RANCHO CUCAMONGA

HEALTHY RC

Rancho Cucamonga

ELECTRIC VEHICLE READINESS PLAN

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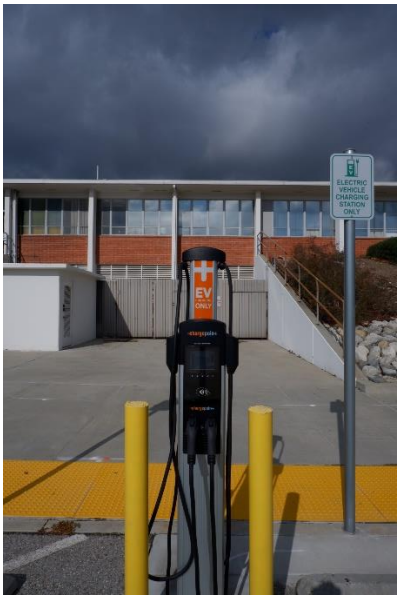
Key Terms

Name	Acronym
Battery Electric Vehicle	BEV
California Electric Vehicle Infrastructure Program	CALeVIP
California Energy Commission	CEC
California Green Building Standards Code	CALGreen Code
Center for Sustainable Energy	CSE
Electric Vehicle	EV
Electric Vehicle Charging Station	EVCS
Electric Vehicle Infrastructure	EVI
Greenhouse Gas	GHG
Multi-Family Dwelling	MFD
San Bernardino Council of Governments	SBCOG
Southern California Association of Governments	SCAG



A Guide to the Plan

The **Executive Summary** summarizes the recommended strategies for advancing electric vehicle (EV) readiness in Rancho Cucamonga.

Chapter 1: Introduction explains the purpose of this Plan and contextualizes it in parallel with regional efforts to expand EV charging infrastructure.

Chapter 2: Background describes EV charging types, plug types, and introduces the charging hierarchy which prioritizes the locations EV owners prefer to charge their vehicles.

Chapter 3: Where Are We Now inventories current EV registration data and existing EV charging opportunities in the city. It also highlights current regional policies that influence EV charging installation.

Chapter 4: Where Do We Need to Go evaluates existing EV ownership projections and introduces new EV ownership projections for 2025 and 2030. It also discusses the findings of the EV Readiness Survey and summarizes State goals and financing opportunities for EVs and EV infrastructure.

Chapter 5: How Do We Get There provides recommended strategies and development policies that will guide the development of EV charging infrastructure throughout the city. It also contains the methodology used to identify optimal locations for the placement of EV infrastructure.

Appendix A: explains the scoring methodology used to identify optimal locations for EV charging.

Appendix B: details recommended policies with the overarching goal of expanding EV infrastructure at destinations, MFDs, and workplaces

Appendix C: introduces State laws and regulations related to EVs and their infrastructure.

Appendix D: summarizes current CALGreen Building Code in relation to EV charging infrastructure.

Executive Summary

The Rancho Cucamonga EV Readiness Plan (Plan) envisions a future that supports the increased presence of electric vehicles (EVs) while decreasing greenhouse gas emissions (GHG) associated with Rancho Cucamonga's transportation sector.

With an increasing number of car manufacturers committing to full lineups of electric vehicles coupled with the public's growing interest, the EV market is expected to increase at an exponential rate over the next several years. To support this growth, the City of Rancho Cucamonga (City) is committed to expanding access to EV charging in order to meet current and future charging needs. Rancho Cucamonga can facilitate the development of EV infrastructure, providing prospective EV owners with support in their daily commutes and longer road trips. As EV charging stations become more visible to residents and outside commuters, it could reduce perceived range anxiety concerns and as the cost of EV batteries decline over time, the cost of an electric vehicle itself becomes more attractive. Thus, we will continue to see higher rates of EV adoption over the next decade.

In March 2021, President Biden's Administration announced the American Jobs Plan, detailing their support for advancing the nation's infrastructure with considerations to the natural environment. The proposal includes $174 billion dollars to be allocated towards EV sale rebates and tax incentives, encouraging the adoption of EVs. This proposal also seeks to provide grants for states, local governments, and the private sector to establish 500,000 EV charging stations by 2030.

The recommended policies and strategies contained in this Plan seek to contribute to the reduction of GHG emissions by promoting the development of EV infrastructure, targeting on-road transportation emissions. As such, this Plan serves as a supplemental document to the city's current and soon to be updated General Plan and accompanying Climate Action Plan. It also builds upon the efforts of the Sustainable Community Action Plan and San Bernardino Council of Governments Zero Emission Vehicle Readiness Plan and will further position the city as a leader in the EV community.

The purpose of the Plan is to identify opportunities and strategies, utilizing data and quantitative and qualitative methodologies, for the strategic placement of EV charging stations in Rancho Cucamonga. The goal is to advance the region's EV readiness by providing strategies and recommendations for the placement of EV infrastructure.

The Plan provides the following:

1. An assessment of the City's current EV charging infrastructure in relation to EV ownership levels (Where Are We Now).
2. Projected EV ownership and necessary EV charging infrastructure to support EVs (Where Do We Need to Go).
3. A quantitative and qualitative analysis identifying optimal locations for EV infrastructure at workplaces, multi-family dwellings (MFDs), and destinations (How Do We Get There).
4. Identifies development policies and implementation strategies to expand EV charging infrastructure over the next 10 years (How Do We Get There).

Based off of Department of Motor Vehicles (DMV) registration data throughout the last three years, the City is projected to have 7,345 Plug-in Electric Vehicles (EVs) by 2025 and 12,129 EVs by 2030. To match the growing ownership of EVs, the community will need to have a total of 272 public charging plugs by 2025, and 405 public charging plugs by 2030. Public charging stations are typically available for unrestricted use, or by intended recipients and includes multifamily dwellings, workplaces, and destination locations. In order to meet this increased demand, the Plan contains a series of recommended strategies to support the community rollout of EV infrastructure.

Recommended Strategies

1. **Optimal charging sites identified:** Quantitative and qualitative siting methodologies for identifying optimal locations for EV charging were developed. Locations considered optimal for EV charging at destinations, workplaces, and multi-family dwellings have been identified for future outreach.

2. **Development policy recommendations:** Eleven sample development policies for new construction, existing development, and new City facilities are identified for adoption.

3. **Upgrade City-owned EV charging infrastructure:** The City-owned and operated EV charging stations were installed nearly a decade ago. The charging stations should be upgraded so EV owners will be familiar with and comfortable utilizing these chargers for their vehicles.

4. **Explore on-street charging:** The City should consider on-street charging when trying to expand charging opportunities in targeted areas. As an example of optimal on-street charging, various locations have been identified within the Terra Vista community, with the possibility of providing convenient access for up to 1,000 apartment units within a 5-minute walk. To identify optimal on-street charging opportunities in current and future development, the Planning and Engineering Services Department should “flag” certain locations when reviewing development plans.

5. **Equitable access:** Utilizing a modified qualitative and quantitative methodology for identifying optimal locations, a number of affordable housing complexes located within the Disadvantaged Community (DAC), as identified by Cal EnviroScreen, have been identified for EV charging installation.

6. **Gas Stations:** As gasoline-powered vehicles are phased out over the next 20 years, gas stations along major transportation corridors have been identified as optimal sites for transitioning to EV charging stations.

7. **Other destination charging opportunities:** The Rancho Cucamonga Family Resource Center, Northtown Community Center, Haven City Market, and future high-speed rail/multi-modal station are also identified as key locations for EV chargers.

8. **Accommodate EV Pickup Trucks with Trailers:** The current EV charging network is unable to accommodate EV trucks with attached trailers. As automobile manufacturers begin to unveil new lineups of EV trucks, EV charging stations which are adequately sized to accommodate trucks with trailers should be developed.

Chapter 1: Introduction

Rancho Cucamonga is located in the western Inland Empire, at the base of the San Gabriel Mountains. It is bound by the cities of Upland, Ontario, and Fontana, and parts of the unincorporated areas of San Bernardino County. Rancho Cucamonga is supported by major transportation infrastructure including State Route 210, Interstate 15, Interstate 10, Foothill Boulevard (Historical Route 66), the Metrolink train station, and the Ontario International Airport.

Rancho Cucamonga holds many notable designations surrounding environmental sustainability, demonstrating the City's commitment to addressing complex environmental issues with innovative solutions. Healthy RC is a City-community partnership comprised of residents, community organizations, and public and private entities dedicated to promoting public health. Through the adoption of policies, strategies, and programs, Healthy RC strives towards advancing environmental sustainability within the city. The Sustainable Community Action Plan adopted in 2017, engaged thousands of Rancho Cucamonga residents and businesses in a meaningful dialogue around strategies to advance the city's social, environmental, and economic environments. Rancho Cucamonga has been recognized for its environmental achievements including the LEED for Cities Silver Level designation, the Cool California Award, the Green Region Award, the Innovation for Green Community Award, the Platinum Level Beacon Spotlight Award, and the Red Tape to Red Carpet Award.

As the City continues to advance its environmental sustainability efforts, the growing presence of EVs throughout the state presents an opportunity to prepare our community for this transition. A primary goal of the EV Readiness Plan is to ensure that the City offers substantial support to EV owners throughout the next decade by developing policies and strategies to ensure the expansion of the EV charging network.

Electric vehicles are poised to see a sharp increase in sales with dozens of new EV models anticipated to be unveiled within the next several years. The EV market is expected to grow to meet the needs of every type of consumer, with automotive manufacturers like Ford developing an electric F-150 truck and even offering an electric version of its iconic Mustang with the Mach E1. Recently, GM, Volvo, and Jaguar have joined other manufacturers in announcing commitments to phase out gas-powered vehicles within the next 5,10, and 15 years. As more manufacturers continue to transition their vehicles to electric and the prospect of a new round of tax incentives, the cost of purchasing an EV is expected to decrease, making it more accessible to the public. Over time, we can expect the cost of some base level EVs to be less than the cost of their internal combustion counterparts. The electric Ford F-150 Lightning is anticipated to be released in Spring 2022, with a price tag less than its gasoline and hybrid versions after federal and state tax credit. Financial incentives also continue to encourage EV ownership contributing to the EV industry's economic boom. According to EVadoption, by 2025 it is projected that California's EV sales will be at $3.5 million and will account for 67.5% of California's auto sales. Though this Plan solely delves into the passenger EV market, EV adoption in the commercial realm is expected to take flight as well, as more stringent policy regarding air quality and GHG emission reduction goals take effect.

Purpose

The purpose of the EV Readiness Plan is to identify opportunities within the city, utilizing data and quantitative and qualitative methodologies, for strategic placement of EV charging stations in order to build a robust EV charging infrastructure that will adequately meet the needs of current and future EV owners. The Plan builds upon the City's Sustainable Community Action Plan, adopted in 2017 which provided a road map for advancing environmental sustainability initiatives and identified the facilitation of EV ownership as a key strategy to reducing GHG emissions.

The Plan also seeks to address the perceived obstacle of range anxiety by facilitating the expansion of the city's EV infrastructure. Among respondents to a 2019 community survey, 40 percent identified range anxiety as a significant obstacle to purchasing an EV. Supporting the development of EV infrastructure through adopting the Plan's recommendation strategies would alleviate this concern within the city, encouraging drivers to purchase EVs, ultimately leading to the reduction of on-road transportation GHG emissions. Most importantly, the Plan provides a data based decision-making process to be utilized when identifying optimal locations for EV charging stations.

The Plan addresses the following questions:

- **Where Are We Now?:** This includes an assessment of the City's current EV charging infrastructure in relation to EV ownership levels.
- **Where Do We Need to Go?:** Projected EV ownership and necessary EV charging infrastructure is estimated.
- **How Do We Get There?:** The Plan includes (a) a quantitative analysis identifying optimal locations for EV infrastructure at workplaces, multi-family dwellings (MFDs), and destinations; and (b) identifies development policies and implementation strategies to expand EV charging infrastructure over the next 10 years.

Regional EV Readiness Plan

The Rancho Cucamonga EV Readiness Plan builds upon San Bernardino Council of Governments' (SBCOG) regional Zero Emission Vehicle Readiness and Implementation Plan, which was completed in 2019. The countywide plan assesses the current state of EV infrastructure within the county, provides site recommendations for each city within its jurisdiction, and identifies implementation actions to support EVs and its charging infrastructure on a regional basis. Per SBCOG's plan, San Bernardino County is projected to have 44,846 EVs by 2025.

The regional plan provided broad data and recommendations for cities to utilize, which in turn allowed for the development of a plan that is unique and responsive to Rancho Cucamonga. For example, the City modified the siting methodology in order to further consider Rancho Cucamonga's unique attributes as a community, thus better informing the recommendations on the placement of EV infrastructure.

Chapter 2: Background

State Goals and Policies

Executive Orders

In the last decade, California Governors have signed a number of Executive Orders establishing goals for EV adoption.

In 2012, former Governor Jerry Brown issued Executive Order B-16-12 which seeks to put 1.5 million EVs on the road in California by 2025. At the end of 2017, California had 350,000 EVs on the road, 14,000 public charging stations, and 1,500 DC fast chargers. Market trends are showing that California is still on its way to meeting this goal, with a 29% increase in EV sales in the state between October 2016-October 2017.

In 2015, Executive Order B-30-15 was issued, which sets the GHG emission reduction target of 40% below 1990 levels by 2030. This aggressive benchmark seeks to ensure that the State of California can reach its GHG emission reduction target of 80% below 1990 levels by 2050. On-road transportation and petroleum use in cars and trucks will play a significant role in reaching this goal.

In 2018, Executive Order B-48-18 was issued with the goal to put 5 million EVs on the road by 2030 and install 250,000 public charging stations and 10,000 DC fast chargers. The administration proposed a new eight-year initiative to continue the State's clean vehicle rebates and spur more infrastructure investments.

In 2020, Executive Order N-79-20 was issued to phase out the sale of new gas-powered cars and trucks by 2035.

GHG Emission Reduction Goals

AB 32 Global Warming Solutions Act of 2006 requires that the State of California reduce its GHG emissions to 1990 levels by 2020. This bill required a sharp reduction GHG emissions and set the stage for a sustainable, low-carbon future. It was the first step to in creating a comprehensive, long-term approach to addressing climate change while maintaining a robust economy. The State exceeded this goal a few years early and subsequent targets have been established.

SB 32 California Global Warming Solutions Act of 2016 was passed to build upon existing efforts to significantly reduce GHG emissions. It requires a reduction in GHG emissions to 40% below the 1990 levels by 2030. This ambitious goal is proving to be more difficult. In fact, the State of California is not making large enough strides to meet it according to Next 10, an innovative nonprofit organization concerned with California's economic and environmental future.

California Green (CALGreen) Building Code

CALGreen Building Code was developed as a statewide effort to assist with reaching GHG emission reduction goals articulated in Assembly Bill 32. Containing the minimum building requirements with regard to statewide GHG emission reduction goals, CALGreen allows local governments the flexibility to adopt more stringent building standards.

CALGreen releases a new edition of the building code every three years by order of California legislature. The current edition of CALGreen Code contains required and voluntary building measures around the development of EV infrastructure. Given that this Plan is concerned with expanding EV infrastructure at destinations, MFDs, and workplaces, CALGreen standards which guide the development of charging stations at these sites are of special interest.

Electric Vehicle Terminology

Types of Electric Vehicles

The Plan distinguishes between two types of EVs which differ by the degree to which electricity is used as their primary energy source; EVs and BEVs, or Battery Electric Vehicles. The umbrella term EVs refer to all vehicles, including BEVs which operate on battery power and recharge from the electrical grid, including plug-in hybrid EVs and BEVs. This distinction is made primarily to assist in determining the number of Level 2 and DC fast charging stations are needed to support the EV community.

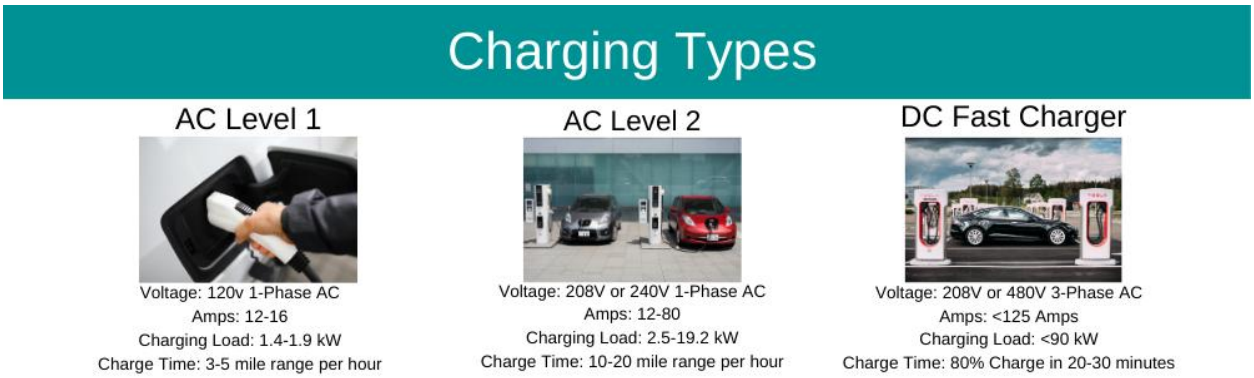
BEVs run entirely on electricity stored in batteries and have an electric drive motor. BEVs are able to utilize DC fast charging equipment to quickly replenish their batteries, whilst other EVs are restricted to using Level 1 and Level 2 charging stations only. BEVs typically come equipped with a larger electric range, allowing owners to drive longer distances on a single charge. According to EVadoption, a website which monitors and analyzes EV adoption trends, most BEVs have an average range of 216 miles per charge, and can be expected to have an average range of 256 miles per charge by the end of 2021. Examples of BEVs include the BMW i3, Chevy Bolt, Nissan LEAF, Tesla Model S, Tesla X, Tesla Model 3, and Toyota Rav4 EV.

EV owners should have convenient, reliable, and affordable access to charging. Eighty percent of EV owners charge their vehicles at home, followed by the workplace, if available. If these options are insufficient, drivers must rely on public charging infrastructure. This is especially critical for residents of multi-family dwelling units, where at-home charging options may not be available.

EV Charging Types

A charging station is an element of infrastructure that safely supplies electric energy for the recharging of EVs, also known as Electric Vehicle Supply Equipment (EVSE). Charging an EV is a fairly straightforward process, and many EV owners charge every day at home by plugging into a standard 120-volt wall outlet. EV charging stations come in a variety of designs and are separated into levels based on the amount of electricity that is transferred to a vehicle battery. EV charging stations with increased voltage translates to a faster charge time. There are three main categories used to describe EV charging.

