Valley Air ZEV Mobility Pilot Project

Final Report to the California Air Resources Board

FY 2016-2017

May 2018 - January 2022

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Prepared by:

Green Commuter

San Joaquin Valley Air Pollution Control District

Approved: November 28, 2022

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Acknowledgements

This project was supported by the California Climate Investments (CCI) program. CCI is a statewide initiative that puts Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy and improving public health and the environment, with a focus on disadvantaged communities.

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (District) would like to express its gratitude and appreciation to the California Air Resources Board (CARB) for the Car Sharing and Clean Mobility Options Pilot Project competitive grant solicitation under the Low Carbon Transportation Program, which enabled the District and its project partners to reduce both greenhouse gas and criteria pollutant emissions through the introduction of advance clean car sharing fleets in the San Joaquin Valley's (Valley) disadvantaged communities. The funding that CARB awarded to the Valley Air ZEV Mobility Pilot Project has provided Valley residents with limited access to public transportation and personal vehicles in disadvantaged communities the opportunity to participate in car sharing services using clean technologies. The Valley has unique needs and challenges compared to other regions and metropolitan areas throughout the State. With CARB's support for projects like this one, the Valley will continue to make great strides in reducing both greenhouse gas emissions and criteria pollutants through the deployment of the cleanest and most advanced technologies available. The District and our project partners are sincerely appreciative of CARB's selection of this project.

Green Commuter

Green Commuter would like to thank the District and the San Joaquin Valley planning organizations and transit agencies for their critical contributions to this project. The District, grantee of this project, has provided exceptional guidance and support as lead partner on this project. Additional support was provided by EV Charging Solutions, Inc., Leadership Counsel for Justice and Accountability and CALSTART throughout the project. Green Commuter would like to thank the District, CARB, EVCS, Leadership Counsel for Justice and Accountability, and CALSTART for their support and especially for the funding provided in support of this project.

Preface

In 2012, the Legislature passed, and Governor Brown signed into law three bills, Assembly Bill (AB) 1532 (Perez, Chapter 807), Senate Bill (SB) 535 (De Leon, Chapter 830), and SB 1018 (Budget and Fiscal Review Committee, Chapter 39) that established the Greenhouse Gas Reduction Fund (GGRF) to receive Cap-and-Trade auction proceeds and to provide the framework for how the auction proceeds will be administered in furtherance of the purposes of the Global Warming Solutions Act of 2006, known as AB 32, including supporting long-term, transformative efforts to improve public health and develop a clean energy economy. The suite of implementing legislation offers strong direction for investing a portion of the auction proceeds to benefit disadvantaged communities, including specific allocation requirements in SB 535 that at least 25 percent of funding from GGRF be allocated towards projects that benefit disadvantaged communities and at least 10 percent of the funds be allocated towards projects located in disadvantaged communities.

In 2014, the Legislature appropriated GGRF monies to CARB for Low Carbon Transportation Investments, which are being administered through the framework of annual funding plans. The Fiscal Year (FY) 2016-17 Funding Plan for Low Carbon Transportation and Fuels Investments and the Air Quality Improvement Program (FY 2016-17 Funding Plan) includes several pilot projects for light-duty vehicles, including the Car Sharing and Mobility Options Pilot Project. The overarching goal of these projects is to reduce Greenhouse Gas (GHG) emissions with a focus on the deployment of advanced technologies that provide immediate benefits in disadvantaged communities. The FY 2016-17 Funding Plan provided up to $8 million for the Car Sharing and Mobility Options Pilot Project and reserved up to $1.5 million for small projects in disadvantaged communities underserved by public transit.

Following CARB's April 2017 grant solicitation for the Car Sharing and Mobility Options Pilot Project, the District worked extensively with public and private stakeholders to develop the Valley Air ZEV Mobility Pilot Project and submitted the grant application in July 2017. On September 20, 2017, CARB informed the District that the proposal for the Valley Air ZEV Mobility Pilot Project was selected for funding. The District and CARB executed their original grant agreement on May 21, 2018.

Abbreviations

CARB - California Air Resources Board

CCI – California Climate Investments

DCFC – Direct-current fast charger or Level 3 direct-current charging

District - San Joaquin Valley Air Pollution Control District

EV – Electric Vehicles

EVCS – EV Charging Solutions, Inc.

EVSE – Electric Vehicle Supply Equipment

FY – Fiscal Year

GGRF – Greenhouse Gas Reduction Fund

GHG – Greenhouse Gases

Leadership Counsel – Leadership Counsel for Justice and Accountability

VMT – Vehicle Miles Traveled

Valley – San Joaquin Valley

ZEV – Zero Emission Vehicles

Chapter 1 - Project Overview

A. Executive Summary

The California Air Resources Board awarded the San Joaquin Valley Air Pollution Control District a total of $749,800 for the transformative implementation of advanced clean car sharing and mobility options in census tracts that are within the top 19% of disadvantaged communities. The Grant Agreement designated $624,000 in implementation costs and $125,000 in administration costs for the Valley Air ZEV Mobility Pilot Project. The project includes a match funding of over 60% of the total project cost for $1,160,300. This project is in partnership with Green Commuter, as the primary subcontractor and technology provider, and CALSTART, as the evaluation coordinator.

With funding from the California Air Resources Board, the Valley Air ZEV Mobility Pilot Project deployed nine electric vehicles, consisting of six Chevrolet Bolts and three Tesla Model Xs, and installed 26 Level two and four level three charging stations. The charging stations are located in three areas throughout Merced and Fresno Counties, specifically in Delhi, Atwater, and Cantua Creek. The charging stations and electric vehicles provided the Cantua Creek and Delhi communities with much needed access to car sharing and vanpooling services and addressed the need for equitable access to electric vehicles and charging infrastructure within the geographic area.

B. Background

The Valley Air ZEV Mobility Pilot Project provides the benefits of electric vehicles for disadvantaged communities impacted by poor air quality and other environmental factors. Funding for this project helps reduce greenhouse gas emissions and achieves criteria pollutant emissions reductions and other co-benefits through the introduction of advanced clean car sharing fleets into the State's most disadvantaged communities.

The development of EVSE infrastructure in the San Joaquin Valley offers participants residing in targeted disadvantaged communities a combined electric vehicle (EV) vanpooling and car-sharing service. The project provided clean transportation alternatives to introduce individuals and households to the practical advantages of ridesharing and electric vehicles.

The project planned to offer three forms of transportation at reduced rates to disadvantaged community residents with destination or origin points in Merced, Bakersfield, and West Fresno County that include combined EV vanpooling and car sharing, traditional EV car sharing, and electric bike share. Two parts of the project were associated with universities (UC Merced and CSU Bakersfield) and include the deployment of electric bicycles and vanpooling. The third part was focused on zero-emission vanpool/car-sharing in disadvantaged communities in West Fresno County, specifically in Cantua Creek. The locations for this project were determined to ensure that there was technology deployed in each region of the District and partners were chosen based on their willingness to participate, ability to contribute match funding to the project and ability to leverage resources.

C. Key Partnerships

CALSTART

CALSTART accelerates the pace of technology, is a market building organization, and works with its member companies and agencies to build a high-tech clean-transportation industry that creates jobs, cuts air pollution and oil imports and curbs climate change. During this project CALSTART designed and supervised evaluation activities, provided oversight of and input to the process of instrument development, methodological approach for analysis and analytical implementation. For more information about CALSTART: https://calstart.org/

Leadership Counsel for Justice and Accountability

Leadership Counsel for Justice and Accountability (Leadership Counsel) works alongside the most impacted communities to advocate for sound policy and eradicate injustice to secure equal access to opportunity regardless of wealth, race, income, and place. This organization supported the Valley Air ZEV Mobility Pilot Project by accommodating the outreach needs of this project. Leadership Counsel led user engagement efforts to strengthen the impact of their service and further support families and residents in zero-emission ridesharing. Leadership Counsel truly acted as a conduit to assure disadvantaged community residents and other stakeholders were beneficiaries of ZEV Mobility services and opportunities. For more information about Leadership Counsel: https://leadershipcounsel.org/.

