

# **Bridging the Communications Gap in Understanding Road Usage Charges**

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U.S. Department of Transportation  
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## **FOREWORD**

The Federal Highway Administration (FHWA) Office of Operations (HOP) sponsored this study to help assess how insights about road usage charge (RUC) mechanisms are being communicated and how information can best be disseminated. Eleven RUC pilots were awarded under the auspices of federal grants that were made by the United States Department of Transportation (USDOT) in accordance of the requirements of Section 6020 of the Fixing America's (FAST) Act. Grant funding was awarded to conduct pilots under the Surface Transportation System Funding Alternatives Program (STSFA). This report reviews the outreach, education, and public awareness techniques used by the state pilot projects. This study focuses specifically on the communications and outreach efforts, not on the pilots themselves.

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## **LIST OF ACRONYMS**

AAA	American Automobile Association
ACLU	American Civil Liberties Union
ATA	American Trucking Associations
AV	Automated Vehicle
Caltrans	California Department of Transportation
CCP	Comprehensive Communications Plan
DMV	Department of Motor Vehicles
DOT	Department of Transportation
EV	Electric Vehicle
FAQ	Frequently Asked Question
FAST	Fixing America's Surface Transportation
FHWA	Federal Highway Administration
GPS	Global Positioning System
IBTTA	International Bridge Tunnel and Turnpike Association
IFTA	International Fuel Tax Agreement
MBUF	Mileage-Based User Fee
MPG	Miles Per Gallon
MPO	Metropolitan Planning Organization
OBD-II	On-Board Diagnostic II
RUC	Road Usage Charge
RUC West	Western Road Usage Charge Consortium
RUF	Road Usage Fee
SAFETEA-LU	Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users
STSFA	Surface Transportation System Funding Alternatives
TPO	Transportation Planning Organization
TV	Television
USDOT	United States Department of Transportation
VMT	Vehicle Miles Traveled



## EXECUTIVE SUMMARY

The Federal and State fuel tax is a users-pay/users-benefit roadway funding mechanism which generated sufficient and sustainable transportation infrastructure funding for many years. However, States have found that greater fuel efficiency standards and greater use of electric and hybrid vehicles, has reduced traditional fuel taxes yields for funding transportation. Increasing the fuel tax rate or indexing the fuel tax rate would potentially bring more revenues to the user-pay system but not necessarily address the underlying inequities associated with differing fuel efficiencies, differing fuels, and alternative technologies. A potential replacement or supplementary funding mechanism is known interchangeably as mileage-based user fees (MBUF), road usage charges (RUC), or vehicle miles traveled (VMT). The strategies' direct linkage with vehicle use—as compared with fixed, fuel volume-based fees—has generated great interest.

Decisionmakers and the public understanding of the RUC approach is critical to informed debate related to its potential adoption at the State and/or Federal levels. Therefore, the Federal Highway Administration (FHWA) sponsored this study to help assess how insights about a RUC mechanism are being communicated and how information can best be disseminated. Eleven RUC pilots were awarded under the auspices of Federal grants that were made by the United States Department of Transportation (USDOT) under the Surface Transportation System Funding Alternatives Program (STSFA). As of September 2019, grants have been awarded to nine States (California, Colorado, Hawaii, Minnesota, Missouri, New Hampshire, Oregon, Utah, Washington) and for two State-led regional coalitions (Delaware/I-95 Corridor Coalition and Oregon/Road Usage Charge West) for State RUC pilots on a limited scale. This report is the result of a study focused on the communication practices adopted by those pilot project sponsors.

While each State's STSFA pilot is unique, information gathered from this study on communications and outreach strategies could potentially be used by other States engaged in RUC pilots. With the understanding that most of these pilots were small and there was insufficient funding to implement a significant outreach effort, this synthesis compiles the communications and outreach strategies adopted by the 11 pilots, identifies the strengths and weaknesses of the different methods, and offers recommendations for future pilots. The following analysis shows the variety of approaches adopted across these pilots for purposes of information dissemination.

The study observed five basic features that were apparent to differing degrees under the pilots that, when defined proactively and early in the process, can facilitate better communication of an initiative:

- Identification of the Target Audience.
- Identification of Messengers to be Used.
- Development of a Comprehensive, Coordinated Communication Strategy.
- Preparation of Easy-to-Understand Message Content.
- Use of a Variety of Communication Media to Deliver Information.

Targeted audiences varied but can be characterized as, including five distinct groups:

1. Political Leaders.
2. Governmental Groups and Agencies.
3. News Media.
4. Industry/Citizens' Advocacy Groups.
5. General Public (Including Current and Potential Pilot Members).

Pilot sponsors used a variety of messengers to create and implement information:

- Department of Transportation (DOT) Engineers/Technical Experts.
- DOT Communication Experts.
- Outside Communication Firms.
- Political Leaders.
- Industry/Advocacy Groups.
- Business Partners.

There were multiple communications strategies adopted:

- Pilot Participant Only Focus.
- Stakeholder Focus.
- General Public Focus.
- Advisory Group.
- Reactive Communications.
- Comprehensive Communications Plan.

The most extensive of these strategies, based on a Comprehensive Communications Plan (CCP), includes elements such as establishing a clear statement of the communication goals during the planning phase, a public Web page, an email list, notices, and a consistent message. The more extensive CCPs used communications professionals' skills and a dedicated communications and outreach budget.

The study observed that the most extensive CCPs clearly articulated the pilot goals to the public and developed message content to respond to the following common questions:

- **Why Are We Doing the Pilot?**
- **How Does This Pilot Relate to Transportation Policy and Change?**
- **How Would Privacy Be Impacted with New Collection Processes?**
- **How Would Security Be Impacted?**
- **How Would a Transition from Gas Taxes to RUC Take Place and Would It Be Scalable?**
- **What Would Be the Collection Cost?**
- **Would This Be Fair to Long Distance, Rural Drivers?**
- **Who Is Working on This Now?**
- **Would the Public Have a Choice to Avoid Being "Tracked?"**



Of the five communication methods identified as being used in the pilots (Web pages, social media, advertising, traditional news media coverage, and personal contact), Web pages and personal contact provided the richest array of information. Web pages provide detailed, one-way information dissemination such as a pilot overview, program details, sign-up opportunity and frequently asked questions (FAQ) where the public can obtain the most detailed information about the program. They also offer a great platform for soliciting feedback. Personal contact allowed legislators and the public to ask detailed questions. These interactions were effective at increasing political support. Pilot sponsors were wary of social media, as they perceived that it stimulated extreme viewpoints not representing the public at large and required significant staff time to monitor and respond. In general, using multiple communication media strategies increased the ability to reach more of the public.

The study identified four components critical to developing a successful communication and outreach plan:

- 1. Investing Time/Resources to Design a Communication Strategy That Fits with the Pilot**—States that understood the pilot's goal and used communication professionals to articulate that vision were better able to identify the message, the messenger, and the audience.
- 2. Using a Comprehensive Approach to Develop Partnerships**—A stakeholder focus can be effective by including a broad range of perspectives. Reaching out to the public is challenged by media fragmentation. One-on-one conversations with political leaders are critical.
- 3. Crafting a Careful and Consistent Message That Succinctly Answers People's Questions**—The message needs to provide an overview of the pilot, acknowledge unknowns and offer information on other pilot projects.
- 4. Using Multiple Types of Media That Is Kept up to Date and Has a Consistent Message Coordinated Across Diverse Audiences**—People absorb information differently. Using a variety of media is more effective and reaches a broader audience. Web pages are especially effective as they can provide a wealth of information if they are kept up to date.



## CHAPTER 1. INTRODUCTION

Federal and State gas taxes have been effective transportation infrastructure funding mechanisms for decades. However, improved vehicle fuel efficiency, consumer demand, and the increasing percentage of electric and hybrid fleet vehicles are reducing motor vehicle fuel tax yields. Road usage charge (RUC) strategies represent a potential method of collecting revenues to fund transportation improvements. Because the Federal and most State gas taxes are not adjusted for inflation (either the price of the fuel or the costs to be covered in the funded program), the Federal gas tax has lost more than 40 percent of its purchasing power in the last 20 years (Varn 2019). In contrast to the gasoline or diesel tax (which tax the amount of vehicle fuel consumed), a RUC is based on the number of miles driven. Motor vehicle fuel taxes are a rough approximation of a user fee, whereas an RUC assesses directly for the use of the roadways. Two national commissions created by the surface transportation reauthorization bill, the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU, Pub. L. 109-59), were tasked with assessing current revenue options.<sup>1</sup> Both recommended replacing the gas tax with an RUC.

To determine the feasibility and acceptance of an RUC fee strategy as a replacement or supplement for a gas tax, the Federal Highway Administration (FHWA) is administering a Federal grant program that funds State run pilot tests. Pilots allow a variety of new concepts to be tested on a smaller group that is representative of the population. By bringing in different stakeholders, pilots can provide first-hand experience to participants that helps dispel myths and brings potential concerns to decisionmakers to determine whether and how these concerns might be mitigated. The lessons learned from smaller scale approaches have had great impacts on past revenue practices. For example, beginning with Oregon in 1919, States were the first political jurisdictions to implement a gas tax. Within 10 years, all 48 States had implemented a gas tax. The Federal Government did not implement a gas tax to fund transportation until 1956 by increasing an existing excise tax and dedicating it to the Federal Highway Trust Fund to pay for the interstate highway program.

To encourage States to pilot RUCs, the 2015 Fixing America's Surface Transportation (FAST) Act included Section 6020 that directs the United States Department of Transportation (USDOT) to provide... "grants to States or groups of States to demonstrate user-based alternative revenue mechanisms that utilize a user fee structure to maintain the long-term solvency of the Highway Trust Fund."

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<sup>1</sup> The National Surface Transportation Policy and Revenue Study Committee (<https://rosap.nsl.bts.gov/view/dot/18125>) and the National Surface Transportation Infrastructure Financing Commission (<https://financecommission.dot.gov/>).

The authorizing law from the FAST Act states:

*“The Surface Transportation System Funding Alternatives Program (STSFA) objectives are to test the design, acceptance, and implementation of two or more future user-based alternative mechanisms; improve the functionality of the user-based alternative revenue mechanisms; conduct outreach to increase public awareness regarding the need for alternative funding sources for surface transportation programs and to provide information on possible approaches; provide recommendations regarding adoption and implementation of user-based alternative revenue mechanisms; and minimize the administrative cost of any potential user-based alternative revenue mechanisms.”<sup>2</sup>*

Since 2016, FHWA has funded research in the amount of \$40 million to States to study RUCs under the STSFA program (table 1).

Table 1. Description and award amounts of the Surface Transportation System Funding Alternatives Program grants to States.

<b>Recipient State and Partners</b>	<b>Project/Increment of Funding</b>	<b>Project Description</b>	<b>Funding</b>	<b>Year</b>
California	1a	Examine pay-at-the-pump charging stations.	\$0.750M	2016
California	1b	Revenue from pay-at-the-pump charging stations.	\$1.750M	2017
California	2	Exploration of project with usage-based insurance, transportation network companies, and automated vehicles.	\$2.030M	2018
Colorado	3	Data collection mechanisms.	\$0.50M	2017
Delaware (I-95 Corridor Coalition)	4a	Explore mileage-based user fee in a multi-State environment (e.g., managing out-of-State mileage).	\$1.49M	2016
Delaware (I-95 Corridor Coalition)	4b	Examine RUCs from the perspective of the general public and motor carriers.	\$0.975M	2017
Delaware (I-95 Corridor Coalition)	4c	Expand RUC exploration in additional States, assess variable pricing, and conduct a national truck pilot.	\$3.028M	2018
Hawaii	5	User fee collection, based on existing odometer readings and three other methods.	\$3.998M	2016

<sup>2</sup> FAST Act (Pub. L. No. 114-94), Section 6020.

Table 1. Description and award amounts of the Surface Transportation System Funding Alternatives Program grants to States (continuation).

