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STATE OF CALIFORNIA
GAVIN NEWSOM, Governor

June 29, 2023

Toks Omishakin, Secretary, California State Transportation Agency
400 Capitol Mall, Suite 2340
Sacramento, California 95814

RE: Senate Bill 339 Road Charge Pilot Design Recommendations Report

Dear Secretary Omishakin:

On behalf of the California Road Charge Technical Advisory Committee (TAC), I am pleased to submit the final Senate Bill (SB) 339 Road Charge Pilot Design Recommendations and Rates report. SB 339 (Wiener, Statutes of 2021) created a road charge pilot to test revenue collection and the impact of two different rates on drivers. SB 339 requires the Road Charge Technical Advisory Committee (TAC) develop pilot design recommendations and a "per-mile" rate for one of the two pilot rate cohorts. SB 339 requires the Road Charge TAC submit this information to the California State Transportation Agency (CalSTA) by July 1, 2023. This report fulfills these requirements. In addition, the report includes recommended evaluation criteria that are critical to use when measuring the program's effectiveness.

Since October of 2021, the Road Charge TAC has conducted seven meetings dedicated to developing design recommendations and a rate for the SB 339 pilot. Additional meetings were also held outside of regular Road Charge TAC meetings to utilize the subject matter expertise of various Road Charge TAC members on specific topics. The topic areas of organizational design, data collection, pilot participant design, privacy and security, enforcement and rate setting were explored by the Road Charge TAC.

California Transportation Commission (Commission) staff coordinated with Caltrans as draft material was developed and presented to the Road Charge TAC. Commission staff also met with the Department of Motor Vehicles, the State Controller's Office, and the Department of Tax and Fee Administration to obtain their research and expert opinions on road charge-related considerations. In addition, as presenters at Road Charge TAC meetings, the Road Charge TAC invited Washington State to share their research on Equity Implications and Public Acceptance Considerations, San Jose State University to present their findings on Road Charge Equity Analysis Research, and the Greenlining Institute to discuss Equitable Road Pricing Strategies. We believe that this collaborative effort provided us with sound insights and recommendations for the successful implementation of the pilot program.

It is our privilege as Road Charge TAC members to play a role in a pilot that gathers critical information needed to inform a statewide road charge program. The TAC is dedicated to offering ongoing support and advice to CalSTA, policymakers, and the public, with the aim of ensuring that the road charge program serves as an innovative solution for establishing a stable source of transportation funding for the long-term.

Sincerely,

JOSEPH K. LYOU, PH.D.
Chair, California Road Charge Technical Advisory Committee

Attachment: Senate Bill 339 Road Charge Pilot Design Recommendations Report

ROAD CHARGE

TECHNICAL ADVISORY COMMITTEE

SB 339 PILOT DESIGN RECOMMENDATIONS

Acknowledgments

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Table of Contents

Figures

Tables

Appendices

Executive Summary

Senate Bill (SB) 339 (Wiener, 2021) offers one high-level objective for California's forthcoming road charge pilot: *"to identify and evaluate issues related to the collection of revenue for a road charge program."* SB 339 directs the Road Charge Technical Advisory Committee (TAC) to make pilot design recommendations for the SB 339 road charge pilot to the California State Transportation Agency (CalSTA).

SB 339 also directs the TAC to develop a "*fee per-mile traveled*" for the pilot. In addition, the bill allows the TAC to recommend criteria for evaluating the pilot to CalSTA. CalSTA is responsible to implement the pilot, working with its state agency partners and relevant stakeholders.

The TAC developed and refined its recommendations over seven meetings beginning in October 2021, and adopted final recommendations in April 2023.

Pursuant to Senate Bill 339 (Wiener, 2021), the California Road Charge Technical Advisory Committee offers recommendations across six categories, including rate setting, pilot participant design, privacy and data security, organizational design, revenue collection, and enforcement. Evaluation criteria for pilot review are also included.

The TAC's recommendations span six categories:

1. **Rate setting** discusses the recommended flat per-mile rates for light, medium, and heavy-duty vehicles, exemptions, and other rate considerations for the pilot.
2. **Pilot participant design** includes participant recruitment and sampling recommendations.
3. **Privacy and data security** covers privacy provisions to apply to the pilot including an updated participant privacy policy and other process considerations.
4. **Organizational design** determines how to use the pilot to determine which agencies may fulfill the functions of a road charge program including agency collaboration and accountability.
5. **Revenue collection** outlines procedures to fulfill funds collection. This category includes road charge data collection, which covers the mileage reporting options that the pilot should offer participants and deployment considerations for these options.
6. **Enforcement** covers initial enforcement actions for the state to consider in the pilot.

EVALUATION CRITERIA

This report also includes recommended pilot evaluation criteria. The criteria cover four categories most relevant to the provisions of SB 339:

- Organizational readiness.
- Rates and revenue generation.
- Distributional impacts.
- Privacy and data security.

RECOMMENDATIONS

Table 1 provides a high-level summary of the TAC's recommendations across six categories.

Table 1: Summary of Pilot Design Recommendations

Category	Recommendations

Rate Setting	• Establish a flat per-mile rate cohort, use a road charge rate of 2.5 cents per-mile for light-duty vehicles.
	• For medium- and heavy-duty vehicles, use flat road charge rates of:
	  ○ 5.9 cents per-mile for class 3 and 4 trucks.
	  ○ 9.9 cents per-mile for class 5 and 6 trucks.
	  ○ 14.8 cents per-mile for class 7 and 8 trucks.
	• Report a single rate on invoices without identifying any components of the rate.
	• Collect information about administrative costs for reference in a future road charge program.
	• Offer exemptions for out-of-state miles driven.
	• Incorporate findings from the California Department of Transportation's (Caltrans') public-private and off-road research into the pilot.

Category	Recommendations
Pilot Participant Design	
Privacy and Data Security	• Apply the participant privacy policy adopted by the TAC in February of 2023. In addition, the TAC recommends CalSTA adhere to the privacy and security recommendations adopted by the TAC. • The privacy policy and comprehensive list of all privacy and data security recommendations are included in Appendix A.

Category	Recommendations

Organizational Design	• Establish reporting requirements for commercial account managers through a service level agreement.
	• Require commercial account managers to calculate road charges and reimbursements pursuant to the established pilot rates.
	• Use a "report card" to track commercial account manager performance.
	• Use the following criteria to assess a private or public sector entity's readiness to support road charge services:
	  ○ Organizational capacity, which measures whether the entity has the required functions, processes, and systems in place to support road charge.
	  ○ Organizational resources, which measure whether the entity has the bandwidth to support necessary road charge functions.
	  ○ Cost efficiency, which measures whether an entity can support road charge functions at a low cost.
	  ○ User experience, which measures whether an entity is organized to deliver a positive and equitable user experience to road charge customers.
	  ○ Mission alignment, which measures whether an entity's current mission is aligned with the purpose of road charge.
	• Create opportunities for state agency participation. If public agencies cannot directly participate in the pilot, conduct interviews to understand their capacity and resources and create a pilot experience with third parties that emulates state agencies.
	• Use the pilot to inform the development of a certification roadmap. In a statewide road charge program, the state could start with minimal requirements during an initial certification process and progressively raise the bar during annual certification renewal.

Category	Recommendations

Revenue Collection	• Use the following revenue collection process: send road charge revenues from pilot participants to a commercial account manager, then to a state administering agency, and then to the State Controller's Office where the revenues will be deposited into a temporary special fund. Commercial account managers will invoice participants, collect funds, and calculate any reimbursements owed.
	• Offer various payment methods to participants including:
	  ○ Post-payment for charges online, via phone, or via mail.
	  ○ Pre-payment for charges. This concept was tested in the first California pilot as a mileage permit, a manual reporting method in which the vehicle owner pre-pays for a fixed number of miles.
	• Assess the feasibility and acceptability of charging service fees for end users that vary based on the method of mileage reporting chosen. This would result in a sliding scale of road charge payments.
	• Collect participant data using the participant's choice among plug-in device, telematics, and odometer readings.
	• Follow the invoice design principles laid out below.
	  ○ Organize information hierarchically to help users decrease information processing time and focus on more relevant information to evaluate the impact of a road charge and provide feedback to the pilot project team.
	  ○ Include a brief message to explain pilot research objectives, frame pilot participant experience, and explain rate-setting principles.
	  ○ Use section headers to create a clear visual hierarchy and help users quickly scan content.
	  ○ Call out information that will be referenced in survey questions.
	  ○ Provide links to additional information online.
	  ○ Call out how to access participant surveys.
	  ○ Use consistent and clear layouts emphasizing the most important information (amount owed, payment due date).
	  ○ Present an account and invoice summary on every page.
	  ○ Provide tips on how to minimize road charge, similar to what is done by utility companies.
	• Focus on integrating technology choices to provide a positive user experience.

