BRIEFING BOOK FOR THE CALIFORNIA ROAD CHARGE TECHNICAL ADVISORY COMMITTEE

Pre-Meeting Background Reading for TAC Meeting #4

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Jeff Doyle 4/9/201

Section 1:
TAC Decision Schedule

Summary of TAC Decisions and Preview of Schedule

This section summarizes the TAC's decisions made to date, and previews issues the TAC must consider and decide upon during the remaining meetings for 2015.

- The Decisions Summary page displays: decision points that the TAC has addressed in prior meetings; any actions taken; and a brief summary of the TAC's proposal that reflects more detailed direction on pilot design.
- Second, following the Decisions Summary page you will find a table displaying the Decisions Schedule at-a-glance, providing an overview of all remaining questions the TAC needs to address, organized chronologically according to when the question will be raised and discussed at TAC meetings, and indicating which work streams will inform the TAC's discussion.
- Finally, Appendix 1 (Detailed Monthly Decision Schedule) provides a more detailed look at each of the 9 remaining TAC meetings, from April through December. These pages include topic areas that each meeting will cover; statutory language associated with each topic area; and any corresponding TAC decision points to address in the meeting.

The Decisions Summary will be updated each month to reflect decisions made. Although CTC staff, Caltrans, and the consulting team recommend that the TAC achieve consensus and direction on the questions in the timeframes presented, the Decision Schedule remains a living document. Any changes, such as moving questions up or down on the schedule or adding new questions will be reflected in the briefing materials each month and discussed at each meeting.

MONTH	TAC DECISION POINTS	ACTION	TAC PROPOSAL SUMMARY
March	Should automated distance recording and reporting be offered in addition to manual methods?	Yes	Only test automated options capable of deployment in 2016. Advance all 4 manual options to the next stage of analysis. Adopt open system principles with appropriate privacy safeguards. The TAC will address specific privacy protections at the May 2015 meeting.
	Should a GPS-based option for recording mileage be offered in the pilot?	Yes	
	Should the road charging pilot system simulate an open system option?	Yes	
	Input to TAC communications process.	Approach ratified	

Decisions Schedule at-a-glance

MONTH	TOPICS	TAC DECISION POINTS TO BE RAISED
April	Technical Design	What mileage measurement and reporting method(s) are most promising?
		What technologies should be further studied to pursue those measurement and reporting methods?
		Should the pilot assess road charges on out-of-state vehicle owners driving on California roads?
	Organizational Design	Should the pilot test interoperability with other states considering road charges?
		Should the pilot test offer multiple account managers?
May	Policy	What types (households, businesses, etc.) of participants should be included in the pilot?
		Are there any exemptions from road charging?
		What specific personal privacy protections should be used for the pilot?
	Business Case	What vehicles are included in the pilot – all vehicles or passenger only?
June	Technical Design	What system data security requirements should be used for the pilot?
		How many participants should be involved in the pilot?
		How should participants be distributed throughout the state?
	Evaluation Strategy	What evaluation criteria does the TAC recommend for the pilot?
July		[Comprehensive review of TAC Decisions made to date]
August	Technical Design	What type of enforcement and compliance activities should be demonstrated during the pilot?
September	Evaluation Strategy	Finalize evaluation criteria.
	Policy	Address additional questions raised during the course of TAC meetings.
	Communications	Has the TAC adequately gathered, considered, and addressed public comment on pilot issues?
October	Report to CalSTA	Feedback on report outline.
	Policy	Address additional questions raised during the course of TAC meetings.
November	Report to CalSTA	Feedback on draft report.
December	Report to CalSTA	Adopt final report on recommendations to CalSTA.

Section 2: Policy Overview

To be discussed during Agenda Item #6

Policy Overview for Meeting #4

Continuing from the introduction and discussion of pilot program technical design that started in March, this month we extend the discussion to present the technical and organizational characteristics of a road charge program from a road user's perspective. **One of the goals for the April TAC meeting is to narrow the range of road charging methods and technologies that will be available in the pilot**. In addition, this month we begin the discussions around who should be included in the pilot, and to what extent the pilot should be integrated with other usage-based road charges outside California.

As shown in the Decision Schedule, this month, we would like to reach consensus on five new policy questions:

1. **What mileage measurement and reporting method(s) are most promising?**
2. **What technologies should be further studied to pursue those measurement and reporting methods?**
3. **Should the pilot assess road charges on out-of-state vehicle owners driving on California roads?**
4. **Should the pilot test interoperability with other states considering road charges?**
5. **Should the pilot test offer multiple account managers?**

The remainder of this section provides context and data to support the policy dialog that leads to answers to each of these questions. The following sections of this Briefing Book provide more detailed technical information.

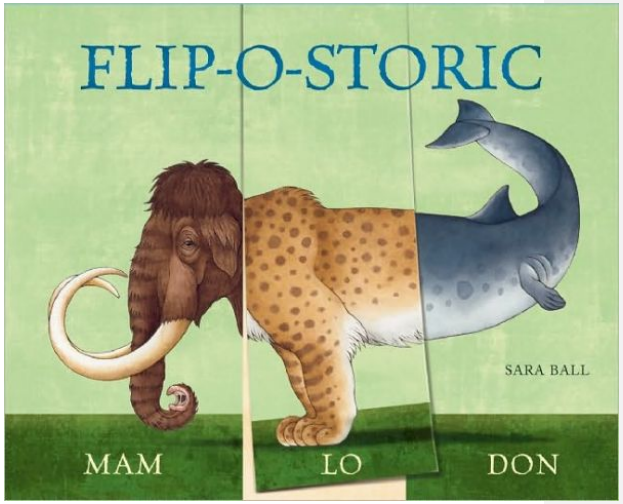
Question 1: What mileage measurement and reporting method(s) are most promising?

This month we pick up where March's introduction to road charging operational concepts left off, with the goal of more clearly defining the list of operational concepts (and supporting technologies) that will move forward into the pilot. The seven core operational concepts for road charging will be re-presented, this time from the perspective of the road user and with emphasis on the motorist's experiences with sign-up, payment, and driving under each. During the April TAC meeting we will also present the results of the March "homework" assignment for the TAC's consideration and further discussion.

Key policy considerations to keep in mind while making the determination about which specific measurement and reporting methods are most promising include:

- Will the set of choices offered allow most drivers' individual preferences to be respected?
  - Some motorists will prefer highly automated options, while others will prefer manual options.
- Suitability for the diversity of the vehicle fleet
  - Is at least one method available to support each part of the range of vehicles in the fleet?
  - For instance, a 1969 Cadillac DeVille does not have an OBDII port, but at least one of them is registered in California; it will require some other option for measurement and reporting.
- Management of the tradeoff between cost and user acceptance.

Question 2: What technologies should be further studied to pursue those measurement and reporting methods?



The various operational concepts are supported by enabling technologies. Most of the concepts can be implemented using more than one set of technologies – for instance, pre-purchased mileage permits can be paper-based (much like a windshield registration sticker) or electronic (linked to a license plate). Registration for the mileage-permit option could occur in-person at a state office, or on a website. Acquisition of the permits can be cash-based at a retail location or completed in a smart-phone app using a credit card.

The variety of options available for road charge program sign-up, mileage measurement and recording, mileage reporting, and payment starts to resemble the “flip-books” children read, in which they can mix and match components of animals, machines, or flowers to build their own perfect creation.

As the TAC begins to define the list of technologies to move forward for the pilot program, the following considerations are important:

- Respect for privacy concerns
  - GPS-based technologies offer conveniences to motorists who do a significant portion of their driving outside California or on private roads, and recent in-vehicle technology developments minimize or even eliminate the transmission of location data outside the vehicle.

Question 2: What technologies should be further studied to pursue those measurement and reporting methods? (continued)

- Non-location-based technologies and non-electronic reporting will be offered as options for those who desire them.

- Accessibility of the various registration methods
  - While many people may prefer the convenience of using a website or smartphone to register their vehicle in a road charging program, there are significant disparities in high-speed internet access and smartphone ownership based on age, income, and geographic location.
  - Those who do not have access to these technologies should have an alternative.
- Adequate range of payment methods
  - Many motorists will prefer an electronic payment option such as credit card or pre-authorized bank debit, but the range of payment methods offered should not place undue costs or inconvenience on motorists without bank accounts, or who simply prefer to deal in cash.
  - According to the FDIC, 7.8% of California households were unbanked in 2011 and an additional 18% were underbanked.

Question 2: What technologies should be further studied to pursue those measurement and reporting methods? (continued)

Alignment of Operational Concepts to Technologies

Operational Concepts:	Corresponding Technology:
Concept 1: Time Permit	Time Permit Technology
Concept 2: Engine Run Time	Engine Run Time Technology
Concept 3: Mileage Permit	Mileage Permit Technology
Concept 4: Odometer Charge (post-pay) **Concept 5:** Odometer Charge (pre-pay)	Odometer Technology
Concept 6: Automated Mileage Reporting with No Location Data **Concept 7:** Automated Mileage Reporting with General Location	Usage-based Insurance Devices Smartphone Telematics Other Location-based Devices

Question 3: Should the pilot assess road charges on out-of-state vehicle owners driving on California roads?

In the context of a fully-operational road charging system, the questions of ***whether*** and ***how*** to charge out-of-state vehicles while they are using California's road network will arise as part of discussions of three key areas:

- Equity — Are California motorists unfairly subsidizing road use by out-of-state motorists?
- Enforcement — How does the state compel out-of-state motorists to pay for using California roads when the gas tax is no longer in place?
- Fiscal sustainability — Are we capturing all the revenues we should?

