

California Road Charge Program

Annual Report – Fiscal Year 2020



Submitted By:

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Purpose

This is the fourth annual report, required under Section 5(b) of the FAST Act, STSFA grant agreement entered into between FHWA and the California Department of Transportation (Caltrans). This report describes how the demonstration activities carried out in the year of 2020 with grant funds meet the objectives of the FAST Act STSFA Program.

Background

California's Road Charge Pilot Program (RCPP)

As California looks toward a future without gas-powered vehicles, alternative funding sources for our transportation system must be explored. Beginning in 2013, California initiated investigations into a mileage-based user fee. In September 2014, legislation was enacted to conduct a pilot testing road charge as an alternative to the gas tax. The pilot had over 5,000 participants logging over 37 million miles and successfully demonstrating the feasibility of a road charge. However, areas of research remained, with the final report recommending an exploration of pay-at-the-pump opportunities.

The passage of the Road Repair and Accountability Act provided California the opportunity to thoughtfully develop a fair and sustainable transportation revenue mechanism to eventually replace the gas tax. California has relied on the gas tax for 100 years, and a decision to move away from this model must be approached thoroughly and carefully. The Road Charge Program has continued to research the key topics outlined in the STSFA goals including minimizing administrative costs of a road charge system, understanding and enhancing public perceptions of transportation, and demonstrating potential road charge technology mechanisms to ease future adoption.

FHWA FAST Act STSFA Grant Awards

Caltrans was awarded federal grant funding from the Federal Highway Administration (FHWA) under the Fixing America's Surface Transportation (FAST) Act Surface Transportation System Funding Alternatives (STSFA) program in 2016 (Round 1) and 2017 (Round 2). Round 1 has since been completed. In 2018, Caltrans also applied for Round 3 of the STSFA Grant and was awarded funding in early 2019. Round 2 and Round 3 have been combined into California's Four Phase Demonstration project, which will launch in 2021.

Grant FFY	FAST Act STSFA Grants	Estimated Cost	Federal Funds	State Funds	State In-Kind Contribution	Projects Completed
2016	Caltrans Award – Round 1	\$1,527,000	\$750,000	\$534,100	\$242,900	Jan. 2019
2017	Caltrans Award – Round 2	\$3,500,000	\$1,750,000	\$750,000	\$1,000,000	In Progress
2018	Caltrans Award – Round 3	\$4,060,000	\$2,030,000	\$940,000	\$1,090,000	In Progress
	Totals	\$9,087,000	\$4,530,000	\$2,224,100	\$2,332,900	

FAST Act STSFA Goals mapped to Caltrans Objectives

The table below summarizes the FAST Act STSFA Goals and maps Caltrans' RCPP project objectives (listed above) to these goals.

FAST Act STSFA Goals	Caltrans RCPP Objectives							
	1	2	3	4	5	6	7	8
1. Test the design, acceptance, and implementation of 2 or more future user-based alternative revenue mechanisms.		✓	✓	✓	✓	✓	✓	✓
2. Improve the functionality of such user-based alternative revenue mechanisms.	✓	✓	✓	✓	✓	✓	✓	✓
3. Conduct outreach to increase public awareness regarding the need for alternative funding sources for surface transportation programs and to provide information on possible approaches.	✓		✓		✓			
4. Provide recommendations regarding adoption and implementation of user-based alternative revenue mechanisms.			✓	✓		✓	✓	✓
5. Minimize the administrative cost of any potential user-based alternative revenue mechanisms.		✓	✓	✓		✓	✓	✓
6. Minimize the administrative costs associated with the collection of fees.		✓	✓	✓		✓	✓	✓

Budget Status

Caltrans FFY 2016 STSFA FAST Act Award – Round 1 Complete

Grant FFY	Task	Estimated Cost	Federal Funds	State Funds	State In-Kind Contribution	Task Completed
	Education & Outreach	\$1,000,000	\$500,000	\$460,600	\$39,400	Jan. 2019
	Organizational Structure and Compliance Program	\$277,000	\$125,000	-	\$152,000	Sept. 2018
	Pay-at-the-Pump / Charge Point Test	\$250,000	\$125,000	\$73,500	\$51,500	Jan. 2019
2016	Total Estimated Cost	\$1,527,000	\$750,000	\$534,100	\$242,900	
	Expended thru Sept 2019	\$1,359,190	\$557,671	\$452,563	\$348,956	
	Balance	\$167,810	\$192,329	\$81,537	-\$106,056	
% Expended thru Sept 2019		89%	74%	85%	144%	

During 2019, the California RCPP projects funded by the STSFA FAST Act 2016 grant (Round 1) concluded and their respective final reports were submitted to FHWA.