Enforcement	• Verify vehicle details with the Department of Motor Vehicles or build an automated interface between commercial account managers and the Department of Motor Vehicles. • Begin to develop enforcement policies for a long-term program.

Category	Recommendations

Evaluation Criteria	• Plan, conduct, and report on an evaluation of the pilot test across 32 individual evaluation criteria spanning five categories as follows:
	  ○ Organizational readiness.
	  ○ Rates and revenue generation.
	  ○ Distributional impacts.
	  ○ Privacy and data security.

Pilot Evaluation Criteria

RECOMMENDED EVALUATION CRITERIA

To produce results responsive to the objectives and pilot characteristics called for in SB 339, the TAC recommends that CalSTA plan, conduct, and report on the pilot using 32 individual evaluation criteria spanning four categories of as follows:

- Organizational readiness.
- Rates and revenue generation.
- Distributional impacts.
- Privacy and data security.

BACKGROUND

SB 339 allows the TAC to recommend evaluation criteria for the pilot for consideration by CalSTA. Caltrans conducted a rigorous independent evaluation of the 2015-2018 Road Charge Pilot Program using evaluation criteria recommended by the TAC.

For the SB 339 pilot, legislation sets two new priorities distinct from previous efforts: revenue collection and rate setting. The categories of evaluation criteria recommended and discussed below derive from these priorities.

EVALUATION CRITERIA

Organizational Readiness

SB 339 states that testing revenue collection would "*allow California to evaluate revenue flows and allow for the identification of challenges, efficiencies, and synergies for future road charge implementation.*" These issues fall broadly under the category of organizational readiness. Given the importance of simplifying implementation, minimizing administrative costs, and ensuring high compliance rates by motorists, this category includes ten criteria as shown below.

1. Number of agencies involved in establishing the pilot.
2. Number of agencies involved in administering (operating) the pilot.
3. Number of entities involved in handling funds.
4. Ability to carry out road charge functions with existing organizational capacity.
5. Ability to carry out road charge functions with existing organizational resources.

6. Cost of collecting road charge from customers, including:
    a. Direct costs associated with transactions, including costs paid to third parties.
    b. Agency costs, including staff time and overhead.
7. Cost of administering refunds to customers, including:
    a. Direct costs associated with making payments from the state to participants.
    b. Agency costs, including staff time and overhead.
8. Levels of voluntary participant compliance (absent direct enforcement), including:
    a. Percent of customers reporting required road charge data on time.
    b. Percent of customers paying road charge on time.
    c. Percent of road charge funds collected on time.
9. Degree of organizational acceptance to carry out road charge functions among agencies participating in and/or observing the pilot.
10. Degree of user acceptance among pilot participants to carry out road charge functions.

Rates and Revenue Generation

SB 339 prescribes two rate-setting methodologies, one with a flat rate per-mile and one with a rate that varies by vehicle energy efficiency. Participants must be divided into two cohorts:

- Cohort 1. Experiences the flat rate.
- Cohort 2. Experiences the vehicle energy efficiency-adjusted rate.

SB 339 requires CalSTA to discuss in its final report the relative effectiveness of the two rate-setting methodologies in aligning "*with the state's climate, air quality, (and) zero-emissions vehicle… goals.*" SB 339 also requires CalSTA to discuss in its final report the effectiveness of the two rate-setting methodologies "*in ensuring sustainable funding for transportation*."

The pilot represents an opportunity to compare the effectiveness of these two rate-setting methodologies, which can be accomplished using the evaluation criteria below.

1. Distribution of individual driving costs for vehicles in each rate cohort, including fuel, fuel tax, electricity, electric vehicle fees, and road charge (net of credits or refunds).
2. Average, median, and standard deviation of vehicle miles traveled by vehicles in each rate cohort (revenue generation and energy efficiency) during the pilot period.
3. Changes in total miles driven by participants in each rate cohort, by vehicle fuel economy, from the first to last reporting period of the pilot.
4. Changes in vehicle purchasing preferences for participants in each rate cohort, by fuel economy, before versus after participation in the pilot.
5. Comparison of average gross road charge revenue per vehicle in each cohort (gross meaning prior to application of any gas tax or electric vehicle fee refunds)
6. Comparison of average gross road charge revenue per vehicle in each cohort with the estimated gas tax that would have been collected from those same vehicles.

7. Comparison of average net road charge (gross road charge minus the gas tax credits) revenue per vehicle in each cohort (net of gas tax and electric vehicle fee refunds).
8. Comparison of average gross road charge extrapolated to the statewide population of vehicles based on each cohort.
9. Comparison of average net road charge extrapolated to the statewide population of vehicles based on each cohort.

Distributional Impacts

SB 339 requires CalSTA to discuss in its final report of pilot findings the effectiveness of the two rate-setting methodologies in aligning with the state's equity goals. The pilot represents an opportunity to observe how the two rates may impact different populations in the state, which could help inform future efforts to design an equitable road charge program.

1. Average gross road charge due per vehicle in each cohort by income level.
2. Average net road charge due per vehicle in each cohort by income level (net of gas tax and electric vehicle fee refunds).
3. Average gross road charge due for each rate-setting methodology, extrapolated to the statewide population of vehicles by income level.
4. Average net road charge due for each rate-setting methodology, extrapolated to the statewide population of vehicles by income level.

Privacy and Data Security

Given the ongoing importance of honoring personal privacy and safeguarding the data provided by motorists in road charge pilots and programs, the criteria below represent a combination of reprised criteria from the 2015-2018 Road Charge Pilot Program and updated criteria to reflect privacy guidelines.

1. User perception of privacy protections.
2. User understanding of the pilot privacy protection policy.
3. Data elements collected from pilot participants by third parties.
4. Data elements collected from pilot participants by state agencies.
5. Data elements collected from pilot participants and shared between third parties and state agencies.
6. Protection of privacy, including implementation and operation of procedures, in accordance with principles adopted by the TAC.
7. User perception of data security.
8. Ability of the pilot system to withstand breaches or attacks.
9. Availability of data collected for appropriate and necessary uses to operate the road charge pilot.

Rate Setting Approach

RECOMMENDED RATE SETTING APPROACH

Pursuant to SB 339, the TAC recommends CalSTA:

- Establish a flat, per mile rate of 2.5 cents per mile for vehicles of participants in the flat rate cohort.
- For medium and heavy duty vehicles, the TAC recommends flat per mile rates that vary by Federal Highway Administration s (FHWA s) gross vehicle weight rating (GVWR) vehicle class definitions as follows:
    - **Vehicle class 3 and 4:** 5.9 cents per mile.
    - **Vehicle class 5 and 6:** 9.9 cents per mile.
    - **Vehicle class 7 and 8:** 14.8 cents per mile.
- Report a single rate on invoices without identifying any components of the rate.
- Collect information about administrative costs for reference in a future road charge program.
- Offer an exemption from road charge for pilot miles driven out of state miles.
- Incorporate findings about exemptions for private and off road miles driven into the pilot based on findings from Caltrans public private roads pilot once that pilot is completed.

BACKGROUND

SB 339 divides participating light-duty vehicles in the pilot into two randomly assigned cohorts:

- **Cohort 1** must pay the same rate per-mile driven (flat rate).
- **Cohort 2** must pay a rate per-mile driven that is proportional to the U.S. Environmental Protection Agency (EPA) miles per gallon (MPG) or miles per gallon equivalent (MPGe) rating of the vehicle (vehicle energy efficiency-adjusted rate).

In both cases, participants must receive a credit or refund for both the estimated state fuel taxes paid during the pilot and the prorated electric vehicle fees paid during the pilot.

FLAT RATE COHORT

The flat per-mile rate cohort (cohort 1) in the SB 339 pilot must pay a flat, per-mile rate for all light-duty vehicles. The TAC is responsible for recommending this rate. The TAC used a revenue replacement methodology to calculate the flat per-mile rate.