It may be a worthwhile exercise to include a small number of out-of-state vehicles in California's pilot program as a way to begin to assess the feasibility, desirability, and effectiveness of assessing road charges on out-of-state vehicles in a potential future operational system.

If the decision of the TAC is to include out-of-state vehicles in the pilot, there are several considerations:

- Owners of out-of-state vehicles must be treated the same as California residents in terms of the road charges they pay.

Question 3: Should the pilot assess road charges on out-of-state vehicle owners driving on California roads? (continued)

- It could be possible to allow owners of out-of-state vehicles to register their vehicles with one of California's commercial account managers in order to use one of the automated reporting methods.
  - This possibility raises a significant and far-reaching policy question about whether California will provide non-residents access to its road charge account managers and full range of payment options.

Question 4: Should the pilot test interoperability with other states considering road charges?

The concept of interoperability supposes that independent Road Charge systems share a common set of standards to support the recording and reporting of road usage across multiple jurisdictions with a single device. Characteristics of interoperability with other states include:

- California pilot participants who selected location-based mileage recording could drive (and record mileage) in other participating state(s) without additional devices.
- They would receive and pay a single bill for travel in all states.
- States could develop agreements to remit any funds collected in one state to the state where the mileage was driven.
- Road Charge users from other states would be able to measure and report mileage driven in California without the use of additional devices or short-term permits.

In the long-term, if multiple states adopt road charging, interoperability with other states will be desirable, and likely expected by motorists. Interoperability directly addresses the issue of how to treat out-of-state drivers (if they come from a state with an interoperable system, miles driven in California will be credited to California). Key considerations include:

- Standards for data formats would have to be developed and agreed to by all participating states. This would most likely require a multi-state committee or working group.
- Policy and IT infrastructure to support transfers of funds from one state to another would have to be established.

Question 5: Should the pilot test offer multiple account managers?

The concept of offering road users the option to register their accounts with one of several commercial account managers (private companies that provide invoicing, bill payment, and account management services) is complementary to using an open system approach. Account managers compete with one another for the right to service an individual's road charge account, and may offer value-added services.

In an operational setting, using multiple commercial account managers has the potential to:

- Reduce the overall cost of a road charge system by fostering competition,
- Increase technical innovation, and
- Reduce technical risk to the state.

However, those benefits may or may not be realized in the much shorter period over which the pilot test will be conducted.

From a policy perspective, the key issues are as follows:

- The state should consider regulating and certifying any company that wishes to enter the market. This would result in a new regulatory framework.

Question 5: Should the pilot test offer multiple account managers? (continued)

- Private entities may not wish to service high-risk road users. For instance, a commercial account manager might refuse to provide account services to someone who habitually fails to pay their road charges. Some other (state-managed) option must be available for these motorists.
- For the pilot test, offering multiple “real” account managers (not simply simulated account management options) will increase the effort required for pilot program procurement.

Section 3: Operational Concepts and Enabling Technologies System Architecture

To be discussed during Agenda Item #7

Introduction

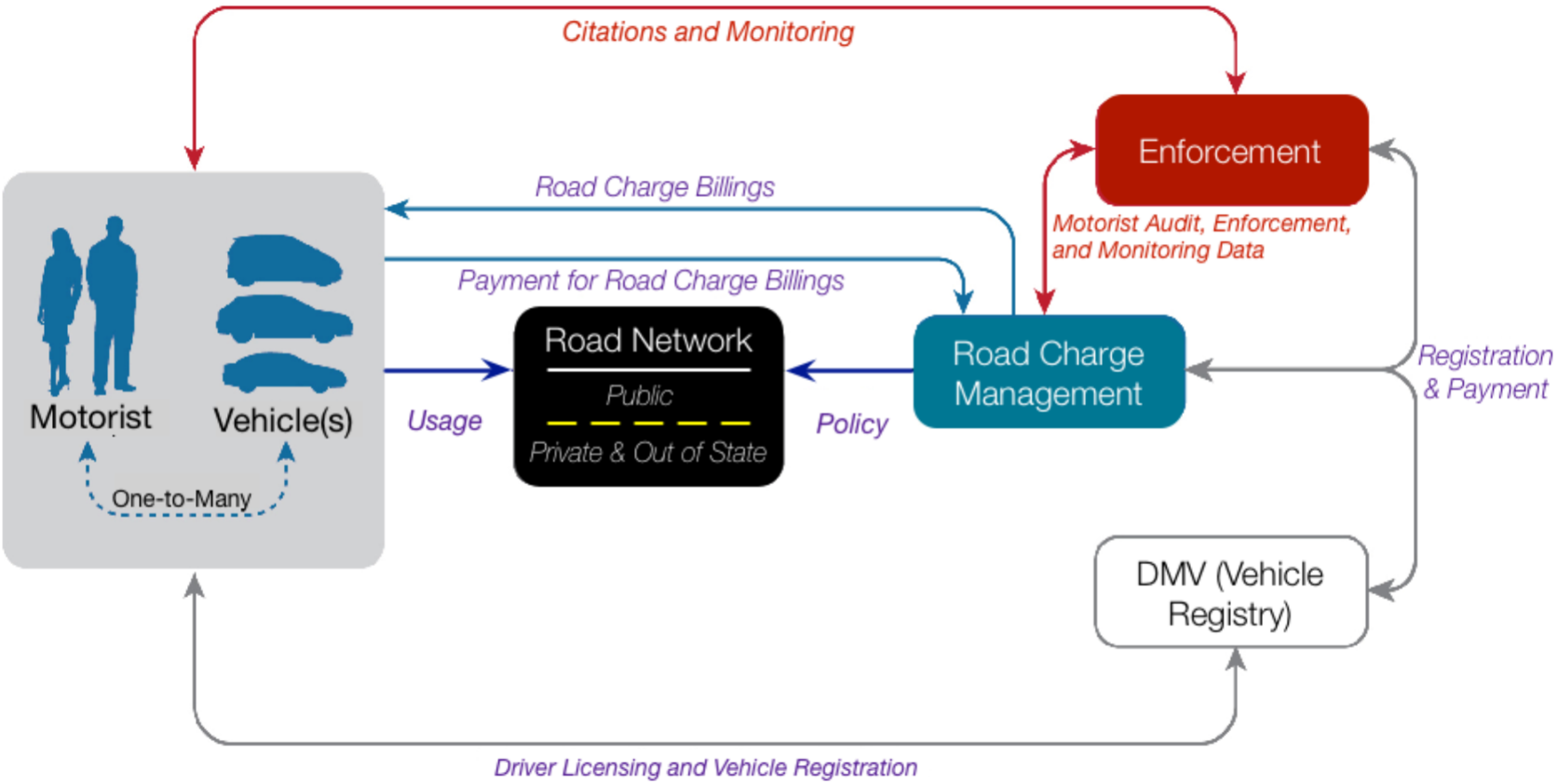
In this section we will delve into two primary subjects the first will be a high level overview of a complete road charging system. Following that will be a comprehensive study of the user experience with the six operational concepts and four enabling technologies of the automated concepts. The homework assignment issued to the committee members at the March TAC meeting (assignment found in the Appendix of the March Briefing Book materials) will help to provide a rounded opinion of the various concepts and technologies that will considered later in this section.

Complete Road Charging System Overview

The system overview shows the primary interactions of the user and the entities the user will interact with. Two distinct system overviews are presented:

- One in which account management is performed by the state (pg 18-23), and
- One that includes commercial account managers (pg 24-27).

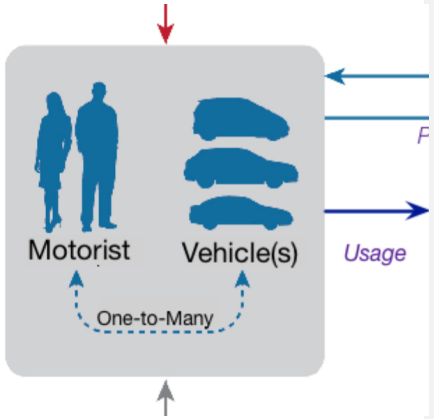
System Overview without Commercial Account Managers



This diagram illustrates the relationship between the motorist and the various entities in the state that play a role in road charging in the case without commercial account managers, or if the operational concept chosen does not involve commercial account managers. The individual elements are presented on the following pages.

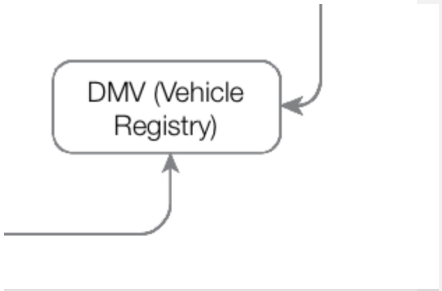
Motorist

The motorist is the individual who is responsible for paying the road usage charge.



- This person is generally the person responsible for registering the vehicle, which may not be the person or corporation who owns the vehicle.
  - In particular, for leased vehicles, the lessee would be responsible
- The motorist may have more than one vehicle registered in his/her name.
  - In particular, businesses may have multiple vehicles registered in their names.

DMV



No decisions have been made about the roles of state agencies in any potential future road charging program. However, as the primary point of contact between the motorist and the state regarding vehicular registration and licensing, the DMV is certain to have some role in any potential future program. The DMV may not be involved in the pilot program. Thus, the role played by the DMV may be simulated during the pilot program.

