

# AASHTO Innovation Initiative

[Proposed] Nomination of Innovation Ready for Implementation

## Sponsor

Nominations must be submitted by an AASHTO member DOT willing to help promote the innovation. If selected, the sponsoring DOT will be asked to promote the innovation to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative.

1. Sponsoring DOT (State): Utah
2. Name and Title: Road Usage Charge for Alternative Fuel Vehicles

Organization: Utah Department of Transportation

Street Address: 4501 South 2700 West

City: Salt Lake City

State: Utah

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Phone: 801-633-0359

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## Innovation Description (10 points)

The term “innovation” may include processes, products, techniques, procedures, and practices.

3. Name of the innovation:

Technology-Driven Road Usage Charge Based on Miles Driven

4. Please describe the innovation.

Alternative fuel vehicles such as hybrid and electric vehicles pay little to no gas tax. Some states have consequently started charging these vehicles an annual fee to generate highway maintenance revenue. However, a fixed fee does not consider actual road usage. Those who drive a few miles pay the same as those who drive many miles.

Modern and cutting-edge technology presents a reliable way to record miles driven. This technology can be used in most older vehicles. And newer vehicles have some of this technology built in.

Implementation of road usage charge technologies provides an equitable funding mechanism to generate highway funding revenue for both traditional and alternative fuel vehicles.

5. What is the existing baseline practice that the innovation intends to replace/improve?

Current highway funding depends on collecting a tax on motor fuel as a way to pay for infrastructure maintenance from those utilizing the road. Ignoring the fact that some of that fuel is not used exclusively for transportation on public roads or transportation at all, alternative fuel vehicles such as electric vehicles do not fit this taxation structure. A road usage charge program can accommodate all vehicle fuel types.

6. What problems associated with the baseline practice does the innovation propose to solve?

The baseline practice unavoidably charges a gas tax for vehicles that are not used on public roads and for fuel usage that does not involve motorized vehicles. Also, electric vehicles are sometimes charged a fixed fee regardless of the number of miles driven, or not charged a road usage fee at all.

7. Briefly describe the history of its development.

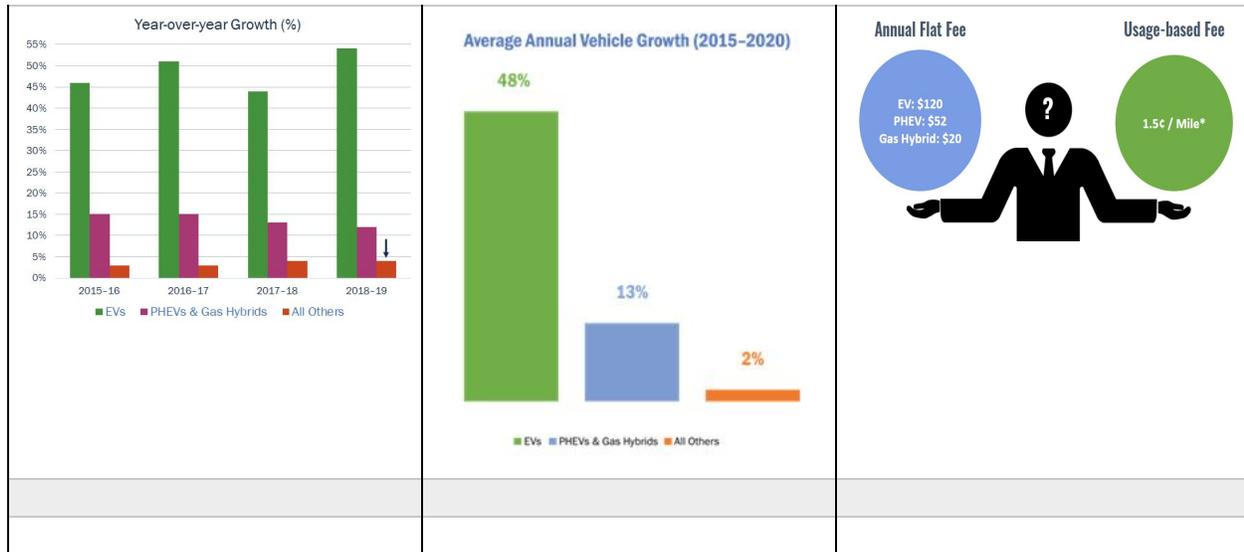
Fifteen years ago Oregon DOT recognized that vehicles contributed unequal amounts of gas tax based on vehicle efficiency. They subsequently conducted road usage pilots utilizing the most modern technology at the time. Currently they operate the only other live program in the USA.

For the past few years several other states have piloted various aspects of a road usage charge program, including Washington, California and Hawaii. These and other states are also jointly studying how best to implement and operate a program in individual states and across multiple states.

8. What resources—such as technical specifications, training materials, and user guides—have you developed to assist with the deployment effort? If appropriate, please attach or provide weblinks to reports, videos, photographs, diagrams, or other images illustrating the appearance or functionality of the innovation (if electronic, please provide a separate file). Please list your attachments or weblinks here.

- Program Website: <https://roadusagecharge.utah.gov/>
- UDOT Program Website: <https://www.udot.utah.gov/connect/about-us/legislative/road-usage-charge-history/>
- Enrollment Video: <https://youtu.be/yHa3nfLSnks>
- Installation Video: <https://youtu.be/5J54zcrLnSU>
- Drive Video: [https://youtu.be/7to\\_NVK9PPI](https://youtu.be/7to_NVK9PPI)
- Program FAQ: <https://roadusagecharge.utah.gov/faq.php>

Attach photographs, diagrams, or other images here. If images are of larger resolution size, please provide as separate files.



## State of Development (40 points)

Innovations must be successfully deployed in at least one State DOT. The AII selection process will favor innovations that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use.