D. Intended Partnerships

California State University Bakersfield

California State University Bakersfield (CSU Bakersfield) is set on a 375-acre campus and is the only regional comprehensive public university within a 100-mile radius. CSU Bakersfield was a deployment partner to serve as the destination for two Kern County-based vanpools in disadvantaged communities and was working to install more charging stations to accommodate the vanpool and car sharing services. In early 2020, CSU Bakersfield approved its operating and vanpool agreements with Green Commuter but had to suspend all in-person classes and meetings for the duration of the spring semester due to COVID-19. While CSU Bakersfield was not able to fully participate in the project prior to project suspension, their staff supported outreach efforts on campus by Green Commuter to help garner interests.

University of California, Merced

University of California, Merced (UC Merced) is the newest school in the UC system and occupies 219 acres. UC Merced was poised to collaborate on this project to assure that local residents benefit from the added mobility options. Due to the ongoing construction projects on campus at the time, UC Merced was unable to proceed with the 16 electric bicycles with 8 solar panel docking stations and incorporate the electric vehicles and charging stations. However, UC Merced agreed to accommodate the charging stations and electric vehicles at its location at Castle Airport, where the UC Merced Research Center is located.

Swiftmile

Swiftmile was originally selected as a technology provider for the electric bike fleet. The company offered a 100% renewable-powered electric bike sharing system that enables municipalities, corporations, universities, and others to offer secure, emission free and economical transport solutions. Swiftmile was to deploy two stations of Class 1 electric bikes and participate in the installation, deployment, and management of the electric bike sharing system. However, the company indicated that it could no longer participate in the project due to the timeline and plans to re-engineer their systems.

City of Selma

The City of Selma was originally identified as one of the interested partners for an electric bike share program. Selma's SMART Center staff was very interested in electrification and bringing

EVs, as well as electric bicycles, to the location for community use. Due to the unexpected cancellation of the electric bike share project, the plan was to deploy two electric vehicles at a fourth location with access to charging infrastructure. The City of Selma agreed to be a site host at the SMART Center, which had been identified as a disadvantaged community, for the project in 2020 and had been working with Green Commuter until the project was suspended due to COVID-19.

E. Objectives and Scope of Work

The focus of the Valley Air ZEV Mobility Pilot Project was to provide clean transportation options and the advantages of ridesharing to individuals and households in disadvantaged communities.

The objectives of this project was to help successfully encourage the following:

- Expand access to clean transportation in disadvantaged communities
- Increase EVSE infrastructure in disadvantaged communities
- Reduce emissions through the adoption of EVs
- Increased mobility options & ridesharing
- Increase EV awareness
- Provide an affordable alternative to vehicle ownership

There were six key tasks that were part of the project team's implementation plan, which include:

1) Planning for operations
2) Outreach and education
3) Infrastructure
4) Program deployment and operations
5) Assessments, quarterly reporting and evaluation
6) Project close out and final report

The District was responsible for the overall program administration of the project as the grantee and lead administrator for the project.

As the primary subcontractor, Green Commuter was responsible for the following:

- Provide the project's vehicles, maintenance, and repair
- Facilitate coordination with other project partners
- Collect project data for evaluation
- Develop, administer, & maintain a user-friendly vehicle reservation system; initiate services
- Prepare outreach and educational materials in consultation with the District and CARB and conduct public outreach, press releases, and press events necessary for the project to be successful
- Establish secure and safe home base parking for project vehicles within the identified disadvantaged communities
- Develop policy and process to evaluate potential vehicle drivers, vanpool riders, and subsidy recipients
- Conduct initial and end-of-project participant surveys, report status quarterly, respond to ad hoc, the District, CARB and public inquiries, and provide an end-of-project Final Report

F. Project Funding

The funding amount of this Grant Agreement was $749,800. Funding was allocated according to the categories in the following table.

Table 1 – Grant Amount

Award Category	Allocated Funds[1]	Reallocated Funds[2]
Vehicle Acquisition	$ 447,900.00	$ 437,936.00
Outreach & Marketing	$ 90,900.00	$ 90,900.00
Microsite and App Customization	$ 53,000.00	$ 53,000.00
EVSE Installation	$ 33,000.00	$ 33,000.00
Administration	$ 125,000.00	$ 134,964.00
Total	**$ 749,800.00**	**$ 749,800.00**

1. Per Grant Number G-16-LDPL-01
2. Per Grant Number G16-LDPL-01 Amendment 2

Upon receipt of the fully executed Grant Agreement, the District created two separate accounts to receive allocations from CARB for the implementation and administration costs. The accounts were added to the District's Financial Database for proper tracking and accounting. Upon receipt of reimbursement requests from Green Commuter, District staff reviewed submitted documentation for eligibility to ensure funds paid met the criteria of the Agreement prior to issuance of funds. For the District's portion of administrative costs, the District used its Labor Information System database to track hours spent by staff working on this project.

In August 2021, CARB approved an extension to the project and a shift of $9,964 from Vehicle Acquisition to Administration. The request for the reallocation of funds was to account for higher than anticipated administrative costs for Green Commuter. According to the grant agreement, up to 18 percent of the total funding could be applied towards administration costs.

The Valley Air ZEV Mobility Pilot Project includes a total match funding of over 60% of the total project cost from Green Commuter and project partners, where $668,140 was for cash match and $492,160 was for in-kind. All partners made significant contributions to ensure that the project goals were met. At the conclusion of the project, the total contribution in cash match and in-kind exceeded the funding commitment for both categories.

G. Outreach Efforts

Green Commuter worked with the District, CALSTART and Leadership Counsel for Justice and Accountability on outreach efforts. The project partners met regularly for outreach planning meetings prior to community engagement.

Leadership Counsel for Justice and Accountability acted as the lead for community meetings in Delhi and Cantu Creek. This partner drafted, tested and ordered program materials to build awareness around the project, including translating outreach materials into Spanish. Leadership Counsel began 2019 with an outreach planning meeting with Green Commuter on January 3, 2019 and held multiple community meetings in Delhi and Cantua Creek thereafter. These meetings acted as one of the largest aspects of outreach in this project as they not only built awareness but acted as a forum to distribute participant surveys.

In addition, Green Commuter worked with volunteer drivers for the Cantua Creek and Delhi locations. The volunteer drivers lived in their respective communities, understood the needs of the residents, and are trusted members of the community. There were five volunteer drivers that participated in this project and offered rideshare services to the residents.

Green Commuter and Leadership Counsel concentrated their outreach efforts on the following activities to help promote the ridesharing service:

- Any public meeting held at Cantua Creek Elementary School
- Monthly community meetings organized by Leadership Counsel (in Cantua Creek and Delhi)
- One-on-One meetings with volunteer drivers and employers
- Delhi Unified School District board meetings
- Merced County Association of Governments meetings
- Delhi Parents Committee meetings
- CSUB on campus events, including meetings organized by the University's Office of Sustainability

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See Table 2 below for 20 key events that were held by the project partners.

Table 2 – Key Project-related Events

Date	Description
4/13/2019	Merced County Tune In Tune Up
4/22/2019	Earth Day at Fresno State
4/27/2019	Delhi Multicultural Festival
7/11/2019	Cantua Creek – Transportation Survey
8/12/2019	Delhi and Cantua – CARB and District Site Visits
9/14/2019	National Drive Electric Week event in Bakersfield
9/20/2019	National Drive Electric Week event in Clovis (Fresno)
10/8/2019 – 10/10/2019	CSUB on Campus demonstration (Rideshare Week)
10/9/2019	Delhi School Board Meeting
10/22/2019	Cantua Creek Canvassing with CALSTART
11/2/2019	Delhi Mobility Open House
11/13/2019	Delhi Unified School District Meeting and Canvassing with Leadership Counsel
11/14/2019	Delhi - Transportation Survey
11/15/2019	Cantua Creek Press Event
11/22/2019	Delhi Community Meeting with Leadership Counsel
2/1/2020	Vehicle Demonstration at Tacos Colima in Delhi
2/21/2020	Vanpool Orientation in Delhi
2/26/2020	Delhi USD Roundup (all day outreach to parents of new students)
3/4/2020	CSUB Program Meeting
3/7/2020	Merced County Parents Institute in Delhi

CALSTART developed a 25-question initial survey with inputs and approval from the District and CARB, which was intended to be used as the framework for the development and deployment of the project in the mobility hub areas. Using survey instruments supplied by CALSTART, the project partners were able to administer the survey, as required, and to garner information regarding potential participants. The survey was given to community members on an as-available basis and using digital outreach. See the Survey Results section in Chapter 3 and Appendices A through C for more information.

