



**MADERA COUNTY ZERO EMISSION VEHICLE  
READINESS AND IMPLEMENTATION PLAN**  
MADERA COUNTY TRANSPORTATION COMMISSION

JUNE 2023

**PREPARED FOR:**



PREPARED BY:



# TABLE OF CONTENTS

**STUDY OVERVIEW ..... 6**

    PURPOSE AND NEED ..... 6

    STUDY OBJECTIVES..... 6

**EXECUTIVE SUMMARY ..... 6**

**CHAPTER 1: COMMUNITY ENGAGEMENT ..... 11**

    STAKEHOLDER OUTREACH..... 11

    STAKEHOLDER MEETINGS ..... 13

    SOCIAL PINPOINT SURVEY ..... 16

    EQUITY: THINKING BEYOND THE MAP..... 18

**CHAPTER 2: FUTURE INFRASTRUCTURE NEEDS ..... 23**

    ZERO EMISSION VEHICLE GROWTH IN MADERA COUNTY..... 23

    CURRENT AND PENDING STATE OF CALIFORNIA REGULATIONS ..... 26

    TRAVEL DEMAND ..... 32

    INFRASTRUCTURE DEMAND ..... 33

    TRADEPORT CALIFORNIA ..... 36

    POTENTIAL CHARGING STATION LOCATIONS ..... 37

    STRENGTHS AND DRAWBACKS OF EACH STRATEGY ..... 49

    FUNDING..... 50

    GAPS, BARRIERS, AND RECOMMENDATIONS ..... 51

**CHAPTER 3: IMPLEMENTATION ..... 54**

    RECOMMENDED ACTIONS..... 54

    STRATEGIES FOR ZEV IMPLEMENTATION ..... 66

    FUNDING ZEV IMPLEMENTATION STRATEGIES ..... 67

    ESTIMATED COSTS TO MEET THE PROJECTED NUMBER OF CHARGING STATIONS AND HYDROGEN STATIONS..... 68

**APPENDICES ..... 70**



# LIST OF FIGURES

FIGURE 1: EV CHARGERS BY LOCATION .....8

FIGURE 2: SOCIAL PINPOINT WEBSITE LANDING PAGE ..... 17

FIGURE 3: CALENVIROSCREEN ..... 19

FIGURE 4: JUSTICE 40..... 19

FIGURE 5: GROWTH SCENARIOS FOR EV MARKET SHARE OF NEW LIGHT-DUTY VEHICLE SALES 24

FIGURE 6: GROWTH SCENARIOS FOR EV MARKET SHARE OF REGISTERED MEDIUM- AND HEAVY-DUTY VEHICLES ..... 24

FIGURE 7: ANNUAL ZEV REQUIREMENT FOR ACCII ..... 26

FIGURE 8 ADVANCED CLEAN TRUCK (ACT) REGULATION REQUIREMENTS (SOURCE: THE ICCT) . 29

FIGURE 9: FUNDED HYDROGEN STATIONS (SOURCE: ARB) ..... 36

FIGURE 10: NUMBER OF PROPOSED CHARGING SITES AND LOCATIONS, SUITABLE SITES FROM PREDICTEV RESULTS ONLY..... 38

FIGURE 11: NUMBER OF PROPOSED CHARGING SITES FOR EACH SITE CATEGORY, SUITABLE SITES FROM PREDICTEV ..... 39

FIGURE 12: TOP LOCATIONS AS IDENTIFIED BY PREDICTEV ..... 40

FIGURE 13: NUMBER OF PROPOSED CHARGERS BY SITE CATEGORY FOR 2025 (LEFT: ALL, RIGHT: ONLY 150 KW DCFC), SUITABLE SITES FROM PREDICTEV RESULTS ONLY ..... 41

FIGURE 14: INFLOW AND OUTFLOW COMMUTE TRAFFIC ..... 43

FIGURE 15: AVENUE 17 AND HIGHWAY 99 ..... 47

FIGURE 16: AT THE CHOWCHILLA BRANCH LIBRARY ..... 47

FIGURE 17: AT PACIFIC PRIDE CARDLOCK STATION ..... 48

FIGURE 18: LOST LAKE AREA ..... 48

FIGURE 19: EV ADOPTION CURVE ..... 51

FIGURE 20: DEGREES OF EVSE SUPPORT BUILDING CODE ..... 53

FIGURE 21: DEGREES OF EVSE SUPPORT BUILDING CODE ..... 64

FIGURE 22: EV REQUIREMENTS FOR NON-RESIDENTIAL BUILDINGS ..... 64

FIGURE 23: CALGREEN REQUIREMENTS FOR LOADING DOCKS ..... 65

FIGURE 24: FOGG BEHAVIOR MODEL ..... 67

## LIST OF TABLES

TABLE 1: STAKEHOLDER IDENTIFICATION LIST .....	12
TABLE 2: SUMMARY OF SOCIAL PINPOINT RESPONSES .....	18
TABLE 3: CLEAN MILES STANDARD ROLLOUT (SOURCE: CARB) .....	27
TABLE 4: ADVANCED CLEAN FLEET REQUIREMENTS FOR GOVERNMENT .....	28
TABLE 5: SUMMARY OF THE ADVANCED CLEAN FLEET (ACF) REGULATION .....	28
TABLE 6: ACT TIMELINE .....	29
TABLE 7: PERCENTAGE OF BUS PURCHASES THAT MUST BE ZERO-EMISSION BY YEAR .....	30
TABLE 8:YOSEMITE TRAFFIC COUNT-SOUTH ENTRANCE .....	33
TABLE 9: NUMBER OF REQUIRED EV CONNECTORS IN MADERA COUNTY BY 2025 AND 2030 .....	34
TABLE 10: OVERVIEW OF OPPORTUNITY AND PUBLIC CHARGING LOCATIONS, SUITABLE SITES FROM PREDICTEV RESULTS ONLY.....	42
TABLE 11: MULTIFAMILY UNITS FROM HOUSING ELEMENT.....	44
TABLE 12: SUMMARY OF EACH OF THE FOUR CHARGING/STATION STRATEGIES .....	49
TABLE 13: NUMBER OF REQUIRED EV CONNECTORS IN MADERA COUNTY BY 2025 AND 2030 ...	50
TABLE 14: PLANNING-LEVEL ESTIMATES FOR DEPLOYMENT .....	69

## LIST OF ACRONYMS

<b>ACF</b>	Advanced Clean Fleet	<b>LCFS</b>	Low Carbon Fuel Standard
<b>ACT</b>	Advanced Clean Truck	<b>LEP</b>	Limited English Proficient
<b>AFDC</b>	Air Quality Maintenance Plan	<b>MCTC</b>	Madera County Transportation Commission
<b>CEC</b>	California Energy Commission	<b>NREL</b>	National Renewable Energy Lab
<b>CES</b>	CalEnviroScreen 4.0	<b>NEVI</b>	National Electric Vehicle Infrastructure
<b>DCFC</b>	DC Fast Charge	<b>PERP</b>	Portable Diesel Engine Air Toxic Control Measure
<b>EPA</b>	Environmental Protection Agency	<b>RTP</b>	Regional Transportation Plan
<b>EVCS</b>	Electric Vehicle Charging Station	<b>SACOG</b>	Sacramento Area Council of Governments
<b>EVI</b>	Electric Vehicle Infrastructure	<b>SCS</b>	Sustainable Communities Strategy
<b>EVSE</b>	Electric Vehicle Service Equipment	<b>TRU</b>	Transport Refrigeration Unit
<b>HTST</b>	Home-to-School Transportation	<b>YARTS</b>	Yosemite Area Regional Transportation System
<b>ICT</b>	Innovative Clean Transit	<b>ZEV</b>	Zero Emission Vehicle
<b>LSI</b>	Large Spark Ignition		

## STUDY OVERVIEW

### PURPOSE AND NEED

---

Governor Newsom’s Zero-Emission by 2035 Executive Order (N-79-20) calls for the elimination of new internal combustion passenger vehicle sales by 2035: 100% zero-emission vehicle sales for new passenger cars and trucks by 2035. The same target holds for medium and heavy-duty vehicles by 2045.

California’s transportation sector, including all passenger cars and light trucks, heavy-duty trucks, offroad vehicles, and the fuels needed to power them, is responsible for about 50% of the state’s greenhouse gas (GHG) emissions.<sup>1</sup> By setting the target to 2035, the Executive Order provides time to plan for and support the increasing consumer demand for these vehicles. The ZEV Readiness and Implementation Plan presents information and recommendations to better accommodate existing ZEV users and improve access and effectiveness for increasing future ZEV usage in Madera County in an equitable manner.

### STUDY OBJECTIVES

---

Objectives for this study include:

- Assessing existing ZEV infrastructure environment.
- Identifying key community challenges and barriers to advancement.
- Recommending infrastructure improvements and investments.
- Identifying implementation strategies and policies to promote ZEV infrastructure adoption.
- Providing stakeholders with tools to procure, site, and install ZEV infrastructure.

## EXECUTIVE SUMMARY

The Madera County Transportation Commission intends to proactively plan for the anticipated increase in Zero Emission Vehicle (ZEV) adoption throughout the Madera County region and surrounding areas. This report provides an overview of ZEV infrastructure as it stands today, an analysis of future needs for the county, and suggested goals and actions for implementation to support future ZEV needs. To do this, the project team conducted a ZEV existing conditions analysis for the county, conducted stakeholder outreach and utilized online tools to collect input from the community, and used various sources of data to forecast ZEV adoption and travel patterns.

---

<sup>1</sup> California Energy Commission: Transforming Transportation <https://www.energy.ca.gov/about/core-responsibility-fact-sheets/transforming-transportation#:~:text=California's%20transportation%20sector%20accounts%20for,of%20diesel!%20particulate%20matter%20pollution.>

The first step in planning for increasing ZEV adoption is to identify the EV charging infrastructure that has already been implemented within and close to the County.

**Appendix A** summarizes existing EVSE (electric vehicle service equipment) within Madera County and its local jurisdictions. The primary source of this data is the Alternative Fuels Data Center<sup>2</sup> (AFDC) and has been supplemented by review using other online sources such as PlugShare<sup>3</sup> and Google Maps. **Figure 1** shows the general locations of existing chargers in Madera County.

Approximately half of the chargers are located within the City of Madera, with many of the remaining chargers located in the foothills to the east which serve travelers heading to, or from recreation areas such as Yosemite. The City of Madera has 24 Level 2 and 39 DCFC chargers located within and adjacent to its boundaries. The City of Chowchilla has 2 Level 2 and 12 DCFC chargers within or adjacent to its boundaries. Oakhurst, which is not an incorporated city, has 14 Level 2 and 16 DCFC chargers, while the nearby community of Ahwahnee has 12 Level 2 chargers. Further details and a full existing conditions report can be found in

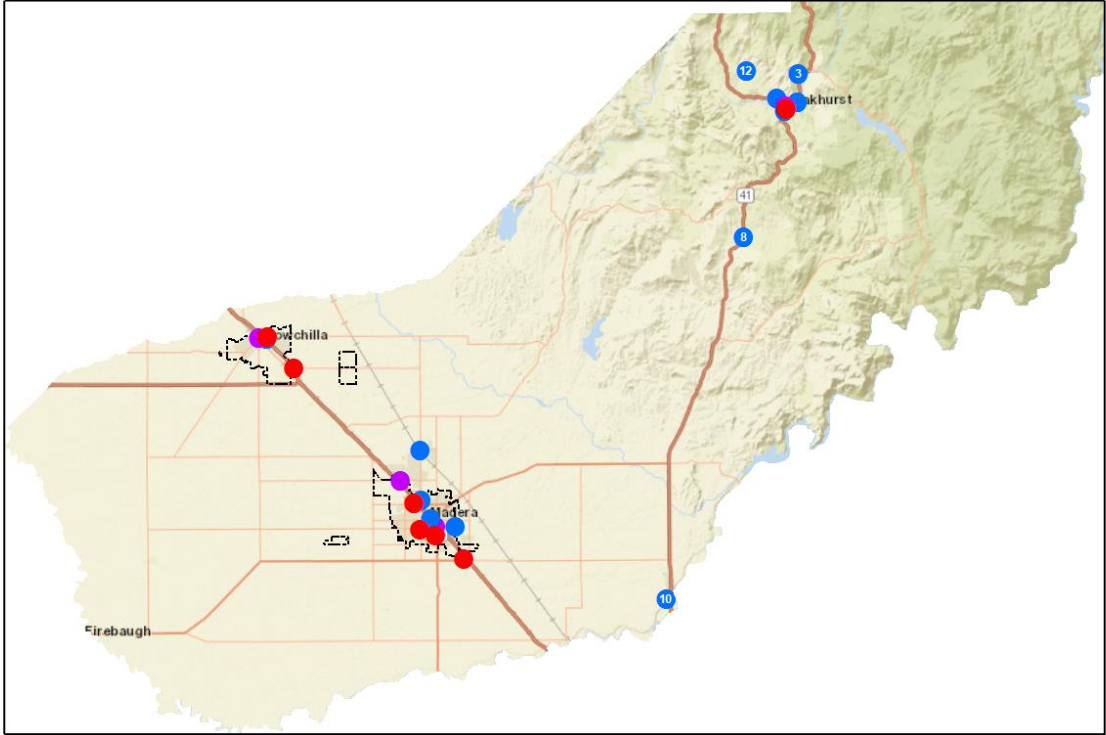
## Appendix A.



---

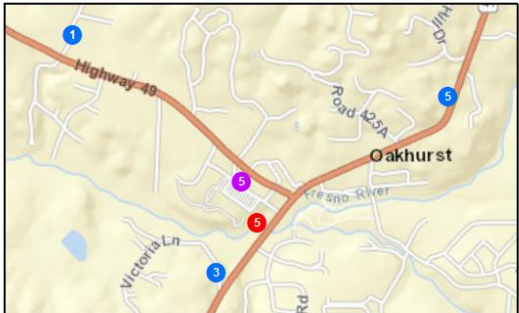
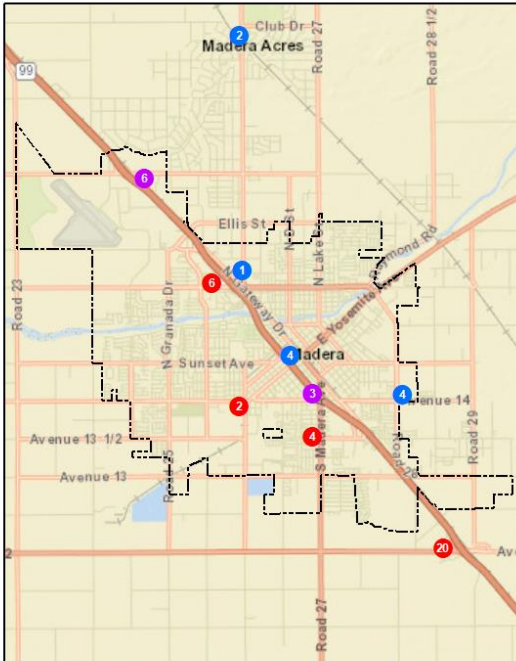
<sup>2</sup> [https://afdc.energy.gov/fuels/electricity\\_locations.html](https://afdc.energy.gov/fuels/electricity_locations.html)

<sup>3</sup> <https://www.plugshare.com/>



**Existing Stations - Charge Level**

- DCFC
- L2
- L2 + DCFC



Source: Alternative Fuels Data Center (AFDC)



**FIGURE 1: EV CHARGERS BY LOCATION**



**Chapter 1:** outlines outreach initiatives related to the Madera County Transportation Commission's Zero Emission Vehicle (ZEV) Readiness Plan for the Madera County Region and provides an overview of information gathered through this outreach. The outreach conducted for this project had two primary focus areas: Participation in stakeholder meetings and enhancing input on the Social Pinpoint Map, an interactive mapping tool used by individuals to identify optimal locations for electric charging infrastructure. The stakeholder meetings were aimed at gathering feedback from two interest groups: The trucking and goods movement, as well as electric vehicle charging companies interested in installing charging infrastructure in Madera County.

Through community engagement and research, the project team identified a variety of hopes and concerns within various communities:

- **Economic Advantage:** Small businesses and independent owner/operators are worried that vehicle electrification will put them out of business, but they are also worried about today's high fuel costs and the negative impacts of inflation and the supply chain slowdown. Their business is based on day-to-day cash flow, not air quality and climate change. To benefit from ZEVs, they need to see the immediate economic advantage of charging or hydrogen fueling, not a 10-year return on investment.
- **Language:** Studies show that 40% of new truck drivers are recent immigrants. For several different projects, we've interviewed truck drivers who speak Russian, Spanish, Hindi, Cambodian, Punjabi, and Farsi often with the help of a translator. Many of the ZEV terms we used were difficult or impossible to translate. It was challenging to communicate concepts of vehicle electrification and explain rebates and incentives. As ZEVs roll out, it will be crucial to engage business owners, drivers, and all workers in the languages and styles that they use.
- **Desire for privacy:** The project team had very low responses to surveys. During interviews, about 25% of participants were unwilling to share information about their driving, fueling, and parking habits. People were leery about giving out information for a variety of reasons and the built-in data collection of EVs and charging stations concerns them, and reporting requirements for some incentive programs are a major deterrent.
- **Workforce development:** The California Mobility Center, a workforce development initiative for EV-related jobs, identified challenges and opportunities for workforce training that also apply to equity-focused outreach about the transition to ZEVs.

**Chapter 2** identifies future needs for the county by identifying the gaps in infrastructure for EV charging and hydrogen stations that will need to be filled to encourage the adoption era-emissions vehicles in Madera County. The project team projected the number of ZEVs through 2035, identified existing and planned charging and hydrogen stations, and recommended scenarios for future development that make the best use of State and Federal investments in ZEV fueling.

The project team started this prediction with the current number of vehicles registered in Madera County. The team then used historical sales figures to estimate the number of new vehicles that were registered each year. To predict the future, the model assumes population increase, regulatory requirements that require new vehicle purchases to be ZEVs, and that additional ZEV makes and models will be available. The model then created slow, medium, and fast scenarios for ZEV adoption. The project team used this information combined with travel demand data and

locations of current ZEV infrastructure to identify gaps and identify potential locations for new ZEV infrastructure.

Finally, **Chapter 3**: summarizes goals and recommendations for transportation electrification in Madera County based upon findings from community engagement, and the analysis of existing conditions and future needs. Recommended actions include:

- Establishing a collaborative committee of stakeholders including Madera County, the cities of Madera and Chowchilla, SJVACPD, PG&E, and Chowchilla Municipal Utility to plan and coordinate for the ZEV transition.
- Developing effective community engagement and workforce development programs.
- Determining cost-effective investment for the installation of ZEV infrastructure.
- Monitoring air quality to track progress as ZEV adoption increases.
- Creating a dashboard to display local data.
- Supporting the municipal fleet ZEV transition early as they will be accelerated by mandates.
- Meeting state requirements for streamlined permitting.
- Encouraging home and workplace charging.
- Adopting EV-supporting building codes.

### The **Appendices**

of this report provide additional details on the existing conditions analysis completed for Madera County, supplemental materials used for community engagement, details on funding opportunities, and recommendations for charging station locations and charging plazas.

## CHAPTER 1: COMMUNITY ENGAGEMENT

This chapter outlines the outreach initiatives related to the Madera County Transportation Commission's Zero Emission Vehicle Readiness Plan for the Madera County Region. The outreach conducted had two primary focus areas: Participation in stakeholder meetings and enhancing input on the Social Pinpoint Map, an interactive mapping tool used by individuals to identify optimal locations for electric charging infrastructure. The stakeholder meetings were aimed at gathering feedback from two interest groups: trucking and goods movement, as well as electric vehicle charging companies interested in installing charging infrastructure in Madera County.

The project team completed the outreach for this project in conjunction with the Madera Regional Transportation Plan (RTP). By California Government Code SEC. 2. Section 65080 (b) (2)(F) this project included "Outreach efforts to encourage the active participation of a broad range of stakeholder groups in the planning process" and "Workshops throughout the region to provide the public with the information and tools necessary to provide a clear understanding of the issues and policy choices."

### STAKEHOLDER OUTREACH

---

#### STAKEHOLDER IDENTIFICATION

The stakeholders for the Goods Movement stakeholder group were identified through research of large trucking companies in the region, as well as outreach to regional organizations in Madera County. Stakeholders for the Electric Vehicle Charging Stakeholder group were identified from an internal DKS list of leading companies in the electric vehicle charging industry. These industry leaders were invited to participate in stakeholder meetings that took place virtually through the month of March 2022, as well as to submit additional suggestions and comments online through the Social Pinpoint web page. The project team contacted stakeholders and invited them to participate in the engagement process summarized below:

**TABLE 1: STAKEHOLDER IDENTIFICATION LIST**

TYPE	ORGANIZATION
<b>COMMERCIAL TRUCKING COMPANIES</b>	Dhaliwal Bros Carrier
	Cherokee Freight Lines
	Mazon Trucking Inc
	Panella Trucking
	Talley Transportation/San Joaquin Sand & Gravel
	Merced Transportation Co
	Five Star Freight/B&C Trucking
	Nia Ag Solutions
	Gtb Express
	365 Logistics Gilbarco
<b>OTHER ORGANIZATIONS</b>	Madera County Economic Development Commission
	Caltrans District 6
	Madera County Farm Bureau
	Madera Chamber of Commerce
<b>EV CHARGING INDUSTRY STAKEHOLDERS</b>	Volta Charging
	Tesla
	Rivian
	Frontier Energy
	Electrify America
	EVGO
	Chargepoint
	Blink EV Connect

## STAKEHOLDER MEETINGS

---

### GOODS MOVEMENT STAKEHOLDER MEETING

DKS and the Madera County Transportation Commission held an EV charging stakeholder workshop on March 21, 2022, attended by various stakeholders, including representatives from DKS Associates, Frontier, MCTC, and Caltrans District 6, as well as representatives from the Creekside Farming Company, the Madera County Farm Bureau, and EvapCo. The discussion focused on the benefits and barriers of ZEV and EV technology, funding and financing options for EV infrastructure, and concerns related to charging infrastructure and equipment for agricultural and industrial sectors. Some of the key points discussed were long approval processes for grants, the need for charging infrastructure at industrial parks and processing facilities, and concerns regarding on-site charging and blackouts for farms with a large number of tractors.

#### **What is your understanding of ZEV/electric vehicle technology?**

A representative from Creekside Farming shared that the electrification of farm vehicles and equipment is not widespread yet, but they are beginning to see electric pickup trucks. There is a belief that there are not many options currently available. While some small vehicles, such as John Deere gators, are moving away from ATVs to small electric utility vehicles, the charging capacity is currently not enough for a full day of work. There is an understanding that technology is improving, but it is not yet suitable for the agriculture industry.

#### **Benefits and Barriers of ZEV and EV Technology**

A representative from Creekside Farming expressed that their industry relies heavily on fuel and that farmers/manufacturers would consider transitioning to ZEV and EV technology if utilization and vehicle cost were low enough. However, they believe that this would not happen immediately but could be a gradual process. They also mentioned the challenge of retiring functional vehicles due to state emission standards and emphasized the importance of grant funding to make the cost comparable.

One participant pointed out that small-horsepower electric tractors are currently the only option on the market but are not powerful enough for most large-scale farmers. They suggested a hybrid model where smaller tractors can be electrified, and diesel equipment can still be used for larger jobs. He acknowledged the challenge of charging stations being onsite for farms that have 100+ tractors and concerns about blackouts common in the region.

Another participant, who runs an 18-acre pistachio farm, expressed her concern about the need for electricity on site and her high interest in autonomous vehicles due to current labor shortages. She also shared concerns that demands from the AG industry would shut down the power grid.

A representative from EvapCo, speaking from a manufacturing perspective, suggested a long-term strategy of putting charging infrastructure in the staging area for the future when semis electrify. He shared that they have over 100 trucks coming through their industrial park area every day, and

parking on the street is currently an issue. They also emphasized the need for a place for trucks to stage and charge at industrial parks.

### **Funding and Financing EVs and EV Infrastructure**

A representative from the Farm Bureau shared that the approval process for obtaining funding can be lengthy, and even then, the amount granted may not cover the full cost of new equipment. Contracts can stretch up to ten years with yearly reporting requirements. He expressed frustration over having to retire equipment that no longer meets California's emission standards.

A member of the EJAG has heard about grants but hasn't personally applied for them. She understands that the reporting requirements can be burdensome but believes that grants are a great option. Currently, she is repaying a loan for an ATV over a ten-year period and is interested in exploring grants to upgrade her equipment.

### **ELECTRIC VEHICLE CHARGING INFRASTRUCTURE STAKEHOLDER MEETING**

The MCTC EV Charging Stakeholder Workshop was held on March 21, 2022, via Zoom, and attendees included representatives from DKS Associates, Madera County Transportation Commission, Frontier, Tesla, ChargePoint, Electrify America, and EV Connect. The discussion focused on the current and future charging infrastructure in Madera County using two question prompts:

- What charging infrastructure is currently planned for Madera County?
- What strategies, other than funding, can be used to support electric vehicle adoption?

A summary of the discussion is provided below.

#### **What charging infrastructure is in the works for Madera County?**

According to representatives from Tesla, a high-speed charger has been recently installed in Oakhurst and a level 2 charger is being constructed in Madera with plans for one in Chowchilla as well. The current Tesla charging infrastructure in the area includes 8 stalls each in Chowchilla and Oakhurst and 16 stalls in Madera, all at level 250. Joseph Sharp from Tesla expects more investment in Madera over the next 6 to 12 months, but currently, nothing is planned for the East 41 corridor or the Riverstone area. Electrify America has several sites under construction in the area North of Madera (City of Merced) but currently has not announced any plans for Madera County.

#### **What strategies can be implemented aside from funding support?**

MCTC is interested in a big-picture plan for Madera, which sees five million vehicles visiting Yosemite every year.

Electrify America is working on a metro approach and has established a charging station in Madera to fill gaps along Highway 99. They are also seeking to expand investment along the corridor between Fresno and Merced, with the aim of adding more metro areas in the future. AB 970 and

AB 1236 provide a clear and consistent process to reduce risk in target areas, and the goal is to increase the number of chargers in the region.

ChargePoint is also committed to providing charging infrastructure, particularly in school districts. They are working with federal agencies and exploring the possibility of placing chargers at scenic viewpoints around Yosemite.

Tesla believes that Oakhurst would be an excellent location for a charging station, as there are currently few in the area. They advocate for reducing barriers to installing charging stations through AB 1236 and AB 970 and encourage Madera County to apply for federal discretionary grant funding, which will target underserved rural areas.

The San Joaquin Clean Cities Coalition is also doing valuable work in educating communities through ride and drives and EVs 101. City and county-owned properties may be identified as potential locations for charging stations.

In terms of prime areas for development, Madera County has identified the Hwy 41 corridor, the Avenue 15 and Hwy 41 corridor north of Fresno County, areas along Hwy 99, Avenue 7, the location of a new casino, the Hwy 17 area, Chowchilla, the southern part of State Route 101, and the new connection of Avenue 12 and 15 (Rio Mesa Blvd) as key sites. The Gunner Ranch Development, located near Valley Children's Hospital, is a mix of houses and jobs that is also experiencing growth.

## **LA VINA WORKSHOP**

The MCTC La Vina Workshop was held on December 1<sup>st</sup>, 2022. The meeting was attended by MCTC staff, DKS staff, and 15 community members. The presentation was conducted in English, with Spanish Interpretation. The workshop was a combined effort for two projects: the MCTC ZEV Readiness Plan, and the (MCTC) 2022 Regional Transportation Plan and Sustainable Communities Strategy (SCS) efforts.

At the La Vina community workshop, community members discussed several priorities, including street lighting, street maintenance/paving, public transit service, and broadband access. The lack of bus service after 2 p.m. was described as a significant obstacle to mobility for residents without vehicles. The area also has little to no broadband service access, and the cost to get service is very high. The community feels ignored by the County and historically has not been listened to despite repeated attempts to raise concerns and priorities. Air quality is a major issue, and residents need sidewalks, particularly those in wheelchairs and pedestrians who are forced to use the road despite unsafe driver behavior/speeding. Community members emphasized that improvements in transit are needed within the Valley, not just Yosemite, and the plan should address the dependency on transit for some residents. While these comments are not directly related to transportation electrification, it's important to note the need for the electrification of transit as well as personal vehicles to equitably meet the needs of all residents.

## SOCIAL PINPOINT SURVEY

---

Social Pinpoint is a digital engagement platform that helps organizations to communicate and collaborate through interactive maps, online surveys, and other engagement tools. Social Pinpoint was used to gather feedback from stakeholders and the public on the MCTC ZEV Readiness project. The project team launched the website (<https://dks.mysocialpinpoint.com/yourmadera2046#/>) for the Madera 2045 project which included ZEV priorities on November 1<sup>st</sup>, 2021. The website remained open for comment through to February 14, 2023.

As part of their community outreach efforts, the project team developed a social pinpoint map to collect location-specific comments from participants. such as the installation of electric charging infrastructure or the provision of new transit services, or to share their ideas for a particular area. On the MCTC ZEV Readiness Social Pinpoint page, participants could provide location-specific comments as well as “like” or “dislike” comments of others, allowing comments to be sorted by popularity. Users were allowed to submit four types of comments: *Project Suggestions, Something I like, Request Level 2 Charger, and Request Level 3 Charger.*

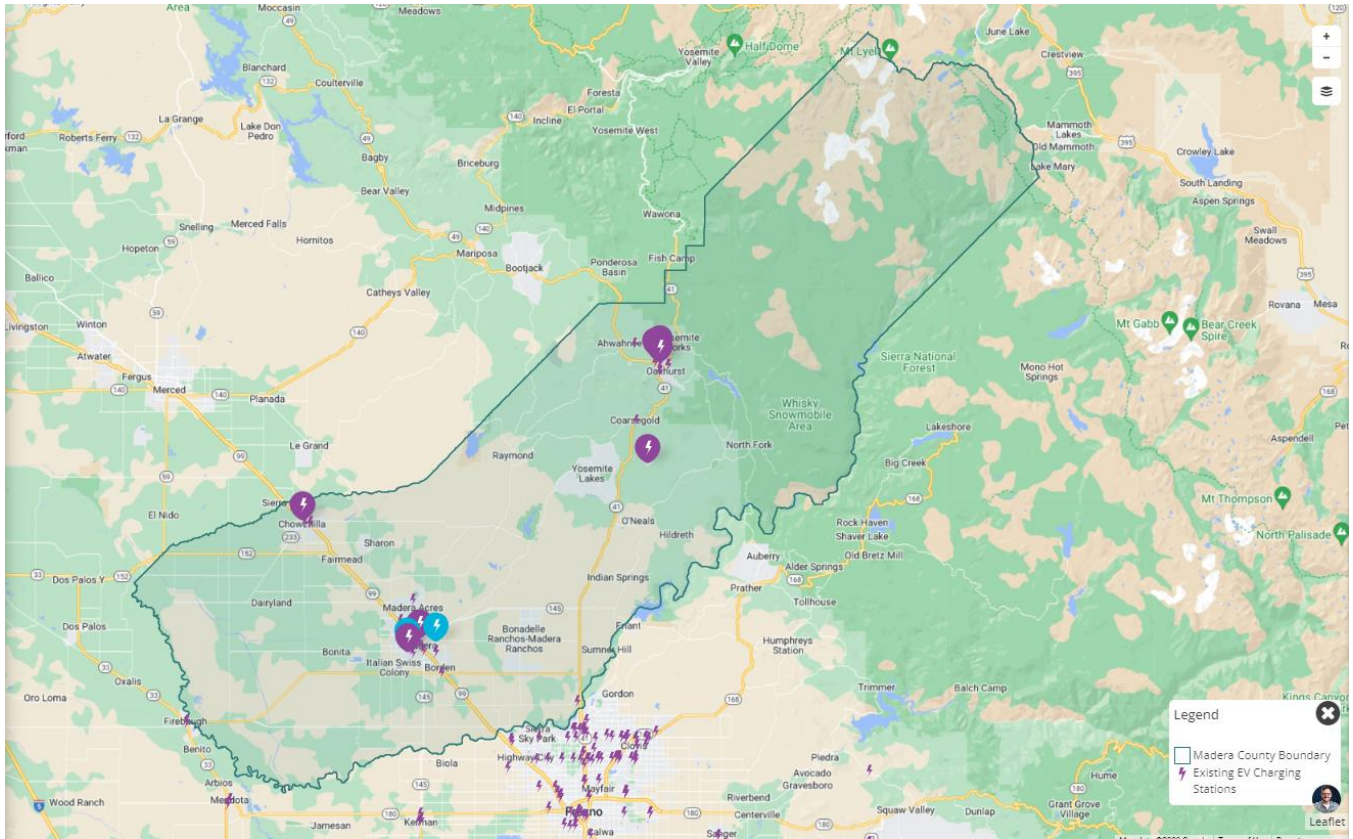
The project team integrated the social pinpoint map into all outreach emails for the Goods Movement and EV Charging Stakeholder Meetings. Direct email invitations were sent to organizations listed in **Table 1** throughout the first week of March 2022, with follow-up emails leading up to the March 21st meetings. After the meetings, the team sent a follow-up message thanking attendees and non-attendees for their participation and encouraging them to continue using the social pinpoint mapping tool. A final direct outreach message to goods movement and EV charging industry stakeholders was sent on April 9, 2022.

Additionally, the social pinpoint map was also used in the outreach efforts for the Madera County Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). While the information-gathering process for this audience was broader, community groups and the public identified in Table 4 were still able to provide input on EV charging and select areas. The social pinpoint map was integrated into all outreach efforts for the Madera County RTP SCS Community Meetings held on October 25, 2022, March 24, 2022, and April 8 and 12, 2022. Following these meetings, the outreach team made further direct engagement efforts to increase participation on the social pinpoint mapping tool.

