

AGENDA

California Road Charge Technical Advisory Committee (TAC)

Friday, April 26, 2019

Metropolitan Transportation Commission

Bay Area Metro Center

Yerba Buena Conference Room

375 Beale Street

San Francisco, CA 94105-2066

10:00 AM to 2:00 PM

Agenda Item	Responsible Party	Time	Item Status
1. Introduction of New Road Charge TAC Chair	Lucy Dunn, Chair	10:00	I
2. Roll Call	Lucy Dunn	10:05	I
3. Public Comment*	Lucy Dunn	10:10	I
4. Approval of Minutes for November 16, 2018 TAC Meeting and Review of November Action Items	Lucy Dunn	10:15	A
5. Member Reports	Lucy Dunn	10:20	I
6. Overview of Today's Meeting	Lucy Dunn	10:40	I
7. Legislative Update/Review of TAC Role	Garth Hopkins California Transportation Commission	10:50	I
8. National Road Charge Pilot and RUC West Update	Anthony Buckley Washington State Department of Transportation (via phone)	11:00	A
9. California State Transportation Agency Response to 2018 TAC and Commission Recommendations	Brian Annis California State Transportation Agency	11:15	I

Agenda Item	Responsible Party	Time	Item Status
10. Caltrans Update on Road Charge Activities	Steven Keck Carrie Pourvahidi California Department of Transportation	11:25	A
11. Overview of Caltrans' Research Program	Garth Hopkins Steven Keck	11:50	I
12. Working Lunch		12:00	
13. Adoption of Road Charge TAC Guiding Policy and Action Plan	Lucy Dunn Garth Hopkins	12:30	A
14. Review of Action Items	Lucy Dunn Garth Hopkins	1:30	A
15. Public Comment*	Lucy Dunn	1:40	I
16. Adjourn	Lucy Dunn	2:00	

* Public Comment: Persons attending the meeting who wish to address the Committee on agenda or non-agenda items are asked to complete a Speaker Request Card and give it to the Executive Assistant prior to the start of the meeting. Public Comment for agenda items will be heard during the Committee's consideration of those items and Public Comment for non-agenda items will be heard at the end of the meeting. Typically, public comment will be limited to two minutes per person; however, the Chair may decide to shorten or lengthen the public comment period at his or her discretion. Agenda items may be taken out of order.

Reasonable Accommodation: Any individual with a disability who requires reasonable accommodation to attend or participate may request assistance by contacting the Commission at (916) 654-4245. Requests for reasonable accommodations should be made as soon as possible, but at least five days prior to the scheduled meeting.

To view the live webcast of this meeting, please visit: <http://ctc.dot.ca.gov/webcast>

Future Road Charge TAC Meeting Dates:

- Friday, September 13, 2019 – Orange County
- Friday, November 8, 2019 – Sacramento

Memorandum

To: CHAIR AND MEMBERS

TAC Meeting: April 26, 2019

From: SUSAN BRANSEN, Executive Director

Reference Number: 1, Information

Prepared By: Jennifer Valeros,
Associate Governmental Program Analyst

Published Date: April 16, 2019

Subject: INTRODUCTION OF NEW ROAD CHARGE TAC CHAIR

Summary:

On January 30, 2019, the California Transportation Commission (Commission) appointed Commissioner Lucetta (Lucy) Dunn as the Road Charge Technical Advisory Committee (TAC) Chair.

Background:

Lucy Dunn is President and CEO of Orange County Business Council, where she leads a dynamic organization of business members, working with academia and government, to assure the region's economic prosperity and high quality of life. Before joining the Business Council, Lucy served as Director of the California Department of Housing and Community Development in 2004. In 2008, she was appointed to the California Transportation Commission by Governor Schwarzenegger, reappointed twice by Governor Brown, and was elected Chair from 2015 to 2016. She also serves on numerous boards including California Economic Summit, Mobility 21, Pacific Symphony, Bolsa Chica Conservancy, and The UCI Foundation.

She is the recipient of numerous honors and awards including Orange County Business Journal's "Women in Business" award, Women in Transportation's "Woman of the Year" award, Southern California Leadership Network's Public Sector Leader of the Year, and the prestigious "Vision and Visionaries" Award from Cal State University, Fullerton. She was twice named as "Woman of the Year" by the California Legislature. In 2014, the Orange County Register named her as one of "Orange County's 100 Most Influential." In 2016, she was honored by the Endangered Habitats League with its Award of Excellence for her work in advancing settlement of 15 years of litigation, protection of habitat and cultural resources, while improving South Orange County mobility. Lucy is a member of the State Bar of California. She loves travel,

music, with her proudest role as mother of two sons (and one accomplished daughter-in-law!) who reside in the Bay Area.

Attachment:

- Attachment A: Road Charge Technical Advisory Committee Roster

ATTACHMENT A

Reference No.: 1

April 26, 2019

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Road Charge Technical Advisory Committee Roster

Name	Organization	Title	Area of Representation
Lucy Dunn (Chair)	California Transportation Commission	Commissioner	California Transportation Commission
Stephen Finnegan (Vice-Chair)	Automobile Club of Southern California	Manager of Public Affairs & Government Relations	Highway User Groups
David Chiu	California Assembly	Assemblymember	Legislature
Eric Sauer	California Trucking Association	Sr. Vice President of Policy & Government Affairs	Highway User Groups
Jim Beall	California Senate	Senator	Legislature
Jim Madaffer	Madaffer Enterprises	President	Public Member
Lee Tien	Electronic Frontier Foundation	Senior Attorney	Privacy Rights Advocacy
Lisa Bartlett	Orange County Board of Supervisors	Supervisor	Regional Transportation Agency
Loren Kaye	Foundation for Commerce and Education	President	Business and Economy
Martin Wachs	UCLA Luskin School of Public Affairs	Professor Emeritus of Urban Planning	National Research and Policymaking
Pam O'Connor	Public Member	Public Member	Public Member
Richard Marcantonio	Public Advocates, Inc.	Managing Attorney	Social Equity
Robert Poythress	County of Madera	Supervisor	Regional Transportation Agency
Susan Ornelas	City of Arcata	Mayor	Regional Transportation Agency
Terry Benzel	USC Information Sciences Institute	Director	Data Security and Privacy Industry

Public Comment

Public Comments will be solicited from members of the public attending the meeting.

Memorandum

To: CHAIR AND MEMBERS

TAC Meeting: April 26, 2019

From: SUSAN BRANSEN, Executive Director

Reference Number: 4, Action

Prepared By: Jennifer Valeros,
Associate Governmental Program Analyst

Published Date: April 16, 2019

Subject: **APPROVAL OF MINUTES FOR NOVEMBER 16, 2018 TAC MEETING**

Issue:

Should the Road Charge Technical Advisory Committee (TAC) approve the meeting minutes for the November 16, 2018 TAC meeting?

Recommendation:

Commission staff recommends the Road Charge TAC approve the meeting minutes for the November 16, 2018 TAC meeting.

Background:

California Code of Regulations, Title 21 Administrative Code Section 8012, requires that:

The commission shall keep accurate minutes of all meetings and make them available to the public. The original copy of the minutes is that signed by the executive secretary and is the evidence of taking any action at a meeting. All resolutions adopted at a meeting shall be entered in the text of the minutes by reference.

In compliance with Title 21 Administrative Code Section 8012, the Commission's Operating Procedures (May 11, 2011) require that as an order of business, minutes of the proceedings of a Standing or Special Committee of the Commission shall be kept, and the minutes from the last meeting shall be approved.

Attachments:

- Attachment A: November 16, 2018 Meeting Minutes

MINUTES**California Road Charge Technical Advisory Committee (TAC)**

Friday, November 16, 2018

California Department of Transportation- HQ

Basement Boardroom

1120 N Street, Sacramento, CA 95814

10:00 AM to 12:30 PM

For a detailed review of this meeting please view the archived webcast: http://ctc.dot.ca.gov/webcast/roadcharge/vod_roadcharge.asp

Agenda Item	Responsible Party		Item Status
1. Roll Call	Jim Madaffer, Chair	10:00	I

Chair Jim Madaffer	Present	Richard Marcantonio	Absent
Vice-Chair Stephen Finnegan	Present	Pam O'Connor	Present
Senator Jim Beall	Absent	Susan Ornelas	Absent
Lisa Bartlett	Present	Robert Poythress	Present
Assembly Member David Chiu	Absent	Eric Sauer	Present
Terry Benzel	Absent	Lee Tien	Present
Loren Kaye	Present	Martin Wachs	Present

2. Public Comment	Jim Madaffer, Chair	10:08	I
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No public comments were provided at this time.

3. Approval of Minutes for April 20, 2018 TAC Meeting and Review of April Action Items	Jim Madaffer, Chair	10:09	A
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Motion: Wachs**Second:** Finnegan**Action Taken:** Approved**Vote Results:** 8-0**Ayes:** Madaffer, Finnegan, Sauer, Tien, Kaye, Wachs, O'Connor, Poythress**Nays:** None**Abstained:** Bartlett**Recused:** None**Absent:** Beall, Chiu, Benzel, Marcantonio, Ornelas

4. Member Reports	Jim Madaffer, Chair	10:10	I
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Reports and comments were provided by members: Jim Madaffer, Steve Finnegan, Lee Tien and Martin Wachs

5. Overview of Today's Meeting	Jim Madaffer , Chair	10:15	I
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Road Charge Technical Advisory Committee Chair Madaffer presented this informational item.

