

State Road Usage Charge Toolkit

4/12/2022



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Introduction

Since the early 2000s, states have been at the forefront of discussions to explore possible replacements for the motor fuel tax (MFT). States are heavily reliant on MFT revenue as a source for transportation funds. According to the National Association of State Budget Officers' [2019 State Expenditure Report](#), "Motor fuel taxes represented the largest revenue source for transportation funds at 39.8%."

Motor fuel tax receipts are projected to decline as vehicles become more fuel-efficient and the surge of new electric vehicles continues to spark interest among buyers. Given these two major pressures on the MFT, states have begun to actively study, explore and pilot road user charge (RUC) systems as the most likely long-term replacement for declining MFT revenue. Also known as Vehicle Miles Traveled (VMT) or Mileage-Based User Fees (MBUF), these efforts have been supported by the federal government via the Surface Transportation System Funding Alternatives (STSFA) [grant program](#).

Thus far, 14 states and regional pilots (California, Delaware, Hawaii, Kansas, Minnesota, Missouri, New Hampshire, Ohio, Oregon, Texas, Utah, Washington, and Wyoming) have received federal grants to explore alternative funding mechanisms such as road usage charges. Colorado was awarded funds that they subsequently returned.

NCSL is collaborating with the Federal Highway Administration to provide legislatures, states and other transportation stakeholders with insight into what states have achieved so far. Fact sheets are being developed for each state and an in-person meeting will be convened later in the project to bring RUC stakeholders together.

Other RUC Resources

- [2022 NCSL Road Usage Charges Summit Presentations](#)
- [FHWA Awards \\$18.7 Million to Eight Projects to Explore New Highway Funding Methods](#)
- [NCSL Kicks Off Project to Expand Understanding of Road User Charging](#)
- [States Ramp Up Road User Charging Pilots and Studies](#)
- [NCSL Road Usage Charges Summit Summary Report](#)



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Road Usage Charge Fact Sheet: California



State: California

Publication Date: August 25, 2022

History: The California Department of Transportation (Caltrans) received four grants totaling \$6.68 million from the federal [Surface Transportation System Funding Alternatives](#) (STSFA) program. STSFA grants were used to expand outreach and education efforts, explore alternative ways to collect revenue at the pump, investigate emerging technologies and explore the viability of the current global positioning system (GPS) technology to determine which roads are public and can be subject to a RUC.

STSFA Awards

Fiscal Year	Grant Amount	Description
2016	\$750,000	Pilot a potential RUC utilizing pay-at-the-pump/charging stations.
2017	\$1,750,000	Explore mechanisms to collect revenue at pay-at-the-pump/charging stations.
2018	\$2,030,000	Study emerging technologies including usage-based insurance, transportation network companies and automated vehicles.
2020	\$2,150,000	Explore the viability of the current global positioning system technology to determine which roads are part of a public network and may be subject to a RUC.

Legislative Activity:

The California Road Charge Pilot was created in 2014 via [SB 1077](#) (enacted). That law also ordered the California State Transportation Agency (CalSTA) to convene a 15-member Road Charge Technical Advisory Committee (Road Charge TAC). The Road Charge TAC was tasked with studying alternatives to the gas tax, gathering public comments and developing recommendations for a Road Charge Pilot Program that would collect revenues based on miles traveled using mock invoices and payments.

[SB 1328](#) (2018, enacted) extended the Road Charge TAC until Jan. 1, 2023. In 2021, [SB 339](#) (enacted) authorized an RUC pilot that will test revenue collection via a RUC. CalTrans has applied for a federal grant for this pilot. The Road Charge TAC was also extended until Jan. 1, 2027 and directed to make recommendations about the RUC pilot by July 1, 2023 and a final report is due to the legislature by Dec. 31, 2026. According to [Caltrans](#), the “pilot will be an important step to determining a road charge revenue collection system that works within California’s unique financial and administrative structure and offers an opportunity to study the impact of differing RUC rates.”

Project Details:

California’s initial pilot was state funded and used mock invoices and payments. A [report](#) was published by CalSTA in December 2017. Notable findings in the report included that over 5,000 participating vehicles were sustained over a nine-month period, four third-party vendors were utilized to collect data and issue mock invoices, six reporting and methods were examined including a no-tech, low-tech and high-tech reporting. Heavy commercial vehicles were also included.

Tasks completed using FY 2016 grant funds emphasized expanding education and outreach, developing an organizational structure and compliance program and testing technology solutions to potentially be utilized along with determining their effectiveness. Specific tasks involved informing the public on the current system of generating revenues for transportation projects, as well as how funds are distributed and used. Research was also conducted to identify improvements to the current gas tax revenue model and determine effective enforcement and compliance strategies.

The findings from the California sponsored RUC pilot recommended further research on the impacts of a RUC on disadvantaged communities. Caltrans contracted with the Foundation for California Community Colleges to research potential impacts of a RUC program on low-income individuals. The RUC pilot also gathered information regarding the public’s awareness of transportation funding, perceptions of a RUC and explored potential privacy concerns related to how information may be collected as part of a RUC program. These activities have [since been completed](#).

FY 2017 and 2018 grant funds were combined for [California’s demonstration project and pilot testing](#) conducted from January to June 2021. 2020 funds awarded in July 2021 will be used to start the procurement process for a public/private roads pilot to test GPS road identification and focus on impacts to rural and tribal communities. The Public/Private Roads Project will also test using one of California’s existing tolling agencies as a commercial account manager.

Caltrans outlined [six goals](#) for its STSFA awards. Two goals address the design, acceptance and implementation of alternative revenue mechanisms, as well as improving the functionality of user-based alternative revenue mechanisms. The third focuses on public outreach and the need for alternative funding sources. Finally, goals four, five and six emphasize recommendations to implement user-based alternative revenue mechanisms, while also minimizing administrative and collection costs.

Other Resources

- [California Road Charge Homepage](#)
- [California Road Charge Technical Advisory Committee](#)
- [California’s 2017 Road Charge Pilot](#)

Other RUC Resources

- [2022 NCSL Road Usage Charges Summit Presentations](#)
- [FHWA Awards \\$18.7 Million to Eight Projects to Explore New Highway Funding Methods](#)
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Road Usage Charge Fact Sheet: The Eastern Transportation Coalition

Publication Date: April 8, 2022

History

The [Eastern Transportation Coalition](#) (ETEC), formerly the I-95 Corridor Coalition, is a partnership of 17 states and the District of Columbia focused on connecting public agencies across modes of travel to increase safety and efficiency. ETEC represents 40% of the U.S. population and Gross Domestic Product (GDP). It includes Alabama, Connecticut, Delaware, Florida, Georgia, Kentucky, Maine, Maryland, Massachusetts, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Tennessee, Vermont and Virginia, as well as the District of Columbia. Since 2018, road usage charge (RUC) legislation, sometimes referred to as a mileage-based user fee (MBUF), has been considered by nine ETEC member states—Connecticut, Maine, Maryland, Massachusetts, New York, South Carolina, Tennessee, Virginia and Vermont. Three of those states—Connecticut, Maine and Virginia—have approved RUC-related legislation.

ETEC has conducted five demonstration pilots using funds allocated by the [federal Surface Transportation System Funding Alternatives \(STSFA\) grant program](#), including three multistate passenger vehicle pilots, a multi-state truck pilot and a national truck pilot. These pilots have included nearly 1,500 passenger cars from 14 eastern states and the District of Columbia, as well as approximately 270 trucks. Importantly, ETEC’s work takes the study of user fees from theory to practice showing how MBUF would function in an operating environment. ETEC and its partner states have started work awarded under the fourth STSFA grant, with another multi-state demonstration pilot and national truck pilot planned for the spring of 2022.

STSFA Funding			
Federal Fiscal Year	Grant Title	Grant Amount	Description
2016	Starting the Conversation	\$1,160,000	Involving 155 transportation stakeholders from 13 states (primarily from Delaware and Pennsylvania), the pilot started the conversation on the Eastern seaboard about the feasibility of MBUF.
2017	Adding the Public’s Voice	\$1,950,000	A four-month passenger vehicle pilot brought the insights and concerns of the general public into the national MBUF discussion while a multi-state truck pilot and the establishment of a Motor Carrier Working Group ensured all transportation system users were at the table.
2018	Expanding the Exploration	\$6,056,000	Expanded the MBUF exploration into additional states, conducted a geographic equity analysis, gathered public opinion, examined synergies with toll entities and delivered the first national truck MBUF pilot.
2019	Designing and Testing an MBUF System	\$ 6,700,000	To determine design options for state and multi-state MBUF systems, explore rate setting options, reporting choices (low and high tech), equity impacts and clearinghouse functions. Exploratory work continues to address all system users-- both passenger and motor carriers.
2020	Launching a Voluntary MBUF Program	\$9,340,000	To demonstrate and test various implementation paths for MBUF in a sustainable manner that addresses concerns including privacy, equity and administrative costs.

Legislative Activity

Enacted Legislation

Maine – HB 700 (enacted, 2019)

A [commission](#) studied potential funding solutions for state transportation systems including a voluntary vehicles miles pilot program.

Virginia – SB 890 (enacted, 2020)

Highway Use Fees (HUF) on electric vehicles and other highly fuel-efficient vehicles achieving at least 25 mpg were created. However, in lieu of paying a HUF, vehicle owners may participate in a voluntary MBUF program beginning July 1, 2022. By enrolling in the MBUF program, a vehicle owner can pay a fee based on actual miles driven instead of a HUF. Total MBUF charges shall not exceed annual HUF amounts for a particular vehicle. According to the [commonwealth’s DMV](#), electric vehicles currently pay a HUF of \$109 to reflect the amount in fuels taxes such owners will not pay annually from not purchasing motor fuel. A mileage fee schedule will be calculated by the commonwealth’s DMV by dividing the amount of the HUF by the average number of miles driven by a passenger vehicle. The commonwealth’s DMV will also [establish MBUF program guidelines](#) by May 2022.