See **Figure 2** for a snapshot of the Social Pinpoint project landing page:



Drag to comment >  Project Suggestion  Something I Like  Safety Concern  Request Level 2 Charging  Request Level 3 Charging



**FIGURE 2: SOCIAL PINPOINT WEBSITE LANDING PAGE**

**PUBLIC RESPONSE**

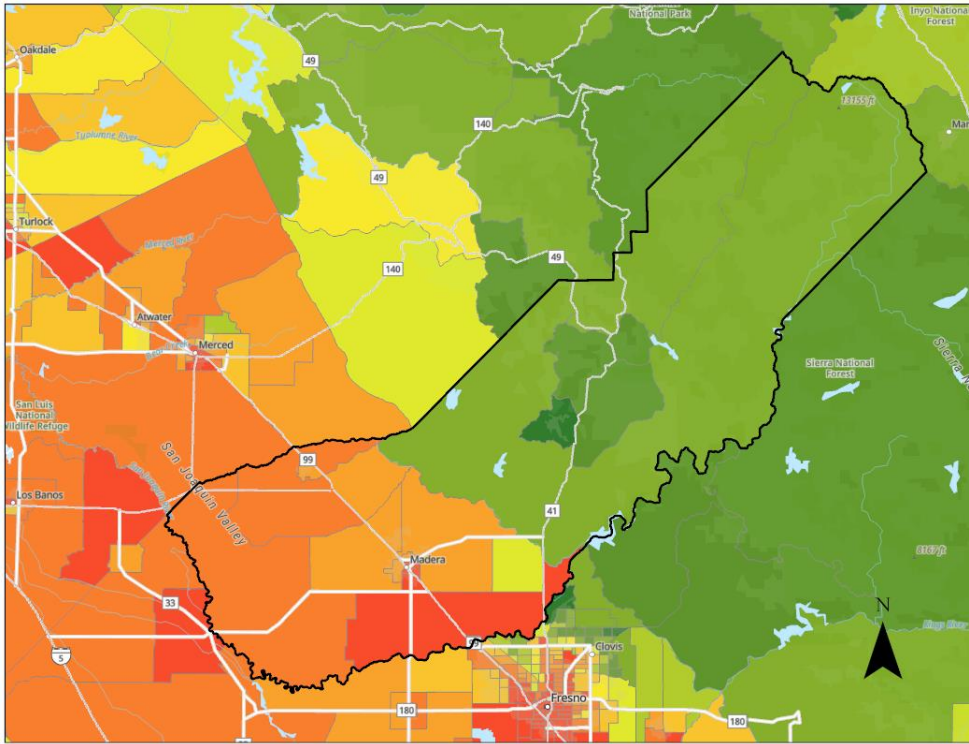
The Social Pinpoint Survey received 9 responses from 6 unique users. The respondents included requests for charging infrastructure across the County. The 9 requests included suggestions for adding electric vehicle charging stations in different locations across the county, including Lions Town & Country Park, Madera County Government offices and Sheriff's Substation in Oakhurst, three hotel properties (Fairfield Inn, Hampton Inn, and Holiday Inn) in Oakhurst, along Highway 41, at the Civic Center in Chowchilla, near the upcoming Madera Community College campus in Oakhurst, and at the Madera County Department of Social Services. The 9 responses received are summarized in **Table 2**.

**TABLE 2: SUMMARY OF SOCIAL PINPOINT RESPONSES**

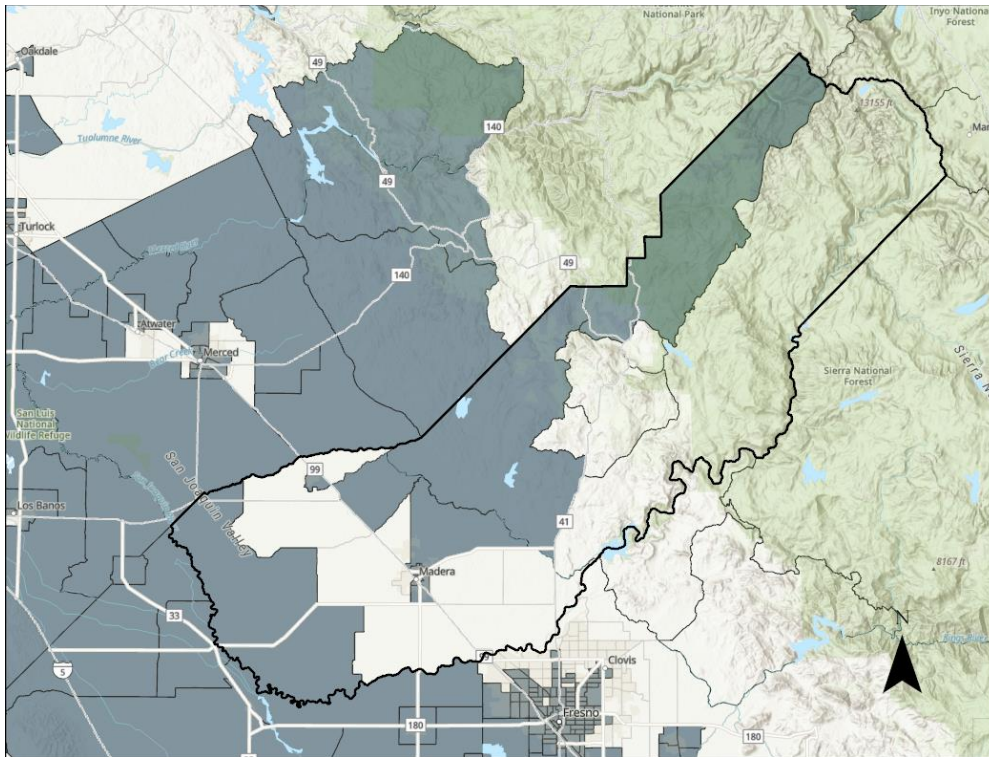
SOCIAL PINPOINT COMMENTS
"Add electric vehicle chargers at this location [Lions Town & Country Park]."
"Charging EV station at the Madera County Gov't offices in Oakhurst."
"Consider an EV Charging station at the Madera County Sheriff's Substation in Oakhurst "
"Propose an EV Charging station at these three hotel properties [Fairfield Inn, Hampton Inn, Holiday Inn Oakhurst] This location highly visible, has excellent lighting at night and has easy access on/off Hwy 41 in Oakhurst and would serve both the hotel guests and the public. Possibility."
"More fast charging stations are needed along highway 41 since this is the route to Yosemite NP that most drivers from southern California will take."
"More Level 3 charging at civic center [Chowchilla]"
"Charging stations near the permanent campus of the Madera Community College at Oakhurst, soon to break ground north of Kaiser Permanente."
"Charging station would work well in this location [Madera County Department of Social Services]."

**EQUITY: THINKING BEYOND THE MAP**

The State of California’s CalEnviroScreen 4.0 (Figure 3) and the federal government’s Justice 40 (Figure 4) maps both show areas of Madera County as “disadvantaged.” The two maps, however, don’t agree about which areas are disadvantaged communities (DACs). CalEnviroScreen shows DACs in red and orange; Justice 40 shows DACs in shaded greys.



**FIGURE 3: CALENVIROSCREEN**



**FIGURE 4: JUSTICE 40**

Title VI of the 1964 Civil Rights Act provides one of the principle legal underpinnings for environmental justice. Title VI states that “No person . . . shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. Title VI prohibits recipients of Federal funds from actions that reflect ‘intentional discrimination’ or that exhibit ‘adverse disparate impact discrimination’ on the basis of race, ethnicity or national origin.” Title VI also prohibits discrimination in the form of the denial of meaningful access for limited English proficient (LEP) persons.

The Civil Rights Restoration Act of 1987 amended Title VI so that recipients of federal aid must comply with non-discriminatory requirements in all their activities, not just the programs and activities that directly receive Federal support. That is, an agency that receives any federal funding must not only plan against discriminatory impacts on those projects that receive federal funding, but also for programs that are entirely state or locally funded. Later statues prohibit discrimination on the basis of sex, religion, or disability. As a government agency receiving federal funding, the Madera County Transportation Commission (MCTC) is committed to implementing Title VI and conforming to federal environmental justice principles.

Environmental justice was first identified as a national policy in 1994 when President Clinton signed executive order 12898, requiring that federal agencies shall, to the greatest extent of the law, carry out their activities, programs and policies in a way that avoids disproportionately high and adverse health and environmental impacts on low-income and minority populations. E.O. 12898 thus applies to a wider population than does Title VI, which did not include low-income non-minority populations. An interagency working group, led by the Environmental Protection Agency (EPA), was established to oversee the implementation of E.O. 12898. The Order itself does not create any new legal rights and is not enforceable in court. Rather, it is intended to focus federal agencies on the existing regulations, such as the Title VI and the National Environmental Policy Act (NEPA), that protect low-income and minority communities from discrimination and ensure their full participation.

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (November 6, 2000), establishes regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies with tribal implications. The goals of this order are to strengthen government-to-government relationships with Native American tribes and to reduce the imposition of unfunded mandates upon Native American tribes.

The equity analysis section mainly assesses whether all racial and income target areas will benefit from fair shares in the transportation investments. However, some transportation projects may create some adverse impacts. Successful transportation projects do not only focus on improvements to the transportation system, but also minimizes and mitigates any negative environmental and social impacts the project may create.

Transportation systems play a vital role in advancing the safety, economy, and quality of life for residents of Madera County. Each day, transportation facilitates the movement of goods and people, providing mobility to Madera’s residents, visitors, and businesses. Transportation systems are quite diverse, including roadways, public transportation, bicycle and pedestrian facilities,

airports, and railroads and like any system, maintenance and improvements are crucial to its success. Madera is committed to maintaining the existing infrastructure and to create and implement changes, which would add to the system's efficiency and safety. Investment in the transportation system creates measurable benefits but may also result in unintended consequences if not planned correctly. Projects may generate disproportionately negative impacts to minority or low-income communities by either denying them their "fair-share" of transportation projects or subjecting them to an unequal share of the negative externalities. To prevent such an event from occurring, the Madera County Transportation Commission (MCTC) is committed to employing an environmental justice program that will help ensure early and continued public involvement, and an equal distribution of transportation projects, paying close attention to the needs of low income and minority populations.

Madera's ZEV Blueprint must benefit all residents and the implementation of these actions should be done in partnership with community members. It's important to understand barriers that are uniquely theirs, listen to their hopes and worries, and then seek opportunities within the project to fulfill their hopes and ensure that the project doesn't have unintended consequences.

Analysis was performed on the state designated SB 535 disadvantaged communities as determined by CalEnviroScreen 4.0 (CES). According to CES, disadvantaged communities are census tracts that rank in the top 25th percentile in the state for pollution burden, along with several other social and environmental factors.<sup>4</sup> Using these criteria MCTC identified 14 census blocks for the equity analysis. For a regional analysis MCTC identified environmental justice areas as census blocks that meet both criteria for minority and/or low-income residents and Limited English Proficiency (LEP) above 20%.

Project outreach and research identified a variety of hopes and concerns within various communities:

- **Economic Advantage:** Small businesses and independent owner/operators are worried that vehicle electrification will put them out of businesses, but they are also worried about today's high fuel costs and the negative impacts of inflation and the supply chain slow down. Their business is based on day-to-day cash flow, not air quality and climate change. To benefit from ZEVs, they need to see the immediate economic advantage of charging or hydrogen fueling, not a 10-year return on investment.
- **Language:** Studies show that 40% of new truck drivers are recent immigrants. For several different projects, we've interviewed truck drivers who speak Russian, Spanish, Hindi, Cambodian, Punjabi, and Farsi often with the help of a translator. Many of the ZEV terms we used were difficult or impossible to translate. It was challenging to communicate concepts of vehicle electrification and explain rebates and incentives. As ZEVs roll out, it will be crucial to engage business owners, drivers, and all workers in the languages and styles that they use.
- **Desire for privacy:** The project team had very low response to surveys. During interviews, about 25% of participants were unwilling to share information about their driving, fueling, and parking habits. People were leery about giving out information for a variety of reasons and the

---

<sup>4</sup> <https://oehha.ca.gov/calenviroscreen/sb535>

built-in data collection of EVs and charging stations concerns them, and reporting requirements for some incentive programs are a major deterrent.

- **Workforce development:** The California Mobility Center, a workforce development initiative for EV-related jobs, identified challenges and opportunities for workforce training that also apply to equity-focused outreach about the transition to ZEVs.

## CHAPTER 2: FUTURE INFRASTRUCTURE NEEDS

The purpose of this section is to identifying future needs and identify the gaps in infrastructure for EV charging and hydrogen stations that will need to be filled to encourage adoption of zero emission vehicles (ZEVs) in Madera County. The project team estimated the number of ZEVs through 2035, identified existing and planned charging and hydrogen stations, and recommended scenarios for future development that make best use of State and Federal investments in ZEV fueling.

### ZERO EMISSION VEHICLE GROWTH IN MADERA COUNTY

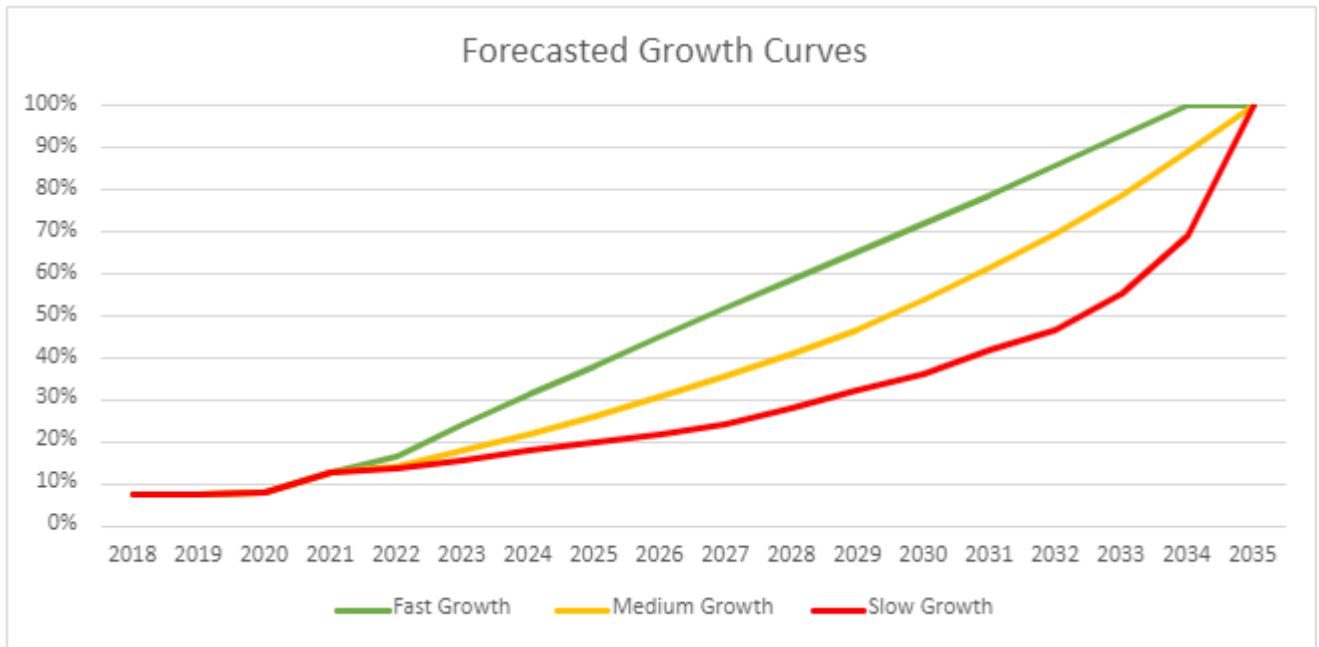
---

To estimate the number of charging stations needed in the future, it's important to know roughly the number of cars, trucks, and buses that will need a place to plug in. While it is impossible to know exactly how many people buy a new car or truck every year, predictions can be made using data about new vehicle purchases in the past and forecast future sales.

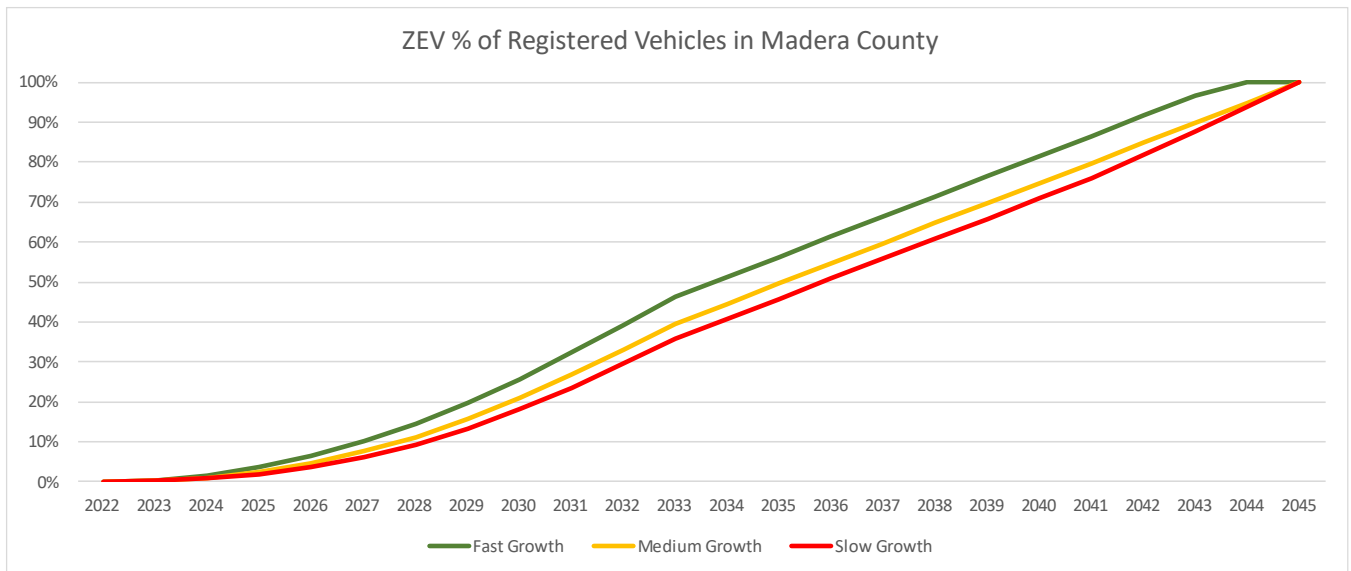
The project team started this prediction with the current numbers of vehicles registered in Madera County. The team then used historical sales figures to estimate the number of new vehicles that were registered each year. To predict the future, the model assumes population increase, regulatory requirements that require new vehicle purchases to be ZEVs, and that additional ZEV makes and models will be available. It then creates slow, medium, and fast scenarios for ZEV adoption.

- The medium scenario assumes that all incentives (rebates, tax credits, carbon credits, etc.) remain unchanged and that vehicle manufacturers deliver on forecasts of makes and models, and price reduction.
- The slow scenario considers that two or more factors impact ZEV adoption. Factors include a slowing economy, limited supply chain for components and parts, more-limited ZEV makes and models, diminishing incentives, and higher prices.
- The fast scenario considers two or more factors that encourage ZEV adoption. Factors include greater availability of lower-cost ZEVs, lower-cost and faster deployment of public infrastructure, increased incentives, and a better business case for medium and heavy-duty vehicles.

**Figures 5 and 6** show the three growth curves for light-duty and medium and heavy-duty vehicles. Calculations are in **Appendix A**.



**FIGURE 5: GROWTH SCENARIOS FOR EV MARKET SHARE OF NEW LIGHT-DUTY VEHICLE SALES**



**FIGURE 6: GROWTH SCENARIOS FOR EV MARKET SHARE OF REGISTERED MEDIUM- AND HEAVY-DUTY VEHICLES**



## **TRANSIT BUSES**

Madera County Connection has six buses on fixed route services and Madera Metro has 19 total buses in the fleet. Yosemite Area Regional Transportation System (YARTS) operates 110 buses in the Yosemite Valley (Madera, Mariposa, Merced, Tuolumne, and Mono Counties).<sup>5</sup> All three are defined as small transit agencies and must submit a transition plan to CARB by June 2023.

MCTC might consider supporting the agencies with their plans and consider shared infrastructure for zero emission buses, which may be a combination of overnight charging at depots, on-route charging that on-demand transit services could also use, and a hydrogen station for buses that operate extended routes.

## **SCHOOL BUSES**

Madera County has nine school districts, none of which currently list information about student transportation on their websites.

California does not require schools to provide home-to-school transportation (HTST). Instead, state law allows the district governing board to provide pupil transportation “whenever in the judgment of the board the transportation is advisable and good reasons exist therefor.” Generally, the state grants districts discretion over which students they will transport and how many bus routes they will operate.<sup>6</sup> However, Federal law requires that schools transport students with disabilities, experiencing homelessness, or are attending federally sanctioned schools.

Statewide, school districts operate fewer yellow buses and rely on increased use of personal transportation, like parent carpools, and private transportation with vendors like FirstStudent and Via.

The U.S. EPA and the State of California are funding the replacement of diesel buses with electric buses and providing funding for charging stations. Eligible districts and third-party operators can “stack” federal and state funding to transition to electric buses.

It’s important for Madera CTC and other stakeholders understand what school districts need to deploy electric buses and to understand potential grid impacts, but the charging stations will only be available to the school buses and are not likely to have a direct impact on EV adoption by residents or businesses.

---

<sup>5</sup> In April 2022, YARTS received an FTA grant to purchase five diesel over-the-road coaches.

<sup>6</sup> <https://lao.ca.gov/reports/2014/education/school-transportation/school-transportation-022514.pdf>

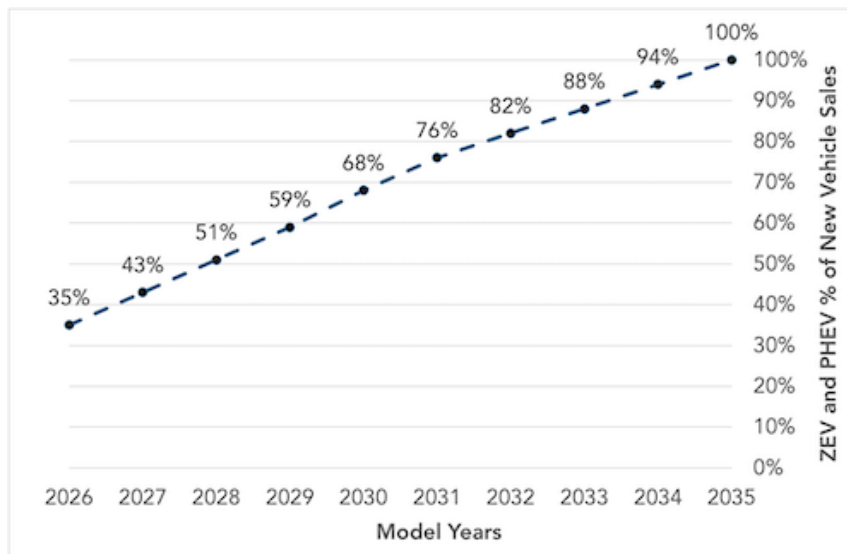
## CURRENT AND PENDING STATE OF CALIFORNIA REGULATIONS

### REGULATIONS THAT APPLY TO LIGHT-DUTY VEHICLES

**Advanced Clean Cars II** — The Advanced Clean Cars II (ACC II) program aims to reduce emissions and improve air quality through a comprehensive set of regulations for passenger vehicles starting with the model year 2026 and increasing toward 100% zero emission by 2035. The program builds on the success of the original Advanced Clean Cars (ACC) program and includes zero-emission vehicle (ZEV) requirements as well as updated greenhouse gas (GHG) standards, and a new particulate matter (PM) standard for light-duty vehicles.<sup>7</sup>

The ZEV requirements mandate that automakers produce and deliver more electric and hydrogen fuel cell vehicles to California. By 2025, ACCII requires that ZEVs make up 8% of new car sales in California. To enforce these regulations, the California Air Resources Board (CARB) will test and certify new vehicles for compliance and enforce penalties for non-compliance. The program also includes incentives such as rebates, grants, and access to High-Occupancy Vehicle (HOV) lanes for ZEV owners.<sup>8</sup> **Figure 7** shows the increasing Annual ZEV requirement put forth by ACCII.

**FIGURE 7: ANNUAL ZEV REQUIREMENT FOR ACCII**



Source: California Air Resources Board. "Advanced Clean Cars II." <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/advanced-clean-cars-ii>

**Clean Miles Standard**—a current CARB regulation that requires that operators of Transportation Network Companies (TNCs) like Lyft and Uber, submit bi-annual plans with greenhouse gas reduction targets and implementation steps that include increasing the number of zero emission

<sup>7</sup> California Air Resources Board. "Advanced Clean Cars II." <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/advanced-clean-cars-ii>

<sup>8</sup> California Air Resources Board. "California moves to accelerate to 100% new zero-emission vehicle sales by 2035" <https://ww2.arb.ca.gov/news/california-moves-accelerate-100-new-zero-emission-vehicle-sales-2035>

vehicles, reducing vehicle miles traveled, and maximizing transportation equity. By 2030, 90% of TNC mile traveled must be zero emission miles (eVMT). <https://ww2.arb.ca.gov/our-work/programs/clean-miles-standard>

- Applies to TNC operators; currently excludes food delivery.
- Began in 2023 and increases the percentage of electric vehicle miles traveled (eVMT) annually until 90% in 2030.

**TABLE 3: CLEAN MILES STANDARD ROLLOUT (SOURCE: CARB)**

CALENDAR YEAR	PERCENT EVMT TARGET	GHG (G CO2/PMT) TARGET
2023	2%	252
2024	4%	237
2025	13%	207
2026	30%	161
2027	50%	110
2028	65%	69
2029	80%	30
2030+	90%	0

**REGULATIONS THAT APPLY TO MEDIUM- AND HEAVY-DUTY VEHICLES**

**Advanced Clean Fleet (ACF) Regulation** – The Advanced Clean Fleets (ACF) regulation requires fleets with 15 or more vehicles to submit Fleet Electrification Plans (FEPs) that provide details on how the fleet will transition to zero-emission vehicles.<sup>9</sup> Fleets must begin transitioning to zero-emission vehicles by 2023, and by 2035, 100% of Class 2b-3 pickup trucks and vans, and 55% of all other trucks and buses, must be zero-emission. Regulated fleets must also purchase a certain percentage of their annual vehicle orders as zero-emission vehicles. The percentage increases over time and varies based on vehicle type and fleet size.

<sup>9</sup> California Air Resources Board. (n.d.). Advanced Clean Fleets. <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets>



ACF also establishes requirements for fleets operating in certain communities disproportionately affected by air pollution. Fleets in these areas must transition to zero-emission vehicles at an accelerated rate, purchasing a higher percentage of zero-emission vehicles than other fleets. Failure to comply with ACF may result in penalties and fines. However, incentives like grants, rebates, and financing options can help fleets transition to zero-emission vehicles.<sup>10</sup> See **Table 5** for details and timelines.

**TABLE 4: ADVANCED CLEAN FLEET REQUIREMENTS FOR GOVERNMENT**

JAN 1 2024*	JAN 1, 2027
50% of new trucks are ZEV or NZEV**	100% of new trucks are ZEV or NZEV**

\*Agencies in designated counties and divisions with 10 or fewer trucks exempt until 2027

\*\* Near Zero Emission

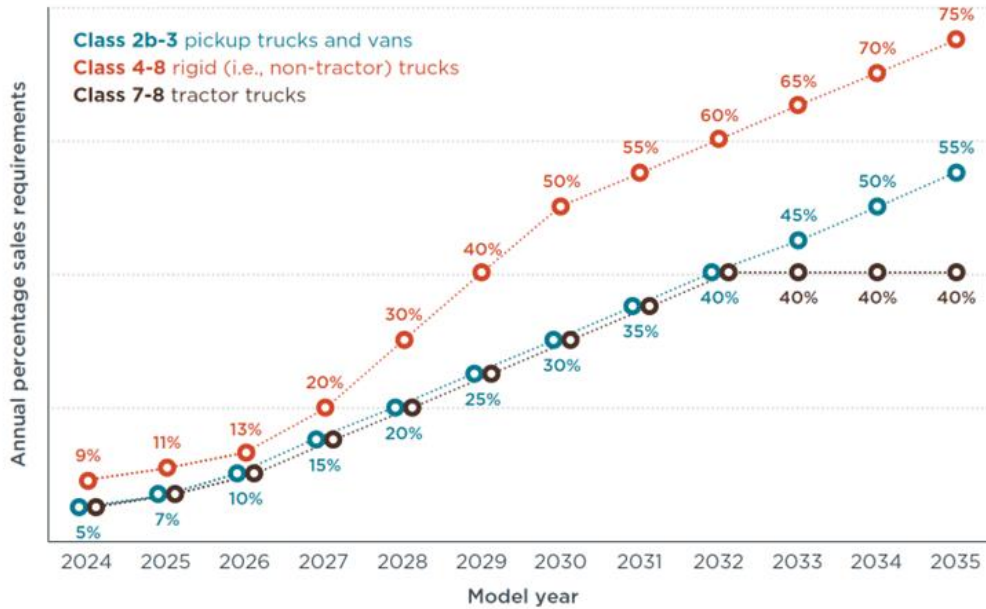
**TABLE 5: SUMMARY OF THE ADVANCED CLEAN FLEET (ACF) REGULATION**

PROPOSED REQUIREMENT	DATES
50% of Class 2B-8 vehicles added to the fleet must be ZEV	2024 through 2026
100% of Class 2B-8 vehicles added to the fleet must be ZEV	2027 and onward

**Advanced Clean Truck (ACT) Regulation** – The Advanced Clean Trucks (ACT) regulation, applies to medium-and heavy-duty vehicles from Class 2b to Class 8. The regulation has two components: First, manufacturers will be required to sell increasing percentages of zero-emission trucks from 2024 to 2035. Second, large employers and fleet owners with 50 or more trucks must report information about their shipments and operations to ensure fleets purchase available zero-emission trucks and utilize them where suitable. By 2035, zero-emission truck/chassis sales will need to make up 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales.

**Figure 8** shows the breakdown of vehicles by class and the percentages manufacturers will be required to sell. **Table 6** shows the timeline for each stage of compliance.

<sup>10</sup> California Air Resources Board. (2022). Advanced Clean Fleets Regulation Summary. <https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary>



**FIGURE 8 ADVANCED CLEAN TRUCK (ACT) REGULATION REQUIREMENTS (SOURCE: THE ICCT)**

**TABLE 6: ACT TIMELINE**

	JAN 1 2024	JAN 1 2025	JAN 1 2030
<b>DRAYAGE</b>	New Trucks are ZEVs	Report ICE mileage	All trucks must be ZEVs
<b>PRIORITY*</b>	New Trucks are ZEVs	Report ICE mileage	ICE trucks retired

**Transport Refrigeration Unit (TRU) Regulation** – A regulation that requires the transition of diesel-powered TRUs (also called reefers) to zero-emission technology, sets a more-stringent standard for particulate matter (PM) emissions for newly manufactured non-truck TRUs, lowers the global warming-potential refrigerant, and requires facility registration and reporting.<sup>11</sup>



CARB staff are assessing zero-emission options for non-truck TRUs, and plan to propose a second rulemaking (Part 2) to the Board for consideration in 2025.

**Innovative Clean Transit (ICT)** – The Innovative Clean Transit (ICT) regulation requires all public transit agencies to transition to zero-emission buses (ZEBs) by 2040. The regulation applies to all fixed-route buses that have a gross vehicle weight rating of more than 14,000 pounds.

<sup>11</sup> [https://ww2.arb.ca.gov/sites/default/files/2022-09/advisory\\_22\\_30\\_0.pdf](https://ww2.arb.ca.gov/sites/default/files/2022-09/advisory_22_30_0.pdf)

Transit agencies can comply with the regulation by purchasing zero-emission buses, or by using other strategies such as renewable natural gas (RNG) or other near-zero emission technologies.

Implementation of the ICT regulation falls to the California Air Resources Board (CARB) which also offers funding and technical assistance to help transit agencies comply with the regulation.<sup>12</sup> **Table 7** provides an overview of compliance timelines for the ICT regulation.

**TABLE 7 PERCENTAGE OF BUS PURCHASES THAT MUST BE ZERO-EMISSION BY YEAR**

YEAR	LARGE AGENCY	SMALL AGENCY
2023	25%	-
2024	25%	-
2025	25%	-
2026	50%	25%
2027	50%	25%
2028	50%	25%
2029	100%	100%

## REGULATIONS THAT APPLY TO OFF-ROAD VEHICLES

**In-Use Off Road Diesel-Fueled Fleets regulation** — In November of 2022, the California Air Resources Board (CARB) approved amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation). The amendments require fleets to phase out operation of their oldest and highest emitting offroad diesel vehicles, prohibit the addition of high-emitting vehicles to a fleet, and require the use of R99 or R100 renewable diesel in offroad diesel vehicles. The 2022 Amendments also encourage the adoption of zero-emission vehicles by providing voluntary compliance flexibility options for fleets that adopt zero-emission technology.<sup>13</sup>

**Portable Diesel Engine Air Toxic Control Measure (PERP)** — a current regulation for diesel equipment that is not self-propelled (e.g., diesel generators, air compressors) and implemented by

<sup>12</sup> California Air Resources Board. Innovative Clean Transit. <https://ww2.arb.ca.gov/our-work/programs/innovative-clean-transit/about>

<sup>13</sup> <https://ww2.arb.ca.gov/our-work/programs/use-road-diesel-fueled-fleets-regulation/proposed-amendments-use-road-diesel>

local air districts. Requires the phasing out of equipment with Tier 1 and Tier 2 engines. Requires annual reporting in March of each year.<sup>14</sup>

- Applies to all operators of regulated equipment.
- Phasing out began in 2020 and must be complete by 2027.

**Zero-Emission Forklift Regulation** — a regulation that is under development with the intention to drive greater deployment of zero-emission forklifts within fleets throughout the state. It is scheduled for Board consideration in 2023 and will initially focus on the transition of large spark-ignition forklifts to zero-emission technology.<sup>15</sup>

- Applies to operators, dealers, rental agencies, and manufacturers.
- As written, will require that 100% of new Large Spark Ignition (LSI) forklifts are zero emission starting in 2026 and fleets must start retiring LSI that are 13 years and older. All LSIs will be zero emission by 2038.

