CLIMATE ACTION COLLABORATIVE

ELECTRIC VEHICLE INFRASTRUCTURE PLAN

EAGLE COUNTY, COLORADO

CONTENTS

EXECUTIVE SUMMARY

In 2016, the Climate Action Plan for the Eagle County Community (CAP) declared that "our mountain community is at risk," risk from shorter and warmer winters, hotter summers, and changing mountain ecosystems [1]. To combat the effects of climate change, the **Eagle County Climate Action Collaborative (CAC)** was formed in 2018 to implement the recommendations from the CAP. This stakeholder collaboration is made up of local governments, businesses, and nonprofits, all with the shared goal of reducing greenhouse gas (GHG) emissions 50% by 2030 and 80% by 2050.

According to the 2021 inventory of Eagle County's GHG emissions, transportation accounts for 42% of total emissions [2]. To reduce this large portion of emissions, the 2020 CAP Update has set a priority action to increase the number of electric vehicles (EVs) registered in Eagle County by 2% each year as a priority action [3]. To meet this goal, Eagle County will need 13,542 registered EVs on the road by 2030.

Adding thousands of EVs will require significant investment in electric vehicle supply equipment (EVSE), better known as EV chargers. We know that the lack of public EVSE is a barrier many drivers cite as a reason for not purchasing an EV [4]. As of December 2022, there were 106 public EV charging plugs in Eagle County [5]. To support the goal of 13,542 EVs by 2030, Eagle County will need to add at least 1,129 public plugs (using a 12:1 EV-to-plug ratio).

The Eagle County Electric Vehicle Infrastructure Plan serves as an extension of the CAP 2020 Update, laying out resources and strategies for equitably placed EVSE that will allow Eagle County to meet its EV adoption goal.

In late 2022, the CAC convened municipal staff and local EV experts to create this plan. Over the course of four meetings, the EV Task Force developed three goals of the plan, categorized by: Funding, Infrastructure, and Education & Outreach, each with accompanying strategies. A table of each goal and its strategies can be found in Appendix A.

Moving forward, the Eagle County EV Infrastructure Plan represents a resource for local governments to plan for EVSE installation that is equitable and supports the goal of increasing the number of EVs registered in Eagle County by 2% each year.

Action over the next few years is critical to meeting our goal of reducing GHG emissions 50% by 2030. Municipalities must accelerate the pace of EV adoption by installing public EVSE. This plan provides resources and direction for installing EVSE across Eagle County so that we can meet our goal.

[1] Langmaid, Kim, Kelsey Maloney, Larissa Reed, and Scott Robinson. 2016. ***Climate Action Plan for the Eagle County Community***. Avon, Colorado.
[2] Matzl, Christina, Erica Sparhawk. 2023. ***Eagle County Energy Inventory***. Eagle County, Colorado.
[3] The Climate Action Collaborative. 2020. ***Climate Action Plan Update 2020 Executive Summary***. Avon, Colorado: Walking Mountains Science Center.
[4] Kodjak, Drew. 2012. ***Consumer Acceptance of Electric Vehicles in the US***. EPA. Washington, DC: The International Council on Clean Transportation.
[5] EValuateCO. 2022. ***Atlas Public Policy***. September 2022.

ACKNOWLEDGEMENTS

Walking Mountains Science Center (Walking Mountains) and the CAC would like to extend a sincere thank you to the following stakeholders for their time, effort, and commitment to develop the Eagle County Electric Vehicle Infrastructure Plan:

- Martín Bonzi, Clean Energy Economy for the Region
- Becky Close, Town of Gypsum
- John Gitchell, Eagle County
- Stefan Johnson, Holy Cross Energy
- Kate Kirkman, Eagle County
- Charlotte Lin, Town of Avon
- Max Morgan, Town of Avon
- Nicole Mosby, Eagle County
- Derek Place, Town of Avon
- Ginette Puidokas, Holy Cross Energy
- Chris Southwick, Town of Vail
- Ian Stern-Markovitz, EV Connect
- Patrick Tvarkunas, community member
- Craig Wilmers, Town of Avon

Support to create the maps found within this plan provided by the Eagle County Geographic Information System (GIS) Department:

- Amy Keeley, GIS Manager
- Scott Fleming, GIS Analyst

Plan written and designed by:

- Gina McCrackin, CAC Manager
- Will Barror, CAC Coordinator
- Estefania Godoy, WMSC Marketing Coordinator
- Paul Abling, WMSC Marketing Director
- Julie Kapala, WMSC Marketing Manager
- Ali + Aaron Creative

ABBREVIATIONS

- ADA - Americans with Disabilities Act of 1990
- ABA - Architectural Barriers Act of 1968
- BEV - Battery electric vehicles
- CAC - Eagle County Climate Action Collaborative
- CAP - Climate Action Plan for the Eagle County Community
- CDOT - Colorado Department of Transportation
- CDPHE - Colorado Department of Public Health and the Environment
- CEO - Colorado Energy Office
- CLEER - Clean Energy Economy for the Region
- DCFC - Direct current fast charger
- EV - Electric vehicle
- EVSE - Electric vehicle supply equipment
- GHG - Greenhouse gas
- GIS - Geographic information system
- HCE - Holy Cross Energy
- HOA - Homeowners association
- ICE - Internal combustion engine
- IECC - International Energy Conservation Code
- NEVI - National Electric Vehicle Infrastructure Plan
- SOV - Single occupancy vehicle
- SUV - Sport utility vehicle
- SWEEP - Southwest Energy Efficiency Project
- VVP - The Vail Valley Partnership
- WMSC - Walking Mountains Science Center
- ZEV - Zero emissions vehicle

INTRODUCTION

According to a survey administered by the CAC, 86% of Eagle County community members are alarmed or concerned about climate change and believe that individuals and governments need to act [6]. Our community members witness our winters starting later and ending earlier, our snowpack and freshwater resources becoming less reliable, and our summer seasons getting hotter and drier, all of which impact local biodiversity and livelihoods in our recreation-based economy. Rigorous research affirms that our community members' anecdotal experiences of warming temperatures are factual [7].

The feat of halting climate change may feel like a paralyzing task to the individual, however, climate change is a collective problem that can only be solved with collective action. Everyone, from rural, local communities like ours, to global cities, must do their part to solve the climate crisis. This understanding was the driving force behind the creation of the Eagle County CAP, and the Eagle County EV Infrastructure Plan.

The first Eagle County CAP was created in 2016 when an inspired group of over thirty local governments, businesses, utilities, nonprofits, and special districts came together to set GHG emissions reduction goals for our community. Much progress has been made since then, and our 2020 CAP Update has committed us to reducing 50% of our GHG emissions by 2030, and 80% by 2050, from Eagle County's 2014 baseline.

Eagle County GHG inventories disclose that transportation is the second largest GHG emitting sector, with passenger vehicles, such as sport utility vehicles (SUV) and trucks, being the largest emitter within that category [8]. By way of climate modeling scenarios conducted for the CAP update, we know that replacing gas-powered vehicles with EVs is the most impactful strategy to decrease GHG emissions from the transportation sector [9].

EV adoption in Colorado and beyond is well underway, with EVs making up roughly 10% of new car sales in Colorado [10], and projections for the U.S. EV market share showing consistent, favorable results [11]. However, we're aware of EV charging infrastructure inconsistencies that exist in our community, such as a lack of access to EV chargers for residents living in multifamily properties, local commuters, workforce members, and tourists. These inconsistencies stifle vital EV adoption due to a lack of charging convenience and reliability. Therefore, the information and strategies found within this plan serve to support our Eagle County CAP EV adoption goals by providing guidance and direction for EV charging infrastructure installation.

