LPRO: LEGISLATIVE POLICY AND RESEARCH OFFICE

MILEAGE-BASED ROAD FUNDING

BACKGROUND BRIEF

Oregon was the first state in the nation to institute a tax on motor fuels to provide funding for transportation infrastructure, beginning with a flat one-cent per gallon in 1919, six years after the creation of the State Highway Department. The Legislative Assembly then proceeded to gradually increase the amount of the fuels tax every few years. Today, the state fuels tax sits at 34 cents per gallon; in addition, two counties and 25 cities have imposed taxes on fuels sold within their jurisdictions.[1]

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Heavy commercial trucks, except those designated for farm uses (which pay fuel tax on gasoline or diesel) and those hauling certain products like logs or wood chips (which pay a flat fee based upon the weight of the vehicle) pay a weight-mile tax. Under this system, vehicles track the mileage traveled on Oregon roads and pay a fee according to schedules based upon the weight of the vehicle. Weight-mile tax rates are set through a "cost responsibility" study that estimates the relative road impacts of passenger vehicles and commercial vehicles. The first such study was completed in 1937; in 1999, Oregon voters established cost responsibility in the Oregon Constitution (Article 9, Section 3a(3)). Since cost responsibility was instituted, each successive increase in fuels taxes has corresponded with a commensurate weight-mile tax increase.

Because fuel taxes are increased only periodically, they have tended not to keep pace with inflation. Increased costs for materials, labor, and equipment erode the purchasing power of tax revenues; while an increase in total vehicle miles traveled has occurred over time, bringing in more revenue, the additional numbers of vehicles on Oregon roads combined with an upward historical trend in average number of miles traveled per capita, increase the costs of maintaining the existing road system and necessitate expanding key highway facilities.

[1] https://www.oregon.gov/ODOT/FTG/Pages/Current%20Fuel%20Tax%20Rates.aspx?wp9904=l:50

Additionally, vehicles have become increasingly fuel efficient since gasoline shortages in the 1960s began a market-driven move toward cars that use less, or alternative, fuels. Federal mandates requiring greater fuel efficiency have also hastened this trend, as have state and local goals to reduce greenhouse gas emissions. With today's cars using less fuel to travel, they likewise pay less in fuel taxes, forcing road authorities to do more with less to maintain the system. As electric hybrid and plug-in electric vehicles become more prevalent, this trend is expected to continue or accelerate.

The impacts of this phenomenon have been a gradual increase in highway congestion, particularly in metropolitan areas, and a gradual decline in the conditions of the highway system. The 2017 Infrastructure Report Card, issued by the American Society of Civil Engineers, gave the nation's roads a "D" grade and its bridges a grade of "C-plus." With federal transportation investments having plateaued, many states are seeking ways to increase transportation funding to address shortfalls and begin to address declining infrastructure.

ROAD USER FEE TASK FORCE

Out of concern for these trends, the Legislative Assembly created the Road User Fee Task Force (RUFTF) with passage of House Bill 3946 (2001). The purpose of the Task Force was to "develop a design for revenue collection for Oregon's roads and highways that will replace the current system for revenue collection." This initial 12-member group, consisting of state legislators, members of the Oregon Transportation Commission, local elected officials and stakeholders, met eight times. During its deliberations it studied 28 different revenue mechanisms, eventually determining that any recommendations for a new system should be based on a user-pay method directly related to providing road infrastructure and services, as is the case with fuel taxes.

The RUFTF developed four possible revenue sources for the new system:

- A *per-mile fee* for actual miles traveled on public roads inside Oregon borders;
- A *congestion pricing charge* for vehicles that use certain roadways during high-use times of the day and week;
- A *per-vehicle toll for new facilities*, such as new roads, bridges, or extended lanes; and
- A *studded tire use fee* to require vehicle owners using studded tires to pay for damage caused by studded tire use.