- The motorist is required to register each vehicle with the DMV.
- The DMV informs the Road Charge Management of the vehicle's being registered (including whether the vehicle would be liable for the road charge under any adopted set of rules.
- At the time of registration, the DMV informs the motorist about the details of the road charge and whether the vehicle being registered is subject to it. Information may be provided in person at DMV locations, or via Internet.

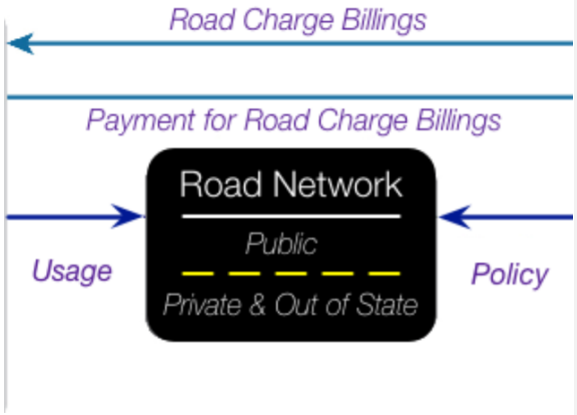
Road Charge Management

Road Charge Management is the new body created in California government that is responsible for executing all duties that a potential future road charging bill would assign to state government, including the duties of account management for those concepts that the state will perform directly, oversight of account managers, and other duties. The role of road charge management will be simulated during the pilot program, as will the role of the DMV.

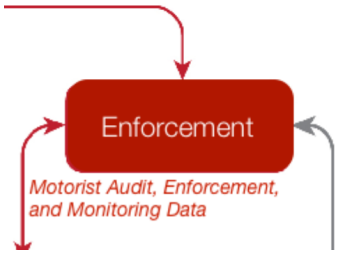
- At the time the motorist registers a vehicle, the DMV will present the available options for registering the vehicle for the road charge.
  - For the available operational concepts operated by the state, the motorist will have the opportunity to register the vehicle immediately at the DMV offices.
  - All information about the road charging program provided at the DMV will be available via internet, and possibly by other information channels.
- The motorist registers that vehicle for the road charge, and thus establishes a relationship with the Road Charge Management body within the state government.
  - The case where the motorist chooses an operational concept supported by a commercial account manager is illustrated in the next diagram.
- In a potential future road charging program, the motorist-facing portion of this body (shown here as “Road Charge Management”) could certainly be housed within the DMV, this assumption is not made here—it is illustrated as a separate body.
- Either prior to use of the roadway (in the case of the time permit, the mileage permit, or pre-pay odometer charge) or afterwards (in the case of the other operational concepts), the motorist is presented with the charges, and the motorist pays for the road charge.

Roadway Network

- In return for payment of the road charges, the motorist uses (drives on) the roadway network, which is composed of public, private and out-of-state roads.
- Depending on the operational concept chosen, there may be no charge for private and out-of-state roads.
- The Road Charge Management implements legislative policy for road charging, and in some cases may have a role in setting road charge policy.

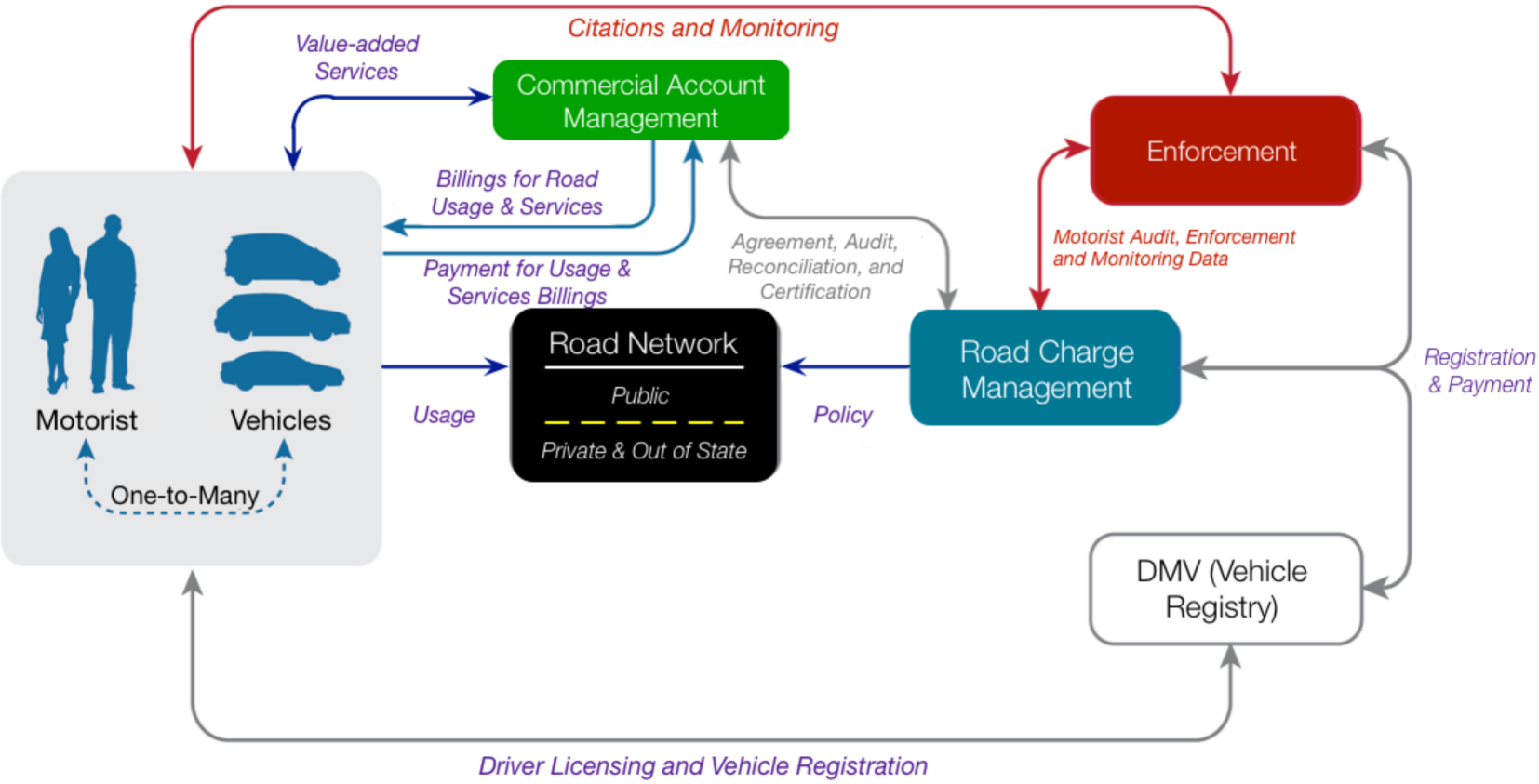


Enforcement



- The Road Charge Management passes on relevant information to an enforcement body.
  - The enforcement body could be California Highway Patrol, local police, other enforcement officers, or some combination of these groups.
- With the information from Road Charge Management, enforcement officers may be able to determine (manually or automatically) that any given vehicle is registered for the road charge,
- They may also be able to determine any relevant information for the operational concept chosen for that vehicle.

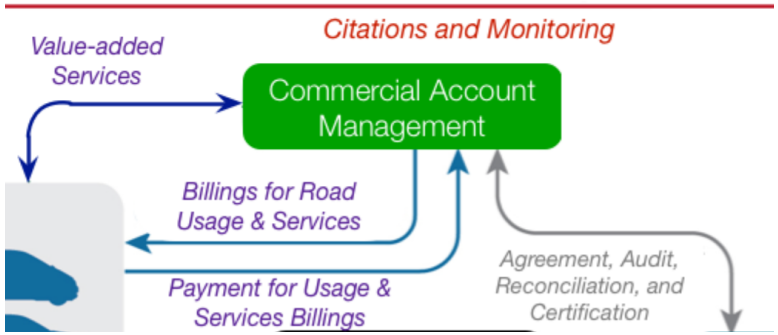
System Overview with Commercial Account Managers



In the case that the motorist selects an operational concept with a commercial account manager, this diagram applies. In this case, the same bullets apply as given above, except for the road charge management bullet, which no longer applies, because the motorist has no interface with the Road Charge Management body. Instead, the user has an interface with the commercial account manager.

Commercial Account Management

(CAM)



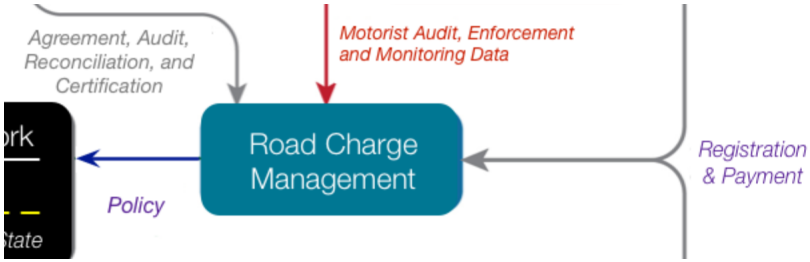
- In the case that the motorist chooses an operational concept supported by the commercial account managers, the motorist chooses the CAM that he/she prefers, and registers the vehicle with it.
- Depending on the rules adopted, the CAM may be allowed to reject a motorist application (e.g., for being known to have frequently failed to pay road charges invoiced by a CAM before). In that case, the motorist must apply for an operational concept that is supported by the state, intended as a concept for those who are rejected by commercial account managers.
- The CAM provides the motorist instructions (and possibly hardware) for recording and reporting distance traveled. Installation/setup varies by operational concept, and is discussed below.
- The CAM also provides the motorist information about any potential value added services offered.
- The CAM reports to the Road Charge Management the fact that the motorist is registered with them.
- The motorist drives on (uses) the roadway network. If the motorist is signed up for Automated Reporting with General Location, the motorist is not charged for travel out-of-state or on private roads.