Recipient State and Partners	Project/Increment of Funding	Project Description	Funding	Year
Minnesota	6a	Mobility as a service as a revenue collection mechanism.	\$0.3M	2016
Minnesota	6b	Shared mobility model.	\$1.0M	2018
Missouri	7a	Innovative strategies, such as a vehicle registration fee.	\$1.783M	2018
Missouri	7b	Implement new registration fee, based on estimated miles per gallon.	\$0.25M	2016
Missouri	7c	Public outreach equity and data security.	\$2.773M	2017
Oregon	8a	Improvements to Oregon’s existing program, including enforcement models, communications, and new technologies.	\$2.1M	2016
Oregon	8b	Improvements to Oregon’s existing program looking at local area RUCs.	\$2.315M	2017
Oregon (RUC West)	9a	Establish requirements for a regional system.	\$1.5M	2016
Oregon (RUC West)	9b	Pilot connecting California and Oregon road user charging systems.	\$2.590M	2017
Oregon (RUC West)	9c	RUC and automated vehicles (AV)s at State and regional levels.	\$0.95M	2018
Utah	10	RUC for alternative vehicles, including hybrids and electric vehicles.	\$1.25M	2018
Washington	11a	Designing and developing an interoperable revenue collection system.	\$3.85M	2016
Washington	11b	Live pilot test, evaluate, and report public acceptance.	\$4.6M	2017

(Source: FHWA 2016, FHWA 2017, FHWA 2018.)

## FOCUS ON COMMUNICATION AND OUTREACH

This paper reviews the outreach, education, and public awareness of RUCs in State pilot projects. This study analysis focuses specifically on the communications and outreach efforts, not on the pilots themselves. The study is designed to serve as an overview that details observations of systems, highlights “best” practices and highlights communication and outreach

efforts that were successful. Given the range of communication methods (which included some successes and some failures), any future pilots would benefit from communication and outreach effectiveness awareness.

## **DATA COLLECTION**

The study's first task included a three-person team interviewing the State pilot administrators. The questions were developed by the project researchers. Advance information was sent to each of the pilot program administrators approximately one week before the interviews. The administrators were encouraged to consult with internal and external staff and include multiple participants in phone interviews.

The goal of the interview was to, at minimum, solicit insights on the following questions:

- *Does the project's description, current status, and related material posted on your agency's Web page accurately summarize your project?*
- *Has your approach with your project deviated from initial plans in any significant way? Have there been any major surprises?*
- *Did you encounter issues related to RUC outreach and education? If so, were there any efforts or programs you undertook around outreach and communications on that issue and what lessons would you say you learned?*
- *Have you taken different approaches to outreach and communication with various audiences?*
- *Has general public and/or stakeholder group perception of RUCs changed as a result of your project? If so, how?*
- *Is your agency or State legislature considering future RUC outreach or education, planning or preparation, etc. beyond the scope of the STSFA deployment project?*
- *If you could share any other important lessons learned on outreach and communications with new States starting a RUC pilot, what would they be?*

Appendix B contains more detail on the interview questions. Because of this data collection, this report goes beyond the compilation of the attributes of communications activities undertaken during these pilots to extract common themes, cross-cutting issues, strengths, and weaknesses. The identified best practices are organized by feature in the following chapters and conclude with lessons learned and recommendations on public/outreach and education for future RUC deployments.

## **LIMITATIONS OF THE STUDY**

As the team prepared this report, several limitations were acknowledged that may influence the findings:

- **Political Challenges**—Perceived revenue, privacy, and security concerns made their direct discussion with pilot sponsors policy-sensitive. Findings are therefore difficult to generalize.

- **Focus on Communications, not RUC Overall**—While the focus of this research is on the communications aspect, broader pilot issues such as the overall program implementation and revenue capacity overshadowed the communication aspects.
- **Consistency and Scope**—Each of the State pilots differ significantly. Further, the grant program did not require extensive treatment of the communication function. Therefore, causality is difficult to demonstrate.

## **REPORT ORGANIZATION**

Chapter 1 provides background information and an overview of the technical findings. Chapter 2 provides the big picture communication engagement approaches, message components, and the communications media. Chapter 3 focuses on identifying the audience and targeting best practices and recommendations for that audience. Chapter 4 describes the message content, including why the pilots are needed and what they hope to address. Chapter 5 discusses communication media and which approaches are most successful. Finally, chapter 6 provides a conclusion with recommended policy actions.

The report includes the following appendices:

- Appendix A. Project Lead Contact Information and Project Summaries for State Pilots Funded by Surface Transportation System Funding Alternatives Grants.
- Appendix B. Methodology and Data Collection Questions Used in State Pilot Interviews.





## CHAPTER 2. COMMUNICATION FRAMEWORK

Based on early pilot results, good communications practice calls for project leadership to examine and understand the pilot goals and communications component objectives. From there, the audience, messengers, and which messengers communicate with which audiences can be determined. Combined, these are the nucleus of a “communications strategy” which also includes detailed message components and various methods of communication.

### AUDIENCE

The study observed that pilot managers identified a variety of target audiences. Five distinct groups were identified across the pilots:

1. **Political Leaders**—These include the governor, legislative members (the majority and minority leaders, transportation committee leaders, legislative staff), department of transportation officials, transportation commission members, advisors, and city and county leaders and staff.
2. **Governmental Groups and Agencies with a Transportation Focus**—These include metropolitan planning organizations (MPO)/transportation planning organizations (TPO), departments of transportation (DOT), departments of motor vehicles (DMV), departments of tourism, revenue, and transit agencies.
3. **News Media**—These include print and broadcast media, particularly the daily newspapers in the largest metro areas, news/talk radio and major network affiliates (ABC, CBS, FOX, NBC).
4. **Industry/Advocacy Groups**—These include the National Conference of State Legislatures, National League of Cities, Sierra Club, American Automobile Association (AAA), State think tanks, Chambers of Commerce, social equity advocates, environmental advocates, fleet operators, the International Bridge, Tunnel and Turnpike Association (IBTTA), the American Trucking Association (ATA), the American Civil Liberties Union (ACLU), and the American Farm Bureau Federation.
5. **The General Public**—These include pilot members and potential members such as electric vehicle (EV) owners, rural drivers, urban drivers, low-fuel efficiency vehicle owners, transportation interest leaders, drivers on private roads/lands and early technology adopters.

### MESSENGERS

The study observed that pilot managers employed a variety of resources to conduct their communication activities. Six different types of messengers were identified:

1. **State DOT Engineers/Technical Experts**—Technical experts communicate with other State DOT staff and researchers.

**2. State DOT In-House Communication Staff**—State DOT communications staff provide Web page content, organize town halls, organize focus groups, and draft press releases. They are the key part of any DOT/State organization communications approach.

**3. Outside Communications Firms**—Several States, including Oregon and Washington, used this resource. Like DOT staff, outside consultant firms provide Web page content, organize town halls, organize focus groups and draft press releases. Typically, because internal DOT community outreach staff do not have experience with road usage charges (RUC), outside consultants have more experience developing and implementing RUC-related communication strategies for explaining public sector challenges and research (including pilots), engaging and educating the public, and gathering and distilling input for decisionmakers.

**4. Political Leaders**—Elected officials were perceived as an overlooked, very effective communication resource. Once briefed by staff, political leaders can help influence other legislators and their constituents. Political leaders, because of the requirements of the job, are often strong and experienced communicators.

**5. Industry/Advocacy Groups**—Advocacy groups have more influence with the public on certain issues than the DOT. For example, several State DOTs wanted to enroll electric vehicle owners in RUC pilots. An environmental advocacy group may have more credibility with electric vehicle owners than the State DOT. The existing relationship between an advocacy group and the intended audience could be more effective. For example, a State in which it is argued that green-energy coastal elites are gaming the system will have challenges recruiting electric vehicles to pilots because they will feel unfairly targeted. However, an environmental group that argues electric vehicles need to pay their fair share may be more successful.

**6. Business Partners**—The business community, including chambers of commerce and regional coalitions, can help influence the public. Businesses engage in regular marketing and can help educate others on the purpose of an RUC pilot. For example, several States with steering committees included representatives of businesses, both large and small, on the committee. Business groups can reach a different audience than industry/advocacy groups.

## **MESSAGING STRATEGY**

The study observed that State pilots varied from comprehensive road usage charge programs open to all vehicles to programs tailored to certain vehicles (electric only). Communication resources varied from a comprehensive Web page and external messaging partner to targeting communications messages to a limited audience. As a result, both message strategy and components varied significantly. The following were the major strategies identified through the study:

- **Pilot Participant Only Focus**—In this strategy, the pilot managers did not develop a specific communications approach. Instead, they targeted communications to particular stakeholders or types of vehicles. The focus may have been limited due to lack of time, resources, political wariness, or lack of a comprehensive plan. For example, some pilots

targeted electric vehicle owners only. In these cases, reaching out to the public may have created confusion as to who could enroll in the program and the rationale for the program.

- **Stakeholder Focus**—In contrast to the other strategies, pilot managers deliberately reached out to legislators, opinion leaders (including the media, think tanks and community leaders), and advocacy groups (both those who support and those who oppose the concept). For example, one State made a strategic decision to brief selected stakeholders in detail but limit the information on the Web page available to the general public.
- **General Public Focus**—In this strategy, pilot managers targeted the general public through Web page, email, advertisements, and commercials.
- **Advisory Group**—In this strategy, the pilot managers tasked an advisory group with handling the communication aspects. Washington State’s advisory group, which doubled as a steering committee, provided a significant part of the communications. Each of the advisory group members reached out to their constituents.
- **Reactive Communications**—In this strategy, pilot managers limited their public statements due to lack of time, resources, politics or planning but did engage when necessary to defend the concept. As a result, communications were generally not a high priority.
- **Comprehensive Communications Plan**—The most successful States implemented a comprehensive plan that included a wide variety of communication channels, such as a Web page, email list, print advertisements, and TV and radio commercials. Consistent messaging was an important tactic of their communications plans. These States included a dedicated communications budget. States provided tailored presentations to different audiences. For example, a presentation to a rural audience would address “...misperceptions about disproportionate impacts on rural residents.”

## INFORMATION CONTENT

The following were common themes that were included to some degree in the messaging itself. Not all States/coalitions addressed all components:

- **Why Are We Doing the Pilot?** What is the problem being addressed? Some States/regions explained the long-term problem with the gas tax as the transportation funding mechanism. Both California’s and Oregon’s Web page detail how factors such as the increase in the number of hybrid/electric vehicles, and the failure of the gas tax to be linked to inflation negatively impact highway trust fund availability. States with more focused programs concentrated on one specific problem. In the case of the Utah pilot, the focus is on electric vehicle operators not paying gas taxes.
- **Does the Pilot Explore a Policy Change or Is It Part of a Permanent Program?** States are split in how they present RUCs. Oregon is the only State with a live program and Utah’s program will become live in 2020. Other States are in earlier stages of RUC consideration. New Hampshire presents RUCs as an alternative that would replace the gas tax over time.

Washington presents RUCs as an eventual gas tax replacement that would enhance revenue. Minnesota's position is that the motor fuel tax will remain in place for a long time to come and will need to be adjusted. The RUC backfills revenue lost due to the adoption of highly efficient, electric and other alternative fuel vehicles. Oregon has taken the position that it is developing a sustainable funding source that over time will replace fuel taxes for some vehicles. (For the pilots, no State charges participants twice. All either simulate RUCs without collecting additional revenue or refund gas taxes. Oregon is the one State that collects RUCs and then refunds fuel taxes paid.)