Light-Duty Vehicle Rates

In general, the methodology used to calculate the per-mile flat rate is as follows:

- Determine the total fuel tax revenues from the current Caltrans budget and include estimated administrative costs.
- Identify average annual vehicle miles traveled, total registered vehicles, and average annual vehicle miles traveled per vehicle.
- Divide total fuel tax revenue by average annual vehicle miles traveled.

This yields a rate of approximately 2.5 cents per mile.

Examples

Since all vehicles pay the same flat per-mile rate, some will owe more in road charge relative to their fuel tax and electric vehicle fee credit, and others will owe less. Table 2 below shows what people will ultimately owe in taxes after receiving a refund for what they would have paid in gas tax. This amount is the "net effective rate" column on the right-hand side of the table.

Table 2: Rate for Gasoline Powered Vehicles (Flat Rate)

MPG Or MPGe	Road Charge Rate per Mile (cents)*	Fuel Tax Credit/Refund per Mile (cents)*	Net Effective Rate per Mile (cents)*
15	2.5	3.6	-1.1 (credit due to participant)
20	2.5	2.7	-0.2 (credit due to participant)
25	2.5	2.2	0.3
30	2.5	1.8	0.7
40	2.5	1.4	1.1
50	2.5	1.1	1.4
60	2.5	0.9	1.6
70 (PHEV)	2.5	0.8	1.7

Zero-emission vehicles in cohort 1 will pay the same road charge rate as other vehicles but are entitled to a credit or refund of the prorated electric vehicle fee they owe. Table 3 below illustrates how this will impact several illustrative vehicle models for various levels of annual miles driven.

Table 3: Examples of Per Mile Rates Depending on Vehicle Miles Traveled (Flat Rate)						
Vehicle	MPGe	Road Charge Rate per Mile (cents)	Assumed Annual Miles Traveled	Road Charge Owed	EV Fee Credit	Net Amount Owed by Participant
2023 Ford F-15 Lightning 4WD	68	2.5	5,000	$125	$100	$25
			10,000	$250	$100	$150
			15,000	$375	$100	$275
2023 Volvo XC40	85	2.5	5,000	$125	$100	$25
			10,000	$250	$100	$150
			15,000	$375	$100	$275
2021 Tesla Model 3	142	2.5	5,000	$125	$100	$25
			10,000	$250	$100	$150
			15,000	$375	$100	$275

Medium-and Heavy-Duty Vehicle Rates

Based on input from the California Trucking Association, the TAC recommends including medium- and heavy-duty vehicles in the pilot pursuant to the rates in Table 4.

Table 4: Flat Per Mile Rate for Medium and Heavy Duty Vehicles			
Vehicle Class	Blended Fuel Excise Tax Rate per Gallon (cents)	Blended Vehicle Fuel Economy (MPG)	Road Charge per-Mile (cents)
3 and 4	74.3	13.2	5.9
5 and 6	85.6	9.0	9.9
7 and 8	88.2	6.2	14.8

VEHICLE ENERGY EFFICIENCY-ADJUSTED RATE COHORT

SB 339 establishes a prescriptive formula for the vehicle energy efficiency-adjusted rate cohort. In general, the rates for cohort 2 could be calculated as follows.

- Determine the state fuel excise tax rate for light-duty vehicles.
- Adjust the rate for each vehicle by dividing it by its fuel economy rating.

One complication in establishing energy efficiency-adjusted rates is using MPG and MPGe ratings. For conventional vehicles, including standard hybrids, EPA ratings assume a certain proportion of city versus highway driving, but in actuality, individual circumstances will vary based on driving conditions, driving styles, and vehicle upkeep. That said, the EPA's MPG ratings are the most complete, internally consistent source of MPG ratings available.

For each plug-in hybrid electric vehicle model, the EPA provides both an MPGe and an MPG rating. This is because plug-in hybrids can drive in both fully electric mode and gasoline-powered mode. For example, a 2018 Toyota Prius Prime can travel an estimated 25 miles on only an electric battery charge and a further 615 miles on a full tank of gasoline. The MPGe rating of the 25 electric miles is 133. This measures the gasoline-equivalent energy consumed by the battery, even though

the engine burns no gasoline in this mode. The energy efficiency rating of the 615 gasoline miles is 54 MPG. The EPA does not provide a combined MPG/MPGe rating for this vehicle since individual usage patterns vary greatly. Some users may drive primarily in electric mode for short trips and commutes, recharging the vehicle regularly. Other users may use the vehicle for long trips and drive long distances on gasoline only. It may be necessary to determine how to calculate a combined MPG/MPGe rating for plug-in hybrid electric vehicles in cohort 2.

ADMINISTRATIVE COSTS

The TAC recommends that CalSTA not describe how estimated administrative costs are factored into the per-mile rate when displaying the rate to pilot participants. This is mainly because (1) little is known about administrative costs for road charge at this point in time, and (2) as long as the total amount is within a certain range, it will not result in a change in the final rate.

The TAC recommends that CalSTA collect information about administrative costs in this pilot. The specific research questions that could be used to collect this information are included in the recommended evaluation criteria in the Organizational Readiness section.

EXEMPTIONS FOR OUT-OF-STATE MILES

The TAC recommends that CalSTA offer road charge exemptions for miles driven out-of-state by pilot participants, consistent with previous pilot tests. Given the ongoing research by Caltrans into approaches for measuring and exempting private and off-road miles, through a pilot launched in April 2023, the TAC recommends that CalSTA incorporate findings from that research into the pilot.

The notion of offering a discounted per-mile rate or exemption for low-income motorists was raised to the TAC. For the SB 339 pilot, legislation requires the rate to be the same for all vehicles in cohort 1. Meanwhile, the method of calculating rates for cohort 2 is prescribed by law. Therefore, the TAC does not recommend any exemptions or discounts based on income in the pilot.

UNIVERSITY OF CALIFORNIA, DAVIS, INSTITUTE OF TRANSPORTATION STUDIES RESEARCH

The Commission has a contract with the University of California, Davis, Institute of Transportation Studies (UC Davis) to collect information about the rate-setting methodologies used by other states, to identify current and projected vehicle miles traveled (VMT) in California, to gather information about current commercial vehicle fuel taxes and fees in California, and to identify potential road charge administrative costs.

As of the date this report was finalized, this research is not complete, but a preliminary draft of the UC Davis work related to rate-setting methodologies in other states is complete and can be reviewed in Appendix B. In summary, this draft literature review highlights that the rate-setting methodologies employed by the TAC fall within the range of methodologies used by other states. The research also points to several strategies employed in other states, such as credits for low-income drivers and a cap on the total road charge payment owed, that could be considered when developing a road charge rate for a statewide program.

Pilot Participant Design

RECOMMENDATIONS FOR PILOT PARTICIPANT DESIGN

The TAC recommends CalSTA adopt the following recommendations:

- Be proactive with education, outreach, and engagement activities to recruit participants from population segments that are more challenging to reach.
- Use targeted recruiting methods.
- Offer monetary incentives to participants and consider offering incentives early to encourage participation if financial impacts are a potential concern.
- Recruit 2,000 statewide participating vehicles using an oversampling approach to ensure sufficient participation by rural and low income motorists.
- Recruit a broad distribution of vehicles by fuel economy rating and engine type to ensure sufficient representation in the two rate cohorts.
- Advertise via social media, a pilot project website, online news, email announcements, flyers in Department of Motor Vehicles mailings, public service announcements, presentations at stakeholder meetings, invitations through technology partners, academic contacts, and TAC member networks.

RECRUITMENT STRATEGIES

The road charge pilot should leverage recruitment strategies that have been utilized and proven effective in other road charge pilots. The objective is to enroll a participant pool of 2,000 vehicles that mirrors the geographic and demographic makeup of California and is also representative of a range of vehicle types. Figure 1 summarizes the recommended recruitment strategies.

Figure 1: Recruitment Strategies

A key recruitment strategy will be to heavily incentivize participation and to provide start-up funds to offset the cost to participate, because participants participating in the road charge pilot will use their own funds to pay a road charge. If participation is not otherwise incentivized, it is unlikely that the road charge pilot will be able to recruit a representative sample of Californians, especially those with low incomes. This is aligned with the TAC recommendation to mitigate the risk of real payments discouraging participation from low-income populations.

