

CENTRAL COAST ZERO EMISSION VEHICLE STRATEGY

ADMINISTRATIVE DRAFT APRIL 2023



PREPARED FOR:



428 J STREET, SUITE 340 • SACRAMENTO, CA 95814 • 916.368.2000 • DKSASSOCIATES.COM

SHAPING A SMARTER TRANSPORTATION EXPERIENCE™

AN EMPLOYEE-OWNED COMPANY

PREPARED BY DKS ASSOCIATES



Mike Usen, Project Manager

Kendall Flint

Jim Damkowitch

David Tokarski

Sarah Sweet



EXECUTIVE SUMMARY

The Santa Barbara County Association of Governments (SBCAG), San Luis Obispo Council of Governments (SLOCOG), and Association of Monterey Bay Area Governments (AMBAG) have partnered to develop the Central Coast Zero-Emission Vehicle Strategy (CCZEVS). The CCZEVS identifies Zero emissions Vehicle (ZEV) charging infrastructure needs, challenges, and opportunities on California's Central Coast, including the Counties of Santa Barbara, San Luis Obispo, Monterey, Santa Cruz, San Benito, and Ventura. The objectives of the Central Coast Zero Emissions Vehicle Strategy are to:

- Assess existing EV infrastructure environment in the Central Coast – with a specific focus on unincorporated rural areas between cities that experience significant interregional travel.
- Identify key challenges, gaps, and barriers to EV travel for interregional travelers including long-distance commuters; regional transit providers, freight and other users as determined through input solicited from key stakeholders.
- Identify where equity issues currently exist with access to EV charging and ensure infrastructure improvements and investments are equitable and accessible to all users including traditionally underserved populations.
- Recommend infrastructure improvements and related investments, policies and implementation strategies to promote ZEV adoption through charging infrastructure investments based on analysis, and stakeholder input. This strategy will be meant as a guide to the Central Coast region and does not make any commitments to further financing and is not legally binding.

To meet these goals, the project team first conducted an analysis of existing ZEV infrastructure and a deep engagement process, to better understand the needs of communities in the study areas. The team then conducted a future infrastructure needs analysis and identified gaps and barriers to EV adoption. Based on this information, the project team identified recommendations to fill these gaps and drive equitable ZEV adoption.

FUNDING

Funding opportunities to support the implementation of the Central Coast ZEV strategy continue to grow rapidly. Covered expenses include the purchase or lease of EVs, the purchase and installation of charging infrastructure, and expenses for hydrogen fuel cell electric vehicles (FCEVs) and their refueling infrastructure. Several dozen funding opportunities exist federally as well as in each state, with eligible applicants ranging from private customers, state and local government agencies, tribal governments, school districts, transit agencies, utilities, fleet owners and operators, to vehicle dealers and charging infrastructure vendors. Funding programs typically have a fixed term and a limited allocation of funds. However, the range of funding options has vastly expanded over the past couple of years and especially in the past few months. Information on specific programs can change quickly and we encourage interested parties to monitor and identify funding sources timely and carefully. Examples of funding categories include the following:

- Federal Programs
- CALeVIP



- LCFS
- CEC Grants
- CARB Clean Mobility Options
- Local and Regional Funds

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

In addition to this, the resources listed below include information on funding opportunities which we recommend monitoring:

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

EXISTING INFRASTRUCTURE IN THE CENTRAL COAST REGION

The project team first conducted an existing conditions assessment of EV charging infrastructure and hydrogen refueling in the 6-county region to better understand the current state of ZEV infrastructure in the region. A total of 2,095 EV chargers were accessible to the public in the six-county study area, of which 279 are located within one mile of unincorporated highway interchanges and highway access points. The majority of these, especially DC Fast chargers, are located along the main travel corridors including US-1 and US-101. Very few of the other interregional travel routes (SR 23; SR 33; SR 41; SR 46; SR 68; SR 126; SR 152; SR 156, and SR 166) have more than a few chargers, if any.

Geographically, most chargers are concentrated within the region’s cities which is why the focus of this project is on the underserved portions of unincorporated areas where the vast majority of interregional travel miles are driven. Unincorporated Monterey County has the most DCFCs of any county in the study area with 20, while San Luis Obispo County has the most Level 2 chargers with 121. **Table 1** summarizes existing public EV chargers by county.

TABLE 1: STUDY AREA EXISTING PUBLIC EV CHARGERS BY COUNTY – UNINCORPORATED AND WITHIN CITIES

| COUNTY | LEVEL 2 | DCFC | TESLA DESTINATION | TESLA SUPERCHARGER | TOTAL |
|-------------------------|------------------|-----------------|-------------------|--------------------|--------------------|
| Ventura | 46 (337) | - (37) | 4 (21) | - (88) | 50 (483) |
| Santa Barbara | 73 (202) | 2 (23) | 17 (31) | 8 (38) | 100 (294) |
| San Luis Obispo | 121 (165) | 3 (14) | 89 (33) | - (110) | 213 (322) |
| Monterey | 71 (140) | 20 (25) | 40 (18) | 8 (62) | 139 (245) |
| Santa Cruz | 36 (113) | 6 (14) | 9 (8) | - (46) | 51 (181) |
| San Benito | 4 (8) | - (5) | - (-) | - (-) | 4 (13) |
| Total Study Area | 351 (965) | 31 (118) | 159 (111) | 16 (344) | 557 (1,538) |

Sources: AFDC, PlugShare

Note: Unincorporated (Within Cities)

COMMUNITY ENGAGEMENT

Engaging the community is a vital activity to any planning effort and ZEV infrastructure planning is no exception. To add to the quantitative data collected in the existing conditions analysis performed for this project, the team sought qualitative data through thorough stakeholder and community engagement to better understand the needs of communities in the study areas. The project team used the stakeholder and public input received to inform study recommendations regarding the future location and allocation of electric charging infrastructure in the Central Coast region. The input also helped identify the constraints and opportunities for future deployment of electric charging infrastructure needed to meet future demand.