Given the need for social distancing as advocated by public officials due to the COVID-19 pandemic, the project partners later came to rely on digital outreach to generate lists of prospective survey respondents from each community as needed. A geo-targeted media campaign was instituted to sign up individuals for the survey, which was planned to be conducted through online focus groups.

The staff worked with a digital marketing agency to set up community-specific lead capture marketing campaigns in both Spanish and English. These campaigns utilized social media channels to drive traffic to landing page lead forms in order to collect names and contact information of potential participants. CALSTART managed all website development, graphic design, hosting and email support during the campaign.

Using Social Media channels such as Facebook, Instagram, Youtube, TikTok, Nextdoor and Google, CALSTART was able to generate lists of potential Resident Survey respondents in each community. Respondents who completed the survey and provided contact information of one other community member would be compensated with a $20 gift card. The surveys were conducted in both Spanish and English and would give respondents the opportunity to ask questions as they completed the survey.

CALSTART implemented the activities above based on data they received from previous surveys from this project, suggesting that there is a relatively high concentration of residents in low-income communities who own smartphones. These residents also report relatively frequent usage of social media sites. Furthermore, CALSTART staff indicated that there is also evidence that suggests people with lower incomes are more open to viewing ads on mobile devices, and thus will be more likely to respond to them. It was expected that digital marketing campaigns

attract younger, more digitally connected members in the target community. However, the timing of this campaign was at the time the pandemic began and no further information were developed as a result.

CALSTART, Leadership Counsel, and Green Commuter, met with the residents in Cantua Creek to administer the Transportation Survey at an outreach event on July 11, 2019. CALSTART administered the written transportation survey and Leadership Counsel assisted with interpretation at the event. Along with a pizza dinner to anyone attending, Green Commuter handed out reusable water bottles for children and offered a $29 car share credit or a $10 Walmart gift card to anyone completing the survey at the meeting.

Figure 1 – Outreach Event for the Transportation Survey in Cantua Creek

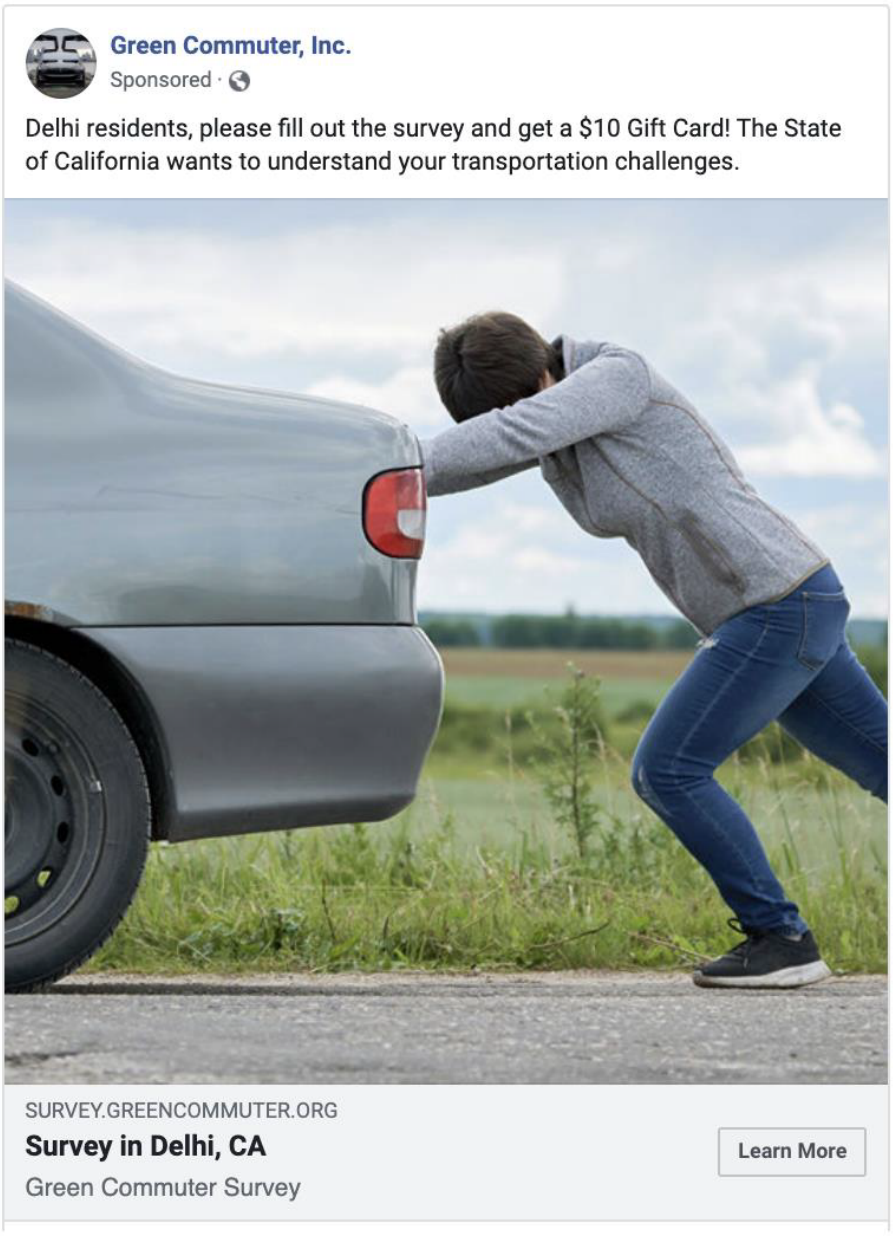
Figure 2 – Outreach Event for the Transportation Survey in Cantua Creek

In November 2019, Green Commuter began enrolling Delhi residents and conducted a Transportation Survey. Based on the low turnout, CALSTART and Green Commuter scheduled another event to administer the survey in February 2020, but had to cancel the event due to a conflict. All subsequent events were postponed shortly after due to the Stay-at-Home order for COVID-19.

In May 2020, Green Commuter resumed a scaled-back operation with COVID-safety measures by providing masks, gloves, and cleaning supplies. However, rideshare services in Cantua Creek did not operate during this time because the volunteer drivers had health risk concerns. Rideshare was offered in Delhi for essential trips only. Green Commuter issued announcements online and through applications to the community, including sending out text messages to rideshare participants. To help assess new opportunities and improve fleet utilization for the

project, Green Commuter staff contacted Delhi Unified School District, CSU Bakersfield and several other agencies to offer vehicles for free and extend test drives to essential workers. In addition, CALSTART engaged a digital marketing specialist to attract Delhi residents to sign up to take the survey. However, due to the nature of the car share business model, resources, and available staffing, Green Commuter could not continue to operate safely with the on-going pandemic. As a result, all outreach efforts were suspended. See Figure 5 below for an example of the marketing efforts.

Figure 3 – Marketing Efforts



Press Event in Cantua Creek

The project partners held an official press event in Cantua Creek on November 15, 2019 to demonstrate how Cap-and-Trade dollars were being used in disadvantaged communities to pilot zero-emission, long-range car sharing and vanpooling services for residents with limited access to transportation. The site helped showcase a census-designated community in rural Fresno County, where residents do not have available access to public transportation for essential services such as medical appointments. Many of the Cantua Creek residents have taken advantage of the services through the Valley Air ZEV Mobility Pilot Project and have continued to voice support for access to affordable, safe, and secure transportation.

Figure 4 – Cantua Creek Press Event

Figure 5 – Cantua Creek Press Event

For more information on the outreach materials, see Appendix D.