Questions and comments were provided by members: None

6. Senate Bill 1328 (Beall) and Discussion on Possible Road Charge TAC Focus Topics in 2019	Garth Hopkins , CTC	10:20	I
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California Transportation Commission Deputy Director, Garth Hopkins, presented this informational item.

Questions and comments were provided by members: Jim Madaffer, Robert Poythress, Steve Finnegan, Lee Tien, and Martin Wachs

7. Approval of 2018 Road Charge Legislative Recommendations	Garth Hopkins , CTC	11:50	A
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Motion: Wachs

Second: O'Connor

Action Taken: Approved

Vote Results: 8-0

Ayes: Madaffer, Finnegan, Bartlett, Tien, Kaye, Wachs, O'Connor, Poythress

Nays: None

Abstained: Sauer

Recused: None

Absent: Beall, Chiu, Benzel, Marcantonio, Ornelas

8. Update on Research to Assess Fees on Zero-Emission and Low-Emission Vehicles for Transportation Improvements	Alan Jenn , UC Davis	10:35	I
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Lead Researcher of University of California Davis Institute of Transportation Studies (ITS), Alan Jenn, presented this informational item.

Questions and comments were provided by members: Steve Finnegan, Loren Kaye, Martin Wachs, Jim Madaffer, and Lee Tien

9. Caltrans Update on Road Charge Activities	Brady Tacdol , Caltrans	11:05	I
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California Department of Transportation's Chief Financial Officer, Steven Keck, and Road Charge Pilot Program Manager, Brady Tacdol, presented this informational item.

Questions and comments were provided by members: Lee Tien, Eric Sauer, and Lisa Bartlett

10. Approval of 2019 Road Charge TAC Meeting Dates	Garth Hopkins, CTC	12:45	I
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Motion: Poythress**Second:** Bartlett**Action Taken:** Approved**Vote Results:** 9-0**Ayes:** Madaffer, Finnegan, Bartlett, Tien, Kaye, Wachs, O'Connor, Poythress, Sauer**Nays:** None**Abstained:** None**Recused:** None**Absent:** Beall, Chiu, Benzel, Marcantonio, Ornelas

11. Review of Action Items	Jim Madaffer, Chair	12:46	I
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California Transportation Commission Deputy Director Garth Hopkins presented the following action items:

- Staff will send copies of Mineta Transportation Institute study to TAC members
- TAC members will receive completed draft of University of California Davis ITS report for comment
- The Commission and Caltrans staff will discuss the role of the TAC pertaining to Caltrans-led Road Charge studies in 2019
- The Commission will consider coordinating a joint TAC and Commission meeting
- Alan Jenn may attend a future Commission meeting to report on ITS research updates to Commissioners

12. Public Comment	Jim Madaffer, Chair	12:48	I
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No public comments were provided at this time.

13. Adjourn	Jim Madaffer, Chair	12:50	
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Meeting Adjourned at 12:50 pm

For a detailed review of this meeting please view the archived webcast:

http://ctc.dot.ca.gov/webcast/roadcharge/vod_roadcharge.asp

Future Road Charge TAC Meeting Dates:

- Friday, April 26, 2019 – Bay Area
- Friday, September 13, 2019 – Los Angeles
- Friday, November 8, 2019 – Sacramento

Susan Bransen

Susan Bransen, Executive Director

April 15, 2019

Date

TAC Member Reports

TAC members will provide verbal reports to the Committee at the meeting.

Overview of Today's Meeting

The Chair will provide a verbal overview of the meeting.

Memorandum

To: CHAIR AND MEMBERS

TAC Meeting: April 26, 2019

From: SUSAN BRANSEN, Executive Director

Reference Number: 7, Information

Prepared By: Garth Hopkins,
Deputy Director

Published Date: April 16, 2019

Subject: **LEGISLATIVE UPDATE/REVIEW OF TAC ROLE**

Summary:

As of April 12th, there are no road charge related state legislative bills that have been introduced this session. Staff will provide a brief overview of statutorily defined roles/responsibilities of the Road Charge Technical Advisory Committee (TAC).

Background:

Senate Bill (SB) 1077 (DeSaulnier, 2014) created the California Road Charge Pilot Program and identified the roles and responsibilities of the Road Charge TAC. SB 1328 (Beall, 2018) extended the role of the TAC from January 2019, to January 2023; and stated that the TAC shall continue to assess the potential of a road charge program.

Staff will provide a brief overview of the current statutory responsibilities of the Road Charge TAC. A copy of the California Vehicle Code relating to road charge is included as Attachment A.

Attachments:

- Attachment A: California Vehicle Code related to road charge

VEHICLE CODE - VEH**DIVISION 2. ADMINISTRATION [1500 - 3097]***(Division 2 enacted by Stats. 1959, Ch. 3.)***CHAPTER 7. Road Usage Charge Pilot Program [3090 - 3093]***(Chapter 7 added by Stats. 2014, Ch. 835, Sec. 2.)***3090.**

(a) The Chair of the California Transportation Commission shall create, in consultation with the Secretary of the Transportation Agency, a Road Usage Charge (RUC) Technical Advisory Committee.

(b) (1) The purpose of the technical advisory committee is to guide the development and evaluation of a pilot program to assess the potential for mileage-based revenue collection for California's roads and highways as an alternative to the gas tax system.

(2) Commencing January 1, 2019, the technical advisory committee shall continue to assess the potential for mechanisms, including, but not limited to, a mileage-based revenue collection system, to use as alternative methods to the existing gas tax system for generating the revenue necessary to maintain and operate the state's transportation system.

(c) The technical advisory committee shall consist of 15 members. In selecting the members of the technical advisory committee, the chair shall consider individuals who are representative of the telecommunications industry, highway user groups, the data security and privacy industry, privacy rights advocacy organizations, regional transportation agencies, national research and policymaking bodies, including, but not limited to, the Transportation Research Board and the American Association of State Highway and Transportation Officials, Members of the Legislature, and other relevant stakeholders as determined by the chair.

(d) Pursuant to Section 14512 of the Government Code, the technical advisory committee may request the Department of Transportation to perform such work as the technical advisory committee deems necessary to carry out its duties and responsibilities.

(e) The technical advisory committee shall study RUC alternatives to the gas tax. The technical advisory committee shall gather public comment related to the activities described in subdivision (b) and shall make recommendations to the Secretary of the Transportation Agency on the design of a pilot program to test alternative RUC approaches. The technical advisory committee may also make recommendations on the criteria to be used to evaluate the pilot program.

(f) In studying alternatives to the current gas tax system and developing recommendations on the design of a pilot program to test alternative RUC approaches pursuant to subdivision (e), the technical advisory committee shall take all of the following into consideration:

(1) The availability, adaptability, reliability, and security of methods that might be used in recording and reporting highway use.

(2) The necessity of protecting all personally identifiable information used in reporting highway use.

(3) The ease and cost of recording and reporting highway use.

(4) The ease and 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.

(5) Effective methods of maintaining compliance.

(6) The ease of reidentifying location data, even when personally identifiable information has been removed from the data.

(7) Increased privacy concerns when location data is used in conjunction with other technologies.

(8) Public and private agency access, including law enforcement, to data collected and stored for purposes of the RUC to ensure individual privacy rights are protected pursuant to Section 1 of Article I of the California Constitution.

(g) The technical advisory committee shall consult with highway users and transportation stakeholders, including representatives of vehicle users, vehicle manufacturers, and fuel distributors as part of its duties pursuant to subdivision (f).

(Amended by Stats. 2018, Ch. 698, Sec. 1. (SB 1328) Effective January 1, 2019. Repealed as of January 1, 2023, pursuant to Section 3093.)

3091.

(a) Based on the recommendations of the RUC Technical Advisory Committee, the Transportation Agency shall implement a pilot program to identify and evaluate issues related to the potential implementation of an RUC program in California by January 1, 2017.

(b) At a minimum, the pilot program shall accomplish all of the following:

(1) Analyze alternative means of collecting road usage data, including at least one alternative that does not rely on electronic vehicle location data.

(2) Collect a minimum amount of personal information including location tracking information, necessary to implement the RUC program.

(3) Ensure that processes for collecting, managing, storing, transmitting, and destroying data are in place to protect the integrity of the data and safeguard the privacy of drivers.

(c) The agency shall not disclose, distribute, make available, sell, access, or otherwise provide for another purpose, personal information or data collected through the RUC program to any private entity or individual unless authorized by a court order, as part of a civil case, by a subpoena issued on behalf of a defendant in a criminal case, by a search warrant, or in aggregate form with all personal information removed for the purposes of academic research.

(Added by Stats. 2014, Ch. 835, Sec. 2. (SB 1077) Effective January 1, 2015. Repealed as of January 1, 2023, pursuant to Section 3093.)

3092.

(a) The Transportation Agency shall prepare and submit a report of its findings based on the results of the pilot program to the RUC Technical Advisory Committee, the California Transportation Commission, and the appropriate policy and fiscal committees of the Legislature by no later than June 30, 2018. The report shall include, but not be limited to, a discussion of all of the following issues:

(1) Cost.

(2) Privacy, including recommendations regarding public and private access, including law enforcement, to data collected and stored for purposes of the RUC to ensure individual privacy rights are protected pursuant to Section 1 of Article I of the California Constitution.

(3) Jurisdictional issues.

(4) Feasibility.

(5) Complexity.

(6) Acceptance.

(7) Use of revenues.

