REVIEW DRAFT

EQUITABLE EV ACTION PLAN *Framework*

A guide for city-scale, equity-focused electrified mobility planning

JULY 2024
Policy Report

EV Equity Initiative

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Equitable EV Action Plan Framework

July 2024 Draft

I. Introduction and How to Use this Framework

Introduction

Leaders in 13 states and Washington, DC have set concrete plans to transition their states to electric vehicles (EVs). These states have adopted regulations that require a complete phase out of new internal combustion engine vehicle sales for passenger cars over the coming decade, and many of them have adopted similar standards for medium- and heavy-duty vehicles over the same period.[1] The US Environmental Protection Agency has adopted nationwide standards that will also rapidly accelerate EV adoption,[2] and most auto manufacturers are adopting EV development and sales targets for the coming decades.

Purpose of this Framework
This framework introduces a set of strategies for equity-focused local electric vehicle (EV) action plan development and a framework for stakeholder-informed zero-emissions mobility investment planning and decision-making. The goal of this framework is to initiate a process of policy development, facilitate community and stakeholder engagement, and accelerate local efforts to secure public and private investment in EV and electrified mobility infrastructure that serves all communities.

This framework is intended for use by:

- **Local government leaders** to inform and their planning efforts
- **Communities and stakeholders** to drive and shape local government action to secure an equitable EV transition

As drivers transition to EVs and from fueling their vehicles to charging them, and with unprecedented levels of federal and state funding available for charging infrastructure, local governments will need to plan strategically for vehicle adoption and charging deployment that meets local priorities and maximizes benefits for local residents.

Why Local Governments?
This framework focuses on local governments as primary drivers of equity-focused EV transition planning. While federal and state leaders are primarily responsible for setting timelines and providing funding to facilitate the transition, local governments–large and small cities, towns, counties, urban and rural areas–are responsible for

[1] See California Air Resources Board (CARB), "Advanced Clean Cars II" (webpage), available at https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/advanced-clean-cars-ii; 13 Cal. Code Regs. § 1962.4; CARB, "Advanced Clean Trucks" (webpage), available at https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks; 13 Cal. Code Regs. § 1963; CARB, "Advanced Clean Fleets" (webpage), available at https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets; 13 Cal. Code Regs. § 2016; CARB, "States that Have Adopted California's Vehicle Regulations" (webpage), available at https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/states-have-adopted-californias-vehicle-regulations. The light-dutyse states currently include Colorado, Delaware, Maine, Massachusetts, New Jersey, New Mexico, New York, Oregon, Rhode Island, Vermont, Virginia, and Washington.

[2] US Environmental Protection Agency, Final Rule: Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, available at https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-multi-pollutant-emissions-standards-model.

the planning, permitting, site selection, and community engagement that will determine where and how the transition takes place, who has a say in shaping it, and who benefits from it. Local governments are most capable of responding to the mobility needs and preferences of their residents and best positioned to develop community-informed plans that prioritize those most in need of proactive policy support. This framework is intended to provide strategies and resources for use by local governments of all sizes, recognizing that smaller cities and rural towns and counties will have different investment needs from those of dense urban centers, but will share many core principles and planning strategies.

This need is particularly acute for priority populations and underserved communities around the country who have long faced a host of financial, structural, policy, and technical barriers to accessing affordable, convenient, and healthy transportation options. Research has found that lower-income and black and brown communities have been least likely to benefit from early EV and charging investment programs.[3] These residents are typically the least likely to have access to charging at home garages and at workplaces, most likely to live in multifamily dwellings and in areas with low near-term demand for privately operated charging services, and most likely to benefit from new investments in a variety of mobility options to better access community resources and economic opportunities.

Priority Populations
This framework generally refers to "priority populations" and "priority communities" with intent to capture the broad diversity of communities in need of equitable transportation investment in different parts of the US and the multiple potentially applicable federal and state definitions under Justice40 and other initiatives. "Priority populations" is a term used by California climate investment programs to broadly encompass the lower-income and environmentally vulnerable communities most in need of proactive clean energy investment and policy support.[4] This framework uses this term as well as phrases such as "underserved communities" and lower-income communities" to refer to a range of residents at the heart of equity-oriented action planning, but it does not recommend that local agencies and stakeholders use any particular definition of priority communities, which is ultimately tied to local geographies, demographics, and needs.

As the country transitions toward EVs–with an estimated need of 28 million total charging ports nationwide, including over one million total public chargers in California alone, by 2030[5]–local

[3] *See, e.g., Chih-Wei Hsu and Kevin Fingerman, "Public electric vehicle charger access disparities across race and income in California," Transport Policy (January 2021), available at https://www.sciencedirect.com/science/article/pii/S0967070X20309021; Jaye Mejia-Duwan et al., "Emissions redistribution and environmental justice implications of California's clean vehicle rebate project," PLOS Climate (May 2023), available at https://journals.plos.org/climate/article?id=10.1371/journal.pclm.0000183.*

[4] The term includes state-defined Disadvantaged Communities (the top 25 percent of census tracts ranked according to a group of environmental and socioeconomic risk criteria through the state's CalEnviroScreen program) and low-income communities and households (at or below 80 percent of the statewide median). The definition of priority populations is available at https://www.caclimateinvestments.ca.gov/priority-populations and a map at https://gis.carb.arb.ca.gov/portal/apps/experiencebuilder/experience/?id=6b4b15f8c6514733972cabdda3108348; at the federal level, US EPA's EJ Sscreen tool provides an assessment of environmental justice communities. This tool is available at https://www.epa.gov/ejscreen.

[5] See National Renewable Energy Laboratory (NREL), *The 2030 National Charging Network*, available at https://driveelectric.gov/files/2030-charging-network.pdf; California Energy Commission (CEC), *Assembly Bill 2127*

leaders and stakeholders are increasingly recognizing that deliberate, local-led efforts are crucial to ensuring that lower-income residents and communities are not left behind in the transition and have opportunities to access the benefits that EVs provide.[6]

Local-level action plans focused on equity in the EV transition will be crucial to this effort. While not all cities, towns, or counties will lead in site selection or infrastructure investment, local governments have a singular ability to craft effective long-range strategies that work across the needs of communities, businesses, public agencies, electric utilities, and charging providers. Local governments are best positioned to properly assess the needs of local communities and identify strategies (public, private, or hybrid) to meet them. These strategies will include information-gathering and needs assessment, community engagement and outreach, funding and revenue generation, pilot programs, procurement, and more. They also have an obligation to ensure that underserved residents have equitable access to mobility options that serve their needs and improve their quality of life.

Local governments around the US have begun to develop EV blueprints, readiness plans, and action plans to ensure that they are prepared for the shift to EVs and EV infrastructure. As more jurisdictions begin this process, it will be crucial to incorporate an explicit focus on mobility equity to ensure that they are prepared for an EV transition that prioritizes lower-income communities most in need of greater mobility options.

Defining EV Equity
There is no single model for an Equitable EV Action Plan; this framework aims to facilitate creation of local plans appropriate to their communities. In this context, defining equity for the EV transition is crucial; it is also highly specific to local geographies, demographics, and needs. Building on The Greenlining Institute's definition of mobility equity, **this overview defines EV equity as an electric vehicle transition that increases access to community-appropriate mobility options and affordable vehicle charging, reduces air pollution, and enhances economic opportunity for priority populations (including but not limited to disadvantaged communities and low-income communities of color).** This definition should also embrace principles of mobility justice that consider the history of transportation disinvestment in priority communities and local governments' potential to promote economic development and wealth-building through mobility investments.

Operationalizing equity in the EV transition will require embedding equity throughout the goals, processes, investments, outcomes, and metrics that constitute an action plan. Developing a local definition of EV equity will be a key first step in building an Equitable EV Action Plan, and the definition will expand and take shape over time through the steps outlined in this framework. See the next section for more detail.

Electric Vehicle Charging Infrastructure Assessment (August 2023), available at https://www.energy.ca.gov/data-reports/reports/electric-vehicle-charging-infrastructure-assessment-ab-2127.

[6] See, e.g., Debra Horner et al., "Michigan local government leaders report increases in local planning for electric vehicles (EVs)," Michigan Public Policy Survey (May 2024), available at https://closup.umich.edu/michigan-public-policy-survey/122/michigan-local-government-leaders-report-increases-local-planning-electric-vehicles.

This document provides an overview of potential Equitable EV Action Plan strategies and a framework for local leaders to build locally appropriate plans based on top-priority strategies. Development of an Equitable EV Action Plan will necessarily rely on a process of direct engagement between local leadership and a range of stakeholders and community members to inform decision-making regarding needs assessment, selection of investment strategies, infrastructure siting and prioritization, participatory frameworks, and more. This framework is intended to provide initial context for that process by helping local leaders and stakeholders identify and build effective, workable approaches.

Scope of this Framework
This framework includes a range of strategies to inform local planning for an equitable EV transition, from EV and charging-related actions to shared mobility, e-micromobilty, and more. The focus of the framework is primarily on EVs, based on the premise that the coming, rapid EV transition–driven by regulatory and market forces–poses a direct question to local governments tasked with ensuring accessible and affordable mobility for those whom the market might overlook. However, the framework recognizes that public and shared mobility are far more sustainable and low-emitting than private vehicles, and that walkable and bikeable communities are the long-term goal for climate and equity advocates alike. As a result, the strategies in this framework incorporate a range of modes relevant to local governments' equity-focused planning processes.

Defining EV Equity and Frameworks for Mobility Policy

Defining EV equity is iterative and context-dependent, drawing on existing community needs, demographic and land use patterns, governance structures, and principles of environmental and mobility justice. Developing a local definition of EV equity is a central element of developing an Equitable EV Action Plan. As such, this Framework does not suggest a single definition of EV equity, but instead highlights principles and processes to support those local efforts.

At its core, EV equity means that the electric vehicle transition increases access to community-appropriate mobility options and affordable vehicle charging, reduces air pollution, and provides economic opportunities and benefits for priority populations (including but not limited to disadvantaged communities and low-income communities of color).

The Greenlining Institute has developed multiple frameworks for operationalizing equity in climate and mobility policy that can help local government leaders and stakeholders frame EV equity in the local context. These include:

The Mobility Equity Framework, which finds that to achieve mobility equity in transportation planning and investments, we must prioritize:

1. **Social equity:** The fair and just distribution of societal benefits and burdens.
2. **Community power:** The ability of marginalized communities to influence decisions in a way that addresses their needs and concerns.

- **Step One:** Identify the mobility needs of a specific low-income community of color.
- **Step Two:** Conduct the mobility equity analysis to prioritize transportation modes that best meet those needs while maximizing benefits and minimizing burdens.
- **Step Three:** Place decision-making power in the hands of the local community.

The Making Equity Real Guidebook, which details steps to build equity into climate policies and grant programs:

1. **Embed Equity in the Mission, Vision, & Values:** Policies and grant programs should explicitly state a commitment to equity and specifically identify the vulnerable populations they seek to benefit. The effort must aim to create comprehensive climate strategies for communities that not only build the resilience of physical environments but address other health and economic injustices that climate impacts exacerbate.
2. **Build Equity into the Process:** Processes should deeply engage community members so as to learn about their priorities, needs and challenges to adapting to climate impacts. The information gathered should inform the development and implementation of the policy or grant program.
3. **Ensure Equity Outcomes:** The implementation of the policy or grant program must lead to equity outcomes that respond to community needs, reduce climate vulnerabilities, and increase community resilience. Outcomes can include improved public health and safety, workforce and economic development, and more.
4. **Measure & Analyze for Equity:** Policies and grant programs should regularly evaluate their equity successes and challenges to improve the effort going forward.

As the jurisdiction and stakeholders craft their Equitable EV Action Plan, they will devise and refine a local definition of EV equity across planning, process, and implementation.

Getting Started: Local Governments

Local government leaders should use this Framework to begin the process of developing an Equitable EV Action Plan, beginning with identifying which agencies, departments, and staff are relevant to the Action Plan process. Those parties should identify which categories of action are locally relevant and the degree to which each is a local priority. Then, local agencies should initiate needs assessments and community engagement (See Section A) to refine that prioritization. To get started, local leaders should:

Build agency collaboration and coordination structures

Planning for equitable EV infrastructure will fall within the responsibilities of a number of local government entities, including but not limited to the following (or their equivalents):

- **Planning department** or equivalent responsible for land use and long-range development planning.
- **Transportation department** or equivalent responsible for transportation and transit planning and investment.
- **Public works department** or equivalent responsible for public infrastructure, public rights-of-way, and permitting.
- **Environment/sustainability department** or equivalent responsible for climate action planning and grant-writing.
- **City attorney, county counsel, or corporation counsel** or equivalent responsible for legal analysis and policy support.
- **Mayor, county executive, city manager, and/or city administrator** responsible for executive management.
- **City council or county board of supervisors** responsible for policymaking.
- **Municipal electric utility, local public utilities commission, or community choice aggregator** responsible for electricity supply and supporting programs.

As an initial step, local leaders should create a process or body for coordination across these different entities, which will be vital to effective plan development and implementation. Creation of a dedicated coordination body will help ensure that engagement with community groups and stakeholders in plan development is robust, direct, and incorporated into investment decision-making, which will be essential to the creation of a truly equitable plan.

Develop partnerships and coalitions

Effective plan development will require coordination with a wide range of entities and stakeholders including, for example:

- **Community-based organizations** that engage with community members and stakeholders, advocate for local investment and economic development, and support sustainability and mobility investments.
    - CBOs and community members will play a crucial early-stage role in establishing policy/investment goals and locally defined mobility equity priorities, such as in the Seattle Transportation Equity Framework and Oakland Zero Emission Vehicle Action Plan.

    - The USDOE/DOT Joint Office of Energy and Transportation offers valuable resources for local agencies to get started engaging with community groups on EV and mobility planning.
- **Local environmental organizations** that advocate for environmental justice, climate action, and air quality improvement
- **Regional government entities** such as metropolitan planning organizations, councils of governments, and air quality management districts
- **State government entities** such as air quality regulators, energy and utility authorities, transportation agencies, economic development agencies, infrastructure/green banks, and climate funds.
    - Local agencies can play a central role in ensuring that state transportation agency programs and funding are geared toward equity and accessible to community-based organizations. The Greenlining Institute's recommendations for DOT-CBO collaboration include formation of equity advisory committees, dedicating portions of state funding to priority communities, employing language appropriate to local political contexts, and building cross-sector coalitions. City and county governments, which are often the local interface with state DOTs, should promote these strategies in their DOT engagements and grant proposals.
- **Local business groups and property owners** such as major employers, leading car dealerships, major multifamily dwelling managers, chambers of commerce, and business districts
- **EV supply equipment and service providers** including large national developers, smaller, local developers, and O+M dedicated entities.
- **Electricity suppliers** including investor-owned utilities, community choice aggregators, and publicly owned and municipal utilities. These entities are responsible for grid maintenance, upgrades, and interconnections and are crucial players from building-scale installations to city-scale investments.
    - Investor-owned utilities from Georgia Power to Entergy are providing vehicle and charging incentives alongside guidance for residents and building owners; municipal utilities such as Austin Energy, Sacramento MUD and Seattle City Light are leading on EV and transportation electrification efforts; and groups like the California Community Choice Association coordinate clean energy programs across community electricity suppliers. Local leaders should leverage and connect stakeholders to these programs where they exist.
- **Educational institutions** such as community colleges and high schools

Local leaders crafting an Equitable EV Action Plan based on the strategies outlined in this proposal should begin early and iterative discussions with these stakeholders–in particular with community groups and community members in greatest need of policy support to ensure an equitable EV transition. They should also ensure that planned actions and strategies include monitoring, reporting, and feedback elements to track results and create multiple avenues for community input over time.

Consult peer jurisdictions' plans

As local leaders consider how to work with these stakeholders and develop a plan, they can also look to other cities for best-fit strategies that meet the particular needs of residents, businesses, and government agencies. A short list of examples:

- Canton, MI - EV Infrastructure Planning Report
- Chicago, IL - Electric Vehicle and Mobility Infrastructure Framework
- Berkeley, CA - Electric Mobility Roadmap
- Burlingame, CA - EV Action Plan
- Contra Costa County, CA - Electric Vehicle Readiness Blueprint
- Denver, CO - Electric Vehicle Action Plan
- Englewood, CO - Electric Vehicle Action Plan
- Ferndale, MI - Funding for EV Infrastructure Storymap
- Fresno COG, CA - EV Readiness Plan
- Irvine, CA - Zero Emission Vehicle Transition Plan
- Kern County, CA - Electric Vehicle Charging Station Blueprint
- Kings County, CA - Electric Vehicle Readiness Plan
- Oakland, CA - Zero Emission Vehicle Action Plan
- Orlando, FL - 2030 Electric Mobility Roadmap
- Portland, OR - Electric Vehicle Strategy
- Raleigh, NC - Transportation Electrification Study
- Royal Oak, MI - EV Study
- Sacramento, CA - Electric Vehicle Blueprint
- San Antonio, TX - EV Fleet Conversion and City-Wide EV Infrastructure Study
- San Diego County, CA - Electric Vehicle Roadmap
- San Francisco, CA - Electric Vehicle Ready Community Blueprint
- San Jose, CA - Electric Mobility Roadmap
- Santa Clara, CA - EV Blueprint
- Seattle, WA - Transportation Electrification Blueprint
- Sterling Heights, MI - EV Charging Station Master Plan
- Ventura County, CA - Electric Vehicle Ready Blueprint

Consult model laws and ordinances, toolkits, and federal funding resources

- C40 Local Government Leaders' Inflation Reduction Act Guide
- Model Laws for Deep Decarbonization: Light-Duty Vehicles
- Model Laws for Deep Decarbonization: Heavy-Duty Vehicles
- EV Charging for All Coalition EV Building Codes Toolkit and State Code Compendium
- Southern Alliance for Clean Energy Electric Transportation Toolkit
- State of Michigan Community EV Toolkit
- State NEVI Plans
- White House Inflation Reduction Act Guidebook

Getting Started: Stakeholders and Communities

Stakeholders and communities should use this Framework to prompt local leaders to begin developing a locally appropriate, community-driven action plan for the EV transition. An Equitable EV Action Plan should ultimately be developed and adopted by local government to guide public action and investment. Community and stakeholder groups will play a central role in shaping its contents, ensuring policies and investments are equitable, and driving local leaders to take action.

These groups can also play a central role in advocating for plan development and prompting local government to begin the planning process. Many local governments lack the capacity, and cross-agency coordination to develop an action plan without dedicated grant funding or direction from elected officials and voters. Community and stakeholder groups can use this framework and the strategies it highlights to call on local leaders to take action in ways that advance the clean mobility transformation and promote quality of life, well being, and economic development. Initial steps for advocates to kick-start the process can include:

Research

- **Research parties and decision makers who could be engaged**
    - Research organizations in your area that are engaged in advancing equitable EV solutions
    - Find out who your local elected leaders are and which municipal representatives have committee responsibility for transportation equity and mobility
- **Research tools on strategy formation and site selection**
    - **Consult this framework**, Greenlining's Mobility Equity Framework, the Towards Equitable Electric Mobility Platform, the Energy Equity Project, and other resources to form a local definition and principles for an equitable EV transition.
    - Provide examples and resources your jurisdiction can consult to help get the groundwork going on initiatives you would like to see come to your community
        - Begin with the actions and strategies included in this framework
        - Consult the Department of Transportation's Site Hosts for Electric Mobility Charging Stations for examples of charging infrastructure initiative's from around the country.
        - The Department of Energy Alternative Fuels Data Center presents case studies and success stories on electric vehicle initiatives. Consult this resource to find comprehensive examples of successful initiatives based on cities similar to your own
        - Check FHWA's Innovative Program Delivery Listing of State Legislation to determine which statutory framework can be used for a local project.
        - Consult the Electrification Coalition's Electrifying Transportation in Municipalities Policy Toolkit for strategies and examples of city-based initiatives and information on the benefits of electrification, equity considerations, and the importance of community engagement.

- **Consult the national Justice40 Initiative Mapping Tool and USEPA EJScreen;** state equivalents like CalEnviroScreen, Colorado EnviroScreen, Connecticut Environmental Justice Communities Map, Illinois EJStart, Maryland EJ Screening Tool, MiEJScreen, New Jersey Overburdened Communities Map, Pennsylvania Environmental Justice Communities Viewer, and Washington Tracking Network; and other environmental justice/climate investment platforms to understand where federal- and state-recognized priority communities and funding-eligible areas are located within your jurisdiction. Using these tools can help local governments and communities understand where funds are available to implement infrastructure projects within underserved areas. They will also be necessary to use in consultation with communities to understand their concerns/readiness for additional EVSE infrastructure.[7]

Build or Join a Coalition

- **Form or join a team of others interested in and working on these issues**
  - Connect with TEEM coalition members, which are located in:
    - Colorado
    - Illinois
    - Michigan
    - North Carolina
    - Virginia
  - Connect with national EV and mobility equity coalitions like the Clean Mobility Equity Alliance, EV Charging for All Coalition, EVNoire
- **Form coalitions and advocate for City Officials to develop programs** that connect interested parties to existing resources and educational materials. For example:
  - A coalition involving housing developers and managers (especially for affordable housing communities), medium to large apartment complex managers, and residents could engage with city officials to ask for support and connection to resources that assist multi-family dwellings with installing and managing EV chargers.
    - See Section D; NY Siting and Design Guidelines
  - A coalition involving private employers and nonprofit stakeholders could ask for the city to develop resources that assist workplaces in implementing EV infrastructure and programs.
    - See Section H; EMPOWER Project and city-specific Clean Energy Coalitions
  - A community coalition could include houses of worship, community centers, other non-business entities that can host and push for publicly accessible charging
    - See Interfaith Power & Light Cool Congregations program

[7] See https://www.anl.gov/esia/electric-vehicle-charging-equity-considerations for more information. Users can also consult expert analysis on how to use these mapping tools. See Yan Zhou et al., Argonne National Laboratory, *Using Mapping Tools to Prioritize Electric Vehicle Charger Benefits to Underserved Communities* (May 2022), available at https://www.osti.gov/biblio/1870157/.