Of these four potential options, only the first was considered a viable replacement for the fuels tax as a revenue source. The other three options were considered as capable of addressing specific problems related to highway funding and/or designed to be used in specific areas.

The Road User Fee Task Force was originally slated to sunset in 2010. However, as concerns regarding the long-term efficacy of fuel taxes continued to grow, the Legislative Assembly removed the sunset and made the Task Force permanent. It continues to operate today, generally meeting on a quarterly basis.

PILOT PROGRAMS

Pursuant to its recommendations, the RUFTF directed its first pilot program to test the per-mile usage charge concept, which was developed and administered by the Oregon Department of Transportation (ODOT). The pilot program, which began in 2006 and ended in 2007, included 285 volunteer test vehicles equipped with GPS receivers, operating entirely within the Portland metropolitan region. The program was funded primarily through a six-year, $2.1 million grant from the Federal Highway Administration (FHWA), as well as $771,000 in matching funds from the State of Oregon.

Road usage charges were paid at the fuel pump; however, instead of paying a 24-cent-per-gallon fuel tax, pilot participants paid for mileage traveled based on travel within zones as determined by the on-board GPS. The system collected mileage and fee payment data from each participating vehicle and stored it on a central database at Oregon State University (OSU), with the system querying the central database at OSU to determine total miles traveled since last payment. Vehicles participating in the pilot were required to refuel at two participating Leathers Fuels stations (which were equipped to communicate with the OSU database) twice per month, allowing participants to fuel at other stations the rest of the time.

Because the pilot program was, in large part, a research project, more data was collected than was envisioned in the event of later statewide deployment. Such data included location in specific zones at specific hours of the day, to emulate a congestion pricing data collection model.

Upon completion, the pilot project was considered a technical and administrative success. However, it was not used as the basis for moving forward with a legislative program for implementation for several reasons:

- Concerns about privacy related to the necessity for a GPS device to be installed in each vehicle and the tracking of vehicle location and travel;
- Potential expense and complexity of implementation and the possibility of a costly, permanent new government bureaucracy; and
- Desire for free market implementation options, as opposed to ODOT-owned applied technology, which would potentially lower cost and speed technological development.

The second pilot, which ran from November 2012 to March 2013 and involved 88 participants, aimed to test a larger variety of payment options. Participants could choose between a basic plan (non-GPS-enabled device), an advanced plan (GPS-enabled device), a smartphone plan, and a flat fee. Advanced and smartphone plans only charged for miles driven within Oregon, while the basic and flat fee plans did not collect any location data.

This second pilot was able to successfully demonstrate an open architecture system in which users could chose a mileage tracking and payment option that worked best for them. This concept was continued into the operational RUC program which followed this pilot.

