

Introduction / Overview Road Usage Charging (RUC)

Surface Transportation Funding Alternatives Program Overview

Abstract

This paper provides an overview of Road Usage Charging, the intent of the Surface Transportation System Funding Alternatives Program, as well as agency fact sheets from RUC projects proposed and implemented.

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Introduction

The Road Usage Charge (RUC) concept continues to advance as a transportation funding mechanism in the U.S. In 2022, Virginia became the latest state to deploy a system with the July 1st launch of its Mileage Choice program. It joins Oregon and Utah as the only states with active RUC programs for passenger vehicles. States such as California, Minnesota, and Hawaii continue to pilot the concept and more states are likely to receive federal funding for pilot studies with the final phase of the Surface Transportation System Funding Alternatives Program. Furthermore, language in the Infrastructure Investment and Jobs Act (IIJA) directs the U.S. Department of Transportation to continue supporting state pilots while establishing a national RUC pilot program.

This memo provides an update on recent RUC developments in the US with a focus on those with implications for the tolling industry. Project fact sheets and program overviews for implemented RUC programs are provided as attachments.

Oregon's OReGO Program

Active since 2015, the OReGO program is the oldest RUC system for passenger vehicles in the US. OReGO is structured as a replacement for the fuel tax so participation is limited to light duty vehicles with an estimated fuel efficiency above 20 mpg. This includes alternative fuel and electric vehicles, and the state offers exemptions from additional vehicle registration surcharges to encourage these vehicles to enroll. Participants use an aftermarket OBDII device for data collection and an account manager sends quarterly invoices.

In addition to operating the OReGO program, the Oregon Department of Transportation is preparing to toll Interstate 5 and Interstate 205 in Portland through its Interstate Bridge Replacement (IBR) Project, Regional Mobility Pricing Project (RMPP), and I-205 Toll Project. A recently released [Concept of Operations \(CONOPS\)](#) for the Oregon Toll Program states that the Commercial Back-Office will be able to accept OReGO RUC account managers as “an interoperable home agency with valid accounts.” OReGO account managers will need to maintain and update valid license plate or transponder files for their customers. Furthermore, the OReGO account manager must guarantee payment to the Oregon Toll System if their customers are confirmed to be on a tolled facility through license plate verification. The CONOPS makes allowances for future advancements in satellite tolling by allowing account managers to geo-fence toll zones for toll charging in the future once full interoperability is achieved.

Utah Road Usage Charge Program

Utah's program was launched in 2020 as an alternative reporting and payment approach for a recently passed alternative fuel vehicle fee. Owners of alternative fuel vehicles in Utah may either pay the base flat fee or pay based on miles travelled. Program participants may use a GPS-enabled plug-in device, in-vehicle telematics, or smartphone-based odometer capture to report miles. RUC program participants will never pay more over the year than the base flat rate. There are an estimated 4,000 active participants in the program.



DRIVE LESS. PAY LESS.
Electric & hybrid vehicle drivers have a new choice

RUCUTAH

PAY AS YOU GO IN 2020
Since 2019, owners of EV/Hybrid cars pay a flat fee when they renew their annual registration. This covers their share of building and maintaining Utah's roads.
As an EV/Hybrid driver you can choose to continue to pay the flat fee for alternative fuel vehicles or enroll in the Road Usage Charge (RUC) program to pay for road usage based on the number of miles you drive, up to the amount of the set flat fee. The choice is yours.

Learn more and enroll at RUCUtah.utah.gov

1 Utah Department of Transportation

Utah's situation with regard to RUC and tolling is reversed relative to Oregon's in that Utah has an established tolling program but a very young RUC program. The Utah Department of Transportation (UDOT) currently operates over 72 miles of Express Lanes on I-15 in Salt Lake City and expects more expansion in the future. UDOT and state leaders are considering options for integrating its RUC and Express Lanes systems and will follow developments in Oregon and California closely.

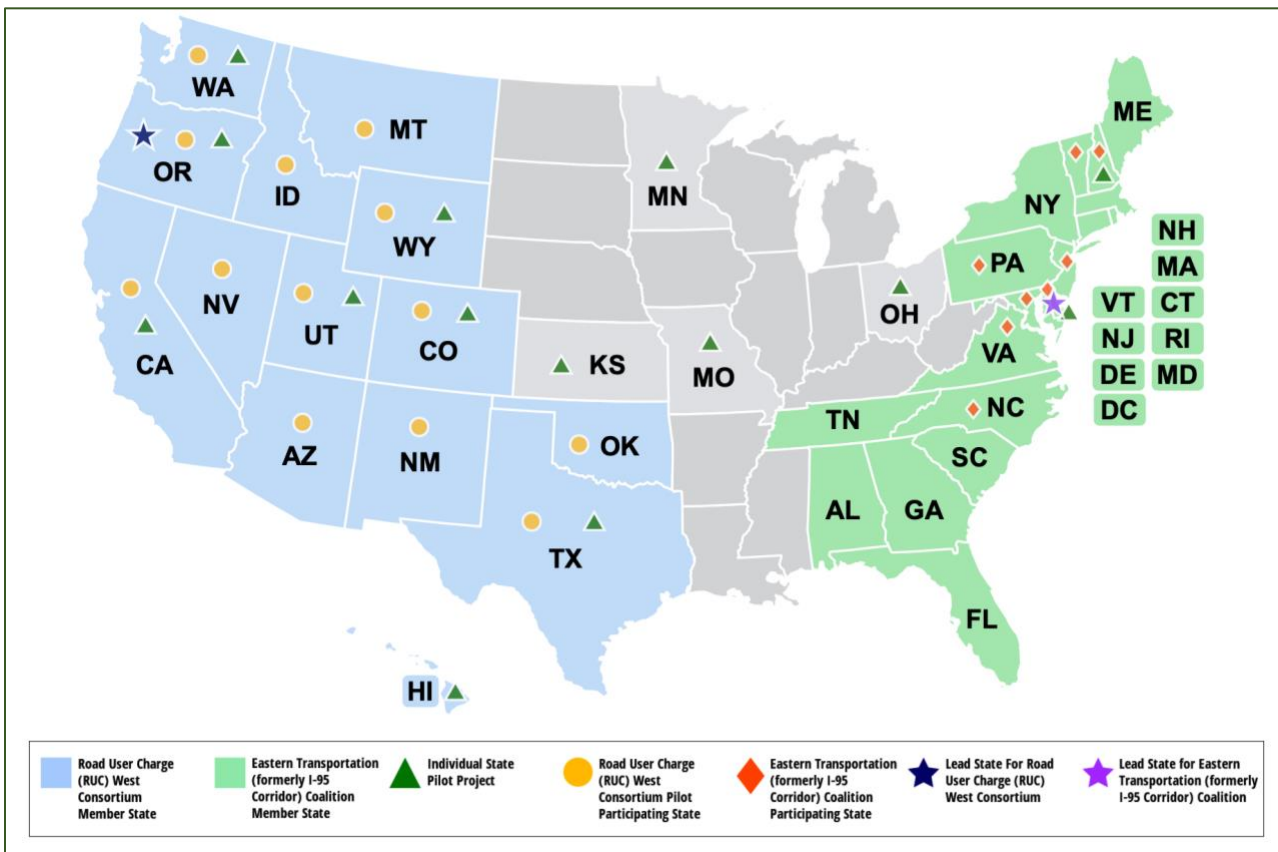
California Road Charge

The 2017 California Road Charge Pilot is still the largest pilot test conducted in the US to date, with over 5,000 participants testing a range of reporting technologies. Caltrans just concluded its most recent pilot, which tested road charge integration with different transportation services including Usage-based Insurance (UBI), Transportation Networking Companies (TNC), and Automated and Connected Vehicle systems. Caltrans is now embarking on its third pilot, which will assess opportunities for differentiating travel on public and private roadways. Caltrans is working with the Transportation Corridor Agencies (TCA) of California to enroll tolling customers in the pilot and will be assessing opportunities for