Community engagement efforts began in April 2022 and were completed in November 2022. Initially, the community engagement was scheduled to end by October 2022, but was extended to November 2022 to allow more time for public input and feedback. The project team conducted the following community engagement efforts to obtain public input and feedback:

- Stakeholder Meetings
- Focus Groups
- Social Pinpoint

The community engagement conducted, and input received for each of these efforts are detailed in Chapter 1 and Appendix I.

FUTURE INFRASTRUCTURE NEEDS

Using the existing conditions analysis, deep stakeholder engagement, and the technical transit needs assessment as a starting point, the project team analyzed projections prepared by the California Energy Commission to perform an analysis of future infrastructure needs.

By 2030, to meet future EV demand, it is estimated that an additional 25,481 public Level 2 EV charging stations will be required, as well as an additional 1,223 public DCFC charging stations. Of these charging stations, an estimated 2,031 stations will need to be located in unincorporated areas along key state highway corridors in the Central Coast.

TABLE 2: CALIFORNIA ENERGY COMMISSION (CEC) CHARGER NEED FORECASTS

| COUNTY | MFH | WORK | PUBLIC | DCFC | TOTAL |
|-------------------|---------------|---------------|---------------|--------------|---------------|
| | (ASSUMED L2) | | | (L3) | |
| 2030 | | | | | |
| MONTEREY | 2,997 | 3,396 | 5,196 | 311 | 11,902 |
| SAN BENITO | 313 | 188 | 502 | 37 | 1,040 |
| SAN LUIS OBISPO | 1,675 | 2,167 | 4,263 | 246 | 8,350 |
| SANTA BARBARA | 3,716 | 3,109 | 5,271 | 322 | 12,418 |
| SANTA CRUZ | 1,689 | 1,219 | 2,907 | 189 | 6,005 |
| VENTURA | 5,107 | 5,185 | 8,927 | 627 | 19,847 |
| STUDY AREA | 15,497 | 15,265 | 27,067 | 1,732 | 59,561 |

BARRIERS AND GAPS TO ZEV ADOPTION

Based on the existing conditions assessment, community outreach, and the future infrastructure needs assessment, the project identified the following gaps and barriers to ZEV adoption that must be resolved for the Central Coast Region to transition to a decarbonized transportation future:

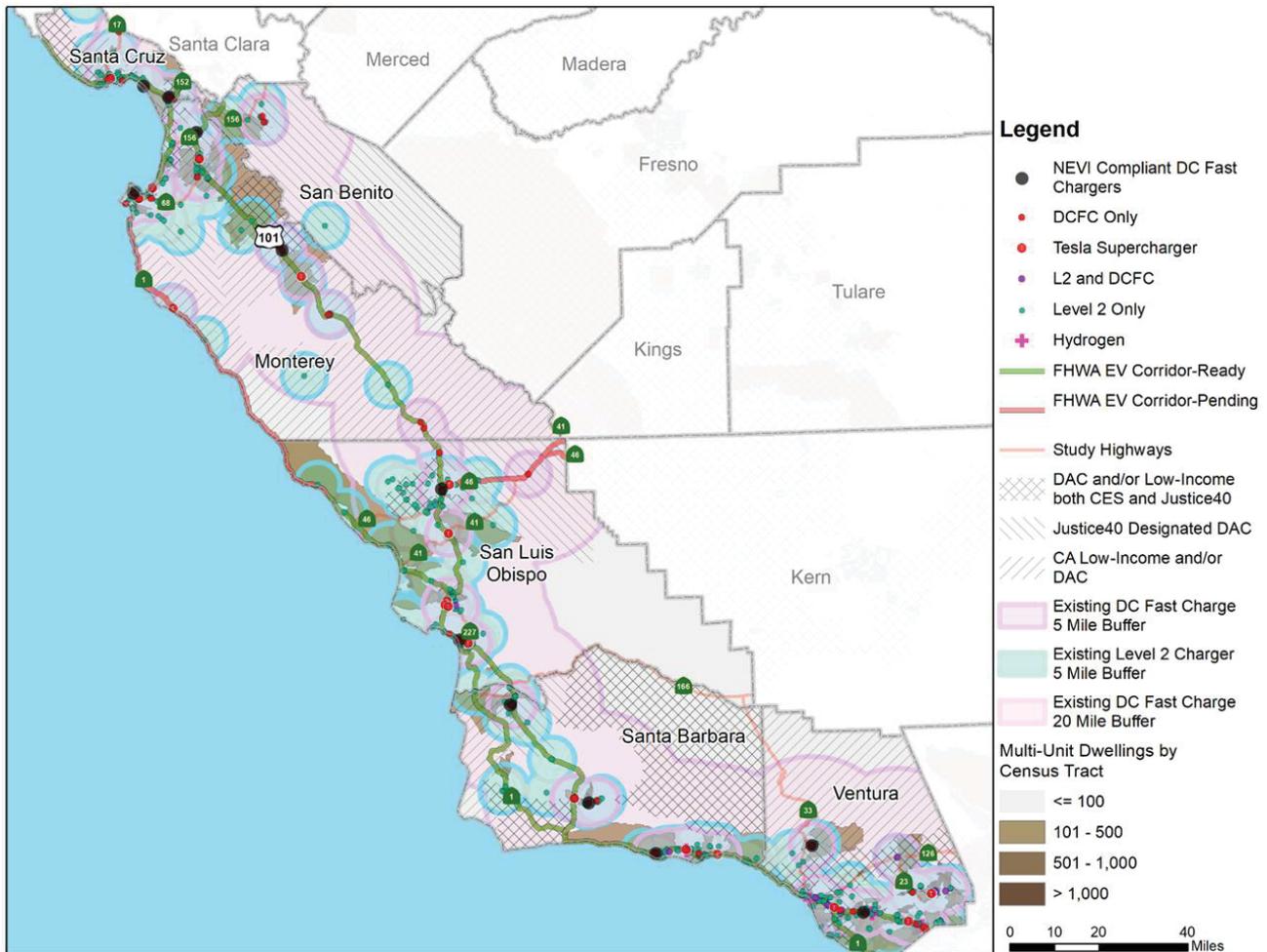
- Lack of charging infrastructure in key areas of the region
- Lack of awareness about ZEVs and available incentives
- Electrical Grid Capacity
- Climate change impacts on resiliency and EV charging
- Deep inequities in the adoption of ZEV technologies
- Challenges in the permitting process
- Different payment systems for using EV chargers