It's important we acknowledge that this resource specifically focuses on EV infrastructure for single occupancy vehicles (SOV). We recognize, with support from climate modeling, the need to replace SOV trips with shared-electric and human-powered transportation options as a critical emissions reduction and climate equity strategy. The CAC's Transportation Working Group is working hard to realize this need. Holistically, we envision a future where shared transportation and non-motorized transit are more convenient and preferred by the community.

[6] Gupta, Rupu, John Voiklis, Shaun Field, and Kate Flinner. 2018. Eagle County: *Climate Action Survey Results. New Knowledge.*
[7] Saunders, Stephen, Tom Easley, and Melissa Mezger. 2021. ***Climate Projections in Eagle County, Colorado***. The Rocky Mountain Climate Organization. The Rocky Mountain Climate Organization.
[8] Matzl, Christina, Erica Sparhawk. 2023. ***Eagle County Energy Inventory***. Eagle County, Colorado.
[9] The Climate Action Collaborative. 2020. ***Climate Action Plan Update 2020 Executive Summary***. Avon, Colorado: Walking Mountains Science Center.
[10] Minor, Nathaniel. ***Colorado's Updated EV Plan Boosts Incentives but Avoids California-Style Ban on Gas Vehicles***. CPR News. Colorado Public Radio, December 8, 2022.
[11] Najman, Liz. 2022. ***EV Adoption, Trends & Statistics in the US***. Recurrent. Recurrent Motors, Inc. November 4, 2022.

SUSTAINABILITY STATEMENT

The writers of this plan recognize that transportation sustainability cannot be achieved through electric SOVs alone. We acknowledge that electrified transportation, in its current stage, is not a perfect solution to the climate crisis and environmental calamity. While EVs emit zero tailpipe emissions and less carbon than combustion engines [12], EV production currently requires mining for precious minerals such as cobalt, nickel, and lithium, therefore the production, maintenance and recycling of EVs emit embodied carbon and carries with it the well-known associated social and environmental impacts of mining. Beyond vehicle lifecycle carbon emissions, we recognize that the following SOV infrastructure must exist regardless of vehicle type: factories, distribution centers, recycling plants, fuel for transporting vehicles, vehicle chargers and installation, and road building.

The latest study by the International Council on Clean Transport finds that only battery electric vehicles (BEVs) powered by renewable electricity and fuel cell EVs fueled by green hydrogen have the potential to achieve the magnitude of lifecycle GHG emissions reductions needed to meet Paris Agreement goals [13]. Our current EV ecosystem contains many hybrid electric vehicles, which help to reduce fuel consumption but do not provide the magnitude of reduction in GHG emissions needed in the long term. To align with Paris Agreement targets, the registration of new combustion engine vehicles should be phased out in the 2030–2035 time frame, including hybrid electric vehicles. Given the fast-evolving nature of EV technology, we will closely monitor the development of green hydrogen fuel cell EVs and make sure that our EV infrastructure will have the flexibility to support them.

In addition, we want to acknowledge the importance of proper battery recycling as part of the end-to-end EV lifecycle. Current technologies for making batteries depend on rare-earth elements like lithium and cobalt, which are finite resources similar to fossil fuels. We understand the concerns with supply chains and from where these metals are sourced, and are supportive of recent federal legislation that intends to address this [14]. However, the current environment is one of poor worldwide mining regulations that cause similar human exploitation, global conflict, and environmental degradation that are seen with fossil fuel extraction. With the Eagle County EV Infrastructure Plan, our community wants to avoid past mistakes and move towards a sustainable future that is clean and just for all beings. To achieve this, we commit to:

1. Closely monitoring the development of new batteries, especially cobalt-free kinds and kinds [15] made from coupled lithium extraction via geothermal energy [16].
2. Research and invest in better recycling programs for batteries, not just for EVs, but also other technologies where batteries are used, such as wind and solar energy development.
3. Continue developing walkable communities with convenient public transportation to reduce the need for driving SOVs.

In consideration of all these factors, we recognize EV adoption as one important piece to holistic transportation sustainability. While this plan serves as a resource for SOV EV infrastructure advancement and adoption, it is paramount to state that we envision a future that prioritizes convenient, shared, and human-powered transit, pedestrian walkways, and denser cities to reduce urban sprawl and the necessity to own a SOV.

[12] ***Review of Electric Vehicle Myths***. 2022. EPA. United States Environmental Protection Agency. December 22, 2022.
[13] Bieker, Georg. 2021. ***A Global Comparison of the Life-Cycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars***. The International Council on Clean Transportation. Berlin: The International Council on Clean Transportation Europe.
[14] Quinn, Megan. 2022. ***Senate Passes Bill to Increase EV Battery Recycling as Part of Defense Budget.*** Waste Dive. Industry Dive. December 20, 2022.
[15] ***Cobalt-Free Batteries Are Here, so Why Are We Still Mining the Mineral?*** 2022. The Next Web. The Financial Times. May 26, 2022.
[16] ***Lithium Extraction and Geothermal Energy, a Dynamic Duo***. 2022. Newswise. Newswise, Inc. October 22, 2022.

EQUITY

One of the many directives provided in the State of Colorado's Environmental Justice Act is to "promote an equitable transition to transportation electrification, zero-emission vehicles (ZEV), transportation systems, and land use patterns that reduce energy use and greenhouse gas emissions.[17]" While this Act provides instruction for State agencies to remediate environmental inequities, it is also up to us, in our home communities, to ensure we are not overlooking, therefore repeating, cycles and patterns of inequality.

The writers of this plan understand that purchasing an EV and EVSE is presently cost-burdensome for many Eagle County community members. Technology is changing quickly, and reports suggest EVs will be as cheap to produce as internal combustion engines (ICE) by the latter half of the decade[18]. Even still, not everyone can afford a new vehicle. Additionally, as the infrastructure currently stands, much of our community can't reliably charge an EV unless they own a single-family home.

We remain hopeful that as technologies develop and federal and state funds are distributed to communities, EVs will be less cost prohibitive. Therefore, the strategies found within this plan are meant to address transportation equity by making EV charging infrastructure more readily available in diverse locations, affordable, and by educating community members on EV and EVSE technologies, both in English and Spanish. While we do not address multimodal transportation (a key facet of transportation equity) in this particular plan, the CAC's Transportation Working Group is working diligently to increase access to electric buses, bikes, and associated infrastructure.

We also recognize the need for Americans with Disabilities Act (ADA) compliant EV charging spaces. Therefore, we've provided resources in Appendix C to assist community leaders in their planning and implementation for those with differing abilities. Additional equity considerations for planners and developers can be found in Appendix B.

[17] Jackson, Dominique, Mike Weissman, Faith Winter, Janet Buckner, et al. 2021. ***Environmental Justice Disproportionate Impacted Community***. Colorado General Assembly.
[18] Partridge, Joanna. 2021. ***Electric Cars 'Will Be Cheaper to Produce than Fossil Fuel Vehicles by 2027***.' The Guardian. Guardian News & Media Limited. May 9, 2021.

EV INFRASTRUCTURE PLAN FOR EAGLE COUNTY

VISION

Eagle County envisions a future where electric vehicle charging infrastructure is highly reliable, accessible, and sufficiently widespread to support a multimodal, all-electric, & clean-energy-powered transportation system.