integration. More details on this effort are expected in 2023.

Interoperability

States active in RUC pilot testing and implementation are aware of the challenge of interoperability, which will become much more of an issue as more states implement these charges. Oregon has approached RUC development through its Open Architecture approach, defined in statute as being based on common standards such that “components performing the same function can be readily substituted or provided by multiple providers.” This approach keeps the RUC system from being locked into specific technology approaches and enables the private sector to innovate. Basic, open standards can also make it easier for different back-office systems to communicate, potentially lowering hurdles to interoperability. Two state consortia are well positioned to examine interoperability challenges in the future.



RUC America

The addition of Pennsylvania as a member in 2022 prompted the Western Road Usage Charging Consortium, or “RUC West,” to recently rebrand itself as “RUC America.” This consortium of state departments of transportation pools funding to research RUC issues of interstate interest several priority categories:

- Examine current programs

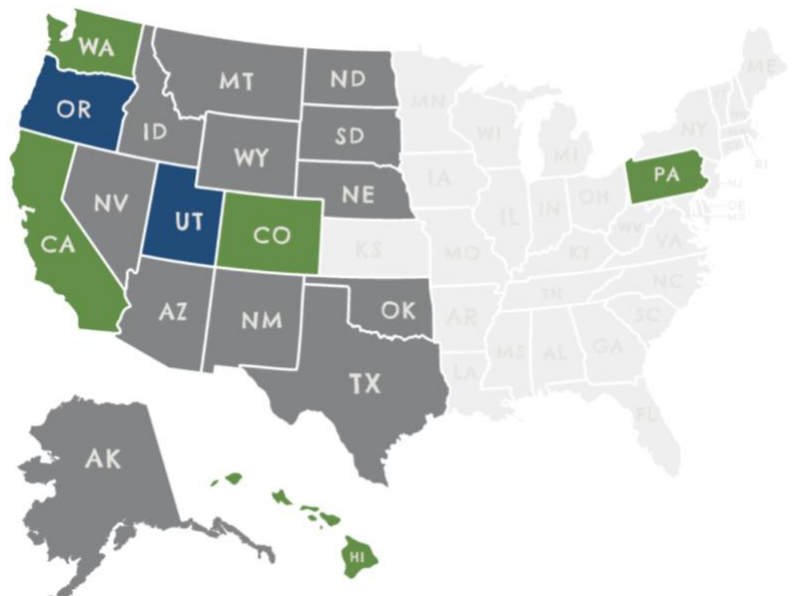
- Address out-of-state drivers in a RUC system
- Learn about effects of RUC on rural residents
- Understand public knowledge of RUC
- Define impacts of a changing vehicle fleet economy on state transportation funding
- Create road map to inform RUC implementation
- Learn about ongoing public concerns about privacy
- Identify evasion and potential policies
- Create RUC Vendor Certification Program
- Determine parameters for the basis of a road usage charge

Membership in the consortium is structured based on tiers:

Tier 1: Actively promoting road usage charging as an equitable road-funding solution (implementing a program)

Tier 2: Conducting Research Pilot Projects for a RUC

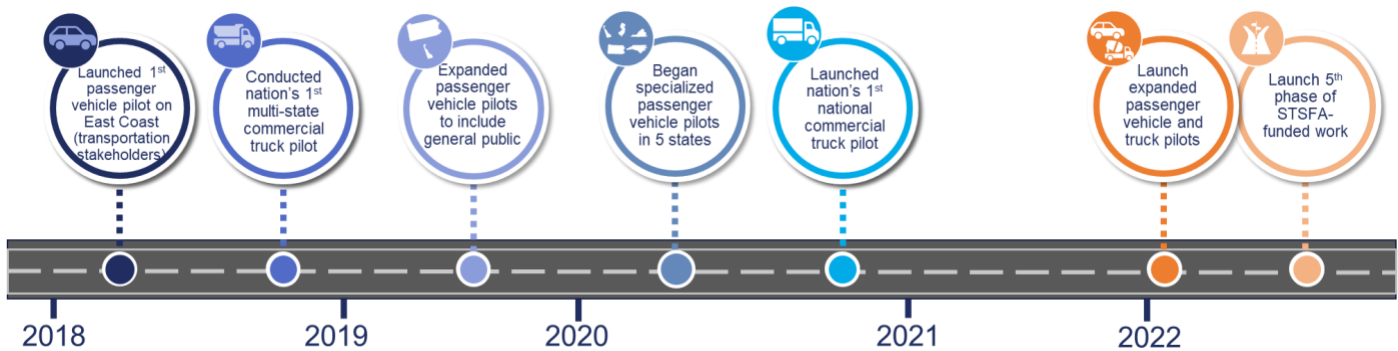
Tier 3: Monitoring transportation trends (evaluating the road usage charge environment)



The Eastern Transportation Coalition (TETC)

The Eastern Transportation Coalition (TETC), formerly the I-95 Corridor Coalition, is a partnership of 17 states and D.C. that focused on increasing multi-modal safety and efficiency through public agency coordination. As the I-95 Corridor Coalition, TETC conducted the nation's first multi-state pilot and has also tested RUC integration. TETC's has a particular interest in addressing multi-state travel and interoperability issues relative to RUC America, given the larger size of Western states and level of cross border traffic along the East Coast. As part of its

multi-state RUC pilot, TETC found that 13 percent of the 1.9 million miles travelled by participants was accrued out of state.



TETC believes there are a number of synergies and advantages of integrating RUC and tolling systems. Integration may enhance the scalability of RUC systems, as tolling operators currently process hundreds of thousands of trips and transactions on an annual basis. Furthermore, customer service systems, resources, and tools may be directly transferable from the tolling sector to RUC, which may improve security and operations. Toll operators are also experienced in the use of end-to-end account management approaches that ensure a consistent customer experience with telephone, interactive voice response, and interactive support dashboards for support. Finally, tolling and RUC operators may benefit from cooperative communications, outreach and education efforts. Both sectors face similar negative stigma from a public that is fatigued by the perceived high cost of travel.