Project goals:

- 1. Expand Education and Outreach**
 - a. Provide the public with information related to road usage charge.
 - b. Develop research initiatives aimed at informing the public on the current system of generating revenues for transportation infrastructure, how those funds are distributed and used.
 - c. Provide an open and transparent forum for the discussion of road charge as an alternative to the gas tax.
- 2. Develop Organizational Structure and Compliance Program**
 - a. Define organizational structure for California's road charge program
 - b. Examine and identify improvements to the current gas tax revenue model
 - c. Identify enforcement and compliance strategies
- 3. Test a Pay-at-the-Pump/Charge Point Model**
 - a. Identify technology solutions for a Pay-at-the-Pump/Charging Station model
 - b. Select viable Pay-at-the-Pump/Charging Station software/applications
 - c. Demonstrate the effectiveness of the Pay-at-the-Pump/Charging Station software/applications through internal testing

The funds from the 2017 STSFA grant (Round 2) and 2018 STSFA grant (Round 3), in addition to the work accomplished through 2016 grant funds are being utilized to conduct several comprehensive road charge demonstrations that will feature emerging technologies in transportation. Caltrans will conduct four demonstrations in 2021 that will explore how a mileage-based road charge can be assessed through Pay-at-the-Pump/Electric Charge Points, Usage-Based Insurance, Transportation Network Companies, and Autonomous Vehicles.

The following table indicates the total estimated cost for each project, as reflected in Caltrans' 2017 STSFA FAST Act Grant Proposal.

Caltrans FFY 2017 STSFA FAST Act Award – Round 2			In Progress		
Grant FFY	Task	Estimated Cost	Federal Funds	State Funds	State In-Kind Contribution
	Pay-at-the-Pump / Charge Point Demonstration	\$3,500,000	\$1,750,000	\$750,000	\$1,000,000
2017	Total Estimated Cost	\$3,500,000	\$1,750,000	\$750,000	\$1,000,000
	Expended thru Sept. 2020	\$3,246,910	\$1,749,777	\$634,504	\$862,629
	Balance	\$253,090	\$223	\$115,496	\$137,371
% Expended thru Sept 2020		93%	100%	85%	86%

Project goals:

4. Demonstrate a Pay-at-the-Pump/Charge Point Model

- a. Test the viability of a Pay-at-the-Pump/Charge point system through a live demonstration and evaluation of new technologies
- b. Evaluate feasibility, cost effectiveness, and public acceptance of a Pay-at-the-Pump/Charge Point model
- c. Make recommendations regarding Pay-at-the-Pump/Charge Point implementation

5. Research on Public Attitudes

- a. Examine public perception of transportation funding and transportation funding alternatives.
- b. Execute a multi-channel, multi-lingual transportation funding communication and outreach program.
- c. Evaluate and refine the most effective transportation funding messages and channels.

The following table indicates the total estimated cost for each project, as reflected in Caltrans' 2018 STSFA FAST Act Grant Proposal.

Caltrans FFY 2018 STSFA FAST Act Award – Round 3			In Progress		
Grant FFY	Task	Estimated Cost	Federal Funds	State Funds	State In-Kind Contribution
	Usage Based Insurance (UBI) Demonstration	\$1,320,000	\$660,000	\$310,000	\$350,000
	Transportation Network Companies Demonstration	\$1,170,000	\$585,000	\$330,000	\$255,000
	Autonomous Vehicles Demonstration	\$1,570,000	\$785,000	\$300,000	\$485,000
2018	Total Estimated Cost	\$4,060,000	\$2,030,000	\$940,000	\$1,090,000
	Expended thru Sept. 2020	\$2,148,360	\$2,030,000	\$0	\$118,360
	Balance	\$1,911,640	\$0	\$940,000	\$971,640
% Expended thru Sept. 2020		53%	100%	0%	11%

Project goals:

- 6. Usage Based Insurance and Road Charge Demonstration**
 - d. Demonstrate the feasibility of auto insurance companies (those currently utilizing UBI) acting as CAMs in the collection of a road charge.
 - e. Assess the cost-effectiveness of auto insurance companies (those currently utilizing UBI) acting as CAMs in the collection of a road charge
 - f. Build partner and public awareness of this type of road charge model
- 7. Transportation Network Companies and Road Charge Demonstration**
 - d. Demonstrate the feasibility of collecting a road charge through transportation network companies
 - e. Assess the cost effectiveness of collecting a road charge through transportation network companies
 - f. Build partner and public awareness of this type of road charge model
- 8. Autonomous Vehicles and Road Charge Demonstration**
 - g. Identify road charge opportunities that stem from autonomous vehicle usage of California roadways
 - h. Build partner and public awareness of this type of road charge model

Project Status

Round 1

Round 1 is complete.

