



A-12

DEPARTMENT OF LICENSING IT
SYSTEM CAPABILITIES & NEEDS

 **WA RUC**



Department of Licensing IT System Capabilities and Needs



PREFACE

The purpose of this report is to provide information for the Washington Road Usage Charge Steering Committee's consideration as it deliberates on the prospects for the State of Washington to transition to a per-mile fee system as a future replacement for the state's motor vehicle fuel tax (gas tax).

This report examines the impacts of RUC on state Information Technology (IT) systems in various scenarios, the corresponding IT Needs that the state will have in those scenarios, and how these needs may impact RUC policy and legislation going forward.

This report is being presented to the Steering Committee as a draft version for review and discussion at its upcoming meeting on May 2, 2019.

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EXECUTIVE SUMMARY

The operational elements of a RUC program—RUC mileage data collection and enforcement mechanisms—will depend on, need to interact with, and thus have an impact on the state’s Information Technology (IT) systems. The policy issue examined in this paper is that RUC design must account for the impacts of RUC on state IT systems, and specifically account for the capital costs of the one-time change orders to update the existing state IT systems.

The paper begins by explaining the topic, and then explains that the Washington Department of Licensing (DOL) is the natural home to the RUC program because it operates the vehicle registry database and because it already supports direct customer interaction (e.g., for registration renewals). Thus, the project team engaged with the DOL to estimate state IT Needs for this paper.

The second section of the paper explains that the IT needs assessment cannot be made in the abstract—it can only be made with specific RUC program designs in mind. To that end, it explains the program design used for IT Needs assessment by DOL, including the mileage reporting methods assumed to be in the RUC program, the business scenarios possible in a RUC program, the first two phases of a potential future RUC program, and a range of lower level assumptions about a potential future RUC program made for the purposes of assessing IT Needs.

The third section of the paper explains the seven categories of IT Needs considered by DOL: Financial, Vehicle Record, E-Services, Letters and Notices, Reports, Interfaces, and Security. It then presents the IT Needs assessment performed by DOL for the three business scenarios presented in the second section, i.e.:

- Scenario A: Fully State Operated RUC system
- Scenario B: Service Provider / State Hybrid RUC system
- Scenario C: Service Provider Operated RUC system with State Oversight

The final section of the paper presents the implications of the IT Needs for RUC program design and legislation. The first conclusion is that a fully state-run system, in which the state provides and manages OBD-II vehicle plug-in

technology, is not desirable. The paper also concludes that a private service provider should provide plug-in device technology. Whether the state or a private company should provide the manual mileage reporting methods is an open question, with pros and cons still to be considered as the RUC market develops and matures. The paper weighs some of the advantages of each possibility.

1 INTRODUCTION

1.1 IT Capabilities and Needs for Road Usage Charging

The operational elements of a RUC program—RUC mileage data collection and enforcement mechanisms—will depend on, need to interact with, and thus have an impact on the state’s Information Technology (IT) systems. Notably, RUC will require new uses of the state’s vehicle licensing registry data—to determine who is RUC liable, to validate vehicle and registration data, and to ensure all RUC owed is collected. These impacts on the state’s IT systems will require changes to be made, which have both cost and time of implementation implications for state, and implications for procurement of potential Service Providers to support RUC.

The policy issue examined in this paper is that RUC design must account for the impacts of RUC on state IT systems, and specifically account for the capital costs of the one-time change orders to update the existing state IT systems. At a minimum, when the RUC system is designed, any design choices on collection and enforcement mechanisms that are incompatible with the state IT framework, or would be prohibitively expensive, should be ruled out. More significantly, for all design choices made for the RUC program, the state must provide resources to the appropriate agencies to make the necessary adjustments to accommodate successful implementation of RUC. Understanding these implications of various design choices on IT needs will help inform whether and how RUC policy moves forward. Note that this paper does not cover staffing or other ongoing costs of operating a RUC system.

Washington State is in the fortunate position of having a vehicle registry system that has been developed according to modern software standards, the new DRIVES system, which is more flexible and scalable than many state vehicle registry systems. The features of this system should be leveraged to the extent possible. However, DRIVES was not designed to implement a RUC system. Thus, changes to the system will be necessary.

The remainder of this introductory section explores the roles of the Washington State Department of Licensing (DOL), and the way in which the project team engaged with the DOL.

The second section of the paper discusses the assumed design of RUC system for the purposes of the IT Needs analysis, including three potential business scenarios for the implementation of RUC. The third section of this paper presents the results of the IT needs analysis for three business scenarios. The final section of the paper presents Implications of IT needs for RUC program and legislation. The paper also contains an Appendix, which contains detailed assumptions made by DOL.