Contact decision makers

- **Contact the local city council/board of supervisors, mayor, city manager, and lead departments** to inquire about the existence of equity-focused EV and mobility plans and efforts to form a local Equitable EV Action Plan. Share this framework and examples of high-priority strategies that could be appropriate for the jurisdiction.
    - Help your local agencies and elected officials develop actionable community outreach strategies as they think about designing new mobility investments anda comprehensive plan
    - Suggest the development of a focus group that is aimed at understanding the current knowledge of EV, needs of the community, and barriers to implementation
    - Inquire about low-cost, immediate-benefit strategies that local agencies can adopt to get started like policies to permit running charging cords across the sidewalk (See Section E)
- **Request that your local officials conduct a needs assessment and other community engagement strategies**
    - See Section A for specific strategies
    - Direct officials to resources for implementing community engagement plans during planning stage or during implementation timelines such as:
        - Clean Mobility Options' Community Engagement Guide and Toolkit which detail types of community engagement events
        - Greenlining Institute and Joint Office of Energy and Transportation Guides which cover engagement tips during planning and implementation phases
        - Shared Use Mobility Center Community Engagement Modules
- **Connect with your jurisdiction's Clean Cities and Communities and C40 Cities officers** or prompt your local leaders to join these and similar coalitions if they are not already members

Engage local media to focus on the need for EV and mobility policies

- For example, the nonprofit outlet CalMatters has run a 13-part "Race to Zero" series detailing state and local challenges facing the EV transition, with a focus on underserved communities

Crafting the Action Plan

A local Equitable EV Action Plan will center on a set of strategies designed to accelerate EV and zero-emissions mobility adoption and access for residents, create a more cohesive and sustainable local transportation system, and facilitate equity and economic development in the electrification transition. The goals, strategies, and processes included in the plan should draw on plans and best practices from jurisdictions around the country but will be tailored to each area' demographics, geography, and economy. The needs of local stakeholders, focus areas and capacities of local agencies, state policy/funding schemes, regional collaborations, and potential revenue streams will determine which strategies are appropriate for development in a planning process.

An Equitable EV Action Plan should include or build on assessments of current and predicted EV adoption across different local demographics, but should ultimately operate on the premise that all residents will require reliable access to zero-emissions mobility options over the coming decades. It should:

- Detail specific actions, responsible actors, and timelines to achieve stated goals.
- Identify principles of mobility equity and priority communities intended to benefit from plan actions.
- Establish EV and zero-emissions mobility adoption targets that advance other local and state transportation and climate policies.
- Identify needs and strategies to operationalize equity at each step.
- Create conditions to set priority actions into motion.
- Propose revenue and financing measures (public and private) to fund the plan and business and governance models that promote community investment in infrastructure.
- Create meaningful ways for residents to engage with and provide feedback on the plan.
- Be informed and co-developed by members of the communities it is intended to serve.
- Set metrics to measure success and evaluate progress.

The following sections detail potential strategies in each area of potential relevance for local Equitable EV Action Plan development, drawing on existing EV action plans, climate action plans, and implemented pilots and programs.

II. Plan Development, Community Engagement, Implementation, and Funding

A. Assessing Priorities, Setting Targets, and Defining Mobility Equity in the Local Context

[Return to top]

Broadly speaking, the zero-emissions vehicle transition is not being driven by local governments; it is being driven by a combination of state and federal regulatory and incentive programs (including, in many states, a target date for the phaseout of internal combustion engine sales) and market responses to those programs and related technological developments. The role of local governments, in an Equitable EV Action Plan, is to craft policy, planning, and investment strategies that ensure equitable access as the state/federal- and market-led transition occurs. To provide scope and context for the policies and strategies that will constitute the majority of an Equitable EV Action Plan, local leaders should first identify local priorities and targets for an equitable and just EV transition. This may include:

- Conducting jurisdiction-wide technical assessments of vehicle and infrastructure needs
- Setting goals for adoption of EVs and alternative travel modes
- Establishing principles and metricsthat will guide equity-oriented policymaking in the EV context
- Identifying high-priority economic development and community wealth-building goals.

Many of these elements will build on and link to existing local plans such as climate action plans, transit and transportation plans, community and economic development plans, and transportation- and climate-related components of general, comprehensive, or master plans. Local governments also face budget constraints and competing demands, from housing to education to public safety, that limit their ability to take on ambitious electrification programs. But a subset of strategies that are fully within local government authority and purview will be key building blocks for a comprehensive approach to local EV and mobility policy, including building departmental functions to manage and coordinate EV and zero-emissions mobility policy and addressing permitting and procurement barriers to EV infrastructure deployment.

The initial stage of plan development is also when program leaders can craft a definition of and metrics for EV equity that will shape the local transition. This should include direct engagement with communities and stakeholders to:

- Identify guiding mobility equity principles
- Conduct mobility needs assessments
- Review local histories, including injustices in past mobility investments
- Locate highest-priority communities and sites for proactive mobility investment and policy support.

While each local context presents unique needs and opportunities, an Equitable EV Action Plan should identify appropriate strategies to center community voice and decision-making power throughout the process.[8] It is important to note that strategies focused on government coordination and assets are only a first step toward concrete, equity-focused investment. An Equitable EV Action Plan will hinge on the strategies that secure zero-emission mobility access for priority communities.

To initiate the process of Equitable EV Action Plan development, local government leaders can develop Action Plan strategies including:		
A.1	**Define goals and targets of vehicle electrification transition**	
	Notes/Description *(For the action in general)*	**Example/Precedent (Plans, Proposals, Pilots)** *(Representative, not exhaustive)*
	- May include mode shift goals (automobiles to transit/shared/active transportation), VMT reduction goals, and congestion/safety/curb management goals alongside vehicle electrification goals (target date for full shift to EVs) - Includes mobility, air quality, economic development, quality-of-life, and climate benefits - Should emphasize people-centered elements of the transition (e.g., workforce shifts or occupational security and capacities) - Should include links to established state electrification targets and programs, e.g., Colorado Executive Order B 2019 002 (sets state targets of increasing market share of light duty electric vehicles to nearly 100% by 2050 and expanding access to the transition among all Coloradans and businesses) - May involve consultation with a dedicated advisory committee or with focus groups composed of directly impacted stakeholders (see Section B)	Ann Arbor Climate Action Plan Includes "Indicators of Success / Goals" for each strategy, e.g., "By 2030, 50% of all vehicles miles traveled are in electric vehicles… 10% of all public and private parking spaces are equipped with level 2 EV chargers and 2% with Direct Current Fast Chargers (DCFCs)." Austin Climate Equity Plan Transportation Goal #1 ("By 2030, 40% of total vehicle miles traveled in Austin are electrified, and electric vehicle ownership is culturally, geographically, and economically diverse. This translates to approximately 460,000 electric vehicles on the road.") Michigan Future Mobility Plan (Defines mobility and sets state targets for mobility investment, workforce development, and economic development) Oakland CAP TLU Sector Goals ("To reduce the carbon and pollution impacts of vehicles, the City must help as many Oaklanders as possible to move around Oakland without cars. Active transportation (walking and biking) and public transportation are the top priorities. For those who must use vehicles (including cars, trucks, buses, and

[8] Greenlining Institute, *Mobility Equity Framework*, p. 5, available at https://greenlining.org/publications/mobility-equity-framework-how-to-make-transportation-work-for-people/.

	- Should link to existing transit-oriented development policies and vehicle trip reduction strategies where possible	delivery vehicles), electrification is the key.") San Francisco CAP TLU Sector Goals ("By 2030, 80% of trips taken by low-carbon modes such as walking, biking, transit, and shared EVs. By 2030, increase vehicle electrification to at least 25% of all registered private vehicles, and to 100% of all vehicles by 2040.")
A.2	**Define mobility/EV equity and establish goals**	
	- Includes definition of equity in the local context, identification of priority populations/underserved communities, and assessment of local barriers to vehicle and infrastructure access - Includes identification of equity goals and outcomes (participation/process and investment, including top-priority strategies among action plan options, or a target percentage of EV infrastructure to be deployed in low-income/high-pollution neighborhoods) - Includes identifying local residents and communities in need of proactive policy support for the EV transition (e.g., lower-income communities, low-transit-access communities, residents with disabilities), archiving community mobility and disinvestment histories, and providing technical assistance and creative communication tools for community self-assessment - Includes conducting or establishing a racial equity impact assessment program for major infrastructure investments	Detroit EV Charging Public Engagement Platform (City EV program website inviting community members to pinpoint preferred locations for charging investment via interactive map tool, accessible online and used in community engagement sessions) Greenlining Institute *Mobility Equity Framework* ("Mobility Equity: a transportation system that increases access to high quality mobility options, reduces air pollution, and enhances economic opportunity in low-income communities of color.") Los Angeles Our Skid Row (Los Angeles community visioning project designed to communicate mobility and resource investment needs and priorities to city leadership.) Oakland ZEV AP Introduction ("ZEVs can be a powerful tool for social equity. They reduce the pollution associated with private automobile use that disproportionately impacts frontline communities, and lower lifetime driving expenses thanks to reduced fueling and maintenance costs.") Philadelphia Community Futures Lab (Philadelphia-based project examining community impact of redevelopment and displacement and examining future infrastructure planning) San Francisco CAP equity introduction ("San Francisco views climate action through four complementary focus areas, or 'lenses,' which have identified critical issues and shaped proposed strategies for future implementation. These considerations must be advanced

		to the extent possible to maximize benefits for the entire community, and with a special eye toward reducing burdens on marginalized communities." These lenses are: Racial and Social Equity, Economic Recovery and Just Transition, Protecting Public Health, and Resilience.) Seattle Transportation Equity Framework (City mobility policy document formed through collaboration between transportation department and community-based working group, including eight equity-focused strategies based on community engagement and decision-making, transparency, and accountability.) Seattle Racial Equity Toolkit (Framework for assessment of equity impacts of policies and programs including community engagement elements.) Washington, DC Racial Equity Impact Assessments (City Council Office of Racial Equity conducts Racial Equity Impact Assessments (REIAs) for most proposed legislation, which assess how a bill would operate in practice, examine the inclusion of different groups in the bill's development, and determine whether the bill would impact particular groups or racial equity.)
A.3	**Conduct community-informed mobility needs assessment(s)**	
	- Should solicit and center community input and ideas on mobility investment priorities - Should include public education to inform public input, including information on EV basics and benefits; charging and battery basics; vehicle costs, rebates, and O+M/charging costs; shared and micromobility options; and the context of state and local electrification regulations/targets, if any. - Could evaluate mobility-adjacent needs (e.g., medical conditions, recreational activities, physical disabilities, etc.) to identify communities' optimal vehicle types, travel routes/frequencies and other mobility considerations	Austin Climate Action Plan TE Strategy 1 ("Complete an Electric Vehicle Community Needs Assessment to identify the intersections of mobility challenges, transportation electrification, and racial and economic justice.") Clean Mobility Options Needs Assessment Implementation Toolkit (Resources for zero-emissions mobility grant program awardees to carry out a meaningful, community-led needs assessment to identify residents' transportation gaps and preferred solutions) Greenlining Institute Best Practices for Mobility Needs Assessments (Case study-informed recommendations including building deep relationships with CBOs, taking multi-sector approaches, compensating community

		members, and collecting feedback on results) Oakland ZEV Action Plan (Community workshops co-hosted with CBOs included mobility needs assessments that informed plan contents)
A.4	**Conduct mapping and outreach exercises to identify priority communities most in need of proactive planning, policy and financial support, and publicly accessible infrastructure**	
	- Begins with identification of areas of greatest need based on local environmental/air quality and demographic criteria (e.g., expanding and modifying mapping tools such as EJScreen, the Climate and Economic Justice Screening Tool, the EV Charging Justice40 Map, the National Equity Atlas, and state EJScreen equivalents) -Where available and relevant, use local and state-specific mapping tools, such as those cataloged in the Environmental Justice Tool Inventory - Includes iterative review and feedback from city stakeholders and communities to refine assessment of needs, opportunities, and community-preferred sites - Includes evaluation of competing and preferred mobility uses of public property, curbside, and public right-of-way (e.g., where bike/pedestrian/transit space is preferred to charging infrastructure) - Should include identification of neighborhoods face grid capacity limitations, host high density of multifamily housing, and need improvements to telecom networks such as fiber, Ethernet, cellular, and Wi-Fi that support mobility infrastructure. - Counties may focus on gasoline "superusers" who have the longest commutes and stand to benefit the most from more efficient, lower-cost fueling technology while delivering the	Colorado EV Equity Dashboard CO map showing EV registration trends and locations of electrification program investments. Links to different views that provide statewide maps of key data points including equity-based socioeconomic characteristics and utility rates, among others. Users can filter data and find location-specific information using navigation features. Colorado EV Prioritization Tool Includes the data in the CO EV Equity Dashboard and "allows that data to be used to prioritize spending for specific programs." Oakland EJ Communities Map/General Plan Element (Map building on CalEnviroScreen identifying "low-income areas disproportionately impacted by pollution, socioeconomic vulnerability, and adverse health impacts" that are "eligible for special considerations and investments, and are recognized and uplifted in order to equitably allocate resources.") San Diego Climate Equity Index (City map tool that scores census tracts across 41 environmental risk, demographic, and transportation/energy-related criteria, built on community input) San Francisco EJ Communities Map/Framework (City-specific map tool based on CalEnviroScreen but incorporating more local pollution and demographic data and reflecting public comments to identify city areas with higher pollution and that are predominantly low-income.)

	greatest emissions reductions	
A.5	**Catalog existing local plans, initiatives, and resources/capacity that overlap with or advance EV and mobility equity efforts**	
	- Includes climate action plans, general plan (i.e., comprehensive plan or master plan) elements, permit streamlining programs, interagency teams, etc. - Includes local incentive programs (e.g., Fresno Drives Electric and Equiticity's Mobility Opportunities Fund), pilots (e.g., Transform Fresno and Forth's Affordable Mobility Platform), grants obtained, and state programs relevant to local efforts (e.g., Clean Cars for All, Michigan DOT's Equitable Mobility Challenge, and Southeast Michigan COG Planning Assistance Program) - Includes review of all potentially relevant city departments (transportation, public works, planning, city manager, city council, mayor's office etc.) to identify all staff/teams working on topics related to EVs and charging infrastructure and to identify gaps - Includes assessment of current local transportation programs and their promotion or inhibition of e-mobility investment - Includes outreach to neighboring/peer cities with advanced EV and mobility policy frameworks and trainings for local officials and staff on key concepts (see Getting Started: Local Governments)	Contra Costa Co. Transportation Electrification Coordination (CTEC) (Countywide group of staff from cities, towns, county departments, energy and transportation agencies that meet monthly to coordinate on new electrification programs and implementing existing plans/efforts) Oakland ZEV AP policy timeline (Catalogs all city climate and transportation programs/policies over past two decades) - City/county EV roadmaps and readiness blueprints (see Getting Started: Local Governments)
A.6	**Establish local government roles/entities dedicated to EV and mobility infrastructure efforts**	
	- May include new FTEs at transportation and planning departments and/or interagency working group to oversee planning, permitting, and new projects as well as tracking progress - Staff roles/responsibilities should include dedicated grant-writing capacity, engagement with county/regional/state entities (i.e, MPOs) that provide grant funding, and community engagement/relationship management (instead of one-off	Ann Arbor Resolution R-17-237 (City Council Resolution "to update and revive the City's Green Fleets Policy" among other functions designated a Green Fleets Team – comprised of representatives from various administrative units – to develop a plan for electrifying the City Fleet by 2025.) C40 Climate Action and Inflation Reduction Act Guide for Local Government Leaders (Outlines strategic roles that municipal leaders can play in maximizing

	consultant engagements) - Working groups should include community and/or stakeholder representatives	local benefits associated with federal climate legislation, while minimizing the real and potential harms posed to frontline communities exposed to fossil fuel infrastructure and development.) Oakland ZEV AP CL-1, CL-11 ("Create and fund a staff position within the Department of Transportation or Oakland Public Works to oversee implementation of this Plan and related public EV infrastructure projects. Provide resources for City engineers to support those and other ZEV-related projects.")
A.7	**Establish metrics to track vehicle and infrastructure progress and equitable implementation/investment**	
	- Includes data on EV ownership, public charging infrastructure availability, home charging locations and types, and grid capacity, citywide and in priority communities - Includes data on location of priority communities (see mapping exercises discussed in Section A) - May include vehicle acquisition and charger installation targets - May include analysis of charging rates per kilowatt-hour provided by load-serving entities at homes and by private EVSE developers in public - Includes collaboration with equity/EJ organizations to develop equity-based goals and metrics	- City/county EV roadmaps and readiness blueprints (see Getting Started: Local Governments) - San Francisco CAP implementation dashboard (Tracks progress in implementing the actions and strategies outlined in city climate action plan) - State EV rebate program application/award tracking data (e.g., CA Clean Vehicle Rebate Project rebate data, CO EV Equity Dashboard, IL EPA Electric Vehicle Rebate Program rebate data)

Advancing Equity

Defining equity in the context of EV and mobility infrastructure is a crucial first step toward developing a locally appropriate, effective action plan that supports communities across transportation, public health, and economic development needs.

- *California's CalEnviroScreen and the federal EJScreen and CEJST provide key baseline information on communities most vulnerable to environmental harms and most in need of proactive climate policy support and investment–but most cities and counties should refine and build on these resources with local knowledge and criteria. Many cities such as San Francisco and Oakland are developing EJ maps and indices tailored to local environmental risks and community demographics. See the EJ Tool Inventory for a list of state and local EJ maps, datasets, and tools across the country.*
- *Engaging directly with community-based organizations and residents to identify mobility needs is a key part of establishing a shared vision of EV Equity and embedding it throughout the process and implementation of an action plan.*

- *The Greenlining Institute's Mobility Equity Framework details a process of community needs assessment, mobility analysis, and decision-making that may guide these steps. See Section J for more actions related to this process.*

B. Community Benefits, Engagement, Participation, and Decision-Making

[Return to top]

Zero-emissions mobility and EV programs can not only improve air quality and increase access to mobility, but also grow capacity, catalyze economic opportunity, and promote wealth-building in underserved communities, if they are designed and executed with equitable principles in mind. Engagement with community members, stakeholders, and community-based organizations is crucial to ensure that an Equitable EV Action Plan truly meets the needs of priority populations, promotes mobility equity, and is effectively implemented. The San Francisco Climate Action Plan, for example, notes that "[a]ddressing climate change will require ongoing engagement with the entire community"[9] and that "[o]utreach and engagement will be imperative to success."[10] To truly promote equity in planning and implementation, engagement should be accompanied by a community role in decision-making, from site selection to project design.

Local governments building an Equitable EV Action Plan must begin by identifying community needs (across EVs, mobility more broadly, and related concerns that define the goals mobility can serve) and should include strategies to center community input and goals throughout plan development and implementation. A 2021 Greenlining Institute report, *Clean Mobility Equity: A Playbook*, explains the pitfalls of past approaches and the ways in which meaningful engagement goes beyond typical consultation with communities: "Traditional transportation planning and decision-making generally occur behind closed doors, with only superficial community engagement, which leads to a prescriptive approach that does not meet community-identified needs."[11] Local government leaders should engage community members and prioritize community input at each stage of a project, starting with the project selection and planning process, in ways that prioritize co-creation and shared decision-making, instead of "check the box" engagement.

In addition, providing technical assistance and education to communities before asking for community input on projects is also a critical foundation for seeking community feedback. Meaningful engagement includes early consultation and needs assessments, input on project selection and design, involvement in investment decision-making and participatory budgeting processes, and development of strategies to address gentrification and displacement. Where community organizations are already overburdened, local governments should partner with existing networks and committees.

In general, the Greenlining Institute recommends operationalizing an equity approach for any mobility program as follows:

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[9] San Francisco Climate Action Plan (2021), p. 18, available at https://www.sfenvironment.org/files/events/2021_climate_action_plan.pdf.
[10] The Greenlining Institute, *Clean Mobility Equity: A Playbook* (2021), p. 31, available at https://greenlining.org/publications/clean-mobility-transportation-equity-report/.
[11] Id. at p. 20.

1) Embed equity in the mission, vision, values, and design of a project, such as through multi-sector approaches
2) Engage community members as planners, implementers, and project evaluators
3) Secure equitable outcomes by ensuring that project goals align with community mobility and access needs, deliver increased climate resiliency, and support community economic development and wealth-building
4) Capture equity metrics and evaluate them to assess the equity success of a project.[12]

Such an approach will promote local governments' ability to deliver useful and equitable investments and support community autonomy in mobility developments, promoting not just access to zero-emissions transportation but also community benefits writ large. Local workforce development and outreach efforts at the outset of the Action Plan process are also crucial to inform the community that they can participate in the economic opportunity of the transition.