Chapter 2 - Implementation

A. Work Plan, Task and Deliverables

In the original grant application, Green Commuter and the District proposed three site host locations, one in Cantua Creek, one at the UC Merced campus, and another in a disadvantaged community in Kern County with CSU Bakersfield as a deployment partner to serve as the destination of two ZEV vanpools. The project partners also proposed to install Level 2 chargers at disadvantaged community vanpool origin points and additional Level 2 and Level 3 charging stations at vanpool destination and car share stations.

The following table shows the proposed number of EVSE and vehicles in each community.

Table 3 – Proposed EVSE and ZEV

Community	New EVSE	New Vehicles
Merced County	20 Level 2 and 1 DCFC	16 electric bicycles with 8 solar panel docking stations 6 Chevrolet Bolt 2 Tesla Model X
Kern County	5 Level 2	2 Tesla Model X
West Fresno County	5 Level 2	2 Tesla Model X

Green Commuter met with several potential site hosts to discuss the goals of the project and how the program would operate. Once the interested site hosts were identified, Green Commuter worked with the site hosts to evaluate the location for EVSE readiness based on existing EVSE infrastructure, electrical wiring of the parking site, geographic extent of the space and an agreement, among other communications. For the locations with a site host agreement, Green Commuter facilitated the installation of the charging stations and equipment, as well as managed the application process for the program.

As previously discussed, UC Merced was poised to collaborate on this project but due to the current construction projects on campus and the project timeline, UC Merced was unable to proceed with the electric bike share program or the electric vehicles and charging stations on campus. However, UC Merced agreed to accommodate the charging stations and electric vehicles at Castle Airport, in Atwater, where the UC Merced Research Center is located. Green Commuter staff also reached out to other potential site hosts that serve disadvantaged communities in Merced County. As a result, the planned installation of charging stations and electric vehicles at UC Merced was successfully relocated to Delhi and Atwater, which resulted in broader geographic coverage. The installation of chargers at Castle Airport included separate parking locations, where one was proposed by the UC Merced's Research Center, but never materialized due to the project suspension.

Green Commuter reached out to a variety of organizations within Fresno, Kern and Merced counties to find a site host in which to deploy the bike share program. However, the project team decided in late 2019 to replace the planned 16 electric bicycles and eight solar panel docking stations with electric vehicles for additional car share services in Fresno County with

the remaining funds. The decision came after Swiftmile, the company that was supposed to be participating in the installation, deployment, and management of the e-bike sharing system, indicated that the company could no longer participate in the project due to the timeline and plans to re-engineer their systems. Green Commuter reached out to other companies that offer electric bicycles, but these companies were either unable to meet the deployment date, were moving to scooters, or were not equipped to help install or manage a bike sharing system.

Green Commuter made progress with potential partners in Fresno County for additional vehicles and chargers, as well as other cities near Cantua Creek, CA, where a site for this project was already up and running for the community. Based on the analysis of several possible sites, the project partners identified SMART Center in Selma, CA, as the site host that not only was able to meet the timeline, but also one that was very supportive of both the car share and bike share programs. Most importantly, this Fresno County location was identified as a disadvantaged community in the top 95-100 %. Unfortunately, the car share service and purchase of additional vehicles for Fresno County location were cancelled shortly after due to COVID-19.

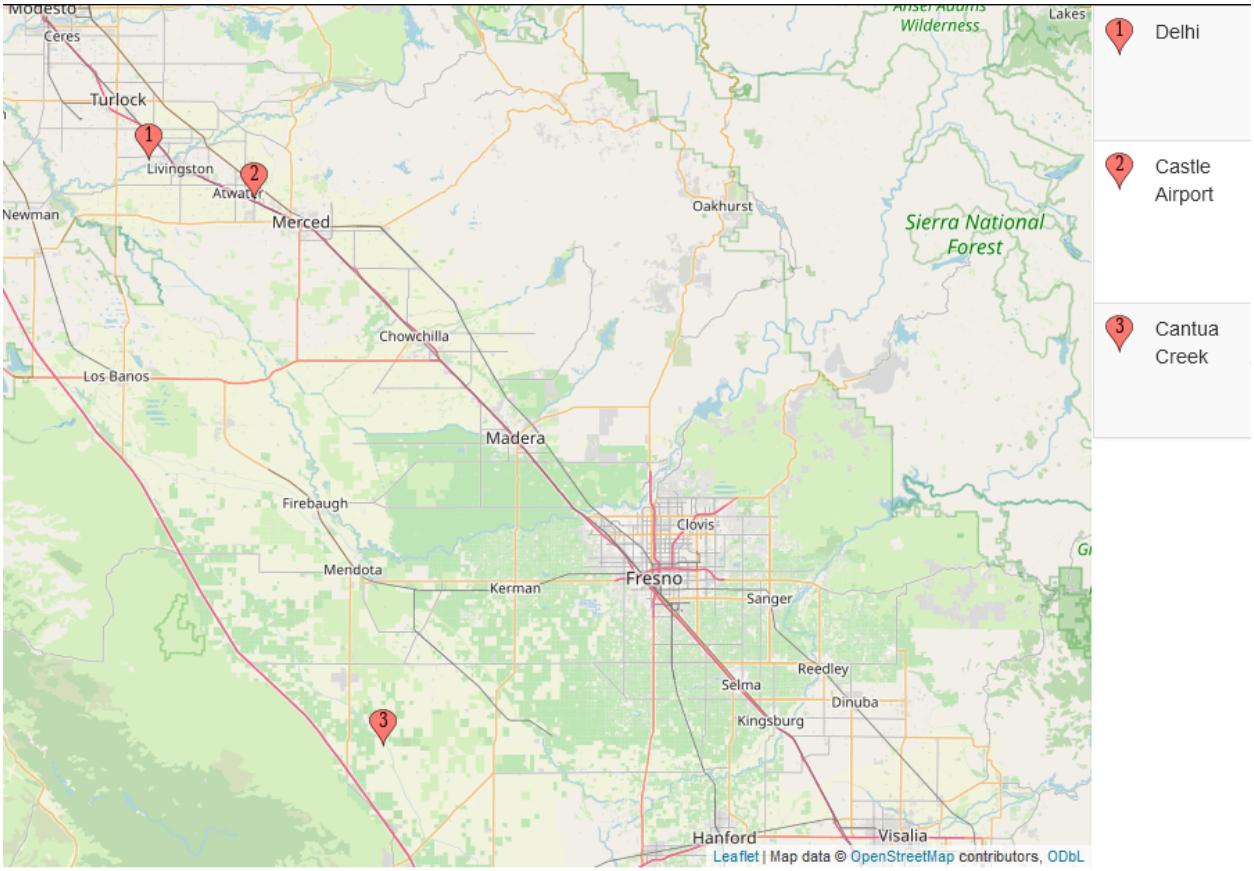
Table 4 below provides a summary of the number of charging stations and electric vehicles that this project was able to implement.

Table 4 – Summary of EVSE Installed and ZEV Procured To Date

Sites	EVSE Status	ZEV Status
Merced County *16491 Schendel Avenue* *Delhi, CA* *Census Tract: 6047000203*	2 dual-port DCFC 1 dual-port Level 2 1 single-port Level 2	6 Chevy Bolts 3 Tesla Model X
Merced County *Castle Airport (3 separate lots)* *5050 Santa Fe Drive* *Atwater, CA* 95301 *Census Tract: 6047000503*	2 dual-port DCFC 18 single-port Level 2	
Fresno County *Cantua Creek* *29595 W. Latta Avenue* *Cantua Creek, CA* *Census Tract: 6019008200*	6 single-port Level 2	

Figure 6 below shows the locations of the three sites in the San Joaquin Valley.

Figure 6 – Map of Sites



Green Commuter placed some of the vehicles at the Delhi and Cantua Creek locations for car sharing based on need, while others were offsite for testing or storage. Plans for additional EVSE installation and purchases of electric vehicles at the Selma and Kern County locations were postponed in 2020 due to the reassessment and suspension of the project from COVID-19. Green Commuter and CSU Bakersfield had approved their operating and vanpool agreement shortly before the University's announcement to suspend of all in-person classes and meetings on March 12, 2020 for the duration of the spring semester. In addition, the installation of five additional ports at the UC Merced Research Center were also postponed for this project, as the site host agreement was still pending. Green Commuter also cancelled the orders they have placed on the remaining three Tesla Model X as part of the suspension.