1.2 Role of the Washington State Department of Licensing in Road Usage Charging

DOL will have a major role in any potential future RUC program. That is because the database is also needed to validate vehicle and registrant information. The motor vehicle registry database also serves as the basis for enforcement of any mandatory RUC. Beyond these required IT activities of DOL in support of any RUC program, there are significant reasons to house RUC operations at DOL:

- DOL has a new, very capable motor vehicle registry, a part of the DRiver and VEhicle System (DRIVES).¹ Additional activities, such as those needed to support RUC, could be added to it.
- DOL has experience with operational customer-facing programs, such as vehicle registration, whereas other transportation and tax agencies do not.
- DOL has a network of subagents, who have the potential to provide RUC services to those without smartphones or devices, as they did in the pilot.

For all of these reasons, the IT needs in this paper have been assumed to be all performed by DOL. This does not mean that policy-related activities, such as rate-setting should necessarily be the responsibility of DOL—the advantages listed above only apply to RUC operations.

1.3 Engagement with the Washington State Department of Licensing

Because of the practicality of DOL administering RUC, in order to assess IT needs for RUC operations, the project team engaged with DOL. Specifically, DOL was

¹ <https://www.dol.wa.gov/about/what-is-drives.html>

asked to provide an assessment of hardware and software updates needed by the state in order to accommodate RUC. In order for DOL to make such assessments, they needed to base their estimates on a specific RUC program design. This RUC program design necessarily incorporates decisions not yet made by the Steering Committee or legislators. To accomplish this task, the project team composed a range of design choices based on its best understanding of how a RUC could function, and provided it to DOL. The project team's design choices leveraged lessons learned from operational RUC programs in Oregon, Utah, and New Zealand. These design choices are included in section 2. Section 3 presents the results of the DOL analysis.

2 DESIGN OF RUC PROGRAM FOR IT NEEDS ANALYSIS

As explained in Section 1, the state's IT needs can only be meaningfully assessed through making some basic RUC program design assumptions. Neither the Steering Committee nor the legislature has fully designed a RUC program for future implementation. Thus, in order to complete the task of assessing IT needs, the project team proposed a range of design choices based on its best understanding of how a RUC could best function for Washington. The project team leveraged lessons learned from operational RUC programs in Oregon, Utah, and New Zealand, as well as observations and decisions made to date for Washington.

The project team's assumptions for this exercise are not intended to supersede any recommendations that the Steering Committee or Legislature might adopt—these are simply assumptions to provide a starting point and context that enables DOL to fully engage in the IT Needs exercise.

This section, Section 2, explains all those assumptions. Specifically:

- Section 2.1 discusses existing RUC programs in Oregon, Utah, and New Zealand.
- Section 2.2 explains mileage reporting methods selected for this IT needs analysis
- Section 2.3 describes possible business scenarios for a RUC program
- Section 2.4 explains assumptions about how RUC will be phased in
- Section 2.5 provides high-level assumptions about future RUC program operations in Washington
- Section 2.6 summarizes the contents of this entire section in a table format.

2.1 RUC Program Design for Permanent RUC programs

Permanent RUC programs for light vehicles exist in Oregon, Utah, and New Zealand. Any potential future RUC program implemented in Washington will differ substantially from all these programs due to differences in the policy goals and policy landscape. Nonetheless, these operational RUC programs can serve as a reference point for program design of a potential future Washington State RUC program, and possibly as the basis for some assumptions for a such a program.

2.1.1 Oregon

Oregon's OReGO RUC program has been operational since 2015. OReGO is an opt-in program that allows participants to pay RUC instead of the gas tax, and is statutorily limited to 5,000 vehicles, although currently fewer than 1,000 are participating. OReGO's RUC operations are provided by three service providers—two of which are called Commercial Account Managers (CAMs): Azuga and emovis; and one of which is the State Account Manager (SAM), which is supported by emovis. All mileage reporting, payment collection and related activities are completed by these service providers. The mileage reporting technology is limited to plug-in devices, offering drivers a choice between GPS-enabled or no GPS. OReGO has no mechanisms for enforcement and no connection to state vehicle registry.

2.1.2 Utah

Utah's RUC system will begin operations January 1, 2020. It is an opt-in system by which alternative fuel vehicles may choose to pay RUC in lieu of paying newly introduced flat fees on alternative fueled vehicles. All RUC operations—including mileage reporting and payment collection—will be completed by a service provider, which Utah is currently procuring. Mileage reporting will occur using plug-in devices with GPS. Unlike OReGO, Utah's system will feature a live (near real-time) connection with state vehicle registry and will also include enforcement activities.

2.1.3 New Zealand Diesel RUC

All diesel vehicles registered in New Zealand have paid RUC since 1978, including light vehicles. RUC payments for light vehicles are made through the sale and issuance of paper permits, which are equivalent to the Mileage Permit option

tested in the WA RUC pilot. The New Zealand system was developed, operated, maintained, and enforced by the New Zealand Transport Agency, the country's equivalent of a Department of Transportation.

2.2 Mileage Reporting Methods

This subsection describes the mileage reporting methods assumed to be part of the potential future RUC program for the purposes of estimating DOL's IT Needs.