RUC Funding

The Surface Transportation System Funding Alternatives (STSFA) Program has been a primary source of funding for states pilot testing the RUC concept. The FAST Act established the STSFA to provide grants to States (or groups of States) to demonstrate user-based alternative revenue mechanisms that utilize a user fee structure to maintain the long-term solvency of the Highway Trust Fund. The objectives of the program are:

- Test the design, acceptance, and implementation of two or more future user-based alternative mechanisms;
- Improve the functionality of the user-based alternative revenue mechanisms;
- Conduct outreach to increase public awareness regarding the need for alternative funding sources for surface transportation programs and to provide information on possible approaches;

- Provide recommendations regarding adoption and implementation of user-based alternative revenue mechanisms; and
- Minimize the administrative cost of any potential user-based alternative revenue mechanisms.

Program funding recipients are required to address:

- the implementation, interoperability, public acceptance, and other potential hurdles to the adoption of the user-based alternative revenue mechanism
- the protection of personal privacy
- the use of independent and private third-party vendors to collect fees and operate the user-based alternative revenue mechanism
- market-based congestion mitigation, if appropriate
- equity concerns, including the impacts of the user-based alternative revenue mechanism on differing income groups, various geographic areas, and the relative burdens on rural and urban drivers
- ease of compliance for different users of the transportation system
- the reliability and security of technology used to implement the user-based alternative revenue mechanism

The STSFA program is entering its final phases of authorized funding. The recently passed IIJA directs FHWA to establish a national RUC pilot program. Details on the pilot are unknown at this time but it anticipated that \$50 million will be available and that tens of thousands of vehicles will be included.

1STSFA Funding allocated per year:

FISCAL YEAR	2016	2017	2018	2019	2020
AUTHORIZATION	\$15M	\$20M	\$20M	\$20M	\$20M

Welcome to Utah's Road Usage Charge Program

Community Health Notice

Our customer support line will remain operational during the pandemic, but for community health reasons, response times may vary. Your understanding is appreciated.

The Future of Utah Transportation

Operated by **emovis**®

Utah roads are maintained using taxes from gasoline sales. As vehicles become more fuel efficient and the number of electric vehicles grows, the Utah Department of Transportation and Division of Motor Vehicles is changing to a per-mile fee as a way for drivers to pay their portion of roadway operations and maintenance.

Utah's Road Usage Charge Program is voluntary for electric and hybrid vehicle owners. UDOT and DMV have contracted with emovis to operate the program. The choice is yours.

During the 2018 Legislative session, lawmakers instituted an alternative fuel vehicle fee to cover a portion of those vehicles' contribution to building and maintaining Utah's transportation system. This fee is in addition to the annual vehicle registration fee assessed on all vehicles in the State. Utah's Road Usage Charge provides a choice for owners of alternative fuel vehicles to pay by the mile in lieu of paying the alternative fuel vehicle fee.

Benefits of Enrolling in Utah's Road Usage Charge Program

If you drive less, you pay less. People who drive relatively few miles can save money by paying 1.52 cents per mile instead of paying the flat fee at registration time. You'll never pay more in the program, but you may pay less. [\(view pricing\)](#)



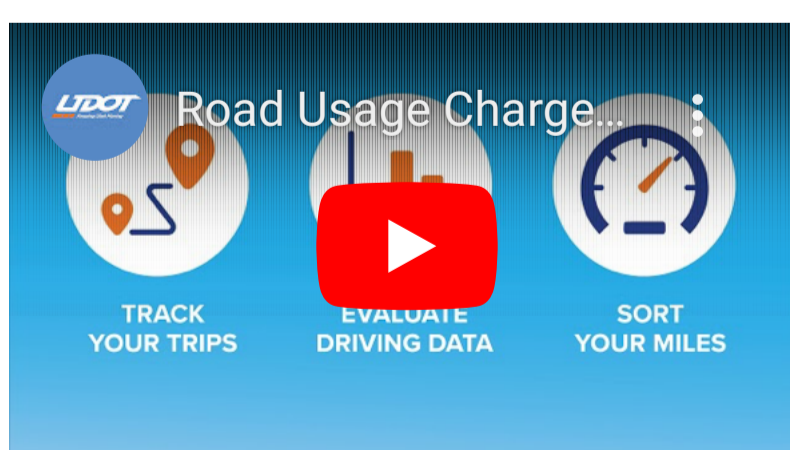
Drive smarter with DriveSync® for Utah DOT. Enrolling in Utah's Road Usage Charge program may give you access to DriveSync® for Utah DOT, an app that makes your driving safer and more productive through trip tracking and driving reports.

How does Utah's Road Usage Charge program work?

EV/Hybrid drivers can choose to continue to pay the flat fee for alternative fuel vehicles or enroll in Utah's Road Usage Charge program to pay for road usage based on the number of miles you drive, up to the amount of the set flat fee.



1. Enroll



To enroll, you will create an account with emovis, the third-party commercial account manager. You will need your vehicle information and a valid credit or debit card to set up a prepaid wallet. You will sign a user agreement with emovis and they will send you a device to place in the vehicle to report mileage.

[Enroll](#)



2. Install



When you receive the OBD mileage reporting device, install it in the OBD port of your vehicle to fully activate your account. You will also need to download a smartphone app to record an initial odometer reading. You will create an account in the app separate from the online portal with emovis.



3. Drive



You will pay 1.52 cents per mile, deducted from the prepaid wallet, up to the amount of the flat fee. Enrolling in Utah's Road Usage Charge program gives you access to DriveSync® for Utah DOT an app that makes your driving safer and more productive through trip tracking and driving reports.

Road User Charge Fact Sheet: Utah

State: Utah | **Publication Date:** January 25, 2022

History: The Utah Department of Transportation (UDOT) has received four grants totaling \$3.245 million from the [federal Surface Transportation System Funding Alternatives \(STSFAs\) program](#). UDOT used its fiscal year 2018 grant funds awarded in 2019 to implement a voluntary operational Road Usage Charge (RUC) program for owners of fully electric vehicles, plug-in hybrid vehicles and gasoline hybrid vehicles. The RUC program is exploring the feasibility of a RUC serving as an alternative to the state’s fuel tax and began enrolling participants on Jan. 1, 2020.

Utah was awarded its second and third STSFA grants in July 2020. The second grant explores the feasibility of combining the RUC program with existing Express Lanes tolling to reduce administrative costs and improve the customer experience. The third grant tests the feasibility of overlaying a local government RUC fee on top of the state’s RUC fee.

A fourth [STSFAs grant](#) was awarded to UDOT in March 2021 to assist with optimizing the RUC customer experience. The purposes of this optimization are to attract new participants, retain existing participants, and identify efficiencies that will improve the program while reducing administrative costs. Overall, UDOT aims to create more sustainable funding for the state’s transportation system.