Figure 2-1: EV Charging Specifications by Type



Level 1 Charging

Level 1 charging stations are the most basic and inexpensive form of charging. Level 1 charging uses a standard 120 Volt electrical supply to transfer between 1.4 and 1.9 kW of power from the electrical grid to vehicle batteries, equivalent to the electricity provided by a common wall receptacle. Level 1 charging can also occur through dedicated Level 1 charging equipment built specifically for EVs. Because Level 1 charging involves a fairly low transfer of electricity, it is the easiest to implement, but takes the longest to recharge a vehicle's battery. They provide 3-5 miles of range per hour of charging time. Level 1 charging is most typically done overnight and at one's home.

Level 2 Charging

Level 2 charging uses a 240 Volt circuit to transfer up to 19.2 kW of power to a vehicle's battery, making it a much faster recharging option than Level 1. This is the equivalent to the electricity required to power an electric dryer or large air conditioner. Because it operates at a higher voltage, Level 2 charging usually requires the purchase and installation of dedicated charging equipment. The majority of publicly available charging equipment across California utilizes Level 2 charging, and EV owners have even installed units in their homes. Level 2 chargers add about 10-20 miles of range per hour of charging time. With a Level 2 charger, a typical EV would require 1-3 hours of charge, while a BEV would require 4-8 hours for a full charge.

DC Fast Charging

DC fast chargers offer the fastest battery recharge currently available for EVs, transferring power at a higher voltage, usually between 440 and 480 Volts to deliver from 32 to 100 kW of power using direct current (DC) to vehicle batteries. These chargers are typically located in publicly available locations, usually at major destinations and/or near major transportation corridors to maximize the number of EVs that can access them. This charging option is ideal for long-distance travel, as DC fast chargers add 50-70 miles of range in 20-30 minutes. DC fast chargers are a high-cost charging solution with substantial electrical infrastructure required to sustain a DC fast charger.

Types of Charging Plugs

There are four types of high-powered EV chargers that are typically tracked. J-plugs (J-1772) are the most common type used with Level 2 chargers that are utilized by all EVs. CHADEMO and SAE chargers are high-powered DC fast chargers that can only be used by BEVs. Tesla Superchargers are also common DC fast chargers but are restricted to Tesla vehicle-use only. In May 2021, data regarding the types of charging plugs within the region were accessed using the EV infrastructure mapping site PlugShare. Of sites with Level 2 charging stations in San Bernardino County, a majority use J-plugs (J-1772).

Figure 2-2: EV Charging Plugs by Type

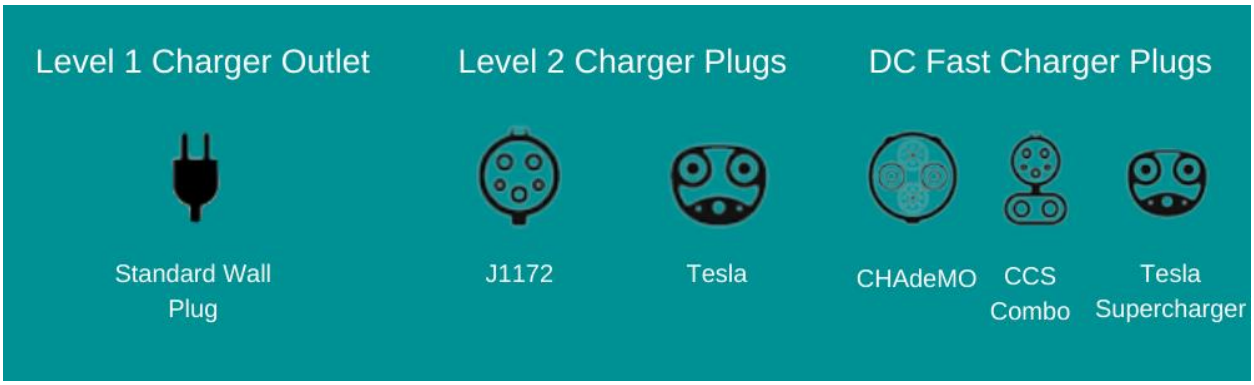


Table 2-1: EV Charging Levels

	Level 1	Level 2	DCFC
Description	Uses a standard plug-120 volt (V) Single phase service with a three-prong electrical outlet at 15-20 amperes (A)	Used specifically for EV charging 240 V AC split phase service at less than or equal to 80 A	Used specifically for BEV charging. Typically requires a dedicated circuit of 20-100A with a 480V service connection
Connector Type(s)	Can connect to a standard three-prong electrical outlet	J1772 charge port; Tesla	CHAdeMO; CCS Combo; Tesla Supercharger
Optimal Use	Residential or workplace charging	Residential, workplace, or opportunity charging	Destinations, rapid charging along major travel corridors
Limitations	Low power delivery lengthens charging time	Requires additional infrastructure and wiring	Can only be used by BEVs. Provides power much faster than the AC counterparts, but are more expensive to deploy and operate
Time to Charge	3 to 5 miles of range per 1 hour of charging. Depending on the vehicle battery size, EVs can be fully charged in 2-20 hours.	10 to 25 miles of range per 1 hour of charging. Depending on the vehicle battery size, EVs can be fully charged in 1-8 hours.	50 to 70 miles of range per 20 minutes of charging. Depending on the vehicle battery size, BEVs can be fully charged in 30-60 minutes.

Electric Vehicle Supply Equipment Levels

Residential and commercial developments can provide three levels of EVSE (electric vehicle supply equipment) readiness: EVSE capable, EVSE ready, and EVSE installed.

The most common configuration is EVSE Capable, which designates that a development is equipped with a dedicated branch circuit and a raceway that connects the electrical panel to the prospective EV parking spot. CALGreen Building Code requires that 10 percent of parking spaces in new construction MFDs be EV capable. Installing the actual EV charging station is not required.

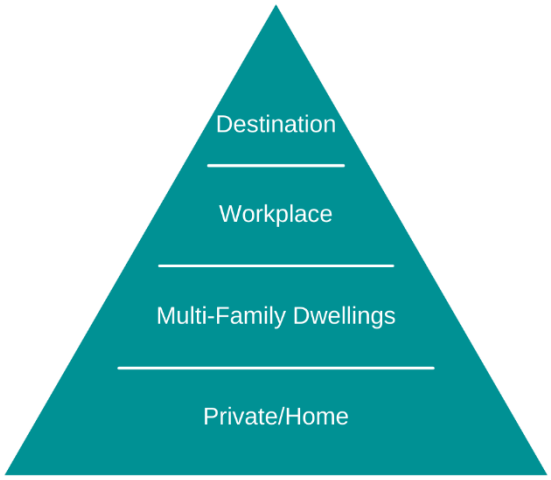
Parking stalls that are EVSE Ready indicate that an electrical panel and raceway has been installed, with enough conduit to either terminate in a junction box or a 208/240-volt charging outlet. CALGreen Building Code requires certain qualifying developments to be equipped with EVSE ready parking stalls. The number of EVSE ready parking stalls required depends on the number of total parking stalls. This is a step above EV Capable, preparing a site for the last step of installation. Installing the actual EV charging station is not required.

Lastly, EVSE installed parking stalls represent the EVSE process at its last step EVSE installed parking stalls refer to a Level 2 or DC fast charger being installed on site.

Charging Hierarchies

A charging hierarchy helps to focus future infrastructure needs and development priorities for EVSE. The base of the hierarchy indicates the charging locations that should be most numerous and common, and higher up the pyramid represents less frequent charging opportunities. This should not be misinterpreted as one level of the pyramid being more important than the other; having a well-balanced charging infrastructure that provides charging opportunities at all levels of the pyramid is critical.

Figure 2-3: Charging Hierarchies



Private/Home

At the base of the hierarchy are private, at-home chargers. Single-family homes tend to have sufficient electrical capacity to support overnight charging, and the installation of the necessary EV supply equipment (EVSE) is straightforward and has a predictable cost. These are typically Level 1 or Level 2 charging but can be DC fast charging as well. Most electric vehicle owners charge their vehicles at home, according to the Office of Energy Efficiency and Renewable Energy. The use of at-home Level 1 charging is a more affordable option for EV owners but takes significantly longer to charge than the use of Level 2 or DC fast chargers.

Multi-Family Dwellings

After private charging is multi-family dwelling (MFD) charging, which should be widely implemented for EV owners who live in MFDs. Level 2 charging is ideal for MFD charging. EV owners who live in MFDs face limited at-home charging options due to the complexities of negotiating costs, installation logistics, and liability issues with the landlord or site host. Installing EV chargers in common areas ensures equal access for all tenants and their guests. The barriers to installing charging infrastructure at existing MFDs can be alleviated by offering financial incentives to induce property owners to install charging equipment at their apartment complexes.

Workplaces

EV charging should be available to employees via on-site charging facilities, but is not intended to be an EV owners primary charging location. Level 1 or Level 2 charging is ideal for EV drivers who are using workplace chargers in addition to charging at home, or for EV drivers who lack at-home charging options. According to the Alternative Fuels Data Center, the workplace serves as a “second showroom,” further acquainting employees with EVs.

Destinations

Destination infrastructure opportunities include retail locations, shopping centers, gas stations, city facilities or other locations where a person typically parks for a relatively extended period of time. This type of charging is also known as *opportunity charging* and is suited for Level 2, or DC fast chargers depending on the location and type of site host. Destination charging should be implemented intentionally due to its high installation costs that can range from $10,000 to $91,000.

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Chapter 3: Where Are We Now?

The Current EV Landscape in Rancho Cucamonga

According to EV infrastructure mapping tool PlugShare, there are an estimated 31 public charging sites within Rancho Cucamonga, with a total of 206 public charging plugs, including both Level 2 and DC fast chargers. Public charging stations are typically available for unrestricted use or by intended recipients. At MFDs and workplaces, chargers may be utilized for tenants and employees only, however because these chargers are available to these groups, they are considered public chargers. Currently, there is a ratio of 12 registered EVs to one charging plug. Each site has a varied number of chargers, and each charger has either one or two plugs available for use.

DC Fast Charger at Rancho Cucamonga Civic Center

Level 2 Charger at Chaffey College

Figure 3-1 depicts current EV charging sites throughout the City. As a part of the City's efforts to upgrade its EV charging infrastructure, City-operated charging stations have been identified for permanent removal due to poor placement and subsequent low utilization. Thus, in coming months there will be 25 charging sites rather than the 31 listed in Table 3.1.

Figure 3-1: Charging Sites in Rancho Cucamonga

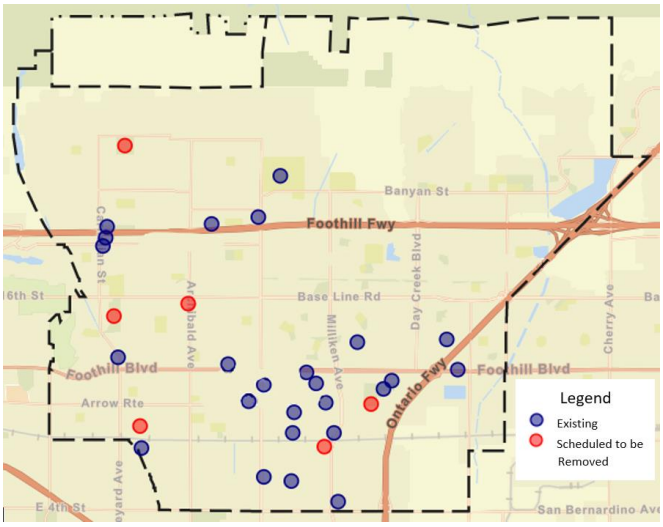


Table 3-1: Complete List of EV Charging Stations in Rancho Cucamonga

Location	Location Type	Number of Level 2 Plugs	Number of DCFC Plugs	Zip Code
Animal Care & Adoption*	Destination	1	0	91730
Archibald Library*	Destination	1	0	91730
Arte	MFD	4	0	91730
Beryl Park West*	Destination	1	0	91701
CA Lottery	Destination	4	2	91730
Chaffey College	Destination	4	0	91727
Fairfield Inn and Suites	Destination	6	0	91730
Fire Training Academy*	Workplace	1	0	91730
Heritage Community Park*	Destination	1	0	91737
Homecoming at Terra Vista	MFD	1	0	91730
Inland Empire Health Plan (IEHP)	Workplace	82	0	91730
Mercury Insurance Group	Workplace	28	0	91730
Merrill Gardens	Destination	4	0	91737
Metrolink Station*	Destination	2	0	91730
Najarian Furniture	Destination	3	2	91730
Public Safety Facility*	Destination	4	0	91730
Public Works Center*	Destination	1	0	91730
RC Civic Center*	Destination	2	1	91730
RC Sports Center*	Destination	1	0	91730
Red Hill Community Park*	Destination	1	0	91730
Residence Inn by Marriott	Destination	6	0	91730
Rite Aid	Destination	2	0	91701
Steelscape	Workplace	1	0	91730
Tesla Service Center	Destination	4	0	91730
Tesla Supercharger Station	Destination	0	8	91739
The Resort	Destination	2	0	91730
Vehicle Accessory Center	Workplace	4	0	91730
Victoria Gardens	Destination	4	13	91739
VSPA/Courts Parking	Destination	2	0	91730
Walgreens	Destination	1	0	91737
Walgreens Alta Loma	Destination	1	0	91701
		179	27	Total Charge Plugs: 206

*indicates city-owned charging stations

Usage of City-Owned EV Chargers

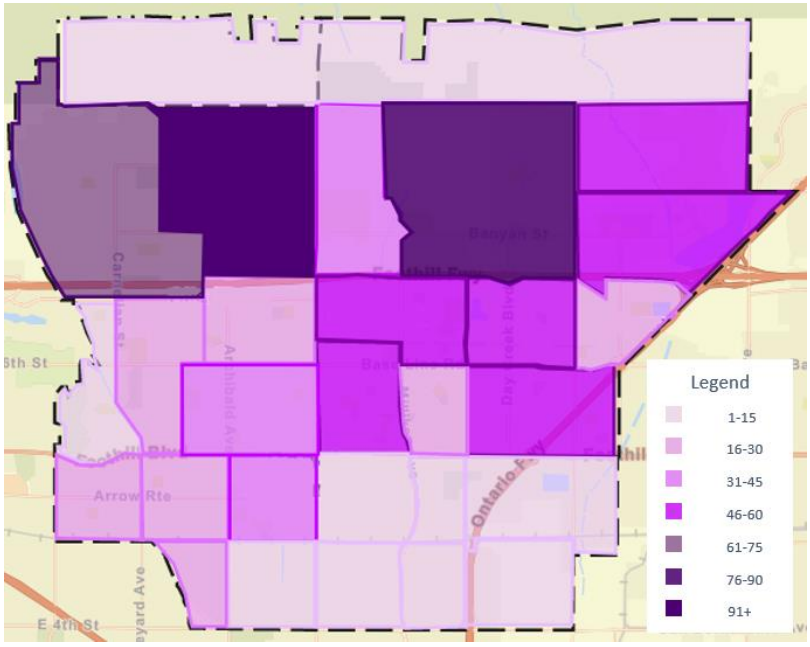
Most recent data shows that the 17 City-owned charging plugs are being utilized at varying frequency. Between April 2019 and March 2020, the City's Level 2 chargers received a total of 847 visits with the average charging session lasting 1 hour and 56 minutes. The most utilized charging stations are the two Level 2 chargers at the Civic Center, with 394 charges during the same 12-month period. Some chargers experience very little activity, such as the chargers at Public Works Service Center, Archibald Library, and Animal Care and Adoption Center.

The City also operates a DC fast charger in the north parking lot of City Hall and, partnered with an EVgo in the placement of a DC fast charger located at Victoria Gardens in the West parking structure. Both of these chargers have significant usage. During calendar year 2020, the DC fast charger at City Hall received 563 charges with the average session lasting 25 minutes, The DC fast charger at Victoria Gardens is receiving approximately four visits per day, which equates to over 1,500 charging sessions annually.

Current EV Ownership

EV registration data was accessed through the CA Department of Motor Vehicles, allowing the City to make projections on future trends of EV ownership. As of January 1, 2020, there were 15,203 electric vehicles registered in San Bernardino County. Of the 141,571 vehicles registered in Rancho Cucamonga, there are 2,551, or approximately 1.8%, electric vehicles. Data collected by Southern California Association of Governments (SCAG) in 2016, as shown in Figure 3-2, depicts the density of EV registrations in alignment with travel analysis zones (TAZ), which is closely aligned with Census tract boundaries.

Figure 3-2: EV Registration Density by Travel Analysis Zones



Charging Availability in Rancho Cucamonga

Currently, there are 179 Level 2 charging plugs and 27 DC fast charging plugs in Rancho Cucamonga. Table 3-2 details the number of Level 2 and DC fast charging plugs at destinations, MFDs, and workplaces. The workplace charging network is the most expansive category, with 116 Level 2 charging plugs. However, a majority of these are concentrated at the Inland Empire Health Plan location.

Table 3-2: Charging Plug Type by Location

Location Type	Level 2	DCFC
Destination	58	27
Multi-Family Dwelling	5	0
Workplace	116	0

Regional and Local Policy

In alignment with the State of California electric vehicle targets, substantial work has been completed at the regional and local level to advance these efforts. Rancho Cucamonga was one of nine cities to participate in a regional working group to develop and publish the San Bernardino Council of Governments' (SBCOG) Zero-Emission Vehicle Readiness and Implementation Plan. The regional plan outlines goals for increasing EV ownership and infrastructure while reducing greenhouse gas emissions. Through the California Energy Commission EV infrastructure Projection (EVI-Pro) Model, SBCOG has set the goal of providing 3,980 Level 2 chargers and 377 Level 3 DC fast chargers by 2025. The City of Rancho Cucamonga aims to intentionally embrace and anticipate this future as outlined in our Council's Core Values while ensuring the identified goals, policies and strategies are consistent throughout the various regional and citywide documents.

General Plan

The City of Rancho Cucamonga's General Plan sets a long-term vision and provides policy direction and guidance to residents, City staff, decision-makers, and the broader community. It was completed in 2010 and contains goals, policies, and actions that address the various key elements including land use, circulation, housing, conservation, open space, noise and safety. There are four policies contained in the General Plan regarding the buildout of electric vehicles and infrastructure listed in the Community and Mobility (CM) Section and Resource Conservation (RC) sections. This includes CM Policy 2.3 to support the use of hybrid, electric, and low/zero emission vehicles, CM Policy 2.4 to replace City vehicles with energy-efficient and alternative fuel source models when replacing vehicles or adding to the City's fleet, CM Policy 2.6 to accommodate charging and fueling stations for alternative fuel vehicles, and put forth strong efforts to have charging facilities provided at employment centers, and Policy RC 5.3 to explore and consider the costs and benefits of alternative fuel vehicles including hybrid, electric, natural gas, and hydrogen powered vehicles when purchasing new City vehicles.