2.2.1 Automated Mileage Reporting

Automated mileage collection—using an OBD-II plug-in device—is assumed to be a necessary option for of any potential future RUC system for two reasons:

1. Automated mileage collection with GPS location technology is the only way to accurately measure and eliminate RUC charges for travel on non-chargeable areas including travel out-of-state, off-road, and on private roads. While some motorists may prefer not to have GPS, providing this option is vital to a large number of motorists who will not want to be charged for such travel.
2. Automated mileage reporting provides the best option for motorists who do not wish to take any extra action to report mileage information. Indeed, in the pilot, over 2/3rds of participants opted to use some form of Automated mileage reporting.

Automated mileage reporting is assumed to be carried out by plug-in devices, either with or without GPS. Offering plug-in devices with GPS is necessary to enable automated deduction of non-chargeable mileage. Offering plug-in devices without GPS will be more attractive to some participants who are uncomfortable with the use of GPS but nonetheless still prefer an automated mileage reporting option. This non-GPS option can be offered at no additional cost to the state, if plug-in devices with GPS are already offered as part of the RUC program.

For both methods, fuel tax credits are assumed to be used for all vehicles that use liquid fuel, based on actual fuel consumption where data is available, and based on EPA fuel consumption estimates when it is not.

In the future, this option may also include the use of native automaker telematics systems, but this is only feasible with limited vehicle makes and models now, and would require explicit agreements with the automakers. For those reasons, it is not included in the program assumptions.

2.2.2 Manual Mileage Reporting (including role of DOL Subagents)

Manual mileage reporting, featured in the pilot as the Mileage Permit and Odometer Reading is any method of mileage reporting in which the motorist self-reports the vehicle's odometer reading each reporting period (month, quarter or year). Manual mileage reporting is especially important to support vehicles that cannot use OBD-II devices (because they are old, or because they do not have OBD-II ports like the Tesla 3, or because the motorist has another device in the OBD-II port and does not wish to make accommodation for any extra technology in their vehicle). For this IT needs assessment, the Manual methods presumed to be offered included the annual Time Permit and the odometer reading.

The annual Time Permit—paying a high flat fee for unlimited miles—is needed for motorists who do not want to do any reporting at all. It would also provide an option for vehicles with broken odometers. Finally, offering a Time Permit could be used as a default method for motorists who fail to register or report their odometer on time.

The Odometer Reading, in which the motorist self-reports the odometer reading and post-pays for the miles driven, is offered as a simple, per mile RUC method. The Mileage Permit method, in which the motorist pre-purchases blocks of miles, could also be offered instead of or in addition to the Odometer Reading method, but the Odometer Reading is somewhat simpler to explain to motorists and to implement. For the purposes of the DOL IT Needs assessment, no *refunds* for travel on non-chargeable areas (e.g., out-of-state mileage) are assumed. However, fuel tax *credits* are assumed to be available for all vehicles that use gasoline or diesel. The amount of this credit will be calculated based on EPA fuel consumption (MPG) estimates for the reported mileage driven.

As in the pilot, it is assumed that most of the population with a smartphone will report mileage using a smartphone app, but as in the pilot, it is also assumed that DOL sub-agents will provide use of smartphones that motorists can then use to

report mileage. Costs of the smartphones and the app are not included in the estimates in this exercise.

2.3 Three Possible Business Scenarios for RUC in Washington

Recognizing the technology challenges associated with the use of OBD-II plug-in devices, since the beginning of the RUC pilot project, the WA RUC Steering Committee has explored the idea of using commercial Service Providers to perform RUC operations. Indeed, it is notable that the first two operational RUC systems in the US—in Oregon and in Utah—use Service Providers to perform all RUC operations, except for monitoring/oversight at the state government level.

The project team identified three business scenarios in which RUC activities could be organized at a high level, essentially capturing whether the activities are performed by the state or by a commercial Service Provider:

- Scenario A: Fully State Operated RUC system
- Scenario B: Service Provider / State Hybrid RUC system
- Scenario C: Service Provider Operated RUC system with State Oversight

These three scenarios are described below:

2.3.1 Scenario A: Fully State Operated

In this scenario, DOL operates the entire RUC program. It may contract with a supplier for OBD-II plug-in devices and software for processing the data that they generate, but it does not use a Service Provider. To date, this approach has not been adopted by any state RUC program in which devices are used to support road charging payments, but it is important to consider since some people will naturally ask whether the state can (or should) run the RUC program by itself.

2.3.2 Scenario B: Service Provider / State Hybrid

In this scenario, Service Providers are responsible for operating automated mileage reporting methods (plug-in devices) including billing and payment, while DOL operates the manual method including billing and payment. This organizational approach is warranted because automated mileage reporting methods are more complicated and technology-dependent than manual methods,

and can easily be run by a separate entity from the entity that runs the manual methods. DOL would still contract with a firm to provide the smartphone app software required to implement the manual reporting methods that rely on self-reported odometer mileage. This scenario is similar to the diesel mileage permit RUC system used in New Zealand.