LACK OF ZEV INFRASTRUCTURE

Inadequate infrastructure a key barrier to ZEV adoption, and a key focus of this study. Based on the existing conditions analysis, the future needs analysis, and deep community engagement, the project team performed a gap analysis of EV infrastructure for interregional travel, shown in **Figure 1**. Gaps in EV infrastructure around corridors are critical to address since they impact interregional travel,

and significantly slow ZEV adoption. A second infrastructure gap revealed by the future needs analysis relates to the level of infrastructure needed to support projected EV adoption rates. As shown in **Table 1**, the Central Coast needs to undergo a major buildout of ZEV infrastructure to support the level of ZEV adoption needed to decarbonize the transportation sector. If the installation of new infrastructure does not happen at a quick enough pace, lack of ZEV infrastructure will become a major barrier to ZEV adoption.

FIGURE 1: GAP ANALYSIS MAP



LACK OF AWARENESS ABOUT ZEV TECHNOLOGIES

Another frequent challenge with ZEV adoption is limited awareness about zero emission vehicles themselves, the incentives available to purchase them, the infrastructure necessary to refuel or charge them, and phone-based technologies used for payments. This barrier does not affect every community in the same way and can be compounded by traditional communication barriers such as literacy, access to technology, and language barriers.

ELECTRICAL GRID CAPACITY

The capacity of the electric grid to support increased levels of ZEV infrastructure is one of the key barriers to ZEV adoption that urgently needs to be addressed and planned for. This barrier is one of the main topics that was mentioned across every outreach focus group and is an especially important concern for rural communities. This is such an important barrier because ZEV infrastructure projects that require upgrades to the local grid infrastructure can run into significant costs and lengthy time delays. Projects relating ZEV infrastructure for heavy duty vehicle ZEV infrastructure such as for transit buses, are especially vulnerable to this barrier.

ZEV INFRASTRUCTURE CLIMATE VULNERABILITY AND RISKS

A key barrier to ZEV adoption is that the climate vulnerability and risks associated with the transition to a ZEV transportation system have not yet been fully studied. As highlighted by the recent winter storms, the Central Coast is vulnerable to a number of climate change risks such as sea level rise, extreme weather, and wildfires. Many of these events disrupt the electric grid, place deep risk on transportation infrastructure, and impact vulnerable communities the most. Unfortunately, ZEV charging infrastructure in the Central Coast is currently exposed to unknown climate risk. Exposure to climate risk also has the potential to significantly slow the buildout of ZEV infrastructure.

DEEP INEQUITIES IN THE ADOPTION OF ZEV TECHNOLOGIES

While the focus of this study is meeting the needs of interregional travelers along major travel corridors in unincorporated areas, both the existing conditions report and the community engagement have revealed deep equity considerations, especially relating to serving underserved communities and residents of multi-family housing. The lack of access to charging for these populations is a substantial barrier to EV adoption and needs to be addressed so that ZEV charging infrastructure can be equitably distributed throughout the Central Coast.

PERMITTING

Even after identifying the need and locations for charging infrastructure, permitting can be yet another barrier to installing equipment and electrical infrastructure. For this reason, streamlining the permitting process to make it as easy as possible can be a simple and cost-effective solution to support the installation of EV charging infrastructure. In recognition of this, AB 1236 and AB 970 require that local jurisdictions implement streamlined permitting for EV charging stations.

