximizing voluntary compliance

Table 2: Tenets that facilitate voluntary compliance

Voluntary Compliance Tenet	How to Apply Tenet
Simplicity is the magic bullet	• Users should not need to hunt around for information • Prioritize "automation", e.g., utility payments through smartphone apps • Link information across different divisions • Clunky systems for paying fines can be a deterrent
Implement upfront, clear, and timely communications	• Renewal notice reminders are important and significant dips in revenue are immediately seen in the absence of reminders • Users are less frustrated when they know what they must pay, when, and how • Use different communications for compliant users as opposed to those who have fines • Develop eye catching communications that cannot be ignored • Coordinate messages across state agency and vendors
A kinder approach is often more effective	• Avoid use of the word "delinquent" • Soft collection letter, which was more of an outreach effort than a punitive one, in Oregon resulted in 90 percent compliance after collection letter
Educate the public	• When people understand "the why" for the fee, they are more likely to support the program and less likely to intentionally be non-compliant.
Consider offering payment plans and grace periods	• There is always a population that, without assistance, risks relapsing • Establish criteria for who can benefit from payment plans and grace periods • Extra internal coordination is necessary to offer payment plans effectively • Thus, payment plans do not necessarily need to be advertised
Establish a threshold for triggering collections process	• In Oregon, it was found to not be worth going for anything less than $125 • Establish clear enforcement and collections responsibilities for commercial account managers
Leverage Commercial Account Manager (CAM) and vendor relationships and capabilities	• CAMs and vendors are better positioned to provide customer support when they own the relationship with customers • Contractors have more leeway than state entities • Keep contracts tight • If there are additional fees for a subset of mileage reporting methods, ensure there are incentives for people to sign up with the CAMs • Provide a one-stop-shop app where people could manage everything transportation related

Non-compliance often results from barriers that can be taken into consideration proactively and through flexible customer service. These include:

- Make the system easy to understand and comply with

- Offer waivers for first and consider minor offenses second

- Offer payment plans

- Do not suspend driver licenses

- Use registration holds only after other measures have failed

- Use vehicle disabling/impoundment/seizure only in extreme cases

- Jail time would only apply to leaders of widespread fraud efforts

Another potential area for collaboration that could reduce enforcement costs is to leverage multi-state enforcement tools such as the National Motor Vehicle Title Information System (NMVTIS) exist that could be accessed in a RUC system to allow states to more cost effectively conduct shared enforcement on unpaid accounts that fall into non-compliance. States could share basic data about their vehicle registries that could facilitate cross-state enforcement to ensure compliance by vehicle owners who move from one state to another.

5.0 PROCUREMENT

5.1 Background Research

There are several models for RUC vendor procurement. At the time the workshops were being conducted, states with RUC programs all contracted out the account management function with the main difference being how many vendors they contracted out to, ranging from one to as many as that were qualified. Other possible procurement options for RUC in the future could have the government developing and operating more of the system.
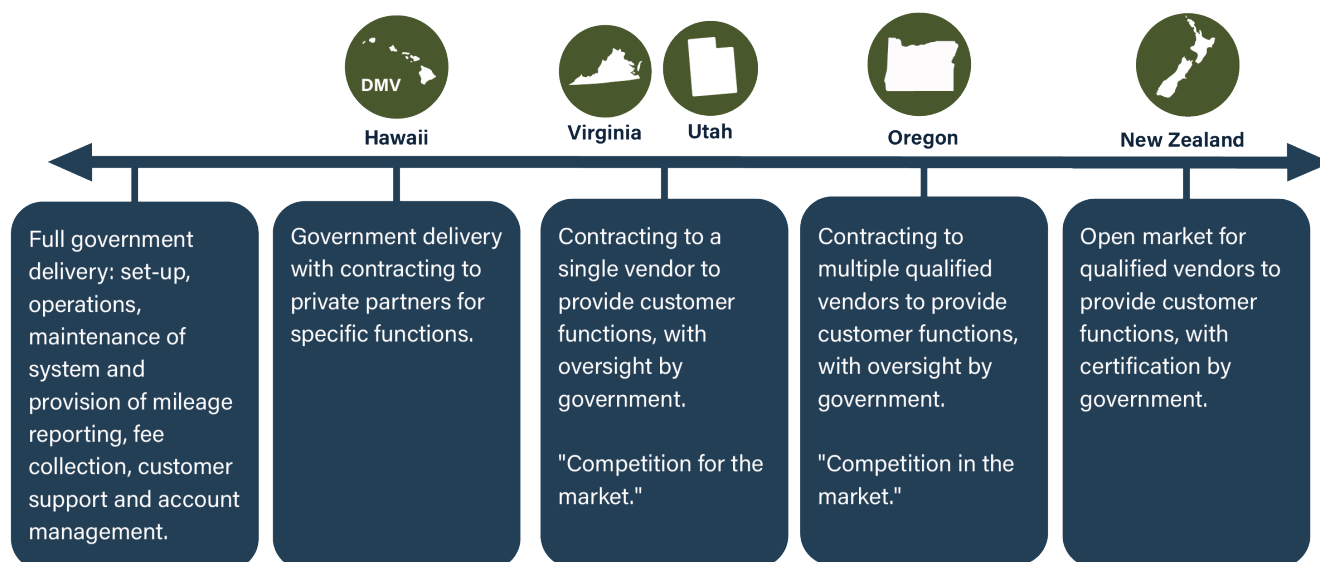