STSFAs Awards

Fiscal Year	Grant Amount	Description
2018	\$1,250,000	Implement a RUC program for fully electric vehicles, plug-in hybrid vehicles and gasoline hybrid vehicles.
2019	\$395,000	Examine the ability to integrate several aspects of the RUC program for alternative vehicles with the existing Express Lanes tolling systems.
2019	\$350,000	Test interagency coordination and system interoperability between state and local entities by allowing local jurisdictions the ability to piggyback their own per-mile RUC fees on the existing RUC system.
2020	\$1,250,000	Develop and validate RUC-specific customer experience improvements to enhance public acceptability and attract and retain more voluntary participants.

Legislative Activity: Mileage-based funding was originally discussed in a 2003-2004 Legislative Transportation Planning Task Force hearing. Since then, six RUC-related laws have been adopted by the Utah Legislature.

In 2015, [HB 362](#), Transportation Infrastructure Funding, directed UDOT to continue studying RUC as an alternative to the fuel tax, including a potential RUC demonstration program along with recommendations to implement a RUC program in the future. In 2017, [SB 174](#), Public Transit and Transportation Governance Amendments, created the Transportation Governance and Funding Task Force and required a report on how the state could address statewide funding needs via user charges. The [report](#) was presented to the Transportation Interim Committee in November 2017 with a recommendation to, “Authorize and direct UDOT to begin a RUC demonstration/pilot program as a potential future alternative to motor fuel taxes.”

In 2018, [SB 136](#), Transportation Governance Amendments, required UDOT to implement a RUC demonstration by Jan. 1, 2020, in lieu of collecting an annual flat fee for electric vehicles, plug-in electric hybrid vehicles and gas hybrid vehicles. It also ordered UDOT to create a RUC Advisory Committee to lead the development of its RUC program. The RUC Advisory Committee met [three times between May and November 2018](#). Five technical working groups composed of committee members were also formed to focus on policy, communication, privacy and security, compliance and enforcement, and technology.

[SB 72](#), Transportation Governance and Funding Revisions, adopted in 2019, enacted laws necessary to implement a permanent RUC program, a reversal from the 2018 bill that authorized only a demonstration program. SB 72 authorized UDOT and the Utah Transportation Commission (Commission) to establish certain administrative rules. UDOT was directed to create rules regarding enrollment, withdrawal and removal, mileage reporting, commercial account management (CAM), enforcement, privacy and data sharing. Moreover, the Commission was given RUC rate setting authority. Additional provisions permitted information sharing between UDOT and the state Division of Motor Vehicles (DMV). This addressed specific procedures to protect personal information and data, penalties for violating privacy protections, device tampering and penalty procedures to remove participants for failure to pay.

In 2020, [SB 150](#), Transportation Governance and Funding Amendments, required UDOT to submit a plan to the legislature with potential scenarios to enroll all registered vehicles in the state by Dec. 31, 2031. UDOT submitted its [report](#) in May 2021 and [presented](#) it to the Transportation Interim Committee in June 2021. The report outlined two scenarios the state could take advantage of, while describing risks associated with expansion, revenue generation, public acceptance and adaptability. The report also analyzed issues regarding rural equity, privacy, costs and technology. SB 150 also reenacted certain reporting provisions originally approved in 2019 via [SB 2001](#) and subsequently repealed the following year via [HB 185](#). These provisions addressed a requirement for UDOT to annually update its RUC enrollment strategy, along with details covering participation rates, revenue collection, potential strategies to expand enrollment and administrative expenses. UDOT must report this information to the legislature by Oct. 1 of each year.

In 2021, [SB 82](#), Road Usage Charge Program Special Revenue Fund, created a specific fund to receive deposits generated by the RUC program. Revenues may be used to cover the costs of administering the RUC program and for state transportation purposes.

Project Details:

Emovis, a mobility services and technology provider, was chosen as the commercial account manager (CAM) to operate Utah’s RUC program in May 2019. UDOT and the state DMV worked to link the CAM’s system to the state DMV registration database. The [Utah Road Usage Charge Program](#) went live on Jan. 1, 2020. Presently, Utah law allows fully electric vehicles, plug-in hybrid vehicles, and gasoline hybrid vehicles to enroll in the program. UDOT reported 3,895 enrolled vehicles as of July 2021, according to a presentation to the Western Association of State Highway and Transportation Officials in September 2021. Since the program’s launch, RUC participants have driven approximately 17.8 million total miles as of July 2021. Under Utah’s voluntary enrollment program, both the number of enrolled vehicles and the number of monthly miles driven have significantly increased over the last two years.

The initial [RUC rate](#) was set by the commission at 1.5 cents per mile. As provided by commission rule, the fee is adjusted annually by the same percentage as the change in the state fuel tax. The new RUC rate as of Jan. 1, 2022, will be 1.52 cents per mile. If a registered owner chooses not to enroll their vehicle in the RUC program, they are subject to the annual flat fee adopted by the legislature in the 2018 bill, SB 136. RUC participants, on the other hand, are not subject to a flat fee. Under rules adopted by UDOT, RUC participants are not charged more in RUC annually than a vehicle type flat fee (Table 1).

Table 1. Annual Flat Fee Registration

Vehicle Type	2020	2021	2022
Electric	\$90	\$120	\$123
Plug-In Hybrid	\$39	\$52	\$53.25
Gasoline Hybrid	\$15	\$20	\$20.50

Source: UDOT.

When a participant enrolls in the RUC program, a prepaid wallet account is created. The initial wallet amount is set at \$15. Charges are then automatically deducted as miles are driven. If the balance goes below \$5, the prepaid wallet automatically replenishes itself with \$10. This is referred to as a “top-up” charge and once the account reaches the amount of the annual flat fee applicable to the vehicle type, the mileage fee charges stop for the current 12-month registration period.

In February 2020, the “[Future of Road Usage Charge Workshop](#)” was held to study RUC program expansion scenarios. The alternative scenarios studied assumed all vehicles would be enrolled in a RUC program by 2030. Notably, workshop participants gave a “highly favored” rating for a gradual transition to a RUC system using a vehicle’s mpg rating and enrolling vehicle groups beginning with those that have the highest mpg. This scenario also proposed raising annual flat fees for hybrid vehicles to \$50, plug-in hybrid electric vehicles to \$125 and electric vehicles to \$250. RUC would apply to vehicles rated at 20 mpg or more in 2024 and all vehicles by 2030.

Furthermore, as a result of [SB 150](#) and the workshop's recommendation, UDOT proposed two scenarios to expand its RUC program to all registered vehicles. Scenario A explored lump sum payments and only one mileage reporting option, whereas Scenario B explored pay-as-you-go and multiple mileage reporting options. Both scenarios assumed all vehicles would be required to enroll in a RUC program by Dec. 31, 2031, with enrollment expansion beginning in 2024. UDOT emphasizes mandatory enrollment will likely be necessary to ensure all vehicles are enrolled in a future RUC program by 2032. Both scenarios also assumed that the RUC rate would be revenue neutral with respect to the existing state fuel tax. In-state drivers would receive credits for fuel taxes paid, whereas out-of-state drivers and heavy vehicles registered with the International Registration Plan and the International Fuel Tax Agreement would continue paying the fuel tax.