PARTICIPANT SAMPLE SIZE AND CATEGORIES

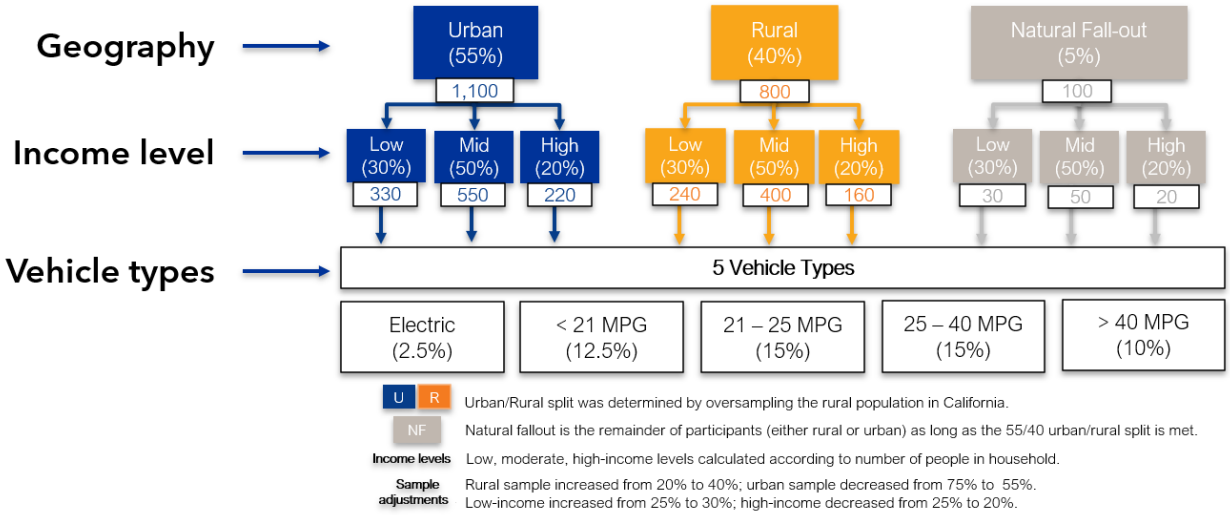
Sample Size

A sample size of 2,000 vehicles is optimal to draw the most benefits from targeted research. This sample size provides 1,000 vehicles in each rate cohort. In turn, this participation level allows CalSTA to explore potential nuances for sub-groups such as rural and low-income motorists by having sufficient participation to understand reactions and preferences.

Participant Categories

Three dimensions are prioritized for participant subgroups of interest in the pilot: geography, income level, and vehicle type. Oversampling rural and low-income participants using a 2,000 vehicle sample size results in the recommended splits shown in Figure 2.

Figure 2: Recommended Breakdown of Participant Pool



Privacy and Data Security

RECOMMENDATIONS FOR PRIVACY AND DATA SECURITY

The TAC recommends CalSTA apply the participant privacy policy adopted by the TAC in February of 2023. In addition, the TAC recommends CalSTA adhere to the privacy and security recommendations adopted by the TAC.

The privacy policy and comprehensive list of all privacy and data security recommendations are included in Appendix A. The list of the privacy and security recommendations is also included below.

October 2021 Recommendations

1. Involve privacy and security legal experts in program development discussions so that they can provide input on how to design a program that is trustworthy and does not allow the government or private companies to use the information for their benefit rather than for the public good.
2. In the privacy policy, include a section that addresses the following:
    a. Why will personal information be shared with account managers or other entities
    b. What will the information be used for?
    c. When is it ok to share information?
    d. Are there any restrictions on sharing information?

This policy should be developed under the umbrella of minimizing necessary data sharing. (Note: the privacy policy recommended in this document for the SB 339 pilot incorporates this recommendation.)

1. Provide choices of private and public sector account management services. (This recommendation was made when considering a statewide road charge program and may have limited applicability in the pilot setting.)
2. If possible, limit the ability of state government to contract work out to third-party consultants for any public sector option offered.
3. Provide at least one mileage reporting option that does not require vehicle location technology.
4. Consider the risk of allowing third-party vendors like account managers to offer value-added services, because this creates additional information sharing and the need for additional compliance checks. In addition, consider not allowing third-party vendors to offer value-

added services at the beginning of the program so that the focus is on the functionality of the road charge system and not the value-added services.

5. In the privacy policy, ensure the "contract flows down" are appropriate for each of the third-party hosts and that adequate protection and procedures are in place in the case of a breach of these public services.
6. As part of the certification and enrollment process, require compliance with the privacy and security policy, and an evaluation of past performance in this area.
7. Require account managers to destroy personally identifiable information within 30 days following the conclusion of the pilot and require the state to audit an account manager to assure compliance.
    a. This recommendation was originally made in October 2021 and revised by the TAC in February 2023 to specify that personally identifiable information should be destroyed within 30 days following the conclusion of the pilot, rather than 30 days after account settlement. The requirement to audit the account manager to ensure compliance was also added.
8. Require law enforcement to have a warrant to get access to person-specific road charge data, to keep a record of when they accessed someone's data, and to eventually provide notice to the person that their data was collected. (This recommendation was made when considering a statewide road charge program and may have limited applicability in the pilot setting.)
9. Review mileage reported to determine whether fraud or misreporting is likely.
10. Ensure that the tax payments from account managers are supported by aggregated and anonymized data.
11. Put reasonable measures in place, such as periodic reviews of reported miles, to make it easier to identify when people may be trying to avoid paying a road charge.
12. Develop a system that helps ensure drivers from other states pay a road charge when driving on public roads in California. (This recommendation was made when considering a statewide road charge program and may have limited applicability in the pilot setting.)
13. Build checks into intrastate sharing so that California is careful about how location data is shared and doesn't automatically give away data about its citizens that is not needed.

Additional Privacy and Data Security Recommendations Adopted at the February 2023 TAC Meeting

1. Require the state to make personal information available to third parties and authorized public agencies to provide services in support of the pilot but limit the use of that data to functions needed to carry out the pilot project.
2. Require account manager compliance with the privacy policy from participant enrollment through wrap-up of the pilot project.
3. Specifically identify by name and contact information the state agencies and private sector account managers obligated to comply with the privacy policy.

4. Consider incorporating lessons learned from the Draft 2021 Caltrans Data Security Audit Report into the SB 339 pilot. This is an internal Caltrans document and therefore cannot be included in this report. This document includes suggestions for software and hardware safety measures, and suggestions for data sharing safety measures.

Organizational Design

RECOMMENDATIONS FOR ORGANIZATIONAL DESIGN

To determine how roles and responsibilities could be shared between public and private entities to provide an optimal experience for participants and administrators alike, at reasonable costs of administration, the TAC recommends the following:

- Establish reporting requirements for commercial account managers through a service level agreement.
- Require commercial account managers to calculate road charges and reimbursements pursuant to the established pilot rates.
- Use a report card to track commercial account manager performance.
- Use the following criteria to assess a private or public sector entity s readiness to support road charge services:
    - Organizational capacity, which measures whether the entity has the required functions, processes, and systems in place to support road charge.
    - Organizational resources, which measures whether the entity has the bandwidth to support necessary road charge functions.
    - Cost efficiency, which measures whether an entity has the ability to support road charge functions at low cost.
    - User experience, which measures whether an entity is organized to deliver a positive and equitable user experience to road charge customers.
    - Mission alignment, which measures whether an entity s current mission is aligned with the purpose of road charge.
- Create opportunities for state agency participation. If public agencies cannot directly participate in the pilot, conduct interviews to understand their capacity and resources and create a pilot experience with third parties that emulates state agencies.
- Use the pilot to inform the development of a certification roadmap. In a statewide road charge program, the state could start with minimal requirements during an initial certification process and progressively raise the bar during annual certification renewal.

BACKGROUND

The organizational design recommendations below focus on the purpose of the pilot "*to identify and evaluate issues related to the collection of revenue for a road charge program*" from an organizational design perspective.

ASSESSING AN ENTITY'S READINESS TO SUPPORT ROAD CHARGE SERVICES

Criteria to Assess Readiness

The hybrid model has been tested before in the first California pilot and in other state pilots. This is a combined model where at least one state account manager and one commercial account manager share roles and responsibilities to provide road charge services to pilot participants. The hybrid model is currently operational in Oregon.