(8) Security and compliance, including a discussion of processes and security measures necessary to minimize fraud and tax evasion rates.

(9) Data collection technology, including a discussion of the advantages and disadvantages of various types of data collection equipment and the privacy implications and considerations of the equipment.

(10) Potential for additional driver services.

(b) The California Transportation Commission shall include its recommendations regarding the pilot program in its annual report to the Legislature as specified in Sections 14535 and 14536 of the Government Code.

(Added by Stats. 2014, Ch. 835, Sec. 2. (SB 1077) Effective January 1, 2015. Repealed as of January 1, 2023, pursuant to Section 3093.)

3093.

This chapter shall remain in effect only until January 1, 2023, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2023, deletes or extends that date.

(Amended by Stats. 2018, Ch. 698, Sec. 2. (SB 1328) Effective January 1, 2019. Repealed as of January 1, 2023, by its own provisions. Note: Repeal affects Chapter 7, commencing with Section 3090.)

Memorandum

To: CHAIR AND MEMBERS

TAC Meeting: April 26, 2019

From: SUSAN BRANSEN, Executive Director

Reference Number: 8, Information

Prepared By: Jennifer Valeros,
Associate Governmental Program Analyst

Published Date: April 16, 2019

Subject: NATIONAL ROAD CHARGE PILOT AND RUC WEST UPDATE

Summary:

Anthony Buckley, Washington State Department of Transportation, will provide Technical Advisory Committee members with an update on the Road Usage Charge (RUC) West Pilot Project and the Mileage Based User Fee Alliance (MBUFA) National Road Charge Pilot.

Background:

RUC West

RUC West is a consortium of 14 western state departments of transportation coming together to share best practices, ideas, and information on a road usage charge. RUC West acts as a go-to source for anyone who has interest in a road usage charge. RUC West also provides case studies, best practices, and the most up-to-date information on a road usage charge available anywhere.

RUC West Pilot Project:

RUC West is working on an innovative pilot project to develop and test a regional road usage charge system that would operate across multiple states.

Of the 14 RUC West member states, 11 are participating in the RUC West Regional System Definition and Pilot Planning Project. These states are Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, Oklahoma, Oregon, Utah, and Washington. This initial phase of the project will set the stage for a regional system and associated pilot test by defining the system and developing essential regional pilot project plans.

The Mileage-Based User Fee Alliance (MBUFA)

Formed in 2010, MBUFA is a national non-profit organization that brings together government, business, academic, and transportation policy leaders to conduct education and outreach on the potential for mileage-based user fees as an alternative for future funding and improved performance of the U.S. transportation system.

The Mileage-Based User Fee Alliance National Pilot:

Congress is contemplating a pilot for a road usage charge system that may serve as an alternative to the current federal gas tax revenue system. The funding provided by Congress to create the Surface Transportation System Funding Alternatives program within the Federal Highway Administration (FHWA) was a critical first step. The program placed states in an incubator role, conducting critical research and testing to inform a national policy and program. To advance a national trial, there are many critical issue areas that will need to be addressed and included in the overall effort. MBUFA is working with FHWA and Congressional leadership from the House Transportation Committee to assist in advancing this effort.

Attachment:

- Attachment A: RUC West member states graphic

RUC West member states are organized into three tiers based on their current level of involvement in advancing RUC in their jurisdiction:

Tier 1: States with Policy Enacted to Implement RUC Programs

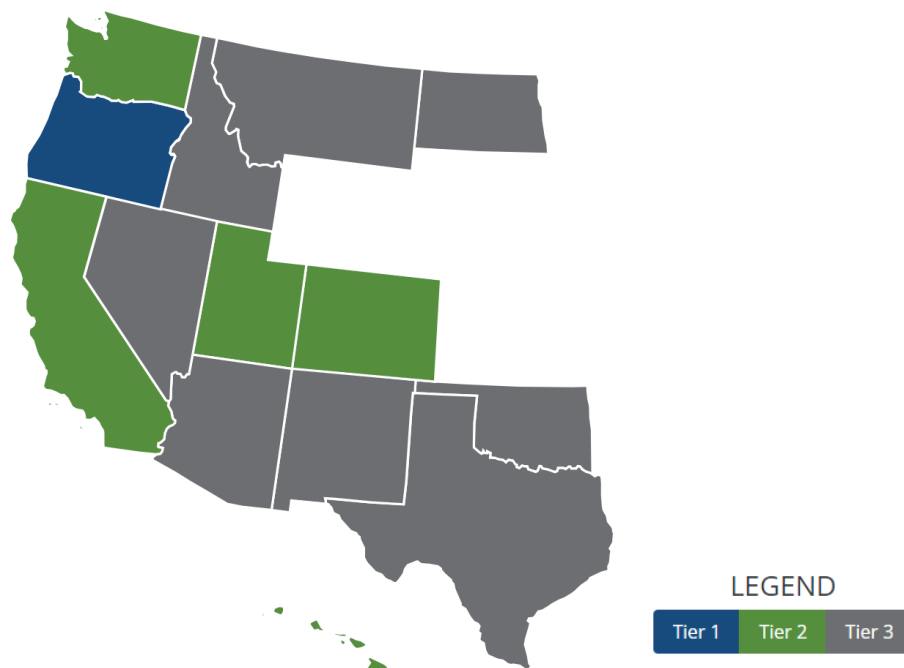
- Oregon

Tier 2: States Testing RUC Pilot Programs

- California
- Colorado
- Hawaii
- Washington
- Utah

Tier 3: States Researching RUC

- Arizona
- Idaho
- Montana
- Nevada
- New Mexico
- North Dakota
- Oklahoma
- Texas



Memorandum

To: CHAIR AND MEMBERS

TAC Meeting: April 26, 2019

From: SUSAN BRANSEN, Executive Director

Reference Number: 9, Information

Prepared By: Jennifer Valeros,
Associate Governmental Program Analyst

Published Date: April 16, 2019

Subject: CALIFORNIA STATE TRANSPORTATION AGENCY RESPONSE TO 2018 TAC
AND COMMISSION RECOMMENDATIONS

Summary:

The California State Transportation Agency (Agency) will respond to the 2018 Annual Report recommendations from the Technical Advisory Committee (TAC) and California Transportation Commission (Commission).

Background:

The Commission's 2018 Annual Report included recommendations to the Legislature to consider a road charge as a more equitable and sustainable source of transportation funding in lieu of the current per-gallon fuel tax. The Agency will respond to the four recommendations summarized below:

1. Direct the California State Transportation Agency to lead and develop a program, in consultation with the Road Charge Technical Advisory Committee, to implement a mandatory per-mile road charge requirement for government vehicles, autonomous vehicles, shared mobility, and zero-emission vehicles; and a phased-in voluntary road charge program for commercial vehicles. The road charge would replace existing per gallon fuel charges, or zero-emission vehicle registration fees, for participating vehicles.
2. The California State Transportation Agency also should begin planning for the implementation of a per-mile road charge program. The Agency should begin work on systems capable of supporting the implementation of a road charge program. Any systems must have the data capabilities and personal privacy protocols identified for further development or implementation of a road charge. Finally, the Legislature should require an annual report from the California

State Transportation Agency on the progress of implementing a per-mile road charge program.

3. Assess the need for requiring all new vehicles registered for personal or commercial use in California to be equipped with telematics capable of transmitting vehicle information, including the current odometer reading, necessary to institute a road charge program.
4. The California State Transportation Agency should build upon prior research from the 2017 California Road Charge Pilot Program and work with the University of California to conduct an evaluation of the potential impacts to disadvantaged communities resulting from a transition to a per-mile road charge program.

Attachment:

- Attachment A: Full text of 2018 Annual Report road charge recommendations



THE CALIFORNIA ROAD CHARGE TECHNICAL ADVISORY COMMITTEE

Pursuant to SB 1077 (DeSaulnier, Chapter 835, Statutes of 2014) the Commission created a Road Charge Technical Advisory Committee in consultation with the Secretary of the Transportation Agency to study road charge alternatives to the gas tax and to make recommendations to the Secretary of the Transportation Agency on the design of a pilot program and the criteria to be used to evaluate the pilot program. The 15-member Technical Advisory Committee established by the Commission includes membership that represents the following technical and public interest areas:

- Telecommunications;
- Highway user groups;
- Data security and privacy;
- Privacy rights advocacy organizations;
- The social equity community;
- Regional transportation agencies;
- National research and policymaking bodies (including members of the Legislature); and
- Other relevant stakeholders.

In December 2015, the Technical Advisory Committee adopted its Road Charge Pilot Design and Evaluation Criteria Recommendations to help guide development of the pilot program. Caltrans designed the pilot program consistent with the Committee's recommendations. The pilot program ran from July 2016 through March 2017, during which time the Road Charge Technical Advisory Committee received regular updates. By the end of the pilot program, more than 5,000 vehicles were enrolled, and 37 million miles were reported.

Following the completion of the pilot program, the California State Transportation Agency released a final report in December 2017. This final report contained an overview of the pilot program and identified next steps regarding further study of a road charge. The full 2017 Road Charge Pilot Program Final Report is available at www.californiaroadchargepilot.com/final-report.

The Technical Advisory Committee considered the Transportation Agency's final report for purposes of advising the Commission. By many measures, the Technical Advisory Committee and the Commission see the Road Charge Pilot Program as a success. The pilot program, which demonstrated a possible long-term alternative to the per-gallon fuel tax, can create stability and ensure longevity for California's transportation revenues. In addition to considering the Transportation Agency's final report, the Technical Advisory Committee also heard from subject matter experts this past year regarding the feasibility of possible implementation of a road charge for zero-emission, commercial, and state government vehicles; and methods for administering a road charge program.