Under Scenario A, there would be mass implementation with only manual odometer reporting. Odometers would likely be read during annual registration, potentially through the use of a phone app with odometer photo capture capabilities. Beginning in 2024, any vehicle rated over 20 mpg, as well as electric vehicles, plug-in electric hybrid vehicles and gas hybrid vehicles would be eligible to enroll in the RUC program. By the end of 2031, all vehicles would become eligible to enroll. Approximately two million vehicles would be expected to enroll in 2024, with another 827,000 enrolling by the end of 2031.

Under Scenario B, phased implementation with technology would occur. Mileage reporting would be via in-vehicle telematics and aftermarket plug-in devices, as well as manual odometer readings. Beginning in 2024, any vehicle rated over 30 mpg, as well as electric vehicles, plug-in electric hybrid vehicles and gas hybrid vehicles would be eligible to enroll in the RUC program. All new vehicles purchased after 2025 would be eligible to join the RUC. Approximately 570,000 vehicles would be expected to enroll in 2024 with all vehicles enrolled by the end of 2031.

RUC participants must either have embedded telematics capability or install a plug-in device (provided by the CAM) in the On-Board Diagnostic port located in their vehicle. Data is then directly sent to the CAM and is used to track and report the number of miles a participant drives. Participants are also required to download an app to their mobile devices to report their odometer readings at enrollment and annually thereafter.

UDOT is in the process of beginning work on its 2019 and 2020 STSFA grants. The two 2019 grants (for Local RUC and Express Lanes Tolling Integration) are being managed as a single project to maximize cost efficiencies. Planning is underway to finalize the study design and prepare plans for hiring a technology vendor to conduct the live testing and data collection portions of the project. As of late 2021, UDOT is also in conversations with four local government agencies to participate as partners in the Local RUC components of the project. UDOT anticipates releasing a technology vendor RFP in spring of 2022 with the goal of beginning live pilot operations with volunteer participants by early 2023.

The 2020 STSFA grant focused on customer experience improvements is still in the initial stages of planning and will be further developed in early 2022.

Other Resources

- [Utah's Road Usage Charge Program](#)
- Utah Department of Transportation: [RUC History](#)
- Utah Department of Transportation: [Legislative Resources](#)
- Federal Highway Administration: [STSFA Biennial Report](#) (September 2, 2020)
- Utah Foundation: [Measuring the Miles](#) (March 2021)

Road Usage Charge Fact Sheet: Oregon

State: Oregon | Publication Date: Feb. 2, 2021

History

Oregon has been at the forefront of road user charge (RUC) developments in the United States since the turn of the 21st century. In 2001, the legislature enacted a law ([HB 3946](#)) to study alternative transportation funding sources other than fuel taxes. This statute created an advisory body, the [Road User Fee Task Force \(RUFTF\)](#), to lead the policy development of creating a new source of sustainable revenue to fund repair and maintenance of the roadways. The task force consists of members appointed by the governor, Senate president, House speaker and the chair of the Oregon Transportation Commission. The RUFTF oversaw the development of [two RUC pilot projects](#) conducted by the Oregon Department of Transportation (ODOT) in 2006 and 2012. In 2013, the legislature passed, and the governor signed, [SB 810](#), directing ODOT to establish the nation's first fully operational RUC program by 2015. The new RUC program, named [OReGO](#), went live in July 2015.

Federal Surface Transportation System Funding Alternatives Awards: As summarized in the table below, beginning in 2016 ODOT received three grant awards totaling \$9.4 million over three years under the [federal Surface Transportation System Funding Alternatives \(STSFA\) program](#). These grants expanded and refined ODOT's existing RUC program known as [OReGO](#) by providing resources to continue researching and refining technical aspects of the program. STSFA funds have also helped ODOT develop a public awareness strategy based on participant feedback, expand technology options to report data and explore account management challenges such as compliance in a voluntary system.

Federal Fiscal Year	Grant Amount	Description
2016	\$2,100,000	Enhance OReGO by focusing on four established objectives including technology options, public awareness, compliance mechanisms and exploring interoperability to expand RUC nationwide.
2017	\$2,315,000	Improve the scalability of OReGO and demonstrate its utility as a funding source for local jurisdictions, as well as flexible enough to accommodate varying tax rates and geographical boundaries.
2019	\$5,000,000	Explore RUC in a connected vehicle ecosystem (CVE) and seek to deploy functional implementation.

Federal Fiscal Year	Grant Amount	Description
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STSFA Awards

Additionally, ODOT received four grants totaling approximately \$5.3 million over four years to spearhead RUC West's regional effort to strengthen understanding of RUC and share best practices. RUC West consists of 17 Western state transportation organizations with an interest in studying RUC and sharing information. [RUC West](#) will be highlighted in a future fact sheet.

Legislative Activity

The Oregon Legislature significantly modified OReGO in 2019 ([HB 2881](#), enacted). Amendments to the program allowed ODOT to prepare for a future large-scale program by removing the limit on the number of vehicles allowed to participate in the program, increased the minimum fuel efficiency rating from 17 mpg to 20 mpg and replaced the static per-mile charge rate and indexed the rate to the fuel tax—with a formula equal to 5% of the state's per-gallon license tax. The RUC rate is currently 1.8 cents per mile, according to [ODOT](#). The law also ended the practice of refunds being issued to participants paying more in fuel taxes than what was owed in per-mile charges, allowing for a more sustainable program. Critically, owners of vehicles achieving 40 mpg or more and electric vehicles were exempted from paying supplemental registration fees if they choose to participate in OReGO. The goal of this policy change was to encourage more highly fuel-efficient vehicles to join the program. These annual supplemental fees, created in 2017 via [HB 2017](#), are \$33 for vehicles with fuel efficiency of more than 40 mpg and \$110 for electric vehicles. In 2022, these surcharges increase to \$35 and \$115, respectively.

In 2020, the RUFTF considered many policy changes to modify and expand the state's RUC operations. For example, one proposal would require all passenger vehicles beginning with model year 2027 and rated at least 30 mpg to pay for road usage on a per-mile basis. Another proposal would require ODOT to structure its RUC program to support future pricing mechanisms that collect charges based on time-of-day and distance traveled.

The RUFTF [presented a report](#) before the Joint Transportation Committee in December 2020. The report recommended legislation ([HB 2342](#), pending) that would mandate an RUC program beginning on July 1, 2026, for model year 2027 vehicles or newer that have a combined rating of 30 mpg or higher. The voluntary RUC program would be repealed by July 1, 2029. For the first three years of the mandatory RUC program, drivers could choose to opt-out by paying a \$400 fee. Further, supplemental registration fees would not apply to RUC participants. Finally, an equity report would be

due in 2022, a climate report in 2024 and a “medium-duty” report in 2026 to examine how 8,000 lbs. to 26,000 lbs. vehicles can be included in the RUC program. ODOT would also be required to submit biennial implementation reports to the RUFTF.