Hawaii		**Virginia** **Utah**	**Oregon**	**New Zealand**
Full government delivery: set-up, operations, maintenance of system and provision of mileage reporting, fee collection, customer support and account management.	Government delivery with contracting to private partners for specific functions.	Contracting to a single vendor to provide customer functions, with oversight by government. "Competition for the market."	Contracting to multiple qualified vendors to provide customer functions, with oversight by government. "Competition in the market."	Open market for qualified vendors to provide customer functions, with certification by government.

Figure 13: Spectrum of procurement possibilities for RUC

An open market is where any vendor can come in and provide RUC services, mileage reporting technology, customer service, and fee collection. There are many benefits to encouraging an open market in RUC including:

- Commercial services can offset vendor costs

- Project acceleration

- Improved customer experience

- Competition encourages vendors to lower costs

- Easier ability to evolve technology

- Increased incentives for vendor innovation

- Less concern about privacy if government is not the account manager and there is choice of account managers

5.2 Workshop Insights

A single challenge statement was developed from the discussion questions to provide focus and guide the procurement workshops.

Procurement Workshops Challenge Statement

Design a regional procurement and certification process for RUC vendors with a market contract accessible by multiple states through service level agreements.

- Compare a market contract negotiated by participating states versus negotiating individual vendor purchase contracts
- Consider the region only certifying vendors, leaving procurement and contracting to individual states
- Consider the region certifying account managers, elements of system, or both

The participants raised four approaches for interstate collaboration on procurement:

- **Regional procurement:** Process for multiple states to collaborate and share information on design of RUC elements that can be outsourced

- **Certification process**: The process of qualifying vendors for specific functions and granting them certification to do business in one or more states

- **Market contract**: Standard commercial terms under which any qualified vendor operates, the details of which could vary from state to state

- **Service level agreements (SLAs)**: Performance standards that vendors meet to maintain their qualification

Figure 14 summarizes the key elements of a contract the state would want to have with vendors, some of which could be common across states and others would vary.

Commonalities	Commercial terms
• Data collection, account management, customer service • Issues to manage: privacy protection, data security, performance requirements.	• States can share benchmarks for performance like reliability, accuracy, security, privacy, distribution, and customer service • Compensation per vehicle or as a fraction of gross revenue collected • Consider bonding
Key differences	
• Setup requirements, metrics, performance targets vary across mileage reporting methods • Data requirements vary: may include fuel consumption, location data, and other data elements users can choose to share or which is collected depending on policy choices.	**Contract duration** • Can be fixed duration with renewals, or open-ended • Termination – define exit clauses, contingency, covered costs

Figure 14: Elements of a market contract for RUC service providers

Certification and standardization are proven methods shown to reduce costs while improving quality. Working together, states can encourage a healthy marketplace of vendors that provide common services. An open and shared certification process can reduce the cost for states undertaking a procurement for RUC. At the same time a common certification process across multiple states reduces the cost of doing business for RUC providers. It also makes it easier for new providers to enter the market.