## CHARGING STATION REGULATIONS

**Mandatory Electric Vehicle (EV) Charging Station Building Standards** -- The California Building Standards Commission (CBSC) published mandatory building standards that require varying levels of EV charging compliance during new construction and major renovations (excluding tenant improvements.) The 2022 CALGreen codes, which went into effect on January 1, 2023, require that commercial buildings have breakers, circuits, and raceways installed for “EV Capable” compliance. Local ordinances or reach codes can require that projects make more than the minimum number of parking spaced EV Capable and/or require a greater level of compliance.<sup>16</sup>

- Applies to all new construction (include residential) and major remodels of commercial, industrial, and multifamily buildings.
- Revised levels of compliance took effect on January 1, 2023.

**EVSE Standards Regulation** — requires that EV charging stations (EVSEs) that are available to the public are available to all members of the public. EV charging station service providers may not charge a subscription fee or require membership for use of their public charging stations. In addition, providers must disclose the actual charges for using public EV charging stations at the point of sale; allow at least two options for payment; install the Open Charge Point interoperability billing standard on each EV charging station; and disclose the EV charging station geographic location, schedule of fees, accepted methods of payment, and network roaming charges.<sup>17</sup>

---

<sup>14</sup> <https://ww2.arb.ca.gov/resources/documents/perp-regulation-and-portable-engine-atcm>

<sup>15</sup> <https://ww2.arb.ca.gov/our-work/programs/zero-emission-forklifts/about>

<sup>16</sup> <https://codes.iccsafe.org/content/CAGBC2022P1>

<sup>17</sup> <https://ww2.arb.ca.gov/resources/documents/electric-vehicle-supply-equipment-standards-regulation-background-and-faqs>

- Applies to electric vehicle charging station service providers.
- Bids and contracts for charging stations should ensure that the provider is in compliance.

**Electric Vehicle (EV) Charging Station Billing Requirements** — EV charging station that accept payment must base the price on a per megajoule or kilowatt-hour. All EV charging stations must be able to indicate the billing rate at any point during a transaction. Existing Level 2 EV charging stations installed before January 1, 2021, must be updated by January 1, 2031, and Level 2 EV charging stations installed after January 1, 2021, must comply upon installation. Existing direct current fast charging (DCFC) stations installed before January 1, 2023, must be updated by January 1, 2033, and DCFC installed after January 1, 2023, must comply upon installation. This does not apply to stations that do not accept payment or to stations that are owned by a government agency and operated on government-agency property.

- Applies to public charging stations that accept payment.
- All new charging stations must comply.

**Hydrogen and Electric Vehicle (EV) Charging Station Local Permitting Policies** — all cities and counties, including charter cities, must adopt an ordinance that creates an expedited and streamlined permitting process for EV charging stations. Cities and counties must approve applications to install EV charging stations within five to ten business days, depending on the number of stations proposed in the application. Applications will be approved after 20 to 40 business days, if the county or city does not approve the application, the building official does not deny the application, or the city or county does not submit an appeal.<sup>18</sup>

- Applies to cities and counties’ permitting authorities.
- Went into effect in 2019.

## TRAVEL DEMAND

---

The combination of vehicle forecasts and MCTC’s travel demand modeling provide a basis for year-round daily travel in the region. The project team also looked for seasonal traffic variations related to tourism.

**Table 8** is an excerpt from the traffic count at Yosemite National Park through December of 2022.<sup>19</sup> The count includes the number of individual vehicles that enter the park at the South entrance and excludes people who walk in or ride in on a shuttle bus. Fluctuations in numbers reflect dates that the park (or the gate) was closed to the public. The project team projects that 10% of these vehicles will be ZEVs in 2025 and 25% by 2030. The number of ZEVs could potentially be greater as more electric trucks and recreational vehicles come to market.

<sup>18</sup> <https://business.ca.gov/industries/zero-emission-vehicles/plug-in-readiness/>

<sup>19</sup> <https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Traffic%20Counts>



A 2009 National Parks report estimated that 41% of Yosemite visitors stayed in a hotel outside of the park for at least one night and 50% of visitors visited an off-park restaurant<sup>20</sup>. This indicates that tourists who drive EVs would look for charging stations at hotels, retail centers, and restaurants and hydrogen fueling at nearby gas stations. The report also shows that park visitors spend money in the local economy, which can translate into even more vehicle miles traveled by workers and vehicles that deliver goods and services to stores, restaurants, and hotels.

**TABLE 8:YOSEMITE TRAFFIC COUNT-SOUTH ENTRANCE**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual Total
2022	23,006	26,179	30,068	45,777	57,105	57,909	29,262	48,729	45,132	37,200	30,518	25,115	456,000
2021	10,925	18,900	21,700	33,750	44,950	55,500	65,100	65,100	46,500	37,200	22,500	21,700	443,825
2020	17,825	19,575	13,300	0	0	35,150	65,100	65,100	34,100	37,200	22,500	21,700	331,550
2019	17,825	18,900	21,700	33,750	44,950	55,500	65,100	65,100	46,500	37,200	22,500	21,700	450,725
2018	17,825	18,900	21,700	33,750	44,950	55,500	50,400	35,700	46,500	37,200	22,500	86,355	471,280
2017	17,749	14,191	18,350	46,841	67,642	80,486	67,868	37,925	43,371	41,539	33,589	18,822	488,373
2016	22,052	35,523	56,816	40,942	59,667	67,306	78,411	65,100	56,875	37,200	31,818	23,689	575,399
2015	24,755	24,247	31,144	42,358	54,494	62,096	65,100	65,100	46,500	37,309	23,774	20,179	497,056

Source: <https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Traffic%20Counts>

## INFRASTRUCTURE DEMAND

Assembly Bill (AB) 2127 Electric Vehicle Charging Infrastructure Assessment requires that the California Energy Commission (CEC) publish a biennial report about the EV charging station needs of the expected 5 million zero emission vehicles by 2030.<sup>21</sup> The first report, published in July 2021, included forecasts for numbers of charging stations by year and by county in three categories:

1. Home, workplace, and public charging for light-duty vehicles.
2. Direct Current Fast Chargers (DCFC) needed to enable electrified long-distance trips within and beyond California’s borders.
3. Regional charging infrastructure needs in 2030 for public, shared private, and private charging for on-road medium- and heavy-duty electric vehicles.

The report also covered needs for ride-hailing services in Los Angeles, San Diego, and San Francisco. AB 8 requires that the Air Resources Board produce an annual report about fuel cell electric vehicle deployment and development of the hydrogen station network. The 2021 report was published in September 2021.<sup>22</sup>

<sup>20</sup> <https://www.nps.gov/yose/learn/management/upload/yose-09-mgm.pdf>

<sup>21</sup> <https://efiling.energy.ca.gov/getdocument.aspx?tn=238853>

<sup>22</sup> [https://ww2.arb.ca.gov/sites/default/files/2021-09/2021\\_AB-8\\_FINAL.pdf](https://ww2.arb.ca.gov/sites/default/files/2021-09/2021_AB-8_FINAL.pdf)

The project team leveraged the information from these reports with calculations and projections targeted to Madera County drivers, businesses, and travel patterns to identify the numbers of charging and hydrogen stations that are likely to be needed and supported by State infrastructure strategies.

### CHARGING FOR RESIDENTS AND WORKERS

CEC worked with the National Renewable Energy Lab (NREL) to create EVI-Pro 2.0 to project the numbers of Level 2 and DCFC chargers needed for EV adoption. Notable changes between EVI-Pro Lite and EVI-Pro 2 are the assumptions that:

- Battery electric vehicles will have 250+ mile range (up from 100-mile range)
- Plug-in hybrid EVs (PHEVs) will need Level 2 public and multifamily charging (not included in EVI-Pro Lite)
- 67% of drivers will charge at home (reduced from 88%)

### CHARGING FOR ROAD TRIPS

The Electric Vehicle Infrastructure for Road Trips (EVI-RoadTrip)<sup>23</sup> model projects the number and locations of DCFC needed to enable electrified road trips within and across California’s borders. EVI-RoadTrip focuses on long-distance interregional (100+ mile) trips and opportunity charging for BEVs. These DCFC will be needed in addition to the DCFC for residents and businesses, and the numbers in the chart are CEC’s “low” estimate.

**Table 6** shows the number of DCFC charging stations connectors targeted by CEC and the California Air Resources Board’s 2022 Mobile Source Strategy to support road trips. The project team expects that the State of California will use Federal funding from the National Electric Vehicle Infrastructure (NEVI) program for the build-out of road-trip stations.

**TABLE 9: NUMBER OF REQUIRED EV CONNECTORS IN MADERA COUNTY BY 2025 AND 2030**

Year	Number of BEVs (peak month)	150kw DCFC	250kW DCFC	350kW DCFC
2025	4,000	7	4	0
2030	20,915	--	6	8

### CHARGING FOR MEDIUM AND HEAVY-DUTY VEHICLES

Through interviews, surveys, focus groups, and input from the technical advisory committee, the project team identified four scenarios for future charging and hydrogen fueling:

<sup>23</sup> <https://www.nrel.gov/transportation/evi-roadtrip.html>

- 1) Depot charging—Nearly all large fleets have a dedicated fuel depot. Some have a fuel depot onsite and exclusive to their vehicles while others have an off-site depot that a third-party owns and operates for a limited number of customers. The large fleets interviewed stated that they expected to have charging stations in their parking lots. For these fleets, dedicated fueling allows them to control costs, both for the fuel and the person who is fueling the truck or bus, and ensures that the vehicles will be charged and ready for work. Some farms and ranches also have fueling depots on their properties for their own use.
- 2) Public charging—Smaller fleets and owner-operators fuel their vehicles at public stations that include unattended card lock stations or regular gas stations that have high canopies and enough room for larger vehicles to maneuver. Local drivers may also use travel plazas (truck stops), but these are more common for over-the-road truckers. Smaller fleets expressed interest in having Level 2 charging stations at their business and public truck-accessible DC Fast Charge (DCFC) stations for on-route charging.
- 3) Loading dock charging—Several of goods movement operators interviewed carefully planned their routes to ensure their drivers stay within the Federal Motor Carrier Safety Administration’s hours-of-service regulation.<sup>24</sup> In interviews, operators said that trucks must have 350-400-mile range or need to charge while being unloaded. An additional stop for a fast charge would be too many hours behind the wheel for the driver, and too many hours on the clock for the business.
- 4) “No depot” overnight charging—Research, observation, and interviews with individuals who own heavy-duty trucks and buses indicate that owners/operators often park their vehicles at truck service businesses and self-storage facilities. The owners interviewed said that charging stations at the overnight parking facilities would be helpful, however, several said they share the truck with another driver, often a family member. Owner-operator Neil Hinker said: “You don’t make money when the wheels aren’t turning.”

Currently, MHD ZEVs are more expensive than conventional vehicles, even with incentives, rebates, and tax credits. Therefore, the project team expects that most MHD ZEVs before 2030 will be operated by large fleets rather than smaller or independent operators because 1) many have corporate targets or goals for GHG reduction and 2) the pending Advanced Clean Fleet regulation will require large fleets to add ZEVs.

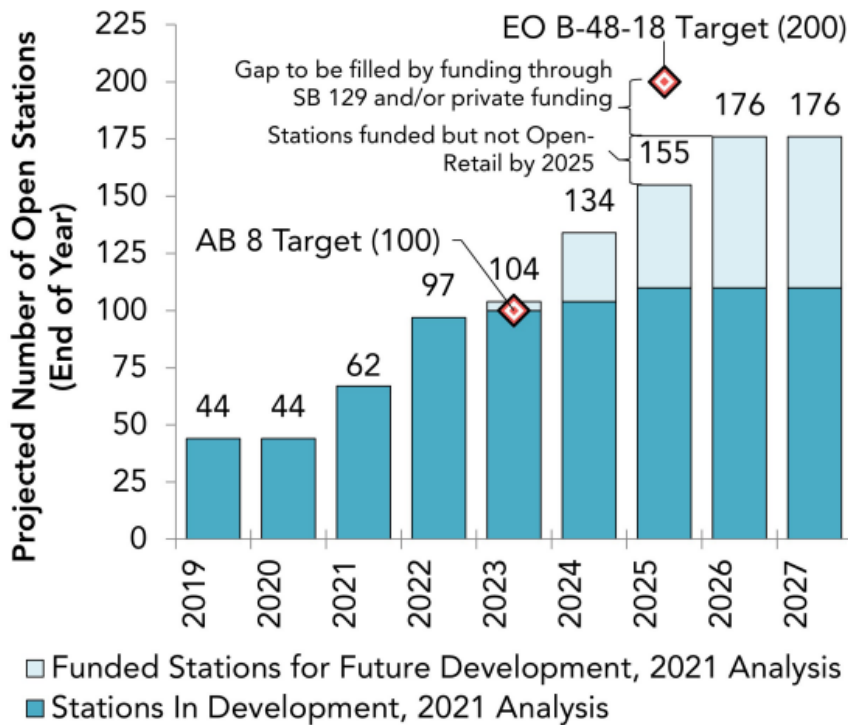
## **HYDROGEN STATIONS**

The AB8 report shows that the State of California is falling short of the goal of 200 operating hydrogen stations by 2028, as shown in Figure 7.<sup>25</sup> None of the 176 stations that have been funded are located in Madera County, and the County is not a target for automakers’ deployment of light-duty FCEVs.

---

<sup>24</sup> <https://www.fmcsa.dot.gov/regulations/hours-service/summary-hours-service-regulations>

<sup>25</sup> <https://www.energy.ca.gov/sites/default/files/2021-12/CEC-600-2021-040.pdf>



**FIGURE 9: FUNDED HYDROGEN STATIONS (SOURCE: ARB)**

However, the Central Valley plays a prominent role in California’s proposal to the Department of Energy’s solicitation for a regional Hydrogen Hub<sup>26</sup> and in the upcoming “Northern California Megaregion” plan led by the Sacramento Area Council of Governments (SACOG). These two complementary initiatives will seek locations and partners for hydrogen powered trucks and locomotives to support freight and goods movement.

The project team considered several scenarios in which Madera County could support hydrogen station projects along the SR 99 Corridor and in the rural areas of the county to support freight, transit, and commercial motor coaches related to tourism.

**TRADEPORT CALIFORNIA**

In January 2023, Fresno Council of Governments submitted a proposal to the California State Transportation Agency for the TradePort California, formerly known as the California Inland Port Project. Madera County CTC is a partnering agency on this \$50 million grant. If awarded, TradePort California will create a port-to-market streamlined logistics system that is anchored by a statewide clean-energy cargo transportation platform.

<sup>26</sup> Funding Opportunity Announcement was released on September 22, 2022

## POTENTIAL CHARGING STATION LOCATIONS

---

The project team considered four ways to deploy charging and hydrogen stations to meet the need for ZEVs through 2030 and beyond.

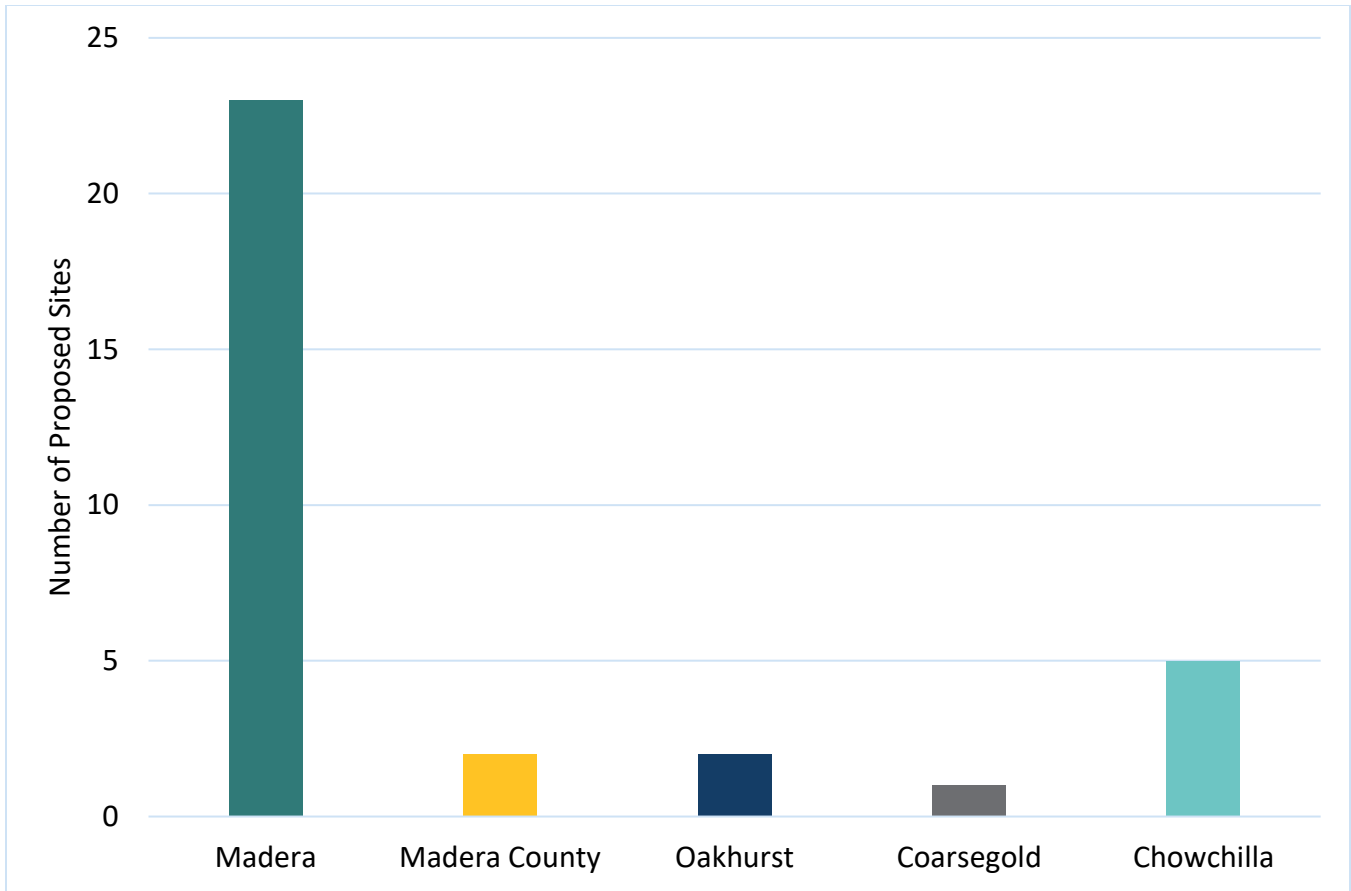
- 1) Public EV charging stations for light-duty vehicles that would support residents and visitors, mostly concentrated in the larger cities.
- 2) Workplace EV charging that provides charging stations for employees and fleet vehicles. At locations that operate fuel depots, like transit agencies, these stations may dispense hydrogen and/or electricity.
- 3) Support for property owners to add residential charging stations to multifamily properties, including mobile home parks, that minimizes upfront costs.
- 4) Deploying DCFC charging/hydrogen hubs with multiple connectors for light-, medium-, and heavy-duty vehicles that reside in Madera County, are visitors, or are passing through. These may also have distributed energy resources to enable resiliency and reduce grid energy needs.

These strategies are not an either-or choice. MCTC and its stakeholders may choose to implement multiple strategies, each with a different goal, source of funding, and partnerships.

### 1. PUBLIC CHARGING FOR LIGHT-DUTY VEHICLES

DKS Associates contracted with Volta to identify suitable locations for future charging stations, targeting areas of high demand based on travel patterns, designated site visits, and EV adoption patterns in 2025, 2030, and 2040. Using Volta's PredictEV modeling software, Volta identified 50 candidate sites for future public charging stations. The project team filtered the candidate sites by overall suitability for this project's scope, which narrowed the results to 33 locations with one site located along SR 41 South at Valley Children's Hospital.

Of these, 23 are within the City of Madera, five are located in unincorporated Madera County (two outside Madera and two in Oakhurst and one in Coarsegold) and another five are located within incorporated Chowchilla, the percentage of charging stations matches with current population percentage in each location.

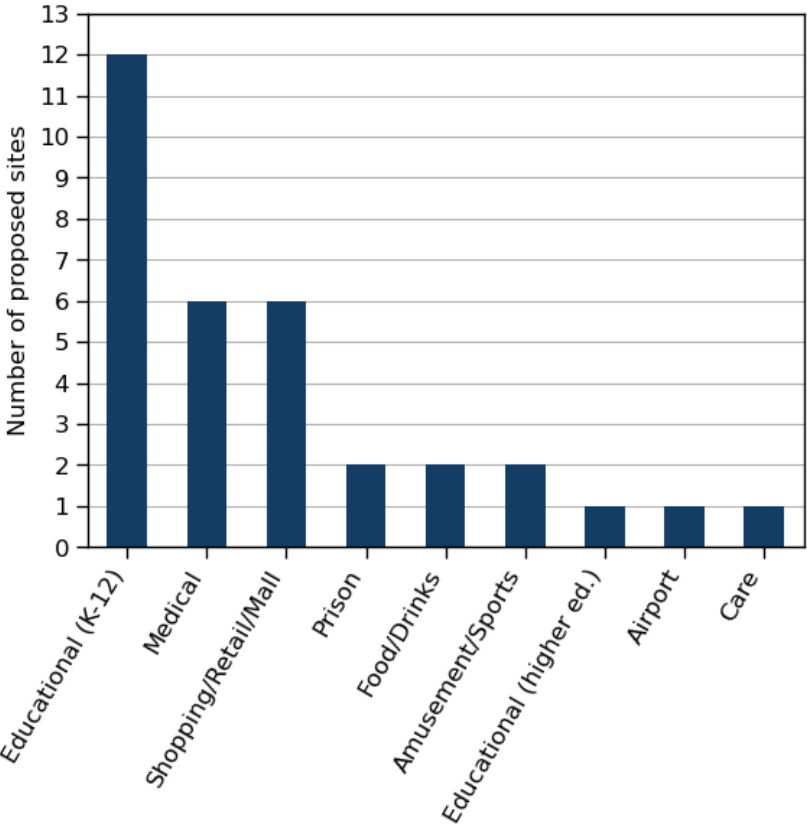


**FIGURE 10: NUMBER OF PROPOSED CHARGING SITES AND LOCATIONS, SUITABLE SITES FROM PREDICTEV RESULTS ONLY**

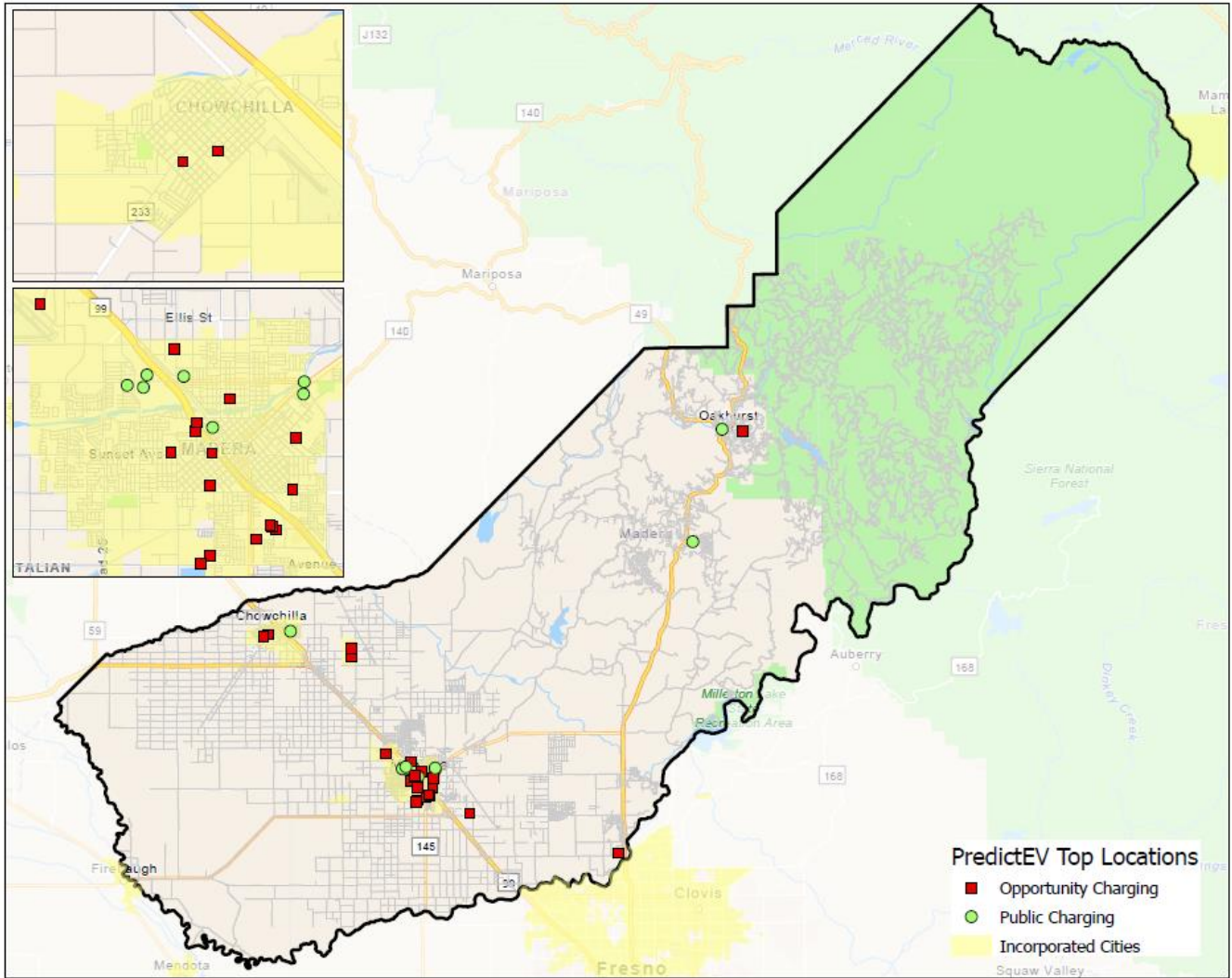
PredictEV identified the following categories and use cases for public charging stations:

- “Educational (K-12)” comprises various elementary, middle, and high schools, and other non-tertiary schools. This includes Madera High School, the largest in the County.
- “Medical” comprises some of the major hospitals in Madera County, including the Valley Children’s Hospital and the Madera Community Hospital, as well as multiple outpatient care centers, including dialysis, kidney, or other health care centers.
- “Shopping/Retail/Mall” includes major shopping centers and malls, such as the Madera Marketplace.
- “Prison” includes the Central California Women's Facility and the Valley State Prison.
- “Food/Drinks” is composed of restaurants and bars.
- “Amusement/Sports” includes the Chukchansi Gold Resort and Casino and the Pheasant Run Golf Club.
- Madera Community College comprises the “Educational (higher ed.)” category.
- The Madera Municipal Airport comprises the “Airport” category.
- The Golden Years Residential Care Home comprises the “Care” category.

shows the number of proposed charging station locations for each category.



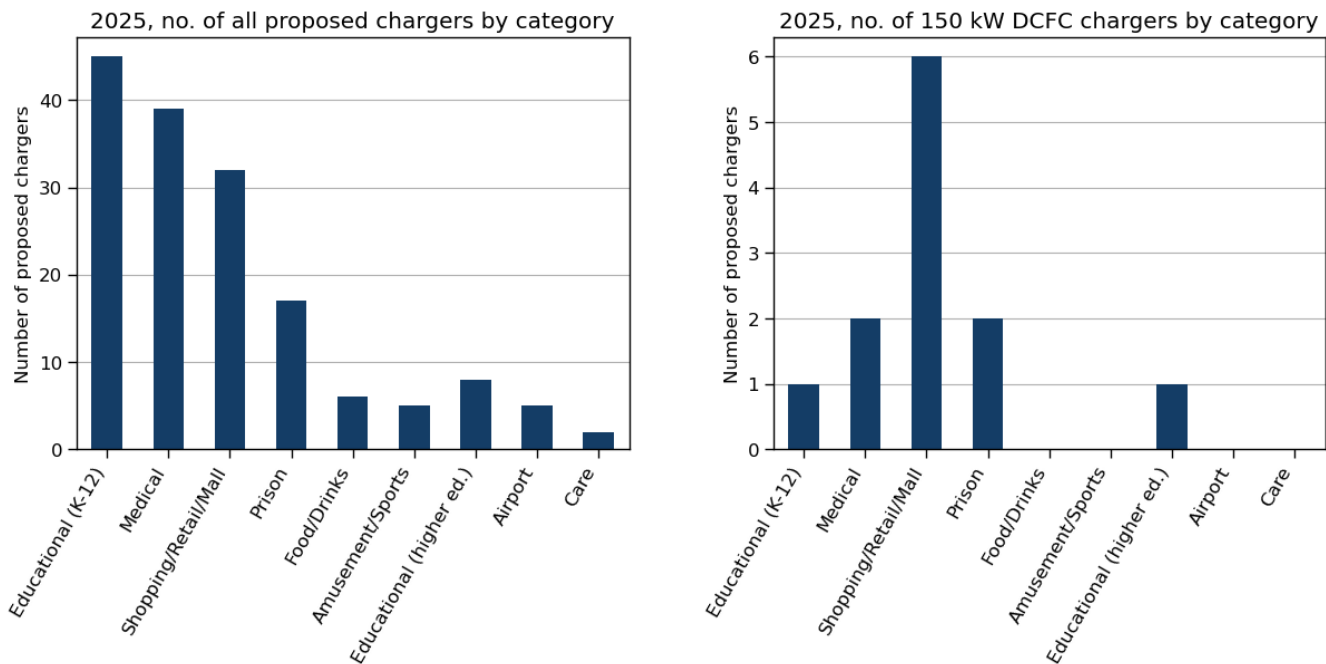
**FIGURE 11: NUMBER OF PROPOSED CHARGING SITES FOR EACH SITE CATEGORY, SUITABLE SITES FROM PREDICTEV**



**FIGURE 12: TOP LOCATIONS AS IDENTIFIED BY PREDICTEV**

**Figure 11**, the chart below, shows the total number of charging stations in each category in 2025 and the chart at right shows only the number of DCFCs in each category.





**FIGURE 13: NUMBER OF PROPOSED CHARGERS BY SITE CATEGORY FOR 2025 (LEFT: ALL, RIGHT: ONLY 150 KW DCFC), SUITABLE SITES FROM PREDICTEV RESULTS ONLY**

**Figure 13** shows how the project team arrived at the numbers of Level 2 and DCFC based on the expected dwell time of the EV driver.

The project team identified sites as either “opportunity charging” or “public charging.”

- Opportunity charging is when the destination has a specific purpose, like going to school or visiting a patient. The presence of a charging stations will not cause an EV driver to choose the location because an EV charger is available but may use the charging station that is there.
- Public charging is when the destination is optional. EV drivers may choose a particular shopping center, restaurant, bar, or casino because they can charge their cars.

Using this methodology, of the 33 suitable sites, 23 are identified as locations for opportunity charging and 10 identified as public charging. PredictEV also utilizes data such as number of visits to points of interest, dwell times, and anticipated need for charging (state of charge vs. range needed) to determine the appropriate type of charging needed. For sites suitable for opportunity charging, more Level 2 will be recommended. Shorter dwell times with a need for a faster charge will show 50kW DCFC, even shorter dwell times will extremely high activity will show more 150kW DCFC.

**Table 7** shows the locations and charger types PredictEV identified.

**Appendix B** is a list of the sites identified by PredictEV, and those identified through Social Pinpoint, stakeholder meetings and interviews, and by the project team.

**TABLE 10: OVERVIEW OF OPPORTUNITY AND PUBLIC CHARGING LOCATIONS, SUITABLE SITES FROM PREDICTEV RESULTS ONLY**

	<b>OPPORTUNITY CHARGING</b>	<b>PUBLIC CHARGING</b>	<b>ALL</b>
<b>CATEGORIES</b>	Medical, Educational (K-12), Educational (higher ed.), Prison, Care, Airport	Shopping/Retail/Mall, Food/Drinks, Amusement/Sports	All
<b>NO. OF SITES</b>	23	10	33
<b>NO. OF LEVEL 2 CHARGERS:</b>			
<b>2025</b>	74	24	98
<b>2030</b>	290	91	381 (cumulative)
<b>2040</b>	513	167	680 (cumulative)
<b>NO. OF 50 KW DCFC CHARGERS:</b>			
<b>2025</b>	36	13	49
<b>2030</b>	59	22	81 (cumulative)
<b>2040</b>	71	25	96 (cumulative)
<b>NO. OF 150 KW (HIGH POWER) DCFC CHARGERS:</b>			
<b>2025</b>	6	6	12
<b>2030</b>	19	8	27 (cumulative)
<b>2040</b>	23	8	31 (cumulative)

While PredictEV is a predictive model based on electric vehicle adoption rates and projections, it does not necessarily consider approved land use growth, such as Specific Plan areas proposed and adopted in the County. For this reason, the project team met with county planners to discuss planned growth within Madera County. As a result of these discussions the project team recommends including additional locations along Highway 41 South.

The Riverstone Specific Plan<sup>27</sup> area at Avenue 12, west of SR 41 is particularly noteworthy due to its ongoing commercial and residential development. The Riverstone area has been experiencing substantial growth which is expected to continue with plans for additional commercial development, alongside housing units with varied densities.

In addition to Riverstone, another recommended location to consider includes the Tesoro Viejo area. Positioned east of SR 41 along Tesoro Viejo Blvd, which serves as an extension of Avenue 15,

<sup>27</sup> <https://www.whainc.com/riverstone>

the Tesoro Viejo area exhibits immense potential for electric vehicle infrastructure development and aligns with the broader objectives of promoting clean and sustainable transportation.