See Table 5 for the tasks listed in the grant agreement and to be completed by the project partners.

Table 5 – Required Milestone Tasks as defined in the Grant Agreement

Task #	Task Description	Narrative Recap
1	Execute Grant Agreement	Grant agreement executed May 21, 2018
2	Completion of Vehicles and Electric Bicycle Acquisition	Nine vehicles were operational until July 2020 when the project was suspended due to COVID-19. The vehicles were acquired as follows July 2018: Leased one Chevrolet Bolt August 2018: Leased one Chevrolet Bolt October 2018: Purchased two Chevrolet Bolt November 2018: Purchased one Chevrolet Bolt December 2018: - Leased one Chevrolet Bolt - Leased two Tesla Model X - Purchased one Tesla Model X
3	Finalize outreach and education materials and approval by CARB; Begin outreach and education efforts	Leadership Counsel was selected to draft and test program/educational materials utilized for outreach to the community. Outreach efforts were suspended due to COVID-19.
4	Completion of Microsite and App Customization	Main microsite and app completed with ongoing quality assurance testing and customization.

5	Complete installation of EVSE in all locations	Green Commuter completed EVSE installations in 3 locations:
		- Cantua Creek mobility hub (6 ports total)
		  - Equipment Launch Date: January 18, 2019
		- Delhi mobility hub (7 ports total)
		  - Equipment Launch Date: October 2, 2019
		- Castle Airport mobility hub (22 ports total)
		  - Equipment Launch Date: October 9, 2020

Task #	Task Description	Narrative Recap
6	Launch of Program Services in West Fresno	Over 1 year of service complete at Cantua Creek.
7	Launch of Program Services in Bakersfield	Launch was scheduled for March 2020 but canceled due to COVID-19.
8	Launch of Program Services in UC Merced	Location has been relocated to Delhi and Castle Airport in Merced County. Green Commuter has completed over one year of service in Delhi.
9	Administration and Project Management including Quarterly Report	All administrative duties were on task prior to suspension of the program due to COVID-19. Green Commuter identified low demand for ridesharing, coupled with lack of resources and staffing to address COVID-19 prior to suspension.
10	Final Disbursement, Submittal of Project Final Report	Final Report completed on November 28, 2022 with the final disbursement to follow.

Chapter 3 - Project Data

1. Summary, Analysis and Conclusion of Data

Green Commuter procured three Tesla Model X and six Chevrolet Bolt in 2018, as shown in Table 5 above. To help CARB align and compare the data across similar projects in the San Joaquin Valley, Green Commuter used a new reporting template approved by CARB and the District in late 2020. The new template required Green Commuter staff to verify current data and add additional data that were not available in previous reports. As a result, Green Commuter staff provided updated data during the reporting period of July 1, 2020 through September 30, 2020. Much of the data, particularly the EVSE operational data, were not readily available to Green Commuter staff and required them to pull and enter some of the data manually.

Reworking the systems to produce data in the new format required many labor hours, to which Green Commuter was able to provide information in a limited manner.

1. Participant Information

Cantua Creek is a distinctly rural community with around 500 residents and Delhi has approximately 10,000 residents clustered off State Route 99 (Highway 99). Enrollment of participants for the Cantua Creek locations began in February 2019, shortly after the installation of additional level 2 chargers. In July 2019, there was a concerted effort by Green Commuter to enroll more Cantua Creek residents in the car sharing program. Table 6 below shows the highest number of participants between July and September of 2019. Enrollment of participants at the second location in Delhi was limited during that time based on the timeframe for the EV charging stations to be commissioned. In November 2019, Green Commuter began to officially enroll Delhi residents. Enrollment for both locations continued through March 19, 2020 and was then closed to new applications through May 18, 2020 due to COVID-19. Green Commuter resumed enrollment of new participants during the scaled-back operations in May 2020 and essentially suspended the activity indefinitely in July 2020.

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Table 6 – Historical Progression of Participants

Participant Status	Active	Incomplete	Pending	Suspended	Unqualified	Quarterly Total
Q1 - see Q2	-	-	-	-	-	-
Q2 5/21/2018-12/31/2018	-	-	-	-	-	-
Q3 1/1/2019-3/31/2019	7	1	-	1	-	9
Q4 4/1/2019-6/30/2019	10	4	-	7	1	22
Q5 7/1/2019-9/30/2019	15	5	-	4	-	24
Q6 10/1/2019-12/31/2019	14	1	1	6	-	22
Q7 1/1/2020-3/31/2020	14	2	-	2	1	19
Q8 4/1/2020-6/30/2020	5	1	-	1	1	8
Q9 7/1/2020-9/30/2020	1	-	1	-	-	2
Q10 10/1/2020-12/31/2020	0	1	1	-	-	2
Grand Total	66	15	3	21	3	108

Based on Green Commuter's experience in working with the community in Cantua Creek, many of the destinations included visits to the grocery store, doctor's office, and other appointments in nearby cities, such as Kerman, Tranquility, and Fresno.

2. Vehicle Trip Information

In July 2019, Green Commuter implemented a third-party software program to schedule and manage dispatch for Cantua Creek trips. Setmore was a program that allowed Green Commuter staff to book rideshare trips for the Cantua Creek drivers, and automated trip reminders via text messages. Early data from the Setmore app, which excludes any Green Commuter test

bookings, did not record the vehicle identification numbers or any other vehicle information. It was an appointment-making tool that Green Commuter staff used to record the scheduled rides the volunteer drivers were booking for community members. In 2019, the admin panel and on-board telematics devices were not integrated. The admin panel also did not automatically produce reports, which had to be manually created from each entry. Green Commuter believed the vehicle utilization reports that were originally submitted were created manually and the staff member did not pull all of the start/stop data to supplement the reservation data. Because of this, some of the vehicle utilization reports were likely missing most, if not all, of the trips made using a physical key. In later months, the staff realized this issue and rectified it by automating reports, incorporating the start/stop data, and cross checking it with the Setmore records. However, the data is not fully accurate because the volunteer drivers were also using physical keys at times and not always booking a reservation. As a result, the start/stop times, reservation data, and Setmore bookings may not all align exactly. Furthermore, the start/stop data does not account for instances where the participants rented the vehicles but did not use them, where Green Commuter staff operated the vehicles for the project, and where the vehicles were in the testing phase by the participants, which made it difficult to distinguish via telematics.

Green Commuter provided the odometer reading of each vehicle to the District and CARB on a quarterly basis. The total vehicle miles traveled (VMT) for each vehicle was determined by subtracting the last recorded odometer reading with the odometer reading provided by Green Commuter at the time of purchase or lease. Based on the data reported by Green Commuter, there were 1,662 trips made by the participants during the pilot project. During the reimbursement process, all trips reported were reviewed and the total number of reimbursable trips was concluded to be 311. The difference was mostly due to Green Commuter initially having trouble with properly tracking which reservations resulted in actual usage and which were ultimately canceled without the actual trip occurring.

The total electricity consumed for each vehicle over the time they were placed into service was determined by the VMT and fuel economy of the vehicles. The fuel economy for the Tesla Model X and the Chevrolet Bolt were from the fueleconomy.gov website, which is administered by Oak Ridge National Laboratory for the U.S. DOE and the U.S. EPA. The data provided by Green Commuter used 36 kWh per 100 miles for the 2018 Tesla Model Xs and 28 kWh per 100 miles for the 2018 and 2019 Chevrolet Bolts.

Table 7 below shows a summary of the vehicle usage and estimated use of electricity. Based on the provided data, the vehicles consume on average about 0.31 kWh per mile. During the project period, each of the vehicles were driven on average of 19,672 miles.