The existing conditions analysis of this report (Appendix III) expands further on permit streamlining. **Table 3** identifies the streamlining status of each county in the Central Coast study area at the time of this writing. Some jurisdictions within these counties have not started the permit streamlining processes or are in progress. With streamlined permitting, residents, businesses, and EV installers can more accurately predict the time and cost of installing a charging station. It also decreases the likelihood that chargers will be installed without obtaining a permit.

TABLE 3: EVCS PERMIT STREAMLINING STATUS IN THE CENTRAL COAST COUNTIES

| COUNTY | PERMIT STREAMLINING STATUS |
|-----------------|----------------------------|
| SANTA BARBARA | Complete |
| SAN LUIS OBISPO | Complete |
| MONTEREY | In progress |
| SANTA CRUZ | Complete |
| SAN BENITO | Complete |
| VENTURA | Complete |

Updated April, 11th 2023

Source: <https://california.maps.arcgis.com/apps/webappviewer/index.html?id=5b34002aaffa4ac08b84d24016bf04ce>

EV CHARGER PAYMENT SYSTEMS

Different payment systems to use EV chargers can cause confusion and unintended barriers. At a minimum, this process must process the transaction while not creating a barrier for drivers to use the charging equipment. EV charging payment systems may involve the following elements in terms of how customers pay for EV charging:

- Different fee structures
- Different ways to pay e.g., using cash/debit, credit card, plan/program
- Different technologies to pay e.g., contact vs contactless

The payment options can generally fit into the following categories and again, some may or may not be required by state or federal regulation:

- Card-based: Credit card, pre-paid / debit card
- Radio-frequency identification (RFID)
- QR code scan: Scanning a QR code at the charger brings drivers to the payment portal
- Mobile app: Payment through a mobile application.
- *E-currency*: Apple Pay, Google Wallet, PayPal, Venmo, integrated charger, etc. serves as an ID and payment channel. Users, once configured in the back end, can simply plug in at compatible chargers and automatically be billed for the charger use.¹

¹ Plug and Charge. <https://www.caranddriver.com.cdn.ampproject.org/c/s/www.caranddriver.com/news/amp35044132/plug-and-charge-ev-charging-mustang-mach-e/>

CENTRAL COAST ZERO EMISSIONS VEHICLE STRATEGY RECOMMENDATIONS

Through research, stakeholder and public engagement and technical analysis of current and needed infrastructure, the project team has compiled the following recommendations for the Central Coast Zero Emissions Vehicle Strategy recommendations:

- Coordinate cooperative ZEV planning
- Prioritize ZEV infrastructure installation at identified locations
- Providing effective education and outreach
- Provide education on, and choose simple EV charger payment systems
- Addressing Grid and Transformer Constraints
- Serving DAC, MFH and drivers without home charging
- Addressing climate change impacts on resiliency and EV charging
- Engage and collaborate in ongoing ZEV initiatives
- Conduct Further collaborative planning studies
- Leverage local jurisdiction planning processes
- Track funding opportunities and prepare for applications

CREATE A COOPERATIVE ZEV PLANNING CENTRAL COAST COMMITTEE

Due to the nature of transportation, planning for the ZEV transition will need coordination across borders and boundaries of counties, cities, utility service territories, transit agencies and more. For this reason, ZEV planning must be collaborative. It is recommended that a Mega-Region Central Coast Committee for Advancing ZEVs be established. The committee would coordinate planning and funding opportunities and efforts for expanding ZEV technology adoption moving forward. The Mega Region Committee should meet quarterly. Semi-annually the meeting should include stakeholders. Some of the goals and activities of the committee could include:

- Providing important data that helps member counties, cities, and communities be more competitive for ZEV-related grants and programs and collaborating on grant and funding opportunities where appropriate
- Measuring progress toward increasing the number of charging stations in desired areas
- Measuring and recording equity impacts
- Measuring progress toward ZEV adoption by vehicle class and type
- County or corridor specific goals
- Estimating GHG reduction

PRIORITIZE EV CHARGING INFRASTRUCTURE DEPLOYMENT AT SPECIFIC LOCATIONS

The results from the existing conditions analysis, future ZEV Infrastructure needs analysis, and gap analysis were coupled with big data purchased from Streetlight Data, business data obtained via ESRI Business Analyst, the outreach data obtained via public meetings, stakeholder meetings

workshops, focus groups, and the Social Pinpoint site, to create a siting analysis seeking to identify where DCFC EV infrastructure is most needed to support interregional travel.

Because this study is focused on interregional travel and the unincorporated portions of the study area counties, site prioritization was limited to locations adjacent to (within one mile) highway (US highway and California state route) interchanges outside of incorporated cities.

Based on this siting analysis the recommended locations for additional charging infrastructure are summarized in **Table 4**. This list includes the top 20 ranked locations based on the analysis, plus 12 additional locations to ensure that each county in the study area is represented by at least five potential locations. This list does not represent a prescriptive list of locations for additional infrastructure, rather it represents potential locations distributed over all counties participating in this study.