Types of sites to consider for charger installation in these areas include:

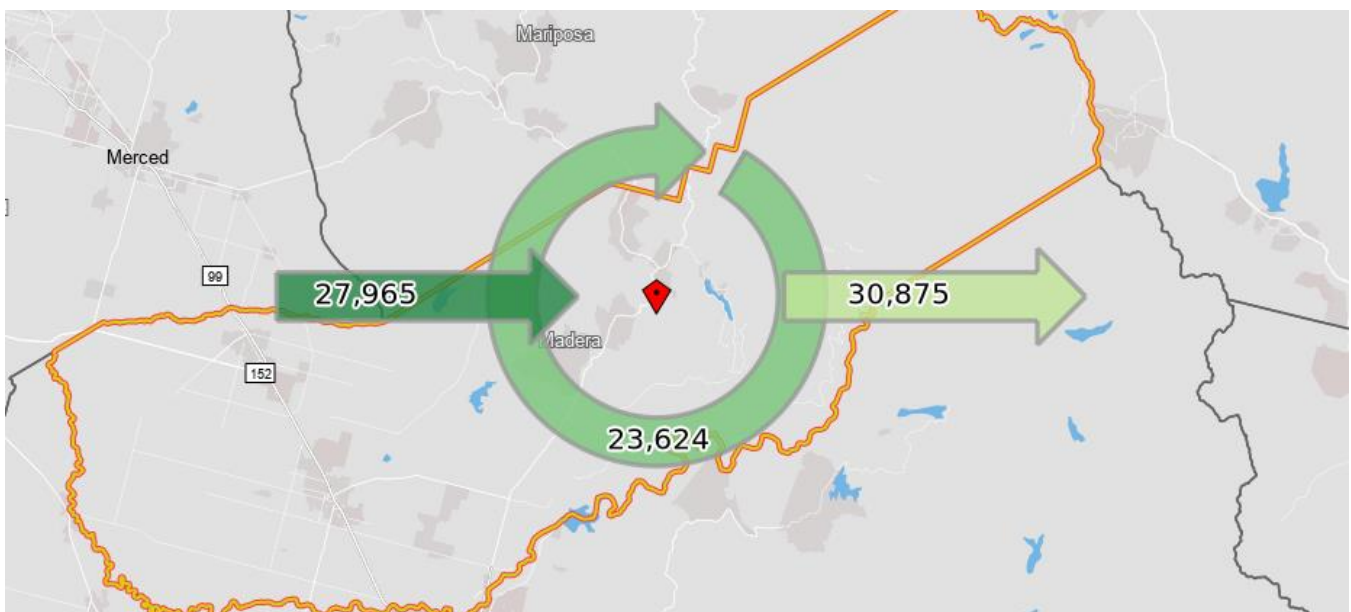
- Shopping centers, as they typically provide ample parking, have a high volume of visitors and drivers can charge while they shop.
- Public parking lots, especially those near government buildings, libraries and parks can provide a charging resource for drivers while they visit these locations.
- Hotels can provide charging as an amenity for visitors or those on multi-day road trips providing a resource supporting interregional travel.
- Restaurants and coffee shops can be an excellent location for charging as drivers can charge while having a meal or grabbing coffee.

## 2. WORKPLACE AND FLEET CHARGING FOR ALL VEHICLE CLASSES

U.S. Census Data includes origin-destination travel patterns. The most-recent data is from 2019, which was pre-pandemic, but Madera County’s largest employers are not work-from-home jobs, and the number of commuters has likely increased or stayed the same.

The arrows in **Figure 12** do not indicate geographical direction. The dark green arrow shows that about 28,000 people commuted from outside the county to work or attend school in the county. The circle shows that about 23,600 people lived and worked/attended school in the county. The light green arrow shows that about 31,000 people left the county for work or school.

The ARB report identified 869 Level 2 charging stations at workplaces by 2030, which is consistent with this travel pattern.



**FIGURE 14: INFLOW AND OUTFLOW COMMUTE TRAFFIC**

In addition, many employers (including municipalities) operate vehicle fleets that include cars, trucks, buses, and offroad equipment used for construction and agriculture. Well-planned workplace charging can charge employee vehicles during the day and fleet vehicles in the evenings, and potentially implement bi-directional charging that can help levelized energy demand.

Employers and employees both have concerns about charging vehicles during a power outage. Public charging stations can offer redundancy from a localized power outage and the recommended charging hubs with back-up power would be available during an extended outage. Many businesses and municipal fleets could use distributed energy sources, solar panels and battery storage, to have local power for car charging and other critical systems. Madera County’s largest employers are medical centers and prisons that have their own back-up power systems.

The project team recommends a two-prong approach to workplace charging:

1. Offer technical assistance and advisory services to municipalities and businesses with fleets to help them plan for EV charging and apply for grants and funding.
2. Coordinate with Madera County Economic Development to work with developers and EV charging station vendors to encourage Level 2 charging station installation during construction.<sup>28</sup>

### 3. MULTIFAMILY CHARGING

The CEC report called for 869 charging stations at multifamily housing by 2030, although CEC considers multifamily to be five units or more and excludes mobile homes. Table 8 shows the approximate number of units from Housing Element reports from the County and the two cities. The reports were created in different years, and therefore, the numbers of units may be slightly different. Available material shows that Madera City Planning Department approved two additional apartment buildings since 2013. Each of these new developments will have EV Capable parking spaces that are required by CALGreen State Building Codes.

**TABLE 11: MULTIFAMILY UNITS FROM HOUSING ELEMENT**

Year	County (2015)	Chowchilla (2020)	Madera (2015)	Total
2-4 UNITS	525	269	2,143	2,937
5+ UNITS	258	442	1,903	2,603
MOBILE HOMES	2,769	80	330	3,179

<sup>28</sup> <https://maderacountyedc.com/wp-content/uploads/2022/02/MCEDC-Annual-Report-2020-2021..pdf>  
 Origo Investments and Amond World LLC. To Break Ground on A Premium Refrigerated Cold Storage Facility  
 Local Developer to Break Ground on Multi-Tenant Light Industrial Business Park Focused on Small Business Users

Available information from the cities and county indicates that many of the multifamily units (including mobile homes) are affordable housing and/or senior housing and meet HUD designations of low, very low, and temporary housing. Chowchilla’s Housing Element report noted that farm laborers who used to live at farms and ranches now live within the city.

According to the California Housing Partnership, renters must make about twice the state’s minimum wage, or nearly \$27 per hour, just to afford the City of Madera’s average rent of \$1,294. Adding charging stations to affordable housing can increase housing stability by decreasing the costs of transportation. It’s important to note for this strategy to be beneficial, affordable electric vehicles must also be available to the residents. In some cases, electric shuttles may also be needed for multifamily housing with a high proportion of residents who do not drive.

#### 4. HUB CHARGING AND FUELING FOR ALL VEHICLE CLASSES

Tesla pioneered the concept of charging plazas when it launched the Supercharger network in 2012. Stations, which primarily charge Tesla vehicles but are starting to include standard J1772 Level 2 connectors at some stations, have up to 100 EVSEs, a utility cabinet, lighting, and curb improvements. Newer Supercharger locations may have battery energy storage and solar canopies. Electrify America has announced plans to build “human-centered” charging plazas that look similar to gas stations.<sup>29</sup>

In April 2021, Daimler and Portland General Electric (PGE) unveiled first-of-a-kind electric truck charging station in Portland, Oregon.<sup>30</sup> Dubbed the Electric Island, it features four pull-through lanes with fast chargers and is designed for up to 1 megawatt of electricity. Although designed for trucks and buses, light-duty drivers are the most frequent customers.

Hubs or plazas are places that combine multiple DC Fast Charging stations and may include hydrogen in a centralized location that is accessible to cars, vans, trucks, and buses. Ideally, plazas have pull-through lanes for charging or fueling and sufficient space for a truck to maneuver in a parking lot.

The project team identified four locations for hubs:

1. Avenue 17 and Highway 99 in Madera at the airport or the Love’s Travel Stop
2. In Chowchilla (west of Highway 99) at the Chowchilla Branch Library or curbside at the Chowchilla High School
3. Pacific Pride cardlock station on Highway 49 in Oakhurst
4. Lost Lake Area – Highway 41

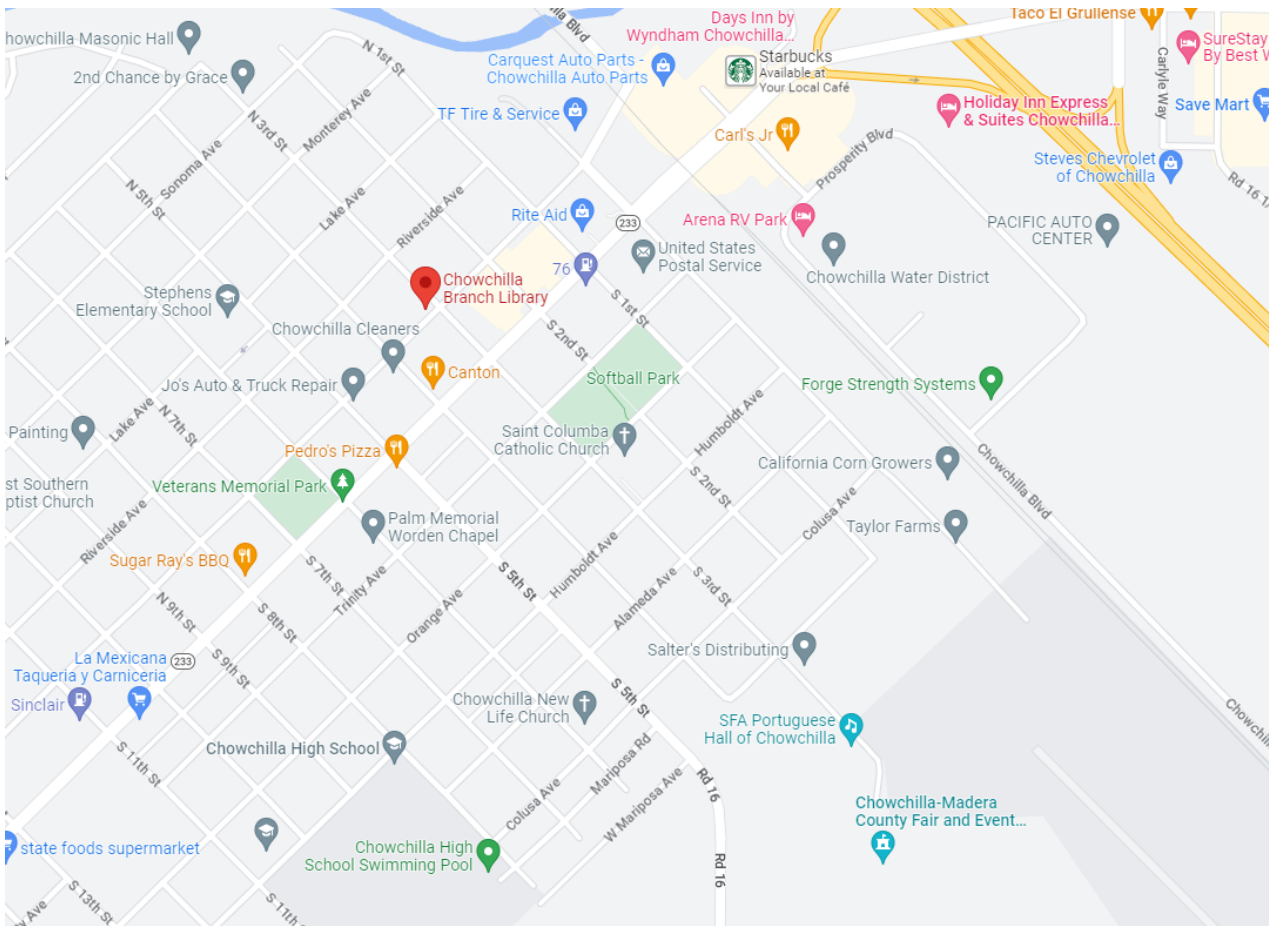
---

<sup>29</sup> <https://media.electrifyamerica.com/en-us/releases/175>

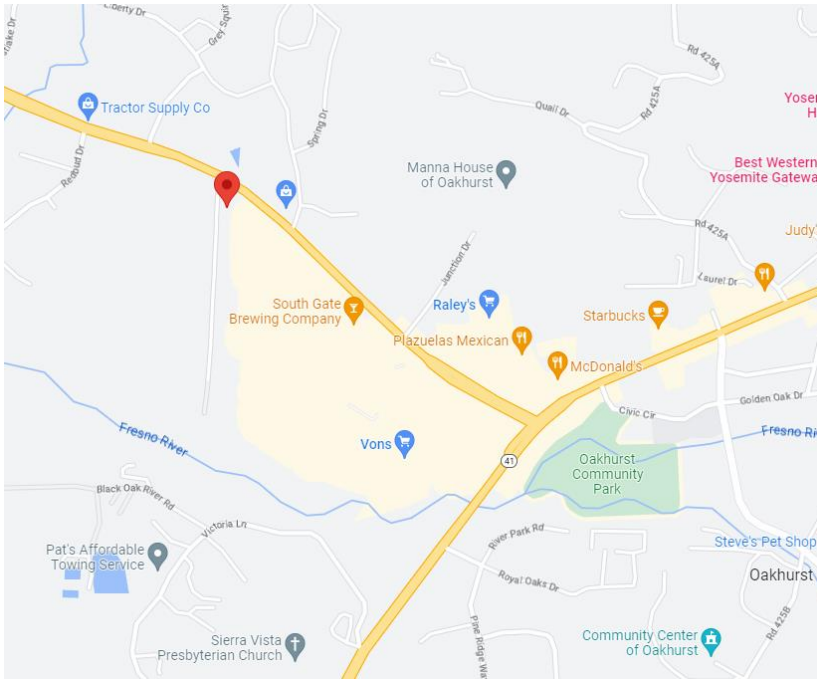
<sup>30</sup> <https://northamerica.daimlertruck.com/PressDetail/daimler-trucks-north-america-portland-general-2021-04-21>



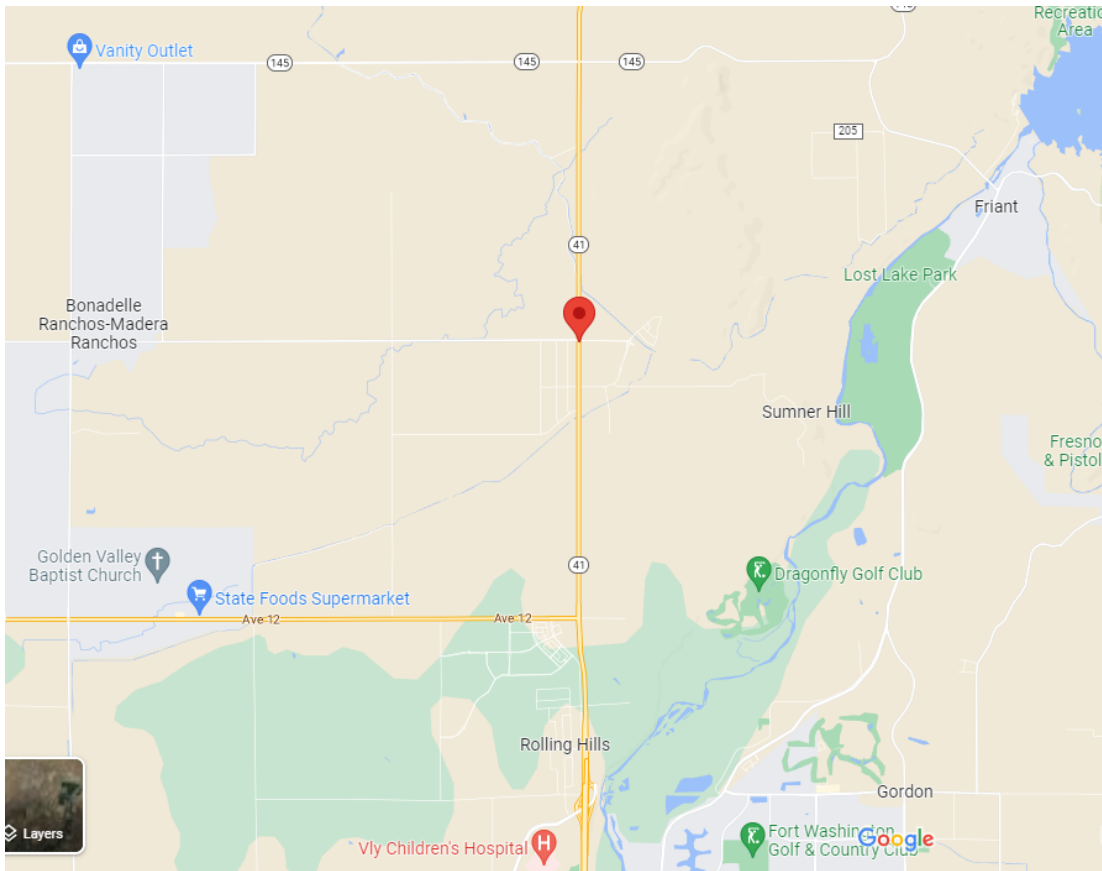
**FIGURE 15: AVENUE 17 AND HIGHWAY 99**



**FIGURE 16: AT THE CHOWCHILLA BRANCH LIBRARY**



**FIGURE 17: AT PACIFIC PRIDE CARDLOCK STATION**



**FIGURE 18: LOST LAKE AREA**



All could qualify for NEVI funding. Two of the sites—the airport and the Pacific Pride station—could also support a community microgrid that could offer resiliency for disaster response and, potentially, participate in California ISO’s day-ahead market as a small power plant.<sup>31</sup> (See Appendix C for additional detail.)

**STRENGTHS AND DRAWBACKS OF EACH STRATEGY**

**TABLE 12: SUMMARY OF EACH OF THE FOUR CHARGING/STATION STRATEGIES**

BENEFIT	PUBLIC	WORK-PLACE	MULTI-FAMILY	HUBS
Charging for light-, medium-, and heavy-duty vehicles	NO	SOME	NO	YES
Combine charging and hydrogen fueling	NO	FEW	NO	SOME
Improve livability and quality of life	SOME	SOME	YES	SOME
Access to charging for most residents, businesses, visitors, and through traffic	SOME	FEW	NO	YES
Visibility of a large number of chargers	YES	SOME	SOME	YES
Potential for a business case for third-party operators	YES	SOME	SOME	YES
May support future economic development	YES	YES	SOME	YES
Make use of underutilized land	NO	SOME	NO	YES
Can encourage EV-related tourism	YES	FEW	NO	YES
Potential for battery storage and generation to increase resiliency	SOME	SOME	YES	YES
Strategies to minimize capital and operating costs	SOME	YES	YES	YES
Potential to patronize businesses during charging session	YES	FEW	NO	SOME
Can create a network of stations with redundancy	YES	SOME	SOME	YES

<sup>31</sup> <http://www.caiso.com/market/Pages/MarketProcesses.aspx>

Table 10 shows the numbers of EVs projected by the project team for Madera County and the numbers of charging station *connectors* (not charging stations) targeted by CEC and the California Air Resources Board’s 2022 Mobile Source Strategy.

**TABLE 13: NUMBER OF REQUIRED EV CONNECTORS IN MADERA COUNTY BY 2025 AND 2030**

Year	Number of BEVs	Multifamily Level 2	Workplace L2	Public L2	Public DCFC
2025	5,981	179	302	652	47
2030	20,915	413	869	1,642	126

Source: Frontier Energy (number of BEVs) and California Energy Commission (numbers of stations)

It is important to note that the presented numbers are estimates based on state goals and do not consider Madera County’s land availability and demographics. Many Level 2 and all DCFC stations have two connectors per EVSE.

Truck travel is more challenging to isolate. Caltrans is working with multiple local and state agencies to update goods movement routes as part of its reporting requirements for Federal funding. Caltrans recently completed the California Statewide Truck Parking Study that aims to identify and quantify the locations at which truck drivers need to park for at least eight hours as required by the Federal Motor Carrier Safety Administration.<sup>32</sup>

Appendix E from the report shows locations along Caltrans-administered highways that have the greatest need for additional truck parking, which indicates that the number of freight trips has grown faster than the number of businesses that serve trucks. Other maps showed Highway 99 between San Joaquin and Fresno Counties as a “High Priority” corridor based on the shortage of truck parking spots and local conditions that include impacts on disadvantaged communities.

## FUNDING

Funding opportunities for EVs and EV chargers continue to grow rapidly. Covered expenses typically include the purchase or lease of EVs, the purchase and installation of charging infrastructure, and expenses for hydrogen fuel cell electric vehicles (FCEVs) and their refueling infrastructure. Multiple funding opportunities exist federally as well as in several states, with eligible applicants ranging from private customers, state and local government agencies, tribal governments, school districts, transit agencies, utilities, fleet owners and operators, ports, and in some cases vehicle dealers and charging infrastructure vendors. Funding programs typically have a fixed term and a limited allocation of funds. However, the range of funding options has vastly expanded over the past couple of years and especially in the past few months. Information on

<sup>32</sup> <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/freight-planning/plan-accordion/catrpkpgstdy-finalreport-a11y.pdf>

specific programs can change quickly and we encourage Madera County to monitor and identify funding sources timely and carefully.

Incentive programs have very specific requirements for applications, including specific requirements for eligible vehicles and charging equipment, data reporting, and special considerations for public fleets. Some programs are very competitive and “sell out” quickly and others take time and persistence.

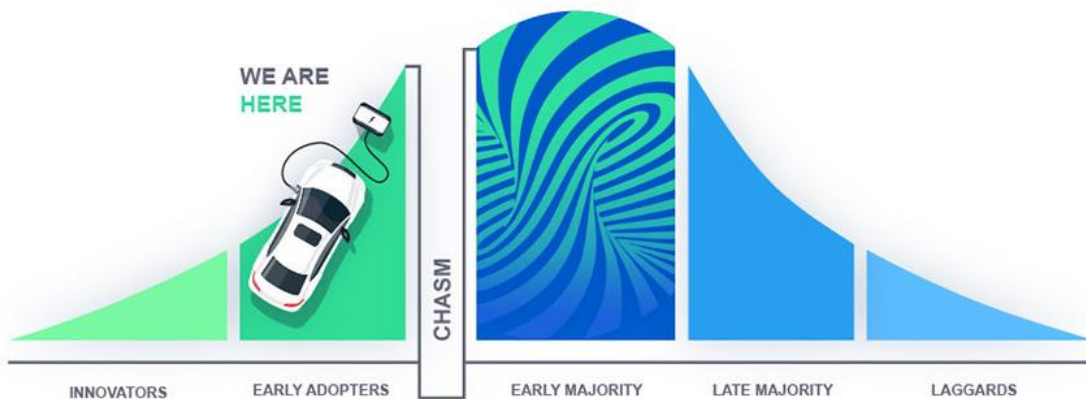
Appendix C serves as an overview of the most relevant programs with substantial funding resources. Numerous other funding opportunities related to electric vehicles and their charging infrastructure exist in addition to those mentioned.

The resources listed below include information on funding opportunities which should be monitored:

- Alternative Fuels Data Center Overview of Federal and State Laws and Incentives: <https://afdc.energy.gov/laws>
- California Governor’s Office of Business and Economic Development (GO-Biz) ZEV Funding Resources library: <https://business.ca.gov/industries/zero-emission-vehicles/zev-funding-resources/>
- PlugStar searchable database by ZIP code: <https://plugstar.com/tools/incentives>
- DSIRE (database of clean energy programs): <https://programs.dsireusa.org/system/program>

## GAPS, BARRIERS, AND RECOMMENDATIONS

Electric vehicles face a ramp up in adoption. In the technology adoption curve, shown in **Figure 17**, the chasm (which is also called the Valley of Death) is the time that manufacturers need to make a new innovation as cost-effective, easy, and accessible as the current technology, or the new technology must provide a benefit that the current technology doesn’t have. Until we cross the chasm, most people will only see problems and challenges with vehicle electrification.



**FIGURE 19: EV ADOPTION CURVE**

To help cross the chasm, local government can take actions to support the early adopters (the carrots) and implement rules that nudge other entities forward (the sticks.)

## **GAP AND OPPORTUNITY #1: PERMITTING**

AB 1236 and AB 970 require that local jurisdictions implement streamlined permitting for EV charging stations by implementing at least six of seven criteria:

- 1) Add a city ordinance to codify this regulation.
- 2) Make a checklist available online for expedited EV charger installations.
- 3) Administrative approval of permits.
- 4) Permits can only be disapproved for Health and Safety reasons.
- 5) Permit applications can be requested electronically, and electronic signatures are accepted.
- 6) Permits cannot be issued conditionally upon approval by an association.
- 7) If any deficiencies are found, all deficiencies will be noted in a single deficiency notice.

The three jurisdictions in Madera County need to take actions to comply with regulation and to increase the ability to install charging stations. With streamlined permitting, residents, businesses, and EV installers can more accurately predict the time and cost of installing a charging station. It also decreases the likelihood that people install charging stations without obtaining a permit.

## **GAP AND OPPORTUNITY #2 AND OPPORTUNITY: COMPLEXITY**

Municipalities, school districts, and transit agencies will likely be the first large-scale ZEV adopters due to regulations and funding opportunities. Transitioning to ZEVs involves collecting vehicle data that most fleets don't have and information about their facilities that is often in multiple places. Some organizations don't have a central fleet manager; every department manages its own vehicles and contacts procurement when they want to purchase a car or truck. Feedback that organizations are too short staffed to do the research, solicit bids, and apply for grants and incentives is commonplace. Fleets also run into issues with ZEVs not being readily available on dealers' lots, with many of the vehicles they hear about not being available for a year or more.

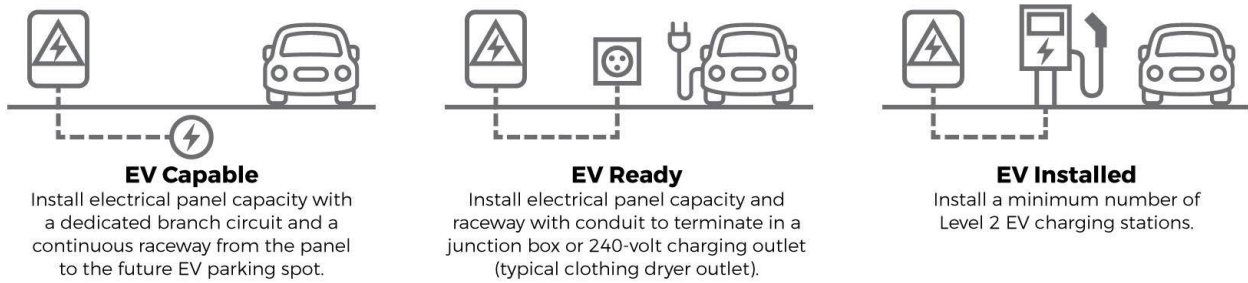
Potential support MCTC could provide to fleets to mitigate some of these challenges include:

- Providing free site assessments and technical assistance to identify the facilities that appear to have sufficient capacity for a charging station.
- Coordinate group buying pools among the cities, transit agencies, and school districts to place one order under one PO. Buying larger numbers of the same vehicle (or same charging station) can mean a price reduction, faster delivery, or additional perks like training and maintenance.
- Working with a company like e-Mission Control, identify GHG reduction from charging and hydrogen stations to estimate Low Carbon Fuel Standard (LCFS) credits.

## **GAP AND OPPORTUNITY #3: NEW CONSTRUCTION**

All new construction is an opportunity to add charging stations. California Green Building Standards (CALGreen) requires EV Capable parking spaces, meaning that the building has capacity in the

electrical panel and spacing for wiring for a building inhabitant to install wires, circuits, and plugs for EV charging later. Figure 18 explains the different levels of EVSE support.



**FIGURE 20: DEGREES OF EVSE SUPPORT BUILDING CODE**

Codes have mandatory compliance that all California jurisdictions must enforce, and some codes have voluntary compliance levels that jurisdictions can enforce or use as an incentive. The EVSE requirements have two voluntary levels called Tier 1 and Tier 2.

By adopting Tier 1 or Tier 2 as mandatory, or apply for a reach code, Madera County jurisdictions could increase the number of charging stations in the County without incentives. It will reduce the costs of adding charging stations at a later date. Adopting Tier 1 or Tier 2 do not require a regulatory filing.

## CHAPTER 3: IMPLEMENTATION

This chapter will summarize goals for transportation electrification in Madera County. This includes air quality improvement, implementing tools to measure ZEV adoption and charger installation in Madera County, engagement in collaborative transportation planning, streamlining permitting, encouraging the installation of home and workplace charging and adoption of ZEV supporting building codes.

### RECOMMENDED ACTIONS

---

#### COORDINATE COOPERATIVE TRANSPORTATION ELECTRIFICATION PLANNING

**Leads for this action:** Madera CTC in collaboration with Madera County, City of Madera, SJVACPD, PG&E, and Chowchilla Municipal Utility

**Timeframe:** Ongoing

Due to the very nature of transportation, planning for the ZEV transition will take coordination across borders and boundaries of counties, cities, utility service territories, transit agencies and more. For this reason, ZEV planning must be collaborative. Beyond the development of the Madera County ZEV Readiness Plan, it is recommended that MCTC establish a collaborative committee of stakeholders including Madera County, the City of Madera, and other major cities within the county, SJVACPD, PG&E, and Chowchilla Municipal Utility. This committee should also coordinate with neighboring counties and regional efforts.

The Madera Collaborative Committee will need to jointly coordinate planning and funding opportunities and efforts for expanding electric vehicle charging infrastructure moving forward. These efforts could include but may not be limited to: Determining goals, measuring progress, and identifying leads for tasks. Some of the goals and activities of the committee could include:

- Providing important data that helps the county, cities, and communities in Madera County be more competitive for ZEV-related grants and programs and collaborating on grant and funding opportunities where appropriate. This could include collecting traffic data from identified community-based entities including Caltrans, Madera CTC, U.S. Census Origin-Destination, and services like Streetlight. This data can then be used to identify current traffic patterns, seasonal traffic variation, projected highway and freeway annual traffic growth rates, and project potential traffic patterns for ZEVs in 2030.
- Advise on and coordinate ongoing and new funding opportunities. This includes monitoring the sources identified in **Chapter 2: Future Infrastructure Needs** of this report.
- Coordinating ongoing education and outreach for residents, employees, and tourists in the leadup to the 2035 ZEV mandates.
- Developing effective outreach and communication programs for DAC and under-represented populations.
- Developing workforce development programs around ZEV infrastructure, vehicles and services.

- Measuring progress toward increasing the number of charging stations in desired areas by monitoring information about existing and planned charging stations from PlugShare, Alternative Fuel Data Center, CaFCP’s Hydrogen Station Map, and from planning departments EVgo, Electrify America, Tesla and hydrogen station developers.
- Measuring and recording equity impacts.
- Measuring progress toward ZEV adoption by vehicle class and type.
- Creating and monitoring county or corridor specific goals by reviewing and sharing existing and ongoing transportation planning projects and each jurisdiction’s Planning Division data, general plans, and specific plans for land-use and roadway planning.
- Estimating GHG reduction.

California has several funding programs for zero emission vehicles and infrastructure, most of which have requirements for data reporting and ensuring that data is regularly updated. Each of these information sources also provides insight into the progress of the ZEV transition. An online dashboard including this information could help paint the picture and blend in region-wide information about transit ridership, active transportation efforts, and other initiatives.

## **EFFECTIVE COMMUNITY ENGAGEMENT AND WORKFORCE DEVELOPMENT**

**Lead for this action:** Madera Collaborative Committee

**Timeframe:** Ongoing

Two key areas of need identified in the community engagement process for this project (**Chapter 2: Future Infrastructure Needs**) included providing effective outreach and workforce development. The project team has a number of recommendations to address these challenges including using less technical language, providing materials and media in a variety of languages, training and utilizing ambassadors.

### **Community Engagement**

**Avoid Technical Language:** As a first step, reducing the use of technical verbiage can be a simple change to make for in person engagement, collateral, and media. Even when assumed to be simple, technical language may not be easy for people to understand, particularly with audiences where English is a second language or individuals may have limited reading skills. The use of storytelling and associations can help people understand basic concepts. For example, language like “electric vehicle like a Tesla,” helps people draw the link between technology and a consumer product. Avoid acronyms, like ZEV and EVSE, which are meaningless for most people.

**Avoid Heavy Use of Text:** Many people in disadvantaged communities struggle with reading. Outreach, incentive, and training materials tend to be heavy with text, either in print or online. Additionally, some training programs require that applicants pass a written test or submit applications and reports in English and sometimes in Spanish. Collateral and course materials should use more images and incorporate video. Short video clips that are quick to watch have a major impact on comprehension. Use members of the community to translate materials into other languages, like Russian, Farsi, and Hindi, and ensure that the materials are culturally appropriate for the target audiences.

**Benefits and challenges of ZEVs:** Potential ZEV owners need to see the trade-off between today's investment and a savings that takes months or years. Materials should clearly articulate the cost of a ZEV, the comparison between the cost to fill the tank and charge a battery as well as the risks such as the need for a more robust public charging network and the challenges that may impose if one does not have access to charging at home.

**Interactive events:** Offering physical and interactive activities such as ride and drives, or ZEV tailgate give people firsthand experiences with ZEVs and an opportunity to talk with ZEV owners to learn about their experiences, both positive and negative. Interactive activities can also help reduce the stigma that ZEVs are inaccessible and complicated.

## **Workforce Development**

**Transparency:** Workforce development participants need to see the timeline to achieve the higher incomes projected by programs. Materials also need to clearly articulate the duration of a training program, and the risks such as the starting wage and potential wage cap for a job. It can also be more effective to offer physical and interactive activities or experiences so that people can imagine themselves in a ZEV career.

**Ambassadors:** Ambassadors can be an effective method to recruit people into a new or unfamiliar industry, however people in the ZEV industry often do not look like the people in disadvantaged communities. For this reason, it's important that Ambassadors reflect the target community. Ambassadors, also called "Promoters," may be employed in a ZEV job, or a job related to the industry, an early ZEV adopter, and/or actively participated in a training or employment program. Ambassadors can share their experiences or even play a more direct role as a mentor or guide.

**Variety in Career Options:** Establish an ecosystem so that activities, education, and outreach provided to the community will first be validated by the network of community partners. Program managers, coaches, social workers, counselors, and educators can participate in a series of workshops designed to educate about the scope of the ZEV industry and the many career options that exist. The workshops should be combined with site visits to further illustrate how the job functions apply. An optimal site visit will be one that has an ambassador working there. This requires strong relationships to be established with business and division executive leaders.