In this scenario, the Service Provider could be labeled as an independent entity working on behalf of the state, as the CAMs are in Oregon (Azuga and emovis); or it could be white labelled as a state-run entity, in the same way that Etan operates only under the Washington State Department of Transportation's GoodToGo™ toll branding. This branding of the Service Provider—either as an independent entity or as a state contractor—does not impact the IT needs. Note that to support a potential future open architecture system, it may be advisable for the Service Provider to retain its independent brand. White-labeling the Service Provider as a state entity would function similarly to the way the GoodToGo™ tolling system does today.

2.3.3 Scenario C: Service Provider Operated with State Oversight

In this scenario, all operations are outsourced to the Service Provider for all mileage reporting methods, including billing and payment. This approach is similar to the RUC operations in Oregon and Utah (although those states do not offer any manual reporting options).

As with Scenario B, the Service Provider could be branded as an independent entity working on behalf of the state, and that would not impact the IT needs.

2.4 Possible First Two Phases of RUC Transition

The introduction of RUC to the State of Washington cannot be accomplished in a single year, due to the risk of transitioning so many people at once. Indeed, due to the time period associated with phasing out gas tax bonds of at least 10 and possibly 25 years, it is likely that a full fleet-wide transition to RUC will take a substantial amount of time.

Based on this fact, it was assumed that there would be a gradual transition into the RUC, based on the principle that vehicles whose costs are not currently captured by the gas tax should pay first. These assumptions are not policy

recommendations, but merely initial assumptions used to evaluate IT needs. Further, the precise timing of the phases assumed below is notional.

2.4.1 Phase 1 (July 2021-July 2025): RUC applies to Battery-electric and Plug-in Hybrid Electric Vehicles only

In Washington, a flat annual registration fee of \$150 already exists for plug-in electric vehicles (PEV). While \$50 of that fee is earmarked for general transportation purposes (primarily the construction of public access PEV charging stations), \$100 of it must be used for highway purposes. The assumption for this initial Phase 1 is that this \$100 flat fee earmarked for highway purposes would be replaced with RUC—a usage-based fee—starting in 2021. Providing the RUC as an alternative to a flat fee is being explored both in Oregon and Utah. Ultimately, in Washington this Phase 1 scenario represents about 1% of vehicles registered in the state when the program starts in 2021.

2.4.2 Phase 2 (July 2025-TBD): RUC applies to vehicles over 40 mpg

With the system up and running for four years, in 2025 the RUC can be extended to non-electric vehicles that nonetheless have high fuel economy and currently pay relatively little gas tax.

Additional phases for RUC would certainly be expected after Phase 2 — but the project team did not want to speculate about the further evolution of the RUC so far in the future.

2.5 Assumptions

2.5.1 RUC Program Assumptions

To assist in DOL's IT Needs estimate, a range of further assumptions about how to formulate the potential future RUC system were made, as follows:

- RUC is a new, per-mile Vehicle License Fee (VLF) that would be owed at the time of original vehicle licensing and registration renewal. Upon payment of the RUC VLF, the basic \$30 VLF, passenger vehicle weight fees and other taxes or fees owed, DOL would issue a registration sticker (same as current practice). The main reason for this approach is that categorization of RUC as a VLF allows a transition away from the gas tax while allowing the gradual elimination of gas tax-only bonding.

- Enforcement: Failure to report miles would be treated in same manner as toll violations, including leading to a registration hold after two notices of violation have been issued. Very large outstanding RUC invoices and ignored registration holds could eventually result in vehicle impoundment. The main reason for this assumption is to have minimal impact on the state police.
- The amount of RUC owed will be based on an assumed rate of 2.4 cents per mile, for all mileage that is not otherwise exempt. The main rationale for this mileage rate is that it was calculated to achieve simple “revenue neutrality”, so that the average driver would pay the same amount per mile under RUC as they currently do under the gas tax. This rate is for test purposes only and must be recalculated based on new metrics and policy directives from the legislature prior to any implementation of a RUC system.
- A fuel tax offset will be applied against RUC owed for assumed fuel taxes paid. In this fashion, payment of gas taxes at the pump are treated as “pre-payment” for RUC. The main reason for this assumption is because the state cannot legally repeal and replace the existing gas tax until all bonds that have pledged the gas tax have been repaid. However, a RUC is intended only as an alternative to the gas tax – not an additional tax. Allowing gas taxes paid to offset the total amount of RUC owed would allow the state to remain legally compliant with the bond requirements while still ensuring that no driver “double pays” for all miles under RUC, plus an additional amount (the gas tax). The offset is calculated as follows:
 - For automated methods in which fuel consumption can be measured by the plug-in device, the measured value will be credited against any RUC owed;
 - For manual methods and cases in which fuel consumption cannot be measured with a plug-in device, the number of self-reported reported miles, divided by combined EPA city/highway MPG (or MPGe for PEVs) is used to provide gallons of fuel consumed and the gas tax paid will be credited against any RUC owed;

- For both manual and automated methods, the amount of the gas tax credit is based on the State of Washington’s current fuel tax rate of 49.4 cents per gallon.
- RUC will only apply to passenger vehicles – not to vehicles that are subject to combined licensing (heavy commercial vehicles). This has been the assumption of the Steering Committee since it launched its initial assessment of RUC in 2012.