PURPOSE

To provide Eagle County governments, businesses, organizations, and citizens with resources, guidance, and recommendations to support the EVSE necessary to meet the EV adoption goals of the Eagle County 2020 Climate Action Plan Update.

GOALS

1. Ensure EVSE infrastructure is equitably and strategically located to support broad usage and adoption of EVs at rates commensurate with the CAP goal.
2. Position Eagle County governments, businesses, organizations, and citizens for increased funding opportunities related to EVSE infrastructure and EV adoption.
3. Increase education, outreach, and awareness of EV and EVSE technologies, reliability, costs, benefits, and environmental impacts.

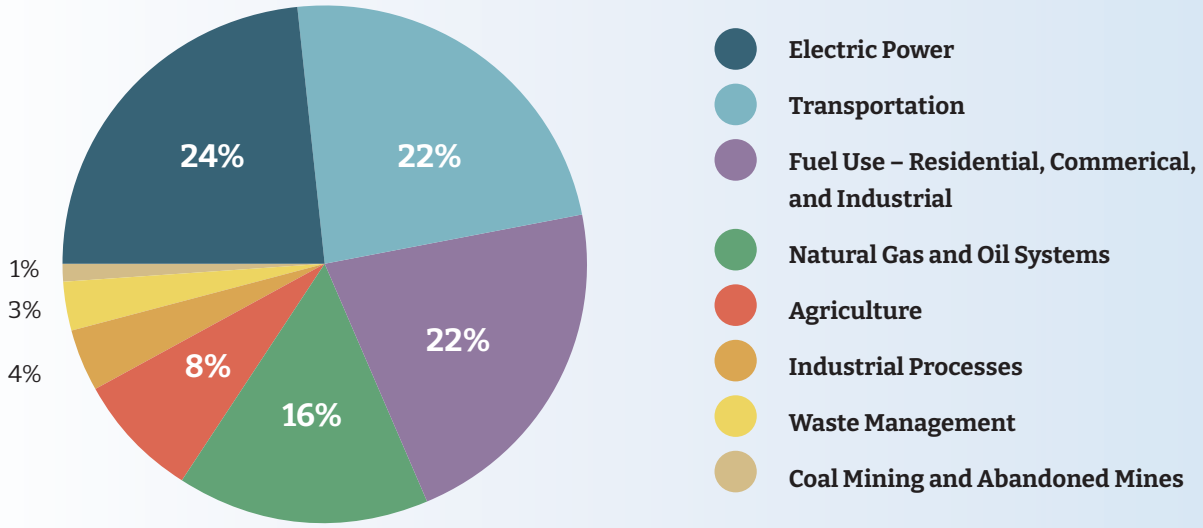
EXISTING CONDITIONS & FUTURE PREDICTIONS

STATE OF COLORADO

STATE OF COLORADO

Greenhouse Gas Emissions by Sector

State of Colorado Energy Inventory, 2019

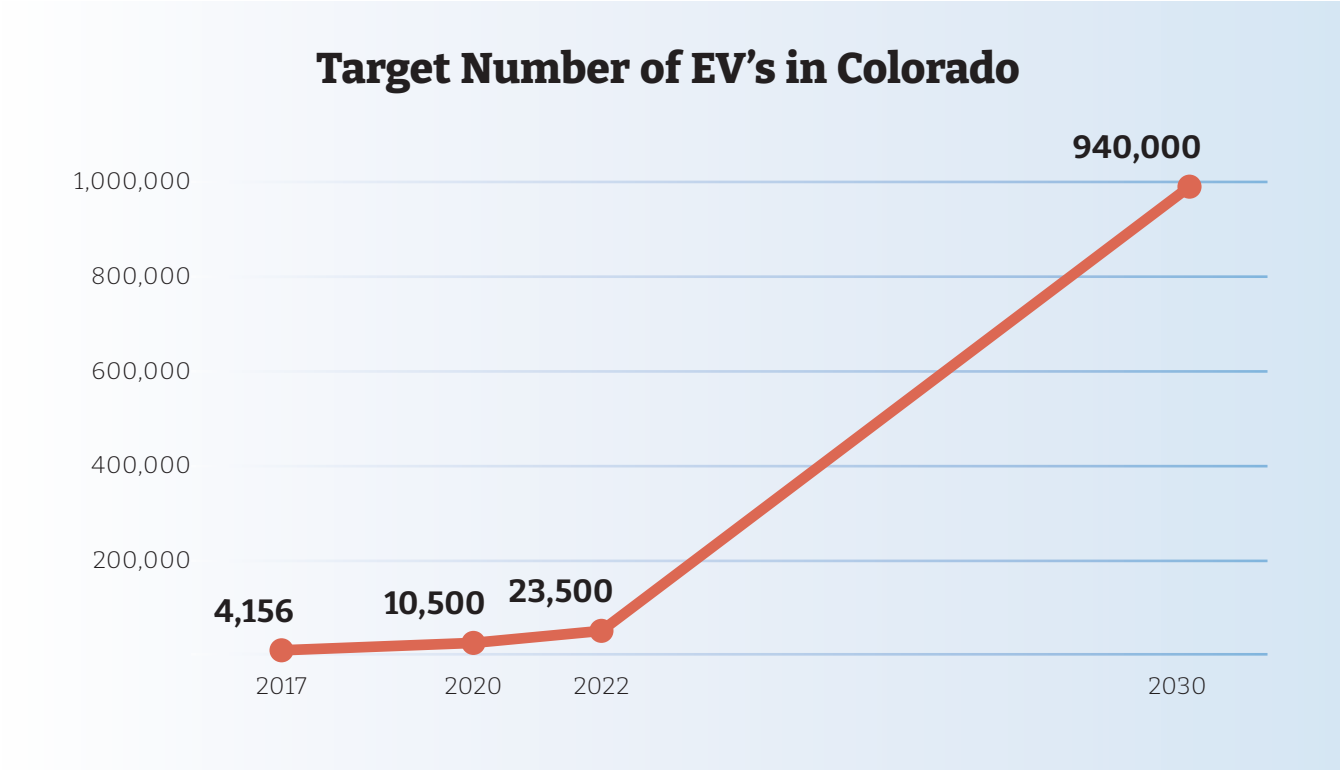


According to the State of Colorado's 2021 Greenhouse Gas Inventory Update, 22 percent of all emissions come from the transportation sector [19]. Encouragingly, Colorado's transportation emissions have been trending downward since 2005 estimations[19] . When taking a granular look at the data, it's apparent that transportation emissions primarily come from **light-duty vehicles, such as cars and SUVs**[19] . In response to this, The Colorado Electric Vehicle Plan 2020 set the following goals:

- 940,000 light-duty EVs by 2030;
- Develop plans to transition medium-duty, heavy-duty, and transit vehicles to ZEVs;
- Develop an EV infrastructure goal;
- Develop a roadmap to full electrification of the light-duty fleet in Colorado [20]

[19] Taylor, Tim. 2021. ***Colorado 2021 Greenhouse Gas Inventory Update with Historical Emissions from 2005 to 2019 and Projections to 2050***. Denver, Colorado: Colorado Air Pollution Control Division.
[20] The Colorado Energy Office. 2020. ***Colorado Electric Vehicle Plan 2020***. The Colorado Energy Office. Denver, Colorado: The Colorado Energy Office.

To meet the first goal, the plan calls for maintaining 50 percent plus annual growth rate, requiring the following number of registered EVs:



While there is much work to be done to meet said goals, as of December 2022, there were 68,652 registered EVs in Colorado, almost triple the expectations for 2022 [21].