**Community Engagement Events:** Community engagement events can be a hard sell for recruitment or for participating in a career development program. People may be asked to commit on the spot, which often sets them up for failure when unexpected hardships or issues arise and the participant doesn't have a support system to help them through it. For this reason, career fairs, focus groups, info sessions, and workshops should be focused on education rather than to recruitment. Once a participant shows interest, the role of community partners, training providers, and employers should be to fuel that interest until it becomes a passion. It also helps to establish a strong support system within the community, the program, and a potential employer to help the participant weather life's storms.



## **DETERMINE COST-EFFECTIVE INVESTMENT**

**Lead for this action:** Madera Collaborative Committee.

**Timeframe:** Ongoing

A core activity of a collaborative committee for advancing ZEV readiness in Madera County should include planning for cost-effective investment in ZEV infrastructure. **Chapter 2:** Future Infrastructure Needs of this report identified area recommendations based on a number of factors discussed in the methodology for that chapter. The committee will also need to determine factors for prioritization such as serving disadvantaged communities, residents living in multi-unit dwellings or serving high-traffic areas, factors which have also been identified on maps within **Chapter 2:** Future Infrastructure Needs.

Potential installation sites within these prioritized areas will also need to be evaluated for:

- Availability of adequate power to the site.
- Ease of access along key corridors, especially near intersections that have amenities for EV drivers to visit while charging. Examples of popular amenities include restrooms, popular retail venues, restaurants, libraries, community centers, tourist attractions, beaches, and parks, etc.
- Proximity to areas of concentrated high-density housing as multi-unit housing typically lacks EV charging.
- Availability of parking, preferably near a power source to minimize costs to bring power to the site such as trenching.
- Visibility of the chargers themselves which includes location in a parking lot, lighting and proximity to nearby streets or storefronts; it is not recommended they be installed in difficult to find or see areas.
- Safety of the location and of the installation including being well lit at night and ensuring charging cables will not need to run across sidewalks to be used or overlap on to sidewalks when not in use.
- Other considerations may also need to be considered such as tree roots or branches that may be disturbed and put the installation at odds with urban tree-canopy goals.

These factors and potentially others determined by the Madera Collaborative Committee, will serve to identify the “low-hanging fruit” that is the sites where it will be easiest to install charging infrastructure and those that will be more difficult and likely more expensive. The committee can then make an informed decision on where to install infrastructure first based on priority and cost.

## **INSTALL AIR QUALITY SENSORS ALONG ROADWAYS TO MEASURE EMISSIONS IMPACT OF TRANSPORTATION**

**Lead for this action:** San Joaquin Valley APCD and the National Parks Service

**Timeframe:** Ongoing

Collecting initial roadside data and repeating data collection and analysis annually or bi-annually will:

- Provide important data that helps the County, cities, or communities be more competitive for ZEV-related grants and programs.
- Measure progress toward reducing transportation related GHGs and air pollution.
- Draw a correlation between available of ZEV charging/fueling stations and zero-emission vehicle miles traveled by visitors and in-bound commuters.

Madera County is a U.S. EPA Non-attainment Zone, meaning that it does not meeting the U.S. standard for ambient air quality.<sup>33</sup> That designation, however, covers the San Joaquin Valley, not just the county. San Joaquin Valley Air Pollution Control District (SJVAPCD) has two air quality sensors in Madera County, one in the City of Madera, and one at the Madera Pump Yard. The pump yard station is meteorological and does not measure particulate matter or toxins.<sup>34</sup>

Because neither sensor is on a roadway, highway, or in a neighborhood, Madera CTC does not have baseline data about the amount of particulate matter (PM), or toxins emitted by vehicles. The lack of data creates a catch-22; Madera needs AQ data to show that it is impacted by pollution but can't get funding for community air monitoring because it doesn't have any relevant data.

The U.S. EPA has an annual competitive grant for community air monitoring that will likely open in Q1 2023. It is, however, a slow program that hasn't announced the 2022 grantees yet. Several private companies offer roadside air monitoring stations often used during construction projects. Madera could contract with a company to deploy sensors along the roads and interchanges that MCTC's traffic count studies show are the most-traveled routes for at least 30 days in the summer and 30 days in the winter to create a baseline.

The benefits of monitoring air quality in high-traffic areas include setting a baseline for transportation related emissions as well as a yardstick for improvement. While this does not directly forward EV adoption, it does provide valuable information for grant and other funding applications as well as a metric by which to measure success as EV adoption grows.

---

<sup>33</sup> [https://www3.epa.gov/airquality/greenbook/anayo\\_ca.html](https://www3.epa.gov/airquality/greenbook/anayo_ca.html)

<sup>34</sup> <https://ww2.valleyair.org/media/lhrpuz0c/2022-air-monitoring-location-map.png>

## CREATE A DASHBOARD FOR LOCAL DATA

**Lead for this action:** Madera CTC in cooperation Madera Community College or with a CivicSpark fellow; contact the Institute for Local Government for connections potential providers or partnerships<sup>35</sup>

**Timeframe:** Ongoing

A consolidated data dashboard will:

- Provide important data that helps the County, cities, or communities be more competitive for ZEV-related grants and programs.
- Measure progress toward increasing number of charging stations
- Measure progress toward ZEV adoption by vehicle class and type

California is fortunate to have many funding programs for zero emission vehicles and renewable energy, all of which have requirements for data reporting and ensuring that data is regularly updated. Each of these information sources has one piece of the puzzle, and it takes effort for a user to collect all the pieces and turn them into a picture. A single dashboard on the MCTC website could paint the whole picture and blend in county-wide information about transit ridership, active transportation efforts, and other initiatives. Once roadside AQ data becomes available, it could be added to the dashboard.

A single dashboard that shows only the Madera County information that is updated twice a year will create a visual tool that shows progress toward short- and long-term goals. It may also identify zip codes that are slower to move to ZEVs and determine targeted outreach and support needs.

Potential sources of information include:

- CALSTART and the Center for Sustainable Energy (CSE), the two organizations that administer most rebate programs, have dashboards that show rebates and incentives by county, zip code, and vehicle type.<sup>36, 37, 38</sup>
- The California Energy Commission's (CEC) ZEV dashboard shows ZEV vehicle registrations, charging stations, hydrogen stations, and medium-and-heavy duty deployment by county and sometimes by zip code.<sup>39</sup>
- The Air Resources Board requires annual reporting about transit bus deployments with a spreadsheet of each agency bus by fuel type.<sup>40</sup>

---

<sup>35</sup> <https://www.ca-ilq.org/open-data-mobile-engagement>

<sup>36</sup> <https://californiahvip.org/impact/#deployed-vehicle-mapping-tool>,

<sup>37</sup> <https://calevip.org/rebate-statistics>

<sup>38</sup> <https://cleanvehiclerebate.org/en/rebate-map>

<sup>39</sup> <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics/new-zev-sales>

<sup>40</sup> <https://ww2.arb.ca.gov/our-work/programs/innovative-clean-transit/reporting-tool-data>

- California Distributed Generation Statistics shows the distribution of solar incentives from multiple funding programs.<sup>41</sup>
- The Governor’s Office of Business Development’s Permit Streamlining Map.<sup>42</sup>
- The American Community Survey (ACS) from the U.S. Census Bureau gives an annual snapshot of the population statistics, including employment, housing, and modes of transportation.<sup>43</sup>

CSE and CEC both use Tableau, an online platform that connects to external databases and creates visualizations. All the sources identified have spreadsheets that can be downloaded and used in other applications. Some of the sources also offer data integration so that information is automatically updated.

## **SUPPORTING THE MUNICIPAL FLEET ZEV TRANSITION**

**Leads for this action:** Madera Collaborative committee.

**Timeframe:** Long-term

One of the first areas the Madera Collaborative Committee can address includes municipal fleets, school bus operators, and transit operators and large companies that have 50 or more medium- and heavy-duty vehicles. These will be the first movers to transportation due to mandated electrification and heavy incentives and will use more energy—electricity and hydrogen—than passenger cars will use. These mandates and funding opportunities include:

- The Innovative Clean Transit regulation which requires a transition to zero emission buses by 2040.<sup>44</sup> Madera County Connection has six buses on fixed route services and Madera Metro has 19 total buses in the fleet. Yosemite Area Regional Transportation System (YARTS) operates 110 buses in the Yosemite Valley (Madera, Mariposa, Merced, Tuolumne, and Mono). All three are defined as small transit agencies and must submit a transition plan to CARB by June 2023.
- The U.S. EPA and the State of California funding the replacement of diesel buses with electric buses and providing funding for charging stations. Eligible districts and third-party operators can “stack” federal and state funding to transition to electric buses.
- ARB adopting the Advanced Clean Fleet regulation in 2023. If adopted as written, all public agencies and private fleets with more than 50 vehicles and \$5 million in revenue will be mandated to bring medium- and heavy-duty ZEVs into their fleets starting on January 1, 2024.

Transitioning to ZEVs involves collecting data and information about vehicles and facilities that operators often don’t have. Some organizations don’t have a central fleet manager; every

---

<sup>41</sup> <https://www.californiadgstats.ca.gov/charts/li/>

<sup>42</sup> <https://business.ca.gov/industries/zero-emission-vehicles/plug-in-readiness/>

<sup>43</sup> <https://www.census.gov/programs-surveys/acs>

<sup>44</sup> [https://ww2.arb.ca.gov/sites/default/files/2019-10/ictfro-Clean-Final\\_0.pdf](https://ww2.arb.ca.gov/sites/default/files/2019-10/ictfro-Clean-Final_0.pdf)

department manages its own vehicles and contacts procurement when they want to buy a car or truck. Organizations are too short staffed to do the research, solicit bids, and apply for grants and incentives. They are also surprised that ZEVs are not sitting on the dealers' lots, and that many of the vehicles that operators hear about in the news won't be available for a year or more.

Coordinating with all the mandated adopters could identify baseload users for one or more of the proposed ZEV fuel plazas, which would reduce each operator's costs to build individual stations. It could also identify opportunities for group buying pools to place one order under one PO. Buying larger numbers of the same vehicle (or same charging station) can mean a price reduction, faster delivery, or additional perks like training and maintenance.

Other opportunities the collaborative could explore include:

- Offering free site assessments to identify the facilities that appear to have sufficient capacity for a charging station and assist with utility coordination. This would be based on the tool-kit self-assessment developed for this project and beyond in providing technical support.
- Provide data collection tools so that fleet managers can start collecting the information about their vehicles to start the planning.
- Identify GHG reduction from charging and hydrogen stations to estimate Low Carbon Fuel Standard (LCFS) credits.

## **MEET STATE OF CALIFORNIA REQUIREMENTS FOR STREAMLINED PERMITTING**

**Lead for this action:** Cities of Madera and Chowchilla, and County of Madera with support from GO-Biz

**Timeframe:** Short term

Complying with the two regulations that require streamlined permitting for charging stations will:

- Enable more residential, public, workplace, and multifamily charging stations because the process for getting an EVSE permit will be standardized and faster, which can result in lower costs.
- Streamlined permitting is a requirement for NEVI funding.
- Make entities more competitive for grants.
- Enable charging stations throughout the county.

Permits are required to ensure that residential and commercial charging stations are properly installed. AB 1236 (streamlined permitting for charging stations) and AB 970 (EVCS project review limits) requires that jurisdictions must meet at least six of seven criteria:<sup>45</sup>

1. Streamlining Ordinance for Expedited Electric Vehicle Charging Station (EVCS) Permit Process
2. Permitting Checklists Online for L2 & DCFC

---

<sup>45</sup> <https://static.business.ca.gov/wp-content/uploads/2021/11/EV-Charger-Permit-Streamlining-AB-1236-Fact-Sheet-Version-1.pdf>

3. Administrative Approval of EVCS
4. Approval Limited to Health & Safety Review
5. Electronic Signatures Accepted
6. EVCS Not Subject to Association Approval
7. One Complete Deficiency Notice if Application is Incomplete

The California State Building Officials (Calbo) published a set of resources for small jurisdictions that include sample forms and model ordinances.<sup>46</sup>

The *San Joaquin Valley Plug-In Electric Vehicle Readiness Plan* identified that Streamlining Permitting and Inspection Processes is a core area of EV readiness.<sup>47</sup> Although permitting is outside of MCTC’s control, it’s a fundamental step to increase residential and commercial charging stations. The team recommends Madera County prioritize compliance with permit streamlining and MCTC provide support as appropriate.

## **ENCOURAGE HOME AND WORKPLACE CHARGING**

**Lead for this action:** The Madera Collaborative Committee

**Timeframe:** Long-term

Creating a one-stop shop for businesses, property owners, and residents with information and resources will:

- Enable more residential, public, workplace, and multifamily charging stations because unbiased and objective information is available from a trusted resource.
- More charging stations at home and at workplaces will encourage increased EV adoption and ZEV miles traveled.
- A network of charging stations that accept payment can add to tax revenue.
- A focus on workplace charging can also encourage fleets to transition to ZEVs.

**Chapter 2** of this report identified that by 2030, Madera County will need 413 charging ports at multifamily properties and 869 ports at workplaces. Because these charging stations will mostly be on privately owned land, the property owners must express interest and take action to install charging stations.

The AIDA (Awareness, Interest, Desire and Action) model traces the customer journey through Awareness, Interest, Desire and Action, and is perhaps the best-known marketing model.

- Attention (or Awareness) creates buyer recognition of the technology, product, or brand
- Interest communicates the benefits of the technology, product, or brand to the potential buyer to encourage them to learn more

---

<sup>46</sup> <https://www.calbo.org/sites/main/files/file-attachments/ab1236toolkitsmalljurisdiction.pdf?1524861090>

<sup>47</sup> [http://www.valleyair.org/grants/documents/pev/san\\_joaquin\\_valley\\_pev\\_readiness\\_planning\\_guide.pdf](http://www.valleyair.org/grants/documents/pev/san_joaquin_valley_pev_readiness_planning_guide.pdf)

- Desire creates an emotional connection so that the buyer moves from liking the technology, product, or brand to wanting it.
- Action moves the buyer to take the next step—or to walk away.

Many of the existing EV websites and sources of information focus on Attention and Interest, and others are solely about the Action step. MCTC can fill a void for local business owners and residents by offering objective, helpful information to move the person from thinking about installing a charging station to reaching out to a vendor or the utility to take the next step.

Create one page on the MCTC website with resources for residents and businesses that includes:

- The toolkits developed for this project.
- A summary of rebates and incentives grouped by single-family home, multifamily property, and workplace charging.
- For homeowners, a link to Veloz’s [Home Charging Advisor](#)
- For multifamily property owners, a link to SJVAPCD’s [Charge Up! Incentive Program](#)
- For employers, a link to Plug In America’s [Workplace Charging guide](#)

Consider offering customer service and advice via Plug In America<sup>48</sup> or Clean Vehicle Empowerment Collaborative.<sup>49</sup> Both nonprofits offer multilingual and email support to end users and businesses interested in EVs and charging stations on a per-call or monthly basis.

## **ADOPT EV-RELATED BUILDING CODES**

**Lead for this action:** Cities of Madera and Chowchilla, and County of Madera

**Timeframe:** Long-term

Enforcing the CALGreen codes and adopting Tier 1 or Tier 2 as mandatory will result in more parking spaces being EV Ready or EV Capable and reduces the cost of adding EV charging stations later. It will:

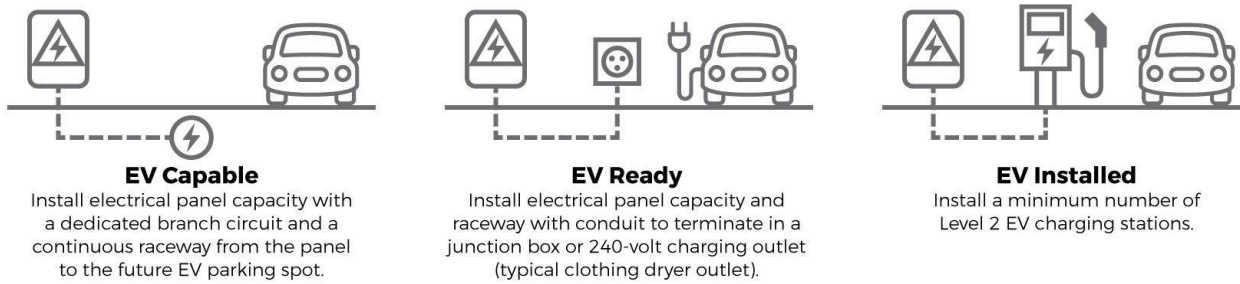
- Enable more residential, public, workplace, and multifamily charging stations because it will be less costly and faster to add charging stations.
- More charging stations public and workplace charging will encourage increased EV adoption and ZEV miles traveled.
- A network of charging stations that accept payment can add to tax revenue.
- A focus on public charging can encourage visitors and in-bound commuters to drive ZEVs.

All new construction is an opportunity to add charging stations. California Green Building Standards (CALGreen) requires EV Capable parking spaces, meaning that the building has capacity in the electrical panel and spacing for wiring for a building inhabitant to install wires, circuits, and plugs for EV charging later. **Figure 19** outlines the different levels of EVSE support.

---

<sup>48</sup> <https://pluginamerica.org/why-go-plug-in/ev-support-program/>

<sup>49</sup> <https://evequity.com/>



**FIGURE 21: DEGREES OF EVSE SUPPORT BUILDING CODE**

Codes have mandatory compliance that all California jurisdictions must enforce, and some codes have voluntary compliance levels that jurisdictions can enforce or use as an incentive. The EVSE requirements have two voluntary levels called Tier 1 and Tier 2.

The 2022 CALGreen codes mandatory requirements include:

- Single-family residences, including townhomes and duplexes, be EV Capable
- Non-residential new construction and major alterations (\$200,000 or 1,000 sq feet) to have up to 10% of parking spaces be EV Capable.
- New multifamily dwellings and new hotels/motels with 20 units or more must have 10% of all parking spaces EV Ready. (This includes parking spaces that are designated for guests or shared with ancillary business, like a banquet hall or a casino.)
- Tier 1 requires that 10% of spaces are EV Capable for a property with 19 or fewer units; for properties with 20 or more units, 25% of the dwelling unit spaces must be EV Capable.
- Tier 2 applies only to properties with 20 or more units and requires the 5% of total parking spaces be EV Installed and at least one EVSE must be in a common area.
- New non-residential buildings must have EV Ready and EV Capable spaces as shown in Figure 20.

TOTAL NUMBER OF ACTUAL PARKING SPACES	NUMBER OF REQUIRED EV CAPABLE SPACES	NUMBER OF EVCS (EV CAPABLE SPACES PROVIDED WITH EVSE) <sup>2</sup>
0-9	0	0
10-25	4	0
26-50	8	2
51-75	13	3
76-100	17	4
101-150	25	6
151-200	35	9
201 and over	20 percent of total <sup>1</sup>	25 percent of EV capable spaces <sup>1</sup>

1. Calculation for spaces shall be rounded up to the nearest whole number.  
 2. The number of required EVCS (EV capable spaces provided with EVSE) in column 3 count toward the total number of required EV capable spaces shown in column 2.

**FIGURE 22: EV REQUIREMENTS FOR NON-RESIDENTIAL BUILDINGS**



- New grocery stores, retail stores with planned off-street loading, and warehouses must be EV Ready for medium- and heavy-duty charging based on the square footage of the building, as shown in **Figure 21**.

BUILDING TYPE	BUILDING SIZE (SQ. FT.)	NUMBER OF OFF-STREET LOADING SPACES	ADDITIONAL CAPACITY REQUIRED (KVA) FOR RACEWAY & BUSWAY AND TRANSFORMER & PANEL
Grocery	10,000 to 90,000	1 or 2	200
		3 or Greater	400
	Greater than 90,000	1 or Greater	400
Retail	10,000 to 135,000	1 or 2	200
		3 or Greater	400
	Greater than 135,000	1 or Greater	400
Warehouse	20,000 to 256,000	1 or 2	200
		3 or Greater	400
	Greater than 256,000	1 or Greater	400

**FIGURE 23: CALGREEN REQUIREMENTS FOR LOADING DOCKS**

**Recommended Building Codes to Adopt to Support EV Readiness:**

- Adopt Tier 1 or Tier 2 as a mandatory code or voluntary compliance in all new multifamily and hotel construction.
  - **Benefits:** It will increase the number of charging stations in the County without incentives. It will reduce the costs of adding charging stations at a later date. Adopting Tier 1 or Tier 2 do not require a regulatory filing.
  - **Constraints:** Additional costs for installing a 220-volt plug and the supporting circuit add construction cost. Although the cost may be small, costs add up and influences affordability. It will be necessary to evaluate the cost of EV support at new developments aimed at lower-income populations.
- Require single-family homes to comply with CALGreen code (EV Capable) for EVSE when an alteration requires an upgrade to the electrical panel. CalGREEN does not require compliance for single family residential remodels.
  - **Benefit:** Could add thousands of locations for home charging at existing houses at minimal cost to the homeowner. Because it a panel upgrade, the utility will already be involved to ensure the property can support the additional electrical load.
  - **Constraints:** Could be costly for a significant number of homes that were not originally designed to run power from the panel to a parking space. Could deter homeowners and landlords from making other home upgrades the reduce energy use.
- In conjunction with community stakeholders, developers could clearly identify alternatives to on-site charging that could include ¼-mile access to public charging, on-site electric car share, or within two miles of a public hydrogen station.

- **Benefits:** May encourage developers to collaborate on central facilities.
- **Constraints:** Could have a negative impact on initiatives to reduce VMT.

As codes undergo regular updates and changes referencing the California Energy Codes and Standards website<sup>50</sup> can provide helpful examples for local agencies, planning commissions and partners.

## STRATEGIES FOR ZEV IMPLEMENTATION

---

To support ZEV adoption, The project team considered four ways to deploy charging and hydrogen stations to meet the need for ZEVs through 2030 and beyond.

1. Public charging stations for light-duty vehicles that would support residents and visitors, mostly concentrated in the larger cities.
2. Workplace charging that provides charging stations for employees and fleet vehicles. At locations that operate fuel depots, like transit agencies, these stations may dispense hydrogen and/or electricity.
3. Support for property owners to add charging stations to multifamily properties, including mobile home parks, that minimizes upfront costs.
4. Deploying DCFC charging/hydrogen hubs with multiple connectors for light-, medium-, and heavy-duty vehicles that reside in Madera County, are visitors, or are passing through. These may also have distributed energy resources to enable resiliency and reduce grid energy needs.

These strategies are not an either-or choice. MCTC and its stakeholders may choose to implement multiple strategies, each with a different goal, source of funding, and partnerships.

The project team used a variety of tools and local knowledge to identify potential locations for charging and hydrogen stations for each of the strategies. Some locations can serve multiple constituencies. For example, a grocery store that is within 1/10<sup>th</sup> of a mile from an apartment complex is Public Charging and Multifamily Charging. Charging stations at city halls can be Workplace Charging and Public Charging. **Chapter 2:** Future Infrastructure Needs provides more details and a map of identified locations.

It's important to note that many of these locations are private property and the project team did not discuss charging or hydrogen stations with any property owner. Local government can only require charging stations through building codes but can encourage charging stations through technical assistance and financial support.

---

<sup>50</sup> <https://localenergycodes.com/content/adopted-ordinances>

## FUNDING ZEV IMPLEMENTATION STRATEGIES

Grants, rebates, and incentives are available from a variety of sources. They are often a long time in development, require significant effort to apply, and are quickly exhausted. **Appendix C** includes a list of state, federal, local, and utility incentive programs that are available as of March 2023 and those that are anticipated to be available in early 2023.

Our fast growth forecast of ZEV adoption in Madera County includes increased incentives. To identify incentives that Madera CTC might offer, we first must understand what will change buyer behavior.

The Fogg Behavior Change Model, Figure 22, states that behavior (B) is a product of three factors, motivation (M), ability (A) and a prompt (P). It focuses on the likelihood that a trigger—which is often an environmental factor—can make you take action. The model says that:

- When you're motivated, a prompt will make you more likely to do something that is hard.
- When something is easy, you don't need much of a prompt.
- When something is hard and you're not motivated, prompts don't work.

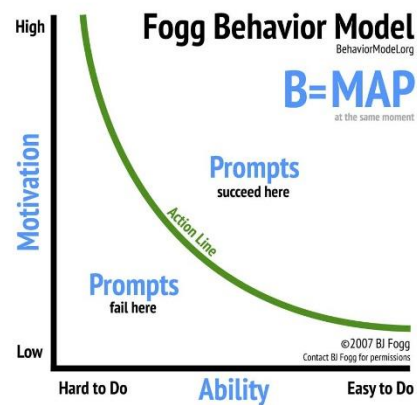


FIGURE 24: FOGG BEHAVIOR MODEL

An incentive program—whether a cash rebate for buying a vehicle or technical support to create an EV roadmap—is a prompt. MCTC’s aim is to apply the prompt so that people change their behavior, and the following activities and potential funding mechanisms are recommended:

- Offer expert help to create an ZEV roadmap and then implement the plan. Local agency fleets and transit agencies are highly motivated to transition to EVs because of their internal policies and external regulations. Planning for a 10- or 15-year transition, however, falls on the Hard to Do side of ability. The Local Flexibility Subprogram and Public Transit Program from Measure T may provide funding for this.
- Create a web page with resources that include example contracts and bid documents and offer assistance to create and review bid packages. Business and non-profit fleets are equally important to transition to ZEVs, but they are not as motivated as municipal fleets. Reducing the uncertainty of procurement, installation, and operation, this prompt can motivate organizations to offer workplace and fleet charging.
- Investigate offering a Charging as a Service (CaaS) program in partnership with a vendor. In CaaS, a vendor assumes all the capital and O&M costs, and either retains all revenue or shares the revenue with a host. If MCTC were the host, it may create ongoing revenue to

reinvest in ZEV mobility. Workplace/fleet charging is especially attractive to CaaS vendors and offering a vetted CaaS solution will move workplace/fleet charging from Hard to Do to Easy to Do and requires no investment by MCTC other than program management.

- Consider using a portion of Clean Air and New Technology funds from Measure T to leverage state or federal funds for a ZEV fuel hub. Engage Representatives of the 5<sup>th</sup> and 13<sup>th</sup> Congressional Districts to identify funding for a hub in Oakhurst that might support resiliency in case of wildfire and at the Madera Municipal Airport as zero-emission fueling and a community microgrid.
- Offer multifamily properties a 100% rebate for installing a Level 1 Smart Outlet. This will quickly deploy low-cost charging stations at multifamily properties. Outlets, like those available from Orange and Plugzio, cost less than \$400 and can either replace an existing outlet or is installed using an existing electrical circuit. The slow charge will provide about 40 miles of range during 10 hours of charging. The smart plugs require activation via a QR code so that properties can bill users for the electricity. [Ecology Action](#) has a grant from the California Energy Commission in cooperation with PG&E to deploy smart plugs. It is recommended that MCTC contact Ecology Action about participating in or expanding the program to Madera County.
- PG&E proposed to the California Public Utilities Commission to install Level 2 EV chargers and fast chargers at publicly accessible locations including shopping centers, local government buildings, multifamily properties, and park-and-ride lots. Should the CPUC approve the program, PG&E would install or rebate the necessary electrical infrastructure to connect parking spaces to the electric grid and, in certain cases, also install the associated EV chargers. PG&E would pay for all or a portion of this work, depending on the customer type. MCTC can identify properties to apply for the program and agree to cover any costs that the program will not cover.

## ESTIMATED COSTS TO MEET THE PROJECTED NUMBER OF CHARGING STATIONS AND HYDROGEN STATIONS

---

**Table 14** is a planning-level estimate of the total cost required to meet the number of charging and hydrogen stations. This is an estimate that does not include utility upgrades, nor does it include rebates, tax credits, or LCFS credits. The project team used cost data from recent California projects for base cost assumptions of \$43,720 for an installed Level 2 charging station, \$275,700 for a DCFC, and \$11 million for a hydrogen station. Base costs include civil upgrades (e.g., lighting, parking lot repaving). O&M costs include networking fees, repairs, and transaction fees.

**TABLE 14: PLANNING-LEVEL ESTIMATES FOR DEPLOYMENT**

Required EVSE by 2025	Quantity	Percent	Capital Cost	Annual O & M Costs
New Public - DCFC	47	4%	\$12,957,900	\$282,000
New Public - Level 2	652	55%	\$28,505,440	\$391,200
New Workplace Level 2	302	26%	\$13,203,440	\$181,200
New Multifamily - Level 2	179	15%	\$7,825,880	\$107,400
	<u>1,180</u>		\$62,492,660	\$961,800

Required EVSE by 2030	Quantity	Percent	Capital Cost	Annual O & M Costs
New Public - DCFC	79	4%	\$14,970,500	\$474,000
New Public - Level 2	990	53%	\$28,036,800	\$594,000
New Workplace Level 2	567	30%	\$16,057,440	\$340,200
New Multifamily - Level 2	234	13%	\$6,626,880	\$140,400
	<u>1,870</u>		\$65,691,620	\$1,548,600
Hydrogen Stations	4		\$44,000,000	
<b>Grand Total</b>			<b>\$109,691,620</b>	<b>\$2,510,400</b>

It’s anticipated that individual property owners and companies that operate charging/hydrogen stations will incur most of the capital costs and all the O&M costs. In return, operators will earn revenue from selling fuel, ancillary product sales, tax and carbon credits, and utility demand response.

The role of local government is to create an environment that encourages property owners and vendors to place charging stations and hydrogen stations in the county with a combination of small grants, streamlined permitting, introduction to landowners, and—when applicable—reduced or waived fees related to construction or occupancy class. For example, the Madera City Master Fee Schedule<sup>51</sup> shows a plan fee of up to \$10,000 for an Occupancy Type that includes a combustible material. Reducing or waiving this fee can encourage development of a hydrogen station.

Electricity will soon be designated as a motor fuel, an important regulatory step to ensure accuracy of dispensers and to leverage sales tax. The Madera City Master Fee Schedule shows an Occupancy Class of Motor fuel-dispensing with a plan fee of at least \$2,140 and up to \$22,000. It will be important to either waive this fee or change the Occupancy Class so that it will not apply to charging stations.

<sup>51</sup> Madera City Master Fee Schedule <https://www.madera.gov/wp-content/uploads/2018/07/Master-Fee-Schedule-2018-2019-FINAL-Updated-Res..pdf>

# APPENDICES



428 J STREET, SUITE 340 • SACRAMENTO, CA 95814 • 916.368.2000 • [DKSASSOCIATES.COM](http://DKSASSOCIATES.COM)

# CONTENTS

**APPENDIX A. EXISTING CONDITIONS**

**APPENDIX B. COMMUNITY ENGAGEMENT**

**APPENDIX C: FUNDING**

**APPENDIX D: CHARGING STATION LOCATIONS**

**APPENDIX E: CHARGING PLAZAS**

**APPENDIX F: WEBSITE WIREFRAME**



## **APPENDIX A. EXISTING CONDITIONS**

---

### **UNDERSTANDING ZEV READINESS IN MADERA COUNTY TODAY**

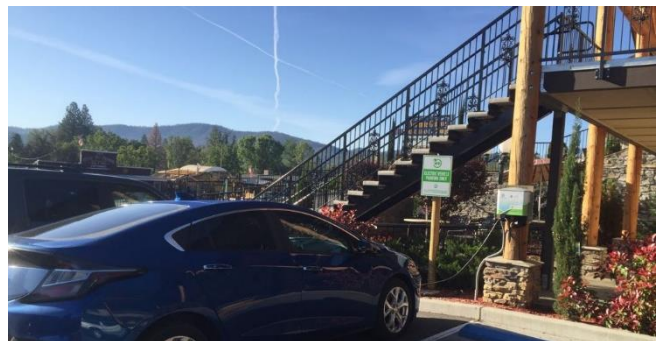


## OVERVIEW

The first step in planning for charging infrastructure as electric vehicle (EV) adoption increases is to identify the EV charging infrastructure that has already been implemented within and close to the County. This memo summarizes existing EVSE (electric vehicle service equipment) within Madera County and its local jurisdictions. The primary source of this data is the Alternative Fuels Data Center<sup>52</sup> (AFDC) and has been supplemented by review using other online sources such as PlugShare<sup>53</sup> and Google Maps. The Alternative Fuels Data Center is an online database of fueling stations hosted and maintained by the US Department of Energy (DoE) and includes stations for battery electric, hydrogen, natural gas, ethanol, and other non-petroleum vehicles. PlugShare is a crowd-sourced online mapping tool that allows plug-in EV drivers to provide up-to-date details on public chargers in the field. According to these online sources, at the time of this writing, there were approximately 120 Level 2 and Level 3 (DC Fast Charge) EV chargers in Madera County.

In general terms, **Level 2** chargers represent equipment running on 220-240 volts and usually capable of outputting 6-12 kW of power, though many Level 2 charging models can output up to 19.2 kW when supplied by 100A circuits. These chargers can typically add between 15 and 40 miles of range to an electric vehicle per hour of charge, depending on the amperage of the circuit and the charging capabilities of the vehicle. There are two main connector types for Level 2 chargers. The most typical connection is the **J1772** connector, which is compatible with all recent and current plug-in vehicles (although Tesla vehicles need to use an adapter that is supplied with the car). The less typical, but often faster, connector is the **Tesla** connector. This connector is only compatible with Tesla vehicles, and there is currently no approved adapter to connect a Tesla charger to a non-Tesla vehicle. It should be noted that, while most Tesla Destination chargers (the kind currently implemented in Madera County) have Tesla connectors, the Company has recently started producing and selling Destination chargers with J1772 connectors.

Due to their relatively slow rate of charging that takes several hours to overnight to re-charge a depleted EV's battery, Level 2 chargers are typically used for the two most common charging applications—residential and workplace charging. Residential charging typically takes place overnight while the EV is parked at its driver's home. The residential charger either belongs to the homeowner or landlord. Workplace charging occurs at the EV driver's place of employment with the charger provided by the employer or property owner/manager. The relatively long nightly parking (dwell) time for residential charging or daily dwell time for workplace charging makes this practical and convenient, and Level 2 charging can be provided at relatively low costs for many applications. Level



**FIGURE A-1: LEVEL 2 CHARGER AT COMMERCIAL MOTEL (PHOTO: PLUGSHARE)**

<sup>52</sup> [https://afdc.energy.gov/fuels/electricity\\_locations.html](https://afdc.energy.gov/fuels/electricity_locations.html)

<sup>53</sup> <https://www.plugshare.com/>

2 chargers are also provided for public use operated by commercial charging networks at hotels, restaurants, and local agencies typically as a customer amenity, often providing free or low-cost charging for patrons. Many models of networked or smart Level 2 chargers are available that can be managed to provide scheduled charging, automated load management, or demand response functionality to avoid charging during peak power demand periods reducing the cost of electricity.