Project Details

OReGO reports approximately [700 current participants](#) as of Dec. 7, 2020. To enroll, a driver must first choose a [commercial account provider](#) or the state account manager to manages payments. Three firms—[Azuga](#), [Emovis](#) and [ODOT](#)—currently offer RUC mileage reporting and payment services.

>The overall goals of Oregon’s STSFA-funded work are to prepare for an expanded RUC program with a possible enrollment mandate for certain vehicles, as well as address the gap between fuel tax collections and transportation infrastructure needs.

ODOT’s RUC work consists of four main objectives:

- Evaluating compliance mechanisms.
- Exploring interoperability.
- Expanding the market via technology options, streamlining account management, developing new mileage reporting options and sharing data with other public entities.
- Increasing public awareness.

Evaluating Compliance Mechanisms

The first completed objective was to evaluate RUC compliance amongst users and prospective users, including studying and developing enforcement and interoperability options. For enforcement of payments within a RUC system, research was conducted on new technologies such as embedded vehicle telematics and cell phone imagery as potential replacements to self-installed devices in vehicles. This is intended to help ensure compliance in a future mandatory RUC program. ODOT notes a “system that relies exclusively on devices installed in vehicles will create challenges for a mandatory tax program.” Thus, commercial account managers were contracted to offer technology options such as a smartphone application to record mileage and to improve the accuracy of mileage reporting, or to confirm mileage reported by other means. Account managers were also contracted to help enroll participants, administer the program and reconcile payments on behalf of RUC participants.

Exploring Interoperability

The second objective was to explore interoperability with other states by holding a [Multi-State RUC Forum](#) in September 2017 and had both technical and business tracks. Issues on the technical track included technology options to report mileage, interoperability with other jurisdictions and connected and autonomous vehicles in

a RUC system. The business track discussed differences between rural and urban drivers, privacy, rate-setting and working with other states regarding managing public funds and vehicle transfers. Other efforts regarding interoperability are ongoing and will be detailed in the fact sheet on RUC West.

Expanding RUC Market via Technology Options

The third objective is continuing to explore expanded technology options and developing a system for manual RUC reporting. The technology currently used in a voluntary program cannot effectively deter payment evasion if participation becomes mandatory, according to [ODOT's 2017 report](#). Specific evasion issues include drivers removing devices from their vehicles or not paying altogether. Further, the report recommended using technology that cannot easily be removed or that deters tampering.

Delinquent or non-paying participants in a voluntary system are only removed from the program and their accounts do not accrue penalties and interest. ODOT recommended mileage reporting devices be coupled with a flat annual RUC amount. For example, when a RUC participant falls out of compliance or their vehicles are no longer compatible with the technology, they would be switched to a flat RUC amount instead of paying on a per-mile basis. This seeks to ensure effective compliance measures are in place before implementing a mandatory program. ODOT is also exploring RUC enrollment at the point of sale for new vehicles and expects to complete such a project by the end of 2023.

Increasing Public Awareness

Lastly, OReGO staff has conducted significant public outreach and will continue those efforts. ODOT has used a variety of venues and tools to gather feedback regarding public understanding and acceptance of transportation funding and RUC. Outreach activities involved public surveys, focus groups with RUC “dissenters,” a listening tour and surveying OReGO participants about their experience. Public surveys addressed awareness, acceptance and favorability towards RUC. Among survey respondents in general, “With just a little information and two-way conversation, people’s acceptance of road usage charging turned from negativity to acceptance.” Further, a [focus group](#) of residents found, “Most Oregonians do not understand how transportation infrastructure is currently funded.” Nearly half of residents also “thought there must be a better way to pay for roads,” and supported tolls or raising vehicle registration fees. The main concerns among the public were privacy-related, such as how data will be used, along with mileage reporting and uncertainty regarding implementation of a complex program.

OReGO participants reported (96%) they were “largely satisfied with their experience.” Moreover, OReGO participants supported RUC and thought it was fair, although they were concerned about rural drivers paying too much and out-of-state drivers not

paying enough. In fact, respondents in both the OReGO participant survey and statewide public perception survey agreed the two greatest drawbacks to RUC were “penalizing rural drivers who drive longer distances and tracking out-of-state drivers that use Oregon roads.” OReGO participants also noted concern about penalizing fuel-efficient vehicles, while the public perception survey indicated, “RUC was just another way to tax people more.” OReGO participants were also less concerned about privacy issues compared to public survey respondents who did not participate in OReGO. The outreach findings overall were used to help address communication challenges and enhance public awareness.

Other Activities

Additionally, ODOT partnered with the city of Portland and the Metro Regional Government on the design of [three pilots studying](#) the feasibility of adapting the state’s RUC system for localities. There are three [local RUC area pricing pilots](#), with up to [100 volunteers participating](#) in each six-month pilot. [Volunteers within the Portland metro area were recruited](#) for the local pilots between January and February 2021, and the pilots will continue through late summer 2021.

Each pilot will [explore a specific local area RUC](#), all within the Portland metro area. The first pilot will focus on static and variable rates within geographically bounded areas and a local RUC will be added to the statewide RUC based on the time-of-day. The second pilot will explore layered options, including central business districts, and will overlap two geofenced areas and test varying RUC rates based on time-of-day. The final of the three pilots will evaluate ways to incentivize travel on certain corridors during peak hours and charging drivers different rates based on both trip distance and time-of-day. These pilots will enhance the state’s understanding of technology under various per-mile scenarios and the results will help answer if a local RUC option is feasible as part of a future mandatory program.

Lastly, ODOT will also use STSFA funds to deploy RUC in a [CVE](#), which will support both RUC data collection and intelligent transportation system functions. This includes seeking to achieve functional implementation by validating data sharing between data collection, transaction processing and account management subsystems.



Mileage Based User Fees: What They Are & Why We Care

**We need
our roads.**



Roads are how America gets around. Whether it be work, play, groceries, or a doctor's visit, every day we rely on roads to make things happen.

Right now, most funding used to maintain our roads comes from a tax paid on fuel at the pump. But as cars go farther on less fuel and some stop using fuel at all, we will need a different funding approach for our roads.

What is an **MBUF**?

A mileage-based user fee, or MBUF:

- Charges drivers for the number of miles traveled, not on how much fuel is purchased
- Re-creates a link between how much drivers pay and how much they drive

From this...



HOW MUCH FUEL
YOU USE

To this...



HOW MANY MILES
YOU DRIVE

Who we are.

The Eastern Transportation Coalition is a partnership of 17 Eastern U.S. states and Washington, D.C. working to address transportation challenges.

We equip policymakers with information from real-world MBUF pilots, public opinion surveys, focus groups, and data analysis, so they can make informed decisions about transportation funding.

We bring an Eastern U.S. perspective to the national MBUF conversation because our region is unique.