This hybrid model should be further refined in a pilot to capture the administrative perspective by more closely emulating the functions of existing state agencies in California. This will help agencies more effectively deliver road charge services with a positive customer experience and minimal cost. Applying the decision criteria listed below can help measure the relative strengths of public and private sector entities to deliver critical road charge functions in the pilot:

- Mission alignment measures the alignment of the organization's core mission with the functions or purpose of a road charge program. This mission alignment influences the level of acceptance of organizational change that may affect an organization's ability to deliver services cost-efficiently and with a positive user experience.
- Organizational capability measures to what extent the entity has the required skillset, processes, and systems to support road charge functions.
- Organizational resources measures to what extent the entity has the resources to support required road charge functions.
- Cost efficiency measures how efficiently an entity can implement road charge functions compared to other potential candidates. For example, a commercial account manager may be able to run technology-based road charge services more efficiently than a public entity.
- User experience measures the ability of an entity to deliver a positive and equitable user experience by leveraging its resources and capabilities. For example, this can be done through service level agreements containing performance indicators that monitor user satisfaction with the road charge experience.

Create Opportunities for Agency Participation

The TAC recognizes that not all public agencies involved in a statewide road charge program will have the same level of involvement in this relatively focused pilot. To gather information about the ability of existing entities, such as state agencies, to participate in the administration of a road charge program, the TAC recommends that the pilot include interviews with entities that would be involved in road charge program administration to understand their capacity and resources. Most of the specific questions that could be used are included in the evaluation criteria in the Organizational Readiness section. Potential state agencies that could be interviewed include the Department of Motor Vehicles, and the California Department of Tax and Fee Administration.

COMMERCIAL ACCOUNT MANAGERS

Commercial account managers (CAMs) are potentially excellent partners in administering a road charge program. These private companies often have experience managing road charge user accounts, and using CAMs may result in administrative cost savings. However, in choosing to work with CAMs the state takes on the responsibility of ensuring these companies are safe and acting in the public's best interest.

CAMs should cover three categories of road charge functions:

- Data collection focused on
    - Identification of the subject vehicle owner.
    - Mileage data collection.
- Account management focused on
    - Customer support.
    - Accessing and processing road usage data collected.
    - Applying road charge rates.
    - Generating and distributing invoices.
    - Collecting and acknowledging payments.
    - Detecting instances of non-compliance.
    - Remitting revenue to the appropriate state fund.
- Account management oversight focused on
    - Running and monitoring the state road charge accounting system to ensure all the revenue due is collected.
    - Overseeing public and private parties involved to ensure they comply with program requirements.

Commercial Account Manager Certification

The TAC recommends using the pilot to explore the most appropriate approach for certifying third-party vendors by creating and following a certification roadmap. The roadmap should include principles and approaches for initial certification (during vendor procurement and before program launch), starting with minimal requirements to allow commercial account managers to enter the market through the pilot procurement process. The roadmap should call for progressively applying more stringent requirements beyond the pilot phase to set the stage for a future program.

For the pilot, the TAC recommends reserving the most stringent requirements on third parties for pilot features with high risks, such as privacy protection and data security, while applying less stringent requirements for lower-risk features. The Department of Motor Vehicles has an existing certification process for third-party vendors that could be used as an example.

Service Level Agreements

Service level agreements are the written contracts that govern required actions from the CAMs. It is important when these contracts are developed that they include clear expectations about what reporting requirements the state expects CAMs to follow. Monthly check-ins, raising awareness of customer complaints, and subcontracting practices are examples of reporting requirements that should be included in service level agreements. Oregon has existing examples of service level agreements that include reporting requirements for CAMs. The service level agreement or similar contract document that governs any CAM performance in the pilot should include clear reporting requirements to set a good precedent for any future road charge program.

One specific example of a useful reporting tool that can be included in a service level agreement is a monthly report card document that CAMs submit each month to track performance. This document includes specific performance measures such as:

- Average customer wait time on the phone.
- Total number of customer calls.
- Total number of customer emails.
- Average email response time.
- Time spent resolving inquiries.
- Number of unresolved inquiries.
- System changes made.
- System maintenance performed.
- Hours system was down at one time.
- Number of new accounts.
- Number of closed accounts.
- Number of instances of potential fraud identified.

Revenue Collection

RECOMMENDATIONS FOR REVENUE COLLECTION

The TAC s revenue collection recommendations are as follows:

- Use the following revenue collection process: send road charge revenues from pilot participants to a commercial account manager, then to a state administering agency, and then to the State Controller's Office where the revenues will be deposited into a temporary special fund. commercial account managers will invoice participants, collect funds, and calculate any reimbursements owed.
- Offer various payment methods to participants including:
    - Post payment for charges online, via phone, or via mail.
    - Pre payment for charges. This concept was tested in the first California pilot as a mileage permit, a manual reporting method in which the vehicle owner pre pays for a fixed number of miles.
- Assess the feasibility and acceptability of charging service fees for end users that vary based on the method of mileage reporting chosen. This would result in a sliding scale of road charge payments.
- Collect data from participants using the participant s choice among plug in device, telematics, and odometer readings.
- Follow the invoice design principles laid out below.
    - Organize information hierarchically to help users decrease information processing time and focus on more relevant information to evaluate impact of a road charge and provide feedback to the pilot project team.
    - Include a brief message to explain pilot research objectives, frame pilot participant experience, and explain rate setting principles.
    - Use section headers to create a clear visual hierarchy and help users scan content quickly.
    - Call out information that will be referenced in survey questions.
    - Provide links to additional information online.
    - Call out how to access participant surveys.
    - Use consistent and clear layouts that emphasize most important information (amount owed, payment due date).
    - Present an account and invoice summary on every page.
    - Provide tips on how to minimize road charge, similar to what is done by utility companies.
- Focus on integrating technology choices to provide a positive user experience.

BACKGROUND

The revenue collection recommendations below focus on the purpose of the pilot to "*to identify and evaluate issues related to the collection of revenue for a road charge program.*"

IMPLEMENT A SIMPLIFIED REVENUE COLLECTION PROCESS

This process involves implementing simple procedures to collect funds from participants in the pilot as follows:

- Use the following revenue collection process: send road charge revenues from pilot participants to a commercial account manager, then to a state administering agency, and then to the State Controller's Office where the revenues will be deposited into a temporary special fund. This process is illustrated in Figure 3. The state administering agency creates and administers a temporary special fund for the pilot. A temporary special fund can be created through the following process:
    - Submission of an AUD10 (Special Deposit Fund Account) form to request the creation of a temporary road charge account.
    - Fund reconciliation and report to State Controller's Office.
    - Fund transfer to the State Controller's Office.
    - State Controller's Office addresses discrepancies noted during reconciliation and engages with the state administering agency. The State Controller's Office and participants have no direct interactions.

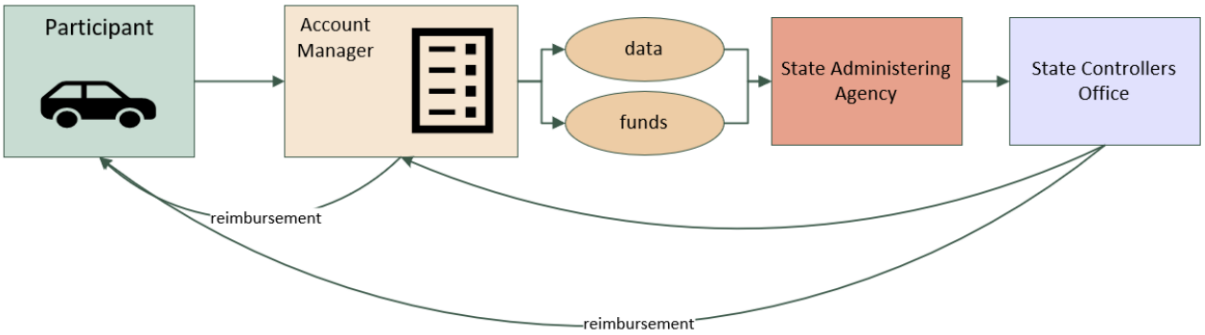
- Assess the feasibility and acceptability of charging service fees for end users that vary based on the method of mileage reporting chosen, which results in a sliding scale of road charge fees.

- Design and distribute accessible invoices that allow participants to understand and respond to the pilot's research objectives. These invoices should present information organized hierarchically to help users decrease the information processing time and focus on relevant pieces of information to evaluate the impact of a road charge and provide feedback to the pilot project team. They should be based on the best practices captured from other road charge pilots:
    - Include a cover letter to explain research objectives, frame pilot experience, and explain the rate-setting principle.
    - Use section headers to create a clear visual hierarchy and help users quickly scan content.
    - Present account and invoice summary on every page.
    - Minimize information presented on the front page of the invoice.