Connecticut – HB 6688 (enacted, 2021)

Created per-mile motor carrier fees based on truck weight, the fees will range from 2.5 cents to 17.5 cents per mile. Beginning in 2023, all vehicles weighing over 26,000 lbs. will be subject to a Highway User Fee for every mile traveled in the state. The new Connecticut program was not supported by the federally funded STSFA program.

Additional 2021 Legislation

At least four ETEC member states—Massachusetts, New York, Tennessee and Vermont—considered RUC legislation in 2021 to further explore RUC systems.

Legislation in New York ([AB 4094](#), failed) would have created a pilot RUC system. Massachusetts ([SB 2350](#), pending) is considering a pilot RUC system to study a funding alternative to the gas tax; participants in the RUC would not be required to spend more on fees or taxes than if they had not participated in the RUC. Another Massachusetts bill ([SB 2265](#), pending) would authorize the commonwealth Department of Transportation (DOT) to explore the feasibility of mileage-based revenue collection. The study would also consider public acceptance, costs and payment options. Finally, [SB 2351](#) (pending) would establish per-mile rates for autonomous vehicles (AV). The base rate would be 2.5 cents per mile and would adjust annually based on changes in the consumer price index. Further, an additional amount could be charged for each mile driven by AVs without a passenger, weighing over 4,000 lbs. and operated between 8 a.m. and 8 p.m. within certain congestion zones designated by the state. In Vermont, legislation ([HB 123](#), pending) would direct drivers to report miles driven on their taxes. Finally, Tennessee’s Legislature is considering a bill ([HB 1507](#), pending) that would establish an infrastructure bank and task it with exploring sustainable financing for state infrastructure projects including the use of road usage charging, such as vehicle miles traveled, for highway, road and bridge projects.

Project Details

ETEC’s activities under the STSFA grants are part of a broader effort to explore the feasibility of a potential MBUF solution, as well as develop a better understanding of how MBUF might work in a multi-state environment. ETEC’s STSFA activities have also addressed other major issues associated with the MBUF concept, namely privacy, equity and administrative requirements and costs, including compliance and enforcement.

The goals of the project are:

- Address regional issues necessary for national adoption and implementation of MBUF.**
 - Develop and implement state-based MBUF pilots, balancing the unique needs of each state within a multi-state framework.
 - Continue the commercial vehicle pilot activities, expanded to include alternate forms of motive power (e.g., diesel, electric, hydrogen, fuel cell) and different types of fleets.
 - Create a low-risk environment to address cross-state issues. This includes examining various approaches for operating a multi-state clearinghouse to distribute revenue between participating states.
 - Define the regional governance structure for the multi-state and national clearinghouses using other established models such as International Fuel Taxation Agreement (IFTA), International Registration Plan (IRP) and E-ZPass Interagency Group as a reference.
 - Outline common enforcement and compliance protocols and procedures to improve harmonization across states.
- Increase public awareness of funding issues and assess the acceptance of MBUF.**
 - Gather public opinion through pre-and post-pilot surveys, statewide surveys and focus groups to help design effective MBUF messaging.
 - Produce educational material explaining how transportation revenue works and why MBUF is a needed option.
 - Decrease public concerns such as privacy and data security through demonstration pilots and related education and outreach activities.
 - Use real-world data to analyze how a shift to MBUF would affect different communities, including low-income, rural and minority households.
 - Identify optimal approaches for reaching and communicating with all sectors of the population and with owners of different vehicle types, and how they may be integrated into a future MBUF program.
- Create a low-cost framework to administer MBUF.**
 - Pursue cost-saving opportunities through economies of scale created by a multi-state approach.
 - Assess benefits of leveraging existing back-office tolling procedures for MBUF implementation to reduce administrative costs and enhance scalability.
 - Include a national fleet in the commercial vehicle pilot to determine cost savings from a fleet versus an individual vehicle approach.
 - Examine the costs of different data gathering approaches from low-tech (annual safety inspections) to high-tech (in-vehicle telematics).
 - Identify successful compliance approaches to inform MBUF procedures.
- Support implementation of MBUF programs in a multi-state environment.**
 - Document pros and cons of different payment approaches to enable all users to participate regardless of socioeconomic status.
 - Support education campaigns to increase awareness of MBUF programs via social media and digital messaging campaigns.
 - Continue the development and analysis of alternative per-mile rates that are linked to policy objectives such as combatting climate change.

The elements of the project include:

State Pilots and Commercial Vehicle Pilots

Pilot programs focus on having a range of participants across a representative cross-section of society including low-income and minority groups. Participants have included EVs, hybrids and internal combustion engine vehicles. The truck pilots have had diversity in the types of companies and future work will focus on diversity of truck class and weight.

Clearinghouse Demonstration & DOT Management Interface

Several eastern seaboard states have significant levels of out-of-state mileage driven on their road systems. In addition to analyzing how best to accommodate this cross-state travel in a MBUF system, ETEC is demonstrating a multi-state clearinghouse that integrates data from the ETEC pilot programs to identify the actual transfer of MBUF between states. The effort also explores concepts for multi-state harmonization as well as possible governance frameworks.

Education and Outreach

Education and outreach are at the core of ETEC’s work on MBUF and include statewide surveys, focus groups and data analytics. These surveys and focus groups will provide qualitative and quantitative data to inform public messaging and digital communications as part of a comprehensive public awareness campaign.

Rate Setting Options

ETEC’s passenger pilot have used a “revenue-neutral” approach, whereby the driver of a vehicle that gets the average mpg will pay the same amount in MBUF as they pay in-state fuel tax. Other rate-setting approaches have been analyzed, such as including the additional administrative costs associated with MBUF in the per-mile rate and a tiered rate approach based on four different mpg categories. For the truck pilots, it became clear one rate will not work for the motor carrier industry. Exploration of mpg-based rates also were not feasible. Future truck pilot rates will follow the guidance by the ETEC Motor Carrier Working Group to establish a consistent and low burden approach. Additional alternative per-mile rates for passenger vehicles will also be evaluated.

Geographic & Socio-economic Analysis

MBUF program implementations to date have been voluntary, focusing primarily on EVs and other highly fuel-efficient passenger cars. Since the owners of these vehicles are typically in higher-income groups, equity concerns around the relative burden on households of differing incomes, minority groups and rural and urban users have not been a major roadblock thus far. However, if the MBUF concept is to expand and eventually be applied to all vehicles, such issues will be critical to MBUF acceptance and implementation. ETEC’s work will combine data analysis, focus groups and steering committee engagement to identify ways to address equity concerns.

Mileage Reporting and Payment Options

ETEC pilots have provided several mileage reporting options including a plug-in device with GPS, plug-in without GPS and smartphone apps. Additional options to be explored include a low-tech approach such as annual safety inspections and in-vehicle telematics. Future pilots will also explore the feasibility of allowing different payment options such as cash and temporary payment cards, and how to determine payment frequencies.

Synergies with Tolling

ETEC works best in terms of using mileage reporting technologies (with GPS) to mimic electronic tolling. ETEC work has also identified configurations in which using MBUF technology to collect tolls would be problematic (e.g., express toll lanes next to general purpose lanes). ETEC is examining further tolling synergies and cost-saving measures such as leveraging back-office systems, multi-state payment processing procedures and large scale customer service management.

Additional Resources

- [The Eastern Transportation Coalition Study Findings](#)
- [March 2021 ETEC Fact Sheet](#)
- [2020-2021 Exploration of MBUF for All Users Report](#)
- [2019 Passenger Vehicle Report](#)
- [2019 Passenger Vehicle Pilot Fact Sheet](#)
- [2018 Passenger Vehicle Pilot Final Report](#)
- [2018 Passenger Vehicle Pilot Fact Sheet](#)
- [2018-2019 Truck Pilot Final Report](#)
- [2018-2019 Truck Pilot Fact Sheet](#)

Other RUC Resources

- [2022 NCSL Road Usage Charges Summit Presentations](#)
- [FHWA Awards \\$18.7 Million to Eight Projects to Explore New Highway Funding Methods](#)



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Road Usage Charge Fact Sheet: Hawaii

State: Hawaii | Publication Date: Sep. 7, 2021



History

Hawaii's Department of Transportation (HDOT) has received two grants totaling approximately \$4.25 million from the federal [Surface Transportation System Funding Alternatives \(STSFA\) program](#). HDOT seeks to better understand how a road user charge (RUC) would be collected via manual odometer readings at inspection stations and using other automated technologies to collect mileage data. HDOT recently received a second STSFA grant in April 2021 to examine the accuracy of digital mapping roadway data in Hawaii and identify public versus private roads.

STSFA Awards

Federal Fiscal Year	Grant Amount	Description
2016	\$3,998,000	Explore a user fee collection method by leveraging existing annual safety inspection processes and infrastructure and collecting mileage information using other automated technologies.
2020	\$250,000	HDOT will study digital mapping data to determine which roads are part of a public versus a private network, completeness and accuracy of digital mapping data, and identify additional data elements or enhancements that would enable digital mapping to better support transportation taxation.

Legislative Activity

The Hawaii legislature has considered one RUC related bill—[HB 1174](#) (failed)—in 2019. The bill would have created a state vehicle miles traveled fee for electric vehicles. This fee would have been due at the time a vehicle's registration was owed. The per-mile fee would have been levied by a county's director of finance based on the miles traveled during the year, calculated using a comparison of the vehicle's current odometer reading with the odometer reading of the previous year.

Project Details

HDOT is conducting a three-year Hawaii Road Usage Charge demonstration project (HiRUC) that started in late 2018. Hawaii defines an "RUC" as a per-mile fee that drivers pay to fund the upkeep of the road instead of paying a tax on gasoline." [HDOT notes](#) that an RUC helps ensure each driver pays for how much roadway they use. The intersection of transportation and energy is an important policy issue in Hawaii, given the state's goal of being 100% fueled by clean energy by 2045.

HDOT has established goals such as providing actionable information to state lawmakers about sustainable transportation funding, partnering with state and local agencies to explore and resolve administrative challenges and providing information to help build a demonstration program as a platform for exploring and resolving certain challenges. This research project explores how a per-mile fee could affect the buying of both high-mileage-per-gallon or alternative fuel vehicles, will build upon existing research on the annual collection of odometer readings and will be used as part of a potential RUC system.