To advance community engagement and benefits while pursuing equity, local government leaders can develop Action Plan strategies including:		
B.1	**Create a community and equity oversight committee or advisory board that compensates its members and whose members have with roles in both action plan development and implementation , or tap into existing groups and committees if individuals are already overburdened**	
	Notes/Description *(For the action in general)*	**Example/Precedent (Plans+Proposals+Pilots)** *(Representative, not exhaustive)*
	- Includes community-based organizations and community members, local businesses, and environmental/EJ advocates, among others. - Has a well defined scope and a substantial degree of voting and/or governing authority over action plan development and priorities. - Meets regularly throughout the planning, implementation, and monitoring stages, including playing a formal role in the action plan development process, siting, and investment prioritization. - Engages in democratic decision-making processes within council leadership and beyond through the facilitation of equity-oriented	BlueLA CBO Steering Committee (Steering Committee composed of six local CBOs that lead community engagement and outreach efforts for the program including the Koreatown Immigrant Workers Alliance, the Salvadoran American Leadership and Education Fund, TRUST South LA, People for Mobility Justice, the Thai Community Development Center and Ciclavia.) City of Portland: Advisory Groups for the City of Portland's Clean Energy Community Benefits Fund (PCEF) (Advisory Groups include bodies such as the Equitable Tree Canopy Workgroup, which is comprised of agency staff, community stakeholders, and others.)

[12] Id.

	engagement with the wider community, including avenues for ongoing community monitoring and feedback. - May include participatory budgeting exercises (see B.2 below) - May include ongoing reporting from local government staff on outreach and engagement efforts and evaluation of local government's outreach & engagement actions, policies, and transportation plans. - May include organizing, facilitating, and/or negotiating the Community Benefits Agreement (CBA) process with a coalition of community-based organizations if applicable and aligned with community leadership priorities. - Should include compensation for community experts' time and knowledge	CLEE Equity Oversight Board recommendation for SF CAP ("Create an independent community council to provide equity oversight of CAP investment, implementation, and revenue generation mechanisms with representatives from City government and community, climate, environmental justice, labor, and small business groups" including decision-making authority and participation compensation.) Seattle Department of Transportation, Transportation Equity Framework, Part 1: Values & Strategies Tactic 4.2 describes ongoing evaluation of local government's outreach & engagement, policies, and transportation plans Transform Fresno Steering Committee and Outreach and Oversight Committee The City of Fresno established a community-driven Steering Committee to engage the community in developing proposal areas for the implementation of its TCC grant. The Steering Committee was succeeded by the Outreach and Oversight Committee, a council of community members overseeing plan implementation.
B.2	**Conduct participatory budgeting processes to select community priorities for portions of infrastructure investment throughout the plan's implementation**	
	- Participatory budgeting is a democratic budgetary mechanism that allocates a portion of public spending to community-wide voting processes, often facilitated by a community oversight committee. - May be utilized in the project initiation stage to select investment areas and locations, as well as throughout project implementation to consult community members on project direction, development, and implementation.	Cambridge, MA participatory budgeting (City dedicates a portion of budget to participatory process for infrastructure/capital projects that benefit the public through one-time expenditures that cost $1 million or less.) New York City Participatory Budgeting (Annual process dedicating millions of dollars to physical infrastructure projects through participatory processes at the city council district level) San Diego Southeastern Community Mobility Roadmap (Community-driven roadmap developed with advocacy organizations and CBOs through participatory workshops and budgeting process, resulting in a $1.5 million proposal in city budget for two community-preferred projects and $100,000 to invest in participatory budgeting-selected project.)

		Transform Fresno Participatory Budgeting Process Fresno used a participatory budgeting process to develop proposals for its $66.5 million grant submission to the state Transformative Climate Communities (TCC) program. The process was open to all residents, employees or property owners in the eligible neighborhoods and formed the largest participatory budgeting process ever conducted in the U.S.
B.3	**Provide compensation for community participation in plan development, feedback, and oversight processes**	
	- Includes, for example, stipends for advisory/oversight board members to participate in meetings and review proposals, meal and transportation subsidies and childcare services for residents to participate in community sessions, and compensation for participation such as attendance and survey completion. - May include direct compensation by local agencies or partnerships with existing community groups. - Should be commensurate with a living wage in the locality to account for missed work and various expenses.	Greenlining Clean Mobility Equity Playbook ("Partner with and pay community groups to design a targeted, grassroots approach to outreach and marketing and coordinate with existing community events and services.") Seattle Department of Transportation, Transportation Equity Framework, Part 1: Values & Strategies Tactic 1.2 includes incorporating funding for language access, community based organizations into yearly budgeting proposals
B.4	**Promote inclusive practices at community meetings and during outreach**	
	- Includes attending and presenting already-existing community meetings and events. If new meetings are necessary, entails convening meetings in trusted places and at times when working residents can participate, providing significant advance notice for meetings, and ensuring that food and childcare are available for participants. - Includes creating accessible, translated meeting materials, and providing interpretation services or conducting sessions in multiple languages in communities where English is not the primary language. - Includes establishing shared principles/community agreements to	CEJA and Placeworks SB 1000 Implementation Toolkit "The. . . planning process can promote inclusive and meaningful participation by all groups by ensuring that meetings are accessible in terms of language, time and location. . . and by using facilitation methods that support and encourage all participants' contributions, especially those coming from impacted community groups." "Maintaining an adequate budget for meaningful community engagement is important for promoting equitable access and achieving high-quality public participation. Activities to be included in a budget include resources such as city/county staff time, contractor fees, outreach workers, meeting materials, food, audio-visual equipment, translation and interpretation services, translation equipment, transportation costs, child care, and building

	promote inclusive, equitable communication and participation. -Includes providing compensation for participation.	maintenance services."
B.5	**Conduct regular community engagement sessions during plan preparation and implementation to inform residents and gather input and feedback**	
	- Includes dedicated, funded work with relevant CBOs to inform strategy selection/prioritization, build public support, and promote accountability - Includes needs assessments to match EV/mobility investments with residents' travel needs (see Section A above) - Should include opportunities to discuss concerns around gentrification and displacement associated with zero-emissions mobility investment - Should apply inclusive engagement principles, e.g. those outlined in C40 Knowledge Hub's Inclusive Community Engagement Toolkit	Chicago EV and Mobility Infrastructure Framework (Framework development included surveys for general public and commercial fleet owners and multiple public meetings) Oakland ZEV AP Appx. A (Details outreach and workshop process led by 3 CBOs to identify barriers and strategies that informed plan contents.) San Diego Southeastern Community Mobility Roadmap (Included workshops with four participating CBOs and community pop-ups, listening sessions, and feedback workshops.)
B.6	**Host promotional events and share EV information at existing community events**	
	- Includes city websites, library and community center information sessions and portals, and community events at locally appropriate sites for priority communities–e.g., grocery stores and food banks, flea/farmers markets, shopping centers, schools, houses of worship.	Oak Grove Presbyterian Church EV Expo (Annual event showcasing electric vehicles, ride-share options, lawn equipment, buses, microtransit, and more.) Oakland ZEV AP CL-6 ("Increase City resources devoted to ZEV outreach and education in frontline communities and geographies with lower-than-average ZEV ownership and use…By the end of 2023, develop clear digital resources on the City's website and at key community touch points, such as libraries and community centers, for residents to learn more about sustainable mobility technology and incentives including ZEV mobility.")

		Sac EV (Community-based organization that educates local residents about EVs and their supporting infrastructure via workshops, exhibits, and other program efforts.) Smart Columbus Ride and Drive Roadshow (City-sponsored EV test drive event series)
B.7	**Host a workforce marketplace and conduct events sharing EV-related career pathways, and economic opportunities**	
	- Includes partnerships with school districts and community colleges as well as career expos - Includes direct engagement with local private sector employers relevant to EVs and mobility, from charging site hosts to O+M companies - Includes websites, events, and portals connecting EVSE developers with local business owners offering masonry, electrical, project management, and soft skills required for installation projects.	Oakland ZEV AP CL-6, ZE-2 ("By 2023, launch or expand partnerships with OUSD and others to expand awareness of ZEV-related career pathways." "By 2023, work with partners to launch an annual Expo highlighting business, career, and training opportunities in ZEV technologies and services as well as other fields related to equitable decarbonization.")
B.8	**Develop a local website that details the EV plan and serves as a portal to incentive, permitting, pilots, and other EV programs and staff; and a communications and marketing plan to accompany the web materials**	
	- Includes media selection, branding, user interface, and social strategies tailored to local community cultures and languages - Includes local staff and CBO partners who can serve as navigators for complex materials - Should connect residents to cost savings calculators and other information detailing financial benefits of electrification	Bloomington-Normal IL EVTown (City has initiated a "broad-based effort" to establish itself as "a model electric vehicle community" including a city website with information on EVs, charging, safety, insurance, public infrastructure, and more) CA GO-Biz ZEV Funding Resources website (State agency website with ZEV funding resources for stakeholders, including vehicle incentives, infrastructure incentives, fleet resources, financing programs, the California budget and funding plans, and additional search tools.) Oakland ZEV AP CL-6

		("By the end of 2023, develop clear digital resources on the City's website and at key community touch points, such as libraries and community centers, for residents to learn more about sustainable mobility technology and incentives including ZEV mobility.")
B.9	**Include local business procurement and local hiring preferences in all public charging infrastructure investments**	
	- Can include procurement preference in city projects/investments and tax or other financial incentives for private projects - Should include deliberate consideration of strategies to promote local wealth-building and training/apprenticeship programs to ensure local workers have appropriate access to opportunities - Can involve engagement with state-certified Historically Underutilized Businesses	Ann Arbor MI City Code § 1:324.5 (Best value procurement requirement for contracts over $50,000 including workforce development and social equity measures such as consideration of local hire percentages) Oakland ZEV AP ZE-5, ZE-6 ("The City will explore ways of strengthening local hiring standards and incentivizing successful applications for City contracts from firms led by frontline community members. New or strengthened standards will be applied first to projects supporting building and transportation decarbonization." "Working with unions, labor leaders, and training partners, identify ways to best serve the communities that need resources the most. Workforce efforts must prioritize historically disadvantaged, impacted, and underinvested communities.")
B.10	**Co-develop infrastructure installation and maintenance programs and mobility programs with local colleges, high schools, and community/job centers**	
	- Can include both job training and mobility resources for students to promote job access	Michigan Central training program (Partnership between mobility/tech hub and ChargerHelp EVSE O+M group to provide 4-6 week training course in EVSE installation and maintenance for working adults) Oakland ZEV AP ZE-3 ("Partner With Local Community Colleges And Workforce Training Partners to Create ZEV-Specific Training Programs and Pathways") Sacramento AQMD mobility hub (Hub includes ride-hail program for students to access local GreenTech job training program, which will eventually take operational control of the hub)

B.11	**Consider community benefits mechanisms as a requirement for community- or jurisdiction-scale infrastructure projects or programmatic investment/procurement strategies, or implement local policies that benefit communities**	
	- May be appropriate for major jurisdiction- or neighborhood-wide procurement contracts or franchise agreements, permitting programs, MHD charging depots, and ports - Community benefits mechanisms are appropriate for consideration at all scales of investment, but formal and binding Community Benefits Agreements (CBAs) may require a minimum level of developer investment to prove feasible ● **Community Benefits Policies:** Policies that set baseline standards on such community benefits as jobs and housing. Can include local hire, first source, and minimum wage policies, among others. Example: East Palo Alto First Source Hiring Ordinance ● **Public Community Benefits Agreements:** THE LAX CBA (Los Angeles International Airport Community Benefits Agreement and Cooperation Agreement were negotiated between the Los Angeles World Airports, a government entity, and a coalition of community, environmental, and labor organizations.) ● **Private Community Benefits Agreements:** Public entities can also support private CBAs such as the New Flyer CBA between New Flyer of America, an electric bus manufacturer, and two nonprofit organizations: Greater Birmingham Ministries and Jobs to Move America. - May include public actor support of private CBAs, depending on the scale of the project - Should include consideration of capacity funding for engaged CBOs, regardless of whether the project is appropriate for a public or private CBA -Should include consideration of community benefits policies as appropriate to policy/project type	Asheville, NC Hotel Development Public Benefit Standards (City planning ordinance requiring all hotel projects to include public benefits such as donation to a City affordable housing or reparations fund, provision of living wages or contracting with women- or minority-owned businesses, using a points-based system) Charlotte, NC Comprehensive Plan (City's long-term planning document includes strategies to form a Community Benefits Coalition, include CBAs in planning policies, and develop a CBA playbook for use in project development) Detroit Community Benefits Ordinance (City regulation requiring project developers to work with Planning Dept. and a Neighborhood Advisory Council to craft a community benefits plan for development projects over $75 million in value or receiving $1 million in tax support. *City-level policies requiring formal CBAs may not be appropriate for many project contexts, given the complex community engagement and enforcement mechanism requirements for an effective CBA.*) San Diego Co. CBA Program (County-level initiative to programmatically incorporate community benefits agreements (CBAs) and similar strategies in renewable energy development proposals) Oakland Army Base CBA (CBA between the City of Oakland and developer included Jobs Policies that set out requirements for local hire, disadvantaged hire, living wages, limitations on the hiring of temp workers, and community oversight and enforcement.)

	- [Add link to CLEE CBA materials]	
B.12	**Emphasize locally appropriate mobility equity best practices throughout project planning and implementation**	
	- Includes focus on general best practices within the context of local mobility needs–e.g., right-sizing zero-emissions and EV mobility solutions to the travel patterns of residents. - Includes identification of key mechanisms (i.e., MOU, CBA, oversight council, participatory budgeting, equity audit) that meet community goals and advance project objectives - Includes procurement, contracting and rebate strategies to ensure that new infrastructure is affordable - Includes ensuring that programs deliver tangible benefits to communities, such as improved air quality, reduced noise pollution, and job creation in the clean energy sector. - Can include co-design, co-management, and/or co-regulation in partnership with community - Should include establishing clear reporting mechanisms and grievance processes to ensure that community engagement efforts are meaningful and that feedback is being incorporated into decision-making processes. - Should include community-informed needs assessment (see A.3) and site selection (see A.4)	Greenlining Institute Clean Mobility Equity Playbook Best practices include: - **Emphasizing anti-racist solutions** by prioritizing investment in highest-need communities - **Prioritizing multi-sector approaches** that incorporate land use, active transportation, and community vehicle use - **Delivering intentional benefits** through broad stakeholder engagement and anti-displacement strategies (e.g., policy tools identified by the Urban Displacement Project) - **Building community capacity** through bottom-up technical assistance - **Exhibiting community-driven practices at every stage** through needs assessment and building on existing community programs - **Establishing paths toward wealth-building** through workforce development and training and contracting with community enterprises Greenlining Institute Crafting Meaningful MOUs for Collaborative Governance (Interactive materials designed to guide development of an MOU to advance a community vision.)

Advancing Equity
Community engagement and participation are at the core of each element and phase of an Equitable EV Action Plan. Local government leaders should secure a formal role for community stakeholders in a significant portion of site selection and investment decision-making, both for locally developed programs and for state- and federal-funded projects. The strategies in this section should be developed and implemented concurrently with the infrastructure and investment strategies in the rest of the plan, not after. The Towards Equitable Electric Mobility (TEEM) Community of Practice developed a platform that synthesizes three years of collective learnings and recommendations from over 30 community based organizations across seven states for federal, state, and

local programs to integrate equity and sustainability into transportation systems across the country. The platform offers principles, implementation recommendations, and examples that local departments of transportation, transit agencies, auto industry partners, and other key municipal decision-makers can use as guidance to submit strong and equitable applications for federal and state funding for their municipal electrification projects and programs. The platform's principles focus on equity and justice; emissions reductions; affordable clean mobility access for all; health and safety; and wealth building.

C. Implementation and Funding

[Return to top]

An Equitable EV Action Plan will not achieve its investment or equity goals without a strategy to generate substantial revenue from a range of sources–and a plan to ensure revenue generation and expenditure is equitable. Local staff or external teams responsible for implementing the selected actions will need to coordinate regularly to achieve success, and leaders from across the city will need to identify revenue strategies (public and private) to meet investment targets. The jurisdiction should state its approach to implementation and revenue for the plan, even if that approach is based entirely on private investment, and discuss how revenue strategies can prioritize the needs of underserved communities.

Various funding and ownership models can be designed to center community-based approaches, embedding place-based governance in the implementation of EV infrastructure and clean mobility programs. Where possible, local leaders should promote ownership and governance models that support community investment in infrastructure and direct revenue streams to local businesses and residents. Traditional public procurement, public-private partnership, and bond finance strategies will also play a key role in funding infrastructure, provided they embed equity in their design (e.g., targeted use of bond revenues for priority communities, public procurement preferences for local and minority-owned businesses). Local governments and residents will not be directly responsible for generating a majority of infrastructure capital, but they will be responsible for developing coherent and comprehensive revenue and implementation strategies.

To ensure policy ambition is met with sufficient funding and implementation capacity to ensure effective and equitable investments, local government leaders can develop Action Plan strategies including:		
C.1	**Estimate costs for each action and develop a strategic plan exploring funding and financing opportunities to cover those costs**	
	Notes/Description *(For the action in general)*	**Example/Precedent (Plans+Proposals+Pilots)** *(Representative, not exhaustive)*
	- Includes estimates of costs for local plan implementation (programmatic and staff), any anticipated direct public investments in infrastructure, and anticipated private investments in infrastructure - Proposes revenue generation options (e.g., fees, taxes, bonds) as necessary to cover local costs for top-priority programs and	CLEE SF CAP Analysis (Analysis of estimated costs of city's Climate Action Plan and proposal of revenue and financing strategies to fund and implement it equitably, based on research and city/public stakeholder engagement process)

	investments and identifies known or anticipated local, state, utility, and federal funding sources for other costs - Includes strategies to ensure revenue generation is equitable and monitor cost impacts to consumers - Includes periodic revisions/updates to account for cost shifts and changes to state/federal programs and budgets	
C.2	**Establish:** **1) an interagency EV working group to assess Action Plan progress and updates as necessary** **2) a county-level or regional working group to coordinate local-level actions with state-, county-, and MPO-level actions and funds**	
	- Includes all local public agencies with involvement in implementing or securing grants/revenue to fund implementation of Action Plan - Includes participation of or engagement with stakeholders in working group processes - Should include dedicated planning, transportation, or public works staff time to liaise between e-mobility infrastructure project developers (public and private) and utility or community choice energy provider - Should include resources to connect developers and building owners with utility capacity maps, planning resources, and interconnection processes and staff - Should include discussions of capacity, forecasting, upgrade prioritization, and emerging technological solutions like managed charging	ClimateSF (Standing city agency coalition focused on decarbonization and resilience planning including Mayor's Office, Office of Resilience and Capital Planning, Planning Department, Department of the Environment, Port, Public Utilities Commission, Municipal Transportation Authority, Department of Public Health, and Public Works) Contra Costa Co. Transportation Electrification Coordination (Countywide group of staff from cities, towns, county departments, energy and transportation agencies that meet monthly to share information on electrification programs and coordinate on funding applications) San Diego Co. EV Roadmap (County-level roadmap for EV adoption and infrastructure based on Planning & Development Services, Department of General Services, Air Pollution Control District, and Department of Human Resources collaboration)
C.3	**Identify staff leads for each action in the Action Plan and focus on building local staff capacity wherever possible**	
	- Includes staff focused on planning, permitting, procurement, legal, and grant-writing operations for new EV and mobility investments	Ann Arbor Climate Action Plan Identifies a "party responsible for implementation" and "collaborators /

	- Includes staff dedicated to community engagement, outreach, and equity practices built into the Action Plan (see Section B) - This process should be right-sized to the capacity of the jurisdiction and should inform the scale of the Action Plan. Many cities and counties do not have staff dedicated to EV efforts. Where appropriate, local governments should include non-profit and private partners who can support local staff. Where local leadership availability is unclear, the Action Plan should acknowledge it and identify technical assistance resources such as the Michigan Community EV Toolkit, the Southern Alliance for Clean Energy Electric Transportation Toolkit, and the California GO-Biz ZEV Resource Page	project co-designers" for each strategy in the plan. CLEE SF CAP Analysis ("Fund or reallocate City staff to accelerate CAP implementation including one full-time senior staff member and supporting staff at the lead implementation department for each CAP sector dedicated to 1) CAP-specific budget development, investment planning, and grant-seeking and 2) CAP implementation coordination.")
C.4	**Craft a master franchise agreement and permit approach for private EVSE development in public spaces**	
	- Includes core technical, accessibility, financial, and equity-centered location selection terms for large-scale private investment in public charging - Enables developer to select individual deployment sites based on pre-agreed zones/principles and obtain ministerial review of individual site permits assuming core terms are met - Should include permit/agreement term of at least 10 years to promote investment case and permanence - Should include firm commitments to uptime, O+M, and affordability - Should ensure local, small, and minority-owned businesses are eligible and actively encouraged to participate	Oakland Informational Kiosk Program (City used master agreement/permit approach to identify private provider for kiosks installed in the PROW.) Portland EV Charging in the Public Right of Way Code Update (City code update to facilitate PROW charging permitting will accompany streamlined process for private EVSE contracting.) San Diego Informational Kiosk Program (City used master agreement/permit approach to identify private provider for kiosks installed in the PROW.) San Francisco curbside charging pilot (City program soliciting private charging providers to install and operate curbside charging in select locations via streamlined permitting pathway)
C.5	**Implement a general obligation or revenue bond dedicated to public EV charging and mobility infrastructure investments**	
	- May be solely dedicated to EV and mobility investments or may	CLEE SF CAP Analysis

	include those investments alongside traditional public transit investments - Bonds can fund publicly owned infrastructure, infrastructure that is owned/operated by private entities as long as it is publicly accessible, or infrastructure at publicly owned facilities and housing - Should include firm commitments to uptime, and O+M, and affordability for any service providers involved - Can take advantage of green bond certification benefits	(Recommends city pass a $300-$500m transportation GO bond including investments in public EV charging.) Grossmont School Bus Electrification Bond The Grossmont Union High School District obtained a lease revenue bond from the California School Finance Authority to finance improvements to its transportation facilities, including school bus electrification and EV charging stations for buses.
C.6	**In large, dense cities, investigate equitable congestion pricing strategies to promote shared mobility and fund public EV charging and mobility infrastructure investments**	
	- Can raise tens to hundreds of millions dollars for zero-carbon transportation investment while encouraging more efficient modes of travel/transit use and improving air quality - Include exemptions, stipends, or discounts according to income to remove cost burden for lower-income residents, as well as those with accessibility needs to ensure costs are paid equitably - Faces significant political barriers; may not be appropriate in areas that lack transit alternatives and requires significant community engagement to ensure appropriate structure - May require state law amendments and federal permission to implement	CLEE SF CAP Analysis (Recommends city adopt congestion pricing to fund transportation emissions reduction programs.) London has implemented a congestion charge for years (together with low- and zero-emission zone programs) with documented success in reducing congestion, improving air quality, and raising substantial revenue for transit investment New York has developed plans for the first congestion pricing program in the US San Francisco Congestion Pricing Study (City analysis of plan benefits and structure, zone designations, discount and exemption options, and policy design.)
C.7	**Consider generating revenue for EV and local climate action investment through a surcharge on large industries' business operations**	
	- Local sales tax increases are a traditional source of funding for transit and transportation investments and can be used for EV infrastructure, though they may be regressive and should consider exclusions for health-related enterprises	Denver Climate Protection Fund City fund raising $40 million per year for climate investments through 0.25% local sales tax, approved via ballot initiative.