**FIGURE A-2: PUBLIC DUAL-PORT DC FAST CHARGER (PHOTO: PLUGSHARE)**

In general terms, **Level 3** chargers represent equipment running on 400+ volts and capable of between 25- and 350-kW power output. These chargers can add anywhere between 60 miles and 500+ miles of range per hour of charge. There are three main types of connectors associated with DC Fast chargers. The first, and oldest type of charging connector is the **CHAdEMO** connector. This connector was developed in Japan and is typically compatible with vehicles manufactured in Japan and some older European and North American EVs. Typically, CHAdEMO chargers operate at a maximum of 50 kW power. The second, and newest type of DC Fast Charging connector is the **CCS COMBO** (or more commonly known as just "CCS") connector. This connector was developed more recently in Europe and is compatible with most modern EVs produced during the past few years. (Newer Nissan models use CCS chargers, so CHAdEMO is expected to be replaced by CCS going forward.) CCS

COMBO chargers range between 50 and 350 kW power output, making them capable of the fastest maximum charging speeds currently available, depending on the vehicle being charged. It should be noted that these two DC Fast Charge connectors are not typically compatible with lower capacity plug-in hybrid (PHEV) vehicles. The third DC Fast Charge connector is the **Tesla** connector. This is the same connector Tesla vehicles use for Level 2 charging and is deployed at Tesla Superchargers. Tesla superchargers currently output between 72 and 250 kW of power. There are currently no Tesla Superchargers within Madera County, however there are two banks of Tesla Superchargers just south of Madera County at the Herndon Avenue interchange on SR 99 in Fresno County. The predominant Level 2 and Level 3 (DCFC) connectors are displayed below.

### LEVEL 2 Charging



J1772



Tesla

### DC Fast Charging



CHAdEMO



CCS  
Combo

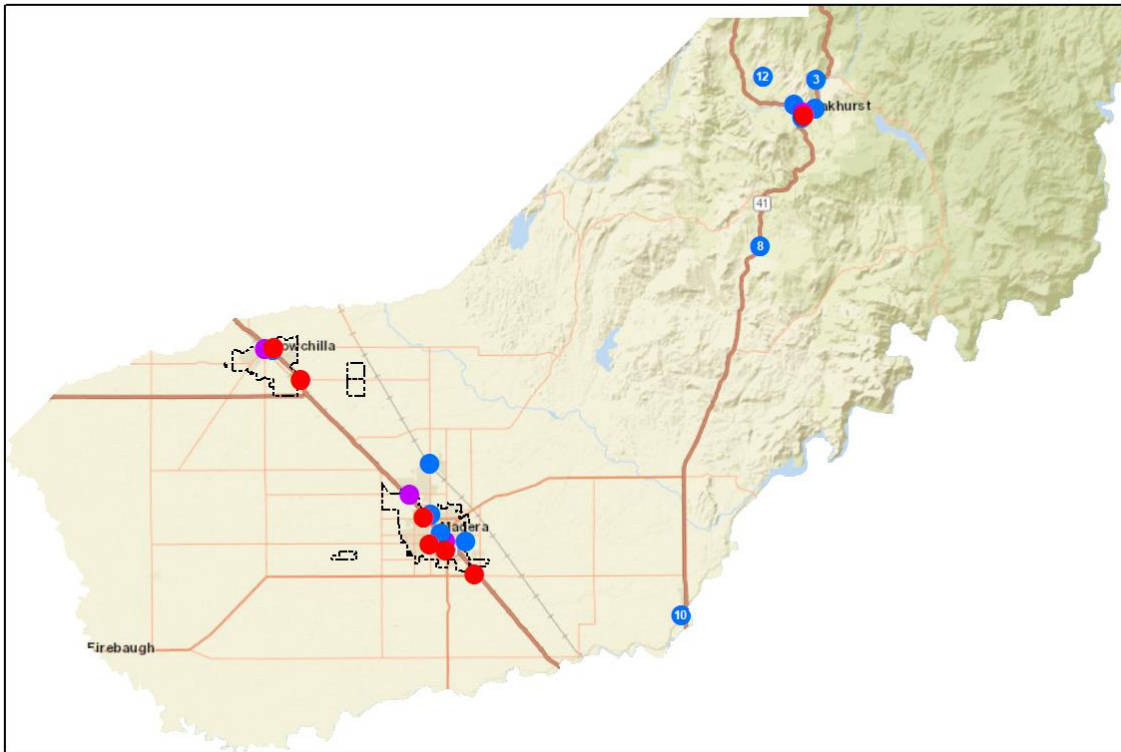


Tesla  
Supercharger

DC Fast Charging is the preferred charging technology for opportunity charging facilities serving travelers along freeway corridors and the general public needing a quick charge while performing short errands like shopping and dining out. On a per-unit basis, DC Fast Chargers are far more expensive to purchase and install than Level 2 chargers and are also more likely to incur demand charges from utilities. The higher capital and electricity costs are passed onto users in terms of higher per-kWh charging costs in exchange for the convenience of much quicker charging speeds.

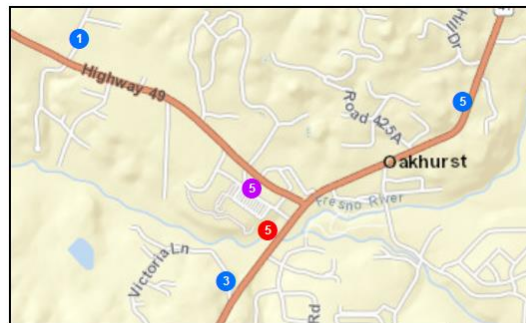
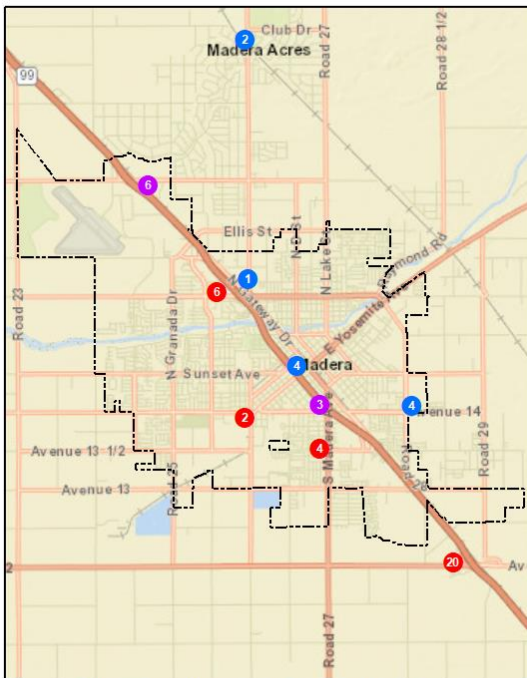
**EXISTING CHARGING INFRASTRUCTURE**

**Figure 3** and **Table 1** show the general locations of existing chargers in Madera County. The table and figure show that approximately half of the chargers are located within the City of Madera, while many of the remaining chargers are located in the foothills to the east and serve travelers heading to or from recreation areas such as Yosemite. The City of Madera has 24 Level 2 and 39 DCFC chargers located within and adjacent to its boundaries. The City of Chowchilla has 2 Level 2 and 12 DCFC chargers within or adjacent to its boundaries. Oakhurst, which is not an incorporated city, has 14 Level 2 and 16 DCFC chargers, while the nearby community of Ahwahnee has 12 Level 2 chargers. As described in the introduction, Level 2 chargers typically operate at less than 25 kW peak power, while DCFC chargers currently typically operate between 50 kW and 350 kW peak power. The table breaks down DCFC chargers by power output showing that of the 67 total DCFC chargers, 40 operate at 50 kW, 12 operate greater than 50 kW but less than 150 kW, 9 operate between 150 kW and 249 kW, zero operate at 250 kW, and 6 operate at 350 kW (currently the highest power DCFC chargers readily available to the public).



**Existing Stations - Charge Level**

- DCFC
- L2
- L2 + DCFC



Source: Alternative Fuels Data Center (AFDC)



**FIGURE A-3: EV CHARGERS BY LOCATION**

**TABLE A-1: EV CHARGERS BY LOCATION**

Location	<50 kW	50 kW	100 kW-149 kW	150 kW-200 kW	350 kW	250 kW	Total Chargers
<b>Madera</b>	24	27	4	6	2	-	63
<b>Chowchilla</b>	2	4	8	-	-	-	14
<b>Oakhurst</b>	14	9	-	3	4	-	30
<b>Coarsegold</b>	8	-	-	-	-	-	8
<b>Ahwahnee</b>	12	-	-	-	-	-	12
<b>Total Madera County</b>	<b>60</b>	<b>40</b>	<b>12</b>	<b>9</b>	<b>6</b>	<b>-</b>	<b>127</b>

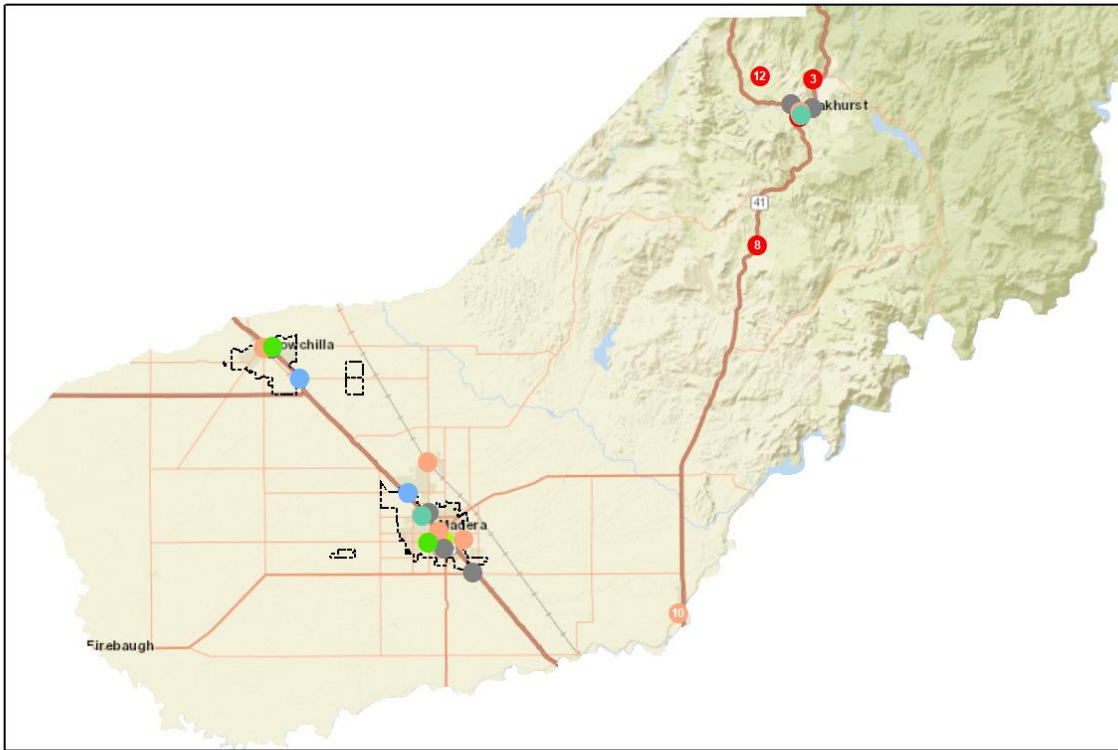
Sources: AFDC, Plugshare

**Figure A-3** and **Table A-1** show the location and number of chargers by charging network or provider. The data shows that **ChargePoint** has the highest number of total chargers at 33. ChargePoint has 23 Level 2 (J1772) chargers and 10 DCFC (5 CHAdeMO and 5 CCS COMBO) chargers. There are 28 **Tesla** chargers located primarily at hotels. It should be noted that these Tesla chargers are not the more widely recognized Level 3 250kW Tesla Superchargers. Instead, they are Tesla Destination chargers, which are Level 2 chargers predominantly located in hotels and higher end retail centers. These chargers are located at 5 different locations in Madera County. **EV Connect** has 14 chargers in the County, including 7 CHAdeMO and 7 CCS COMBO chargers, in two locations. **Electrify America** has 15 chargers in the County, consisting of 2 CHAdeMO and 13 CCS COMBO chargers, in two different locations. **eVgo** has 4 chargers in the County, consisting of 2 CHAdeMO and 2 CCS COMBO chargers, in two locations. **Blink** Network has 3 chargers, consisting of 1 Level 2 J1772 and 2 Level 3 CHAdeMO chargers, in one location. Approximately 25% of the chargers in the County are not networked.

TABLE A-2: EV CHARGERS BY CHARGING NETWORK PROVIDER

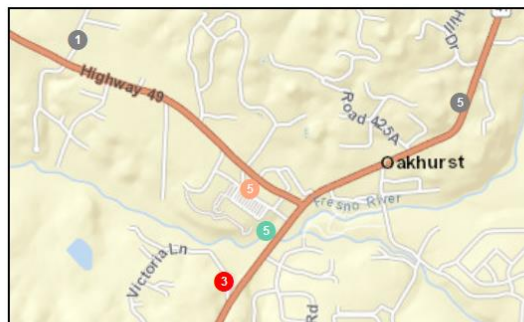
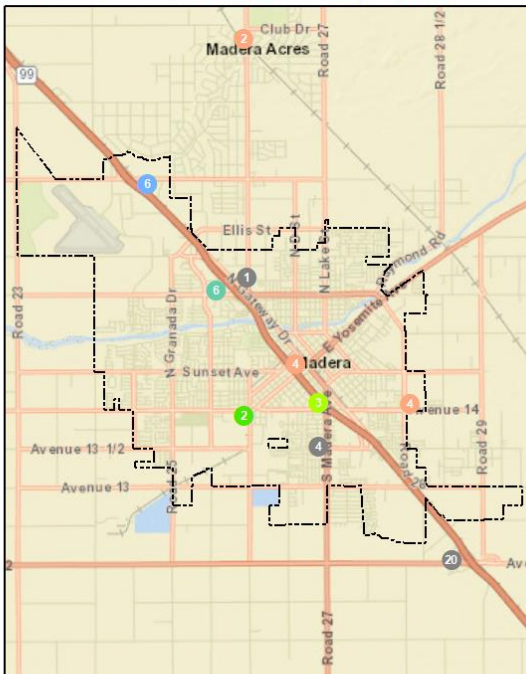
EV Charging Network	<50 kW	50 kW	100 kW-149 kW	150 kW-200 kW	350 kW	250 kW	Total Chargers
<b>Blink Network</b>	1	2	-	-	-	-	3
<b>ChargePoint Network</b>	23	10	-	-	-	-	33
<b>Electrify America</b>	0	2	-	7	6	-	15
<b>EV Connect</b>	2	-	10	2	-	-	14
<b>eVgo Network</b>	0	4	-	-	-	-	4
<b>Tesla Destination</b>	28	-	-	-	-	-	28
<b>Non-Networked</b>	6	22	2	-	-	-	30
<b>Total Madera County</b>	<b>60</b>	<b>40</b>	<b>12</b>	<b>9</b>	<b>6</b>	<b>-</b>	<b>127</b>

Sources: AFDC, Plugshare



**Existing Stations - Provider**

- Blink
- ChargePoint
- Electrify America
- EV Connect
- eVgo
- Tesla Destination
- Non-Networked



Source: Alternative Fuels Data Center (AFDC)



**FIGURE A-4: EV CHARGERS BY NETWORK PROVIDER**

**Table A-3** and **Figure A-5** show the location and number of chargers by connector type. Of the 60 Level 2 charging connectors located in Madera County, 41 are the most common J1772 connector while 18 are Tesla Destination chargers and one is a NEMA 14-50 outlet that would require a vehicle’s charging cable to function. Of the 67 Level 3 DC Fast Charge connectors, 29 are the older CHAdeMO connectors while 38 are the newer CCS Combo connectors.

**TABLE A-3: EV CHARGERS BY CONNECTOR TYPE**

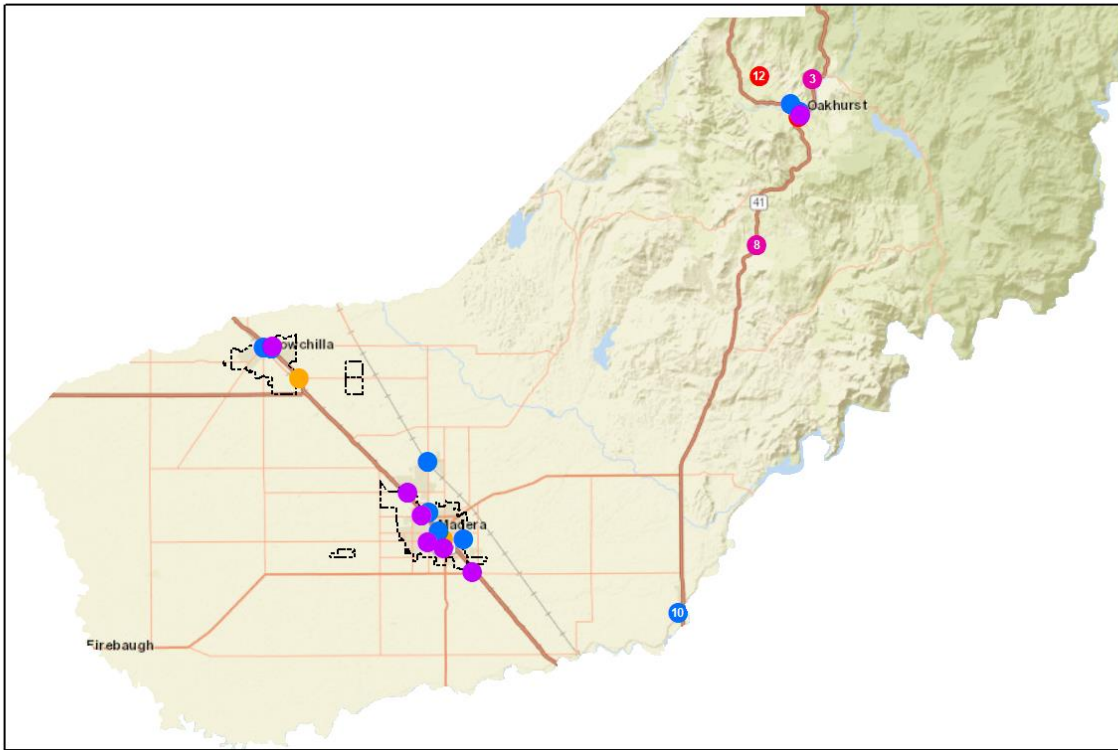
<b>Connector Type</b>	<b>Level 2</b>	<b>Level 3 (DCFC)</b>	<b>Total Chargers</b>
<b>J1772</b>	41	-	41
<b>Tesla Destination</b>	18	-	18
<b>NEMA 14-50</b>	1	-	1
<b>CHAdeMO</b>	-	29	29
<b>CCS COMBO</b>	-	38	38
<b>Total Madera County</b>	<b>60</b>	<b>67</b>	<b>127</b>

Sources: AFDC, Plugshare

The majority of existing EV chargers, especially DC Fast chargers are located along the Highway 99 corridor clustered in Madera and Chowchilla or near the intersection of routes 41 and 49 in Oakhurst. As shown in figures 5-13 below, these public DC Fast chargers are generally located in publicly accessible parking lots close to retail and other amenities of potential interest to EV drivers. Most public Level 2 chargers in Madera County are considered destination chargers (non-residential, non-workplace). These are typically located at public destinations such as hotels, campgrounds, RV parks, casinos, or are co-located with DC Fast Chargers for use by drivers with more available time for charging.

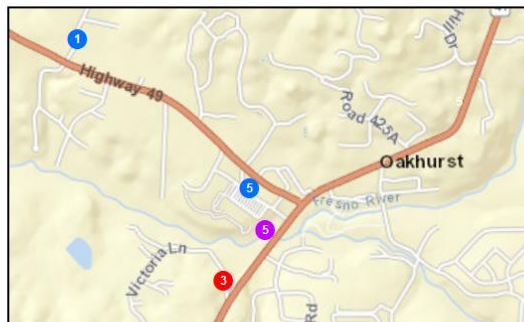
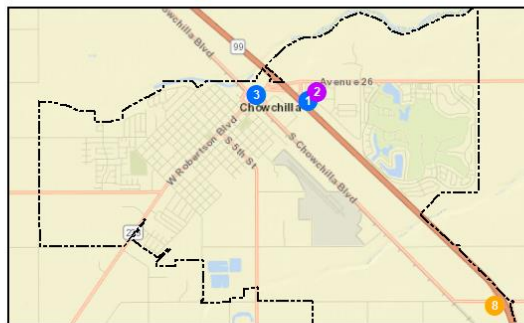
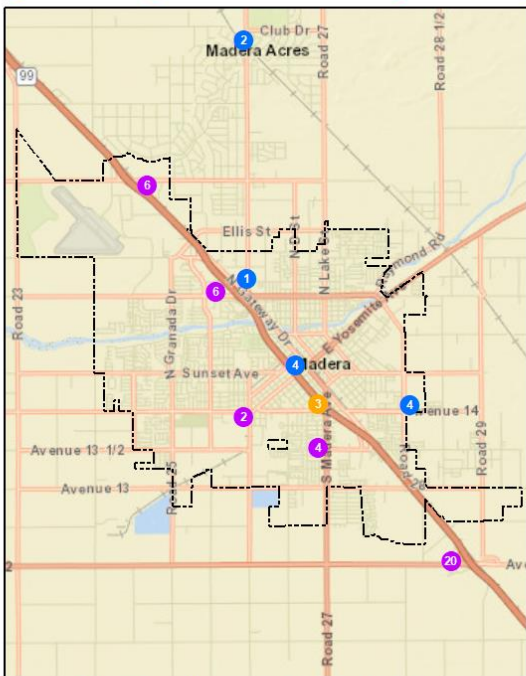
**Figure A-6** through **Figure A-15** show photographic examples of charging infrastructure and vehicle charging at locations within Madera County.





**Existing Stations - Connector Type**

- J1772
- J1772 + TESLA
- TESLA
- CHADEMO J1772
- J1772 + CHADEMO + CCS



Source: Alternative Fuels Data Center (AFDC)



**FIGURE A-5: EV CHARGERS BY CONNECTOR TYPE**



**FIGURE A-6: 2 DC FAST AND 2 LEVEL 2 CHARGERS, NEAR JACK IN THE BOX, 40050 CA-49, OAKHURST (PHOTO: PLUGSHARE)**



**FIGURE A-7: 4 EVGO DC FAST CHARGERS, OAKHURST (PHOTO: PLUGSHARE)**



**FIGURE A-8: 2 EVGO DC FAST CHARGERS, HIGHWAY 99 EXIT 170, CHOWCHILLA (PHOTO: PLUGSHARE)**



**FIGURE A-9: CHARGEPOINT DC CORRIDOR SITE WITH A DC FAST CHARGER & L2 CHARGER (DUAL PORT), 105 CHOWCHILLA BVD, CHOWCHILLA (PHOTO: PLUGSHARE)**



**FIGURE A-10: 4 DC FAST CHARGERS, CHOWCHILLA SHELL STATION, 18208 AVE 24, CHOWCHILLA (PHOTO: PLUGSHARE)**



**FIGURE A-11: 2 EV CONNECT DC FAST CHARGERS, 1750 AVENUE 17, MADERA (PHOTO: PLUGSHARE)**



**FIGURE A-12: 2 ELECTRIFY AMERICA DC FAST CHARGERS, WALLMART, 1977 W CLEVELAND AVE, MADERA (PHOTO: PLUGSHARE)**



**FIGURE A-13: 2 DC FAST CHARGERS, CALTRANS' MADERA MAINTNEANCE STATION, 125 WEST ALMOND AVE, MADERA (PHOTO: PLUGSHARE)**





**FIGURE A-14: 2 EVGO DC FAST CHARGERS, SAVEMART 1504 HOWARD RD, MADERA (PHOTO: PLUGSHARE)**



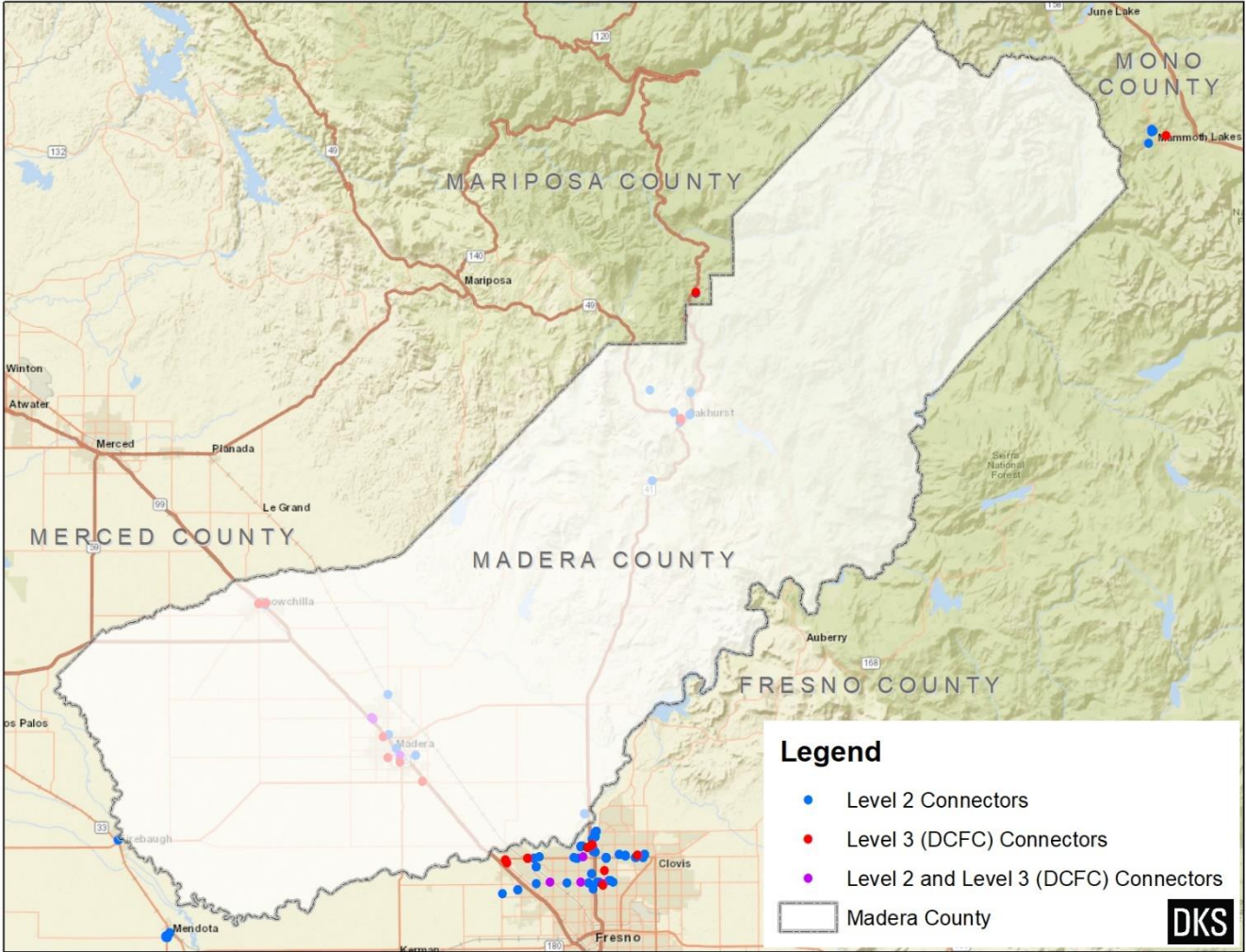
**FIGURE A-15: 10 DC FAST CHARGERS, EZ TRIP TRAVEL CENTER 28577 AVE 12, MADERA (PHOTO: PLUGSHARE)**

**Table A-4** and **Figure A-16** show the locations of chargers within 5 miles of Madera County, but not within Madera County itself. The table and figure both show a large concentration of chargers in northern Fresno County, just south of the county line. These are concentrated in the cities of Fresno and Clovis, with these two cities combining for over 250 charging connectors (mostly Level 2) within 5 miles of the Madera County border. It should be noted that these are not based on driving distance and are based on straight line distances. Mono County, to the east of Madera County has over 25 chargers in the town of Mammoth Lakes, while Mariposa County, to the northeast has 9 chargers along SR 41 in the town of Fish Camp. In total, according to AFDC data (not verified using Plugshare or other sources) there are over 300 chargers within 5 miles of Madera County. Of these, approximately two-thirds of these are Level 2 chargers.

TABLE A-4: EV CHARGERS WITHIN 5 MILES OF MADERA COUNTY

City (County)	Level 2	Level 3 (DCFC)	Total Chargers
Clovis (Fresno)	11	4	15
Fresno (Fresno)	183	55	238
Mendota (Fresno)	26	-	26
Firebaugh (Fresno)	3	-	3
Fish Camp (Mariposa)	1	8	9
Mammoth Lakes (Mono)	18	8	26
<b>Total</b>	<b>242</b>	<b>75</b>	<b>317</b>

Sources: AFDC, Plugshare



Source: Alternative Fuels Data Center (AFDC)

**FIGURE A-16: EV CHARGERS WITHIN 5 MILES OF MADERA COUNTY**

## **APPENDIX B. COMMUNITY ENGAGEMENT SUPPLEMENTAL MATERIALS**

---

### **THE VOICE OF THE COMMUNITY**

**SUPPLEMENTAL STAKEHOLDER OUTREACH**

To provide specialized input on the Madera County ZEV Readiness Plan and to better round out the primary community engagement effort, the project team also conducted supplemental stakeholder outreach. This took the form of one-off meetings, phone calls and emails. **Table B-1** below provides a list of these additional contacts.

**TABLE B-1: LIST OF SUPPLEMENTAL STAKEHOLDER OUTREACH CONTACTS**

ORGANIZATION	CONTACT NAME
CITY OF CHOWCHILLA	Robin Roman
MADERA COUNTY PLANNING	Monty Cox
MADERA COUNTY PLANNING	Jamie Bax
MADERA COUNTY PLANNING	Philip Toler
EV CONNECT	Rolf Nygaard
EV CONNECT	Jon Leicester
LYFT	Calli Cenizal
LYFT	Sam Arons
LYFT	Paul Augustine
LYFT	Jon Walker
STREETLIGHT DATA	Shayne Nelson
VOLTA CHARGING	Colin Sng
VOLTA CHARGING	Sam Cho
VOLTA CHARGING	Brian Bowen
WATTEV	(Various representatives)

## GOODS MOVEMENT STAKEHOLDER MEETING NOTES

### MCTC EV CHARGING STAKEHOLDER WORKSHOP

MARCH 21, 2022, 1:00 PM ZOOM

#### ATTENDEES

---

**DKS Associates:** Mike Usen & Josie Buchanan

**Frontier:** Thomas Paddon

**MCTC:** Dylan Stone & Patricia Taylor

#### Stakeholders:

- Jay Mahil - Creekside Farming Company
- Michael Nido – Madera County Farm Bureau
- Laura Gutile – Madera County Farm Bureau
- Steve Levake - EvapCo
- David Padilla & Alec Kimmel - Caltrans District 6

#### DISCUSSION NOTES

---

#### What is your understanding of ZEV/electric vehicle technology?

- Creekside Farming (Jay) – there is not much electrification of farm vehicles and equipment, starting to see electric pick ups
  - Belief there is not currently much available
  - Some small vehicles – John Deere gators move away from ATVs to small electric utility vehicles
    - They do not currently have enough charging capacity for a full day of work
    - Understanding that this tech is improving but it is not there for agriculture industry currently

#### Benefits and Barriers

Jay Mahil:

- Currently our industry uses a lot of fuel
  - If utilization and vehicle cost were low enough to pencil out, I think farmers/manufacturers would look at it but I do not think it would be a 180 degree immediate transition
  - Vehicle recently had to be retired even though they were purchased and functional because of state emission standards. So grant funding would be important for the cost to be comparable to what it is currently.
- Small horsepower electric tractor is currently only option on the market. This is not enough power for most large-scale farmers

- Maybe a hybrid model where smaller tractors can be electrified, and diesel equipment can still be used for larger jobs.
- There is discussion about autonomous tractors, feeling that that has even more interest because of current labor shortages.
- Electrification does not seem to be as large of a demand
  - Autonomous tractors are diesel powered
- Fueling materials are kept on site, how would this work with electric vehicles – charging stations would need to be onsite – especially for farms that have 100 + tractors cannot take them down to charging station. Also concerns about blackouts that are common in the region

Laura Gutile – 18 acre pistachio farm

- Needing electric on site would be a concern, also there is a high interest for autonomous vehicles due to the current shortage
  - Concern that demands from the AG industry would shut down the power grid

Steve (EvapCo) – manufacturing perspective:

- Worked here for 30 + years – think of for the future as semis electrify etc. – we have in industrial park area guess that 100 + trucks are coming through the area every day and idling there for 2-3 hours.
- Idea for a long term strategy of putting charging infrastructure in the staging area
  - Currently staging areas lead to people parking on the street
  - Steve – industrial parks – need for a place for trucks to stage
- MCTC – this is on the table for us – expansion at the end of the year –
- If we go to electric charge want a place to charge them at industrial places
- Agriculture – there is potential for a similar model to be set up for a processing facility.

## Funding and Financing

Michael (Farm Bureau)

- Approval processes are long – about 50% less than the purpose of new equipment, 10-year contracts involve yearly reporting.
  - frustration of having to get rid of equipment because it does not meet CA emission standards.
- Laura – no experience with grants, sits on EJAG board – so hears about a lot. Have heard that reporting can be burdensome. Has not personally looked to upgrade anything – this will definitely make her look into grants.
  - 10-year period to pay off ATV she currently has
  - Thinks grants are great, it's the paperwork that is the issue.