Some project goals are as follows:

- Hawaii is investigating methods to streamline user-based revenue mechanisms into a single system, allowing motorists to make installment payments over time rather than through an annual lump-sum payment. Potential options cited by HDOT include:
 - Using the existing annual vehicle inspection process in Hawaii, whereby miles could be reported by odometer readings (16 other states require periodic safety inspections).
 - Local-option fuel taxes (13 other states allow county, city, and/or other local option fuel taxes).
- Interest in large-scale public engagement around transportation funding and incorporating public feedback into policy and system design.

By January 2019, HDOT formed an executive steering committee, designed a telephone survey and held 10 focus group meetings. Later that year HDOT conducted over 1,500 telephone surveys and held 13 on-site and one online community meetings.

Using the existing annual safety check infrastructure and data-enabled HiRUC to expand on a wide-reaching public outreach campaign in late 2019 by sending out direct mail Driving Reports ([mock invoices](#)) to vehicle owners throughout the state that showed personalized, side-by-side comparisons of what the person paid in gas tax based on their vehicle's EPA MPG, and what they could be paying under an RUC system. The recipients were asked to complete a survey so HDOT could understand what the general public understood about transportation funding, the concept of an RUC, and asked other related RUC related questions. Nearly 360,000 Driving Reports were mailed covering an estimated 365,888 vehicles, and the HDOT received 40,371 completed surveys. This is the largest RUC public outreach effort conducted to date.

The HDOT conducted the Technology Test Drive (TTD) that offered three automated mileage reporting options to volunteers. A total of 1,887 volunteers enrolled in the TTD phase. In addition to having individual drivers participating in this demonstration phase, the HiRUC project also included a fleet-focused demonstration that enrolled an additional 242 vehicles from three privately operated fleets and one governmental fleet. This allowed fleet participants to test a more streamlined enrollment system, leveraging each fleet's internal odometer reporting processes and systems, and an opportunity for HDOT to further understand the different ways of how fleet operators and businesses could be impacted if an RUC is implemented. Studies of RUC impacts on fleets have been very limited to date.

Policy papers and a final report is being developed that will summarize the work performed, analyses of data collected, and present RUC policy and implementation options. This work is anticipated to be completed in January 2022.

Additional Resources

- [HIRUC webpage](#)
- [Hawaii RUC Driving Report/Mock Invoices](#)
- [Why Did I Get a Driving Report and What Does It Mean?](#)
- [HIRUC FAQs](#)
- [FHWA HDOT 2020 biennial report](#)

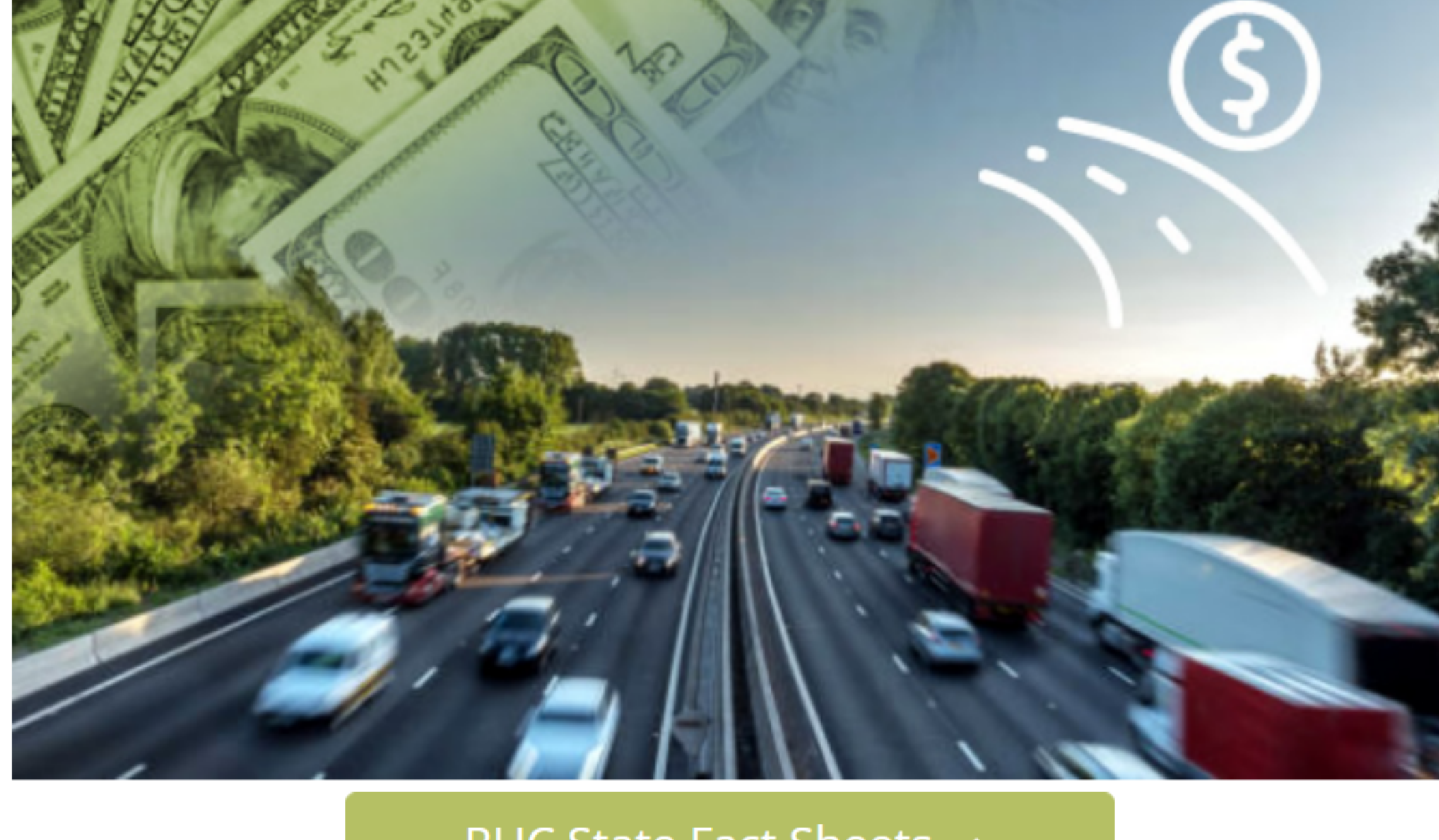
Other RUC Resources

- [2022 NCSL Road Usage Charges Summit Presentations](#)
- [FHWA Awards \\$18.7 Million to Eight Projects to Explore New Highway Funding Methods](#)
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Road Usage Charge Fact Sheet: Minnesota

State: Minnesota | Publication Date: March 22, 2021



History

The Minnesota Department of Transportation (MnDOT) has received two grant awards totaling approximately \$1.3 million over two years under the [federal Surface Transportation System Funding Alternatives \(STSFA\) program](#). The first STSFA grant enabled MnDOT to study and design a road user charge (RUC) program known as Distance-based User Fees (DBUF) on Mobility-as-a-Service (MaaS) providers, such as HOURCAR and Zipcar. The second STSFA grant allowed MnDOT to begin a DBUF demonstration program. According to [MnDOT](#), “DBUF aims to charge vehicles appropriately and proportionately for use of the roads.”

The aim of this project is to demonstrate that on-board embedded telematics in shared-mobility fleets and automated vehicles can be used to efficiently and effectively collect distance based fees. DBUFs are considered an alternative to the state fuel tax for those vehicles not paying their fair share for use of the road. In the case of electric vehicles, a DBUF may also replace the registration surcharge with an appropriate per-mile fee. Minnesota envisions retaining the state fuel tax and migrating to DBUFs as more vehicles become factory equipped with embedded telematics. MnDOT is also working with Minnesota’s Department of Revenue (MnDOR) on DBUF collection and account reconciliation processes.

STSFA Awards

Federal Fiscal Year	Grant Amount	Description
2016	\$300,000	Explore MaaS as a revenue collection mechanism for DBUF. Verify DBUF-related data can be accurately and securely transferred.
2018	\$999,600	Deploy a DBUF demonstration to assess its feasibility, as well as gather public opinion, educate residents and policymakers and identify organizational and administrative gaps.

Legislative Activity

Minnesota’s Legislature has considered two pieces of legislation related to DBUFs since 2019. [HF 1146/SF 1122](#) (failed) would have directed MnDOT to establish a mileage-based user fee (MBUF) program. The bill outlined objectives such as identifying steps to implement an MBUF system, analyze options related to MBUF and test and evaluate data management and fee collection systems.

Legislation introduced in 2021, [HF 523](#), would require owners of an all-electric vehicle to pay a road usage charge (RUC) beginning July 2022. The RUC would be calculated based on the miles driven, multiplied by the excise tax rate for gasoline, divided by the vehicle’s fuel economy. The bill also includes a proposed implementation fee surcharge that would be determined annually or on a less frequent basis. The bill would require the state to enter into an agreement with one or more account providers to perform RUC management. The account provider(s) would be required to share certain data regarding an enrolled vehicle owner.

RUC revenue derived from the implementation surcharge would be deposited in the vehicle services operating account for payments to account providers and for administrative costs incurred. The remaining revenue would be deposited in the highway user tax distribution fund.

By Nov. 15 annually, the commissioner of public safety would have to submit an annual report to the chairs, ranking minority members and staff of the legislative committees with jurisdiction over transportation policy and finance concerning the RUC.

Project Details

The FY 2016 STSFA grant was used to develop a pre-deployment DBUF planning study and proof of concept. According to the Federal Highway Administration’s [biennial STSFA report](#), MnDOT’s Phase I activities included:

- Recruiting MaaS providers.
- Modeling pricing strategies and exploring multi-modal pricing options.
- Engaging in stakeholder outreach and developing and executing legislative strategies.
- Gauging public interest and acceptance of a distance-based fee approach.
- Researching DBUF collection methods.
- Developing a design for Phase II’s deployment.