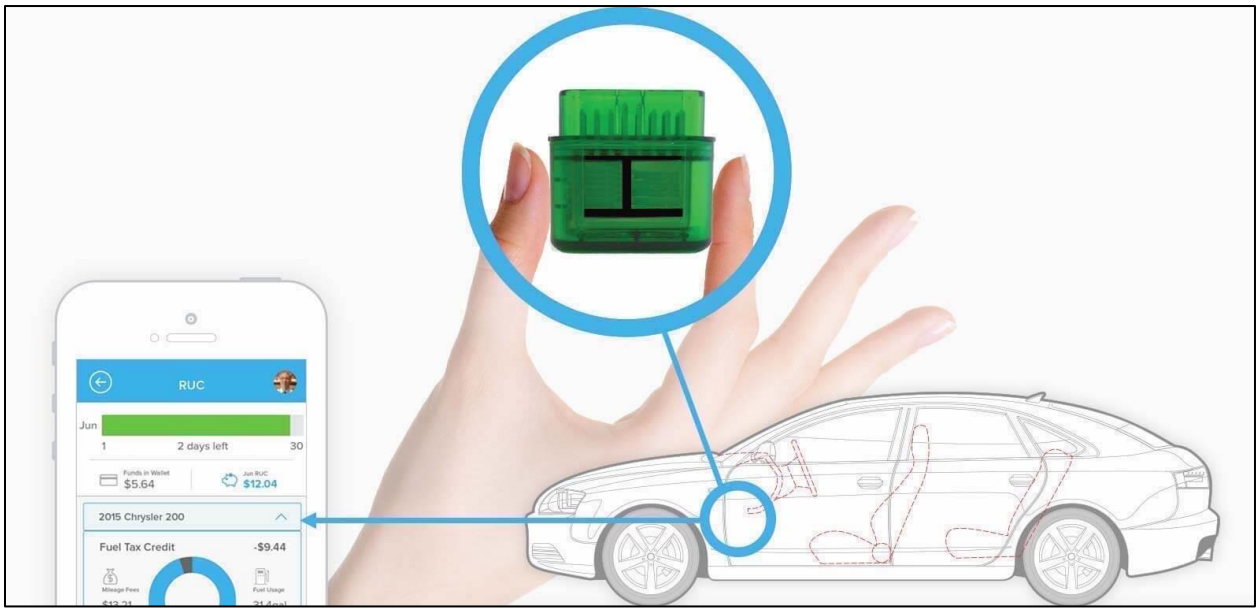
OREGO VOLUNTARY PROGRAM

Following completion of the two pilot programs, ODOT redesigned the per-mile fee concept in response to the concerns raised in the pilots and based on public comment. First and foremost, the concept was modified for an open technology platform, allowing motorists to select a reporting method and provider from a suite of options, including third-party providers. The process was also separated from paying at the pump, allowing for better privacy protection, flexibility for participants' fueling preferences, and the inclusion of plug-in electric vehicles that do not need to stop for fuel.

In 2013, the Legislative Assembly enacted Senate Bill 810, creating a new, voluntary and permanent program, known as OReGO, through which up to 5,000 vehicles could choose to participate in the road usage charge (RUC) program. Participating vehicles paid 1.5 cents per mile traveled on public roads within the State of Oregon; state fuel tax, calculated by fuel consumption reported by the vehicle or calculated using the EPA rating for the vehicle, is credited back to the volunteer's account. While drivers will continue to purchase fuel, and pay fuel taxes at the pump, their RUC is calculated based on mileage driven and the vehicle owner will either receive a bill for additional taxes (if the amount paid in fuel tax is less than the RUC) or receive a refund for excess fuel taxes paid (if the amount paid in fuel tax is more than the RUC).

The program began operations in 2015 and is currently limited to 5,000 passenger vehicles and light-duty trucks, in three categories:

- Up to 1,500 vehicles with fuel ratings less than 17 miles per gallon (mpg);
- Up to 1,500 vehicles rated between 17 mpg and 22 mpg; and
- Up to 2,000 vehicles with fuel ratings over 22 mpg.



Source: Oregon Department of Transportation

Vehicle owners self-select to participate in the program by visiting the OReGO website and selecting one of three options for a mileage reporting and payment provider:

- *Azuga* offers a GPS option, which credits miles logged out-of-state, and a non-GPS option, which does not. Participants prepay into a wallet using a credit or debit card; funds in the wallet are used to cover per-mile charges that exceed Oregon fuel taxes paid at the pump. The onboard GPS device offers a number of additional features, including the ability to log trips, monitoring teen driver behavior, diagnose engine and battery health, and more.
- *ODOT* (enabled by emovis) allows drivers to pay (or receive rebate) on a quarterly basis with a credit or debit card once the account reaches a threshold of twenty dollars or more. It does not include GPS, and so does not credit miles traveled outside of Oregon.
- *emovis* offers a GPS-enabled device that allows credit for out-of-state miles and provides for payment using a credit or debit card on a quarterly basis. This option was originally offered by Verizon, which ceased participation as of October 31, 2016 and was subsequently offered by emovis.

Over 650 vehicles are currently participating in the OReGO program. The most commonly enrolled vehicles are the Ford F-150 Pickup, Toyota Prius, and Subaru Outback.