Table 7 – Summary of Vehicle Usage

Vehicle	Total Vehicle Miles Traveled (miles)	Total Electricity Consumed (kWh)
Tesla Model **X (2018)** VIN: 5YJXCAE24JF113409 License: 8JCV656	25,419	9,151
Tesla Model X (2018) VIN: 5YJXCAE21JF113478 License: 8HLW485	19,516	7,026
Tesla Model X (2018) VIN: 5YJXCAE26JF113492 License: 8HZS952	24,633	8,868
Chevrolet Bolt (2018) VIN: 1G1FW6S05J4136653 License: 8FGM794	22,027	6,168
Chevrolet Bolt (2019) VIN: 1G1FY6S06K4105097 License: 8GMT265	18,766	5,255
Chevrolet Bolt (2019) VIN: 1G1FY6S04K4105311 License: 8GMT266	19,433	5,441
Chevrolet Bolt (2019) VIN: 1G1FY6S01K4105573 License: 8GMT268	20,286	5,680
Chevrolet Bolt (2019) VIN: 1G1FY6S05K4108007 License: 8HBL402	11,441	3,204
Chevrolet Bolt (2018) VIN: 1G1FW6S03J4136926 License: 8FGM789	15,531	4,349
Total	**177,052**	**55,142**

3. Emission Calculations

Like all social science research conducted with a limited budget, the results of this pilot project will not be a precise estimate of CO2 reductions. However, zero-emission vehicles are some of the cleanest and affordable options. The total GHG emissions reduction from this project show the relative magnitude of CO2 reduction benefits of ridesharing using zero-emission vehicles.

To ensure the most accurate calculation of emission reductions, the District utilized methodology from the California Climate Investments Clean Mobility Options[1].

The emission factors are from the District's application and proposal for CARB's solicitation for the Low Carbon Greenhouse Gas Reduction Fund (GGRF) Investments on Car Sharing and Mobility Options Pilot Project Quantification Methodology.

The Valley Air ZEV Mobility Pilot project originally provided a combined emissions reduction estimate total of 248.5 MTCO2e for both car share and vanpool services, with a total project GHG emissions reduction per dollar of 0.00033 MTCO2e per dollar. The final actual total GHG emissions reduction estimates are 27 MTCO2e and 0.04 MTCO2e per dollar. The results, based on data provided, is less than anticipated. However, this project has encountered several unexpected challenges, reducing the potential benefits of the car sharing and vanpooling services in the SJV.

4. EVSE Usage

Green Commuter initiated the car sharing service at the Fresno County owned Cantua Creek location on December 28, 2018 using the charging stations that were installed on December 12, 2018 with match funds and two electric vehicles that Green Commuter procured through the project. The six new level 2 charging stations became fully operational on January 18, 2019 with three electric vehicles (two Bolts and one Model X) available for the car share and vanpooling service.

Green Commuter also deployed two vehicles for vanpooling and car sharing at the Delhi location in advance of official deployment for beta testing. Construction of the four charging stations in Delhi began in August 2019 with the seven ports fully operational on October 2, 2019. Green Commuter provided two Bolts and one Model X for the official launch of the program.

[1] QM for Clean Mobility Options: https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/carb_cmo_qm_final_090120.pdf
CCI Quantification, Benefits, and Reporting Materials https://ww2.arb.ca.gov/resources/documents/cci-quantification-benefits-and-reporting-materials

The construction and installation of 18 Level 2 and two DCFC charging stations at Castle Airport were completed in June 2020 but were still pending set up of electricity by a local utility company. On October 9, 2020, the charging stations became fully operational. However, all other project related activities were suspended by this time and the vehicles were relocated to Atwater for storage while the project partners assessed the direction and any reallocation of funds for continuation of the project, including when it would be safe to resume operations for Green Commuter staff and participants. Therefore, the data for EVSE usage at the Castle Airport location during the project period is minimal. Currently, the EVSE in Delhi and Castle Airport are operational with consistent usage and available to the community. The EVSE in Cantua Creek has had minimal usage since the end of the project period. Private EV owners are able to use the chargers at all three locations to charge their vehicles.

The charging stations at all three locations are also open to the public. Table 8 below shows a summary of EVSE usage data collected by Green Commuter through December 2020. Both of the Cantua Creek and Delhi locations have a minimum of 12 months of data.

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Table 8 – Summary of EVSE Usage

County	Community	Station ID	Charger Type	Total Electricity Delivered-kWh	Number of Charges	Average kWh/charge
Fresno	Cantua Creek	206386	Level II	3478	142	24
Fresno	Cantua Creek	209864	Level II	1666	100	17
Fresno	Cantua Creek	209870	Level II	3258	162	20
Fresno	Cantua Creek	209890	Level II	4569	201	23
Fresno	Cantua Creek	206328	Level II	0	0	0
Fresno	Cantua Creek	205667	Level II	1411	243	6
Merced	Delhi	BTC1021	DCFC	2915	121	24
Merced	Delhi	BTC1025	DCFC	2769	123	23
Merced	Delhi	EV0030	Level II	1558	79	20
Merced	Delhi	EV0031	Level II	610	62	10
Merced	Castle Airport	209081	Level II	4	1	4
Merced	Castle Airport	205651	Level II	0	0	0
Merced	Castle Airport	209110	Level II	0	1	0
Merced	Castle Airport	209082	Level II	0	0	0
Merced	Castle Airport	212492	Level II	14	4	3
Merced	Castle Airport	207109	Level II	0	1	0
Merced	Castle Airport	205742	Level II	0	1	0
Merced	Castle Airport	211125	Level II	0	1	0
Merced	Castle Airport	212705	Level II	6	2	3
Merced	Castle Airport	210628	Level II	0	1	0
Merced	Castle Airport	214306	Level II	4	4	1
Merced	Castle Airport	209677	Level II	0	1	0
Merced	Castle Airport	215603	Level II	0	1	0
Merced	Castle Airport	212734	Level II	0	0	0
Merced	Castle Airport	68103	DCFC	0	0	0
Merced	Castle Airport	212783	Level II	0	0	0
Merced	Castle Airport	205679	Level II	3	2	2
Merced	Castle Airport	215324	Level II	4	2	2
Merced	Castle Airport	215310	Level II	0	0	0
Merced	Castle Airport	68181	DCFC	0	0	0

As anticipated, the EVSE usage data from the Cantua Creek and Delhi locations were different. While Green Commuter was able to provide the Cantua Creek community access to the new charging stations months earlier, the Delhi location had slightly more electricity delivered during the same timeframe. Furthermore, the average kWh per charge in Cantua Creek is approximately 17, whereas the Delhi location shows an average of approximately 20 kWh per charge.

5. Survey Results

CALSTART delivered an evaluation and assessment report using qualitative data aggregated from the surveys. The results from the Cantua Creek and Delhi locations described the characteristics of potential participants and help address the successes, challenges, potential solutions, lessons learned, and recommendations for future mobility implementation projects. The results of the data are outlined in Appendix B for the Cantua Creek location and Appendix C for the Delhi location.

For the Cantua Creek location, the project team received a total of 25 surveys at a transportation survey event. However, the responses to the surveys were mixed and Green Commuter believes that many participants did not understand some of the questions, which led to multiple questions that were skipped or not answered correctly. Green Commuter also believes that the responses may have been skewed, as the participants may have graded the current service based on the presence of the volunteer drivers, who help transport many of the participants that were unable to drive to their destinations.

CALSTART administered the transportation survey at Delhi on two separate occasions in November 2019. The key event for the transportation survey was on November 14, where food and incentives were provided to the attendees and those completing the survey. CALSTART collected 12 surveys; however, nine completed responses were provided.

Table 9 below shows a summary of some of the results from the Cantua Creek and Delhi locations.

Table 9 - Transportation Survey Results

Description	Cantua Creek	Delhi
Employed / Student / Vocational Training	45.5%	55.6%
High School Graduate or Higher Education	44.1%	100.0%
Has Driver's License	52.9%	77.8%
Currently does not own or lease any vehicles	21.2%	22.2%
Use Public Transportation	21.2%	55.6%
Number of Respondents	34	9

Following the results, the project team discussed new opportunities and methods to collect more surveys to increase the sample size. The goal was to collect approximately 30 valid surveys for each location, while taking into account margin of error and confidence level. Based on the feedback and experiences, CALSTART staff had concerns with getting clear answers from the participants using the survey in a questionnaire format.