- **Source of Transportation Infrastructure Funding**—Explaining the pilot context and the revenue sources, as well as educating the public about revenue, are an integral part of the communication process. Surveys have shown that American's have limited knowledge of their transportation expenditures. The I-95 Corridor Coalition detailed how the average American pays approximately \$22 per month in gas taxes. Yet, in surveys many Americans believe they pay \$100 or more. In studies, less than half of Americans knew that the gas tax was the primary roadway revenue source. Many believed sales taxes or property taxes are the main revenue source for transportation investment. Consequently, many Americans do not realize that improvements in fuel efficiency standards and the rate of inflation decrease transportation investments because of how those changes affect the gas tax.
- **Privacy**—States that have strong consumer protection laws, such as California, detailed how privacy is protected. States that used a vehicle registry approach detailed how the registry approach protects privacy. Some States also explained how the technology is a one-way collection mechanism in which program operators do not have access to the data collected.
- **Security**—As pilot participants became more knowledgeable about the technology, they became more concerned about security.
- **Transition/Scalability**—Early pilots typically did not focus on transition costs. Oregon, however, focused on the need for pilots to determine if RUCs were viable and provided a transition timeline of 10-15 years in which the gas tax and RUCs were both collected. Several States, such as Minnesota, focused on scalability, including the costs and feasibility of expanding RUCs to all motorists.
- **Administrative Costs/Collection Costs**—Pilot States did not think that RUC program administrative costs were a major communications' focus. Oregon detailed how gas taxes today cost less to collect than RUCs. In the future, new technologies and increasing scale will reduce RUC collection costs. They are unlikely to ever rival the low cost of collection for fuel taxes, however, because they will necessarily have to interact with large numbers of transitory payors. Several States, including Minnesota, are focused on reducing administrative costs of RUCs as a part of their RUC pilot.
- **Urban/Rural Equity Issues**—Equity and fairness between urban and rural areas—as well as among gas-powered vehicles, electric vehicles and hybrids—was a major issue for most pilot States. Washington State's steering committee included members from rural Washington. In an early stage of Washington RUCs, the project team conducted a study of potential impacts

to drivers based on their residency as rural, suburban or urban. The project team shared results with the steering committee showing that, in transitioning to RUCs on average, rural drivers are likely to pay less in RUCs than gas taxes due to the low-fuel efficiency of the rural vehicle fleet. Steering committee members used that information to explain to the rural community the advantage of RUCs. More nuanced conversations related to fuel efficiency and environmental impact are beginning to occur, including whether flat fees on electric vehicles (regardless of number of miles driven) is the best approach.

- **What Other States Are Learning from the Surface Transportation System Funding Alternatives (STSFA) Pilot States**—The first RUC pilots established their own best practices. Later pilot States were able to learn from earlier States. For example, Utah used a summary of media articles on the Oregon pilot to learn how to write press releases. Some States pilots explained the advantage of a Federal pilot in expanding RUC participation to more States and solving interoperability challenges.
- **Choice**—Most pilots maintained that “choice” of mechanism is a key feature for some pilots. The choice aspect refers to different RUC options: global positioning system (GPS), odometer reading, and the voluntary nature of participating in most State pilots.

## COMMUNICATION METHODS

The study observed that States used a variety of different communication media and methods to reach out to their audiences, including: Web pages, social media, advertising, town halls, traditional news media coverage and in-person contact. As the Internet and social media have become more common, State DOTs have switched from a purely meeting-based (public meetings and focus groups) communication strategy to one built primarily around a Web page and social media:

- **Web pages**—Most States developed Web pages about their pilots, which became the de facto communication vehicle. Some States made the strategic decision to include only certain information on the Web page. For example, Oregon included information that is most relevant to the public and potential users.
- **Social Media**—A small number of State pilots used a limited social media platform. Facebook was a popular communication tool. Many DOTs created RUCs or revenue/finance groups to target information to pilot members and potential members. California used other social media, including LinkedIn, Snapchat and Pinterest. In contrast, some pilot States were uncomfortable with social media because there was concern that social media communications may invite “trolls” causing staff to spend extra time responding to negative and misleading material.
- **Paid Advertising**—The Washington State Transportation Commission took out targeted advertising in newspapers, radio and television to inform the public. Such advertising was limited due to budget. Other pilots did not report doing any advertising.

- **News Media**—Pilot programs communicated with the media by issuing press releases stressing program details and proactively addressing concerns such as double taxation. In Washington State, the Project Team and Transportation Commissioners met with separate media outlets more than 12 months in advance to establish lines of communication. This included meeting with editorial boards, beat reporters, broadcast news programs and others which kept them briefed at every phase of the project. Hawaii conducted interviews with television (TV), radio and print media.
- **Personal Contact**—There were four in-person contact methods used:
  - **Steering Committees**—Many programs were administered by steering committees composed of DOTs, elected officials and stakeholder groups. While these committees oversaw the program, members were selected to increase support from various groups. For example, the Colorado steering committee included the ACLU due to concerns about privacy. The Washington steering committee included a county official from Spokane, Washington who reached out to rural residents in eastern Washington.
  - **Focus Groups**—Many States convened focus groups to explain RUCs to the public. Utah uses a focus group to determine initial public reaction to RUCs. Oregon used a longitudinal (represents one group of people studied over a period of time), online focus group to determine which messages resonated the most with the public.
  - **Town Hall Meetings**—Meetings are an effective communication tool for the public. Hawaii held town hall meetings on each of the major islands to explain RUCs and target customers for pilots.
  - **One-on-One Conversations with Elected Officials**—DOTs would have one-on-one conversations with elected officials to build support for the State pilot, educate them about RUCs, or answer specific questions. Minnesota and Utah reached out to State legislators before their pilots began. DOTs provided fact sheets to elected officials who were unable to attend one-on-one meetings or who requested more information. Missouri sent fact sheets to all interested legislators.

## **CHAPTER 3. COMMUNICATIONS STRATEGY AND APPROACH**

As a result of compressed schedules and limited resources, most of the pilots were unable to adopt a comprehensive communication strategy. Most pilots focused on a limited subset of the population while others focused on communications after a problem developed.

To determine the communications strategy, the study examined the target audience, why the pilot was being conducted, and the pilot's priorities. The study identified six types of strategies that represent the approach that pilot managers adopted in the course of their pilot development and implementation:

1. Communications Strategy 1: Limited Focus.
2. Communications Strategy 2: Stakeholder Focus.
3. Communications Strategy 3: General Public Focus.
4. Communications Strategy 4: Advisory Group.
5. Communications Strategy 5: Reactive Communications.
6. Communications Strategy 6: Comprehensive Communications.

### **LIMITED FOCUS**

Pilot managers placed in this category generally did not develop a specific communications approach. Some took a more limited approach due to a limited focus or to resource constraints. In this approach pilot managers commonly targeted communications only to pilot and potential pilot participants not the legislature and the media. The focus may have been limited due to lack of time, lack of resources, political wariness, or pilot organization.

Some pilots had a deliberate, limited focus such as those targeting electric vehicle owners only. For example, while still in the planning stages, Utah has focused on potential pilot members, internal department of transportation (DOT) stakeholders and, to a limited sense, the media. The State is employing a gradual process. At the start, it is not reaching out to the general public due to the cost and the concern it may create confusion as to who could enroll in the program and the rationale for the program.

Advantages of limited focus include simplicity and cost. Disadvantages include limited public communication and education to build public awareness of the challenges to transportation funding and the option of road usage charges (RUC).

## **COMMUNICATIONS PROGRAM: UTAH**

Utah had a limited focus communications plan. While a section of the DOT website is dedicated to RUC there is no public advertising of this site. The Web page includes a 106-slide presentation examining the history of the gas tax, declining fuel efficiency, other State pilots, growth of electric vehicles, legislative actions, rate-setting, advisory committee members, implementation efforts, alternative vehicle fees, the enrollment process, commercial vehicles, revenue and public opinion. The Web page includes links to various codes and other materials. The Web page indicates RUC may be an option for all vehicles in the long-term. Since the current focus is on electric vehicle owners, the State used the task force to target the audience who can enroll in the program. Because the program is opt-in, the State focused on the lower potential cost to most electric vehicle owners, the chance to be part of an innovative process and the importance of having all vehicles pay their fair share for their use and maintenance of the roadway.

## **STAKEHOLDER FOCUS**

In contrast to a so-called “limited focus,” a stakeholder focus (pilot members, political leaders, internal DOT staff, advocacy groups, the media) deliberately reaches out to each of these groups (both those who support and oppose the concept). This approach can serve to improve understanding of the issue, reduce opposition based on lack of information, or even create advocates. While most communication strategies include public outreach, States using stakeholder focus created a comprehensive list of stakeholders and explained to them why their message is important. For example, Hawaii reached out to business interests, tourism interests, newspapers on all the major islands, State legislators, and the media. Each of the Hawaiian Islands had a slightly different concern. Hawaii officials would reach out to Maui residents who were concerned about tourism and explain how RUCs would affect tourists. They also asked for feedback from island officials. The advantage of stakeholder focus is that the focus is on influencers, each with their own outreach and communication capabilities. In targeting stakeholders and specific groups who are active with constituents and political leaders, there is an indirect impact on decisionmakers. The disadvantages are that not all groups receive RUC communications and the coverage may be so targeted to one issue that other minor issues may not be addressed.

The Washington State Transportation Commission and its private communications firm handled all communications surrounding the RUC pilot. The Washington RUC Steering Committee had a comprehensive message suite and strategy that was shared with all its members, including speaking notes and presentation packets that Steering Committee members could take to meetings. Each of the Steering Committee members reached out to their constituents. The automakers educated auto enthusiasts and car dealers. The business roundtable communicated with Fortune 500 companies in Seattle. The Consumers Union reached out to safety groups and employee unions. The Spokane commissioner spoke to eastern Washington residents. The Washington Trucking Association reached out to freight interests.



## **COMMUNICATIONS PROGRAM: WASHINGTON**

Washington deployed one of the more comprehensive pilots. The State used a private consultant to conduct the messaging. Its messaging points were structured to be short and to-the-point. Washington answered the question “why an RUC pilot?” by explaining that electric vehicles and increasing fuel efficiency make the gas tax an ineffective long-term funding mechanism. The State positioned RUC as a potential solution but did not address the transition from gas taxes. Washington computed the current State and Federal gas tax (49.4 cents) and showed how it is the State’s primary road funding mechanism but did not place this number in context. For privacy, the State explained that anonymized data was collected and that there was limited information collected (miles driven only without the details that would identify the driver). Washington, like all States/regions, included security protections. However, along with other States, it is developing additional anti-hacking measures. Washington discussed the eventual transition from gas taxes to RUC but did not provide a timetable.

The perception of double taxation was a concern of some pilot participants. Washington’s pilot invoices provided a line item that reflected a State fuel tax credit, in order to reflect that participants did not pay twice. Like other States, Washington detailed how the initial administrative costs are higher for RUC than the gas tax but will decrease with scale and technology. Washington detailed how its smartphone app (which they discovered to have some glitches) could have lower costs over the long-term than plug-in devices. Administrative costs were not a concern for pilot participants. Higher RUC costs for rural residents were a major concern. Washington made a deliberate attempt to sign up rural residents so participants could explain to their neighbors that they paid less than with a gas tax. For example, Eastern Washington had 9 percent of the population but 13 percent of the program participants. The Web page included a graph showing how pickup trucks (popular in rural areas) would pay less. Washington did its own study of urban versus rural impacts of RUC and shared studies from Oregon showing rural residents paid less. Washington highlighted pilots underway in California, Oregon, and RUC West to show RUC are successful in other western States. Finally, the State emphasized the voluntary nature of the program and the five RUC participation options, the most of any State: global positioning system (GPS) plug-in, non-GPS plug-in, odometer reading, smartphone app, and mileage permit.

## **GENERAL PUBLIC FOCUS**

Some pilot managers targeted the general public through Web pages, email, advertisements, and commercials. This communication method reaches the widest public audience and can be an effective educational tool. Both coalitions, the I-95 Corridor Coalition and RUC West, used a general public focus due to the large geographic regions and widespread diversity of potential members. The advantages of this method are the ability to communicate with a large potential audience and educating the public at-large. Potential pilot members may be unaware of RUC trials. For example, the public may not understand why there is a funding problem and the role of RUCs in solving it. The disadvantages are communications that are not targeted to any particular group.

## **COMMUNICATIONS PROGRAM: OREGON/WESTERN ROAD USAGE CHARGE CONSORTIUM**

RUC West is a regional coalition of 16 States studying RUC. Given that the agency is focused on promoting communication among State officials and not the public at large, RUC West uses fewer outward-facing communications media and includes more shared content. RUC West's Web page includes a detailed program overview of RUC and rationale as well as full program details, a list of frequently asked questions (FAQ), and a mileage calculator. Individual pilot States often use this information to provide presentation material for State legislators.

## **REACTIVE COMMUNICATIONS**

Where pilot management did not take steps to frame the message or actions in advance, they limited their public statements and only engaged when they felt it necessary to defend the concept. Reasons given for this situation were lack of time, resources and politics. For some, the communication function was not a priority. Few States planned to have a reactive message, but it became the de facto strategy once negative feedback emerged. Missouri, for example, did not engage in public outreach because they did not want to engage in lobbying activities. Some residents became concerned about privacy issues accusing the DOT of trying to track their activities. Missouri DOT relied on its general website and in newspaper articles, but opponents controlled the narrative. This might work in some situations because it requires little planning and resources. The disadvantage is it limits program support and allows opponents to frame the message, which could lead to a misleading program narrative.