Round 2 & 3

Innovation and Research

- Developed road charge research plan with a series of research topics to study both during and beyond the phased demonstration
- Continued working with UC-Berkeley to research road charge risks, economic impacts, market research, and integration of TNCs
- Continued market research and development of road charge business case and associated revenue forecast
- Continued development of long-term Program research plan and topics.
- Evaluated project opportunities for 2020 STSFA grant award

Phased Demonstrations (Pay-at-the-Pump/Charge Point, UBI, TNC, and AV)

Demonstration:

- Developed Demonstration Concept of Operations
-

- Developed Technical and Operational Environment and Scenarios Memorandum
- Developed the demonstration system design and architecture
- Developed system requirements specifications, business requirements, and interface controls
- Developed the participant agreement and related privacy policy
- Developed the participant recruiting plan and incentives structure
- Identified potential recruits for the demonstration
- Developed and executed test plans and cases for unit, integration, acceptance, and dry run testing
- Developed the Implementation Plan and Customer Support plan in preparation of demonstration launch
- Conducted participant recruiting for both general public and targeted recruits
- Develop Participant Portal under the California Road Charge website for participants to manage enrollment and participation in the demonstration

Communications:

- Relaunched the California Road Charge Demonstration website (www.caroadcharge.com)
- Developed the Communications Plan and Communications Research Plans
- Developed new program logo and branding guidelines
- Began development of road charge educational videos
- Conducted initial wave of public opinion polling of 603 California residents
- Developed participant survey and public focus group plans
- Updated polling, survey, and focus group strategies based on continued COVID-19 restrictions
- Developed email and social media communications strategies
- Developed demonstration recruiting newsletter
- Report program updates, demonstration status, and research progress to the California Road Charge Technical Advisory Committee

Conclusion and Next Steps

During 2020, the funds from the 2017 and 2018 STSFA grant funds were utilized to design a comprehensive road charge demonstration that features emerging technologies in transportation. Caltrans will launch the California Road Charge Demonstration, demonstrating how road charge can be assessed on Pay-at-the-Pump/Electric Charge Point, Usage-based Insurance, Transportation Network Companies, and Autonomous Vehicles in early 2021. This demonstration is expected to last six months and encompass the accurate, secure, and comprehensive data collection, assessment, and reporting of a road charge on these technology platforms.

In 2021, the following high-level tasks will be completed through utilization of the 2017 STSFA grant and 2018 STSFA grant awards:

- **Communications**
 - Launch road charge informational videos
 - Conduct 12 focus groups throughout the state

- **Innovation and Research**
 - Finalize the Demonstration Research Plan
 - Select research topics for specific study based on the approved plan and TAC input
 - Continue evaluating potential risks, mitigation strategies, and policy considerations for deploying a road charge program
 - Conduct market research to support the road charge business case
 - Conduct another round of public opinion polling
- **Phased Demonstrations (Pay-at-the-Pump/Charge Point, UBI, TNC, and AV)**
 - Launch and operate all four phases of the 6-month Phased Demonstration
 - Phase 1 pay-at-the-pump / charge point: January 2021 thru June 2021
 - Phase 2 usage-based insurance: February 2021 thru June 2021
 - Phase 3 transportation network companies: March 2021 thru June 2021
 - Phase 4 autonomous vehicles: April 2021 thru June 2021
 - Develop data analytics tools and dashboards using demonstration data, through the Platform for Road charge Innovation and Mobility Evolution (PRIME) demonstration data warehouse
 - Review and analyze demonstration financial and operational reports
 - Compile demonstration operations closeout materials, including final customer service report, data security assessment, and data warehouse summary
 - Conduct demonstration evaluation and compile initial findings
 - Compile final report annotated outline, style guide and design concepts, and draft content
 - Continue demonstration and program communications
 - Continue conducting attitudinal and experiential opinion research through public polling, participant surveys, and public focus groups
 - Continue engaging California Road Charge Technical Advisory Committee on program-related considerations