TABLE 4: RECOMMENDED CHARGING LOCATIONS

| # | LOCATION | COUNTY | STUDY AREA RANK | COUNTY RANK | DAILY TRAFFIC VOLUME |
|----|------------------------------------------|-----------------|-----------------|-------------|----------------------|
| 1 | US 101 AT SR 154 (SAN MARCOS PASS ROAD) | Santa Barbara | 1 | 1 | 47,342 |
| 2 | STATE ROUTE 1 AT HIGHLAND DRIVE | San Luis Obispo | 2 | 1 | 41,913 |
| 3 | STATE ROUTE 1 AT SOQUEL DRIVE | Santa Cruz | 3 | 1 | 44,497 |
| 4 | US 101 AT WEST TEFT STREET | San Luis Obispo | 4 | 2 | 39,280 |
| 5 | US 101 AT TURNPIKE ROAD | Santa Barbara | 5 | 2 | 38,641 |
| 6 | STATE ROUTE 1 AT STATE PARK DRIVE | Santa Cruz | 6 | 2 | 33,248 |
| 7 | US 101 AT STATE ROUTE 146 | Monterey | 7 | 1 | 22,033 |
| 8 | US 101 AT SANTA ROSA ROAD | Santa Barbara | 8 | 3 | 21,061 |
| 9 | US 101 AT ESPINOSA ROAD | Monterey | 9 | 2 | 20,383 |
| 10 | STATE ROUTE 156 AT CASTROVILLE ROAD | Monterey | 10 | 3 | 17,486 |
| 11 | STATE ROUTE 156 AT STATE ROUTE 183 | Monterey | 11 | 4 | 15,164 |
| 12 | STATE ROUTE 1 AT 22 ND STREET | San Luis Obispo | 12 | 3 | 29,716 |
| 13 | STATE ROUTE 1 AT RIO DEL MAR BOULEVARD | Santa Cruz | 13 | 3 | 28,251 |
| 14 | US 101 AT LAS TABLAS ROAD | San Luis Obispo | 14 | 4 | 31,205 |
| 15 | US 101 AT STATE ROUTE 156 | Monterey | 15 | 5 | 16,035 |
| 16 | US 101 AT COAST VILLAGE ROAD | Santa Barbara | 16 | 4 | 20,312 |
| 17 | US 101 AT SANTA MARIA WAY | Santa Barbara | 17 | 5 | 25,319 |

| # | LOCATION | COUNTY | STUDY AREA RANK | COUNTY RANK | DAILY TRAFFIC VOLUME |
|----|---------------------------------------|-----------------|-----------------|-------------|----------------------|
| 18 | US 101 AT SAN MIGUEL CANYON ROAD | Monterey | 18 | 6 | 15,283 |
| 19 | STATE ROUTE 1 AT STATE ROUTE 68 | Monterey | 19 | 7 | 18,914 |
| 20 | US 101 AT VINEYARD DRIVE | San Luis Obispo | 20 | 5 | 25,418 |
| 21 | STATE ROUTE 152 AT HOLOHAN ROAD | Santa Cruz | 24 | 4 | 14,139 |
| 22 | STATE ROUTE 9 AND BIG TREES PARK ROAD | Santa Cruz | 26 | 5 | 15,025 |
| 23 | STATE ROUTE 33 AND MEINERS ROAD | Ventura | 30 | 1 | 16,965 |
| 24 | STATE ROUTE 33 AT VILLANUEVA ROAD | Ventura | 34 | 2 | 16,680 |
| 25 | STATE ROUTE 33 AT STATE ROUTE 150 | Ventura | 35 | 3 | 16,435 |
| 26 | STATE ROUTE 33 AT OAK VIEW AVENUE | Ventura | 38 | 4 | 13,341 |
| 27 | STATE ROUTE 33 AT VALLEY MEADOW DRIVE | Ventura | 44 | 5 | 14,673 |
| 28 | US 101 AT CHITTENDEN ROAD (SR 129) | San Benito | 104 | 1 | 2,001 |
| 29 | US 101 AT ANZAR ROAD | San Benito | 106 | 2 | 1,892 |
| 30 | STATE ROUTE 156 AT UNION ROAD | San Benito | 149 | 3 | 1,681 |
| 31 | STATE ROUTE 156 AT SAN JUAN ROAD | San Benito | 151 | 4 | 1,582 |
| 32 | US 101 AT BETABEL ROAD | San Benito | 156 | 5 | 765 |

PROVIDE EFFECTIVE EDUCATION AND OUTREACH

Media channels already used by these organizations can be utilized to spread the word via social media, the web and in-person events. DKS developed a ZEV FAQ that can be used in person, on the web and can be linked in social media. This can be found in **Appendix VI**.

ZEV focused events can also be a great way to spread the word and give the public a chance to experience ZEVs firsthand. A few events already occur annually and can provide an easy way to get started either on new events or supporting events being planned by others. National Drive Electric Week² occurs in late September-early October and consistently holds events across the country. They provide media packages, logos, and limited event promotion. Drive Electric Earth Day is another similar national campaign occurring on Earth Day³ in April. Both events may consist of Ride and Drives where individuals can test drive or take a ride in a ZEV or other gatherings such as ZEV

² National Drive Electric Week: <https://driveelectricweek.org/>

³ Drive Electric Earth Day: <https://driveelectricearthday.org/>

“tailgates”. Either are opportunities to educate the public as well as bring in the expertise and enthusiasm of current ZEV drivers.

The level of outreach and education performed can be tailored to each organization. Some may have the bandwidth to do regular ride and drive events and spread the word at community events and others may only be able to share information online and through social media posts. Any level of engagement will support ZEV adoption to some extent. **Chapter 3** provides more details on providing effective outreach under the recommendations section.