The City is in the process of updating its General Plan which includes the development of a Climate Action Plan. Climate action planning is an important part of the General Plan process as Rancho Cucamonga aims to meet state greenhouse gas reduction targets. The General Plan is a master document with overarching guidelines while the EV Readiness Plan provides additional specific details and is closely aligned with the citywide policy documents.

Sustainable Community Action Plan

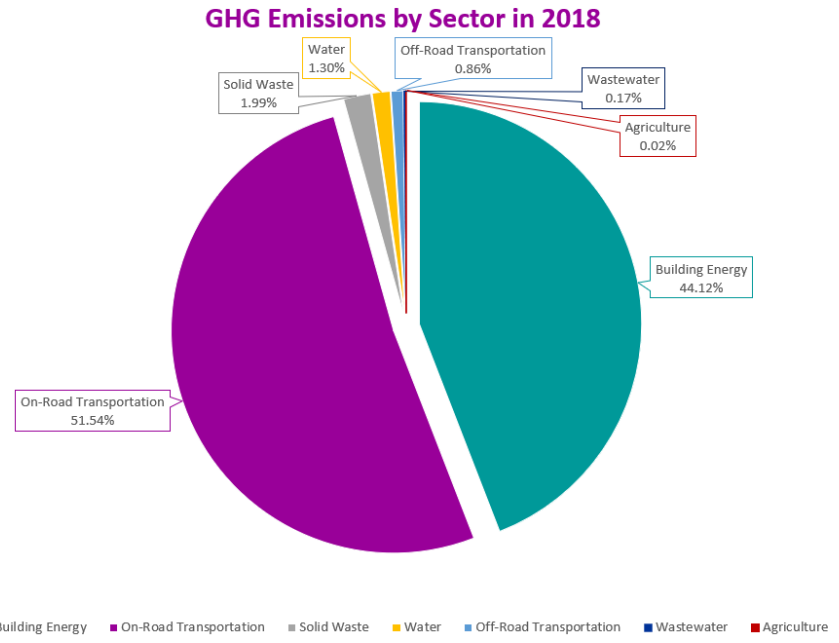
Rancho Cucamonga adopted the Sustainable Community Action Plan in 2017, complementing the Healthy RC initiative developed in 2008. Healthy RC is a City-community partnership that develops programs, policies, infrastructure, partnerships, and community events to help build and maintain healthy minds, healthy bodies, and a clean and sustainable earth. The Sustainable Community Action Plan builds upon other planning efforts in RC, prioritizes the 'triple bottom line' of economic, health, and environmental benefits, and plans future steps for RC to move towards a more sustainable future.

Within the Sustainable Community Action Plan, Policy #4 indicates to increase the use of alternative fuels and EVs. The Transportation and Mobility Action 4.1 supports the development of electric vehicle infrastructure and charging stations at City-owned and private property. The Transportation and Mobility Action 4.2 aims to support efforts to introduce and integrate alternative fuel vehicles and technologies into the transportation network.

Greenhouse Gas (GHG) Emissions

The growing utilization of plug-in electric vehicles (EVs) will contribute towards reduced fossil fuel consumption and a reduction in GHG emissions, resulting in cleaner air quality, improved health outcomes, and reduced impact on the climate. A GHG Inventory Report was conducted in 2018, which monitors a list of activities and their GHG emission impact. The largest contributor to GHG emissions is On-road Transportation, emissions which involve the use of vehicles on roadways and freeways to and from the city. The second largest contributor to GHG emissions is Building Energy, referring to the consumption of energy and natural gas to power commercial, residential and industrial buildings.

Figure 3-3: GHG Emissions in the City of Rancho Cucamonga

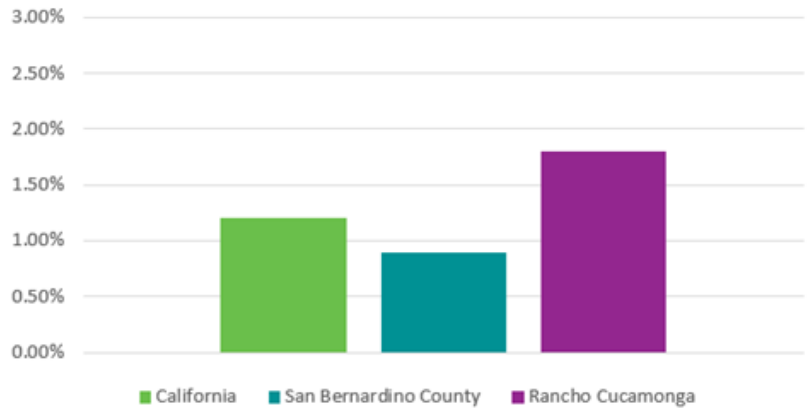


Chapter 4: Where Do We Need to Go?

EV Registrations

As of January 2020, Rancho Cucamonga is home to 2,551 total EVs, which is 16.78% of total EVs in San Bernardino County. Approximately, 1.8% of vehicles in Rancho Cucamonga are EVs, which is twice as high as the County's average, at 0.9%. The City has the highest percentage of EVs countywide, and exceeds the State's average of EVs at 1.2%.

Figure 4-1: Percentage of Electric Vehicle Registrations



Adjusted County and City EV Projections

The California Energy Commission (CEC) had originally estimated that by 2020, San Bernardino County would have 21,894 EVs. As of January 2020, there were only 15,203 EVs registered in the County of San Bernardino. In order to reflect the current rate of ownership of EVs, the CEC estimates were subsequently adjusted. DMV data was used to calculate the growth of EV ownership within the County between 2018 and 2020. This data was applied to the CEC estimates to determine the estimated EV ownership in the County for 2025 and 2030 (Table 4-1). The City in turn used the County projections for 2025 and 2030 in conjunction with currently having 16.78% of all County EV registrations, to estimate its own projections for 2025 and 2030 (See Table 4-2).

Table 4-1: Adjusted San Bernardino County EV Projections

Year	Total EVs	Total BEVs*
2018	8,033	3,019
2019	11,526	4,365
2020	15,203	6,703
2025 (projected)	43,772	23,153
2030 (projected)	72,287	39,603

*EVs include BEVs and plug-in hybrid vehicles

Table 4-2: Rancho Cucamonga EV Projections

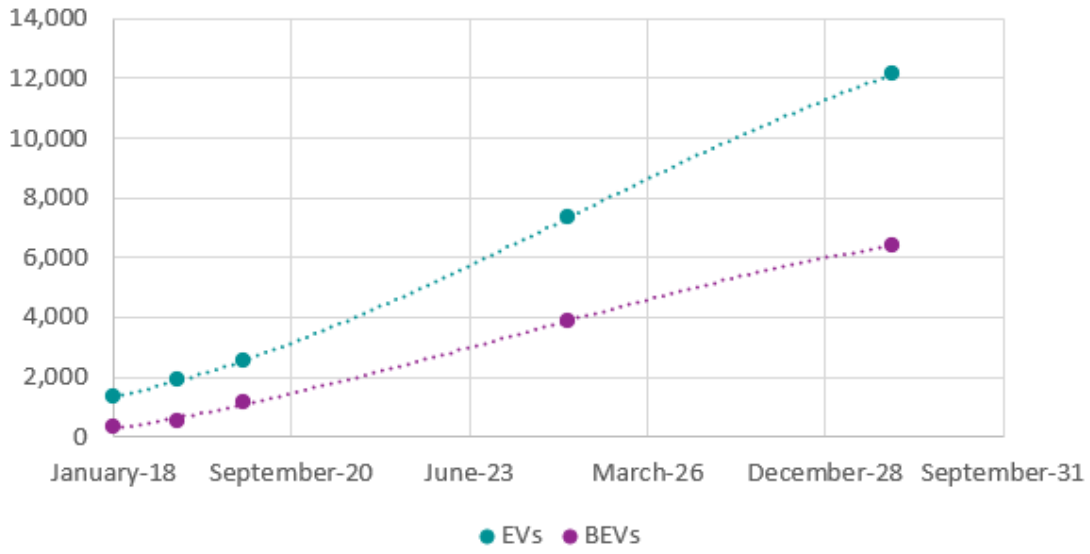
Year	Total EVs	Total BEVs*
2018	1,353	308
2019	1,895	547
2020	2,551	1,160
2025 (projected)	7,345	3,885
2030 (projected)	12,129	6,415

*EVs include BEVs and plug-in hybrid vehicles

Adjusted County of San Bernardino EV Projections

DMV data shows that between 2018 and 2020, the County of San Bernardino has seen an average increase of 37.7% for total EVs, and 49.1% for BEVs. Although the County has not reached the 2020 EV estimate provided by the Commission in SBCOG's ZEV Readiness Plan, the County is on track to reach the 2025 estimate. Adjusted estimates based off of DMV data have been developed and utilized to estimate projections through 2030, as shown on Figure 4-2.

Figure 4-2: EV Registration Projections 2020-2030



*EVs include BEVs and plug-in hybrid vehicles

Future Charging Needs

Plug count demands for 2025 and 2030 were found using the recommended EV-to-plug ratios in SBCOG's ZEV Readiness and Implementation Plan and the EV estimates in Table 4-2. Currently the EV-to-plug ratio within the City is 12 to 1. According to this regional guidance, the City should meet or exceed the 11 to 1 EV-to-plug ratio goal by 2025 to adequately meet charging demand. To account for the growing number of EVs within the city, Rancho Cucamonga estimates that the community will need a total of 250 Level 2 charging plugs, and 22 DC fast charging plugs by 2025. As of 2020, we have exceeded the DC fast charger demand with 27. The community should have a total of 380 level 2 charging plugs and 35 DC fast charging plugs to meet charging demand in 2030.

Table 4-3: 2025 and 2030 EV Charging Infrastructure Projections

Year	Level 2			DC Fast Charger		
	Number of EVs*	EV-to-Plug Ratio	Level 2 Plugs Needed	Number of BEVs	BEV-to-Plug Ratio	DC Fast Charger Plugs Needed
2025	7,345	11	250	3,885	66	22
2030	12,129	11	380	6,415	66	35

*EVs include BEVs and plug-in hybrid vehicles

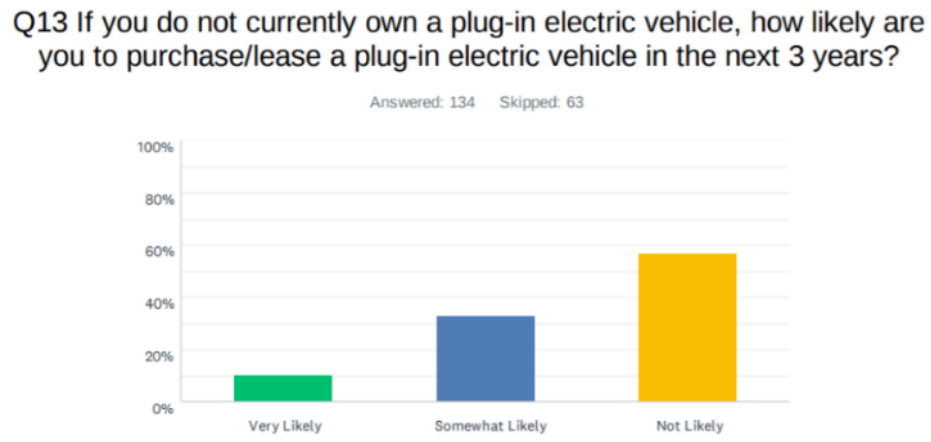
Electric Vehicle Readiness Plan Survey Results

The City of Rancho Cucamonga conducted an informal Electric Vehicle Readiness Plan survey from January to March 2019 with nearly 200 responses received. It was conducted at various special events, online, and through electric vehicle charger station payment providers. The survey was designed to solicit responses from non-EV owners regarding what would encourage them to purchase an EV, as well as those who currently own an EV in order to better assess what their charging needs are. The responses confirm that the City it will continue to see a rapid increase in EV ownership as nearly half of the respondents indicated that they were likely to purchase an electric vehicle in the next three years. EV owners charge their vehicle at a variety of locations, confirming the need for additional EV infrastructure at workplaces, multi-family units, and destinations. The data collected from this survey helped to shape the strategies and polices recommended in this Plan.

Likelihood of EV Ownership

For those who do not currently own an EV, 10% reported that they would be “Very Likely” to purchase one within the next 3 years, 33% were “Somewhat Likely”, and 58% responded that they would be “Not Likely”. Between 2019-2020, we have already seen a 23% increase in EV ownership in San Bernardino County.

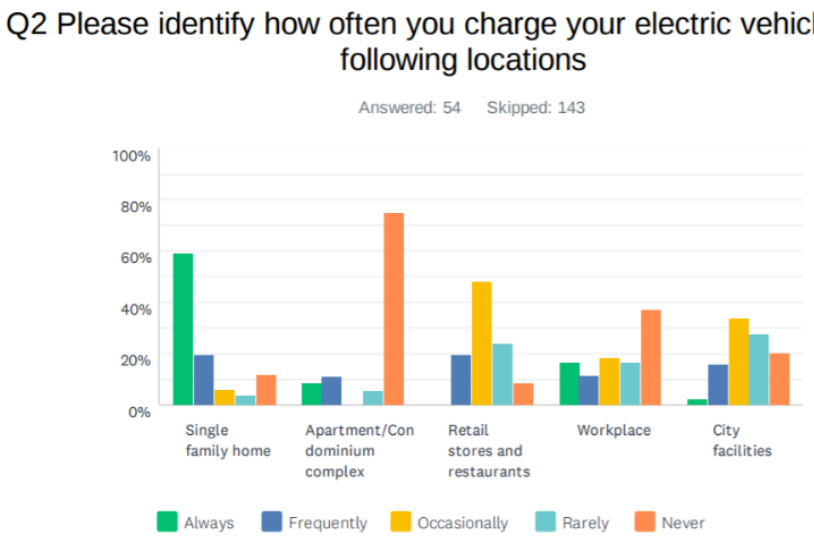
Figure 4-3: Likelihood of EV Ownership



Primary Charging Locations

EV owners charged their vehicles with the highest frequency at single-family homes, with 58% of EV owners reporting that they “Always” charge at home. The second most-commonly used charging location was the workplace, with 17% of respondents saying they “Always” charge at their workplace. Approximately 9% of EV owners reported high usage of a multi-family dwelling (MFD) charging station and 2% reported frequent usage of city-owned charging facilities. There is a significant need to expand the number of EV charging stations within MFDs, since only two MFDs currently offer EV charging. Nearly 60% of EV owners reported that they “Occasionally” charge their vehicles at retail stores and restaurants.

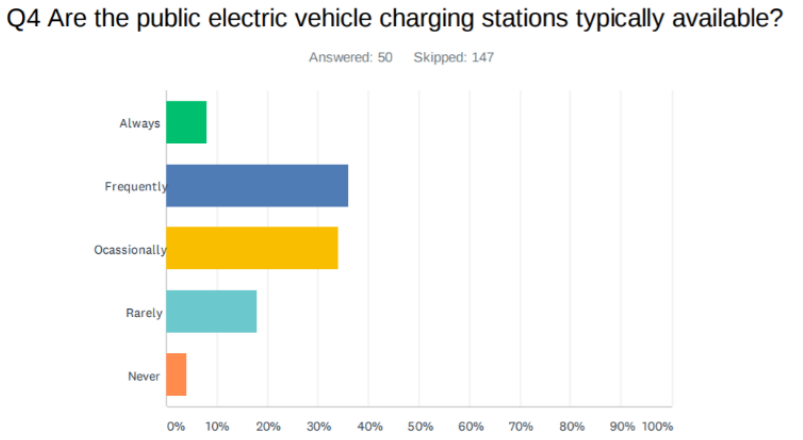
Figure 4-4: Primary Charging Locations



Availability of Charging Locations

A total of 43% of respondents said that EV charging stations are typically available, however 22% of respondents articulated that EV chargers were rarely or never available to them. Although this data indicates that the City of Rancho Cucamonga provides adequate charging stations, there will be a greater need to keep up with the rapidly growing market of EVs within the next 10 years.

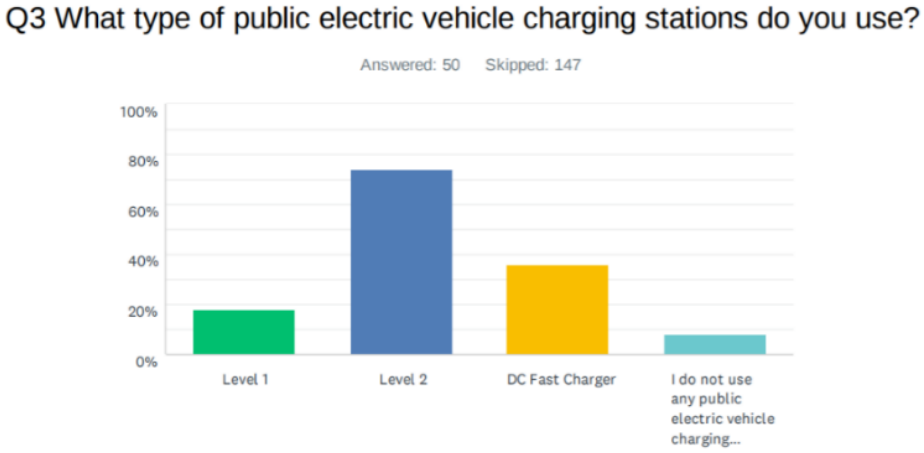
Figure 4-5: Availability of Charging Locations



EV Charging Station Type

The Level 2 charger was the most utilized public charging level, with 73% of EV owners reporting using Level 2 chargers. Level 2 chargers will continue to be highly utilized since they are cheaper to install and can provide 25-30 miles of charge per hour. The usage of DC fast charging stations should also be noted, which is reflected in the 35% of respondents reporting that they use public DC fast chargers.