		Portland Clean Energy Surcharge Large retailers reporting over $1 billion in gross revenue or Portland gross income of $500,000 or more must register for a 1% surcharge on retail sales funding local climate action. Portland Clean Energy Community Benefits Fund: Collaborating for Climate Action funding Grant Program that will provide over $150 million over 5 years for equity-oriented multi-stakeholder climate projects.
C.8	**Utilize special district financing in applicable states to generate revenue for equitable EV infrastructure development and program implementation**	
	- May include measures such as Community Facilities Districts (CFDs) in California, or tax-exempt bonds financing public infrastructure improvements, to generate revenue for specific project types in designated districts - Special district financing for EV infrastructure development may also include Enhanced Infrastructure Facilities Districts (EIFDs), Assessment Districts (ADs), or others in different legal contexts - District-based approaches may be particularly appropriate for funding public EV charging infrastructure in jurisdictions where certain dense/commercial areas have particular demand	Delta Shores CFD No. 2019-01 This affordable housing-oriented CFD in Sacramento built equity considerations into its RMA through assigning incremental tax thresholds based on residential type. Sacramento Streetcar CFD No. 2017-01 The City Council of Sacramento passed a CFD to finance and maintain a new streetcar line. While ultimately unsuccessful, this provides a useful example of a transportation-oriented CFD with flexibly drawn geographical boundaries.
C.9	**Support development of of community trusts to promote community ownership of land and infrastructure assets associated with mobility investments**	
	- Consider creating or supporting community land trusts (CLTs) and community investment trusts (CITs) to incorporate aspects of public governance in EV infrastructure funding and implementation ● **CLTs** employ a nonprofit structure to own a parcel of land, governed by a board comprised of ⅓ CLT residents, ⅓ non-resident representatives of the priority community, and ⅓ public officials or other representatives of the public interest. CLT funding is typically sourced from local	City of Irvine CLT Established in response to the city's affordable housing crisis, this CLT subsidizes development costs for affordable multi-family and single family housing. East Portland, Oregon CIT Residents in zip codes surrounding a commercial retail mall invest in a community trust building local ownership of the retail center, including

	government or private donations ● **CITs** involve the collective purchase of shares in a real estate property (including small businesses and embedded infrastructure) by community residents through an investment trust. CIT shares are only available to residents in a defined, local geographic area, protecting neighborhoods against displacement and facilitating wealth building in low-income communities	numerous small business tenants. T.R.U.S.T. South LA This CLT acts as an anti-displacement land steward in neighborhoods south of Downtown LA, while facilitating community leadership in transportation, housing, and economic development.
C.10	**Consider the community- and local-led implementation options available through community energy cooperatives and community choice aggregators for EV infrastructure development, if applicable**	
	- Incorporate learnings from community energy cooperatives facilitating clean energy development under a community-owned nonprofit model. - Community choice aggregators (CCAs) may include grant opportunities for local-led EV infrastructure investments in select states where CCAs are authorized (California, Illinois, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Rhode Island, and Virginia).	Ava Community Energy Community Investment Grant Grant seeking proposals for community-based development and operation of EV infrastructure in California's Alameda and San Joaquin Counties. CCA Incentive and Technical Programs California CCAs such as SVCE and 3CE offer a range of charging installation incentives and technical assistance. New York City Community Energy Co-op Cooperative working across universities and nonprofit organizations to develop affordable and community-led solar solutions in New York City.
C.11	**Use state and federal community climate investment grant programs to fund EV and mobility investments**	
	- Facilitate community leadership in clean mobility planning through grant funding supporting equity-oriented climate investments	California Transformative Climate Communities: Green Together Grantee of the TCC grant program funding community-led development and infrastructure projects, including the implementation of EV charging stations. EPA Community Change Grants Federal grant program allocating $2 billion in Inflation Reduction Act funding to community-driven climate investments. New Washington Grant on Air Quality in Overburdened Communities Funds from Washington state's Climate Commitment Act are being allocated to a new community-driven grant supporting climate projects addressing air

		pollution in environmental justice communities.
C.12	**Use concession agreements under the National Electric Vehicle Infrastructure (NEVI) program to fund EV charging stations**	
	- NEVI program funds charging installations within 1 mile of designated federal and state highway corridors	Arizona Department of Transportation Request for Charging Development Proposals ADOT issued an RFP for public-private partnerships developing EV charging stations and concluded the solicitation process in April 2024. Georgia Department of Transportation EV Charging Contracts GDOT awarded five contracts to private companies to design, finance, operate and maintain EV charging infrastructure as part of Georgia's NEVI deployment. Pennsylvania Department of Transportation Contract Awards to EV Charging Developers PennDOT announced a $20 million investment in 29 projects developing EV charging infrastructure across the state.

Advancing Equity

Establishing roles within city government dedicated to EV policy is key not only to traditional permitting and planning roles for this new form of infrastructure but also to ensuring community input and equitable allocation of resources.

- *An interagency working group should include transportation, public works, planning, and other infrastructure teams as well as leaders from local agencies responsible for economic development, labor/workforce, community services, racial equity, and other relevant policy areas.*
- *Dedicating staff members/capacity to EV and mobility grant-writing can generate significant financial benefits given the significant federal and state funds available and largely designed to prioritize underserved and lower-income communities (e.g., federal Joint Office of Energy and Transportation funding programs).*
- *Actively seeking community voices to gather feedback on first actions and investments related to local EV infrastructure development, whatever form they take, is a key step in establishing equity-focused leadership.*
- *Early engagement with local small businesses and startups in the zero-emissions mobility space–from charging developers to e-bike and car-share companies to providers of other services and amenities–can both identify near-term actionable investments and promote equitable economic development.*

Direct investment of local funds will likely form only a small portion of total investment in EV infrastructure, but the jurisdiction will need to raise revenue for staff, new programs, and key investments. To the maximum extent possible, this revenue should be drawn from sources that are equitable in impact. Income taxes have the greatest potential for progressive and equitable assessment across society, but are largely the reserve of federal and state governments. Local government revenue generation capability is typically limited to measures like property and sales taxation, use fees (e.g., tolls and transit ride charges), and

bonds backed by those revenue streams. Among these options,, strategies such as property tax increments based on property values, parcel taxes based on lot size, or income-adjusted congestion charges may be more equitable than sales taxes on consumer goods or other fees that disproportionately impact lower-income residents), as identified by CLEE, The Greenlining Institute, The Urban Institute, and many others. To the extent local governments raise revenue from residents to fund charging and mobility investments, they should focus on the most equitable revenue sources. In addition, with the passage of the Inflation Reduction Act (IRA) and the Bipartisan Infrastructure Law (BIL), local governments have an unprecedented opportunity to remedy past and present inequities by accessing hundreds of billions of dollars of equitable investments in transportation electrification.

III. EV and Mobility Infrastructure Investments

D. Residential (Multifamily and Single-family) EV Charging

[Return to top]

Over eighty percent of EV charging occurs at home, and thirty percent of U.S. households are in multifamily buildings.[13] Residential charging strategies will be a crucial component of the EV transition, and infrastructure can be tailored to the characteristics of each city's housing stock and policy needs. Local governments will play a crucial role in ensuring that all residents have access to charging at or near their homes, with particular policy emphasis needed to promote installation that supports multifamily residents.

Homeowners are currently more than three times as likely to own EVs than renters, which is a trend apparent even across income categories.[14] Equity considerations place focus on multifamily buildings whose residents are most likely to lack the ability and capital to install personal chargers in shared parking areas, given the realities of shared parking area management and landlord-tenant relationships. Additionally, many building managers do not have the resources or expertise on the benefits of EV charging to pursue charging installations.[15] To address these barriers, policy analysts have suggested a range of strategies such as:

- Encouraging Level 2 chargers for their grid integration features and speed or Level 1 in instances of highly limited electrical and financial capacity and/or only base-level charging demand
- Requiring or encouraging load-balancing equipment that minimizes electrical upgrades and administers user fees for EV customers
- Providing incentives for third-party equipment management services that reduce building managers' planning and administrative burdens.[16]

For a thorough overview of these strategies and case studies from successful programs around the US, see CLEE's issue brief on multifamily charging strategies.

Many of these strategies are not directly within local governments' capacity or control; rather, local leaders will need to set policy targets, develop incentives, and promote information-sharing and outreach to help meet the needs of residents and building managers. Successful charging investments at multifamily residences will require dedicated project "champions" (whether property managers or individual homeowners' association members) who navigate incentive programs and technical and financial logistics–these individuals will be crucial touchpoints for local leaders promoting residential programs.

[13] Lepre, EV Charging at Multi-Family Dwellings, Atlas Public Policy, page 2 (2021).
[14] Davis, Evidence of a homeowner-renter gap for electric vehicles, Applied Economics Letters, Vol. 26 No. 11 Page 929 (2019).
[15] Lepre, EV Charging at Multi-Family Dwellings, Atlas Public Policy, page 2 (2021).
[16] Lepre, EV Charging at Multi-Family Dwellings, Atlas Public Policy, page 2-3 (2021).

Multifamily strategies will be central to many localities' plans given the preferability of charging at home, the financial and technical complexity of upgrading multifamily buildings (especially older buildings), and the need for policy to support lower-income renters. Many existing buildings will require panel or other electrical upgrades to enable EV charging, so actions in this area should also focus on building readiness for residents and owners who cannot afford those upgrades. Evaluating each proposed strategy through an equity lens will help building managers and local leaders filter out or compensate for solutions that could potentially perpetuate mobility disadvantages among multifamily residents (e.g., reduced convenience with shared, load-balancing charging equipment).

Local leaders and multifamily building managers can reference resources such as those from Forth, VCI-MUD, and Atlas Public Policy for more information on everything from policy design to accessing funding and starting projects.

To promote equitable access to convenient at-home charging for all residents regardless of building type or financial capacity, local government leaders can develop Action Plan strategies including:		
D.1	**Develop an ordinance/building code that requires adequate charging or readiness for new construction and for existing buildings at time of major retrofits or sale**	
	Notes/Description *(For the action in general)*	**Example/Precedent (Plans, Proposals, Pilots)** *(Representative, not exhaustive)*
	- Should include all new construction - For existing buildings, may trigger at point of sale, point of major renovation (including major electric upgrade permits or with home improvement grants), or both - Should covers EV charging equipment or readiness (i.e., supporting electrical upgrades and capacity) - May include exemptions or flexibility for financially burdened owners and smaller buildings, or be limited to an assessment and disclosure requirement - Should include requirements for 100% coverage of all dedicated parking spaces as plug-and-play EV ready and direct connection of	Boston EV Readiness Policy (Requires minimum number of EV-installed spaces in new developments and includes an equivalence calculator that allows fewer installations of high-capacity chargers and car share spaces.) CA City Green Building Codes (e.g., San Jose, San Francisco) (State green building code requires EV readiness and minimum EV charging spaces for new construction. Individual cities have adopted reach codes that expand on these requirements.) Detroit Climate Strategy 2.3 ("Adopt ordinance requiring EV infrastructure for new developments") LA pLAn ZEV chapter ("Update building code to expand EV charging requirements to meet

	dedicated chargers to unit electrical meters to access low-cost EV charging rates - May require multifamily building owners to maintain a minimum number of operational chargers at a residence - Local ability to adopt building energy code requirements may depends on state's home rule/local control/reach code standard EV Charging for All EV Building Codes Toolkit (Best practices and examples for state and local code development.)	anticipated need") Oakland ZEV AP EMB-1 ("Develop and adopt an Ordinance requiring installation of certain EVSE and/or targeted electrical system upgrades when buildings undergo major retrofits and at time of sale.") Portland EV Ready Code ("The Electric Vehicle (EV) Ready Code Project amended Portland Zoning Code (Title 33) to require all new multi-dwelling and mixed-use development with five or more units – that include onsite parking – to provide EV-ready charging infrastructure.") San Diego CAP 2.3 SA-3 ("Amend the building code to expand EV charging stations requirements for multi-family and non-residential properties.") San Francisco CAP BO.2-2, BO.2-10 (Proposals for residential time-of-sale policies to require building electrification plans and fossil fuel equipment replacement.) Seattle Muni. Code 23.54.030 (Requires EV readiness for newly constructed housing.) Tahoe-Truckee PlugIn Plan ("Specify standards for Electric Vehicle Supply Equipment (EVSE) in the building code to ensure that any EVSE installations are safe and accessible. The second is to require pre-wiring for EVSE to lower the cost of future EVSE installations.") Tucson Unified Development Code § 7.4.11 (Outlines the percentage of total mandated passenger vehicle parking spaces that must also have access to at least Level 2 EV charging stations by group, class and type, along with exceptions.)
D.2	**Develop streamlined process for multifamily building EV charger installations**	

	- Includes guidance documents, city point-of-contact, and fee waivers/discounts or accelerated/streamlined approval for city permit applications (e.g., trenching, interconnection) for EV charging upgrades in lower-income multifamily buildings - Includes all multifamily properties, may include strategies to focus on largest buildings, affordable buildings, rental households, and buildings located in lower-income communities - May include strategies to align timelines of building energy conservation and electrification retrofits (e.g., heat pumps etc.) and assessments to include consideration of appropriate charging types based on capacity and need	CA AB 1236/AB 970 Permit Streamlining Program (State law requiring local governments to develop ordinances and checklists for EV charging permit streamlining, currently adopted by over 300 local governments.) LA pLAn ZEV chapter ("Streamline permitting and interconnection processes for EV charger installations.") New Buildings Institute Permitting Guidelines Nonprofit organization report providing multifamily buildings permitting process guidance for the 2020 National Electrical Code, 2021 International Building Code, and the 2021 International Fire Code as they apply to EVSE installations San Jose Building Code § 17.88.400 (Details expedited permit review and approval for EV charging installations at multifamily buildings.)
D.3	**Conduct outreach to multifamily property owners and tenants to build understanding of EV plan, building needs, charging options, and community priorities**	
	- Includes education and outreach to owners, model tenant outreach plans, and venues for tenant-owner engagement - Includes agency staff/portal (either on city level or county, regional or CCA level if impractical for a small city agency) dedicated to connecting multifamily building tenants and owners with rebates and incentive - Includes working with electric utility and buildings department to create list of multifamily buildings undergoing or most in need of electrical service upgrades to ensure charger installation at point of project - Includes coordination with Program Administrators who provide vehicle and charging infrastructure incentives to help improve	Oakland ZEV AP EMB-2 ("Engage with property managers and community partners to develop model tenant outreach plans, including a script and survey to perform a needs assessment. Work with community partners to create outreach materials for homeowners and property owners, including EV and EVSE fact sheets, details about funding sources, average costs, approved contractors, and an online portal to help building owners understand and identify relevant building characteristics and EVSE needs.") San Francisco CAP TLU.7-1 ("By 2023, launch a public awareness campaign, including messaging tailored to specific communities, with the goal of educating residents about the health, economic, and environmental benefits of transit, active transportation, and electric vehicles.")

	access and affordability - May include building owner and local government partnerships with community organizations/events to conduct outreach and educational campaigns in building common areas and other places where community members spend their time - Should center information- and resource-sharing that helps building owners minimize the costs of installation and ongoing operation – such as the use of load-balancing charging equipment - Should extend beyond charger installation, allowing for property owners and tenants to conduct demonstrations for prospective adopters and to continue learning about operation and maintenance procedures and possibilities to optimize charger utilization – such as making MFH chargers publicly accessible	Seattle EV readiness ordinance process ("For example, the city completed a full year of stakeholder outreach prior to passing the ordinance, focusing on the developer community and property managers. This process clarified concerns, answered questions, and got stakeholder approval.")
D.4	**Develop a strategy and ordinance to allow private charging cords in the public right-of-way in residential areas**	
	- Authorizes and sets design, safety, accessibility, and use requirements (including cord cover specifications) for private charging cords across sidewalks from homes lacking off-street parking (includes Americans with Disabilities Act and other legal accessibility requirements) - Does not require permit issuance if requirements/guidelines are followed - Interacts with/is a component of public and curbside strategy and ordinance (above)	Oakland ZEV AP PC-2 ("[A]dopt an Ordinance to facilitate PROW charging in residential neighborhoods, including clear protocol for addressing ADA and pedestrian safety, permitting, and station use.") Portland encroachment administrative rules TRN-8.08 C.13 (Rule outlines allowable uses of electric vehicle cord covers in the public right-of-way without need for encroachment permits.) Washington, DC guidelines (Guidance addresses electric vehicle charging cords that cross the public right-of-way.) See Appendix B for more examples and details.
D.5	**Develop city green bank or stand-alone low-cost financing program for multifamily charging upgrades**	
	- Can provide financing for a range of residential and commercial	San Francisco proposed green bank

	building decarbonization projects - Could consider offering conditional loan forgiveness for building owners who are early adopters or whose operation and maintenance plans meet a set of equity goals for residents and employees (e.g., low charging rates, locally-sourced labor, etc.)	(A city green bank has been proposed to help advance initiatives proposed in SF's Climate Action Plan, such as electrifying existing housing stock and augmenting the transit system.) Michigan Saves Finances energy efficiency and clean energy projects (including Level 2 charger installation and heat pump installation) with authorized contractors for homeowners and building owners. Washington, DC Green Bank (Offers financing solutions that work with city initiatives to help make the green economy accessible to all DC residents, organizations, and businesses.)
D.6	**Develop a rebate or zero-cost program (or partner with existing utility programs) for EV charger installation at residential buildings**	
	- Should include access to funds for charging hardware and electrical upgrades (may be optimized through point-of-sale rebates that deliver funds to the installer, thus eliminating a compensation lag for the building owner.) - Should include technical assistance for property owners - Funds should be prioritized or restricted for affordable properties and properties located in priority communities, with targeted incentives or qualifying tiers for low-income and rental households - Can include connecting residents and building owners to state and utility rebate programs, like PG&E Multifamily and Small Business Program and Charge Ready NY 2.0 (which offers incentives for Level 2 EV charging stations including $2,000 per charging port installed at workplaces or multifamily housing sites.) - Funding stacks can include grant and concessionary capital from housing and urban development programs. - Can be paired with group purchase practices or incentives (in buildings where charging demand is sufficient) to further reduce the	Denver, CO EV Home Wiring Rebate Single- or multi-family building owners in Denver can receive rebates of up to $500 to assist with installing select Level 2 chargers in partnership with registered contractors. A qualified set of "Equity Priority Buildings" are eligible for "additional funding and facilitation services." EV Charge SF San Francisco Public Utilities Commission offers up to $120,000 for EV charger installations at commercial or residential sites. LA Residential EV Charger Rebate Program Provides rebates for purchase and installation of qualified Level 2 chargers (up to $1000) and dedicated EV meters ($250). Income-qualified participants of LADWP's Senior Citizen/Disability Lifeline or EZ-Save programs can receive an additional $500 rebate. Muir Commons, Davis, CA Muir Commons leveraged a substantial PG&E grant in its installation of 26 level 2 chargers and shared costs among tenants to distribute costs among a receptive residential group. PG&E Multifamily Housing and Small Business EV Charger Program

	cost per resident. - Could include tiered funding levels that offer higher incentives for building owners who are early adopters or whose operation and maintenance plans meet certain equity goals/conditions for residents or employees (e.g., low charging rates, locally-sourced labor, etc.) - Should include funding for both Level 1 and Level 2 charging options; either type may be more suitable, depending on a residence's needs and financial constraints. (Level 2 provides greater convenience and serves charging needs more fully, while Level 1 has been found to serve most EV charging needs while enabling a greater number of installations.) - Should consider omitting strict EV ownership requirements among tenants, support EV companies that use utilization-dependent EVSE fees, and/or support EV ownership incentives for MFH residents.	(Electric utility program that installs chargers free of charge for multifamily housing and small businesses located in priority communities. Sets and maintains a funding ratio of 75% priority population recipients and 25% non-priority population recipients, and application does not require any level of tenant EV ownership.) Peninsula Clean Energy EV Ready Program Provides rebates up to full project costs for installation of Level 1 or Level 2 charging in both existing buildings and new construction. Reserves dedicated funding for affordable housing communities and MFHs, with higher rebate options available for these housing types. Silicon Valley Clean Energy Direct Installation Program SVCE funded Ecology Action to pilot an "EV charging 'direct installation' program for multi-family properties. Proposes a model that secures funding from the state, large utility, or other outside source "to install EV chargers at multi-family properties at no/little cost to the site." Smart Columbus Program (Grant-funded, city-led program that funded initial round of 48 charging ports at 11 multifamilyMUD project sites, based on partnership with local electric utility and nonprofit Clean Fuels Ohio which contracted with each site, conducted inspections, gathered data and provided the rebate over a three-year period. More rounds have since followed based on the success of round one.)
D.7	**Develop guidance to facilitate charging installation by building owners and managers of multi-family dwellings**	
	- Includes information to help property owners/managers plan, finance, install, and maintain charging stations, connections to relevant city departments, and information on private companies that can manage projects - Should include city-specific guidance from transportation, planning, permitting, and building departments and incorporate or link to state and utility guidance where applicable	Detroit 2030 District Membership-based nonprofit organization that provides members (property owners/managers, industry stakeholders, community organizations) a supportive network to help "reduc[e] the environmental impacts of building construction… and supporting environmental justice." Supported activities include Level 2 charging installation. Detroit BizGrid Offers business owners a highly organized and navigable database of