9. How ready is this innovation for implementation in an operational environment? Please select from the following options. Please describe.

- Prototype is fully functional and yet to be piloted
- Prototype has been piloted successfully in an operational environment
- Technology has been deployed multiple times in an operational environment
- Technology is ready for full-scale implementation

The Road Usage Charge program is currently operational in Oregon and Utah, and could be implemented in other environments. Oregon's program has around 1,000 vehicles enrolled and Utah's program has twice that number enrolled. Both are actively collecting miles from enrolled vehicles and applying charges per mile driven.

10. What additional development is necessary to enable implementation of the innovation for routine use?

Each entity that desires to implement a Road Usage Charge program will need to go through a similar process that Utah and Oregon went through. This would include adjusting current legislation, determining the approach to having a commercial account manager (CAM), and coordination with their associated DMV. For a simple pilot, few steps are involved.

11. Are other organizations using, currently developing, or have they shown interest in this innovation or of similar technology?  Yes  No

If so, please list organization names and contacts. Please identify the source of this information.

| Organization   | Name            | Phone        | Email                         |
|----------------|-----------------|--------------|-------------------------------|
| Oregon DOT     | Maureen Bock    | 503-986-3835 | Maureen.BOCK@odot.state.or.us |
| Washington DOT | Anthony Buckley | 360-705-7039 | BuckleA@wsdot.wa.gov.         |
| Hawaii DOT     | Scott Urada     | 808-587-2222 | scot.t.urada@hawaii.gov       |
| California DOT | Lauren Prehoda  | 916-654-4227 | lauren.prehoda@dot.ca.gov     |

## Potential Payoff (30 points)

Payoff is defined as the combination of broad applicability and significant benefit or advantage over baseline practice .

12. How does the innovation meet customer or stakeholder needs in your State DOT or other organizations that have used it?

This innovative practice meets state needs in terms of countering the impacts of a declining gas tax base to having individuals proportionately pay for maintenance and construction of the roadways. With the increases in MPG of vehicles and the introduction of electric vehicles, the gas tax is becoming less of a viable long term option. A road usage charge helps mitigate this by tying revenue to miles driven (instead of gallons of fuel purchased). This approach also ensures all drivers pay the same distance-based rate regardless of vehicle type, bringing actual usage closer to wear on the road.

13. Identify the top three benefit types your DOT has realized from using this innovation. Describe the type and scale of benefits of using this innovation over baseline practice. Provide additional information, if available, using quantitative metrics, to describe the benefits.

| Benefit Types | Please describe: |
|---------------|------------------|
|---------------|------------------|

|   |  |
|---|--|
| Potential increase in revenue                                 | Revenue would be tied to miles driven as vehicle MPGs continue to rise   |
| Equalization of costs for individuals                         | Perception that individuals are paying a fair cost for the miles that they drive.  |
| Additional opportunities to analyze anonymous/aggregated data | DOTs will have more current data regarding roadway usage to better plan for the future. (i.e. safety, capacity). This data may provide information regarding traffic events and traffic patterns without identifying individual drivers. |

Provide any additional description, if necessary:

The long range approach will help to provide additional revenue for road construction and maintenance by tying revenue collected to actual road usage. It has been shown across the country that road construction revenues are on the decline and all states along with the federal government are struggling to offset the reduction in gas tax revenues and increases in construction costs. It is also a more equitable approach because the road usage charge is applied equally to all individuals.

14 How broadly might this innovation be deployed for other applications. in the transportation industry (including other disciplines of a DOT, other transportation modes, and private industry)?

All states across the country along with the federal government as a whole should be able to implement a similar program.



## Market Readiness (20 points)

The All selection process will favor innovations that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential.

15. What specific actions would another organization need to take along each of the following dimensions to adopt this innovation?

| Check boxes that apply   | Dimensions  | Please describe:   |
|--------------------------|---|--|
| X                        | Gaining executive leadership support  | Executive leadership needs to understand the program.  |
| X                        | Communicating benefits  | Focus groups participants understand the need to fund roads, and they support a mile-based fee. This message needs to be communicated to the public. |
| X                        | Overcoming funding constraints  | There are initial start up costs that would be incurred. Eventually the program will be more than self-sustaining.                                   |
| X                        | Acquiring in-house capabilities   | Work can be completed utilizing existing in house or consultant support.   |
| X                        | Addressing legal issues (if applicable) (e.g., liability and intellectual property) | Most states will need to modify legislation to allow for collection of a road usage charge.  |
| <input type="checkbox"/> | Resolving conflicts with existing national/state regulations and standards          |  |
| <input type="checkbox"/> | Other challenges  |  |

16. Please provide details of cost, effort, and length of time expended to deploy the innovation in your organization.

**Cost:** \$1 Million for fiscal year 2020 (for Utah's program)

**Level of Effort:** A commercial account manager (CAM) is a third party entity that provides devices or telematic access, collects fees, manages collected data, and provides nearly all interactions with participants. Initially there is a high level of effort to define the approach, procure needed resources, and set up the program. UDOT has a Program Director and Program Manager assigned to the project with additional consultant support.

**Time:** Legislation in Utah was passed in 2018 and 2019 to enable the program. A commercial account manager was hired in mid-2019 and spent 6 months on pre-development and set-up activities. The program has been operational since January, 2020. Other consultant support has been used since 2018 (but is not part of the \$1 M).

17. To what extent might implementation of this innovation require the involvement of third parties including vendors, contractors, and consultants? If so, please describe. List the type of expertise required for implementation.

UDOT utilized significant consultant support to begin developing the program and eventually advertising an RFP for the selection of the CAM. Once the CAM was hired, the same consultants were utilized to help support the program.

The program utilizes third parties to run day to day operations.