Regarding infrastructure, the International Council on Clean Transportation prepared an infrastructure gap analysis for the Colorado Energy Office (CEO). In the report, they advise that for a high EV growth scenario, where EV sales reach 70%, Colorado would need 24,000 public chargers, both Level 2 and direct current fast charger (DCFC) [22]. As of December 2022, there were 4,550 charging ports across the state [23].

To promote EV adoption and infrastructure deployment, the State of Colorado has many incentive programs in place, such as grant programs and state tax incentives. Additionally, Colorado's National Electric Vehicle Infrastructure Plan (NEVI) was recently approved by the Federal Highway Administration, materializing efforts to create state-wide EV charging corridors.

As of December 2022, there were 68,652 registered EVs in Colorado, almost triple the expectations for 2022.

[21] EValuateCO. 2022. ***Atlas Public Policy***. September 2022.
[22] Hsu, Chih-Wei, Peter Slowik, and Nic Lutsey. 2021. ***Colorado Charging Infrastructure Needs to Reach Electric Vehicle Goals***. The International Council on Clean Transportation. The International Council on Clean Transportation.
[23] EValuateCO. 2022. ***Atlas Public Policy.*** September 2022.

EXISTING CONDITIONS & FUTURE PREDICTIONS

EAGLE COUNTY

EAGLE COUNTY

Eagle County's 2021 Energy Inventory affirms that ground transportation is the second largest emissions group by sector, responsible for 42 percent of emissions. Similar to the State's inventory, **the largest emitting category continues to be light-duty passenger vehicles, such as SUVs and trucks** [24].

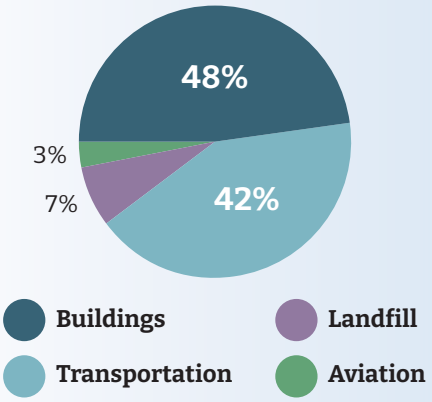
In response to these trends, the Eagle County CAP set the following EV goal: 2% increase in EVs as a percentage of registered vehicles in Eagle County until 2030, and a 5% increase until 2050

In order to meet our Climate Action Plan EV goal, we'll need 13,542 EVs on the road by 2030. The table below demonstrates these numbers.

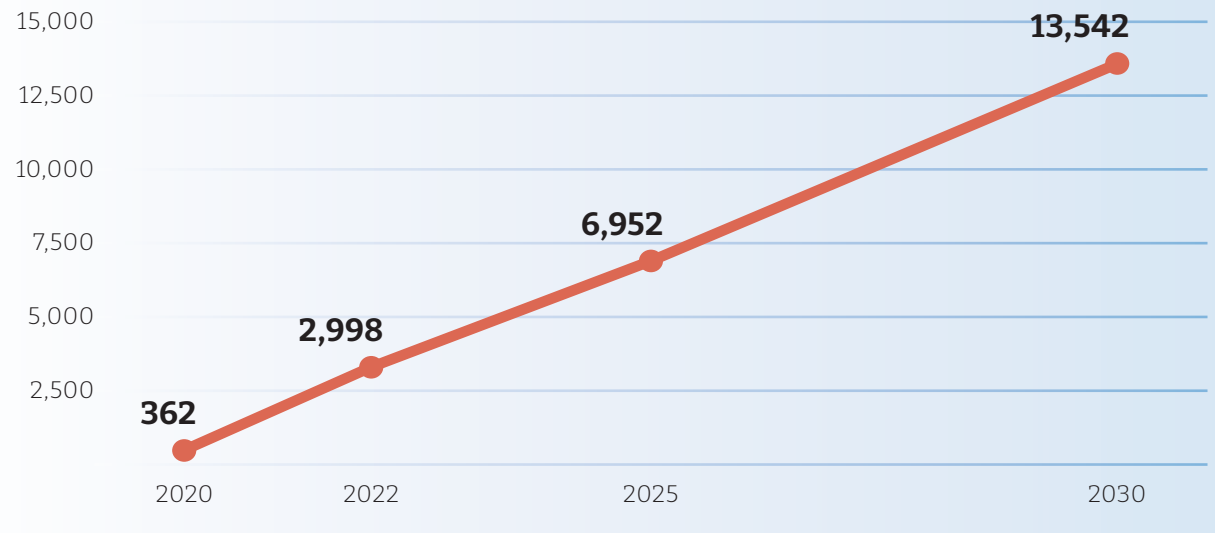
As of December 2022, there were 902 EVs registered in Eagle County [25] compared to the 2,998 we sought for at this point in time. Not having met our 2022 goal emphasizes the urgency of this plan, as public EV charging availability has been identified as a significant barrier to EV adoption [26].