Oregon has been certifying vendors for RUC since 2014, and they shared their experiences and lessons learned. The participants discussed additional benefits that could be realized with harmonization of regional procurements and industry standardization. Joint procurement was another option; however, workshop participants concluded that Washington legislative authority would likely be required to use a market contract set up by another entity (e.g., Oregon, RUC America). Thus, for the time being, procurement will need to be done individually by states or via a licensing model.
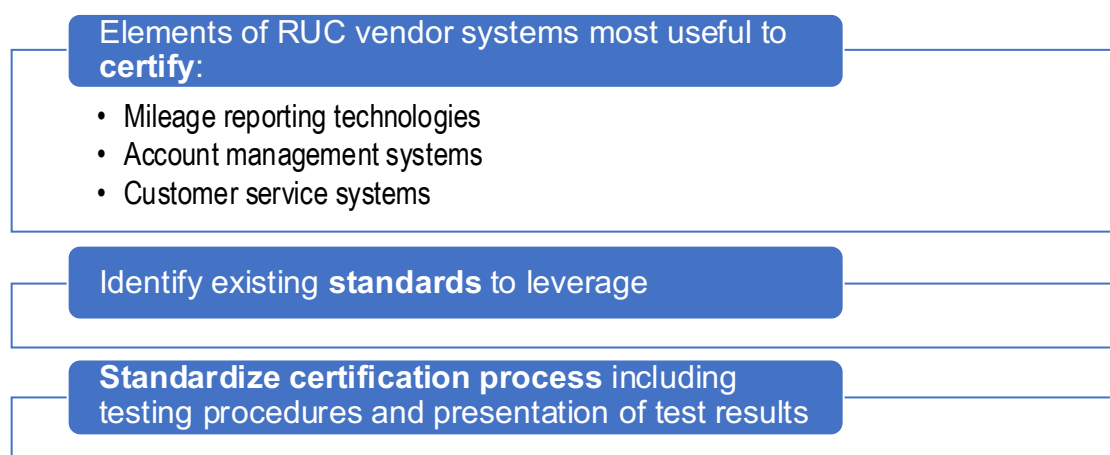
Elements of RUC vendor systems most useful to **certify**:

- Mileage reporting technologies
- Account management systems
- Customer service systems

Identify existing **standards** to leverage

Standardize certification process including testing procedures and presentation of test results

Figure 15: Framework for multi-state certification and standardization

The testing required to certify vendors with new systems, whenever there are changes and upgrades to systems and requirements, is a time- and labor-intensive process. The group shared strategies for states to manage the cost of the testing required for certification, shown in Figure 16: Approaches to certification to make testing more manageable for states. Certain features of RUC may be self-certification by the vendors themselves. Third-party non-profit or commercial certification entities can perform certification on behalf of multiple states. Customized components or internal testing, in the absence of third-party certification entities, is the costliest way of ensuring that vendors are certified and meeting requirements.
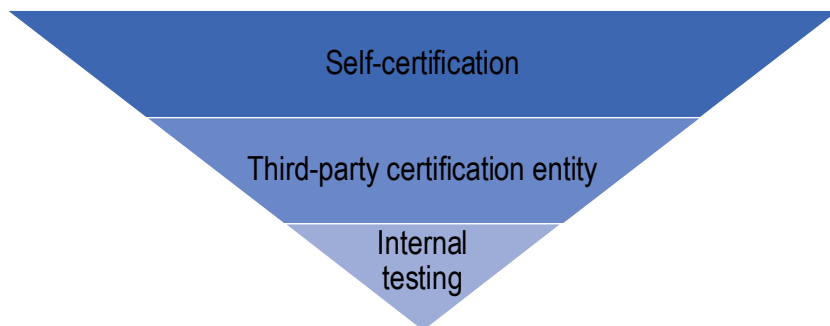
Figure 16: Approaches to certification to make testing more manageable for states

Although not many states have active RUC programs in place, it is not too early to begin standardizing. Waiting for more programs would likely make it more difficult to harmonize across states. In this first pass, participants identified three categories of elements that are ready for certification and most useful currently to certify as illustrated in Figure 17. These categories would likely be easiest to begin with, further analysis and discussions could uncover additional elements. Once the process is begun, it can then accommodate the growing number of categories that will require standardization as RUC matures.

Mileage reporting technologies	Account management systems	Customer service systems
• Devices and software • Messages (mileage or odometer messages) and acknowledgements • Exception management • End to end message processing	• Transaction processing (correct computation of transaction data) • Invoice charges/ rounding • Workflows (for usability aspects) • Payment options	• Customer request handling processes • Reporting capabilities • Training (content, quality and frequency)

Figure 17: Elements of a RUC system to certify

Rather than starting from scratch, external standards should also be leveraged as part of the certification process, including those illustrated in Figure 18.

Figure 18: Existing standards to leverage for RUC certification and standardization