Commercial Account Management (continued)

- Then periodically, the CAM sends the motorist an invoice for roadway usage, electronically or on paper, at the motorist's preference. The motorist's bill is likely combined with any costs for value-added services he/she has with the CAM. The motorist pays the bill with one of the available methods, possibly setting up auto-pay.
- The CAM also sends aggregate data on roadway usage to the Road Charge Management, obeying all privacy conditions in their contract (Agreement) with the state. The CAM also pays the state the road charges that they collect, per the terms and conditions of their contract (Agreement).

Road Charge Management with Commercial Account Managers

In addition to the functions described above in the system overview without commercial account managers, Road Charge Management plays the following roles when Commercial Account Managers are present.



- The Road Charge Management certifies all commercial account managers, possibly using an external certification body, before they are allowed to offer road charging services to the California public.
- At the time of registration, the DMV will also provide a list of currently certified commercial account managers to the motorist, and provide the motorist the rules of the road charging program.
- Road Charge Management receives a regular, likely automated, transmission of financial and mileage data from all CAMs.
- Using this data, the Road Charge Management performs audit and reconciliation to verify that the CAMs have accounted for all miles correctly, and that they have transmitted the appropriate money to the state.
- In cases where the Road Charge Management notices inconsistences or would like to investigate an incident further, it may request more data from the commercial account managers.

User Experiences with Operational Concepts and Enabling Technologies

This section presents the following:

- User experience for each of the six operational concepts, including registration, use, and payment under each and relevant TAC considerations (pg 29-42);
- User experience for the four technologies for automated operational concepts (pg 41-46);
- Fuel tax refunds (pg 47);
- A list of other user scenarios (pg 48);
- Additional notes on odometer fraud (pg 49); and
- Implications of including out-of-state participants in the pilot (pg 50-53).

The following pages present the user experience with the six operational concepts in the form of a FAQ. The questions answered are the following:

- How is road use recorded and reported?
- When do I register and pay?
- Where do I register and pay?
- What is it like to drive with this operational concept?

Following the user perspective on each concept, some additional questions that the TAC may have about each concept are answered in the form of a FAQ. The questions answered are the following:

- What are the technical options from which the TAC may choose for the pilot?
- How will this concept be enforced?
- What are the challenges or drawbacks?

Finally, this section presents the user perspective on each of the four technologies that enable the automated concepts, also in the form of a FAQ. The questions answered are the following:

- How do I install the device and set up the service?
- What unique requirements or features does the device have?

Concept 1: Time Permit—User Perspective

How is road use recorded and reported? Motorists buy time permits to drive an unlimited number of miles for a given period of time (such as a year, half-year, quarter, or month).

When do I register and pay? The time permit should be purchased prior to the start of the period for which the permit is valid. When you neglect to do so, the state may allow the permit to apply retroactively for the time gap when vehicles were not covered. However, the state may assign a penalty if you go more than a certain number of days (grace period) without a valid permit / operational concept.

Where do I register and pay? You may be able to buy permits at the time of vehicle registration. In that case, they could be obtained at a DMV office location. You could also order them over the Internet or via a smartphone application. You may be able to buy time permits in a retail store in the form of a gift card. The gift card could have a secure scratch off number that you use to activate the time permit. This could be done using a smartphone app, Internet, or by a voice recognition system from any phone (which may be available in several languages).

What is it like to drive with a time permit? While the time permit is valid, you may drive as you normally do. The only information you need to remember is the end date of the permit. The state may provide an inside-the-windshield sticker that lets the motorist record the time permit expiration date (similar to an oil-change reminder sticker). These stickers may be packaged with time permit gift cards sold in retail outlets or could be ordered in advance by mail. You could also get a reminder from a smartphone app or Internet website (e-mail, text message, or automatic voice call reminder).

Concept 1: Time Permit—TAC Perspective

What are the technical options from which the TAC may choose for the pilot? If visual checks by officers are the primary method of enforcement, window stickers should be used. Otherwise, electronically registering the license plate number on the time permit is the only step necessary. That can be done by smartphone app, Internet, or telephone.

How will this concept be enforced? Either by visual checks of valid window permits by enforcement officers, or by electronic checks that a valid time permit is associated with the license plate number. Electronic checks may be automatic (by automatic license plate cameras mounted on enforcement vehicles or in stationary positions) or manual (enforcement officers type in license plate number into their computers).

What are the challenges or drawbacks of the time permit?

- The time permit is not distance-based. Because the time permit itself is a “sunk cost,” drivers may tend to drive more once it is purchased.
- Also, in order to prevent overuse of the road by drivers on the time permit, the cost for each permit category should be based on a relatively high number of miles driven per day in relation to the duration of the time permit.

Concept 2: Engine Run Time—User Perspective

How is road use recorded and reported? An in-vehicle device measures engine run time and reports it to an account manager. For some vehicle types (e.g., electric vehicles), an algorithm (speed>0) may be used to determine if the engine is running.

When do I register and pay? You register with an account manager before you drive the vehicle. The account manager gives you or a professional mechanic the equipment that must be installed by a professional mechanic. The account manager periodically invoices you for minutes of engine run-time.

Where do I register and pay? You may register online or by smartphone app. In addition, the account manager may have retail locations. If the account manager is the state, existing state offices, potentially DMV locations, may be used. Partner auto mechanic shops and dealers could be engaged.

What is it like to drive with an engine run time measurement device? The device will likely be unnoticeable to the driver, but drivers will become very aware of all minutes spent in the vehicle with engine running, because for every minute they are paying more.

Concept 2: Engine Run Time—TAC Perspective

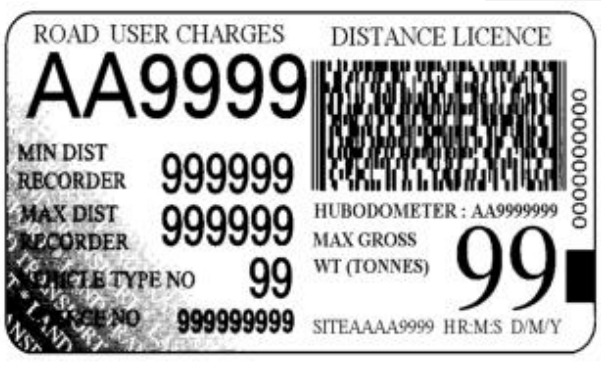
What are the technical options from which the TAC may choose for the pilot? A new device would need to be developed that includes a vibration sensor or other sensor that detects when the motor is turned on and vehicle anchor (means of ensuring it is attached to the vehicle).

How will this concept be enforced? The device will be installed by a professional mechanic. It will be able to determine when it has been removed from the vehicle, and data on removals from the vehicle will be analyzed to determine likely violations.

What are the challenges or drawbacks?

- The device could be seen to encourage speeding; and could cause motorist dissatisfaction with roadway infrastructure available.
- Also, a device designed for mass-production has not been developed yet.
- There is no straightforward mechanism to provide credits for out-of-state/off-road miles driven.
- Account managers may require motorists have a minimum credit score, thus potentially excluding some of the population.

Concept 3: Mileage Permit—User Perspective



How is road use recorded and reported? Roadway use is recorded by the vehicle odometer. It is reported when you buy a permit, authorizing your vehicle to be driven on the roadway network for a given number of miles.

When do I register and pay? You buy the mileage permit before driving your vehicle. If you neglect to do so, the state may allow the permit to be made retroactive for the miles (odometer gap) when the vehicle was not covered. The state may charge you a penalty if you drive more than a certain number of miles (grace distance) following the end of validity of the last mileage permit.

Where do I register and pay? You may be able to buy time permits at the time of vehicle registration. Thus, you could get them at a DMV office location. You could also order them over the Internet or via a smartphone app. You may be able to buy mileage permits in a retail store as a gift card. The mileage gift card could have a secure scratch off number that you would use to activate the mileage permit. This could be done using a smartphone app or over the Internet, or by a voice recognition system from any phone (which may be available in several languages).

What is it like to drive with a mileage permit? Motorists simply drive until the mileage on the permit is expired. Motorists may wish to have an inside-the-windshield sticker reminding them of the mileage at which it expires (similar to an oil-change reminder sticker). Such stickers could be provided with the mileage permit gift card option. Reminders could also come from a smartphone app or Internet website (e-mail, text message, or automatic voice call reminder).

Concept 3: Mileage Permit—TAC Perspective

What are the technical options from which the TAC may choose for the pilot? If visual checks by officers are the main method of enforcement, window stickers should be used. Otherwise, electronically registering the license plate number for the mileage permit is the only step necessary. That can be done by smartphone app, Internet, or phone.

How will this concept be enforced? An official odometer reading for each associated vehicle may be required before the motorist is enrolled in the mileage permit operational concept. In the case of newly purchased vehicles, this could be done by the dealer. In case of motorists switching from another concept, this could be done by an official or authorized representative. Enforcement will either be visual checks of window permits by enforcement officers, or electronic checks that a valid time permit is associated with the vehicle. Electronic checks may be automatic (by license plate cameras mounted on enforcement vehicles or in fixed positions) or manual (enforcement officers type in license plate number on their computers).