Eagle County Greenhouse Gas Emissions by Sector

Eagle County Energy Inventory, 2021

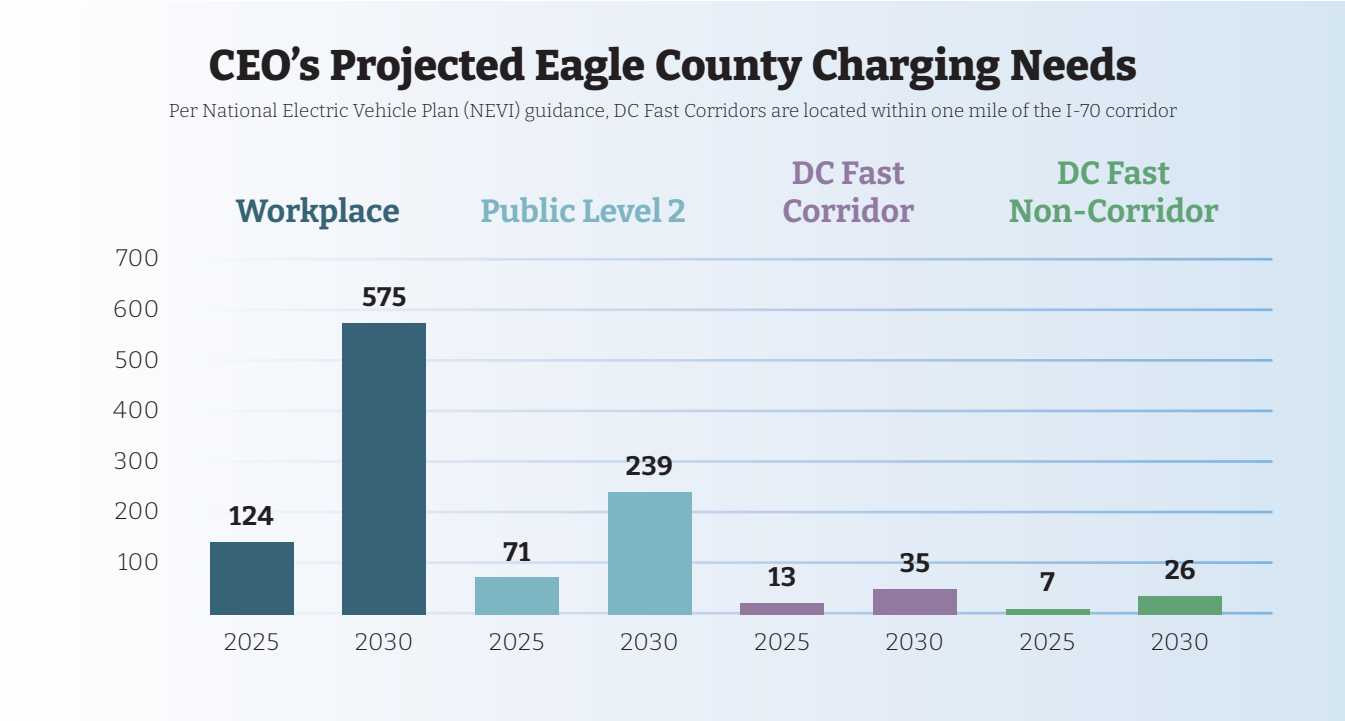


Target Number of EVs in Eagle County



[24] Matzl, Christina, Erica Sparhawk. 2023. ***Eagle County Energy Inventory***. Eagle County, Colorado.
[25] EValuateCO. 2022. ***Atlas Public Policy***. September 2022. Massachusetts: The Union of Concerned Scientists.
[26] ***Survey Says: Considerable Interest in Electric Vehicles across Racial, Ethnic Demographics***. 2022. The Union of Concerned Scientists. Cambridge,

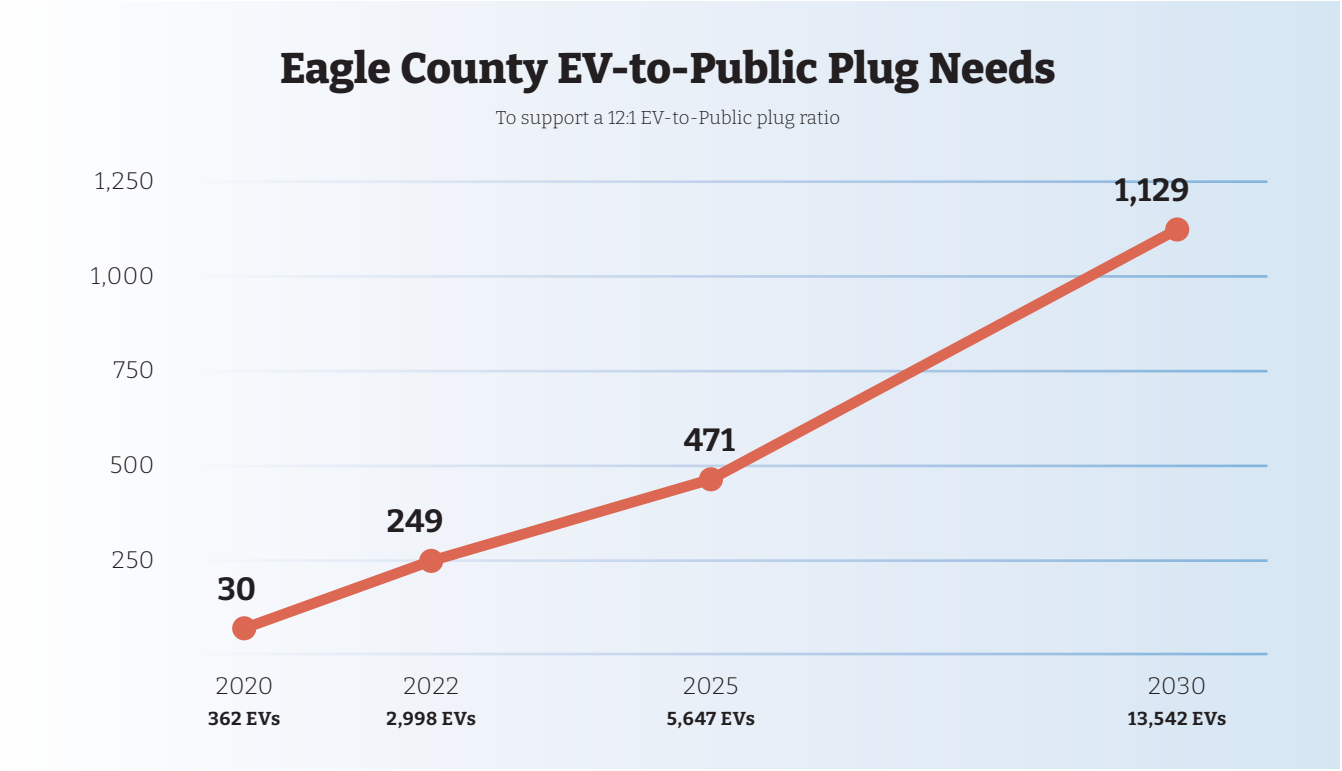
Regarding infrastructure, to meet the State's goal of 940,000 EVs in Colorado by 2030, the CEO estimates that Eagle County will need the following home, workplace, and public chargers [27]:



[27] Hsu, Chih-Wei, Peter Slowik, and Nic Lutsey. 2021. ***Colorado Charging Infrastructure Needs to Reach Electric Vehicle Goals.*** The International Council on Clean Transportation.

Due to our desired preparedness for an influx of EVs, our community's tourism-based economy, proximity to I-70, and consideration of what our neighboring jurisdictions are recommending, we recognize the CEO's estimations as *the bare minimum* that Eagle County will need to support our CAP EV goal. **Therefore, we felt compelled to recommend an ambitious EVSE proposal of a 12:1 ratio of EVs to public charging plugs.** This recommendation is merely a guide for our community that will continue to be evaluated as needed, based on charger utilization trends and EV adoption.

As of December 2022, there were 106 public charging plugs in Eagle County. The table below demonstrates charging plugs needed to support our 12:1 EV-to-public plug recommendations:



MAPS

The intention of this plan is not only to provide strategies that support an abundance of EV chargers, but also to ensure EV chargers are placed *equitably* and *strategically* throughout our community. The maps below serve to assist municipalities, businesses, and organizations in siting EV charger installation.