The more states that participate in the certification, the more cost reduction potential there is. There are multiple ways of creating a certification process that encourages an open market that other states entering RUC would likely want to tap into. Figure 19 shows the different aspects of certification that could be pursued.
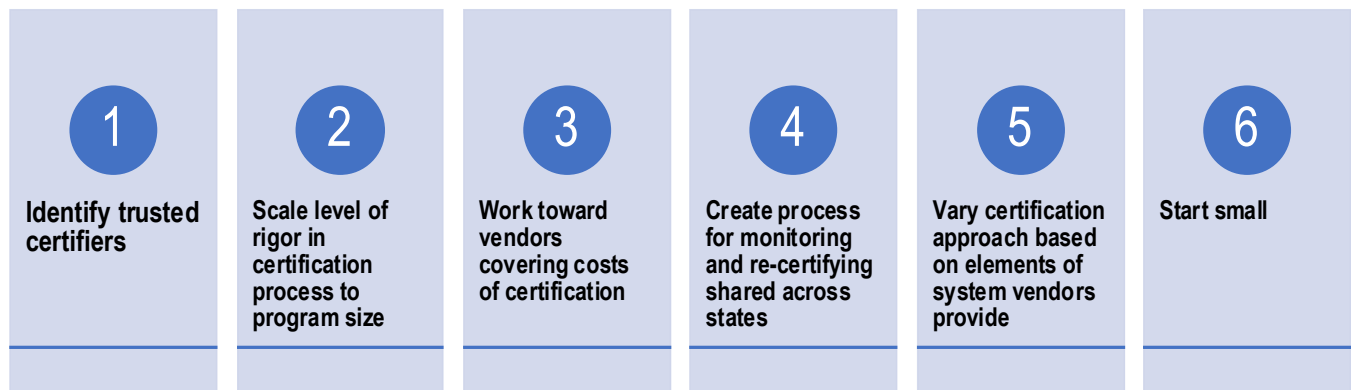

1	2	3	4	5	6
Identify trusted certifiers	**Scale level of rigor in certification process to program size**	**Work toward vendors covering costs of certification**	**Create process for monitoring and re-certifying shared across states**	**Vary certification approach based on elements of system vendors provide**	**Start small**

Figure 19: Creating value for certification in an open market

Workshop participants agreed that regional or interstate harmonization could help with simplifying the implementation of RUC, improve customer experience, and reduce costs. Participants identified two concrete next steps that could set the stage for moving towards harmonization. These pilots would not include test drivers but would advance the state of RUC vendor certification.

- Create and vet with the industry and other states a **model market contract**. This would make the vendor procurement process more consistent from state-to-state.

- Initiate an approach to creating and maintaining essential RUC standards, beginning with identifying elements of RUC that can/should be subject to national or industry standards. This would include discussion around who would be involved with developing the standards and maintaining the standards.

6.0 BEST PRACTICES & NEXT STEPS

One of the three main objectives of the Forward Drive project was to further research on how to reduce the cost of collecting RUC. Collecting RUC will gradually become more efficient to collect as more states begin implementing RUC, the volume of transactions grow, and service providers develop newer technologies and business models. In the meantime, there are numerous best practices, research, and multi-state coordination activities that states can undertake to reduce the cost of collection even for small-scale RUC programs.

Best Practices

- Provide a high-quality customer experience

- Ensure careful use of language

- Promote voluntary compliance

- Pursue multi-state collaboration around information sharing, capacity building, and certification

- Collecting money from customers upfront (pre-payment) makes it easier for customers and the state administering the program

The research performed and workshops conducted in Task 4 resulted in the identification of five customer service concepts, two procurement and certification concepts, and one enforcement concept to pilot for *Forward Drive*. These concepts were further refined and integrated into the overall pilot (simulation and follow-on experiences) as well as the mock standards committee, all of which are discussed in Volume 1 and Appendix B-1 through B-7.

Concepts proposed for possible development and testing as part of *Forward Drive* were:

Customer Service

- Test alternative invoice concepts to enhance understanding and trust

- Test cost-effectiveness of incentives for driving customers to lower-cost methods (i.e., online)

- Test viability of existing non-governmental vehicle-related transactions for collecting mileage data and/or processing payments

- Test customer preferences for who to talk to (DOL vs. business partners) and how (chat, phone, email, etc.)

- Map the customer journey: collect information on all vehicle-related transactions

Procurement

Workshop participants agreed that regional or interstate harmonization could help with simplifying the implementation of RUC, improve customer experience, and reduce costs. Participants identified two concrete next steps that could set the stage for moving towards harmonization. These pilots would not include test drivers but would advance the state of RUC vendor certification.

- Create and vet with the industry and other states a model market contract. This would make the vendor procurement process more consistent from state-to-state.

- Initiate an approach to creating and maintaining essential RUC standards, beginning with identifying elements of RUC that can/should be subject to national or industry standards. This would include discussion around who would be involved with developing the standards and maintaining the standards.

Enforcement

Given the emphasis on voluntary compliance, workshop participants emphasized the importance of offering simple reporting methods such as self-declaration, with minimally invasive spot checks, such as visual verification using odometer images based on random sampling as well as outlier cases that meet certain criteria. In addition, the workshop participants again emphasized the importance of clear, simple communication to customers as a foundation for lost-cost enforcement, reinforcing many of the concepts proposed in the customer service workshop.

Pilot Concepts for *Forward Drive*

Customer service
- Alternative invoice designs
- Incentivizing customers to low-cost channels
- Vehicle-related transactions for collecting mileage data and/or processing payments
- Customer interaction preferences
- Customer journeys maps

Procurement & certification
- Standards creation process

Enforcement
- Verification or audit for manual reporting