	- May include dedicated staff at local building departments to field permitting and design inquiries	supportive organizations that can serve a defined set of business needs (Not directly related to charging infrastructure but offers a replicable model.) New York Siting and Design Guidelines (State-developed informational guides on location types and factors that make good EV charger locations; guidelines for installation and optimization of charging stations at long dwell parking lots; and strategies for reducing the installation and operating costs of equipment at a range of site types.)
D.8	**Pair multi-family charging projects with EV carshare or nearby mobility service areas**	
	- May require coordination/partnership between building owners and state agencies with ownership of nearby parking facilities - May involve partnerships between EV Carshare service companies and building owners or affordable housing organizations - May involve local policies that require a certain number of public charging stations/facilities in each older neighborhood or high-density area of multifamily dwellings	Affordable Mobility Platform (US DOE-funded EV car-share and Level 2 charging program at affordable housing locations in eight states including Idaho, Illinois, Michigan, Missouri, Nevada, New Mexico, North Carolina, Oregon, and Washington; several sites are MFH properties.) East Bay Community Energy Fast Charging Hubs Approved plans to deliver 40-50 fast charging hubs to serve nearby MFH residents. Leverages city-owned real estate and parking assets. Site selection criteria include: 1) close proximity to multifamily households, 2) walkability to driver amenities, and 3) limited proximity to existing fast charging stations. Stockton, CA Miocar Pilot (100% EV car share network program with three locations at multifamily properties and a county agency office. “Stations will be in historically underserved neighborhoods where mobility challenges are well documented and where there’s the greatest need.” Funded by CA cap-and-trade program.) Takoma Park, MD Charging Hub Community center hosts a charging hub for nearby residents, primarily serving residents of 10+ nearby MFHs. Center is co-occupied by local policy department, city office, and city library and park; charging facility serves public/city vehicles during the day and is accessible for nearby residential use during late afternoon through early morning.
D.9	**Develop a subsidy or issue rebates for feasibility studies that preclude EVSE installations in residential buildings**	

	- Can help cover costs (typically ranging from $100 - $200) for electricians to assess a property's readiness for EV charging and electrical upgrades (helps EVSE companies avoid complementary expenditures on services for building owners that retract interest in installations upon learning about readiness assessment costs)	LADWP Comprehensive Affordable Multifamily Retrofits Program LADWP conducts "free property assessments to identify efficiency opportunities to help owners and their residents to save energy and reduce costs." Also provides property owners "assistance with work scope development and the contractor procurement process."
D.10	**Institute Right to Charge laws that provide residents and building owners conditional rights to install residential charging equipment**	
	- Includes general prohibition of restrictions against residential EVSE installations - Includes exceptions to / qualifications for the general prohibition (e.g., equipment dimensions, compliance with safety standards, etc.) - Should have broad application to both owners and renters across a wide range of building types - Could be paired with grant programs to help cover costs associated with installation	Colorado Right-to-Charge Policies Includes measures to secure charger accessibility, encourages adoption, and directs building owners and common interest communities to use an EV charging grant fund Connecticut Right-to-Charge Policies Grants unit owners the right to install a charger in common space for use of all unit owners. In instances of no available parking spaces, grants an association of unit owners the ability to create a dedicated space for EV charging. California Right-to-Charge Laws (2019 and 2020) Offer right to charge protections for building owners and requires access to common parking spaces with EV charging capacity if individual designated spots are not available

Advancing Equity

The ability to charge at home provides much of the convenience and cost savings of EV ownership, and it is least accessible for residents who rent their homes and/or live in multi-unit/multifamily housing sites (MFHs), often lacking dedicated parking spaces and control over electrical infrastructure. These individuals are disproportionately likely to be lower-income people of color and to lack the financial capacity and incentives, technical knowledge, or authority to install private chargers. Many barriers inhibit charging access at existing MFHs, including outdated building infrastructure, lack of landlord incentive, complex financing and capital limitations, and the logistical challenges of retrofitting older buildings. As a result, local leaders should prioritize a robust strategy to streamline affordable charger installation at MFHs at any feasible point in the building life-cycle.

However, local leaders should also provide support for lower-income occupants of single-family homes (owners and renters) who, even if they have access to dedicated off-street parking, may lack the capital for charger installation or necessary electrical panel upgrades. Charging programs can connect these residents to existing home energy efficiency programs (grant programs like the federal Low-Income Home Energy Assistance Program and financing programs such Michigan Saves) that may support panel upgrade and/or charger installation projects, as well as providing information and resources on the adequacy

of low-powered charging for most home charging needs.

All residential charging programs for MFHs and lower-income residents should focus on ensuring equity in charging pricing. This may involve, where possible, partnerships with utility to impose limits on price markups above the standard residential electricity rate, requirements for direct metering to tenant electricity meter rather than a MFH's common meter, or disclosure requirements to inform residents about charging markup margin over standard residential rate.

E. Public and Curbside EV Charging

[Return to top]

Public charging will play a crucial role in robust, accessible local charging networks as EV adoption expands. Expert analyses anticipate that millions of publicly accessible chargers will be required to support tens of millions of EVs over the coming decades; for example, the California Energy Commission estimates that the state will need 2.1 million public and shared private chargers to serve an expected 15 million EVs in 2035.[17] Nationwide, the number will be many millions more–with a particular importance in denser, high-multifamily-housing areas.

Lack of adequate public charging is a top barrier to EV adoption for many drivers,[18] and policymakers have identified curbside and neighborhood charging as a core solution.[19] While many federal programs and private providers are focused on a public charging network that serves long-range highway travel, an equitable EV transition will also require investment in public charging that serves as a community mobility resource.

These chargers–including curbside and public right-of-way (PROW) chargers–will be particularly valuable for city governments seeking to advance equitable access to EV charging for priority populations and underserved communities. They can bring convenient charging to residents who lack access to charging in private driveways or garages, in multifamily dwelling parking lots, or at workplaces; they can also promote mobility and economic development in high-priority commercial corridors and community facilities. EV car-share programs with curbside and public charging locations, such as BlueLA, are emerging as a key solution to serve zero-emission mobility needs in a range of communities (See Section [G] below for shared mobility strategies). At the same time, installing chargers in the PROW can present some of the most complex infrastructure and financing challenges for developers and policymakers.

For many cities, a robust strategy for equitably distributed public and curbside charging will be crucial to facilitate EV use for lower-income and disadvantaged residents, in conjunction with robust incentive programs and outreach. Cities around the US are

[17] NREL, *The 2030 National Charging Network*, supra, pp. vi-ix; CEC, *Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment*, supra, p. 4.
[18] See, e.g., Apurva Pamidimukkala et al., "Evaluation of barriers to electric vehicle adoption: A study of technological, environmental, financial, and infrastructure factors," Transportation Research Interdisciplinary Perspectives (November 2023), available at https://www.sciencedirect.com/science/article/pii/S2590198223002099.
[19] CEC, *Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment*, supra, p. 58.

piloting approaches ranging from cable-across-the-sidewalk residential charging[20] to city-managed, streetlight-mounted chargers[21] to comprehensive code updates.[22] Access in-depth case studies of these programs in CLEE's public and curbside charging strategies policy brief.

While appropriate public and curbside charging strategies will vary widely by city and community, an effective Equitable EV Action Plan will ensure coverage and access in key locations informed by community and stakeholder input. In addition, it will promote investments that minimize accessibility concerns and build on existing infrastructure where feasible (e.g., streetlight-mounted chargers) and promote affordable pricing for those who cannot charge at home. Specific actions could include:

To ensure public and curbside charging for those who rely on it while promoting deliberate investments, minimizing conflicts with other transportation modes, and ensuring equitable access for all, local government leaders can develop Action Plan strategies including:		
E.1	**Conduct mapping and outreach exercises to identify zones and corridors most appropriate for public and curbside charging investment**	
	Notes/Description *(For the action in general)*	**Example/Precedent (Plans, Proposals, Pilots)** *(Representative, not exhaustive)*
	- Builds on initial priority community mapping exercise with local spatial data on multifamily dwellings, travel dynamics and access, existing and planned curb uses, community hubs and resources, commercial hotspots, grid capacity, etc. - Includes iterative review and feedback from city stakeholders, community-based organizations and community members through surveys, focus groups, town hall meetings, and participatory mapping exercises to ground-truth assessments. - Should engage property owners and businesses in the area	CLEE/ERG site prioritization platform (In development: a free, publicly accessible tool to inform site prioritization and selection based on local equity and feasibility criteria.) Ava Energy MUD Hotspot Map (Map showing Multi Unit Dwelling (MUD) "hotspots" within energy provider's jurisdiction. Half of DCFC incentives will be reserved for projects in these hotspots.) Detroit Highly Visible Electric Vehicle Corridor Development Program

[20] See, e.g., Washington, DC Department of Transportation, *Electric Vehicle Charging Cord Guidance for Crossing the Public Right-of-Way*, available at https://ddot.dc.gov/sites/default/files/dc/sites/ddot/page_content/attachments/Admin%20Issuance%20EV%20Charging%20Guidance.pdf.
[21] See, e.g., Los Angeles Bureau of Street Lighting, "EV Charging Stations" (webpage), available at https://lalights.lacity.org/connected-infrastructure/ev_stations.html.
[22] See, e.g., Portland Bureau of Transportation, *Electric Vehicle Charging in the Public-Right-of-Way Code Update Project* (March 2023), available at https://www.portland.gov/transportation/electric-vehicles/documents/electric-vehicle-charging-public-right-way-code-project/download.

	neighboring target public charging zones and prioritize benefits for locally owned properties	Identified corridors suitable for improved charging and retail access based on indicators such as "traffic data, job centers, community planning initiatives, tourist attractions and residential density" Irvine, CA Community EVI Siting Analysis (City EV transition plan includes priority scoring for schools, community centers, and high-multifamily areas based on community input and existing EV/charging presence) Mapping Redlining project (Analysis of historically redlined districts and current neighborhood classifications to accurately assess geographics of contemporary equity metrics) Sacramento curbside map (Map showing streets that could potentially host curbside charging based on an initial data analysis.)
E.2	**Develop a public and curbside charging strategy/policy**	
	- Includes local agency leadership/management structure for siting and permitting (transportation, planning, public works, city attorney, etc.); process for site evaluation and community input; and pilot programs - Encompasses charging at curbside/in public right-of-way and other public spaces, as appropriate - Strategy/policy should be informed and shaped by community-based organizations and priority community members based on an agreed model of participation - May include direct city investments and/or contracting/franchise arrangements and RFPs for private developers - May include stand-alone, comprehensive ordinance (See C.3 below)	Ann Arbor Climate Action Plan 2.6 Sets goal that "10% of all public and private parking spaces are equipped with level 2 EV chargers and 2% with Direct Current Fast Chargers." Austin Climate Equity Plan Transportation Strategy #2 ("By 2030, Austin has a compelling and equitably distributed mix of level 1, 2, and DC fast charging infrastructure to accommodate 40% of total vehicle miles traveled in the city. This translates to 226 megawatts of electrical load and could mean more than 37,000 charging ports.") Detroit Climate Strategy 2.1 ("Install 200+ public EV chargers at City facilities, garages, on-street and surface parking lots, covering every District") New York PlaNYC 23 ("Ensure every New Yorker is no more than 2.5 miles from an electric vehicle fast charging hub by 2035.")

	- Should include numerical targets for: ● Dedicated spaces at lots/garages and in the PROW to host charging stations and electric mobility infrastructure ● Public chargers in priority communities and dense areas of multi-family housing - May involve coordination with electric utility to secure adequate grid capacity in key areas and accommodate light- and utility-pole mounted chargers - Should prioritize areas near public spaces (e.g., parks, recreational centers) and secure spaces (e.g., banks, public offices) with high resident traffic and utilization, identified in consultation with community members - May incorporate anti-displacement strategies such as community-based ownership structures or the development of community land trusts (See Section [C]) - Should include dedicated O+M programs and uptime requirements - Should include strategies to manage public charging pricing relative to residential rates that are available to single-family property owners	Oakland ZEV AP PC-2, PC-3 ("By 2023, adopt an Ordinance to facilitate PROW charging in residential neighborhoods, including clear protocol for addressing ADA and pedestrian safety, permitting, and station use." "Identify highest-priority locations for public charging. Develop and include measures of where new infrastructure would maximally reduce barriers to EV ownership and use, as well as where charging is technically and logistically feasible. In identifying locations, use best practices in inclusive community engagement to maximize input from residents and business owners who could be impacted by new infrastructure, and who stand to benefit most from EV access and use.") San Diego CAP 2.3 SA-1 ("Set a goal for installation of public EV charging stations on city property to support EV adoption in Communities of Concern. Initiate process with publication of a Request for Information (RFI) to solicit public charging solutions.") San Francisco CAP TLU.7-2 ("Expand publicly available EV charging across the city that is financially and geographically accessible to low-income households and renters." Includes curbside, parking lot, and charging hub strategies.)
E.3	**Develop a public and curbside charging ordinance**	
	- Includes updates in streamlined encroachment and utility permitting, traffic/curb management, parking enforcement, ADA and accessibility, and building codes - Should include fee waivers and/or accelerated permitting for applications in priority communities - Should include strategy for charger installation in parking lots and	New York PlaNYC 23 ("Mandate private parking garages and lots to make electric vehicle charging available by 2030.") Portland EV Charging in the Public Right of Way Code Update (The Portland Bureau of Transportation was charged with updating the Portland City Code and Administrative Rules "to set location and siting requirements for the installation of Level 2 EV chargers in the ROW in select

	garages - Should include some level of economic development opportunity for priority communities (e.g., priority for local/minority-owned installation and maintenance; engagement with Historically Underutilized Businesses; Community Benefits Agreement for large heavy-duty charging depots) and corresponding measures to track and report compliance - May include requirements for new publicly accessible parking lots/spaces or existing areas to have a minimum number/percentage of spaces that are EV-ready (may be particularly beneficial in states without strong building codes)	areas of Portland. These changes are accompanied by a clear permit process for companies interested in providing public charging services.") Oakland ZEV AP PC-1 ("By 2023, adopt an Ordinance governing the goals, specific areas of responsibility, and workflow requirements for installing EV chargers in the PROW.") SF Environment Code § 3102 (Ordinance requires commercial parking facilities with 100+ spaces to install Level 2 charging stations at 10% of all spaces or a minimum number of DCFC chargers.)
E.4	**Develop pilot programs for curbside, public right-of-way, streetlight, or utility pole charging**	
	- Includes one or more applications at priority locations based on mapping exercise (above), most viable application for city (e.g., ownership of streetlights), and access to funds (e.g., direct installation vs. permitting pilot) - Includes coordination with local electric utilities, businesses, and residents as well as transportation, planning, building, and public works departments - Pilot project location priority should be given to priority communities - May include EVSE vendors with flexible payment models (e.g., offer both pay-as-you go or prepaid flat-rate options)	Bloomington-Normal, IL public charging (The cities provide a combined 48 free public Level 2 chargers, funded by federal grants) Boston curbside charging pilot Plans to install new charging ports throughout the city using both publicly- and privately-owned installation/operation models. Included an equity component in site selection. Los Angeles streetlight charging pilot program (Pilot program with over 700 Level 2 chargers installed on existing streetlight poles managed by city streetlight bureau and municipal electric utility) Melrose, MA streetlight/pole-mounted charging pilot program (Pilot program with over 30 Level 2 chargers installed on streetlights and utility poles, comanaged by city and local electric utility) NYC curbside L2 charging pilot (A partnership between the city, the local electric utility, and FLO which placed 100 hundred L2 chargers across New York's five boroughs, with a focus on lower-income communities.)

		Sacramento curbside pilot (A partnership between the City and EVgo, which owns and operates the chargers, for three publicly accessible curbside charging sites.) San Francisco curbside charging pilot (City program soliciting private charging providers to install and operate curbside charging in select locations. Includes equity component in site selection criteria) Seattle curbside L2 charging program (Service provided by Seattle City Light, which will install, own, operate, and maintain public Level 2 EV charging next to the curb in residential neighborhoods in Seattle, with a focus on areas in need of public charging.)
E.5	**Inventory undeveloped and publicly owned properties that could be developed as EV charging and mobility hub sites**	
	- Includes surplus public land that is not slated for use as housing or housing related uses (and assessment of charging/mobility investment options at housing sites) - Includes assessment of accessibility, location, and other criteria for site potential as a charging host, plus engagement with electric utility regarding grid capacity - Includes partnerships with city and state land banks to identify and secure available properties - Should include opportunities for community residents to own, operate, and receive revenue from charging on public properties and platforms/websites for local businesses and EVSE developers to connect with property owners to arrange low-cost leases and land access agreements - Should include linkages to (and avoid conflicts with) networked greenways and bikeways to facilitate commute connections and mini-hubs	Contra Costa Co. (CA) EV 4 All Library Charging Program (County program to install public EV chargers at 15 public library sites (many city-owned) and promote EV awareness and workforce pathways, using federal CFI program funds) Detroit MI Highly Visible Electric Vehicle Corridor Development Program Identified corridors suitable for improved charging and retail access based on indicators such as “traffic data, job centers, community planning initiatives, tourist attractions and residential density” Michigan State Land Bank Authority (State program facilitating productive reuse of land by connecting developers and local governments with vacant properties) Oakland ZEV AP CL-2 (“Make a full accounting of City assets to catalogue the feasibility of siting public electric vehicle charging infrastructure. Develop a set of criteria for prioritizing candidate sites. Criteria may include technical feasibility, equity…lack of nearby public EV charging, number of rental and/or apartment buildings in the immediate area, and cost.”)

		San Diego CAP 2.3 SA-5 ("Explore the development of a citywide policy for surplus land that cannot be used for housing to be considered for EV charging prior to review for sale or other dispensation.")
E.6	**Develop pilot program for charging and mobility hubs**	
	- Could include mobility hubs that integrate EV parking/charging with transit and micromobility access and/or DC fast charging hubs dedicated to EVs (in the gas service station model) - Pilot project location priority should be given to priority communities - Should include collaboration with transit agencies to host charging at transit hubs that can both attract riders to transit services and provide community charging for station-neighboring communities - Includes inventorying publicly owned parking assets with ready utility access - Includes supporting adoption of transit agency charging policies/strategies to accompany the Action Plan	BART EV Charging Pilot (Commuter rail agency offers EV charging at two station parking lots and has offered an RFP to solicit bids for full-scale investment at more properties.) Contra Costa Co. EV Blueprint Strategy 16 (County transportation agency "could lead efforts to develop policies and improvements to support the development of mobility hubs that include electric options. Other stakeholders such as [utility and air district] could also have a role developing EV infrastructure that could be paired with mobility hubs.") East Bay Community Energy charging hubs program Approved plans to deliver 40-50 public fast charging hubs to serve nearby MFH residents. Leverage city-owned real estate and parking assets. Site selection criteria include: 1) close proximity to MFHs, 2) walkability to driver amenities, and 3) limited proximity to existing fast charging stations. Fresno Biz-Werx mobility hub (Downtown mobility hub offering membership-based carshare services. E-bikes will be added.) Oakland ZEV AP CL-3 ("The City will develop a "Smart and Equitable Mobility Hub" program, identifying goals, amenities, minimum services, fee structures, employment opportunities and responsible parties. Smart and Equitable Mobility Hubs will be placed in convenient locations to support the City's transportation priorities, including active and public transportation, shared and micromobility, and zero-emission vehicles.")