2.5.2 Assumptions about Estimates

DOL made the following high-level assumptions about their estimated needs, cost drivers, and impacts:

- The estimates only include IT hardware and software needs. These estimates do not include any staffing required by DOL to support RUC, nor any costs for the Service Provider, nor any type of software app-based support.
- The estimates are based strictly on the assumptions and information provided by the RUC project team.
- DOL made further detailed assumptions, included in the Appendix to this report.
- DOL presents the cost estimates as being within a 50% margin of error.

2.6 Summary of IT Needs

| | Scenario A: Fully state-run | Scenario B: Service Provider/State hybrid | Scenario C: Service Provider Run with state oversight |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Who pays | <ul style="list-style-type: none"> ● Phase 1: beginning July 1, 2021: All Plug-in and Electric Vehicles (except neighborhood electric vehicles). ● Phase 2: beginning July 1, 2025: All passenger vehicles with a city/highway EPA fuel economy rating of 40 MPG or higher. | <ul style="list-style-type: none"> ● Same as Scenario A | <ul style="list-style-type: none"> ● Same as Scenario A |

| | | | |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fee type | <ul style="list-style-type: none"> RUC is implemented as a new type of vehicle license fee | <ul style="list-style-type: none"> Same as Scenario A | <ul style="list-style-type: none"> Same as Scenario A |
| Fuel tax offset | <ul style="list-style-type: none"> Calculated and applied by DOL | <ul style="list-style-type: none"> Calculated and applied by DOL for manual methods, Service Provider for Automated methods | <ul style="list-style-type: none"> Calculated and applied by Service Provider |
| Mileage reported by/to | <ul style="list-style-type: none"> By the vehicle owner/lessee, to DOL | <ul style="list-style-type: none"> For Manual Methods: By vehicle owner/lessee, to DOL For Automated methods: By vehicle owner/lessee to Service Provider | <ul style="list-style-type: none"> By vehicle owner/lessee, to Service Provider |
| Automated mileage reporting with plug-in mileage meter (with & without GPS) | <ul style="list-style-type: none"> DOL acquires and manages inventory of all mileage meters DOL provides web portal DOL processes all mileage reports DOL provides all Billing and Payment | <ul style="list-style-type: none"> Service Provider provides all mileage meters Service Provider provides web portal Service Provider processes all mileage reports Service Provider provides all Billing and Payment | <ul style="list-style-type: none"> Service Provider provides all mileage meters Service Provider provides web portal Service Provider processes all mileage reports Service Provider provides all Billing and Payment |
| Manual mileage (time permit, odometer reporting) | <ul style="list-style-type: none"> DOL processes all mileage reports DOL provides all Billing and Payment | <ul style="list-style-type: none"> DOL processes all mileage reports DOL provides all Billing and Payment | <ul style="list-style-type: none"> Service Provider processes all mileage reports Service Provider provides all Billing and Payment |

3 RUC IT NEEDS UNDER THE THREE SCENARIOS

3.1 Seven Categories of IT Needs

IT Needs include changes to DOL's systems in the seven categories described in this table

| IT Category | Description |
|----------------------------|-----------------------------------------------------------------------------------------------------|
| Financial | How the system handles financial transactions, including calculating amounts owed |
| Vehicle Record | How the system displays the vehicle record, including whether a vehicle is liable for a certain fee |
| E-Services | A range of online services for users, including payment, receipt records, and odometer records |
| Letters and Notices | How the system generates letters and notices to be sent to users |
| Reports | How the system generates summary reports for internal and external review |
| Interfaces | How the system interfaces with other systems |
| Security | Reviews of system security to ensure changes made do not create security vulnerabilities |

For each of the seven categories, the following sections provide the person-hours of labor needed for a one-time capital update of the state IT system to support the scenario. It does not include ongoing operating costs.