PROVIDE EDUCATION ON, AND CHOOSE SIMPLE EV CHARGER PAYMENT SYSTEMS

Ideally, the payment process should be convenient, inclusive, reliable, secure, and cost-efficient for both the site hosts and/or charging equipment owners as well as the drivers using the chargers. When selecting EV charger payment systems, regulations will need to be followed but they should also be as simple as possible to use. Part of the education and outreach efforts around transportation decarbonization should also include education around these payment systems to allow people to feel comfortable and confident in their use.

CREATE A MID-RANGE PLANNING PROCESS FOR ZEV INFRASTRUCTURE IN PARTNERSHIP WITH UTILITIES

Electric grid capacity is not an issue unique to the Central Coast Region, or even to California. Utilities across the country are engaged in planning to manage both transportation and building electrification. The balance for electric utilities will be to determine the areas most in need of infrastructure upgrades and when they will need to be upgraded to ensure the most cost-effective transition minimizing rate-pressure. Counties and municipalities can assist in this transition as well as gain information they need for their planning by working with utilities early in the process and through the site evaluation. **Chapter 3** provides details on how to work with utilities when selecting sites to install EV charging stations.

SERVING DAC, MFH & DRIVERS WITHOUT HOME CHARGING

While the focus of this study is meeting the needs of interregional travelers along major travel corridors in unincorporated areas, serving disadvantaged communities (DAC), multifamily housing (MFH) and drivers without home charging remains a substantial barrier to EV adoption. In some cases, these needs may overlap. To identify opportunities to serve all these needs, DKS has identified DACs and MFHs in the gap analysis performed for this study.

Counties and municipalities in the study area may choose to prioritize the installation of charging infrastructure in these locations. However, serving DACs, MFHs and others without home charging will take a multi-pronged approach. In some cases, the solution may not be charging infrastructure at all but zero-emission public transit, shuttle services, micro-mobility, bike lanes, and grants or financial incentives to make obtaining an electric vehicle purchase more accessible to households with limited income. It’s important to note as well that not all individuals can or choose to drive. Those with physical disabilities may not be able to drive or take advantage of bike lanes or micro-

mobility and increasingly, younger generations choose to forgo driving altogether⁴. Therefore, to ensure an equitable transition to zero-emission transportation, multiple modes travel will need to be decarbonized, which is beyond the scope of the Central Coast Zero Emission Vehicle Strategy at this time.

ADDRESSING CLIMATE CHANGE IMPACTS ON RESILIENCY AND EV CHARGING

With the ever-increasing impacts of climate change, grid resiliency is becoming an urgent topic. Fortunately, the very technologies used to reduce carbon emissions, ZEVs and renewable energy, can also be used together to provide resiliency. Solar and wind energy provide clean electricity; however, these are intermittent resources meaning they only produce electricity when the sun is shining, or the wind is blowing. This is where battery storage, either in the form of back up batteries or by utilizing the batteries in electric vehicles with bi-directional charging can provide balance to these resources by storing energy when it's being produced by solar or wind and releasing it back to the grid when these resources are not generating electricity, but power is needed.

On a smaller scale, solar paired with battery storage or EVs with bi-directional charging and the ability to "island" or disconnect from the grid in times of power outages can provide a powerful resiliency solution. It's important to have the ability to disconnect from the grid to allow utility workers to safely work on utility equipment. For this reason, solar installations typically have an automatic cut-off during outages to keep utility workers safe, unless the system is set up to "island". There now exists many back-up battery systems that can be paired with solar. Together, these technologies could provide power to critical buildings during extended outages as well as residential homes with these systems in place.

The Central Coast member agencies, COGS and previously discussed Mega-Region Central Coast Committee can work to implement policies to encourage or even require technologies to enable islanding and back-up power. These policies could simultaneously address climate change in the reduction of carbon emissions while also preparing the region for resiliency.

CONDUCT FURTHER COLLABORATIVE ZEV PLANNING STUDIES

The CCZEVS identified a number of planning areas relating to ZEVs where further planning is needed. The project team recommends pursuing opportunities to create collaborative planning efforts that address the following topics:

- ZEV workplace infrastructure Planning
- ZEV multifamily housing infrastructure planning
- ZEV infrastructure climate adaptation and resiliency planning
- ZEV Infrastructure equity planning

⁴ Ming Zhang, Yang Li, Generational travel patterns in the United States: New insights from eight national travel surveys, <https://www.sciencedirect.com/science/article/pii/S0965856421003165>

ENGAGE AND COLLABORATE IN ONGOING ZEV INITIATIVES

It is recommended that jurisdictions participate in regulatory proceedings like the ones discussed in this report as much as possible to ensure their needs will be met and their unique challenges will be heard. Vehicles cross boundaries of cities, counties, states, transit authorities, utilities and more. For this reason, the decarbonization of transportation will need to be a collaborative effort with participation from all impacted parties to create a thorough picture of needs, challenges, and robust plans.

Throughout this study several ongoing these initiatives have been identified relating to ZEV implementation including:

- Transit agency ZEB procurement planning
- CCCCE MHD/HD blueprint
- Central Coast Freight Study

Trade Port California is another similar planning initiative lead by Fresno COG that will be starting in the coming months.

LEVERAGE LOCAL JURISDICTION PLANNING PROCESSES

The project team recommends that partners work with local jurisdictions to leverage their planning processes to accelerate EV adoption.