What are the challenges or drawbacks?

- The potential for odometer fraud is a challenge.
- Another challenge is the legal requirement to notify motorists that their vehicle registration is about to expire—this requirement may extend to a potential mileage permit payment of a road charge. A potential solution is having an automated way for users to check the validity of their permit by entering their odometer reading on a smartphone app, or via phone.
- There is no straightforward mechanism to provide credits for miles driven out-of-state and on private roads.

Concept 4: Odometer Charge (post-pay)—User Perspective

How is road use recorded and reported? Roadway use is recorded by the vehicle odometer. You report an odometer reading, either a reading you make yourself, or an authorized agent of the state makes for you. If you report it yourself, you may do so by Internet, smartphone app, or mail-in postcard.

When do I register and pay? You register for the odometer charge before they commence driving. An official “start” odometer reading is recorded at the time of registration. No payment is required at that time—you pay at the end of the year, when renewing the registration for the concept, or quarterly, or monthly, depending on final design choices in a potential future road charging program.

Where do I register and pay? You may potentially register at the time of vehicle registration. If an odometer reading by an official is required, registration may be made at a DMV office or an authorized agent of the state (e.g., vehicle mechanic or dealer). If you report the odometer reading yourself, registration could be done over the Internet, via smartphone app, or via phone.

What is it like to drive with an odometer charge (post-pay)? You simply drive as you normally would.

Concept 4: Odometer Charge (post-pay)—TAC Perspective

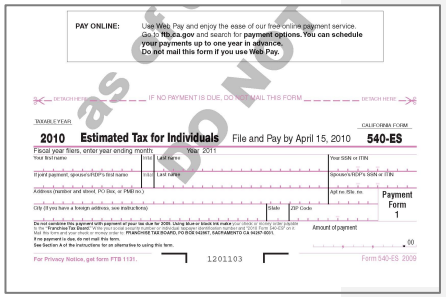
What are the technical options? Odometer reporting by motorist (via web, smartphone app, phone, or mail-in postcard); or odometer inspection and reporting by official or authorized representative.

How will this concept be enforced? To ensure odometer readings are reported accurately in the case of self-reported odometer readings, spot odometer checks by enforcement officers may be employed. These spot checks could be combined with potential mandatory official odometer readings for a certain percentage of drivers. To discourage digital odometer tampering in the case of either self-reported or officially reported odometer readings, reported odometer readings should be analyzed for suspicious behavior. In cases of suspicious behavior, audits of certain individuals, including looking for odometer reading records in repair shops they have used, and asking them questions about location of residence, employment, and driving habits, may be conducted.

What are the challenges or drawbacks?

- Potential for odometer fraud.
- No straightforward mechanism to provide credits for miles driven out-of-state and on private roads.
- Payment at end of the year means a one-time transition to an annual post-pay mechanism, possibly leading to cash flow issues.
- Payment at end of year means that there is more opportunity for a motorist to move out-of-state and fail to pay road charges—while California could attempt to pursue the motorist with a penalty fine, such legal actions could be costly and time-consuming.

Concept 5: Odometer Charge (pre-pay)—User Perspective


PAY ONLINE: Use Web Pay and enjoy the ease of our free online payment service. Go to **ftb.ca.gov** and search for **payment options. You can schedule your payments up to one year in advance. Do not mail this form if you use Web Pay.**

DETACH HERE — IF NO PAYMENT IS DUE, DO NOT MAIL THIS FORM — DETACH HERE

TAXABLE YEAR

CALIFORNIA FORM

2010 Estimated Tax for Individuals File and Pay by April 15, 2010 **540-ES**

Fiscal year filers, enter year ending month Year 2011

Your first name | M.I. | Last name | Your SSN or ITIN

If joint payment, spouse's/RDP's first name | M.I. | Last name | Spouse's/RDP's SSN or ITIN

Address (number and street, PO Box, or PMB no.) | Apt no./Ste. no.

City (If you have a foreign address, see instructions) | State | ZIP Code

Payment Form 1

Do not complete this payment with payment or your tax due for 2009. Using blue or black ink **make** your check or money order payable to the **"Franchise Tax Board."** Write your social security number or individual taxpayer identification number and "2010 Form 540-ES" on it. Put tax form and your check or money order in the envelope and mail to: **FRANCHISE TAX BOARD, PO BOX 942857, SACRAMENTO CA 94267-0001.**

If no payment is due, do not mail this form.

See Section A of the instructions for an alternative to using this form.

Amount of payment: . 00

For Privacy Notice, get form FTB 1131. 1201103 Form 540-ES 2009

as of DO NOT

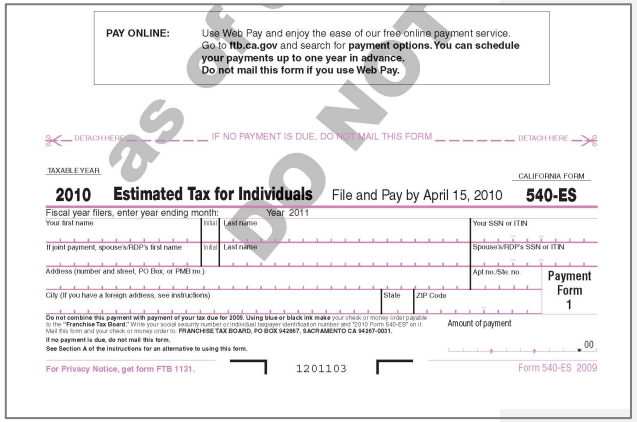
When do I register and pay? You register and pay for the odometer charge before you commence driving. An official "start" odometer reading is recorded at the time you register, and you pre-pay at that time. You estimate a mileage for the next year based on state guidelines (e.g., mileage driven in previous years; 12,000 miles the first year), and pre-pay for that number of miles. At the end of the year, you reconcile or "true-up" the mileage payment:

- In the case of fewer miles traveled than estimated, you receive credit for mileage driven in the coming year.
- In the case of more miles traveled than estimated, you pay for the extra miles.
- In addition, you pre-pay for mileage estimated to be driven the following year.

Where do I register and pay? You potentially register at the time of vehicle registration. If an official odometer reading is required, you may be able to register at a DMV office location or location of an authorized agent of the state (e.g., vehicle mechanic). If a user-reported odometer reading is sufficient, you may register over the Internet, via smartphone application, or via phone.

What is it like to drive with an odometer charge (post-pay)? You simply drive as you normally would.

Concept 5: Odometer Charge (pre-pay)—TAC Perspective


PAY ONLINE: Use Web Pay and enjoy the ease of our free online payment service. Go to **ftb.ca.gov** and search for **payment options. You can schedule your payments up to one year in advance. Do not mail this form if you use Web Pay.**

DETACH HERE — IF NO PAYMENT IS DUE, DO NOT MAIL THIS FORM — DETACH HERE

TAXABLE YEAR 2010 **Estimated Tax for Individuals** File and Pay by April 15, 2010 CALIFORNIA FORM **540-ES**

Fiscal year filers, enter year ending month: Year 2011

Your first name | Initial | Last name | Your SSN or ITIN

If joint payment, spouse's/RDP's first name | Initial | Last name | Spouse's/RDP's SSN or ITIN

Address (number and street, PO Box, or PMB no.) | Apt no./Ste. no.

City (If you have a foreign address, see instructions) | State | ZIP Code

Payment Form 1

Do not combine this payment with payment of your tax due for 2009. Using blue or black ink make your check or money order payable to the **"Franchise Tax Board."** Write your social security number or individual taxpayer identification number and "2010 Form 540-ES" on it. Mail this form and your check or money order to: **FRANCHISE TAX BOARD, PO BOX 942867, SACRAMENTO CA 94267-0031.**
If no payment is due, do not mail this form.
See Section A of the instructions for an alternative to using this form.

Amount of payment .00

For Privacy Notice, get form FTB 1131. 1201103 Form 540-ES 2009

as of DO NOT

What are the technical options? Reporting by motorist via web, smartphone app, phone, or mail-in postcard; or odometer inspection by official or authorized representative.

How will this concept be enforced? To ensure odometer readings are reported accurately in the case of self-reported odometer readings, spot odometer checks by enforcement officers may be employed. These spot checks could be combined with potential mandatory official odometer readings for a certain percentage of drivers. To discourage digital odometer tampering in the case of either self-reported or officially reported odometer readings, reported odometer readings should be analyzed for suspicious behavior. In cases of suspicious behavior, audits of certain individuals, including looking for odometer reading records in repair shops they have used, and asking them questions about location of residence, employment, and driving habits, may be conducted.

What are the challenges or drawbacks?

- Potential for odometer fraud.
- No straightforward mechanism to provide credits for out-of-state/off-road miles driven.
- Potential for low pre-payments, depending on rules for mileage estimation adopted.
  - This challenge could be resolved by requiring motorists who substantially exceed their estimated mileage to true-up early (when they exceed a maximum mileage beyond their estimated mileage), or to face a penalty if they do not do so.

Concept 6: Automated distance Measurement (no location data)—User Perspective

How is road use recorded and reported? An in-vehicle device measures the distance you drive and reports it to an account manager.

When do I register and pay? You register with an account manager before you drive. In case of usage-based insurance (UBI) devices, the account manager provides equipment, and you install it. In the case of other location-based devices, the account manager provides equipment, and a mechanic installs it. In the case of smartphone or telematics, you install and set up the app in your smartphone or vehicle, respectively. The account manager periodically invoices you for miles driven, and you pay those invoices by the means provided by the account manager, typically credit/debit, bank transfer, or check.