CURRENT AND FUTURE POLICY CHANGES

House Bill 2017 (2017) instituted a series of step increases in the fuel tax, beginning with a four-cent increase effective January 1, 2018. Additional two-cent step increases will be imposed in 2020, 2022, and 2024, provided that certain conditions are met. Because Senate Bill 810 set the OReGO per-mile rate at 1.5 cents as an approximation of what a vehicle with a 20-MPG rating pays in state fuel taxes, the per-mile rate was increased in House Bill 2017 to 1.7 cents per mile. Each of the anticipated step increases will likewise require an increase in the per-mile rate by approximately one-tenth of a cent per mile.

House Bill 2017 also instituted a vehicle registration fee surcharge that varies based upon the MPG rating of the vehicle. Vehicles with greater fuel efficiency pay a slightly higher registration fee surcharge to reflect the fact that they pay less in fuel taxes for the miles they drive, with plug-in electric vehicles paying the highest rate of $110 by 2020; however, electric vehicles that sign up to participate in the OReGO Program are not subject to the registration fee surcharge for the duration of their participation.

The Road User Fee Task Force continues to study possible revisions to the voluntary program, including:

- Allowing vehicles with a 40+MPG rating to join OReGO in lieu of paying the vehicle registration surcharge;
- Restricting new applicants to OReGO to vehicles with a 20+MPG rating (and grandfathering in vehicles with <20MPG rating already in the program);
- Removing refund provisions in the current program;
- Removing the cap on the number of vehicles that may participate in the program;
- Modifying the RUC rate to a formula based on the current gas tax rate to adjust to potential future changes in gas tax rates; and

- Sunsetting the existing voluntary program at some future date and limiting new enrollees to voluntary participants choosing to pay the RUC in lieu of the registration fee surcharge.

ACTIVITY IN OTHER STATES

California enacted Senate Bill 1077 (2014), authorizing a pilot program to study, design, test, evaluate, and report on all aspects of a road usage charge system. The pilot launched July 2016 and involved over 5,000 volunteers. The goal of the pilot was to evaluate a road usage charge as a possible replacement for motor vehicle fuel taxes. The project was overseen by a 15-member technical advisory committee. The legislation sunsets on January 1, 2019. California is planning to launch a regional interoperable system with Oregon in 2020 through the Road Usage Charge (RUC) West FAST Act grant.

Washington began its own pilot in Spring 2018. The program allows 2,000 volunteers to "test-drive" a per-mile charge system. A 25-member Steering Committee (which includes eight legislators) guides the work and makes policy and design recommendations to the Washington Transportation Task Force, Governor, and Legislature. To date, the Steering Committee has completed a feasibility assessment and business case evaluation, developed policy parameters for a future RUC system, developed formal Concept of Operations documents, and recommended a statewide public demonstration project to test four separate methods of mileage reporting.

Colorado launched a 100-vehicle RUC pilot in November 2016. The pilot provides a platform for the state's legislators and transportation officials to make informed decisions as to the feasibility of this innovative infrastructure financing program. The Colorado pilot program ended in April 2017, and the final report was released in December 2017. Colorado is also helping Washington, Oregon, and California develop requirements for a regional interoperable RUC system through the RUC West FAST Act grant.

RUC West is collecting requirements to launch a 14-state regional interoperable RUC system as part of its $3 million FAST Act grant. This project will set the stage for a regional system and pilot test by defining the system (Phase 1A) and developing essential regional pilot project plans (Phase 1B) to prepare for implementation. Demonstration activities (Phase 2) were the subject of RUC West's 2017 grant application, which is intended to demonstrate interoperability between Oregon and California. RUC West is a voluntary coalition of 14 western state departments of transportation that are committed to collaborative research and development of a new funding method for transportation infrastructure based on drivers' actual road usage. Formed in 2013, RUC West has funded 14 projects to test the feasibility of RUC systems.