		Oakland ZEV AP (When creating the ZEV Plan, the City of Oakland engaged with Bay Area Rapid Transit to leverage the transit agency's plans to add EV charging to their parking facilities as a way to expand ZEV infrastructure on non-City-owned public property.) Sacramento AQMD mobility hub pilot program (The Mobility Hub encompasses four programs, including a community car share with 2 EVs, 4 EV charging stations, micro transit provided through a Lyft Concierge, and an electric shuttle to provide free rides to training centers for qualified students, located at a previously undeveloped city-owned lot in an underserved community. The second phase will include Wifi, a Digital Kiosk, and a Solar Canopy.) San Francisco CAP TLU.7-2(d) ("By 2023, create three 'fast-charging hubs' with one serving a disadvantaged community within San Francisco.") Takoma Park, MD Charging Hub Community center hosts a charging hub for nearby residents, primarily serving residents of 10+ nearby MFHs. Center is co-occupied by local policy department, city office, and city library and park; charging facility serves public/city vehicles during the day and is accessible for nearby residential use during late afternoon through early morning.
E.7	**Develop a strategy or requirement for charging at vehicle service stations**	
	- Impose requirement upon new construction of a service station or sale/major renovation of an existing station	LA pLAn ZEV chapter ("Initiate a design competition for the gas station of the future to meet the needs of both passenger and heavy duty vehicles.") Oakland ZEV AP PC-5 ("[D]evelop an ordinance requiring new service stations and those service stations proposed for renovation to install a minimum number of EV fast-charging stations as a condition of approval.")
E.8	**Develop a public charging subsidy program for lower-income drivers**	

	- Includes analysis of and strategies to address gap between cost of at-home charging and public/curbside charging - Incorporates local funds on top of state, regional, air district, energy provider, and private EVSE support - Could include requests for information/surveys of income-qualified neighborhoods with limited garage/private charging capabilities	Oakland ZEV AP PC-4 ("Study the possibility of subsidizing charging for low-income users, first by subsidizing electric vehicle parking and charging infrastructure in City-owned facilities." Also contemplates partnerships with other agencies like BART to reduce charging costs for low-income residents.) See universal basic mobility programs in F.4 below
E.9	**Evaluate wireless and inductive charging strategies**	
	- Wireless/inductive charging systems are novel but offer the potential to place charging in public roadways and parking spaces without cords or curb disruption and minimal access concerns	Detroit Wireless Charging pilot (Pilot partnership between Michigan DOT and wireless charging provider to install one-mile segment in Detroit.)
Advancing Equity *While robust publicly accessible charging will be a cornerstone of many equitable mobility strategies, the scale and use cases for this infrastructure will vary widely by local geography and demographics. Needs will likely be greatest in areas with a large quantity of multifamily housing and high proportion of renters, but local leaders will need to closely engage with stakeholders to identify appropriate, high-utility locations and charger designs for all residents who lack access to private off-street parking and/or sufficient capital. To sustain new charging infrastructure's utility and ongoing operation in priority areas, local leaders must pair installations with considerations of / accommodations for local residents' economic power to purchase or lease EVs. They should also proactively counter housing affordability and displacement threats that could emerge in public charging infrastructure's surrounding communities.*		

Link-out: City programs allowing residential EV charging across the public right-of-way

	Cambridge, MA	Portland, OR	Seattle, WA	Washington, DC
Mode of adoption (code/ ordinance/ guidance)	Department of Public Works pilot program	Bureau of Transportation administrative rule (TRN 8.08 C.13) adopted pursuant to city code rulemaking authority (3.12.040)	Department of Transportation guidance	Department of Transportation guidance
Program type	Annual permit	No permit required/allowed use	No permit required/allowed use	No permit required/allowed use
Cord location(s)	Sidewalk/cord cover Overhead	Sidewalk/cord cover	Sidewalk/cord cover	Sidewalk/cord cover
Charging type	Level 1 allowed Level 2 prohibited	Level 1 allowed Level 2 prohibited	Level 1 allowed Level 2 prohibited	Level 1 allowed Level 2 prohibited
Location restrictions	Only allowed for residential properties that lack off-street parking	Only allowed if no off-street parking available at property Only allowed in single-family residential zones and local traffic streets	Only allowed for ground-floor use in residential zones Guidance intended for users with no off-street parking but no formal restriction	Guidance is "primarily for properties with an adjacent sidewalk and available on-street parking" but no formal restriction
Parking restrictions	Applicant must hold a residential parking permit Standard parking rules apply Parking not guaranteed or reserved Signage prohibited	Standard parking rules apply Parking not guaranteed or reserved Signage prohibited	Standard parking rules apply Parking not guaranteed or reserved Signage prohibited	Standard parking rules apply Parking not guaranteed or reserved Signage prohibited
Design requirements	Overhead system must have aerial support with min. 9ft clearance and arm that can be retracted onto private property Ramp must be ADA compliant	Narrative requirements for ramp design, size, placement	Narrative and diagrammed requirements for ramp design per ADA rules, including for ½" and 1" cords	Narrative and diagrammed requirements for ramp design per ADA rules, including for ½" and 1" cords
Electrical requirements	Applicant must provide electrician's certification letter NEC compliant	NEC and local building code compliant Outlet located on private property linked to owner utility bill	NEC compliant Outlet associated with owner's utility account	NEC compliant Outlet associated with owner's utility account Rating of any equipment not fastened in place shall not exceed 80% of the branch circuit ampere rating
Use	In place only while charging, 12 hour	In place only while charging	In place only when charging	In place only when charging

restrictions	max	No commercial use/sale of power		
Liability	Permitee assumes all liability associated with the permitted use	User liable for ensuring compliance with requirements	--	--
Insurance	Permittee must show evidence of homeowner or renter insurance	--	--	Owner “should” consult with insurer to confirm adequate coverage ($1m suggested limit) and inquire about adding EV charger to policy
Enforcement	Superintendent of Streets may remove for health, safety, or PROW maintenance	Violations subject to right-of-way use enforcement program	Violations subject to city code provisions regulating PROW	Violations subject to city code provisions regulating PROW

F. Electric Shared Mobility and Micromobility

[Return to top]

Alternatives to traditional private vehicles such as carshare and rideshare, and micromobility options like e-bikes and scooters will play an important role in the overall transition to zero-emission transportation. Mobility hubs, which include equitable access to various transportation options and can be integrated with public transit, and shared mobility programs can meet the travel needs of a diverse range of residents, enhance community connectivity through short-distance travel, assist with public transportation planning by providing convenient last-mile options, and simultaneously reduce pollution from private vehicle ownership by providing a more efficient alternative. They are also central to most plans for eliminating transportation GHG emissions and reducing vehicle miles traveled (VMT)–for example, CARB's 2022 Scoping Plan to Achieve Carbon Neutrality calls for local investments in electric shuttles, car share, bike share, and microtransit to enhance low-carbon mobility and reduce VMT.[23]

While most residents who rely on private vehicles (due to a variety of land use and lifestyle factors) will likely continue to do so in the near term, shared and micromobility options offer a viable alternative that can reduce reliance on automobiles. Crucially, they can deliver on key mobility equity criteria–such as affordability and accessibility, pollution reduction, and neighborhood connectivity–while supplementing other existing modes.[24] Shared mobility can increase access to EVs and zero-emission mobility for those who may be unable to purchase or lease an electric vehicle, or are unfamiliar with zero-emission transportation, and can accelerate economic activity and wealth building. As the Greenlining Institute has noted, shared mobility "can improve mobility for residents of underserved communities, reduce traffic and dependence on cars, and be engines of economic empowerment that help reduce the racial wealth gap."[25]

Several analyses have confirmed the ways in which shared and micromobility programs can advance multiple goals of the transportation decarbonization transition. For example, e-bike programs have been found to replace some car commutes,[26] and car-share program users have self-reported that these programs help them to travel more frequently and to connect to places they otherwise would not be able to access.[27] Car-sharing programs have also been found to significantly reduce the need for private

[23] CARB, *2022 Scoping Plan to Achieve Carbon Neutrality* (December 2022), pp. 194, Appx. D p. 11, available at https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents.
[24] Greenlining Institute, *Mobility Equity Framework*, supra, pp. 12-18.
[25] Greenlining Institute, *Clean Mobility Equity: A Playbook*, p. 10, available at https://greenlining.org/publications/clean-mobility-transportation-equity-report/.
[26] Anders Anderson and Harrison G. Hong, "Welfare Implications of Electric-Bike Subsides: Evidence from Sweden," Swedish House of Finance (March 2022), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4054168.
[27] Adam Millard-Ball et al., Transportation Research Board, *Car-Sharing: Where and How It Succeeds* (2005), pp. 4-25, 4-27, available at https://nap.nationalacademies.org/catalog/13559/car-sharing-where-and-how-it-succeeds.

vehicle ownership (with round-trip programs having a greater impact than one-way programs)[28] and, as in the example of California's Míocar and BlueLA programs, they can be particularly effective in introducing EV technology to lower-income populations while meeting the mobility needs of communities that have historically lacked access. Micromobility programs can provide more cost effective transportation modes as compared to car ownership–although leaders must prioritize equitable pricing in program design–and provide increased mobility and healthier, more energy efficient modes of transport.[29]

Although these programs have the potential to be impactful in promoting equity across EV access and transportation, programs must be carried out in locally and culturally appropriate ways with input from the community to address their needs and concerns.[30] Transportation experts have noted that widespread knowledge about the availability of these services, separate application processes, confusing websites, non-culturally specific marketing, historic trends in which demographics use these services, and location of the services can all be barriers to effective implementation.[31] Additionally, conducting needs assessments is a key strategy to inform agency leaders and elected officials of local variations in transportation perception, knowledge, and need. For example, a Philadelphia focus group indicated low-income residents saw bikesharing mainly as a recreational activity, while an Oakland Spanish-speaking focus group was unaware of carsharing but were interested once informed.[32]

Electric shared mobility programs are a vital component of EV transition planning, but they must be implemented to meet the needs of the communities they serve. Local leaders should help identify and build community interest in and acceptance of shared and micro mobility prior to making commitments, in accordance with the engagement and inclusion strategies outlined in Section B.

To advance electric shared and micromobility goals while pursuing equitable outcomes, local government leaders can develop Action Plan strategies including:	
F.1	**Develop outreach and education program to inform residents about available car share and micromobility options and solicit input on high-priority options for different communities and commutes**

[28] Michiko Namazu and Hadi Dowlatabadi, "Vehicle Ownership Reduction: A comparison of one-way and two-way carsharing systems," Transport Policy (May 2018), p. 38, available at https://www.sciencedirect.com/science/article/abs/pii/S0967070X16307314.
[29] City of Oakland, *Zero Emissions Vehicle Action Plan*, supra, pp. 83-84.
[30] Greenlining Institute, *Mobility Equity Framework*, supra p. 15.
[31] Alexandra Pan and Susan Shaheen, UC Berkeley Institute for Transportation Studies, *Strategies to Overcome Transportation Barriers for Rent Burdened Oakland Residents* (March 2021), pp. 48-51, available at https://escholarship.org/uc/item/327773q9.
[32] *Id*. at pp. 48, 60.

	Notes/Description *(For the action in general)*	**Example/Precedent (Plans+Proposals+Pilots)** *(Representative, not exhaustive)*
	- Should include robust solicitation of community input (See Section B) on car-share, shared mobility, and micromobility options that can increase mobility within the jurisdiction, acknowledging that many land use patterns and commutes remain car-reliant and are not conducive to travel on bikes and scooters - Should integrate with city bike plan development and community input processes - Should solicit feedback from community based organizations and local and regional stakeholder committees, with strategies to target communities that have historically had gaps in access to mobility and the unbanked, who may not be able to use standard forms of payment - Should include information-sharing on shared and micromobility options and benefits	BlueLA Car Share Program (Developed a Steering Community comprising six local and diverse community organizations; which hosts community forums and conducts neighborhood outreach about the program.) Boston Request for Information (Boston put out a formal request to the local community for input on how to incorporate e-cargo bikes into the last-mile delivery ecosystem.) Oakland ZEV AP MM-7 ("In future updates to Oakland's Bike Plan, address how the growing use of e-bikes is affecting bike travel patterns. Consider including Actions to promote E-bike usage, particularly in neighborhoods with high VMT, high pollution burdens, and poorer transit access.") San Francisco CAP TLU.2-6 ("Update San Francisco's Bike Plan by 2023 to improve and expand the active transportation network with robust community input.") USDOE Project Lessons: EV Car Share (Federal website collecting descriptions of car-share program models and links to implemented examples from cities around the country)
F.2	**Create an EV car-sharing program based in priority communities**	
	- Can include expanding existing community mobility and shuttle programs projects to include EVs and include equity strategies to expand programs to lower-income, low-mobility communities - Includes provision of charging infrastructure and shared EVs at affordable/low-income housing sites, public/curbside locations, or other high-priority sites in need of enhanced mobility	Affordable Mobility Platform (AMP) (US DOE-funded EV car-share and Level 2 charging program at affordable housing locations in eight states including Idaho, Illinois, Michigan, Missouri, Nevada, New Mexico, North Carolina, Oregon, and Washington.) Boston Metropolitan Area Planning Council Good2Go Pilot (Nonprofit EV car-share with 6 locations and scaled membership/reduced

	- Should prioritize underserved communities through accurate site selection and community engagement, rather than relying solely on databases or census tracts - Should hire local residents to train and educate others when introducing new programs - Should build on existing community efforts and projects where possible to enhance program utility and increase program durability - May include additional e-mobility vehicles and charging - May include partnerships with local nonprofits and CBOs - May include sliding scale pricing systems and/or subsidized rates for lower-income drivers	rates for qualifying participants.) Boston ZEV Roadmap 1.3 (Plan to issue an EV car-share RFP prioritizing locations in environmental justice communities and near mobility hubs.) Clean Rural Shared Electric Mobility Project (Rural EV car-share program based at housing, city center, and tourist sites in Hood River, OR.) Detroit Climate Strategy 2.2 ("Pilot EV carshare services in neighborhoods underserved by transit") Green Raiteros (Rural rideshare program in Huron, CA, which emerged from a pre-existing informal, community-centered effort. Has both paid drivers and volunteer drivers from the community.) Los Angeles BlueLA EV carshare (EV carshare pilot with 40 locations focused in underserved communities, including steering community and engagement led by 6 CBOs. Funded by CA cap-and-trade program.) Oakland ZEV AP CL-3 ("The City will develop a "Smart and Equitable Mobility Hub" program, identifying goals, amenities, minimum services, fee structures, employment opportunities and responsible parties" including car-share and EV charging components.) Sacramento Our Community CarShare (Air quality district program offering EVs at subsidized rates for eligible residents at 10 communities in Sacramento, CA.) Stockton, CA Miocar Pilot (and Transformative Climate Communities Grant Sustainable Communities Plan CP 5.5) (100% EV car share network program with three locations at multifamily properties and a county agency office. "Stations will be in historically

		underserved neighborhoods where mobility challenges are well documented and where there's the greatest need." Funded by CA cap-and-trade program.) TransForm/MTC Oakland, Richmond, San Jose car share and mobility hub pilot program (Pilot mobility program for mobility hubs at three Bay Area multifamily housing properties including EV carshare components.) Twin Cities Evie Program (EV car-share program with 170 vehicles available for use in Minneapolis/St. Paul region, with monthly membership fee and student discount option.) Wilson, NC RIDE Program (On-demand rideshare program intended to serve lower-income, transit-dependent residents in lieu of fixed routes.)
F.3	**Create an e-bike or e-scooter lending library program or develop a purchase incentive program**	
	- Can include expanding existing bike and micro mobility projects to include ebikes and include equity strategies to expand programs to lower-income, low-mobility communities - Includes engagement with local bike shops and nonprofit partners to provide e-bike rentals at low daily or monthly cost and/or discounted purchases - Includes engagement with community members to identify priority locations, use cases, and bike types and assessment of safety and completeness of existing bike lanes/roads to identify prerequisite planning needs (e.g., bike and scooter investments will not prove useful if the road network does not support them) - May include income qualification or bifurcated rate structure, free access for lower-income riders, zero-fee/charge for no return policy, or purchase subsidy	Austin Energy E-Ride Rebate (Municipal utility e-bike and e-scooter rebate program with vouchers up to $1300 for income-qualified customers.) Berkeley E-Bike Lottery for Low-Income Residents (The City will choose 50 qualifying households by lottery to receive an electric bike. Each household will pay a $100 refundable deposit and receive bike equipment, such as a bike lock, and safety training). Boston ZEV Roadmap 1.4 (Plan to increase the accessibility of existing biking infrastructure by adding e-bikes in combination with expanded bike lanes, giving options to developers to build e-bike parking for compliance with local policies, and a Request for Information from the public to tailor the expansion to public needs.) Chicago E-Scooter Pilot Among other equity measures, the 2020 pilot guidelines mandated that

	- May include cargo e-bikes - While many e-bike rental and lending programs are operated by third parties, cities could consider direct ownership and management of assets to reduce overhead and offer lower rates	vendors deploy at least 50% of their fleet in an "Equity Priority Area," which encompassed about half of the city. Colorado Community Access to Electric Bicycles Rebate Program The CO Energy Office instituted an income-based tiered rebate program that provided participants funding ($500 - $1,350) for several types of e-bikes available through partnered retailers. Denver E-Bike Voucher Program Denver distributes tiered e-bike vouchers ($300 - $1,400) on a first-come, first-serve basis to income-qualified participants in partnership with local bike shops. Oakland E-Bike Lending Pilot Program (A state grant-funded program to provide vouchers for e-bike purchases/rentals in underserved communities, in partnership with local bike shops. Includes a community engagement program.) Oakland E-Scooter Program E-scooter program in which vendors must offer discounted rates to low-income populations and adaptive vehicles are available to differently abled residents. Oakland ZEV AP MM-1 ("Create an electric bike library to allow Oaklanders to check-out an electric bike for a long periods of time at low cost, like checking out a library book.") Portland E-Bike Incentive Program RFP (The City is planning an RFP for a program to provide e-bike and cargo e-bike purchase subsidies for income-qualified households, redeemable at local retailers with sales and repair services. Program will also fund e-bike mechanic job training. Funding is provided by the city's Clean Energy Community Benefits Fund.) San Francisco CAP TLU.2-2 ("Expand community programs and partnerships to make biking more accessible, via safety and maintenance classes, community parking, and

		subsidies for electric bikes for low-income residents.")
F.4	**Implement a universal basic mobility program/pilot**	
	- Includes provision of prepaid cards or other financial support to select residents for use on transit, shared, and micromobility services - Should include marketing and public information sessions - May include direct investment in new mobility services like EV charging, car-share, shuttles, and micromobility or vehicle electrification support for existing nonprofit transportation assistance services.	Los Angeles Universal Basic Mobility Program (City pilot program for South LA including monthly mobility wallet stipend, e-bike lending library, community shuttle, public EV charging, and more, funded by CA cap-and-trade program and city funds.) Oakland Universal Basic Mobility Pilot Program (City program providing prepaid $300 transit cards to low- and moderate-income residents of East and West Oakland plus discounted access to public and microtransit services, funded by county transit agency grants.) Portland Transportation Wallet Access for All (City Bureau of Transportation program providing prepaid transit cards, free bike-share access, and preloaded credit cards for use on transportation services for income qualified households, administered by local CBOs. Expansion planned through city's Clean Energy Community Benefits Fund.) ValleyCAN/Cal-ITP ZEV Equity Charging Card (A preloaded and reloadable contactless debit card designed to make it easier for priority communities to access and use mobility subsidies to be spent specifically on sustainable transportation, including ZEV charging, transit, and bike/scooter sharing, among others. Participants were largely low-income candidates identified from ZEV incentive programs and CBO partnerships. Funded by GO-Biz and a coalition of private and nonprofit partners.)
F.5	**Expand secure public parking and charging for e-bikes and e-scooters**	
	- Should include bike lockers at transit hubs and commercial destinations - Should include weather protection, particularly for e-bike storage and charging	BART Bikehub (Free secure bike parking is available at all rail stops, with select stations offering staff services, bike repairs, and parts/gear sales) Chicago Divvy Ebikeshare Program (Chicago DOT/Lyft partnership to pilot five locations hosting city bikeshare

	- May include building code requirements for onsite e-bike and scooter charging stations (plus safety requirements)	docks with integrated e-bike charging stations.) New York PlaNYC 22 ("Create thousands of secure public bike parking spots…Providing curbside access to secure bike storage for residents who lack access to bike storage, including for oversized models and e-bikes, will promote more frequent use.") Oakland ZEV AP MM-6 ("Identify strategies and seek funding to provide secure public bike storage and low-stress bikeways throughout the City and especially expanding to frontline communities.") San Diego CAP 2.3 SA-4 ("Amend the building code to require charging stations for electric bicycles.") San Francisco CAP TLU.2-2 ("Expand community programs and partnerships to make biking more accessible, via safety and maintenance classes, community parking, and subsidies for electric bikes for low-income residents.")
F.6	**Develop a pilot program for charging and mobility hubs**	
	- See action in Section E above	Oakland ZEV AP CL-3 ("Smart and Equitable Mobility Hubs will be placed in convenient locations to support the City's transportation priorities, including active and public transportation, shared and micromobility, and zero-emission vehicles. By 2024, develop a list of at least 10 candidate locations for Smart and Equitable Mobility Hubs across the city, with a majority located in and serving Priority Communities according to OakDOT's Geographic Equity Toolbox. By 2030, partner with relevant agencies to fund and develop at least 3 Smart and Equitable Mobility Hubs, with at least two located in Priority Communities.") Sacramento AQMD mobility hub (City/state/air district/private/nonprofit partnership including EV charging, community car-share, student ride-share, microtransit, electric shuttles, and

		other amenities at an underutilized site in a frontline community.)
F.7	**Develop local guidance for charging and mobility hubs**	
	- Includes detailed description of mobility hub components, amenities, safety, and design considerations - Includes guidance on site selection and development - Should include guidance on coalition formation (jurisdiction-jurisdiction, jurisdiction-community-business, etc.) to combine mobility options and funding streams	Bay Area MTC Mobility Hubs Implementation Playbook (Regional guide for local mobility hub development from component and amenity selection to governance models, funding sources, assessment, and equity.) Boston Neighborhood Mobility Hubs Guidebook (City guidebook describing mobility hub component parts and identifying top candidate locations for development.)
F.8	**Develop and/or expand protected bike lane and slow street networks (e.g. Complete Streets policies) that support e-bikes and e-micromobility**	
	- Should ensure that bike- and scooter-dedicated lanes as well as policies and design measures to enable safe road use for all travelers (cyclists, pedestrians, motorists, transit riders) encompass electrified options - Prioritizes safety while promoting locally appropriate efficient, low-emitting travel modes - Should consider the tradeoff between bike lane expansion and reduction of parking spaces and paired charging stations for prospective EV drivers who are deterred by limited charging options - Should consider pairing bike lane extension with anti-displacement measures	Detroit Climate Strategy 2.8 (“Make equitable investments in pedestrian and cyclist infrastructure”) San Francisco CAP TLU.2-1, 2-4, 2-6 (“Continue to expand programs that provide corridors that are attractive to all demographics for walking, biking, and using scooters, wheelchairs, and other small mobility devices.” “Expand the protected bikeway network by at least 20 miles by 2025.” “Update San Francisco’s Bike Plan by 2023 to improve and expand the active transportation network with robust community input.”) Smart Growth America Complete Streets Case Studies (Examples of Complete Streets policies adopted by diverse jurisdictions around the country, including Best of 2023 examples from jurisdictions such as El Paso, New Orleans, Tucson, and Howard County, MD) Smart Growth America Complete Streets Guidance (National guidance on Complete Streets policy development including best practices and links to jurisdictions that have adopted them)

F.9	**Implement EV ride-share and shuttle services for priority populations**	
	- May include linkages to and electrification of existing senior and social service/health care transportation programs	St. Louis Vehicle Electrification Rides for Seniors (Social service agency-administered community EV ride share service for senior citizens to access appointments, shopping, and other critical needs)
F.10	**Conduct local air quality monitoring exercises via bike and ebike share programs**	
	- Includes collaboration between local bike share programs, air quality/public health departments, and researchers - Should connect riders to publicly accessible website/map depicting the air quality data in real time	Bike air quality monitoring pilots (Programs in Boston, Houston, and elsewhere have piloted the approach to collect air quality data in neighborhoods not reached by current citywide monitoring programs)
Advancing Equity *The Greenlining Institute's Mobility Equity Framework emphasizes the importance of investing in sustainable transportation modes that meet the needs of specific communities. In many communities this will include private EV use, but in many areas it will also include e-mobility, shared mobility, and transit access that enhance mobility and connectivity, particularly for lower-income residents who are most likely to lack private automobiles. Increasing non-automobile travel is also a priority for state agencies like the California Air Resources Board's Scoping Plan to Achieve Carbon Neutrality, which calls for significant reductions in vehicle miles traveled, spearheaded by local governments. A robust and effective strategy for equitable EV charging should incorporate alternative modes that are appropriate for priority populations and often entail reduced capital and operational costs. Shared and micromobility strategies should also contain cost-control mechanisms to ensure that these programs maintain affordability for priority populations.*		

G. Medium- and Heavy-Duty Vehicles, Fleets, and Charging

[Return to top]

Medium- and heavy-duty (MHD) vehicles, such as delivery trucks, buses, and freight vehicles are particularly significant sources of harmful air pollution in all cities. Those that are home to major ports, distribution centers, industrial operations, and high-traffic highway corridors have a particular interest in electrifying MHD vehicles, and electrifying these vehicles is a matter of particular urgency for neighboring priority communities. US EPA offers a toolkit for local governments and ports seeking to engage port communities in environmental policy development.