Where do I register and pay? You may register online or by smartphone app with an account manager. In addition, the account manager may have retail locations. If the account manager is the state, you may register at existing state offices, potentially DMV locations.

What is it like to drive with an automated distance measurement device? You probably won't be able to notice the device. Compared with driving under the gas tax, you may be more aware that each mile costs money. Thus you may choose more optimal routes, shorter trips, or combine trips more often. You may also have access to value-added services with the device.

Concept 6: Automated Distance Measurement (no location data)—TAC Perspective

What are the technical options? UBI-type devices, smartphones, telematics, and other location-based devices, discussed individually below.

How will this concept be enforced? In the case of UBI-insurance type devices, the account manager and/or the state will monitor the signals sent by your distance-measurement device to determine that it was always in the vehicle and active when you were driving the vehicle. In cases of suspicious activity (lengthy and/or frequent device removals), the state may audit you (ask questions justifying said removals). In the case of smartphones, the same measures are taken as for odometer readings. It is difficult to commit fraud with telematics and other distance measurement devices.

What are the challenges or drawbacks?

- Account managers may require that motorists have a minimum credit score, thus potentially excluding some of the population.
- There is no straightforward mechanism to provide credits for miles driven out-of-state and on private roads.

Concept 7: Automated Distance Measurement (general location)—User Perspective

How is road use recorded and reported? An in-vehicle device measures the distance you drive and reports it to an account manager.

When do I register and pay? You register with an account manager before you drive. In case of usage-based insurance (UBI) devices or other location-based devices, the account manager provides equipment, and you install it in the case of UBI-type devices, or a mechanic installs it, in the case of other location-based devices. In the case of smartphone or telematics, you install and set up the app in your smartphone or vehicle, respectively. The account manager periodically invoices you for miles driven, and you pay those invoices by the means provided by the account manager, typically credit/debit, bank transfer, or check.

Where do I register and pay? You may register online or by smartphone app with an account manager. In addition, the account manager may have retail locations. If the account manager is the state, you may register at existing state offices, potentially DMV locations.

What is it like to drive with an automated distance measurement device? You probably won't be able to notice the device. Compared with driving under the gas tax, you may be more aware that each mile costs money. Thus you may choose more optimal routes, shorter trips, or combine trips more often. You may also have access to more value-added services with the device. You may have the opportunity to turn the use of location data on and off through the device.

Concept 7: Automated Distance Measurement (general location)—TAC Perspective

What are the technical options? UBI-type devices, smartphones, telematics, and other location-based devices, discussed individually below.

How will this concept be enforced? In the case of UBI-insurance type devices, the account manager and/or the state will monitor the signals sent by your distance-measurement device to determine that it was always in the vehicle and active when you were driving the vehicle. In cases of suspicious activity (lengthy and/or frequent device removals), the state may audit you (ask questions justifying said removals). In the case of smartphones, the same measures are taken as for odometer readings. It is difficult to commit fraud with telematics and other distance measurement devices.

What are the challenges or drawbacks?

- Account managers may require motorists have a minimum credit score, thus potentially excluding some of the population.

Technology: Usage-based Insurance Type Device—User Perspective

How do I install the device and set up the service? You receive the device in the mail or at a retail location with instructions on how to install it. On most vehicles, you will be able to locate the OBDII port easily with the guidance provided in the instructions. In cases in which you are unable to locate the OBDII port on their vehicles, the account manager may provide a hotline phone number to customer service representatives who can provide descriptions of the locations of OBDII ports on all makes and models of vehicles, and can assist you in locating the OBDII port.

When you create an account with the account manager, you complete all setup steps. Once the device is plugged in and the vehicle is turned on, it sends a signal to the account manager completing the setup process.

What unique requirements or features does the device have? You must remember to ensure that the device is plugged back in after the vehicle is serviced. An automatic notification can be sent to the motorist if the device has been left out for a long time. The variety of value-added services may be available with the device include but are not limited to the following:

- Usage-based insurance in which the premium varies by total miles driven (one of the few premium modifications allowed under California insurance code);
- Integration with tolling payments; driving guidance (for young drivers or those attempting to drive more ecologically)
- Geo-fencing (for parents with young drivers whose movements they wish to monitor)
- Automatic diagnostics are among the value-added services possible with this device.

Technology: Smartphone—User Perspective

How do I install the device and set up the service?

You first install the road charging app on your smartphone as you would any other app. You then complete the signup process (name, address, payment details). You then pair the phone with the vehicle via Bluetooth. Finally, you take a picture of the vehicle odometer to start the process.

It should be possible to pair one phone with two or more different vehicles. Similarly, it should be possible to pair two or more phones with one vehicle though an option to link accounts.

What unique requirements or features does the device have?

After the first Bluetooth pairing, future pairing of the phone to the vehicle should be automatic whenever the phone is in the vehicle and has power. Since each vehicle has a unique Bluetooth address, the phone will only ever pair to that vehicle—it will not pair with and charge for travel for any other vehicle in which it may be located.

Occasionally, you will be required to take a picture of the odometer with the phone while it is paired to the vehicle via Bluetooth.

If you wish to use automated reporting with general location, the phone must be in the vehicle and have sufficient battery power.

Technology: Telematics—User Perspective

How do I install the device and set up the service?

You download the road charging app from the telematics service's app store and install it like any other app. You then complete the signup process (name, address, payment details).

What unique requirements or features does the device have?

You may enable or disable the use of location data directly through the telematics app. You may also be able to see account details directly through the telematics app.

Technology: Other Location-based Devices—User Perspective

How do I install the device and set up the service?

Other location-based devices (devices that use location based technology and are mechanically and electrically anchored to the vehicle, typically truck tolling devices) must generally be installed by professional mechanics. You will separately complete the signup process (name, address, payment details).

What unique requirements or features does the device have?

Such devices are generally designed for commercial vehicles, and may provide a range of applications appropriate for commercial vehicle fleets.

Fuel Tax Credits

It is possible that the legislature will choose to leave the fuel tax in place for some period while a potential future road charge is being phased in. In this case, to prevent double taxation, the state may wish to give credits for fuel taxes paid.

For manual methods, and for the automated methods with the smartphone and other location-based devices, fuel tax credits can be computed in two ways:

1. Based on an estimate of fuel usage for the miles traveled. One way to estimate fuel usage would be to divide the number of miles driven by the expected fuel economy of the vehicle. The fuel economy of the vehicle that would likely apply is the EPA's "Combined City-Highway" fuel economy rating.
2. Based on paper receipts. Motorists would scan and send in all fuel receipts to the state. This method would be cumbersome both for the user and the state, and could also be susceptible to fraud or abuse.

For the automated methods with a UBI-type device, the device can measure fuel consumption on most but not all car models (about 70% of the cars currently on the road). For such vehicles, the tax on the fuel actually used can be refunded. The devices cannot determine in which state fuel is purchased. However, fuel tax credits for travel in a given state could be appropriated by the miles driven in that state.

For automated methods with telematics, the device can accurately measure fuel consumption and also determine in which state the fuel was purchased. This allows computation of the exact fuel tax credit value.

Other User Scenarios

The following list identifies a range of user scenarios not specifically covered in this document. It may not be desirable to test these scenarios during the pilot, so they are not described here. However, the events that take place in these scenarios will be need to be defined and described in a document that fully specifies the road charging system, such as a Concept of Operations document:

- Buying a new vehicle
- Moving into the state
- Selling a vehicle
- Moving out-of-state
- Disposing of a vehicle
- Changing operational concept

Additional Notes on Odometer Fraud

Problem: odometer fraud is possible on many vehicles using a device that can be purchased over the internet for several hundred dollars which leaves no digital trace of the odometer modification.

Possible Solutions: The state can analyze officially reported odometer readings for vehicles registered for the road charge with a computer algorithm to determine suspicious cases. Such cases may be investigated further.

- Cases may be automatically investigated further using professional car title verification services.
  - Such services include Carfax, Autocheck, VINAudit, VINSMart, CheckthatVIN, InstaVIN, ReverseVINCheck, and VINAlert.
- DMV already employs odometer fraud investigators, who typically investigate cases of odometer fraud by used car dealers.
  - In a recent, relatively high-profile case, these investigators discovered massive fraud by a dealer in North Hills. He was fined $116,000 and will be sentenced on April 13.
- Odometer readings are required at all official auto repair shops as well as at smog checks and at title transfer.
  - Most readings from workshops are not included in the information provided by professional car verification services—they must be requested from the workshops.
- California is one of the top five states for odometer fraud.
- There are high penalties for odometer fraud, often $1000-$2500 per vehicle.

Implications of Including Out-of-state Pilot participants

In the long run, it seems logical that if a road charge is to replace or supplement the gas tax, it would be desirable to have a method to charge out-of-state drivers for the miles they drive on California roads. However, as long as the fuel tax remains in place, it may not be necessary to charge out-of-state drivers, as they would just remain on the fuel tax.

Including some out-of-state drivers in the pilot could increase the complexity of recruiting participants. However, there are several straightforward possibilities for recruiting out-of-state participants:

- The Western Road Usage Charge Consortium, of which California is a member, could potentially provide support in recruiting participants from member states, including Washington, Oregon, Nevada, Arizona, and others.
- Oregon's Road Usage Charging program will have live participants starting on July 1 2015, a ready pool that California could potentially tap for out-of-state participants. This could be particularly interesting for any Oregon participants who regularly travel by car to California.
- Holders of California's nonresident daily commuter permits from Arizona, Nevada and Oregon could be recruited to participate in the pilot.