3.2 Scenario A: Fully state-run

3.2.1 Phase 1

| Category | Description of Changes | Person-hours of labor |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Financial | Pricing logic to charge and distribute the new fee for qualifying vehicles. Includes: cashiering receipt, logic to stop renewals if payment not received, automated | 300 |

| | | |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| | billing, carry over of road usage in certain circumstances and allow shortages and refunds. | |
| Vehicle Record | New logic and screen changes to create a new indicator and banner for vehicles subject to road usage charge, require odometer reading and miles travelled out of state, and new activity to allow record corrections. Change also includes a new fleet activity to allow fleet to pay in one transaction including supplying odometer and miles travelled out of state and a new work item for vehicles sold and transferred out of state, including a case to audit customer record | 480 |
| E-Services | Modify various online services, that include creating a new online payment tool to accept road usage charges, report of sale, e-permitting, new road usage charge calculator to estimate fee that might be due, and system used by registered tow truck operators, wreckers, scrap processors, and insurance companies to require odometer and miles travelled out of state if applicable. | 348 |
| Letters and Notices | Modify or create new letters or notices. Changes include renewal notices, fleet notices, new billing letters, audit case and a one-time letter notifying owners of the new requirement | 190 |
| Reports | Create new reports for management of the road usage charge program, includes reports for the audit case. | 80 |
| Interfaces | New interface to receive data from software for OBDII devices. Estimate is only for a basic single mileage interface—not complete. | 100 |
| Security | Security analysis that includes review of security architecture, engineering and risk assessments to implement new program | 100 |

3.2.2 Phase 2

In Phase 2, updates to the system are needed in the Financial, Vehicle Record, E-Services, Letters and Notices, and Reports categories to capture the vehicles newly subject to the RUC

| Category | Description of Changes | Person-hours of labor |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| (Multiple) | Modify pricing logic for new vehicles subject to the fee, billings, template, online services changes and a onetime update to records subject to the fee | 300 |

3.2.3 Analysis

Total estimated development hours = 1,538

Total estimated security review hours = 100

Total Cost: \$ Indeterminate

Duration of development: Indeterminate

In the additional assumptions section presented in the Appendix, DOL states: “the department does not have enough information to estimate the cost to implement an automated solution such as using an OBDII device to collect mileage readings. This option requires that the program be management and solely implemented by the department and would not include commercial service provider management of the device or software used to collect data from the devices.”

There is currently no OBD device provider offering the service required by DOL for it to operate the OBD-II devices themselves, as this scenario requires. That means that the OBDII device provider would offer not only the devices, but would also need to support the software to perform mileage calculations, including a software portal on which motorists could look up their records. The lack of such an offering alone makes this scenario difficult to achieve.

Customer service and payments would also be left to DOL in this scenario. DOL would need to train staff on the intricacies of the operation of the OBDII device. DOL would likely need to maintain and distribute a large inventory of plug-in devices, both GPS-enabled and non-GPS devices. And DOLs payment system would need to be integrated with the OBDII device data records, some of which is reflected in DOL’s estimate, but much of which may not be.

For these reasons, this Scenario A is undesirable and not recommended for further consideration.

3.3 Scenario B: Service Provider/State hybrid

3.3.1 Phase 1

| Category | Description of Changes | Person-hours of labor |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Financial | Pricing logic to charge and distribute the new fee for qualifying vehicles. Includes: cashiering receipt, logic to stop renewals if payment not received, automated billing, carry over of road usage in certain circumstances and allow shortages and refunds. | 300 |
| Vehicle Record | New logic and screen changes to create a new indicator and banner for vehicles subject to road usage charge, require odometer reading and miles travelled out of state, and new activity to allow record corrections. Change also includes a new fleet activity to allow fleet to pay in one transaction including supplying odometer and miles travelled out of state and a new work item for vehicles sold and transferred out of state. Creates a new case used to audit service provider, and new activity to modify requirement in certain circumstances. | 530 |
| E-Services | Modify various online services, that include creating a new online payment tool to accept road usage charges, report of sale, e-permitting, new road usage charge calculator to estimate fee that might be due, and system used by registered tow truck operators, wreckers, scrap processors, and insurance companies to require odometer and miles travelled out of state if applicable. | 348 |
| Letters and Notices | Modify or create new letters or notices. Changes include renewal notices, fleet notices, new billing letters, audit case and a one-time letter notifying owners of the new requirement | 190 |
| Reports | Create new reports for management of the road usage charge program, includes reports for the audit case. | 80 |

| | | |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Interfaces | Provide commercial service provider data on vehicles subject to the fee, including receiving return data from the provider for activities related to vehicles imposed the fee | 220 |
| Security | Security analysis that includes review of security architecture, engineering and risk assessments to implement new program | 100 |

3.3.2 Phase 2

| Category | Description of Changes | Person-hours of labor |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| (Multiple) | Modify pricing logic for new vehicles subject to the fee, billings, template, online services changes and a onetime update to records subject to the fee | 300 |

3.3.3 Analysis

Total estimated development hours = 1,708

Total estimated security review hours = 100

Total Cost: \$1,015,300

Duration of development: 25 months

Unlike Scenario A, this scenario is feasible and desirable. DOL's provision of the manual methods offers a natural fit with using the local Vehicle Licensing Offices (VLOs, or subagents) to cover the participants who would not want to use a smartphone to report. This combination also creates an option to choose the state as a RUC provider, which will appeal to some motorists. From an economic perspective, assuming that there will only be one service provider to offer manual methods also seems logical, since that method does not involve many opportunities for customization of the product or service delivery, and may not attract multiple Service Providers to provide this service in any event. Indeed, the approach and assumptions reflected in this Scenario B echoes the RUC system implemented in New Zealand.