SIDEBAR: Hydrogen and MHD Vehicles
Hydrogen fuel-cell technology has the potential to provide a pathway to zero-emissions medium- and heavy-duty vehicles that may compete with or complement battery electric technology. This Framework does not directly discuss hydrogen technologies for the MHD segment, but acknowledges this may be a viable alternative and is the subject of many public and private plans and investment strategies. Many of the actions in this section, while framed in the language of electrification, apply equally to both types of zero-emissions goods and people movement.

While MHD vehicles are only 5 percent of vehicles on the road they account for significant percentages of GHG emissions, over 70% of nitrogen oxide emissions, and are one of the largest sources of particulate matter, all of which are shown to have harmful health effects on surrounding communities–and those communities that face the brunt of this pollution are most often lower-income communities of color. Cities and communities that are home to major ports, distribution centers, industrial operations, and high-traffic highway corridors need to prioritize electrifying MHD vehicles to decrease the harmful emissions associated with these operations. In that sense, transitioning to zero-emission MHD vehicles serves a twofold purpose, both easing the pollution burden on vulnerable communities sited near port and industrial operations and contributing to the overall state goal of transitioning to a greener transportation system. Additionally, the economic ecosystem associated with MHD is a major employment source and the electrification of this sector could provide a foundation for the development of thousands of new, well-paying jobs for cities with the proper planning.

Ten states and Washington, DC have adopted the Advanced Clean Trucks standard which will steadily increase use of zero-emission MHD vehicles over the coming decades.[33] While local governments are not responsible for private fleet turnover, they often operate

[33] For more information on Advanced Clean Trucks, see https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/states-have-adopted-californias-vehicle-regulations. California's Advanced Clean Fleets regulation, which is not currently adopted outside the state, requires electrification of well-suited bus and truck fleets on a faster timeline. For more information, see https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets.

and maintain significant MHD fleets (see Section [_] for public fleet strategies) and, more broadly, they have an interest in ensuring the transition is smooth, delivers immediate air quality benefits to environmentally vulnerable communities, and minimizes business disruption for local businesses.

Many local governments will lead with public fleet electrification, including both light-duty departmental vehicles and medium- and heavy-duty service and transit vehicles, is an opportunity to use existing procurement processes and staff capabilities to advance zero-emissions goals. Local leaders should ensure that the first fleets to electrify are those that serve primarily in priority communities facing the greatest air pollution burdens and lowest visibility of EV technology. At the same time, local governments face a host of challenges to rapid fleet electrification, from the limited availability of EVs across all vehicle classes to inadequate electric grid capacity for charging. Developing solutions to these challenges can help inform approaches for broader public adoption. A comprehensive approach to MHD electrification could cover vehicles, charging, financing, workforce, and community benefits elements - many, but not all, within the purview of local governments.

To accelerate electrification of medium- and heavy-duty vehicles and fleets and address air quality and public health concerns for the highest-priority communities, local government leaders can adopt Action Plan strategies including:		
G.1	**Develop a plan and secure funding to transition all public fleet vehicles (MHD and light–duty) to zero-emissions**	
	Notes/Description *(For the action in general)*	**Example/Precedent (Plans+Proposals+Pilots)** *(Representative, not exhaustive)*
	- Includes city-owned bus, school bus, transit van, and truck fleets plus light-duty (e.g., staff, traffic, police, parks) fleet vehicles with priority placed on fleets operating in priority communities and with highest-impact routes - Includes both vehicle transition and supporting charging/fueling infrastructure availability at fleet parking lots and/or privately operated charging facilities - Includes fleet operator EV and charging training - Includes informational resources for school districts and transportation departments/transit agencies, such as State of	Ann Arbor Climate Action Plan 2.4 Sets target to electrify 90% of the city's fleet by 2025 Chicago Transit Authority Bus Electrification Plan (Comprehensive bus fleet electrification strategy including investment timeline and equity-based community prioritization) Detroit Climate Strategy 2.4.-2.6 ("Transition City light-duty vehicle fleet to 100% zero emission by 2034…Transition City heavy-duty vehicles to zero emission and clean fuel options…Transition City bus fleet to electric or clean fuel buses.")

	Michigan Community EV Toolkit - Fleet Electrification - Should connect city departments and third-party service providers (where applicable) to resources available through Bipartisan Infrastructure Law and Inflation Reduction Act and state funding sources such as California's Hybrid and Zero-Emission Truck and Bus Incentive Project and Virginia's Dominion Energy Electric School Bus Program and federal Clean Heavy Duty Vehicle Program, Low or No Emission Grant Program, and Clean School Bus Program - Should include local procurement preferences for charging installation and local hiring preferences for vehicle and charging maintenance (to the extent permitted by overarching procurement standards) to promote workforce development - May include strategy to allow crossover charging use for public fleet, private fleet, and community vehicles	Montgomery County School District (MD) (Largest electric school bus fleet in the US with a target of 100% zero-emission buses by 2035.) New York PlaNYC 23 ("Electrify school buses by 2035.") New York City Clean Fleet Plan (Strategic plan to reduce public fleet emissions 80% by 2035) Oakland ZEV AP CL-8 ("By 2030, ensure that over 50% of the City's fleet uses alternative fuels, with 100% of all non-emergency response sedan purchases being zero emission vehicles. By 2030, triple the number of electric vehicle chargers dedicated to fleet vehicles. By 2025, develop a feasibility study to identify zero emission and alternative fuel solutions for all City heavy-duty and emergency response vehicles and equipment.") San Francisco CAP TLU.7-3 ("By 2024, develop a plan to help the City's nonrevenue fleet and small and locally owned businesses build infrastructure that allows for zero emission delivery, drayage, and longer haul trucks.") San Francisco Environment Code § 404 (Requires all new light-duty fleet vehicles to be zero-emission vehicles) Twin Rivers Unified School District Electric Vehicle Blueprint (Plan to transition district's entire school bus fleet to electric including needs assessment, community consultation, and workforce development recommendations. District fleet includes over 70 electric buses and 35 compressed natural gas buses.)
G.2	**Identify MHD charging hub locations and develop a zoning update to permit them**	
	- Includes site selection process based on industrial and commercial sites, MHD travel corridors, community needs/impacts, and physical and grid capacity limitations given significant power and	Oakland ZEV AP MHD-1 ("By 2025, assess and identify sites where zero-emission MHD charging (for BEVs) or fueling (for green hydrogen) may be an appropriate allowable land

	infrastructure demands of MHD infrastructure - Includes identification of high-MHD-pollution routes and communities for priority investment as well as high-capacity areas of the electrical grid, such as through EPRI eRoadMAP - Includes engagement with utility and business leaders, community groups, ports and US military where applicable, and community groups - Includes zoning ordinance amendment to facilitate MHD charging as an allowable land use	use, either as a stand-alone use or in coordination with additional co-locatable land uses. The designation shall account for impacts to the surrounding community, including noise, traffic congestion, and potential air pollution or ground contamination. Site identification shall include a public process to help inform which sites would be optimal candidates to include…") Oakland Zoning and Air Pollution Mapping Tool (Online map tool combining data on air quality, commercial/industrial zoning, and major truck routes and hubs to identify high-priority MHD transition zones) San Diego CAP 2.3 SA-8 ("Continue to work with SANDAG, APCD, U.S. Navy, the Port of San Diego and other partners on medium and heavy duty (MD/HD) ZEV infrastructure planning. Consider future policies to advance MD/HD ZEV adoption and utilization in the Portside Communities, Border Communities, and other major logistics hubs.")
G.3	**Require MHD fleet vehicle host sites to upgrade for charging readiness and push electric utilities to support upgrades with capacity**	
	- Includes a requirement for industrial and commercial properties that host MHD fleet vehicles to invest in infrastructure and grid capacity upgrades for EV charging readiness, or to prepare a site plan for such investments - Includes proactively engaging electric utilities to upgrade distribution service where needed for charger interconnection, acknowledging that upgrade backlogs can delay projects by months if not years - Should include local government acknowledgment that capacity and service upgrades can serve both MHD fleet sites and surrounding communities' light-duty charging needs	Chicago 95th Street Bus Terminal (USDOT-funded $25 million project includes six EV bus chargers and capacity upgrades plus infrastructure for e-bike charging) Oakland ZEV AP MHD-2 ("By 2025, develop a plan to require existing business that own or host MHD fleet vehicles to invest in site upgrades for zero-emission charging/fueling infrastructure, or to provide a business and investment plan for those upgrades.")
G.4	**Create an interagency team to identify sites, facilitate permitting, and conduct outreach to fleet-operating businesses**	

	- Should include relevant city departments and external stakeholders such as utilities, ports, and major warehouse/distribution operators in the jurisdiction - Should include mechanisms to incorporate feedback from affected communities and report regularly to them	Oakland ZEV AP MHD-3 ("Within one year of plan adoption, finalize a Partnership Agreement among the Port of Oakland, EBCE, PG&E, and relevant City departments (including Planning and Building, Sustainability, Economic & Workforce Development, and Transportation) identifying roles and expectations, and establishing a quarterly Working Group among these parties to address issues of permitting, electric service upgrades, land use and transportation impacts, and related issues for planning and constructing MHD charging and fueling infrastructure.")
G.5	**Develop a community engagement and community benefits approach for MHD charging depot and port electrification developments**	
	- Includes establishing a set of community benefits and process considerations to be included in any city agreement for the development of large-scale MHD charging sites	San Diego Co. CBA Program (County-level initiative to programmatically incorporate community benefits agreements (CBAs) and similar strategies in renewable energy development proposals) San Pedro Bay Ports Clean Air Action Plan Stakeholder Advisory Group (Community/public group convenes regularly to review and provide input for port staff responsible for implementing clean air plan) West Oakland Community Action Plan (Air district-CBO collaboration to plan port community zero-emission transition)
G.6	**Establish city programs to support and incentivize private fleet electrification, including a small business engagement officer role to assist with accessing MHD clean vehicle incentives and technical assistance from public fleet managers who have led fleet electrification efforts**	
	- Includes connecting small businesses/fleets and individual truck owners to electrification incentives and resources - Includes engagement with port/MHD/clean air-focused CBOs such as Southwest Detroit Environmental Vision and West Oakland Environmental Indicators Project - Includes informational resources and hands-on technical assistance with electrification/charging basics, applications, and infrastructure	Ann Arbor Climate Action Plan 2.5 Sets target to electrify 50% of the private fleet by 2030 Electrification Coalition Freight Funding Guidance (Summarizes opportunities in the Inflation Reduction Act, Bipartisan Infrastructure Law, and other federal programs for MHD fleets.) New York Clean Trucks Program (City program providing financial incentives for EV truck replacements in key

	needs - Includes federal Inflation Reduction Act and Bipartisan Infrastructure Law opportunities as well as state programs like New Jersey Zero-Emission Incentive Program and New York Truck Voucher Incentive Program	economic development zones) New York PlaNYC 20 (Strategy to reduce truck pollution includes supporting actions such as implementing a low-emissions freight zone, ending truck idling, and promoting use of cargo bikes) Seattle City Light Fleet Electrification Program (Municipal utility program offering free guidance to local businesses seeking to electrify their vehicle fleets) Smart Columbus Electrified Dealer Program (City program that certifies dealers who commit to stocking and promoting EVs and participating in city trainings and information-sharing) State of Michigan Community EV Toolkit - Fleet Electrification (Guide to local fleet electrification including MHD information, funding opportunities, workforce development resources, and consulting services.)
G.7	**Identify and map local freight corridors for investment prioritization and that are eligible for federal/state clean freight corridor programs**	
	- Assessment should identify any areas that are part of state or federal MHD corridor funding for infrastructure that supports electrification -Examples include California Transportation Commission Clean Freight Corridor Efficiency Assessment and the California Energy Commission EnergIIZE commercial vehicle infrastructure funding program	CPUC Zero-Emissions Freight Planning (State process includes utility-led case study analysis of HD electrification needs at three high-priority freight corridors.) SE Michigan Council of Governments Freight Planning Efforts (Regional effort to plan freight corridor development and investment projects) West Oakland Community Action Plan (Community air quality plan includes mapping comparisons of ports and freight corridors, air quality distribution, community resources, and redlining.)
G.8	**Develop a workforce development plan and hiring requirements for port and MHD fleet electrification efforts**	
	- Allows cities to tap in to funding available through EPA's Clean Port	CA Public Utilities Code § 740.20

	Program and other state programs to ensure workforce opportunities for underserved communities	(Requires utility-funded charging infrastructure projects to include at least one electrician on each crew to hold an Electric Vehicle Infrastructure Training Program (EVITP) certification.) EPA's Clean Port Program (Local agencies with jurisdiction over a port or port authority may apply to two types of grant opportunities: 1) a planning competition; or 2) ZE technology including: ZE mobile equipment serving a port, ZE infrastructure serving mobile equipment, ZE technology deployment support)
G.9	**Adopt a zero-emissions vehicle transition roadmap for ports**	
	- Includes truck (road and drayage) electrification and charging commitments alongside other port emissions reduction strategies, including zero-emissions hydrogen vehicles and infrastructure where appropriate - Includes linkages to state port decarbonization programs, such as Washington Port Electrification Grant program	Port of Detroit Decarbonization Plan (Plan to achieve net zero port emissions by 2040 includes significant focus on community engagement and community benefits.) San Pedro Bay Ports Clean Air Action Plan (The ports of Long Beach and Los Angeles have adopted a joint clean air plan for ships, port equipment, and vehicles, including a technology advancement program and multiple truck electrification pilots.)
G.10	**Conduct a combined assessment of charging/grid needs, air quality benefits, and equity implications of MHD and port electrification**	
	- Conducting a combined assessment can help address the particularly complex infrastructural needs, resilience implications, air quality impacts, and high costs of MHD and port charging projects	Chicago Transit Authority Bus Electrification Plan (Includes evaluation of facility and capacity upgrade needs, plus air quality benefits assessment.) Seattle MHD Needs Assessment (Evaluation of citywide MHD electrification vehicle, charging, and grid/capacity needs including multiple fleet and charging types and anticipated charger counts by location, plus recommendations on equity in process.)
Advancing Equity *In 2019, the Bay Area Air Quality Management District partnered with the West Oakland Environmental Indicators Project, an environmental justice CBO based in the city's most heavily port- and freight-impacted community, to develop a community-scale air quality improvement plan largely dedicated to MHD strategies. The West Oakland Community Action Plan* identifies targets for criteria pollutant reductions, highlights specific emitting facilities and companies,		

and actions across land use, mobile source regulation, and more. It can serve as a model of MHD zero emissions planning centered in priority communities.

Charging for medium- and heavy-duty vehicles is particularly energy- and infrastructure-intensive, and truck traffic often brings noise pollution and road congestion along with its heavy air quality impact (which electrification will mitigate). Local leaders should take particular care to ensure that MHD charging depots are located at existing industrial and commercial sites or other locations appropriate for commercial activity and do not attract additional truck traffic to already-impacted communities without adequate community benefits.

H. Workplace EV Charging

[Return to top]

While reliable public transit is the lowest-emissions, lowest-cost option for commutes and should be prioritized in local climate action and transportation plans, people throughout the country rely on automobiles to get to work. As EV adoption increases, workplace charging will be in high demand and will play a vital role in the charging network in regions and cities where auto commutes prevail. Currently, about 80 percent of employers provide some form of parking access, and charging an EV during work hours affords the second-best window for long, low-cost charging (behind residential charging).[34] Convenient workplace charging facilitates EV adoption for drivers who lack access to reliable home charging options and helps complete the charging network for all drivers. Additionally, workplace charging tends to occur during the day when peak energy demand is lower and renewable energy production, like solar, is higher.[35]

Charging at workplaces can also serve multiple purposes–employee charging during the workday, and community charging overnight.[36] These "shared private" chargers may play a vital role in many localities' efforts to ensure reliable, convenient charging in a range of communities–for example, NREL estimates that nine of the top 10 most populous metropolitan areas in the US will have ten thousand or more workplace ports by 2030.[37] However, workplace charging to date has typically centered in upper-income office employment, and employers and local government leaders will need to expand it to a range of employment locations to serve all employees and residents who need it.[38] Across a range of workplace types and locations, workplace charging can serve as a valuable employee amenity and retention strategy, promoting local economic development through employee satisfaction.

As part of a comprehensive and equitable approach, local leaders should craft a set of strategies to promote safe and convenient vehicle charging during working hours for employees and after hours for community neighbors. These strategies can reflect the needs and locations of the specific employers and industries most relevant in the city and the unique ability of large institutions–as employers of large numbers of residents and in many cases owners of large parking facilities–to meet employee, customer, and

[34] Gordon Bauer et al., International Council on Clean Transportation, *Charging up America: Assessing the Growing Need for U.S. Charging Infrastructure Through 2030* (July 2021), p. 27 (July 2021), available at https://theicct.org/wp-content/uploads/2021/12/charging-up-america-jul2021.pdf. See also SoCal Edison, PEV Workplace Charging Pilot (2014), available at https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/w/6442453598-workplace-charging.pdf.

[35] Id., p. 17.

[36] See, e.g, CEC, *Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment*, supra, p. 37.

[37] NREL, *The 2030 National Charging Network*, supra, p. 44

[38] CEC, *Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment*, supra, pp. 43, 99.

community needs.[39] Public efforts should focus on employers located in priority communities with the potential to serve both employees and members of the community; employers throughout the jurisdiction whose employees commute from priority communities; strategies that ensure charging for access for employees least likely to have it at home; and on programs that link EV charging with shared mobility and transit options tailored to the commute context. Specific actions could include:

To promote workplace EV charging investment that serves employees, customers, and surrounding community members in a cohesive network with public and home charging and other mobility options, local government leaders can develop Action Plan strategies including:		
H.1	**Work with private employers to:** **1) survey employees and local residents on charging needs and preferences** **2) promote workplace charging programs**	
	Notes/Description *(For the action in general)*	**Example/Precedent (Plans+Proposals+Pilots)** *(Representative, not exhaustive)*
	- Should identify employers 1) with dedicated parking facilities in priority communities that can serve residents those communities and 2) employers jurisdiction-wide that can serve employees who commute from priority communities - Should work through local business and economic development coalitions that support businesses and building owners seeking to manage environmental impacts - Should focus on large employers that have financial/operational capacity to serve as charging hosts and on industry groups (e.g., restaurants, retail) to connect with smaller employers	2030 Districts Network (Nationwide coalition of city business districts and local buildings/businesses focused on environmental performance and emissions reduction, including transportation, with city members such as Cincinnati, Detroit, Pittsburgh, and Tucson.) Denver ZEV Roadmap ("Develop an education and outreach campaign, in conjunction with existing fleet and workplace electrification initiatives, to reach out to large fleet owners and large workplaces to educate them about the benefits of EVs and EV charging.") Electric Vehicle Adoption Leadership (EVAL) (National workplace EV charging certification network.)
H.2	**Partner with employers whose charging installations could serve employees and residents and provide/connect them with state- and utility-sponsored incentive programs**	

[39] See Drew Toher, Consumer Reports, *Charging the Future: The Role of Retail in our EV Transition* (March 2024), pp. 16-17, available at https://advocacy.consumerreports.org/wp-content/uploads/2024/02/ChargingTheFuture_final.pdf.