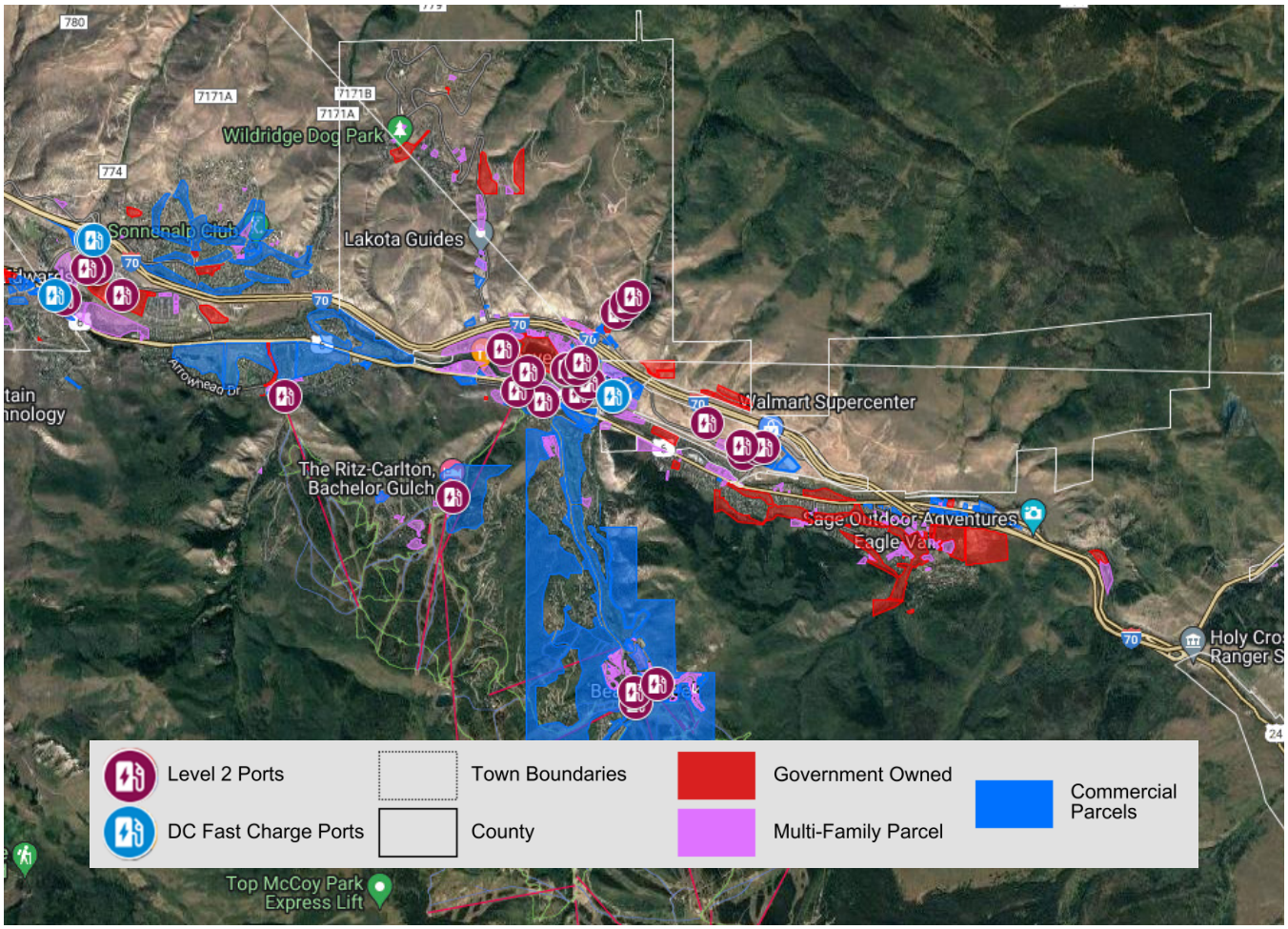
The maps below contain concentrations on all major municipalities and special districts within Eagle County, including unincorporated Eagle County.

These maps convey four important things:

1. Where current EV chargers exist, categorized by Level 2 and DCFC*
2. Where government-owned structures, such as public libraries, exist
3. Where multifamily housing structures exist, and
4. Where commercial structures, such as shopping plazas, exist

We envision municipal staff, businesses, and organizations using these maps upon securing funding for EVSE. They can come to these maps, see where current chargers and gaps exist, consult with their local electric utility, Holy Cross Energy (HCE) or Xcel Energy, and make an informed decision about where to place infrastructure.

We have an agreement with Eagle County GIS to update current charger overlays on all maps every year, so maps stay as useful and up to date as possible.



SITING CRITERIA

EVSE siting criteria refers to the factors determining ideal locations for EV charging infrastructure, and even further, the types of chargers (i.e., Level 2 or DCFC) found in those locations. It is common practice to consider the following when siting EVSE: connection to power, networks and communication such as metering, existing infrastructure such as walkways, and EVSE interfaces [28].

For the purposes of our plan, we recommend EV chargers be placed in downtown areas, dense housing and commercial developments, major traffic corridors, and on government owned properties such as administrative offices and libraries, for ease of installation. Factors such as connectivity to power supply, infrastructure at desired location, and accessibility for those with differing abilities, should always be considered when siting.

See the table on the right for a list of common vehicle dwell times. The only locations that we recommend DCFC versus Level 2 in commerical parcel areas where patrons don't spend as much time, therefore can charge quickly.

VEHICLE DWELL TIME

Source: Pueblo Electric Vehicle Readiness Plan

Destination	Dwell Time (min)
Stadiums	228
Universities	174
Outdoor Museums (Zoo, Botanic Gardens)	161
Music/Theater Venues	158
Casinos	155
Bowling Alleys	154
Movie Theaters	135
Golf Courses/Tennis Courts	131
Museums	112
Ice Rinks	109
Soccer Fields	103
Churches	101
Recreation Centers	77
Yoga/Dance/Gymnastic Studios	77
Community and Senior Centers	76
Baseball Fields	75
Gyms	74
YMCA	72
Hiking Trailheads (State or National Park)	67
Hospitals	65
Martial Arts Studios	65
Swimming Pools	63
Bars	61
Sit-Down Restaurants	60
Local Parks	60
Health Facilities	55
Malls	50
Hair and Nail Salons	45
Big-Box Grocery Stores (Costco, Sam's Club)	40
Walmart/Target	33
Government Offices	32
Bookstores	30

[28] WXY Architecture + Urban Design. 2012. ***Siting and Design Guidelines for Electric Vehicle Supply Equipment.*** Transportation & Climate Initiative.
[29] Hanson, Jim. 2021. ***Pueblo County Electric Vehicle Readiness Plan***. Pueblo County, Colorado. Pueblo, Colorado: Pueblo County.

The siting criteria below will explain what property codes are found within each categorized parcel (i.e., Commercial, Multifamily, etc.). We used the Eagle County assessor's property codes to communicate with Eagle County GIS which codes we wanted included within each parcel.

MULTIFAMILY	Duplexes and triplexes
	Multifamily housing with 4+ units
	Condominiums
	Manufactured homes
	Manufactured home parks
COMMERCIAL	Merchandising
	Lodging
	Offices
	Recreation
	Special purpose (i.e., restaurants)
	Commercial condominiums (i.e., for business enterprise units)
GOVERNMENT-OWNED	Administrative offices
	Parks and recreation
	Higher education institutions

VIEW THE EXISTING & RECOMMENDED EV CHARGING LOCATION MAPS

To open each map in a new window/tab, right click on the button and select open in new window/tab.

AVON, EDWARDS, & UNINCORPORATED

MINTURN & RED CLIFF

EAGLE

VAIL

GYPSUM

BASALT

EV PLAN STRATEGIES

EV PLAN STRATEGIES

These strategies offer clear direction on initiatives that must be undertaken in order to meet our Eagle County EV adoption goals. The strategies were developed by the EV Task Force.

FUNDING

Goal: Position Eagle County governments, businesses, organizations, and citizens for increased funding opportunities related to EVSE infrastructure and EV adoption.