Significant
cross-state
travel



Numerous
toll
facilities



60+

Major
truck
corridor



Virginia has a
live MBUF
program



Our work.

4 Passenger Vehicle Pilots

1,500+

Passenger
Vehicles

14

States Represented
Among Participants

3,000

Public Opinion
Survey Respondents

- ✓ Participant Surveys & Focus Groups
- ✓ Geographic Equity Analysis
- ✓ Tolling, Congestion Mitigation & Rate-Setting Tests

2 Commercial Vehicle Pilots

270

Commercial Trucks

12M+

Miles Traveled

48

States Traveled +
Canada

- ✓ Participant Surveys & Interviews
- ✓ Motor Carrier Working Group
- ✓ Rate-Setting Tests

Learn more: www.tetcoalitionmbuf.org

Here's a quick rundown of The Eastern Transportation Coalition's major MBUF findings:

1

When talking to the public about MBUF, start the conversation by talking about values.

The public doesn't view transportation funding as urgent and thinks funding is stable. To close this knowledge gap, link MBUF to things the public values – like road safety and a well-maintained system – while keeping the message simple.

2

For drivers, choice is key.

Providing drivers with options for how they report miles driven is key. Offering high tech, low tech, and no tech options allows drivers to choose the mileage reporting option that's best for them.

3

The public is growing more comfortable with GPS-enabled technology.

As phones and cars advance, the public is becoming more comfortable with GPS-enabled technology, which may make them more open to location-based MBUF tech. In our 2020-2021 passenger vehicle pilot, 83% of participants in Delaware, New Jersey, North Carolina, and Pennsylvania chose GPS-based mileage reporting, and 89% of those participants reported satisfaction with the device they chose.

4

Rural drivers often pay less with MBUF.

When compared to the fuel tax, an MBUF approach (using a revenue neutral per-mile rate) may save rural drivers money since they tend to drive less fuel-efficient vehicles. In our 2020-2021 analysis of households in Delaware, New Jersey, North Carolina, and Pennsylvania, we found MBUF would save rural drivers \$9 to \$34 a year.

5

Fairness resonates.

The public cares about fairness. In 2020-2021 statewide public opinion surveys, respondents in Delaware, New Jersey, North Carolina, and Pennsylvania said when compared to the fuel tax, MBUF allows drivers to pay their fair share, is less regressive for older vehicles, and allows fuel-efficient drivers to contribute to transportation funding.

6

Tools that make things personal can ease concerns.

As people experience MBUF, their comfort with the concept grows. To provide greater experience with MBUF, use tools like real-world pilots and MBUF calculators that let people compare their potential MBUF costs with their current fuel tax costs.

7

Leveraging technology creates solutions.

Our work has found that technology creates solutions for tolling, congestion mitigation, and MBUF data collection. Our public opinion surveys have shown that people think the fuel tax is out of date, and our pilot participants have said MBUF technology is innovative and provides a secure, hassle-free way to report distance.

8

Bringing the trucking industry's voice to the table is essential.

As heavy users and payers of the transportation system, the trucking industry will be uniquely affected by a shift to MBUF. A future funding approach should reflect the complex regulatory and operating world of truckers. Including the industry in real-world pilots, working-groups, and customized outreach is key to ensuring truckers' concerns are heard.

9

Electric vehicle owners often support MBUF.

Drivers of electric vehicles (EVs) often support an MBUF approach because they want viable roads, too. A recent AAA survey highlights that people don't purchase EVs to avoid a fuel tax, but rather to have a positive environmental impact. EV owners are volunteering for MBUF programs around the country, indicating their interest in an MBUF approach.

10

An MBUF approach needs to address cross-state travel.

About 13% of the 1.9 million miles traveled in our 2020-2021 passenger vehicle pilots were accrued out of state. Determining how to deal with cross-state travel will be critical, especially for high tourism states. Our work has found that an MBUF approach can account for out of state mileage.



NEW PATHS TO ROAD FUNDING

RUC West is a leading authority on road usage charging in the United States. The membership includes 19 state transportation organizations who share resources to investigate road usage charging as an appropriate revenue collection method for their respective state.

The group formed to grow agency expertise, increase preparedness and collaborate on projects of mutual interest. RUC West offers participating agencies the opportunity to achieve economies of scale in their road usage charging projects or research by offering joint testing and evaluation over wide territories.

With a wealth of cooperative research, case studies and best practices, RUC West serves as central host for the latest information on road usage charging.

Visit www.RUCWest.org for project news and more details.

AREAS OF WORK

- ✓ Technical research and development
- ✓ Legal and policy issues
- ✓ Research of fiscal and economic issues
- ✓ Standards and certifications
- ✓ Administrative and operational issues
- ✓ Inter-jurisdictional concerns
- ✓ Stakeholder outreach and communications
- ✓ Platforms and operations for state or regional pilots

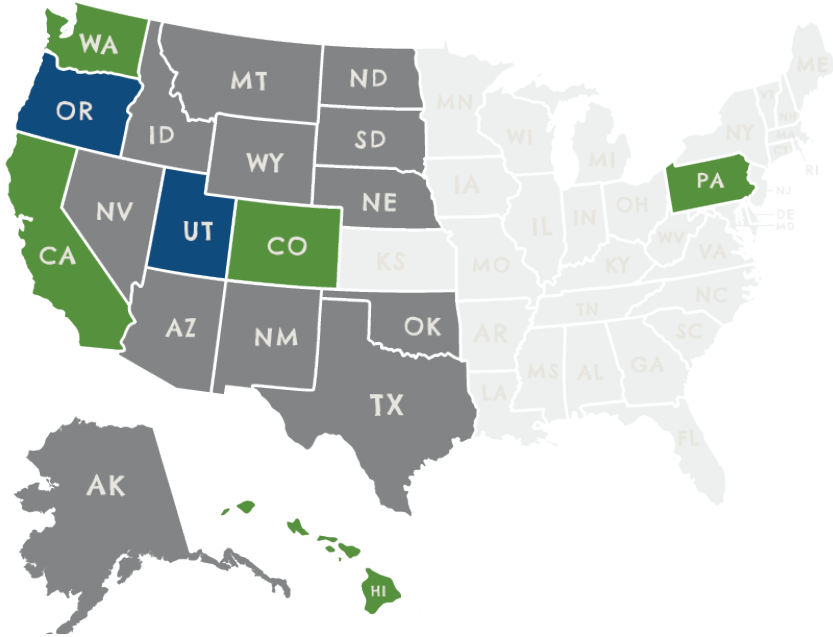
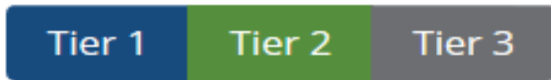
What is road usage charging?

Road usage charging (RUC) is a pay-by-the-mile concept where drivers pay for miles driven instead of gallons of fuel consumed. For nearly two decades, gas tax revenues have declined significantly due to increased fuel efficiency (including electric and hybrid vehicles). In addition the decreased purchasing power of tax dollars for construction materials has resulted in many states cannot keep pace with the costs of operating, maintaining, and improving their vital transportation system.