	- Includes schools, houses of worship, healthcare centers, and other community facilities (in particular those that serve as trusted resources for non-English speakers), as well as shopping/service destinations - Includes surveying employers on their willingness/barriers to provide infrastructure that serves employees, customers, and the neighboring public - Includes identifying workplaces with significant electrical capacity/infrastructure available to add charging and connecting workplaces with electric utilities and resources to identify grid upgrade needs, such as EPRI eRoadMAP - Includes consideration of transit park-and-ride facilities where commuters park vehicles for the workday (See Section [C]) and alternative charging options for workers whose employment is not based at a single location	California Interfaith Power & Light + Communities in Charge (Collaboration to enroll houses of worship in state-funded Level 2 community charging program.) CalTech EV charging (A CalTech research group has installed publicly accessible EV charging stations in campus garages) GE Workplace Charging Pilot (Pilot in which GE tested its Level 2 charging equipment at the workplace and studied demand and usage of chargers from employees.) Puget Sound Energy Up & Go Electric for Workplace (Utility program that covers up to 100% of workplace charging installation costs for businesses that demonstrate employee interest in EV adoption and willingness to promote EVs to employees) San Diego Gas & Electric Power Your Drive for Workplaces (Utility program offering rebates and technical assistance for workplace charging installations)
H.3	**Facilitate network for information-sharing among employers to provide charging and employee incentives to use EVs (and transit)**	
	- Includes links to programs that offer technical assistance for businesses seeking to install charging - Should include resources on use case for lower-powered charging for long-term employee use and to minimize high-cost installations - Can include discussion of charging formats and business models (i.e., shared public-private, public fleet charging commitments) to mitigate risk of underutilization and stranded assets	Charge@Work (USDOE-funded program providing an incentives database, project builder tool, community engagement support, and other resources for workplace charging installations.) Clean Mobility Equity Alliance (A peer network allowing members carrying out mobility projects to share successes and challenges.) Detroit BizGrid (A citywide network of organizations that offer support services to local businesses, such as permitting, real estate acquisition, and hiring.) Electric Vehicle Adoption Leadership (EVAL)

		(National workplace EV charging certification network designed to assist workplaces with charging installation and promote their efforts, with local government and private members around the country.) EMPOWER Project (Funded by US Department of Energy, this service partners with over 30 cities' Clean energy Coalitions which provide resources and support for employers to guide them to effective installations.)
H.4	**Require large employers to adopt commuter benefits programs**	
	- Includes pre-tax and subsidized costs for transit, shuttle, vanpools, and other incentives to commute via alternatives to single-occupancy vehicles - May include incentives for EV car-share/shuttle services or charging EVs used in car-share/carpools	Bay Area Commuter Benefits Program (Regional air quality agency program requiring businesses with 50+ employees to offer commuter benefits such as pre-tax transit cards.) District of Columbia "Parking Cashout Law" Employers in the District employing 20 or more covered employees that offer parking benefits to their employees must offer either a Clean Air Fringe Benefit to employees offered a parking benefit, develop a transportation demand management plan, or pay a Clean Air Compliance fee.
H.5	**Consider property tax breaks and other local tax incentives for businesses that host publicly accessible charging in priority communities**	
	- TBD	- TBD

Advancing Equity
To ensure equitable charging access, local leaders should focus on anchor employers that are centrally located in communities and able to serve both employees and residents. Workplaces with large parking lots have the potential to serve as key partners in installing large charging facilities at relatively low cost, since these lots can accommodate construction and new electrical infrastructure with limited disruption and delay, and site hosts can engage in upfront cost-sharing in exchange for a portion of revenues. Public schools with parking facilities may be particularly well suited to this task, since they are often located in or adjacent to residential neighborhoods,are often vacant overnight and on weekends, and employ a diverse range of local and regional community members. Workplace charging programs should also link to community benefits mechanisms, including Community Benefits Agreements (CBAs) if applicable, and other community benefits arrangements developed together with EV charging investments–for example, new development projects could include workplace-community EV charging installation as a benefit.

I. Physical Infrastructure Design, Accessibility, Safety, and Security

[Return to top]

The physical design of public EV charging and mobility infrastructure should be accessible, visible, and safe for both users and pedestrians. This includes not only compliance with the Americans With Disabilities Act and local and state requirements to ensure all users can access infrastructure, but also design standards to minimize disruption of pedestrian, transit, and non-motorized travel; maximize enhancement of public spaces; and incorporate universal design principles to promote usability for all.

Importantly, physical design should also ensure that publicly accessible infrastructure is secure against vandalism and tampering, a challenge that has faced some early-stage charging installations across the country and has the potential to hamper confidence (and slow progress) in the zero-emissions transition.[40] Some jurisdictions have responded by installing physical security measures such as custom metal cabinets to protect hardware,[41] while other approaches such as utility pole-mounted chargers with retractable cables and bring-your-own-cable chargers can address the risk via design. It is crucial that these measures protect public investments and ensure reliability while recognizing the impact of locating infrastructure in communities with low current EV use (e.g., displacement risk and the importance of community amenities) and the need for strategies that promote community interest and acceptance, rather than implying surveillance and policing.

To advance these goals, infrastructure design should incorporate community-centered amenities that meet local needs, improve urban streetscapes, facilitate upkeep and maintenance, and provide beneficial services where appropriate (including but not limited to those associated with gas stations, such as window and tire service, restrooms, food, and staffing). Infrastructure design should also account for site-appropriate power needs–avoiding overbuilding where fast-charging is not necessary–and accommodate future local renewable energy investments (e.g., distributed/community solar) where possible. Specific actions could include:

To ensure EV and new mobility infrastructure is accessible and safe for all, incorporates community-desired amenities, and enhances host neighborhoods, can develop Action Plan strategies including:		
I.1	**Develop siting and placement requirements for publicly accessible/ curbside charging stations**	
	Notes/Description	**Example/Precedent (Plans+Proposals+Pilots)**

[40] See, e.g., Wade Malone, "Electric Car Charger Vandalism Continues to Surge Nationwide, " InsideEVs (May 19, 2024), available at https://insideevs.com/news/719834/tesla-supercharger-copper-cables-vandalized/

[41] See, e.g., ABC30 Fresno, "Over 50 EV charging stations vandalized across Fresno (May 19, 2024), available at https://abc30.com/electric-vehicle-charging-stations-property-vandalized-custom-cabinets/14542407/.

	(For the action in general)	*(Representative, not exhaustive)*
	- Includes limitations on placement around conflicting curb uses and alternate transit modes, street signage and city/utility infrastructure, trees, etc. - Can be incorporated in residential and public/curbside charging ordinances - Should include requirements or guidance regarding charging unit and property/liability insurance for site hosts	London EV charging infrastructure location guidance (City guidance on public charging installations based on local need, location-specific design, geographic spread throughout city, and more.) Portland right-of-way permit placement and clearance rules (EVSE-specific public right-of-way utility permit with standards for design, placement, physical clearance, ADA/accessibility, and potential exceptions) San Francisco curbside EV charging pilot program guidelines (Include placement and accessibility requirements for pilot program participants)
I.2	**Develop design requirements to ensure accessibility and safety for publicly accessible/ curbside charging stations**	
	- Includes Americans with Disabilities Act (ADA) and California Building Code (CBC) compliance - Includes requirements/standards for lighting, security cameras, and emergency phone/alert systems - Can be incorporated in residential and public/curbside charging ordinances - Should apply to all publicly accessible charging in the jurisdiction	London EV charge point installation guidance (Design and location guidance including principles of safety, comfort, inclusivity, attractiveness, and more) Los Angeles Municipal Code § 99.04.106.4.2.2.1.3 ("...all EVSE, when installed, shall comply with the accessibility provisions for EV chargers in the California Building Code, Chapter 11B. EV ready spaces and EVCS in multi-family developments shall comply with California Building Code, Chapter 11A, Section 1109A.") Oakland ZEV AP PC-1, PC-2 ("Oakland's residential curbside EV charging policy should include strategies to address ADA accessibility, minimize damage from stormwater and irrigation, avoid conflict with other utilities in or traversing the curb, and minimize costs.") Portland right-of-way permit accessibility rules (Detailed placement, clearance and ground space requirements to ensure accessibility) US Access Board Design Recommendations

		(Federal recommendations for ADA and other federal law compliance for publicly accessible EV chargers and associated parking spaces.)
I.3	**Develop and procure installation strategies to reduce space conflicts, increase safety for users and reduce vandalism**	
	- Includes streetlight and utility pole chargers that use retractable charging cords and bring-your-own-cable systems - May involve siting publicly accessible chargers at or adjacent to businesses that are able to share security responsibilities	It's Electric curbside charging (Curbside installation model that includes minimal on-street pedestal infrastructure and bring-your-own-cable connection) Los Angeles streetlight charging pilot program (Pilot program with over 700 Level 2 chargers installed on existing streetlight poles managed by city streetlight bureau and municipal electric utility) Melrose, MA streetlight/pole-mounted charging pilot program (Pilot program with over 30 Level 2 chargers installed on streetlights and utility poles, comanaged by city and local electric utility) Orange Outlet Residential charging device excludes charging cables and allows residents to use their own
I.4	**Incentivize co-location of amenities and support services at charging sites**	
	- Includes restrooms, phones/outlets, lighting, convenience store and food sales, basic vehicle care services, service attendants, and park and rest areas - May include subsidized or accelerated permitting for qualifying applicants - May include coordination with local chambers of commerce to ensure businesses are consulted and informed about site selection	Electrify America San Francisco Flagship (Dedicated indoor EV charging hub with lighting, waiting area, restrooms, vending machines, and wifi.) Sacramento AQMD mobility hub (Includes community green space, wifi, and a solar canopy alongside transportation infrastructure)
I.5	**Promote addition of fast charging at existing fuel service stations and plans to convert to fast charging hubs**	
	- Supports installation at existing commercial sites that drivers are familiar with and that host vehicle- and travel-associated services;	California AB 1529 (State bill that would have directed an assessment of the suitability of

	also supports preservation of businesses that are often locally run franchises - May include requirement to add charging at point of sale or major renovation as a permit condition - May include design competition for EV charging stations/hubs for light-duty and heavy-duty vehicles	converting gas stations to charging stations and potential financial incentives for conversion.) LA pLAn ZEV chapter ("Initiate a design competition for the gas station of the future to meet the needs of both passenger and heavy duty vehicles.") Oakland ZEV AP PC-5 ("By 2024, develop an ordinance requiring new service stations and those service stations proposed for renovation to install a minimum number of EV fast-charging stations as a condition of approval. In developing the ordinance, include consideration of additional opportunities to require and encourage installation of ZEV charging and fueling infrastructure, including permit review and approval, business license application, economic development goals and incentives.")
I.6	**Require signage, technology and payment accessibility/ease of use**	
	- Where chargers and bike/car-share rental access points require payment or login, should include options to pay by app and by credit card to maximize access - Where access points include signage or instructions, should include multiple languages spoken locally - Local agencies should direct EVSE suppliers to existing federal and state standards, where applicable, to avoid patchworks	California EVSE Standards Regulation (State rule requiring multiple payment methods, connectivity options, and disclosures for public EV chargers)

Advancing Equity
Community-appropriate and community-centered design are crucial to ensuring that new EV charging and mobility infrastructure serve the areas that host them. This is a particularly locality-specific area of strategy and one that should reflect local mobility and streetscape preferences. Local governments will play a key role by establishing and communicating clear guidelines regarding accessibility and safety and procuring or permitting thoughtfully designed infrastructure. They should work with community groups and stakeholders early in the planning process to identify features, amenities, and accessibility needs that can drive the local design process.

Streetlight and utility pole charging–installing Level 2 chargers directly on streetlights and utility poles, using the existing electrical distribution to power the charger and the existing pole to hold the equipment–is one leading design strategy to meet the needs of public charging communities. Streetlight and utility

pole chargers typically do not require any street or pavement cuts or new power capacity, significantly reducing installation cost, complexity, and timelines for public and curbside installations. In addition, using elevated equipment with retracting charge cables reduces risk of damage and maintenance costs. Los Angeles, Seattle, and Melrose, MA have all successfully piloted this approach. However, in most cases it relies on close partnership with the electric utility that owns the power supply and utility poles–either a municipal utility or a private utility willing to invest. You can find case studies on these programs here.

J. Passenger Vehicle Access and Incentives

[Return to top]

State and federal programs (such as California's Clean Cars for All and federal EV tax rebates) are the primary source of financial incentives to make buying or leasing an EV more affordable for lower-income drivers. However, local governments can play a key role helping residents access and combine available financial support–and doing so will be crucial to ensure equity-oriented charging programs actually benefit the communities that host them.

While the overall goal of transportation decarbonization will require greater investment in public transit and reducing VMT, the reality of ensuring equity in this transition requires contending with the necessity of personal vehicle access in many communities. Nearly 92% of American households own at least one car,[42] and the vast majority of American workers rely on single-occupancy or pooled vehicle travel for their commute, with the greatest disparities in transit access among lower- and moderate-income commuters.[43] Several recent studies have highlighted the value car ownership has, particularly for impoverished Americans.

One study found that the wealth gap between households that own a car and those that do not is about as wide as the wealth gap between homeowners and renters.[44] Among low-income families receiving federal housing assistance those with cars were twice as likely to find a job and four times as likely to remain employed.[45] Post-pandemic data shows that a greater share of commuters in poverty are using personal vehicles to get to work than non-impoverished commuters.[46] Therefore, wealthier households actually have less need for personal vehicles than the working poor. Further, impoverished households with access to personal vehicles tended to live in communities with higher quality of life factors including neighborhoods with less health risks, lower poverty rates, and better educational outcomes.[47] In many American communities, car ownership is necessary to access resources and quite

[42] 2022 American Community Survey data, available at https://data.census.gov/table/ACSDP5Y2022.DP04.
[43] 2022 American Community Survey data, available at https://data.census.gov/table/ACSST1Y2022.S0802?t=Commuting.
[44] David A. King at el., "The Poverty of the Carless: Toward Universal Auto Access." Journal of Planning Education and Research (2022), 464-481, available at https://journals.sagepub.com/doi/10.1177/0739456X18823252.
[45] Rolf Pendall et. al., Urban Institute, *Driving to Opportunity: Understanding the Links among Transportation Access, Residential Outcomes, and Economic Opportunity for Housing Voucher Recipients* (2014), available at https://www.urban.org/sites/default/files/publication/22461/413078-Driving-to-Opportunity-Understanding-the-Links-among-Transportation-Access-Residential-Outcomes-and-Economic-Opportunity-for-Housing-Voucher-Recipients.PDF.
[46] Wendell Cox, New Geography, "Poverty Level Workers Use Cars in Commuting More than Others," available at https://www.newgeography.com/content/007610-poverty-level-workers-use-cars-commuting-more-others.
[47] Rolf Pendall et. al., *Driving to Opportunity*, supra.

literally a vehicle to better opportunities. Though lower-income families are already prioritizing personal vehicles, ownership can tend to come with higher costs including the price of the car itself, higher insurance rates, and more expensive upkeep costs.[48] To ensure these families benefit from, and are not burdened by, the transition to EVs, cities should be proactive in promoting access to affordable vehicles–including shared, leased, and used options–in parallel with efforts to ensure equitable access to affordable infrastructure.

To ensure all residents have access to the financial and informational programs needed to make the switch to an EV at the appropriate time, local governments can develop Action Plan strategies including:		
J.1	**Create a public staff liaison and/or partner with existing agency staff and local community organizations to connect residents with available rebates and incentives**	
	Notes/Description *(For the action in general)*	**Example/Precedent (Plans+Proposals+Pilots)** *(Representative, not exhaustive)*
	- See actions in Sections B and C - Where public agencies lack resources and capacity (existing or through grants) to commit dedicated staff to this role, county and city social services staff (who have experience in benefits access and outreach) can be effective partners. - Includes federal, state, and utility-provided incentive programs, with support for combining/stacking multiple programs. For example, Electric For All directs users to federal, state, and local incentives available by zip code, and the Southern Alliance for Clean Energy Electric Transportation Toolkit includes vehicle and charging funding pathways.	Austin Energy EV Buyers Guide Public utility webpage with information on EVs and purchase incentives and directory to local purchasing opportunities. Contra Costa KEYS Auto Loan Program (Low-income auto loan support program is conducted through existing human services case managers.) GRID Alternatives EV One-Stop Shop (Pilot collaboration with state air regulator and Greenlining Institute to streamline and improve access to clean transportation-related incentives available to income-qualified consumers; increase low-income residents' awareness of clean transportation options; and provide opportunities for consumers to access state incentives.) Seattle Dept. of Neighborhoods community liaisons partnerships (City program working with "embedded community leaders from a variety of

[48] Julia Angwin et al., "*Minority Neighborhoods Pay Higher Car Insurance Premiums than White Areas with the Same Risk*,"ProPublica (April 2017), available at https://www.propublica.org/article/minority-neighborhoods-higher-car-insurance-premiums-white-areas-same-risk.

		immigrant and refugee communities, communities of color, and communities of seniors, youth, and people with disabilities" to conduct community outreach on planning and transportation efforts. A similar model could be employed for EV rebates and incentives, or existing municipal transportation staff could be devoted part-time to connecting residents with rebates and incentives.)
J.2	**Assist residents in connecting with existing state, federal, and nonprofit programs that provide assistance to low-income households in purchasing and leasing EVs**	
	- Includes web materials, outreach events, and staff to raise residents' awareness and assist with enrollment. - Includes direct government outreach and efforts conducted by trusted CBOs and neighborhood groups, in multiple languages - Includes links and access assistance for state programs like Clean Vehicle Assistance Program, Driving Clean Assistance Program, Clean Cars for All, Access Clean California, state EV tax credit/rebate programs (e.g., CO, MD NY) and federal tax credits for new and used EVs, including leases in some cases - Includes linkages to programs like Vehicles for Change, Working Cars for Working Families, Hand Up Cars - USDOE state law and incentive directory includes links to EV rebate and grant programs in all 50 states - PlugStar provides a directory to available vehicles and incentives - May focus on gasoline "superusers" who have the longest commutes and stand to benefit the most from more efficient, lower-cost fueling technology while delivering the greatest emissions reductions	ReCharge ColoradoCoaches (Regional officers who connect residents, businesses, etc with information on monetary savings, grant opportunities, and more to advance the adoption of EVs and charging infrastructure.)

J.3	**Provide auto loans to low-income households that have difficulty in obtaining EV financing and connect residents to EV and used EV dealers and financing companies**	
	- May include direct lending through social services agencies or through city/county/state green bank programs that provide low-cost capital for clean energy investments - Should include information and contacts to verified dealers and financing companies serving the EV market	Contra Costa KEYS Auto Loan Program (County low-interest auto loan program for eligible state benefits program recipients who have difficulty obtaining an auto loan from other sources.) Smart Columbus Electrified Dealer Program (City program that certifies dealers who commit to stocking and promoting EVs and participating in city trainings and information-sharing) Dealers and financing companies focused on EVs and used EVs (Includes financing providers Tenet and EV Life, used vehicle marketplaces EV Auto and KeySavvy, and used EV market information hub Recurrent)
J.4	**Urge state lawmakers to provide EV sales tax exemptions or tax credits to incentivize the donation of used EVs for discounted sale to low-income households**	
	- Can connect with state-level vehicle trade-in programs that provide financial incentives for residents to trade an older gasoline-powered vehicle for an EV, such as Clean Cars For All	West Virginia HB 4547 (2020) (Proposed program to provide tax credits for sale of donation of used vehicles to qualified organizations that provide low-cost vehicles and financing to low-income residents.) Washington Excise Tax Code § 82.08.809 (Retail excise tax exemption for sale of new EVs.)
J.5	**Sell used public fleet EVs or lease vehicles directly at low cost for qualifying residents**	
	- Should include at-cost sale of used EVs to residents of priority communities, lower-income residents, and public sector workers who can serve as EV ambassadors - Allows local agencies to compound public value of investments in fleet electrification as technology evolves	Washington Transportation Electrification Strategy I.3.2 ("To provide additional support for LMI communities…Commerce is considering a social leasing program, wherein individuals below an income threshold can lease EVs at an affordable monthly rate.")
J.6	**Implement an EV bulk-buy program**	

	- Leverages jurisdiction-wide capacity to procure vehicles at discounted bulk rates and pass on savings to residents	Ann Arbor Climate Action Plan 2.3 Proposal to support bulk purchases of new and used EVs to achieve 10-15% discount – potentially including e-scooter and e-bike options.
Advancing Equity *States across the country are beginning to offer EV purchase and lease incentives tailored to those most in need of support in transitioning to an EV. The California Air Resources Board's Clean Cars for All programs combined with the federal income tax credit for EV purchases and leases are all limited to lower- and middle-income drivers and can lower the cost of acquiring a vehicle by up to $20,000 in some cases. Many electric utilities, community choice aggregators, and regional agencies also offer additional rebates. EV affordability for many priority populations will rely on stacking all available incentives and rebates. A small-scale city investment in staff time and web materials (or partnership with a trusted community-based organization) to assist residents in accessing state and federal funds will generate significant return on investment for eligible drivers and for the local economy.*		

About the EV Equity Initiative

The Center for Law, Energy & the Environment's EV Equity Initiative seeks to build locally tailored, community driven, and replicable approaches to the development of electric vehicle and mobility infrastructure in underserved communities in California and across the U.S. Our team and project partners can support local EV equity strategies through policy analysis, action plan development, implementation guidance, stakeholder engagement, priority site mapping, and more. We are pleased to be partnering with The Greenlining Institute, Forth, and the Towards Equitable Electric Mobility (TEEM) Community of Practice on policy development and stakeholder engagement efforts, ProspectSV on financing and revenue strategies, and the UC Berkeley Renewable and Appropriate Energy Lab on mapping and data analysis.

This draft is for review and feedback purposes only.

Visit https://www.law.berkeley.edu/research/clee/ev-equity/ for any questions.

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