Phase I’s primary goal was to design an affordable DBUF program. MaaS providers were chosen because the vehicles already have onboard technologies. Over two weeks, 56 vehicles traveled 23,000 miles. A concept of operations was completed during Phase I and a limited proof-of-concept was studied to put in place a data sharing mechanism.

The results from [Phase I validated](#) MnDOT’s ability to download and store mileage data in a secure data repository across MaaS providers, automated vehicles and MnDOT and MnDOR. By testing a MaaS model, [MnDOT anticipates](#) better data security and system reliability than with personally owned vehicles not involved in commercial transportation services because MaaS relies on a private third-party repository and a mileage tracking technology already embedded in the vehicles.

Phase I activities have been completed, with [MnDOT stating](#), “The DBUF model is viable, cost-effective and scalable for a larger implementation.” A DBUF equating to 2.7 cents per mile was calculated based on the results of Phase I and will be used during Phase II’s demonstration. [Phase II](#) will address the following activities:

- A [12-month demonstration](#), which is slated to wrap-up on March 31, 2021.
- Two roundtables with transportation leaders and policymakers on the national landscape for transportation financing. Preliminary results from the DBUF demonstration will be discussed.
- Test connected and automated vehicles (C/AV).
- Develop the business case and revenue model for potential DBUF deployment.
- Develop a rate-setting framework to consider how charges should be levied fairly.

MnDOT notes that certain MaaS companies, such as ride-hailing providers Lyft and Uber, could not participate in Phase II because their telematics platform was on personal devices not actually embedded in the vehicle itself. Thus, for Phase II’s demonstration, MnDOT determined that only HOURCAR and Zipcar met their criteria. These car-sharing services typically have embedded telematics in-vehicle and more accurately reflect the equipment that Original Equipment Manufacturers (OEMs) are now installing in the majority of manufactured vehicles. Thus, they represent a model for wider and more efficient deployment of DBUFs. MnDOT is also optimistic they can potentially include OEMs in future demonstrations.

MnDOR will receive electronic reports and invoices detailing the net DBUF less state and federal fuel taxes. MnDOR will audit provider data to ensure it is valid and accounts will be assessed and reconciled as needed. No real monies will be collected, and any charges will be simulated.

MnDOT has also established a [Technical Advisory Committee \(TAC\)](#) to advise the DBUF project team, provide guidance on policy and technical matters and participate in discussions with the public and policymakers. The TAC will consider issues such as social and geographic equity, rate-setting options (including variable rates based on time of day or location), stakeholder outreach and data privacy concerns.

[Seven demonstration goals](#) were outlined for Phase II, including equity, public acceptance, privacy, ease of payment and collection, transparency, evasion and scalability. The demonstration will also examine the nexus between C/AVs, electric vehicles and MaaS ownership models to “promote a more sustainable transportation funding mechanism.” To help meet project goals, Phase II activities will include educating the public and policymakers about declining transportation revenues, establishing appropriate pricing structures, data and financial systems security and minimizing collection and enforcement costs.

Additional Resources

- MnDOT: [Distance Based Fees](#)
- FHWA: [STSFA Phase I Evaluation Pre-Deployment Activities for a User Based Fee Demonstration by the Minnesota Department of Transportation](#), December 2020.
- [MnDOT Project Website](#)

Other RUC Resources

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Road Usage Charge Fact Sheet: Missouri

State: Missouri | Publication Date: Oct. 30, 2020.



History

Missouri's Department of Transportation (MoDOT) received three grant awards over three years totaling \$4.8 million from the [federal Surface Transportation System Funding Alternatives \(STSFA\) program](#). These grants enabled MoDOT to study an alternative revenue mechanism designed to address payment inequities in the state's fuel tax structure. Specifically, MoDOT designed a proposed miles per gallon (mpg)-based registration fee to replace its current registration fee structure, along with a financial model assessing the potential impacts of such a transition, and a platform for a full-scale implementation strategy with Missouri's Department of Revenue (MoDOR).

STSFA Awards

Federal Fiscal Year	Grant Amount	Description
2016	\$250,000	Study a new annual registration fee schedule based on estimated mpg and determine concept feasibility.
2017	\$2,772,000	Conduct public outreach on concerns related to equity and data security issues.
2018	\$1,782,000	Deploy innovative strategies such as annual vehicle registration fees varying by vehicle fuel economy along with other user-based charges.

Legislative Activity

In 2017, Missouri's General Assembly adopted [HCR 47](#), which established the "21st Century Missouri Transportation System Task Force." This task force was a 23-member bipartisan panel consisting of participants from the private sector and legislative and executive branches. A [report was published](#) in 2018 "with recommendations regarding the state transportation system and the funding of that system." One recommendation called for legislative changes to approve a new annual registration fee structure based on a vehicle's mpg instead of a vehicle's [taxable horsepower](#).

According to MoDOT, [legislation is required](#) to implement an mpg-based registration fee structure. The Missouri General Assembly has considered five pieces of legislation over three years that would have implemented the proposed revenue mechanism supported by MoDOT. However, none of these bills had been enacted as of October 2020.

In 2018, [HB 2600](#) would have established a base vehicle registration fee totaling \$29 for all vehicles with an Environmental Protection Agency (EPA) fuel economy under 30 mpg. Vehicles achieving an EPA fuel economy of at least 30 mpg would have paid an incremental fee per mpg, an amount set by administrative rule. This bill was referred to the House Transportation Committee but did not advance beyond that point.

In 2019, [HB 500](#) and [SB 201](#) would have replaced the current registration fee structure with one based on the combined city and highway mpg rating using the fuel economy label by the EPA or a rating obtained using vehicle identification numbers. The House Transportation Committee held a hearing in Feb. 2019 but did not advance the proposal beyond that point. The Senate Transportation, Infrastructure and Public Safety (TIPS) Committee voted its bill out of committee in Feb. 2019, but it was not subsequently considered by the full Senate. The new base annual registration fee would have been \$24 and, for each additional mile per gallon over 29 mpg and up to 60 mpg, the fee would have increased by \$6. Plug-in hybrid and electric vehicles would have been subject to an mpg-based annual registration fee totaling up to \$204.

In 2020, [HB 2301](#) and [SB 906](#) also would have replaced the horsepower-based registration fee structure with one using mpg ratings and set annual fees based on such ratings. The House version was referred to the Transportation Committee but did not receive a hearing. The Senate TIPS Committee held a hearing in March 2020 on its version, but the proposal was not advanced beyond that point. Vehicles with an mpg of 19 or less would have paid \$25, 20 mpg to 29 mpg would have paid \$32, 30 mpg to 39 mpg would have paid \$39, 40 mpg to 49 mpg would have paid \$46, 50 mpg to 59 mpg would have paid \$53 and 60 mpg or more would have paid \$75. Additionally, plug-in hybrid and electric vehicles would have been subject to fees of \$112.50 and \$125, respectively.

Project Details

Missouri's registration fee is currently based on a [vehicle's taxable horsepower](#), a calculation determined by a vehicle's cylinder dimensions. MoDOT studied the feasibility of transitioning its registration fee structure from taxable horsepower to a vehicle's combined mpg rating. An operational framework was developed to implement the amended structure. The proposed revenue mechanism is not meant to replace current fuel taxes and is also not a per-mile charge based on road usage. Additionally, a technical memorandum was produced to identify each passenger vehicle with the appropriate EPA fuel economy rating. The [project found](#) that "by charging vehicle licensing fees, the state would be able to maintain the Highway Trust Fund revenue stream while simultaneously addressing the existing payment inequity between high and low-efficiency vehicles. Specifically, low-efficiency vehicles would be charged a smaller registration fee than high-efficiency vehicles, as lower efficiency vehicles carry a larger motor fuel tax burden."

Project Status

MoDOT completed pre-deployment activities on Aug. 15, 2018. These activities involved testing the feasibility of transitioning to a fee schedule based on the combined mpg rating of vehicles and coordinating with MoDOR to develop a full-scale implementation strategy to replace the existing registration fee structure. Since then, MoDOT has worked with the General Assembly regarding alternative funding mechanisms for transportation infrastructure. This has included an outreach campaign to lawmakers about the need for alternative funding, as well as new technologies. A State Innovation Forum was also organized in which stakeholders presented their ideas on possible solutions to transportation funding problems.

MoDOT's phase two STSFA award provided \$2.7 million to investigate attributable revenues in rural and urban areas. Furthermore, MoDOT received a third STSFA award of nearly \$1.8 million in federal fiscal year 2018 to design and implement mpg-based registration fees. According to [MoDOT](#), [two studies](#) were conducted. One study sought to understand highway use on a per-year, per-mile and per-driver basis to determine highway impacts and the fees paid by non-gasoline and non-diesel vehicles. This study concluded in September 2019 and its results will support a policy that benchmarks mpg-based registration fees according to highway use and the amount of fees presently paid into the highway system.

The other study explored fees paid by rural and urban drivers under a potential mpg-based registration fee structure while addressing commuting patterns and vehicle types. This study concluded in June 2019, with results indicating that rural drivers are effectively subsidizing urban drivers. [MoDOT notes](#) its primary project goals from the studies were twofold. First, MoDOT seeks to "generate revenues consistent with technological trends in the motor vehicle market," and second, MoDOT is committed to "ensure privacy and security for drivers while using current adaptable technologies to collect and administer the fee."