There are three different scenarios for including out-of-state participants, covered on the next pages:

- Out-of-state participants as registered California drivers
- Out-of-state participants registered in their own state (requires interoperability with out-of-state systems)
- Out-of-state participants with temporary road charging payment options

Out-of-state participants as registered California drivers

In this scenario, out-of-state residents would be treated the same as California residents.

- Holders of California's nonresident daily commuter permits would be ideal to recruit for this scenario.

Out-of-state participants registered in their own state (interoperability)

In this scenario, participants already registered for a road charging pilot program in their own states would be added to the California program directly.

- This scenario would only work for Automated Mileage Reporting with General Location.
- It would demonstrate technical interoperability between the two states.
- At the time of writing, Oregon will have such participants enrolled prior to the start of the California pilot.
- There is a possibility that Washington State and Colorado will also have pilot participants at the time the California pilot is live, although it is still uncertain whether either of these pilots will move forward, and the details of these possible pilot programs remain unclear, including whether participants will have the option of automated reporting with general location.

Out-of-state participants with temporary road charging payment options

In this scenario, short-term visitors to the state would choose operational concepts valid for a limited number of miles or a short period of time. The operational concepts that support this option are the mileage and time permits, respectively.

- Because of the complexity of arranging official odometer readings and the lack of opportunity for spot checks of temporary visitors, those options are excluded.
- Because of the need for special hardware and burden of account setup for the automated methods, those options are excluded.

The time permit could be signed up for via smartphone app, Internet, or purchased in a retail store and activated using a scratch-off gift card code. The same holds true for the mileage permit. However, for the mileage permit, a start odometer reading would need to be reported too.

Increments of both the time permit and mileage permit options could be short to coincide with the typical length of a visitor's trip, e.g., a few days, one week, or two weeks for the time permit and 500, 1000, or 2000 miles for the mileage permit. Permits should be made available in a range of denominations to allow visitors to minimize the number of transactions they have to make.

Section 4: Organizational Design Features in Pilot

To be discussed during Agenda Item #8

Introduction

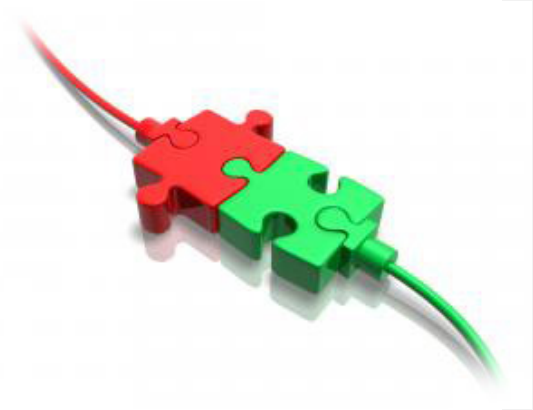
As discussed above, there are several methods available for assessing road charges on out-of-state drivers while they are in California. Looking ahead to a possible near-future when neighboring states have implemented their own road charge systems, it may be desirable that California's road charge system be interoperable with systems in other states. Key potential benefits:

- It would support automated concepts for charging out-of-state drivers
- It would allow California drivers to "automatically" pay road charges when they are in other states

The pages that follow present an overview of the concepts of interoperability with other state road charge systems; and an account management concept that supports this concept as well as other open-system concepts.

Should the pilot test interoperability with other states considering road charges?

Interoperability can be defined as the ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged. From a driver's perspective, it is the ability to use a single road charge concept to record and report miles driven across more than one jurisdiction or road charge system, without having to change devices, technologies, or account manager, and without any manual intervention on the part of the driver.



To demonstrate interoperability, participants already registered for a road charging pilot program using their own state's version of operational concept 7 (Automated Mileage Reporting with General Location) could be directly added to the California program.

At the time of writing, Oregon will have such participants enrolled in a system with multiple commercial account managers prior to the start of the California pilot. There is a possibility that Washington State and one or more other WRUCC states will also have pilot participants at the time the California pilot is live, although the details of these possible pilot programs are unknown, including whether participants will have the option of automated reporting with general location.

Should the pilot test interoperability with other states considering road charges? (continued)

A California pilot participant could drive in other participating state(s) and pay one bill for travel on public roads in all states. Likewise, participants from other states could drive in California, and pay one bill for travel on public roads in all states.

Interoperability would thus require a data exchange among participating states (which motorists traveled how many miles in which states), and a simulated financial exchange (a computation of reconciled funds owed between states).

A simple way to accomplish interoperability with Oregon would be to use one or more of the same account managers that are being used in Oregon (currently Azuga, Sanef, and Verizon), although the program will be open to other providers in the near future.

Should the pilot test offer multiple account managers?

To offer multiple account managers, it will be necessary to do the following before and during the pilot:

- Contract with multiple account managers;
- Test/certify multiple account managers to ensure they are capable of performing account management activities; and
- Receive and process data from multiple account managers.

The potential advantages of including multiple account managers are the following:

- It would operate on an open system, thus providing more lessons learned for a potential future open system, including how to enforce mileage recording and reporting across multiple account managers;
- It would be an opportunity for private account managers who may want to participate to do so; and
- It would provide participants more account management options.

The potential disadvantages of including multiple account managers are that it may cost more to do so, at least in a pilot project, and that it may involve more logistical challenges. The cost implications of including multiple account managers will be addressed in the business case work stream starting in May.

Section 5: Pilot Program Communications Baseline

To be discussed during Agenda Item #10

Introduction

Any discussion of a road charge in California must address questions regarding the policy's real and perceived impacts on California drivers, including those based on differences of location (urban, suburban, or rural drivers), age, ethnicity, gender, and socio-economic status. Engaging and soliciting feedback from the public through carefully designed telephone surveys and focus groups provides data with which to:

- Assess baseline values, priorities and awareness of transportation issues across California's varied communities, and
- Determine perceptions and attitudes of the general public towards road charging.

This baseline is important in order to measure shifts in attitudes and insights into Californians' perceptions about road charging over the course of the program timeline. At the conclusion of each baselining activity (telephone survey and focus groups), a report will be submitted to the TAC for its information. It will summarize the following:

- Data collected,
- Analysis performed, and
- Conclusions reached regarding Californians' perceptions of road charging in California.

Telephone Survey Objectives and Approach

DHM Research (subcontractor to D'Artagnan) will conduct a telephone survey, on behalf of Caltrans during the period May-June 2015. A minimum of 900 California residents age 18 and over will be interviewed and surveys completed in the respondent's preferred language.

The key **objectives** of telephone survey can be summarized as follows:

- Provide information on the public's opinion on road charging as a general concept.
- Gain a better understanding about how people value transportation as compared to other important issues, e.g., the economy and jobs, schools and K-12 education, healthcare, and the environment.
- Determine to what extent people understand California's transportation funding shortfalls.

Telephone Survey Objectives and Approach (continued)

The **approach** for the telephone survey has the following main parameters:

- The survey questionnaire will be designed to be completed in 10 minutes or less.
- The sample will consist of a minimum of 900 completed surveys with approximately 600 of the 900 completed surveys being registered voters.
  - Typically, thousands of calls will be required to achieve 900 completed surveys due to hang-ups, participant unwillingness or inability to answer some questions, or ineligible respondents.
- The survey team will be staffed to complete interviews in Spanish and other languages.
  - Interviewers are trained for multi-lingual households.
- Telephone numbers included in this sample will be randomly generated, and survey respondents will be reached by both cell phone and landline phone.
- The margin of error for the total sample will be ± 3.3 percentage points.
- The survey panel will be weighted by gender, age, ethnicity, and other demographics to reflect the population and as agreed with the TAC.
- 300-person sample per area:
  - Areas grouped into rural, suburban/urban; and north/central/south (exact definition of areas to be determined in consultation with the TAC)
  - Includes ethnicity stratification to reflect population of each area.

Telephone Survey Objectives and Approach (continued)

Timeline for key milestones:

March 16-April 7: Develop draft telephone survey objectives and approach

April 24: Inform TAC of draft telephone survey objectives and approach

April 27-May 22: Finalize approach and develop survey questionnaire

May 22: Final survey questionnaire

May 28-June 15: Pretest and field survey (telephone calls)

June 30: Preliminary survey results

July 1-July 24: Analyze data and results

July 31: Draft report

Focus Groups Objectives and Approach

DHM Research with D'Artagnan will conduct four focus groups (two in June and two in July) in different parts of California as directed by Caltrans.

The key **objectives** of the focus groups will be to:

- Assess attitudes and perceptions toward a proposal for a road charge.
- Identify the ways transportation improvements connect to the values of the general public.
- Identify communications needs and sensitivities for effective public and stakeholder outreach.

In contrast to the telephone surveys, this focus group based research will not be quantitative in nature. Rather the focus groups will use a variety of qualitative techniques to:

- Probe participants' motivations and underlying values associated with transportation priorities and improvements,
- Gauge their understanding of current barriers to funding, and
- Elicit opinions about funding alternatives including road charging.

Focus groups will be held at a professional facility with a viewing room, or a hotel/motel meeting room if such a facility is not available. Discussions will be two hours in length and include participant background questionnaires and dynamic discussions led by a professional moderator.

Focus Groups Objectives and Approach (continued)

Proposed characteristics of focus group participants include but are not limited to the following:

- Residents of Bay area, central valley, southern region and northern region.
- Residents of metro, urban, rural communities within each of the four areas listed above.
- Long distance commuter, urban commuter, non-commuter.