## Funding and Financing

Michael (Farm Bureau)

- Approval processes are long – about 50% less than purpose of new equipment, 10-year contracts involve yearly reporting
  - frustration of having to get rid of equipment because it does not meet CA emission standards
- Laura – no experience with grants, sits on EJAG board – so hears about a lot. Have heard that reporting can be burdensome. Has not personally looked to upgrade anything – this will definitely make her look into grants.
  - 10-year period to pay off ATV she currently has
  - Thinks grants are great, it's the paperwork that is the issue.

GOODS MOVEMENT STAKEHOLDER MEETING PRESENTATION

# GOODS MOVEMENT INDUSTRY STAKEHOLDER WORKSHOP

**THOMAS PADDON**

ZEV PROGRAM MANAGER, FRONTIER ENERGY

[tpaddon@frontierenergy.com](mailto:tpaddon@frontierenergy.com)

925-359-9184



*Your Madera*  
2046

# AGENDA

- **PROJECT OVERVIEW**
- **DISCUSSION**
- **NEXT STEPS**





# PROJECT OVERVIEW



- Assess existing ZEV infrastructure environment
- Identify key community challenges and barriers to advancement
- Recommend infrastructure improvements and investments
- Identify implementation strategies and policies to promote ZEV infrastructure adoption
- Provide stakeholders with tools to procure, site and install ZEV infrastructure

## DISCUSSION TOPICS



- Benefits and Barriers to Electrification
- Infrastructure
- Funding/Financing
- Group Survey

# NEXT STEPS



# THANK YOU

**THOMAS PADDON**

ZEV PROGRAM MANAGER, FRONTIER ENERGY

tpaddon@frontiereng

ergy.com 925-359-

9184



*Your Madera*  
2046



# ELECTRIC VEHICLE CHARGING STAKEHOLDER MEETING NOTES

## MADERA COUNTY TRANSPORTATION COMMISSION ZEV STUDY

### MCTC EV CHARGING STAKEHOLDER WORKSHOP

MARCH 21, 2022, 10:00 AM

ZOOM

### ATTENDEES

---

**DKS Associates:** Mike Usen, Veronica Sullivan, Josephine Buchanan

**Madera County Transportation Commission:** Dylan Stone, Patricia Taylor

**Frontier:** Thomas Paddon

### Stakeholders:

**Tesla** – Joseph Sharp, Tessa Waldman, Ron

**ChargePoint** – Tony Chang

**Electrify America** – Andrew Dick

**EV Connect** – Rolf Nygaard

### DISCUSSION NOTES

---

#### What charging infrastructure is currently planned in Madera County?

- Ron (Tesla) – high speed charging recently installed in Oakhurst. Madera level 2 charger is under construction, Chowchilla is also getting one.

Current Tesla charging infrastructure in the region includes:

- > Chowchilla – 8 stalls
- > Oakhurst – 8 stalls
- > Madera – 16 stalls
  - All 250 level
- Joseph Sharp (Tesla) – Madera is territory – over the next 6 to 12 months more investment is anticipated
  - Nothing currently planned for East 41 corridor or the Riverstone Area, but not for lack of trying – hoping this will change in midterm.



- Electrify America – lots North of Madera under construction (Merced) nothing currently announced in Madera County

### **Other than funding support what else can be done?**

*MCTC – Our agency does a lot of long-range planning, is there a big picture strategy for Madera – 5 million vehicles into Yosemite every year.*

- Electrify America – Adopted corridors and metro approach to investment – station right in Madera trying to close some gaps along the 99.
  - Working to close gaps between Fresno and Merced. Trying to increase corridor investment and add more metro areas in the future.
  - AB 970 and AB 1236 – lower risk to target area where there is a clear and consistent process.
    - o That being said, they will continue to try to increase density of chargers in the region.
- ChargePoint (Tony Chang) – it’s all about the EV driver in the end – we don’t want drivers to make special trips.
  - 4 area working with local agencies:
    - Electrifying objectives
    - Best practices
    - Planning process
    - Local legislation
  - ChargePoint - Trying to scale up especially in school districts. Working with federal agencies, working surrounding Yosemite specifically
    - idea to put chargers along scenic viewpoints
  - Tesla agree Oakhurst would be a great fit, there are not currently many chargers around Yosemite
  - Tessa (Tesla) – AB 1236, AB 970 – main ways to reduce barriers to install charging. Encourage county for federal discretionary grant funding \$2.5B in grant funding going out in next few months. Way to serve underserved areas in Madera, target rural areas.
    - o San Joaquin Clean Cities Coalition – do a great job of facilitating ride and drives, EVs 101 – go out and communities, good stakeholder
  - Identify city/county owned property where chargers could be developed
  - Tony Chang – analysis from working with other government agencies

### *County Identified Prime Areas for Development:*

- Hwy 41 corridor - 4 new housing development and economic centers are being developed.
- Avenue 15 and Hwy 41 corridor north of Fresno County line. Adapting this corridor with new infrastructure and growth.
- Areas along Hwy 99, Avenue 7 there are a lot of areas there looking for new warehouses and distribution.

- New Casino planned in Northern Madera.
- Hwy 17 area has plans for housing development.
- Lots of new housing development planned in Chowchilla.
- Southern part of state route 101 – where a lot of new growth for county is.
- New connection of Avenue 12 and 15 (Rio Mesa Blvd) –main thoroughfare.
- Near valley children hospital – new developments – Gunner Ranch Development – mix of houses and jobs.

*MCTC Note: MCTC – projection for growth has changed dramatically over the few estimates – the Department of Finance (DOF) projected by 2045 population of 200,000 – 40-45,000 more people than exist now. This prediction had about 15,000 less than predicted in the last estimate.*

# EV INDUSTRY STAKEHOLDER MEETING

**MIKE USEN, AICP**

ELECTROMOBILITY & RESILIENCY LEAD

[Mike.usen@dksassociates.com](mailto:Mike.usen@dksassociates.com)

206.288.3174



*Your Madera*  
2046

# WELCOME!

- Tessa Waldman, Tesla
- Sloan Cinelli, Tesla
- Robin Swartout, Tesla
- Cameron Waldman, Tesla
- Rolf Nygaard, EV Connect
- Jon Leicester, EV Connect
- Brian Bowen, Volta Charging
- Scott Oltmann, Rivian
- Andrew Dick, Electrify America
- Mike Casterline, ChargePoint
- Tony Chang, Charge Point
- Mike Vervair, ChargePoint

# AGENDA

- **PROJECT OVERVIEW**
- **DISCUSSION**
- **NEXT STEPS**





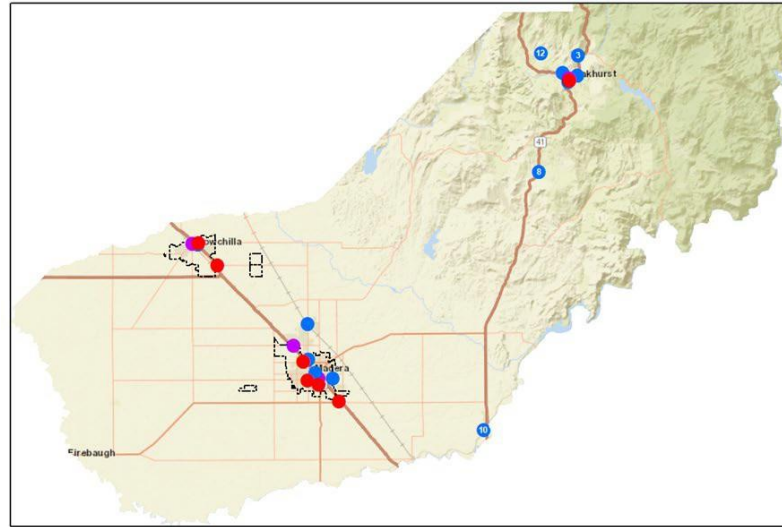
# PROJECT OVERVIEW

- Assess existing ZEV infrastructure environment
- Identify key community challenges and barriers to advancement
- Recommend infrastructure improvements and investments
- Identify implementation strategies and policies to promote ZEV infrastructure adoption
- Provide stakeholders with tools to procure, site and install ZEV infrastructure

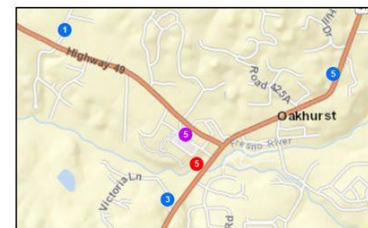
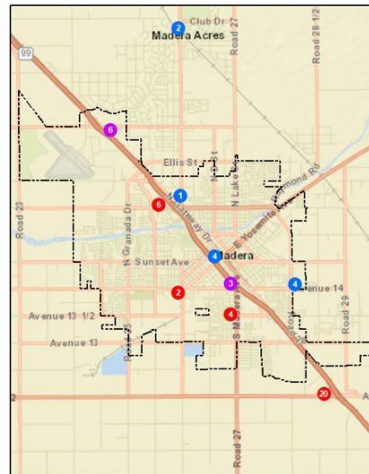
# EXISTING CONDITIONS



# EV CHARGERS BY LOCATION



Existing Stations - Charge Level  
● DCFC ● L2 ● L2 + DCFC



Source: Alternative Fuels Data Center (AFDC)



SOURCE: ALTERNATE FUELS DATA CENTER (AFDC).

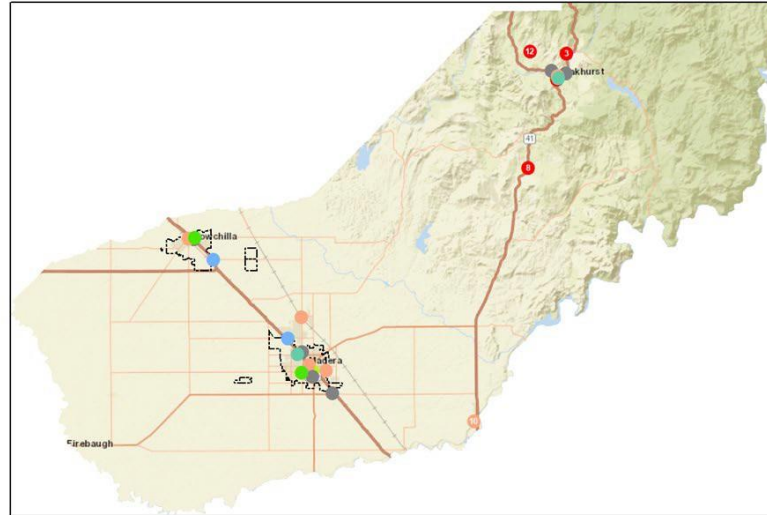


# EV CHARGERS BY LOCATION

Location	<50 kW	50 kW	100 kW-149 kW	150 kW-200 kW	350 kW	250 kW	Total Chargers
Madera	24	27	4	6	2	-	63
Chowchilla	2	4	8	-	-	-	14
Oakhurst	14	9	-	3	4	-	30
Coarsegold	8	-	-	-	-	-	8
<u>Ahwahnee</u>	12	-	-	-	-	-	12
<b>TOTAL MADERA COUNTY</b>	<b>60</b>	<b>40</b>	<b>12</b>	<b>9</b>	<b>6</b>	<b>-</b>	<b>127</b>

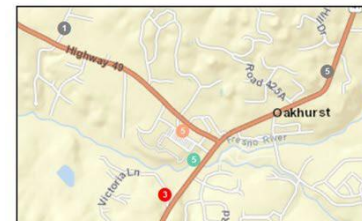
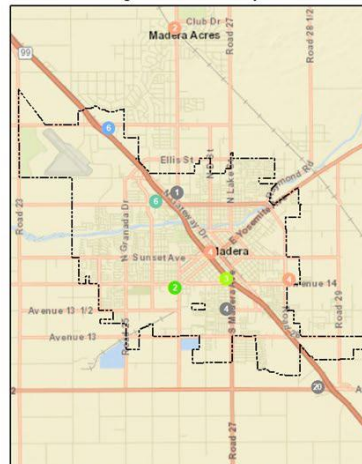
SOURCE: AFDC, PLUGSHARE

# EV CHARGERS BY NETWORK PROVIDER



Existing Stations - Provider

- Blink
- ChargePoint
- Electrify America
- EV Connect
- eVgo
- Tesla Destination
- Non-Networked



Source: Alternative Fuels Data Center (AFDC)



SOURCE: ALTERNATE FUELS DATA CENTER (AFDC).



# EV CHARGERS BY CONNECTOR TYPE

Connector Type	Level 2	Level 3 (DCFC)	Total Chargers
J1772	41	-	41
Tesla Destination	18	-	18
NEMA 14-50	1	-	1
CHAdeMO	-	29	29
CCS COMBO	-	38	38
<b>TOTAL MADERA COUNTY</b>	<b>60</b>	<b>67</b>	<b>127</b>

SOURCE: ALTERNATE FUELS DATA CENTER (AFDC).

# DISCUSSION



# MADERA COUNTY

- Key Corridors
- Travel Patterns
- Anticipated Future Changes



# DISCUSSION QUESTION

1. What charging infrastructure investments are planned?
2. What incentives are needed?
3. What disincentives could be removed?
4. Other than funding support, what else can be done?
5. Advice regarding more EV travel/reduce barriers?

# NEXT STEPS



# THANK YOU

**MIKE USEN, AICP**

ELECTROMOBILITY & RESILIENCY LEAD

[Mike.usen@dksassociates.com](mailto:Mike.usen@dksassociates.com)

206.288.3174



*Your Madera*  
2046



**APPENDIX C: FUNDING**

---

**FUNDING THE ZEV TRANSITION**

## FEDERAL FUNDING

### National Electric Vehicle Infrastructure (NEVI) Program

The infrastructure bill provides a total of \$7.5 billion of federal funding for EV charging infrastructure. A funding source only available to states, the National Electric Vehicle Infrastructure (NEVI) Program, allocates funding to all states to deploy EV charging infrastructure along designated alternative fuel corridors (AFCs).<sup>54</sup> The NEVI program is part of the Infrastructure Investment and Jobs Act, a \$1 trillion infrastructure bill passed by Congress in November 2021.<sup>55</sup> The bill required states to submit their respective NEVI implementation plans to the newly established Joint Office of the Departments of Energy and Transportation<sup>56</sup> by August 2021. California submitted their NEVI plan August of 2022.<sup>57</sup> The California Energy Commission will manage funding solicitations or Grant Funding Opportunities (GFO). The DOT will also establish an additional grant fund for states and localities that require additional assistance. At the time of this writing, further details on the distributing of funding and eligibility have not been released.

### Volkswagen Settlement Funds

Volkswagen's violation of the Clean Air Act by using illegal emissions testing "defeat" devices in approximately 590,000 model year 2009 to 2016 diesel vehicles has resulted in the Volkswagen Settlement Funds.<sup>58</sup> The settlement has different elements, one of which includes zero-emission vehicle investments, amounting to more than \$2.8 billion. California's portion of these funds amounts to \$423 million,<sup>59</sup> assigned to different project categories as shown in **Table C-1**. As of February 2023, about \$70 million of these have been awarded to projects across the state. The different project categories have different eligibility criteria and are administered by different Air Quality Management District (San Joaquin Valley, Bay Area, South Coast). Generally, the funds can be used for projects in the heavy-duty sector (except for one project category that reserves funds for the light-duty sector), including on-road freight trucks, transit and shuttle buses, school buses, forklifts and port cargo handling equipment, commercial marine vessels, and freight switcher locomotives.<sup>60</sup>

---

<sup>54</sup> US Dept. of Energy-Alternative Fuels Data Center: National Electric Vehicle Infrastructure (NEVI) Formula Program: <https://afdc.energy.gov/laws/12744>

<sup>55</sup> US Dept. of Transportation-Federal Highway Administration: Bipartisan Infrastructure Law *National Electric Vehicle Infrastructure Formula Program*: [https://www.fhwa.dot.gov/bipartisan-infrastructure-law/nevi\\_formula\\_program.cfm](https://www.fhwa.dot.gov/bipartisan-infrastructure-law/nevi_formula_program.cfm)

<sup>56</sup> Joint Office of Energy and Transportation: <https://driveelectric.gov/>

<sup>57</sup> California's NEVI implementation plan, as prepared by Caltrans and the California Energy Commission and submitted in August 2022: <https://dot.ca.gov/-/media/dot-media/programs/sustainability/documents/nevi/2022-ca-nevi-deployment-plan-a11y.pdf>

<sup>58</sup> United States Environmental Protection Agency: Volkswagen Clean Air Act Civil Settlement: <https://www.epa.gov/enforcement/volkswagen-clean-air-act-civil-settlement>

<sup>59</sup> National Association of Clean Air Agencies: VW State and Local Agency Information: <https://ww2.arb.ca.gov/resources/documents/californias-beneficiary-mitigation-plan>

<sup>60</sup> California Air Resources Board: Volkswagen Environmental Mitigation Trust for California: <https://ww2.arb.ca.gov/our-work/programs/volkswagen-environmental-mitigation-trust-california>

A minimum of 50% of the funds will be directed to low-income or disadvantaged communities.<sup>61</sup> At the time of this writing, funding for light duty ZEV infrastructure and school buses has been closed, an additional round for school buses may open at a later date.

### **EV Charger Federal Tax Credit**

The Alternative Fuel Refueling Property tax credit extends the EV charger tax incentive for through December 31, 2032. For property of a character subject to an allowance for depreciation (business/investment use property), the credit for all property placed in service at each location is generally the smaller of 30% of the property's cost or \$30,000. The Inflation Reduction Act increased the ceiling to \$100,000 and includes equipment like bi-directional charging. In February 2023, advice was not available from the IRS.

---

<sup>61</sup> California VW Mitigation Trust: <https://www.californiavwtrust.org/ev-infrastructure/>

**TABLE C-1: CALIFORNIA VOLKSWAGEN MITIGATION TRUST PROJECT CATEGORIES**

<b>PROJECT CATEGORY</b>	<b>APPLICATION TYPE</b>	<b>BENEFITING DISADVANTAGED OR LOW-INCOME COMMUNITIES</b>	<b>TOTAL AMOUNT ALLOCATED</b>
<b>ZERO-EMISSION TRANSIT, SCHOOL, AND SHUTTLE BUSES</b>	<u>First-Come/First-Served</u> ONLY TRANSIT AND SHUTTLE BUSES	50%	\$130 million
<b>ZERO-EMISSION CLASS 8 FREIGHT AND PORT DRAYAGE TRUCKS</b>	<u>First-Come/First-Served</u>	50%	\$90 million
<b>ZERO-EMISSION FREIGHT AND MARINE PROJECTS</b>	<u>First-Come/First-Served</u>	75%	\$70 million
<b>COMBUSTION FREIGHT AND MARINE PROJECTS</b>	<u>First-Come/First-Served</u>	50%	\$60 million
<b>LIGHT-DUTY ZERO-EMISSION VEHICLE INFRASTRUCTURE</b>	CLOSED FOR NEW APPLICATIONS	35%	\$10 million
<b>RESERVE (INCL. ADMINISTRATIVE COSTS)</b>			\$63 million
<b>TOTAL</b>		<b>&gt; 50%</b>	<b>\$423 million</b>

Source: <https://ww2.arb.ca.gov/resources/documents/californias-beneficiary-mitigation-plan>

## Summary of Federal Funding

Table C-2 below provides a summary of federal funding opportunities and relevant key information for each.

**TABLE C-2: SUMMARY OF FEDERAL FUNDING SOURCES**

SOURCE	PROGRAM/AWARD NAME	ELIGIBLE APPLICANTS	CATEGORY	APPLICATION TYPE	BENEFITING DISADVANTAGED OR LOW-INCOME COMMUNITIES	FUNDING AMOUNT
<b>U.S. DOT-FEDERAL HIGHWAY ADMINISTRATION</b>	National Electric Vehicle Infrastructure Program (State Allocations)	States	DCFC along highway corridors	N/A: Awarded to States on a formula basis	40% as per Justice40	Varies by formula
<b>U.S. DOT-FEDERAL HIGHWAY ADMINISTRATION</b>	National Electric Vehicle Infrastructure Program (DOT Allocation)	States	EVSE, H2 and Alt. Fuel stations in community locations	Competitive Grant	40% as per Justice40	Up to 80%
<b>U.S. DOT-FEDERAL TRANSIT ADMINISTRATION</b>	Low or No Emission Vehicle Program	State and Local Government	Low- and Zero-emission buses and shuttles, charging stations for transit operations	Competitive Grant	Varies	Varies
<b>U.S. DOT</b>	Rebuilding American Infrastructure with Sustainability and Equity (RAISE)	State and Local Government, Transit Agencies, Non-profits	Multi-modal, multi-jurisdictional capital project	Discretionary Grant	0	Varies

<b>SOURCE</b>	<b>PROGRAM/AWARD NAME</b>	<b>ELIGIBLE APPLICANTS</b>	<b>CATEGORY</b>	<b>APPLICATION TYPE</b>	<b>BENEFITING DISADVANTAGED OR LOW-INCOME COMMUNITIES</b>	<b>FUNDING AMOUNT</b>
<b>U.S. EPA</b>	Clean School Bus Funding	Student Transportation Providers	School buses and charging infrastructure	Competitive Grant	CURRENTLY CLOSED	Up to \$5 Million (last round)
<b>U.S. EPA</b>	Clean School Bus Technical Assistance	School Districts	Planning tools and advice	Open	N/A	N/A

## STATE SPECIFIC CALIFORNIA PROGRAMS

The following incentive programs and projects are specific to California, administered and/or funded by state agencies, such as the California Air Resources Board (CARB)<sup>62</sup> or the California Energy Commission (CEC).<sup>63</sup> Some of the funding available in California-specific programs derives from revenue continually generated in the state's greenhouse gas emissions cap-and-trade program<sup>64</sup> or the Low Carbon Fuel Standard (LCFS).<sup>65</sup>

### **CALeVIP 2.0 Project: Golden State Priority Project (GSPP)**

The Golden State Priority project will provide a DC Fast Charger rebate and currently includes the Central and Eastern region counties, including Madera County and may add additional regions as funding availability allows. The application window opened January 24<sup>th</sup>, 2023, and will close March 10<sup>th</sup>, 2023 with \$10 million allocated to the Central region and \$20 million to the Eastern region. Funding is only available for sites located within DACs or low-income communities though subsequent incentive projects under CALeVIP 2.0 may fund projects outside of DACs and LICs.

Site requirements no longer require 24/7 site access and has been reduced to a minimum of 18 hours per day, 7 days a week, excluding holidays. Only CCS will be eligible for funding, Tesla and CHAdeMO may be installed, but will not be considered for funding. Chargers must also be networked (Wifi, ethernet, or cellular connection) and use OCPP. Construction cannot have started prior to the close of the application window.

4-20 connectors can be funded and up to 50% of total approved costs covered by the program. Costs incurred starting September 1, 2022, will be eligible. **Table C-3** outlines the rebate caps per active connector.

---

<sup>62</sup> California Air Resources Board: <https://ww2.arb.ca.gov/>

<sup>63</sup> California Energy Commission: <https://www.energy.ca.gov/>

<sup>64</sup> California Air Resources Board: Cap-and-Trade Program: <https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program>

<sup>65</sup> California Air Resources Board: Low Carbon Fuel Standard: <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard>

**TABLE C-3: GOLDEN STATE PRIORITY PROJECT REBATE CAPS**

<b>GUARANTEED OUTPUT PER ACTIVE CONNECTOR</b>	<b>REBATE CAPS PER ACTIVE CONNECTOR</b>
<b>150-275 KW</b>	up to \$55,000 per active connector
<b>275 KW+</b>	275 kW+: up to \$100,000 per active connector
<b>BELOW 150 KW</b>	Below 150 kW: no funding

Source: <https://calevip.org/incentive-project/golden-state-priority-project>

### **Low Carbon Fuel Standard (LCFS)**

Though not a direct source of rebates, incentives, or other upfront funding, the Low Carbon Fuel Standard (LCFS) is a market-based approach to incentivizing clean energy administered by CARB. The LCFS creates a marketplace where air polluters may acquire credits to continue to operate, while clean energy users sell credits to generate revenue.<sup>66</sup>

Owners of EV chargers, utility distributors, and EV owners may be eligible for California LCFS credits, as long as the EV charging is metered, outlined by . EV charging must be metered to qualify for LCFS credit. The owner of a public charger can claim LCFS credits if the charger is publicly available. While in the case of residential charging, the base LCFS credit (similar to the LCFS credit from a public charger) may be claimed by the utility distributor while an incremental credit may be claimed by the EV owner as long as charging is metered.<sup>67</sup>

LCFS credits have the potential to generate a significant stream of revenue for the charging station owner or the utility. A 7.2 kW Level 2 charger could generate about \$1,725 of LCFS credits annually if it is utilized about 7-8 hour per day and 3-5 days per week, at an LCFS credits price of \$200 per ton. The LCFS credit value is subject to market fluctuation and has been decreasing since mid-2021. In February 2023, the average price was \$62.90.<sup>68</sup>

LCFS credits could be a revenue stream and potentially offset operating costs or repay capital expenditures of the chargers. Credit prices are expected to remain low through 2024 dues to a surplus of credits. We suggest that cost analysis use a \$50-\$60 per credit.

---

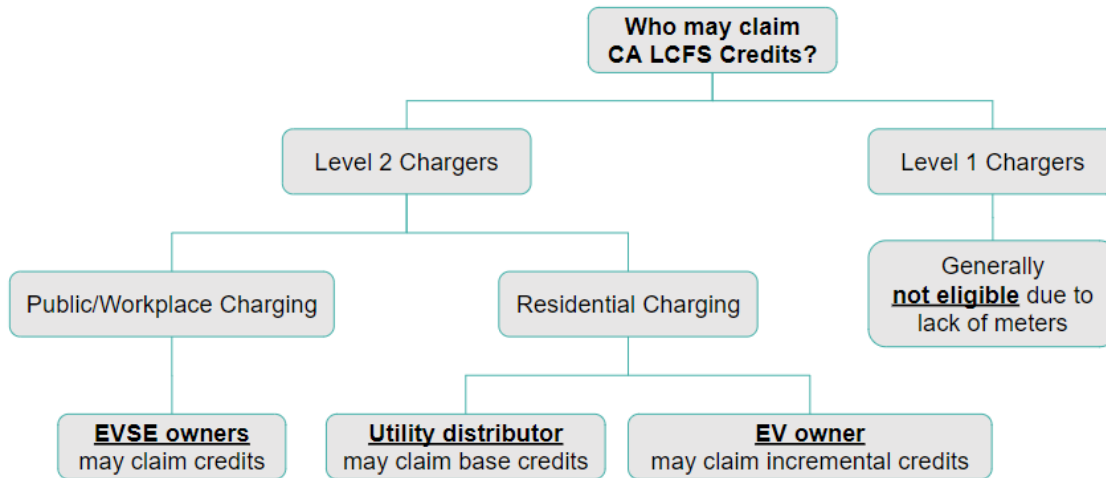
<sup>66</sup> California Air Resources Board: Low Carbon Fuel Standard: <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard>

<sup>67</sup> California Air Resources Board: LCFS ZEV Infrastructure Crediting: <https://ww2.arb.ca.gov/resources/documents/lcfs-zev-infrastructure-crediting>

<sup>68</sup> Weekly LCFS Create Transfer Activity Report: [https://ww2.arb.ca.gov/resources/documents/weekly-lcfs-credit-transfer-activity-reports#footnote3\\_4iqhdms](https://ww2.arb.ca.gov/resources/documents/weekly-lcfs-credit-transfer-activity-reports#footnote3_4iqhdms)



**FIGURE C-1: WHO CAN CLAIM CALIFORNIA LCFS CREDITS**



Source: California Air Resources Board

## UPCOMING STATE OF CALIFORNIA FUNDING

### California Energy Commission (CEC) Investment Plan

In December of 2022, the California Energy Commission (CEC) approved the 2022-2023 Investment Plan Update that increased the budget of the Clean Transportation Program by thirty times 2019 levels with 50% of funding benefitting priority populations.<sup>69</sup> The Clean Transportation Program has been investing in a broad portfolio of alternative fuel transportation projects throughout the state. As part of that program, over four years, the CEC will distribute nearly \$2.9 billion funding as follows:

- \$1.7 billion for medium- and heavy-duty ZEV infrastructure.
- \$900 million for light-duty EV charging infrastructure.
- \$118 million for ZEV manufacturing.
- \$90 million for hydrogen refueling infrastructure.
- \$97 million for emerging opportunities (aviation, marine and vehicle-grid integration).
- \$15 million zero- and near-zero-carbon fuel production and supply.
- \$15 million for low-carbon fuels.
- \$10 million for workforce development.

---

<sup>69</sup> CEC Approves \$2.9 Billion Investment for Zero-Emission Transportation Infrastructure: <https://www.energy.ca.gov/news/2022-12/cec-approves-29-billion-investment-zero-emission-transportation-infrastructure>

## **California Energy Commission (CEC) Convenient, High-Visibility, Low-Cost Level 2 Charging (Chill-2)**

The CEC Clean Transportation Plan (CTP) will fund the Convenient, High-Visibility, Low-Cost Level 2 Charging (CHILL-2) grant. The primary goal of the CHILL-2 grant will be to increase perception of level 2 charging through high-density, highly visible installations. Additional goals include testing business models for charging such as smart charging and observing utilization across site types. \$24 million in total funding is available and the CEC proposes 2 awards totaling \$10 million each and 25% match funding required. Eligible projects will need to include a minimum of 500 level 2 chargers within a 1-mile radius across 2 or more different site types. 50% or more of the chargers must also be installed in disadvantaged/low-income communities. Applications will be due in Feb/March of 2023.<sup>70</sup>

## **California Energy Commission (CEC) Communities in charge**

Communities in Charge will provide funding for light-duty Electric Vehicle Supply Equipment (EVSE). The CEC awarded CALSTART with \$250 million block grant (GFO-20-607) in April of 2021 to design and implement this project. CALSTART will collaborate with CEC and the public to design Communities in Charge projects.<sup>71</sup>

## **California Air Resources Board Clean Mobility Options**

The California Air Resources Board (CARB) offers the Clean Mobility Options program that provides funding for two types of projects, Clean Mobility Projects, and Community Transportation Needs Assessments.<sup>72</sup> The funding window has not been announced.<sup>73</sup>

## **Green School Bus Grants**

As part of California's 2022-2023 budget, Governor Newsom proposed \$1.5 billion of funding for a competitive grant program for school districts to replace nonelectric school buses with electric buses and construct charging stations ("Green School Bus Grants"). Grant awards would be at least \$500,000 each and be prioritized in areas with a high concentration of low-income students and English learners and smaller and more rural school districts. It is estimated that the program could help replace 3,000 older buses with electric buses.<sup>74</sup>

---

<sup>70</sup> California Energy Commission: Convenient, High-Visibility, Low-Cost Level 2 Charging (CHILL-2) grant presentation

<sup>71</sup> California Energy Commission Communities in Charge block grant: <https://www.energy.ca.gov/proceedings/energy-commission-proceedings/communities-charge>

<sup>72</sup> CARB's Clean Mobility Options program: <https://cleanmobilityoptions.org/>

<sup>73</sup> California Energy Commission- 2021-2023 Investment Plan Update for the Clean Transportation Program: <https://www.energy.ca.gov/publications/2021/2021-2023-investment-plan-update-clean-transportation-program>

<sup>74</sup> Green School Bus Grants: <https://lao.ca.gov/Publications/Report/4525>

## Summary of California funding

Table C-4 below provides a summary of California funding programs related to ZEV infrastructure and relevant key information for each.

**TABLE C-4: SUMMARY OF CA ZEV INFRASTRUCTURE FUNDING**

SOURCE	PROGRAM/AWARD NAME	ELIGIBLE APPLICANTS	CATEGORY	APPLICATION TYPE	BENEFITING DISADVANTAGED OR LOW-INCOME COMMUNITIES	FUNDING AMOUNT
CEC	CALeVIP GSPP	Site owner or their authorized agent	DCFC-150kW-274.99kW	Rebate	100%	Up to 50% of project costs capped at \$55,000 per connector
CEC	GSPP	Site owner or their authorized agent	DCFC-274kW+	Rebate	100%	Up to 50% of project costs capped at \$100,000
CA	LCFS	Electric Utilities, EVSE and EV owners	Clean Energy Credits	LCFS Marketplace	n/a	Market Based
CEC	TBD	TBD	Light duty EVSE	TBD	TBD	\$314 million total
CEC	TBD	TBD	Med.-Heavy Duty ZEV Infrastructure	TBD	TBD	\$690 million total
CEC	TBD	TBD	H2 Infrastructure	TBD	TBD	\$77 million total

<b>SOURCE</b>	<b>PROGRAM/AWARD NAME</b>	<b>ELIGIBLE APPLICANTS</b>	<b>CATEGORY</b>	<b>APPLICATION TYPE</b>	<b>BENEFITING DISADVANTAGED OR LOW-INCOME COMMUNITIES</b>	<b>FUNDING AMOUNT</b>
<b>CEC</b>	CHILL-2	All public and private entities in the state of CA	Level 2	Competitive Grant	50%	\$10 million with 25% match
<b>CEC/CALSTART</b>	Communities in Charge	TBD	TBD	TBD	TBD	TBD
<b>CARB</b>	Clean Mobility Options	Government entity, Nonprofit organization and CA Native American Tribal Government	Clean Mobility Projects and Transportation Needs Assessments	Voucher	100%	Up to \$1 million for projects and \$100k for assessments
<b>CA</b>	Green School Bus Grants	School districts	School Buses and EVSE	Competitive Grant	TBD-Will prioritize DAC	Minimum \$500k each

## **LOCAL AND REGIONAL FUNDING PROGRAMS**

### **Pacific Gas and Electric (PG&E) programs**

Pacific Gas and Electric (PG&E) is the electric utility for the majority of Madera County. The California Public Utilities Commission (CPUC) authorizes programs run by investor-owned utilities such as Pacific Gas and Electric (PG&E).