Utilize Code to Increase Infrastructure

Firstly, local jurisdictions can leverage their planning authority to ensure new construction includes increased levels of EV Charging Infrastructure. The California building code requires that new buildings to include a certain percentage of parking spaces to be equipped with EV Chargers, as well as for some parking spaces to be either EV ready, or EV Capable, with different requirements depending on the number of parking spaces. There are multiple ways for local jurisdictions to require new buildings to exceed the minimum percentages set by the current building code through the adoption of reach codes. This process allows jurisdictions to tailor how many parking stations should have EV chargers, be EV ready, or be EV capable, based on their projected EV needs.

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

- Tier 1 requires that 10% of spaces are EV Capable for a property with 19 or fewer units; for properties with 20 or more units, 25% of the dwelling unit spaces must be EV Capable.
- Tier 2 applies only to properties with 20 or more units and requires the 5% of total parking spaces be EV Installed and at least one EVSE must be in a common area.

By adopting Tier 1 or Tier 2 as mandatory, or applying for a reach code, counties in the Central Coast region could increase the number of charging stations without incentives. It will reduce the costs of adding charging later. Adopting Tier 1 or Tier 2 does not require a regulatory filing.

“tailgates”. Either are opportunities to educate the public as well as bring in the expertise and enthusiasm of current ZEV drivers.

The level of outreach and education performed can be tailored to each organization. Some may have the bandwidth to do regular ride and drive events and spread the word at community events and others may only be able to share information online and through social media posts. Any level of engagement will support ZEV adoption to some extent. **Chapter 3** provides more details on providing effective outreach under the recommendations section.

PROVIDE EDUCATION ON, AND CHOOSE SIMPLE EV CHARGER PAYMENT SYSTEMS

Ideally, the payment process should be convenient, inclusive, reliable, secure, and cost-efficient for both the site hosts and/or charging equipment owners as well as the drivers using the chargers. When selecting EV charger payment systems, regulations will need to be followed but they should also be as simple as possible to use. Part of the education and outreach efforts around transportation decarbonization should also include education around these payment systems to allow people to feel comfortable and confident in their use.

CREATE A MID-RANGE PLANNING PROCESS FOR ZEV INFRASTRUCTURE IN PARTNERSHIP WITH UTILITIES

Electric grid capacity is not an issue unique to the Central Coast Region, or even to California. Utilities across the country are engaged in planning to manage both transportation and building electrification. The balance for electric utilities will be to determine the areas most in need of infrastructure upgrades and when they will need to be upgraded to ensure the most cost-effective transition minimizing rate-pressure. Counties and municipalities can assist in this transition as well as gain information they need for their planning by working with utilities early in the process and through the site evaluation. **Chapter 3** provides details on how to work with utilities when selecting sites to install EV charging stations.

SERVING DAC, MFH & DRIVERS WITHOUT HOME CHARGING

While the focus of this study is meeting the needs of interregional travelers along major travel corridors in unincorporated areas, serving disadvantaged communities (DAC), multifamily housing (MFH) and drivers without home charging remains a substantial barrier to EV adoption. In some cases, these needs may overlap. To identify opportunities to serve all these needs, DKS has identified DACs and MFHs in the gap analysis performed for this study.

Counties and municipalities in the study area may choose to prioritize the installation of charging infrastructure in these locations. However, serving DACs, MFHs and others without home charging will take a multi-pronged approach. In some cases, the solution may not be charging infrastructure at all but zero-emission public transit, shuttle services, micro-mobility, bike lanes, and grants or financial incentives to make obtaining an electric vehicle purchase more accessible to households with limited income. It’s important to note as well that not all individuals can or choose to drive. Those with physical disabilities may not be able to drive or take advantage of bike lanes or micro-

mobility and increasingly, younger generations choose to forgo driving altogether⁴. Therefore, to ensure an equitable transition to zero-emission transportation, multiple modes travel will need to be decarbonized, which is beyond the scope of the Central Coast Zero Emission Vehicle Strategy at this time.

ADDRESSING CLIMATE CHANGE IMPACTS ON RESILIENCY AND EV CHARGING

With the ever-increasing impacts of climate change, grid resiliency is becoming an urgent topic. Fortunately, the very technologies used to reduce carbon emissions, ZEVs and renewable energy, can also be used together to provide resiliency. Solar and wind energy provide clean electricity; however, these are intermittent resources meaning they only produce electricity when the sun is shining, or the wind is blowing. This is where battery storage, either in the form of back up batteries or by utilizing the batteries in electric vehicles with bi-directional charging can provide balance to these resources by storing energy when it's being produced by solar or wind and releasing it back to the grid when these resources are not generating electricity, but power is needed.

On a smaller scale, solar paired with battery storage or EVs with bi-directional charging and the ability to "island" or disconnect from the grid in times of power outages can provide a powerful resiliency solution. It's important to have the ability to disconnect from the grid to allow utility workers to safely work on utility equipment. For this reason, solar installations typically have an automatic cut-off during outages to keep utility workers safe, unless the system is set up to "island". There now exists many back-up battery systems that can be paired with solar. Together, these technologies could provide power to critical buildings during extended outages as well as residential homes with these systems in place.