Transportation funding in California has changed dramatically since the Road Charge Technical Advisory Committee was created in 2014. SB 1 provided the state with a much-needed increase in funding for transportation infrastructure and lessened the need, in the short term, to find alternatives to the gas tax. However, in the coming years, it will be important for the Legislature to look beyond the next decade toward a future when reliance on gasoline and diesel fuels for transportation will decline dramatically. As required by SB 1077, the Commission developed several recommendations, listed below. As California moves away from a reliance on gasoline-powered cars, the Legislature will need to consider a more equitable and sustainable source of transportation funding in lieu of the current per-gallon fuel tax. When that time comes, the Legislature should consider the following recommendations:

Direct the California State Transportation Agency to lead and develop a program, in consultation with the Road Charge Technical Advisory Committee, to implement a mandatory per-mile road charge requirement for government vehicles, autonomous vehicles, shared mobility, and zero-emission vehicles; and a phased-in voluntary road charge program for commercial vehicles. The road charge would replace existing per-gallon fuel charges, or zero-emission vehicle registration fees, for participating vehicles.

The California State Transportation Agency along with other state agencies should be required to work with relevant stakeholder groups through a phased-in process that is open to the public to develop a mandatory road charge program for all government vehicles, autonomous vehicles, shared mobility, and zero-emission vehicles, as well as a phased-in voluntary road charge program for commercial vehicles. This program would also include the identification of any equipment, on-board telematics, and software necessary or advisable for implementation, including for privacy and security. This identification project should review both existing commercial off-the-shelf products, innovative products, and academic research, including the use of encryption and similar technologies to mitigate privacy and security risks. The program

should not give existing vendors, including vehicle manufacturers, an unfair advantage over newer vendors or possibly superior technologies that may emerge during this multi-year project, keeping in mind that smart phones and similar devices may have a faster upgrade/innovation cycle than on-board telematics that last for the life of the vehicle.

The intent of this program would be to replace the existing per-gallon fuel charges, or zero-emission vehicle registration fees, with a per-mile road charge for participating vehicles. The Legislature should authorize the state to collect revenue at the level equivalent to the current fuel excise tax rate. Through communication and coordination with other states and the federal government, the California State Transportation Agency should develop a proposed strategy to address how federal fuel taxes could be incorporated into a per-mile road charge program.

The benefit of continued advancement of a road charge program will increase over time, especially in the latter half of the next decade as fuel efficiency and the number of zero-emission vehicles will increase dramatically. Prior to implementation of any road charge program, the California State Transportation Agency would need to ensure that critical policy issues have been addressed. These policy issues include but are not limited to: the specific per-mile fee and assurances that the road charge funds will replace existing per gallon fuel charges, be solely dedicated for transportation, and that the funding will be used in the same manner as existing fuel taxes.

The California State Transportation Agency also should begin planning for the implementation of a per-mile road charge program. The Agency should begin work on systems capable of supporting the implementation of a road charge program. Any systems must have the data capabilities and personal privacy protocols identified for further development or implementation of a road charge. Finally, the Legislature should require an annual report from the California State Transportation Agency on the progress of implementing a per-mile road charge program.

Additional considerations for this recommendation include:

- The road charge program may be administered by a private contractor, and the California State Transportation Agency should ensure that contracts for public-private partnerships shall have an open market for certification to administer road charge accounts.
- The road charge program should be coordinated with other departments within the California State Transportation Agency, including the Department of Motor Vehicles (DMV), the California Highway Patrol, and the California Department of Transportation (Caltrans). This may include but not be limited to monthly billing from the DMV, including both vehicle registration and per-mile road charge fees.
- Private account administrators may offer extra value-added services, including subscription services. The odometer reading and revenue collection will be included as a base service, covered by the program, and will not be an additional cost to the customer.
- Enable the state to receive the minimum driver and vehicle information necessary to collect revenue and provide for enforcement. This information may be limited to Vehicle Identification Number, odometer, and payment status, as determined by the California State Transportation Agency.
- Ensure driver privacy, incorporating recommendations regarding management of public and private access (including law enforcement) to data collected and stored for purposes of the road charge; the methodology must ensure protection of individual privacy rights

pursuant to Section 1 of Article I of the California Constitution – even, and especially, when data about California drivers may be transmitted to or accessible by other states or private actors in other states that fall short of or lack California’s statutory and constitutional protections for privacy. In addition, any collection and storage systems must conform to current requirements for cybersecurity and safety, such as those outlined in the National Institute of Standards and Technology.

- Successful implementation of a road charge program requires an effort to inform the public on the potential benefits in instituting a road charge. The University of California Institute of Transportation Studies should be tasked with assisting in this effort.

Assess the need for requiring all new vehicles registered for personal or commercial use in California to be equipped with telematics capable of transmitting vehicle information, including the current odometer reading, necessary to institute a road charge program.

The Commission recommends that the Legislature direct the California State Transportation Agency to assess the need for and define a time frame to establish data standards. This should be done in consultation with vehicle manufacturers, as well as data security and privacy rights experts, and relevant stakeholder groups to ensure that all new vehicles are equipped with the necessary telematics to implement a road charge in the future.

One of the larger barriers to future implementation of a road charge will be the need to standardize the data stream that is produced by all vehicle manufacturers. The Legislature should require state agencies to work with the automotive industry to develop and adopt standard equipment and data formats that can be used across jurisdictions and in an open-source system of public-private partnerships. Requiring the use of this equipment will prepare all vehicles for implementation and create a platform for developing data standardization. The Legislature should also recognize that the standards process has many implications for competition between vehicle manufacturers who can embed telematics into their vehicles, and post-sale vendors of smart phones or other “plug-in” devices that cannot function without access to onboard data.

The California State Transportation Agency should build upon prior research from the 2017 California Road Charge Pilot Program and work with the University of California to conduct an evaluation of the potential impacts to disadvantaged communities resulting from a transition to a per-mile road charge program.

In partnership with the University of California, the California State Transportation Agency should conduct an evaluation of the potential impacts to disadvantaged communities resulting from a transition to a per-mile road charge program and seek input from stakeholders knowledgeable in this area. This evaluation would help the Legislature determine if a potential road charge program would have a positive, negative, or no direct impact to disadvantaged communities.

State of California Agency
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

To: CHAIR AND COMMITTEE MEMBERS
CALIFORNIA ROAD CHARGE TECHNICAL
ADVISORY COMMITTEE

CTC Meeting: April 26, 2019
Reference No.: 10
Information Item

From: STEVEN D. KECK
Chief Financial Officer
California Department of Transportation

Prepared by: Brady Tacdol
Project Manager
Road Charge Program

Subject: **CALTRANS UPDATE ON ROAD CHARGE ACTIVITIES**

SUMMARY:

The California Department of Transportation's (Caltrans) will provide an update on current program research efforts and activities pertaining to the Fixing America's Surface Transportation (FAST) Act at the April 26, 2019 Road Charge Technical Advisory Committee meeting.

BACKGROUND:

Since the conclusion of the California Road Charge Pilot and release of the final report, Caltrans has continued to expand upon research efforts through the Fixing America's Surface Transportation (FAST) Act, Surface Transportation System Funding Alternatives (STSFA) grant program. Caltrans successfully applied for and was awarded federal grant funding in the first three years of the grant program to research, demonstrate, and inform the feasibility of mileage-based revenue collection, or road charge.

FAST Act – STSFA Grant: Round 1

The first round of the grant program was released in 2016, which allocated \$15M for states to submit applications for pre-demonstration planning activities.

- California was awarded \$750,000 in federal funding to research a pay-at-the-pump/charge point mileage reporting concept, organizational design, and public attitude research. This research has been completed and reported back to the Federal Highway Administration (FHWA) and the California Legislature.

FAST Act – STSFA Grant: Round 2

The second round of the grant program was released in 2017, making \$20 million in funding available for demonstration activities only.

- California was awarded \$1.75M in federal funding to demonstrate, via pilot, a pay-at-the-pump/charge point method of reporting and recording mileage for road charge purposes. The research funding from this grant is part of a formal

*“Provide a safe, sustainable, integrated and efficient transportation system
to enhance California’s economy and livability”*

Request for Proposals (RFP) that was released by Caltrans on March 14, 2019 and closed April 12, 2019.

FAST Act – STSFA Grant: Round 3

The third round of the grant program was released in 2018, making \$20 million in funding available for demonstration activities only.