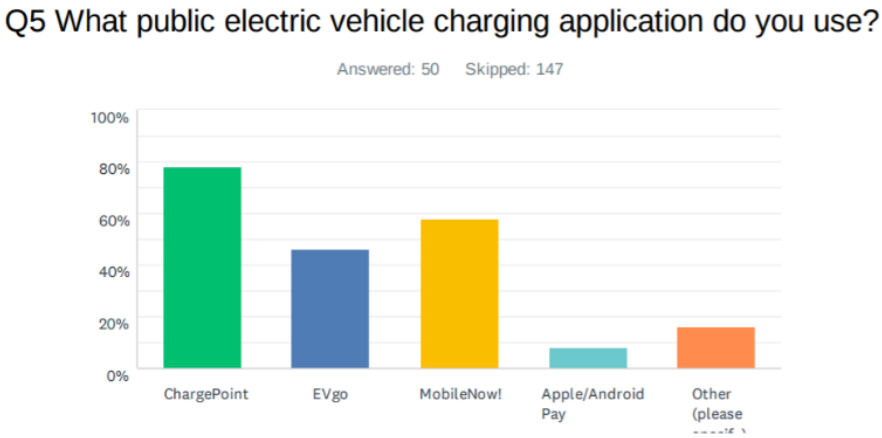
Figure 4-6: EV Charging Station Type



EV Charging Applications

ChargePoint's easy to use mobile interface makes it the more desirable option among EV owners. City-owned EV charging stations primarily ran through MobileNow!, which ceased their operations in 2020.

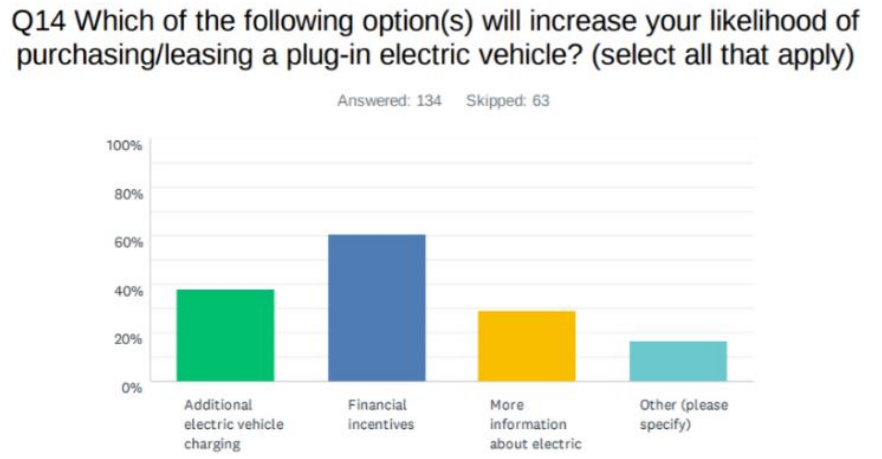
Figure 4-7: EV Charging Applications



Factors that Promote EV Ownership

A total of 65% of respondents reported that financial incentives were the number one factor in increasing their likelihood of purchasing or leasing an EV. Nearly 40% of respondents also indicated that the availability of additional electric vehicle charging stations is important in their decision to purchase an EV. Additional information about EV's and various incentives will be useful for potential EV owners.

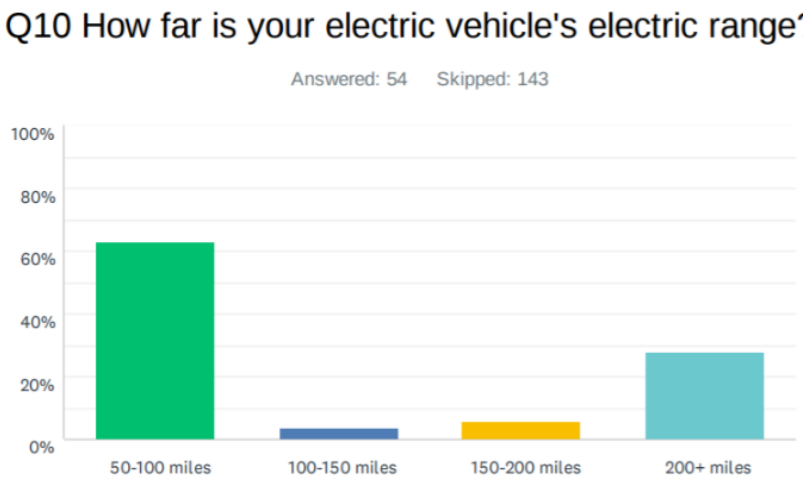
Figure 4-8: Factors that Promote EV Ownership



Electric Vehicle Range

The vast majority of respondents own EVs with a range of 50-100 miles in a single charge. EV owners with a long daily commute may rely on workplace chargers to return home.

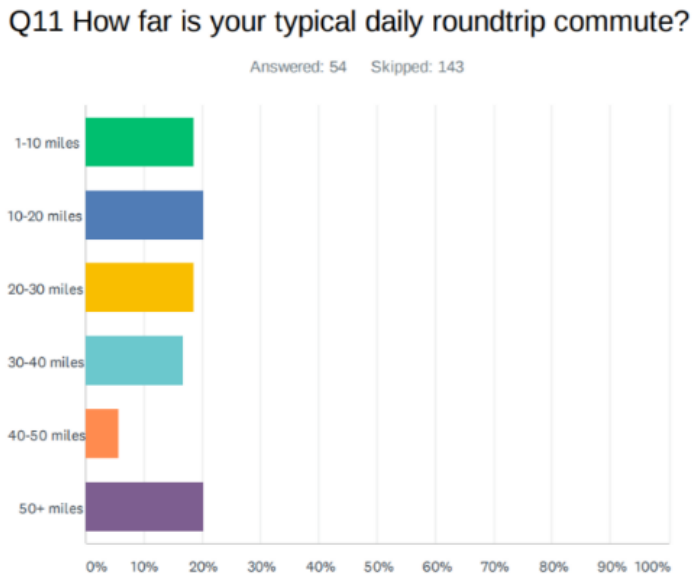
Figure 4-9: Electric Vehicle Range



Daily Commute

Approximately 20 percent of EV owners drive over 50 miles round trip during their daily commute. EV owners with lower electric range may rely on charging stations at or near their workplace to return home.

Figure 4-10: Daily Commute



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Chapter 5: How Do We Get There?

Recommended Strategies

The City is projected to have 7,345 EVs by 2025 and 12,129 EVs by 2030. To match these projections of growing EV ownership, the City will need to have a total of 272 charging plugs by 2025, and 405 charging plugs by 2030. In order to reach these goals, a number of strategies have been identified and are recommended for implementation.

1. **Optimal charging sites identified:** A quantitative and qualitative siting methodology for identifying optimal locations for EV charging was developed. Locations considered optimal for EV charging at destinations, workplaces, and multi-family dwellings have been identified for future outreach and collaboration.

2. **Development policy recommendations:** Eleven sample development policies for new construction, existing development, and new City facilities are identified for adoption.

3. **Upgrade City-owned EV charging infrastructure:** The City-owned and operated EV charging stations were installed nearly a decade ago and are now obsolete. The charging stations should be upgraded EV owners will be familiar with and comfortable utilizing the City's chargers.

4. **Explore on-street charging:** The City should evaluate an on-street charging approach when trying to expand charging opportunities in targeted areas. An example of a location which has already been identified as optimal for EV charging is the Terra Vista area, providing easy access for up to 1,000 apartment units within a 5-minute walk. Also, to identify optimal on-street charging opportunities in current and future development, the Planning Department should "flag" certain development plans based on pre-established criteria.

5. **Equitable access:** Utilizing a modified qualitative and quantitative methodology for identifying optimal locations, a number of affordable housing complexes located within the Disadvantaged Community (DAC), as identified by Cal EnviroScreen, have been identified for EV charging installation. The Family Resource Center and the Northtown Community Center, also located in the DAC, are identified as potential charging sites as well.

6. **Gas Stations:** As gasoline-powered vehicles are phased out for the next 20 years, key gas stations along major transportation corridors have been identified as optimal sites for transitioning to EV chargers.

7. **Other destination charging opportunities:** The Rancho Cucamonga Family Resource Center, Northtown Community Center, Haven City Market, and future high-speed rail/multi-modal station are also identified as key locations for EV chargers.

8. **Accommodate EV Pickup Trucks with Trailers:** As automobile manufacturers begin to unveil new lineups of EV pickup trucks, EV charging stations which are adequately sized to accommodate pickup trucks with attached trailers should be developed. The current EV charging network is unable to accommodate EV trucks with attached trailers.

Site Selection Analysis for EV Charging

Methodology

Utilizing a data-based site selection analysis, the top 10 charging locations for each of the following location types were identified: destination, workplace, and multi-unit family dwellings. Using the Analytical Hierarchy Process (AHP) and the Multi-Attribute Decision Method (MADM), a quantitative analysis was constructed to identify optimal EV charging locations. The methodology utilized a variety of data which included, depending on location type, parking, employee size, distance to nearest charging stations, cost of rent, age of building site, number of units, number of EVs in Rancho Cucamonga zip codes, AM/mid-day EV density, proximity to amenities, and proximity to areas in Rancho Cucamonga that are in need of charging stations. Using data-based decision-making helps ensure that future siting is strategic and focused. This methodology can be applied to any city parcel in order to determine site suitability for EV charging infrastructure. This section describes the methodology used by the City to determine optimal locations for EV infrastructure.

Table 5-1: Site Suitability Analysis Methodology

Criterion	Step
Methodology	1) Assigned parcel based on land use: MFD, Workplace, or Destination.
	2) Developed a data set that contained relevant criteria such as: cost of rent, employee size, employment type, number of employees to parking spaces, year built, number of units in an MFD, number of units to parking spaces, location, distance to nearest charger, number of EV's within a zip code, AM/PM EV density, and distance to shopping and other amenities.
	3) Applied the Multi-Attribute Decision Making Method (MADM) to weight the importance of each data input.
	4) Applied Analytical Hierarchy Process (AHP).

Multi-Attribute Decision Making (MADM) Scoring

MADM involves evaluating the importance of a criterion based on its relation to another. Two criterions at a time are compared to each other using the weights below.

Table 5-2: MADM Scoring

Intensity of Importance	Definition
1	Equal Importance
2	Midpoint
3	Moderate Importance
4	Midpoint
5	Strong Importance
6	Midpoint
7	Very Strong Importance
8	Midpoint
9	Extreme Importance

Analytical Hierarchy Process (AHP)

The analytical hierarchy process was used to identify optimal EV infrastructure sites at destinations, MFDs, and workplaces. The process begun with identifying the objective goal, which is to place EV charging stations intentionally, maximizing the opportunity for utilization. Several criteria were then identified based on each location type to flag locations as optimal for EV infrastructure. Next, a hierarchy was constructed between each criterion, and pair-wise comparisons were made. Finally, weights for each criterion were calculated based on this pair-wise comparison.

Table 5-3: Criteria Description

Criteria	Description
Amenities	Amenities include restrooms, shopping, and restaurants
Distance to charger	Distance to nearest level 2 or DCFC charging station
Mid-day EV density	EV density of a parcel during mid-day hours
Number of EVs	EV ownership within a zip code
Cost of rent	Average cost of rent for a 2-bedroom apartment at an MFD
Number of units	Number of units in an MFD
Number of units to parking stalls	Ratio of units to available parking stalls
Age of development	Year the workplace/MFD/destination was built
Number of employees	Number of employees at a workplace
Number of employees to parking stalls	Ratio of employees to parking stalls
AM EV density	EV density of a parcel during morning peak hours
Office	Employment type: office

Destinations

Destinations consist of retail locations, shopping centers, gas stations, City facilities or other areas with a relatively long dwell time. Optimal charging sites for destinations must include an analysis in consideration of mid-day EV density, distance to nearest charging station, number of EVs within a zip code, and ample amenities nearby. Amenities, such as Wi-Fi, restrooms, and restaurants, are the most important criteria measured because the placement of EV charging in close proximity to these amenities will support the local economy, as well as EV ownership.

Table 5-4: Destination Assigned Weight Justification

Criteria	Weight	Justification
Amenities	4	Destinations with amenities such as Wi-Fi, restrooms, and restaurants are optimal for EV charging sites.
Distance to charger	3	Destinations farther than 0.5 miles away from the nearest charging stations have a higher need to install one on site.
Mid-day EV density	2	Destinations with higher midday EV density indicate primal locations for EV charging stations.
Number of EVs	2	The number of EV's registered to a zip code is significant in determining the demand of EV infrastructure for the community.

Table 5-5: Top 10 Destination Locations for EV Charging

Name	Street Address	Zip Code	Rancho Cucamonga Score
Winery Estate Marketplace	7355 Day Creek Blvd	91739	99.1
Four Points Hotel	11960 Foothill Blvd	91739	99.1
99 Ranch	9775 Base Line Rd	91730	96.4
Terra Vista Town Center	10701 Town Center Dr	91730	96.4
Virginia Dare Winery Center	8200 Haven Ave	91730	96.4
Thomas Winery Plaza	8916 Foothill Blvd	91730	96.4
Orchard Plaza	9116 Foothill Blvd	91730	96.4
Central Park	11200 Baseline Rd	91701	92.5
Ralph's	12201 Highland Ave	91739	92.5
Day Creek Marketplace	7200 Day Creek Blvd	91739	92.5

Figure 5-1: Top 10 Destination Charging Locations

Multi-Family Dwellings

In determining optimal locations for MFD charging sites, an analysis specific to Rancho Cucamonga includes the number of units, cost of rent, number of units to parking stalls, age of MFD, and number of EVs within a zip code. The cost of rent and the number of units within an MFD have been identified as the most important criteria in selecting EV charging locations. Data has shown a correlation between household income and EV ownership. The number of units within an MFD increases the community benefit of having an EV charger on site and increased demand and need. These recommendations do not consider electrical infrastructure capacity or property owner interest, rather, it identifies prime locations for EV charging based on the articulated criteria.

Table 5-6: MFD Assigned Weight Justification

Criteria	Weight	Justification
Cost of rent	3	A study prepared on behalf of the California Air Resources Board displayed a correlation between household income and EV ownership.
Number of units	3	MFD's with a larger number of units increases the community benefit of having EV infrastructure on site.
Number of units to parking stalls	2	ADA guidelines necessitate the loss of two parking spaces to equate to one EV charging space. MFD property owners are more willing to install EV infrastructure if they have a higher parking space to unit ratio.
Age of development	1	The age of an MFD correlates to energy capacity, making it easier for MFD's constructed after 1990 to install EV on site.
Number of EVs	1	The number of EV's registered to a zip code is significant in determining the demand of EV infrastructure for the community.

Table 5-7: Top 10 MFD Locations for EV Charging

Name	Street Address	Zip Code	Rancho Cucamonga Score
The Reserve	11210 Fourth St	91730	93.3
The Angelica	7828 Day Creek Blvd	91739	91.8
Victoria Arbors	7922 Day Creek Blvd	91739	91.8
Solamonte	9200 Milliken Ave	91730	87.2
Jamboree	10950 Church St	91730	85.1
Carmel	10850 Church St	91730	83.7
The Enclave	11755 Malaga Dr	91730	80.5
Ironwood	11100 Fourth St	91730	76.5
Camino Real	7951 Etiwanda Ave	91739	72.9
Village on 5th	9400 Fairway View Pl	91730	72.3

Figure 5-2: Top 10 MFD Charging Locations

Workplaces

A workplace parcel analysis that is specific to Rancho Cucamonga includes: employee size, employment type (prioritizing office buildings), AM EV density, and available parking stalls that can be converted to an EV charging station. Employee size is the most significant factor weighted in this analysis since workplaces with a larger number of employees are more equipped to recover costs from EV infrastructure due to higher usage by employees.

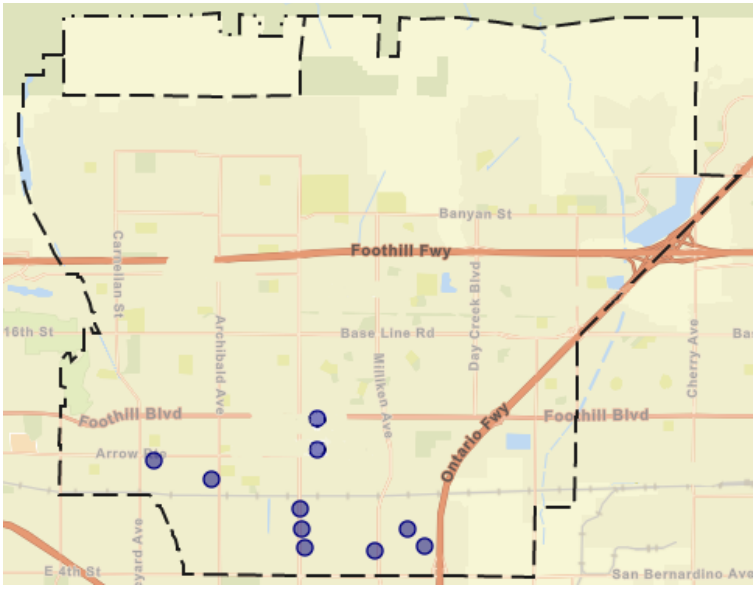
Table 5-8: Workplace Assigned Weight Justification

Criteria	Weight	Justification
Number of employees	4	Workplaces with a larger pool of employees are better able to justify costs for EV infrastructure due to higher demand and usage by employees.
Number of employees to parking stalls	2	Workspaces with larger parking areas can more easily convert more spaces to EV infrastructure.
AM EV density	2	AM EV density can tell us where large numbers of EVs are congregated during morning peak hours.
Office	1	The office field is either a yes or no (0 or 1).

Table 5-9: Top 10 Workplace Locations for EV Charging

Name	Street Address	Zip Code	Rancho Cucamonga Score
Arrow Business Center	11010 Arrow Route	91730	99.6
Realty One	10681 Foothill Blvd	91730	95.6
Rancho Technology Center	9605 E 9th St	91730	95.6
Arrow Business Center #2	9007 Arrow Route	91730	95.6
Amphastar	11570 6th St	91730	91.5
Bradshaw International	9409 Buffalo Ave	91730	90.3
The Executive Suite at Haven	9431 Haven Ave	91730	88.1
Aerotek	9445 Fairway View Pl	91730	88.1
Adecco	9227 Haven Ave	91730	84.0
Stone Haven	9500 Haven Ave	91730	82.8

Figure 5-3: Top 10 Workplace Charging Locations



Development Policy Recommendations

The implementation of development policies that prioritize the need for EV supply equipment for new and existing development plays a crucial role in expanding EV infrastructure. Below are the abbreviated development policies and directives that the Plan recommends adopting to expand EV charging opportunities in the community. The complete list of recommended policies, which can be found in Appendix B, are to be considered in the upcoming Development code update. Actual Development Codes ultimately adopted may vary from what is recommended, however it is expected to meet or exceed the intent of each standard contained in these recommendations.