STRATEGY 1: CREATE AN INVENTORY OF FUNDING RESOURCES

Description: To increase accessibility and transparency, an inventory of EV and EVSE funding opportunities at the local, state, and federal level should be compiled, published, and consistently updated. This inventory should be publicly available for local governments, businesses, multifamily property owners, and private citizens, and should be housed on the CAC website. The EV Task Force should rely on the CAC Transportation Working Group's knowledge to help update the funding resources inventory semi-annually. This Task Force should share existing resources, including Drive Electric Colorado and EV CO, that contain funding information.
Timeline: Short-term (6 months-1 year)
Potential partners: Local governments, CAC, CEO, Colorado Department of Transportation (CDOT), Colorado Department of Public Health and the Environment (CDPHE), HCE, Xcel Energy, Clean Energy Economy for the Region (CLEER)
Resources: **U.S. Department of Transportation Federal Funding Resources**, **ReCharge Colorado**, **Charge Ahead Colorado**, **Drive Electric Colorado**, **EV CO**, **EV Fast-Charging Plazas**, **Electrification Coalition EV Funding Finder**

STRATEGY 2: OFFER SUPPLEMENTAL FUNDING FOR EVSE INSTALLATION PROJECTS

Description: Local governments should encourage EV adoption by creating supplemental funding opportunities for EVSE infrastructure projects. For example, the Charge Ahead Colorado grant program covers 80-90% of the total project cost for EVSE. Municipalities should offer supplemental funding to the awardee to reduce the cost of installing EVSE. With equity in mind, there should be an emphasis on approving supplemental funding for EVSE in multifamily housing developments. This strategy is specifically for projects that have been awarded funding for EVSE infrastructure, but the award does not cover the complete cost of the project. The application process for supplemental funding must be simple, streamlined across jurisdictions, and allow applicants to use material from their original grant application to apply.
Timeline: Medium-term (1 - 2 years)
Potential partners: Local governments

STRATEGY 3: OFFER LOCAL GRANTS FOR EVSE INSTALLATION PROJECTS

Description: Local governments should encourage EV adoption by offering local funding opportunities for EVSE infrastructure projects that did not receive state or federal funding. In the case that a project does not receive Charge Ahead Colorado (or other similar program) funds, this funding pool would allow some projects to move forward. With equity in mind, there should be an emphasis on approving projects in multifamily housing developments.
This strategy is specifically for public citizens, businesses, or organizations that applied for and did not receive state or federal funds to install EVSE at their desired location.
Timeline: Medium-term (1 - 2 years)
Potential partners: Local governments, CEO

STRATEGY 4: FINANCIAL MODELING

Description: To best assist with grant funding and implementation support, a budgeting tool of the EVSE installation goals and recommendations made in this EV Infrastructure Plan should be created to assist local governments. This tool would assist communities with the budgeting and resource allocation necessary to meet the EVSE and EV adoption goals outlined in this Plan. The EV Task Force should rely on the CAC and Transportation Working Group to create the tool, which would contain case studies that give local governments a ballpark estimate of EVSE installation costs.
Timeline: Short-term (6 months - 1 year)
Potential Partners: CAC, local governments, HCE, Xcel Energy, Southwest Energy Efficiency Project (SWEEP), CLEER
Resources: **U.S. DOT EV Planning Resources**

STRATEGY 5: INCENTIVIZING MULTIFAMILY EVSE INSTALLATION

Description: Eagle County is fortunate that its two electric utility providers, HCE and Xcel Energy, have robust incentive programs in place for EVSE installation. Eagle County should work with utilities to develop rebate and incentive programs, specifically for multifamily property owners and residents, so that these benefits can be extended to residents who live in multifamily communities.
Timeline: Medium-term (1 - 2 years)
Potential partners: HCE, Xcel Energy, local governments, CAC
Resources: **Pepco Multifamily Property Rebate Program**, **MUD Charging – for Utilities**

INFRASTRUCTURE

Goal: Ensure EVSE infrastructure is equitably and strategically located to support broad usage and adoption of EVs at rates commensurate with the CAP goal.

STRATEGY 1: REQUIRE INSTALLATION OF EV CHARGING IN NEW CONSTRUCTION & LARGE RENOVATIONS

Description: Eagle County and municipalities should continuously update their energy codes to the most recent International Energy Conservation Code (IECC), and adopt an EVSE-Installed supporting amendment. This would require all new residential and commercial construction to install a certain percentage of EV chargers depending on building size and use type. Local governments should also make an EV-Installed supporting amendment trigger when renovating upwards of a certain percentage of a commercial building.
Timeline: Short-term (6 months - 1 year)
Potential partners: Local Governments, CAC, SWEEP, Eagle County Code Cohort, ReCharge Colorado Coach
Resources: N/A

STRATEGY 2: INCENTIVIZE EV CHARGING IN LOCAL DEVELOPMENT CODES

Description: Eagle County and municipalities should use development bonuses to incentivize EVSE in the community. Development bonuses are a tool that waive or modify some development restrictions in exchange for providing an added public benefit, such as EV charging. An example could be reducing the number of required parking spaces for a commercial structure in exchange for added EV charging spaces beyond what is required in building code.
Timeline: Short-term (6 months - 1 year)
Potential Partners: Local governments
Resources: **Summary of Best Practices in Electric Vehicle Ordinances**

STRATEGY 3: CODIFY EVSE REQUIREMENTS IN AREAS THAT FALL OUTSIDE TRADITIONAL ZONING LAWS

Description: Special districts, metro districts, planned unit developments, property owners associations, and homeowners associations (HOAs) are all able to make many of their own rules, especially as they relate to design and planning.

To ensure these areas of our community have ample EVSE access, special districts, metro districts, planned unit developments, property owners associations, and homeowners associations should work with their leadership to require EV charging in new developments and construction. It would be advantageous for these communities to adopt identical policies as Eagle County and municipalities, to the extent that they have the authority to.
Timeline: Medium-term (1 - 2 years)
Potential Partners: Local governments, CAC, SWEEP
Resources: N/A

STRATEGY 4: STREAMLINING THE PERMITTING PROCESS FOR EV CHARGERS

Description: To increase bureaucratic timeliness and cost of the permitting process, local governments should create a separate, streamlined EVSE installation permit and reduce or waive the application fee for said permit.
Timeline: Short-term (6 months - 1 year)
Potential Partners: Local governments, CEO
Resources: **City of Pleasant Hill**, **California's Example Ordinance**, **US DOE Procurement and Installation Resources**

STRATEGY 5: COORDINATION WITH ELECTRIC UTILITY PROVIDERS

Description: Eagle County local governments recognize the urgency in supplying adequate EV chargers, in strategic locations, for residents and visitors. To be most efficient and cost-effective with this task, local governments should work with HCE, Xcel Energy, and private electrical engineering firms to identify where current electric capacity for EVSE exists in abundance in each respective community. This information can then be weighed against current charging gaps by using the EV Infrastructure Plan maps (included in this Plan), and chargers can be advised to be placed in these locations.
Timeline: Medium-term (1 - 2 years)
Potential Partners: HCE, Xcel Energy, local governments
Resources: See **EV Infrastructure Plan Maps**

EDUCATION AND OUTREACH

Goal: Increase education, outreach, and awareness of EVs and EVSE technologies, reliability, costs, benefits, and environmental impacts.