Aside from the surveys, the project team does not have record of any testimonials regarding the car sharing services during the project. However, there were a few recent reviews from 2021 on the chargers in Delhi and Castle Airport that Green Commuter was able to share, which included cheaper pricing compared to another brand, new user experience, issues with the screen, and a user being able to contact the company to address issues with connecting the chargers.

In early 2020, further outreach was suspended, along with other activities, with the COVID-19 restrictions. Therefore, this project does not have any further data from what was provided.

Chapter 4 - Lessons Learned and Successes

A. Challenges and Lessons Learned

Lack of Infrastructure and Technology

Due to unreliable cellular connectivity in the region, specifically in Cantua Creek, and coupled with some reluctance to use the new app, Green Commuter was unable to use app-based connectivity to unlock and start the vehicles. Copies of the vehicle keys were provided to the

volunteer drivers to allow them to reliably unlock and start the cars. At the time, this was the best option to ensure the community could maximize its use of the vehicles and services that the project offered.

The alternative option did provide some inconsistencies in data as reservations were not entered into the app when the vehicles were in use. Furthermore, the drivers used their own logs that Green Commuter did not have access to in order to track appointments. While the drivers had intended to relay the information to Green Commuter's dispatch service, they didn't always do so, leading to incomplete or inaccurate appointment records. Therefore, matching the vehicle reservation data to the vehicle usage data to fill in the gaps is not fully accurate. Green Commuter tried to incorporate scheduling and dispatch as an internal function for better fleet management, but the information was no longer available with an unexpected change in personnel and new direction of incoming staff.

A Bluetooth based solution was later introduced to allow reliable vehicle access and mitigate the data issues. Upon deployment of this new technology there were some unexpected technical difficulties. The technology failure was a serious setback that delayed the car sharing services to community members. Despite the initial challenges with the Bluetooth entry, this solution was deemed to be a success and was later introduced to the entire Green Commuter fleet. Although the data resulted in inconsistencies through an alternative solution to participants, it did allow for Green Commuter to come up with an innovative solution that would be beneficial for this project and many more in the future.

Delayed Deployment

Green Commuter has learned throughout the project that obtaining final approval for potential site hosts is a complex task. The process is unpredictable when working with site hosts and coordinating all the activities required to install charging stations. For example, Green Commuter had a Site Host Agreement with Fresno County for more than a year before starting construction of the charging stations, which included an extended process of design approval, permission for zoning, and coordination.

UC Merced also undertook a lengthy review of the project, which resulted in relocation of the planned charging stations at the campus-based location to Delhi and Atwater. However, the

new locations proved to be beneficial, as they provided broader geographic coverage making the services available to more people. CARB later approved the relocation of the electric bicycles from the UC Merced Campus to potential sites in Fresno County, Kern County or Merced County. As a result, Green Commuter reached out to a variety of organizations to find a similar site host in which to deploy the electric bicycles. However, the delays inadvertently impacted the procurement of electric bicycles for the project. Swiftmile, the company that would be participating in the installation, deployment, and management of the e-bike sharing system, indicated that the equipment that were ordered would not be available that calendar year and that the company could no longer participate in the project due to the timeline and plans to re-engineer their systems. Green Commuter reached out to other companies that offered electric bicycles, but these companies were unable to meet the deployment date or were moving to scooters. Most importantly, they were not equipped to help install or manage an e-bike sharing system. The project team agreed to explore other options and replace the planned 16 electric bicycles and eight solar panel docking stations with additional electric vehicles for car share service at locations in Fresno County, where Green Commuter had made progress with potential site hosts.

As for the southern region in the San Joaquin Valley, Green Commuter found a potential site host in Arvin as a starting point for Kern County-based vanpools in disadvantaged community. However, after further communication with staff and assessment of the location, the current budget of the site host did not allow for the timely construction and paving of the site for the chargers to be installed for the purpose of this project. The costs of developing the site included the purchase and wiring of a new transformer and landscaping. Green Commuter staff followed up on several leads and explored potential sites in Lamont, Delano, Shafter, and McFarland. After extensive efforts over several months, Green Commuter identified a new location in north Bakersfield for the installation of the five level two charging stations in late 2019. The site host agreed to allow vanpool participants to convene at the location for drop-offs and Green Commuter estimated at the time that the installation could begin in April 2020 with a late spring launch of the service in Kern County. However, this project was postponed due to COVID-19, which led to the temporary closure of the CSU Bakersfield campus, furlough of Green Commuter staff, continued pending of additional funds to be used as cash match, and overall project suspension.

Outreach and Marketing Impact

Vanpooling has proven to be a major challenge for deployment of the service in the San Joaquin Valley. Green Commuter hired a part-time employee for the CSU Bakersfield location to help conduct outreach and provide information on the vanpooling service. Aside from this location, Green Commuter learned that vanpool interest from both employers and commuters in the San Joaquin Valley has decreased and significantly less than anticipated due to the pandemic and safety concerns with COVID-19. Despite offers for free test drives and other promotions, not one vanpool group had surfaced beyond the initial expression of interest at the time. Additionally, many of the college campuses originally identified for vanpooling services had little to no students on campus due to the pandemic so the need for vanpooling in this sector was eliminated with remote classes in effect.

As discussed in this report, Green Commuter, Leadership Counsel, and CALSTART conducted several outreach events and attended many meetings to reach the community, provide information regarding the project, and spark interest. Leadership Counsel and Green Commuter realized in the fall of 2019 that there was a big difference between outreach support and the actual marketing assistance necessary to help push membership engagement. The traditional outreach strategies at community meetings and in person demonstrations targeted a very limited group, which does not vary from event to event. Green Commuter and project partners learned that its outreach strategies needed to be quickly shifted from traditional in-person interactions to digital outreach. Adding the digital aspect allows for the project partners to reach a different demographic who traditionally would be younger and more technical savvy. Green Commuter was able to shift to digital outreach as COVID-19 disrupted the traditional outreach efforts. The surveys were done via SurveyMonkey, which is an online survey tool, and a few meetings were done via Zoom, a video platform for communications.

Global Pandemic

COVID-19 had a significant impact on this project, as traditional car sharing and the need for transportation were diminished. As the pandemic developed, local and State public health agencies issued directives on social distancing, safety protocols and temporary closure of non-essential businesses. As such, Green Commuter had to shift focus on determining how this project fit into the public health guidance, find ways to adapt to the rapidly changing pandemic and strategize around new safety protocols to ensure its employees, clients, and the community

remained safe. Green Commuter staff and the participants in Cantua Creek were particularly concerned with the more vulnerable population in their community that relied on the car sharing services and the health impacts the pandemic could have on them. Furthermore, the volunteer drivers decided that it was best to revisit the project and offer their services to drive the participants at a later time.

In March of 2020, after continued mandated closures, Green Commuter had to shut one of its offices down and furlough its employees until a scaled-back reopening of the program in May. This resulted in key project staff no longer being involved in day-to-day communications for the project. Unfortunately, due to the nature of the car share business model, resources, and available staffing, Green Commuter could not continue to operate safely with the on-going pandemic. For these reasons, Green Commuter requested and received approval for a temporary suspension of the services under the ZEV Mobility Project. On July 17, 2020, Green Commuter removed all of the vehicles from services and relocated them to Atwater for safe storage with the anticipation of re-opening the services for both communities. However, the unanticipated costs to maintain the vehicles, and pay for storage while services were suspended and no revenue was possible became a financial strain that Green Commuter was not able to continue. After close monitoring of the pandemic and many discussions with the District, CARB and Green Commuter the decision was made in April 2021 to not re-open services. It was determined with only a few months left on the Agreement and lack of financial capital to continue to serve the communities after the completion of the Agreement, it would not be in the best interest of the communities to re-open for only a few months.

Green Commuter has learned that maintaining the vehicles and the project during the non-operational period and attempting to restart the project were challenging and required significant capital to offset overhead costs. Furthermore, the non-operational period presented a significant problem for the community who has come to rely on the vehicles for their mobility needs, including access to health care and other essential services. Despite services ending, the charging stations continued to be open to the general public and the vehicles were retained by Green Commuter.