RUC West Priorities

American states are working together to study the viability of per-mile charging. RUC West allows state departments of transportation to pool resources to study outcomes and share best practices. RUC West has already funded 24 projects related to the feasibility and evaluation of road usage charging, with more on the way.

RUC WEST MEMBER LEGEND



OUR MEMBERS

Tier 1: Actively promoting road usage charging as an equitable road-funding solution (implementing a program)

- ❖ Oregon
- ❖ Utah

Tier 2: Conducting Research Pilot Projects for a RUC

- ❖ California
- ❖ Colorado
- ❖ Hawaii
- ❖ Pennsylvania
- ❖ Washington

Tier 3: Monitoring transportation trends (evaluating the road usage charge environment)

- ❖ Alaska
- ❖ Arizona
- ❖ Idaho
- ❖ Montana
- ❖ Nebraska
- ❖ Nevada
- ❖ New Mexico
- ❖ North Dakota
- ❖ Oklahoma
- ❖ South Dakota
- ❖ Texas
- ❖ Wyoming

Interested in learning more?

RUC West welcomes state members to stay informed about RUC trends. A membership in RUC West connects your organization with the most current tools, resources and information on road usage charging. Whether watching the concept unfold or considering implementation of a state program, RUC West is the go-to source for all things RUC.

For any additional information on RUC West please visit: www.RUCWest.org

Contact Administrator Randal Thomas at: Randal.B.Thomas@odot.state.or.us





The next era of automotive technology is quickly approaching as vehicles that are electric, highly efficient, connected and autonomous become more common. These innovative vehicles, in all weight classes, require public agencies to respond with new policies and approaches to fund their transportation systems so they can operate in a safe and efficient manner.

RUC West presents two days of topics such as:

- The business case for moving to a mileage based fee.
- Technologies and systems that support RUC.
- Preparing an organization for change.
- Communication strategies.
- Emerging technologies to watch.

The program will include great opportunities to network with practitioners and thought leaders. We look forward to seeing you there!

Day 1	June 28			Notes
8:30 – 9:30 am	Keynote Speakers Ed Sniffen , RUC West Board of Directors Chair will deliver a welcome, background on RUC West, and the work RUC West has done to date. Terri Anne Newell will deliver a welcome and update on Utah’s RUC efforts.			Ed Sniffen, HI DOT Deputy Director for Highways Terri Anne Newell, UT DOT Deputy Executive Director
9:30 - 10:00	Break			
Understanding Why: Moving to a 21st Century User Fee System				
	Business Track		Technical Track	
10:00 – 11:30	The business case for changing how transportation is funded	Moderator: Lauren Prehoda (CA) Participants: Travis Dunn , CDM Smith Mike Patterson , HNTB Trey Baker , WSP Dawn Sullivan , OK DOT Melissa Batula , PA DOT	Getting started – requirements, data model, architecture, planning for big data, data security	Moderator: Cameron Kergaye (UT) Participants: Markell Moffett , WSP Nate Bryer , Azuga Scott Jacobs , emovis Vickie Dewey , AECOM
11:30 am – 1:00 pm	Lunch Keynote Speakers, Angela Fogle, FHWA, The Federal Perspective Thomas Kessenger, Utah Clean Energy, The Collision of Transportation Electrification & Energy			
Understanding How: Organization, Data, & Policy Structures				
1:00 – 2:30 pm	Organizational structure & readiness	Moderator: Joseph DeLaRosa (NM) Participants:	Open Architecture, Leveraging	Moderator: Maureen Bock (OR) Panel discussion:

	including from tolling perspective	Mike Warren , WSP Nathan Lee (UT) Scott Urada , HI DOT Reema Griffith , WA Transportation Commission Emeka Moneme , TransUrban	Current Standards & Certification – How it could reduce administrative costs & risks	Jason Conley , OmniAir Suzanne Murtha , AECOM Markell Moffett , WSP Nate Bryer , Azuga Scott Jacobs , emovis
2:30 – 3:00 pm	Break			
Understanding Who: Working on Change				
3:00 – 4:30 pm	Leveraging the mere exposure effect (aka familiarity principles) & Communication best practices	Moderator: RUC West Participants: Colleen Gants , PRR Scot Urada , HI DOT Adrian Moore , Reason Foundation Tim Kirby , WSP Andrew McLean , CDM Smith	Managing big data, cloud services	Moderator: RUC West Randy Iwasaki (AWS) Rahul Gupta (Accenture) Chris Armstrong, Panasonic
5:00 – 7:00 pm	Networking Event			
Day 2	June 29			
	Business Track		Technical Track	Notes
8:30 – 9:30 am	Keynote Speaker: David Kim, WSP, RUC and the Future of Transportation			
9:30 - 10:00	Break			
Understanding What: 20 Years of What Works				
10:00 – 11:30	Working with other jurisdictions (states, toll authorities, etc.) including lessons learned from tolling	Moderator: Anthony Buckley Panelists: Lauren Prehoda , Reema Griffith , Maureen Bock , Vicky Dewey , AECOM	Bridging the gap between business and technology: best practices & case studies	Moderator: RUC West Panelists: Tom Kreuger (Emovis) Nate Bryer (Azuga) Markell Moffett (WSP) Mahrokh Arefi (IBI Group)
11:30 – 1:00 pm	Lunch – Keynote Speaker, Allie Kelly, The Ray			
What's Next: Harnessing and Planning for the Next 20 Years				
1:00 – 2:30 pm	<p>Plenary Session: Discussion from various technology providers and innovators on emerging technologies, opportunities, and challenges, and impacts on data systems. But most importantly, what enables this and how do we PAY for it.</p> <p>It will also look for audience participation to share how they might apply lessons learned in this forum. It will also look at the intersection of business and technical interests, and provide some insights into groups with which you can engage to learn more.</p> <p>Technologies could include digital license plates, blockchain, connected and autonomous vehicle technologies, mobile payments, among others.</p> <ul style="list-style-type: none"> Standards such as VID, Trusted Trips, Digital Twins, Verified Credentials, Integrated Trust Network and Privacy 		<p>Moderator: Maureen Bock Panelists: Rich Masceras, Accenture Jason JonMichael, City of Austin Allie Kelly, The Ray Vicky Dewey, AECOM Nate Bryer, Azuga Tom Kreuger, emovis Mike Warren, WSP Jason Conley, OmniAir Neville Boston, Reviver Tram Vo, MOBI Adrian Pearmine, DKS</p>	

	<ul style="list-style-type: none"> • Certifying new technology – what it matters, what’s in process (example: SAE J3217 – mobile payments for RUC & tolls) • Connected Vehicle Technology – what’s possible, what’s needed • Digital license plates – more than just a vehicle identifier • Lessons learned from Smart Cities 	
2:30 – 3:00	Break	
3:00 – 4:30 pm	Plenary session , continued	
5:00 – 7:00 pm	Networking Event	