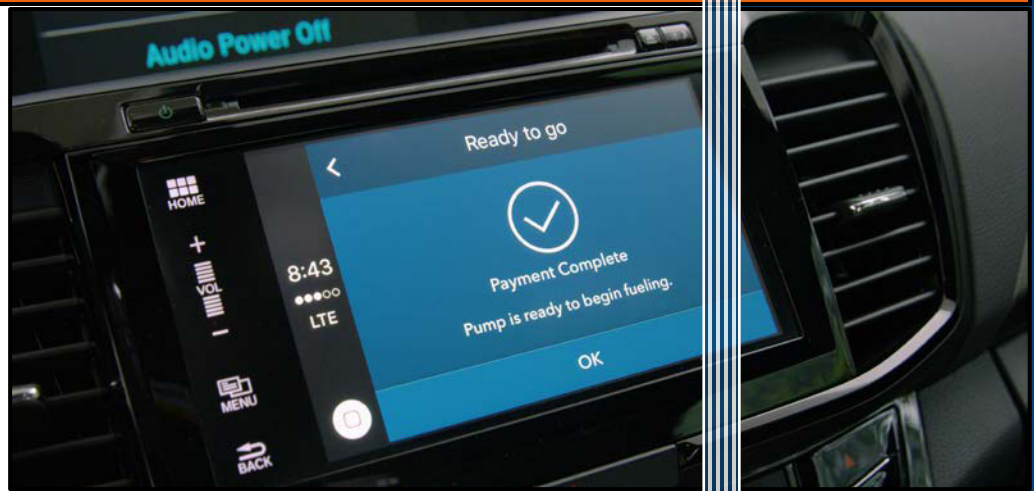
- On February 12, 2019, California was awarded \$2.03M federal funding to demonstrate, via pilot, methods of reporting and recording mileage with emerging technologies and services, such as Usage-Based Insurance (UBI), Transportation Network Companies (TNCs), and Autonomous Vehicles (AVs). This research funding and demonstration scope was combined with Round 2 grant funding, and included in the formal Request for Proposals (RFP) which was released by Caltrans on March 14, 2019 and closed April 12, 2019.

FAST Act – STSFA Grant: Round 4

The Notice of Funding Opportunity (NOFO) for the fourth round of STSFA funding is imminent, with past NOFO's released in the March/April timeframe. Currently, there remains \$40M in grant funding available to provide states with the opportunity to demonstrate innovative new ways to help fund transportation infrastructure improvements and maintenance. The STSFA program's goal is to allow states to test user-based alternatives to support the Highway Trust Fund, which relies primarily on the federal gas tax.

Attachment 1 – Road Charge Pay-at-the-Pump Research,
Legislative Report
July 2018

Road Charge: Pay-at-the-Pump Research



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Executive Summary

STATE LED ROAD CHARGE EFFORT

On September 29, 2014, Senate Bill 1077 (SB 1077), was signed by the Governor (Chapter 835, Statutes of 2014) which required the California Transportation Commission (CTC), in consultation with the California State Transportation Agency (CalSTA), to create a Road Usage Charge Technical Advisory Committee (Technical Committee). The Technical Committee was tasked with studying Road Charge alternatives, gathering public comment, and making recommendations to CalSTA on the design of a pilot program. The California Department of Transportation (Caltrans) was tasked with providing all technical support to the Technical Committee, CalSTA, and the CTC.

SB 1077 originally required CalSTA to implement a Road Charge Pilot Program by January 1, 2017 and to submit findings to the Technical Committee, the CTC and the policy and fiscal committees of the Legislature by June 30, 2018. However, in mid-2015 the Administration accelerated the Road Charge Pilot Program which led to CalSTA submitting the final report in December 2017. Based on this revised schedule, the CTC also included its recommendations regarding the Road Usage Charge Pilot Program in its annual report to the Legislature in December 2017.

STATE/FEDERAL PARTNERSHIP

In December 2015, the United States Congress acknowledged the need to demonstrate a user-based alternative revenue mechanism to maintain the long-term solvency of the Highway Trust Fund with the passage of the Fixing America's Surface Transportation (FAST) Act, and specifically the Surface Transportation System Funding Alternatives (STSFA; Section 6020 of the FAST Act). STSFA is a five year \$95 million grant program, with the initial Federal fiscal year 2016 funding availability of \$15 million, followed by four years each funded at \$20 million.

The United States Department of Transportation's (USDOT) approach in Federal fiscal year 2016 was to seek applications for extensions or enhancements of existing demonstration projects or for required pre-demonstration activity leading directly to a planned future demonstration project in the near term (less than 18 months from award). The type of alternative revenue mechanism proposed is flexible so long as it is user-based. However, 2016 was the only year pre-demonstration activity would be funded.

In March 2016, the Federal Highway Administration (FHWA) announced \$15 million in available grant funding for states under the STSFA grant program. While all the mileage reporting methods deployed for the Road Charge Pilot Program were feasible, they cannot compete with the simplicity, cost effectiveness, and public acceptance of the current gas tax collection process. Caltrans identified the STSFA grant program as an opportunity to partner with FHWA and leverage important state transportation resources. Thus, Caltrans applied for and was awarded a federal grant to study a pay-at-the-pump concept and its viability for road charge mileage recording and reporting. Since the STSFA grant program requires a 50 percent state funding match, Caltrans immediately submitted a resource request and received approval from the State Legislature to move forward with the pay-at-the-pump research.

This report summarizes the pay-at-the-pump pre-demonstration research conducted by Caltrans and meets the mandates of fiscal year 2017-18 Budget, Item 2660-001-0042, Provision 21 states, *"The Department of Transportation shall distribute a report no later than July 1, 2018, on*

progress made on the pay-at-the-pump component of the road user charge study. This report shall be made pursuant to the criteria established in subdivision (a) of Section 6020 of the Vehicle Code.”

PAY-AT-THE-PUMP/CHARGE POINT RESEARCH

Based on finding from the original road charge pilot program, Caltrans acknowledged the need to develop a pay-at-the-pump/charge point option for collecting a road charge, similar to the current gas tax model, for the following reasons:

- Paying at the pump is how motorists currently pay gas taxes, so it provides a familiar and comfortable experience
- The current gas tax is relatively inexpensive to administer and easy to enforce

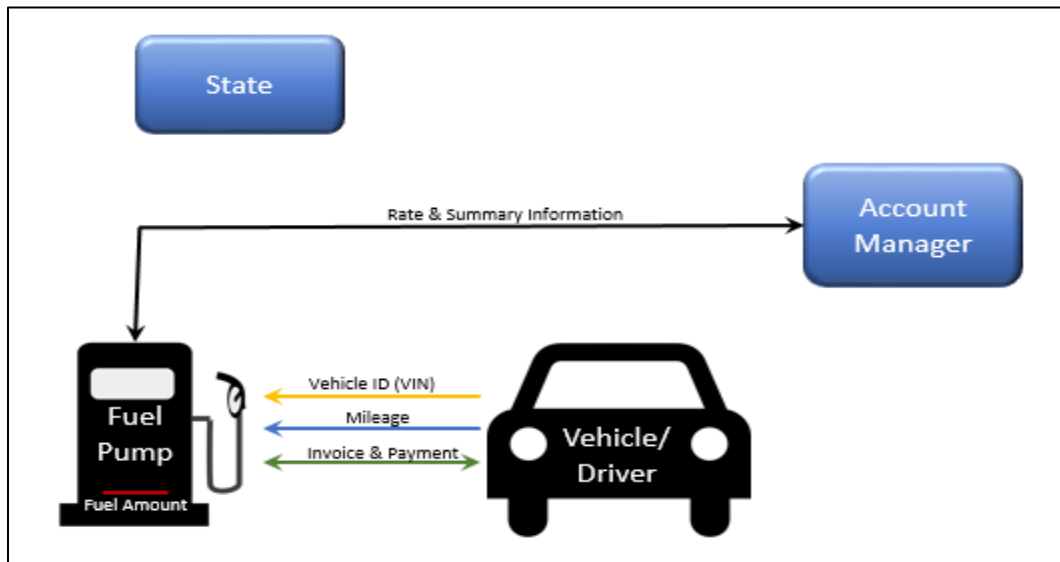
The Pay-at-the-Pump/Charge Point research focused on three goals:

- Develop a method for paying the road charge at gas stations or charge points by communicating mileage driven from the vehicle or device to the infrastructure;
- Identify technologically and economically viable pay-at-the-pump/charge point alternatives that provide a similar user experience as the current gas tax collection for further development; and
- Prepare a plan for demonstrating the effectiveness of a pay-at-the-pump/charge point alternative.

The overall goal of a pay-at-the-pump/charge point concept is to allow for the wireless exchange of data (vehicle-to-infrastructure), with three processes occurring as part of the retail purchase (see Figure 1):

- Vehicle identification
- Various transaction/data processing activities
- Assess net road charge payment (or credit in certain cases).

Figure 1. High-Level Architecture Diagram of Pay-at-the-Pump Road Charge Concept



KEY FINDINGS

The research concluded that a pay-at-the-pump pilot is operationally feasible. Table 2 provides a summary comparison of the proposed demonstration systems for each of the four technologies.

Table 2. Pilot Demonstration System Summary by Technology

Element	Technology 1	Technology 2	Technology 3	Technology 4
Miles driven	Actual	Actual	Actual	Estimated
Fuel purchase amount	Estimated	Actual ¹	Actual	Actual
Real time invoice which includes fuel purchased, road charge, and fuel tax credit.	No – Road charge and estimated fuel tax credit only	Yes ¹	Yes	Yes
Extendable to electric vehicle charge points	By geo-fencing charge points	By tracking charge point purchases on purchase card	By installation of vendor access point at charge point	By installation of tag reader at charge point ²
Ability to determine charge point purchase amount	No	Yes ³	Yes ⁴	Uncertain ⁵

LEGEND: Green = optimum characteristics; Yellow = further verification needed; Red = does not meet criteria well

¹ Uncertain if vendor can get amount of fuel purchase from cloud transaction data.

² Not clear that the direct payment to registered card can be implemented.

³ Only if dedicated payment card is used.

⁴ Only if fleet card is used. Not clear if vendor can track registered credit card transaction not through POS system.