## **COMPREHENSIVE COMMUNICATIONS PLAN**

A comprehensive plan is proactive and broad. It includes different elements such as a Web page, an email list, advertisements, commercials, and identifies a consistent message to stakeholders. States adopting this approach generally dedicated resources to a communications budget, but this was not necessarily universal. For example, Oregon's Road User Fee Tax Force helped develop their plan, reaching out to their constituents (e.g., American Automobile Association (AAA) reached out to its members). The Oregon electric vehicle advocacy group, Go Electric Oregon, reached out to electric vehicle (EV) and hybrid (such as Toyota® Prius) drivers. Legislators reached out to their colleagues while county representatives explained the idea to the Association of Oregon Counties. In addition to addressing stakeholder interests, a comprehensive communications plan also had a more general explanation for the public.

## **COMMUNICATIONS PROGRAM: OREGON**

Oregon had the most extensive communications plan. For its 5,000-slot permanent RUC program, the State analyzed which recruitment strategies are most effective. The first part targeted 1,000 members: early-adopters, low mileage vehicle owners, and techies. To recruit this group, the State used partnerships (allied groups on the task force including an EV advocacy group and legislators) and the media to increase interest. The second part targeted an additional 1,000 members and included an interest list of volunteers consisting of the public and legislators who could serve as ambassadors to the program. The third part targeted an additional 2,000 members. It engaged the public at local fairs, festivals, on social media, with sponsorship opportunities, and using task force member relationships.

Oregon's 4-phase, 19-month plan included defining and developing the plan, educating and building awareness, going live, growth, and monitoring. Phase 1 (Defining and Developing) is an internal process of constructing a timeline and overall strategy. Phase 2 (Educate and Build Awareness) is focused on finding interested participants and included building account manager relationships, securing third-party endorsements, social media engagement, internal training, and building the Web page. The plan stressed consistent messaging, public education and minimizing opposition through business recruitment. Phase 3 (Go Live) prepared, promoted, and engaged pilot members. It included a launch event, social media monitoring, and earned media outreach. Once the pilot was live, the State focused on supporting a user experience. The State also plans to promote successes and third-party endorsements. Phase 4 (Growing and Monitoring the Plan) includes four goals:

1. Maintain Established Contacts and Provide Continual Updates.
2. Maintain Involvement with Pilot Participants.
3. Grow and Recruit for the Interest Group and Volunteers.
4. Analyze Rollout and Impact.

Oregon has a brand guide that consists of a project logo and details how that logo can be used. The State hired a contractor to fine tune potential messages for public support.

They conducted detailed surveys examining awareness, acceptance and favorability of the concept that resulted in three conclusions. First, people have a limited understanding of how much they pay in road taxes and fees. Second, there are numerous myths, such as the program is unfair to rural drivers. Third, information and experience equal acceptance. A separate dissenter focus group was created to better understand their opposition. They found that maintaining roads is important to all residents but that opponents prefer a different funding mechanism, distrust Government, and are concerned about fairness and how complicated the program will be.

Oregon has recently launched a new campaign focused on increasing public awareness which was part of its 2016 FAST Act Surface Transportation System Funding Alternatives (STSFA) grant. The message included in the redesigned Web page resulted from a longitudinal (represents one group of people studied over a period of time), focus group conducted by its contractor. The new campaign recognizes the importance of making information available in communities, so the State is training its communications staff to present information using the newly formatted materials.

## **LESSONS LEARNED**

Determining the most effective target audience can be challenging. Is the audience limited to the pilot participants or is it the general public as a whole? How much influence do the decisionmakers, who will interpret the results, have? Choosing an effective target audience can determine whether the pilot is supported by stakeholders and in determining the feasibility and policy implications of the funding mechanism (see appendix B).

Comprehensive communication plans are perceived as adding value for States with expansive programs such as California, Oregon, and Washington. Agency staff expressed frustration with reactive communications that ultimately required more time than using a comprehensive approach that had front-end planning demands. The former was interpreted as ultimately leading to lower levels of public support.

Hawaii, the I-95 Corridor Coalition and RUC West focused on the general public. They tended to have a more general message intended for an audience less familiar with RUCs than other pilot members. This question of scope (matching the plan target audience with a greater degree of preparation and sophistication) will be increasingly important should the STSFA pilots expand the target audience. No States planned for limited focus or reactive communications, but a few were forced to take a narrower approach due to lack of time or financial resources.

Communication plans that target a narrower audience could benefit from being comprehensive. The plan's scope and comprehensiveness are not mutually exclusive. Deciding to narrow the audience is highly situational. For example, vehicle owners benefited from a stakeholder focus centered around opinion leaders and legislators in those States needing legislative approval (such as New Hampshire) or with pilot programs more limited in scope (such as Utah's program that exclusively deals with electric vehicles and hybrids—both gas and plug-ins). With a narrower focus, a smaller budget and staff was adequate to accomplish the communication goals.

Delegating communications to an advisory group or steering committee can facilitate the access to, and education of, stakeholders but it is not a substitute for planning the communication actions. Furthermore, even though it can contribute to increased support throughout the State, as was the case in Washington State, coordination and consistency of message become more complex, especially with larger groups.

## CHAPTER 4. MESSAGE CONTENT

In studying the messages that comprise the most prevalent portion of communication activities, there was commonality across the topics that were addressed. This indicates that messaging components among States share many similarities. These commonalities have been distilled in the following short list (table 2):

- Message Component 1: Why are we conducting this pilot?
- Message Component 2: How does the pilot align with the long-term funding strategy?
- Message Component 3: Currently, how do we pay for transportation and how much do we pay? Would we pay more if road usage charges (RUC) were implemented?
- Message Component 4: How does the pilot maintain privacy?
- Message Component 5: How does the pilot mechanism protect security?
- Message Component 6: Explain the transition from gas taxes to this mechanism.
- Message Component 7: What are the costs of using this mechanism as opposed to fuel excise taxes?
- Message Component 8: Would rural residents pay more?
- Message Component 9: Are other State/Federal governments conducting pilots?
- Message Component 10: Do pilots offer choices and are they mandatory?

These questions and whether they were addressed by individual States in their pilots are shown in table 2. The letter “Y” indicates yes, to the question and the letter “N” indicates no. Figure 1 shows how many States addressed each question.

Table 2. Ten common questions about road usage charges and whether they were addressed in Surface Transportation System Funding Alternatives funded State pilots.

<b>Messaging Component</b>	<b>CA</b>	<b>CO</b>	<b>HA</b>	<b>I-95</b>	<b>MN</b>	<b>MO</b>	<b>NH</b>	<b>OR</b>	<b>UT</b>	<b>WA</b>	<b>RUC West</b>
1. Why are we Conducting the Pilot?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. How Does the Pilot Align with Long-term Strategy?	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y
3. How Do We Pay for Transportation; Would We Pay More under RUC?	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y
4. How Does the Pilot Maintain Privacy?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5. How Does the Pilot Protect Security?	N	N	N	N	N	N	N	N	N	N	N

Table 2. Ten common questions about road usage charges and whether they were addressed in Surface Transportation System Funding Alternatives funded State pilots (continuation).

<b>Messaging Component</b>	<b>CA</b>	<b>CO</b>	<b>HA</b>	<b>I-95</b>	<b>MN</b>	<b>MO</b>	<b>NH</b>	<b>OR</b>	<b>UT</b>	<b>WA</b>	<b>RUC West</b>
6. Explain the Transition to This Mechanism?	Y	Y	N	Y	N	N	N	N	N	Y	N
7. What are the Costs of Using this Mechanism?	N	N	Y	N	Y	N	N	N	Y	N	Y
8. Would Rural Residents Pay More?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
9. Other States are also Conducting Pilots?	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y
10. Do the Pilots Offer Technology Choices?	Y	N	Y	Y	N	N	N	Y	N	Y	Y

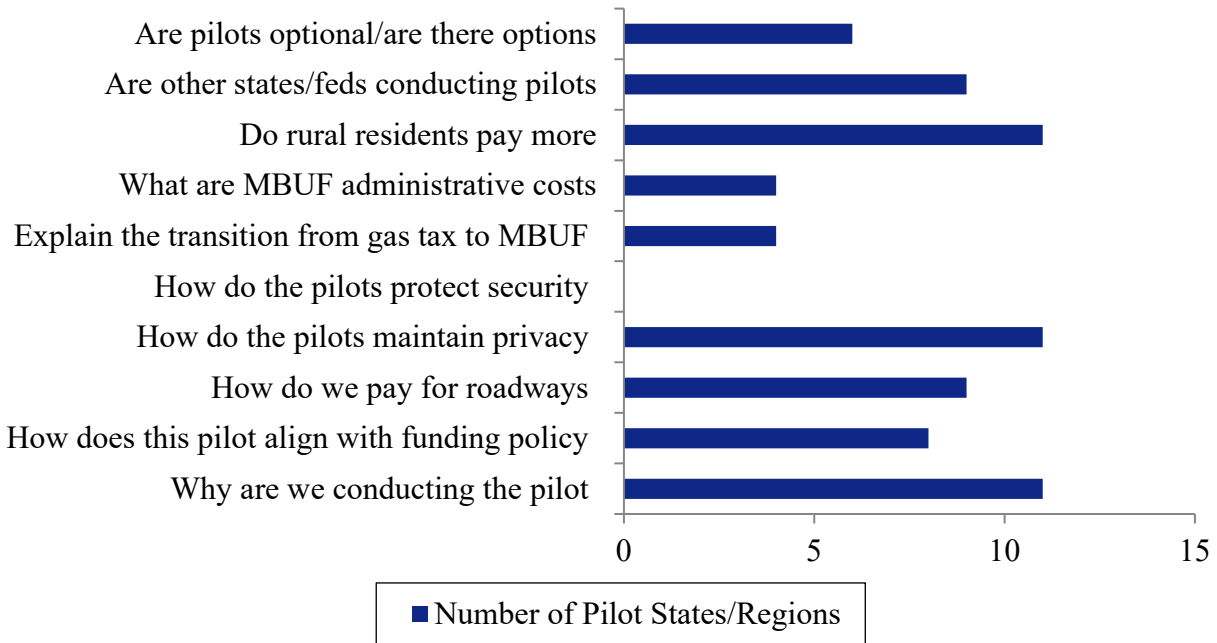


Figure 1. Chart. Number of State pilots addressing each of the ten road usage charge questions as part of their communications message.

(Source: Federal Highway Administration (FHWA).)

(Note: Number of States that Used/Adopted Message Components in Pilots are counted based on the number of States that adopted each message component. Each State is classified on whether they adopted the message component, not the degree to which they used the message component.)

## MESSAGE COMPONENTS ADDRESSED IN PILOTS

The study concluded that message content of State pilot communications plans generally fell into one of ten components:

**1. Transportation Funding Challenges**—Some States explained the long-term problem with the gas tax, the primary transportation funding mechanism, and provided limited information on other funding methods. Both California’s and Oregon’s Web page detail how the growth in the number of hybrid/electric vehicles and the failure of the gas tax to be linked to inflation are creating a significant gap in transportation revenue. States with more focused programs, such as Utah, reflect the change in their law that has recognized that electric vehicles do not contribute to infrastructure through a fuel tax. Several States detail the rationale for their pilot by explaining that an RUC is a potential solution that needs real-world testing. Others present an RUC as one of a range of solutions that is being explored. Oregon details several different RUC alternatives and suggests the importance of offering choice to different groups.

**2. Pilot Purpose**—States participating in the Surface Transportation System Funding Alternatives (STSFA) program presented RUCs as a different way to finance the maintenance and/or construction of highways or transportation infrastructure. They emphasize that if the pilot is successful, RUCs may become a permanent option. Some States present RUCs as an alternative to the gas tax while others present it as an option to supplement it. Most States explain how over time RUCs could replace the gas tax. New Hampshire and Utah present pilots targeted to certain vehicle types as the first step in that process. Other States—such as Oregon (the only State operating a permanent RUC program)—detail how an increase in the number of RUC participants will allow a transition. Washington presents RUCs as a replacement for gas taxes, but at a level that produces slightly more revenue. For States that see RUCs as a substitute, such fees are couched as an option for those who pay the gas tax or a method to charge road users who are not paying their fair share (electric vehicle owners) to contribute. The I-95 Corridor Coalition presents the pilot as a simulation meant to educate consumers about alternative funding mechanisms designed to fund transportation.