The Central Coast member agencies, COGS and previously discussed Mega-Region Central Coast Committee can work to implement policies to encourage or even require technologies to enable islanding and back-up power. These policies could simultaneously address climate change in the reduction of carbon emissions while also preparing the region for resiliency.

CONDUCT FURTHER COLLABORATIVE ZEV PLANNING STUDIES

The CCZEVS identified a number of planning areas relating to ZEVs where further planning is needed. The project team recommends pursuing opportunities to create collaborative planning efforts that address the following topics:

- ZEV workplace infrastructure Planning
- ZEV multifamily housing infrastructure planning
- ZEV infrastructure climate adaptation and resiliency planning
- ZEV Infrastructure equity planning

⁴ Ming Zhang, Yang Li, Generational travel patterns in the United States: New insights from eight national travel surveys, <https://www.sciencedirect.com/science/article/pii/S0965856421003165>

ENGAGE AND COLLABORATE IN ONGOING ZEV INITIATIVES

It is recommended that jurisdictions participate in regulatory proceedings like the ones discussed in this report as much as possible to ensure their needs will be met and their unique challenges will be heard. Vehicles cross boundaries of cities, counties, states, transit authorities, utilities and more. For this reason, the decarbonization of transportation will need to be a collaborative effort with participation from all impacted parties to create a thorough picture of needs, challenges, and robust plans.

Throughout this study several ongoing these initiatives have been identified relating to ZEV implementation including:

- Transit agency ZEB procurement planning
- CCCCE MHD/HD blueprint
- Central Coast Freight Study

Trade Port California is another similar planning initiative lead by Fresno COG that will be starting in the coming months.

LEVERAGE LOCAL JURISDICTION PLANNING PROCESSES

The project team recommends that partners work with local jurisdictions to leverage their planning processes to accelerate EV adoption.

Utilize Code to Increase Infrastructure

Firstly, local jurisdictions can leverage their planning authority to ensure new construction includes increased levels of EV Charging Infrastructure. The California building code requires that new buildings to include a certain percentage of parking spaces to be equipped with EV Chargers, as well as for some parking spaces to be either EV ready, or EV Capable, with different requirements depending on the number of parking spaces. There are multiple ways for local jurisdictions to require new buildings to exceed the minimum percentages set by the current building code through the adoption of reach codes. This process allows jurisdictions to tailor how many parking stations should have EV chargers, be EV ready, or be EV capable, based on their projected EV needs.

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

- Tier 1 requires that 10% of spaces are EV Capable for a property with 19 or fewer units; for properties with 20 or more units, 25% of the dwelling unit spaces must be EV Capable.
- Tier 2 applies only to properties with 20 or more units and requires the 5% of total parking spaces be EV Installed and at least one EVSE must be in a common area.

By adopting Tier 1 or Tier 2 as mandatory, or applying for a reach code, counties in the Central Coast region could increase the number of charging stations without incentives. It will reduce the costs of adding charging later. Adopting Tier 1 or Tier 2 does not require a regulatory filing.

Permit Streamlining

As discussed in the **Chapter 2. Barriers and Gaps to ZEV Adoption**, not all jurisdictions in the Central Coast Region have met permit streamlining requirements.

Ensuring that every local jurisdiction streamlines EV permitting to the fullest extent possible is critical to ensuring EV adoption in the Central Coast Region. The project team recommends The Mega-region Central Coast Committee prioritize compliance with permit streamlining in the jurisdictions that have yet to fully meet compliance. As this document once finalized will be static, the team recommends the Mega-Region Central Coast Committee review the California Electric Vehicle Charging Station Permit Streamlining Map to review the status of each jurisdiction as it is updated.⁵ The California State Building Officials (Calbo) published a set of resources for small jurisdictions that include sample forms and model ordinances for reference.

PREPARING FOR GRANT AND FUNDING OPPORTUNITIES

To prepare for grant and other funding opportunities consider the following:

- Identify sites and project stakeholders/partners ahead of time. Ensure the owner of a potential installation site is on board and an active participant in the process and make this known in the application for funding.
- Complete site evaluations as suggested previously in this chapter and complete as much of the design as possible to show you have done your due diligence and will be prepared to utilize the funding without delay. Projects should be as close to “shovel ready” as possible.
- Plan for staff to manage grant funding and completing reporting requirements and outline your plan in your funding application.
- Carefully review funding applications and requirements to ensure nothing is missed. Particularly with competitive grant applications at the federal and state level.

EXPLORE REVENUE OPPORTUNITIES

Public EV chargers can generate revenue for their owners directly through the sale of electrons to motorists charging their vehicles to cover the cost of the electricity consumed. As with any commodity, revenues from charging are a factor of supply and demand for charging as well as the costs of installed chargers and the price of electricity.

Revenues can also be generated indirectly through the sale of Low Carbon Fuel Standard credits. The Low Carbon Fuel Standard (LCFS) is a market-based approach to incentivizing clean energy administered by the California Air Resources Board⁶. The LCFS creates a marketplace where air polluters may acquire credits to continue to operate, while clean energy users sell credits to generate revenue.

⁵ <https://california.maps.arcgis.com/apps/webappviewer/index.html?id=5b34002aaffa4ac08b84d24016bf04ce>

⁶ About Low Carbon Fuel Standard. <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard/about>

The full Draft Central Coast Zero Emissions Vehicle Strategy is available for download on the project website: <http://www.centralcoastzevstrategy.com/>