Additional Resources

- [MoDOT Gets Federal Grant for Alternative Funding Study](#), Jefferson City News Tribune, Feb. 14, 2019
- [Missouri to Test New Fees to Pay for Highway Projects](#), St. Louis Business Journal, Feb. 13, 2019
- [21st Century Missouri Transportation System Task Force \(2018\)](#)

Other RUC Resources

- [2022 NCSL Road Usage Charges Summit Presentations](#)
- [FHWA Awards \\$18.7 Million to Eight Projects to Explore New Highway Funding Methods](#)
- [NCSL Kicks Off Project to Expand Understanding of Road User Charging](#)
- [States Ramp Up Road User Charging Pilots and Studies](#)
- [NCSL Road Usage Charges Summit Summary Report](#)



State Road Usage Charge Toolkit

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[RUC State Fact Sheets](#) ▲

Road Usage Charge Fact Sheet: New Hampshire



State: New Hampshire | Publication Date: Feb. 8, 2021

History

New Hampshire’s Department of Transportation (NHDOT) received one grant award of \$250,000 under the [federal Surface Transportation System Funding Alternatives \(STSFA\) program](#). NHDOT used the grant to study a proposed road usage fee (RUF) schedule based on the Environmental Protection Agency’s (EPA) combined city/highway fuel economy rating of a vehicle. RUFs would seek to address [declining fuel tax revenues](#) due to the increasing number of fuel-efficient vehicles by establishing a RUF in conjunction with the state’s vehicle registration system. The study also explored equity dimensions related to establishing RUFs, such as collecting travel data using location-based services, out-of-state, rural and urban drivers and relative burdens of fuel taxes and RUFs by income.

STSFA Awards

Federal Fiscal Year	Grant Amount	Description
2018	\$250,000	Explore a proposed RUF schedule that would be assessed in conjunction with vehicle registration fees.

Legislative Activity

Since 2016, five notable pieces of legislation have been considered by New Hampshire’s General Court to authorize RUFs based on a vehicle’s combined fuel economy rating. However, none of the bills were subsequently enacted.

In 2016, [HB 1602](#) (failed) would have assessed a RUF on vehicles with a fuel economy rating over 20 mpg and non-gasoline vehicles. RUF assessments ranged from \$29.97 up to \$149.85. The maximum assessment of \$149.85 applied to vehicles rated over 50 mpg, as well as non-gasoline vehicles. Legislation in 2017, [HB 621](#) (failed), would have collected RUFs upon registering a vehicle rated at 22.5 mpg or more. RUF assessments ranged from \$7.70 up to \$77.08 for vehicles rated 51 mpg or more. For non-gasoline vehicles, the assessment would have been \$123.33.

Two bills in 2018 and 2019, [HB 1763](#) (failed) and [HB 478](#) (failed), would have directed state DOT to create a RUF schedule for vehicles rated over 20 mpg. The maximum RUF was set at \$111. In 2020, [HB 1649](#) (failed) stipulated mpg increment ranges of \$10 for vehicles rated 20 mpg or less up to \$100 for vehicles rated over 50 mpg. Additionally, non-gasoline vehicles would have been assessed \$125.

Project Details

[Phase one of NHDOT’s STSFA grant](#) examined RUF revenue projections, along with key factors including equity, public outreach and policy design options. Phase one’s results will be used to inform phase two’s potential development, which could involve an interim testing step, a small-scale implementation or a full statewide implementation.

NHDOT has completed its phase one activities. In February 2020, NHDOT issued a [final report](#) which concluded: “the imposition of a RUF program would increase statewide revenues while making revenue flows more consistent.” NHDOT activities addressed revenue estimates of a potential new RUF compared to existing motor fuel tax revenue while exploring uncertainties that could impact such projections. Equity dimensions were explored concerning urban versus rural drivers, income groups and residents versus visitors. Public opinion polls and focus groups were also conducted. Finally, the report outlined four options to establish RUFs including the advantages and disadvantages of each option.

Proposed annual RUFs that were studied ranged from \$10 for vehicles with an EPA fuel economy rated 20 mpg or less up to \$125 for non-gasoline vehicles including electric cars. Fee increases were based on a vehicle’s fuel-efficiency and the study assessed higher fees in increments of 10 mpg. Vehicles rated between 21 mpg and 30 mpg would pay \$25 annually, increasing to \$50 for vehicles between 31 mpg and 40 mpg and to \$75 for vehicles between 41 mpg and 50 mpg. Vehicles over 50 mpg would be subject to a \$100 assessment. All light-duty vehicles with a vehicle weight rating under 8,500 lbs. would be subject to RUFs when a vehicle’s annual registration is processed. RUFs would be expected to generate \$27.1 million in the first year, increasing to \$42.7 million annually by 2030.

Phase one’s [final report](#) in February 2020 concluded that “the imposition of a RUF program would increase statewide revenues while making revenue flows more consistent.”

Additionally, recommendations discussed public outreach on RUFs in general and why it is needed noting, “Gas tax revenue appears likely to decline over the next decade... in the range of 10% to 25% from 2020 levels” or approximately \$30 million cumulatively by 2030. Statewide focus groups were held in October 2019 to understand residents’ perceptions of transportation funding and their reaction to the proposed RUF funding structure. While survey results indicated 41% of participants supported increasing state investments in transportation, nearly half opposed doing so by establishing RUFs or increasing fuel taxes in particular.

Equity implications addressed annual miles driven by different drivers, vehicle age, urban and rural geography and income. One notable issue focused on how different populations would be affected by fuel taxes and RUFs, with the report highlighting revenue contributions by owners of non-gasoline vehicles and highly fuel-efficient vehicles that drove less than 10,000 miles annually would be “substantially lower than drivers of less efficient vehicles.” The report mentions this because RUFs are collected at a fixed rate regardless of the total number of miles driven.

A notable point in the final report also found that discussing RUFs with the legislature and focus groups was important. NHDOT notes it found RUFs would be a relatively minor cost compared to total annual fuel costs paid by all income groups. Further, owners of fuel-efficient and electric vehicles would still save significantly on annual fuel costs, even after fuel taxes and RUFs were included. “On a per-vehicle basis, the [incidence of gas tax shows little variation](#), ranging from \$90 annually for the lowest income group to just over \$100 for the highest groups; and the RUF would average \$21-24 per year for all groups.”

In terms of geographical equity, the study examined drivers in four geographic classifications taken from the National Household Travel Survey that apply to New Hampshire - Second City, Suburban, Small Town and Rural. The report found RUFs “would substitute a higher relative proportion of transportation costs for the state’s urban and suburban drivers than it would for its residents of rural areas and small towns. With regards to driving habits of New Hampshire residents versus visitors, the report discussed the fact out-of-state drivers would not be paying into a RUF system.

Phase one’s [final report](#) detailed recommendations and potential next steps. For example, passing legislation to list the EPA’s combined fuel economy rating on new vehicle titles, as well as clarifying registration processes for vehicles without an mpg rating. A notable technical element also addressed the role of local clerks, who register vehicles on the state’s behalf, in determining mpg ratings. Potential options to ease implementation issues at the local level included manually matching mpg ratings to a vehicle and relying on approximate, rather than exact, ratings upon registering a vehicle. Other options discussed creating a database with vehicle identification numbers (VIN) and using automated processes to transfer mpg ratings by VIN to local clerks.

Additional Resources

- [Road Usage Fee Revenue Potential and Equity Implications: Road Usage Fee Study—Phase One Report \(Appendix\)](#)

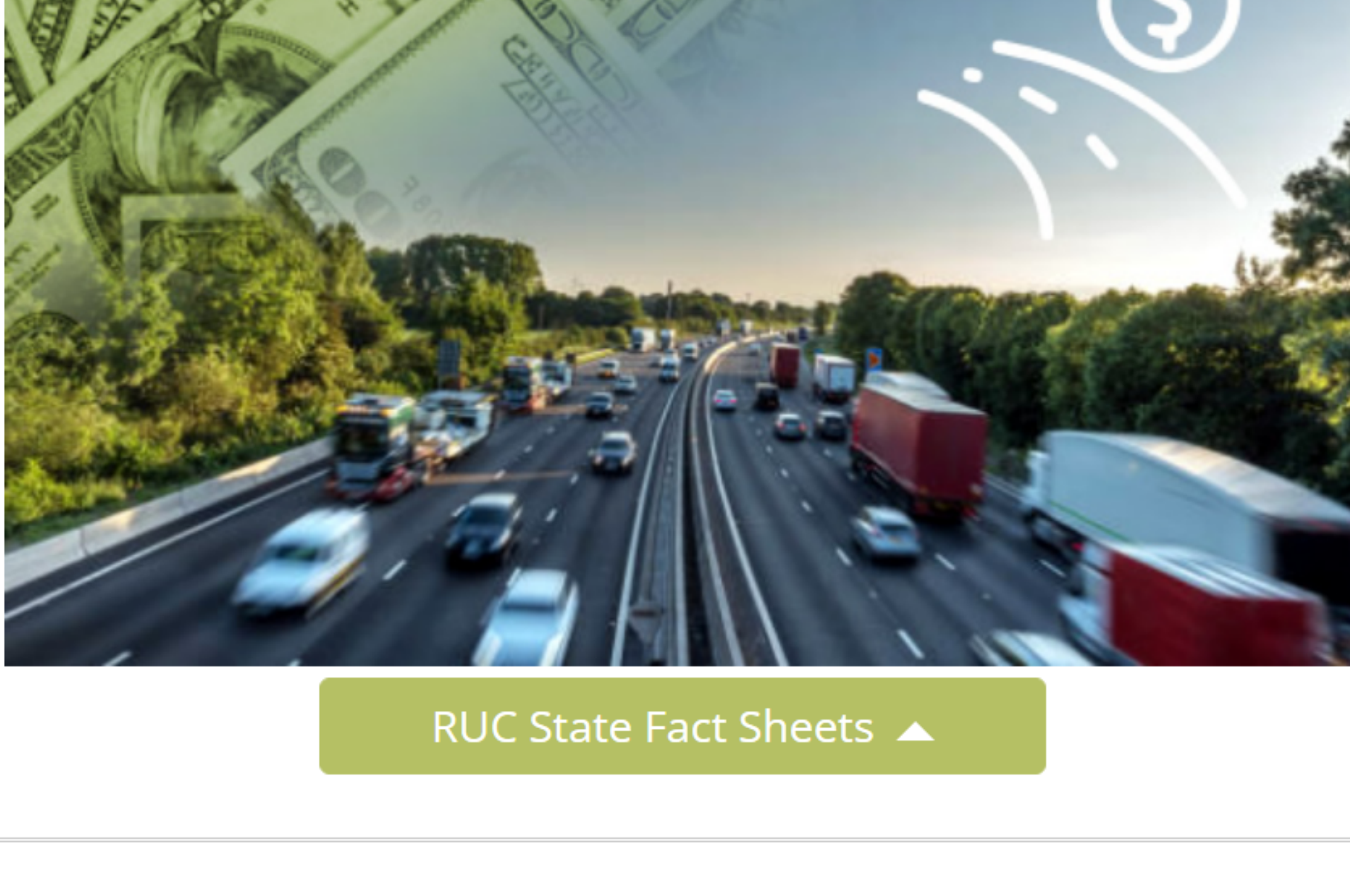
Other RUC Resources

- [2022 NCSL Road Usage Charges Summit Presentations](#)
- [FHWA Awards \\$18.7 Million to Eight Projects to Explore New Highway Funding Methods](#)
- [NCSL Kicks Off Project to Expand Understanding of Road User Charging](#)
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State Road Usage Charge Toolkit