Hawaii secured a $4 million grant from the Federal Highway Administration to conduct a three-year demonstration project that will test a RUC system. The first phase of the pilot began in 2017 with manual reporting. The project builds on existing state infrastructure that collects odometer readings annually through the state's existing Periodic Motor Vehicle Inspection (PMVI) system. The second phase will test different methods of

reporting mileage, such as using smartphones or other technologies that are placed inside vehicles. HDOT will also explore different payment methods.

Minnesota's Department of Transportation tested a road usage charge system in 2011-12. The test relied on volunteer participants measuring their mileage with GPS-enabled smartphones. Data was collected and participants paid fee rates based on both the location and the time of day of travel.

Nevada conducted a mileage-based-fee study in 2012. Forty participants used a pay-at-the-pump system that did not rely on the collection of vehicle location data.

The *University of Iowa Public Policy Center* conducted a two-year field study to evaluate the technical feasibility and user acceptance of a mileage-based vehicle charge. The study included 2,650 volunteers operating in 12 areas nationwide and utilized onboard computers installed in participating vehicles. Participants traveled a total of over 21 million miles, or about 9,000 miles per vehicle.

The Federal Highway Administration launched a program as part of the FAST Act to provide matching funds to states, or to a collection of states, that are researching alternative transportation funding. Table 1 lists recipients of FAST Act grant funds in 2016, and Table 2 lists 2017 recipients.

Table 1: States Receiving FAST Act Grant Funds (2016)

Entity	Description	Requested amount / Total project cost
California **Caltrans**	Pay at the pump/charging station.	$750,000/ $1,527,000
Delaware **(I-95 CC)**	OBD-II based mileage-based user fee.	$1,490,000 / $2,980,000
Hawaii **HDOT**	Collection based on manual & automated odometer readings at safety inspection stations.	$6,500,000 / $19,000,000
Minnesota **MnDOT**	Use of mobility as a service to collect revenue.	Range of $300,000 to $500,000/ $1,000,000
Missouri **MoDOT**	Implement a new registration fee schedule based on estimated miles per gallon.	$1,000,000/ $2,000,000

Entity	Description	Requested amount / Total project cost
Oregon ODOT	Improvements to Oregon's existing road usage charge program and deployment activities.	2,100,000/ 4,200,000
RUC West	Define a regional system to promote and establish RUC consistency, interoperability, and compatibility throughout the western US.	$1,500,000/ $3,258,750
Washington WSDOT	Testing elements of interoperability; piloting three mileage-based methods and one time-based method using 2,000 drivers.	$7,497,000/ $16,08,834

Source: Oregon Department of Transportation

Table 2: States Receiving FAST Act Grant Funds (2017)

State DOT Recipients and Partners	Project/Description	Funding Amount
California Dept. of Transportation (Caltrans)	Explore mechanisms to collect revenue at pay-at-the-pump charging stations.	$1,750,000
Colorado Dept. of Transportation (CDOT)	Investigate data collection mechanisms.	$500,000
Delaware Dept. of Transportation (DelDOT) in partnership with the I-95 Corridor Coalition	Study equitability and privacy issues in a multi-state region.	$975,000
Missouri Dept. of Transportation (MoDOT)	Conduct public outreach on concerns related to equity and data security issues.	$2,772,500
Oregon Dept. of Transportation (ODOT)	Initiate improvements to Oregon's existing road usage charge program by demonstrating the feasibility of road usage charging as a funding mechanism for cities and counties.	$2,315,000
Oregon Dept. of Transportation (ODOT) in partnership with RUC West	Launch a pilot between California and Oregon to connect the two states' per-mile road user charging systems, to ultimately expand the concept regionally.	$2,590,000
Washington Dept. of Transportation (WSDOT) in partnership with the Washington State Transportation Commission (WSTC)	Conduct public outreach with users regarding method for assessing and collecting fees.	$4,600,000

Source: Oregon Department of Transportation

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