Adopt CALGreen's Tier 2 Voluntary Measures

The Plan recommends that CALGreen's Tier 2 voluntary measures be adopted for commercial, industrial, and multi-family dwelling developments, to facilitate the installation of EV charging stations. The current CALGreen Building Code requires multi-family dwellings to allocate 10 percent of parking stalls to be EV Capable (conduit installed), and Tier 2 voluntary measures would increase this allocation to 20 percent. For commercial and industrial developments, the number of EV Ready (conduit with electrical outlet installed) parking stalls depends on the number of total parking stalls available. For example, currently it is required that approximately 6 percent of the parking stalls be EV Ready and Tier 2 would increase this to 12 percent. Future updates to CALGreen Code would guide property owners on the percentage of EV capable parking stalls that shall be installed.

Require the Installation of EV Charging Stations at New Construction

New commercial, industrial, and multi-family dwelling developments must install a minimum of two dual port Level 2 chargers or one DC fast charger. EV charging station count requirements beyond this are determined by the number of EV capable parking stalls at each site. For every 10 EV capable or EV ready parking spaces provided, a minimum of two dual port Level 2 chargers or one DC fast charger must be installed. All newly constructed City-owned facilities are also subject to installing a minimum of two dual port Level 2 chargers or one DC fast charger.

Require the Installation of EV Charging Stations at Tenant Improvement Sites

Exterior tenant improvements exceeding a specified valuation will trigger the installation of electric vehicle charging stations. Parking reconfigurations are also subject to the installation of electric vehicle chargers. A minimum of two dual port Level 2 chargers or one DC fast charger must be installed.

Ensure Accessibility

Currently, there is a disconnect between CALGreen requirements for the placement of EV capable parking stalls and ADA requirements. This causes obstacles during future EV charging station installation process, which requires that the first EV charging space be in compliance with accessibility requirements. To address this gap, the placement of conduit used for EV supply equipment should be provided so that the first EV charger will be placed nearest to ADA stalls.

Equip Solar Carports with EVSE Capability

A commercial solar carport will be required to install conduit for supporting future EV charging use. If an electric vehicle charger is installed at a solar carport within one year of the solar carport's installation, the permitting fee for the charger will be waived.

EV Infrastructure Signage

Directional signage must be present at the street entrances of parking lots to indicate the presence of electric vehicle chargers. At the location of each parking stall, restrictive signage must be installed, either by the usage of pole signs, or by way of pavement markings. Commercial advertising on EV charging stations is permitted only when EV charging is offered free of charge. This does not include standard manufacturer labeling of an EV charging product.

Upgrade City-Owned EV Infrastructure

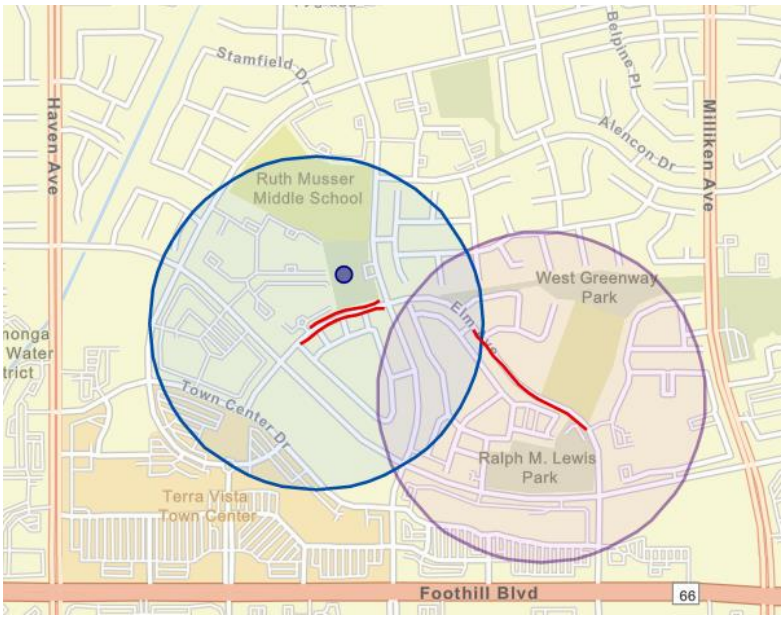
Currently, a majority of City-owned EV charging stations are older Clipper Creek non-networked models, that do not have communications capabilities. Installed 10 years ago, there is a need to update the City's EV infrastructure, consistent with other "smart" public EV chargers in the community that EV drivers are accustomed to using.

Explore On-Street Charging

As a strategy for targeted EV charging placement, on-street charging is an approach that should be further explored. Opportunities for installing EV charging infrastructure can be limited in certain areas, especially those that do not currently have access to EV charging stations. On-street charging can serve as a targeted approach in these limited circumstances. For example, the City recommends that a Level 2 EV charger be installed on Elm Avenue or at Spruce Park in the Terra Vista area. Terra Vista is home to thirteen MFDs, making it a prime location to serve multiple apartment communities with a "neighborhood" EV charging station. Elm Avenue, adjacent to Spruce Ave, has been identified as a possible location for on-street EV infrastructure, due to the proximity to Carmel, Jamboree, Evergreen, and Mountainview apartment complexes. Figure 5-5 depicts two optimal charging locations for EV charging along Elm Ave. The placement of an EV charger within the blue circle would serve a total of 1,071 multi-family units within a quarter mile radius, or a 5-minute walk, with the capacity to place the charger at either side of the street. The purple circle identifies a total of 1,018 units within a quarter mile radius if an EV charging station was placed further east along Elm Avenue. The placement of an on-street charger within the bounds of either of these areas would serve a large number of tenants, encouraging EV adoption in the Terra Vista area. Should neither of these on-street charging opportunities be feasible, Spruce Park, located within the blue radius circle, could also serve as an alternative.

For future developments, the Planning Department could identify on-street charging opportunities when reviewing development plans utilizing pre-established criteria. Considerations to key criteria parameters such as traffic density, projected vehicle trips, and development configuration could help "flag" developments going through the permitting process that is complimented with on-street charging. Consideration should especially be taken for minimizing maintenance costs and collision damage as well as access to electrical power.

Figure 5-4: On-Street Charging Location



Equitable Access

In order to ensure equitable access to EV infrastructure, the City's eight affordable housing complexes were run through their own modified siting analysis. Villa Del Norte, Monterey Village, and Mountainside were identified as top locations for EV infrastructure. The placement of an EV charger at these low-income apartment complexes will serve Rancho Cucamonga residents who live within the Disadvantaged Community (DAC) and provide equitable access to alternative fuel technology.

Figure 5-5: Potential EV Chargers for Affordable Housing MFD's

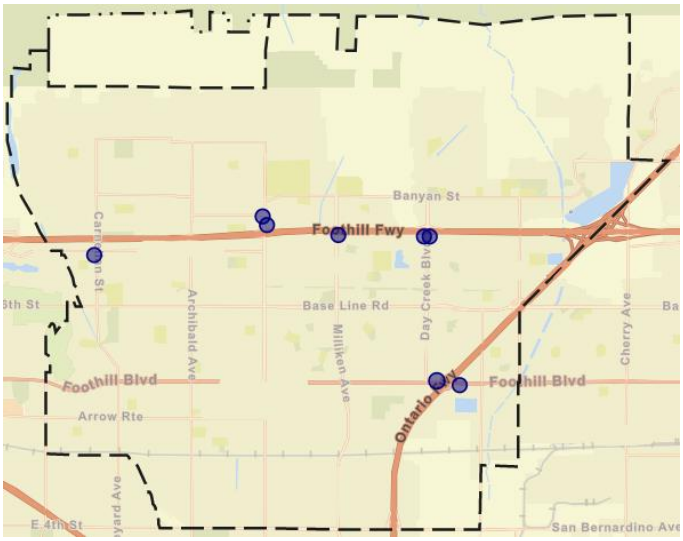
Gas Stations

As many car manufacturers transition their vehicles to all electric over the next 10-15 years, gas stations must adapt as well or face irrelevance. While gas stations may not necessarily fit the Plan's strategy of putting EV charging infrastructure where people live, work and visit, nonetheless, installing EV chargers along major travel corridors would serve long-distance EV drivers that are traveling through Rancho Cucamonga to their destination. Table 5-10 below identifies gas stations along the 210 and 15 freeway corridors that could serve these long-distance travelers.

Table 5-10: Potential EV Charging Stations at Gas Stations

Name	Street Address	Zip Code
76	6760 Carnelian St	91701
Mobil	10477 Lemon Ave	91737
76	6411 Haven Ave	91737
Mobil	6539 Milliken Ave	91701
ARCO	12280 Highland Ave	91739
Shell	12340 Highland Ave	91739
Chevron	8075 Monet Ave	91701
Chevron	12659 Foothill Blvd	91739

Figure 5-6: Potential EV Charging Stations at Gas Stations



Other Destination Charging Opportunities

RC Family Resource Center

The RC Family Resource Center, a City facility located in Southwest Cucamonga, has the ability to serve EV owners who live in Southwest Cucamonga, and within the Disadvantaged Community.

Northtown Community Center

Northtown Community Center, located within the Disadvantaged Community, has also been identified as optimal for EV charging. This community center is a hub where residents can enjoy a variety of social and cultural activities. EV charging stations that are placed at this location would be an addition to the number of amenities this facility currently offers to its residents.

Haven City Market

Haven City Market is home to several different eateries and has proven to be extremely popular. Vehicle trip data was not available to run Haven City Market through the siting analysis, however its popularity, high volume of vehicle trips, and large parking lot makes it an ideal, high-impact location for EV charging.

High Speed Rail Station

A high-speed rail service is currently under construction from Las Vegas to Apple Valley, connecting Southern California to this popular destination, eventually adding an additional segment linking the speed rail to Rancho Cucamonga's Metrolink station. In addition, there are also efforts to construct the ONT Loop, a tunnel connecting the station to the Ontario International Airport. When built out, this one-of-a-kind transit center will be an ideal location to install substantial EV infrastructure.

Accommodate EV Pickup Trucks with Trailers

As automobile manufacturers begin to unveil new lineups of EV pickup trucks, EV charging stations which are adequately sized and situated to accommodate pickup trucks with trailers should be developed. Angled or pull-through parking spots with EV charging stations are best suited to accommodate EV pickup trucks. Rancho Cucamonga is situated along travel corridors to popular camping and boating destinations such as Big Bear, Arrowhead Lake, Joshua Tree, Lake Havasu, and Zion National Park to name a few.

Funding Opportunities

EV Purchase Rebates

There are currently three statewide rebates for prospective EV owners. Since 2010, the State of California has distributed $809 million to go towards EV purchasing. Over the past couple of years, the demand for these rebates have exceeded the State budget for each program, so more stringent requirements have been implemented in the application process. These new requirements have set restrictions on income eligibility, allowing people of lower to moderate income to have increased access to statewide EV rebates.

Table 5-11: EV Purchase Rebates

Rebate	Rebate Amount	Eligibility Requirements
California Clean Fuel Reward	Up to $1,500	Visit a participating automobile retailer
Clean Vehicle Assistance Program	$5,000	Demonstrate California residency, meet household income eligibility requirements, declare number of people in your household
Clean Vehicle Rebate Project (CVRP)	$1,000-$7,000	Demonstrate California residency, meet income eligibility requirements, and submit a CVRP rebate application. Note: Funding is exhausted for standard and increased rebate. Qualified applicants on the rebate waitlist may receive a rebate if the Clean Vehicle Rebate Project (CVRP) receives funding from the State of California. Clean Vehicle Rebate Project | Center for Sustainable Energy
Federal Tax Credits	$2,500-$7,500	The federal tax credit is dependent on your tax liability. All battery-electric vehicles are eligible for the full $7,500, while other tax credit amounts depend on the capacity of the EVs battery.

EV Supply Equipment Incentives

There are several incentives that reduce the financial cost of installing EV chargers. Some of these incentives include grants that cover the cost of EV chargers, and others offer loans for small businesses to acquire EV infrastructure. Among these incentives is an effort by the Southern California Incentive Project to increase EV infrastructure in disadvantaged communities (DAC).

Table 5-12: EV Supply Equipment Incentives

Incentive	Eligibility Requirements
Rancho Cucamonga Municipal Utility (RCMU) Electric Vehicle Commercial Charger Rebate	RCMU is offering a rebate, up to $5,000, to be used towards expanding the charging network. The rebate can be used by RCMU's commercial customers to offset costs associated with installing a level 2 or a DC fast charger for use by their employees, tenants, or the general public. A rebate for residential customers is currently being explored.
CALeVIP EVSE Incentive Program Support	The California Electric Vehicle Infrastructure Project (CALeVIP) guides and helps fund EV supply equipment projects to reach the regions need for level 2 and DCFC EV supply equipment.
CALeVIP Loan and Rebate Program	The Electric Vehicle Charging Station Financing Program provides loans for small businesses in California to install EV supply equipment. Businesses who repay the loan in full or who have been making consistent timely payments on the loan are eligible for a rebate of 50% of the loan loss reserve amount. More information can be found here.
EVSE Rebate Southern California	The Southern California Incentive Project offers rebates of up to $70,000 per direct current (DC) fast charger for installations at new sites. Installations in disadvantaged communities are eligible to receive up to $80,000 per DC fast charger, up to 80% of the project cost.
EVSE Rebate for Businesses: Southern California Edison	Southern California Edison's (SCE) Charge Ready Program toward the purchase and installation of a minimum of four Level 1 or Level 2 EV supply equipment, or a minimum of five Level 1 or Level 2 EV supply equipment in disadvantaged communities.

Conclusion

The Electric Vehicle Readiness Plan provides a clear roadmap to advance the City's EV adoption rates by ensuring that a community-wide EV charging network is in place to secure current and future needs. Periodic reviews will be conducted to evaluate progress. The site suitability analysis will guide future efforts in determining optimal locations for electric vehicle charging. In addition, key policies from the Electric Vehicle Readiness Plan will be incorporated in the General Plan and Development Code update. The policies contained in the Plan seek to advance new construction developments, tenant improvements, and signage standards, equipping them with electric vehicle infrastructure. As the City looks to the future, Rancho Cucamonga will work to align efforts with the State's electric vehicle goals and greenhouse gas reduction targets through 2030 and beyond.

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Appendix A: Siting Analysis Results

Destination Scoring

Criteria Weights

Amenities (out of 3)	Weight
1	33%
2	66%
3	99%

Distance to Nearest Charger	Weight
0-0.25 miles	33%
0.26-0.49 miles	66%
0.5+ miles	99%

Mid-Day EV Density	Weight
1-15	33%
16-30	66%
31+	99%

Number of EVs by Zip Code	Weight
449	51%
490	56%
723	82%
879	100%

Locations

Weight	**36.7%**	**28.1%**	**20.1%**	**15.1%**
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
Winery Estate Market Place	3 of 3	0.8mi	31+	879
	99%	99%	99%	100%
	36.3	27.8	19.9	15.1
				Total: 99.1

Weight	**36.7%**	**28.1%**	**20.1%**	**15.1%**
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
Four Points Hotel	3 of 3	0.5 miles	31+	879
	99%	99%	99%	100%
	36.3	27.8	19.9	15.1
				Total: 99.1

Weight	**36.7%**	**28.1%**	**20.1%**	**15.1%**
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
99 Ranch Market	3 of 3	1 mile	31+	723
	99%	99%	99%	82%
	36.3	27.8	19.9	12.4
				Total: 96.4

Weight	36.7%	28.1%	20.1%	15.1%
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
Terra Vista Town Center	3 of 3	0.9 miles	31+	723
	99%	99%	99%	82%
	36.3	27.8	19.9	12.4
				Total: 96.4

Weight	36.7%	28.1%	20.1%	15.1%
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
Virginia Dare Center	3 of 3	0.6 miles	31+	723
	99%	99%	99%	82%
	36.3	27.8	19.9	12.4
				Total: 96.4

Weight	36.7%	28.1%	20.1%	15.1%
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
Thomas Winery Plaza	3 of 3	0.9 miles	31+	723
	99%	99%	99%	82%
	36.3	27.8	19.9	12.4
				Total: 96.4

Weight	36.7%	28.1%	20.1%	15.1%
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
Orchard Plaza	3 of 3	0.9 miles	31+	723
	99%	99%	99%	82%
	36.3	27.8	19.9	12.4
				Total: 96.4

Weight	36.7%	28.1%	20.1%	15.1%
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
Central Park	3 of 3	1.9mi	31+	490
	99%	99%	99%	56%
	36.3	27.8	19.9	8.5
				Total: 92.5

Weight	36.7%	28.1%	20.1%	15.1%
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
Ralph's	3 of 3	2 miles	16-30	879
	99%	99%	66%	100%
	36.3	27.8	13.3	15.1
				Total: 92.5

Weight	36.7%	28.1%	20.1%	15.1%
Destination	**Amenities**	**Distance to Nearest CS**	**Mid-Day EV Density**	**Number of EVs by Zip Code**
Day Creek Marketplace	3 of 3	1.1 miles	16-30	879
	99%	99%	66%	100%
	36.3	27.8	13.3	15.1
				Total: 92.5

Multi-Family Dwelling Scoring

Criteria

Number of Units	Weight
100-200	25%
201-300	50%
301-400	75%
401+	100%

Cost of Rent (2 bedroom)	Weight
$1,600-$1,849	25%
$1,850-$2,100	50%
$2,100-$2,349	75%
$2,350+	100%

Number of Units to Parking Stalls	Weight
0-0.27 ratio	25%
0.28-0.55 ratio	50%
0.56-0.83 ratio	75%
0.84+ ratio	100%

Number of EVs by Zip Code	Weight
449	51%
490	56%
723	82%
879	100%

MFDs built after 1990 pass the age criteria.