⁵ Not clear if vendor can track transactions on registered card except through POS systems.

The technology solutions presented are often incorporated with other driver services and amenities, many focusing on point of sale application (e.g., other retail sales while at the gas pump, loyalty programs for gas companies, etc.). These concepts can be further adapted to provide a pay-at-the-pump road charge mechanism. **Note: While the technologies have evolved tremendously since Oregon's original pay-at-the-pump pilot in 2006, no single entity has developed a complete pay-at-the-pump system and it is likely that a consortium of entities will be needed to make a next-stage pay-at-the-pump/charge point pilot feasible.**

DEMONSTRATION PLAN FOR A PILOT

The final step in this research effort was the development of a demonstration plan for designing, implementing, and evaluating the proposed pay-at-the-pump/charge point pilot, to ensure it is consistent with the goals and budget in STSFA grant award. An estimated pilot activity schedule is provided below in Table 3.

Table 3. Estimated Pilot Activity Schedule

Pilot Activity	Dates
Develop the necessary procurement documents	July 2018 – September 2018
Execute procurement	October 2018 – March 2019
Execute contract(s)	April 2019 – May 2019
Update Demonstration Plan and Concept of Operations	June 2019 – July 2019
Update technical requirements to reflect the pay-at-the-pump/charge points requirements	August 2019 – September 2019
Recruit/select pilot participants; system development	October 2019 – December 2019

Table 3. Estimated Pilot Activity Schedule

Pilot Activity	Dates
Pilot system installation and participant on-boarding	January 2020 – February 2020
Conduct pilot	March 2020 – August 2020
Pilot evaluation and final report	September 2020 – December 2020

NEXT STEPS

The next steps will focus on the pay-at-the-pump pilot demonstration. The pay-at-the-pump pilot is expected to provide an initial proof-of-concept for one or two approaches for accommodating data collection and subsequent payment of the per-mile road usage charge at the retail point of sale.

Background

Statutory Reference & Purpose

Fiscal year 2017-18 Budget Act, Item 2660-001-0042, Provision 21 states, “*The Department of Transportation shall distribute a report no later than July 1, 2018, on progress made on the pay-at-the-pump component of the road user charge study. This report shall be made pursuant to the criteria established in subdivision (a) of Section 6020 of the Vehicle Code.*”

Program Background

OVERVIEW

The Road Charge Program is responsible for providing all technical support surrounding mileage-based revenue collection research (“road charge”), as an alternative to the current gas tax, to the California State Transportation Agency, California Transportation Commission and Road Charge Technical Advisory Committee. The program solely facilitates all research related activities surrounding road charge within California, and both nationally and internationally. This program was established through legislation (Senate Bill 1077 - 2014). Since then, the program has established itself as a national leader in road charge research and is a true example of how leadership, innovation, and teamwork can put Caltrans at the leading edge of modern transportation policy and practice.

THE CALIFORNIA ROAD CHARGE PILOT PROGRAM

In March of 2017, California successfully completed the largest road charge pilot in the nation, known as the California Road Charge Pilot Program. This pilot, pursuant to SB 1077 (Chapter 835, 2014), tested the functionality, complexity, and feasibility of a mileage-based system as a new potential revenue collection method for transportation funding. More than 5,000 vehicles, representing the state’s vast demographics, reported in excess of 37 million miles over this nine-month duration. Six reporting methods, manual to high technology options, were offered and tested throughout the pilot and for the first time light and heavy commercial vehicles were represented in this type of road charge research.

During the research, California “recognized the need to develop a method which mimics the current gas tax model.” Motorists currently pay gas taxes as part of their gas purchase when fueling at the pump. The current pay-at-the-pump fuel tax mechanism is also inexpensive to administer and requires little enforcement. Accordingly, if the necessary road charge data can be collected and transmitted to an account manager as part of the current re-fueling processes, or as part of the re-charging process for the increasing number of electric vehicles, it may be possible to minimize administrative costs and maximize compliance for a road charge system.

FEDERAL SURFACE TRANSPORTATION SYSTEM FUNDING ALTERNATIVES PROGRAM

In December 2015, President Obama signed into law the Fixing America’s Surface Transportation Act (FAST Act). The FAST Act included Section 6020 of the FAST Act established the Surface Transportation System Funding Alternatives (STSFA) Program, authorizing up to \$95 million in federal grant dollars over a 5-year period. The purpose of the STSFA program is to provide grants to state departments of transportation to conduct demonstration projects that explore user-based alternative revenue mechanisms. California, working through the Department of Transportation (Caltrans), took this opportunity to partner with the Federal Highway Administration (FHWA) to enhance facets of the pilot that were not

originally tested. Caltrans submitted a STSFA application in 2016 and was subsequently awarded the grant which funded this research: planning and pre-demonstration activities to enhance the original pilot program research.

Previous Report

- California Road Charge Pilot Program Final Report
<https://www.californiaroadchargepilot.com/final-report/>

Program Status/Program Accomplishments

PAY-AT-THE-PUMP/CHARGE POINT RESEARCH

As mentioned earlier, the original pilot provided a number of high and low technology mileage reporting options for collecting mileage-based revenue, or road charge. This research led to Caltrans acknowledging the need to develop a pay-at-the-pump/charge point option for collecting road charges, similar to the current gas tax model for the following reasons:

- Paying at the pump is how motorists currently pay gas taxes, so it provides a familiar and comfortable experience.
- The current gas tax is relatively inexpensive to administer and easy to enforce.

Additionally, with the growing number of plug-in hybrids and electric vehicles in California, an approach to capture mileage and support a road charge payment process at charge points is another component of this research effort. The long-term vision for road charge is that the collection of mileage-based fees will be an integral part of other services and driver amenities. Therefore, an approach where road charge data can be collected, processed, and/or transmitted as part of current re-fueling or re-charging processes represents an opportunity for integration within existing infrastructure and emerging pump-based transaction applications that may lower operating and administrative costs, facilitate enforcement, and increase public awareness of a mileage-based transportation funding mechanism.

The research focused on three goals:

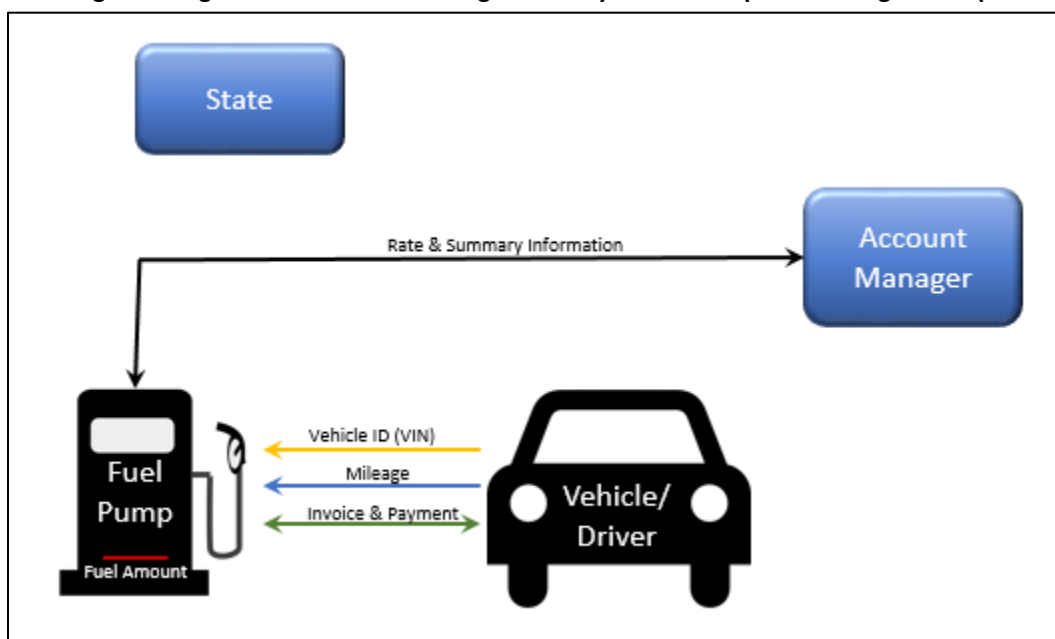
- Develop a method for paying the road charge at gas stations or charge points by communicating mileage driven from the vehicle or device to the infrastructure;
- Identify technologically and economically viable pay-at-the-pump/charge point alternatives that provide a similar user experience as the current gas tax collection for further development; and
- Prepare a plan for demonstrating the effectiveness of a pay-at-the-pump/charge point alternative.

The overall goal of a pay-at-the-pump/charge point concept is to allow for the wireless exchange of data (vehicle-to-infrastructure), with three processes occurring as part of the retail purchase (see Figure 1):

- Vehicle identification
- Various transaction/data processing activities (i.e., identifying the number of miles driven since the last payment, applying the per-mile charge to this mileage amount; identifying the accurate amount of state fuel tax paid; applying a credit for state fuel tax paid¹); and
- Assess net road charge payment (or credit in certain cases).

¹ It is envisioned that in a nationwide system, the federal gas tax would also be credited.

Figure 1. High-Level Architecture Diagram of Pay-at-the-Pump Road Charge Concept



The “state” shown in Figure 1 will receive the net road charge funds, deposit in the treasury, and provide on-going audit activities. Three basic approaches for achieving this necessary activity have been identified: (1) road charge funds are collected and transferred to the state by the fuel wholesalers (mimicking the current fuel tax system); (2) the funds are transmitted to the account manager who remits the net road charge to the state; or (3) some sort of combination.