- Call out information that will be referenced in survey questions.
- Use the back of the invoice to include less important information.
- Use consistent and clear layouts that emphasize the most important information.
- Provide tips on how to minimize road charge, similar to what is done by utility companies.
- Provide additional information on the website.
- Call out links to online surveys.

- Offer a variety of payment choices including check, bank transfer, credit or debit card, third-party payment for participants to pay road charges through mechanisms that include:
  - Pre-payment method where mileage blocks are offered as a product.
  - Post-payments for charges online, by phone, or through paper invoices.

Figure 3: Funds Management Process



INTEGRATING PARTICIPANT TECHNOLOGY CHOICES

The TAC recommends integrating technology choices to provide a positive user experience that balances a clear understanding of the policy being tested with valuable customer choices for mileage reporting options and payment channels.

To enhance user experience, the TAC further recommends that the pilot minimize participant involvement in technical tests except for cases where recent technology advances such as OBD-II enhanced datasets, smartphone tolling apps, and telematics with the J3217 data exchange standard need to be tested for the feasibility of implementation.

Finally, the TAC recommends prioritizing the involvement of participants in pilot experiences that allow them to provide input on the overall user experience, mileage reporting and payment choices offered, ways their data privacy is protected, and convenience of and ease of access to technology options.

Enforcement

RECOMMENDATIONS FOR ENFORCEMENT

The TAC recommends the following enforcement actions for the pilot:

- Verify vehicle details with the Department of Motor Vehicles or build an automated interface directly between commercial account managers and the Department of Motor Vehicles.
- Begin to develop enforcement policies for a long term program.

BACKGROUND

There are no enforcement requirements in SB 339. Since this is a voluntary pilot, the TAC recommends that only minor enforcement actions be included. The two recommendations included here will help California start preparing for a long-term road charge program.

Department of Motor Vehicle Data

The pilot is an opportunity to understand how the data systems from CAMs, who manage road charge customer accounts, will need to interact with Department of Motor Vehicle data systems. which contain information about registered vehicles and drivers. Business rules to govern this data transfer can be developed using information collected in the pilot.

Long-term Policy

California has not included significant enforcement actions in past pilots. Enforcement actions could include things like a response plan for when fraud is identified and identifying roles and responsibilities for audits. Using lessons learned from the SB 339 pilot, CalSTA could begin to draft a long-term enforcement policy that would be applicable to a statewide program.

Conclusion

The TAC is sincerely grateful for the opportunity to provide design recommendations on the SB 339 pilot and believes these recommendations, along with the Caltrans Scope of Work included in the Request for Proposal for the pilot consultant, lay the foundation for a successful pilot. This pilot is an important stepping stone for California on its path toward a statewide road charge program, and the TAC looks forward to continued collaboration with Caltrans and CalSTA throughout the implementation and evaluation of the pilot.

SENATE BILL 339 PILOT
DESIGN RECOMMENDATIONS
FINAL REPORT
APPENDIX A

Privacy Policy and Privacy and Data Security Recommendations

Prepared by CDM Smith

for the

California Transportation Commission

May 15, 2023

Road Charge Pilot Program Privacy Policy

This privacy policy is based on the 2017 California Department of Transportation (Caltrans) road charge pilot with updates adopted by the Road Charge Technical Advisory Committee on February 24, 2023. The Road Charge Technical Advisory Committee recommends the following policy be provided to pilot participants:

What is 'Personal Information' and why is it needed?

• Personal information is any information about a person which, on its own or when combined with other information, is reasonably capable of revealing the identity or activities of that person. Personal information includes items such as address, telephone number, email address, driver's license number, account numbers, bank account information, a photograph, travel or trip details, and similar information associated with a specific person.

• To specify involvement of pilot demonstration team, all Demonstration Participants will be asked to provide a minimal amount of personal information to Demonstration Team members. All Volunteers have been asked to provide personal information for two reasons: first, to determine eligibility to participate in the pilot test; and second, to accurately manage your account during the Road Charge pilot project. The following section details the type of personal information you will be asked to provide.

• Neither the state, nor an agent of the state, including your account manager, will provide, or allow access to, personally identifiable information by Caltrans or other State of California employees except in accord with this privacy policy.

Collection and use of your personal information

• Since this pilot project is being conducted for research purposes, we have asked for demographic information to help us better understand how a future Road Charge system might affect people differently, depending on where they live, their gender, ethnicity, general income level, the number of people in their household, etc. We are collecting, and will use this information for research purposes:

- ► Year, make and model of vehicles you own or lease
- ► Your age range (age 18 – 45, or 46 – 65, or older than 65)
- ► Your gender, unless you prefer not to disclose
- ► The number of persons in your household
- ► The California county you live in, or your state of residence if not in California
- ► Your income range (above or below the median income range for your county)
- ► Your ethnicity

• In addition, we are collecting the following information needed to set up and properly manage your Road Charge account during the pilot project:

- ► Your full name and address, including zip code
- ► Your email address and phone number
- ► The Vehicle Identification Number (VIN) for the vehicle(s) you will enroll in the Pilot Project

• Your unique account number is assigned by the Demonstration Team and Business Partner to identify you as a participant in the Demonstration. Occasionally, the state or your account manager may use your personal information to contact you or send important notices about your account, or changes in the Road Charge Phased Demonstration or changes to the participant agreement or this privacy policy. Additionally, you may be asked by the Demonstration Team to participate in surveys or focus groups.

• Depending upon which Road Charge mileage reporting method and account manager you choose, additional personal information may be collected and used, but only with your clear, written approval. If this situation applies to you, you will be provided with more detail about the collection and use of your personal information by your account manager at the time you select your preferred Road Charge mileage reporting method.

Collection and use of non-personal information

• The state will collect but will not reveal the identity, activities or contact details of any specific person. This non-personal information and data may be collected, used, transferred and disclosed to third parties, but only to the extent necessary. Below are examples of nonpersonal information and how it might be used:

- ► We may collect and share total miles driven from persons living in a certain region of California, so that policymakers can better understand how a road charge might impact drivers differently, depending upon where they live.
- ► We may collect information on any difficulties people have in setting up their road charge mileage accounts, so that these services can be improved for any future road charge system.
- ► We may collect data on road charges paid by drivers of different makes and models of vehicles, to gain insight into how a road charge system compares against the gas tax system.

The account manager is also bound by contract with the state to adhere to this privacy policy, protecting your personal information from disclosure to any person not approved by the state, and may not disclose any personal information once the demonstration has concluded.

Disclosure of personal information to Third Parties

• In order to carry out the Road Charge Pilot Program and achieve its objectives, we may make certain personal information available to public agencies or private companies that are authorized to provide

services in support of the Pilot Program. These agencies and companies are responsible for setting up your road charge account and processing your mileage reports, delivering mileage meters to persons who choose to test those devices, providing customer services, and conducting surveys for research and evaluation purposes. All of these third-party agencies and companies are legally required to adhere to this privacy policy and protect your personal information.

Your right to inspect your information and records

• Your account manager will provide you the opportunity to view all of your personal information and data collected and stored as part of the Road Charge Pilot Program to ensure only information and data you have authorized is being collected. To view your information, please contact your account manager.
• If you notice anything in your account that seems to be a mistake, you may request a review by your account manager, and a prompt correction of any errors discovered will be made.

Retention of your information and records

• Personal information that is collected by your account manager during certification and enrollment to set up and manage your mileage account, including mileage and other data collected during the 9-month pilot, will be destroyed 30 days after the conclusion of the California Road Charge Pilot Program. Non-personal information may be retained indefinitely. This requirement is mandated under the state's contract with your account manager and violators will be subject to penalties imposed by the state. To assure your personally identifiable information is destroyed following the demonstration, the state will audit your account manager following the completion of the demonstration.

Any location-based services are entirely optional

• Your vehicle trip details are not required to participate in the Road Charge Pilot Program. However, a few of the automated mileage reporting methods have the capability to automatically calculate miles driven outside of California so that you won't need to fill out paperwork deducting those out-of-state miles from your Road Charge invoice. If you selected a method that uses a location-based mileage reporting service but don't want this information collected by your account manager, you must select a different mileage reporting method that does not use location-based services.