Locations

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	**Number of Units**	**Cost**	**Number of Units to Parking Stalls**	**Age**	**Number of EVs**
The Reserve	467	2,537	0.59	15	723
	100%	100%	75%	Pass	82%
	32.8	24.4	14	13	9.1
					Total: 93.3

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	**Number of Units**	**Cost**	**Number of Units to Parking Stalls**	**Age**	**Number of EVs**
The Angelica	319	2,425	1.13	15	879
	75%	100%	100%	Pass	100%
	24.6	24.4	18.7	13	11.1
					Total: 91.8

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	Number of Units	Cost	Number of Units to Parking Stalls	Age	Number of EVs
Victoria Arbors	319	2,524	0.85	14	879
	75%	100%	100%	Pass	100%
	24.6	24.4	18.7	13	11.1
					Total: 91.8

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	Number of Units	Cost	Number of Units to Parking Stalls	Age	Number of EVs
Solamonte	521	2,250	0.69	18	723
	100%	75%	75%	Pass	82%
	32.8	18.3	14	13	9.1
					Total: 87.2

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	Number of Units	Cost	Number of Units to Parking Stalls	Age	Number of EVs
Jamboree	358	2,493	0.60	18	723
	75%	100%	75%	Pass	82%
	24.6	24.4	14	13	9.1
					Total: 85.1

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	Number of Units	Cost	Number of Units to Parking Stalls	Age	Number of EVs
Carmel	306	2,263	0.88	18	723
	75%	75%	100%	Pass	82%
	24.6	18.3	18.7	13	9.1
					Total: 83.7

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	Number of Units	Cost	Number of Units to Parking Stalls	Age	Number of EVs
The Enclave	306	2,985	0.39	18	723
	75%	100%	50%	Pass	82%
	24.6	24.4	9.4	13	9.1
					Total: 80.5

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	Number of Units	Cost	Number of Units to Parking Stalls	Age	Number of EVs
Ironwood	496	2,060	0.50	18	723
	100%	50%	50%	Pass	82%
	32.8	12.2	9.4	13	9.1
					Total: 76.5

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	Number of Units	Cost	Number of Units to Parking Stalls	Age	Number of EVs
Camino Real	272	2,150	0.68	18	879
	50%	75%	75%	Pass	100%
	16.4	18.3	14.1	13	11.1
					Total: 72.9

Weight	32.8%	24.4%	18.7%	13%	11.1%
MFD	Number of Units	Cost	Number of Units to Parking Stalls	Age	Number of EVs
Village on 5th	264	2,354	0.49	15	723
	50%	100%	50%	Pass	82%
	16.4	24.4	9.4	13	9.1
					Total: 72.3

Workplace Scoring

Employee to Parking Stalls	Weight
0-0.5 ratio	33%
0.51-1 ratio	66%
1+ ratio	99%

AM EV Density	Weight
1-15	33%
16-30	66%
31+	99%

Number of Employees	Weight
0-50	12.50%
51-100	25%
101-150	37.50%
151-200	50%
201-250	62.50%
251-300	75%
301-350	87.50%
351+	100%

Office buildings were given full points for the office criteria.

Locations

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	Number of Employees	Office	AM EV Density	Number of Employees to Parking Stalls
Arrow Business Center	399	Yes	31+	1.05
	100%	100%	99%	99%
	42.3	22.7	22.5	12.1
				Total: 99.6

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	**Number of Employees**	**Office**	**AM EV Density**	**Number of Employees to Parking Stalls**
Realty One Building	389	Yes	31+	.64
	100%	100%	99%	66%
	42.3	22.7	22.5	8.1
				Total: 95.6

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	**Number of Employees**	**Office**	**AM EV Density**	**Number of Employees to Parking Stalls**
Rancho Technology Center	735	Yes	31+	.97
	100%	100%	99%	66%
	42.3	22.7	22.5	8.1
				Total: 95.6

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	**Number of Employees**	**Office**	**AM EV Density**	**Number of Employees to Parking Stalls**
Arrow Business Center #2	449	Yes	31+	.71
	100%	100%	99%	66%
	42.3	22.7	22.5	8.1
				Total: 95.6

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	**Number of Employees**	**Office**	**AM EV Density**	**Number of Employees to Parking Stalls**
Amphastar Pharmaceuticals	1,300	Yes	31+	.35
	100%	100%	99%	33%
	42.3	22.7	22.5	4.0
				Total: 91.5

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	**Number of Employees**	**Office**	**AM EV Density**	**Number of Employees to Parking Stalls**
Bradshaw International Corps	350	Yes	31+	.59
	87.5%	100%	99%	66%
	37.0	22.7	22.5	8.1
				Total: 90.3

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	**Number of Employees**	**Office**	**AM EV Density**	**Number of Employees to Parking Stalls**
The Executive Suite at Haven	399	Yes	16-30	.59
	100%	100%	66%	66%
	42.3	22.7	15.0	8.1
				Total: 88.1

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	**Number of Employees**	**Office**	**AM EV Density**	**Number of Employees to Parking Stalls**
Aerotek	434	Yes	16-30	.63
	100%	100%	66%	66%
	42.3	22.7	15.0	8.1
				Total: 88.1

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	**Number of Employees**	**Office**	**AM EV Density**	**Number of Employees to Parking Stalls**
Adecco	693	Yes	16-30	.39
	100%	100%	66%	33%
	42.3	22.7	15.0	4.0
				Total: 84.0

Weight	42.3%	22.7%	22.7%	12.2%
Workplace	**Number of Employees**	**Office**	**AM EV Density**	**Number of Employees to Parking Stalls**
Stone Haven	311	Yes	16-30	.9
	87.5	100%	66%	66%
	37.0	22.7	15.0	8.1
				Total: 82.8

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Appendix B: Recommended Policies

Development Code

The implementation of development policies which extend far beyond required building and development standards will play a crucial role in expanding EV infrastructure in the community. Below are recommended development policies that are to be considered in the upcoming Development Code update. The following sample development policies are provided as recommended strategies, and are subject to change. Development policies ultimately adopted may vary from these recommendations, but should meet or exceed the intent of these policies, with consideration to the overarching goal of expanding EV infrastructure at destinations, MFDs, and workplaces.

Policy 1: Require Tier 2 of CALGreen's voluntary measures for qualifying new commercial construction and new industrial construction as they relate to Electric Vehicle Supply Equipment.

MC 1.1 New construction commercial and industrial developments are required to have EV ready parking spaces. The number of EV ready parking spaces depends on the number of parking stalls on site. Updates to the CALGreen Code Tier 2 shall guide the developer on what percentage of parking stalls shall be EV ready for supporting future EV supply equipment.

MC 1.2 The service panel or subpanel circuit directory shall indicate that the overcurrent protective device is designated for future EV charging purposes. In accordance with California Electrical Code, the receptacle or blank cover shall be identified as "EV CAPABLE". In addition, a marker must be present at the location of conduit to label designated EV capable parking spaces.

Policy 2: Require Tier 2 of CALGreen's voluntary measures for qualifying new construction multi-family dwellings as they relate to Electric Vehicle Supply Equipment.

MC 2.1 New construction multi-family dwellings are required to have EV capable parking spaces. The number of EV capable parking spaces depends on the number of parking stalls on site. Updates to the CALGreen Code Tier 2 shall guide the owner of a new-construction MFD on what percentage of unreserved parking stalls shall be EV capable for supporting future Electric Vehicle Supply Equipment.

MC 2.2 The service panel or subpanel circuit directory shall indicate that the overcurrent protective device is designated for future EV charging purposes. In accordance with California Electrical Code, the receptacle or blank cover shall be identified as "EV CAPABLE". In addition, a marker must be present at the location of conduit to label designated EV capable parking spaces.

Policy 3: New commercial, industrial, and multi-family dwelling developments must install a minimum of two dual port Level 2 chargers or one DC fast charger. For every 10 EV capable or EV ready parking spaces provided, a minimum of two dual port Level 2 chargers or one DC fast charger must be installed. For every 30 EV capable or EV ready parking spaces, developers are eligible to install one DC fast charger in lieu of three dual port Level 2 chargers.

Policy 4: Exterior tenant improvements over 25,000 square feet initiated by the property owner or anchor store, which exceed $500,000 in assessed value, or the new construction, expansion, reconfiguration, or significant reconstruction of parking lots will trigger the installation of electric vehicle charging stations. A minimum of two dual port Level 2 chargers or one DC fast charger must be installed.

Policy 5: Placement of conduit used for future Electric Vehicle infrastructure use must consider accessibility articulated in Chapter 11 of California Building Code. Conduit shall be provided so that the first EV charger will be placed accessible from ADA stalls.

Policy 6: All newly constructed City-owned facilities must install a minimum of two dual port Level 2 chargers or one DC fast charger.

Policy 7: It shall be a condition of a commercial solar carport PV permit to install at least one listed raceway to accommodate a dedicated 208/240-volt branch circuit. In addition to being in accordance with the mandatory CALGreen measures, the raceway shall not be less than 2-inches in diameter. The placement of conduit shall be placed nearest to ADA parking stalls. The first EV parking space shall be accessible, in accordance with Chapter 11 of California Building Code.

Policy 8: When an electric vehicle charger is installed a solar carport that had the additional raceway provided, the permitting fee for the charger will be waived. One dual port Level 2 charger or one DC fast charger must be installed to be eligible for the permit waiver. Electric vehicle charger additions to solar carports are eligible for the waiver if the charger is installed within one year of the solar carport installation.

Policy 9: Directional signage must be present at the street entrances of parking lots to indicate the presence of electric vehicle chargers. Signage must be reflectorized, 70 square inches, and with lettering no less than one inch in height. Signage must include the FHWA-approved descriptive wayfinding sign and symbolized EV wayfinding sign.

Policy 10: At the location of each parking stall, restrictive signage must be installed, either by the usage of pole signs, or by way of pavement markings. Pole signs must be reflectorized, 70 square inches, with lettering no less than one inch in height. The pole itself must be at least 80 inches tall. Pavement markings must read “EV CHARGING ONLY”.

Policy 11: Commercial advertising on EV charging stations is permitted only when EV charging is offered free of charge. This does not include standard manufacturer labeling of an EV charging product.

Appendix C: State Laws and Regulations

State Laws and Regulations

Code	Description
California Civil Code 1947.6, 1952.7, and 6713	**Electric Vehicle Supply Equipment (EVSE) policies for Residential and Commercial Renters** The lessor of a dwelling or commercial property must approve written requests from a lessee to install EVSE at a parking space allotted for the lessee on qualified properties. Certain exclusions apply to residential dwellings and commercial properties. All modifications and improvements must comply with federal, state, and local laws and all applicable zoning and land use requirements, covenants, conditions, and restrictions. The lessee of the parking space equipped with EVSE is responsible for the cost of the installation, maintenance, repair, removal, or replacement of the equipment, electricity consumption, as well as any resulting damage to the EVSE or surrounding area. Unless the EVSE is certified by a Nationally Recognized Testing Laboratory and electrical upgrades are performed by a licensed electrician, the lessee must also maintain a personal liability coverage policy in an amount of up to 10 times the annual rent of the dwelling. Any application for approval should be processed by the common interest development association without willful avoidance or delay. The homeowner and each successive homeowner of the parking space or unit equipped with EVSE or a TOU meter is responsible for the cost of the installation, maintenance, repair, removal, or replacement of the equipment, as well as any resulting damage to the EVSE, TOU meter, or surrounding area. The homeowner must also maintain a $1 million umbrella liability coverage policy and name the common interest development as an additional insured entity under the policy. If EVSE or a PEV-dedicated TOU meter is installed in a common area for use by all members of the association, the common interest development must develop terms for use of the EVSE or TOU meter.
California Civil Code 4745 and 6713	**Electric Vehicle Supply Equipment (EVSE) Policies for Multi-Unit Dwellings** A common interest development, including a community apartment, condominium, and cooperative development, may not prohibit or restrict the installation or use of EVSE or a plug-in electric vehicle (PEV)-dedicated time-of-use (TOU) meter in a homeowner's designated parking space or unit. These entities may put reasonable restrictions on EVSE, but the policies may not significantly increase the cost of the EVSE or significantly decrease its efficiency or performance. Restrictions may be placed on TOU meter installations if they are based on the structure of or available space in the building. If installation in the homeowner's designated parking space or unit is not possible, with authorization, the homeowner may add EVSE or a PEV-dedicated TOU meter in a common area. The homeowner must obtain appropriate approvals from the common interest development association and agree in writing to comply with applicable architectural standards,

<table>
<tr><td></td><td>engage a licensed installation contractor, provide a certificate of insurance, and pay for the electricity usage, maintenance, and other costs associated with the EVSE or TOU meter.</td></tr>
<tr><td>California Code of Regulations Title 4, Section 4001 and 4002.11</td><td>Electric Vehicle Supply Equipment (EVSE) Billing Requirements
EVSE charging rates must be based on a price per megajoule or kilowatt-hour. All EVSE must be able to indicate the billing rate at any point during a transaction. Existing Level 2 EVSE installed before January 1, 2021, must be updated by January 1, 2031, and Level 2 EVSE installed after January 1, 2021, must comply upon installation. Existing direct current (DC) fast chargers installed before January 1, 2023, must be updated by January 1, 2033, and DCFC installed after January 1, 2023, must comply upon installation.</td></tr>
<tr><td>California Code of Regulations Title 13, Sections 1963-1963.5 and 2012-2012.2</td><td>Medium- and Heavy-Duty Zero Emission Vehicle (ZEV) Requirement
The California Air Resources Board’s (ARB) Advanced Clean Truck Program requires all new medium- and heavy-duty vehicles sold in California to be a ZEV by 2045. Zero-emission technologies include all-electric and fuel cell electric vehicles. Beginning in 2024, manufacturers seeking ARB certification for Class 2b through Class 8 chassis or complete vehicles with combustion engines will be required to sell zero-emission trucks as an increasing percentage of their annual California sales. Manufacturers must achieve the following annual sales percentages for medium- and heavy-duty ZEVs sold in California:
<table>
<tr><th></th><th colspan="4">ZEV Sales Percentages</th></tr>
<tr><td>Vehicle Model Year (MY)</td><td>Class 2b-3</td><td>Class 4-5</td><td>Class 6-8, excluding tractors</td><td>Class 7-8 Tractors</td></tr>
<tr><td>2024</td><td>5%</td><td>9%</td><td>9%</td><td>5%</td></tr>
<tr><td>2025</td><td>7%</td><td>11%</td><td>11%</td><td>7%</td></tr>
<tr><td>2026</td><td>10%</td><td>13%</td><td>13%</td><td>10%</td></tr>
<tr><td>2027</td><td>15%</td><td>20%</td><td>20%</td><td>15%</td></tr>
<tr><td>2028</td><td>20%</td><td>30%</td><td>30%</td><td>20%</td></tr>
<tr><td>2029</td><td>25%</td><td>40%</td><td>40%</td><td>25%</td></tr>
<tr><td>2030</td><td>30%</td><td>50%</td><td>50%</td><td>30%</td></tr>
<tr><td>2031</td><td>35%</td><td>55%</td><td>55%</td><td>35%</td></tr>
<tr><td>2032</td><td>40%</td><td>60%</td><td>60%</td><td>40%</td></tr>
<tr><td>2033</td><td>45%</td><td>65%</td><td>65%</td><td>40%</td></tr>
<tr><td>2034</td><td>50%</td><td>70%</td><td>70%</td><td>40%</td></tr>
<tr><td>2035 and future years</td><td>55%</td><td>75%</td><td>75%</td><td>40%</td></tr>
</table>
*Excludes pickup trucks for 2024-2026 MYs
Additionally, entities with annual gross revenues greater than $50 million, fleet owners with 50 or more medium- and heavy-duty vehicles, and any California government or federal agency with one or more vehicles over 8,500 pounds must report their existing fleet operations to</td></tr>
</table>

	ensure fleets are purchasing and placing zero-emission trucks in the correct service locations. For more information, including additional requirements and exemptions, see the ARB Advanced Clean Trucks Program website.
California Code of Regulations Title 13, 2021-2027	**Mobile Source Emissions Reduction Requirements** Through its Mobile Sources Program, the California Air Resources Board (ARB) has developed programs and policies to reduce emissions from on-road heavy-duty diesel vehicles through the installation of verified diesel emission control strategies (VDECS) and vehicle replacements. The on-road heavy-duty diesel vehicle rule (i.e., truck and bus regulation) requires the retrofit and replacement of nearly all privately owned vehicles operated in California with a gross vehicle weight rating (GVWR) greater than 14,000 pounds (lbs.). School buses owned by private and public entities and federal government owned vehicles are also included in the scope of the rule. By January 1, 2023, nearly all vehicles must have engines certified to the 2010 engine standard or equivalent. The drayage truck rule regulates heavy-duty diesel-fueled vehicles that transport cargo to and from California's ports and intermodal rail facilities. The rule requires that certain drayage trucks be equipped with VDECS and that all applicable vehicles have engines certified to the 2007 emissions standards. By January 1, 2023, all applicable vehicles must have engines certified to 2010 standards. The solid waste collection vehicle rule regulates solid waste collection vehicles with a gross vehicle weight rating of 14,000 lbs. or more that operate on diesel fuel, have 1960 through 2006 engine models, and collect waste for a fee. The fleet rule for public agencies and utilities requires fleets to install VDECS on vehicles or purchase vehicles that run on alternative fuels or use advanced technologies to achieve emissions requirements by specified implementation dates.
California Code of Regulations Title 13, Section 1962.3	**Plug-In Electric Vehicle (PEV) Charging Requirements** New PEVs must be equipped with a conductive charger inlet port that meets the specifications contained in Society of Automotive Engineers (SAE) standard J1772. PEVs must be equipped with an on-board charger with a minimum output of 3.3 kilowatts (kW). These requirements do not apply to PEVs that are only capable of Level 1 charging, which has a maximum power of 12 amperes (amps), a branch circuit rating of 15 amps, and continuous power of 1.44 kW.
California Code of Regulations Title 17, Sections 95480-95486	**State Agency Low Carbon Fuel Use Requirement** At least 3% of the aggregate amount of bulk transportation fuel purchased by the state government must be from very low carbon transportation fuel sources. The required amount of very low carbon transportation fuel purchased will increase by 1% annually until January 1, 2024. Some exemptions may apply, as determined by the California Department of General Services (DGS). Very low carbon fuel is defined as a transportation fuel having no greater than 40% of the carbon intensity of the closest comparable petroleum fuel for that year.
California Code of Regulations Title 13,	**Zero Emission Vehicle (ZEV) Production Requirements** The California Air Resources Board (ARB) certifies new passenger cars, light-duty trucks, and medium-duty passenger vehicles as ZEVs if