#### ***PG&E EV Fast Charge Program***

[EV Fast Charge Program](#) pays to install electric infrastructure from the utility pole to the parking space at qualifying customer sites to support the expansion of publicly available DCFC. This includes site design, permitting, and construction. A limited number of sites are selected on a competitive basis. Sites need to be accessible to the public 24 hours a day, 7 days a week. Additionally, sites meeting Disadvantaged Community (DAC) requirements may qualify for a rebate up to \$25,000 per charger. A total of \$22.4 million of funding is available for the years 2020-2025.<sup>75</sup>

#### ***PG&E EV Charge Schools Program***

PG&E will select 22 campuses to install up to 132 (total) Level 2 ports. PG&E can own and operate the equipment at no cost to the school or a school can own and operate the charging stations and school receives a rebate for the charger purchase and ongoing fees for a period up to eight years. For application information contact the PG&E program manager at [EVSchoolsandParks@pge.com](mailto:EVSchoolsandParks@pge.com).

#### ***PG&E EV Charge Parks Program***

PG&E will select 15 parks and beaches to install up to 40 (total) Level 2 ports. PG&E will own and operate the equipment at no cost to the site host. For application information contact the PG&E program manager at [EVSchoolsandParks@pge.com](mailto:EVSchoolsandParks@pge.com).

### **Southern California Edison (SCE) Programs**

Southern California Edison (SCE) is the electric utility serving the remaining, small portion of Madera County. Like PG&E, SCE is an investor-owned utility governed by The California Public Utilities Commission (CPUC).

#### ***SCE Electric Vehicles for Business/Charge Ready Program***

Provide rebates for businesses, the public sector, and multi-family property owners for the purchase and installation of qualifying EV charging equipment. The program subdivided into 3 parts: "New Construction Rebate", "Charging Infrastructure and Rebate", "Turn-Key Installation", each with different eligibility criteria, rebate amounts, and other program specifics. Beginning September 1,

---

<sup>75</sup> PG&E: EV Fast Charge Program: <https://www.pge.com/evfastcharge>

2022, new program applications are temporarily being added to a waitlist. An update will be provided January 2023.<sup>76</sup>

### **San Joaquin Valley Air Pollution Control District**

The San Joaquin Valley Air Pollution Control District includes eight counties including Madera and offers a few different programs supporting EV adoption and the installation of charging infrastructure.

#### ***Charge Up! Electric Vehicle Charger Incentive Program***

The Charge Up! EV Charger Incentive Program offers rebates for charging stations at public agencies, businesses, and property owners of multi-unit dwellings. Maximum funding amounts per unit are \$5,000 (\$6,000) for a single-port (dual-port) Level 2 charger and \$25,000 for a DC fast charger. A funding cap of \$50,000 annually per applicant/site exists.<sup>77</sup>

#### ***Zero-Emission School Bus Infrastructure Program***

This program has \$10 million of funds available and supports the purchase and installation of charging equipment for new electric school buses, by covering up to 100% of the project costs. Eligible applicants include school districts, Joint Power Authorities, and privately owned yellow school buses contracted with a public school. The program allows for one charger per purchased bus as well as up to 2 or 4 additional chargers for future deployment, depending on the number of electric buses already purchased. Eligible costs include costs of design and engineering, equipment and hardware, installation, on-site renewable power generation, and taxes and freight.<sup>78</sup>

Table C-5 below provides a summary of local and regional funding programs and relevant key information for each.

---

<sup>76</sup> Southern California Edison: Charge Ready: <https://www.sce.com/evbusiness/chargeready>

<sup>77</sup> San Joaquin Valley Air Pollution Control District: Charge Up! Electric Vehicle Charger Incentive Program: <https://ww2.valleyair.org/grants/charge-up/>

<sup>78</sup> San Joaquin Valley Air Pollution Control District: Zero-Emission School Bus Infrastructure Program: <https://ww2.valleyair.org/grants/zero-emission-school-bus-infrastructure-program/>

## Summary of Local and Regional Funding Programs

TABLE C-5: SUMMARY OF LOCAL AND REGIONAL FUNDING PROGRAMS

SOURCE	PROGRAM/AWARD NAME	ELIGIBLE APPLICANTS	CATEGORY	APPLICATION TYPE	BENEFITING DISADVANTAGED OR LOW-INCOME COMMUNITIES	FUNDING AMOUNT
PG&E	EV Fast Charge program	Private entities	DCFC	Competitive	DACs may qualify for EVSE funding	Make-ready: 100% and PG&E owned DAC: up to 25% EVSE costs
PG&E	EV Charge Schools program	Schools and school districts	Level 2	Selected by PG&E	Required	PG&E owned and operated Rebate
PG&E	EV Charge Parks program	Recreation agencies	Level 2	Selected by PG&E	Required	PG&E owned and operated
SCE	Charge Ready- New Construction Rebate Program	Public and private entities who are SCE customers	New Multifamily Construction EVSE: Level 1&2	Rebate	n/a	up to \$3,500 per port
SCE	Charge Ready- Charging Infrastructure and Rebate Program	Public and private entities who are SCE customers	Multifamily, Commercial or public sector EVSE	Rebate	n/a	up to 80% of the estimated costs

<b>SOURCE</b>	<b>PROGRAM/AWARD NAME</b>	<b>ELIGIBLE APPLICANTS</b>	<b>CATEGORY</b>	<b>APPLICATION TYPE</b>	<b>BENEFITING DISADVANTAGED OR LOW-INCOME COMMUNITIES</b>	<b>FUNDING AMOUNT</b>
<b>SCE</b>	Charge Ready-Turn Key Installation Program	Public and private entities who are SCE customers	EVSE installation for Multifamily properties in Disadvantaged Communities	First come, first served	100%	100%, equipment will be owned and operated by SCE
<b>SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT</b>	Charge Up!-Electric Vehicle Charger Incentive Program	Public and private entities and property owners of multi-unit dwellings	Level 2/DCFC EVSE	Rebate	n/a	Varies by Charger type and number of ports
<b>SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT</b>	Zero-Emission School Bus Infrastructure Program	School districts, Joint Power Authorities, and privately entities contracted with a public school	Chargers for School Buses	First come, first served	Must serve school districts in low income or designated disadvantaged communities	Up to 100% of project costs



## **PRIVATE FINANCING**

There is an emerging opportunity to obtain the full amount of capital needed to fund charging infrastructure, charging only a usage fee to the user. Such outside capital will allow the fleet EVSE hosts to avoid the high up-front capital expenditure and still realize the lower Total Cost of Operating for EVs. Although private EVSE operators have existed for a while, it may make more sense from a financial and risk perspective to partner with a company that finances the chargers, the vehicles and all future maintenance, upgrades, and expansions. The outside capital generally would consist of a combination of equity and debt and will be tailored to the project. Private financing groups like 7Gen<sup>79</sup> and investment groups like Sustainability Partners<sup>80</sup> have established some of the most creative and beneficial structures to ensure the highest excellence and efficiency for public sector customers.

## **CONSUMER INCENTIVES**

### **Clean Vehicle Rebate Program (CRVP)**

[CVRP](#) offers rebates for the purchase or lease of new, eligible zero-emission vehicles, including electric, plug-in hybrid electric and fuel cell vehicles. Eligible applicants must meet requirements that include:

- Be an individual, business\*, nonprofit or government entity that is based in California or has a California-based affiliate at the time the rebated vehicle is purchased or leased
- Meet income eligibility requirements at the time application is received
- Submit a CVRP application prior to exhaustion of available rebate funds and within three months of the vehicle purchase or lease date

Rebate amounts are:

- Hydrogen Fuel Cell - \$4,500
- Battery-Electric - \$2,000
- Plug-in Hybrid - \$1,000

### **Drive Clean! Rebate Program**

[San Joaquin Valley APCD](#) offers rebates for the purchase or lease of new, eligible zero-emission vehicles, including electric, plug-in hybrid electric and fuel cell vehicles. Applicants must live within the air district and rebates can be combined with CVRP.

- Battery-electric vehicles up to \$3,000
- Hydrogen fuel cell vehicles up to \$3,000
- Plug-in hybrid electric vehicles up to \$2,000
- Zero-emission motorcycles up to \$1,000

---

<sup>79</sup> <https://www.7gen.com/>

<sup>80</sup> <https://www.sustainability.partners/>

## **Pre-owned Vehicle Rebates**

The SCE [Pre-Owned EV Rebate](#) program offers a \$1,000 rebate for all SCE customers and a \$4,000 rebate for income qualified applicants toward the purchase or lease an eligible pre-owned electric vehicle.

The PG&E [Pre-Owned EV Rebate](#) program offers a \$1,000 rebate for all PG&E customers and a \$4,000 rebate for income qualified applicants toward the purchase or lease an eligible pre-owned electric vehicle.

## **Federal Tax Credits**

Consumers and businesses may qualify for a credit up to \$7,500 under [Internal Revenue Code Section 30D](#) if you buy a new, qualified plug-in EV or fuel cell electric vehicle (FCV). Vehicles must be for personal or business use (not resale) and be used primarily in the U.S.

The tax credit applies to [qualified vehicles](#) and is limited by household income:

- \$300,000 for married couples filing jointly
- \$225,000 for heads of households
- \$150,000 for all other filers

## **EV Charger Federal Tax Credit**

The Alternative Fuel Refueling Property tax credit extends the EV charger tax incentive for through December 31, 2032. For personal property (a main home), the credit is generally the smaller of 30% of the property's cost or \$1,000. The Inflation Reduction Act includes equipment like bi-directional charging. In February 2023, advice was not available from the IRS.

**APPENDIX D: CHARGING STATION LOCATIONS**

---

**IDENTIFIED SUITABLE LOCATIONS BY CATEGORY**

**Table D-1** is a list of sites identified by PredictEV, public input from Social Pinpoint, stakeholder meetings and interviews. The project team’s preliminary assessment indicates these sites will have sufficient demand for charging or hydrogen to meet a business case, sufficient space to add infrastructure, and may meet a specific need. Some Public sites are also identified as Multifamily because they are adjacent to multifamily properties.

**TABLE D-1: IDENTIFIED LOCATIONS FOR ZEV FUELS**

LOCATION (NAME)	ADDRESS	PUBLIC/ VISITOR	WORKPLACE/ FLEET	MULTIFAMILY	HUB (CHARGING AND/OR H2)
AMTRACK STATION (NEW CONSTRUCTION)	Madera County	X	X		X
RIVER GROVE APARTMENT COMMUNITY (NEW CONSTRUCTION)	Oakhurst			X	
FAIRMEAD COMMUNITY CENTER (NEW CONSTRUCTION)	Fairmead	X	X	X	
MADERA COMMUNITY HOSPITAL	1250 E Almond Ave, Madera, CA 93637	X	X		
MADERA HIGH SCHOOL (PARKING LOT AT OLIVE AND COYOTE)	200 S L St, Madera, CA 93637	X	X		
VALLEY CHILDREN'S HOSPITAL	9300 Valley Children's Pl, Madera, CA 93636	X	X		
CENTRAL CALIFORNIA WOMEN'S FACILITY	23370 Rd 22, Chowchilla, CA 93610		X		
MADERA COMMUNITY COLLEGE	30277 Ave 12, Madera, CA 93638	X	X		
OLD MILL VILLAGE SHOPPING CENTER	40179 Enterprise Dr # A-2, Oakhurst, CA 93644	X			

<b>LOCATION (NAME)</b>	<b>ADDRESS</b>	<b>PUBLIC/ VISITOR</b>	<b>WORKPLACE/ FLEET</b>	<b>MULTIFAMILY</b>	<b>HUB (CHARGING AND/OR H2)</b>
<b>MADERA MARKETPLACE/WALMART</b>	1977 W Cleveland Ave, Madera, CA 93637	X			
<b>VALLEY STATE PRISON</b>	21633 Avenue 24, Chowchilla, CA 93610	X	X		
<b>THE COMMONS AT THE MADERA FAIR</b>	W Cleveland Ave, Madera, CA 93637	X			
<b>THE CROSSROADS SHOPPING CENTER</b>	E Yosemite Ave, Madera, CA 93638	X			
<b>COUNTRY CLUB VILLAGE</b>	1151 Sherwood Way, Madera, CA 93638	X		X	
<b>HALLMARK TOWN CENTER</b>	2370 W Cleveland Ave, Madera, CA 93637	X			
<b>MADERA SOUTH HIGH SCHOOL</b>	705 W Pecan Ave, Madera, CA 93637	X	X	X	
<b>MADERA MUNICIPAL AIRPORT</b>	4020 Aviation Dr, Madera, CA 93637		X		X
<b>EAST ALMOND PARKING LOT (MEDICAL OFFICE CENTER)</b>	1219 E Almond Ave, Madera, CA 93637	X	X		
<b>PARKING LOT AT ALMOND AND EMILY (CAMARENA HEALTH)</b>	740 E Almond Ave, Madera, CA 93637	X	X		
<b>GATEWAY HIGH CONTINUATION</b>	805 Humboldt AVE., Chowchilla, CA 93610	X	X		

<b>LOCATION (NAME)</b>	<b>ADDRESS</b>	<b>PUBLIC/ VISITOR</b>	<b>WORKPLACE/ FLEET</b>	<b>MULTIFAMILY</b>	<b>HUB (CHARGING AND/OR H2)</b>
<b>ST JOACHIM SCHOOL</b>	310 N I St, Madera, CA 93637	X			
<b>MOUNTAIN VISTA EDUCATIONAL CENTER/MILLVIEW PARK COMPLEX</b>	1901 Clinton St, Madera, CA 93638	X	X		
<b>MARTIN LUTHER KING JR MIDDLE SCHOOL</b>	601 Lilly St, Madera, CA 93638	X	X		
<b>NORTH MADERA DIALYSIS</b>	720 N I St, Madera, CA 93637	X	X		
<b>THOMAS JEFFERSON MIDDLE</b>	1407 Sunset Ave, Madera, CA 93637	X	X		
<b>SIX STAR FOOD MART</b>	1501 E Yosemite Ave, Madera, CA 93638	X			
<b>YOSEMITE HIGH SCHOOL</b>	50200 High School Rd, Oakhurst, CA 93644	X	X		
<b>CHUKCHANSI GOLD RESORT AND CASINO</b>	711 Lucky Ln, Coarsegold, CA 93614	X	X		
<b>EL TORO LOCO SUPERMARKET</b>	748 N D St, Madera, CA 93638	X	X		
<b>MADERA COUNTY ARTS COUNCIL GALLERY</b>	424 N Gateway Dr, Madera, CA 93637	X	X		
<b>PIONEER TECHNICAL CENTER/MADERA COUNTY JUVENILE JUSTICE</b>	28261 Ave 14, Madera, CA 93638	X	X		

LOCATION (NAME)	ADDRESS	PUBLIC/ VISITOR	WORKPLACE/ FLEET	MULTIFAMILY	HUB (CHARGING AND/OR H2)
<b>MADERA COUNTY FLEET SERVICES</b>	14355 Rd 28, Madera, CA 93638		X		
<b>MADERA COUNTY DEPT OF SOCIAL SERVICES</b>	1620 Sunrise Ave, Madera, CA 93638	X	X		
<b>SIERRA VISTA ELEMENTARY SCHOOL</b>	917 E Olive Ave, Madera, CA 93638	X	X		
<b>STATE FOODS SUPERMARKET</b>	1315 Robertson Blvd, Chowchilla, CA 93610	X			
<b>PHEASANT RUN GOLF CLUB</b>	19 CLUBHOUSE DRIVE, CHOWCHILLA, CA 93610	X			
<b>FAITH TABERNACLE CHRISTIAN ACADEMY</b>	745 North H Street, Madera, 93637	X			
<b>LOVE'S TRAVEL STOP</b>	3174 Avenue 17, Madera, CA 93638	X			X
<b>EZ TRIP TRAVEL CENTER</b>	28577 Ave 12, Madera, CA 93637	X			X
<b>PACIFIC PRIDE</b>	631 S Gateway Dr, Madera, CA 93637	X			X
<b>ADRAGH GROUP</b>	24441 Ave 12, Madera, CA 93637		X		
<b>CERTAIN TEED</b>	17775 Ave 23 1/2, Chowchilla, CA 93610		X		

LOCATION (NAME)	ADDRESS	PUBLIC/ VISITOR	WORKPLACE/ FLEET	MULTIFAMILY	HUB (CHARGING AND/OR H2)
<b>GEORGIA-PACIFIC</b>	24600 Avenue 13, Madera, CA 93637		X		
<b>LAMANUZZI &amp; PANTALEO</b>	11767 Rd 27 1/2, Madera, CA 93637		X		
<b>LION RAISINS</b>	9500 De Wolf Ave, Selma, CA 93662		X		
<b>SAN JOAQUIN WINE COMPANY</b>	21801 Ave 16, Madera, CA 93637	X	X		
<b>SIERRA TEL</b>	49150 Rd 426, Oakhurst, CA 93644	X	X		
<b>WARNOCK FOODS</b>	20237 Masa St, Madera, CA 93638		X		
<b>MADERA CITY HALL/GOVERNMENT CENTER PARKING STRUCTURE</b>	200 N G St #298, Madera, CA 93637	X	X		
<b>CITY OF CHOWCHILLA</b>	130 S 2nd St, Chowchilla, CA 93610	X	X		
<b>CHOWCHILLA BRANCH LIBRARY</b>	300 Kings Ave, Chowchilla, CA 93610	X		X	
<b>VISIT MADERA COUNTY</b>	40343 CA-41, Oakhurst, CA 93644	X	X		
<b>SIERRA SECURED STORAGE</b>	43511 Whispering Pines Dr, Oakhurst, CA 93644	X			



LOCATION (NAME)	ADDRESS	PUBLIC/ VISITOR	WORKPLACE/ FLEET	MULTIFAMILY	HUB (CHARGING AND/OR H2)
<b>CAMARENA HEALTH</b>	35324 CA-41, Coarsegold, CA 93614	X	X	X	
<b>THE ALMOND COMPANY</b>	2900 Airport Dr, Madera, CA 93637		X		
<b>HOME DEPOT/HOLIDAY INN</b>	2155 N Schnoor St, Madera, CA 93637	X	X	X	
<b>MADERA VILLA APARTMENTS</b>	2160 N Schnoor St, Madera, CA 93637			X	
<b>SHERWOOD POINT</b>	338 W Sherwood Way, Madera, CA 93638			X	
<b>CROSSINGS AT MADERA</b>	120 Adell St, Madera, CA 93638			X	
<b>LAKESIDE TERRACE APARTMENTS</b>	1995 N Lake St, Madera, CA 93638			X	
<b>VALLEY VISTA APARTMENTS</b>	1832 Merced St #100, Madera, CA 93638			X	
<b>CREEKSIDE APARTMENTS</b>	1601 Creekside Dr, Madera, CA 93638			X	
<b>MADERA APARTMENTS</b>	1525 E Cleveland Ave, Madera, CA 93638			X	

LOCATION (NAME)	ADDRESS	PUBLIC/ VISITOR	WORKPLACE/ FLEET	MULTIFAMILY	HUB (CHARGING AND/OR H2)
<b>SUNRISE TERRACE</b>	601 Sunrise Ave # A1, Madera, CA 93638			X	
<b>PARKSDALE</b>	13549 Wood St, Madera, CA 93638			X	
<b>COTTONWOOD CREEK</b>	2236 Tozer St, Madera, CA 93638			X	
<b>MADERA FAMILY APARTMENTS</b>	781 Milano Ln, Madera, CA 93637			X	
<b>SUGAR PINE VILLAGE (NEW CONSTRUCTION)</b>	203 E Lewis St., Madera, CA 93637			X	
<b>CASAS DE LA VINA</b>	23784 Ave 9, Madera, CA 93637			X	
<b>OAKHURST APARTMENTS</b>	48444 Victoria Ln, Oakhurst, CA 93644			X	
<b>SHASTA COURT</b>	96 Shasta Ct, Chowchilla, CA 93610			X	
<b>CHOWCHILLA TERRACE</b>	201 Washington Rd # 75, Chowchilla, CA 93610			X	
<b>CHOWCHILLA GARDEN APARTMENTS</b>	300 Myer Dr, Chowchilla, CA 93610			X	
<b>THE VILLAGE AT CHOWCHILLA</b>	297 Myer Dr # 101, Chowchilla, CA 93610			X	

LOCATION (NAME)	ADDRESS	PUBLIC/ VISITOR	WORKPLACE/ FLEET	MULTIFAMILY	HUB (CHARGING AND/OR H2)
<b>WASHINGTON SQUARE APARTMENTS</b>	255 Washington Rd # 101, Chowchilla, CA 93610			X	
<b>COLUSA AVENUE APARTMENTS</b>	455 Colusa Ave, Chowchilla, CA 93610			X	
<b>BUENA VISTA EVENT CENTER</b>	14860 CA-41, Madera, CA 93636	X			
<b>CHEVRON</b>	14974 CA-41, Madera, CA 93636	X	X		X
<b>TESORO VIEJO WELCOME CENTER/MADERA COUNTY SHERIFF</b>	4150 Town Center Blvd #101, Madera, CA 93636	X	X		
<b>FOUR CORNERS PARK &amp; RIDE</b>	2664+27 Madera, California	X			
<b>HIGH SIERRA RANGER DISTRICT OFFICE</b>	29688 Auberry Rd, Prather, CA 93651	X	X		
<b>SHELL</b>	29477 Auberry Rd, Prather, CA 93651	x			x
<b>SANDY CREEK MOBILE HOME PARK</b>	30501 Auberry Rd, Auberry, CA 93602			x	

**APPENDIX E: CHARGING PLAZAS**

---

**RECOMENDED LOCATIONS FOR CHARGING PLAZAS**

Based on data provided by Madera CTC, DKS’s analysis tools, and information gleaned during stakeholder and public outreach, we recommend four locations for charging plazas.

### **MADERA – AVENUE 17 AND HIGHWAY 99**

This location would serve local fleets, residents that commute on Highway 99, and travelers passing through Madera County on Highway 99. The plaza should be capable of charging light-, medium-, and heavy-duty vehicles with DCFCs.



This exit includes a Love’s Travel Stop, Arco gas station, Hampton Inn, and several businesses that operate fleet trucks. It’s also adjacent to the Madera Airport and a number of logistics businesses.

**Option 1** is to partner with Love’s to expand the two EV Connect DCFCs for light-duty vehicles. The two DCFCs aren’t accessible to larger vehicles. An expansion would entail additional charging



stations at pull-through lanes and add distributed energy resources. Love’s, a family-owned company based in Oklahoma, is also interested in adding hydrogen stations to its California travel stops. This location may be an opportunity to add hydrogen dispensing for cars and trucks, too.

**Option 2** is to build on the land adjacent to the Madera Municipal Airport. Airports typically have excess electrical capacity and acres of unobstructed land that is ideal for large solar arrays.

Developing this site as a charging plaza could enhance economic development activities related to the airport and prepare the airport for electric planes.



### **CHOWCHILLA – WEST OF HIGHWAY 99**

Several DCFCs are already operational on the east side of the highway, and public comments stated that the intersection is a safety concern. Residents and small businesses on the west side of the highway would be more likely to use a charging station that is near their home base or on their commute path. This charging plaza would have DCFC and some Level 2 charging stations for light- and medium-duty vehicles.



**Option 1** is to add charging stations to the parking lot of the Chowchilla Branch Library. The large parking lot has three driveways and is within walking distance of homes, businesses, and city services. The large, flat roof of the library is ideal for solar panels and a library's typical operating hours make it a prime candidate for vehicle-to-building charging. This site would require the addition of parking lot lighting.



**Option 2** is to add curbside charging stations on 8<sup>th</sup> Street at Chowchilla High School and inside the CUHSD Maintenance Center. This would enable residents, teachers, and students to charge their cars and enable the school district to transition to electric buses. Adding solar and storage make this location ideal for bi-directional charging.

### OAKHURST/YOSEMITE LAKES

This area has two Tesla Superchargers at hotels and two DCFCs are the Old Mill Village shopping center. Two hotels have Level 2 chargers, and campgrounds offer charging via a NEMA connection. All charging stations are designed for visitors, and all serve only light-duty vehicles.

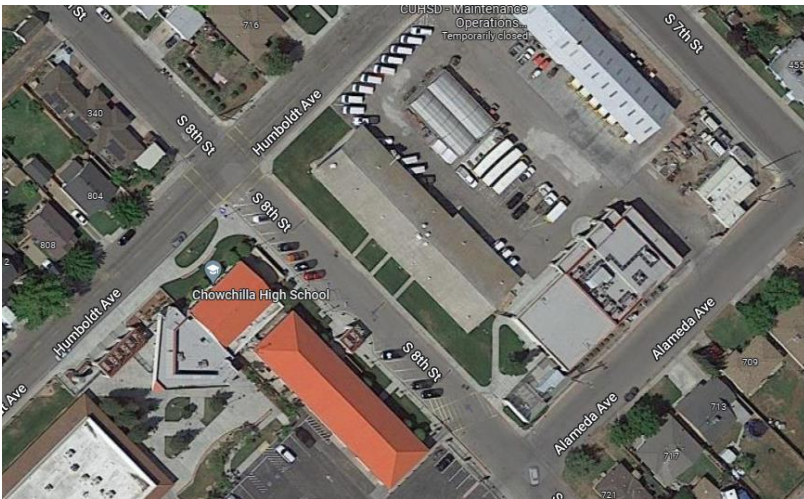


A charging plaza for medium- and heavy-duty vehicles could enable EV delivery trucks, tour buses, local businesses, and encourage EV adoption by people who live and work in the area.

A charging hub in this area would be compliant with the National Electric Vehicle Infrastructure (NEVI) program and would help Caltrans nominate Highway 41 and/or 49 as EV routes in 2024. Nomination is essential to receive NEVI funding.

**Option 1** is a partnership with the property owner at NAPA store on Junction Road. Google Map

images show that part of this lot is used for truck parking and is adjacent to the Western Ecological Research Center, which is federally managed. The location is close to both Highway 49 and Highway 41, walking distance to dozens of businesses, and could easily handle several trucks. Two large undeveloped spaces could host ground-mounted solar. The direct neighbor is a propane company, which might provide an R&D project to use propane as a back-up power source.



**Option 2** is a partnership with the Pacific Pride station on Highway 49. Pacific Pride network of card lock stations that sell fuel to heavy-duty vehicles using telematics for payment instead of credit cards. Stations are independently owned, and individual operators have been agreeable about expanding their stations to serve passenger cars, add alternative fuels, and have charging stations. This location is large enough for a solar microgrid, adjacent to Hertz and Enterprise car rentals, across the

street from an apartment complex, and surrounded by businesses. It is not within an easy walk of amenities.

This location also has sufficient space to add a hydrogen station. It appears to have above-ground propane storage which indicates that adding above-ground hydrogen storage and compression would have few permitting or CEQA barriers.

**Lost Lake Area – Highway 41**

This area is being developed with single family housing and retail, which indicates that electrical infrastructure is newer and likely has excess capacity to support charging stations and/or hydrogen production. Traffic will likely increase as homes and businesses are built and designating an area as a charging plaza now could likely help spur economic development.

A charging hub in this area would be compliant with the National Electric Vehicle Infrastructure (NEVI) program and would help Caltrans nominate Highway 41 EV routes in 2024. Nomination is essential to receive NEVI funding.



**Option 1** is the Chevron station at the junction of Avenue 15 and Highway 41. The station has islands for fueling cars, and an island for truck fueling. (The canopy with the orange stripe on the right side of the picture is a Pacific Pride station.) If the empty lot is still undeveloped, it could add pull-through lanes for DCFCs, and hydrogen dispensers could be added to the Chevron and Pacific Pride islands.



**Option 2** is a new area on Town Center Blvd. Google Street views are not available for this location, but the map view shows a large parking lot that is part of the combination fire station and sheriff substation. DCFC in the center of the parking lot could create pull-through lanes for all classes of vehicles and prepare this location to transition some public safety vehicles to EVs. This location is not suitable for hydrogen.



**NEXT STEPS**

If Madera CTC adopts the charging plaza concept, the project team will investigate the feasibility of the locations, which includes the willingness of property owners, and explore funding opportunities. During the feasibility studies, the team will estimate capital and construction costs and potential revenue.

**APPENDIX F: WIREFRAME FOR MADERA COUNTY CTC  
WEBPAGE**

---

## **Zero-Emission Transportation**

Each day thousands of cars, trucks and motorcycles operate on Madera County roadways. For many years the pollution from these vehicles has been the single greatest source of smog-forming emissions in the state, and a top contributor to climate-changing gases. Transitioning to vehicles able to operate as clean as possible is vital to reducing transportation pollution. Delivering healthy air to the region requires a move away from combustion powered vehicles and the widespread introduction of zero-emission cars, trucks, and equipment. The Madera County Transportation Commission has worked with local partners to plan for increased levels of Zero Emission Vehicle (ZEV) adoption throughout the Madera County region and surrounding areas.



### **Zero-Emission Vehicle Readiness and Implementation Plan**

This plan assesses the existing ZEV infrastructure environment, recommends infrastructure improvements and investments, identifies implementation strategies and policies to promote ZEV infrastructure adoption in the short- and long-term, identifies key community challenges and barriers to advancement, and provides stakeholders with tools to procure, site and install various ZEV infrastructure. This plan primarily addresses conventional ZEVs including battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs).

*Read the [Draft Madera County Zero-Emission Vehicle Readiness and Implementation Plan](#) (coming soon)*

### **EV Planning Resources**

Electric vehicles are in our communities today and more are coming. Madera County CTC is providing these resources to help residents, businesses, and local agencies plan for installing EV charging stations at home, at work, and at destinations.

#### **Charging at Home: Resources for Residents**

An EV can charge using a standard wall outlet and the cord that comes with the car.



**LEVEL 1**  
WATERING CAN SPEED

1.3 kW to 2.4 kW using  
a Standard Outlet  
100 mile range with a  
48-72 hour charge time

**Level 1** is a slow charge, but can add 20 miles of range to the EV's battery overnight.



**LEVEL 2**  
GARDEN HOSE SPEED

3 kW to 19 kW using  
a "Dryer Outlet"  
100 mile range with a  
10 hour charge time

**Level 2** charging can add up to 20 miles of range per hour of charging. Residents can install a 240-volt plug, similar to a dryer plug, or a piece of equipment commonly called an EVSE. The greater number of kilowatts (kW), the faster the charge.

Visit the [PG&E website](#) to learn more about rebates and incentives for EVs and charging stations.

### **Rebates and Incentives for Residents**

- [Clean Vehicle Rebate Program \(CVRP\)](#)
- [PG&E Preowned Electric Vehicle Rebate Program](#)
- [Drive Clean in the San Joaquin](#)
- [PG&E EV and Charging Station rebates](#)

## Public Charging: Resources for Employers, Businesses, Multifamily Properties, and Local Government







**Level 2** charging can add up to 20 miles of range per hour of charging and is ideal for locations at which drivers park for at least four hours—multifamily properties, workplaces, hotels, fleet yards, and entertainment venues. Multifamily with assigned parking space might consider a 240-volt plug, similar to a dryer plug. Other properties will choose a piece of equipment commonly called an EVSE. The greater number of kilowatts (kW), the faster the charge. “Smart” charging is an EVSE that is connected to a network and can accept payment, manage electricity flow, and report data.





**Level 3** DC Fast Charging can fill an empty battery in less than an hour and is ideal for locations at which drivers park for at least 20 minutes, but no more than an hour—restaurants, salons, grocery and retail stores, libraries, parks, and gyms. A DCFC is always a “smart” piece of equipment commonly called an EVSE. The greater number of kilowatts (kW), the faster the charge. Properties with large parking lots may install multiple DCFC to create a “charging plaza.”

## Rebates and Incentives for Public and Workplace Charging



- [PG&E EV and Charging Station rebates](#)
- [EnergIize \(for trucks, buses, and off-road equipment only\)](#)
- [CALeVIP \(limited availability\)](#)

## ZEV Planning Toolkits

			
<p><b>Workplace Charging</b></p>	<p><b>Multifamily Charging</b></p>	<p><b>Retail and Restaurant Charging</b></p>	<p><b>Public Parking Charging</b></p>
<p>Resources for business owners and managers, and business property managers that want to provide EV charging stations for employees, clients, and fleet vehicles.</p> <p><a href="#"><u>Workplace Charging Toolkit</u></a></p>	<p>Resources for apartment, condo, and manufactured housing property owners and managers that want to provide EV charging stations for residents, guests, and employees.</p> <p><a href="#"><u>Multifamily Charging Toolkit</u></a></p>	<p>Resources for restaurants, stores, fitness centers, hotels, healthcare providers, and entertainment providers that want to provide EV charging stations in parking lots.</p> <p><a href="#"><u>Consumer Business Charging Toolkit</u></a></p>	<p>Resources for local government, airports, parking lot operators, and others that want to provide EV charging stations in parking lots.</p> <p><a href="#"><u>Public Parking Charging Toolkit</u></a></p>

			
<p align="center"><b>Site Evaluation Tool</b></p>	<p align="center"><b>Fleet Inventory Tool</b></p>	<p align="center"><b>EV Station Permitting Resources</b></p>	<p align="center"><b>EVITP for Electricians</b></p>
<p>A simple checklist to evaluate a site and a location on the site for an EV charging station.</p> <p><a href="#"><u>Site Evaluation Checklist</u></a></p>	<p>An Excel spreadsheet for fleet managers to collect information about their vehicles and facilities to plan for a transition to EVs.</p> <p><a href="#"><u>Fleet Inventory Toolkit</u></a></p>	<p>Information for local governments to implement streamlined permitting for EV charging stations.</p> <p><a href="#"><u>Permitting Electric Vehicle Charging Stations: Best Practices</u></a></p>	<p>Information for journeyman electricians to become certified to install charging stations.</p> <p><a href="#"><u>The Electric Vehicle Infrastructure Training Program (EVITP)</u></a></p>

**Supporting Documents**

-  [Workplace Charging Toolkit](#) (2 MB)
-  [Multifamily Charging Toolkit](#) (2 MB)
-  [Consumer Business Charging Toolkit](#) (2 MB)
-  [Public Parking Charging Toolkit](#) (2 MB)
-  [Site Evaluation Toolkit](#) (181 KB)
-  [Fleet Inventory Toolkit](#) (26 KB)