STRATEGY 1: DESIGN, PUBLISH, & MAINTAIN MATERIALS THAT PROMOTE EVS & EVSE TECHNOLOGIES

Description: CAC staff and the Transportation Working Group should assemble and publish resources that enhance the community's awareness of and trust in EVs to promote uptake of EVs commensurate with CAP goals. These resources should be housed on the CAC's website and distributed to community partners. These resources should include, but are not limited to: information about diverse makes, models, and technical specs such as range; environmental impact of production of EVs; local mechanics and dealerships that are trained in EV servicing; EV charging corridor maps; cost of EVs and EVSE installation; and EV battery recycling opportunities. These resources should be updated regularly by CAC staff and the Transportation Working Group. Many of these resources have already been created by partner organizations. To avoid redundancy, the EV Task Force should compile and consolidate resources that have already been created, and develop resources that have yet to be created. Additionally, the Task Force should work to compile and/or create materials in Spanish. Resources should be distributed by trusted community organizations.
Timeline: Short-term (6 months - 1 year)
Potential partners: CAC, CLEER, SWEEP, CEO, HCE, Xcel Energy, local governments, local car dealerships and mechanics
Resources: N/A

STRATEGY 2: HOST HANDS-ON EV EVENTS

Description: The CAC, along with partner organizations, have hosted EV Ride 'N Drive events for the last couple of years. The CAC should continue to host EV Ride 'N Drive events with diverse EVs into the future to increase community support for, and accessibility and comfortability with EVs. The CAC should also include more information about EV financing, the used EV market, affordable EV options, and home charging at Ride 'N Drives. Additionally, the CAC should work with partner organizations to develop Spanish speaking EV Ride 'N Drive workshops.
Timeline: Short-term (6 months - 1 year)
Potential partners: CAC, CLEER, HCE, Xcel Energy, local car dealerships, local EV owners, local governments
Resources: **Partners in Energy Outreach and Education Toolkit**

STRATEGY 3: DEVELOP ROADMAPS FOR EV INFRASTRUCTURE INSTALLATION

Description: Installing an EV charger can be accomplished through a variety of avenues, depending on your specific context. To make the process straightforward, CAC staff and the Transportation Working Group should develop a variety of roadmap scenarios for obtaining an EV charger.
These roadmaps should be written for, but aren't limited to: single family home owners, multifamily residents (property managers, owners, and tenants), businesses, and local government staff. The CAC should work with partners to develop our roadmaps in Spanish and English.
Timeline: Short-term (6 months - 1 year)
Potential partners: CAC, CLEER, HCE, Xcel Energy, SWEEP, The Vail Valley Partnership (VVP)
Resources: N/A

STRATEGY 4: EDUCATE BUSINESSES AND ENCOURAGING WORKPLACE CHARGER PLANS

Description: Local employers should encourage EV adoption by creating workplace charger plans. CAC staff and the Transportation Working Group should perform strategic outreach and provide educational materials to employers in the Eagle River Valley to make sure they have the support they need to install EV charging for employees and customers.
Timeline: Medium-term (1 - 2 years)
Potential partners: CAC, Actively Green, VVP, HCE, Xcel Energy, local employers
Resources: **U.S. DOE Workplace Charging for EVs, Xcel Energy's Workplace Charging for my Employees**, **HCE's Workplace Charging**, **Partners in Energy Outreach and Education Toolkit**

APPENDICES

APPENDIX A: EV INFRASTRUCTURE STRATEGIES

FUNDING: Position Eagle County governments, businesses, organizations, and citizens for increased funding opportunities related to EVSE infrastructure and EV adoption.

Strategy	Timeline	Primary Implementer	Community Partners
1. Create an inventory of funding resources	Short-term	CAC	Local governments, CAC, CEO, CDOT, CDPHE, HCE, Xcel Energy, CLEER
2. Offer supplemental funding for EVSE installation projects	Medium-term	Local governments	Local governments
3. Offer local grants for EVSE installation projects	Medium-term	Local governments	Local governments, CEO
4. Financial modeling	Short-term	CAC	CAC, local governments, HCE, Xcel Energy, SWEEP, CLEER

INFRASTRUCTURE: Ensure EVSE infrastructure is equitably and strategically located to support broad usage and adoption of EVs at rates commensurate with the CAP goal.

Strategy	Timeline	Primary Implementer	Community Partners
1. Require installation of EV charging in all new construction and large renovations	Short-term	Local governments	Local Governments, CAC, SWEEP, Eagle County Code Cohort, ReCharge Colorado Coach
2. Incentivize EV charging in local development codes	Short-term	Local governments	Local governments
3. Codify EVSE requirements in areas that fall outside of traditional zoning laws	Medium-term	Local governments	Local governments, CAC, SWEEP

4. Streamlining the permitting process for EV chargers	Short-term	Local governments	Local governments, CEO
5. Coordination with electric utility providers	Medium-term	Local governments	HCE, Xcel Energy, local governments

EDUCATION & OUTREACH: Increase education, outreach, and awareness of EVs and EVSE technologies, reliability, costs, benefits, and environmental impacts.			
Strategy	**Timeline**	**Primary Implementer**	**Community Partners**
1. Design, publish, and maintain materials that promote EVs and EVSE technologies	Short-term	CAC	CAC, CLEER, SWEEP, CEO, HCE, Xcel Energy, local governments, local car dealerships and mechanics
2. Hosting hands-on EV events	Short-term	CAC & CLEER	CAC, CLEER, HCE, Xcel Energy, local car dealerships, local EV owners, local governments
3. Develop roadmaps for EV infrastructure installation	Short-term	CAC	CAC, CLEER, HCE, Xcel Energy, SWEEP, VVP
4. **Educating Businesses**	Medium-term	CAC	CAC, Actively Green, VVP, HCE, Xcel Energy, local employers

Timeline:
- Short: 6 months-1 year
- Medium: 1-2 years
- Long: 3-5

APPENDIX B: EQUITY CONSIDERATIONS FOR INSTALLING EVSE

These considerations were developed by reviewing **Transportation and Land Use Planning: Equity in Colorado** (2022) and **Colorado EV Equity Study** (2022)

- Are charging stations located in multifamily communities, low-income communities, and/or communities of color, especially where users may not own their home?
- Are charging stations located in free, publically accessible locations?
- Are charging stations in well-lit, safe areas?
- Are there ADA accessible charging stations? Do they have an ADA accessible user interface (speech output, display screen)? (see **Appendix C**)
- Is the cost to charge at a station affordable or free? Can charging oveht be incentivized with cost savings due to off-peak electricity demand?
- Is the charging station's user interface and all associated signs bilingual?
- Are resources, events, workshops and other EV-related education and outreach offered in Spanish and at appropriate times for community members?
- Are tax credits, rebates, or other incentives provided to make EVSE installation more affordable?

APPENDIX C: ADA CONSIDERATIONS AND RESOURCES

As EVs slowly but surely take over the SOV market, special considerations must be made to ensure charging is accessible and accommodating for people with differing abilities. The resources below will aid local governments in designing ADA and Architectural Barriers Act (ABA) accessible EV charging stations:

- **Design Recommendations for Accessible Electric Vehicle Charging Stations** - U.S. Access Board
- **Installing Electric Vehicle Charging in Compliance with the Americans with Disabilities Act Requirements** - U.S. Department of Energy
- **EV Charging for Persons with Disabilities** - Sustainable Transportation Strategies

APPENDIX D: FIRE MITIGATION RESOURCES

EVs are beginning to make up a greater percentage of vehicle fires as they become the new norm. Fire departments must be equipped with knowledge of how to safely combat vehicle chemical fires. Here are resources for preventing and safely responding to an EV fire:

- **Emergency Response Guides for Electric Vehicles and Lithium-ion Batteries** - U.S. Fire Administration
- **Emergency Response Guides** - National Fire Protection Agency
- **Electric Vehicle Charging Safety Tips** - U.S. Fire Administration

APPENDIX E: LOCAL EV EXPERTS

Martín Bonzi, Transportation Program Manager at **CLEER**
ReCharge Coach for Delta, Eagle, Garfield, Gunnison, Hinsdale, Moffat, Lake, Mesa, Montrose, Ouray, Pitkin, Rio Blanco, Routt, Summit Counties
Email: **mbonzi@cleanenergyeconomy.net**
Phone: 970-704-9200 ext. 1100

Stefan Johnson, Electric Transportation Specialist at **Holy Cross Energy**
Email: **sjohnson@holycross.com**