• As an added benefit of participating in the California Road Charge Program, your account manager may offer you, free of charge during the pilot test, other additional services and benefits not related to the Road Charge. Some of these services may require use of location-based technologies such as GPS devices. If your account manager offers you added services or benefits, they must clearly disclose if your location details will be used. You may always say no, and still be entitled to use their automated mileage reporting services during the Road Charge Pilot Program.

SB 339 Pilot Privacy and Data Security Recommendations

In addition to the privacy policy, the Road Charge TAC adopted a set of privacy and security recommendations for the pilot. These recommendations were adopted at two different points in time.

First, TAC members adopted a list of general road charge privacy and security recommendations in October 2021. A link to the October 2021 book item detailing these recommendations can be found here: https://catc.ca.gov/-/media/ctc-media/documents/ctc-committees/road-charge/2021-10/Tab-9-a11y.pdf.

In February 2023, the TAC took action to incorporate the October 2021 privacy and security recommendations into the list of privacy and data security recommendations being proposed for the SB 339 pilot. As a part of this action, the TAC made a revision to one of the October 2021 recommendations (this is noted in the list below), and added 3 new recommendations.

A list of all SB 339 pilot privacy and data security recommendations from both October 2021 and February 2023 is below.

October 2021 Recommendations

1. Involve privacy and security legal experts in program development discussions so that they can provide input on how to design a program that is trustworthy and does not allow the government or private companies to use information for their own benefit rather than for the public good.

2. In the privacy policy, include a section that addresses the following:

    a. Why will personal information be shared with account managers or other entities
    b. What will the information be used for?
    c. When is it ok to share information?
    d. Are there any restrictions on sharing information?

    This policy should be developed under the umbrella of minimizing necessary data sharing. (The privacy policy recommended in this document for the SB 339 pilot incorporates this recommendation.)

3. Provide choices of private and public sector account management services. (This recommendation was made when thinking about a statewide road charge program and may have limited applicability in the pilot setting.)

4. If possible, limit the ability of state government to contract work out to third party consultants for any public sector option that is offered.

5. Provide at least one mileage reporting option that does not require vehicle location technology.

6. Consider the risk of allowing third party vendors like account managers to offer value added services, because this creates additional information sharing and the need for additional compliance checks. In addition, consider not allowing third party vendors to

offer value-added services at the beginning of the program so that the focus is on the functionality of the road charge system and not the value-added services.

7. In the privacy policy, ensure the "contract flows down" are appropriate for each of the third-party hosts and that adequate protection and procedures are in place in the case of a breach of these public services.

8. As part of the certification and enrollment process, require compliance with the privacy and security policy, and an evaluation of past performance in this area

9. Require account managers to destroy personally identifiable information within 30 days following the conclusion of the pilot, and require the state to audit an account manager to assure compliance.
    a. This recommendation was originally made in October 2021, and revised by the TAC in February 2023 to specify that personally identifiable information should be destroyed within 30 days following the conclusion of the pilot, rather than 30 days after account settlement. The requirement to audit the account manager to ensure compliance was also added.
10. Require law enforcement to have a warrant to get access to person-specific road charge data, to keep a record of when they accessed someone's data, and to eventually notice the person that their data was collected. (This recommendation was made when thinking about a statewide road charge program and may have limited applicability in the pilot setting.)

11. Review mileage reported to determine whether fraud or misreporting is likely.

12. Ensure that the tax payments from account managers are supported by aggregated and anonymized data.

13. Put reasonable measures in place, such as periodic reviews of reported miles, to make it easier to identify when people may be trying to avoid paying a road charge.

14. Develop a system that helps ensure drivers from other states pay a road charge when driving on public roads in California. (This recommendation was made when thinking about a statewide road charge program and may have limited applicability in the pilot setting.)

15. Build checks into intrastate sharing so that California is careful about how location data is shared and doesn't automatically give away data about its citizens that is not needed.

Additional Privacy and Data Security Recommendations Adopted at the February 2023 TAC meeting.

16. Require the state to make personal information available to third parties and authorized public agencies to provide services in support of the pilot but limit the use of that data to functions needed to carry out the pilot project.

17. Require account manager compliance with the privacy policy from participant enrollment through wrap up of the pilot project.

18. Specifically identify by name and contact information the state agencies and private sector account managers obligated to comply with the privacy policy.

19. Consider incorporating lessons learned from the Draft 2021 Caltrans Data Security Audit Report into the SB 339 pilot. This is an internal Caltrans document and therefore cannot be included in this report. This document includes suggestions for software and hardware safety measures, and suggestions for data sharing safety measures.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The University of California, Davis Institute of Transportation Studies reviewed Road User Charge (RUC) reports from the states that have either implemented a pilot or a full-scale program, including California, Colorado, Hawaii, Minnesota, Oregon, Utah, Washington, and the Eastern Transportation Coalition, which encompasses Delaware, New Jersey, North Carolina, and Pennsylvania. From these reports, we synthesized each state's RUC rates and considerations that went into the rate-setting process. Some of the most commonly considered factors in RUC rate-setting methodologies included state-level motor fuel tax rates, vehicle fuel efficiency, and annual vehicle miles travelled (VMT). The proposed revenue streams covered by RUC take both the revenues from motor fuel taxes (revenue neutrality considerations) and the requirements of infrastructure bonds into account. Equity considerations are at the forefront of RUC rate-setting among these states, especially quantifying the financial impacts on drivers of different incomes, geographies (for example, rural versus urban drivers), and vehicle technologies (for example, internal combustion engine vehicles versus zero-emission vehicles).

Key takeaways

- The RUC rate-setting methodologies among states have been a revenue-neutral rate with the state gasoline tax
- Some states have taken VMT into account when calculating RUC rates, such as Minnesota and Washington (for the pilot)
- Equity considerations being used or tested by states include: varying rates based on income groups, geography (rural-urban), and vehicle weight; capping RUC payments; and providing credits that can be used to offset future RUC payments
- RUC pilots have included manual odometer readings as a part of existing vehicle inspections/registrations and collaboration with the tolling industry. These pilot features were seen as a way to reduce administrative costs. Manual odometer readings were also considered a privacy option in the 2017 California Road Charge pilot.

Summary Findings from State RUC Pilots

1. Washington: Washington State Road Usage Charge Assessment Final Report. (2020) https://waroadusagecharge.org/wp-content/uploads/2020/01/WSTC-Final-Report-Vol-1-WEB-2020_01.pdf

Rate Setting Methodologies

- The State has $7 billion in outstanding or soon-to-be-issued highway construction bonds that would need to be paid via revenue generated from the gasoline tax. As a result, the gasoline tax would need to be in place for at least another 10 years, likely longer.
- RUC implementation can co-exist with the gasoline tax, as long as participants are refunded the gasoline tax that they pay at the pump
- More fuel-efficient vehicles receive a lower gas tax credit (as they refuel less), while less fuel-efficient vehicles receive a higher gas tax credit

- Projected costs of RUC to each vehicle were estimated based on scenarios of a different number of total vehicles enrolled in the program
- Fuel efficiency and annual VMT changes were used to estimate the financial impacts of transitioning from gasoline tax to RUC
- For out-of-state travelers, until a RUC system is more widely adopted throughout the Pacific Northwest region, the most cost-effective way to collect roadway taxes from out-of-state drivers is for them to continue to pay the gas tax
- The Washington RUC pilot project tested both pre- and post-pay approaches to RUC. Pre-pay approach involved a mileage permit. There was also research done on a time permit approach which would charge drivers a flat rate for use of the roads. The time permit rate is determined by estimating the mileage equivalent it should represent and then multiplying that by the per-mile rate
- Three scenarios for implementation: 1) introduce RUC for only electric vehicles in 2023, 2) introduce RUC gradually by MPG rating, including those above 20 MPG, over the course of a decade, and 3) introduce RUC for all new vehicles in 2025

Revenue streams covered

- The estimates of RUC rates are based on the equivalent revenue coming from the gasoline tax, including the revenue requirements of the outstanding bonds sold on the basis of increasing gas tax revenue

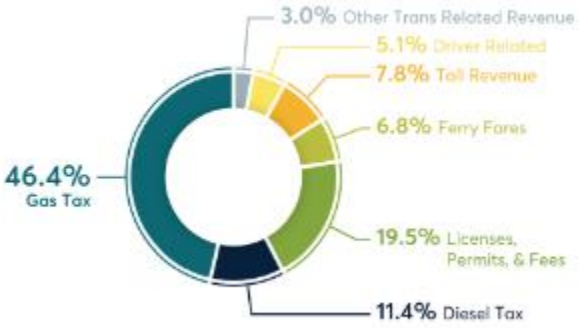

EXHIBIT 1.2
Revenue by Source, 2019–21 Biennium ($6.263 Billion)

Source: Transportation Revenue Forecast Council, November 2019.