**3. Transportation Funding Basics**—Surveys have shown that American’s have limited knowledge of what they pay to finance maintenance and construction of transportation infrastructure. While the average American pays approximately \$22 per month in transportation taxes and fees, in surveys, many Americans believe they pay \$100 or more (Agrawal and Nixon 2019). In studies, less than half of Americans knew that the gas tax was the primary roadway revenue source. Many respondents believed sales or property taxes are the main revenue source (Agrawal and Nixon 2019). State pilots concluded that because many Americans do not know that gas taxes fund transportation, they do not realize that improvements in fuel efficiency standards and the amount taxed not being indexed based on the rate of inflation has led to a decrease in revenue generated to fund highway projects.

Oregon explained that application of an RUC represents a continuation of the users-pay/users-benefit rationale that underlies the gas tax. Other States did not explicitly mention the users-pay rationale. Many States went beyond the cost of transportation programs to present—in Web pages, public meetings, and town hall meetings—the importance of well-performing systems on their Web page. The I-95 Corridor Coalition included this information on its Web page with

detailed information on what each American pays and how much it costs to build and maintain roadways at a state of good repair.

4. **Privacy**—States described how their pilot attempted to address privacy concerns. States who used a vehicle registry approach detailed how the registry approach could protect privacy. States with location-enabled global positioning system (GPS) options explained how it is technically designed so that program operators do not have access to the data collected. Some States stressed the anonymization of the data in which all personal information is protected and program administrators do not have access to sensitive information such as social security numbers or birthdates. States with private account managers explained that the private company collects the data and anonymizes it, not the public sector. Oregon explained that pilot participants who elect location-enabled services must choose a commercial account manager rather than a State account manager.

5. **Security**—Some States discovered, as they conducted their pilots, that security was perceived as an issue. Given the security vulnerabilities in online systems and the sensitivity around personal data, States may wish to devote more time and resources, potentially in future pilots, to addressing security vulnerabilities.

#### **COMMUNICATIONS PROGRAM: MINNESOTA**

Minnesota's current RUC program is focused on collecting RUC on shared mobility fleets. The Web page is the main communication medium. The State has not engaged in any social media or advertising. There is no formal steering committee, but an informal group of Minnesota DOT officials has circulated information within the department on the shared vehicle pilot. Minnesota DOT has made extensive use of a focus group with stakeholders, legislators, policy leaders and interest groups to explain the program and receive feedback. A technical advisory committee will be formed from focus group members. There have been no town halls or media outreach, however, legislators have been involved with the focus group and have briefed their colleagues on the program.

6. **Transition from Current Revenue Mechanism to RUC**—Public interest in the transition from existing revenue mechanisms to RUC system varied by State. Oregon participants were unaware how the fuel tax is used and have not considered the need to transition to an alternative revenue mechanism. However, up to 1/3 of the Hawaii residents surveyed were concerned about a potential transition, indicating that they wanted a gradual approach. Hawaii used nuanced messaging that the project is only a simulation of replacement of the gas tax and that any true replacement will take 10-15 years.

7. **Administrative Costs**—All of the State pilots recognized that most of the public is unaware of administrative costs related to collected gas taxes. Some States, however, found administrative costs were an important communication issue. Oregon participants were unaware of how much it costs to collect the gas tax and other revenue mechanisms and the State chose not to highlight this issue in the pilot. In Hawaii, implementation costs were discussed in 2/3 of town hall meetings. Hawaii residents were aware of the low gas tax collection costs. Hawaii Department of Transportation (DOT) explained that collection costs in the test would be higher due to the



limited sample size and current technologies. There was some thought that administrative costs of a statewide permanent program using smartphones as the technology would be cheaper.

**8. Rural/Urban Costs**—Many of the pilots found the issue of rural versus urban fairness to be important. One of the public’s major concerns about an RUC is that they are unfair to rural drivers (Atkinson 2019). Some rural residents mistakenly believed that because they drive further, they would pay more RUCs. However, results from pilots in a number of States have determined that this belief is unsubstantiated. One Oregon study showed that rural drivers would pay less in RUCs than gas taxes because the rural vehicle fleet is less fuel efficient. There are fewer electric and hybrid vehicles and a greater number of older vehicles. Oregon cited the study and used the anecdote that one rural Oregonian said, “so eastern Oregon motorists no longer need to support Portland electric vehicle (EV) drivers.” Utah tasked its rural focus group members, such as the American Farm Bureau, with explaining why it would provide a savings to rural drivers. California found that sharing fact sheets showing how much each driver would pay was an effective educational tool. The I-95 Corridor Coalition included a calculator to compare how much rural drivers would pay with a gas tax compared to an RUC.

**9. Other State’s Pilots**—Lessons learned from early RUC deployments have contributed to successful pilots by new State participants because they are avoiding mistakes made by early implementers. Missouri, New Hampshire, and Utah all reference Oregon’s pilot technical success including feasibility for its offset of RUC payments against gas tax charges with refunds at the pump. California included details of the Oregon and Washington pilots on its Web page and its legislator outreach. The I-95 Corridor Coalition used supportive statements from public officials and American Automobile Association (AAA) members in phases 1 and 2 of the pilots to build support for RUCs in other coalition States.

## **COMMUNICATIONS PROGRAM: DELAWARE (I-95 CORRIDOR COALITION)**

The I-95 Corridor Coalition (the Coalition) had a multi-faceted pilot. As a Coalition representing 16 States and a wider geography, the message content was more general.

The Coalition identified the challenge with increased fuel efficiency and electric vehicles but also framed the pilot, “To ensure the voices of citizens along the I-95 corridor are heard because the Northeast is comprised of many small States with people and goods frequently traversing across versus the longer distances and bigger States in the West. The coalition did not address the long-term approach to communications.

The group showed how the gas tax is the primary funding method for transportation and how its purchasing power has declined due to inflation, the impact of improved fuel efficiency across the fleet and the increasing number of vehicles using no fuel. The coalition built on lessons learned from previous pilots including the need to provide a choice of mileage reporting and enabling drivers to opt out of data sharing. The coalition work also focused on the potential desirability of “value added services” that may result in an increased public acceptance of mileage-based user fees (MBUF). The coalition discussed the current low collection costs of fuel taxes but argued economies of scale will decrease MBUF costs. Given the diverse nature of Eastern States, future Coalition work will dive into rural versus urban perceptions of MBUF (e.g., Maine is the most rural State in the U.S. while other State members of the Coalition have some of the Nation’s densely populated metropolitan areas). The Coalition did highlight work that other States were doing with links to California’s program, RUC West, and impressions of individual States (Delaware, Pennsylvania) in the pilot. The coalition also focused on the voluntary nature of the pilots.

**10. Choice**—Multiple States emphasized choices in their pilots. States that offered multiple RUC options detailed those options on Web pages, to legislators, and in polling. Oregon detailed the three different collection mechanisms (pre-pay into wallet with out-of-State mileage credited and value-added services; post-pay quarterly with out-of-State mileage credited and value-added services; and post-pay without out-of-State mileage credited and value-added services.) Many participants in States where non-GPS options were offered were unaware of non-GPS options. Utah explained that residents could pay the electric vehicle fee or an RUC and highlighted that the RUC option would be cheaper for those who drive less than 8,000 miles. All States explained to participants that the pilots were voluntary and that participation was not required.

## **LESSONS LEARNED BASED ON INTERVIEWS WITH SURFACE TRANSPORTATION SYSTEM FUNDING ALTERNATIVES PILOT PARTNER STATES**

For pilot rationale, States with comprehensive programs that explained the revenue challenges with the gas tax (electric vehicles, hybrids, declining purchasing power due to inflation) had higher levels of overall support than States that presented RUCs as supplemental revenue. States with more limited programs such as Utah benefitted from a simpler message—that RUC are an effective way to charge electric vehicle drivers for road usage (see appendix B).

For RUC as a policy change, States with a revenue-neutral approach or no formal communication on increased revenue fared better than States that describe RUC as new revenue. All pilots represent RUC as a potential alternative and something that needs to be studied. Pilot participants were sympathetic to these arguments. However, the pilots have a self-selection bias. While there were exceptions, participants opposed to RUC tended not to enroll.

For educating the public about revenue options, States that provided more detailed information about the amount drivers pay in revenue, such as California and Oregon, had better public acceptance than States who provided less detailed information. As discussed above, most Americans have no idea how much they pay for revenue, with the majority overestimating payment.

For privacy, security, transition, and administrative costs, States that detailed their privacy protections and explained the anonymized data collection process with the limited information collected on drivers had higher levels of user satisfaction and support. For security, no State had a systematic approach. Security measures were outlined in multiple pilots and States are working to add detailed encryption metrics. For transition, States that explained the details of the transition, including timeline and costs, fared the best. States that detailed how RUC collection costs were high today but would likely decrease over time with improved technology and economies of scale had the highest stakeholder support.

Among the equity and fairness issues of RUCs, the one of greatest interest among pilots was the misconception that rural drivers would pay more in RUC fees. Pilot results determined that on average rural vehicles would pay less under an RUC system than under a gas tax system. This is not to say that other equity issues, like income, may not be important for the future. States that highlighted how variable pricing would result in urban areas paying more, received higher levels of rural support. However, many States were hesitant to mention variable-pricing because it might reduce public support for RUC.

States (Oregon and Hawaii) that mentioned the possibility of a Federal RUC pilot, multi-State partnerships (including RUC West and the I-95 Corridor Coalition) and the need for a State or Federal clearinghouse to process out-of-State RUC transactions had the highest stakeholder support. States that offered and promoted multiple RUC options, as well as those that noted program participation was voluntary, had the highest support.



## CHAPTER 5. COMMUNICATION MEDIA

States used a variety of different communication media to interact with the public, participants, and other target audiences. Several of these media can take multiple forms. For example, depending on the intended audience, in-person contact can include focus groups, town hall meetings, or one-on one contact with elected officials. Table 3 shows which State pilots used the different communications media. The letter “Y” indicates yes, to the question and the letter “N: indicates, no. Figure 2 graphs the different communications media showing by frequency of use by each State pilot.

- Media 1: Web pages.
- Media 2: Social Media.
- Media 3: Paid Advertising.
- Media 4: News Media: Television (TV)/Radio/Newspapers.
- Media 5: Personal Contact.

Table 3. Communication media used by each Surface Transportation System Funding Alternatives funded State pilot.