Vehicle Issues

In early 2019, one of the Chevrolet Bolt that was originally stationed in Cantua Creek incurred significant downtime as the installed remote-entry device experienced multiple failures. This issue required the Green Commuter's Chief of Technology to recall the equipment and write a new integration. The technology failure was a serious setback where car sharing services for this vehicle could not be offered to the community members.

Green Commuter reported an accident of two vehicles at the Cantua Creek location in late June 2019. Following the collision and repair of the vehicles, Green Commuter's team internally debated the existing program structure in terms of car share member liability and responsibility. Per the project terms, Green Commuter is responsible for all deductibles. However, the car share driver of one of the Chevrolet Bolt was responsible and at fault. Green Commuter sees this situation as precarious and that car share members are insulated from responsibility and perhaps drive less carefully than they would otherwise. With the accident incurred in late June and the onboarding of two new staff, the company recognized the necessity of continuous training of all operations with program staff. To reinforce support, staff also received several one-on-one support and training on location.

In July 2020, Green Commuter moved all vehicles from the Cantua Creek and Delhi locations to the Castle Airport location in Atwater for warehousing due to the temporary suspension of services. During this time, Green Commuter staff maintained the vehicles, which included checking on windshield wiper blades and fluid, replacing two key fobs, and replacing a front fascia and a fender garnish.

Staff Availability

The project encountered many staff changes from the project partners. Green Commuter hired one program manager in November 2018 to manage both the Delhi and Cantua Creek locations. However, with the loss of the program manager in 2019, the team agreed that there should be more than one dedicated employee for the project. The ideal structure was to have a fulltime program manager plus a field representative for each mobility hub to manage reservations, administer dispatch for the volunteer drivers, among other tasks. The plan for adequate staffing was fully implemented by the end of June 2019. During the course of this project, the District worked with multiple Green Commuter staff on the project implementation

and reporting process. However, with the loss of the program manager in 2019, historical knowledge of actions taken and conversation with partners was no longer available. While the project partners have worked diligently in providing the requested material, some of the information and data lost because of the turnover of staff ultimately caused delays in the process of reporting data.

B. Successes

Installation of EVSE

The project partners were able to successfully install twenty-six level two and four level three chargers in Cantua Creek, Delhi, and Castle Airport, providing much needed access to charging infrastructure in the San Joaquin Valley. The project committed to installing a total of 31 EVSE and there are now 35 charging ports available in key locations to continue to encourage, attract and accommodate cleaner vehicles in the Valley's disadvantaged communities. As discussed, these charging stations are currently operational and available for private EV owners to charge their vehicles.

Deployment of EVs

The impact the project had on the Cantua Creek and Delhi communities have been positive with the deployment of advanced clean car sharing fleet. Through grant funding and cash match, Green Commuter was able to deploy six Chevrolet Bolt and three Tesla Model X in the San Joaquin Valley for car sharing services, beta testing, and demonstration purposes. The Cantua Creek and Delhi locations were each provided at least three electric vehicles on site for the services. The availability of the electric vehicles in Cantua Creek was especially important as the small community is isolated with no reliable transit system. Green Commuter also parked vehicles in Bakersfield to help prepare for a successful vanpool service with CSU Bakersfield.

Car Sharing Experience

Both locations offered the community ridesharing through dispatch, car sharing by the hour or days, and vanpool service. Participants in Cantua Creek have continued to voice their appreciation, particularly for the ridesharing services with volunteer drivers, and hope to see long term sustainability. Many of the Cantua Creek residents relied on the services for medical appointments in other nearby cities, so car sharing helped fill in the transportation gap to ensure

that the participants could meet their health needs. In Delhi, participants were generally younger and mainly used the vehicles for events and essential trips.

In addition, the drivers have shared firsthand experiences of how vital these services are to the community through volunteering their time to transport those who are unable to drive themselves to destinations that they generally would have limited access to, such as medical facilities, stores, and community events.

Due to the exhaustion of grant funds, Green Commuter has not been able to further consider restarting the services. There have been general discussions on potential services through transit agencies, but the District is not aware of any existing car sharing services at these locations. The District is currently developing car sharing programs in disadvantaged communities and will continue to look for opportunities to support car sharing services throughout the Valley.

Community Awareness

As discussed, the project partners conducted numerous meetings and events to help promote the vanpool and car sharing service. Other activities included door to door outreach, digital marketing, and making applications and devices available for users. The in-person community meetings have proven to be a great resource for learning and understanding the participant's mobility needs. The potential site hosts are more informed of the technologies and opportunities that are available to them and their communities through discussions with Green Commuter. In addition, the introduction of the project to college campuses have served as a crucial indicator in evaluating the impact of car sharing.

Chapter 5 – Recommendations and Conclusion

A. Key Recommendations for a Future Program and Project Improvements

Based on the feedback from the community, a future program that provides car sharing services in disadvantaged communities will continue to draw interest, specifically in locations such as Cantua Creek where public transportation is not available. Car sharing and vanpool programs

enable participants to obtain affordable access to zero-emission vehicles without the burden of ownership.

Key recommendations for future programs and project improvements include:

- Access to translation tools
- Limit focus on smaller scale projects
- Sustainable and affordable community access to mobility options
- Refining the survey

Access to Translation Tools

To ensure successful implementation of similar car sharing programs in disadvantaged communities, it is important that the project partners be able to interact effectively with residents that do not speak English as their primary language. The project partners for the Valley Air ZEV Mobility Pilot Project appreciated having resources to assist in this area, which helped improve communication and provided a more robust understanding of the community and their needs. Key partners that have knowledge and experience in working with the targeted community also provide a greater advantage to bridge any gaps.

Limit Focus on Smaller Scale Projects

Smaller scale projects with lower grant funding should fully consider the implementation process and operations of mobility options. While projects such as the Valley Air ZEV Mobility Pilot Project had intended to introduce individuals and households to different forms of transportation to reduce emissions, such as combined EV vanpooling and car sharing, traditional EV car sharing, and electric bike share, the focus may have been too broad, especially when covering such a large area such as the San Joaquin Valley. Future programs should focus on smaller areas or limit the mobility options to ensure timely implementation and proper data collection.

Sustainable and Affordable Community Access to Mobility Options

Disadvantaged communities often lack the infrastructure to support cleaner vehicles and transportation needs. In order to encourage participation and make it possible for these residents to fully embrace the services, the clean transportation needs to be affordable for the participants and cost-effective for the operators. Project partners implementing similar programs may want to fully consider the cost of operations and maintenance with the pricing structure for

the services, after taking into account the vehicle and infrastructure costs and any additional funding. Data from the Valley Air ZEV Mobility Pilot Project have shown that even at the subsidized cost of car sharing, the interest was not as high as anticipated. Furthermore, the project partners found that the cost of operations and maintenance was higher than anticipated with each location requiring at least one dedicated staff to manage the vehicles and work with the community, including additional costs such as vehicle accidents.

Refining the Survey

The data that the project partners were able to collect from the residents through the survey provided valuable insights into the community. However, there were some challenges with getting more participants to complete the survey and in some instances, to also fill them out correctly. The initial survey that the project partners provided to the residents included 25 questions, where the project partners were able to extract for reporting purposes. The recommendation for future programs would be to determine a consistent format of how to present the data using all of the information from the survey, which would help the project partners refine the questions or provide additional information on the survey to help guide the applicant, as needed. This process may also help the project partners spend less time to explain the questions or go back to the participants for clarifications.

B. Conclusion

The Valley Air ZEV Mobility Pilot Project provided valuable insights and experiences into better understanding the transportation needs of disadvantaged communities and the challenges faced with clean mobility options in the San Joaquin Valley. Many community members in Cantua Creek and Delhi benefitted from the transportation services through this project that they otherwise would not have had access to. While the low population density and lack of appropriate infrastructure has been a major obstacle for deployment of vanpools and electric bikeshare in the San Joaquin Valley, the project successfully increased EVSE infrastructure in disadvantaged communities and expanded access to electric vehicles in the Cantua Creek and Delhi locations. The implementation helped reduce emissions and encourage the adoption of electric vehicles in the communities.