Equity Considerations

- There is future direction to investigate a RUC rate that varies by vehicle weight, emissions (gas guzzlers or not), drivers' location, and drivers' income
- Below is a Scenario analysis on impacts of RUC on rural versus urban drivers using average annual VMT

Administrative Costs

Estimated administrative costs to administer a RUC using the manual odometer reporting option was about 7%, and 12% for the electronic odometer reading device. The HUB acted as a financial clearinghouse for the states of Washington and Oregon and successfully processed the submittal of miles driven in each other's states. RUC payments (real money) were collected from a small group of RUC pilot test drivers who traveled in each state.

The costs associated with operating a clearing house are as follows:

- Office rent or mortgage costs
- Transactional costs
- Database/Internet Technology Maintenance costs
- Administrative staffing
- Audit costs for the clearinghouse

2. **Oregon: Road User Fee Task Force Report to the Oregon Legislative Assembly. (2021) https://www.oregon.gov/odot/Programs/RUF/RUFTF_REPORT_2021.pdf**

Current Rate

The current rate is 1.8 cents/mile

Revenue streams covered

Unknown at the time of this study

Equity considerations

- Converting refunds of excess fuel taxes to non-refundable credits against future RUC charges
- Exempting vehicles with ratings of at least 40 mpg from paying enhanced registration surcharge fee

Administrative costs

- Piloted the feasibility of a connected vehicle ecosystem, where the mileage data is directly collected from the vehicles with the goal of lowering administrative costs
- Explore opportunities to collaborate with tolling agencies in Oregon who are more experienced in collecting and managing vehicle-level data and managing customer service centers

3. **Hawaii: Hawaii Road Usage Charge Demonstration Final Report. (2022) https://hiruc.org/hiruc-final-report-flipbook/**

Rate-setting methodologies

- Customized driving reports to reflect the distance driven by vehicle owners between their two most recent inspections
- Outreach to 360,000 vehicle owners
- Revenue neutral (for state gas tax) with gasoline tax: 0.8 cents/mile
- Future rate-setting would like to take vehicle weight into consideration (e.g. having a separate RUC rate for light-duty versus medium-to-heavy-duty vehicles)

Revenue streams covered

- The equivalent of gasoline and diesel tax revenues

- An identified need of $30.2 billion for state-owned transportation improvements from 2014 to 2035

Equity considerations

- The majority of early adopters of electric vehicles are higher-income households who are more financially able to transition from the gas tax to RUC
- Recommend transitioning the $50 annual flat fee for electric vehicles to a per-mile rate of 0.8 cents/mile with a cap of $70 per year
- Research of RUC implementation on rental car fleets to understand how they can equitably contribute to the revenue generation

Administrative costs

- Integrating the RUC program into the mandatory annual vehicle inspection to reduce administrative costs

4. Colorado: Colorado Road Usage Pilot Program Final Report. (CDOT-2017-11) (2017) https://www.codot.gov/programs/ruc/documents/final-survey-report

Rate-setting methodologies

- 1.2 cents/ mile in the pilot project
- The rate was set to be revenue-neutral with a gasoline tax, assuming the average MPG of the Colorado fleet
- Revenue-neutral rate with the gas tax should be first implemented, with potential future improvements to vary rates by vehicle weights, etc.
- Can consider rolling administrative costs into the RUC rate

Revenue streams covered

- The equivalent of gasoline tax revenues

Equity considerations

- Consider vehicle miles-per-gallon (MPG) and driver geographies in recruiting participants, so the pilot can provide insights into the impacts of RUC on different populations

Administrative costs

- Costs of building and updating the website for RUC information will be an additional administrative cost

5. **Utah: Utah Road Usage Charge Report as required by Senate Bill 150 (2021)**
   https://le.utah.gov/interim/2021/pdf/00002250.pdf

Rate-setting methodologies

- Revenue-neutral RUC rate with the gasoline tax, computed at the average MPG of the vehicle fleet and indexed to inflation
- The current fleet average MPG is 20 mpg

Revenue streams covered

- The equivalent of gasoline tax revenues

Equity considerations

- Annual RUC fee capped at the annual flat fee schedule that plug-in hybrid electric vehicles (PEVs) and gas hybrids would need to pay. At the time of this literature review, the fee schedule posted online was as follows:
  - Electric vehicle - $123 for 2022 and $130.25 for 2023
  - Plug-in hybrid vehicle - $53.25 for 2022 and $56.50 for 2023
  - Gas hybrid vehicle - $20.50 for 2022 and $21.75 for 2023

  This information is available online here: https://roadusagecharge.utah.gov/faq.php

Administrative costs

- Learning by doing and creating a competitive market for account managers to bid for RUC implementation could reduce administrative costs

6. **California: California Road Charge Pilot Program (2017)**
   https://caroadcharge.com/media/htbpngos/rcpp-final-report-a11y.pdf

Rate-setting methodologies

- Revenue-neutral RUC rate with gasoline tax (5-year average gasoline tax), computed at the average MPG of the entire California fleet
- 1.8 cents/ mile
- A distinct rate is computed for heavy-duty vehicles that run on diesel

Revenue streams covered

- The equivalent of gasoline and diesel tax revenues

Equity considerations

- Specifically focused on the impacts of RUC on lower-income households who may drive older and less fuel-efficient vehicles, and on rural versus urban drivers

Administrative costs

- Potential to integrate manual mileage reporting with smog checks to reduce admin costs.

7. **Minnesota: The Minnesota Department of Transportation (2022). Final Report: Minnesota Distance-based Fees Project.** https://dbf.dot.state.mn.us/media/final_report_2022/Minnesota%20Distance-Based%20Fees%20Project%20Final%20Report%20August%202022.pdf

   Rate-setting methodologies
   - 2.7 cents/ mile
   - RUC rate accounted for both the state and federal motor fuel tax
   - Considered fleet-based vehicles in their pilot because they make up a large percentage of trucks in the United States
   - State RUC rate = state fuel tax revenue / total state VMT
   - Federal RUC rate = federal fuel tax revenue / total federal VMT

   Revenue streams covered
   - The equivalent of motor fuel taxes revenue

   Equity considerations
   - Per mile RUC rate should be adjustable based on household income, vehicle weight, and time-of-day
   - To reduce congestion by 10%, an additional 0.9 cents/mile RUC should be employed
   - To account for wear-and-tear from heavier vehicles, the additional charge ranges from 0.02 cents/mile to 0.07 cents/mile for cars to semi-trucks

   Administrative costs
   - Reduction in collection points reduces administrative costs of RUC

8. **Eastern Transportation Coalition: Exploration of Mileage-based User Fee Approaches for All Users. (2022)** https://tetcoalitionmbuf.org/wp-content/uploads/2022/02/Exploration-of-Mileage-Based-User-Fee-Approaches-for-All-Users_Condensed-1.pdf

   Rate-setting methodologies
   - For the national truck pilot, tiered rates were implemented based on four MPG ranges
   - Future rate settings for trucks should account for vehicle weights
   - For the passenger vehicle pilot, the revenue-neutral rate was computed by dividing the state fuel tax by the national fuel economy average: 23 MPG
   - A tiered rate-setting approach was also considered for passenger vehicles

   Revenue streams covered
   - The equivalent of motor fuel tax revenue at the State level

Equity considerations

- Financial impacts of revenue-neutral RUC were estimated by classifying households in Delaware, New Jersey, North Carolina, and Pennsylvania into five geographic classes, analyzing each class' travel behavior and their vehicle fleet.
- Travel behavior estimation conducted on the Local Area Transportation Characteristics for Households (LATCH) dataset from the U.S. Bureau of Transportation Statistics
- Rural and mixed geographic drivers may pay less with RUC than gasoline tax, while most drivers would be minimally impacted, amounting to about an annual increase or decrease of $18
- Tiered RUC rates based on MPG ranges introduced drastic differences in RUC payments for trucks that fall into one category versus. the other

Administrative costs

- Conducted pilot to test account management integration with tolling agencies to consolidate account creation, invoicing, and customer service