Medium	CA	CO	HI	DE/I-95 CC	MN	MO	NH	OR	UT	WA	OR/ RUC WEST
Web page	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y
Social Media	Y	Y	N	N	N	N	N	N	N	N	N
Advertising	N	N	N	N	N	N	N	N	N	Y	N
News Media	N	Y	Y	Y	N	N	Y	Y	Y	Y	N
Personal Contact: Steering Committee	Y	Y	Y	N	N	N	N	Y	Y	Y	N
Personal Contact: Focus Group	Y	N	Y	N	N	N	N	N	N	Y	N
Personal Contact: Town Hall	Y	N	Y	N	N	N	N	N	Y	N	N
Personal Contact: One-on-Ones Elected Officials	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Personal Contact: Talking Points for Elected Officials	N	Y	Y	N	N	Y	Y	N	Y	Y	N

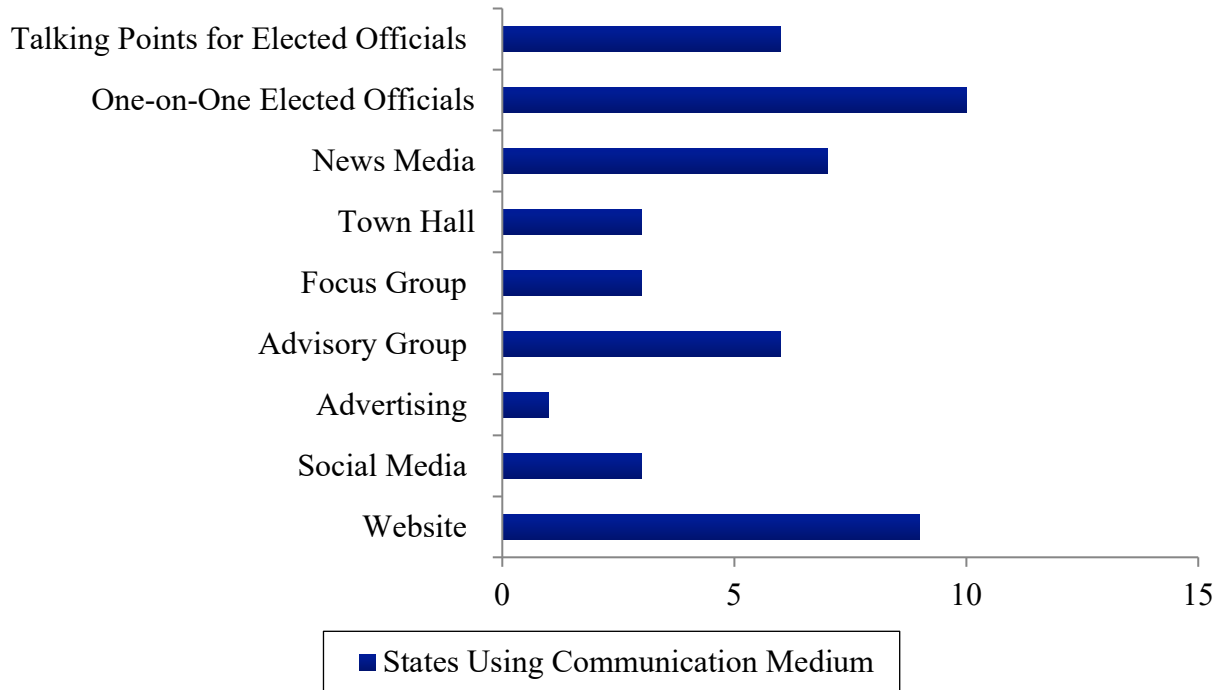


Figure 2. Chart. Total number of State pilots using each communication medium.  
(Source: Federal Highway Administration (FHWA).)

(Note: Media are counted based on number of states/regions using each medium. Each state/region is classified on whether they adopted the component, not the degree to which they used the communication medium. Personal contact is broken into Advisory Group, Focus Group, Town Hall, One-One with Elected Officials and Fact Sheets for Elected Officials.)

## WEB PAGE

The majority of the State pilots chose to develop a Web page uses as the primary source for disseminating information. Of the 11 State pilots, 9 have Web pages. Web pages ranged from relatively simple to more sophisticated. However, most pilot sponsors appear to strive for a balance between providing enough information about road usage charges (RUC), pilot rationale, program sign-up, and frequently asked questions (FAQ) and providing too much information which might confuse the public (table 4 and figure 3).

Oregon Department of Transportation (DOT) provided the best explanation of the role of a Web page. According to the DOT, the Web page, “was the front door for the public, providing information that is most relevant to the public and potential users.”

Some States used the Web page to provide reference information to the public. For example, Colorado included all the pilot material from their first phase on the Web page. Other States used the Web page to promote other communications and outreach methods. For example, Hawaii posted notices of town halls on the Web page. Table 4 shows which States used each Web pages feature. The letter “Y” indicates yes, to the question and the red letter “N” indicates, no. Figure 3 shows how frequently each Web page feature was used by the State pilots.

Table 4. List of 13 different Web page features used by each Surface Transportation System Funding Alternatives funded State pilot.

<b>Web page Features</b>	<b>CA</b>	<b>CO</b>	<b>HI</b>	<b>I-95</b>	<b>MN</b>	<b>OR<sup>1</sup></b>	<b>UT</b>	<b>WA</b>	<b>RUC West</b>
Program Overview	Y	Y	Y	Y	Y	Y	Y	Y	Y
Program Rationale (Why are we testing RUCs?)	Y	Y	Y	Y	Y	Y	Y	Y	Y
Program Sign-Up (Ability to sign up online)	Y	Y	Y	Y	N	Y	N	Y	Y
Program Details (Precise information on multiple aspects of program)	N	N	N	Y	N	N	N	Y	Y
Participant Stories (Detailed accounts from actual participants)	N	N	N	N	N	Y	N	N	N
Mileage Calculator	N	Y	Y	Y	N	Y	N	N	N
Frequently Asked Questions	Y	Y	Y	Y	N	Y	N	Y	Y
RUC Research (Reports or links to academic research)	N	N	N	N	N	Y	Y	Y	Y
Project Timeline	N	Y	Y	N	N	N	N	Y	N
Overview Report (Detailed study of pilot program)	Y	Y	N	N	N	Y	N	Y	Y
Geographical Diversity of Vehicles Participating	N	N	N	N	N	N	N	Y	N
Percent Participating by Options	N	N	N	N	N	N	N	Y	N
Was Web page Easy to Navigate <sup>2</sup>	N	Y	Y	Y	Y	Y	Y	Y	Y

<sup>1</sup> Oregon is the only State with an operating program.

<sup>2</sup> This row indicates whether the Web page was easy to navigate for the public. There is a tradeoff in ease of navigation compared to amount of information presented.

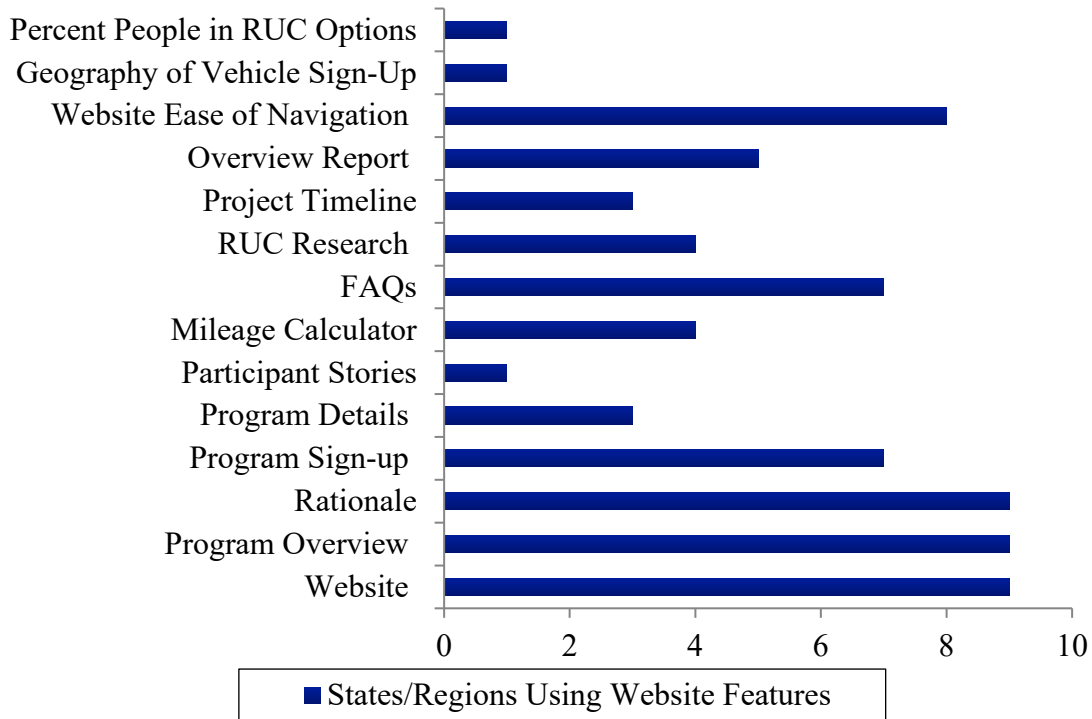


Figure 3. Chart. Number of Surface Transportation System Funding Alternatives funded pilot States using each of the 13 Web page features (Source: FHWA.)

### Web page Features Used by Surface Transportation System Funding Alternative Grant Pilot States/Regions

From the State with the most experience with RUCs, Myorego.org, Oregon DOT’s Web page, is an example of a comprehensive Web page. The page explains how RUCs work and why a new funding mechanism is needed. The learn tab has seven sub-sections that include information on the program (per mile charge, mileage reporting options and program size), another link to enroll in the program, the six-step sign up and monitoring details, stories of pilot participants explaining the value of RUCs, a calculator that compares how much a driver would pay in gas tax compared to RUCs, program FAQs, and research Oregon has conducted on RUCs. The connect tab includes a DOT blog, an email list-serve to find more information about the program, and customer service links for Oregon DOT as well as private technology providers. The press room tab has videos, news releases and media information about the program. The Web page also has a search feature.

Washington State has a similar website with the homepage focusing on justification of the pilot and explanation of RUCs on its Web page.

Other States developed less extensive Web pages. Currently, Hawaii’s Web page has a program overview, a rationale for the RUC pilot, an RUC calculator, FAQs, and a project timeline. As it expands and develops its program, Hawaii may include additional information including program details, participant interest responses, and additional research.



Two States currently do not use Web pages. For them, as they are developing their RUC pilots and focusing on legislative approval, a public Web page was perceived as a distraction which could provide misleading or out of date information to the public.

## **SOCIAL MEDIA**

States identified problems with relying on social media to communicate with stakeholders. California and Colorado, who had large social media presences, indicated that users responding to DOT social media threads were strongly opposed to RUCs. The pilot managers did not think this was representative of broader public opinion. Project participants largely support RUCs while the public has a mixed opinion of the concept. For example, one Facebook Live presentation generated a wave of red angry face emojis.

## **PAID ADVERTISING**

Most States did little or no general paid advertising. Washington, however, had a comprehensive advertising campaign that included messages on radio, newspapers, social media, and State Web platforms. Generally, print advertisements were limited to 100 words or less and radio commercials were limited to 15-30 seconds. Advertisements provided an overview of RUCs and a phone number, email, or link to members of the public wanting more information.

## **NEWS MEDIA**

Many States performed targeted outreach to the media. State DOTs would share key facts with newspaper, TV, and radio reporters such as the amount most people pay for transportation annually, the difference paid between the gas tax and an RUC, privacy concerns, and program details. Most DOTs expressed a willingness to define the narrative instead of having those opposed to RUCs define the narrative first. Many increased their news media outreach due to social media coverage or inaccurate news coverage of the pilots. Utah DOT opened its weekly internal meetings to members of the press to increase knowledge of RUCs.

## **PERSONAL CONTACT**

States discovered that personal contact was a valuable medium for answering questions and providing detailed data. Like with communications outreach, there were five in-person contact methods used:

1. **Steering or Advisory Committees**—These groups helped develop a State’s RUC rules and procedures. However, members of these steering committees were often political leaders or interest groups. As a result, the steering committees also served as a communications’ tool. For example, the Washington State steering committee had legislators, county commissioners, Washington DOT employees, transit representatives, automakers, businesses, American Automobile Associations (AAA), the trucking association, and consumer groups. Many States chose advisory members who they thought would be opposed to RUCs as a way of hearing diverging viewpoints and generating support. The purpose of the communications aspect of the advisory group was to educate different stakeholders about the program, increase support among

groups traditionally opposed to RUCs and have stakeholder groups pass along RUC information to their members. Often stakeholder groups had better communication channels than DOTs and could target messages to better influence their membership.

**2. Focus Groups**—Several States conducted detailed focus groups to provide insight on public perceptions of transportation funding and road usage. For Hawaii, the focus group included 17 members who represented different interests such as business, tourism, and legislators. For Utah the focus group was composed of random drivers who gave feedback. It was separate from an advisory committee that included 25 members from organizations as diverse as the State legislature, DOT/department of motor vehicles (DMV), American Civil Liberties Union (ACLU), Tax Commission, and the American Farm Bureau Federation. The main purpose of the focus group and advisory group was to increase support and participation from State legislators, the executive branch and interest groups in the State.

**3. Town Hall Meetings**—Several States conducted town hall meetings to inform the public. For example, Hawaii had 14 town hall meetings. The town hall meetings had several common features. First, Hawaii discovered that residents of different geographies (in this case islands) have different priorities and concerns in a RUC program. For example, Maui residents are concerned about additional fees on tourists while Oahu residents are focused on double taxation. Big Island of Hawaii residents are concerned about an additional weight tax. Second, town halls reveal preferences of different demographic groups with income and age being significant factors. Third, like some other communication features, town halls attracted folks on the extremes (strongly supportive or opposed) to pilots. As a result, they are not always the best gauge of public support. The main purpose of the town hall meeting was to offer an in-person explanation of RUC pilots.