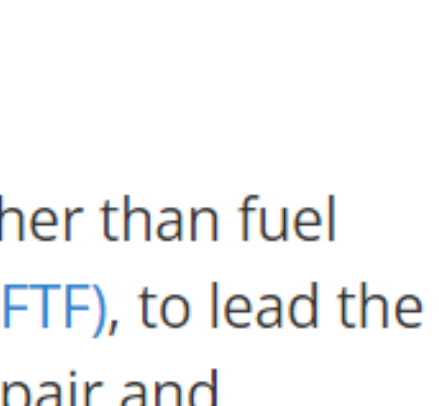
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[RUC State Fact Sheets](#) ▲

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 \(STSFAs\) 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. STSFAs 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.

STSFAs Awards

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.

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 manage payments. Three firms—[Azuga](#), [Emovis](#) and [ODOT](#)—currently offer RUC mileage reporting and payment services.

>The overall goals of Oregon's STSFAs-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 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 STSFAs 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.

Additional Resources

- Oregon DOT: [OReGO webpage](#)
- [Keep Oregon Connected](#): Oregon DOT's video campaign to raise awareness of transportation funding issues in general and OReGO's role in particular.
- [ODOT RUC Economic Analysis of Urban and Rural Drivers](#)
- [BATIC Institute RUC webpage](#)

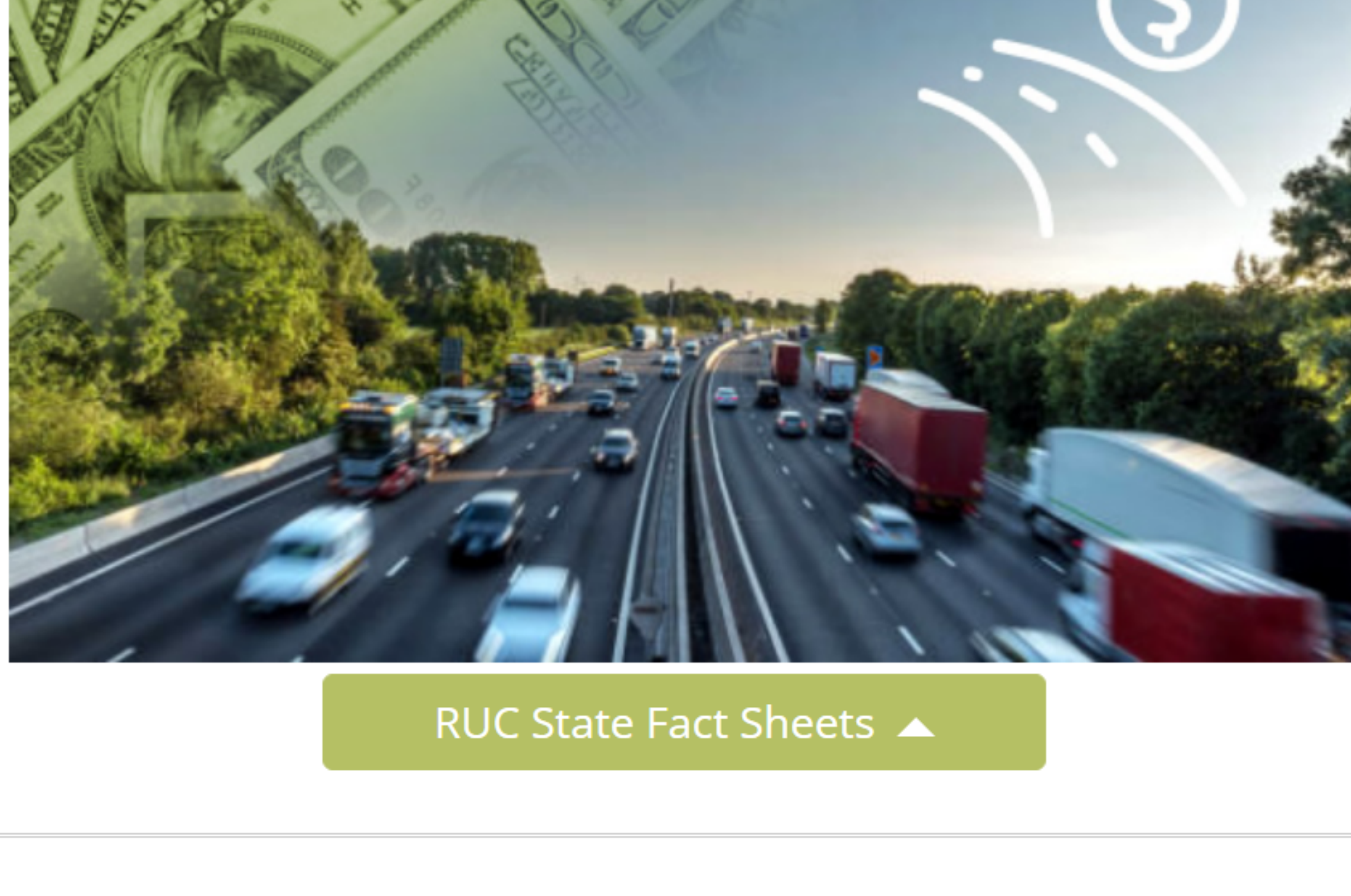
Other RUC Resources

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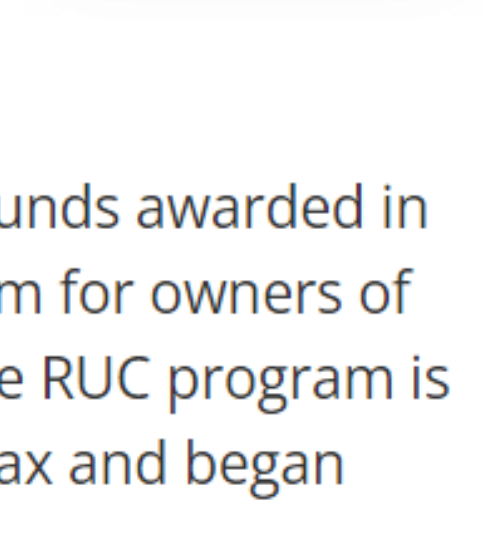
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RUC State Fact Sheets ▲

Road Usage 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	Annual Flat Fee Registration		
	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 record 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 STSFAs 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 STSFAs grant focused on customer experience improvements is still in the initial stages of planning and will be further developed in early 2022.

Additional Resources

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

Other RUC Resources

- [2022 NCSL Road Usage Charges Summit Presentations](#)
- [FHWA Awards \\$18.7 Million to Eight Projects to Explore New Highway Funding Methods](#)
- [NCSL Kicks Off Project to Expand Understanding of Road User Charging](#)
- [States Ramp Up Road User Charging Pilots and Studies](#)
- [NCSL Road Usage Charges Summit Summary Report](#)