<table>
<tr><td>Section 1962-1962.2</td><td>the vehicles produce zero exhaust emissions of any criteria pollutant (or precursor pollutant) under any and all possible operational modes and conditions.
Manufacturers with annual sales between 4,501 and 60,000 vehicles may comply with the ZEV requirements through multiple alternative compliance options that include producing low emission vehicles and obtaining ZEV credits. Manufacturers with annual sales of 4,500 vehicles or less are not subject to this regulation.
ARB's emissions control program for MY 2017 through 2025 combines the control of smog, soot, and greenhouse gases (GHGs) and requirements for ZEVs into a single package of standards called Advanced Clean Cars. In December 2012, ARB finalized new regulatory requirements that allow vehicle manufacturer compliance with the U.S. Environmental Protection Agency's GHG requirements for MY 2017-2025 to serve as compliance with California's adopted GHG emissions requirements for those same model years.
The accounting procedures for MY 2018-2025 are based on a credit system as shown in the table below. The minimum ZEV requirement for each manufacturer includes the percentage of passenger cars and light-duty trucks produced by the manufacturer and delivered for sale in California. The regulation also includes opportunities for compliance with transitional zero emission vehicles, which must demonstrate certain exhaust emissions standards, evaporative emissions standards, on-board diagnostic requirements, and extended warranties.
<table>
<tr><th>MY</th><th>ZEV Requirement</th></tr>
<tr><td>2020</td><td>9.5%</td></tr>
<tr><td>2021</td><td>12%</td></tr>
<tr><td>2022</td><td>14.5%</td></tr>
<tr><td>2023</td><td>17%</td></tr>
<tr><td>2024</td><td>19.5%</td></tr>
<tr><td>2025 and later</td><td>22%</td></tr>
</table>
</td></tr>
<tr><td>California Government Code 14678</td><td>Plug-In Electric Vehicle (PEV) Charging Electricity Exemption
Municipalities may not restrict the types of PEVs, such as plug-in hybrid electric vehicles, that may access a PEV charging station that is public, intended for passenger vehicle use, and funded in any part by the state or utility ratepayers.</td></tr>
<tr><td>California Government Code 65070-65073</td><td>State Transportation Plan
The California Department of Transportation (Caltrans) must update the California Transportation Plan (Plan) by December 31, 2020, and every five years thereafter. The Plan must address how the state will achieve maximum feasible emissions reductions, taking into consideration the use of alternative fuels, new vehicle technology, and tailpipe emissions reductions. Caltrans must consult and coordinate with related state agencies, air quality management districts, public transit operators, and regional transportation planning agencies. Caltrans must also provide an opportunity for general public input. Caltrans must submit a final draft</td></tr>
</table>

	of the Plan to the legislature and governor. A copy of the 2016 report is available on the Caltrans website. Caltrans must also review the Plan and prepare a report for the legislature and governor that includes actionable, programmatic transportation system improvement recommendations every five years.
California Government Code 65850.7	**Electric Vehicle Supply Equipment (EVSE) Local Permitting Policies** Cities and counties must adopt an ordinance that creates an expedited and streamlined permitting process for EVSE. Each city or county must consult with the local fire department or district and the utility director to develop the ordinance, which must include a checklist of all requirements for EVSE to be eligible for expedited review. A complete application that is consistent with the city or county ordinance must be approved, and entities submitting incomplete applications must be notified of the necessary required information to be granted expedited permit issuance.
California Government Code 65850.9	**Plug-In Electric Vehicle (PEV) Charging Access** Municipalities may not restrict the types of PEVs, such as plug-in hybrid electric vehicles, that may access a PEV charging station that is public, intended for passenger vehicle use, and funded in any part by the state or utility ratepayers.
California Health and Safety Code 43018.1	**Zero Emission Vehicle (ZEV) Programs Report** The California Air Resources Board (ARB), in partnership with its stakeholders, must complete a report that reviews each of ARB's ZEV-related programs by July 1, 2019. Specifically, the report must include an analysis of the greenhouse gas and air quality goals of each ZEV program, the progress of each program towards meeting its goals, and a cost-benefit analysis of each program. In this report, ARB must also propose recommendations for improvements to these programs and on how to encourage the cost-effective deployment of ZEVs in fleets across the state. For more information, see the ARB ZEV Program website.
California Health and Safety Code 43870	**State Agency Low Carbon Fuel Use Requirement** At least 3% of the aggregate amount of bulk transportation fuel purchased by the state government must be from very low carbon transportation fuel sources. The required amount of very low carbon transportation fuel purchased will increase by 1% annually until January 1, 2024. Some exemptions may apply, as determined by the California Department of General Services (DGS). Very low carbon fuel is defined as a transportation fuel having no greater than 40% of the carbon intensity of the closest comparable petroleum fuel for that year, as measured by the methodology in California Code of Regulations Title 17, Sections 95480-95486. DGS will submit an annual progress report to the California Legislature.
California Health and Safety Code 44258.4	**Zero Emission Vehicle (ZEV) Initiative** The California Air Resources Board's (ARB) Charge Ahead California Initiative was established to help place into service at least 1 million ZEVs and near-zero emission vehicles in California by January 1, 2023. In consultation with the State Energy Resources Conservation and Development Commission, ARB prepared a funding plan that includes

	a market and technology assessment, assessments of existing zero and near-zero emission funding programs, and programs that increase access to disadvantaged, low-income, and moderate-income communities and consumers. Potential programs under the initiative include those involving innovative financing, car sharing, charging infrastructure in multi-unit dwellings located in disadvantaged communities, public transit, and agricultural vanpool programs. The funding plan must be updated at least every three years through January 1, 2023.
California Health and Safety Code 44270-44274.7	**Alternative Fuel and Vehicle Incentives** The California Energy Commission (CEC) administers the Clean Transportation Program (Program) to provide financial incentives for businesses, vehicle and technology manufacturers, workforce training partners, fleet owners, consumers, and academic institutions with the goal of developing and deploying alternative and renewable fuels and advanced transportation technologies. Funding areas include: • Electric vehicles and charging infrastructure; • Hydrogen vehicles and refueling infrastructure; • Medium- and heavy-duty zero emission vehicles; • Natural gas vehicles and refueling infrastructure; • Biofuels; and, • Workforce development. The CEC must prepare and adopt an annual Investment Plan for the Program to establish funding priorities and opportunities that reflect program goals and to describe how program funding will complement other public and private investments. For more information, see the Program website.
California Health and Safety Code 44274 and 44258	**Plug-In Hybrid and Zero Emission Light-Duty Public Fleet Vehicle Fleet Rebates** The Clean Vehicle Rebate Project (CVRP) offers rebates to eligible state and local public entities for the purchase of qualified light-duty fleet vehicles. Public fleets located in disadvantaged communities are eligible for increased incentives. Eligible vehicles must be certified by the California Air Resources Board (ARB). Rebates are available on a first-come, first-served basis. Manufacturers must apply to ARB to have their vehicles considered for rebate eligibility. Each entity may receive up to 30 rebates annually and cannot receive CVRP incentives for the same vehicle. For more information, including a list of eligible vehicles, locations, and entities, see the For Public Fleets website.
California Health and Safety Code 44274.9	**Establishment of Zero Emission Vehicle (ZEV) and Near-ZEV Component Rebates** The California Air Resources Board (ARB) will establish the Zero Emission Assurance Project (ZAP) to offer rebates for the replacement of a battery, fuel cell, or other related vehicle component for eligible used ZEVs and near-ZEVs. Rebates will be limited to one per vehicle. By January 1, 2024, ARB must publish a report to the legislature detailing the number of rebates awarded, the emissions benefits of the ZAP, and the impacts of the ZAP on low-income consumer decisions to purchase zero and near-zero emissions vehicles. A ZEV is defined as

	a vehicle that produces no criteria pollutant, toxic air contaminant, or greenhouse gas emissions when stationary or operating. A near-ZEV is a vehicle that uses zero emission technologies, uses technologies that provide a pathway to zero emission operations, or incorporates other technologies that significantly reduce vehicle emissions. Rebates will be available through July 31, 2025.
California Health and Safety Code 44220b	**Alternative Fuel Vehicle (AFV) and Fueling Infrastructure Grants** The Motor Vehicle Registration Fee Program (Program) provides funding for projects that reduce air pollution from on- and off-road vehicles. Eligible projects include purchasing AFVs and developing alternative fueling infrastructure. Contact local air districts and see the Program website for more information about available grant funding and distribution from the Program.
California Health and Safety Code 44268 and 44268.2	**Electric Vehicle Supply Equipment (EVSE) Open Access Requirements** EVSE 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 EVSE at the point of sale; allow at least two options for payment; and disclose the EVSE geographic location, schedule of fees, accepted methods of payment, and network roaming charges to the National Renewable Energy Laboratory. Exceptions apply. The California Air Resources Board may adopt interoperability billing standards for network roaming payment methods for EVSE. Providers would be required to meet these standards within one year of adoption.
California Health and Safety Code 39719.2	**Establishment of a Zero Emission Medium- and Heavy-Duty Vehicle Program** The California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program (Program) will provide funding for development, demonstration, pre-commercial pilot, and early commercial implementation projects for zero and near-zero emission trucks, buses, and off-road vehicles and equipment. Eligible projects include, but are not limited to, the following: • Technology development, demonstration, pre-commercial pilots, and early commercial implementation projects for zero and near-zero emission truck technology; • Zero and near-zero emission bus technology development, demonstration, pre-commercial pilots, and early commercial deployments, including pilots of multiple vehicles at one site or region; • Purchase incentives for commercially available zero and near-zero emission truck, bus, and off-road vehicle and equipment technologies and fueling infrastructure; and • Projects that support greater commercial motor vehicle and equipment freight efficiency and greenhouse gas emissions reductions, including autonomous vehicles, grid integration technology, and charge management solutions.

	Remanufactured and retrofitted vehicles meeting warranty and emissions requirements may also qualify for funding. The Program is expected to provide $12 million to $20 million in funding annually through December 31, 2021. At least 20% of allocated funds must go towards early commercial deployment of eligible vehicles and equipment. The California Air Resources Board and the State Energy Resources Conservation and Development Commission will develop and administer the Program.
California Health and Safety Code 18941.10	**Mandatory Electric Vehicle Supply Equipment (EVSE) Building Standards** The California Building Standards Commission (Commission) published mandatory building standards for EVSE installation in parking spaces at one- and two-family dwellings with attached private garages, multi-family dwellings, and non-residential developments in the California Green Building Standards Code within the California Building Standards Code. For more information, see the California Building Codes Standards Commission website.
California Public Resources Code 25722.9	**Alternative Fuel Vehicle (AFV) Parking Incentive Programs** The California Department of General Services (DGS) and California Department of Transportation (DOT) must develop and implement AFV parking incentive programs in public parking facilities operated by DGS with 50 or more parking spaces and park-and-ride lots owned and operated by DOT. The incentives must provide meaningful and tangible benefits to drivers, such as preferential spaces, reduced fees, and fueling infrastructure. Fueling infrastructure built at park-and-ride lots is not subject to restricted use by those using bicycles, public transit, or ridesharing.
California Public Resources Code 25302 and 25303.5	**Alternative Fuel and Vehicle Policy Development** The California Energy Commission (CEC) must prepare and submit an Integrated Energy Policy Report (IEPR) to the governor on a biannual basis. The IEPR provides an overview of major energy trends and issues facing the state, including those related to transportation fuels, technologies, and infrastructure. The IEPR also examines potential effects of alternative fuels use, vehicle efficiency improvements, and shifts in transportation modes on public health and safety, the economy, resources, the environment, and energy security. The IEPR's primary purpose is to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. For the current IEPR, see the CEC California's Energy Policy website. As of November 1, 2015, and every four years thereafter, the CEC must also include in the IEPR strategies to maximize the benefits of natural gas in various sectors. This includes the use of natural gas as a transportation fuel. For more information, see the 2020 Integrated Energy Policy Report.
California Public Resources Code 25229	**Electric Vehicle Supply Equipment (EVSE) Assessment** The California State Energy Resources Conservation and Development Commission (Commission), in partnership with the California Air Resources Board and the California Public Utility Commission, must

	publish a statewide assessment of the EVSE infrastructure needed to support the levels of plug-in electric vehicle adoption required for at least five million zero emission vehicles to operate on California roads by 2030. The Commission must consider the EVSE infrastructure needs for all vehicle categories, including on-road, off-road, port, and airport vehicles. In addition, the assessment must analyze the existing and future infrastructure needs across California, including in low-income communities. The assessment must be updated at least once every two years.
California Public Resources Code 25231	**Electric Vehicle Supply Equipment (EVSE) Location Assessment** The State Energy Resources Conservation and Development Commission (Commission), in partnership with the California Air Resources Board (ARB), must assess whether EVSE in California is located disproportionately by population density, geographical area, or population income level. If the Commission and ARB determine that EVSE has been disproportionately installed, the Commission must use funding from the Clean Transportation Program, as well as other funding sources, to proportionately install new EVSE, unless it is determined that the current locations of EVSE are reasonable and further California's energy or environmental policy goals.
California Public Resources Code 25725-25726	**Fleet Vehicle Procurement Requirements** When awarding a vehicle procurement contract, every city, county, and special district, including school and community college districts, may require that 75% of the passenger cars and/or light-duty trucks acquired be energy-efficient vehicles. By definition, this includes hybrid electric vehicles and alternative fuel vehicles that meet California's advanced technology partial zero emission vehicle standards. Vehicle procurement contract evaluations may consider fuel economy and life cycle factors for scoring purposes.
California Public Resources Code 25227	**Plug-in Electric Vehicle (PEV) Infrastructure Information Resource** The California Energy Commission, in consultation with the Public Utilities Commission, must develop and maintain a website containing specific links to electrical corporations, local publicly owned electric utilities, and other websites that contain information specific to PEVs, including the following: • Resources to help consumers determine if their residences will require utility service upgrades to accommodate PEVs; • Basic charging circuit requirements; • Utility rate options; and • Load management techniques.
California Public Resource Code 25722.5-25722.11 and 25724	**Vehicle Acquisition and Petroleum Reduction Requirements** The California Department of General Services (DGS) is responsible for maintaining specifications and standards for passenger cars and light-duty trucks that are purchased or leased for state office, agency, and department use. These specifications include minimum vehicle emissions standards and encourage the purchase or lease of fuel-efficient and alternative fuel vehicles (AFVs). Specifically, DGS must reduce or displace the fleet's consumption of petroleum products by

	20% by January 1, 2020, as compared to the 2003 consumption level. Beginning in fiscal year 2024, DGS must also ensure that at least 50% of the light-duty vehicles purchased by the state are zero emission vehicles (ZEVs). Further, at least 15% of DGS' fleet of new vehicles with a gross vehicle weight rating of 19,000 pounds or more must be ZEVs by 2025, and at least 30% by 2030. On an annual basis, DGS must compile information including, but not limited to, the number of AFVs and hybrid electric vehicles acquired, the locations of the alternative fuel pumps available for those vehicles, and the total amount of alternative fuels used. Vehicles the state owns or leases that are capable of operating on alternative fuel must operate on that fuel unless the alternative fuel is not available. DGS is also required to: • Take steps to transfer vehicles between agencies and departments to ensure that the most fuel-efficient vehicles are used and to eliminate the least fuel-efficient vehicles from the state's motor vehicle fleet; • Submit annual progress reports to the California Department of Finance, related legislative committees, and the general public via the DGS website; • Encourage other agencies to operate AFVs on the alternative fuel for which they are designed, to the extent feasible; • Encourage the development of commercial fueling infrastructure at or near state vehicle fueling or parking sites; • Work with other agencies to incentivize and promote state employee use of AFVs through preferential or reduced-cost parking, access to electric vehicle charging, or other means, to the extent feasible; and • Establish a more stringent fuel economy standard than the 2007 standard.
California Public Resources Code 25617	**Zero Emission Vehicle (ZEV) and Infrastructure Support** The California Energy Resources Conservation and Development Commission must provide technical assistance and support for the development of zero-emission fuels, fueling infrastructure, and fuel transportation technologies. Technical assistance and support may include the creation of research, development, and demonstration programs.
California Public Utilities Code 740.13-740.14	**Electric Vehicle Supply Equipment (EVSE) Pilot Programs** The California Public Utilities Commission (PUC) may provide funding for pilot utility programs to install EVSE at school facilities, other educational institutions, and state parks or beaches. Priority must be given to locations in disadvantaged communities, as defined by the California Environmental Protection Agency. For more information, see the PUC project guidance and the PUC Zero Emission Vehicles website.

California Public Utilities Code 740.16	**Plug-In Electric Vehicle (PEV) Grid Integration Requirements** By December 31, 2020, in an existing proceeding, the California Public Utilities Commission (PUC) must establish strategies and metrics to maximize the use of PEV grid integration for a ten-year plan. The PUC must also consider how to limit cost increases for all ratepayers. PEV grid integration refers to any action that optimizes when or how a PEV is charged. Electrical corporations and community choice aggregators serving more than 700 gigawatt-hours of annual electrical demand, must provide the PUC with information relating to PEV integration strategies. Additional terms and conditions apply.
California Streets and Highway Code 101.7	**Electric Vehicle Supply Equipment (EVSE) Signage Authorization on Highways** EVSE facilities located at roadside businesses are eligible to be included on state highway exit information signs. Signage must be consistent with California's Manual on Uniform Traffic Control Devices.
California Streets and Highways Code 2030	**Support for Zero-Emission and Autonomous Vehicle Infrastructure** Cities and counties that receive funding from the Road Maintenance and Rehabilitation Program are encouraged to use funds towards advanced transportation technologies and communication systems, including, but not limited to, zero-emission vehicle fueling infrastructure and infrastructure-to-vehicle communications for autonomous vehicles.
California Vehicle Code 1808.23	**Access to Plug-In Electric Vehicle (PEV) Registration Records** The California Department of Motor Vehicles may disclose to an electrical corporation or local publicly owned utility a PEV owner's address and vehicle type if the information is used exclusively to identify where the PEV is registered.
California Vehicle Code 22511	**Plug-In Electric Vehicle (PEV) Parking Space Regulation** An individual may not park a motor vehicle within any on- or off-street parking space specifically designated by a local authority for parking and charging PEVs unless the vehicle is a PEV fueled by electricity. Eligible PEVs must be in the process of charging to park in the space. A person found responsible for a violation is subject to traffic violation penalties. PEV parking spaces count as at least one space toward minimum parking requirements.
California Vehicle Code 9250.6	**Zero Emission Vehicle (ZEV) Fee** Effective July 1, 2020, ZEV owners must pay an annual road improvement fee of $100 upon vehicle registration or registration renewal for ZEVs model year 2020 and later. The California Department of Motor Vehicles will increase the fee annually to account for inflation, equal to the increase in the California Consumer Price Index for the prior year.
California Vehicle Code 5205.5 and 21655.9	**High Occupancy Vehicle (HOV) and High Occupancy Toll (HOT) Lane Exemption** Compressed natural gas, hydrogen, electric, and plug-in hybrid electric vehicles meeting specified California and federal emissions standards and affixed with a California Department of Motor Vehicles (DMV) Clean Air Vehicle sticker may use HOV lanes regardless of the number of occupants in the vehicle. Effective January 1, 2020, DMV issues Clean

	Air Vehicle stickers to first-time applicants that have a household income at or below 80% of the state median income. Stickers are valid through the following dates: • Red stickers issued on or after March 1, 2018, for a vehicle that had previously been issued a sticker between January 1, 2017, and March 1, 2018, expire January 1, 2022; • Purple stickers issued between January 1, 2019 and January 1, 2020, expire January 1, 2023; and, • Orange stickers issued on or after January 1, 2020, expire January 1, 2024. The California Department of Transportation must publish a report by June 1, 2023, detailing the number of stickers issued under this program. Vehicles originally issued white or green decals prior to 2017 are no longer eligible to participate in this program. Vehicles with stickers are also eligible for reduced rates on or exemptions from toll charges imposed on HOT lanes. For more information and restrictions, including a list of qualifying vehicles, see the California Air Resources Board Carpool Stickers website.
California Vehicle Code 25551	**Zero Emission Vehicle (ZEV) and Near-ZEV Weight Exemption** ZEVs and near-ZEVs may exceed the state's gross vehicle weight limits by an amount equal to the difference of the weight of the near-zero emission or zero emission powertrain and the weight of a comparable diesel tank and fueling system, up to 2,000 pounds. A ZEV is defined as a vehicle that produces no criteria pollutant, toxic air contaminant, or greenhouse gas emissions when stationary or operating. A near-ZEV is a vehicle that uses zero emission technologies, uses technologies that provide a pathway to zero emission operations, or incorporates other technologies that significantly reduce vehicle emissions.