DOL requires 25 months from the initiation of this project to the time it will be ready for live operations to begin. So, to begin on July 1, 2021, DOL would need to be given a green light by June 1, 2019, which will not happen. Based on the legislative schedule, the earliest possible project start date would be in 2022.

Whether the Service Provider would be branded as a state entity or a private entity could be decided later, but labelling it as a private entity would support the future establishment of an open market approach for the provision of RUC services to government, which is expected to drive down operational costs for future RUC services.

3.4 Scenario C: Service Provider Run with State Oversight

3.4.1 Phase 1

| Category | Description of Changes | Person-hours of labor |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Vehicle Record | Vehicles changes that include creating a new case used to audit service provider, including a new activity to allow users to manually record payment received in certain circumstances, activity to stop renewals, and new indicator and banner for vehicles subject to the road usage charge | 250 |
| E-Services | None | 0 |
| Letters and Notices | Letters changes that includes new letters for the audit case. | 20 |
| Reports | Create new reports for management of the road usage charge program. | 30 |
| Interfaces | Interfaces change to provide commercial service provider data on vehicles subject to the fee, including receiving return data from the provider for activities related to vehicles imposed the fee. | 220 |
| Security | Security analysis that includes review of security architecture, engineering and risk assessments to implement new program | 100 |

3.4.2 Phase 2

| Category | Description of Changes | Person-hours of labor |
|-------------------|---------------------------------------------------|-----------------------|
| (Multiple) | Modify logic for new vehicles subject to the fee. | 20 |

3.4.3 Analysis

Total estimated development hours = 540

Total estimated security review hours = 100

Total Cost: \$ 365,300

Duration of development: 10 months

Like Scenario B but unlike Scenario A, this Scenario C is also feasible and desirable. Relying entirely on Service Providers for mileage reporting and payment operations is the approach taken in both Oregon and Utah. For economic reasons described earlier in Scenario B, the provision of manual methods would likely be limited to one service provider (assuming multiple service providers are contemplated).

With an implementation time of about 10 months, this approach would be faster to realize than Scenario B. However, it would not provide a state-run payment option, although whether the Service Provider would be branded as a state entity or a private entity could be decided later. As in Scenario B, branding the Service Provider as a private entity would support the later establishment of an open market.

4 IMPLICATIONS OF DOL'S INFORMATION TECHNOLOGY NEEDS FOR RUC PROGRAM AND LEGISLATION

4.1 A Service Provider is Needed for Automated Reporting

As discussed above, a Service Provider is needed to implement Automated Reporting at this time. No OBD-II device providers offer a service that would allow the DOL to accomplish the financial, customer service, or device management activities needed for it to carry out this responsibility. Even if an OBD-II device provider could be found who would provide this service, it is not certain that there would be any net savings on the service compared with the full-service provision included in Scenarios B and C. That is because the existing Service Providers have geared their product offerings toward full service provision.

Moreover, DOL could not easily provide customer service for OBD-II devices or device management. Potentially, DOL could use its payment platform. However, it is possible that OBD-II vendors would not want to split out their RUC payment processing from their RUC mileage reporting systems for a small system, both because they are so entwined with one another that splitting them out may be a lot of effort, and because they feel that they may not make a sufficient profit if they do.

For these reasons, a Service Provider is needed to provide automated reporting, whether it is branded as a government entity or a private entity.

4.2 Choice Between Service Provider and State for Manual Reporting

Thus, the major choice that must be made prior to implementation is whether the state or a Service Provider offers manual reporting.

Manual reporting seems to be a natural fit for the state for several reasons. The annual Time Permit is very similar to vehicle registration, and it does not require any mileage information. In essence, drivers who choose this option would simply pay the additional RUC amount at the same time as they renew their vehicle

license.² The Odometer Reading method would only add one new data point—the odometer reading. Second, it may not make sense to have competing manual method providers. That is because there is little room for service providers to differentiate their services, multiple providers of the identical service to motorists could confuse them. Third, due to the need to engage with the Vehicle Licensing Offices DOL may be better positioned to operate manual methods. Finally, some citizens will prefer a state-operated method.

The main reason for choosing to have a Service Provider run manual method system would be to save costs. However, it is not clear that significant cost savings would be achieved. Possibly, engaging the potential service provider market could help inform this choice by providing more information on the precise cost differences between a state-run manual method system and one that is run by Service Providers. Due to the existing connection with VLOs, and because the changes to DOL's systems to operate manual methods are feasible and not exorbitantly expensive, it is not clear that there would be significant cost savings achieved by outsourcing the manual method operations to a service provider. Again, market outreach to potential service providers could help answer this question.

² Offering shorter-term time permits, such as those that could support out-of-state visitors in a scenario in which the gas tax is eliminated, would require additional changes to the system not included here. However, as the gas tax will continue for over two decades, such changes are not imminently needed.