State Road Usage Charge Toolkit

4/12/2022



RUC State Fact Sheets ▲

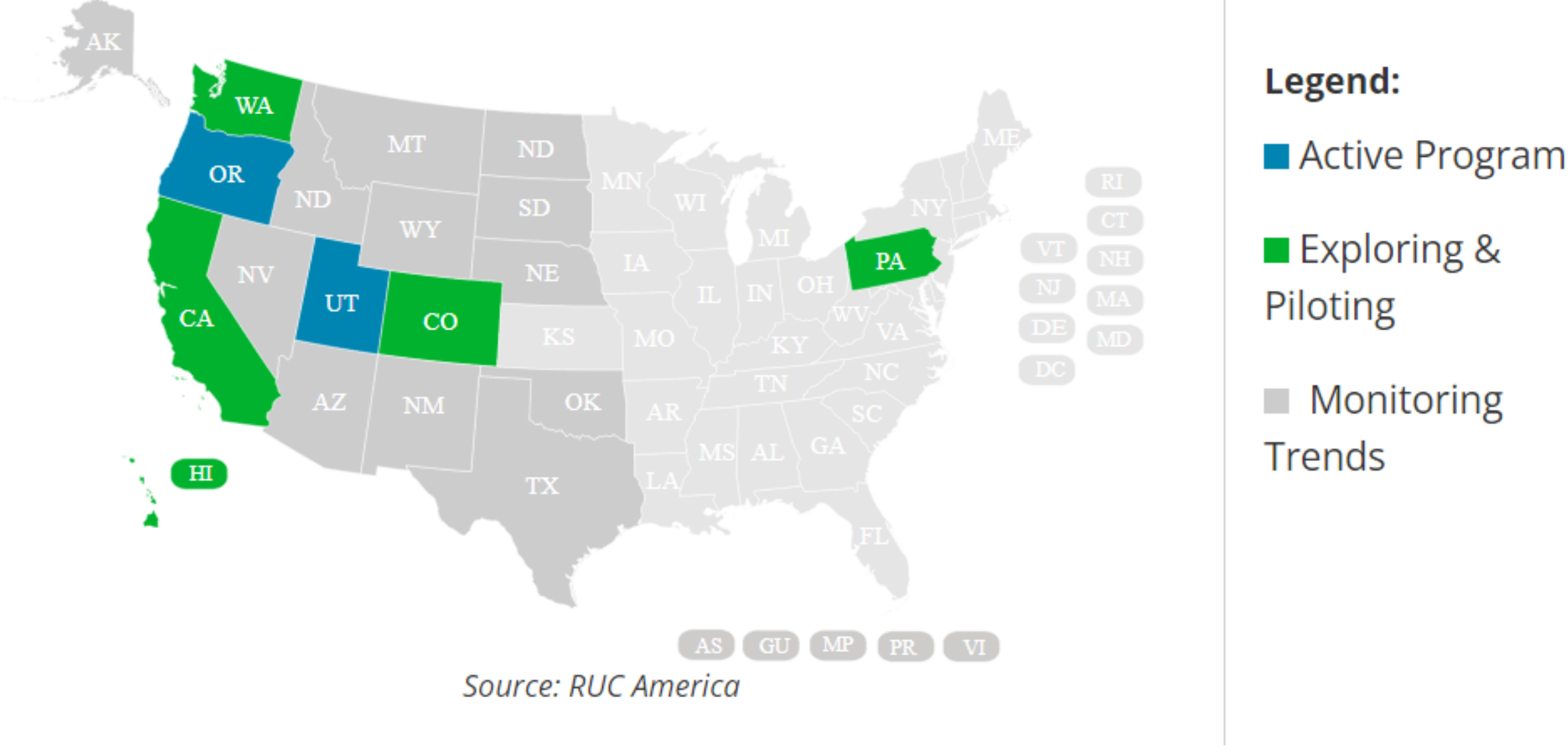
RUC America

RUC America | Publication Date: September 26, 2022

History

RUC America, formerly RUC West, is a consortium of states that pool resources to study the viability of per-mile vehicle charging. In 2022, the organization was renamed RUC America from RUC West to reflect the transition to a national entity rather than a regional consortium. RUC America has funded over 24 research projects studying the feasibility of road usage charging.

The membership consists of 19 state transportation departments. The first membership tier consists of states that are actively operating road usage charging programs, which includes Oregon and Utah. The second tier consists of states that are conducting, or have conducted, RUC research pilot projects and includes California, Colorado, Hawaii, Pennsylvania and Washington. Alaska, Arizona, Idaho, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas and Wyoming make up the third membership tier, which include states that are monitoring transportation trends and evaluating the road usage charge environment. Both Pennsylvania and South Dakota are new member states, joining the consortium in 2022 during the transition from RUC West to RUC America.



RUC America has received five independent grant awards from the Federal Highway Administration under the [Surface Transportation System Funding Alternatives Program](#), which was created by the passage of Fixing America’s Surface Transportation Act. Three of the projects are completed and two are still in progress.

STSFA Awards

Fiscal Year	Grant Amount	Description
2016	\$1,500,000	Defined the basic principles for a regional RUC system for future pilots
2017	\$2,590,000	Built the case for interoperability by demonstrating how a clearinghouse could aggregate and distribute RUC data
2018	\$950,000	Explored RUC and automated vehicles at the state level and in a regional system
2019	\$250,000	Road usage charges and blockchain. Design and test blockchain technology to share transactional information between jurisdictions.
2020	\$134,875	Funded a RUC Summit

Project Details

- 2016; [Regional RUC System Definition and Pilot Planning Project](#); \$1,500,000; Created a concept of operations that all participating states—Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, Oklahoma, Oregon, Utah and Washington—agreed upon. The project set forth the basic principles of how a regional RUC system will function for future pilots. Additionally, the project created a system and business requirements for the Oregon-California pilot in order to move RUC from a concept to a functional program and determine the basis for the contracts for the California regional interoperability project. The established requirements were communicated in five documents and made available to all participating states for use in developing data flow and protocols and business requirements that integrate common requirements with state specific details.
- 2017; [Regional RUC \(OR/CA\) Pilot Project](#); \$2,590,000; The project built a case for interoperability by demonstrating how a clearinghouse could aggregate and distribute RUC data from multiple sources. In order to build an interoperable system, states need RUC data parsed and distributed, indicating miles driven by residents in and out of state and taxes owed by miles driven in state and/or jurisdiction. The project displayed how each state could maintain their own sets of requirements and rates, while the clearinghouse is responsible for consolidating and disseminating that information back to the states. The findings of the project emphasize the importance of data standardization, so all data conforms to the same format and definitions, as well as understanding and preparing for the challenges associated with processing large amounts of data, as necessary with interoperable multi-state RUC systems. The findings also underscore the importance of addressing hesitancy to share RUC related data amongst states, showing the need to establish protocols for releasing Personally Identifiable Information.
- 2018; [Exploration of RUC and Automated Vehicles at both the state and in a regional interoperable system](#); \$950,000; The project demonstrated the importance of states engaging with automated vehicles stakeholders to better understand their technical capabilities and operational constraints. The project found that automated vehicles already operate in a complex regulatory environment, so asking those businesses to set up data exchange policies may be a challenge. This further underlies the importance of improving usability and convenience of RUC systems. Ultimately, the project recommended that states continue to engage with autonomous vehicle stakeholders in order to leverage their technology in the implementation of a standardized RUC software module.
- 2019; [Road usage charge and blockchain](#); \$250,000; The blockchain demonstration project has not yet started and will design and test blockchain technology as a way to share transactional information between jurisdictions. This in turn improves the functionality of future pilot programs by potentially eliminating the cost of establishing separate reporting mechanisms such as a clearinghouse. If this demonstration shows that blockchain can be used for this purpose, it could reduce administrative costs for other jurisdictions. The planning effort for the proposed blockchain demonstration will leverage the lessons learned from each of these programs, as well as RUC West initiatives—individual state pilots and the regional RUC pilot-- and translate them into a regional concept focused on consistency and interoperability.
- 2020; [Road usage charge summit](#); \$134,875; This grant funded a summit which occurred in June 2022 in collaboration with NCSL, bringing together state DOT representatives, state lawmakers and other RUC stakeholders.

State Legislation

Nine member states—California, Colorado, Hawaii, Nevada, New Mexico, Oklahoma, Oregon, Utah and Washington—have enacted RUC-related legislation. Five of those states—California, Hawaii, Oregon, Utah and Washington—have [NCSL fact sheets](#) detailing RUC legislative activities. This section summarizes enacted state RUC legislation from RUC America states that do not already have a separate fact sheet.

Nevada enacted two RUC-related bills in 2019. Nevada ([AB 483, 2019](#)) directed the state Department of Motor Vehicles to conduct a pilot program on annual vehicle miles traveled, as well as the type of vehicle and fuel system, and to report every six months to the legislature. The state also enacted a resolution ([SCR 3, 2019](#)) establishing an interim legislative study committee to explore alternative solutions for transportation funding, citing an increase in electric vehicles, with a final report and recommended legislation submitted in February 2020. The recommendations in the [final report](#) included establishing a working group to study issues such as the sustainability of the Highway Fund, which resulted in the passage of AB 413 in 2021. Another recommendation directed the legislature to pass a bill requiring all revenue collected from the gas tax and license and registration fees to be used exclusively for the construction, maintenance, and repair of public highways, transit and transportation infrastructure.

Based on the recommendations from the interim legislative study committee, Nevada also enacted legislation in ([AB 413, 2021](#)) which required the Department of Transportation to establish an Advisory Working Group to study certain transportation issues. The working group must study, among other issues, the sustainability of the State Highway Fund including an analysis of the Natural Resources Defense Council [funding model](#) presented to the Legislative Committee on Energy on August 24, 2020, and Utah’s Road Usage Charge Program. A report with the working group’s findings must be issued to the Director of the Legislative Council Bureau on or before December 31, 2022.

New Mexico enacted a memorial – which do not have the force of law - in 2019 ([HM 77](#)) requesting requested their state DOT to actively participate in RUC America and to develop proposed legislation to implement a mileage-based user fee system.

Oklahoma enacted a bill ([HB 1712](#)) in 2021 establishing the Road User Charge Task Force (Task Force) until June 30, 2024. It outlined Task Force membership, which includes the state Department of Transportation, metro planning organizations, state Tax Commission, Oklahoma Municipal League, state DOT Tribal Advisory Board and legislators appointed by the speaker of the House and the Senate president pro tem. The bill directed the Task Force to submit findings and recommendations to the legislature by Dec. 31, 2023, on how to best implement a RUC program.

Rural Drivers and RUC

In 2016, RUC America conducted [research](#) to address perceptions about equity related to rural drivers in a RUC system. Two additional states were added in May 2018 to the study. Using data from ten states—Arizona, California, Colorado, Hawaii, Idaho, Montana, Oregon, Texas, Utah and Washington—the organization evaluated how a RUC system would effect urban and rural drivers. The findings determined that rural drivers would save money under a RUC system because they drive longer but fewer trips and tend to drive less fuel-efficient vehicles, making the gas tax more expensive than a per-mile fee. Ultimately, the research showed that urban drivers would pay between three tenths of a cent and 1.4% more than they pay in the gas tax and rural drivers would pay between 1.9% and 6.3% less than they pay in the gas tax.

In 2022, RUC America has undertaken an update to the rural study for all the prior states as well as adding five new states to the analysis: Alaska, Oklahoma, Nebraska, New Mexico, and Wyoming. The update will also move from the previously studied 3 geographic classes to 5 geographic classes. Using more geographies than the previously studied classes is key to capturing differences in travel behavior between core and suburban portions of large cities, between large and small urban areas, and between less dense areas with and without close ties to urban areas. The final report is anticipated in early 2023.