Appendix D: CALGreen Building Code

2019 CALGreen Building Code

CALGreen Code	Description
Residential Mandatory Measures	
Section 4.106.4: EV Charging for New Construction	New construction shall comply with Section 4.106.4.1, 4.106.4.2, or 4.106.4.3, to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the California Electrical Code, Article 625. Some exceptions do apply.
Section 4.106.4.1: New One- and Two-Family Dwellings, and Townhouses with an Attached Garage	For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.
Section 4.106.4.1.1: Identification	The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE”.
Section 4.106.4.2: New Multi-family Dwellings	If residential parking is available, ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.
Section 4.106.4.2.1: EV Charging Space Locations	Construction documents shall indicate the location of proposed EV spaces. Where common use parking is provided at least one EV space shall be located in the common use parking area and shall be available for use by all residents.
Section 4.106.4.2.1.1: EV Charging Stations	When EV chargers are installed, EV spaces required by Section 4.106.4.2.2, Item 3, shall comply with at least one of the following options: 1. The EV space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space. 2. The EV space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building.
Section 4.106.4.2.2: EV Charging Space Dimensions	The EV spaces shall be designed to comply with the following: 1. The minimum length of each EV space shall be 18 feet (5486 mm). 2. The minimum width of each EV space shall be 9 feet (2743 mm). 3. One in every 25 EV spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm).

<table>
<tr><td>Section 4.106.4.2.3: Single EV Space Required</td><td>Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV space. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.</td></tr>
<tr><td>Section 4.106.4.2.4: Multiple EV Spaces Required</td><td>Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.</td></tr>
<tr><td>Section 4.106.4.2.5: Identification</td><td>The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as “EV CAPABLE” in accordance with the California Electrical Code.</td></tr>
<tr><td>Section 4.106.4.3: New Hotels and Motels</td><td>All newly constructed hotels and motels shall provide EV spaces capable of supporting future installation of EVSE. The construction documents shall identify the location of the EV spaces.</td></tr>
<tr><td>Section 4.106.4.3.1: Number of Required EV Spaces</td><td>The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.
TABLE 4.106.4.3.1
<table><tr><th>TOTAL NUMBER OF PARKING SPACES</th><th>NUMBER OF REQUIRED EV SPACES</th></tr><tr><td>0–9</td><td>0</td></tr><tr><td>10–25</td><td>1</td></tr><tr><td>26–50</td><td>2</td></tr><tr><td>51–75</td><td>4</td></tr><tr><td>76–100</td><td>5</td></tr><tr><td>101–150</td><td>7</td></tr><tr><td>151–200</td><td>10</td></tr><tr><td>201 and over</td><td>6 percent of total</td></tr></table></td></tr>
<tr><td>Section 4.106.4.3.2: EV Charging Space Dimensions</td><td>The EV spaces shall be designed to comply with the following:
1. The minimum length of each EV space shall be 18 feet (5486 mm).
2. The minimum width of each EV space shall be 9 feet (2743 mm).</td></tr>
<tr><td>Section 4.106.4.3.3: Single EV Space Required</td><td>When a single EV space is required, the EV space shall be designed in accordance with Section 4.106.4.2.3.</td></tr>
</table>

<table>
<tr><td>Section 4.106.4.3.4: Multiple EV Spaces Required</td><td>When multiple EV spaces are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4.</td></tr>
<tr><td>Section 4.106.4.3.5: Identification</td><td>The service panels or subpanels shall be identified in accordance with Section 4.106.4.2.5.</td></tr>
<tr><td>Section 4.106.4.3.6: Accessible EV Spaces</td><td>In addition to the requirements in Section 4.106.4.3, EV spaces for hotels/motels and all EVSE, when installed, shall comply with the accessibility provisions for EV charging stations in the California Building Code, Chapter 11B.</td></tr>
<tr><td colspan="2">Non-Residential Mandatory Measures</td></tr>
<tr><td>Section: 5.106.5.2: Designated Parking for Clean Air Vehicles</td><td>In new construction or additions or alterations that add more than 10 vehicular parking spaces, parking for any combination of low-emission, fuel-efficient and carpool/vanpool vehicles should have a designated number of parking spaces according to the total number of parking spaces available.
TABLE 5.106.5.2
<table><tr><th>TOTAL NUMBER OF PARKING SPACES</th><th>NUMBER OF REQUIRED SPACES</th></tr><tr><td>0–9</td><td>0</td></tr><tr><td>10–25</td><td>1</td></tr><tr><td>26–50</td><td>3</td></tr><tr><td>51–75</td><td>6</td></tr><tr><td>76–100</td><td>8</td></tr><tr><td>101–150</td><td>11</td></tr><tr><td>151–200</td><td>16</td></tr><tr><td>201 and over</td><td>At least 8 percent of total</td></tr></table></td></tr>
<tr><td>Section 5.106.5.2.1: Parking Stall Marking</td><td>Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle: “CLEAN AIR/VANPOOL/EV”. Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces.</td></tr>
<tr><td>Section 5.106.5.3: EV Charging</td><td>Construction shall comply with Section 5.106.5.3.1 or Section 5.106.5.3.2 to facilitate future installation of electric vehicle supply equipment (EVSE). When EVSE(s) is/are installed, it shall be in accordance with the California Building Code.</td></tr>
<tr><td>Section 5.106.5.3.1: Single Charging Space Requirements</td><td>When only a single charging space is required per Table 5.106.5.3.3, a raceway is required to be installed at the time of construction and shall be installed in accordance with the California Electrical Code. Construction plans and specifications shall include, but are not limited to, the following:
1. The type and location of the EVSE.
2. A listed raceway capable of accommodating a 208/240-volt dedicated branch circuit.
3. The raceway shall not be less than trade size 1.”
4. The raceway shall originate at a service panel or a subpanel serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into a listed suitable cabinet, box, enclosure or equivalent.</td></tr>
</table>

<table>
<tr><td></td><td>5. The service panel or subpanel shall have sufficient capacity to accommodate a minimum 40- ampere dedicated branch circuit for the future installation of the EVSE.</td></tr>
<tr><td>Section 5.106.5.3.2: Multiple Charging Space Requirements</td><td>When multiple charging spaces are required per Table 5.106.5.3.3 raceway(s) is/are required to be installed at the time of construction and shall be installed in accordance with the California Electrical Code. Construction plans and specifications shall include, but are not limited to, the following:
1. The type and location of the EVSE.
2. The raceway(s) shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into listed suitable cabinet(s), box(es), enclosure(s) or equivalent.
3. Plan design shall be based upon 40-ampere minimum branch circuits.
4. Electrical calculations shall substantiate the design of the electrical system, to include the rating of equipment and any on-site distribution transformers and have sufficient capacity to simultaneously charge all required EVs at its full rated amperage.
5. The service panel or subpanel(s) shall have sufficient capacity to accommodate the required number of dedicated branch circuit(s) for the future installation of the EVSE</td></tr>
<tr><td>Section 5.106.5.3.3: EV Charging Space Calculation</td><td>Table 5.106.5.3.3 shall be used to determine if single or multiple charging space requirements apply for the future installation of EVSE.
Exceptions: On a case-by-case basis where the local enforcing agency has determined EV charging and infrastructure is not feasible based upon one or more of the following conditions:
1. Where there is insufficient electrical supply.
2. Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.
TABLE 5.106.5.3.3
<table>
<tr><th>TOTAL NUMBER OF ACTUAL PARKING SPACES</th><th>NUMBER OF REQUIRED EV CHARGING SPACES</th></tr>
<tr><td>0-9</td><td>0</td></tr>
<tr><td>10-25</td><td>1</td></tr>
<tr><td>26-50</td><td>2</td></tr>
<tr><td>51-75</td><td>4</td></tr>
<tr><td>76-100</td><td>5</td></tr>
<tr><td>101-150</td><td>7</td></tr>
<tr><td>151-200</td><td>10</td></tr>
<tr><td>201 and over</td><td>6 percent of total[1]</td></tr>
</table></td></tr>
<tr><td>Section 5.106.5.3.4: Identification</td><td>The service panel or subpanel(s) circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE.”</td></tr>
<tr><td>Section 5.106.5.3.5: Future Charging Spaces</td><td>Future charging spaces qualify as designated parking as described in Section 5.106.5.2 Designated parking for clean air vehicles.</td></tr>
</table>

<table>
<tr><th colspan="2">Residential Voluntary Measures</th></tr>
<tr><td>Section A4.106.8: EV Construction for New Construction</td><td>New construction shall comply with Sections A4.106.8.1, A4.106.8.2 or A4.106.8.3, to facilitate future installation and use of electric vehicle chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the California Electrical Code, Article 625.</td></tr>
<tr><td>Section A4.106.8.1: New One and Two-Family Dwellings and Townhouses with Attached Garages</td><td>Tier 1 and Tier 2. For each dwelling unit, a dedicated 208/240-volt branch circuit shall be installed in the raceway required by Section 4.106.4.1. The branch circuit and associated overcurrent protective device shall be rated at 40 amperes minimum. Other electrical components, including a receptacle or blank cover, related to this section shall be installed in accordance with the California Electrical Code.</td></tr>
<tr><td>Section A4.106.8.1.1: Identification</td><td>The service panel or subpanel circuit directory shall identify the overcurrent protective device designated for future EV charging purposes as “EV READY” in accordance with the California Electrical Code. The receptacle or blank cover shall be identified as “EV READY.”</td></tr>
<tr><td>Section A4.106.8.2: New Multifamily Dwellings</td><td>Tier 1. Fifteen (15) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.
Tier 2. Twenty (20) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.</td></tr>
<tr><td>Section A4.106.8.2.1: Technical Requirements</td><td>The EV spaces required by Section A4.106.8.2 shall be designed and constructed in accordance with Sections 4.106.4.2.1, 4.106.4.2.2, 4.106.4.2.3, 4.106.4.2.4, and 4.106.4.2.5.</td></tr>
<tr><td>Section A4.106.8.3: New Hotels and Motels</td><td>Tier 1. Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table A4.106.8.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.
TABLE A4.106.8.3.1
<table>
<tr><th>TOTAL NUMBER OF PARKING SPACES</th><th>TIER 1 NUMBER OF REQUIRED EV SPACES</th></tr>
<tr><td>0-9</td><td>0</td></tr>
<tr><td>10-25</td><td>2</td></tr>
<tr><td>26-50</td><td>3</td></tr>
<tr><td>51-75</td><td>5</td></tr>
<tr><td>76-100</td><td>7</td></tr>
<tr><td>101-150</td><td>10</td></tr>
<tr><td>151-200</td><td>14</td></tr>
<tr><td>201 and over</td><td>8 percent of total</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td>Tier 2. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table A4.106.8.3.2. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.
TABLE A4.106.8.3.2
<table><tr><th>TOTAL NUMBER OF PARKING SPACES</th><th>TIER 2 NUMBER OF REQUIRED EV SPACES</th></tr><tr><td>0-9</td><td>1</td></tr><tr><td>10-25</td><td>2</td></tr><tr><td>26-50</td><td>4</td></tr><tr><td>51-75</td><td>6</td></tr><tr><td>76-100</td><td>9</td></tr><tr><td>101-150</td><td>12</td></tr><tr><td>151-200</td><td>17</td></tr><tr><td>201 and over</td><td>10 percent of total</td></tr></table></td></tr>
<tr><td>Section A4.106.8.3.1: Technical Requirements</td><td>The EV spaces required by Section A4.106.8.3 shall be designed and constructed in accordance with Sections 4.106.4.3, 4.106.4.3.2, 4.106.4.3.3, 4.106.4.3.4, 4.106.4.3.5, and 4.106.4.3.6.</td></tr>
<tr><td colspan="2">Non-Residential Voluntary Measures</td></tr>
<tr><td>Section A5.106.5.1: Designated Parking for Clean Air Vehicles</td><td>Provide designated parking for any combination of low emitting, fuel-efficient and carpool/van pool vehicles as shown in Table A5.106.5.1.1 or A5.106.5.1.2.</td></tr>
<tr><td>Section A5.106.5.1.1: Tier 1</td><td>Ten percent of total spaces. [BSCCG] Provide 10 percent of total designated parking spaces for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as follows:
TABLE A5.106.5.1.1
<table><tr><th>TOTAL NUMBER OF PARKING SPACES</th><th>NUMBER OF REQUIRED SPACES</th></tr><tr><td>0-9</td><td>0</td></tr><tr><td>10-25</td><td>2</td></tr><tr><td>26-50</td><td>4</td></tr><tr><td>51-75</td><td>6</td></tr><tr><td>76-100</td><td>9</td></tr><tr><td>101-150</td><td>11</td></tr><tr><td>151-200</td><td>18</td></tr><tr><td>201 and over</td><td>At least 10 percent of total</td></tr></table></td></tr>
<tr><td>Section A5.106.5.1.2: Tier 2</td><td>Provide 12 percent of total designated parking spaces for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows:</td></tr>
</table>

<table>
<tr><td></td><td>
TABLE A5.106.5.1.2
<table>
<tr><th>TOTAL NUMBER OF PARKING SPACES</th><th>NUMBER OF REQUIRED SPACES</th></tr>
<tr><td>0-9</td><td>1</td></tr>
<tr><td>10-25</td><td>2</td></tr>
<tr><td>26-50</td><td>5</td></tr>
<tr><td>51-75</td><td>7</td></tr>
<tr><td>76-100</td><td>9</td></tr>
<tr><td>101-150</td><td>13</td></tr>
<tr><td>151-200</td><td>19</td></tr>
<tr><td>201 and over</td><td>At least 12 percent of total</td></tr>
</table>
</td></tr>
<tr><td>Section A5.106.5.1.3: Parking Stall Marking</td><td>Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle: CLEAN AIR/ VANPOOL/EV Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces.</td></tr>
<tr><td>Section A5.106.5.1.4: Vehicle Designations</td><td>Building managers may consult with local community Transit Management Associations (TMAs) for methods of designating qualifying vehicles, such as issuing parking stickers.
Notes:
1. Information on qualifying vehicles, car labeling regulations and DMV CAV decals may be obtained from the following sources:
a. California DriveClean.
b. California Air Resources Board.
c. U.S. EPA fuel economy regulations and standards. d. DMV Registration Operations.
2. Purchasing policy and refueling sites for low emitting vehicles for state employees use can be found at the Department of General Services.</td></tr>
<tr><td>Section A5.106.5.3: EV Charging</td><td>Construction shall comply with Section A5.106.5.3.1 and A5.106.5.3.2 to facilitate future installation of electric vehicle supply equipment (EVSE). When EVSE(s) is/are installed, it shall be in accordance with the California Building Code and the California Electrical Code and as follows:
A5.106.5.3.1 Tier 1. Table A5.106.5.3.1 shall be used to determine the number of multiple charging spaces required for future installation of EVSE. Refer to Section 5.106.5.3.2 for design space requirements.
TABLE A5.106.5.3.1
<table>
<tr><th>TOTAL NUMBER OF ACTUAL PARKING SPACES</th><th>TIER 1 NUMBER OF REQUIRED EV CHARGING SPACES</th></tr>
<tr><td>0-9</td><td>0</td></tr>
<tr><td>10-25</td><td>2</td></tr>
<tr><td>26-50</td><td>3</td></tr>
<tr><td>51-75</td><td>5</td></tr>
<tr><td>76-100</td><td>7</td></tr>
<tr><td>101-150</td><td>10</td></tr>
<tr><td>151-200</td><td>14</td></tr>
<tr><td>201 and over</td><td>8 percent of total[1]</td></tr>
</table>
1. Calculation for spaces shall be rounded up to the nearest whole number.</td></tr>
</table>

<table>
<tr><td></td><td>A5.106.5.3.2 Tier 2. Table A5.106.5.3.2 shall be used to determine if single or multiple charging space requirements apply for future installation of EVSE. When a single charging space is required, refer to Section 5.106.5.3.1 for design requirements. When multiple charging spaces are required, refer to Section 5.106.5.3.2 for design requirements.
TABLE A5.106.5.3.2
<table><tr><th>TOTAL NUMBER OF ACTUAL PARKING SPACES</th><th>TIER 2 NUMBER OF REQUIRED EV CHARGING SPACES</th></tr><tr><td>0-9</td><td>1</td></tr><tr><td>10-25</td><td>2</td></tr><tr><td>26-50</td><td>4</td></tr><tr><td>51-75</td><td>6</td></tr><tr><td>76-100</td><td>9</td></tr><tr><td>101-150</td><td>12</td></tr><tr><td>151-200</td><td>17</td></tr><tr><td>201 and over</td><td>10 percent of total[1]</td></tr></table></td></tr>
<tr><td>Section A5.106.5.3.3: Identification</td><td>The service panel or subpanel circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as “EV CAPABLE.” The raceway termination location shall be permanently and visibly marked as “EV CAPABLE.”</td></tr>
<tr><td>Section A5.106.5.3.4</td><td>Future charging spaces qualify as designated parking as described in Section A5.106.5.1 Designated parking for clean air vehicles.
Notes:
1. The California Department of Transportation adopts and publishes the California Manual on Uniform Traffic Control Devices (California MUTCD) to provide uniform standards and specifications for all official traffic control devices in California. Zero Emission Vehicle Signs and Pavement Markings can be found in the New Policies & Directives number 13-01. www.dot.ca.gov/ hq/traffops/policy/13-01.pdf.
2. See Vehicle Code Section 22511 EV charging spaces signage in off-street parking facilities and for use of EV charging spaces.
3. The Governor’s Office of Planning and Research published a Zero-Emission Vehicle Community Readiness Guidebook which provides helpful information for local governments, residents and businesses. www.opr.ca.gov/docs/ZEV_Guidebook.pdf.</td></tr>
</table>