The **approach** to the focus groups includes:

- Four focus groups will be held.
- Recruitment will include 8-9 participants per group who are “soft” support/opposition to a road charging.
  - Suggest recruiting participants who are in the middle of the bell curve in order to screen out those who strongly support or oppose road charging, i.e., take out the extremes.
- Participants will meet criteria and characteristics suggested by D’Artagnan and validated by Caltrans.
- Each two-hour focus group discussion will be led by a professional moderator.
- Written exercises and other techniques may be used to gather baseline attitudes.
- The focus groups will be held at neutral locations with easy access to public transit and parking.
- The focus groups will be held on weekends to better accommodate participants
- Video-tapes and transcripts of each focus group will be made available.
- TAC members will be invited to observe any of the focus groups.

Focus Groups Objectives and Approach (continued)

Timeline for key milestones:

March 16-April 7: Develop draft focus group objectives and approach

April 24: Inform TAC of draft focus objectives and approach

April 27-May 22: Finalize approach and develop survey questionnaire

June 12: Final discussion guide

June 19-21: Conduct two focus groups

July 10-12: Conduct two focus groups

July 13-31: Analyze data and cross reference with telephonic surveys

August 1: Draft report on results of the focus groups.

Appendix 1: Detailed Monthly Decision Schedule

April: Meeting #4

FOCUS TOPICS	RELATED SB 1077 STATUTE	TAC DECISION POINTS
Technical Design: Road charging operational concepts & enabling technologies	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program… 3090(f) 1-7: In studying the road charge alternatives... the TAC shall take the following into consideration: availability, adaptability, reliability, security, protection of PII, ease of recording and reporting, ease of administering collection of charges, effective methods of maintaining compliance, ease of re-identifying location data, and privacy concerns when using location data with other technologies.	• What mileage measurement and reporting method(s) (i.e., Operational Concepts) are most promising? • What technologies should be further studied to pursue those measurement and reporting methods? • Should the pilot assess road charge on out-of-state vehicle owners driving on California roads?
Organizational Design: Introduction to inter-agency work group and other organizational issues	3090(f) 4,8: In studying the road charge alternatives… the TAC shall take the following into consideration: the ease… of administering the collection of taxes and fees as an alternative to the current system of taxing highway use through motor vehicle fuel taxes.	• Should the pilot test interoperability with other states considering road charges? • Should the pilot test offer multiple account managers, including commercial providers, to offer varying participant experiences?

May: Meeting #5

FOCUS TOPICS	RELATED SB 1077 STATUTE	TAC DECISION POINTS
Policy: Equity considerations	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program…	• What types (households, businesses, etc.) of participants should be included in the pilot? • Are there any exemptions from road charging?
Policy: Privacy measures	3090(f) 2, 6, 7, and 8: In studying the road charge alternatives… the TAC shall take the following into consideration: the necessity of protecting all personally identifiable information used in reporting highway use… the ease of re-identifying location data… increased privacy concerns when location data are used in conjunction with other technologies… and public and private agency access.	• What specific personal privacy protections should be used for the pilot?
Business Case Analysis: Introduction and preliminary results	3090(f) 3-4: In studying the road charge alternatives… the TAC shall take the following into consideration: the cost of recording and reporting highway use… and the cost of administering the collection of taxes and fees as an alternative to the current system of taxing highway use through motor vehicle fuel taxes.	• What vehicles are included in the pilot—all vehicles or passenger vehicles only?
Evaluation Strategy: Introduction, alternative approaches, and possible criteria	3090(e): The TAC may also make recommendations on the criteria to be used to evaluate the pilot program. 3092(a) 1-11: … The [CalSTA] report [on the results of the pilot program] shall include… a discussion of [various evaluation criteria].	Informational item only

June: Meeting #6

FOCUS TOPICS	RELATED SB 1077 STATUTE	TAC DECISION POINTS
Technical Design: Revised draft pilot Concept of Operations	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program… 3090(f) 8: In studying the road charge alternatives… the TAC shall take the following into consideration: and public and private agency access… to data collected and stored for purposes of road charging.	• What system data security requirements should be used for the pilot?
Technical Design: Other pilot test design parameters	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program…	• How many participants should be involved in the pilot? • How should participants be distributed throughout the state?
Business Case Analysis: Updated results based on initial TAC pilot design recommendations	3090(f) 3-4: In studying the road charge alternatives… the TAC shall take the following into consideration: the cost of recording and reporting highway use… and the cost of administering the collection of taxes and fees as an alternative to the current system of taxing highway use through motor vehicle fuel taxes.	Informational item only
Evaluation Strategy: Evaluation criteria	3090(e): The TAC may also make recommendations on the criteria to be used to evaluate the pilot program. 3092(a) 1-11: … The [CalSTA] report [on the results of the pilot program] shall include… a discussion of [various evaluation criteria].	• What evaluation criteria does the TAC recommend for the pilot?

July: Meeting #7

FOCUS TOPICS	RELATED SB 1077 STATUTE	TAC DECISION POINTS
Communications: Telephone survey update	3090(e): The TAC shall gather public comment on issues and concerns related to the pilot program…	Informational item only
Communications: Focus groups update	3090(e): The TAC shall gather public comment on issues and concerns related to the pilot program…	Informational item only

August: Meeting #8

FOCUS TOPICS	RELATED SB 1077 STATUTE	TAC DECISION POINTS
Technical Design: Draft final pilot Concept of Operations	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program…	• What type of enforcement and compliance activities should be demonstrated during the pilot?
Business Case Analysis: Updated results based on updated TAC pilot design recommendations	3090(f) 3-4: In studying the road charge alternatives… the TAC shall take the following into consideration: the cost of recording and reporting highway use… and the cost of administering the collection of taxes and fees as an alternative to the current system of taxing highway use through motor vehicle fuel taxes.	Informational item only
Organizational Design: Update from inter-agency work group	3090(f) 4: In studying the road charge alternatives… the TAC shall take the following into consideration: the ease… of administering the collection of taxes and fees as an alternative to the current system of taxing highway use through motor vehicle fuel taxes.	Informational item only

September: Meeting #9

FOCUS TOPICS	RELATED SB 1077 STATUTE	TAC DECISION POINTS
Evaluation Strategy: Evaluation criteria selection and strategy guidance	3090(e): The TAC may also make recommendations on the criteria to be used to evaluate the pilot program. 3092(a) 1-11: … The [CalSTA] report [on the results of the pilot program] shall include… a discussion of [various evaluation criteria].	• Finalize evaluation criteria
Policy: Review of parking lot items	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program…	• Address additional questions raised during course of TAC meetings
Communications: Review of TAC public engagement efforts	3090(e): The TAC shall gather public comment on issues and concerns related to the pilot program…	• Has the TAC adequately gathered and considered public comment on issues related to the pilot program and addressed them?
Report to CalSTA: Outline of recommendations report to CalSTA	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program. The TAC may also make recommendations on the criteria to be used to evaluate the pilot program.	Informational item only

October: Meeting #10

FOCUS TOPICS	RELATED SB 1077 STATUTE	TAC DECISION POINTS
Report to CalSTA: Review of draft recommendations report to CalSTA	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program. The TAC may also make recommendations on the criteria to be used to evaluate the pilot program.	• Feedback on report outline
Policy: Review of parking lot items	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program…	• Address additional questions raised during course of TAC meetings

November: Meeting #11

FOCUS TOPICS	RELATED SB 1077 STATUTE	TAC DECISION POINTS
Report to CalSTA: Draft final recommendations report to CalSTA	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program. The TAC may also make recommendations on the criteria to be used to evaluate the pilot program.	• Feedback on draft report

December: Meeting #12

FOCUS TOPICS	RELATED SB 1077 STATUTE	TAC DECISION POINTS
Report to CalSTA: CalSTA review and comments on recommendations report	3090(e): The TAC shall study road charge alternatives to the gas tax…and shall make recommendations on the design of a pilot program. The TAC may also make recommendations on the criteria to be used to evaluate the pilot program. Section 3091: Based on the recommendations of the [TAC], [CalSTA] shall implement a pilot program to identify and evaluate issues related to the potential implementation of a [road charge] program.	• Adopt final report on recommendations to CalSTA

Summary of Topics that Satisfy Statutory TAC Requirements

3090 SECTION	TOPICS THAT WILL INFORM TAC DISCUSSION AND DECISIONS
(e) Study road charge alternatives	Policy, Technical Design, Business Case Analysis, Organizational Design
(e) Recommend pilot design alternatives	Policy, Technical Design, Report to CalSTA
(e) Gather public comment on issues & concerns	Communications and Public Involvement
(e) Recommend evaluation criteria	Evaluation Strategy, Report to CalSTA
(f) (1) Availability	Technical Design
(f) (1) Adaptability	Technical Design
(f) (1) Reliability	Technical Design
(f) (1) Security	Technical Design
(f) (2) Necessity of protecting PII	Policy, Technical Design
(f) (3) Ease of recording & reporting highway use	Technical Design
(f) (3) Cost of recording & reporting highway use	Business Case Analysis
(f) (4) Ease of administering collection of charges	Organizational Design, Technical Design
(f) (4) Cost of administering collection of charges	Business Case
(f) (5) Effective methods of maintaining compliance	Technical Design, Organizational Design
(f) (6) Ease of re-identifying location data	Technical Design, Policy
(f) (7) Privacy concerns when using location data with other technologies	Technical Design, Policy
(f) (8) Public & private agency access to data	Organizational Design, Technical Design, Policy