Other RUC Resources

- 2022 NCSL Road Usage Charges Summit Presentations
- FHWA Awards \$18.7 Million to Eight Projects to Explore New Highway Funding Methods
- NCSL Kicks Off Project to Expand Understanding of Road User Charging
- States Ramp Up Road User Charging Pilots and Studies
- NCSL Road Usage Charges Summit Summary Report



State Road Usage Charge Toolkit

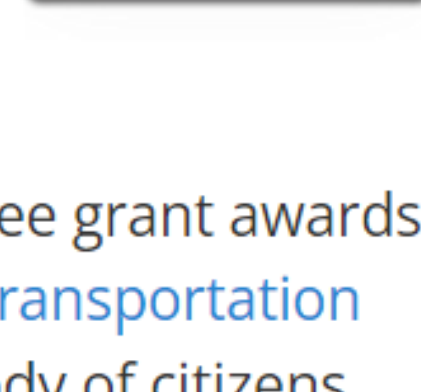
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RUC State Fact Sheets ▲

Road Usage Charge Fact Sheet: Washington

State: Washington | Publication Date: Dec. 15, 2020



History

The Washington State Transportation Commission (WSTC), in partnership with the Washington State Department of Transportation (WSDOT), has received three grant awards totaling approximately \$14 million over three years under the [federal Surface Transportation System Funding Alternatives \(STSFA\) program](#). The WSTC is a seven-member body of citizens appointed by the governor for six-year terms and has been the convener of discussions on-road usage charge (RUC) activities. One of WSTC's roles is to conduct studies and projects for the Washington Legislature.

State allocated funds enabled Washington to conduct early studies of a RUC program beginning in 2012 following the passage of state legislation. In 2015, WSTC was awarded federal grants from the [FHWA Value Pricing Pilot Program](#) to further explore RUC. In 2016, the WSTC received funding under the STSFA program to design and develop a RUC prototype system. In 2017, WSTC received a second STSFA grant to complete an operational 12-month RUC pilot, collect data, evaluate the performance of the pilot system and prepare a final report and recommendations for a future RUC system.

STSFA Awards

Fiscal Year	Grant Amount	Description
2016	\$3,847,000	Test and evaluate an RUC system as a replacement to the gas tax; conduct the first international interoperability test of a RUC system between the U.S. and Canada; conduct the first test of interoperability between two states (Washington and Oregon) where actual RUC payments from drivers were collected, transacted, and reconciled between the two states using the first-ever "HUB" clearinghouse approach; explore opportunities to leverage the capabilities of third-party enterprises to reduce mileage reporting costs; developed and tested an owner-controlled smartphone app to accurately report out-of-state mileage and control when GPS was turned on or off.
2017	\$4,600,000	Carry out and evaluate a 12-month pilot that tests five concepts of mileage reporting to collect feedback from users regarding methods for assessing user fees, and to collaborate with other states to test and develop organizational and operational capabilities for implementing a RUC program.
2019	\$5,525,000	Explore six tasks designed to probe and address implementation challenges discovered during the recently completed RUC Assessment and Pilot Project . Research topics will include an assessment of equity impacts and mitigation options; modeling the impacts of future mobility models including increased ride-share, telework, etc., and assessing new mileage collection methods.

Legislative Activity

In 2012, Washington's Legislature enacted [HB 2190](#), which made a biennial \$775,000 appropriation to study the feasibility of transitioning from the gas tax to a RUC system. The law directed WSTC to convene a steering committee to provide direction and guidance on road user assessments and transitioning to an RUC system. The [RUC steering committee](#) included members from the trucking industry, environmental groups, localities, public transportation, technology industry and the motoring public.

The legislature made a biennial \$450,000 appropriation in 2014, [SB 6001](#) (enacted), to develop a work plan and concept of operations. The same budget also directed WSTC to conduct a detailed financial analysis and to seek federal funding for a statewide pilot project. The analysis covered moving away from the gas tax, while introducing a RUC on a portion of vehicles and using the gas tax in the interim as a pre-payment mechanism to reduce collection costs and evasion. It also addressed setting RUC rates fairly for out-of-state drivers.

In 2018, [SB 6106](#) (enacted) required periodic reporting on the RUC pilot to the RUC steering committee. [HB 1160](#) of 2019 (enacted) required a final report on the RUC pilot by January 2020. The law also directed WSTC to continue researching the impacts of RUC on low-income households, vulnerable populations and displaced communities. WSTC was further directed to seek federal funds, update recommended RUC operational concepts and business cases and develop a detailed plan for phasing in RUC.

Project Details

In July 2018, WSTC initiated a [pilot project](#) to test an operational RUC program using a flat per-mile rate, derived from taking the state's average vehicle mpg of 20.5 and dividing it by the state gas tax of 49.4 cents per gallon. Specifically, the RUC pilot offered five mileage reporting options, with each option using electronic invoicing for drivers:

Automated distance charge, which is calculated using one of these methods:

- A mileage permit, which is a permit issued when a driver pays a flat fee upfront for a block of miles such as 1,000, 5,000 or 10,000. Drivers report odometer readings electronically via photo or in-person every three months and purchase additional permits as needed.
- Vehicle odometer readings, a post-pay approach where drivers drove for three months and then submitted odometer readings electronically via photo or in-person with support from a vehicle licensing office.
- Automated distance charge, which is calculated using one of these methods:
 - A plug-in telematics device with GPS.
 - A plug-in telematics device without GPS.
 - A smartphone app to record and report mileage, which allowed users to decide whether to enable location-based services.

STSFA grants funded the final design, recruitment and implementation of the 12-month RUC pilot, as well as surveying pilot participants, conducting focus groups around the state and evaluation planning. The grants also funded a smartphone innovation challenge that used a crowdsourcing approach at the University of Washington to build a beta smartphone app designed for the RUC pilot. The RUC pilot tested a theoretical 2.4 cents per mile charge for light-duty, non-commercial vehicles such as gasoline-fueled, hybrid and electric vehicles. More than 5,000 drivers volunteered for the RUC pilot, with 2,000 vehicles ultimately selected to participate. Participants represented diverse geographic and demographic groups across the state. There were no financial transactions for the RUC pilot and participants received mock invoices throughout its duration. The pilot ended in January 2019.

Project Status

Washington completed all of the activities funded by STSFA Phase I grants. These activities included a 12-month RUC pilot with 2,000 participants, as well as participant surveys, focus groups, agency interviews and case studies. A [concept of operations](#) was produced for the pilot. This explored RUC operational concepts including a mileage permit, self-reporting and automated distance charging, tested whether there was a business case and identified implementation issues such as privacy, data security and enforcement. This also involved [RUC steering committee](#)-facilitated discussions on policy, public acceptance and technical issues. After studying RUC over several years, the RUC steering committee and WSTC determined that a RUC system was feasible and could out-produce the gas tax long-term to fund transportation needs.

The pilot prototyped a RUC system that closely modeled a full-scale system and the results informed next steps for an operational RUC system using a phased-in approach. One element was designing a system that could still collect gas taxes yet ensured drivers were not subject to both. Thus, drivers were credited for gas taxes paid at the pump, which then reduced the amount of RUC charges due.

A second element was studying out-of-state driving patterns to develop a multi-state RUC revenue reconciliation system, referred to as "the HUB." The HUB acted as a financial clearinghouse that successfully processed the miles submitted by participants from Washington, Oregon, Idaho and British Columbia. Since 90 drivers from Oregon and 30 from Washington agreed to pay real money for their miles driven, the HUB provided a testing ground to process actual financial transactions and remit RUC revenues to each state according to miles driven. Notably, the WA RUC HUB was the first field test of a multi-jurisdictional RUC transaction processing system in North America.

A third element was to gather participant and public feedback. The top concerns raised were privacy, simplicity in reporting miles and other dimensions of equity, including vehicle weight, per-mile rates based on emissions and a driver's ability to pay.

The WSTC announced 16 [recommendations](#) in December 2019 detailing how Washington can manage the transition from a gas tax system to a RUC system. Recommendations were to allow drivers to try the RUC system, test new personal privacy protections, conduct additional research regarding RUC rates and driver, vehicle or infrastructure characteristics and reduce the cost of collection through public-private partnerships (P3s). Furthermore, WSTC's [final RUC report](#) in January 2020 called on the legislature to consider its 16 recommendations and included support for "a gradual and deliberate transition to a RUC system." The report recommended phasing in RUC over the next 10 to 25 years, which is when all outstanding bonds that pledged gas tax revenue will have been paid off or restructured. Other recommendations were to begin a RUC program where electric and hybrid vehicles would pay a RUC, including state-owned vehicles, dedicating RUC revenues to highway purposes as required by the 18th Amendment of Washington's Constitution, enacting laws that protect personal privacy and working with other states to narrow RUC compliance gaps.

The WSTC and their partner WSDOT recently received a \$5.5 million STSFA grant to study [issues discovered during the pilot](#) that need to be resolved before a wide-scale RUC system can occur. The [Forward Drive project](#) reflects the next phase of RUC financial, policy, operational and technology development. At the outset, the first four tasks of the Forward Drive project will be conducted concurrently in preparation for small-scale field tests.

- The first task is financial modeling that considers advancements and future adoption of autonomous, connected, electric and shared vehicles as a growing component of roadway miles.
- The second task is to conduct an in-depth equity analysis, which will identify and measure potential disparate impacts of RUC to communities of color, low-income households, vulnerable populations and displaced communities. The project will also develop impact mitigation strategies.
- The third task will include updated mileage reporting methods such as identifying and testing new technologies, as well as enhanced in-person mileage reporting options. The in-person mileage reporting options may include entering into partnerships with a wider range of businesses to offer mileage verification services to the public. The P3 approach was first tested in the WA RUC Pilot Project, with promising results.
- The fourth task entails collaborating with other states to explore strategies to reduce the administrative costs of collecting RUC.

Once the four primary tasks are completed, Forward Drive will develop a detailed plan to incorporate advancements into a test plan followed by smaller RUC prototype "subtests." These are small-scale tests of the new mileage reporting methods, equity policies, collecting RUC from ride-hailing vehicles such as Uber and Lyft and testing cost reduction techniques. Finally, it will include a detailed RUC roadmap on how Washington and other states can right-size a RUC policy and system. A specific deliverable will also offer a framework on how transportation policy and funding choices can be reexamined in light of increases in RUC revenue.

Additional Resources

- [Washington Road Usage Charge Pilot Project and Assessment](#)
- WA RUC: [Road Usage Chart Assessment Final Report](#)

Other RUC Resources

- [2022 NCSL Road Usage Charges Summit Presentations](#)
- [FHWA Awards \\$18.7 Million to Eight Projects to Explore New Highway Funding Methods](#)
- [NCSL Kicks Off Project to Expand Understanding of Road User Charging](#)
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