RESEARCH APPROACH AND FINDINGS

Several steps were completed to identify potential pay-at-the-pump solutions and providers, and assess their approaches and technologies in support of a road charge. The research considered options for collecting vehicle mileage, other information (e.g., vehicle identification number, fuel used or purchased), and revenue collection at the gas pump, electric vehicle charge points, or other retail level configurations.

A review of transportation, automotive, and fuel station industry literature was conducted to identify technologies and potential approaches that currently support retail fueling stations, payment processing at the point-of-sale, and vehicle-to-infrastructure communications. This research identified several entities who were further investigated and contacted to determine their respective level of interest in receiving a Request for Information (RFI).

An RFI was issued to collect written information about the capabilities of various entities, and was made available for any interested parties to view. The RFI was not part of a formal procurement process; but provided a mechanism to assess viability, obtain information for developing an approach and deployment plan for the pay-at-the-pump/charge point pilot. All responses to the RFI were received and reviewed by the research team. After evaluating the RFI responses, four technologies were identified for collecting additional road charge information. Each respondent also included descriptions of their team; other services and driver amenities; privacy protections and data security approaches; and a high-level scope for a pilot project to demonstrate the technology. As some of the information provided in the RFI process was confidential or proprietary in nature, entities providing responses are not identified herein.

Table 2 provides a comparison of the proposed demonstration systems for each of the four technologies. The comparison is based on those elements which could be considered for requirements in a pay-at-the-pump/charge point road charge demonstration procurement. Green cells indicate the optimum characteristics to meet the criteria, yellow cells indicate further verification is needed, and red cells indicate where the technology solution does not fully meet the criteria at this time.

Table 2. Pilot Demonstration System Summary by Technology

Element	Technology 1	Technology 2	Technology 3	Technology 4
Miles driven	Actual	Actual	Actual	Estimated
Fuel purchase amount	Estimated	Actual ¹	Actual	Actual
Real time invoice which includes fuel purchased, road charge, and fuel tax credit.	No – Road charge and estimated fuel tax credit only	Yes ¹	Yes	Yes
Extendable to electric vehicle charge points	By geo-fencing charge points	By tracking charge point purchases on purchase card	By installation of vendor access point at charge point	By installation of tag reader at charge point ²
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¹ Uncertain if vendor can get amount of fuel purchase from cloud transaction data.

² Not clear that the direct payment to registered card can be implemented.

³ Only if dedicated payment card is used.

⁴ Only if fleet card is used. Not clear if vendor can track registered credit card transaction not through POS system.

⁵ Not clear if vendor can track transactions on registered card except through POS systems.

Each technology provider above was interviewed as part of the research process and it was determined that a pay-at-the-pump pilot is operationally feasible. The technology solutions presented are often incorporated with other driver services and amenities, many focusing on point of sale application (e.g., other retail sales while at the gas pump, loyalty programs for gas companies, etc.). These concepts can be further adapted to provide a pay-at-the-pump road charge mechanism. Note: While the technologies have evolved tremendously since Oregon's original pay-at-the-pump pilot in 2006, no single entity has developed a complete pay-at-the-pump system and it is likely that a consortium of entities will be needed to make a next-stage pay-at-the-pump/charge point pilot feasible.

DEMONSTRATION PLAN FOR A PILOT

The final step in this research effort was the development of a demonstration plan for designing, implementing, and evaluating the proposed pay-at-the-pump/charge point pilot, to ensure it is consistent with the goals and budget in STSFA grant award. The demonstration plan and the subsequent pilot system is expected to provide an initial proof-of-concept for accommodating data collection and subsequent payment of the per-mile road charge as part of a retail transaction for the purchase of fuel and/or electric charging. The goals of the pilot include:

- Explore and investigate if a pay-at-the-pump/charge point concept is a viable mileage recording and reporting option for road charge.
- Identify what additional features (e.g., hardware, software, processing capabilities, integration) would be required for the pilot architecture and configuration to achieve the long-term concept for a pay-at-the-pump/charge point approach.
- Achieve these goals within the allocated \$1.5 million STSFA grant budget for the pilot.

Table 3. Estimated Pilot Activity Schedule

Pilot Activity	Dates
Develop the necessary procurement documents	July 2018 – September 2018
Execute procurement	October 2018 – March 2019
Execute contract(s)	April 2019 – May 2019
Update Demonstration Plan and Concept of Operations	June 2019 – July 2019
Update technical requirements to reflect the pay-at-the-pump/charge points requirements	August 2019 – September 2019
Recruit/select pilot participants; system development	October 2019 – December 2019
Pilot system installation and participant on-boarding	January 2020 – February 2020
Conduct pilot	March 2020 – August 2020
Pilot evaluation and final report	September 2020 – December 2020

Conclusion

The next steps will focus on the pay-at-the-pump pilot demonstration. In 2017, California was awarded a second STSFA grant to perform the actual demonstration of pay-at-the-pump as a potential mileage recording and reporting mechanism. In June 2018, the California Legislature approved the budget to move forward with this next phase of road charge research. The pay-at-the-pump pilot is expected to provide an initial proof-of-concept for one or two approaches for accommodating data collection and subsequent payment of the per-mile road usage at the retail point of sale.

Appendix A. Statutory Reporting Reference

2017 – 18 Final Budget Summary

Item	Amount
*2660-001-0042—For support of Department of Transportation, payable from the State Highway Account, State Transportation Fund	2,384,672,000
Schedule:	
(1) 1835010-Capital Outlay Support	708,132,000
(2) 1835020-Local Assistance	50,854,000
(3) 1835029-Program Development	38,155,000
(4) 1835038-Legal	127,206,000
(5) 1835047-Operations	246,524,000
(6) 1835056-Maintenance	1,363,408,000
(7) 1840019-State and Federal Mass Transit	54,000
(8) 1840028-Intercity Rail Passenger Program	571,000
(9) 1845013-Statewide Planning	80,559,000
(9.5) 1870-Office of Inspector General	9,467,000
(10) 9900100-Administration	362,120,000
(11) 9900200-Administration—Distributed	–362,120,000
(12) 1850010-Equipment Service Program	200,394,000
(13) 1850019-Equipment Service Program—Distributed	–200,394,000
(14) Reimbursements to 1835010-Capital Outlay Support	–184,550,000
(15) Reimbursements to 1835020-Local Assistance	–1,278,000
(16) Reimbursements to 1835029-Program Development	–860,000
(17) Reimbursements to 1835038-Legal	–2,872,000
(18) Reimbursements to 1835047-Operations	–6,195,000
(19) Reimbursements to 1835056-Maintenance	–36,400,000
(20) Reimbursements to 1845013-Statewide Planning	–8,103,000
(21) Reimbursements to 9900100-Administration	–20,486,000
(22) Reimbursements to 9900200-Administration—Distributed	20,486,000
Provisions:	

21. The Department of Transportation shall distribute a report no later than July 1, 2018, on progress made on the pay-at-the-pump component of the road user charge study. This report shall be made pursuant to the criteria established in subdivision (a) of Section 3092 of the Vehicle Code.



U.S. Department of Transportation
Federal Highway Administration

CALTRANS ROAD CHARGE STRATEGIC COMMUNICATIONS PLAN 2018-2019

Prepared by:



Mercury.



EXECUTIVE SUMMARY

BACKGROUND

In July 2016, the California Department of Transportation (Caltrans) launched the California Road Charge Pilot Program (RCPP), to study the feasibility of a “road charge”, which tested a usage-based method of collecting transportation revenue as an alternative to the gas tax. Historically, taxing gasoline has provided the majority of the revenue required to maintain and operate our transportation network. However, the dual factors of inflation and increasing vehicle fuel efficiency call into question the long-term viability of the gas tax as a sustainable transportation revenue model.

This issue is not unique to California; federal transportation funding has been on the decline as well. The federal gas tax has not increased since 1993¹, which has led to decreased purchasing power and less available funding for transportation. In light of these realities, in 2015, bipartisan majorities in both houses of Congress passed and President Barack Obama signed the Fixing America’s Surface Transportation (FAST) Act, which provided a modest increase in federal funding for surface transportation infrastructure planning and investment².

Acknowledging the need to enhance the RCPP research, Caltrans requested and was granted FAST Act funding to educate the state’s diverse geographic, demographic, and socio-economic groups about the RCPP and transportation funding. The corresponding Request for Proposal (RFP) required consultants to develop an education and outreach effort that 1) demystifies and simplifies transportation funding; 2) tells the story of why the revenue currently collected is not sufficient to maintain and operate, let alone expand, our existing transportation system; and 3) educates the public on road charge as a potential viable and equitable solution to our transportation funding shortfall.

RECOMMENDATIONS

Based on the RCPP research findings, we were able to assess how Californians perceive the state’s roads, the gas tax, and general transportation funding across a range of demographics. With these insights we were able to determine strategic tactics to educate Californians – utilizing the key messages, messengers, and geographies based on the research findings. The potential educational efforts outlined in the following sections are organized in a two-phased approach that focuses on:

- I. Defining the problem (the current state of infrastructure) and explaining its root cause (the instability of the gas tax as a funding mechanism for road repairs and expansion)

¹ National Conference of State Legislatures, “Deep Dive: Transportation,” Accessed 6/20/18.

² U.S. Department of Transportation Federal Highway Administration, “Fixing America’s Surface Transportation Act or ‘FAST Act,’” 2/14/17.