APPENDIX: DETAILED DEPARTMENT OF LICENSING ASSUMPTIONS

The following are the detailed assumptions made by DOL when creating their estimates:

1. Scenario A only – the department does not have enough information to estimate the cost to implement an automated solution such as using an OBDII device to collect mileage readings. This option requires that the program be management and solely implemented by the department and would not include commercial service provider management of the device or software used to collect data from the devices.
2. Scenario B and C only – The commercial service provider will provide all data on a daily basis, or as required by the department for any vehicles they are managing payment of the road usage charge.
3. Scenario C only – The commercial service provider will send a one-time letter notifying them they are required to provide odometer reading for road usage charge. The department will create the letter for Scenarios A and B.
4. Business will establish a threshold that must be met before a final billing is created. If not met, a work item will be created for review of record.
5. When a customer signs up for a payment plan, it cannot be done through an online anonymous transaction.
6. Any road usage charge implemented must include an automatic option to collect mileage, such as using OBII devices.
7. Customers who sign up for electronic renewal notices will be automatically signed up for road usage charge electronic billing notices.
8. The road usage charge must be paid in full before the customer can renew their registration.

9. If the road usage charge is not paid in full, the customer will be prevented from renewing similar to the process for vehicle violations.
10. No penalty fee if payment is not made or is paid late.
11. Odometer reading can be provided in an office, online during report of sale or renewal transactions, and at headquarters, includes collecting out of state miles travelled.
12. DOL will send late notices to customer through a special mailer for missed payments.
13. Filing fee (\$5) is due for each payment as part of the payment plan made at a vehicle licensing office, headquarters or online.
14. A new filing fee will be created to ensure fee equalization if the customer pays to the service provider.
15. Any shortage will use the existing shortage process.
16. Road usage charge can be refunded, a shortage or a dishonored payment in certain circumstances. However, the road usage charge cannot be refunded if the owner chose to the unlimited miles option. The fee paid for unlimited miles does not transfer to the new owner if the vehicle was sold.
17. The customer cannot buy miles. The charge is based on actual mileage travelled.
18. The customer cannot change from an automated device to manual reporting in the middle of a payment cycle. They can only change at the beginning of the new payment cycle.
19. Road usage charge will be based on when the original or title transaction is processed or dealer date of sale to determine begin date of billing period.
20. Vehicles exempt from annual registration must pay the road usage charge, includes government vehicles.

21. Road usage charge rate will be the same for phase 1 and phase 2, including for government or vehicles current exempt from vehicle licensing fees.
22. Road usage charge will not be prorated.
23. Road usage charge is due if a report of sale, affidavit of sale or transfer is completed.
24. Road usage charge is a vehicle licensing fee.
25. The road usage charge payment is a separate transaction from a renewal payment and must be paid separately. If done on the same day, the office would receive two service fees.
26. The cost to contract with a service provider is not included in this estimate.
27. Scenario B and C only – The department will not handle any technical, installation, or customer related inquiries regarding an OBD-II device. It will be handled by the commercial service provider.
28. Research and Planning office and business area will define data elements for new report(s).
29. Road usage charge will not be collected at time of renewal, but be a separate billing because DOL cannot bill for what we do not know and renewals are produced 2 months before they are due.
30. Road usage charge will not be included on renewal notices, but notices will include a special message the fee must be made before the vehicle can be renewed.
31. Title, report of sale and odometer disclosure and/or affidavits of sale will may be modified by the business area to include new language that the odometer requiring and out of state miles travelled is required.
32. Business will create a new attestation form to declare odometer readings and out of state miles travelled.

33. The department will use data from Vintelligence to identify what vehicles are subject to the road usage charge for phase 1 and phase 2, including to determine the calculation for the fuel tax offset.
34. Road usage charge is in addition to current electric vehicle fee.
35. For phase 2, light duty truck threshold is based on gross weight purchased, not gross vehicle weight rating or scale weight.
36. Road usage charge is collected in arrears, unless the owner chooses to pay for unlimited miles travelled.
37. Business will create a form to be used for attestation.
38. Need to perform a security analysis because odometer information is considered sensitive data.
39. If a report of sale is added to the record, affidavit of sale or title transfer occurs, a final billing will be created for that vehicle that vehicle.
40. If a report of sale or affidavit of sale is cancelled/deleted, the owner is responsible for any RUC VLF owed during the time frame from the point the report or affidavit was filed and then cancelled/deleted.
41. If there is no odometer reading on record, the system will default and charge the customer the unlimited miles fee option by default.
42. Business will define the rules if an insurance destroyed report is received on if the road usage charge is due or not due.
43. DOL will not collect the road usage charge from new or used dealers for vehicles for vehicles they have for sale.
44. If the vehicle is transferred and vehicle exempt from plate replacement because transferred to a family member, the prior owner is still responsible for RUC VLF up to the point the ROS done, or vehicle transferred. Assume in some cases, it may carry over such as remove owner.