**4. One-On-One Conversations with Elected Officials**—Most States preferred direct one-on-one conversations with elected officials. In these meetings, pilot leaders would provide an overview of RUCs, including the why (sustainable funding source), the when (length of term of the pilot), and the who (groups able to participate). Pilot organizers also would proactively counter common objections such as the amount the public pays for transportation, differences between RUCs and gas taxes, and privacy concerns. Then they would answer any concerns the elected officials have. Many States offered priority slots in the pilot to elected officials, provided regular updates, and created an open-door policy. The main point of one-on-one conversations was to increase political support for the pilots.

**5. Fact Sheets to Elected Officials**—If a one-on-one meeting was not possible, many States also prepared talking points for elected officials. These points focused on the rationale for such a program, the amount of transportation revenue paid, privacy concerns, and how to enroll. The talking points encouraged elected officials to contact the DOT for more information in the hope that officials would agree to a one-on-one meeting. Several DOTs used talking points as supplementary material, sending them to officials after one-on-one meetings. Other DOTs sent talking points to the media or used them internally for accurate messaging. The main goal of talking points was to be a supplementary written document for the public and to keep agency messaging consistent.

## **LESSONS LEARNED**

Generally, States with more comprehensive communications and outreach campaigns with multiple communication media have had more ways to reach public audiences. Web pages are well suited to comprehensive strategies and are the most popular. Further, Web pages with more of the features and personalized content had higher participant support. Detailed information seems to be accepted when the pilot program features are limited and targeted (see appendix B).

Various communication techniques that take advantage of personal interactions with the target audiences were perceived as most effective by the pilot sponsors. These include one-on-ones with elected officials and providing talking points to spokespeople. At least six States reached out to the news media and formed an advisory group. Both were important in educating the public about the program and framing the relevant questions. Being proactive in these communications messages increased success of the pilot programs. Advertising, focus groups, and town halls also were successful. Due to limited resources, many States did not take advantage of these options. But each plays a crucial role. Focus groups allowed DOTs to target messages to certain audiences and to understand concerns of those audiences. Town halls provided an in-person communication option that many elderly and rural residents valued.

Communication that relied on social media was generally perceived by pilot sponsors as unsuccessful. This may have been because the responses received through this medium were negative and believed to represent a small fraction of public opinion. Further, responding to negative comments required significant time resources. None of the States who communicated via social media suggested that they would do so again.



## **CHAPTER 6. CONCLUSIONS**

This study represents a synthesis of the outreach, education and communication approaches used by the 11 Surface Transportation System Funding Alternatives (STSFA) pilot sponsors with different stakeholders (elected officials, transportation policy leaders, the public, interest groups, and the media). It describes which were considered to be the most effective as well as what did not work. All the information in this report was based on lessons learned by pilot sponsors through interviews and their participation in a virtual webinar (see appendix B). Communications and outreach are important elements of any road usage charges (RUC) pilot. Well-planned and executed communications strategies can be the difference between a successful pilot that informs the public and one that confuses them. State pilots identified three criteria they deemed to be critical to launching a successful RUC pilot.

### **A DETAILED PLAN**

States that invested “up front” time and resources in designing a communication strategy that fit their pilot were the most successful:

- States who began with understanding and articulating the goal of the pilot and the goal of the communication activities were then able to identify the message, the messengers, and the audience.
- Pilots believe that utilizing communications professionals (within or from outside State departments of transportation (DOT)) improved their communication strategy.
- States who attempted to save money by minimizing proactive communications encountered obstacles. Many of these States discovered that handling problems retroactively was more expensive and less effective.

### **A COMPREHENSIVE APPROACH**

Planning for the communications approach can leverage all the different resources and media that are at the disposal of the pilot sponsors:

- Many States believed that they were limited by time or budget from adopting a comprehensive approach that focused on audience, message and strategy. These States had to compensate after the fact, which led to higher costs, both financial and time, than States that adopted a comprehensive strategy. Relying on a reactive approach, which may seem the best course at the outset, proved for many to be a false economy. Developing a communications strategy, scaled within the budget, proved to be a beneficial investment of time and money.
- A stakeholder focus can be effective to work through and, with intermediaries, to leverage agency resources. Care must be taken to avoid the perception that the pilot is being implemented solely on behalf of the insular interests considered “stakeholders.”

- Attempting to reach out directly to the general public has implications for cost and scale as differing elements of the general public will coalesce around different concerns and all will need attention. However, providing basic communications to all audience types can increase a basic understanding of the concept and avoid reactive communications over the long term.
- With comprehensive communications strategies and plans, sponsors used the full range of media including Web pages, email lists, and both paid and public service advertisements. Further, they created partnerships with others (such as advisory groups or existing consortia) to extend their reach economically and efficiently.
- Ensuring that both current and future concerns of pilot participants are addressed can reduce costs, both financial and time.

## **CAREFUL AND CONSISTENT MESSAGING**

Addressing the questions that are on people's minds in a straightforward manner can aid communications:

- Provide context for the pilot and describe what it means to future actions in the short and long run.
- Acknowledge unknowns that may or may not be covered in the pilots (e.g., impact on non-electric vehicles, freight community support, best long-term security strategy, length of transition, ability of technology to reduce administration costs) if that is the case.
- Provide relatable information that will improve the understanding of the implications for equity/fairness.
- Explain what other pilot States are learning.

## **MULTIPLE MEDIA**

People learn in different ways and they absorb information from different media. Repetition (when the content is consistent) fosters that absorption:

- Use multiple media.
- Make sure the campaign is comprised of consistent message content and coordinated across audiences.
- Web pages can provide a wealth of information to potential pilot members and the public, particularly if they are kept up to date and provide an opportunity for questions and further contact.
- Opportunities for one-on-one conversations and materials for specific audiences such as legislators, news media, and the general public were critical for effective communications with political leaders.

## APPENDIX A. PROJECT LEAD CONTACT INFORMATION AND PROJECT SUMMARIES FOR STATE PILOTS FUNDED BY SURFACE TRANSPORTATION SYSTEM FUNDING ALTERNATIVES GRANTS

### CALIFORNIA DEPARTMENT OF TRANSPORTATION

Lauren Prehoda, Project Lead

Email: [lauren.prehoda@dot.ca.gov](mailto:lauren.prehoda@dot.ca.gov)

Program Web page: <https://californiaroadchargepilot.com/>

In December 2017, California released the *California Road Charge Pilot Program Final Report*, the conclusion of the largest mileage-based revenue collection pilot in the Nation with over 5,000 vehicles driving over 37 million miles. The pilot answered many questions related to a road charge as an alternative to the gas tax and identified the need for additional research. While acknowledging that the transition away from a gas tax will require several years to implement, the success of the California Road Charge Pilot Program showed that the change is possible. The California Department of Transportation (Caltrans) was awarded three Surface Transportation System Funding Alternative (STSFA) grants within the Fixing America's Surface Transportation (FAST) Act. The initial STSFA funding was dedicated to researching and planning of a pay-at-the-pump/charging station as a viable option. The second STSFA grant is supporting the demonstration of a pay-at-the-pump/charging station revenue collection mechanism in addition to continued research on public attitudes towards transportation funding and strategic educational outreach. The third round of funding focuses on developing and demonstrating three potential alternatives for the collection of transportation funding, including the nexus between: 1) Usage-Based Auto Insurance and Road Charge; 2) Transportation Network Companies and Road Charge; and 3) Autonomous Vehicles and Road Charge. Caltrans has incorporated the second and third grants into a single demonstration project which kicked off in July 2019. The final report is expected in the summer of 2022.

### COLORADO DEPARTMENT OF TRANSPORTATION

Tim Kirby, Project Lead

Email: [timothy.kirby@state.co.us](mailto:timothy.kirby@state.co.us)

Program Web page: <https://www.codot.gov/programs/ruc>

Colorado conducted a four-month pilot from December 2016 to April 2017. A geographical mix of slightly more than 100 participants tested road usage charge (RUC) systems on vehicles with different fuel efficiencies using three mileage reporting options: odometer, non-global positioning system (GPS)-enabled mileage reporting device and a GPS-enabled mileage reporting device. The pilot simulated a mileage charge and gas tax credit. A key focus of the pilot was research into the impact on rural versus urban participants. Pilot participants included legislators, transportation leaders, members of the media and the general public. The successful pilot identified areas for both technical areas for improvement as well gathered important feedback through surveys from participants on improving the enrollment and installation process.

## **DELAWARE DEPARTMENT OF TRANSPORTATION/I-95 CORRIDOR COALITION**

Trish Hendren, Executive Director of I-95 Corridor Coalition and Project Lead

Email: [phendren@i95coalition.org](mailto:phendren@i95coalition.org)

Program Web page: <https://www.i95coalitionmbuf.org/>

The I-95 Corridor Coalition is exploring the feasibility of a mileage-based user fee (MBUF) in the complicated multi-State environment along the East Coast. The Coalition's work is focused on managing out-of-State mileage, interoperability with toll facilities, and how RUC would fit into current motor carrier regulations.

To date, the Coalition has conducted a three-month pilot with recruited participants from 13 States and found:

- Over 20 percent of the miles driven occurred outside of the participant's home State.
- RUC technology can be used to estimate tolls.
- Participants were surprised by how little they paid in fuel tax.
- Concerns about privacy decreased by almost 50 percent during the pilot.

The Coalition also completed the first multi-State truck pilot where 59 vehicles drove in 27 States for over 700,000 miles and examined whether the International Fuel Tax Agreement (IFTA) could be a framework for a national MBUF system. The Coalition conducted a second passenger vehicle pilot (July 2019-October 2019) with over 880 volunteers. It focused on bringing the voice of the general public into MBUF exploration.

## **HAWAII DEPARTMENT OF TRANSPORTATION**

Scot Urada, Project Lead

Email: [scot.t.urada@hawaii.gov](mailto:scot.t.urada@hawaii.gov)

Program Web page: [www.hiruc.org](http://www.hiruc.org)

The Hawaii Department of Transportation (DOT) is undertaking a 3-year road usage charge demonstration project that will engage over 1 million registered vehicle owners in the first phase of the manual demonstration utilizing the existing motor vehicle safety inspection infrastructure. In a later phase, approximately 2,000 volunteers across the State will participate to test more automated ways of mileage reporting.

## **MINNESOTA DEPARTMENT OF TRANSPORTATION**

Kenneth Buckeye, Project Lead

Email: [kenneth.buckeye@state.mn.us](mailto:kenneth.buckeye@state.mn.us)

Program Web page: <http://www.dot.state.mn.us/distancebaseduserfee/>

The goal of Minnesota's RUC project is to design and demonstrate a viable model to collect user-based fees on shared mobility provider fleets. Embedded technology onboard these fleets is becoming the standard on new vehicles and enables the efficient administration and collection of



user fees while maintaining user privacy and data security. The project assumes retention of the motor fuel tax, but will demonstrate a means to backfill revenue lost due to increasing fleet efficiency.

## **MISSOURI DEPARTMENT OF TRANSPORTATION**

Elizabeth Prestwood, Project Lead  
Email: [elizabeth.prestwood@modot.mo.gov](mailto:elizabeth.prestwood@modot.mo.gov)  
*Web page not available at this time.*

Missouri received \$1.7 million to test new ways to calculate its vehicle registration fee to explore alternative financing methods for roads and bridges. It is different than a RUC approach. Uniquely among the States, Missouri assesses vehicle registration fees based on taxable horsepower which is calculated by engine size. As motor vehicles become more energy efficient and electric vehicles become more common, fees generated from this mechanism are decreasing. The project reviewed and developed a new means of calculating and assessing the vehicle registration fee which would stop erosion in revenue by balancing payments of low- and high-efficiency vehicles.