- II. Explaining a potential alternative revenue stream presented by road charge as a more stable way to fund needed road repairs and expansion.

As outlined by the RFP, these recommendations include the following communications strategies:

- **Public Affairs**: Conducting direct outreach and engagement with California’s general motorists as well as internal and external state agencies
- **Stakeholder Outreach**: Educating, recruiting, and engaging a coalition in support of a potential road charge
- **Public Outreach**: In-person grassroots-level education to Californians about transportation funding and road charge as a potential solution
- **Social Media**: Meeting Californians where they already are—online—and building general public awareness around transportation funding through shareable content
- **Media Relations**: Leveraging the authority of traditional media outlets to validate the flaws in the current system of funding highway repairs and the benefits of transitioning to a potential road charge
- **Media Buying**: Using paid media to ensure messages reach the target audiences with tailored messages designed to educate them about transportation funding and a potential road charge
- **Partnerships**: Working with potential partners to extend and maximize the educational marketing reach and develop new strategic relationships with community-based organizations who will further enhance education and outreach efforts

The potential public educational effort outlined in the following sections is designed to be carried out at any time and serves as both a strategy and implementation guide. While the political and policy realities at the time of an educational effort execution will impact the specific organizations, media outlets, and events tied to each strategy, the core approach to educating Californians about transportation funding and a potential road charge to earn their support for such a policy will likely remain consistent.

Find the full version of this report here: californiaroadchargepilot.com/research



Road Charge Program

WWW.CALIFORNIAROADCHARGEPILOT.COM



ONGOING RESEARCH

FAST Act - STSFA Grant Program

PROGRAM OVERVIEW

- Fixing America's Surface Transportation (FAST) Act of 2015 established the Surface Transportation System Funding Alternatives (STSFA) grant program
- Eligible to state or group of states to test road charge design, acceptance, and implementation
- 5 year - \$95 million grant program



Round 1: Fiscal Year 2016

Awarded \$750,000

- Investigate pay at the pump/charge point demonstration
- Develop organizational framework
- Conduct public attitude research

Round 2: Fiscal Year 2017

Awarded \$1,750,000

- Demonstrate pay at the pump/charge point

Round 3: Fiscal Year 2018

Awarded \$2,030,000

- Explore road charge nexus with usage-based insurance, transportation network companies, and autonomous vehicles

RUC West

CONSORTIUM OVERVIEW

- 14 Western states committed to collaborative research
- Forum to share information, best practices and lessons learned from pilot studies
- Caltrans is a lead member and continues to mentor other member states



Round 1: STSFA Grant - Fiscal Year 2016

Awarded \$1,500,000

- Regional pilot planning with 11 participating states
- Defines regional system

Round 2: STSFA Grant - Fiscal Year 2017

Awarded \$2,590,000

- Regional pilot demonstration CA/OR
- Investigating interoperability

Round 3: STSFA Grant - Fiscal Year 2018

Awarded \$950,000

- Explore road charge and autonomous vehicles
- State and regional level

Other Research

UC DAVIS ZEV FEE STUDY

- Advisory Panel Participant
- Annual ZEV Fee Assessment
- Senate Bill 1, Sec. 48

DRISI

- Division of Research Innovation and System Information
- Executive Priority Steering Committee
- CSU Long Beach Whitepaper
- Federal Excise Tax (ongoing)

AV/ROAD CHARGE NEXUS

- DMV AV Workgroup Collaboration
- Potential Research Topics: Rideshare, AV and Road Charge Barriers, Communication Tools, and Data Security



DISADVANTAGED COMMUNITIES RESEARCH PROJECT: CONCEPT MEMO

Purpose

As part of the Disadvantaged Communities Research for the California Road Charge Pilot Program, the Foundation for California Community Colleges (Foundation) will prepare four research whitepapers on topics determined by the California Department of Transportation (Caltrans). The following concept memo outlines the research for the first whitepaper, which will define disadvantaged communities, the potential impacts of a road charge on disadvantaged communities, and explain the importance of this assessment for economic and environmental equity.

Background

Historically, taxes on gasoline or diesel-fueled vehicles have funded the maintenance and operation of California's transportation network. Improved vehicle fuel efficiency, combined with a lack of inflation adjustment since 1994, has created a funding shortfall for the state's highways and roads. In 2014, Senate Bill 1077 (DeSaulnier – Chapter 835, Statutes of 2014) created the California Road Charge Pilot Program and 15-member Technical Advisory Committee (TAC) to study a road charge alternative to the gas tax. Working with the California State Transportation Agency and the California Transportation Commission, Caltrans successfully completed the largest road charge pilot in the nation with over 5,000 participating vehicles statewide. The nine-month pilot was conducted between July 2016 and March 2017. While the pilot endeavored to include a proportionate number of participants from rural and low-income communities, opinions collected from surveys and focus groups indicate that additional research is needed for fair and successful implementation of a road charge in disadvantaged communities.

Whitepaper Topic

The first research whitepaper by the Foundation will explore the following, and include maps and graphics as necessary:

- Overview of the California Road Charge Program and high-level pilot findings
 - Overview of the public perception research completed from 2015 to present time
 - Definition of disadvantaged and low-income communities for this project and the importance of considering the impact to these communities
 - Potential road charge impacts to disadvantaged and low-income communities, including economic and environmental factors
 - Introduction to this project and high-level expected outcomes/benefits
 - Initial recommendations and suggested methods of combating and ameliorating these perceived or real impacts through education, awareness and outreach
-

Additional Sources

In addition to its own experience working with disadvantaged communities, the Foundation will draw upon research and publications written by leading organizations in environmental equity such as Liberty Hill Foundation and the Greenlining Institute.



Memorandum

To: CHAIR AND MEMBERS

TAC Meeting: April 26, 2019

From: SUSAN BRANSEN, Executive Director

Reference Number: 11, Information

Prepared By: Garth Hopkins,
Deputy Director

Published Date: April 16, 2019

Subject: **Overview of Caltrans' Research Program**

Summary:

Steven Keck, the Chief Financial Officer with the California Department of Transportation (Caltrans), will provide a brief overview of Caltrans' Research Program.

Background:

The primary goal of the Caltrans Division of Research and Innovation is to support Caltrans' mission to provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability; and to advance California's transportation system and develop comprehensive transportation solutions.

Steven Keck's overview of the Caltrans' Research Program should provide background information that may be beneficial for the Technical Advisory Committee members when discussing additional road charge related research needs.

Memorandum

To: CHAIR AND MEMBERS

TAC Meeting: April 26, 2019

From: SUSAN BRANSEN, Executive Director

Reference Number: 13, Action

Prepared By: Garth Hopkins
Deputy Director

Published Date: April 16, 2019

Subject: Adoption of Road Charge TAC Guiding Objective and Action Plan

Issue:

Should the TAC members adopt the California Road Charge TAC Guiding Objective and Action Plan?

Recommendation:

Staff recommends adoption of the California Road Charge TAC Guiding Objective and Action Plan.

Background:

The Road Charge TAC Guiding Objective identifies and sets the overarching tone to continue to move California forward in adopting a road charge as the alternative to the current fuel tax. The Guiding Objective states that California serves as a national leader on road charge issues and is intent on implementing a phased-in program for long-term transportation funding stability.

The Action Plan identifies three primary items:

1. Educate the public and key stakeholders on road charge.
2. Research to better position California for implementation of a road charge program.
3. Advise the Commission on road charge issues for purposes of ultimately advising the Legislature and Administration through the Commission's annual reports.

To accomplish the overall effort of addressing the items identified in the Action Plan, staff recommends the TAC request that Commission staff and Caltrans work

collaboratively to develop a series of white papers. These white papers would discuss each of the items identified in the Action Plan. If feasible, outside consulting services could be engaged. Information from the 2017 California Road Charge Pilot Program will also be utilized in the white papers.

Attachment:

- Attachment A: TAC Guiding Objective and Action Plan

#1 California Road Charge TAC Guiding Objective:

California serves as a national leader on road charge policies and effectively implements and administers a phased-in road charge program that provides long-term sustainable, reliable and sufficient funding to meet California's transportation system needs.

#2 California Road Charge TAC Action Plan:

In consultation and collaboration with the California State Transportation Agency, the TAC will focus its efforts on the following actions during FY 2019/20:

- 1. Educate the public and key stakeholders on road charge.**
 - a. Increase Legislative, Administrative, stakeholder and public understanding of transportation funding and the need for a phased-in road charge program.
 - b. Ensure that California is engaged with and informing other states and the federal government on road charge issues.
- 2. Research to better position California for implementation of a road charge program.**
 - a. Explore and develop a framework for administration of a road charge program within state government.
 - b. Further evaluate the potential impacts to disadvantaged communities resulting from a transition to a road charge program.
 - c. Further evaluate the privacy and data security concerns of a road charge program.
 - d. Identify the scope and actions necessary to implement a per-mile road charge demonstration program for state government and electric vehicles.
 - e. Assess the feasibility for requiring all new vehicles registered for personal or commercial use in California to be equipped with telematics capable of transmitting the vehicle information necessary to institute a road charge.
- 3. Advise the Commission on road charge issues for purposes of ultimately advising the Legislature and Administration through the Commission's annual reports.**

Review of Action Items

Staff will provide a verbal overview and a follow-up plan for action items, parking lot items, next steps, and other matters discussed at the meeting.

Public Comment

Public Comments will be solicited from members of the public attending the meeting.