## **NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION**

Nick Alexander, Project Lead  
Email: [nicholas.alexander@dot.nh.gov](mailto:nicholas.alexander@dot.nh.gov)  
*Web page not available at this time.*

New Hampshire DOT received \$250,000 to undertake a road usage fee study as the first phase of a deployment plan for a proposed road usage fee (RUF) in the State of New Hampshire. The RUF would be levied in conjunction with the registration of the vehicle. The fee would be based on the U.S. Environmental Protection Agency (EPA) fuel economy rating of the vehicle, with vehicles with higher miles per gallon (MPG) ratings paying a larger fee. Only light-duty vehicles (cars, minivans, sport-utility vehicles, and light trucks) would be affected since larger trucks are not MPG-rated. The proposed RUF schedule is designed for simplicity and set so that owners of vehicles with ratings over 20 MPG would pay approximately the same fee plus gas tax as the gas tax paid for a vehicle rated at 20 MPG and driven about 12,000 miles a year. The objective of the fee is to make up for State highway trust fund revenue that is lost as vehicle fuel efficiencies increase over time and to spread the burden of highway investment and maintenance more equitably across vehicle owners. This study aims to comprehensively evaluate the potential impacts and implementation of a RUF in New Hampshire.

## **OREGON DEPARTMENT OF TRANSPORTATION**

Maureen Bock, Project Lead

Email: [Maureen.Bock@odot.state.or.us](mailto:Maureen.Bock@odot.state.or.us)

Program Web page: <https://www.oregon.gov/ODOT/Programs/Pages/OREGO.aspx>

Oregon's ongoing road usage charge program, called OReGO, has been in operation since July 1, 2015. While it is a voluntary program, OReGO collects real money and is the first operational road charge program in the Nation.

Oregon is using FAST Act STSFA grants to enhance its work. In 2016, it received a grant to achieve four objectives:

1. Expand the Market by Evaluating New Technology Options, Create a Manual for Reporting Options, and Streamline Reporting and Data Sharing.
2. Increase Public Awareness.
3. Evaluate Compliance Mechanisms.
4. Explore Interoperability.

In 2017, Oregon received an STSFA grant that will deploy OReGO technology to test localized road charging in three new pilots. Planning is occurring now with driver testing scheduled to occur mid-2020. Results of these pilots will help policy-makers decide if road usage charging is a viable funding option for local governments. The three pilots will test:

- **Area Pricing**—A geofence is placed around a metropolitan area with variable pricing within the geofenced area.
- **Layered Area Pricing**—A geofence is placed around two overlapping areas with variable pricing.
- **Corridor Pricing**—Metropolitan freeways will be geofenced with drivers charged for trips that are less than five miles.

In addition to these grants, Oregon partnered with Washington State on its interoperability pilot and is preparing for another interoperability pilot with California under a FAST Act STSFA grant received by RUC West in 2017.

## **OREGON DEPARTMENT OF TRANSPORTATION (RUC WEST)**

Randal Thomas, Executive Director and Project Lead

Email: [randal.b.thomas@odot.state.or.us](mailto:randal.b.thomas@odot.state.or.us)

Program Web page: <https://www.rucwest.org/>

Established in 2013, RUC West has brought 17 States together to lay the groundwork for road usage charging in the United States.

RUC West is using STSFA grants, along with commitments from member States, to pilot a regional system between Oregon and California to establish a true RUC platform that other RUC

West States can join as they become ready. This regional pilot project will provide a launching point for potential future nationwide adoption and implementation:

- **Phase 1 Pre-Development Work—2016 FHWA FAST Act STSFA Grant.** Pre-development work, which was the purpose of the 2016 STSFA \$1.5 million grant award. It was organized into the two components: system definition (phase 1A) and project planning (phase 1B).

**Phase 2 Regional Pilot—2017 FHWA FAST Act STSFA Grant.** RUC West is launching an interoperability between California and Oregon. The goal is to effectively connect these systems, then expand the concept to a regional level.

The pilot is designed to ensure a seamless driver experience. Tax data and payment for both States will be available on a single portal. A driver is charged the Oregon RUC rate and credited Oregon's State fuels tax for miles driven in Oregon. Once the vehicle crossed the border, the driver is charged the California RUC rate and credited California State fuel tax for miles driven in California. The pilot will test the requirements designed to ensure that each jurisdiction receives the correct tax data and payment. The goal is to include more States and eventually serve the whole Nation.

If RUC is to work with several States, a clearinghouse will be necessary. It is inefficient for several account managers and technologies to certify individually with each State and for each State to figure out how to connect with, and receive money from, several account managers. The team is going to use vehicle travel data from CA and OR for the initial pilot and may reach out to Washington as well. The use of historical data allows for the team to test the clearinghouse requirements, focusing on the parsing of the data and the reporting. Following that, the team will be evaluating the outcomes against the requirements to identify gaps so they can be addressed. This work is foundational for additional work that would need to be done, such as the governance structure for a clearinghouse, whether blockchain can be used to support the clearinghouse functionality, and the process by which other jurisdictions would be added. The clearinghouse will then package the information and send it to the States. Oregon created an internal RUC administration system that currently collects this data. The system can be replicated and offered to other States. The internal system also can help States administer RUC by managing relevant account details and settings, creating reports, collecting tax data and managing issues and inquiries.

Oregon DOT will serve as the lead agency for grant administration purposes on behalf of RUC West. Project oversight will be conducted jointly by California and Oregon. Participating States (Colorado, Hawaii, Idaho, Montana, Nevada, Utah and Washington) that contributed funds, will have a monitoring role. They will be kept apprised through monthly status reporting to the RUC West steering committee which is made up of members from each State.

## UTAH DEPARTMENT OF TRANSPORTATION

Cameron Kergaye, Project Lead

Email: [ckergaye@utah.gov](mailto:ckergaye@utah.gov)

Program Web page: <https://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:5090>

Utah launched a road usage charge program for alternative-fuel vehicles which began on January 1, 2020. Alternative fuel vehicle operators will have the option of either paying an annual flat registration fee for electric and hybrid vehicles or pay a road usage fee of 1.5 cents per mile.

Utah began operating its road usage charge program for electric and hybrid vehicle owners on January 1, 2020. Those enrolling in the program pay 1.5 cents per mile driven in lieu of paying an annual flat fee that they would otherwise need to pay at the time of vehicle registration. Yearly mileage charges are capped at the amount of the flat fee, ensuring that drivers enrolling in the road usage charge program may pay less annually than the flat fee amount. As of April 9, 2020, a total of 1,872 vehicles had been enrolled in the program.

## WASHINGTON STATE TRANSPORTATION COMMISSION

Reema Griffith, Project Lead

Email: [griffir@wstc.wa.gov](mailto:griffir@wstc.wa.gov)

Program Web page: <https://waroadusagecharge.org>

The Washington State Road Usage Charge (RUC) Pilot Project was conducted for 12 months from January 2018–February 2019. The pilot was a simulation of a real road usage charge system and was overseen by a steering committee and the Washington State Transportation Commission.

The Washington State RUC pilot had a total of 2,000 drivers from across the State, representing a geographically balanced sample in line with the last census. The pilot tested five different approaches to collecting miles driven—two options did not employ the use of GPS technology and three options did:

- **Mileage Permit**—This was a “pre-pay” approach in which drivers obtained a block of miles (1,000, 5,000, or 10,000) and reported their odometer reading either electronically or in person every three months. They obtained additional miles as needed to keep their permit valid.
- **Odometer Reading**—This was a “post-pay” approach in which drivers drove and then reported their miles quarterly, either electronically or in person.
- **MileMapper Smartphone App**—Miles were recorded using the app on the driver’s smartphone. GPS could be turned on and off.

- **Plug-in Device with or without GPS**—The last two options involved using a plug-in device that came either with GPS, or without GPS. The device was plugged into the On-Board Diagnostic II (OBD-II) Port of the participant’s vehicle.

Drivers in the pilot received either monthly or quarterly invoices via email that indicated how many miles they drove in-State and out-of-State, how much in gas taxes they paid and what their RUC charges were. The difference between the two amounts was indicated on the invoice. That result could be either an amount “owed” or an amount “credited,” depending on the vehicle’s MPG.

In addition to the 2,000 Washington drivers, the pilot had drivers from the City of Surrey, British Columbia to assess operational dynamics when an international border-crossing is involved. The pilot also had drivers from Idaho to test cross-border interoperability and had drivers from Oregon, who already were in the OreGo RUC program, participate in the Nation’s first cash-transaction test. A sample of OreGo participants and a small number of Washington RUC pilot participants, who drove in each other’s State, were enlisted to test a system that would allow the two States to reconcile RUC charges and miles driven in an automated manner. These drivers were the only participants in the Washington pilot to pay real money. This real-cash test with Oregon allowed the two States to fully demonstrate the feasibility of having interoperable RUC systems whose States have different RUC rates and different gas tax amounts.

To gather ongoing input from all 2,000 participants throughout the project, drivers in the Washington RUC pilot took 3 surveys over the course of the 12-month test: one at the beginning of the pilot, one at the middle, and one at the end of the pilot. Six focus groups also were held across the State during the pilot, some based on geographic location and others focused on topical issues like RUC impacts on low-income drivers, electric vehicle (EV)/high-mileage drivers, etc.

At the conclusion of the RUC pilot, over 15 million miles were successfully and accurately reported and mock-charged at 2.4 cents per mile. Over 1,900 emails and phone calls came into the Washington RUC help desk over the twelve-month test period, with 62 percent coming from test drivers and 38 percent coming from the general public. The top concerns raised were: privacy and data collection, compliance and administration costs, fairness and equity, travel between States and operational viability.



## **APPENDIX B. METHODOLOGY AND DATA COLLECTION QUESTIONS USED FOR STATE PILOT INTERVIEWS**

This study represents a synthesis of the outreach, education and communication approaches used by the 11 Surface Transportation System Funding Alternatives (STSFA) program pilot sponsors with different stakeholders (elected officials, transportation policy leaders, the public, interest groups, and the media). It describes what pilot sponsors considered to be the most effective strategies, as well as what did not work. All the information in this report was based on lessons learned by pilot sponsors through interviews and their participation in a virtual webinar.

The researcher team assessed user and stakeholder perceptions of road user charge (RUC) programs by interviewing project managers from STSFA pilot sponsors, which for purposes of this study included: California, Colorado, Delaware, Hawaii, Minnesota, Missouri, New Hampshire, Oregon, Utah, and Washington, and the Western Road Usage Charge Consortium (RUC West). The research team conducted a round of phone interviews with individual deployment project States.

The research approach required them to collect information from FHWA and STSFA pilot websites including documents addressing project-specific education and outreach efforts.

Appendix B includes the draft interview script used to identify the primary road usage charge (RUC) outreach and education issues and how pilot sponsors addressed them (e.g., privacy, rural impacts, technology, implementation costs, transition, etc.) as well as outreach, education and communication approaches with different stakeholders (elected officials, transportation policy leaders, general public, interest groups, the media). Interview findings were documented in a standard fashion to facilitate synthesis and summary of the phone interviews. The findings from the interview process and initial website and document review were synthesized and then used to develop this report.

**Question 1:** Does the project’s description, current status and related material posted on your agency’s Web page accurately summarize your project?

**Question 2:** Has your approach with your project deviated from initial plans in any significant way? Have there been any major surprises?

- Has the project changed with regard to scope and scale?
- Has the project changed with regard to outreach and communications?

**Question 3:** Did you encounter particular issues related to road usage charge (RUC) outreach and education? If so, were there any particular efforts or programs you undertook around outreach and communications on that issue and what lessons would you say you learned?

- Was privacy an important issue in your outreach and communications?
- Were perceived rural impacts an important issue in your outreach and communications?
- Was technology an important issue in your outreach and communications?

- Were perceived implementation costs an important issue in your outreach and communications?
- Were concerns about transition an important issue in your outreach and communications?

**Question 4:** Have you taken different approaches to outreach and communication with various audiences?

- How would you characterize communication with elected officials?
- How would you characterize communication with transportation policy leaders?
- How would you characterize communication with the general public?
- How would you characterize communication with interest groups?
- How would you characterize communication with the media?

**Question 5:** Has general public and/or stakeholder group perception of road user charges changed as a result of your project? If so, how?

**Question 6:** Is your agency or State legislature considering future RUC outreach or education, planning or preparation, etc. beyond the scope of the Surface Transportation System Funding Alternatives (STSFA) deployment project?

**Question 7:** If you could share any other important lessons learned on outreach and communications with new States starting a RUC pilot, what would they be? Anything else you'd like to add or highlight? Any questions for us?



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U.S. Department of Transportation  
Federal Highway Administration  
Office of Operations  
1200 New Jersey Avenue, SE  
Washington, DC 20590

<https://ops.fhwa.dot.gov>

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